Appendix F Modeling

U.S. Bureau of Reclamation Reinitiation of Consultation on the Long-Term Operation of the Central Valley Project and State Water Project

Modeling to Support the May 2019 EIS Admin Draft Analysis

No Action Alternative, Alternative 1, Alternative 2, Alternative 3, and Alternative 4

F.1 Introduction

The U.S. Bureau of Reclamation (Reclamation), Reinitiation of Consultation on Long-Term Operation of the Central Valley Project (CVP) and State Water Project (SWP) (ROC on LTO) project team has developed model simulations to support analysis of CVP and SWP long-term operations as part of developing an Environmental Impact Statement (EIS), for completion in June 2019.

The results of model simulations are provided for informational purposes. Please do not use any information contained in these products for any purpose other than those related to the Reclamation ROC on LTO process. If there are any questions regarding the results of these model simulations, please contact the Reclamation ROC on LTO team.

Any use of results of model simulations should observe limitations of the models used as well as the limitations to the modeled alternatives. These results should only be used for comparative purposes. More information regarding limitations of the models used as well as the limitations to the modeled alternatives is included Appendix F Attachment 2-7, *Model Limitations*.

F.2 Modeled Alternatives

The following action alternatives were prepared:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019043019

The assumptions used for each alternative and each model listed above are documented in the following attachments:

- Appendix F Attachment 2-1, *Model Assumptions*
- Appendix F, Attachment 2-2, *CalSim II Model Assumptions Callouts*
- Appendix F, Attachment 2-3, *DSM2 Model Assumptions Callouts*

- Appendix F, Attachment 2-4, *HEC-5Q and Reclamation Temperature Model Assumptions Callouts*
- Appendix F, Attachment 2-5, *CalSim II Model Delivery Specifications*
- Appendix F, Attachment 2-6, *Winter Run Chinook Temperature-Dependent Egg Mortality Modeling*
- Appendix F, Attachment 2-7, *Model Limitations*

The following is a summary of the alternatives and the models used.

No Action Alternative

The No Action Alternative represents CVP and SWP operations to comply with the "current" regulatory environment as of (December 27, 2017) under projected Year 2030 conditions. The No Action Alternative assumptions include existing facilities and ongoing programs that existed as of December 27, 2017, the publication date of the Notice of Intent (NOI). The No Action Alternative assumptions also include facilities and programs that received approvals and permits by December, 2017, because those programs were consistent with existing management direction as of the Notice of Intent. The No Action Alternative model does not include any potential future habitat restoration areas due to the uncertainty of system effects depending on potential locations of such areas within the Delta.

Alternative 1

Alternative 1 represents CVP and SWP operations with modified Shasta temperature, Delta Smelt habitat, and Old and Middle River (OMR) actions to incorporate real-time monitoring and focusing water resources on locations and timing with the most benefits for fish. Alternative 1 includes the New Melones Stepped Release Plan to obtain a more sustainable operation on the Stanislaus River, as well as the 2017 Flow Management Standard and "planning minimum" for the American River.

Alternative 2

Alternative 2 represents CVP and SWP operations with only D1641 regulations.

Alternative 3

Alternative 3 represents CVP and SWP operations with only D1641 regulations and 25,000 acres of habitat restoration in the Sacramento–San Joaquin Delta (Delta).

Alternative 4

Alternative 4 is intended to represent CVP and SWP operations under higher regulation than Alternative 1. In addition to Alternative 1, flows from the Sacramento, Feather American Rivers are increased up to 55% of unimpaired instream flow, and Delta exports are reduced for positive combined Old and Middle River flows from March through May, resulting in increased Delta outflow. Flows from CVP and SWP reservoir releases are limited to preserve storage conditions for upstream habitat and to not exacerbate flood conditions..

The following model simulations were prepared for each alternative:

- CalSim II
- HEC-5Q

- Reclamation Temperature Model
- DSM2
- Winter-Run Chinook Temperature-Dependent Egg Mortality Models

F.3 CalSim II

The Reclamation/California Department of Water Resources (DWR) CalSim II planning model was used to simulate the coordinated operation of the CVP and SWP over a range of hydrologic conditions. CalSim II is a generalized reservoir-river basin simulation model that allows for specification and achievement of user-specified allocation targets, or goals (Draper et al. 2004). CalSim II represents the best available planning model for CVP and SWP system operations and has been used in previous system-wide evaluations of CVP and SWP operations (Reclamation 2015).

F.4 HEC-5Q

Over the past 15 years, various temperature models were developed to simulate temperature conditions on the rivers affected by CVP and SWP operations (SRWQM, San Joaquin River HEC-5Q model) (Reclamation 2008). Recently, these models were compiled and updated into a single modeling package called in here as the HEC-5Q model. Further updates were performed under the LTO EIS modeling that included improved meteorological data and subsequent validation of the Sacramento and American River models, implementation of the Folsom Temperature Control Devices and low-level outlet, implementation of the Trinity auxiliary outlet, improved temperature targeting for Shasta and Folsom Dams, as well as improved documentation and streamlining of the models as well as improved integration with the CalSim II model (Reclamation 2015).

F.5 Reclamation Temperature Model

Reclamation Temperature Model includes reservoir and stream temperature models, which simulate monthly reservoir and stream temperatures used for evaluating the effects of CVP/SWP project operations on mean monthly water temperatures in the basin (Reclamation 2008). The model simulates temperatures in seven major reservoirs (Trinity, Whiskeytown, Shasta, Oroville, Folsom, New Melones, and Tulloch), four downstream regulating reservoirs (Lewiston, Keswick, Goodwin, and Natoma), and five main river systems (Trinity, Sacramento, Feather, American, and Stanislaus Rivers). The river component of the Reclamation Temperature model calculates temperature changes in the regulating reservoirs, below the main reservoirs. With regulating reservoir release temperature as the initial river temperature, the river model computes temperatures at several locations along the rivers. The calculation points for river temperatures generally coincide with tributary inflow locations. The model is one-dimensional in the longitudinal direction and assumes fully mixed river cross sections. The effect of tributary inflow on river temperature is computed by mass balance calculation. The river temperature calculations are based on regulating reservoir release temperatures, river flows, and climatic data (Reclamation 2015).

F.6 DSM2

DSM2 is a one-dimensional hydrodynamic and water quality simulation model used to simulate hydrodynamics, water quality, and particle tracking in the Sacramento–San Joaquin Delta (DWR 2002). DSM2 represents the best-available planning model for Delta tidal hydraulic and salinity modeling. It is appropriate for describing the existing conditions in the Delta, as well as performing simulations for the assessment of incremental environmental impacts caused by future facilities and operations (Reclamation 2015).

F.7 Winter-Run Chinook Temperature-Dependent Egg Mortality Models

Two egg mortality estimation methods were used for evaluating Winter-Run Chinook Salmon habitat on the Sacramento River downstream of Keswick Dam. Both models start by modeling a redd's lifetime by counting the days required to cross a known cumulative degree-days threshold, and both estimate mortality as a linear, increasing function of temperature past a known temperature threshold, but each uses a different set of assumptions to implement this conceptual model. The methods are applied to a set of simulated redds and the results are summarized on a seasonal level for comparison of mortality outcomes between HEC-5Q model runs. The Martin model was developed for estimating temperature-dependent egg mortality in the field and fit its parameters to Sacramento River Winter-Run Chinook Salmon population data collected between 1996 and 2015 (Martin et al. 2017). The Anderson model uses field data from 2002 through 2015, a critical period just before hatching was found to provide the best fit (Anderson 2018).

F.8 Model Results for Modeled Alternatives

F.8.1 Model Results

The results for each alternative for each model are compiled in tables and charts in the following attachments:

- Appendix F, Attachment 3-1, *Storage and Elevation Results (CalSim II)*
- Appendix F, Attachment 3-2, *Flow Results (CalSim II)*
- Appendix F, Attachment 3-3, *Diversion Results (CalSim II)*
- Appendix F, Attachment 3-4, *Temperature Results (HEC-5Q)*
- Appendix F, Attachment 3-5, *Temperature Results (Reclamation Temperature Model)*
- Appendix F, Attachment 3-6, *Salinity (EC) Results (DSM2-QUAL)*
- Appendix F, Attachment 3-7, *X2 Position Results (DSM2-QUAL)*
- Appendix F, Attachment 3-8 ,*Winter-Run Chinook Temperature Dependent Egg Mortality Results (Martin and Anderson Models)*
- Appendix F, Attachment 3-9, *Water Supply Results (CalSim II)*
- Appendix F, Attachment 3-10, *Chloride Results (DSM2-QUAL)*

Each attachment includes a catalog of results included.

As noted in the Introduction any use of results of model simulations should observe limitations of the models used as well as the limitations to the modeled alternatives. These results should only be used for comparative purposes. More information regarding limitations of the models used as well as the limitations to the modeled alternatives is included Appendix F, Attachment 2-7, *Model Limitations*.

F.8.1.1 *Formats Provided*

The following formats are provided:

- Monthly tables comparing two alternatives (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all action alternatives
- Monthly exceedance charts (all months) including all action alternatives

F.9 References

Anderson, James. 2018. *Using river temperature to optimize fish incubation metabolism and survival: a case for mechanistic models*. doi:10.1101/257154.

California Department of Water Resources (DWR), Modeling Support Branch. Last updated September 2002. Available: http://modeling.water.ca.gov/. Accessed: February 4, 2011.

Draper, A. J., Munévar, A., Arora, S. K., Reyes, E., Parker, N. L., Chung, F. I., and Peterson, L. E. 2004. CalSim: Generalized Model for Reservoir System Analysis. American Society of Civil Engineers, Journal of Water Resources Planning and Management, Vol. 130, No. 6.

Martin, B. T., A. Pike, S. N. John, N. Hamda, J. Roberts, S. T. Lindley, and E. M. Danner. 2017. Phenomenological vs. biophysical models of thermal stress in aquatic eggs. *Ecology Letters* 20:50–59.

U.S. Bureau of Reclamation (Reclamation). 2008.

U.S. Bureau of Reclamation (Reclamation). 2015. *Coordinated Long-Term Operation of the CVP and SWP EIS*, Appendix 5A CalSim II and DSM2 Modeling.

Attachment 2-1 Model Assumptions

1 Introduction

The following model simulations were prepared to evaluate the impacts of different project operations at projected Year 2030 climate conditions:

- No Action Alternative 011319
- Alternative 1 011519 (ALT1)
- Alternative 2 021719 (ALT2)
- Alternative 3 021719 (ALT3)
- Alternative 4 043019 (ALT4)

Sections 2 through 6 describe the assumptions used for each model simulation. Section 7 describes the assumptions used for Year 2030 climate conditions. Section 8 lists references cited.

The assumptions for all model simulations are also summarized in table format in the following attachments:

- Appendix F Attachment 2-2 CalSim II Model Assumptions Callouts
- Appendix F Attachment 2-3 DSM2 Model Assumptions Callouts
- Appendix F Attachment 2-4 HEC5Q and Reclamation Temperature Model Assumptions Callouts
- Appendix F Attachment 2-5 CalSim II Model Delivery Specifications
- Appendix F Attachment 2-6 Winter Run Chinook Temperature-Dependent Egg Mortality Modeling

Any use of results of model simulations should observe limitations of the models used as well as the limitations to the modeled alternatives. These results should only be used for comparative purposes. More information regarding limitations of the models used as well as the limitations to the modeled alternatives is included Appendix F Attachment 2-7 Model Limitations.

2 Assumptions for the No Action Alternative

This section presents the assumptions used in developing the CalSim II, DSM2, HEC5Q, Reclamation Temperature Model and Egg Mortality Model simulations of the No Action Alternative considered for the ROC on LTO ESA Consultation.

The No Action Alternative represents CVP and SWP operations to comply with the "current" regulatory environment as of (December 27, 2017) under projected Year 2030 conditions. The No Action Alternative assumptions include existing facilities and ongoing programs that existed as of December 27, 2017- publication date of the Notice of Intent (NOI). The No Action Alternative assumptions also include facilities and programs that received approvals and permits by December, 2017 because those

programs were consistent with existing management direction as of the Notice of Intent. The No Action Alternative model does not include any potential future habitat restoration areas due to the uncertainty on system effects depending on potential locations of such areas within the Delta.

The No Action Alternative includes projected climate change and sea level rise assumptions corresponding to the Year 2030. Change in climate results in the changes in the reservoir and tributary inflows included in CalSim II. The sea level rise changes result in modified flow-salinity relationships in the Delta. The climate change and sea level rise assumptions at Year 2030 are described in detail in Section 7. The CalSim II simulation for the No Action Alternative does not consider any adaptation measures that would result in managing the CVP and SWP system in a different manner than today to reduce climate impacts. For example, future changes in reservoir flood control reservation to better accommodate a seasonally changing hydrograph may be considered under future programs but are not considered under this consultation.

2.1 CalSim II Assumptions for the No Action Alternative

The following is a description of the assumptions tabulated in Appendix F Attachment 2-2 CalSim II Model Assumptions Callouts.

Hydrology

Inflows/Supplies

The CalSim II model includes the historical hydrology projected to Year 2030 with climate change and with projected 2020 modifications for operations upstream of the rim reservoirs. The climate change representation is the same as the Bay-Delta Conservation Plan Early Long-term Q5 climate scenario (ICF, 2016).

Level of Development

CalSim II uses a hydrology which is the result of an analysis of agricultural and urban land use and population estimates. The assumptions used for Sacramento Valley land use result from aggregation of historical survey and projected data developed for the California Water Plan Update (Bulletin 160-98). Generally, land use projections are based on Year 2020 estimates (hydrology serial number 2020D09E), however the San Joaquin Valley hydrology reflects draft 2030 land use assumptions developed by Reclamation. Where appropriate Year 2020 projections of demands associated with water rights and CVP and SWP water service contracts have been included. Specifically, projections of full build out are used to describe the American River region demands for water rights and CVP contract supplies, and California Aqueduct and the Delta Mendota Canal SWP/CVP contractor demands are set to full contract amounts.

CVP Settlement Contractor Consumptive Use of Applied Water (CUAW) Demands are modified to match historical annual volumes and monthly distributions, based on historical data from 2000 – 2016. The monthly distributions of annual contract amounts were also modified to match the distributions of CUAW demand.

Demands, Water Rights, CVP/SWP Contracts

CalSim II demand inputs are preprocessed monthly time series for a specified level of development (e.g. 2020) and according to hydrologic conditions. Demands are classified as CVP project, SWP project,

local project or non-project. CVP and SWP demands are separated into different classes based on the contract type. A description of various demands and classifications included in CalSim II is provided in the 2008 OCAP BA Appendix D (USBR, 2008a).

The detailed listing of CVP and SWP contract amounts and other water rights assumptions are included in the delivery specification tables in Appendix F Attachment 2-5 CalSim II Model Delivery Specifications. The demand assumptions are not modified for changes in climate conditions.

Facilities

All CVP-SWP existing facilities are simulated based on operations criteria under current regulatory environment.

CalSim II includes representation of all the existing CVP and SWP storage and conveyance facilities. Assumptions regarding selected key facilities are included in the callout tables in Appendix F Attachment 2-2 CalSim II Model Assumptions Callouts.

CalSim II also represents the flood control weirs such as the Fremont Weir located along the Sacramento River at the upstream end of the Yolo Bypass (Reclamation, 2017).

The No Action Alternative also includes the Freeport Regional Water Project, located along the Sacramento River near Freeport and the City of Stockton Delta Water Supply Project (30 mgd capacity).

A brief description of the key export facilities that are located in the Delta and included under the No Action Alternative run is provided below.

The Delta serves as a natural system of channels to transport river flows and reservoir storage to the CVP and SWP facilities in the south Delta, which export water to the projects' contractors through two pumping plants: CVP's C.W. Jones Pumping Plant and SWP's Harvey O. Banks Pumping Plant. Jones and Banks Pumping Plants supply water to agricultural and urban users throughout parts of the San Joaquin Valley, South Lahontan, Southern California, Central Coast, and South San Francisco Bay Area regions.

The Contra Costa Canal and the North Bay Aqueduct supply water to users in the northeastern San Francisco Bay and Napa Valley areas.

Fremont Weir

Fremont Weir is a flood control structure located along the Sacramento River at the head of the Yolo Bypass. To enhance the potential benefits of the Yolo Bypass for various fish species, the Fremont Weir is assumed to be notched to provide increased seasonal floodplain inundation in all of the alternatives simulated for this consultation. For this alternative, it is assumed that an opening in the existing weir and operable gates are constructed at invert elevation 14 feet along with two smaller openings and operable gates at invert elevation 18 feet.

CVP C.W. Bill Jones Pumping Plant (Tracy PP) Capacity

The Jones Pumping Plant consists of six pumps including one rated at 800 cfs, two at 850 cfs, and three at 950 cfs. Maximum pumping capacity is assumed to be 4,600 cfs with the 400 cfs Delta Mendota Canal (DMC) –California Aqueduct Intertie that became operational in July 2012.

SWP Banks Pumping Plant Capacity

SWP Banks pumping plant has an installed capacity of about 10,300 cfs. The SWP water rights for diversions specify a maximum of 10,300 cfs, but the U. S. Army Corps' of Engineers (ACOE) permit for SWP Banks Pumping Plant allows a maximum pumping of 6,680 cfs. With additional diversions depending on Vernalis flows the total diversion can go up to 10,300 cfs during December 15 – March 15. Additional capacity of 500 cfs (pumping limit up to 7,180 cfs) is allowed to reduce impact of NMFS BO Action 4.2.1 on the SWP.

CCWD Intakes

The Contra Costa Canal originates at Rock Slough, about four miles southeast of Oakley, and terminates after 47.7 miles at Martinez Reservoir. Historically, diversions at the unscreened Rock Slough facility (Contra Costa Canal Pumping Plant No. 1) have ranged from about 50 to 250 cfs. The canal and associated facilities are part of the CVP; but are operated and maintained by the Contra Costa Water District (CCWD). CCWD also operates a diversion on Old River and the Alternative Intake Project (AIP), the new drinking water intake at Victoria Canal, about 2.5 miles east of Contra Costa Water District's (CCWD) intake on the Old River. CCWD can divert water to the Los Vaqueros Reservoir to store good quality water when available and supply to its customers.

Regulatory Standards

The regulatory standards that govern the operations of the CVP and SWP facilities under the No Action Alternative are briefly described below. Specific assumptions related to key regulatory standards are also outlined below.

D-1641 Operations

The SWRCB Water Quality Control Plan (WQCP) and other applicable water rights decisions, as well as other agreements are important factors in determining the operations of both the Central Valley Project (CVP) and the State Water Project (SWP).

The December 1994 Accord committed the CVP and SWP to a set of Delta habitat protective objectives that were incorporated into the 1995 WQCP and later, were implemented by D-1641. Significant elements in D-1641 include X2 standards, export/inflow (E/I) ratios, Delta water quality standards, real-time Delta Cross Channel operation, and San Joaquin flow standards.

Coordinated Operations Agreement (COA)

The CVP and SWP use a common water supply in the Central Valley of California. Reclamation and DWR have built water conservation and water delivery facilities in the Central Valley in order to deliver water supplies to project contractors. The water rights of the projects are conditioned by the SWRCB to protect the beneficial uses of water within each respective project and jointly for the protection of beneficial uses in the Sacramento Valley and the Sacramento-San Joaquin Delta Estuary. The agencies coordinate and operate the CVP and SWP to meet the joint water right requirements in the Delta.

The Coordinated Operations Agreement (COA), signed in 1986, defines the project facilities and their water supplies, sets forth procedures for coordination of operations, identifies formulas for sharing joint responsibilities for meeting Delta standards as they existed in SWRCB Decision 1485 (D-1485),

identifies how unstored flow will be shared, sets up a framework for exchange of water and services between the Projects, and provides for periodic review of the agreement.

Reclamation and DWR re-negotiated COA in 2018 and this ROC on LTO includes the new COA. The amendment stipulates a change in responsibility for making storage withdrawals to meet in-basin use (as noted in Table 1) and a change in export capacity when exports are constrained (Table 2).

Table 1. Sharing of Responsibility for Meeting In-basin Use

	CVP	SWP
W	80%	20%
AN	80%	20%
BN	75%	25%
D	65%	35%
C	60%	40%

Table 2. Sharing of Applicable Export Capacity When Exports Are Constrained

	CVP	SWP
Balanced Water Conditions	65%	35%
Excess Water Conditions	60%	40%

CVPIA (b)(2) Assumptions

The No Action Alternative includes a dynamic representation of the Central Valley Project Improvement Act (CVPIA) 3406(b)(2) water allocation, management and related actions (B2). The selection of discretionary actions for use of B2 water in each year was based on a May 2003 Department of the Interior policy decision. The use of B2 water is assumed to continue in conjunction with the USFWS and NMFS BO RPA actions. CalSim II does not dynamically account for the use of (b)(2) water, but rather assumes pre-determined upstream fish objectives for Clear Creek. Other (b)(2) actions are assumed to be accommodated by USFWS and NMFS BiOp RPA actions.

Continued CALFED Agreements

The Environmental Water Account (EWA) was established in 2000 by the CALFED Record of Decision (ROD). The EWA was initially identified as a 4-year cooperative effort intended to operate from 2001 through 2004 but was extended through 2007 by agreement between the EWA agencies. It is uncertain, however, whether the EWA will be in place in the future and what actions and assets it may include. Because of this uncertainty, the EWA has not been included in the current CalSim II implementation.

One element of the EWA available assets is the Lower Yuba River Accord (LYRA) Component 1 water. In the absence of the EWA and implementation in CalSim II, the LYRA Component 1 water is assumed to be transferred to South of Delta (SOD) State Water Project (SWP) contractors to help mitigate the impact of the NMFS BO and D1641 on SWP exports during April and May. An additional 500 cfs of capacity is permitted at Banks Pumping Plant from July through September to export this transferred water.

USFWS Delta Smelt BO Actions

The USFWS Delta Smelt BO was released on December 15, 2008, in response to Reclamation's request for formal consultation with the USFWS on the coordinated operations of the Central Valley Project (CVP) and State Water Project (SWP) in California. To develop CalSim II modeling assumptions for the RPA documented in this BO, DWR led a series of meetings that involved members of fisheries and project agencies. This group has prepared the assumptions and CalSim II implementations to represent the RPA in the CalSim II model. The following actions of the USFWS BO RPA have been included in the No Action Alternative CalSim II model simulation:

- Action 1: Adult Delta smelt migration and entrainment (RPA Component 1, Action 1 – First Flush)
- Action 2: Adult Delta smelt migration and entrainment (RPA Component 1, Action 2)
- Action 3: Entrainment protection of larval and juvenile Delta smelt (RPA Component 2)
- Action 4: Estuarine habitat during Fall (RPA Component 3)
- Action 5: Temporary spring head of Old River barrier and the Temporary Barrier Project (RPA Component 2)

A detailed description of the assumptions that have been used to model each action is included in the technical memorandum "Representation of U.S. Fish and Wildlife Service Biological Opinion Reasonable and Prudent Alternative Actions for CalSim II Planning Studies", prepared by an interagency working group under the direction of the lead agencies. This technical memorandum is included in the Appendix 5A of the LTO EIS (Reclamation 2015b).

NMFS BO Salmon Actions

The NMFS Salmon BO on long-term operations of the CVP and SWP was released on June 4, 2009. To develop CalSim II modeling assumptions for the RPA's documented in this BO, DWR led a series of meetings that involved members of fisheries and project agencies. This group has prepared the assumptions and CalSim II implementations to represent the RPA in the CalSim II model for future planning studies. The following NMFS BO RPA's have been included in the No Action Alternative CalSim II model simulation:

- Action I.1.1: Clear Creek spring attraction flows
- Action I.4: Wilkins Slough operations
- Action II.1: Lower American River flow management
- Action III.1.3: Stanislaus River flows below Goodwin Dam
- Action IV.1.2: Delta Cross Channel gate operations
- Action IV.2.1: San Joaquin River flow requirements at Vernalis and Delta export restrictions
- Action IV.2.3: Old and Middle River flow management

For Action I.2.1, which calls for a percentage of years that meet certain specified end-of-September and end-of-April storage and temperature criteria resulting from the operation of Lake Shasta, no specific CalSim II modeling code is implemented to simulate the performance measures identified.

A detailed description of the assumptions that have been used to model each action is included in the technical memorandum "Representation of National Marine Fisheries Service Biological Opinion Reasonable and Prudent Alternative Actions for CalSim II Planning Studies", prepared by an interagency working group under the direction of the lead agencies. This technical memorandum is included in the in Appendix 5A of the LTO EIS (Reclamation 2015c) and is incorporated here by reference.

Water Transfers

Lower Yuba River Accord (LYRA)

Acquisitions of Component 1 water under the Lower Yuba River Accord, and use of 500 cfs dedicated capacity at Banks PP during July – September, are assumed to be used to reduce as much of the impact of the Apr – May Delta export actions on SWP contractors as possible.

Phase 8 transfers

Phase 8 transfers are not included in the No Action Alternative simulation.

Short-term or Temporary Water Transfers

Short term or temporary transfers such as Sacramento Valley acquisitions conveyed through Banks PP are not included in the No Action Alternative simulation.

Specific Regulatory Assumptions

Upper Sacramento Flow Management

Model includes SWRCB WR 90-5 and NMFS BO (Jun 2009) Action I.2.2 achieved as possible through other modeled actions.

Lower Feather Flow Management

Model includes 1983 DWR, DFG Agreement (minimum flow 750 – 1,700 cfs, depending on runoff and month).

Lower American Flow Management

The 2006 American River Flow Management Standard (ARFMS) is included in the No Action Alternative.

The flow requirements of ARFMS are further described in Reclamation 2006.

Delta Outflow (Flow and Salinity)

SWRCB D-1641:

All Delta outflow requirements per SWRCB D-1641 are included in the No Action Alternative simulation. Similarly, for the February through June period the X2 standard is included in the No Action Alternative simulation.

USFWS BO (December, 2008) Action 4:

USFWS BO Action 4 requires additional Delta outflow to manage X2 in the fall months following wet and above normal years to maintain an average X2 for September and October no greater (more eastward) than 74 kilometers following wet years and 81 kilometers following above normal years. In November, the inflow to CVP/SWP reservoirs in the Sacramento Basin should be added to reservoir releases to provide an added increment of Delta inflow and to augment Delta outflow up to the fall X2 target. This action is included in the No Action Alternative simulation.

Combined Old and Middle River Flows

USFWS BO restricts south Delta pumping to preserve certain OMR flows in three of its Actions: Action 1 to protect pre-spawning adult Delta smelt from entrainment during the first flush, Action 2 to protect pre-spawning adults from entrainment and from adverse hydrodynamic conditions, and Action 3 to protect larval Delta smelt from entrainment. CalSim II simulates these actions to a limited extent.

Brief description of USFWS BO Actions 1-3 implementations in CalSim is as follows: Action 1 is onset based on a turbidity trigger that takes place during or after December. This action requires limit on exports so that the average daily OMR flow is no more negative than -2,000 cfs for a total duration of 14 days, with a 5-day running average no more negative than -2,500 cfs (within 25 percent of the monthly criteria). Action 1 ends after 14 days of duration or when Action 3 is triggered based on a temperature criterion. Action 2 starts immediately after Action 1 and requires a range of net daily OMR flows to be no more negative than -1,250 to -5,000 cfs (with a 5-day running average within 25 percent of the monthly criteria). The Action continues until Action 3 is triggered. Action 3 also requires net daily OMR flow to be no more negative than -1,250 to -5,000 cfs based on a 14-day running average (with a simultaneous 5-day running average within 25 percent). Although the range is similar to Action 2, the Action implementation is different. Action 3 continues until June 30 or when water temperature reaches a certain threshold. A more detailed description is included in the Appendix 5A of the LTO EIS (Reclamation 2015b).

NMFS BO Action 4.2.3 requires OMR flow management to protect emigrating juvenile winter-run, yearling spring-run, and Central Valley steelhead within the lower Sacramento and San Joaquin rivers from entrainment into south Delta channels and at the export facilities in the south Delta. This action requires reducing exports from January 1 through June 15 to limit negative OMR flows to -2,500 to -5,000 cfs. CalSim II assumes OMR flows required in NMFS BO are covered by OMR flow requirements developed for actions 1 through 3 of the USFWS BO as described in the Appendix 5A of the LTO EIS (Reclamation 2015c).

South Delta Export-San Joaquin River Inflow Ratio

NMFS BO Action 4.2.1 requires exports to be capped at a certain fraction of San Joaquin River flow at Vernalis during April and May while maintaining a health and safety pumping of 1,500 cfs.

Exports at the South Delta Intakes

Exports at Jones and Banks Pumping Plant are restricted to their permitted capacities per SWRCB D-1641 requirements. In addition, the south Delta exports are subjected to Vernalis flow-based export limits during April and May as required by Action 4.2.1. Additional 500 cfs pumping is allowed to reduce impact of NMFS BO Action 4.2.1 and D1641 on SWP during the July through September period.

Under D-1641 the combined export of the CVP Tracy Pumping Plant and SWP Banks Pumping Plant is limited to a percentage of Delta inflow. The percentage ranges from 35 to 45 percent during February

depending on the January eight river index and is 35 percent during March through June months. For the rest of the months 65 percent of the Delta inflow is allowed to be exported.

A minimum health and safety pumping of 1,500 cfs is assumed from January through June.

Delta Water Quality

The No Action Alternative simulation includes SWRCB D-1641 salinity requirements. However, not all salinity requirements are included as CalSim II is not capable of predicting salinities in the Delta. Instead, empirically based equations and models are used to relate interior salinity conditions with the flow conditions. DWR's Artificial Neural Network (ANN) trained for salinity is used to predict and interpret salinity conditions at the Emmaton, Jersey Point, Rock Slough and Collinsville stations. Emmaton and Jersey Point standards are for protecting water quality conditions for agricultural use in the western Delta and they are in effect from April 1 to August 15. The EC requirement at Emmaton varies from 0.45 mmhos/cm to 2.78 mmhos/cm, depending on the water year type. The EC requirement at Jersey Point varies from 0.45 to 2.20 mmhos/cm, depending on the water year type. The Rock Slough standard is for protecting water quality conditions for M&I use for water exported through the Contra Costa Canal. It is a year-round standard that requires a certain number of days in a year with chloride concentration less than 150 mg/L. The number of days requirement is dependent upon the water year type. The Collinsville standard is applied during October through May months to protect water quality conditions for migrating fish species, and it varies between 12.5 mmhos/cm in May and 19.0 mmhos/cm in October.

The sea level rise change assumed at the Year 2030 results in a modified flow – salinity relationship in the Delta. An ANN, which is capable of emulating DSM2 results under the 15-cm sea level rise condition at the Year 2030 is used to simulate the flow-salinity relationship in CalSim II simulation for the No Action Alternative.

San Joaquin River Restoration Program

Friant Dam releases required by the San Joaquin River Restoration Program are included in the No Action Alternative, Alternative 1, Alternative 2, Alternative 3, and Alternative 4. More detailed description of the San Joaquin River Restoration Program is presented in the Appendix 3A "*No Action Alternative: Central Valley Project and State Water Project Operations*" of the LTO EIS (Reclamation 2015a).

Operations Criteria

Fremont Weir Operations

To provide seasonal floodplain inundation in the Yolo Bypass, the 14- and the two 18-foot elevation gates are opened between November 1 and March 15. The gates would open to allow a maximum flow of 6,000 cfs when the water surface elevation in the river reaches 28 feet. The gates are operated to limit maximum spill to 6,000 cfs until the Sacramento River stage reaches the existing Fremont Weir crest elevation. When the river stage is at or above the existing Fremont Weir crest elevation, the notch gates are assumed to be closed. While desired inundation period is on the order of 30 to 45 days, gates are not managed to limit to this range, instead the duration of the event is governed by the Sacramento River flow conditions. The spills at about 21 feet river stage would be around 1,000 cfs. This operation is further described in the Yolo Bypass Salmonid Habitat Restoration and Fish Passage EIS/EIR Alternative 1.

Delta Cross Channel Gate Operations

SWRCB D-1641 DCC standards provide for closure of the DCC gates for fisheries protection at certain times of the year. From November through January, the DCC may be closed for up to 45 days. From February 1 through May 20, the gates are closed every day. The gates may also be closed for 14 days during the May 21 through June 15 time period. Reclamation determines the timing and duration of the closures after discussion with USFWS, CDFW, and NMFS.

NMFS BO Action 4.1.2 requires gates to be operated as described in the BO based on the presence of salmonids and water quality from October 1 through December 14; and gates to be closed from December 15 to January 31, except for short-term operations to maintain water quality. CalSim II includes the NMFS BO DCC gate operations in addition to the D-1641 gate operations. When the daily flows in the Sacramento River at Wilkins Slough exceed 7,500 cfs (flow assumed to flush salmon into the Delta), DCC is closed for a certain number of days in a month as described in Appendix 5A of the LTO EIS (Reclamation 2015b). During October 1 – December 14, if the flow trigger condition is such that additional days of DCC gates closure is called for, however water quality conditions are a concern and the DCC gates remain open, then Delta exports are limited to 2,000 cfs for each day in question.

Allocation Decisions

CalSim II includes allocation logic for determining deliveries to north-of-Delta and south-of-Delta CVP and SWP contractors. The delivery logic uses runoff forecast information, which incorporates uncertainty in the hydrology, and standardized rule curves (i.e. Water Supply Index versus Demand Index Curve). The rule curves relate forecasted water supplies to deliverable "demand," and then use deliverable "demand" to assign subsequent delivery levels to estimate the water available for delivery and carryover storage. Updates of delivery levels occur monthly from January 1 through May 1 for the SWP and March 1 through May 1 for the CVP as runoff forecasts become more certain. The south-of-Delta SWP delivery is determined based on water supply parameters and operational constraints. The CVP system wide delivery and south-of-Delta delivery are determined similarly upon water supply parameters and operational constraints with specific consideration for export constraints.

San Luis Operations

CalSim II sets targets for San Luis storage each month that are dependent on the current South-of-Delta allocation and upstream reservoir storage. When upstream reservoir storage is high, allocations and San Luis fill targets are increased. During a prolonged drought when upstream storage is low, allocations and fill targets are correspondingly low. For the No Action Alternative simulation, the San Luis rule curve is managed to minimize situations in which shortages may occur due to lack of storage or exports.

New Melones Operations

In addition to flood control, New Melones is operated for four different purposes: fishery flows, water quality, Bay-Delta flow, and water supply.

Fishery

In the No Action Alternative, fishery flows refer to flow requirements of the 2009 NMFS BO Action III.1.3 (NMFS 2009). These flows are patterned to provide fall attraction flows in October and outmigration pulse flows in spring months (April 15 through May 15 in all years) and total up to 98.9 TAF to 589.5 TAF annually depending on the hydrological conditions based on the New Melones water

supply forecast (the end-of-February New Melones Storage, plus the March - September forecast of inflow to the reservoir) (Tables 3 through 5).

Table 3. Annual Fishery Flow Allocation in New Melones

New Melones Water Supply Forecast (TAF)	Fishery Flows (TAF)
0 to 1,399.9	185.3
1,400 to 1,999.9	234.1
2,000 to 2,499.9	346.7
2,500 to 2,999.9	483.7
≥3,000	589.5

Table 4. Monthly "Base" Flows for Fisheries Purposes Based on the Annual Fishery Volume

Annual Fishery Flow Volume (TAF)	Monthly Fishery Base Flows (cfs)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr 1–15	May 16–31	Jun	Jul	Aug	Sep
98.9	110	200	200	125	125	125	250	250	0	0	0	0
185.3	577.4	200	200	212.9	214.3	200	200	150	150	150	150	150
234.1	635.5	200	200	219.4	221.4	200	500	284.4	200	200	200	200
346.7	774.2	200	200	225.8	228.6	200	1,471.4	1,031.3	363.3	250	250	250
483.7	796.8	200	200	232.3	235.7	1,521	1,614.3	1,200	940	300	300	300
589.5	841.9	300	300	358.1	364.3	1,648.4	2,442.9	1,725	1,100	429	400	400

Table 5. April 15 through May 15 "Pulse" Flows for Fisheries Purposes Based on the Annual Fishery Volume

Annual Fishery Flow Volume (TAF)	Fishery Pulse Flows (CFS)	
	April 15–30	May 1–15
185.3	687.5	666.7
234.1	1,000.0	1,000.0
346.7	1,625.0	1,466.7
483.7	1,212.5	1,933.3
589.5	925.0	2,206.7

Water Quality

Water quality releases include releases to meet the State Water Resources Control Board (SWRCB) Decision 1641 (D-1641) salinity objectives at Vernalis and the Decision 1422 (D-1422) dissolved oxygen objectives at Ripon. The Vernalis water quality requirement (SWRCB D-1641) is an electrical conductivity (EC) requirement of 700 and 1000 micromhos/cm for the irrigation (Apr-Aug) and non-irrigation (Sep-Mar) seasons, respectively.

Additional releases are made to the Stanislaus River below Goodwin Dam if necessary, to meet the D-1422 dissolved oxygen content objective. Surrogate flows representing releases for DO requirement in CalSim II are presented in Table 6. The surrogate flows are reduced for critical years where New Melones water supply forecast (the end-of-February New Melones Storage, plus the March - September forecast of inflow to the reservoir) is less than 940 TAF. These flows are met through releases from New Melones without any annual volumetric limit.

Table 6. Surrogate flows for D1422 DO requirement at Vernalis (TAF)

	Non-Critical Years	Critical Years
January	0.0	0.0
February	0.0	0.0
March	0.0	0.0
April	0.0	0.0
May	0.0	0.0
June	15.2	11.9
July	16.3	12.3
August	17.4	12.3
September	14.8	11.9
October	0.0	0.0
November	0.0	0.0
December	0.0	0.0

Bay-Delta Flows

Bay-Delta flow requirements are defined by D-1641 flow requirements at Vernalis (not including pulse flows during the April 15 - May 16 period). These flows are met through releases from New Melones without any annual volumetric limit. D-1641 requires the flow at Vernalis to be maintained during the February through June period. The flow requirement is based on the required location of "X2" and the San Joaquin Valley water year hydrologic classification (60-20-20 Index) as summarized in Table 7.

Table 7. Bay-Delta Vernalis Flow Objectives (average monthly cfs)

60-20-20 Index	Flow Required if X2 is West of Chipps Island	Flow required if X2 is East of Chipps Island
Wet	3,420	2,130
Above Normal	3,420	2,130
Below Normal	2,280	1,420
Dry	2,280	1,420
Critical	1,140	710

Water Supply

Water supply refers to deliveries from New Melones to water rights holders (Oakdale Irrigation District and South San Joaquin Irrigation District) and CVP eastside contractors (Stockton East Water District and Central San Joaquin Water Control District). Water is provided to Oakdale ID and South San Joaquin ID

in accordance with their 1988 Settlement Agreement with Reclamation (up to 600 TAF based on hydrologic conditions), limited by consumptive use. The conservation account of up to 200 TAF storage capacity defined under this agreement is not modeled in CalSim II.

Water Supply-CVP Eastside Contractors

Annual allocations are determined using New Melones water supply forecast (the end-of- February New Melones Storage, plus the March - September forecast of inflow to the reservoir) for Stockton East WD and Central San Joaquin WCD (Table 8) and are distributed throughout a year using monthly patterns.

Table 8. CVP Contractor Allocations

New Melones Water Supply Forecast (TAF)	CVP Contractor Allocation (TAF)
<1,400	O
1,400 to 1,800	49
>1,800	155

2.2 DSM2 Assumptions for No Action Alternative

The following is a description of the assumptions listed in Appendix F Attachment 2-3 DSM2 Model Assumptions Callouts.

River Flows

For DSM2 simulation, the river flows at the DSM2 boundaries are based on the monthly flow time series from CalSim II.

Tidal Boundary

The tidal boundary condition at Martinez is based on an adjusted astronomical tide normalized for sea level rise (Ateljevich and Yu, 2007) and is modified to account for the sea level rise using the correlations derived based on three-dimensional (UnTRIM) modeling of the Bay-Delta with sea level rise at Year 2030.

Water Quality

Martinez EC

The Martinez EC boundary condition in the DSM2 planning simulation is estimated using the G-model based on the net Delta outflow simulated in CalSim II and the pure astronomical tide (Ateljevich, 2001), as modified to account for the salinity changes related to the sea level rise using the correlations derived based on the three-dimensional (UnTRIM) modeling of the Bay-Delta with sea level rise at Year 2030.

Vernalis EC

For the DSM2 simulation, the Vernalis EC boundary condition is based on the monthly San Joaquin EC time series estimated in CalSim II.

Morphological Changes

No additional morphological changes were assumed as part of the No Action Alternative. The DSM2 model and grid developed as part of the 2009 recalibration effort (CH2M HILL, 2009) was used for modeling.

Facilities

Delta Cross Channel

Delta Cross Channel gate operations are modeled in DSM2. The number of days in a month the DCC gates are open is based on the monthly time series from CalSim II.

South Delta Temporary Barriers

South Delta Temporary Barriers are included in the No Action Alternative simulation. The three agricultural temporary barriers located on Old River, Middle River and Grant Line Canal are included in the model. The fish barrier located at the Head of Old River is also included in the model.

Clifton Court Forebay Gates

Clifton Court Forebay gates are operated based on the Priority 3 operation, where the gate operations are synchronized with the incoming tide to minimize the impacts to low water levels in nearby channels. The Priority 3 operation is described in the 2008 OCAP BA Appendix F Section 5.2 (USBR, 2008b).

Operations Criteria

South Delta Temporary Barriers

South Delta Temporary Barriers are operated based on San Joaquin flow conditions. Head of Old River Barrier is assumed to be only installed from September 16 to November 30 and is not installed in the spring months, based on the USFWS Delta Smelt BO Action 5. The agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and the one on Grant Line Canal from June 1. All three agricultural barriers are allowed to operate until November 30. The tidal gates on Old and Middle River agricultural barriers are assumed to be tied open from May 16 to May 31.

Montezuma Salinity Control Gate

The radial gates in the Montezuma Slough Salinity Control Gate Structure are assumed to be tidally operating from October through February each year, to minimize propagation of high salinity conditions into the interior Delta.

2.3 HEC5Q and Reclamation Temperature Model Assumptions for the No Action Alternative

The following is a description of the assumptions listed in Appendix F Attachment 2-4 HEC5Q and Reclamation Temperature Model Assumptions Callouts.

Sacramento-Trinity Rivers

Reservoir Storage Conditions

Trinity Lake, Lewiston Lake, Whiskeytown Lake, Shasta Lake, Keswick Reservoir, and Black Butte Lake are all operated per CalSim II output.

Shasta Temperature Management

Similar to 2009 NMFS BiOp Appendix 2D (See 2015 LTO for details).

Trinity Temperature Management

Releases from lower, auxiliary outlet are allowed when normal outlet releases are too warm.

American River

Reservoir Storage Conditions

Folsom Lake and Lake Natoma are operated per CalSim II output.

Folsom Temperature Management

Similar to 2009 NMFS BiOp Appendix 2D (See 2015 LTO for details).

Stanislaus River

Reservoir Storage Conditions

New Melones Lake, Lake Tulloch, and Goodwin Reservoir are all operated per CalSim II output.

Feather River

Reservoir Storage Conditions

Lake Oroville and Thermolito Afterbay are operated per CalSim II output.

2.4 Egg Mortality Model Assumptions for the No Action Alternative

Temperature-dependent egg mortality is estimated with two methods: Martin and Anderson. Both methods calculate redd's lifetime with a degree-days threshold, estimate the temperature-mortality relationship as linear. However, they assume temperature-dependent mortality occurs during different time-windows in the redd's lifespan. The distribution redds is the average location and timing of redds counted in California Department of Fish and Wildlife Winter run aerial survey data from 2007 to 2014. See Appendix F Attachment 2-6 Winter Run Chinook Temperature-Dependent Egg Mortality Modeling for more information.

3 Assumptions for Alternative 1

This section presents the assumptions used in developing the CalSim II, DSM2, HEC5Q, Reclamation Temperature Model and Egg Mortality Model simulations of Alternative 1 considered for the ROC on LTO ESA Consultation.

Alternative 1 includes modified Shasta temperature, Delta Smelt habitat, and OMR actions to incorporate real-time monitoring and focusing water resources on locations and timing with the most benefits for fish. Alternative 1 includes the New Melones Stepped Release plan to obtain a more sustainable operation on the Stanislaus River, as well as the 2017 Flow Management Standard and "planning minimum" for the American River.

Alternative 1 includes projected climate change and sea level rise assumptions corresponding to the Year 2030. Change in climate results in the changes in the reservoir and tributary inflows included in CalSim II. The sea level rise changes result in modified flow-salinity relationships in the Delta. The climate change and sea level rise assumptions at Year 2030 are described in detail in Section 7. The CalSim II simulation for Alternative 1 does not consider any adaptation measures that would result in managing the CVP and SWP system in a different manner than today to reduce climate impacts. For example, future changes in reservoir flood control reservation to better accommodate a seasonally changing hydrograph may be considered under future programs but are not considered under this consultation.

3.1 CalSim II Assumptions for Alternative 1

The following is a description of the assumptions listed in Appendix F Attachment 2-2 CalSim II Model Assumptions Callouts.

Hydrology

Inflows/Supplies

Same as the No Action Alternative.

Level of Development

Same as the No Action Alternative.

Demands, Water Rights, CVP/SWP Contracts

Same as the No Action Alternative.

Facilities

Same as the No Action Alternative.

Fremont Weir

Same as the No Action Alternative.

CVP C.W. Bill Jones Pumping Plant (Tracy PP) Capacity

Same as the No Action Alternative.

SWP Banks Pumping Plant Capacity

Same as the No Action Alternative.

CCWD Intakes

Same as the No Action Alternative.

Regulatory Standards

The regulatory standards that govern the operations of the CVP and SWP facilities are briefly described below. Specific assumptions related to key regulatory standards are also outlined below.

D-1641 Operations

Same as the No Action Alternative.

Coordinated Operations Agreement (COA)

Same as the No Action Alternative.

CVPIA (b)(2) Assumptions

The Central Valley Project Improvement Act (CVPIA) 3406(b)(2) water allocation, management and related actions (B2) are not modeled in this alternative.

Clear Creek Flows

The regulated condition under Alternative 1 is assumed to be similar to the No Action Alternative, therefore the model implementation has been assumed to be same as the No Action Alternative.

Reclamation proposes to release Clear Creek flows in accordance with the 1960 Memorandum of Agreement (MOA) with CDFW, and the April 15, 2002 SWRCB permit, which established minimum flows to be released to Clear Creek at Whiskeytown Dam. Reclamation proposes a minimum baseflow in Clear Creek of 200 cfs from October through May, and 150 cfs from June through September in all year types except Critical year types. In Critical years, Clear Creek base flows would be reduced below 150 cfs based on available water from Trinity Reservoir but the 1960 MOA and 2002 SWRCB permit would provide a minimum base flow. Additional flow may be required for temperature management during the fall.

In addition, Reclamation proposes to create pulse flows for both channel maintenance and spring attraction flows. For spring attraction flows, Reclamation would release 10 Thousand Acre-Feet (measured at the release), with daily release up to the safe release capacity (approximately 900 cfs, depending on reservoir elevation and downstream capacity), in all year-types except for Critical year-types to be shaped by the Clear Creek Implementation Team in coordination with CVO. Reclamation would also release 10 TAF for geomorphic flows in all year-types except for Dry and Critical year-types.

Continued CALFED Agreements

Same as the No Action Alternative.

USFWS Delta Smelt BO Actions

The USFWS Delta Smelt BO RPA actions are replaced with actions developed for Alternative 1 as summarized below and described further in this document.

NMFS BO Salmon Actions

The NMFS Salmon BO RPA actions are replaced with actions developed for Alternative 1 as summarized below and described further in this document.

Water Transfers

Same as the No Action Alternative.

Specific Regulatory Assumptions

Upper Sacramento Flow Management

Model includes SWRCB WR 90-5.

Lower Feather Flow Management

Same as the No Action Alternative.

Lower American Flow Management

Model includes Water Forum's 2017 Lower American Flow Management Standard where the flows range from 500 to 2000 cfs based on time of year and annual hydrology. Planning minimum storage is represented in CalSim with a 275 taf end-of December storage target in Folsom.

Delta Outflow (Flow and Salinity)

SWRCB D-1641:

Same as the No Action Alternative.

Combined Old and Middle River Flows

Reclamation and DWR propose to operate the CVP and SWP in a manner that maximizes exports while minimizing entrainment of fish and protecting critical habitat.

Proposed OMR management is modeled as follows:

Projects operate to an OMR index no more negative than a 14-day moving average of -5,000 cfs between January 1 and June 30 except for the following conditions:

- Integrated Early Winter Pulse Protection: After December 1, and when the 3-day average turbidity is 12 NTU or greater at Old River at Bacon Island (OBI), Prisoner's Point (PPT), and Victoria Canal (VCU), Reclamation and DWR propose to operate to -2,000 cfs of the 14-day average OMR index for 14 days. The same model index of SAC_RI developed for the USFWS RPA Action I representation is used in the model to determine when the turbidity exceeds 12 NTU.
- Turbidity Bridge Avoidance: For January and February in any water year type, if the Turbidity trigger is reached (SAC_RI greater than or equal to 20,000 cfs), Projects operate to 14-day average OMR Index if -2000 cfs for five days. For March through June of Wet and Above Normal years, it is assumed that there will be one event of turbidity bridge avoidance in each month (-2000 cfs for five days).
- WIIN Act Storm-Related OMR Flexibility: It is assumed that there may be storm-related OMR management flexibility in January and February. In wet years, it is assumed that storm events will coincide with turbidity bridge events and no OMR flexibility is modeled. In Above Normal and Below Normal years, it is assumed that there will be one opportunity in January and one opportunity in February to operate to a more negative OMR index than -5000 cfs. This is modeled as 14-day OMR index of -6000 cfs for 7 days in each month. In dry years, it is assumed that one opportunity occurs either in January or February but not both months.
- Species-specific cumulative salvage or loss threshold: Even though salvage or loss cannot be modeled using CalSim, it is assumed that this threshold would be reached by April and May of above normal and below normal years and species-specific offramp would be met by June. The OMR restriction for this condition is modeled as a 14-day average OMR index of -3,500 cfs in April and May of all AN and BN year-types.

South Delta Export-San Joaquin River Inflow Ratio

NMFS BO Action 4.2.1 would not be implemented under this alternative.

Exports at the South Delta Intakes

Same as the No Action Alternative.

Delta Water Quality

Same as the No Action Alternative.

San Joaquin River Restoration Program

Same as the No Action Alternative.

Operations Criteria

Fremont Weir Operations

Same as the No Action Alternative.

Delta Cross Channel Gate Operations

Delta Cross Channel (DCC) Gates are assumed to be operated based on the proposed DCC operational changes described in Table 2 of the Delta Cross Channel Temporary Closure Final Environmental Assessment (Reclamation 2012a). However, model representation of the proposed DCC operations remain the same as the No Action Alternative as the proposed changes cannot be captured within the CalSim model.

Allocation Decisions

Same as the No Action Alternative.

San Luis Operations

Same as the No Action Alternative.

New Melones Operations

In addition to flood control, New Melones is operated for three different purposes: fishery flows, water quality, and water supply.

Fishery

These flows are patterned to provide fall attraction flows in October and outmigration pulse flows in spring months (April 15 through May 15 in all years), and total up to 98.9 TAF to 483.7 TAF annually depending on the hydrological conditions based on the San Joaquin 60-20-20 Index (Tables 9 through 11).

Table 9. Annual Fishery Flow Allocation

60-20-20 Index	Fishery Flows (TAF)
Critical	185.3
Dry	234.1
Below Normal	346.7
Above Normal	346.7
Wet	483.7

Table 10. Monthly "Base" Flows for Fishery Purposes Based on the Annual Fishery Volume

Annual Fishery Flow Volume (TAF)	Monthly Fishery Base Flows (cfs)											
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. 1–14	May 16–31	June	July	Aug.	Sept.
185.3	577.4	200	200	212.9	214.3	200	200	150	150	150	150	150
234.1	635.5	200	200	219.4	221.4	200	500	284.4	200	200	200	200
346.7	774.2	200	200	225.8	228.6	200	1,471.4	1,031.3	363.3	250	250	250
483.7	796.8	200	200	232.3	235.7	1,521	1,614.3	1,200	940	300	300	300

Table 11. April 15 through May 15 "Pulse" Flows for Fishery Purposes Based on the Annual Fishery Volume

Annual Fishery Flow Volume (TAF)	Fishery Pulse Flows (cfs)	
	April 15–30	May 1–15
185.3	687.5	666.7
234.1	1,000	1,000
346.7	1,625	1,466.7
483.7	1,212.5	1,933.3

Water Quality

Releases are made to the Stanislaus River below Goodwin Dam to meet the D-1422 dissolved oxygen content objective. Surrogate flows representing releases for dissolved oxygen requirement in CalSim II are presented in Table 12. The surrogate flows are reduced for critical years under the San Joaquin 60-20-20 Index. These flows are met through releases from New Melones without any annual volumetric limit.

Table 12. Surrogate flows representing releases for dissolved oxygen requirement in CalSim II

	Non-Critical Years	Critical Years
January	0.0	0.0
February	0.0	0.0
March	0.0	0.0
April	0.0	0.0
May	15.2	11.9
June	16.3	12.3
July	17.4	12.3
August	14.8	11.9
September	0.0	0.0
October	0.0	0.0
November	0.0	0.0
December	0.0	0.0

Water Supply

Water supply refers to deliveries from New Melones to water rights holders (Oakdale Irrigation District [ID] and South San Joaquin ID) and CVP eastside contractors (Stockton East Water District [WD] and Central San Joaquin Water Control District [WCD]).

Water is provided to Oakdale ID and South San Joaquin ID in accordance with their 1988 Settlement Agreement with Reclamation (up to 600 TAF based on hydrologic conditions), limited by consumptive use. The conservation account of up to 200 TAF storage capacity defined under this agreement is not modeled in CalSim II.

Water Supply-CVP Eastside Contractors

Annual allocations are determined using the San Joaquin 60-20-20 Index for Stockton East WD and Central San Joaquin WCD (Table 13) and are distributed throughout 1 year using monthly patterns.

Table 13. Annual allocations for Stockton East WD and Central San Joaquin WCD

60-20-20 Index	CVP Contractor Allocation (TAF)
Critical	0
Dry	49
Below Normal, Above Normal, and Wet	155

3.2 DSM2 Assumptions for Alternative 1

The following is a description of the assumptions listed in Appendix F Attachment 2-3 DSM2 Model Assumptions Callouts.

River Flows

Same as the No Action Alternative.

Tidal Boundary

Same as the No Action Alternative.

Water Quality

Martinez EC

Same as the No Action Alternative.

Vernalis EC

Same as the No Action Alternative.

Morphological Changes

Same as the No Action Alternative.

Facilities

Delta Cross Channel

Same as the No Action Alternative.

South Delta Temporary Barriers

The three agricultural temporary barriers located on Old River, Middle River and Grant Line Canal are included in the model; however, the fish barrier located at the Head of Old River is not included in the model.

Clifton Court Forebay Gates

Same as the No Action Alternative.

Operations Criteria

South Delta Temporary Barriers

South Delta Temporary Barriers are operated based on San Joaquin flow conditions. The agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and the one on Grant Line Canal from June 1. All three agricultural barriers are allowed to operate until November 30. The tidal gates on Old and Middle River agricultural barriers are assumed to be tied open from May 16 to May 31. Head of Old River Barrier would not be installed.

Montezuma Salinity Control Gate

The radial gates in the Montezuma Slough Salinity Control Gate Structure are assumed to be tidally operating from October through February each year, to minimize propagation of high salinity conditions into the interior Delta.

Gate operations occur in October through February. Gates open when upstream water level is 0.3 ft above downstream water level. Gates close when current is less than -0.1 fps. Gates are open in March through September.

Reclamation proposes to replace Fall X2 with Suisun Marsh Salinity Control Gates operations in September and October of Above-Normal and Below-Normal Water year types. Iterative analysis using the DSM2 model would be required to identify associated changes in Delta outflow and reservoir releases required to support changes in Outflow to continue to meet D-1641 standards with tidal operation of the SMSCG. This analysis has not been completed and therefore the effects of this operation have not been incorporated in the CalSim II model (would require a modified implementation of the flow-salinity ANN model).

3.3 HEC5Q and Reclamation Temperature Model Assumptions for Alternative 1

The following is a description of the assumptions listed in Appendix F Attachment 2-4 HEC5Q and Reclamation Temperature Model Assumptions Callouts.

Sacramento-Trinity Rivers

Reservoir Storage Conditions

Same as the No Action Alternative.

Shasta Temperature Management

Alternative 1 temperature strategy focuses on maximizing duration of temperature below 53.5^0 F at Sacramento River at Clear Creek (CCR) from May 15th through October 31st. The strategy consists of four temperature tiers, based on Shasta cold water pool or storage volume. As Shasta cold water pool or storage decrease, the 53.5^0 F compliance time window narrows or focuses on the projected time when the

Winter-run eggs have the highest dissolved oxygen requirement. The updated strategy applies a tactical approach. Temperature release targets are adjusted based on information from near-term changes in Shasta storage and meteorological conditions.

Trinity Temperature Management

Same as the No Action Alternative.

American River

Reservoir Storage Conditions

Same as the No Action Alternative.

Folsom Temperature Management

Same as the No Action Alternative.

Stanislaus River

Reservoir Storage Conditions

Same as the No Action Alternative.

Feather River

Reservoir Storage Conditions

Same as the No Action Alternative.

3.4 Egg Mortality Model Assumptions for Alternative 1

Same as the No Action Alternative.

4 Assumptions for Alternative 2

This section presents the assumptions used in developing the CalSim II, DSM2, HEC5Q, Reclamation Temperature Model and Egg Mortality Model simulations of Alternative 2 considered for the ROC on LTO ESA Consultation.

Alternative 2 represents CVP and SWP operations with only D1641 regulations.Alternative 2 includes projected climate change and sea level rise assumptions corresponding to the Year 2030. Change in climate results in the changes in the reservoir and tributary inflows included in CalSim II. The sea level rise changes result in modified flow-salinity relationships in the Delta. The climate change and sea level rise assumptions at Year 2030 are described in detail in Section 7. The CalSim II simulation for Alternative 2 does not consider any adaptation measures that would result in managing the CVP and SWP system in a different manner than today to reduce climate impacts. For example, future changes in reservoir flood control reservation to better accommodate a seasonally changing hydrograph may be considered under future programs but are not considered under this consultation.

4.1 CalSim II Assumptions for Alternative 2

The following is a description of the assumptions listed in Appendix F Attachment 2-2 CalSim II Model Assumptions Callouts.

Hydrology

Inflows/Supplies

Same as the No Action Alternative.

Level of Development

Same as the No Action Alternative.

Demands, Water Rights, CVP/SWP Contracts

Same as the No Action Alternative.

Facilities

Same as the No Action Alternative.

Fremont Weir

Same as the No Action Alternative.

CVP C.W. Bill Jones Pumping Plant (Tracy PP) Capacity

Same as the No Action Alternative.

SWP Banks Pumping Plant Capacity

Same as the No Action Alternative.

CCWD Intakes

Same as the No Action Alternative.

Regulatory Standards

The regulatory standards that govern the operations of the CVP and SWP facilities are briefly described below. Specific assumptions related to key regulatory standards are also outlined below.

D-1641 Operations

Same as No Action Alternative.

Coordinated Operations Agreement (COA)

Same as the No Action Alternative.

CVPIA (b)(2) Assumptions

Same as Alternative 1.

Clear Creek Flows

Clear Creek flows in accordance with the 1963 USBR Proposal to USFWS and NPS. Further information is available in Appendix 3E of the LTO EIS (Reclamation 2015a).

Continued CALFED Agreements

Same as the No Action Alternative.

USFWS Delta Smelt BO Actions

The USFWS Delta Smelt BO RPA actions are not implemented under this alternative.

NMFS BO Salmon Actions

The NMFS 2004 Winter-run Biological Opinion for Shasta Lake end-of-September minimum storage is implemented under this alternative.

Water Transfers

Lower Yuba River Accord (LYRA)

Acquisitions of Component 1 water under the Lower Yuba River Accord.

Specific Regulatory Assumptions

Upper Sacramento Flow Management

Same as Alternative 1.

Lower Feather Flow Management

Same as the No Action Alternative.

Lower American Flow Management

The 2006 American River Flow Management Standard (ARFMS) is included in Alternative 2.

Delta Outflow (Flow and Salinity)

Same as the Alternative 1.

Combined Old and Middle River Flows

Combined Old and Middle River Flow targets are not implemented under this alternative.

South Delta Export-San Joaquin River Inflow Ratio

Same as Alternative 1.

Exports at the South Delta Intakes

Same as the No Action Alternative.

Delta Water Quality

Same as the No Action Alternative.

San Joaquin River Restoration Program

Same as the No Action Alternative.

Operations Criteria

Fremont Weir Operations

Same as the No Action Alternative.

Delta Cross Channel Gate Operations

Delta Cross Channel (DCC) Gates are assumed to be operated based on SWRCB D-1641 DCC standards, which provide for closure of the DCC gates for fisheries protection at certain times of the year. From November through January, the DCC may be closed for up to 45 days. From February 1 through May 20, the gates are closed every day. The gates may also be closed for 14 days during the May 21 through June 15 time period. Reclamation determines the timing and duration of the closures after discussion with USFWS, DFG, and NMFS.

Allocation Decisions

Same as the No Action Alternative.

San Luis Operations

Same as the No Action Alternative.

New Melones Operations

New Melones continues to operate to the same flood control, water quality, and water delivery as the No Action Alternative. The fishery flows are based on the 1987 USBR, DFG agreement which provides an annual volume of fisheries releases between 98.3 and 302.1 TAF, as shown in Table 14. These values are linearly interpolated based on the following formula:

End of February New Melones Storage + March through September inflow – settlement contract allocation to Oakdale and South San Joaquin Irrigation Districts – CVP contract allocation out of New Melones – estimated releases for water quality – estimated evaporation – a 1,700 TAF carryover target.

Table 14. Annual Volume Release Pattern in CalSim II

Annual Volume (TAF)	Monthly flow (cfs)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
0	0	0	0	0	0	0	0	0	0	0	0	0
98.4	110	200	200	125	125	125	250	250	0	0	0	0
243.3	200	250	250	250	250	250	300	300	200	200	200	200
310.3	250	300	300	300	300	300	900	900	250	250	250	250

4.2 DSM2 Assumptions for Alternative 2

The following is a description of the assumptions listed in Appendix F Attachment 2-3 DSM2 Model Assumptions Callouts.

River Flows

Same as the No Action Alternative.

Tidal Boundary

Same as the No Action Alternative.

Water Quality

Martinez EC

Same as the No Action Alternative.

Vernalis EC

Same as the No Action Alternative.

Morphological Changes

Same as the No Action Alternative.

Facilities

Delta Cross Channel

Same as the No Action Alternative.

South Delta Temporary Barriers

Same as the No Action Alternative.

Clifton Court Forebay Gates

Same as the No Action Alternative.

Operations Criteria

South Delta Temporary Barriers

South Delta Temporary Barriers are operated based on San Joaquin flow conditions. Head of Old River Barrier is assumed to be only installed from April 16 to May 15 and from September 16 to November 30. The agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and the one on Grant Line Canal from June 1. All three agricultural barriers are allowed to operate until November 30. The tidal gates on Old and Middle River agricultural barriers are assumed to be tied open from May 16 to May 31.

Montezuma Salinity Control Gate

Same as the No Action Alternative.

4.3 HEC5Q and Reclamation Temperature Model Assumptions for Alternative 2

The following is a description of the assumptions listed in Appendix F Attachment 2-4 HEC5Q and Reclamation Temperature Model Assumptions Callouts.

Sacramento-Trinity Rivers

Reservoir Storage Conditions

Same as the No Action Alternative.

Shasta Temperature Management

Same as the No Action Alternative.

Trinity Temperature Management

Same as the No Action Alternative.

American River

Reservoir Storage Conditions

Same as the No Action Alternative.

Folsom Temperature Management

Same as the No Action Alternative.

Stanislaus River

Reservoir Storage Conditions

Same as the No Action Alternative.

Feather River

Reservoir Storage Conditions

Same as the No Action Alternative.

4.4 Egg Mortality Model Assumptions for Alternative 2

Same as the No Action Alternative.

5 Assumptions for Alternative 3

This section presents the assumptions used in developing the CalSim II, DSM2, HEC5Q, Reclamation Temperature Model and Egg Mortality Model simulations of Alternative 3 considered for the ROC on LTO ESA Consultation.

Alternative 3 represents CVP and SWP operations with only D1641 regulations and 25,000 acres of habitat restoration in the Delta.

Alternative 3 includes projected climate change and sea level rise assumptions corresponding to the Year 2030. Change in climate results in the changes in the reservoir and tributary inflows included in CalSim II. The sea level rise changes result in modified flow-salinity relationships in the Delta. The climate change and sea level rise assumptions at Year 2030 are described in detail in Section 7. The CalSim II simulation for Alternative 3 does not consider any adaptation measures that would result in managing the CVP and SWP system in a different manner than today to reduce climate impacts. For example, future changes in reservoir flood control reservation to better accommodate a seasonally changing hydrograph may be considered under future programs but are not considered under this consultation.

5.1 CalSim II Assumptions for Alternative 3

The following is a description of the assumptions listed in Appendix F Attachment 2-2 CalSim II Model Assumptions Callouts.

Hydrology

Inflows/Supplies

Same as the No Action Alternative.

Level of Development

Same as the No Action Alternative.

Demands, Water Rights, CVP/SWP Contracts

Same as the No Action Alternative.

Facilities

Same as the No Action Alternative.

Fremont Weir

Same as the No Action Alternative.

CVP C.W. Bill Jones Pumping Plant (Tracy PP) Capacity

Same as the No Action Alternative.

SWP Banks Pumping Plant Capacity

Same as the No Action Alternative.

CCWD Intakes

Same as the No Action Alternative.

Regulatory Standards

The regulatory standards that govern the operations of the CVP and SWP facilities are briefly described below. Specific assumptions related to key regulatory standards are also outlined below.

D-1641 Operations

Same as the No Action Alternative.

Coordinated Operations Agreement (COA)

Same as the No Action Alternative.

CVPIA (b)(2) Assumptions

Same as Alternative 1.

Clear Creek Flows

Same as Alternative 2.

Continued CALFED Agreements

Same as the No Action Alternative.

USFWS Delta Smelt BO Actions

Same as Alternative 2.

NMFS BO Salmon Actions

Same as Alternative 2.

Water Transfers

Same as the No Action Alternative.

Specific Regulatory Assumptions

Upper Sacramento Flow Management

Same as Alternative 1.

Lower Feather Flow Management

Same as the No Action Alternative.

Lower American Flow Management

Same as Alternative 2.

Delta Outflow (Flow and Salinity)

Same as Alternative 2.

Combined Old and Middle River Flows

Same as Alternative 2.

South Delta Export-San Joaquin River Inflow Ratio

Same as Alternative 1.

Exports at the South Delta Intakes

Same as the No Action Alternative.

Delta Water Quality

The Alternative 3 simulation includes SWRCB D-1641 salinity requirements. However, not all salinity requirements are included as CalSim II is not capable of predicting salinities in the Delta. Instead, empirically based equations and models are used to relate interior salinity conditions with the flow conditions. DWR's Artificial Neural Network (ANN) trained for salinity is used to predict and interpret salinity conditions at the Emmaton, Jersey Point, Rock Slough and Collinsville stations. Emmaton and Jersey Point standards are for protecting water quality conditions for agricultural use in the western Delta and they are in effect from April 1 to August 15. The EC requirement at Emmaton varies from 0.45

mmhos/cm to 2.78 mmhos/cm, depending on the water year type. The EC requirement at Jersey Point varies from 0.45 to 2.20 mmhos/cm, depending on the water year type. The Rock Slough standard is for protecting water quality conditions for M&I use for water exported through the Contra Costa Canal. It is a year-round standard that requires a certain number of days in a year with chloride concentration less than 150 mg/L. The number of days requirement is dependent upon the water year type. The Collinsville standard is applied during October through May months to protect water quality conditions for migrating fish species, and it varies between 12.5 mmhos/cm in May and 19.0 mmhos/cm in October.

The sea level rise change assumed at the Year 2030 results in a modified flow – salinity relationship in the Delta. An ANN, which is capable of emulating DSM2 results under the 15-cm sea level rise and 25,000 acres of tidal restoration condition at the Year 2030 is used to simulate the flow-salinity relationship in CalSim II simulation for Alternative 3.

San Joaquin River Restoration Program

Same as the No Action Alternative.

Operations Criteria

Fremont Weir Operations

Same as the No Action Alternative.

Delta Cross Channel Gate Operations

Same as Alternative 2.

Allocation Decisions

Same as the No Action Alternative.

San Luis Operations

Same as the No Action Alternative.

New Melones Operations

Same as Alternative 2.

5.2 DSM2 Assumptions for Alternative 3

The following is a description of the assumptions listed in Appendix F Attachment 2-3 DSM2 Model Assumptions Callouts.

River Flows

Same as the No Action Alternative.

Tidal Boundary

The adjusted astronomical tide specified in the No Action Alternative is modified to account for the habitat restoration and sea level rise using the correlations derived based on two-dimensional RMA modeling of the Delta with restoration and sea level rise. This is further described in the Bay Delta Conservation Plan/California WaterFix FEIR/EIS Appendix 5A Section A.5.3, incorporated here by reference.

Water Quality

Martinez EC

EC time series resulting from the G-model is modified to account for the salinity changes related to the habitat restoration and sea level rise using the correlations derived based on the two-dimensional RMA modeling of the Delta with restoration and sea level rise. This is further described in the Bay Delta Conservation Plan/California WaterFix FEIR/EIS Appendix 5A Section A.5.3.

Vernalis EC

Same as the No Action Alternative.

Morphological Changes

DSM2 grid and other inputs such as the channel roughness coefficients and the dispersion coefficients are modified to reflect the changes related to the tidal marsh restoration and the sea level rise assumptions associated with the Alternative 3. These changes are described in the Bay Delta Conservation Plan/California WaterFix FEIR/EIS Appendix 5A Section A.

Facilities

Delta Cross Channel

Same as the No Action Alternative.

South Delta Temporary Barriers

Same as the No Action Alternative.

Clifton Court Forebay Gates

Same as the No Action Alternative.

Operations Criteria

South Delta Temporary Barriers

Same as Alternative 2.

Montezuma Salinity Control Gate

Same as the No Action Alternative.

5.3 HEC5Q and Reclamation Temperature Model Assumptions for Alternative 3

The following is a description of the assumptions listed in Appendix F Attachment 2-4 HEC5Q and Reclamation Temperature Model Assumptions Callouts.

Sacramento-Trinity Rivers

Reservoir Storage Conditions

Same as the No Action Alternative.

Shasta Temperature Management

Same as the No Action Alternative.

Trinity Temperature Management

Same as the No Action Alternative.

American River

Reservoir Storage Conditions

Same as the No Action Alternative.

Folsom Temperature Management

Same as the No Action Alternative.

Stanislaus River

Reservoir Storage Conditions

Same as the No Action Alternative.

Feather River

Reservoir Storage Conditions

Same as the No Action Alternative.

5.4 Egg Mortality Model Assumptions for Alternative 3

Same as the No Action Alternative.

6 Assumptions for Alternative 4

This section presents the assumptions used in developing the CalSim II, DSM2, HEC5Q, Reclamation Temperature Model and Egg Mortality Model simulations of Alternative 4 considered for the ROC on LTO ESA Consultation.

Alternative 4 is intended to represent CVP and SWP operations under higher regulation than Alternative 1. In addition to Alternative 1, flows from the Sacramento, Feather and American Rivers are increased up to 55% of unimpaired instream flow, and Delta exports are reduced for positive combined Old and Middle River flows from March through May, resulting in increased Delta outflow. Flows from CVP and SWP reservoir releases are limited to preserve storage conditions for upstream habitat and to not exacerbate flood conditions.

Alternative 4 includes projected climate change and sea level rise assumptions corresponding to the Year 2030. Change in climate results in the changes in the reservoir and tributary inflows included in CalSim II. The sea level rise changes result in modified flow-salinity relationships in the Delta. The climate change and sea level rise assumptions at Year 2030 are described in detail in Section 7. The CalSim II simulation for Alternative 4 does not consider any adaptation measures that would result in managing the CVP and SWP system in a different manner than today to reduce climate impacts. For example, future changes in reservoir flood control reservation to better accommodate a seasonally changing hydrograph may be considered under future programs but are not considered under this consultation.

6.1 CalSim II Assumptions for Alternative 4

The following is a description of the assumptions listed in Appendix F Attachment 2-2 CalSim II Model Assumptions Callouts.

Hydrology

Inflows/Supplies

Same as the No Action Alternative

Level of Development

Same as the No Action Alternative

Demands, Water Rights, CVP/SWP Contracts

Same as the No Action Alternative.

Facilities

Same as the No Action Alternative.

Fremont Weir

Same as the No Action Alternative.

CVP C.W. Bill Jones Pumping Plant (Tracy PP) Capacity

Same as the No Action Alternative.

SWP Banks Pumping Plant Capacity

Same as Alternative 1.

CCWD Intakes

Same as the No Action Alternative.

Regulatory Standards

The regulatory standards that govern the operations of the CVP and SWP facilities are briefly described below. Specific assumptions related to key regulatory standards are also outlined below.

D-1641 Operations

Same as Alternative 1.

Coordinated Operations Agreement (COA)

Same as the No Action Alternative.

CVPIA (b)(2) Assumptions

Same as Alternative 1.

Clear Creek Flows

Implementation is similar to Alternative 2 with minimum instream flow requirement of 55% of unimpaired flow in Clear Creek at Igo.

Continued CALFED Agreements

Same as the No Action Alternative.

USFWS Delta Smelt BO Actions

Same as Alternative 1.

NMFS BO Salmon Actions

Same as Alternative 1.

Water Transfers

No acquisitions by SWP contractors modeled.

Specific Regulatory Assumptions

Upper Sacramento Flow Management

Model includes SWRCB WR 90-5. Furthermore, a flow objective of 55% of unimpaired instream flow or greater in Sacramento River at Red Bluff and upstream of confluence with the Feather River (subject to off-ramp in Shasta index critical years, or limited during significant bypass-weir flows).

Lower Feather Flow Management

Model includes 1983 DWR, DFG Agreement (minimum flow 750 – 1,700 cfs, depending on runoff and month). Furthermore, a flow objective of 55% of unimpaired instream flow or greater in Feather River below Thermalito (subject to off-ramp in the 35% driest years on record, or limited during significant bypass-weir flows).

Lower American Flow Management

Model includes Water Forum's 2017 Lower American Flow Management Standard where the flows range from 500 to 2000 cfs based on time of year and annual hydrology. Planning minimum storage is represented in CalSim with a 275 taf end-of December storage target in Folsom. Furthermore, a flow objective of 55% of unimpaired instream flow or greater in American River at Fair Oaks (subject to off-ramp in the 60% driest years on record, or limited during significant bypass-weir flows).

Delta Outflow (Flow and Salinity)

SWRCB D-1641:

All Delta outflow requirements per SWRCB D-1641 are included in the Alternative 4 simulation. Similarly, for the February through June period the X2 standard is included in the Alternative 4 simulation. Furthermore, flows contributed from Sacramento, Feather and American Rivers for flow objective of 55% of unimpaired instream flow, or contributed from export reductions for positive OMR from March through May.

Combined Old and Middle River Flows

Alternative 4 OMR management is modeled as follows:

Projects operate to an OMR index no more negative than a 14-day moving average of -5,000 cfs in January and February, a positive 14-day moving average in March through May (subject to minimum exports required for Health and Safety), and no more negative than a 14-day moving average of -5,000 cfs in June except for the following conditions:

- Integrated Early Winter Pulse Protection: Same as Alternative 1.
- Turbidity Bridge Avoidance: Same as Alternative 1.
- WIIN Act Storm-Related OMR Flexibility: Same as Alternative 1

South Delta Export-San Joaquin River Inflow Ratio

Same as Alternative 1.

Exports at the South Delta Intakes

Same as the No Action Alternative.

Delta Water Quality

Same as the No Action Alternative.

San Joaquin River Restoration Program

Same as the No Action Alternative.

Operations Criteria

Fremont Weir Operations

Same as the No Action Alternative.

Delta Cross Channel Gate Operations

Same as Alternative 1.

Allocation Decisions

Same as Alternative 1.

San Luis Operations

Same as the No Action Alternative.

New Melones Operations

Same as Alternative 1.

6.2 DSM2 Assumptions for Alternative 4

The following is a description of the assumptions listed in Appendix F Attachment 2-3 DSM2 Model Assumptions Callouts.

River Flows

Same as the No Action Alternative.

Tidal Boundary

Same as the No Action Alternative.

Water Quality

Martinez EC

Same as the No Action Alternative.

Vernalis EC

Same as the No Action Alternative.

Morphological Changes

Same as the No Action Alternative.

Facilities

Delta Cross Channel

Same as the No Action Alternative.

South Delta Temporary Barriers

Same as the No Action Alternative.

Clifton Court Forebay Gates

Same as the No Action Alternative.

Operations Criteria

South Delta Temporary Barriers

Same as the No Action Alternative.

Montezuma Salinity Control Gate

Same as the No Action Alternative.

6.3 HEC5Q and Reclamation Temperature Model Assumptions for Alternative 4

The following is a description of the assumptions listed in Appendix F Attachment 2-4 HEC5Q and Reclamation Temperature Model Assumptions Callouts.

Sacramento-Trinity Rivers

Reservoir Storage Conditions

Same as the No Action Alternative.

Shasta Temperature Management

Same as Alternative 1.

Trinity Temperature Management

Same as the No Action Alternative.

American River

Reservoir Storage Conditions

Same as the No Action Alternative.

Folsom Temperature Management

Same as the No Action Alternative.

Stanislaus River

Reservoir Storage Conditions

Same as the No Action Alternative.

Feather River

Reservoir Storage Conditions

Same as the No Action Alternative.

6.4 Egg Mortality Model Assumptions for Alternative 4

Same as the No Action Alternative.

7 Planning Horizon - Year 2030 Climate Condition

The No Action Alternative, Alternative 1, Alternative 2, Alternative 3, and Alternative 4 are simulated at Year 2030 conditions. Changes in climate conditions and sea level (15 cm rise) were assumed at Year 2030 and are consistent within all alternatives. Using the BDCP EIR/S approach, the climate scenario was derived based on sampling of the ensemble of GCM projections rather than one single realization or a handful of individual realizations. The Q5 scenario that represents the central tendency of the climate projections was selected.

Simulation of climate change and sea level rise effects in CalSim II modeling of the Alternatives is accomplished by:

- Incorporating the modified CalSim II inputs reflecting climate change for parameters including inflows, water year types, runoff forecasts, and Delta water temperature.
- Incorporating modified ANNs to reflect the flow-salinity response under sea level change.

Simulation of the tidal marsh restoration areas and sea level rise effects in DSM2 modeling of the alternatives is accomplished by:

- Incorporating consistent grid changes identified in corroboration simulation into the DSM2 model for the sea level rise condition.
- Modifying the downstream stage and EC boundary conditions at Martinez in the DSM2 model using the appropriate regression equation for the 15 cm sea level rise. The adjusted astronomical tide specified at Martinez in the alternatives is modified using the correlations shown in Table 14. The Martinez EC boundary condition resulting from the G-model is modified using the correlations specified in the Table 14.

Table 15. Correlation to Transform Baseline Martinez Stage and EC for use in alternatives DSM2 Simulations at Year 2030

	Martinez Stage (feet NGVD 29)		Martinez EC (µS/cm)	
Scenario	**Correlation**	**Lag (min)**	**Correlation**	**Lag (min)**
Year 2030 (15cm SLR)	Y = 1.0033*X + .47	-1	Y = 0.9954* X + 556.3	0
Year 2030 (25,000ac & 15cm SLR)	Y = 0.968*X + 0.5	-5	Y = 0.999* X + 357.78	9

Notes:
X = Baseline Martinez stage or EC
Y = Alternative Martinez stage or EC

8 References

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Attachment 2-2 CalSim II Model Assumptions Callouts

1 Introduction

The assumptions for all Reclamation ROC on LTO model simulations are summarized in Appendix F, Attachment 2-1, *Model Assumption*s.

2 CalSim II Modeling Assumptions Callouts

The following matrix summarizes the assumptions used for the CalSim II models:

- No Action Alternative 011319 (NAA)
- Alternative 1 011519 (ALT1)
- Alternative 2 021719 (ALT2)
- Alternative 3 021719 (ALT3)
- Alternative 4 043019 (ALT4)

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
GENERAL					
Planning horizon[a]	Year 2030	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Period of simulation	82 years (1922-2003)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
HYDROLOGY					
Climate Condition	ELT Q5 projected changes in temperature, and precipitation; sea-level rise increased by 15 cm.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Inflows/Supplies	Modified inflows based on historical hydrology and projected climate condition.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Level of development	Projected 2030 level[b]	Same as NAA	Same as NAA	Same as NAA	Same as NAA
DEMANDS, WATER RIGHTS, CVP/SWP CONTRACTS					
Sacramento River Region (excluding American River)					
CVP[c]	Land use-based, full buildout of contract amounts, except for Settlement Contractors represented with historical diversions.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
SWP (FRSA)[d]	Land use-based, limited by contract amounts	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Non-project	Land use-based, limited by water rights and SWRCB Decisions for Existing Facilities	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Antioch Water Works	Pre-1914 water right	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Federal refuges	Firm Level 2 water supply needs	Same as NAA	Same as NAA	Same as NAA	Same as NAA

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
Sacramento River Region - American River[e]					
Water rights	Year 2025, full water rights	Same as NAA	Same as NAA	Same as NAA	Same as NAA
CVP	Year 2025, full contracts except for Settlement Contractors at historical diversions, including Freeport Regional Water Project	Same as NAA	Same as NAA	Same as NAA	Same as NAA
San Joaquin River Region[f]					
Friant Unit	Limited by contract amounts, based on current allocation policy	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Lower Basin	Land use-based, based on district level operations and constraints	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Stanislaus River	Land use-based, Revised Operations Plan (2008 model assumptions) and NMFS BO (Jun 2009) Actions III.1.2 and III.1.3	Land use-based, Stepped Release Plan (SRP)	Land use-based, 1987 USBR, CDFW agreement	Same as ALT2	Same as ALT1
San Francisco Bay, Central Coast, Tulare Lake and South Coast Regions (CVP/SWP project facilities)					
CVP[c]	Demand based on contract amounts	Same as NAA	Same as NAA	Same as NAA	Same as NAA
CCWD[g]	195 TAF/yr CVP contract supply and water rights	Same as NAA	Same as NAA	Same as NAA	Same as NAA
SWP[d,h]	Demand based on Table A amounts	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Article 56	Based on 2001-08 contractor requests	Same as NAA	Same as NAA	Same as NAA	Same as NAA

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
Article 21	MWD demand up to 200 TAF/month from December to March subject to conveyance capacity, KCWA demand up to 180 TAF/month and other contractor demands up to 34 TAF/month in all months, subject to conveyance capacity	Same as NAA	Same as NAA	Same as NAA	Same as NAA
North Bay Aqueduct (NBA)	77 TAF/yr demand under SWP contracts, up to 43.7 cfs of excess flow under Fairfield, Vacaville, and Benecia Settlement Agreement	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Federal refuges	Firm Level 2 water needs	Same as NAA	Same as NAA	Same as NAA	Same as NAA
FACILITIES					
Systemwide					
Systemwide	Existing facilities	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Sacramento River Region					
Shasta Lake	Existing, 4,552 TAF capacity	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Red Bluff Diversion Dam	Diversion dam gates out all year, Pumping Plant operated to deliver CVP water	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Fremont Weir	Notched Fremont Weir as represented in Yolo Bypass Salmonid Habitat Restoration and Fish Passage EIS/EIR Alternative 1 (preferred alternative)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Colusa Basin	Existing conveyance and storage facilities	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Upper American River[e,i]	PCWA American River Pump Station	Same as NAA	Same as NAA	Same as NAA	Same as NAA

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
Lower Sacramento River	Freeport Regional Water Project[j]	Same as NAA	Same as NAA	Same as NAA	Same as NAA
San Joaquin River Region					
Millerton Lake (Friant Dam)	Existing, 520 TAF capacity	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Lower San Joaquin River	City of Stockton Delta Water Supply Project, 30-mgd capacity	Same as NAA	Same as NAA	Same as NAA	Same as NAA
SWP Banks Pumping Plant (South Delta)	Physical capacity is 10,300 cfs but 6,680 cfs permitted capacity in all months. Pumping can be up to 10,300 cfs during Dec 15 – Mar 15 depending on Vernalis flow conditions; additional capacity of 500 cfs (up to 7,180 cfs) allowed Jul – Sep for reducing impact of NMFS BO (Jun 2009) Action IV.2.1 Phase II on SWP	Physical capacity is 10,300 cfs but 6,680 cfs permitted capacity in all months. Pumping can be up to 10,300 cfs during Dec 15 – Mar 15 depending on Vernalis flow conditions; additional capacity of 500 cfs (up to 7,180 cfs) allowed Jul – Sep for reducing impact of OMR action on SWP exports	Physical capacity is 10,300 cfs but 6,680 cfs permitted capacity in all months. Pumping can be up to 10,300 cfs during Dec 15 – Mar 15 depending on Vernalis flow conditions; additional capacity of 500 cfs (up to 7,180 cfs) allowed Jul – Sep.	Same as ALT2	Same as ALT1
CVP C.W. Bill Jones Pumping Plant (Tracy PP)	Permit capacity is 4,600 cfs in all months (allowed for by the Delta-Mendota Canal–California Aqueduct Intertie)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Upper Delta-Mendota Canal Capacity	Existing plus 400 cfs Delta-Mendota Canal–California Aqueduct Intertie	Same as NAA	Same as NAA	Same as NAA	Same as NAA
CCWD Intakes	Los Vaqueros Reservoir with existing storage capacity (160 TAF), and existing intakes except for Mallard Slough Intake	Same as NAA	Same as NAA	Same as NAA	Same as NAA
San Francisco Bay Region					

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
South Bay Aqueduct (SBA)	SBA rehabilitation, 430 cfs capacity from junction with California Aqueduct to Alameda County FC&WSD Zone 7 diversion point	Same as NAA	Same as NAA	Same as NAA	Same as NAA
South Coast Region					
California Aqueduct East Branch	Existing capacity	Same as NAA	Same as NAA	Same as NAA	Same as NAA
REGULATORY STANDARDS					
North Coast Region					
Trinity River					
Minimum flow below Lewiston Dam	Trinity EIS Preferred Alternative (369-815 TAF/yr)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Trinity River Fall Augmentation Flows	420 cfs Aug 1 – Sep 30 in all but wet years	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Trinity Reservoir end-of-September minimum storage	Trinity EIS Preferred Alternative (600 TAF as able)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Sacramento River Region					
Clear Creek					
Minimum flow below Whiskeytown Dam	Downstream water rights, 1963 USBR Proposal to USFWS and NPS, predetermined CVPIA 3406(b)(2) flows, and NMFS BO (Jun 2009) Action I.1.1	Downstream water rights, 1963 USBR Proposal to USFWS and NPS, 150 cfs year-round and pulse flows, model representation same as NAA	Downstream water rights, 1963 USBR Proposal to USFWS and NPS	Same as ALT2	Downstream water rights, 1963 USBR Proposal to USFWS and NPS and flow objective of 55% of unimpaired instream flow or greater in Clear Creek at Igo

	No Action Alternative (NAA)	**Alternative 1 (ALT1)**	**Alternative 2 (ALT2)**	**Alternative 3 (ALT3)**	**Alternative 4 (ALT4)**
Upper Sacramento River					
Shasta Lake end-of-September minimum storage	NMFS 2004 Winter-Run Biological Opinion, (1,900 TAF in non-critically dry years), and NMFS BO (Jun 2009) Action I.2.1 (NMFS BO storage objectives not explicitly modeled; achieved through project allocation procedures when hydrologically feasible)	1,900 TAF in non-critically dry years (not explicitly modeled; achieved through project allocation profiles when hydrologically feasible)	NMFS 2004 Winter-Run Biological Opinion (1,900 TAF in non-critically dry years; not explicitly modeled; achieved through project allocation procedures when hydrologically feasible)	Same as ALT2	Same as ALT1
Minimum flow below Keswick Dam	SWRCB WR 90-5; NMFS BO (Jun 2009) Action I.2.2 achieved as possible through other modeled actions	SWRCB WR 90-5	Same as ALT1	Same as ALT1	SWRCB WR 90-5 and flow objective of 55% of unimpaired instream flow or greater in Sacramento River at Red Bluff and upstream of confluence with the Feather River (subject to off-ramp in Shasta index critical years, or limited during significant bypass-weir flows)
Feather River					
Minimum flow below Thermalito Diversion Dam	2006 Settlement Agreement (700/800 cfs)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Minimum flow below Thermalito Afterbay outlet	1983 DWR, CDFW Agreement (750 – 1,700 cfs)	Same as NAA	Same as NAA	Same as NAA	1983 DWR, CDFW Agreement (750 – 1,700 cfs) and flow objective of 55% of unimpaired instream flow or greater in Feather River below Thermalito (subject to off-ramp in the 35% driest years on record, or limited during significant bypass-weir flows)

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
Yuba River					
Minimum flow below Daguerre Point Dam	D-1644 Operations (Lower Yuba River Accord)[r]	Same as NAA	Same as NAA	Same as NAA	Same as NAA
American River					
Minimum flow below Nimbus Dam	American River Flow Management (2006) as required by NMFS BO (Jun 2009) Action II.1[n]	American River Flow Management Standard, per 2017 Water Forum Agreement with a planning minimum end of December storage target of 275 TAF	American River Flow Management Standard, (2006)	Same as ALT2	American River Flow Management Standard, per 2017 Water Forum Agreement with a planning minimum end-of-December storage target of 275 TAF and flow objective of 55% of unimpaired instream flow or greater in American River at Fair Oaks (subject to off-ramp in the 60% driest years on record, or limited during significant bypass-weir flows)
Minimum Flow at H Street Bridge	SWRCB D-893	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Lower Sacramento River					
Minimum flow near Rio Vista	SWRCB D-1641	Same as NAA	Same as NAA	Same as NAA	Same as NAA
San Joaquin River Region					
Mokelumne River[j]					
Minimum flow below Camanche Dam	FERC 2916-029, 1996 (Joint Settlement Agreement) (100-325 cfs)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Minimum flow below Woodbridge Diversion Dam	FERC 2916-029, 1996 (Joint Settlement Agreement) (25 – 300 cfs)	Same as NAA	Same as NAA	Same as NAA	Same as NAA

	No Action Alternative (NAA)	**Alternative 1 (ALT1)**	**Alternative 2 (ALT2)**	**Alternative 3 (ALT3)**	**Alternative 4 (ALT4)**
Stanislaus River					
Minimum flow below Goodwin Dam	1987 USBR, CDFW agreement, and flows required for NMFS BO (Jun 2009) Action III.1.2 and III.1.3[n]	Flows per New Melones SRP	1987 USBR, CDFW agreement	Same as ALT2	Same as ALT1
Minimum dissolved oxygen	SWRCB D-1422	Model representation Same as NAA	Model representation Same as NAA	Model representation Same as NAA	Model representation Same as NAA
Merced River					
Minimum flow below Crocker-Huffman Diversion Dam	Davis-Grunsky (180 – 220 cfs, Nov – Mar), and Cowell Agreement	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Minimum flow at Shaffer Bridge	FERC 2179 (25 – 100 cfs)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Tuolumne River					
Minimum flow at Lagrange Bridge	FERC 2299-024, 1995 (Settlement Agreement) (94-301 TAF/yr)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
San Joaquin River					
San Joaquin River below Friant Dam/Mendota Pool	San Joaquin River Restoration-full flows, not constrained by current river capacity, model implementation does not include any recapture/recirculation	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Maximum salinity near Vernalis	SWRCB D-1641	Stanislaus contribution per New Melones SRP	Same as NAA	Same as NAA	Same as ALT1
Minimum flow near Vernalis	SWRCB D-1641, and NMFS BO (Jun 2009) Action IV.2.1[n]	Stanislaus contribution per New Melones SRP	SWRCB D-1641 flow requirements at Vernalis, not including pulse flows during the April 15 – May 16 period	Same as ALT2	Same as ALT1

	No Action Alternative (NAA)	**Alternative 1 (ALT1)**	**Alternative 2 (ALT2)**	**Alternative 3 (ALT3)**	**Alternative 4 (ALT4)**
Sacramento River–San Joaquin Delta Region					
Delta Outflow Index (Flow, NDOI)	SWRCB D-1641 and USFWS BO (Dec 2008) Action 4	SWRCB D-1641	Same as ALT1	Same as ALT1	SWRCB D-1641 and flows contributed from Sacramento, Feather, and American Rivers for flow objective of 55% of unimpaired instream flow, or contributed from export reductions for positive OMR from March through May
Delta Cross Channel gate operation	SRWCB D-1641 with additional days closed from Oct 1 – Jan 31 based on NMFS BO (Jun 2009) Action IV.1.2 (closed during flushing flows from Oct 1 – Dec 14 unless adverse water quality conditions would result)	Gate operations per Multi Year Study Program; model representation Same as NAA	SRWCB D-1641	Same as ALT2	Same as ALT1
South Delta export limits (Jones PP and Banks PP)	SWRCB D-1641, Vernalis flow-based export limits Apr 1 – May 31 as required by NMFS BO (Jun, 2009) Action IV.2.1 (additional 500 cfs allowed for Jul – Sep for reducing impact on SWP)	SWRCB D-1641 Vernalis flow-based export limits Apr 1 – May 31, (additional 500 cfs allowed for Jul – Sep for reducing impact on SWP)	SWRCB D-1641 (additional 500 cfs allowed for Jul – Sep)	Same as ALT2	Same as ALT1

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
Combined Flow in Old and Middle River (OMR)	USFWS BO (Dec 2008) Actions 1 through 3 and NMFS BO (Jun 2009) Action IV.2.3	OMR target of -5,000 cfs January through June except for 5 days of -2,000 cfs when turbidity bridge occurs and 7 days of -6,000 cfs when increased pumping due to storm is possible, followed by "first flush" action only if it occurs in December (14 days of -2,000 cfs), and OMR target of 3,500 cfs in April and May of AN and BN years	No target	No target	OMR target of -5,000 cfs January and February, except for 5 days of -2,000 cfs when turbidity bridge occurs and 7 days of -6,000 cfs when increased pumping due to storm is possible, followed by "first flush" action only if it occurs in December (14 days of -2,000 cfs), OMR positive in March through May, subject to minimum exports required for Health and Safety, and OMR target of -5,000 cfs in June
OPERATIONS CRITERIA: RIVER-SPECIFIC					
Sacramento River Region					
Upper Sacramento River: Flow objective for navigation (Wilkins Slough)	Flow objective for Wilkins Slough based on month, CVP allocation, and Shasta storage condition to reflect CVP operations for local delivery	Same as NAA	Same as NAA	Same as NAA	Same as NAA
American River: Folsom Dam flood control	Variable 400/600 flood control diagram (without outlet modifications)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Feather River: Flow at Mouth of Feather River (above Verona)	Maintain CDFW/DWR flow target of 2,800 cfs for Apr – Sep when flows available dependent on Oroville inflow and FRSA allocation	Same as NAA	Same as NAA	Same as NAA	Same as NAA

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
San Joaquin River Region					
Stanislaus River: Flow below Goodwin Dam	1987 USBR, CDFW agreement, and flows required for NMFS BO (Jun 2009) Action III.1.2 and III.1.3[n]	Flows per New Melones SRP	1987 USBR, CDFW agreement	Same as ALT2	Same as ALT1
San Joaquin River: Salinity at Vernalis	Grasslands Bypass Project (full implementation)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
OPERATIONS CRITERIA: SYSTEMWIDE					
CVP water allocation					
Settlement / Exchange	100% (75% in Shasta critically dry years)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Refuges	100% (75% in Shasta critically dry years)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Agriculture Service	100% – 0% based on supply, south-of-Delta allocations are additionally limited due to D-1641, USFWS BO (Dec 2008) and NMFS BO (Jun 2009) export restrictions	100% – 0% based on supply, south-of-Delta allocations are additionally limited due to D-1641 and OMR action	100% – 0% based on supply	Same as ALT2	100% – 0% based on supply, south-of-Delta allocations are additionally limited due to D-1641 and OMR action, including positive OMR March through May
Municipal & Industrial Service	100% – 50% based on supply, south-of-Delta allocations are additionally limited due to D-1641, USFWS BO (Dec 2008) and NMFS BO (Jun 2009) export restrictions[n]	100% – 50% based on supply, south-of-Delta allocations are additionally limited due to D-1641 and OMR action	100% – 50% based on supply	Same as ALT2	100% – 50% based on supply, south-of-Delta allocations are additionally limited due to D-1641 and OMR action, including positive OMR March through May

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
SWP water allocation					
North of Delta (FRSA)	Contract specific	Same as NAA	Same as NAA	Same as NAA	Same as NAA
South of Delta (including North Bay Aqueduct)	Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement; allocations are additionally limited due to D-1641 and USFWS BO (Dec 2008) and NMFS BO (Jun 2009) export restrictions[n]	Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement; allocations are additionally limited due to D-1641 and OMR action	Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement	Same as ALT2	Based on supply; equal prioritization between Ag and M&I based on Monterey Agreement; allocations are additionally limited due to D-1641 and OMR action, including positive OMR March through May
CVP-SWP coordinated operations					
Sharing of responsibility for in-basin-use	Revised Coordinated Operations Agreement	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Sharing of surplus flows	Revised Coordinated Operations Agreement	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Sharing of restricted export capacity for project- specific priority pumping	Revised Coordinated Operations Agreement	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Water transfers	Acquisitions by SWP contractors are wheeled at priority in Banks Pumping Plant over non-SWP users; LYRA included for SWP contractors	Same as NAA	Same as NAA	Same as NAA	No acquisitions by SWP contractors modeled
Sharing of export capacity for lesser priority and wheeling-related pumping	Cross Valley Canal wheeling (max of 128 TAF/yr), CALFED ROD defined Joint Point of Diversion (JPOD)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
San Luis Reservoir	San Luis Reservoir is allowed to operate to a minimum storage of 100 TAF	Same as NAA	Same as NAA	Same as NAA	Same as NAA

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
CVPIA 3406(b)(2)[l,n]					
Policy Decision	Per May 2003 Dept. of Interior Decision:	N/A	N/A	N/A	N/A
Allocation	800 TAF, 700 TAF in 40-30-30 dry years, and 600 TAF in 40-30-30 critically dry years as a function of Ag allocation	No B2 Allocation modeled	No B2 Allocation	Same as ALT2	Same as ALT1
Actions	Pre-determined upstream fish flow objectives below Whiskeytown Dam, non-discretionary NMFS BO (Jun 2009) actions for the American and Stanislaus Rivers, and NMFS BO (Jun 2009) and USFWS BO (Dec 2008) actions leading to export restrictions	Pre-determined upstream fish flow objectives below Whiskeytown	No B2 Action	Same as ALT2	Same as ALT2
Accounting[m]	Releases for non-discretionary FWSUSFWS BO (Dec 2008) and NMFS BO (Jun 2009) actions may or may not always be deemed (b)(2) actions; in general, it is anticipated, that accounting of these actions using (b)(2) metrics, the sum would exceed the (b)(2) allocation in many years; therefore no additional actions are considered and no accounting logic is included in the model	No B2 Accounting modeled	No B2 Accounting	Same as ALT2	Same as ALT1

	No Action Alternative (NAA)	Alternative 1 (ALT1)	Alternative 2 (ALT2)	Alternative 3 (ALT3)	Alternative 4 (ALT4)
WATER MANAGEMENT ACTIONS					
Water Transfer Supplies (long term programs)					
Lower Yuba River Accord[m]	Yuba River acquisitions for reducing impact of NMFS BO export restrictions on SWP	Yuba River acquisitions for reducing impact of D-1641 and OMR Action export restrictions on SWP	Yuba River acquisitions	Same as ALT2	No Yuba River acquisitions for the SWP modeled
Phase 8	None	None	None	None	None

a These assumptions have been developed under the direction of the Bureau of Reclamation (Reclamation) management team for the Reinitiation of Consultation on the Long-Term Operations of the Central Valley Project (CVP) and State Water Project (SWP).

b The Sacramento Valley hydrology used in the Future Conditions CALSIM II model reflects 2020 land-use assumptions associated with Bulletin 160-98. The San Joaquin Valley hydrology reflects draft 2030 land-use assumptions developed by Reclamation. Development of Future-level projected land-use are being coordinated with the California Water Plan Update for future models.

c Refer to Appendix D Attachment 2-5 CalSim II Model Delivery Specifications for contract specific details

d Refer to Appendix D Attachment 2-5 CalSim II Model Delivery Specifications for contract specific details

e Assumptions regarding American River water rights and CVP contracts with the Sacramento River Water Reliability Project are documented in the Delivery Specifications attachments. The Sacramento Area Water Forum agreement, its dry year diversion reductions, Middle Fork Project operations and water is not included. Refer to Appendix D Attachment 2-5 CalSim II Model Delivery Specifications for contract specific details

f The CALSIM II representation of the San Joaquin River reflects the difficulties on-going groundwater overdraft problems. The 2030 level of development representation of the San Joaquin River Basin does not make any attempt to offer solutions to groundwater overdraft problems. In addition a dynamic groundwater simulation is not yet developed for the San Joaquin River Valley. Groundwater extraction/ recharge and stream-groundwater interaction are static assumptions and may not accurately reflect a response to simulated actions. These limitations should be considered in the analysis of results.

g The actual amount diverted is operated is conjunction with supplies from the Los Vaqueros project. The existing Los Vaqueros storage capacity is 160 TAF. Associated water rights to fill Los Vaqueros with Delta excess flows are included, but CCWD's water right permit and water right license on Mallard Slough are not included.

h It is assumed that SWP Contractors can take delivery of all Table A allocations and Article 21 supplies. Article 56 provisions are assumed and allow for SWP Contractors to manage storage and delivery conditions such that full Table A allocations can be delivered. Detailed analysis of the South Coast and Tulare regions support these assumptions. NBA Article 21 deliveries are dependent on excess conditions only, all other Article 21 deliveries also require that San Luis Reservoir be at capacity and that Banks PP and the California Aqueduct has available capacity to divert from the Delta for direct delivery.

i PCWA American River pumping facility upstream of Folsom Lake is included.

j Mokelumne River flows are modified to reflect modified operations associated with EBMUD supplies from the Freeport Regional Water Project.

k Current ACOE permit for Banks PP allows for an average diversion rate of 6,680 cfs in all months. Diversion rate can increase up to 1/3 of the rate of San Joaquin River flow at Vernalis during Dec 15 – Mar 15 up to a maximum diversion of 10,300 cfs, if Vernalis flow exceeds 1,000 cfs.

l Delta actions, under USFWS discretionary use of CVPIA 3406(b)(2) allocations, are no longer dynamically operated and accounted for in the CALSIM II model. The Combined Old and Middle River Flow and Delta Export restrictions under the USFWS BO (Dec 15, 2008) and the NMFS BO (June 4, 2009) severely limit any discretion that would have been otherwise assumed in selecting Delta actions under the CVPIA 3406(b)(2) accounting criteria. Therefore, it is anticipated that CVPIA 3406(b)(2) account availability for upstream river flows below Whiskeytown, Keswick and Nimbus Dams would be very limited. The future of these operations is uncertain. For these baseline simulations, upstream flows on the Clear Creek and Sacramento River are pre-determined based on CVPIA 3406(b)(2) based operations from the Aug 2008 BA Study 7.0 and Study 8.0 for Existing and Future Conditions respectively. The procedures for dynamic operation and accounting of CVPIA 3406(b)(2) are not included in the CALSIM II model.

m D-1644 and the Lower Yuba River Accord is assumed to be implemented . The Yuba River is not dynamically modeled in CALSIM II. Yuba River hydrology and availability of water acquisitions under the Lower Yuba River Accord are based on modeling performed and the Lower Yuba River Accord EIS/EIR study team.

n In cooperation with Reclamation, National Marine Fisheries Service, Fish and Wildlife Service, and Ca Department of Fish and Game, the Ca Department of Water Resources has developed assumptions for implementation of the USFWS BO (Dec 15, 2008) and NMFS BO (June 4, 2009) in CALSIM II. The USFWS BO and NMFS BO assumptions are documented in the Appendix 5A of the LTO EIS (Reclamation 2015b).

Attachment 2-3 DSM2 Model Assumptions Callouts

1 Introduction

The assumptions for all Reclamation ROC on LTO model simulations are summarized in Appendix F Attachment 2-1, *Model Assumptions*.

2 DSM2 Modeling Assumptions Callouts

The following matrix summarizes the assumptions used for the DSM2 models:

- No Action Alternative 011319 (NAA)
- Alternative 1 011519 (ALT1)
- Alternative 2 021719 (ALT2)
- Alternative 3 021719 (ALT3)
- Alternative 4 043019 (ALT4)

	No Action Alternative (NAA)	**Alternative 1 (ALT1)**	**Alternative 2 (ALT2)**	**Alternative 3 (ALT3)**	**Alternative 4 (ALT4)**
Period of simulation	82 years (1922–2003)[a]	Same as NAA	Same as NAA	Same as NAA	Same as NAA
BOUNDARY CONDITIONS					
Boundary flows	Monthly time series from CalSim II output (alternatives provide different flows and exports)[b]	Monthly time series from CalSim II output (alternatives provide different flows and exports)[b]	Monthly time series from CalSim II output (alternatives provide different flows and exports)[b]	Monthly time series from CalSim II output (alternatives provide different flows and exports)[b]	Monthly time series from CalSim II output (alternatives provide different flows and exports)[b]
Ag flows (DICU)	2020 Level, DWR Bulletin 160-98[c]	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Martinez stage	15-minute adjusted astronomical tide with 15 cm sea-level rise[a]	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Vernalis EC	Monthly time series from CalSim II output[d]	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Agricultural Return EC	Municipal Water Quality Investigation Program analysis	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Martinez EC	Monthly net Delta Outflow from CalSim output & G-model[e]	Same as NAA	Same as NAA	Same as NAA	Same as NAA
FACILITIES					
Freeport Regional Water Project	Monthly output from CalSim II	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Delta Cross Channel	Monthly time series of number of days open from CalSim II output	Monthly time series of number of days open from CalSim II output	Monthly time series of number of days open from CalSim II output	Monthly time series of number of days open from CalSim II output	Monthly time series of number of days open from CalSim II output
Stockton Delta Water Supply Project	Monthly output from CalSim II	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Delta Habitat Improvements	None	None	None	25,000 acres[i]	None
Franks Tract Program	None	None	None	None	None

	No Action Alternative (NAA)	**Alternative 1 (ALT1)**	**Alternative 2 (ALT2)**	**Alternative 3 (ALT3)**	**Alternative 4 (ALT4)**
Veale Tract Drainage Relocation	The Veale Tract Water Quality Improvement Project, funded by CALFED, relocates the agricultural drainage outlet from Rock Slough channel to the southern end of Veale Tract, on Indian Slough[h]	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Clifton Court Forebay	Priority 3, gate operations synchronized with incoming tide to minimize impacts to low water levels in nearby channels	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Contra Costa Water District Delta Intakes	Rock Slough Pumping Plant, Old River at Highway 4 Intake and Alternate Improvement Project Intake on Victoria Canal	Same as NAA	Same as NAA	Same as NAA	Same as NAA

	No Action Alternative (NAA)	**Alternative 1 (ALT1)**	**Alternative 2 (ALT2)**	**Alternative 3 (ALT3)**	**Alternative 4 (ALT4)**
South Delta Barriers	Temporary Barriers Project operated based on San Joaquin River flow time series from CalSim II output; HORB installed[h] Sep 16 – Nov 30; agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and on Grant Line Canal from June 1; all three barriers are allowed to be operated until November 30; May 16 – May 31, the tidal gates are assumed to be tied open for the barriers on Old and Middle Rivers[g].	Temporary Barriers Project operated based on San Joaquin River flow time series from CalSim II output; HORB is not installed; agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and on Grant Line Canal from June 1; all three barriers are allowed to be operated until November 30; May 16 – May 31, the tidal gates are assumed to be tied open for the barriers on Old and Middle Rivers[g].	Temporary Barriers Project operated based on San Joaquin River flow time series from CalSim II output; HORB installed Apr 16 – May 15 and Sep 16 – Nov 30; agricultural barriers on Old and Middle Rivers are assumed to be installed starting from May 16 and on Grant Line Canal from June 1; all three barriers are allowed to be operated until November 30; May 16 – May 31, the tidal gates are assumed to be tied open for the barriers on Old and Middle Rivers[g].	Same as ALT2	Same as NAA
Antioch Water Works	Monthly output from CalSim II	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Montezuma Slough Salinity Control Gates	Gate operations occur in October – February. Gates open when upstream water level is 0.3 ft above downstream water level. Gates close when current is less than -0.1 fps. Gates are open in March – September.	Model representation same as NAA. Gate operations occur in October – February, and June – September. Gates open when upstream water level is 0.3 ft above downstream water level. Gates close when current is less than -0.1 fps. Gates are open in March – May.	Same as NAA	Same as NAA	Same as NAA

[a] A new adjusted astronomical tide for use in DSM2 planning studies has been developed by the California Department of Water Resources (DWR) Bay Delta Office Modeling Support Branch Delta Modeling Section in cooperation with the Common Assumptions workgroup. This tide is based on a more extensive observed dataset and covers the entire 82-year period of record. Martinez stage boundary condition is augmented by 15 cm based on equations used for Bay-Delta Conservation Plan to simulate expected sea-level rise in 2030.

[b] Although monthly CalSim output was used as the DSM2-HYDRO input, the Sacramento and San Joaquin Rivers were interpolated to daily values in order to smooth the transition from high to low and low to high flows. DSM2 then uses the daily flow values along with a 15-minute adjusted astronomical tide to simulate effect of the spring and neap tides.

[c] The Delta Island Consumptive Use (DICU) model is used to calculate diversions and return flows for all Delta islands based on the level of development assumed. The projected 2020 land-use assumptions are found in Bulletin 160-98.

[d] CalSim II calculates monthly electrical conductivity (EC) for the San Joaquin River, which was then converted to daily EC using the monthly EC and flow for the San Joaquin River. Fixed concentrations of 150, 175, and 125 µmhos/cm were assumed for the Sacramento River, Yolo Bypass, and eastside streams, respectively.

[e] Net Delta outflow based on the CalSim II flows was used with an updated G-model to calculate Martinez EC. Under changed climate conditions, Martinez EC is modified to account for the sea-level rise at early (15 cm) and late (45 cm) long-term phases (Year 2060).

[f] Information was obtained based on the information from the draft final *Delta Region Drinking Water Quality Management Plan* dated June 2005, prepared under the CALFED Water Quality Program, and a presentation by David Briggs at SWRCB public workshop for periodic review. The presentation "Compliance location at Contra Costa Canal at Pumping Plant #1 – Addressing Local Degradation" notes that the Veale Tract drainage relocation project will be operational in June 2005. The DICU drainage currently simulated at node 204 is moved to node 202 in DSM2.

[g] Based on the USFWS Delta Smelt BO Action 5 and the project description provided in the page 119.

[h] Based on the USFWS Delta Smelt BO Action 5, Head of Old River Barrier (HORB) is assumed to be not installed in April or May; therefore HORB is only installed in the Fall as shown.

[i] Based on tidal marsh restoration analysis conducted in Appendix 5A Section D Attachment 2 in the *Bay Delta Conservation Plan Final EIR-EIS*: Numerical Modeling in Support of Bay Delta Conservation Plan Technical Study #4 – Evaluation of Tidal Marsh Restoration Effects.

Attachment 2-4 HEC5Q and Reclamation Temperature Model Assumptions Callouts

1 Introduction

The assumptions for all Reclamation ROC on LTO model simulations are summarized in Appendix F Attachment 2-1, *Model Assumptions*.

2 HEC5Q and Reclamation Temperature Modeling Assumptions Callouts

The following matrix summarizes the assumptions used for the HEC5Q and Reclamation Temperature Models:

- No Action Alternative 011319 (NAA)
- Alternative 1 011519 (ALT1)
- Alternative 2 021719 (ALT2)
- Alternative 3 021719 (ALT3)
- Alternative 3 043019 (ALT4)

	No Action Alternative (NAA)	**Alternative 1 (ALT 1)**	**Alternative 2 (ALT 2)**	**Alternative 3 (ALT 3)**	**Alternative 4 (ALT 4)**
Period of simulation	82 years (1922–2003)	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Climate	ELT Q5	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Boundary flows and storages	Monthly timeseries (from CalSim II output).	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Trinity Lake	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Lewistown Lake	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Whiskeytown Lake	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Shasta Lake	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Keswick Reservoir	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Black Butte Lake	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Shasta Temperature Management	Similar to 2009 NMFS BO Appendix B (see 2015 LTO for details).	Updated temperature schedules to match temperature strategy drafted in BA.	Same as NAA	Same as NAA	Same as ALT 1
Trinity Temperature Management	Releases allowed from lower, auxiliary outlet when normal outlet release are too warm.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Lake Oroville	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Thermalito Afterbay	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA

	No Action Alternative (NAA)	**Alternative 1 (ALT 1)**	**Alternative 2 (ALT 2)**	**Alternative 3 (ALT 3)**	**Alternative 4 (ALT 4)**
Folsom Lake	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Lake Natoma	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Folsom Temperature Management	Similar to 2009 NMFS BO Appendix B (see 2015 LTO for details).	Same as NAA	Same as NAA	Same as NAA	Same as NAA
New Melones Lake	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Lake Tulloch	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA
Goodwin Reservoir	Monthly time series (from CalSim II output). Limited to physical specifications of reservoir.	Same as NAA	Same as NAA	Same as NAA	Same as NAA

Attachment 2-5 CalSim II Model Delivery Specifications

1 Introduction

The assumptions for all Reclamation ROC on LTO model simulations are summarized in Appendix F Attachment 2-1 Model Assumptions. This compilation of delivery specifications for the CalSim II model provides additional detail in support of Attachment 2-1.

2 Delivery Specifications

The delivery specifications for the CalSim II model include Central Valley Project (CVP) and State Water Project (SWP) contract amounts and other water rights assumptions used. These specifications are detailed in the following tables:

- Tables 1a through 1d. CVP North-of-the-Delta – Future Conditions
- Tables 2a and 2b. CVP American River – Future Conditions
- Table 3. CVP Delta – Future Conditions
- Tables 4a through 4e. CVP South-of-the-Delta – Future Conditions
- Table 5. SWP North-of-the-Delta – Future Conditions
- Tables 6a and 6b. SWP South-of-the-Delta – Future Conditions

Table 1a. CVP North-of-the-Delta - Future Conditions

CVP Contractor	Geographic Location	CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Level 2 Refuges[1] (TAF/yr)
		AG	M&I			
Anderson Cottonwood ID	Sacramento River Redding Subbasin			128.0		
Clear Creek CSD		13.8	1.5			
Bella Vista WD		22.1	2.4			
Shasta CSD			1.0			
Sac R. Misc. Users				3.4		
Redding, City of				21.0		
City of Shasta Lake		2.5	0.3			
Mountain Gate CSD			0.4			
Shasta County Water Agency		0.5	0.5			
Redding, City of/Buckeye			6.1			
Total		**38.9**	**12.2**	**152.4**		**0.0**
Corning WD	Corning Canal	23.0				
Proberta WD		3.5				
Thomes Creek WD		6.4				
Total		**32.9**	**0.0**	**0.0**		**0.0**

Table 1b. CVP North-of-the-Delta - Future Conditions

CVP Contractor	Geographic Location	CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Level 2 Refuges[1] (TAF/yr)
		AG	M&I			
Kirkwood WD	Tehama-Colusa Canal	2.1				
Glide WD		10.5				
Kanawha WD		45.0				
Orland-Artois WD		53.0				
Colusa, County of		20.0				
Colusa County WD		62.2				
Davis WD		4.0				
Dunnigan WD		19.0				
La Grande WD		5.0				
Westside WD		65.0				
Total		285.8	0.0	0.0		0.0
Sac. R. Misc. Users[2]	Sacramento River			1.5		
Glenn Colusa ID	Glenn-Colusa Canal			441.5		
				383.5		
Sacramento NWR						54.5
Delevan NWR						24.6
Colusa NWR						29.3
Colusa Drain M.W.C.	Colusa Basin Drain			7.7		
				62.3		
Total		0.0	0.0	895.0		108.4

Table 1c. CVP North-of-the-Delta - Future Conditions

CVP Contractor	Geographic Location	CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Level 2 Refuges[1] (TAF/yr)
		AG	M&I			
Princeton-Cordova-Glenn ID	Sacramento River			67.8		
Provident ID				54.7		
Maxwell ID				1.8		
				16.2		
Sycamore Family Trust				31.8		
Roberts Ditch IC				4.4		
Sac R. Misc. Users[2]				4.9		
				9.5		
Total		0.0	0.0	191.2		0.0
Reclamation District 108				12.9		
				219.1		
River Garden Farms				29.8		
Meridian Farms WC				35.0		
Pelger Mutual WC				8.9		
Reclamation District 1004				71.4		
Carter MWC				4.7		
Sutter MWC				226.0		
Tisdale Irrigation & Drainage Co.				9.9		
Sac R. Misc. Users[2]				103.4		
				0.9		
Feather River WD export		20.0				
Total		20.0	0.0	722.1		0.0

Table 1d. CVP North-of-the-Delta - Future Conditions

CVP Contractor	Geographic Location	CVP Water Service Contracts (TAF/yr)		Settlement / Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Level 2 Refuges[1] (TAF/yr)
		AG	M&I			
Sutter NWR	Sutter bypass water for Sutter NWR					25.7
Gray Lodge WMA	Feather River					41.3
Butte Sink Duck Clubs						15.6
Total		0.0	0.0	0.0		82.6
Sac. R. Misc. Users[2]	Sacramento River DSA 65			56.8		
City of West Sacramento				23.6		
Davis-Woodland Water Supply Project						
Total		0.0	0.0	80.4		0.0
Sac R. Misc. Users	Lower Sacramento River			4.8		
Natomas Central MWC				120.2		
Pleasant Grove-Verona MWC				26.3		
City of Sacramento (PCWA)			0.0		0.0	
PCWA (Water Rights)			0.0		0.0	
Total		0.0	0.0	151.3	0.0	
Total CVP North-of-Delta		377.6	12.2	2193.8	0.0	191.0

Notes:

1. Level 4 Refuge water needs are not included.

Table 2a American River – Future Conditions

	Diversion Location	CVP M&I[1] Contracts (maximum[1])	Water Rights (maximum)	Diversion Limit (maximum capacity)
Placer County Water Agency	Auburn Dam Site		65.0	65.0
Total		0	65.0	65.0
Sacramento Suburban Water District[2]	Folsom Reservoir		0	0
City of Folsom - includes P.L. 101-514		7	27	34
Folsom Prison			5	5
San Juan Water District (Placer County)			25	25
San Juan Water District (Sac County) - includes P.L. 101-514		24.2	33	57.2
El Dorado Irrigation District		7.55	17	24.55
City of Roseville		32	30	62.0
Placer County Water Agency		35		35
El Dorado County - P.L.101-514		15		15
Total		120.75	137.0	257.75
So. Cal WC/Arden Cordova WC	Folsom South Canal		5	5
California Parks and Recreation		5		5
SMUD		30	15	45
Canal Losses			1	1
Total		35	21	56
City of Sacramento[3]	Lower American River		230	230
Carmichael Water District			12	12
Total		0	242	242
Total American River Diversions		155.75	465	620.75

Table 2b American River – Future Conditions

	Diversion Location	CVP M&I[1] Contracts (maximum[1])	Water Rights (maximum)	Diversion Limit (maximum capacity)
Sacramento River Diversions				
City of Sacramento	Lower Sacramento River		81.8	81.8
Sacramento County Water Agency		45	71	107.5
East Bay Municipal Utilities District		133		varies[5], average 14.6
Total Sacramento River Diversions		178	113.8	173.4
Total		333.75	578.8	794.15

Notes:

1 When the CVP Contract quantity exceeds the quantity of the Diversion Limit minus the Water Right (if any), the diversion modeled is the quantity allocated to the CVP Contract (based on the CVP contract quantity shown times the CVP M&I allocation percentage) plus the Water Right (if any), but with the sum limited to the quantity of the Diversion Limit

2 Diversion is only allowed if and when Mar-Nov Folsom Unimpaired Inflow (FUI) exceeds 1600 TAF

3 When the Hodge single dry year criteria is triggered, Mar-Nov FUI falls below 400 TAF, diversion on the American River is limited to 50 TAF/yr; based on monthly Hodge flow limits assumed for the American, diversion on the Sacramento River may be increased to 223 TAF due to reductions of diversions on American River

4 SCWA's maximum diversion is limited by the diversion structures capacity.

5 EBMUD CVP diversions are governed by the Amendatory Contract, stipulating:
(1) 133 TAF maximum diversion in any given year
(2) 165 TAF maximum diversion amount over any 3 year period
(3) Diversions allowed only when EBMUD total storage drops below 500 TAF
(4) 155 cfs maximum diversion rate

Table 3. Delta - Future Conditions

CVP/ SWP Contractor	Geographic Location	Water Right (TAF/yr)	SWP Table A Amount (TAF)		SWP Article 21 Demand (TAF/mon)	CVP Water Service Contracts (TAF/yr)	
			Ag	M&I		AG	M&I
North Delta							
City of Vallejo	City of Vallejo						16.0
CCWD[1]	Contra Costa County						195.0
Napa County FC&WCD	North Bay Aqueduct			29.03	1.0		
Solano County WA	North Bay Aqueduct			47.76	1.0		
Fairfield, Vacaville and Benicia Agreement	North Bay Aqueduct	31.60					
City of Antioch	City of Antioch	18.0					
Total North Delta		**49.6**	**0.0**	**76.79**	**2.0**	**0.0**	**211.0**
South Delta							
Delta Water Supply Project	City of Stockton	32.4					
Total South Delta		**32.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total		**82.0**	**0.0**	**76.79**	**2.0**	**0.0**	**211.0**

Notes:

1. The Los Vaqueros module in CalSim II is used to determine the range of demands that are met by CVP contracts or other water rights

Table 4a. CVP South-of-the-Delta - Future Conditions

CVP Contractor	Geographic Location	CVP Water Service Contracts (TAF/yr)		Settlement/ Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Level 2 Refuges[1] (TAF/yr)	Losses (TAF/yr)
		AG	M&I				
Byron-Bethany ID	Upper DMC	20.6					
Tracy, City of			10.0				
			5.0				
			5.0				
Banta Carbona ID		20.0					
Total		**40.6**	**20.0**	**0.0**	**0.0**	**0.0**	**0.0**
Del Puerto WD	Upper DMC	12.1					
Davis WD		5.4					
Foothill WD		10.8					
Hospital WD		34.1					
Kern Canon WD		7.7					
Mustang WD		14.7					
Orestimba WD		15.9					
Quinto WD		8.6					
Romero WD		5.2					
Salado WD		9.1					
Sunflower WD		16.6					
West Stanislaus WD		50.0					
Patterson WD		16.5			6.0		
Total		**206.7**	**0.0**	**0.0**	**6.0**	**0.0**	**0.0**

Table 4b. CVP South-of-the-Delta - Future Conditions

CVP Contractor	Geographic Location	CVP Water Service Contracts (TAF/yr)		Settlement/ Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Level 2 Refuges[1] (TAF/yr)	Losses (TAF/yr)
		AG	M&I				
Upper DMC Loss	Upper DMC						18.5
Panoche WD	Lower DMC Volta	6.6					
San Luis WD		65.0					
Laguna WD		0.8					
Eagle Field WD		4.6					
Mercy Springs WD		2.8					
Oro Loma WD		4.6					
Total		84.4	0.0	0.0	0.0	0.0	0.0
Central California ID	Lower DMC Volta			140.0			
Grasslands via CCID						81.8	
Los Banos WMA						11.2	
Kesterson NWR						10.5	
Freitas - SJBAP						6.3	
Salt Slough - SJBAP						8.6	
China Island - SJBAP						7.0	
Volta WMA						13.0	
Grassland via Volta Wasteway						23.2	
Total		0.0	0.0	140.0	0.0	161.5	0.0

Table 4c. CVP South-of-the-Delta - Future Conditions

CVP Contractor	Geographic Location	CVP Water Service Contracts (TAF/yr)		Settlement/ Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Level 2 Refuges[1] (TAF/yr)	Losses (TAF/yr)
		AG	M&I				
Fresno Slough WD	San Joaquin River at Mendota Pool	4.0			0.9		
James ID		35.3			9.7		
Coelho Family Trust		2.1			1.3		
Tranquillity ID		13.8			20.2		
Tranquillity PUD		0.1			0.1		
Reclamation District 1606		0.2			0.3		
Central California ID				392.4			
Columbia Canal Co.				59.0			
Firebaugh Canal Co.				85.0			
San Luis Canal Co.				23.6			
M.L. Dudley Company					2.3		
Grasslands WD						29.0	
Mendota WMA						27.6	
Losses							101.5
Total		55.5	0.0	560.0	34.8	56.6	101.5
San Luis Canal Co.				140.0			
Grasslands WD						2.3	
Los Banos WMA						12.4	
San Luis NWR						19.5	
West Bear Creek NWR						7.5	
East Bear Creek NWR						8.9	
Total		0.0	0.0	140.0	0.0	50.6	0.0

Table 4d. CVP South-of-the-Delta - Future Conditions

CVP Contractor	Geographic Location	CVP Water Service Contracts (TAF/yr)		Settlement/ Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Level 2 Refuges[1] (TAF/yr)	Losses (TAF/yr)
		AG	M&I				
San Benito County WD (Ag)	San Felipe Aqueduct	35.6					
Santa Clara Valley WD (Ag)		33.1					
Pajaro Valley WD		6.3					
San Benito County WD (M&I)			8.3				
Santa Clara Valley WD (M&I)			119.4				
Total		74.9	127.7	0.0	0.0	0.0	0.0
San Luis WD	CA reach 3	60.1					
CA, State Parks and Rec		2.3					
Affonso/Los Banos Gravel Co.		0.3					
Total		62.6	0.0	0.0	0.0	0.0	0.0
Panoche WD	CVP Dos Amigos PP/ CA reach 4	87.4					
Pacheco WD		10.1					
Total		97.5	0.0	0.0	0.0	0.0	0.0
Westlands WD (Centinella)	CA reach 4	2.5					
Westlands WD (Broadview WD)		27.0					
Westlands WD (Mercy Springs WD)		4.2					
Westlands WD (Widern WD)		3.0					
Total		36.7	0.0	0.0	0.0	0.0	0.0
Westlands WD: CA Joint Reach 4	CA reach 4	219.0					
Westlands WD: CA Joint Reach 5	CA reach 5	570.0					
Westlands WD: CA Joint Reach 6	CA reach 6	219.0					
Westlands WD: CA Joint Reach 7	CA reach 7	142.0					
Total		1150.0	0.0	0.0	0.0	0.0	0.0

Table 4e. CVP South-of-the-Delta - Future Conditions

CVP Contractor	Geographic Location	CVP Water Service Contracts (TAF/yr)		Settlement/ Exchange Contractor (TAF/yr)	Water Rights/ Non-CVP (TAF/yr)	Level 2 Refuges[1] (TAF/yr)	Losses (TAF/yr)
		AG	M&I				
Avenal, City of	CA reach 7		3.5		3.5		
Coalinga, City of			10.0				
Huron, City of			3.0				
Total		0.0	16.5	0.0	3.5	0.0	0.0
CA Joint Reach 3 - Loss	CVP Dos Amigos PP/CA reach 3						2.5
CA Joint Reach 4 - Loss	CA reach 4						10.1
CA Joint Reach 5 - Loss	CA reach 5						30.1
CA Joint Reach 6 - Loss	CA reach 6						12.5
CA Joint Reach 7 - Loss	CA reach 7						8.5
Total		0.0	0.0	0.0	0.0	0.0	63.7
Cross Valley Canal - CVP	CA reach 14						
Fresno, County of		3.0					
Hills Valley ID-Amendatory		3.3					
Kern-Tulare WD		40.0					
Lower Tule River ID		31.1					
Pixley ID		31.1					
Rag Gulch WD		13.3					
Tri-Valley WD		1.1					
Tulare, County of		5.3					
Kern NWR						11.0	
Pixley NWR						1.3	
Total		128.3	0.0	0.0	0.0	12.3	0.0
Total CVP South-of-Delta		1937.1	164.2	840.0	44.3	281.0	183.7

Notes:

1. Level 4 Refuge water needs are not included.

Table 5. SWP North-of-the-Delta - Future Conditions

SWP CONTRACTOR	Geographic Location	FRSA Amount (TAF)	Water Right (TAF/yr)	Table A Amount (TAF)		Article 21 Demand (TAF/mon)	Other (TAF/yr)
				Ag	M&I		
Feather River							
Palermo	FRSA		17.6				
County of Butte	Feather River				27.5		
Thermalito	FRSA		8.0				
Western Canal	FRSA	150.0	145.0				
Joint Board	FRSA	550.0	5.0				
City of Yuba City	Feather River				9.6		
Feather WD	FRSA	17.0					
Garden, Oswald, Joint Board	FRSA						
Garden	FRSA	12.9	5.1				
Oswald	FRSA	2.9					
Joint Board	FRSA	50.0					
Plumas, Tudor	FRSA						
Plumas	FRSA	8.0	6.0				
Tudor	FRSA	5.1	0.2				
Total Feather River Area		**795.8**	**186.9**	**0.0**	**37.1**		
Other							
Yuba County Water Agency	Yuba River						Variable
							333.6
Camp Far West ID	Yuba River						12.6
Bear River Exports	American R/DSA70						Variable
							95.2
Feather River Exports to American River (left bank to DSA70)	American R/DSA70		11.0				

Table 6a. SWP South-of-the-Delta –Future Conditions

SWP Contractor	Geographic Location	Table A Amount (TAF)		Article 21 Demand (TAF/mon)	Losses (TAF/yr)
		Ag	M&I		
Alameda Co. FC&WCD, Zone 7	SBA reaches 1-4		43.98	1.00	
	SBA reaches 5-6		36.64	None	
	Total		**80.62**	**1.00**	
Alameda County WD	SBA reaches 7-8		42.00	1.00	
Santa Clara Valley WD	SBA reach 9		100.00	4.00	
Oak Flat WD	CA reach 2A	5.70		None	
County of Kings	CA reach 8C	9.31		None	
Dudley Ridge WD	CA reach 8D	45.35		1.00	
Empire West Side ID	CA reach 8C	3.00		1.00	
Kern County Water Agency	CA reaches 3, 9-13B	608.86	134.60	None	
	CA reaches 14A-C	99.20		180.00	
	CA reaches 15A-16A	59.40		None	
	CA reach 31A	80.67		None	
	Total	**848.13**	**134.60**	**180.00**	
Tulare Lake Basin WSD	CA reaches 8C-8D	87.47		15.00	
San Luis Obispo Co. FC&WCD	CA reaches 33A-35		25.00	None	
Santa Barbara Co. FC&WCD	CA reach 35		45.49	None	
Antelope Valley-East Kern WA	CA reaches 19-20B, 22A-B		144.84	1.00	
Castaic Lake WA	CA reach 31A	12.70		1.00	
	CA reach 30		82.50	None	
	Total	**12.70**	**82.50**	**1.00**	
Coachella Valley WD	CA reach 26A		138.35	2.00	
Crestline-Lake Arrowhead WA	CA reach 24		5.80	None	
Desert WA	CA reach 26A		55.75	5.00	
Littlerock Creek ID	CA reach 21		2.30	None	
Mojave WA	CA reaches 19, 22B-23		85.80	None	

SWP Contractor	Geographic Location	Table A Amount (TAF)		Article 21 Demand (TAF/mon)	Losses (TAF/yr)
		Ag	M&I		
Metropolitan WDSC	CA reach 26A		148.67	90.70	
	CA reach 30		756.69	74.80	
	CA reaches 28G-H		102.71	27.60	
	CA reach 28J		903.43	6.90	
	Total		**1911.50**	**200.00**	

Table 6b. SWP South-of-the-Delta –Future Conditions

SWP Contractor	Geographic Location	Table A Amount (TAF)		Article 21 Demand (TAF/mon)	Losses (TAF/yr)
		Ag	M&I		
Palmdale WD	CA reaches 20A-B		21.30	None	
San Bernardino Valley MWD	CA reach 26A		102.60	None	
San Gabriel Valley MWD	CA reach 26A		28.80	None	
San Gorgonio Pass WA	CA reach 26A		17.30	None	
Ventura County FCD	CA reach 29H		3.15	None	
	CA reach 30		16.85	None	
	Total		20.00		
SWP Losses	CA reaches 1-2				7.70
	SBA reaches 1-9				0.60
	CA reach 3				10.80
	CA reach 4				2.60
	CA reach 5				3.90
	CA reach 6				1.20
	CA reach 7				1.60
	CA reaches 8C-13B				11.90
	Wheeler Ridge PP and CA reaches 14A-C				3.60
	Chrisman PP and CA reaches 15A-18A				1.80
	Pearblossom PP and CA reaches 17-21				5.10
	Mojave PP and CA reaches 22A-23				4.00
	REC and CA reaches 24-28J				1.40
	CA reaches 29A-29F				1.90
	Castaic PWP and CA reach 29H				3.10
	REC and CA reach 30				2.40
	Total				63.60
Total		1011.66	3044.55	412.00	63.60

Attachment 2-6 Winter-Run Chinook Temperature-Dependent Egg Mortality Modeling

1 Introduction

Operations of Shasta Dam's Temperature Control Device (TCD) are regulated with the goal of minimizing adverse effects on listed species, including Winter-Run Chinook Salmon (*Oncorhynchus tshawytscha*). Salmon lay eggs in nests called redds, which are composed of inundated gravel. The dissolved oxygen content of the water passing through the gravel substrate and sustaining the eggs is positively correlated with temperature; hot, hypoxic conditions result in egg mortality. This analysis attempts to isolate the thermal component of egg mortality from other components such as density-dependent mortality and redd dewatering.

Two egg mortality estimation methods were used in this analysis. Both start by modeling a redd's lifetime by counting the days required to cross a known cumulative degree-days threshold, and both estimate mortality as a linear, increasing function of temperature past a known temperature threshold, but each uses a different set of assumptions to implement this conceptual model. The methods are applied to a set of simulated redds and the results are summarized on a seasonal level for comparison of mortality outcomes between HEC5Q model runs.

1.1 Martin Model

Dr. Benjamin Martin and colleagues at the National Oceanic and Atmospheric Administration's Southwest Fisheries Science Center identified a discrepancy between laboratory and field estimates and proposed a mechanism based on differing flow velocities in the laboratory and field environments. They then outlined a model for estimating temperature-dependent egg mortality in the field and fit its parameters to Sacramento River Winter-Run Chinook Salmon population data collected between 1996 and 2015 (Martin et al. 2017).

The first step in what is herein referred to as the Martin Model is to estimate a redd's date of emergence. Individual eggs within the redd hatch as alevins, which remain within the gravel substrate of the redd. These later depart the redd, emerging as fry. The redd's estimated date of emergence is intended to represent the point in the average egg's/alevin's life span when it leaves the redd.

The Martin Model estimates the date of emergence using a linear relationship between water temperature and maturation: Rate of maturation = 0.00058 * T(F) - 0.018 (Zueg et al. 2012). For each simulated redd, the Zueg equation was applied to daily temperatures starting the day after redd creation until the cumulative sum of daily maturation rates is greater than one. The day on which this occurs is considered the date of emergence for the redd.

Daily survival is then calculated for every day of the redd's lifespan. Below a temperature threshold of 11.9 degrees Celsius (°C), no temperature-dependent mortality is recorded, and the survival is 1. For each degree C above the threshold, 0.024 is subtracted from the daily survival. The product of the natural

exponents of daily survivals is the total survival, and 1 minus survival is the estimated mortality fraction for that simulated redd.

The Martin Model, in summary, uses the Zueg equation to estimate date of emergence and then estimates daily mortality for each day of the redd's lifespan using a linear relationship.

1.2 Anderson Model

Dr. James Anderson of the University of Washington has proposed a model building on the Martin et al. findings but differing in two key assumptions. While Martin applies mortality to each day of a redd's lifespan from spawning past hatching to emergence, Anderson uses a short critical period instead. Using field data from 2002 through 2015, a critical period just before hatching was found to provide the best fit (Anderson 2018). This analysis used a critical period of 5 days in length, following the implementation of the Anderson Model on the SacPAS website (http://www.cbr.washington.edu/sacramento/fishmodel/).

Instead of using the Zueg equation to estimate date of emergence, the Anderson Model uses a different equation to estimate date of hatching. Like the Zueg equation, daily temperatures are correlated to daily maturation and a cumulative sum of daily maturation is calculated until maturation crosses a known threshold. The date on which this occurs is the hatching date, and in this implementation of the Martin Model, the 5 days before hatching are the days on which mortality is estimated.

The daily equation was calibrated in Alderdice and Velsen (1978): ln(Daily development rate) = ln(k) + b * (ln(T(C) - c)), where k = 0.08646, b = 1.23473, and c = -2.26721. The day on which the cumulative sum of daily development rate passes 100 is considered the redd hatching date.

Like the Martin Model, a linear relationship between mortality and temperature is assumed, with zero mortality below a threshold. The threshold was set identical to the Martin Model at 11.9°C, while the slope is not 0.024 but 0.5. This is unsurprising; calibration to substantially the same dataset will naturally result in a much higher slope, or a much larger mortality impact per degree C above the threshold, for a model which only applies mortality to 5 days instead of the full lifespan of the redd. The same formulae for adding up daily survivals and finding a total mortality estimate are used as for the Martin Model.

2 Spatio-Temporal Distribution of Simulated Winter-Run Chinook Eggs

The Martin and Anderson Models were applied to HEC5Q Sacramento River temperature results using the same spatio-temporal distribution of redds in each year. The distribution is the averaged location and timing of redds counted in California Department of Fish and Wildlife Winter-Run aerial survey data from 2007 to 2014. Simulated redds were created and subjected to mortality calculations. All simulated redds' mortalities were combined in a sum, weighted by the spatio-temporal distribution, to estimate the total seasonal mortality fraction.

No assumption is made regarding the total number of redds, as density-dependent mortality is not considered in this calculation; results indicate only the percentage of the total seasonal Winter-Run

Chinook Salmon egg population in the upper Sacramento River that is estimated to have succumbed to temperature-dependent mortality. Because a large percentage of modeled redds survived into October and the HEC5Q simulation ends at September of 2003, temperature-dependent egg mortality is only estimated for the 1922–2002 Winter-Run Chinook populations.

The following tables indicate the river miles and dates for which simulated redds were created as well as the fraction of the total population which each location or time represents. The same temporal distribution was assumed for all locations.

Table 1. Spatial Distribution of Simulated Redds

River Reach	River Mile	Average percentages (2007–2014)
Keswick to A.C.I.D. Dam.	298	46.4%
A.C.I.D. Dam to Highway 44 Bridge	296	46.1%
Highway 44 Br. to Airport Rd. Br.	284	6.7%
Airport Rd. Br. to Balls Ferry Br.	275	0.3%
Balls Ferry Br. to Battle Creek.	271	0.2%
Battle Creek to Jellys Ferry Br.	266	0.2%
Jellys Ferry Br. to Bend Bridge	257	0.1%
Bend Bridge to Red Bluff Diversion Dam	242	0.0%

Table 2. Temporal Distribution of Simulated Redds

Dates (month/day)	Average percentages (2007–2014)
5/15	5.4%
6/1	5.9%
6/9	7.8%
6/16	13.3%
6/24	16.0%
7/1	15.9%
7/9	14.2%
7/16	10.4%
7/24	6.7%
8/1	3.1%
8/16	1.4%

3 References

Alderdice, D. F., and F. P. J. Velsen. 1978. Relation between temperature and incubation time for eggs of chinook salmon (*Oncorhynchus tshawytscha*). *Journal of the Fisheries Research Board of Canada* 35:60–75.

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Zueg, S. C., P. S. Bergman, B. J. Cavallo, and K.S. Jones. (2012). Application of a life cycle simulation model to evaluate impacts of water management and conservation actions on an endangered population of Chinook salmon. Environ. Model. Assess., 17, 455–467.

Attachment 2-7 Model Limitations

1 Introduction

Models are commonly used to evaluate changes in the management and operations of water resources systems. These models are computer based and use mathematical expressions, methods and input data to represent hydrologic, physical, environmental, operational, and institutional aspects of the water resources systems. As complex as water resources systems are, the representation of the water resources system in input data, calculations and model outputs is understood to be simplified and generalized in comparison to what is observed in the historical records and documents that describe the real-world water resources system. Even so, models are useful tools in assessing historical, current, and future projected conditions of the water resources system. These conditions are described by models based on assumptions that are captured in the data and calculations used.

Because the representation of the water resources system in models is understood to be simplified and generalized in comparison to what is observed in the historical records and documents, the use of model results should be subject to a set of agreed upon limitations and subsequent analysis of results is thereby limited. The developers and expert users of the models in question should be consulted in regard to these limitations. The following is a presentation of information that the team of modelers involved in the ROC on LTO consider relevant to the limitations of the models and modeled scenarios. This information should be considered in use of the model results and any subsequent analysis derived from these model results.

2 General Limitations of Models Used

2.1 CalSim II

CalSim II is a monthly model developed for planning-level analyses. The model is run for an 82-year historical hydrologic period, at a projected level of hydrology and demands, and under an assumed framework of regulations. Therefore the 82-year simulation does not provide information about historical conditions, but it does provide information about variability of conditions that would occur at the assumed level of hydrology and demand with the assumed operations, under the same historical hydrologic sequence. Because it is not a physically based model, CalSim II is not calibrated and cannot be used in a predictive manner. CalSim II is intended to be used in a comparative manner; which is appropriate for ESA analysis.

In CalSim II, operational decisions are made on a monthly basis, based on a set of pre-defined rules that represent the assumed regulations. Modifications by the model user would be required to allow for variation in these rules based on a sequence of hydrologic events such as a prolonged drought, or statistical performance criteria such as meeting a storage target in an assumed percentage of years.

While there are certain components in the model that are downscaled to a daily time step (simulated or approximated hydrology), such as an air-temperature based trigger for a fisheries action, the results of those daily conditions are always averaged to a monthly time step. For example, a certain number of days

with and without the action is calculated and the monthly result is calculated using a day-weighted average based on the total number of days in that month. Operational decisions based on those components are again made on a monthly basis. Any reporting or use of sub-monthly results from CalSim II should include disaggregation methods that are appropriate for the given application, report, or subsequent model.

Appropriate use of model results is important. Despite detailed model inputs and assumptions, the CalSim II results differ from real-time operations under stressed water supply conditions. Such model results occur because the model is unable to make unique real-time policy decisions under extreme circumstances, as the actual (human) operators must do. Therefore, results that indicate severely low storage, or inability to meet flow requirements or senior water rights should only be considered an indicator of stressed water supply conditions under that alternative, and should not necessarily be understood to reflect literally what would occur in the future under that alternative. These conditions, in real-time operations, would be avoided by making policy decisions on other requirements in prior months. In actual future operations, as has always been the case in the past, the project operators would work in real time to satisfy legal and contractual obligations given then current conditions and hydrologic constraints.

Reclamation's 2008 *Biological Assessment on the Continued Long-Term Operations of the Central Valley Project and State Water Project,* Appendix W (Reclamation 2008b) included a comprehensive sensitivity and uncertainty analysis of CalSim II results relative to the uncertainty in the inputs. This appendix provides a good summary of the key inputs that are critical to the largest changes in several operational outputs. Understanding the findings from this appendix may help in better understanding of the alternatives.

2.2 HEC5Q

The model is one-dimensional in the vertical and longitudinal directions for reservoirs and rivers, respectively. HEC5Q assumes fully mixed river cross sections. The effect of tributary inflow on river temperature is computed by mass balance calculation. When used with inputs derived from CalSim II outputs, changes in results between two scenarios should be considered at a monthly timestep, consistent with the changes in inputs. HEC5Q computes at a 6-hour timestep to capture the range of daily temperatures. Despite capturing sub-daily changes, a 6-hour timestep may not capture all variations in flow and climate conditions.. Spatial resolution of the model may miss inflow from small tributaries or culverts, rapid changes in roughness, or variations in river slope.

HEC5Q was used for Sacramento, Trinity, American, and Stanislaus Rivers.

2.3 Reclamation Temperature Model

Reclamation Temperature model is one-dimensional in the vertical direction for reservoirs. The reservoir is divided into isothermal, horizontal layers of uniform thickness. Energy exchange between the reservoir and the atmosphere is assumed to occur at the reservoir surface (Reclamation 2008a).

The model is one-dimensional in the longitudinal direction and assumes fully mixed river cross sections. The effect of tributary inflow on river temperature is computed by mass balance calculation. The river temperature calculations are based on regulating reservoir release temperatures, river flows, and climatic data. The model uses up to 10 computational steps for each monthly timestep to approximate results for each month. Mean monthly flows and temperature do not capture daily variations in flow and climate conditions.

Reclamation's 2008 OCAP BA on the coordinated long-term operations, Appendix H (Reclamation 2008a) included a comprehensive description Reclamation Temperature Model and its limitations.

The Reclamation Temperature Model was used for the Feather River.

2.4 DSM2

DSM2 is a one-dimensional model with inherent limitations in simulating hydrodynamic and transport processes in a complex estuarine environment such as the Sacramento–San Joaquin Delta. DSM2 assumes that velocity in a channel can be adequately represented by a single average velocity over the channel cross-section, meaning that variations both across the width of the channel and through the water column are negligible. DSM2 does not have the ability to model short-circuiting of flow through a reach, where a majority of the flow in a cross-section is confined to a small portion of the cross-section. DSM2 does not conserve momentum at the channel junctions and does not model the secondary currents in a channel. DSM2 also does not explicitly account for dispersion due to flow accelerating through channel bends. It cannot model the vertical salinity stratification in the channels.

It has inherent limitations in simulating the hydrodynamics related to the open water areas. Since an open water surface area (represented with a reservoir in the model) is constant in DSM2, it impacts the stage in the reservoir and thereby impacts the flow exchange with the adjoining channel. Due to the inability to change the cross-sectional area of the reservoir inlets with changing water surface elevation, the final entrance and exit coefficients were fine-tuned to match a median flow range. This causes errors in the flow exchange at breaches (levee openings) during the extreme spring and neap tides. Using an arbitrary bottom elevation value for the reservoirs representing the proposed marsh areas to get around the wetting-drying limitation of DSM2 may increase the dilution of salinity in the reservoirs. Accurate representation of RMA's tidal marsh areas, bottom elevations, location of breaches, breach widths, cross-sections, and boundary conditions in DSM2 is critical to the agreement of corroboration results.

For open water bodies DSM2 assumes uniform and instantaneous mixing over entire open water area. Thus it does not account for the any salinity gradients that may exist within the open water bodies. Significant uncertainty exists in flow and electrical conductivity (EC) input data related to in-Delta agriculture, which leads to uncertainty in the simulated EC values. Caution needs to be exercised when using EC outputs on a sub-monthly scale, and therefore results are only presented at the monthly scale. Water quality results inside the water bodies representing the tidal marsh areas were not validated specifically and because of the bottom elevation assumptions, preferably should not be used for analysis.

3 Specific Limitations of Scenarios Modeled

3.1 Alternative 1

Alternative 1 model results are appropriate for analysis with the following considerations:

- OMR actions – The OMR actions as described in Alternative 1 are intended to be managed based on a number of real-time triggers. Since not all of these triggers can be modeled in CalSim II, the modeled OMR is an approximation of real-time operations that are described in the EIS.
- Montezuma Slough Salinity Control Gates operations – The salinity gate operation rules to cover hydrologic conditions simulated in the 82-year planning study have not yet been developed and therefore were not explicitly modeled in DSM2. Similarly, changes to the flow-salinity relationship

would not have been captured by the existing ANNs. To preserve consistency in modeling, this action is not modeled and is evaluated. With implementation of the extended salinity gate operations, it is likely that the upstream reservoirs would release more water to meet Delta salinity requirements than Alternative 1 model results indicate.

- 2017 American River Flow Management Standard – The planning minimum of the 2017 FMS is represented by a Folsom carry over target of 275 TAF. Reclamation has committed to working with the Water Forum to develop a planning minimum. The model assumption of 275 TAF will be revisited and updated in the future based on those discussions.
- Stanislaus dissolved oxygen (DO) location – While Alternative 1 moves the DO compliance point upstream to OBB, or use a surrogate DO compliance at the existing Ripon gage, there was not enough data to modify the CalSim II assumptions for the Stanislaus DO release. Releases for DO would likely be less than Alternative 1 model results.

3.2 Alternative 2

Alternative 2 model results are appropriate for analysis with the following considerations:

- CVPIA B2: Not modeled. Section 3406(b)(2) of the Central Valley Project Improvement Act (CVPIA) includes use of up to 800 TAF toward meeting SWRCB D-1641 Water Quality Control Plan requirements and additional actions. No additional B2 actions have been assumed in Alternative 2.

3.3 Alternative 3

Alternative 3 model results are appropriate for analysis with the following considerations:

- See Alternative 2; in addition,
- Habitat restoration – Accurate effects of the tidal marsh restoration and sea-level rise are incorporated in the Alternative 3 DSM2 simulation by: (1) corroborating the grid configuration and model setup to RMA model results of tidal marsh and sea-level rise simulations; (2) modifying the downstream stage and EC boundary conditions at Martinez in the DSM2 model inputs using the regression relationships identified in the corroboration process. This is further described in the *FEIR/EIS Bay Delta Conservation Plan/California WaterFix,* Appendix 5A (ICF International 2016).

3.4 Alternative 4

Alternative 4 model results are appropriate for analysis with the following considerations:is currently under development.

- See Alternative 1; in addition,
- Estimates of Unimpaired Instream Flows – The estimates of unimpaired instream flows used as the basis of calculating flow objectives are uncertain due to limitations in the hydrologic analysis used and perturbations for climate change assumed.
- Flow objectives based on Unimpaired Instream Flows – Flow objectives of 55% unimpaired instream flow were only applied to CVP and SWP reservoir operations; in order to fully meet the flow objectives, changes in non-CVP and non-SWP reservoir operations would be required; in addition,

only diversions associated with CVP and SWP Ag and M&I service contracts were adjusted to accommodate these flow objectives; in order to fully meet the flow objectives, changes in non-CVP and non-SWP diversions (impairments) would be required; flow objectives were adjusted for non-CVP and non-SWP and other non-discretionary impairments so as to moderate the associated change in CVP and SWP reservoir releases.

- Positive combined Old and Middle River Flows for March through May – Flows objectives for combined Old and Middle River Flows for March through May were selected as a surrogate for reducing Delta exports and increasing Delta outflow as a complimentary action to the flow objective of 55% unimpaired instream flow during this period; flow objectives were limited in consideration of Delta exports necessary for Health and Safety considerations; as a surrogate, this action is not intended to represent the specifics of any additional Delta outflow or export regulations that may occur in the future
- CVP and SWP Water Supply Allocations – Under the higher regulations assumed for this alternative, forecasting water supply availability and the ability of the projects to allocate and deliver water to contractors is severely limited; allocating supplies under these conditions is more uncertain than typical for the CalSim II model

4 References

ICF International. 2016. *Final Environmental Impact Report/Environmental Impact Statement for the Bay Delta Conservation Plan/California WaterFix*. Appendix 5A, December, 2016.

U.S. Department of the Interior, Bureau of Reclamation (Reclamation), 2008a. *Biological Assessment on the Continued Long-Term Operations of the Central Valley Project and State Water Project*, Appendix H Reclamation Temperature Model and SRWQM Temperature Model, August 2008.

U.S. Department of the Interior, Bureau of Reclamation (Reclamation), 2008b. *Biological Assessment on the Continued Long-Term Operations of the Central Valley Project and State Water Project*, Appendix W Sensitivity and Uncertainty Analysis, August 2008.

Attachment 3-1 Storage and Elevation Results (CalSim II)

The following results of the CalSim II model are included for reservoir storage conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Trinity Lake Storage	S1	1-1 to 1-4	1-1 to 1-18
Trinity Lake Elevation	Post-processed	1a-1 to 1a-4	1a-1 to 1a-18
Shasta Lake Storage	S4	3-1 to 3-4	3-1 to 3-18
Shasta Lake Elevation	Post-processed	3a-1 to 3a-4	3a-1 to 3a-18
Lake Oroville Storage	S6	4-1 to 4-4	4-1 to 4-18
Lake Oroville Elevation	Post-processed	4a-1 to 4a-4	4a-1 to 4a-18
Folsom Lake Storage	S8	5-1 to 5-4	5-1 to 5-18
Folsom Lake Elevation	Post-processed	5a-1 to 5a-4	5a-1 to 5a-18
San Luis Reservoir Storage	S11+S12	6-1 to 6-4	6-1 to 6-18
San Luis Reservoir Elevation	Post-processed	6a-1 to 6a-4	6a-1 to 6a-18
CVP San Luis Reservoir Storage	S11	6b-1 to 6b-4	6b-1 to 6b-18
SWP San Luis Reservoir Storage	S12	6c-1 to 6c-4	6c-1 to 6c-18
New Melones Reservoir Storage	S10	7-1 to 7-4	7-1 to 7-18
New Melones Reservoir Elevation	Post-processed	7a-1 to 7a-4	7a-1 to 7a-18
Millerton Lake Storage	S18	8-1 to 8-4	8-1 to 8-18
Millerton Lake Elevation	Post-processed	8a-1 to 8a-4	8a-1 to 8a-18

1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Appendix F – Modeling

Attachment 3-1 – Storage and Elevation Results (CalSim II)

The following results of the CalSim II model are included for reservoir storage conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Trinity Lake Storage	S1	1-1 to 1-4	1-1 to 1-18
Trinity Lake Elevation	Post-processed	1a-1 to 1a-4	1a-1 to 1a-18
Shasta Lake Storage	S4	3-1 to 3-4	3-1 to 3-18
Shasta Lake Elevation	Post-processed	3a-1 to 3a-4	3a-1 to 3a-18
Lake Oroville Storage	S6	4-1 to 4-4	4-1 to 4-18
Lake Oroville Elevation	Post-processed	4a-1 to 4a-4	4a-1 to 4a-18
Folsom Lake Storage	S8	5-1 to 5-4	5-1 to 5-18
Folsom Lake Elevation	Post-processed	5a-1 to 5a-4	5a-1 to 5a-18
San Luis Reservoir Storage	S11+S12	6-1 to 6-4	6-1 to 6-18
San Luis Reservoir Elevation	Post-processed	6a-1 to 6a-4	6a-1 to 6a-18
CVP San Luis Reservoir Storage	S11	6b-1 to 6b-4	6b-1 to 6b-18
SWP San Luis Reservoir Storage	S12	6c-1 to 6c-4	6c-1 to 6c-18
New Melones Reservoir Storage	S10	7-1 to 7-4	7-1 to 7-18
New Melones Reservoir Elevation	Post-processed	7a-1 to 7a-4	7a-1 to 7a-18
Millerton Lake Storage	S18	8-1 to 8-4	8-1 to 8-18
Millerton Lake Elevation	Post-processed	8a-1 to 8a-4	8a-1 to 8a-18

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Table 1-1. Trinity Lake Storage, End of Month Storage

No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,850	1,839	1,850	1,900	2,000	2,100	2,300	2,354	2,314	2,261	2,130	1,934
20%	1,804	1,749	1,809	1,885	2,000	2,100	2,270	2,282	2,221	2,094	1,964	1,855
30%	1,510	1,551	1,656	1,765	1,950	2,096	2,226	2,163	2,059	1,914	1,759	1,600
40%	1,430	1,445	1,537	1,668	1,775	2,011	2,151	2,080	1,960	1,806	1,619	1,437
50%	1,245	1,275	1,391	1,529	1,684	1,782	1,942	1,881	1,795	1,652	1,479	1,336
60%	1,169	1,185	1,274	1,345	1,529	1,667	1,802	1,724	1,657	1,506	1,337	1,224
70%	1,072	1,078	1,134	1,205	1,285	1,432	1,580	1,597	1,479	1,395	1,229	1,097
80%	901	945	983	1,005	1,122	1,276	1,443	1,383	1,328	1,176	1,024	924
90%	655	666	668	697	828	922	1,018	978	924	854	755	673
Long Term												
Full Simulation Period[a]	1,264	1,271	1,334	1,415	1,543	1,670	1,815	1,792	1,728	1,602	1,455	1,319
Water Year Types[b,c]												
Wet (32%)	1,696	1,681	1,698	1,769	1,937	2,063	2,233	2,257	2,203	2,091	1,958	1,791
Above Normal (16%)	1,477	1,467	1,507	1,511	1,723	1,908	2,094	2,068	1,981	1,852	1,686	1,534
Below Normal (13%)	1,171	1,185	1,262	1,496	1,584	1,687	1,844	1,769	1,677	1,521	1,346	1,203
Dry (24%)	1,029	1,070	1,213	1,208	1,302	1,434	1,571	1,523	1,454	1,304	1,158	1,050
Critical (15%)	579	586	627	817	859	941	990	955	929	842	711	621

Alternative 1 011519

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,850	1,850	1,850	1,900	2,000	2,100	2,300	2,354	2,314	2,261	2,130	1,975
20%	1,836	1,844	1,850	1,900	2,000	2,100	2,272	2,281	2,233	2,099	1,981	1,902
30%	1,574	1,613	1,713	1,820	1,991	2,100	2,238	2,179	2,083	1,938	1,777	1,622
40%	1,429	1,484	1,617	1,718	1,861	2,045	2,172	2,104	1,971	1,813	1,638	1,457
50%	1,314	1,334	1,461	1,653	1,744	1,869	2,034	1,933	1,840	1,667	1,482	1,356
60%	1,238	1,243	1,323	1,427	1,545	1,740	1,842	1,822	1,735	1,578	1,397	1,283
70%	1,128	1,160	1,236	1,295	1,405	1,543	1,642	1,630	1,613	1,433	1,264	1,137
80%	971	1,007	1,012	1,058	1,166	1,361	1,547	1,476	1,386	1,261	1,111	1,000
90%	683	703	754	780	834	921	1,071	1,047	1,005	906	781	684
Long Term												
Full Simulation Period[a]	1,304	1,322	1,384	1,463	1,587	1,710	1,856	1,833	1,767	1,631	1,479	1,354
Water Year Types[b,c]												
Wet (32%)	1,727	1,742	1,758	1,781	1,950	2,071	2,245	2,269	2,213	2,097	1,960	1,821
Above Normal (16%)	1,508	1,528	1,570	1,554	1,747	1,925	2,111	2,085	1,990	1,851	1,685	1,540
Below Normal (13%)	1,206	1,213	1,288	1,571	1,659	1,746	1,901	1,824	1,720	1,561	1,377	1,245
Dry (24%)	1,090	1,124	1,266	1,276	1,369	1,502	1,639	1,590	1,534	1,375	1,222	1,112
Critical (15%)	615	617	658	885	928	1,008	1,059	1,024	992	871	734	640

Alternative 1 011519 minus No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	11	0	0	0	0	0	0	0	0	0	41
20%	32	95	41	15	0	0	3	-1	12	5	18	47
30%	64	62	58	55	41	4	12	16	24	24	18	22
40%	-1	39	79	50	86	34	21	25	12	7	18	20
50%	69	59	70	124	60	87	92	52	45	14	3	20
60%	70	58	49	82	16	72	41	98	79	71	60	59
70%	57	82	103	90	120	111	62	33	134	38	35	40
80%	70	62	29	53	44	85	105	93	58	85	87	76
90%	28	37	86	83	6	0	53	69	81	52	26	11
Long Term												
Full Simulation Period[a]	40	51	50	48	45	40	41	40	39	29	24	34
Water Year Types[b,c]												
Wet (32%)	31	61	60	12	13	8	12	12	10	6	2	31
Above Normal (16%)	31	61	63	44	25	17	17	17	9	0	-1	5
Below Normal (13%)	35	28	26	75	75	59	57	55	43	40	30	43
Dry (24%)	61	54	53	68	68	69	68	67	80	71	65	62
Critical (15%)	36	31	31	68	69	67	69	69	63	29	24	19

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-2. Trinity Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,850	1,839	1,850	1,900	2,000	2,100	2,300	2,354	2,314	2,261	2,130	1,934
20%	1,804	1,749	1,809	1,885	2,000	2,100	2,270	2,282	2,221	2,094	1,964	1,855
30%	1,510	1,551	1,656	1,765	1,950	2,096	2,226	2,163	2,059	1,914	1,759	1,600
40%	1,430	1,445	1,537	1,668	1,775	2,011	2,151	2,080	1,960	1,806	1,619	1,437
50%	1,245	1,275	1,391	1,529	1,684	1,782	1,942	1,881	1,795	1,652	1,479	1,336
60%	1,169	1,185	1,274	1,345	1,529	1,667	1,802	1,724	1,657	1,506	1,337	1,224
70%	1,072	1,078	1,134	1,205	1,285	1,432	1,580	1,597	1,479	1,395	1,229	1,097
80%	901	945	983	1,005	1,122	1,276	1,443	1,383	1,328	1,176	1,024	924
90%	655	666	668	697	828	922	1,018	978	924	854	755	673
Long Term												
Full Simulation Period[a]	1,264	1,271	1,334	1,415	1,543	1,670	1,815	1,792	1,728	1,602	1,455	1,319
Water Year Types[b,c]												
Wet (32%)	1,696	1,681	1,698	1,769	1,937	2,063	2,233	2,257	2,203	2,091	1,958	1,791
Above Normal (16%)	1,477	1,467	1,507	1,511	1,723	1,908	2,094	2,068	1,981	1,852	1,686	1,534
Below Normal (13%)	1,171	1,185	1,262	1,496	1,584	1,687	1,844	1,769	1,677	1,521	1,346	1,203
Dry (24%)	1,029	1,070	1,213	1,208	1,302	1,434	1,571	1,523	1,454	1,304	1,158	1,050
Critical (15%)	579	586	627	817	859	941	990	955	929	842	711	621

Alternative 2 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,850	1,850	1,850	1,900	2,000	2,100	2,300	2,354	2,277	2,228	2,095	1,975
20%	1,782	1,813	1,850	1,900	2,000	2,100	2,266	2,272	2,192	2,062	1,931	1,824
30%	1,532	1,587	1,683	1,768	1,969	2,099	2,233	2,157	2,092	1,924	1,749	1,593
40%	1,339	1,389	1,548	1,684	1,830	1,969	2,146	2,083	1,979	1,782	1,580	1,409
50%	1,233	1,290	1,400	1,570	1,717	1,840	2,016	1,925	1,798	1,651	1,441	1,292
60%	1,156	1,182	1,265	1,380	1,527	1,666	1,797	1,745	1,656	1,471	1,313	1,191
70%	1,086	1,063	1,143	1,160	1,326	1,436	1,596	1,623	1,548	1,411	1,256	1,104
80%	924	965	973	1,029	1,127	1,264	1,472	1,451	1,369	1,214	1,057	965
90%	659	666	695	732	815	948	1,064	991	939	865	759	678
Long Term												
Full Simulation Period[a]	1,262	1,283	1,349	1,429	1,556	1,681	1,829	1,806	1,741	1,601	1,444	1,315
Water Year Types[b,c]												
Wet (32%)	1,711	1,727	1,749	1,762	1,935	2,058	2,231	2,256	2,203	2,086	1,947	1,806
Above Normal (16%)	1,453	1,477	1,524	1,522	1,717	1,902	2,090	2,064	1,970	1,821	1,638	1,495
Below Normal (13%)	1,129	1,137	1,214	1,546	1,634	1,724	1,884	1,809	1,713	1,537	1,352	1,190
Dry (24%)	1,025	1,066	1,209	1,209	1,304	1,439	1,580	1,532	1,467	1,306	1,156	1,044
Critical (15%)	599	606	646	863	907	990	1,040	1,006	976	863	710	624

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	11	0	0	0	0	0	0	**-37**	**-33**	**-35**	41
20%	**-22**	64	41	15	0	0	**-4**	**-10**	**-29**	**-32**	**-32**	**-31**
30%	22	36	28	3	20	4	7	**-6**	33	10	**-10**	**-7**
40%	**-92**	**-56**	10	16	54	**-42**	**-5**	3	20	**-24**	**-39**	**-28**
50%	**-11**	15	9	41	33	58	74	44	3	**-1**	**-38**	**-45**
60%	**-12**	**-3**	**-8**	35	**-2**	**-2**	**-5**	21	**0**	**-35**	**-25**	**-33**
70%	15	**-15**	9	**-45**	41	4	16	26	68	16	27	6
80%	23	20	**-11**	24	5	**-12**	29	68	42	38	34	41
90%	3	1	27	34	**-13**	26	46	13	16	11	4	5
Long Term												
Full Simulation Period[a]	**-3**	12	15	13	13	11	13	14	13	**-1**	**-11**	**-4**
Water Year Types[b,c]												
Wet (32%)	15	46	51	**-6**	**-2**	**-5**	**-2**	**-1**	**0**	**-5**	**-11**	15
Above Normal (16%)	**-24**	10	17	12	**-6**	**-6**	**-5**	**-5**	**-11**	**-31**	**-48**	**-40**
Below Normal (13%)	**-42**	**-48**	**-48**	50	51	36	40	40	36	16	6	**-13**
Dry (24%)	**-4**	**-4**	**-4**	1	3	6	9	9	13	2	**-2**	**-6**
Critical (15%)	20	20	19	46	47	49	50	51	47	21	**-1**	2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-3. Trinity Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,850	1,839	1,850	1,900	2,000	2,100	2,300	2,354	2,314	2,261	2,130	1,934
20%	1,804	1,749	1,809	1,885	2,000	2,100	2,270	2,282	2,221	2,094	1,964	1,855
30%	1,510	1,551	1,656	1,765	1,950	2,096	2,226	2,163	2,059	1,914	1,759	1,600
40%	1,430	1,445	1,537	1,668	1,775	2,011	2,151	2,080	1,960	1,806	1,619	1,437
50%	1,245	1,275	1,391	1,529	1,684	1,782	1,942	1,881	1,795	1,652	1,479	1,336
60%	1,169	1,185	1,274	1,345	1,529	1,667	1,802	1,724	1,657	1,506	1,337	1,224
70%	1,072	1,078	1,134	1,205	1,285	1,432	1,580	1,597	1,479	1,395	1,229	1,097
80%	901	945	983	1,005	1,122	1,276	1,443	1,383	1,328	1,176	1,024	924
90%	655	666	668	697	828	922	1,018	978	924	854	755	673
Long Term												
Full Simulation Period[a]	1,264	1,271	1,334	1,415	1,543	1,670	1,815	1,792	1,728	1,602	1,455	1,319
Water Year Types[b,c]												
Wet (32%)	1,696	1,681	1,698	1,769	1,937	2,063	2,233	2,257	2,203	2,091	1,958	1,791
Above Normal (16%)	1,477	1,467	1,507	1,511	1,723	1,908	2,094	2,068	1,981	1,852	1,686	1,534
Below Normal (13%)	1,171	1,185	1,262	1,496	1,584	1,687	1,844	1,769	1,677	1,521	1,346	1,203
Dry (24%)	1,029	1,070	1,213	1,208	1,302	1,434	1,571	1,523	1,454	1,304	1,158	1,050
Critical (15%)	579	586	627	817	859	941	990	955	929	842	711	621

Alternative 3 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,850	1,850	1,850	1,900	2,000	2,100	2,300	2,354	2,277	2,227	2,094	1,975
20%	1,782	1,831	1,850	1,900	2,000	2,100	2,266	2,272	2,185	2,053	1,936	1,841
30%	1,538	1,566	1,692	1,776	1,962	2,082	2,229	2,158	2,084	1,927	1,753	1,600
40%	1,353	1,361	1,535	1,685	1,832	1,962	2,141	2,062	1,969	1,783	1,578	1,422
50%	1,238	1,267	1,402	1,558	1,664	1,839	2,005	1,917	1,788	1,639	1,431	1,304
60%	1,147	1,175	1,252	1,364	1,517	1,631	1,778	1,746	1,659	1,473	1,325	1,196
70%	1,067	1,057	1,159	1,155	1,335	1,445	1,608	1,615	1,554	1,403	1,257	1,100
80%	904	960	963	1,033	1,132	1,269	1,453	1,428	1,339	1,186	1,065	937
90%	657	667	691	718	809	937	1,030	978	922	861	758	676
Long Term												
Full Simulation Period[a]	1,256	1,277	1,341	1,421	1,549	1,674	1,823	1,800	1,735	1,597	1,441	1,313
Water Year Types[b,c]												
Wet (32%)	1,712	1,727	1,747	1,752	1,927	2,051	2,228	2,253	2,201	2,087	1,947	1,809
Above Normal (16%)	1,462	1,484	1,525	1,517	1,712	1,896	2,084	2,058	1,962	1,815	1,636	1,497
Below Normal (13%)	1,113	1,122	1,197	1,546	1,635	1,724	1,883	1,807	1,712	1,536	1,350	1,190
Dry (24%)	1,019	1,060	1,203	1,208	1,303	1,437	1,579	1,531	1,466	1,304	1,156	1,043
Critical (15%)	574	583	623	840	884	967	1,015	980	951	841	689	603

Alternative 3 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	11	0	0	0	0	0	0	**-37**	**-33**	**-37**	41
20%	**-22**	82	41	15	0	0	**-4**	**-10**	**-36**	**-41**	**-27**	**-14**
30%	29	16	37	11	12	**-14**	3	**-4**	25	13	**-6**	**0**
40%	**-77**	**-84**	**-3**	17	56	**-49**	**-11**	**-18**	9	**-23**	**-41**	**-15**
50%	**-7**	**-8**	11	29	**-21**	57	64	36	**-7**	**-14**	**-48**	**-33**
60%	**-21**	**-10**	**-21**	19	**-12**	**-36**	**-23**	22	3	**-33**	**-12**	**-28**
70%	**-4**	**-21**	25	**-50**	50	13	27	18	75	8	27	2
80%	3	15	**-20**	27	10	**-8**	10	45	11	10	41	13
90%	2	1	24	21	**-19**	16	12	0	**-1**	7	2	3
Long Term												
Full Simulation Period[a]	**-8**	6	7	6	6	4	8	8	7	**-6**	**-14**	**-6**
Water Year Types[b,c]												
Wet (32%)	16	46	49	**-17**	**-10**	**-12**	**-5**	**-4**	**-2**	**-5**	**-11**	18
Above Normal (16%)	**-16**	17	18	6	**-11**	**-12**	**-11**	**-11**	**-20**	**-37**	**-50**	**-38**
Below Normal (13%)	**-58**	**-63**	**-65**	51	51	37	39	37	34	15	4	**-13**
Dry (24%)	**-10**	**-10**	**-10**	**0**	1	4	8	8	12	**0**	**-1**	**-7**
Critical (15%)	**-5**	**-3**	**-4**	23	24	26	25	26	22	**-1**	**-22**	**-19**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-4. Trinity Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,850	1,839	1,850	1,900	2,000	2,100	2,300	2,354	2,314	2,261	2,130	1,934
20%	1,804	1,749	1,809	1,885	2,000	2,100	2,270	2,282	2,221	2,094	1,964	1,855
30%	1,510	1,551	1,656	1,765	1,950	2,096	2,226	2,163	2,059	1,914	1,759	1,600
40%	1,430	1,445	1,537	1,668	1,775	2,011	2,151	2,080	1,960	1,806	1,619	1,437
50%	1,245	1,275	1,391	1,529	1,684	1,782	1,942	1,881	1,795	1,652	1,479	1,336
60%	1,169	1,185	1,274	1,345	1,529	1,667	1,802	1,724	1,657	1,506	1,337	1,224
70%	1,072	1,078	1,134	1,205	1,285	1,432	1,580	1,597	1,479	1,395	1,229	1,097
80%	901	945	983	1,005	1,122	1,276	1,443	1,383	1,328	1,176	1,024	924
90%	655	666	668	697	828	922	1,018	978	924	854	755	673
Long Term												
Full Simulation Period[a]	1,264	1,271	1,334	1,415	1,543	1,670	1,815	1,792	1,728	1,602	1,455	1,319
Water Year Types[b,c]												
Wet (32%)	1,696	1,681	1,698	1,769	1,937	2,063	2,233	2,257	2,203	2,091	1,958	1,791
Above Normal (16%)	1,477	1,467	1,507	1,511	1,723	1,908	2,094	2,068	1,981	1,852	1,686	1,534
Below Normal (13%)	1,171	1,185	1,262	1,496	1,584	1,687	1,844	1,769	1,677	1,521	1,346	1,203
Dry (24%)	1,029	1,070	1,213	1,208	1,302	1,434	1,571	1,523	1,454	1,304	1,158	1,050
Critical (15%)	579	586	627	817	859	941	990	955	929	842	711	621

Alternative 4 043019

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,850	1,850	1,850	1,900	2,000	2,100	2,300	2,348	2,303	2,248	2,130	1,975
20%	1,805	1,820	1,849	1,900	2,000	2,100	2,255	2,272	2,186	2,054	1,876	1,813
30%	1,586	1,618	1,695	1,837	2,000	2,100	2,232	2,188	2,082	1,944	1,791	1,621
40%	1,405	1,456	1,626	1,721	1,850	2,050	2,192	2,103	2,007	1,801	1,625	1,457
50%	1,324	1,353	1,449	1,625	1,754	1,861	2,032	1,943	1,827	1,690	1,510	1,374
60%	1,270	1,264	1,327	1,435	1,562	1,722	1,846	1,823	1,755	1,590	1,405	1,288
70%	1,151	1,177	1,246	1,291	1,434	1,540	1,671	1,651	1,609	1,483	1,309	1,184
80%	1,015	1,016	1,025	1,098	1,179	1,391	1,576	1,485	1,415	1,277	1,104	1,012
90%	669	741	770	824	857	947	1,068	1,015	990	890	767	670
Long Term												
Full Simulation Period[a]	1,312	1,331	1,394	1,475	1,598	1,717	1,856	1,834	1,773	1,638	1,487	1,362
Water Year Types[b,c]												
Wet (32%)	1,715	1,730	1,751	1,788	1,953	2,066	2,232	2,256	2,199	2,080	1,943	1,803
Above Normal (16%)	1,509	1,526	1,568	1,602	1,791	1,962	2,129	2,103	2,011	1,870	1,700	1,550
Below Normal (13%)	1,247	1,259	1,335	1,572	1,658	1,745	1,901	1,830	1,746	1,572	1,401	1,271
Dry (24%)	1,099	1,134	1,275	1,277	1,371	1,504	1,639	1,594	1,541	1,394	1,239	1,126
Critical (15%)	637	647	686	900	943	1,021	1,068	1,032	1,003	898	762	682

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	11	0	0	0	0	**0**	**-6**	**-11**	**-13**	0	41
20%	1	71	41	15	0	0	**-15**	**-9**	**-35**	**-40**	**-88**	**-42**
30%	76	67	40	72	50	4	6	25	22	30	32	21
40%	**-25**	11	89	53	75	39	41	24	48	**-5**	6	21
50%	79	78	58	95	69	79	90	62	32	38	30	37
60%	102	79	53	90	33	54	45	98	98	84	67	64
70%	80	99	113	86	148	108	91	54	130	88	80	87
80%	114	71	42	93	57	115	134	102	87	101	80	87
90%	14	76	103	126	29	25	50	37	66	36	12	**-3**
Long Term												
Full Simulation Period[a]	47	59	60	60	55	46	41	42	45	36	32	43
Water Year Types[b,c]												
Wet (32%)	20	49	52	19	16	3	**-1**	**-1**	**-4**	**-11**	**-15**	12
Above Normal (16%)	32	59	61	91	69	54	35	35	30	18	14	16
Below Normal (13%)	76	74	73	76	75	58	57	61	69	51	55	69
Dry (24%)	70	64	62	69	70	70	68	70	87	89	82	76
Critical (15%)	58	61	59	83	84	80	78	77	74	56	51	61

a Based on the 82-year simulation period.

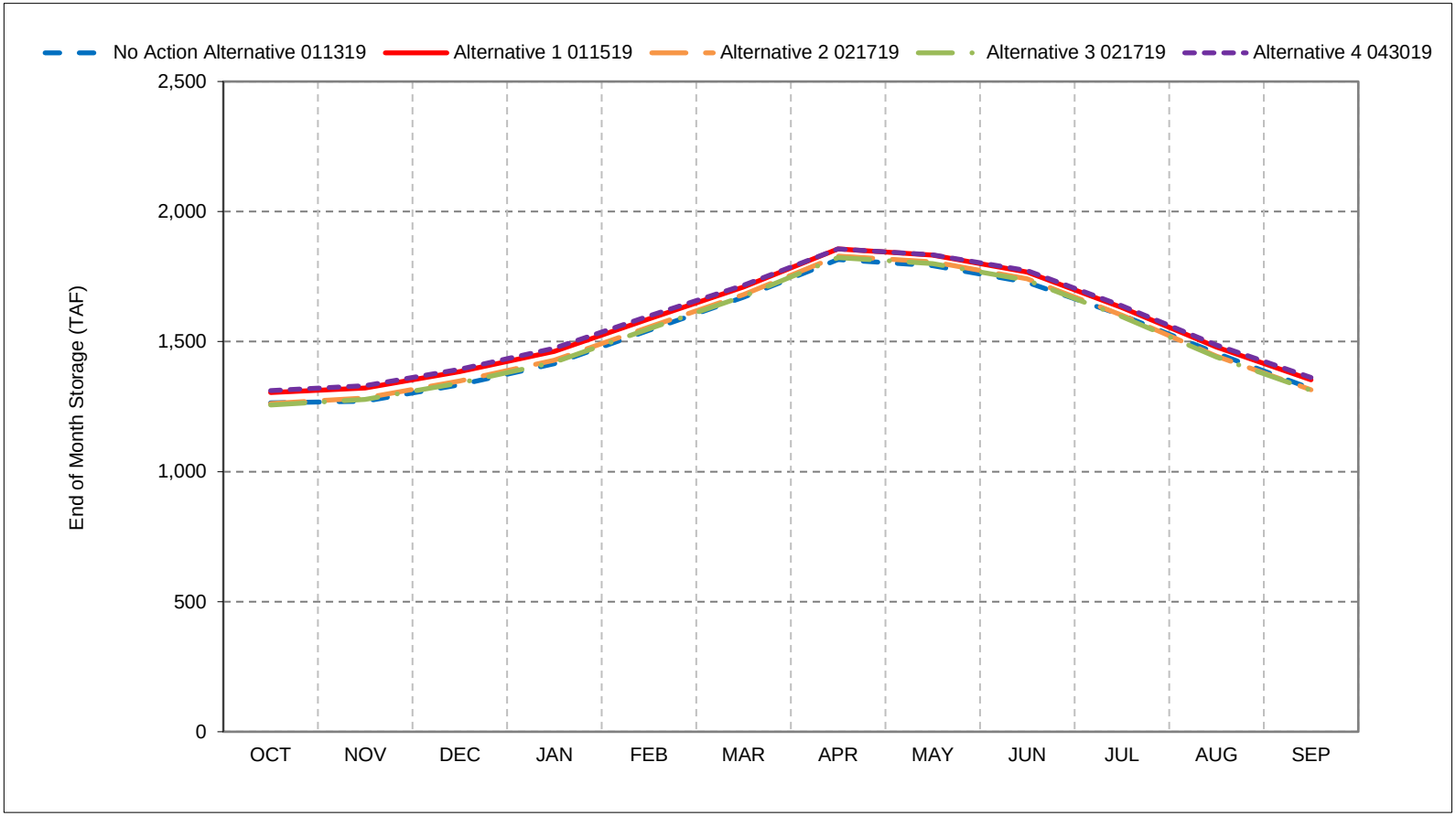
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

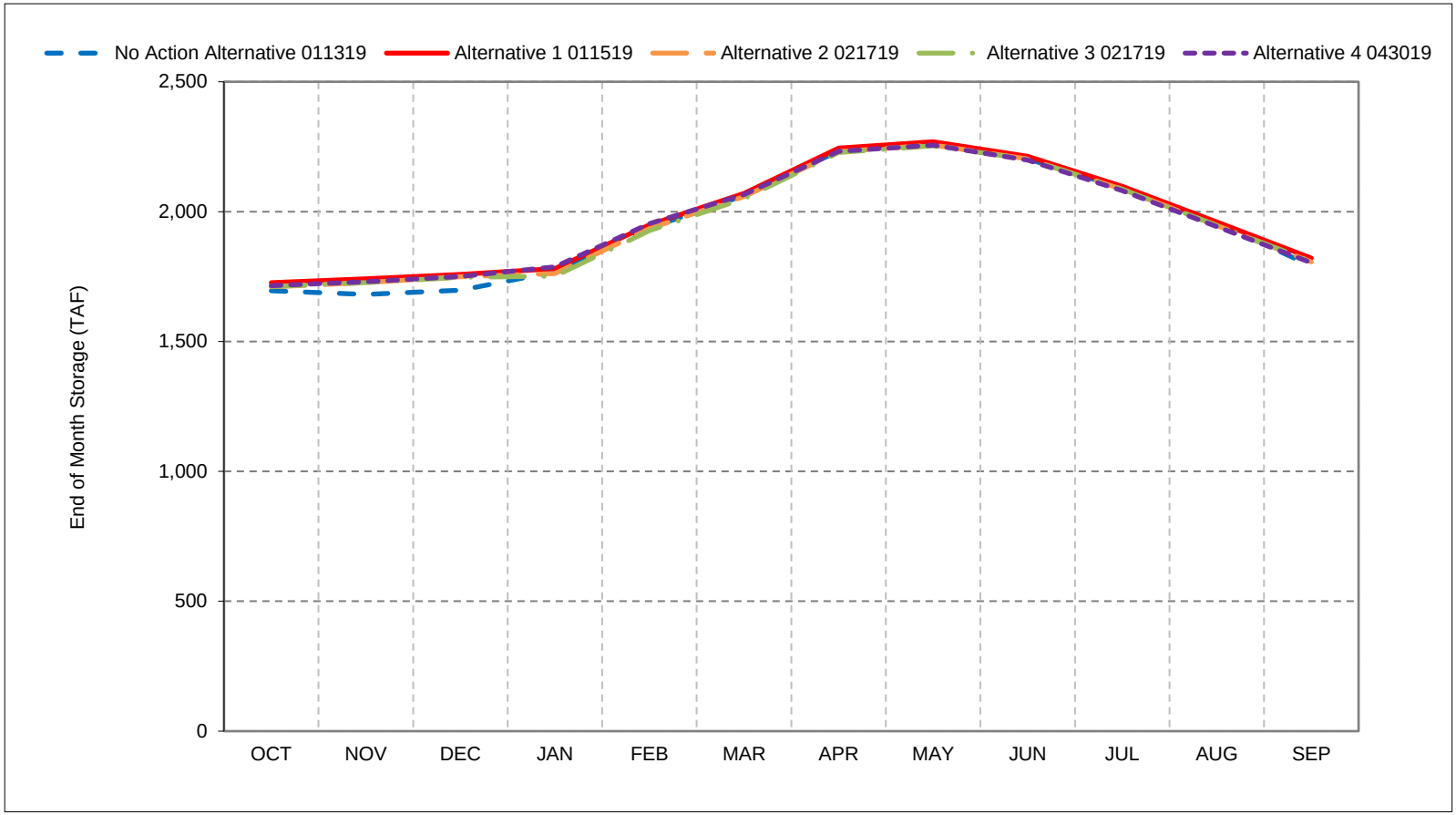
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-1. Trinity Lake Storage, Long-Term Average Storage



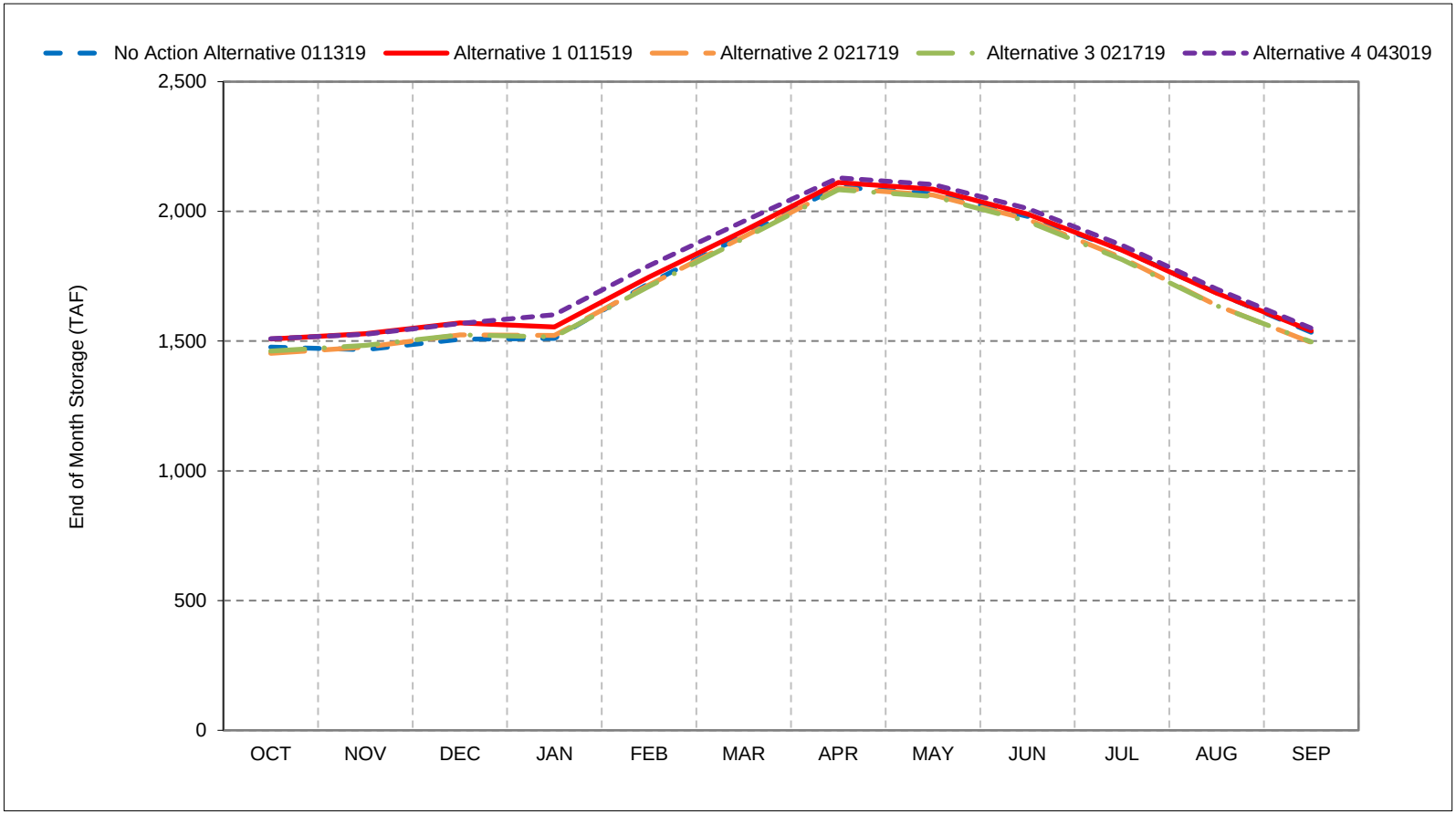
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-2. Trinity Lake Storage, Wet Year Average Storage



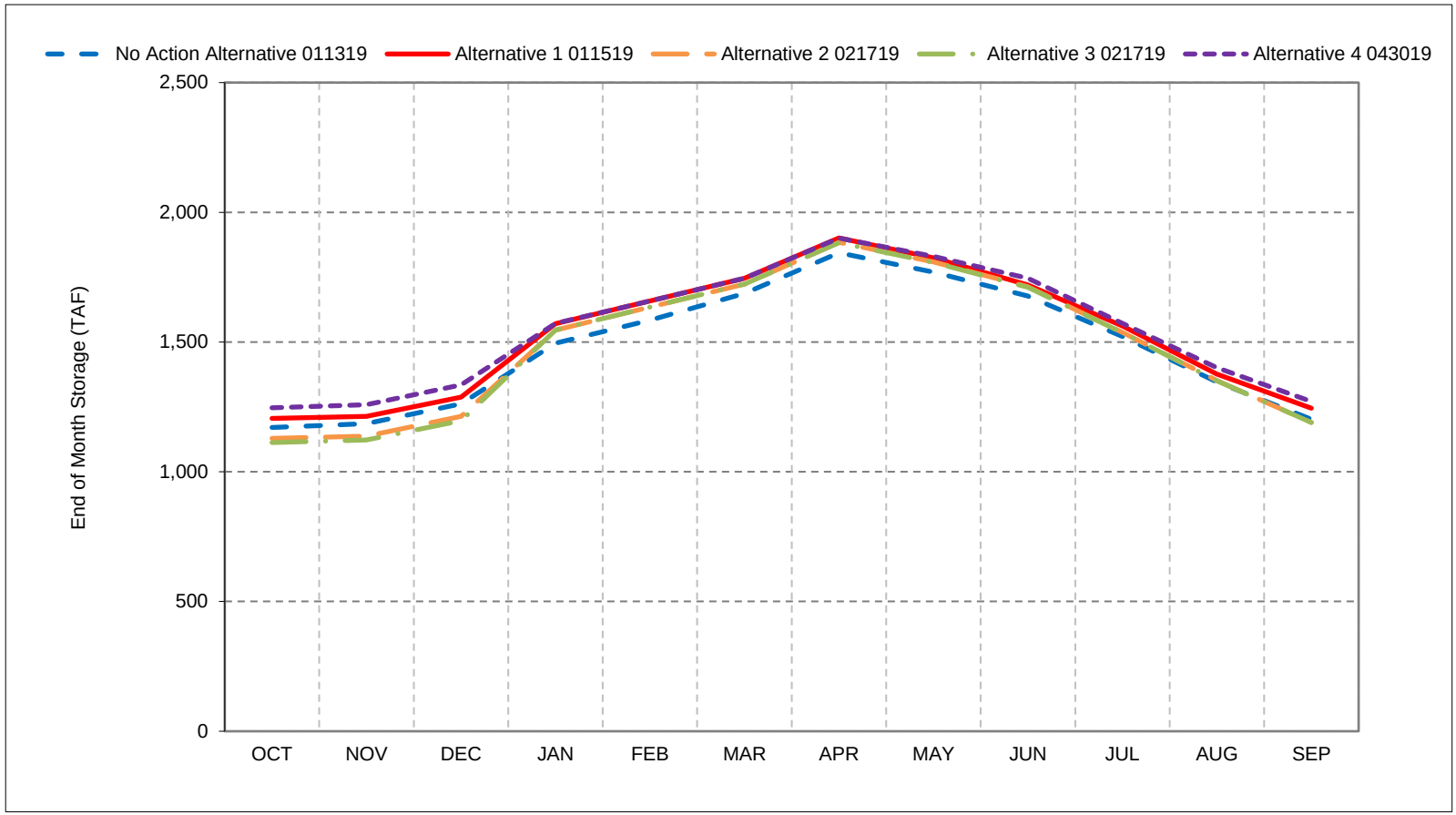
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-3. Trinity Lake Storage, Above Normal Year Average Storage



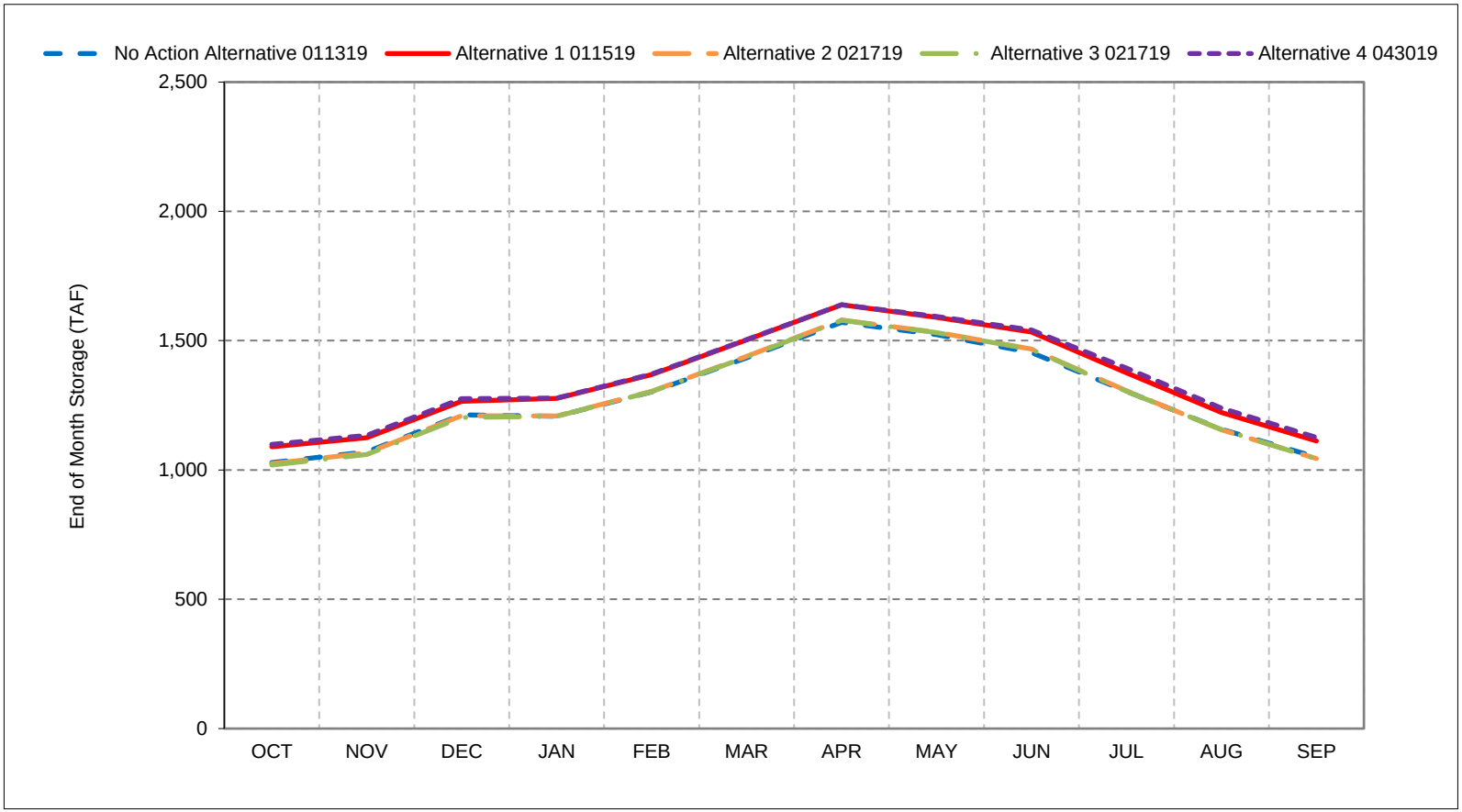
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-4. Trinity Lake Storage, Below Normal Year Average Storage



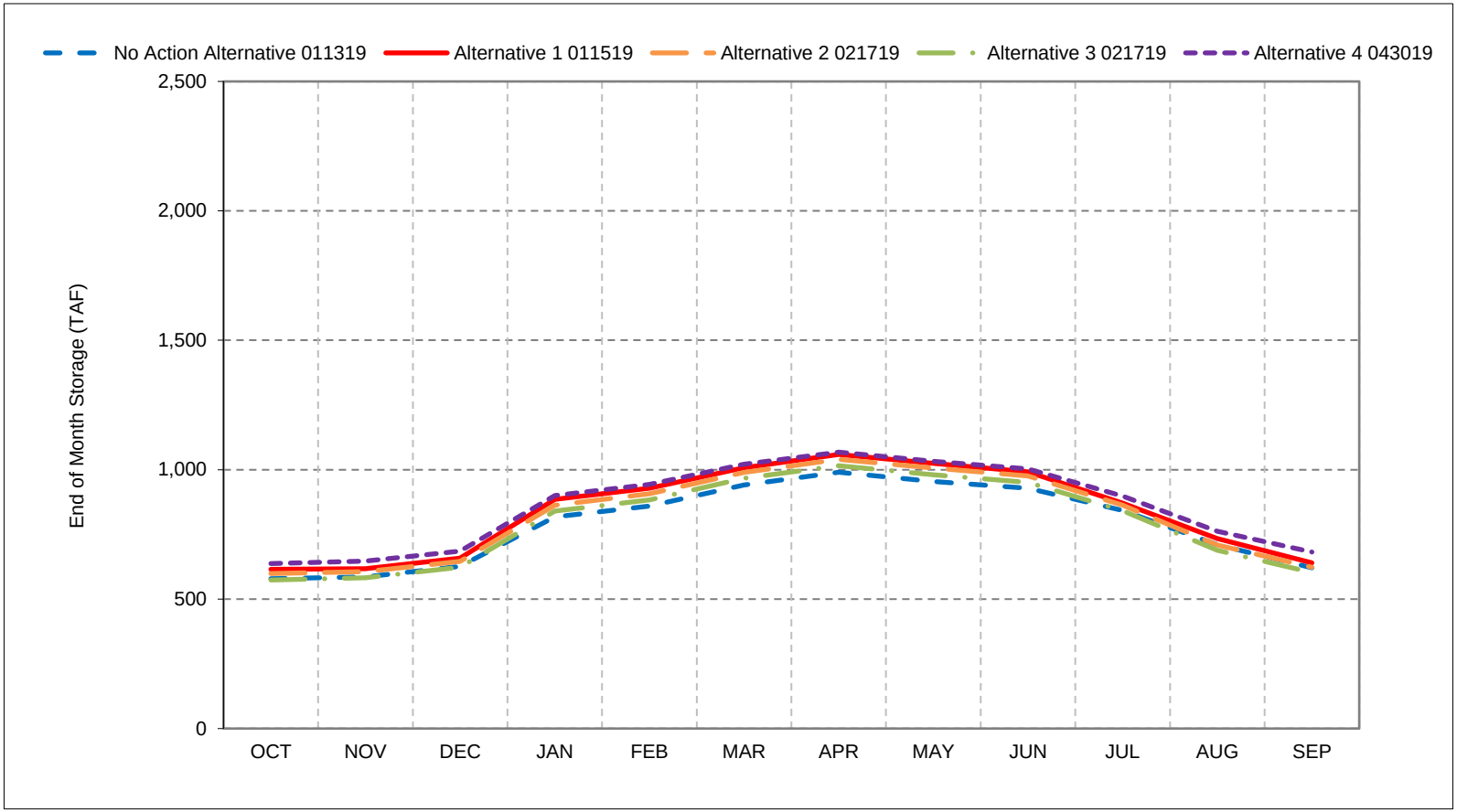
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-5. Trinity Lake Storage, Dry Year Average Storage



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-6. Trinity Lake Storage, Critical Year Average Storage



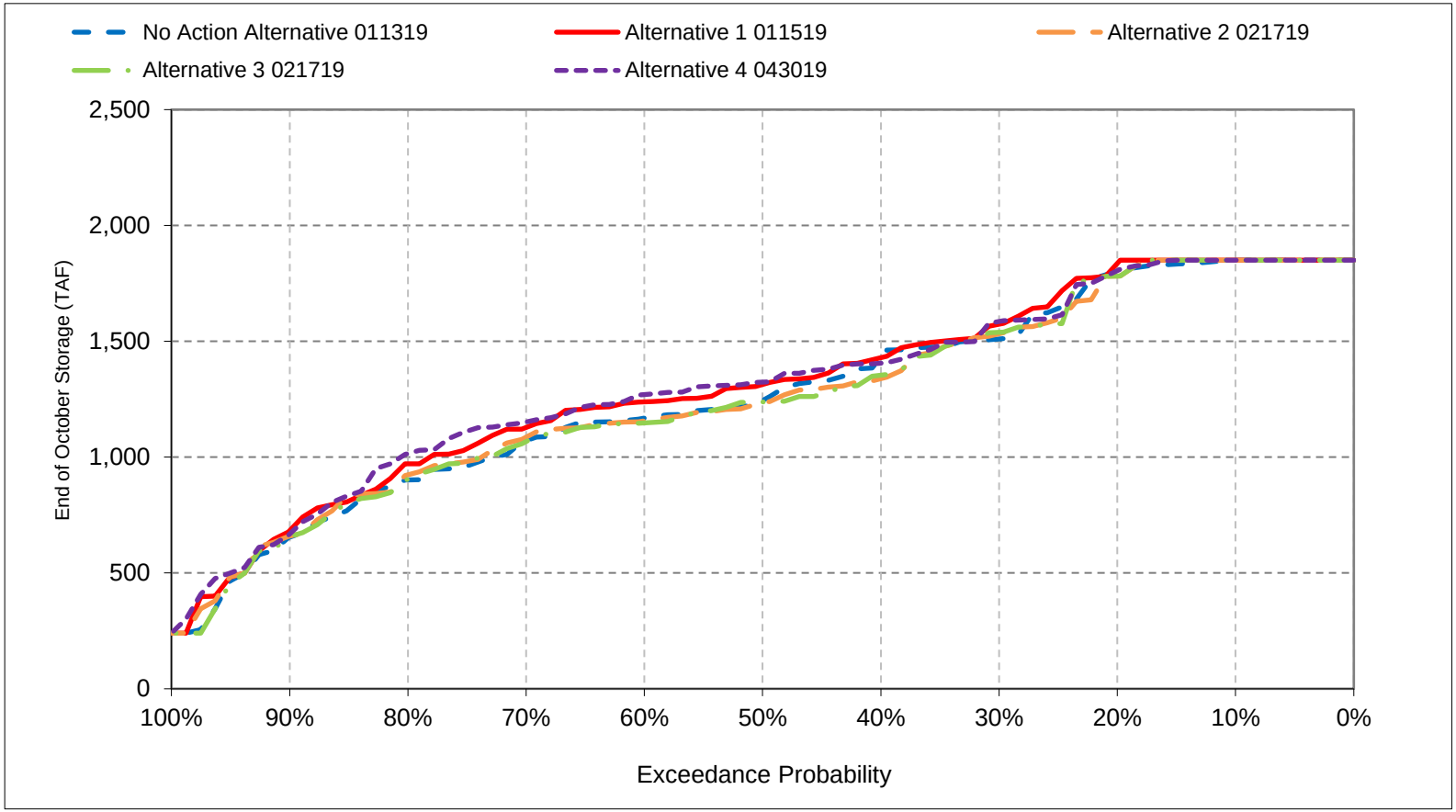
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

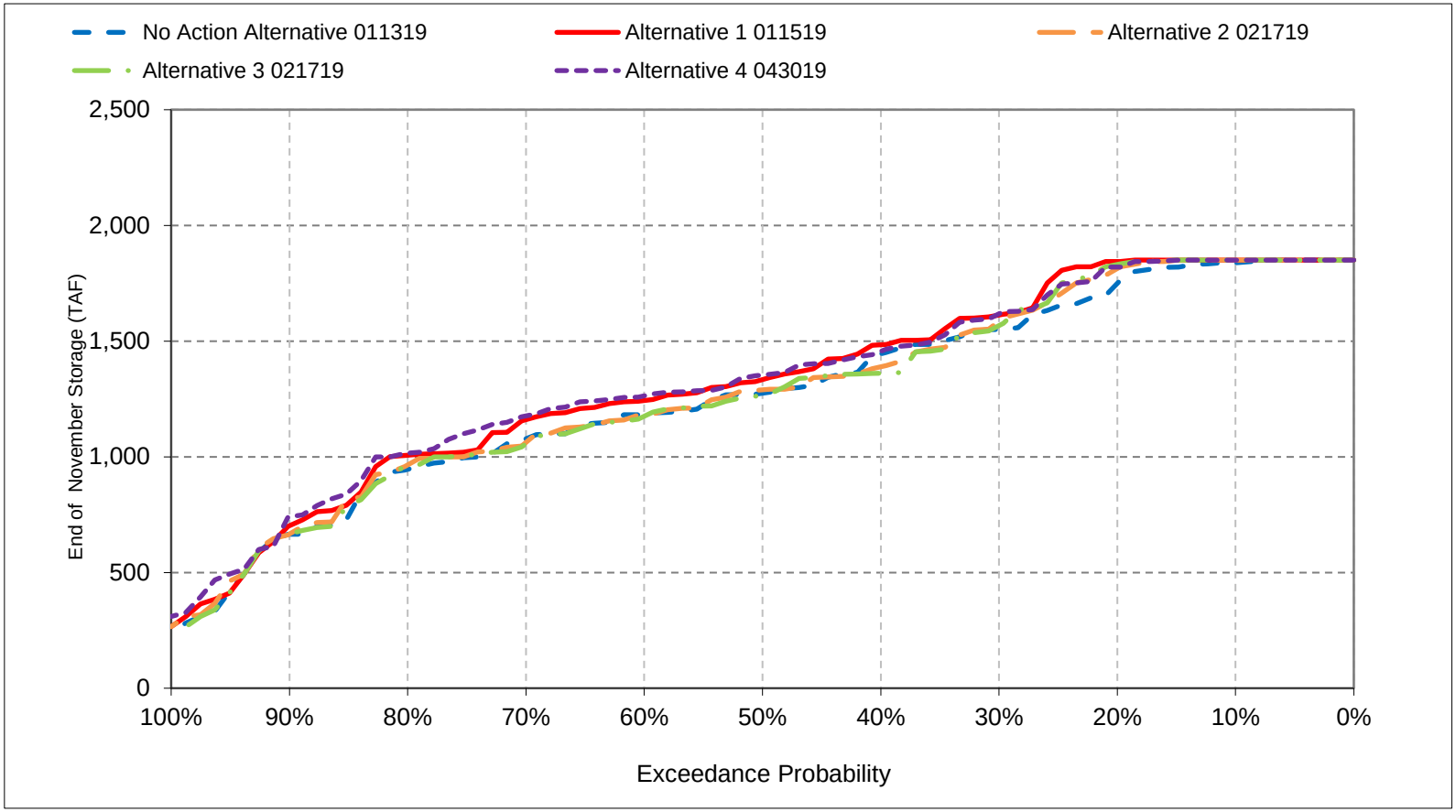
Figure 1-7. Trinity Lake Storage, End of October Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

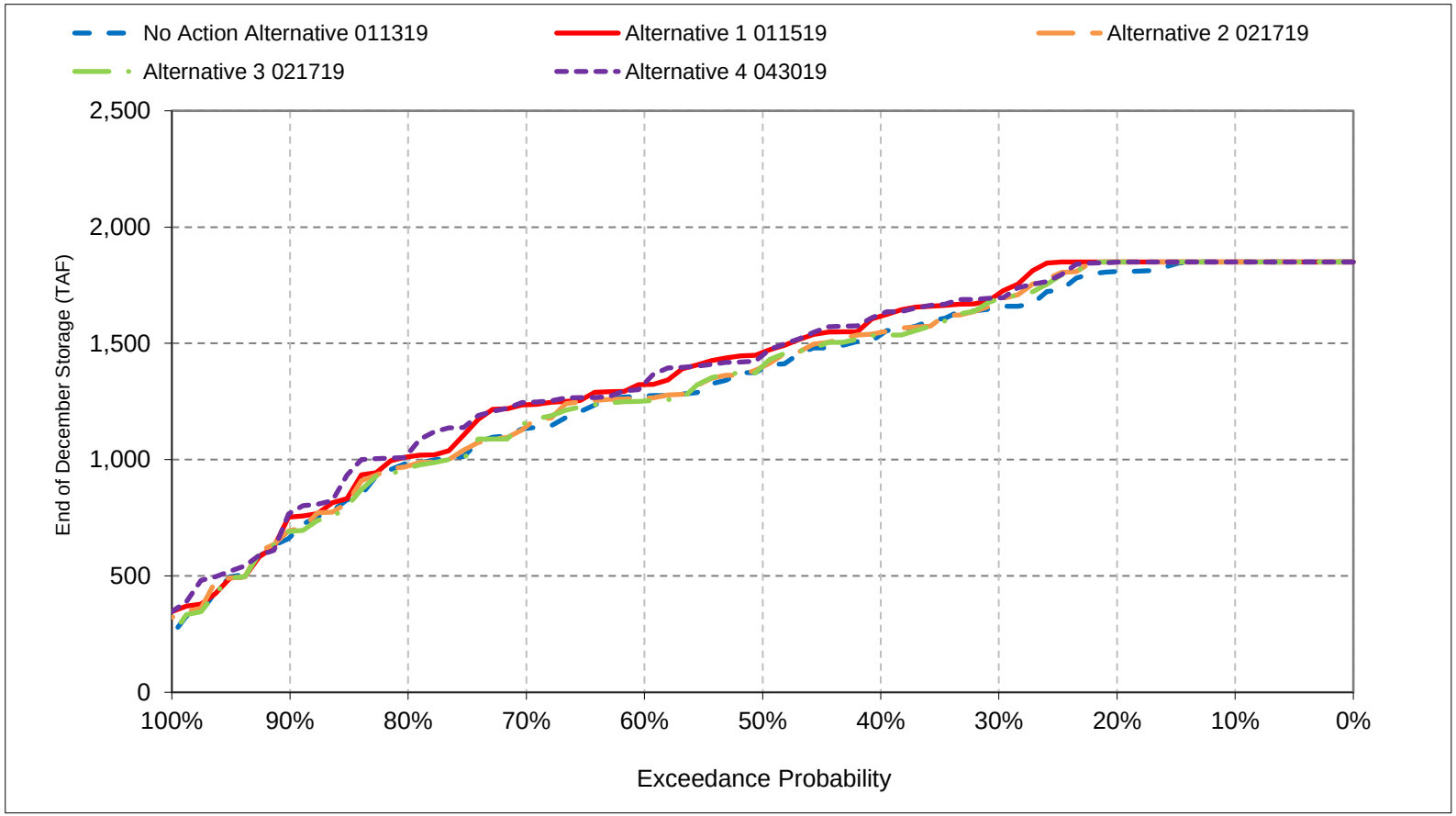
Figure 1-8. Trinity Lake Storage, End of November Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

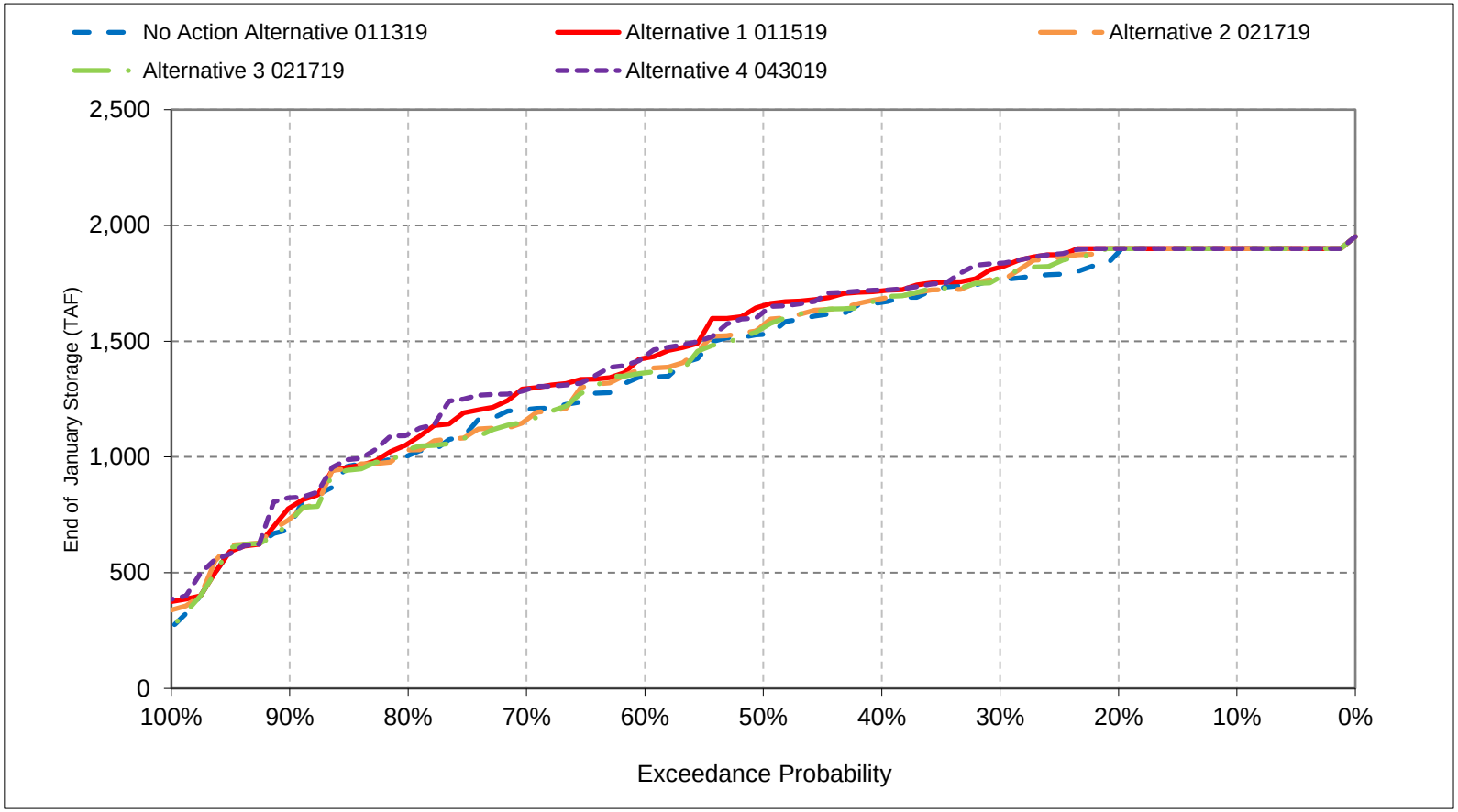
Figure 1-9. Trinity Lake Storage, End of December Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

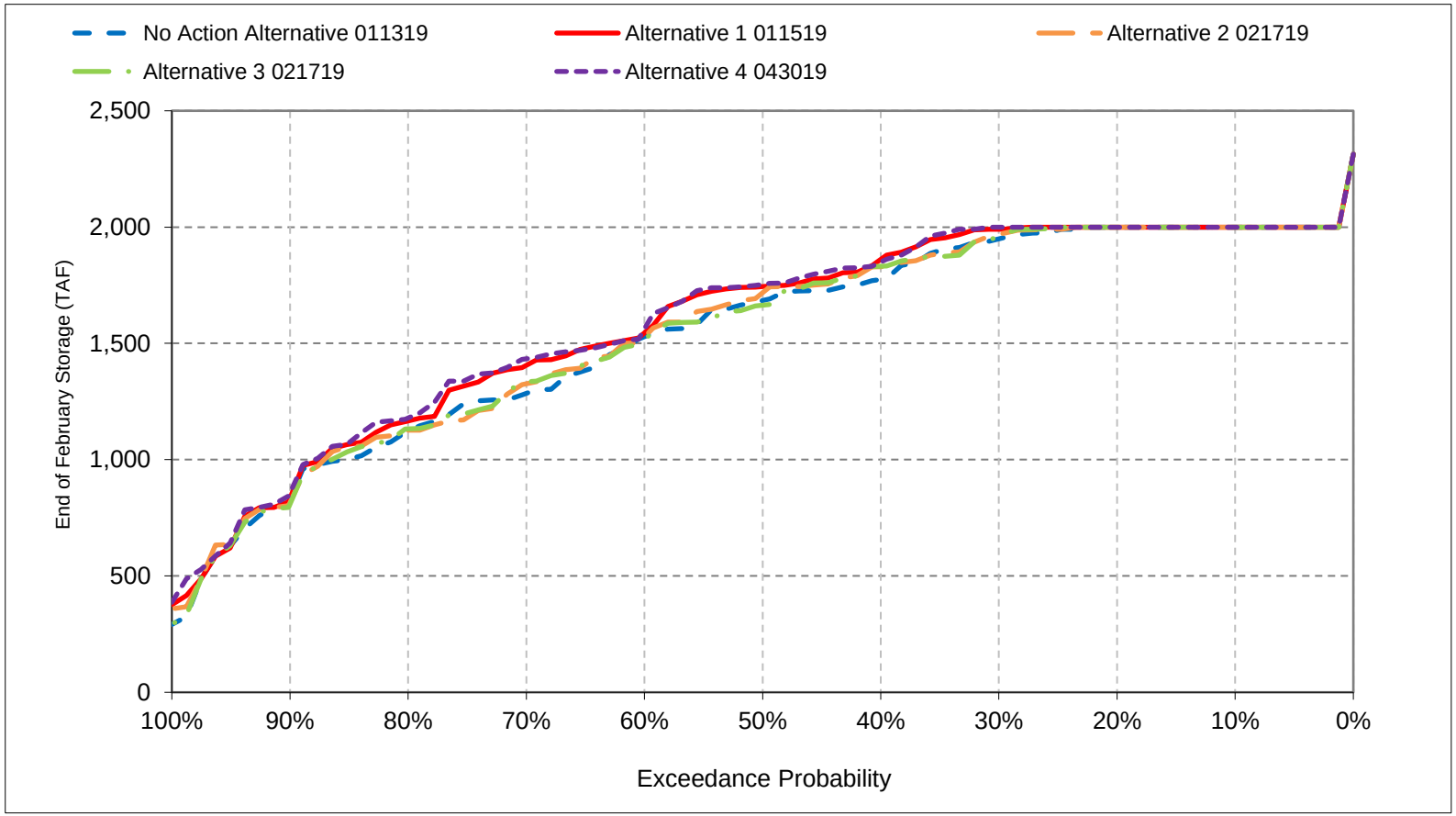
Figure 1-10. Trinity Lake Storage, End of January Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

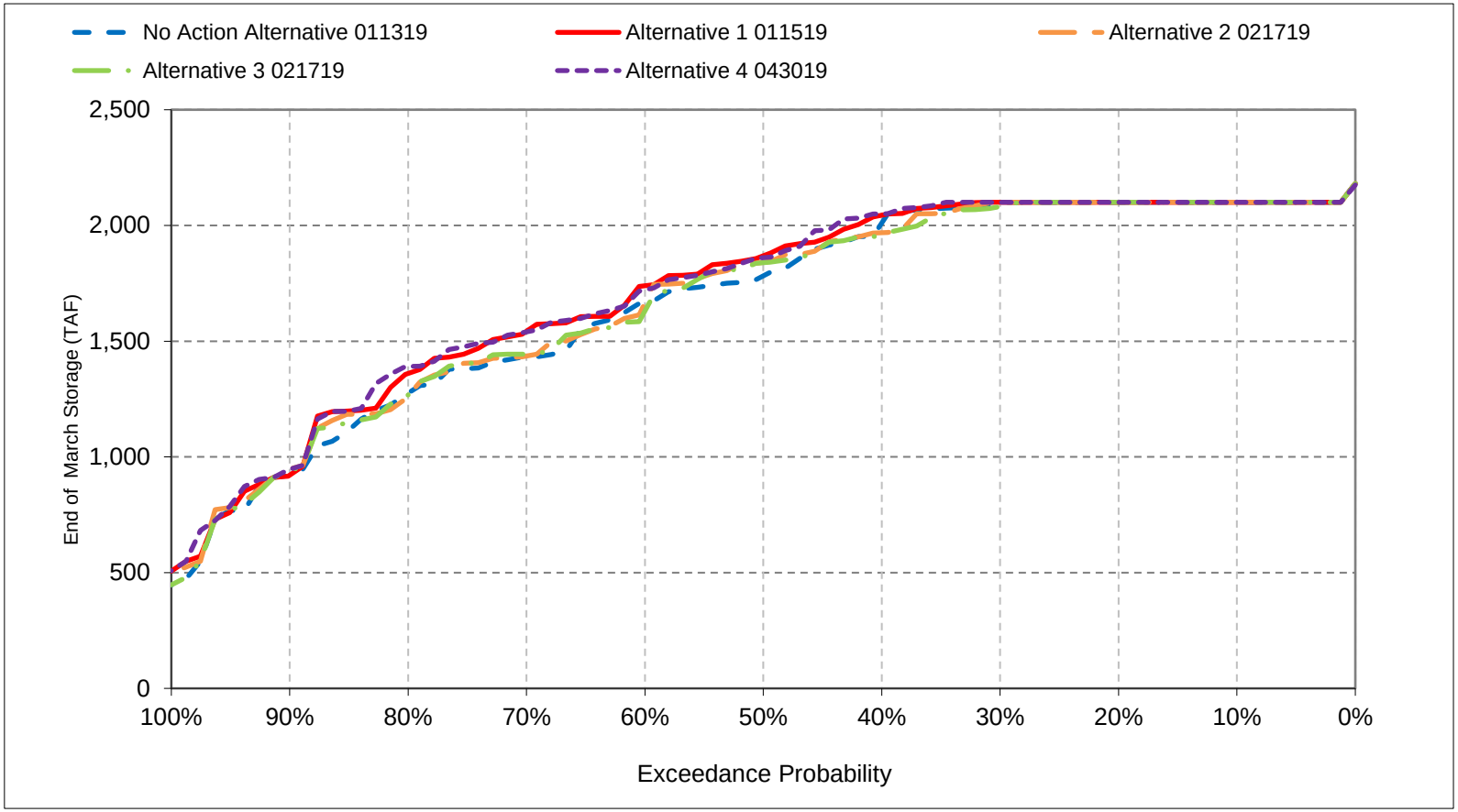
Figure 1-11. Trinity Lake Storage, End of February Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

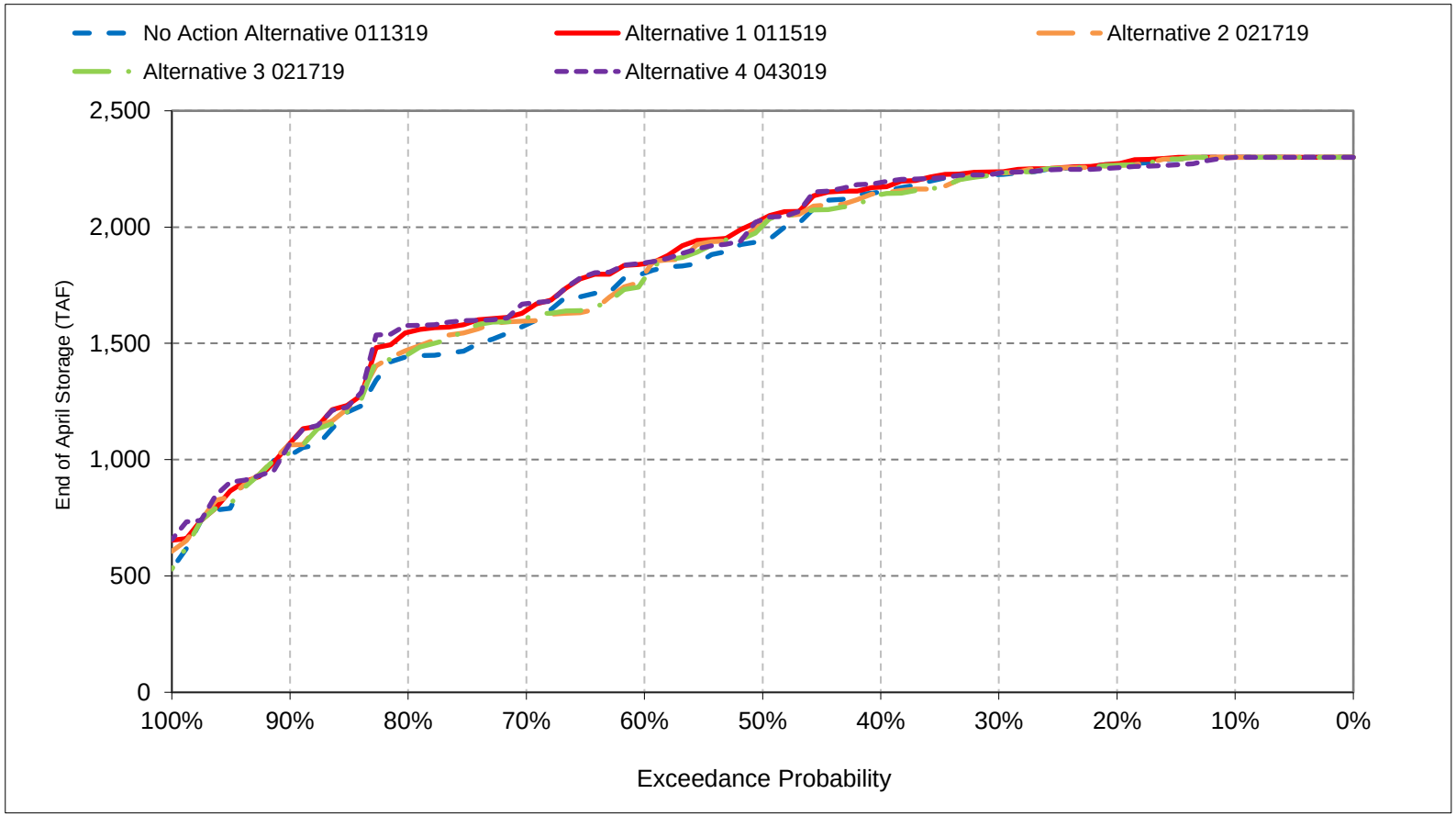
Figure 1-12. Trinity Lake Storage, End of March Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

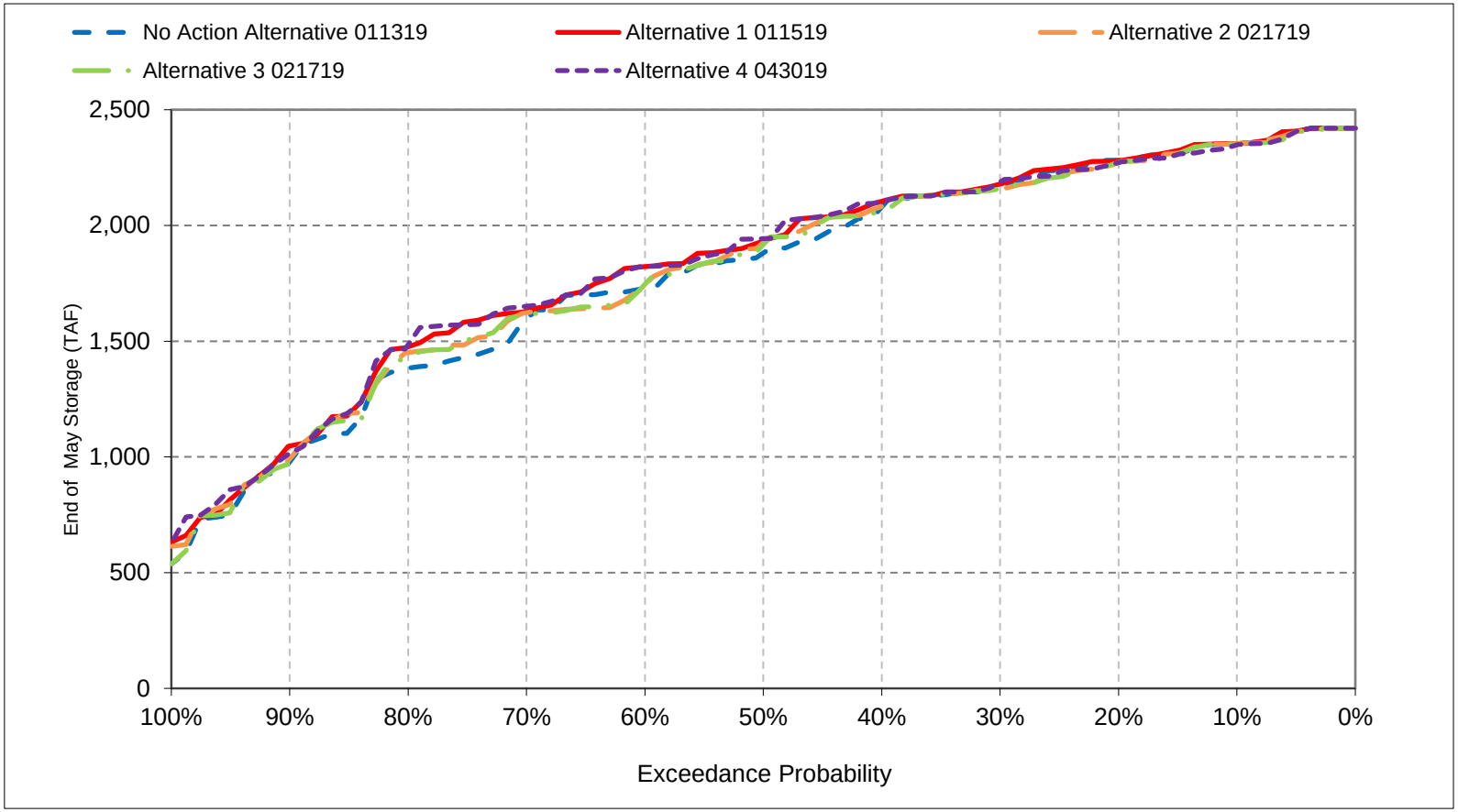
Figure 1-13. Trinity Lake Storage, End of April Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

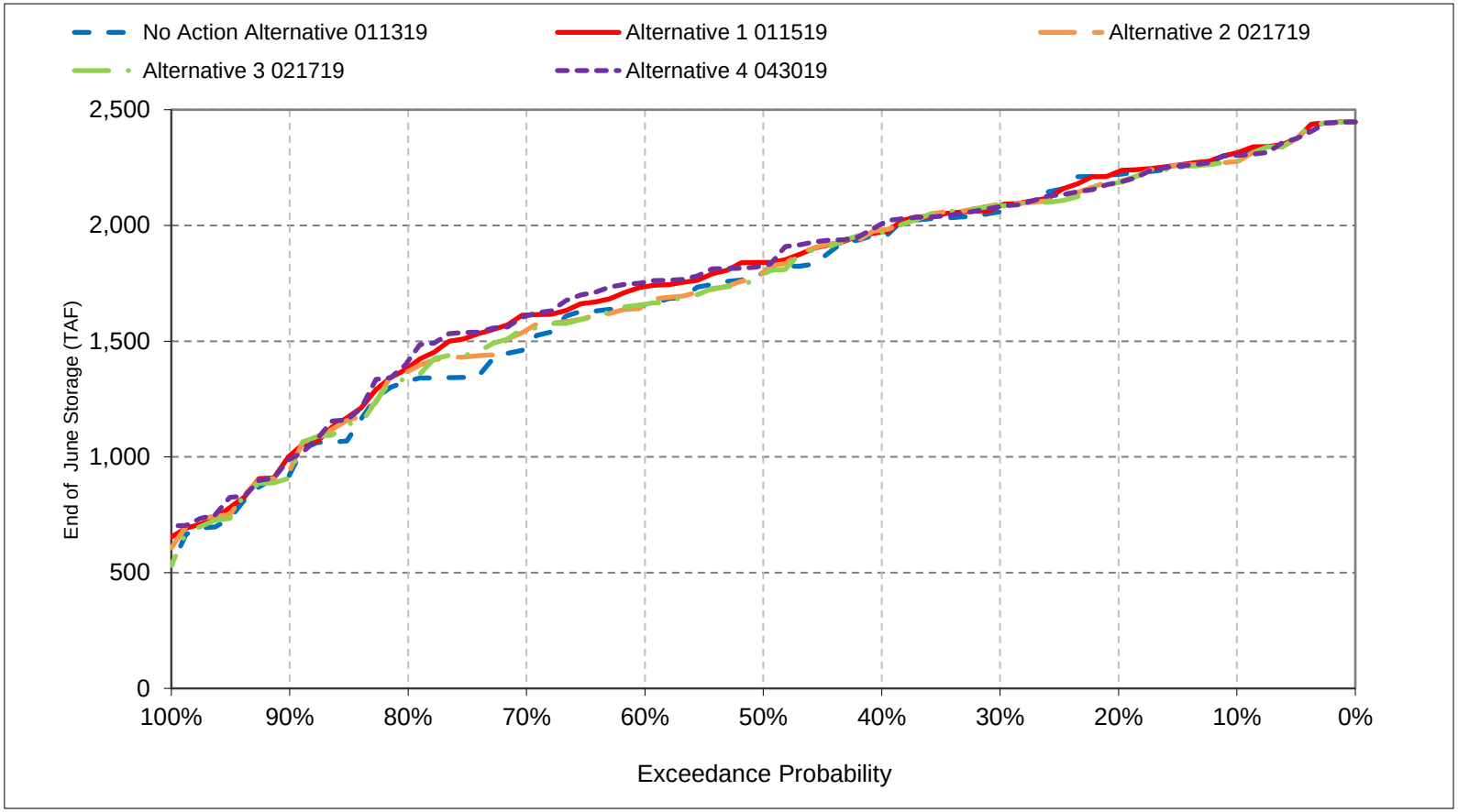
Figure 1-14. Trinity Lake Storage, End of May Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

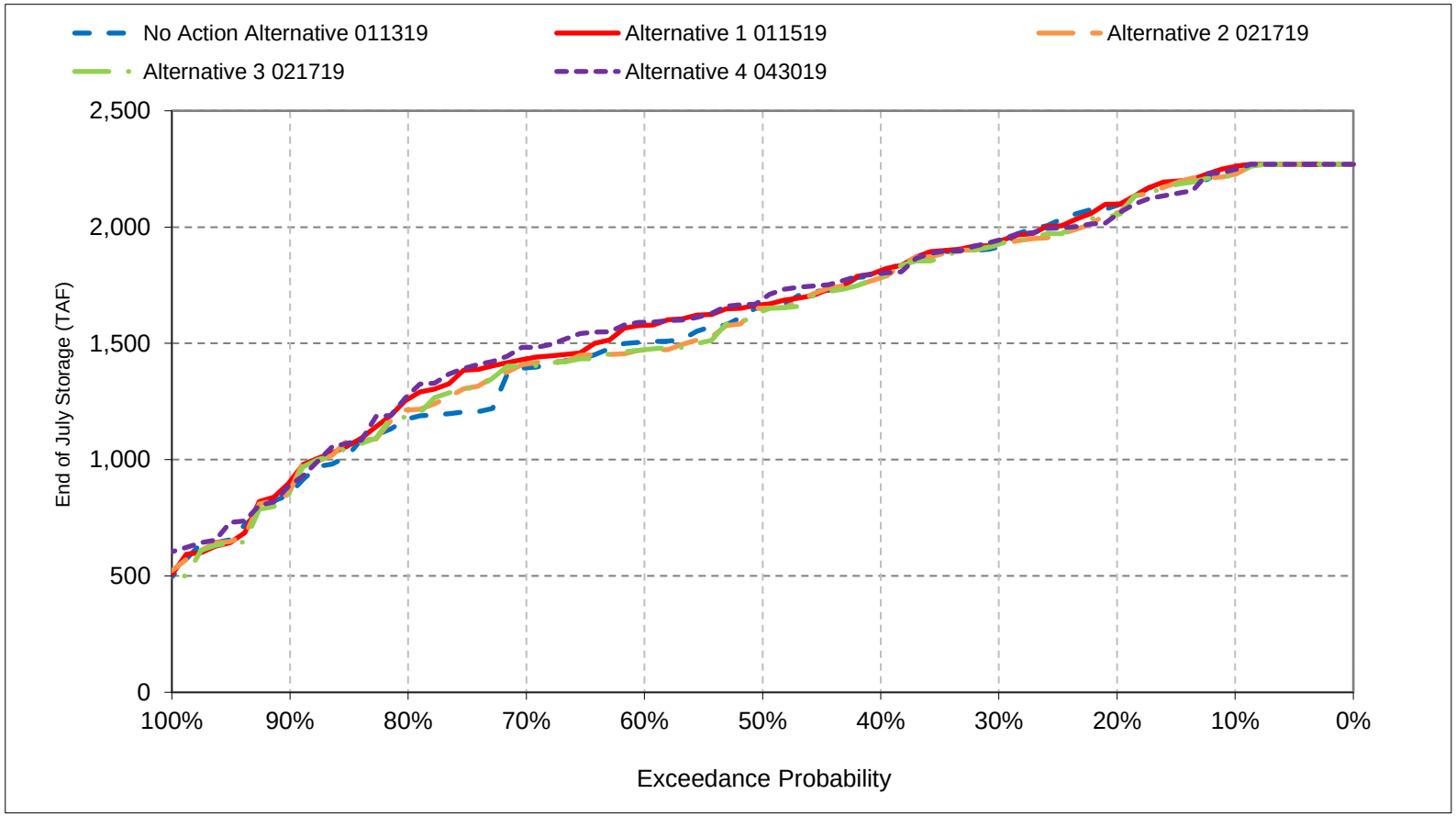
Figure 1-15. Trinity Lake Storage, End of June Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

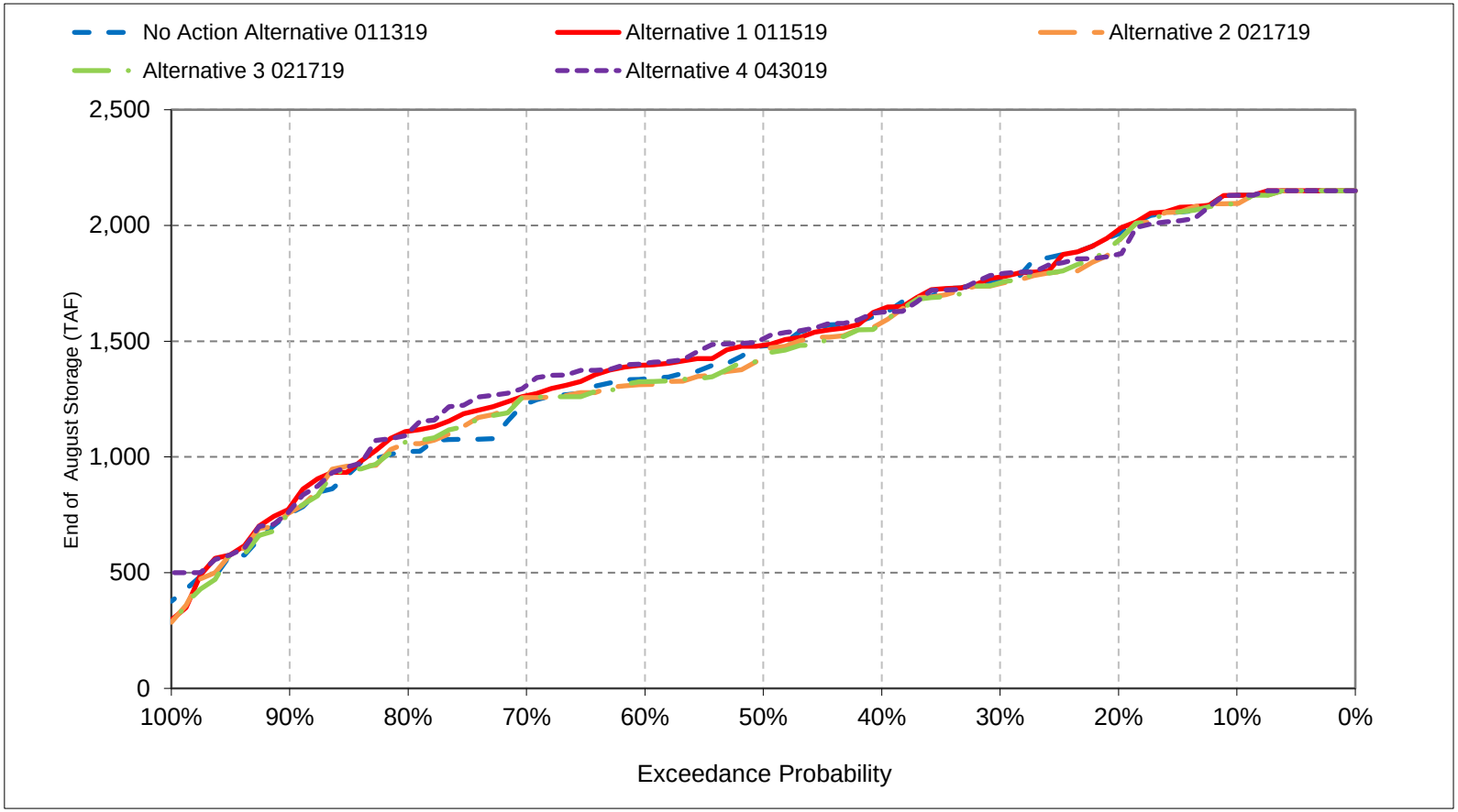
Figure 1-16. Trinity Lake Storage, End of July Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

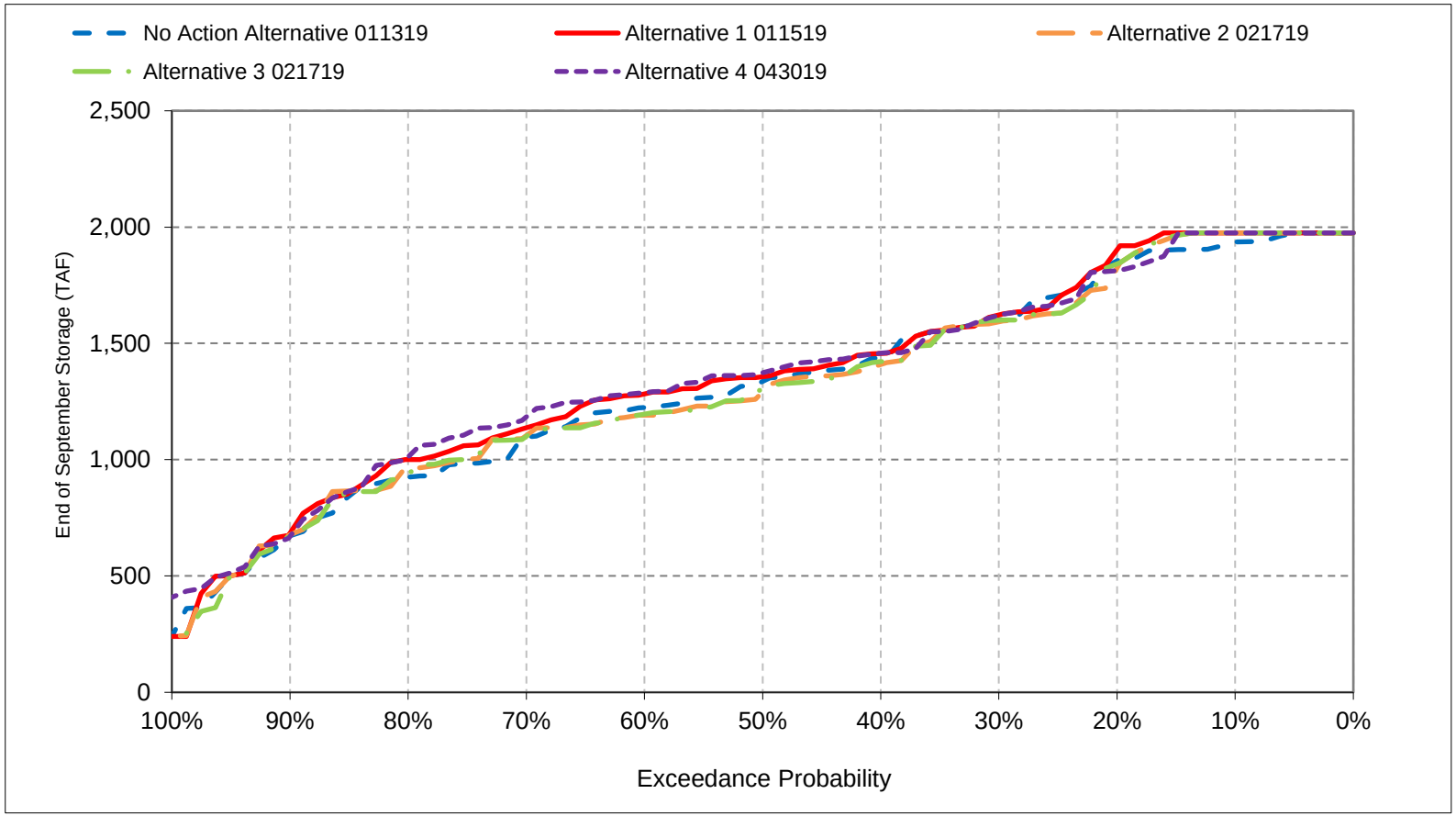
Figure 1-17. Trinity Lake Storage, End of August Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-18. Trinity Lake Storage, End of September Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 1a-1. Trinity Lake Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,332	2,331	2,332	2,337	2,345	2,350	2,361	2,364	2,362	2,359	2,352	2,339
20%	2,328	2,324	2,329	2,335	2,345	2,350	2,359	2,360	2,357	2,350	2,342	2,333
30%	2,303	2,307	2,316	2,325	2,341	2,350	2,357	2,354	2,348	2,338	2,324	2,311
40%	2,297	2,298	2,306	2,317	2,326	2,345	2,353	2,349	2,342	2,328	2,313	2,297
50%	2,280	2,283	2,293	2,305	2,318	2,326	2,340	2,335	2,328	2,315	2,301	2,289
60%	2,273	2,275	2,283	2,289	2,305	2,317	2,328	2,322	2,316	2,303	2,289	2,278
70%	2,263	2,264	2,269	2,276	2,284	2,297	2,309	2,311	2,301	2,294	2,279	2,266
80%	2,244	2,249	2,253	2,256	2,268	2,284	2,298	2,293	2,288	2,274	2,258	2,246
90%	2,210	2,211	2,212	2,216	2,234	2,246	2,257	2,252	2,246	2,238	2,224	2,212
Long Term												
Full Simulation Period[a]	2,275	2,276	2,282	2,290	2,302	2,313	2,324	2,322	2,317	2,307	2,294	2,281
Water Year Types[b,c]												
Wet (32%)	2,319	2,318	2,319	2,325	2,339	2,348	2,357	2,359	2,355	2,348	2,339	2,327
Above Normal (16%)	2,300	2,299	2,303	2,302	2,321	2,336	2,348	2,347	2,341	2,332	2,318	2,305
Below Normal (13%)	2,270	2,271	2,278	2,300	2,308	2,317	2,329	2,324	2,317	2,303	2,288	2,274
Dry (24%)	2,256	2,261	2,274	2,272	2,282	2,295	2,307	2,303	2,297	2,284	2,270	2,259
Critical (15%)	2,185	2,190	2,198	2,224	2,231	2,243	2,250	2,246	2,244	2,233	2,214	2,197

Alternative 1 011519

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,332	2,332	2,332	2,337	2,345	2,350	2,361	2,364	2,362	2,359	2,352	2,343
20%	2,331	2,332	2,332	2,337	2,345	2,350	2,360	2,360	2,357	2,350	2,343	2,337
30%	2,309	2,312	2,321	2,330	2,344	2,350	2,358	2,355	2,349	2,340	2,326	2,313
40%	2,297	2,301	2,312	2,321	2,333	2,347	2,354	2,351	2,343	2,329	2,314	2,299
50%	2,287	2,289	2,299	2,316	2,323	2,334	2,347	2,339	2,331	2,317	2,301	2,290
60%	2,280	2,280	2,288	2,296	2,306	2,323	2,332	2,330	2,323	2,309	2,294	2,284
70%	2,269	2,272	2,280	2,285	2,295	2,306	2,315	2,314	2,312	2,297	2,282	2,270
80%	2,252	2,256	2,256	2,262	2,273	2,291	2,307	2,301	2,293	2,282	2,267	2,255
90%	2,214	2,217	2,224	2,228	2,235	2,246	2,263	2,260	2,256	2,244	2,228	2,214
Long Term												
Full Simulation Period[a]	2,279	2,281	2,287	2,295	2,307	2,317	2,328	2,326	2,321	2,310	2,296	2,284
Water Year Types[b,c]												
Wet (32%)	2,322	2,323	2,324	2,326	2,340	2,348	2,358	2,360	2,356	2,349	2,339	2,330
Above Normal (16%)	2,303	2,305	2,308	2,305	2,323	2,337	2,349	2,348	2,342	2,332	2,318	2,306
Below Normal (13%)	2,274	2,274	2,281	2,307	2,315	2,322	2,333	2,328	2,320	2,307	2,290	2,278
Dry (24%)	2,263	2,266	2,279	2,278	2,288	2,300	2,313	2,309	2,304	2,290	2,276	2,265
Critical (15%)	2,193	2,197	2,205	2,234	2,240	2,251	2,258	2,254	2,251	2,236	2,216	2,197

Alternative 1 011519 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	1	0	0	0	0	0	0	0	0	0	3
20%	3	8	3	1	0	0	0	**0**	1	0	2	4
30%	5	5	5	5	4	0	1	1	1	2	2	2
40%	**0**	3	7	4	7	2	1	1	1	1	2	2
50%	6	5	6	10	5	7	7	4	4	1	0	2
60%	7	6	4	7	1	6	3	8	7	6	5	6
70%	6	8	10	9	10	9	5	3	11	3	3	4
80%	8	7	3	6	4	7	9	8	5	8	9	9
90%	4	5	12	12	1	**0**	6	8	9	6	4	2
Long Term												
Full Simulation Period[a]	5	5	5	5	4	4	4	4	4	3	2	3
Water Year Types[b,c]												
Wet (32%)	3	5	5	1	1	1	1	1	1	0	0	3
Above Normal (16%)	3	5	6	4	2	1	1	1	1	0	**0**	0
Below Normal (13%)	4	3	2	7	7	5	5	4	4	3	3	4
Dry (24%)	7	6	5	6	6	6	6	6	7	6	6	7
Critical (15%)	8	7	7	10	9	8	8	8	7	3	2	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1a-2. Trinity Lake Elevation, End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,332	2,331	2,332	2,337	2,345	2,350	2,361	2,364	2,362	2,359	2,352	2,339
20%	2,328	2,324	2,329	2,335	2,345	2,350	2,359	2,360	2,357	2,350	2,342	2,333
30%	2,303	2,307	2,316	2,325	2,341	2,350	2,357	2,354	2,348	2,338	2,324	2,311
40%	2,297	2,298	2,306	2,317	2,326	2,345	2,353	2,349	2,342	2,328	2,313	2,297
50%	2,280	2,283	2,293	2,305	2,318	2,326	2,340	2,335	2,328	2,315	2,301	2,289
60%	2,273	2,275	2,283	2,289	2,305	2,317	2,328	2,322	2,316	2,303	2,289	2,278
70%	2,263	2,264	2,269	2,276	2,284	2,297	2,309	2,311	2,301	2,294	2,279	2,266
80%	2,244	2,249	2,253	2,256	2,268	2,284	2,298	2,293	2,288	2,274	2,258	2,246
90%	2,210	2,211	2,212	2,216	2,234	2,246	2,257	2,252	2,246	2,238	2,224	2,212
Long Term												
Full Simulation Period[a]	2,275	2,276	2,282	2,290	2,302	2,313	2,324	2,322	2,317	2,307	2,294	2,281
Water Year Types[b,c]												
Wet (32%)	2,319	2,318	2,319	2,325	2,339	2,348	2,357	2,359	2,355	2,348	2,339	2,327
Above Normal (16%)	2,300	2,299	2,303	2,302	2,321	2,336	2,348	2,347	2,341	2,332	2,318	2,305
Below Normal (13%)	2,270	2,271	2,278	2,300	2,308	2,317	2,329	2,324	2,317	2,303	2,288	2,274
Dry (24%)	2,256	2,261	2,274	2,272	2,282	2,295	2,307	2,303	2,297	2,284	2,270	2,259
Critical (15%)	2,185	2,190	2,198	2,224	2,231	2,243	2,250	2,246	2,244	2,233	2,214	2,197

Alternative 2 021719

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,332	2,332	2,332	2,337	2,345	2,350	2,361	2,364	2,360	2,357	2,350	2,343
20%	2,326	2,329	2,332	2,337	2,345	2,350	2,359	2,359	2,355	2,348	2,339	2,330
30%	2,305	2,310	2,318	2,325	2,342	2,350	2,357	2,353	2,350	2,339	2,324	2,310
40%	2,289	2,293	2,307	2,318	2,331	2,342	2,353	2,349	2,343	2,326	2,309	2,295
50%	2,279	2,285	2,294	2,308	2,321	2,331	2,346	2,339	2,328	2,315	2,298	2,285
60%	2,272	2,274	2,283	2,292	2,305	2,317	2,328	2,323	2,316	2,300	2,287	2,275
70%	2,265	2,262	2,270	2,272	2,288	2,297	2,311	2,313	2,307	2,295	2,282	2,266
80%	2,246	2,251	2,252	2,258	2,269	2,282	2,300	2,298	2,292	2,277	2,262	2,251
90%	2,210	2,211	2,215	2,221	2,232	2,249	2,262	2,254	2,248	2,239	2,225	2,213
Long Term												
Full Simulation Period[a]	2,275	2,278	2,284	2,292	2,304	2,315	2,326	2,324	2,319	2,307	2,293	2,280
Water Year Types[b,c]												
Wet (32%)	2,320	2,322	2,324	2,325	2,339	2,347	2,357	2,359	2,355	2,348	2,338	2,329
Above Normal (16%)	2,298	2,300	2,304	2,302	2,320	2,335	2,348	2,346	2,340	2,329	2,314	2,302
Below Normal (13%)	2,267	2,267	2,274	2,304	2,313	2,320	2,332	2,327	2,320	2,305	2,288	2,273
Dry (24%)	2,256	2,260	2,274	2,272	2,282	2,295	2,308	2,304	2,299	2,284	2,270	2,258
Critical (15%)	2,191	2,195	2,203	2,232	2,237	2,249	2,256	2,252	2,249	2,235	2,212	2,195

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	1	0	0	0	0	0	0	-2	-2	-2	3
20%	-2	5	3	1	0	0	0	-1	-2	-2	-3	-3
30%	2	3	2	0	2	0	0	0	2	1	-1	-1
40%	-8	-5	1	1	5	-3	0	0	2	-2	-3	-2
50%	-1	1	1	3	3	5	6	4	0	0	-3	-4
60%	-1	0	-1	3	0	0	0	2	0	-3	-2	-3
70%	2	-2	1	-5	3	0	1	2	6	1	3	1
80%	3	2	-1	3	0	-1	2	6	4	4	4	5
90%	0	0	4	5	-2	3	5	2	2	1	1	1
Long Term												
Full Simulation Period[a]	0	2	2	2	1	1	1	1	1	0	-1	-1
Water Year Types[b,c]												
Wet (32%)	1	4	4	-1	0	0	0	0	0	0	-1	1
Above Normal (16%)	-2	1	2	1	-1	0	0	0	0	-2	-4	-3
Below Normal (13%)	-3	-4	-4	4	4	3	3	3	3	2	1	-1
Dry (24%)	0	0	0	0	0	1	1	1	1	0	0	0
Critical (15%)	5	5	5	8	6	6	6	6	6	2	-2	-2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1a-3. Trinity Lake Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,332	2,331	2,332	2,337	2,345	2,350	2,361	2,364	2,362	2,359	2,352	2,339
20%	2,328	2,324	2,329	2,335	2,345	2,350	2,359	2,360	2,357	2,350	2,342	2,333
30%	2,303	2,307	2,316	2,325	2,341	2,350	2,357	2,354	2,348	2,338	2,324	2,311
40%	2,297	2,298	2,306	2,317	2,326	2,345	2,353	2,349	2,342	2,328	2,313	2,297
50%	2,280	2,283	2,293	2,305	2,318	2,326	2,340	2,335	2,328	2,315	2,301	2,289
60%	2,273	2,275	2,283	2,289	2,305	2,317	2,328	2,322	2,316	2,303	2,289	2,278
70%	2,263	2,264	2,269	2,276	2,284	2,297	2,309	2,311	2,301	2,294	2,279	2,266
80%	2,244	2,249	2,253	2,256	2,268	2,284	2,298	2,293	2,288	2,274	2,258	2,246
90%	2,210	2,211	2,212	2,216	2,234	2,246	2,257	2,252	2,246	2,238	2,224	2,212
Long Term												
Full Simulation Period[a]	2,275	2,276	2,282	2,290	2,302	2,313	2,324	2,322	2,317	2,307	2,294	2,281
Water Year Types[b,c]												
Wet (32%)	2,319	2,318	2,319	2,325	2,339	2,348	2,357	2,359	2,355	2,348	2,339	2,327
Above Normal (16%)	2,300	2,299	2,303	2,302	2,321	2,336	2,348	2,347	2,341	2,332	2,318	2,305
Below Normal (13%)	2,270	2,271	2,278	2,300	2,308	2,317	2,329	2,324	2,317	2,303	2,288	2,274
Dry (24%)	2,256	2,261	2,274	2,272	2,282	2,295	2,307	2,303	2,297	2,284	2,270	2,259
Critical (15%)	2,185	2,190	2,198	2,224	2,231	2,243	2,250	2,246	2,244	2,233	2,214	2,197

Alternative 3 021719

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,332	2,332	2,332	2,337	2,345	2,350	2,361	2,364	2,360	2,357	2,350	2,343
20%	2,326	2,331	2,332	2,337	2,345	2,350	2,359	2,359	2,355	2,348	2,340	2,332
30%	2,306	2,308	2,319	2,326	2,342	2,349	2,357	2,353	2,349	2,339	2,324	2,311
40%	2,290	2,291	2,305	2,318	2,331	2,342	2,352	2,348	2,342	2,327	2,309	2,296
50%	2,280	2,283	2,294	2,307	2,316	2,331	2,345	2,338	2,327	2,314	2,297	2,286
60%	2,271	2,274	2,281	2,291	2,304	2,314	2,326	2,323	2,316	2,300	2,288	2,276
70%	2,263	2,261	2,272	2,272	2,289	2,298	2,312	2,312	2,307	2,294	2,282	2,266
80%	2,244	2,250	2,251	2,259	2,269	2,283	2,299	2,296	2,289	2,275	2,262	2,248
90%	2,210	2,211	2,215	2,219	2,231	2,248	2,258	2,253	2,246	2,239	2,224	2,213
Long Term												
Full Simulation Period[a]	2,274	2,276	2,283	2,291	2,303	2,314	2,325	2,323	2,318	2,307	2,292	2,280
Water Year Types[b,c]												
Wet (32%)	2,320	2,322	2,323	2,324	2,338	2,347	2,357	2,359	2,355	2,348	2,338	2,329
Above Normal (16%)	2,299	2,301	2,304	2,302	2,320	2,335	2,347	2,346	2,340	2,329	2,314	2,302
Below Normal (13%)	2,265	2,266	2,272	2,304	2,313	2,320	2,332	2,326	2,319	2,305	2,288	2,273
Dry (24%)	2,256	2,260	2,273	2,272	2,282	2,295	2,308	2,304	2,299	2,284	2,270	2,258
Critical (15%)	2,184	2,189	2,197	2,226	2,233	2,246	2,253	2,249	2,246	2,232	2,208	2,192

Alternative 3 021719 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	1	0	0	0	0	0	0	-2	-2	-2	3
20%	-2	7	3	1	0	0	0	-1	-2	-2	-2	-1
30%	2	1	3	1	1	-1	0	0	1	1	-1	0
40%	-6	-7	0	1	5	-3	-1	-1	1	-2	-3	-1
50%	-1	-1	1	2	-2	5	5	3	-1	-1	-4	-3
60%	-2	-1	-2	2	-1	-3	-2	2	0	-3	-1	-3
70%	-1	-2	3	-5	4	1	2	2	6	1	3	0
80%	0	2	-2	3	1	-1	1	4	1	1	5	1
90%	0	0	3	3	-3	2	1	0	0	1	0	0
Long Term												
Full Simulation Period[a]	-1	0	0	0	1	0	1	1	1	0	-2	-1
Water Year Types[b,c]												
Wet (32%)	1	4	4	-1	-1	-1	0	0	0	0	-1	2
Above Normal (16%)	-1	2	2	0	-1	-1	-1	-1	-1	-3	-4	-3
Below Normal (13%)	-5	-6	-6	4	4	3	3	3	3	1	1	-1
Dry (24%)	-1	-1	-1	0	0	0	1	1	1	0	0	0
Critical (15%)	-1	-1	-1	2	2	3	2	3	2	-1	-6	-5

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1a-4. Trinity Lake Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,332	2,331	2,332	2,337	2,345	2,350	2,361	2,364	2,362	2,359	2,352	2,339
20%	2,328	2,324	2,329	2,335	2,345	2,350	2,359	2,360	2,357	2,350	2,342	2,333
30%	2,303	2,307	2,316	2,325	2,341	2,350	2,357	2,354	2,348	2,338	2,324	2,311
40%	2,297	2,298	2,306	2,317	2,326	2,345	2,353	2,349	2,342	2,328	2,313	2,297
50%	2,280	2,283	2,293	2,305	2,318	2,326	2,340	2,335	2,328	2,315	2,301	2,289
60%	2,273	2,275	2,283	2,289	2,305	2,317	2,328	2,322	2,316	2,303	2,289	2,278
70%	2,263	2,264	2,269	2,276	2,284	2,297	2,309	2,311	2,301	2,294	2,279	2,266
80%	2,244	2,249	2,253	2,256	2,268	2,284	2,298	2,293	2,288	2,274	2,258	2,246
90%	2,210	2,211	2,212	2,216	2,234	2,246	2,257	2,252	2,246	2,238	2,224	2,212
Long Term												
Full Simulation Period[a]	2,275	2,276	2,282	2,290	2,302	2,313	2,324	2,322	2,317	2,307	2,294	2,281
Water Year Types[b,c]												
Wet (32%)	2,319	2,318	2,319	2,325	2,339	2,348	2,357	2,359	2,355	2,348	2,339	2,327
Above Normal (16%)	2,300	2,299	2,303	2,302	2,321	2,336	2,348	2,347	2,341	2,332	2,318	2,305
Below Normal (13%)	2,270	2,271	2,278	2,300	2,308	2,317	2,329	2,324	2,317	2,303	2,288	2,274
Dry (24%)	2,256	2,261	2,274	2,272	2,282	2,295	2,307	2,303	2,297	2,284	2,270	2,259
Critical (15%)	2,185	2,190	2,198	2,224	2,231	2,243	2,250	2,246	2,244	2,233	2,214	2,197

Alternative 4 043019

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,332	2,332	2,332	2,337	2,345	2,350	2,361	2,364	2,361	2,358	2,352	2,343
20%	2,328	2,330	2,332	2,337	2,345	2,350	2,359	2,360	2,355	2,348	2,334	2,329
30%	2,310	2,313	2,319	2,331	2,345	2,350	2,357	2,355	2,349	2,340	2,327	2,313
40%	2,295	2,299	2,313	2,321	2,332	2,348	2,355	2,351	2,345	2,328	2,313	2,299
50%	2,288	2,290	2,298	2,313	2,324	2,333	2,347	2,340	2,330	2,319	2,303	2,292
60%	2,283	2,282	2,288	2,297	2,308	2,321	2,332	2,330	2,324	2,310	2,295	2,285
70%	2,271	2,274	2,281	2,285	2,297	2,306	2,317	2,315	2,312	2,301	2,286	2,274
80%	2,257	2,257	2,258	2,266	2,274	2,293	2,309	2,301	2,295	2,284	2,266	2,256
90%	2,212	2,222	2,226	2,234	2,238	2,249	2,263	2,257	2,254	2,242	2,226	2,212
Long Term												
Full Simulation Period[a]	2,281	2,283	2,289	2,297	2,308	2,318	2,328	2,326	2,322	2,311	2,297	2,286
Water Year Types[b,c]												
Wet (32%)	2,321	2,322	2,324	2,327	2,341	2,348	2,357	2,359	2,355	2,348	2,338	2,328
Above Normal (16%)	2,303	2,305	2,308	2,310	2,327	2,340	2,350	2,349	2,343	2,333	2,320	2,307
Below Normal (13%)	2,278	2,279	2,286	2,307	2,315	2,322	2,333	2,329	2,322	2,308	2,293	2,281
Dry (24%)	2,264	2,267	2,280	2,279	2,288	2,301	2,313	2,309	2,305	2,292	2,278	2,267
Critical (15%)	2,199	2,203	2,210	2,237	2,243	2,254	2,260	2,256	2,253	2,240	2,222	2,210

Alternative 4 043019 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	1	0	0	0	0	**0**	**0**	**-1**	**-1**	0	3
20%	0	6	3	1	0	0	**-1**	**-1**	**-2**	**-2**	**-7**	**-4**
30%	6	6	3	6	4	0	0	1	1	3	3	2
40%	**-2**	1	7	5	6	3	2	1	4	**0**	0	2
50%	7	7	5	8	6	7	7	5	3	3	3	3
60%	10	8	5	8	3	5	4	8	8	7	6	6
70%	8	10	11	8	13	9	8	5	11	7	8	9
80%	13	8	5	10	6	10	11	9	7	10	9	10
90%	2	11	15	18	4	3	6	4	8	4	2	**0**
Long Term												
Full Simulation Period[a]	6	7	7	6	5	4	4	4	4	4	4	5
Water Year Types[b,c]												
Wet (32%)	2	4	5	2	1	0	0	0	**0**	**0**	**-1**	1
Above Normal (16%)	3	5	5	8	6	4	2	2	3	2	1	1
Below Normal (13%)	8	8	7	7	6	5	5	5	6	4	5	7
Dry (24%)	8	7	6	7	6	6	6	6	7	8	8	8
Critical (15%)	14	14	12	13	12	10	9	9	9	7	8	13

a Based on the 82-year simulation period.

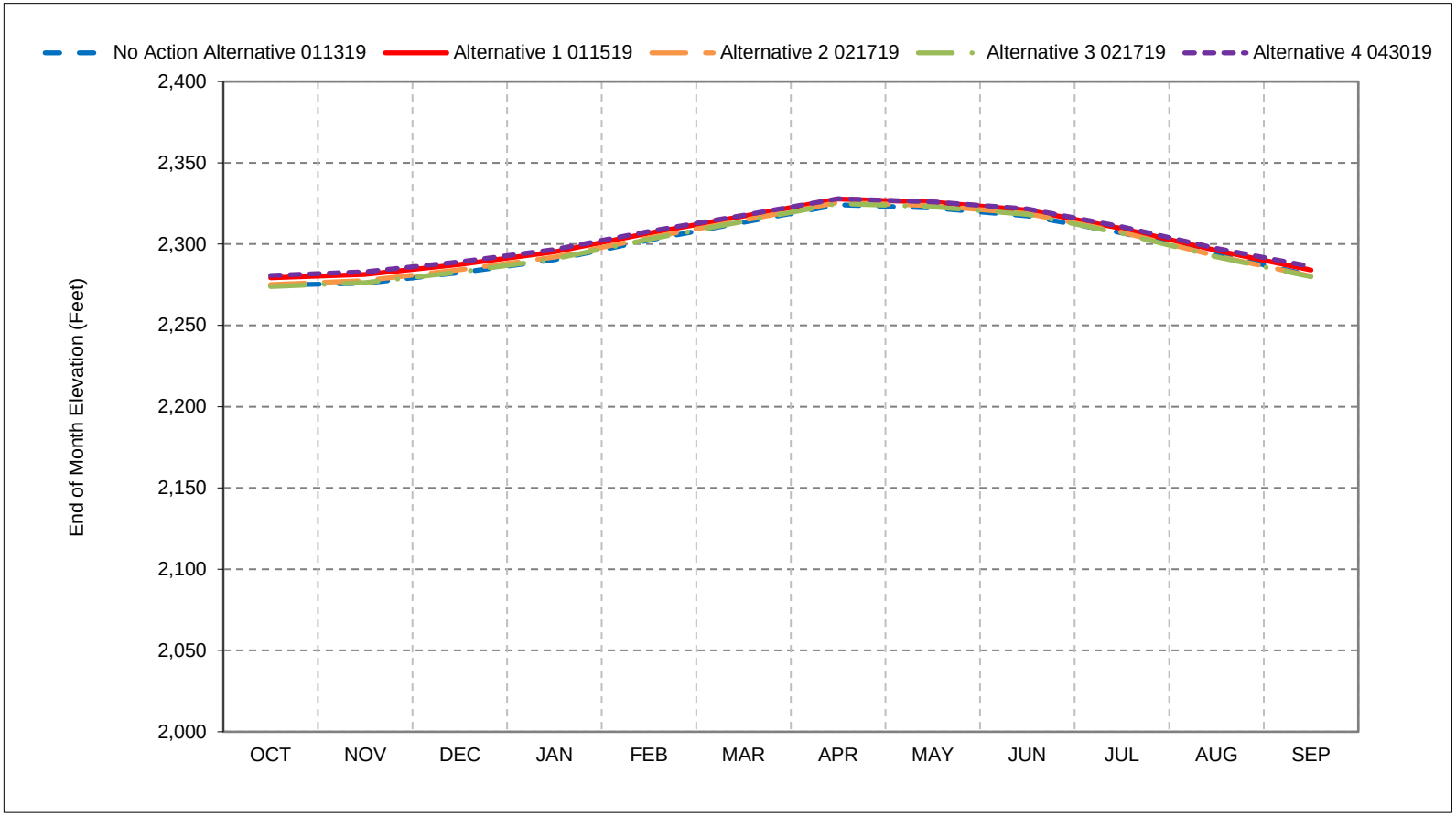
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

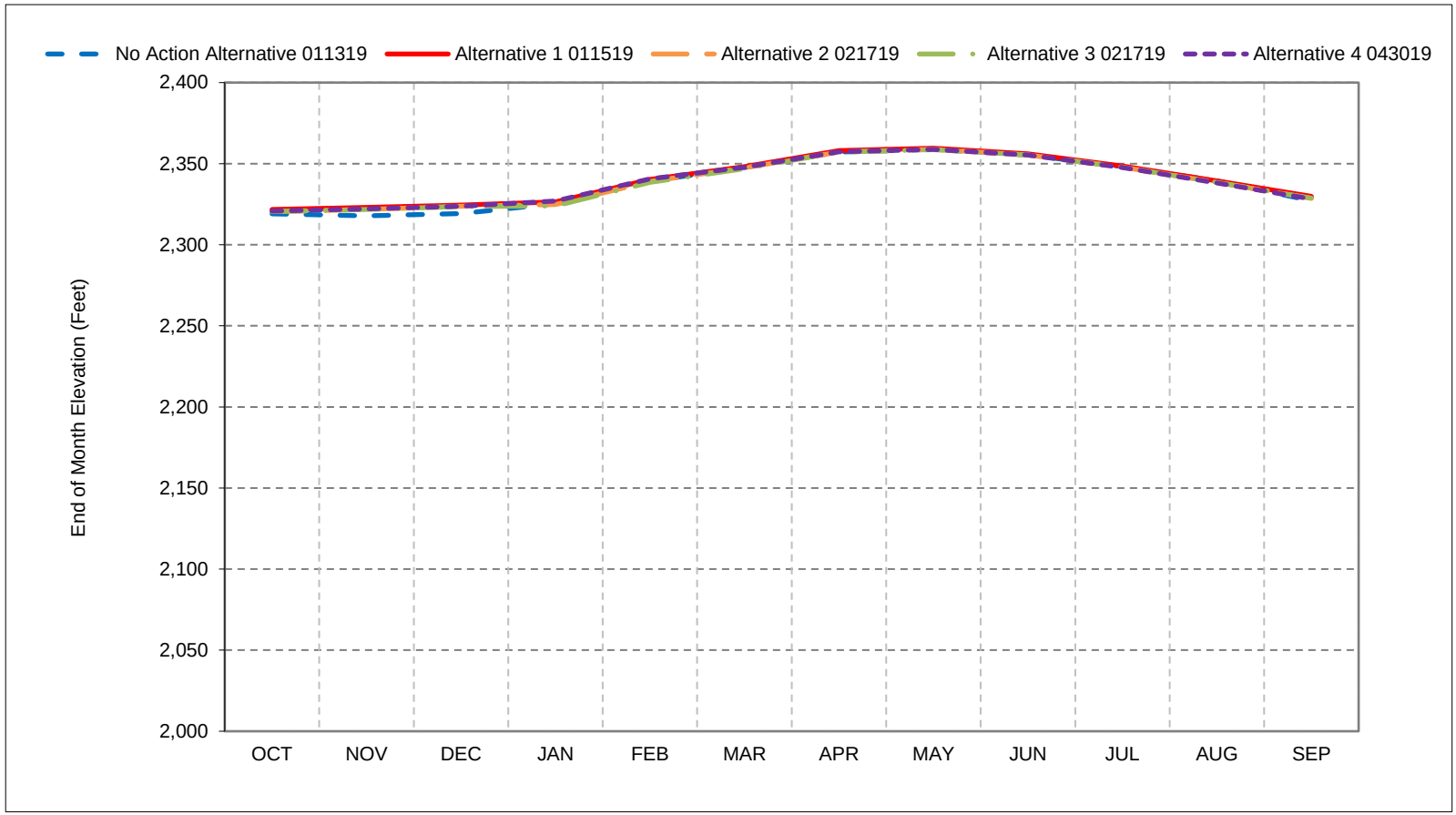
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 1a-1. Trinity Lake Elevation, Long-Term Average Elevation



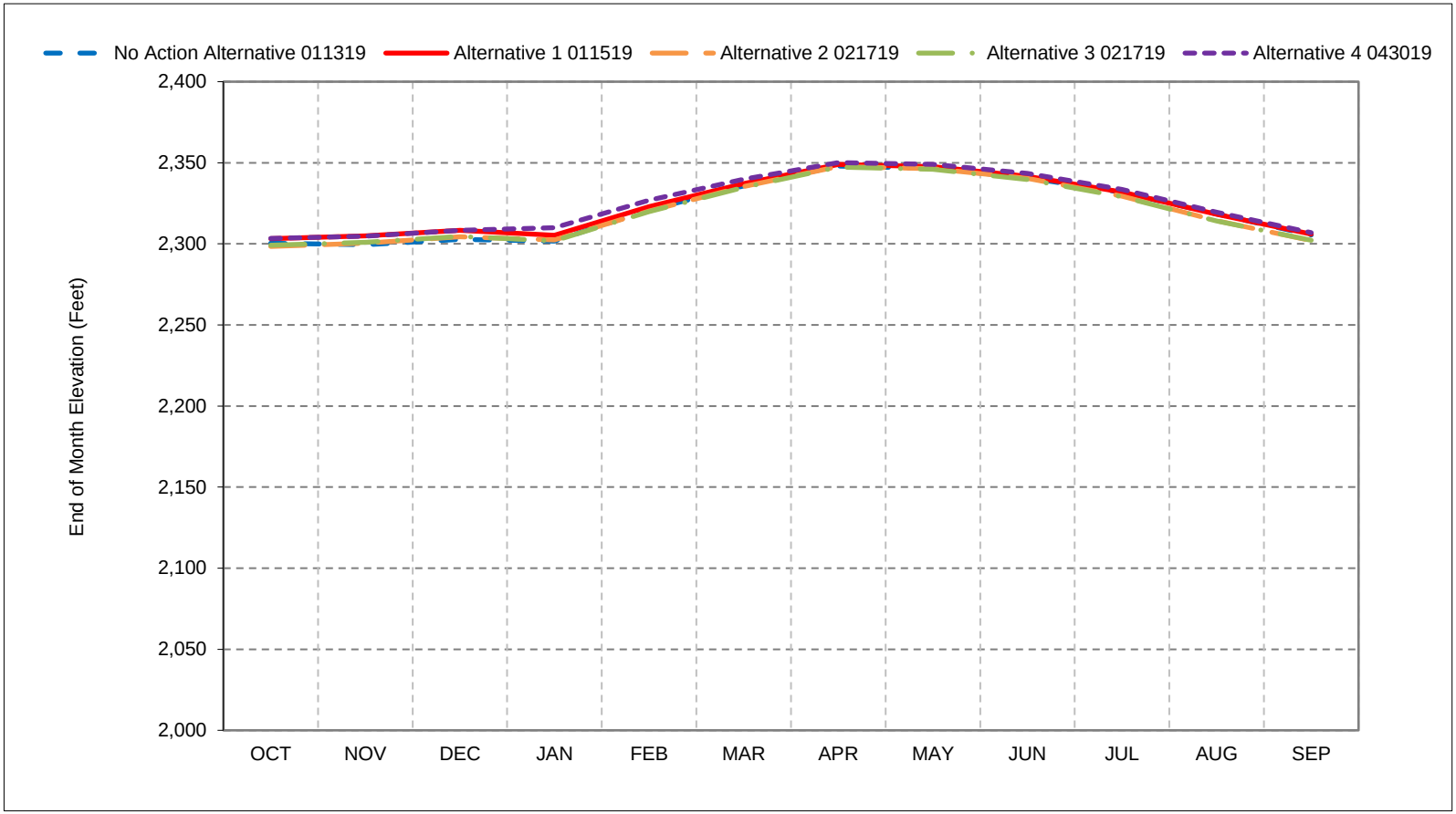
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1a-2. Trinity Lake Elevation, Wet Year Average Elevation



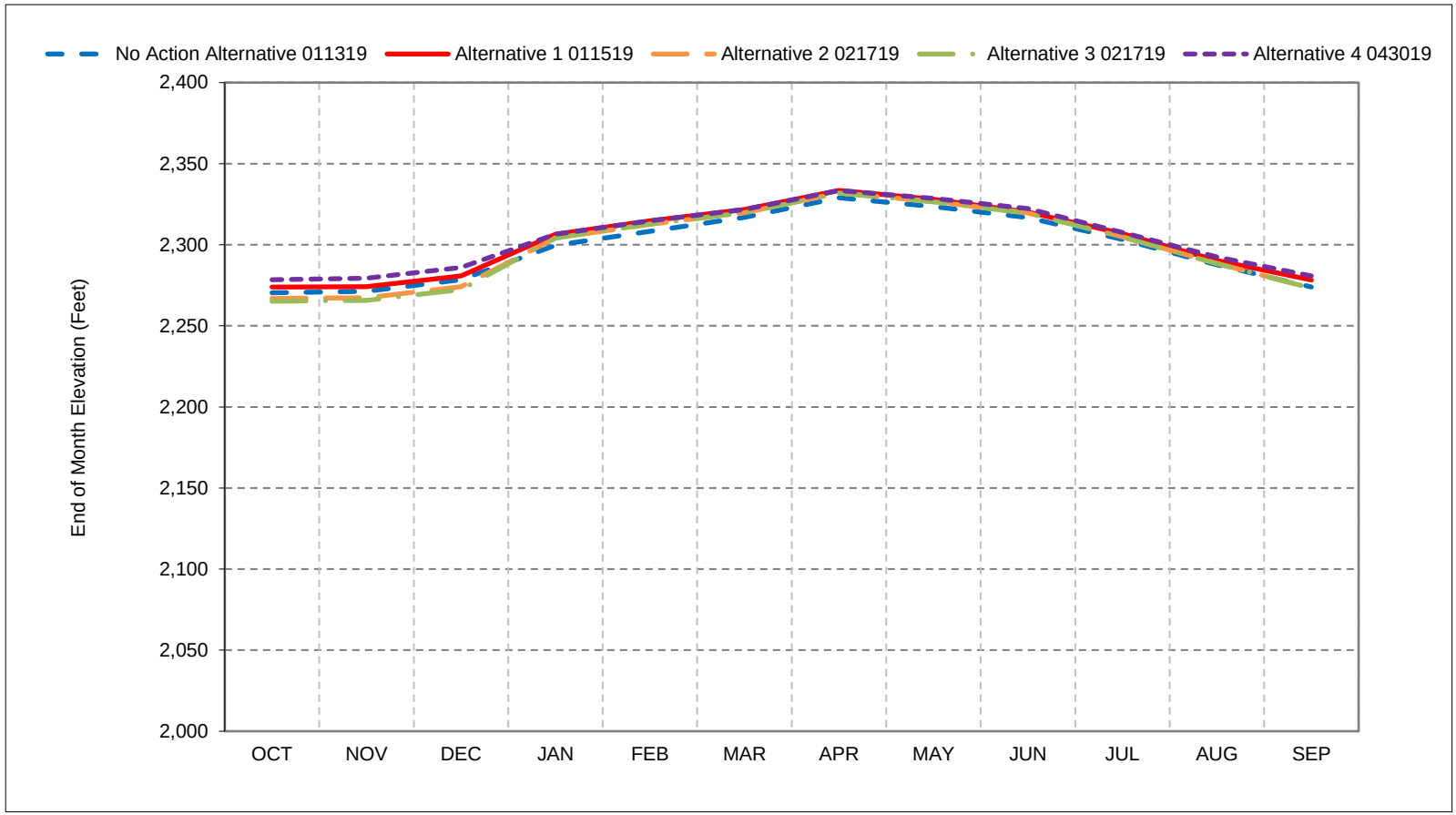
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1a-3. Trinity Lake Elevation, Above Normal Year Average Elevation



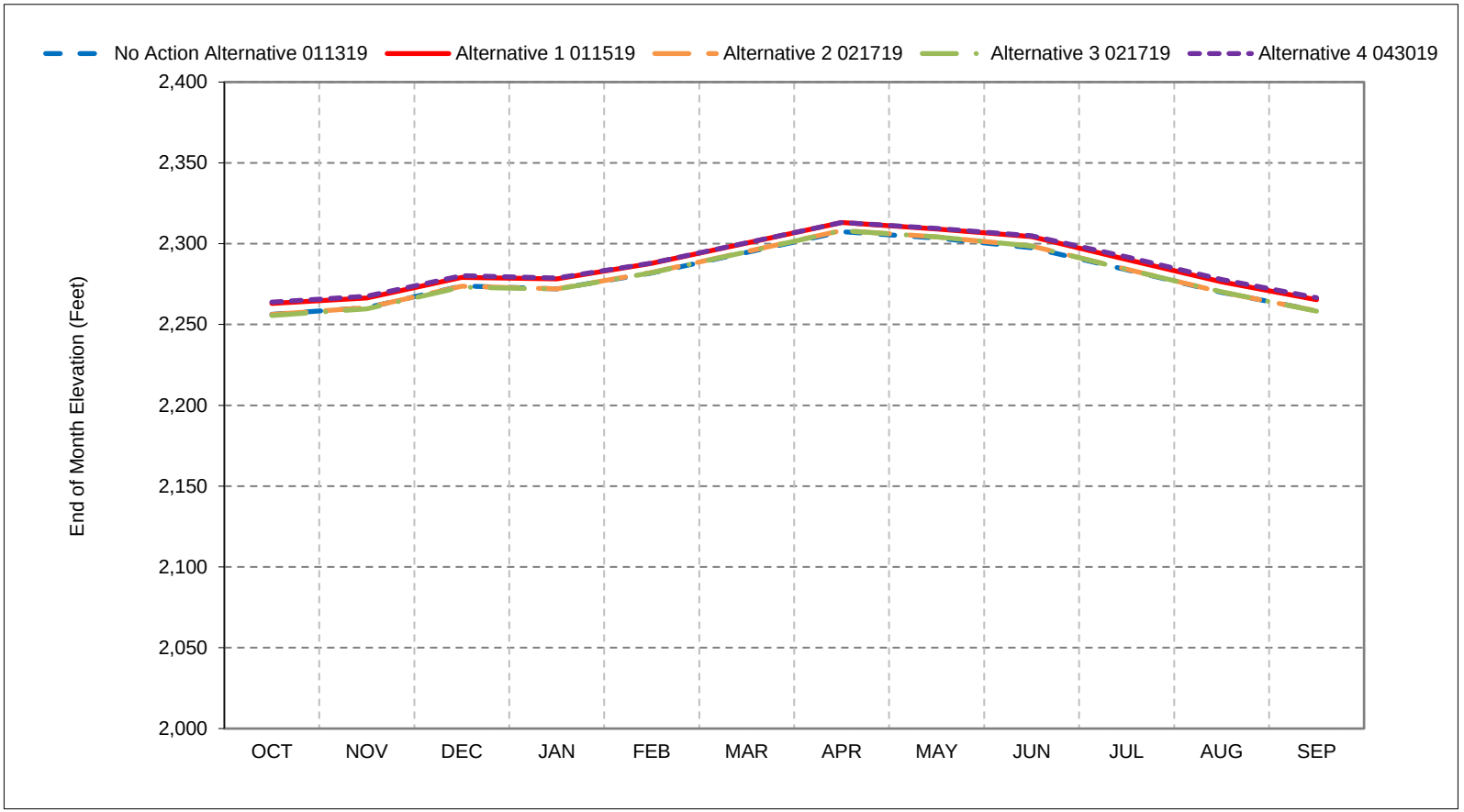
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1a-4. Trinity Lake Elevation, Below Normal Year Average Elevation



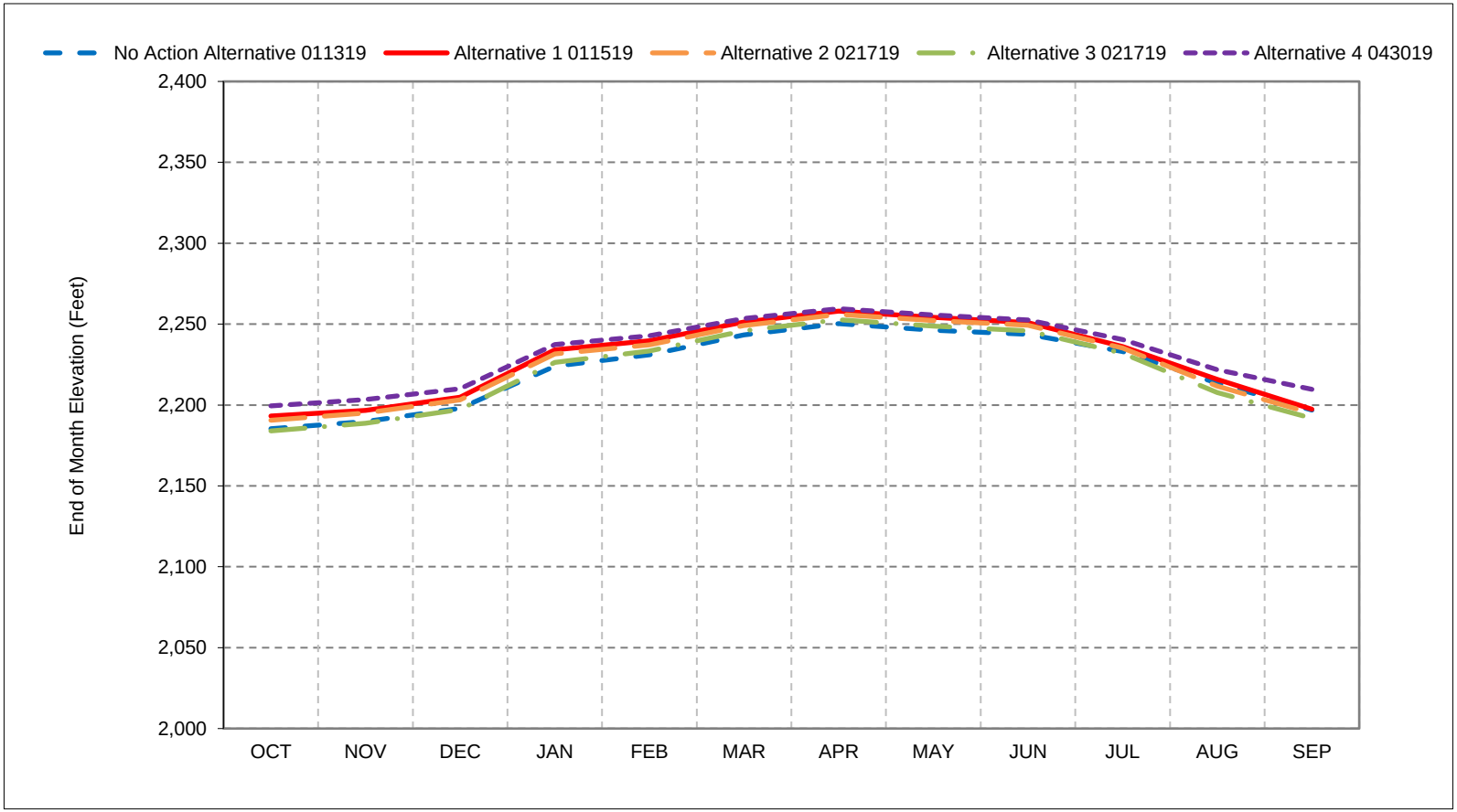
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1a-5. Trinity Lake Elevation, Dry Year Average Elevation



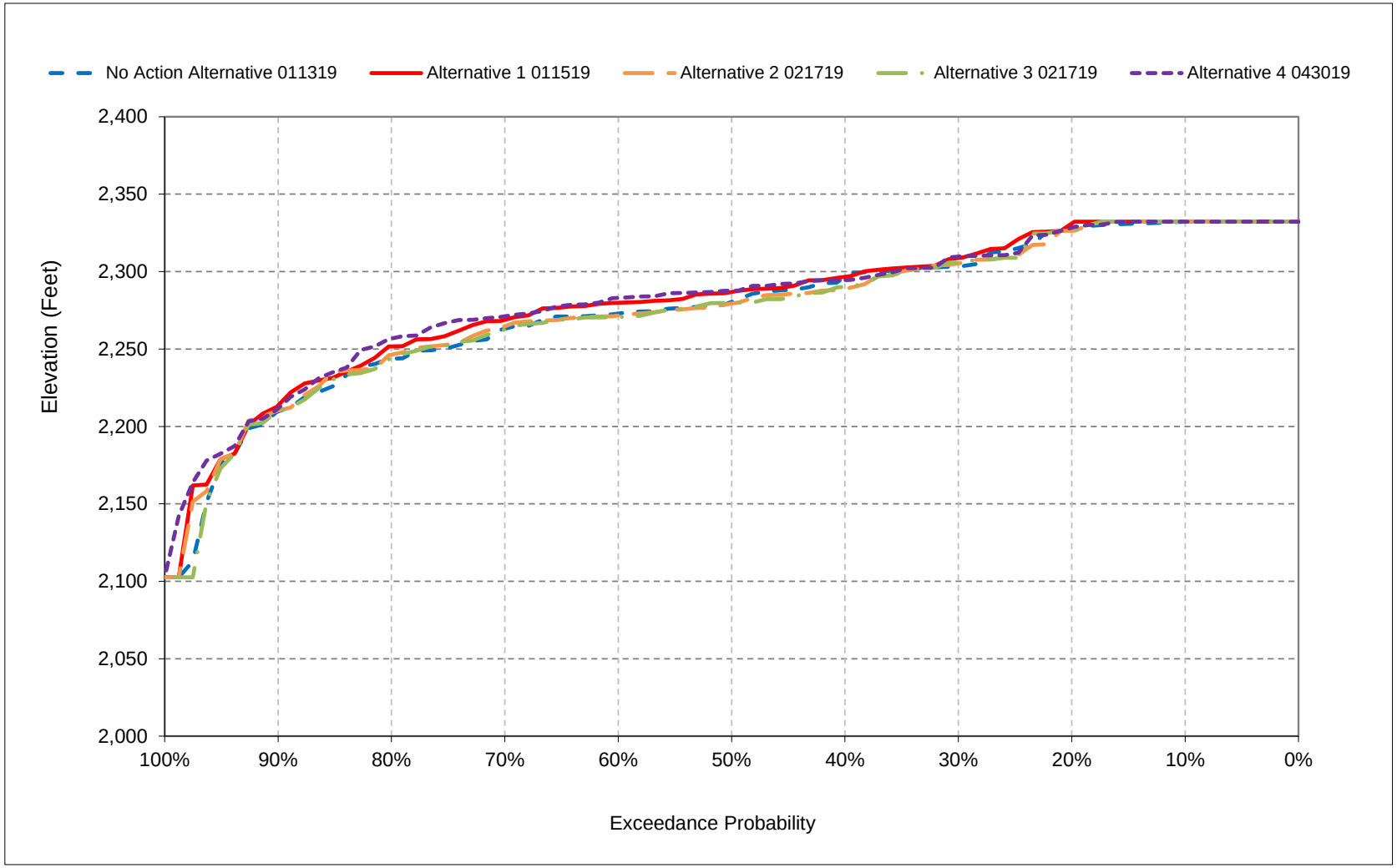
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1a-6. Trinity Lake Elevation, Critical Year Average Elevation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

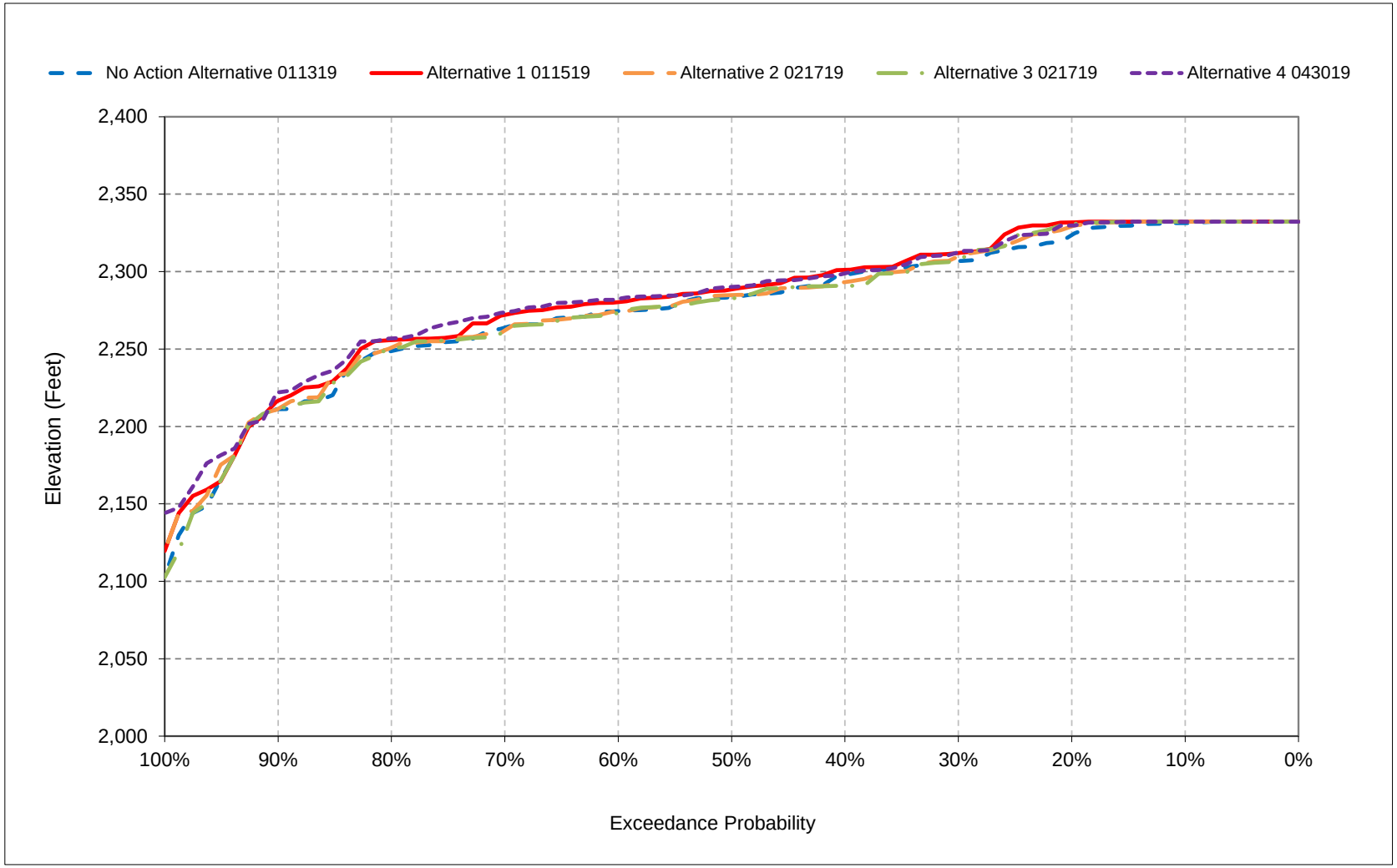
Figure 1a-7. Trinity Lake, Reservoir Pool Elevation, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

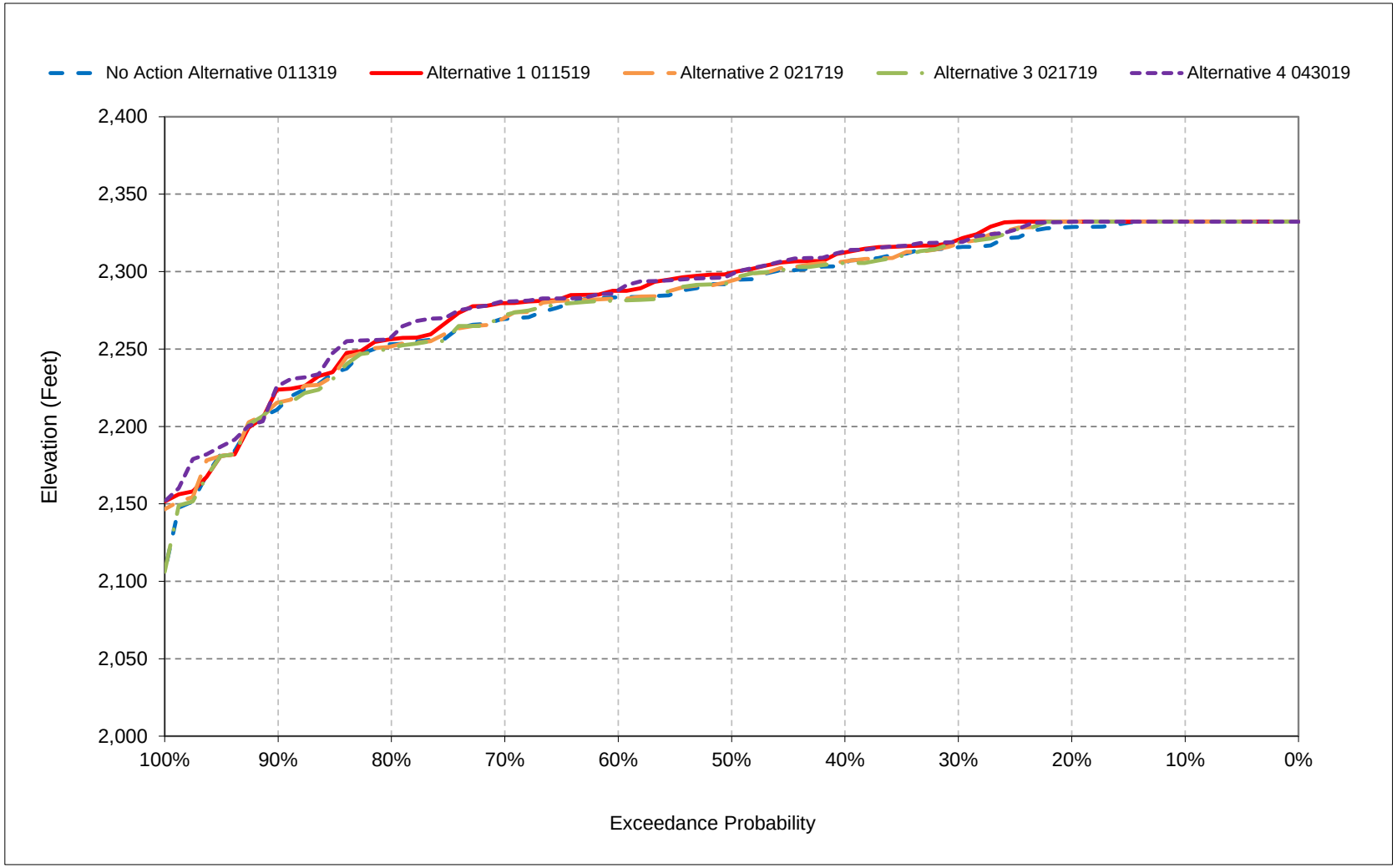
Figure 1a-8. Trinity Lake, Reservoir Pool Elevation, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

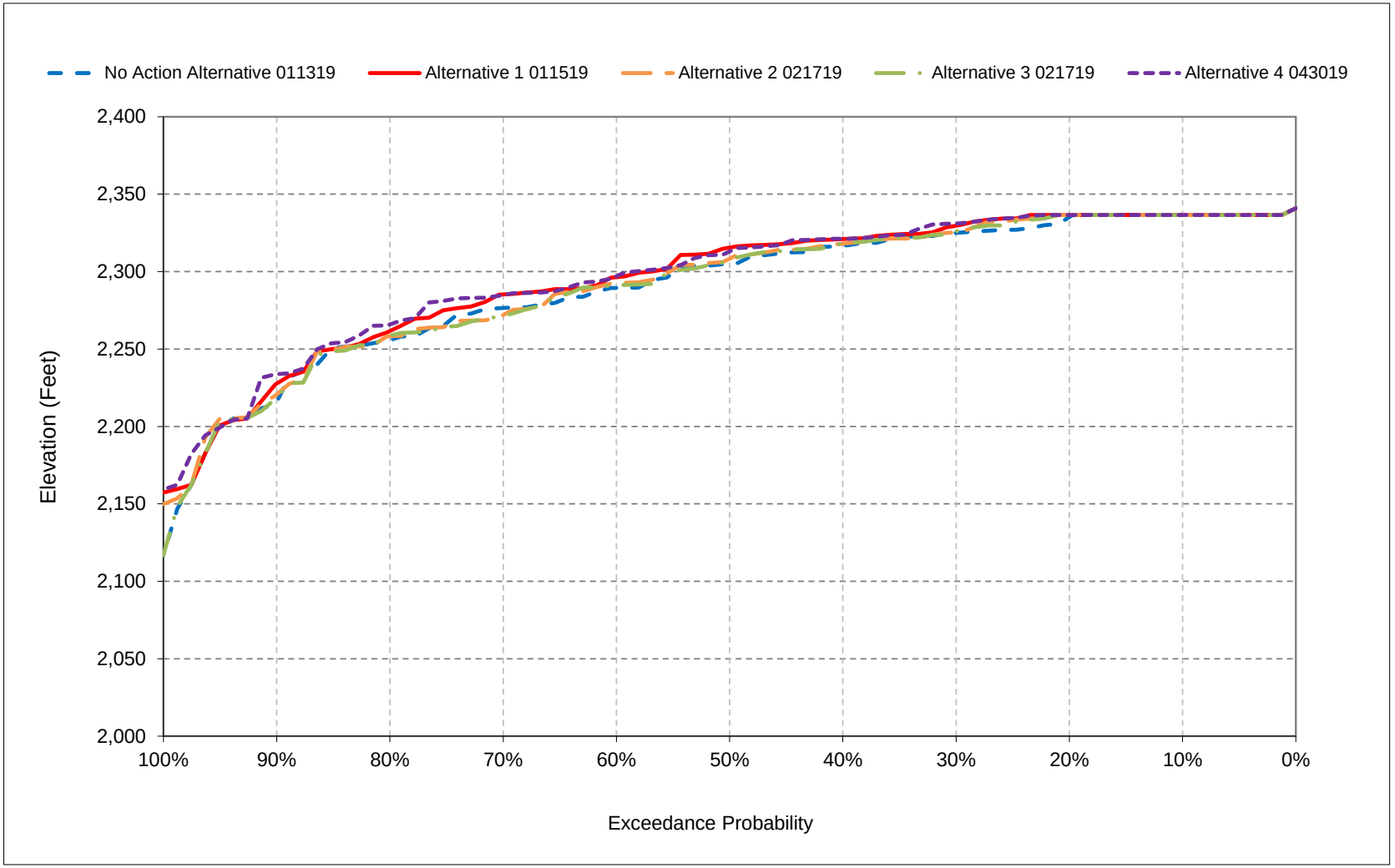
Figure 1a-9. Trinity Lake, Reservoir Pool Elevation, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

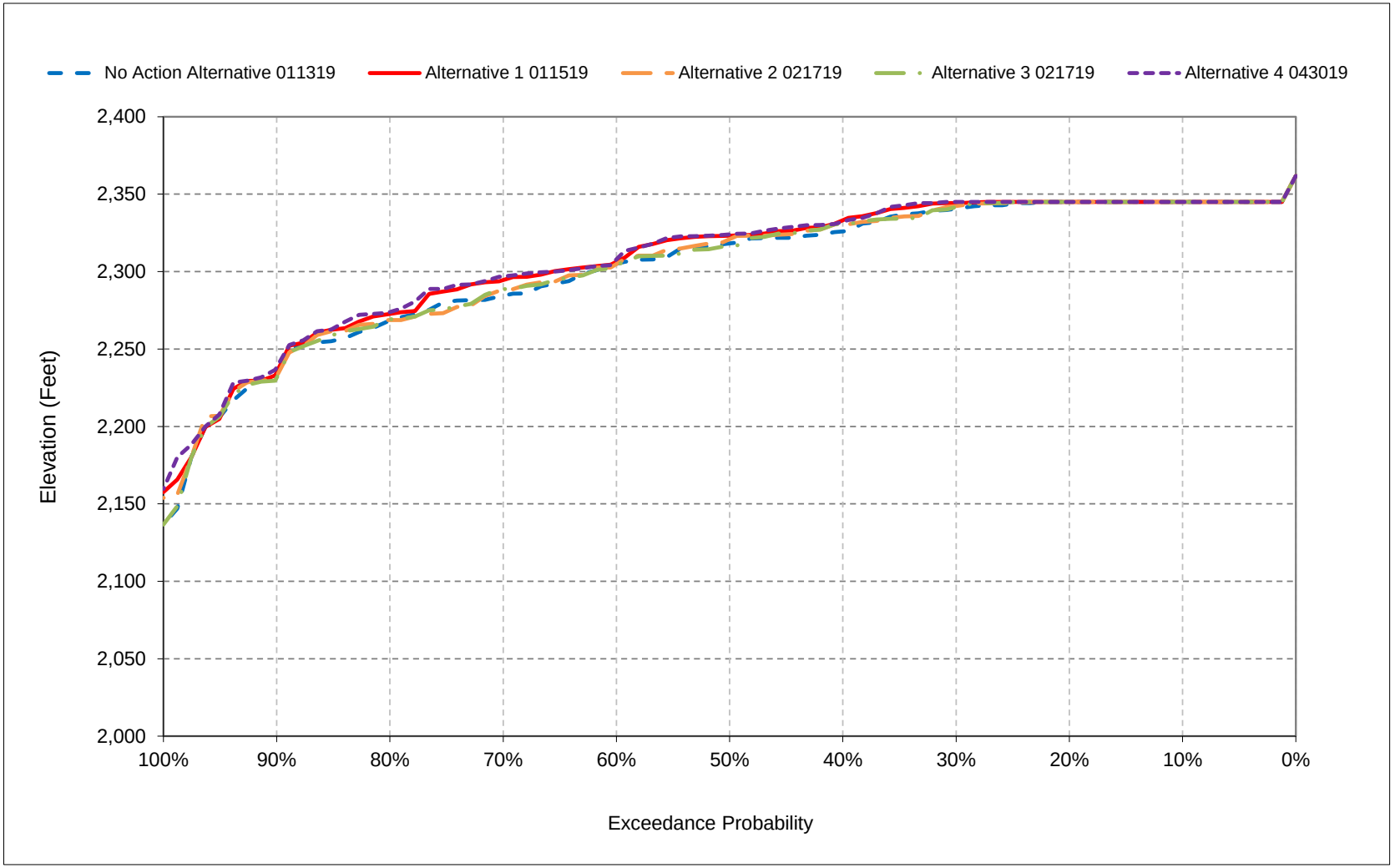
Figure 1a-10. Trinity Lake, Reservoir Pool Elevation, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

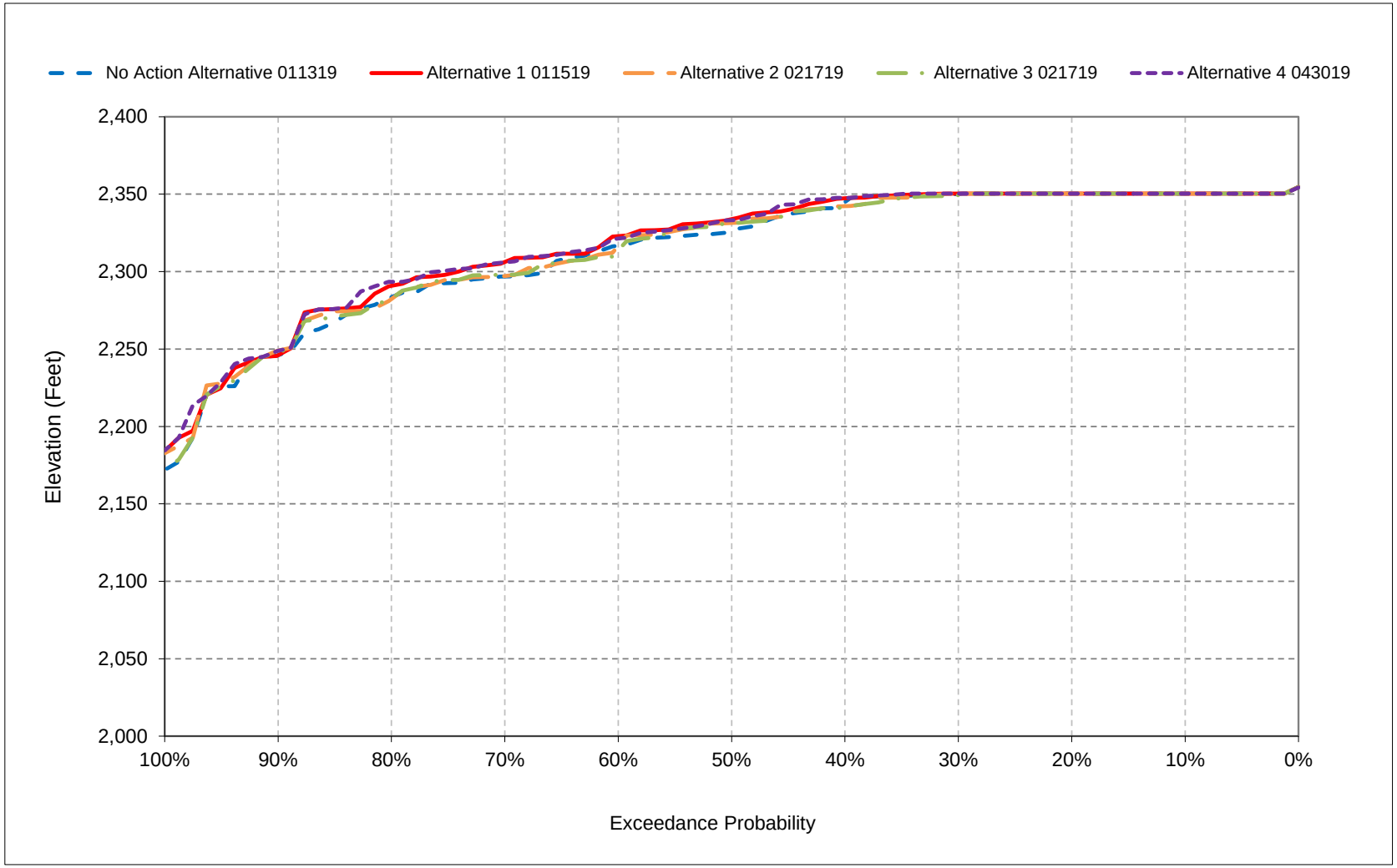
Figure 1a-11. Trinity Lake, Reservoir Pool Elevation, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

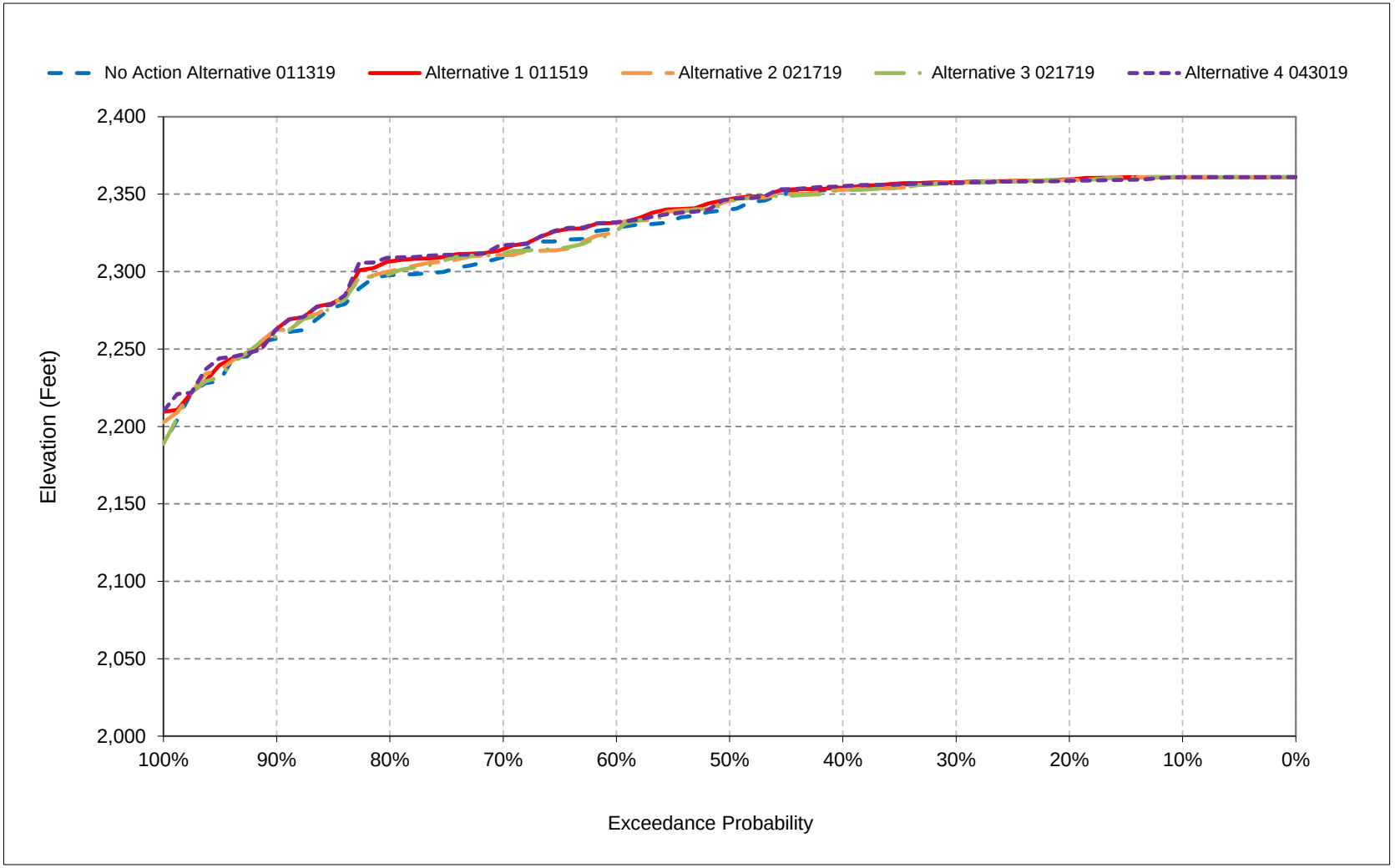
Figure 1a-12. Trinity Lake, Reservoir Pool Elevation, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

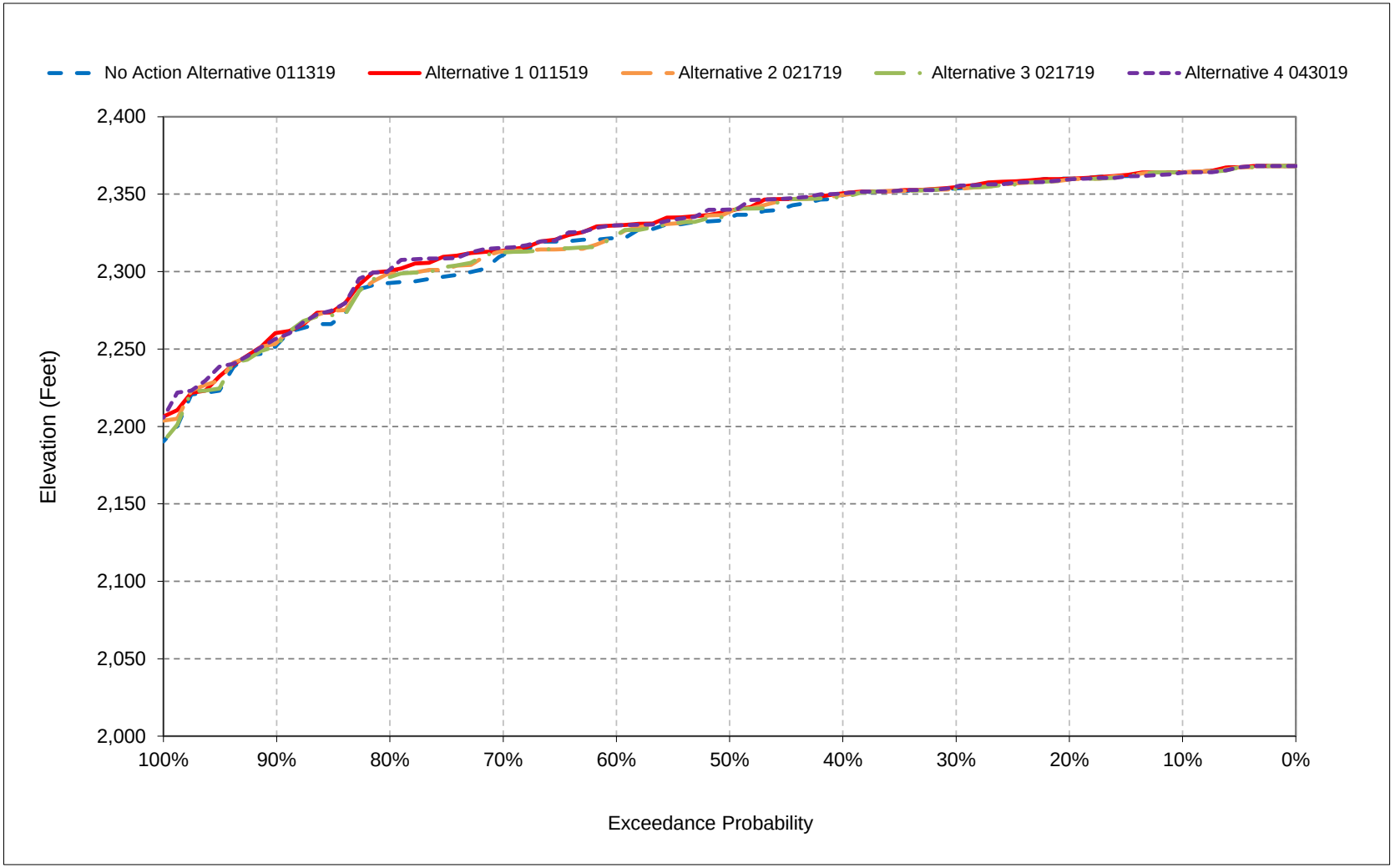
Figure 1a-13. Trinity Lake, Reservoir Pool Elevation, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

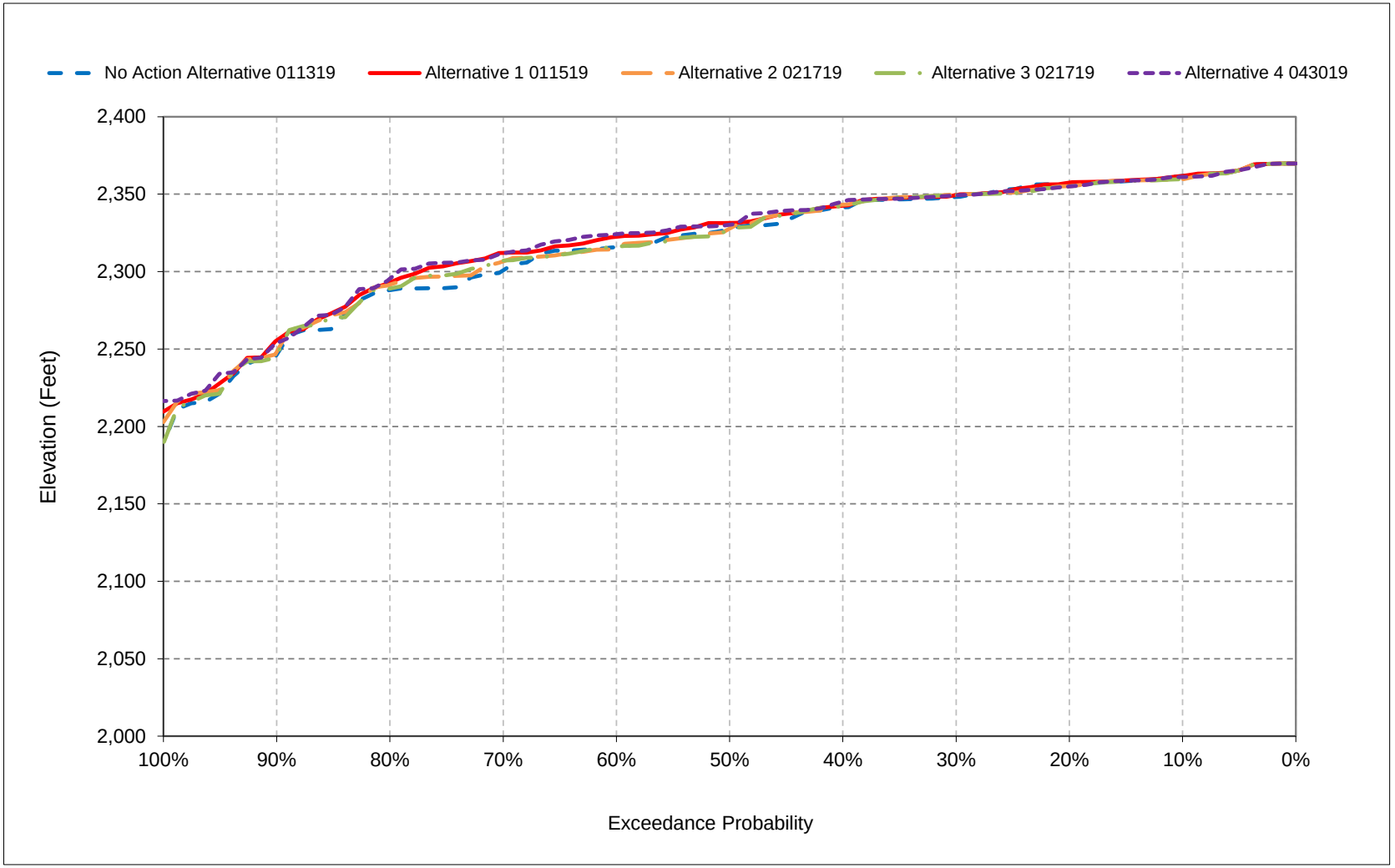
Figure 1a-14. Trinity Lake, Reservoir Pool Elevation, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

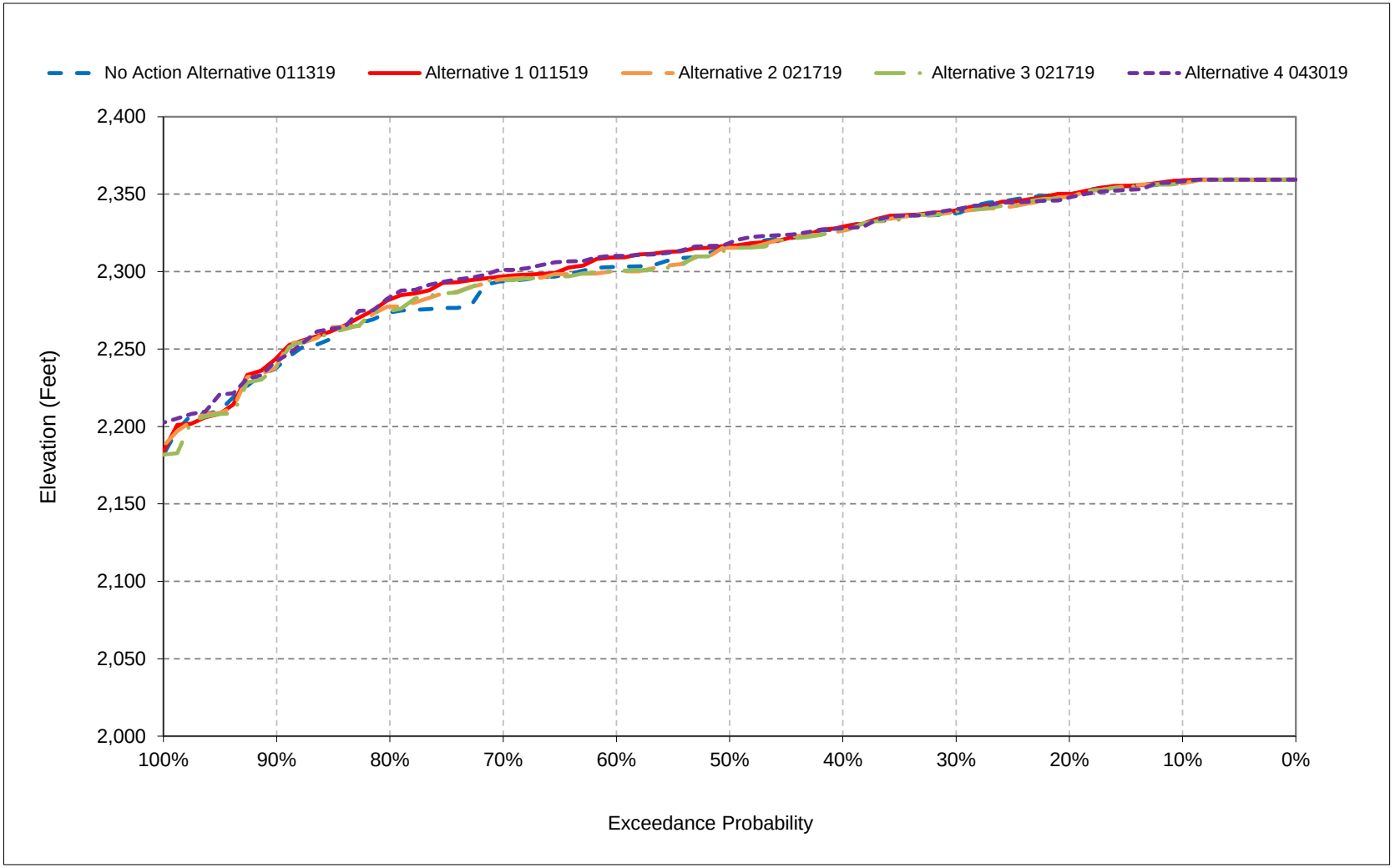
Figure 1a-15. Trinity Lake, Reservoir Pool Elevation, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

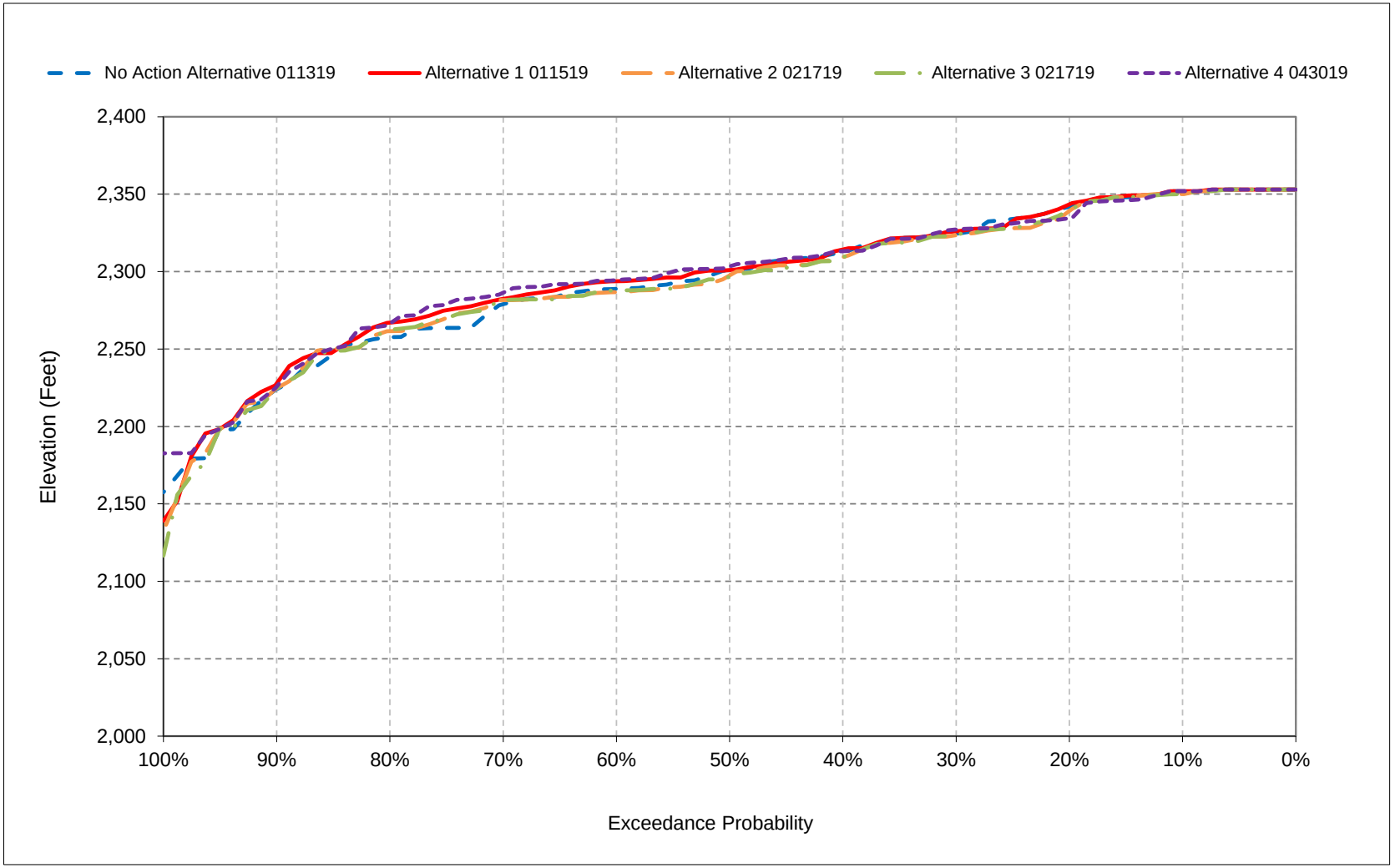
Figure 1a-16. Trinity Lake, Reservoir Pool Elevation, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

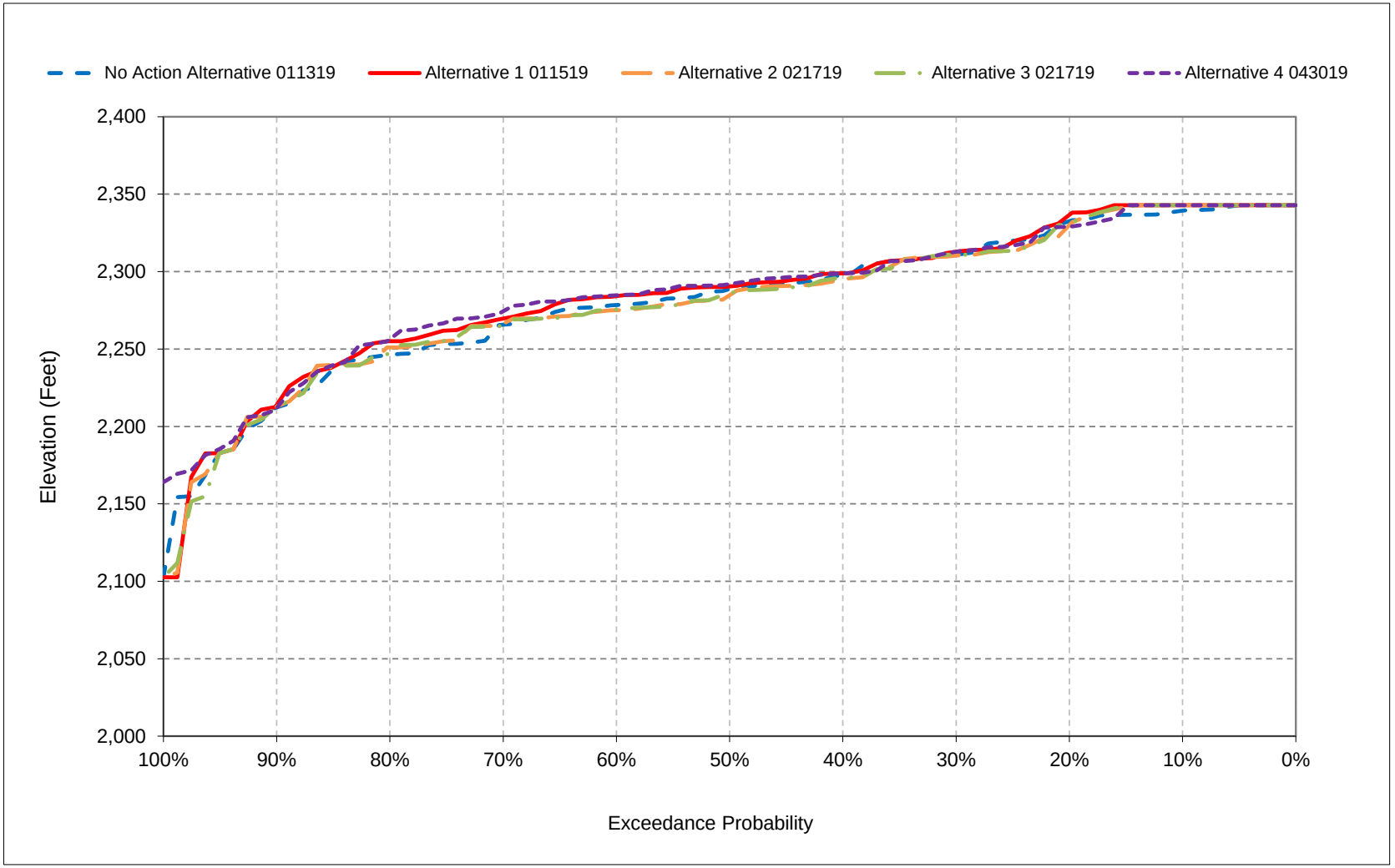
Figure 1a-17. Trinity Lake, Reservoir Pool Elevation, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1a-18. Trinity Lake, Reservoir Pool Elevation, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 3-1. Shasta Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,218	3,252	3,335	3,621	3,875	4,229	4,552	4,552	4,500	4,011	3,670	3,199
20%	3,036	2,926	3,309	3,539	3,744	4,127	4,544	4,552	4,402	3,789	3,477	3,106
30%	2,903	2,807	3,266	3,397	3,649	4,046	4,475	4,552	4,288	3,622	3,275	3,005
40%	2,771	2,709	3,027	3,318	3,529	3,980	4,389	4,486	4,101	3,466	3,160	2,923
50%	2,677	2,579	2,793	3,247	3,477	3,875	4,265	4,347	3,909	3,380	3,043	2,809
60%	2,547	2,500	2,656	3,032	3,358	3,724	4,144	4,225	3,800	3,149	2,860	2,660
70%	2,294	2,305	2,426	2,836	3,252	3,513	3,971	3,960	3,450	2,883	2,631	2,476
80%	2,033	2,102	2,233	2,544	2,948	3,348	3,619	3,344	2,986	2,509	2,251	2,198
90%	1,553	1,409	1,720	2,061	2,314	2,593	2,749	2,579	2,276	1,947	1,729	1,673
Long Term												
Full Simulation Period[a]	2,482	2,450	2,669	2,976	3,273	3,630	3,972	3,958	3,668	3,125	2,816	2,579
Water Year Types[b,c]												
Wet (32%)	2,849	2,698	2,932	3,392	3,652	3,892	4,360	4,492	4,342	3,821	3,481	2,989
Above Normal (16%)	2,711	2,597	2,852	3,255	3,529	4,065	4,501	4,489	4,138	3,464	3,120	2,833
Below Normal (13%)	2,690	2,736	2,863	3,170	3,518	3,893	4,213	4,108	3,735	3,129	2,774	2,729
Dry (24%)	2,538	2,640	2,896	2,722	3,135	3,594	3,889	3,811	3,449	2,951	2,680	2,611
Critical (15%)	1,158	1,173	1,345	2,021	2,180	2,413	2,474	2,330	2,002	1,540	1,309	1,225

Alternative 1 011519

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,250	3,252	3,359	3,666	3,939	4,262	4,552	4,552	4,500	4,011	3,669	3,400
20%	3,250	3,252	3,337	3,612	3,837	4,182	4,536	4,552	4,402	3,785	3,455	3,400
30%	3,213	3,244	3,314	3,538	3,732	4,080	4,478	4,552	4,253	3,607	3,303	3,304
40%	2,997	3,128	3,280	3,410	3,653	4,012	4,433	4,483	4,058	3,431	3,151	3,058
50%	2,752	2,897	3,226	3,329	3,564	3,966	4,291	4,344	3,879	3,282	2,981	2,914
60%	2,648	2,718	3,098	3,252	3,484	3,855	4,183	4,159	3,661	3,139	2,812	2,804
70%	2,518	2,622	2,789	2,985	3,283	3,638	4,087	3,913	3,484	2,921	2,664	2,589
80%	2,261	2,279	2,411	2,720	3,113	3,418	3,854	3,660	3,177	2,723	2,429	2,377
90%	1,542	1,441	1,798	2,122	2,607	2,690	2,753	2,930	2,552	2,135	1,748	1,676
Long Term												
Full Simulation Period[a]	2,626	2,674	2,833	3,093	3,370	3,706	4,041	3,994	3,667	3,141	2,828	2,730
Water Year Types[b,c]												
Wet (32%)	3,152	3,180	3,280	3,412	3,662	3,899	4,355	4,473	4,318	3,806	3,460	3,280
Above Normal (16%)	2,899	2,940	3,118	3,358	3,567	4,069	4,503	4,461	4,096	3,427	3,084	3,070
Below Normal (13%)	2,637	2,690	2,818	3,404	3,695	4,031	4,328	4,164	3,724	3,109	2,752	2,664
Dry (24%)	2,586	2,689	2,922	2,915	3,330	3,765	4,058	3,928	3,489	3,007	2,730	2,668
Critical (15%)	1,247	1,251	1,423	2,127	2,293	2,501	2,566	2,406	2,039	1,642	1,413	1,331

Alternative 1 011519 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	32	0	24	45	64	33	0	0	0	0	**-2**	201
20%	214	326	28	73	93	56	**-8**	0	**0**	**-4**	**-22**	294
30%	309	437	48	141	83	34	3	0	**-35**	**-15**	28	298
40%	226	419	253	93	125	32	44	**-2**	**-43**	**-34**	**-9**	136
50%	75	318	433	82	87	91	25	**-2**	**-30**	**-98**	**-63**	105
60%	100	218	442	220	126	131	39	**-66**	**-140**	**-11**	**-48**	143
70%	223	318	363	149	31	125	116	**-47**	33	39	33	113
80%	228	177	178	177	165	69	236	315	192	214	177	179
90%	**-11**	33	78	62	293	97	4	351	276	188	19	3
Long Term												
Full Simulation Period[a]	143	224	164	117	97	76	69	37	**-1**	15	12	151
Water Year Types[b,c]												
Wet (32%)	302	482	348	21	10	7	**-5**	**-20**	**-24**	**-15**	**-22**	292
Above Normal (16%)	188	343	266	104	38	4	2	**-28**	**-42**	**-37**	**-36**	237
Below Normal (13%)	**-53**	**-46**	**-45**	234	176	138	114	56	**-11**	**-20**	**-22**	**-65**
Dry (24%)	48	48	26	193	195	170	169	117	40	56	50	56
Critical (15%)	88	78	78	107	112	88	92	76	37	102	104	106

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3-2. Shasta Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,218	3,252	3,335	3,621	3,875	4,229	4,552	4,552	4,500	4,011	3,670	3,199
20%	3,036	2,926	3,309	3,539	3,744	4,127	4,544	4,552	4,402	3,789	3,477	3,106
30%	2,903	2,807	3,266	3,397	3,649	4,046	4,475	4,552	4,288	3,622	3,275	3,005
40%	2,771	2,709	3,027	3,318	3,529	3,980	4,389	4,486	4,101	3,466	3,160	2,923
50%	2,677	2,579	2,793	3,247	3,477	3,875	4,265	4,347	3,909	3,380	3,043	2,809
60%	2,547	2,500	2,656	3,032	3,358	3,724	4,144	4,225	3,800	3,149	2,860	2,660
70%	2,294	2,305	2,426	2,836	3,252	3,513	3,971	3,960	3,450	2,883	2,631	2,476
80%	2,033	2,102	2,233	2,544	2,948	3,348	3,619	3,344	2,986	2,509	2,251	2,198
90%	1,553	1,409	1,720	2,061	2,314	2,593	2,749	2,579	2,276	1,947	1,729	1,673
Long Term												
Full Simulation Period[a]	2,482	2,450	2,669	2,976	3,273	3,630	3,972	3,958	3,668	3,125	2,816	2,579
Water Year Types[b,c]												
Wet (32%)	2,849	2,698	2,932	3,392	3,652	3,892	4,360	4,492	4,342	3,821	3,481	2,989
Above Normal (16%)	2,711	2,597	2,852	3,255	3,529	4,065	4,501	4,489	4,138	3,464	3,120	2,833
Below Normal (13%)	2,690	2,736	2,863	3,170	3,518	3,893	4,213	4,108	3,735	3,129	2,774	2,729
Dry (24%)	2,538	2,640	2,896	2,722	3,135	3,594	3,889	3,811	3,449	2,951	2,680	2,611
Critical (15%)	1,158	1,173	1,345	2,021	2,180	2,413	2,474	2,330	2,002	1,540	1,309	1,225

Alternative 2 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,250	3,252	3,359	3,650	3,943	4,255	4,552	4,552	4,500	4,011	3,669	3,400
20%	3,220	3,252	3,335	3,601	3,837	4,189	4,541	4,552	4,391	3,761	3,402	3,395
30%	3,141	3,182	3,309	3,530	3,731	4,073	4,478	4,551	4,200	3,588	3,206	3,206
40%	2,945	3,028	3,266	3,424	3,652	4,019	4,429	4,482	3,891	3,355	3,008	2,957
50%	2,585	2,723	3,143	3,311	3,541	3,959	4,295	4,298	3,739	3,128	2,775	2,719
60%	2,448	2,511	2,933	3,252	3,426	3,803	4,165	4,111	3,608	2,979	2,690	2,592
70%	2,292	2,392	2,515	2,969	3,252	3,513	4,060	3,765	3,326	2,772	2,508	2,382
80%	2,079	2,192	2,319	2,615	2,983	3,416	3,794	3,538	3,079	2,555	2,217	2,141
90%	1,273	1,206	1,614	2,032	2,408	2,700	2,758	2,722	2,345	1,816	1,520	1,402
Long Term												
Full Simulation Period[a]	2,511	2,566	2,759	3,044	3,329	3,676	4,006	3,941	3,573	3,046	2,721	2,615
Water Year Types[b,c]												
Wet (32%)	3,124	3,158	3,276	3,422	3,664	3,902	4,362	4,472	4,270	3,764	3,406	3,249
Above Normal (16%)	2,713	2,788	3,025	3,339	3,554	4,067	4,503	4,450	3,960	3,309	2,950	2,902
Below Normal (13%)	2,512	2,567	2,736	3,368	3,709	4,048	4,334	4,135	3,642	3,039	2,616	2,522
Dry (24%)	2,458	2,553	2,836	2,771	3,202	3,676	3,961	3,801	3,374	2,893	2,631	2,541
Critical (15%)	1,052	1,066	1,244	2,064	2,224	2,422	2,470	2,292	1,910	1,466	1,233	1,138

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	32	0	24	28	68	27	0	0	0	1	**-2**	201
20%	184	326	26	62	94	62	**-3**	0	**-11**	**-27**	**-76**	290
30%	238	376	42	133	82	28	3	**-1**	**-88**	**-34**	**-68**	201
40%	174	320	239	106	123	39	40	**-4**	**-210**	**-111**	**-152**	34
50%	**-92**	145	351	64	65	84	30	**-49**	**-170**	**-252**	**-268**	**-90**
60%	**-99**	11	277	220	68	79	21	**-114**	**-192**	**-170**	**-170**	**-69**
70%	**-3**	88	89	132	0	0	89	**-195**	**-125**	**-111**	**-123**	**-94**
80%	45	90	86	71	35	68	176	193	94	46	**-34**	**-57**
90%	**-281**	**-203**	**-106**	**-29**	94	107	10	144	69	**-131**	**-208**	**-271**
Long Term												
Full Simulation Period[a]	29	116	90	68	56	45	34	**-17**	**-95**	**-80**	**-95**	36
Water Year Types[b,c]												
Wet (32%)	275	460	344	30	12	10	2	**-20**	**-72**	**-57**	**-75**	260
Above Normal (16%)	2	191	173	84	26	2	2	**-39**	**-178**	**-154**	**-170**	68
Below Normal (13%)	**-178**	**-170**	**-127**	199	190	156	120	27	**-93**	**-90**	**-158**	**-207**
Dry (24%)	**-80**	**-87**	**-60**	49	68	82	72	**-10**	**-75**	**-58**	**-49**	**-70**
Critical (15%)	**-106**	**-107**	**-101**	43	44	9	**-5**	**-38**	**-92**	**-74**	**-75**	**-86**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3-3. Shasta Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,218	3,252	3,335	3,621	3,875	4,229	4,552	4,552	4,500	4,011	3,670	3,199
20%	3,036	2,926	3,309	3,539	3,744	4,127	4,544	4,552	4,402	3,789	3,477	3,106
30%	2,903	2,807	3,266	3,397	3,649	4,046	4,475	4,552	4,288	3,622	3,275	3,005
40%	2,771	2,709	3,027	3,318	3,529	3,980	4,389	4,486	4,101	3,466	3,160	2,923
50%	2,677	2,579	2,793	3,247	3,477	3,875	4,265	4,347	3,909	3,380	3,043	2,809
60%	2,547	2,500	2,656	3,032	3,358	3,724	4,144	4,225	3,800	3,149	2,860	2,660
70%	2,294	2,305	2,426	2,836	3,252	3,513	3,971	3,960	3,450	2,883	2,631	2,476
80%	2,033	2,102	2,233	2,544	2,948	3,348	3,619	3,344	2,986	2,509	2,251	2,198
90%	1,553	1,409	1,720	2,061	2,314	2,593	2,749	2,579	2,276	1,947	1,729	1,673
Long Term												
Full Simulation Period[a]	2,482	2,450	2,669	2,976	3,273	3,630	3,972	3,958	3,668	3,125	2,816	2,579
Water Year Types[b,c]												
Wet (32%)	2,849	2,698	2,932	3,392	3,652	3,892	4,360	4,492	4,342	3,821	3,481	2,989
Above Normal (16%)	2,711	2,597	2,852	3,255	3,529	4,065	4,501	4,489	4,138	3,464	3,120	2,833
Below Normal (13%)	2,690	2,736	2,863	3,170	3,518	3,893	4,213	4,108	3,735	3,129	2,774	2,729
Dry (24%)	2,538	2,640	2,896	2,722	3,135	3,594	3,889	3,811	3,449	2,951	2,680	2,611
Critical (15%)	1,158	1,173	1,345	2,021	2,180	2,413	2,474	2,330	2,002	1,540	1,309	1,225

Alternative 3 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,250	3,252	3,349	3,639	3,943	4,255	4,552	4,552	4,500	4,011	3,668	3,400
20%	3,223	3,251	3,327	3,612	3,795	4,164	4,541	4,552	4,403	3,761	3,399	3,376
30%	3,127	3,182	3,304	3,530	3,719	4,073	4,478	4,551	4,226	3,575	3,234	3,187
40%	2,942	3,004	3,260	3,383	3,649	4,012	4,419	4,474	3,893	3,361	3,025	2,980
50%	2,653	2,708	3,120	3,279	3,528	3,954	4,288	4,291	3,753	3,130	2,764	2,758
60%	2,381	2,490	2,912	3,220	3,344	3,829	4,158	4,093	3,607	2,979	2,693	2,598
70%	2,259	2,363	2,510	2,872	3,252	3,513	4,055	3,774	3,315	2,777	2,500	2,360
80%	2,014	2,138	2,272	2,585	3,002	3,416	3,719	3,484	3,077	2,561	2,186	2,152
90%	1,231	1,159	1,405	1,913	2,382	2,660	2,753	2,678	2,306	1,789	1,491	1,371
Long Term												
Full Simulation Period[a]	2,494	2,549	2,738	3,024	3,315	3,664	3,991	3,932	3,570	3,041	2,714	2,608
Water Year Types[b,c]												
Wet (32%)	3,118	3,150	3,260	3,416	3,664	3,901	4,353	4,482	4,285	3,773	3,403	3,252
Above Normal (16%)	2,733	2,784	3,010	3,328	3,552	4,068	4,504	4,448	3,977	3,322	2,965	2,902
Below Normal (13%)	2,501	2,554	2,722	3,345	3,692	4,032	4,316	4,117	3,630	3,028	2,618	2,521
Dry (24%)	2,408	2,522	2,810	2,755	3,187	3,668	3,953	3,791	3,362	2,883	2,616	2,526
Critical (15%)	1,018	1,032	1,208	2,001	2,171	2,369	2,418	2,243	1,873	1,429	1,203	1,111

Alternative 3 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	32	0	14	18	68	27	0	0	0	1	**-2**	201
20%	187	324	18	73	51	37	**-3**	0	1	**-27**	**-78**	271
30%	223	375	37	133	70	28	3	**-1**	**-62**	**-47**	**-41**	181
40%	171	295	233	65	120	32	30	**-12**	**-208**	**-105**	**-135**	57
50%	**-24**	130	327	31	51	79	22	**-55**	**-156**	**-250**	**-279**	**-51**
60%	**-166**	**-10**	256	188	**-14**	105	14	**-132**	**-193**	**-170**	**-167**	**-62**
70%	**-35**	58	84	35	0	0	84	**-186**	**-136**	**-106**	**-131**	**-116**
80%	**-19**	36	39	42	54	68	101	140	92	52	**-65**	**-45**
90%	**-323**	**-250**	**-315**	**-148**	68	67	5	99	30	**-158**	**-238**	**-301**
Long Term												
Full Simulation Period[a]	11	99	69	48	42	34	20	**-26**	**-98**	**-84**	**-101**	29
Water Year Types[b,c]												
Wet (32%)	269	452	328	24	12	9	**-7**	**-10**	**-57**	**-48**	**-78**	264
Above Normal (16%)	22	187	158	73	23	3	3	**-41**	**-161**	**-142**	**-156**	69
Below Normal (13%)	**-189**	**-183**	**-141**	175	173	139	102	10	**-105**	**-102**	**-156**	**-209**
Dry (24%)	**-130**	**-118**	**-87**	33	52	74	64	**-19**	**-87**	**-68**	**-64**	**-86**
Critical (15%)	**-140**	**-141**	**-137**	**-20**	**-9**	**-45**	**-56**	**-87**	**-129**	**-111**	**-106**	**-113**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3-4. Shasta Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,218	3,252	3,335	3,621	3,875	4,229	4,552	4,552	4,500	4,011	3,670	3,199
20%	3,036	2,926	3,309	3,539	3,744	4,127	4,544	4,552	4,402	3,789	3,477	3,106
30%	2,903	2,807	3,266	3,397	3,649	4,046	4,475	4,552	4,288	3,622	3,275	3,005
40%	2,771	2,709	3,027	3,318	3,529	3,980	4,389	4,486	4,101	3,466	3,160	2,923
50%	2,677	2,579	2,793	3,247	3,477	3,875	4,265	4,347	3,909	3,380	3,043	2,809
60%	2,547	2,500	2,656	3,032	3,358	3,724	4,144	4,225	3,800	3,149	2,860	2,660
70%	2,294	2,305	2,426	2,836	3,252	3,513	3,971	3,960	3,450	2,883	2,631	2,476
80%	2,033	2,102	2,233	2,544	2,948	3,348	3,619	3,344	2,986	2,509	2,251	2,198
90%	1,553	1,409	1,720	2,061	2,314	2,593	2,749	2,579	2,276	1,947	1,729	1,673
Long Term												
Full Simulation Period[a]	2,482	2,450	2,669	2,976	3,273	3,630	3,972	3,958	3,668	3,125	2,816	2,579
Water Year Types[b,c]												
Wet (32%)	2,849	2,698	2,932	3,392	3,652	3,892	4,360	4,492	4,342	3,821	3,481	2,989
Above Normal (16%)	2,711	2,597	2,852	3,255	3,529	4,065	4,501	4,489	4,138	3,464	3,120	2,833
Below Normal (13%)	2,690	2,736	2,863	3,170	3,518	3,893	4,213	4,108	3,735	3,129	2,774	2,729
Dry (24%)	2,538	2,640	2,896	2,722	3,135	3,594	3,889	3,811	3,449	2,951	2,680	2,611
Critical (15%)	1,158	1,173	1,345	2,021	2,180	2,413	2,474	2,330	2,002	1,540	1,309	1,225

Alternative 4 043019

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,250	3,252	3,360	3,650	3,920	4,196	4,516	4,552	4,497	3,955	3,623	3,400
20%	3,231	3,252	3,344	3,598	3,833	4,117	4,442	4,527	4,328	3,729	3,425	3,391
30%	3,136	3,241	3,317	3,538	3,703	4,029	4,408	4,482	4,229	3,591	3,267	3,258
40%	2,999	3,122	3,270	3,416	3,643	3,992	4,304	4,401	4,036	3,399	3,069	3,020
50%	2,799	2,945	3,233	3,325	3,543	3,928	4,234	4,326	3,844	3,238	2,925	2,938
60%	2,665	2,769	3,038	3,239	3,436	3,820	4,145	4,154	3,662	3,115	2,794	2,753
70%	2,591	2,584	2,701	3,075	3,292	3,634	4,049	3,878	3,505	2,933	2,743	2,681
80%	2,358	2,397	2,471	2,706	3,192	3,416	3,809	3,687	3,203	2,711	2,472	2,399
90%	1,768	1,733	1,742	2,248	2,527	2,845	2,788	2,858	2,592	2,242	1,909	1,830
Long Term												
Full Simulation Period[a]	2,655	2,711	2,860	3,108	3,368	3,686	3,998	3,987	3,667	3,141	2,841	2,757
Water Year Types[b,c]												
Wet (32%)	3,138	3,184	3,282	3,419	3,653	3,869	4,287	4,433	4,282	3,766	3,425	3,272
Above Normal (16%)	2,895	2,954	3,126	3,398	3,573	4,034	4,446	4,449	4,108	3,402	3,069	3,046
Below Normal (13%)	2,743	2,781	2,892	3,379	3,668	3,978	4,256	4,147	3,722	3,134	2,817	2,782
Dry (24%)	2,592	2,697	2,904	2,932	3,328	3,746	4,019	3,927	3,473	2,983	2,718	2,663
Critical (15%)	1,376	1,379	1,552	2,162	2,321	2,546	2,614	2,475	2,128	1,774	1,555	1,459

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	32	0	25	28	45	**-32**	**-36**	0	**-3**	**-55**	**-48**	201
20%	195	326	35	59	89	**-10**	**-102**	**-25**	**-74**	**-60**	**-53**	285
30%	232	434	50	141	54	**-17**	**-67**	**-70**	**-59**	**-31**	**-8**	252
40%	228	414	243	98	114	12	**-85**	**-84**	**-65**	**-67**	**-90**	98
50%	122	367	441	78	66	53	**-31**	**-21**	**-66**	**-142**	**-118**	129
60%	118	269	382	208	78	97	1	**-71**	**-138**	**-34**	**-66**	92
70%	297	280	274	239	40	121	79	**-82**	55	50	111	205
80%	325	295	237	162	244	68	191	343	218	202	221	201
90%	214	324	22	187	213	252	39	279	316	295	180	157
Long Term												
Full Simulation Period[a]	173	261	190	131	95	56	26	30	**-1**	16	25	178
Water Year Types[b,c]												
Wet (32%)	289	486	350	27	1	**-23**	**-72**	**-59**	**-60**	**-55**	**-56**	283
Above Normal (16%)	184	357	274	143	44	**-31**	**-55**	**-40**	**-30**	**-61**	**-52**	212
Below Normal (13%)	53	44	30	210	150	85	42	39	**-13**	5	43	53
Dry (24%)	54	57	8	210	193	152	130	116	24	32	38	52
Critical (15%)	218	206	207	141	141	133	139	145	126	234	246	234

a Based on the 82-year simulation period.

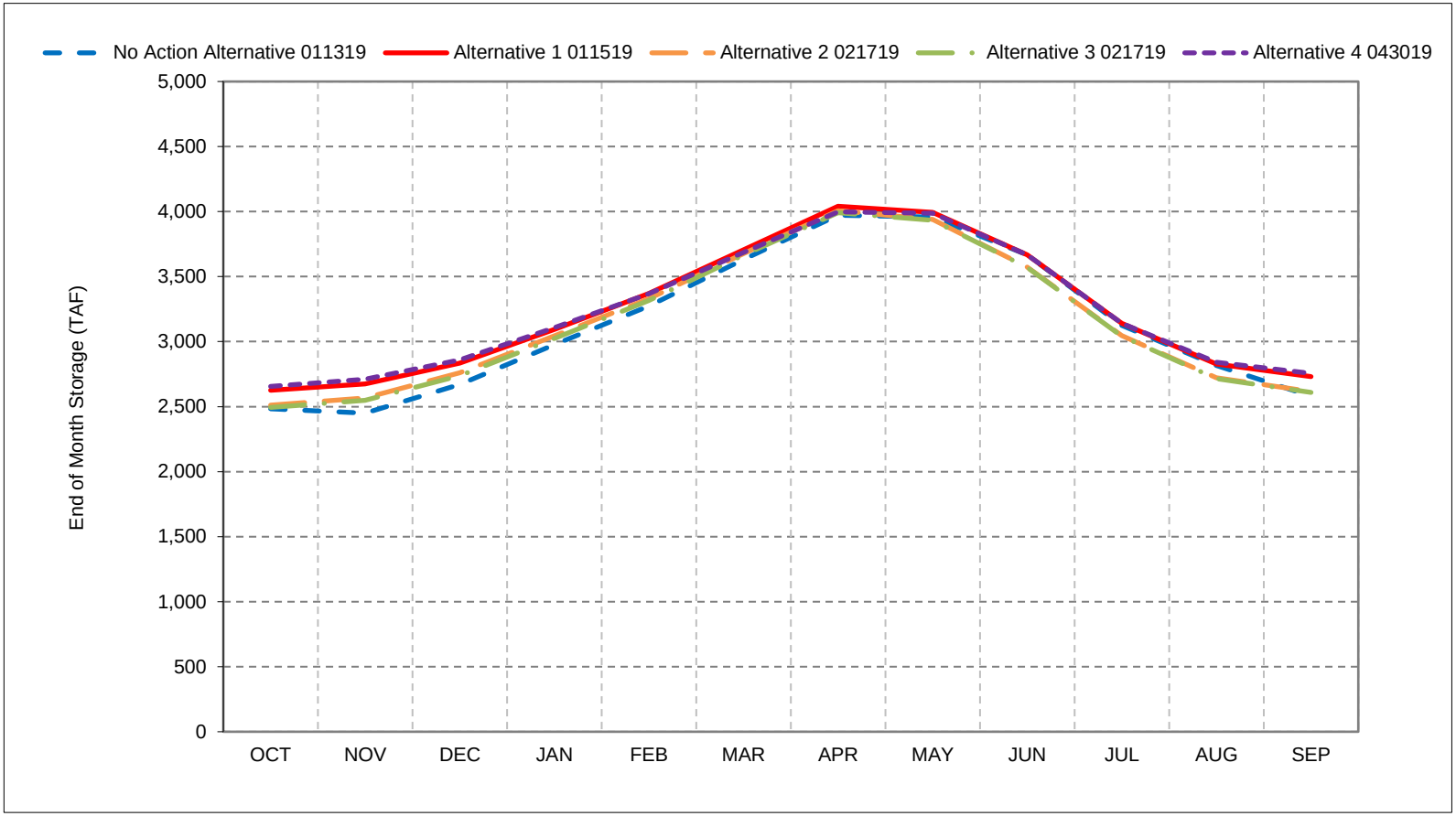
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

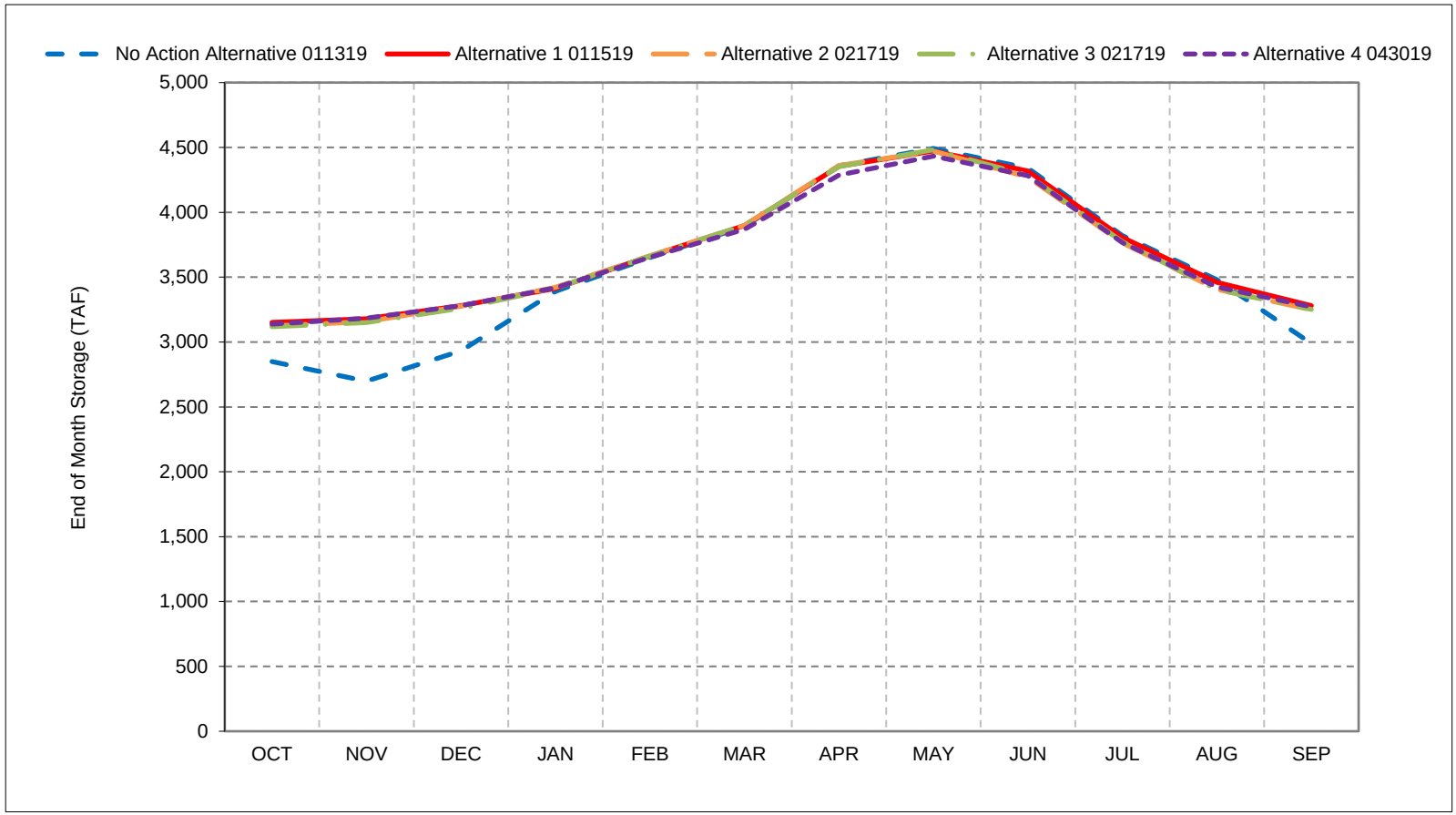
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-1. Shasta Lake Storage, Long-Term Average Storage



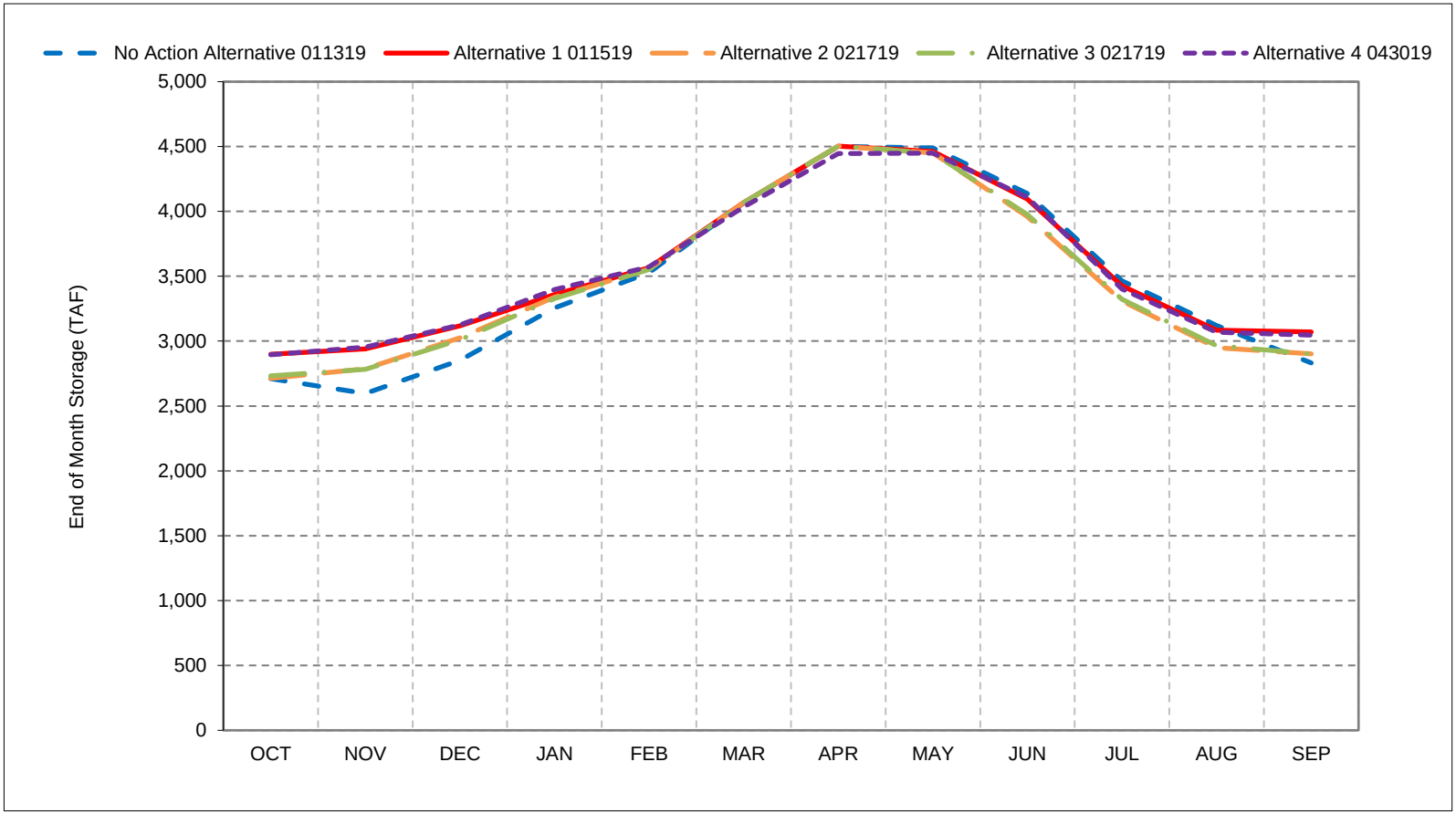
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-2. Shasta Lake Storage, Wet Year Average Storage



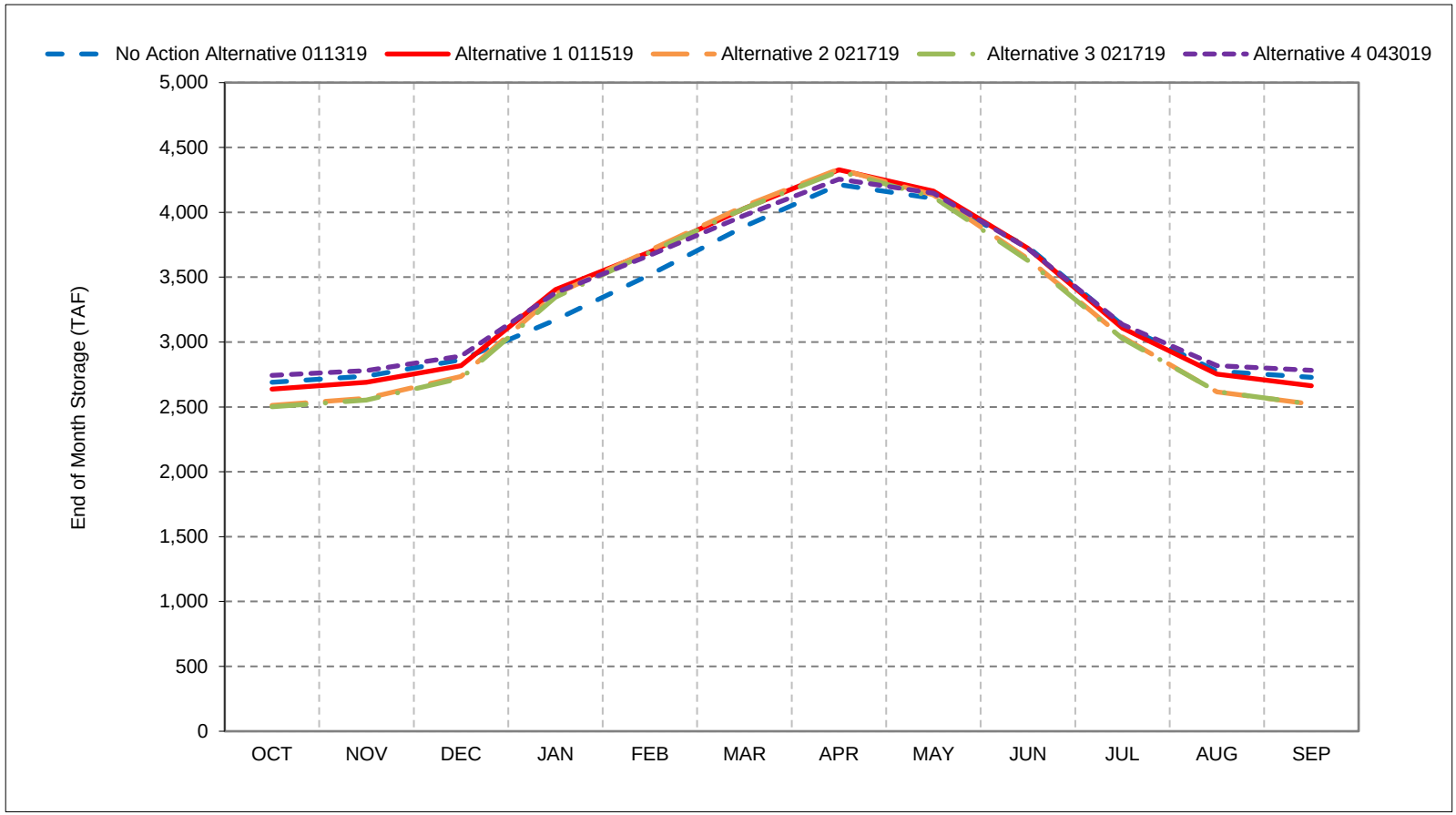
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-3. Shasta Lake Storage, Above Normal Year Average Storage



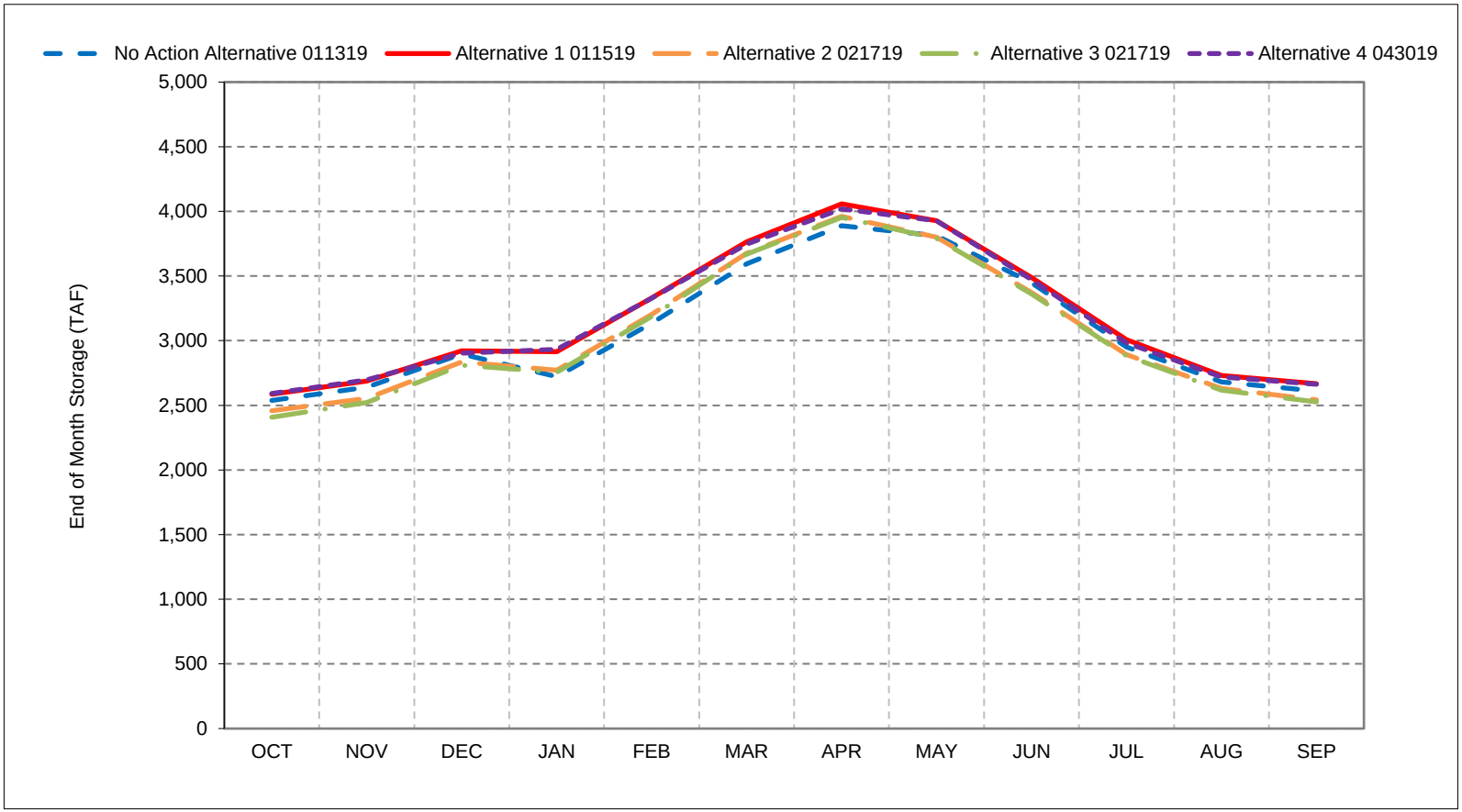
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-4. Shasta Lake Storage, Below Normal Year Average Storage



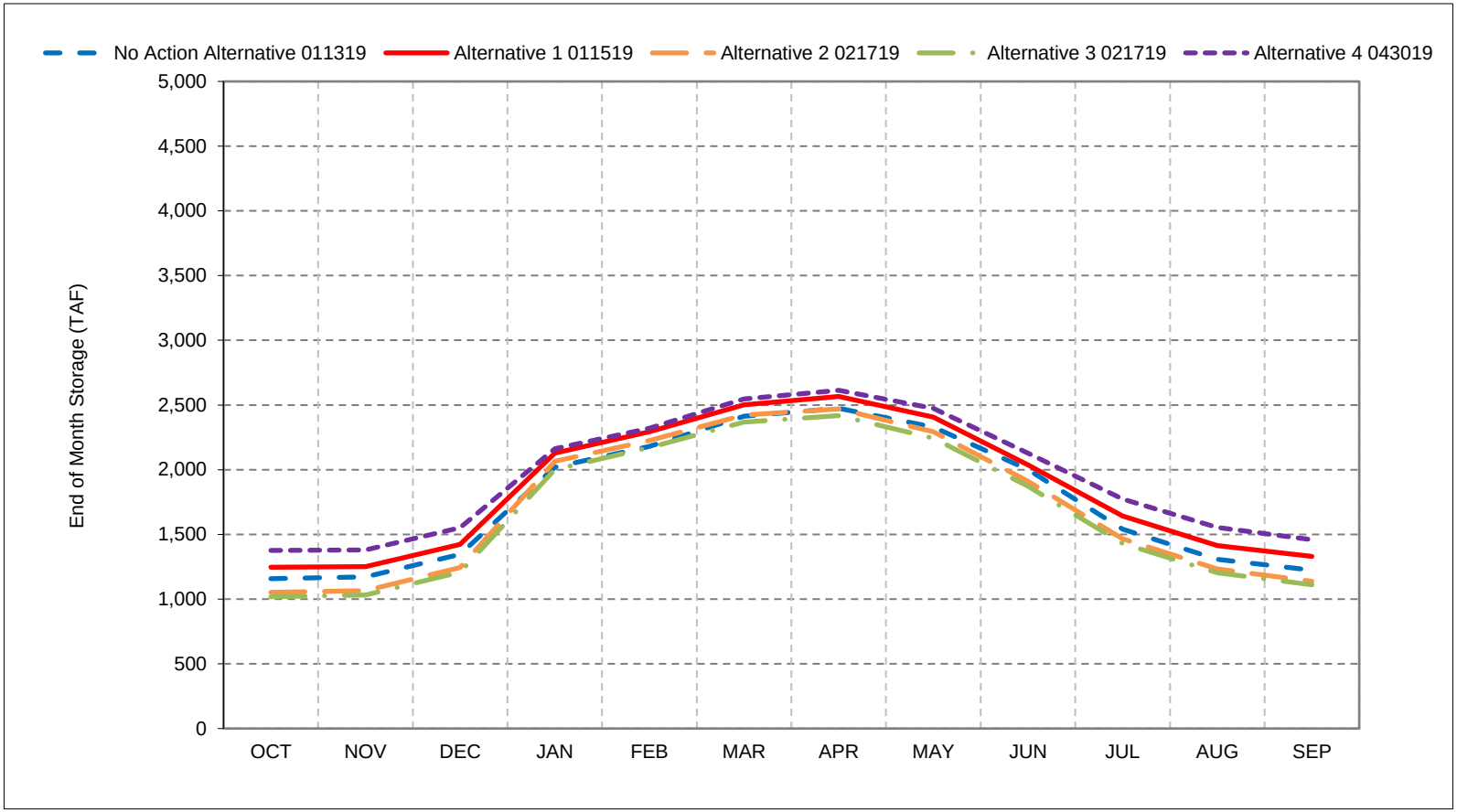
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-5. Shasta Lake Storage, Dry Year Average Storage



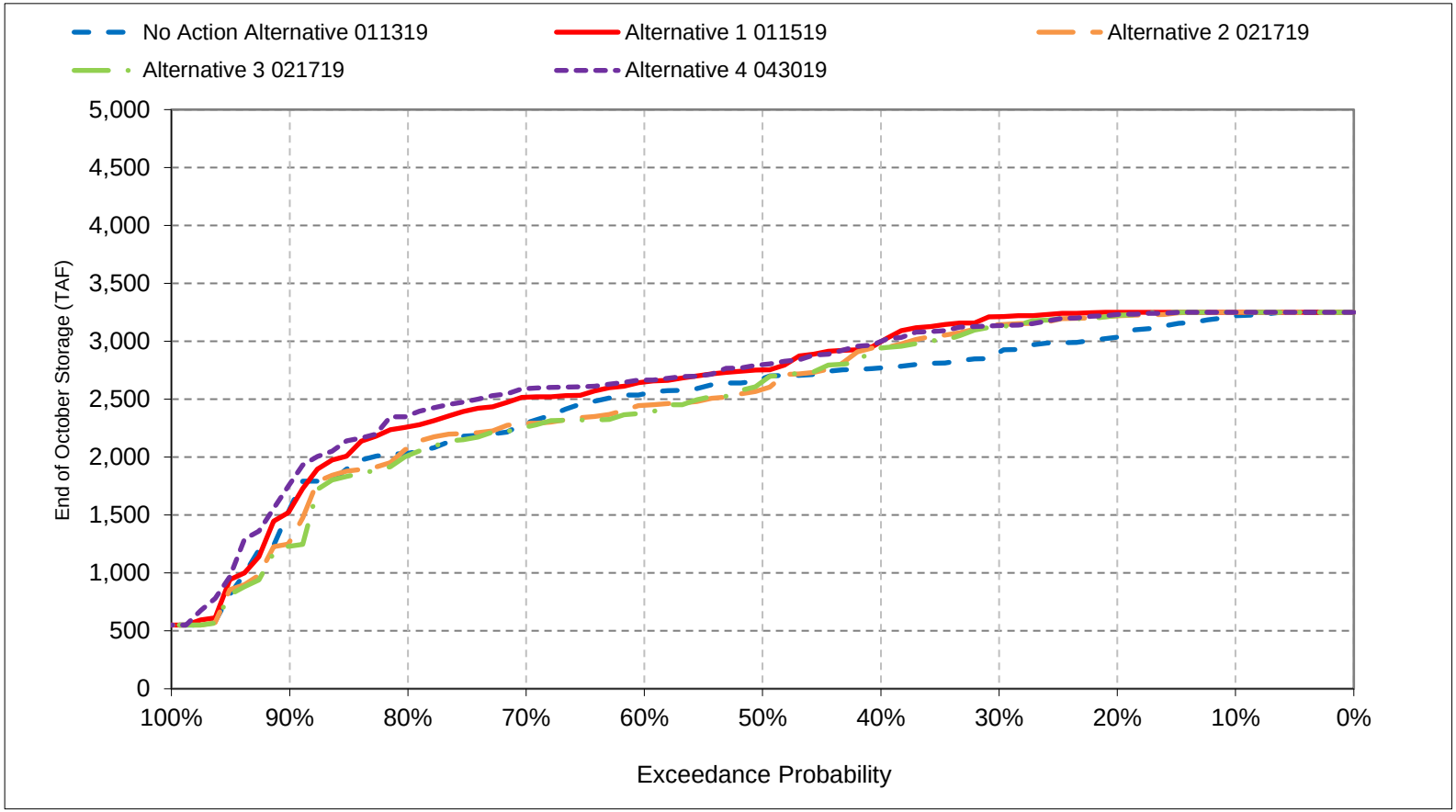
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-6. Shasta Lake Storage, Critical Year Average Storage



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

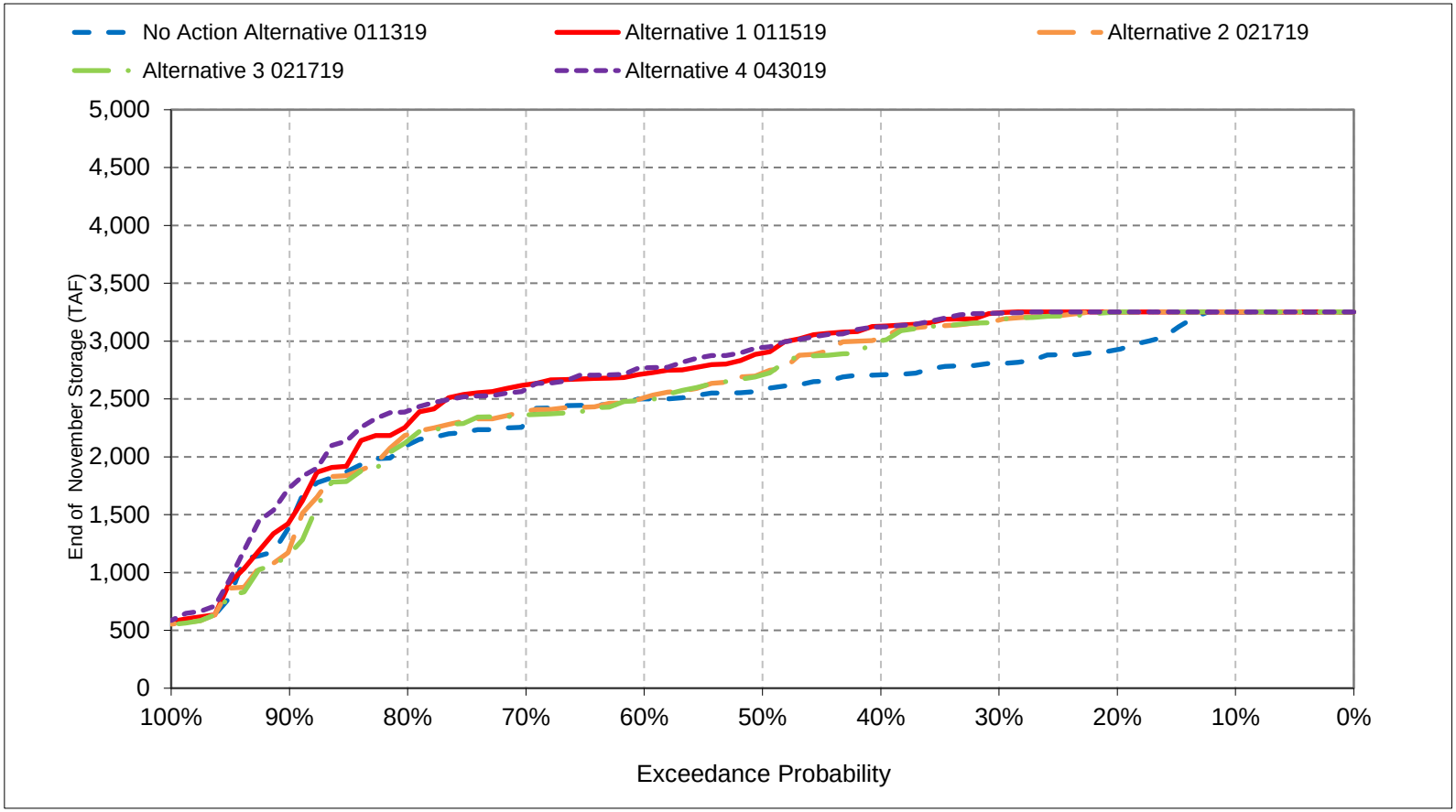
Figure 3-7. Shasta Lake Storage, End of October Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

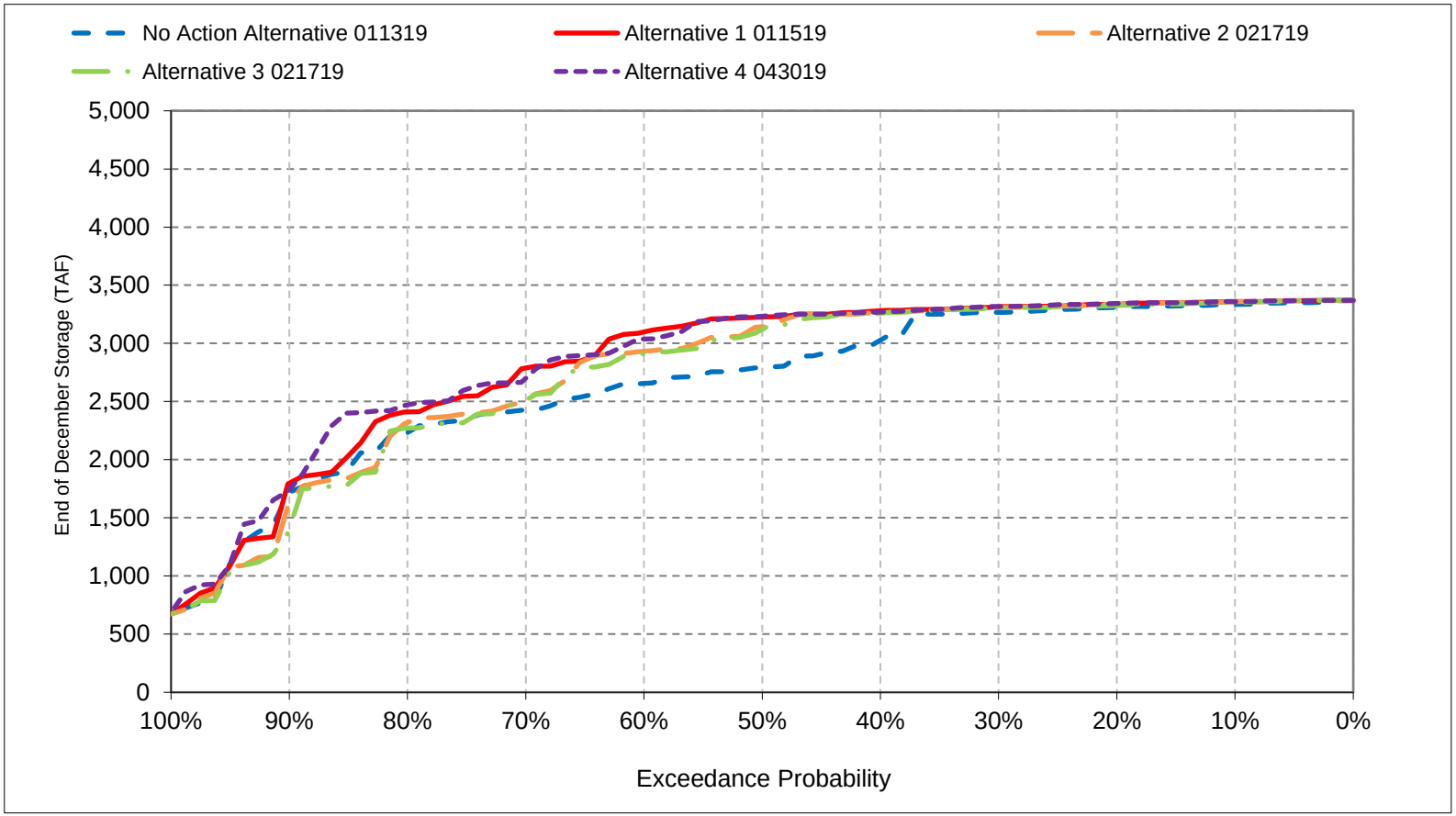
Figure 3-8. Shasta Lake Storage, End of November Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

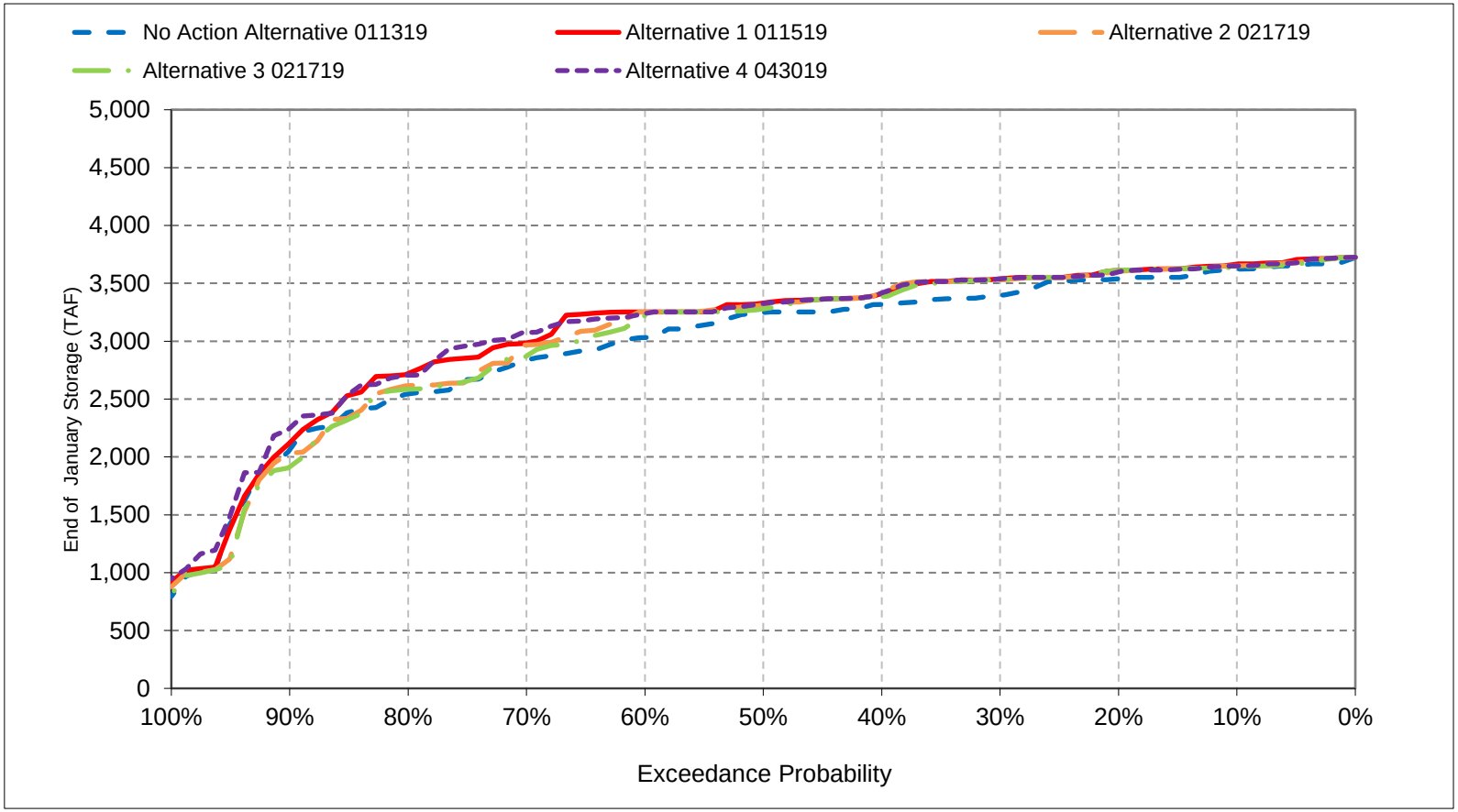
Figure 3-9. Shasta Lake Storage, End of December Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

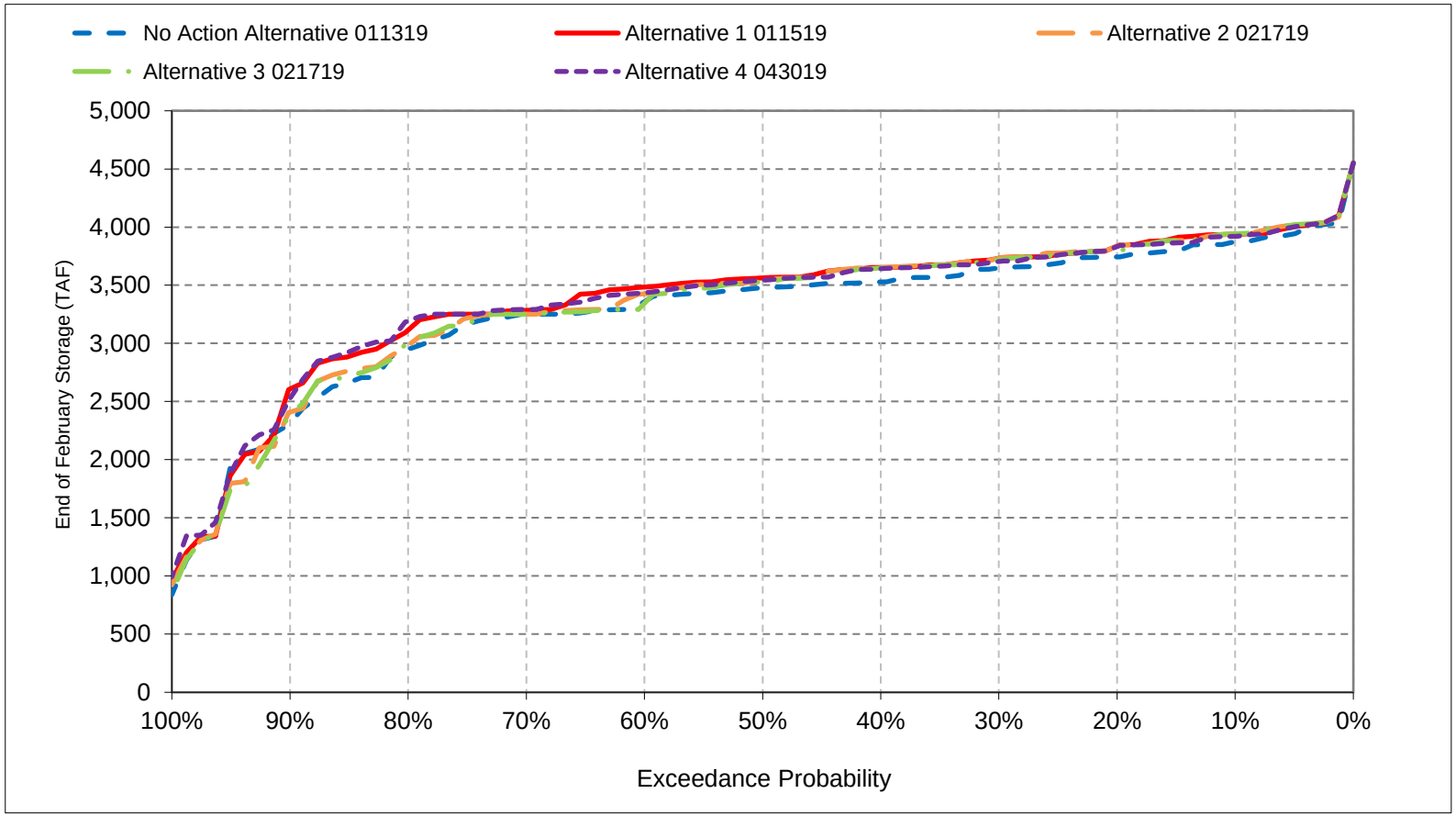
Figure 3-10. Shasta Lake Storage, End of January Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

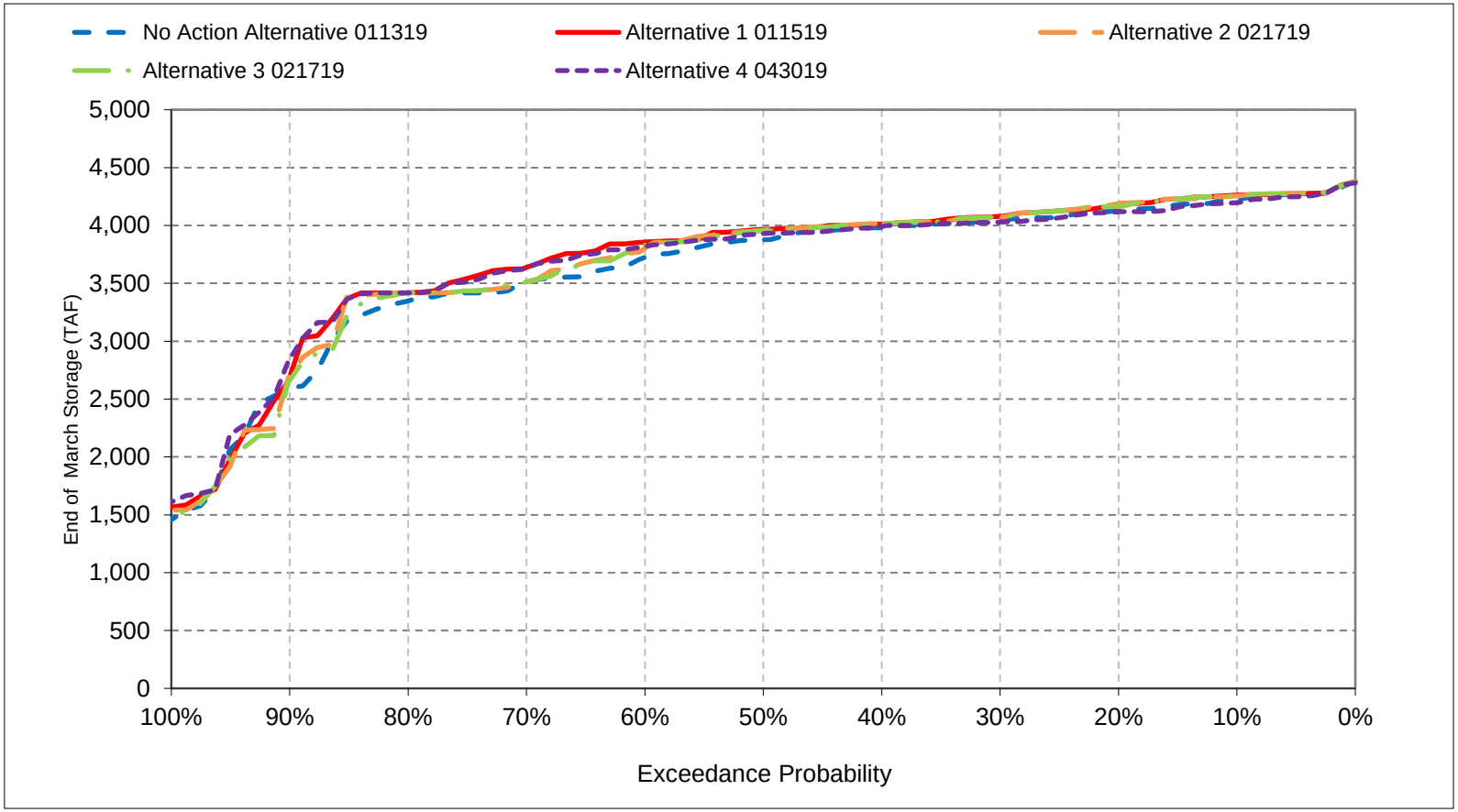
Figure 3-11. Shasta Lake Storage, End of February Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

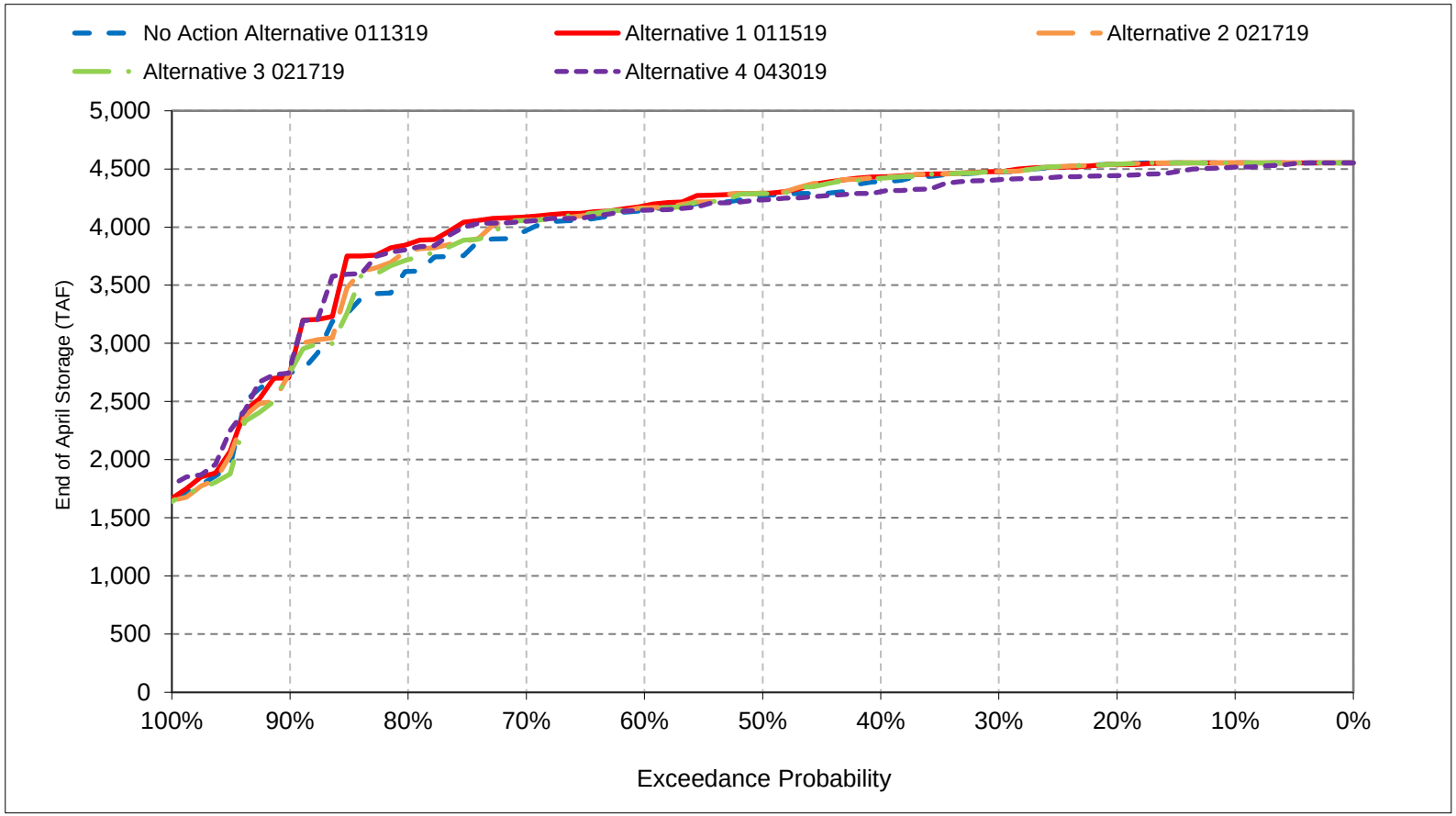
Figure 3-12. Shasta Lake Storage, End of March Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

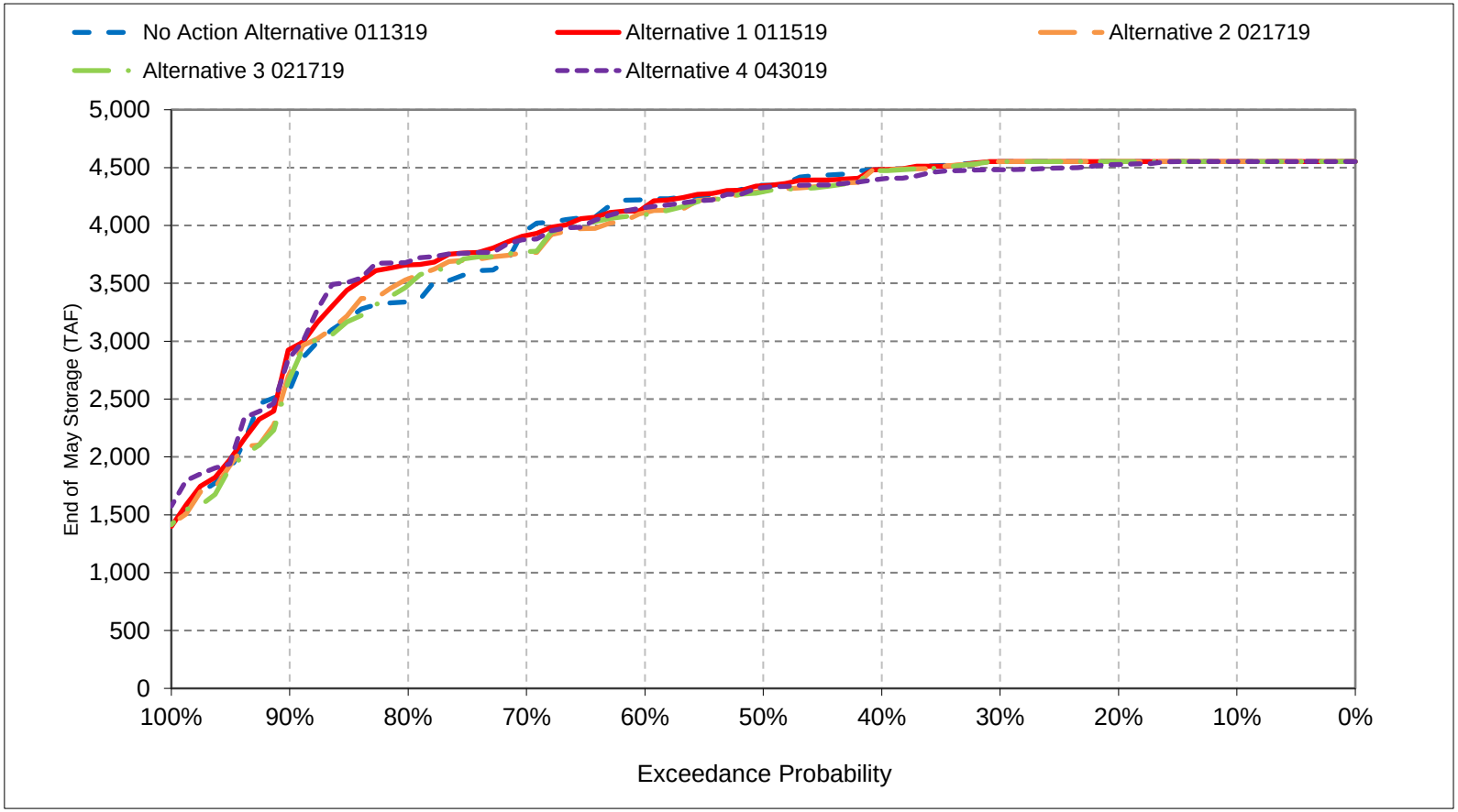
Figure 3-13. Shasta Lake Storage, End of April Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

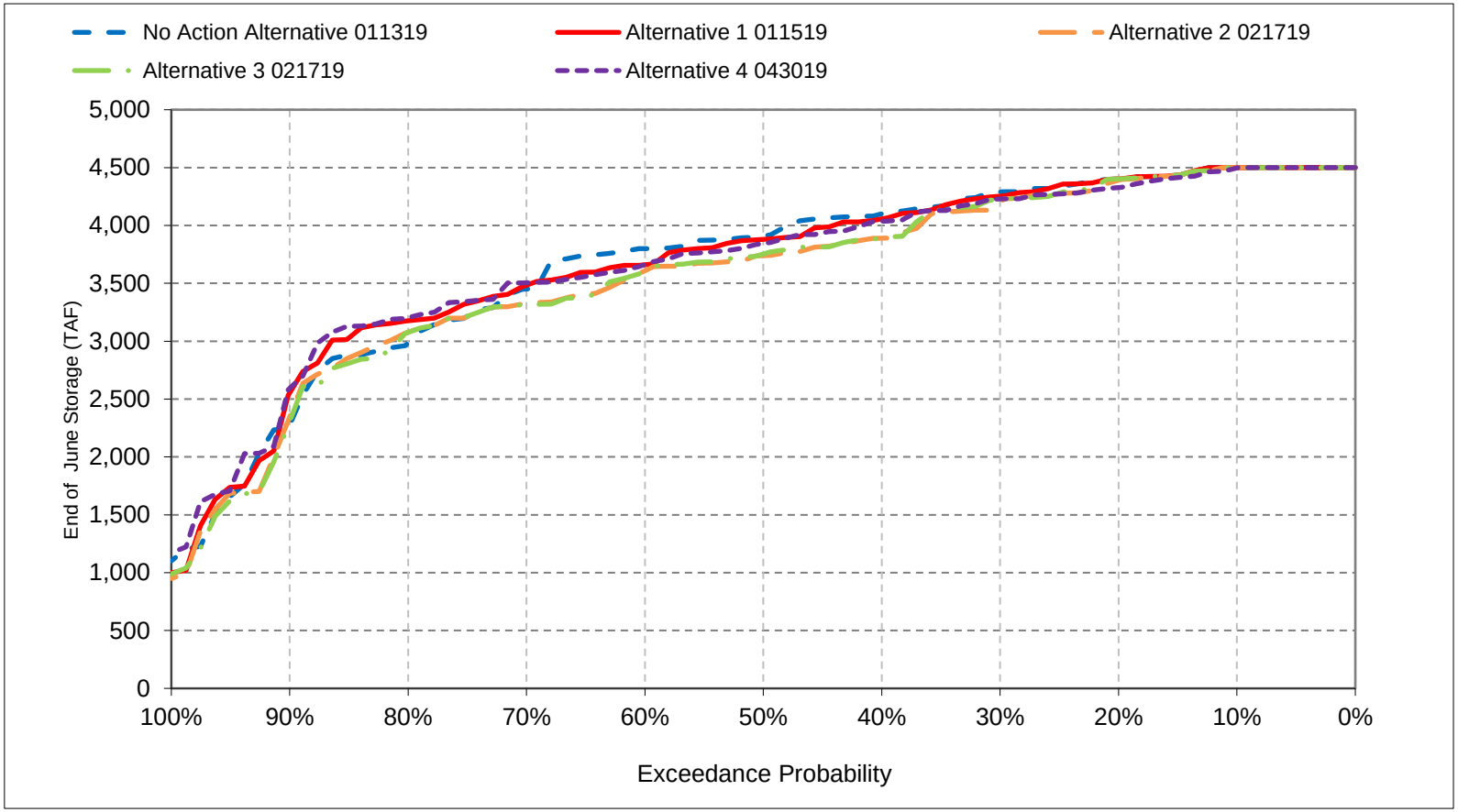
Figure 3-14. Shasta Lake Storage, End of May Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

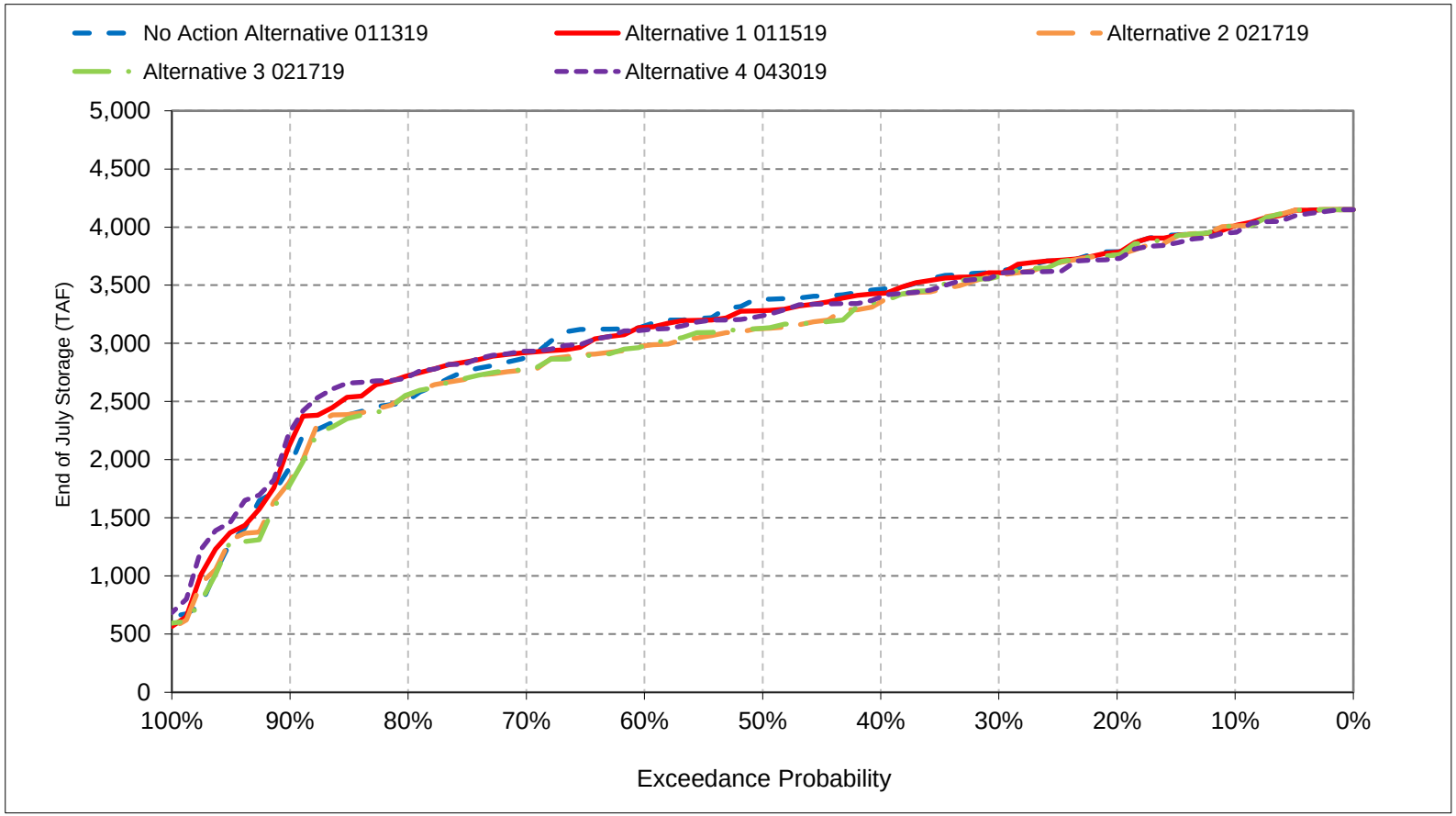
Figure 3-15. Shasta Lake Storage, End of June Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

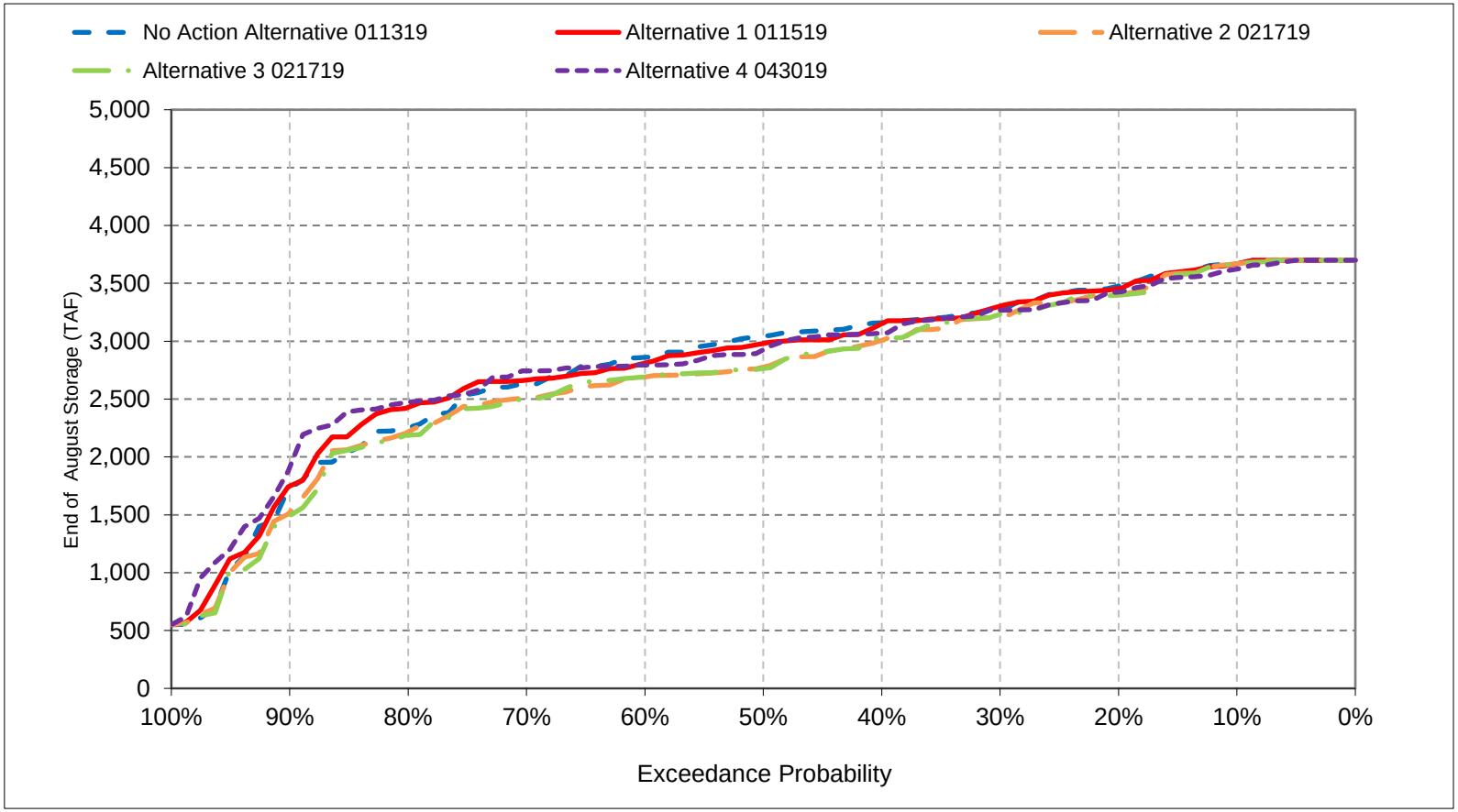
Figure 3-16. Shasta Lake Storage, End of July Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

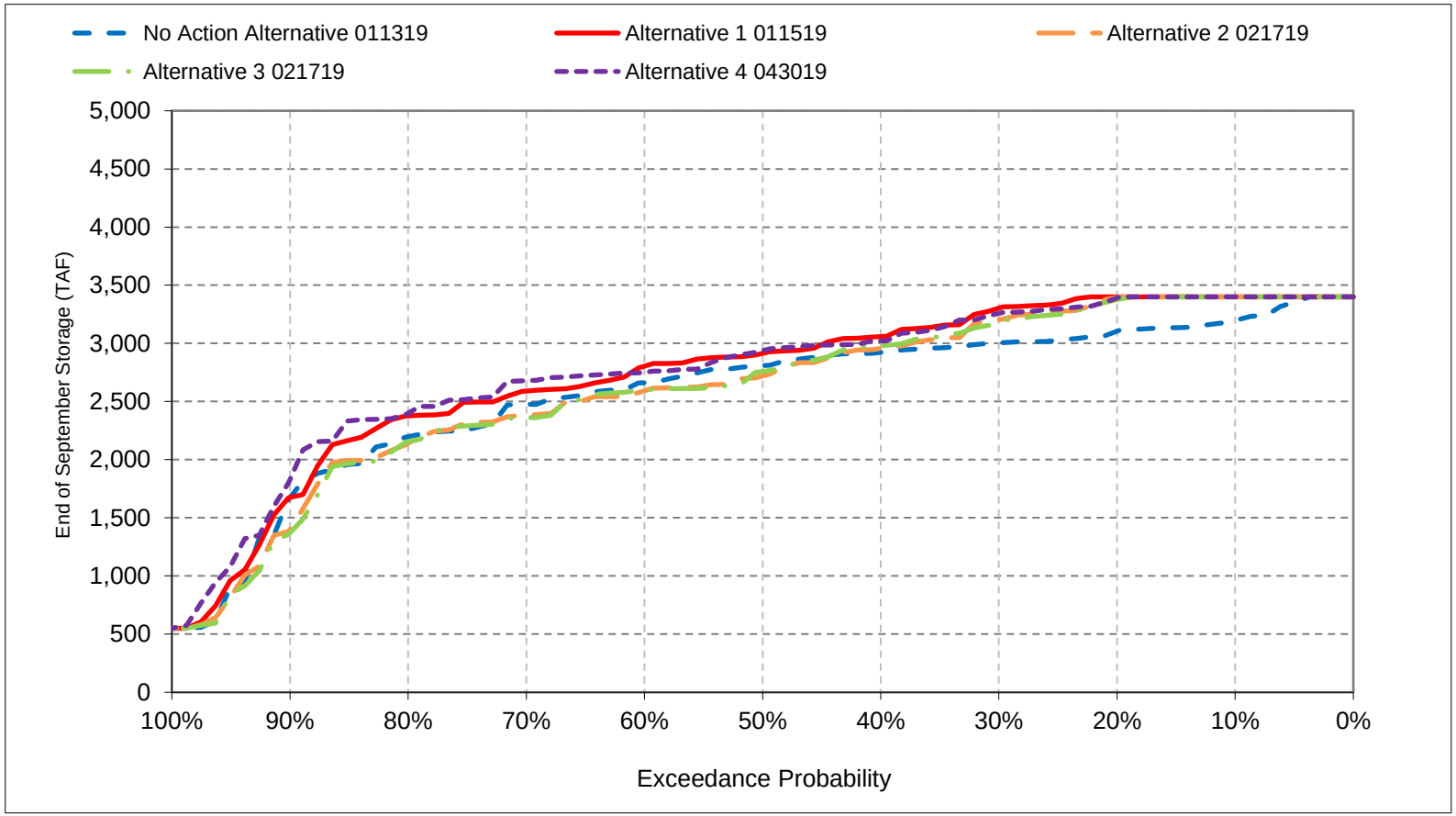
Figure 3-17. Shasta Lake Storage, End of August Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-18. Shasta Lake Storage, End of September Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 3a-1. Shasta Lake Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,016	1,017	1,021	1,033	1,043	1,055	1,067	1,067	1,065	1,048	1,035	1,015
20%	1,008	1,003	1,019	1,029	1,038	1,052	1,067	1,067	1,062	1,040	1,027	1,011
30%	1,002	998	1,018	1,023	1,034	1,049	1,064	1,067	1,058	1,033	1,018	1,006
40%	996	993	1,007	1,020	1,029	1,047	1,061	1,065	1,051	1,026	1,013	1,003
50%	992	988	997	1,017	1,027	1,043	1,057	1,060	1,044	1,023	1,008	998
60%	986	984	991	1,007	1,022	1,037	1,052	1,055	1,040	1,013	1,000	991
70%	972	973	980	999	1,017	1,028	1,046	1,046	1,026	1,001	990	983
80%	958	962	969	986	1,004	1,021	1,033	1,021	1,005	984	970	967
90%	928	918	940	959	974	988	995	988	971	953	940	937
Long Term												
Full Simulation Period[a]	977	976	987	1,002	1,016	1,031	1,044	1,043	1,031	1,007	993	982
Water Year Types[b,c]												
Wet (32%)	999	992	1,003	1,023	1,034	1,043	1,060	1,065	1,059	1,040	1,027	1,005
Above Normal (16%)	993	987	999	1,017	1,029	1,049	1,065	1,065	1,052	1,026	1,011	998
Below Normal (13%)	991	993	999	1,013	1,028	1,043	1,055	1,051	1,037	1,011	995	993
Dry (24%)	984	989	1,000	991	1,010	1,030	1,042	1,039	1,025	1,003	991	987
Critical (15%)	890	892	907	950	960	976	979	971	952	920	902	895

Alternative 1 011519

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,017	1,017	1,022	1,035	1,045	1,057	1,067	1,067	1,065	1,048	1,035	1,023
20%	1,017	1,017	1,021	1,033	1,041	1,054	1,066	1,067	1,062	1,040	1,026	1,023
30%	1,015	1,017	1,020	1,029	1,038	1,050	1,064	1,067	1,056	1,032	1,019	1,019
40%	1,006	1,012	1,018	1,024	1,034	1,048	1,063	1,065	1,049	1,025	1,013	1,009
50%	995	1,002	1,016	1,020	1,031	1,046	1,058	1,060	1,043	1,018	1,005	1,002
60%	991	994	1,010	1,017	1,027	1,042	1,054	1,053	1,035	1,012	998	998
70%	985	990	997	1,005	1,018	1,034	1,050	1,044	1,027	1,003	991	988
80%	971	972	979	994	1,011	1,024	1,042	1,035	1,014	994	980	977
90%	927	920	944	963	989	993	995	1,003	987	963	942	937
Long Term												
Full Simulation Period[a]	984	986	995	1,008	1,020	1,034	1,047	1,045	1,031	1,009	994	989
Water Year Types[b,c]												
Wet (32%)	1,013	1,014	1,018	1,024	1,034	1,043	1,060	1,064	1,059	1,040	1,026	1,018
Above Normal (16%)	1,001	1,003	1,011	1,021	1,030	1,050	1,065	1,064	1,051	1,025	1,010	1,009
Below Normal (13%)	988	991	997	1,024	1,036	1,048	1,059	1,053	1,036	1,010	994	990
Dry (24%)	987	991	1,002	1,000	1,019	1,037	1,049	1,044	1,027	1,006	994	991
Critical (15%)	896	897	912	956	966	980	983	975	953	926	909	902

Alternative 1 011519 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	0	1	2	2	1	0	0	0	0	**0**	9
20%	9	14	1	3	3	2	**0**	0	**0**	**0**	**-1**	13
30%	13	19	2	6	3	1	0	0	**-1**	**-1**	1	13
40%	10	18	11	4	5	1	2	**0**	**-2**	**-1**	**0**	6
50%	3	14	19	4	4	3	1	**0**	**-1**	**-4**	**-3**	5
60%	4	10	19	10	5	5	1	**-2**	**-5**	**0**	**-2**	6
70%	13	17	17	6	1	5	4	**-2**	1	2	1	5
80%	13	10	10	8	7	3	9	14	8	10	10	10
90%	**-1**	2	4	3	15	4	0	15	15	11	1	0
Long Term												
Full Simulation Period[a]	7	11	8	5	4	3	3	2	0	1	1	7
Water Year Types[b,c]												
Wet (32%)	14	22	16	1	0	0	**0**	**-1**	**-1**	**-1**	**-1**	13
Above Normal (16%)	9	16	12	4	1	0	0	**-1**	**-1**	**-2**	**-2**	11
Below Normal (13%)	**-3**	**-2**	**-2**	10	7	5	4	2	**0**	**-1**	**-1**	**-3**
Dry (24%)	3	3	1	9	8	7	7	5	2	3	3	3
Critical (15%)	6	5	5	6	6	4	4	3	1	7	8	8

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3a-2. Shasta Lake Elevation, End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,016	1,017	1,021	1,033	1,043	1,055	1,067	1,067	1,065	1,048	1,035	1,015
20%	1,008	1,003	1,019	1,029	1,038	1,052	1,067	1,067	1,062	1,040	1,027	1,011
30%	1,002	998	1,018	1,023	1,034	1,049	1,064	1,067	1,058	1,033	1,018	1,006
40%	996	993	1,007	1,020	1,029	1,047	1,061	1,065	1,051	1,026	1,013	1,003
50%	992	988	997	1,017	1,027	1,043	1,057	1,060	1,044	1,023	1,008	998
60%	986	984	991	1,007	1,022	1,037	1,052	1,055	1,040	1,013	1,000	991
70%	972	973	980	999	1,017	1,028	1,046	1,046	1,026	1,001	990	983
80%	958	962	969	986	1,004	1,021	1,033	1,021	1,005	984	970	967
90%	928	918	940	959	974	988	995	988	971	953	940	937
Long Term												
Full Simulation Period[a]	977	976	987	1,002	1,016	1,031	1,044	1,043	1,031	1,007	993	982
Water Year Types[b,c]												
Wet (32%)	999	992	1,003	1,023	1,034	1,043	1,060	1,065	1,059	1,040	1,027	1,005
Above Normal (16%)	993	987	999	1,017	1,029	1,049	1,065	1,065	1,052	1,026	1,011	998
Below Normal (13%)	991	993	999	1,013	1,028	1,043	1,055	1,051	1,037	1,011	995	993
Dry (24%)	984	989	1,000	991	1,010	1,030	1,042	1,039	1,025	1,003	991	987
Critical (15%)	890	892	907	950	960	976	979	971	952	920	902	895

Alternative 2 021719

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,017	1,017	1,022	1,034	1,045	1,056	1,067	1,067	1,065	1,048	1,035	1,023
20%	1,016	1,017	1,021	1,032	1,041	1,054	1,067	1,067	1,061	1,039	1,023	1,023
30%	1,012	1,014	1,019	1,029	1,038	1,050	1,064	1,067	1,054	1,032	1,015	1,015
40%	1,004	1,007	1,018	1,024	1,034	1,048	1,063	1,064	1,043	1,021	1,006	1,004
50%	988	994	1,012	1,020	1,030	1,046	1,058	1,058	1,038	1,012	996	994
60%	981	985	1,003	1,017	1,025	1,040	1,053	1,051	1,032	1,005	993	988
70%	972	978	985	1,005	1,017	1,028	1,049	1,039	1,020	996	985	977
80%	960	967	974	989	1,005	1,024	1,040	1,029	1,009	987	968	964
90%	908	903	933	958	979	993	996	994	975	945	926	917
Long Term												
Full Simulation Period[a]	978	981	991	1,005	1,018	1,033	1,045	1,042	1,027	1,004	989	983
Water Year Types[b,c]												
Wet (32%)	1,011	1,013	1,018	1,024	1,034	1,043	1,060	1,064	1,057	1,038	1,024	1,017
Above Normal (16%)	992	996	1,007	1,020	1,030	1,049	1,065	1,063	1,046	1,019	1,004	1,002
Below Normal (13%)	982	985	993	1,022	1,036	1,049	1,059	1,052	1,033	1,007	988	983
Dry (24%)	980	985	998	993	1,013	1,033	1,045	1,039	1,022	1,001	989	984
Critical (15%)	882	884	900	952	962	976	979	969	946	915	897	889

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	0	1	1	2	1	0	0	0	0	**0**	9
20%	8	14	1	3	3	2	**0**	0	**0**	**-1**	**-3**	13
30%	10	16	2	6	3	1	0	**0**	**-3**	**-1**	**-3**	9
40%	8	14	10	5	5	1	1	**0**	**-8**	**-5**	**-7**	1
50%	**-4**	6	15	3	3	3	1	**-2**	**-6**	**-11**	**-12**	**-4**
60%	**-5**	0	12	10	3	3	1	**-4**	**-8**	**-7**	**-7**	**-3**
70%	**0**	5	5	6	0	0	3	**-7**	**-5**	**-5**	**-5**	**-5**
80%	3	5	5	3	2	3	7	8	4	2	**-2**	**-3**
90%	**-20**	**-15**	**-7**	**-2**	5	5	0	6	4	**-7**	**-15**	**-20**
Long Term												
Full Simulation Period[a]	1	5	4	3	2	2	1	**-1**	**-4**	**-4**	**-4**	1
Water Year Types[b,c]												
Wet (32%)	12	21	15	1	0	0	0	**-1**	**-3**	**-2**	**-3**	11
Above Normal (16%)	**0**	9	8	3	1	0	0	**-1**	**-7**	**-7**	**-7**	3
Below Normal (13%)	**-9**	**-8**	**-6**	9	8	6	4	1	**-4**	**-4**	**-7**	**-10**
Dry (24%)	**-3**	**-4**	**-3**	2	3	3	3	0	**-3**	**-2**	**-2**	**-3**
Critical (15%)	**-8**	**-8**	**-7**	2	2	0	**0**	**-2**	**-6**	**-4**	**-5**	**-6**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3a-3. Shasta Lake Elevation, End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,016	1,017	1,021	1,033	1,043	1,055	1,067	1,067	1,065	1,048	1,035	1,015
20%	1,008	1,003	1,019	1,029	1,038	1,052	1,067	1,067	1,062	1,040	1,027	1,011
30%	1,002	998	1,018	1,023	1,034	1,049	1,064	1,067	1,058	1,033	1,018	1,006
40%	996	993	1,007	1,020	1,029	1,047	1,061	1,065	1,051	1,026	1,013	1,003
50%	992	988	997	1,017	1,027	1,043	1,057	1,060	1,044	1,023	1,008	998
60%	986	984	991	1,007	1,022	1,037	1,052	1,055	1,040	1,013	1,000	991
70%	972	973	980	999	1,017	1,028	1,046	1,046	1,026	1,001	990	983
80%	958	962	969	986	1,004	1,021	1,033	1,021	1,005	984	970	967
90%	928	918	940	959	974	988	995	988	971	953	940	937
Long Term												
Full Simulation Period[a]	977	976	987	1,002	1,016	1,031	1,044	1,043	1,031	1,007	993	982
Water Year Types[b,c]												
Wet (32%)	999	992	1,003	1,023	1,034	1,043	1,060	1,065	1,059	1,040	1,027	1,005
Above Normal (16%)	993	987	999	1,017	1,029	1,049	1,065	1,065	1,052	1,026	1,011	998
Below Normal (13%)	991	993	999	1,013	1,028	1,043	1,055	1,051	1,037	1,011	995	993
Dry (24%)	984	989	1,000	991	1,010	1,030	1,042	1,039	1,025	1,003	991	987
Critical (15%)	890	892	907	950	960	976	979	971	952	920	902	895

Alternative 3 021719

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,017	1,017	1,021	1,034	1,045	1,056	1,067	1,067	1,065	1,048	1,035	1,023
20%	1,016	1,017	1,020	1,033	1,040	1,053	1,067	1,067	1,062	1,039	1,023	1,022
30%	1,012	1,014	1,019	1,029	1,037	1,050	1,064	1,067	1,055	1,031	1,016	1,014
40%	1,004	1,006	1,017	1,023	1,034	1,048	1,062	1,064	1,043	1,022	1,007	1,005
50%	991	993	1,011	1,018	1,029	1,046	1,058	1,058	1,038	1,012	996	996
60%	977	984	1,002	1,016	1,021	1,041	1,053	1,051	1,032	1,005	993	989
70%	971	976	985	1,000	1,017	1,028	1,049	1,039	1,020	996	984	976
80%	957	964	971	988	1,006	1,024	1,037	1,027	1,009	987	966	964
90%	905	899	917	951	977	991	995	992	973	944	924	915
Long Term												
Full Simulation Period[a]	977	980	989	1,004	1,017	1,032	1,045	1,042	1,027	1,003	988	983
Water Year Types[b,c]												
Wet (32%)	1,011	1,013	1,017	1,024	1,034	1,043	1,060	1,065	1,057	1,038	1,024	1,017
Above Normal (16%)	993	996	1,006	1,020	1,030	1,050	1,065	1,063	1,046	1,020	1,004	1,002
Below Normal (13%)	982	984	992	1,021	1,035	1,048	1,059	1,051	1,032	1,007	988	983
Dry (24%)	977	983	996	992	1,013	1,033	1,045	1,039	1,021	1,001	988	984
Critical (15%)	880	881	897	948	959	973	976	966	944	912	894	887

Alternative 3 021719 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	0	1	1	2	1	0	0	0	0	**0**	9
20%	8	14	1	3	2	1	**0**	0	0	**-1**	**-3**	12
30%	10	16	2	6	3	1	0	**0**	**-2**	**-2**	**-2**	8
40%	7	13	10	3	5	1	1	**0**	**-7**	**-5**	**-6**	2
50%	**-1**	6	14	1	2	3	1	**-2**	**-6**	**-11**	**-12**	**-2**
60%	**-9**	**-1**	11	8	**-1**	4	1	**-5**	**-8**	**-7**	**-7**	**-3**
70%	**-2**	3	5	2	0	0	3	**-7**	**-6**	**-5**	**-6**	**-7**
80%	**-1**	2	2	2	2	3	4	6	4	3	**-4**	**-3**
90%	**-23**	**-19**	**-23**	**-8**	4	3	0	4	2	**-9**	**-17**	**-22**
Long Term												
Full Simulation Period[a]	**0**	4	2	2	2	1	1	**-1**	**-4**	**-4**	**-5**	1
Water Year Types[b,c]												
Wet (32%)	12	20	15	1	0	0	**0**	**0**	**-2**	**-2**	**-3**	12
Above Normal (16%)	1	9	7	3	1	0	0	**-1**	**-6**	**-6**	**-7**	3
Below Normal (13%)	**-10**	**-9**	**-7**	8	7	5	4	1	**-4**	**-4**	**-7**	**-10**
Dry (24%)	**-6**	**-6**	**-4**	1	2	3	3	**0**	**-3**	**-3**	**-3**	**-4**
Critical (15%)	**-11**	**-11**	**-10**	**-2**	**-1**	**-3**	**-3**	**-5**	**-8**	**-7**	**-8**	**-8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3a-4. Shasta Lake Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,016	1,017	1,021	1,033	1,043	1,055	1,067	1,067	1,065	1,048	1,035	1,015
20%	1,008	1,003	1,019	1,029	1,038	1,052	1,067	1,067	1,062	1,040	1,027	1,011
30%	1,002	998	1,018	1,023	1,034	1,049	1,064	1,067	1,058	1,033	1,018	1,006
40%	996	993	1,007	1,020	1,029	1,047	1,061	1,065	1,051	1,026	1,013	1,003
50%	992	988	997	1,017	1,027	1,043	1,057	1,060	1,044	1,023	1,008	998
60%	986	984	991	1,007	1,022	1,037	1,052	1,055	1,040	1,013	1,000	991
70%	972	973	980	999	1,017	1,028	1,046	1,046	1,026	1,001	990	983
80%	958	962	969	986	1,004	1,021	1,033	1,021	1,005	984	970	967
90%	928	918	940	959	974	988	995	988	971	953	940	937
Long Term												
Full Simulation Period[a]	977	976	987	1,002	1,016	1,031	1,044	1,043	1,031	1,007	993	982
Water Year Types[b,c]												
Wet (32%)	999	992	1,003	1,023	1,034	1,043	1,060	1,065	1,059	1,040	1,027	1,005
Above Normal (16%)	993	987	999	1,017	1,029	1,049	1,065	1,065	1,052	1,026	1,011	998
Below Normal (13%)	991	993	999	1,013	1,028	1,043	1,055	1,051	1,037	1,011	995	993
Dry (24%)	984	989	1,000	991	1,010	1,030	1,042	1,039	1,025	1,003	991	987
Critical (15%)	890	892	907	950	960	976	979	971	952	920	902	895

Alternative 4 043019

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,017	1,017	1,022	1,034	1,044	1,054	1,066	1,067	1,065	1,046	1,033	1,023
20%	1,016	1,017	1,021	1,032	1,041	1,051	1,063	1,066	1,059	1,038	1,024	1,023
30%	1,012	1,017	1,020	1,029	1,037	1,048	1,062	1,064	1,055	1,032	1,018	1,017
40%	1,006	1,011	1,018	1,024	1,034	1,047	1,058	1,062	1,049	1,023	1,009	1,007
50%	997	1,004	1,016	1,020	1,030	1,045	1,056	1,059	1,042	1,016	1,003	1,003
60%	992	996	1,008	1,016	1,025	1,041	1,052	1,053	1,035	1,011	997	995
70%	988	988	993	1,009	1,019	1,034	1,049	1,043	1,028	1,003	995	992
80%	976	978	982	993	1,014	1,024	1,040	1,036	1,015	993	983	978
90%	943	941	941	970	985	999	997	1,000	988	970	951	946
Long Term												
Full Simulation Period[a]	986	989	996	1,009	1,020	1,034	1,045	1,045	1,032	1,009	996	991
Water Year Types[b,c]												
Wet (32%)	1,012	1,014	1,018	1,024	1,034	1,042	1,058	1,063	1,057	1,038	1,025	1,018
Above Normal (16%)	1,001	1,004	1,011	1,023	1,030	1,048	1,063	1,063	1,051	1,024	1,009	1,008
Below Normal (13%)	995	996	1,001	1,022	1,034	1,046	1,056	1,053	1,036	1,012	998	997
Dry (24%)	987	992	1,001	1,001	1,019	1,036	1,047	1,044	1,026	1,005	993	990
Critical (15%)	906	906	921	959	968	983	986	979	959	936	920	912

Alternative 4 043019 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	0	1	1	2	-1	-1	0	0	-2	-2	9
20%	8	14	2	3	3	0	-4	-1	-3	-2	-2	12
30%	10	19	2	6	2	-1	-2	-3	-2	-1	0	11
40%	10	18	11	4	5	0	-3	-3	-2	-3	-4	4
50%	5	16	19	3	3	2	-1	-1	-2	-6	-5	6
60%	5	12	17	9	3	3	0	-3	-5	-1	-3	4
70%	16	15	13	10	2	5	3	-3	2	2	5	9
80%	18	17	13	7	11	3	8	15	9	9	13	11
90%	15	23	1	11	12	11	2	12	17	17	10	9
Long Term												
Full Simulation Period[a]	9	13	9	6	4	3	1	2	1	2	3	9
Water Year Types[b,c]												
Wet (32%)	13	22	16	1	0	-1	-3	-2	-2	-2	-2	13
Above Normal (16%)	9	17	13	6	2	-1	-2	-1	-1	-3	-2	9
Below Normal (13%)	3	3	2	9	6	3	2	2	0	1	3	3
Dry (24%)	3	3	1	10	8	6	5	5	1	2	2	3
Critical (15%)	16	15	14	9	8	7	7	8	8	17	18	18

a Based on the 82-year simulation period.

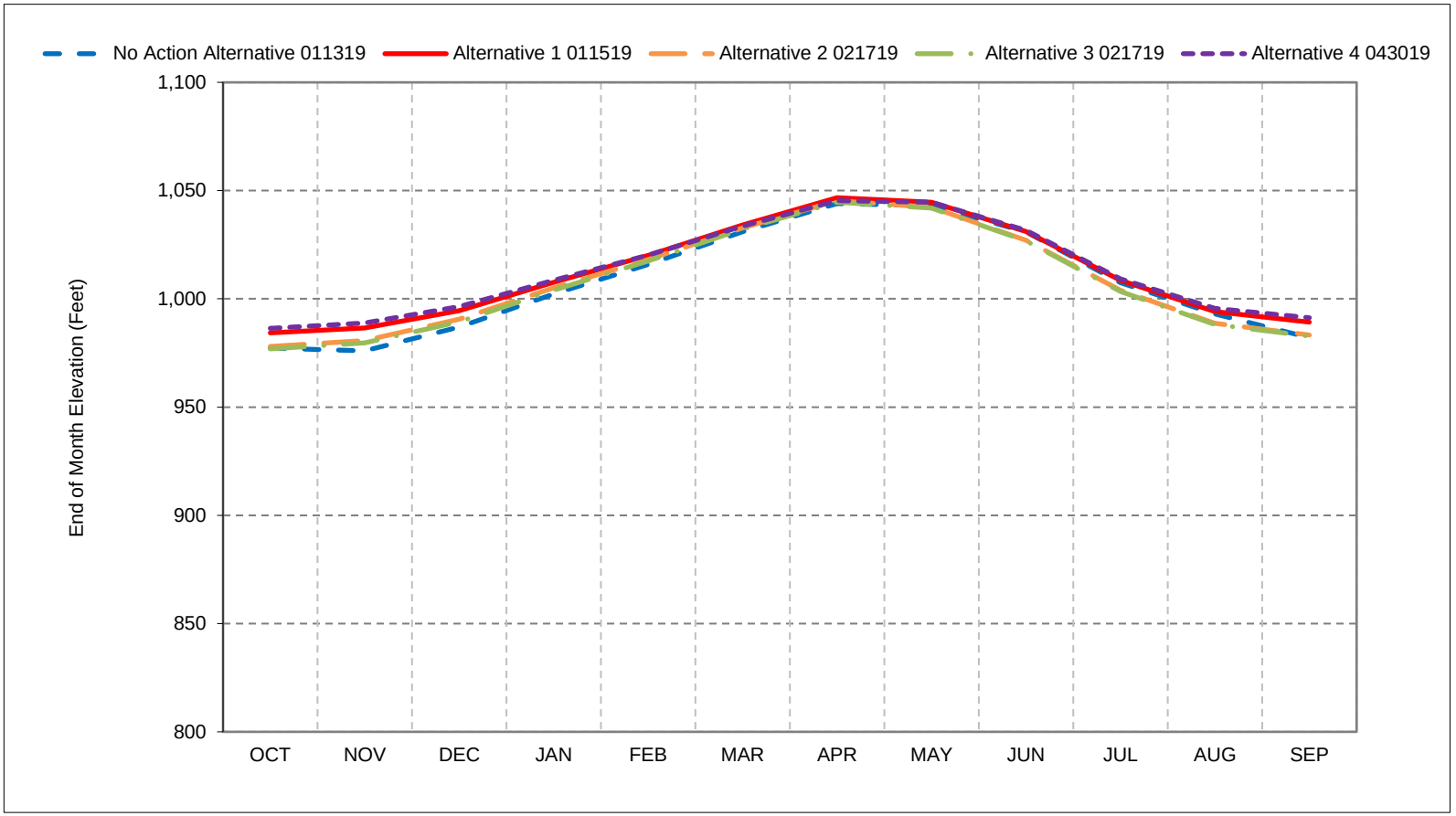
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

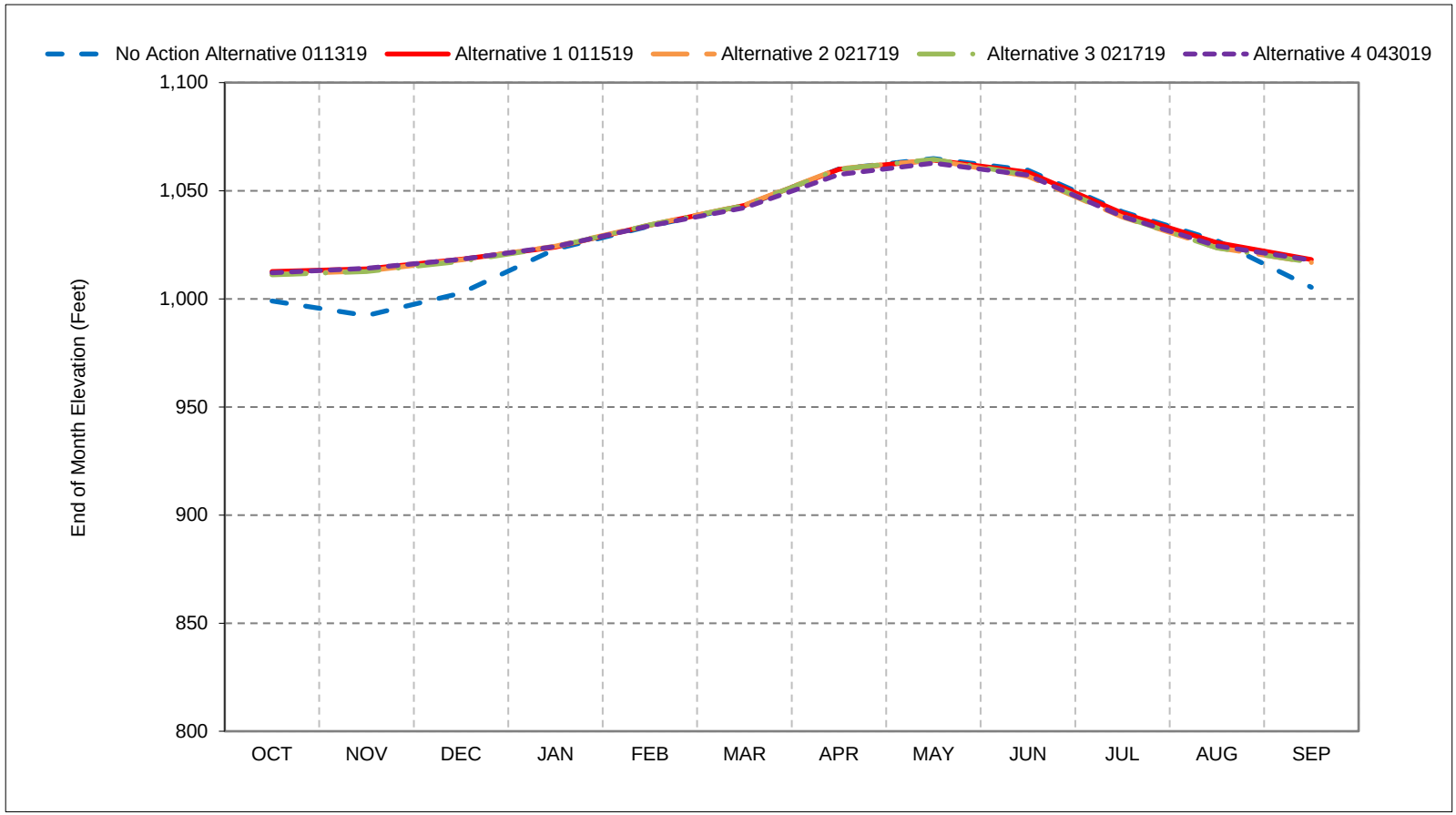
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 3a-1. Shasta Lake Elevation, Long-Term Average Elevation



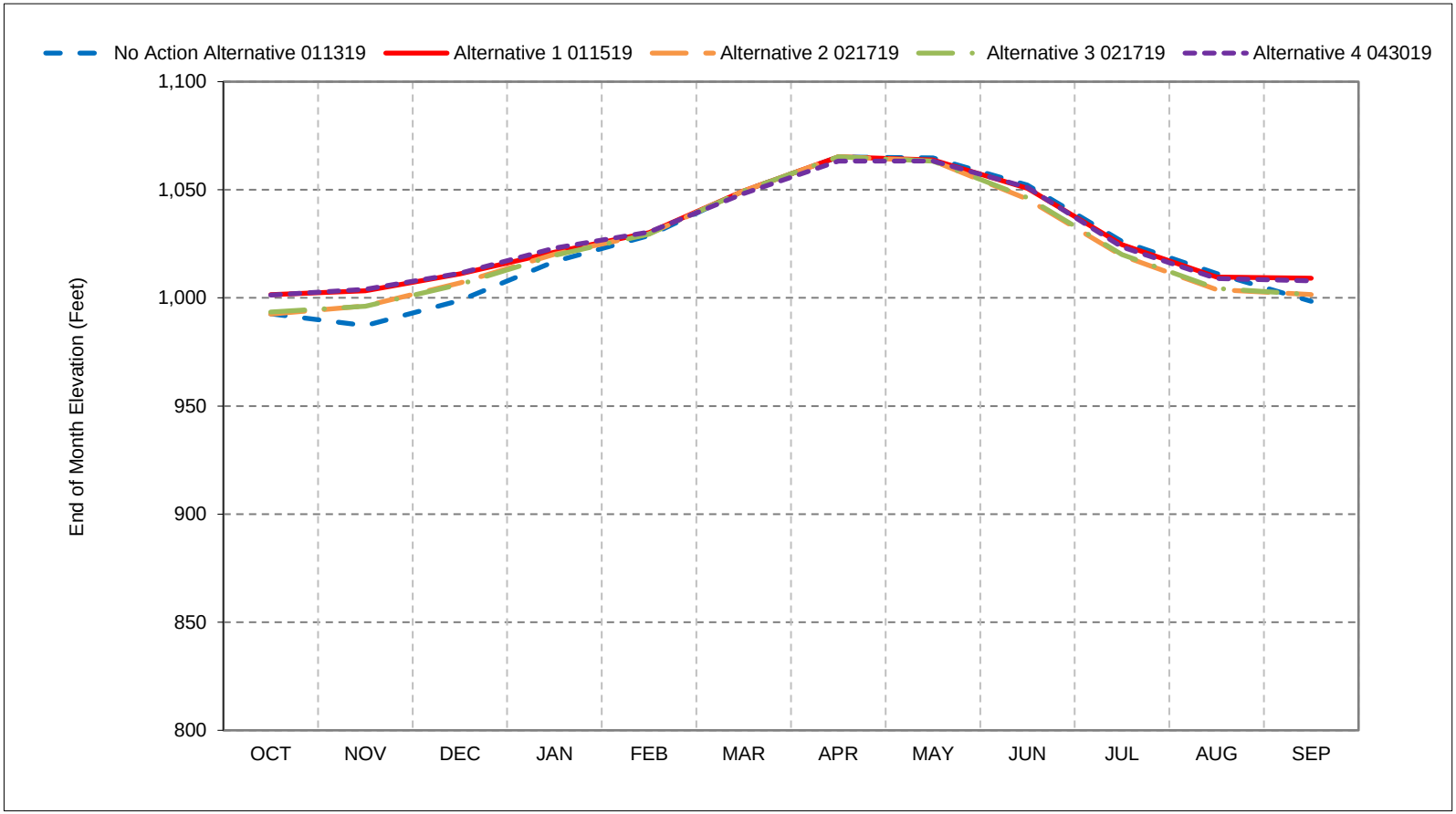
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3a-2. Shasta Lake Elevation, Wet Year Average Elevation



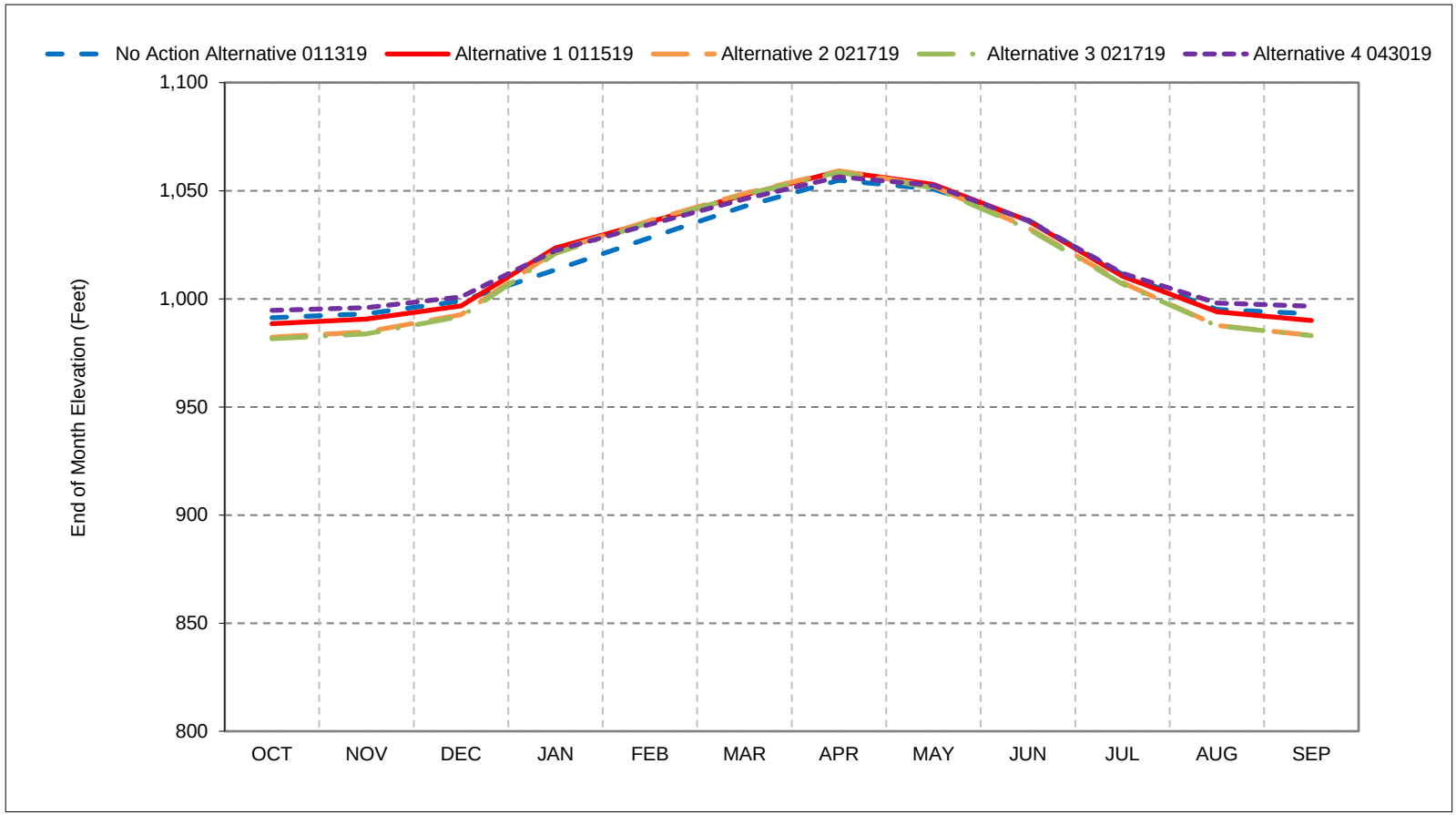
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3a-3. Shasta Lake Elevation, Above Normal Year Average Elevation



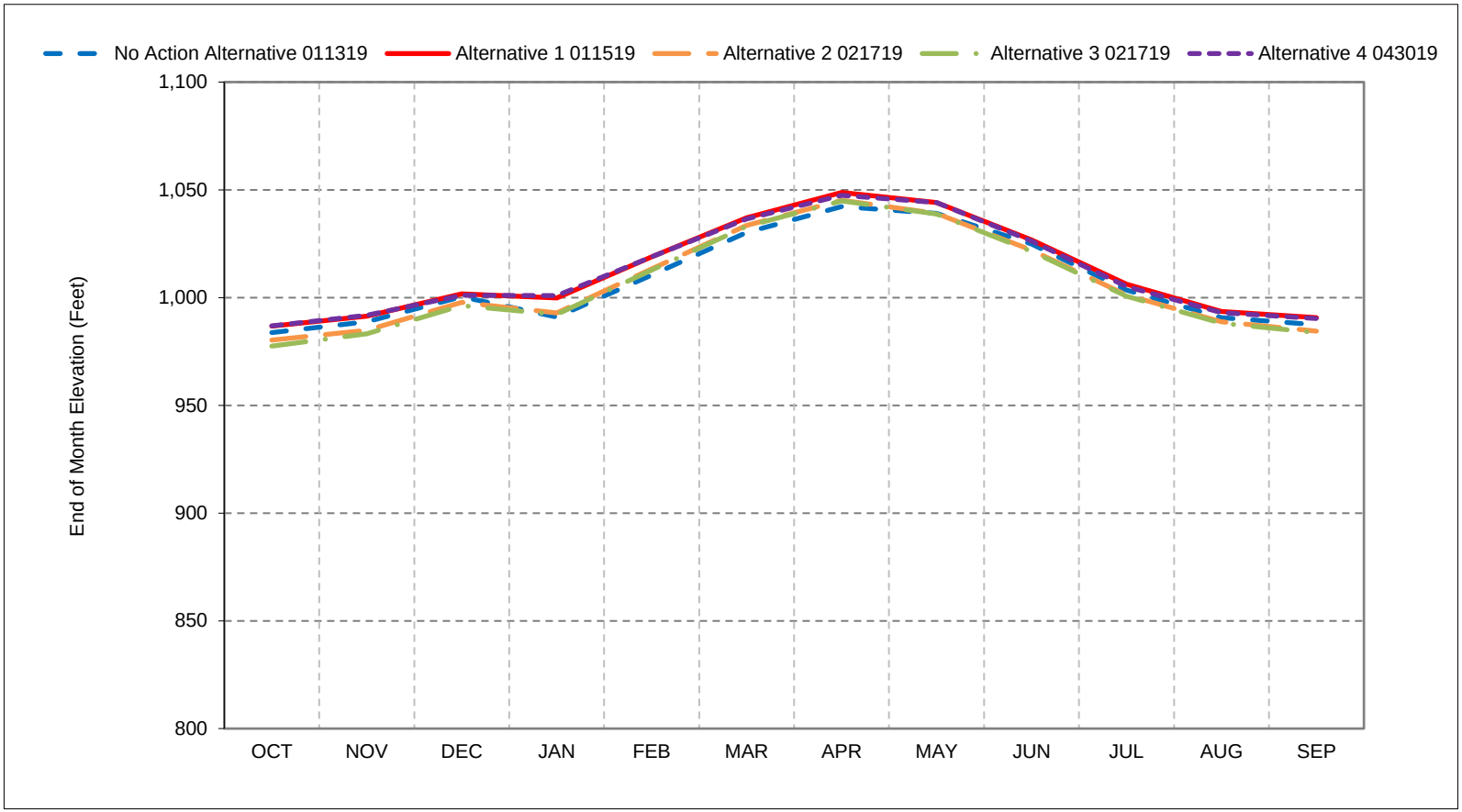
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3a-4. Shasta Lake Elevation, Below Normal Year Average Elevation



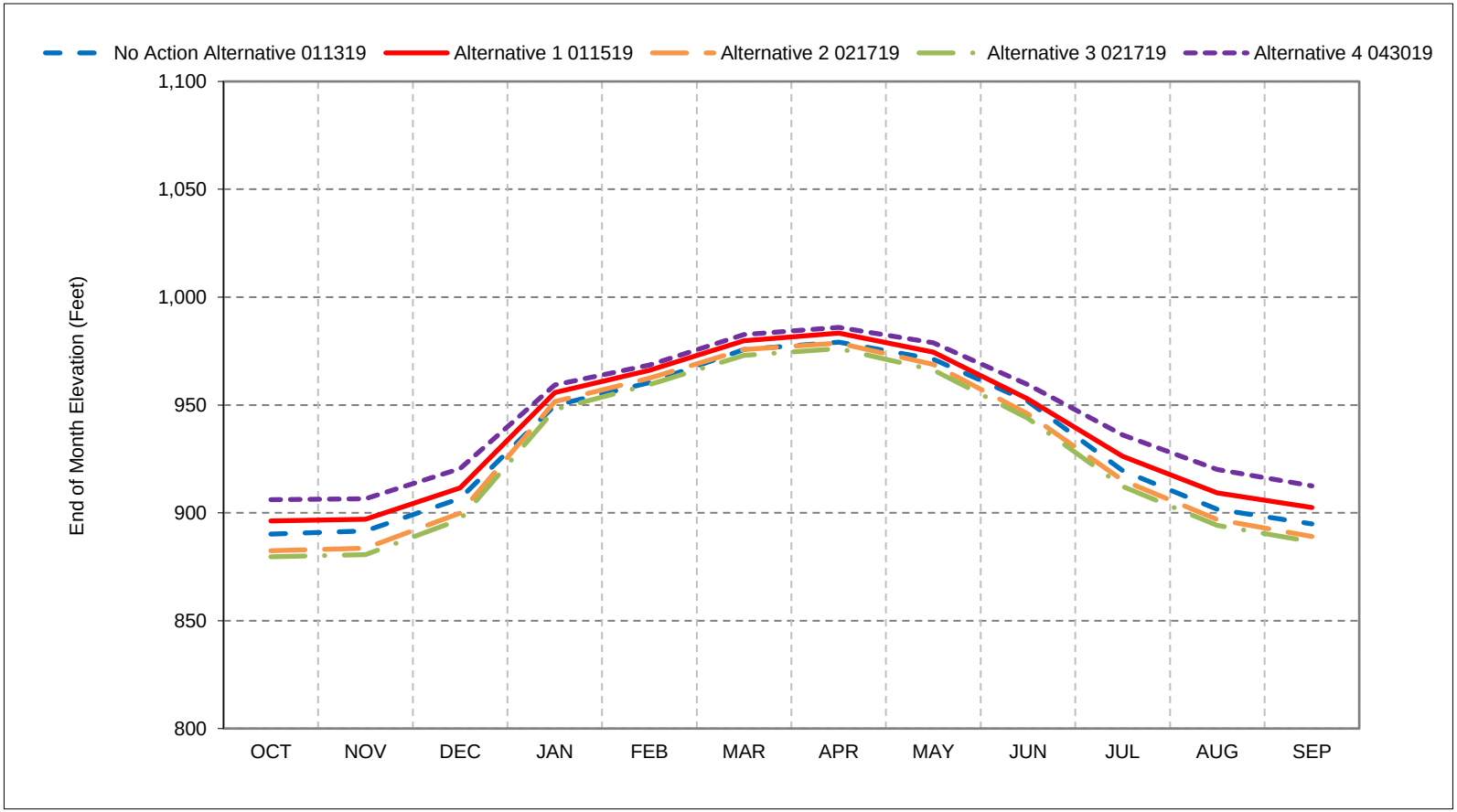
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3a-5. Shasta Lake Elevation, Dry Year Average Elevation



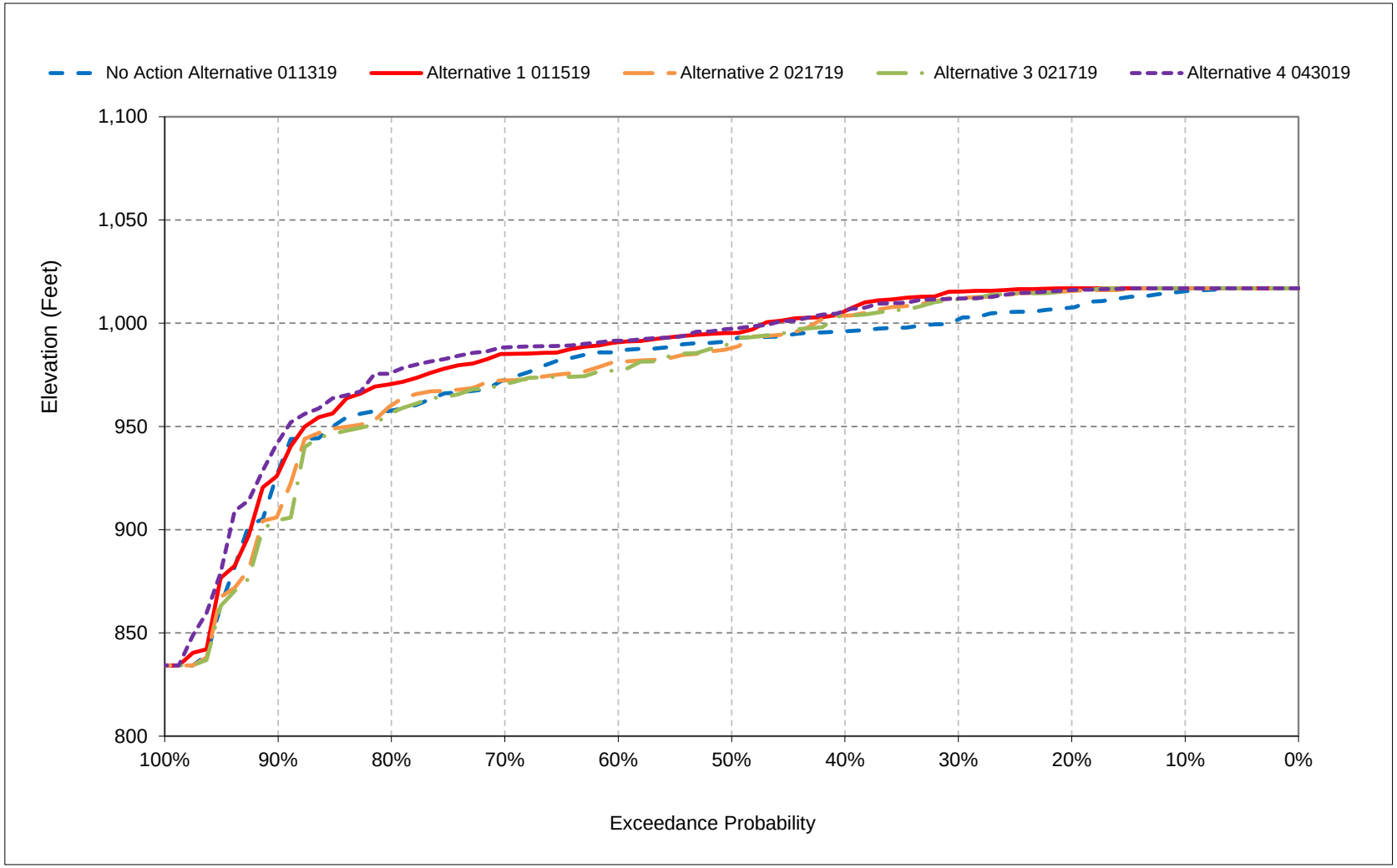
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3a-6. Shasta Lake Elevation, Critical Year Average Elevation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

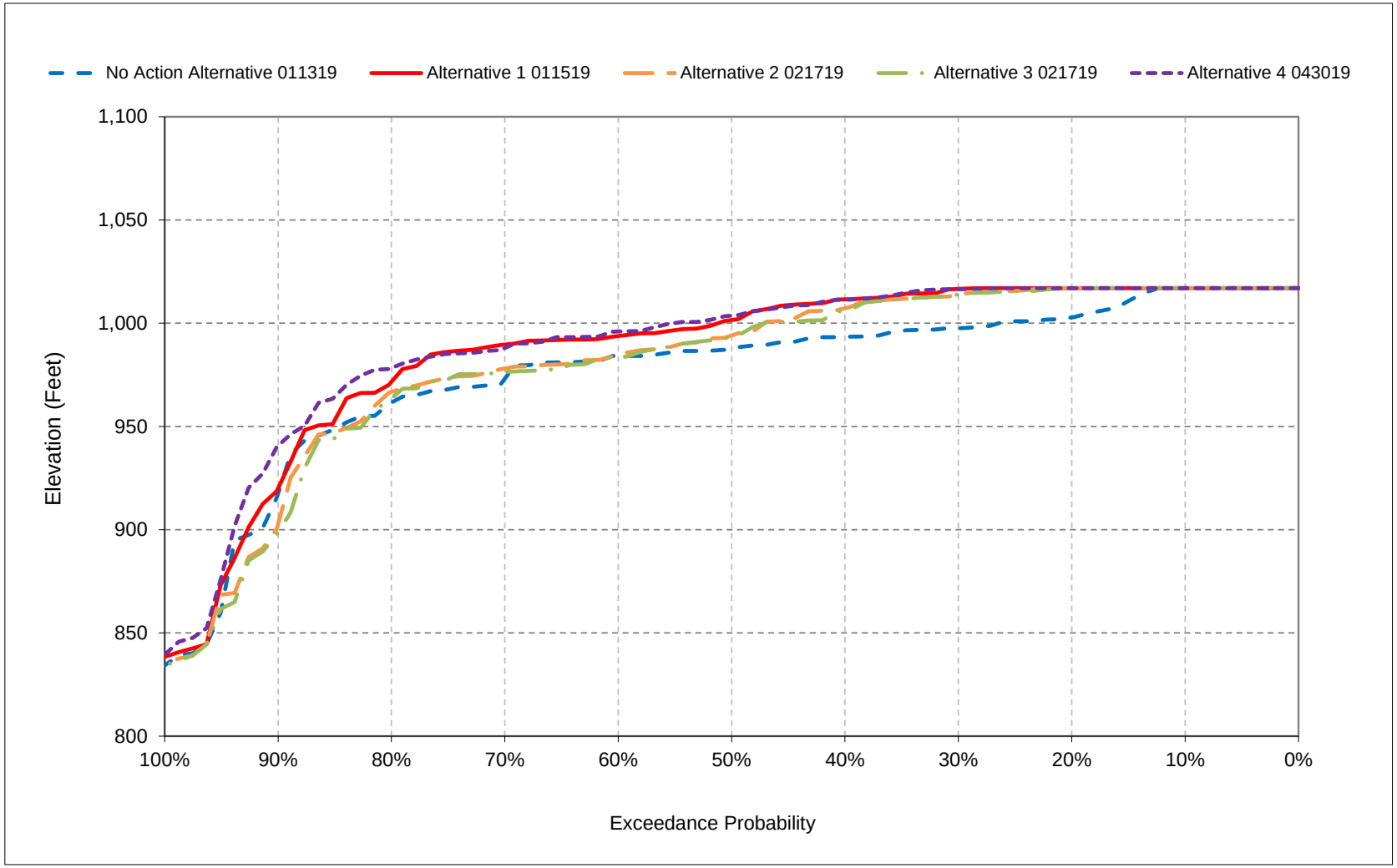
Figure 3a-7. Shasta Lake, Reservoir Pool Elevation, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

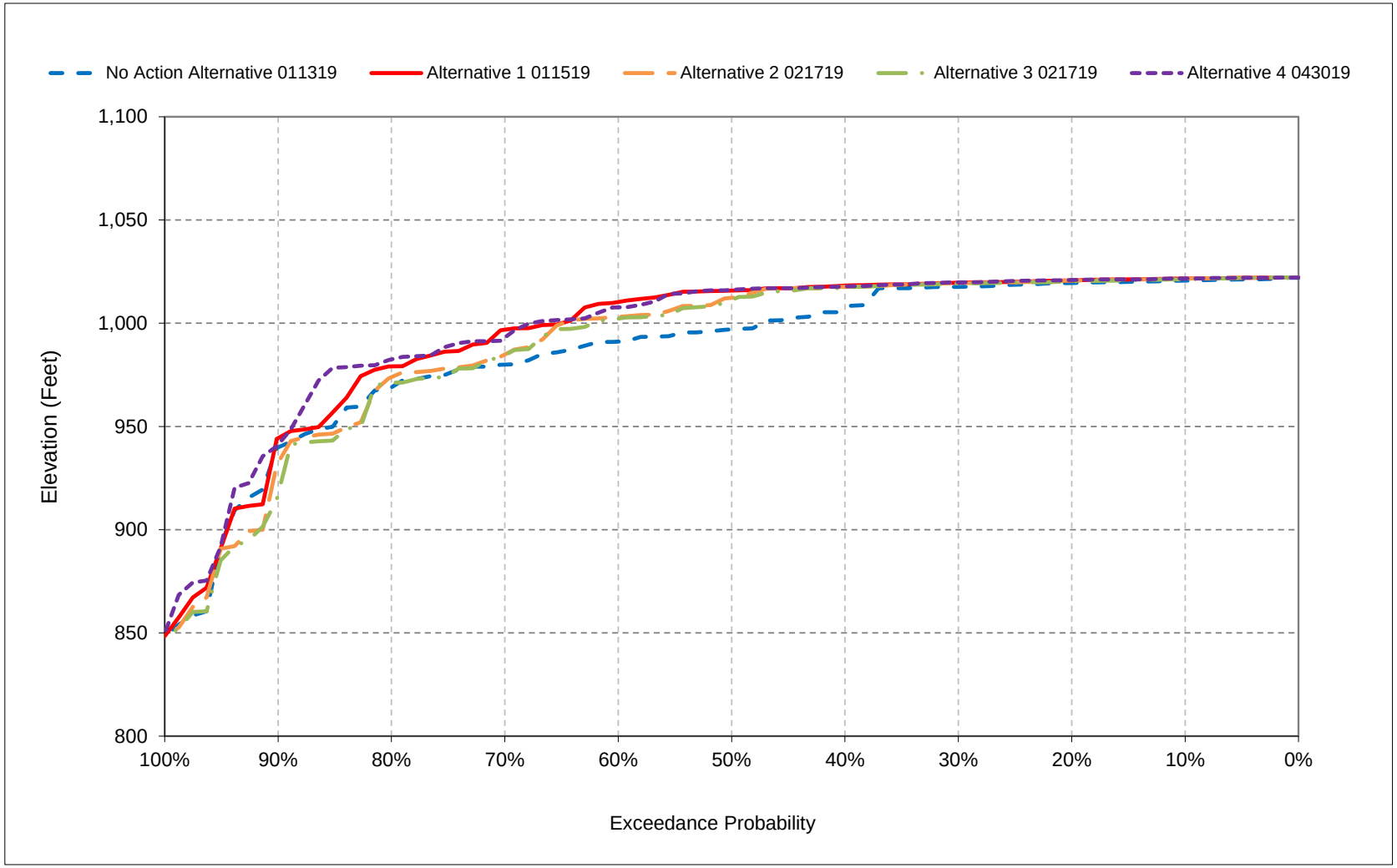
Figure 3a-8. Shasta Lake, Reservoir Pool Elevation, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

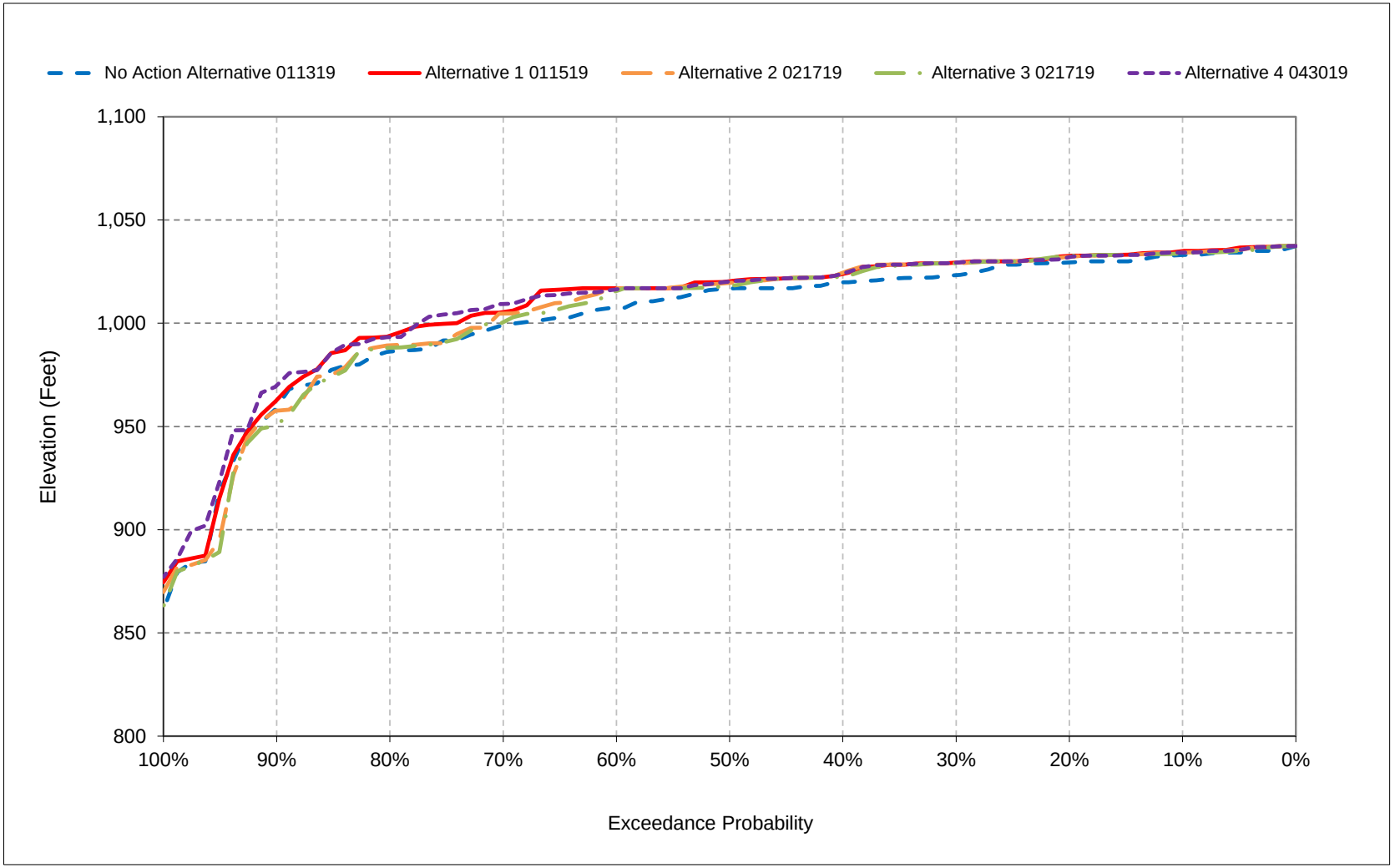
Figure 3a-9. Shasta Lake, Reservoir Pool Elevation, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

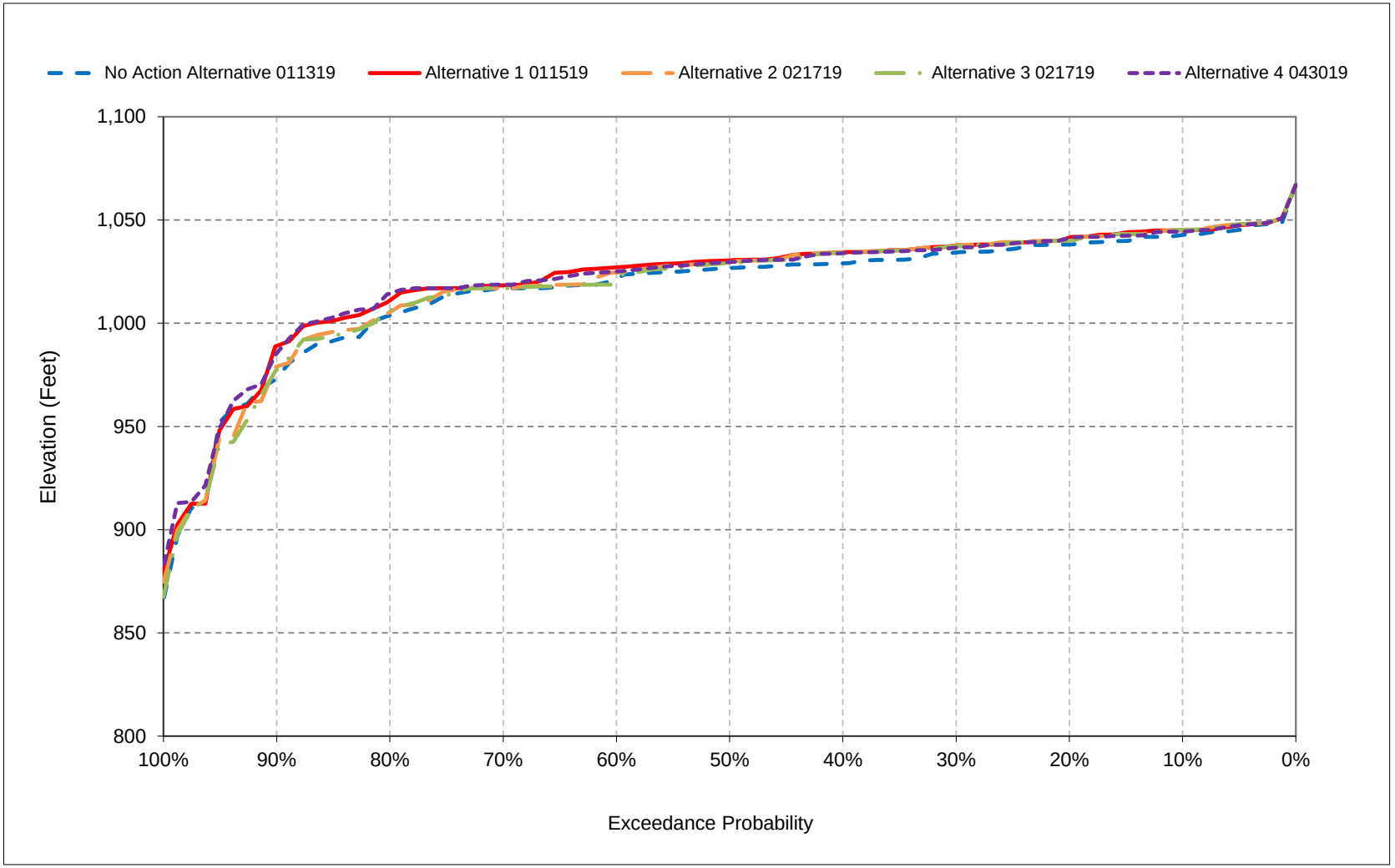
Figure 3a-10. Shasta Lake, Reservoir Pool Elevation, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

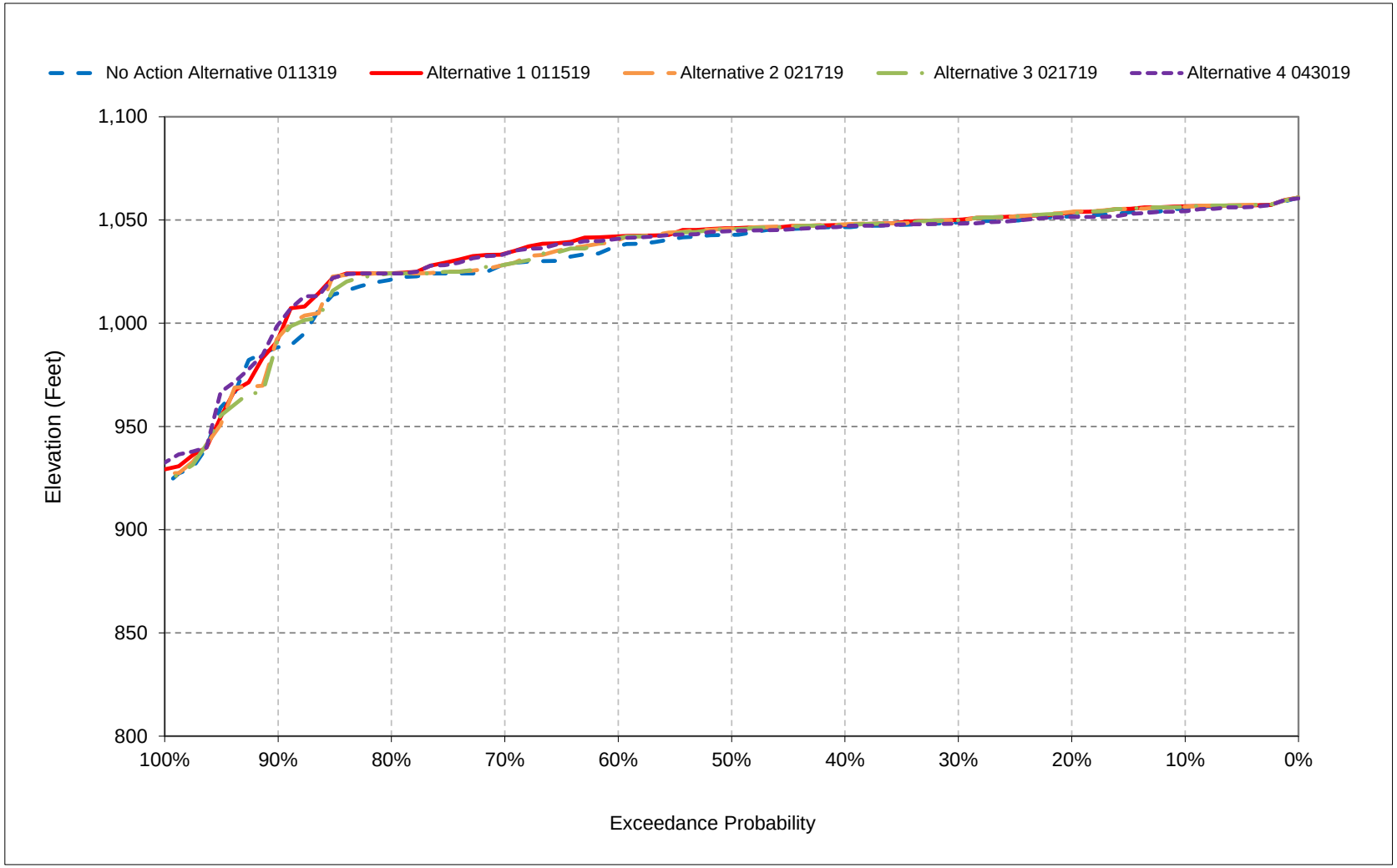
Figure 3a-11. Shasta Lake, Reservoir Pool Elevation, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

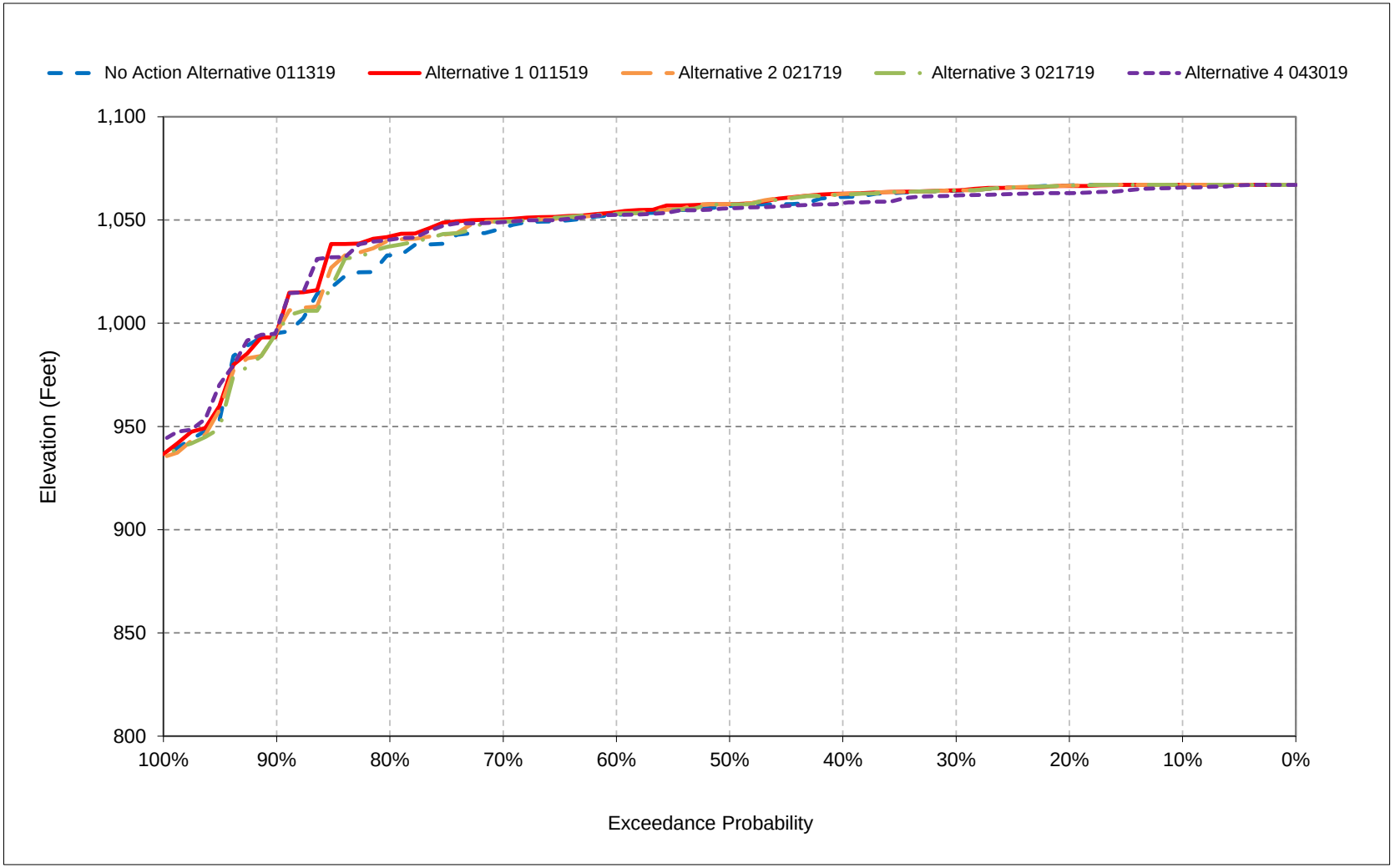
Figure 3a-12. Shasta Lake, Reservoir Pool Elevation, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

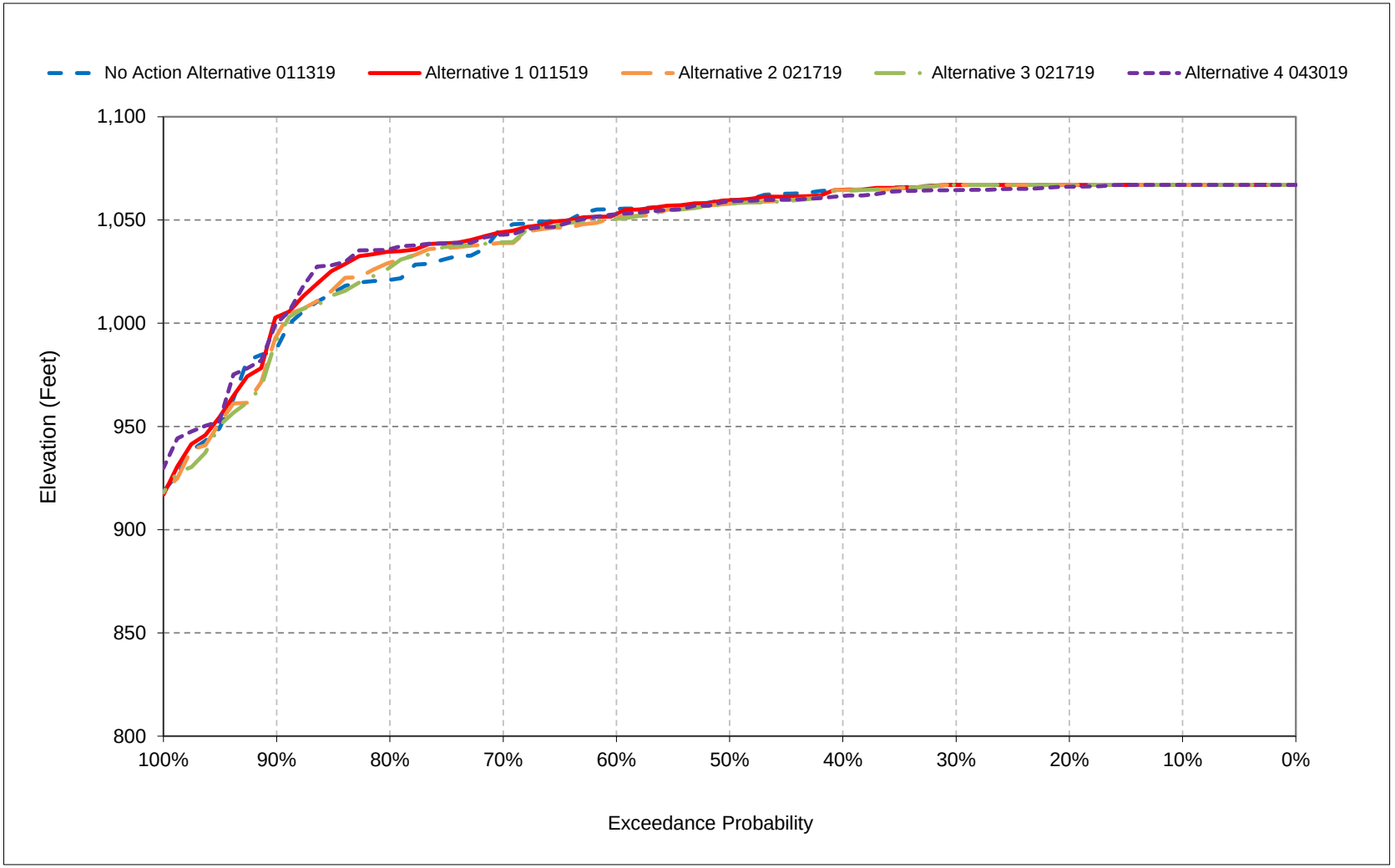
Figure 3a-13. Shasta Lake, Reservoir Pool Elevation, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

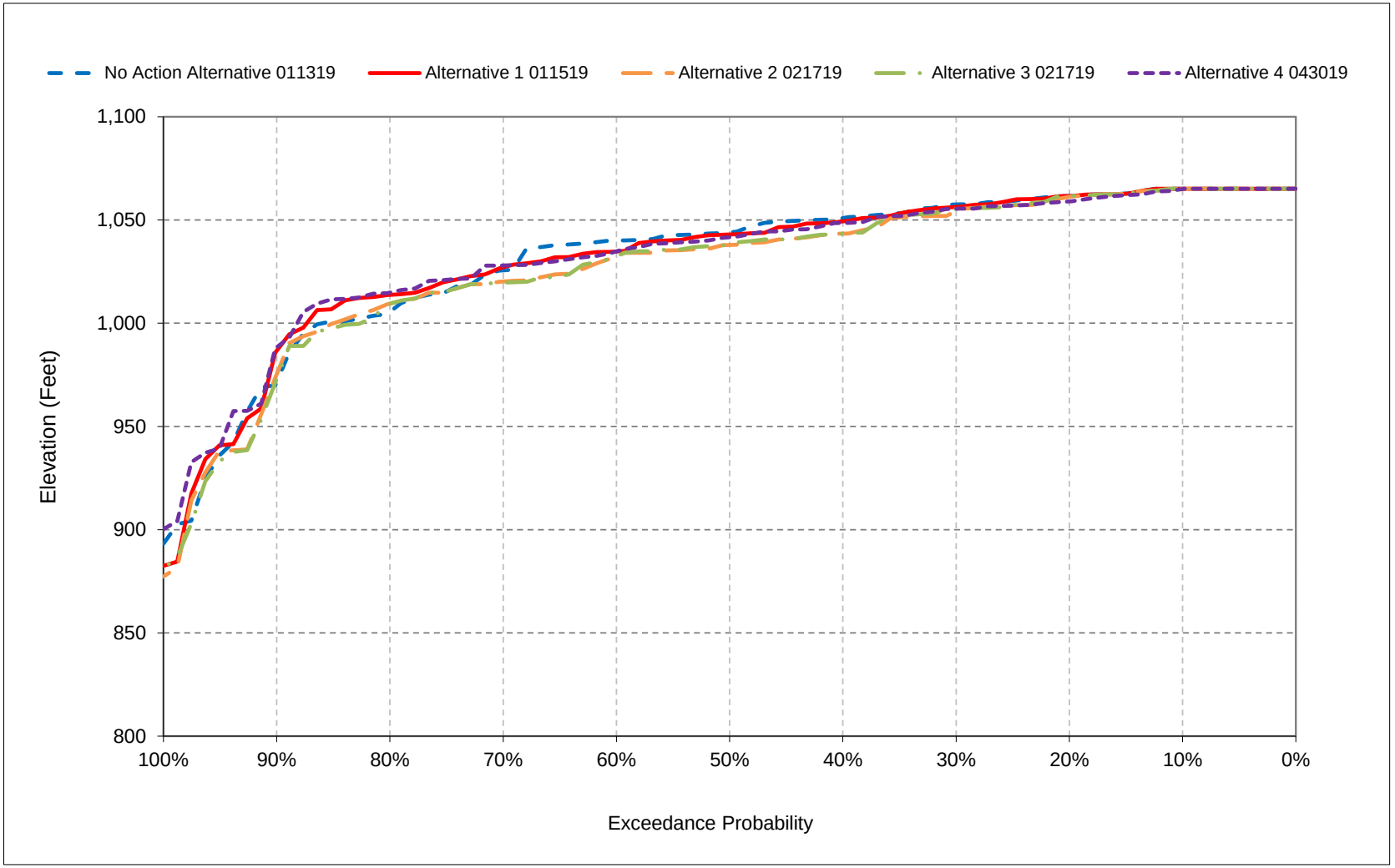
Figure 3a-14. Shasta Lake, Reservoir Pool Elevation, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

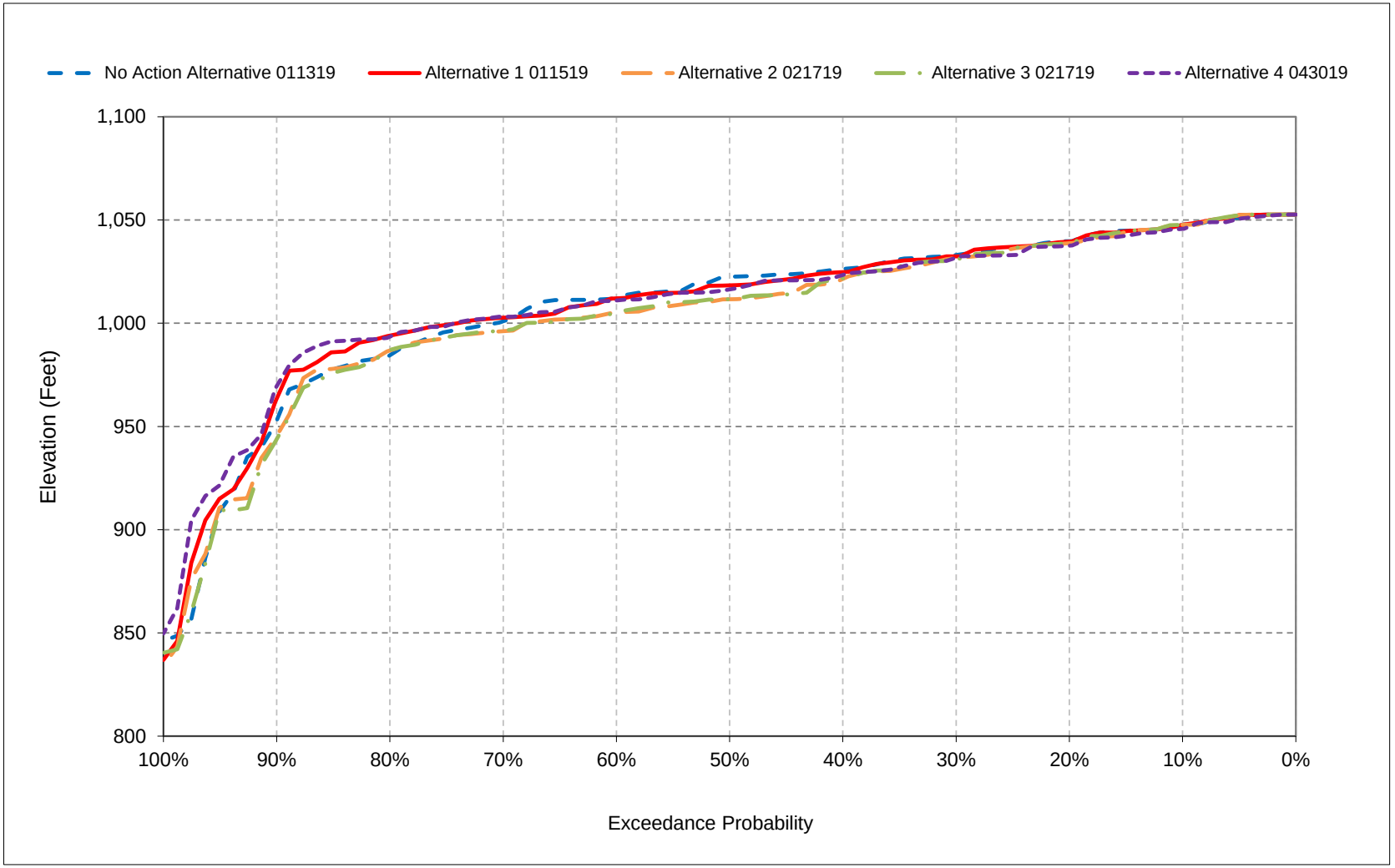
Figure 3a-15. Shasta Lake, Reservoir Pool Elevation, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

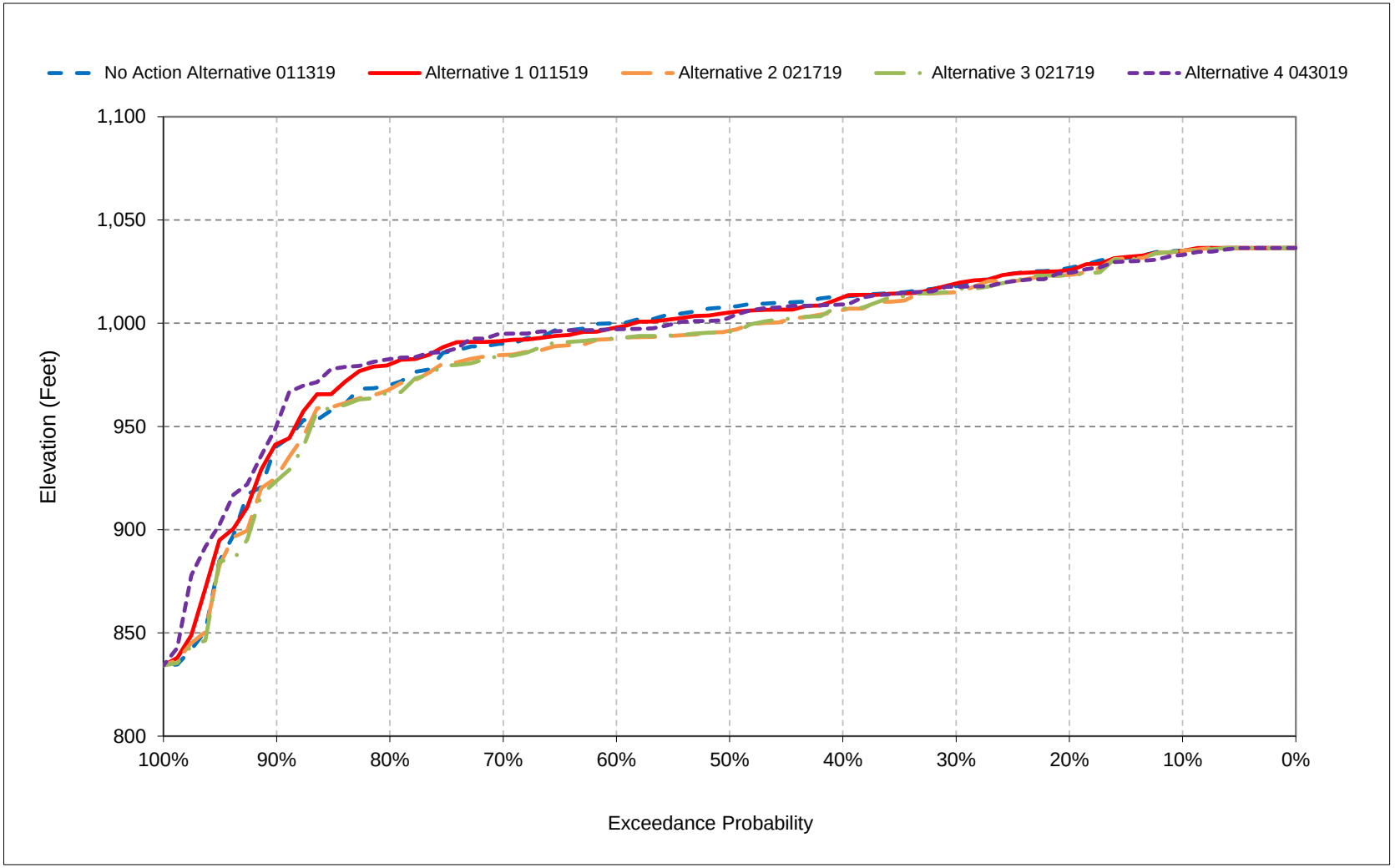
Figure 3a-16. Shasta Lake, Reservoir Pool Elevation, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

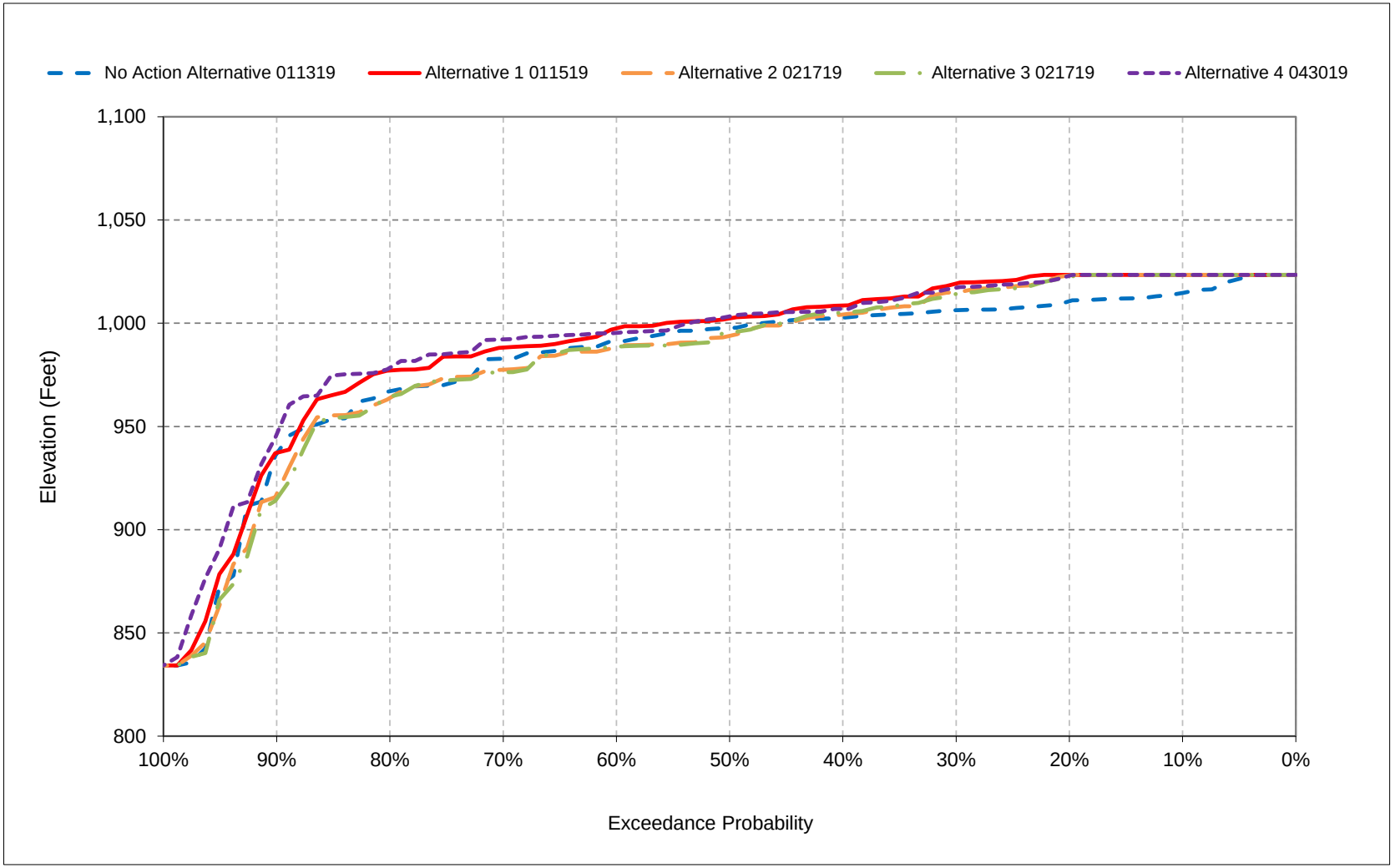
Figure 3a-17. Shasta Lake, Reservoir Pool Elevation, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3a-18. Shasta Lake, Reservoir Pool Elevation, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 4-1. Lake Oroville Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,151	2,150	2,784	2,788	2,925	3,040	3,352	3,538	3,538	3,060	2,750	2,224
20%	1,834	1,862	2,136	2,764	2,788	2,964	3,302	3,538	3,534	2,975	2,550	2,016
30%	1,704	1,734	1,893	2,405	2,788	2,921	3,273	3,487	3,366	2,843	2,389	1,896
40%	1,548	1,550	1,730	1,961	2,676	2,788	3,209	3,356	3,192	2,614	2,131	1,690
50%	1,487	1,463	1,553	1,807	2,204	2,691	2,908	3,002	2,891	2,290	1,821	1,543
60%	1,370	1,292	1,453	1,557	2,026	2,372	2,662	2,719	2,461	1,836	1,541	1,461
70%	1,237	1,189	1,200	1,473	1,747	2,119	2,263	2,330	2,065	1,540	1,424	1,352
80%	1,137	1,053	1,067	1,242	1,558	1,875	2,015	1,996	1,814	1,533	1,367	1,266
90%	898	906	927	1,084	1,259	1,471	1,578	1,649	1,399	1,137	997	951
Long Term												
Full Simulation Period[a]	1,492	1,474	1,639	1,894	2,193	2,430	2,695	2,788	2,640	2,182	1,889	1,612
Water Year Types[b,c]												
Wet (32%)	2,006	1,967	2,086	2,617	2,858	2,942	3,300	3,487	3,447	3,009	2,676	2,190
Above Normal (16%)	1,658	1,639	1,758	1,995	2,518	2,922	3,265	3,414	3,298	2,718	2,239	1,799
Below Normal (13%)	1,428	1,352	1,467	1,793	2,196	2,468	2,724	2,776	2,612	2,023	1,644	1,494
Dry (24%)	1,228	1,266	1,585	1,380	1,659	2,007	2,252	2,283	2,012	1,563	1,417	1,323
Critical (15%)	697	688	790	1,165	1,287	1,455	1,478	1,448	1,249	986	818	750

Alternative 1 011519

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,687	2,692	2,788	2,807	2,949	3,058	3,352	3,538	3,538	3,060	2,748	2,718
20%	2,206	2,226	2,467	2,788	2,829	2,994	3,302	3,538	3,531	2,959	2,512	2,299
30%	1,954	2,061	2,215	2,530	2,788	2,937	3,273	3,474	3,314	2,761	2,341	2,061
40%	1,660	1,719	1,979	2,406	2,788	2,831	3,209	3,377	3,153	2,530	2,147	1,817
50%	1,525	1,485	1,719	2,092	2,606	2,788	3,128	3,137	2,928	2,292	1,847	1,574
60%	1,376	1,297	1,495	1,594	2,055	2,617	2,805	2,788	2,572	1,951	1,541	1,510
70%	1,226	1,171	1,216	1,497	1,779	2,191	2,329	2,464	2,079	1,540	1,423	1,353
80%	1,142	1,051	1,082	1,244	1,683	1,894	2,190	2,066	1,771	1,529	1,368	1,260
90%	970	951	926	1,126	1,283	1,455	1,593	1,724	1,485	1,251	1,132	1,091
Long Term												
Full Simulation Period[a]	1,632	1,618	1,761	1,998	2,269	2,489	2,753	2,829	2,642	2,182	1,885	1,741
Water Year Types[b,c]												
Wet (32%)	2,394	2,365	2,413	2,671	2,882	2,942	3,300	3,478	3,420	2,977	2,656	2,534
Above Normal (16%)	1,733	1,722	1,840	2,129	2,611	2,957	3,294	3,428	3,281	2,679	2,203	1,888
Below Normal (13%)	1,456	1,379	1,497	2,105	2,409	2,675	2,927	2,948	2,728	2,102	1,673	1,516
Dry (24%)	1,247	1,283	1,602	1,468	1,749	2,099	2,345	2,353	2,018	1,596	1,442	1,340
Critical (15%)	676	663	769	1,187	1,310	1,481	1,503	1,461	1,226	967	805	739

Alternative 1 011519 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	536	542	4	19	24	17	**0**	0	0	**0**	**-2**	495
20%	371	364	331	24	41	30	0	0	**-2**	**-16**	**-38**	283
30%	251	328	321	125	0	16	0	**-13**	**-52**	**-82**	**-48**	166
40%	112	169	250	445	111	43	0	21	**-39**	**-85**	16	127
50%	38	22	166	285	401	97	220	135	37	2	27	31
60%	6	5	42	37	29	244	142	69	112	115	0	49
70%	**-12**	**-17**	16	24	32	73	66	134	14	**0**	**-1**	1
80%	5	**-2**	15	2	124	19	175	70	**-43**	**-4**	1	**-7**
90%	72	45	**0**	42	24	**-16**	15	75	86	114	135	139
Long Term												
Full Simulation Period[a]	140	144	122	105	77	60	58	41	3	**0**	**-4**	129
Water Year Types[b,c]												
Wet (32%)	387	398	327	54	24	0	0	**-9**	**-27**	**-32**	**-20**	344
Above Normal (16%)	75	83	83	133	94	34	29	14	**-17**	**-39**	**-35**	90
Below Normal (13%)	28	27	30	312	214	207	203	171	116	80	29	22
Dry (24%)	19	17	16	88	91	92	93	70	7	33	25	17
Critical (15%)	**-21**	**-25**	**-21**	22	23	26	25	14	**-23**	**-18**	**-13**	**-10**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4-2. Lake Oroville Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,151	2,150	2,784	2,788	2,925	3,040	3,352	3,538	3,538	3,060	2,750	2,224
20%	1,834	1,862	2,136	2,764	2,788	2,964	3,302	3,538	3,534	2,975	2,550	2,016
30%	1,704	1,734	1,893	2,405	2,788	2,921	3,273	3,487	3,366	2,843	2,389	1,896
40%	1,548	1,550	1,730	1,961	2,676	2,788	3,209	3,356	3,192	2,614	2,131	1,690
50%	1,487	1,463	1,553	1,807	2,204	2,691	2,908	3,002	2,891	2,290	1,821	1,543
60%	1,370	1,292	1,453	1,557	2,026	2,372	2,662	2,719	2,461	1,836	1,541	1,461
70%	1,237	1,189	1,200	1,473	1,747	2,119	2,263	2,330	2,065	1,540	1,424	1,352
80%	1,137	1,053	1,067	1,242	1,558	1,875	2,015	1,996	1,814	1,533	1,367	1,266
90%	898	906	927	1,084	1,259	1,471	1,578	1,649	1,399	1,137	997	951
Long Term												
Full Simulation Period[a]	1,492	1,474	1,639	1,894	2,193	2,430	2,695	2,788	2,640	2,182	1,889	1,612
Water Year Types[b,c]												
Wet (32%)	2,006	1,967	2,086	2,617	2,858	2,942	3,300	3,487	3,447	3,009	2,676	2,190
Above Normal (16%)	1,658	1,639	1,758	1,995	2,518	2,922	3,265	3,414	3,298	2,718	2,239	1,799
Below Normal (13%)	1,428	1,352	1,467	1,793	2,196	2,468	2,724	2,776	2,612	2,023	1,644	1,494
Dry (24%)	1,228	1,266	1,585	1,380	1,659	2,007	2,252	2,283	2,012	1,563	1,417	1,323
Critical (15%)	697	688	790	1,165	1,287	1,455	1,478	1,448	1,249	986	818	750

Alternative 2 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,726	2,646	2,788	2,788	2,952	3,058	3,354	3,538	3,538	3,066	2,832	2,829
20%	2,176	2,262	2,605	2,787	2,832	2,990	3,302	3,538	3,480	2,933	2,540	2,344
30%	1,963	2,025	2,175	2,603	2,788	2,937	3,273	3,474	3,244	2,746	2,348	2,126
40%	1,638	1,749	1,990	2,435	2,788	2,857	3,209	3,360	3,038	2,465	1,990	1,771
50%	1,503	1,473	1,682	2,085	2,644	2,788	3,114	3,080	2,684	2,117	1,857	1,568
60%	1,372	1,351	1,496	1,630	2,056	2,575	2,802	2,760	2,362	1,815	1,548	1,489
70%	1,256	1,182	1,208	1,486	1,810	2,250	2,440	2,480	1,962	1,542	1,426	1,372
80%	1,145	1,045	1,069	1,264	1,656	1,890	2,113	2,060	1,798	1,532	1,378	1,263
90%	844	900	907	1,069	1,268	1,460	1,655	1,766	1,510	1,256	1,095	964
Long Term												
Full Simulation Period[a]	1,638	1,622	1,765	1,999	2,272	2,494	2,758	2,822	2,564	2,143	1,895	1,758
Water Year Types[b,c]												
Wet (32%)	2,419	2,383	2,430	2,658	2,874	2,942	3,300	3,474	3,382	2,966	2,707	2,587
Above Normal (16%)	1,735	1,723	1,845	2,129	2,610	2,958	3,296	3,419	3,171	2,585	2,160	1,871
Below Normal (13%)	1,447	1,365	1,479	2,076	2,389	2,655	2,903	2,886	2,445	1,928	1,655	1,525
Dry (24%)	1,240	1,278	1,598	1,476	1,760	2,107	2,353	2,350	1,959	1,596	1,441	1,336
Critical (15%)	681	675	780	1,230	1,350	1,516	1,541	1,494	1,252	989	827	758

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	576	496	4	0	27	17	2	0	0	7	82	605
20%	342	400	469	23	44	26	0	0	**-53**	**-43**	**-9**	328
30%	259	292	282	198	0	16	0	**-13**	**-122**	**-97**	**-41**	230
40%	90	200	260	474	111	69	0	3	**-154**	**-149**	**-142**	81
50%	15	9	129	278	440	97	206	78	**-207**	**-173**	37	25
60%	3	59	43	73	30	203	140	41	**-98**	**-21**	7	29
70%	18	**-7**	8	13	63	132	176	150	**-103**	3	2	20
80%	8	**-8**	2	22	98	15	98	64	**-16**	**-1**	11	**-3**
90%	**-54**	**-6**	**-20**	**-15**	9	**-11**	77	117	111	120	99	12
Long Term												
Full Simulation Period[a]	146	148	126	105	80	64	63	34	**-75**	**-39**	6	146
Water Year Types[b,c]												
Wet (32%)	413	417	345	41	16	0	0	**-14**	**-65**	**-43**	31	397
Above Normal (16%)	77	84	87	133	92	36	31	5	**-127**	**-133**	**-79**	72
Below Normal (13%)	19	13	11	283	194	187	179	109	**-166**	**-94**	11	31
Dry (24%)	12	12	12	96	101	100	100	67	**-53**	33	24	14
Critical (15%)	**-16**	**-13**	**-10**	65	63	61	63	46	3	4	9	8

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4-3. Lake Oroville Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,151	2,150	2,784	2,788	2,925	3,040	3,352	3,538	3,538	3,060	2,750	2,224
20%	1,834	1,862	2,136	2,764	2,788	2,964	3,302	3,538	3,534	2,975	2,550	2,016
30%	1,704	1,734	1,893	2,405	2,788	2,921	3,273	3,487	3,366	2,843	2,389	1,896
40%	1,548	1,550	1,730	1,961	2,676	2,788	3,209	3,356	3,192	2,614	2,131	1,690
50%	1,487	1,463	1,553	1,807	2,204	2,691	2,908	3,002	2,891	2,290	1,821	1,543
60%	1,370	1,292	1,453	1,557	2,026	2,372	2,662	2,719	2,461	1,836	1,541	1,461
70%	1,237	1,189	1,200	1,473	1,747	2,119	2,263	2,330	2,065	1,540	1,424	1,352
80%	1,137	1,053	1,067	1,242	1,558	1,875	2,015	1,996	1,814	1,533	1,367	1,266
90%	898	906	927	1,084	1,259	1,471	1,578	1,649	1,399	1,137	997	951
Long Term												
Full Simulation Period[a]	1,492	1,474	1,639	1,894	2,193	2,430	2,695	2,788	2,640	2,182	1,889	1,612
Water Year Types[b,c]												
Wet (32%)	2,006	1,967	2,086	2,617	2,858	2,942	3,300	3,487	3,447	3,009	2,676	2,190
Above Normal (16%)	1,658	1,639	1,758	1,995	2,518	2,922	3,265	3,414	3,298	2,718	2,239	1,799
Below Normal (13%)	1,428	1,352	1,467	1,793	2,196	2,468	2,724	2,776	2,612	2,023	1,644	1,494
Dry (24%)	1,228	1,266	1,585	1,380	1,659	2,007	2,252	2,283	2,012	1,563	1,417	1,323
Critical (15%)	697	688	790	1,165	1,287	1,455	1,478	1,448	1,249	986	818	750

Alternative 3 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,737	2,636	2,799	2,792	2,961	3,053	3,352	3,538	3,538	3,066	2,862	2,831
20%	2,189	2,227	2,525	2,788	2,827	2,990	3,302	3,538	3,531	2,968	2,566	2,374
30%	2,000	2,019	2,186	2,610	2,788	2,937	3,273	3,474	3,240	2,742	2,390	2,150
40%	1,695	1,826	2,032	2,441	2,776	2,841	3,208	3,360	3,086	2,494	2,048	1,831
50%	1,534	1,477	1,770	2,108	2,614	2,788	3,098	3,108	2,706	2,127	1,869	1,617
60%	1,358	1,342	1,503	1,629	2,019	2,602	2,800	2,813	2,383	1,841	1,541	1,498
70%	1,268	1,197	1,213	1,474	1,826	2,230	2,417	2,459	1,935	1,546	1,432	1,382
80%	1,155	1,049	1,068	1,266	1,650	1,895	2,074	2,059	1,814	1,531	1,378	1,262
90%	863	900	914	1,070	1,268	1,464	1,659	1,797	1,535	1,260	1,122	980
Long Term												
Full Simulation Period[a]	1,651	1,635	1,773	2,003	2,275	2,493	2,757	2,823	2,573	2,152	1,914	1,776
Water Year Types[b,c]												
Wet (32%)	2,445	2,407	2,441	2,667	2,882	2,942	3,299	3,483	3,387	2,969	2,742	2,614
Above Normal (16%)	1,747	1,737	1,846	2,133	2,612	2,957	3,295	3,420	3,196	2,611	2,180	1,893
Below Normal (13%)	1,459	1,371	1,492	2,090	2,394	2,660	2,908	2,892	2,475	1,942	1,665	1,546
Dry (24%)	1,240	1,279	1,601	1,474	1,758	2,105	2,350	2,337	1,948	1,598	1,444	1,341
Critical (15%)	690	683	787	1,225	1,348	1,513	1,538	1,493	1,265	1,004	841	768

Alternative 3 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	586	486	15	4	36	13	0	0	0	7	112	607
20%	355	365	389	24	39	26	0	0	**-2**	**-7**	17	358
30%	296	285	293	205	0	16	0	**-13**	**-126**	**-101**	1	255
40%	148	276	303	480	99	53	**-1**	3	**-106**	**-120**	**-83**	141
50%	47	14	217	302	410	97	191	105	**-185**	**-163**	49	74
60%	**-12**	51	50	72	**-7**	230	138	94	**-78**	4	1	37
70%	31	8	12	2	79	112	153	129	**-130**	6	8	30
80%	18	**-5**	1	24	91	20	59	63	0	**-2**	11	**-4**
90%	**-35**	**-6**	**-13**	**-14**	9	**-7**	81	148	136	124	125	29
Long Term												
Full Simulation Period[a]	159	160	133	109	82	64	62	35	**-67**	**-29**	24	163
Water Year Types[b,c]												
Wet (32%)	438	440	356	50	24	0	**-1**	**-4**	**-60**	**-40**	66	424
Above Normal (16%)	89	98	88	137	94	35	30	5	**-102**	**-107**	**-59**	94
Below Normal (13%)	31	19	25	297	199	192	184	116	**-137**	**-80**	21	52
Dry (24%)	12	13	16	94	99	98	98	54	**-64**	35	27	19
Critical (15%)	**-7**	**-5**	**-3**	60	61	59	60	45	17	18	23	18

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4-4. Lake Oroville Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,151	2,150	2,784	2,788	2,925	3,040	3,352	3,538	3,538	3,060	2,750	2,224
20%	1,834	1,862	2,136	2,764	2,788	2,964	3,302	3,538	3,534	2,975	2,550	2,016
30%	1,704	1,734	1,893	2,405	2,788	2,921	3,273	3,487	3,366	2,843	2,389	1,896
40%	1,548	1,550	1,730	1,961	2,676	2,788	3,209	3,356	3,192	2,614	2,131	1,690
50%	1,487	1,463	1,553	1,807	2,204	2,691	2,908	3,002	2,891	2,290	1,821	1,543
60%	1,370	1,292	1,453	1,557	2,026	2,372	2,662	2,719	2,461	1,836	1,541	1,461
70%	1,237	1,189	1,200	1,473	1,747	2,119	2,263	2,330	2,065	1,540	1,424	1,352
80%	1,137	1,053	1,067	1,242	1,558	1,875	2,015	1,996	1,814	1,533	1,367	1,266
90%	898	906	927	1,084	1,259	1,471	1,578	1,649	1,399	1,137	997	951
Long Term												
Full Simulation Period[a]	1,492	1,474	1,639	1,894	2,193	2,430	2,695	2,788	2,640	2,182	1,889	1,612
Water Year Types[b,c]												
Wet (32%)	2,006	1,967	2,086	2,617	2,858	2,942	3,300	3,487	3,447	3,009	2,676	2,190
Above Normal (16%)	1,658	1,639	1,758	1,995	2,518	2,922	3,265	3,414	3,298	2,718	2,239	1,799
Below Normal (13%)	1,428	1,352	1,467	1,793	2,196	2,468	2,724	2,776	2,612	2,023	1,644	1,494
Dry (24%)	1,228	1,266	1,585	1,380	1,659	2,007	2,252	2,283	2,012	1,563	1,417	1,323
Critical (15%)	697	688	790	1,165	1,287	1,455	1,478	1,448	1,249	986	818	750

Alternative 4 043019

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,601	2,554	2,788	2,788	2,930	3,026	3,257	3,483	3,466	3,013	2,704	2,682
20%	2,100	2,180	2,344	2,743	2,815	2,964	3,195	3,300	3,331	2,827	2,395	2,118
30%	1,786	1,782	2,079	2,504	2,788	2,936	3,095	3,198	3,029	2,484	2,180	1,938
40%	1,548	1,556	1,868	2,270	2,788	2,809	3,034	3,064	2,889	2,386	1,911	1,614
50%	1,435	1,442	1,600	1,886	2,397	2,766	2,891	2,810	2,619	1,977	1,595	1,541
60%	1,354	1,246	1,439	1,603	1,958	2,308	2,525	2,457	2,232	1,667	1,540	1,450
70%	1,213	1,130	1,163	1,464	1,735	2,083	2,205	2,239	2,000	1,539	1,408	1,337
80%	1,130	998	1,006	1,185	1,537	1,779	1,919	1,950	1,680	1,495	1,355	1,241
90%	882	900	904	1,020	1,191	1,455	1,580	1,675	1,496	1,213	1,090	981
Long Term												
Full Simulation Period[a]	1,564	1,550	1,699	1,931	2,205	2,412	2,586	2,642	2,478	2,046	1,783	1,665
Water Year Types[b,c]												
Wet (32%)	2,309	2,283	2,343	2,616	2,852	2,927	3,183	3,328	3,303	2,871	2,549	2,433
Above Normal (16%)	1,611	1,605	1,738	2,069	2,585	2,941	3,091	3,147	3,006	2,456	1,992	1,716
Below Normal (13%)	1,366	1,285	1,379	1,972	2,293	2,453	2,550	2,561	2,338	1,768	1,551	1,474
Dry (24%)	1,199	1,224	1,553	1,390	1,627	1,953	2,169	2,186	1,897	1,512	1,371	1,293
Critical (15%)	689	690	798	1,165	1,276	1,447	1,473	1,441	1,215	957	798	737

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	450	404	4	0	5	**-14**	**-95**	**-55**	**-72**	**-47**	**-46**	458
20%	265	318	209	**-22**	27	0	**-107**	**-238**	**-203**	**-149**	**-155**	102
30%	82	48	186	99	0	15	**-178**	**-289**	**-337**	**-360**	**-208**	43
40%	**0**	7	139	310	111	21	**-175**	**-292**	**-302**	**-228**	**-220**	**-76**
50%	**-53**	**-21**	47	80	192	75	**-17**	**-192**	**-272**	**-313**	**-226**	**-1**
60%	**-15**	**-45**	**-14**	46	**-68**	**-65**	**-138**	**-262**	**-228**	**-169**	**0**	**-10**
70%	**-25**	**-59**	**-37**	**-9**	**-12**	**-35**	**-59**	**-91**	**-65**	**0**	**-16**	**-15**
80%	**-7**	**-55**	**-61**	**-58**	**-21**	**-96**	**-96**	**-46**	**-134**	**-37**	**-12**	**-25**
90%	**-16**	**-6**	**-23**	**-64**	**-68**	**-16**	2	26	97	76	93	30
Long Term												
Full Simulation Period[a]	72	76	60	38	13	**-18**	**-109**	**-146**	**-162**	**-136**	**-106**	52
Water Year Types[b,c]												
Wet (32%)	302	316	257	**-1**	**-6**	**-15**	**-117**	**-159**	**-144**	**-137**	**-128**	243
Above Normal (16%)	**-47**	**-34**	**-20**	73	67	19	**-173**	**-267**	**-293**	**-262**	**-246**	**-82**
Below Normal (13%)	**-62**	**-66**	**-88**	179	98	**-14**	**-173**	**-215**	**-273**	**-254**	**-93**	**-20**
Dry (24%)	**-29**	**-42**	**-32**	11	**-31**	**-55**	**-84**	**-98**	**-115**	**-51**	**-46**	**-29**
Critical (15%)	**-8**	3	8	**-1**	**-11**	**-8**	**-6**	**-7**	**-34**	**-28**	**-20**	**-13**

a Based on the 82-year simulation period.

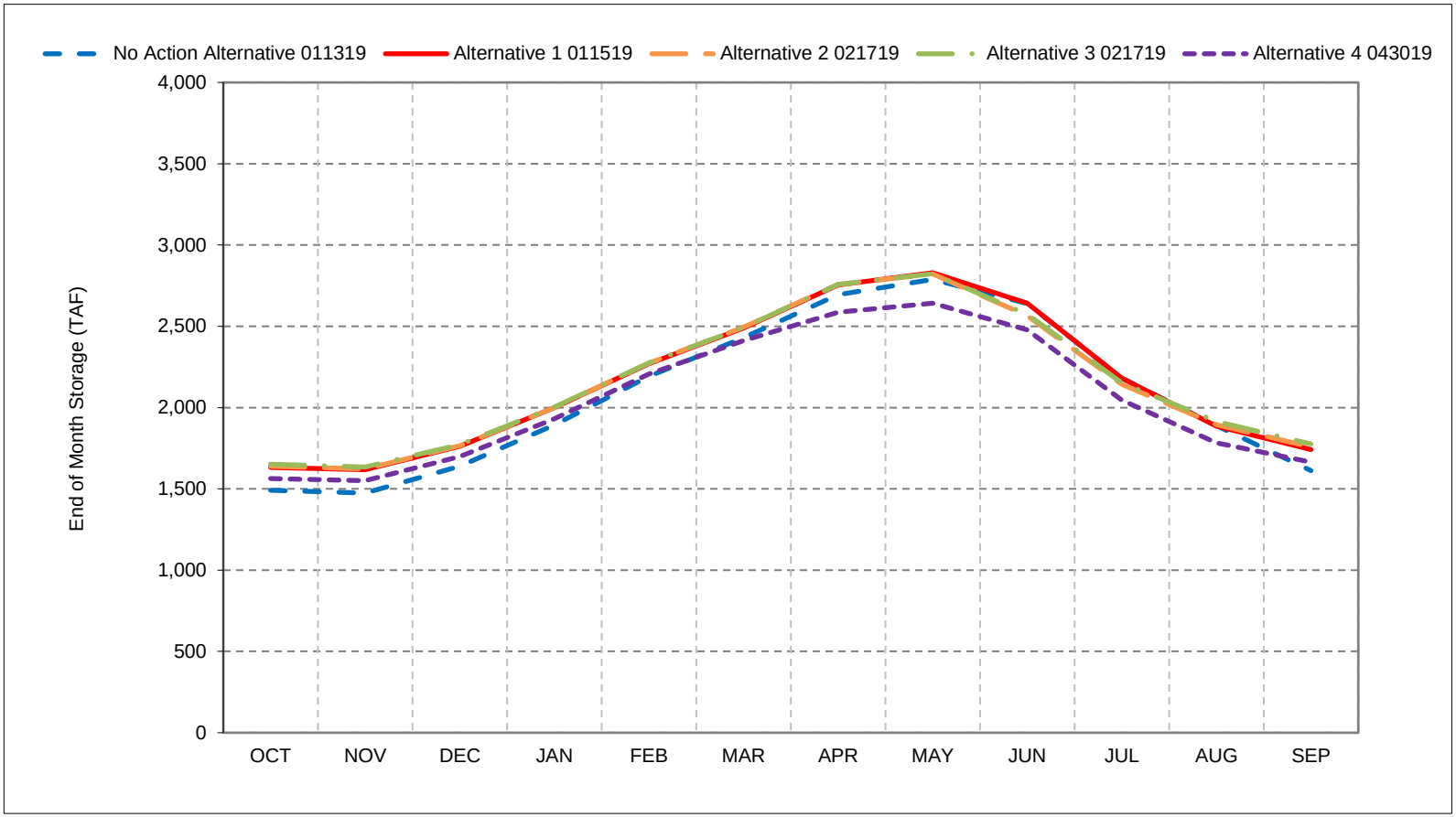
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

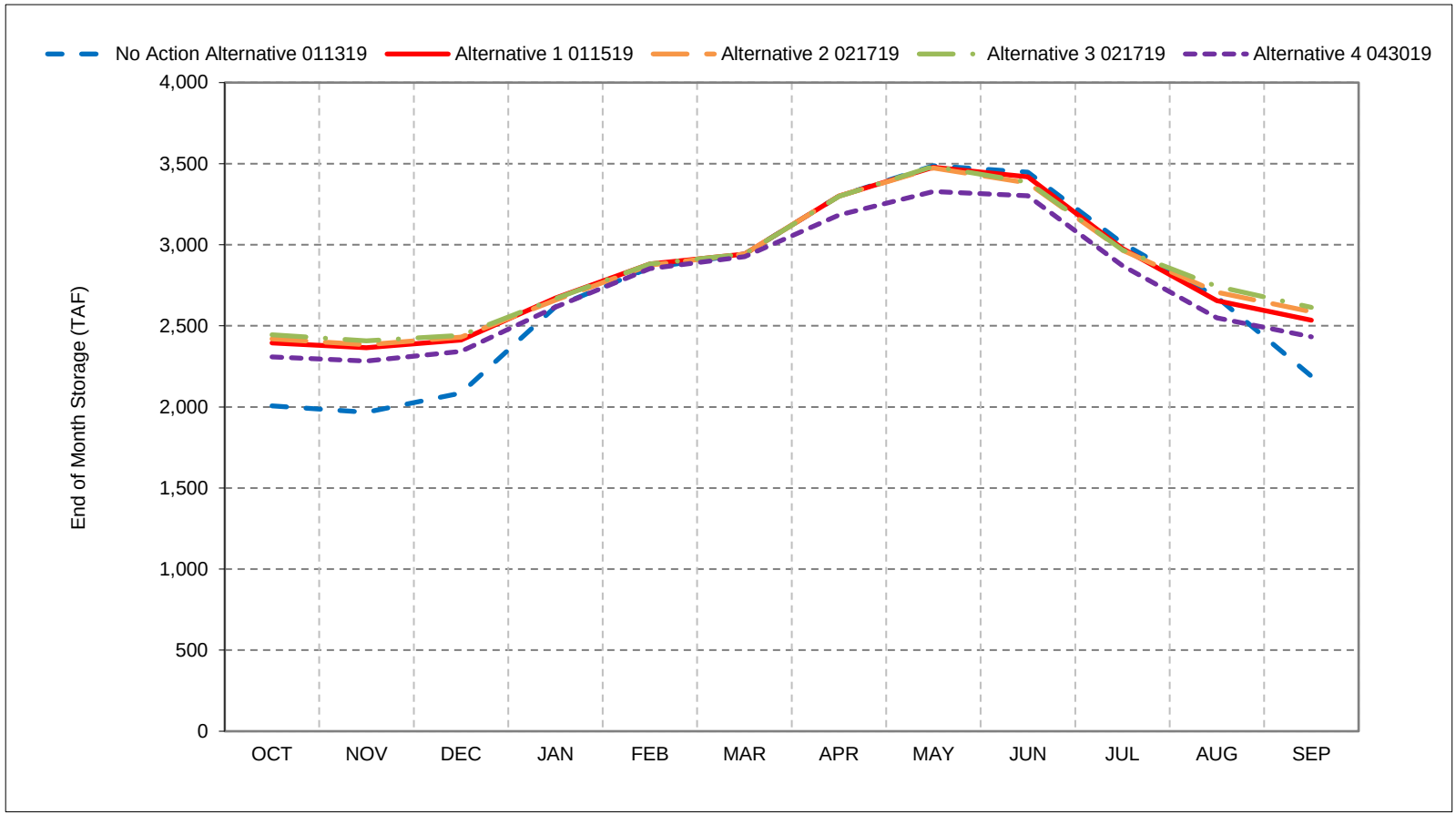
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-1. Lake Oroville Storage, Long-Term Average Storage



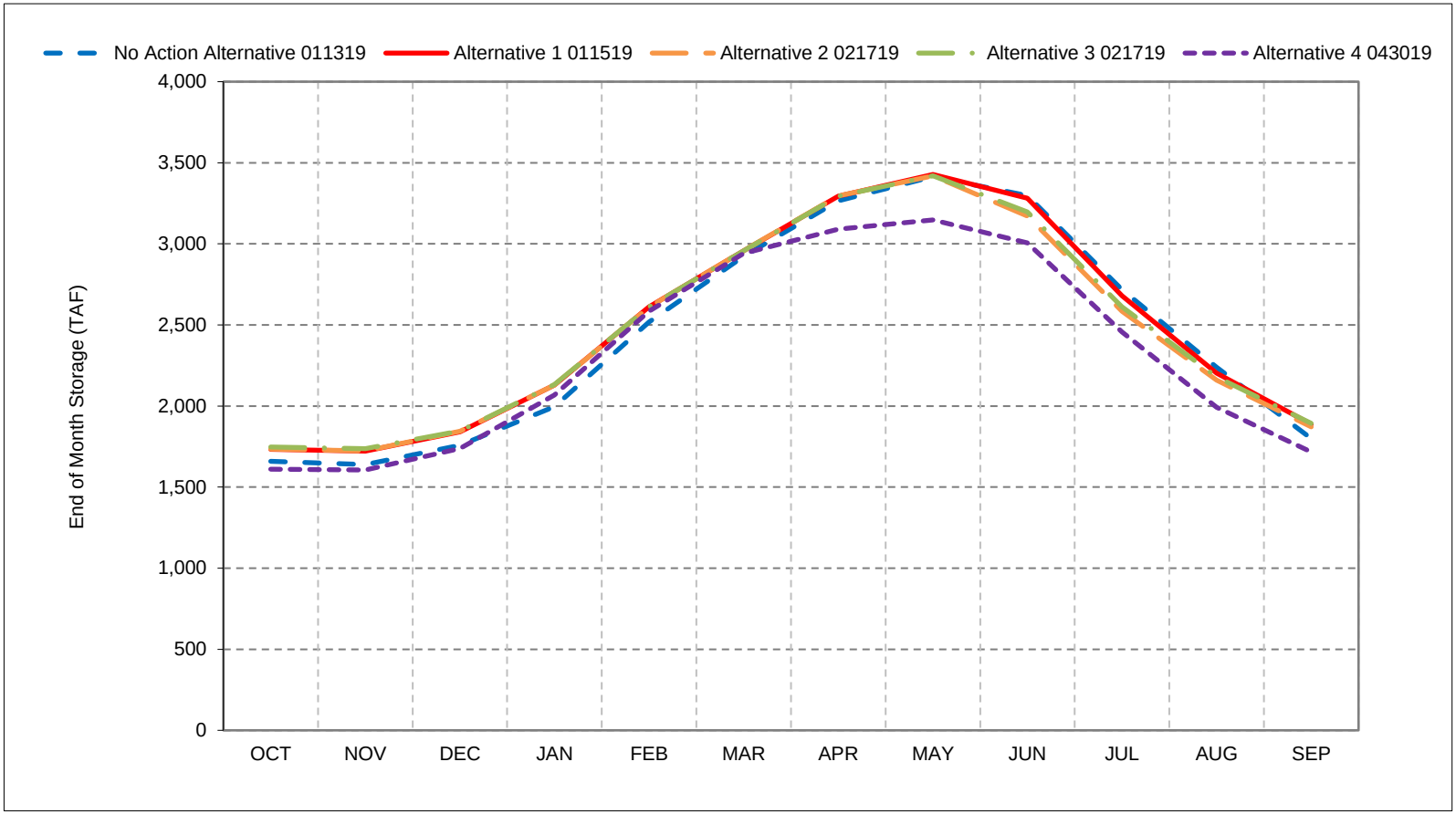
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-2. Lake Oroville Storage, Wet Year Average Storage



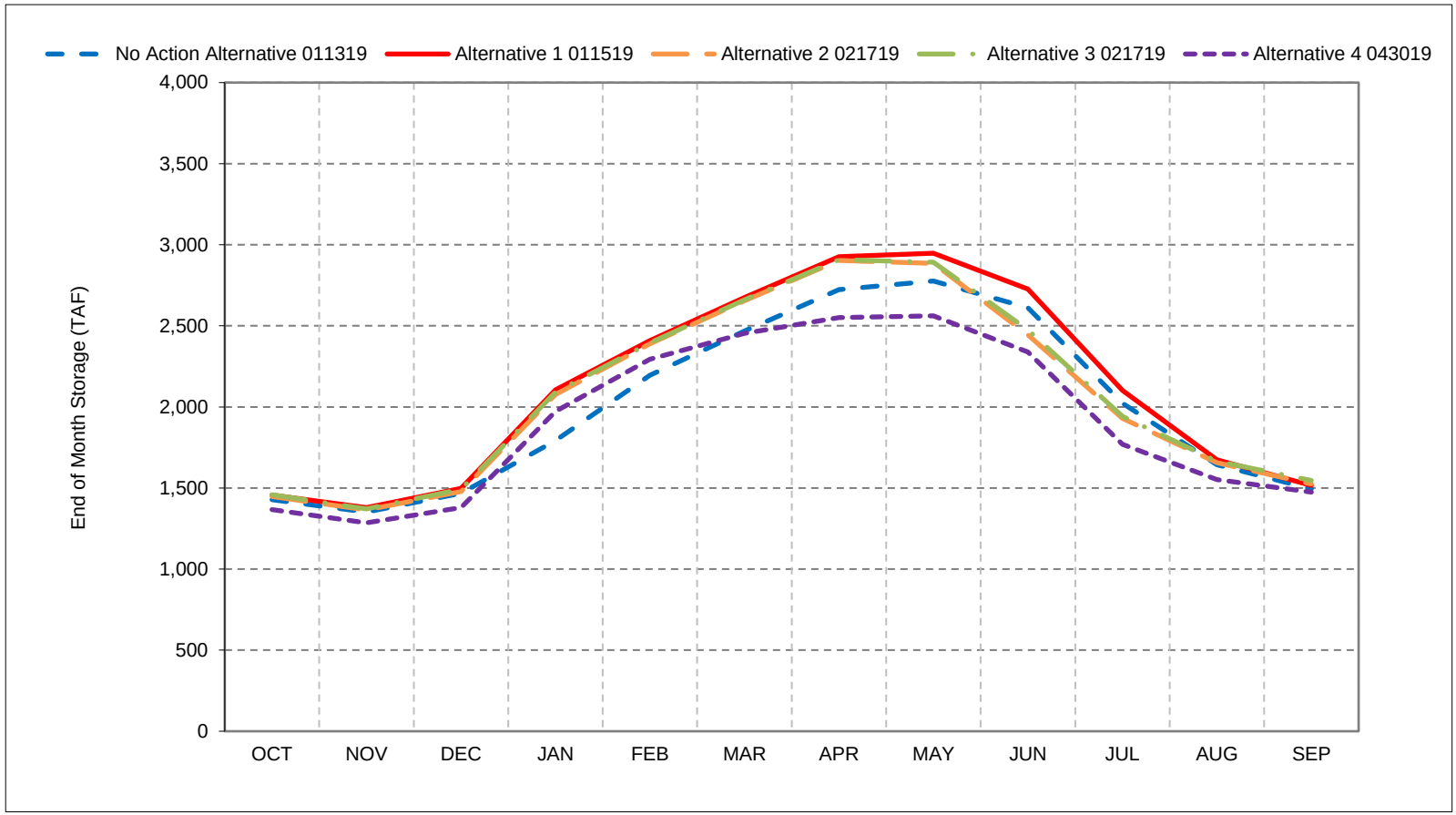
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-3. Lake Oroville Storage, Above Normal Year Average Storage



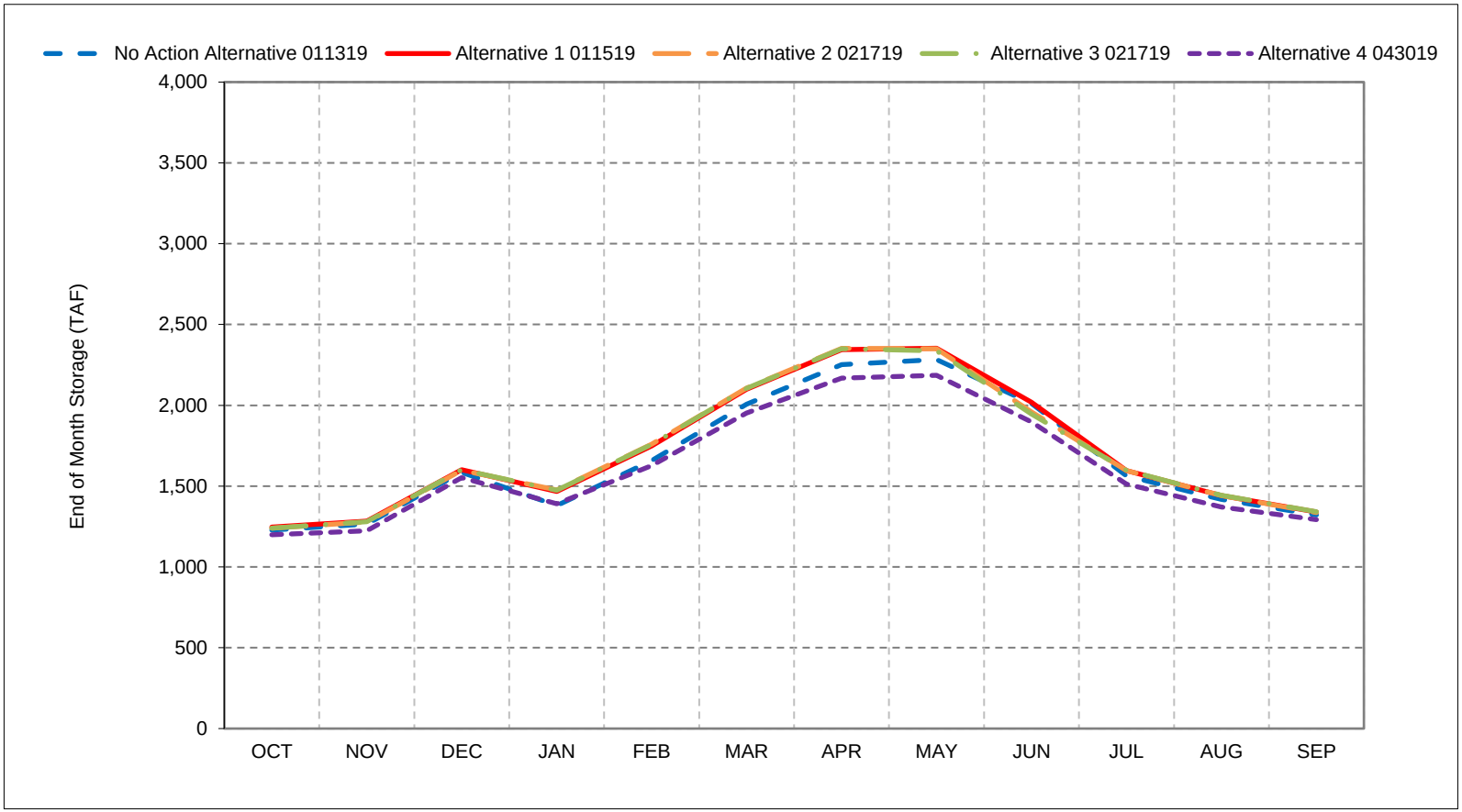
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-4. Lake Oroville Storage, Below Normal Year Average Storage



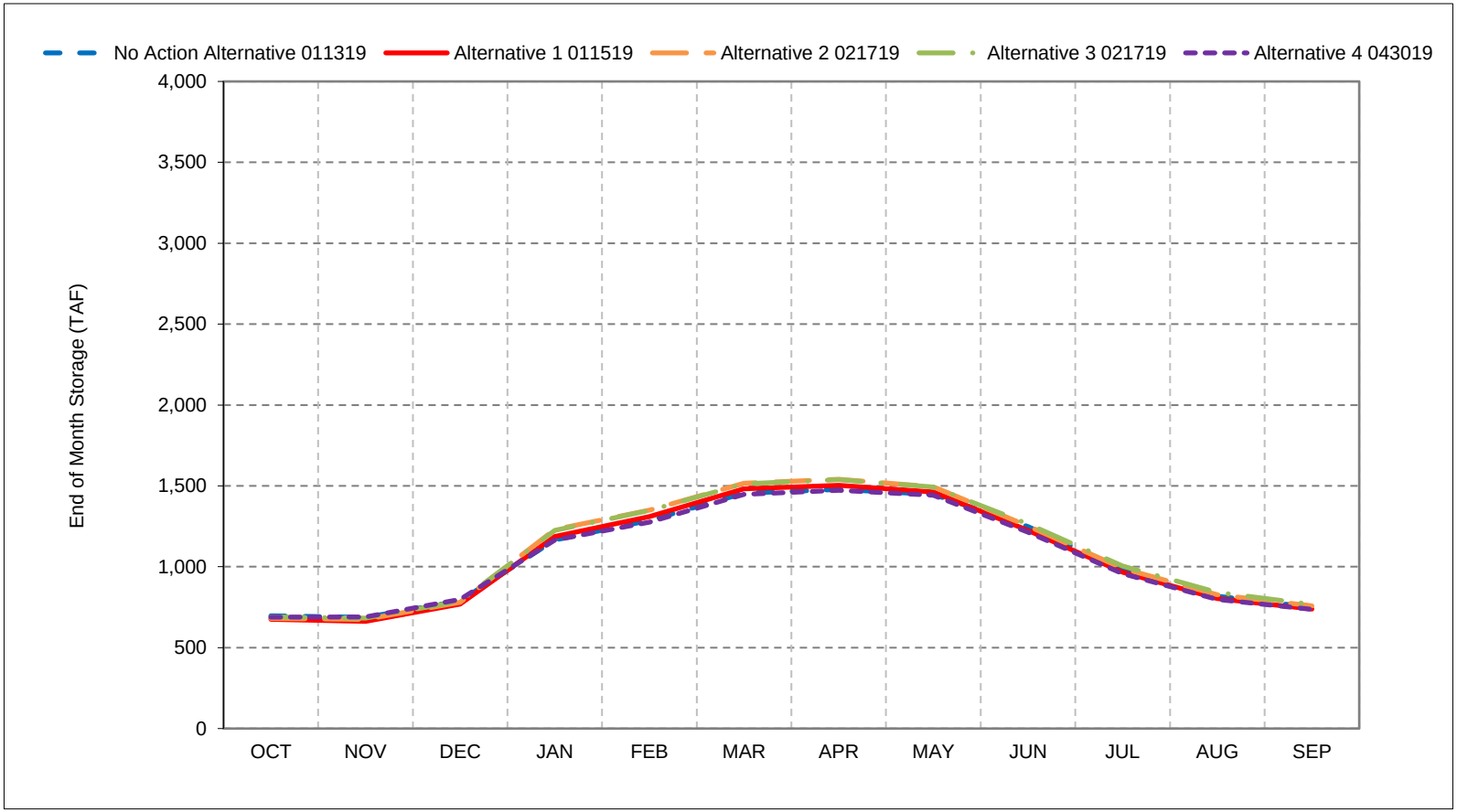
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-5. Lake Oroville Storage, Dry Year Average Storage



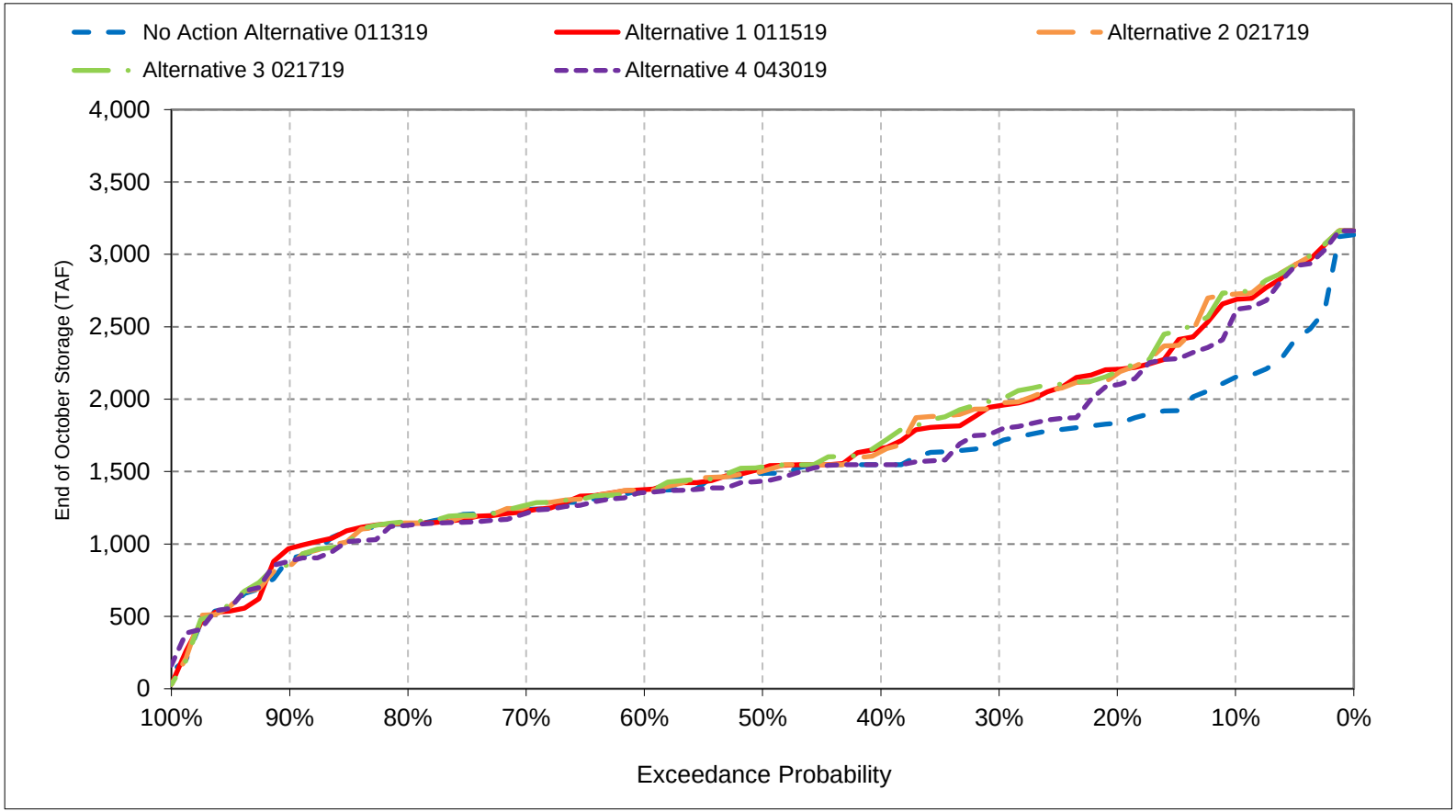
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-6. Lake Oroville Storage, Critical Year Average Storage



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

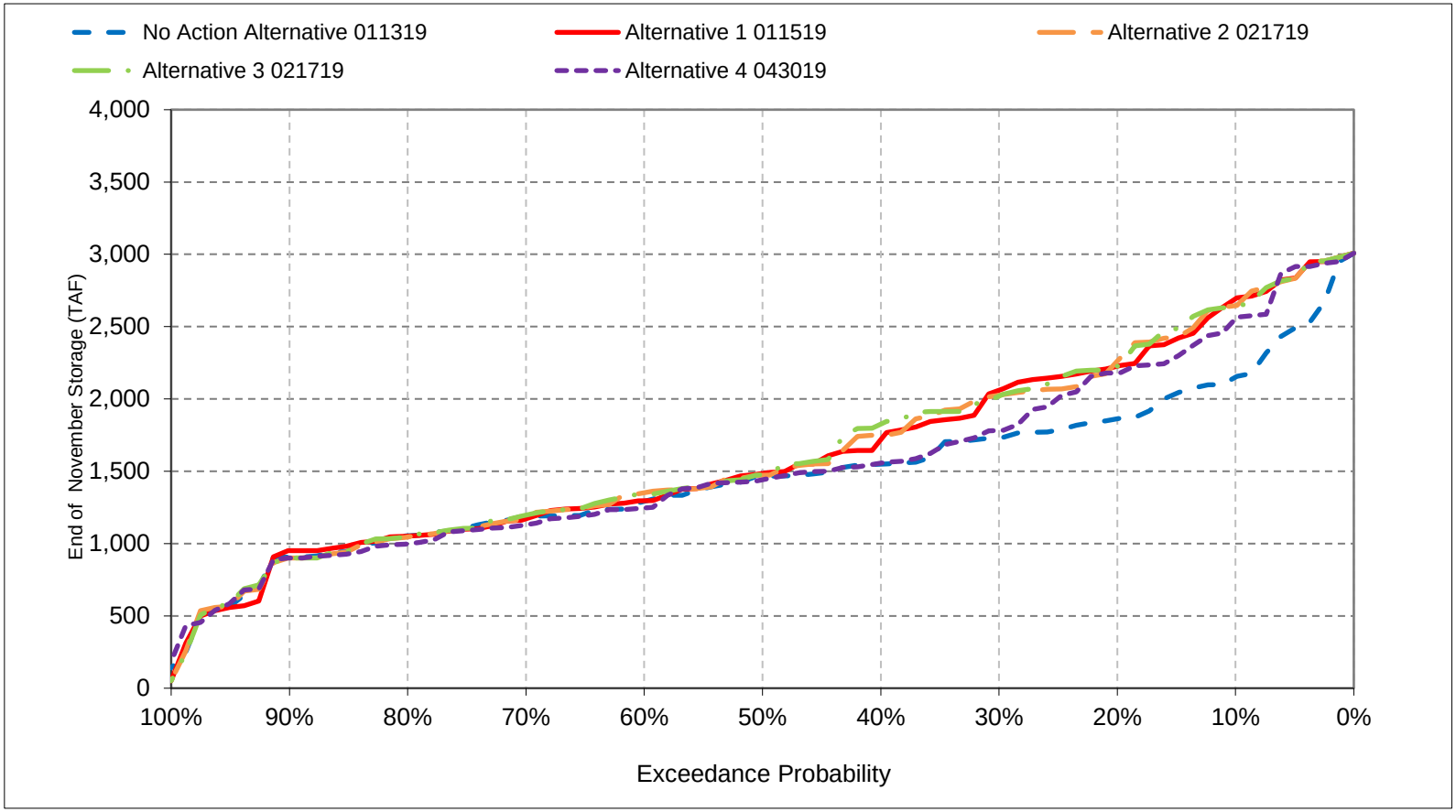
Figure 4-7. Lake Oroville Storage, End of October Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

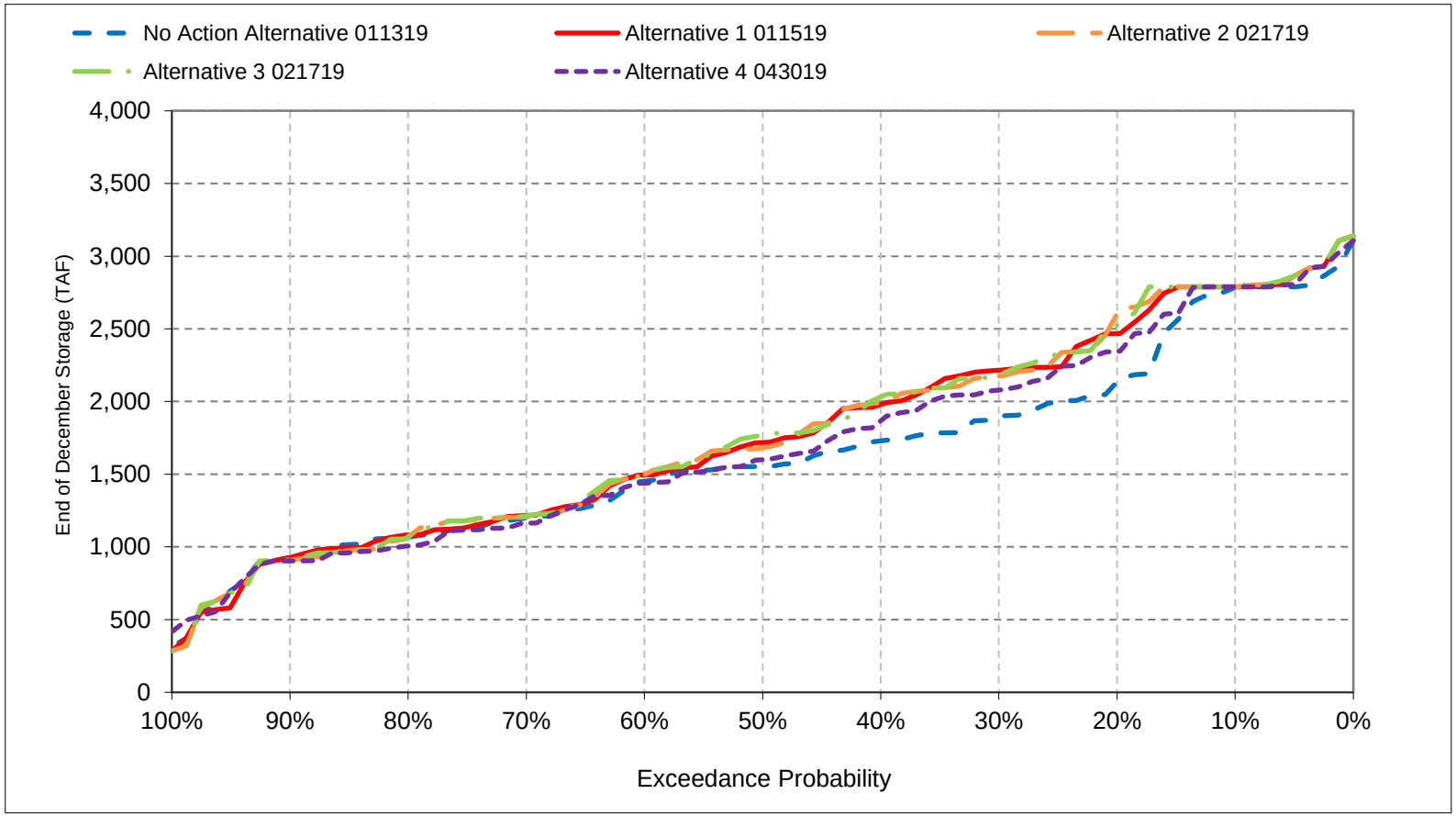
Figure 4-8. Lake Oroville Storage, End of November Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

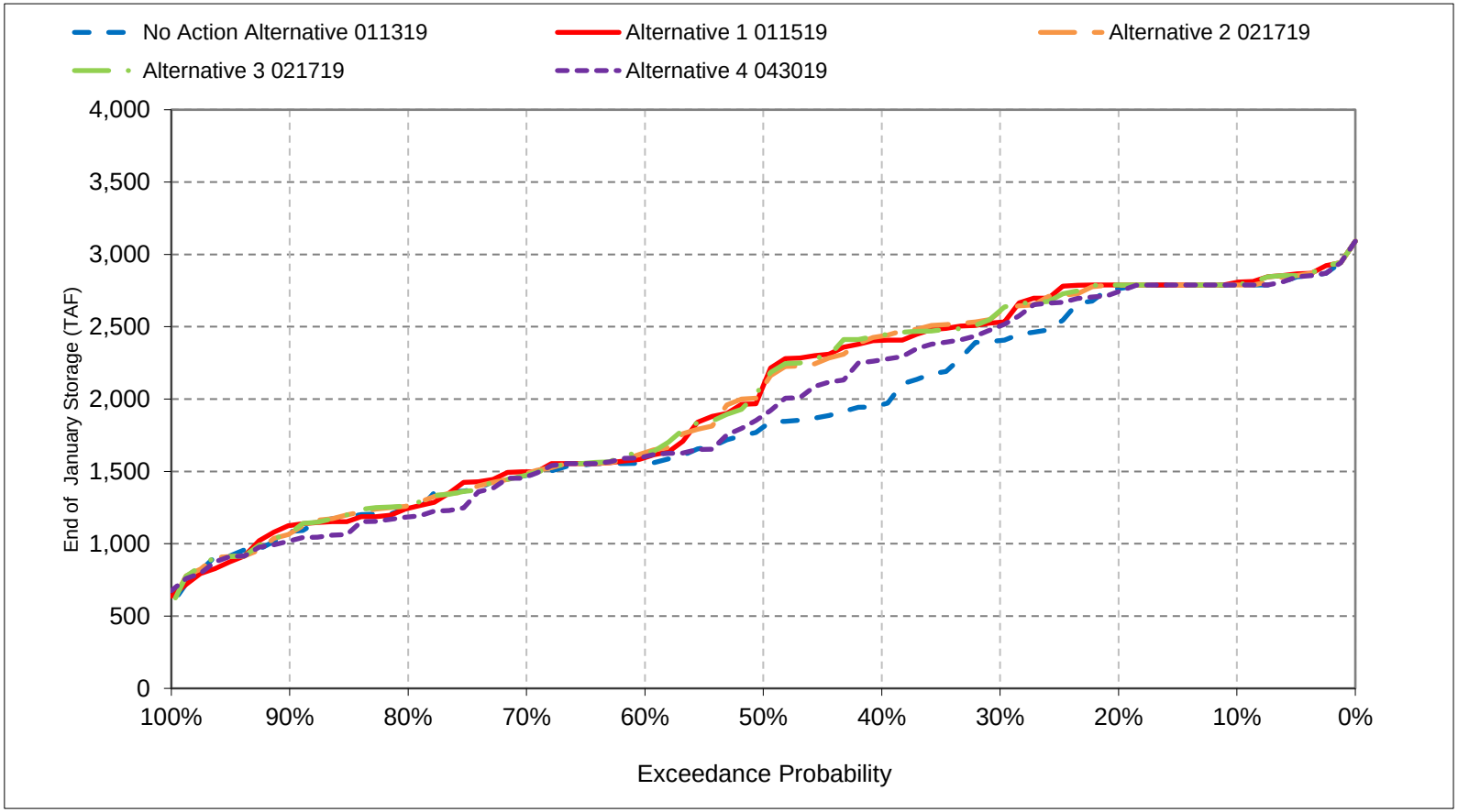
Figure 4-9. Lake Oroville Storage, End of December Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

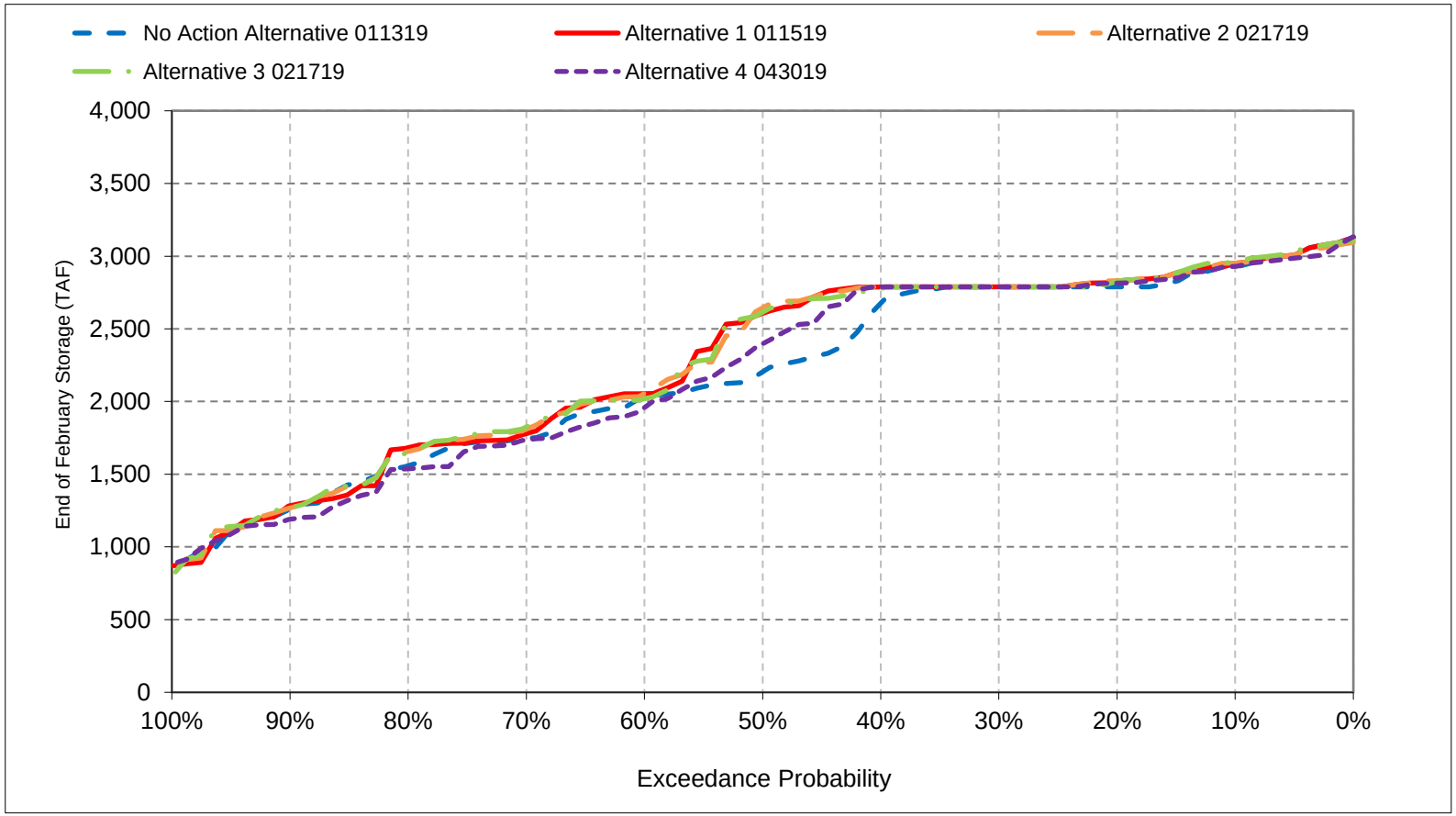
Figure 4-10. Lake Oroville Storage, End of January Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

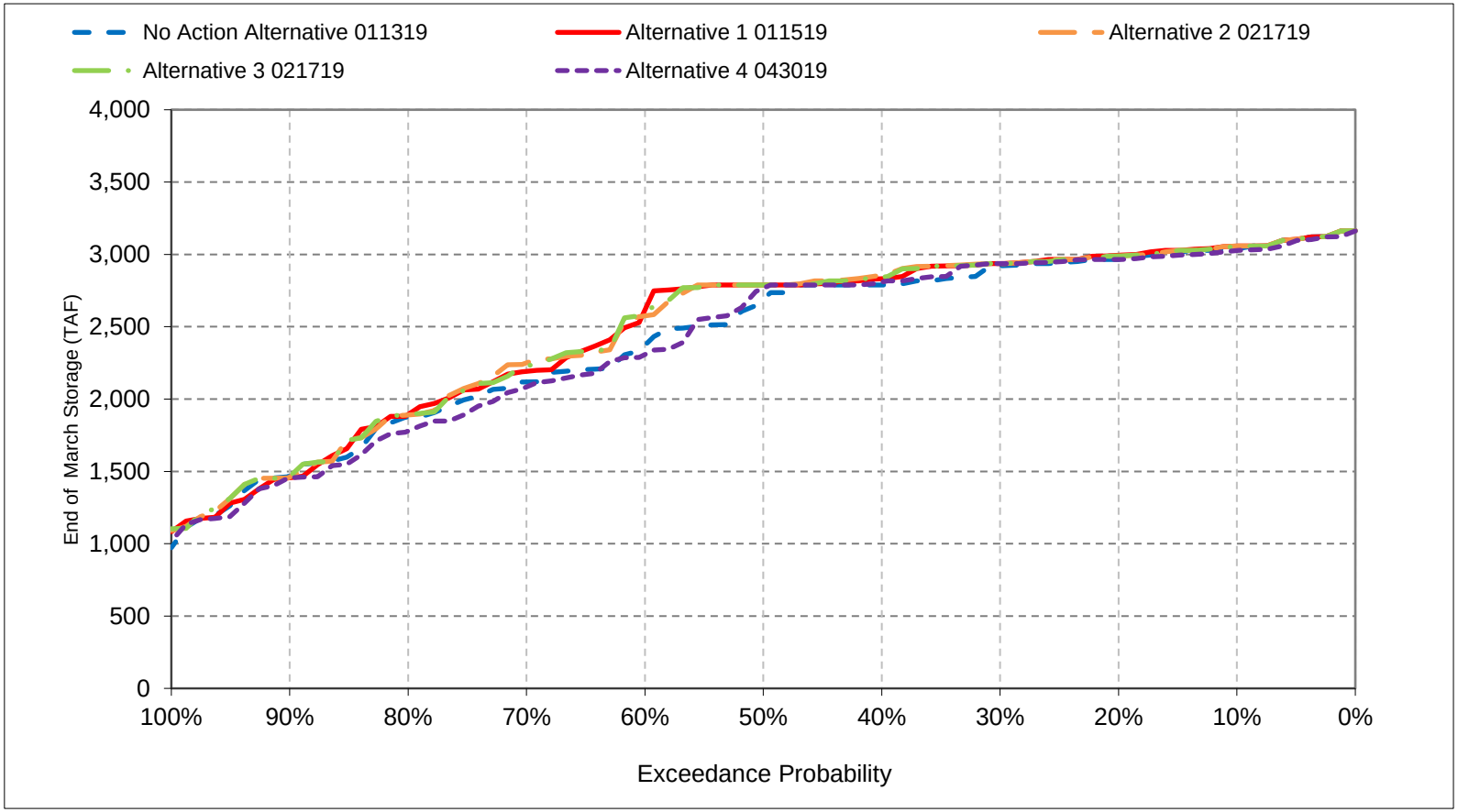
Figure 4-11. Lake Oroville Storage, End of February Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

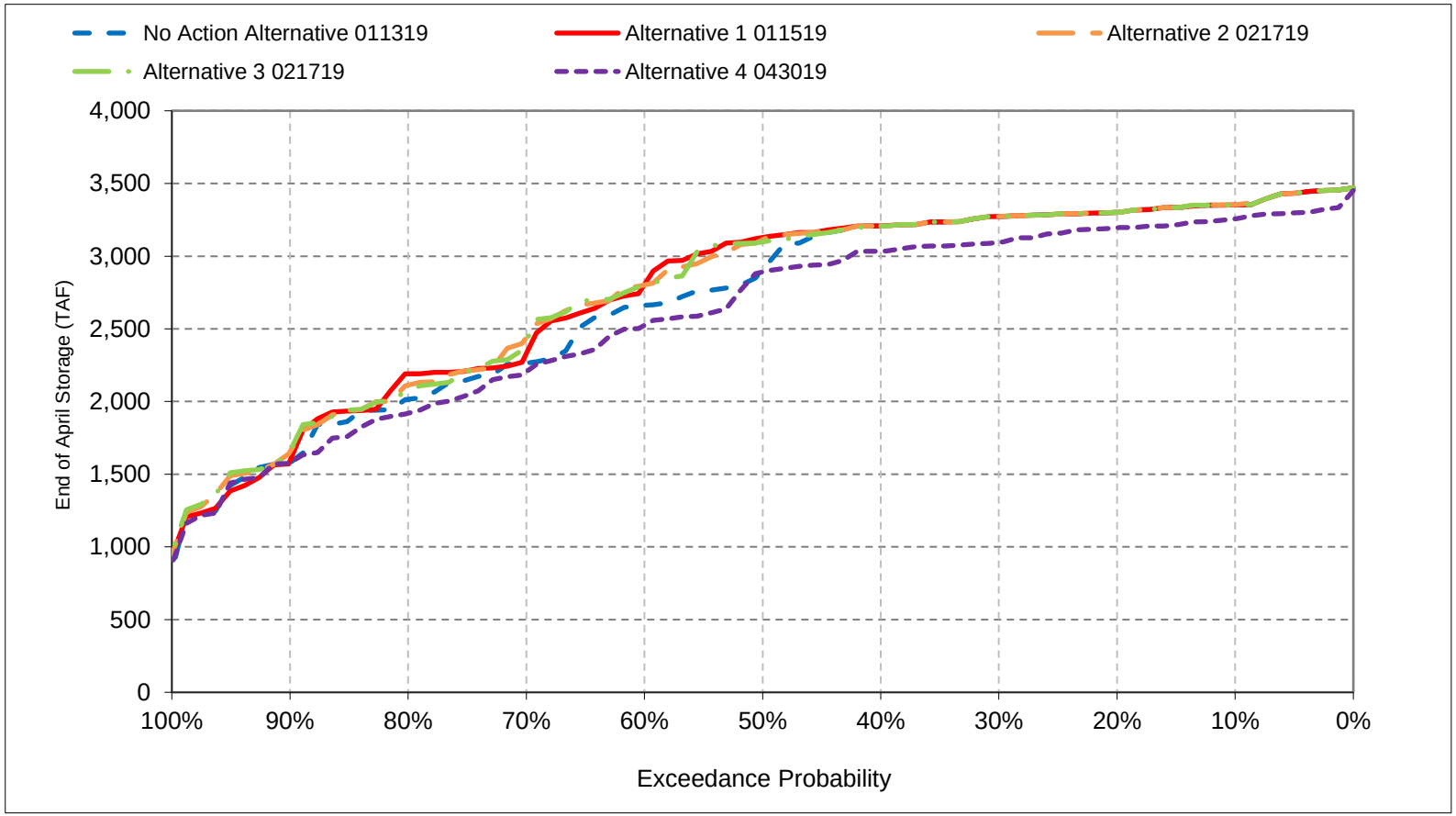
Figure 4-12. Lake Oroville Storage, End of March Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

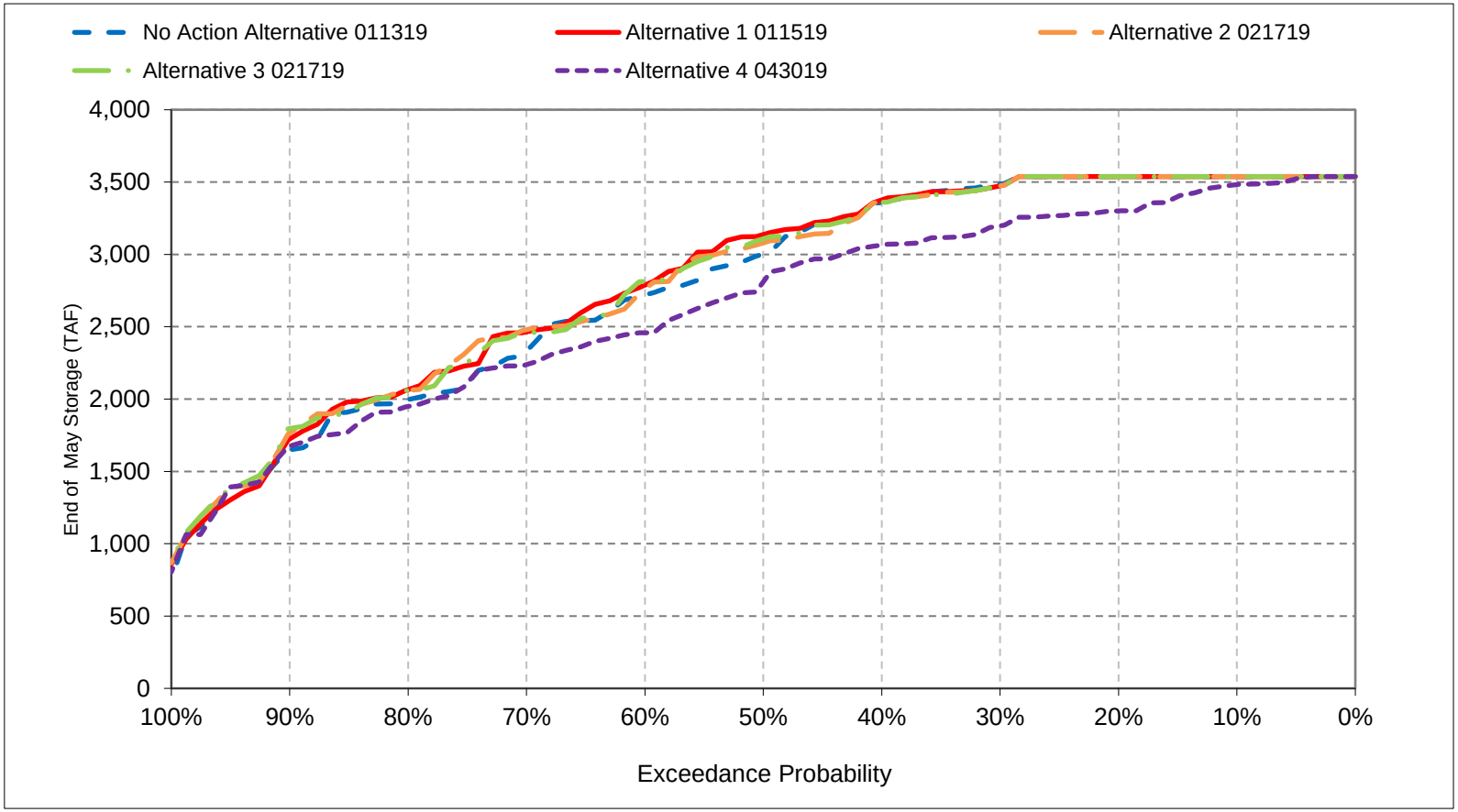
Figure 4-13. Lake Oroville Storage, End of April Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

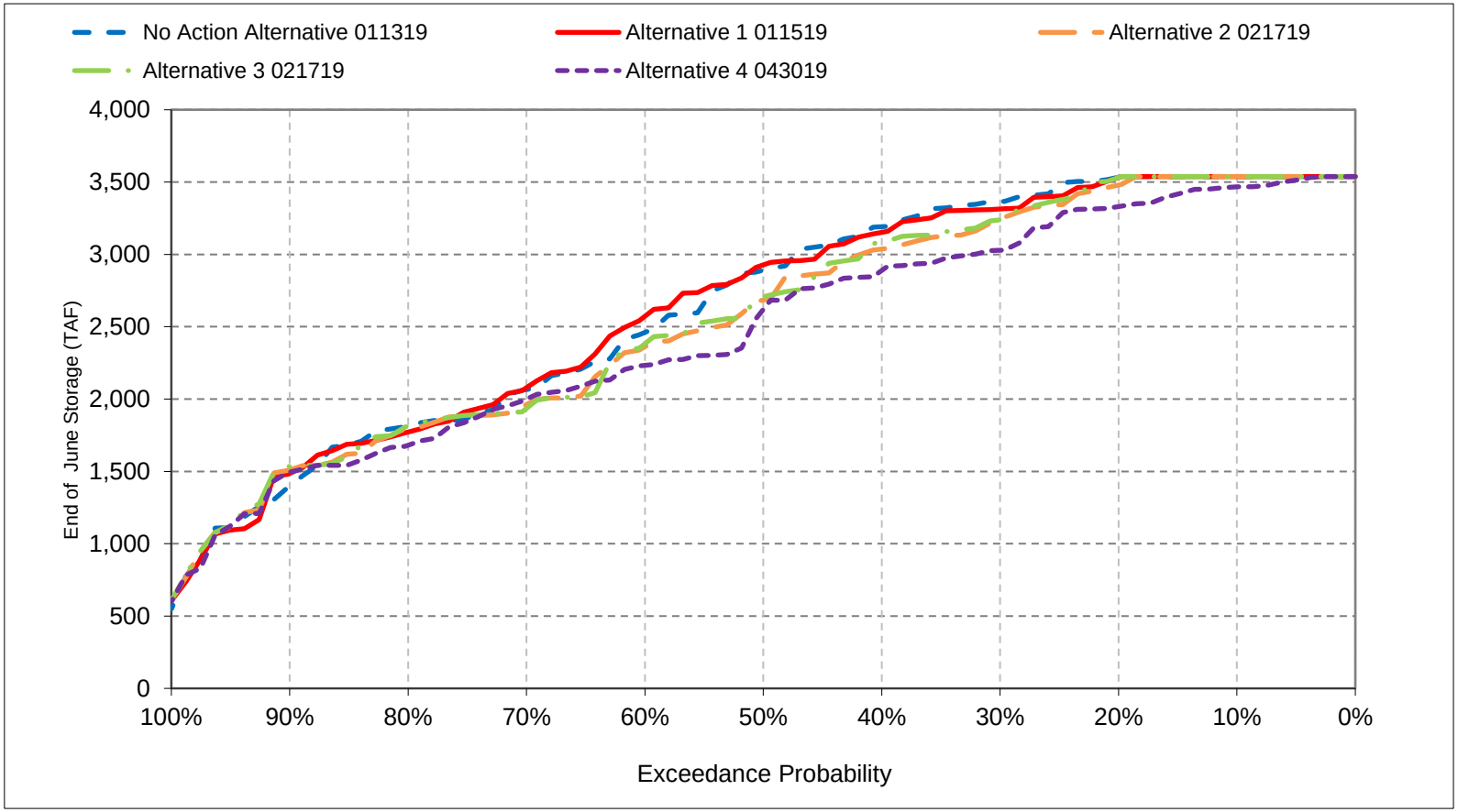
Figure 4-14. Lake Oroville Storage, End of May Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

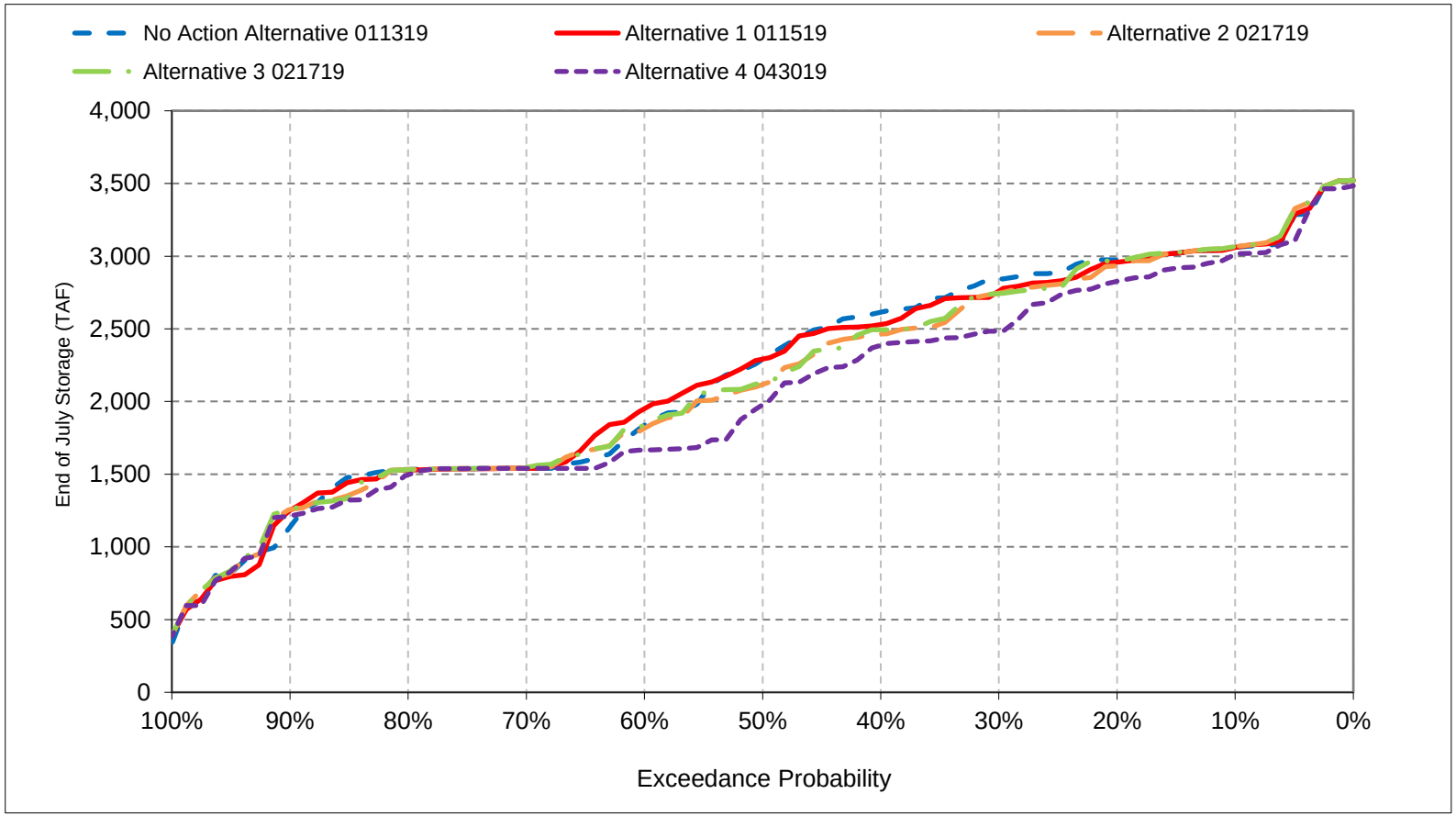
Figure 4-15. Lake Oroville Storage, End of June Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

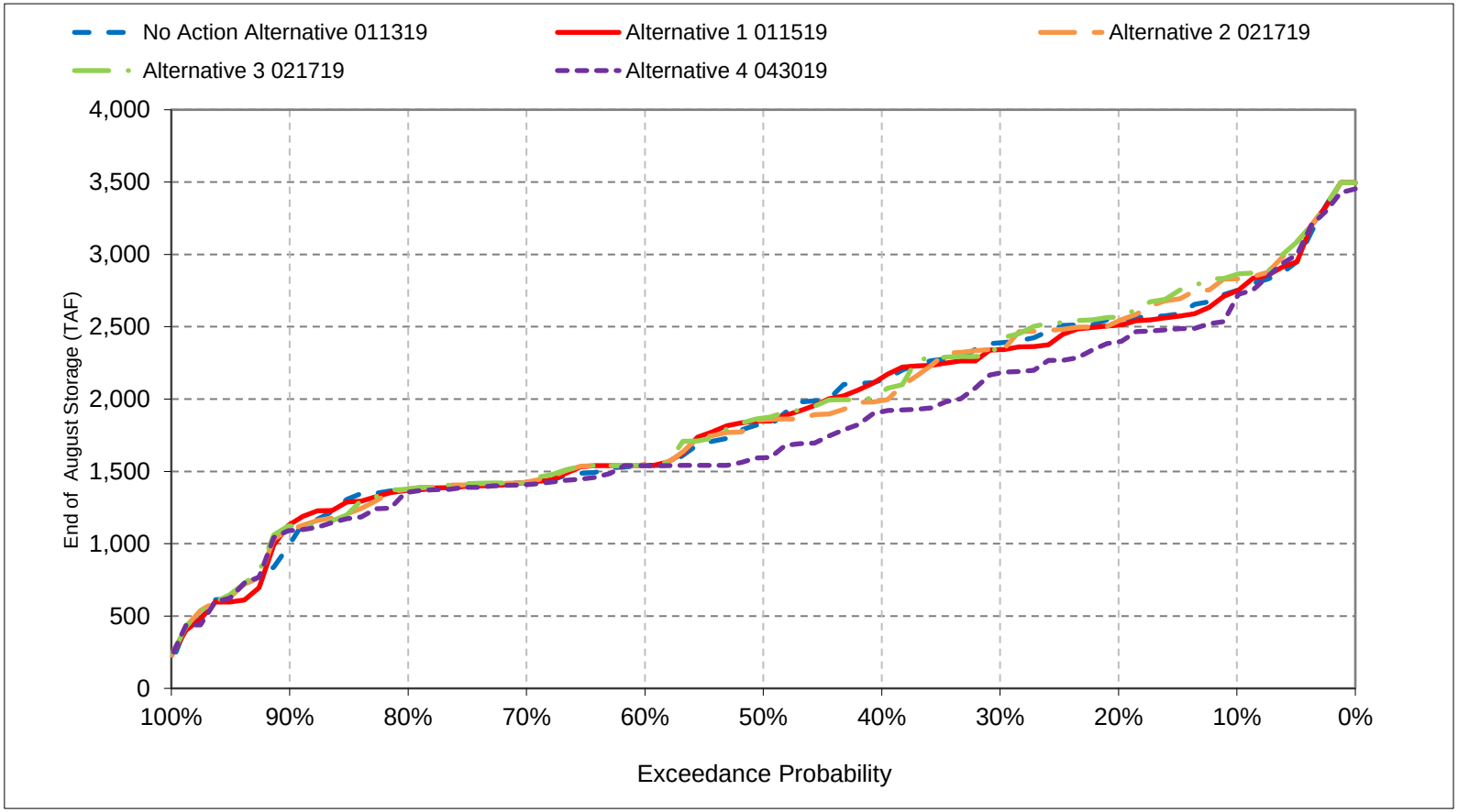
Figure 4-16. Lake Oroville Storage, End of July Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

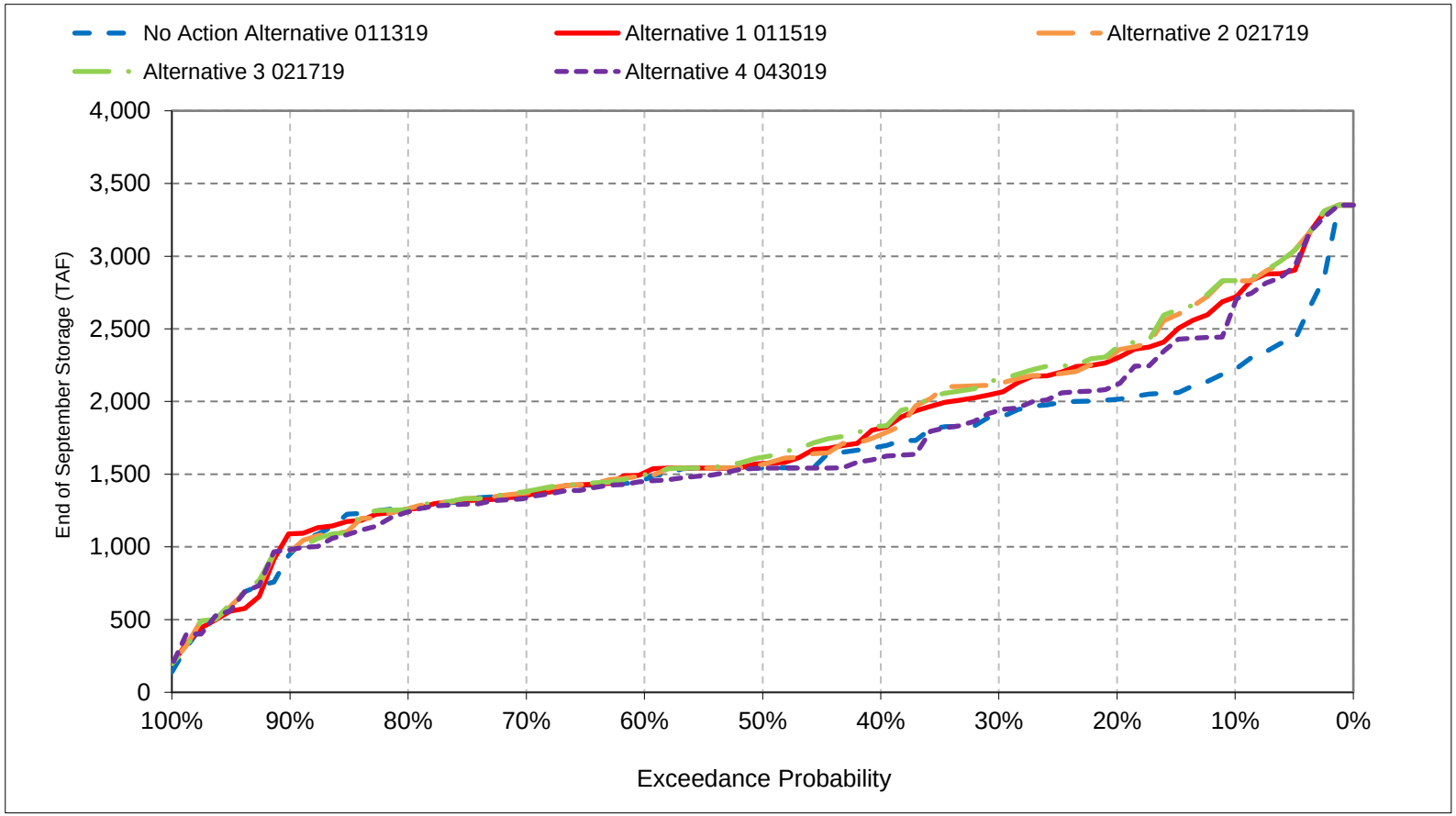
Figure 4-17. Lake Oroville Storage, End of August Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-18. Lake Oroville Storage, End of September Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 4a-1. Lake Oroville Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	798	798	848	849	858	866	887	900	900	867	846	806
20%	766	769	797	847	849	861	884	900	900	862	832	785
30%	752	756	772	823	849	858	882	896	888	853	822	772
40%	734	734	755	779	841	849	877	888	876	837	796	751
50%	726	724	734	763	804	842	857	863	856	813	764	733
60%	712	703	722	735	786	820	840	844	826	766	733	723
70%	696	690	691	725	757	795	810	816	790	733	719	710
80%	684	674	675	697	735	770	784	782	764	732	712	700
90%	648	650	653	677	699	724	738	746	716	684	665	658
Long Term												
Full Simulation Period[a]	719	717	735	763	793	815	835	841	828	788	760	733
Water Year Types[b,c]												
Wet (32%)	780	777	786	835	854	859	884	896	894	864	840	798
Above Normal (16%)	746	742	755	778	827	858	881	892	884	844	806	762
Below Normal (13%)	718	709	721	759	800	824	843	847	834	784	745	727
Dry (24%)	694	698	730	710	745	782	806	808	783	735	718	706
Critical (15%)	598	600	622	685	701	721	724	719	693	653	622	608

Alternative 1 011519

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	842	842	849	850	860	867	887	900	900	867	846	844
20%	804	806	827	849	852	863	884	900	899	860	830	814
30%	778	789	805	831	849	859	882	896	885	847	818	789
40%	748	754	781	823	849	852	877	889	874	831	798	764
50%	731	726	754	792	836	849	872	873	858	813	767	737
60%	713	703	727	740	788	837	850	849	834	778	733	729
70%	695	688	693	728	760	802	815	827	791	733	719	710
80%	684	673	677	697	750	772	802	790	759	732	712	699
90%	661	658	653	682	702	723	739	755	726	698	683	678
Long Term												
Full Simulation Period[a]	731	730	747	773	800	820	840	845	828	788	760	744
Water Year Types[b,c]												
Wet (32%)	816	814	818	839	855	859	884	896	892	862	838	828
Above Normal (16%)	754	751	764	791	834	860	883	892	882	841	803	771
Below Normal (13%)	722	712	725	787	817	838	858	860	844	792	748	730
Dry (24%)	697	700	732	720	754	790	813	814	783	739	721	708
Critical (15%)	589	591	618	686	703	724	727	721	690	650	620	608

Alternative 1 011519 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	44	44	0	1	2	1	0	0	0	0	0	38
20%	38	37	30	2	3	2	0	0	0	-1	-3	29
30%	26	34	33	9	0	1	0	-1	-4	-6	-4	17
40%	14	20	26	44	8	3	0	1	-3	-6	2	13
50%	5	3	20	29	32	7	15	9	3	0	3	4
60%	1	1	5	5	3	17	10	5	8	12	0	6
70%	-1	-2	2	3	3	7	6	10	1	0	0	0
80%	1	0	2	0	15	2	18	7	-4	0	0	-1
90%	13	8	0	5	3	-2	2	8	10	14	18	21
Long Term												
Full Simulation Period[a]	12	13	12	10	6	5	5	3	0	1	0	12
Water Year Types[b,c]												
Wet (32%)	35	37	31	5	2	0	0	-1	-2	-2	-2	30
Above Normal (16%)	8	9	9	13	7	2	2	1	-1	-3	-3	9
Below Normal (13%)	3	4	4	27	17	15	14	13	10	8	3	3
Dry (24%)	3	2	2	9	9	8	8	6	1	4	3	2
Critical (15%)	-9	-9	-4	1	2	3	3	2	-3	-2	-2	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4a-2. Lake Oroville Elevation, End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	798	798	848	849	858	866	887	900	900	867	846	806
20%	766	769	797	847	849	861	884	900	900	862	832	785
30%	752	756	772	823	849	858	882	896	888	853	822	772
40%	734	734	755	779	841	849	877	888	876	837	796	751
50%	726	724	734	763	804	842	857	863	856	813	764	733
60%	712	703	722	735	786	820	840	844	826	766	733	723
70%	696	690	691	725	757	795	810	816	790	733	719	710
80%	684	674	675	697	735	770	784	782	764	732	712	700
90%	648	650	653	677	699	724	738	746	716	684	665	658
Long Term												
Full Simulation Period[a]	719	717	735	763	793	815	835	841	828	788	760	733
Water Year Types[b,c]												
Wet (32%)	780	777	786	835	854	859	884	896	894	864	840	798
Above Normal (16%)	746	742	755	778	827	858	881	892	884	844	806	762
Below Normal (13%)	718	709	721	759	800	824	843	847	834	784	745	727
Dry (24%)	694	698	730	710	745	782	806	808	783	735	718	706
Critical (15%)	598	600	622	685	701	721	724	719	693	653	622	608

Alternative 2 021719

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	845	839	849	849	860	867	887	900	900	868	852	852
20%	801	810	836	849	852	863	884	900	896	859	832	818
30%	779	785	801	836	849	859	882	896	880	846	819	796
40%	745	757	782	825	849	853	877	888	866	827	782	759
50%	728	725	750	792	839	849	871	869	842	795	768	736
60%	712	710	728	744	789	834	850	847	819	764	734	727
70%	698	689	692	726	763	809	825	828	779	733	719	712
80%	685	673	675	699	747	772	794	789	762	732	713	699
90%	638	649	650	675	700	723	747	759	729	698	679	660
Long Term												
Full Simulation Period[a]	732	730	747	773	800	821	841	845	822	785	761	746
Water Year Types[b,c]												
Wet (32%)	818	815	819	838	855	859	884	896	889	861	842	832
Above Normal (16%)	754	752	764	791	834	860	883	892	875	834	798	769
Below Normal (13%)	721	711	723	782	815	836	856	855	822	775	746	731
Dry (24%)	696	699	731	720	754	791	814	814	778	739	720	708
Critical (15%)	590	592	619	692	708	728	731	725	694	655	625	612

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	46	41	0	0	2	1	0	0	0	0	6	46
20%	35	41	39	2	3	2	0	0	**-4**	**-3**	**-1**	33
30%	27	30	29	14	0	1	0	**-1**	**-8**	**-7**	**-3**	24
40%	11	23	27	46	8	5	0	0	**-11**	**-10**	**-15**	8
50%	2	1	16	29	35	7	14	5	**-14**	**-18**	4	3
60%	0	7	5	9	3	14	10	3	**-7**	**-2**	1	4
70%	2	**-1**	1	2	6	14	15	12	**-11**	0	0	2
80%	1	**-1**	0	3	12	2	10	7	**-2**	**0**	1	**0**
90%	**-10**	**-1**	**-4**	**-2**	1	**-1**	9	13	14	15	13	2
Long Term												
Full Simulation Period[a]	13	13	12	10	7	5	5	3	**-5**	**-3**	1	13
Water Year Types[b,c]												
Wet (32%)	37	39	33	4	1	0	0	**-1**	**-4**	**-3**	2	34
Above Normal (16%)	8	9	10	13	7	2	2	0	**-9**	**-10**	**-8**	7
Below Normal (13%)	2	2	2	23	14	13	13	9	**-12**	**-9**	1	4
Dry (24%)	2	1	1	10	10	9	8	6	**-5**	4	3	2
Critical (15%)	**-9**	**-8**	**-3**	7	7	7	8	6	1	2	3	4

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4a-3. Lake Oroville Elevation, End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	798	798	848	849	858	866	887	900	900	867	846	806
20%	766	769	797	847	849	861	884	900	900	862	832	785
30%	752	756	772	823	849	858	882	896	888	853	822	772
40%	734	734	755	779	841	849	877	888	876	837	796	751
50%	726	724	734	763	804	842	857	863	856	813	764	733
60%	712	703	722	735	786	820	840	844	826	766	733	723
70%	696	690	691	725	757	795	810	816	790	733	719	710
80%	684	674	675	697	735	770	784	782	764	732	712	700
90%	648	650	653	677	699	724	738	746	716	684	665	658
Long Term												
Full Simulation Period[a]	719	717	735	763	793	815	835	841	828	788	760	733
Water Year Types[b,c]												
Wet (32%)	780	777	786	835	854	859	884	896	894	864	840	798
Above Normal (16%)	746	742	755	778	827	858	881	892	884	844	806	762
Below Normal (13%)	718	709	721	759	800	824	843	847	834	784	745	727
Dry (24%)	694	698	730	710	745	782	806	808	783	735	718	706
Critical (15%)	598	600	622	685	701	721	724	719	693	653	622	608

Alternative 3 021719

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	845	838	849	849	861	867	887	900	900	868	854	852
20%	802	806	831	849	851	863	884	900	899	861	834	820
30%	783	785	802	837	849	859	882	896	880	846	821	798
40%	751	765	786	825	848	852	877	888	869	829	788	766
50%	732	725	759	794	837	849	870	871	843	796	769	742
60%	711	709	728	744	785	836	850	850	821	766	733	728
70%	700	691	693	725	765	806	823	826	776	734	720	714
80%	686	673	675	699	746	772	790	789	764	732	713	699
90%	642	649	651	676	700	724	747	762	732	699	682	663
Long Term												
Full Simulation Period[a]	733	731	748	774	800	821	841	845	823	786	762	748
Water Year Types[b,c]												
Wet (32%)	820	818	820	839	855	859	884	896	890	861	845	835
Above Normal (16%)	755	753	764	792	834	860	883	892	877	836	800	772
Below Normal (13%)	722	712	725	784	815	837	856	856	825	776	747	733
Dry (24%)	696	699	731	721	755	791	814	813	777	739	721	709
Critical (15%)	591	593	620	692	708	728	731	725	696	657	627	613

Alternative 3 021719 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	47	40	1	0	2	1	0	0	0	0	8	46
20%	36	37	34	2	3	2	0	0	0	0	1	36
30%	30	29	30	14	0	1	0	-1	-9	-7	0	26
40%	18	31	31	46	7	4	0	0	-7	-8	-9	14
50%	6	2	25	31	33	7	13	7	-13	-17	5	9
60%	-1	6	6	9	-1	16	9	6	-5	0	0	5
70%	4	1	2	0	8	11	14	10	-13	1	1	4
80%	2	-1	0	3	11	2	6	6	0	0	1	-1
90%	-6	-1	-2	-2	1	-1	10	16	17	15	17	5
Long Term												
Full Simulation Period[a]	14	15	13	10	7	5	5	3	-5	-2	2	15
Water Year Types[b,c]												
Wet (32%)	40	41	34	4	2	0	0	0	-4	-3	5	36
Above Normal (16%)	9	11	10	13	7	2	2	0	-7	-8	-6	10
Below Normal (13%)	4	3	4	25	15	13	13	9	-9	-8	2	6
Dry (24%)	2	2	1	10	10	9	8	5	-6	4	3	2
Critical (15%)	-8	-7	-2	7	7	7	8	6	3	4	5	5

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4a-4. Lake Oroville Elevation, End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	798	798	848	849	858	866	887	900	900	867	846	806
20%	766	769	797	847	849	861	884	900	900	862	832	785
30%	752	756	772	823	849	858	882	896	888	853	822	772
40%	734	734	755	779	841	849	877	888	876	837	796	751
50%	726	724	734	763	804	842	857	863	856	813	764	733
60%	712	703	722	735	786	820	840	844	826	766	733	723
70%	696	690	691	725	757	795	810	816	790	733	719	710
80%	684	674	675	697	735	770	784	782	764	732	712	700
90%	648	650	653	677	699	724	738	746	716	684	665	658
Long Term												
Full Simulation Period[a]	719	717	735	763	793	815	835	841	828	788	760	733
Water Year Types[b,c]												
Wet (32%)	780	777	786	835	854	859	884	896	894	864	840	798
Above Normal (16%)	746	742	755	778	827	858	881	892	884	844	806	762
Below Normal (13%)	718	709	721	759	800	824	843	847	834	784	745	727
Dry (24%)	694	698	730	710	745	782	806	808	783	735	718	706
Critical (15%)	598	600	622	685	701	721	724	719	693	653	622	608

Alternative 4 043019

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	836	833	849	849	858	865	881	896	895	864	843	841
20%	793	801	818	846	851	861	877	884	886	851	822	795
30%	761	760	791	829	849	859	870	877	865	828	801	777
40%	734	735	769	811	849	850	866	868	856	821	774	742
50%	720	721	740	771	822	847	856	850	837	781	740	733
60%	710	697	721	741	779	814	831	826	807	748	733	722
70%	693	683	687	724	756	791	804	807	783	733	717	708
80%	683	666	668	690	733	760	775	778	750	727	710	696
90%	645	649	649	669	690	723	738	749	728	693	678	663
Long Term												
Full Simulation Period[a]	725	724	741	767	794	813	827	831	816	776	750	737
Water Year Types[b,c]												
Wet (32%)	808	806	811	835	853	858	876	886	884	854	829	819
Above Normal (16%)	740	739	752	786	832	859	869	873	864	825	782	753
Below Normal (13%)	712	702	712	773	807	821	829	831	815	759	734	725
Dry (24%)	691	692	726	712	741	776	798	800	772	729	712	703
Critical (15%)	601	604	626	684	699	721	723	719	689	650	620	609

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	38	35	0	0	0	**-1**	**-6**	**-4**	**-5**	**-3**	**-3**	36
20%	27	33	21	**-1**	2	0	**-7**	**-16**	**-14**	**-10**	**-11**	10
30%	9	5	19	7	0	1	**-12**	**-20**	**-23**	**-25**	**-20**	4
40%	**0**	1	14	32	8	1	**-12**	**-20**	**-21**	**-16**	**-23**	**-9**
50%	**-6**	**-3**	6	8	18	5	**-1**	**-13**	**-19**	**-32**	**-25**	**0**
60%	**-2**	**-6**	**-2**	6	**-7**	**-6**	**-9**	**-18**	**-20**	**-18**	**0**	**-1**
70%	**-3**	**-7**	**-4**	**-1**	**-1**	**-4**	**-6**	**-9**	**-7**	**0**	**-2**	**-2**
80%	**-1**	**-7**	**-8**	**-7**	**-3**	**-10**	**-10**	**-5**	**-14**	**-5**	**-1**	**-3**
90%	**-3**	**-1**	**-4**	**-8**	**-8**	**-2**	0	3	12	9	13	6
Long Term												
Full Simulation Period[a]	6	7	6	3	0	**-2**	**-8**	**-10**	**-12**	**-11**	**-10**	4
Water Year Types[b,c]												
Wet (32%)	28	29	25	0	**0**	**-1**	**-8**	**-11**	**-10**	**-10**	**-11**	20
Above Normal (16%)	**-6**	**-3**	**-2**	8	5	1	**-12**	**-18**	**-20**	**-19**	**-24**	**-9**
Below Normal (13%)	**-7**	**-7**	**-9**	14	6	**-3**	**-14**	**-15**	**-20**	**-26**	**-10**	**-2**
Dry (24%)	**-4**	**-5**	**-4**	1	**-4**	**-6**	**-7**	**-8**	**-11**	**-6**	**-5**	**-3**
Critical (15%)	3	4	4	**-1**	**-2**	**-1**	**0**	**0**	**-4**	**-3**	**-1**	1

a Based on the 82-year simulation period.

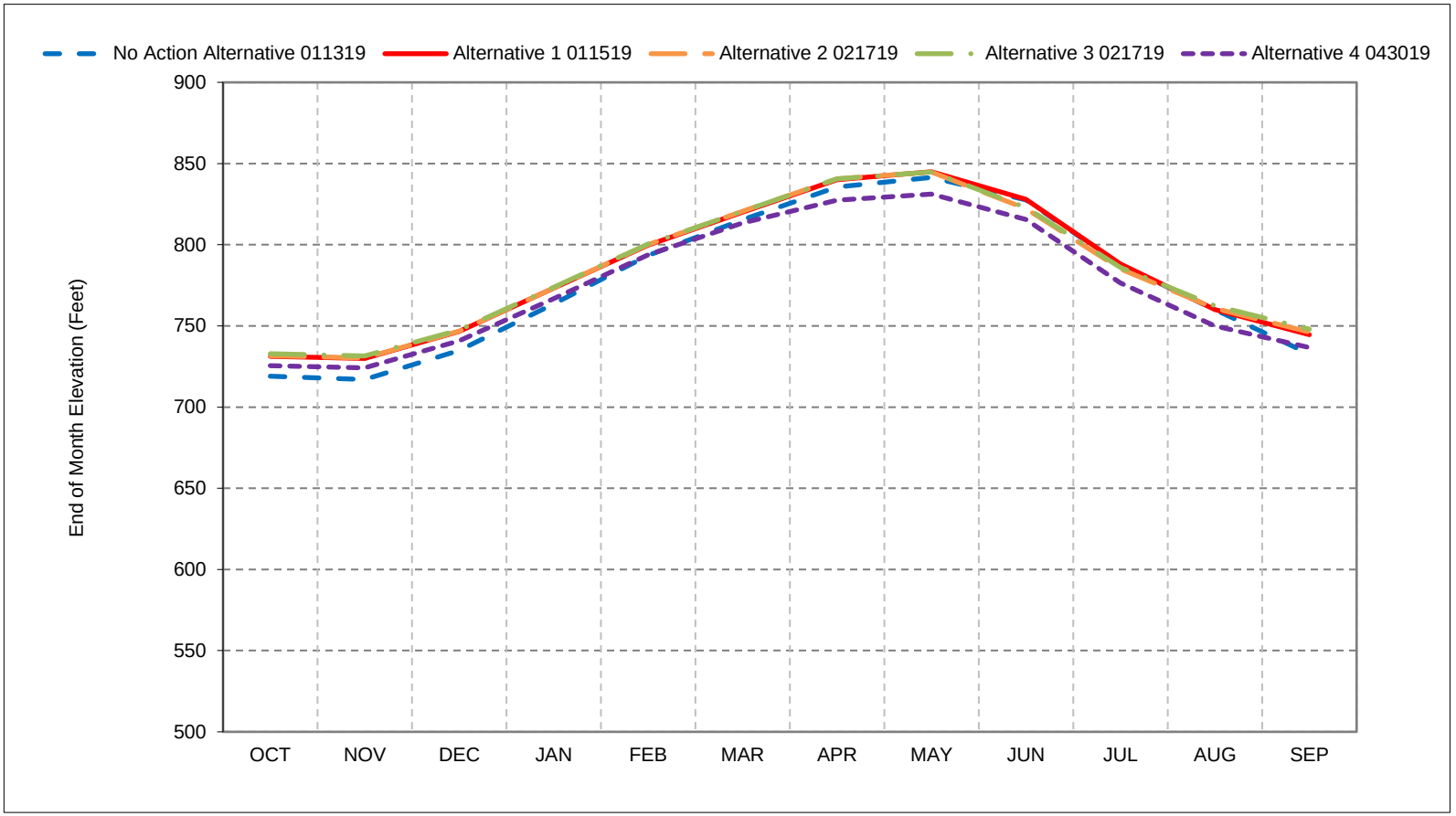
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 4a-1. Lake Oroville Elevation, Long-Term Average Elevation



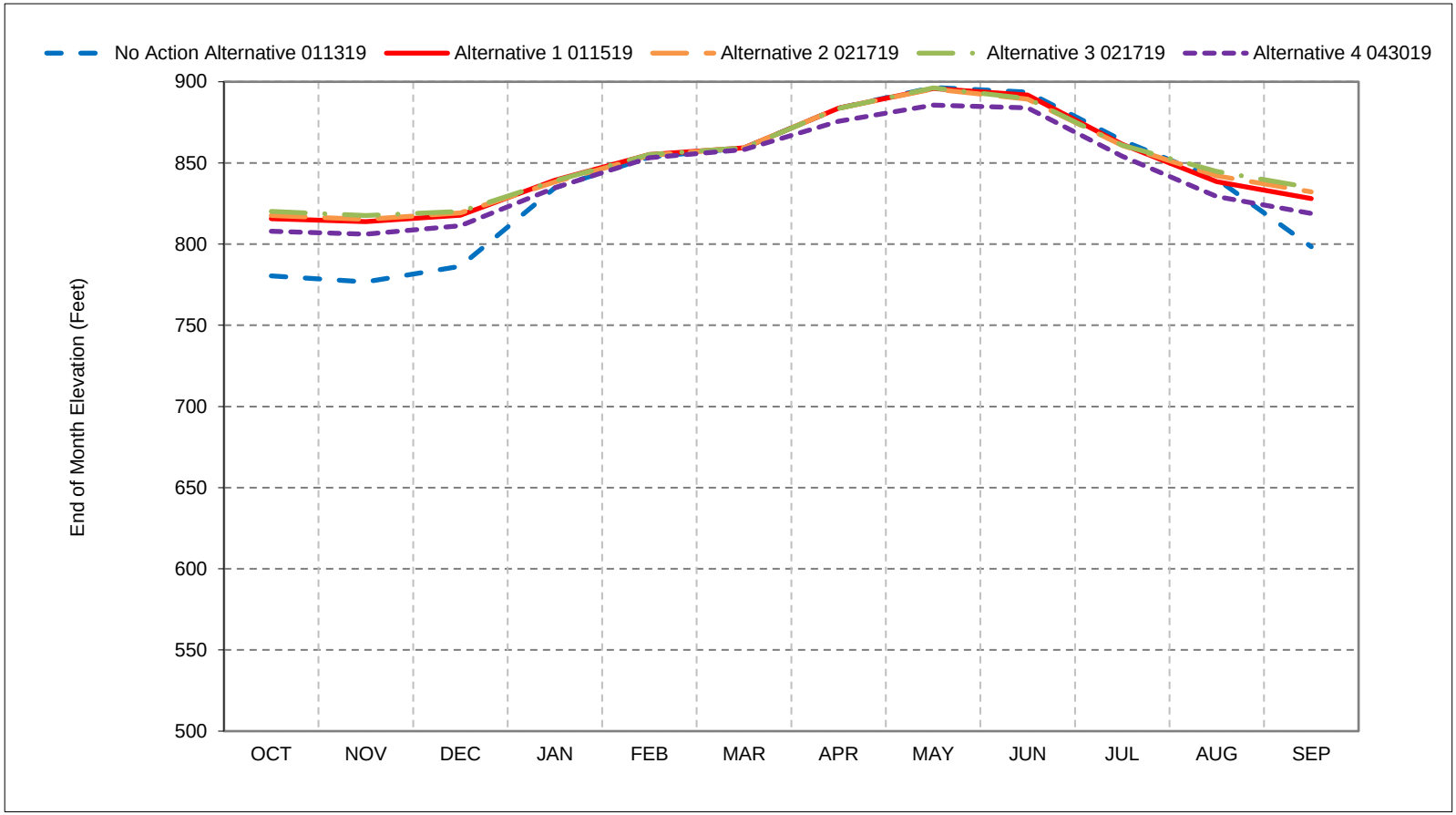
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4a-2. Lake Oroville Elevation, Wet Year Average Elevation



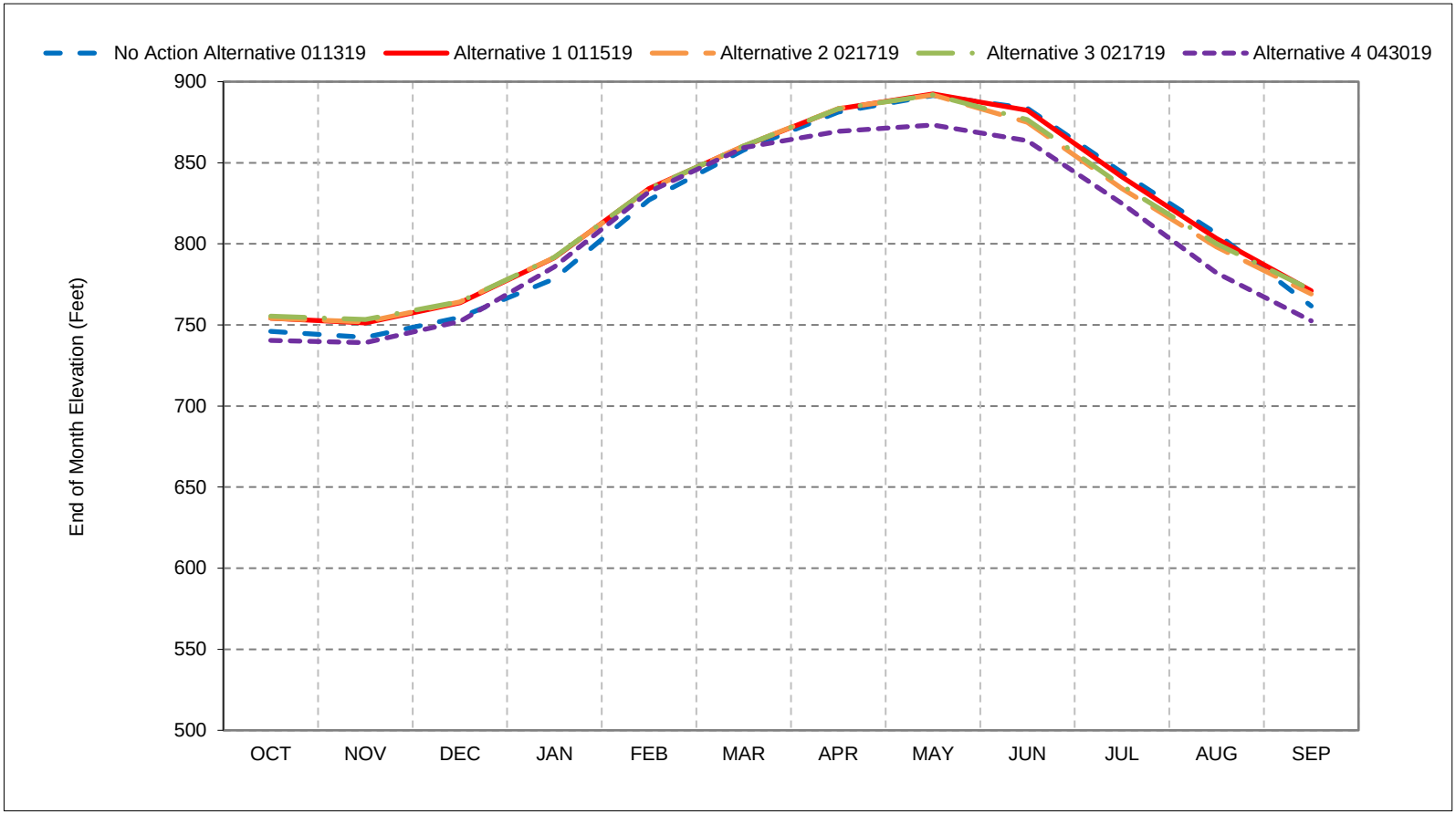
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4a-3. Lake Oroville Elevation, Above Normal Year Average Elevation



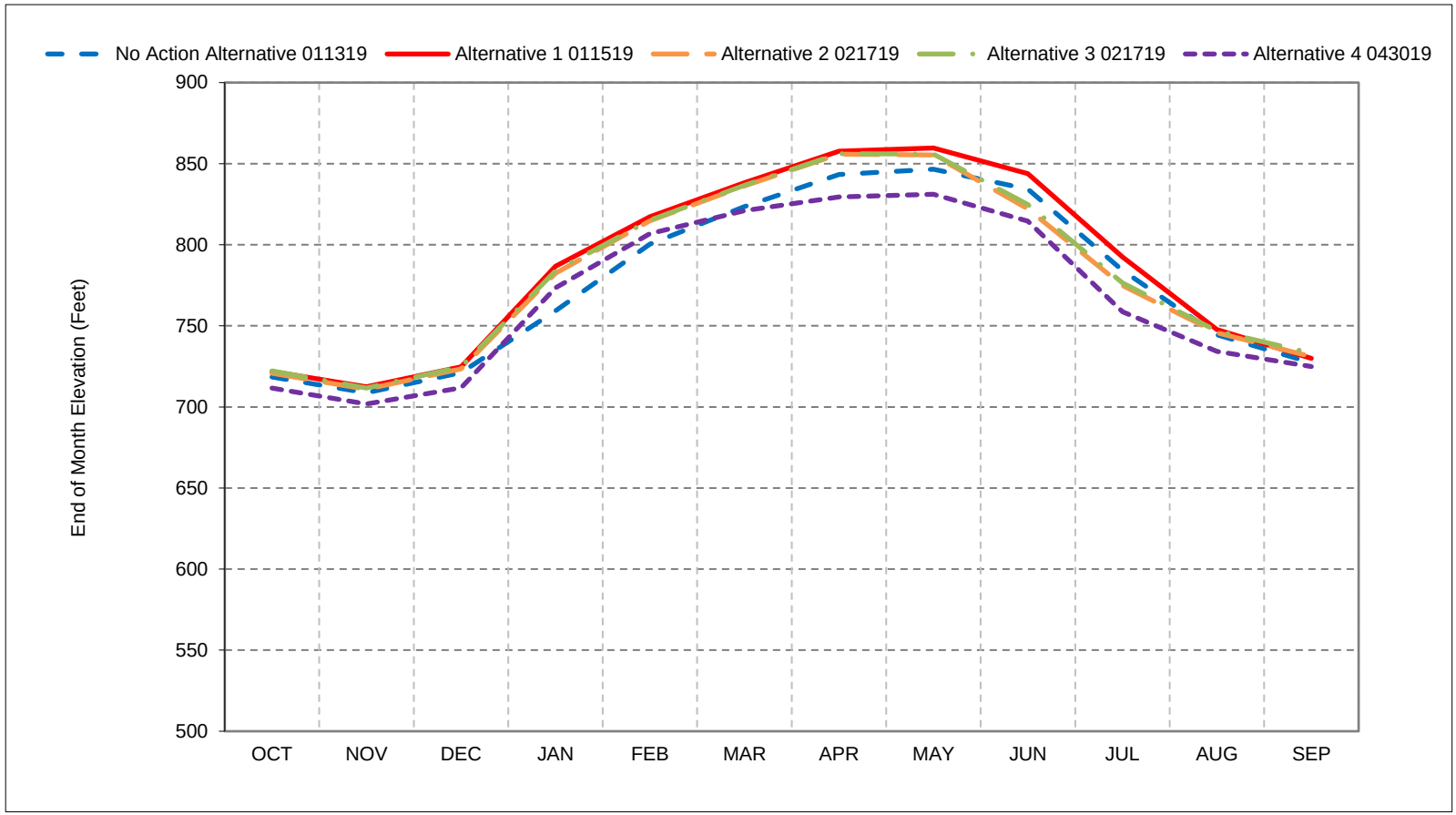
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

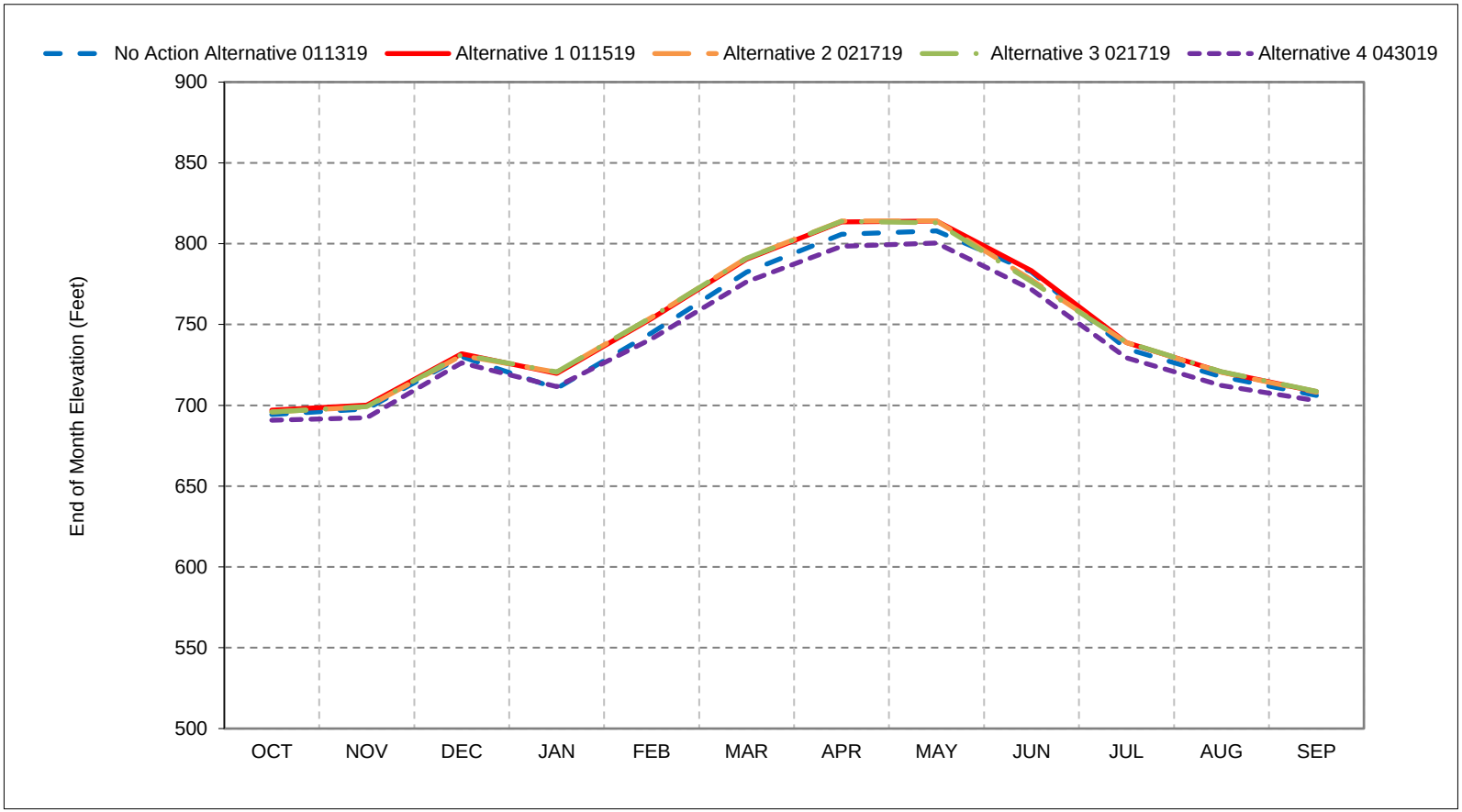
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4a-4. Lake Oroville Elevation, Below Normal Year Average Elevation



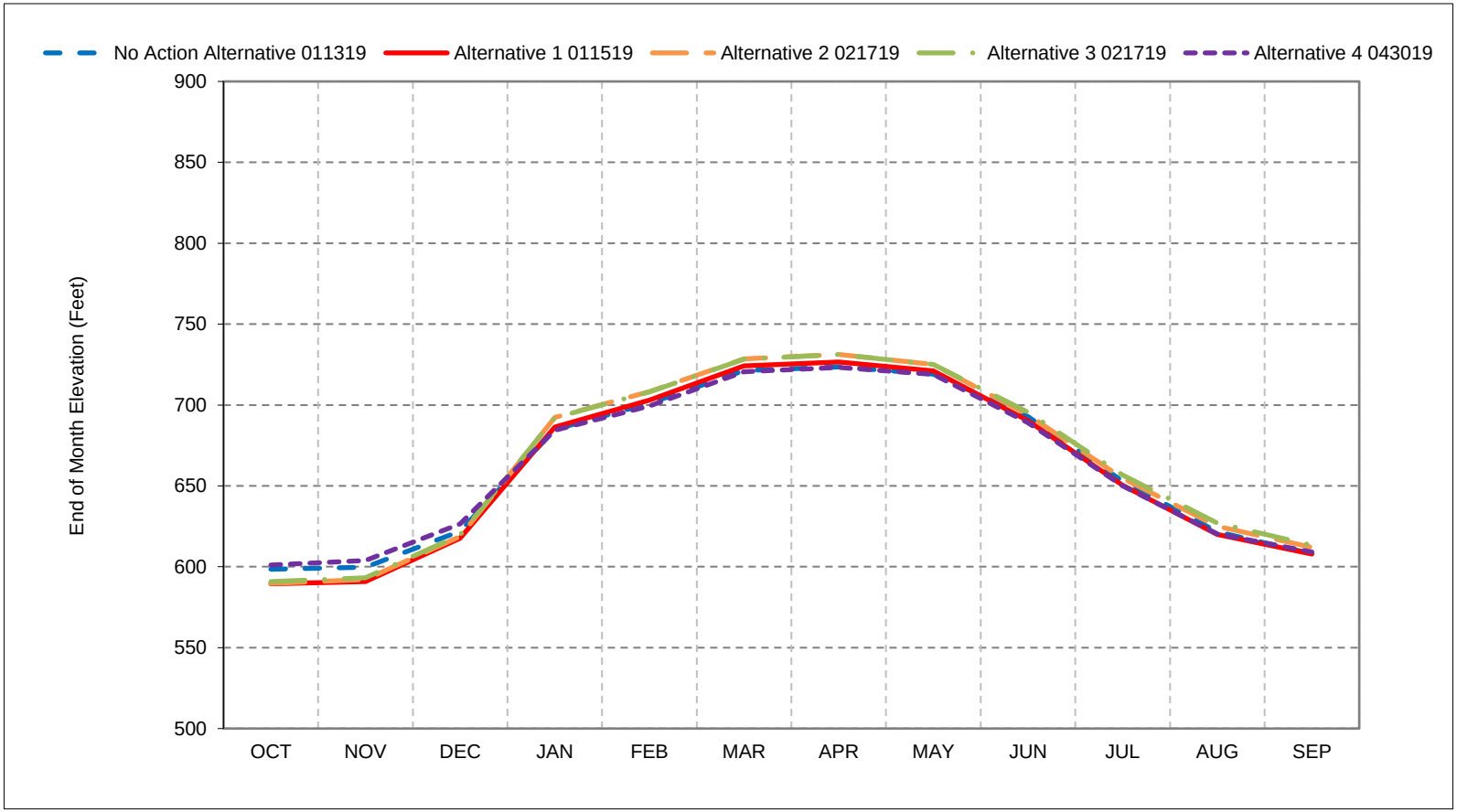
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4a-5. Lake Oroville Elevation, Dry Year Average Elevation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4a-6. Lake Oroville Elevation, Critical Year Average Elevation



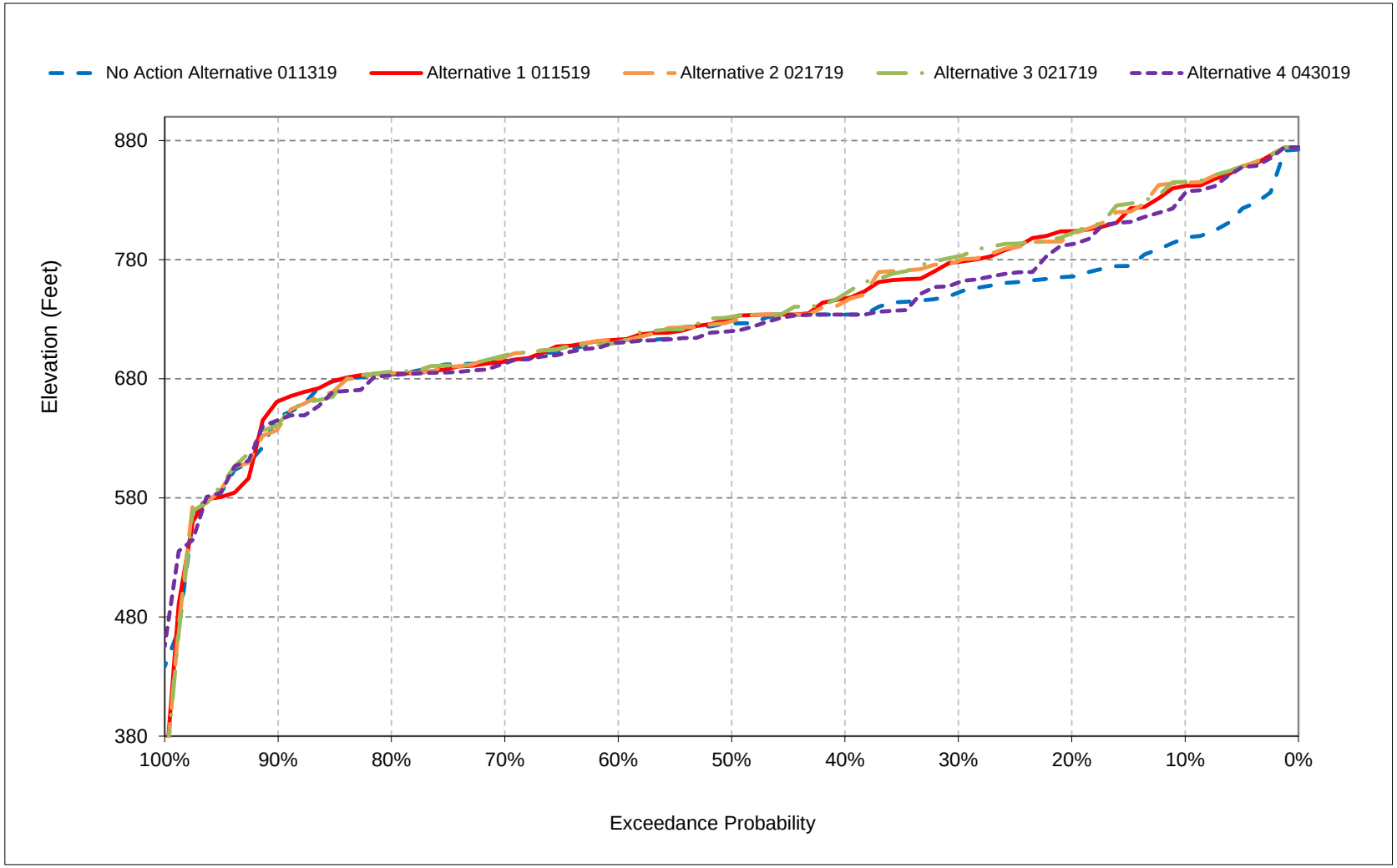
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

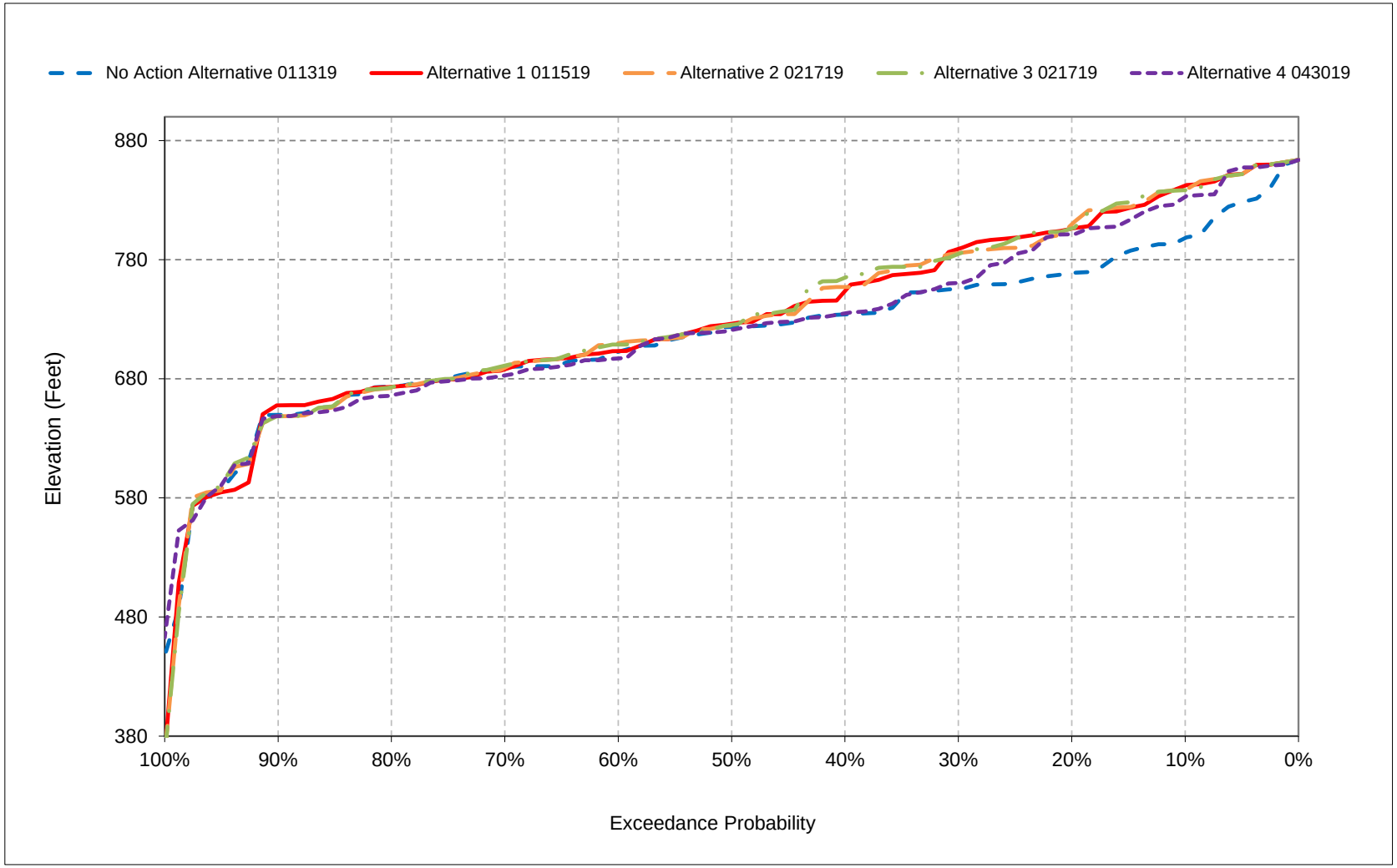
Figure 4a-7. Lake Oroville, Reservoir Pool Elevation, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

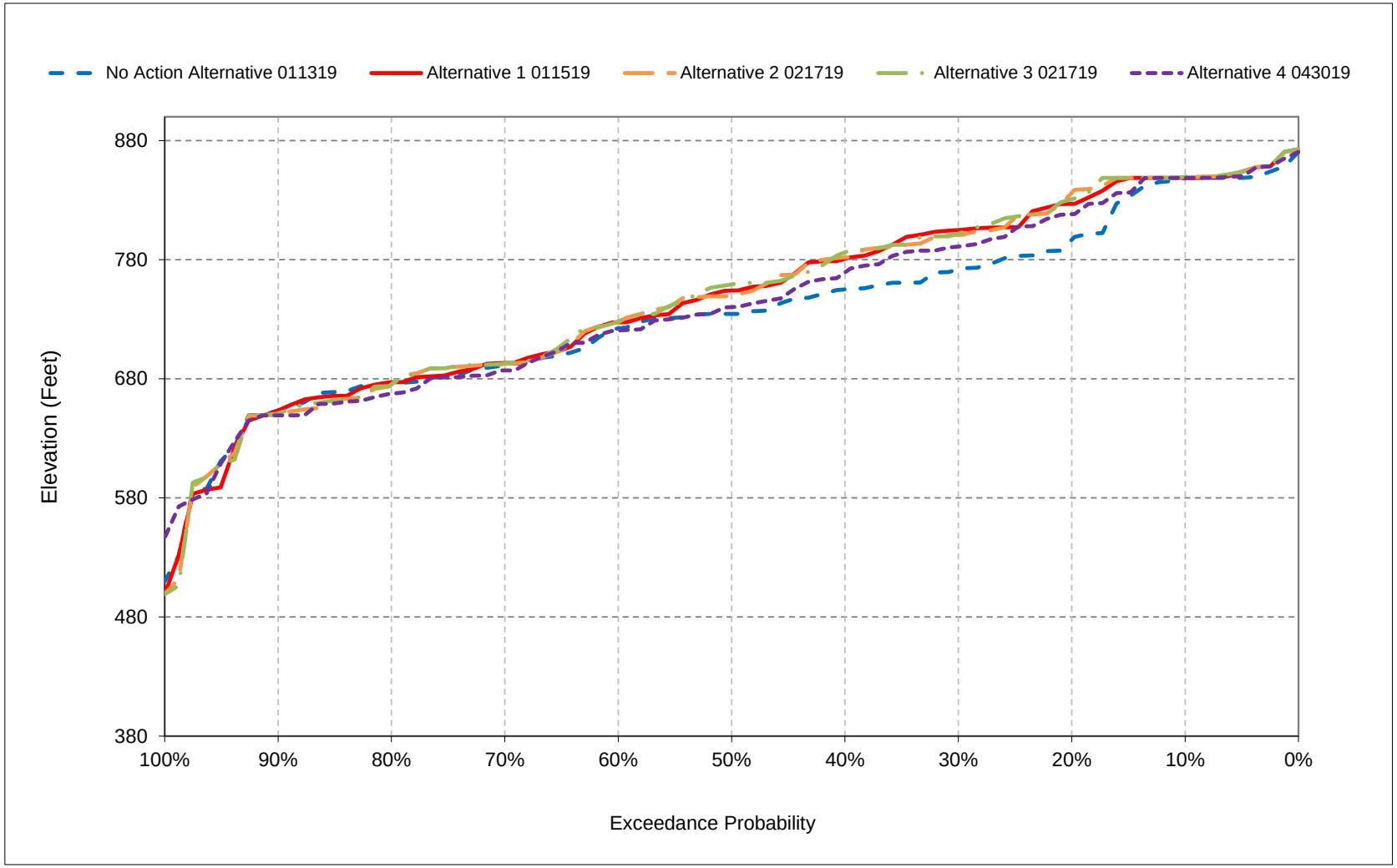
Figure 4a-8. Lake Oroville, Reservoir Pool Elevation, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

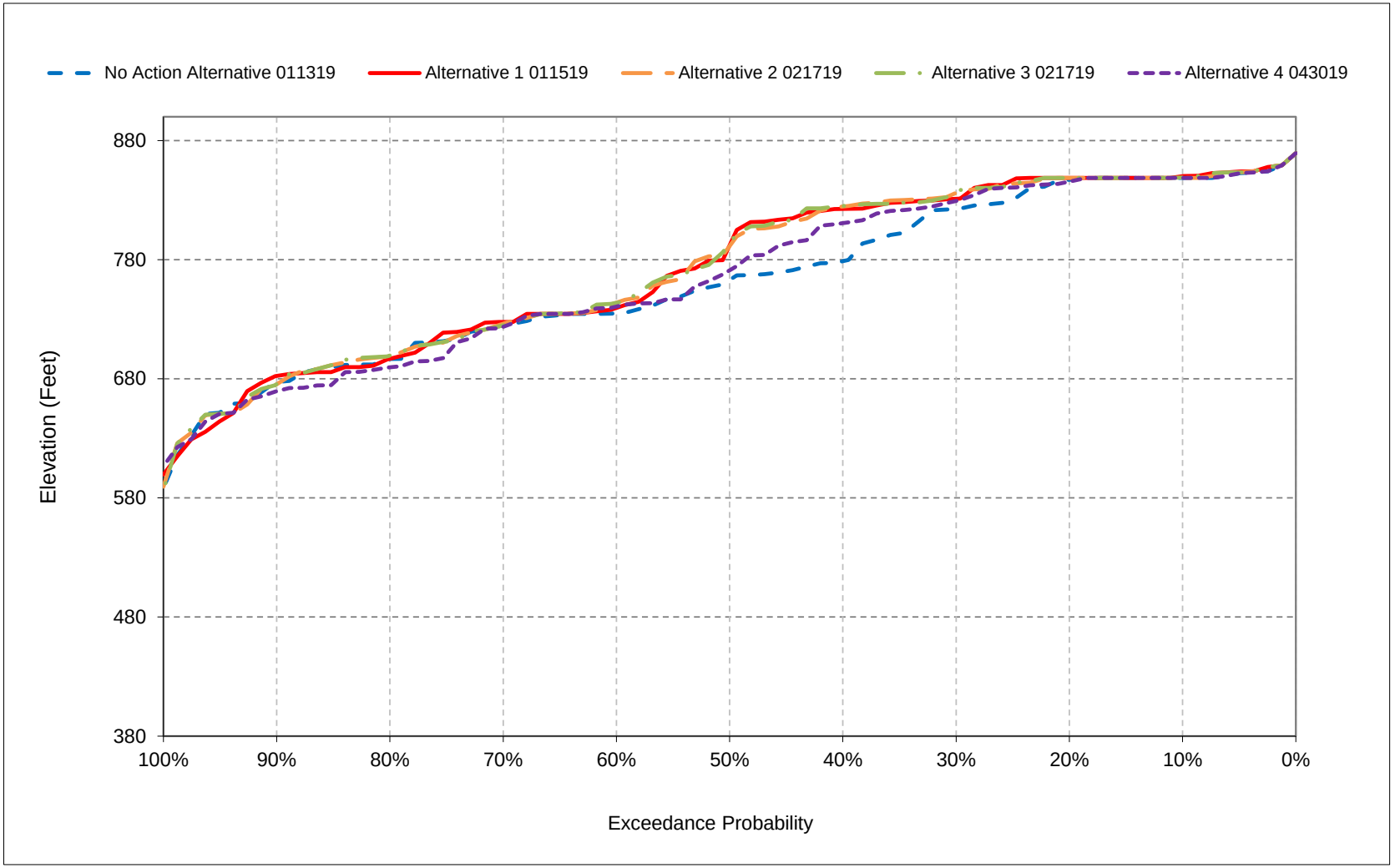
Figure 4a-9. Lake Oroville, Reservoir Pool Elevation, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

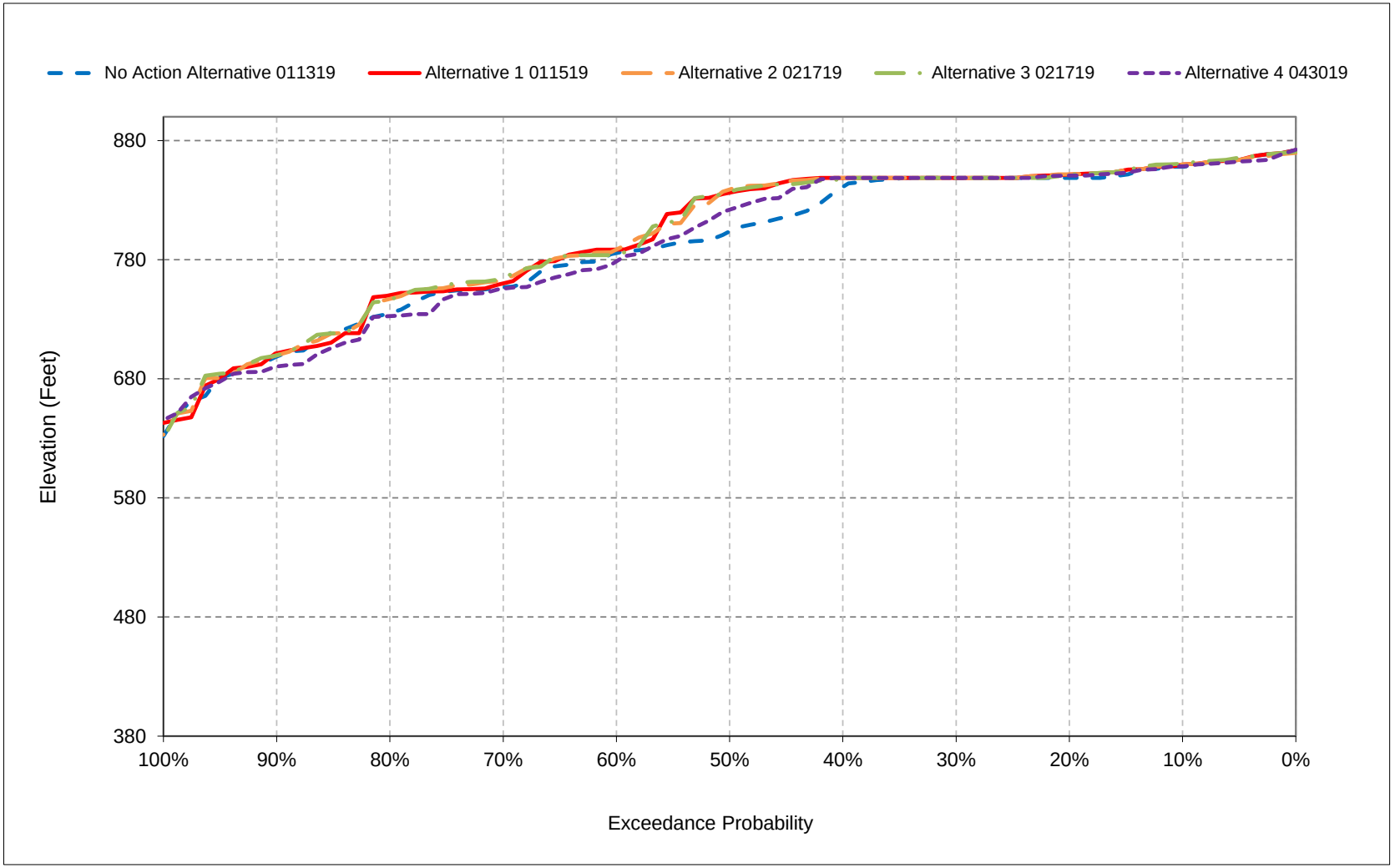
Figure 4a-10. Lake Oroville, Reservoir Pool Elevation, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

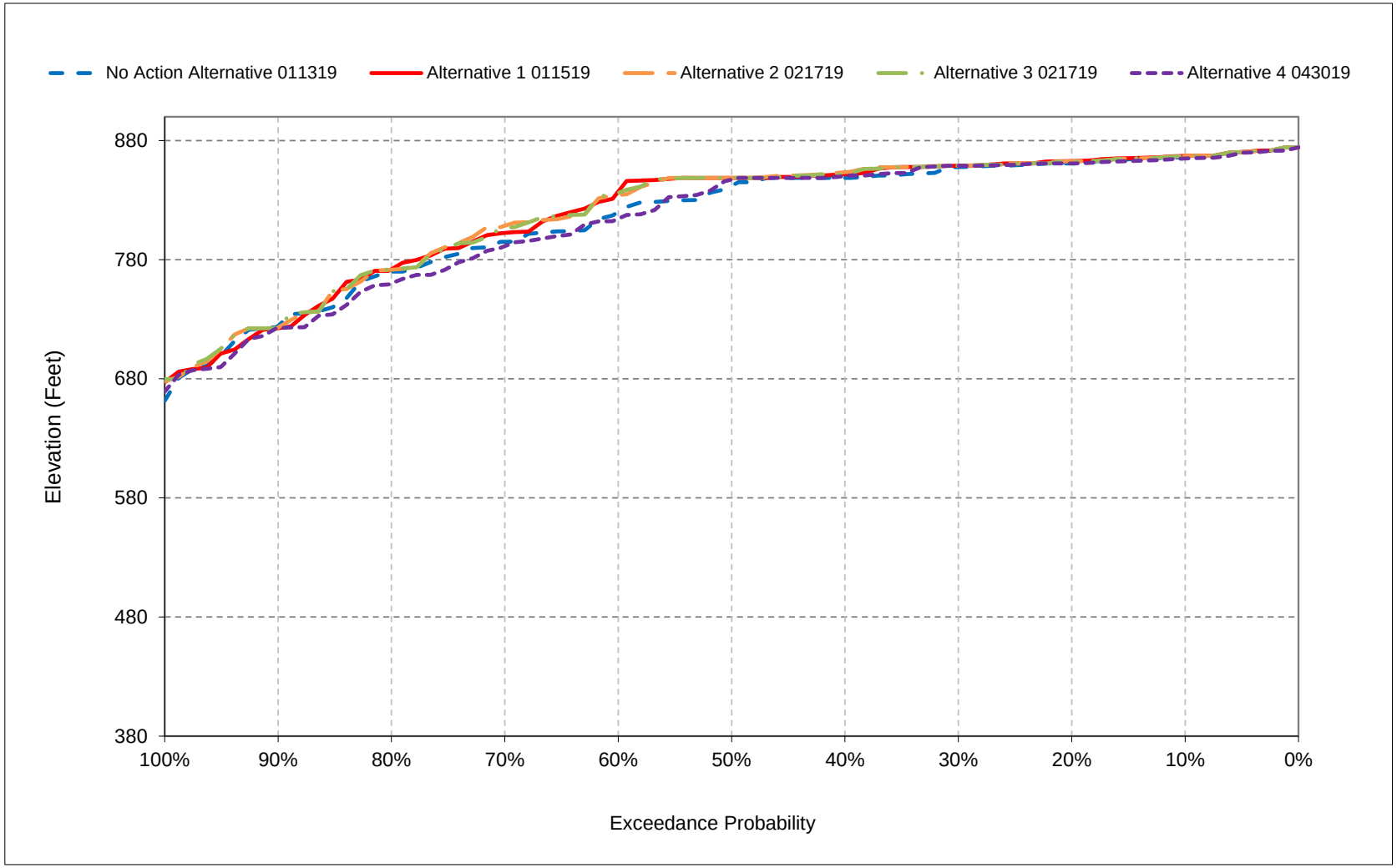
Figure 4a-11. Lake Oroville, Reservoir Pool Elevation, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

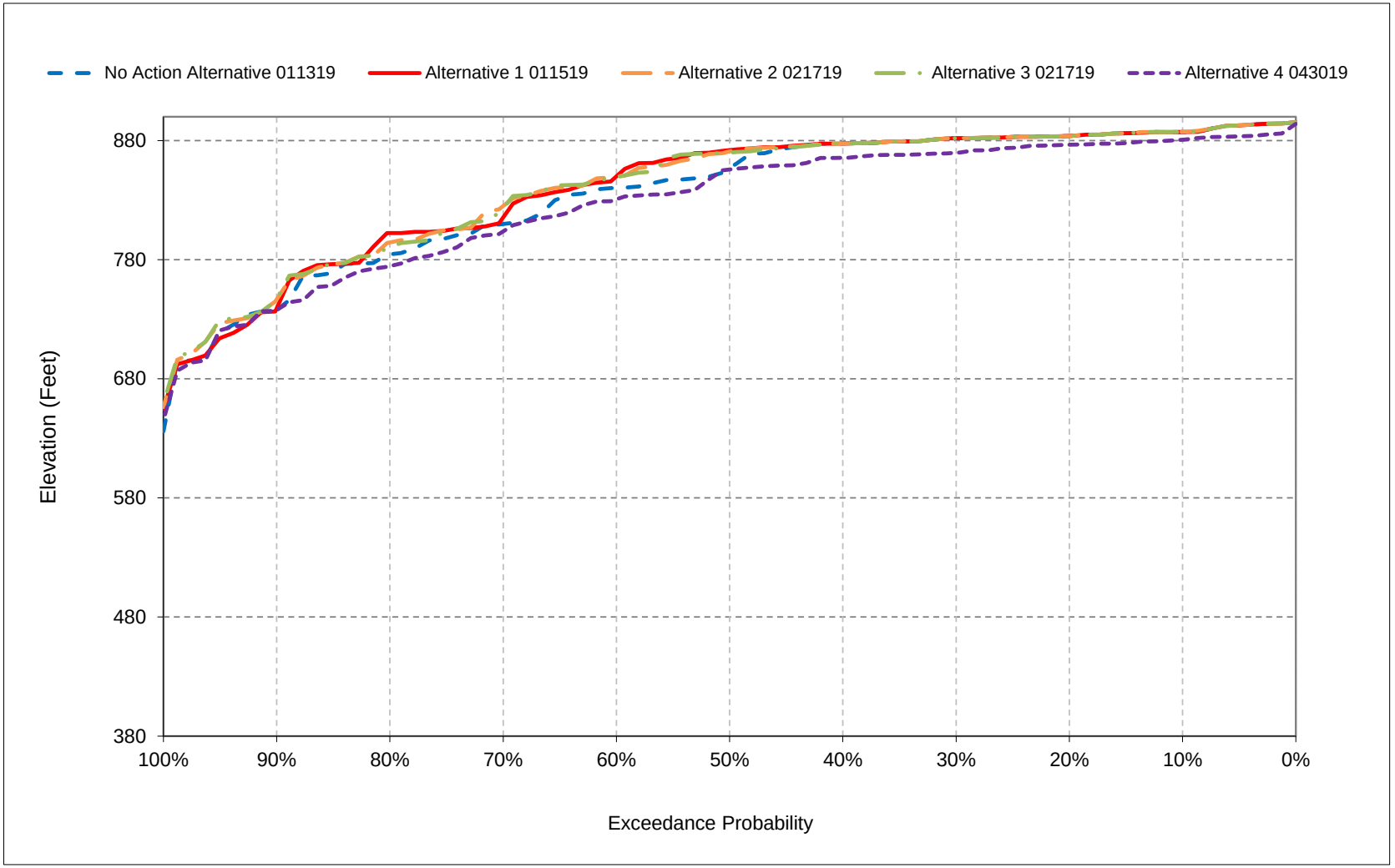
Figure 4a-12. Lake Oroville, Reservoir Pool Elevation, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

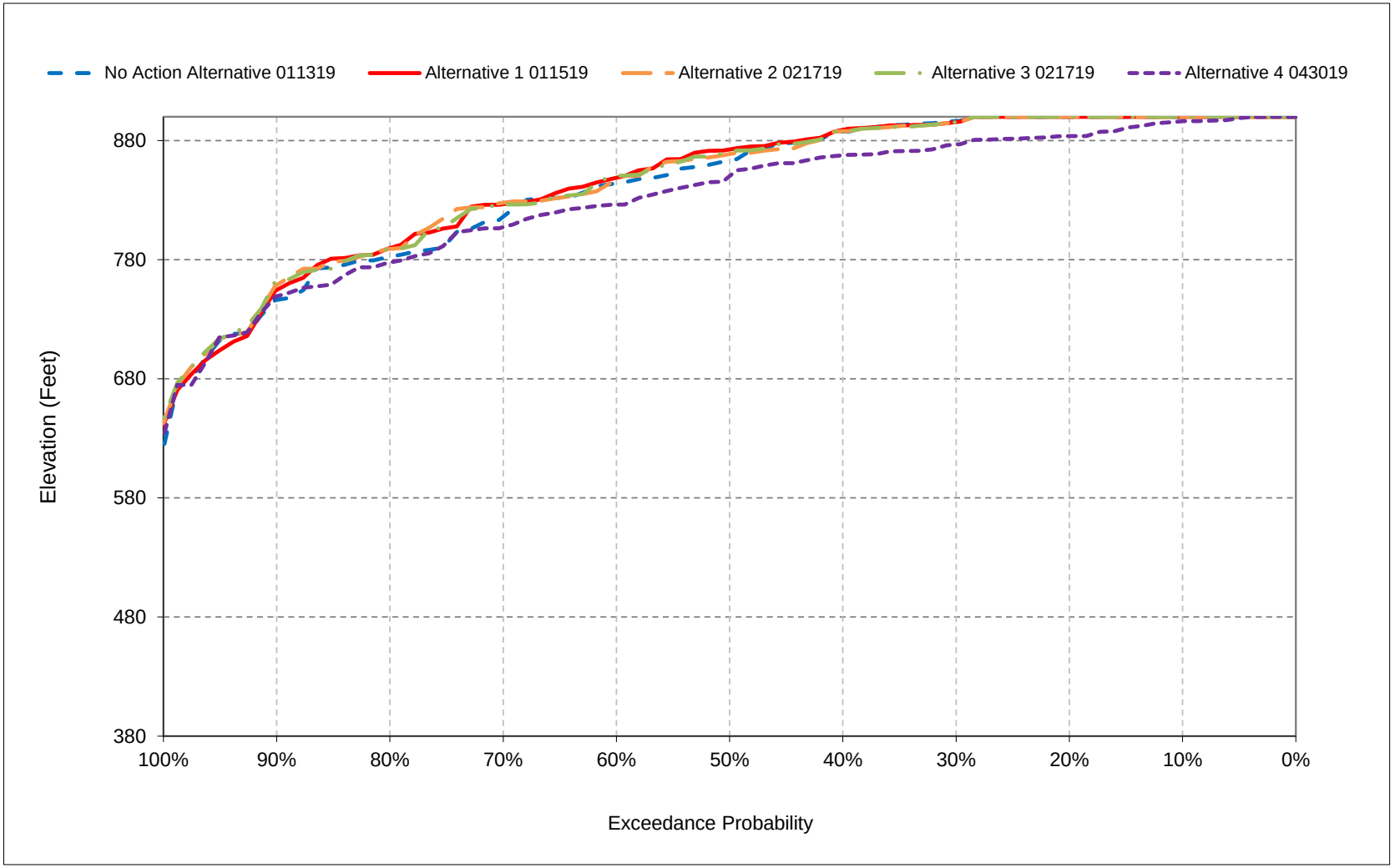
Figure 4a-13. Lake Oroville, Reservoir Pool Elevation, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

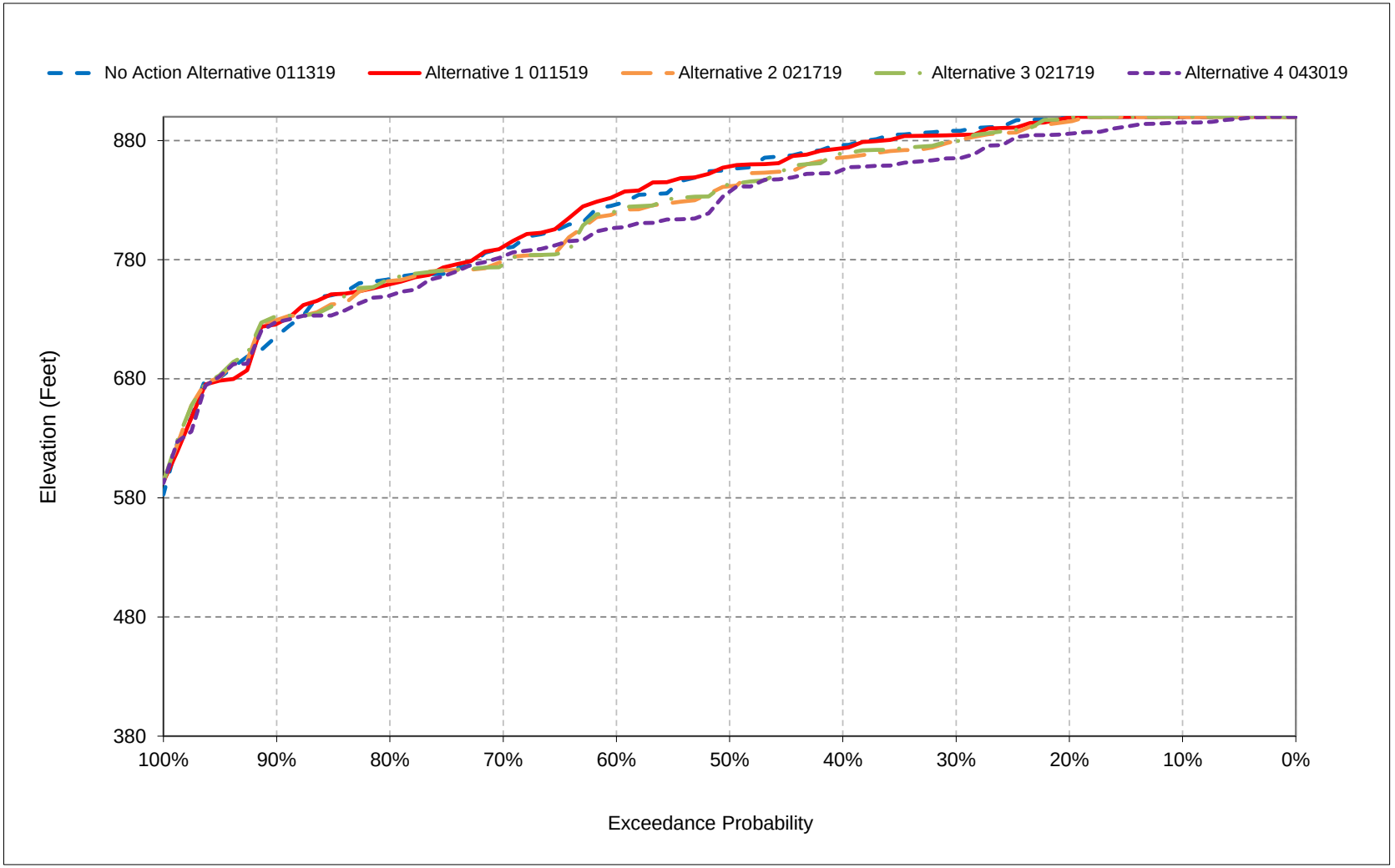
Figure 4a-14. Lake Oroville, Reservoir Pool Elevation, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

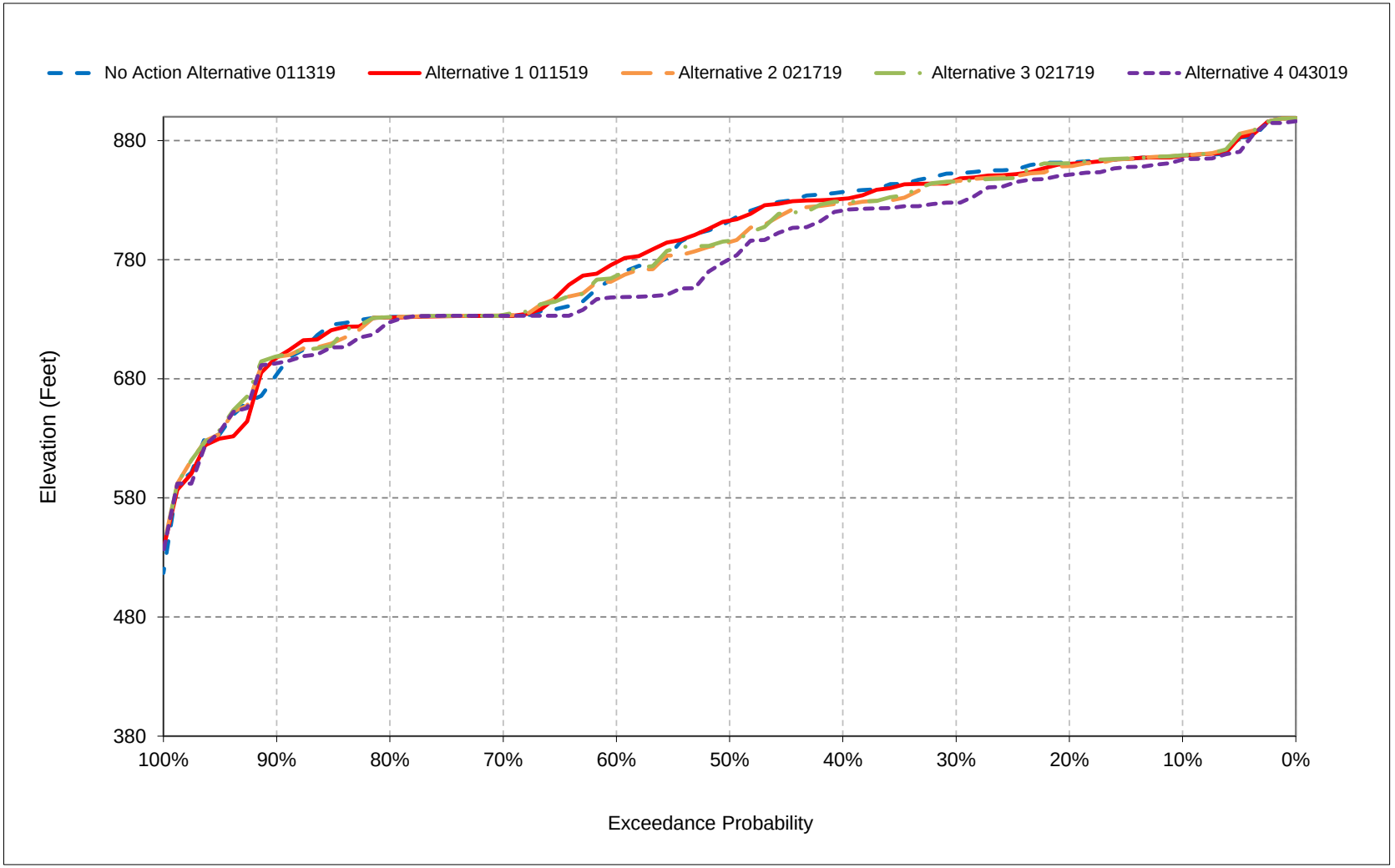
Figure 4a-15. Lake Oroville, Reservoir Pool Elevation, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

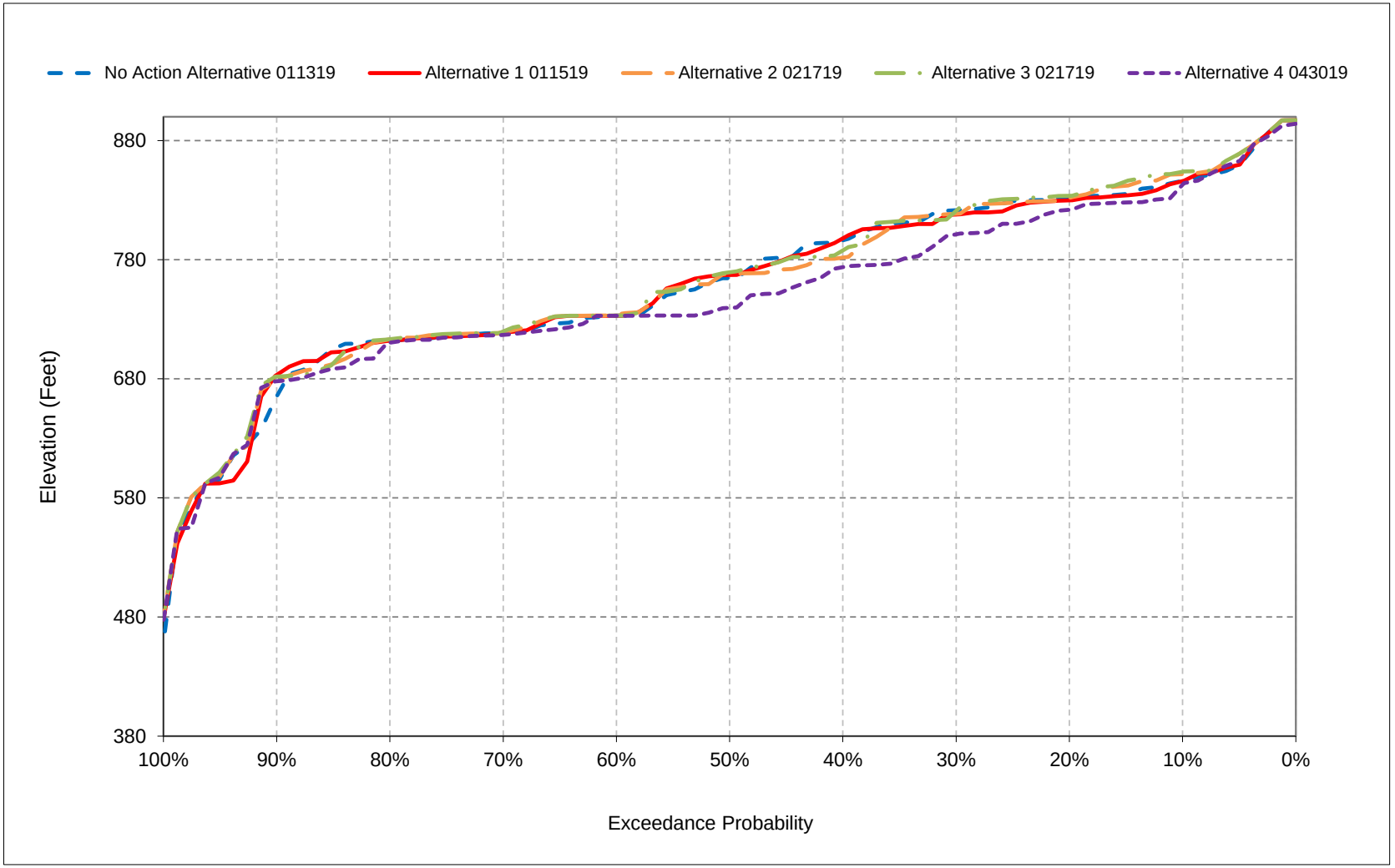
Figure 4a-16. Lake Oroville, Reservoir Pool Elevation, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

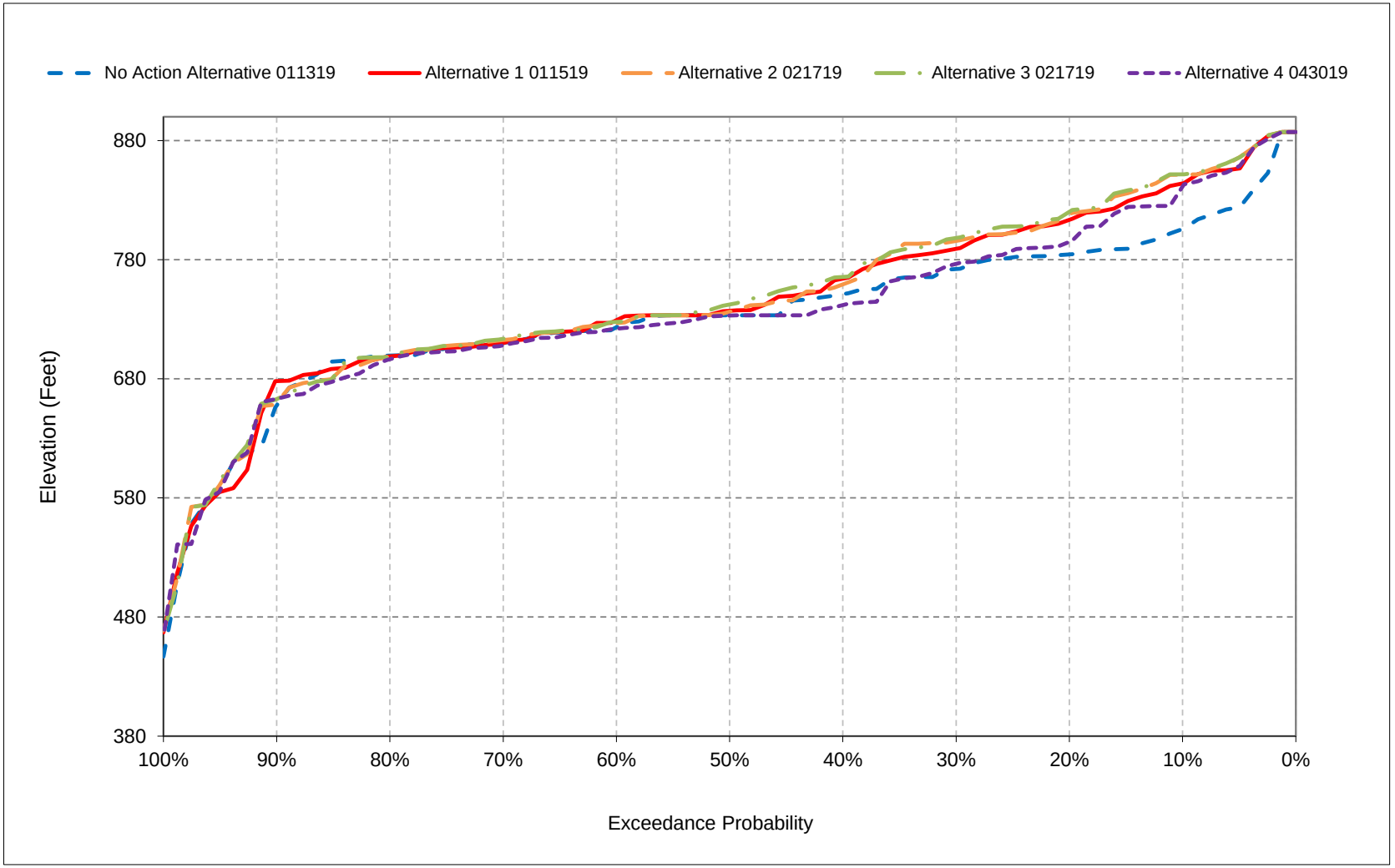
Figure 4a-17. Lake Oroville, Reservoir Pool Elevation, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4a-18. Lake Oroville, Reservoir Pool Elevation, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 5-1. Folsom Lake Storage, End of Month Storage

No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	592	542	567	567	567	659	792	967	967	913	792	681
20%	534	489	567	564	566	656	792	967	967	849	755	618
30%	492	457	521	557	558	652	792	967	955	755	683	570
40%	452	425	484	525	553	646	792	967	910	663	574	516
50%	403	413	447	482	530	632	792	960	842	599	532	474
60%	358	392	414	436	491	621	787	852	767	522	460	408
70%	327	347	382	412	457	599	731	751	667	450	399	380
80%	282	304	345	369	408	524	598	613	533	412	350	303
90%	256	240	257	294	368	409	488	481	433	350	305	262
Long Term												
Full Simulation Period[a]	411	396	437	457	486	586	709	816	763	606	531	465
Water Year Types[b,c]												
Wet (32%)	500	439	477	517	515	632	784	950	935	795	698	583
Above Normal (16%)	416	412	455	506	527	640	786	944	873	607	540	475
Below Normal (13%)	420	411	447	484	531	617	754	834	771	549	483	451
Dry (24%)	389	407	433	419	475	568	682	751	665	531	462	429
Critical (15%)	242	250	331	314	358	430	463	477	428	374	318	271

Alternative 1 011519

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	697	567	567	567	567	659	792	967	967	915	792	745
20%	635	565	567	567	567	656	792	967	967	851	747	670
30%	573	538	567	566	564	652	792	967	952	773	692	633
40%	495	521	541	558	558	642	792	967	883	669	587	531
50%	417	461	508	543	553	631	792	959	825	597	524	472
60%	390	423	470	502	528	621	788	880	766	551	488	437
70%	369	382	423	453	477	606	729	751	657	515	452	398
80%	341	353	385	417	448	556	653	649	577	435	373	349
90%	250	283	305	348	394	467	534	547	483	371	304	269
Long Term												
Full Simulation Period[a]	459	444	472	488	503	594	716	824	765	623	544	495
Water Year Types[b,c]												
Wet (32%)	612	533	527	523	515	632	786	954	930	809	712	663
Above Normal (16%)	451	449	487	538	539	640	789	948	867	628	558	505
Below Normal (13%)	397	405	447	544	548	623	756	828	754	547	461	415
Dry (24%)	418	445	463	442	498	581	697	769	680	562	489	442
Critical (15%)	261	282	373	383	405	460	484	496	447	382	331	283

Alternative 1 011519 minus No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	105	25	0	0	0	0	0	0	0	2	0	64
20%	101	76	0	3	1	0	0	0	0	2	**-8**	52
30%	81	81	46	9	6	0	0	0	**-3**	18	9	63
40%	43	96	57	33	5	**-4**	0	0	**-28**	6	13	15
50%	14	47	60	62	23	**-2**	0	**0**	**-17**	**-2**	**-7**	**-2**
60%	32	32	56	66	37	0	1	28	**-1**	29	28	29
70%	42	34	41	41	20	7	**-2**	**-1**	**-11**	65	53	18
80%	59	49	40	48	40	31	55	36	44	22	23	47
90%	**-6**	43	48	54	26	57	46	65	50	20	**-1**	7
Long Term												
Full Simulation Period[a]	48	49	35	31	17	8	8	8	2	17	13	30
Water Year Types[b,c]												
Wet (32%)	113	94	50	6	0	**0**	2	4	**-4**	15	14	80
Above Normal (16%)	35	37	32	32	13	0	3	4	**-6**	21	18	30
Below Normal (13%)	**-22**	**-6**	**0**	60	17	6	2	**-6**	**-16**	**-2**	**-22**	**-35**
Dry (24%)	29	39	31	23	23	13	15	18	15	31	28	13
Critical (15%)	20	31	43	69	47	30	20	19	19	8	14	12

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 5-2. Folsom Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	592	542	567	567	567	659	792	967	967	913	792	681
20%	534	489	567	564	566	656	792	967	967	849	755	618
30%	492	457	521	557	558	652	792	967	955	755	683	570
40%	452	425	484	525	553	646	792	967	910	663	574	516
50%	403	413	447	482	530	632	792	960	842	599	532	474
60%	358	392	414	436	491	621	787	852	767	522	460	408
70%	327	347	382	412	457	599	731	751	667	450	399	380
80%	282	304	345	369	408	524	598	613	533	412	350	303
90%	256	240	257	294	368	409	488	481	433	350	305	262
Long Term												
Full Simulation Period[a]	411	396	437	457	486	586	709	816	763	606	531	465
Water Year Types[b,c]												
Wet (32%)	500	439	477	517	515	632	784	950	935	795	698	583
Above Normal (16%)	416	412	455	506	527	640	786	944	873	607	540	475
Below Normal (13%)	420	411	447	484	531	617	754	834	771	549	483	451
Dry (24%)	389	407	433	419	475	568	682	751	665	531	462	429
Critical (15%)	242	250	331	314	358	430	463	477	428	374	318	271

Alternative 2 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	691	567	567	567	567	661	792	967	967	915	792	752
20%	610	565	567	567	566	656	792	967	967	834	741	665
30%	557	538	562	562	558	652	792	967	922	759	668	601
40%	473	490	522	554	554	644	792	965	862	630	554	512
50%	372	412	476	512	533	632	792	942	756	546	473	424
60%	337	378	434	466	492	621	787	840	664	465	405	383
70%	300	338	376	423	457	595	728	734	592	414	367	345
80%	278	292	339	373	428	544	633	625	542	370	321	302
90%	214	254	264	290	384	451	484	469	435	277	258	225
Long Term												
Full Simulation Period[a]	425	416	449	468	490	588	709	809	730	578	504	466
Water Year Types[b,c]												
Wet (32%)	594	529	527	523	515	632	784	946	914	795	687	647
Above Normal (16%)	392	412	468	536	537	640	787	939	802	536	472	437
Below Normal (13%)	361	379	432	515	541	625	762	827	702	479	405	369
Dry (24%)	382	398	425	422	477	573	686	745	651	519	462	428
Critical (15%)	226	238	317	311	356	429	451	457	413	345	304	257

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	99	25	0	0	0	2	0	0	0	2	0	71
20%	76	76	0	3	0	0	0	0	0	**-15**	**-14**	47
30%	65	81	42	5	0	0	0	0	**-33**	4	**-15**	31
40%	20	65	38	29	2	**-2**	0	**-2**	**-48**	**-32**	**-19**	**-4**
50%	**-31**	**-1**	29	30	3	**0**	0	**-18**	**-86**	**-53**	**-59**	**-50**
60%	**-21**	**-14**	20	30	1	**0**	0	**-12**	**-103**	**-57**	**-54**	**-25**
70%	**-27**	**-9**	**-6**	11	0	**-4**	**-3**	**-18**	**-75**	**-36**	**-32**	**-35**
80%	**-4**	**-12**	**-6**	3	20	19	36	12	8	**-42**	**-28**	**0**
90%	**-42**	14	7	**-3**	16	42	**-4**	**-12**	2	**-73**	**-48**	**-37**
Long Term												
Full Simulation Period[a]	14	20	12	11	3	2	0	**-7**	**-33**	**-28**	**-27**	1
Water Year Types[b,c]												
Wet (32%)	94	90	49	6	0	**0**	**0**	**-3**	**-21**	0	**-12**	64
Above Normal (16%)	**-24**	0	13	29	10	0	1	**-5**	**-71**	**-71**	**-68**	**-38**
Below Normal (13%)	**-59**	**-32**	**-15**	31	10	8	7	**-7**	**-68**	**-70**	**-79**	**-81**
Dry (24%)	**-7**	**-8**	**-7**	2	3	5	4	**-6**	**-14**	**-11**	0	**-1**
Critical (15%)	**-16**	**-13**	**-14**	**-3**	**-2**	**-1**	**-12**	**-20**	**-15**	**-29**	**-14**	**-14**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 5-3. Folsom Lake Storage, End of Month Storage

No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	592	542	567	567	567	659	792	967	967	913	792	681
20%	534	489	567	564	566	656	792	967	967	849	755	618
30%	492	457	521	557	558	652	792	967	955	755	683	570
40%	452	425	484	525	553	646	792	967	910	663	574	516
50%	403	413	447	482	530	632	792	960	842	599	532	474
60%	358	392	414	436	491	621	787	852	767	522	460	408
70%	327	347	382	412	457	599	731	751	667	450	399	380
80%	282	304	345	369	408	524	598	613	533	412	350	303
90%	256	240	257	294	368	409	488	481	433	350	305	262
Long Term												
Full Simulation Period[a]	411	396	437	457	486	586	709	816	763	606	531	465
Water Year Types[b,c]												
Wet (32%)	500	439	477	517	515	632	784	950	935	795	698	583
Above Normal (16%)	416	412	455	506	527	640	786	944	873	607	540	475
Below Normal (13%)	420	411	447	484	531	617	754	834	771	549	483	451
Dry (24%)	389	407	433	419	475	568	682	751	665	531	462	429
Critical (15%)	242	250	331	314	358	430	463	477	428	374	318	271

Alternative 3 021719

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	699	567	567	567	567	661	792	967	967	915	792	752
20%	603	565	567	565	567	656	792	967	967	843	741	666
30%	544	536	562	562	559	652	792	967	948	754	671	597
40%	484	484	525	553	554	644	792	965	876	635	563	521
50%	371	412	480	520	534	630	792	941	769	558	475	429
60%	327	379	446	466	496	621	789	847	690	472	407	379
70%	305	345	395	421	456	595	728	729	592	414	368	349
80%	286	297	333	378	424	553	628	626	536	383	328	305
90%	248	255	246	290	383	435	487	479	430	300	278	246
Long Term												
Full Simulation Period[a]	428	417	451	468	490	589	709	810	735	583	508	470
Water Year Types[b,c]												
Wet (32%)	593	530	527	524	515	632	784	950	917	790	686	649
Above Normal (16%)	390	411	469	536	537	640	787	939	819	549	474	431
Below Normal (13%)	376	387	436	514	541	625	759	824	704	498	426	389
Dry (24%)	384	396	424	423	481	577	689	748	654	519	463	429
Critical (15%)	232	243	324	306	353	427	450	456	412	354	309	262

Alternative 3 021719 minus No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	107	25	0	0	0	2	0	0	0	2	0	71
20%	69	76	0	1	1	0	0	0	0	**-6**	**-14**	47
30%	52	79	41	5	1	0	0	0	**-7**	**-1**	**-12**	27
40%	32	59	41	28	2	**-2**	0	**-2**	**-35**	**-28**	**-11**	6
50%	**-32**	**-1**	33	38	5	**-3**	0	**-18**	**-73**	**-41**	**-57**	**-45**
60%	**-30**	**-13**	31	30	5	**0**	2	**-6**	**-77**	**-51**	**-53**	**-29**
70%	**-23**	**-3**	13	9	**-1**	**-4**	**-3**	**-23**	**-75**	**-36**	**-31**	**-31**
80%	4	**-7**	**-12**	8	16	29	30	13	3	**-29**	**-22**	2
90%	**-8**	16	**-11**	**-3**	15	26	**0**	**-3**	**-4**	**-50**	**-28**	**-16**
Long Term												
Full Simulation Period[a]	17	22	13	11	4	3	1	**-6**	**-28**	**-23**	**-23**	5
Water Year Types[b,c]												
Wet (32%)	94	91	50	7	0	**0**	**0**	**0**	**-18**	**-5**	**-13**	66
Above Normal (16%)	**-27**	**-1**	13	30	10	0	1	**-5**	**-54**	**-59**	**-66**	**-43**
Below Normal (13%)	**-44**	**-24**	**-11**	30	10	8	5	**-10**	**-66**	**-51**	**-58**	**-61**
Dry (24%)	**-6**	**-10**	**-9**	4	6	9	7	**-4**	**-12**	**-11**	1	1
Critical (15%)	**-9**	**-7**	**-7**	**-8**	**-4**	**-3**	**-13**	**-21**	**-16**	**-20**	**-9**	**-9**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 5-4. Folsom Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	592	542	567	567	567	659	792	967	967	913	792	681
20%	534	489	567	564	566	656	792	967	967	849	755	618
30%	492	457	521	557	558	652	792	967	955	755	683	570
40%	452	425	484	525	553	646	792	967	910	663	574	516
50%	403	413	447	482	530	632	792	960	842	599	532	474
60%	358	392	414	436	491	621	787	852	767	522	460	408
70%	327	347	382	412	457	599	731	751	667	450	399	380
80%	282	304	345	369	408	524	598	613	533	412	350	303
90%	256	240	257	294	368	409	488	481	433	350	305	262
Long Term												
Full Simulation Period[a]	411	396	437	457	486	586	709	816	763	606	531	465
Water Year Types[b,c]												
Wet (32%)	500	439	477	517	515	632	784	950	935	795	698	583
Above Normal (16%)	416	412	455	506	527	640	786	944	873	607	540	475
Below Normal (13%)	420	411	447	484	531	617	754	834	771	549	483	451
Dry (24%)	389	407	433	419	475	568	682	751	665	531	462	429
Critical (15%)	242	250	331	314	358	430	463	477	428	374	318	271

Alternative 4 043019

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	675	567	567	567	567	658	792	967	967	898	775	725
20%	574	567	567	567	567	655	792	967	943	807	717	645
30%	515	531	567	565	563	649	792	959	903	701	619	563
40%	474	491	543	559	557	640	792	890	836	658	576	522
50%	428	457	503	543	549	629	776	858	792	601	525	473
60%	392	424	445	497	497	620	747	798	756	550	487	438
70%	357	382	415	439	468	595	699	742	644	500	440	396
80%	339	351	378	383	441	541	629	655	585	443	378	349
90%	282	299	303	316	386	467	538	530	477	395	343	305
Long Term												
Full Simulation Period[a]	448	441	468	483	497	590	706	795	750	611	535	487
Water Year Types[b,c]												
Wet (32%)	596	530	525	523	515	632	776	922	910	794	699	650
Above Normal (16%)	439	438	475	538	539	640	782	908	851	621	548	496
Below Normal (13%)	413	422	454	543	549	624	745	805	743	560	473	426
Dry (24%)	398	435	459	428	480	568	678	733	661	535	470	424
Critical (15%)	254	277	368	372	391	452	482	492	447	374	328	287

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	83	25	0	0	0	**-1**	0	0	0	**-15**	**-17**	44
20%	40	78	0	3	1	**-1**	0	0	**-24**	**-42**	**-38**	27
30%	23	74	46	8	5	**-3**	0	**-8**	**-52**	**-55**	**-64**	**-7**
40%	21	66	58	34	4	**-6**	0	**-77**	**-75**	**-5**	2	6
50%	25	44	56	62	20	**-4**	**-16**	**-101**	**-50**	2	**-7**	**0**
60%	34	32	31	61	7	**-2**	**-40**	**-54**	**-11**	28	27	30
70%	29	34	33	26	11	**-4**	**-32**	**-9**	**-24**	49	41	16
80%	57	47	33	14	33	17	31	41	52	30	29	46
90%	26	60	46	23	18	57	50	49	44	45	38	43
Long Term												
Full Simulation Period[a]	37	46	31	26	11	4	**-3**	**-21**	**-13**	5	4	22
Water Year Types[b,c]												
Wet (32%)	96	91	47	6	0	**0**	**-8**	**-28**	**-25**	**0**	1	67
Above Normal (16%)	23	26	20	32	13	0	**-4**	**-36**	**-22**	14	8	21
Below Normal (13%)	**-7**	12	7	59	18	7	**-10**	**-29**	**-27**	11	**-10**	**-24**
Dry (24%)	9	29	26	9	6	1	**-4**	**-18**	**-4**	4	9	**-5**
Critical (15%)	13	27	37	58	33	21	19	15	19	**0**	10	16

a Based on the 82-year simulation period.

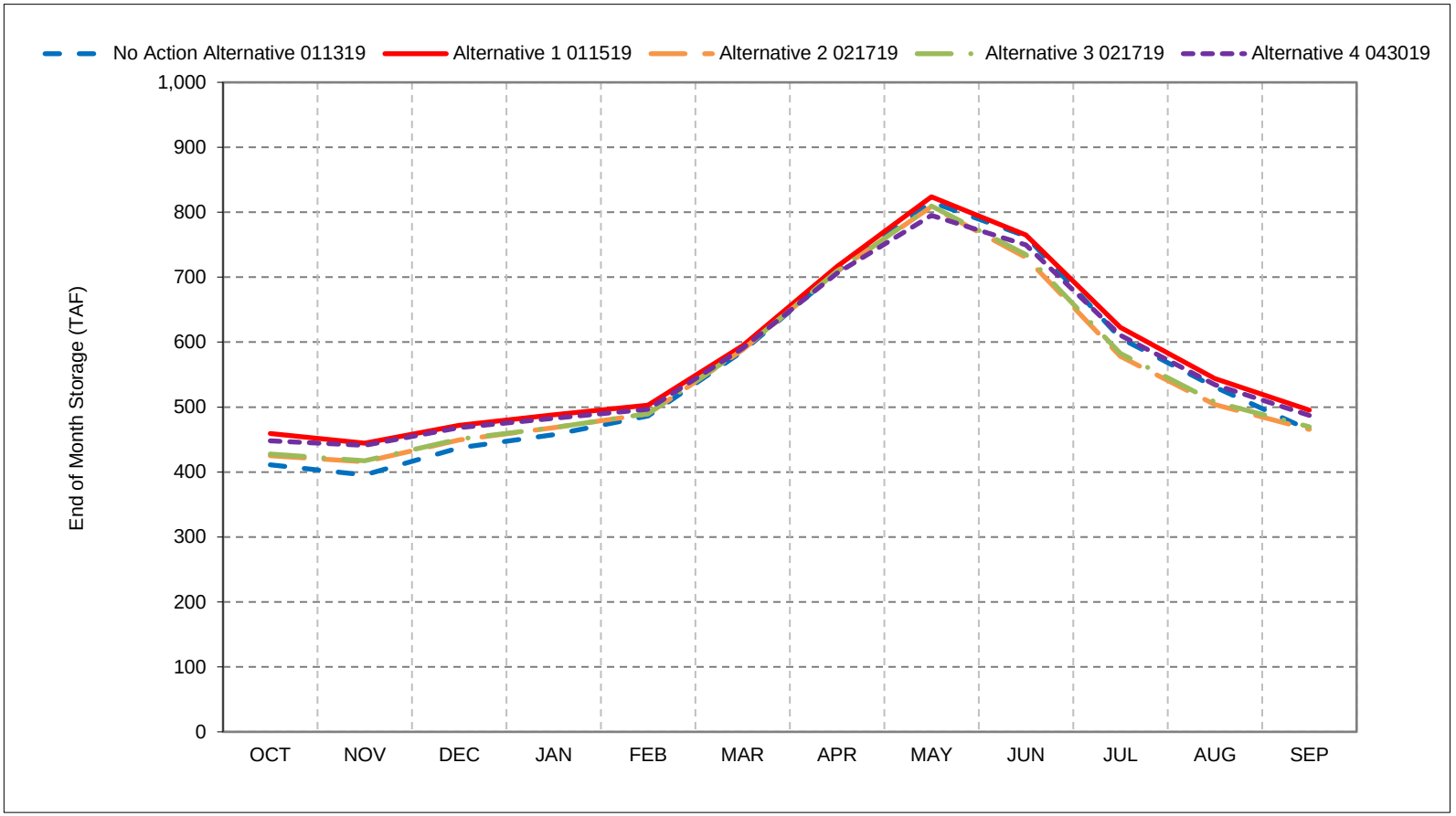
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

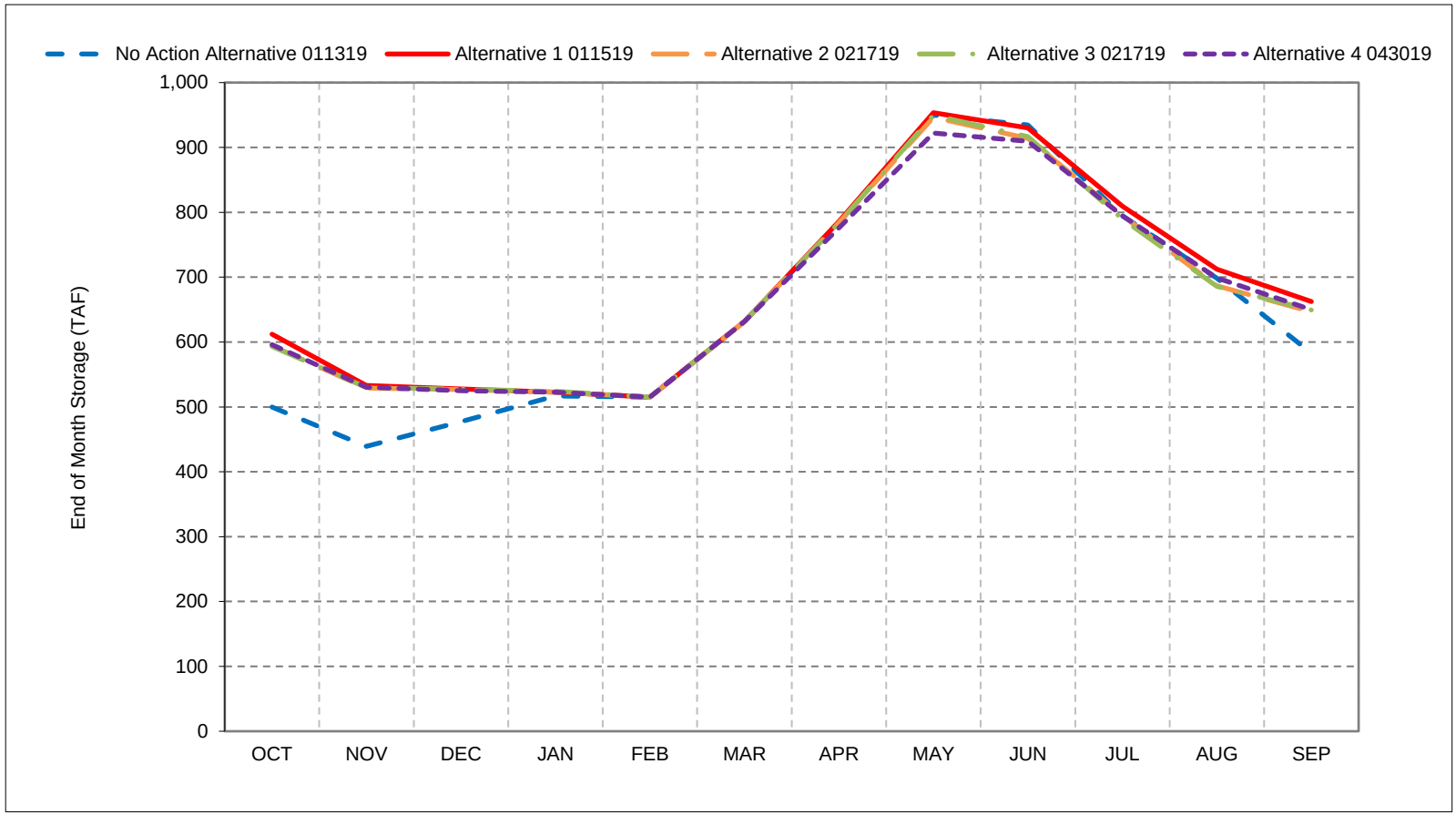
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-1. Folsom Lake Storage, Long-Term Average Storage



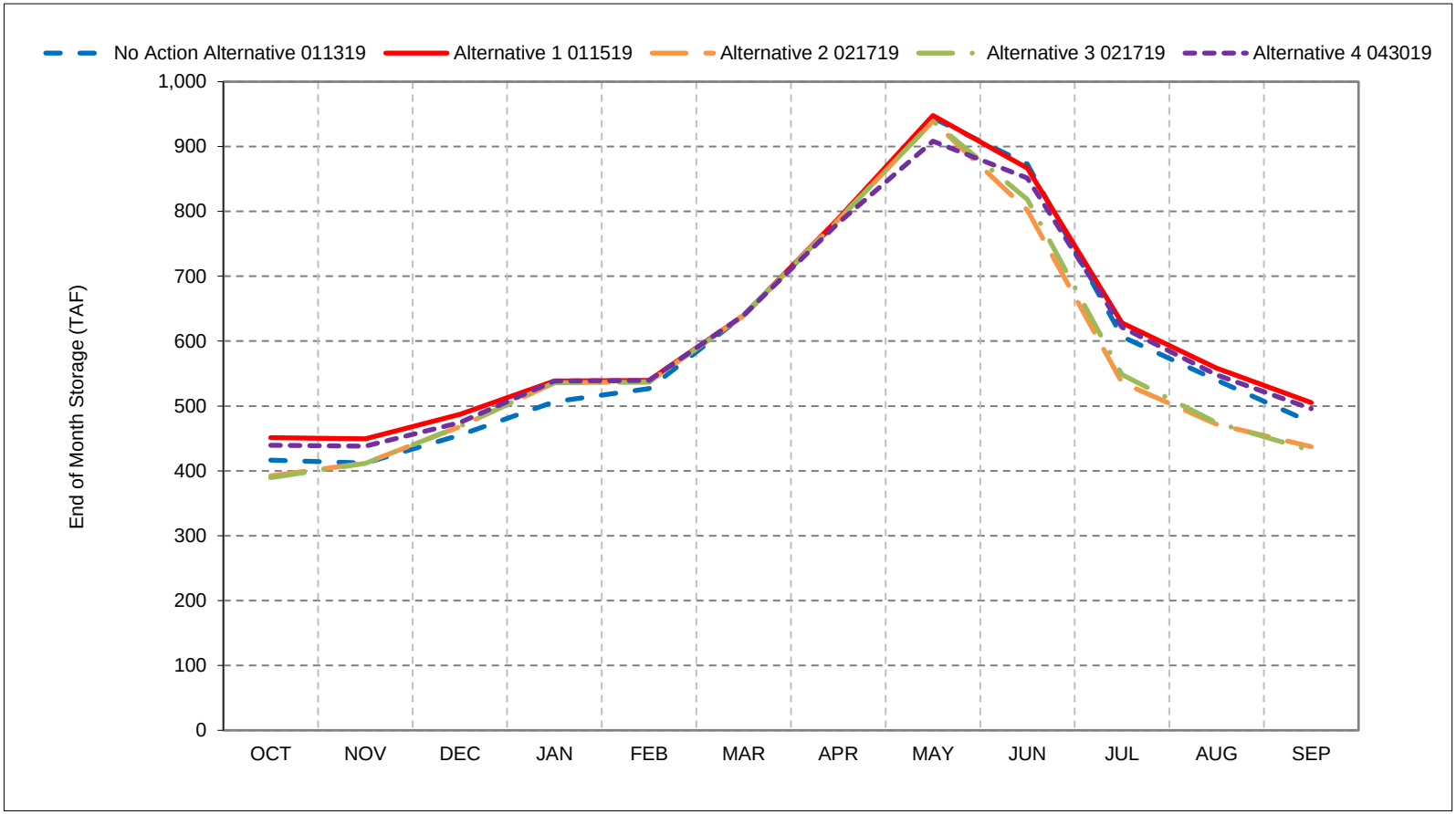
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-2. Folsom Lake Storage, Wet Year Average Storage



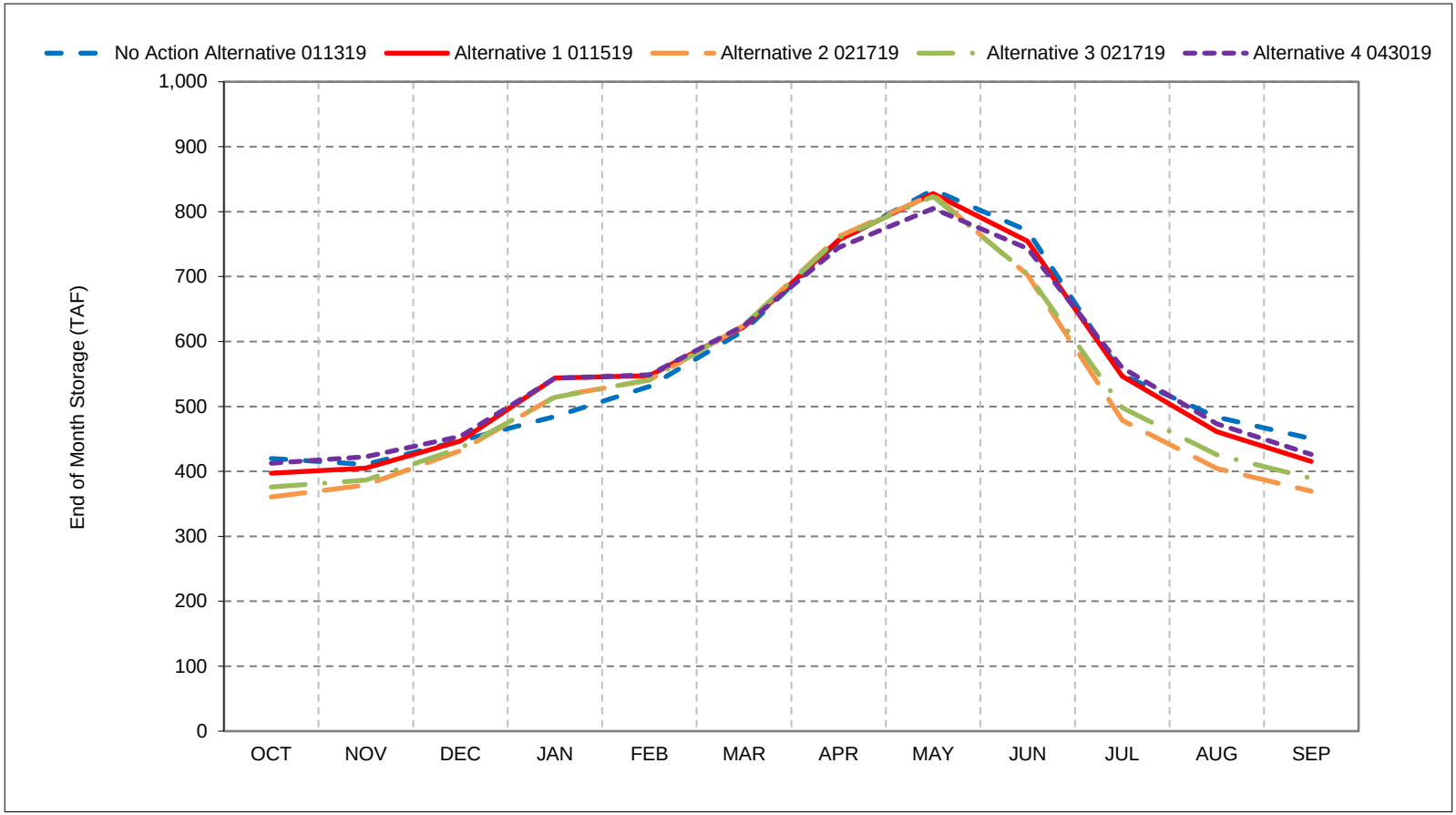
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-3. Folsom Lake Storage, Above Normal Year Average Storage



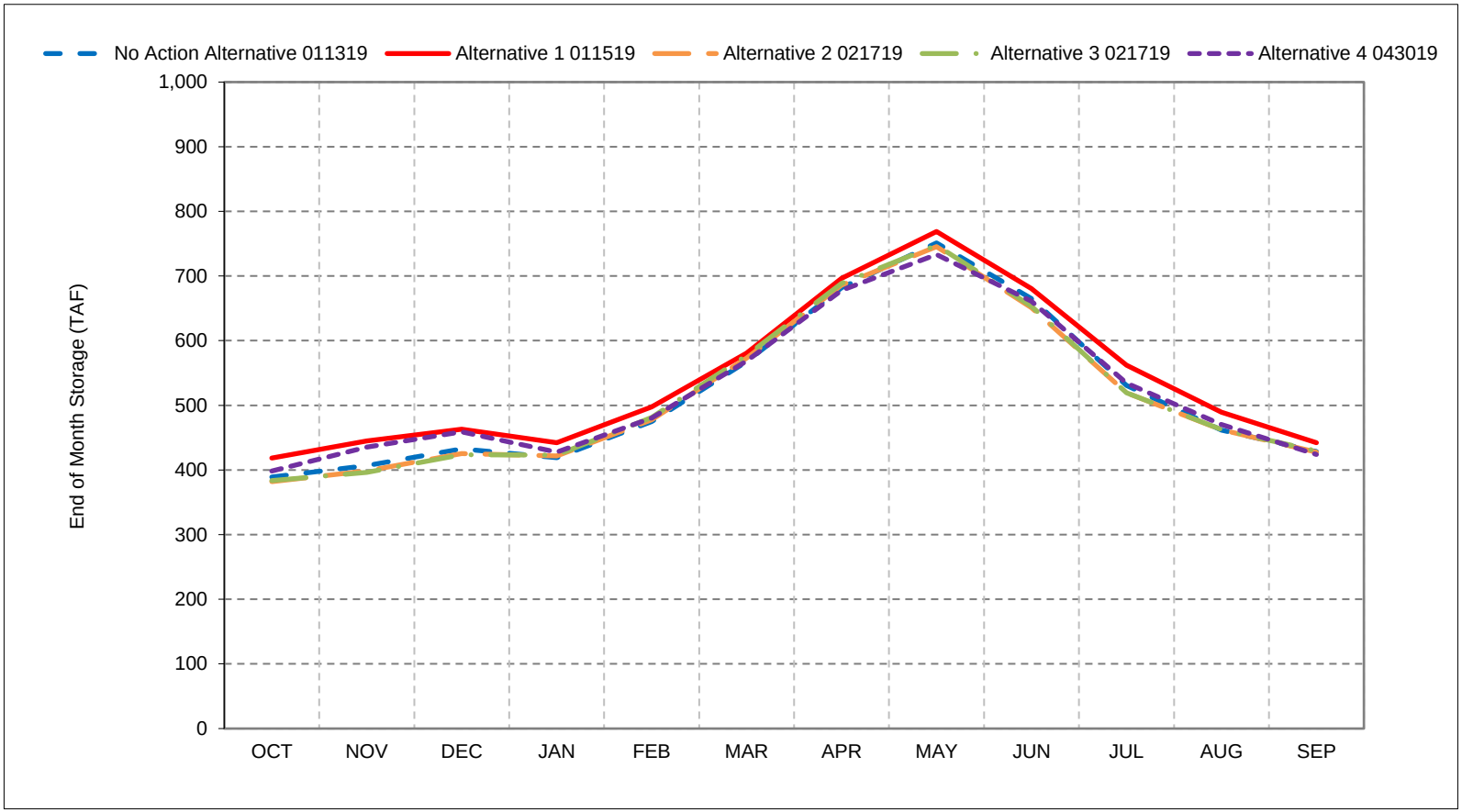
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-4. Folsom Lake Storage, Below Normal Year Average Storage



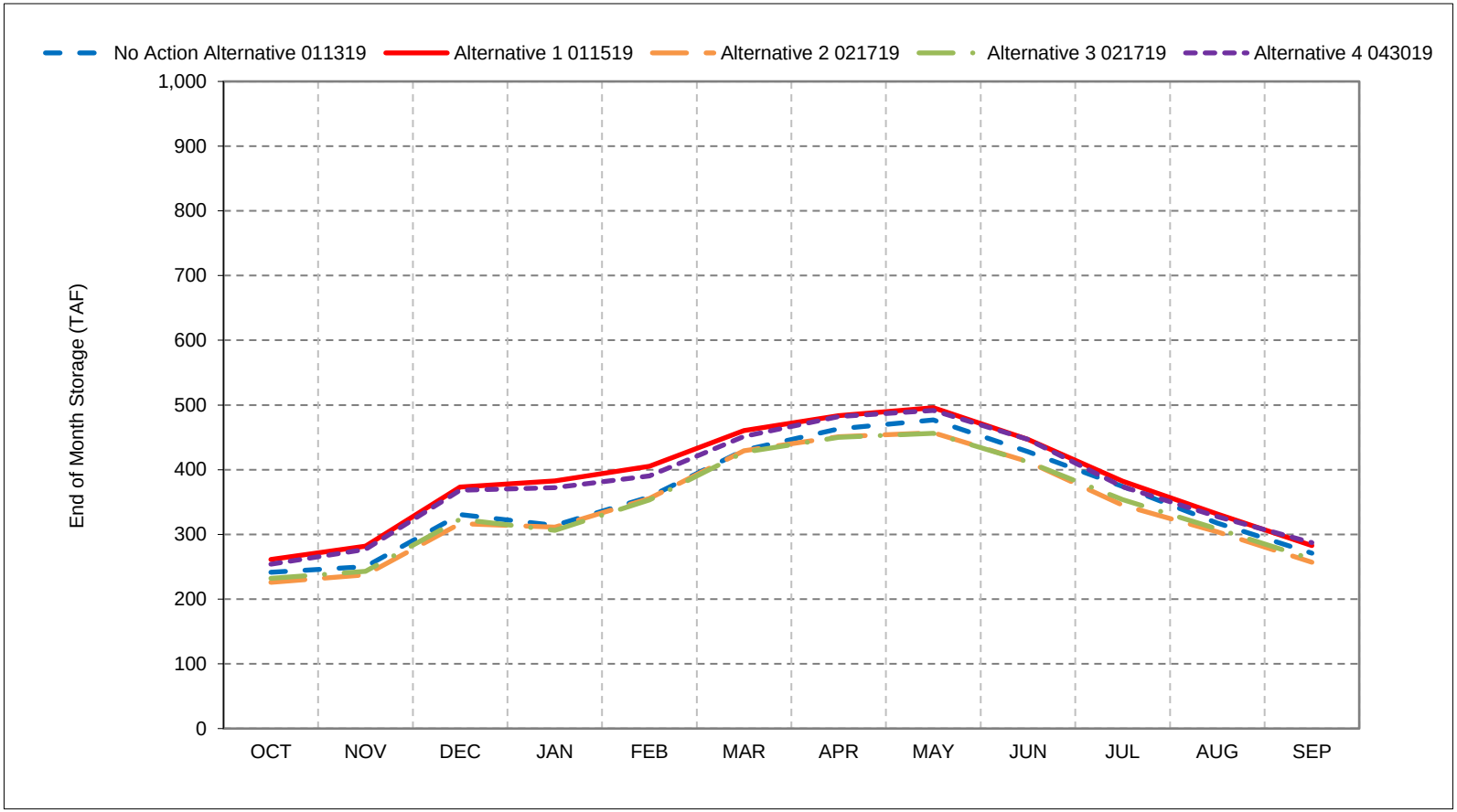
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-5. Folsom Lake Storage, Dry Year Average Storage



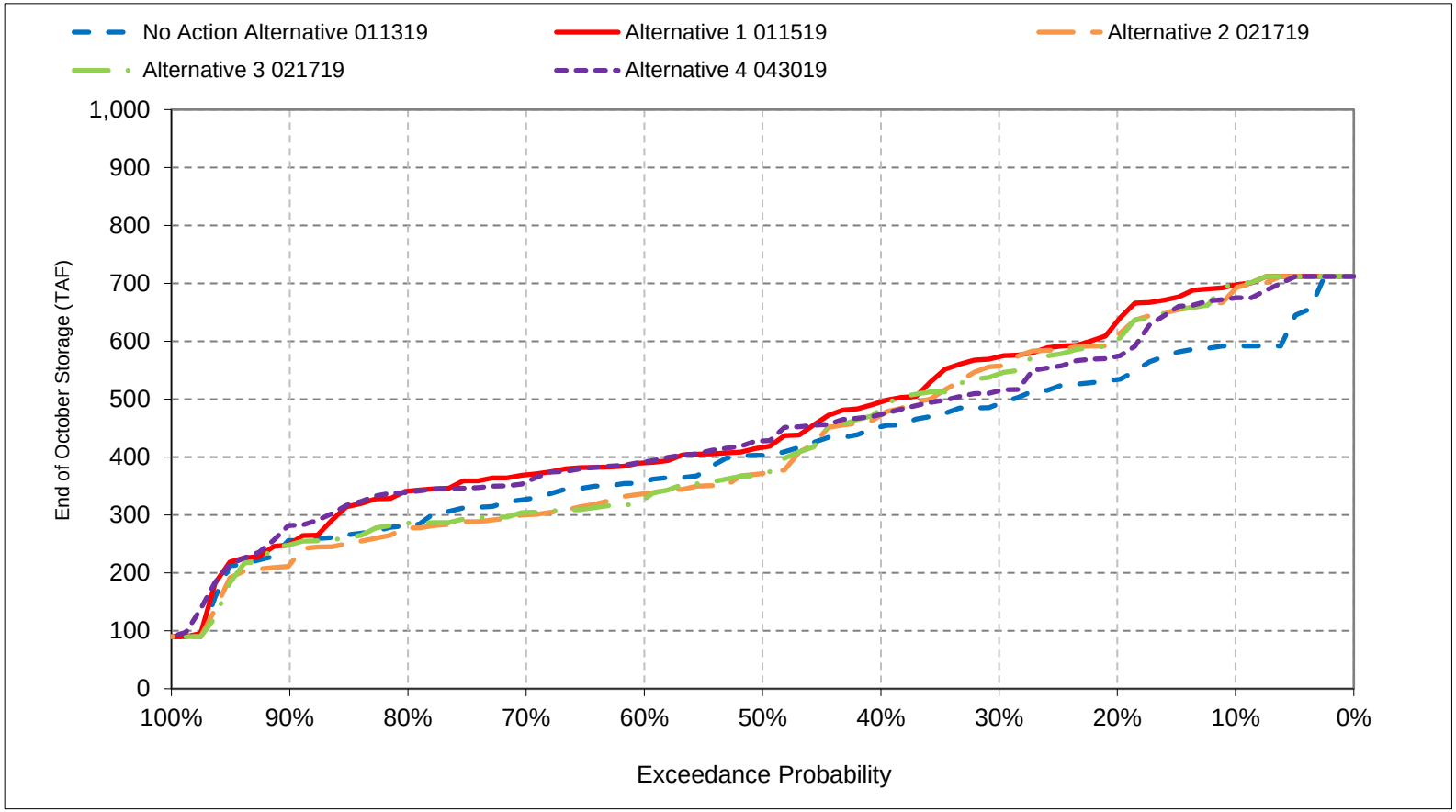
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-6. Folsom Lake Storage, Critical Year Average Storage



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

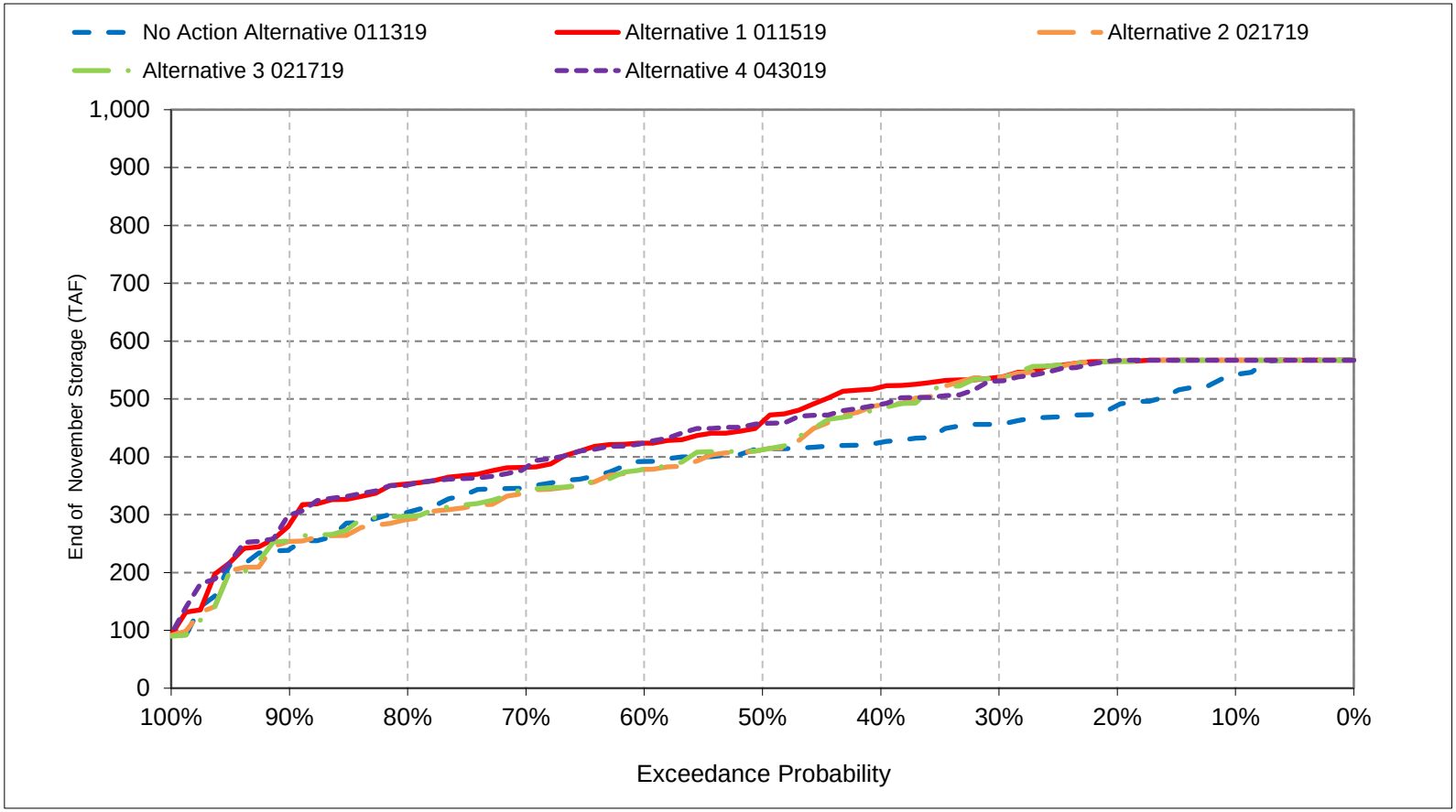
Figure 5-7. Folsom Lake Storage, End of October Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

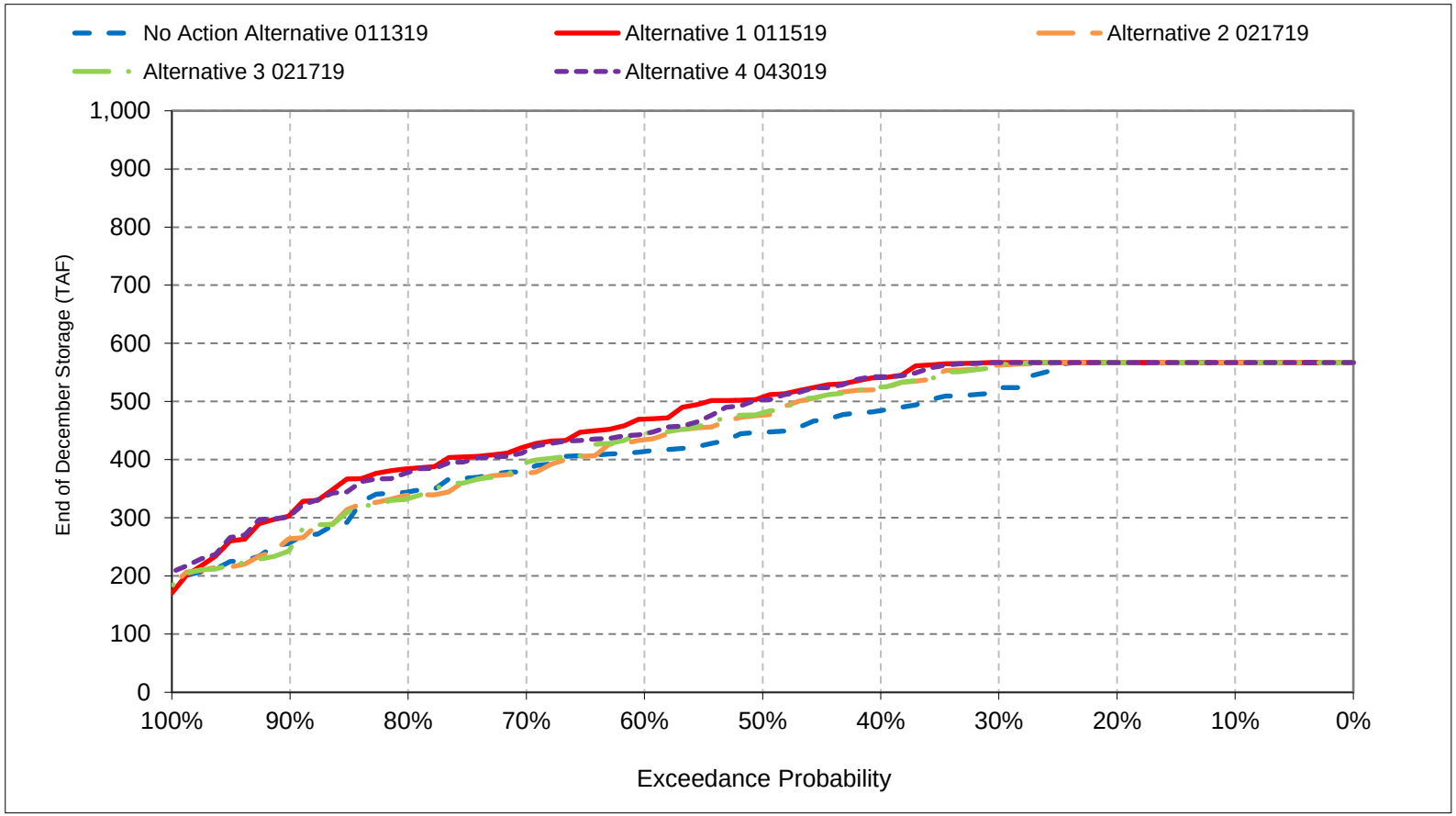
Figure 5-8. Folsom Lake Storage, End of November Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

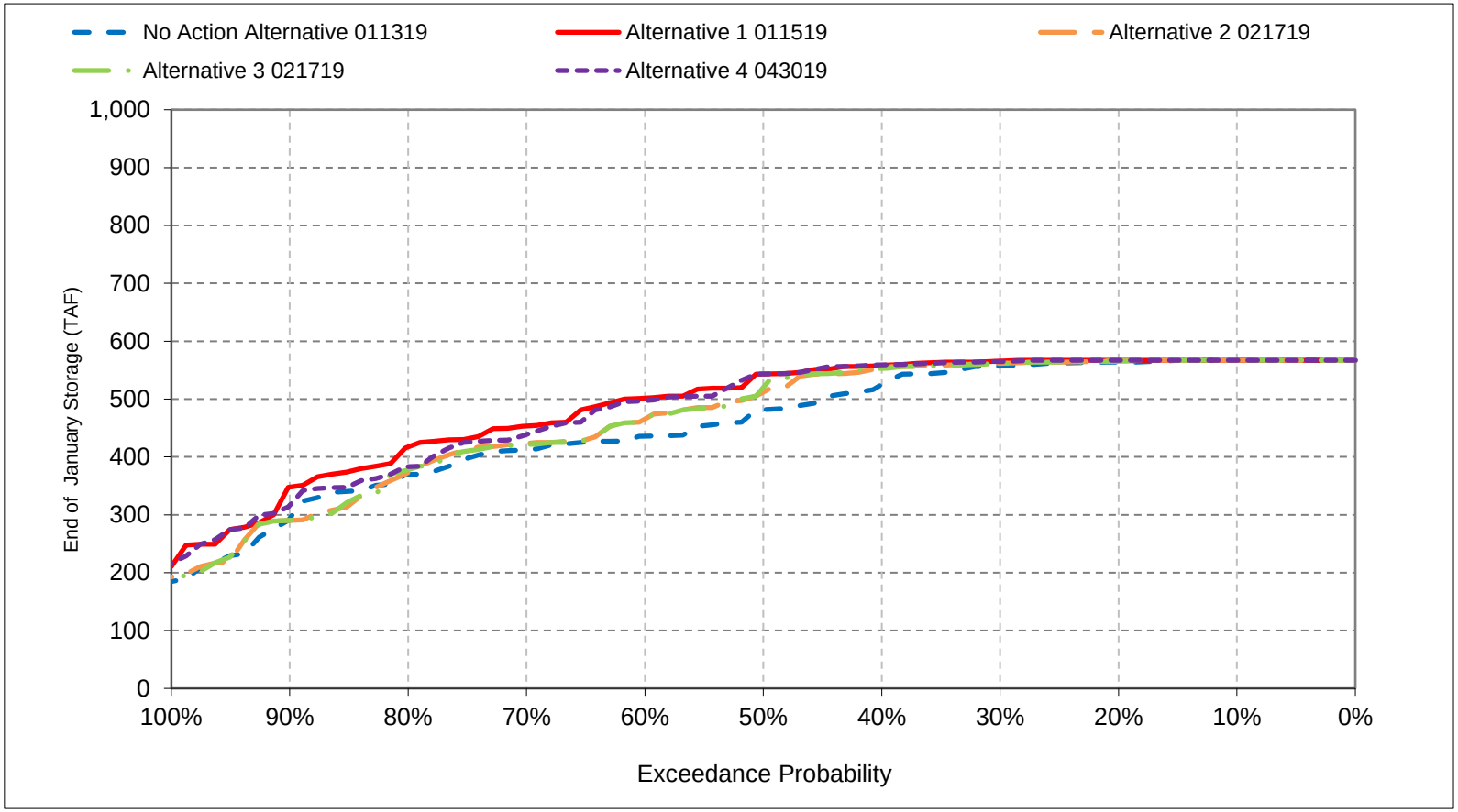
Figure 5-9. Folsom Lake Storage, End of December Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

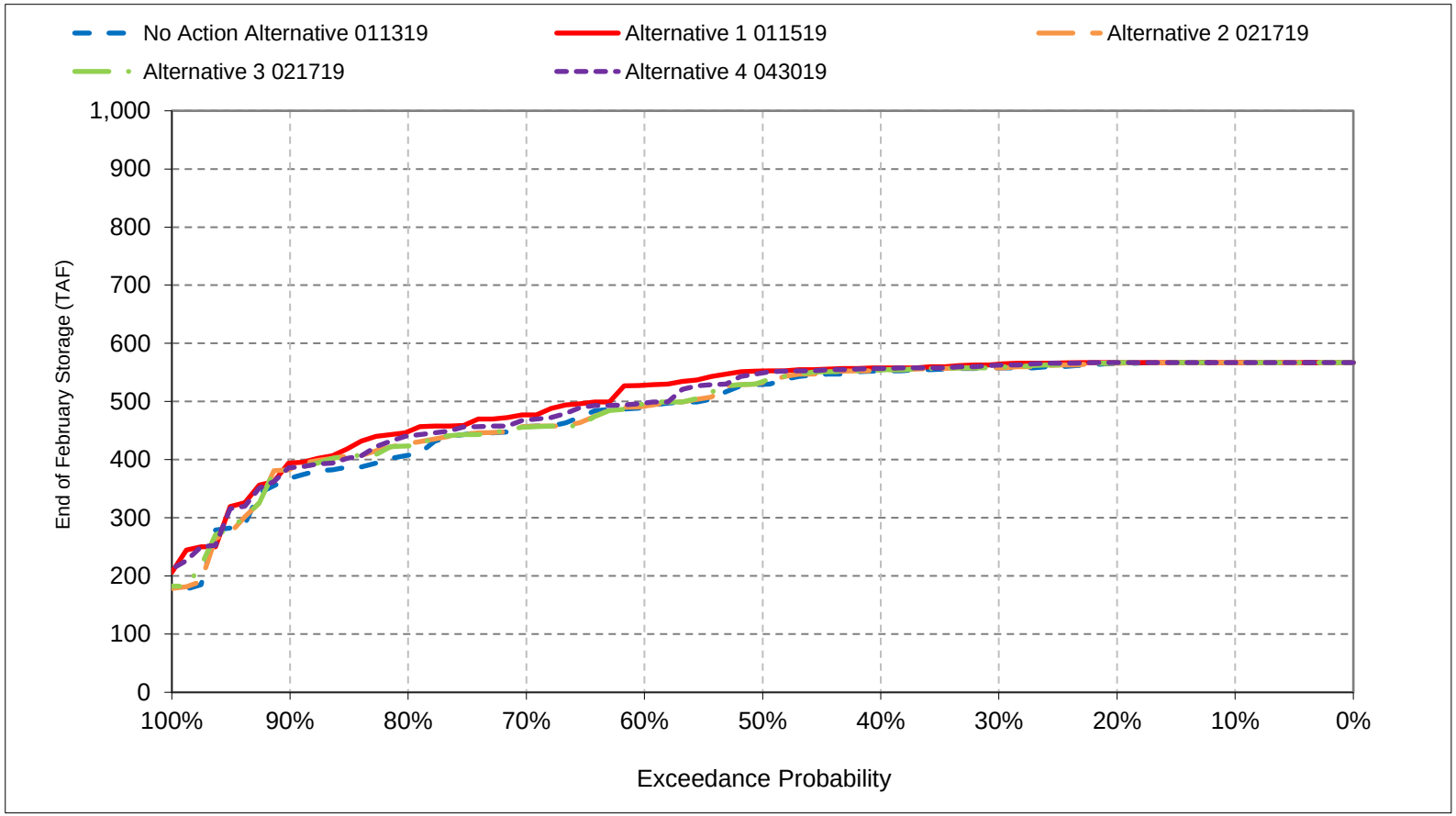
Figure 5-10. Folsom Lake Storage, End of January Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

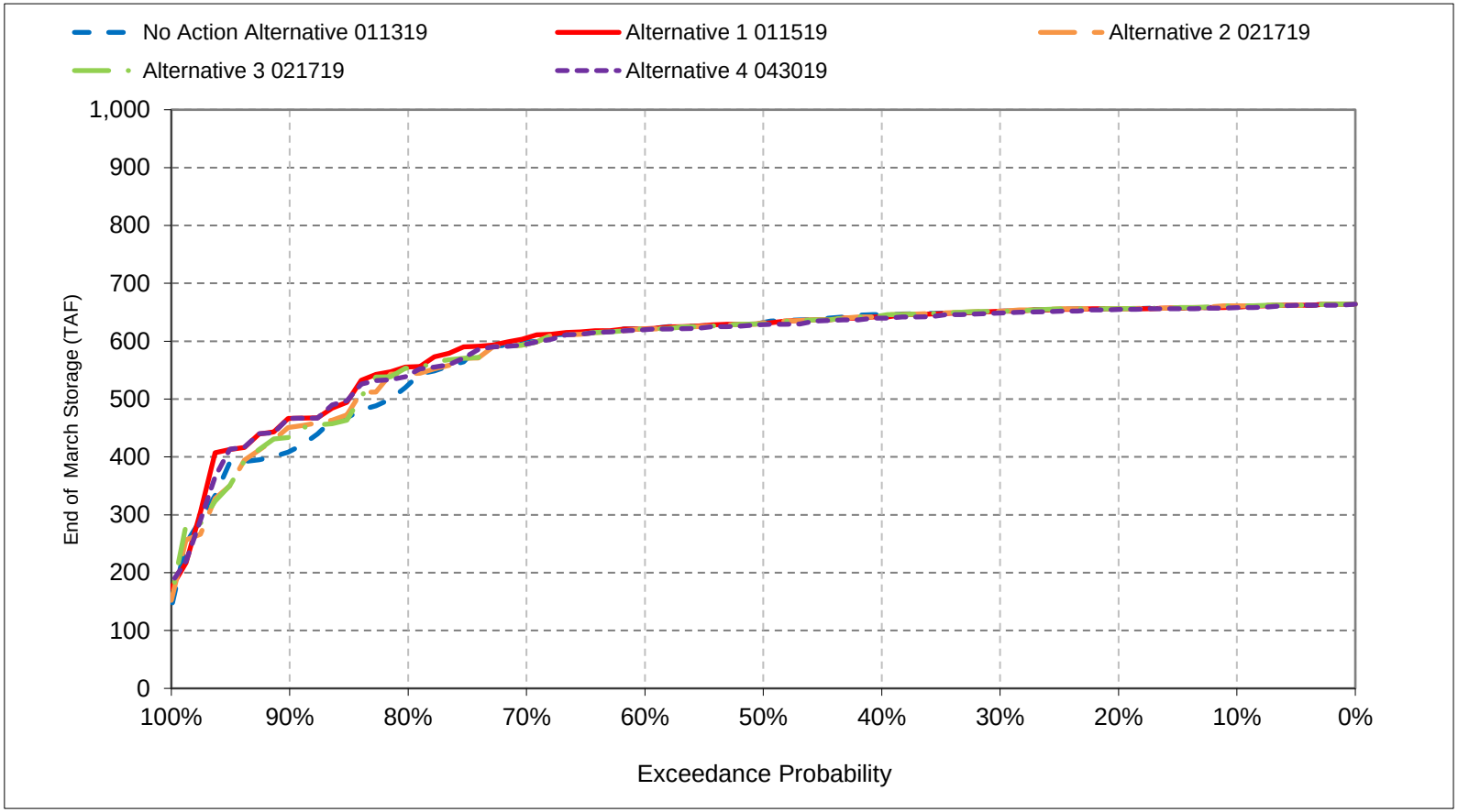
Figure 5-11. Folsom Lake Storage, End of February Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

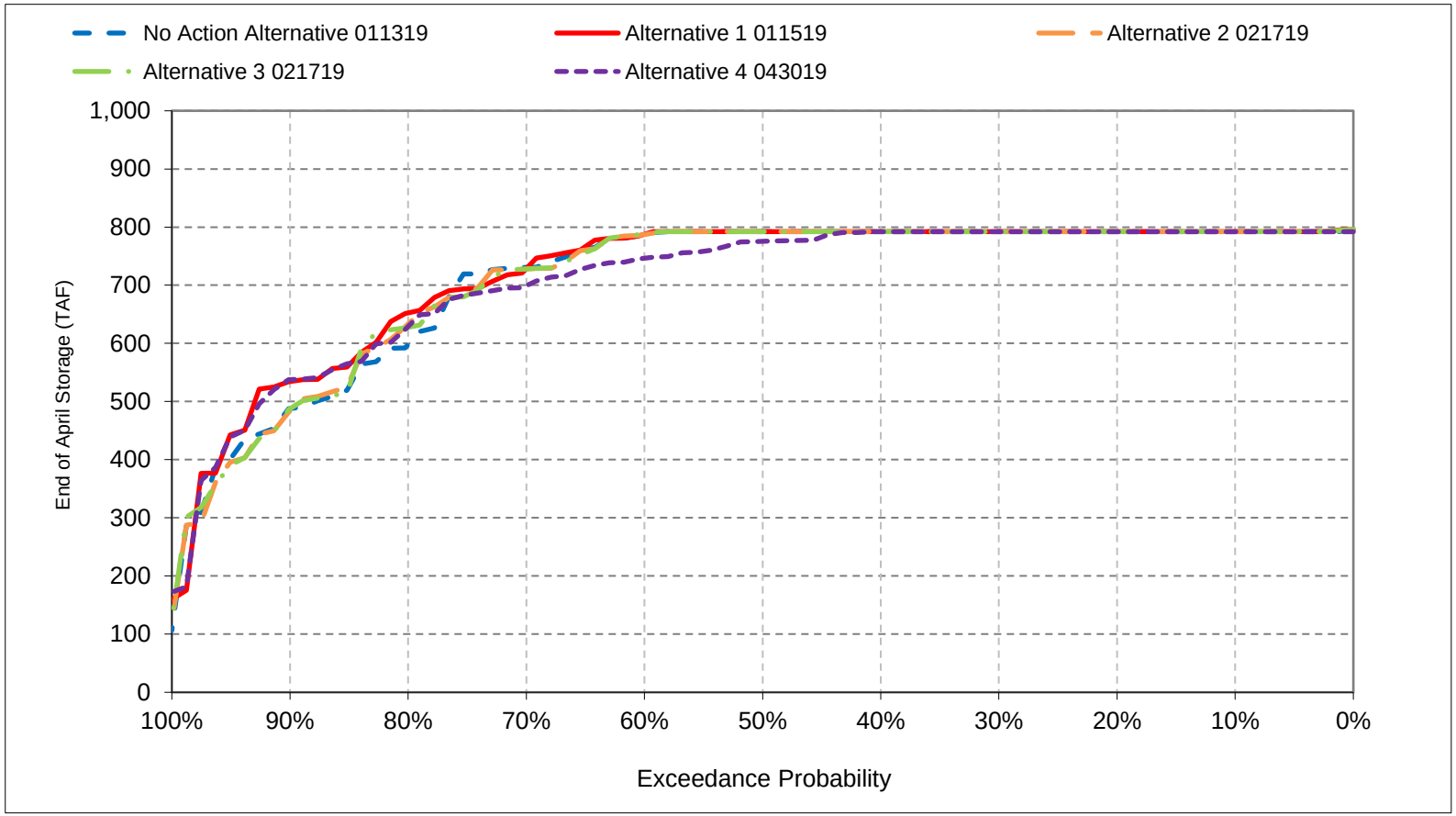
Figure 5-12. Folsom Lake Storage, End of March Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

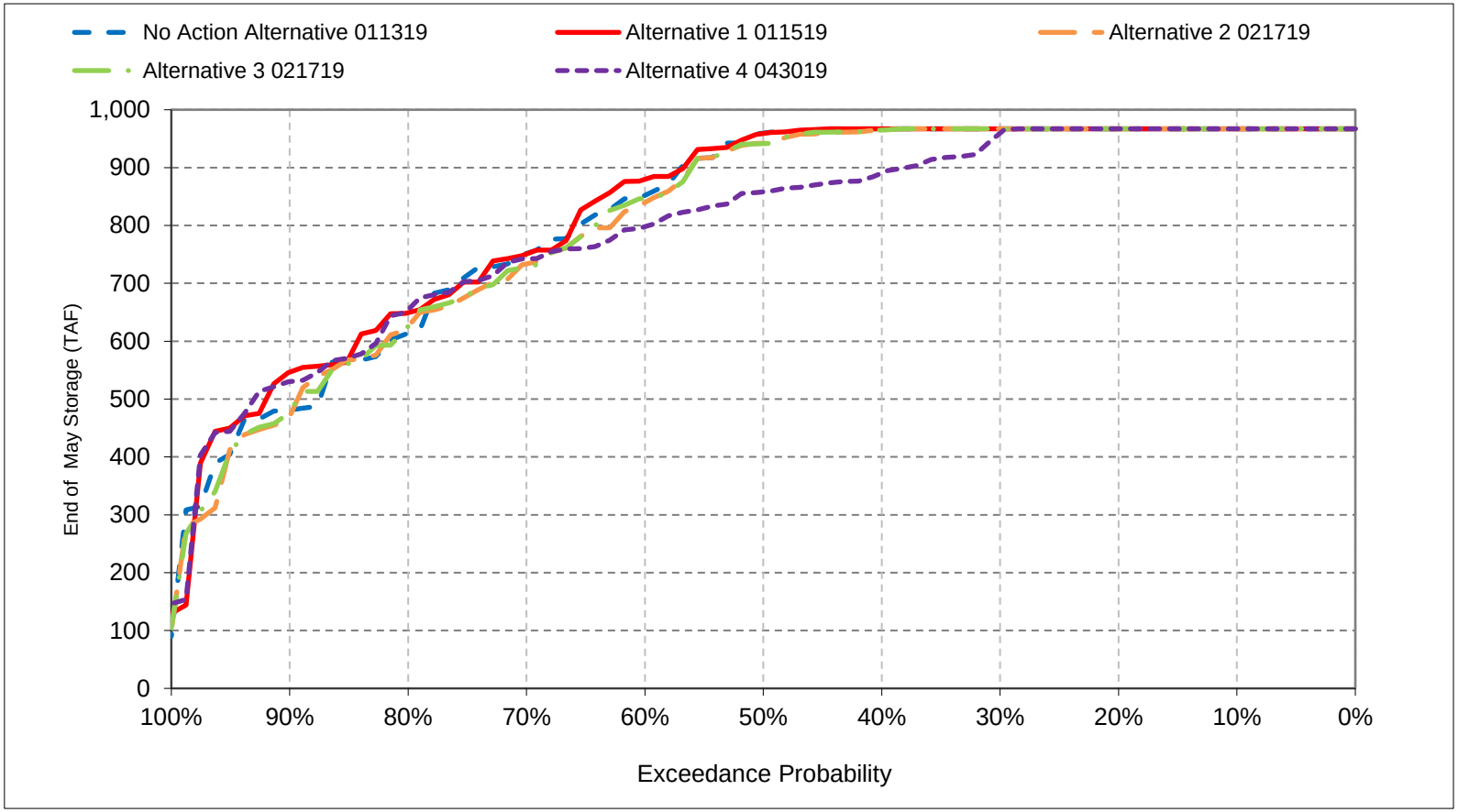
Figure 5-13. Folsom Lake Storage, End of April Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

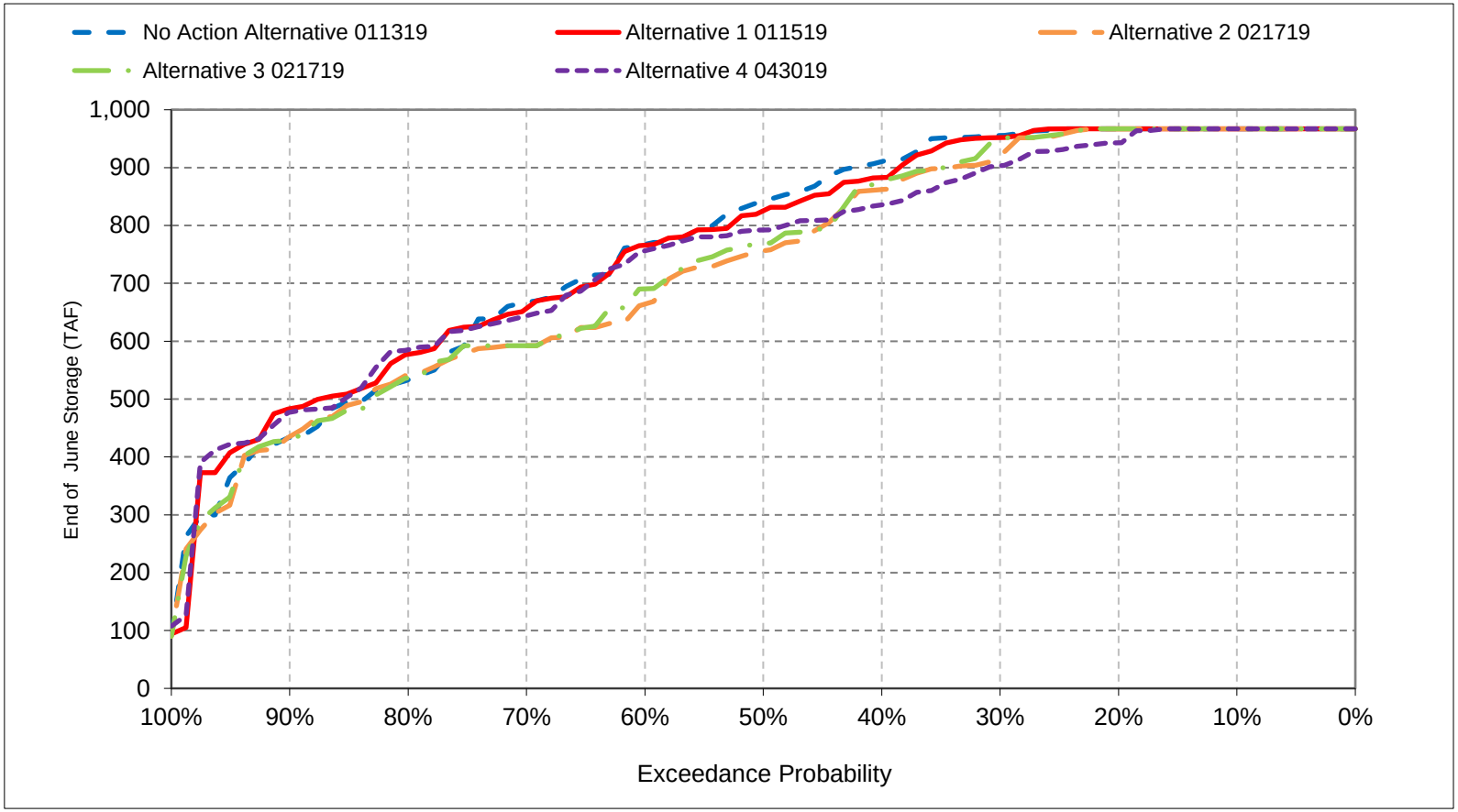
Figure 5-14. Folsom Lake Storage, End of May Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

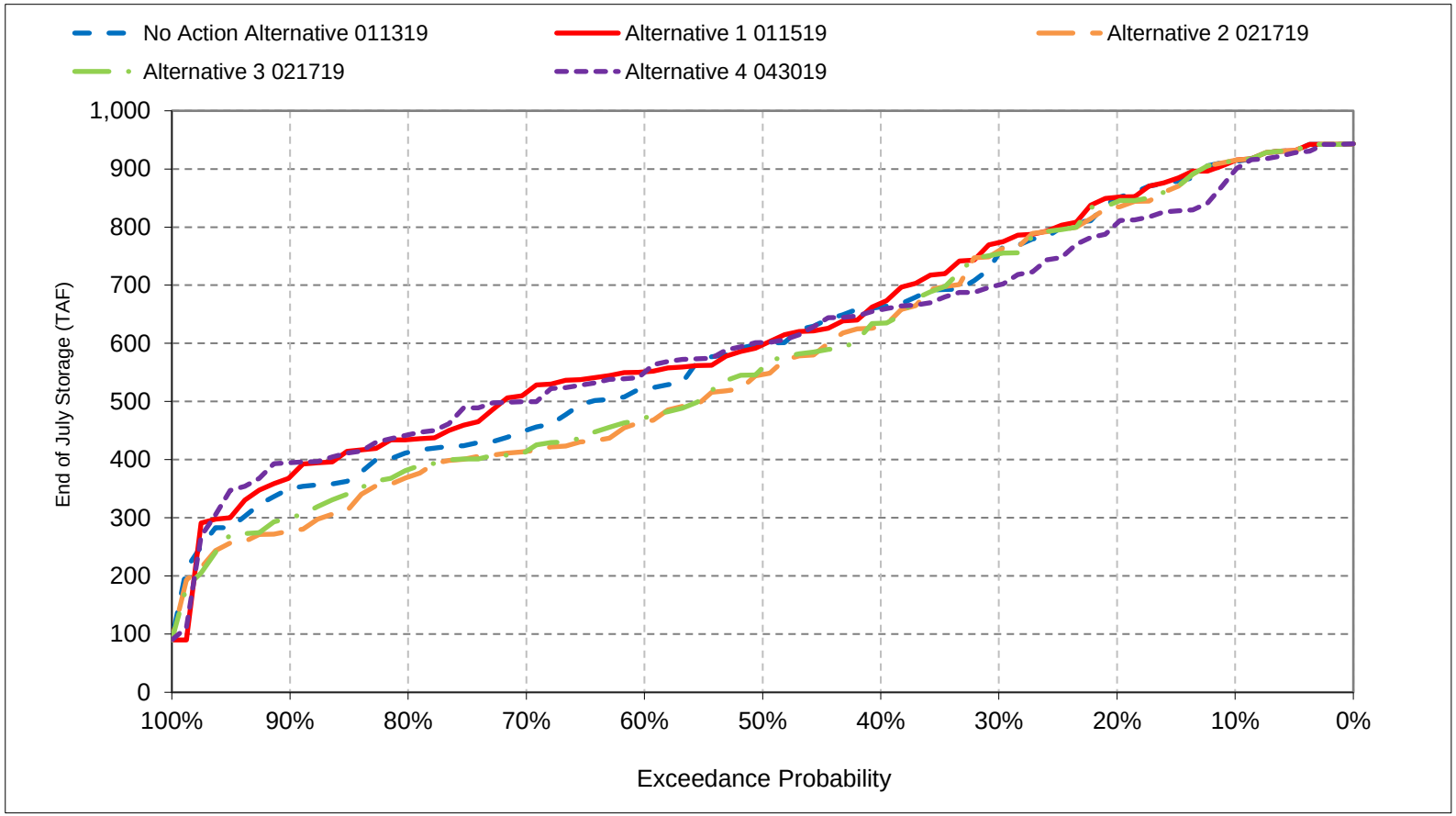
Figure 5-15. Folsom Lake Storage, End of June Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

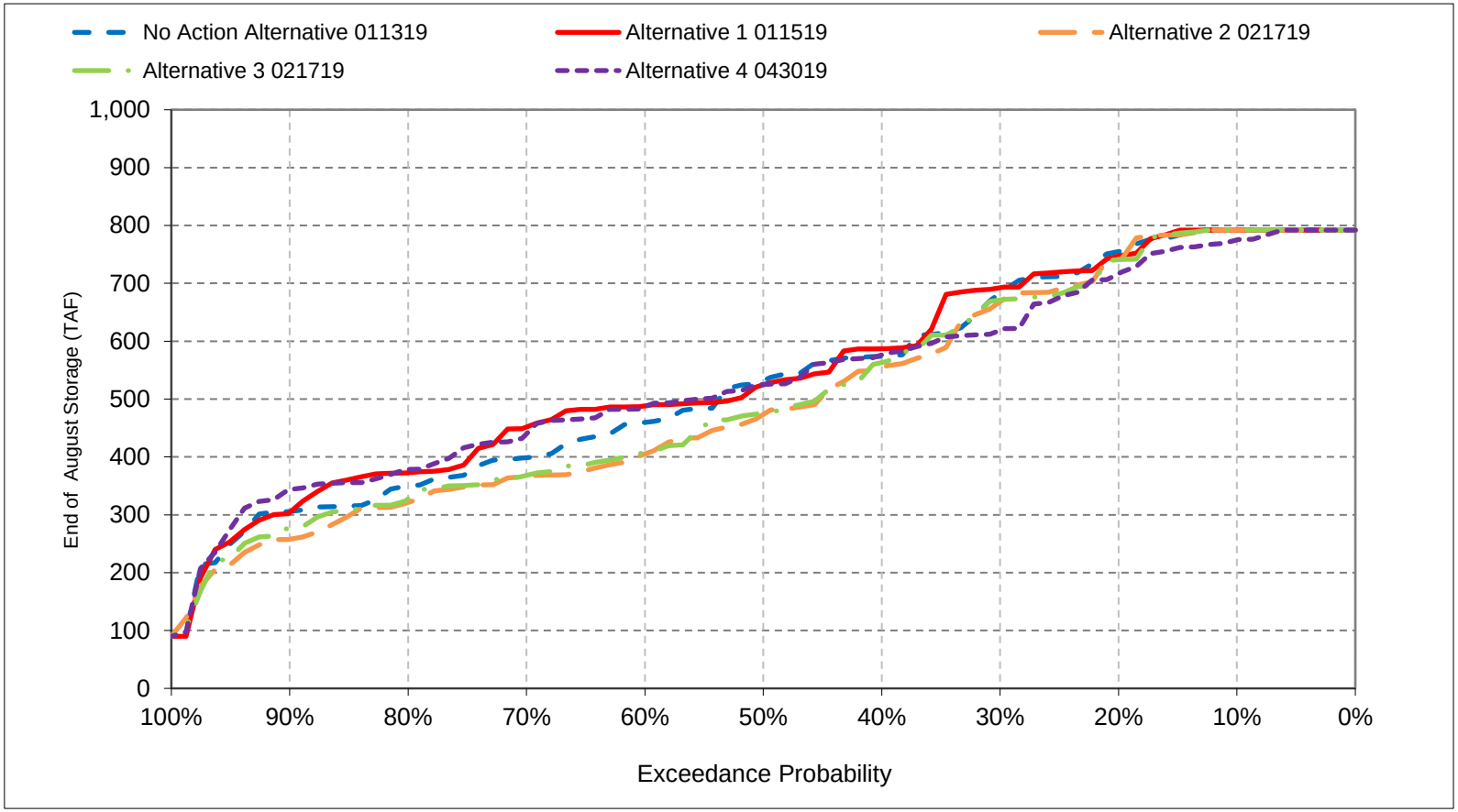
Figure 5-16. Folsom Lake Storage, End of July Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

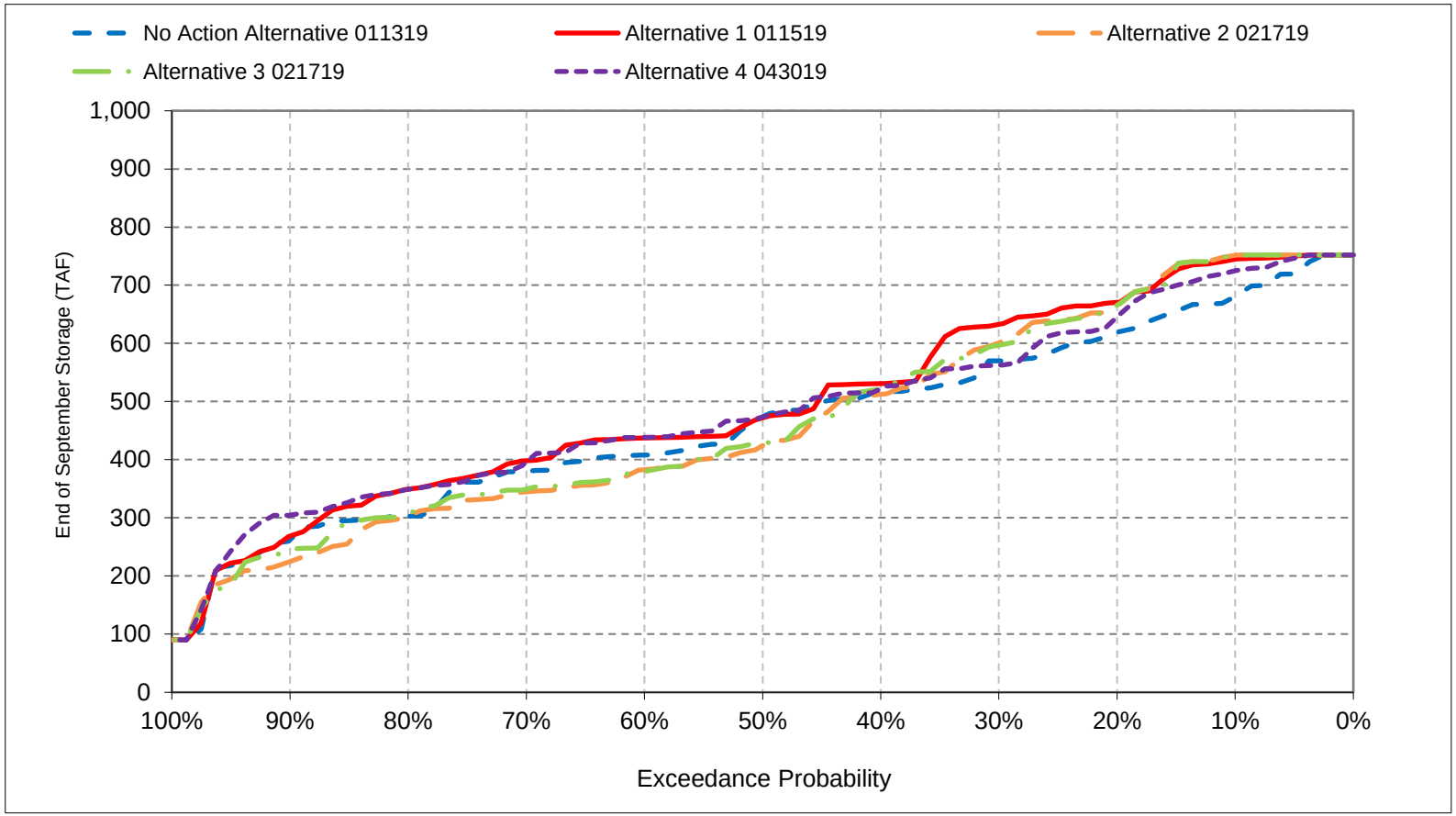
Figure 5-17. Folsom Lake Storage, End of August Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-18. Folsom Lake Storage, End of September Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 5a-1. Folsom Lake Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	427	421	424	424	424	436	449	466	466	461	449	438
20%	420	415	424	424	424	435	449	466	466	455	445	431
30%	415	411	419	423	423	435	449	466	465	445	438	425
40%	410	407	414	419	423	434	449	466	461	436	425	418
50%	404	405	409	414	420	432	449	465	454	428	420	413
60%	397	403	405	408	415	431	449	455	447	419	411	405
70%	392	396	401	405	411	428	443	445	437	410	403	401
80%	385	389	395	399	405	419	428	430	420	405	396	388
90%	380	377	380	387	399	405	415	414	408	396	389	381
Long Term												
Full Simulation Period[a]	402	401	407	410	414	426	439	450	444	427	418	409
Water Year Types[b,c]												
Wet (32%)	415	408	413	418	418	432	448	464	463	448	439	425
Above Normal (16%)	405	404	410	417	419	433	448	464	457	429	421	413
Below Normal (13%)	404	403	407	414	420	431	445	453	446	421	413	409
Dry (24%)	400	403	406	405	413	424	437	444	435	419	410	406
Critical (15%)	371	373	391	388	394	405	408	409	402	395	385	376

Alternative 1 011519

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	440	424	424	424	424	436	449	466	466	461	449	444
20%	433	424	424	424	424	435	449	466	466	455	445	437
30%	425	421	424	424	424	435	449	466	465	447	439	433
40%	415	419	421	423	423	434	449	466	458	437	427	420
50%	406	411	417	421	423	432	449	465	452	428	419	412
60%	402	406	412	416	420	431	449	458	446	422	415	408
70%	399	401	406	410	413	429	443	445	436	418	410	403
80%	395	397	402	406	410	423	435	435	426	408	400	396
90%	379	385	389	396	403	412	420	422	414	399	389	382
Long Term												
Full Simulation Period[a]	408	407	412	414	416	427	440	451	444	428	419	413
Water Year Types[b,c]												
Wet (32%)	430	420	419	419	418	432	448	465	462	450	440	435
Above Normal (16%)	410	409	414	421	421	433	449	464	456	431	423	417
Below Normal (13%)	400	402	408	421	422	431	445	452	445	421	409	403
Dry (24%)	405	409	411	408	415	426	439	446	437	423	414	408
Critical (15%)	374	380	397	399	402	409	411	411	403	394	387	378

Alternative 1 011519 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	12	3	0	0	0	0	0	0	0	0	0	6
20%	13	9	0	0	0	0	0	0	0	0	-1	6
30%	10	10	6	1	1	0	0	0	0	2	1	8
40%	5	12	7	4	1	0	0	0	-3	1	2	2
50%	2	6	8	8	3	0	0	0	-2	0	-1	0
60%	5	4	7	8	5	0	0	3	0	4	4	4
70%	7	6	5	5	2	1	0	0	-1	8	7	2
80%	10	8	6	6	5	4	7	4	5	3	4	8
90%	-1	8	9	9	4	7	6	8	6	3	0	1
Long Term												
Full Simulation Period[a]	7	7	5	4	2	1	1	1	0	2	2	4
Water Year Types[b,c]												
Wet (32%)	14	12	6	1	0	0	0	0	0	2	2	10
Above Normal (16%)	5	5	4	4	2	0	0	0	-1	3	2	4
Below Normal (13%)	-4	-1	0	8	2	1	0	0	-2	0	-3	-6
Dry (24%)	5	6	5	3	3	2	2	2	2	4	4	2
Critical (15%)	4	6	6	11	8	4	3	2	1	-1	2	2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 5a-2. Folsom Lake Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	427	421	424	424	424	436	449	466	466	461	449	438
20%	420	415	424	424	424	435	449	466	466	455	445	431
30%	415	411	419	423	423	435	449	466	465	445	438	425
40%	410	407	414	419	423	434	449	466	461	436	425	418
50%	404	405	409	414	420	432	449	465	454	428	420	413
60%	397	403	405	408	415	431	449	455	447	419	411	405
70%	392	396	401	405	411	428	443	445	437	410	403	401
80%	385	389	395	399	405	419	428	430	420	405	396	388
90%	380	377	380	387	399	405	415	414	408	396	389	381
Long Term												
Full Simulation Period[a]	402	401	407	410	414	426	439	450	444	427	418	409
Water Year Types[b,c]												
Wet (32%)	415	408	413	418	418	432	448	464	463	448	439	425
Above Normal (16%)	405	404	410	417	419	433	448	464	457	429	421	413
Below Normal (13%)	404	403	407	414	420	431	445	453	446	421	413	409
Dry (24%)	400	403	406	405	413	424	437	444	435	419	410	406
Critical (15%)	371	373	391	388	394	405	408	409	402	395	385	376

Alternative 2 021719

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	439	424	424	424	424	436	449	466	466	461	449	445
20%	430	424	424	424	424	435	449	466	466	453	444	437
30%	423	421	424	424	423	435	449	466	462	446	437	429
40%	413	415	419	423	423	434	449	466	456	432	423	418
50%	400	405	413	417	420	432	449	464	446	422	413	407
60%	394	401	408	412	415	431	449	454	436	412	404	401
70%	388	394	400	406	411	428	443	443	427	405	399	395
80%	384	386	394	400	407	421	433	432	421	399	391	388
90%	371	379	381	386	402	410	414	412	408	384	380	373
Long Term												
Full Simulation Period[a]	403	403	408	411	414	427	439	449	440	423	414	409
Water Year Types[b,c]												
Wet (32%)	427	420	419	419	418	432	448	464	461	449	437	433
Above Normal (16%)	401	404	412	420	421	433	449	463	450	419	412	407
Below Normal (13%)	395	398	405	418	421	432	446	452	439	410	400	396
Dry (24%)	399	402	405	405	413	425	437	443	433	417	410	406
Critical (15%)	367	371	389	388	394	405	407	407	400	390	383	374

Alternative 2 021719 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	12	3	0	0	0	0	0	0	0	0	0	7
20%	9	10	0	0	0	0	0	0	0	-1	-1	6
30%	8	10	5	1	0	0	0	0	-3	0	-2	4
40%	2	8	5	4	0	0	0	0	-5	-4	-2	0
50%	-4	0	4	4	0	0	0	-2	-8	-7	-7	-6
60%	-3	-2	2	4	0	0	0	-1	-10	-7	-7	-3
70%	-4	-1	-1	1	0	-1	0	-2	-9	-5	-5	-6
80%	-1	-2	-1	1	3	2	4	1	1	-6	-5	0
90%	-9	3	1	-1	2	5	0	-1	0	-12	-9	-8
Long Term												
Full Simulation Period[a]	1	2	1	1	0	0	0	-1	-3	-4	-4	0
Water Year Types[b,c]												
Wet (32%)	12	11	6	1	0	0	0	0	-2	0	-1	8
Above Normal (16%)	-4	0	2	4	1	0	0	0	-7	-9	-9	-6
Below Normal (13%)	-10	-5	-2	4	1	1	1	-1	-7	-10	-12	-13
Dry (24%)	-1	-1	-1	0	0	1	1	0	-1	-1	0	0
Critical (15%)	-3	-2	-2	0	0	0	-1	-3	-2	-5	-2	-2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 5a-3. Folsom Lake Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	427	421	424	424	424	436	449	466	466	461	449	438
20%	420	415	424	424	424	435	449	466	466	455	445	431
30%	415	411	419	423	423	435	449	466	465	445	438	425
40%	410	407	414	419	423	434	449	466	461	436	425	418
50%	404	405	409	414	420	432	449	465	454	428	420	413
60%	397	403	405	408	415	431	449	455	447	419	411	405
70%	392	396	401	405	411	428	443	445	437	410	403	401
80%	385	389	395	399	405	419	428	430	420	405	396	388
90%	380	377	380	387	399	405	415	414	408	396	389	381
Long Term												
Full Simulation Period[a]	402	401	407	410	414	426	439	450	444	427	418	409
Water Year Types[b,c]												
Wet (32%)	415	408	413	418	418	432	448	464	463	448	439	425
Above Normal (16%)	405	404	410	417	419	433	448	464	457	429	421	413
Below Normal (13%)	404	403	407	414	420	431	445	453	446	421	413	409
Dry (24%)	400	403	406	405	413	424	437	444	435	419	410	406
Critical (15%)	371	373	391	388	394	405	408	409	402	395	385	376

Alternative 3 021719

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	440	424	424	424	424	436	449	466	466	461	449	445
20%	429	424	424	424	424	435	449	466	466	454	444	437
30%	421	421	424	424	423	435	449	466	464	445	437	428
40%	414	414	419	423	423	434	449	466	457	433	424	419
50%	400	405	414	418	420	432	449	464	447	423	413	407
60%	392	401	409	412	416	431	449	454	439	412	404	401
70%	389	395	403	406	411	428	443	443	427	405	399	396
80%	386	387	393	401	406	423	432	432	421	401	392	389
90%	378	380	378	386	401	408	414	413	407	388	384	378
Long Term												
Full Simulation Period[a]	404	403	408	411	414	427	439	449	441	423	414	409
Water Year Types[b,c]												
Wet (32%)	427	420	419	419	418	432	448	464	461	448	437	433
Above Normal (16%)	400	404	412	420	421	433	449	463	452	421	412	406
Below Normal (13%)	397	399	406	417	421	432	446	452	439	413	404	400
Dry (24%)	399	402	405	405	413	426	438	444	433	417	410	406
Critical (15%)	368	372	390	387	394	405	407	407	400	392	384	375

Alternative 3 021719 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	12	3	0	0	0	0	0	0	0	0	0	7
20%	9	9	0	0	0	0	0	0	0	-1	-1	6
30%	6	10	5	1	0	0	0	0	-1	0	-1	3
40%	4	7	5	3	0	0	0	0	-3	-3	-1	1
50%	-4	0	4	5	1	0	0	-2	-7	-5	-7	-6
60%	-5	-2	4	4	1	0	0	-1	-7	-6	-7	-4
70%	-4	0	2	1	0	-1	0	-2	-9	-5	-4	-5
80%	1	-1	-2	1	2	4	4	2	0	-4	-4	0
90%	-1	3	-2	-1	2	3	0	0	0	-8	-5	-3
Long Term												
Full Simulation Period[a]	2	3	2	1	1	0	0	-1	-3	-3	-3	0
Water Year Types[b,c]												
Wet (32%)	12	12	6	1	0	0	0	0	-2	-1	-1	8
Above Normal (16%)	-5	-1	2	4	1	0	0	0	-5	-7	-9	-7
Below Normal (13%)	-7	-4	-2	4	1	1	1	-1	-7	-7	-9	-9
Dry (24%)	-1	-1	-1	1	1	1	1	0	-1	-2	0	0
Critical (15%)	-2	-2	-1	-1	0	0	-1	-3	-2	-3	-1	-1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 5a-4. Folsom Lake Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	427	421	424	424	424	436	449	466	466	461	449	438
20%	420	415	424	424	424	435	449	466	466	455	445	431
30%	415	411	419	423	423	435	449	466	465	445	438	425
40%	410	407	414	419	423	434	449	466	461	436	425	418
50%	404	405	409	414	420	432	449	465	454	428	420	413
60%	397	403	405	408	415	431	449	455	447	419	411	405
70%	392	396	401	405	411	428	443	445	437	410	403	401
80%	385	389	395	399	405	419	428	430	420	405	396	388
90%	380	377	380	387	399	405	415	414	408	396	389	381
Long Term												
Full Simulation Period[a]	402	401	407	410	414	426	439	450	444	427	418	409
Water Year Types[b,c]												
Wet (32%)	415	408	413	418	418	432	448	464	463	448	439	425
Above Normal (16%)	405	404	410	417	419	433	448	464	457	429	421	413
Below Normal (13%)	404	403	407	414	420	431	445	453	446	421	413	409
Dry (24%)	400	403	406	405	413	424	437	444	435	419	410	406
Critical (15%)	371	373	391	388	394	405	408	409	402	395	385	376

Alternative 4 043019

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	438	424	424	424	424	436	449	466	466	459	447	442
20%	425	424	424	424	424	435	449	466	464	450	442	434
30%	418	420	424	424	424	435	449	465	460	440	431	424
40%	413	415	421	423	423	433	449	459	453	436	425	419
50%	407	411	416	421	422	432	447	455	449	429	419	413
60%	403	407	409	416	416	431	445	450	446	422	414	408
70%	397	401	405	408	412	428	440	444	434	416	409	403
80%	394	396	401	401	409	421	432	435	427	409	401	396
90%	385	388	388	391	402	412	421	420	413	403	395	389
Long Term												
Full Simulation Period[a]	407	407	411	413	415	427	439	448	443	427	418	412
Water Year Types[b,c]												
Wet (32%)	428	420	419	419	418	432	447	462	460	449	439	434
Above Normal (16%)	408	408	412	421	421	433	448	460	455	431	422	415
Below Normal (13%)	404	405	409	421	422	432	444	450	444	423	412	406
Dry (24%)	402	408	411	406	413	425	437	442	435	420	412	406
Critical (15%)	374	380	397	398	400	408	411	411	405	394	387	380

Alternative 4 043019 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10	3	0	0	0	**0**	0	0	0	**-1**	**-2**	4
20%	5	10	0	0	0	**0**	0	0	**-2**	**-4**	**-4**	3
30%	3	9	6	1	1	**0**	0	**-1**	**-5**	**-5**	**-8**	**-1**
40%	3	8	7	4	1	**-1**	0	**-7**	**-7**	**-1**	0	1
50%	3	5	7	8	2	**0**	**-2**	**-10**	**-5**	0	**-1**	**0**
60%	5	4	4	8	1	**0**	**-4**	**-5**	**-1**	3	3	4
70%	5	5	4	3	1	**-1**	**-3**	**-1**	**-3**	6	5	2
80%	10	8	5	2	4	2	4	5	6	4	5	8
90%	5	11	8	4	3	7	6	6	5	7	6	8
Long Term												
Full Simulation Period[a]	5	7	4	4	2	1	0	**-2**	**-1**	1	1	3
Water Year Types[b,c]												
Wet (32%)	12	12	6	1	0	**0**	**-1**	**-3**	**-2**	0	0	8
Above Normal (16%)	3	3	2	4	2	0	**0**	**-3**	**-2**	2	1	3
Below Normal (13%)	**-1**	2	1	8	2	1	**-1**	**-3**	**-3**	3	**0**	**-3**
Dry (24%)	2	5	4	1	1	0	**0**	**-2**	**0**	1	2	**0**
Critical (15%)	4	6	6	9	6	3	3	2	2	**-1**	2	4

a Based on the 82-year simulation period.

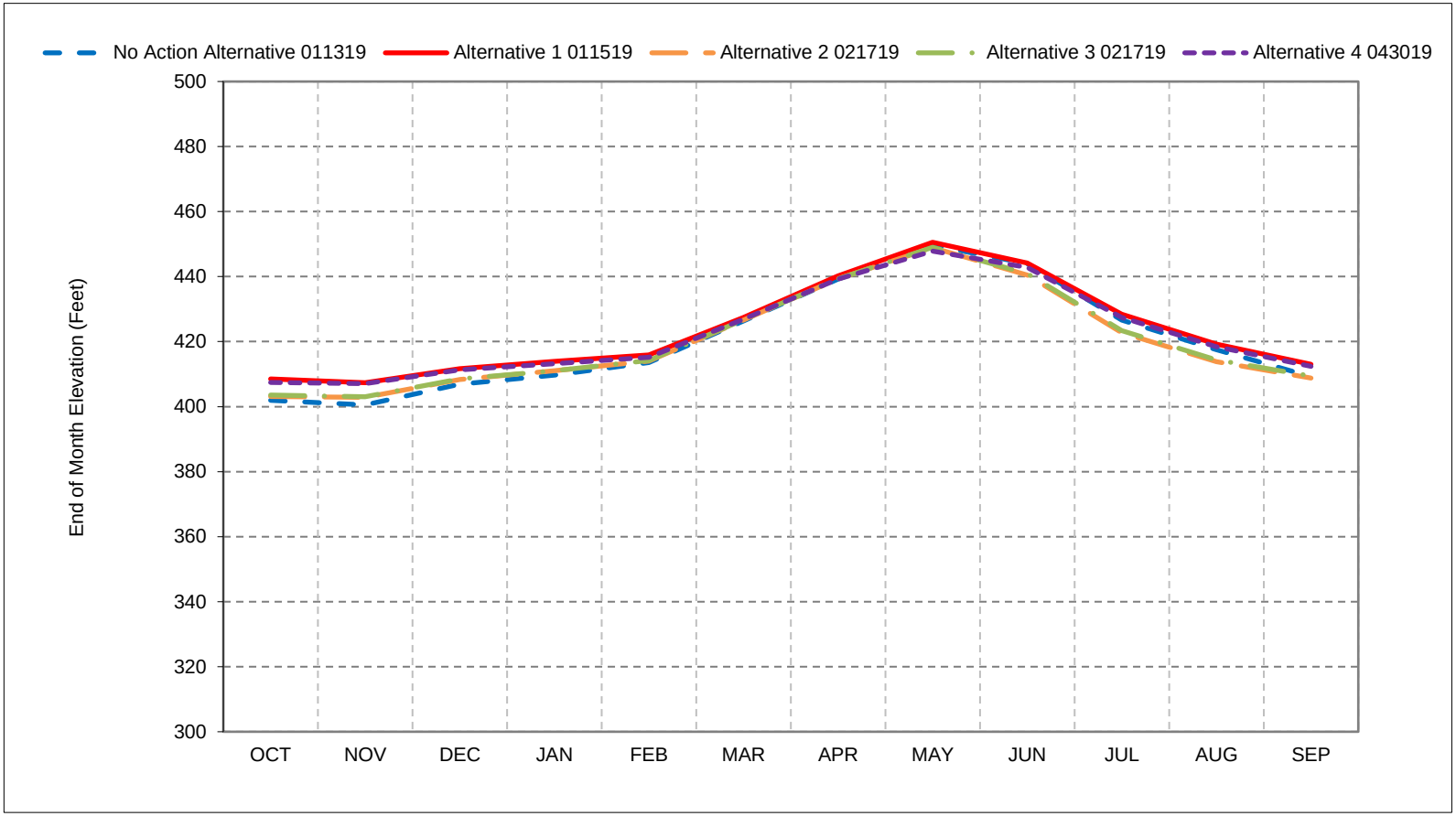
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

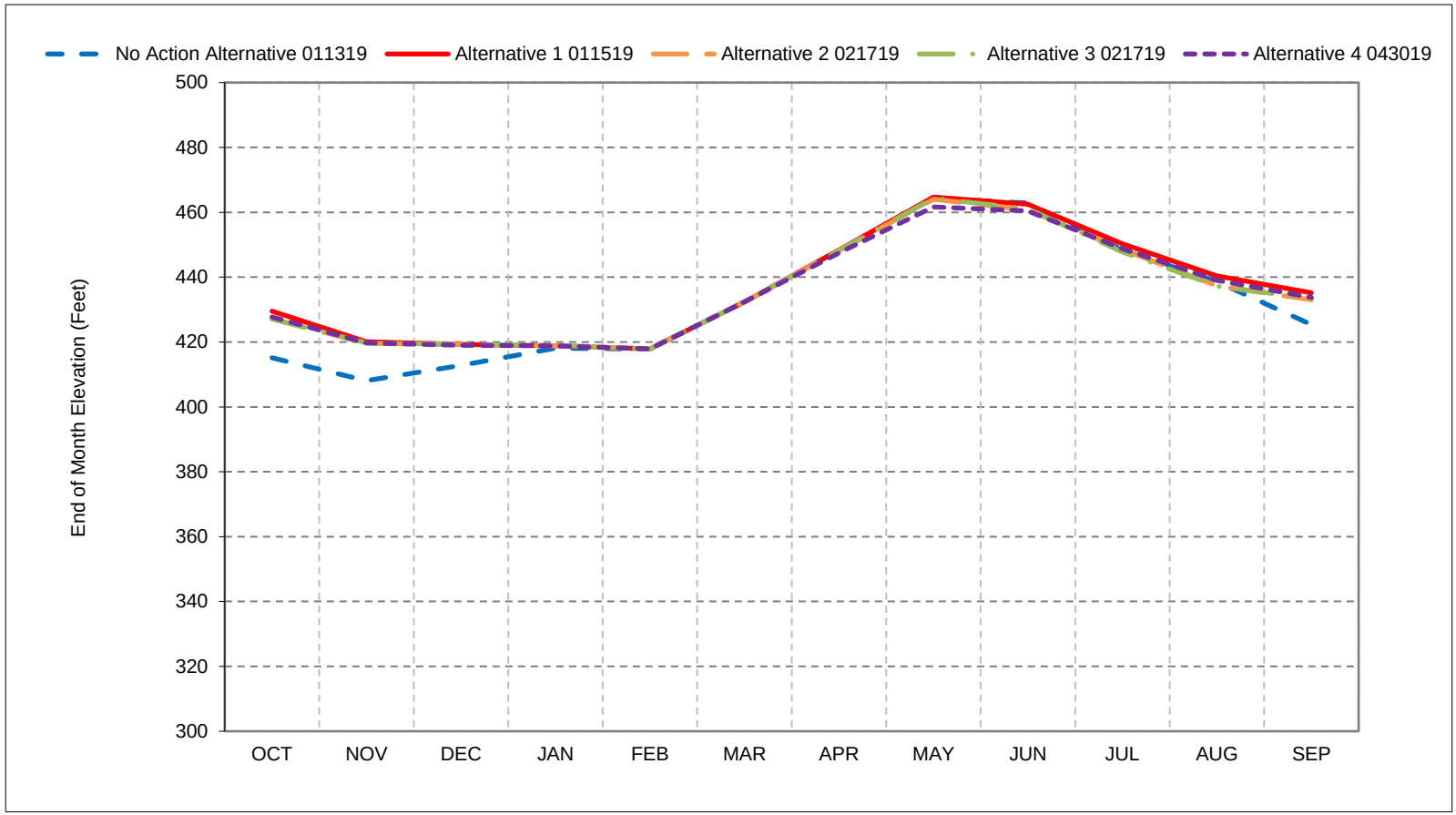
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 5a-1. Folsom Lake Elevation, Long-Term Average Elevation



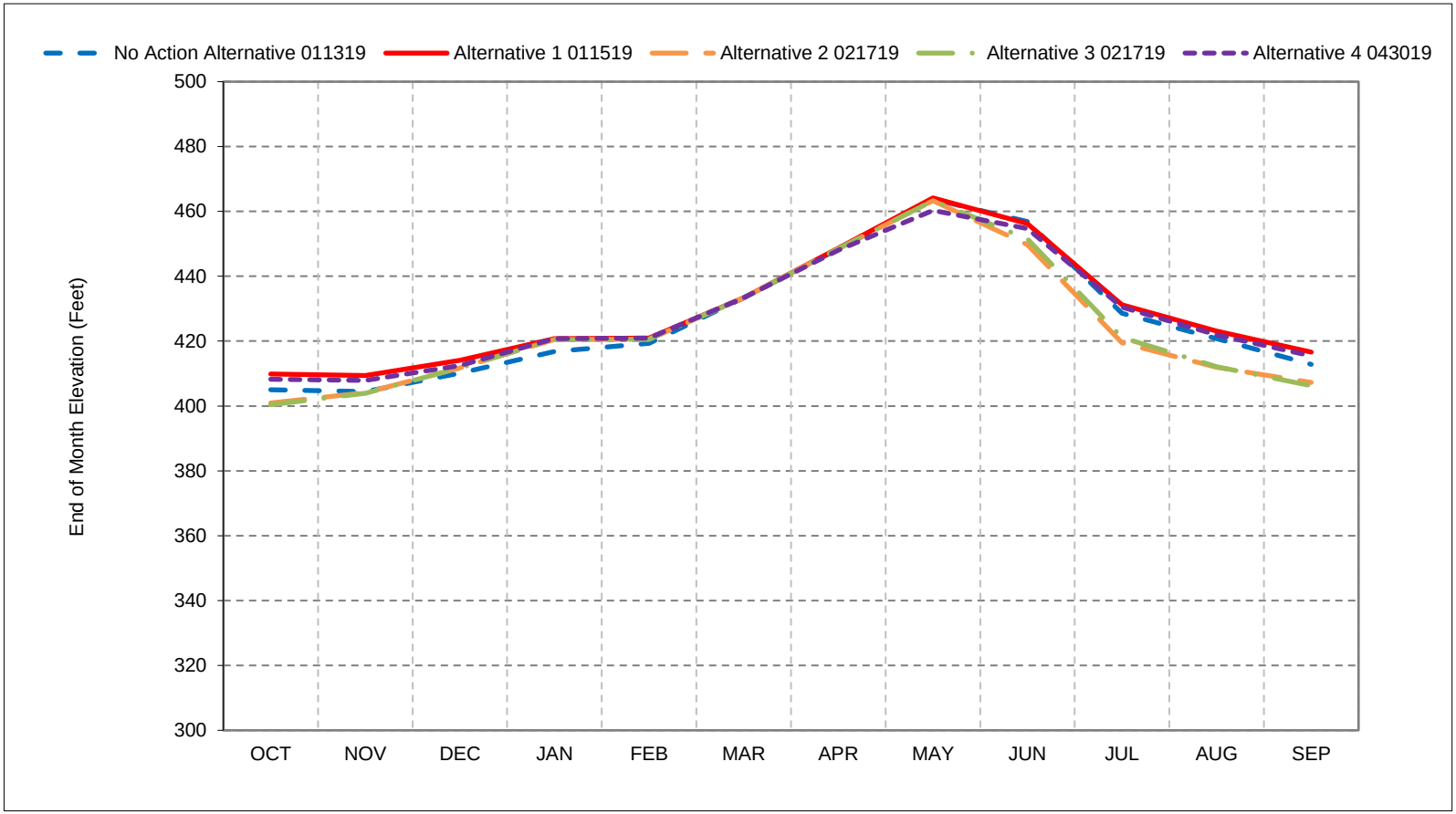
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5a-2. Folsom Lake Elevation, Wet Year Average Elevation



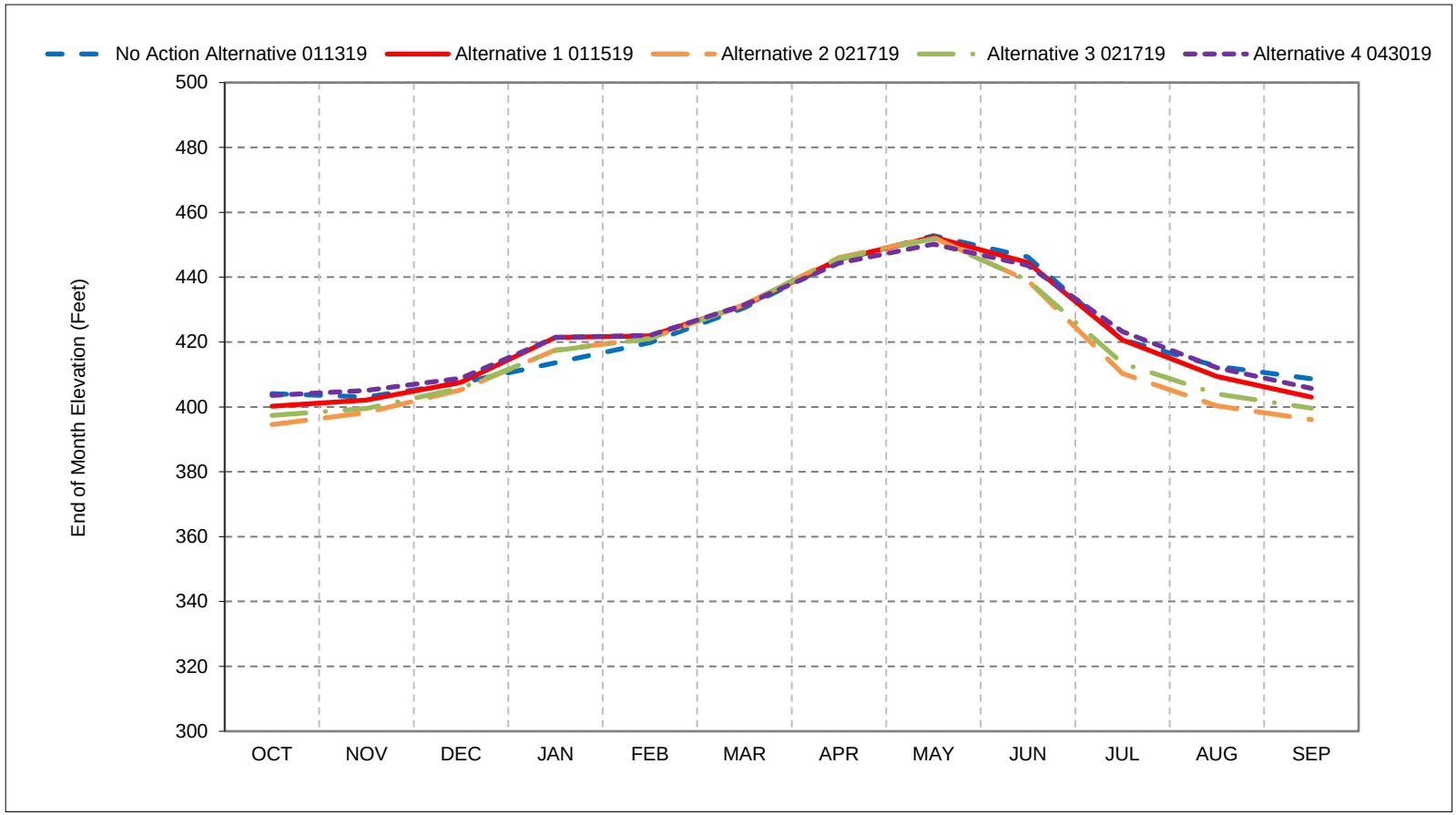
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5a-3. Folsom Lake Elevation, Above Normal Year Average Elevation



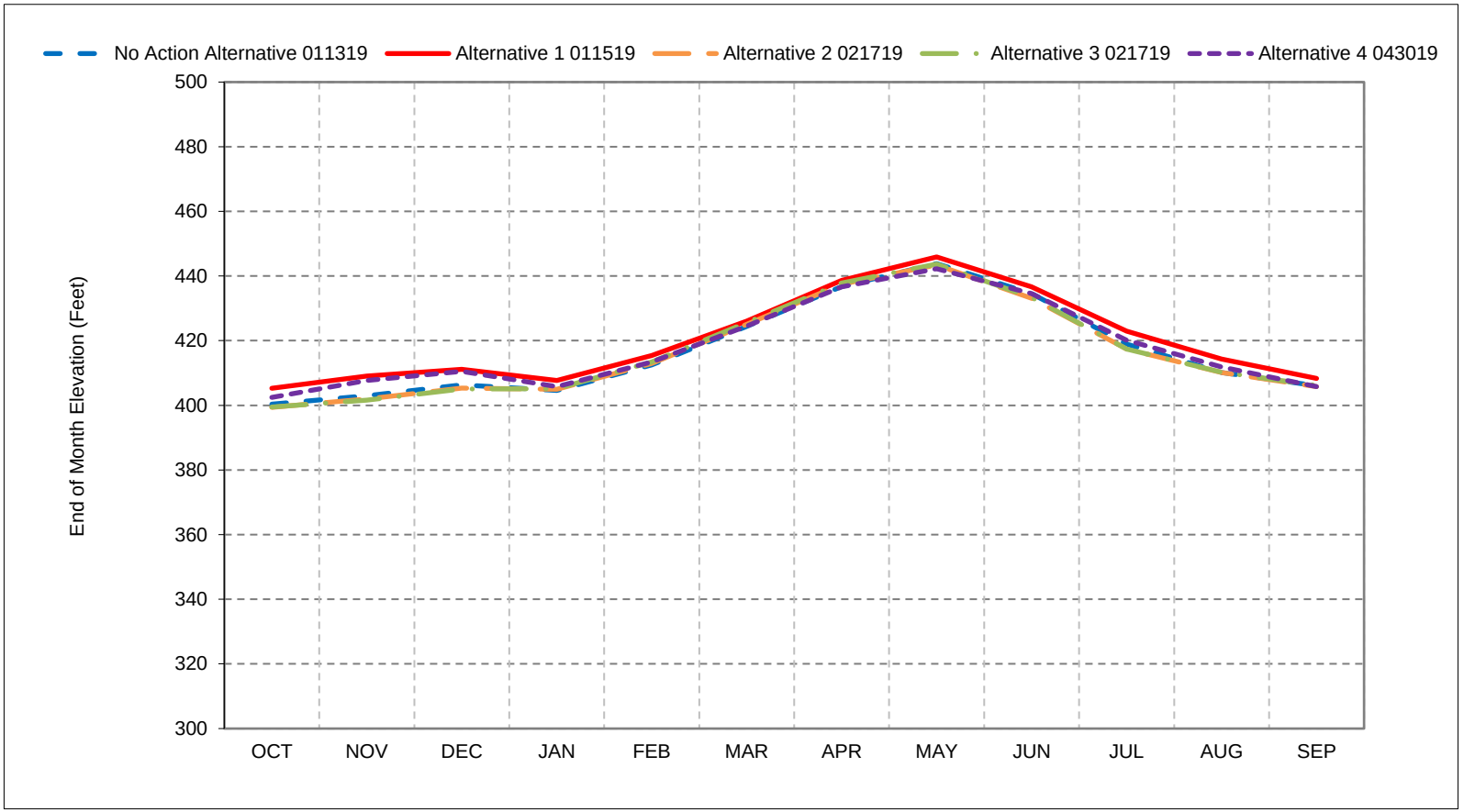
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5a-4. Folsom Lake Elevation, Below Normal Year Average Elevation



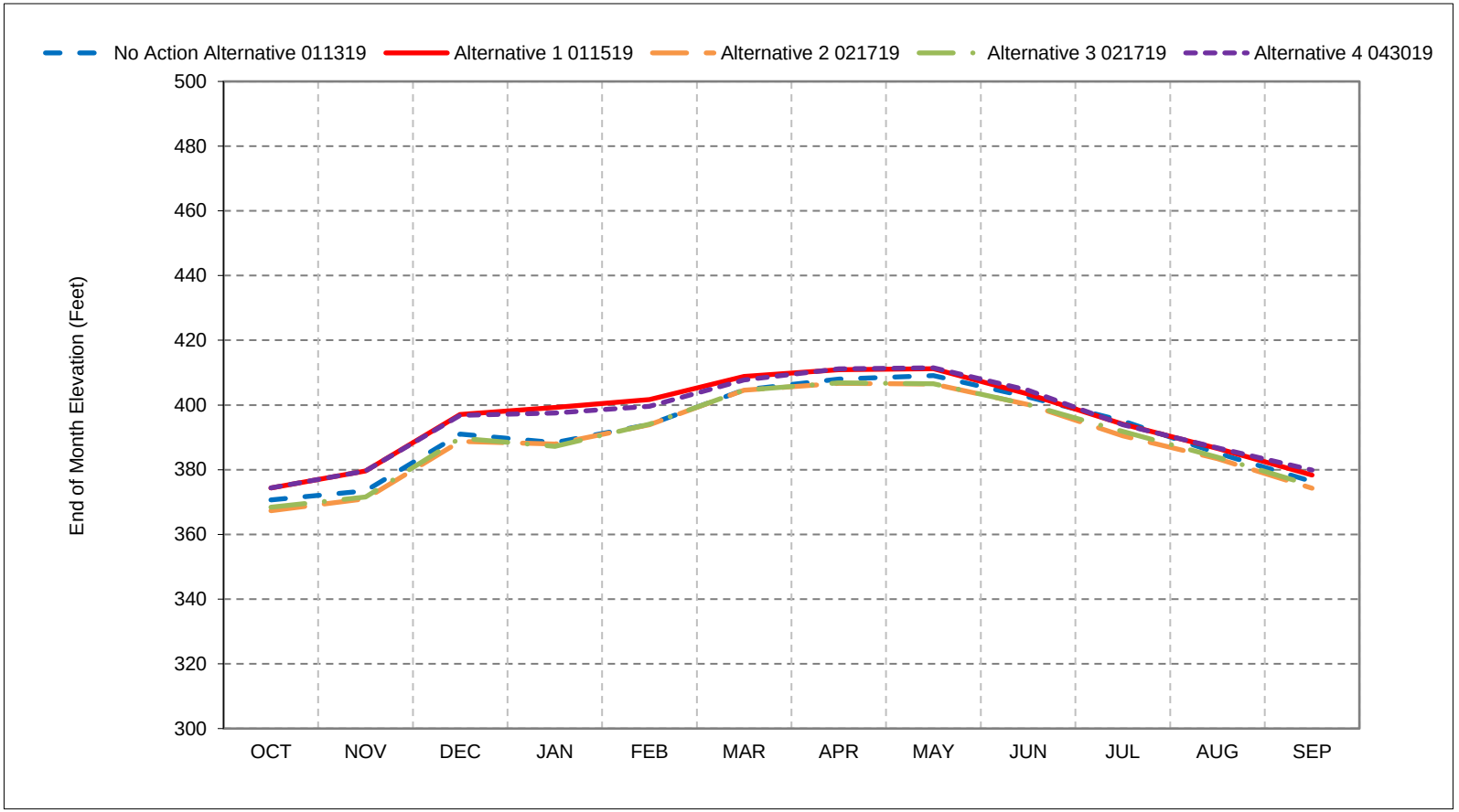
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5a-5. Folsom Lake Elevation, Dry Year Average Elevation



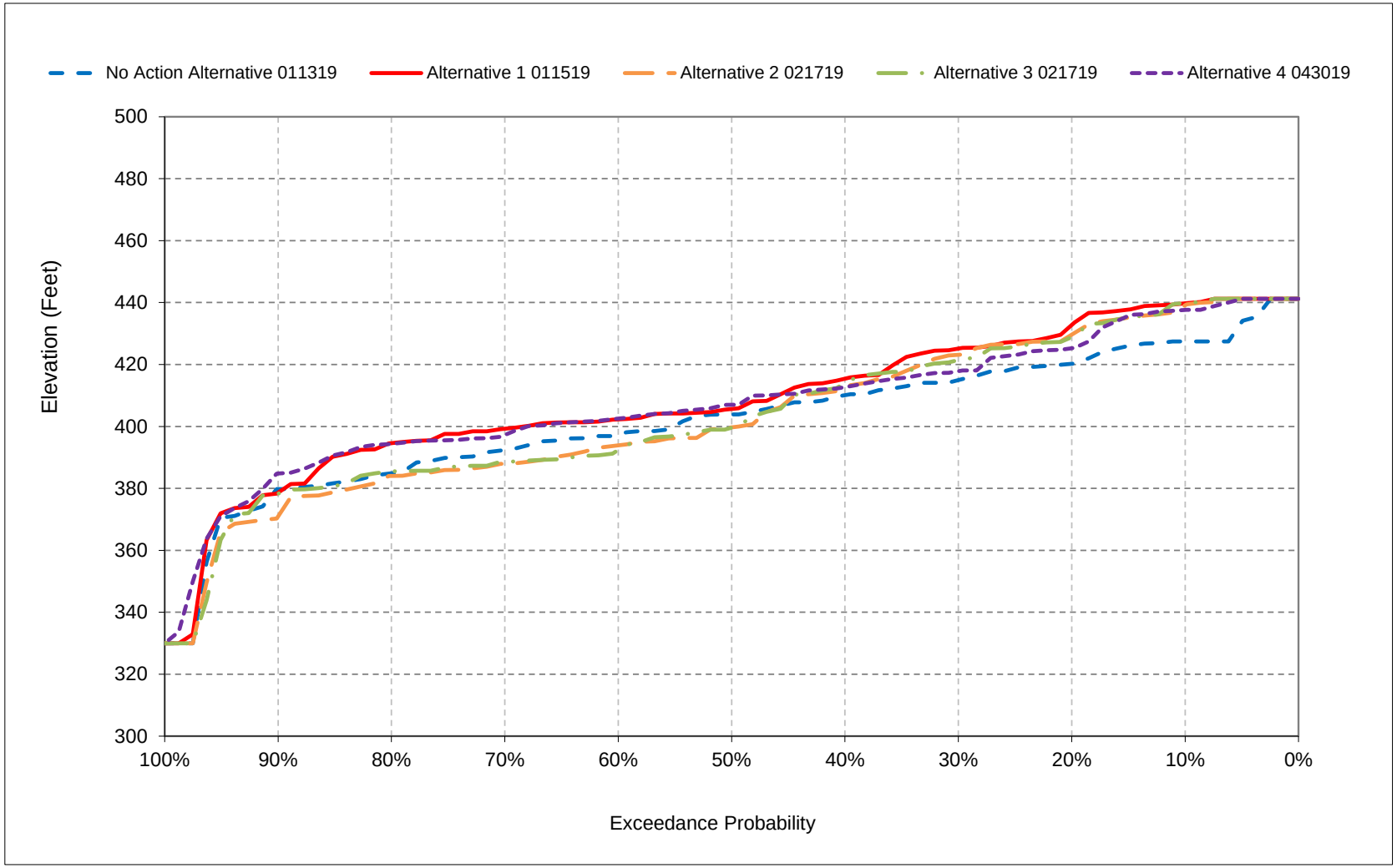
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5a-6. Folsom Lake Elevation, Critical Year Average Elevation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

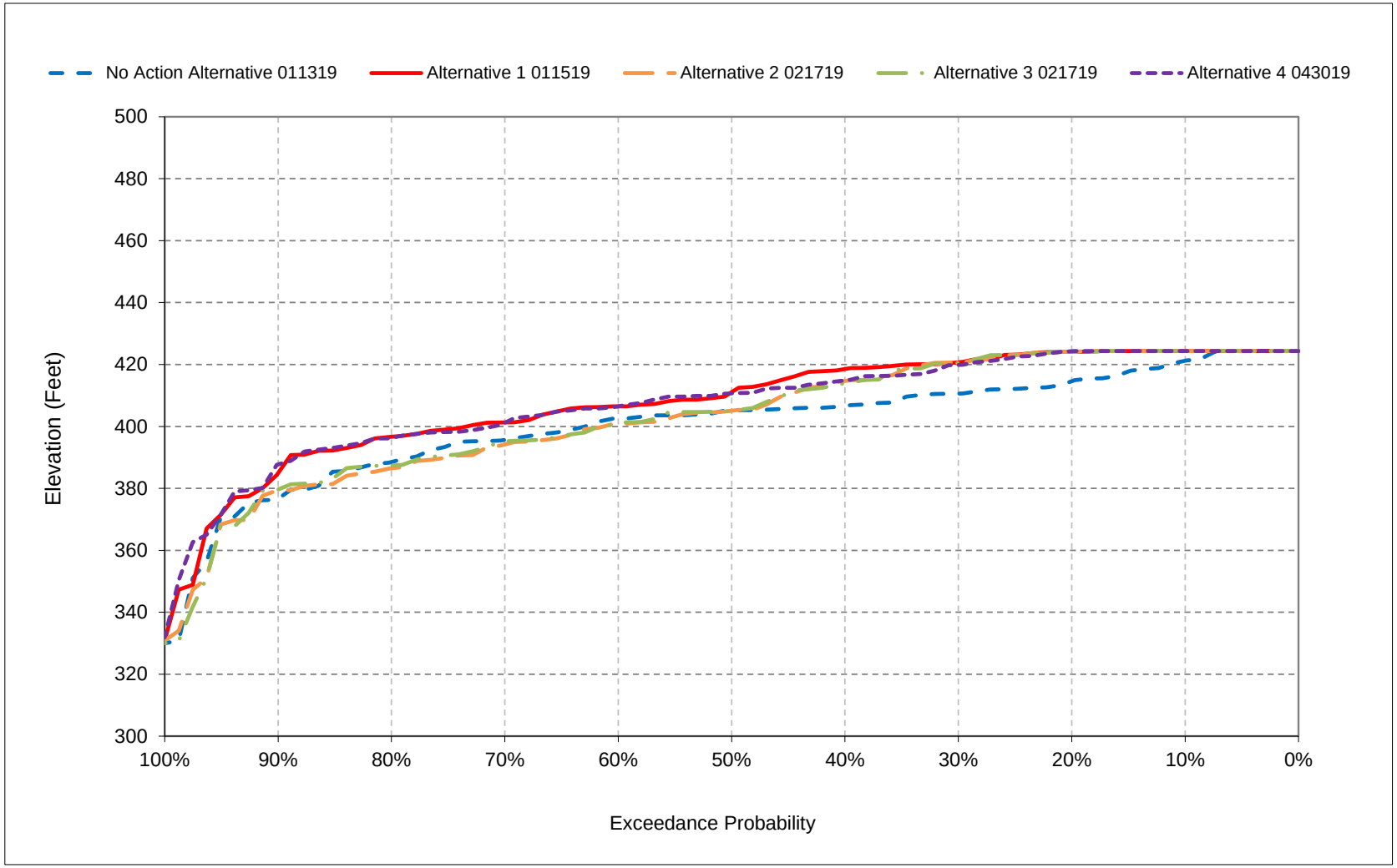
Figure 5a-7. Folsom Lake, Reservoir Pool Elevation, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

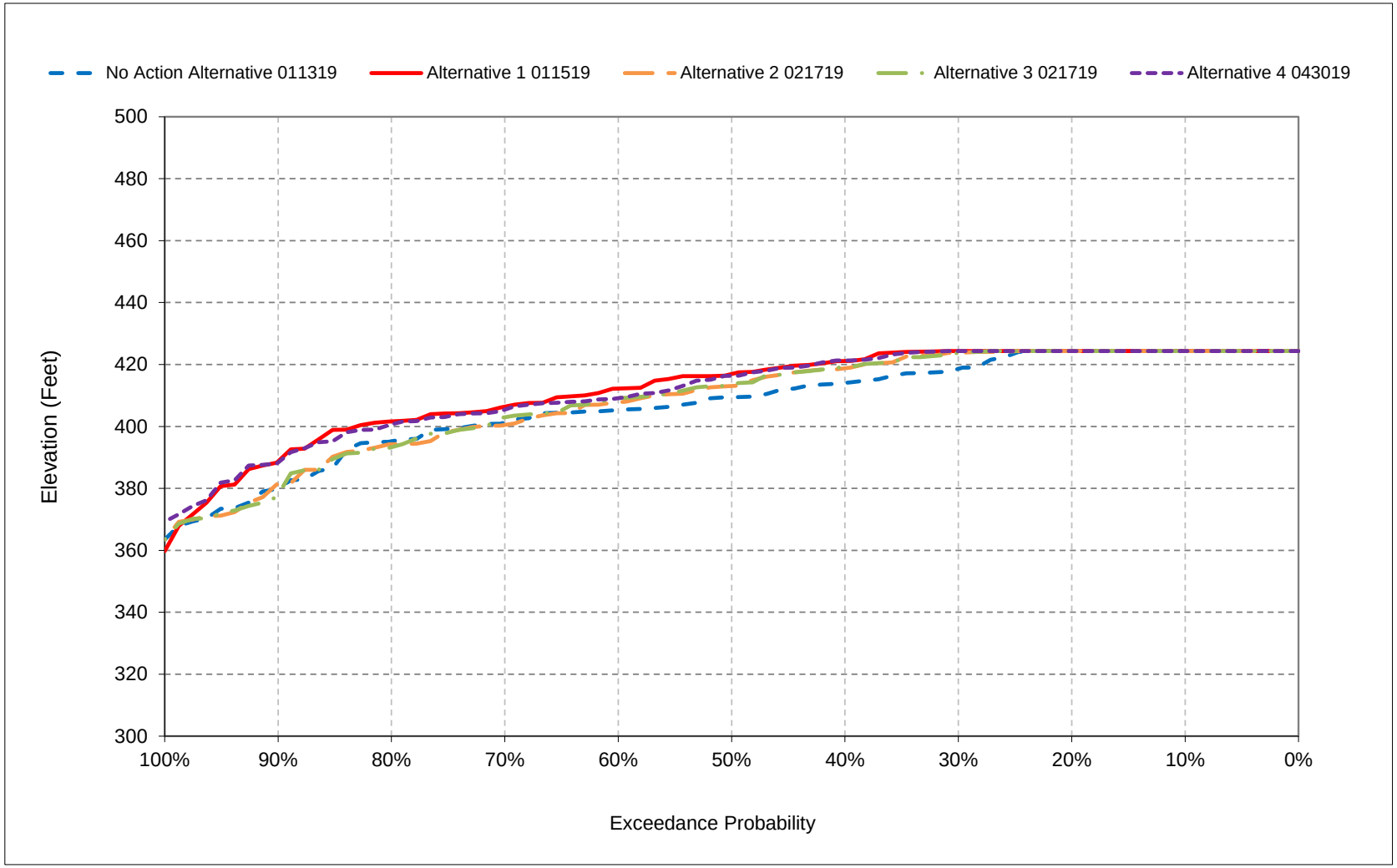
Figure 5a-8. Folsom Lake, Reservoir Pool Elevation, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

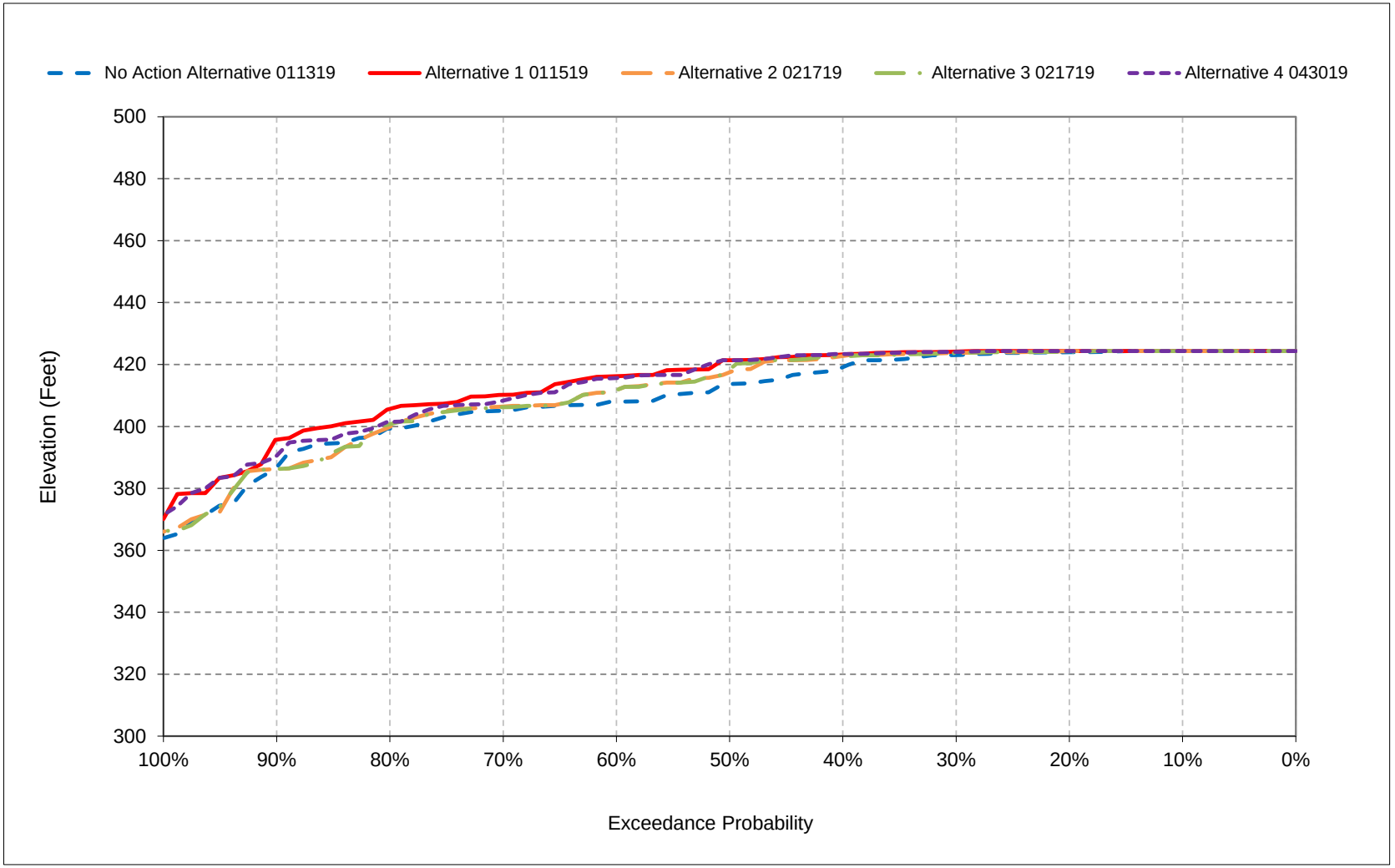
Figure 5a-9. Folsom Lake, Reservoir Pool Elevation, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

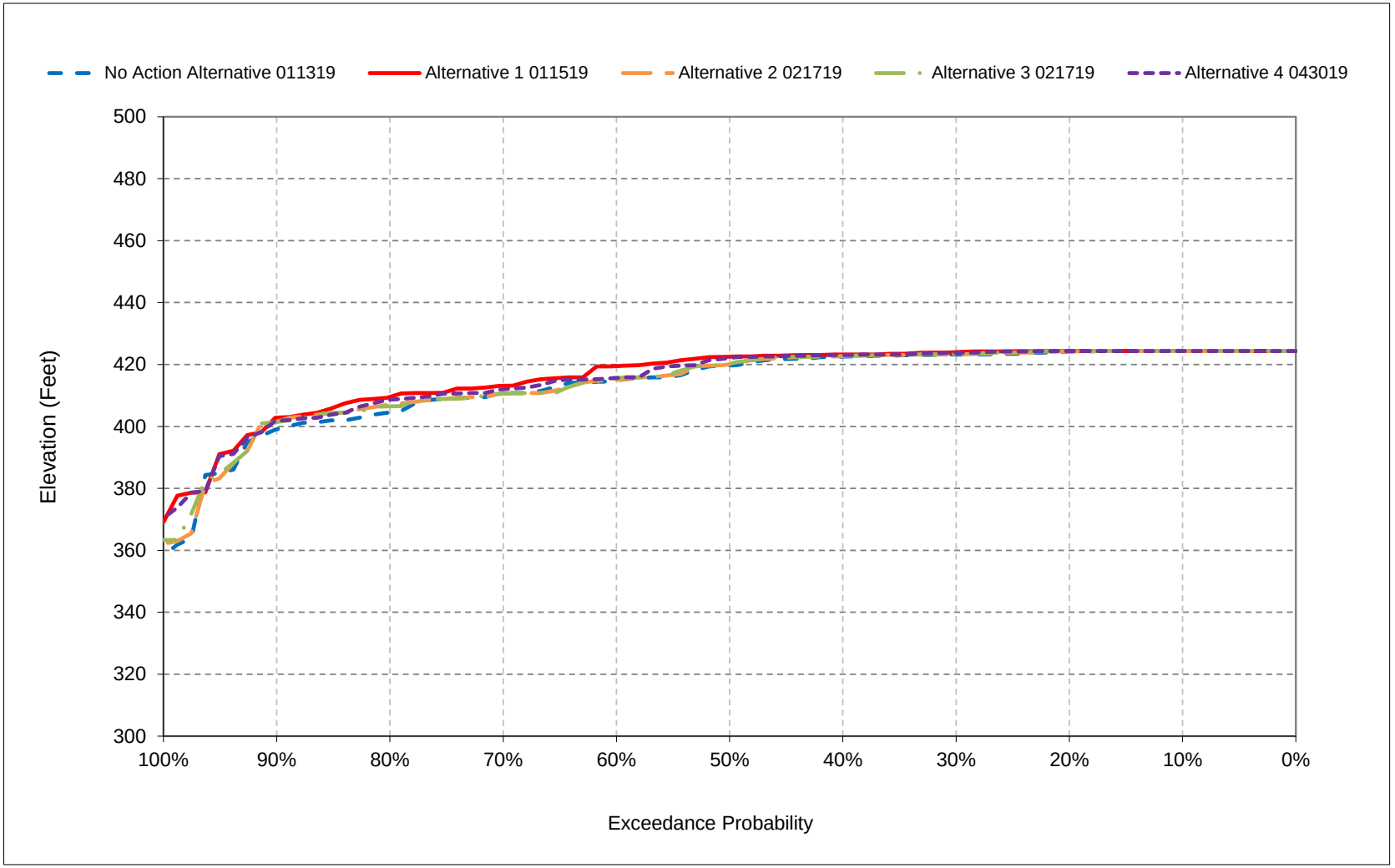
Figure 5a-10. Folsom Lake, Reservoir Pool Elevation, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

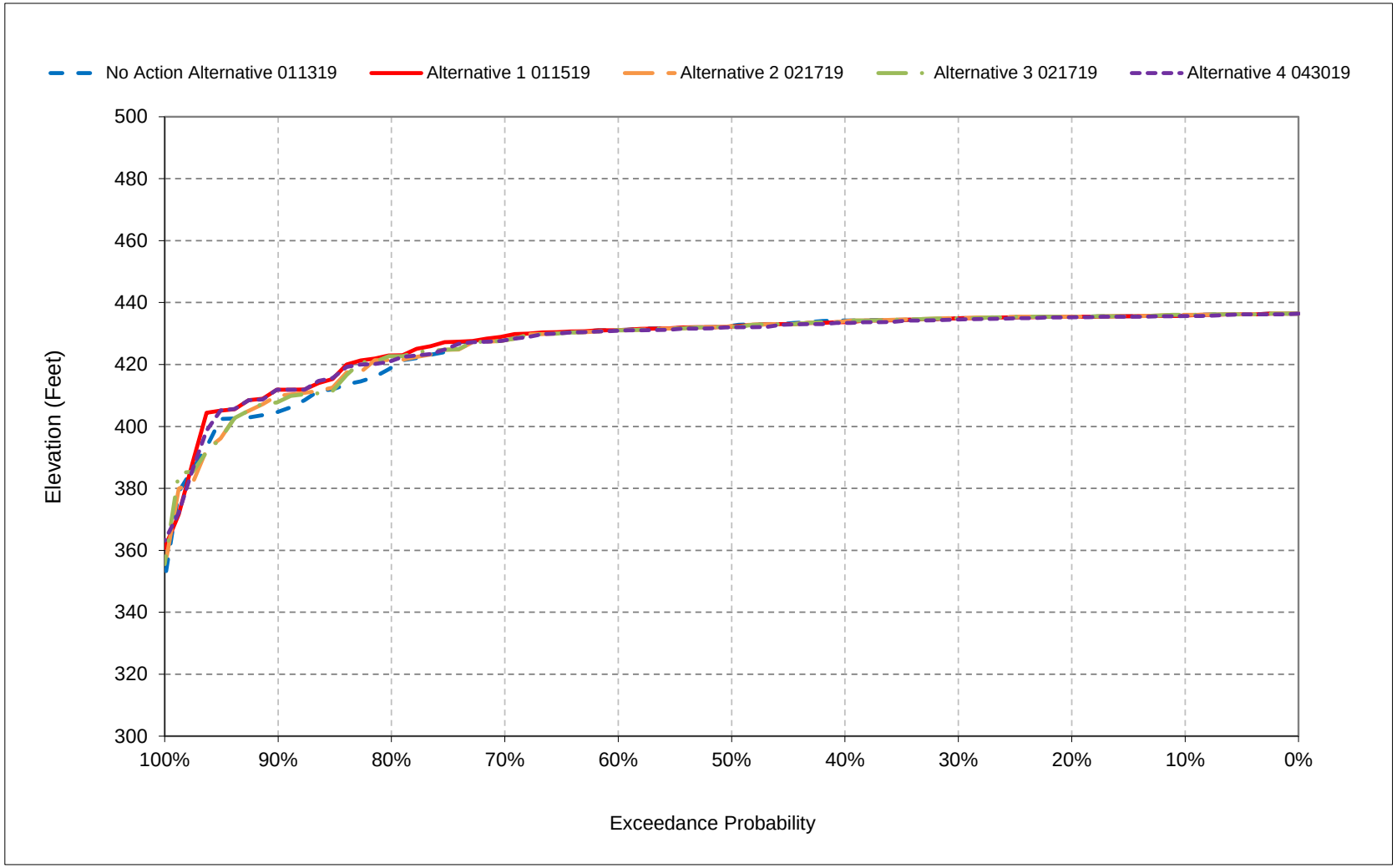
Figure 5a-11. Folsom Lake, Reservoir Pool Elevation, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

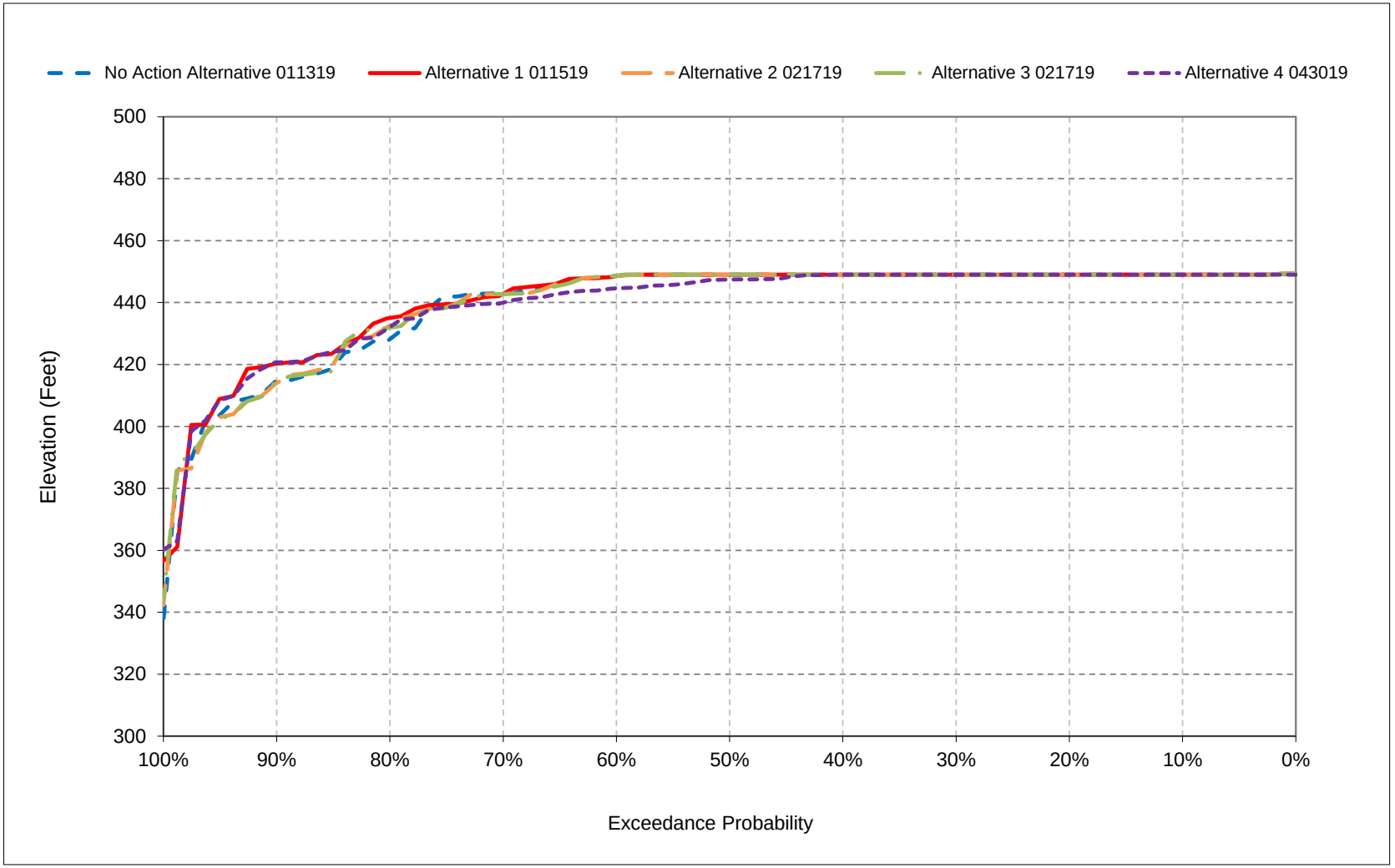
Figure 5a-12. Folsom Lake, Reservoir Pool Elevation, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

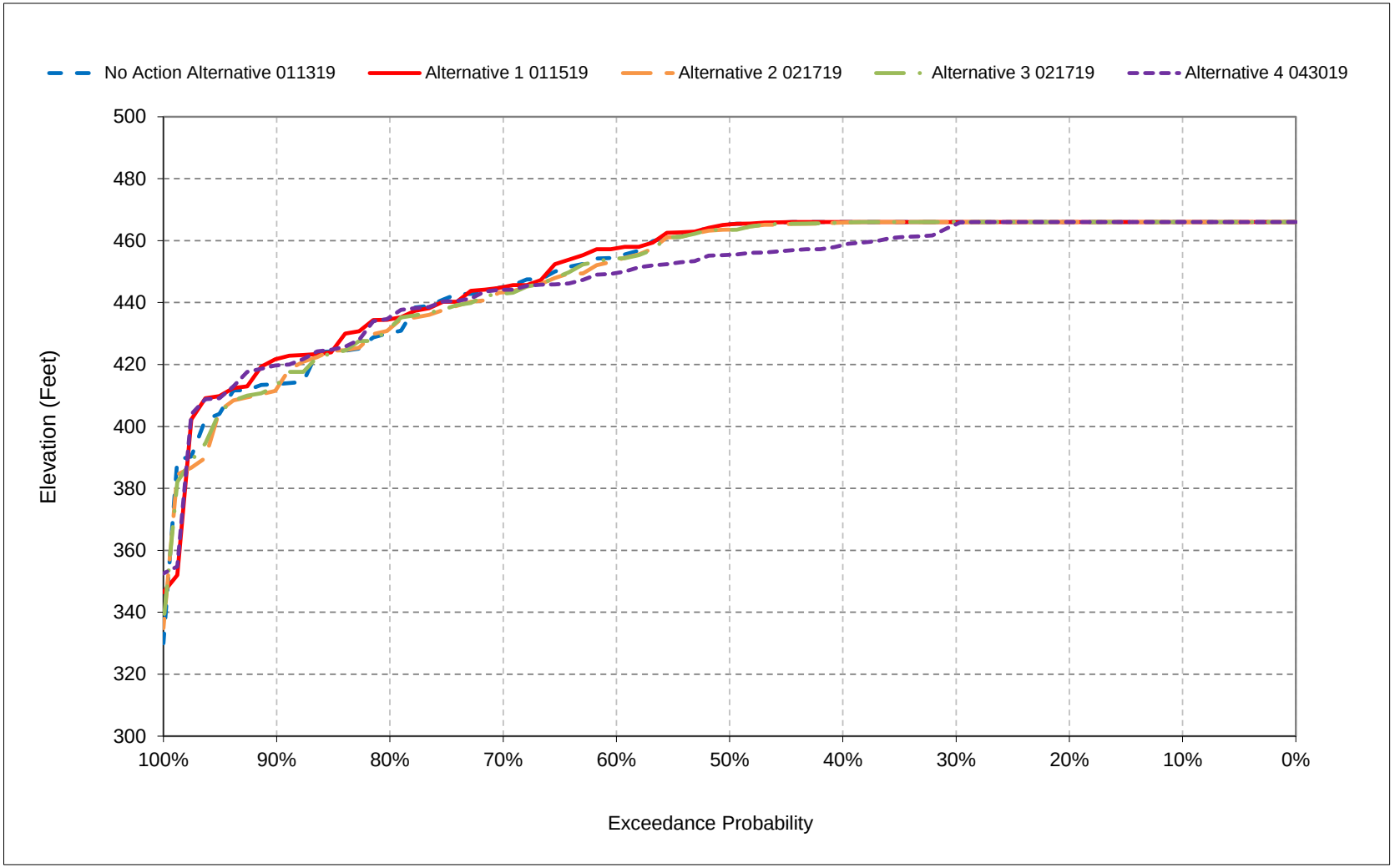
Figure 5a-13. Folsom Lake, Reservoir Pool Elevation, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

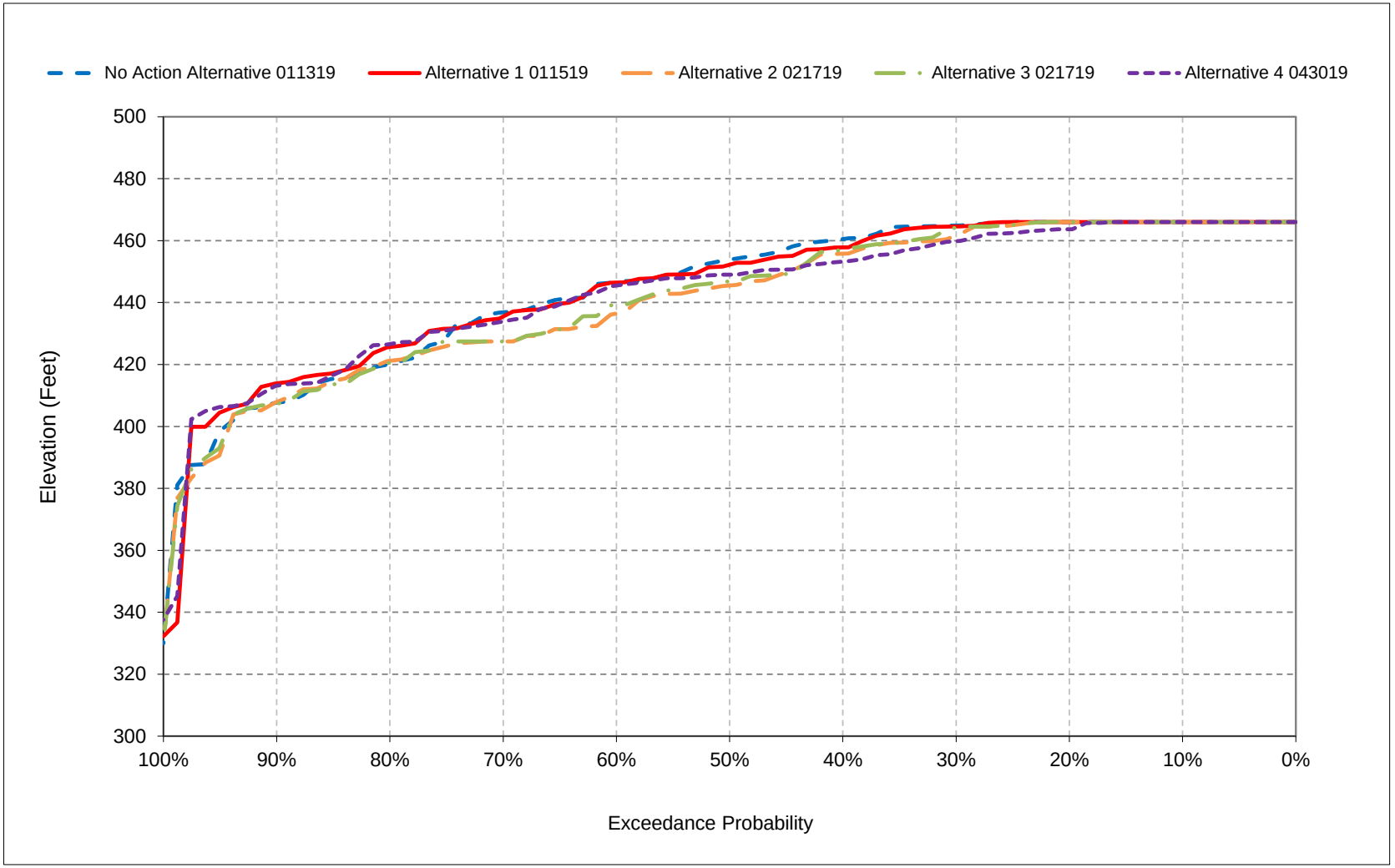
Figure 5a-14. Folsom Lake, Reservoir Pool Elevation, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

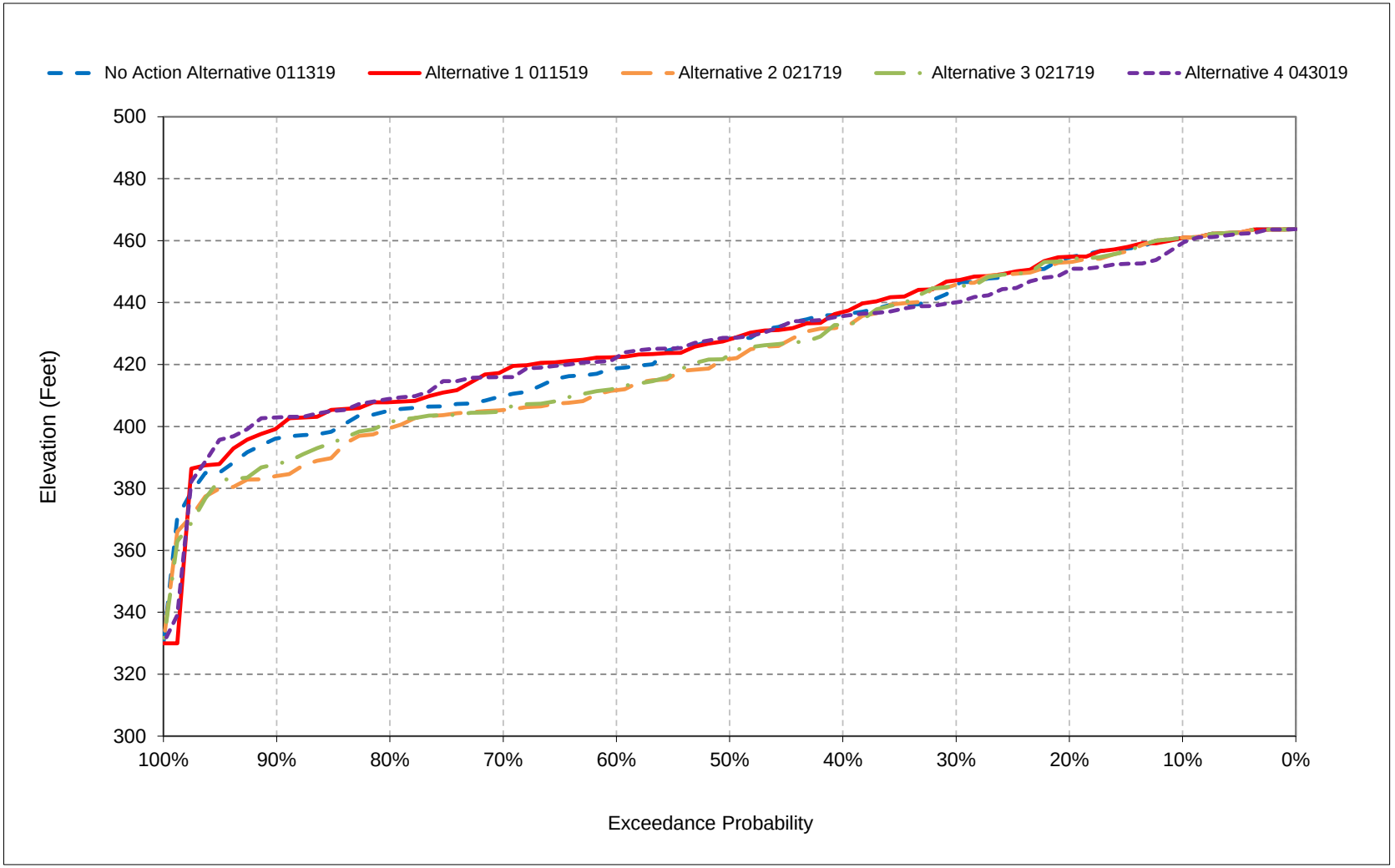
Figure 5a-15. Folsom Lake, Reservoir Pool Elevation, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

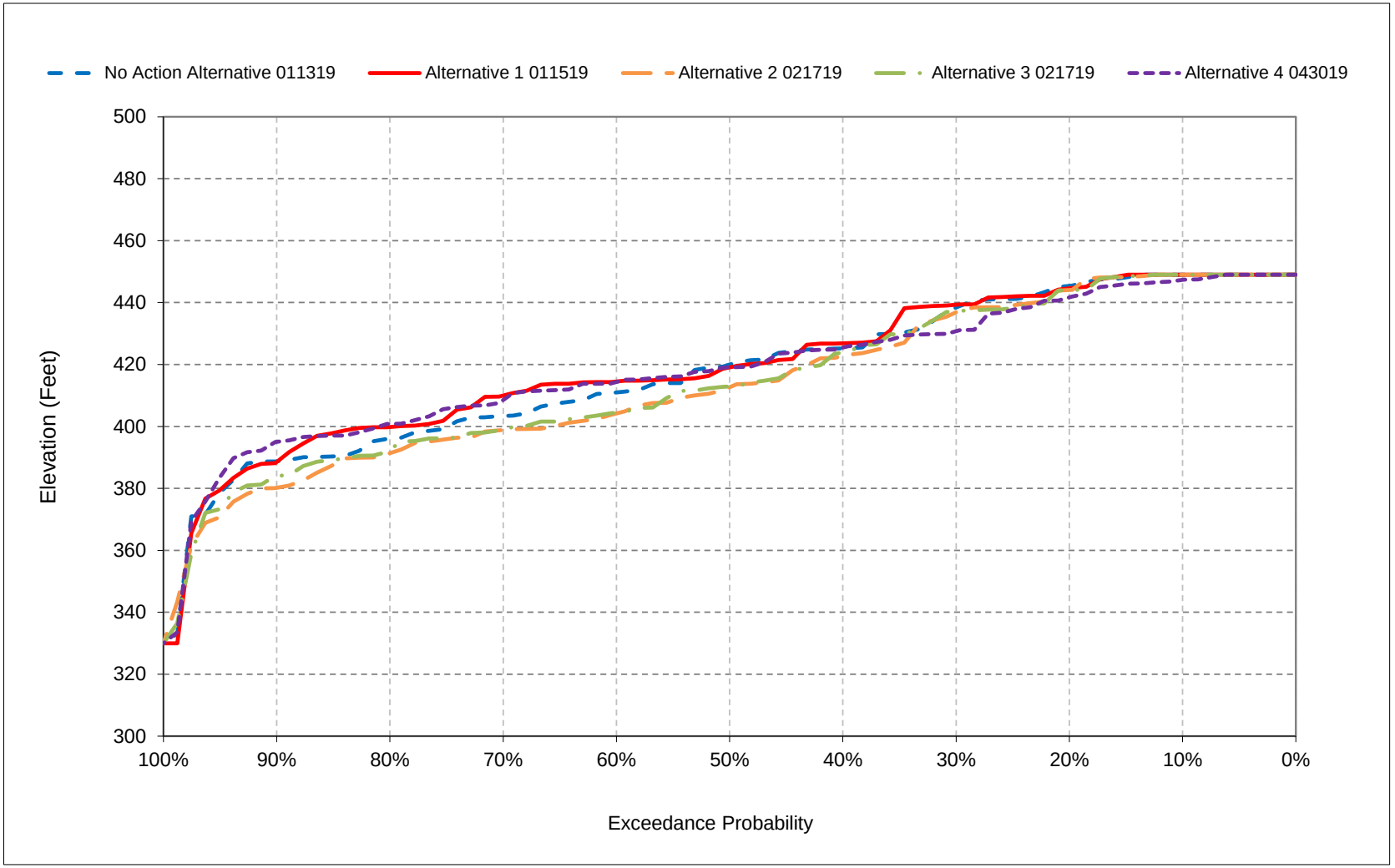
Figure 5a-16. Folsom Lake, Reservoir Pool Elevation, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

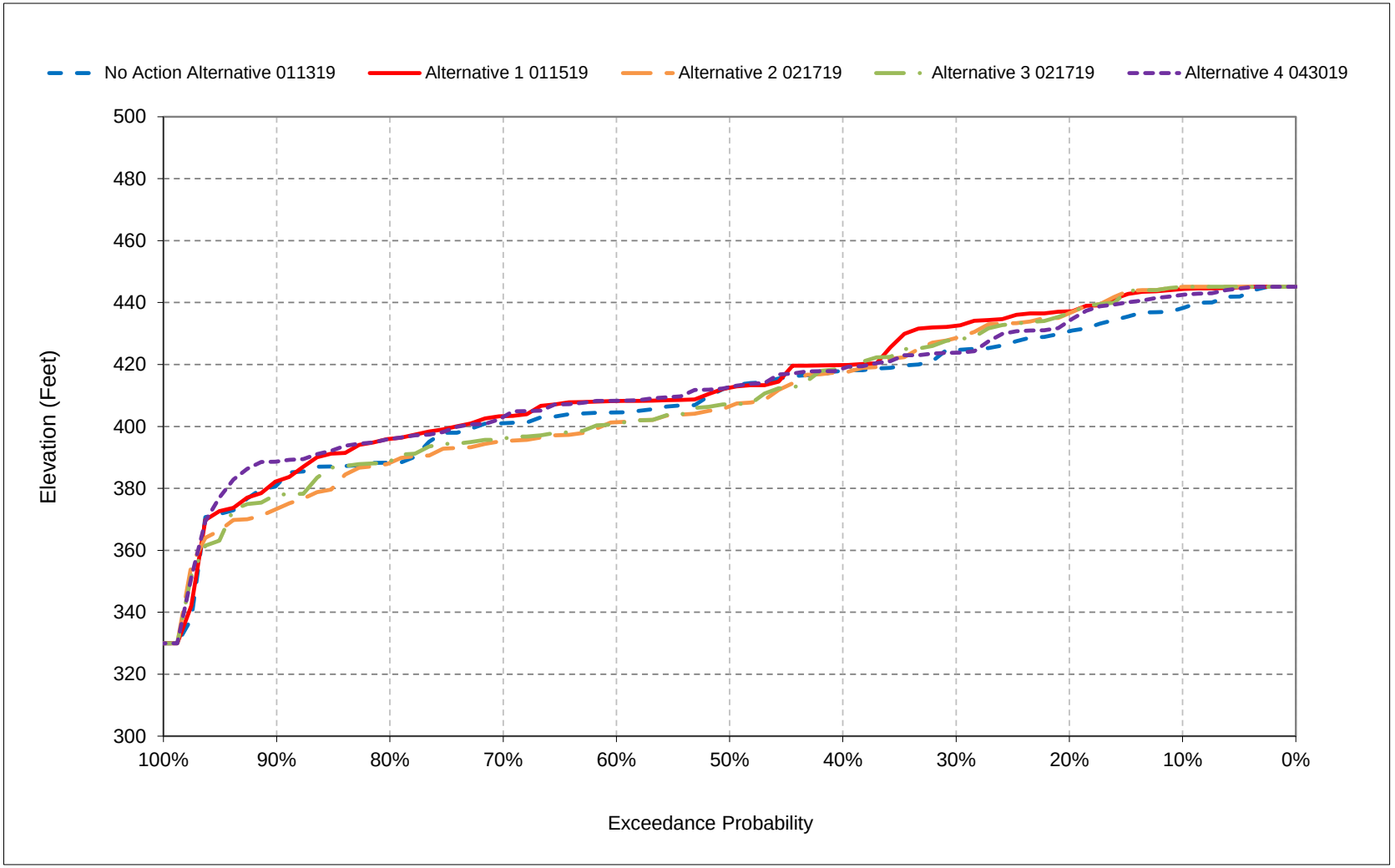
Figure 5a-17. Folsom Lake, Reservoir Pool Elevation, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5a-18. Folsom Lake, Reservoir Pool Elevation, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 6-1. San Luis Storage (CVP and SWP), End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	687	875	1,128	1,514	1,871	2,039	1,837	1,473	1,217	932	679	699
20%	509	685	1,037	1,321	1,578	1,961	1,751	1,350	956	735	529	572
30%	467	601	925	1,235	1,513	1,776	1,618	1,256	853	627	449	505
40%	427	547	854	1,147	1,445	1,714	1,499	1,157	785	528	366	443
50%	383	500	779	1,033	1,322	1,553	1,416	1,071	717	468	305	380
60%	333	436	708	974	1,225	1,442	1,305	996	621	407	265	339
70%	270	422	635	911	1,066	1,316	1,176	906	577	352	207	232
80%	213	367	556	859	1,011	1,220	1,119	820	474	292	165	178
90%	191	285	454	757	912	1,069	942	749	409	232	127	149
Long Term												
Full Simulation Period[a]	420	545	798	1,092	1,334	1,549	1,409	1,109	764	545	379	423
Water Year Types[b,c]												
Wet (32%)	574	616	890	1,209	1,521	1,813	1,629	1,274	955	711	584	647
Above Normal (16%)	448	568	863	1,101	1,379	1,621	1,412	1,027	642	398	353	465
Below Normal (13%)	380	529	738	979	1,180	1,391	1,238	915	519	409	297	327
Dry (24%)	297	513	762	1,068	1,265	1,460	1,381	1,132	776	573	271	275
Critical (15%)	301	433	646	970	1,133	1,190	1,135	978	690	422	220	227

Alternative 1 011519

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	948	1,206	1,484	1,714	1,992	2,039	2,018	1,885	1,469	1,137	859	854
20%	821	989	1,150	1,346	1,703	2,027	1,966	1,806	1,339	955	695	749
30%	545	740	981	1,274	1,539	1,791	1,889	1,646	1,241	860	583	556
40%	464	591	819	1,142	1,461	1,630	1,638	1,467	1,038	694	440	448
50%	376	524	690	1,008	1,291	1,540	1,499	1,333	952	591	351	344
60%	296	479	620	931	1,183	1,399	1,377	1,139	820	526	275	257
70%	245	412	579	829	1,048	1,300	1,288	1,031	713	453	188	198
80%	232	334	512	768	993	1,177	1,139	938	630	376	159	168
90%	187	266	408	700	941	1,105	1,063	869	517	280	116	140
Long Term												
Full Simulation Period[a]	500	653	831	1,113	1,356	1,551	1,535	1,351	991	675	444	455
Water Year Types[b,c]												
Wet (32%)	766	926	1,111	1,250	1,499	1,706	1,732	1,577	1,201	881	676	707
Above Normal (16%)	415	542	665	1,115	1,344	1,473	1,438	1,195	758	433	312	359
Below Normal (13%)	371	484	605	1,135	1,357	1,540	1,466	1,186	759	543	370	374
Dry (24%)	388	580	809	1,031	1,284	1,549	1,530	1,372	1,062	726	374	353
Critical (15%)	322	456	648	931	1,180	1,311	1,281	1,149	883	526	266	257

Alternative 1 011519 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	262	331	357	200	121	0	181	411	252	205	180	155
20%	312	304	113	24	126	66	214	456	383	220	166	178
30%	78	139	55	39	26	15	270	391	387	234	134	52
40%	36	44	**-35**	**-4**	16	**-85**	140	310	253	166	73	5
50%	**-7**	25	**-90**	**-24**	**-31**	**-13**	83	262	235	123	46	**-36**
60%	**-37**	43	**-88**	**-43**	**-43**	**-43**	72	143	199	118	9	**-83**
70%	**-26**	**-9**	**-56**	**-82**	**-18**	**-16**	111	125	136	100	**-19**	**-33**
80%	19	**-32**	**-44**	**-90**	**-18**	**-43**	20	119	156	84	**-7**	**-10**
90%	**-4**	**-18**	**-46**	**-57**	29	36	121	120	109	48	**-12**	**-10**
Long Term												
Full Simulation Period[a]	80	108	32	22	23	2	125	243	227	130	64	32
Water Year Types[b,c]												
Wet (32%)	191	310	221	41	**-22**	**-107**	104	303	246	170	92	60
Above Normal (16%)	**-33**	**-26**	**-198**	14	**-35**	**-148**	26	168	117	35	**-40**	**-106**
Below Normal (13%)	**-9**	**-45**	**-133**	157	177	149	228	271	240	134	72	47
Dry (24%)	91	66	46	**-37**	18	89	148	240	286	153	104	78
Critical (15%)	21	22	2	**-38**	47	120	147	171	193	104	46	30

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6-2. San Luis Storage (CVP and SWP), End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	687	875	1,128	1,514	1,871	2,039	1,837	1,473	1,217	932	679	699
20%	509	685	1,037	1,321	1,578	1,961	1,751	1,350	956	735	529	572
30%	467	601	925	1,235	1,513	1,776	1,618	1,256	853	627	449	505
40%	427	547	854	1,147	1,445	1,714	1,499	1,157	785	528	366	443
50%	383	500	779	1,033	1,322	1,553	1,416	1,071	717	468	305	380
60%	333	436	708	974	1,225	1,442	1,305	996	621	407	265	339
70%	270	422	635	911	1,066	1,316	1,176	906	577	352	207	232
80%	213	367	556	859	1,011	1,220	1,119	820	474	292	165	178
90%	191	285	454	757	912	1,069	942	749	409	232	127	149
Long Term												
Full Simulation Period[a]	420	545	798	1,092	1,334	1,549	1,409	1,109	764	545	379	423
Water Year Types[b,c]												
Wet (32%)	574	616	890	1,209	1,521	1,813	1,629	1,274	955	711	584	647
Above Normal (16%)	448	568	863	1,101	1,379	1,621	1,412	1,027	642	398	353	465
Below Normal (13%)	380	529	738	979	1,180	1,391	1,238	915	519	409	297	327
Dry (24%)	297	513	762	1,068	1,265	1,460	1,381	1,132	776	573	271	275
Critical (15%)	301	433	646	970	1,133	1,190	1,135	978	690	422	220	227

Alternative 2 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,201	1,473	1,798	2,039	2,039	2,039	2,039	2,003	1,805	1,334	1,097	1,085
20%	923	1,093	1,452	1,880	2,039	2,039	2,039	1,946	1,633	1,161	834	852
30%	802	999	1,308	1,665	1,980	2,039	2,039	1,859	1,454	1,078	738	759
40%	617	826	1,112	1,578	1,916	2,039	2,023	1,764	1,373	985	668	638
50%	487	561	919	1,404	1,831	2,031	1,965	1,681	1,291	879	569	527
60%	379	511	838	1,340	1,714	1,976	1,882	1,596	1,210	815	450	364
70%	264	465	698	1,287	1,602	1,847	1,769	1,459	1,069	700	353	273
80%	210	371	626	1,039	1,470	1,589	1,598	1,343	965	628	269	234
90%	154	285	489	901	1,240	1,468	1,418	1,228	892	518	165	168
Long Term												
Full Simulation Period[a]	604	763	1,036	1,436	1,719	1,864	1,833	1,641	1,300	924	603	587
Water Year Types[b,c]												
Wet (32%)	1,061	1,249	1,516	1,673	1,906	2,018	2,015	1,879	1,562	1,220	955	971
Above Normal (16%)	630	722	969	1,549	1,836	1,947	1,916	1,650	1,214	843	604	611
Below Normal (13%)	382	498	707	1,575	1,815	1,929	1,839	1,514	1,131	790	461	414
Dry (24%)	323	534	857	1,230	1,585	1,822	1,787	1,612	1,306	866	425	373
Critical (15%)	260	379	667	1,012	1,321	1,448	1,417	1,281	969	590	267	244

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	514	598	670	525	168	0	202	529	588	402	418	386
20%	414	408	415	558	461	78	288	596	677	426	305	280
30%	335	398	382	430	467	263	421	603	600	451	289	255
40%	190	279	258	432	471	325	525	608	588	458	301	195
50%	105	61	140	371	509	478	549	610	574	411	264	147
60%	46	76	130	367	489	534	577	600	588	407	185	25
70%	**-6**	43	63	376	535	530	592	553	492	348	145	42
80%	**-2**	4	70	181	459	369	480	523	491	336	104	56
90%	**-38**	0	34	144	328	399	476	478	484	286	38	19
Long Term												
Full Simulation Period[a]	184	218	238	344	385	315	423	532	535	379	224	164
Water Year Types[b,c]												
Wet (32%)	486	632	626	465	385	205	387	605	607	509	371	324
Above Normal (16%)	182	154	107	448	458	327	504	623	572	445	252	146
Below Normal (13%)	2	**-31**	**-31**	596	635	539	600	599	612	382	163	87
Dry (24%)	26	20	95	162	320	362	406	480	530	293	154	98
Critical (15%)	**-41**	**-54**	20	42	188	258	282	303	279	168	47	17

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6-3. San Luis Storage (CVP and SWP), End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	687	875	1,128	1,514	1,871	2,039	1,837	1,473	1,217	932	679	699
20%	509	685	1,037	1,321	1,578	1,961	1,751	1,350	956	735	529	572
30%	467	601	925	1,235	1,513	1,776	1,618	1,256	853	627	449	505
40%	427	547	854	1,147	1,445	1,714	1,499	1,157	785	528	366	443
50%	383	500	779	1,033	1,322	1,553	1,416	1,071	717	468	305	380
60%	333	436	708	974	1,225	1,442	1,305	996	621	407	265	339
70%	270	422	635	911	1,066	1,316	1,176	906	577	352	207	232
80%	213	367	556	859	1,011	1,220	1,119	820	474	292	165	178
90%	191	285	454	757	912	1,069	942	749	409	232	127	149
Long Term												
Full Simulation Period[a]	420	545	798	1,092	1,334	1,549	1,409	1,109	764	545	379	423
Water Year Types[b,c]												
Wet (32%)	574	616	890	1,209	1,521	1,813	1,629	1,274	955	711	584	647
Above Normal (16%)	448	568	863	1,101	1,379	1,621	1,412	1,027	642	398	353	465
Below Normal (13%)	380	529	738	979	1,180	1,391	1,238	915	519	409	297	327
Dry (24%)	297	513	762	1,068	1,265	1,460	1,381	1,132	776	573	271	275
Critical (15%)	301	433	646	970	1,133	1,190	1,135	978	690	422	220	227

Alternative 3 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,197	1,458	1,756	2,033	2,039	2,039	2,039	2,016	1,817	1,333	1,047	1,061
20%	888	1,087	1,449	1,806	2,039	2,039	2,039	1,946	1,635	1,174	806	823
30%	806	975	1,257	1,665	1,983	2,039	2,039	1,826	1,460	1,065	737	755
40%	613	831	1,125	1,565	1,881	2,039	2,022	1,750	1,356	988	672	633
50%	502	624	967	1,455	1,817	2,029	1,964	1,669	1,298	879	576	527
60%	389	525	872	1,363	1,732	1,986	1,864	1,588	1,198	801	428	391
70%	261	463	716	1,278	1,644	1,839	1,743	1,505	1,134	703	351	274
80%	220	346	602	1,101	1,493	1,602	1,613	1,382	987	645	255	229
90%	172	287	490	883	1,190	1,468	1,437	1,257	904	508	160	176
Long Term												
Full Simulation Period[a]	597	758	1,039	1,437	1,723	1,863	1,831	1,644	1,302	925	597	581
Water Year Types[b,c]												
Wet (32%)	1,066	1,261	1,535	1,670	1,918	2,028	2,011	1,880	1,571	1,243	955	971
Above Normal (16%)	593	704	966	1,550	1,851	1,946	1,918	1,651	1,196	807	574	575
Below Normal (13%)	389	508	725	1,603	1,808	1,918	1,841	1,524	1,138	798	465	419
Dry (24%)	315	518	846	1,224	1,577	1,809	1,773	1,607	1,308	859	415	368
Critical (15%)	245	353	655	1,013	1,326	1,460	1,434	1,298	978	590	267	247

Alternative 3 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	511	583	629	519	168	0	202	543	600	402	368	362
20%	379	402	412	485	461	78	288	596	680	439	277	251
30%	339	374	332	430	470	263	421	570	607	439	289	250
40%	186	284	271	418	436	325	523	593	571	461	306	190
50%	119	125	188	423	495	476	548	598	581	411	272	148
60%	57	90	164	389	507	544	559	592	577	393	163	51
70%	**-9**	41	80	367	578	523	566	598	557	351	144	42
80%	7	**-20**	46	243	482	383	494	562	513	353	89	51
90%	**-19**	2	35	125	278	399	494	507	496	276	33	26
Long Term												
Full Simulation Period[a]	177	213	241	346	389	315	421	536	538	380	217	158
Water Year Types[b,c]												
Wet (32%)	492	645	645	461	397	214	382	606	616	532	371	324
Above Normal (16%)	145	136	103	449	472	325	506	624	555	409	222	110
Below Normal (13%)	9	**-21**	**-14**	624	628	528	603	610	619	389	167	92
Dry (24%)	18	5	84	157	311	349	391	475	532	286	145	93
Critical (15%)	**-56**	**-80**	9	44	192	270	299	320	288	169	47	20

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6-4. San Luis Storage (CVP and SWP), End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	687	875	1,128	1,514	1,871	2,039	1,837	1,473	1,217	932	679	699
20%	509	685	1,037	1,321	1,578	1,961	1,751	1,350	956	735	529	572
30%	467	601	925	1,235	1,513	1,776	1,618	1,256	853	627	449	505
40%	427	547	854	1,147	1,445	1,714	1,499	1,157	785	528	366	443
50%	383	500	779	1,033	1,322	1,553	1,416	1,071	717	468	305	380
60%	333	436	708	974	1,225	1,442	1,305	996	621	407	265	339
70%	270	422	635	911	1,066	1,316	1,176	906	577	352	207	232
80%	213	367	556	859	1,011	1,220	1,119	820	474	292	165	178
90%	191	285	454	757	912	1,069	942	749	409	232	127	149
Long Term												
Full Simulation Period[a]	420	545	798	1,092	1,334	1,549	1,409	1,109	764	545	379	423
Water Year Types[b,c]												
Wet (32%)	574	616	890	1,209	1,521	1,813	1,629	1,274	955	711	584	647
Above Normal (16%)	448	568	863	1,101	1,379	1,621	1,412	1,027	642	398	353	465
Below Normal (13%)	380	529	738	979	1,180	1,391	1,238	915	519	409	297	327
Dry (24%)	297	513	762	1,068	1,265	1,460	1,381	1,132	776	573	271	275
Critical (15%)	301	433	646	970	1,133	1,190	1,135	978	690	422	220	227

Alternative 4 043019

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	986	1,297	1,588	1,778	2,039	2,039	2,003	1,757	1,473	1,073	837	825
20%	849	1,062	1,319	1,647	1,944	1,986	1,807	1,531	1,185	939	646	705
30%	721	939	1,177	1,548	1,776	1,769	1,712	1,362	1,069	799	528	608
40%	630	767	1,049	1,361	1,641	1,623	1,572	1,281	922	682	462	527
50%	493	684	937	1,252	1,537	1,530	1,469	1,150	853	628	389	433
60%	422	607	866	1,159	1,438	1,405	1,307	1,048	792	548	327	366
70%	373	558	792	1,113	1,391	1,337	1,254	985	695	423	290	302
80%	269	483	746	1,020	1,349	1,289	1,178	902	590	381	256	253
90%	234	370	534	904	1,188	1,134	1,073	773	521	321	154	182
Long Term												
Full Simulation Period[a]	580	778	1,011	1,317	1,572	1,556	1,474	1,214	924	669	463	500
Water Year Types[b,c]												
Wet (32%)	805	997	1,220	1,478	1,747	1,780	1,712	1,433	1,101	823	665	721
Above Normal (16%)	550	743	944	1,351	1,588	1,556	1,437	1,101	704	435	362	462
Below Normal (13%)	425	590	838	1,314	1,530	1,462	1,348	1,061	794	651	370	357
Dry (24%)	463	718	997	1,243	1,513	1,474	1,395	1,157	932	677	380	388
Critical (15%)	463	610	816	1,056	1,314	1,291	1,247	1,096	886	592	357	380

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	299	422	460	263	168	0	166	284	255	141	159	126
20%	340	377	282	326	367	25	55	181	229	204	117	133
30%	254	338	251	313	263	**-6**	94	107	215	173	80	104
40%	203	220	195	214	196	**-92**	73	124	137	154	96	84
50%	110	185	158	219	215	**-23**	53	79	136	159	84	53
60%	89	172	158	185	213	**-37**	2	52	171	140	62	26
70%	103	136	156	202	325	20	78	79	118	71	82	70
80%	56	116	189	161	338	70	60	82	116	89	91	75
90%	43	85	80	147	276	65	130	24	112	89	27	33
Long Term												
Full Simulation Period[a]	160	233	213	225	239	7	65	105	160	124	84	77
Water Year Types[b,c]												
Wet (32%)	231	381	330	269	226	**-34**	83	159	146	112	81	74
Above Normal (16%)	102	175	82	250	209	**-65**	25	73	62	37	9	**-2**
Below Normal (13%)	45	61	99	336	350	71	110	146	275	242	73	30
Dry (24%)	167	205	234	175	248	15	13	26	156	105	109	112
Critical (15%)	162	176	170	86	180	101	112	118	197	170	136	153

a Based on the 82-year simulation period.

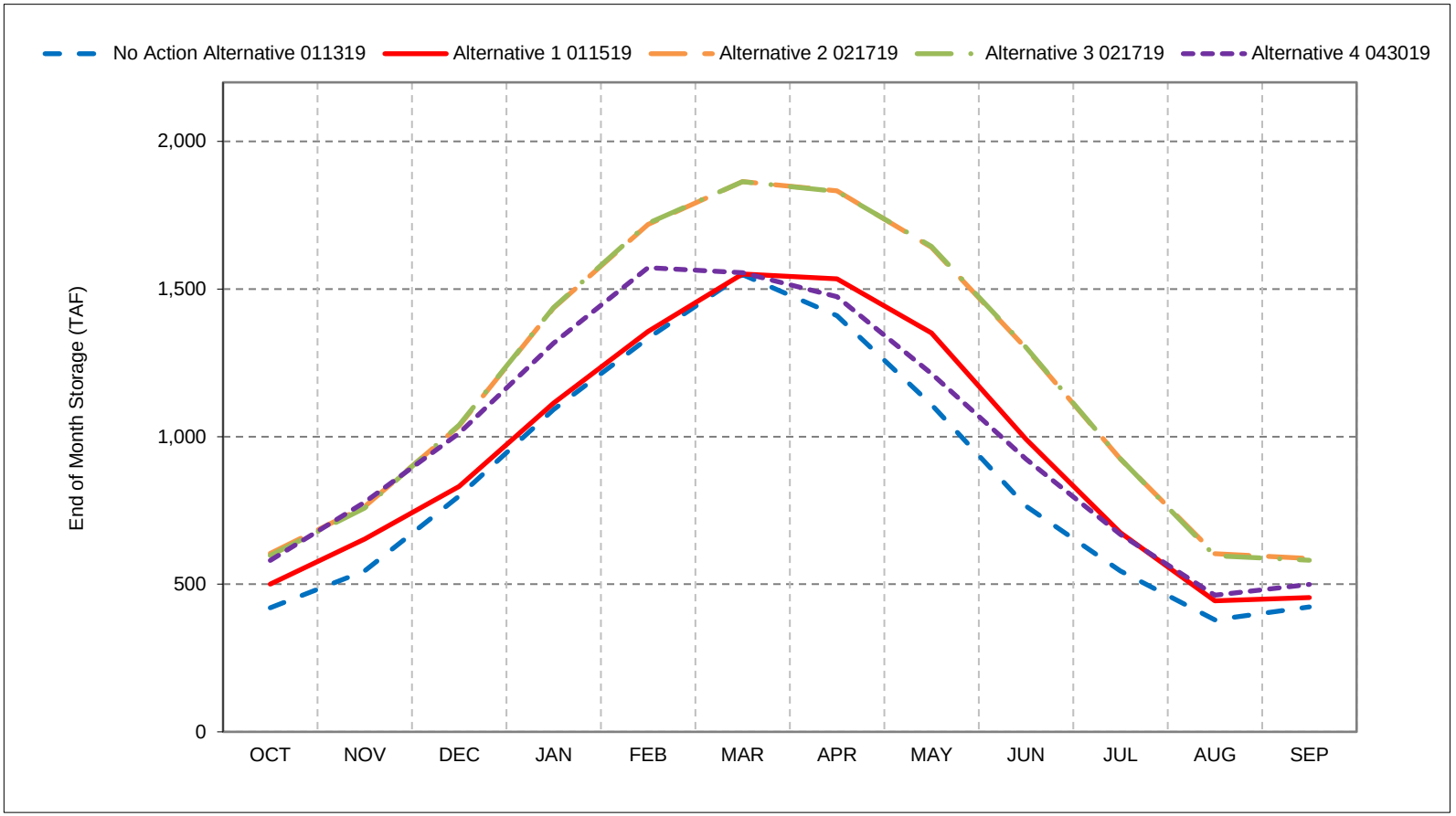
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

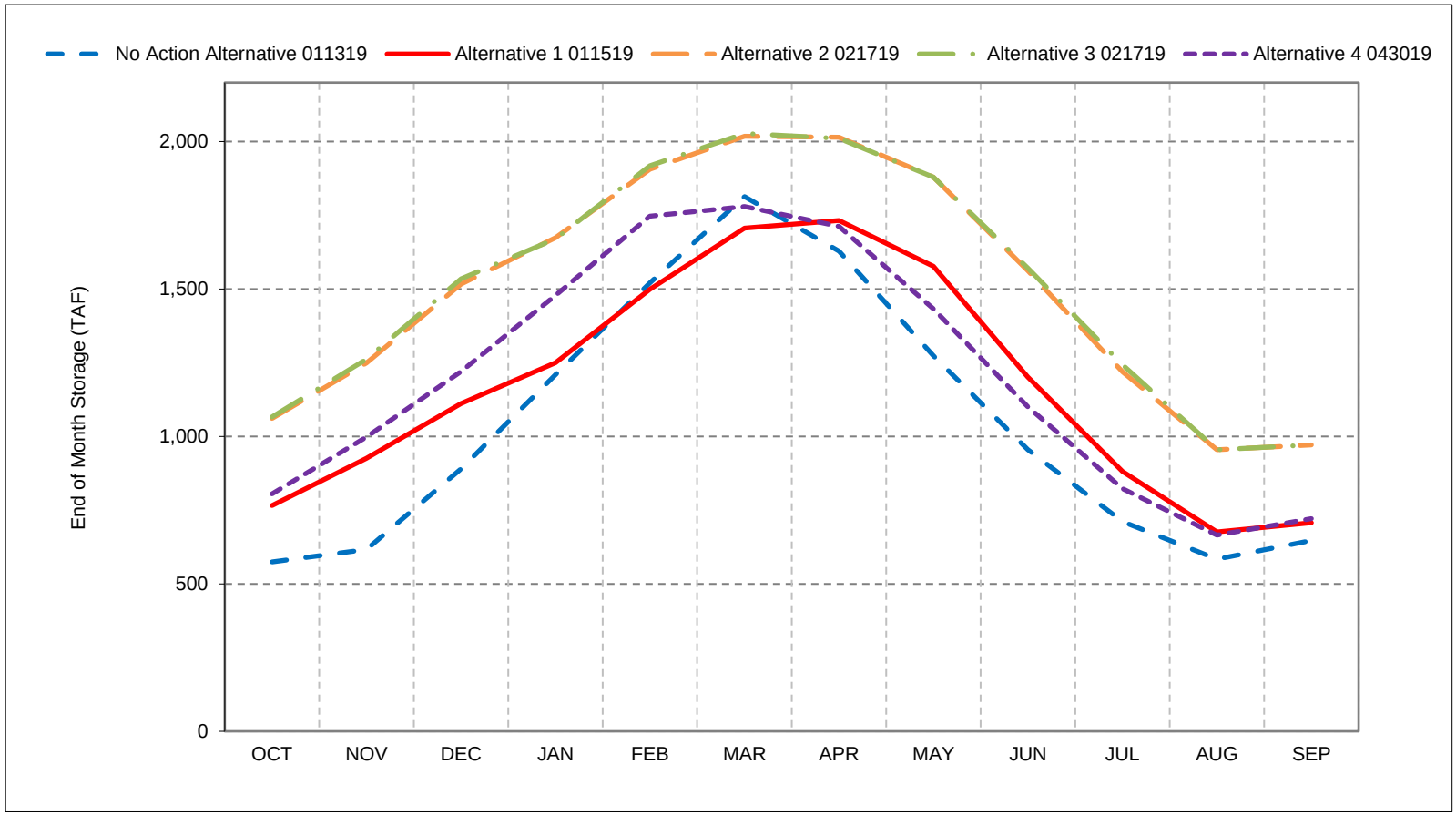
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-1. San Luis Storage (CVP and SWP), Long-Term Average Storage



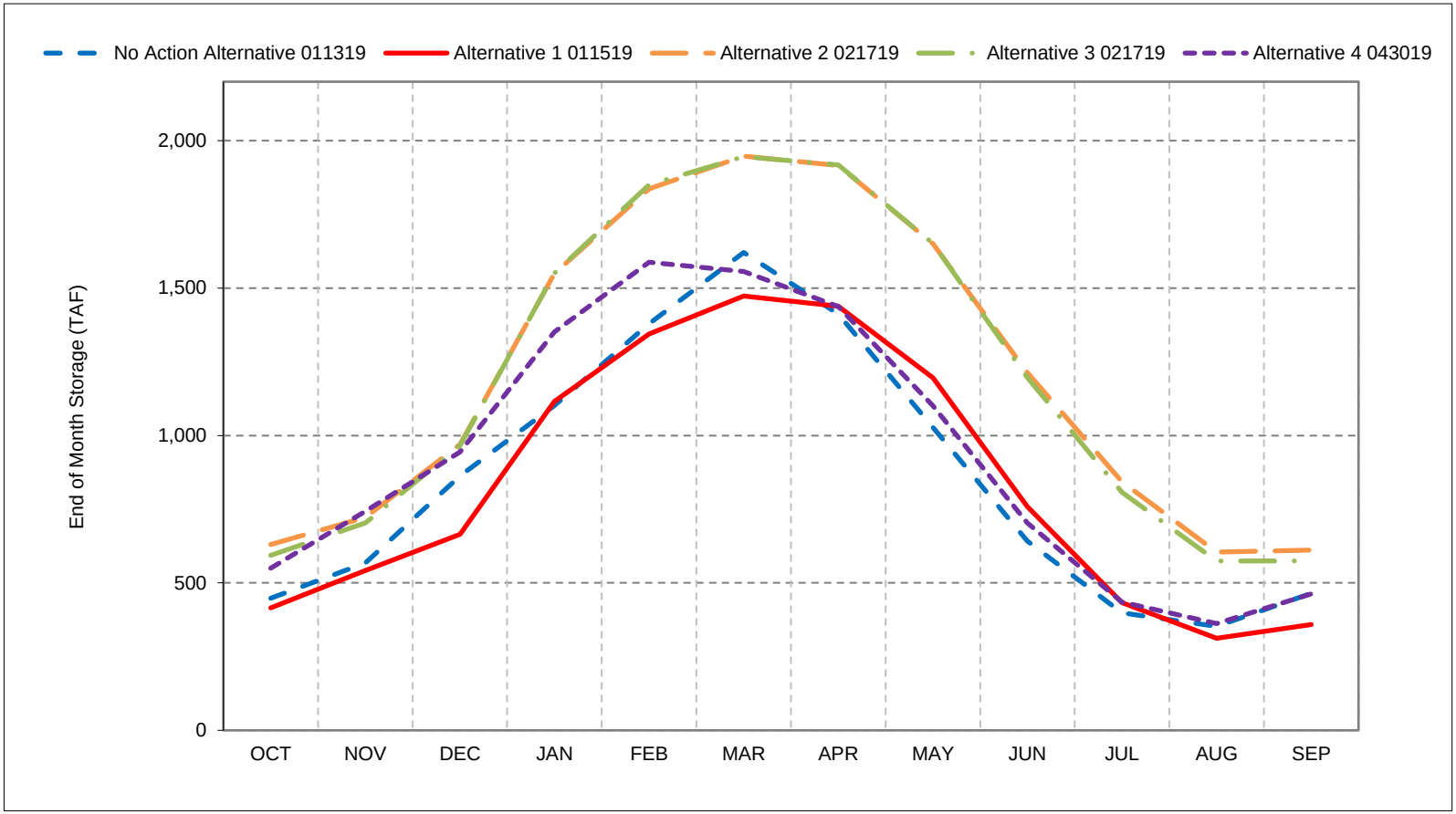
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-2. San Luis Storage (CVP and SWP), Wet Year Average Storage



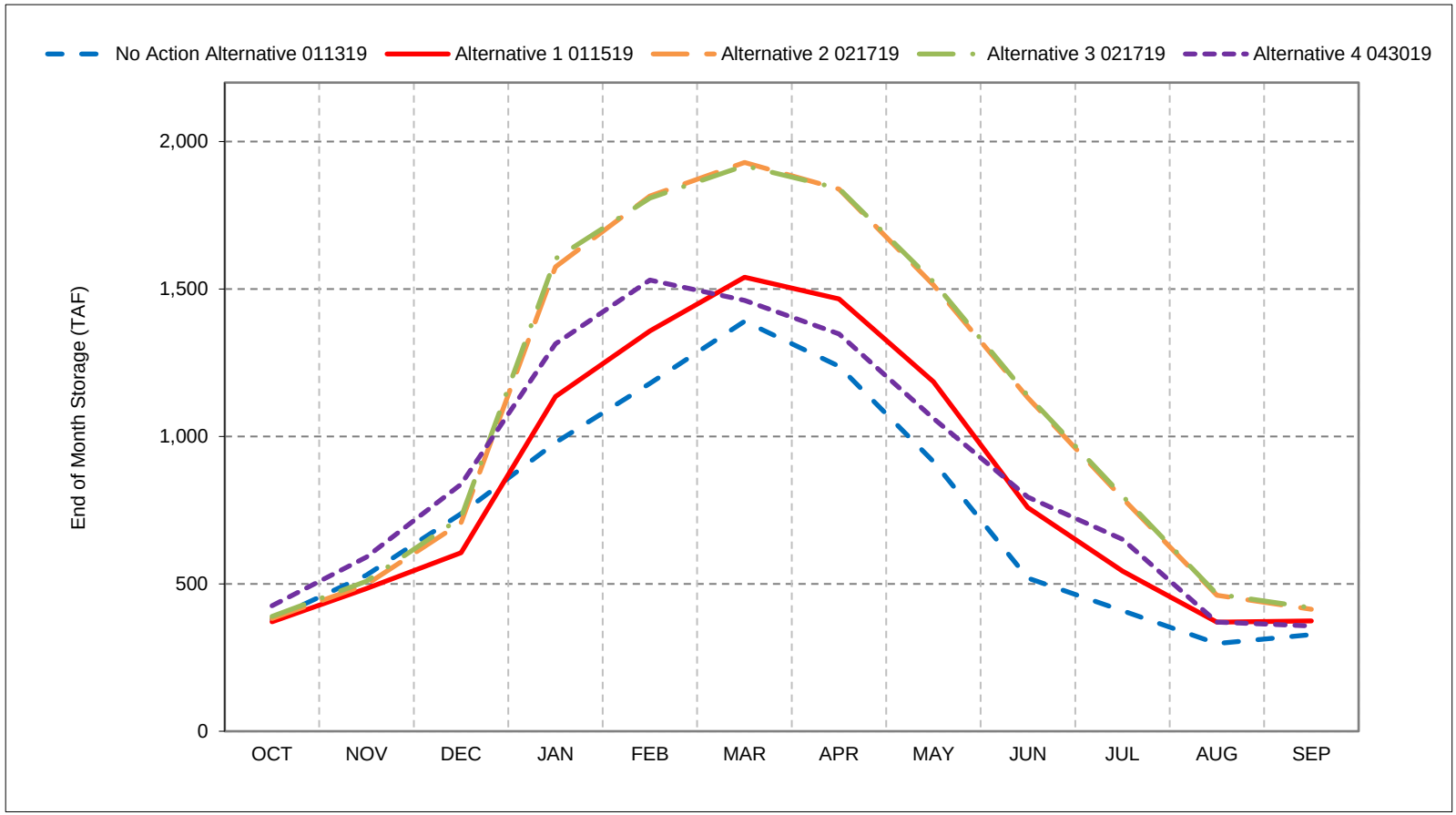
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-3. San Luis Storage (CVP and SWP), Above Normal Year Average Storage



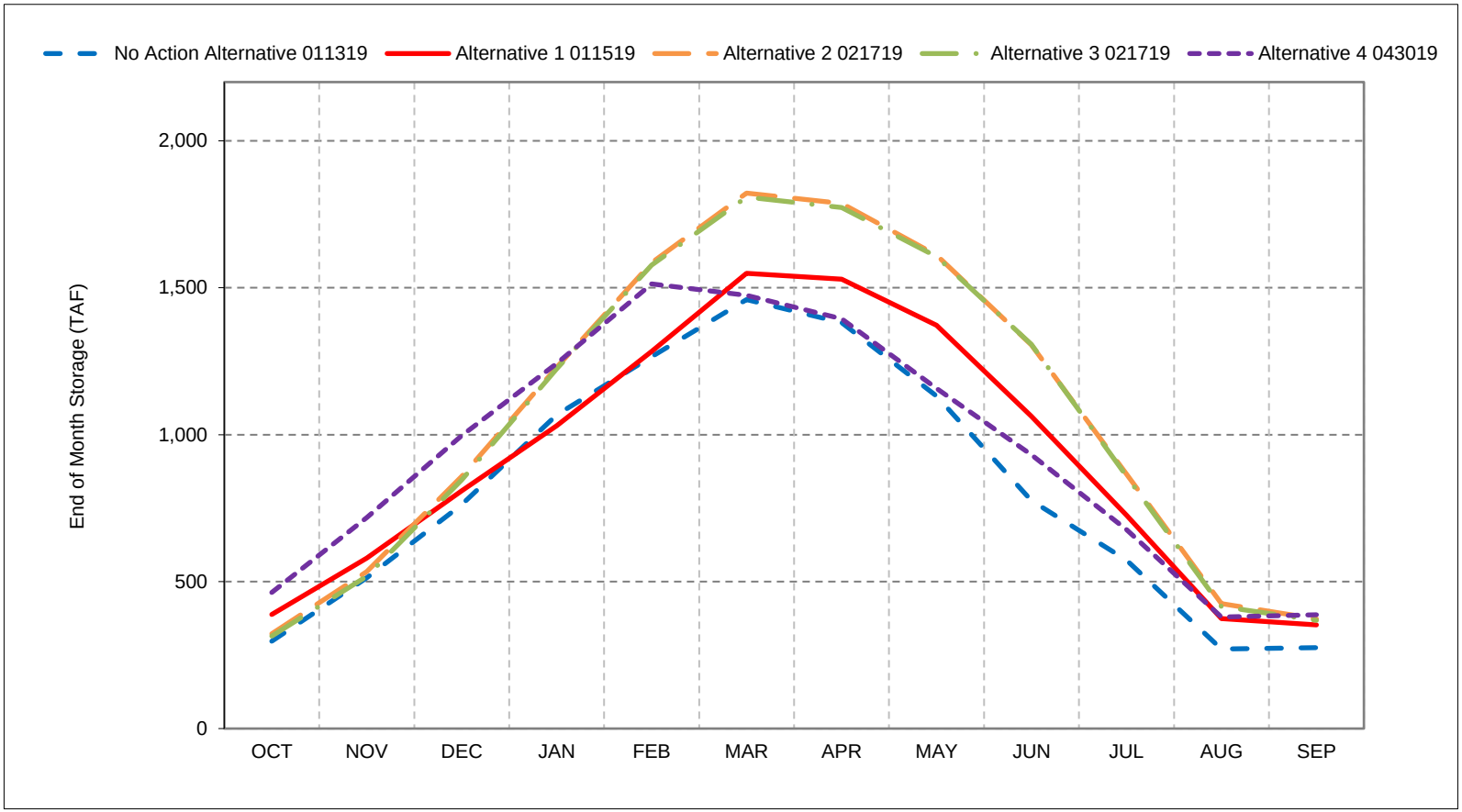
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-4. San Luis Storage (CVP and SWP), Below Normal Year Average Storage



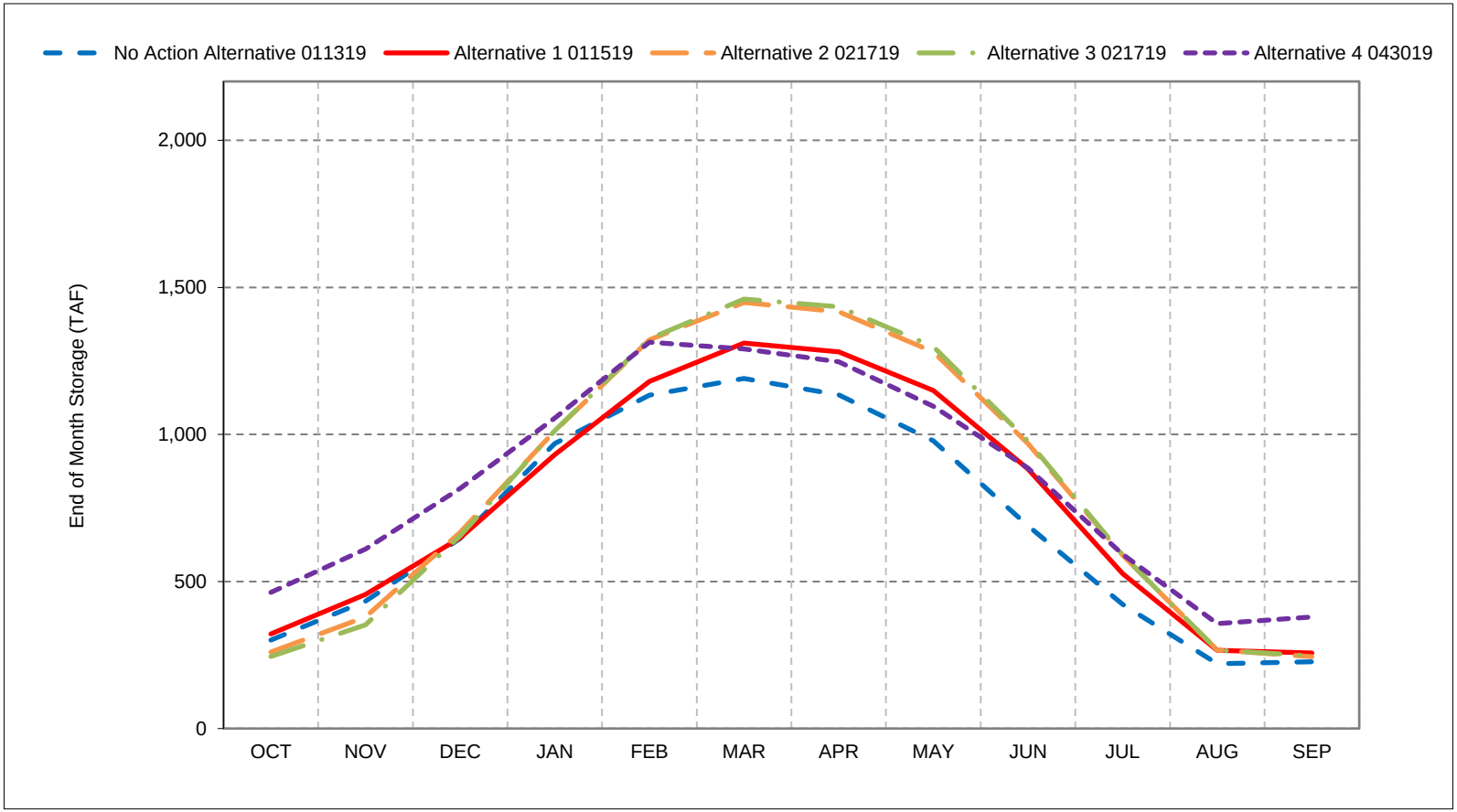
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-5. San Luis Storage (CVP and SWP), Dry Year Average Storage



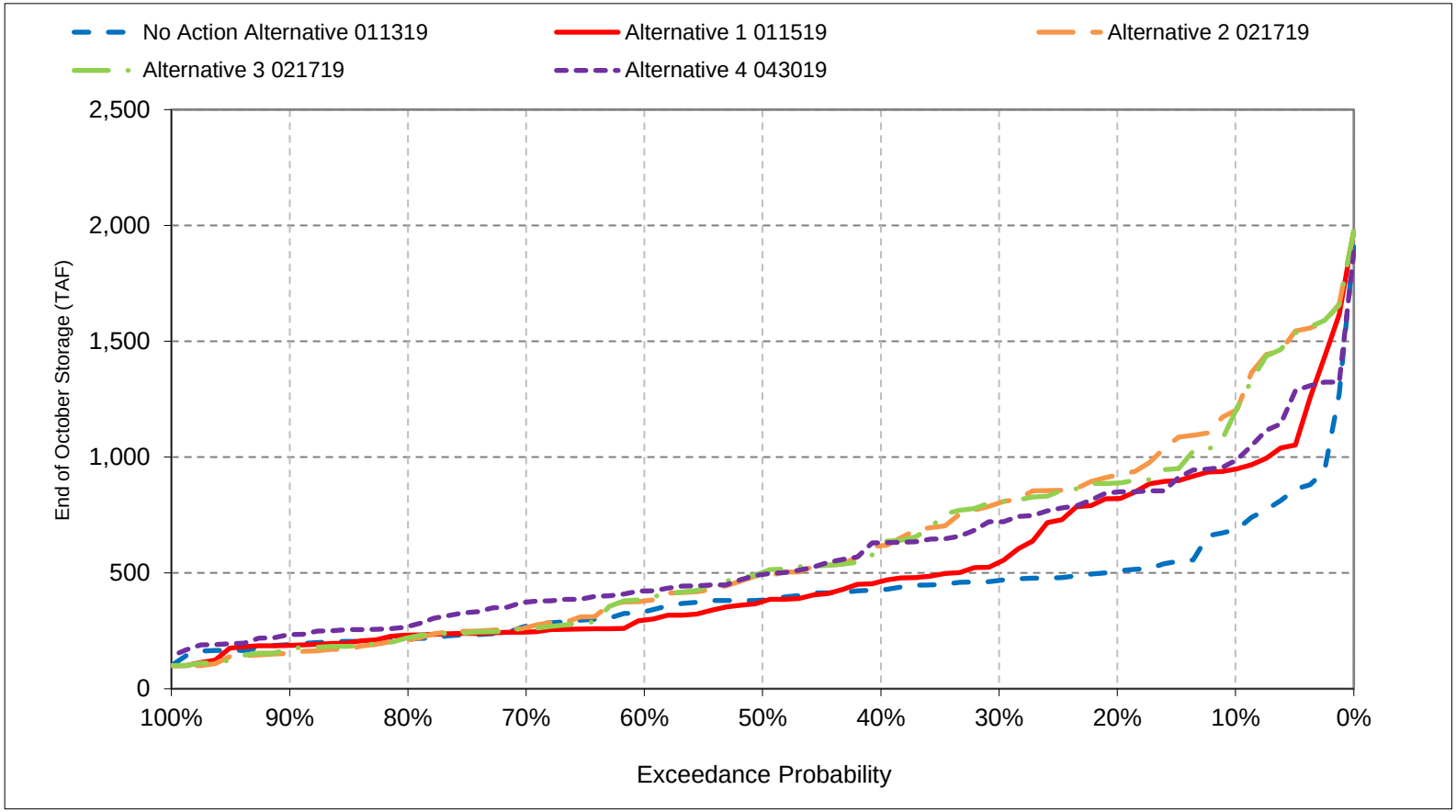
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-6. San Luis Storage (CVP and SWP), Critical Year Average Storage



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

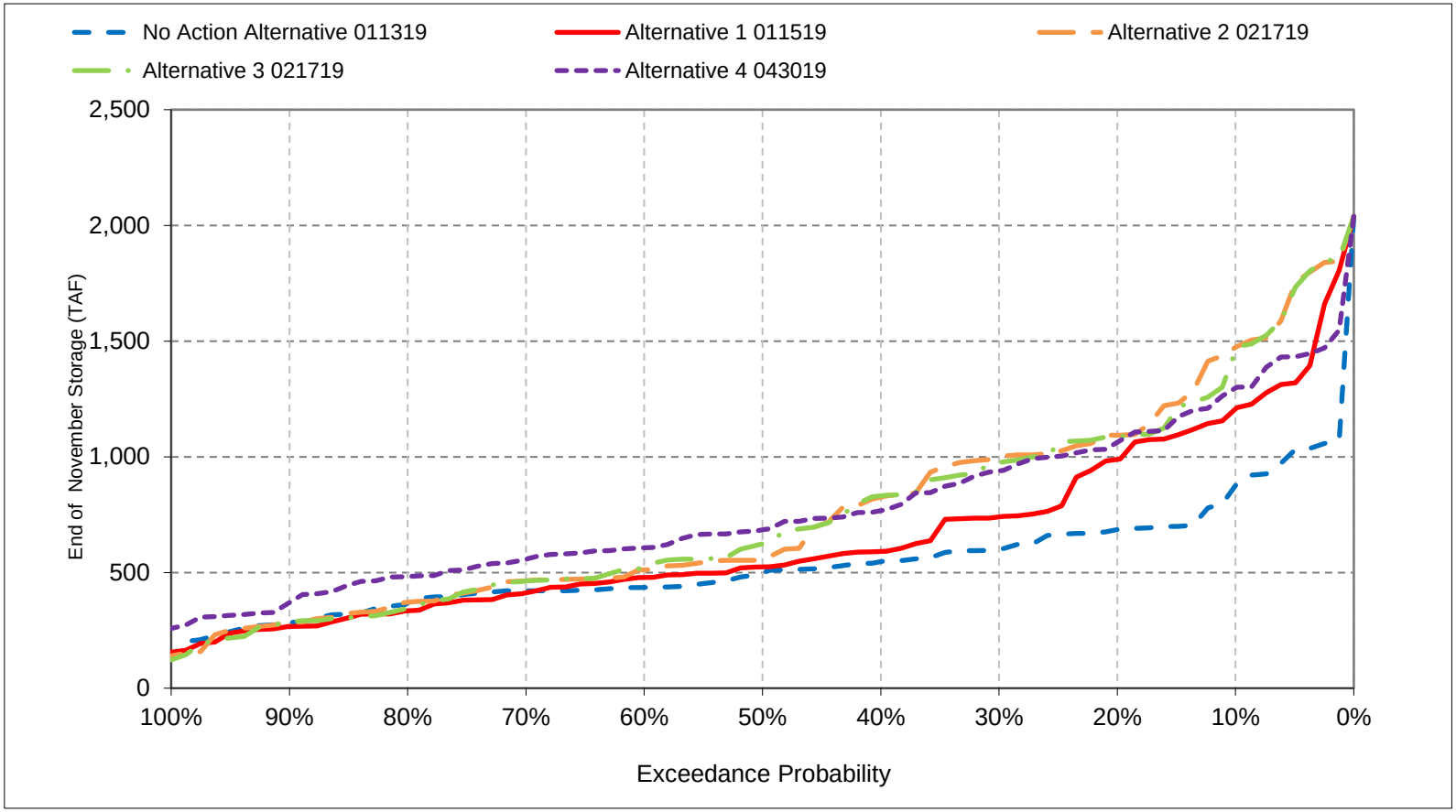
Figure 6-7. San Luis Storage (CVP and SWP), End of October Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

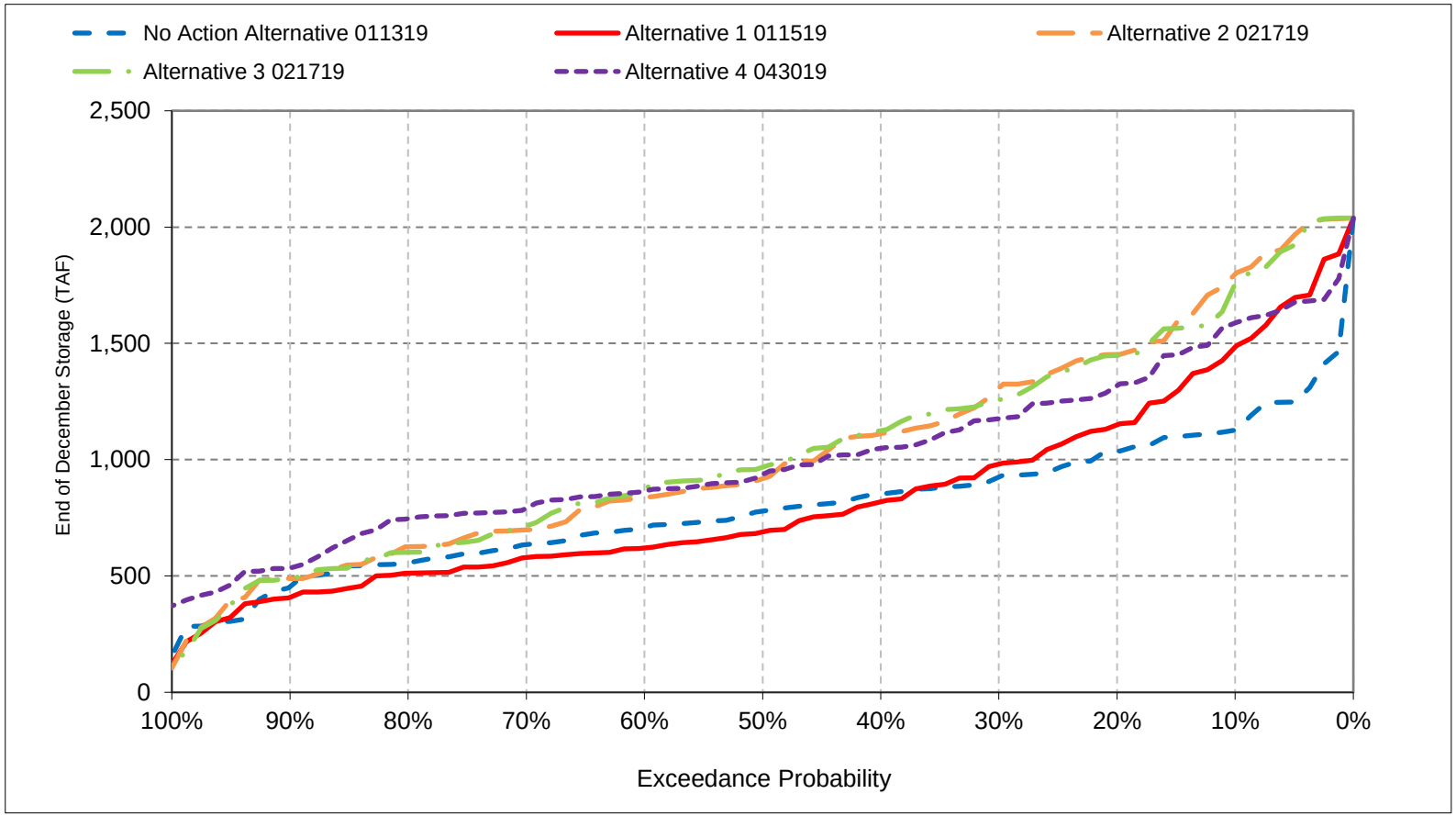
Figure 6-8. San Luis Storage (CVP and SWP), End of November Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

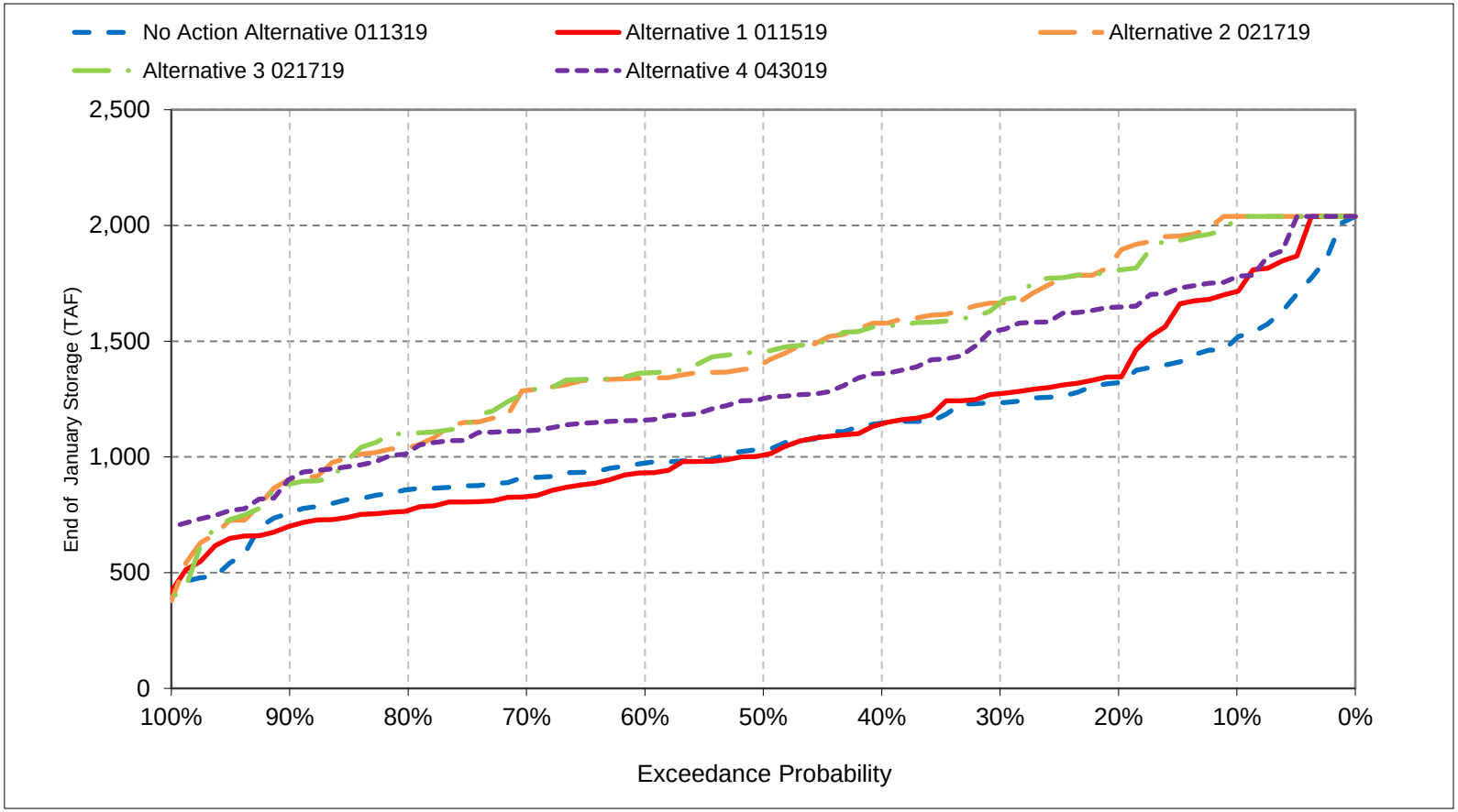
Figure 6-9. San Luis Storage (CVP and SWP), End of December Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

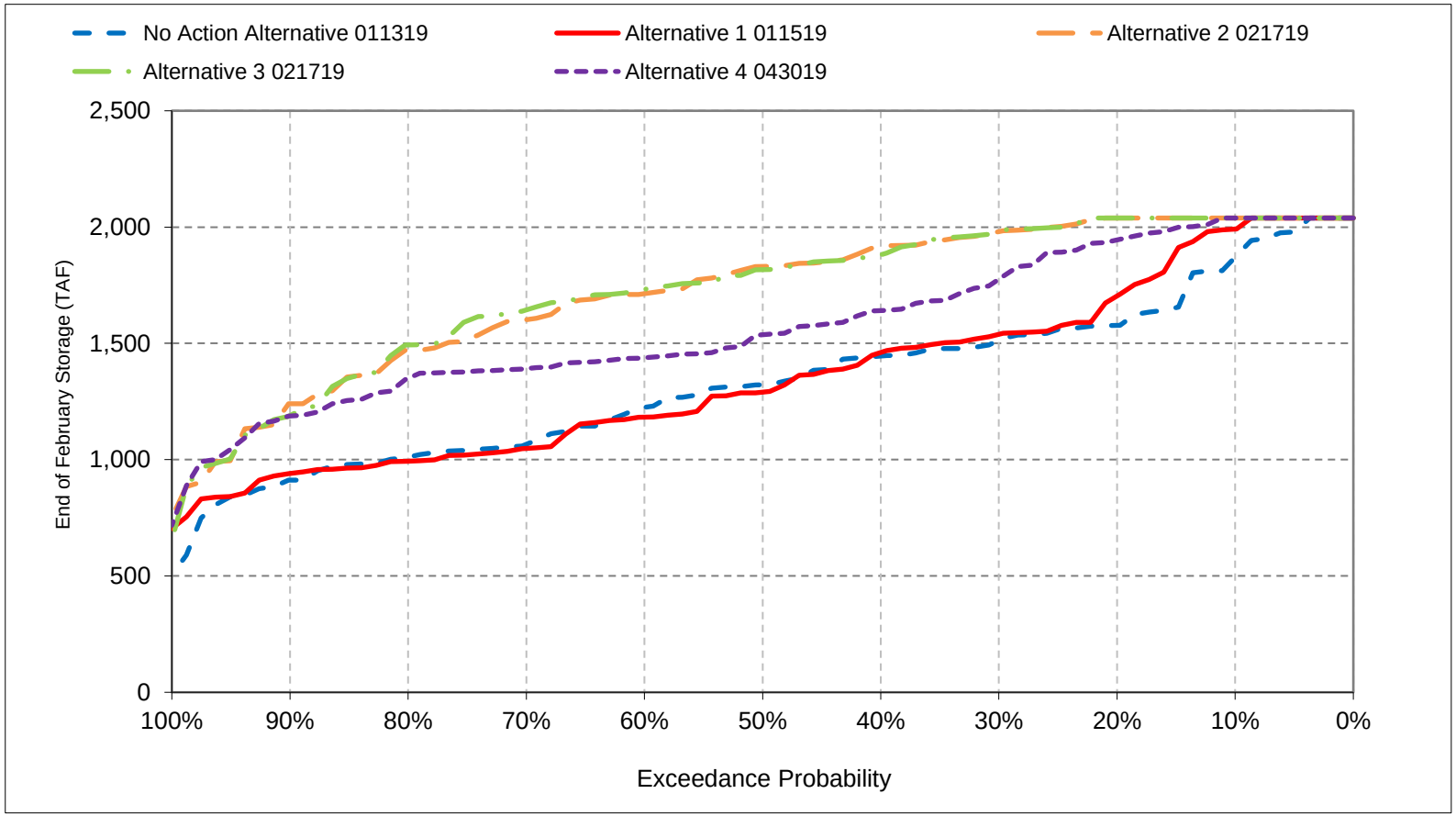
Figure 6-10. San Luis Storage (CVP and SWP), End of January Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

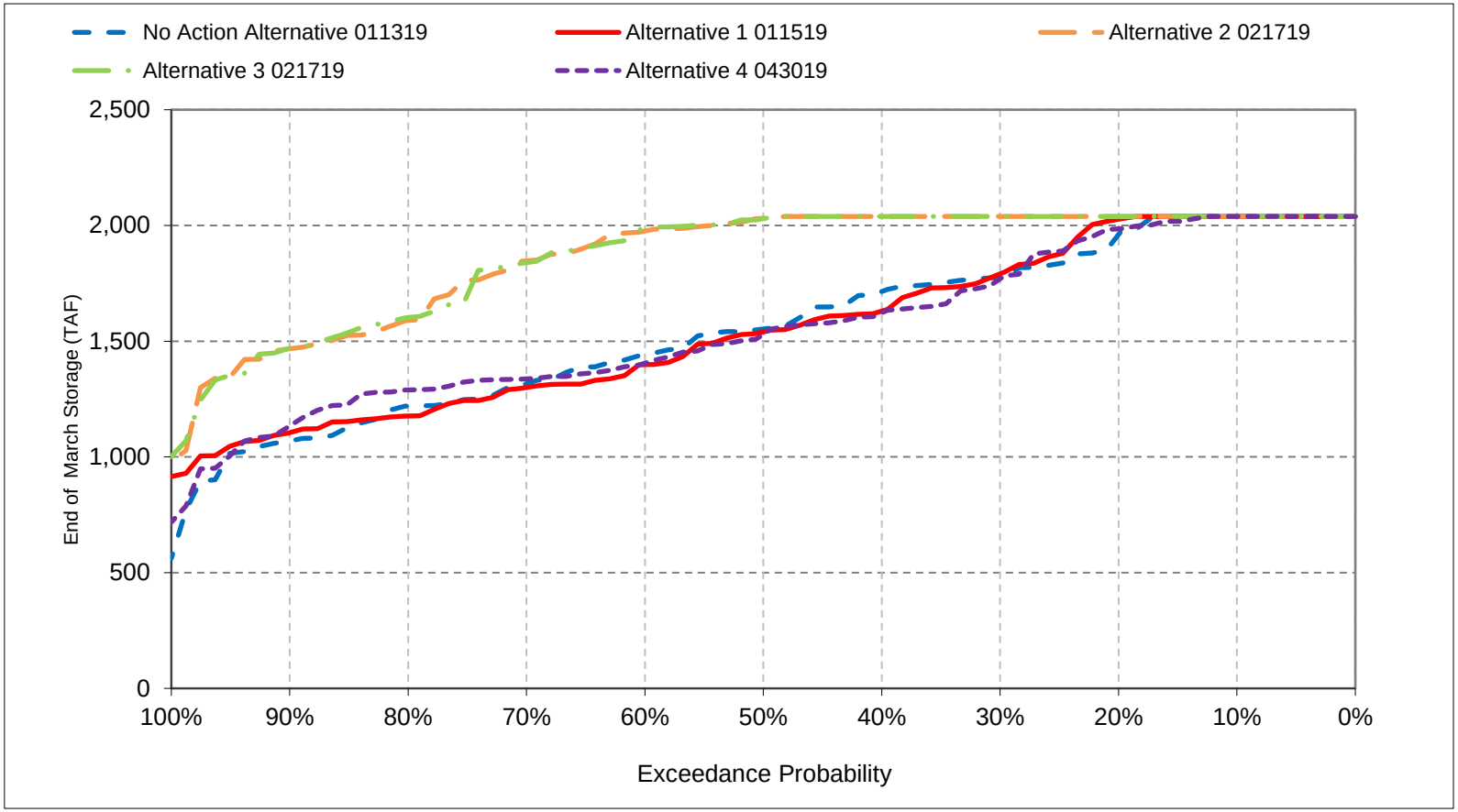
Figure 6-11. San Luis Storage (CVP and SWP), End of February Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

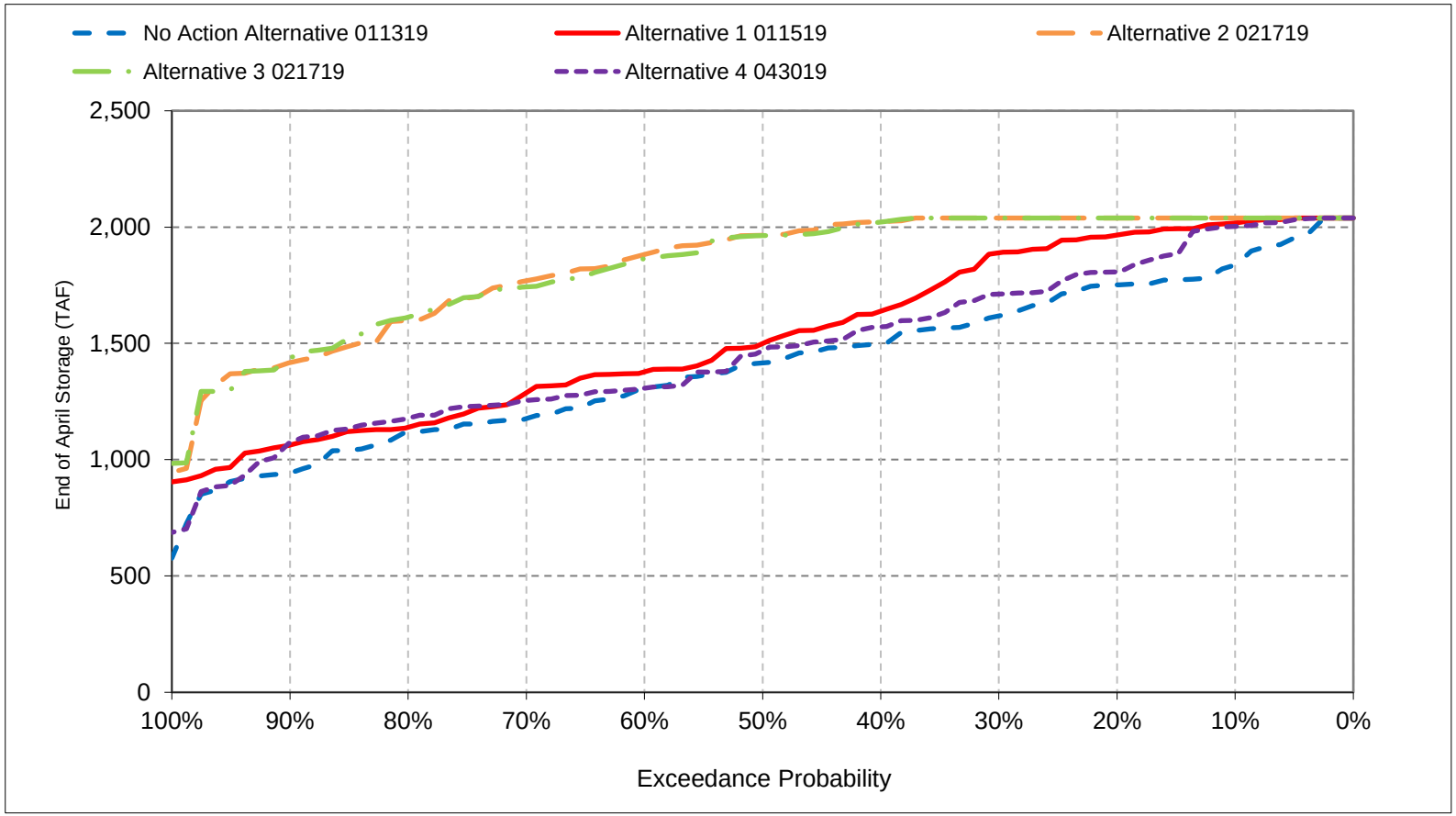
Figure 6-12. San Luis Storage (CVP and SWP), End of March Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

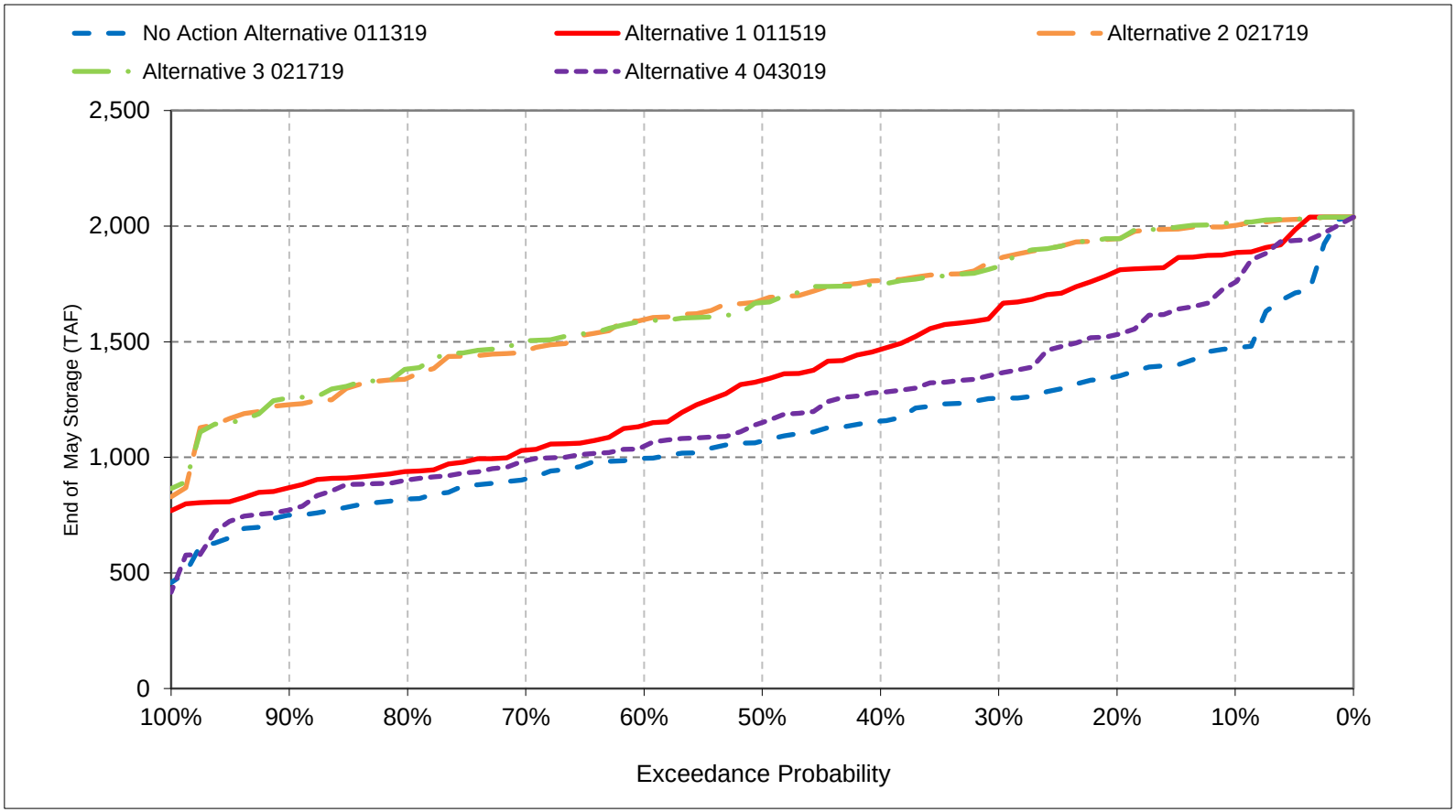
Figure 6-13. San Luis Storage (CVP and SWP), End of April Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

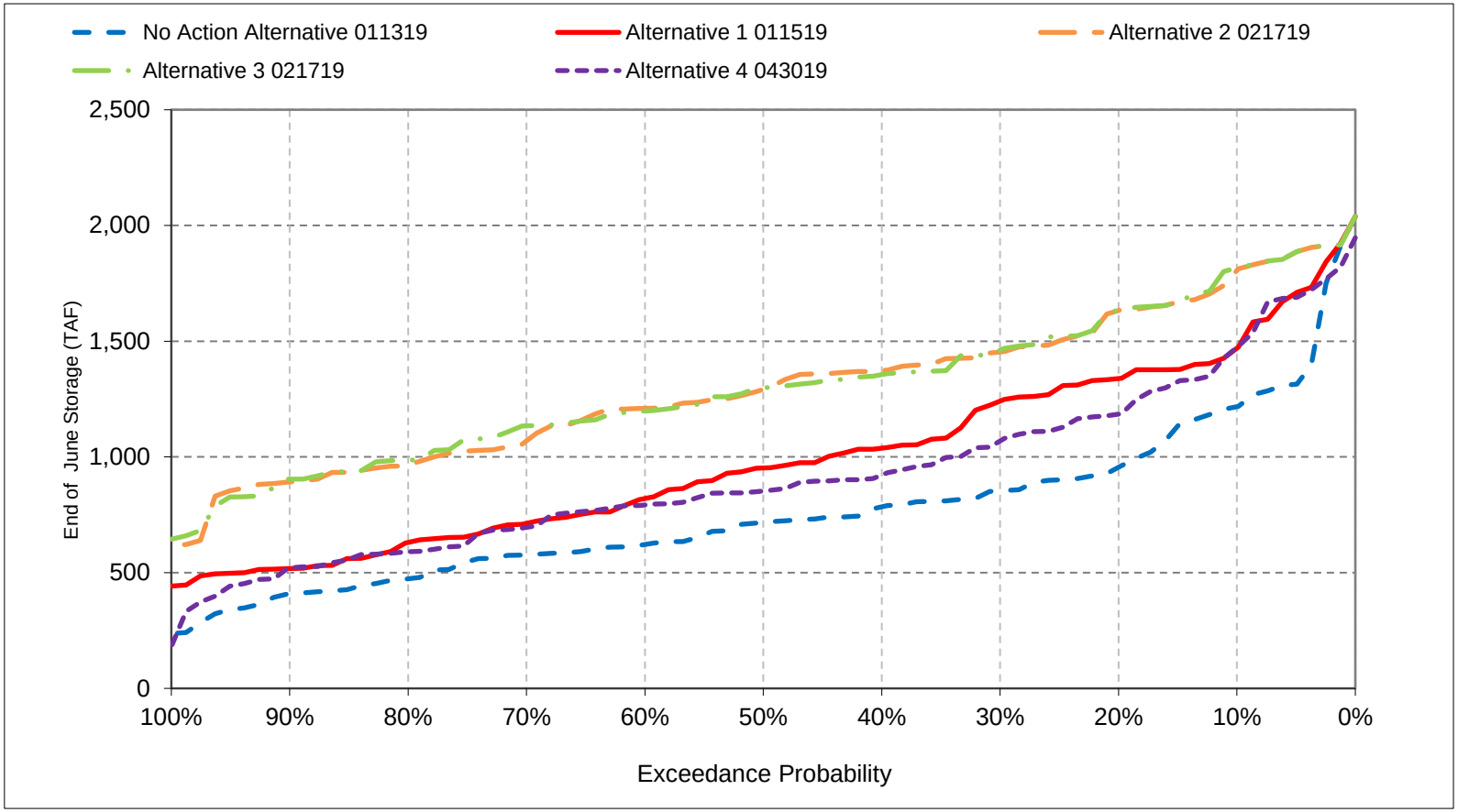
Figure 6-14. San Luis Storage (CVP and SWP), End of May Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

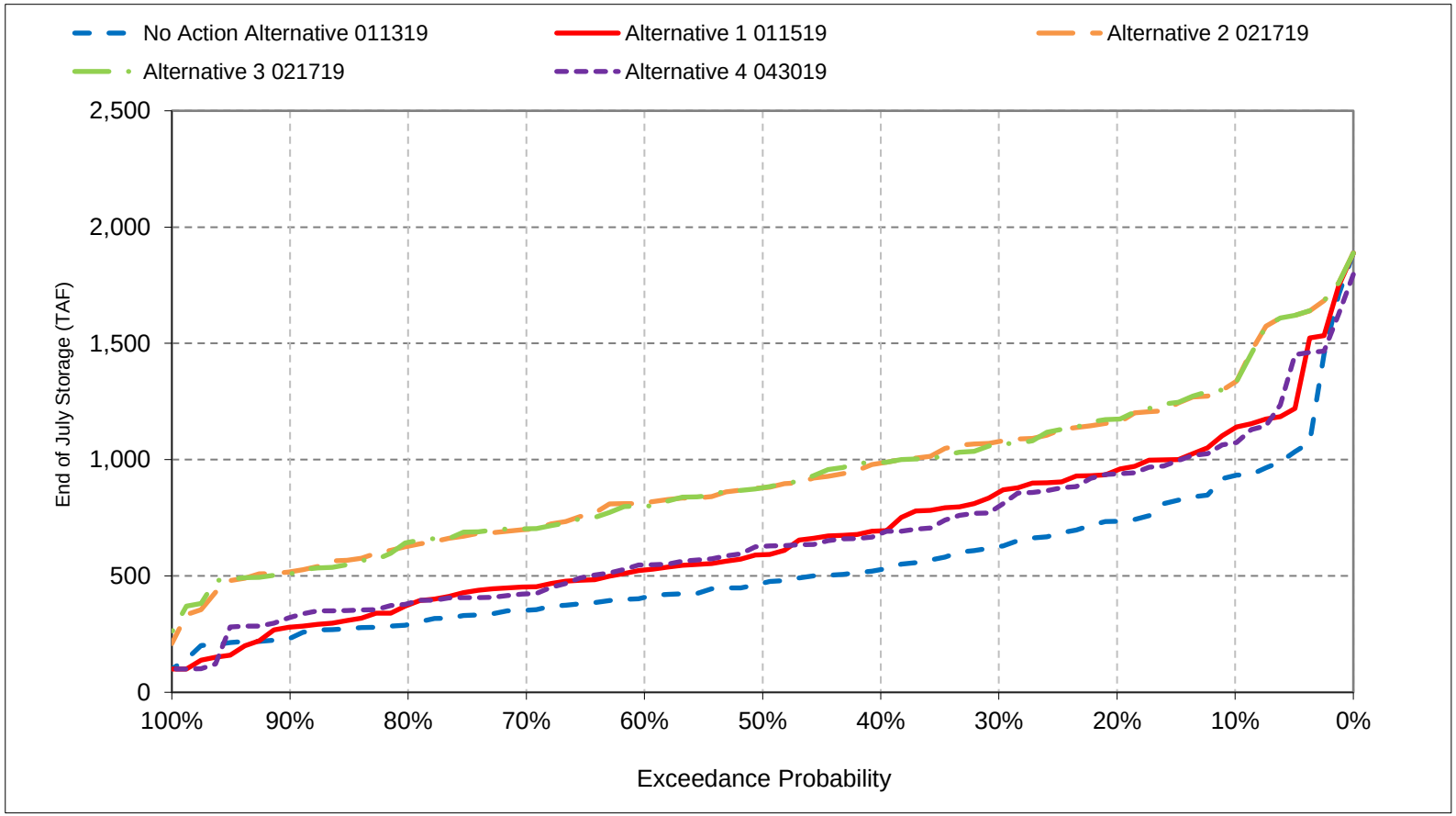
Figure 6-15. San Luis Storage (CVP and SWP), End of June Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

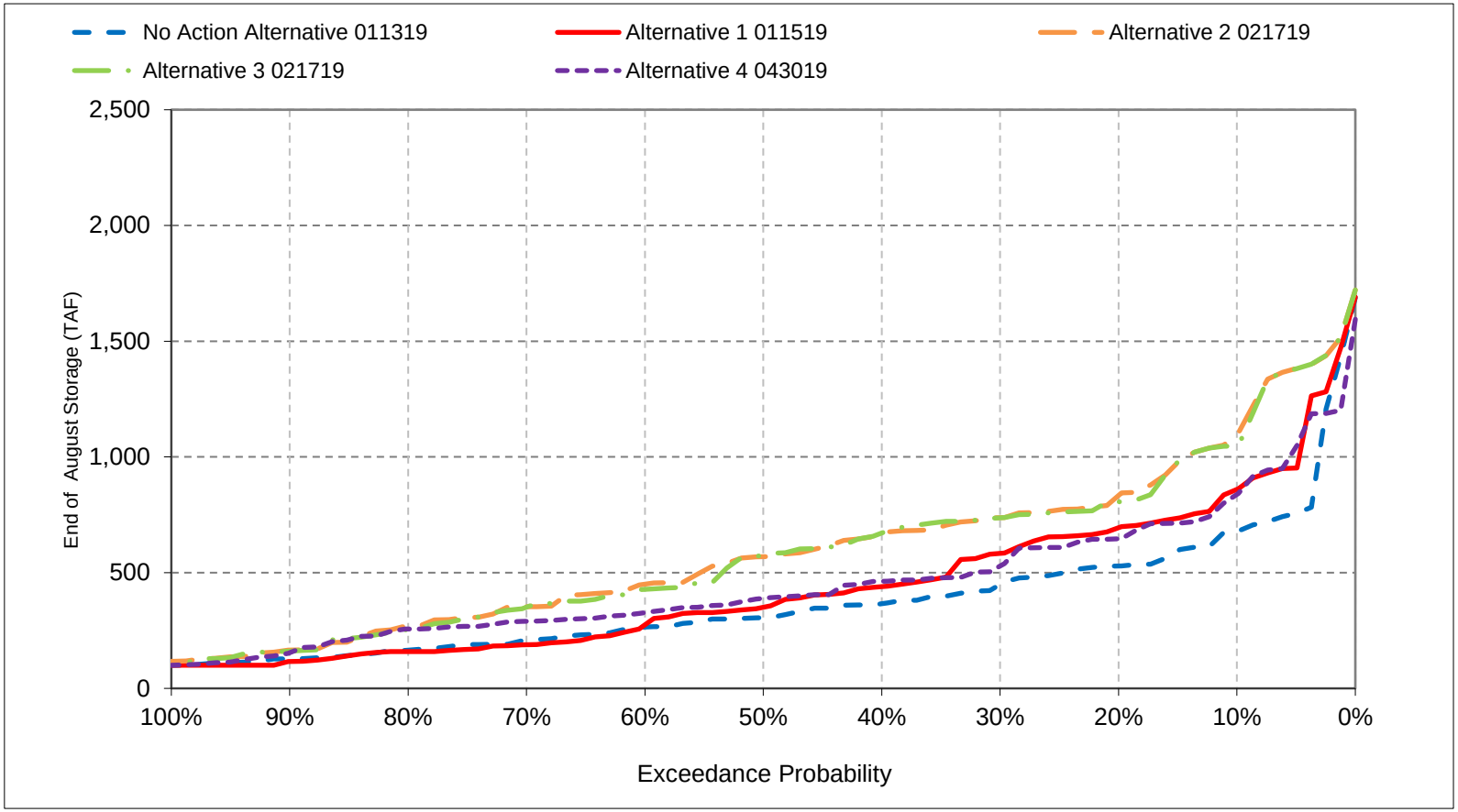
Figure 6-16. San Luis Storage (CVP and SWP), End of July Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

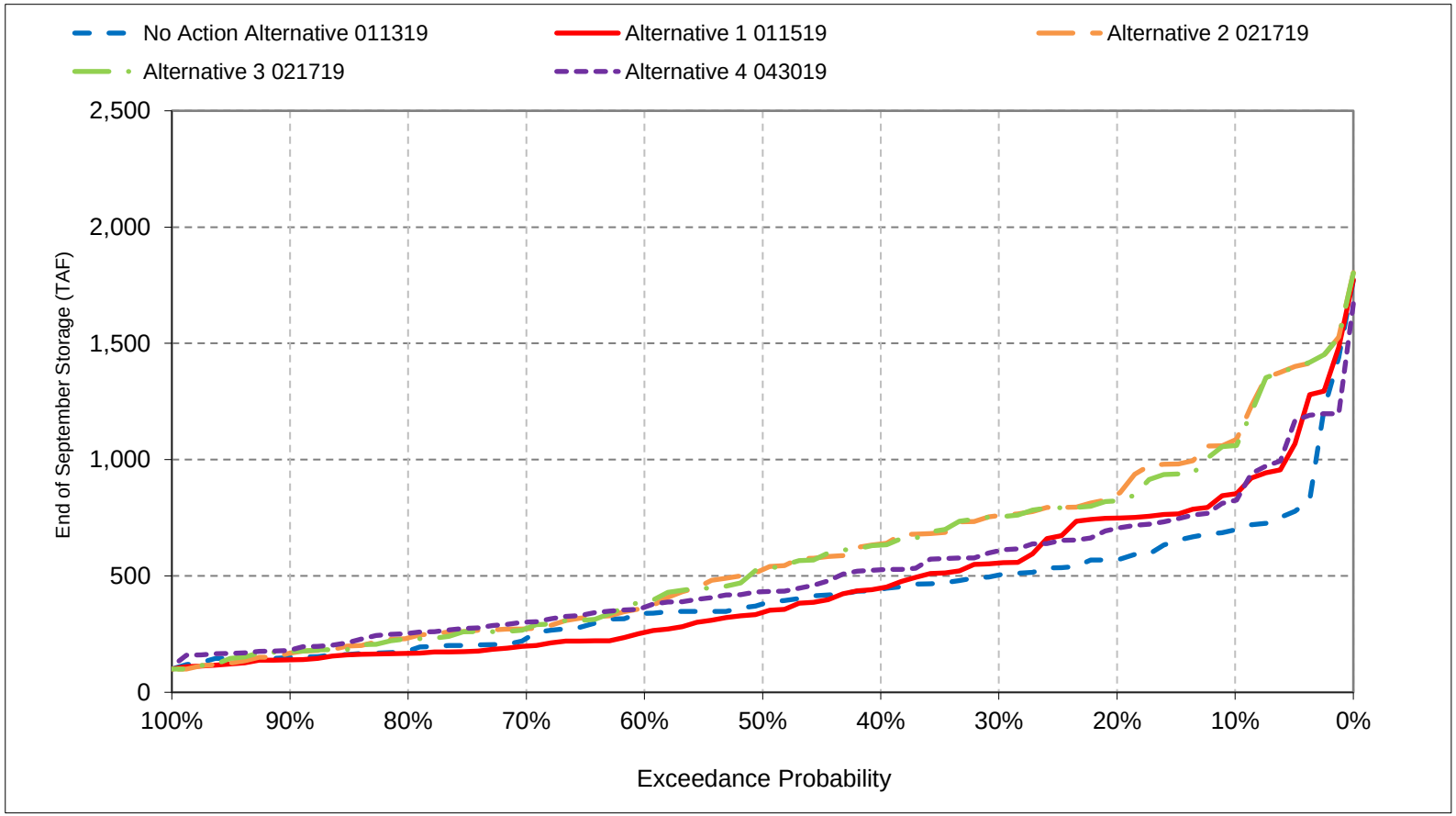
Figure 6-17. San Luis Storage (CVP and SWP), End of August Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-18. San Luis Storage (CVP and SWP), End of September Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 6a-1. San Luis Reservoir (SWP and CVP), End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	422	443	480	506	541	544	536	515	500	450	412	419
20%	396	429	469	500	529	544	529	508	478	422	383	390
30%	386	429	466	495	525	544	525	489	454	403	363	375
40%	381	423	462	491	514	534	521	482	444	399	353	370
50%	379	416	455	488	503	524	510	477	431	391	350	360
60%	375	407	449	482	495	518	505	469	423	387	347	356
70%	372	399	442	472	489	506	492	461	420	377	337	351
80%	370	390	430	460	477	494	483	454	409	365	331	348
90%	361	380	409	449	464	470	464	442	401	349	329	345
Long Term												
Full Simulation Period[a]	385	414	451	481	502	517	506	478	441	396	362	373
Water Year Types[b,c]												
Wet (32%)	398	428	466	492	517	536	525	498	468	414	378	387
Above Normal (16%)	379	412	456	479	504	525	509	473	438	372	347	365
Below Normal (13%)	380	409	442	476	493	511	496	463	418	382	347	364
Dry (24%)	378	407	443	480	496	513	503	476	434	399	360	369
Critical (15%)	382	404	433	469	482	484	474	456	421	389	358	364

Alternative 1 011519

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	456	488	526	544	544	544	544	544	525	466	436	440
20%	429	451	485	513	540	544	544	544	507	445	405	411
30%	411	442	469	501	528	544	544	533	488	430	382	391
40%	390	427	460	490	521	542	539	523	474	416	370	380
50%	382	414	451	483	505	529	532	515	463	404	357	376
60%	379	404	439	475	497	519	525	501	453	398	353	360
70%	371	391	431	463	488	509	508	494	446	393	349	355
80%	365	384	425	457	477	502	492	475	442	386	336	348
90%	341	373	404	437	462	485	484	466	434	370	329	339
Long Term												
Full Simulation Period[a]	395	422	453	483	505	522	521	508	471	414	372	382
Water Year Types[b,c]												
Wet (32%)	414	450	483	500	520	535	541	534	497	436	392	402
Above Normal (16%)	389	417	448	470	493	513	520	507	463	385	352	367
Below Normal (13%)	387	406	433	492	511	527	521	501	461	408	366	377
Dry (24%)	388	410	445	476	499	519	513	498	462	412	370	377
Critical (15%)	381	402	428	468	491	502	493	478	447	403	363	367

Alternative 1 011519 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	33	45	46	38	3	0	8	29	25	16	24	22
20%	33	22	16	13	11	0	15	35	29	23	22	21
30%	24	13	2	6	3	0	19	44	35	27	19	16
40%	9	4	-2	-1	6	8	18	41	30	17	16	9
50%	4	-2	-4	-5	1	6	22	38	32	13	8	16
60%	4	-3	-10	-7	3	1	20	32	31	11	6	4
70%	-1	-8	-10	-9	-1	3	16	33	27	17	12	5
80%	-5	-6	-5	-3	1	8	9	21	33	21	4	0
90%	-20	-7	-4	-13	-2	15	20	24	33	22	0	-5
Long Term												
Full Simulation Period[a]	10	8	3	2	4	5	15	30	30	18	11	9
Water Year Types[b,c]												
Wet (32%)	15	21	16	8	3	0	16	36	29	22	14	15
Above Normal (16%)	10	5	-8	-9	-11	-12	11	34	25	14	5	2
Below Normal (13%)	7	-2	-9	16	18	16	25	38	42	26	19	13
Dry (24%)	10	3	2	-4	2	7	11	22	28	12	10	9
Critical (15%)	-1	-2	-5	-1	8	19	19	21	26	13	4	3

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6a-2. San Luis Reservoir (SWP and CVP), End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	422	443	480	506	541	544	536	515	500	450	412	419
20%	396	429	469	500	529	544	529	508	478	422	383	390
30%	386	429	466	495	525	544	525	489	454	403	363	375
40%	381	423	462	491	514	534	521	482	444	399	353	370
50%	379	416	455	488	503	524	510	477	431	391	350	360
60%	375	407	449	482	495	518	505	469	423	387	347	356
70%	372	399	442	472	489	506	492	461	420	377	337	351
80%	370	390	430	460	477	494	483	454	409	365	331	348
90%	361	380	409	449	464	470	464	442	401	349	329	345
Long Term												
Full Simulation Period[a]	385	414	451	481	502	517	506	478	441	396	362	373
Water Year Types[b,c]												
Wet (32%)	398	428	466	492	517	536	525	498	468	414	378	387
Above Normal (16%)	379	412	456	479	504	525	509	473	438	372	347	365
Below Normal (13%)	380	409	442	476	493	511	496	463	418	382	347	364
Dry (24%)	378	407	443	480	496	513	503	476	434	399	360	369
Critical (15%)	382	404	433	469	482	484	474	456	421	389	358	364

Alternative 2 021719

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	463	495	520	544	544	544	544	544	529	466	438	447
20%	423	454	490	523	544	544	544	542	508	446	401	405
30%	409	436	472	504	536	544	544	534	494	434	387	394
40%	396	429	467	498	529	544	544	526	485	421	371	387
50%	390	425	464	495	522	544	537	521	480	416	363	379
60%	386	412	455	488	513	537	531	506	468	409	357	368
70%	377	399	444	479	503	532	517	492	452	402	341	360
80%	356	394	432	466	489	514	499	483	435	389	333	348
90%	345	376	406	449	478	483	475	463	423	377	329	343
Long Term												
Full Simulation Period[a]	396	426	461	491	514	528	524	510	473	418	374	384
Water Year Types[b,c]												
Wet (32%)	428	462	494	509	530	543	543	534	505	448	404	411
Above Normal (16%)	399	422	459	489	519	534	532	515	476	404	363	370
Below Normal (13%)	382	410	439	503	518	531	523	499	450	392	354	375
Dry (24%)	376	411	451	478	501	522	515	501	463	413	364	378
Critical (15%)	366	388	430	465	489	499	488	477	442	400	356	361

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	41	51	40	38	3	0	8	29	28	15	26	29
20%	27	25	21	23	16	0	15	34	30	24	18	15
30%	23	7	5	8	11	0	19	44	40	30	24	19
40%	15	7	5	8	15	10	23	43	41	23	17	17
50%	11	9	9	7	19	21	27	44	49	25	14	19
60%	11	5	6	7	19	19	26	37	45	23	9	11
70%	5	**0**	3	8	14	26	25	31	32	25	4	9
80%	**-14**	4	2	5	13	20	16	28	26	24	2	**0**
90%	**-16**	**-4**	**-3**	**-1**	14	13	11	21	22	29	0	**-2**
Long Term												
Full Simulation Period[a]	10	11	10	10	12	11	18	32	32	22	12	12
Water Year Types[b,c]												
Wet (32%)	30	34	28	17	13	7	18	36	37	34	26	24
Above Normal (16%)	21	10	3	10	15	9	23	41	38	33	15	5
Below Normal (13%)	2	1	**-3**	27	25	20	27	35	32	10	7	10
Dry (24%)	**-2**	5	7	**-2**	4	9	13	25	30	14	4	9
Critical (15%)	**-16**	**-16**	**-3**	**-4**	6	15	14	20	21	11	**-3**	**-3**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6a-3. San Luis Reservoir (SWP and CVP), End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	422	443	480	506	541	544	536	515	500	450	412	419
20%	396	429	469	500	529	544	529	508	478	422	383	390
30%	386	429	466	495	525	544	525	489	454	403	363	375
40%	381	423	462	491	514	534	521	482	444	399	353	370
50%	379	416	455	488	503	524	510	477	431	391	350	360
60%	375	407	449	482	495	518	505	469	423	387	347	356
70%	372	399	442	472	489	506	492	461	420	377	337	351
80%	370	390	430	460	477	494	483	454	409	365	331	348
90%	361	380	409	449	464	470	464	442	401	349	329	345
Long Term												
Full Simulation Period[a]	385	414	451	481	502	517	506	478	441	396	362	373
Water Year Types[b,c]												
Wet (32%)	398	428	466	492	517	536	525	498	468	414	378	387
Above Normal (16%)	379	412	456	479	504	525	509	473	438	372	347	365
Below Normal (13%)	380	409	442	476	493	511	496	463	418	382	347	364
Dry (24%)	378	407	443	480	496	513	503	476	434	399	360	369
Critical (15%)	382	404	433	469	482	484	474	456	421	389	358	364

Alternative 3 021719

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	450	485	520	544	544	544	544	544	529	464	434	440
20%	425	454	486	516	544	544	544	543	508	446	401	406
30%	412	437	471	504	538	544	544	533	492	431	384	392
40%	396	432	468	500	530	544	544	525	484	421	373	387
50%	390	425	464	496	522	544	537	517	477	414	358	379
60%	382	416	455	489	514	538	529	508	469	405	350	366
70%	376	401	446	480	505	528	515	489	448	397	339	358
80%	363	395	438	470	490	514	499	478	437	387	331	348
90%	340	375	407	448	476	477	477	458	422	373	329	336
Long Term												
Full Simulation Period[a]	395	425	461	491	514	528	523	509	473	416	371	383
Water Year Types[b,c]												
Wet (32%)	428	461	493	508	530	543	542	533	502	447	402	410
Above Normal (16%)	394	423	460	488	522	534	533	515	476	401	358	368
Below Normal (13%)	383	410	441	506	518	531	523	500	451	387	348	372
Dry (24%)	379	412	454	478	500	519	511	497	460	411	361	378
Critical (15%)	363	382	426	468	492	502	492	480	445	402	357	360

Alternative 3 021719 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	28	41	40	38	3	0	8	29	28	13	23	21
20%	29	25	17	16	16	0	15	35	30	24	18	16
30%	25	8	5	9	13	0	19	43	39	27	21	17
40%	15	9	6	9	16	10	23	43	40	22	19	17
50%	11	9	9	8	19	21	26	40	46	23	8	19
60%	6	9	6	7	20	20	24	40	47	19	3	10
70%	4	2	5	8	16	23	22	28	29	20	2	8
80%	**-7**	5	8	10	13	20	15	23	28	21	0	**0**
90%	**-21**	**-5**	**-2**	**-2**	12	6	13	16	21	25	0	**-8**
Long Term												
Full Simulation Period[a]	10	11	11	10	13	11	18	31	31	20	10	10
Water Year Types[b,c]												
Wet (32%)	30	33	27	16	13	8	17	34	34	32	25	23
Above Normal (16%)	16	11	4	9	18	10	24	41	37	29	10	3
Below Normal (13%)	3	2	**-1**	30	25	20	27	37	33	5	1	8
Dry (24%)	2	6	10	**-2**	4	6	9	21	27	12	2	9
Critical (15%)	**-19**	**-22**	**-7**	**-1**	9	19	18	23	24	12	**-2**	**-4**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6a-4. San Luis Reservoir (SWP and CVP), End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	422	443	480	506	541	544	536	515	500	450	412	419
20%	396	429	469	500	529	544	529	508	478	422	383	390
30%	386	429	466	495	525	544	525	489	454	403	363	375
40%	381	423	462	491	514	534	521	482	444	399	353	370
50%	379	416	455	488	503	524	510	477	431	391	350	360
60%	375	407	449	482	495	518	505	469	423	387	347	356
70%	372	399	442	472	489	506	492	461	420	377	337	351
80%	370	390	430	460	477	494	483	454	409	365	331	348
90%	361	380	409	449	464	470	464	442	401	349	329	345
Long Term												
Full Simulation Period[a]	385	414	451	481	502	517	506	478	441	396	362	373
Water Year Types[b,c]												
Wet (32%)	398	428	466	492	517	536	525	498	468	414	378	387
Above Normal (16%)	379	412	456	479	504	525	509	473	438	372	347	365
Below Normal (13%)	380	409	442	476	493	511	496	463	418	382	347	364
Dry (24%)	378	407	443	480	496	513	503	476	434	399	360	369
Critical (15%)	382	404	433	469	482	484	474	456	421	389	358	364

Alternative 4 043019

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	476	499	520	544	544	544	544	544	522	478	456	461
20%	430	465	498	537	544	543	543	524	498	442	409	418
30%	413	440	477	508	541	541	532	507	465	414	379	389
40%	395	429	466	500	532	531	528	488	452	400	358	373
50%	386	424	459	494	521	522	512	480	433	387	349	363
60%	381	410	450	485	514	507	495	461	427	383	341	358
70%	374	401	438	474	500	497	485	452	422	373	338	354
80%	368	391	431	467	489	482	470	447	411	362	329	348
90%	358	385	418	450	480	475	460	428	402	330	329	346
Long Term												
Full Simulation Period[a]	400	429	463	495	516	513	505	480	449	399	368	382
Water Year Types[b,c]												
Wet (32%)	415	449	483	505	528	532	530	508	474	414	383	395
Above Normal (16%)	392	423	456	495	516	512	504	472	433	369	346	364
Below Normal (13%)	387	415	452	497	519	510	498	467	436	395	357	375
Dry (24%)	380	407	445	489	511	504	490	461	433	391	355	367
Critical (15%)	420	441	464	478	497	493	486	471	449	419	395	402

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54	56	40	38	3	0	8	29	22	28	44	42
20%	34	36	29	37	16	-2	14	16	21	20	26	28
30%	27	11	11	12	16	-3	7	18	12	11	16	14
40%	14	6	5	9	18	-3	7	6	8	1	5	3
50%	7	8	3	6	18	-2	1	3	2	-4	-1	3
60%	6	3	0	3	19	-11	-10	-8	4	-4	-6	1
70%	2	3	-4	3	11	-8	-7	-9	3	-4	1	3
80%	-2	1	2	6	12	-12	-13	-7	2	-4	-2	0
90%	-3	5	10	0	16	4	-4	-14	2	-19	0	1
Long Term												
Full Simulation Period[a]	14	14	12	13	15	-4	0	2	7	4	7	9
Water Year Types[b,c]												
Wet (32%)	16	20	17	13	11	-3	5	10	6	-1	5	9
Above Normal (16%)	14	11	0	16	11	-13	-5	-1	-5	-3	-2	-1
Below Normal (13%)	7	6	10	21	26	-1	2	4	18	13	10	10
Dry (24%)	2	0	2	9	15	-9	-13	-15	-1	-8	-5	-2
Critical (15%)	39	37	31	9	15	10	12	15	28	29	37	38

a Based on the 82-year simulation period.

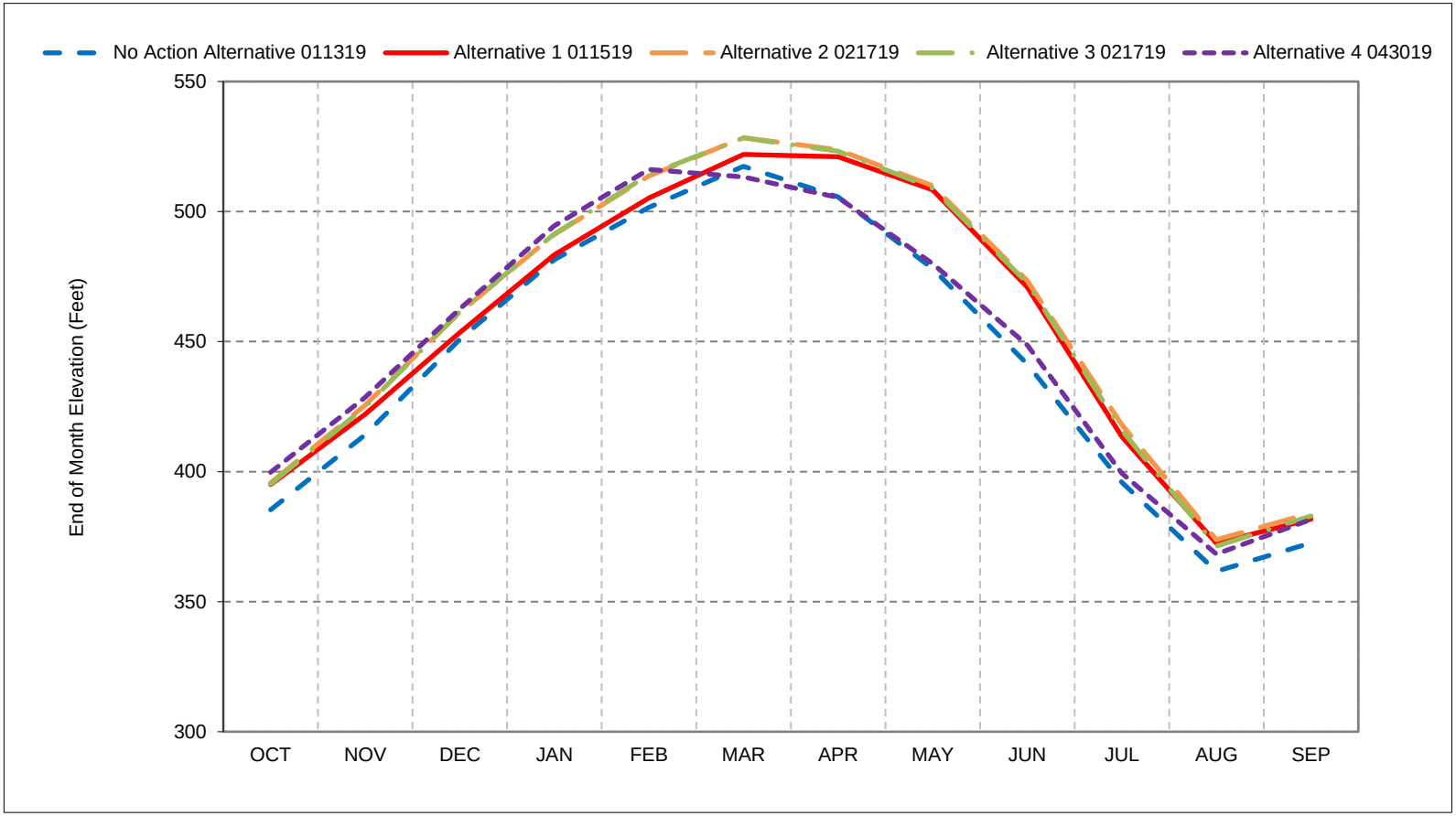
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 6a-1. San Luis Reservoir (SWP and CVP), Long-Term Average Elevation



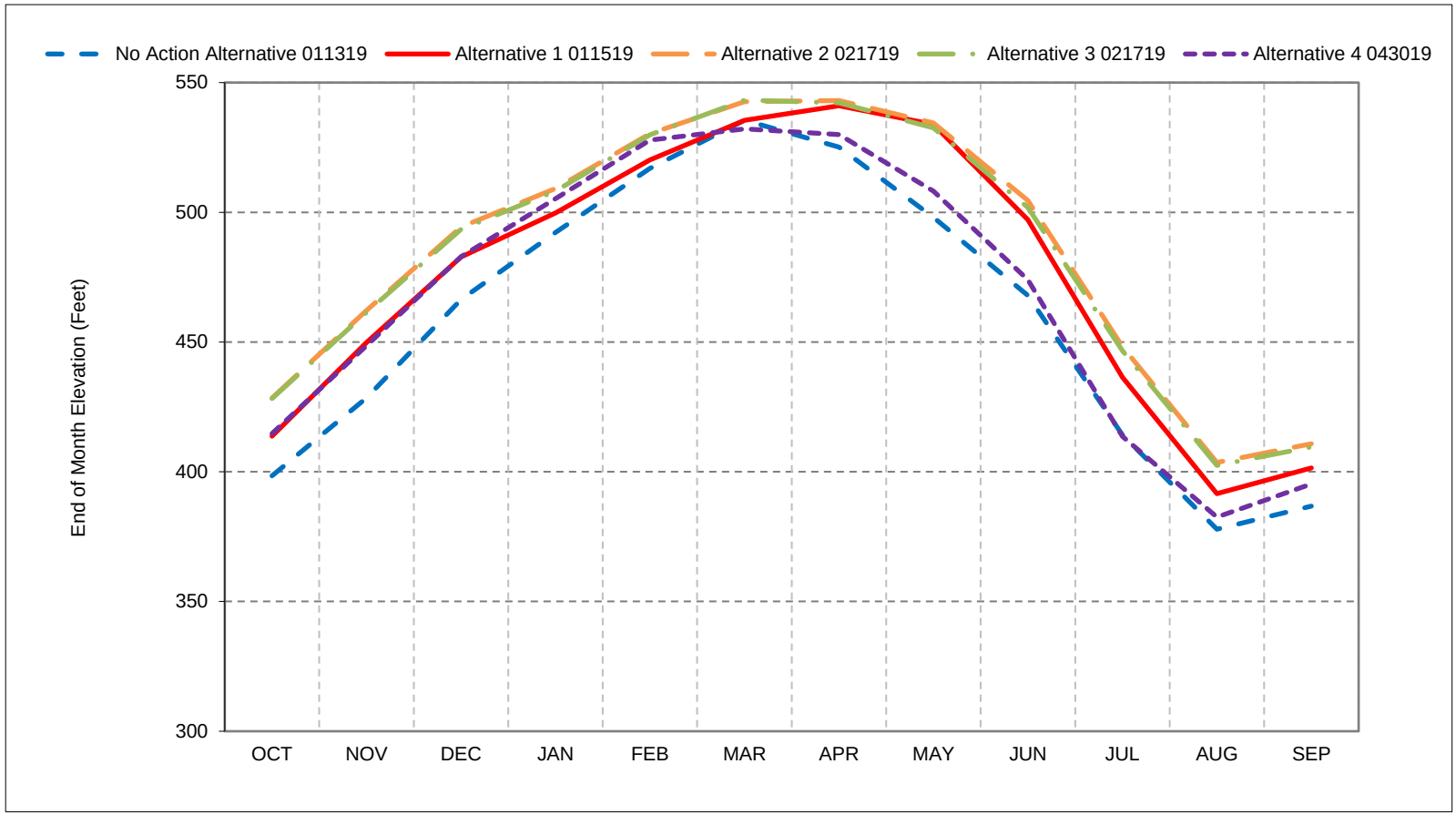
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

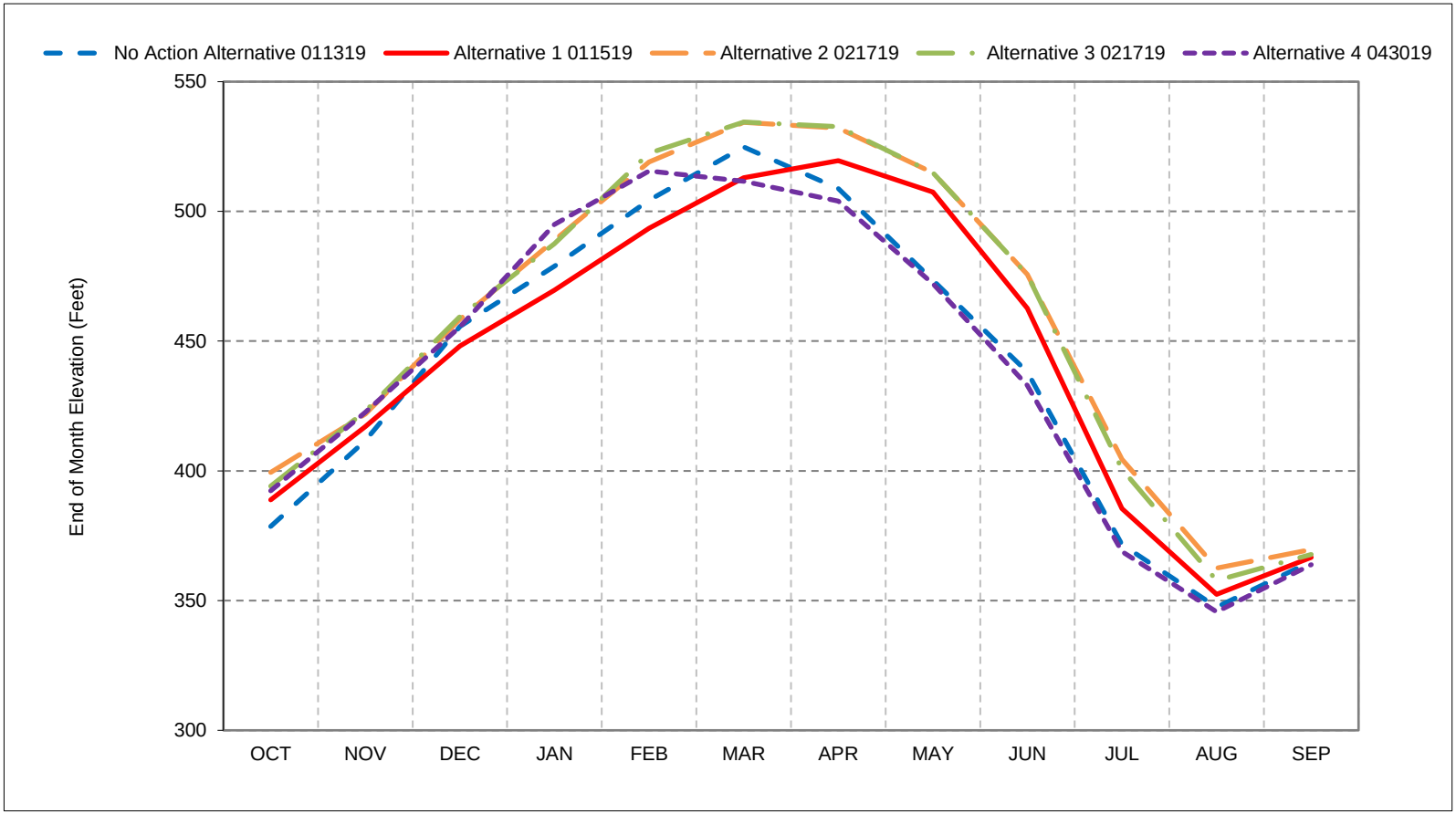
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6a-2. San Luis Reservoir (SWP and CVP), Wet Year Average Elevation



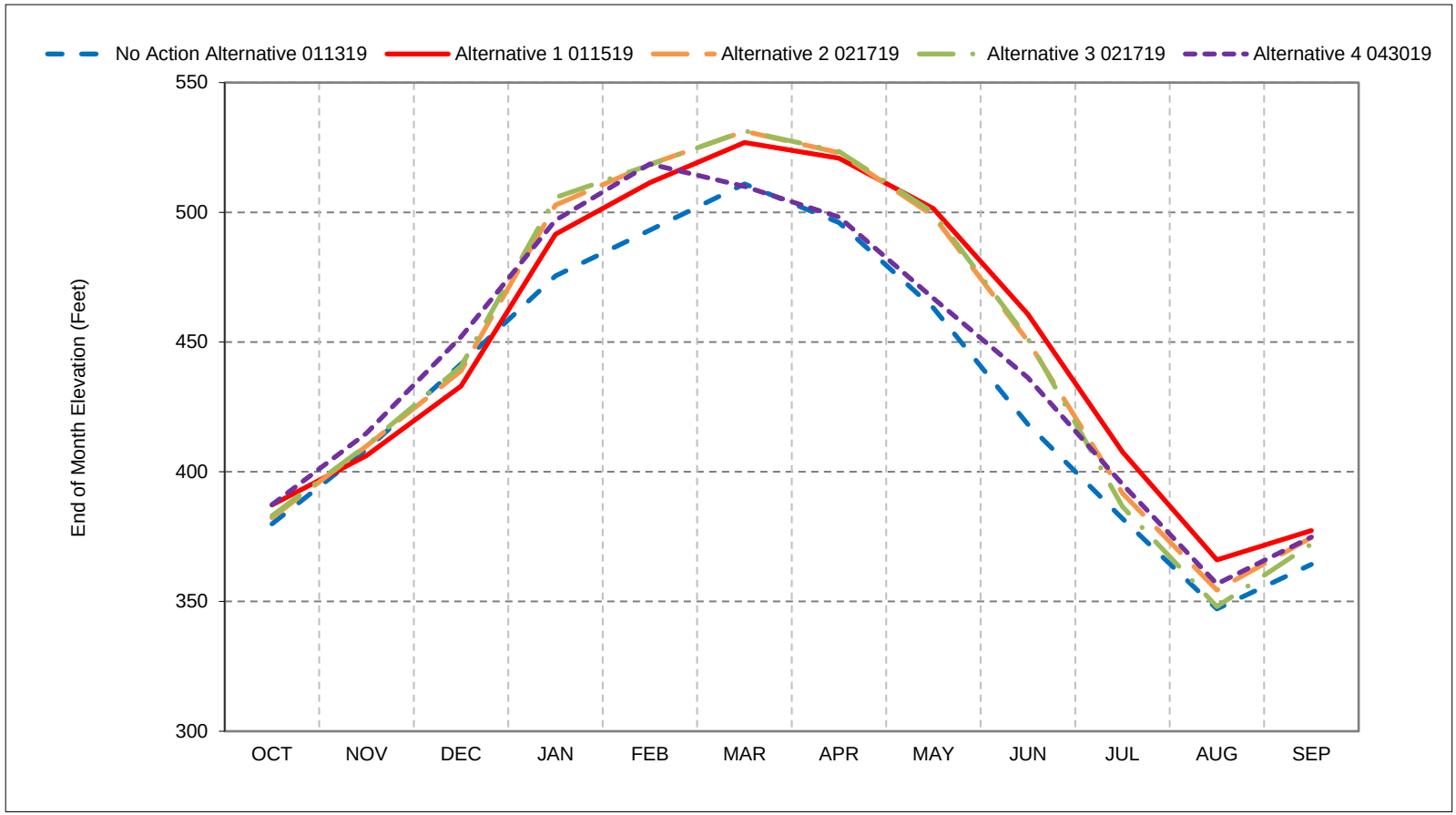
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6a-3. San Luis Reservoir (SWP and CVP), Above Normal Year Average Elevation



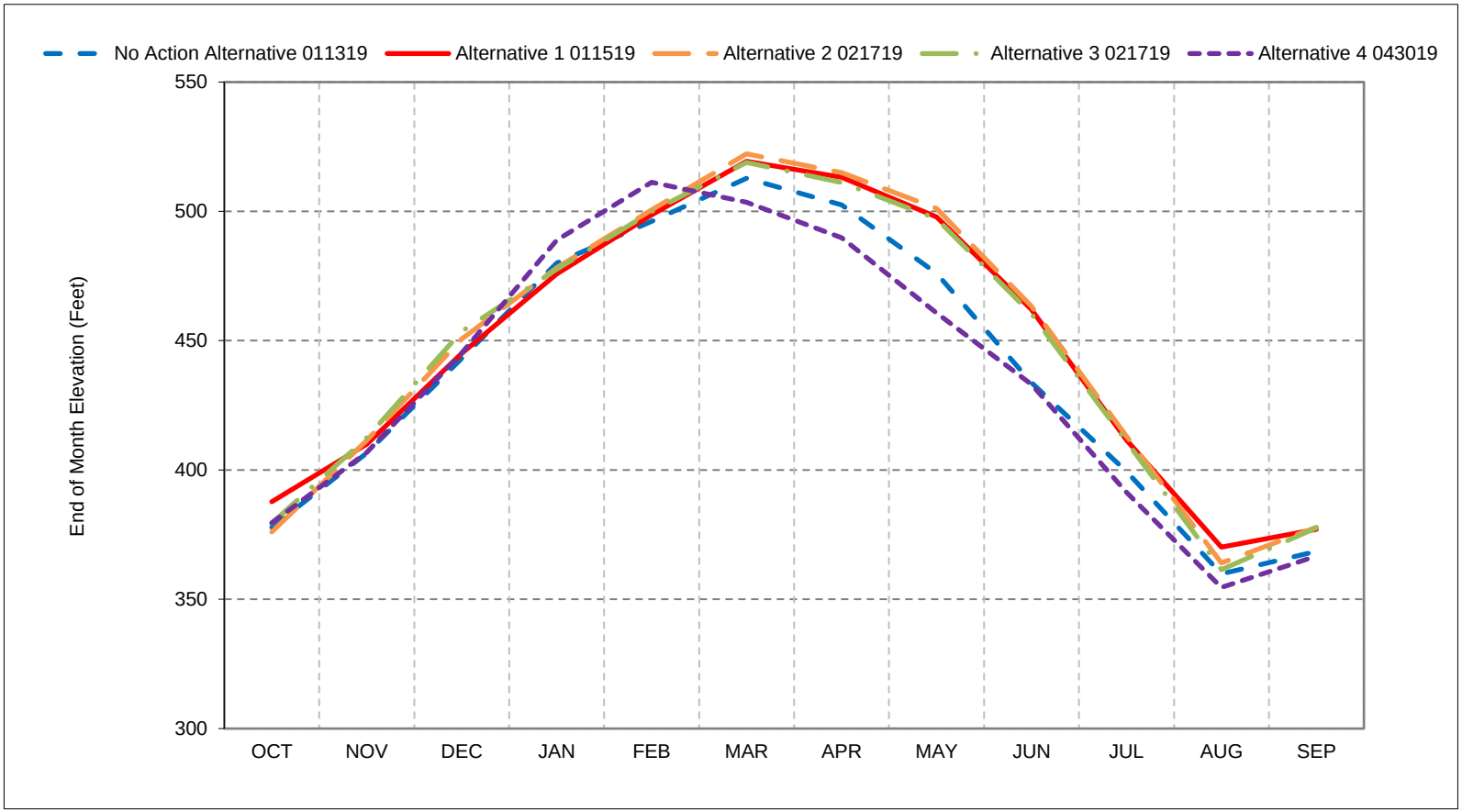
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6a-4. San Luis Reservoir (SWP and CVP), Below Normal Year Average Elevation



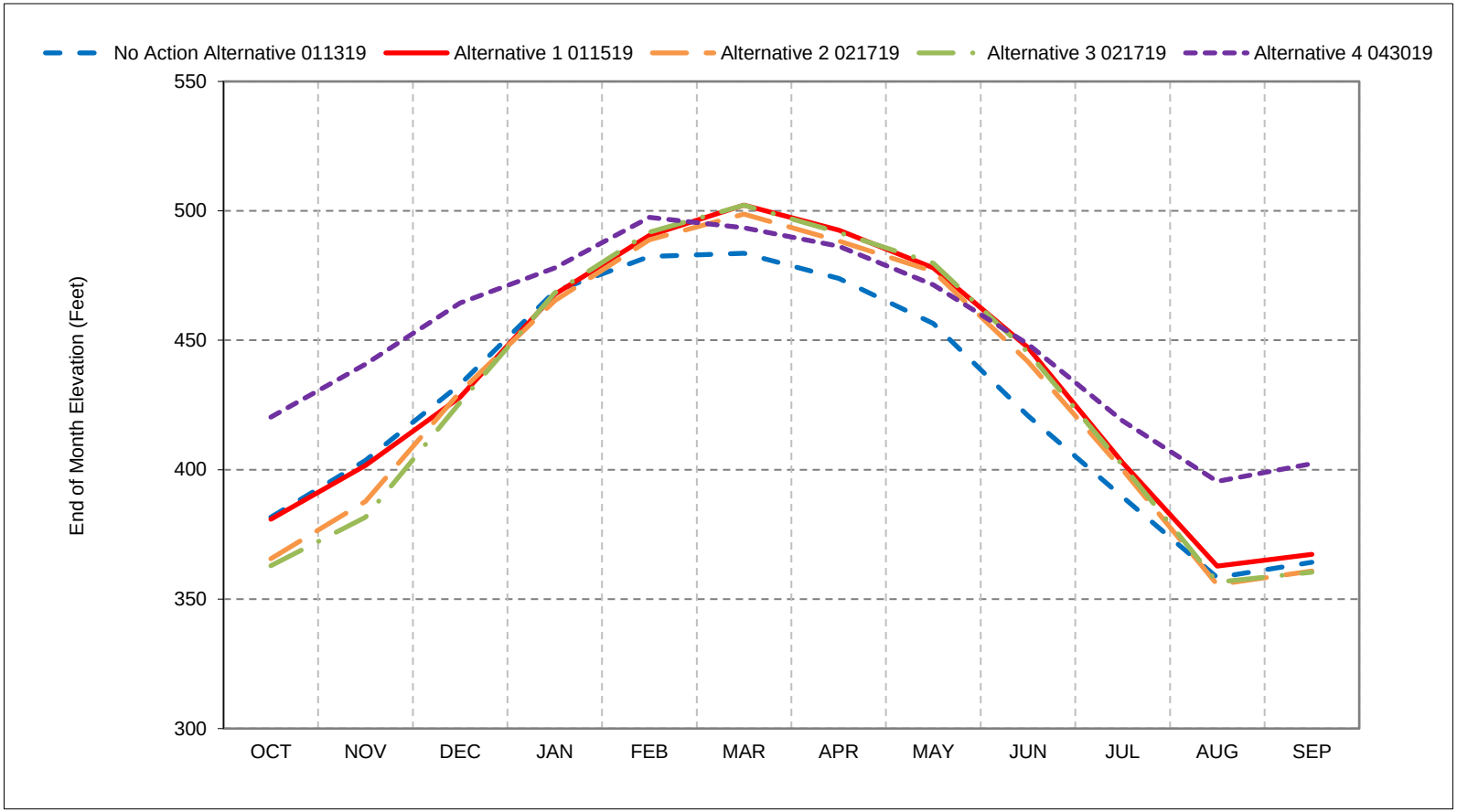
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6a-5. San Luis Reservoir (SWP and CVP), Dry Year Average Elevation



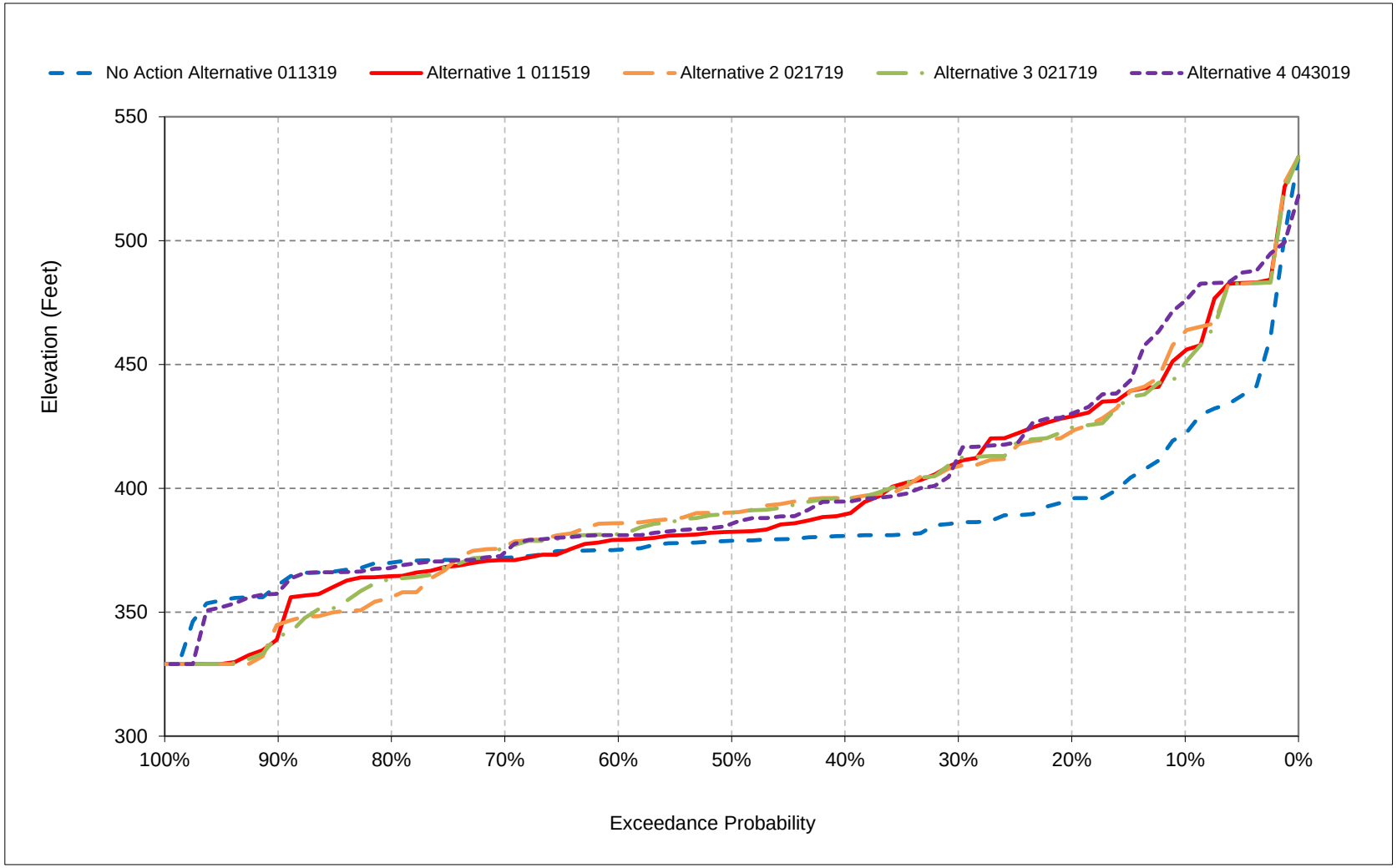
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6a-6. San Luis Reservoir (SWP and CVP), Critical Year Average Elevation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

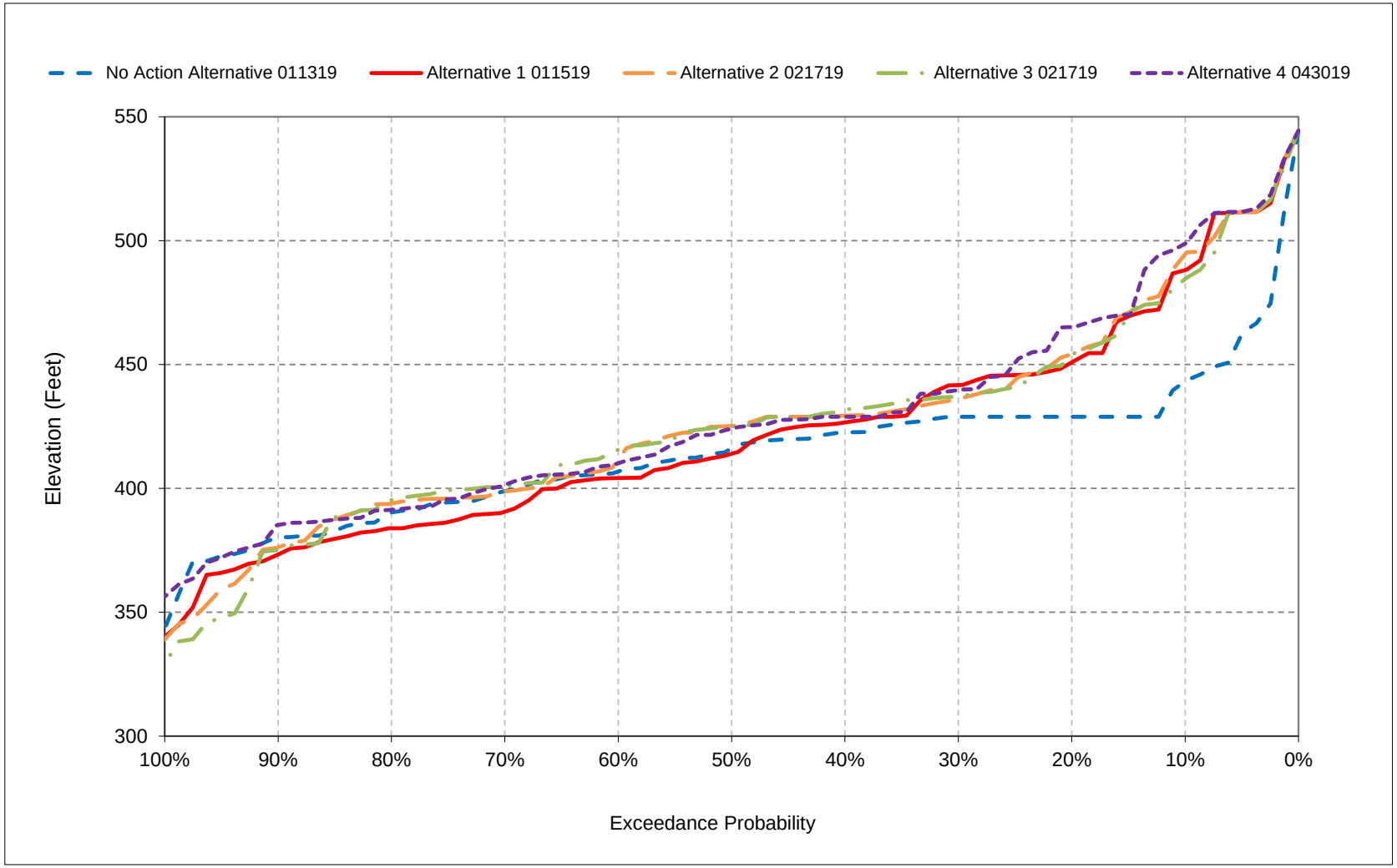
Figure 6a-7. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

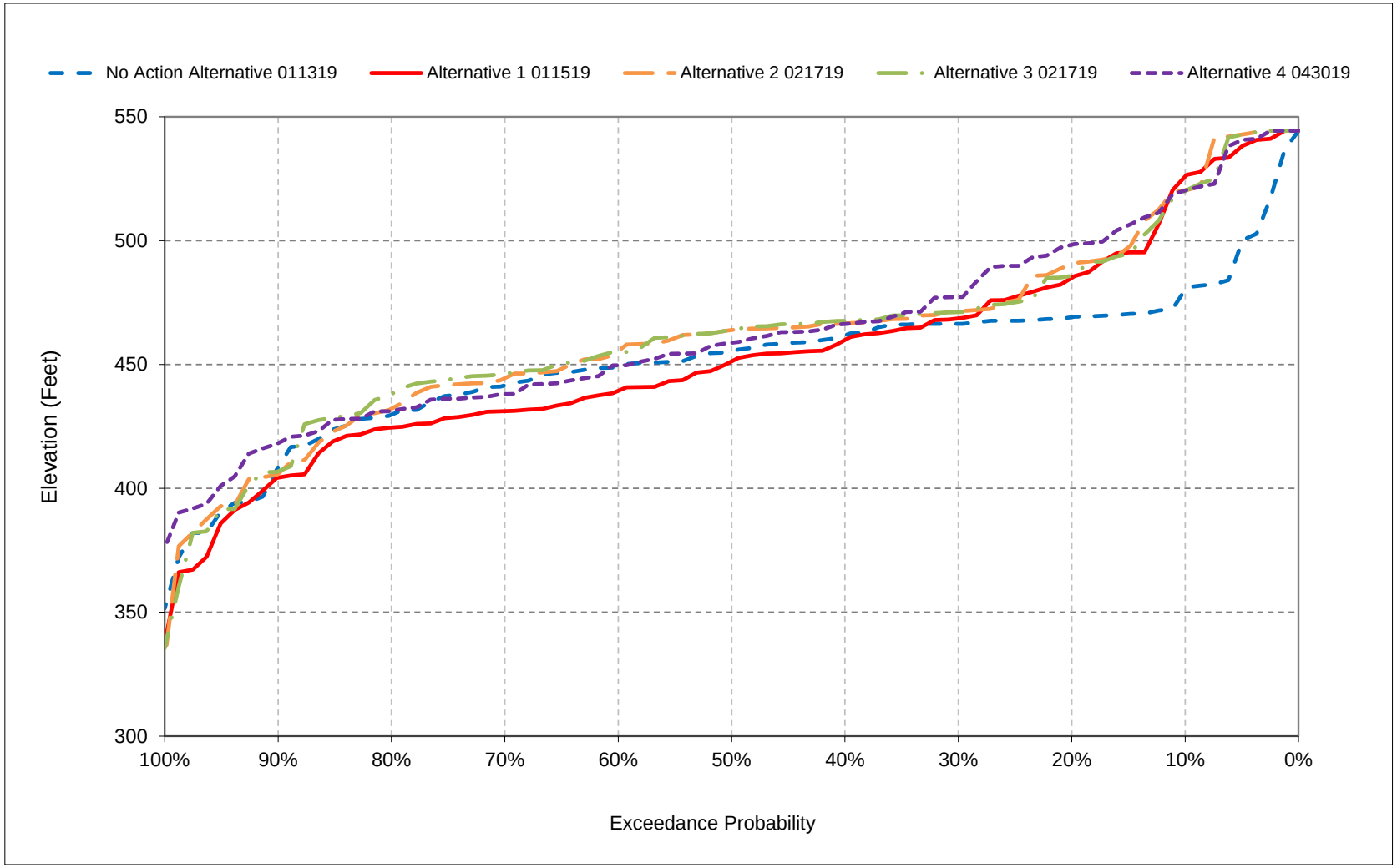
Figure 6a-8. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

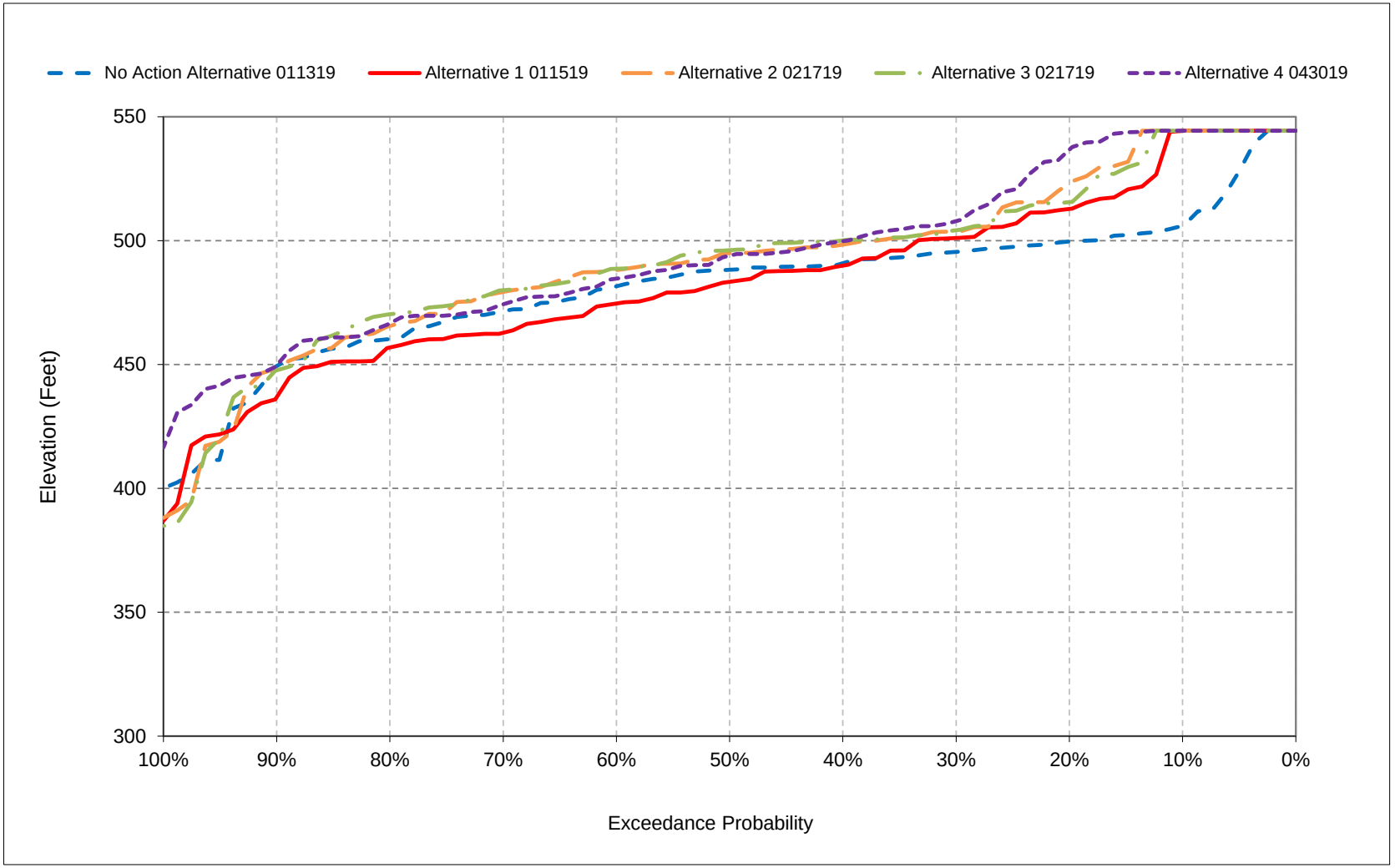
Figure 6a-9. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

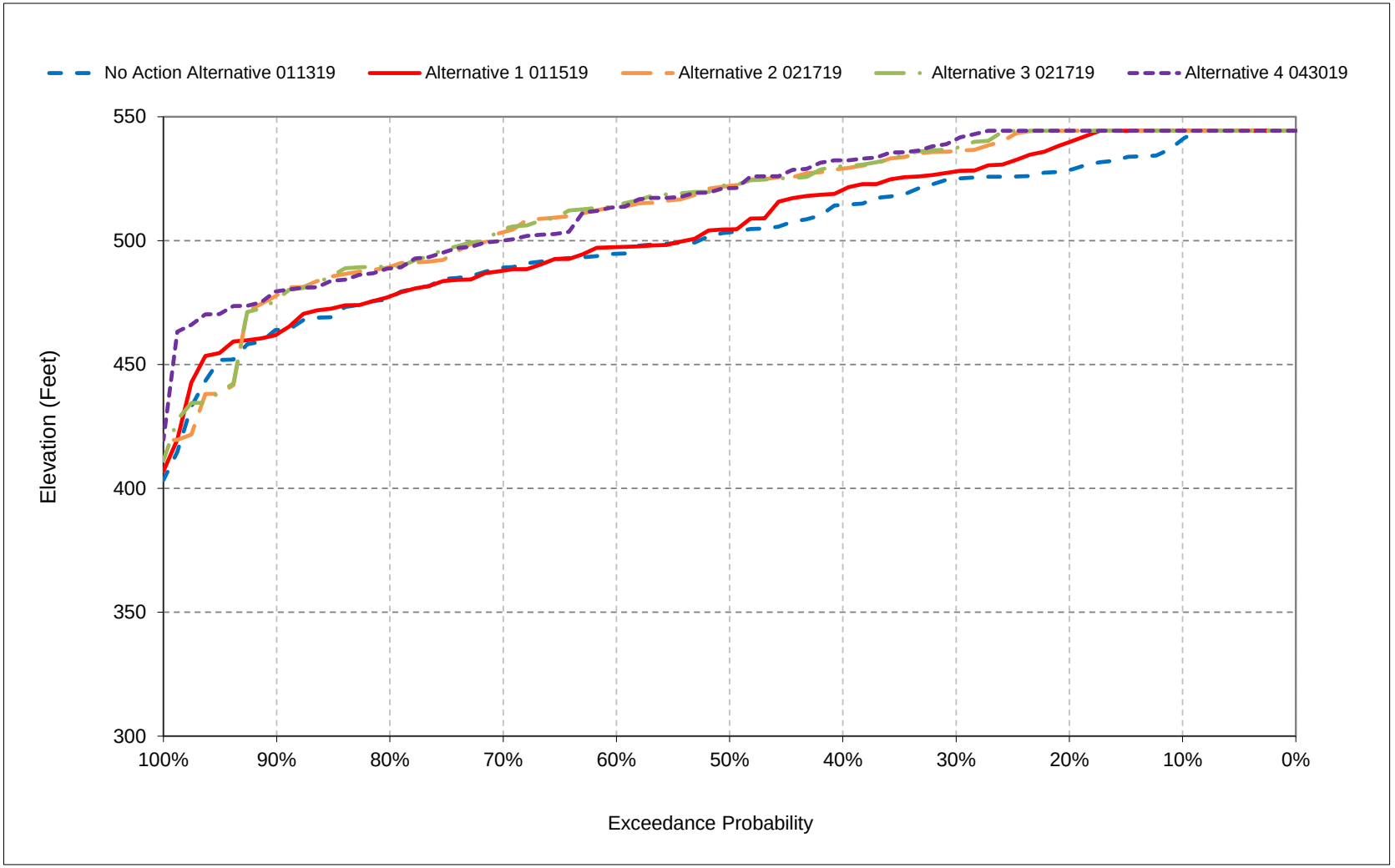
Figure 6a-10. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

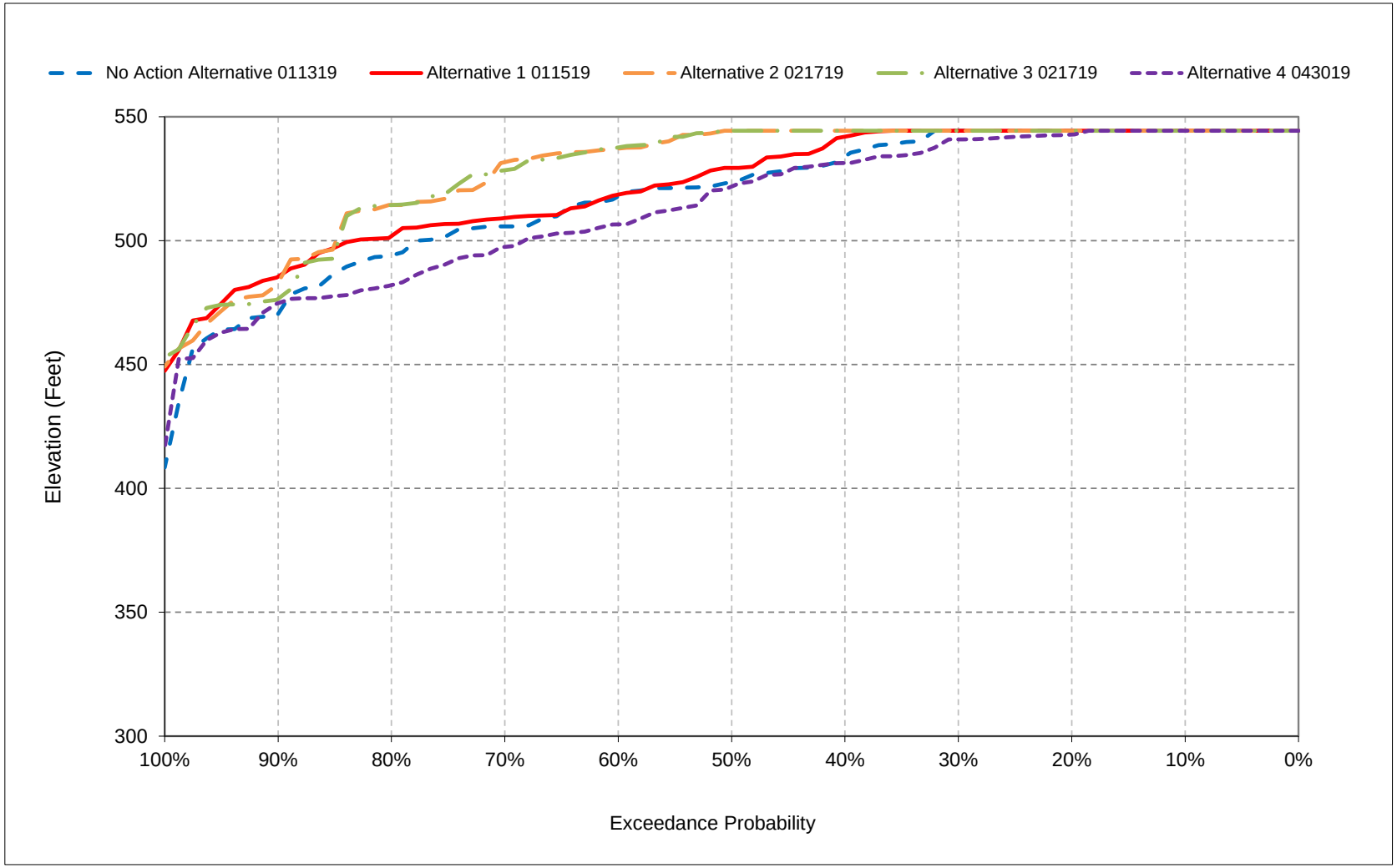
Figure 6a-11. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6a-12. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6a-13. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6a-14. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

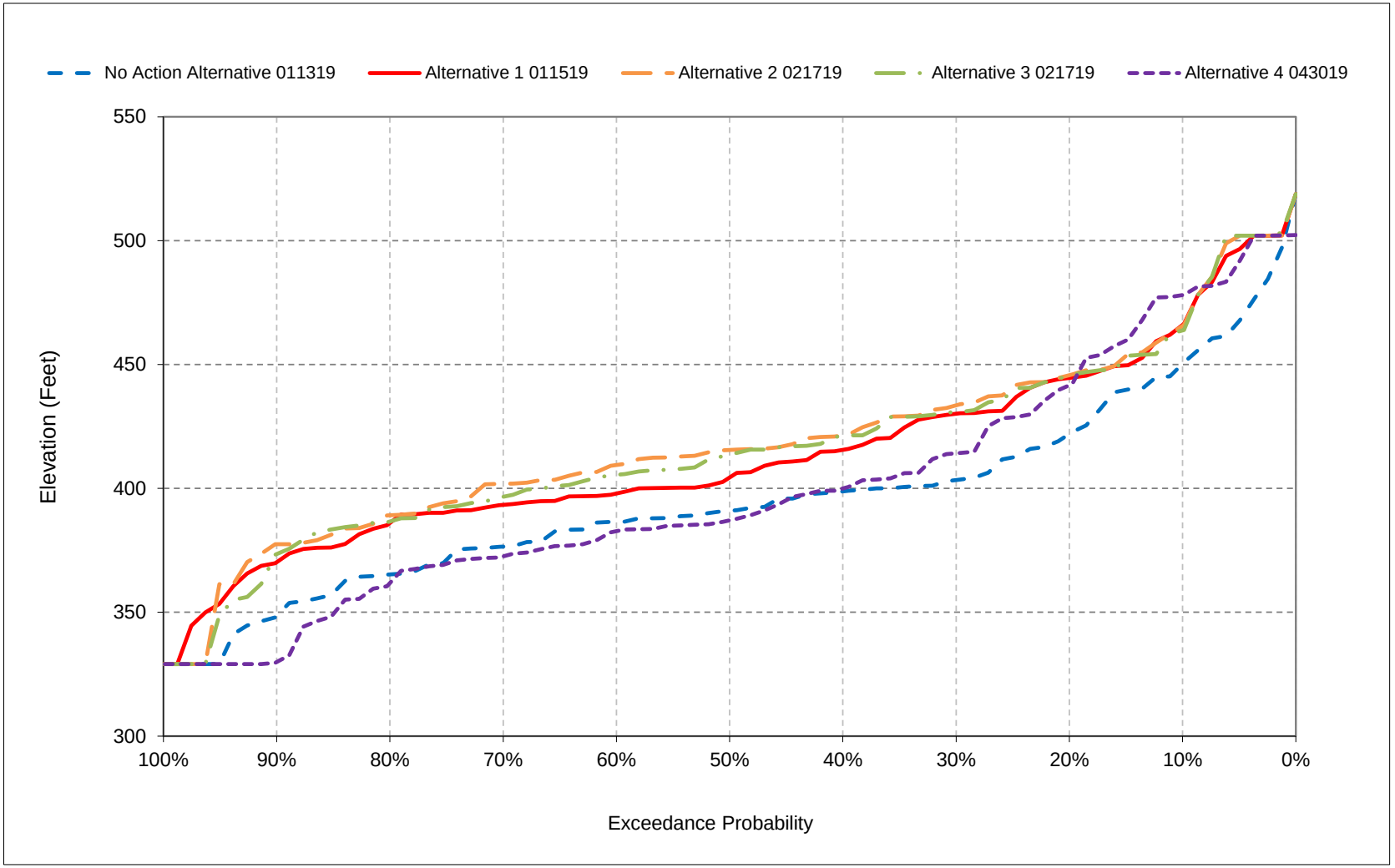
Figure 6a-15. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

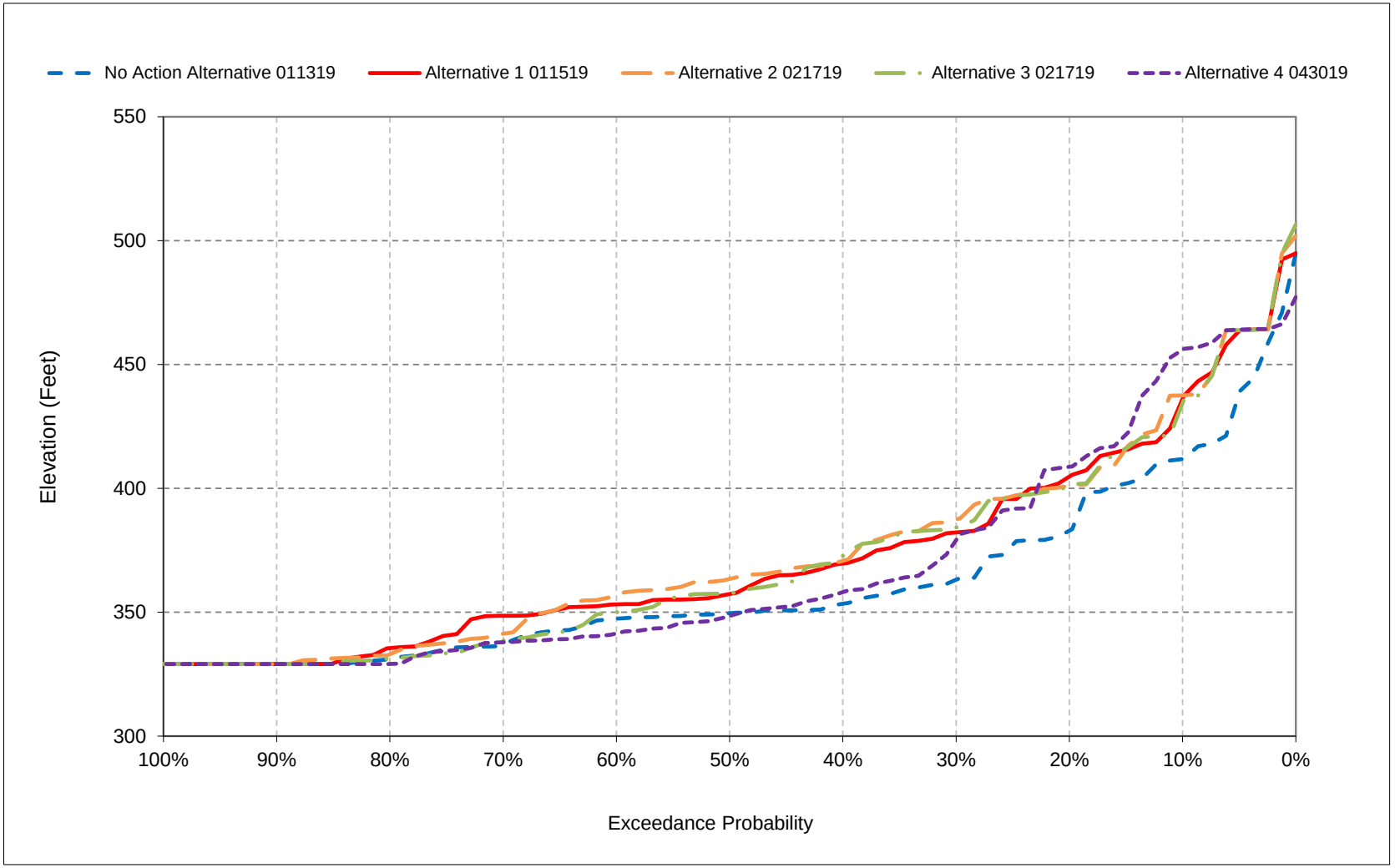
Figure 6a-16. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

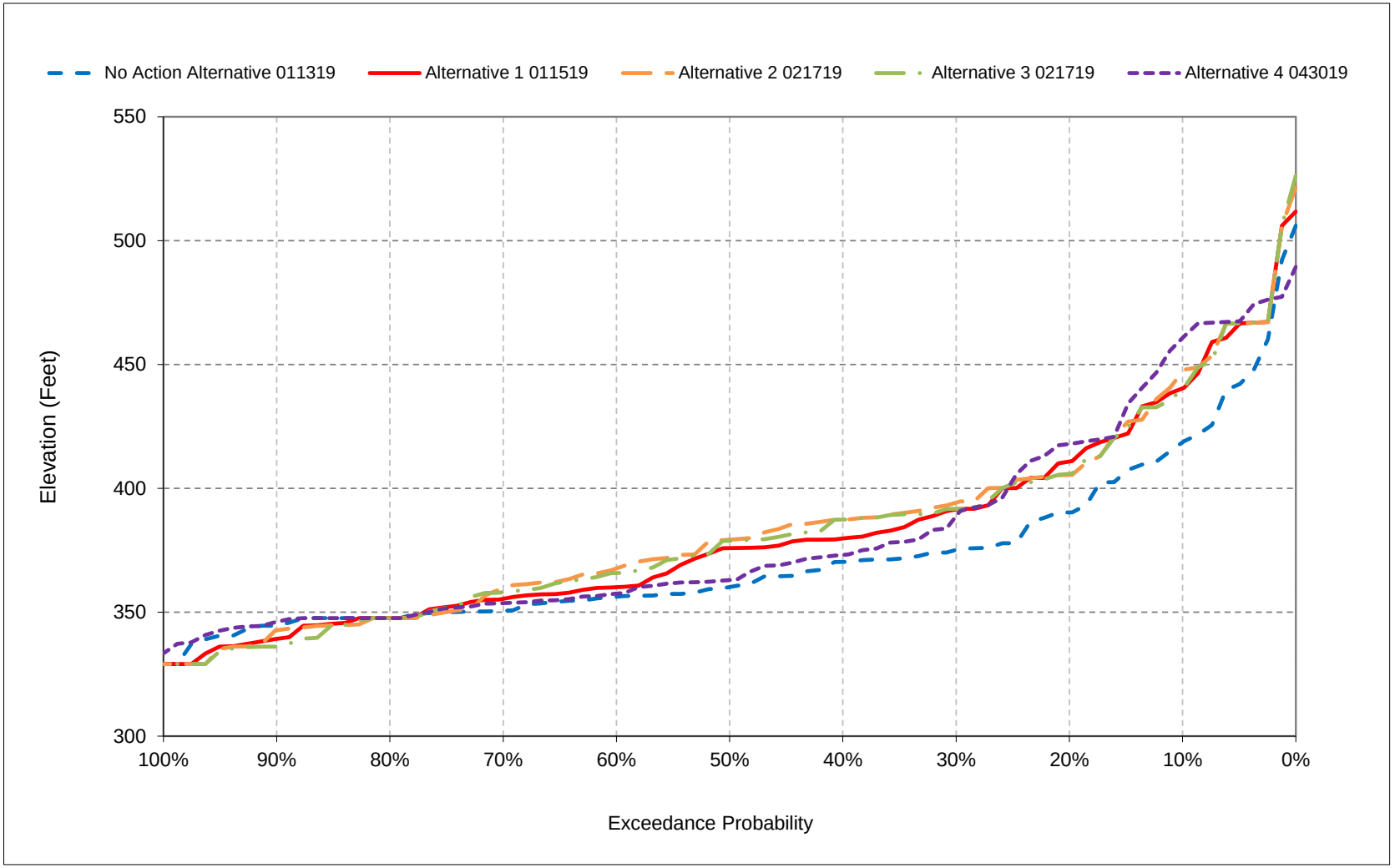
Figure 6a-17. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6a-18. San Luis Reservoir (SWP and CVP), Reservoir Pool Elevation, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 6b-1. San Luis CVP Storage, End of Month Storage

No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	338	432	614	750	951	972	924	801	720	464	296	324
20%	234	367	557	716	878	972	880	763	601	338	190	215
30%	201	367	544	692	857	972	859	659	479	262	128	163
40%	182	340	520	667	797	910	835	624	436	244	104	146
50%	176	314	488	654	736	849	774	598	374	217	95	121
60%	163	276	459	620	688	816	743	556	341	202	90	111
70%	152	245	424	569	658	749	674	516	328	168	64	97
80%	145	215	370	513	596	685	629	482	285	133	50	90
90%	123	181	283	459	531	564	532	427	252	92	45	83
Long Term												
Full Simulation Period[a]	207	314	476	625	733	820	754	609	436	251	140	170
Water Year Types[b,c]												
Wet (32%)	256	373	547	682	816	920	860	711	561	330	198	222
Above Normal (16%)	176	299	492	611	746	860	769	582	414	169	94	138
Below Normal (13%)	182	287	434	596	689	784	702	534	332	193	90	134
Dry (24%)	181	285	442	614	700	791	735	598	398	251	127	154
Critical (15%)	203	277	399	564	634	640	589	502	343	223	134	154

Alternative 1 011519

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	489	653	863	972	972	972	972	972	858	541	399	419
20%	367	466	637	788	944	972	972	968	754	438	268	293
30%	291	425	555	723	874	972	972	904	655	372	187	219
40%	212	356	511	662	831	958	941	848	583	311	144	179
50%	188	305	468	629	742	882	900	799	525	266	114	166
60%	177	266	414	585	703	820	858	723	478	241	104	120
70%	149	216	377	526	652	767	760	686	445	225	92	109
80%	131	193	348	496	599	727	676	589	427	200	61	90
90%	73	157	266	402	522	640	634	544	390	146	45	70
Long Term												
Full Simulation Period[a]	252	356	495	638	753	844	840	770	574	318	176	205
Water Year Types[b,c]												
Wet (32%)	335	481	637	724	834	920	952	911	709	420	251	282
Above Normal (16%)	219	327	458	570	692	794	831	763	530	219	111	148
Below Normal (13%)	210	282	403	682	788	873	838	730	519	284	141	177
Dry (24%)	216	301	452	595	714	828	794	713	527	299	158	181
Critical (15%)	207	277	382	559	676	735	682	606	456	269	149	166

Alternative 1 011519 minus No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	151	221	249	222	21	0	48	171	138	77	103	95
20%	134	100	80	72	66	0	92	205	153	100	78	78
30%	91	58	11	31	17	0	113	245	176	110	59	56
40%	30	17	**-10**	**-5**	35	48	105	224	147	67	40	32
50%	12	**-9**	**-20**	**-24**	7	33	126	201	151	49	19	45
60%	14	**-10**	**-45**	**-35**	15	4	115	166	137	39	14	9
70%	**-3**	**-29**	**-47**	**-44**	**-6**	19	86	170	118	58	28	12
80%	**-14**	**-22**	**-22**	**-17**	3	43	47	107	141	67	11	**0**
90%	**-50**	**-24**	**-17**	**-57**	**-9**	76	103	117	138	54	0	**-13**
Long Term												
Full Simulation Period[a]	45	42	19	13	20	24	85	161	138	67	36	35
Water Year Types[b,c]												
Wet (32%)	80	108	90	42	18	**0**	93	199	147	90	53	60
Above Normal (16%)	42	28	**-35**	**-42**	**-54**	**-65**	62	181	116	50	17	10
Below Normal (13%)	27	**-5**	**-31**	86	99	89	136	196	187	92	51	42
Dry (24%)	36	17	10	**-19**	14	37	59	115	129	47	30	28
Critical (15%)	4	**0**	**-17**	**-5**	42	95	93	104	113	47	15	12

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6b-2. San Luis CVP Storage, End of Month Storage

No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	338	432	614	750	951	972	924	801	720	464	296	324
20%	234	367	557	716	878	972	880	763	601	338	190	215
30%	201	367	544	692	857	972	859	659	479	262	128	163
40%	182	340	520	667	797	910	835	624	436	244	104	146
50%	176	314	488	654	736	849	774	598	374	217	95	121
60%	163	276	459	620	688	816	743	556	341	202	90	111
70%	152	245	424	569	658	749	674	516	328	168	64	97
80%	145	215	370	513	596	685	629	482	285	133	50	90
90%	123	181	283	459	531	564	532	427	252	92	45	83
Long Term												
Full Simulation Period[a]	207	314	476	625	733	820	754	609	436	251	140	170
Water Year Types[b,c]												
Wet (32%)	256	373	547	682	816	920	860	711	561	330	198	222
Above Normal (16%)	176	299	492	611	746	860	769	582	414	169	94	138
Below Normal (13%)	182	287	434	596	689	784	702	534	332	193	90	134
Dry (24%)	181	285	442	614	700	791	735	598	398	251	127	154
Critical (15%)	203	277	399	564	634	640	589	502	343	223	134	154

Alternative 2 021719

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	528	688	830	972	972	972	972	972	878	539	406	450
20%	341	482	665	847	972	972	972	961	762	443	253	271
30%	285	400	569	738	923	972	972	907	683	388	205	229
40%	235	369	545	708	881	972	972	861	638	335	148	205
50%	215	351	531	690	841	972	930	835	610	312	129	177
60%	200	296	488	653	791	929	891	748	550	287	113	139
70%	168	244	437	609	736	896	813	674	471	256	75	119
80%	111	227	382	539	660	796	712	625	396	211	55	90
90%	84	167	272	456	601	627	586	526	343	171	45	78
Long Term												
Full Simulation Period[a]	255	370	531	679	800	881	856	779	588	337	181	213
Water Year Types[b,c]												
Wet (32%)	380	530	693	774	891	962	964	913	746	464	283	308
Above Normal (16%)	251	341	506	668	831	916	902	805	597	286	136	156
Below Normal (13%)	194	297	430	741	828	898	849	715	476	236	112	170
Dry (24%)	183	304	476	607	725	845	805	729	533	305	143	185
Critical (15%)	167	232	389	551	667	715	660	600	434	261	134	153

Alternative 2 021719 minus No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	189	256	217	222	21	0	48	171	158	75	109	126
20%	108	115	108	131	94	0	92	197	161	105	63	56
30%	84	33	26	45	66	0	113	248	204	125	77	66
40%	53	29	24	41	84	62	137	237	202	91	44	59
50%	39	37	43	36	105	123	156	237	236	94	34	57
60%	37	20	29	33	103	113	148	191	209	85	23	28
70%	16	**0**	13	39	78	147	139	158	144	88	10	22
80%	**-35**	12	11	26	64	112	83	143	110	78	5	**0**
90%	**-39**	**-14**	**-11**	**-4**	70	63	55	100	91	79	0	**-5**
Long Term												
Full Simulation Period[a]	48	56	55	54	67	62	102	170	153	86	40	42
Water Year Types[b,c]												
Wet (32%)	124	158	146	92	75	41	104	202	185	134	84	86
Above Normal (16%)	74	42	14	57	85	57	133	224	183	116	42	17
Below Normal (13%)	12	9	**-3**	145	139	114	147	182	143	43	21	35
Dry (24%)	2	20	34	**-7**	25	54	70	131	135	54	16	31
Critical (15%)	**-36**	**-45**	**-10**	**-13**	33	75	71	98	91	39	**0**	**-1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6b-3. San Luis CVP Storage, End of Month Storage

No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	338	432	614	750	951	972	924	801	720	464	296	324
20%	234	367	557	716	878	972	880	763	601	338	190	215
30%	201	367	544	692	857	972	859	659	479	262	128	163
40%	182	340	520	667	797	910	835	624	436	244	104	146
50%	176	314	488	654	736	849	774	598	374	217	95	121
60%	163	276	459	620	688	816	743	556	341	202	90	111
70%	152	245	424	569	658	749	674	516	328	168	64	97
80%	145	215	370	513	596	685	629	482	285	133	50	90
90%	123	181	283	459	531	564	532	427	252	92	45	83
Long Term												
Full Simulation Period[a]	207	314	476	625	733	820	754	609	436	251	140	170
Water Year Types[b,c]												
Wet (32%)	256	373	547	682	816	920	860	711	561	330	198	222
Above Normal (16%)	176	299	492	611	746	860	769	582	414	169	94	138
Below Normal (13%)	182	287	434	596	689	784	702	534	332	193	90	134
Dry (24%)	181	285	442	614	700	791	735	598	398	251	127	154
Critical (15%)	203	277	399	564	634	640	589	502	343	223	134	154

Alternative 3 021719

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	465	635	829	972	972	972	972	972	878	530	392	417
20%	348	479	641	803	972	972	972	963	761	443	254	272
30%	296	404	568	740	931	972	972	902	676	375	194	220
40%	235	379	550	718	886	972	972	859	634	334	155	205
50%	214	350	531	696	842	972	926	813	595	304	115	175
60%	185	312	486	656	796	931	881	764	558	271	96	134
70%	166	252	445	612	743	877	798	656	455	237	68	116
80%	128	232	408	563	660	796	709	600	402	202	50	90
90%	72	163	276	452	593	595	598	501	338	157	45	62
Long Term												
Full Simulation Period[a]	253	368	531	680	803	881	852	773	583	329	174	209
Water Year Types[b,c]												
Wet (32%)	378	527	688	768	888	965	959	903	732	457	278	304
Above Normal (16%)	233	345	511	660	849	916	905	805	596	271	123	150
Below Normal (13%)	195	297	437	754	825	898	851	721	479	220	96	162
Dry (24%)	189	307	487	605	722	828	784	708	520	298	137	184
Critical (15%)	160	216	374	569	684	734	678	616	450	268	137	152

Alternative 3 021719 minus No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	126	203	215	222	21	0	48	171	158	67	96	93
20%	114	112	84	87	94	0	92	200	160	105	64	57
30%	95	37	24	48	74	0	113	243	197	113	66	57
40%	53	39	29	51	90	62	137	235	197	90	51	59
50%	39	36	43	43	107	123	152	215	221	87	20	55
60%	22	36	27	36	108	116	138	207	217	69	6	23
70%	14	7	21	42	85	128	124	140	128	69	4	18
80%	**-17**	17	38	50	64	111	81	118	117	69	0	**0**
90%	**-50**	**-17**	**-7**	**-8**	62	31	66	74	86	65	0	**-20**
Long Term												
Full Simulation Period[a]	46	54	56	55	70	61	98	165	148	78	34	39
Water Year Types[b,c]												
Wet (32%)	123	154	141	86	72	45	100	191	170	127	80	82
Above Normal (16%)	57	46	18	49	103	57	136	223	182	102	29	12
Below Normal (13%)	13	9	3	158	136	113	149	187	147	27	6	27
Dry (24%)	9	22	45	**-9**	22	37	49	111	121	47	10	30
Critical (15%)	**-43**	**-61**	**-25**	5	50	94	89	114	107	46	3	**-2**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6b-4. San Luis CVP Storage, End of Month Storage

No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	338	432	614	750	951	972	924	801	720	464	296	324
20%	234	367	557	716	878	972	880	763	601	338	190	215
30%	201	367	544	692	857	972	859	659	479	262	128	163
40%	182	340	520	667	797	910	835	624	436	244	104	146
50%	176	314	488	654	736	849	774	598	374	217	95	121
60%	163	276	459	620	688	816	743	556	341	202	90	111
70%	152	245	424	569	658	749	674	516	328	168	64	97
80%	145	215	370	513	596	685	629	482	285	133	50	90
90%	123	181	283	459	531	564	532	427	252	92	45	83
Long Term												
Full Simulation Period[a]	207	314	476	625	733	820	754	609	436	251	140	170
Water Year Types[b,c]												
Wet (32%)	256	373	547	682	816	920	860	711	561	330	198	222
Above Normal (16%)	176	299	492	611	746	860	769	582	414	169	94	138
Below Normal (13%)	182	287	434	596	689	784	702	534	332	193	90	134
Dry (24%)	181	285	442	614	700	791	735	598	398	251	127	154
Critical (15%)	203	277	399	564	634	640	589	502	343	223	134	154

Alternative 4 043019

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	591	711	830	972	972	972	972	972	842	602	491	515
20%	373	537	708	926	972	963	963	852	708	424	284	321
30%	301	416	598	761	951	951	901	754	538	306	177	210
40%	230	367	543	716	900	894	877	653	473	249	115	156
50%	199	346	505	684	835	839	782	614	384	204	92	127
60%	183	290	461	636	792	753	688	516	359	189	75	114
70%	159	254	408	584	717	703	636	470	339	154	66	105
80%	140	219	377	545	656	622	563	449	294	124	45	90
90%	115	198	322	461	610	586	510	363	259	47	45	86
Long Term												
Full Simulation Period[a]	267	383	535	696	812	797	755	624	473	273	168	206
Water Year Types[b,c]												
Wet (32%)	335	476	638	753	878	902	890	772	600	346	224	261
Above Normal (16%)	226	346	493	696	808	786	745	581	397	164	90	137
Below Normal (13%)	214	317	477	708	826	777	714	554	409	243	125	172
Dry (24%)	184	285	451	664	783	742	669	524	394	224	113	147
Critical (15%)	355	442	555	613	712	691	654	579	468	340	258	289

Alternative 4 043019 minus No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	252	279	216	222	21	0	48	171	122	138	195	191
20%	139	170	151	211	94	-9	83	89	108	87	94	106
30%	100	49	54	68	94	-21	41	96	59	44	49	47
40%	48	27	23	49	104	-15	42	29	36	4	11	10
50%	24	32	17	30	99	-10	8	16	10	-13	-3	7
60%	20	14	1	16	104	-62	-54	-41	18	-13	-15	3
70%	7	10	-16	14	59	-45	-38	-46	11	-14	2	7
80%	-6	4	7	32	60	-62	-66	-33	8	-9	-5	0
90%	-7	17	39	2	79	21	-22	-63	7	-45	0	3
Long Term												
Full Simulation Period[a]	60	69	59	70	80	-23	1	15	37	21	27	35
Water Year Types[b,c]												
Wet (32%)	79	103	91	71	62	-18	30	60	38	15	26	39
Above Normal (16%)	50	48	0	85	62	-73	-24	-1	-17	-5	-3	-2
Below Normal (13%)	32	29	43	112	137	-7	12	20	77	50	35	38
Dry (24%)	3	1	8	50	83	-49	-66	-74	-4	-28	-14	-7
Critical (15%)	153	165	156	49	78	51	65	77	125	118	124	135

a Based on the 82-year simulation period.

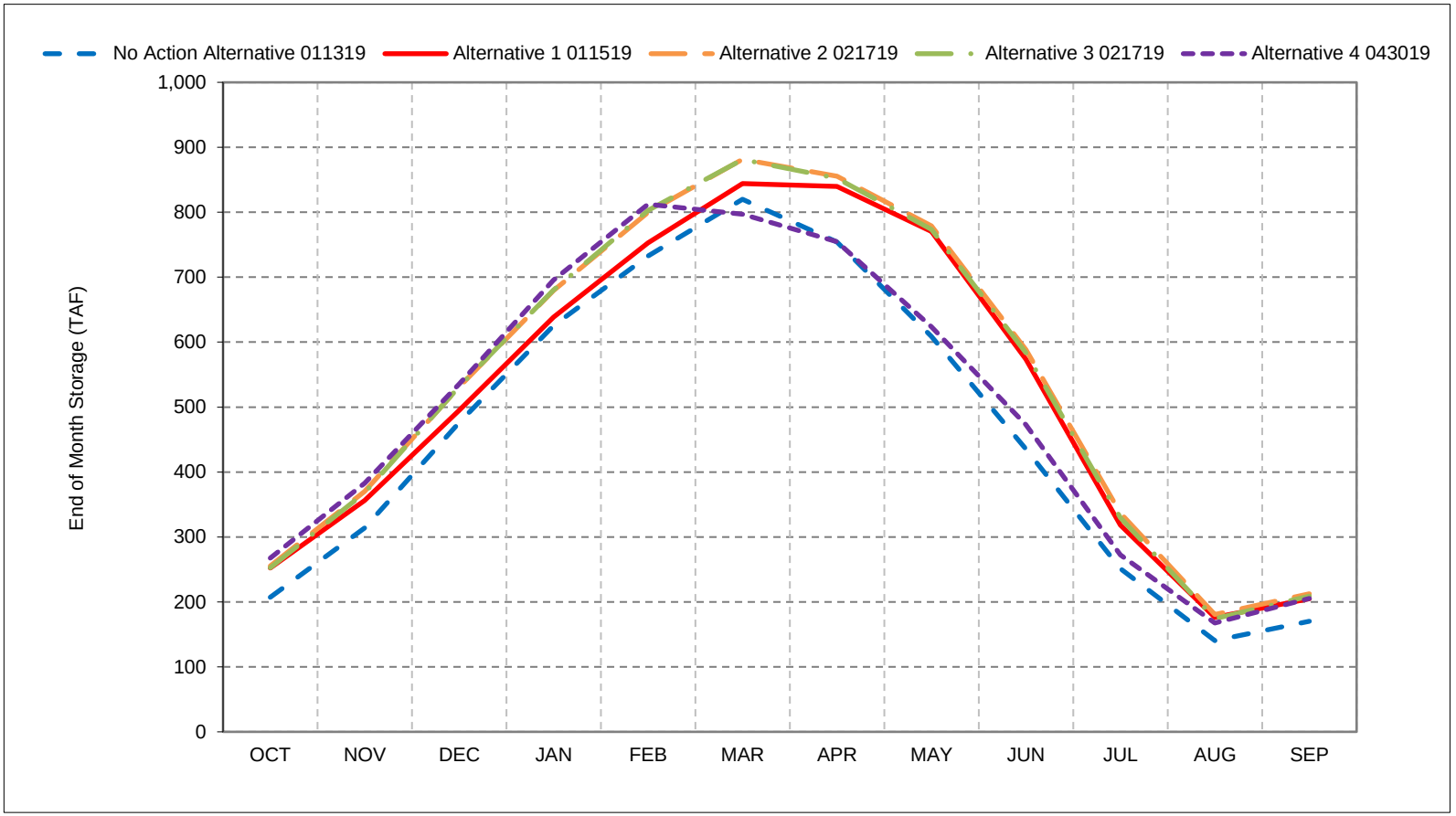
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

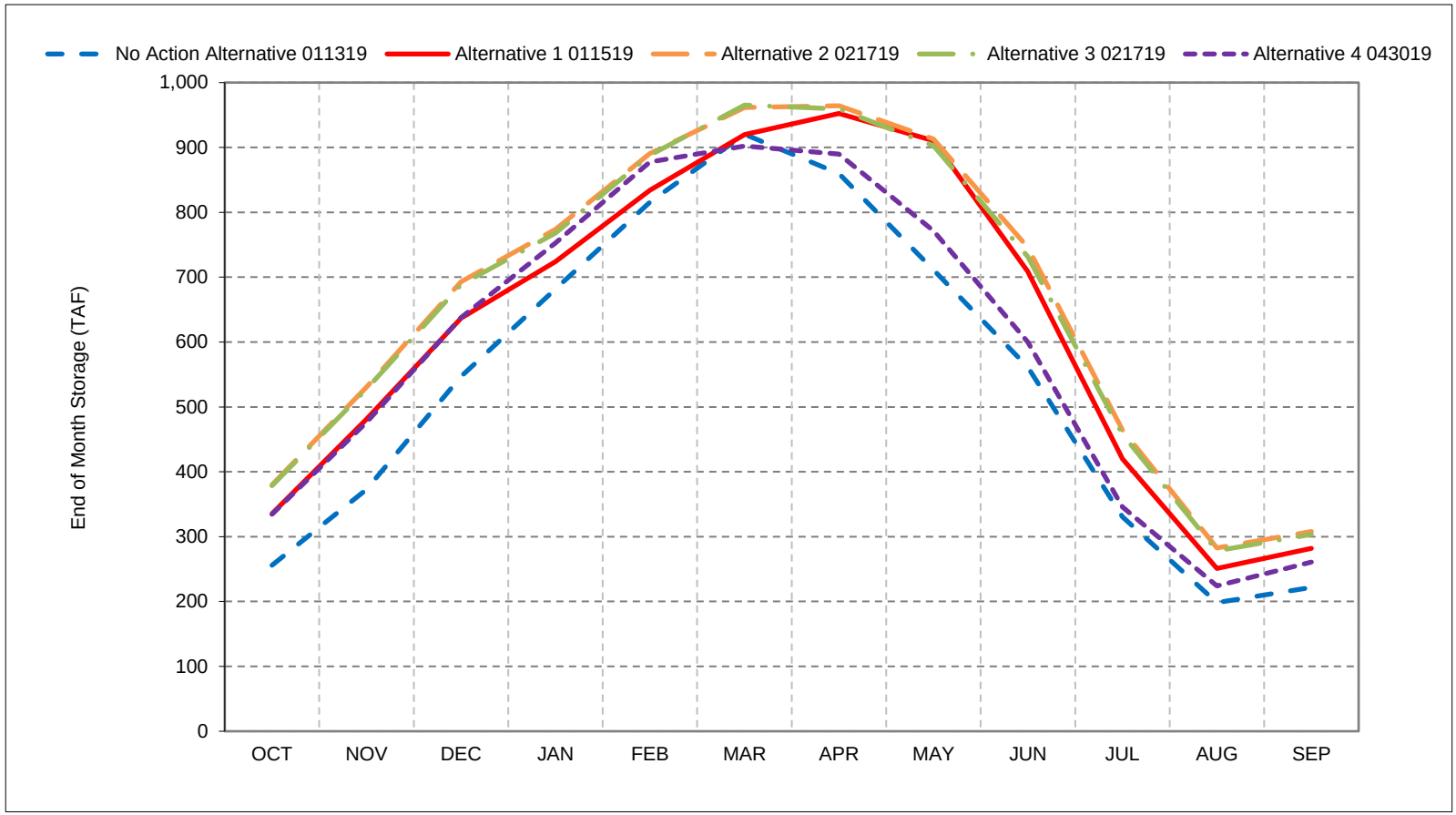
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-1. San Luis CVP Storage, Long-Term Average Storage



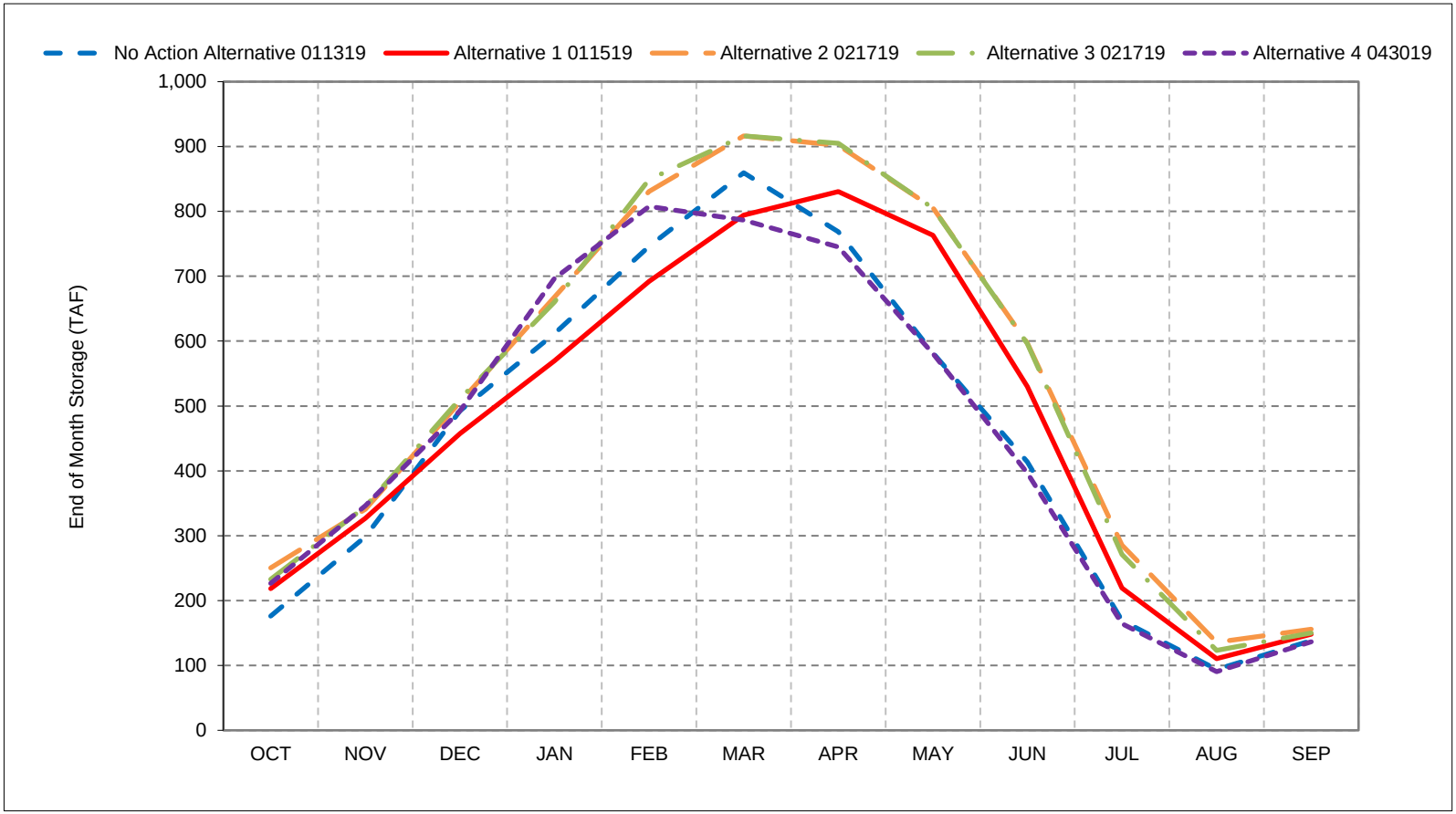
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-2. San Luis CVP Storage, Wet Year Average Storage



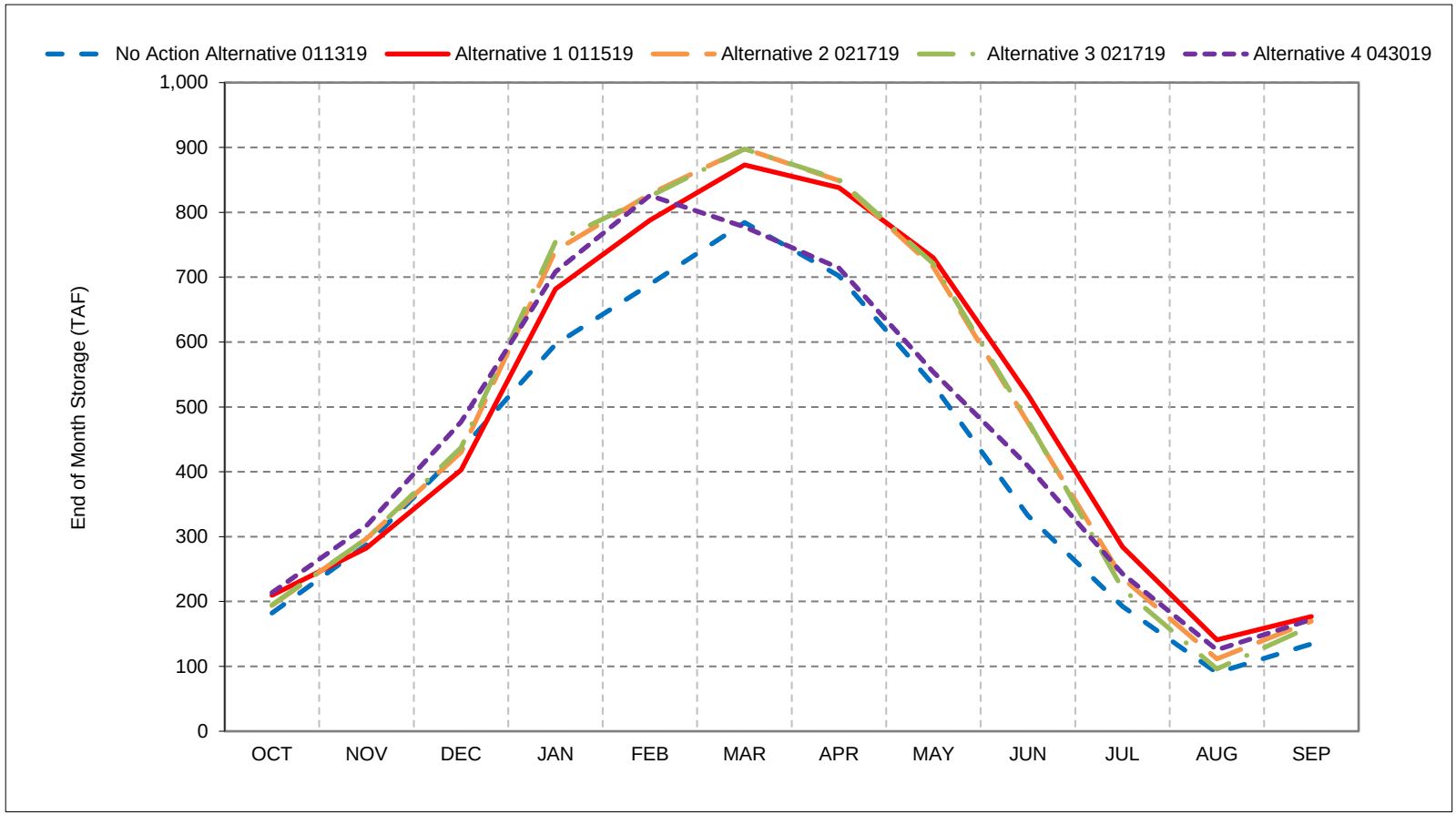
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-3. San Luis CVP Storage, Above Normal Year Average Storage



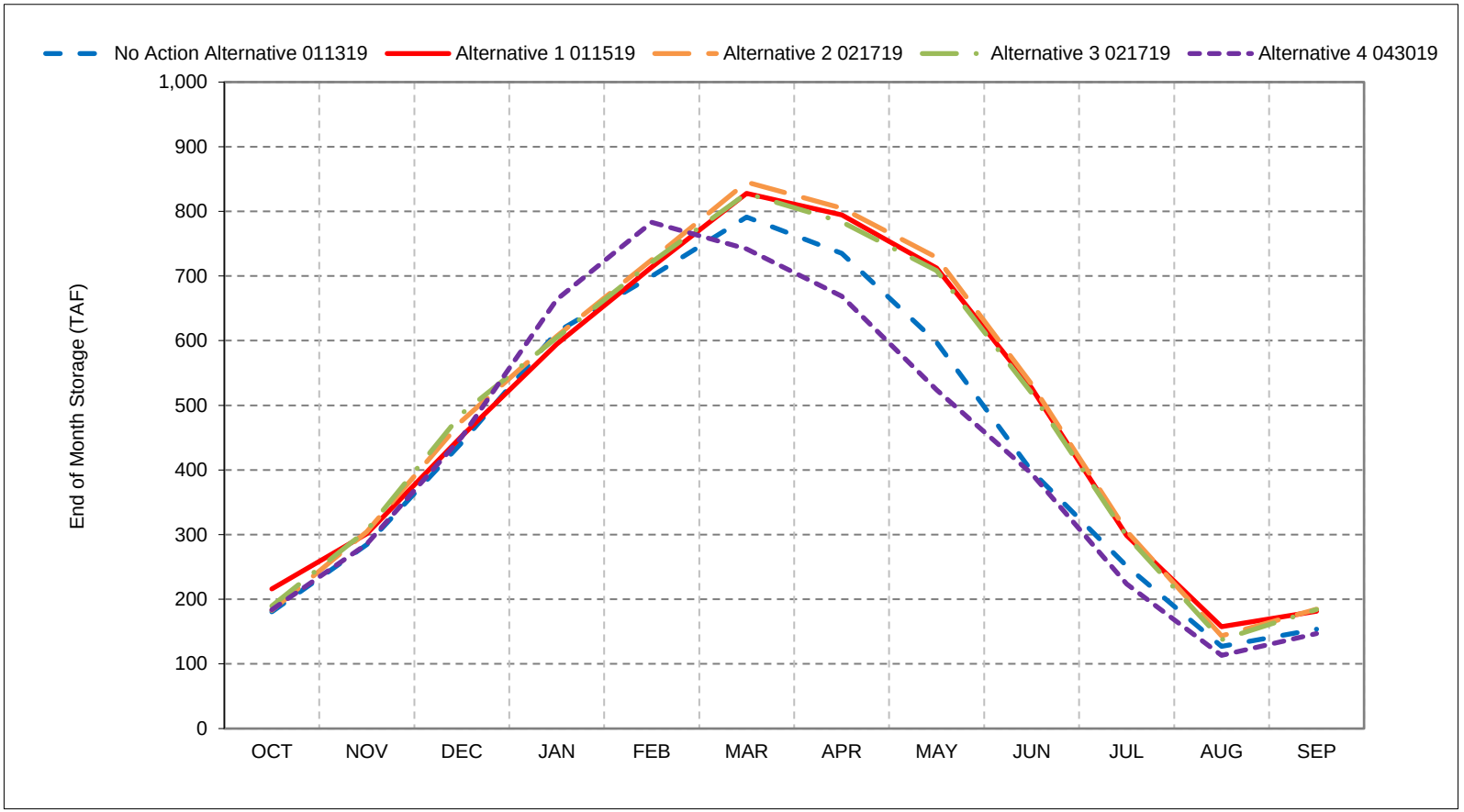
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-4. San Luis CVP Storage, Below Normal Year Average Storage



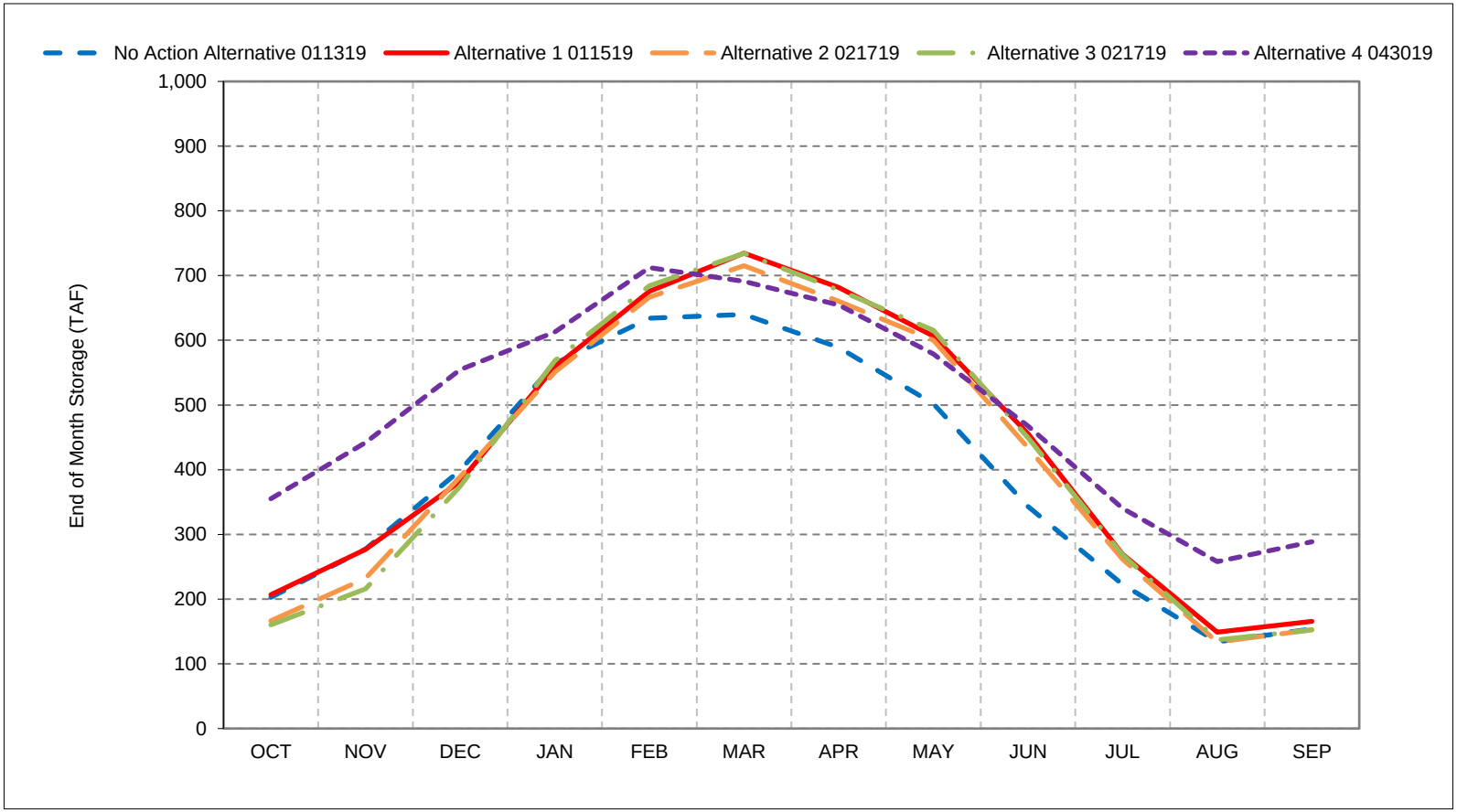
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-5. San Luis CVP Storage, Dry Year Average Storage



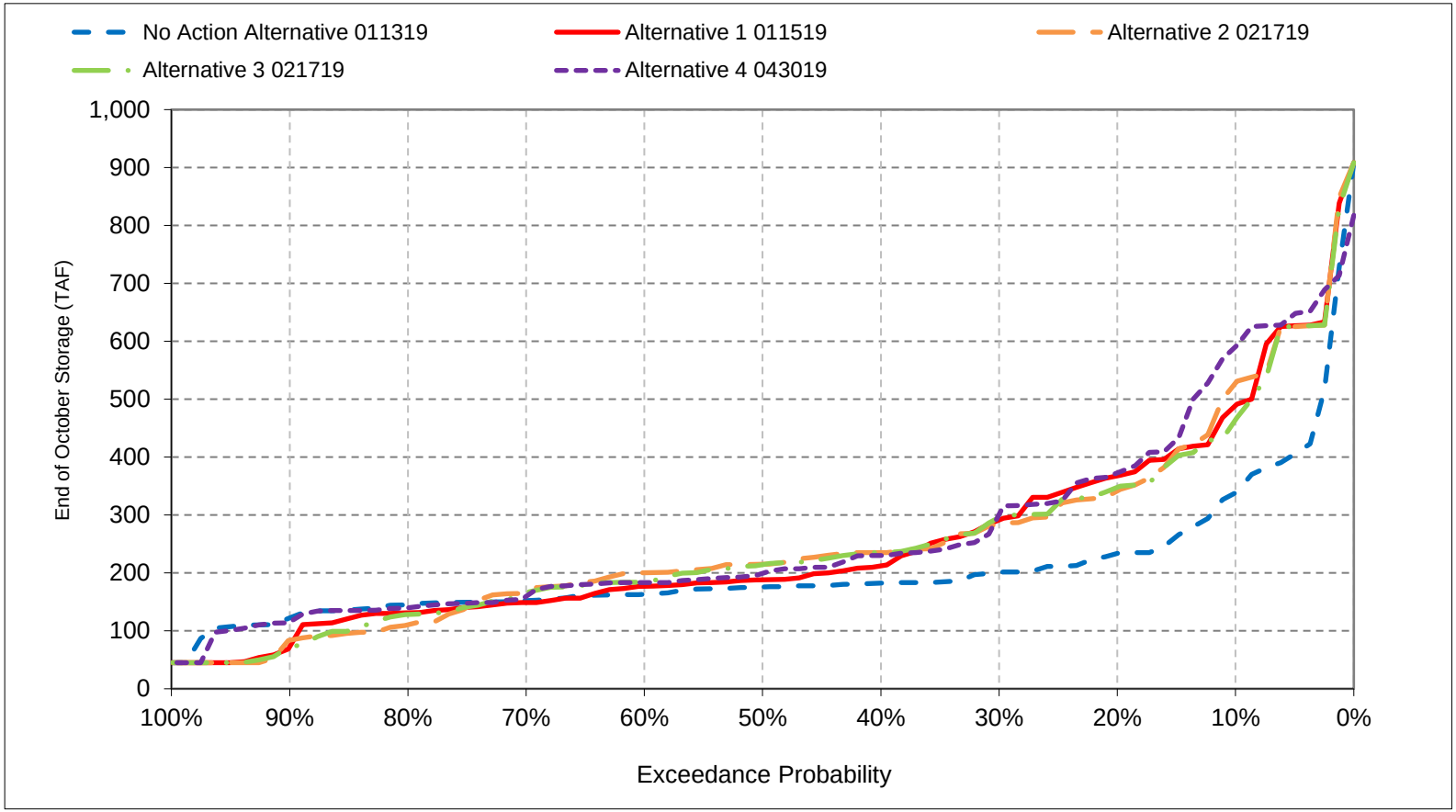
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-6. San Luis CVP Storage, Critical Year Average Storage



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

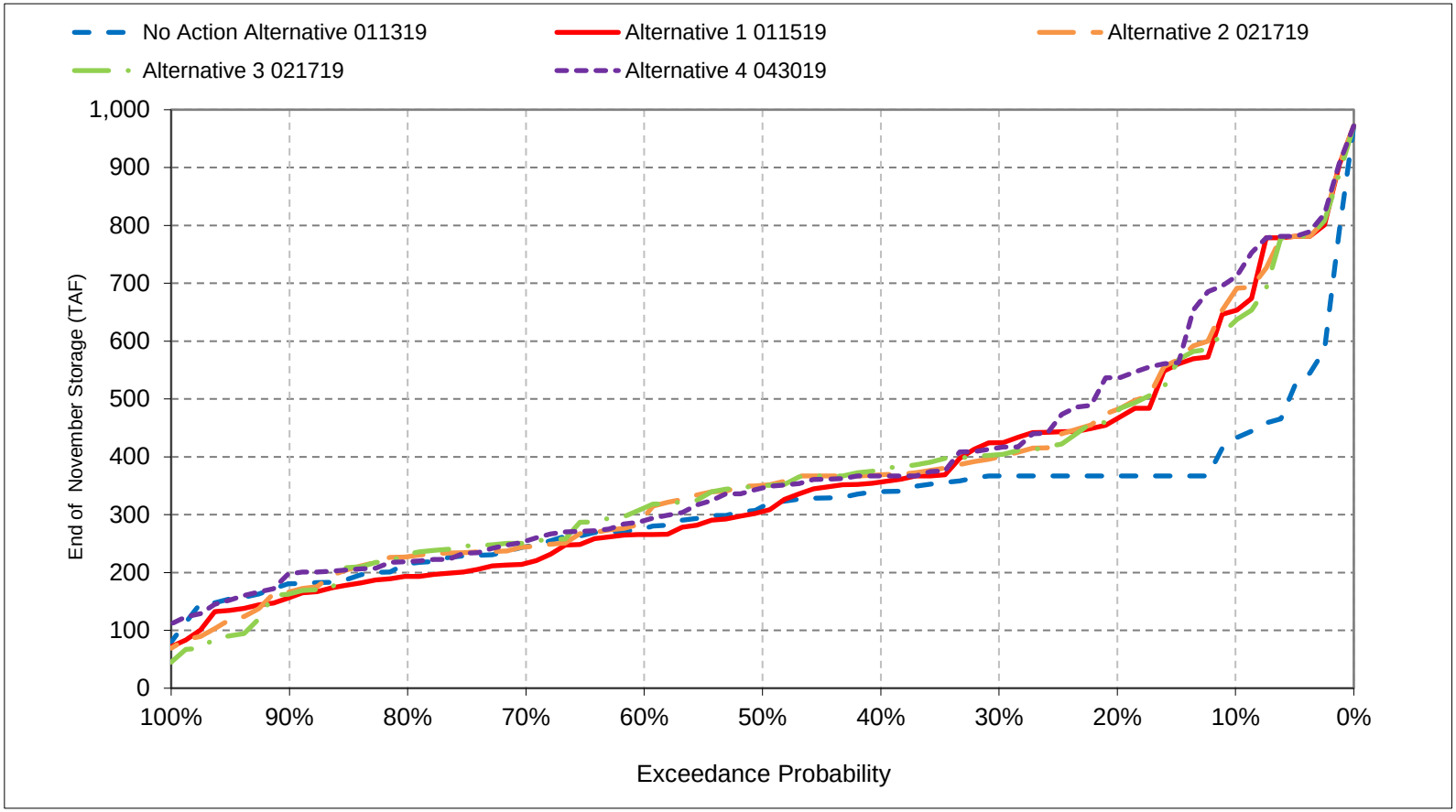
Figure 6b-7. San Luis CVP Storage, End of October Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

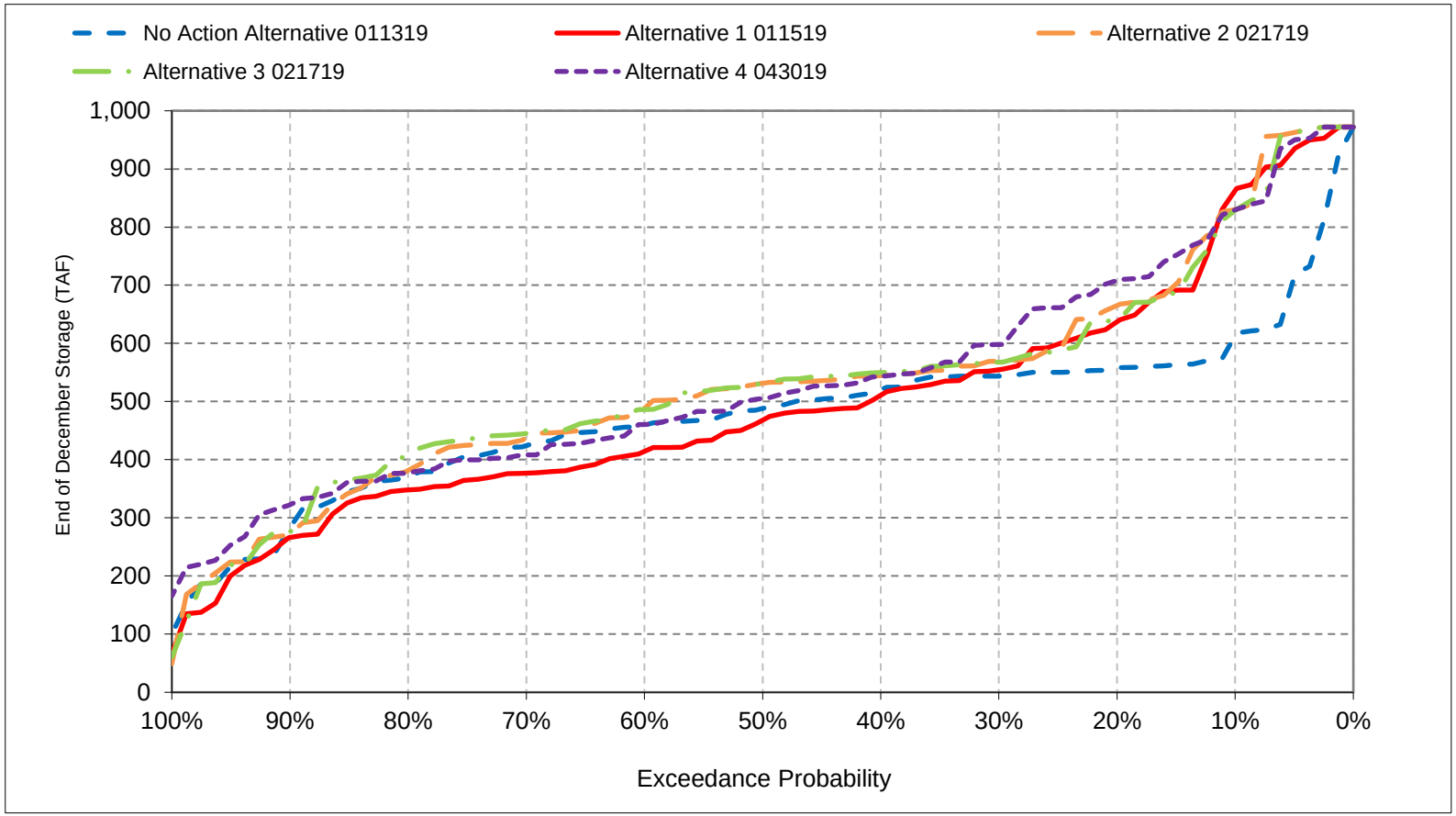
Figure 6b-8. San Luis CVP Storage, End of November Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

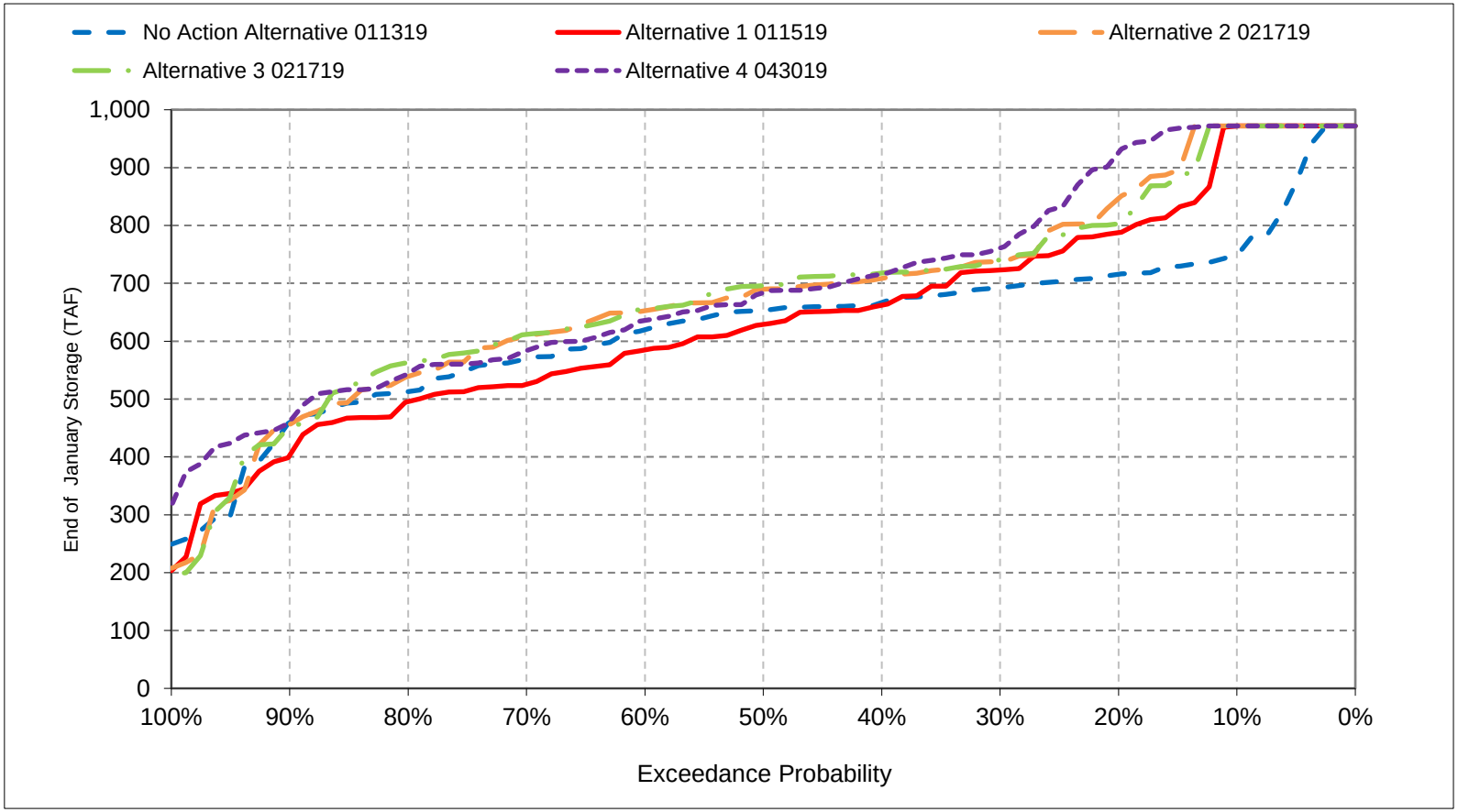
Figure 6b-9. San Luis CVP Storage, End of December Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

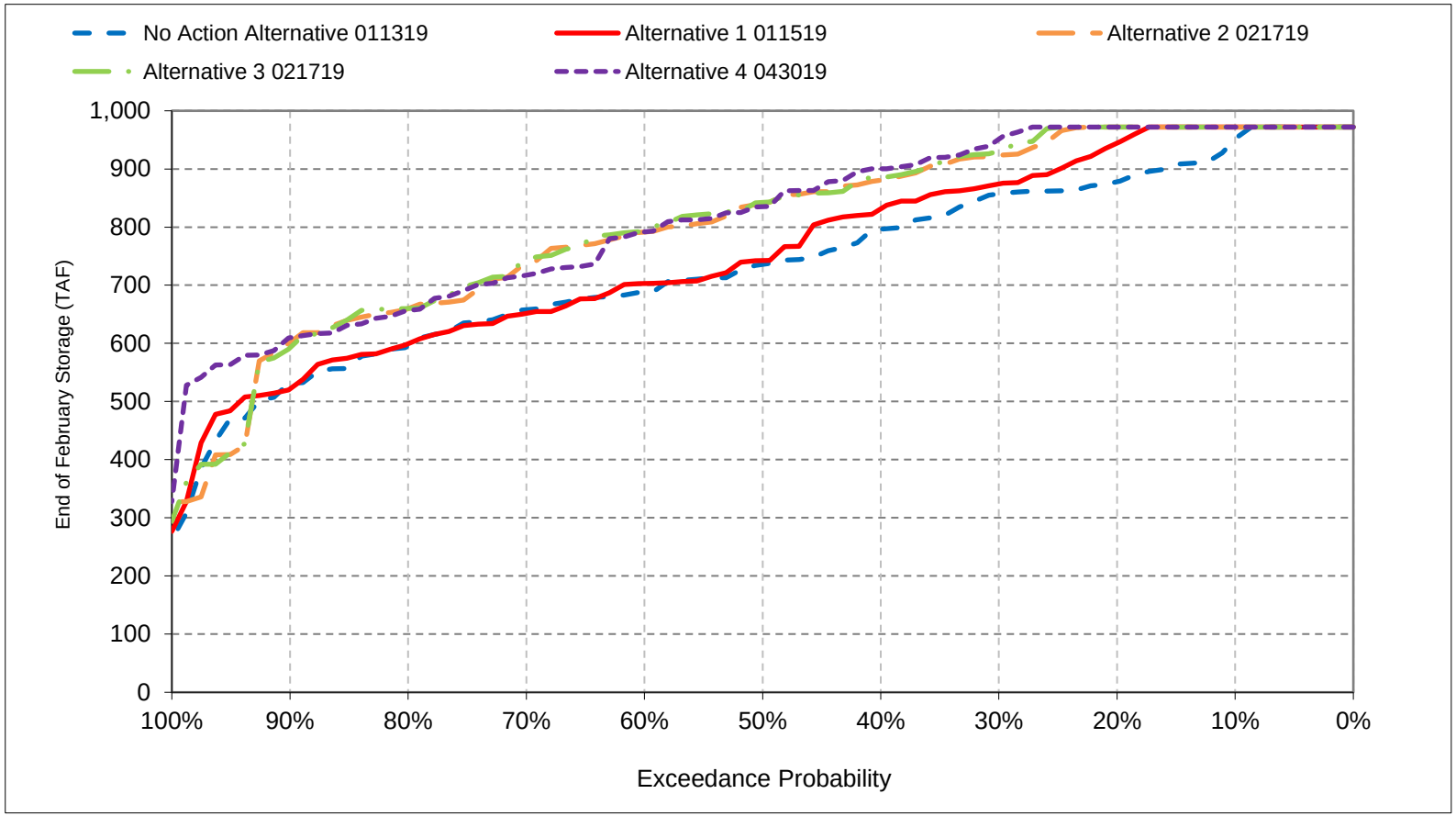
Figure 6b-10. San Luis CVP Storage, End of January Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

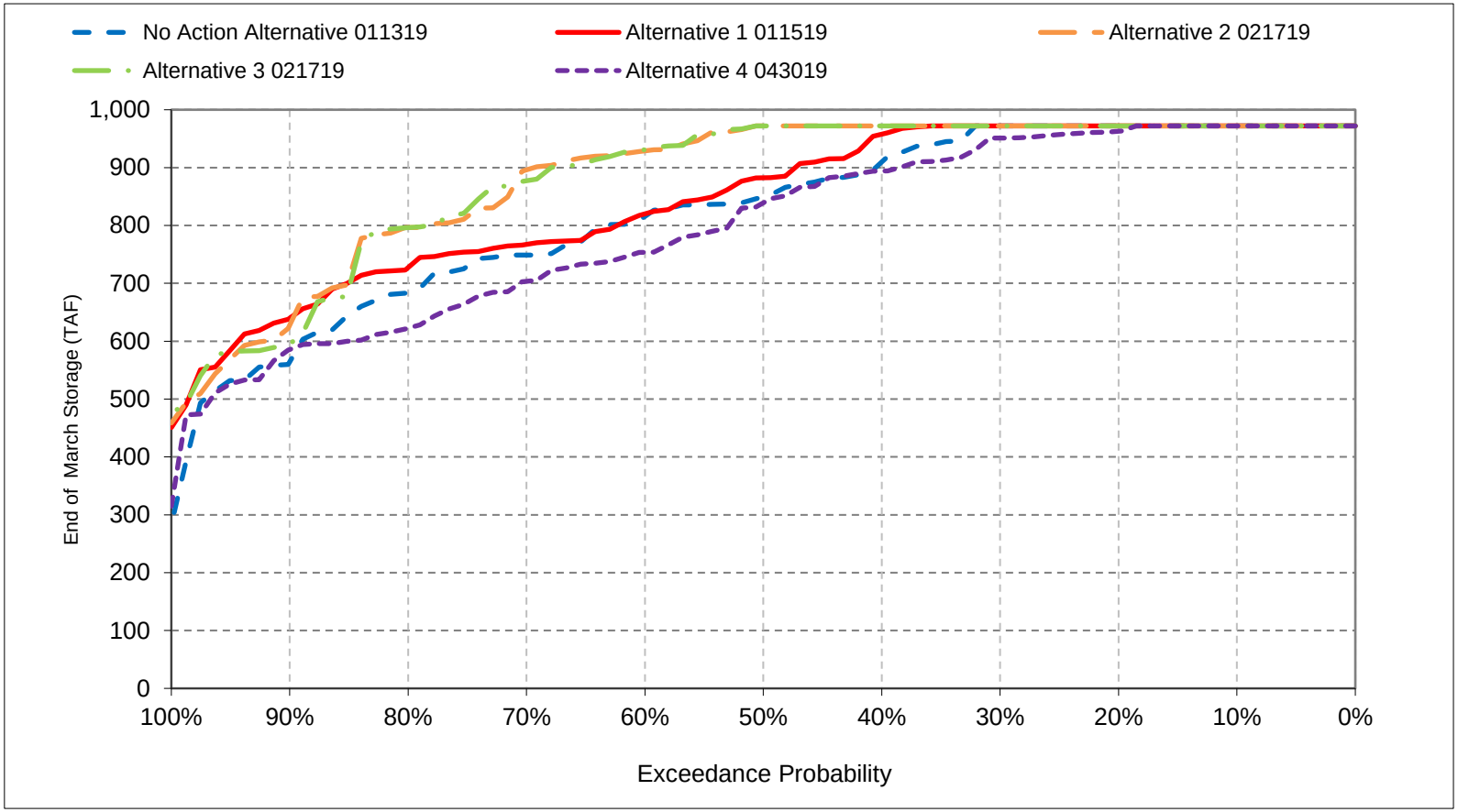
Figure 6b-11. San Luis CVP Storage, End of February Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

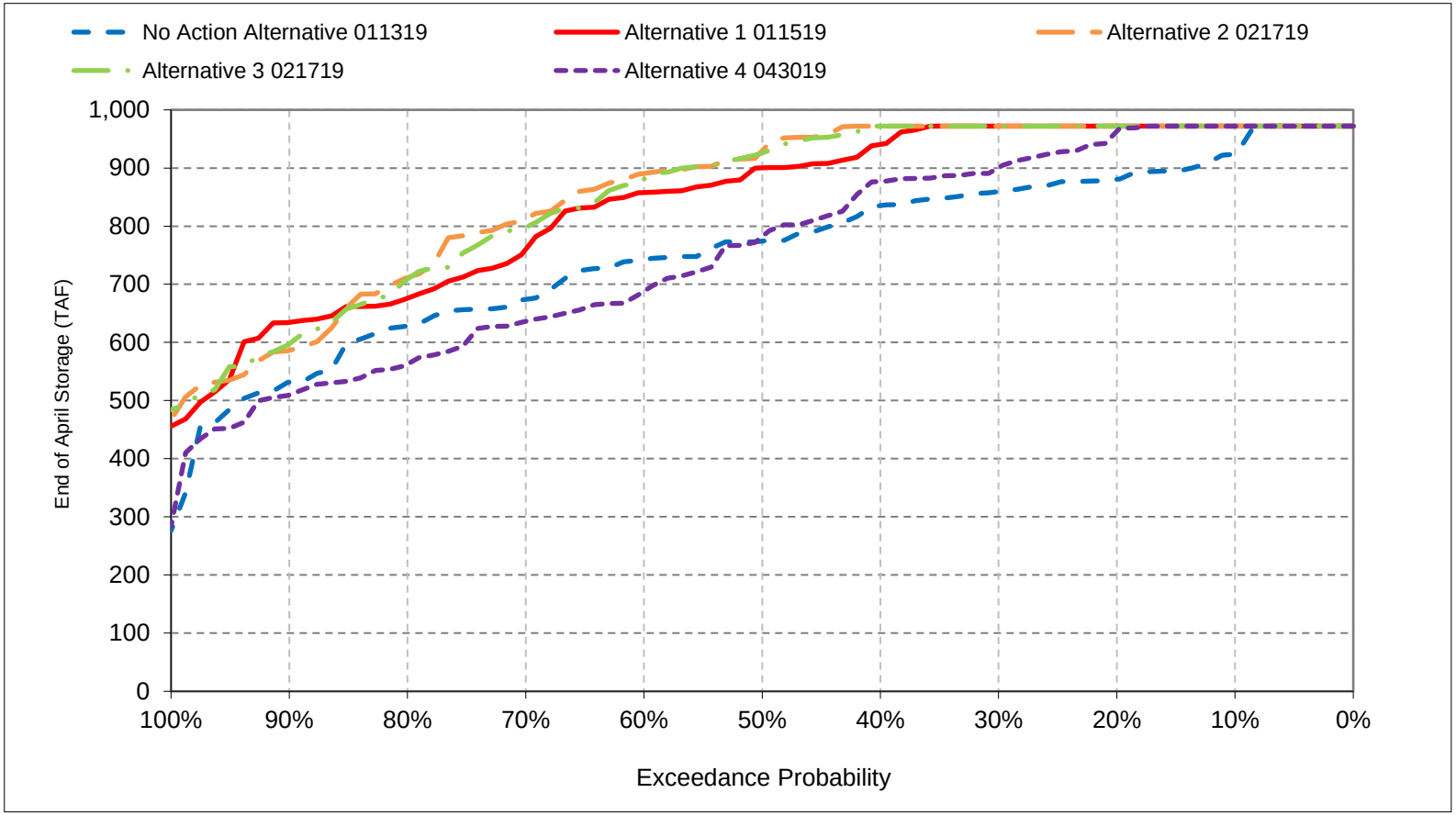
Figure 6b-12. San Luis CVP Storage, End of March Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

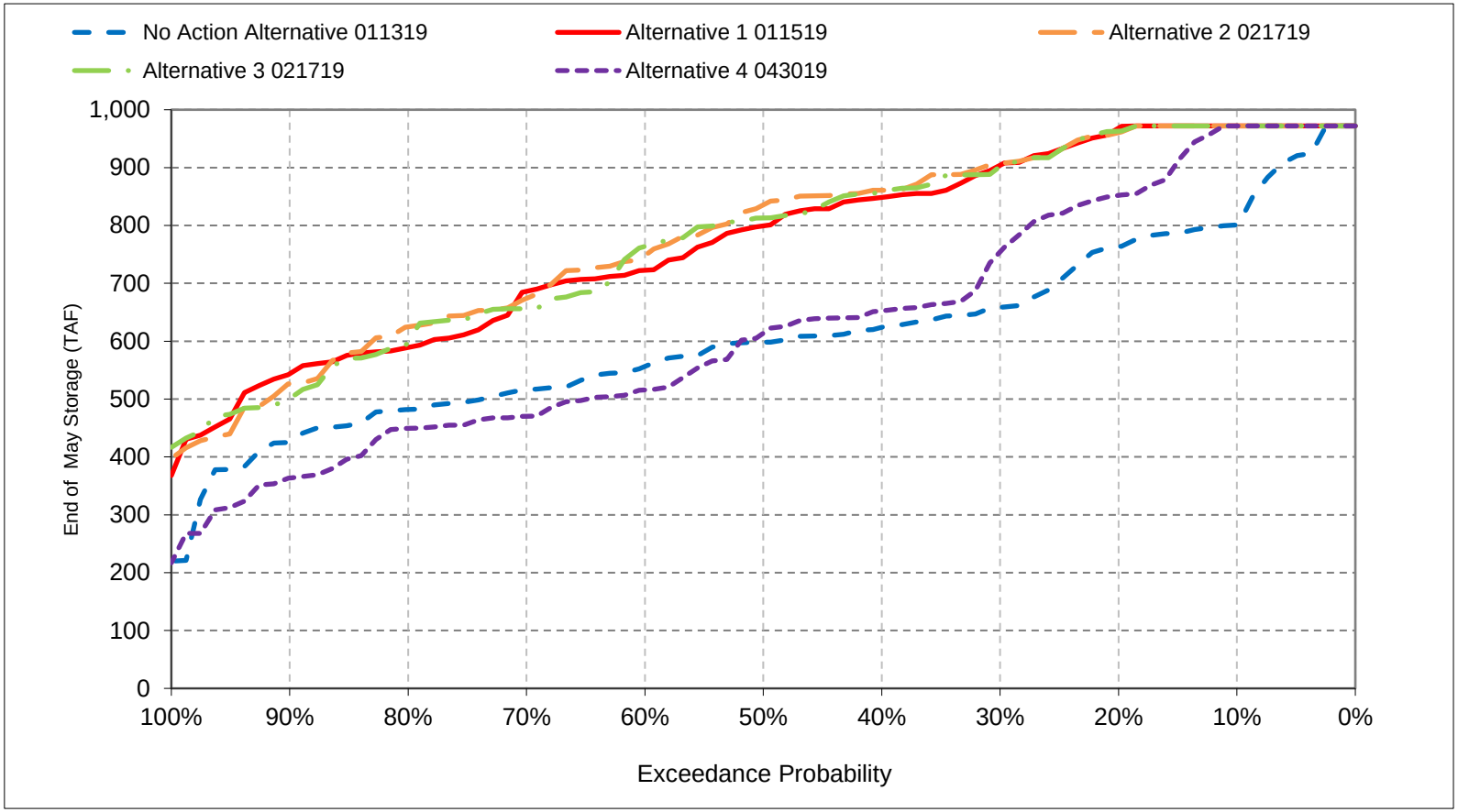
Figure 6b-13. San Luis CVP Storage, End of April Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

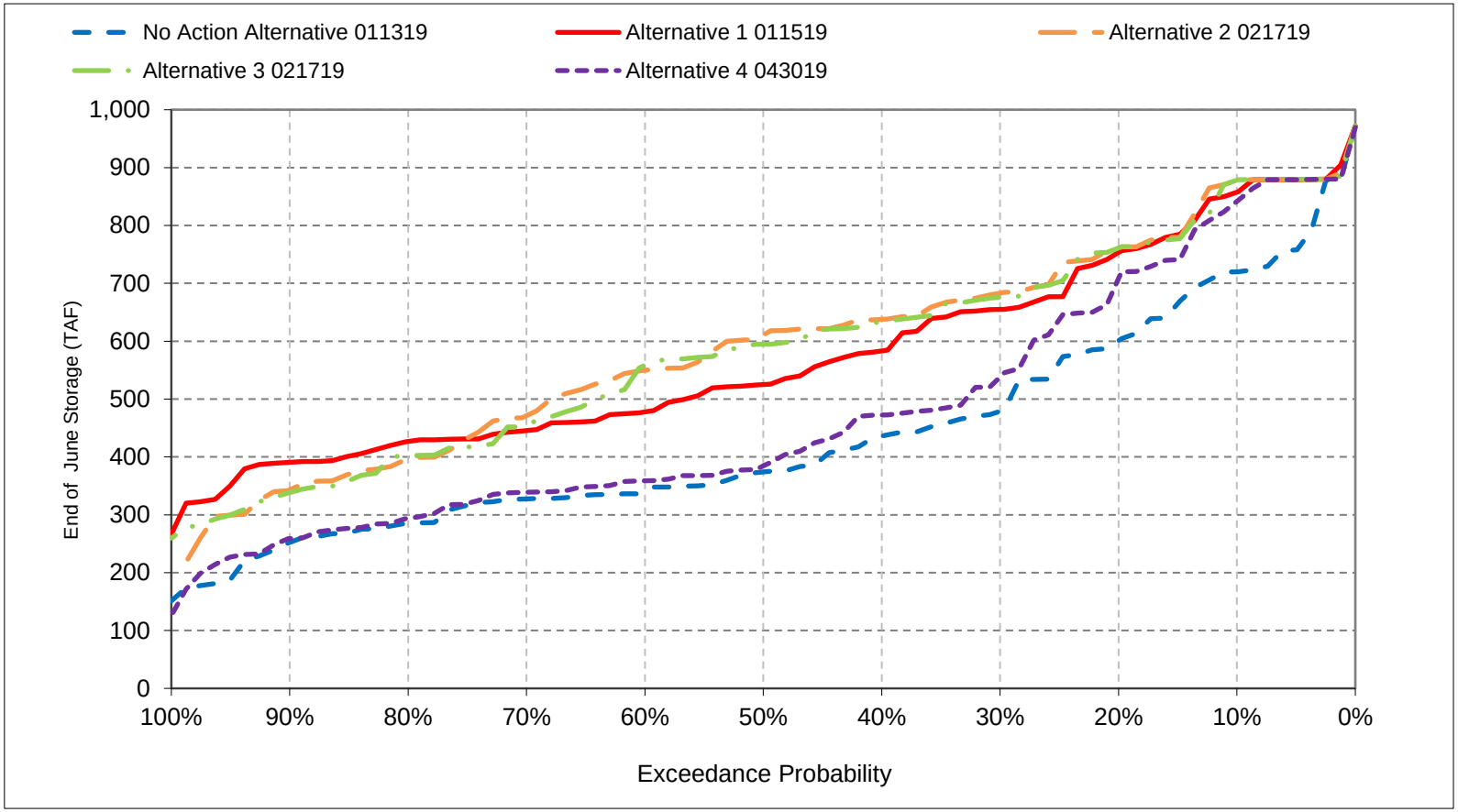
Figure 6b-14. San Luis CVP Storage, End of May Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

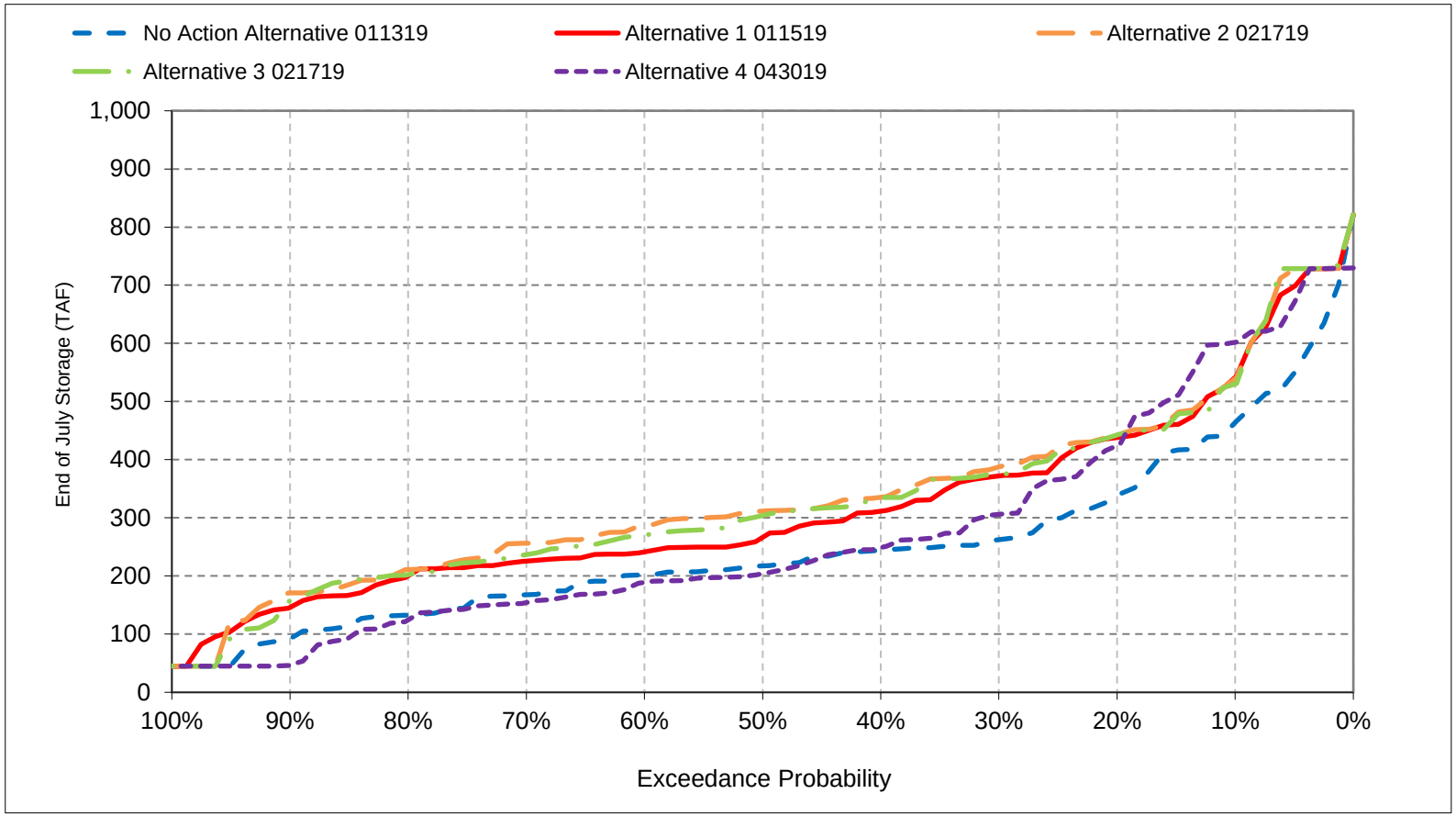
Figure 6b-15. San Luis CVP Storage, End of June Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

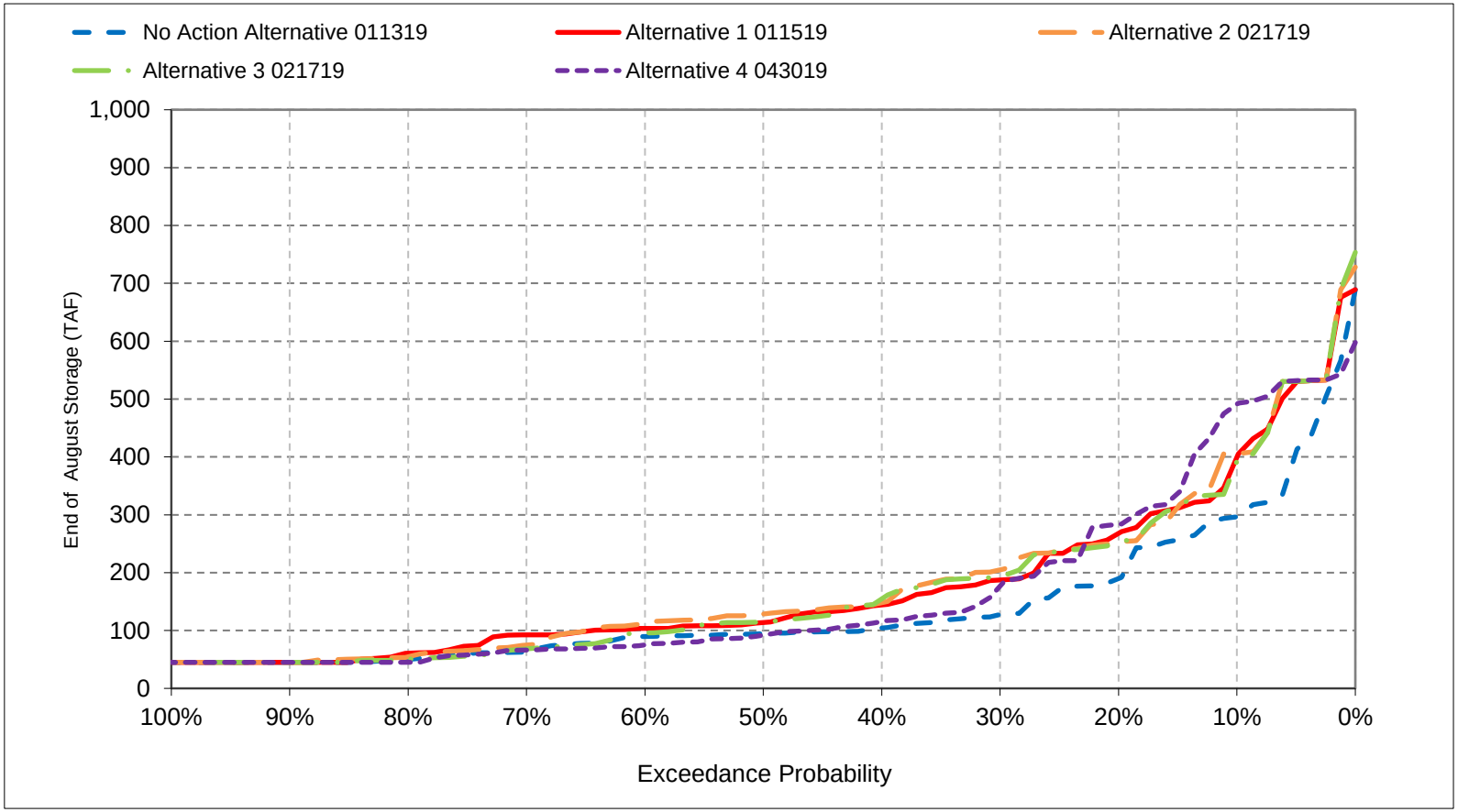
Figure 6b-16. San Luis CVP Storage, End of July Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

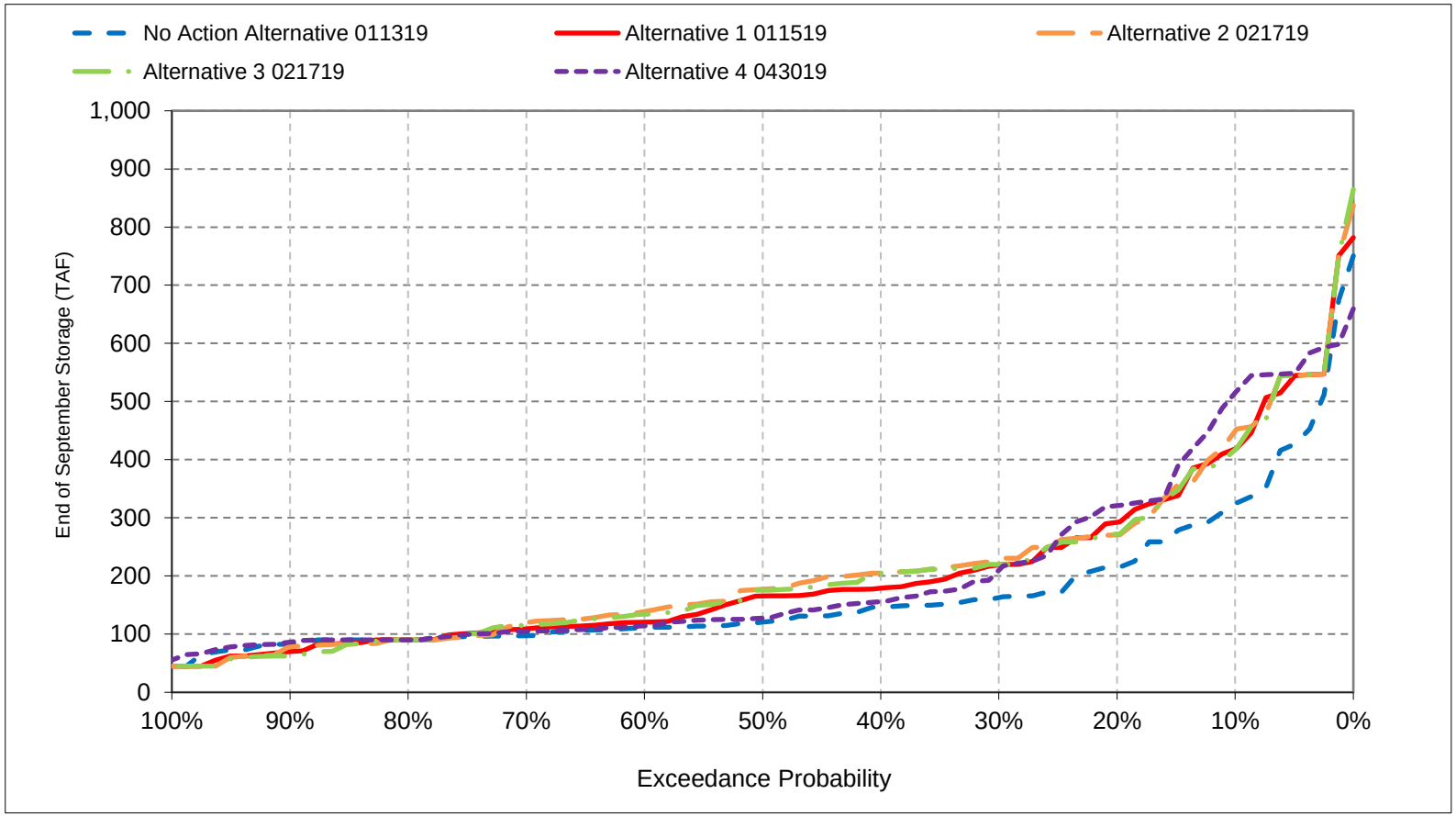
Figure 6b-17. San Luis CVP Storage, End of August Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-18. San Luis CVP Storage, End of September Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 6c-1. San Luis SWP Storage, End of Month Storage

No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	461	467	648	764	967	1,067	931	734	558	476	429	453
20%	293	352	510	672	786	1,015	896	643	453	418	352	408
30%	268	311	413	579	724	900	797	621	412	366	312	342
40%	227	228	354	496	657	811	730	557	360	306	238	272
50%	186	189	294	425	587	720	666	483	291	249	198	229
60%	128	155	244	354	520	656	589	434	247	219	168	158
70%	70	70	177	289	435	586	494	373	224	187	117	98
80%	55	55	97	232	333	457	429	308	181	137	66	55
90%	55	55	55	200	299	391	348	266	90	100	55	55
Long Term												
Full Simulation Period[a]	213	231	323	466	601	729	655	500	329	293	239	253
Water Year Types[b,c]												
Wet (32%)	319	244	343	527	705	893	769	563	394	381	386	425
Above Normal (16%)	272	269	370	490	633	761	643	446	228	229	259	326
Below Normal (13%)	198	242	305	383	491	606	536	381	187	216	207	193
Dry (24%)	116	229	320	454	566	669	647	534	378	321	144	122
Critical (15%)	98	156	247	406	500	550	546	476	346	199	86	73

Alternative 1 011519

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	618	636	808	950	1,067	1,067	1,059	944	763	652	560	587
20%	439	483	561	708	879	1,065	1,021	887	626	559	487	429
30%	302	397	486	633	765	934	928	775	553	474	337	317
40%	233	317	348	498	632	788	810	682	491	391	260	249
50%	163	245	238	394	575	674	654	559	401	325	208	174
60%	96	175	171	287	482	618	587	483	340	285	173	91
70%	55	62	80	233	370	516	502	398	255	208	77	55
80%	55	55	55	215	347	428	443	329	161	144	55	55
90%	55	55	55	200	318	355	335	215	55	55	55	55
Long Term												
Full Simulation Period[a]	248	296	336	475	604	707	695	581	418	357	268	250
Water Year Types[b,c]												
Wet (32%)	430	445	474	525	665	787	780	667	493	461	425	425
Above Normal (16%)	196	216	207	545	652	679	608	432	228	214	202	211
Below Normal (13%)	162	201	202	453	569	667	628	456	240	259	229	197
Dry (24%)	172	278	357	436	570	721	735	659	535	427	217	172
Critical (15%)	115	179	266	372	505	576	600	542	427	257	117	91

Alternative 1 011519 minus No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	157	169	160	186	100	0	128	211	205	177	130	134
20%	146	131	51	36	94	50	125	244	173	140	135	21
30%	34	86	73	55	41	34	132	154	142	108	25	**-25**
40%	6	89	**-7**	1	**-25**	**-24**	80	125	131	86	23	**-23**
50%	**-23**	56	**-56**	**-31**	**-12**	**-45**	**-12**	76	110	75	10	**-55**
60%	**-32**	20	**-72**	**-67**	**-37**	**-38**	**-2**	48	94	66	5	**-66**
70%	**-15**	**-9**	**-96**	**-55**	**-64**	**-70**	8	25	32	21	**-39**	**-43**
80%	0	0	**-42**	**-18**	14	**-29**	14	20	**-20**	7	**-11**	0
90%	0	0	**0**	0	19	**-36**	**-13**	**-51**	**-35**	**-45**	0	0
Long Term												
Full Simulation Period[a]	35	65	14	9	3	**-22**	40	81	89	63	29	**-3**
Water Year Types[b,c]												
Wet (32%)	112	201	131	**-2**	**-40**	**-106**	11	104	99	80	39	**0**
Above Normal (16%)	**-75**	**-54**	**-163**	55	19	**-82**	**-35**	**-13**	1	**-15**	**-57**	**-115**
Below Normal (13%)	**-36**	**-40**	**-102**	71	78	61	92	75	53	43	22	5
Dry (24%)	56	50	36	**-18**	5	53	89	125	158	106	73	50
Critical (15%)	17	22	19	**-33**	5	26	54	67	80	58	31	18

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6c-2. San Luis SWP Storage, End of Month Storage

No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	461	467	648	764	967	1,067	931	734	558	476	429	453
20%	293	352	510	672	786	1,015	896	643	453	418	352	408
30%	268	311	413	579	724	900	797	621	412	366	312	342
40%	227	228	354	496	657	811	730	557	360	306	238	272
50%	186	189	294	425	587	720	666	483	291	249	198	229
60%	128	155	244	354	520	656	589	434	247	219	168	158
70%	70	70	177	289	435	586	494	373	224	187	117	98
80%	55	55	97	232	333	457	429	308	181	137	66	55
90%	55	55	55	200	299	391	348	266	90	100	55	55
Long Term												
Full Simulation Period[a]	213	231	323	466	601	729	655	500	329	293	239	253
Water Year Types[b,c]												
Wet (32%)	319	244	343	527	705	893	769	563	394	381	386	425
Above Normal (16%)	272	269	370	490	633	761	643	446	228	229	259	326
Below Normal (13%)	198	242	305	383	491	606	536	381	187	216	207	193
Dry (24%)	116	229	320	454	566	669	647	534	378	321	144	122
Critical (15%)	98	156	247	406	500	550	546	476	346	199	86	73

Alternative 2 021719

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	822	896	1,008	1,067	1,067	1,067	1,067	1,045	958	878	830	815
20%	611	703	851	1,067	1,067	1,067	1,067	1,015	887	736	568	610
30%	546	553	696	993	1,067	1,067	1,067	981	817	707	536	524
40%	364	448	570	905	1,067	1,067	1,067	938	760	670	487	454
50%	246	339	460	764	1,044	1,067	1,067	891	722	589	426	309
60%	156	211	348	686	956	1,067	1,043	843	677	545	331	202
70%	77	160	269	595	863	1,024	988	791	620	489	263	141
80%	55	92	195	496	750	878	872	733	542	399	181	95
90%	55	55	55	377	633	762	784	643	471	295	92	55
Long Term												
Full Simulation Period[a]	349	393	505	756	919	982	977	862	711	587	422	375
Water Year Types[b,c]												
Wet (32%)	681	718	823	900	1,015	1,056	1,051	966	816	755	672	663
Above Normal (16%)	379	381	463	882	1,006	1,031	1,014	845	617	557	469	455
Below Normal (13%)	188	201	277	833	986	1,031	990	799	656	554	349	244
Dry (24%)	140	229	382	623	860	977	982	883	773	561	282	189
Critical (15%)	93	147	277	461	655	733	756	681	535	328	133	92

Alternative 2 021719 minus No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	361	428	361	303	100	0	136	312	400	402	400	361
20%	318	352	341	395	281	52	171	372	434	318	216	202
30%	278	242	283	415	343	167	270	360	405	341	223	182
40%	136	220	216	409	410	256	337	380	400	364	249	182
50%	60	151	167	338	456	347	401	408	431	340	227	80
60%	28	57	105	332	436	411	455	408	430	327	163	45
70%	7	90	92	306	429	439	495	417	396	302	147	43
80%	0	37	98	263	417	421	443	425	361	262	116	40
90%	0	0	**0**	177	334	371	436	377	381	195	37	0
Long Term												
Full Simulation Period[a]	136	162	183	290	318	254	322	362	383	293	184	122
Water Year Types[b,c]												
Wet (32%)	362	475	480	373	310	163	282	404	422	375	286	238
Above Normal (16%)	108	112	93	391	373	270	371	399	389	328	210	129
Below Normal (13%)	**-10**	**-41**	**-27**	451	495	425	454	418	469	338	142	52
Dry (24%)	23	1	61	169	294	308	335	349	395	239	138	67
Critical (15%)	**-5**	**-9**	30	56	155	183	211	205	188	129	47	19

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6c-3. San Luis SWP Storage, End of Month Storage

No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	461	467	648	764	967	1,067	931	734	558	476	429	453
20%	293	352	510	672	786	1,015	896	643	453	418	352	408
30%	268	311	413	579	724	900	797	621	412	366	312	342
40%	227	228	354	496	657	811	730	557	360	306	238	272
50%	186	189	294	425	587	720	666	483	291	249	198	229
60%	128	155	244	354	520	656	589	434	247	219	168	158
70%	70	70	177	289	435	586	494	373	224	187	117	98
80%	55	55	97	232	333	457	429	308	181	137	66	55
90%	55	55	55	200	299	391	348	266	90	100	55	55
Long Term												
Full Simulation Period[a]	213	231	323	466	601	729	655	500	329	293	239	253
Water Year Types[b,c]												
Wet (32%)	319	244	343	527	705	893	769	563	394	381	386	425
Above Normal (16%)	272	269	370	490	633	761	643	446	228	229	259	326
Below Normal (13%)	198	242	305	383	491	606	536	381	187	216	207	193
Dry (24%)	116	229	320	454	566	669	647	534	378	321	144	122
Critical (15%)	98	156	247	406	500	550	546	476	346	199	86	73

Alternative 3 021719

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	819	804	977	1,067	1,067	1,067	1,067	1,054	967	878	800	794
20%	598	693	858	1,067	1,067	1,067	1,067	1,021	902	740	575	598
30%	496	542	718	1,019	1,067	1,067	1,067	976	830	713	542	523
40%	342	381	598	857	1,067	1,067	1,067	938	766	657	494	441
50%	248	321	478	781	1,035	1,067	1,061	902	733	611	414	332
60%	161	231	388	704	975	1,067	1,026	859	689	554	329	210
70%	76	144	276	577	832	1,017	999	812	623	490	261	151
80%	55	98	177	504	772	870	895	765	570	387	183	115
90%	55	55	57	344	615	769	784	670	500	303	104	55
Long Term												
Full Simulation Period[a]	344	390	508	757	920	982	979	871	719	596	422	372
Water Year Types[b,c]												
Wet (32%)	688	734	846	902	1,030	1,062	1,051	977	839	786	677	668
Above Normal (16%)	360	359	455	891	1,001	1,029	1,013	846	600	536	451	424
Below Normal (13%)	195	212	287	848	983	1,020	990	803	659	578	369	257
Dry (24%)	125	211	359	620	855	981	989	898	788	561	278	184
Critical (15%)	85	137	280	445	641	726	756	682	528	322	130	94

Alternative 3 021719 minus No Action Alternative 011319

Statistic	End of Month Storage (TAF)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	358	337	329	303	100	0	136	320	409	402	370	341
20%	305	341	348	395	281	52	171	378	448	322	223	190
30%	228	230	305	440	343	167	270	354	418	348	229	182
40%	114	153	243	361	410	256	337	381	407	351	256	169
50%	62	132	184	356	448	347	394	419	443	362	216	103
60%	32	76	144	350	456	411	437	425	442	335	161	53
70%	6	73	99	288	397	432	506	439	400	303	145	52
80%	0	43	80	272	438	413	466	457	389	250	117	60
90%	0	0	1	145	316	378	436	404	410	204	49	0
Long Term												
Full Simulation Period[a]	131	159	185	291	319	254	323	371	390	302	184	119
Water Year Types[b,c]												
Wet (32%)	369	491	503	375	325	169	282	415	445	405	291	242
Above Normal (16%)	89	89	85	400	369	268	369	401	373	307	192	98
Below Normal (13%)	**-3**	**-30**	**-17**	466	492	414	454	423	472	362	162	64
Dry (24%)	9	**-17**	39	165	290	312	342	364	411	240	134	63
Critical (15%)	**-13**	**-19**	33	39	142	176	211	207	182	123	44	21

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6c-4. San Luis SWP Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	461	467	648	764	967	1,067	931	734	558	476	429	453
20%	293	352	510	672	786	1,015	896	643	453	418	352	408
30%	268	311	413	579	724	900	797	621	412	366	312	342
40%	227	228	354	496	657	811	730	557	360	306	238	272
50%	186	189	294	425	587	720	666	483	291	249	198	229
60%	128	155	244	354	520	656	589	434	247	219	168	158
70%	70	70	177	289	435	586	494	373	224	187	117	98
80%	55	55	97	232	333	457	429	308	181	137	66	55
90%	55	55	55	200	299	391	348	266	90	100	55	55
Long Term												
Full Simulation Period[a]	213	231	323	466	601	729	655	500	329	293	239	253
Water Year Types[b,c]												
Wet (32%)	319	244	343	527	705	893	769	563	394	381	386	425
Above Normal (16%)	272	269	370	490	633	761	643	446	228	229	259	326
Below Normal (13%)	198	242	305	383	491	606	536	381	187	216	207	193
Dry (24%)	116	229	320	454	566	669	647	534	378	321	144	122
Critical (15%)	98	156	247	406	500	550	546	476	346	199	86	73

Alternative 4 043019

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	643	755	874	1,067	1,067	1,067	1,041	904	705	658	556	606
20%	535	650	734	905	1,067	1,055	982	797	651	567	456	484
30%	448	525	577	715	943	962	882	664	538	482	404	416
40%	342	407	495	650	795	772	745	619	476	436	305	338
50%	243	325	463	595	717	725	690	577	446	383	255	276
60%	192	300	405	546	669	661	649	517	382	317	213	175
70%	126	241	301	434	627	617	572	452	342	255	173	140
80%	91	166	228	366	542	547	530	407	258	226	101	86
90%	55	56	118	297	475	486	453	340	202	186	66	55
Long Term												
Full Simulation Period[a]	313	395	476	621	760	758	719	590	452	396	295	294
Water Year Types[b,c]												
Wet (32%)	470	521	583	725	869	877	822	661	501	477	441	460
Above Normal (16%)	324	397	452	655	780	769	692	520	307	271	272	326
Below Normal (13%)	211	274	361	606	704	684	634	508	385	408	245	185
Dry (24%)	280	433	546	579	730	733	726	633	538	454	266	241
Critical (15%)	107	168	261	443	601	600	592	517	418	252	99	91

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	182	287	226	303	100	0	110	170	147	183	126	153
20%	242	298	224	234	281	40	86	154	198	148	103	75
30%	180	214	164	136	219	62	85	43	127	116	92	74
40%	115	179	141	154	138	**-39**	15	62	117	130	68	66
50%	57	136	170	170	130	6	24	94	155	134	57	47
60%	64	145	161	192	150	5	61	83	135	98	45	18
70%	56	170	125	145	193	32	78	79	118	68	56	42
80%	36	111	130	134	209	90	102	99	77	89	35	31
90%	0	1	63	98	176	94	104	73	112	87	11	0
Long Term												
Full Simulation Period[a]	99	164	154	155	159	30	64	90	123	103	56	41
Water Year Types[b,c]												
Wet (32%)	152	278	240	198	164	**-16**	54	98	107	97	55	34
Above Normal (16%)	52	128	82	165	147	8	49	74	80	42	13	**0**
Below Normal (13%)	14	32	56	223	213	78	98	127	199	192	38	**-8**
Dry (24%)	163	204	226	125	165	64	80	99	160	132	123	119
Critical (15%)	9	12	14	38	102	50	47	41	72	52	12	18

a Based on the 82-year simulation period.

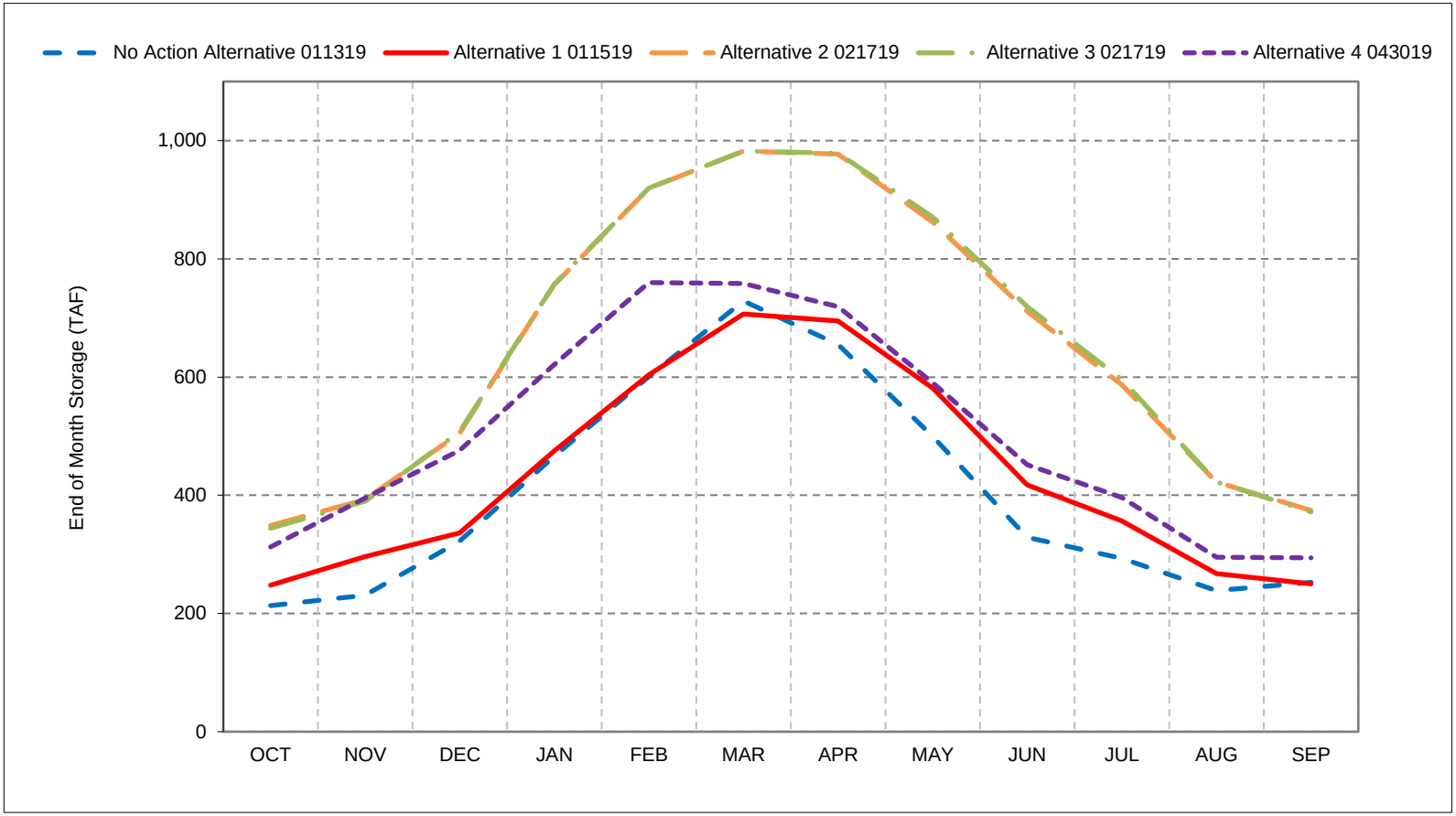
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

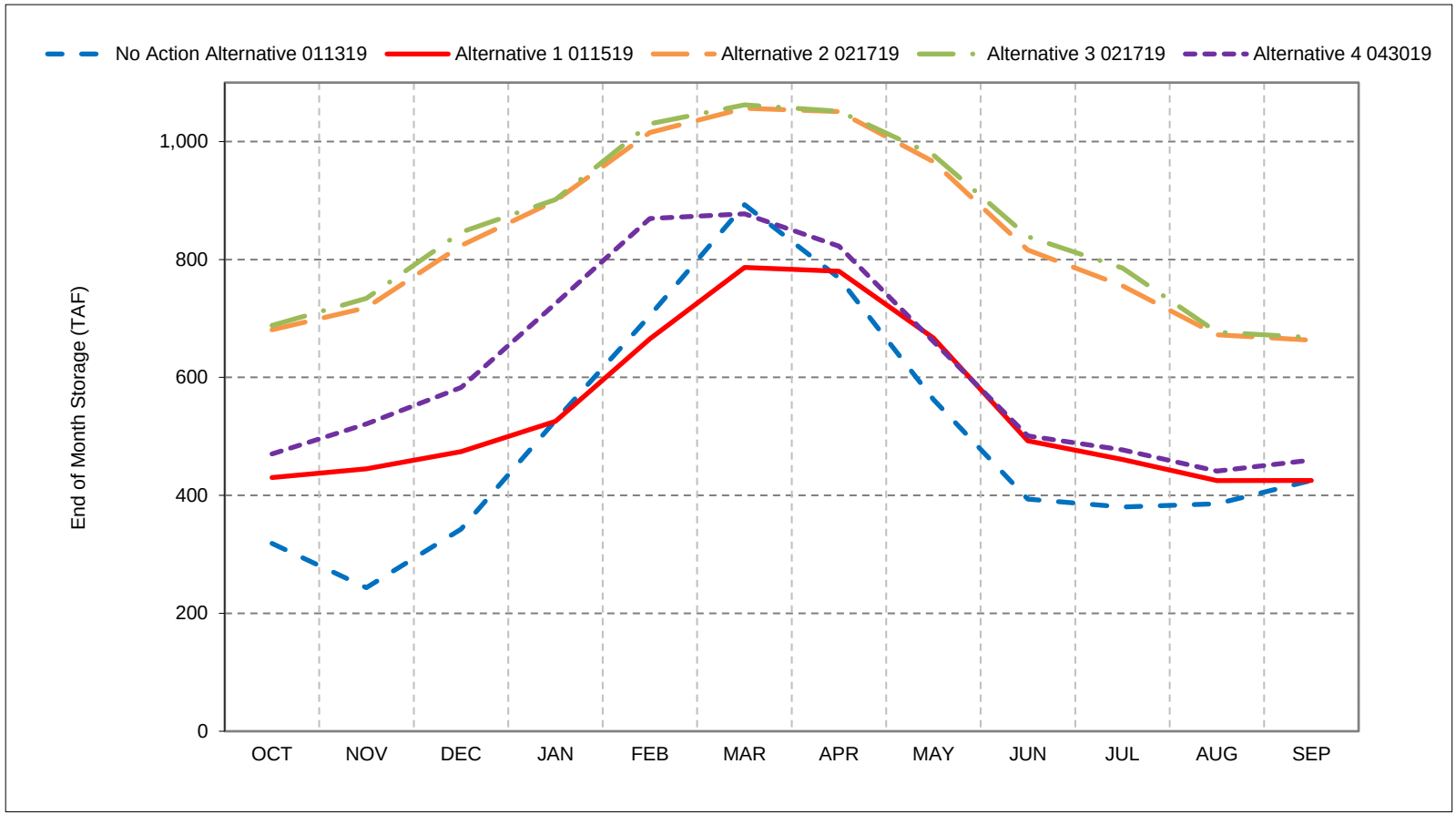
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 6c-1. San Luis SWP Storage, Long-Term Average Storage



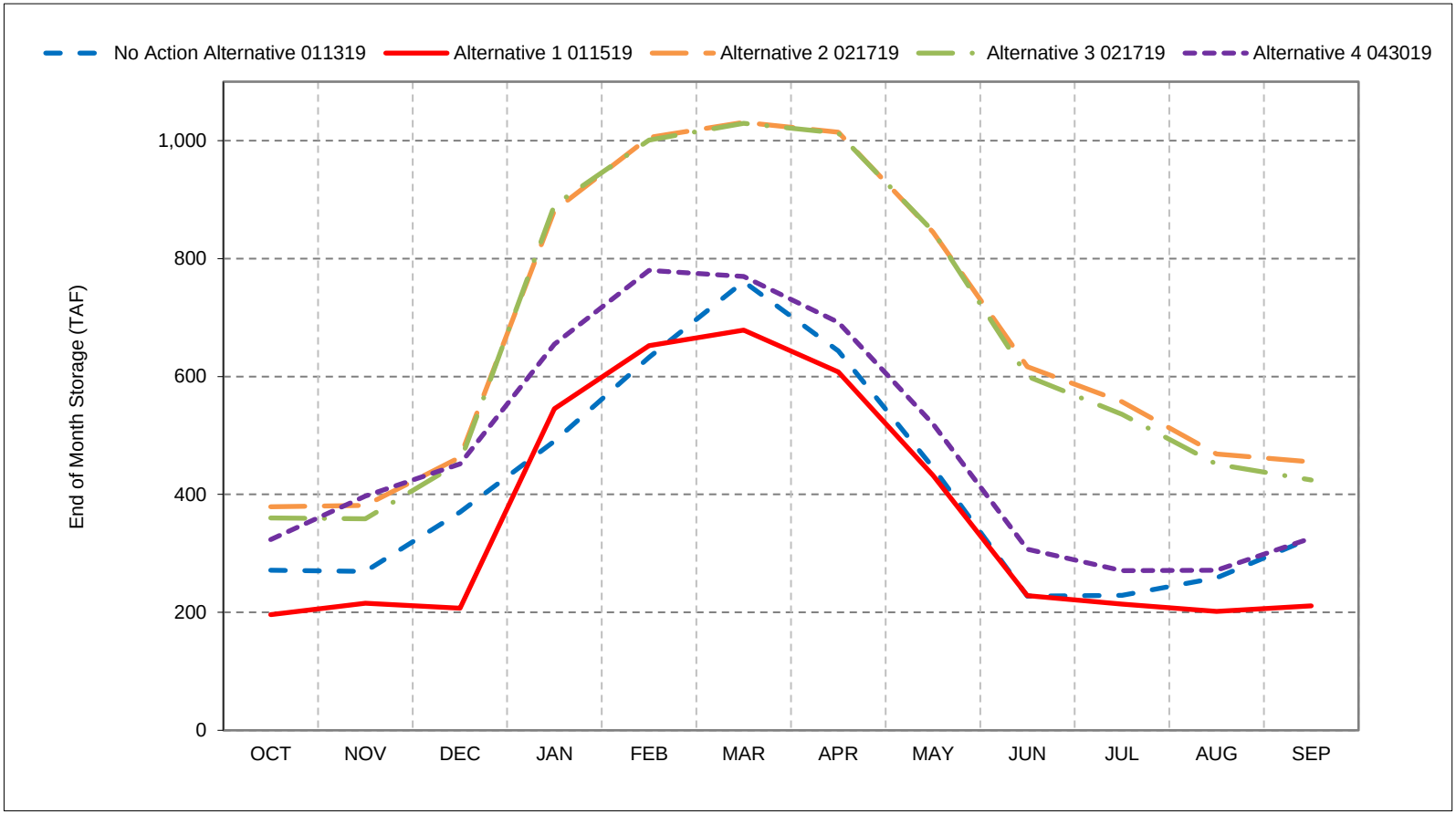
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6c-2. San Luis SWP Storage, Wet Year Average Storage



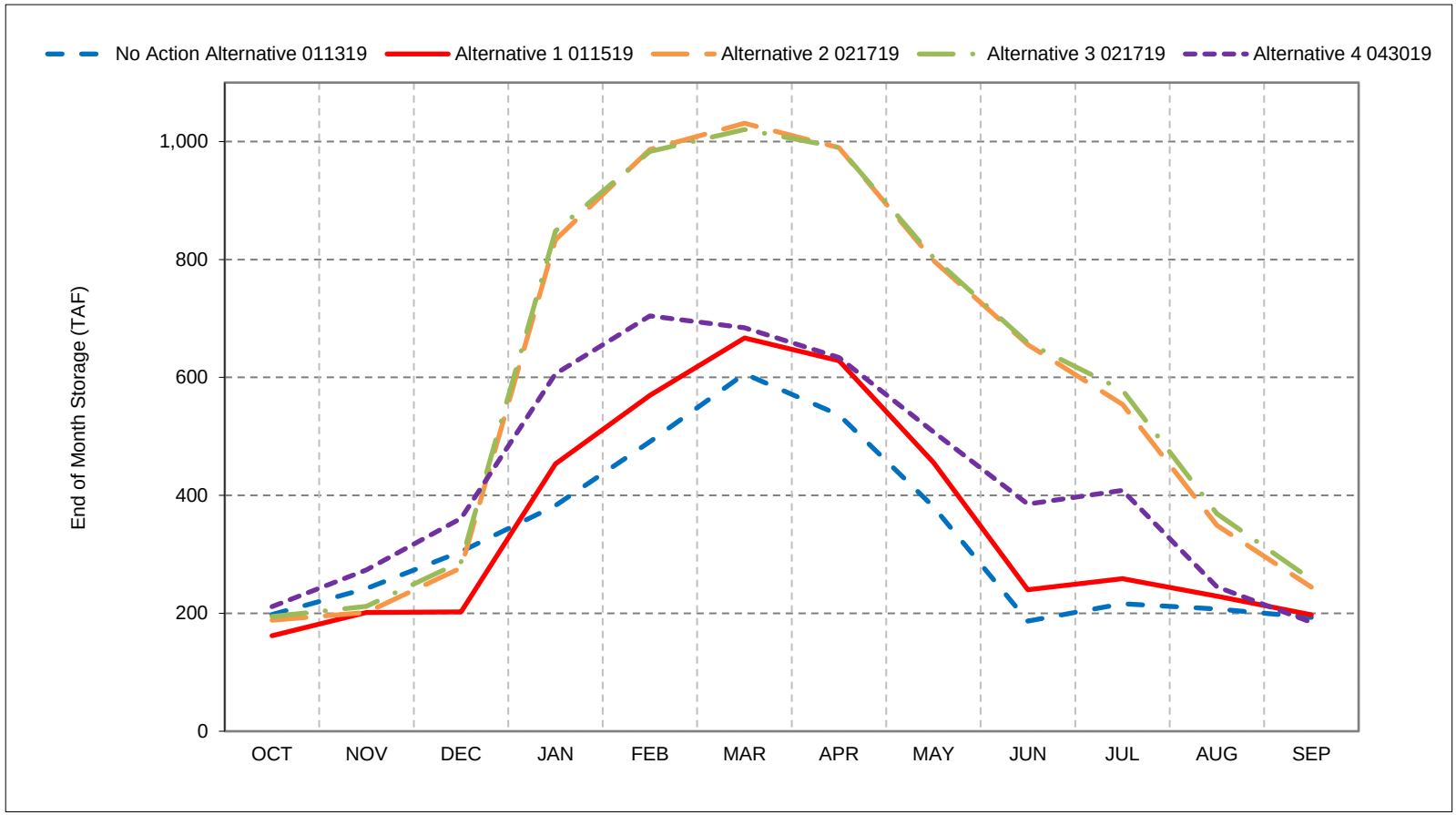
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6c-3. San Luis SWP Storage, Above Normal Year Average Storage



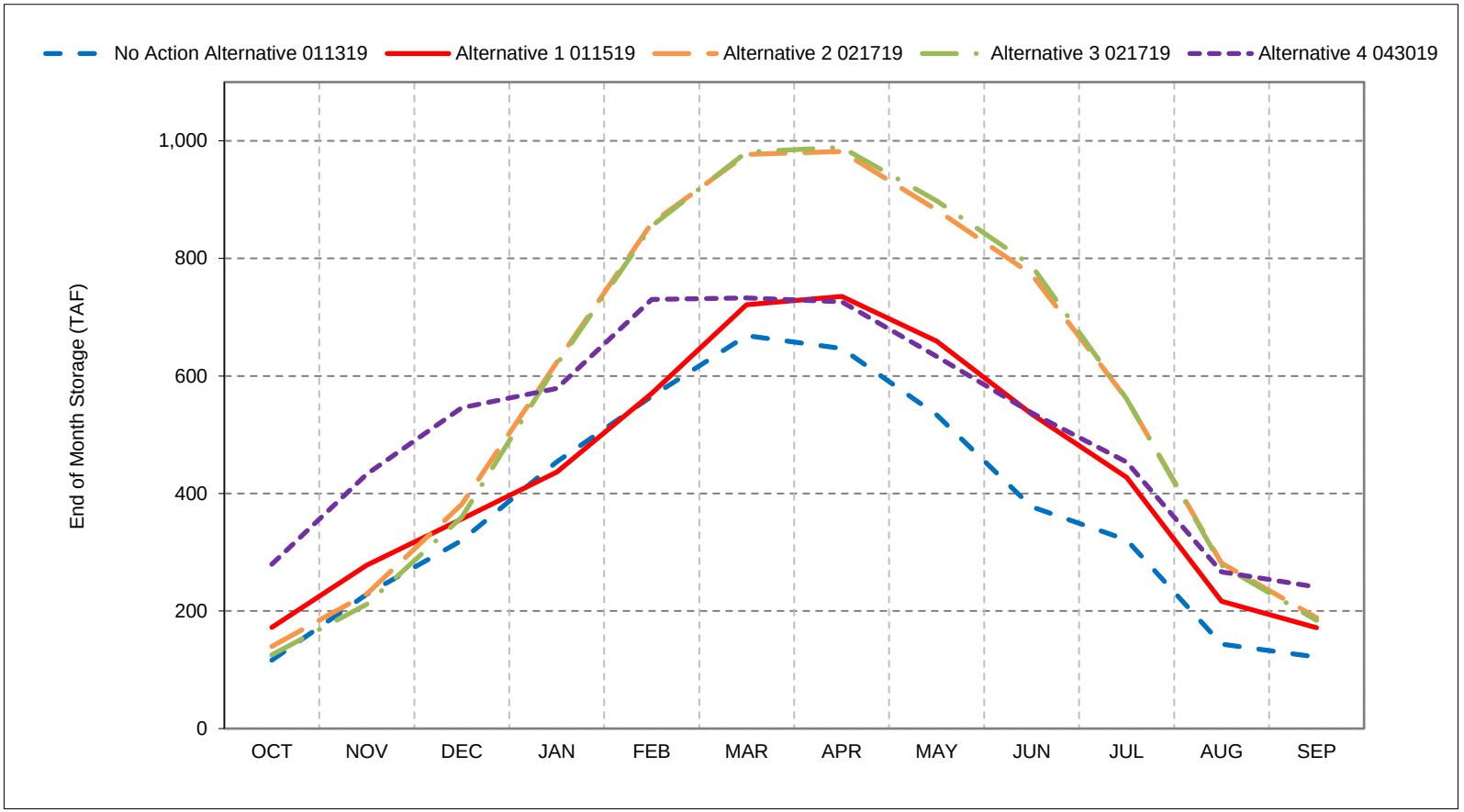
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6c-4. San Luis SWP Storage, Below Normal Year Average Storage



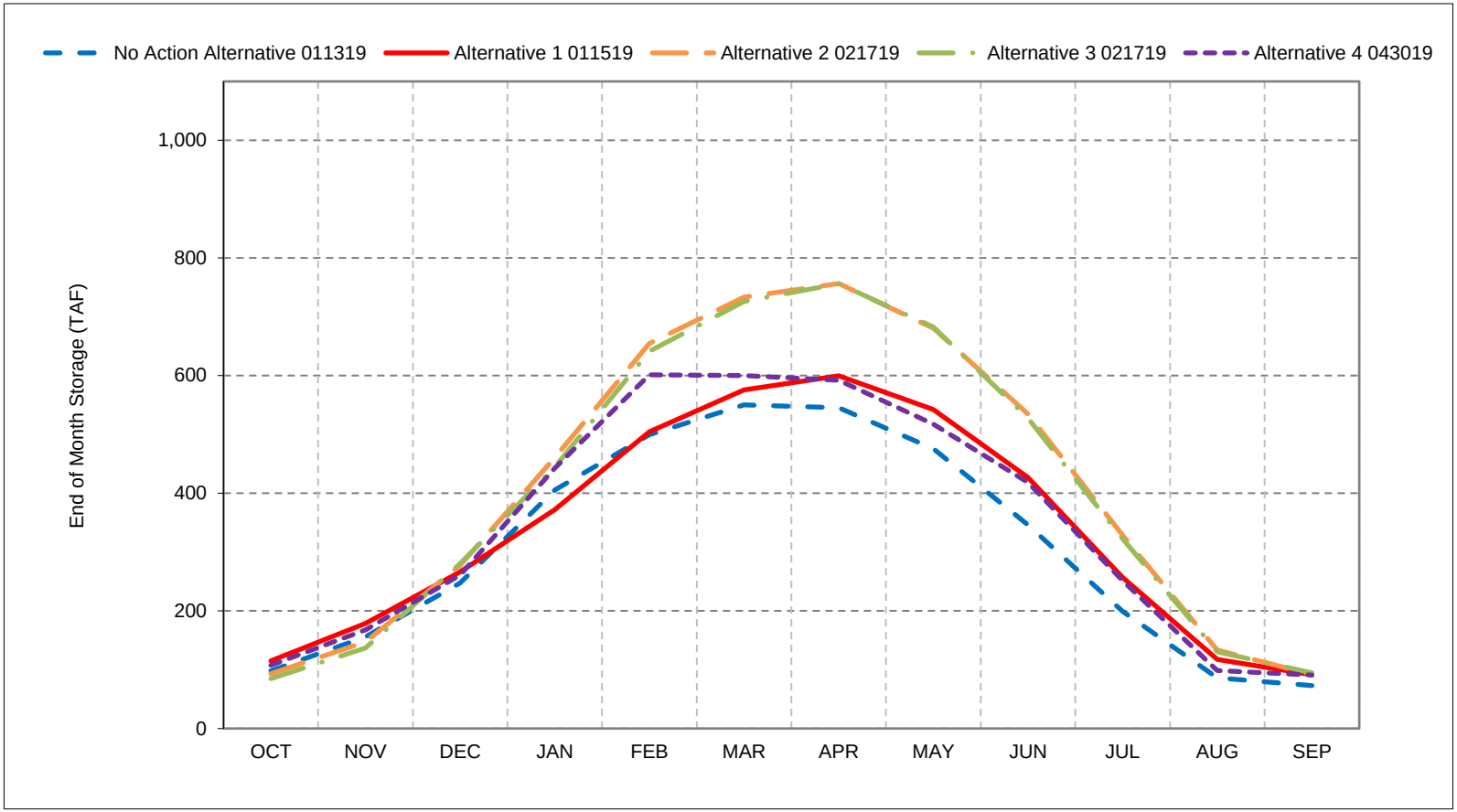
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6c-5. San Luis SWP Storage, Dry Year Average Storage



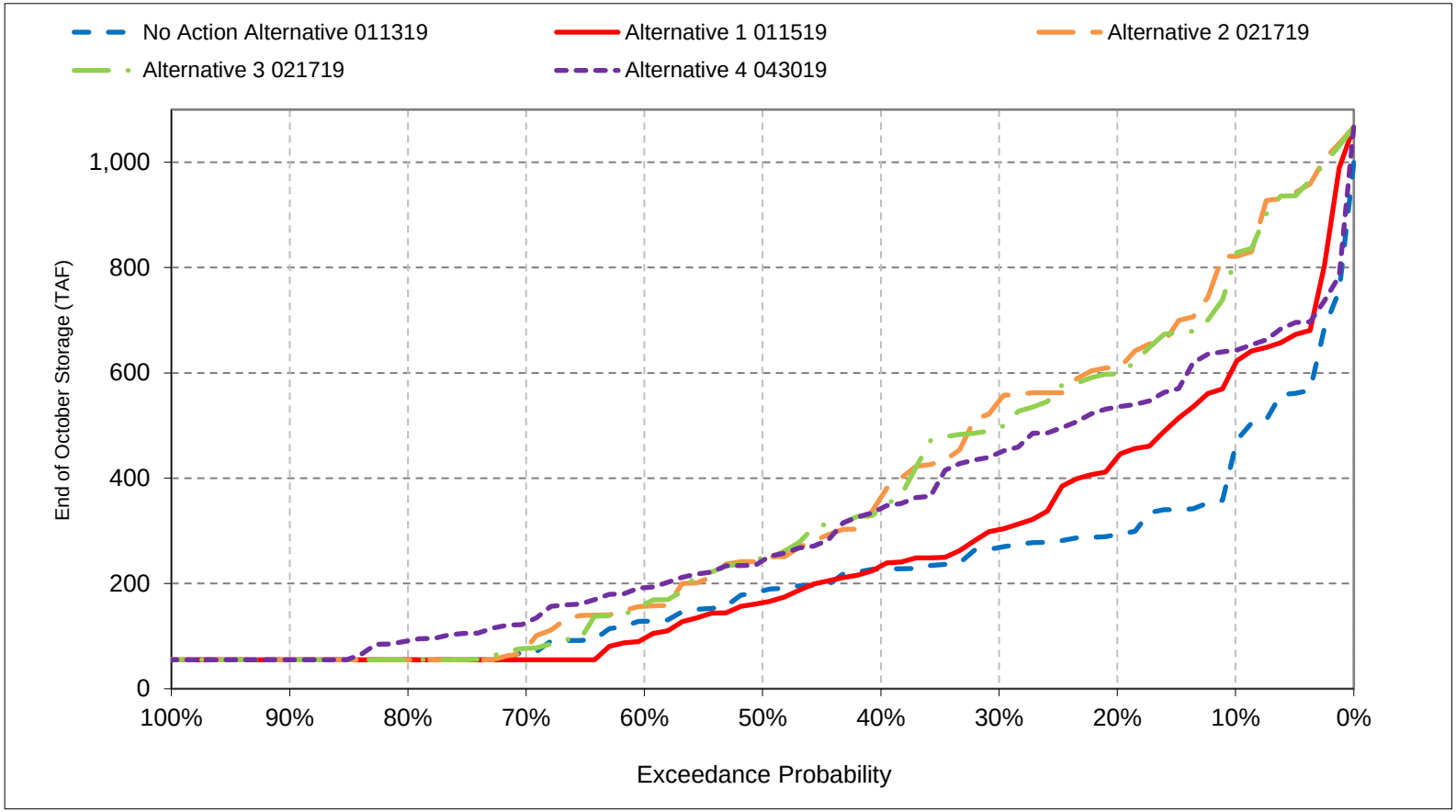
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6c-6. San Luis SWP Storage, Critical Year Average Storage



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

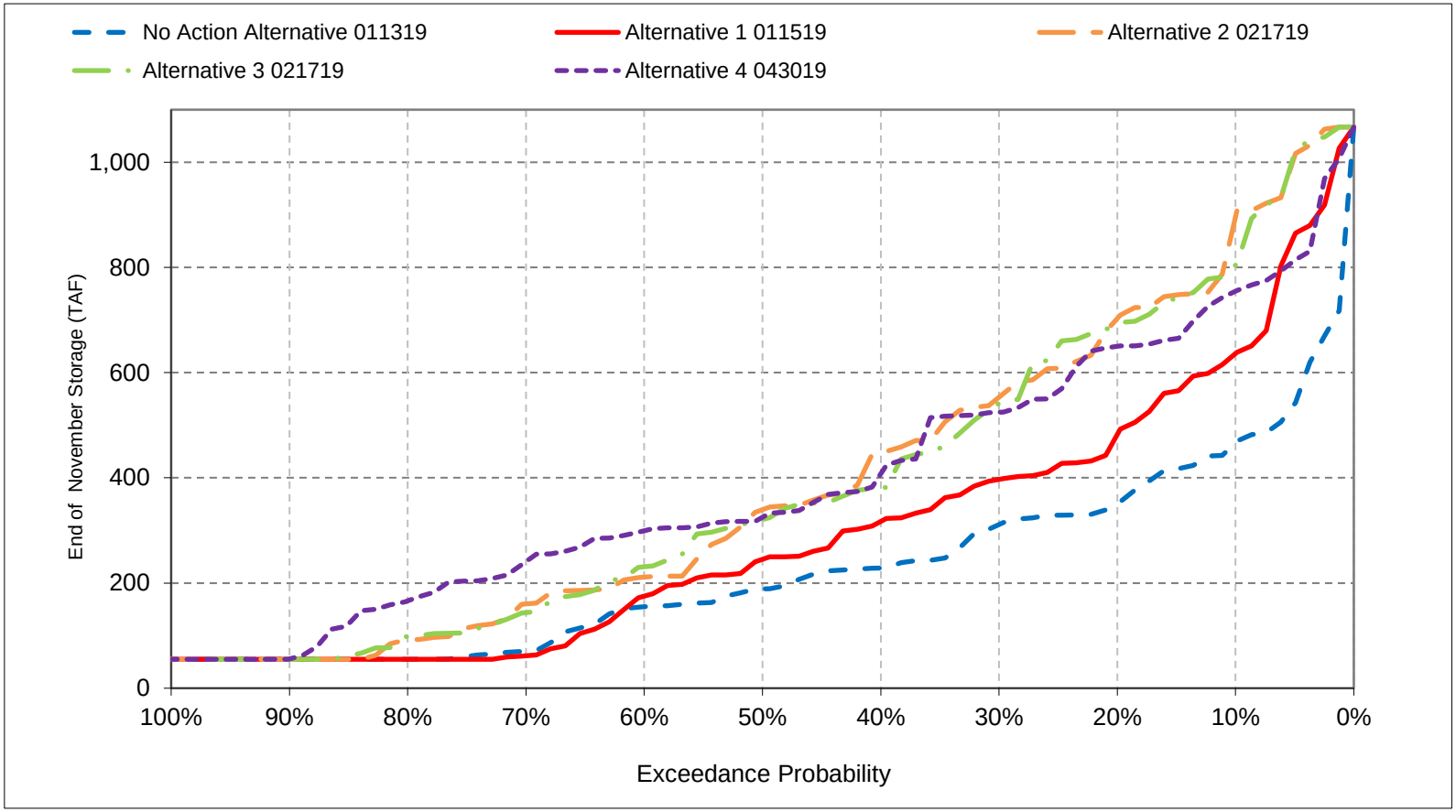
Figure 6c-7. San Luis SWP Storage, End of October Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

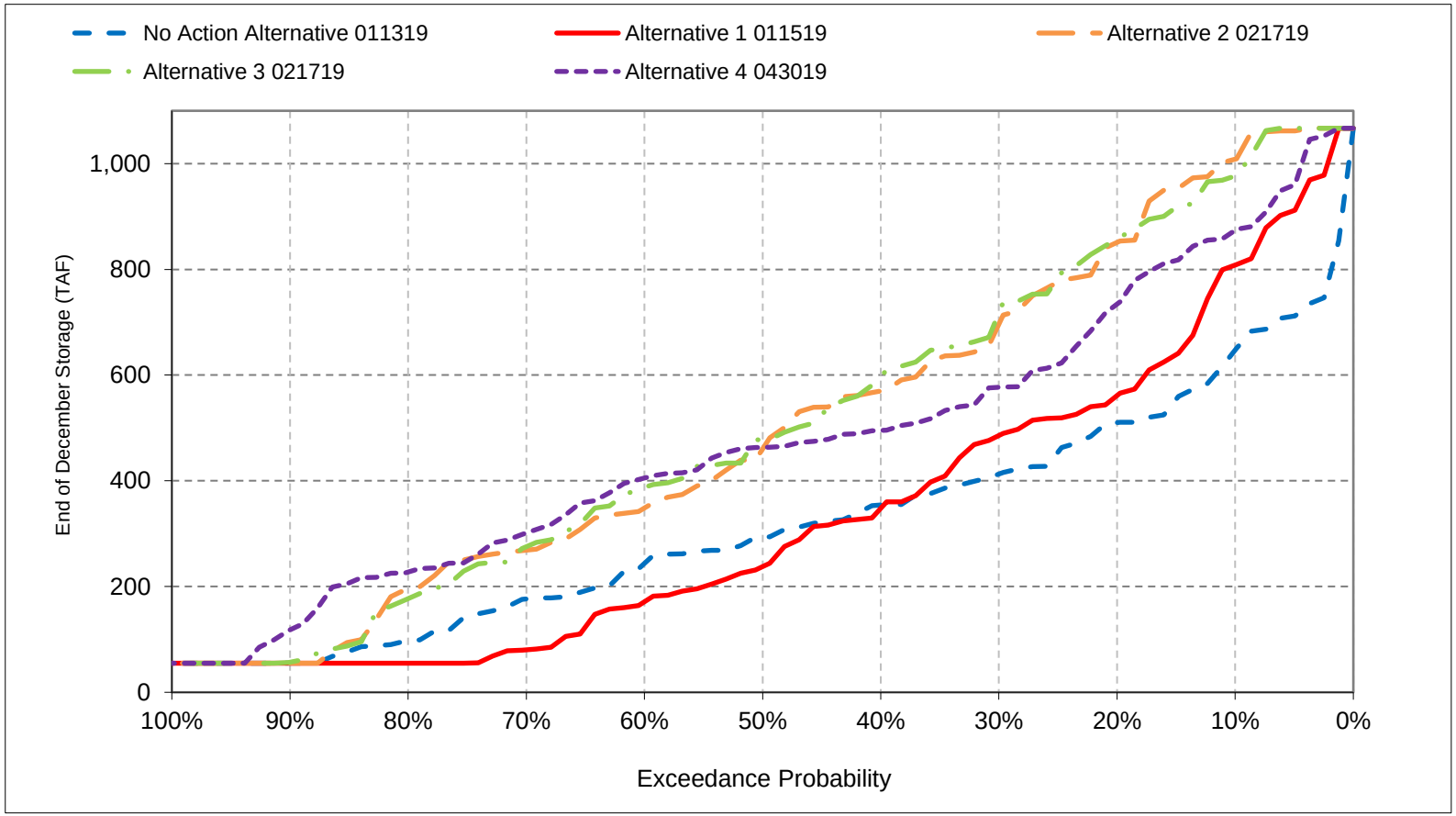
Figure 6c-8. San Luis SWP Storage, End of November Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

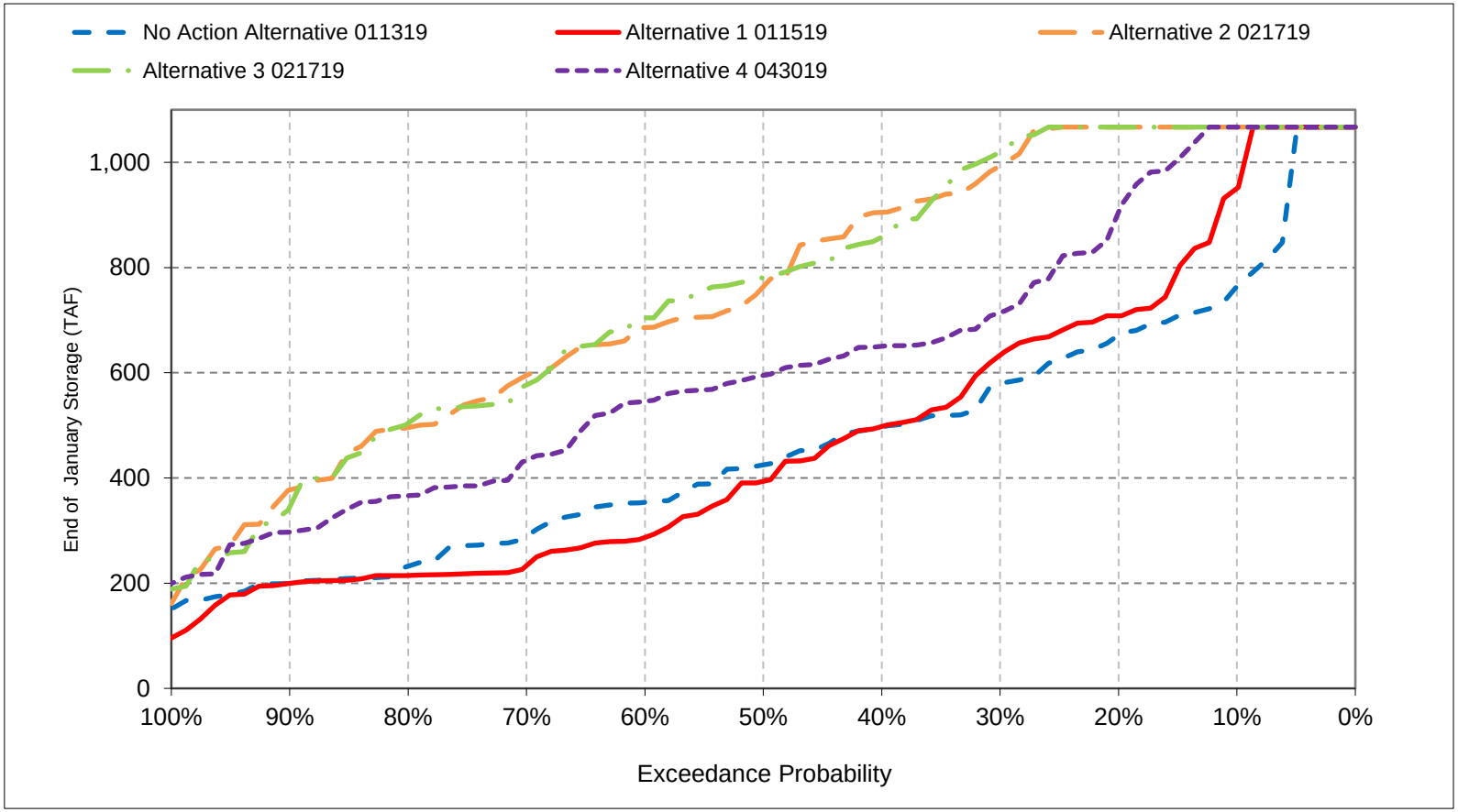
Figure 6c-9. San Luis SWP Storage, End of December Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

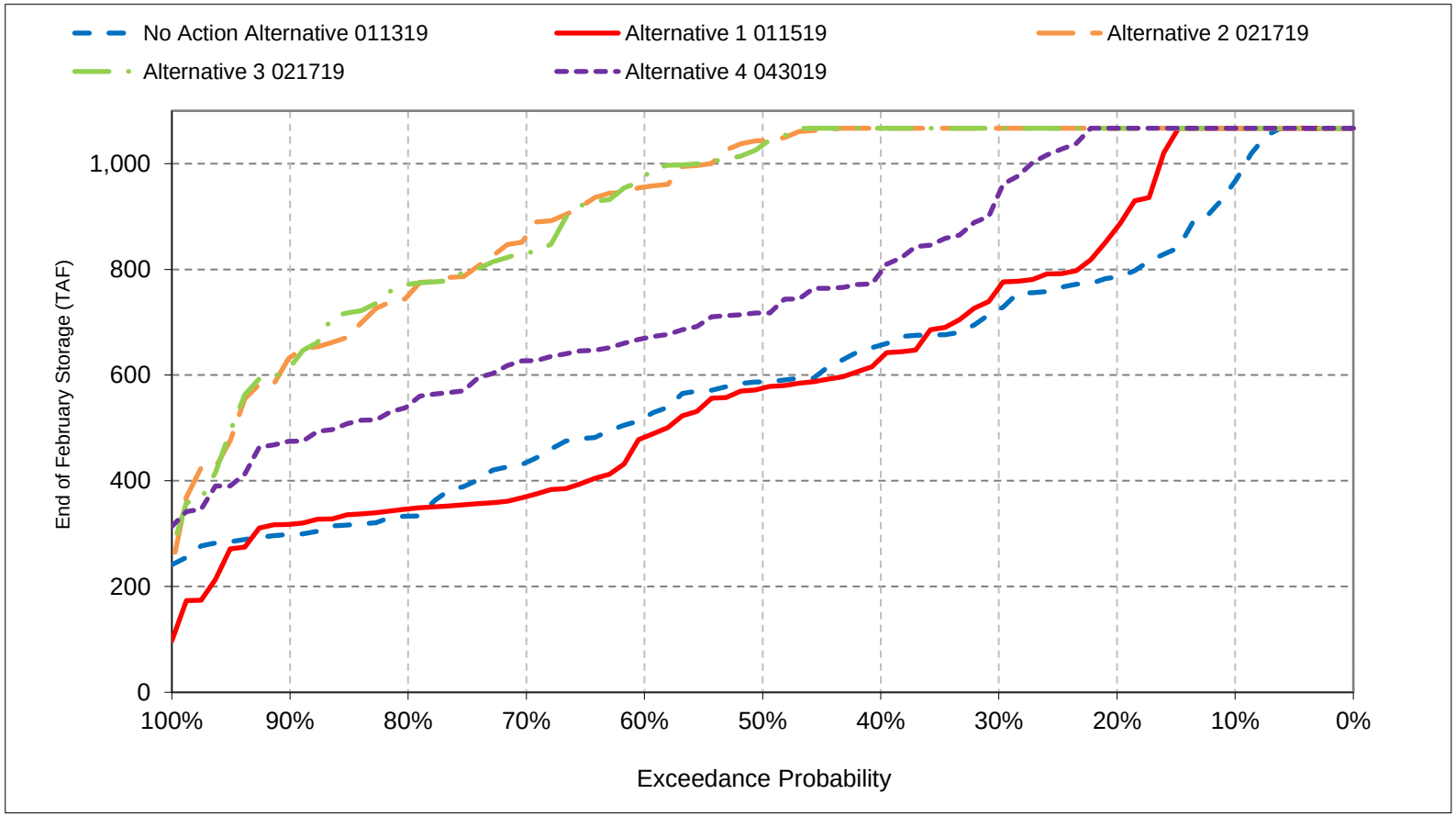
Figure 6c-10. San Luis SWP Storage, End of January Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

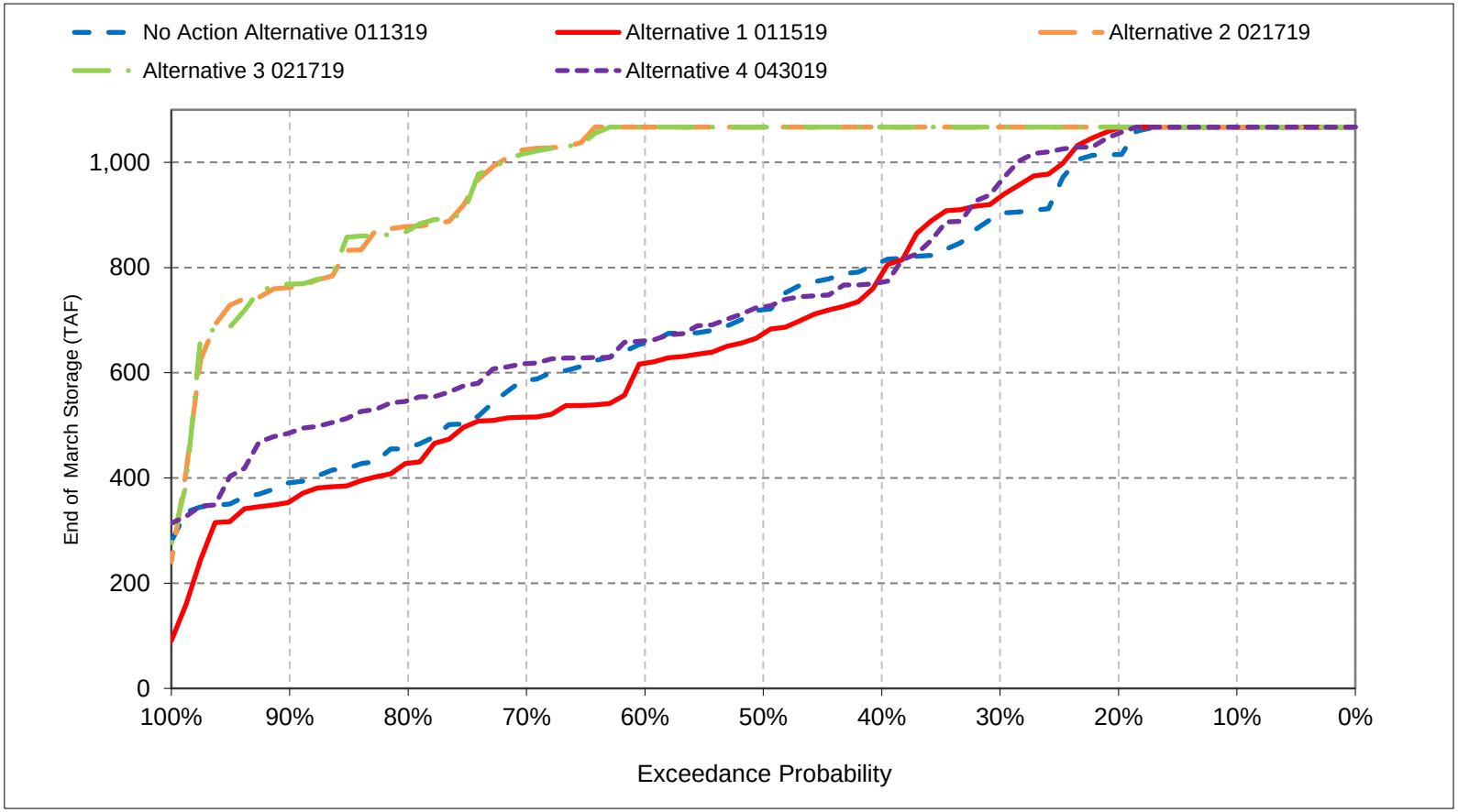
Figure 6c-11. San Luis SWP Storage, End of February Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

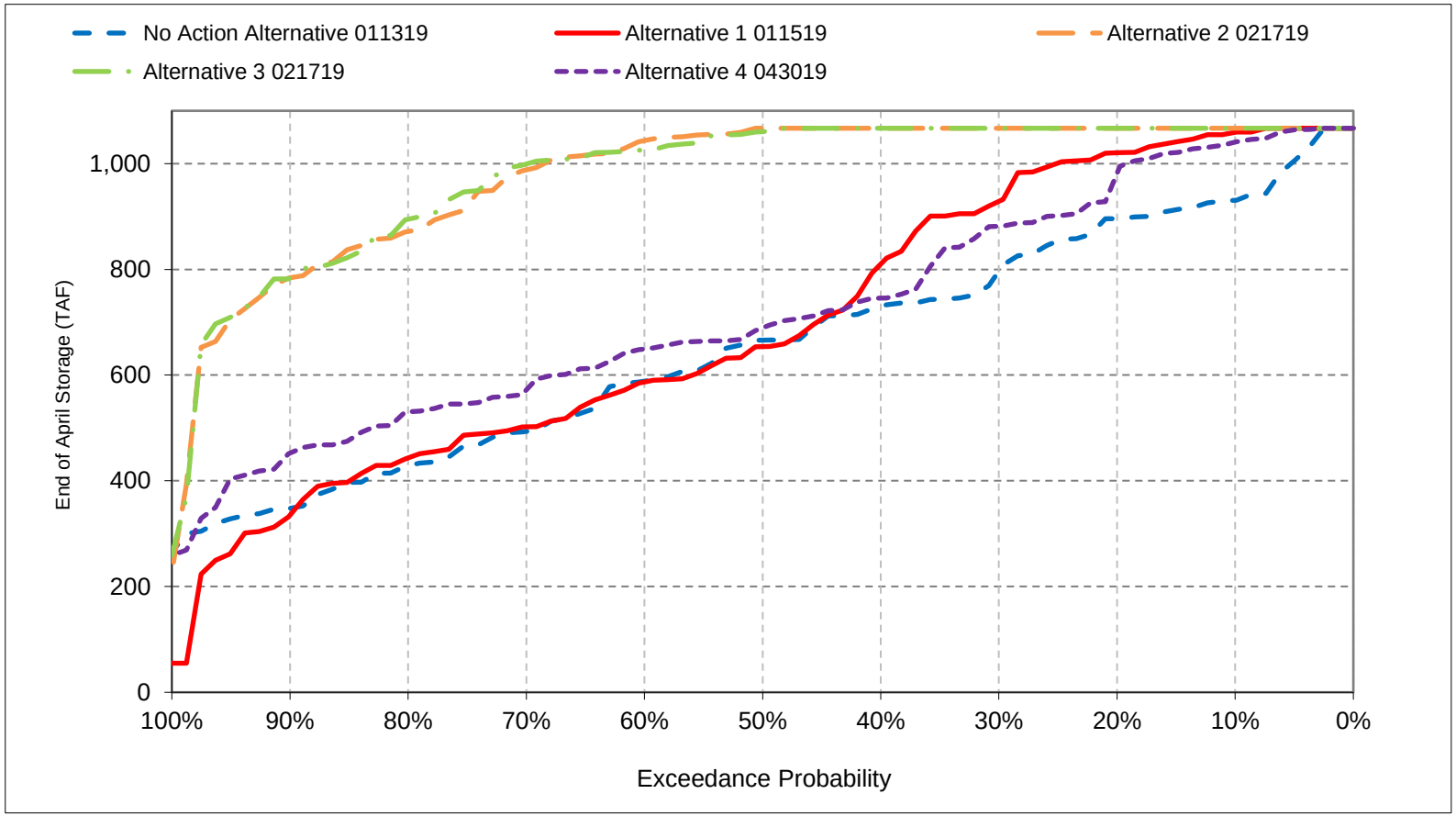
Figure 6c-12. San Luis SWP Storage, End of March Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

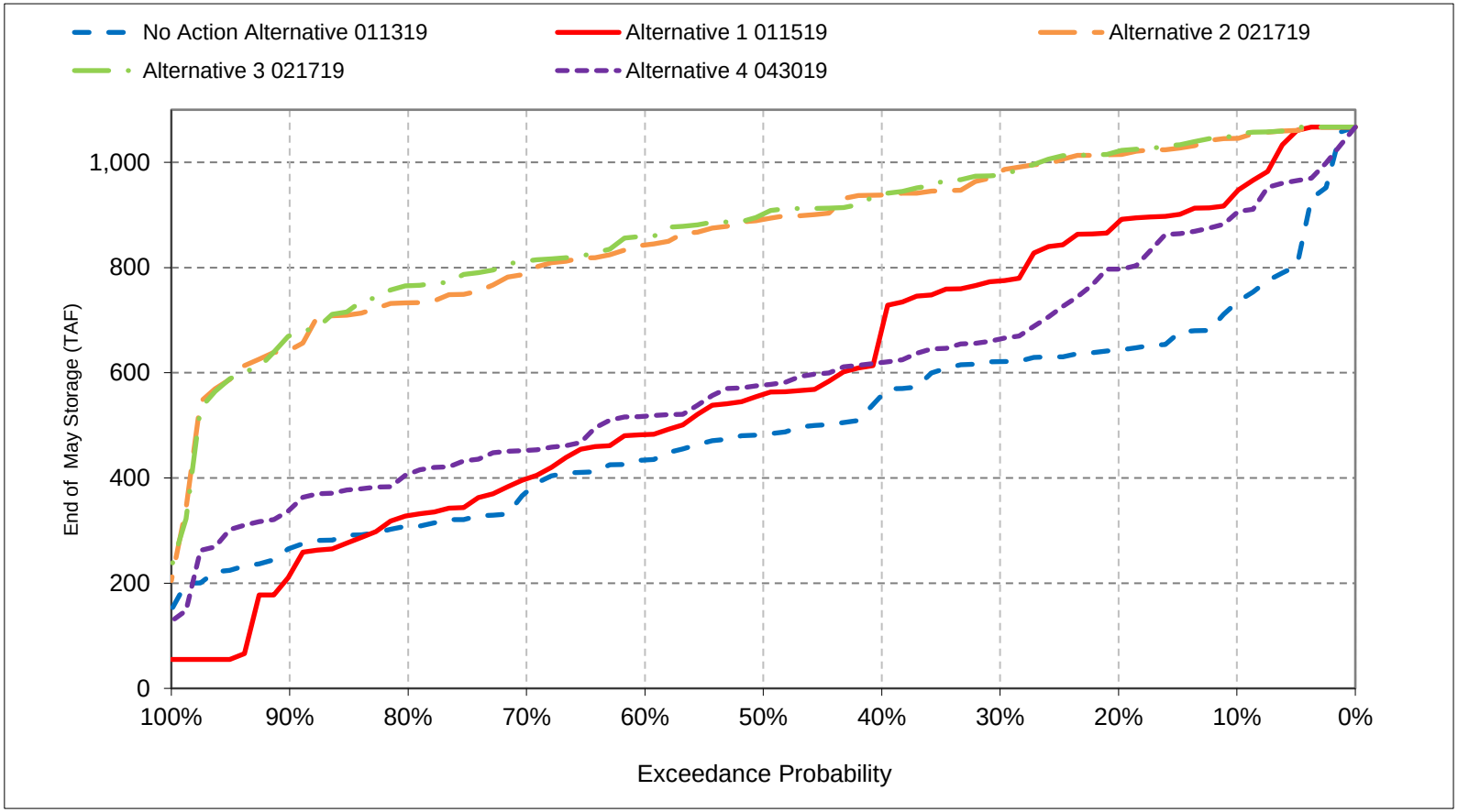
Figure 6c-13. San Luis SWP Storage, End of April Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

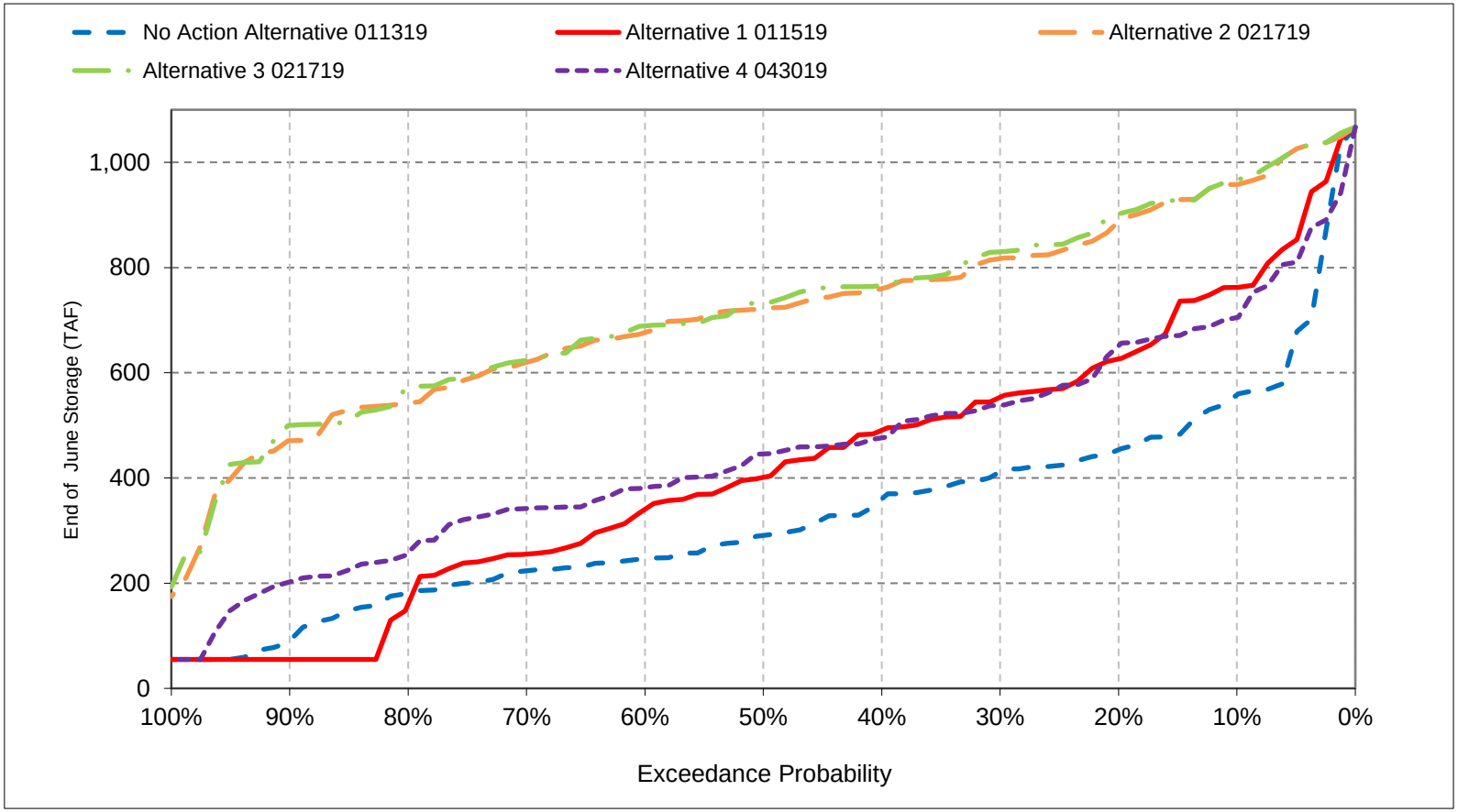
Figure 6c-14. San Luis SWP Storage, End of May Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

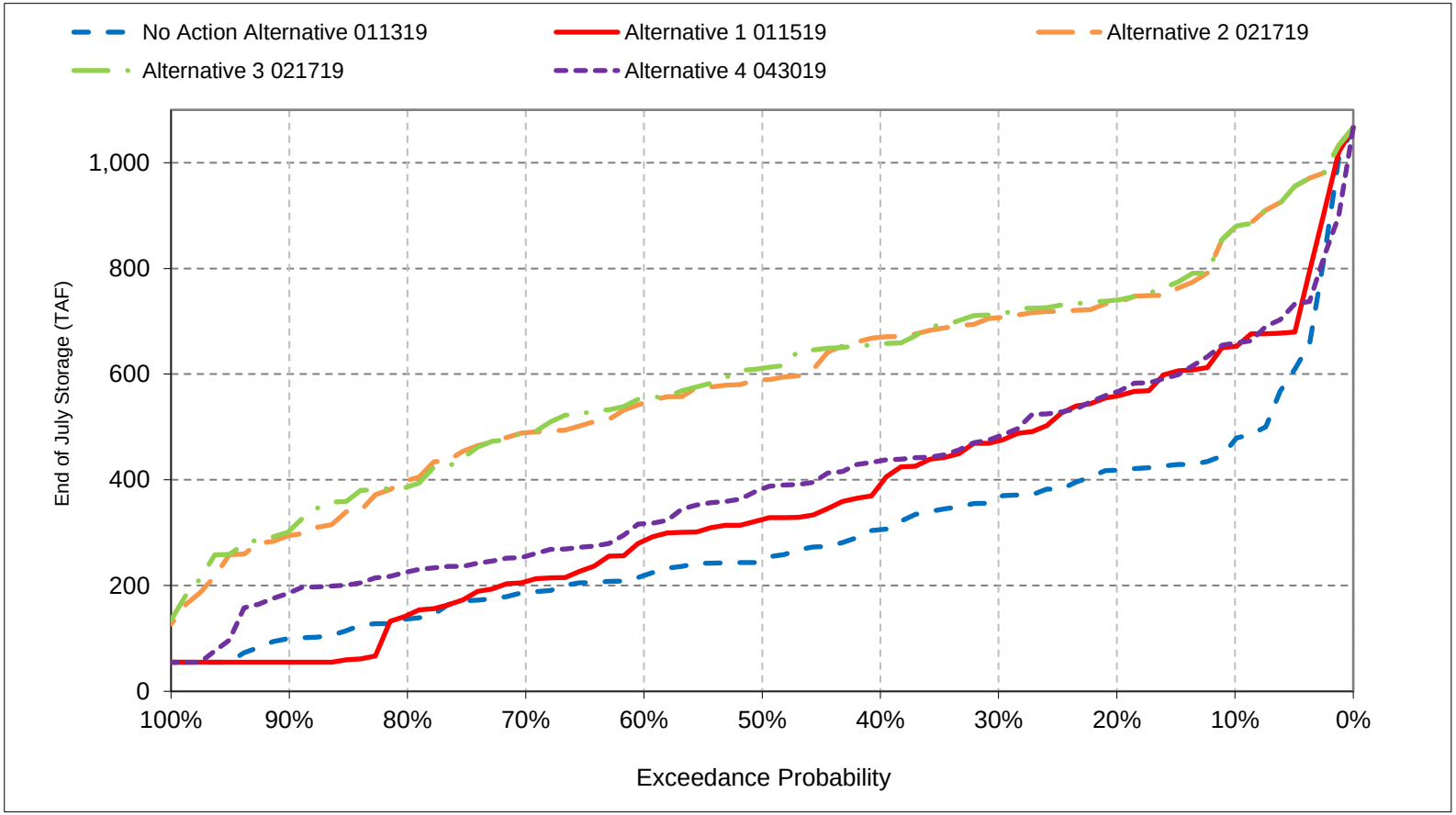
Figure 6c-15. San Luis SWP Storage, End of June Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

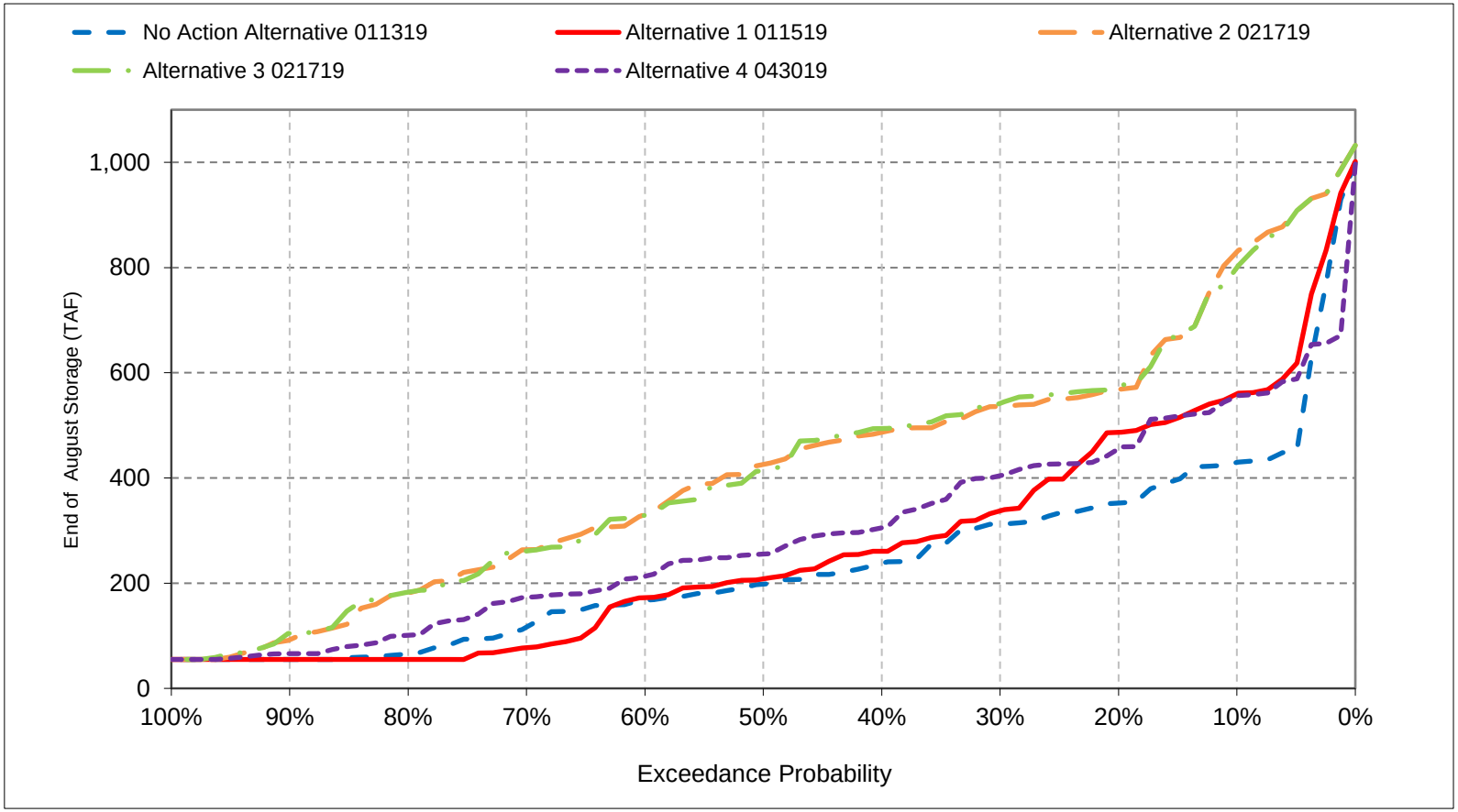
Figure 6c-16. San Luis SWP Storage, End of July Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

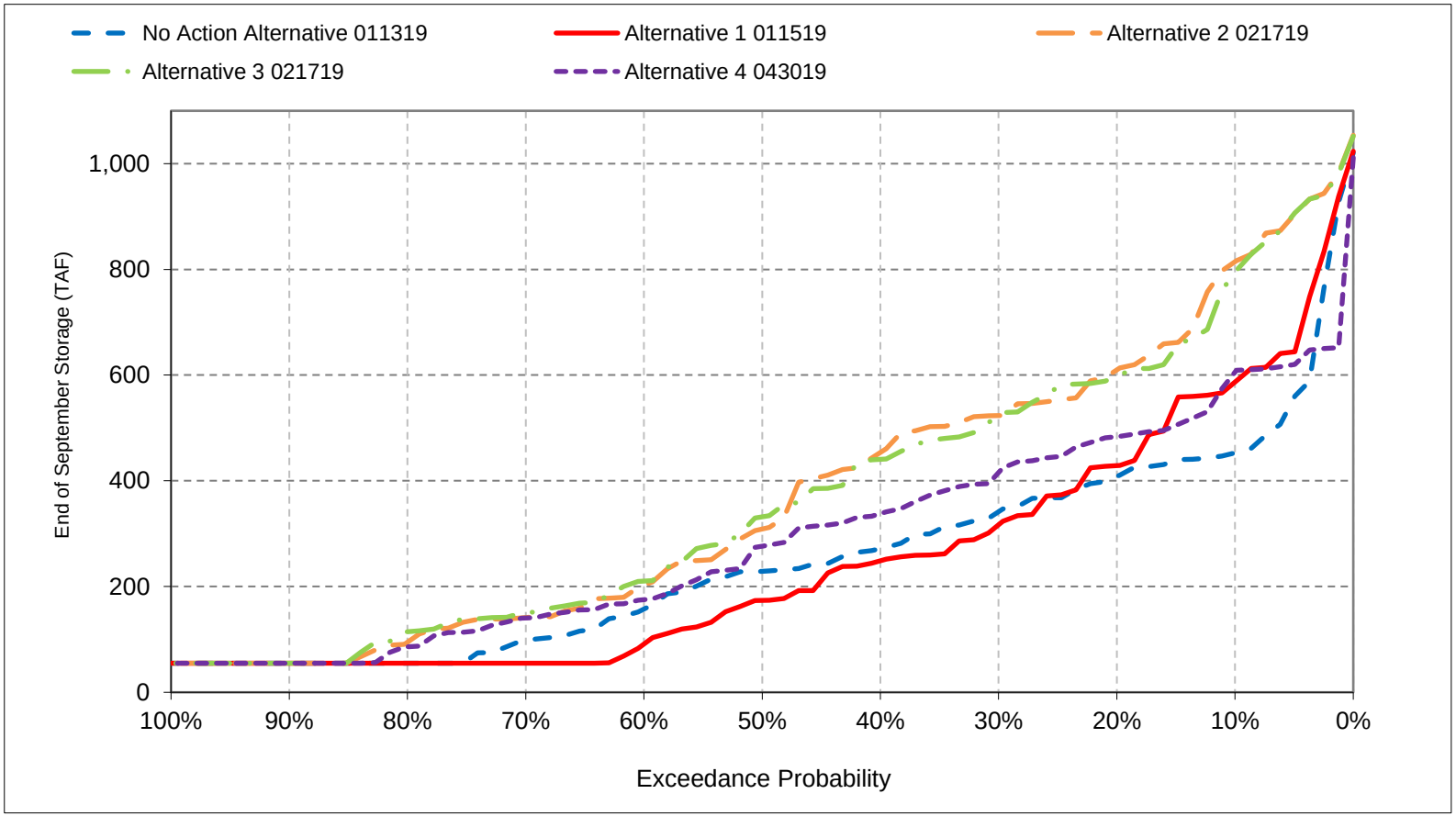
Figure 6c-17. San Luis SWP Storage, End of August Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6c-18. San Luis SWP Storage, End of September Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 7-1. New Melones Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,765	1,759	1,823	1,880	1,931	1,980	1,946	2,053	2,075	1,978	1,870	1,806
20%	1,612	1,631	1,647	1,687	1,768	1,799	1,834	1,901	1,877	1,798	1,692	1,633
30%	1,533	1,537	1,555	1,597	1,686	1,729	1,687	1,745	1,786	1,707	1,605	1,557
40%	1,272	1,274	1,432	1,515	1,594	1,618	1,592	1,534	1,539	1,433	1,333	1,274
50%	1,120	1,127	1,154	1,308	1,436	1,535	1,461	1,443	1,392	1,283	1,190	1,156
60%	1,024	1,042	1,079	1,146	1,199	1,273	1,279	1,335	1,277	1,200	1,103	1,054
70%	882	911	986	1,015	1,039	1,057	1,083	1,090	1,087	994	910	868
80%	646	658	683	684	735	808	835	878	871	808	733	692
90%	430	435	440	486	541	569	574	586	630	566	507	473
Long Term												
Full Simulation Period[a]	1,132	1,142	1,180	1,237	1,305	1,348	1,338	1,373	1,381	1,300	1,208	1,159
Water Year Types[b,c]												
Wet (23%)	1,725	1,729	1,754	1,496	1,637	1,703	1,757	1,913	2,035	1,968	1,845	1,771
Above Normal (24%)	1,229	1,239	1,271	1,174	1,267	1,342	1,366	1,470	1,480	1,387	1,290	1,240
Below Normal (10%)	1,201	1,206	1,228	1,464	1,518	1,550	1,495	1,502	1,502	1,408	1,307	1,249
Dry (16%)	931	965	1,040	1,254	1,277	1,315	1,265	1,226	1,175	1,080	996	958
Critical (27%)	614	616	657	978	993	994	935	860	805	734	674	643

Alternative 1 011519

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,884	1,877	1,911	1,965	1,970	2,030	2,010	2,086	2,207	2,117	2,008	1,942
20%	1,745	1,748	1,780	1,860	1,942	1,975	1,918	1,989	2,023	1,919	1,828	1,785
30%	1,619	1,628	1,685	1,781	1,833	1,857	1,818	1,867	1,900	1,817	1,713	1,655
40%	1,504	1,539	1,586	1,652	1,738	1,765	1,752	1,759	1,753	1,653	1,569	1,527
50%	1,411	1,432	1,456	1,522	1,620	1,669	1,628	1,662	1,623	1,560	1,483	1,439
60%	1,317	1,341	1,361	1,408	1,473	1,554	1,531	1,552	1,560	1,485	1,384	1,349
70%	1,131	1,160	1,254	1,299	1,369	1,403	1,379	1,376	1,369	1,277	1,211	1,173
80%	974	974	1,013	1,027	1,055	1,112	1,068	1,174	1,166	1,103	1,045	1,004
90%	594	580	589	597	616	690	672	734	834	765	692	642
Long Term												
Full Simulation Period[a]	1,316	1,326	1,366	1,422	1,483	1,526	1,516	1,558	1,572	1,490	1,398	1,349
Water Year Types[b,c]												
Wet (23%)	1,753	1,758	1,791	1,593	1,703	1,758	1,816	1,973	2,073	1,997	1,874	1,800
Above Normal (24%)	1,339	1,349	1,379	1,304	1,396	1,474	1,475	1,570	1,610	1,515	1,413	1,361
Below Normal (10%)	1,383	1,387	1,407	1,675	1,719	1,758	1,691	1,692	1,695	1,597	1,493	1,433
Dry (16%)	1,234	1,270	1,347	1,495	1,523	1,563	1,528	1,509	1,469	1,380	1,299	1,264
Critical (27%)	938	940	983	1,245	1,262	1,266	1,224	1,168	1,121	1,056	997	968

Alternative 1 011519 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	118	118	88	85	39	50	64	33	132	138	138	137
20%	134	117	133	173	173	176	84	88	146	121	136	152
30%	86	91	130	184	147	128	132	122	115	110	108	99
40%	233	264	154	137	143	147	161	226	214	219	236	254
50%	291	305	303	214	183	134	167	218	231	277	293	283
60%	293	299	282	262	274	281	252	216	283	285	281	294
70%	249	249	268	284	330	347	296	285	282	282	301	304
80%	328	316	330	343	320	305	233	296	295	295	312	311
90%	164	146	149	111	76	121	98	147	204	198	185	170
Long Term												
Full Simulation Period[a]	184	184	186	185	178	177	179	184	191	190	190	190
Water Year Types[b,c]												
Wet (23%)	28	29	37	97	67	56	59	60	37	29	29	29
Above Normal (24%)	111	110	108	130	129	132	109	100	129	128	123	121
Below Normal (10%)	181	180	180	211	201	207	196	190	193	189	186	184
Dry (16%)	303	305	307	242	247	248	263	283	294	300	304	306
Critical (27%)	324	324	327	267	269	271	289	308	316	321	323	324

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 7-2. New Melones Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,765	1,759	1,823	1,880	1,931	1,980	1,946	2,053	2,075	1,978	1,870	1,806
20%	1,612	1,631	1,647	1,687	1,768	1,799	1,834	1,901	1,877	1,798	1,692	1,633
30%	1,533	1,537	1,555	1,597	1,686	1,729	1,687	1,745	1,786	1,707	1,605	1,557
40%	1,272	1,274	1,432	1,515	1,594	1,618	1,592	1,534	1,539	1,433	1,333	1,274
50%	1,120	1,127	1,154	1,308	1,436	1,535	1,461	1,443	1,392	1,283	1,190	1,156
60%	1,024	1,042	1,079	1,146	1,199	1,273	1,279	1,335	1,277	1,200	1,103	1,054
70%	882	911	986	1,015	1,039	1,057	1,083	1,090	1,087	994	910	868
80%	646	658	683	684	735	808	835	878	871	808	733	692
90%	430	435	440	486	541	569	574	586	630	566	507	473
Long Term												
Full Simulation Period[a]	1,132	1,142	1,180	1,237	1,305	1,348	1,338	1,373	1,381	1,300	1,208	1,159
Water Year Types[b,c]												
Wet (23%)	1,725	1,729	1,754	1,496	1,637	1,703	1,757	1,913	2,035	1,968	1,845	1,771
Above Normal (24%)	1,229	1,239	1,271	1,174	1,267	1,342	1,366	1,470	1,480	1,387	1,290	1,240
Below Normal (10%)	1,201	1,206	1,228	1,464	1,518	1,550	1,495	1,502	1,502	1,408	1,307	1,249
Dry (16%)	931	965	1,040	1,254	1,277	1,315	1,265	1,226	1,175	1,080	996	958
Critical (27%)	614	616	657	978	993	994	935	860	805	734	674	643

Alternative 2 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,970	1,954	1,970	1,970	1,970	2,030	2,106	2,257	2,401	2,300	2,130	2,000
20%	1,915	1,926	1,943	1,970	1,970	2,030	2,044	2,136	2,181	2,075	1,972	1,921
30%	1,796	1,830	1,867	1,924	1,970	2,002	1,987	2,041	2,039	1,947	1,840	1,787
40%	1,711	1,724	1,766	1,864	1,922	1,952	1,943	1,925	1,938	1,867	1,776	1,721
50%	1,547	1,546	1,580	1,685	1,806	1,882	1,839	1,838	1,780	1,669	1,576	1,540
60%	1,439	1,434	1,484	1,523	1,590	1,632	1,666	1,702	1,658	1,573	1,472	1,426
70%	1,220	1,280	1,347	1,375	1,422	1,410	1,414	1,546	1,446	1,344	1,243	1,191
80%	1,029	1,006	1,029	1,054	1,115	1,175	1,174	1,264	1,228	1,159	1,092	1,048
90%	785	790	798	808	896	903	855	851	961	887	810	774
Long Term												
Full Simulation Period[a]	1,446	1,453	1,486	1,539	1,582	1,633	1,648	1,702	1,700	1,607	1,505	1,448
Water Year Types[b,c]												
Wet (23%)	1,914	1,913	1,922	1,780	1,833	1,920	1,996	2,170	2,262	2,171	2,030	1,935
Above Normal (24%)	1,559	1,567	1,595	1,444	1,526	1,604	1,658	1,785	1,797	1,702	1,603	1,552
Below Normal (10%)	1,581	1,586	1,607	1,709	1,748	1,791	1,793	1,843	1,850	1,753	1,649	1,591
Dry (16%)	1,318	1,349	1,422	1,595	1,610	1,649	1,631	1,610	1,551	1,446	1,353	1,308
Critical (27%)	956	956	997	1,323	1,340	1,344	1,297	1,226	1,162	1,077	1,002	963

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	205	195	147	90	39	50	160	204	325	322	260	194
20%	304	295	296	283	202	231	210	236	304	277	281	287
30%	263	293	312	328	284	273	300	296	254	240	235	230
40%	439	450	334	349	328	334	351	392	398	434	443	447
50%	427	419	426	377	370	348	377	394	388	386	386	383
60%	415	392	405	377	391	359	387	367	382	373	369	372
70%	338	369	361	360	383	353	330	455	358	350	333	323
80%	383	348	347	370	380	367	339	386	356	350	359	355
90%	355	355	358	321	355	334	280	265	331	320	303	301
Long Term												
Full Simulation Period[a]	314	311	306	302	277	284	311	329	319	307	297	289
Water Year Types[b,c]												
Wet (23%)	189	184	168	284	196	217	239	257	226	203	185	164
Above Normal (24%)	330	328	324	271	259	262	293	315	316	315	313	312
Below Normal (10%)	380	380	379	245	230	241	298	342	348	345	343	342
Dry (16%)	388	384	381	341	333	334	366	384	377	366	357	350
Critical (27%)	342	340	341	345	347	349	361	367	358	342	327	320

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 7-3. New Melones Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,765	1,759	1,823	1,880	1,931	1,980	1,946	2,053	2,075	1,978	1,870	1,806
20%	1,612	1,631	1,647	1,687	1,768	1,799	1,834	1,901	1,877	1,798	1,692	1,633
30%	1,533	1,537	1,555	1,597	1,686	1,729	1,687	1,745	1,786	1,707	1,605	1,557
40%	1,272	1,274	1,432	1,515	1,594	1,618	1,592	1,534	1,539	1,433	1,333	1,274
50%	1,120	1,127	1,154	1,308	1,436	1,535	1,461	1,443	1,392	1,283	1,190	1,156
60%	1,024	1,042	1,079	1,146	1,199	1,273	1,279	1,335	1,277	1,200	1,103	1,054
70%	882	911	986	1,015	1,039	1,057	1,083	1,090	1,087	994	910	868
80%	646	658	683	684	735	808	835	878	871	808	733	692
90%	430	435	440	486	541	569	574	586	630	566	507	473
Long Term												
Full Simulation Period[a]	1,132	1,142	1,180	1,237	1,305	1,348	1,338	1,373	1,381	1,300	1,208	1,159
Water Year Types[b,c]												
Wet (23%)	1,725	1,729	1,754	1,496	1,637	1,703	1,757	1,913	2,035	1,968	1,845	1,771
Above Normal (24%)	1,229	1,239	1,271	1,174	1,267	1,342	1,366	1,470	1,480	1,387	1,290	1,240
Below Normal (10%)	1,201	1,206	1,228	1,464	1,518	1,550	1,495	1,502	1,502	1,408	1,307	1,249
Dry (16%)	931	965	1,040	1,254	1,277	1,315	1,265	1,226	1,175	1,080	996	958
Critical (27%)	614	616	657	978	993	994	935	860	805	734	674	643

Alternative 3 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,970	1,954	1,970	1,970	1,970	2,030	2,106	2,257	2,401	2,300	2,130	2,000
20%	1,915	1,926	1,943	1,970	1,970	2,030	2,044	2,136	2,181	2,075	1,972	1,921
30%	1,796	1,830	1,867	1,924	1,970	2,002	1,987	2,041	2,039	1,947	1,840	1,787
40%	1,711	1,724	1,766	1,864	1,922	1,952	1,943	1,925	1,938	1,867	1,776	1,721
50%	1,547	1,546	1,580	1,685	1,806	1,882	1,839	1,838	1,780	1,669	1,576	1,540
60%	1,439	1,434	1,484	1,523	1,590	1,632	1,665	1,702	1,659	1,573	1,472	1,426
70%	1,220	1,280	1,347	1,375	1,422	1,410	1,414	1,546	1,446	1,344	1,243	1,191
80%	1,029	1,006	1,029	1,054	1,115	1,175	1,174	1,264	1,228	1,159	1,092	1,048
90%	785	790	798	808	896	903	855	851	961	886	810	774
Long Term												
Full Simulation Period[a]	1,446	1,453	1,486	1,539	1,582	1,633	1,648	1,702	1,700	1,607	1,505	1,448
Water Year Types[b,c]												
Wet (23%)	1,914	1,913	1,922	1,780	1,833	1,920	1,996	2,170	2,262	2,171	2,030	1,935
Above Normal (24%)	1,559	1,567	1,595	1,444	1,526	1,604	1,658	1,785	1,797	1,702	1,603	1,552
Below Normal (10%)	1,581	1,586	1,607	1,709	1,748	1,791	1,793	1,843	1,850	1,753	1,649	1,591
Dry (16%)	1,318	1,349	1,422	1,595	1,610	1,649	1,631	1,610	1,551	1,446	1,353	1,308
Critical (27%)	956	956	997	1,323	1,340	1,344	1,297	1,226	1,162	1,077	1,002	963

Alternative 3 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	205	195	147	90	39	50	160	204	325	322	260	194
20%	304	295	296	283	202	231	210	236	304	277	281	287
30%	263	293	312	328	284	273	300	296	254	240	235	230
40%	439	450	334	349	328	334	351	392	398	434	443	447
50%	427	419	426	377	370	348	377	394	388	386	386	383
60%	415	392	405	377	391	359	387	367	382	373	369	372
70%	338	369	361	360	383	353	330	455	358	350	333	323
80%	383	348	347	370	380	367	339	386	356	350	359	355
90%	355	355	358	321	355	334	280	265	331	320	303	301
Long Term												
Full Simulation Period[a]	314	311	306	302	277	284	311	329	319	307	297	289
Water Year Types[b,c]												
Wet (23%)	189	184	168	284	196	217	239	257	226	203	185	164
Above Normal (24%)	330	328	324	271	259	262	293	315	316	315	313	312
Below Normal (10%)	380	380	379	245	230	241	298	342	348	345	343	342
Dry (16%)	388	384	381	341	333	334	366	384	377	366	357	350
Critical (27%)	342	340	341	345	347	349	361	367	358	342	327	320

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 7-4. New Melones Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,765	1,759	1,823	1,880	1,931	1,980	1,946	2,053	2,075	1,978	1,870	1,806
20%	1,612	1,631	1,647	1,687	1,768	1,799	1,834	1,901	1,877	1,798	1,692	1,633
30%	1,533	1,537	1,555	1,597	1,686	1,729	1,687	1,745	1,786	1,707	1,605	1,557
40%	1,272	1,274	1,432	1,515	1,594	1,618	1,592	1,534	1,539	1,433	1,333	1,274
50%	1,120	1,127	1,154	1,308	1,436	1,535	1,461	1,443	1,392	1,283	1,190	1,156
60%	1,024	1,042	1,079	1,146	1,199	1,273	1,279	1,335	1,277	1,200	1,103	1,054
70%	882	911	986	1,015	1,039	1,057	1,083	1,090	1,087	994	910	868
80%	646	658	683	684	735	808	835	878	871	808	733	692
90%	430	435	440	486	541	569	574	586	630	566	507	473
Long Term												
Full Simulation Period[a]	1,132	1,142	1,180	1,237	1,305	1,348	1,338	1,373	1,381	1,300	1,208	1,159
Water Year Types[b,c]												
Wet (23%)	1,725	1,729	1,754	1,496	1,637	1,703	1,757	1,913	2,035	1,968	1,845	1,771
Above Normal (24%)	1,229	1,239	1,271	1,174	1,267	1,342	1,366	1,470	1,480	1,387	1,290	1,240
Below Normal (10%)	1,201	1,206	1,228	1,464	1,518	1,550	1,495	1,502	1,502	1,408	1,307	1,249
Dry (16%)	931	965	1,040	1,254	1,277	1,315	1,265	1,226	1,175	1,080	996	958
Critical (27%)	614	616	657	978	993	994	935	860	805	734	674	643

Alternative 4 043019

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,884	1,877	1,911	1,965	1,970	2,030	2,010	2,086	2,207	2,117	2,008	1,942
20%	1,745	1,748	1,780	1,860	1,942	1,975	1,918	1,989	2,023	1,919	1,828	1,785
30%	1,619	1,628	1,685	1,781	1,833	1,857	1,818	1,867	1,900	1,817	1,713	1,655
40%	1,504	1,539	1,586	1,652	1,738	1,765	1,752	1,759	1,753	1,653	1,569	1,527
50%	1,411	1,432	1,456	1,522	1,620	1,669	1,628	1,662	1,623	1,560	1,483	1,439
60%	1,317	1,341	1,361	1,408	1,473	1,554	1,531	1,552	1,560	1,485	1,384	1,349
70%	1,131	1,160	1,254	1,299	1,369	1,403	1,379	1,376	1,369	1,277	1,211	1,173
80%	974	974	1,013	1,027	1,055	1,112	1,068	1,174	1,166	1,103	1,045	1,004
90%	594	580	589	597	616	690	672	734	834	765	692	642
Long Term												
Full Simulation Period[a]	1,316	1,326	1,366	1,422	1,483	1,526	1,516	1,558	1,572	1,490	1,398	1,349
Water Year Types[b,c]												
Wet (23%)	1,753	1,758	1,791	1,593	1,703	1,758	1,816	1,973	2,073	1,997	1,874	1,800
Above Normal (24%)	1,339	1,349	1,379	1,304	1,396	1,474	1,475	1,570	1,610	1,515	1,413	1,361
Below Normal (10%)	1,383	1,387	1,407	1,675	1,719	1,758	1,691	1,692	1,695	1,597	1,493	1,433
Dry (16%)	1,234	1,270	1,347	1,495	1,523	1,563	1,528	1,509	1,469	1,380	1,299	1,264
Critical (27%)	938	940	983	1,245	1,262	1,266	1,224	1,168	1,121	1,056	997	968

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	118	118	88	85	39	50	64	33	132	138	138	137
20%	134	117	133	173	173	176	84	88	146	121	136	152
30%	86	91	130	184	147	128	132	122	115	110	108	99
40%	233	264	154	137	143	147	161	226	214	219	236	254
50%	291	305	303	214	183	134	167	218	231	277	293	283
60%	293	299	282	262	274	281	252	216	283	285	281	294
70%	249	249	268	284	330	347	296	285	282	282	301	304
80%	328	316	330	343	320	305	233	296	295	295	312	311
90%	164	146	149	111	76	121	98	147	204	198	185	170
Long Term												
Full Simulation Period[a]	184	184	186	185	178	177	179	184	191	190	190	190
Water Year Types[b,c]												
Wet (23%)	28	29	37	97	67	56	59	60	37	29	29	29
Above Normal (24%)	111	110	108	130	129	132	109	100	129	128	123	121
Below Normal (10%)	181	180	180	211	201	207	196	190	193	189	186	184
Dry (16%)	303	305	307	242	247	248	263	283	294	300	304	306
Critical (27%)	324	324	327	267	269	271	289	308	316	321	323	324

a Based on the 82-year simulation period.

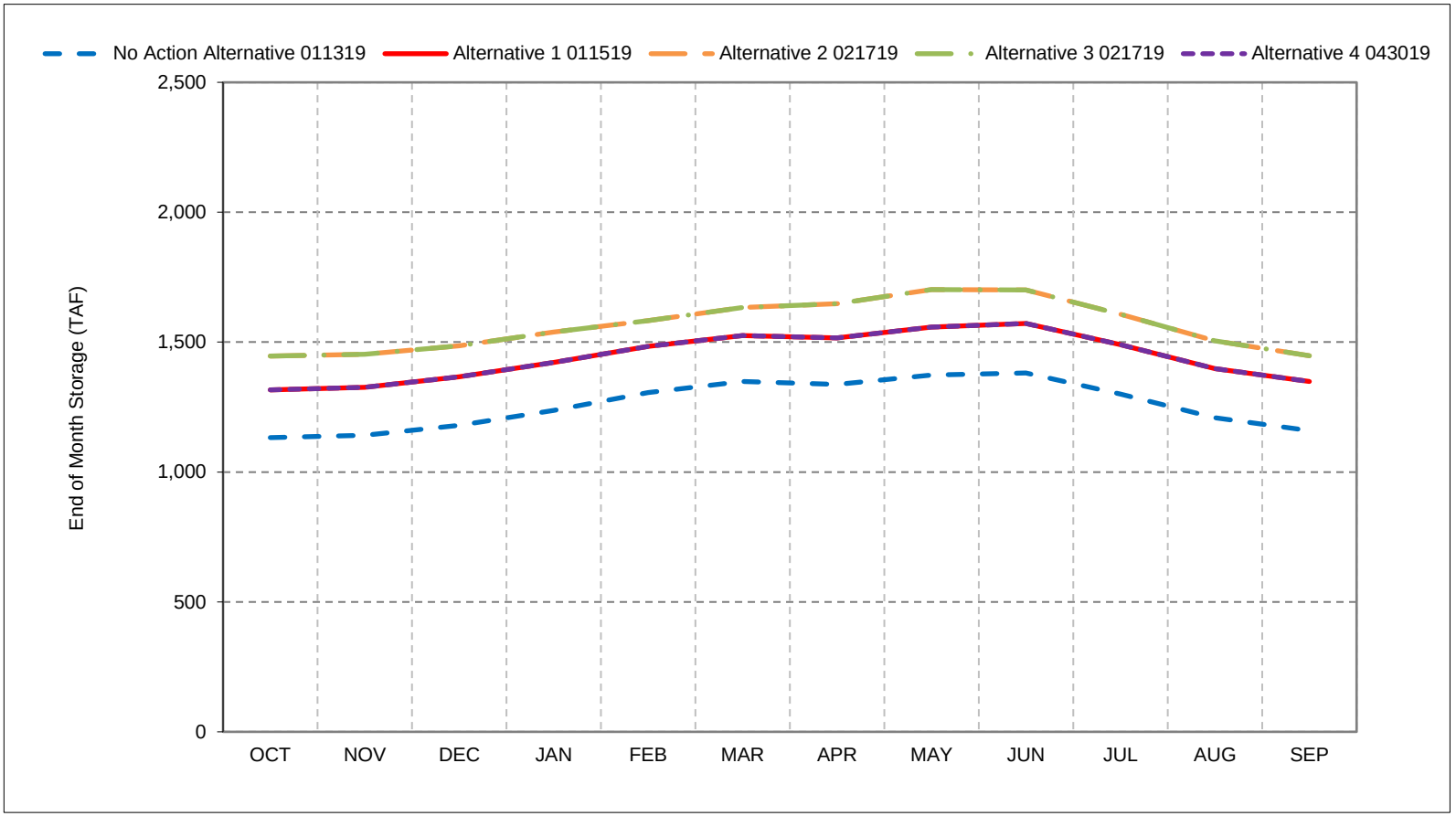
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

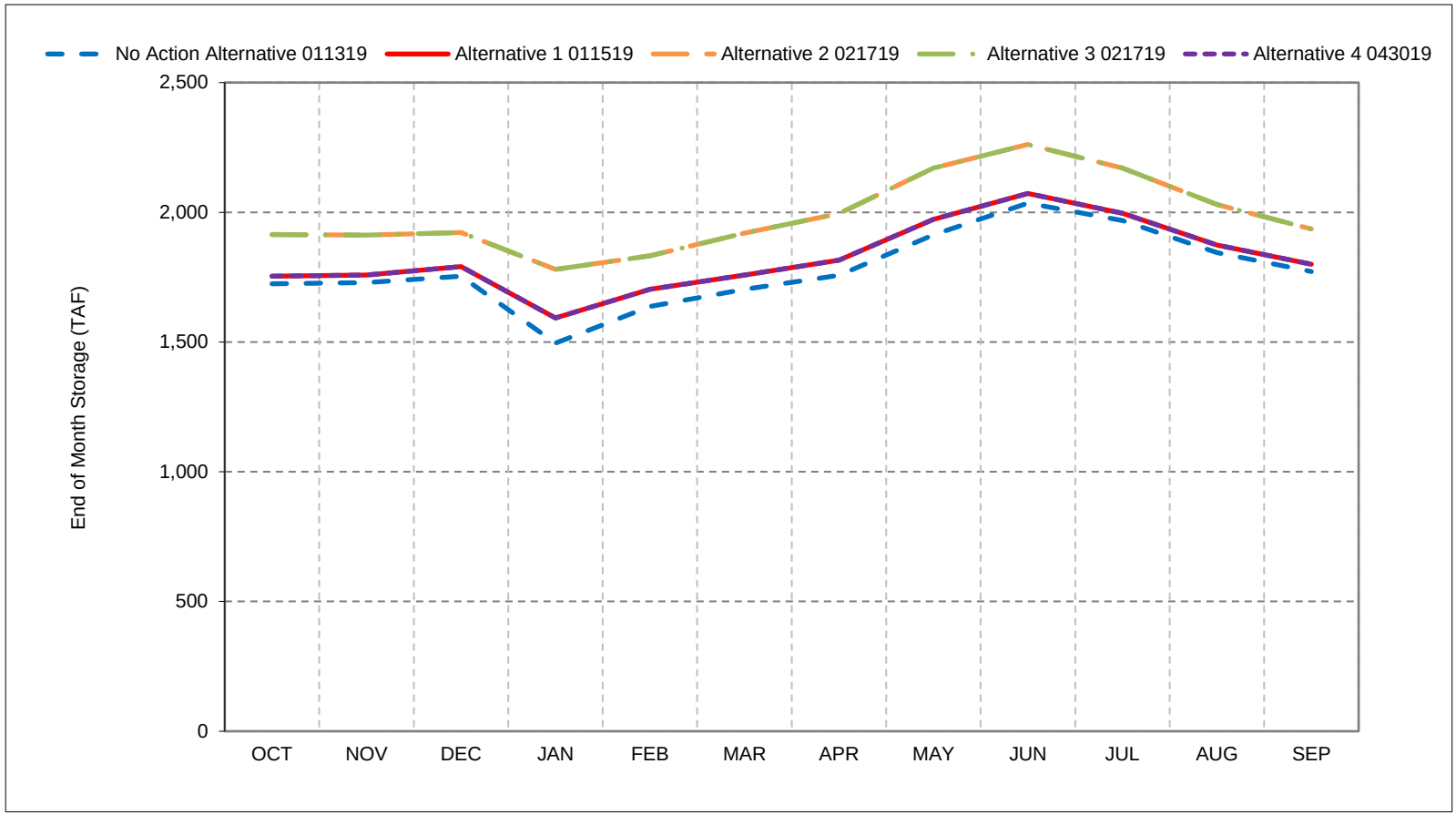
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-1. New Melones Storage, Long-Term Average Storage



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-2. New Melones Storage, Wet Year Average Storage



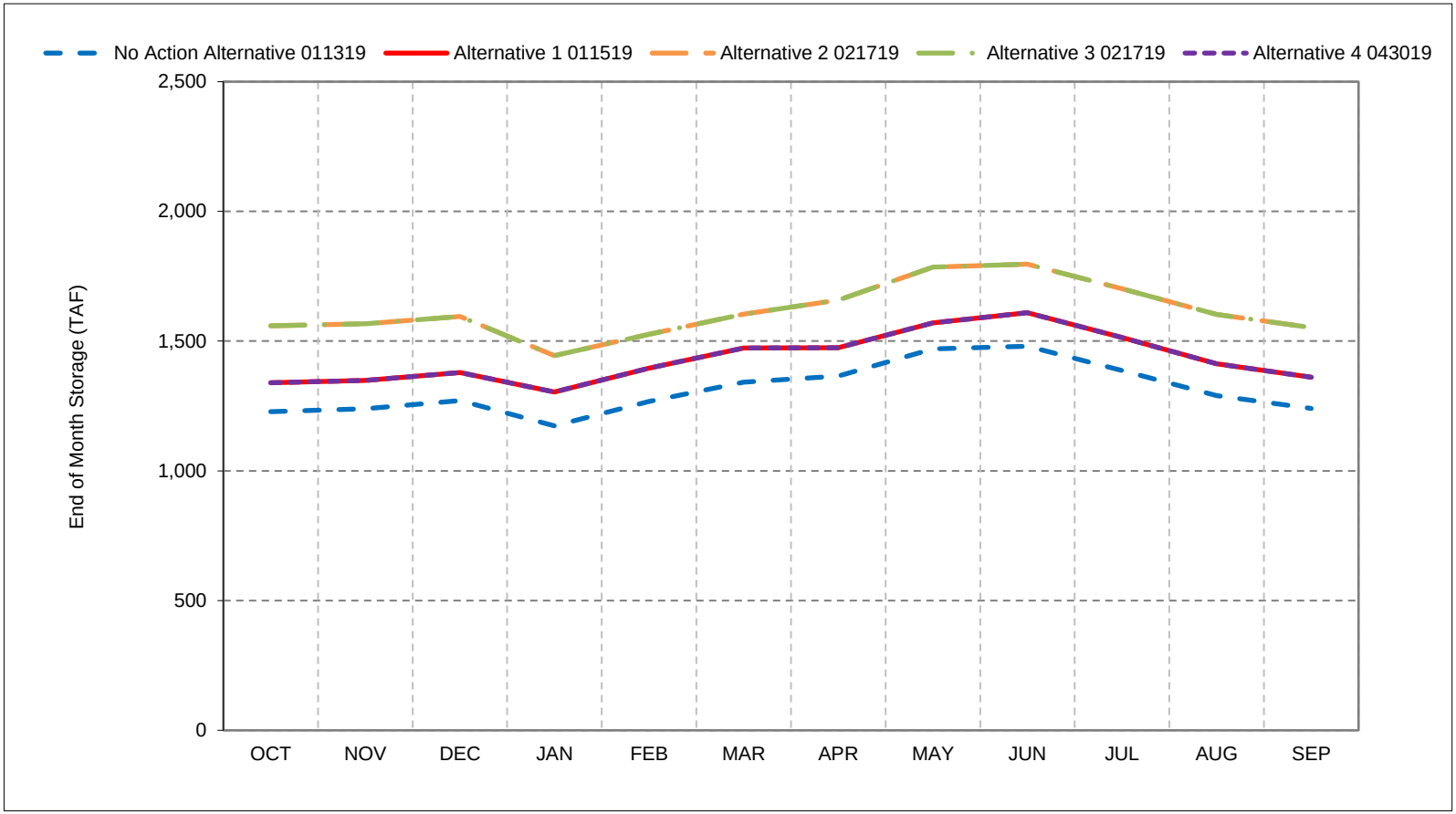
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-3. New Melones Storage, Above Normal Year Average Storage



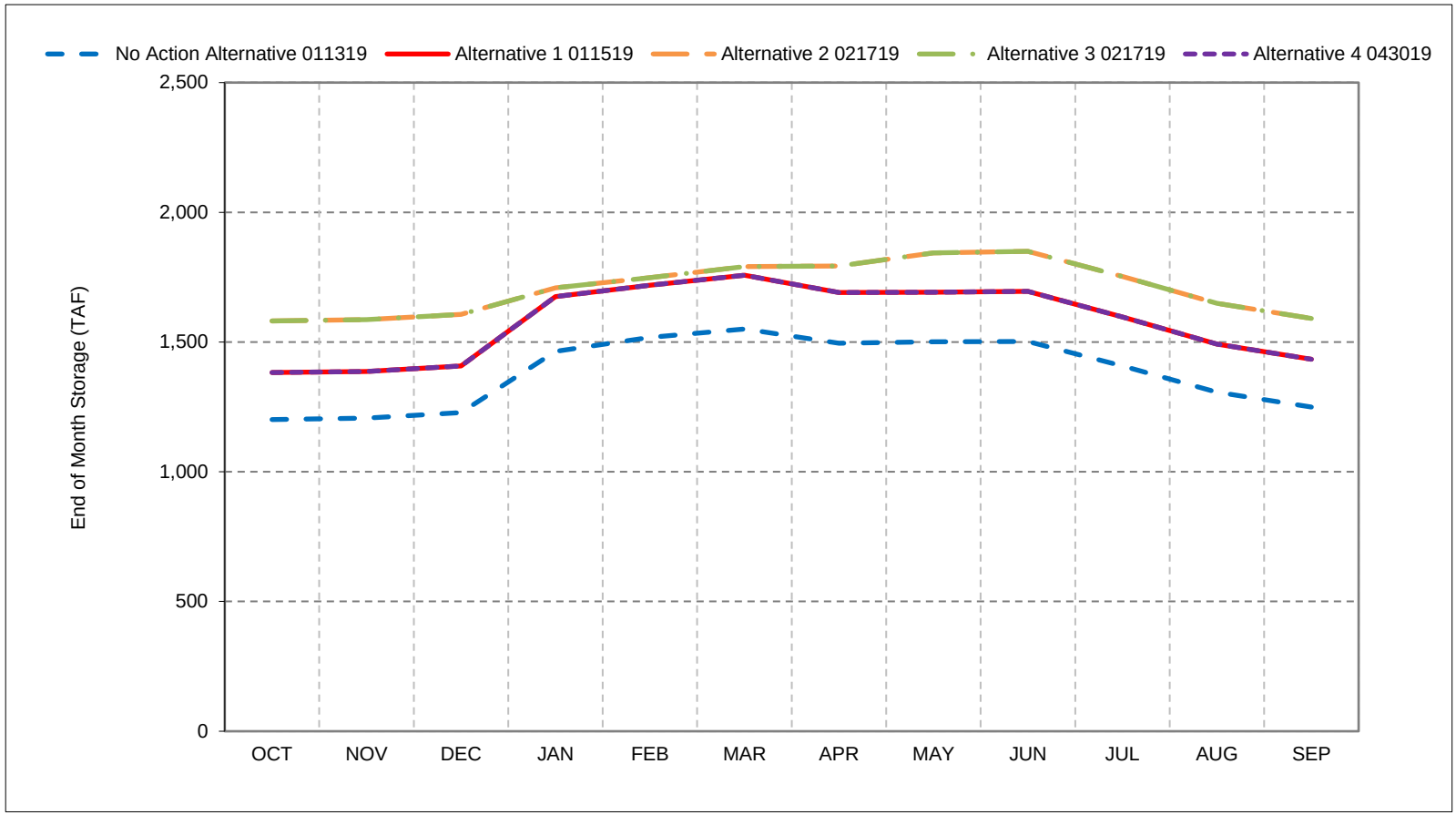
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

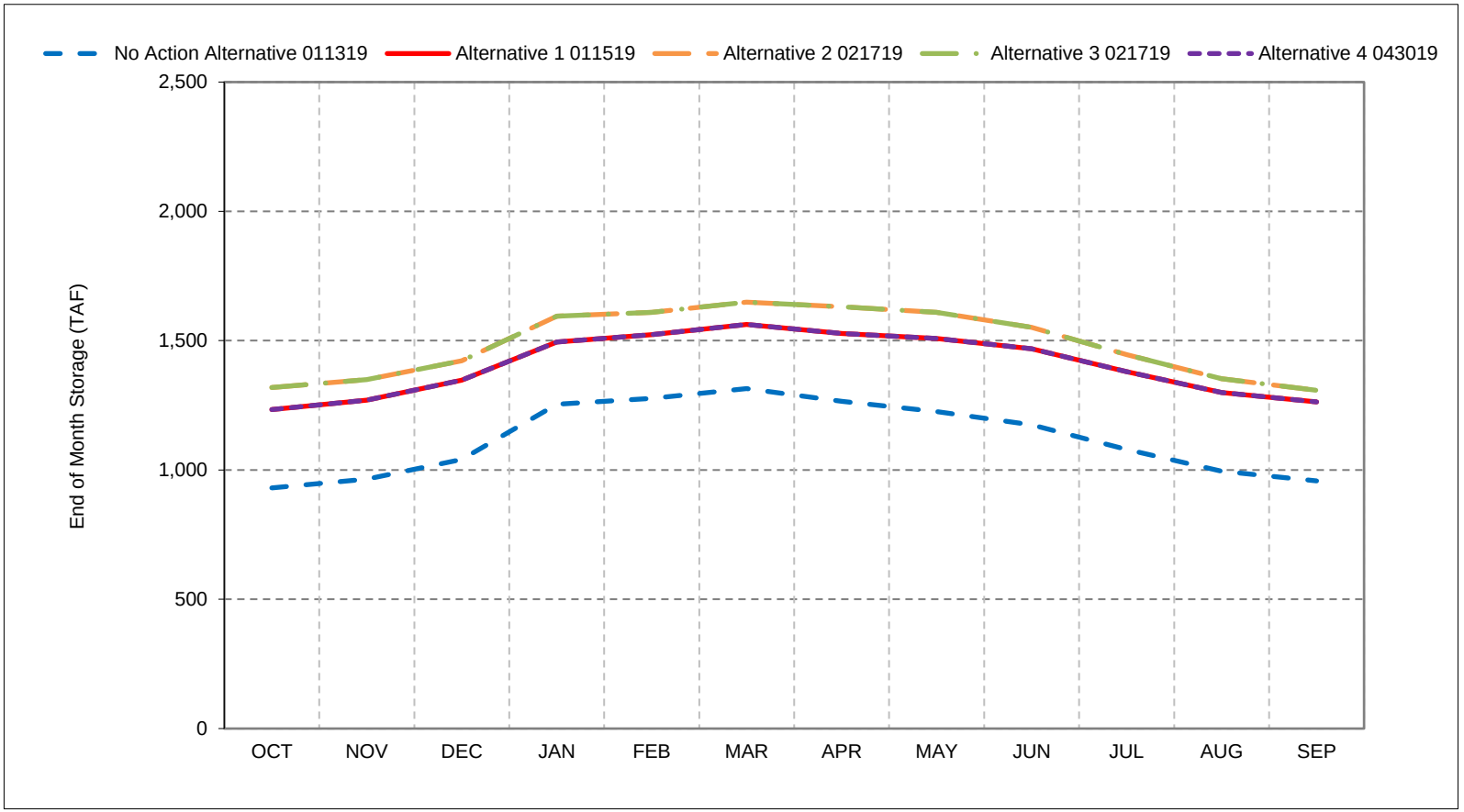
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-4. New Melones Storage, Below Normal Year Average Storage



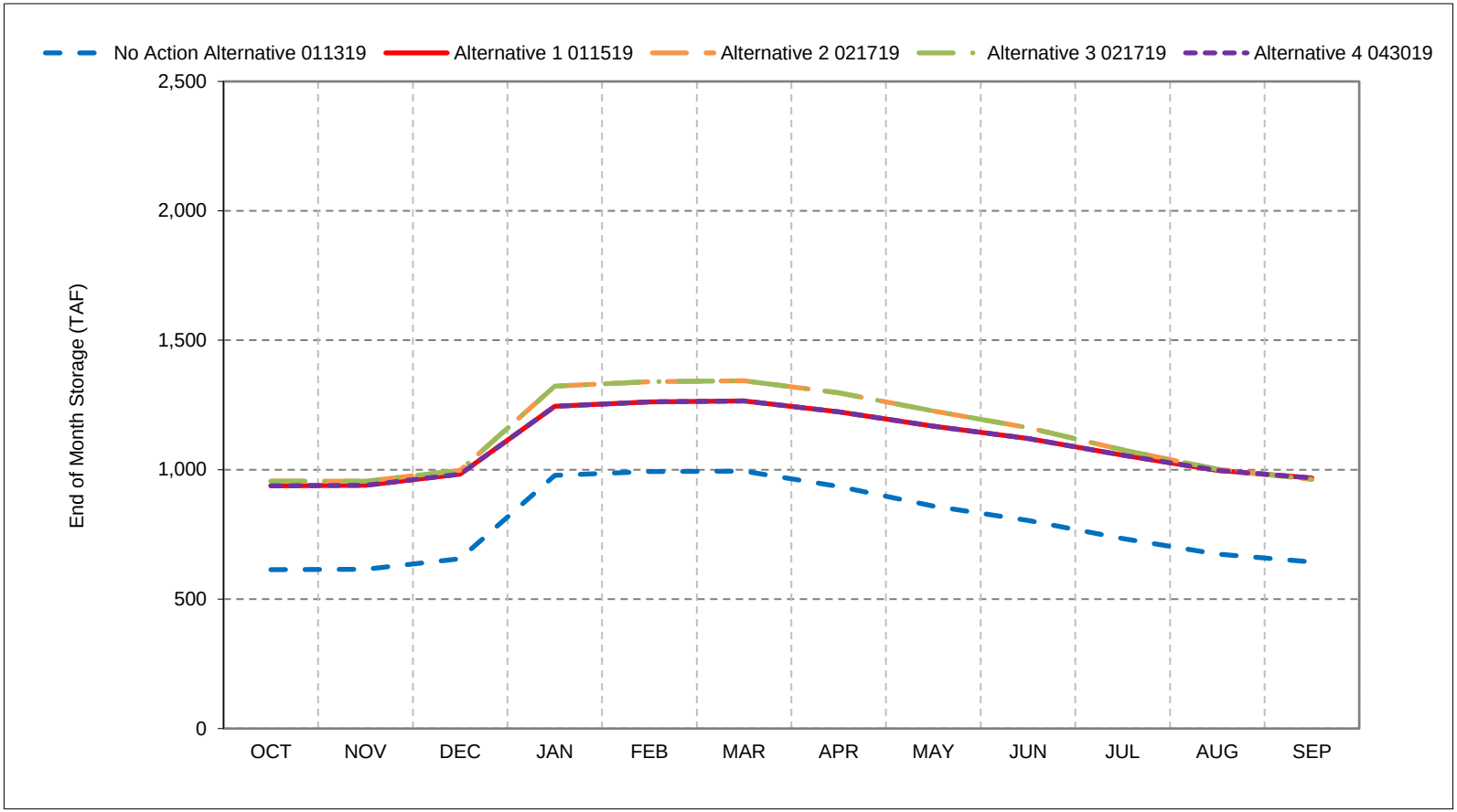
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-5. New Melones Storage, Dry Year Average Storage



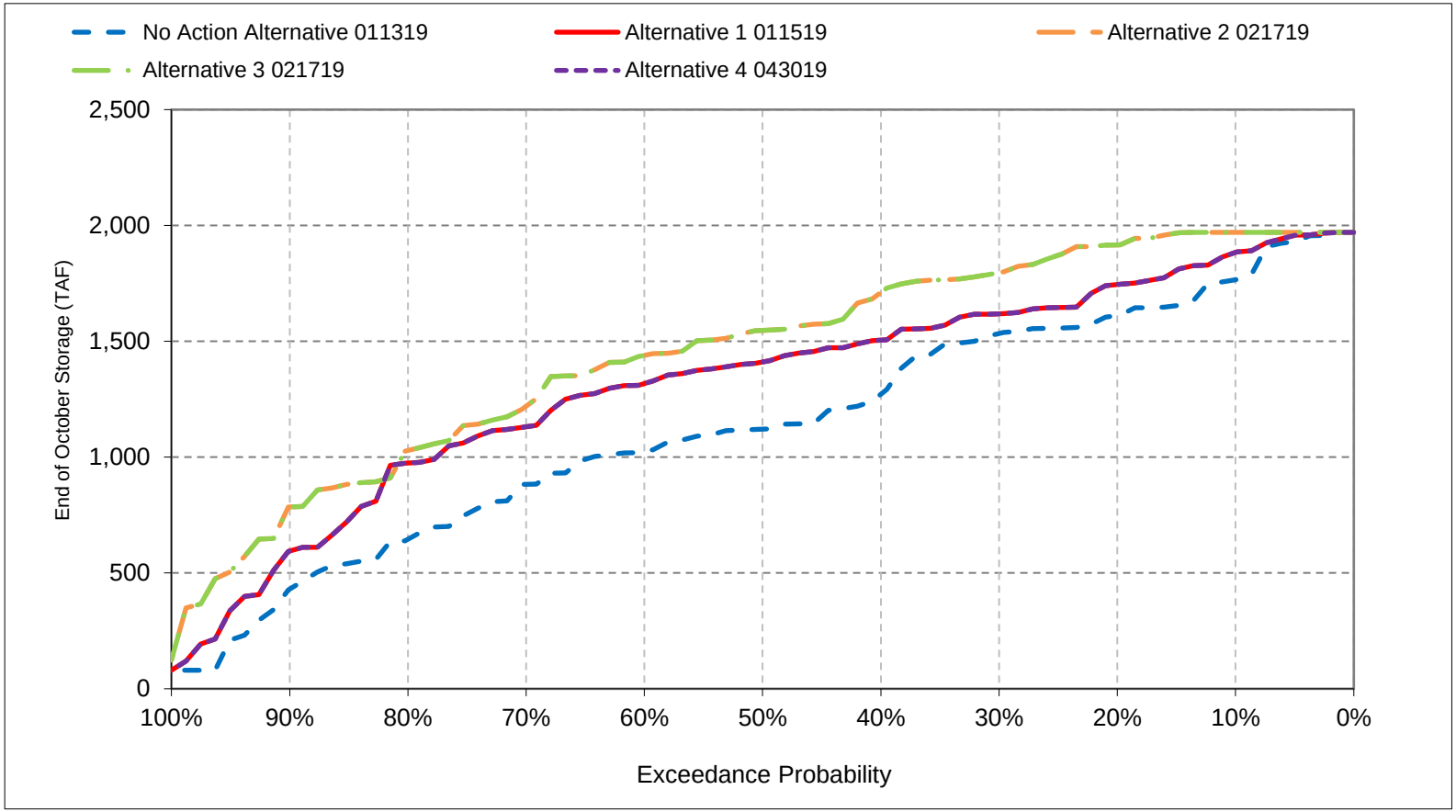
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-6. New Melones Storage, Critical Year Average Storage



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

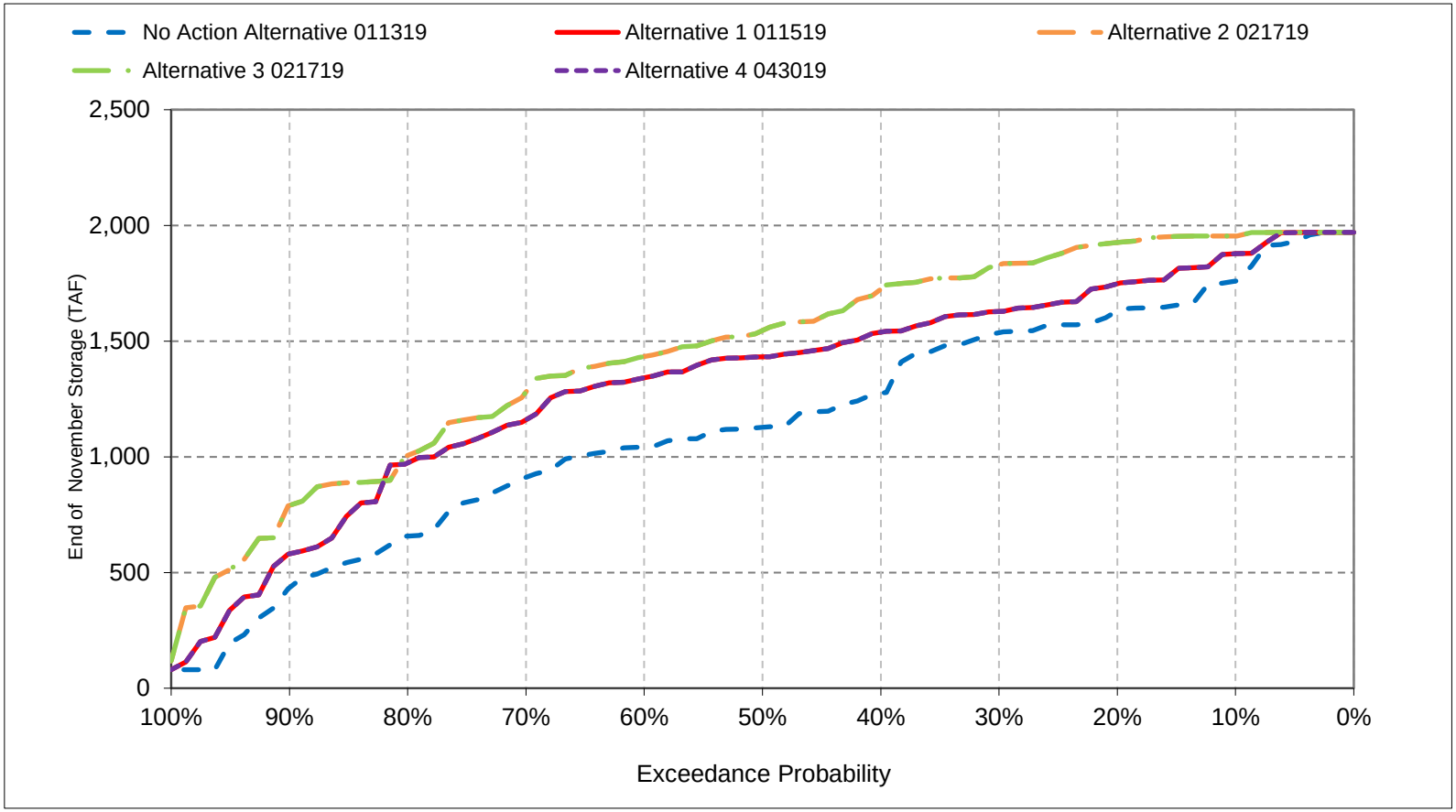
Figure 7-7. New Melones Storage, End of October Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

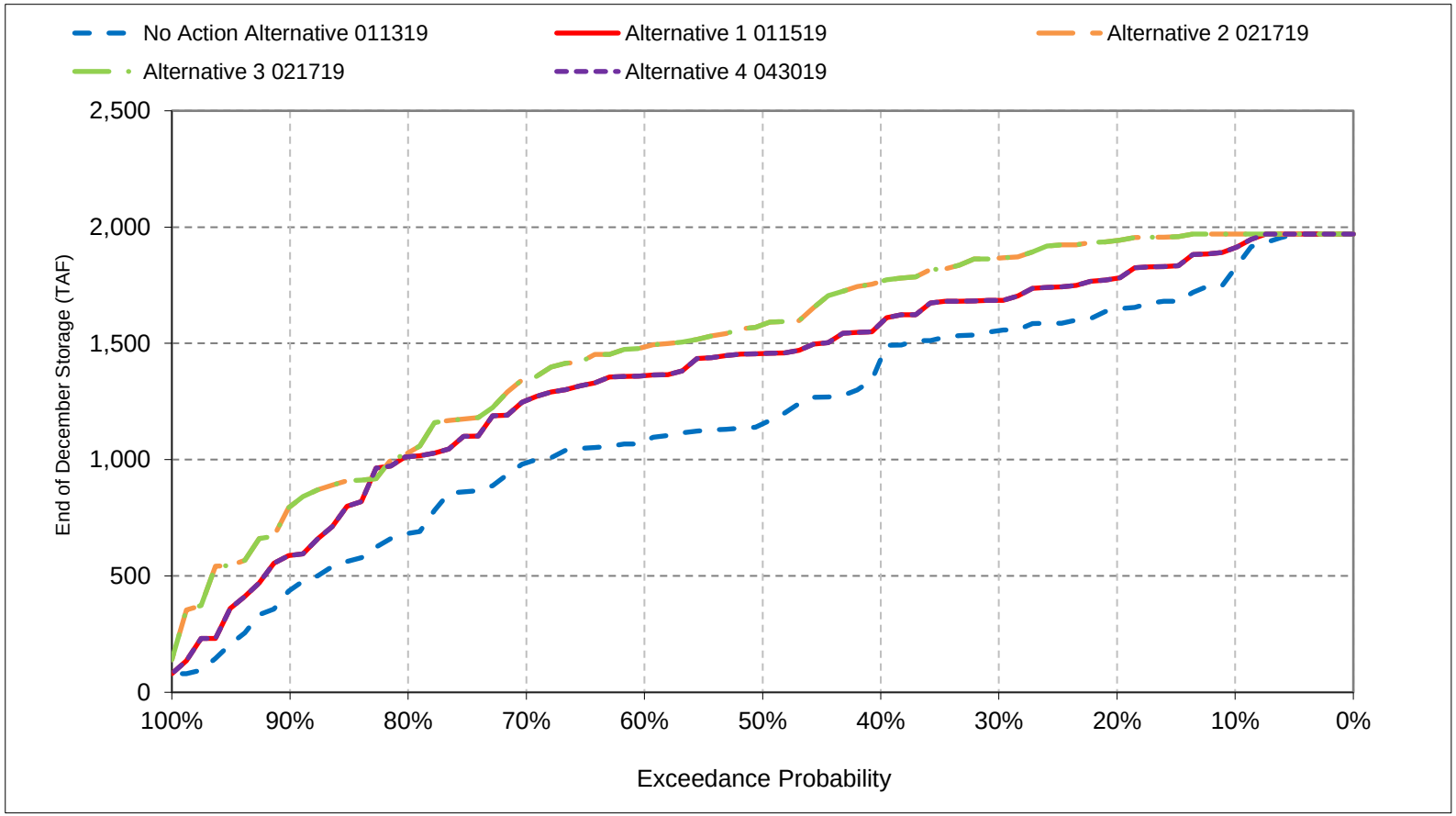
Figure 7-8. New Melones Storage, End of November Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

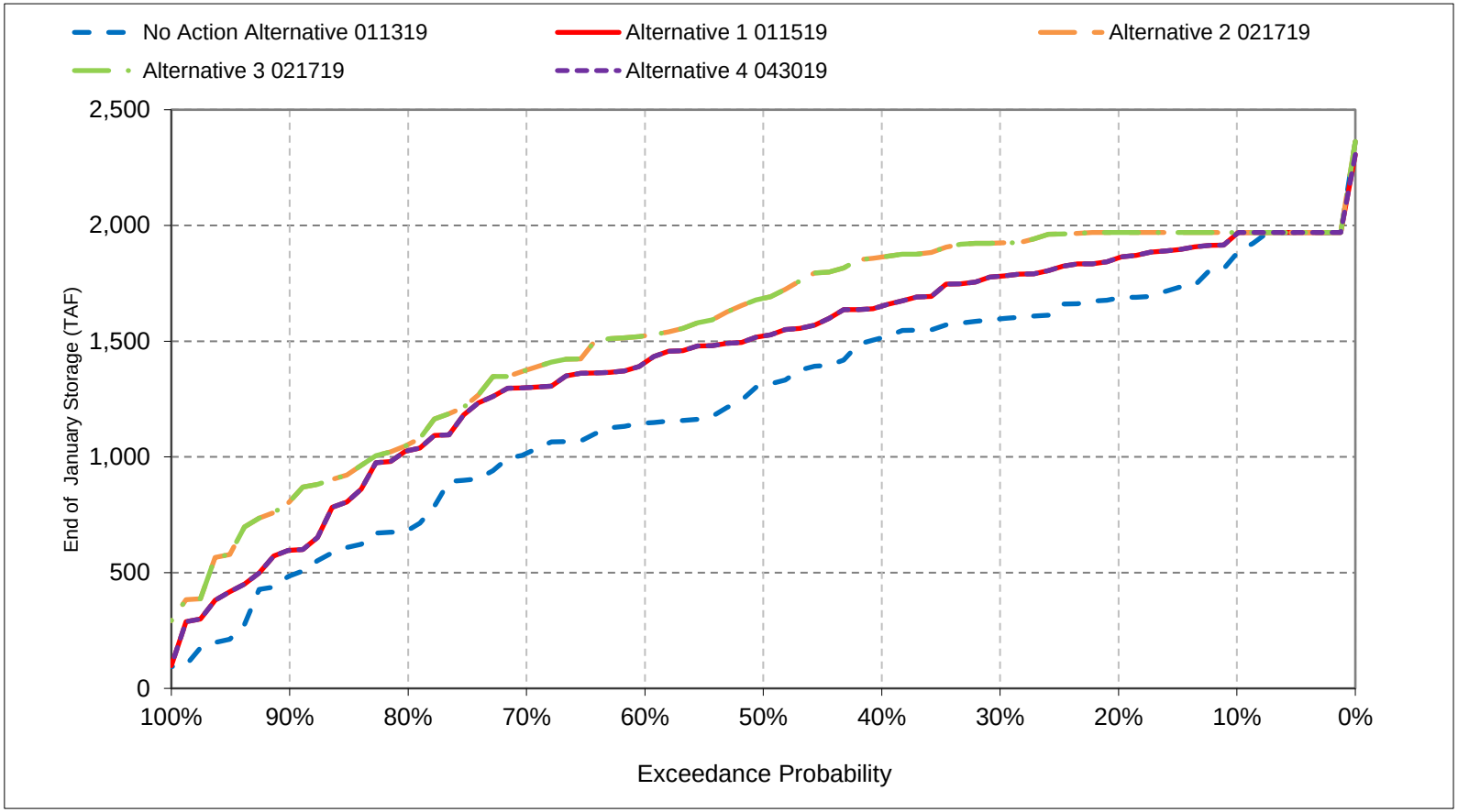
Figure 7-9. New Melones Storage, End of December Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

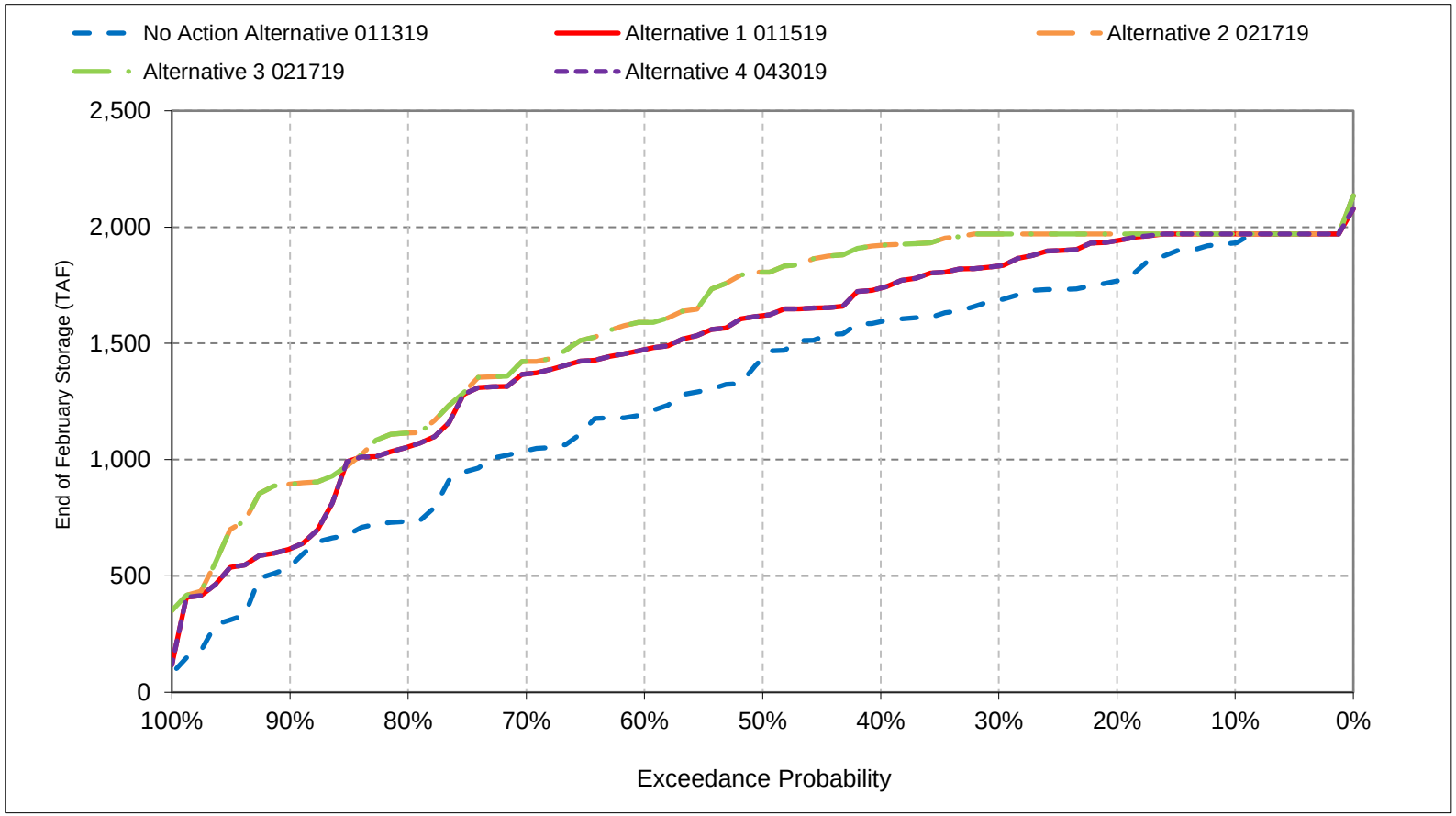
Figure 7-10. New Melones Storage, End of January Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

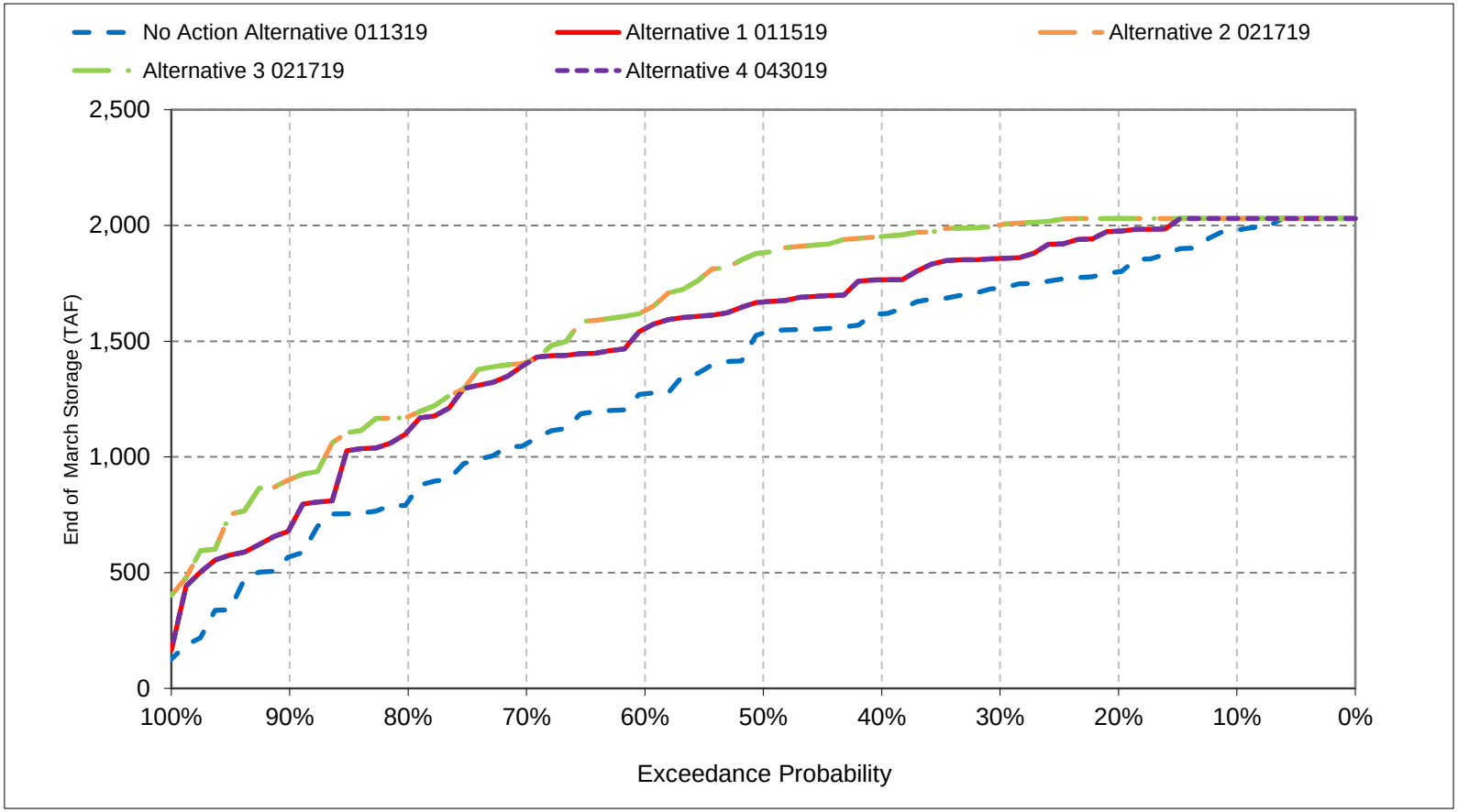
Figure 7-11. New Melones Storage, End of February Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

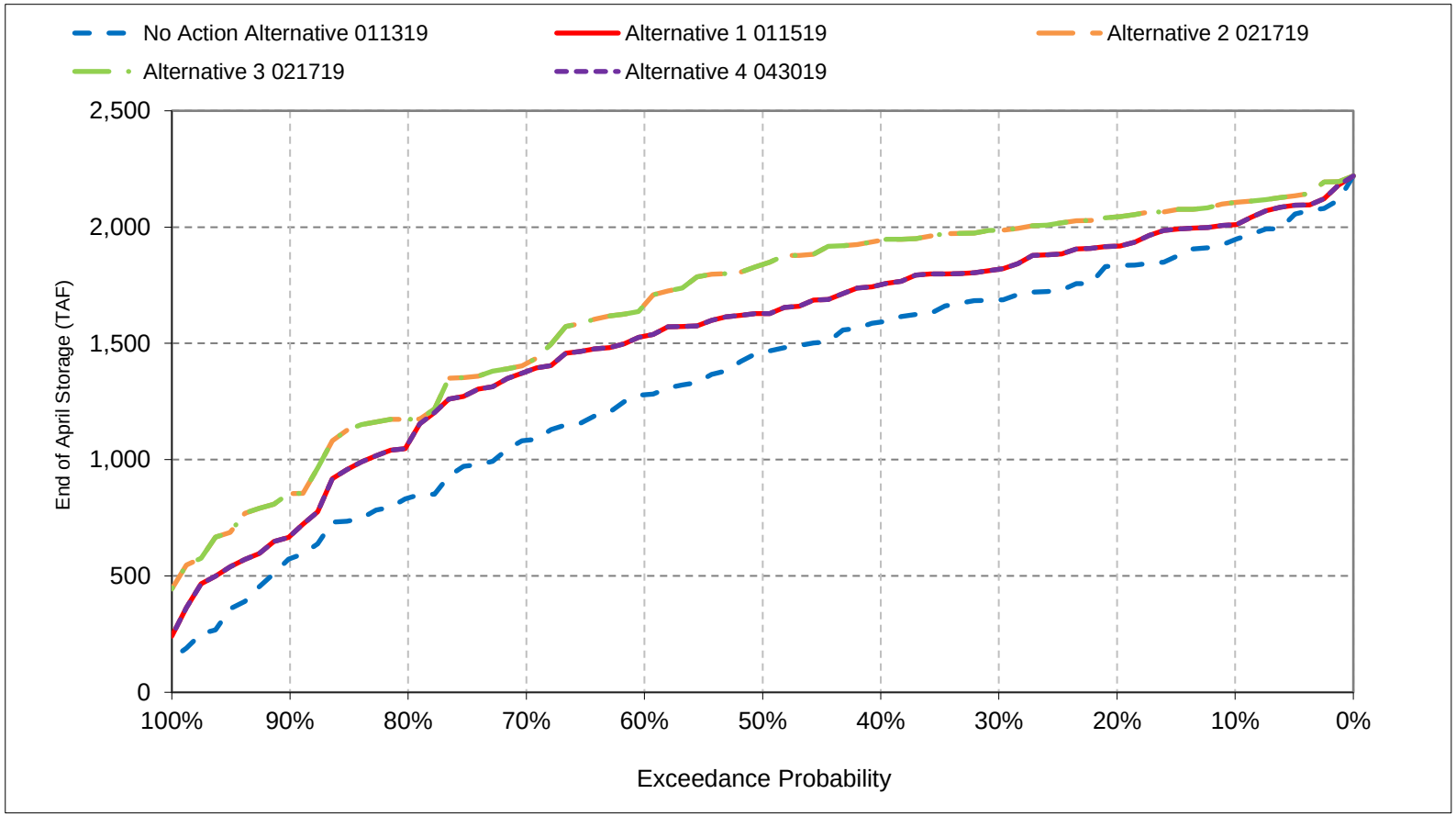
Figure 7-12. New Melones Storage, End of March Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

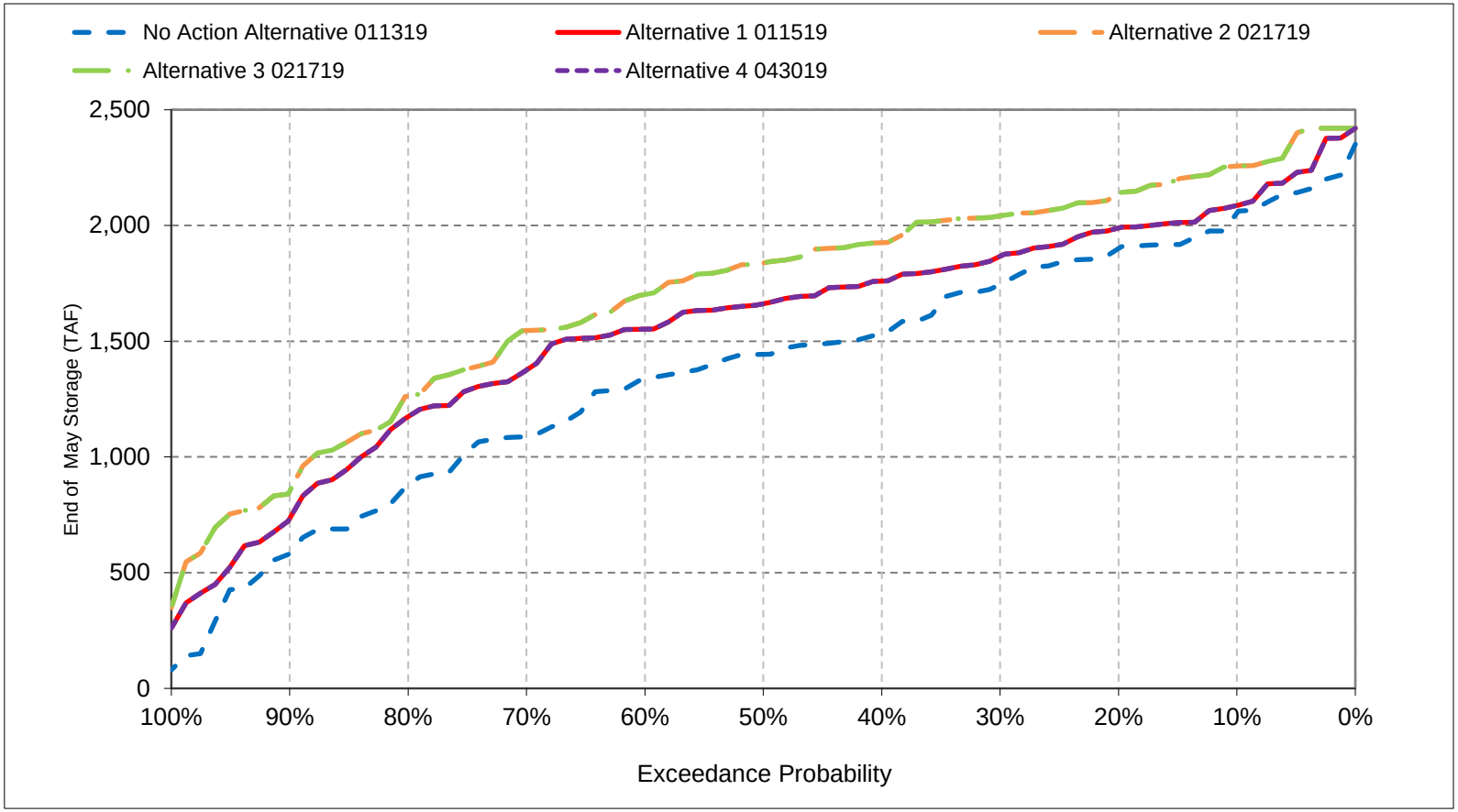
Figure 7-13. New Melones Storage, End of April Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

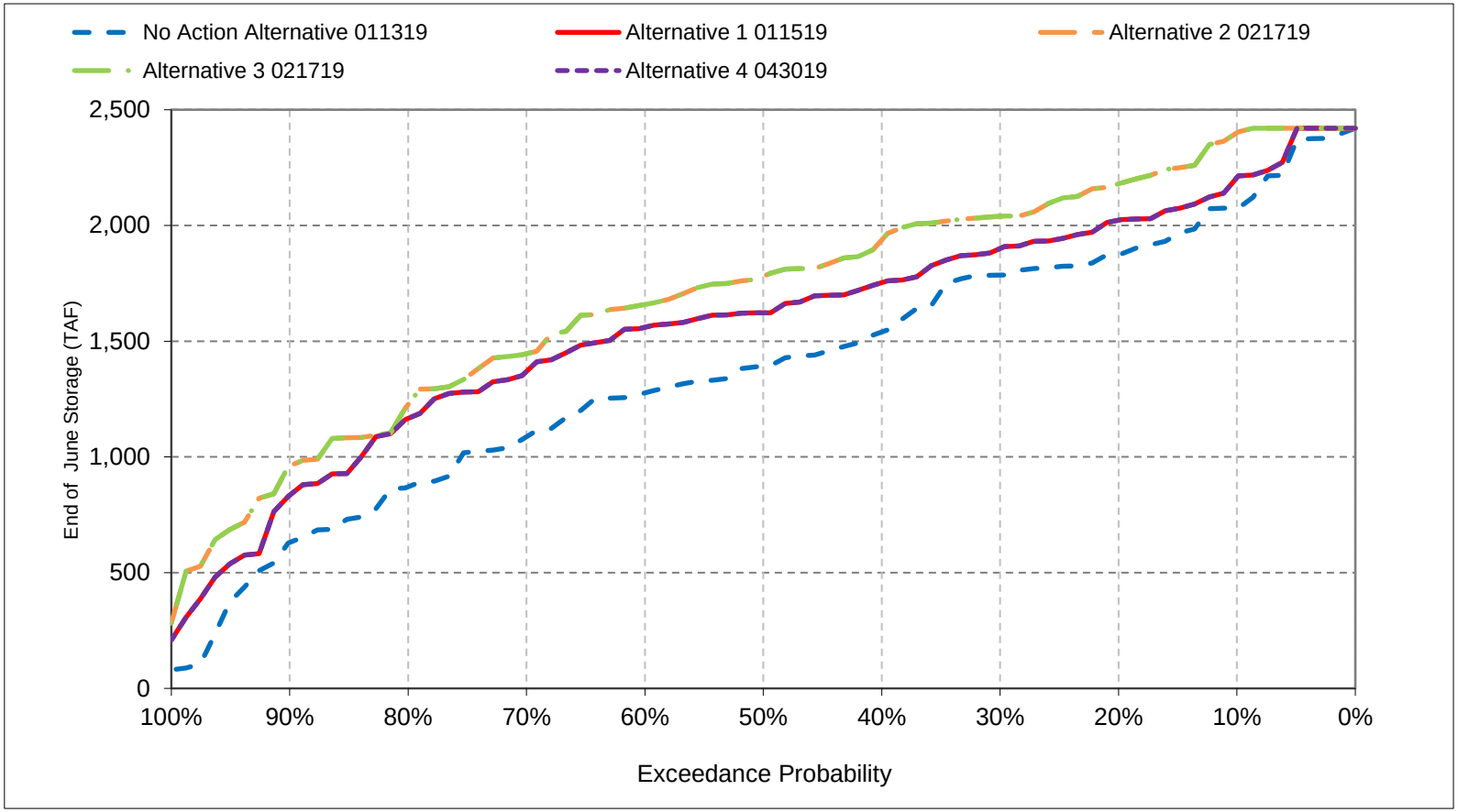
Figure 7-14. New Melones Storage, End of May Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

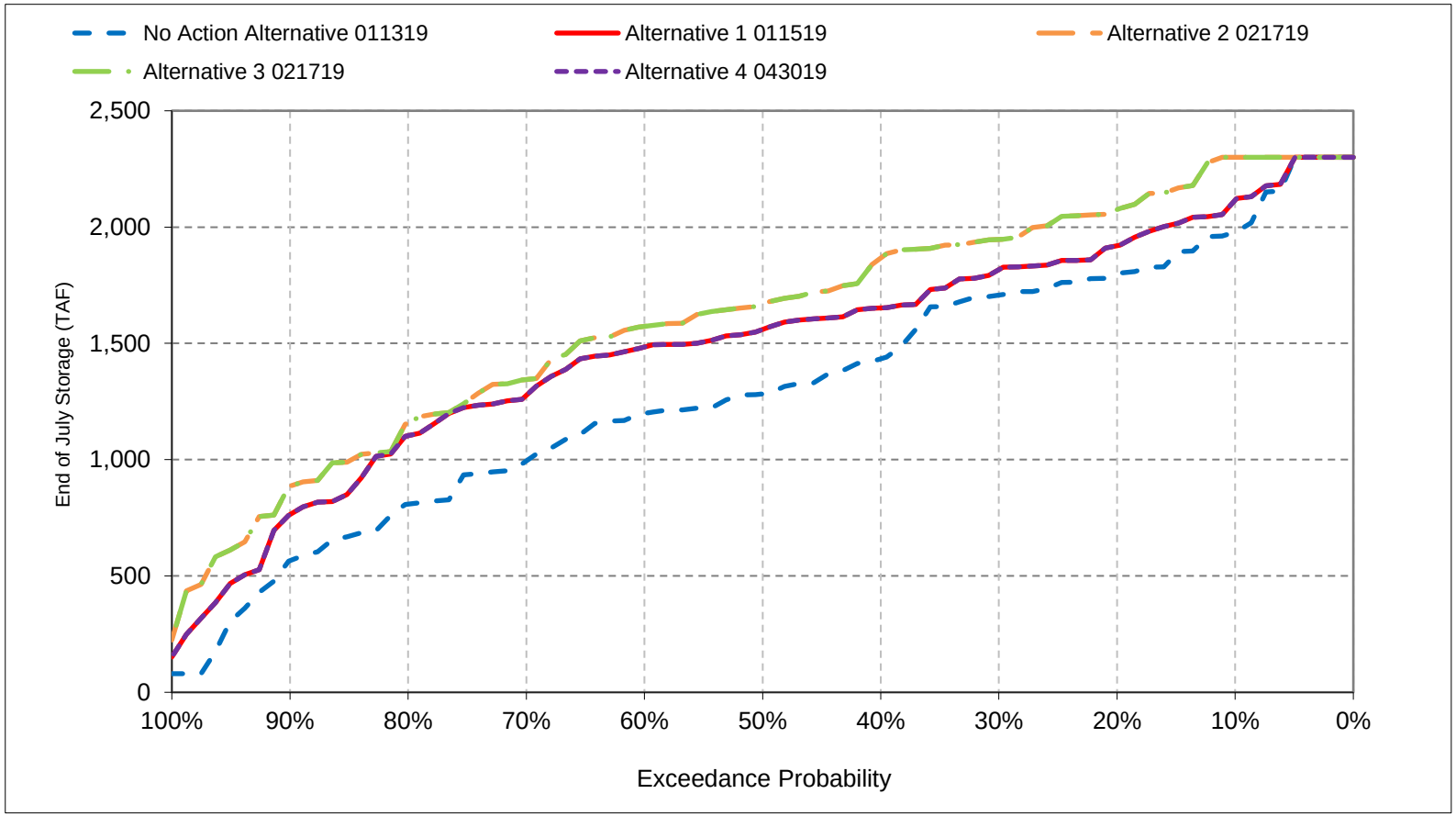
Figure 7-15. New Melones Storage, End of June Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

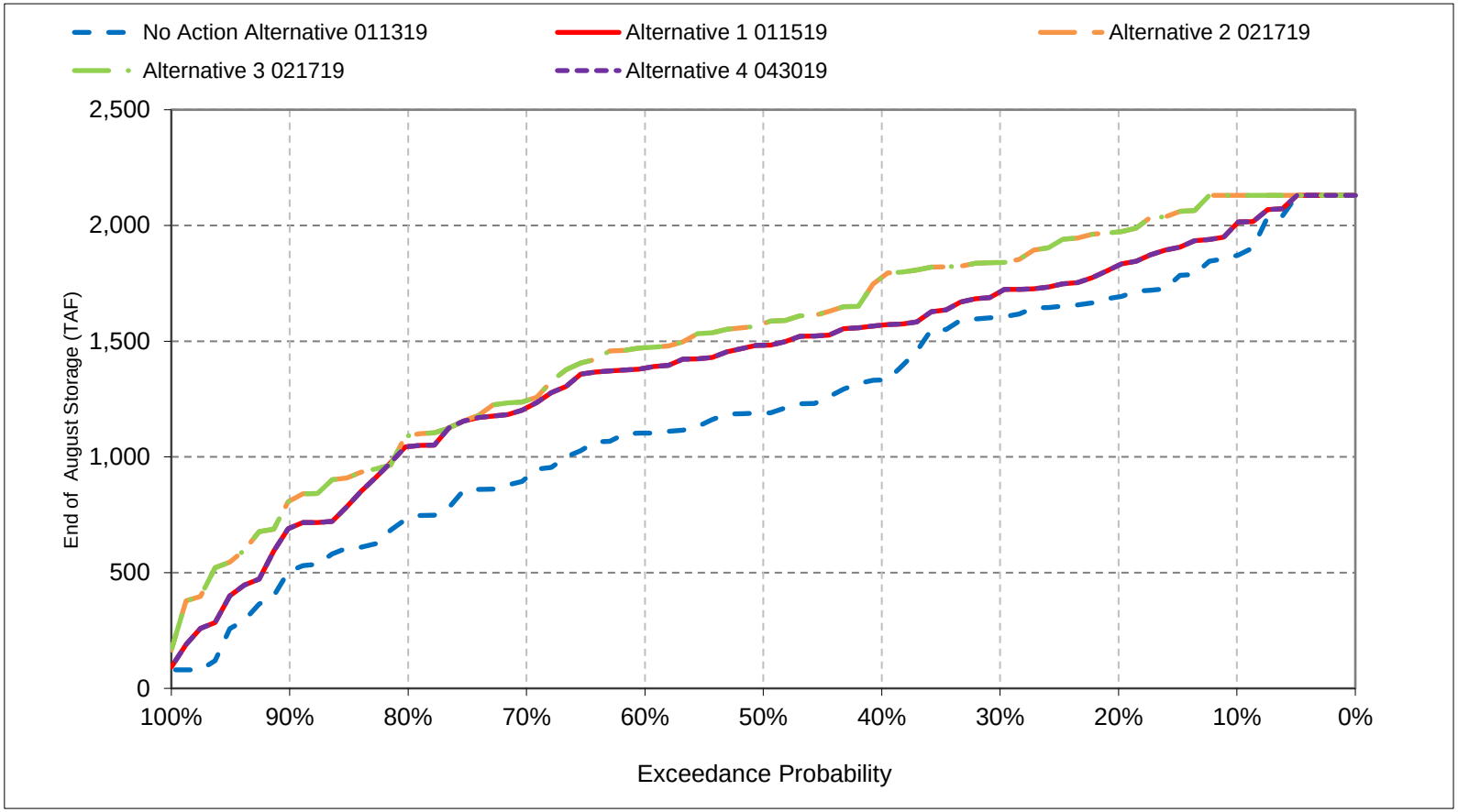
Figure 7-16. New Melones Storage, End of July Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

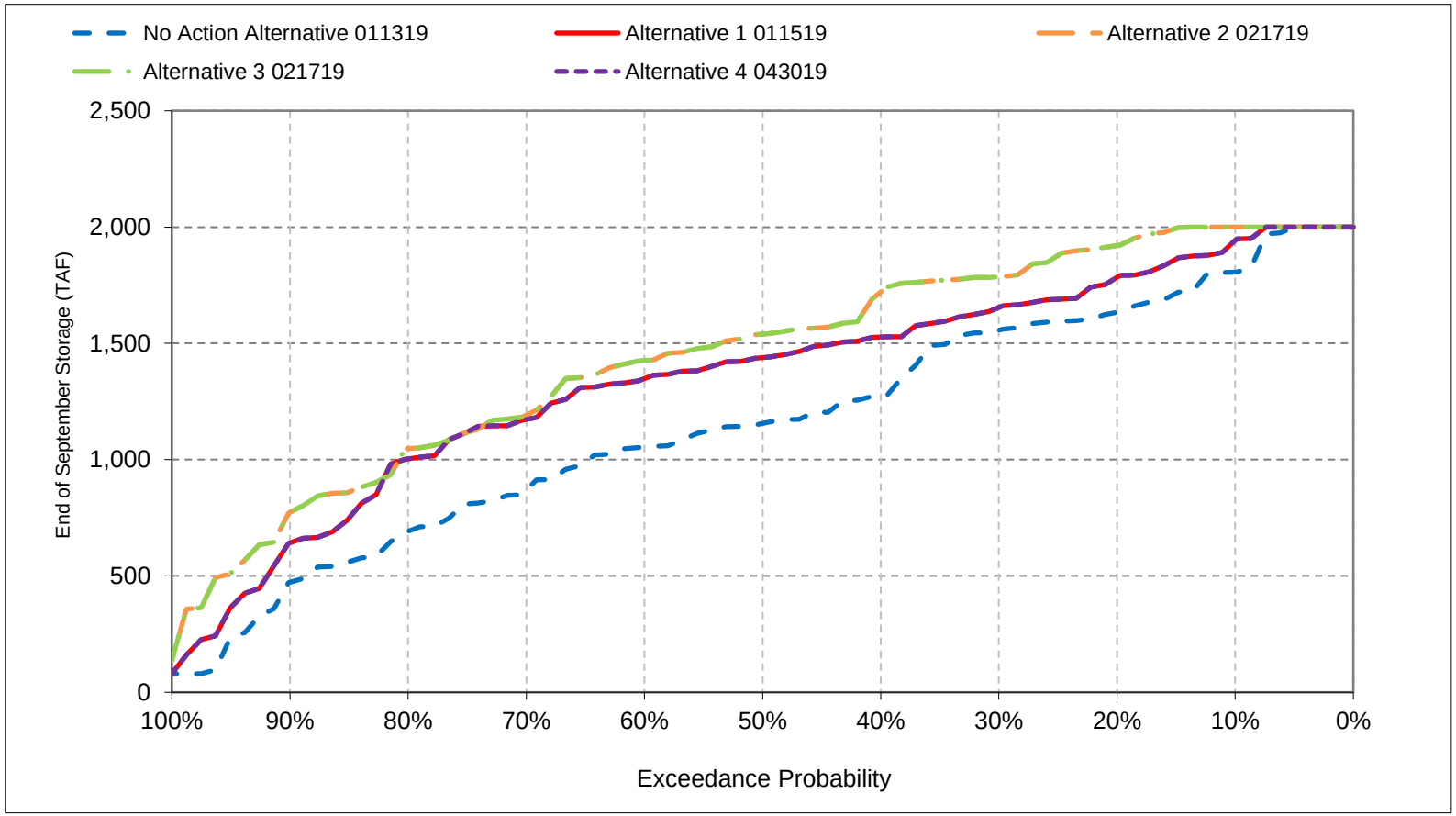
Figure 7-17. New Melones Storage, End of August Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-18. New Melones Storage, End of September Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 7a-1. New Melones Reservoir, End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,029	1,028	1,035	1,040	1,046	1,050	1,047	1,057	1,059	1,050	1,039	1,033
20%	1,013	1,015	1,017	1,021	1,029	1,032	1,036	1,043	1,040	1,032	1,021	1,016
30%	1,006	1,006	1,008	1,012	1,021	1,025	1,021	1,027	1,031	1,023	1,013	1,008
40%	975	976	995	1,004	1,012	1,014	1,011	1,006	1,006	995	983	976
50%	956	957	960	980	996	1,006	998	996	991	977	965	960
60%	943	945	950	959	966	976	976	984	976	966	953	947
70%	925	928	938	942	945	947	951	952	951	939	928	923
80%	879	881	886	887	897	912	918	924	923	912	897	888
90%	835	836	837	846	857	863	864	867	876	863	850	843
Long Term												
Full Simulation Period[a]	944	945	950	958	968	974	973	976	976	965	954	947
Water Year Types[b,c]												
Wet (23%)	1,024	1,025	1,027	996	1,012	1,021	1,026	1,042	1,054	1,047	1,036	1,029
Above Normal (24%)	963	965	969	945	959	970	976	991	994	983	971	965
Below Normal (10%)	963	963	966	990	998	1,001	996	998	999	988	976	969
Dry (16%)	924	929	939	967	970	975	969	965	960	947	935	929
Critical (27%)	858	859	867	922	925	927	917	903	893	881	870	864

Alternative 1 011519

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,041	1,040	1,044	1,049	1,050	1,055	1,053	1,060	1,070	1,062	1,053	1,047
20%	1,027	1,027	1,030	1,038	1,047	1,050	1,044	1,051	1,054	1,044	1,035	1,031
30%	1,014	1,015	1,021	1,031	1,036	1,038	1,034	1,039	1,043	1,034	1,024	1,018
40%	1,003	1,006	1,011	1,017	1,026	1,029	1,028	1,028	1,028	1,018	1,009	1,005
50%	993	995	998	1,004	1,014	1,019	1,015	1,018	1,015	1,008	1,000	996
60%	981	984	987	993	999	1,008	1,005	1,007	1,008	1,001	990	985
70%	957	961	973	979	988	992	989	989	988	976	968	963
80%	937	937	942	943	947	955	949	963	962	953	946	941
90%	868	865	867	869	873	888	884	897	917	903	888	878
Long Term												
Full Simulation Period[a]	970	972	977	984	992	997	996	1,000	1,001	992	981	975
Water Year Types[b,c]												
Wet (23%)	1,027	1,028	1,031	1,007	1,019	1,026	1,032	1,048	1,057	1,050	1,039	1,032
Above Normal (24%)	972	973	977	962	976	986	987	1,001	1,006	995	982	975
Below Normal (10%)	987	988	990	1,018	1,023	1,027	1,020	1,020	1,021	1,011	1,000	993
Dry (16%)	966	971	979	998	1,001	1,005	1,001	999	995	985	975	971
Critical (27%)	916	916	923	964	966	967	961	953	946	936	926	921

Alternative 1 011519 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	12	12	9	9	4	4	6	3	11	12	13	14
20%	13	12	13	17	17	18	8	9	14	12	14	15
30%	9	9	13	19	15	13	13	12	12	11	11	10
40%	27	30	16	14	14	15	16	23	22	22	26	29
50%	38	39	38	24	18	14	17	22	24	31	36	36
60%	38	39	37	34	34	32	29	24	32	35	37	38
70%	32	32	35	37	43	45	39	37	37	37	39	40
80%	58	55	55	57	50	43	31	39	38	41	49	52
90%	34	30	31	23	15	25	20	30	42	41	38	35
Long Term												
Full Simulation Period[a]	27	27	26	25	24	23	23	24	26	27	27	28
Water Year Types[b,c]												
Wet (23%)	3	3	4	11	7	6	6	6	4	3	3	3
Above Normal (24%)	9	9	9	17	16	16	11	9	12	12	11	11
Below Normal (10%)	24	24	24	28	26	25	24	22	22	22	24	25
Dry (16%)	42	41	40	31	31	30	32	34	35	38	40	42
Critical (27%)	57	57	56	41	41	40	44	49	53	55	56	57

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 7a-2. New Melones Reservoir, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,029	1,028	1,035	1,040	1,046	1,050	1,047	1,057	1,059	1,050	1,039	1,033
20%	1,013	1,015	1,017	1,021	1,029	1,032	1,036	1,043	1,040	1,032	1,021	1,016
30%	1,006	1,006	1,008	1,012	1,021	1,025	1,021	1,027	1,031	1,023	1,013	1,008
40%	975	976	995	1,004	1,012	1,014	1,011	1,006	1,006	995	983	976
50%	956	957	960	980	996	1,006	998	996	991	977	965	960
60%	943	945	950	959	966	976	976	984	976	966	953	947
70%	925	928	938	942	945	947	951	952	951	939	928	923
80%	879	881	886	887	897	912	918	924	923	912	897	888
90%	835	836	837	846	857	863	864	867	876	863	850	843
Long Term												
Full Simulation Period[a]	944	945	950	958	968	974	973	976	976	965	954	947
Water Year Types[b,c]												
Wet (23%)	1,024	1,025	1,027	996	1,012	1,021	1,026	1,042	1,054	1,047	1,036	1,029
Above Normal (24%)	963	965	969	945	959	970	976	991	994	983	971	965
Below Normal (10%)	963	963	966	990	998	1,001	996	998	999	988	976	969
Dry (16%)	924	929	939	967	970	975	969	965	960	947	935	929
Critical (27%)	858	859	867	922	925	927	917	903	893	881	870	864

Alternative 2 021719

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,050	1,048	1,050	1,050	1,050	1,055	1,061	1,074	1,086	1,078	1,063	1,052
20%	1,044	1,045	1,047	1,050	1,050	1,055	1,056	1,064	1,068	1,059	1,050	1,045
30%	1,032	1,035	1,039	1,045	1,050	1,052	1,051	1,056	1,055	1,047	1,036	1,031
40%	1,023	1,025	1,029	1,039	1,045	1,048	1,047	1,045	1,046	1,039	1,030	1,024
50%	1,007	1,007	1,010	1,021	1,033	1,041	1,036	1,036	1,030	1,019	1,010	1,006
60%	996	996	1,001	1,005	1,011	1,016	1,019	1,023	1,018	1,010	999	995
70%	969	977	985	989	994	993	993	1,007	997	985	972	965
80%	944	941	944	947	955	963	963	974	970	961	952	946
90%	907	908	910	912	926	927	921	920	935	925	912	905
Long Term												
Full Simulation Period[a]	988	989	993	999	1,005	1,010	1,012	1,017	1,016	1,006	995	988
Water Year Types[b,c]												
Wet (23%)	1,044	1,044	1,045	1,028	1,034	1,043	1,050	1,066	1,074	1,066	1,054	1,046
Above Normal (24%)	1,004	1,005	1,008	985	996	1,005	1,012	1,027	1,029	1,019	1,008	1,003
Below Normal (10%)	1,009	1,009	1,011	1,020	1,025	1,030	1,030	1,035	1,036	1,026	1,016	1,009
Dry (16%)	978	982	990	1,010	1,011	1,015	1,013	1,011	1,005	993	983	977
Critical (27%)	923	923	929	974	977	977	971	961	953	941	930	924

Alternative 2 021719 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	21	20	15	9	4	4	14	17	28	28	24	19
20%	31	30	30	29	20	22	20	21	27	26	28	29
30%	27	30	31	33	29	27	30	29	24	24	24	23
40%	48	49	34	35	33	34	35	39	40	44	47	49
50%	51	50	50	41	37	35	38	40	39	42	45	46
60%	53	50	50	46	45	40	43	39	42	44	46	48
70%	44	48	47	47	49	46	43	55	45	46	43	42
80%	65	59	57	60	58	51	45	50	46	49	55	58
90%	73	73	73	66	69	64	57	53	59	63	62	62
Long Term												
Full Simulation Period[a]	45	44	42	41	37	36	39	41	40	40	41	41
Water Year Types[b,c]												
Wet (23%)	20	19	17	32	22	23	24	24	21	19	18	17
Above Normal (24%)	41	40	39	40	36	34	35	36	35	36	38	38
Below Normal (10%)	46	46	45	30	28	28	34	37	37	38	40	41
Dry (16%)	54	53	51	43	42	41	45	46	46	46	48	48
Critical (27%)	65	64	62	52	51	51	54	58	60	60	60	60

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 7a-3. New Melones Reservoir, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,029	1,028	1,035	1,040	1,046	1,050	1,047	1,057	1,059	1,050	1,039	1,033
20%	1,013	1,015	1,017	1,021	1,029	1,032	1,036	1,043	1,040	1,032	1,021	1,016
30%	1,006	1,006	1,008	1,012	1,021	1,025	1,021	1,027	1,031	1,023	1,013	1,008
40%	975	976	995	1,004	1,012	1,014	1,011	1,006	1,006	995	983	976
50%	956	957	960	980	996	1,006	998	996	991	977	965	960
60%	943	945	950	959	966	976	976	984	976	966	953	947
70%	925	928	938	942	945	947	951	952	951	939	928	923
80%	879	881	886	887	897	912	918	924	923	912	897	888
90%	835	836	837	846	857	863	864	867	876	863	850	843
Long Term												
Full Simulation Period[a]	944	945	950	958	968	974	973	976	976	965	954	947
Water Year Types[b,c]												
Wet (23%)	1,024	1,025	1,027	996	1,012	1,021	1,026	1,042	1,054	1,047	1,036	1,029
Above Normal (24%)	963	965	969	945	959	970	976	991	994	983	971	965
Below Normal (10%)	963	963	966	990	998	1,001	996	998	999	988	976	969
Dry (16%)	924	929	939	967	970	975	969	965	960	947	935	929
Critical (27%)	858	859	867	922	925	927	917	903	893	881	870	864

Alternative 3 021719

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,050	1,048	1,050	1,050	1,050	1,055	1,061	1,074	1,086	1,078	1,063	1,052
20%	1,044	1,045	1,047	1,050	1,050	1,055	1,056	1,064	1,068	1,059	1,050	1,045
30%	1,032	1,035	1,039	1,045	1,050	1,052	1,051	1,056	1,055	1,047	1,036	1,031
40%	1,023	1,025	1,029	1,039	1,045	1,048	1,047	1,045	1,046	1,039	1,030	1,024
50%	1,007	1,007	1,010	1,021	1,033	1,041	1,036	1,036	1,030	1,019	1,010	1,006
60%	996	996	1,001	1,005	1,011	1,015	1,019	1,023	1,018	1,010	999	995
70%	969	977	985	989	994	993	993	1,007	997	985	972	965
80%	944	941	944	947	955	963	963	974	970	961	952	946
90%	907	908	910	912	926	927	921	920	935	925	912	905
Long Term												
Full Simulation Period[a]	988	989	993	999	1,005	1,010	1,012	1,017	1,016	1,006	995	988
Water Year Types[b,c]												
Wet (23%)	1,044	1,044	1,045	1,028	1,034	1,043	1,050	1,066	1,074	1,066	1,054	1,046
Above Normal (24%)	1,004	1,005	1,008	985	996	1,005	1,012	1,027	1,029	1,019	1,008	1,003
Below Normal (10%)	1,009	1,009	1,011	1,020	1,025	1,030	1,030	1,035	1,036	1,026	1,016	1,009
Dry (16%)	978	982	990	1,010	1,011	1,015	1,013	1,011	1,005	993	983	977
Critical (27%)	923	923	929	974	977	977	971	961	953	941	930	924

Alternative 3 021719 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	21	20	15	9	4	4	14	17	28	28	24	19
20%	31	30	30	29	20	22	20	21	27	26	28	29
30%	27	30	31	33	29	27	30	29	24	24	24	23
40%	48	49	34	35	33	34	35	39	40	44	47	49
50%	51	50	50	41	37	35	38	40	39	42	45	46
60%	53	50	50	46	45	40	43	39	42	44	46	48
70%	44	48	47	47	49	46	43	55	45	46	43	42
80%	65	59	57	60	58	51	45	50	46	49	55	58
90%	73	73	73	66	69	64	57	53	59	63	62	62
Long Term												
Full Simulation Period[a]	45	44	42	41	37	36	39	41	40	40	41	41
Water Year Types[b,c]												
Wet (23%)	20	19	17	32	22	23	24	24	21	19	18	17
Above Normal (24%)	41	40	39	40	36	34	35	36	35	36	38	38
Below Normal (10%)	46	46	45	30	28	28	34	37	37	38	40	41
Dry (16%)	54	53	51	43	42	41	45	46	46	46	48	48
Critical (27%)	65	64	62	52	51	51	54	58	60	60	60	60

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 7a-4. New Melones Reservoir, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,029	1,028	1,035	1,040	1,046	1,050	1,047	1,057	1,059	1,050	1,039	1,033
20%	1,013	1,015	1,017	1,021	1,029	1,032	1,036	1,043	1,040	1,032	1,021	1,016
30%	1,006	1,006	1,008	1,012	1,021	1,025	1,021	1,027	1,031	1,023	1,013	1,008
40%	975	976	995	1,004	1,012	1,014	1,011	1,006	1,006	995	983	976
50%	956	957	960	980	996	1,006	998	996	991	977	965	960
60%	943	945	950	959	966	976	976	984	976	966	953	947
70%	925	928	938	942	945	947	951	952	951	939	928	923
80%	879	881	886	887	897	912	918	924	923	912	897	888
90%	835	836	837	846	857	863	864	867	876	863	850	843
Long Term												
Full Simulation Period[a]	944	945	950	958	968	974	973	976	976	965	954	947
Water Year Types[b,c]												
Wet (23%)	1,024	1,025	1,027	996	1,012	1,021	1,026	1,042	1,054	1,047	1,036	1,029
Above Normal (24%)	963	965	969	945	959	970	976	991	994	983	971	965
Below Normal (10%)	963	963	966	990	998	1,001	996	998	999	988	976	969
Dry (16%)	924	929	939	967	970	975	969	965	960	947	935	929
Critical (27%)	858	859	867	922	925	927	917	903	893	881	870	864

Alternative 4 043019

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,041	1,040	1,044	1,049	1,050	1,055	1,053	1,060	1,070	1,062	1,053	1,047
20%	1,027	1,027	1,030	1,038	1,047	1,050	1,044	1,051	1,054	1,044	1,035	1,031
30%	1,014	1,015	1,021	1,031	1,036	1,038	1,034	1,039	1,043	1,034	1,024	1,018
40%	1,003	1,006	1,011	1,017	1,026	1,029	1,028	1,028	1,028	1,018	1,009	1,005
50%	993	995	998	1,004	1,014	1,019	1,015	1,018	1,015	1,008	1,000	996
60%	981	984	987	993	999	1,008	1,005	1,007	1,008	1,001	990	985
70%	957	961	973	979	988	992	989	989	988	976	968	963
80%	937	937	942	943	947	955	949	963	962	953	946	941
90%	868	865	867	869	873	888	884	897	917	903	888	878
Long Term												
Full Simulation Period[a]	970	972	977	984	992	997	996	1,000	1,001	992	981	975
Water Year Types[b,c]												
Wet (23%)	1,027	1,028	1,031	1,007	1,019	1,026	1,032	1,048	1,057	1,050	1,039	1,032
Above Normal (24%)	972	973	977	962	976	986	987	1,001	1,006	995	982	975
Below Normal (10%)	987	988	990	1,018	1,023	1,027	1,020	1,020	1,021	1,011	1,000	993
Dry (16%)	966	971	979	998	1,001	1,005	1,001	999	995	985	975	971
Critical (27%)	916	916	923	964	966	967	961	953	946	936	926	921

Alternative 4 043019 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	12	12	9	9	4	4	6	3	11	12	13	14
20%	13	12	13	17	17	18	8	9	14	12	14	15
30%	9	9	13	19	15	13	13	12	12	11	11	10
40%	27	30	16	14	14	15	16	23	22	22	26	29
50%	38	39	38	24	18	14	17	22	24	31	36	36
60%	38	39	37	34	34	32	29	24	32	35	37	38
70%	32	32	35	37	43	45	39	37	37	37	39	40
80%	58	55	55	57	50	43	31	39	38	41	49	52
90%	34	30	31	23	15	25	20	30	42	41	38	35
Long Term												
Full Simulation Period[a]	27	27	26	25	24	23	23	24	26	27	27	28
Water Year Types[b,c]												
Wet (23%)	3	3	4	11	7	6	6	6	4	3	3	3
Above Normal (24%)	9	9	9	17	16	16	11	9	12	12	11	11
Below Normal (10%)	24	24	24	28	26	25	24	22	22	22	24	25
Dry (16%)	42	41	40	31	31	30	32	34	35	38	40	42
Critical (27%)	57	57	56	41	41	40	44	49	53	55	56	57

a Based on the 82-year simulation period.

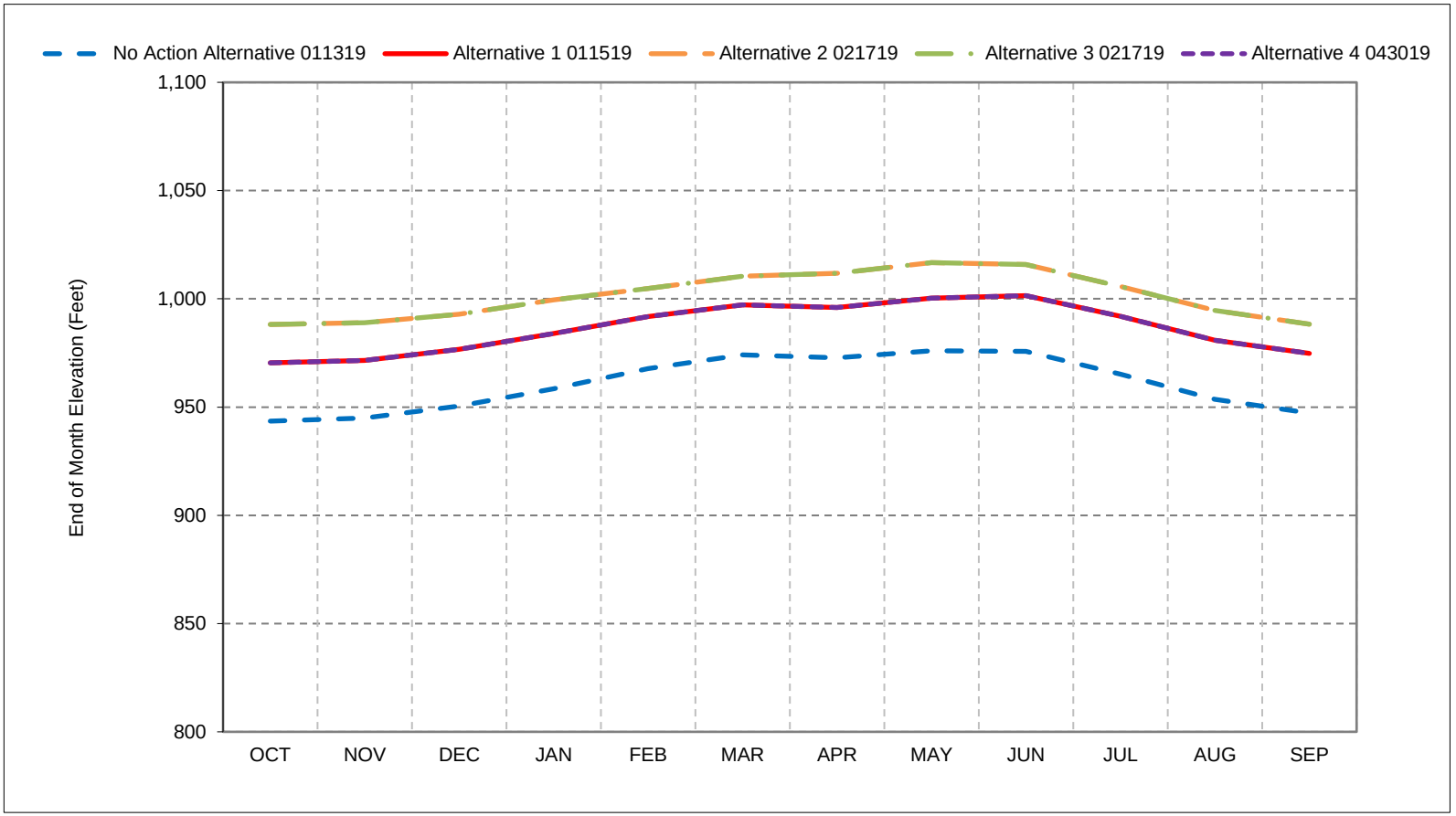
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 7a-1. New Melones Reservoir, Long-Term Average Elevation



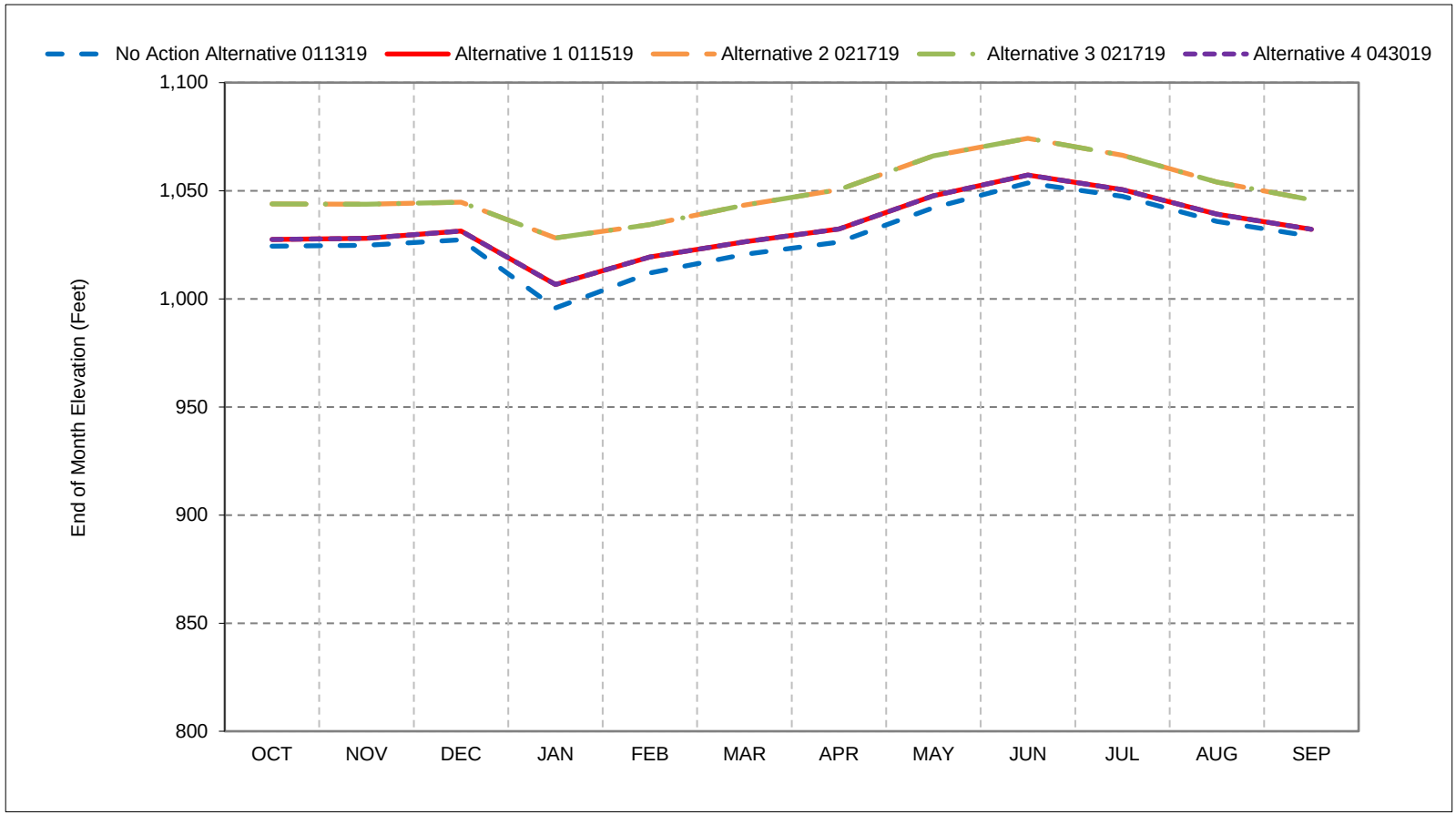
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

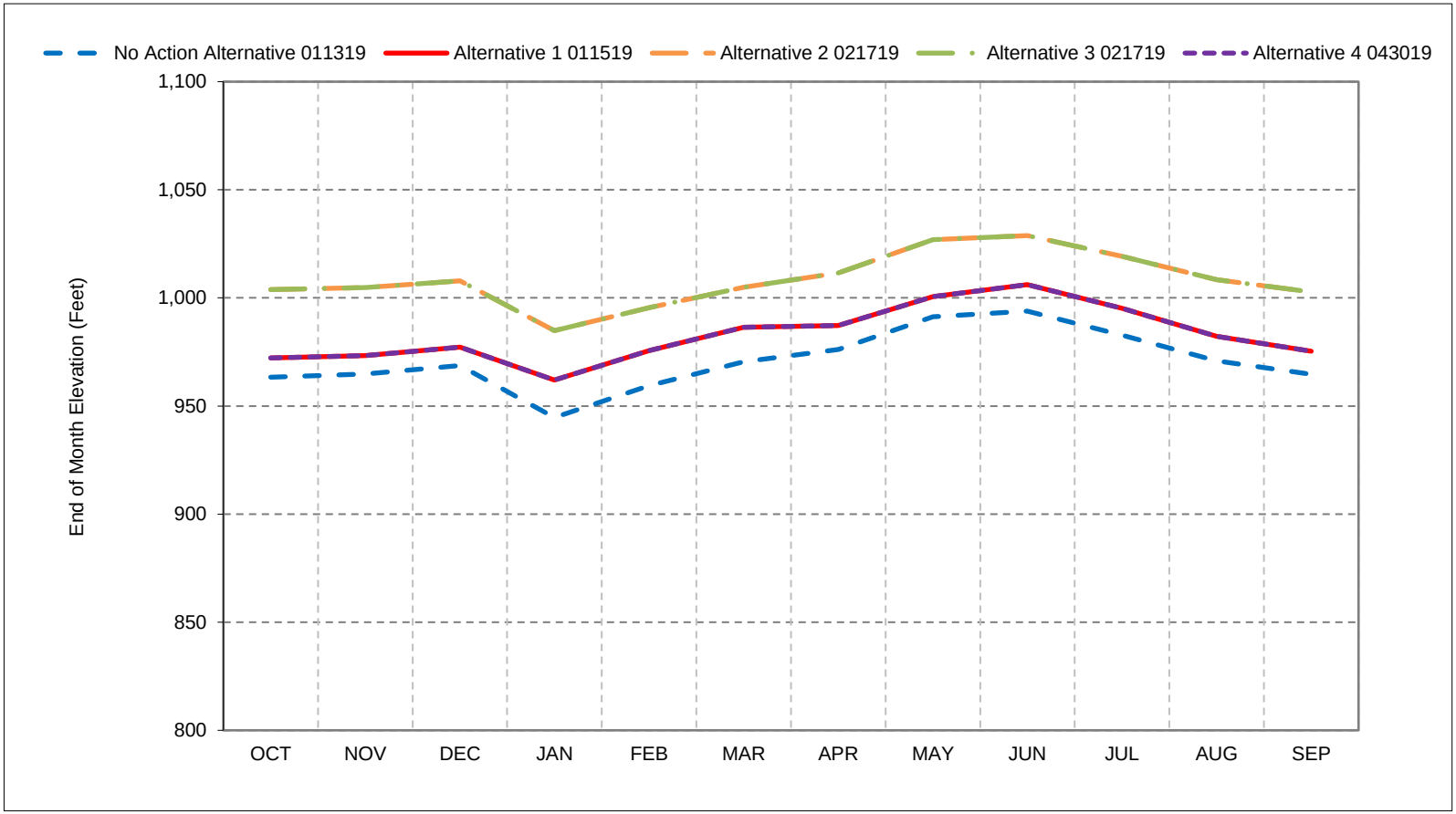
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7a-2. New Melones Reservoir, Wet Year Average Elevation



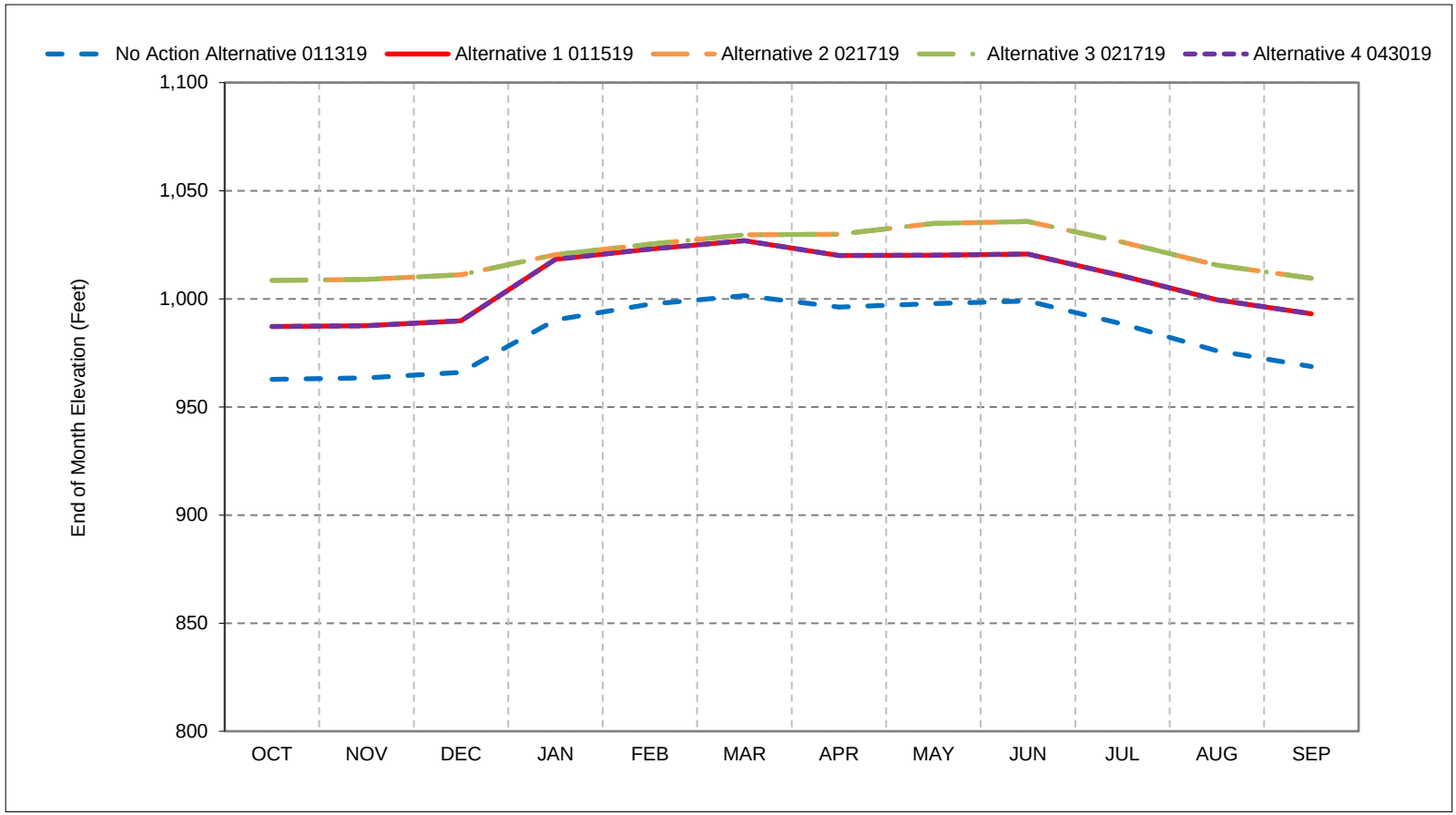
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7a-3. New Melones Reservoir, Above Normal Year Average Elevation



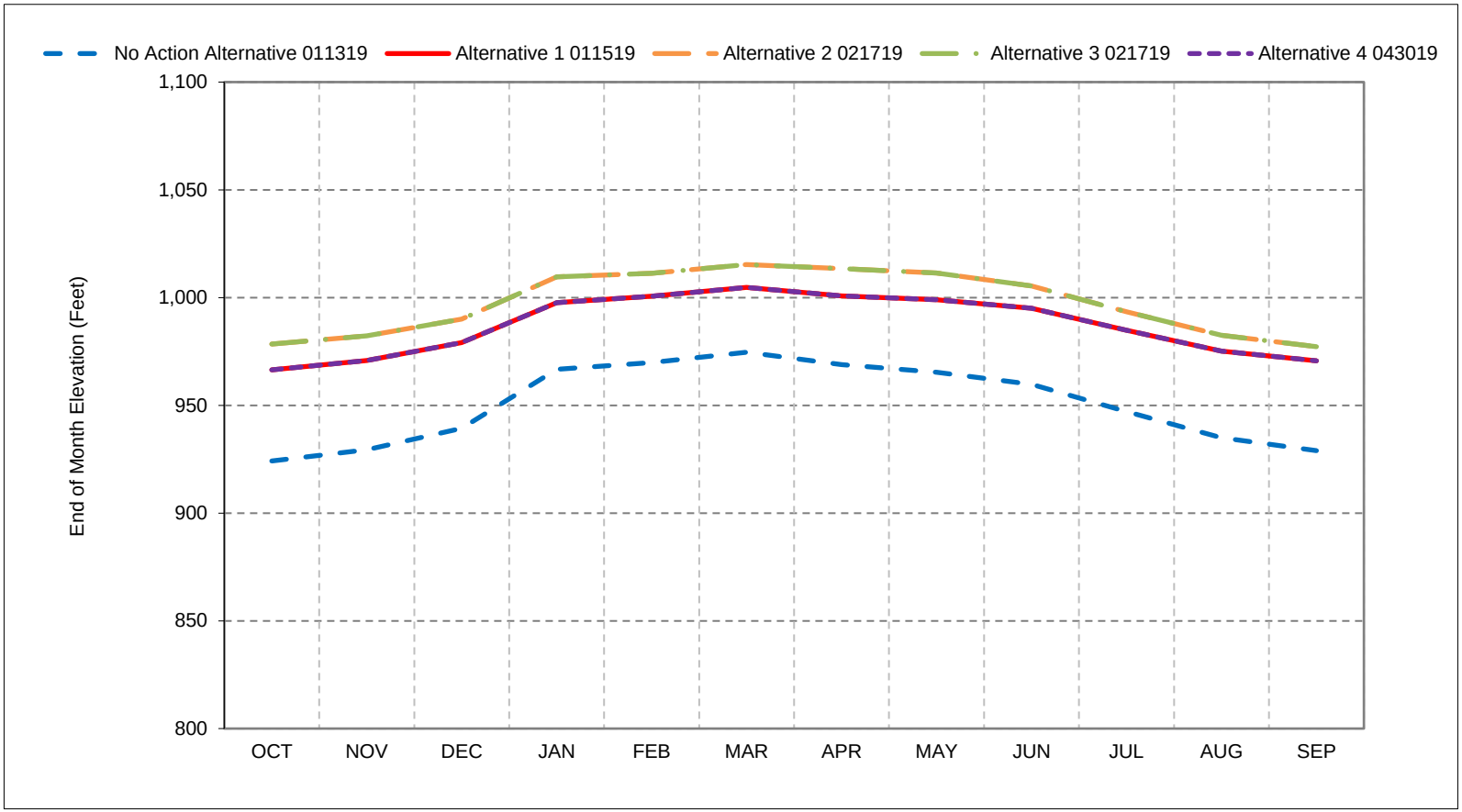
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7a-4. New Melones Reservoir, Below Normal Year Average Elevation



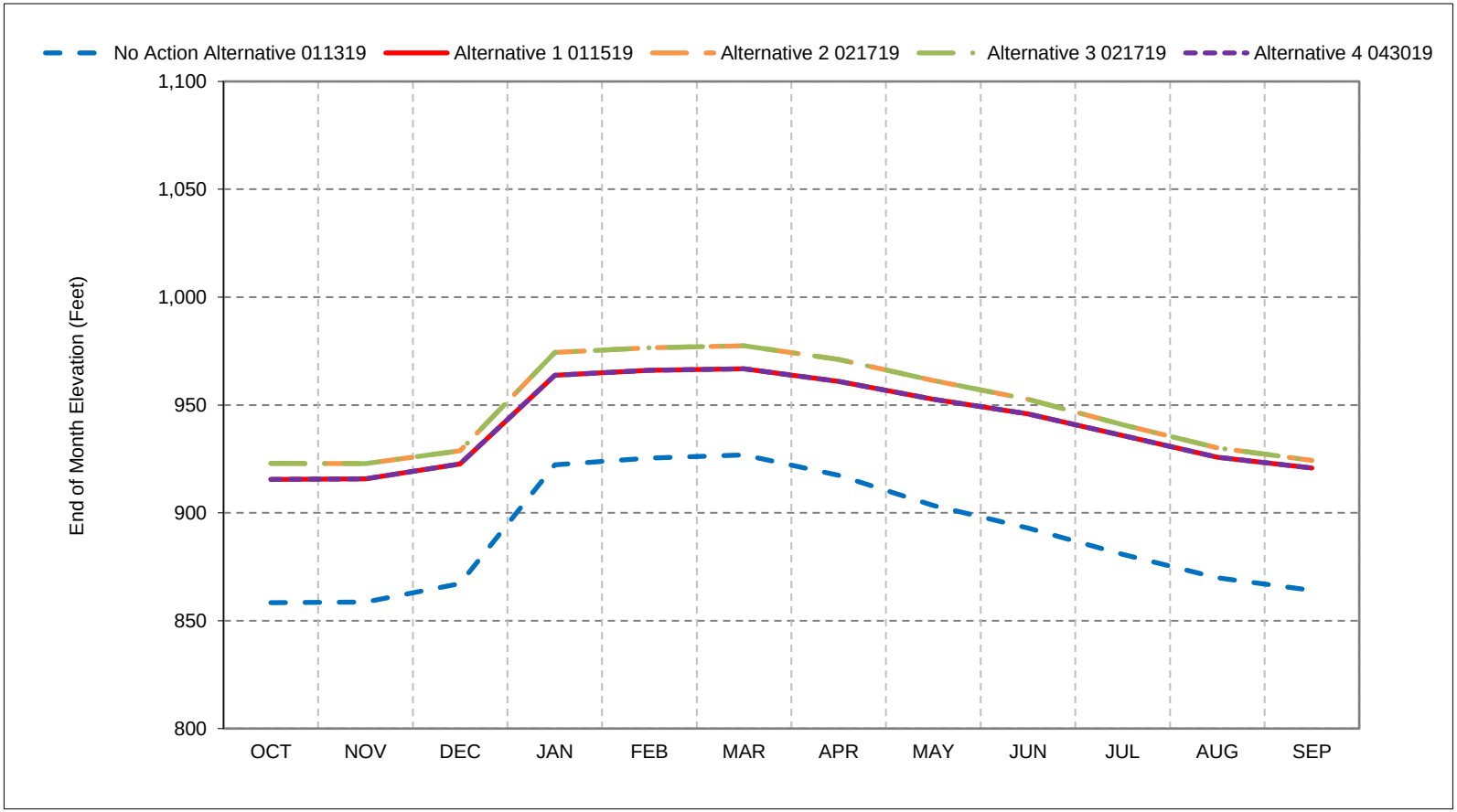
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7a-5. New Melones Reservoir, Dry Year Average Elevation



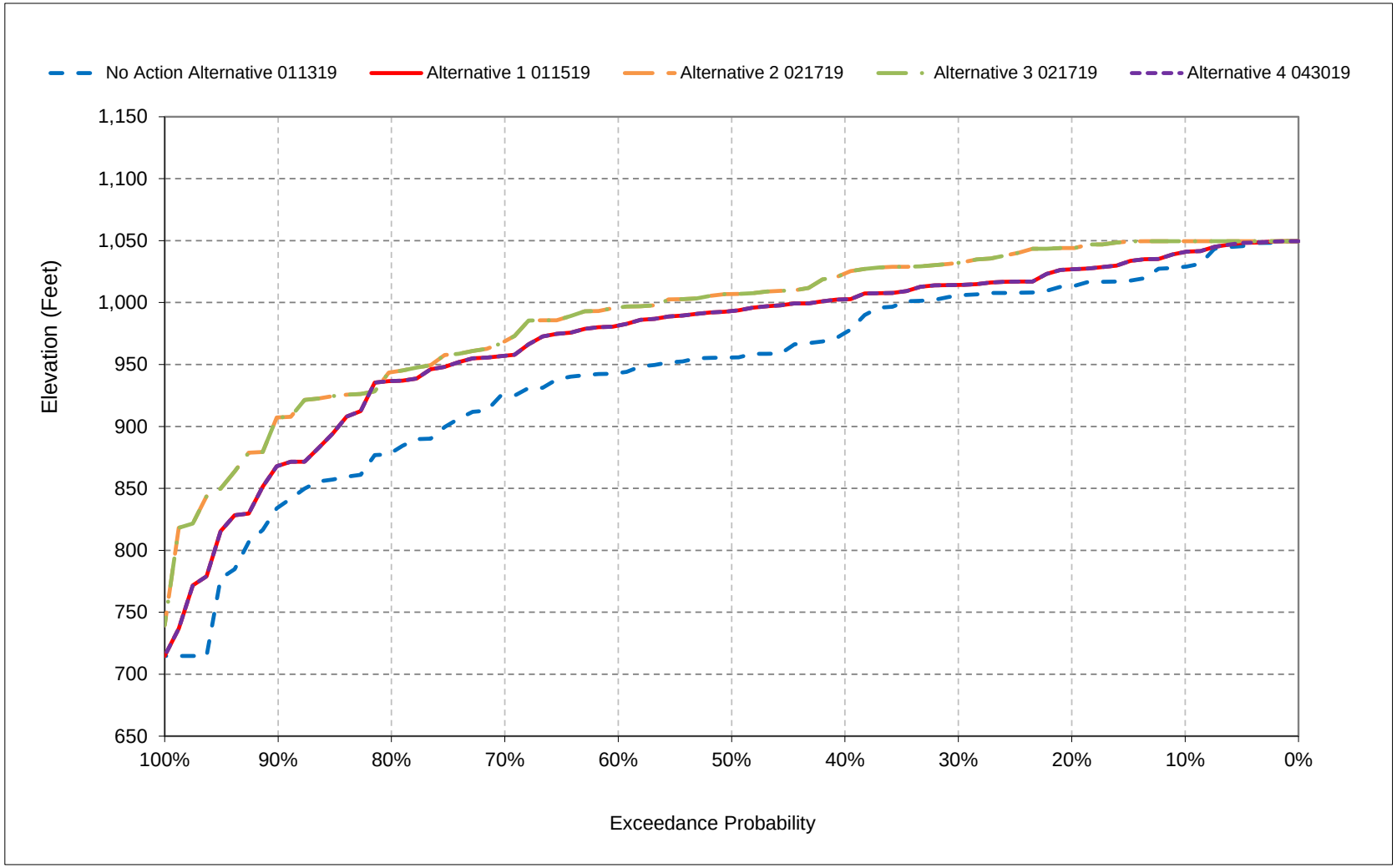
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7a-6. New Melones Reservoir, Critical Year Average Elevation



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

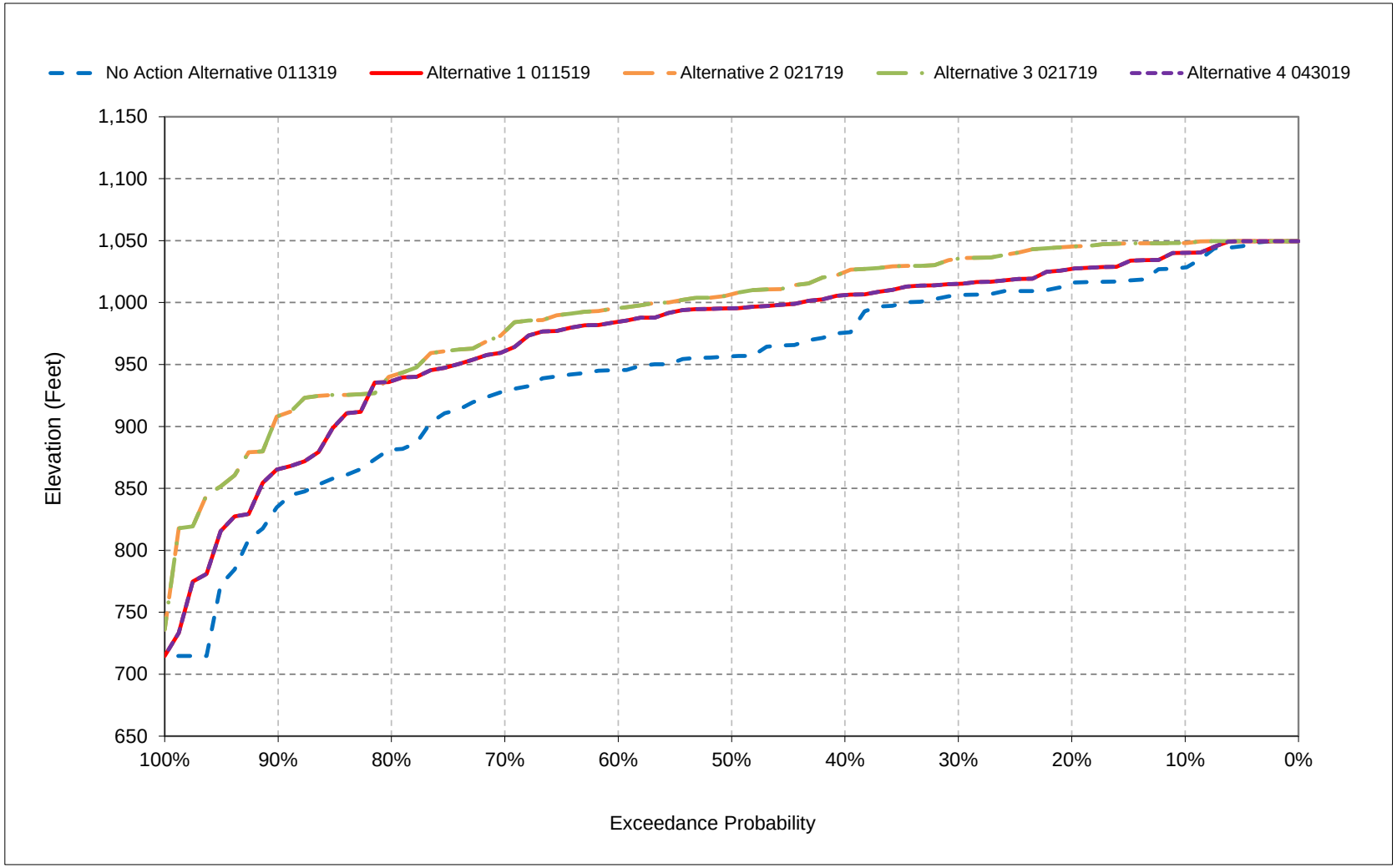
Figure 7a-7. New Melones Reservoir, Reservoir Pool Elevation, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

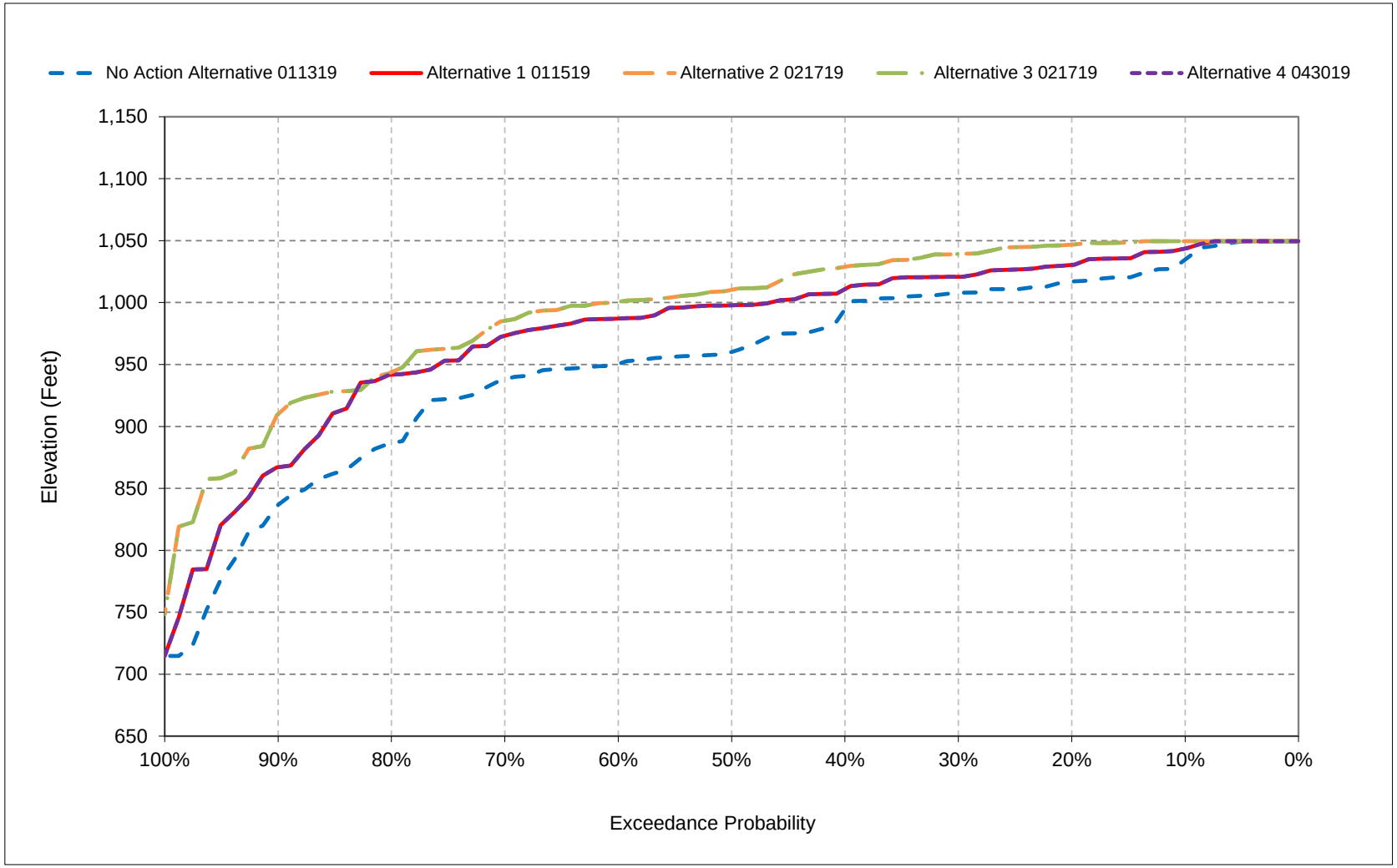
Figure 7a-8. New Melones Reservoir, Reservoir Pool Elevation, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

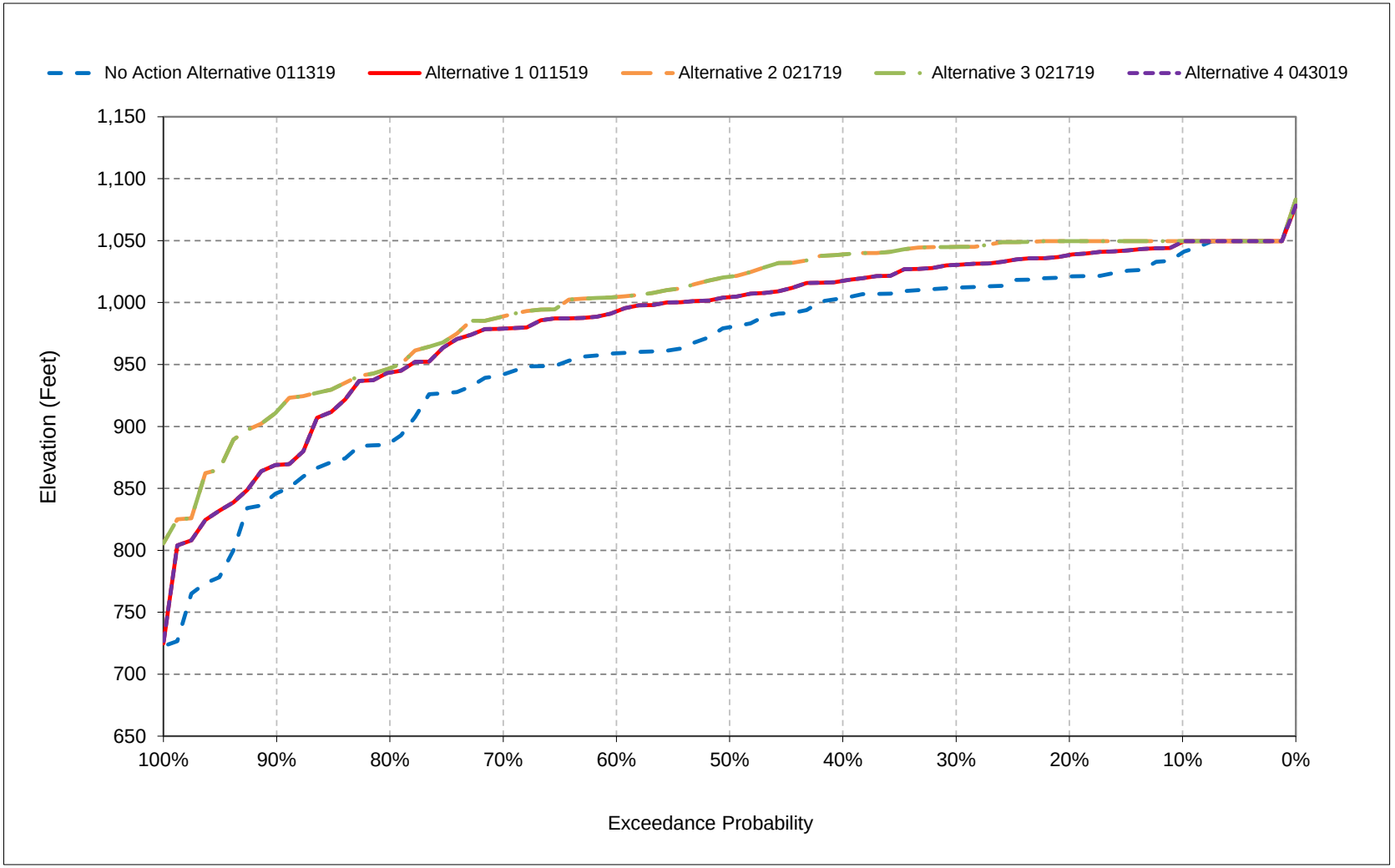
Figure 7a-9. New Melones Reservoir, Reservoir Pool Elevation, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

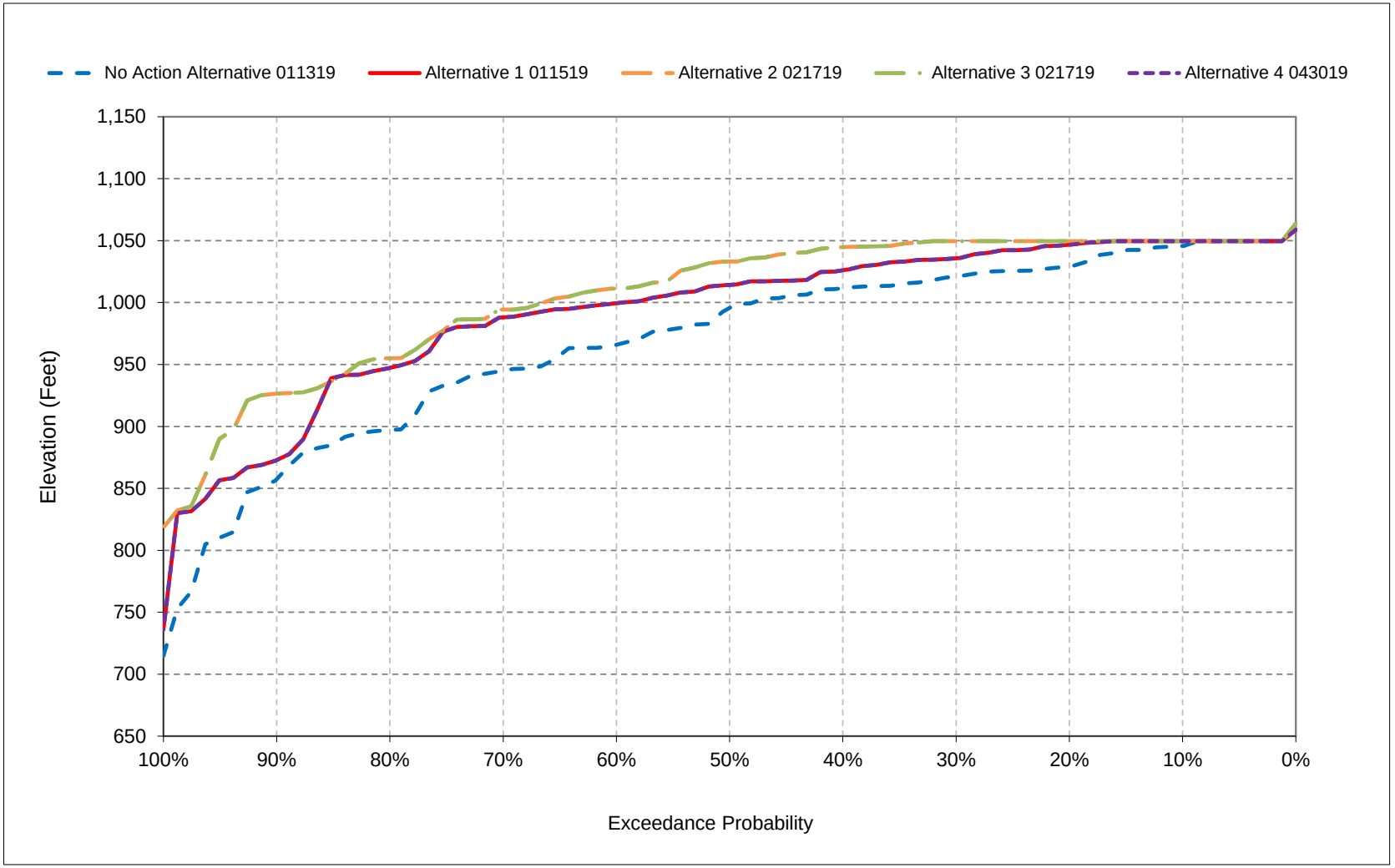
Figure 7a-10. New Melones Reservoir, Reservoir Pool Elevation, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

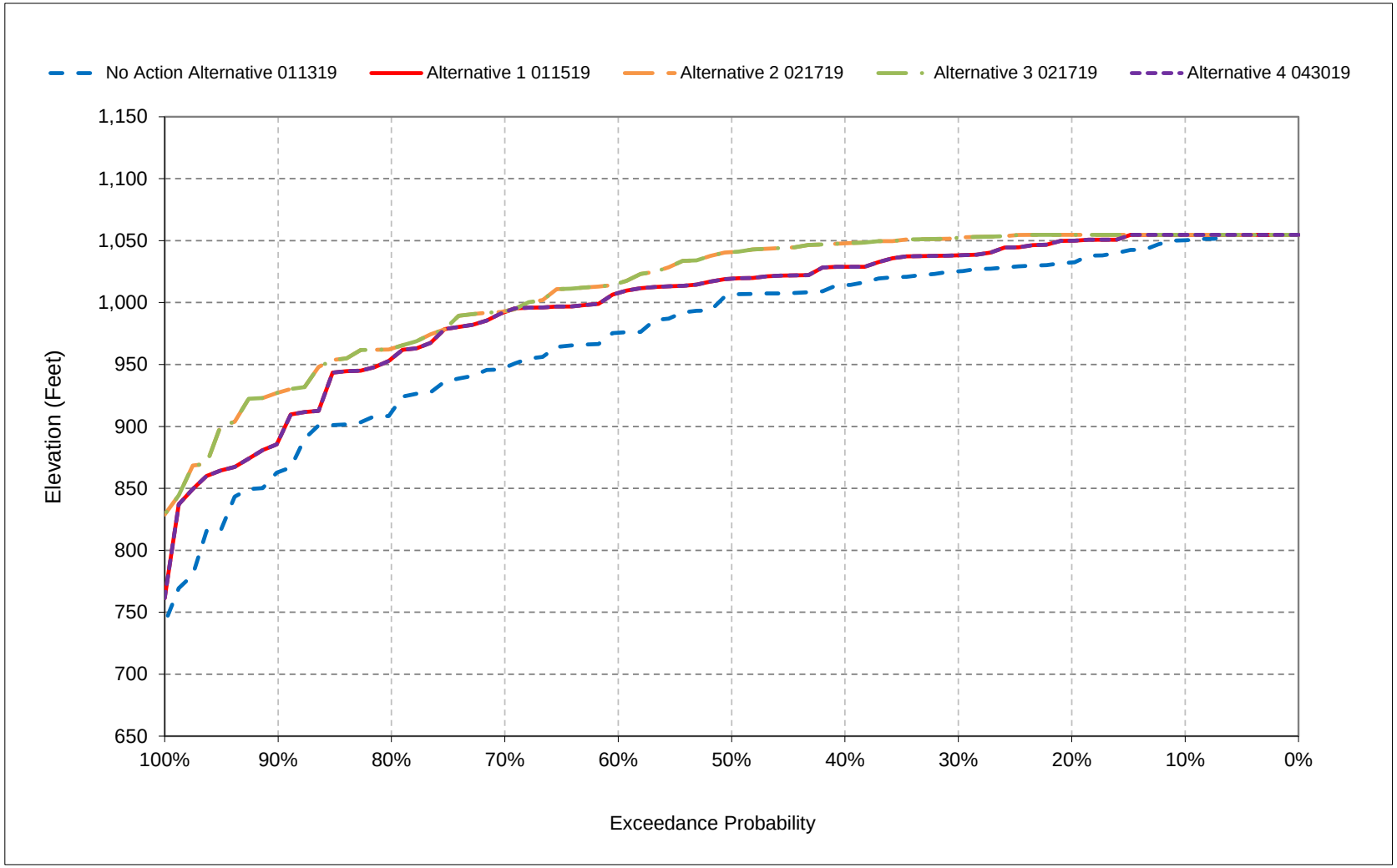
Figure 7a-11. New Melones Reservoir, Reservoir Pool Elevation, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

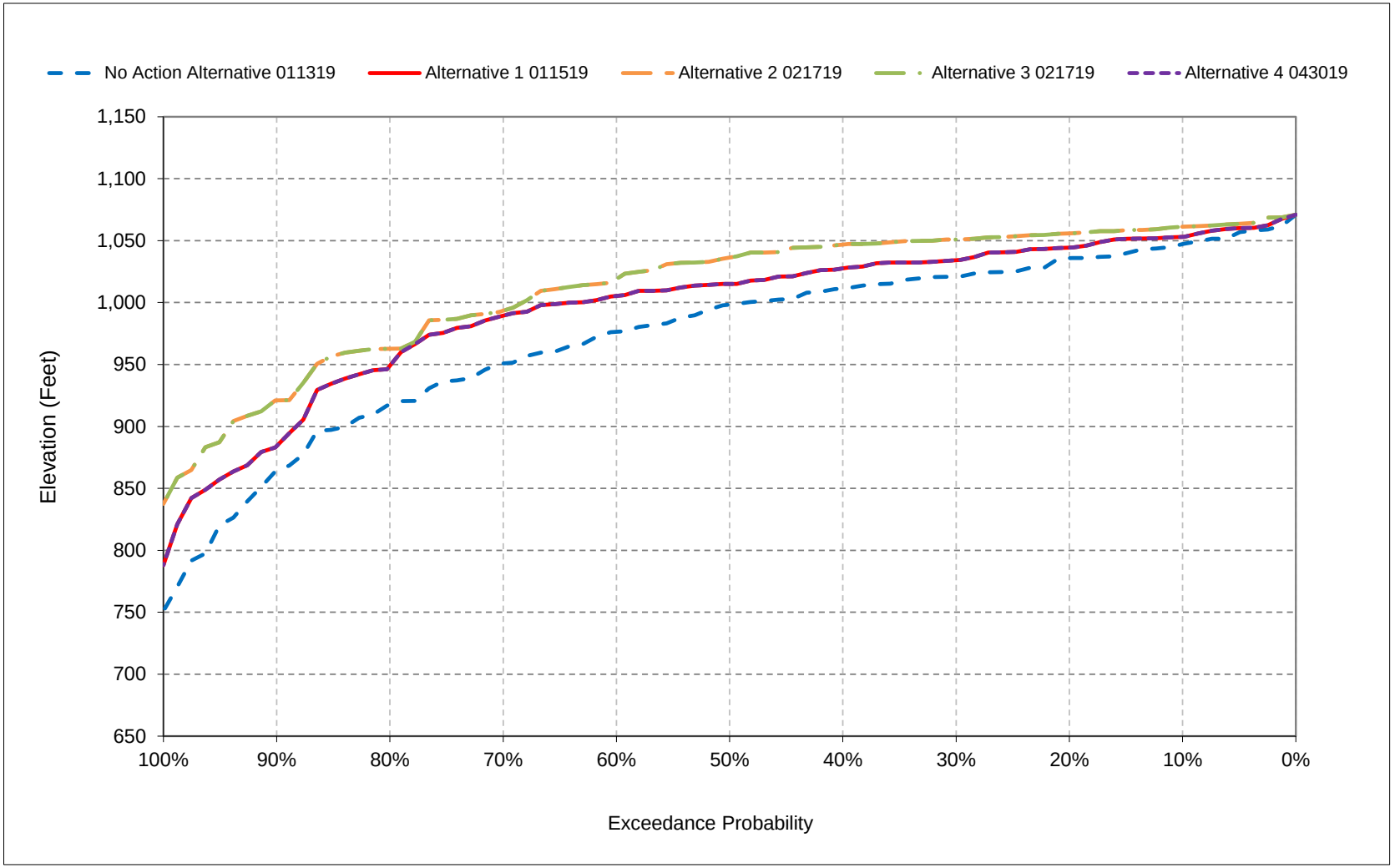
Figure 7a-12. New Melones Reservoir, Reservoir Pool Elevation, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

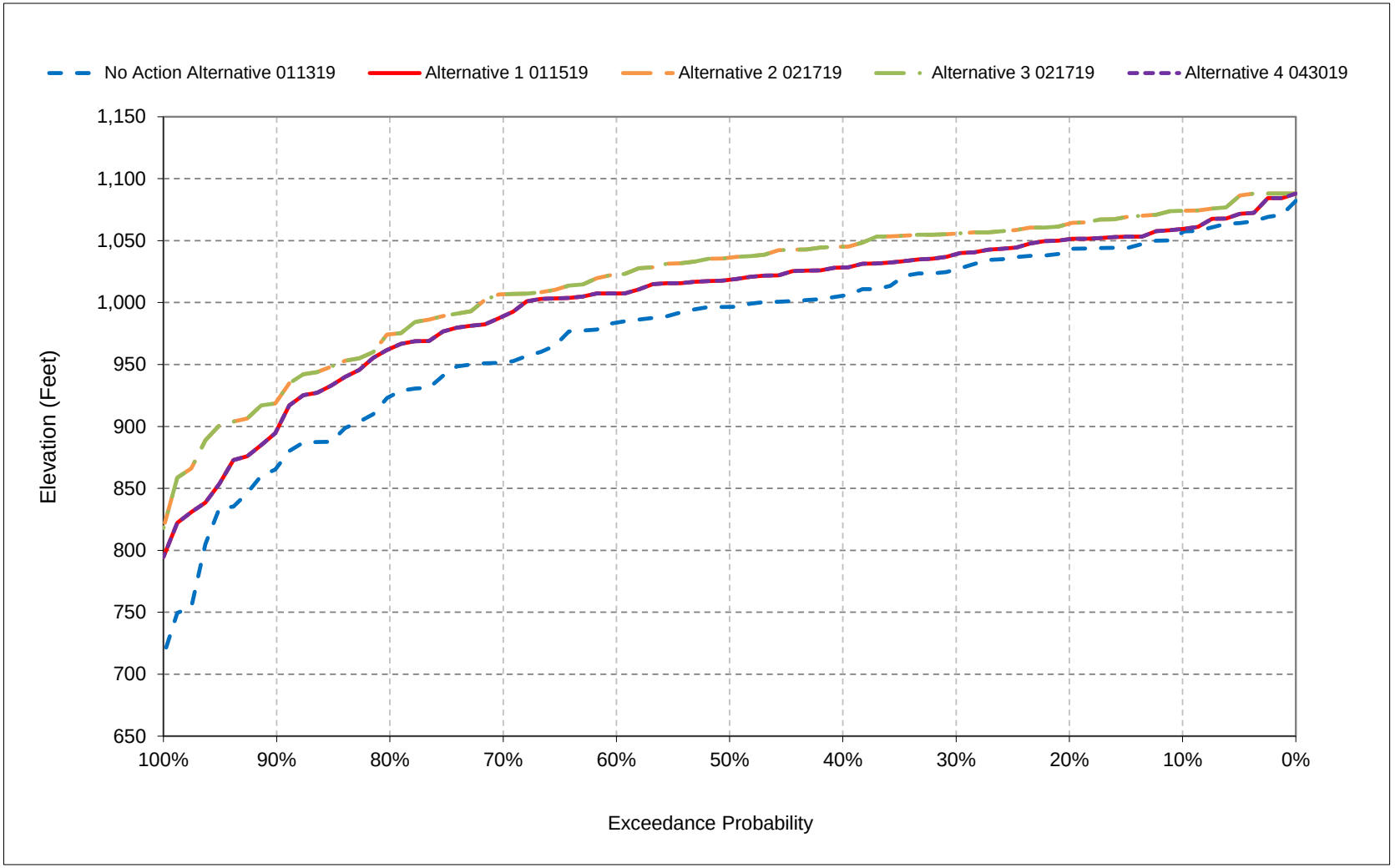
Figure 7a-13. New Melones Reservoir, Reservoir Pool Elevation, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

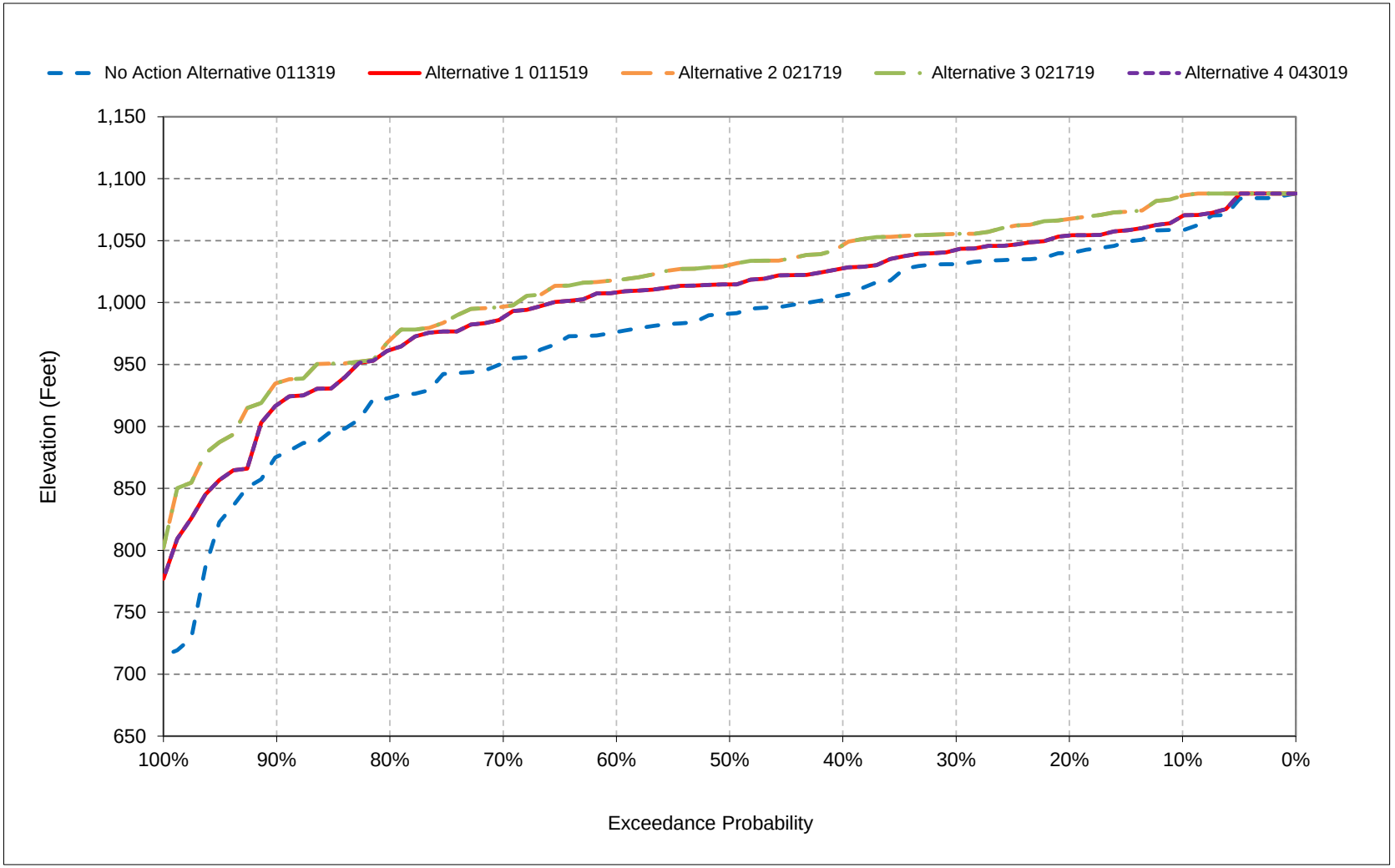
Figure 7a-14. New Melones Reservoir, Reservoir Pool Elevation, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

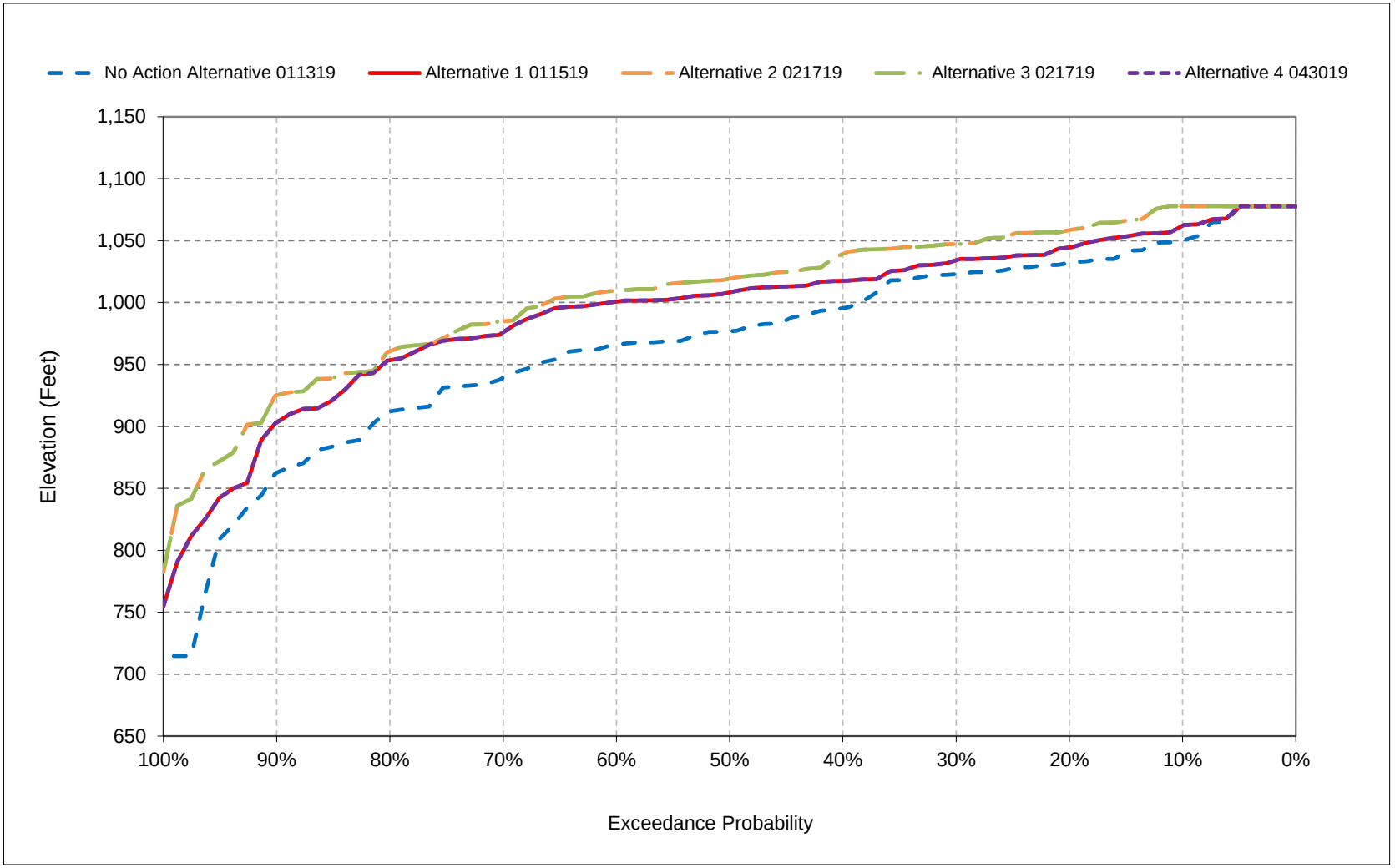
Figure 7a-15. New Melones Reservoir, Reservoir Pool Elevation, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7a-16. New Melones Reservoir, Reservoir Pool Elevation, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

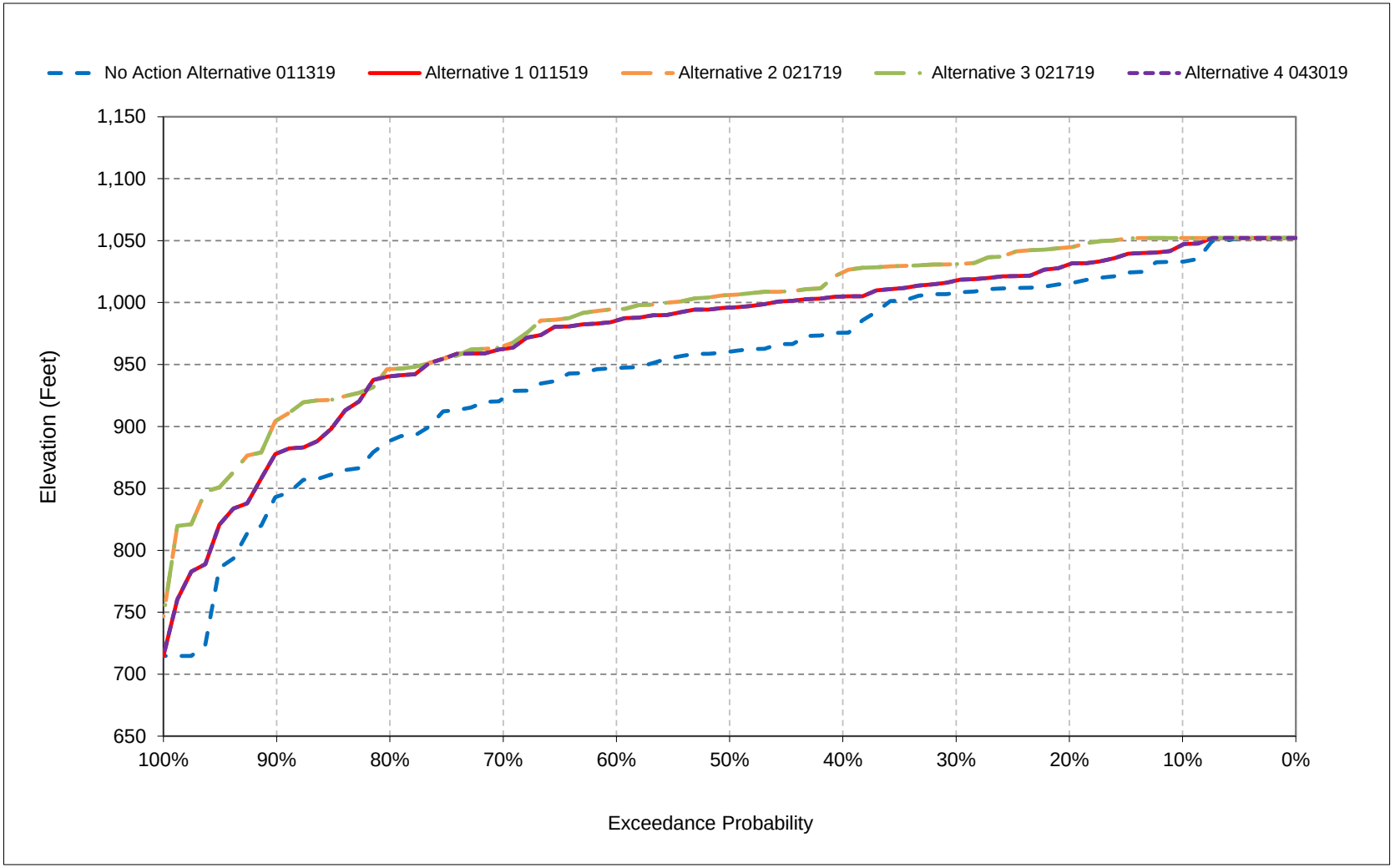
Figure 7a-17. New Melones Reservoir, Reservoir Pool Elevation, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7a-18. New Melones Reservoir, Reservoir Pool Elevation, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 8-1. Millerton Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	258	292	374	439	439	479	488	524	524	495	311	258
20%	224	267	318	412	439	479	447	523	521	433	260	213
30%	211	250	293	351	439	472	421	479	503	361	210	194
40%	197	223	270	333	419	436	396	455	477	323	188	183
50%	189	210	252	303	383	396	373	430	418	283	178	179
60%	178	194	232	288	339	368	344	403	394	257	169	175
70%	172	176	213	258	315	326	308	382	364	228	162	172
80%	162	168	197	232	266	274	268	332	313	195	158	168
90%	155	154	172	187	204	205	225	245	246	163	136	159
Long Term												
Full Simulation Period[a]	199	220	261	310	353	372	359	415	411	307	207	195
Water Year Types[b,c]												
Wet (23%)	256	279	311	382	426	448	360	428	509	464	312	256
Above Normal (24%)	202	241	291	340	417	447	404	491	496	355	210	184
Below Normal (10%)	192	209	244	297	354	360	348	401	393	283	185	180
Dry (16%)	177	202	246	302	327	343	386	426	372	231	162	181
Critical (27%)	161	162	202	231	247	260	306	334	278	182	148	168

Alternative 1 011519

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	258	292	374	439	439	479	488	524	524	495	311	258
20%	224	267	318	412	439	479	447	523	521	433	260	213
30%	211	250	293	351	439	472	421	479	503	361	210	194
40%	197	223	270	333	419	436	396	455	477	323	188	183
50%	189	210	252	303	383	396	373	430	418	283	178	179
60%	178	194	232	288	339	368	344	403	394	257	169	175
70%	172	176	213	258	315	326	308	382	364	228	162	172
80%	162	168	197	232	266	274	268	332	313	195	158	168
90%	155	154	172	187	204	205	225	245	246	163	136	159
Long Term												
Full Simulation Period[a]	199	220	261	310	353	372	359	415	411	307	207	195
Water Year Types[b,c]												
Wet (23%)	256	279	311	382	426	448	360	428	509	464	312	256
Above Normal (24%)	202	241	291	340	417	447	404	491	496	355	210	184
Below Normal (10%)	192	209	244	297	354	360	348	401	393	283	185	180
Dry (16%)	177	202	246	302	327	343	386	426	372	231	162	181
Critical (27%)	161	162	202	231	247	260	306	334	278	182	148	168

Alternative 1 011519 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	**0**	0
40%	0	0	0	0	0	0	0	0	0	0	0	**0**
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (27%)	0	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 8-2. Millerton Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	258	292	374	439	439	479	488	524	524	495	311	258
20%	224	267	318	412	439	479	447	523	521	433	260	213
30%	211	250	293	351	439	472	421	479	503	361	210	194
40%	197	223	270	333	419	436	396	455	477	323	188	183
50%	189	210	252	303	383	396	373	430	418	283	178	179
60%	178	194	232	288	339	368	344	403	394	257	169	175
70%	172	176	213	258	315	326	308	382	364	228	162	172
80%	162	168	197	232	266	274	268	332	313	195	158	168
90%	155	154	172	187	204	205	225	245	246	163	136	159
Long Term												
Full Simulation Period[a]	199	220	261	310	353	372	359	415	411	307	207	195
Water Year Types[b,c]												
Wet (23%)	256	279	311	382	426	448	360	428	509	464	312	256
Above Normal (24%)	202	241	291	340	417	447	404	491	496	355	210	184
Below Normal (10%)	192	209	244	297	354	360	348	401	393	283	185	180
Dry (16%)	177	202	246	302	327	343	386	426	372	231	162	181
Critical (27%)	161	162	202	231	247	260	306	334	278	182	148	168

Alternative 2 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	258	292	374	439	439	479	488	524	524	495	311	258
20%	224	267	318	412	439	479	447	523	521	433	260	213
30%	211	250	293	351	439	472	421	479	503	361	210	194
40%	197	223	270	333	419	436	396	455	477	323	188	183
50%	189	210	252	303	383	396	373	430	418	283	178	179
60%	178	194	232	288	339	368	344	403	394	257	169	175
70%	172	176	213	258	315	326	308	382	364	228	162	172
80%	162	168	197	232	266	274	268	332	313	195	158	168
90%	155	154	172	187	204	205	225	245	246	163	136	159
Long Term												
Full Simulation Period[a]	199	220	261	310	353	372	359	415	411	307	207	195
Water Year Types[b,c]												
Wet (23%)	256	279	311	382	426	448	360	428	509	464	312	256
Above Normal (24%)	202	241	291	340	417	447	404	491	496	355	210	184
Below Normal (10%)	192	209	244	297	354	360	348	401	393	283	185	180
Dry (16%)	177	202	246	302	327	343	386	426	372	231	162	181
Critical (27%)	161	162	202	231	247	260	306	334	278	182	148	168

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	**0**	0
40%	0	0	0	0	0	0	0	0	0	0	0	**0**
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	**0**	0	0	0	0	0	0	0	0
80%	0	0	**0**	0	0	0	**0**	0	0	0	0	0
90%	0	0	0	0	0	0	0	**0**	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	**0**	**0**	**0**	**0**	**0**	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	0	0	**0**	**0**	**0**	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Critical (27%)	0	0	0	**0**	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 8-3. Millerton Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	258	292	374	439	439	479	488	524	524	495	311	258
20%	224	267	318	412	439	479	447	523	521	433	260	213
30%	211	250	293	351	439	472	421	479	503	361	210	194
40%	197	223	270	333	419	436	396	455	477	323	188	183
50%	189	210	252	303	383	396	373	430	418	283	178	179
60%	178	194	232	288	339	368	344	403	394	257	169	175
70%	172	176	213	258	315	326	308	382	364	228	162	172
80%	162	168	197	232	266	274	268	332	313	195	158	168
90%	155	154	172	187	204	205	225	245	246	163	136	159
Long Term												
Full Simulation Period[a]	199	220	261	310	353	372	359	415	411	307	207	195
Water Year Types[b,c]												
Wet (23%)	256	279	311	382	426	448	360	428	509	464	312	256
Above Normal (24%)	202	241	291	340	417	447	404	491	496	355	210	184
Below Normal (10%)	192	209	244	297	354	360	348	401	393	283	185	180
Dry (16%)	177	202	246	302	327	343	386	426	372	231	162	181
Critical (27%)	161	162	202	231	247	260	306	334	278	182	148	168

Alternative 3 021719

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	258	292	374	439	439	479	488	524	524	495	311	258
20%	224	267	318	412	439	479	447	523	521	433	261	213
30%	211	250	293	351	439	472	421	479	503	361	210	194
40%	197	223	270	333	419	436	396	455	477	323	188	183
50%	189	210	252	303	383	396	373	430	418	283	178	179
60%	178	194	232	288	339	368	344	403	394	257	169	175
70%	172	176	213	258	315	326	308	382	364	228	162	172
80%	162	168	197	232	266	274	268	332	313	195	158	168
90%	154	154	172	187	204	205	225	245	246	163	136	159
Long Term												
Full Simulation Period[a]	199	220	261	310	353	372	359	415	411	307	207	195
Water Year Types[b,c]												
Wet (23%)	256	279	311	382	426	448	360	428	509	464	312	256
Above Normal (24%)	202	241	291	340	417	447	404	491	496	355	210	184
Below Normal (10%)	192	209	244	297	354	360	348	401	393	283	185	180
Dry (16%)	177	202	246	302	327	343	386	426	372	231	162	181
Critical (27%)	161	162	202	231	247	260	306	334	278	182	148	168

Alternative 3 021719 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	1	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (27%)	0	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 8-4. Millerton Lake Storage, End of Month Storage

No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	258	292	374	439	439	479	488	524	524	495	311	258
20%	224	267	318	412	439	479	447	523	521	433	260	213
30%	211	250	293	351	439	472	421	479	503	361	210	194
40%	197	223	270	333	419	436	396	455	477	323	188	183
50%	189	210	252	303	383	396	373	430	418	283	178	179
60%	178	194	232	288	339	368	344	403	394	257	169	175
70%	172	176	213	258	315	326	308	382	364	228	162	172
80%	162	168	197	232	266	274	268	332	313	195	158	168
90%	155	154	172	187	204	205	225	245	246	163	136	159
Long Term												
Full Simulation Period[a]	199	220	261	310	353	372	359	415	411	307	207	195
Water Year Types[b,c]												
Wet (23%)	256	279	311	382	426	448	360	428	509	464	312	256
Above Normal (24%)	202	241	291	340	417	447	404	491	496	355	210	184
Below Normal (10%)	192	209	244	297	354	360	348	401	393	283	185	180
Dry (16%)	177	202	246	302	327	343	386	426	372	231	162	181
Critical (27%)	161	162	202	231	247	260	306	334	278	182	148	168

Alternative 4 043019

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	258	292	374	439	439	479	488	524	524	495	311	258
20%	224	267	318	412	439	479	447	523	521	433	260	213
30%	211	250	293	351	439	472	421	479	503	361	210	194
40%	197	223	270	333	419	436	396	455	477	323	188	183
50%	189	210	252	303	383	396	373	430	418	283	178	179
60%	178	194	232	288	339	368	344	403	394	257	169	175
70%	172	176	213	258	315	326	308	382	364	228	162	172
80%	162	168	197	232	266	274	268	332	313	195	158	168
90%	155	154	172	187	204	205	225	245	246	163	136	159
Long Term												
Full Simulation Period[a]	199	220	261	310	353	372	359	415	411	307	207	195
Water Year Types[b,c]												
Wet (23%)	256	279	311	382	426	448	360	428	509	464	312	256
Above Normal (24%)	202	241	291	340	417	447	404	491	496	355	210	184
Below Normal (10%)	192	209	244	297	354	360	348	401	393	283	185	180
Dry (16%)	177	202	246	302	327	343	386	426	372	231	162	181
Critical (27%)	161	162	202	231	247	260	306	334	278	182	148	168

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Storage (TAF)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	**0**	0
40%	0	0	0	0	0	0	0	0	0	0	0	**0**
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	**0**
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**0**	0	0	0	0	0	0	0	0	0	**0**	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	**0**	0
Critical (27%)	**0**	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

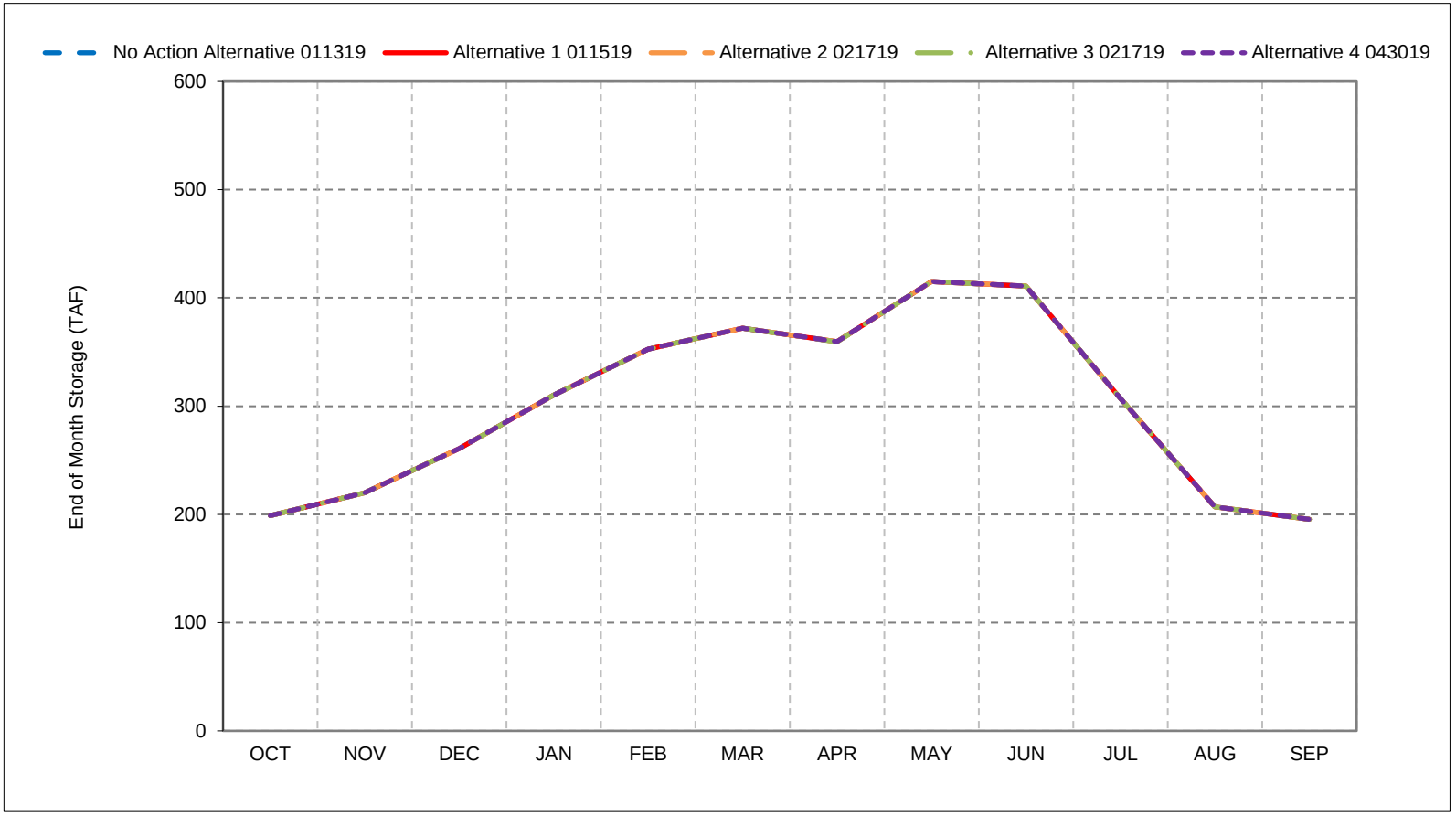
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

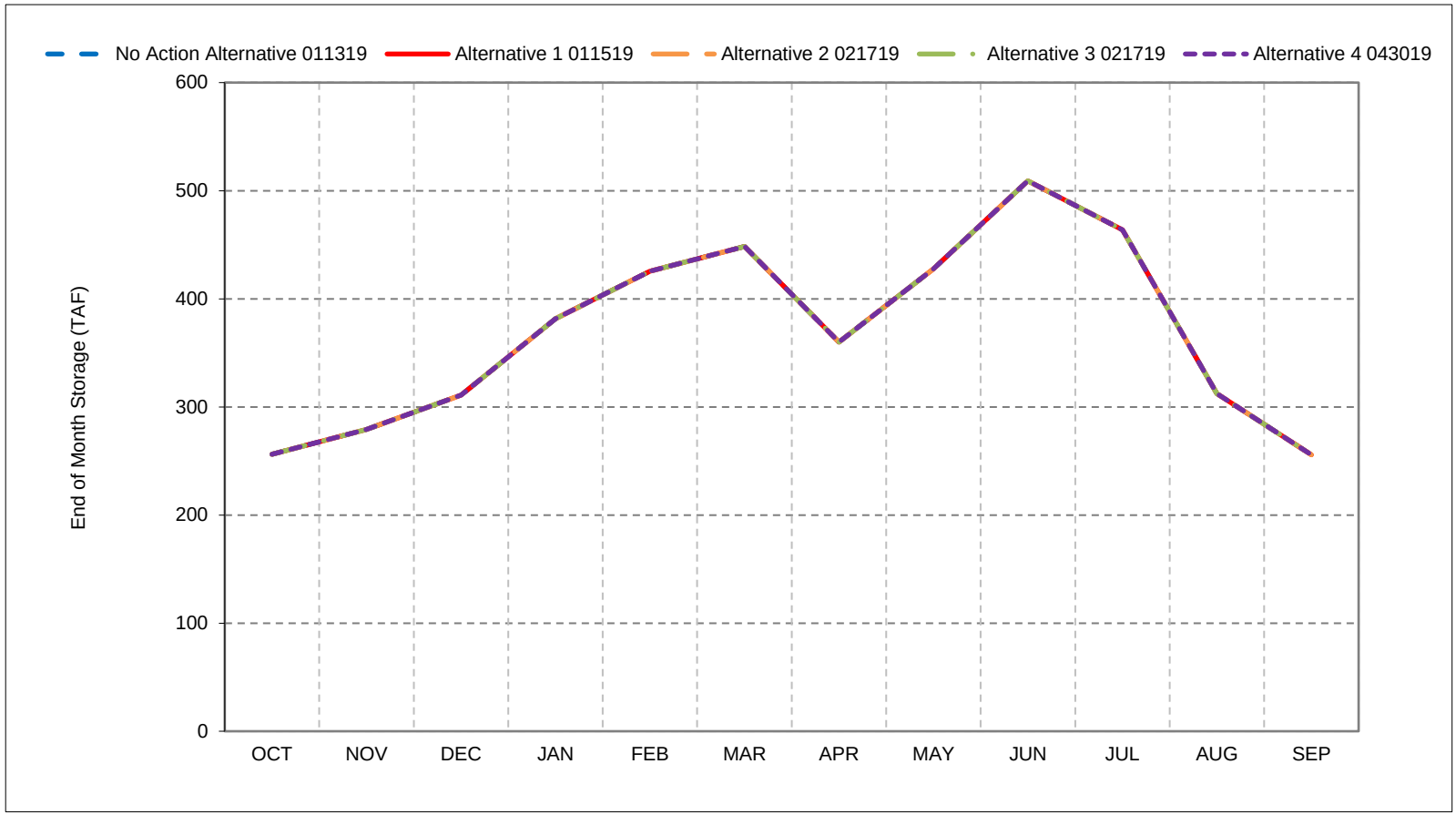
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-1. Millerton Lake Storage, Long-Term Average Storage



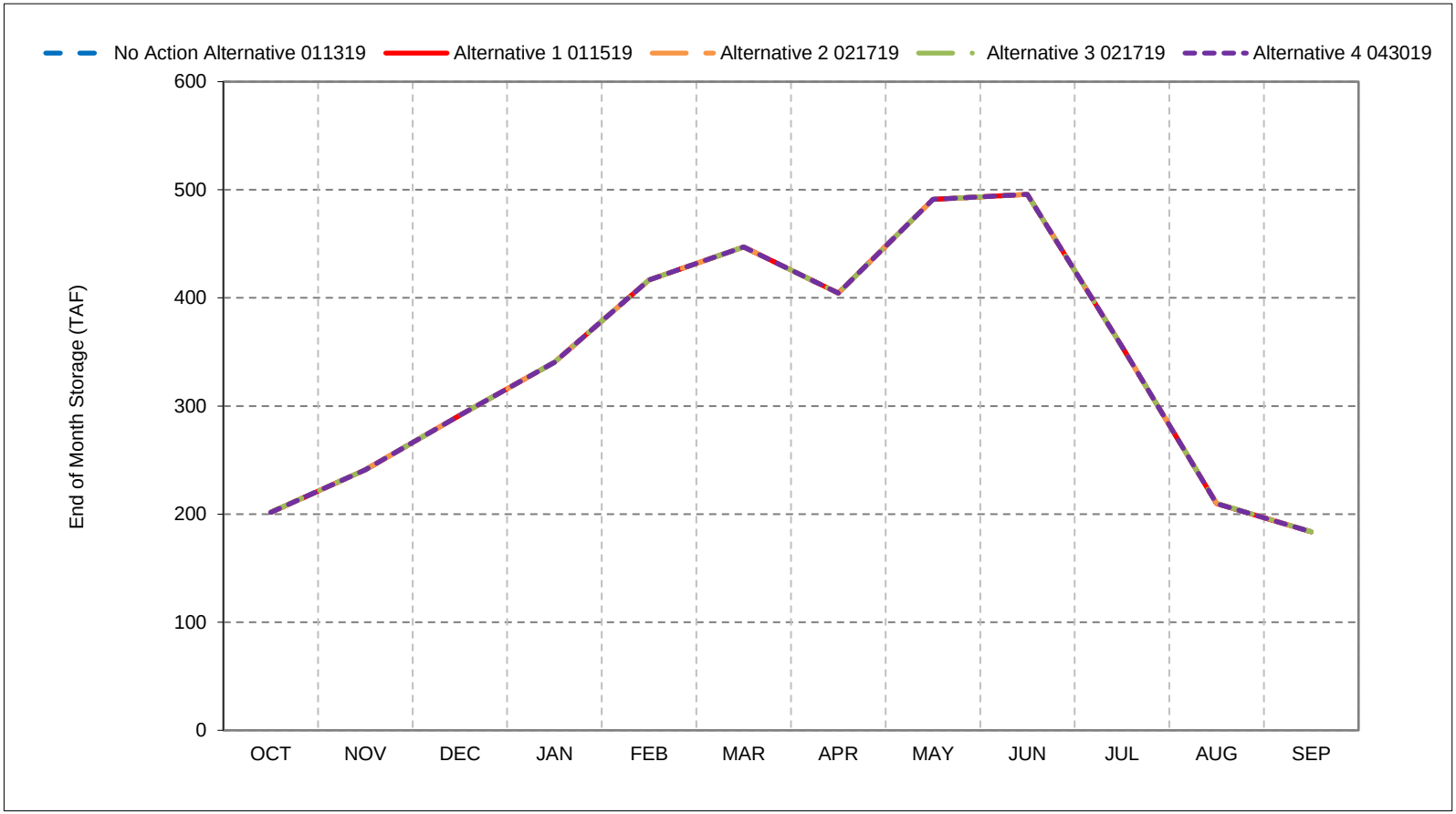
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-2. Millerton Lake Storage, Wet Year Average Storage



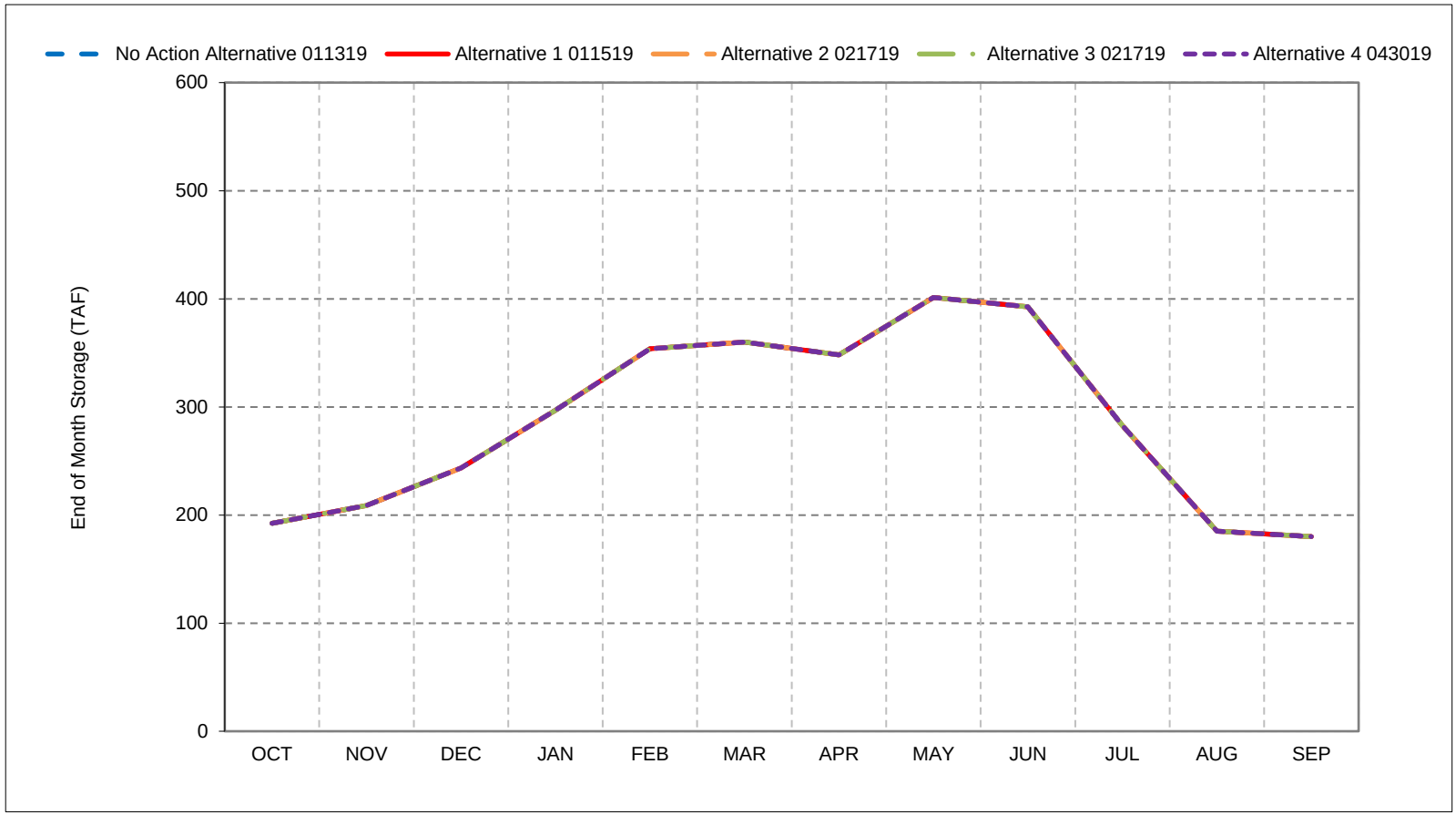
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-3. Millerton Lake Storage, Above Normal Year Average Storage



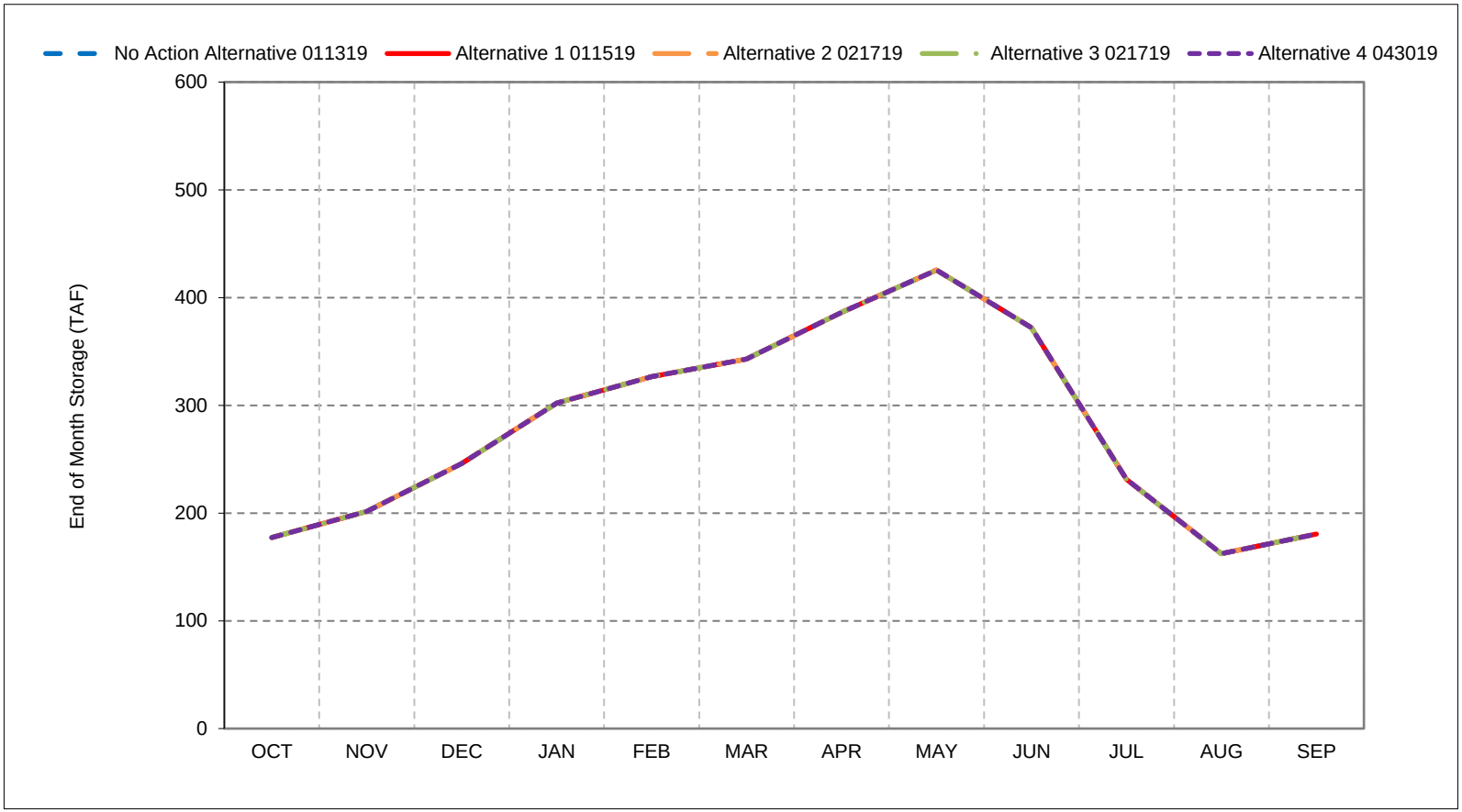
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-4. Millerton Lake Storage, Below Normal Year Average Storage



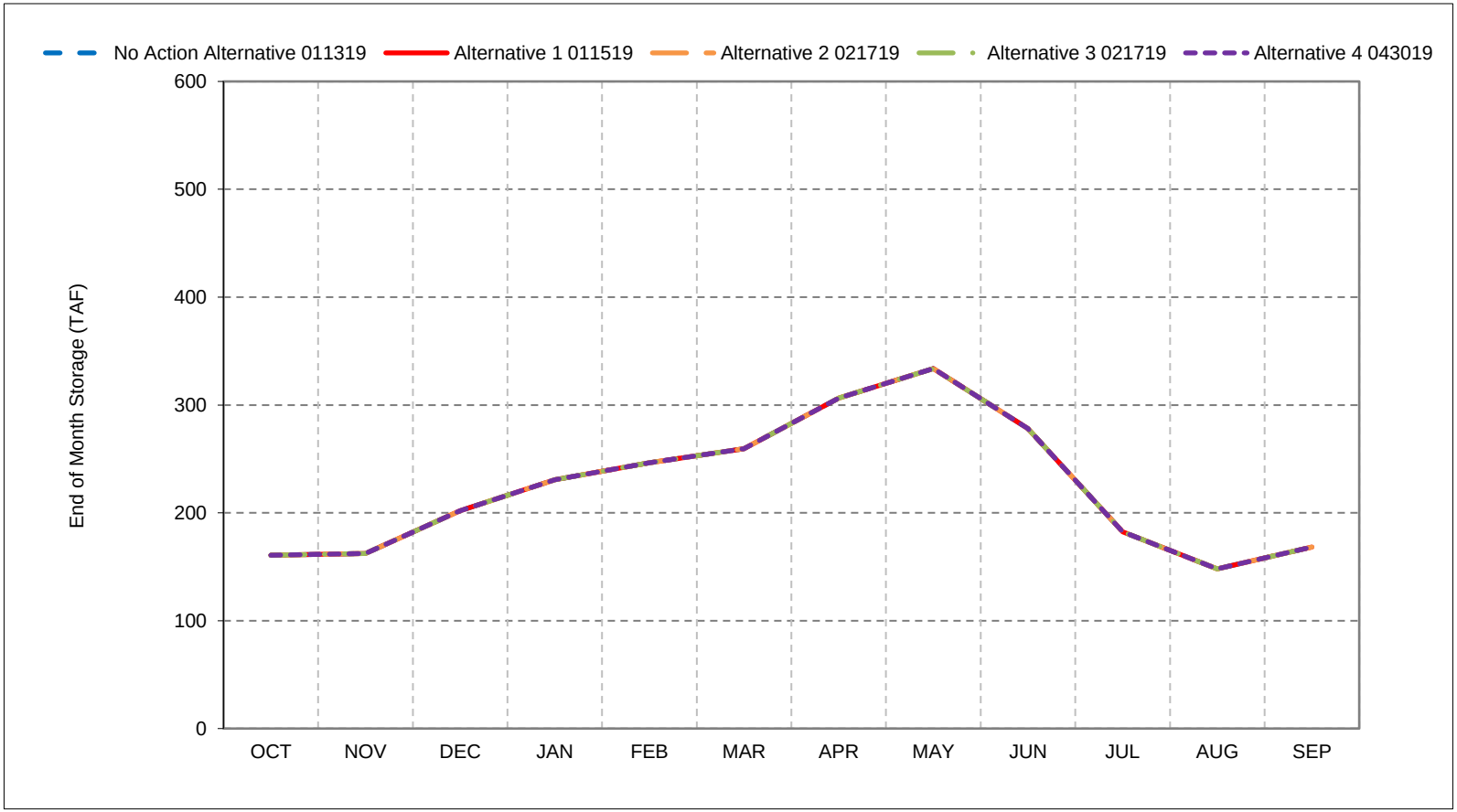
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-5. Millerton Lake Storage, Dry Year Average Storage



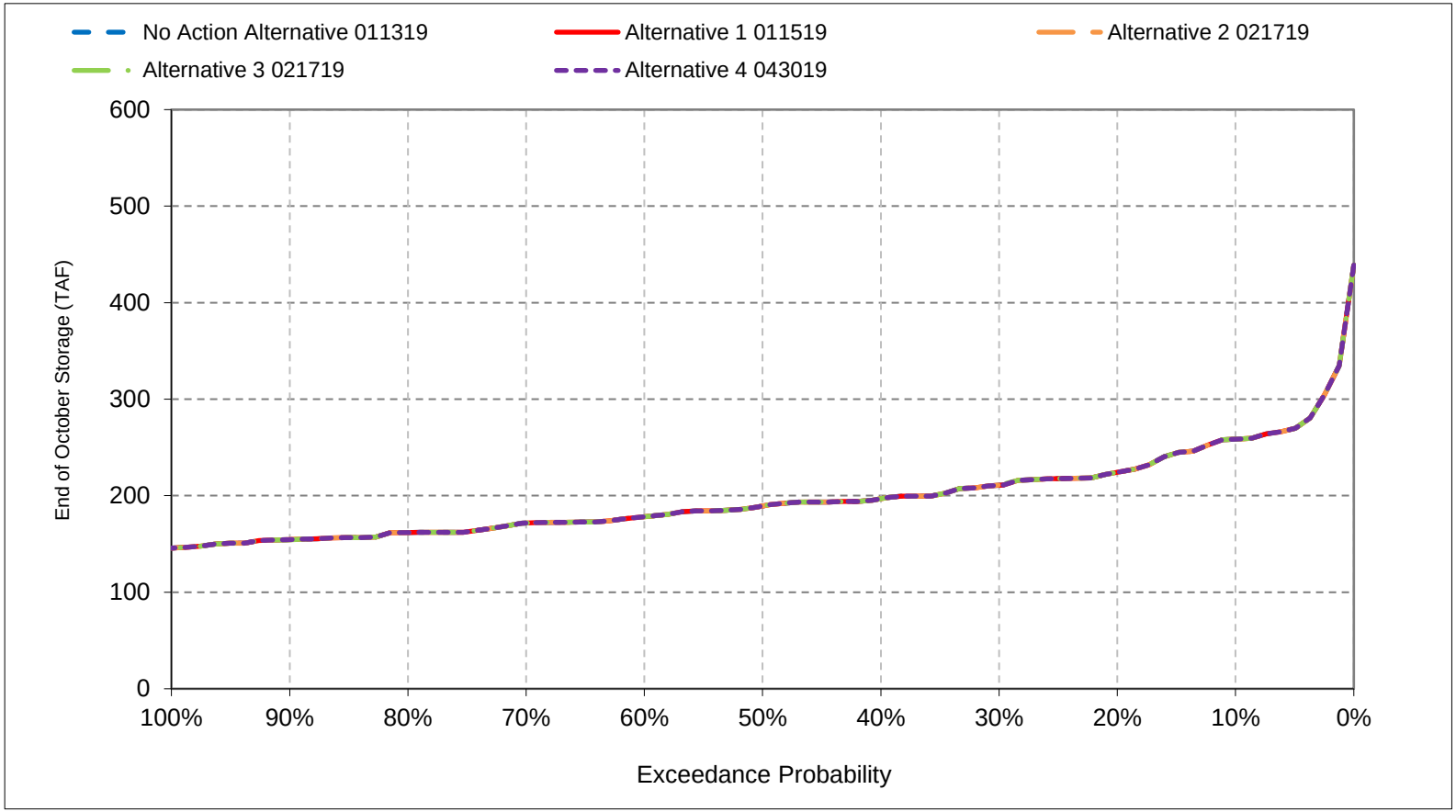
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-6. Millerton Lake Storage, Critical Year Average Storage



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

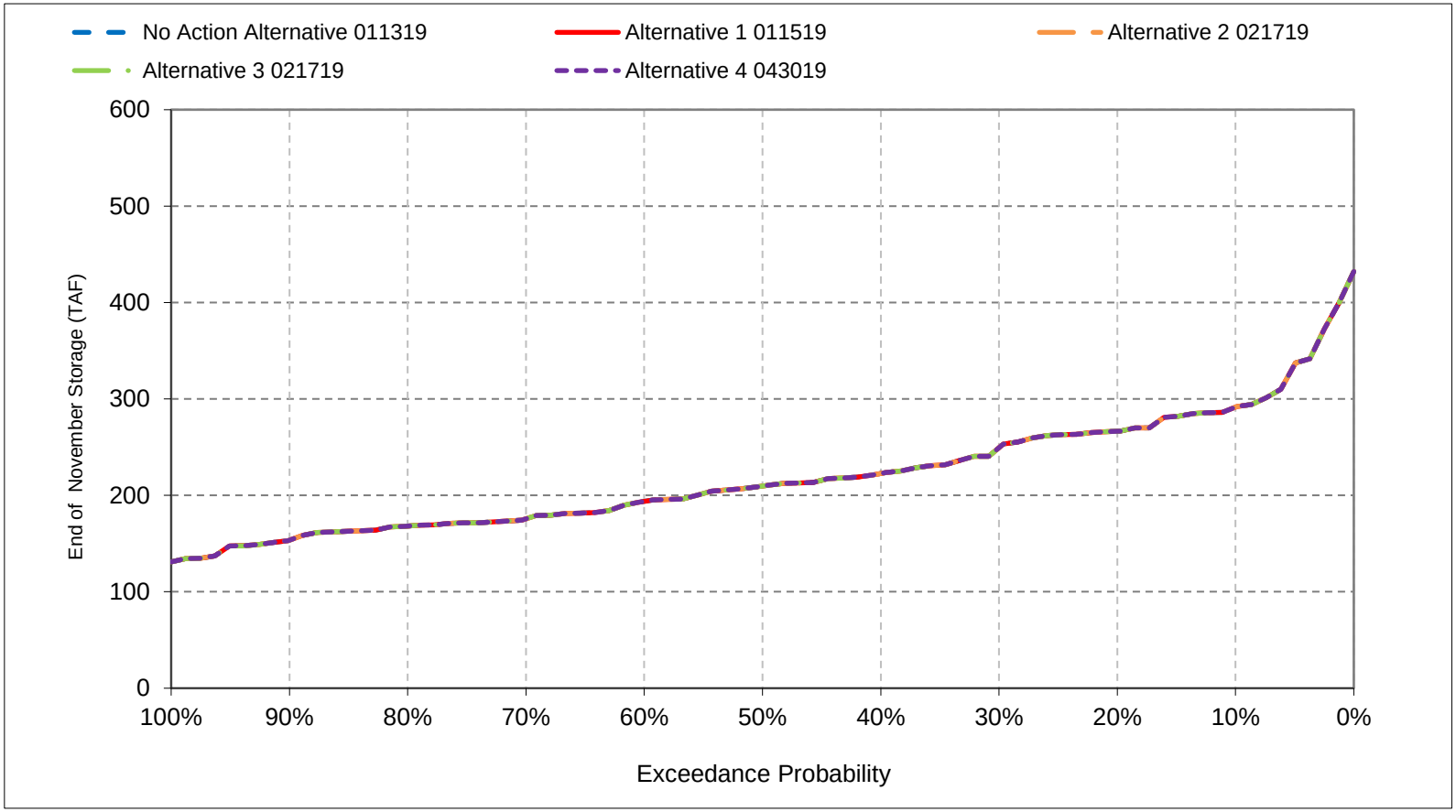
Figure 8-7. Millerton Storage, End of October Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

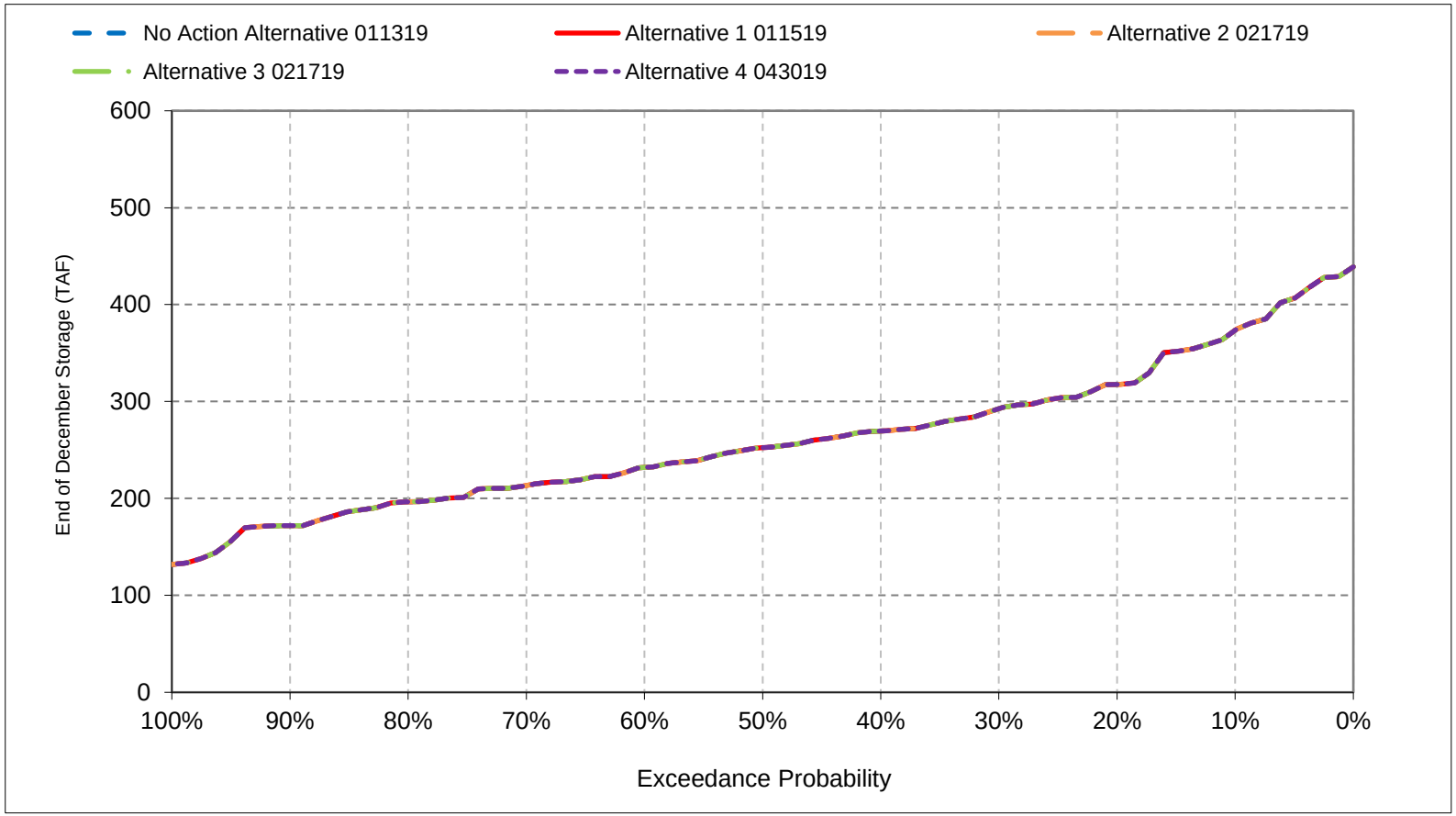
Figure 8-8. Millerton Storage, End of November Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

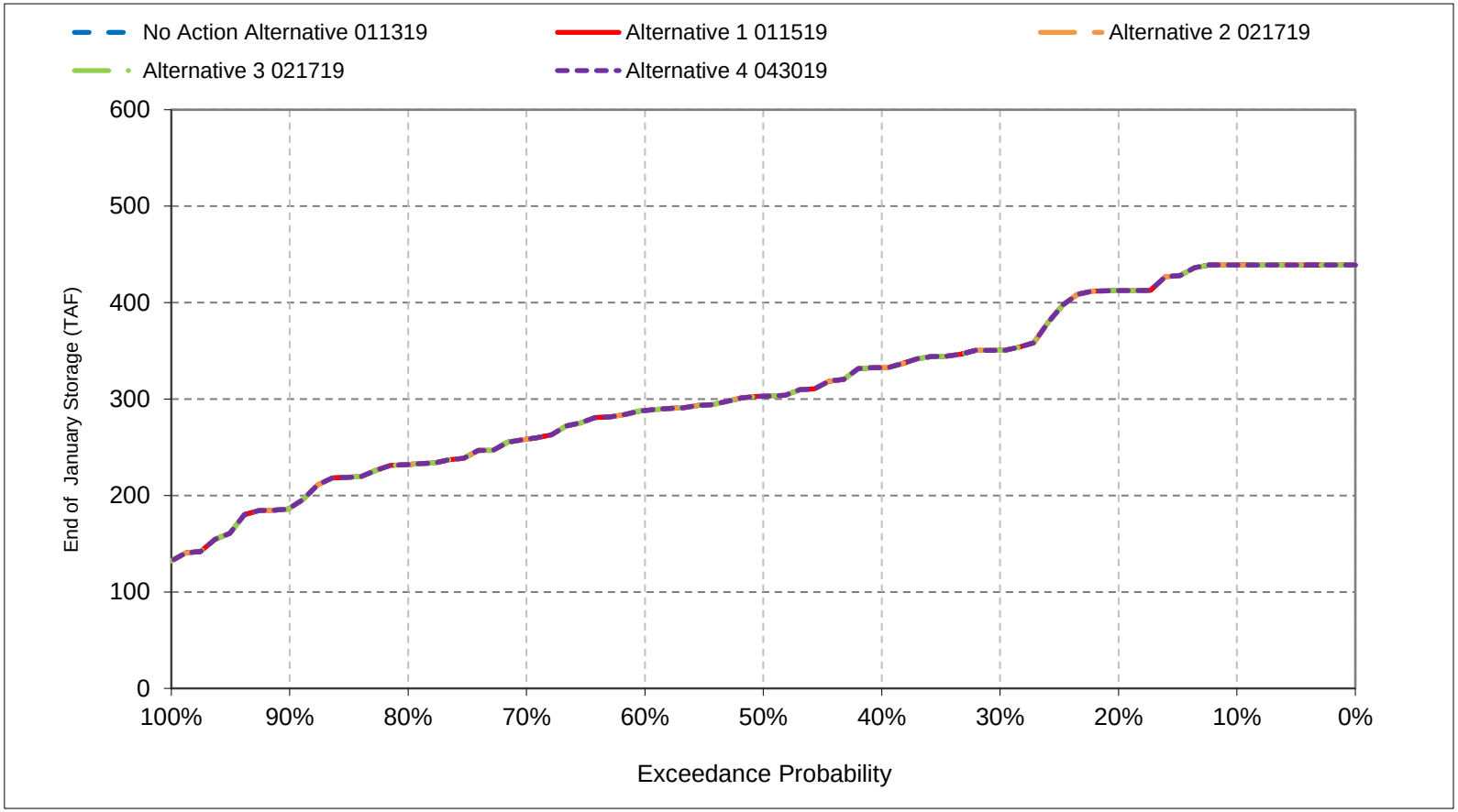
Figure 8-9. Millerton Storage, End of December Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

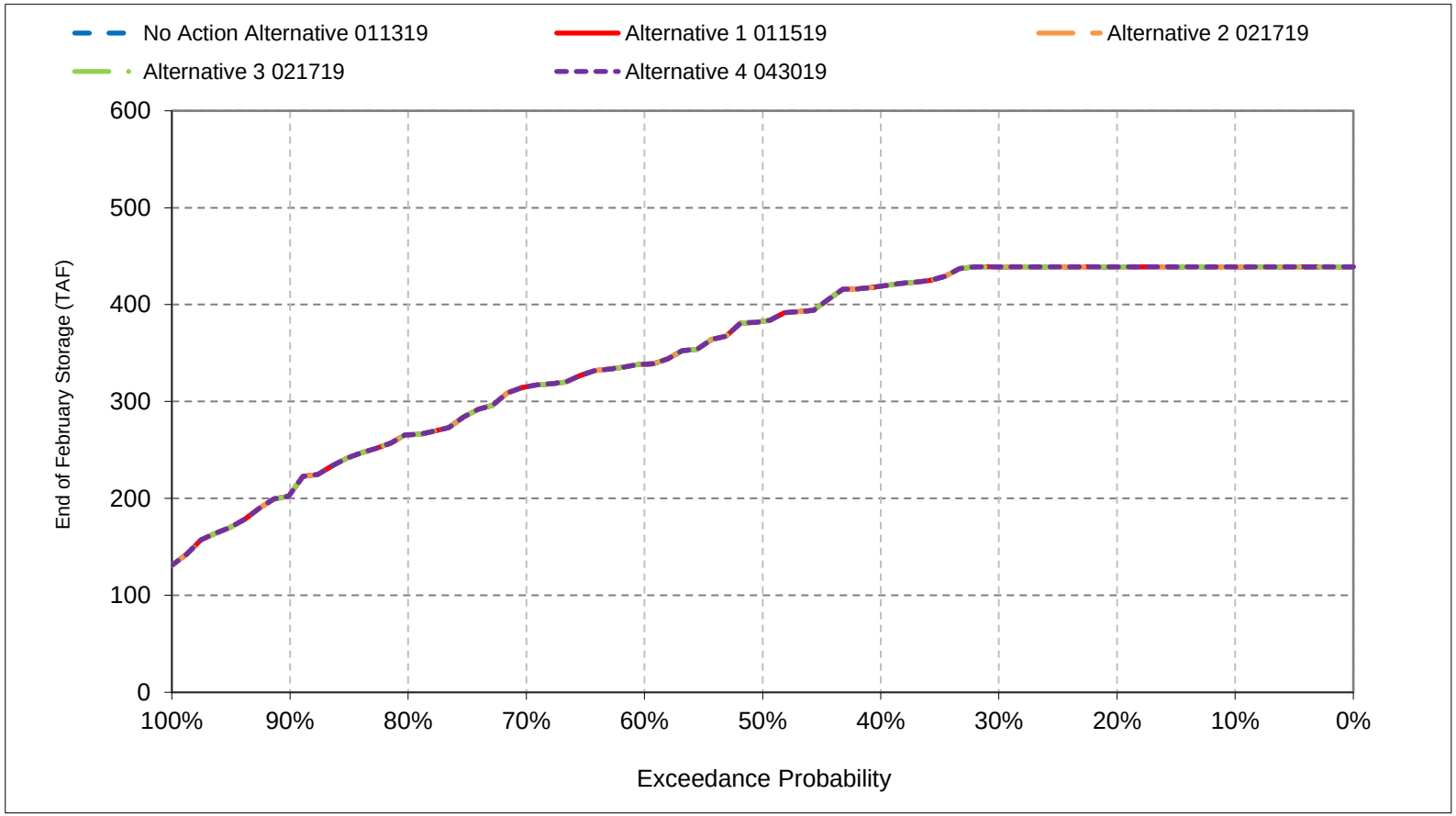
Figure 8-10. Millerton Storage, End of January Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

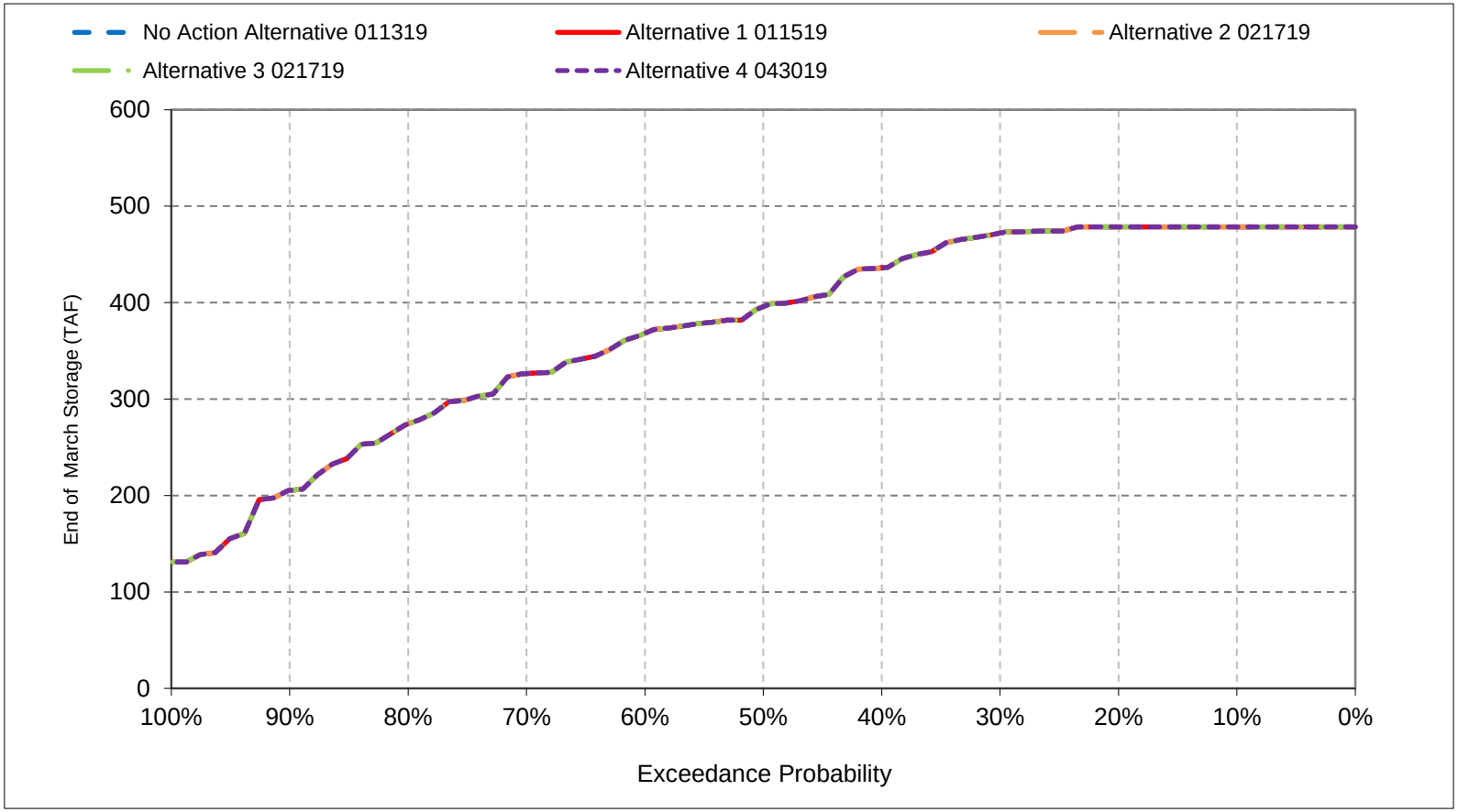
Figure 8-11. Millerton Storage, End of February Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

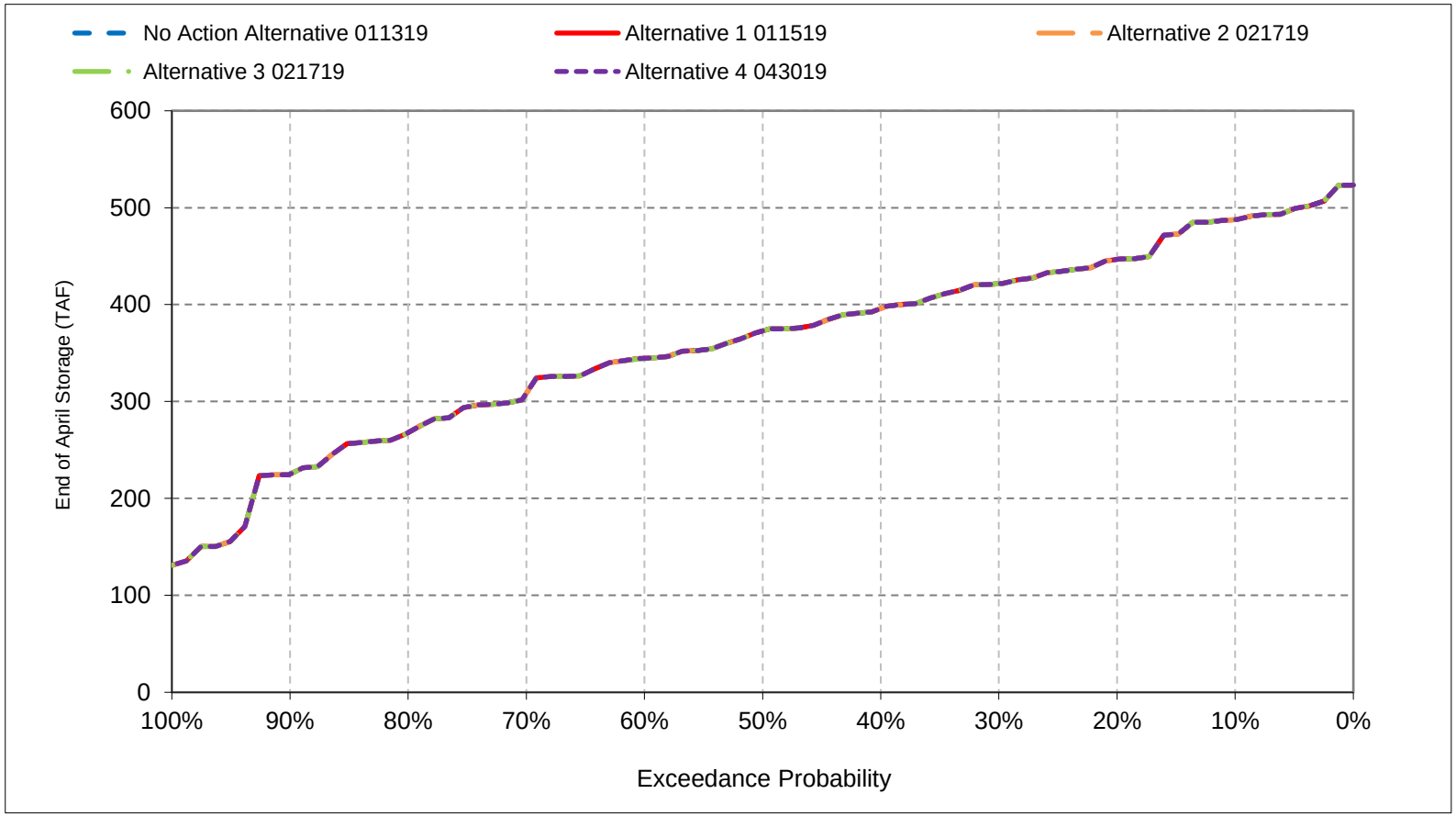
Figure 8-12. Millerton Storage, End of March Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

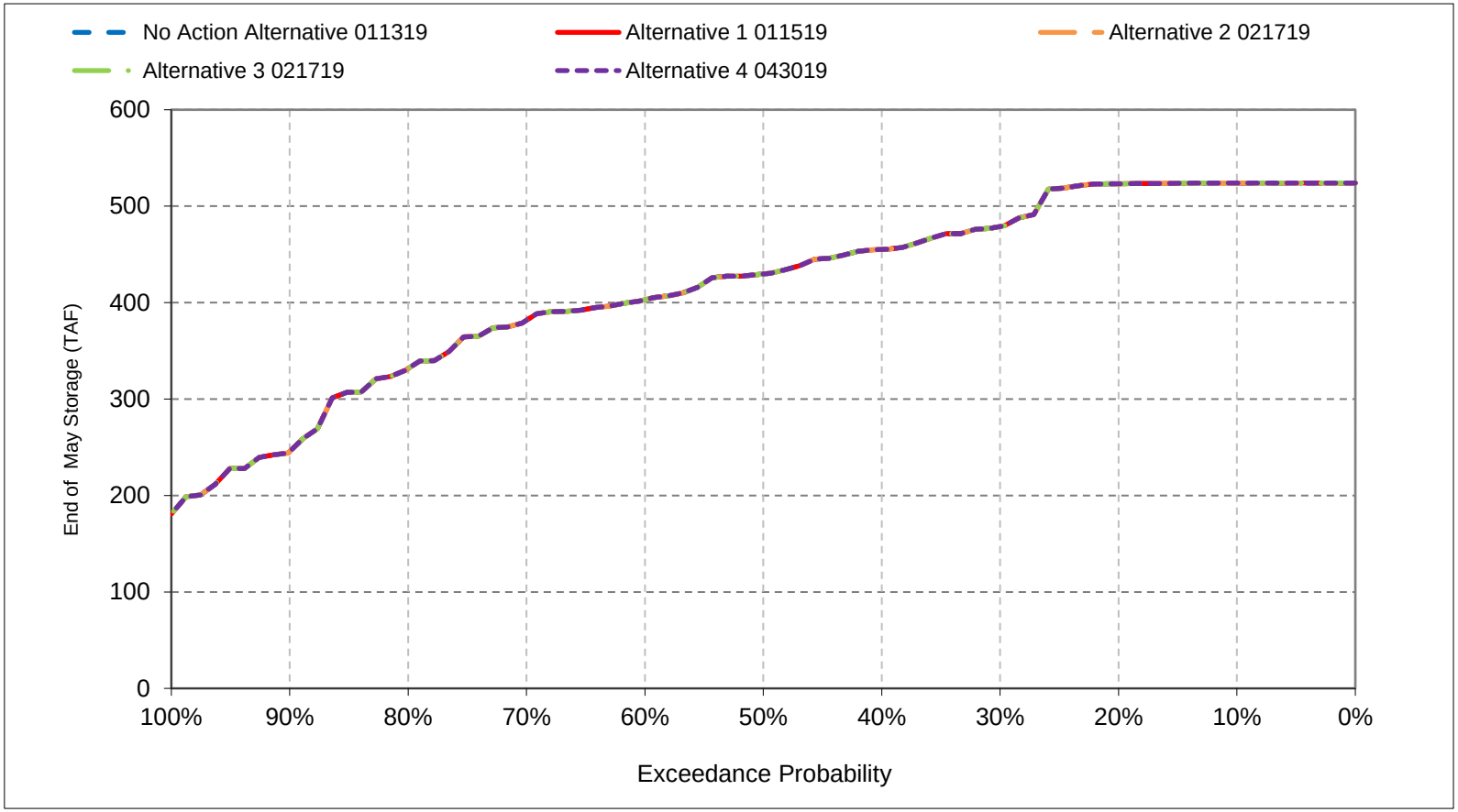
Figure 8-13. Millerton Storage, End of April Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

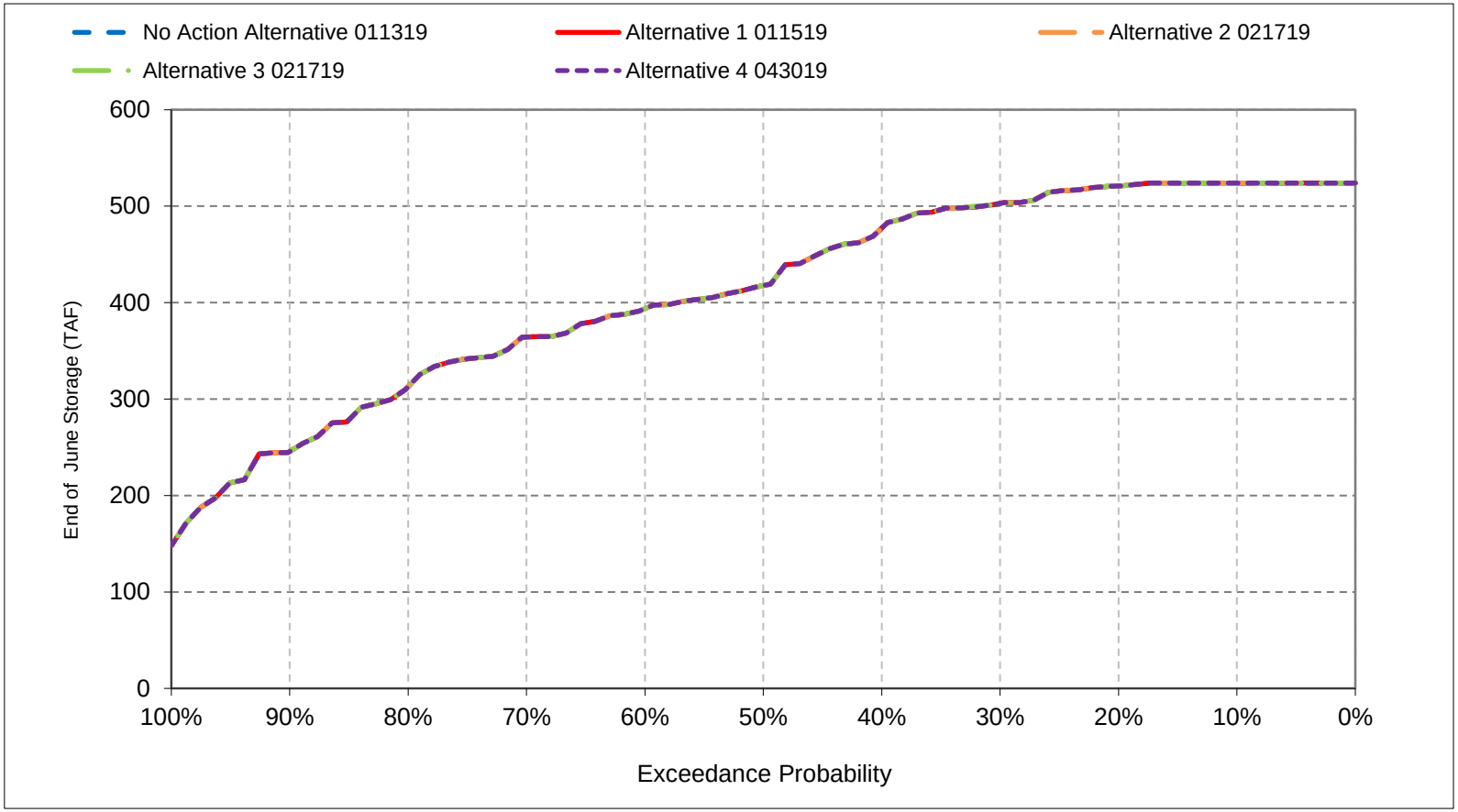
Figure 8-14. Millerton Storage, End of May Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

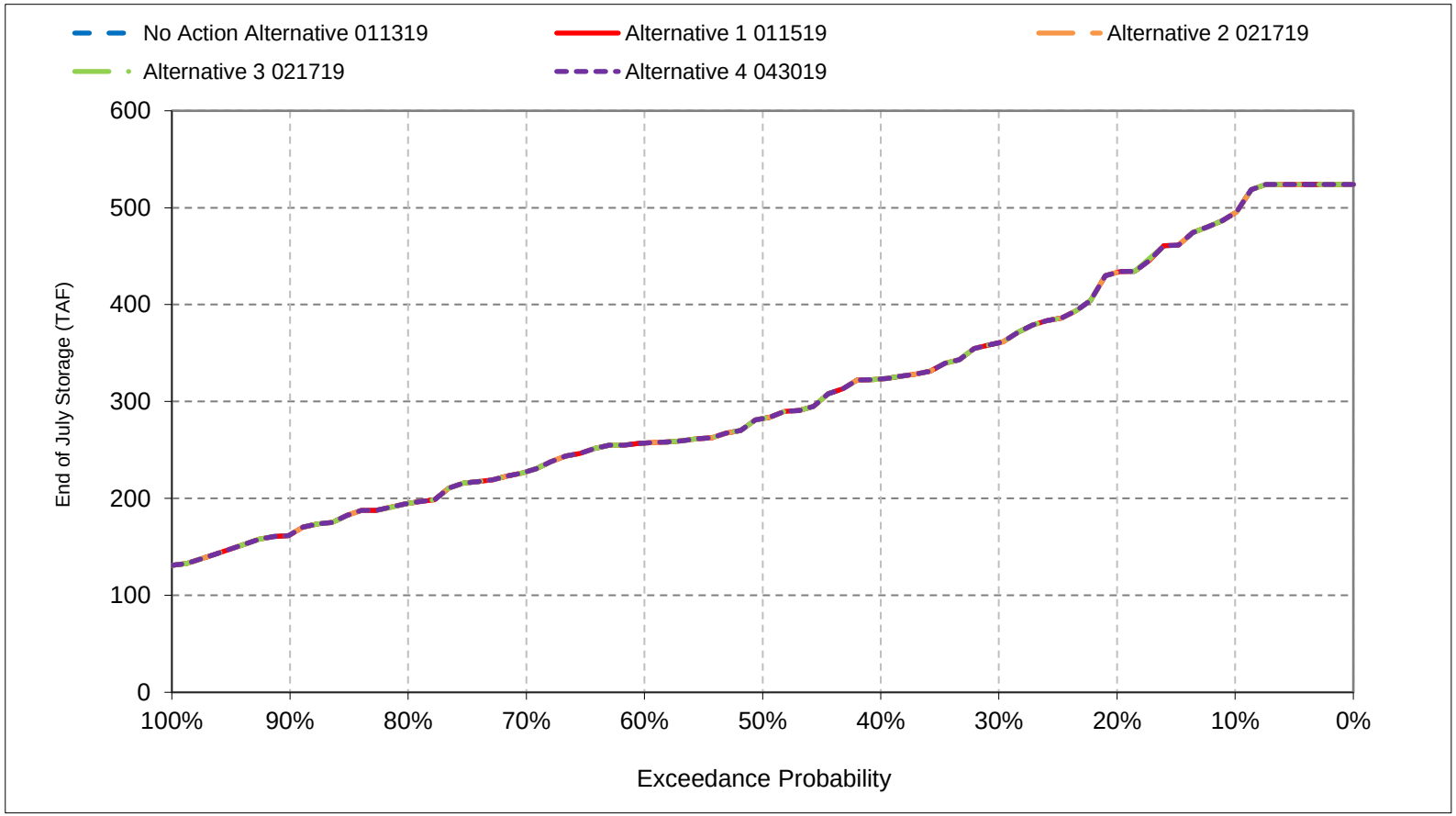
Figure 8-15. Millerton Storage, End of June Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

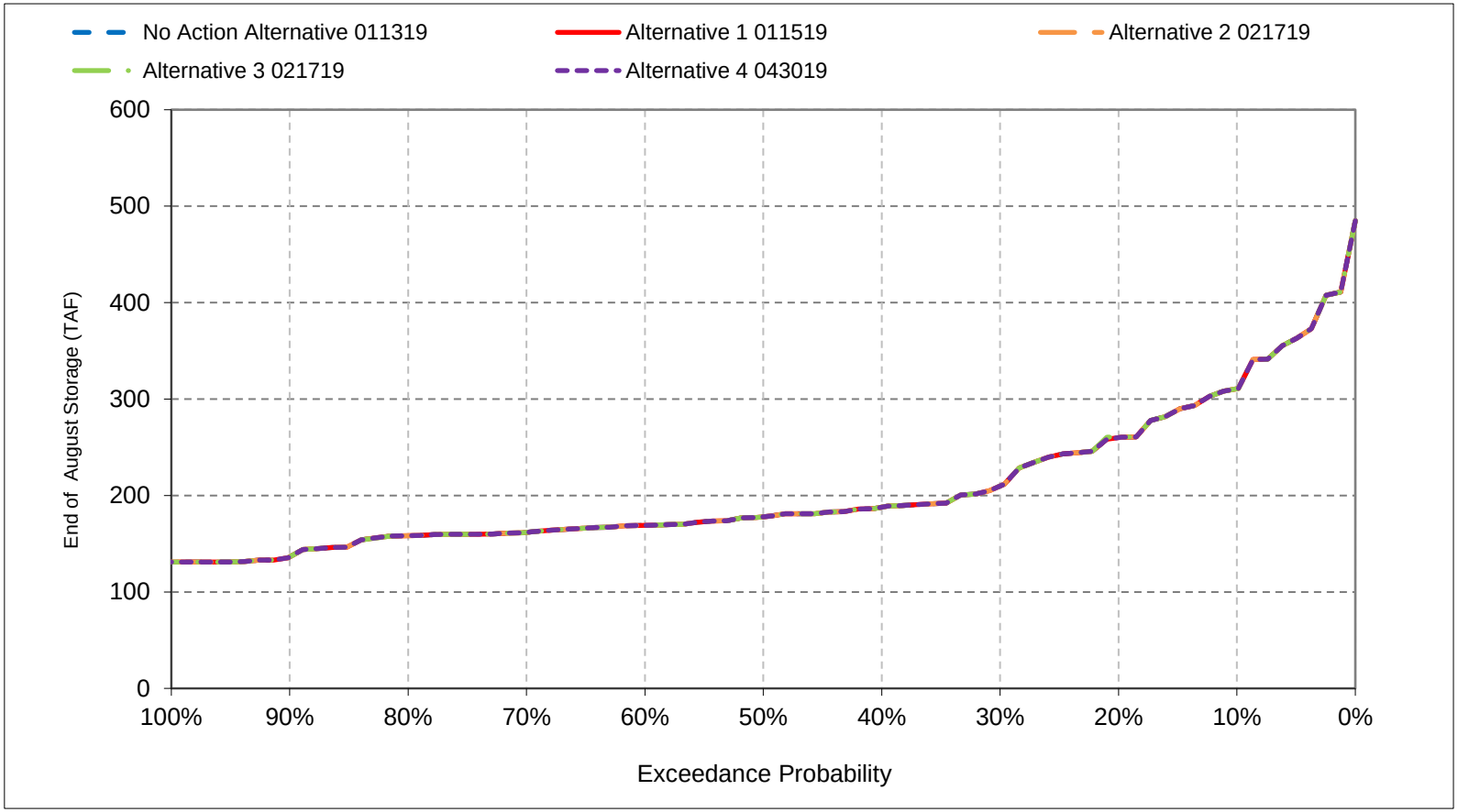
Figure 8-16. Millerton Storage, End of July Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

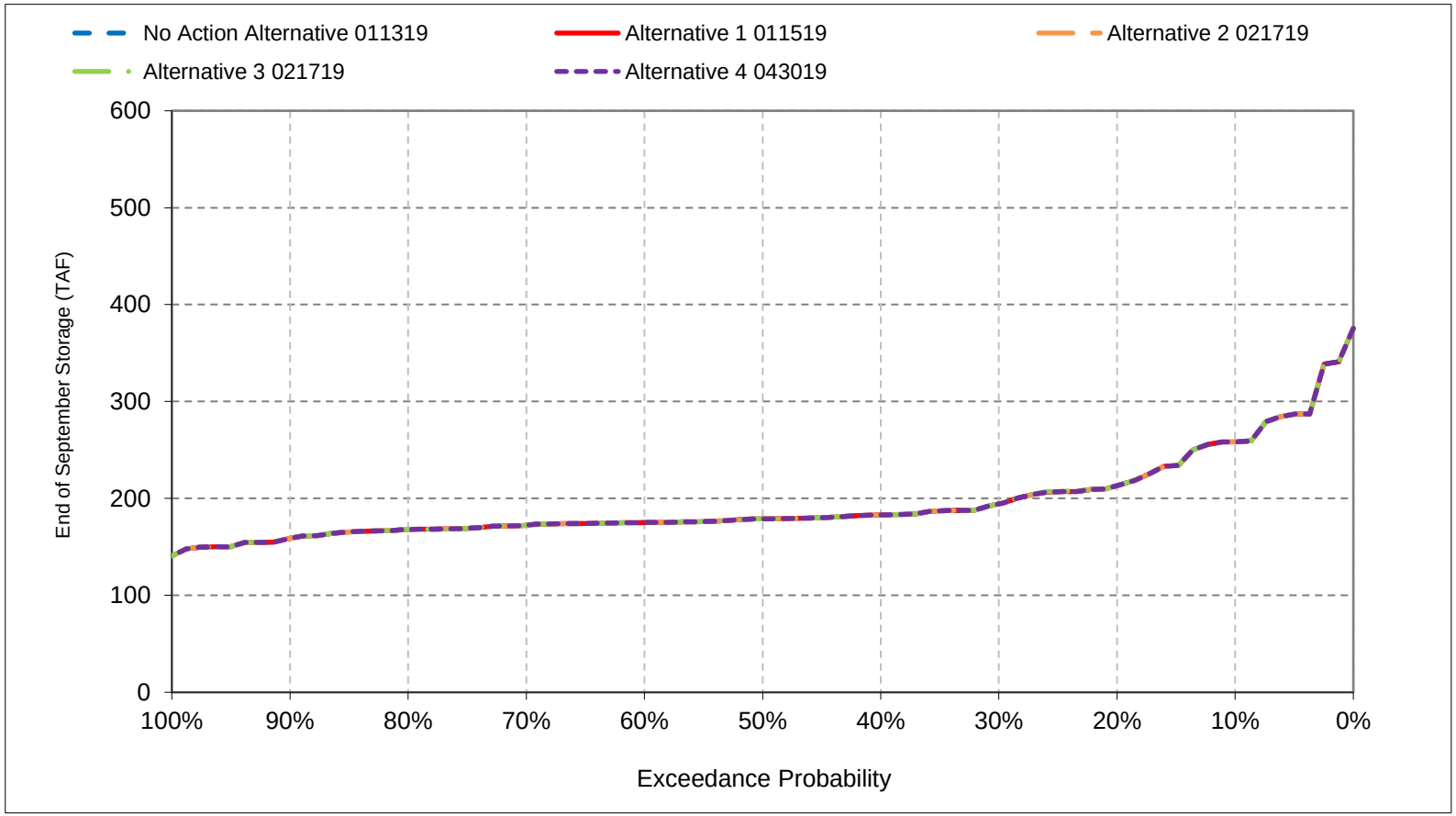
Figure 8-17. Millerton Storage, End of August Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-18. Millerton Storage, End of September Storage



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 8a-1. Millerton Lake Elevation, End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	515	524	546	561	561	568	570	577	577	571	530	515
20%	503	517	532	555	561	568	562	577	576	559	515	499
30%	498	512	525	540	561	567	557	568	573	543	498	493
40%	493	502	518	536	556	560	551	564	568	533	490	488
50%	491	498	513	528	549	551	546	559	556	522	486	486
60%	486	492	506	523	537	545	539	553	551	514	482	484
70%	483	485	499	514	531	534	529	548	544	504	479	483
80%	479	481	493	506	517	519	517	536	531	493	477	481
90%	475	475	483	490	496	496	503	510	510	479	467	477
Long Term												
Full Simulation Period[a]	493	500	513	527	538	542	540	553	552	524	494	491
Water Year Types[b,c]												
Wet (23%)	512	520	529	547	558	562	539	556	574	565	528	512
Above Normal (24%)	495	508	523	536	555	562	552	570	572	541	497	487
Below Normal (10%)	492	497	509	524	540	542	539	552	550	521	488	487
Dry (16%)	485	493	508	526	533	535	546	556	545	505	479	487
Critical (27%)	478	479	493	503	508	511	526	533	518	486	472	482

Alternative 1 011519

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	515	524	546	561	561	568	570	577	577	571	530	515
20%	503	517	532	555	561	568	562	577	576	559	515	499
30%	498	512	525	540	561	567	557	568	573	543	498	493
40%	493	502	518	536	556	560	551	564	568	533	490	488
50%	491	498	513	528	549	551	546	559	556	522	486	486
60%	486	492	506	523	537	545	539	553	551	514	482	484
70%	483	485	499	514	531	534	529	548	544	504	479	483
80%	479	481	493	506	517	519	517	536	531	493	477	481
90%	475	475	483	490	496	496	503	510	510	479	467	477
Long Term												
Full Simulation Period[a]	493	500	513	527	538	542	540	553	552	524	494	491
Water Year Types[b,c]												
Wet (23%)	512	520	529	547	558	562	539	556	574	565	528	512
Above Normal (24%)	495	508	523	536	555	562	552	570	572	541	497	487
Below Normal (10%)	492	497	509	524	540	542	539	552	550	521	488	487
Dry (16%)	485	493	508	526	533	535	546	556	545	505	479	487
Critical (27%)	478	479	493	503	508	511	526	533	518	486	472	482

Alternative 1 011519 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	**0**	0
Critical (27%)	0	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 8a-2. Millerton Lake Elevation, End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	515	524	546	561	561	568	570	577	577	571	530	515
20%	503	517	532	555	561	568	562	577	576	559	515	499
30%	498	512	525	540	561	567	557	568	573	543	498	493
40%	493	502	518	536	556	560	551	564	568	533	490	488
50%	491	498	513	528	549	551	546	559	556	522	486	486
60%	486	492	506	523	537	545	539	553	551	514	482	484
70%	483	485	499	514	531	534	529	548	544	504	479	483
80%	479	481	493	506	517	519	517	536	531	493	477	481
90%	475	475	483	490	496	496	503	510	510	479	467	477
Long Term												
Full Simulation Period[a]	493	500	513	527	538	542	540	553	552	524	494	491
Water Year Types[b,c]												
Wet (23%)	512	520	529	547	558	562	539	556	574	565	528	512
Above Normal (24%)	495	508	523	536	555	562	552	570	572	541	497	487
Below Normal (10%)	492	497	509	524	540	542	539	552	550	521	488	487
Dry (16%)	485	493	508	526	533	535	546	556	545	505	479	487
Critical (27%)	478	479	493	503	508	511	526	533	518	486	472	482

Alternative 2 021719

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	515	524	546	561	561	568	570	577	577	571	530	515
20%	503	517	532	555	561	568	562	577	576	559	515	499
30%	498	512	525	540	561	567	557	568	573	543	498	493
40%	493	502	518	536	556	560	551	564	568	533	490	488
50%	491	498	513	528	549	551	546	559	556	522	486	486
60%	486	492	506	523	537	545	539	553	551	514	482	484
70%	483	485	499	514	531	534	529	548	544	504	479	483
80%	479	481	493	506	517	519	517	536	531	493	477	481
90%	475	475	483	490	496	496	503	510	510	479	467	477
Long Term												
Full Simulation Period[a]	493	500	513	527	538	542	540	553	552	524	494	491
Water Year Types[b,c]												
Wet (23%)	512	520	529	547	558	562	539	556	574	565	528	512
Above Normal (24%)	495	508	523	536	555	562	552	570	572	541	497	487
Below Normal (10%)	492	497	509	524	540	542	539	552	550	521	488	487
Dry (16%)	485	493	508	526	533	535	546	556	545	505	479	487
Critical (27%)	478	479	493	503	508	511	526	533	518	486	472	482

Alternative 2 021719 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	**0**	0	0	0	0	0	0	0	0
80%	0	0	**0**	0	0	0	**0**	0	0	0	0	0
90%	0	0	0	0	0	0	0	**0**	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	**0**	**0**	**0**	**0**	**0**	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	0	0	**0**	**0**	**0**	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Critical (27%)	0	0	0	**0**	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 8a-3. Millerton Lake Elevation, End of Month Elevation

No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	515	524	546	561	561	568	570	577	577	571	530	515
20%	503	517	532	555	561	568	562	577	576	559	515	499
30%	498	512	525	540	561	567	557	568	573	543	498	493
40%	493	502	518	536	556	560	551	564	568	533	490	488
50%	491	498	513	528	549	551	546	559	556	522	486	486
60%	486	492	506	523	537	545	539	553	551	514	482	484
70%	483	485	499	514	531	534	529	548	544	504	479	483
80%	479	481	493	506	517	519	517	536	531	493	477	481
90%	475	475	483	490	496	496	503	510	510	479	467	477
Long Term												
Full Simulation Period[a]	493	500	513	527	538	542	540	553	552	524	494	491
Water Year Types[b,c]												
Wet (23%)	512	520	529	547	558	562	539	556	574	565	528	512
Above Normal (24%)	495	508	523	536	555	562	552	570	572	541	497	487
Below Normal (10%)	492	497	509	524	540	542	539	552	550	521	488	487
Dry (16%)	485	493	508	526	533	535	546	556	545	505	479	487
Critical (27%)	478	479	493	503	508	511	526	533	518	486	472	482

Alternative 3 021719

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	515	524	546	561	561	568	570	577	577	571	530	515
20%	503	517	532	555	561	568	562	577	576	559	515	499
30%	498	512	525	540	561	567	557	568	573	543	498	493
40%	493	502	518	536	556	560	551	564	568	533	490	488
50%	491	498	513	528	549	551	546	559	556	522	486	486
60%	486	492	506	523	537	545	539	553	551	514	482	484
70%	483	485	499	514	531	534	529	548	544	504	479	483
80%	479	481	493	506	517	519	517	536	531	493	477	481
90%	475	475	483	490	496	496	503	510	510	479	467	477
Long Term												
Full Simulation Period[a]	493	500	513	527	538	542	540	553	552	524	494	491
Water Year Types[b,c]												
Wet (23%)	512	520	529	547	558	562	539	556	574	565	528	512
Above Normal (24%)	495	508	523	536	555	562	552	570	572	541	497	488
Below Normal (10%)	492	497	509	524	540	542	539	552	550	521	488	487
Dry (16%)	485	493	508	526	533	535	546	556	545	505	479	487
Critical (27%)	478	479	493	503	508	511	526	533	518	486	472	481

Alternative 3 021719 minus No Action Alternative 011319

Statistic	End of Month Elevation (FEET)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	**0**	0	0	0	0	0	0	0	0	0	0
60%	**0**	0	0	0	0	0	**0**	0	0	0	0	0
70%	0	0	0	**0**	0	0	0	0	0	0	0	0
80%	0	0	**0**	0	0	0	**0**	0	0	0	0	**0**
90%	**0**	0	**0**	0	**0**	0	0	**0**	0	0	0	0
Long Term												
Full Simulation Period[a]	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	**0**	**0**	**0**	**0**	**0**	0	0	0	0
Below Normal (10%)	0	0	**0**	0	0	0	0	0	0	0	0	0
Dry (16%)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Critical (27%)	**0**	**0**	**0**	**0**	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 8a-4. Millerton Lake Elevation, End of Month Elevation

No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	515	524	546	561	561	568	570	577	577	571	530	515
20%	503	517	532	555	561	568	562	577	576	559	515	499
30%	498	512	525	540	561	567	557	568	573	543	498	493
40%	493	502	518	536	556	560	551	564	568	533	490	488
50%	491	498	513	528	549	551	546	559	556	522	486	486
60%	486	492	506	523	537	545	539	553	551	514	482	484
70%	483	485	499	514	531	534	529	548	544	504	479	483
80%	479	481	493	506	517	519	517	536	531	493	477	481
90%	475	475	483	490	496	496	503	510	510	479	467	477
Long Term												
Full Simulation Period[a]	493	500	513	527	538	542	540	553	552	524	494	491
Water Year Types[b,c]												
Wet (23%)	512	520	529	547	558	562	539	556	574	565	528	512
Above Normal (24%)	495	508	523	536	555	562	552	570	572	541	497	487
Below Normal (10%)	492	497	509	524	540	542	539	552	550	521	488	487
Dry (16%)	485	493	508	526	533	535	546	556	545	505	479	487
Critical (27%)	478	479	493	503	508	511	526	533	518	486	472	482

Alternative 4 043019

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	515	524	546	561	561	568	570	577	577	571	530	515
20%	503	517	532	555	561	568	562	577	576	559	515	499
30%	498	512	525	540	561	567	557	568	573	543	498	493
40%	493	502	518	536	556	560	551	564	568	533	490	488
50%	491	498	513	528	549	551	546	559	556	522	486	486
60%	486	492	506	523	537	545	539	553	551	514	482	484
70%	483	485	499	514	531	534	529	548	544	504	479	483
80%	479	481	493	506	517	519	517	536	531	493	477	481
90%	475	475	483	490	496	496	503	510	510	479	467	477
Long Term												
Full Simulation Period[a]	493	500	513	527	538	542	540	553	552	524	494	491
Water Year Types[b,c]												
Wet (23%)	512	520	529	547	558	562	539	556	574	565	528	512
Above Normal (24%)	495	508	523	536	555	562	552	570	572	541	497	487
Below Normal (10%)	492	497	509	524	540	542	539	552	550	521	488	487
Dry (16%)	485	493	508	526	533	535	546	556	545	505	479	487
Critical (27%)	478	479	493	503	508	511	526	533	518	486	472	482

Alternative 4 043019 minus No Action Alternative 011319

	End of Month Elevation (FEET)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	**0**	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	**0**	0
Critical (27%)	0	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

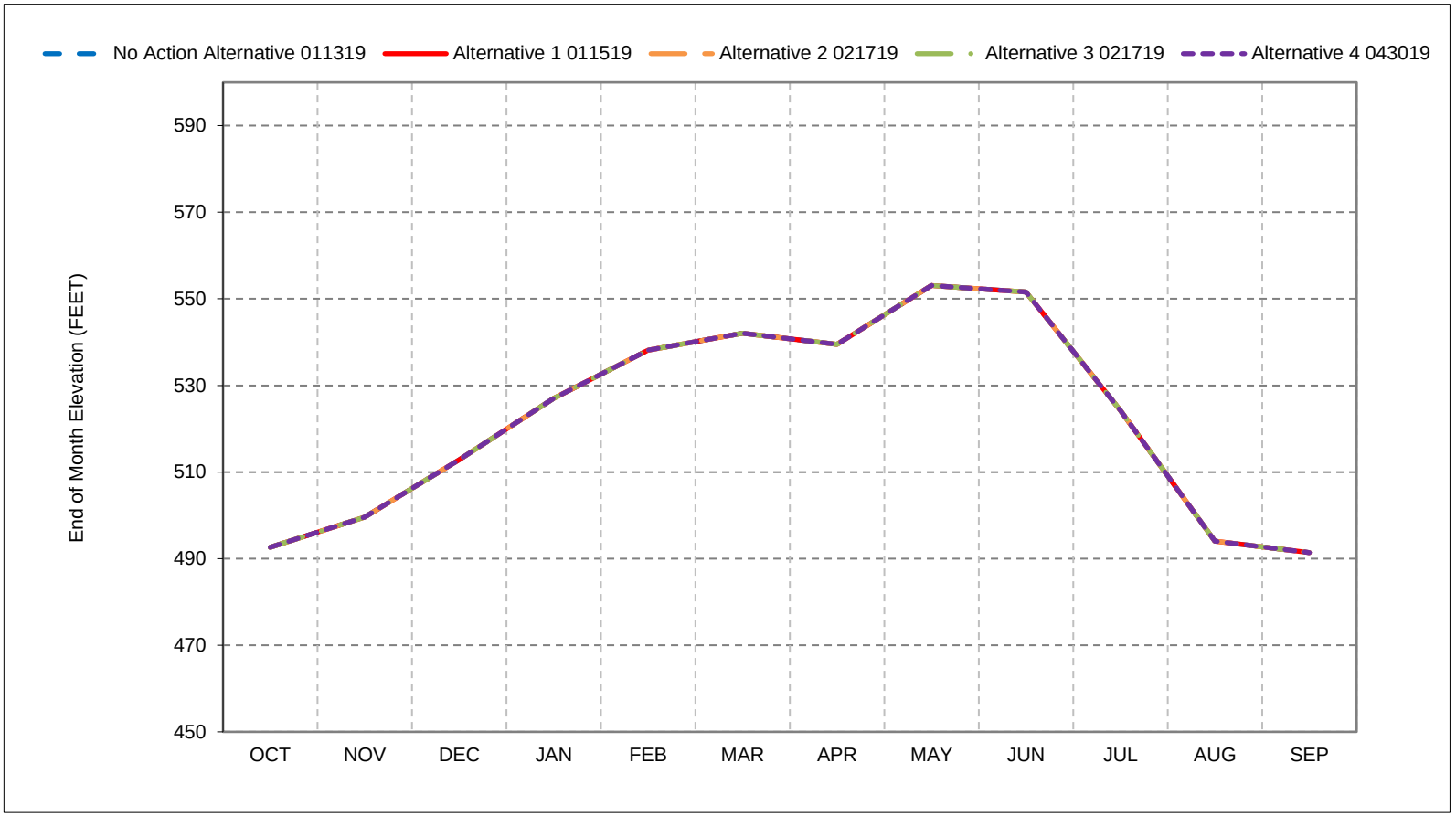
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

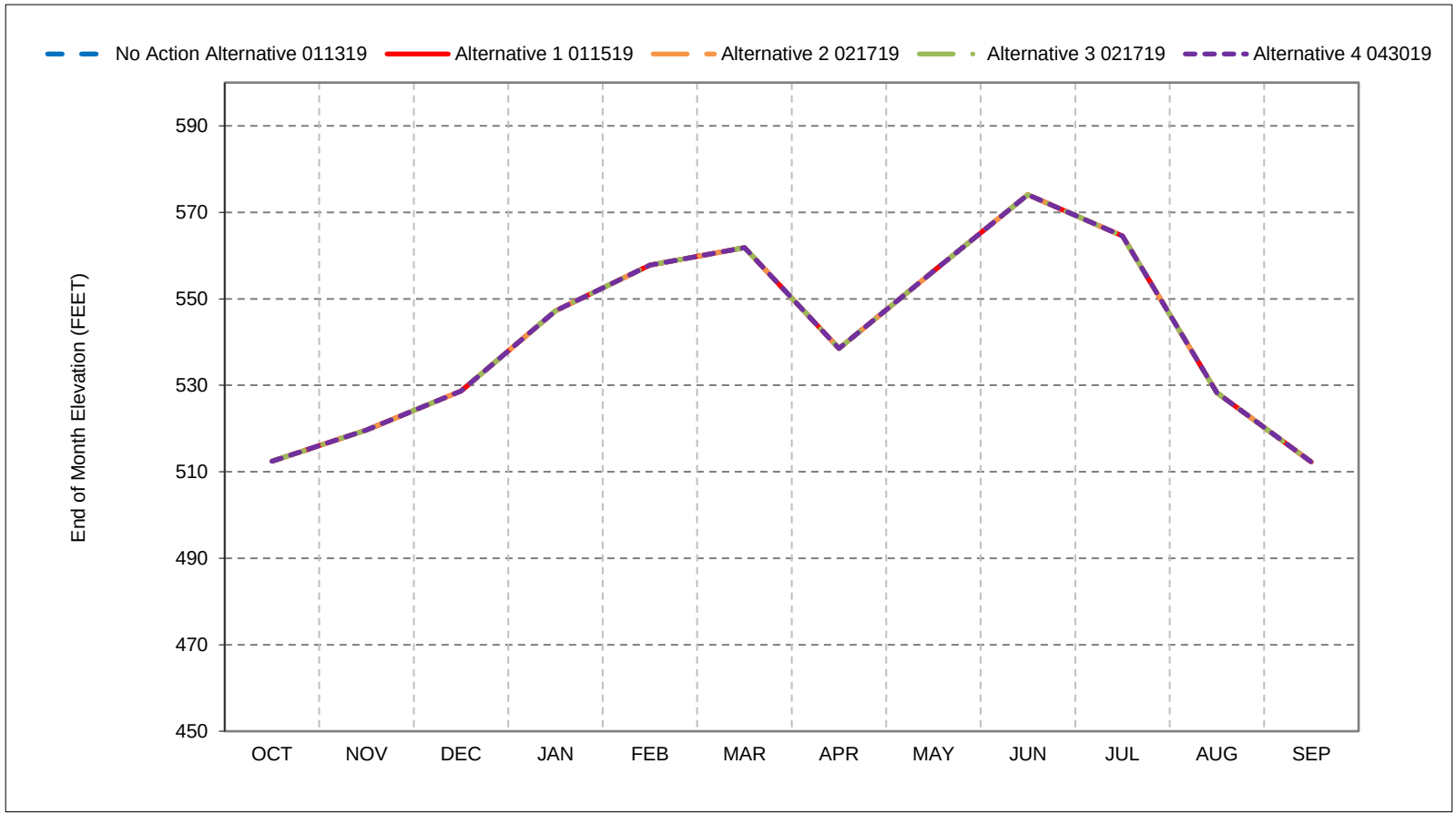
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 8a-1. Millerton Lake Elevation, Long-Term Average Elevation



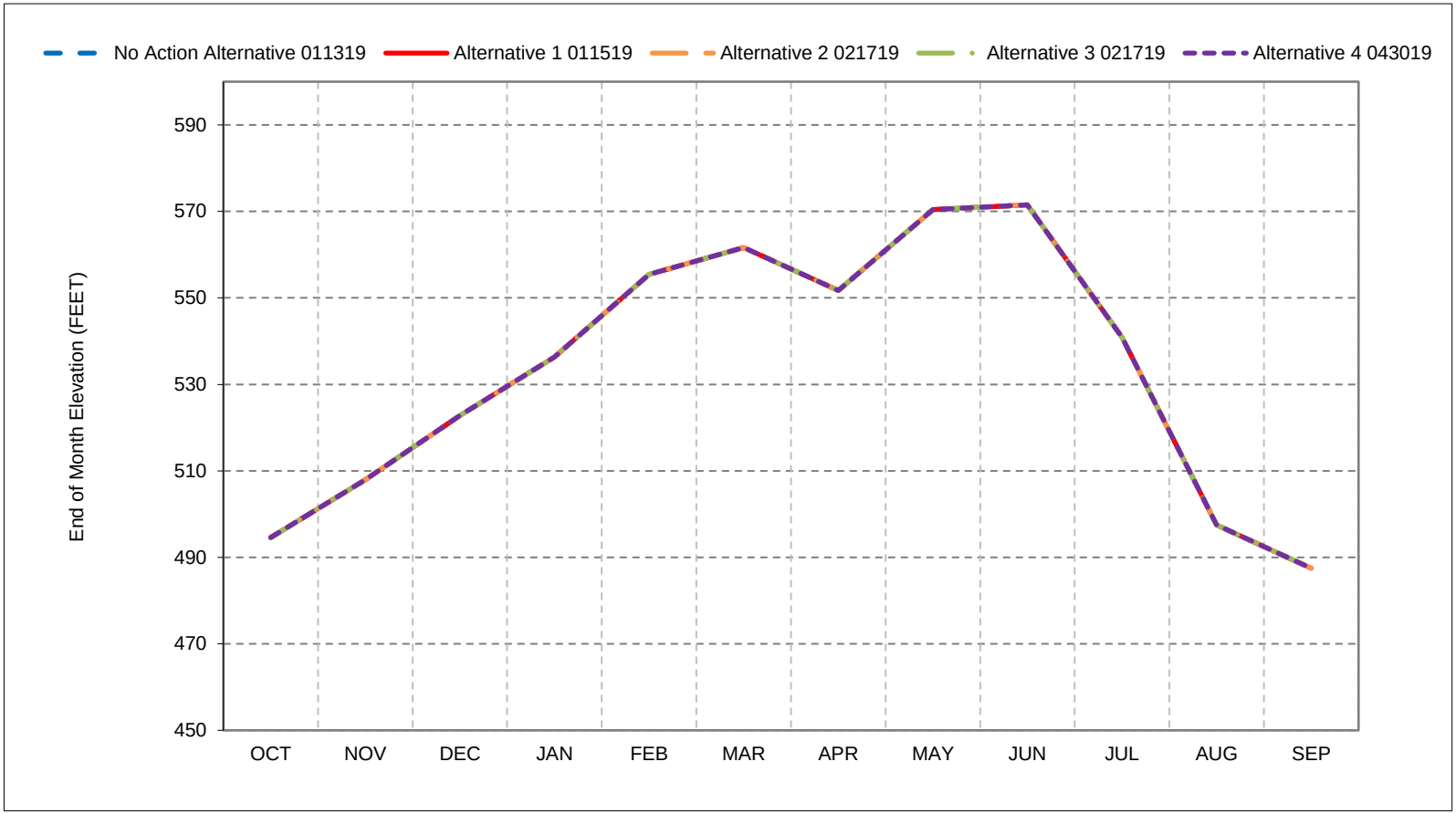
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8a-2. Millerton Lake Elevation, Wet Year Average Elevation



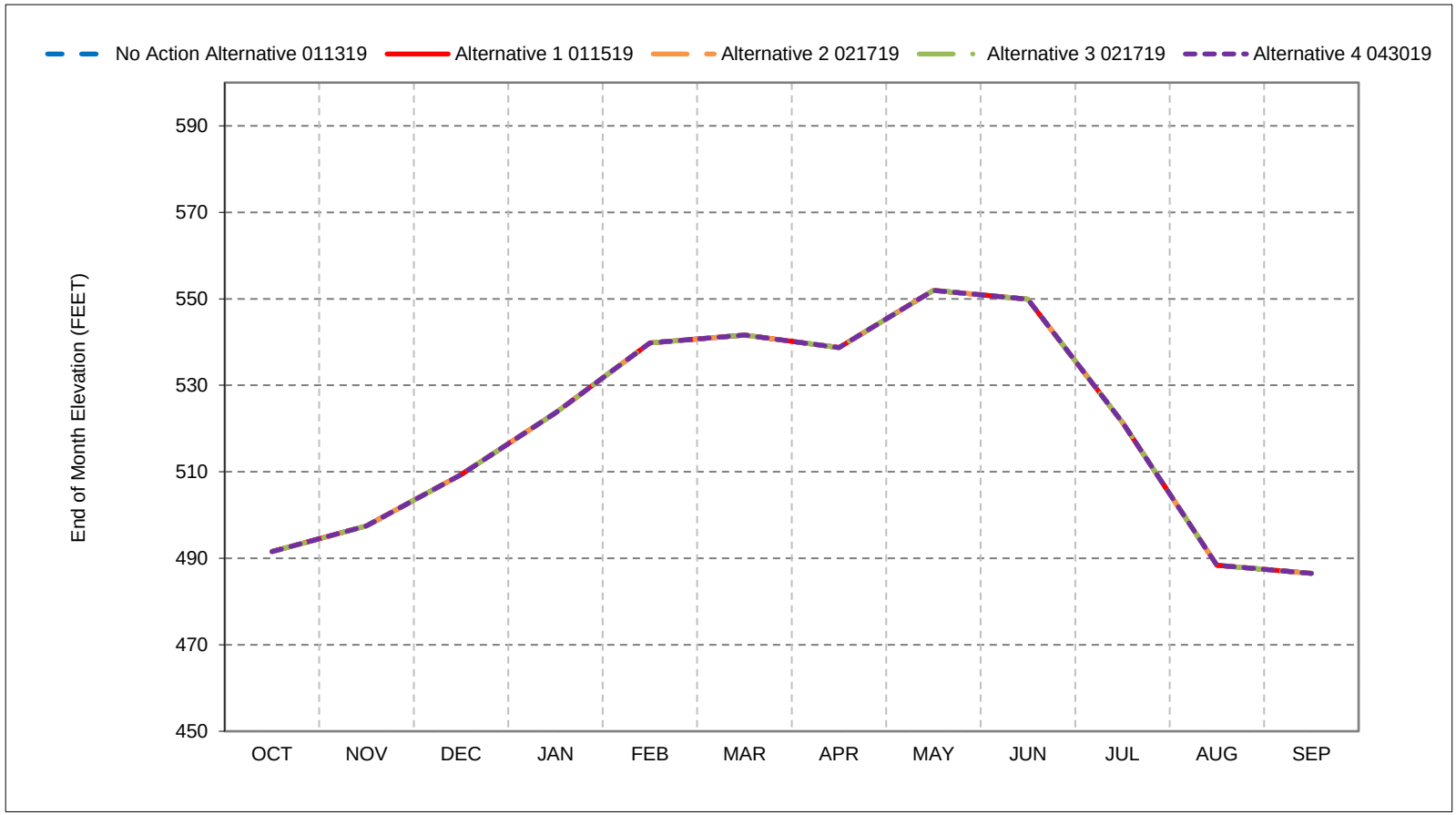
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8a-3. Millerton Lake Elevation, Above Normal Year Average Elevation



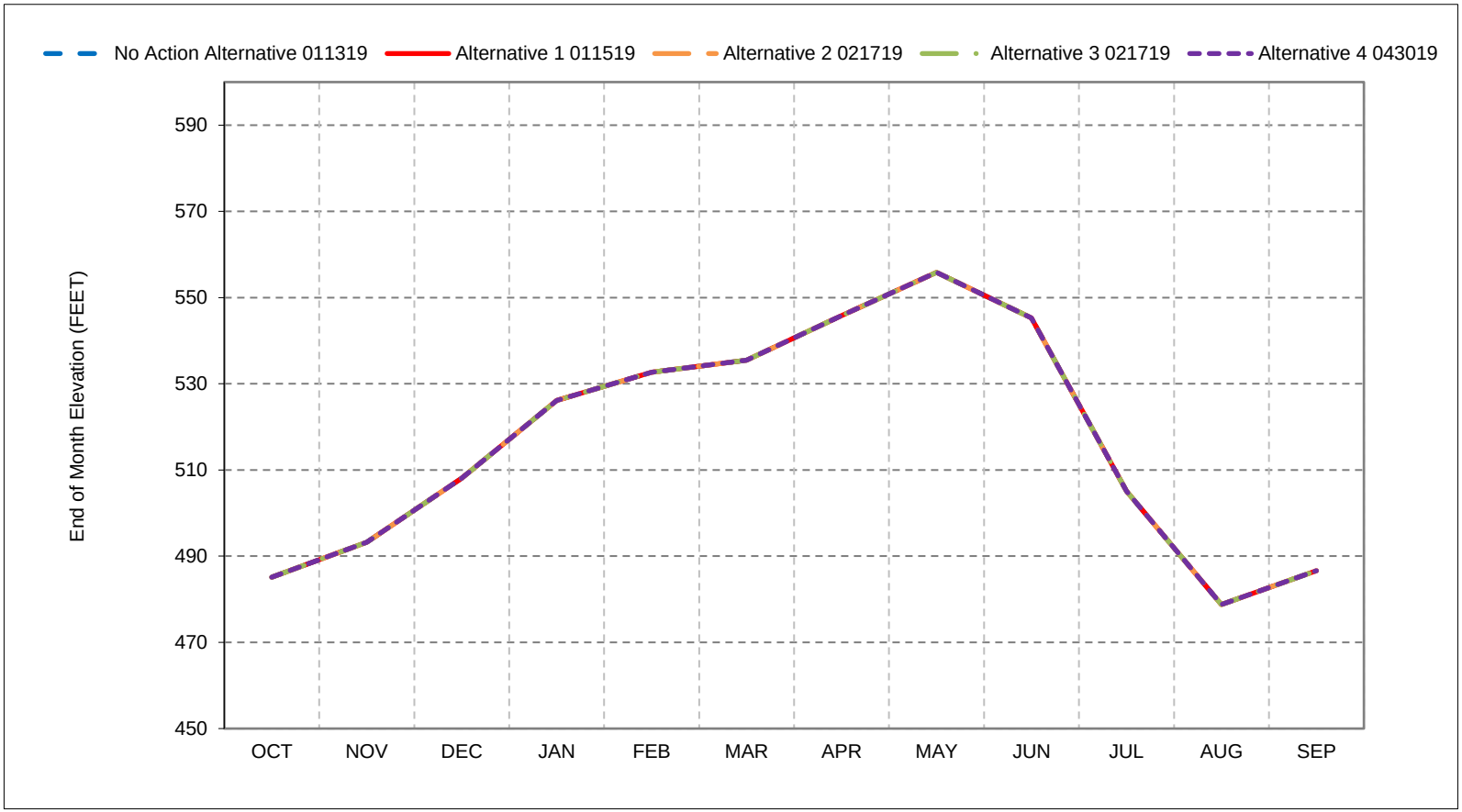
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8a-4. Millerton Lake Elevation, Below Normal Year Average Elevation



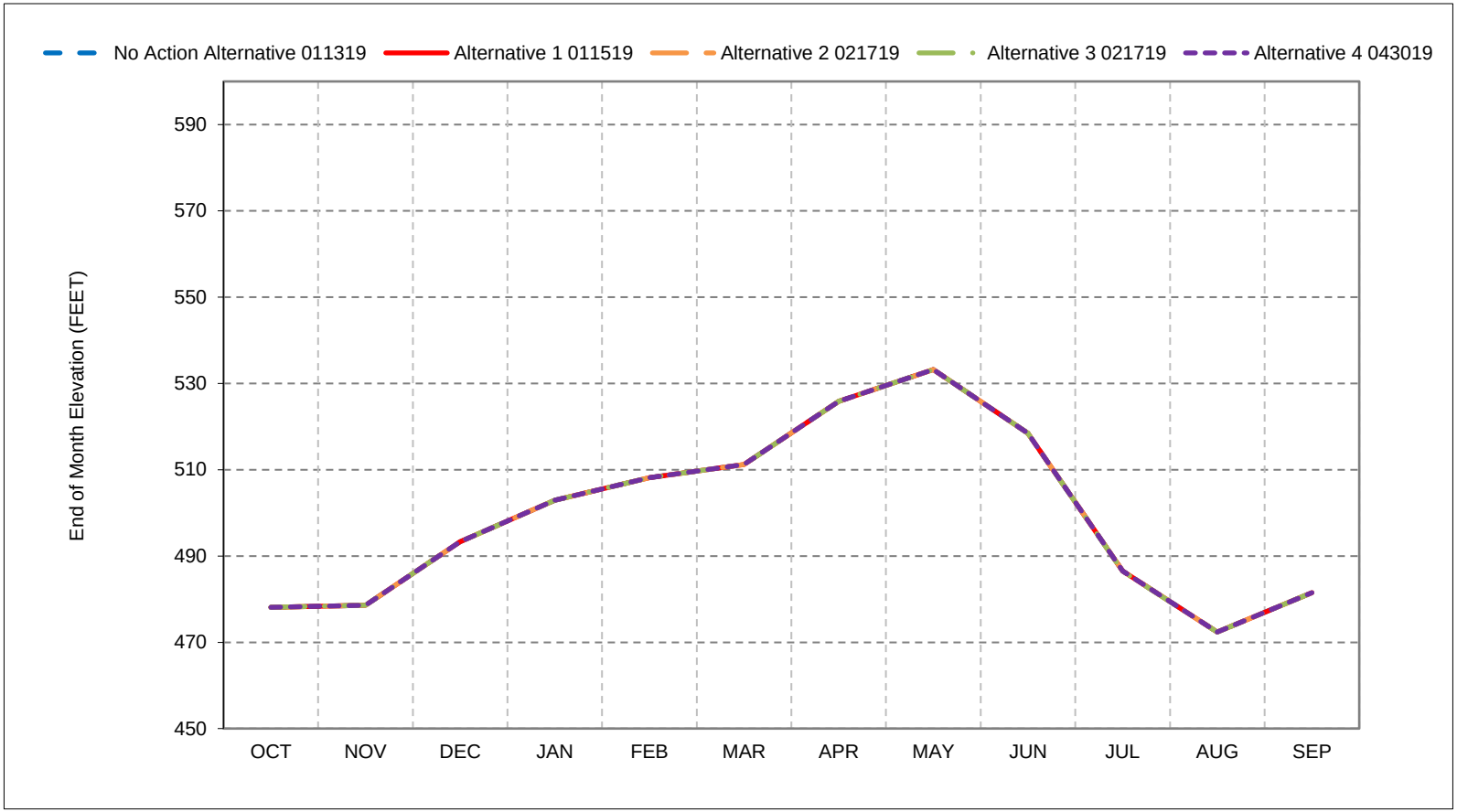
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8a-5. Millerton Lake Elevation, Dry Year Average Elevation



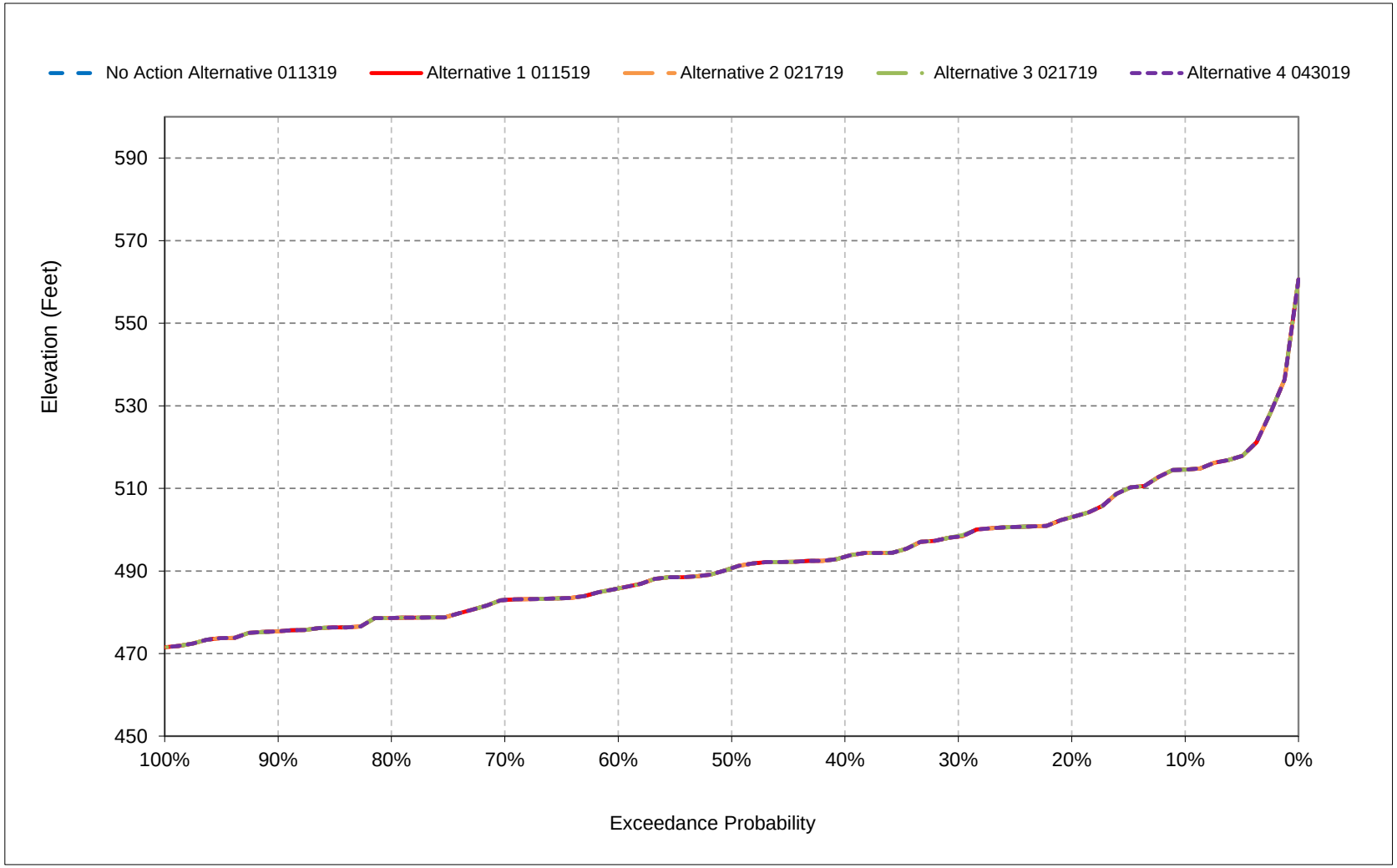
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8a-6. Millerton Lake Elevation, Critical Year Average Elevation



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

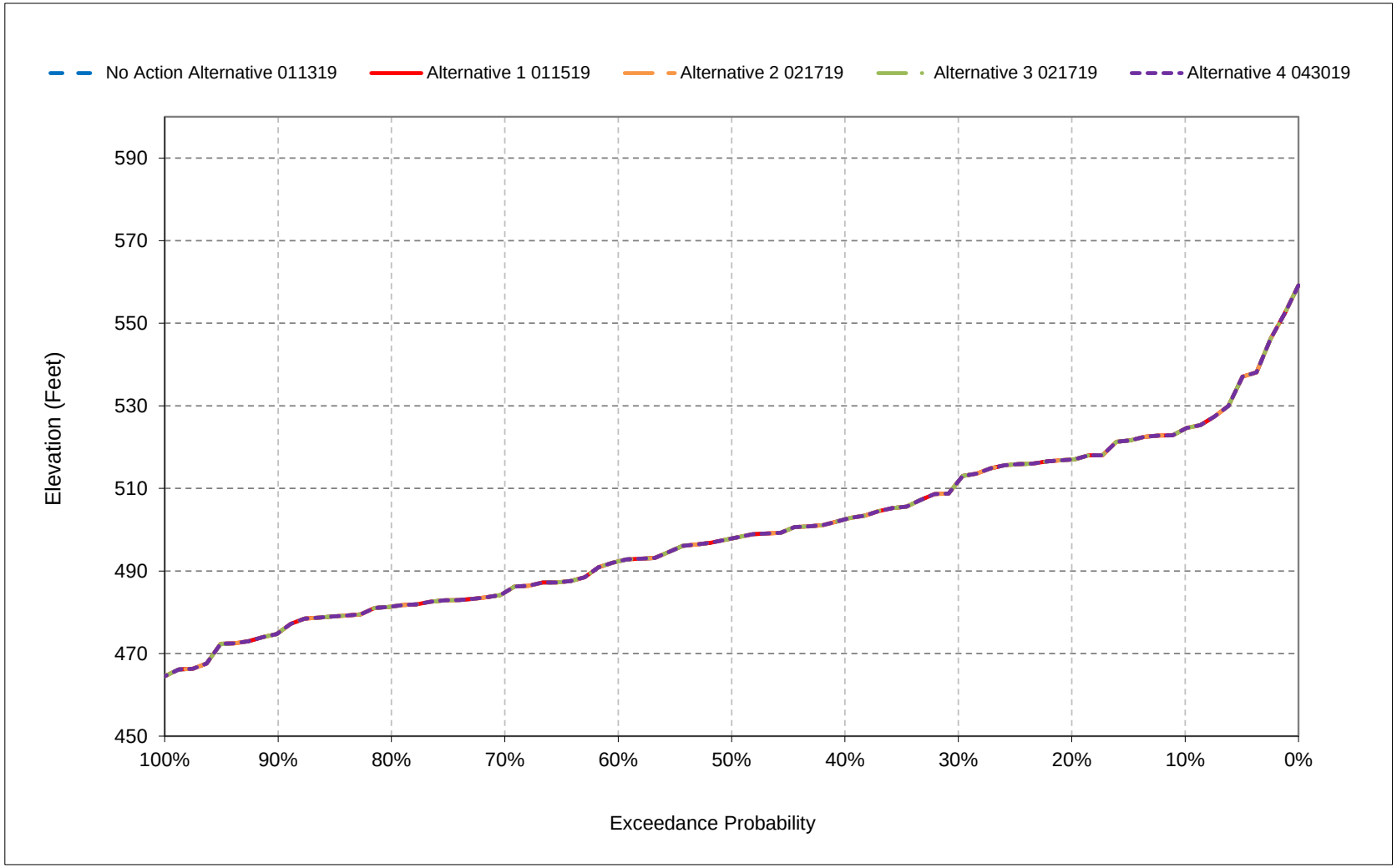
Figure 8a-7. Millerton Lake, Reservoir Pool Elevation, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

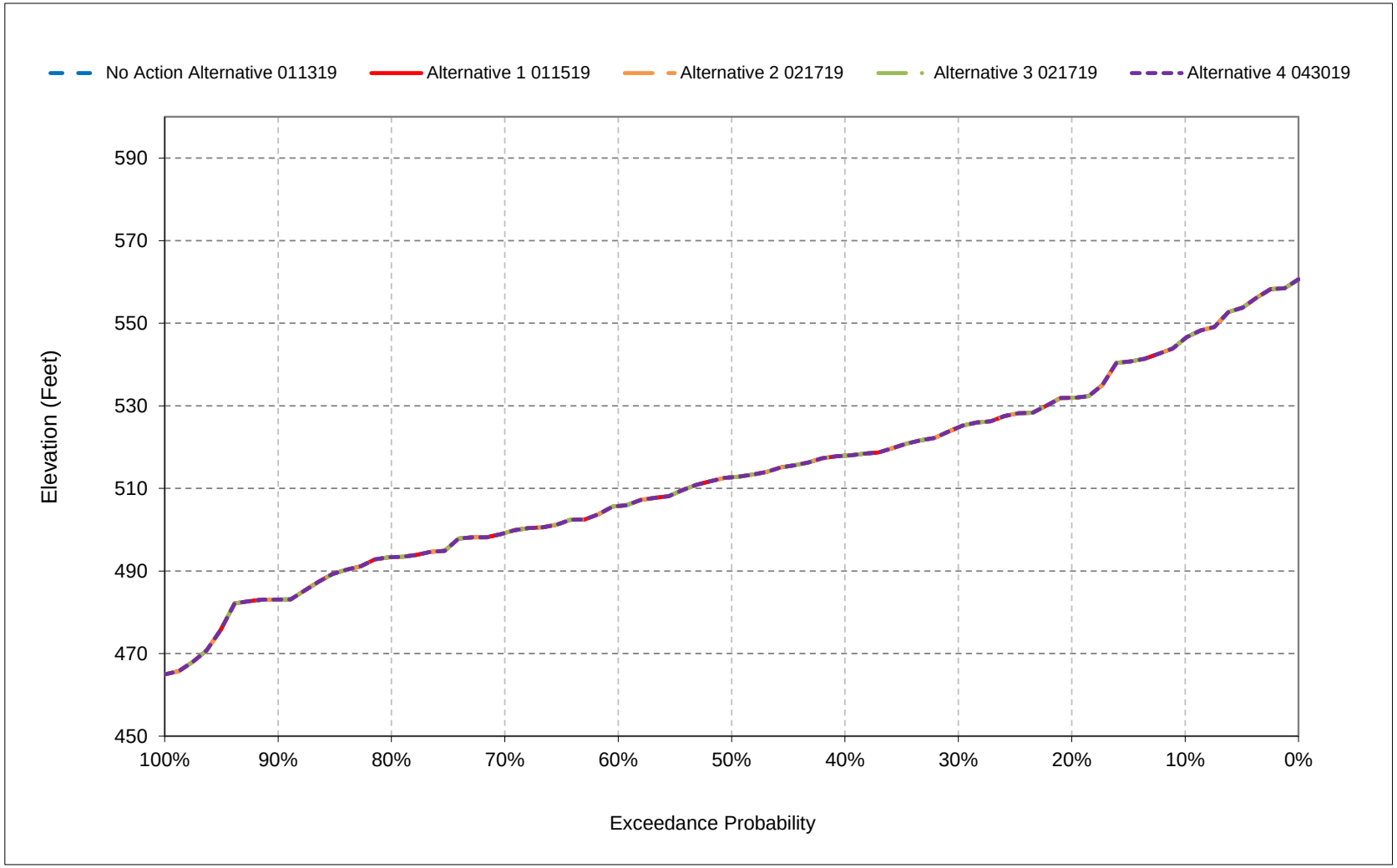
Figure 8a-8. Millerton Lake, Reservoir Pool Elevation, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

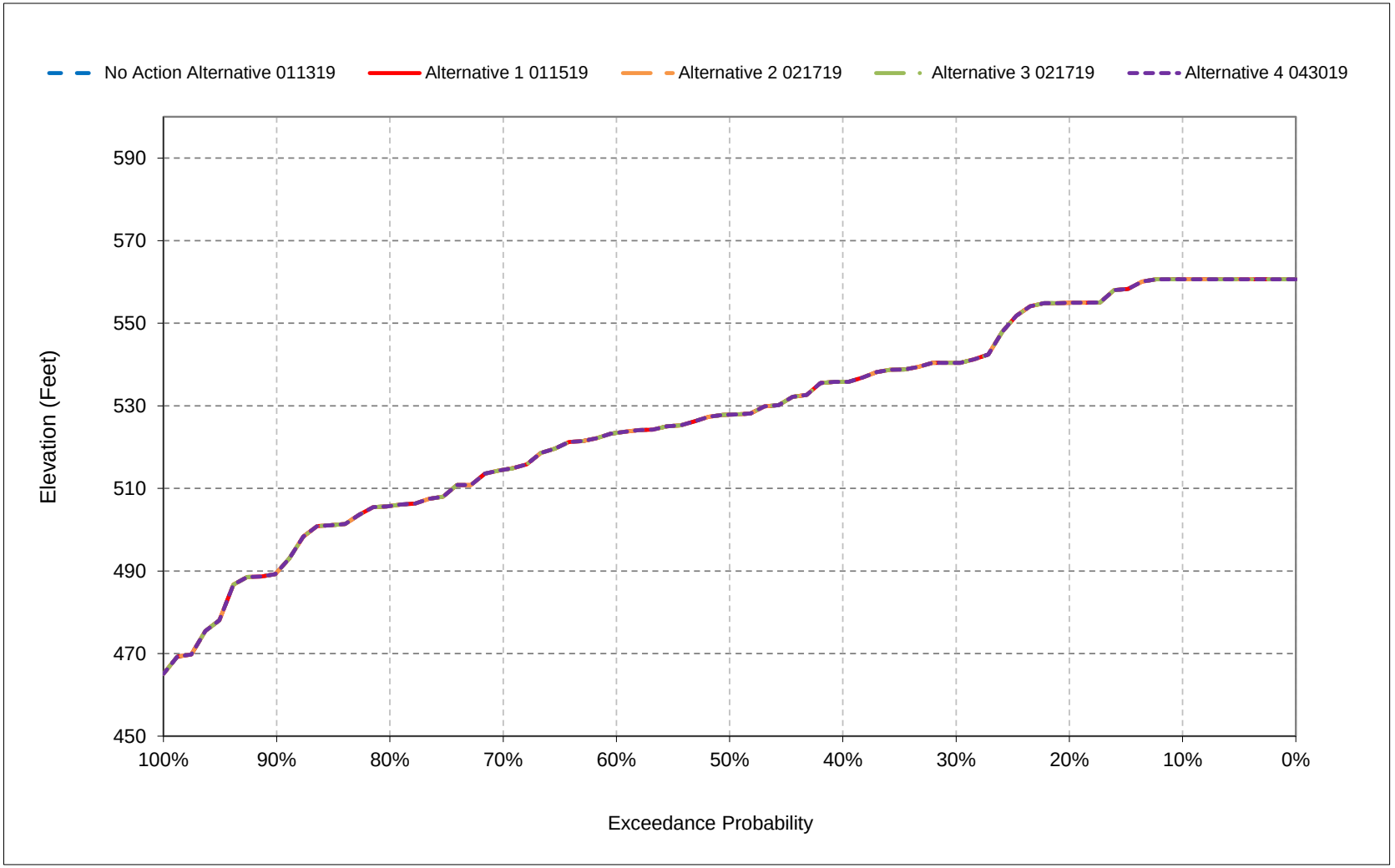
Figure 8a-9. Millerton Lake, Reservoir Pool Elevation, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

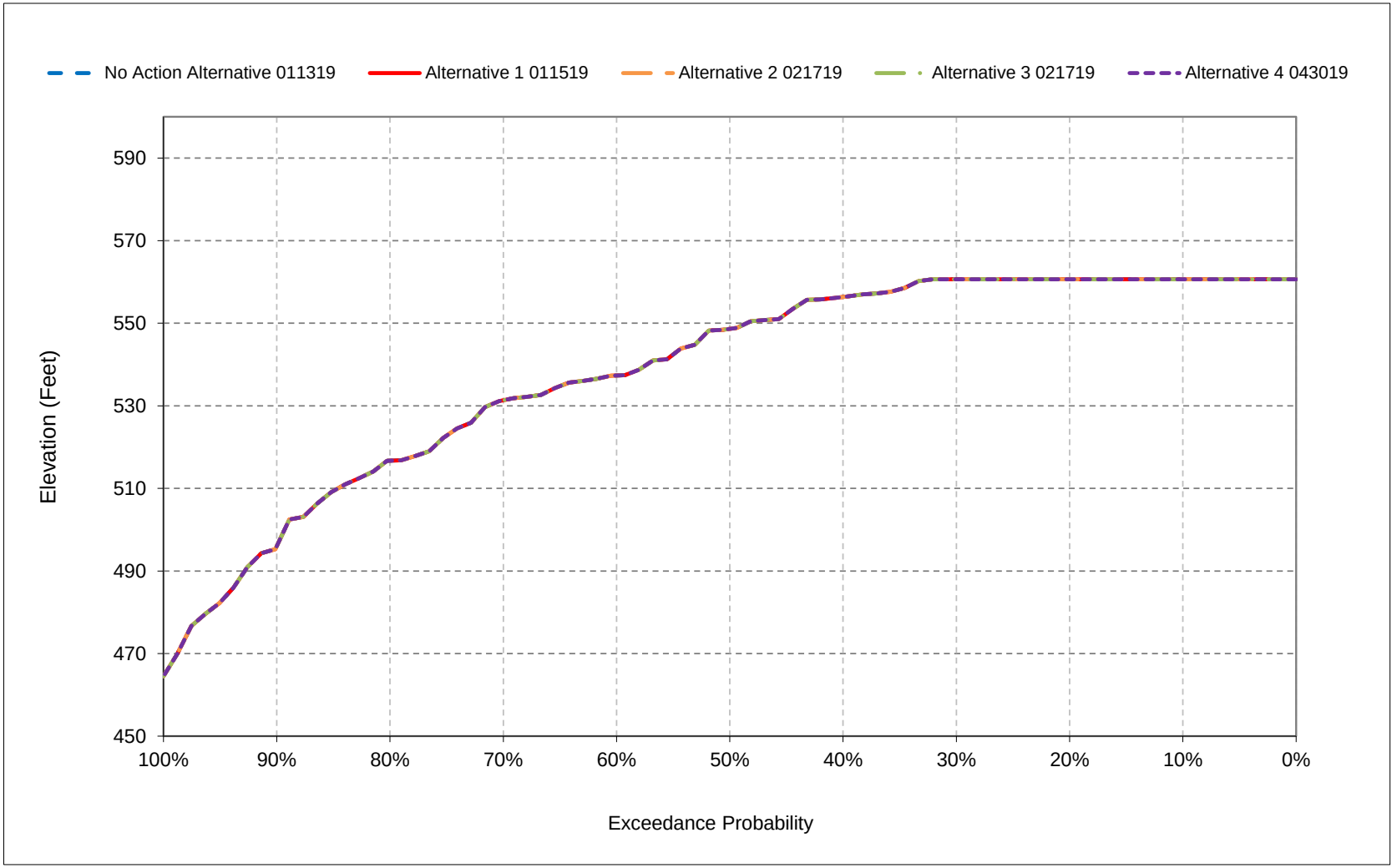
Figure 8a-10. Millerton Lake, Reservoir Pool Elevation, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

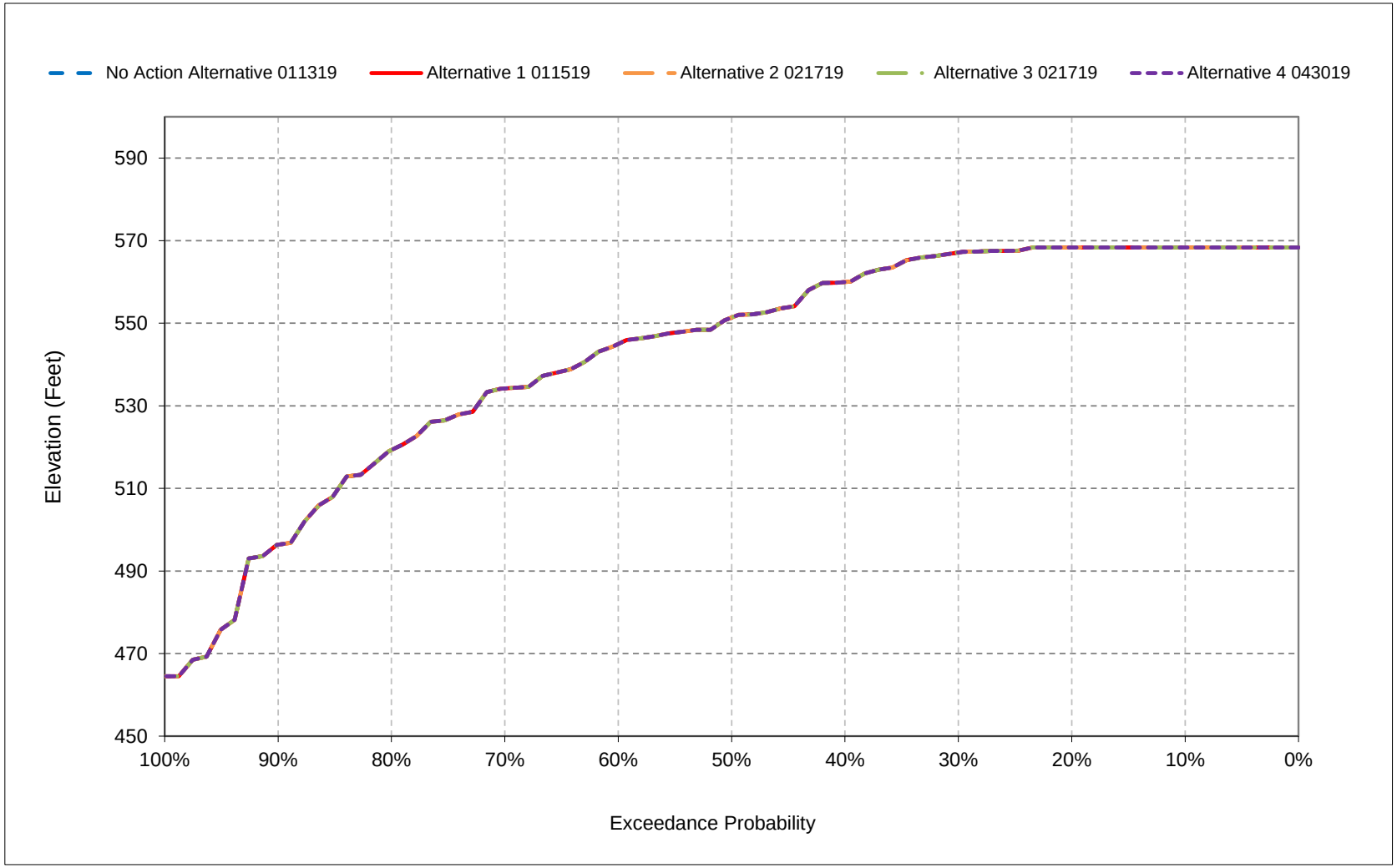
Figure 8a-11. Millerton Lake, Reservoir Pool Elevation, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

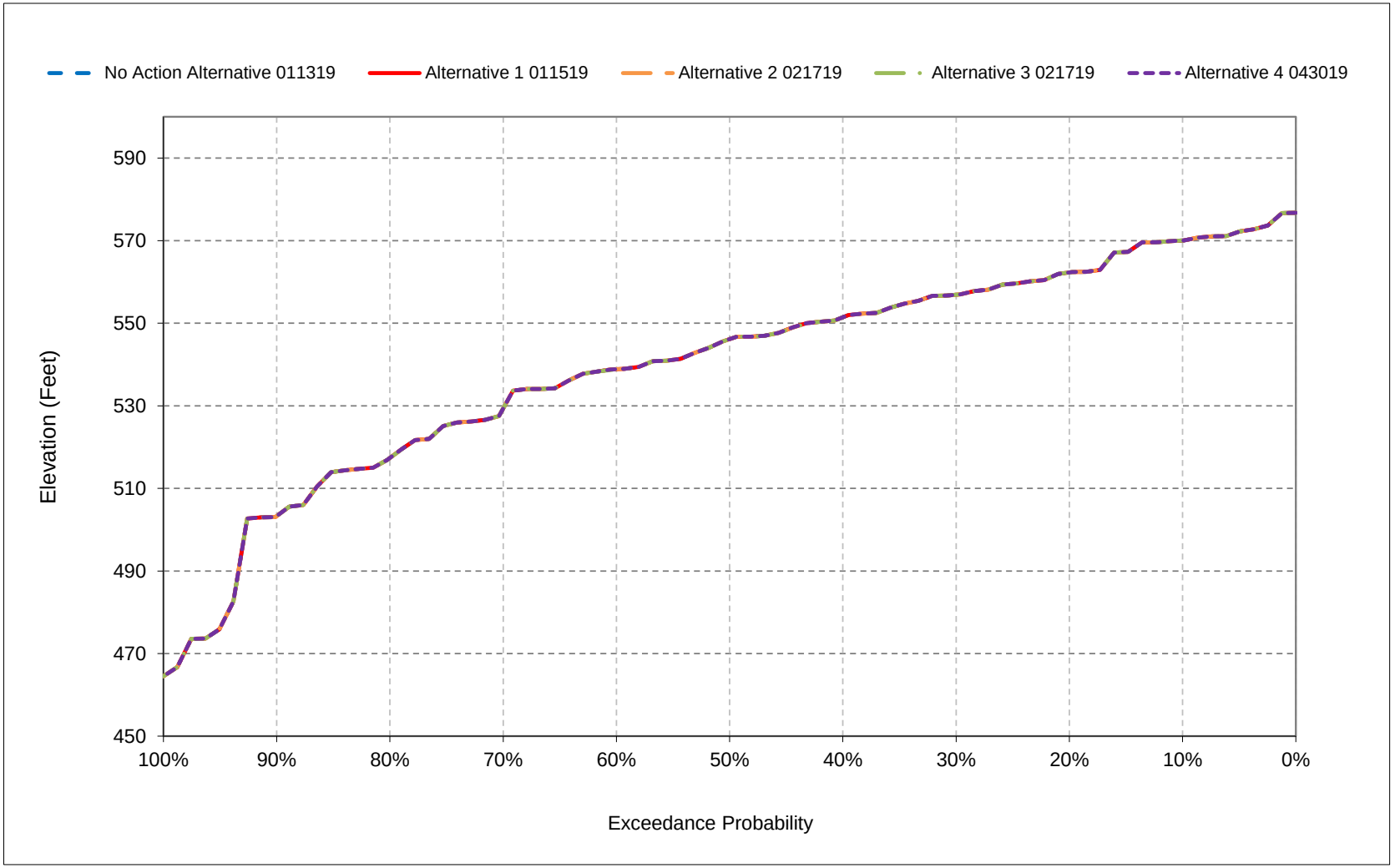
Figure 8a-12. Millerton Lake, Reservoir Pool Elevation, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

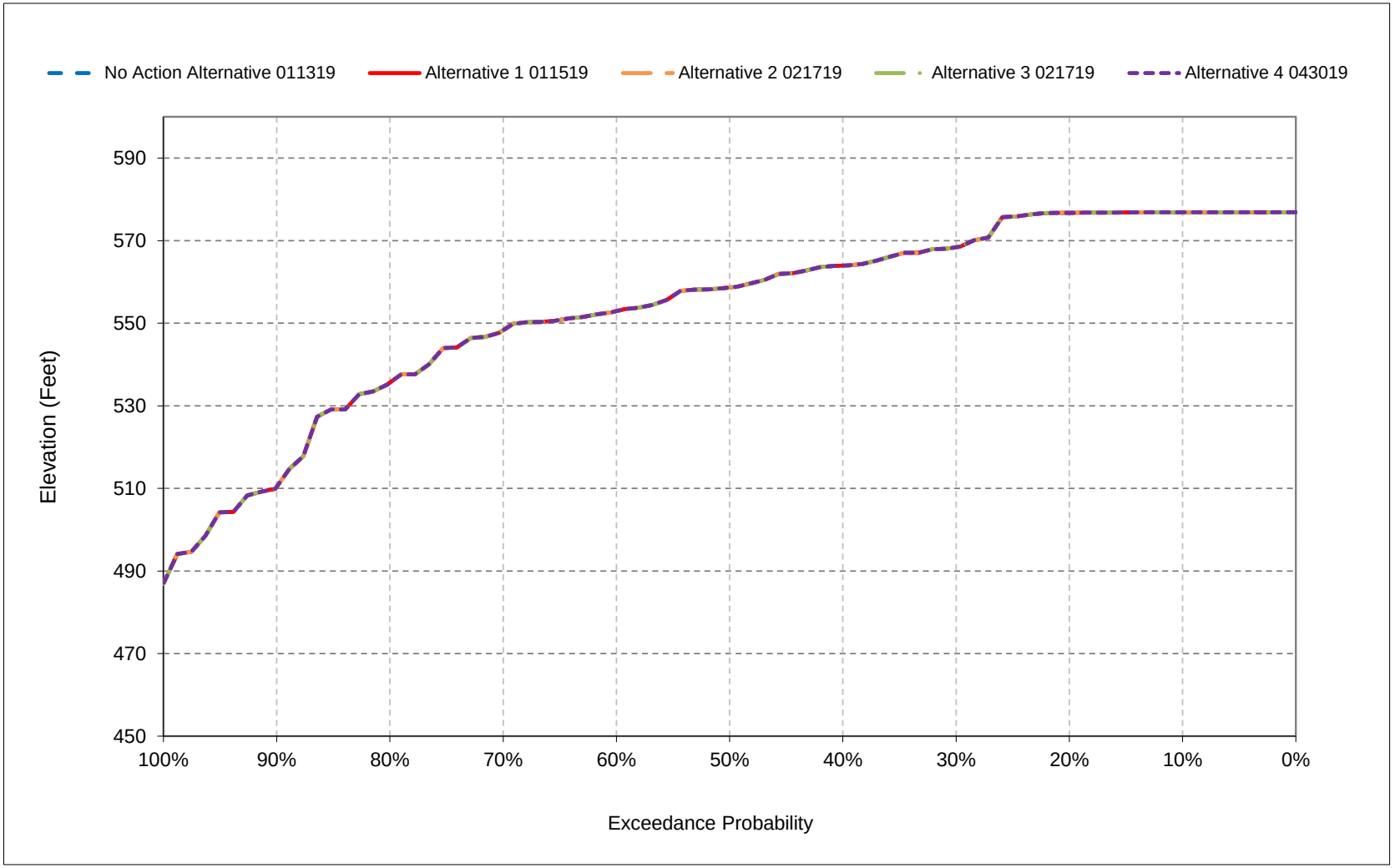
Figure 8a-13. Millerton Lake, Reservoir Pool Elevation, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

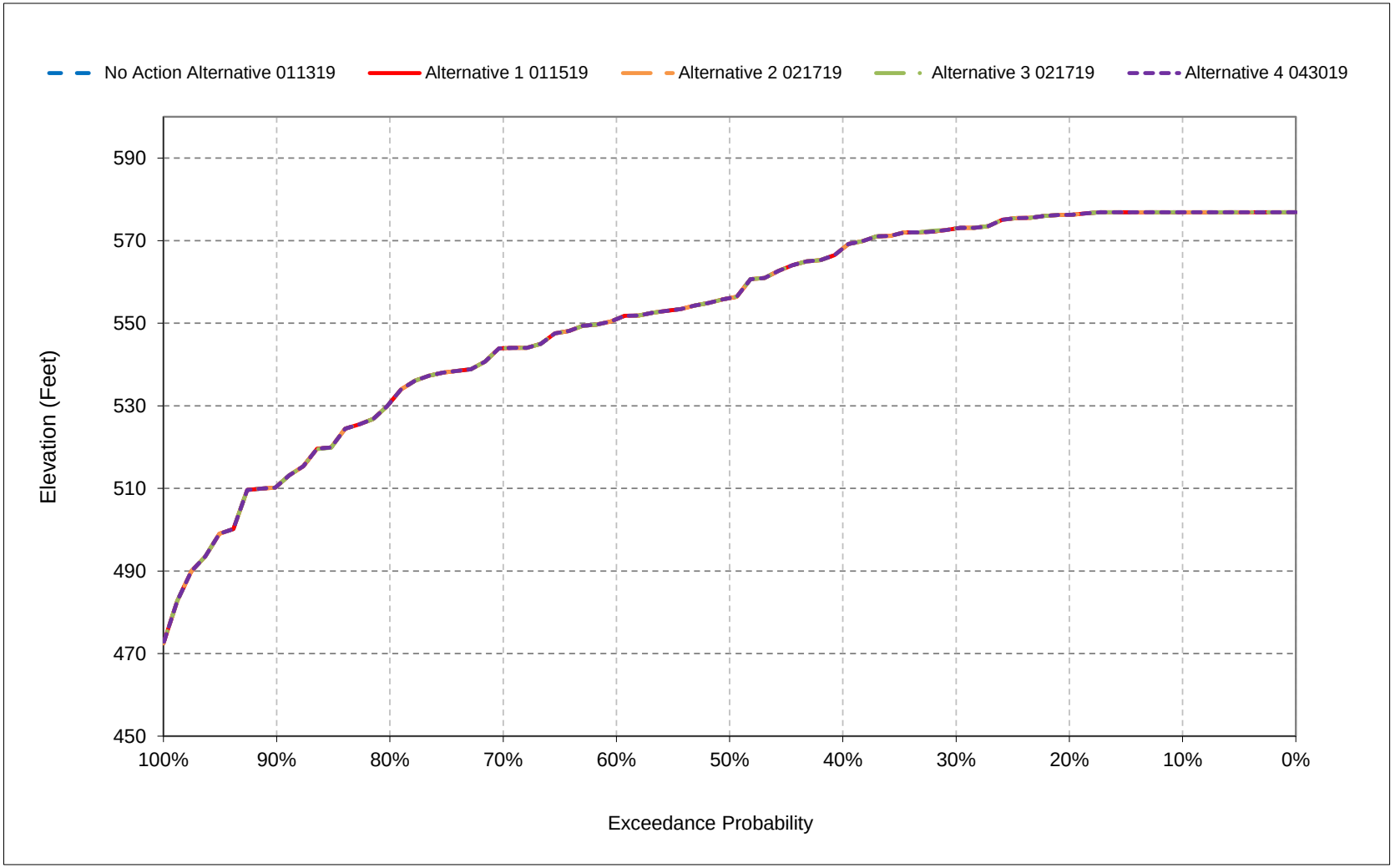
Figure 8a-14. Millerton Lake, Reservoir Pool Elevation, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

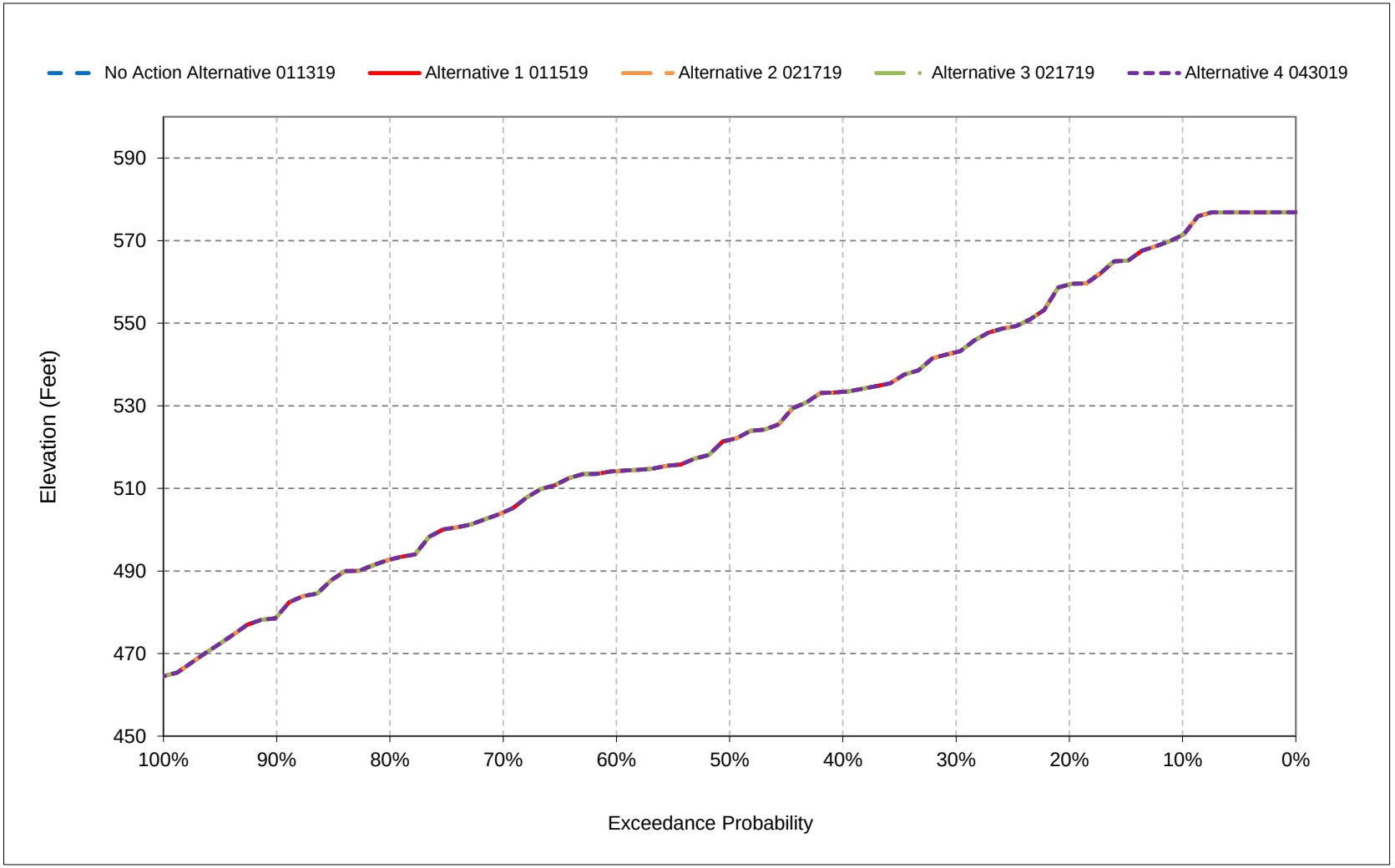
Figure 8a-15. Millerton Lake, Reservoir Pool Elevation, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

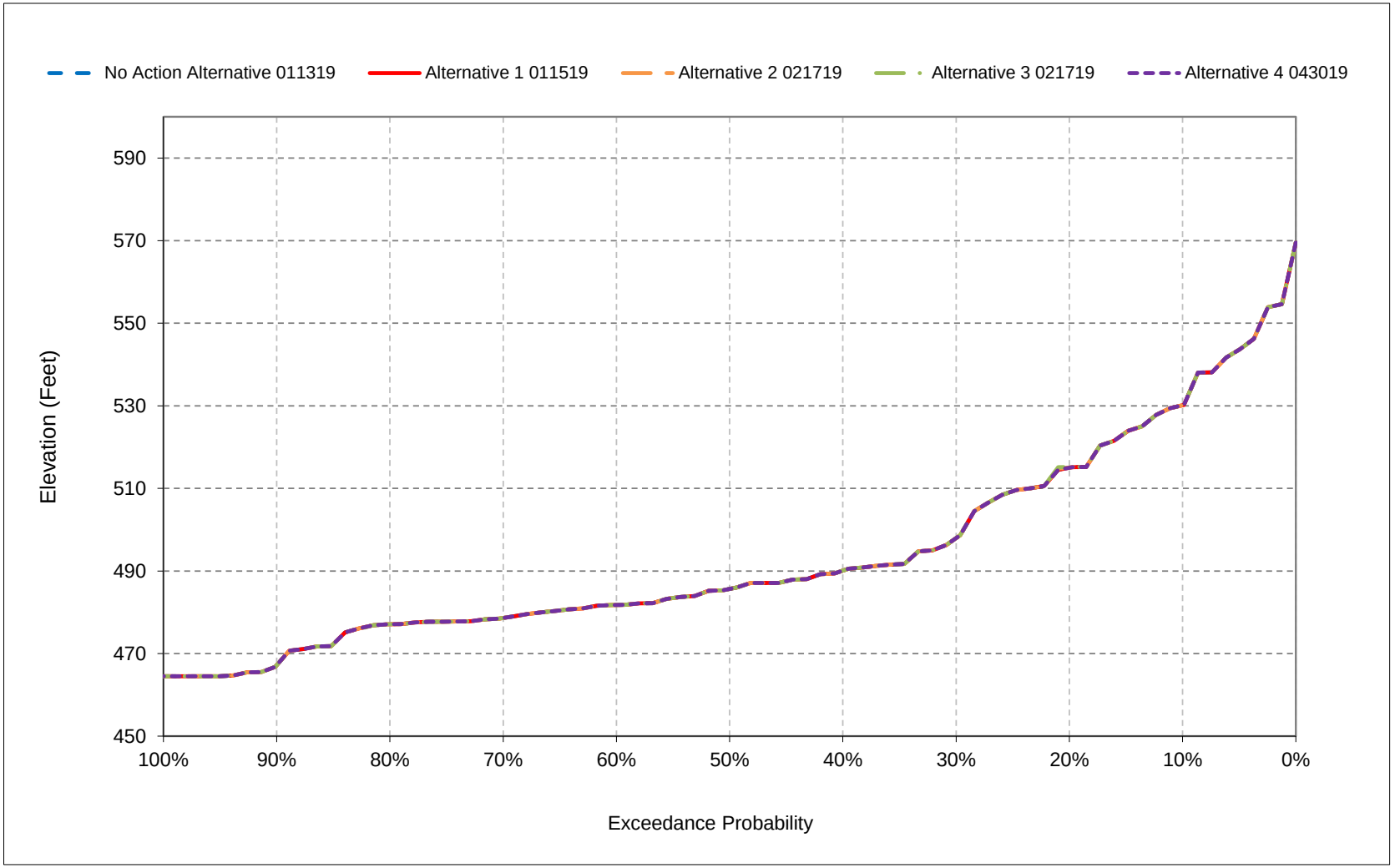
Figure 8a-16. Millerton Lake, Reservoir Pool Elevation, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

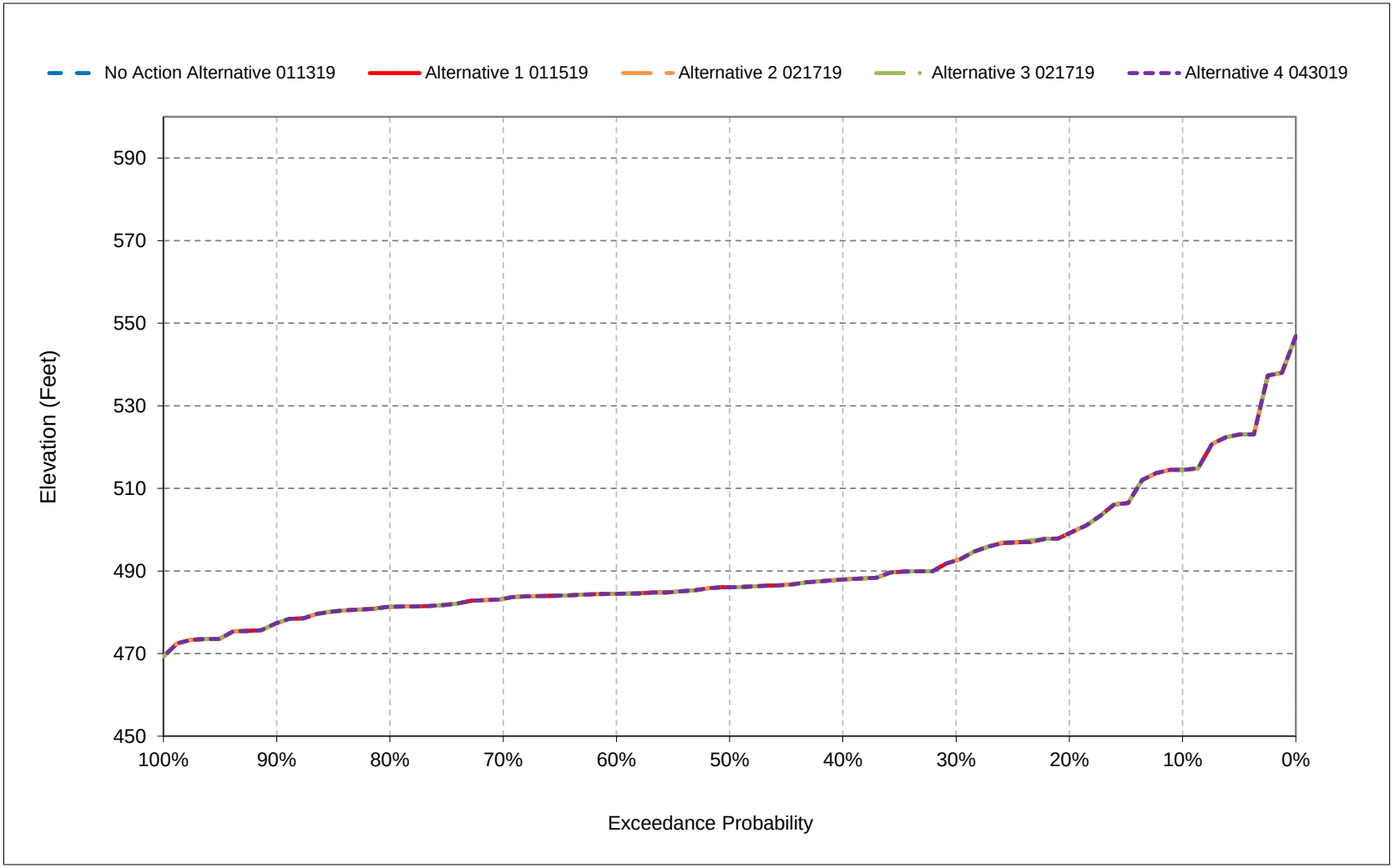
Figure 8a-17. Millerton Lake, Reservoir Pool Elevation, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8a-18. Millerton Lake, Reservoir Pool Elevation, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Attachment 3-2 Flow Results (CalSim II)

The following results of the CalSim II model are included for river flow conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Trinity River Flow below Lewiston	C100	12-1 to 12-4	12-1 to 12-18
Clear Creek below Whiskeytown Dam Flow	C3	14-1 to 14-4	14-1 to 14-18
Sacramento River Flow downstream of Keswick Reservoir	C5	15-1 to 15-4	15-1 to 15-18
Sacramento Flow River at Bend Bridge	C109	16-1 to 16-4	16-1 to 16-18
Sacramento River below Red Bluff Diversion Dam Flow	C112	17-1 to 17-4	17-1 to 17-18
Sacramento River Flow at Hamilton City	C114	18-1 to 18-4	18-1 to 18-18
Sacramento River at Wilkins Slough Flow	C129	19-1 to 19-4	19-1 to 19-18
Feather River Flow downstream of Thermalito	C203	21-1 to 21-4	21-1 to 21-18
Feather River at Sacramento River Confluence Flow	C223	22-1 to 22-4	22-1 to 22-18
Fremont Weir Spills	D160	24-1 to 24-4	24-1 to 24-18
Yolo Bypass Flow	C157	25-1 to 25-4	25-1 to 25-18
American River below Nimbus Dam Flow	C9	27-1 to 27-4	27-1 to 27-18
American River at H Street	C303	28-1 to 28-4	28-1 to 28-18
Sacramento River Flow at Freeport	C169	29-1 to 29-4	29-1 to 29-18
Sacramento River Flow at Rio Vista (Alternative 3 revised DXC equation)[1]	C405	32-1 to 32-4	32-1 to 32-18
San Joaquin River Flow at Gravelly Ford	C603	33-1 to 33-4	33-1 to 33-18

Title	Model Parameter	Table Numbers	Figure Numbers
San Joaquin River Flow below Sack Dam	C608	34-1 to 34-4	34-1 to 34-18
San Joaquin River Flow below confluence with Merced	C620	35-1 to 35-4	35-1 to 35-18
Stanislaus River Flow below Goodwin	C520	37-1 to 37-4	37-1 to 37-18
Stanislaus River Flow at Mouth	C528	38-1 to 38-4	38-1 to 38-18
San Joaquin River at Vernalis	C639	39-1 to 39-4	39-1 to 39-18
San Joaquin River at Vernalis (60-20-20)	C639	39b-1 to 39b-4	39b-1 to 39b-18
Old and Middle River Flow	C408	40-1 to 40-4	40-1 to 40-18
Delta Outflow	C406	41-1 to 41-4	41-1 to 41-18

[1] Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Appendix F – Modeling

Attachment 3-2 – Flow Results (CalSim II)

The following results of the CalSim II model are included for river flow conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Trinity River Flow below Lewiston	C100	12-1 to 12-4	12-1 to 12-18
Clear Creek below Whiskeytown Dam Flow	C3	14-1 to 14-4	14-1 to 14-18
Sacramento River Flow downstream of Keswick Reservoir	C5	15-1 to 15-4	15-1 to 15-18
Sacramento Flow River at Bend Bridge	C109	16-1 to 16-4	16-1 to 16-18
Sacramento River below Red Bluff Diversion Dam Flow	C112	17-1 to 17-4	17-1 to 17-18
Sacramento River Flow at Hamilton City	C114	18-1 to 18-4	18-1 to 18-18
Sacramento River at Wilkins Slough Flow	C129	19-1 to 19-4	19-1 to 19-18
Feather River Flow downstream of Thermalito	C203	21-1 to 21-4	21-1 to 21-18
Feather River at Sacramento River Confluence Flow	C223	22-1 to 22-4	22-1 to 22-18
Fremont Weir Spills	D160	24-1 to 24-4	24-1 to 24-18
Yolo Bypass Flow	C157	25-1 to 25-4	25-1 to 25-18
American River below Nimbus Dam Flow	C9	27-1 to 27-4	27-1 to 27-18
American River at H Street	C303	28-1 to 28-4	28-1 to 28-18
Sacramento River Flow at Freeport	C169	29-1 to 29-4	29-1 to 29-18
Sacramento River Flow at Rio Vista (Alternative 3 revised DXC equation)[1]	C405	32-1 to 32-4	32-1 to 32-18
San Joaquin River Flow at Gravelly Ford	C603	33-1 to 33-4	33-1 to 33-18
San Joaquin River Flow below Sack Dam	C608	34-1 to 34-4	34-1 to 34-18
San Joaquin River Flow below confluence with Merced	C620	35-1 to 35-4	35-1 to 35-18
Stanislaus River Flow below Goodwin	C520	37-1 to 37-4	37-1 to 37-18
Stanislaus River Flow at Mouth	C528	38-1 to 38-4	38-1 to 38-18

San Joaquin River at Vernalis	C639	39-1 to 39-4	39-1 to 39-18
San Joaquin River at Vernalis (60-20-20)	C639	39b-1 to 39b-4	39b-1 to 39b-18
Old and Middle River Flow	C408	40-1 to 40-4	40-1 to 40-18
Delta Outflow	C406	41-1 to 41-4	41-1 to 41-18

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Notes

[1]Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Table 12-1. Trinity River Flow below Lewiston, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	373	300	300	521	1,219	861	600	4,709	4,626	1,102	870	870
20%	373	300	300	300	300	300	540	4,709	2,526	1,102	870	870
30%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
40%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
50%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
60%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
70%	373	300	300	300	300	300	460	2,924	783	450	870	870
80%	373	300	300	300	300	300	460	2,924	783	450	870	870
90%	373	300	300	300	300	300	427	1,498	783	450	450	450
Long Term												
Full Simulation Period[a]	368	356	639	700	691	667	588	3,753	2,210	890	793	793
Water Year Types[b,c]												
Wet (32%)	373	300	1,192	1,562	1,279	1,377	735	4,556	3,413	1,136	676	676
Above Normal (16%)	373	678	652	300	528	462	457	4,597	2,948	1,102	773	773
Below Normal (13%)	373	300	300	300	630	300	517	3,585	1,755	924	870	870
Dry (24%)	373	300	300	300	300	300	528	3,250	1,271	678	870	870
Critical (15%)	342	275	300	300	300	300	575	2,092	783	450	870	870

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	373	300	300	1,372	2,099	889	600	4,709	4,626	1,102	870	870
20%	373	300	300	300	300	300	540	4,709	2,526	1,102	870	870
30%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
40%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
50%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
60%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
70%	373	300	300	300	300	300	460	2,924	783	450	870	870
80%	373	300	300	300	300	300	460	2,924	783	450	870	870
90%	373	300	300	300	300	300	427	1,498	783	450	450	450
Long Term												
Full Simulation Period[a]	364	352	675	719	743	685	588	3,753	2,210	890	793	786
Water Year Types[b,c]												
Wet (32%)	373	300	1,297	1,622	1,291	1,434	735	4,556	3,413	1,136	676	676
Above Normal (16%)	373	625	652	300	833	462	457	4,597	2,948	1,102	773	773
Below Normal (13%)	373	300	300	300	630	303	517	3,585	1,755	924	870	870
Dry (24%)	373	300	314	300	300	300	528	3,250	1,271	678	870	870
Critical (15%)	311	300	300	300	300	300	575	2,092	783	450	870	818

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	851	880	28	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**-5**	**-5**	37	19	52	18	0	0	0	0	0	**-8**
Water Year Types[b,c]												
Wet (32%)	0	0	105	60	12	57	0	0	0	0	0	0
Above Normal (16%)	0	**-53**	0	0	305	0	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	0	3	0	0	0	0	0	0
Dry (24%)	0	0	14	0	0	0	0	0	0	0	0	0
Critical (15%)	**-31**	25	0	0	0	0	0	0	0	0	0	**-52**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 12-2. Trinity River Flow below Lewiston, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	373	300	300	521	1,219	861	600	4,709	4,626	1,102	870	870
20%	373	300	300	300	300	300	540	4,709	2,526	1,102	870	870
30%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
40%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
50%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
60%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
70%	373	300	300	300	300	300	460	2,924	783	450	870	870
80%	373	300	300	300	300	300	460	2,924	783	450	870	870
90%	373	300	300	300	300	300	427	1,498	783	450	450	450
Long Term												
Full Simulation Period[a]	368	356	639	700	691	667	588	3,753	2,210	890	793	793
Water Year Types[b,c]												
Wet (32%)	373	300	1,192	1,562	1,279	1,377	735	4,556	3,413	1,136	676	676
Above Normal (16%)	373	678	652	300	528	462	457	4,597	2,948	1,102	773	773
Below Normal (13%)	373	300	300	300	630	300	517	3,585	1,755	924	870	870
Dry (24%)	373	300	300	300	300	300	528	3,250	1,271	678	870	870
Critical (15%)	342	275	300	300	300	300	575	2,092	783	450	870	870

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	373	300	300	658	2,099	388	600	4,709	4,626	1,102	870	870
20%	373	300	300	300	300	300	540	4,709	2,526	1,102	870	870
30%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
40%	373	300	300	300	300	300	521	4,570	2,526	1,102	870	870
50%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
60%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
70%	373	300	300	300	300	300	460	2,924	783	450	870	870
80%	373	300	300	300	300	300	460	2,924	783	450	870	870
90%	373	300	300	300	300	300	427	1,498	783	450	450	450
Long Term												
Full Simulation Period[a]	364	342	671	708	728	677	580	3,753	2,210	890	793	786
Water Year Types[b,c]												
Wet (32%)	373	300	1,295	1,586	1,261	1,406	709	4,556	3,413	1,136	676	676
Above Normal (16%)	373	565	652	300	801	462	457	4,597	2,948	1,102	773	773
Below Normal (13%)	373	300	300	300	630	303	517	3,585	1,755	924	870	870
Dry (24%)	373	300	300	300	300	300	528	3,250	1,271	678	870	870
Critical (15%)	311	300	300	300	300	300	575	2,092	783	450	870	818

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	138	880	**-473**	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	**-19**	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**-5**	**-14**	33	8	38	10	**-8**	0	0	0	0	**-8**
Water Year Types[b,c]												
Wet (32%)	0	0	103	24	**-18**	29	**-26**	0	0	0	0	0
Above Normal (16%)	0	**-113**	0	0	273	0	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	0	3	0	0	0	0	0	0
Dry (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	**-31**	25	0	0	0	0	0	0	0	0	0	**-52**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 12-3. Trinity River Flow below Lewiston, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	373	300	300	521	1,219	861	600	4,709	4,626	1,102	870	870
20%	373	300	300	300	300	300	540	4,709	2,526	1,102	870	870
30%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
40%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
50%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
60%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
70%	373	300	300	300	300	300	460	2,924	783	450	870	870
80%	373	300	300	300	300	300	460	2,924	783	450	870	870
90%	373	300	300	300	300	300	427	1,498	783	450	450	450
Long Term												
Full Simulation Period[a]	368	356	639	700	691	667	588	3,753	2,210	890	793	793
Water Year Types[b,c]												
Wet (32%)	373	300	1,192	1,562	1,279	1,377	735	4,556	3,413	1,136	676	676
Above Normal (16%)	373	678	652	300	528	462	457	4,597	2,948	1,102	773	773
Below Normal (13%)	373	300	300	300	630	300	517	3,585	1,755	924	870	870
Dry (24%)	373	300	300	300	300	300	528	3,250	1,271	678	870	870
Critical (15%)	342	275	300	300	300	300	575	2,092	783	450	870	870

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	373	300	300	478	2,099	328	600	4,709	4,626	1,102	870	870
20%	373	300	300	300	300	300	540	4,709	2,526	1,102	870	870
30%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
40%	373	300	300	300	300	300	521	4,570	2,526	1,102	870	870
50%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
60%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
70%	373	300	300	300	300	300	460	2,924	783	450	870	870
80%	373	300	300	300	300	300	460	2,924	783	450	870	870
90%	373	300	300	300	300	300	427	1,498	783	450	450	450
Long Term												
Full Simulation Period[a]	365	340	672	704	717	677	580	3,753	2,210	890	793	783
Water Year Types[b,c]												
Wet (32%)	373	300	1,297	1,574	1,226	1,409	709	4,556	3,413	1,136	676	676
Above Normal (16%)	373	568	652	300	801	462	457	4,597	2,948	1,102	773	773
Below Normal (13%)	373	300	300	300	630	303	517	3,585	1,755	924	870	870
Dry (24%)	373	300	300	300	300	300	528	3,250	1,271	678	870	870
Critical (15%)	321	281	300	300	300	300	575	2,092	783	450	870	798

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	**-42**	880	**-533**	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	**-19**	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**-3**	**-17**	33	4	27	11	**-8**	0	0	0	0	**-11**
Water Year Types[b,c]												
Wet (32%)	0	0	105	12	**-53**	32	**-26**	0	0	0	0	0
Above Normal (16%)	0	**-111**	0	0	273	0	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	0	3	0	0	0	0	0	0
Dry (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	**-21**	6	0	0	0	0	0	0	0	0	0	**-73**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 12-4. Trinity River Flow below Lewiston, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	373	300	300	521	1,219	861	600	4,709	4,626	1,102	870	870
20%	373	300	300	300	300	300	540	4,709	2,526	1,102	870	870
30%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
40%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
50%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
60%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
70%	373	300	300	300	300	300	460	2,924	783	450	870	870
80%	373	300	300	300	300	300	460	2,924	783	450	870	870
90%	373	300	300	300	300	300	427	1,498	783	450	450	450
Long Term												
Full Simulation Period[a]	368	356	639	700	691	667	588	3,753	2,210	890	793	793
Water Year Types[b,c]												
Wet (32%)	373	300	1,192	1,562	1,279	1,377	735	4,556	3,413	1,136	676	676
Above Normal (16%)	373	678	652	300	528	462	457	4,597	2,948	1,102	773	773
Below Normal (13%)	373	300	300	300	630	300	517	3,585	1,755	924	870	870
Dry (24%)	373	300	300	300	300	300	528	3,250	1,271	678	870	870
Critical (15%)	342	275	300	300	300	300	575	2,092	783	450	870	870

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	373	300	300	1,388	2,540	1,718	600	4,709	4,626	1,102	870	870
20%	373	300	300	300	395	300	540	4,709	2,526	1,102	870	870
30%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
40%	373	300	300	300	300	300	540	4,570	2,526	1,102	870	870
50%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
60%	373	300	300	300	300	300	493	4,189	2,120	1,102	870	870
70%	373	300	300	300	300	300	460	2,924	783	450	870	870
80%	373	300	300	300	300	300	460	2,924	783	450	870	870
90%	373	300	300	300	300	300	427	1,498	783	450	450	450
Long Term												
Full Simulation Period[a]	373	348	672	735	780	727	587	3,753	2,210	890	793	793
Water Year Types[b,c]												
Wet (32%)	373	300	1,297	1,672	1,376	1,522	731	4,556	3,413	1,136	676	676
Above Normal (16%)	373	603	652	300	893	546	457	4,597	2,948	1,102	773	773
Below Normal (13%)	373	300	300	300	630	303	517	3,585	1,755	924	870	870
Dry (24%)	373	300	300	300	300	300	528	3,250	1,271	678	870	870
Critical (15%)	373	300	300	300	300	300	575	2,092	783	450	870	870

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	868	1,321	857	0	0	0	0	0	0
20%	0	0	0	0	95	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	5	-8	33	35	89	60	-1	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	0	105	111	98	146	-4	0	0	0	0	0
Above Normal (16%)	0	-75	0	0	366	84	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	0	3	0	0	0	0	0	0
Dry (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	31	25	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

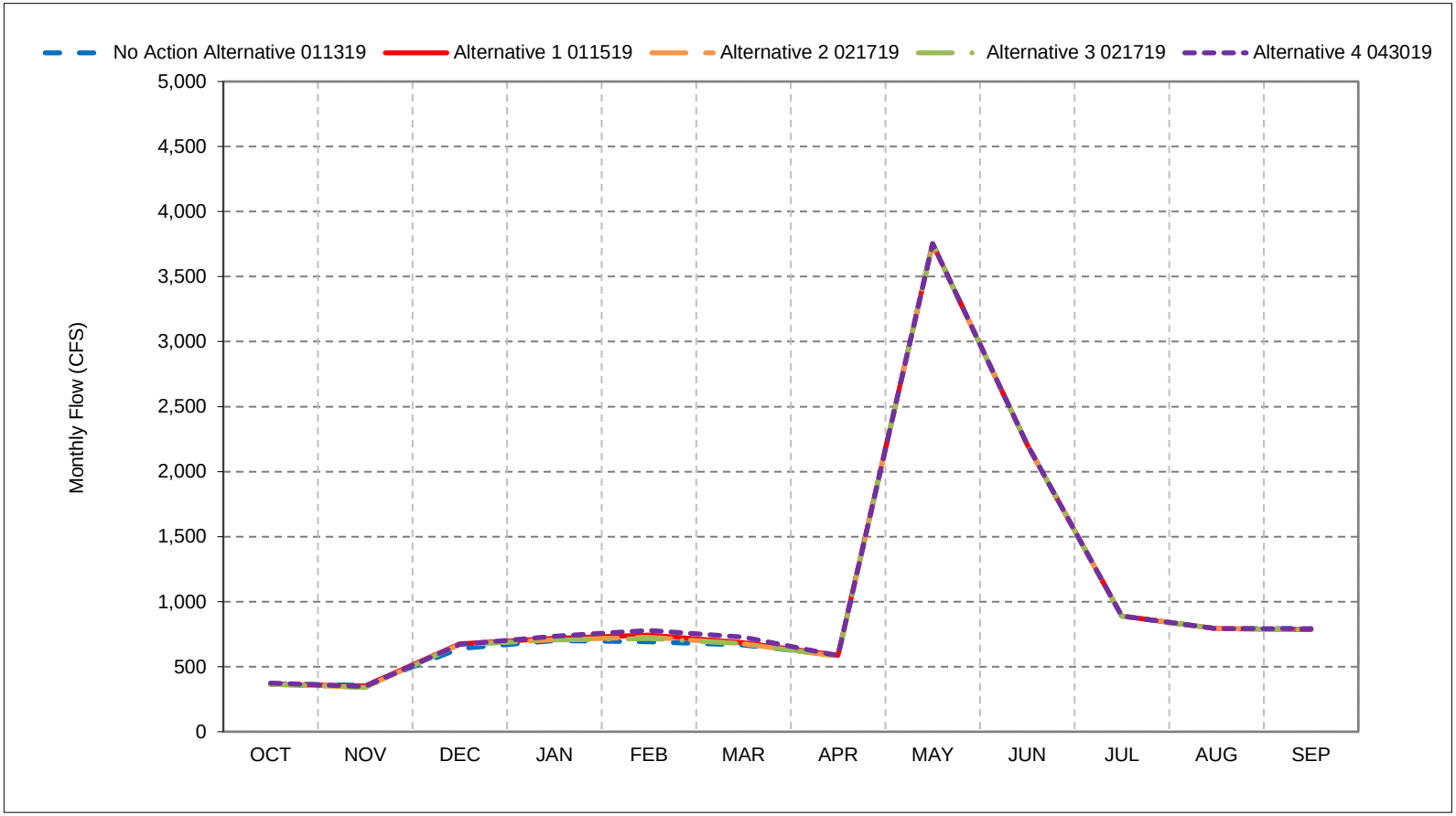
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-1. Trinity River Flow below Lewiston, Long-Term Average Flow



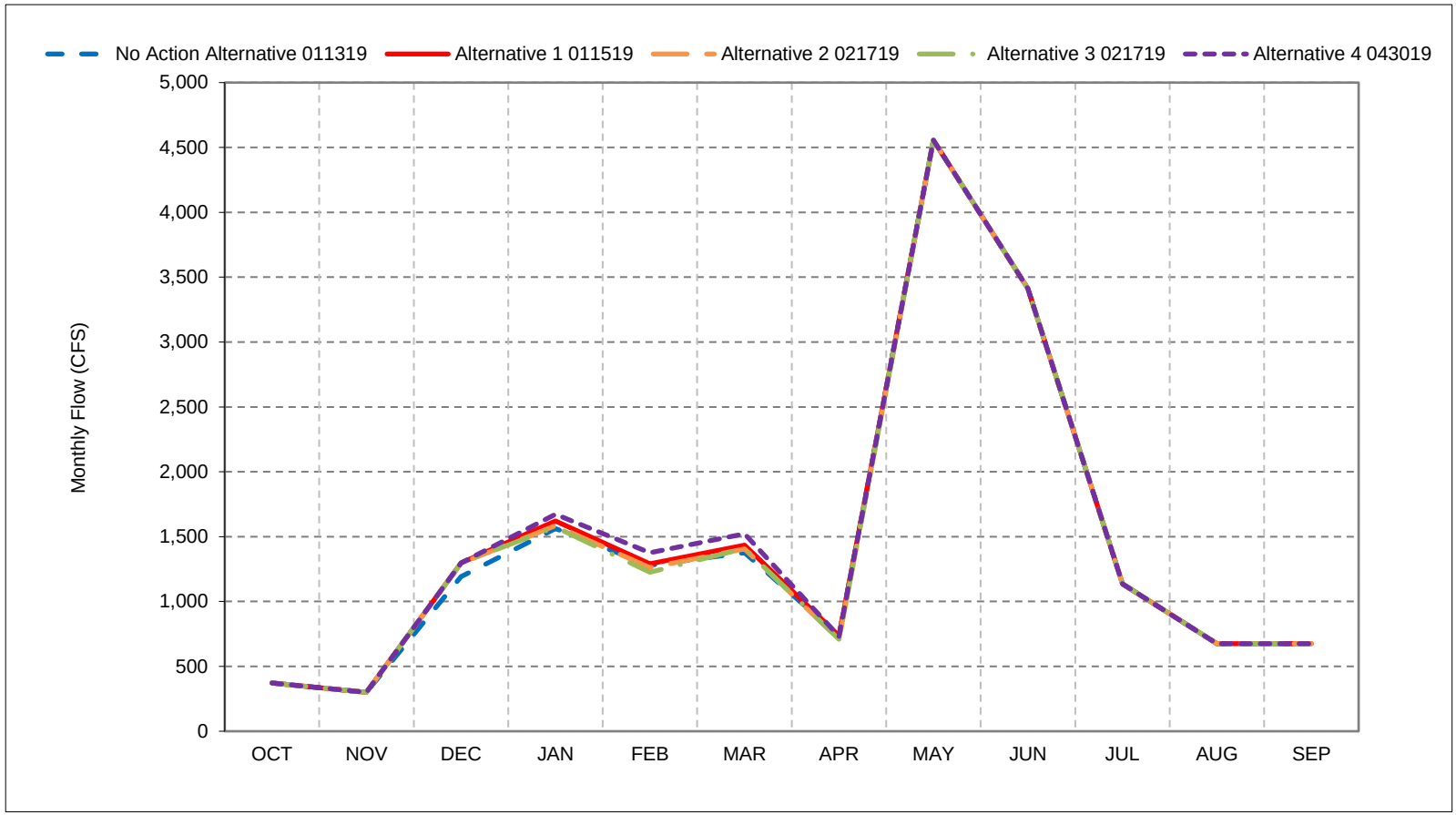
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-2. Trinity River Flow below Lewiston, Wet Year Average Flow



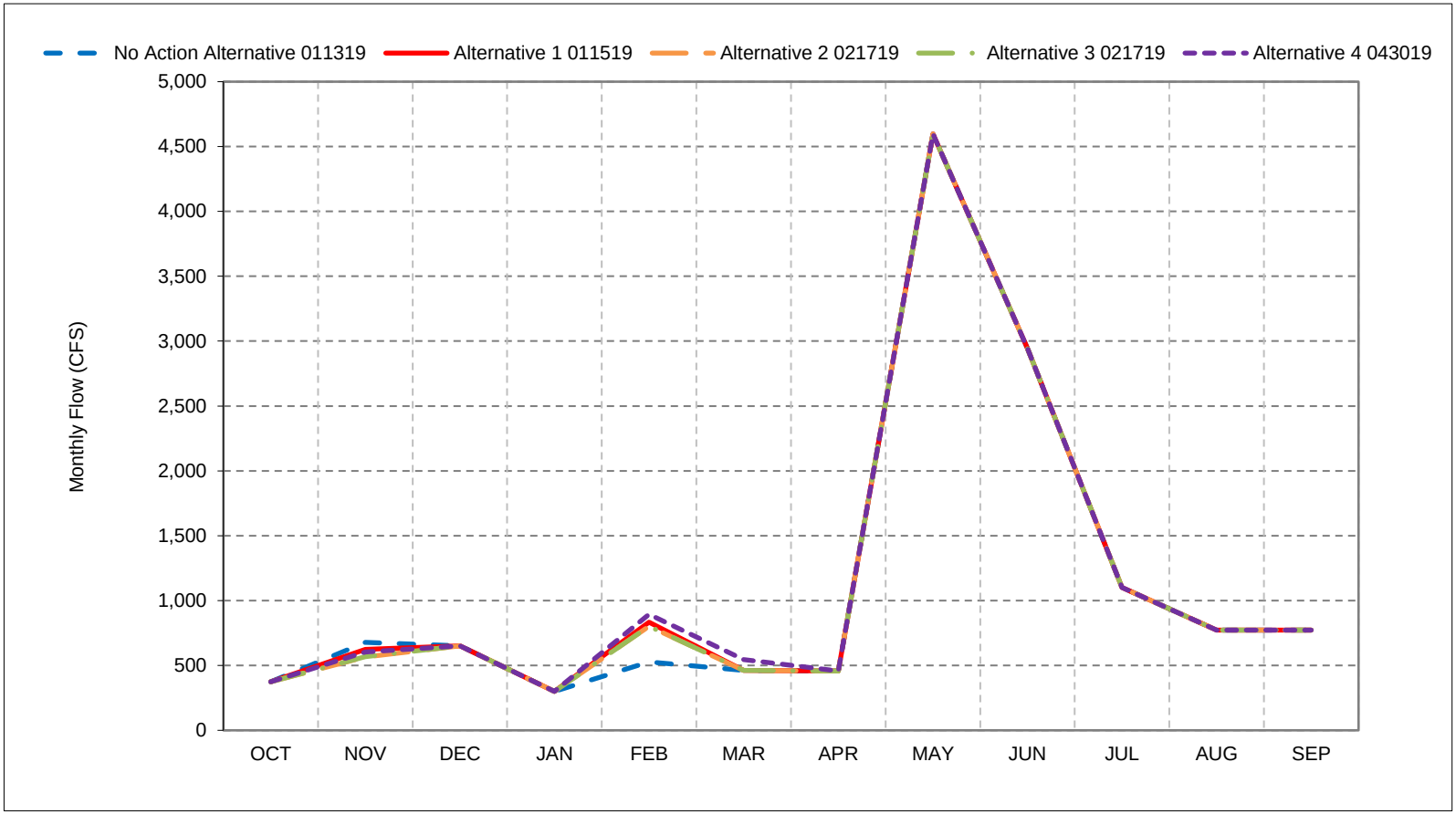
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-3. Trinity River Flow below Lewiston, Above Normal Year Average Flow



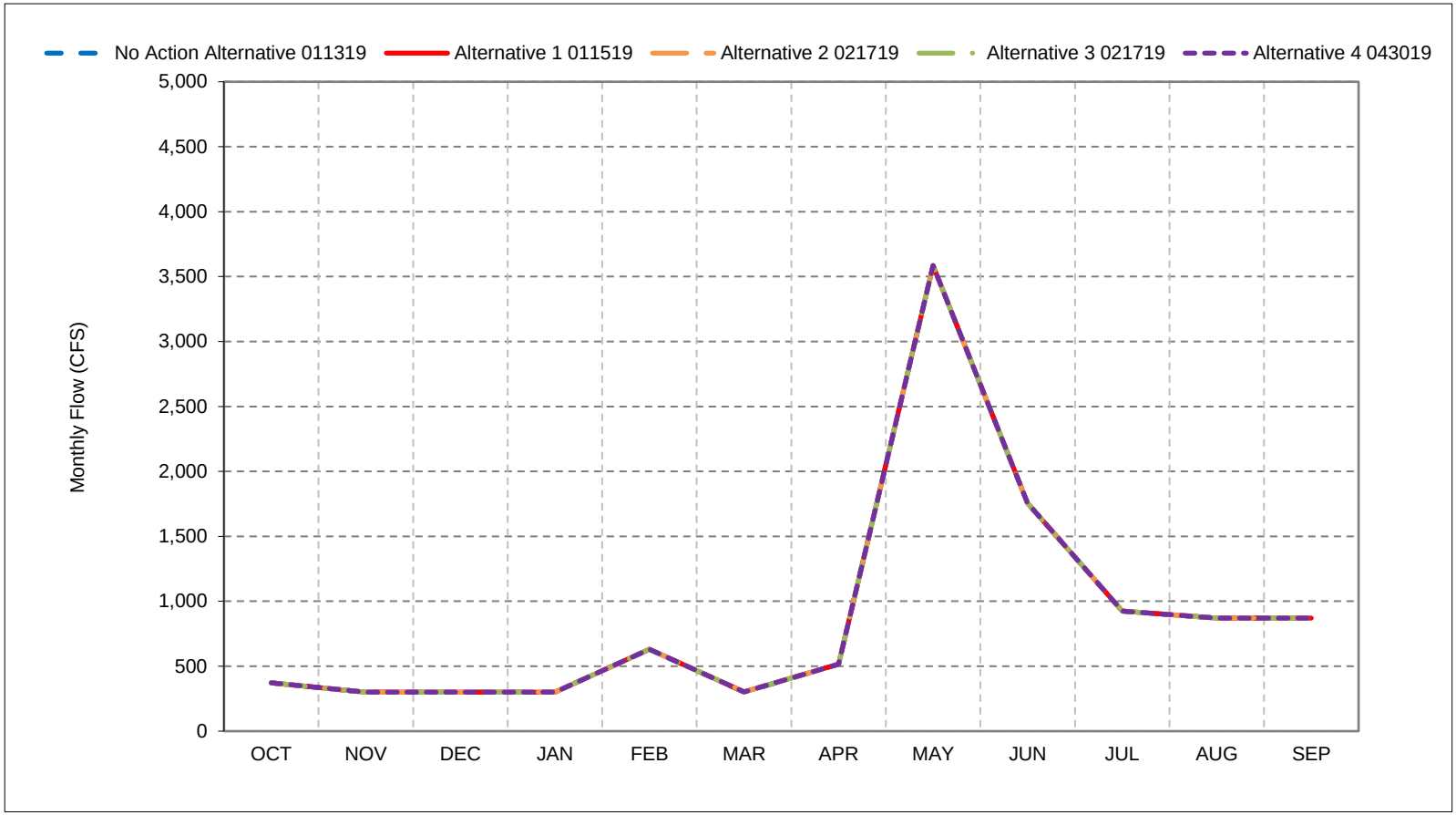
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-4. Trinity River Flow below Lewiston, Below Normal Year Average Flow



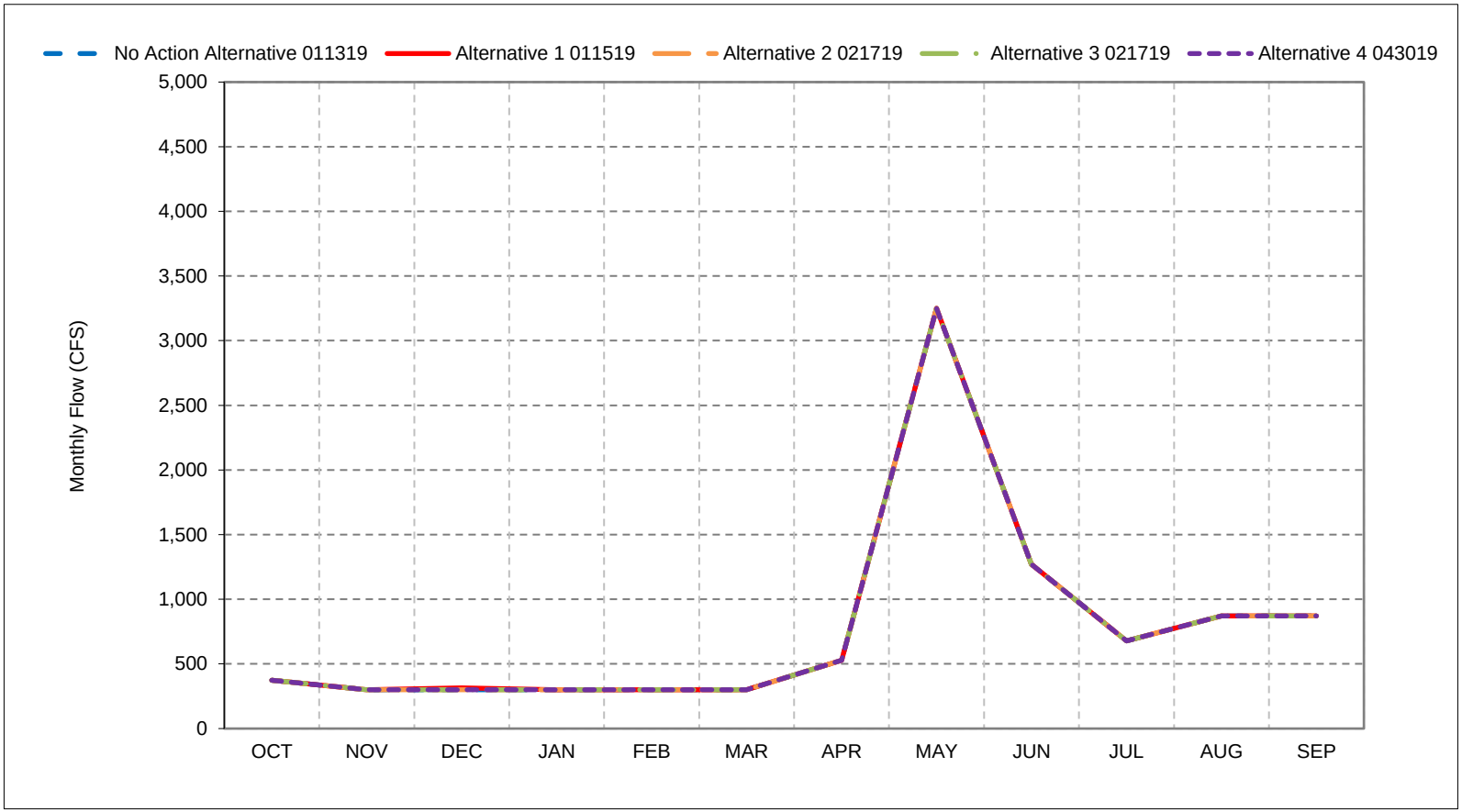
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

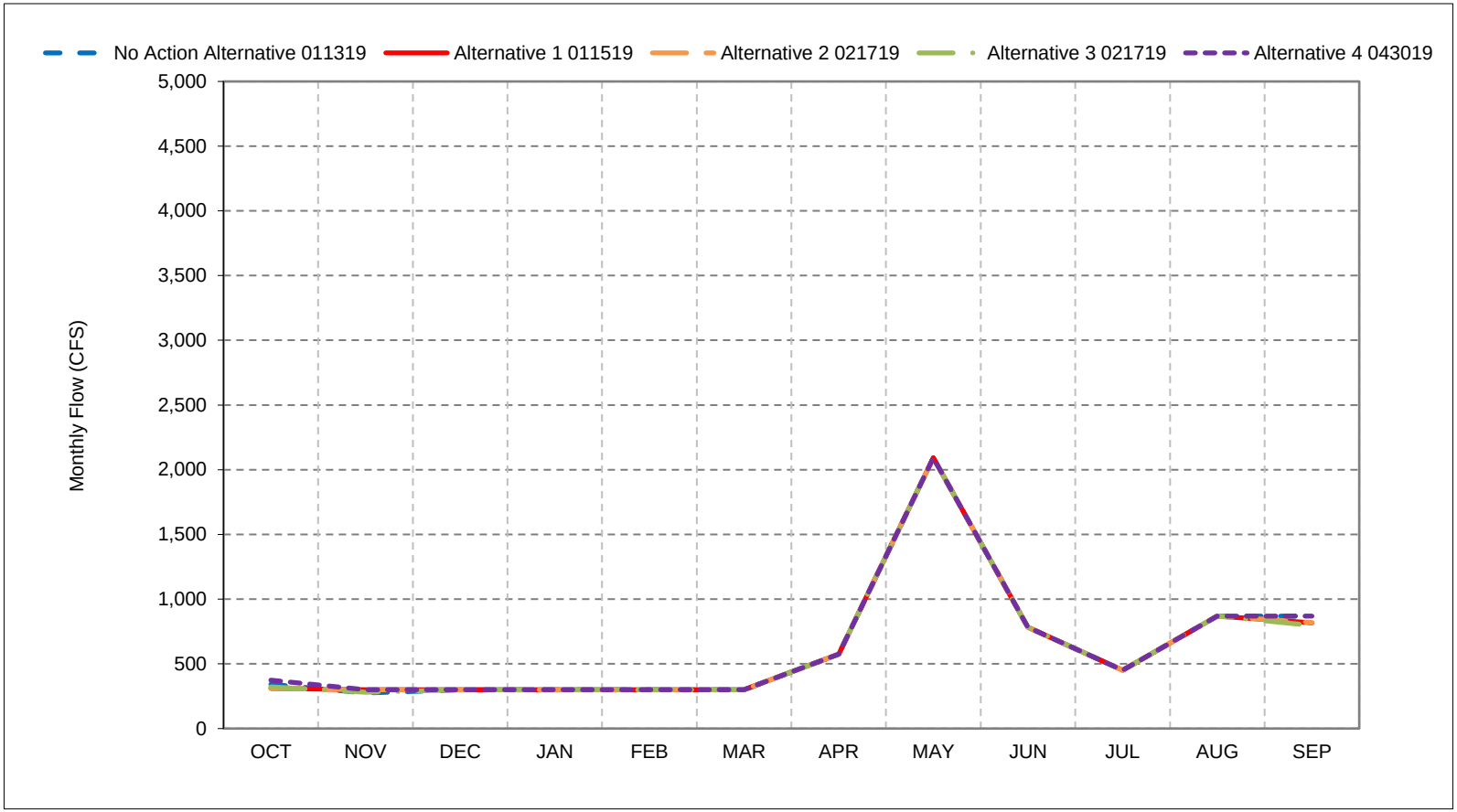
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-5. Trinity River Flow below Lewiston, Dry Year Average Flow



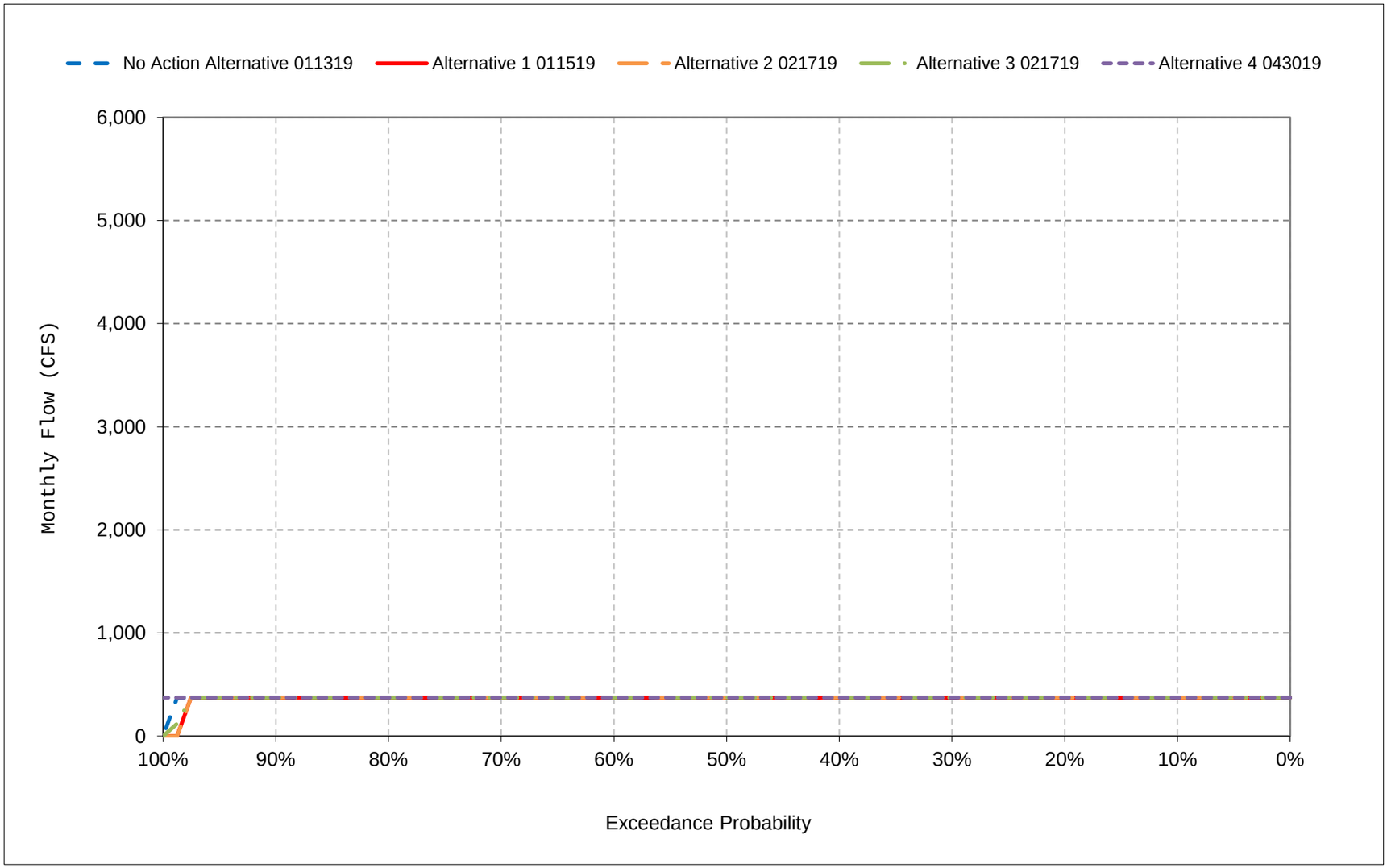
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-6. Trinity River Flow below Lewiston, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

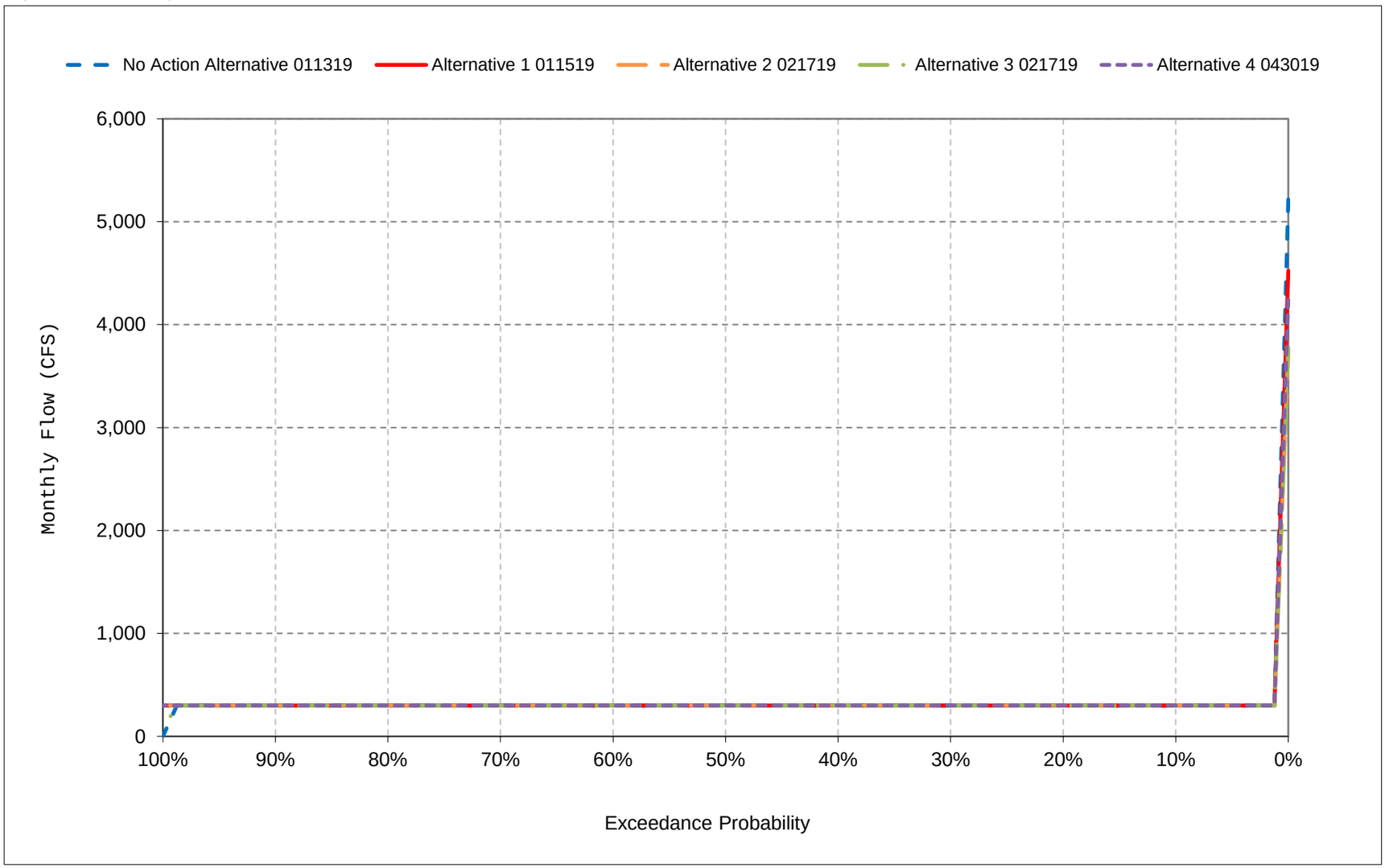
Figure 12-7. Trinity River Flow below Lewiston, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

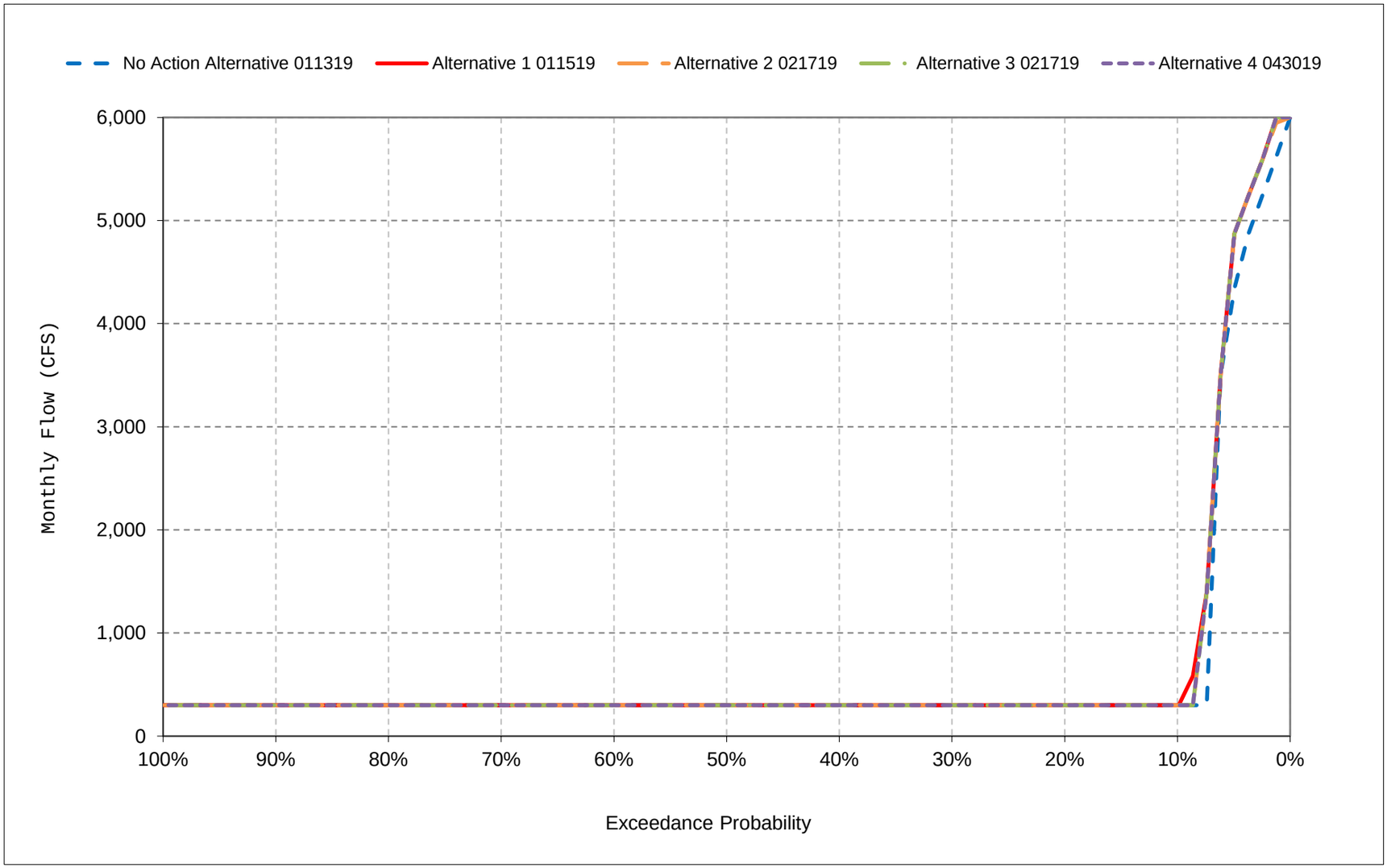
Figure 12-8. Trinity River Flow below Lewiston, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

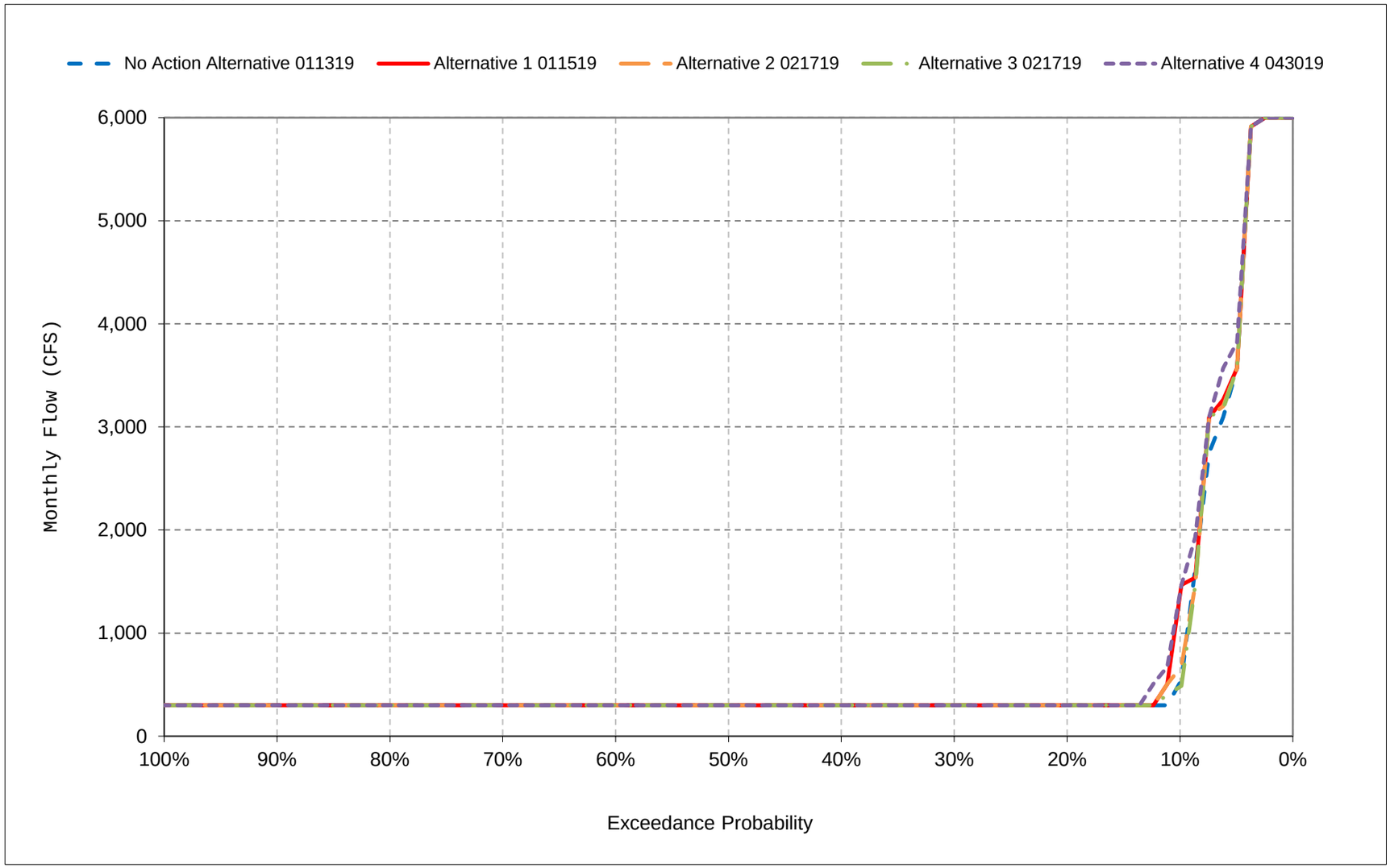
Figure 12-9. Trinity River Flow below Lewiston, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

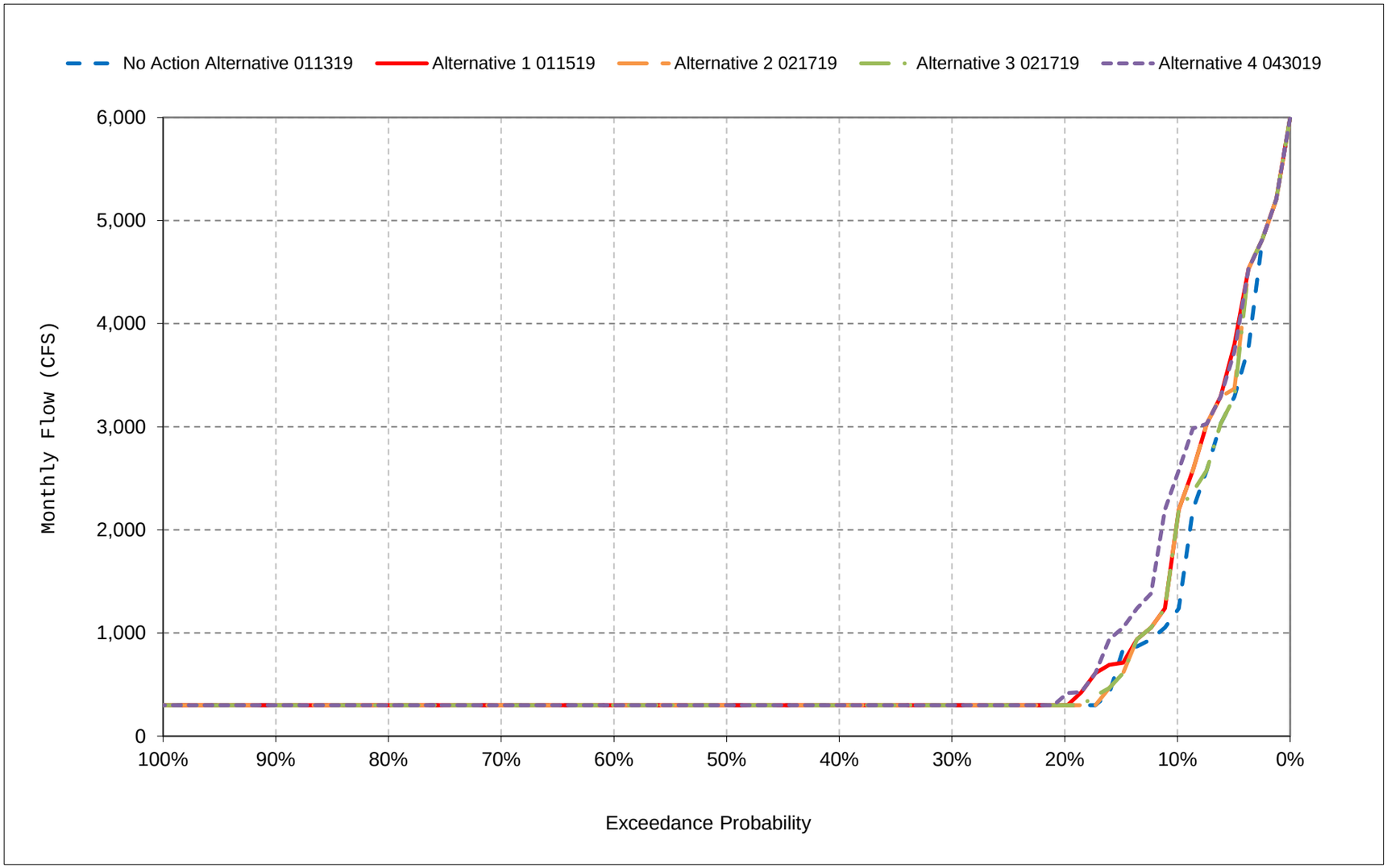
Figure 12-10. Trinity River Flow below Lewiston, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

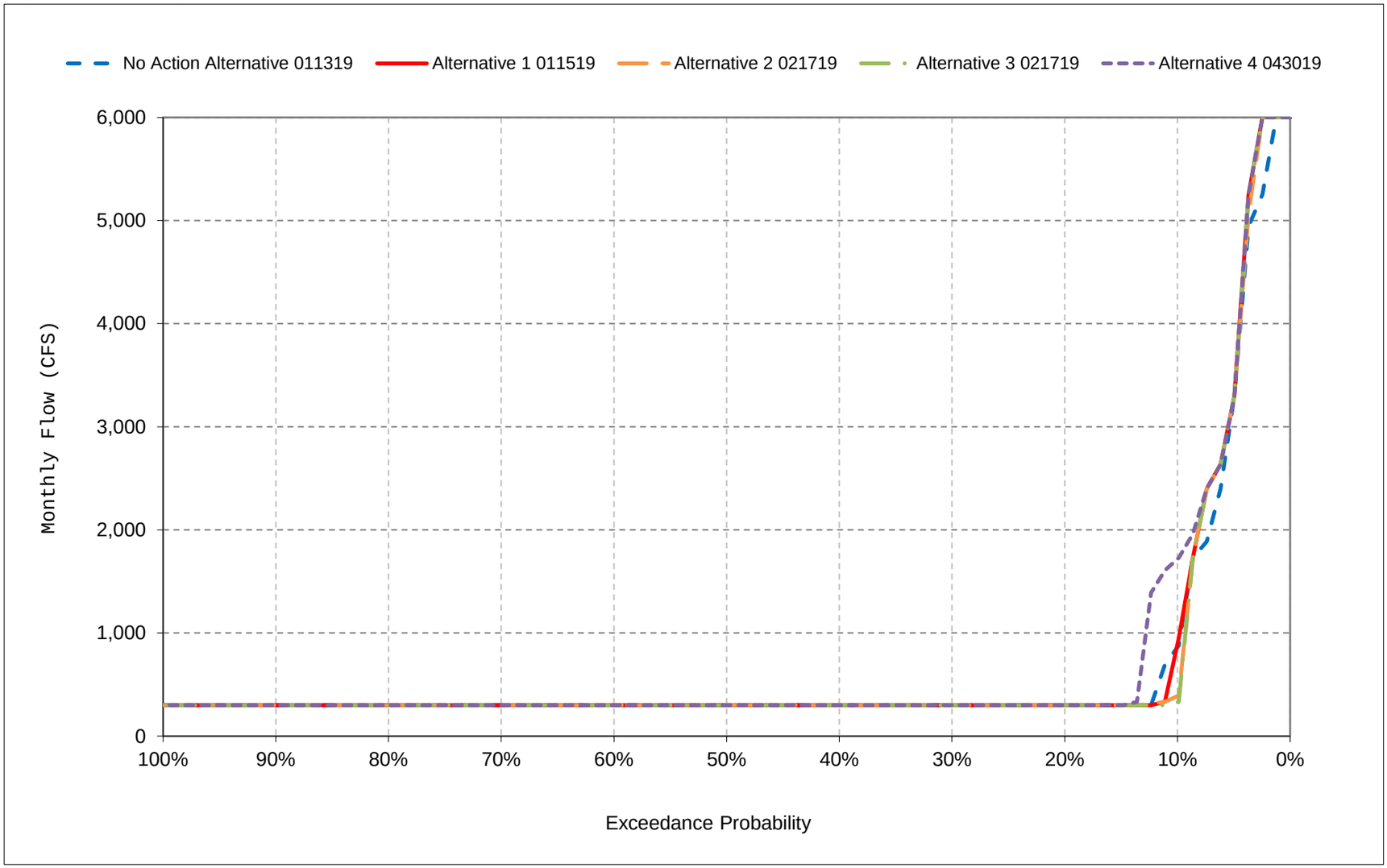
Figure 12-11. Trinity River Flow below Lewiston, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

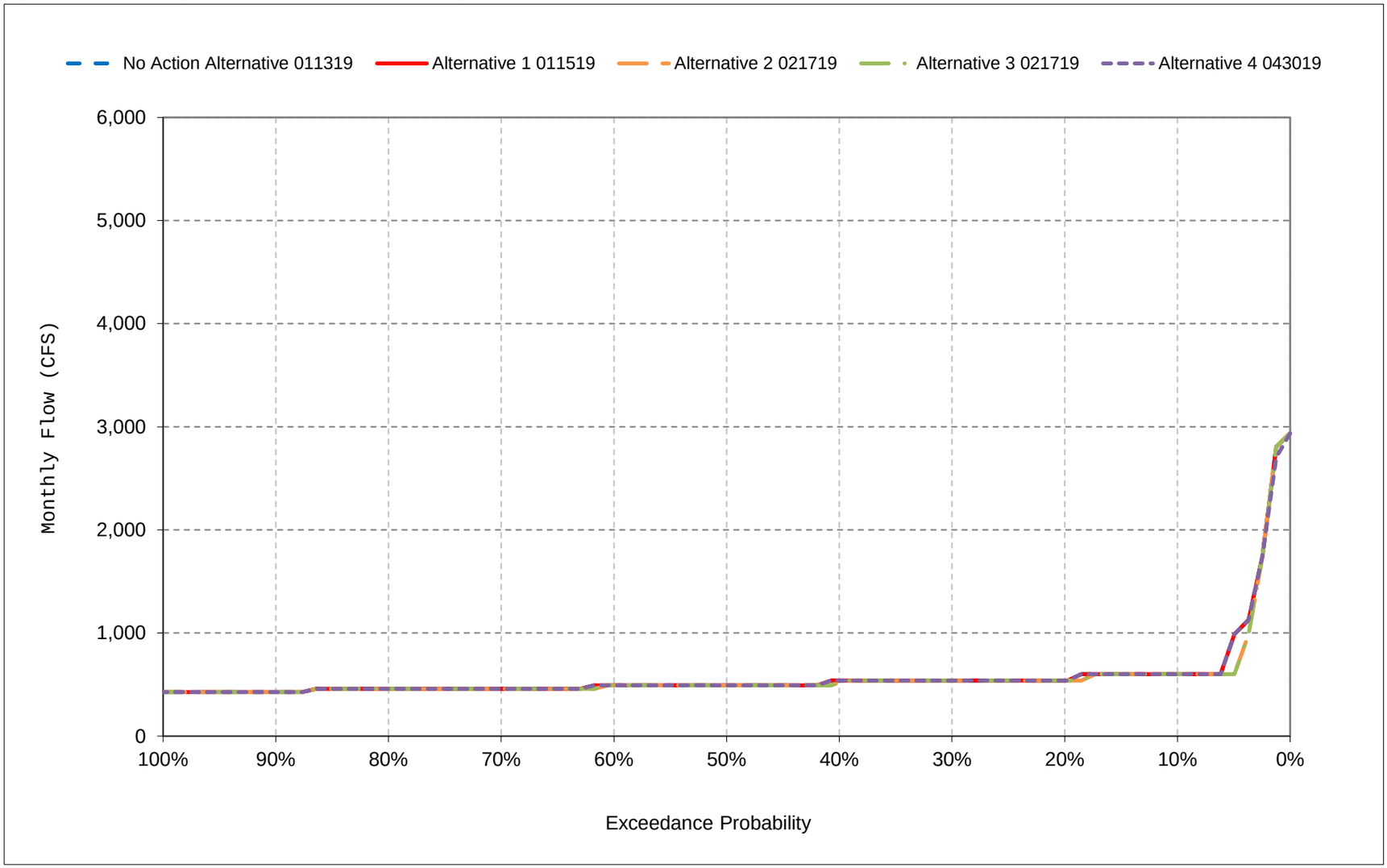
Figure 12-12. Trinity River Flow below Lewiston, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

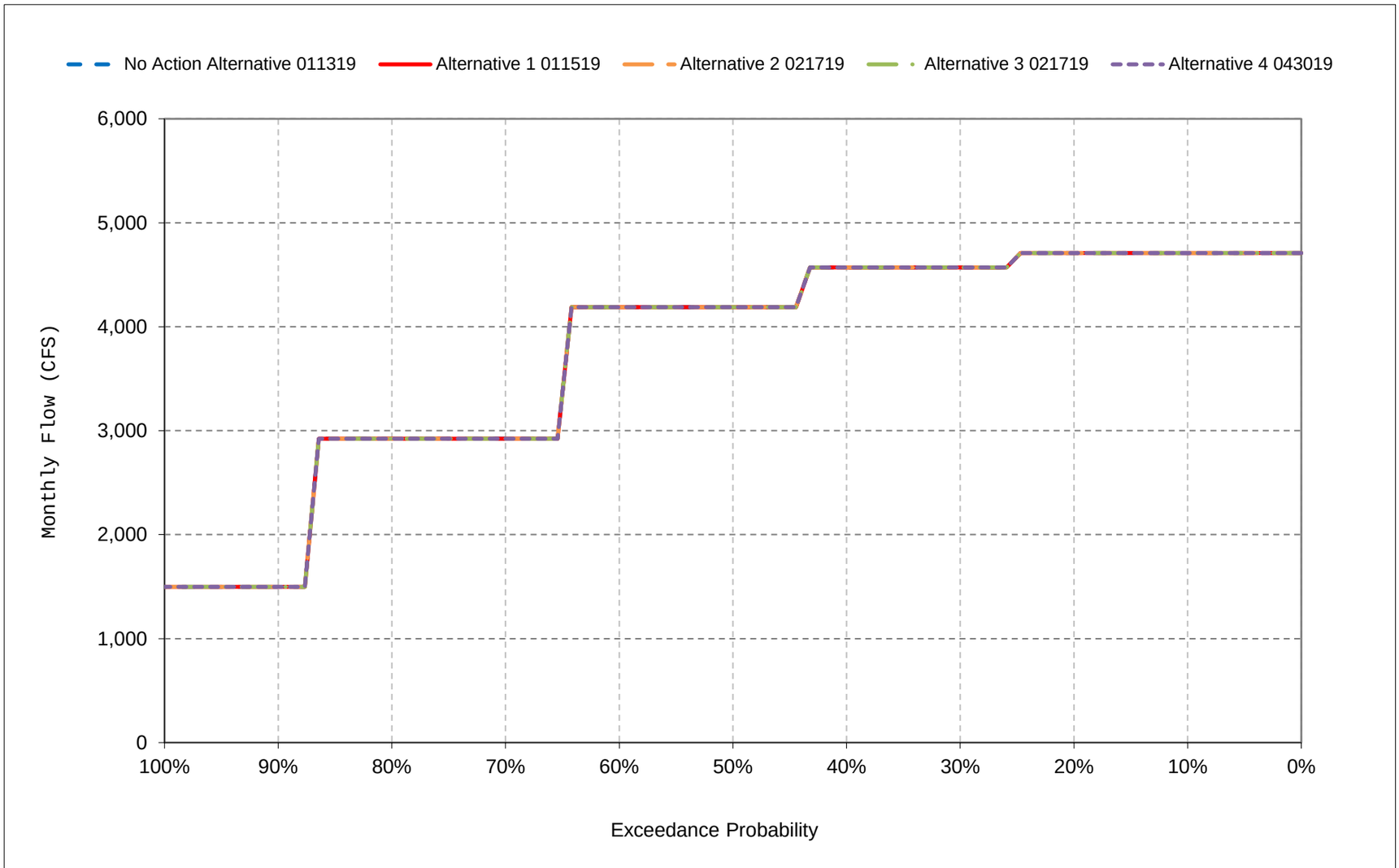
Figure 12-13. Trinity River Flow below Lewiston, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

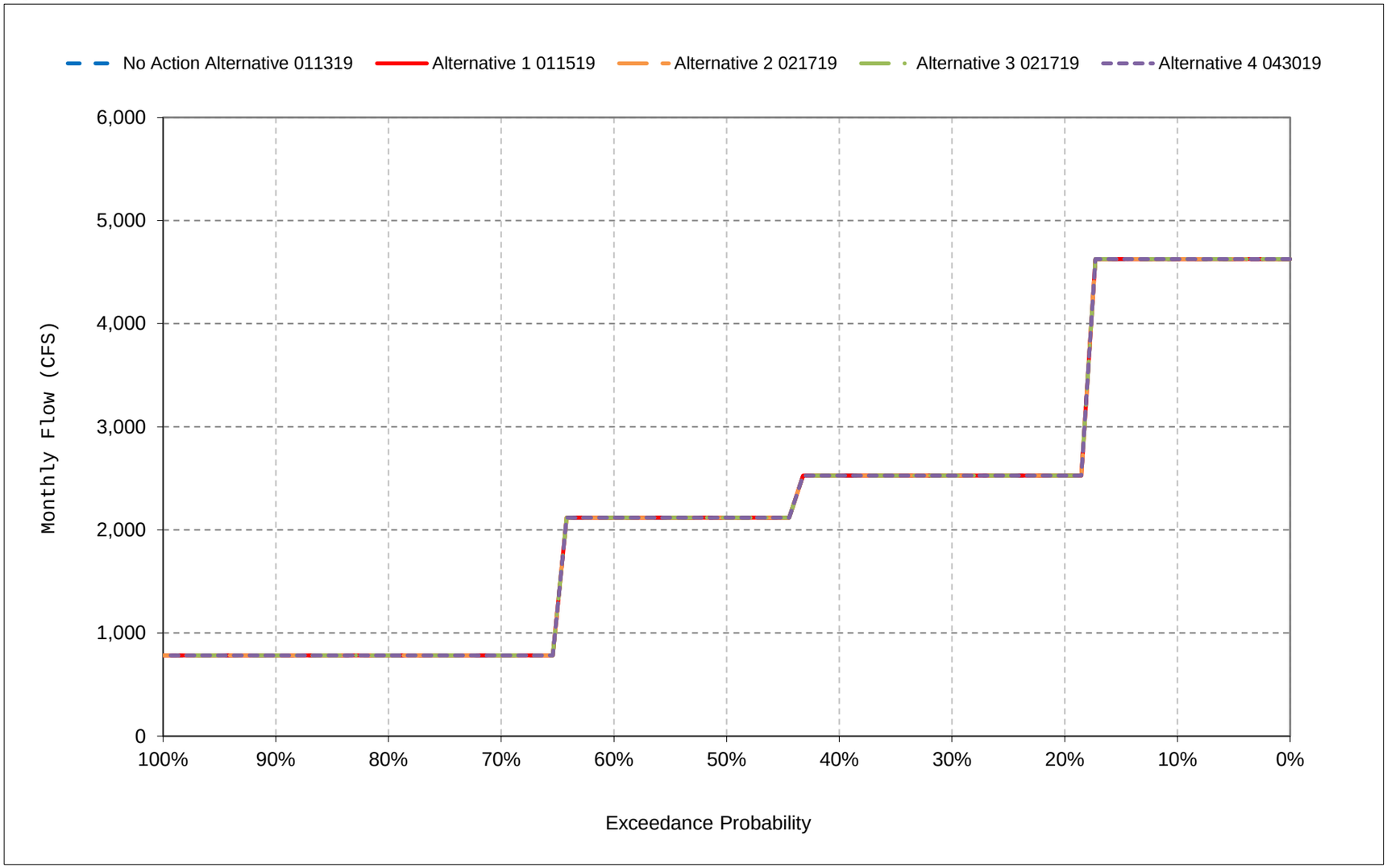
Figure 12-14. Trinity River Flow below Lewiston, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

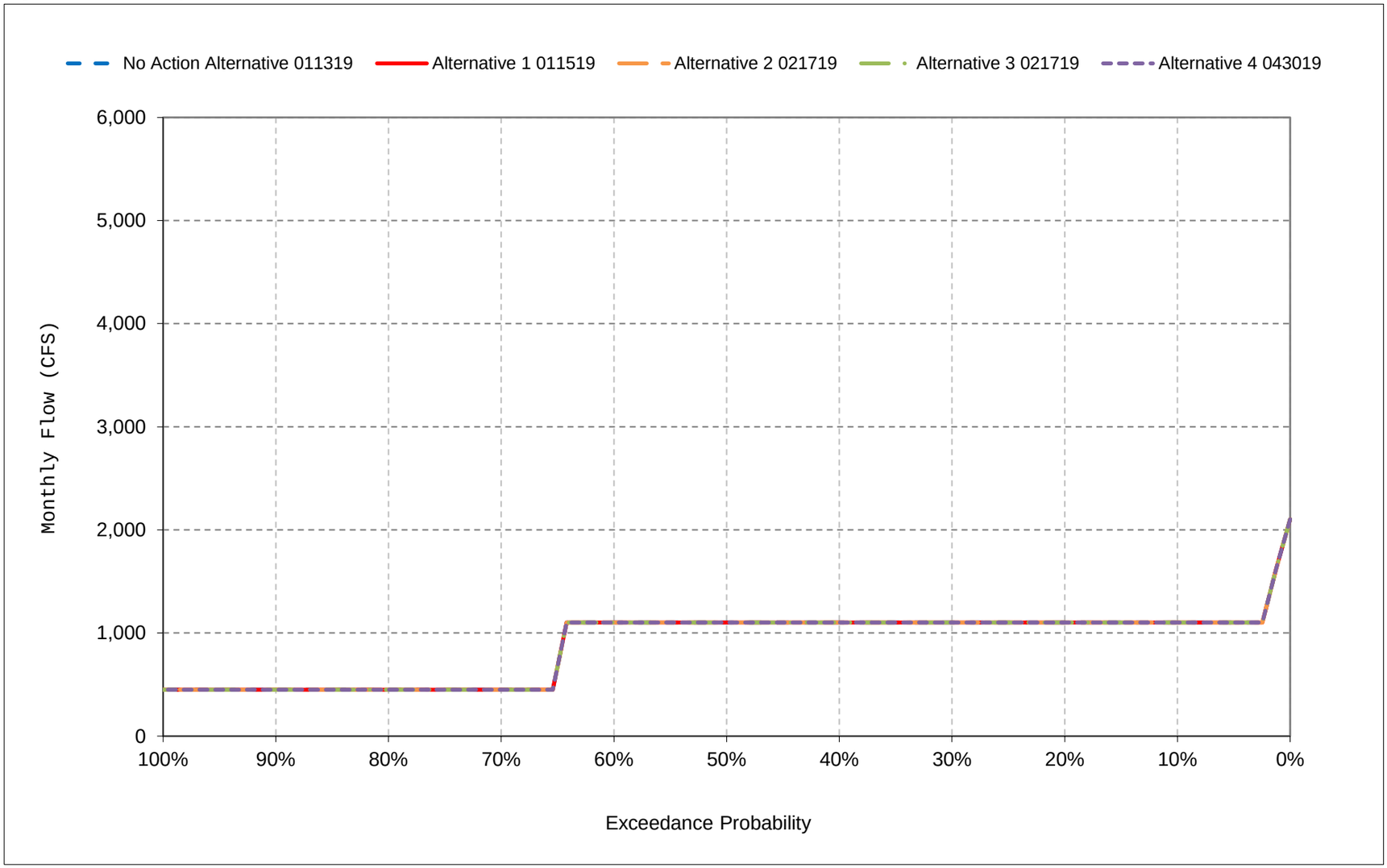
Figure 12-15. Trinity River Flow below Lewiston, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

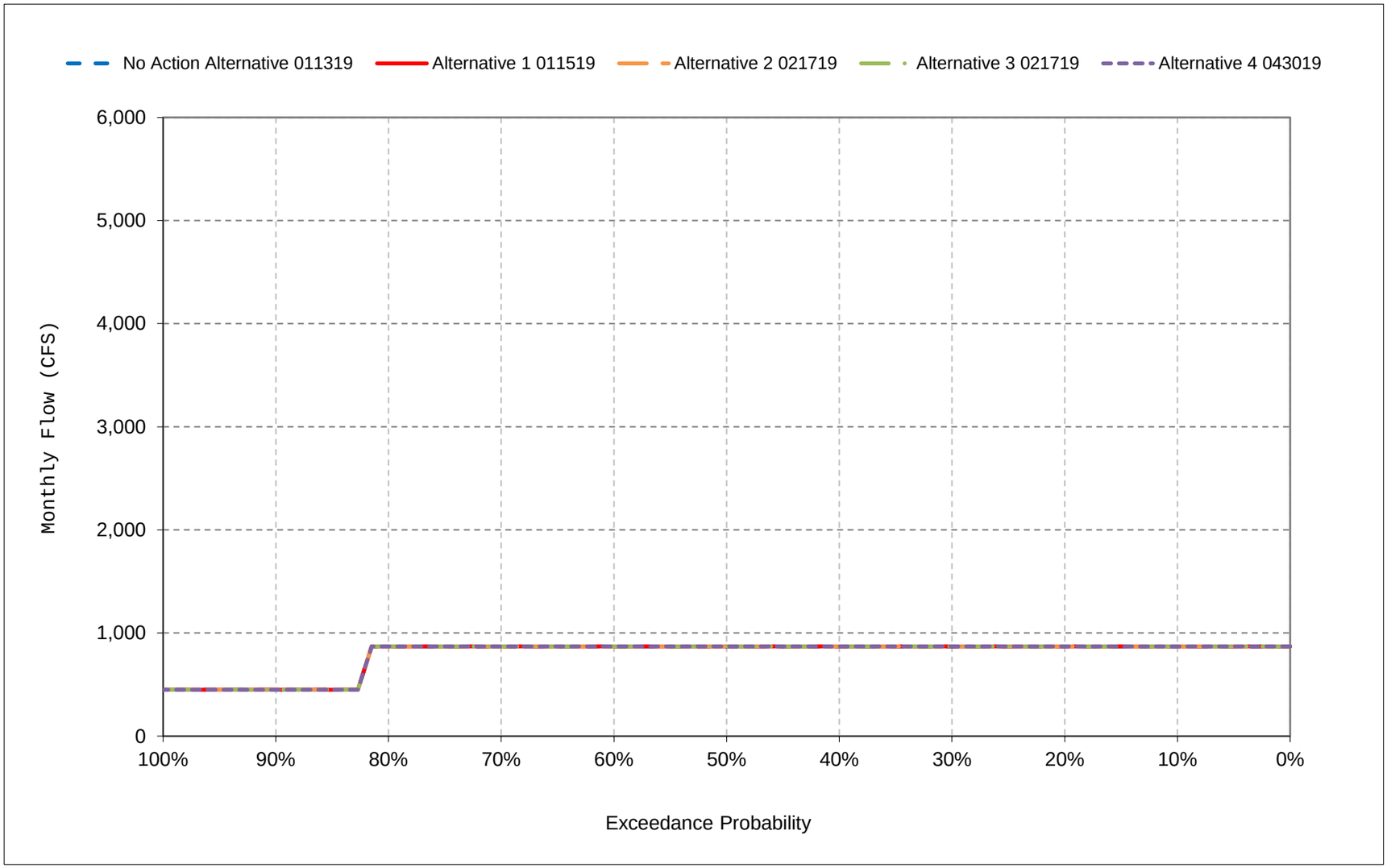
Figure 12-16. Trinity River Flow below Lewiston, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

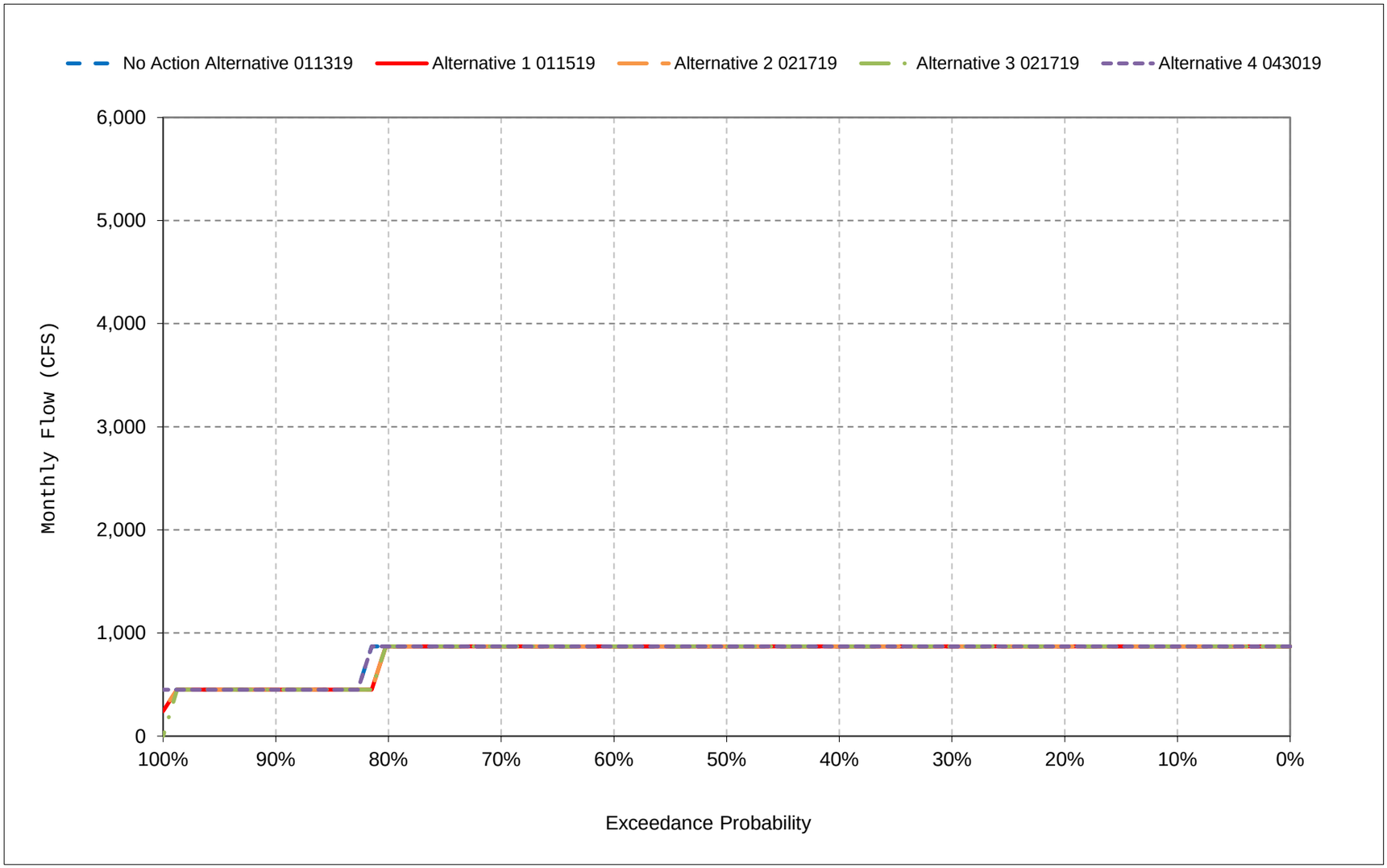
Figure 12-17. Trinity River Flow below Lewiston, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-18. Trinity River Flow below Lewiston, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 14-1. Clear Creek below Whiskeytown Dam Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	200	200	200	200	200	200	200	277	200	85	85	150
20%	200	200	200	200	200	200	200	277	200	85	85	150
30%	200	200	200	200	200	200	200	277	200	85	85	150
40%	200	200	200	200	200	200	200	277	200	85	85	150
50%	200	200	200	200	200	200	200	277	200	85	85	150
60%	200	200	200	200	200	200	200	277	200	85	85	150
70%	200	200	200	200	200	200	200	277	200	85	85	150
80%	200	200	200	200	200	200	200	277	150	85	85	150
90%	150	150	150	150	150	150	150	237	150	85	85	150
Long Term												
Full Simulation Period[a]	185	186	190	225	207	194	191	265	181	85	85	148
Water Year Types[b,c]												
Wet (32%)	200	200	200	309	249	207	200	277	200	85	85	150
Above Normal (16%)	200	200	200	192	196	196	196	277	200	85	85	150
Below Normal (13%)	195	195	195	195	195	195	195	274	191	85	85	150
Dry (24%)	188	188	188	190	190	190	190	267	183	85	85	150
Critical (15%)	121	128	154	167	167	167	167	214	111	85	85	133

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	200	200	200	200	200	200	200	277	200	85	85	150
20%	200	200	200	200	200	200	200	277	200	85	85	150
30%	200	200	200	200	200	200	200	277	200	85	85	150
40%	200	200	200	200	200	200	200	277	200	85	85	150
50%	200	200	200	200	200	200	200	277	200	85	85	150
60%	200	200	200	200	200	200	200	277	200	85	85	150
70%	200	200	200	200	200	200	200	277	200	85	85	150
80%	200	200	200	200	200	200	200	277	150	85	85	150
90%	150	150	150	150	150	150	150	237	150	85	85	150
Long Term												
Full Simulation Period[a]	187	188	190	225	207	194	191	265	181	85	86	148
Water Year Types[b,c]												
Wet (32%)	200	200	200	309	249	207	200	277	200	85	85	150
Above Normal (16%)	200	200	200	192	196	196	196	277	200	85	85	150
Below Normal (13%)	195	195	195	195	195	195	195	274	191	85	85	150
Dry (24%)	188	188	188	190	190	190	190	267	183	85	85	150
Critical (15%)	133	141	154	167	167	167	167	214	111	85	94	133

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	2	2	**0**	**0**	**0**	**0**	**0**	0	0	0	1	0
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (24%)	0	0	0	0	**0**	**0**	**0**	0	0	0	0	0
Critical (15%)	13	13	**0**	**0**	**0**	**0**	**0**	0	0	0	9	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 14-2. Clear Creek below Whiskeytown Dam Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	200	200	200	200	200	200	200	277	200	85	85	150
20%	200	200	200	200	200	200	200	277	200	85	85	150
30%	200	200	200	200	200	200	200	277	200	85	85	150
40%	200	200	200	200	200	200	200	277	200	85	85	150
50%	200	200	200	200	200	200	200	277	200	85	85	150
60%	200	200	200	200	200	200	200	277	200	85	85	150
70%	200	200	200	200	200	200	200	277	200	85	85	150
80%	200	200	200	200	200	200	200	277	150	85	85	150
90%	150	150	150	150	150	150	150	237	150	85	85	150
Long Term												
Full Simulation Period[a]	185	186	190	225	207	194	191	265	181	85	85	148
Water Year Types[b,c]												
Wet (32%)	200	200	200	309	249	207	200	277	200	85	85	150
Above Normal (16%)	200	200	200	192	196	196	196	277	200	85	85	150
Below Normal (13%)	195	195	195	195	195	195	195	274	191	85	85	150
Dry (24%)	188	188	188	190	190	190	190	267	183	85	85	150
Critical (15%)	121	128	154	167	167	167	167	214	111	85	85	133

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	50	100	100	100	100	100	100	156	50	50	50	50
20%	50	100	100	100	100	100	100	156	50	50	50	50
30%	50	100	100	100	100	100	100	156	50	50	50	50
40%	50	100	100	100	100	100	100	156	50	50	50	50
50%	50	100	100	100	100	100	100	156	50	50	50	50
60%	50	100	100	100	100	100	100	156	50	50	50	50
70%	50	100	100	100	100	100	100	156	50	50	50	50
80%	50	100	100	100	100	100	100	156	50	50	50	50
90%	50	73	73	87	70	70	70	142	50	50	50	50
Long Term												
Full Simulation Period[a]	50	97	97	134	112	98	94	155	50	50	50	50
Water Year Types[b,c]												
Wet (32%)	50	100	100	216	148	104	92	156	50	50	50	50
Above Normal (16%)	50	100	100	95	95	95	95	156	50	50	50	50
Below Normal (13%)	50	97	97	100	100	100	100	155	50	50	50	50
Dry (24%)	50	100	100	96	96	96	96	156	50	50	50	50
Critical (15%)	50	80	80	93	93	93	93	146	50	50	50	50

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
20%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
30%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
40%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
50%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
60%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
70%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
80%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-100**	**-35**	**-35**	**-100**
90%	**-100**	**-77**	**-77**	**-63**	**-80**	**-80**	**-80**	**-95**	**-100**	**-35**	**-35**	**-100**
Long Term												
Full Simulation Period[a]	**-135**	**-89**	**-93**	**-92**	**-95**	**-95**	**-97**	**-110**	**-131**	**-35**	**-35**	**-98**
Water Year Types[b,c]												
Wet (32%)	**-150**	**-100**	**-100**	**-93**	**-101**	**-102**	**-108**	**-121**	**-150**	**-35**	**-35**	**-100**
Above Normal (16%)	**-150**	**-100**	**-100**	**-97**	**-101**	**-101**	**-101**	**-121**	**-150**	**-35**	**-35**	**-100**
Below Normal (13%)	**-145**	**-98**	**-98**	**-95**	**-95**	**-95**	**-95**	**-119**	**-141**	**-35**	**-35**	**-100**
Dry (24%)	**-138**	**-88**	**-88**	**-94**	**-95**	**-95**	**-95**	**-111**	**-133**	**-35**	**-35**	**-100**
Critical (15%)	**-71**	**-48**	**-74**	**-74**	**-74**	**-74**	**-74**	**-68**	**-61**	**-35**	**-35**	**-83**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 14-3. Clear Creek below Whiskeytown Dam Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	200	200	200	200	200	200	200	277	200	85	85	150
20%	200	200	200	200	200	200	200	277	200	85	85	150
30%	200	200	200	200	200	200	200	277	200	85	85	150
40%	200	200	200	200	200	200	200	277	200	85	85	150
50%	200	200	200	200	200	200	200	277	200	85	85	150
60%	200	200	200	200	200	200	200	277	200	85	85	150
70%	200	200	200	200	200	200	200	277	200	85	85	150
80%	200	200	200	200	200	200	200	277	150	85	85	150
90%	150	150	150	150	150	150	150	237	150	85	85	150
Long Term												
Full Simulation Period[a]	185	186	190	225	207	194	191	265	181	85	85	148
Water Year Types[b,c]												
Wet (32%)	200	200	200	309	249	207	200	277	200	85	85	150
Above Normal (16%)	200	200	200	192	196	196	196	277	200	85	85	150
Below Normal (13%)	195	195	195	195	195	195	195	274	191	85	85	150
Dry (24%)	188	188	188	190	190	190	190	267	183	85	85	150
Critical (15%)	121	128	154	167	167	167	167	214	111	85	85	133

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	50	100	100	100	100	100	100	156	50	50	50	50
20%	50	100	100	100	100	100	100	156	50	50	50	50
30%	50	100	100	100	100	100	100	156	50	50	50	50
40%	50	100	100	100	100	100	100	156	50	50	50	50
50%	50	100	100	100	100	100	100	156	50	50	50	50
60%	50	100	100	100	100	100	100	156	50	50	50	50
70%	50	100	100	100	100	100	100	156	50	50	50	50
80%	50	100	100	100	100	100	100	156	50	50	50	50
90%	50	73	73	87	70	70	70	142	50	50	50	50
Long Term												
Full Simulation Period[a]	50	97	97	134	112	98	94	155	50	50	50	50
Water Year Types[b,c]												
Wet (32%)	50	100	100	216	148	104	92	156	50	50	50	50
Above Normal (16%)	50	100	100	95	95	95	95	156	50	50	50	50
Below Normal (13%)	50	97	97	100	100	100	100	155	50	50	50	50
Dry (24%)	50	100	100	96	96	96	96	156	50	50	50	50
Critical (15%)	50	80	80	93	93	93	93	146	50	50	50	50

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
20%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
30%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
40%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
50%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
60%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
70%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-150**	**-35**	**-35**	**-100**
80%	**-150**	**-100**	**-100**	**-100**	**-100**	**-100**	**-100**	**-121**	**-100**	**-35**	**-35**	**-100**
90%	**-100**	**-77**	**-77**	**-63**	**-80**	**-80**	**-80**	**-95**	**-100**	**-35**	**-35**	**-100**
Long Term												
Full Simulation Period[a]	**-135**	**-89**	**-93**	**-92**	**-95**	**-95**	**-97**	**-110**	**-131**	**-35**	**-35**	**-98**
Water Year Types[b,c]												
Wet (32%)	**-150**	**-100**	**-100**	**-93**	**-101**	**-102**	**-108**	**-121**	**-150**	**-35**	**-35**	**-100**
Above Normal (16%)	**-150**	**-100**	**-100**	**-97**	**-101**	**-101**	**-101**	**-121**	**-150**	**-35**	**-35**	**-100**
Below Normal (13%)	**-145**	**-98**	**-98**	**-95**	**-95**	**-95**	**-95**	**-119**	**-141**	**-35**	**-35**	**-100**
Dry (24%)	**-138**	**-88**	**-88**	**-94**	**-95**	**-95**	**-95**	**-111**	**-133**	**-35**	**-35**	**-100**
Critical (15%)	**-71**	**-48**	**-74**	**-74**	**-74**	**-74**	**-74**	**-68**	**-61**	**-35**	**-35**	**-83**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 14-4. Clear Creek below Whiskeytown Dam Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	200	200	200	200	200	200	200	277	200	85	85	150
20%	200	200	200	200	200	200	200	277	200	85	85	150
30%	200	200	200	200	200	200	200	277	200	85	85	150
40%	200	200	200	200	200	200	200	277	200	85	85	150
50%	200	200	200	200	200	200	200	277	200	85	85	150
60%	200	200	200	200	200	200	200	277	200	85	85	150
70%	200	200	200	200	200	200	200	277	200	85	85	150
80%	200	200	200	200	200	200	200	277	150	85	85	150
90%	150	150	150	150	150	150	150	237	150	85	85	150
Long Term												
Full Simulation Period[a]	185	186	190	225	207	194	191	265	181	85	85	148
Water Year Types[b,c]												
Wet (32%)	200	200	200	309	249	207	200	277	200	85	85	150
Above Normal (16%)	200	200	200	192	196	196	196	277	200	85	85	150
Below Normal (13%)	195	195	195	195	195	195	195	274	191	85	85	150
Dry (24%)	188	188	188	190	190	190	190	267	183	85	85	150
Critical (15%)	121	128	154	167	167	167	167	214	111	85	85	133

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	200	314	853	1,022	1,442	1,030	723	372	200	105	89	150
20%	200	220	522	734	884	764	588	294	200	85	85	150
30%	200	200	377	532	709	585	505	277	200	85	85	150
40%	200	200	249	433	619	445	344	277	200	85	85	150
50%	200	200	200	327	489	384	266	277	200	85	85	150
60%	200	200	200	207	307	306	240	277	200	85	85	150
70%	200	200	200	200	235	244	218	277	200	85	85	150
80%	200	200	200	200	200	212	205	277	150	85	85	150
90%	150	150	150	200	200	200	200	237	150	85	85	150
Long Term												
Full Simulation Period[a]	189	230	373	499	629	520	400	302	188	92	89	148
Water Year Types[b,c]												
Wet (32%)	200	237	383	837	914	757	593	350	214	99	91	152
Above Normal (16%)	206	294	425	629	911	638	439	314	209	88	93	150
Below Normal (13%)	196	218	331	328	466	310	282	277	191	97	90	150
Dry (24%)	190	232	441	248	400	399	299	289	183	85	85	150
Critical (15%)	135	151	219	199	235	275	218	232	116	88	85	136

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	114	653	822	1,242	830	523	94	0	20	4	0
20%	0	20	322	534	684	564	388	17	0	0	0	0
30%	0	0	177	332	509	385	305	0	0	0	0	0
40%	0	0	49	233	419	245	144	0	0	0	0	0
50%	0	0	0	127	289	184	66	0	0	0	0	0
60%	0	0	0	7	107	106	40	0	0	0	0	0
70%	0	0	0	0	35	44	18	0	0	0	0	0
80%	0	0	0	0	0	12	5	0	0	0	0	0
90%	0	0	0	50	50	50	50	0	0	0	0	0
Long Term												
Full Simulation Period[a]	4	44	183	273	422	327	209	37	7	7	4	1
Water Year Types[b,c]												
Wet (32%)	0	37	183	528	665	550	393	72	14	14	6	2
Above Normal (16%)	6	94	225	437	715	442	243	37	9	3	8	0
Below Normal (13%)	0	22	135	133	270	114	86	3	0	12	5	0
Dry (24%)	3	45	253	58	210	209	109	22	0	0	0	0
Critical (15%)	14	22	65	32	68	108	52	18	6	3	0	2

a Based on the 82-year simulation period.

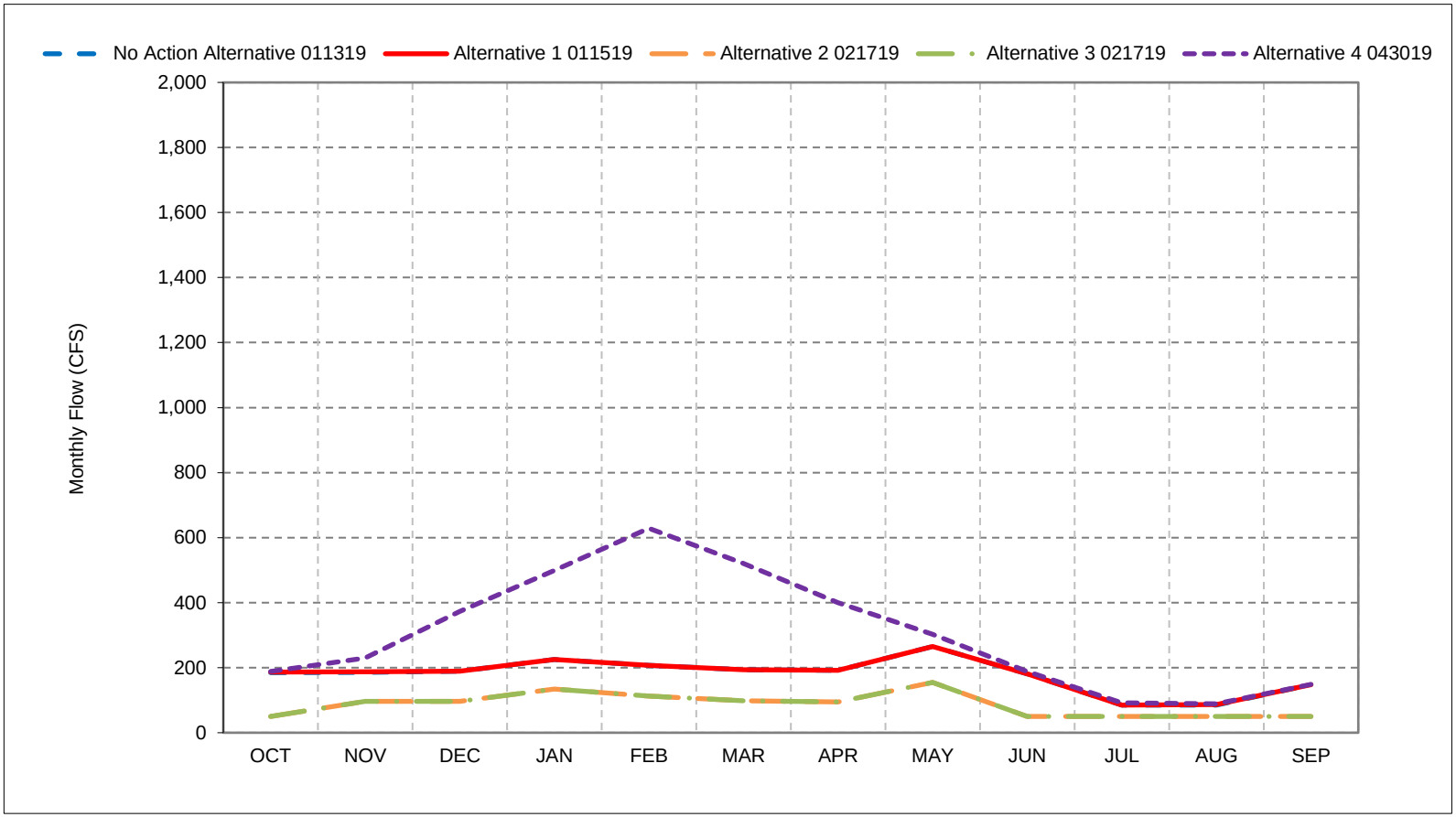
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

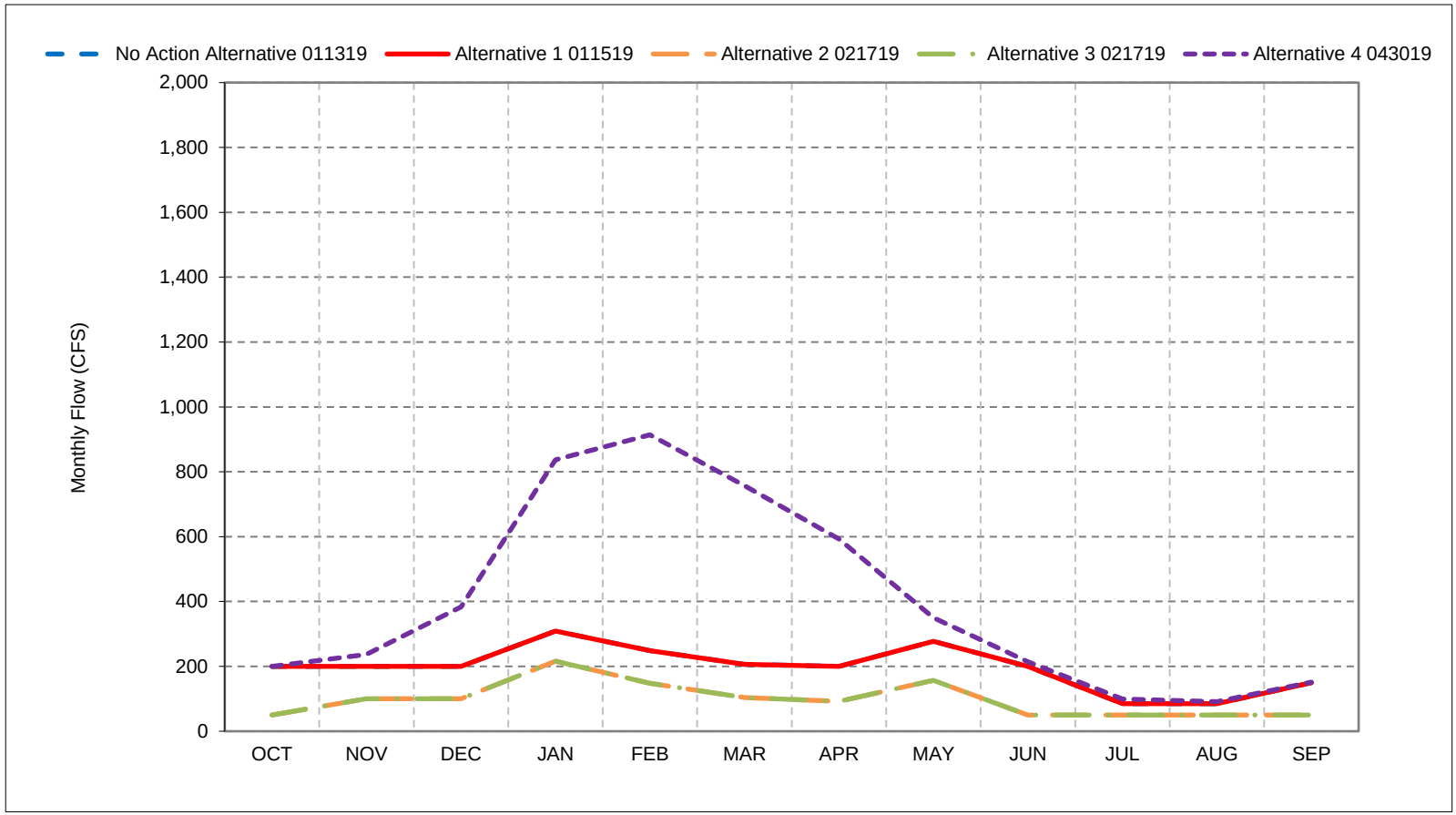
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-1. Clear Creek below Whiskeytown Dam Flow, Long-Term Average Flow



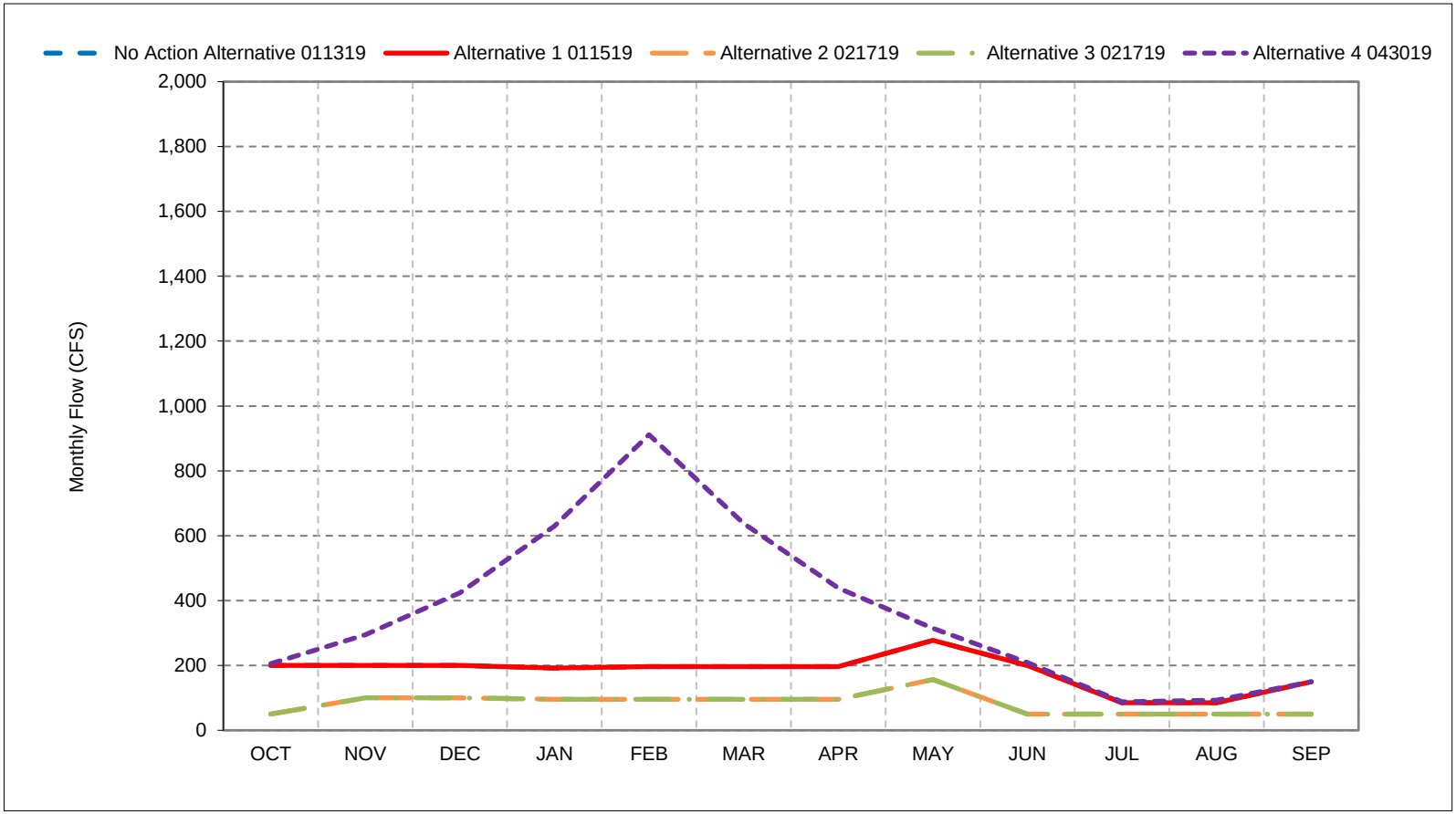
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-2. Clear Creek below Whiskeytown Dam Flow, Wet Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-3. Clear Creek below Whiskeytown Dam Flow, Above Normal Year Average Flow



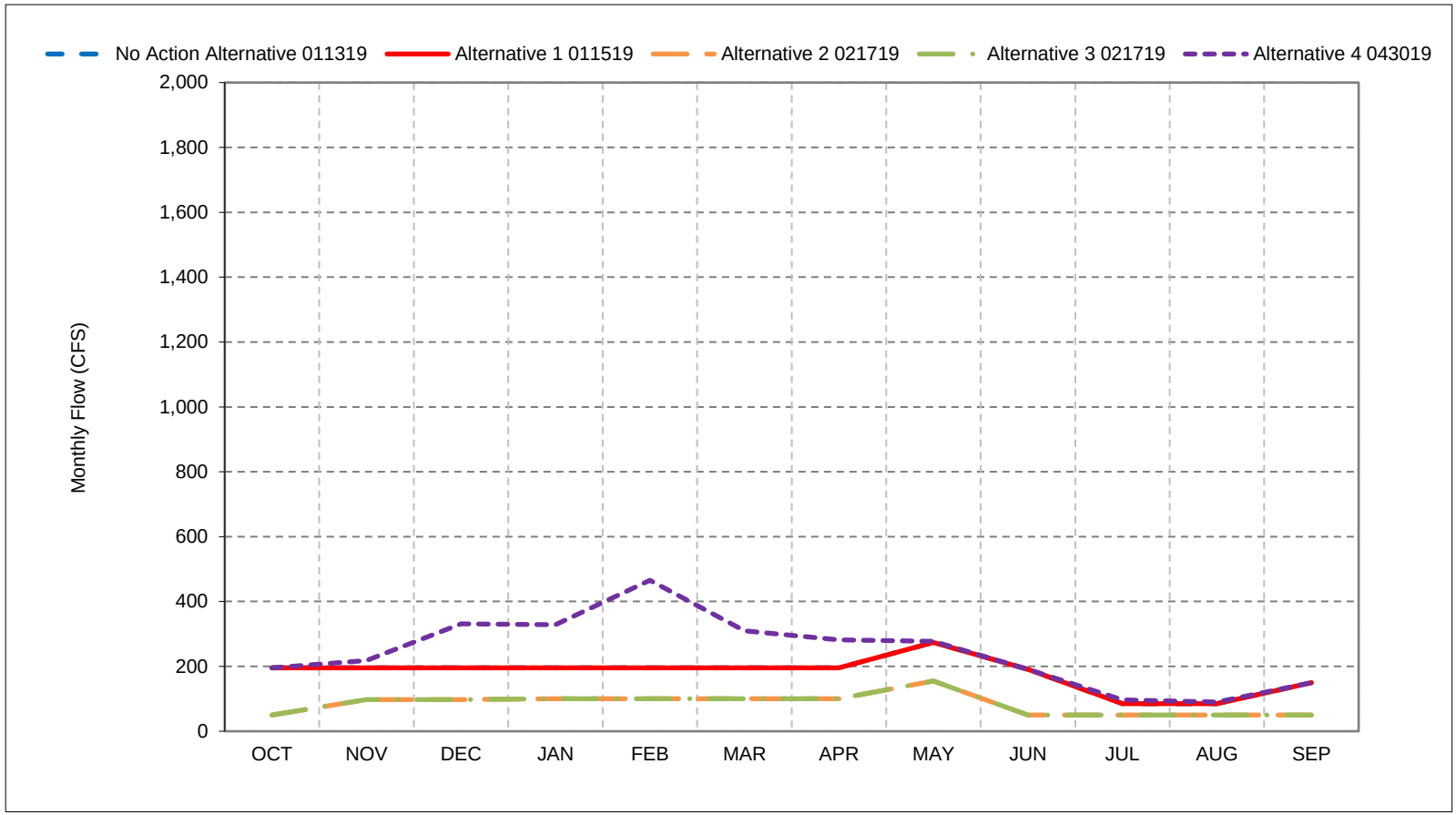
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

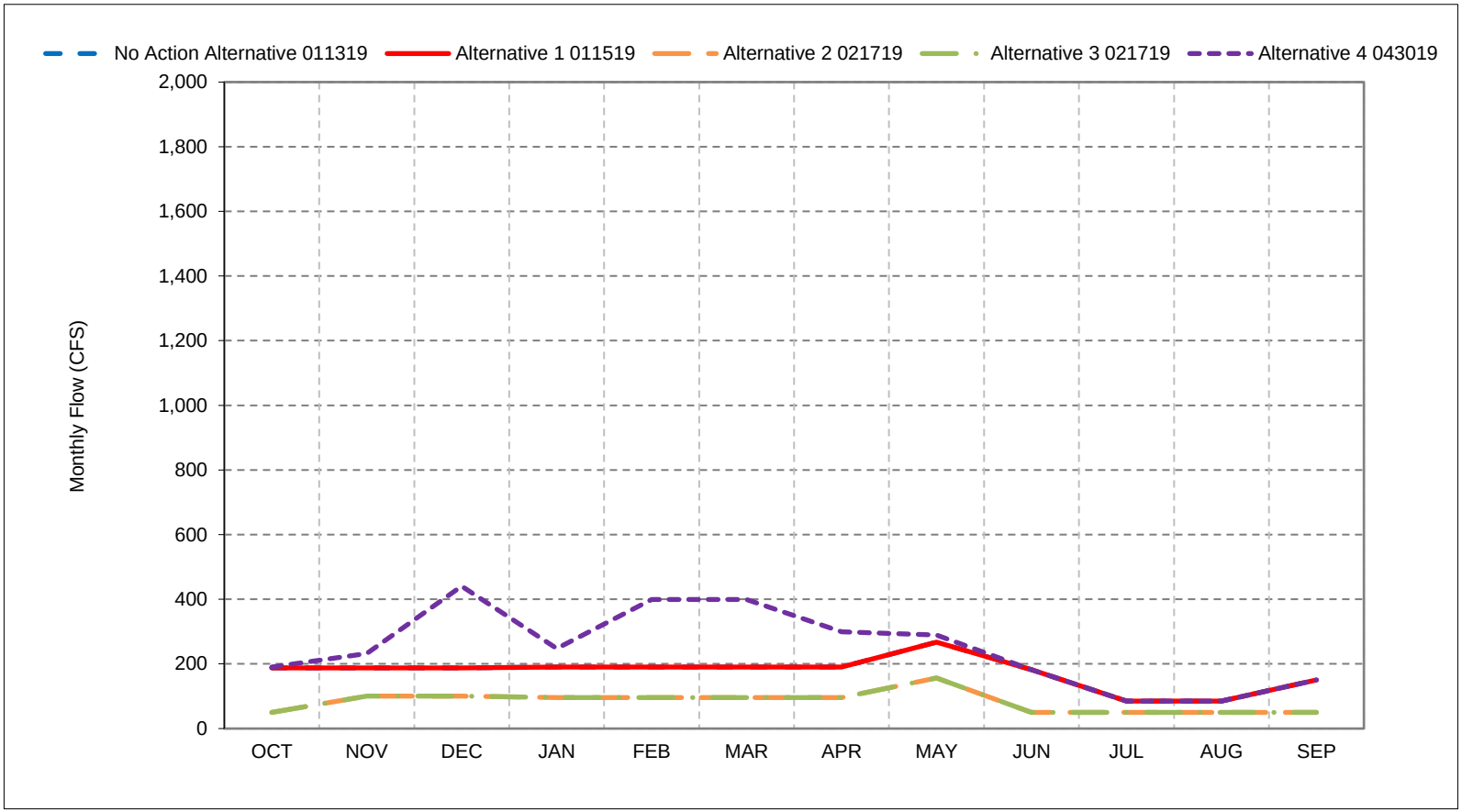
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-4. Clear Creek below Whiskeytown Dam Flow, Below Normal Year Average Flow



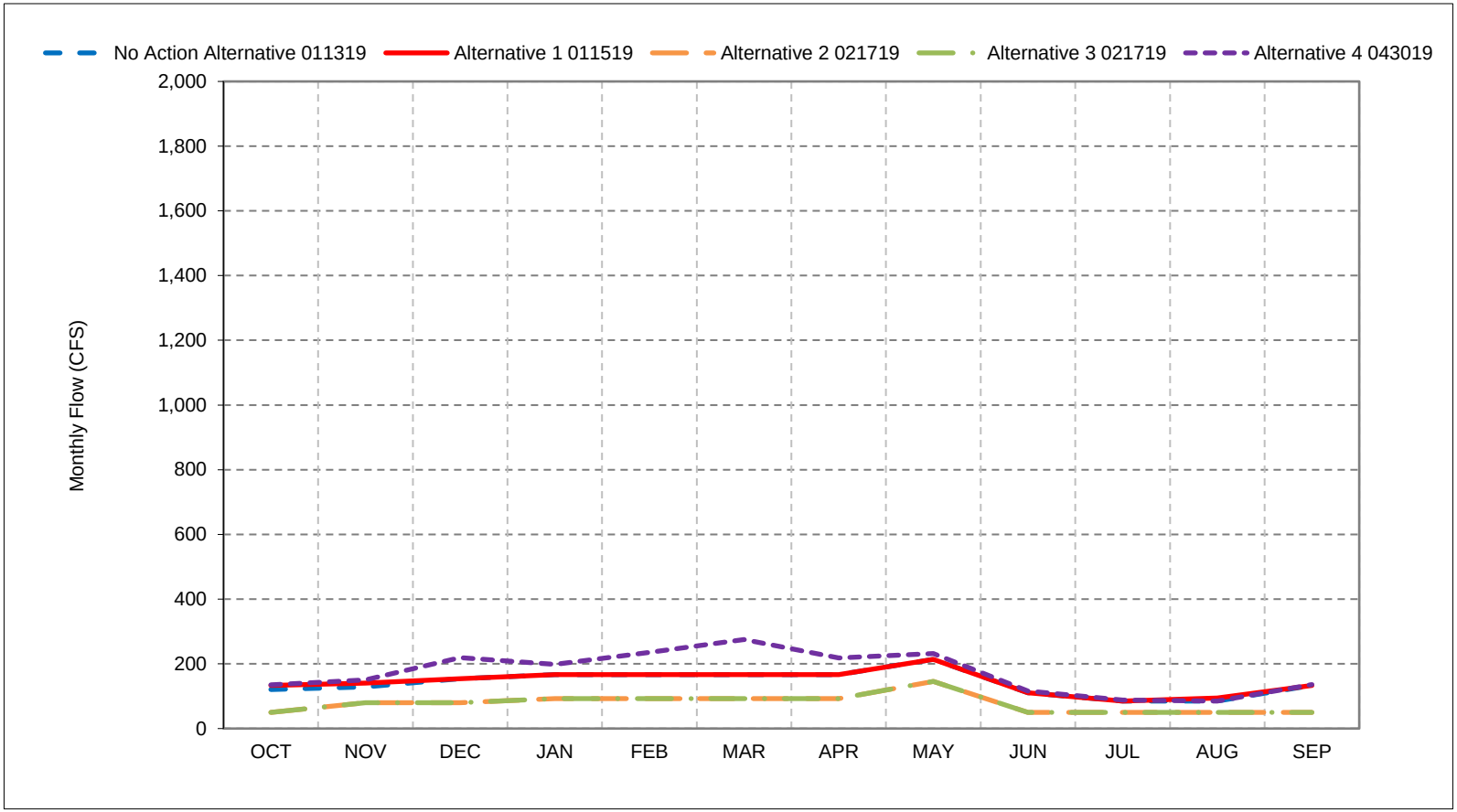
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-5. Clear Creek below Whiskeytown Dam Flow, Dry Year Average Flow



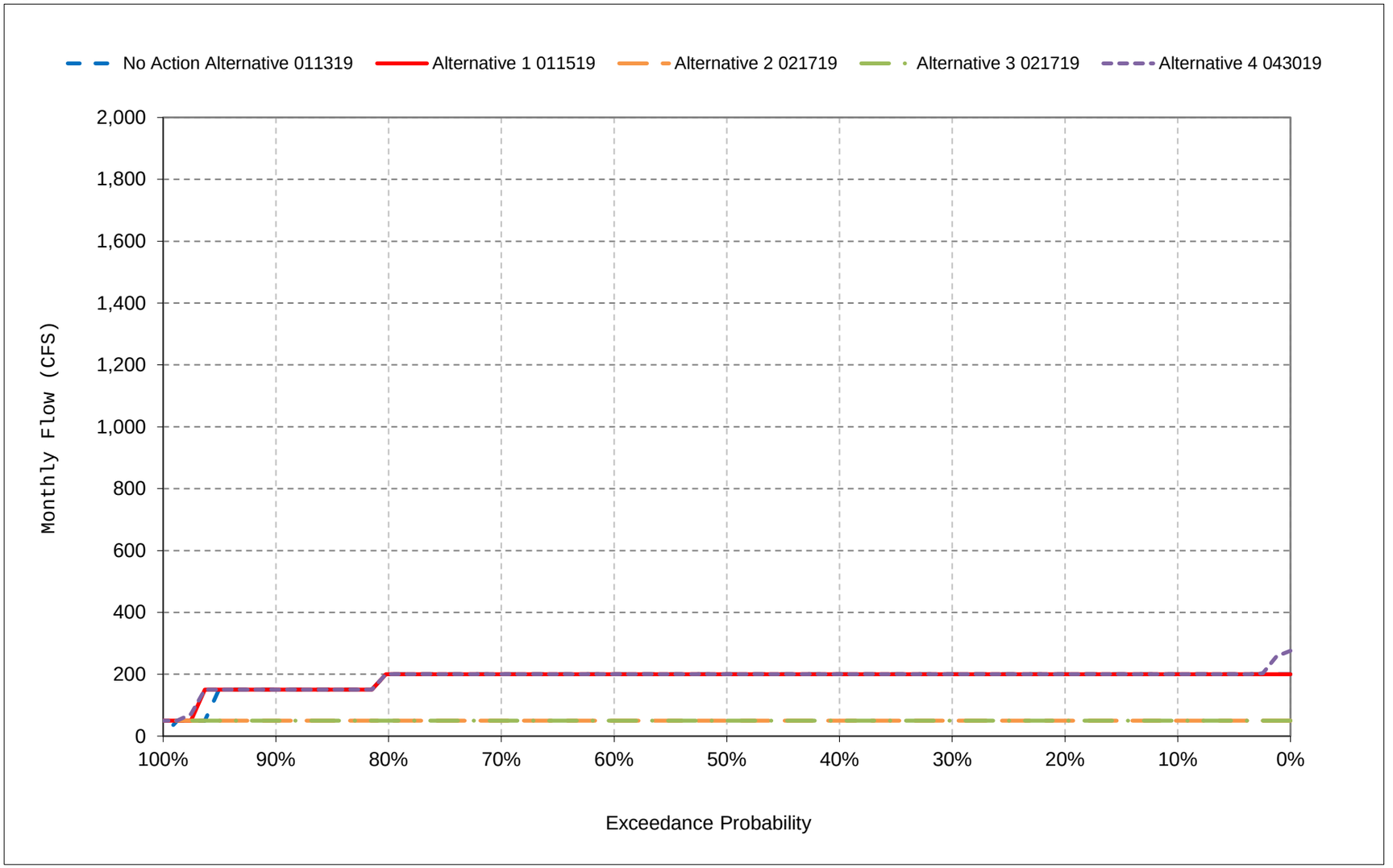
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-6. Clear Creek below Whiskeytown Dam Flow, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

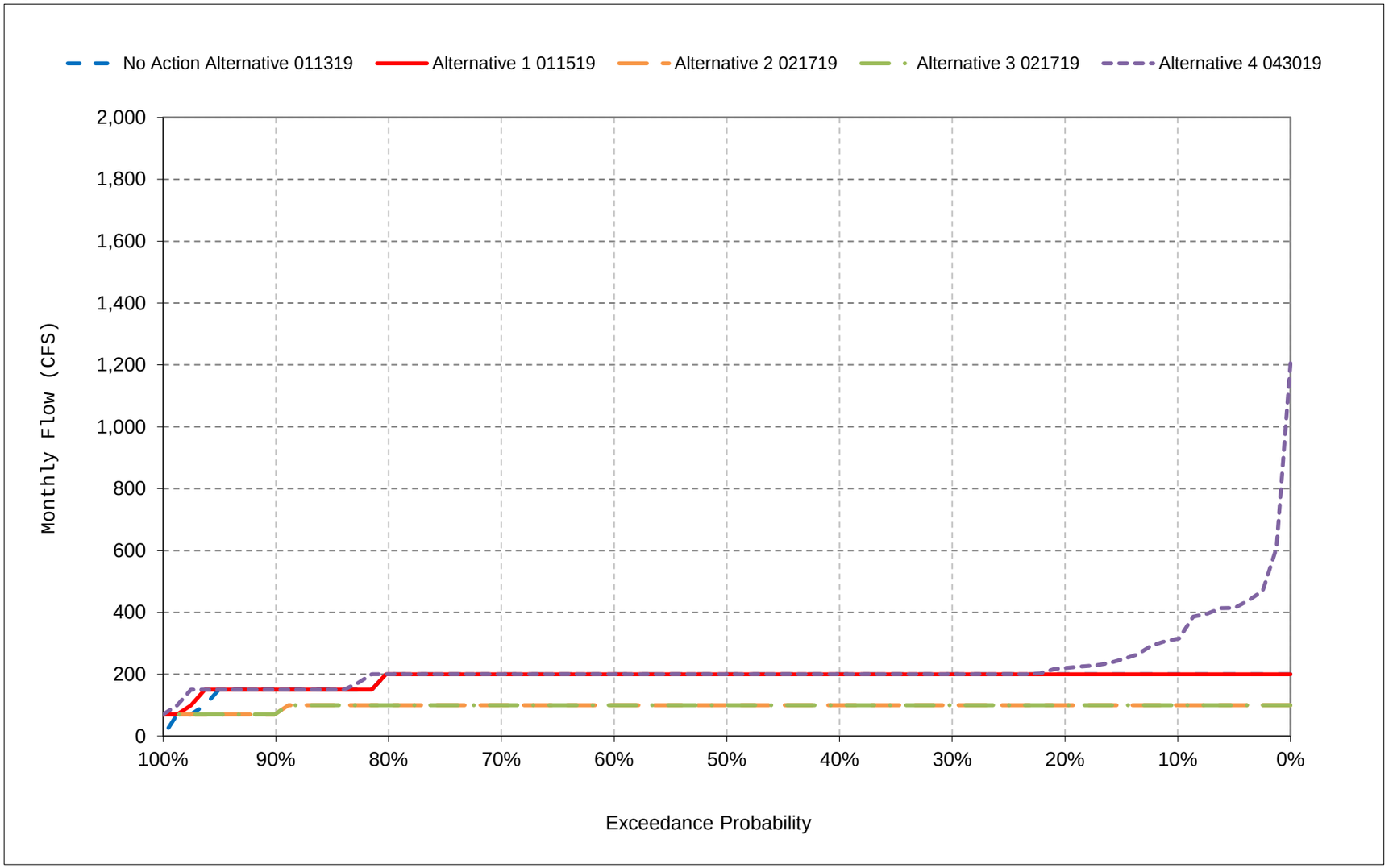
Figure 14-7. Clear Creek below Whiskeytown Dam Flow, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

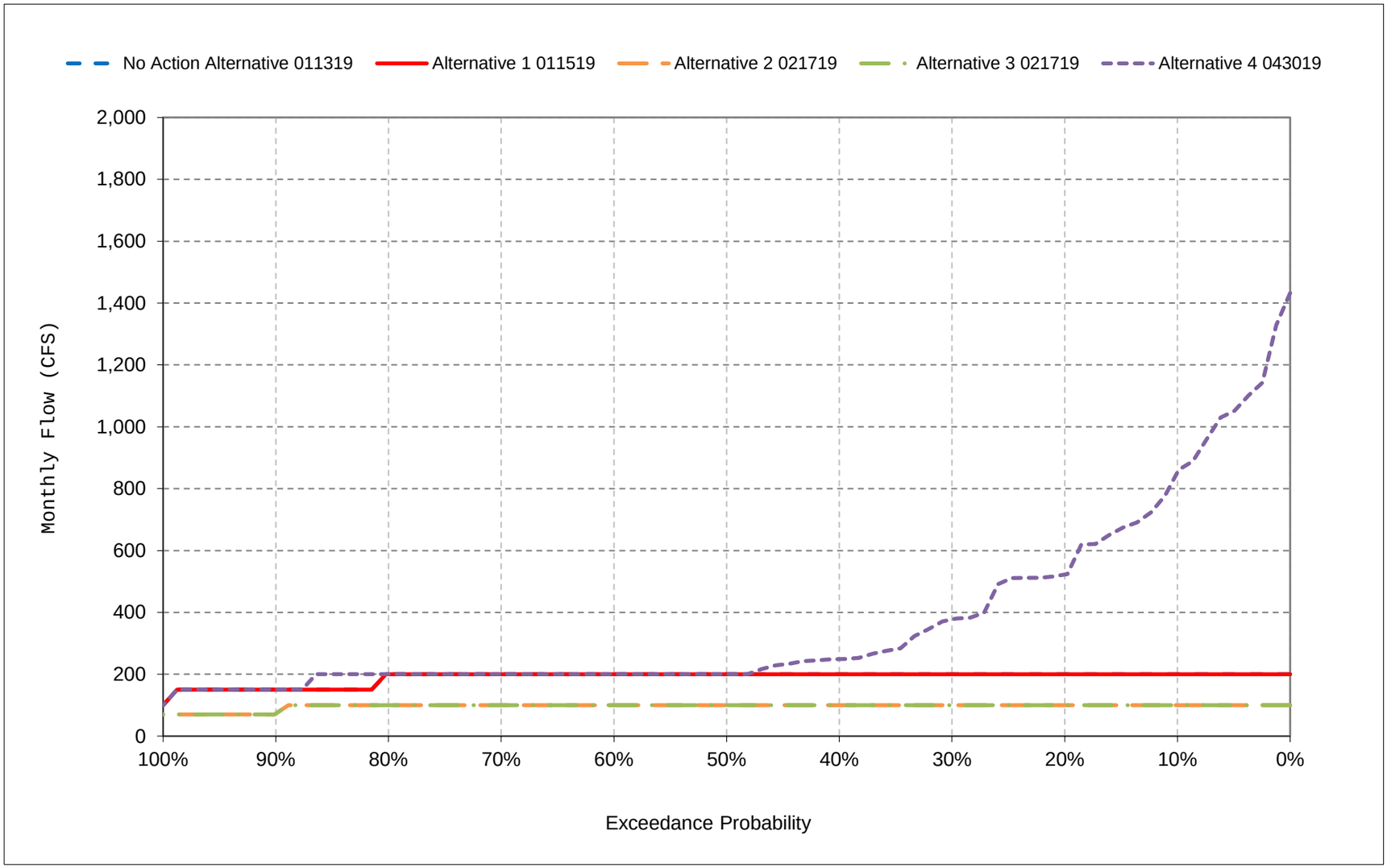
Figure 14-8. Clear Creek below Whiskeytown Dam Flow, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

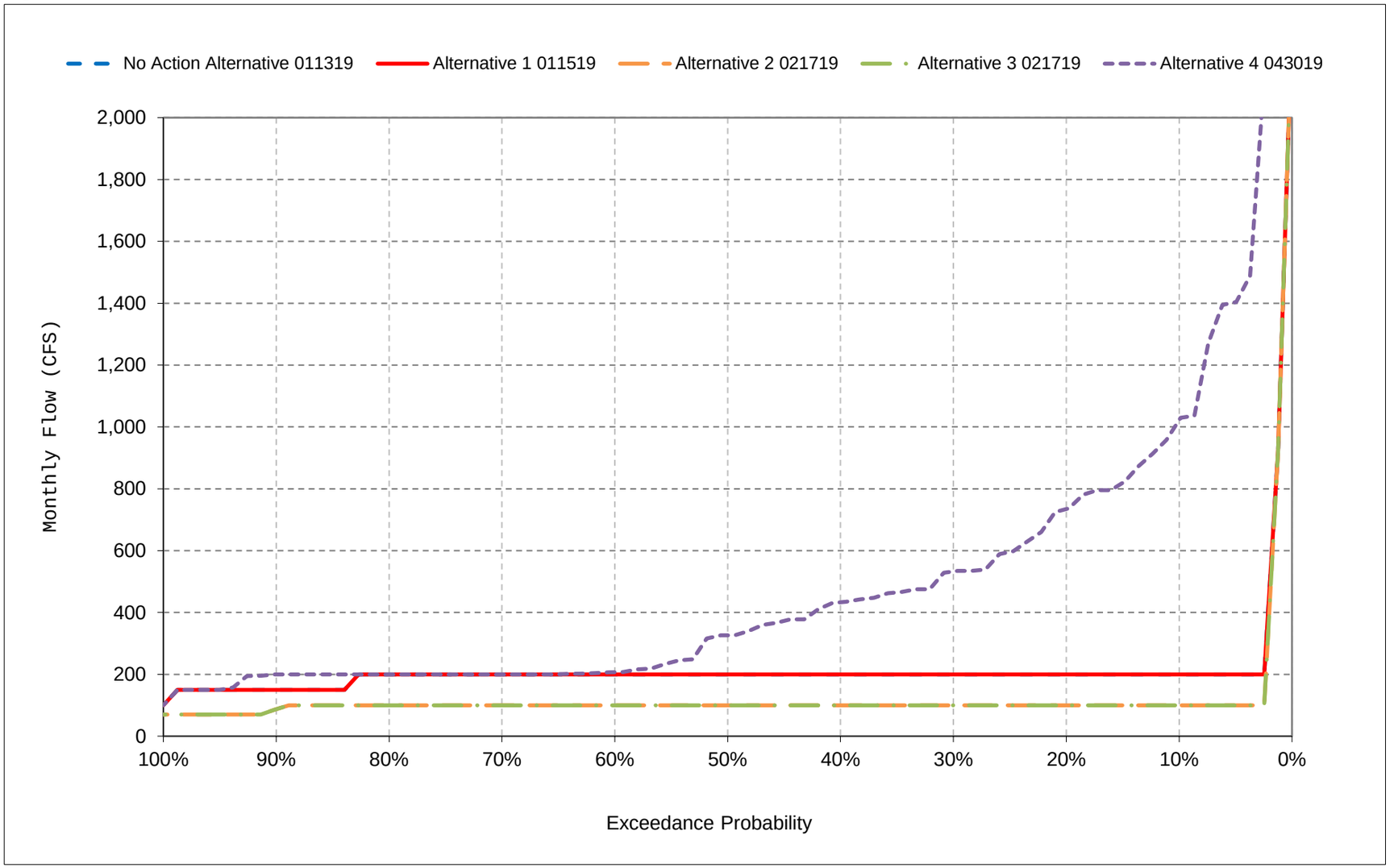
Figure 14-9. Clear Creek below Whiskeytown Dam Flow, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

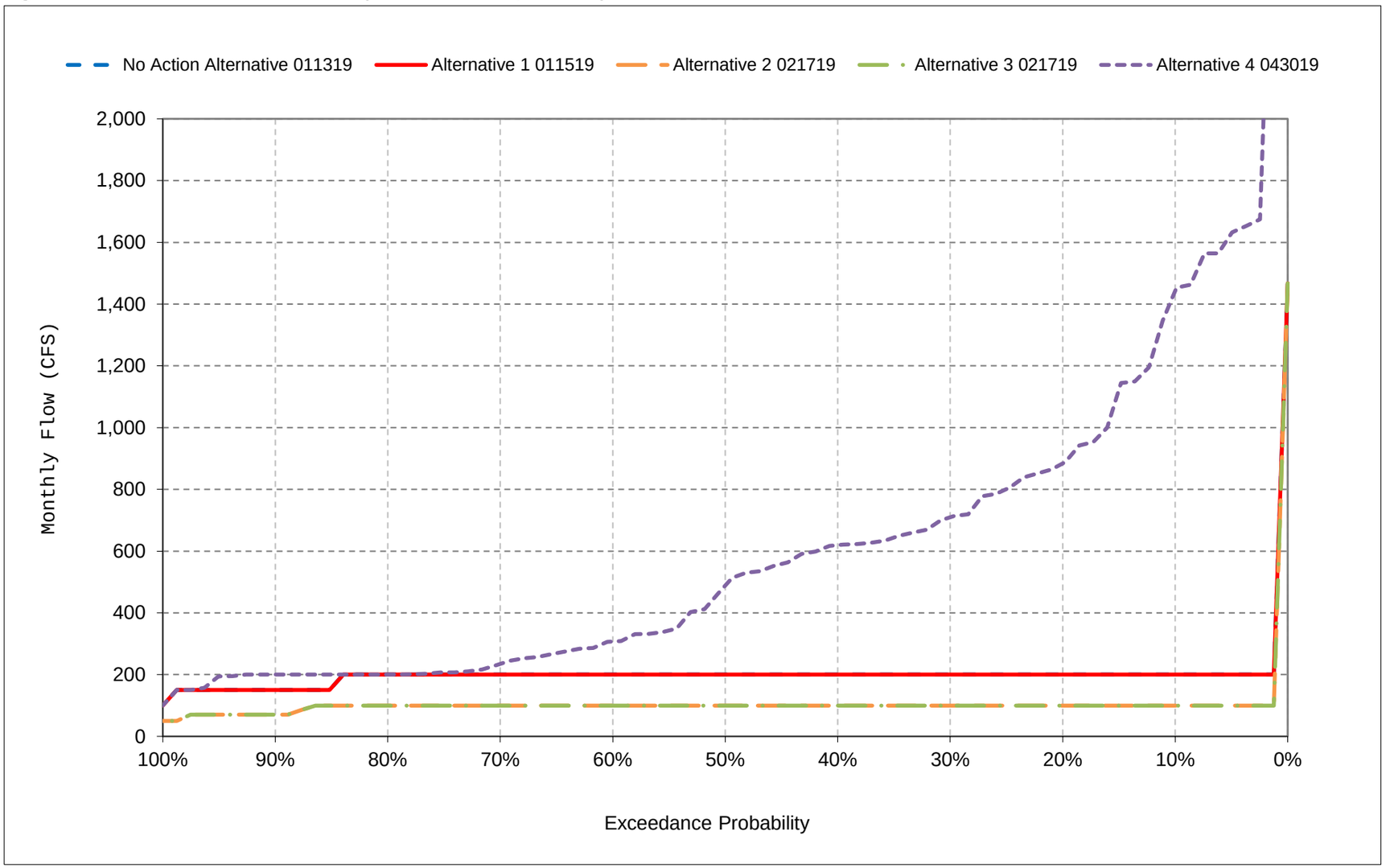
Figure 14-10. Clear Creek below Whiskeytown Dam Flow, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

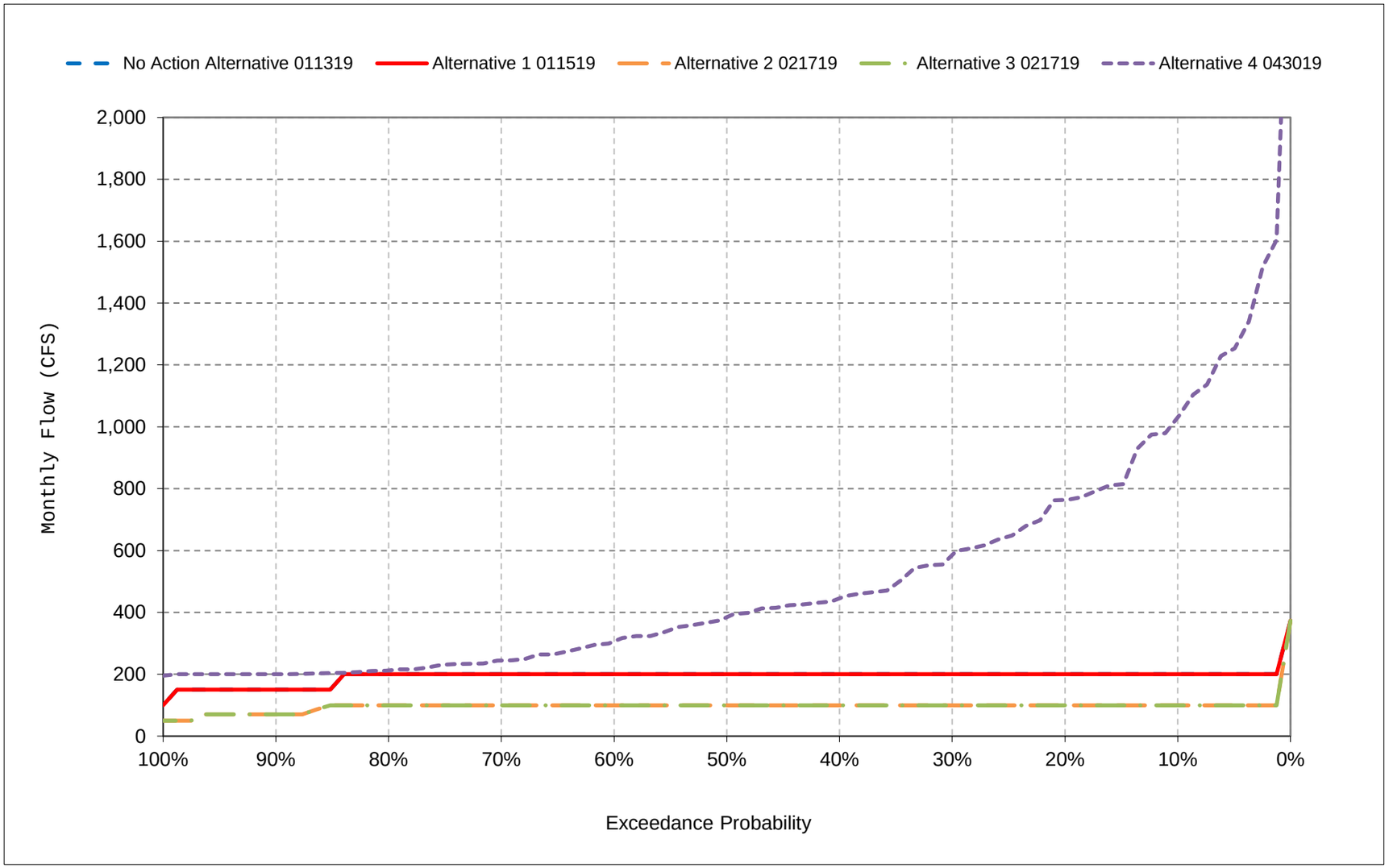
Figure 14-11. Clear Creek below Whiskeytown Dam Flow, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

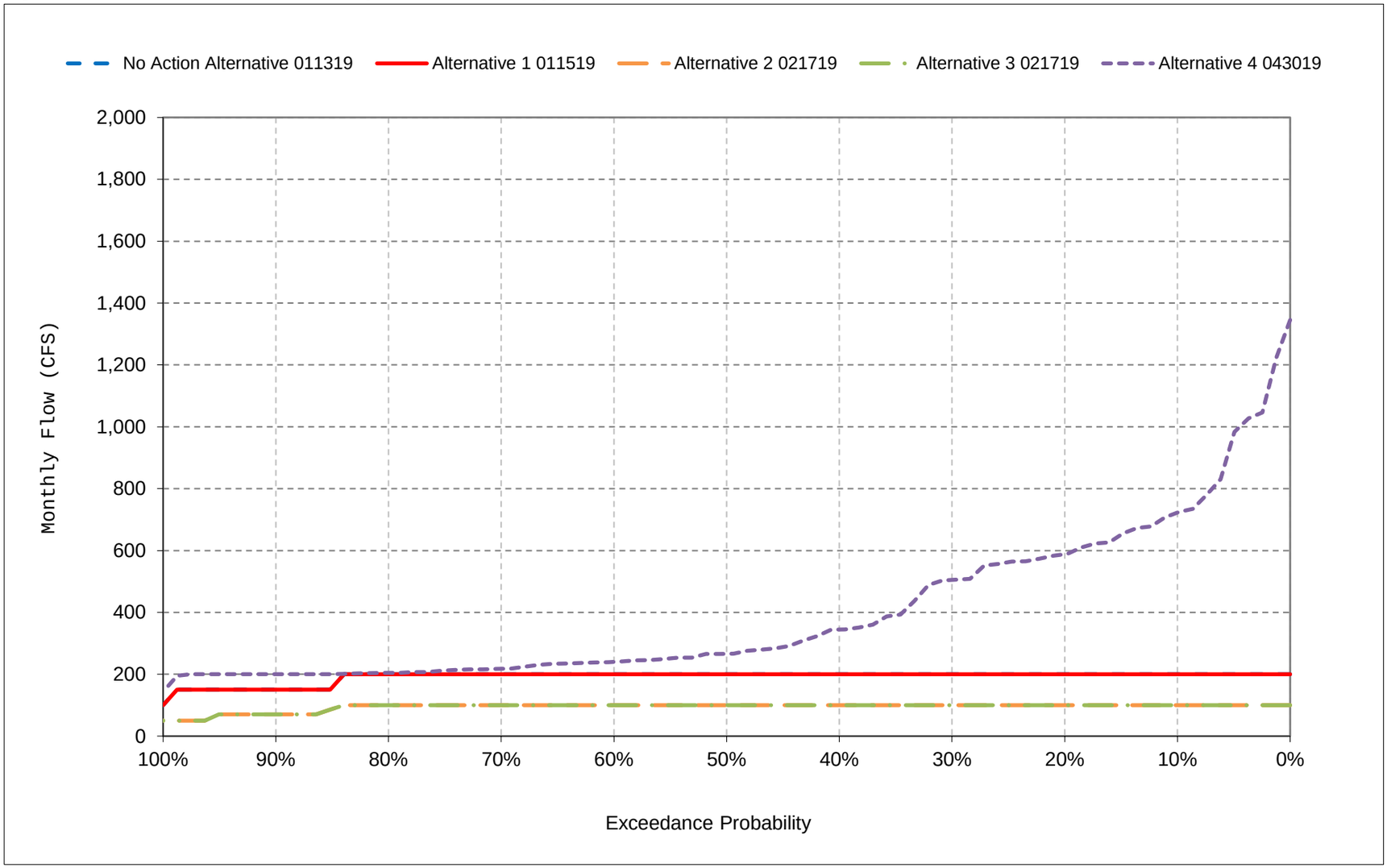
Figure 14-12. Clear Creek below Whiskeytown Dam Flow, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

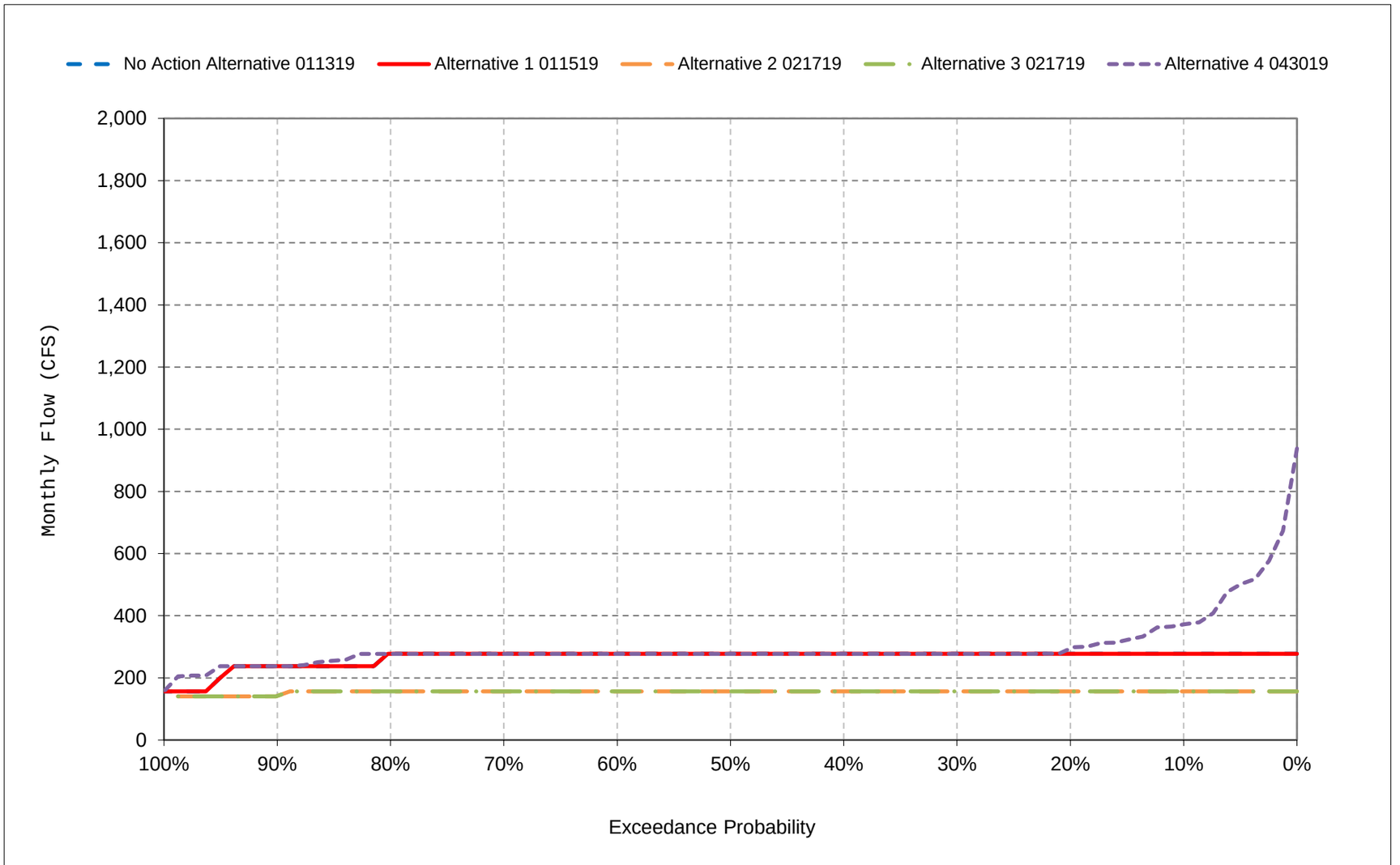
Figure 14-13. Clear Creek below Whiskeytown Dam Flow, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

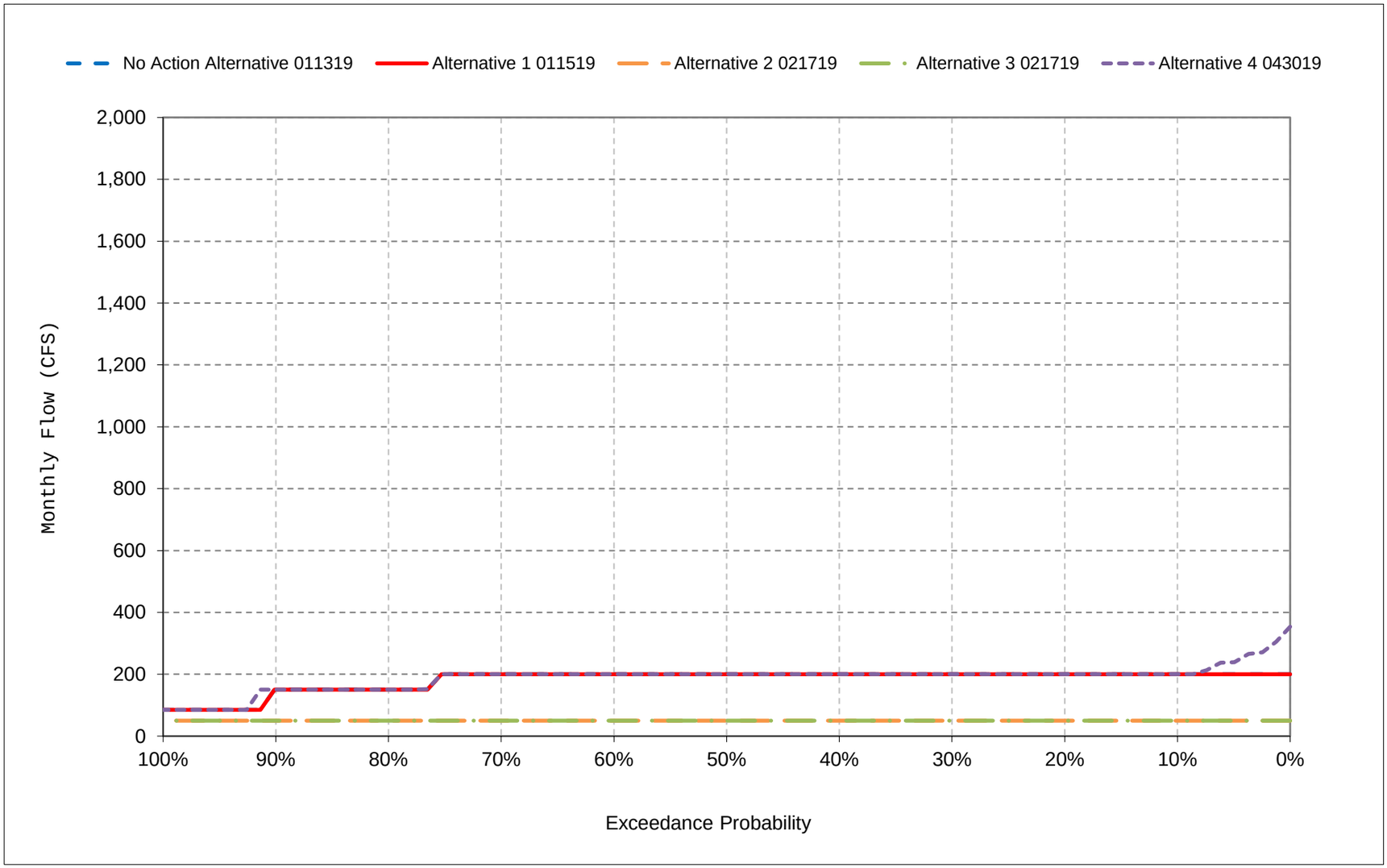
Figure 14-14. Clear Creek below Whiskeytown Dam Flow, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

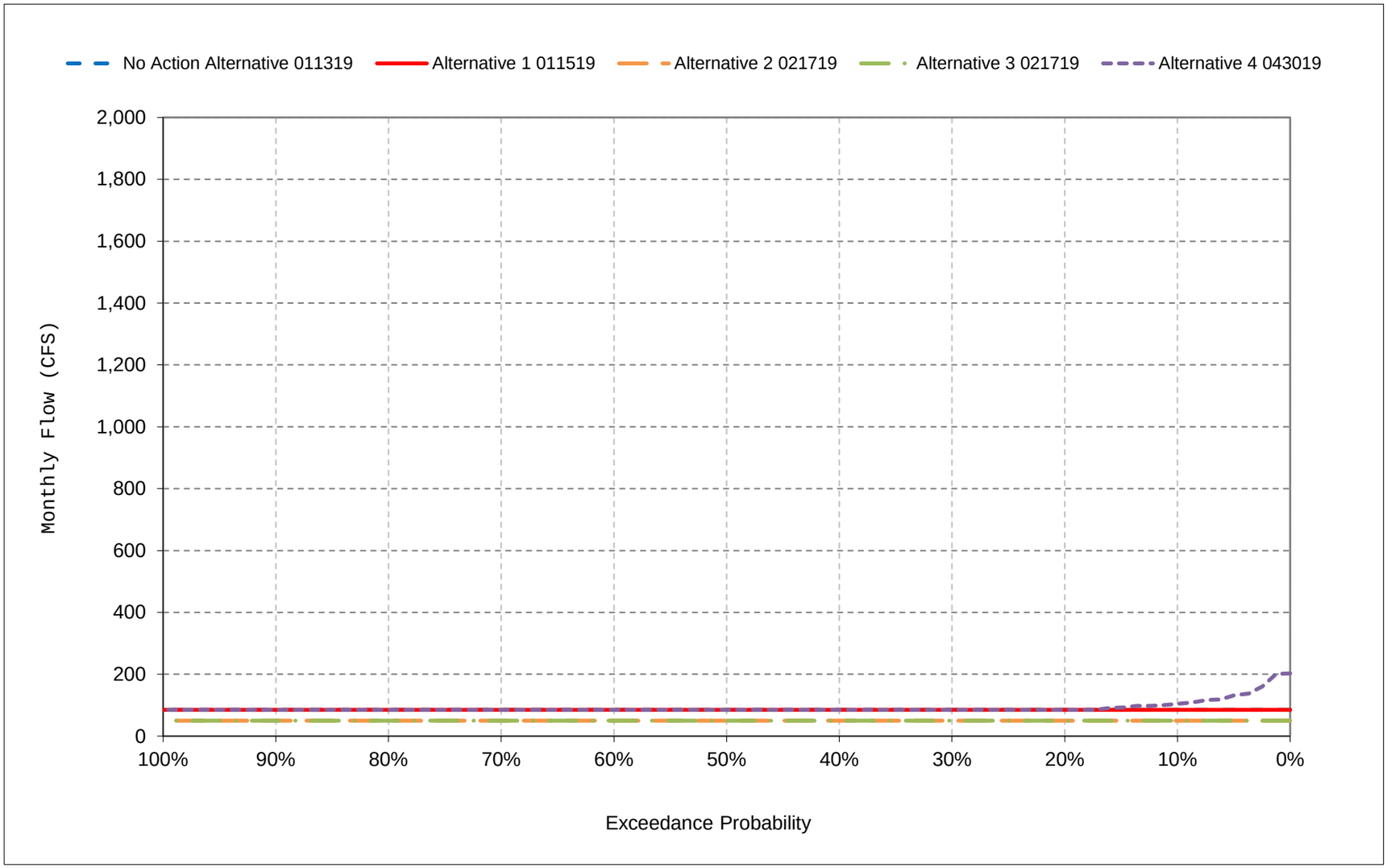
Figure 14-15. Clear Creek below Whiskeytown Dam Flow, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

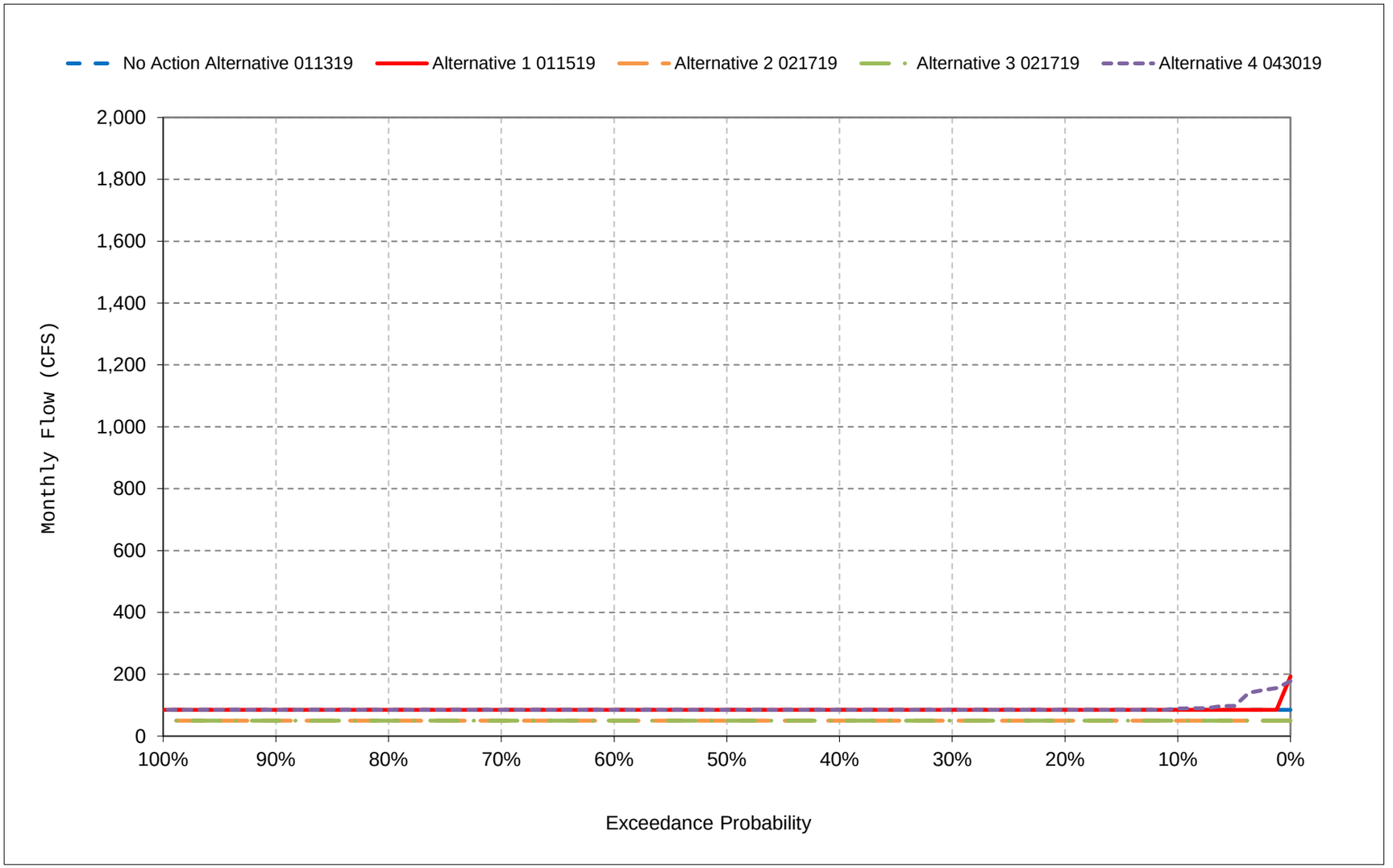
Figure 14-16. Clear Creek below Whiskeytown Dam Flow, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

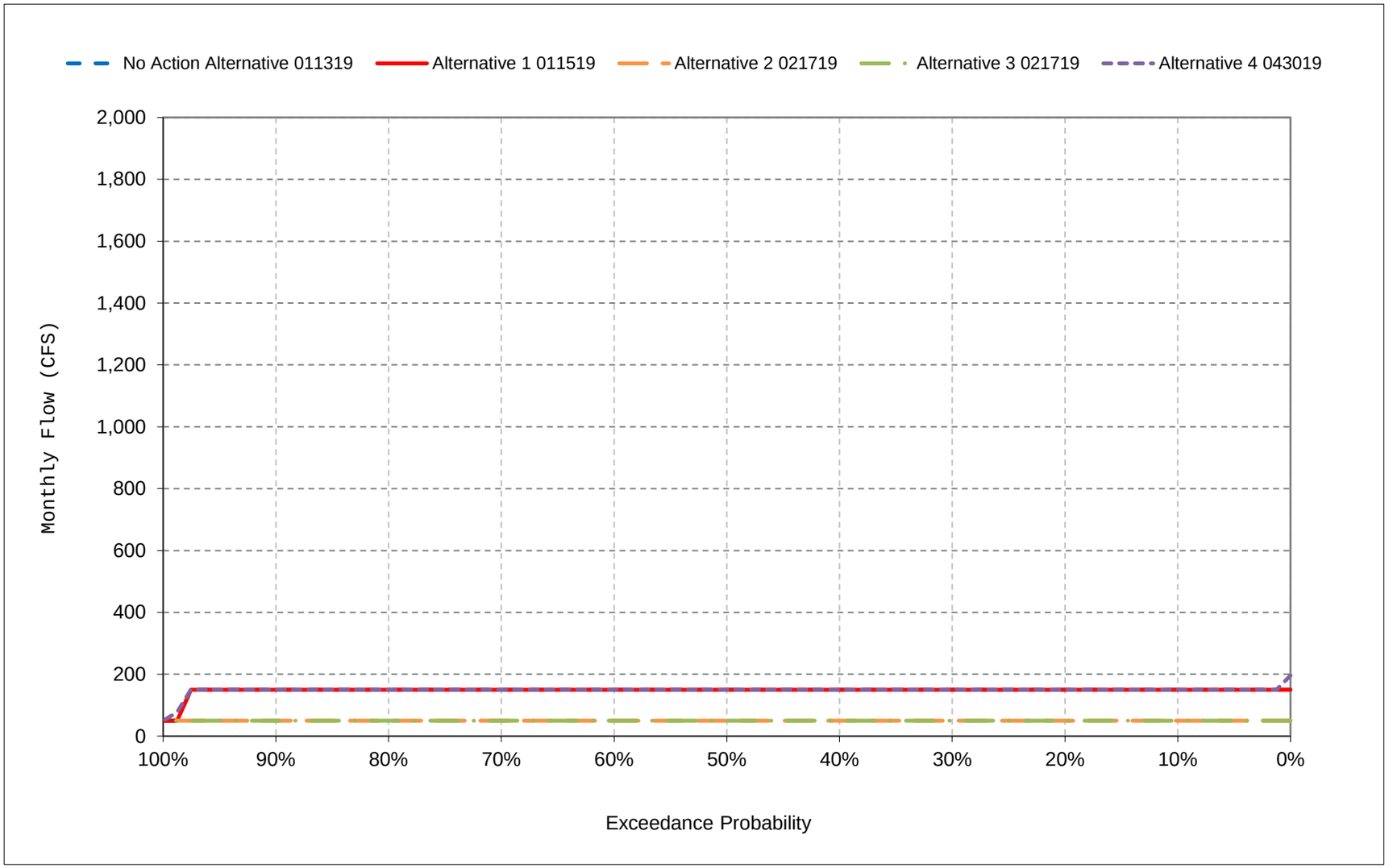
Figure 14-17. Clear Creek below Whiskeytown Dam Flow, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-18. Clear Creek below Whiskeytown Dam Flow, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 15-1. Sacramento River Flow downstream of Keswick Reservoir, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,932	11,500	16,771	21,434	30,624	18,502	10,385	10,220	13,073	16,000	11,867	15,678
20%	8,180	10,441	9,449	12,382	23,596	12,316	6,617	9,427	11,319	16,000	10,889	13,382
30%	7,340	8,747	5,320	7,732	11,665	8,447	4,504	8,708	10,520	15,558	10,368	11,580
40%	6,852	7,482	4,377	3,589	4,945	4,329	3,747	8,150	9,841	14,530	9,720	9,405
50%	6,214	6,238	3,500	3,250	3,250	3,250	3,250	7,655	9,049	13,411	9,511	6,403
60%	5,763	5,623	3,250	3,250	3,250	3,250	3,250	7,112	8,763	12,505	9,166	5,594
70%	5,219	4,289	3,250	3,250	3,250	3,250	3,250	6,616	8,324	11,858	8,779	5,315
80%	4,880	3,369	3,250	3,250	3,250	3,250	3,250	5,925	8,091	10,966	8,159	4,812
90%	4,496	3,250	3,250	3,250	3,250	3,250	3,250	5,270	7,653	9,821	7,754	4,235
Long Term												
Full Simulation Period[a]	6,497	7,173	6,976	8,716	11,068	8,473	5,522	7,778	9,787	13,314	9,650	8,687
Water Year Types[b,c]												
Wet (32%)	7,908	9,796	7,444	17,876	19,288	16,127	8,458	8,662	8,940	13,440	10,474	14,063
Above Normal (16%)	7,054	10,124	6,406	7,629	16,401	8,534	5,221	7,925	10,359	15,316	10,494	9,972
Below Normal (13%)	5,842	4,960	7,558	3,285	7,149	3,925	3,803	7,867	10,930	14,421	10,624	5,493
Dry (24%)	5,660	5,111	8,652	3,697	3,564	3,961	3,719	7,014	10,368	12,658	8,608	4,995
Critical (15%)	4,829	3,755	3,251	3,392	3,580	3,509	4,065	6,895	8,984	10,947	7,793	4,729

Alternative 1 011519

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,870	7,994	19,652	24,806	30,772	19,100	10,691	10,854	14,173	16,000	11,780	9,351
20%	8,392	6,605	12,187	15,008	21,412	12,718	6,804	10,217	12,693	16,000	10,939	7,780
30%	7,829	6,090	6,884	9,696	12,674	9,001	5,386	9,641	11,861	15,431	10,462	6,248
40%	6,819	5,169	4,788	5,609	6,290	6,453	3,747	8,774	10,612	14,184	9,996	5,808
50%	6,101	4,941	4,000	3,250	4,000	3,250	3,250	8,305	10,014	13,290	9,646	5,449
60%	5,821	4,312	3,549	3,250	3,250	3,250	3,250	7,638	9,252	12,406	9,241	5,163
70%	5,220	4,017	3,250	3,250	3,250	3,250	3,250	6,975	8,426	11,636	8,878	4,960
80%	4,855	3,409	3,250	3,250	3,250	3,250	3,250	6,448	8,139	10,936	8,298	4,636
90%	4,310	3,250	3,250	3,250	3,250	3,250	3,250	5,760	7,653	9,809	7,889	4,258
Long Term												
Full Simulation Period[a]	6,461	5,627	7,922	9,498	11,428	8,880	5,618	8,309	10,429	13,220	9,769	6,186
Water Year Types[b,c]												
Wet (32%)	7,715	6,274	9,509	18,983	19,458	16,213	8,572	8,912	9,047	13,352	10,647	8,317
Above Normal (16%)	7,055	7,059	7,624	8,995	17,580	9,220	5,247	8,410	10,738	15,382	10,503	5,266
Below Normal (13%)	5,767	4,961	7,578	4,681	8,163	4,794	4,242	8,845	12,257	14,609	10,807	6,008
Dry (24%)	5,811	5,213	9,023	3,823	3,565	4,344	3,741	7,870	11,441	12,525	8,801	4,931
Critical (15%)	4,823	3,977	3,288	3,368	3,460	3,933	4,012	7,131	9,729	10,481	7,737	4,820

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-62**	**-3,506**	2,881	3,372	149	598	307	634	1,100	0	**-87**	**-6,327**
20%	211	**-3,836**	2,738	2,626	**-2,183**	402	187	790	1,374	0	50	**-5,603**
30%	489	**-2,657**	1,564	1,963	1,009	554	882	933	1,340	**-128**	94	**-5,332**
40%	**-33**	**-2,313**	411	2,020	1,345	2,124	0	625	771	**-347**	276	**-3,597**
50%	**-112**	**-1,297**	500	0	750	0	0	649	966	**-122**	135	**-953**
60%	58	**-1,311**	299	0	0	0	0	526	489	**-99**	75	**-430**
70%	1	**-272**	0	0	0	0	0	359	102	**-222**	99	**-355**
80%	**-25**	40	0	0	0	0	0	523	48	**-30**	139	**-176**
90%	**-186**	0	0	0	0	0	0	489	1	**-12**	135	22
Long Term												
Full Simulation Period[a]	**-35**	**-1,545**	946	782	360	408	97	530	643	**-93**	120	**-2,501**
Water Year Types[b,c]												
Wet (32%)	**-193**	**-3,522**	2,065	1,108	170	85	114	249	106	**-89**	173	**-5,746**
Above Normal (16%)	1	**-3,065**	1,218	1,366	1,179	686	26	484	379	66	9	**-4,706**
Below Normal (13%)	**-75**	1	19	1,396	1,014	869	439	977	1,327	188	183	515
Dry (24%)	151	102	370	125	1	383	22	856	1,073	**-133**	193	**-64**
Critical (15%)	**-6**	222	38	**-24**	**-120**	424	**-54**	236	746	**-466**	**-56**	92

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 15-2. Sacramento River Flow downstream of Keswick Reservoir, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,932	11,500	16,771	21,434	30,624	18,502	10,385	10,220	13,073	16,000	11,867	15,678
20%	8,180	10,441	9,449	12,382	23,596	12,316	6,617	9,427	11,319	16,000	10,889	13,382
30%	7,340	8,747	5,320	7,732	11,665	8,447	4,504	8,708	10,520	15,558	10,368	11,580
40%	6,852	7,482	4,377	3,589	4,945	4,329	3,747	8,150	9,841	14,530	9,720	9,405
50%	6,214	6,238	3,500	3,250	3,250	3,250	3,250	7,655	9,049	13,411	9,511	6,403
60%	5,763	5,623	3,250	3,250	3,250	3,250	3,250	7,112	8,763	12,505	9,166	5,594
70%	5,219	4,289	3,250	3,250	3,250	3,250	3,250	6,616	8,324	11,858	8,779	5,315
80%	4,880	3,369	3,250	3,250	3,250	3,250	3,250	5,925	8,091	10,966	8,159	4,812
90%	4,496	3,250	3,250	3,250	3,250	3,250	3,250	5,270	7,653	9,821	7,754	4,235
Long Term												
Full Simulation Period[a]	6,497	7,173	6,976	8,716	11,068	8,473	5,522	7,778	9,787	13,314	9,650	8,687
Water Year Types[b,c]												
Wet (32%)	7,908	9,796	7,444	17,876	19,288	16,127	8,458	8,662	8,940	13,440	10,474	14,063
Above Normal (16%)	7,054	10,124	6,406	7,629	16,401	8,534	5,221	7,925	10,359	15,316	10,494	9,972
Below Normal (13%)	5,842	4,960	7,558	3,285	7,149	3,925	3,803	7,867	10,930	14,421	10,624	5,493
Dry (24%)	5,660	5,111	8,652	3,697	3,564	3,961	3,719	7,014	10,368	12,658	8,608	4,995
Critical (15%)	4,829	3,755	3,251	3,392	3,580	3,509	4,065	6,895	8,984	10,947	7,793	4,729

Alternative 2 021719

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,239	7,551	19,048	20,086	30,874	19,228	10,661	11,211	16,000	16,000	12,287	9,458
20%	8,656	6,494	10,422	15,395	21,512	12,818	7,033	10,544	14,599	16,000	11,833	7,892
30%	8,378	6,020	5,610	9,078	12,630	8,693	5,668	10,210	13,076	15,658	10,781	6,822
40%	7,492	5,289	4,526	4,038	6,391	5,503	4,032	9,384	12,024	14,369	10,503	6,334
50%	6,375	5,028	3,877	3,250	3,250	3,250	3,418	9,015	10,600	13,453	9,946	6,018
60%	5,570	4,450	3,250	3,250	3,250	3,250	3,250	8,311	9,719	12,591	9,738	5,604
70%	5,220	3,830	3,250	3,250	3,250	3,250	3,250	7,243	9,066	11,723	8,805	5,276
80%	4,764	3,250	3,250	3,250	3,250	3,250	3,250	6,619	8,442	11,166	8,251	4,920
90%	4,235	3,250	3,250	3,250	3,250	3,250	3,250	5,836	7,881	9,846	7,884	4,342
Long Term												
Full Simulation Period[a]	6,674	5,557	7,416	9,178	11,337	8,771	5,771	8,689	11,264	13,348	10,090	6,491
Water Year Types[b,c]												
Wet (32%)	7,820	6,264	9,226	18,273	19,655	16,290	8,670	9,102	9,965	13,319	10,917	8,068
Above Normal (16%)	7,759	6,585	6,681	8,676	17,568	9,023	5,293	8,707	12,953	15,316	11,081	5,931
Below Normal (13%)	6,002	5,023	6,956	4,539	7,365	4,813	4,425	9,445	13,201	14,747	11,942	6,723
Dry (24%)	5,926	5,320	8,291	3,775	3,289	3,793	3,906	8,450	11,537	12,598	8,566	5,523
Critical (15%)	4,877	3,797	3,255	3,272	3,622	4,135	4,348	7,481	10,021	11,248	8,070	5,082

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	307	**-3,949**	2,277	**-1,348**	251	725	277	991	2,927	0	419	**-6,221**
20%	476	**-3,947**	973	3,013	**-2,083**	502	416	1,117	3,280	0	945	**-5,491**
30%	1,038	**-2,727**	291	1,345	964	246	1,164	1,502	2,555	99	413	**-4,758**
40%	641	**-2,193**	149	449	1,446	1,174	285	1,235	2,184	**-162**	783	**-3,071**
50%	162	**-1,210**	377	0	0	0	168	1,359	1,551	42	435	**-385**
60%	**-193**	**-1,172**	0	0	0	0	0	1,199	955	86	572	10
70%	1	**-459**	0	0	0	0	0	627	742	**-135**	26	**-40**
80%	**-116**	**-119**	0	0	0	0	0	693	351	200	93	108
90%	**-261**	0	0	0	0	0	0	566	228	25	130	107
Long Term												
Full Simulation Period[a]	177	**-1,616**	440	462	269	299	249	911	1,478	35	441	**-2,196**
Water Year Types[b,c]												
Wet (32%)	**-88**	**-3,532**	1,782	398	367	162	212	439	1,025	**-121**	443	**-5,994**
Above Normal (16%)	706	**-3,539**	275	1,047	1,167	489	72	782	2,594	**0**	587	**-4,041**
Below Normal (13%)	160	63	**-602**	1,254	216	888	622	1,578	2,270	326	1,318	1,230
Dry (24%)	266	209	**-361**	77	**-275**	**-168**	187	1,436	1,169	**-60**	**-41**	528
Critical (15%)	48	41	4	**-119**	42	626	283	586	1,037	302	277	353

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 15-3. Sacramento River Flow downstream of Keswick Reservoir, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,932	11,500	16,771	21,434	30,624	18,502	10,385	10,220	13,073	16,000	11,867	15,678
20%	8,180	10,441	9,449	12,382	23,596	12,316	6,617	9,427	11,319	16,000	10,889	13,382
30%	7,340	8,747	5,320	7,732	11,665	8,447	4,504	8,708	10,520	15,558	10,368	11,580
40%	6,852	7,482	4,377	3,589	4,945	4,329	3,747	8,150	9,841	14,530	9,720	9,405
50%	6,214	6,238	3,500	3,250	3,250	3,250	3,250	7,655	9,049	13,411	9,511	6,403
60%	5,763	5,623	3,250	3,250	3,250	3,250	3,250	7,112	8,763	12,505	9,166	5,594
70%	5,219	4,289	3,250	3,250	3,250	3,250	3,250	6,616	8,324	11,858	8,779	5,315
80%	4,880	3,369	3,250	3,250	3,250	3,250	3,250	5,925	8,091	10,966	8,159	4,812
90%	4,496	3,250	3,250	3,250	3,250	3,250	3,250	5,270	7,653	9,821	7,754	4,235
Long Term												
Full Simulation Period[a]	6,497	7,173	6,976	8,716	11,068	8,473	5,522	7,778	9,787	13,314	9,650	8,687
Water Year Types[b,c]												
Wet (32%)	7,908	9,796	7,444	17,876	19,288	16,127	8,458	8,662	8,940	13,440	10,474	14,063
Above Normal (16%)	7,054	10,124	6,406	7,629	16,401	8,534	5,221	7,925	10,359	15,316	10,494	9,972
Below Normal (13%)	5,842	4,960	7,558	3,285	7,149	3,925	3,803	7,867	10,930	14,421	10,624	5,493
Dry (24%)	5,660	5,111	8,652	3,697	3,564	3,961	3,719	7,014	10,368	12,658	8,608	4,995
Critical (15%)	4,829	3,755	3,251	3,392	3,580	3,509	4,065	6,895	8,984	10,947	7,793	4,729

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,387	8,216	19,047	20,086	30,874	19,245	10,661	11,196	16,000	16,000	12,689	9,422
20%	8,663	6,624	11,640	15,017	21,512	12,818	7,051	10,441	14,337	16,000	11,883	7,973
30%	8,358	5,902	5,948	9,078	13,083	8,695	5,724	10,028	13,113	15,408	10,992	6,888
40%	7,791	5,382	4,785	4,402	5,543	5,650	4,124	9,370	11,417	14,386	10,592	6,347
50%	7,004	4,901	4,025	3,250	3,523	3,250	3,563	8,784	10,604	13,427	10,034	6,024
60%	6,282	4,337	3,257	3,250	3,250	3,250	3,250	8,197	9,671	12,643	9,694	5,686
70%	5,515	3,643	3,250	3,250	3,250	3,250	3,250	7,109	8,916	11,810	8,823	5,254
80%	5,099	3,250	3,250	3,250	3,250	3,250	3,250	6,661	8,390	11,077	8,264	4,858
90%	4,415	3,250	3,250	3,250	3,250	3,250	3,250	5,849	7,846	9,859	7,786	4,342
Long Term												
Full Simulation Period[a]	6,913	5,569	7,504	9,158	11,241	8,730	5,799	8,604	11,160	13,338	10,116	6,480
Water Year Types[b,c]												
Wet (32%)	7,989	6,310	9,404	18,174	19,555	16,272	8,739	8,800	9,868	13,374	11,111	7,933
Above Normal (16%)	7,419	7,008	6,967	8,552	17,410	8,984	5,287	8,742	12,699	15,337	10,986	6,088
Below Normal (13%)	6,410	5,043	7,003	4,495	7,253	4,813	4,472	9,460	13,093	14,731	11,723	6,770
Dry (24%)	6,565	5,011	8,211	3,762	3,295	3,667	3,908	8,470	11,590	12,580	8,597	5,565
Critical (15%)	5,076	3,815	3,252	3,548	3,440	4,141	4,350	7,469	9,807	11,080	8,079	5,019

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	455	**-3,284**	2,276	**-1,348**	250	743	277	976	2,927	0	821	**-6,257**
20%	482	**-3,817**	2,192	2,635	**-2,083**	502	434	1,014	3,018	0	994	**-5,409**
30%	1,018	**-2,845**	629	1,345	1,418	248	1,220	1,320	2,593	**-150**	624	**-4,692**
40%	940	**-2,100**	409	813	598	1,321	377	1,220	1,576	**-145**	872	**-3,058**
50%	790	**-1,337**	525	0	273	0	313	1,129	1,555	16	523	**-378**
60%	519	**-1,286**	7	0	0	0	0	1,085	907	138	528	92
70%	296	**-646**	0	0	0	0	0	494	592	**-48**	44	**-61**
80%	219	**-119**	0	0	0	0	0	735	299	111	105	46
90%	**-81**	0	0	0	0	0	0	579	193	38	32	106
Long Term												
Full Simulation Period[a]	416	**-1,604**	528	442	172	257	277	826	1,374	24	467	**-2,207**
Water Year Types[b,c]												
Wet (32%)	81	**-3,486**	1,960	299	267	144	281	137	928	**-66**	636	**-6,130**
Above Normal (16%)	365	**-3,116**	560	923	1,009	450	67	817	2,340	20	492	**-3,884**
Below Normal (13%)	568	82	**-555**	1,210	104	888	670	1,593	2,163	310	1,099	1,277
Dry (24%)	905	**-100**	**-441**	65	**-269**	**-294**	188	1,455	1,222	**-78**	**-11**	570
Critical (15%)	247	60	1	156	**-140**	632	284	574	823	134	286	290

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 15-4. Sacramento River Flow downstream of Keswick Reservoir, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,932	11,500	16,771	21,434	30,624	18,502	10,385	10,220	13,073	16,000	11,867	15,678
20%	8,180	10,441	9,449	12,382	23,596	12,316	6,617	9,427	11,319	16,000	10,889	13,382
30%	7,340	8,747	5,320	7,732	11,665	8,447	4,504	8,708	10,520	15,558	10,368	11,580
40%	6,852	7,482	4,377	3,589	4,945	4,329	3,747	8,150	9,841	14,530	9,720	9,405
50%	6,214	6,238	3,500	3,250	3,250	3,250	3,250	7,655	9,049	13,411	9,511	6,403
60%	5,763	5,623	3,250	3,250	3,250	3,250	3,250	7,112	8,763	12,505	9,166	5,594
70%	5,219	4,289	3,250	3,250	3,250	3,250	3,250	6,616	8,324	11,858	8,779	5,315
80%	4,880	3,369	3,250	3,250	3,250	3,250	3,250	5,925	8,091	10,966	8,159	4,812
90%	4,496	3,250	3,250	3,250	3,250	3,250	3,250	5,270	7,653	9,821	7,754	4,235
Long Term												
Full Simulation Period[a]	6,497	7,173	6,976	8,716	11,068	8,473	5,522	7,778	9,787	13,314	9,650	8,687
Water Year Types[b,c]												
Wet (32%)	7,908	9,796	7,444	17,876	19,288	16,127	8,458	8,662	8,940	13,440	10,474	14,063
Above Normal (16%)	7,054	10,124	6,406	7,629	16,401	8,534	5,221	7,925	10,359	15,316	10,494	9,972
Below Normal (13%)	5,842	4,960	7,558	3,285	7,149	3,925	3,803	7,867	10,930	14,421	10,624	5,493
Dry (24%)	5,660	5,111	8,652	3,697	3,564	3,961	3,719	7,014	10,368	12,658	8,608	4,995
Critical (15%)	4,829	3,755	3,251	3,392	3,580	3,509	4,065	6,895	8,984	10,947	7,793	4,729

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,896	7,464	19,178	24,163	31,068	18,270	10,142	9,472	13,730	16,000	11,263	8,598
20%	8,060	6,437	12,099	14,555	21,427	12,522	6,611	8,585	12,281	16,000	10,781	6,932
30%	7,509	5,529	6,847	8,836	11,931	9,089	5,226	8,251	11,781	14,889	10,255	5,969
40%	6,874	5,041	4,647	4,659	6,267	6,091	4,984	7,902	10,837	13,972	9,796	5,645
50%	6,315	4,811	4,000	3,380	4,231	4,949	4,567	7,557	9,749	13,224	9,574	5,429
60%	5,663	4,350	3,690	3,250	3,503	4,200	4,221	7,036	8,978	12,924	9,044	5,091
70%	5,111	3,994	3,250	3,250	3,250	3,540	3,591	6,854	8,574	11,982	8,723	4,773
80%	4,712	3,594	3,250	3,250	3,250	3,250	3,299	6,501	8,125	10,611	8,265	4,551
90%	4,067	3,250	3,250	3,250	3,250	3,250	3,250	5,851	7,455	9,535	7,452	4,015
Long Term												
Full Simulation Period[a]	6,421	5,459	7,897	9,378	11,278	8,868	5,896	7,668	10,244	13,183	9,511	5,949
Water Year Types[b,c]												
Wet (32%)	7,691	5,944	9,310	18,843	19,046	16,035	8,971	8,392	8,982	13,465	10,556	7,890
Above Normal (16%)	6,874	6,741	7,500	8,481	17,447	9,470	5,684	7,650	10,275	16,012	10,398	5,499
Below Normal (13%)	5,718	5,127	7,669	4,892	7,936	5,125	4,468	7,834	11,667	14,401	9,930	5,092
Dry (24%)	5,712	5,111	9,225	3,729	3,678	4,408	4,002	7,170	11,631	12,475	8,626	4,862
Critical (15%)	5,005	3,905	3,263	3,372	3,497	3,554	3,926	6,794	9,324	9,569	7,373	4,829

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-36**	**-4,036**	2,407	2,729	445	**-232**	**-243**	**-749**	657	0	**-604**	**-7,081**
20%	**-120**	**-4,004**	2,650	2,173	**-2,168**	206	**-6**	**-842**	962	0	**-107**	**-6,450**
30%	169	**-3,218**	1,528	1,104	266	642	722	**-457**	1,261	**-670**	**-113**	**-5,611**
40%	23	**-2,441**	271	1,070	1,322	1,762	1,237	**-248**	996	**-559**	76	**-3,760**
50%	101	**-1,427**	500	130	981	1,699	1,317	**-98**	700	**-187**	63	**-974**
60%	**-100**	**-1,273**	440	0	253	950	971	**-76**	215	419	**-122**	**-503**
70%	**-107**	**-295**	0	0	0	290	341	238	250	125	**-56**	**-542**
80%	**-167**	224	0	0	0	0	49	576	34	**-355**	107	**-261**
90%	**-429**	0	0	0	0	0	0	580	**-198**	**-286**	**-302**	**-220**
Long Term												
Full Simulation Period[a]	**-76**	**-1,714**	921	662	210	396	374	**-111**	457	**-131**	**-139**	**-2,738**
Water Year Types[b,c]												
Wet (32%)	**-218**	**-3,852**	1,866	968	**-242**	**-92**	514	**-270**	42	24	82	**-6,173**
Above Normal (16%)	**-180**	**-3,383**	1,093	851	1,046	937	464	**-275**	**-83**	695	**-95**	**-4,474**
Below Normal (13%)	**-124**	166	110	1,607	787	1,200	665	**-33**	737	**-20**	**-693**	**-401**
Dry (24%)	51	**0**	572	31	114	447	283	156	1,263	**-183**	18	**-133**
Critical (15%)	176	149	12	**-20**	**-83**	45	**-139**	**-101**	340	**-1,378**	**-420**	100

a Based on the 82-year simulation period.

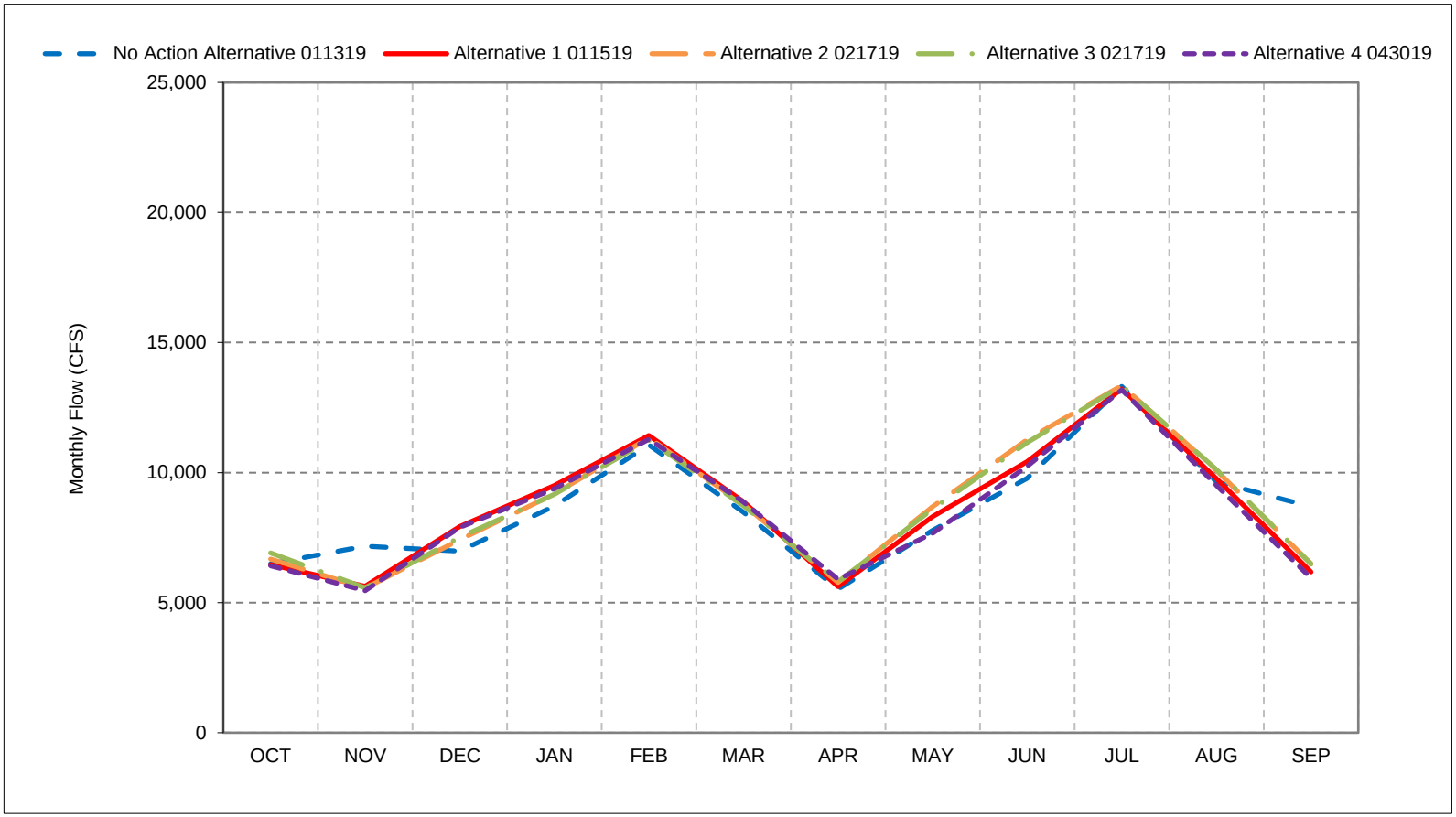
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

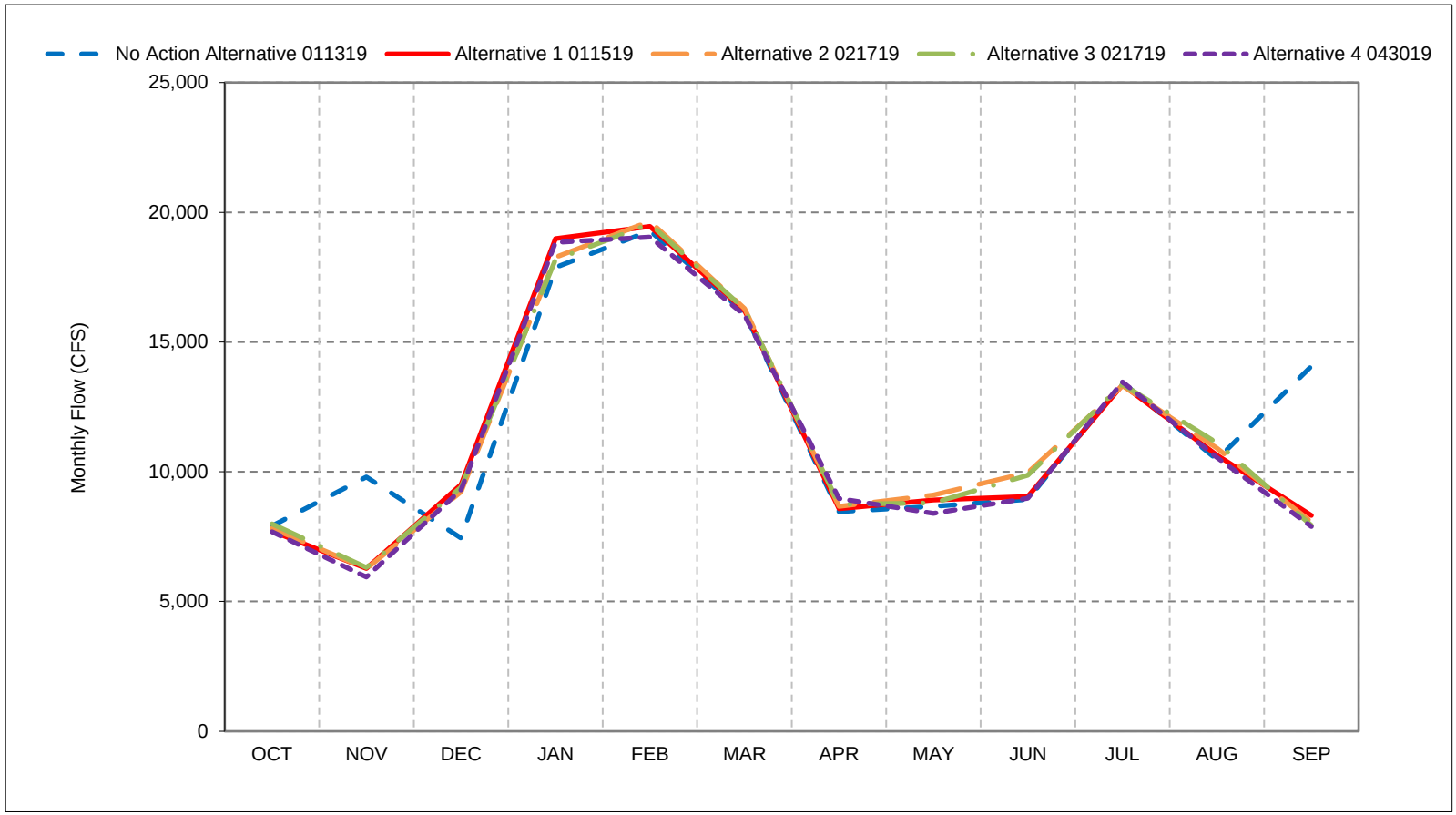
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-1. Sacramento River Flow downstream of Keswick Reservoir, Long-Term Average Flow



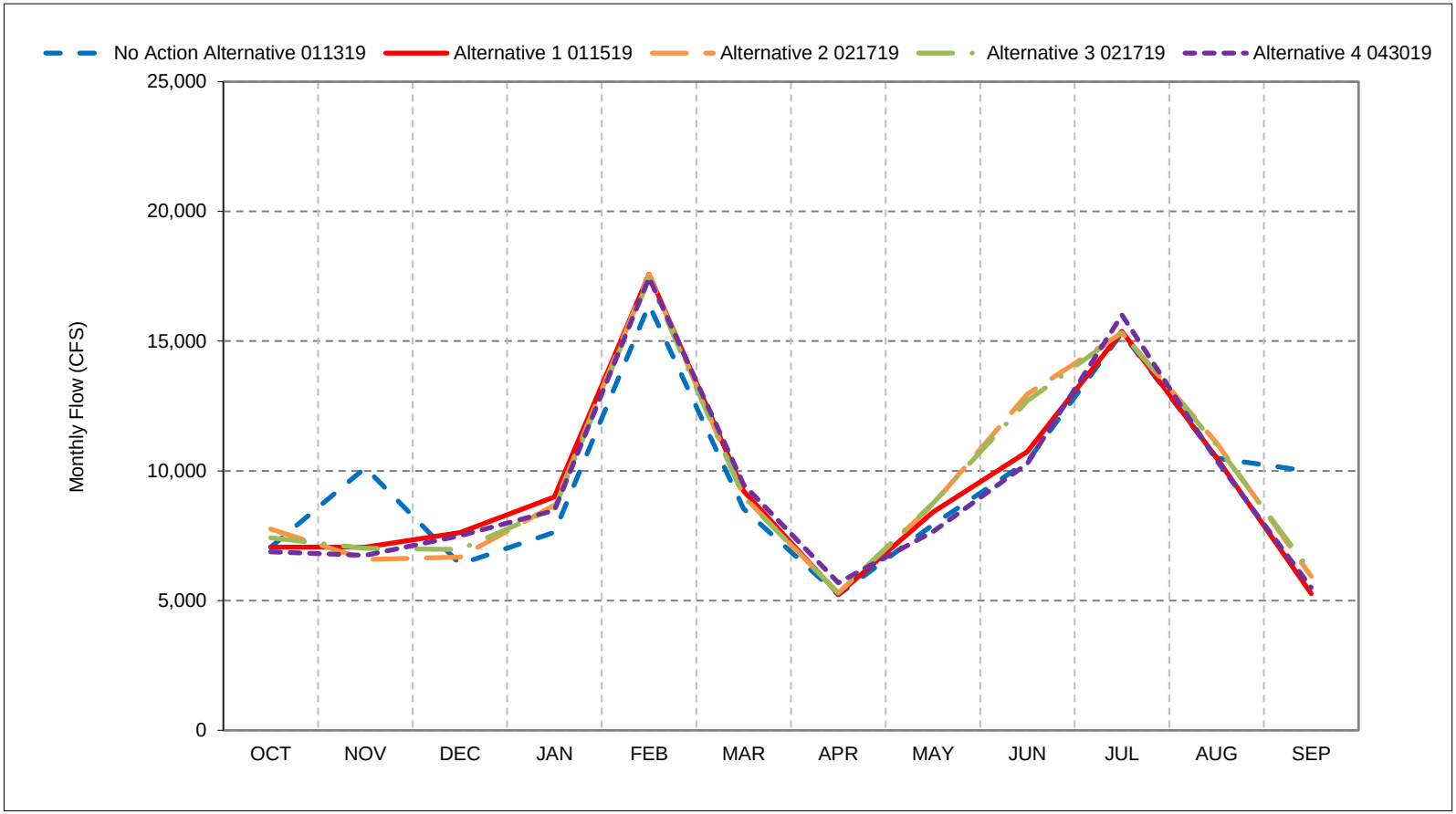
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-2. Sacramento River Flow downstream of Keswick Reservoir, Wet Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-3. Sacramento River Flow downstream of Keswick Reservoir, Above Normal Year Averag



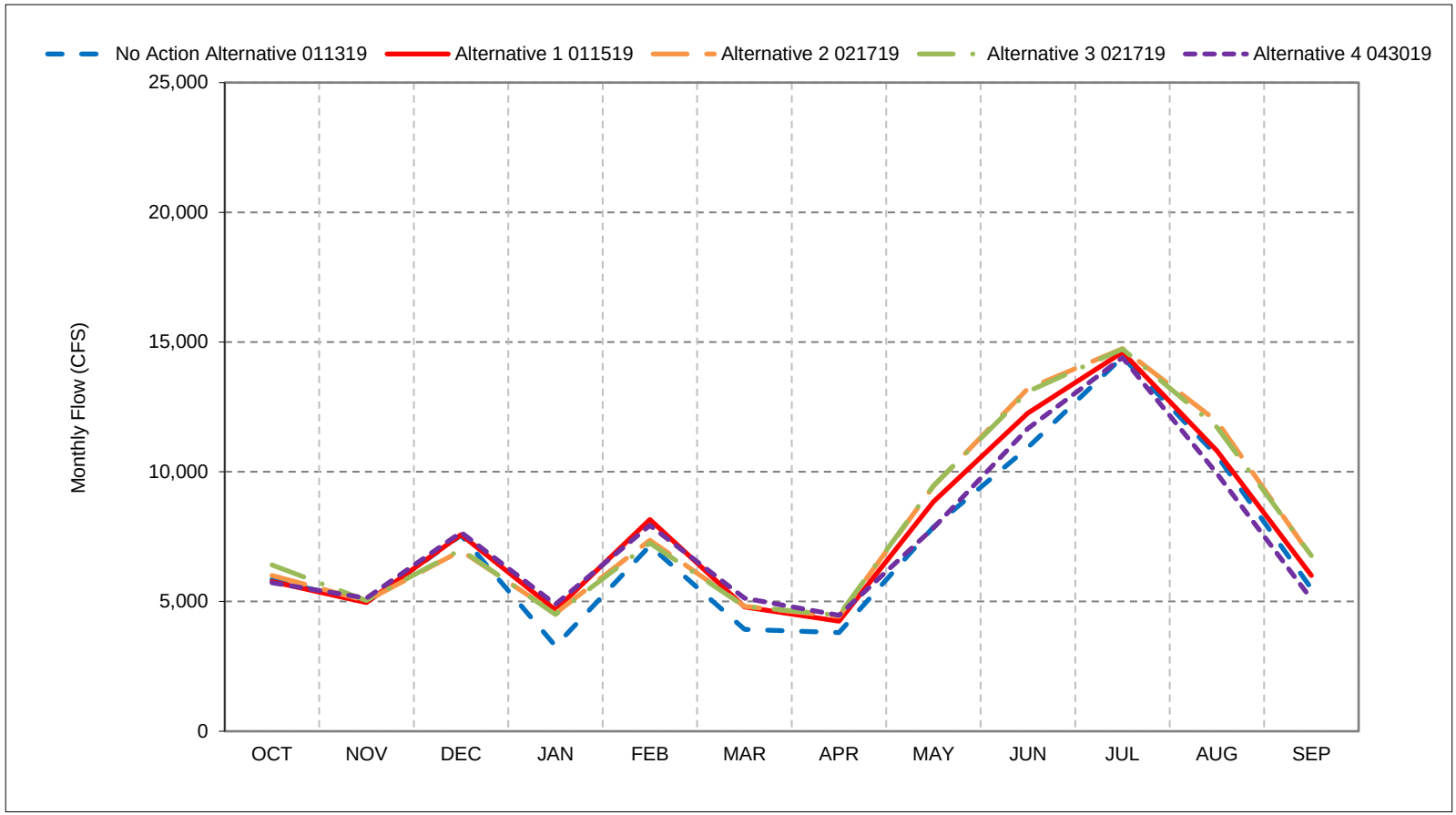
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

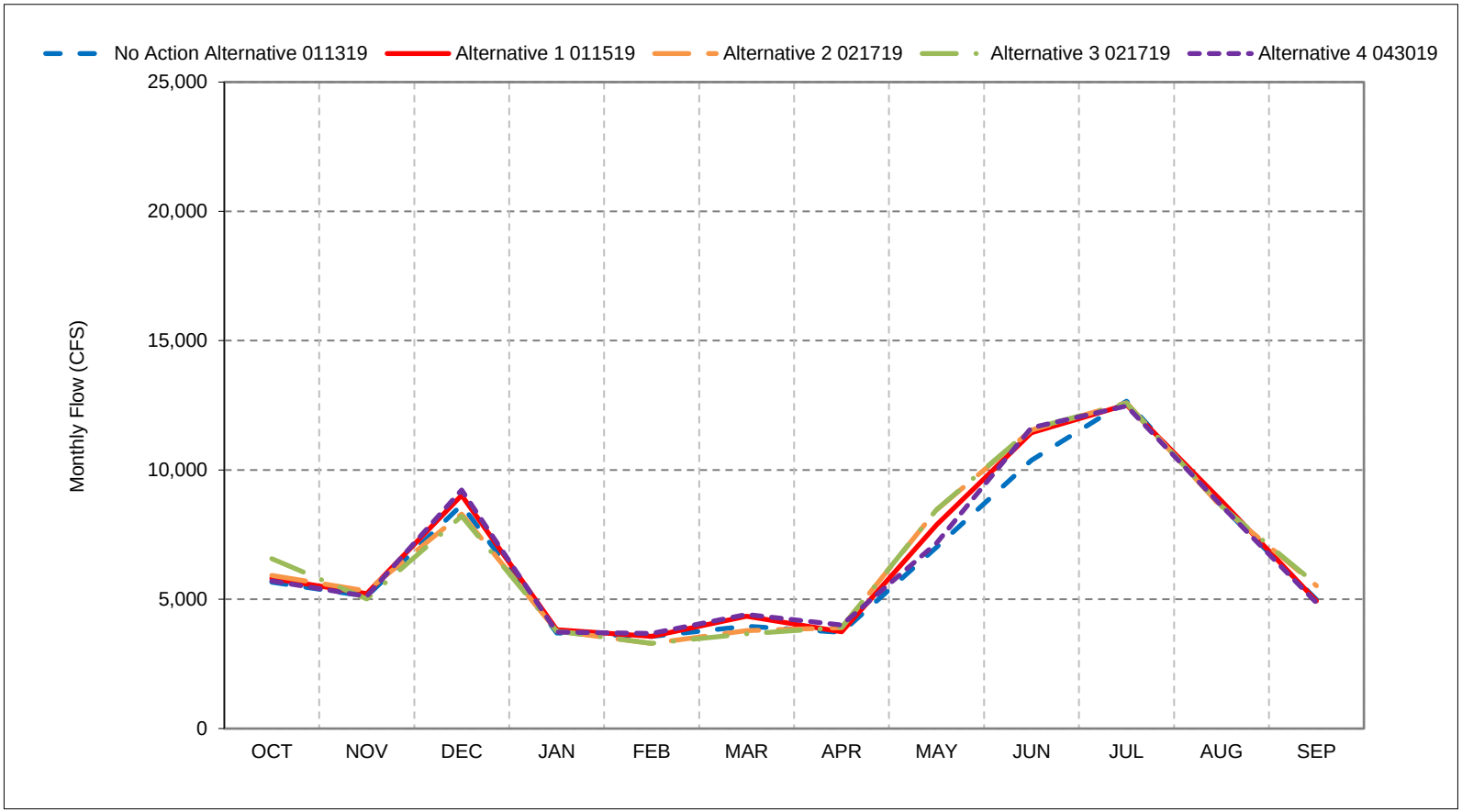
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-4. Sacramento River Flow downstream of Keswick Reservoir, Below Normal Year Averag



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-5. Sacramento River Flow downstream of Keswick Reservoir, Dry Year Average Flow



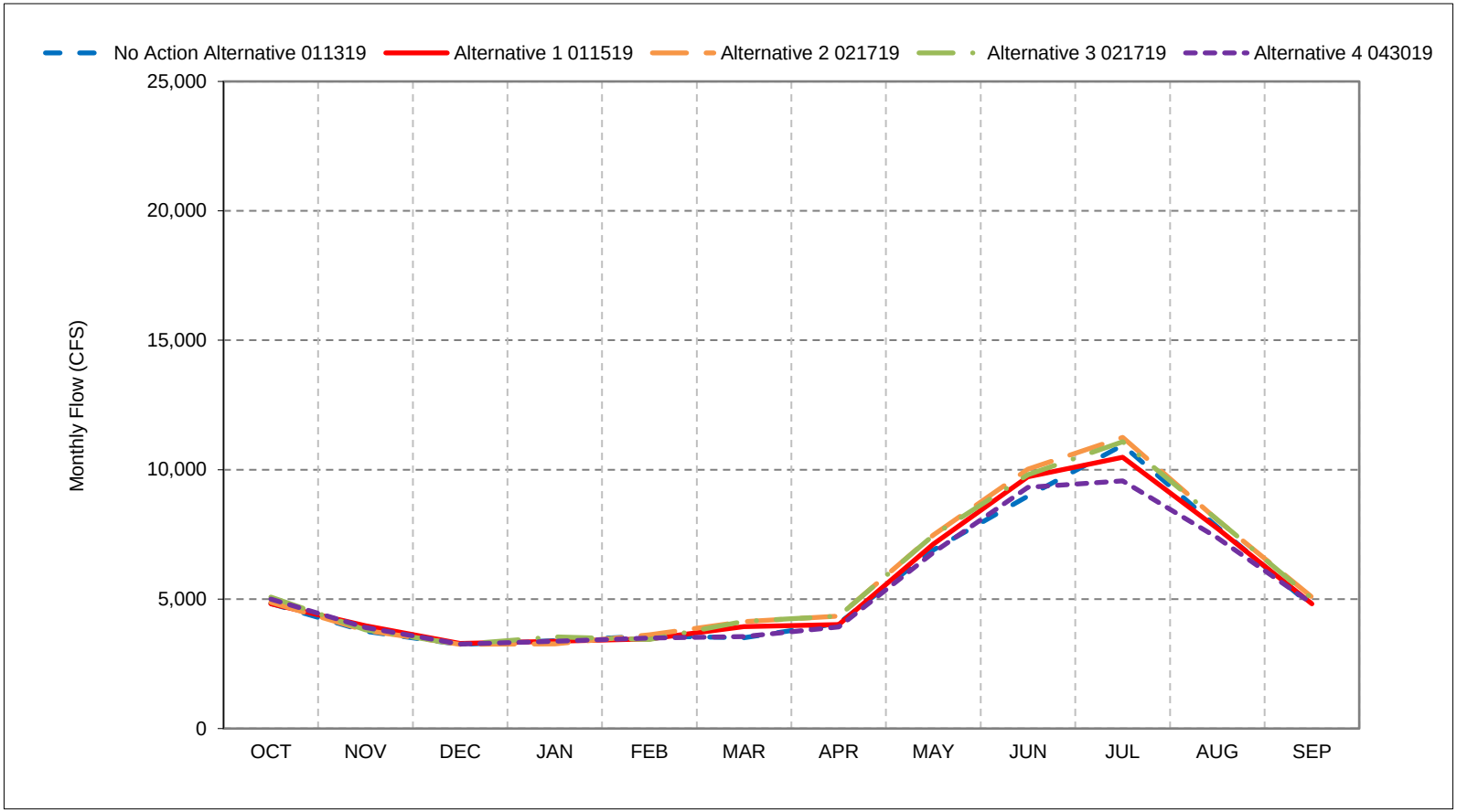
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

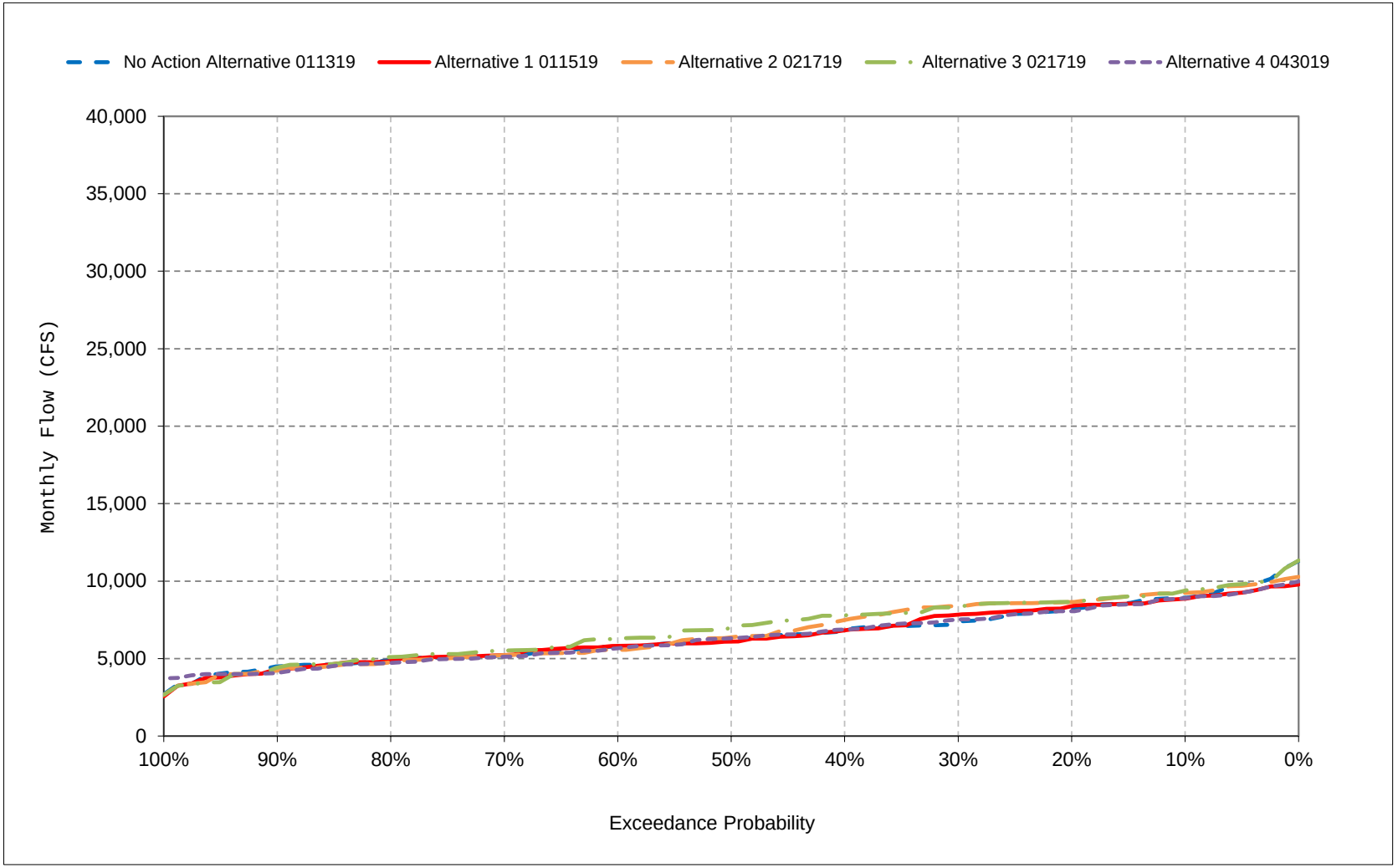
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-6. Sacramento River Flow downstream of Keswick Reservoir, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

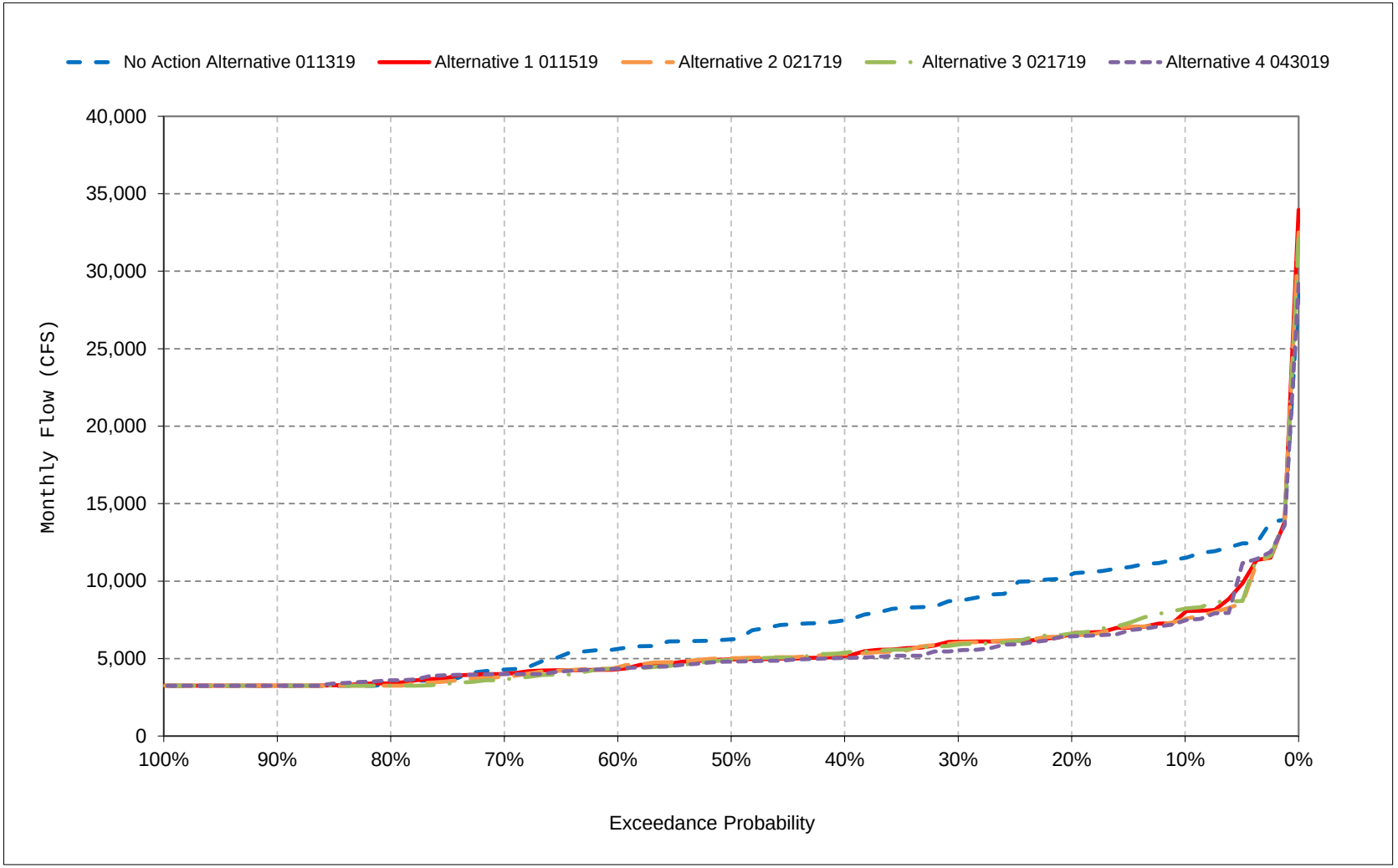
Figure 15-7. Sacramento River Flow downstream of Keswick Reservoir, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

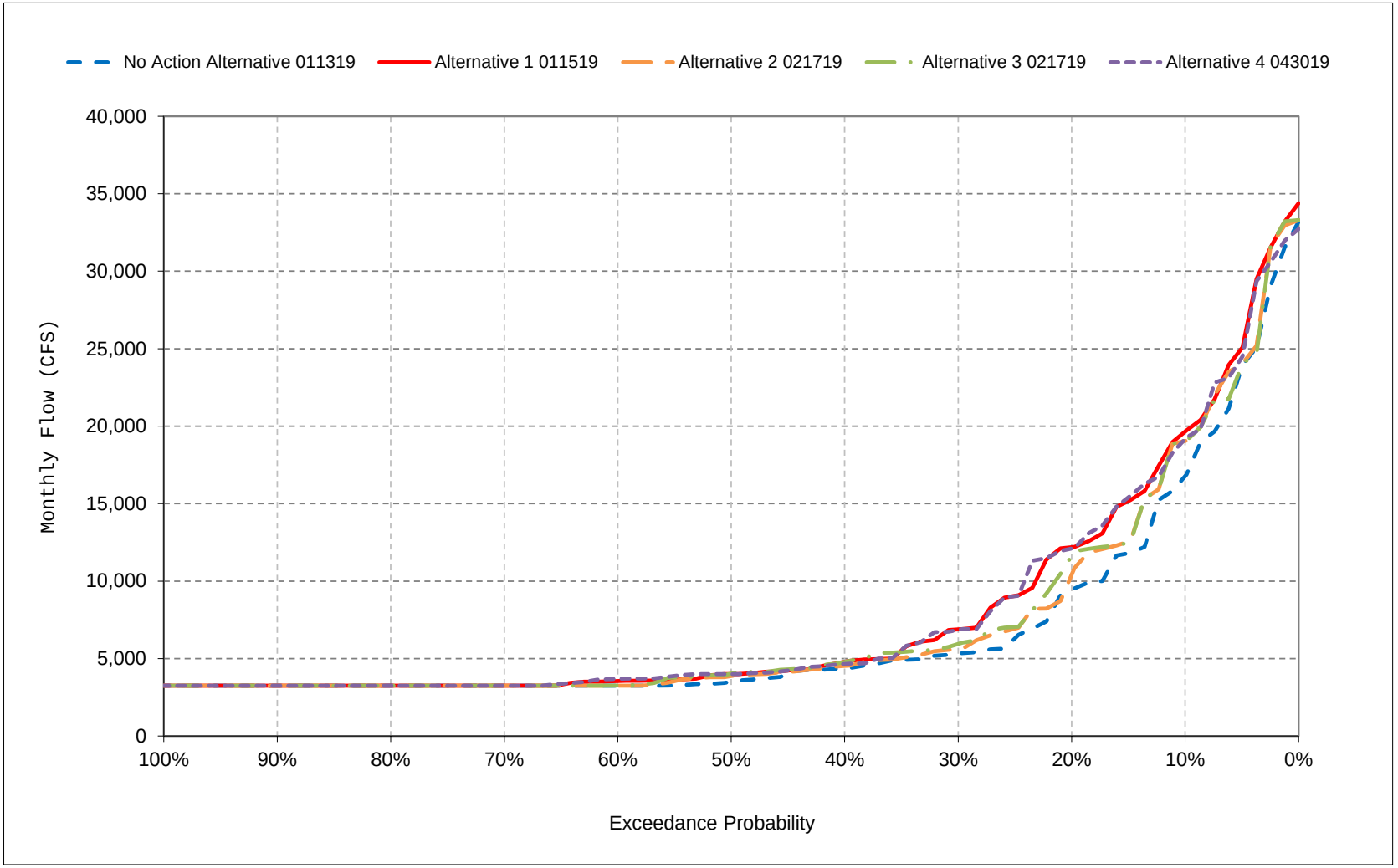
Figure 15-8. Sacramento River Flow downstream of Keswick Reservoir, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

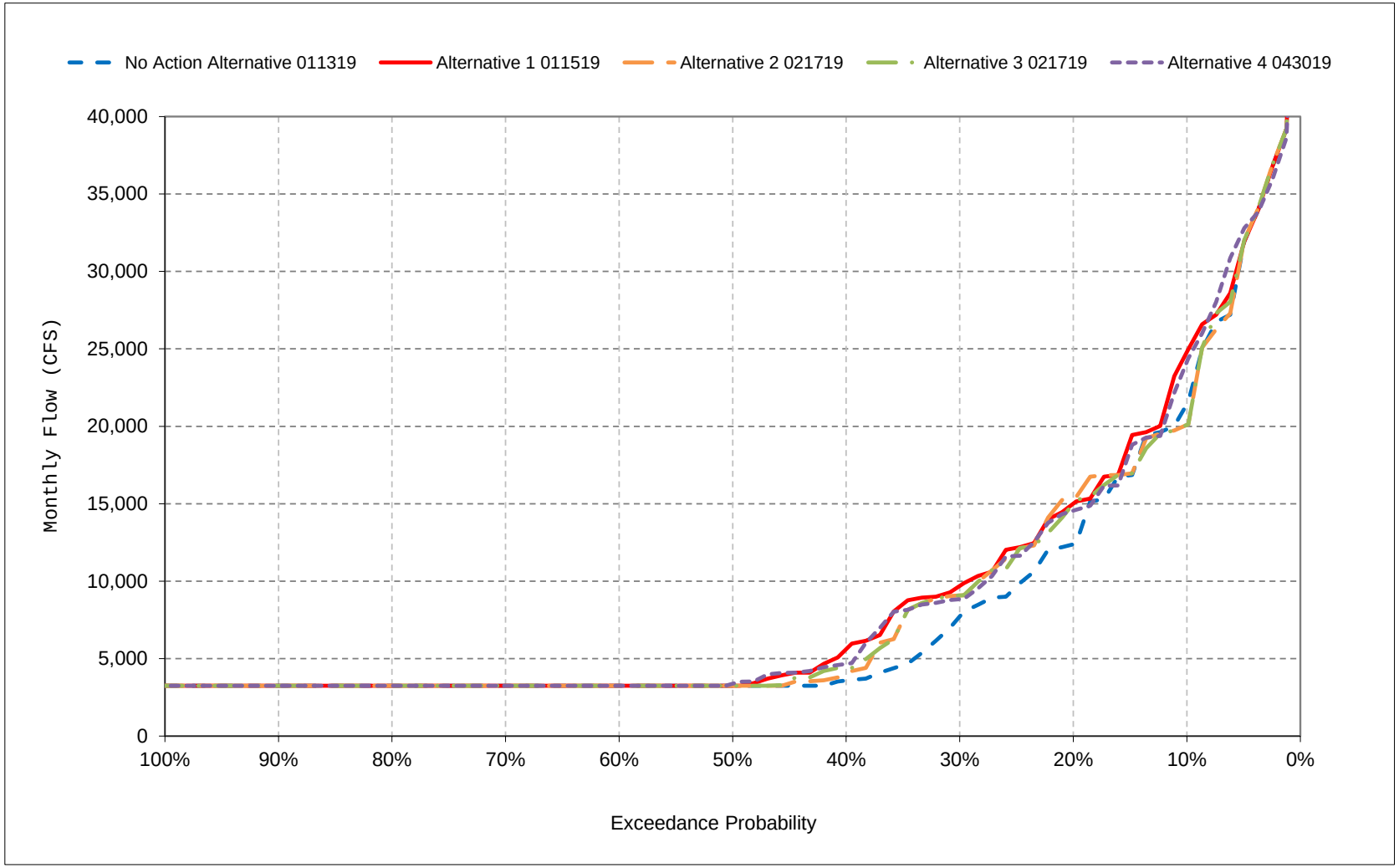
Figure 15-9. Sacramento River Flow downstream of Keswick Reservoir, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

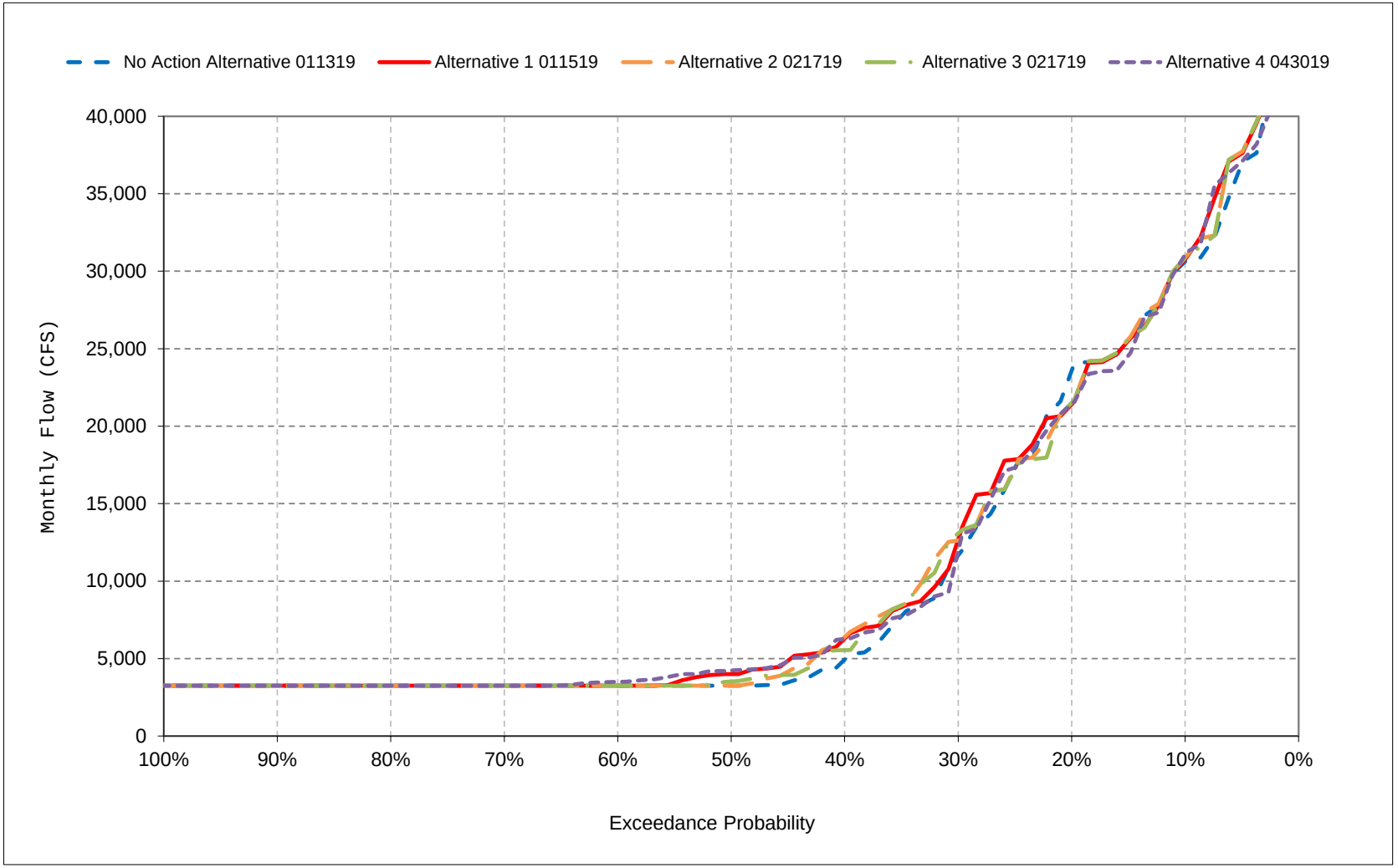
Figure 15-10. Sacramento River Flow downstream of Keswick Reservoir, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

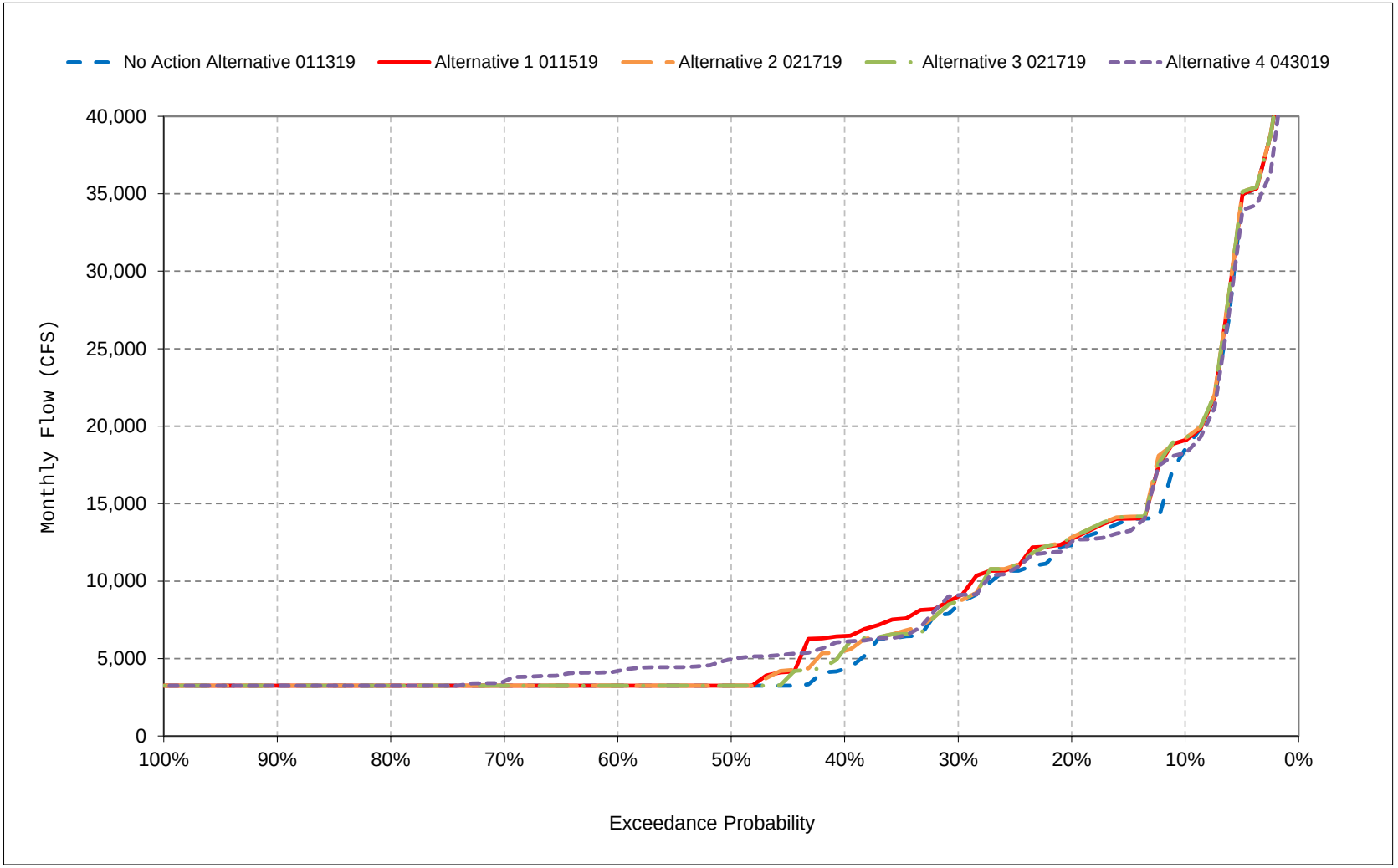
Figure 15-11. Sacramento River Flow downstream of Keswick Reservoir, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

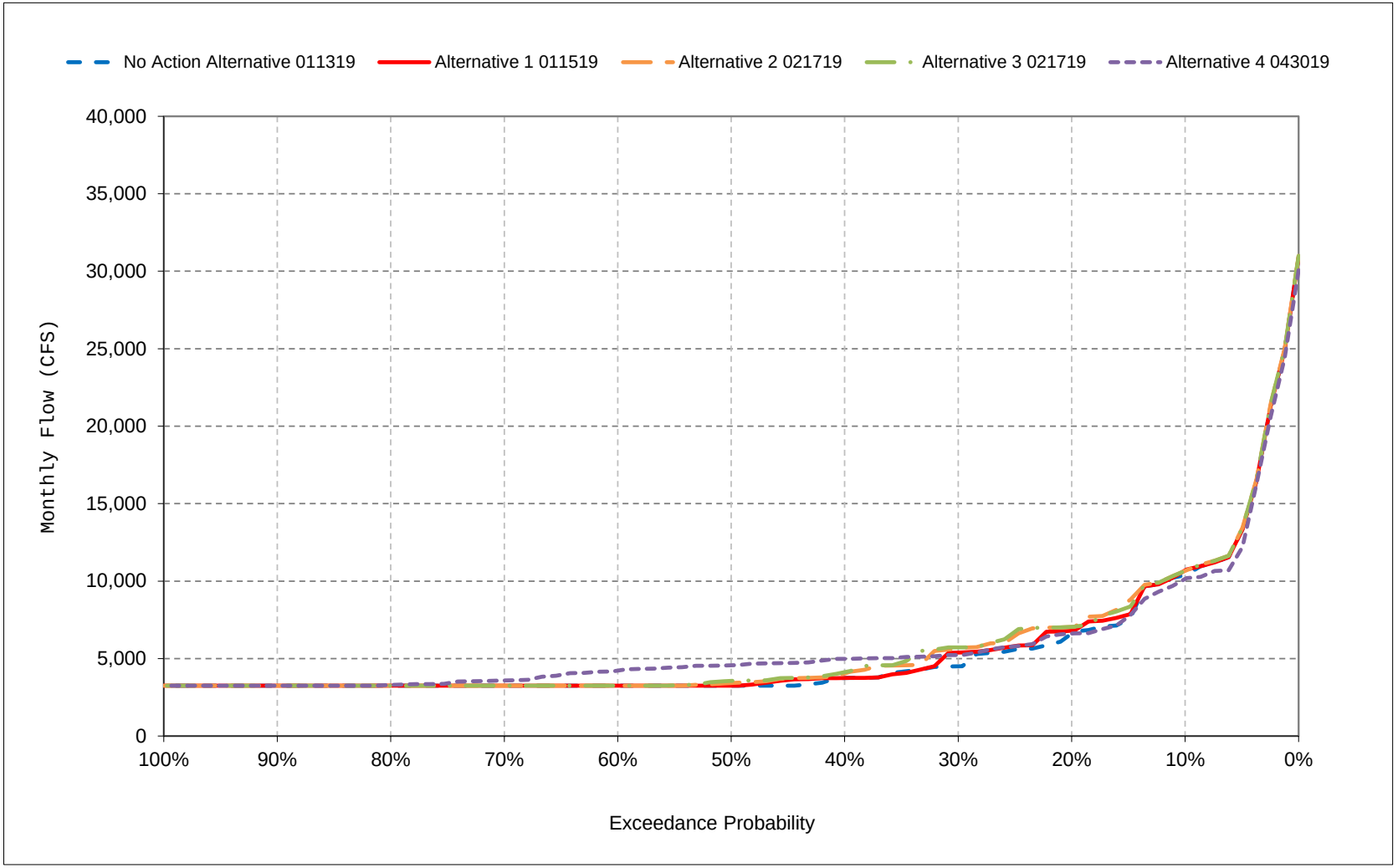
Figure 15-12. Sacramento River Flow downstream of Keswick Reservoir, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

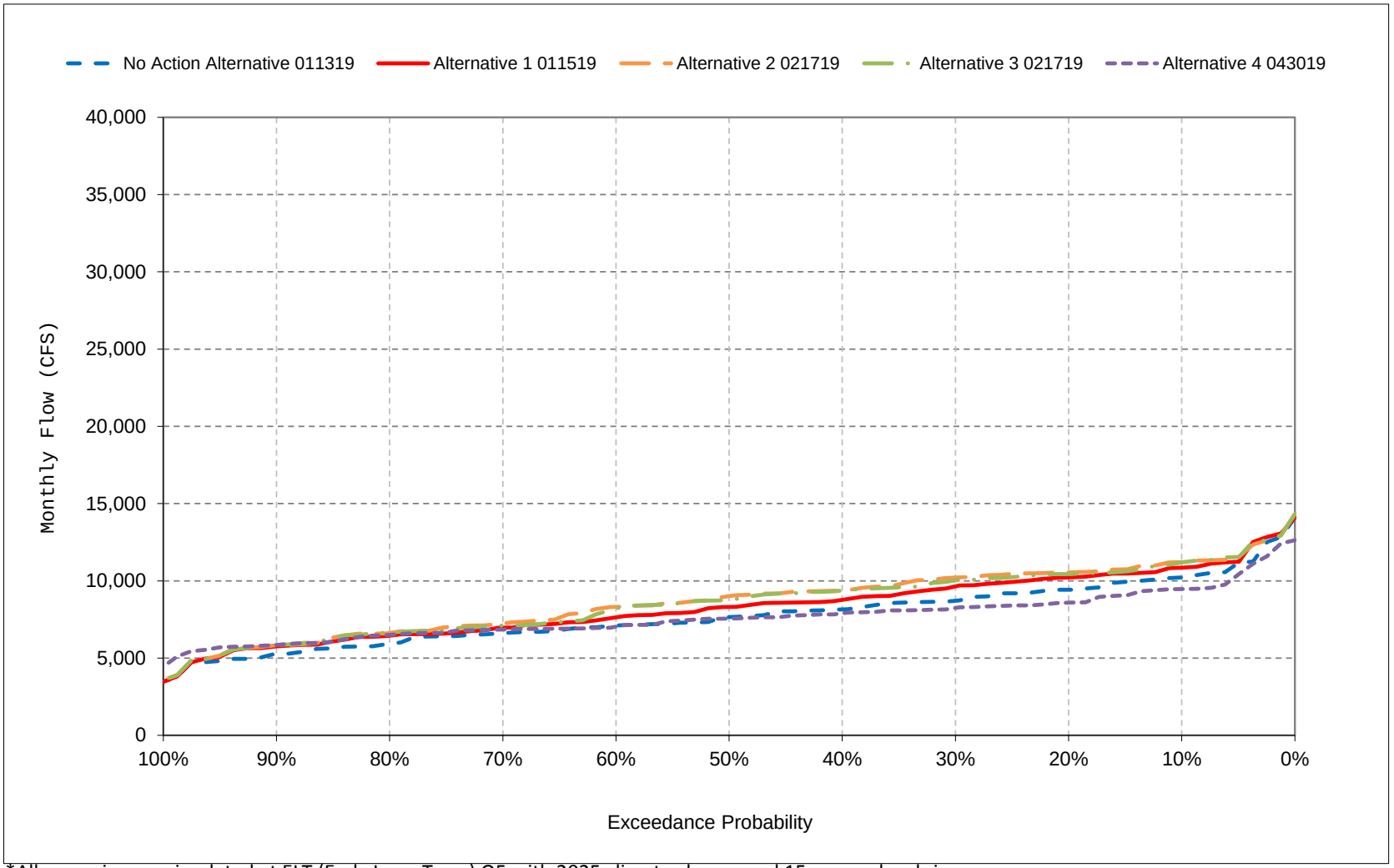
Figure 15-13. Sacramento River Flow downstream of Keswick Reservoir, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

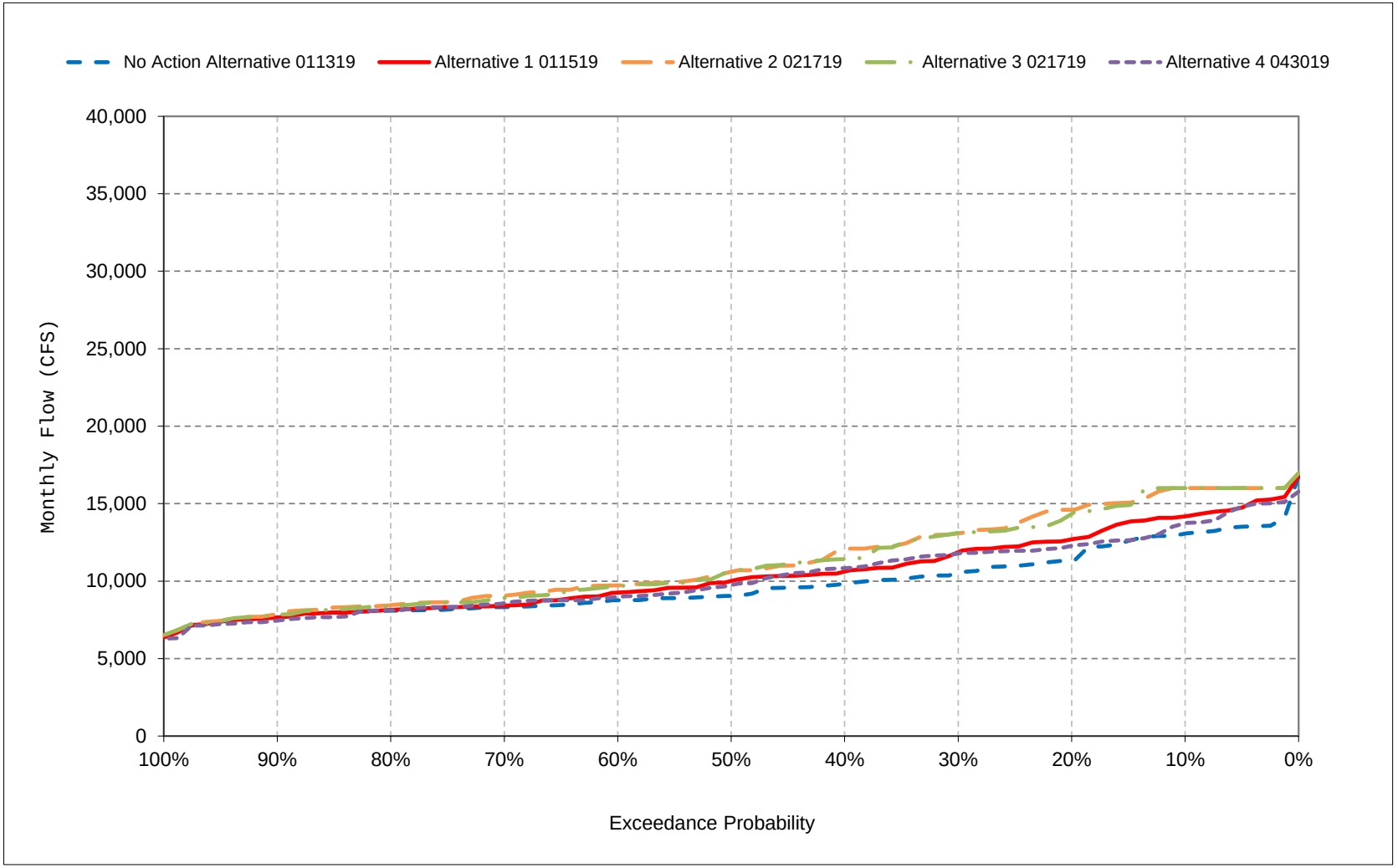
Figure 15-14. Sacramento River Flow downstream of Keswick Reservoir, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

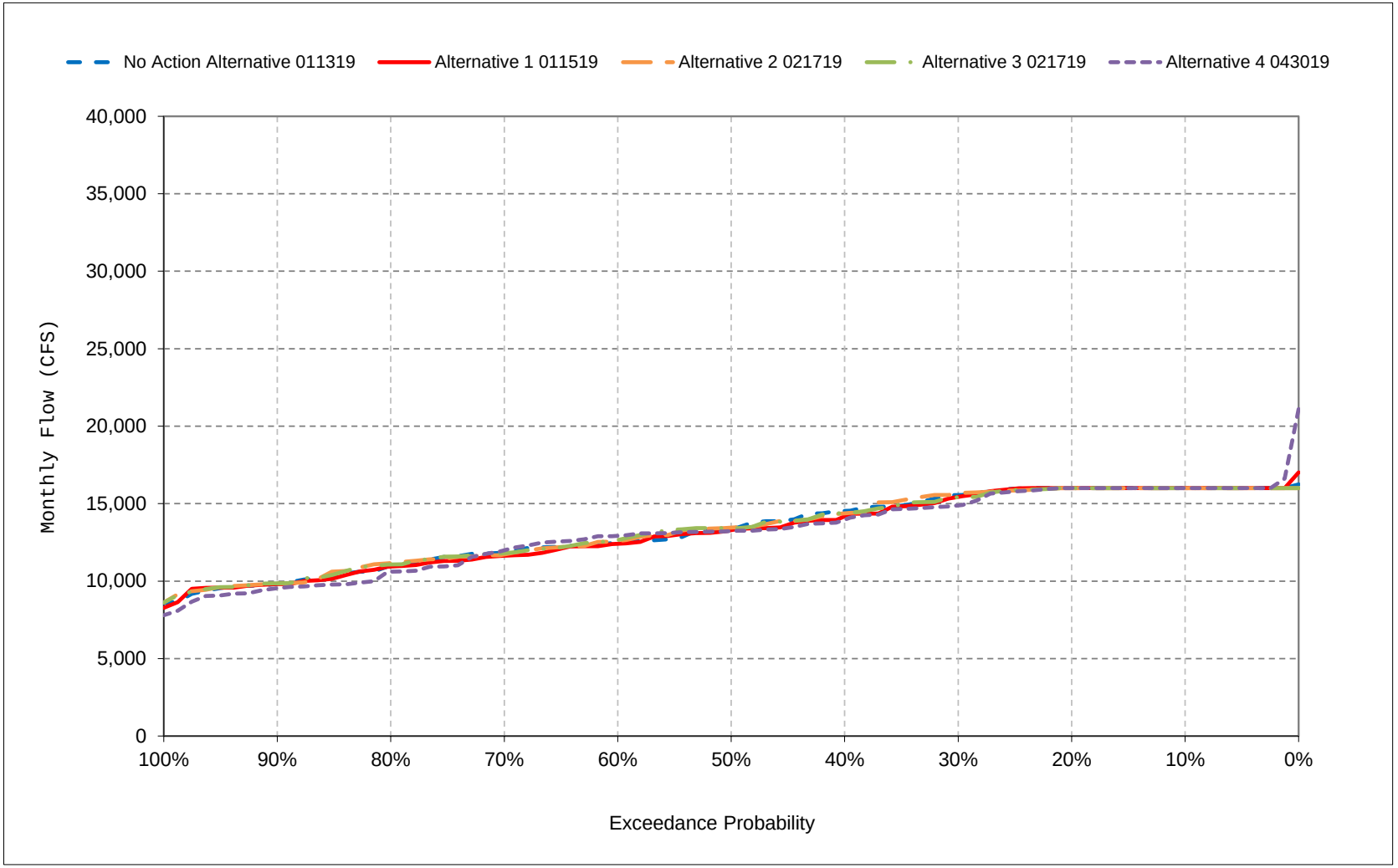
Figure 15-15. Sacramento River Flow downstream of Keswick Reservoir, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

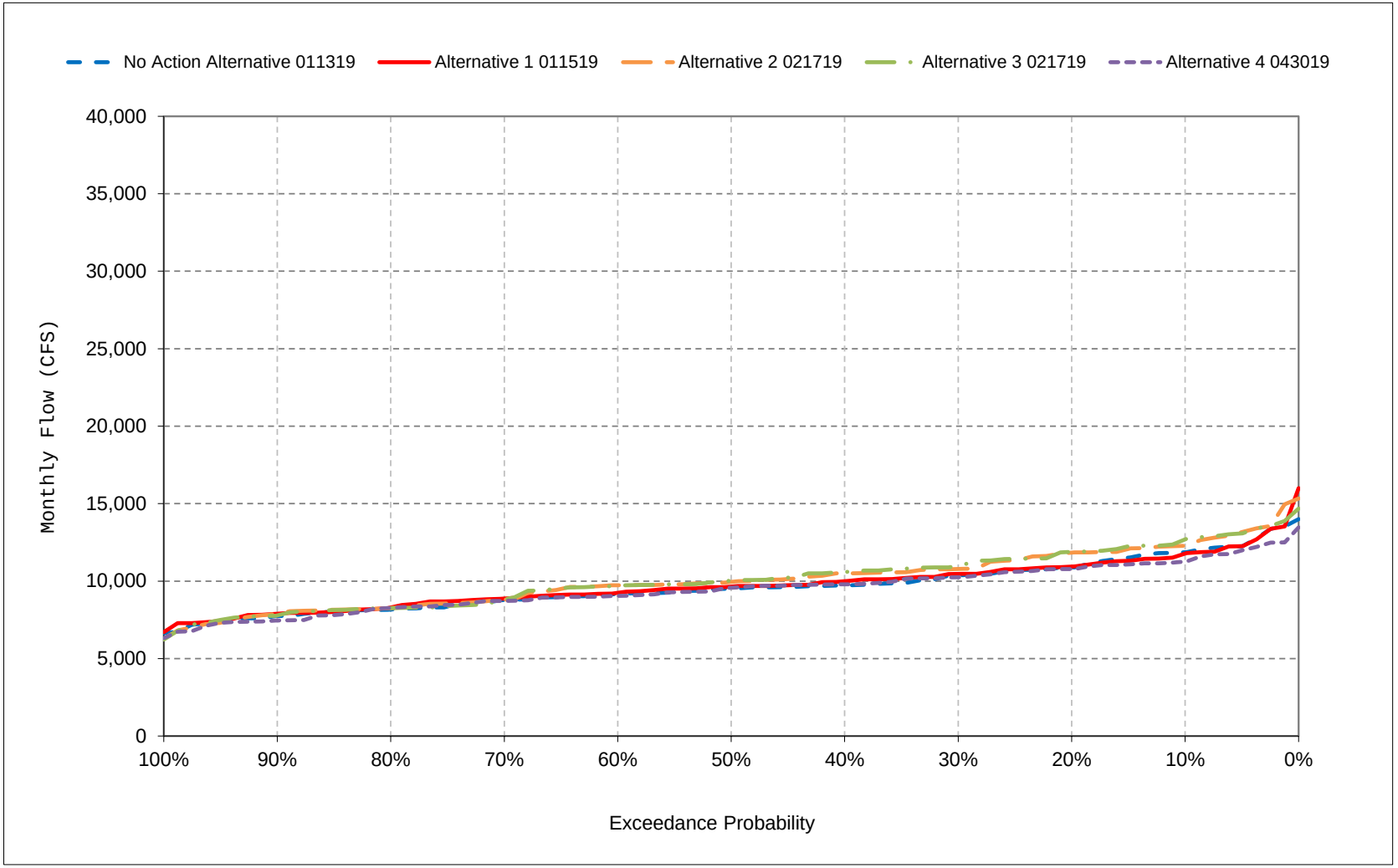
Figure 15-16. Sacramento River Flow downstream of Keswick Reservoir, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

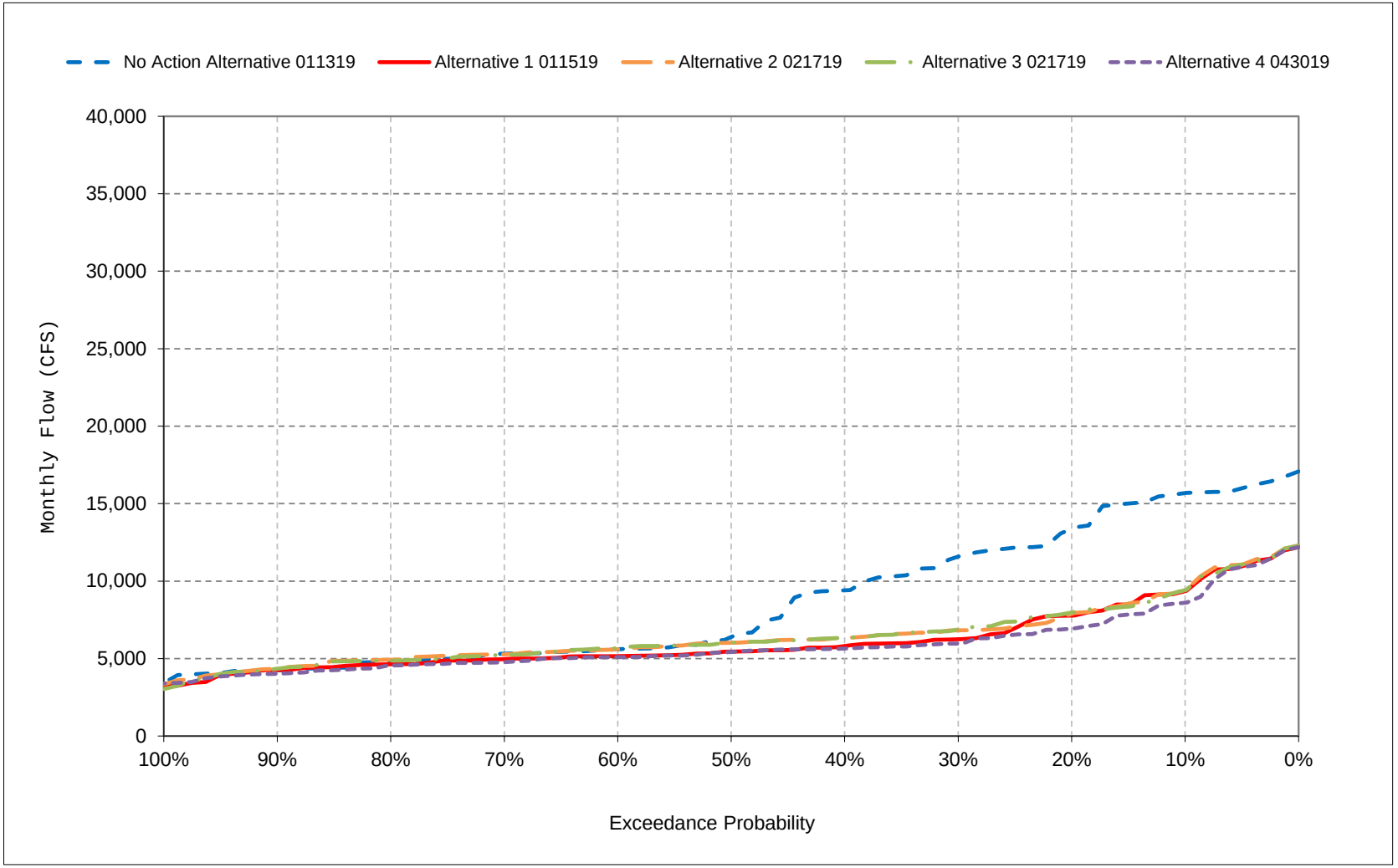
Figure 15-17. Sacramento River Flow downstream of Keswick Reservoir, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-18. Sacramento River Flow downstream of Keswick Reservoir, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 16-1. Sacramento Flow River at Bend Bridge, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,188	13,896	26,553	35,636	46,119	29,263	16,420	13,681	13,578	16,305	12,139	16,061
20%	9,084	12,030	16,593	23,614	32,961	19,328	12,773	11,723	12,305	15,990	11,272	13,861
30%	8,301	11,271	10,517	15,779	21,336	14,475	8,661	10,432	11,019	15,716	10,416	12,104
40%	7,817	10,144	7,828	11,444	12,724	10,331	7,211	9,493	10,708	14,723	10,001	10,145
50%	7,018	8,610	6,738	8,651	10,318	8,537	6,295	8,912	10,212	13,608	9,649	6,937
60%	6,439	7,277	6,313	7,028	8,261	7,612	5,896	8,574	9,732	12,748	9,360	5,909
70%	6,077	6,348	5,668	6,316	7,352	6,585	5,504	8,101	9,478	11,944	8,876	5,720
80%	5,759	5,848	5,284	5,793	5,852	5,733	5,240	7,755	9,148	11,171	8,433	5,247
90%	5,254	4,952	4,799	4,918	5,147	5,423	4,899	7,060	8,676	10,393	7,990	4,632
Long Term												
Full Simulation Period[a]	7,419	9,386	11,785	15,532	18,802	14,426	9,158	9,806	10,715	13,540	9,828	9,128
Water Year Types[b,c]												
Wet (32%)	8,864	12,201	12,212	29,328	30,808	24,888	13,988	11,641	10,455	13,909	10,733	14,543
Above Normal (16%)	8,036	12,488	11,050	16,297	25,999	15,923	9,620	10,248	11,192	15,414	10,652	10,421
Below Normal (13%)	6,917	6,667	11,741	7,401	12,565	7,255	6,371	9,297	11,634	14,499	10,741	5,970
Dry (24%)	6,623	7,712	15,032	7,159	9,374	8,913	6,431	8,473	10,962	12,750	8,777	5,420
Critical (15%)	5,408	5,206	6,284	6,219	6,426	5,899	5,290	8,040	9,507	11,146	7,891	5,067

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,113	11,120	30,249	39,974	47,109	29,749	16,420	14,020	14,747	16,248	11,749	9,801
20%	9,130	7,882	22,749	25,057	31,480	19,330	12,774	12,184	13,542	15,985	11,023	8,559
30%	8,604	7,183	11,316	17,121	22,239	16,744	8,715	11,082	12,527	15,638	10,550	6,433
40%	7,503	6,970	8,963	13,541	13,520	10,775	7,451	10,519	11,173	14,449	10,149	6,151
50%	6,934	6,571	6,899	8,966	10,596	8,854	6,372	9,928	10,843	13,501	9,763	5,804
60%	6,519	6,156	6,262	7,272	8,428	7,903	5,949	9,027	10,308	12,504	9,487	5,621
70%	6,300	5,823	5,643	6,528	7,385	6,899	5,586	8,559	9,731	11,782	9,095	5,418
80%	5,903	5,565	5,288	5,792	6,138	5,753	5,075	7,966	9,322	11,255	8,510	5,003
90%	5,103	5,254	4,895	4,893	5,269	5,421	4,893	7,500	8,789	10,253	7,995	4,691
Long Term												
Full Simulation Period[a]	7,404	7,839	12,742	16,304	19,156	14,832	9,249	10,332	11,347	13,435	9,944	6,624
Water Year Types[b,c]												
Wet (32%)	8,706	8,671	14,298	30,417	30,972	24,975	14,102	11,890	10,558	13,818	10,905	8,795
Above Normal (16%)	8,074	9,414	12,288	17,657	27,168	16,604	9,643	10,735	11,564	15,475	10,658	5,712
Below Normal (13%)	6,837	6,670	11,764	8,790	13,567	8,117	6,796	10,255	12,936	14,658	10,906	6,477
Dry (24%)	6,774	7,815	15,404	7,277	9,371	9,294	6,445	9,320	12,016	12,599	8,962	5,348
Critical (15%)	5,426	5,441	6,321	6,195	6,307	6,324	5,230	8,274	10,247	10,670	7,843	5,171

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-76**	**-2,775**	3,696	4,339	990	486	1	339	1,169	**-58**	**-390**	**-6,260**
20%	46	**-4,148**	6,156	1,442	**-1,481**	2	1	461	1,238	**-5**	**-249**	**-5,302**
30%	302	**-4,088**	799	1,342	903	2,270	54	649	1,509	**-78**	134	**-5,671**
40%	**-313**	**-3,174**	1,135	2,097	796	444	240	1,026	465	**-274**	148	**-3,994**
50%	**-84**	**-2,040**	160	314	278	318	78	1,016	631	**-107**	114	**-1,133**
60%	80	**-1,121**	**-50**	244	167	291	53	452	576	**-244**	127	**-288**
70%	223	**-526**	**-25**	212	33	314	82	458	253	**-162**	219	**-302**
80%	144	**-284**	3	**-1**	285	20	**-165**	211	174	84	77	**-244**
90%	**-151**	303	96	**-25**	121	**-3**	**-6**	440	112	**-140**	5	58
Long Term												
Full Simulation Period[a]	**-15**	**-1,547**	957	772	354	406	91	525	632	**-105**	116	**-2,504**
Water Year Types[b,c]												
Wet (32%)	**-157**	**-3,530**	2,085	1,089	164	86	114	249	103	**-92**	172	**-5,748**
Above Normal (16%)	39	**-3,074**	1,238	1,360	1,169	681	23	487	372	60	6	**-4,708**
Below Normal (13%)	**-80**	3	23	1,389	1,003	862	424	957	1,302	159	165	506
Dry (24%)	151	103	372	118	**-3**	381	14	847	1,054	**-151**	185	**-72**
Critical (15%)	18	235	37	**-25**	**-120**	425	**-60**	234	740	**-476**	**-48**	104

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 16-2. Sacramento Flow River at Bend Bridge, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,188	13,896	26,553	35,636	46,119	29,263	16,420	13,681	13,578	16,305	12,139	16,061
20%	9,084	12,030	16,593	23,614	32,961	19,328	12,773	11,723	12,305	15,990	11,272	13,861
30%	8,301	11,271	10,517	15,779	21,336	14,475	8,661	10,432	11,019	15,716	10,416	12,104
40%	7,817	10,144	7,828	11,444	12,724	10,331	7,211	9,493	10,708	14,723	10,001	10,145
50%	7,018	8,610	6,738	8,651	10,318	8,537	6,295	8,912	10,212	13,608	9,649	6,937
60%	6,439	7,277	6,313	7,028	8,261	7,612	5,896	8,574	9,732	12,748	9,360	5,909
70%	6,077	6,348	5,668	6,316	7,352	6,585	5,504	8,101	9,478	11,944	8,876	5,720
80%	5,759	5,848	5,284	5,793	5,852	5,733	5,240	7,755	9,148	11,171	8,433	5,247
90%	5,254	4,952	4,799	4,918	5,147	5,423	4,899	7,060	8,676	10,393	7,990	4,632
Long Term												
Full Simulation Period[a]	7,419	9,386	11,785	15,532	18,802	14,426	9,158	9,806	10,715	13,540	9,828	9,128
Water Year Types[b,c]												
Wet (32%)	8,864	12,201	12,212	29,328	30,808	24,888	13,988	11,641	10,455	13,909	10,733	14,543
Above Normal (16%)	8,036	12,488	11,050	16,297	25,999	15,923	9,620	10,248	11,192	15,414	10,652	10,421
Below Normal (13%)	6,917	6,667	11,741	7,401	12,565	7,255	6,371	9,297	11,634	14,499	10,741	5,970
Dry (24%)	6,623	7,712	15,032	7,159	9,374	8,913	6,431	8,473	10,962	12,750	8,777	5,420
Critical (15%)	5,408	5,206	6,284	6,219	6,426	5,899	5,290	8,040	9,507	11,146	7,891	5,067

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,102	11,008	29,650	36,288	47,109	29,731	16,433	13,870	16,066	16,237	12,490	9,783
20%	9,453	8,732	18,580	25,232	31,477	18,705	12,728	12,358	15,296	15,937	11,722	8,029
30%	8,838	7,263	10,519	16,741	22,553	15,152	8,699	11,557	13,602	15,665	11,074	7,168
40%	8,195	6,864	8,545	12,436	13,402	10,661	7,428	10,939	12,292	14,412	10,554	6,588
50%	7,237	6,459	6,863	8,673	10,522	8,778	6,879	10,438	11,072	13,779	10,194	6,375
60%	6,497	6,114	6,246	7,061	8,402	7,708	5,956	10,001	10,732	12,523	9,819	5,984
70%	6,019	5,680	5,625	6,388	7,353	6,637	5,531	8,755	10,280	11,903	8,947	5,612
80%	5,631	5,200	5,200	5,339	5,755	5,704	5,158	8,203	9,581	11,377	8,493	5,333
90%	5,050	4,962	4,636	4,783	4,979	5,346	4,836	7,502	8,795	10,216	8,137	4,673
Long Term												
Full Simulation Period[a]	7,480	7,678	12,145	15,896	18,973	14,628	9,305	10,600	12,048	13,525	10,232	6,832
Water Year Types[b,c]												
Wet (32%)	8,665	8,561	13,915	29,620	31,072	24,947	14,091	11,957	11,325	13,744	11,140	8,445
Above Normal (16%)	8,625	8,837	11,253	17,246	27,056	16,305	9,588	10,908	13,626	15,361	11,203	6,275
Below Normal (13%)	6,924	6,637	11,047	8,553	12,675	8,044	6,880	10,731	13,730	14,754	12,003	7,084
Dry (24%)	6,748	7,835	14,585	7,139	9,002	8,651	6,521	9,790	11,979	12,642	8,697	5,846
Critical (15%)	5,398	5,202	6,217	6,025	6,396	6,450	5,493	8,555	10,480	11,407	8,145	5,351

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-86**	**-2,888**	3,097	653	991	468	13	188	2,488	**-68**	351	**-6,278**
20%	369	**-3,298**	1,988	1,618	**-1,483**	**-622**	**-45**	635	2,991	**-53**	450	**-5,832**
30%	536	**-4,008**	2	962	1,217	678	38	1,125	2,583	**-51**	658	**-4,937**
40%	379	**-3,280**	717	991	678	330	217	1,446	1,583	**-311**	554	**-3,557**
50%	219	**-2,151**	124	21	203	241	584	1,526	861	171	545	**-562**
60%	59	**-1,163**	**-67**	32	141	96	60	1,426	1,000	**-224**	459	75
70%	**-57**	**-669**	**-43**	72	1	52	27	654	801	**-41**	70	**-108**
80%	**-128**	**-649**	**-84**	**-454**	**-98**	**-29**	**-82**	448	433	206	60	85
90%	**-203**	10	**-163**	**-135**	**-168**	**-77**	**-64**	443	119	**-177**	147	41
Long Term												
Full Simulation Period[a]	60	**-1,708**	360	364	171	201	147	794	1,333	**-15**	403	**-2,296**
Water Year Types[b,c]												
Wet (32%)	**-199**	**-3,640**	1,702	292	264	58	103	316	870	**-165**	407	**-6,098**
Above Normal (16%)	590	**-3,651**	203	949	1,057	381	**-32**	660	2,433	**-53**	551	**-4,145**
Below Normal (13%)	7	**-30**	**-694**	1,152	110	788	508	1,434	2,097	255	1,262	1,114
Dry (24%)	125	123	**-448**	**-21**	**-372**	**-262**	90	1,318	1,018	**-108**	**-80**	426
Critical (15%)	**-9**	**-4**	**-68**	**-195**	**-31**	551	203	515	972	261	254	284

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 16-3. Sacramento Flow River at Bend Bridge, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,188	13,896	26,553	35,636	46,119	29,263	16,420	13,681	13,578	16,305	12,139	16,061
20%	9,084	12,030	16,593	23,614	32,961	19,328	12,773	11,723	12,305	15,990	11,272	13,861
30%	8,301	11,271	10,517	15,779	21,336	14,475	8,661	10,432	11,019	15,716	10,416	12,104
40%	7,817	10,144	7,828	11,444	12,724	10,331	7,211	9,493	10,708	14,723	10,001	10,145
50%	7,018	8,610	6,738	8,651	10,318	8,537	6,295	8,912	10,212	13,608	9,649	6,937
60%	6,439	7,277	6,313	7,028	8,261	7,612	5,896	8,574	9,732	12,748	9,360	5,909
70%	6,077	6,348	5,668	6,316	7,352	6,585	5,504	8,101	9,478	11,944	8,876	5,720
80%	5,759	5,848	5,284	5,793	5,852	5,733	5,240	7,755	9,148	11,171	8,433	5,247
90%	5,254	4,952	4,799	4,918	5,147	5,423	4,899	7,060	8,676	10,393	7,990	4,632
Long Term												
Full Simulation Period[a]	7,419	9,386	11,785	15,532	18,802	14,426	9,158	9,806	10,715	13,540	9,828	9,128
Water Year Types[b,c]												
Wet (32%)	8,864	12,201	12,212	29,328	30,808	24,888	13,988	11,641	10,455	13,909	10,733	14,543
Above Normal (16%)	8,036	12,488	11,050	16,297	25,999	15,923	9,620	10,248	11,192	15,414	10,652	10,421
Below Normal (13%)	6,917	6,667	11,741	7,401	12,565	7,255	6,371	9,297	11,634	14,499	10,741	5,970
Dry (24%)	6,623	7,712	15,032	7,159	9,374	8,913	6,431	8,473	10,962	12,750	8,777	5,420
Critical (15%)	5,408	5,206	6,284	6,219	6,426	5,899	5,290	8,040	9,507	11,146	7,891	5,067

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,219	10,904	29,636	36,073	47,109	29,750	16,432	13,889	16,104	16,238	12,795	9,736
20%	9,556	9,216	19,151	25,121	31,477	18,710	12,702	12,221	14,890	15,926	11,909	8,208
30%	8,824	7,378	10,516	16,365	22,809	15,154	8,699	11,171	13,459	15,642	11,213	7,182
40%	8,236	6,968	8,551	12,436	13,201	10,663	7,428	10,765	12,114	14,517	10,606	6,678
50%	7,827	6,456	7,031	8,669	10,522	8,584	7,017	10,397	11,105	13,697	10,203	6,413
60%	7,015	6,184	6,499	7,155	8,264	7,616	5,931	9,877	10,674	12,748	9,785	6,013
70%	6,281	5,673	5,791	6,428	7,131	6,738	5,552	8,600	10,209	11,889	8,932	5,606
80%	5,928	5,233	5,239	5,670	5,754	5,704	5,196	8,051	9,444	11,238	8,386	5,198
90%	5,176	4,982	4,665	4,787	5,060	5,322	4,876	7,522	8,758	10,283	7,969	4,611
Long Term												
Full Simulation Period[a]	7,719	7,688	12,233	15,876	18,877	14,587	9,334	10,515	11,946	13,516	10,256	6,821
Water Year Types[b,c]												
Wet (32%)	8,835	8,606	14,092	29,521	30,973	24,929	14,160	11,656	11,230	13,800	11,334	8,309
Above Normal (16%)	8,283	9,263	11,534	17,122	26,899	16,267	9,582	10,942	13,371	15,383	11,107	6,432
Below Normal (13%)	7,331	6,652	11,095	8,506	12,564	8,045	6,928	10,749	13,625	14,740	11,786	7,134
Dry (24%)	7,387	7,521	14,508	7,126	9,008	8,525	6,524	9,810	12,033	12,626	8,729	5,889
Critical (15%)	5,597	5,218	6,213	6,301	6,212	6,459	5,495	8,544	10,267	11,241	8,144	5,289

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	31	**-2,992**	3,083	437	990	487	12	208	2,526	**-67**	656	**-6,325**
20%	472	**-2,814**	2,559	1,507	**-1,484**	**-618**	**-71**	498	2,585	**-64**	638	**-5,653**
30%	523	**-3,893**	**0**	586	1,473	679	38	739	2,441	**-74**	797	**-4,922**
40%	419	**-3,176**	723	991	476	331	217	1,272	1,405	**-207**	605	**-3,466**
50%	809	**-2,155**	292	18	204	47	722	1,485	894	89	554	**-525**
60%	577	**-1,093**	186	126	3	5	35	1,302	942	0	425	104
70%	204	**-675**	123	112	**-221**	152	48	499	730	**-55**	55	**-113**
80%	169	**-615**	**-45**	**-123**	**-98**	**-29**	**-44**	296	296	66	**-47**	**-49**
90%	**-78**	30	**-134**	**-130**	**-87**	**-102**	**-23**	463	82	**-109**	**-22**	**-21**
Long Term												
Full Simulation Period[a]	299	**-1,698**	448	344	74	161	176	709	1,231	**-24**	428	**-2,306**
Water Year Types[b,c]												
Wet (32%)	**-29**	**-3,595**	1,880	193	165	41	172	14	775	**-109**	601	**-6,234**
Above Normal (16%)	247	**-3,224**	484	825	900	343	**-38**	694	2,179	**-32**	455	**-3,989**
Below Normal (13%)	414	**-15**	**-647**	1,105	**-1**	790	557	1,451	1,991	241	1,044	1,164
Dry (24%)	764	**-192**	**-524**	**-33**	**-366**	**-388**	93	1,337	1,072	**-124**	**-48**	468
Critical (15%)	189	13	**-71**	81	**-214**	560	205	505	760	95	253	222

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 16-4. Sacramento Flow River at Bend Bridge, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,188	13,896	26,553	35,636	46,119	29,263	16,420	13,681	13,578	16,305	12,139	16,061
20%	9,084	12,030	16,593	23,614	32,961	19,328	12,773	11,723	12,305	15,990	11,272	13,861
30%	8,301	11,271	10,517	15,779	21,336	14,475	8,661	10,432	11,019	15,716	10,416	12,104
40%	7,817	10,144	7,828	11,444	12,724	10,331	7,211	9,493	10,708	14,723	10,001	10,145
50%	7,018	8,610	6,738	8,651	10,318	8,537	6,295	8,912	10,212	13,608	9,649	6,937
60%	6,439	7,277	6,313	7,028	8,261	7,612	5,896	8,574	9,732	12,748	9,360	5,909
70%	6,077	6,348	5,668	6,316	7,352	6,585	5,504	8,101	9,478	11,944	8,876	5,720
80%	5,759	5,848	5,284	5,793	5,852	5,733	5,240	7,755	9,148	11,171	8,433	5,247
90%	5,254	4,952	4,799	4,918	5,147	5,423	4,899	7,060	8,676	10,393	7,990	4,632
Long Term												
Full Simulation Period[a]	7,419	9,386	11,785	15,532	18,802	14,426	9,158	9,806	10,715	13,540	9,828	9,128
Water Year Types[b,c]												
Wet (32%)	8,864	12,201	12,212	29,328	30,808	24,888	13,988	11,641	10,455	13,909	10,733	14,543
Above Normal (16%)	8,036	12,488	11,050	16,297	25,999	15,923	9,620	10,248	11,192	15,414	10,652	10,421
Below Normal (13%)	6,917	6,667	11,741	7,401	12,565	7,255	6,371	9,297	11,634	14,499	10,741	5,970
Dry (24%)	6,623	7,712	15,032	7,159	9,374	8,913	6,431	8,473	10,962	12,750	8,777	5,420
Critical (15%)	5,408	5,206	6,284	6,219	6,426	5,899	5,290	8,040	9,507	11,146	7,891	5,067

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,728	11,244	30,144	39,648	47,716	29,750	16,407	12,070	14,282	16,203	11,390	9,185
20%	9,000	8,102	22,931	25,054	31,896	19,306	13,739	10,781	12,980	15,967	10,926	7,308
30%	8,360	7,207	11,525	16,741	22,236	16,806	10,561	10,312	12,315	15,393	10,424	6,351
40%	7,974	6,880	9,242	13,863	13,661	12,740	7,967	9,679	11,289	14,311	10,034	6,159
50%	6,905	6,412	6,898	9,543	10,638	9,806	7,132	8,987	10,798	13,405	9,668	5,711
60%	6,331	6,168	6,259	7,351	8,526	8,372	6,315	8,791	10,191	12,933	9,389	5,465
70%	6,049	5,815	5,641	6,529	7,502	7,365	5,738	8,375	9,761	12,243	8,917	5,253
80%	5,576	5,384	5,253	5,819	6,482	6,228	5,216	8,092	9,209	10,818	8,382	4,923
90%	5,236	5,146	4,870	4,933	5,283	5,050	4,946	7,524	8,582	9,626	7,618	4,482
Long Term												
Full Simulation Period[a]	7,366	7,711	12,899	16,455	19,426	15,145	9,739	9,731	11,183	13,417	9,698	6,391
Water Year Types[b,c]												
Wet (32%)	8,685	8,376	14,282	30,802	31,221	25,345	14,892	11,438	10,513	13,948	10,822	8,372
Above Normal (16%)	7,897	9,192	12,388	17,579	27,749	17,291	10,320	10,007	11,121	16,111	10,559	5,947
Below Normal (13%)	6,797	6,857	11,985	9,131	13,605	8,561	7,116	9,255	12,372	14,484	10,052	5,574
Dry (24%)	6,679	7,757	15,858	7,238	9,693	9,564	6,816	8,645	12,220	12,557	8,795	5,286
Critical (15%)	5,601	5,376	6,360	6,228	6,411	6,054	5,218	7,977	9,883	9,802	7,510	5,172

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-460**	**-2,652**	3,590	4,012	1,598	488	**-13**	**-1,611**	704	**-102**	**-749**	**-6,876**
20%	**-84**	**-3,928**	6,338	1,440	**-1,065**	**-22**	966	**-943**	676	**-23**	**-346**	**-6,554**
30%	59	**-4,064**	1,008	963	900	2,332	1,900	**-120**	1,296	**-323**	8	**-5,753**
40%	157	**-3,264**	1,414	2,419	937	2,408	756	186	581	**-412**	33	**-3,986**
50%	**-114**	**-2,198**	160	891	320	1,270	838	75	587	**-203**	19	**-1,226**
60%	**-108**	**-1,108**	**-54**	322	265	761	418	216	458	185	29	**-444**
70%	**-27**	**-534**	**-27**	213	150	780	234	274	282	299	41	**-467**
80%	**-183**	**-464**	**-31**	26	630	495	**-24**	337	61	**-354**	**-52**	**-324**
90%	**-18**	194	71	16	136	**-373**	47	464	**-94**	**-767**	**-372**	**-150**
Long Term												
Full Simulation Period[a]	**-53**	**-1,674**	1,113	923	624	718	581	**-76**	468	**-123**	**-130**	**-2,737**
Water Year Types[b,c]												
Wet (32%)	**-178**	**-3,825**	2,070	1,474	414	457	905	**-204**	58	39	89	**-6,171**
Above Normal (16%)	**-139**	**-3,296**	1,338	1,282	1,750	1,368	700	**-241**	**-71**	697	**-93**	**-4,474**
Below Normal (13%)	**-120**	190	243	1,729	1,041	1,305	745	**-42**	739	**-15**	**-689**	**-396**
Dry (24%)	55	45	825	79	318	651	385	172	1,258	**-193**	18	**-134**
Critical (15%)	193	170	76	8	**-15**	154	**-73**	**-62**	375	**-1,344**	**-381**	105

a Based on the 82-year simulation period.

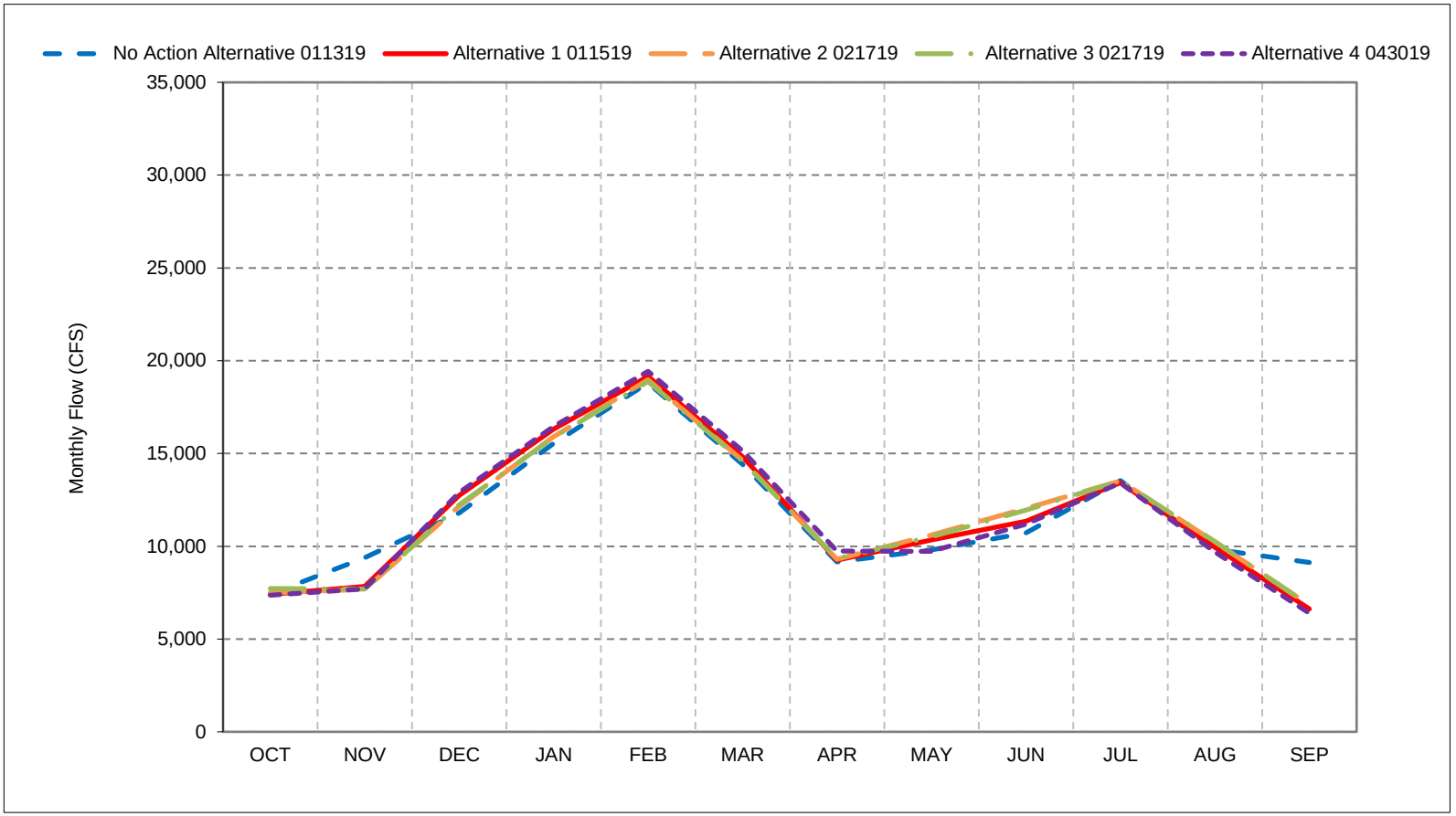
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

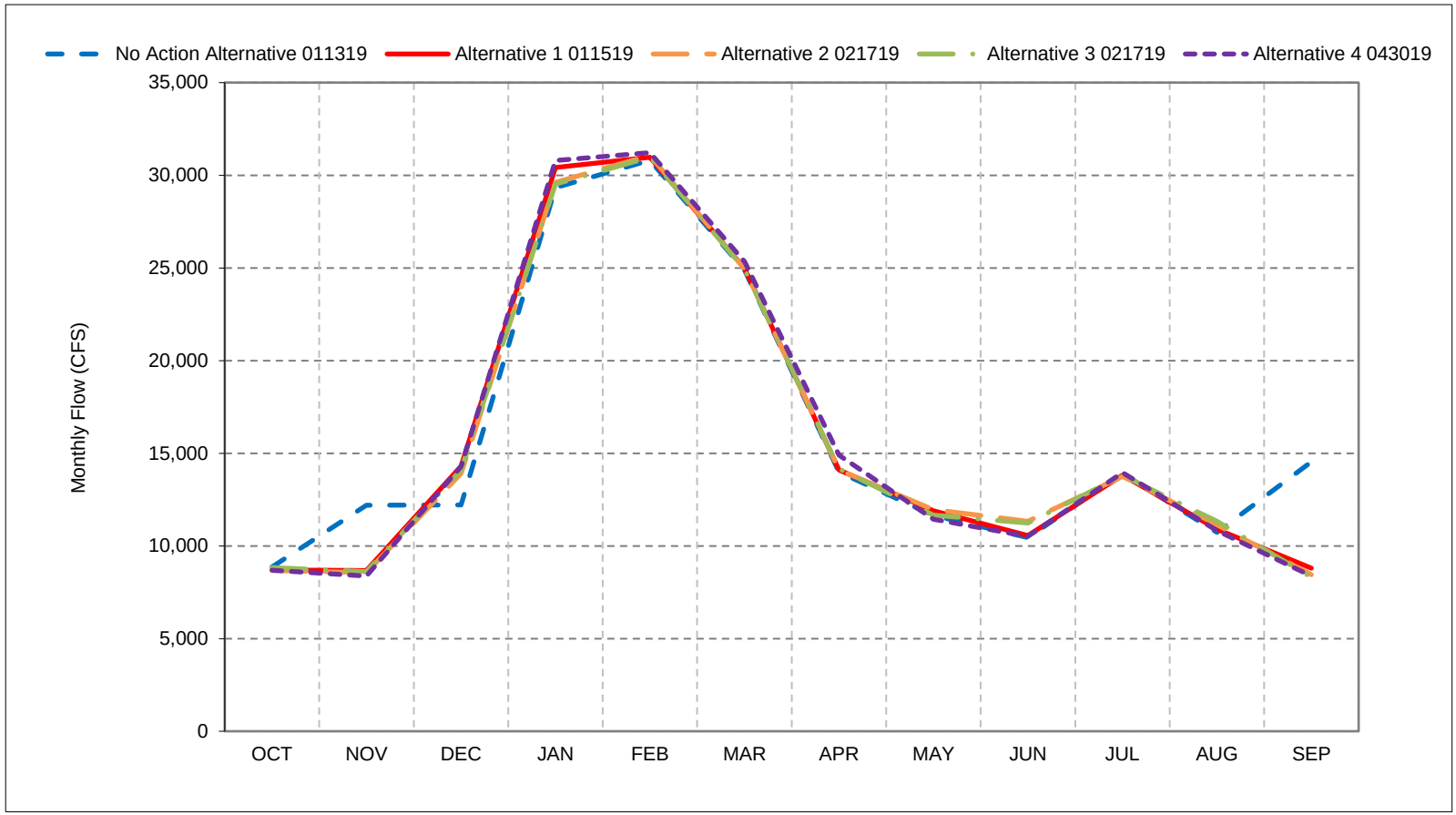
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-1. Sacramento Flow River at Bend Bridge, Long-Term Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-2. Sacramento Flow River at Bend Bridge, Wet Year Average Flow



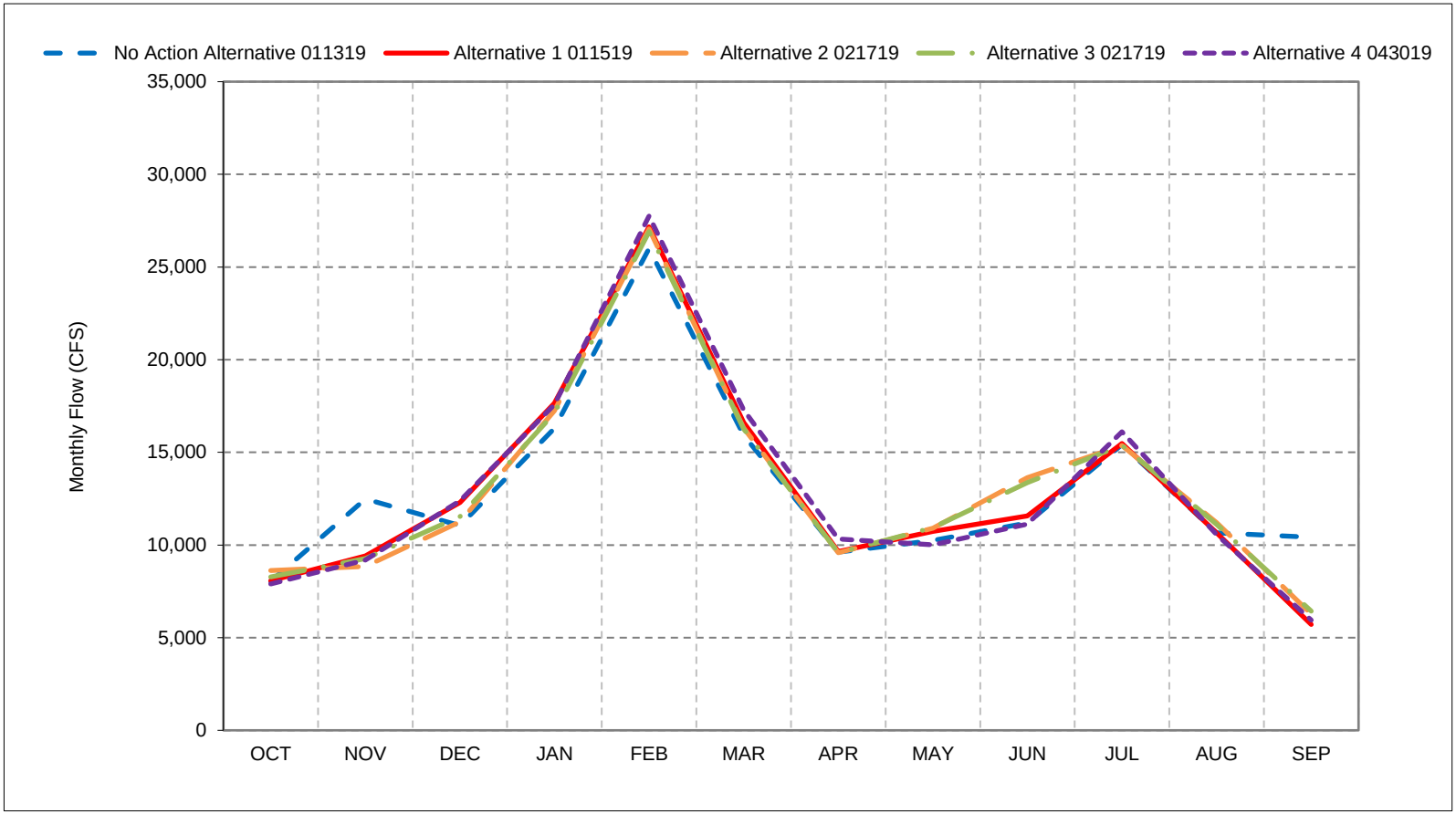
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

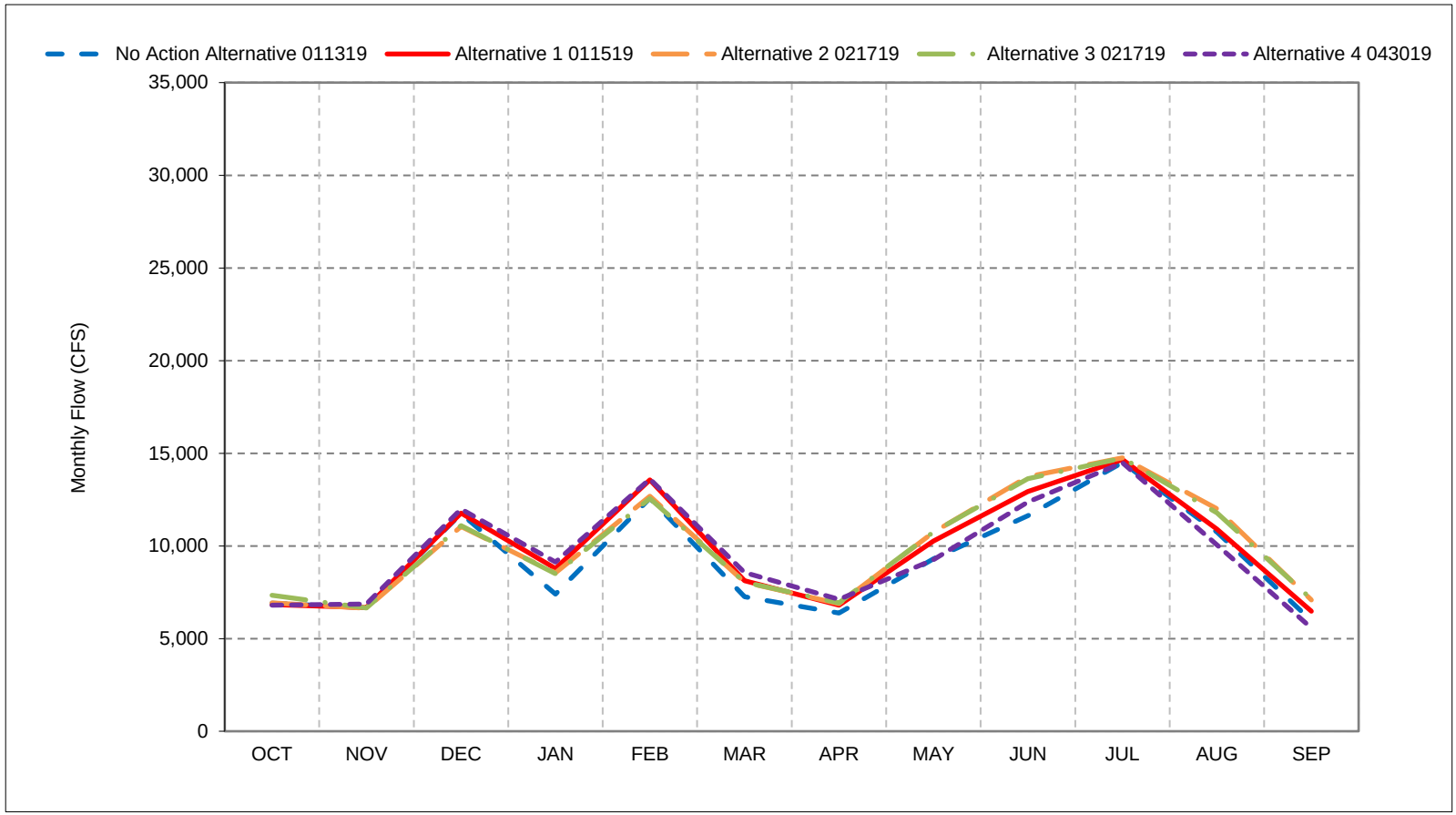
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-3. Sacramento Flow River at Bend Bridge, Above Normal Year Average Flow



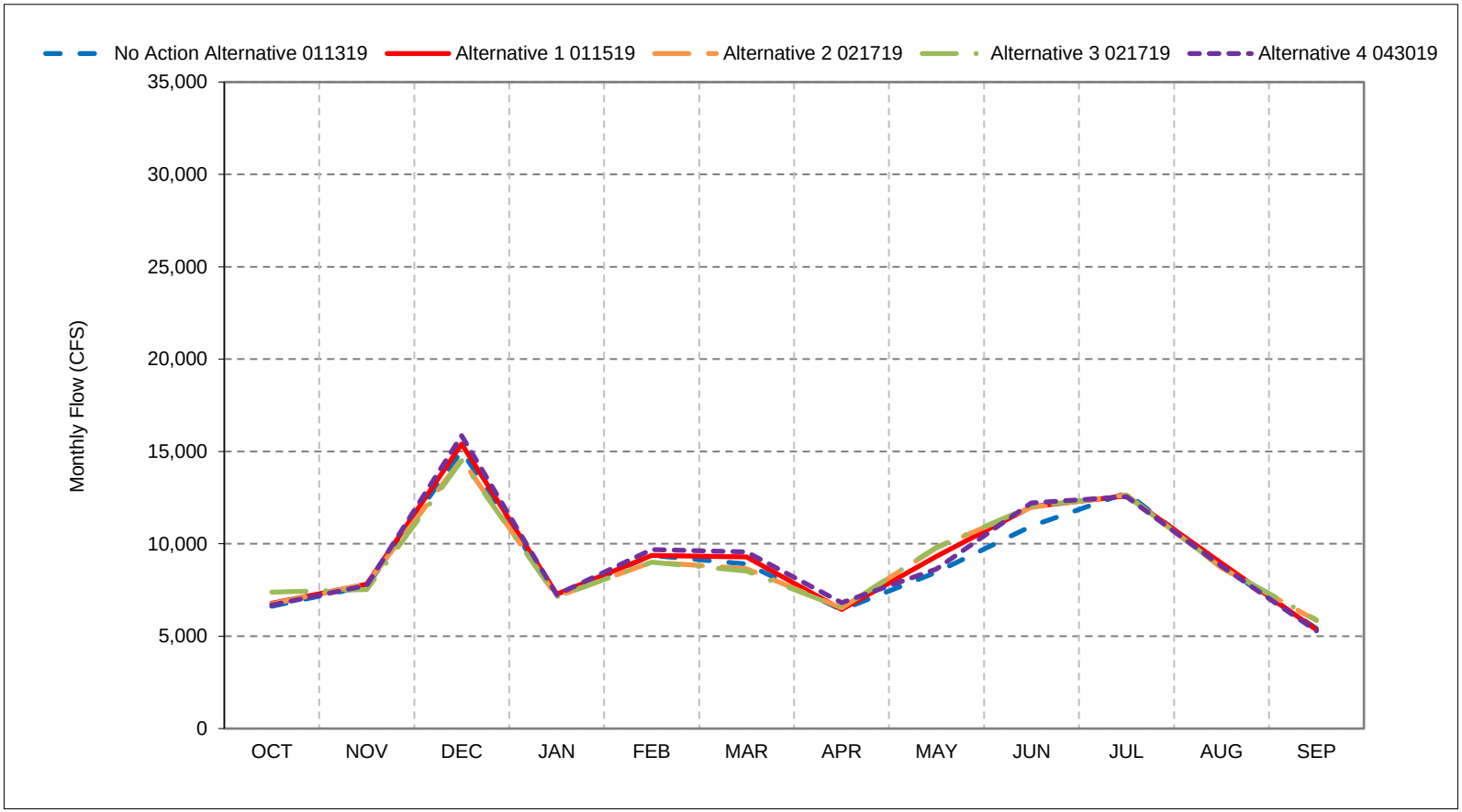
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-4. Sacramento Flow River at Bend Bridge, Below Normal Year Average Flow



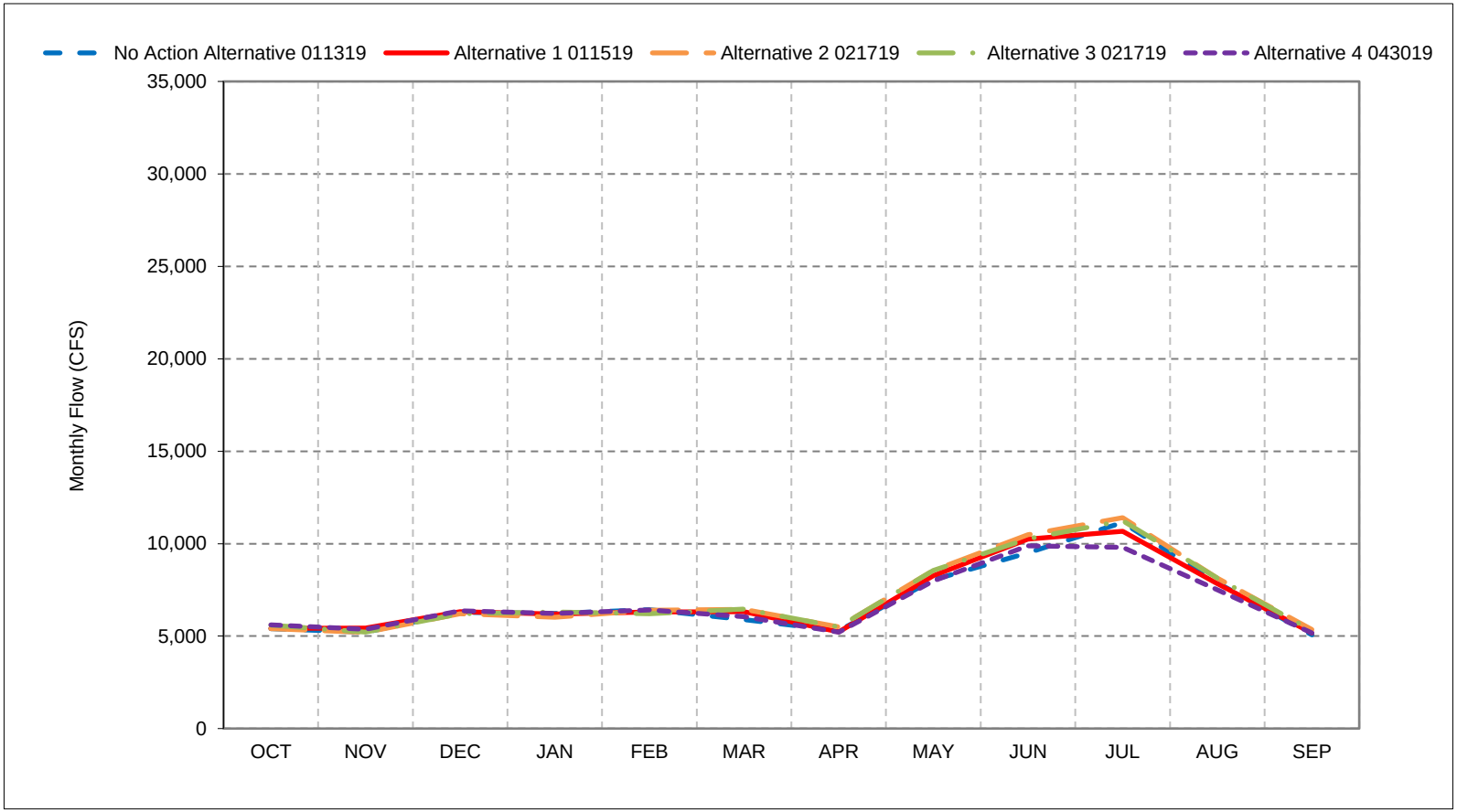
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-5. Sacramento Flow River at Bend Bridge, Dry Year Average Flow



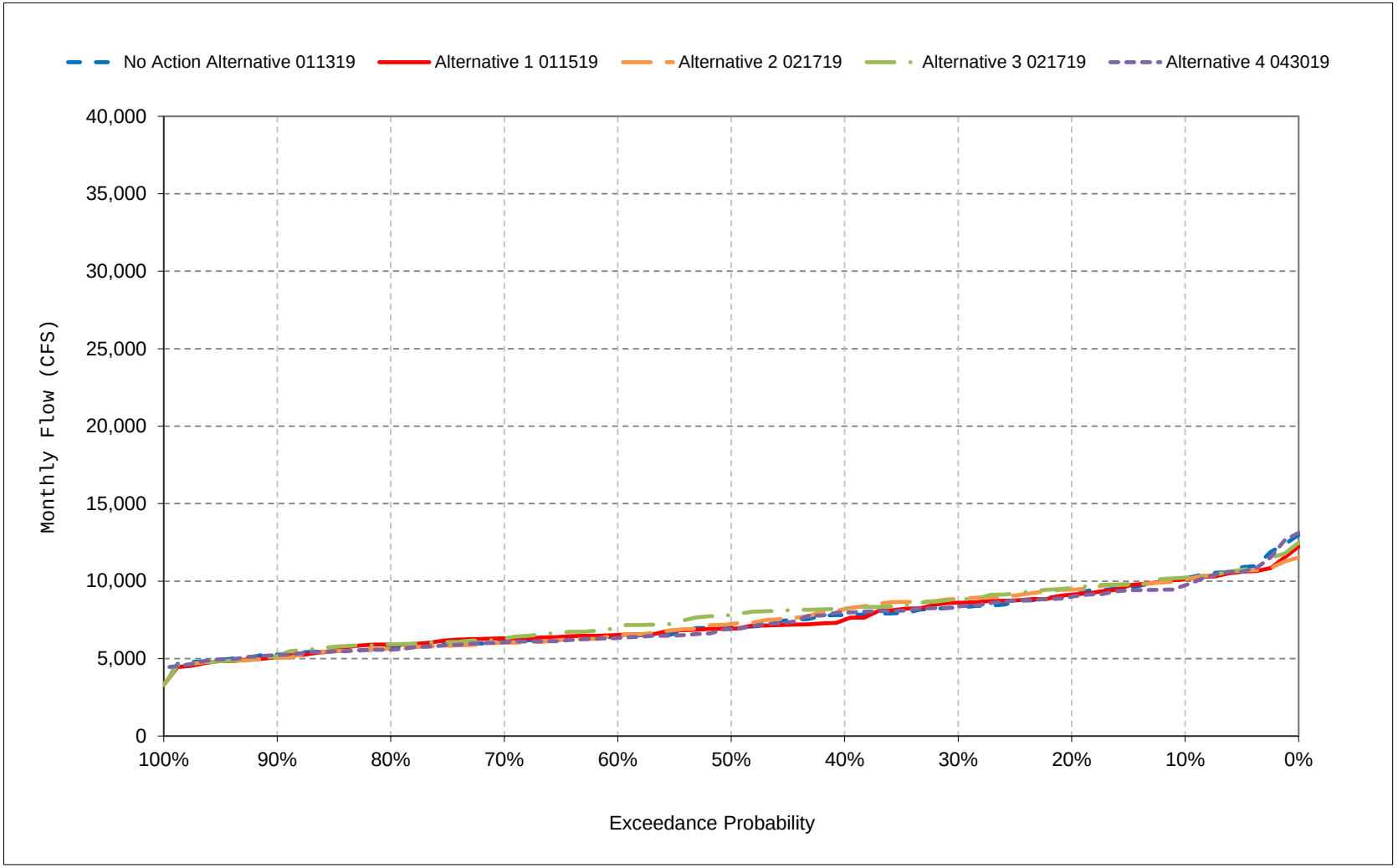
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-6. Sacramento Flow River at Bend Bridge, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

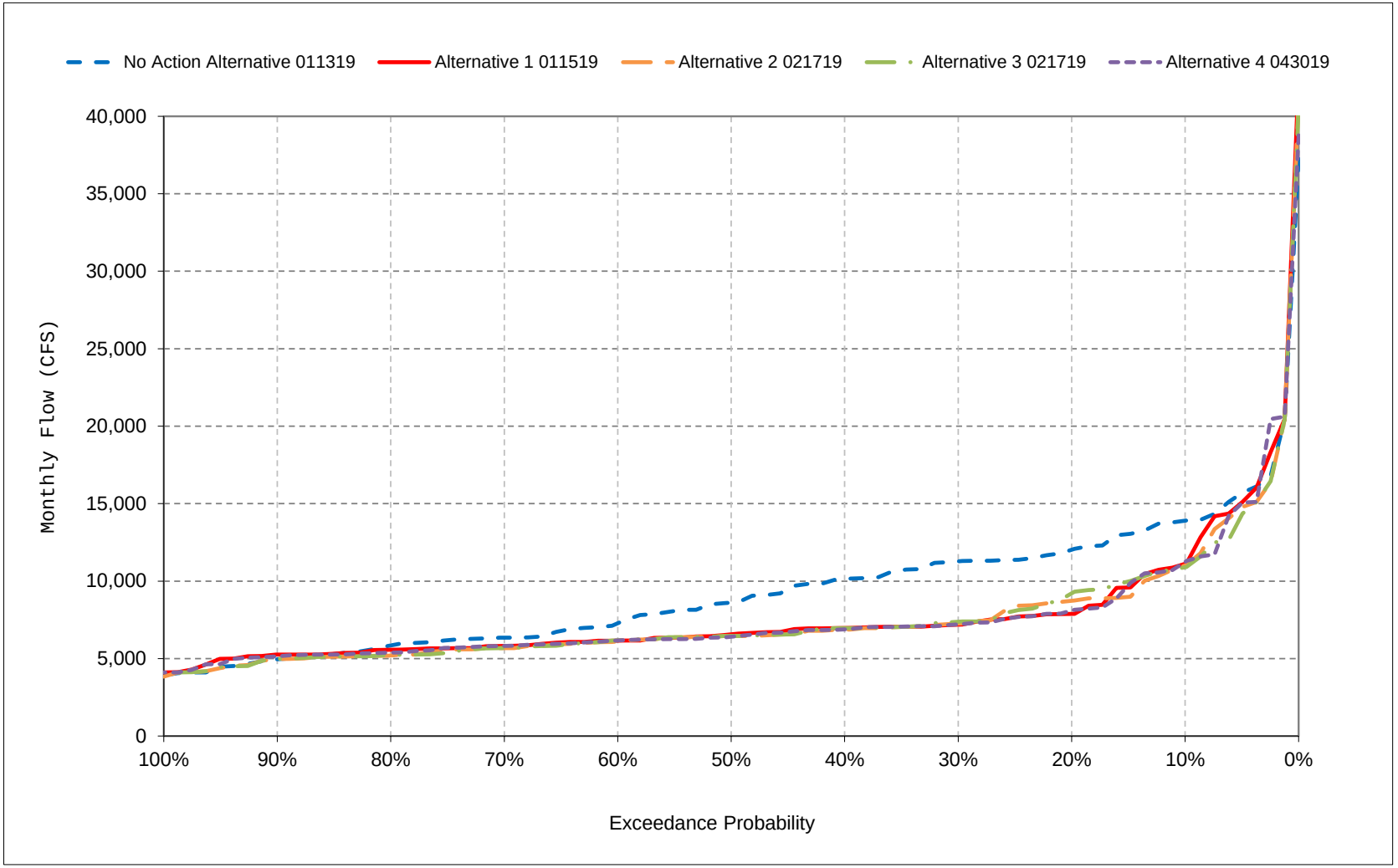
Figure 16-7. Sacramento Flow River at Bend Bridge, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

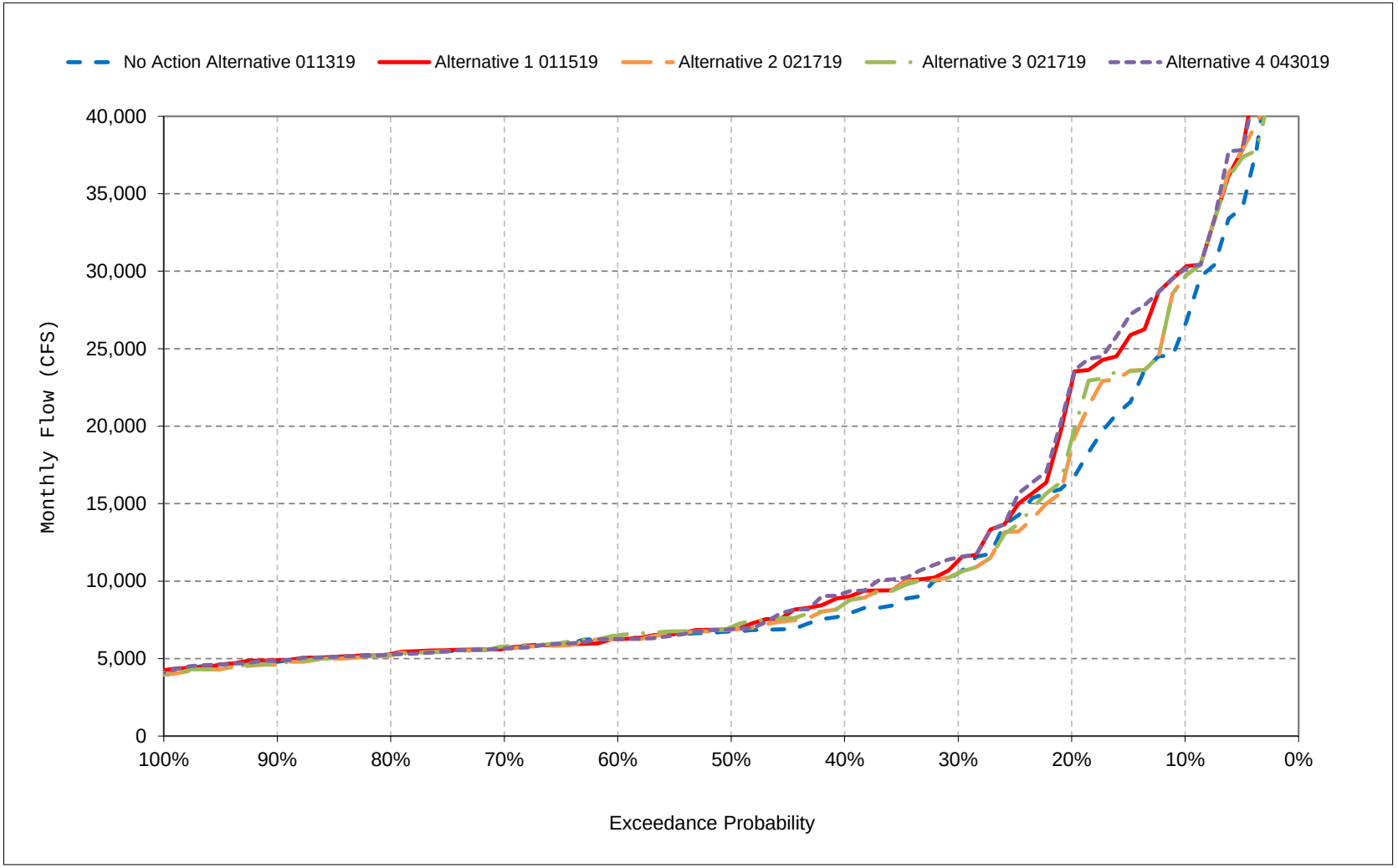
Figure 16-8. Sacramento Flow River at Bend Bridge, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

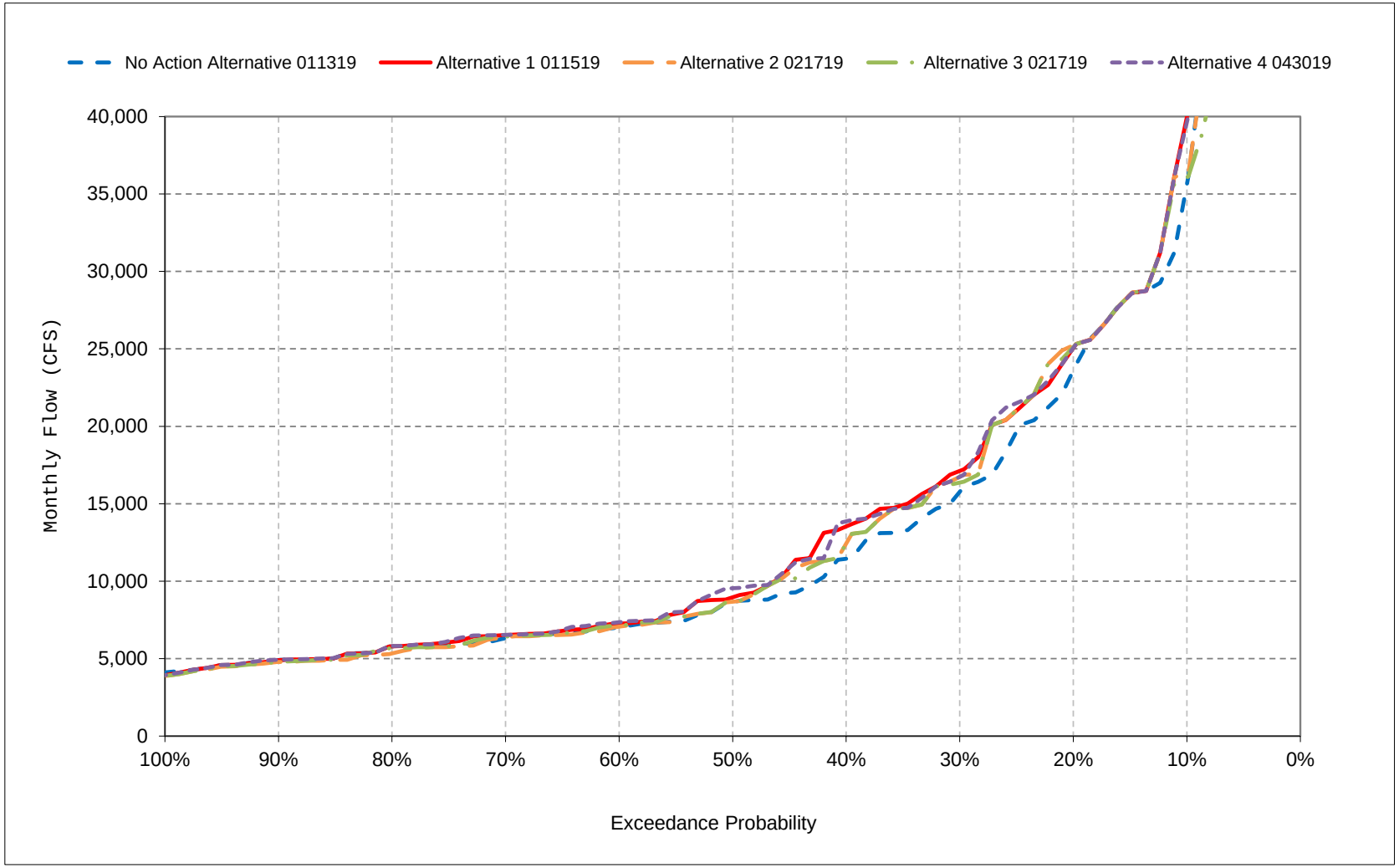
Figure 16-9. Sacramento Flow River at Bend Bridge, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

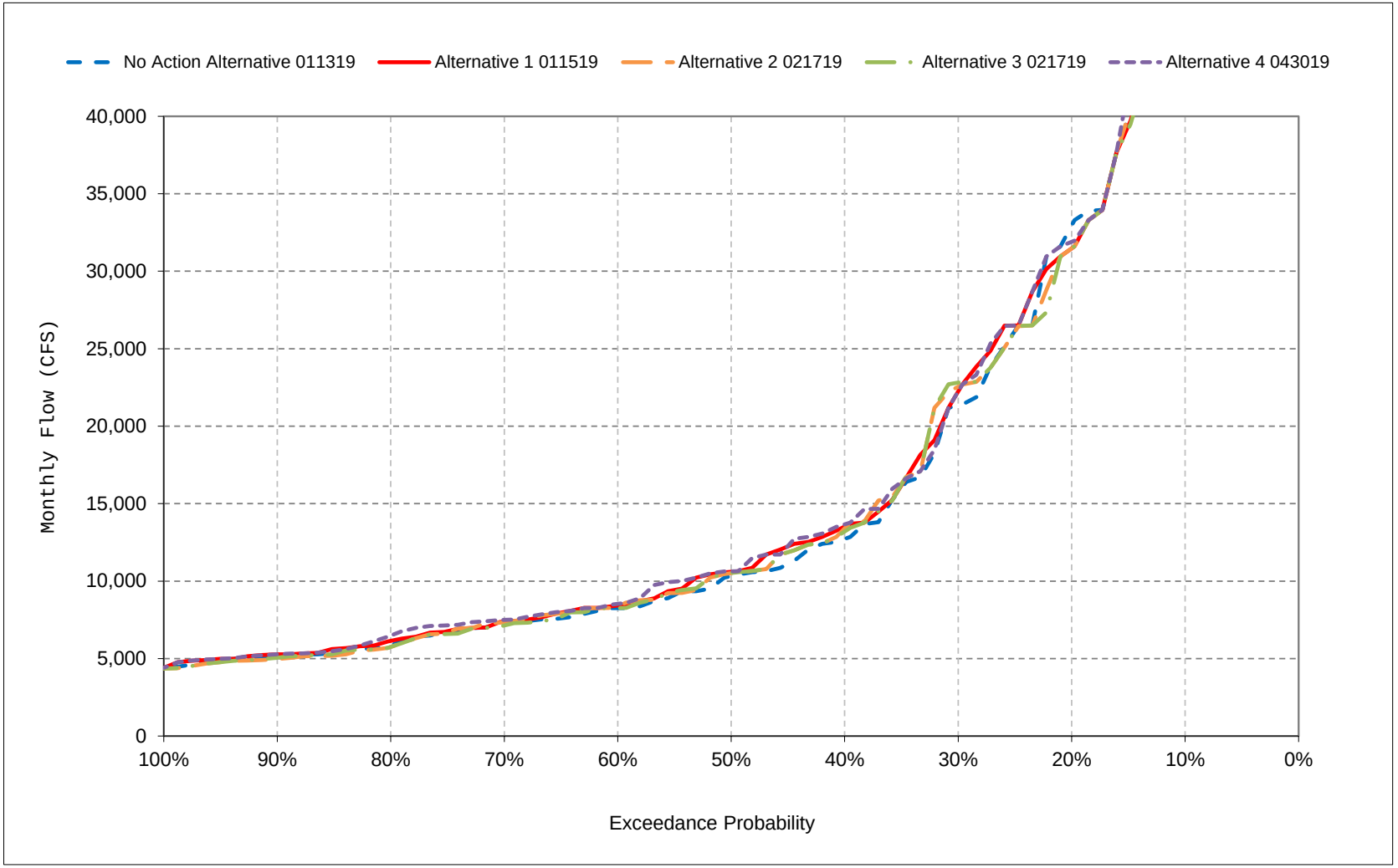
Figure 16-10. Sacramento Flow River at Bend Bridge, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

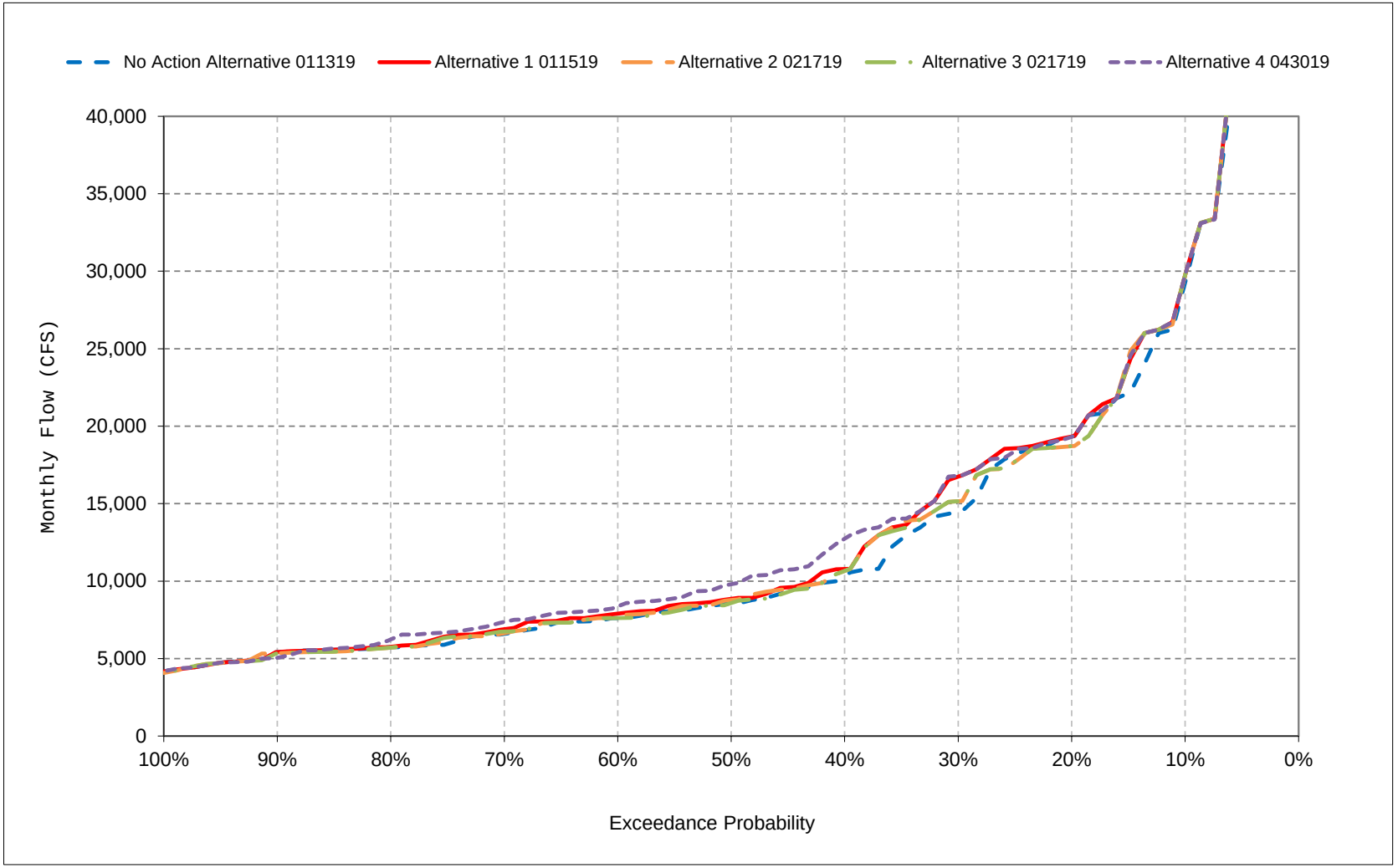
Figure 16-11. Sacramento Flow River at Bend Bridge, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

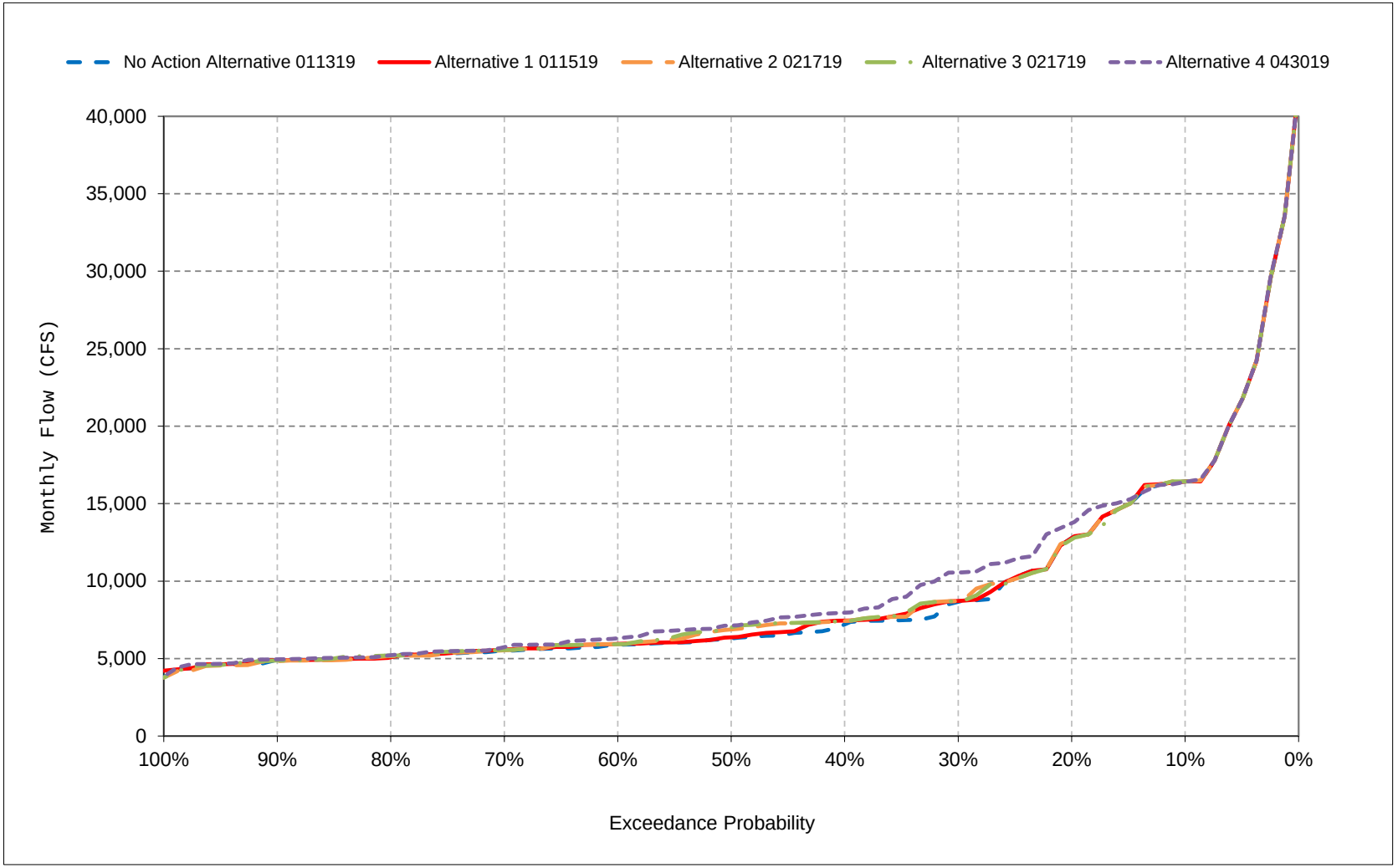
Figure 16-12. Sacramento Flow River at Bend Bridge, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

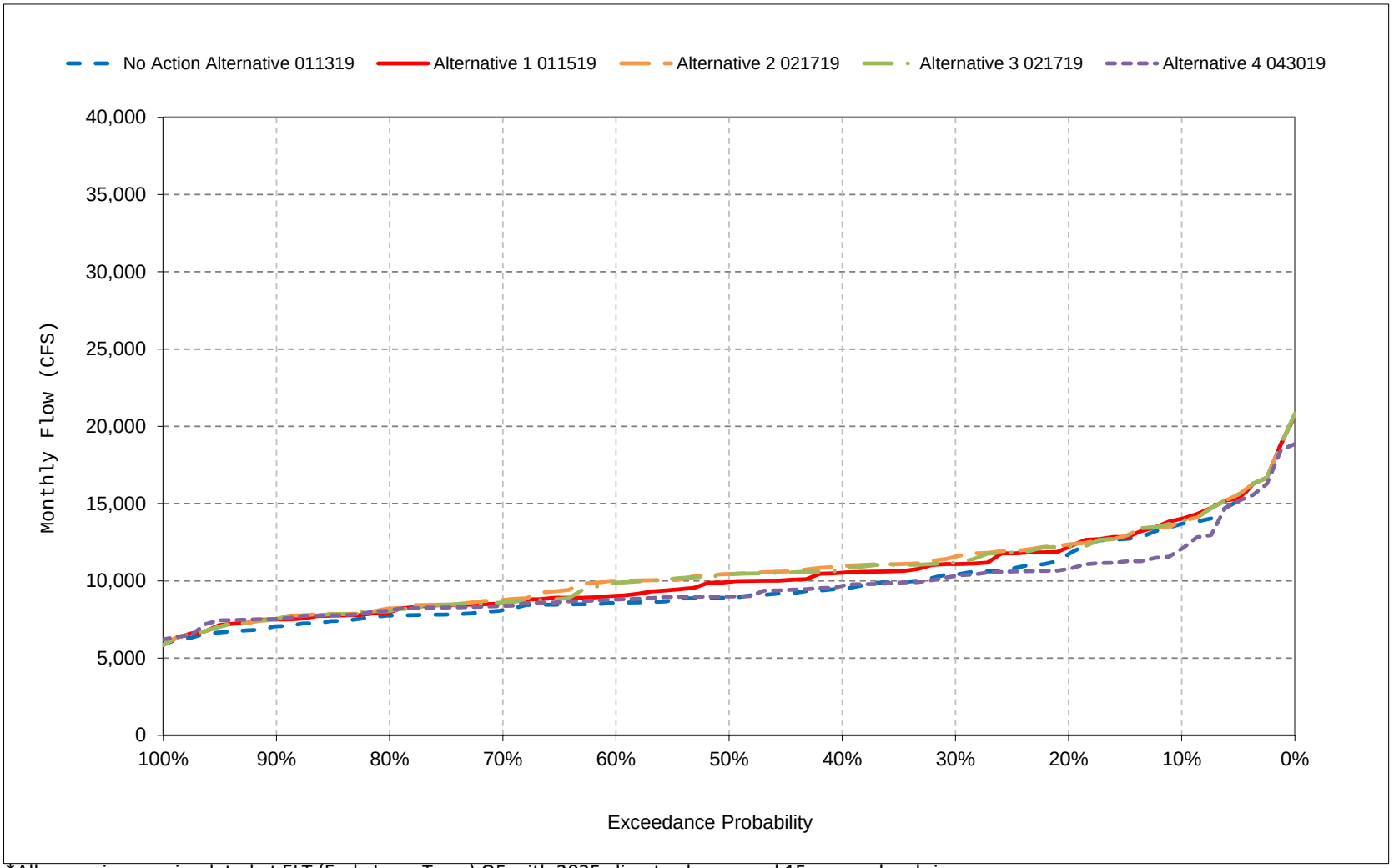
Figure 16-13. Sacramento Flow River at Bend Bridge, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

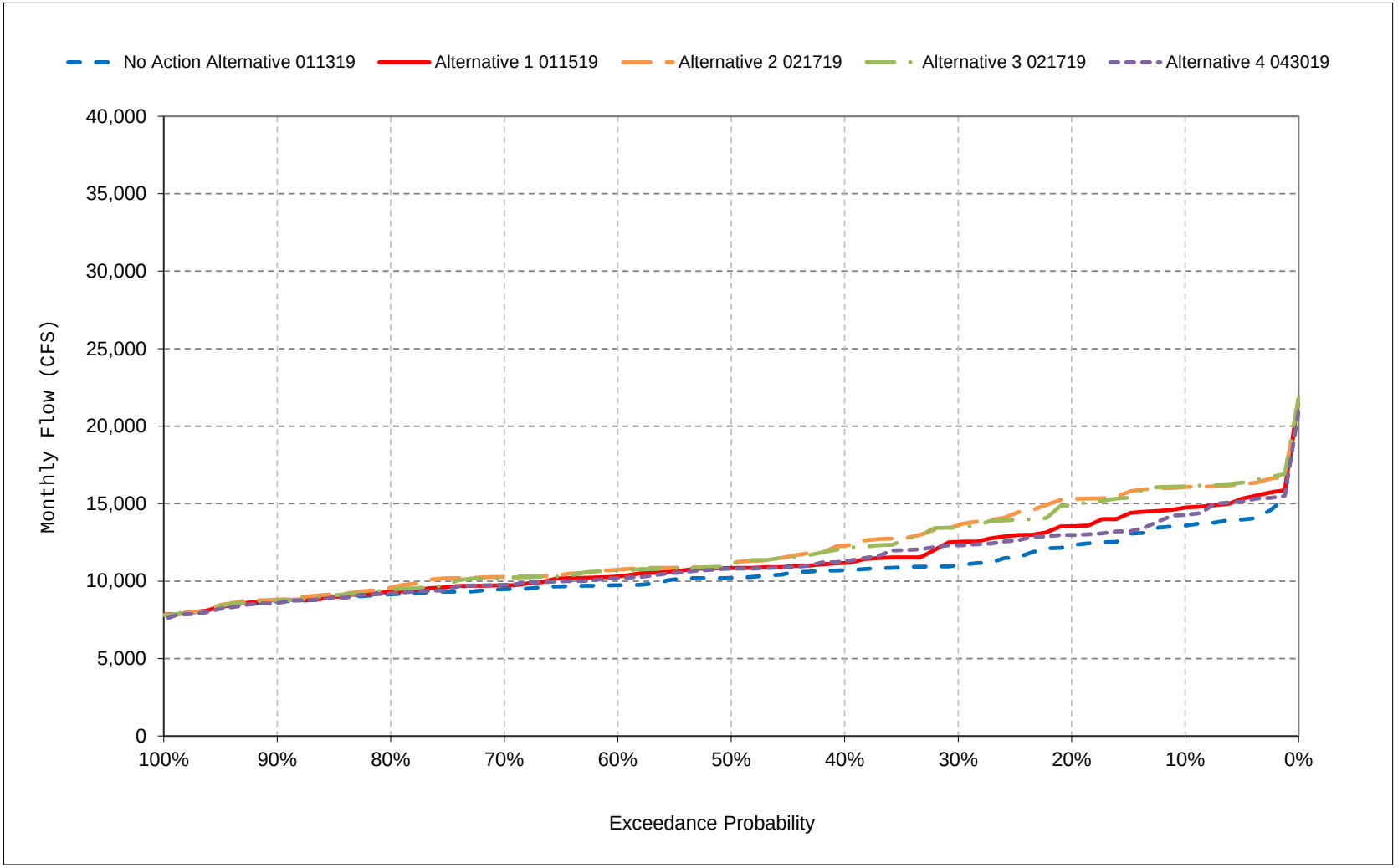
Figure 16-14. Sacramento Flow River at Bend Bridge, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

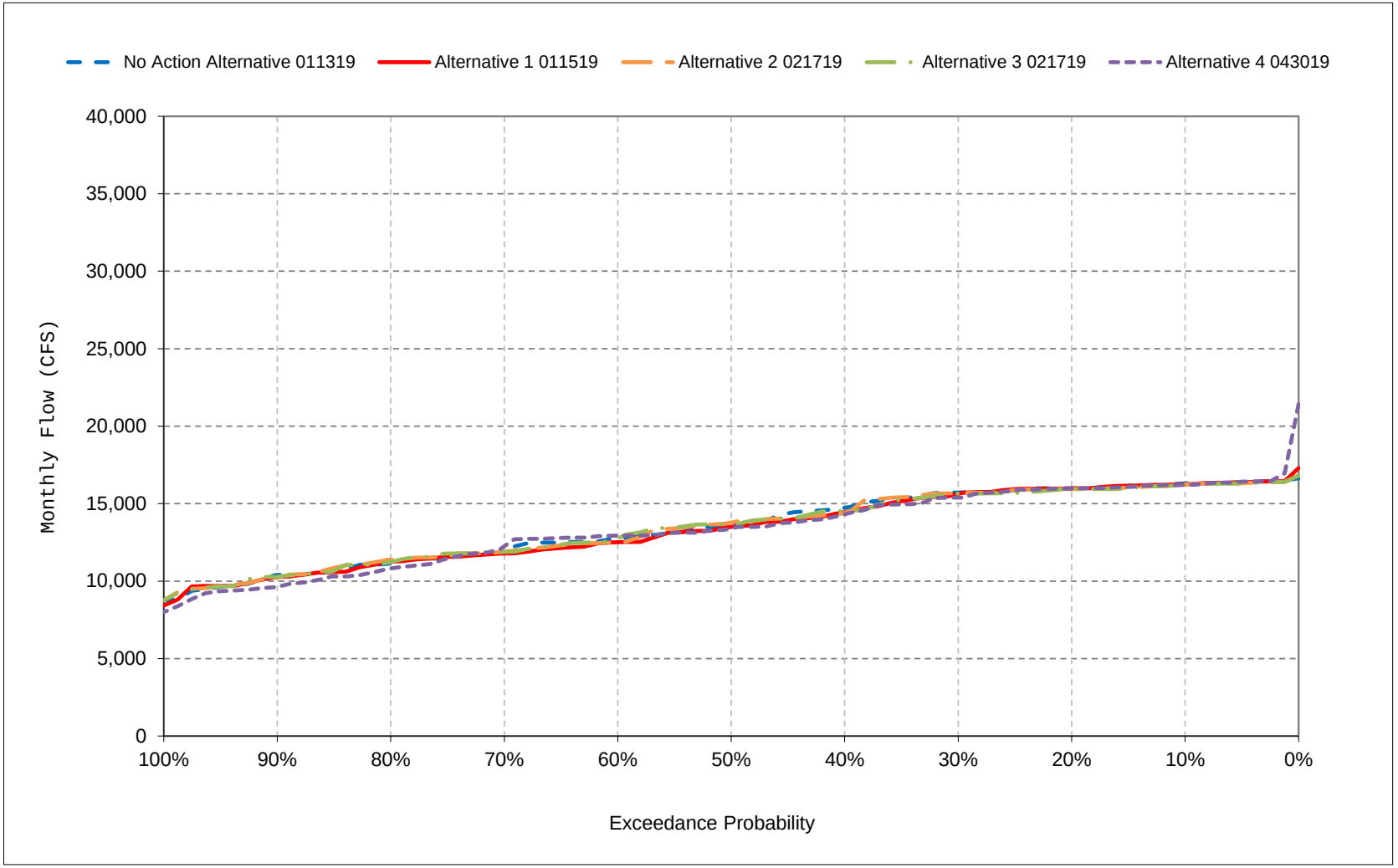
Figure 16-15. Sacramento Flow River at Bend Bridge, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

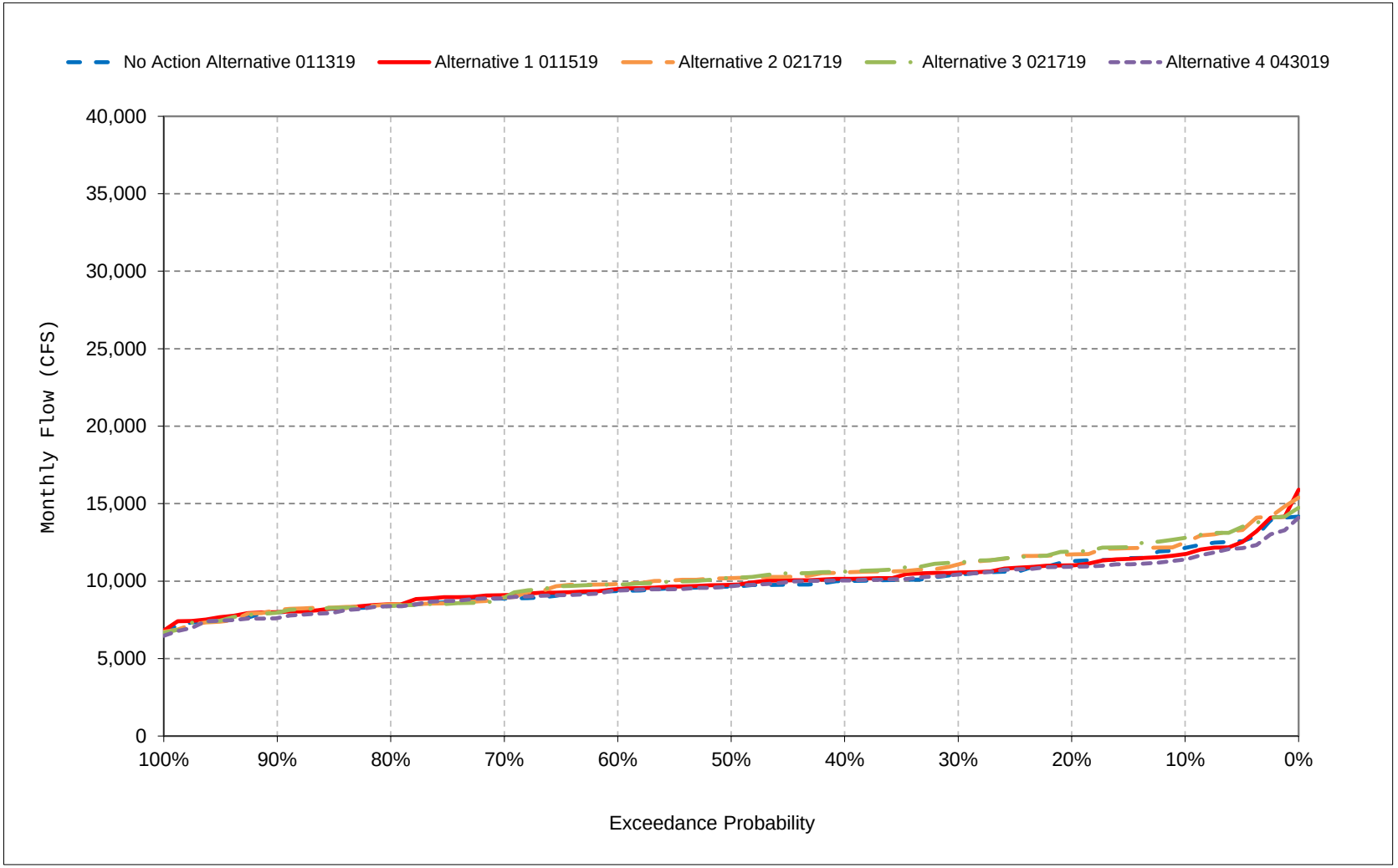
Figure 16-16. Sacramento Flow River at Bend Bridge, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

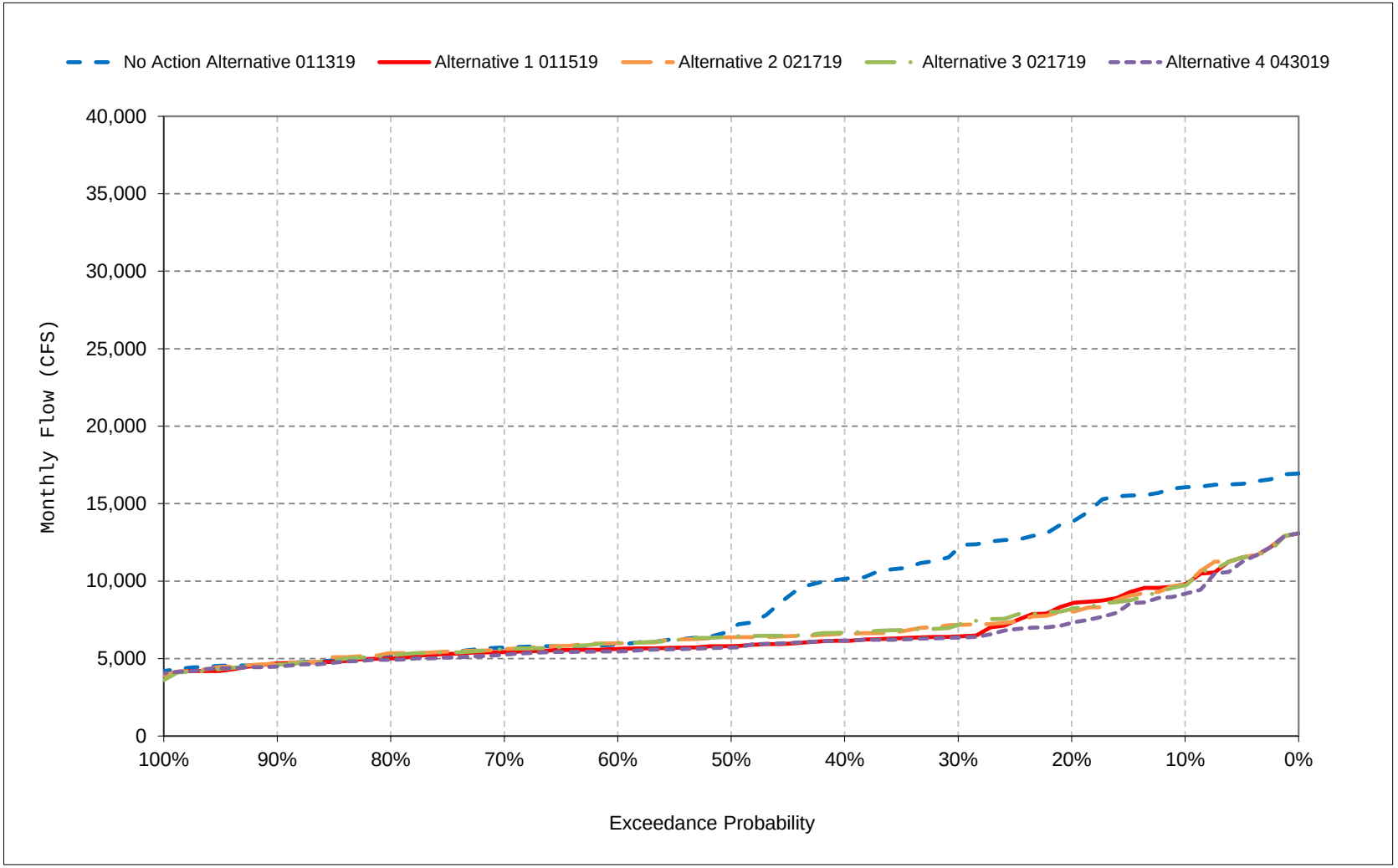
Figure 16-17. Sacramento Flow River at Bend Bridge, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-18. Sacramento Flow River at Bend Bridge, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 17-1. Sacramento River below Red Bluff Diversion Dam Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,011	13,916	26,964	36,349	46,951	29,624	16,603	13,148	13,015	15,428	11,307	15,876
20%	8,935	12,026	17,059	24,191	33,406	19,585	13,008	11,101	11,689	14,953	10,296	13,688
30%	8,162	11,326	10,713	16,195	21,743	14,565	8,528	9,878	10,416	14,727	9,580	11,816
40%	7,682	10,236	8,070	11,649	13,058	10,522	7,061	9,105	9,881	13,944	9,184	10,012
50%	6,903	8,639	6,795	8,852	10,563	8,716	5,988	8,579	9,465	12,881	8,934	6,775
60%	6,301	7,375	6,327	7,152	8,447	7,747	5,541	8,064	9,136	12,165	8,564	5,835
70%	5,951	6,380	5,760	6,395	7,537	6,651	5,292	7,736	8,721	11,138	8,375	5,549
80%	5,687	5,854	5,334	5,869	5,964	5,772	5,044	7,317	8,297	10,215	7,926	5,122
90%	5,150	4,954	4,820	4,974	5,202	5,471	4,657	6,623	7,926	9,607	7,749	4,515
Long Term												
Full Simulation Period[a]	7,315	9,438	11,980	15,892	19,147	14,608	9,063	9,371	9,994	12,702	9,166	8,972
Water Year Types[b,c]												
Wet (32%)	8,728	12,255	12,422	29,982	31,345	25,200	14,018	11,059	9,426	12,709	9,781	14,320
Above Normal (16%)	7,927	12,554	11,235	16,772	26,458	16,158	9,459	9,611	10,203	14,275	9,759	10,210
Below Normal (13%)	6,820	6,705	11,915	7,608	12,849	7,303	6,118	8,845	10,980	13,721	10,131	5,837
Dry (24%)	6,538	7,784	15,279	7,303	9,573	9,042	6,326	8,214	10,498	12,221	8,358	5,349
Critical (15%)	5,338	5,218	6,394	6,318	6,527	5,955	5,159	7,866	9,252	10,848	7,654	4,954

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,094	11,251	30,654	41,231	47,844	30,095	16,604	13,637	14,019	15,143	11,091	9,587
20%	9,087	7,890	23,214	25,628	32,156	19,588	13,006	11,604	12,690	14,882	10,172	8,323
30%	8,562	7,216	11,557	17,517	22,646	16,748	8,515	10,466	11,652	14,422	9,599	6,220
40%	7,394	7,006	9,146	13,981	13,804	10,972	7,283	9,875	10,578	13,285	9,274	6,038
50%	6,893	6,621	7,024	9,111	10,808	9,079	6,050	9,339	9,897	12,614	8,943	5,660
60%	6,486	6,185	6,320	7,475	8,585	7,922	5,627	8,679	9,437	11,439	8,719	5,415
70%	6,245	5,822	5,730	6,631	7,552	6,947	5,271	8,051	9,027	11,078	8,427	5,277
80%	5,889	5,580	5,343	5,880	6,216	5,854	4,966	7,626	8,430	10,276	8,036	4,951
90%	5,048	5,263	4,928	4,948	5,381	5,465	4,589	7,123	7,905	9,373	7,722	4,491
Long Term												
Full Simulation Period[a]	7,340	7,880	12,937	16,664	19,500	15,011	9,122	9,847	10,550	12,510	9,209	6,451
Water Year Types[b,c]												
Wet (32%)	8,619	8,715	14,507	31,071	31,509	25,285	14,115	11,289	9,497	12,581	9,925	8,559
Above Normal (16%)	8,009	9,467	12,472	18,132	27,628	16,837	9,455	10,081	10,510	14,262	9,707	5,479
Below Normal (13%)	6,768	6,695	11,938	8,997	13,851	8,149	6,478	9,630	12,102	13,667	10,128	6,311
Dry (24%)	6,735	7,875	15,651	7,421	9,569	9,421	6,297	9,004	11,447	11,951	8,448	5,253
Critical (15%)	5,374	5,449	6,431	6,293	6,407	6,376	5,075	8,072	9,956	10,328	7,542	5,058

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	83	**-2,665**	3,690	4,883	893	471	1	489	1,004	**-284**	**-216**	**-6,288**
20%	152	**-4,136**	6,155	1,438	**-1,249**	2	**-2**	503	1,001	**-71**	**-124**	**-5,364**
30%	399	**-4,110**	845	1,322	903	2,182	**-13**	588	1,236	**-305**	19	**-5,596**
40%	**-288**	**-3,230**	1,076	2,332	746	450	223	770	697	**-659**	90	**-3,974**
50%	**-10**	**-2,018**	229	260	246	363	61	760	433	**-267**	9	**-1,115**
60%	184	**-1,189**	**-7**	323	138	175	85	615	301	**-726**	155	**-420**
70%	294	**-559**	**-31**	236	15	296	**-20**	315	306	**-60**	52	**-272**
80%	202	**-273**	9	10	252	82	**-78**	309	133	61	110	**-170**
90%	**-102**	309	108	**-25**	179	**-6**	**-68**	500	**-21**	**-235**	**-27**	**-25**
Long Term												
Full Simulation Period[a]	25	**-1,557**	957	772	353	402	59	476	556	**-192**	43	**-2,521**
Water Year Types[b,c]												
Wet (32%)	**-109**	**-3,540**	2,085	1,089	164	85	97	231	71	**-128**	144	**-5,761**
Above Normal (16%)	82	**-3,087**	1,238	1,360	1,169	679	**-3**	470	306	**-12**	**-52**	**-4,731**
Below Normal (13%)	**-52**	**-10**	23	1,389	1,002	846	360	785	1,122	**-54**	**-3**	474
Dry (24%)	197	91	372	118	**-4**	379	**-29**	790	949	**-270**	90	**-95**
Critical (15%)	35	231	37	**-25**	**-120**	422	**-84**	205	704	**-520**	**-112**	103

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 17-2. Sacramento River below Red Bluff Diversion Dam Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,011	13,916	26,964	36,349	46,951	29,624	16,603	13,148	13,015	15,428	11,307	15,876
20%	8,935	12,026	17,059	24,191	33,406	19,585	13,008	11,101	11,689	14,953	10,296	13,688
30%	8,162	11,326	10,713	16,195	21,743	14,565	8,528	9,878	10,416	14,727	9,580	11,816
40%	7,682	10,236	8,070	11,649	13,058	10,522	7,061	9,105	9,881	13,944	9,184	10,012
50%	6,903	8,639	6,795	8,852	10,563	8,716	5,988	8,579	9,465	12,881	8,934	6,775
60%	6,301	7,375	6,327	7,152	8,447	7,747	5,541	8,064	9,136	12,165	8,564	5,835
70%	5,951	6,380	5,760	6,395	7,537	6,651	5,292	7,736	8,721	11,138	8,375	5,549
80%	5,687	5,854	5,334	5,869	5,964	5,772	5,044	7,317	8,297	10,215	7,926	5,122
90%	5,150	4,954	4,820	4,974	5,202	5,471	4,657	6,623	7,926	9,607	7,749	4,515
Long Term												
Full Simulation Period[a]	7,315	9,438	11,980	15,892	19,147	14,608	9,063	9,371	9,994	12,702	9,166	8,972
Water Year Types[b,c]												
Wet (32%)	8,728	12,255	12,422	29,982	31,345	25,200	14,018	11,059	9,426	12,709	9,781	14,320
Above Normal (16%)	7,927	12,554	11,235	16,772	26,458	16,158	9,459	9,611	10,203	14,275	9,759	10,210
Below Normal (13%)	6,820	6,705	11,915	7,608	12,849	7,303	6,118	8,845	10,980	13,721	10,131	5,837
Dry (24%)	6,538	7,784	15,279	7,303	9,573	9,042	6,326	8,214	10,498	12,221	8,358	5,349
Critical (15%)	5,338	5,218	6,394	6,318	6,527	5,955	5,159	7,866	9,252	10,848	7,654	4,954

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,943	11,116	30,055	37,546	47,844	30,077	16,603	13,254	15,053	15,110	11,427	9,568
20%	9,327	8,769	19,077	25,786	32,154	18,988	12,961	11,889	14,236	14,836	10,738	7,871
30%	8,620	7,366	10,680	17,050	23,061	15,449	8,598	10,988	13,112	14,546	10,113	6,899
40%	8,103	6,923	8,751	12,850	13,646	10,855	7,331	10,381	11,775	13,587	9,596	6,389
50%	7,154	6,478	6,959	8,907	10,734	9,032	6,664	9,856	10,375	12,811	9,294	6,149
60%	6,435	6,185	6,312	7,195	8,615	7,738	5,762	9,431	9,907	12,088	9,061	5,865
70%	5,903	5,719	5,666	6,520	7,505	6,736	5,265	8,221	9,368	11,144	8,484	5,407
80%	5,500	5,216	5,255	5,402	5,867	5,759	4,943	7,727	8,846	10,408	8,108	5,153
90%	4,976	4,962	4,658	4,835	5,048	5,413	4,653	7,143	7,985	9,293	7,647	4,483
Long Term												
Full Simulation Period[a]	7,369	7,730	12,340	16,256	19,317	14,806	9,182	10,118	11,255	12,605	9,500	6,657
Water Year Types[b,c]												
Wet (32%)	8,524	8,615	14,124	30,274	31,609	25,257	14,102	11,359	10,257	12,501	10,155	8,208
Above Normal (16%)	8,510	8,903	11,437	17,721	27,515	16,537	9,390	10,253	12,554	14,130	10,237	6,037
Below Normal (13%)	6,809	6,674	11,220	8,760	12,958	8,073	6,572	10,078	12,874	13,738	11,206	6,916
Dry (24%)	6,659	7,907	14,831	7,282	9,200	8,779	6,387	9,493	11,448	12,037	8,216	5,746
Critical (15%)	5,326	5,214	6,326	6,123	6,496	6,504	5,348	8,357	10,206	11,085	7,859	5,245

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-68**	**-2,800**	3,091	1,197	893	453	0	106	2,038	**-318**	120	**-6,308**
20%	392	**-3,258**	2,019	1,596	**-1,252**	**-598**	**-48**	788	2,547	**-118**	442	**-5,817**
30%	457	**-3,960**	**-32**	855	1,318	884	70	1,109	2,696	**-181**	533	**-4,917**
40%	420	**-3,313**	681	1,201	587	333	271	1,277	1,894	**-357**	412	**-3,624**
50%	251	**-2,162**	163	56	171	316	675	1,277	911	**-70**	360	**-625**
60%	134	**-1,189**	**-14**	43	168	**-9**	220	1,367	771	**-77**	498	30
70%	**-47**	**-661**	**-95**	125	**-32**	86	**-26**	484	647	6	109	**-142**
80%	**-187**	**-638**	**-79**	**-467**	**-98**	**-14**	**-101**	409	549	193	182	31
90%	**-174**	7	**-162**	**-139**	**-154**	**-58**	**-4**	520	58	**-315**	**-103**	**-32**
Long Term												
Full Simulation Period[a]	54	**-1,708**	360	364	171	197	119	747	1,261	**-97**	334	**-2,315**
Water Year Types[b,c]												
Wet (32%)	**-204**	**-3,640**	1,702	292	264	57	84	301	831	**-208**	374	**-6,112**
Above Normal (16%)	583	**-3,651**	203	949	1,057	379	**-69**	643	2,350	**-145**	478	**-4,172**
Below Normal (13%)	**-11**	**-31**	**-694**	1,152	110	769	454	1,233	1,894	17	1,074	1,079
Dry (24%)	121	123	**-448**	**-21**	**-372**	**-264**	61	1,280	950	**-185**	**-142**	398
Critical (15%)	**-12**	**-4**	**-68**	**-195**	**-31**	549	189	491	954	237	205	291

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 17-3. Sacramento River below Red Bluff Diversion Dam Flow, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,011	13,916	26,964	36,349	46,951	29,624	16,603	13,148	13,015	15,428	11,307	15,876
20%	8,935	12,026	17,059	24,191	33,406	19,585	13,008	11,101	11,689	14,953	10,296	13,688
30%	8,162	11,326	10,713	16,195	21,743	14,565	8,528	9,878	10,416	14,727	9,580	11,816
40%	7,682	10,236	8,070	11,649	13,058	10,522	7,061	9,105	9,881	13,944	9,184	10,012
50%	6,903	8,639	6,795	8,852	10,563	8,716	5,988	8,579	9,465	12,881	8,934	6,775
60%	6,301	7,375	6,327	7,152	8,447	7,747	5,541	8,064	9,136	12,165	8,564	5,835
70%	5,951	6,380	5,760	6,395	7,537	6,651	5,292	7,736	8,721	11,138	8,375	5,549
80%	5,687	5,854	5,334	5,869	5,964	5,772	5,044	7,317	8,297	10,215	7,926	5,122
90%	5,150	4,954	4,820	4,974	5,202	5,471	4,657	6,623	7,926	9,607	7,749	4,515
Long Term												
Full Simulation Period[a]	7,315	9,438	11,980	15,892	19,147	14,608	9,063	9,371	9,994	12,702	9,166	8,972
Water Year Types[b,c]												
Wet (32%)	8,728	12,255	12,422	29,982	31,345	25,200	14,018	11,059	9,426	12,709	9,781	14,320
Above Normal (16%)	7,927	12,554	11,235	16,772	26,458	16,158	9,459	9,611	10,203	14,275	9,759	10,210
Below Normal (13%)	6,820	6,705	11,915	7,608	12,849	7,303	6,118	8,845	10,980	13,721	10,131	5,837
Dry (24%)	6,538	7,784	15,279	7,303	9,573	9,042	6,326	8,214	10,498	12,221	8,358	5,349
Critical (15%)	5,338	5,218	6,394	6,318	6,527	5,955	5,159	7,866	9,252	10,848	7,654	4,954

Alternative 3 021719

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,119	11,002	30,041	36,965	47,844	30,096	16,603	13,360	15,040	15,103	12,005	9,517
20%	9,481	9,243	19,648	25,676	32,153	19,005	12,935	11,844	14,040	14,773	10,912	7,955
30%	8,667	7,409	10,678	16,701	23,314	15,450	8,532	10,725	12,825	14,411	10,289	7,090
40%	8,108	6,959	8,757	12,850	13,539	10,856	7,332	10,179	11,388	13,526	9,635	6,461
50%	7,696	6,477	7,148	8,904	10,735	8,754	6,766	9,852	10,356	12,906	9,364	6,237
60%	6,918	6,223	6,593	7,379	8,476	7,713	5,805	9,286	9,840	12,143	9,048	5,777
70%	6,193	5,696	5,880	6,544	7,241	6,737	5,316	8,110	9,266	11,213	8,376	5,366
80%	5,826	5,247	5,271	5,704	5,866	5,760	5,028	7,724	8,593	10,397	8,038	5,082
90%	5,091	4,996	4,705	4,843	5,154	5,363	4,784	7,286	7,925	9,248	7,641	4,472
Long Term												
Full Simulation Period[a]	7,609	7,739	12,428	16,236	19,221	14,765	9,221	10,041	11,158	12,602	9,534	6,651
Water Year Types[b,c]												
Wet (32%)	8,695	8,660	14,302	30,175	31,510	25,240	14,177	11,073	10,170	12,566	10,355	8,075
Above Normal (16%)	8,167	9,328	11,718	17,597	27,358	16,499	9,408	10,283	12,299	14,151	10,141	6,193
Below Normal (13%)	7,216	6,689	11,268	8,713	12,847	8,077	6,650	10,110	12,767	13,721	10,986	6,963
Dry (24%)	7,299	7,592	14,755	7,270	9,206	8,652	6,392	9,517	11,512	12,032	8,258	5,804
Critical (15%)	5,526	5,231	6,323	6,399	6,313	6,513	5,355	8,351	9,999	10,927	7,893	5,187

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	109	**-2,914**	3,078	616	893	472	0	212	2,025	**-325**	698	**-6,358**
20%	545	**-2,783**	2,589	1,485	**-1,252**	**-581**	**-73**	743	2,351	**-180**	616	**-5,732**
30%	504	**-3,917**	**-35**	506	1,571	885	4	846	2,409	**-315**	709	**-4,726**
40%	426	**-3,276**	687	1,201	480	335	271	1,074	1,507	**-418**	452	**-3,551**
50%	793	**-2,162**	353	53	172	38	778	1,273	892	25	430	**-538**
60%	617	**-1,151**	266	227	29	**-34**	263	1,222	705	**-22**	484	**-57**
70%	242	**-684**	120	149	**-296**	86	25	374	546	74	1	**-183**
80%	139	**-607**	**-63**	**-165**	**-98**	**-12**	**-16**	407	297	182	112	**-40**
90%	**-59**	42	**-115**	**-131**	**-48**	**-108**	127	663	**-1**	**-359**	**-108**	**-43**
Long Term												
Full Simulation Period[a]	294	**-1,698**	448	344	74	157	158	670	1,164	**-100**	368	**-2,321**
Water Year Types[b,c]												
Wet (32%)	**-33**	**-3,595**	1,880	193	165	40	158	14	744	**-144**	574	**-6,245**
Above Normal (16%)	240	**-3,226**	484	825	900	341	**-51**	672	2,096	**-124**	382	**-4,016**
Below Normal (13%)	395	**-15**	**-647**	1,105	**-1**	773	532	1,265	1,787	0	855	1,126
Dry (24%)	761	**-192**	**-524**	**-33**	**-366**	**-390**	65	1,304	1,014	**-189**	**-100**	456
Critical (15%)	187	13	**-71**	81	**-214**	558	195	485	747	79	240	232

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 17-4. Sacramento River below Red Bluff Diversion Dam Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,011	13,916	26,964	36,349	46,951	29,624	16,603	13,148	13,015	15,428	11,307	15,876
20%	8,935	12,026	17,059	24,191	33,406	19,585	13,008	11,101	11,689	14,953	10,296	13,688
30%	8,162	11,326	10,713	16,195	21,743	14,565	8,528	9,878	10,416	14,727	9,580	11,816
40%	7,682	10,236	8,070	11,649	13,058	10,522	7,061	9,105	9,881	13,944	9,184	10,012
50%	6,903	8,639	6,795	8,852	10,563	8,716	5,988	8,579	9,465	12,881	8,934	6,775
60%	6,301	7,375	6,327	7,152	8,447	7,747	5,541	8,064	9,136	12,165	8,564	5,835
70%	5,951	6,380	5,760	6,395	7,537	6,651	5,292	7,736	8,721	11,138	8,375	5,549
80%	5,687	5,854	5,334	5,869	5,964	5,772	5,044	7,317	8,297	10,215	7,926	5,122
90%	5,150	4,954	4,820	4,974	5,202	5,471	4,657	6,623	7,926	9,607	7,749	4,515
Long Term												
Full Simulation Period[a]	7,315	9,438	11,980	15,892	19,147	14,608	9,063	9,371	9,994	12,702	9,166	8,972
Water Year Types[b,c]												
Wet (32%)	8,728	12,255	12,422	29,982	31,345	25,200	14,018	11,059	9,426	12,709	9,781	14,320
Above Normal (16%)	7,927	12,554	11,235	16,772	26,458	16,158	9,459	9,611	10,203	14,275	9,759	10,210
Below Normal (13%)	6,820	6,705	11,915	7,608	12,849	7,303	6,118	8,845	10,980	13,721	10,131	5,837
Dry (24%)	6,538	7,784	15,279	7,303	9,573	9,042	6,326	8,214	10,498	12,221	8,358	5,349
Critical (15%)	5,338	5,218	6,394	6,318	6,527	5,955	5,159	7,866	9,252	10,848	7,654	4,954

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,675	11,377	30,548	40,905	48,302	30,097	16,600	11,476	13,897	14,990	10,525	9,024
20%	8,890	8,122	23,331	25,617	32,584	19,564	13,931	10,351	12,381	14,872	9,981	7,078
30%	8,330	7,235	11,697	17,176	22,643	16,888	10,467	9,814	11,782	14,393	9,580	6,212
40%	7,856	7,002	9,393	14,365	13,890	12,870	7,943	9,130	10,610	13,518	9,231	6,034
50%	6,859	6,438	7,016	9,767	10,851	9,972	7,006	8,710	9,850	12,694	8,961	5,628
60%	6,300	6,181	6,319	7,490	8,660	8,467	6,119	8,273	9,356	12,362	8,684	5,406
70%	5,986	5,817	5,666	6,658	7,645	7,468	5,531	8,106	8,904	11,282	8,361	5,127
80%	5,514	5,390	5,315	5,883	6,635	6,144	5,121	7,646	8,529	9,998	7,919	4,808
90%	5,188	5,153	4,910	4,997	5,396	5,110	4,929	7,429	7,902	9,299	7,588	4,463
Long Term												
Full Simulation Period[a]	7,309	7,754	13,094	16,815	19,770	15,330	9,689	9,314	10,472	12,590	9,045	6,246
Water Year Types[b,c]												
Wet (32%)	8,600	8,421	14,492	31,457	31,759	25,656	14,952	10,868	9,473	12,735	9,860	8,146
Above Normal (16%)	7,835	9,244	12,572	18,053	28,208	17,525	10,192	9,409	10,100	14,936	9,638	5,711
Below Normal (13%)	6,743	6,884	12,158	9,337	13,889	8,620	6,969	8,738	11,693	13,676	9,418	5,468
Dry (24%)	6,645	7,817	16,104	7,382	9,891	9,691	6,695	8,366	11,721	11,988	8,344	5,210
Critical (15%)	5,568	5,385	6,470	6,326	6,512	6,127	5,227	7,955	9,836	9,744	7,464	5,152

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-336**	**-2,539**	3,585	4,556	1,352	473	**-2**	**-1,672**	882	**-438**	**-782**	**-6,851**
20%	**-45**	**-3,904**	6,273	1,427	**-821**	**-22**	922	**-751**	692	**-81**	**-315**	**-6,610**
30%	167	**-4,091**	984	981	900	2,323	1,938	**-64**	1,366	**-334**	**-1**	**-5,604**
40%	174	**-3,234**	1,323	2,716	831	2,349	882	25	729	**-426**	47	**-3,978**
50%	**-44**	**-2,201**	220	915	288	1,255	1,018	131	385	**-187**	27	**-1,147**
60%	**-1**	**-1,193**	**-7**	338	213	720	577	210	221	196	121	**-429**
70%	35	**-563**	**-94**	263	108	818	239	370	183	144	**-14**	**-422**
80%	**-173**	**-464**	**-19**	14	671	371	77	328	232	**-217**	**-6**	**-314**
90%	38	199	90	23	194	**-360**	272	806	**-25**	**-308**	**-162**	**-53**
Long Term												
Full Simulation Period[a]	**-6**	**-1,684**	1,113	923	624	721	626	**-57**	478	**-111**	**-121**	**-2,725**
Water Year Types[b,c]												
Wet (32%)	**-127**	**-3,834**	2,070	1,474	414	456	934	**-191**	46	26	79	**-6,175**
Above Normal (16%)	**-92**	**-3,310**	1,338	1,282	1,750	1,367	733	**-202**	**-103**	661	**-121**	**-4,499**
Below Normal (13%)	**-78**	179	243	1,729	1,040	1,317	851	**-107**	712	**-45**	**-713**	**-369**
Dry (24%)	106	33	825	79	318	649	368	153	1,223	**-233**	**-14**	**-138**
Critical (15%)	230	166	76	8	**-15**	172	68	89	584	**-1,104**	**-190**	197

a Based on the 82-year simulation period.

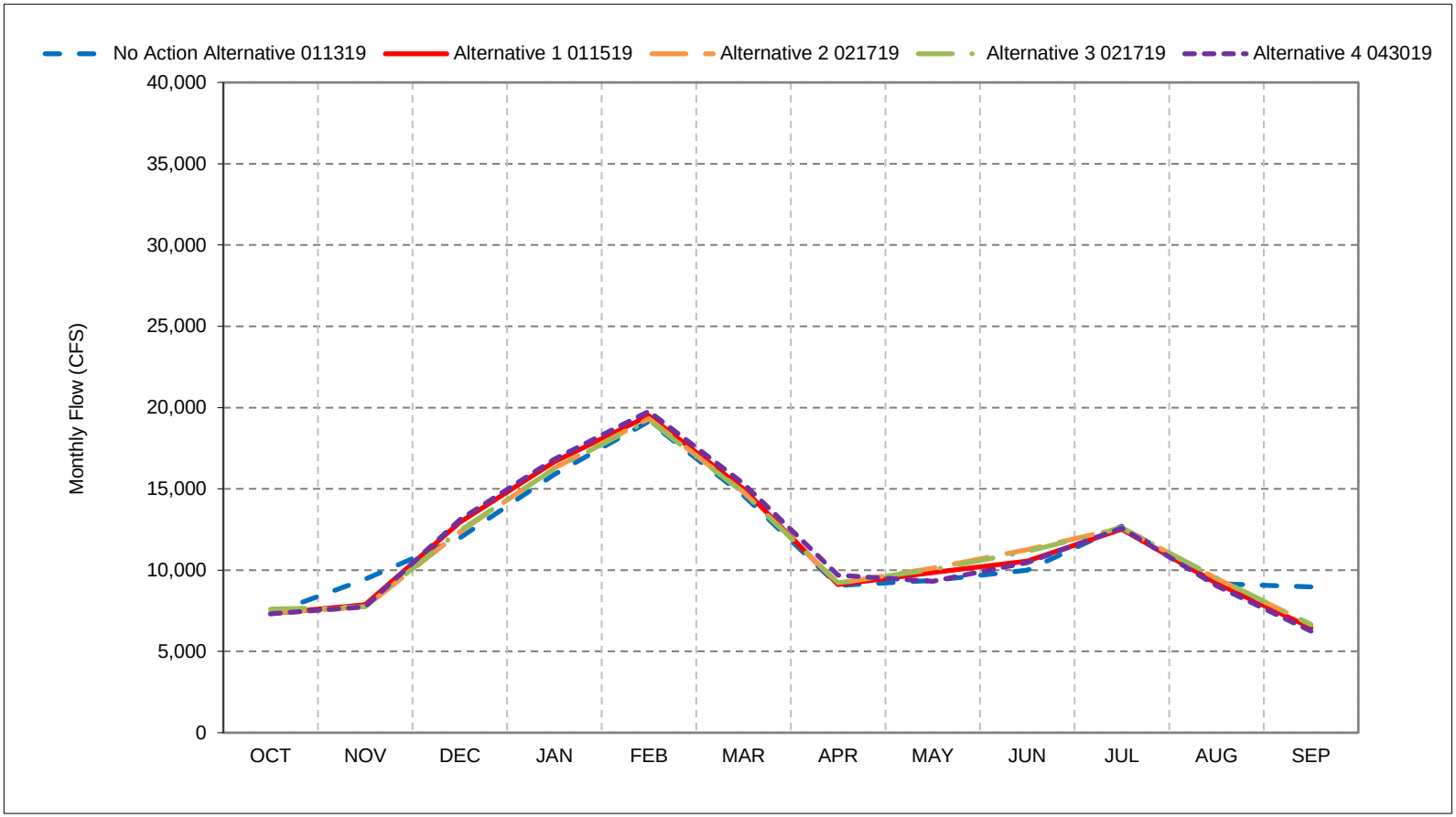
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-1. Sacramento River below Red Bluff Diversion Dam Flow, Long-Term Average Flow



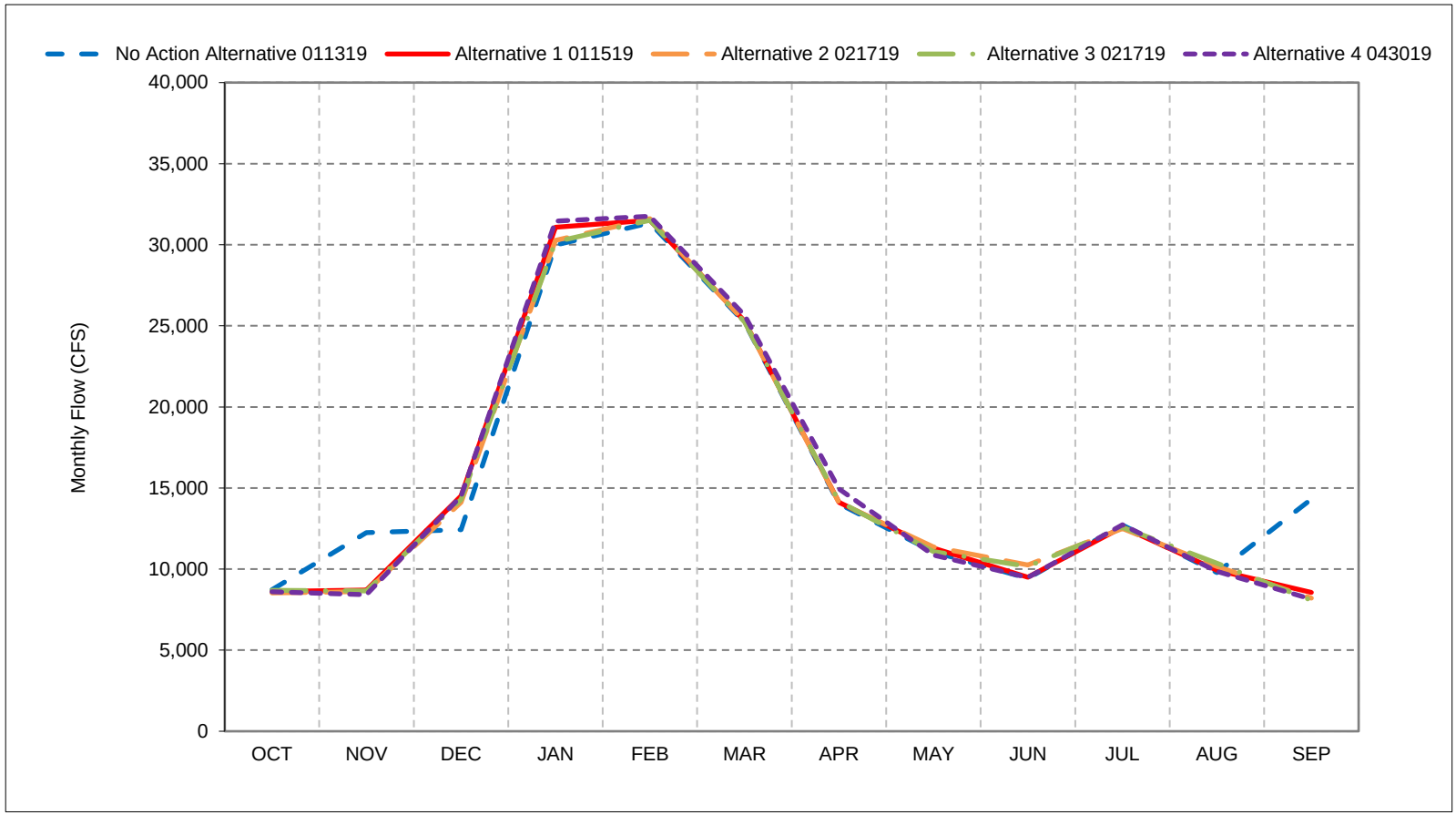
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-2. Sacramento River below Red Bluff Diversion Dam Flow, Wet Year Average Flow



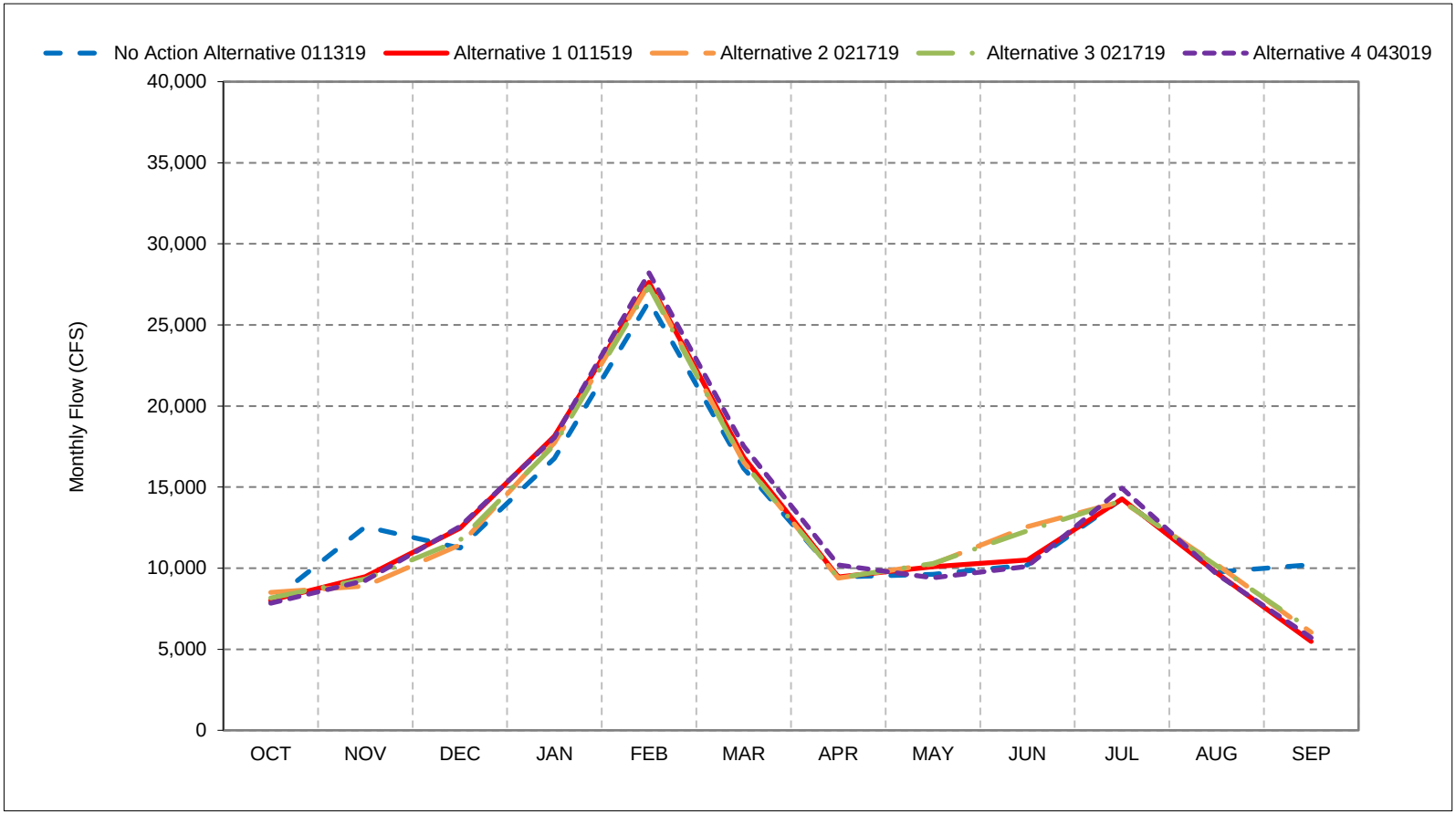
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

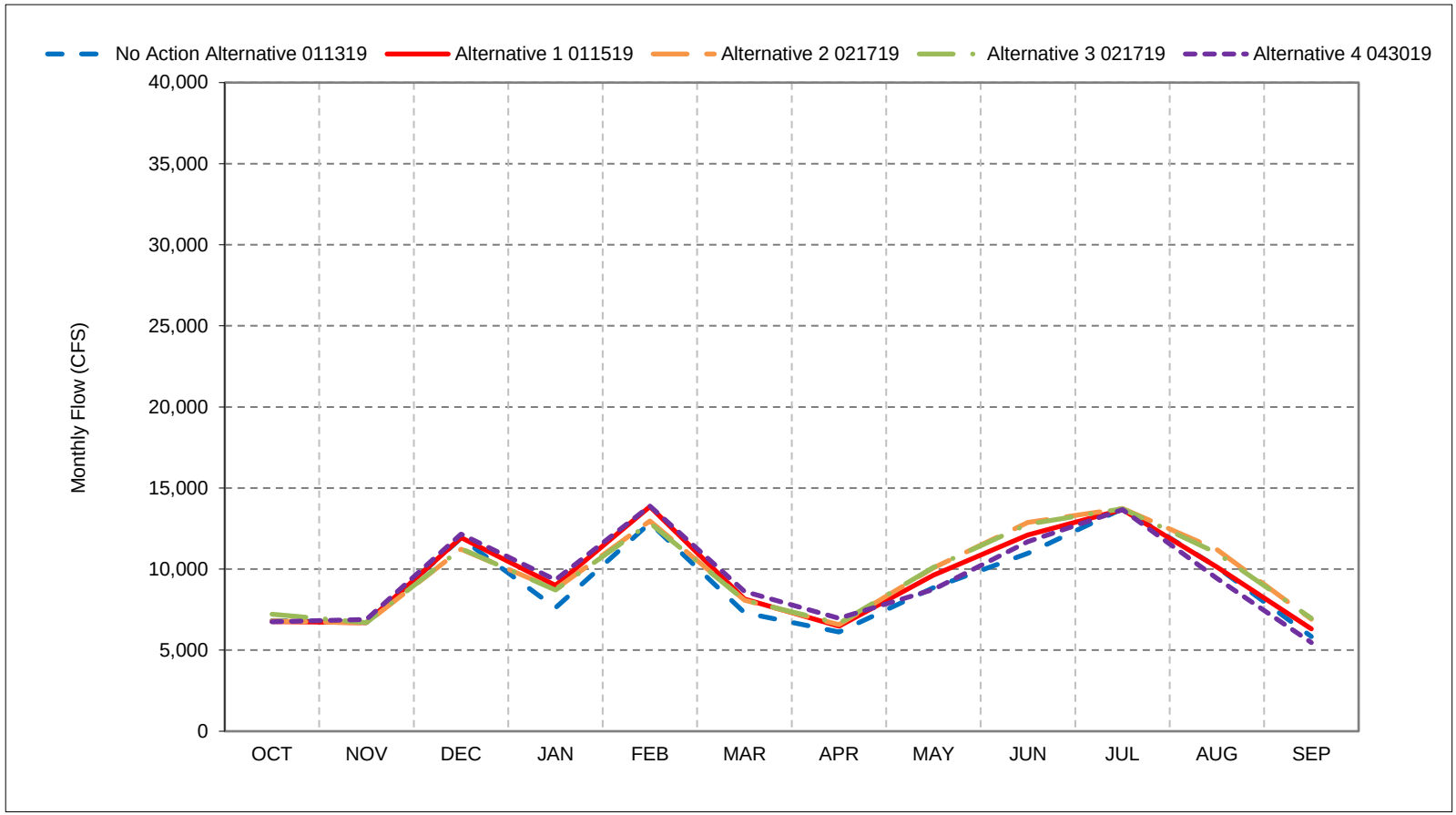
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-3. Sacramento River below Red Bluff Diversion Dam Flow, Above Normal Year Average F



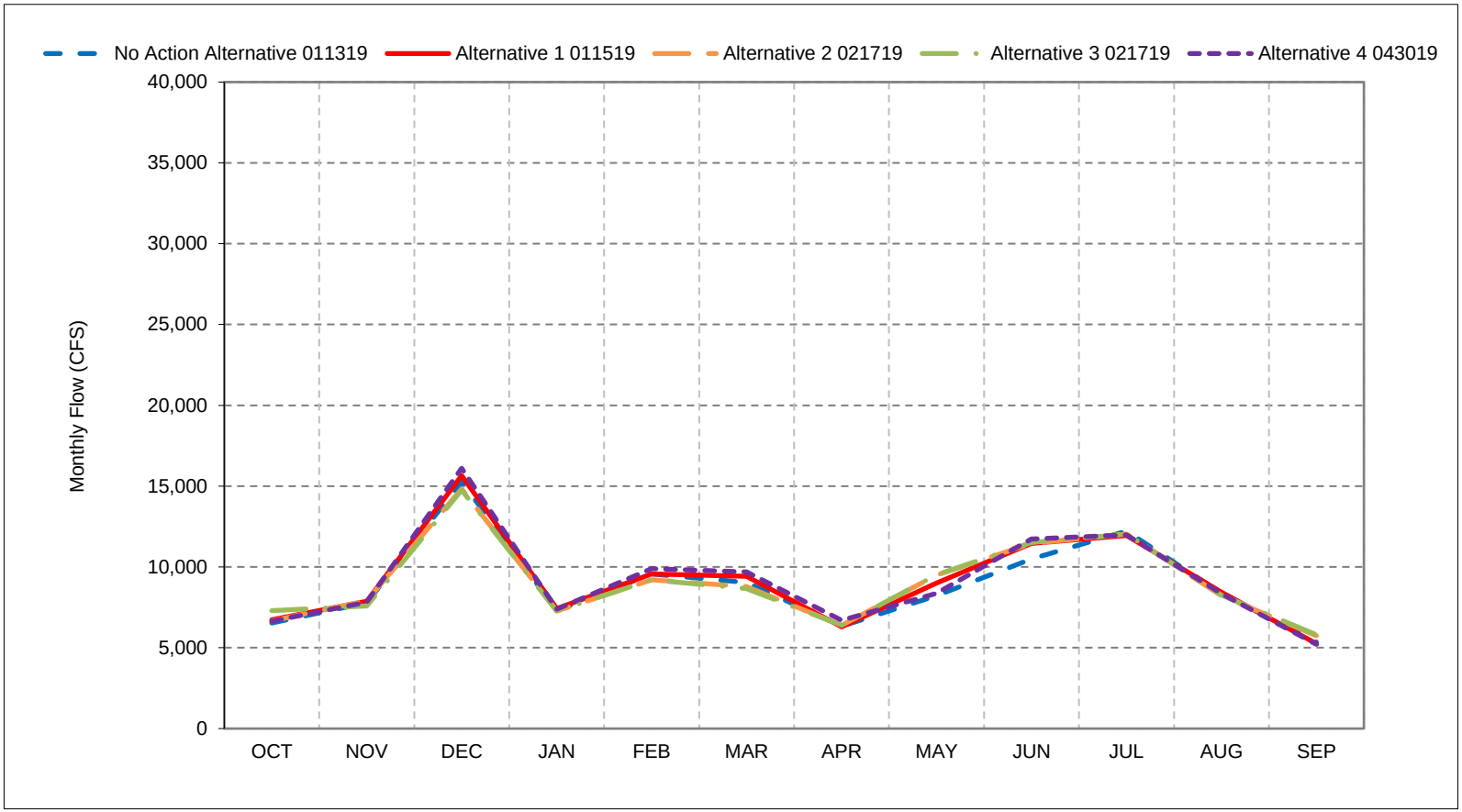
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-4. Sacramento River below Red Bluff Diversion Dam Flow, Below Normal Year Average F



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-5. Sacramento River below Red Bluff Diversion Dam Flow, Dry Year Average Flow



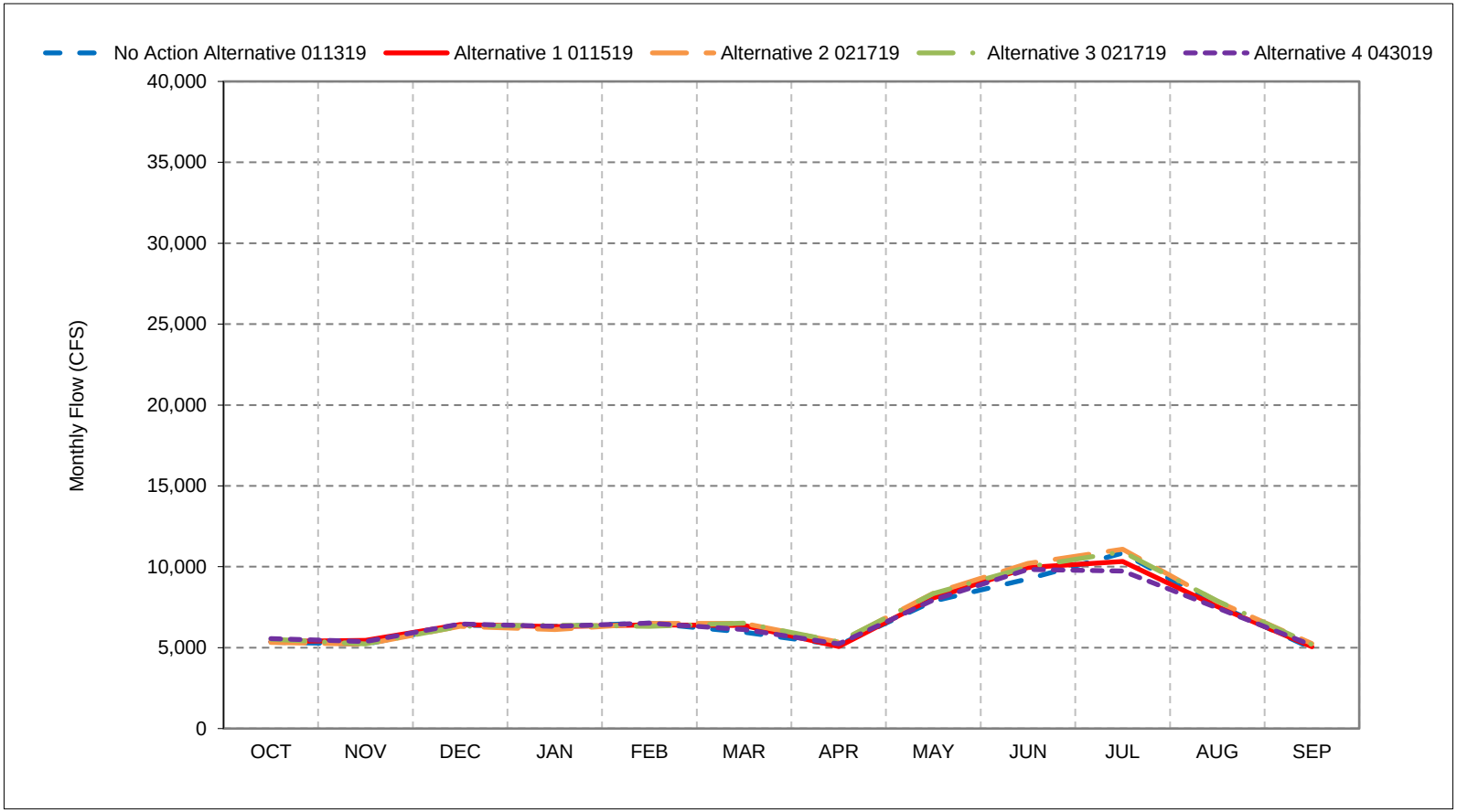
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

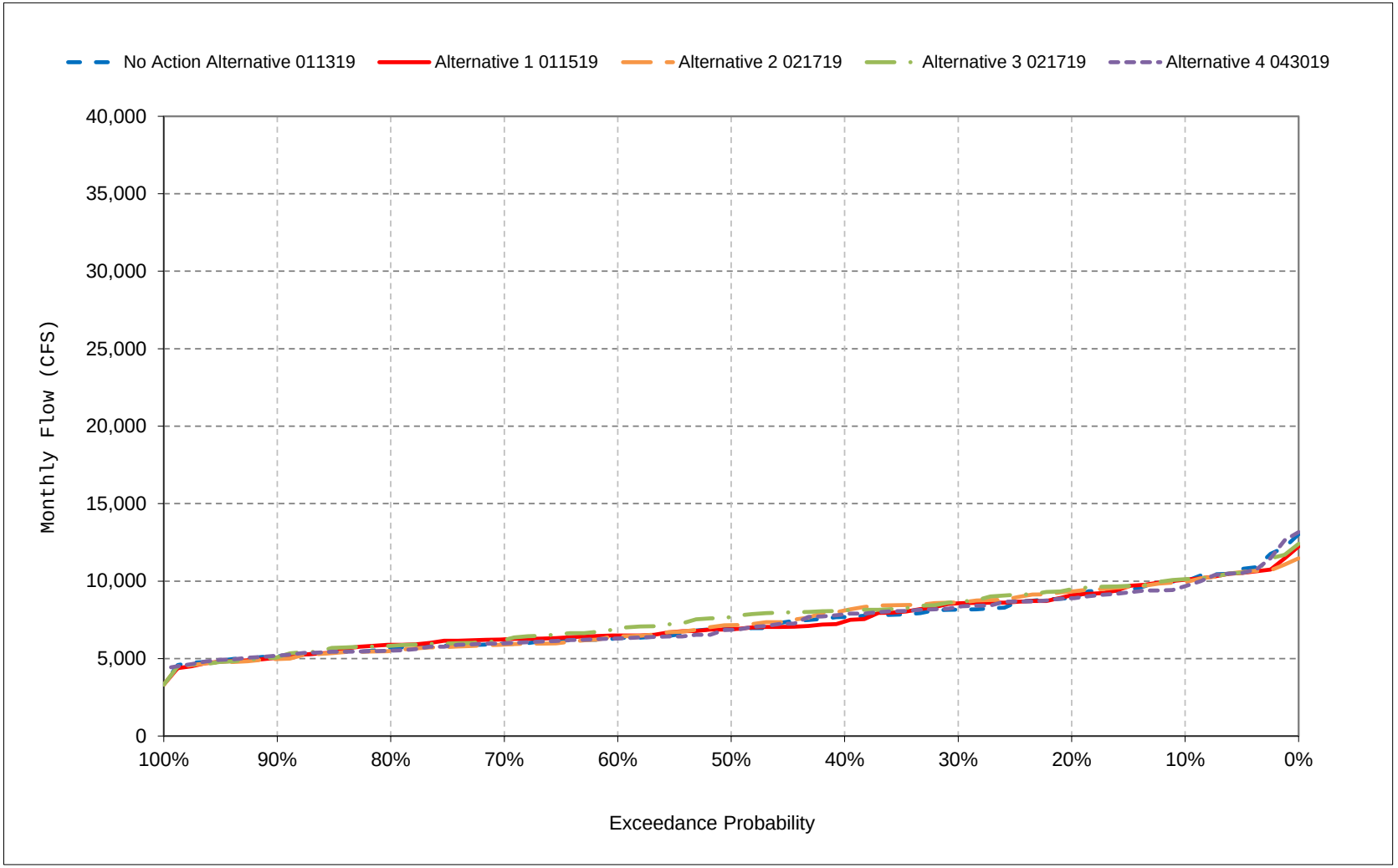
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-6. Sacramento River below Red Bluff Diversion Dam Flow, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

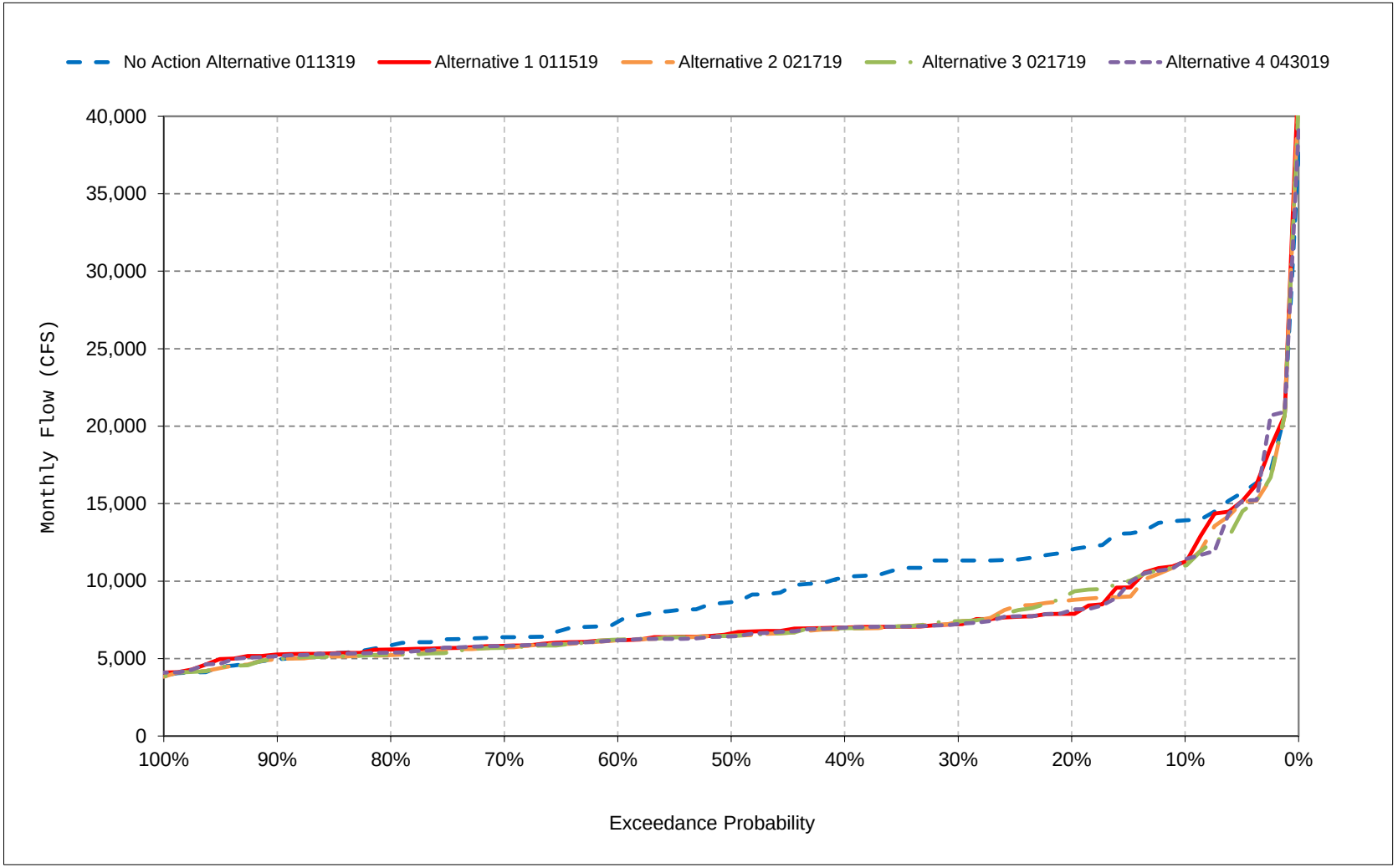
Figure 17-7. Sacramento River below Red Bluff Diversion Dam Flow, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

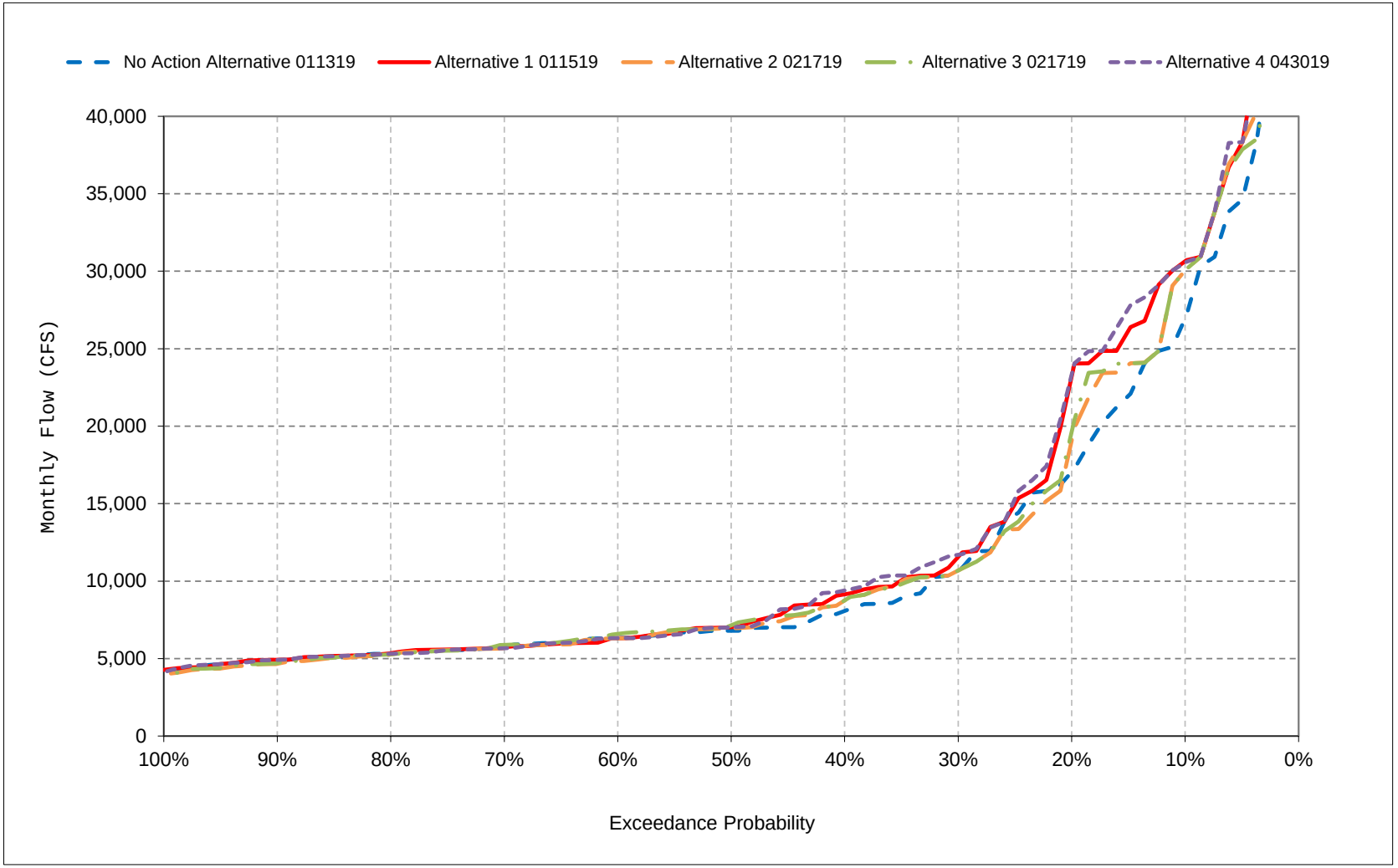
Figure 17-8. Sacramento River below Red Bluff Diversion Dam Flow, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

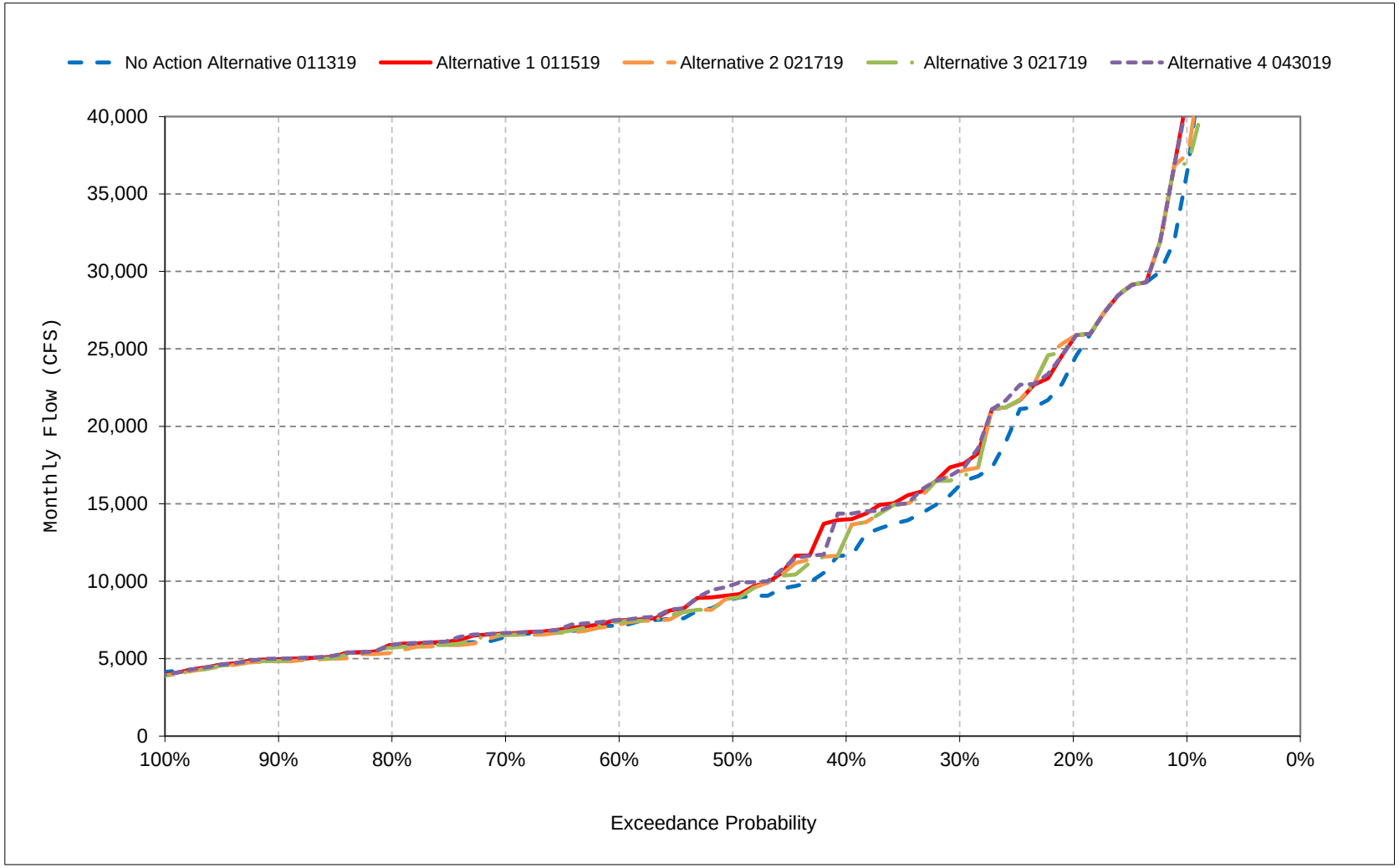
Figure 17-9. Sacramento River below Red Bluff Diversion Dam Flow, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

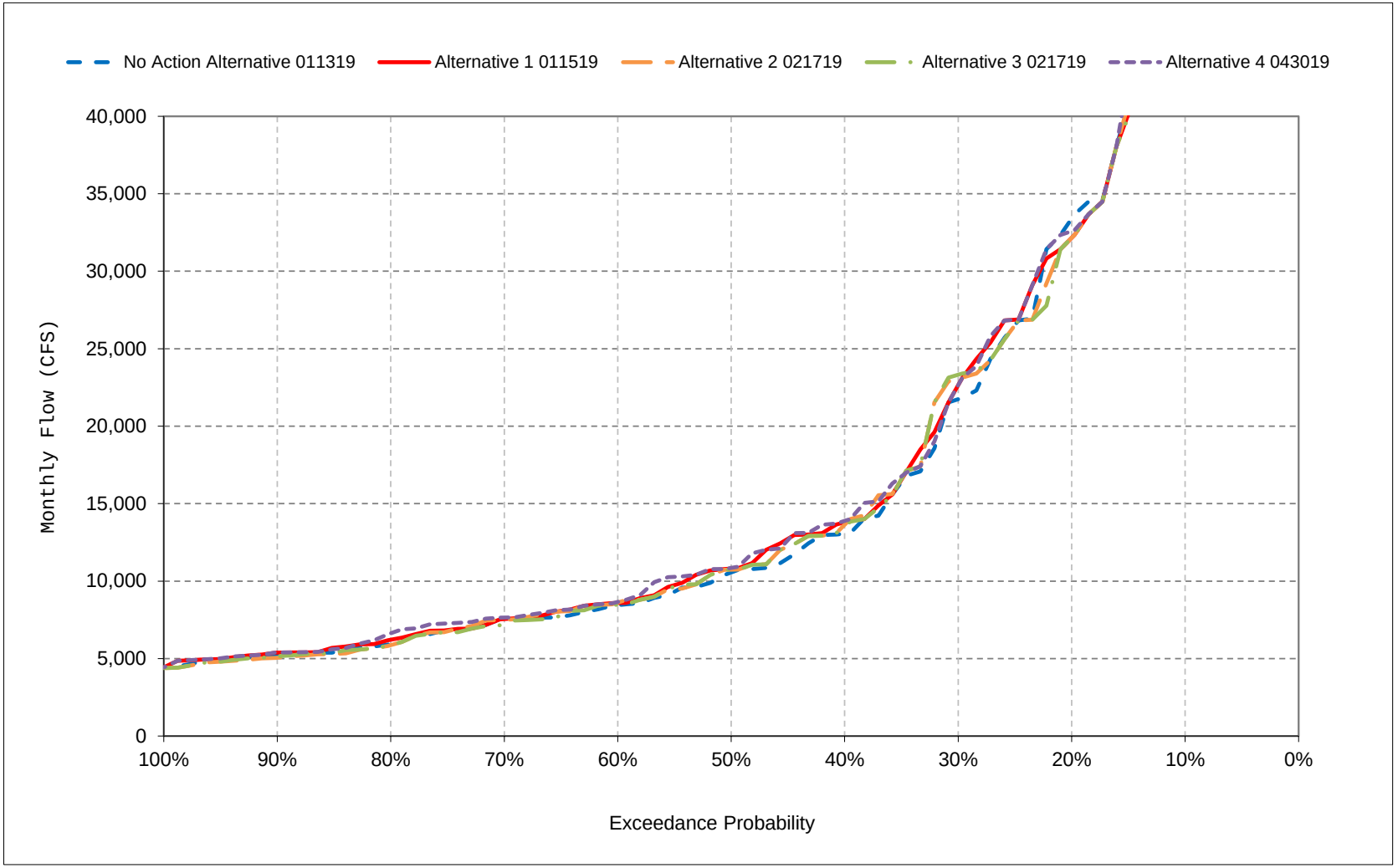
Figure 17-10. Sacramento River below Red Bluff Diversion Dam Flow, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

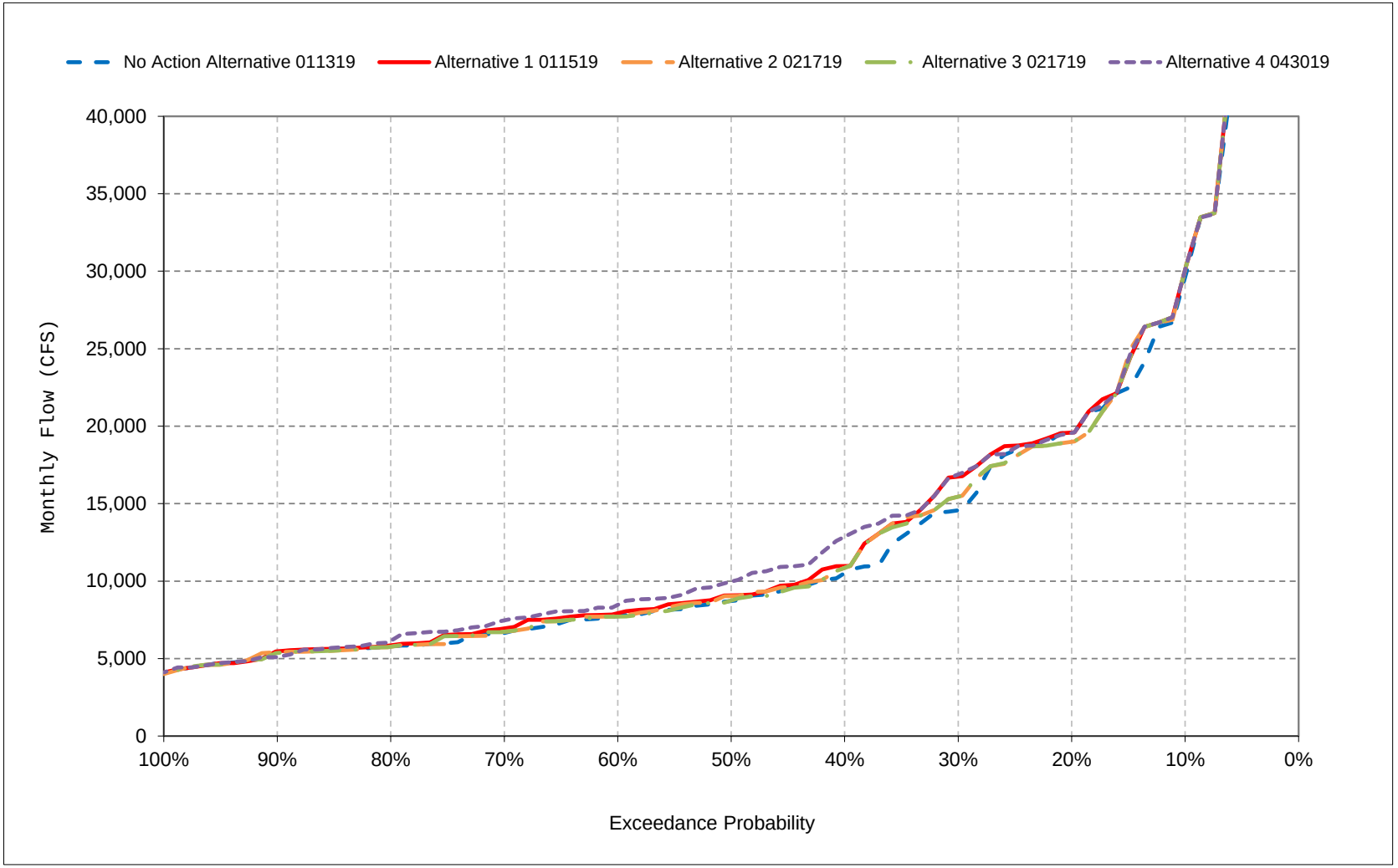
Figure 17-11. Sacramento River below Red Bluff Diversion Dam Flow, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

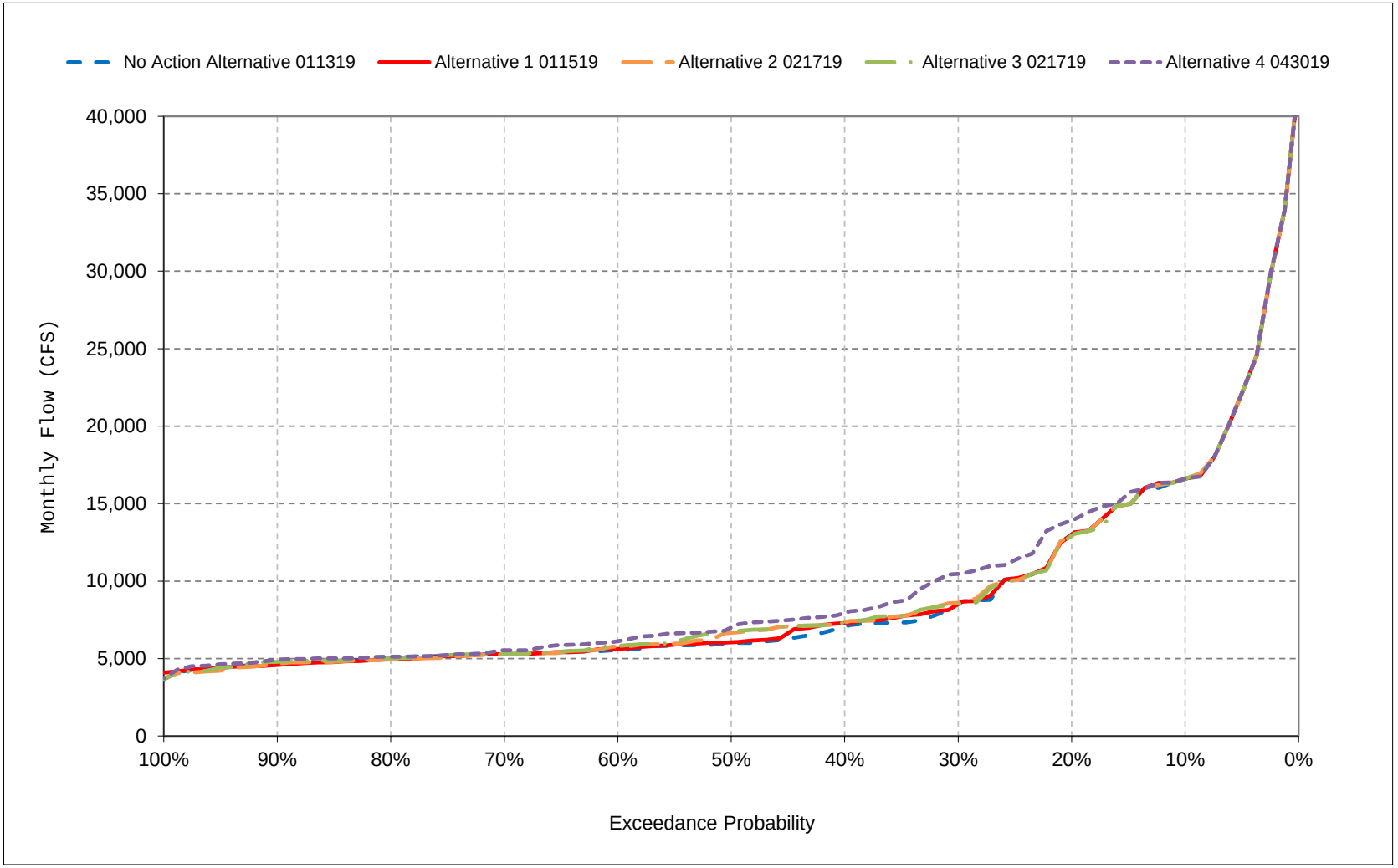
Figure 17-12. Sacramento River below Red Bluff Diversion Dam Flow, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

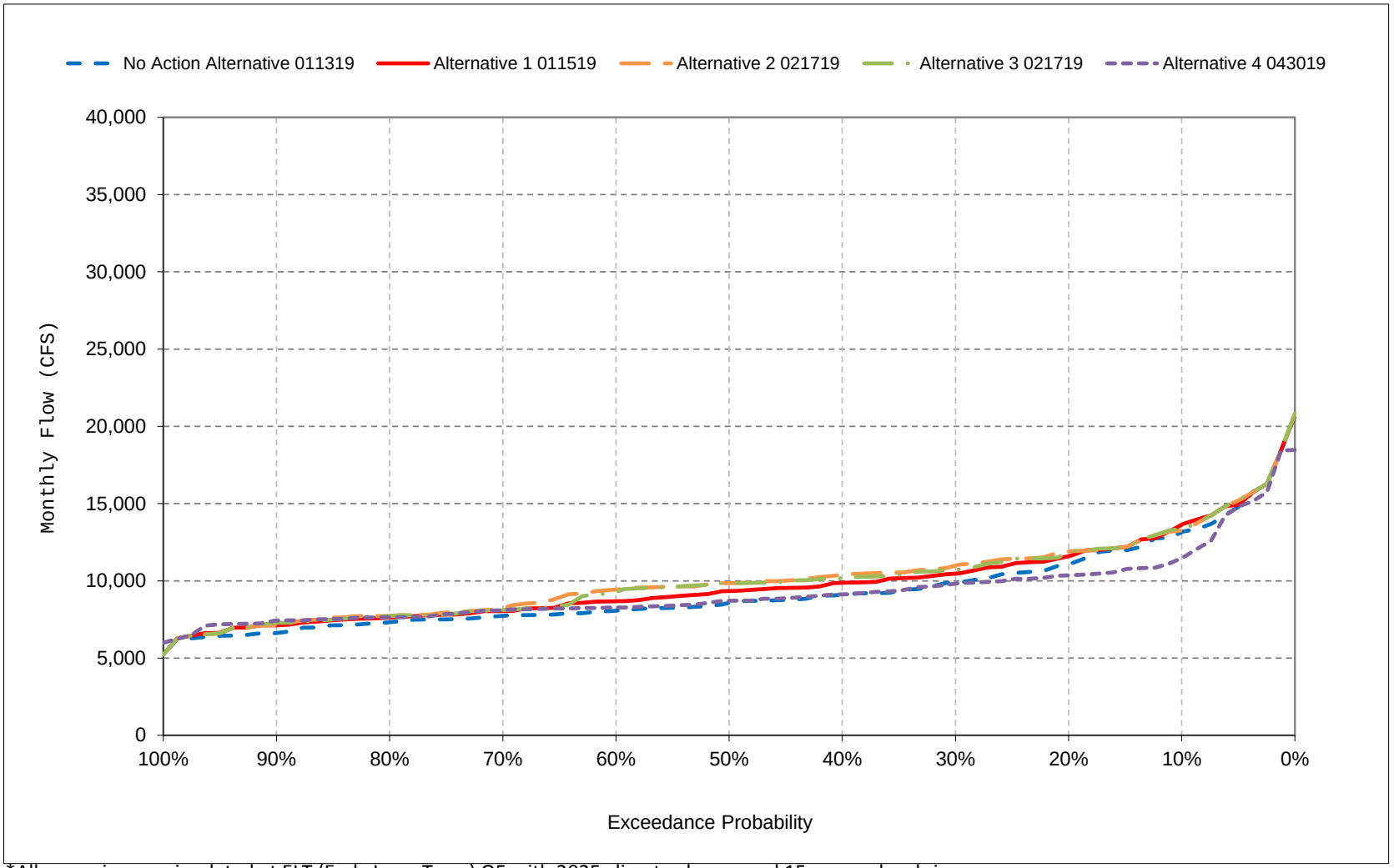
Figure 17-13. Sacramento River below Red Bluff Diversion Dam Flow, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

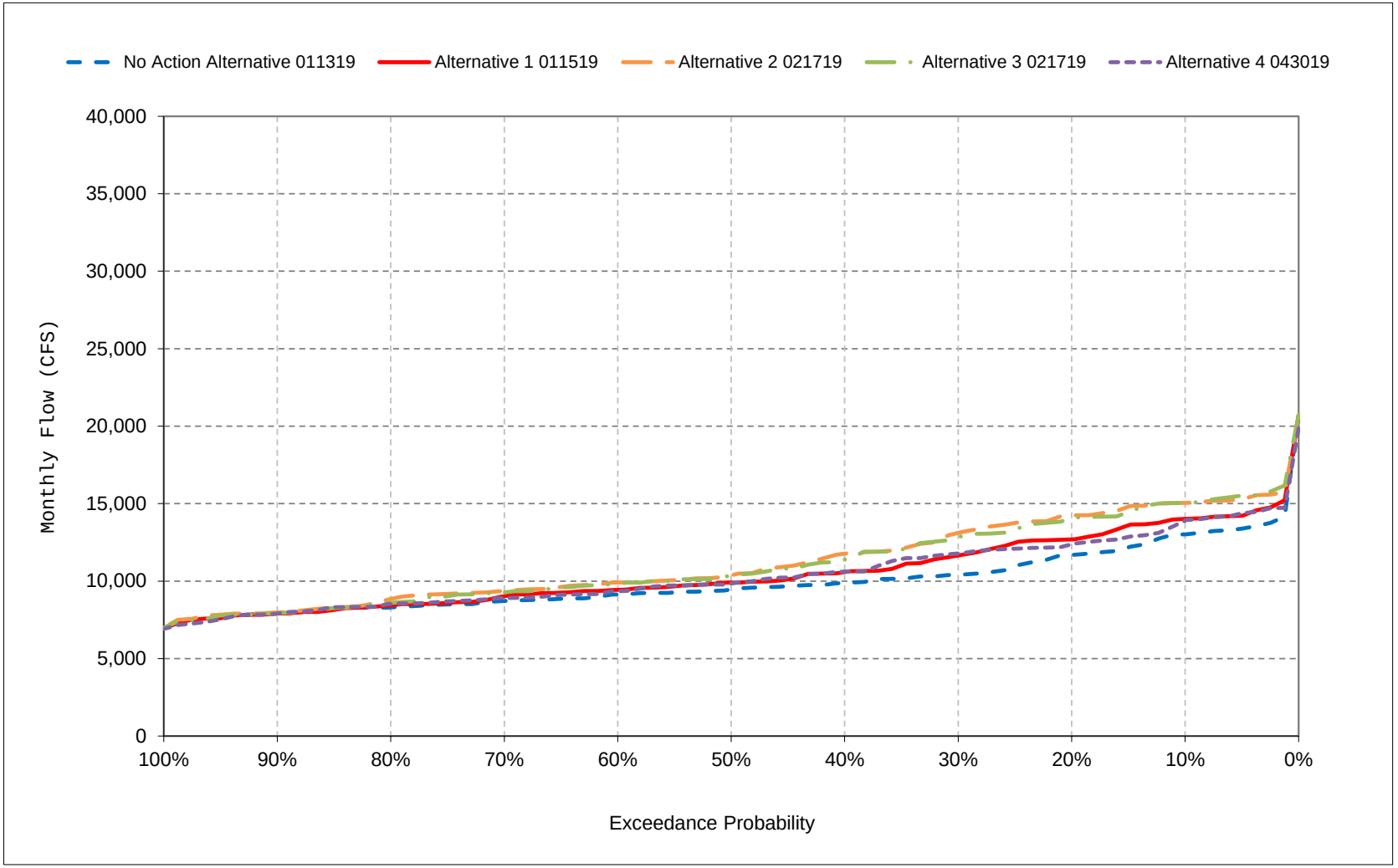
Figure 17-14. Sacramento River below Red Bluff Diversion Dam Flow, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

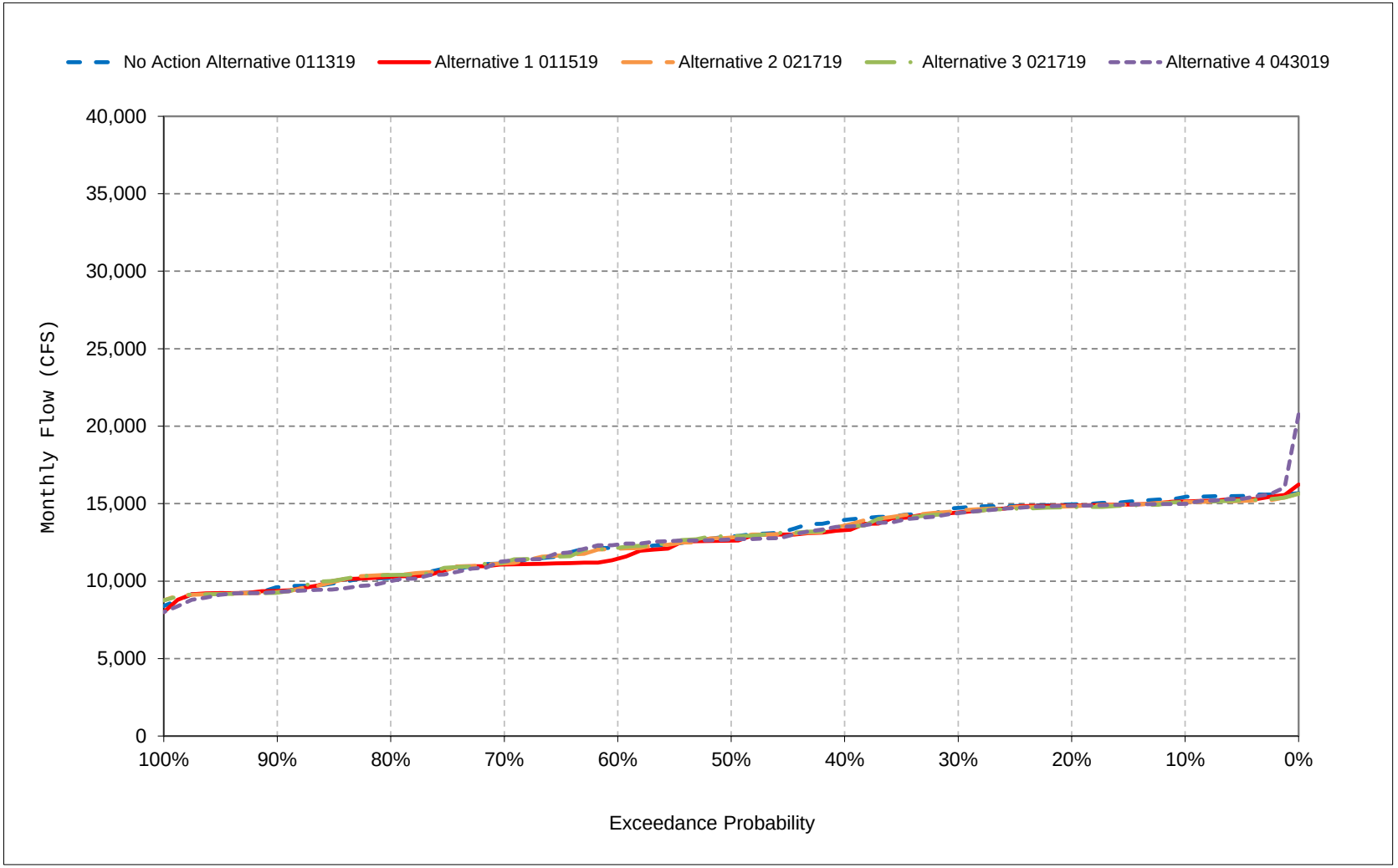
Figure 17-15. Sacramento River below Red Bluff Diversion Dam Flow, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

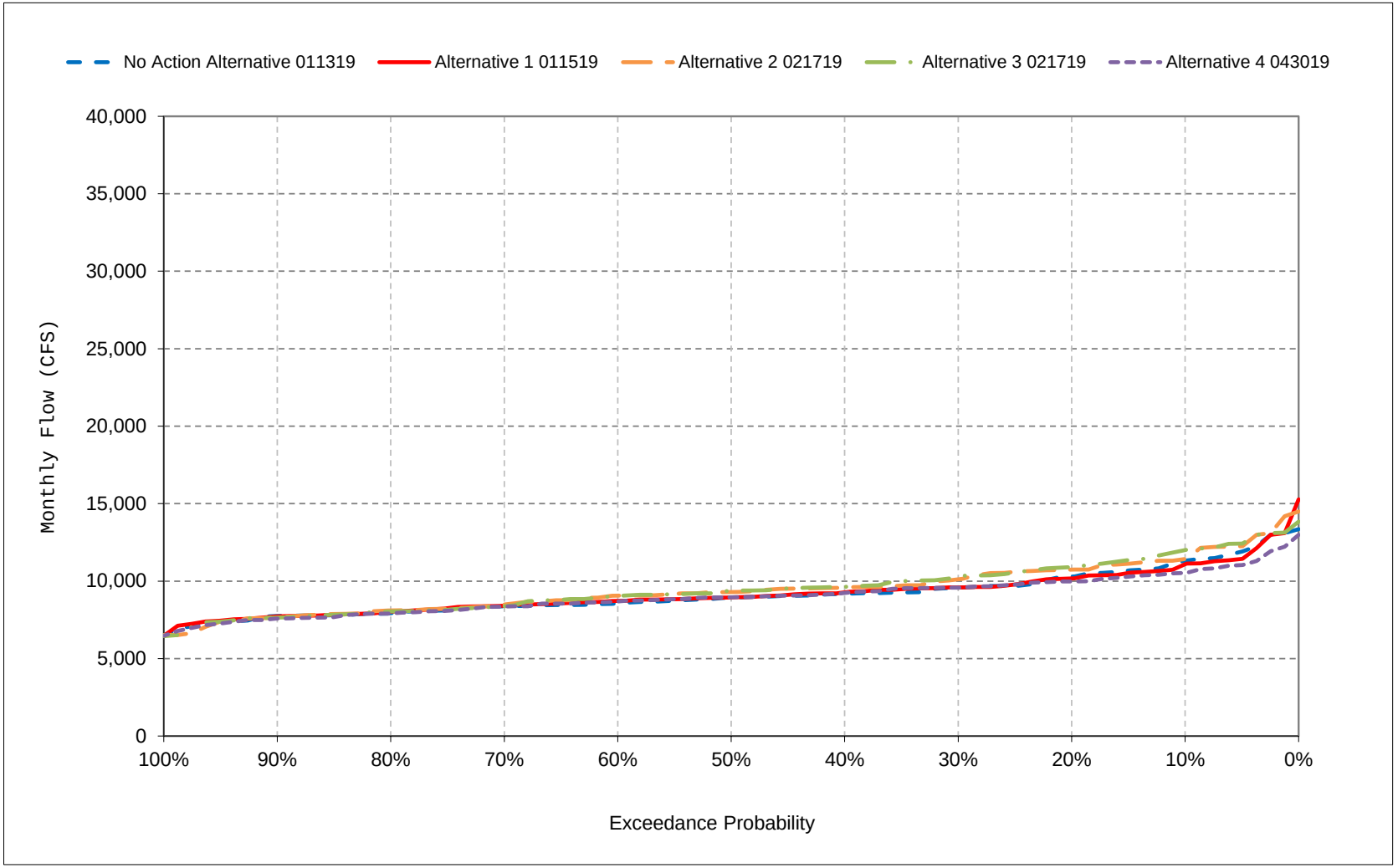
Figure 17-16. Sacramento River below Red Bluff Diversion Dam Flow, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

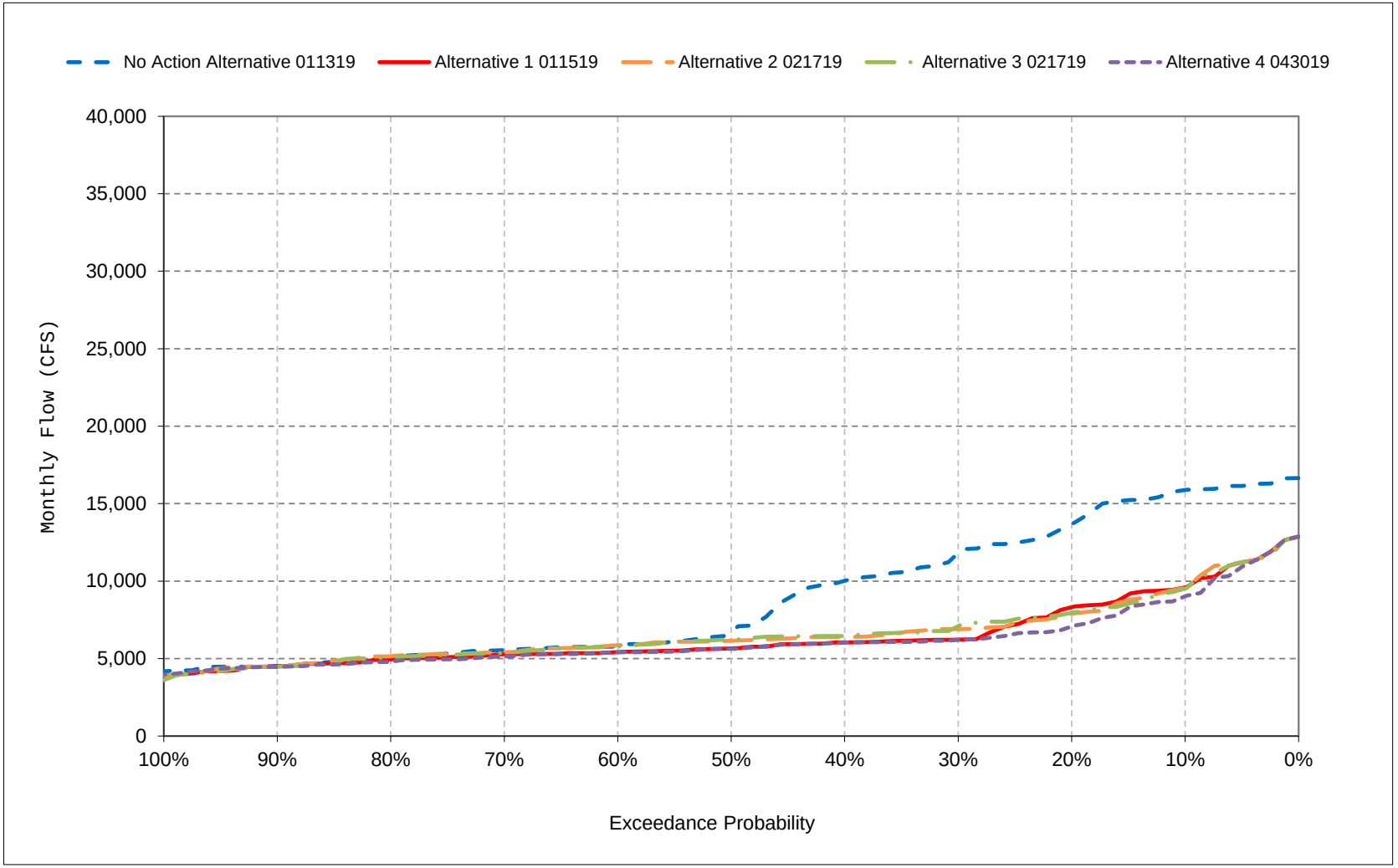
Figure 17-17. Sacramento River below Red Bluff Diversion Dam Flow, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-18. Sacramento River below Red Bluff Diversion Dam Flow, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 18-1. Sacramento River Flow at Hamilton City, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,524	14,328	30,407	40,893	51,938	33,411	19,893	13,731	10,553	12,940	9,381	15,452
20%	8,682	11,931	19,454	26,965	36,955	22,491	15,438	11,335	9,481	12,532	8,111	13,186
30%	7,536	11,343	11,974	18,703	23,981	17,461	9,650	8,602	8,701	12,287	7,628	11,325
40%	7,051	10,435	9,406	13,004	15,886	12,296	7,812	7,444	8,000	11,626	7,238	9,593
50%	6,301	8,990	7,689	10,368	11,817	10,482	7,008	7,030	7,384	10,556	6,973	6,281
60%	5,760	7,642	6,671	8,240	9,996	9,142	6,402	6,770	7,112	9,869	6,612	5,266
70%	5,424	6,547	6,236	7,004	8,562	7,906	5,978	6,456	6,847	8,706	6,440	4,991
80%	5,136	5,686	5,536	6,324	7,193	6,759	5,544	5,943	6,634	7,928	6,126	4,585
90%	4,647	4,764	4,972	5,418	5,746	6,105	5,031	5,628	6,183	7,205	5,838	4,026
Long Term												
Full Simulation Period[a]	6,818	9,677	13,293	17,980	21,539	16,715	10,435	8,497	8,101	10,326	7,230	8,472
Water Year Types[b,c]												
Wet (32%)	8,219	12,548	13,755	33,783	35,092	28,342	16,376	11,144	8,207	10,450	7,770	13,867
Above Normal (16%)	7,425	12,867	12,385	19,430	29,641	18,802	11,052	8,831	8,368	11,840	7,780	9,701
Below Normal (13%)	6,440	6,788	13,003	8,908	14,535	8,530	7,083	7,429	8,757	11,240	8,168	5,345
Dry (24%)	5,989	8,176	17,167	8,112	11,042	10,647	7,244	6,779	8,089	9,728	6,468	4,801
Critical (15%)	4,854	5,153	7,089	6,934	7,312	6,875	5,290	6,238	7,000	8,573	5,874	4,436

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,690	11,929	34,073	46,659	52,522	33,860	19,894	13,755	11,595	12,682	9,029	9,118
20%	8,499	8,618	25,165	28,515	35,438	23,142	15,429	11,547	10,555	12,461	8,137	7,829
30%	7,885	7,515	12,874	19,733	24,884	19,894	9,896	9,317	9,549	12,049	7,602	5,743
40%	6,737	7,046	10,296	16,609	16,119	13,184	8,087	8,445	8,713	11,151	7,287	5,440
50%	6,401	6,706	7,868	10,952	12,567	11,204	7,121	7,821	8,223	10,318	7,003	5,142
60%	5,913	6,108	6,631	8,493	10,223	9,304	6,454	7,144	7,493	9,063	6,748	4,913
70%	5,679	5,686	5,988	7,306	8,668	8,150	5,957	6,780	7,101	8,650	6,510	4,741
80%	5,358	5,490	5,535	6,320	7,095	6,996	5,512	6,487	6,850	7,906	6,142	4,414
90%	4,547	5,093	5,052	5,420	5,941	6,507	4,953	5,937	6,184	7,163	5,928	3,958
Long Term												
Full Simulation Period[a]	6,856	8,130	14,251	18,753	21,892	17,117	10,495	8,963	8,653	10,133	7,276	5,954
Water Year Types[b,c]												
Wet (32%)	8,125	9,018	15,840	34,872	35,256	28,427	16,473	11,370	8,272	10,330	7,912	8,102
Above Normal (16%)	7,520	9,793	13,627	20,790	30,810	19,481	11,048	9,298	8,669	11,836	7,728	4,970
Below Normal (13%)	6,396	6,790	13,026	10,296	15,537	9,376	7,443	8,199	9,872	11,151	8,164	5,819
Dry (24%)	6,207	8,278	17,539	8,230	11,039	11,025	7,215	7,555	9,039	9,458	6,558	4,705
Critical (15%)	4,889	5,388	7,126	6,909	7,192	7,297	5,207	6,434	7,699	8,053	5,789	4,568

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	166	**-2,399**	3,666	5,766	584	449	1	24	1,043	**-258**	**-352**	**-6,335**
20%	**-182**	**-3,313**	5,711	1,549	**-1,517**	651	**-9**	212	1,073	**-71**	26	**-5,356**
30%	349	**-3,829**	900	1,030	903	2,433	246	715	848	**-238**	**-27**	**-5,582**
40%	**-315**	**-3,389**	890	3,605	233	888	275	1,001	713	**-475**	49	**-4,153**
50%	100	**-2,284**	180	585	751	722	113	791	838	**-239**	30	**-1,140**
60%	152	**-1,534**	**-41**	253	227	162	52	373	381	**-806**	136	**-353**
70%	255	**-861**	**-249**	302	106	243	**-21**	323	254	**-56**	70	**-250**
80%	222	**-195**	**-1**	**-4**	**-98**	237	**-32**	544	216	**-22**	15	**-171**
90%	**-99**	329	80	2	196	401	**-78**	310	1	**-41**	90	**-68**
Long Term												
Full Simulation Period[a]	38	**-1,547**	957	772	353	402	59	467	552	**-192**	46	**-2,518**
Water Year Types[b,c]												
Wet (32%)	**-94**	**-3,530**	2,085	1,089	164	85	97	226	65	**-120**	142	**-5,764**
Above Normal (16%)	95	**-3,074**	1,243	1,360	1,169	679	**-3**	467	301	**-4**	**-52**	**-4,731**
Below Normal (13%)	**-44**	2	23	1,389	1,002	846	360	770	1,115	**-89**	**-4**	474
Dry (24%)	219	102	372	118	**-4**	379	**-29**	776	950	**-270**	90	**-95**
Critical (15%)	35	235	37	**-25**	**-120**	422	**-83**	196	699	**-520**	**-86**	132

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 18-2. Sacramento River Flow at Hamilton City, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,524	14,328	30,407	40,893	51,938	33,411	19,893	13,731	10,553	12,940	9,381	15,452
20%	8,682	11,931	19,454	26,965	36,955	22,491	15,438	11,335	9,481	12,532	8,111	13,186
30%	7,536	11,343	11,974	18,703	23,981	17,461	9,650	8,602	8,701	12,287	7,628	11,325
40%	7,051	10,435	9,406	13,004	15,886	12,296	7,812	7,444	8,000	11,626	7,238	9,593
50%	6,301	8,990	7,689	10,368	11,817	10,482	7,008	7,030	7,384	10,556	6,973	6,281
60%	5,760	7,642	6,671	8,240	9,996	9,142	6,402	6,770	7,112	9,869	6,612	5,266
70%	5,424	6,547	6,236	7,004	8,562	7,906	5,978	6,456	6,847	8,706	6,440	4,991
80%	5,136	5,686	5,536	6,324	7,193	6,759	5,544	5,943	6,634	7,928	6,126	4,585
90%	4,647	4,764	4,972	5,418	5,746	6,105	5,031	5,628	6,183	7,205	5,838	4,026
Long Term												
Full Simulation Period[a]	6,818	9,677	13,293	17,980	21,539	16,715	10,435	8,497	8,101	10,326	7,230	8,472
Water Year Types[b,c]												
Wet (32%)	8,219	12,548	13,755	33,783	35,092	28,342	16,376	11,144	8,207	10,450	7,770	13,867
Above Normal (16%)	7,425	12,867	12,385	19,430	29,641	18,802	11,052	8,831	8,368	11,840	7,780	9,701
Below Normal (13%)	6,440	6,788	13,003	8,908	14,535	8,530	7,083	7,429	8,757	11,240	8,168	5,345
Dry (24%)	5,989	8,176	17,167	8,112	11,042	10,647	7,244	6,779	8,089	9,728	6,468	4,801
Critical (15%)	4,854	5,153	7,089	6,934	7,312	6,875	5,290	6,238	7,000	8,573	5,874	4,436

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,495	11,829	33,474	44,222	52,523	33,845	19,893	13,815	12,965	12,620	9,413	9,141
20%	8,833	8,836	22,314	28,562	35,436	21,570	15,500	11,448	11,948	12,461	8,789	7,359
30%	8,078	7,554	12,026	18,904	25,545	18,194	9,886	10,014	10,588	12,085	8,130	6,385
40%	7,833	6,974	10,073	15,238	16,083	13,150	8,454	8,721	9,592	11,337	7,660	5,892
50%	6,524	6,561	7,748	10,852	12,206	10,843	7,244	8,553	8,668	10,303	7,379	5,680
60%	5,957	6,137	6,659	8,348	10,171	9,287	6,753	7,826	8,139	9,596	7,037	5,383
70%	5,332	5,629	6,042	7,079	8,649	7,897	6,017	7,070	7,549	8,894	6,670	4,854
80%	5,046	5,180	5,458	6,049	7,092	6,809	5,491	6,619	7,022	8,156	6,222	4,610
90%	4,523	4,744	4,822	5,211	5,641	6,271	5,254	5,920	6,304	7,085	5,851	4,065
Long Term												
Full Simulation Period[a]	6,873	7,971	13,654	18,344	21,709	16,912	10,554	9,232	9,354	10,229	7,569	6,163
Water Year Types[b,c]												
Wet (32%)	8,015	8,908	15,457	34,075	35,356	28,399	16,459	11,439	9,032	10,260	8,138	7,758
Above Normal (16%)	8,008	9,220	12,592	20,379	30,698	19,181	10,983	9,470	10,695	11,722	8,258	5,529
Below Normal (13%)	6,429	6,760	12,309	10,060	14,645	9,299	7,536	8,647	10,637	11,194	9,261	6,426
Dry (24%)	6,109	8,299	16,719	8,092	10,670	10,383	7,305	8,043	9,040	9,539	6,327	5,201
Critical (15%)	4,848	5,149	7,021	6,739	7,281	7,424	5,479	6,714	7,948	8,809	6,111	4,753

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-29**	**-2,499**	3,067	3,329	585	435	0	84	2,413	**-319**	31	**-6,312**
20%	151	**-3,095**	2,860	1,597	**-1,520**	**-921**	62	113	2,466	**-71**	679	**-5,827**
30%	543	**-3,789**	52	201	1,564	732	237	1,412	1,887	**-202**	502	**-4,940**
40%	781	**-3,461**	667	2,234	197	854	642	1,278	1,593	**-289**	422	**-3,701**
50%	223	**-2,429**	59	485	390	362	236	1,523	1,283	**-253**	406	**-601**
60%	196	**-1,505**	**-12**	108	175	145	350	1,056	1,026	**-272**	425	116
70%	**-92**	**-917**	**-194**	75	88	**-9**	38	614	702	187	230	**-137**
80%	**-90**	**-506**	**-78**	**-275**	**-101**	50	**-53**	676	388	228	96	25
90%	**-124**	**-20**	**-150**	**-208**	**-104**	166	224	293	122	**-119**	14	39
Long Term												
Full Simulation Period[a]	55	**-1,707**	361	364	171	197	119	736	1,254	**-97**	339	**-2,309**
Water Year Types[b,c]												
Wet (32%)	**-204**	**-3,640**	1,703	292	264	57	84	295	825	**-190**	368	**-6,109**
Above Normal (16%)	583	**-3,647**	208	949	1,057	379	**-69**	639	2,328	**-118**	478	**-4,172**
Below Normal (13%)	**-11**	**-28**	**-694**	1,152	110	769	454	1,218	1,880	**-47**	1,094	1,081
Dry (24%)	121	123	**-448**	**-21**	**-372**	**-264**	61	1,263	951	**-189**	**-142**	400
Critical (15%)	**-6**	**-4**	**-68**	**-195**	**-31**	549	189	476	949	237	237	317

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 18-3. Sacramento River Flow at Hamilton City, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,524	14,328	30,407	40,893	51,938	33,411	19,893	13,731	10,553	12,940	9,381	15,452
20%	8,682	11,931	19,454	26,965	36,955	22,491	15,438	11,335	9,481	12,532	8,111	13,186
30%	7,536	11,343	11,974	18,703	23,981	17,461	9,650	8,602	8,701	12,287	7,628	11,325
40%	7,051	10,435	9,406	13,004	15,886	12,296	7,812	7,444	8,000	11,626	7,238	9,593
50%	6,301	8,990	7,689	10,368	11,817	10,482	7,008	7,030	7,384	10,556	6,973	6,281
60%	5,760	7,642	6,671	8,240	9,996	9,142	6,402	6,770	7,112	9,869	6,612	5,266
70%	5,424	6,547	6,236	7,004	8,562	7,906	5,978	6,456	6,847	8,706	6,440	4,991
80%	5,136	5,686	5,536	6,324	7,193	6,759	5,544	5,943	6,634	7,928	6,126	4,585
90%	4,647	4,764	4,972	5,418	5,746	6,105	5,031	5,628	6,183	7,205	5,838	4,026
Long Term												
Full Simulation Period[a]	6,818	9,677	13,293	17,980	21,539	16,715	10,435	8,497	8,101	10,326	7,230	8,472
Water Year Types[b,c]												
Wet (32%)	8,219	12,548	13,755	33,783	35,092	28,342	16,376	11,144	8,207	10,450	7,770	13,867
Above Normal (16%)	7,425	12,867	12,385	19,430	29,641	18,802	11,052	8,831	8,368	11,840	7,780	9,701
Below Normal (13%)	6,440	6,788	13,003	8,908	14,535	8,530	7,083	7,429	8,757	11,240	8,168	5,345
Dry (24%)	5,989	8,176	17,167	8,112	11,042	10,647	7,244	6,779	8,089	9,728	6,468	4,801
Critical (15%)	4,854	5,153	7,089	6,934	7,312	6,875	5,290	6,238	7,000	8,573	5,874	4,436

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,532	11,805	33,460	43,641	52,522	33,861	19,893	13,815	12,964	12,610	10,087	9,103
20%	8,911	9,220	22,966	28,527	35,435	21,587	15,398	11,532	11,509	12,331	9,015	7,453
30%	8,049	7,525	11,996	18,859	26,000	18,124	9,887	9,793	10,412	12,011	8,282	6,602
40%	7,526	7,039	10,074	15,238	16,082	13,151	8,471	8,740	9,448	11,264	7,702	5,968
50%	7,251	6,650	7,818	10,849	12,207	10,459	7,230	8,494	8,669	10,420	7,330	5,762
60%	6,500	6,173	6,903	8,348	10,170	9,275	6,816	7,657	7,940	9,672	7,044	5,338
70%	5,836	5,574	6,288	7,176	8,426	7,820	6,059	6,981	7,607	8,852	6,494	4,824
80%	5,279	5,179	5,463	6,227	6,812	6,886	5,682	6,581	6,858	8,141	6,184	4,495
90%	4,626	4,848	4,823	5,300	5,739	6,282	5,253	5,844	6,251	7,086	5,782	4,009
Long Term												
Full Simulation Period[a]	7,112	7,980	13,742	18,325	21,613	16,872	10,593	9,157	9,260	10,225	7,598	6,157
Water Year Types[b,c]												
Wet (32%)	8,186	8,953	15,635	33,976	35,257	28,382	16,534	11,157	8,948	10,317	8,338	7,622
Above Normal (16%)	7,665	9,647	12,872	20,256	30,541	19,143	11,001	9,500	10,446	11,723	8,147	5,685
Below Normal (13%)	6,835	6,772	12,357	10,013	14,534	9,303	7,615	8,679	10,536	11,204	9,042	6,474
Dry (24%)	6,750	7,984	16,643	8,080	10,676	10,257	7,309	8,065	9,104	9,535	6,376	5,260
Critical (15%)	5,042	5,166	7,018	7,015	7,097	7,433	5,485	6,711	7,742	8,652	6,114	4,698

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8	**-2,523**	3,053	2,748	584	450	0	84	2,411	**-329**	705	**-6,349**
20%	230	**-2,710**	3,512	1,561	**-1,520**	**-904**	**-40**	197	2,028	**-201**	904	**-5,733**
30%	514	**-3,818**	22	156	2,019	663	237	1,192	1,711	**-276**	654	**-4,724**
40%	474	**-3,397**	668	2,234	197	855	659	1,296	1,448	**-361**	464	**-3,625**
50%	950	**-2,341**	129	482	390	**-23**	222	1,464	1,284	**-137**	357	**-519**
60%	740	**-1,469**	232	108	174	133	414	887	828	**-196**	432	72
70%	412	**-973**	52	172	**-136**	**-87**	81	525	760	145	54	**-167**
80%	143	**-507**	**-73**	**-97**	**-380**	127	138	638	225	213	58	**-90**
90%	**-21**	84	**-149**	**-118**	**-6**	177	223	216	68	**-119**	**-55**	**-17**
Long Term												
Full Simulation Period[a]	294	**-1,697**	449	344	74	157	158	661	1,160	**-101**	368	**-2,315**
Water Year Types[b,c]												
Wet (32%)	**-33**	**-3,595**	1,881	193	165	40	158	13	741	**-133**	568	**-6,245**
Above Normal (16%)	240	**-3,220**	487	825	900	341	**-51**	669	2,078	**-117**	367	**-4,016**
Below Normal (13%)	395	**-15**	**-647**	1,105	**-1**	773	532	1,250	1,780	**-37**	874	1,129
Dry (24%)	761	**-192**	**-524**	**-33**	**-366**	**-390**	65	1,286	1,016	**-192**	**-93**	459
Critical (15%)	188	13	**-71**	81	**-214**	558	195	473	742	79	240	262

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 18-4. Sacramento River Flow at Hamilton City, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,524	14,328	30,407	40,893	51,938	33,411	19,893	13,731	10,553	12,940	9,381	15,452
20%	8,682	11,931	19,454	26,965	36,955	22,491	15,438	11,335	9,481	12,532	8,111	13,186
30%	7,536	11,343	11,974	18,703	23,981	17,461	9,650	8,602	8,701	12,287	7,628	11,325
40%	7,051	10,435	9,406	13,004	15,886	12,296	7,812	7,444	8,000	11,626	7,238	9,593
50%	6,301	8,990	7,689	10,368	11,817	10,482	7,008	7,030	7,384	10,556	6,973	6,281
60%	5,760	7,642	6,671	8,240	9,996	9,142	6,402	6,770	7,112	9,869	6,612	5,266
70%	5,424	6,547	6,236	7,004	8,562	7,906	5,978	6,456	6,847	8,706	6,440	4,991
80%	5,136	5,686	5,536	6,324	7,193	6,759	5,544	5,943	6,634	7,928	6,126	4,585
90%	4,647	4,764	4,972	5,418	5,746	6,105	5,031	5,628	6,183	7,205	5,838	4,026
Long Term												
Full Simulation Period[a]	6,818	9,677	13,293	17,980	21,539	16,715	10,435	8,497	8,101	10,326	7,230	8,472
Water Year Types[b,c]												
Wet (32%)	8,219	12,548	13,755	33,783	35,092	28,342	16,376	11,144	8,207	10,450	7,770	13,867
Above Normal (16%)	7,425	12,867	12,385	19,430	29,641	18,802	11,052	8,831	8,368	11,840	7,780	9,701
Below Normal (13%)	6,440	6,788	13,003	8,908	14,535	8,530	7,083	7,429	8,757	11,240	8,168	5,345
Dry (24%)	5,989	8,176	17,167	8,112	11,042	10,647	7,244	6,779	8,089	9,728	6,468	4,801
Critical (15%)	4,854	5,153	7,089	6,934	7,312	6,875	5,290	6,238	7,000	8,573	5,874	4,436

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,186	12,078	33,967	46,664	53,224	33,862	19,667	11,565	11,286	12,606	8,448	8,447
20%	8,534	8,269	25,770	28,663	35,464	22,447	16,544	10,528	10,238	12,386	7,910	6,644
30%	7,715	7,618	12,902	19,606	24,881	19,883	12,139	8,537	9,535	12,049	7,622	5,673
40%	7,274	7,014	10,428	16,276	16,583	14,926	9,704	7,782	8,905	11,087	7,295	5,476
50%	6,311	6,550	7,885	11,158	12,740	11,751	7,998	7,422	8,099	10,283	7,042	5,151
60%	5,786	5,998	6,660	8,615	10,306	10,038	6,857	6,905	7,606	9,859	6,727	4,884
70%	5,487	5,695	6,035	7,304	8,768	8,698	5,986	6,609	6,987	9,001	6,411	4,551
80%	5,135	5,289	5,484	6,352	7,544	7,226	5,531	6,372	6,758	7,626	6,000	4,340
90%	4,637	5,118	4,954	5,413	5,951	5,960	5,193	5,932	6,164	7,049	5,812	3,981
Long Term												
Full Simulation Period[a]	6,817	8,003	14,407	18,904	22,162	17,436	11,062	8,429	8,572	10,198	7,097	5,746
Water Year Types[b,c]												
Wet (32%)	8,106	8,723	15,824	35,258	35,506	28,798	17,309	10,944	8,245	10,462	7,841	7,694
Above Normal (16%)	7,347	9,571	13,725	20,712	31,391	20,169	11,785	8,623	8,259	12,470	7,645	5,202
Below Normal (13%)	6,371	6,978	13,247	10,637	15,575	9,847	7,933	7,319	9,462	11,159	7,415	4,976
Dry (24%)	6,117	8,220	17,992	8,191	11,361	11,296	7,613	6,916	9,306	9,486	6,449	4,666
Critical (15%)	5,024	5,324	7,165	6,942	7,296	7,047	5,357	6,313	7,579	7,469	5,678	4,621

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-338**	**-2,250**	3,560	5,772	1,286	451	**-226**	**-2,166**	733	**-334**	**-934**	**-7,006**
20%	**-147**	**-3,662**	6,316	1,697	**-1,491**	**-43**	1,106	**-807**	757	**-147**	**-201**	**-6,541**
30%	179	**-3,725**	928	903	900	2,421	2,490	**-65**	834	**-238**	**-6**	**-5,652**
40%	223	**-3,421**	1,022	3,272	697	2,630	1,892	338	905	**-538**	57	**-4,118**
50%	10	**-2,440**	196	790	923	1,270	990	392	714	**-273**	69	**-1,130**
60%	26	**-1,645**	**-12**	375	310	896	455	135	494	**-9**	115	**-382**
70%	63	**-852**	**-201**	300	206	792	8	153	140	295	**-29**	**-440**
80%	**-1**	**-397**	**-52**	28	352	467	**-13**	430	124	**-302**	**-127**	**-246**
90%	**-9**	354	**-18**	**-5**	205	**-145**	162	304	**-19**	**-156**	**-26**	**-45**
Long Term												
Full Simulation Period[a]	**-1**	**-1,674**	1,114	923	624	721	626	**-67**	471	**-128**	**-133**	**-2,726**
Water Year Types[b,c]												
Wet (32%)	**-113**	**-3,825**	2,070	1,474	414	456	934	**-200**	38	12	71	**-6,172**
Above Normal (16%)	**-78**	**-3,296**	1,340	1,282	1,750	1,367	733	**-208**	**-109**	630	**-135**	**-4,499**
Below Normal (13%)	**-69**	190	243	1,729	1,040	1,317	851	**-110**	706	**-81**	**-753**	**-369**
Dry (24%)	128	45	825	79	318	649	369	136	1,217	**-242**	**-20**	**-134**
Critical (15%)	170	171	76	8	**-15**	172	68	75	579	**-1,104**	**-197**	185

a Based on the 82-year simulation period.

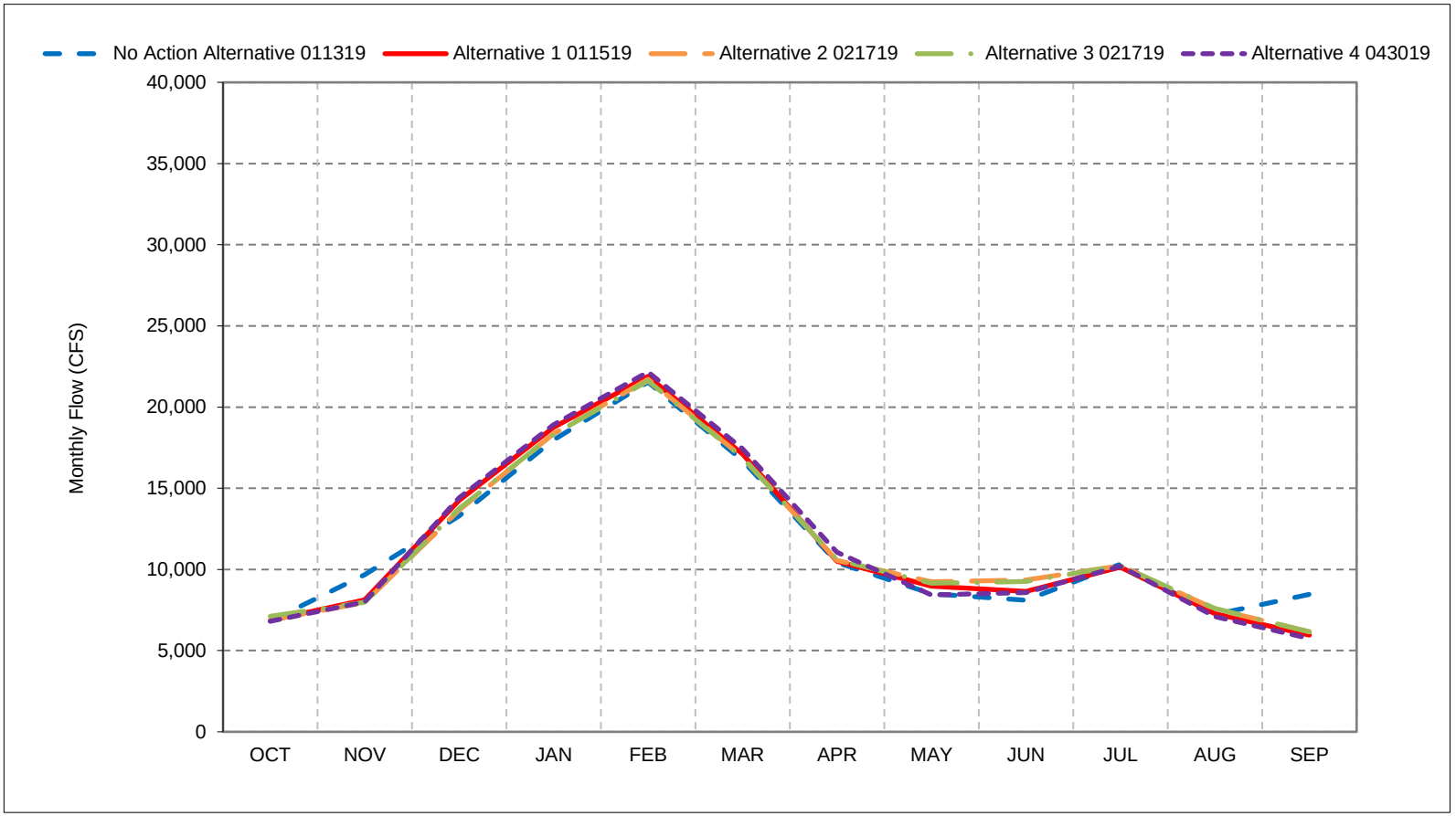
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-1. Sacramento River Flow at Hamilton City, Long-Term Average Flow



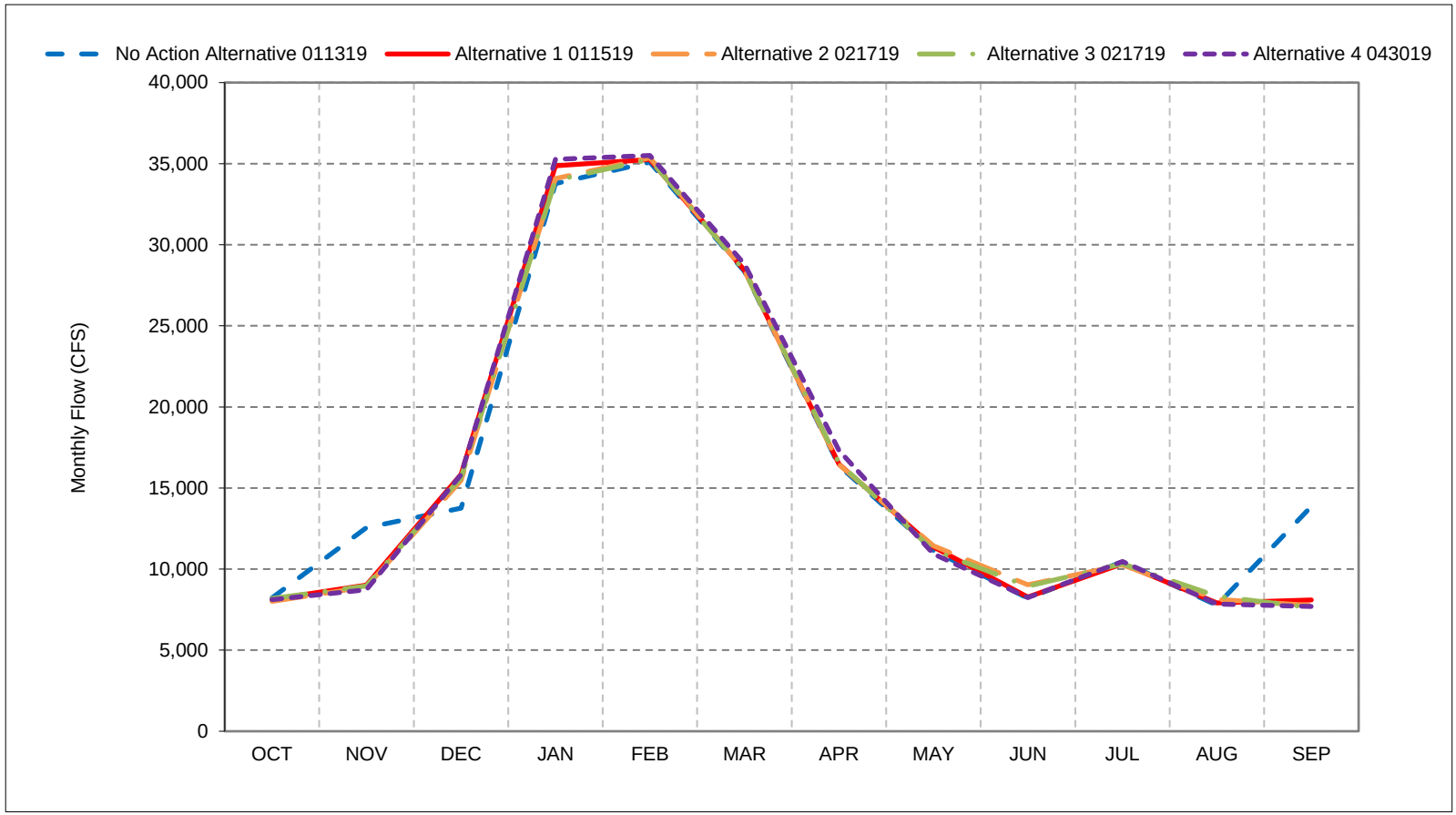
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-2. Sacramento River Flow at Hamilton City, Wet Year Average Flow



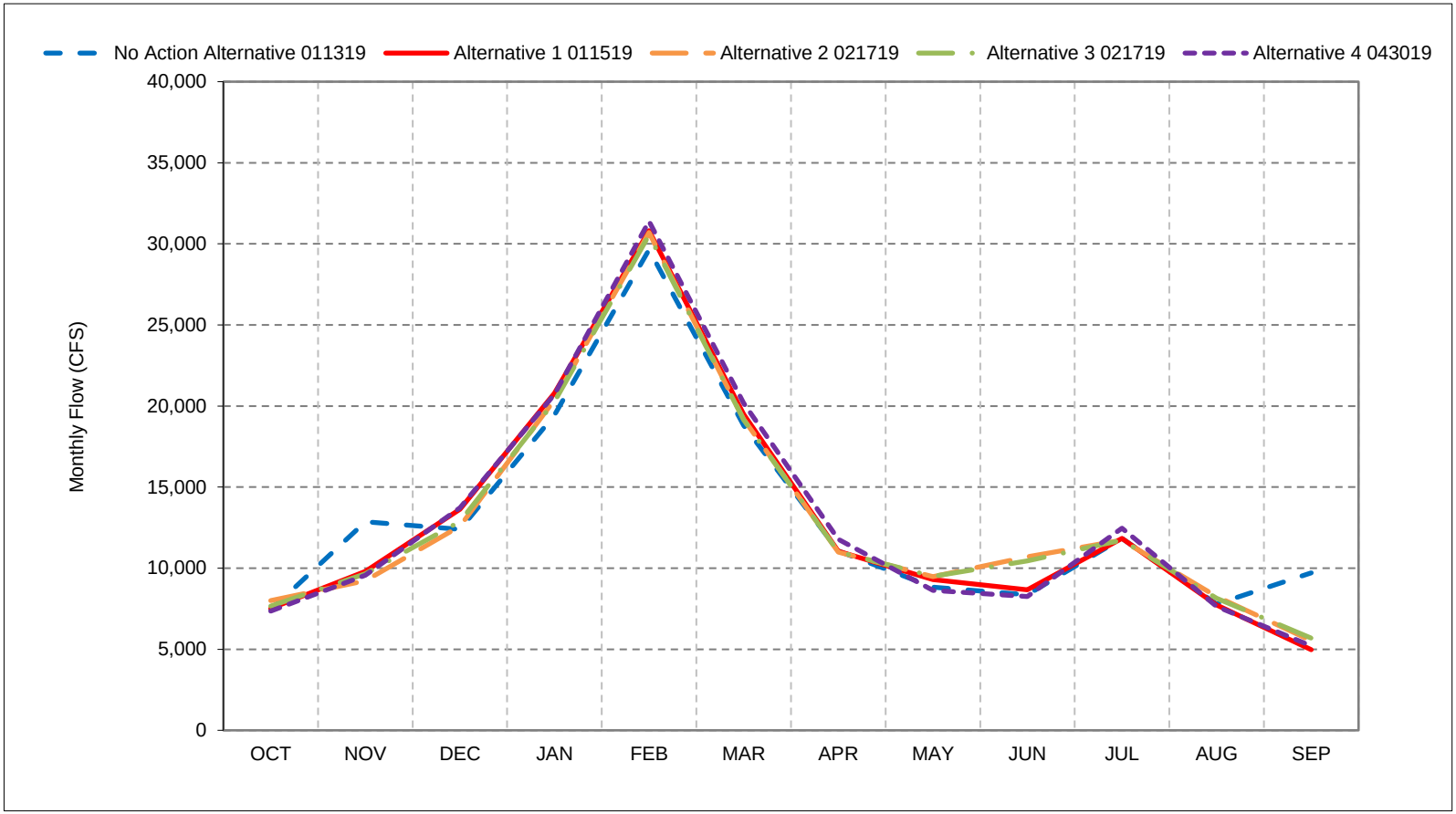
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

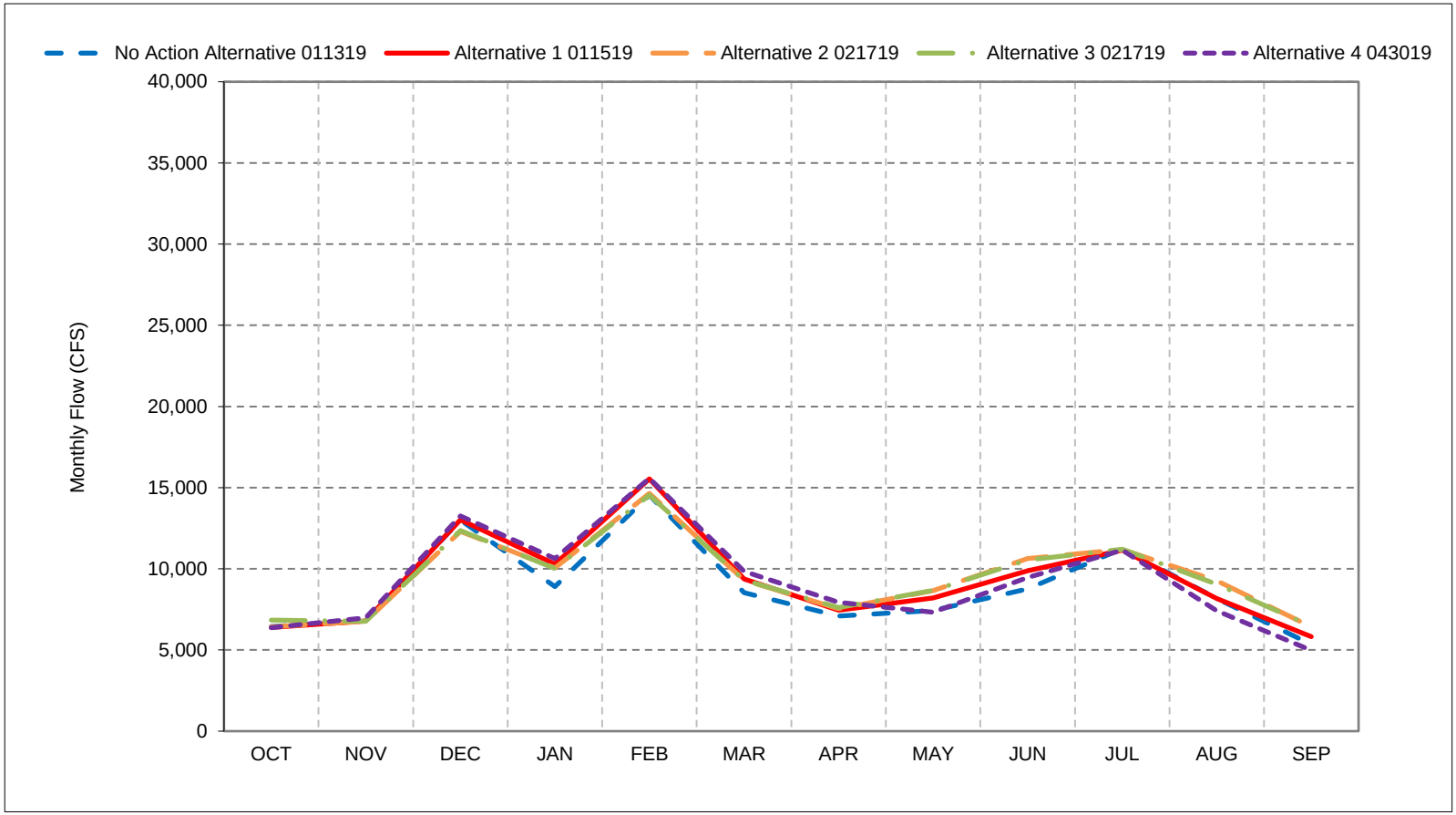
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-3. Sacramento River Flow at Hamilton City, Above Normal Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-4. Sacramento River Flow at Hamilton City, Below Normal Year Average Flow



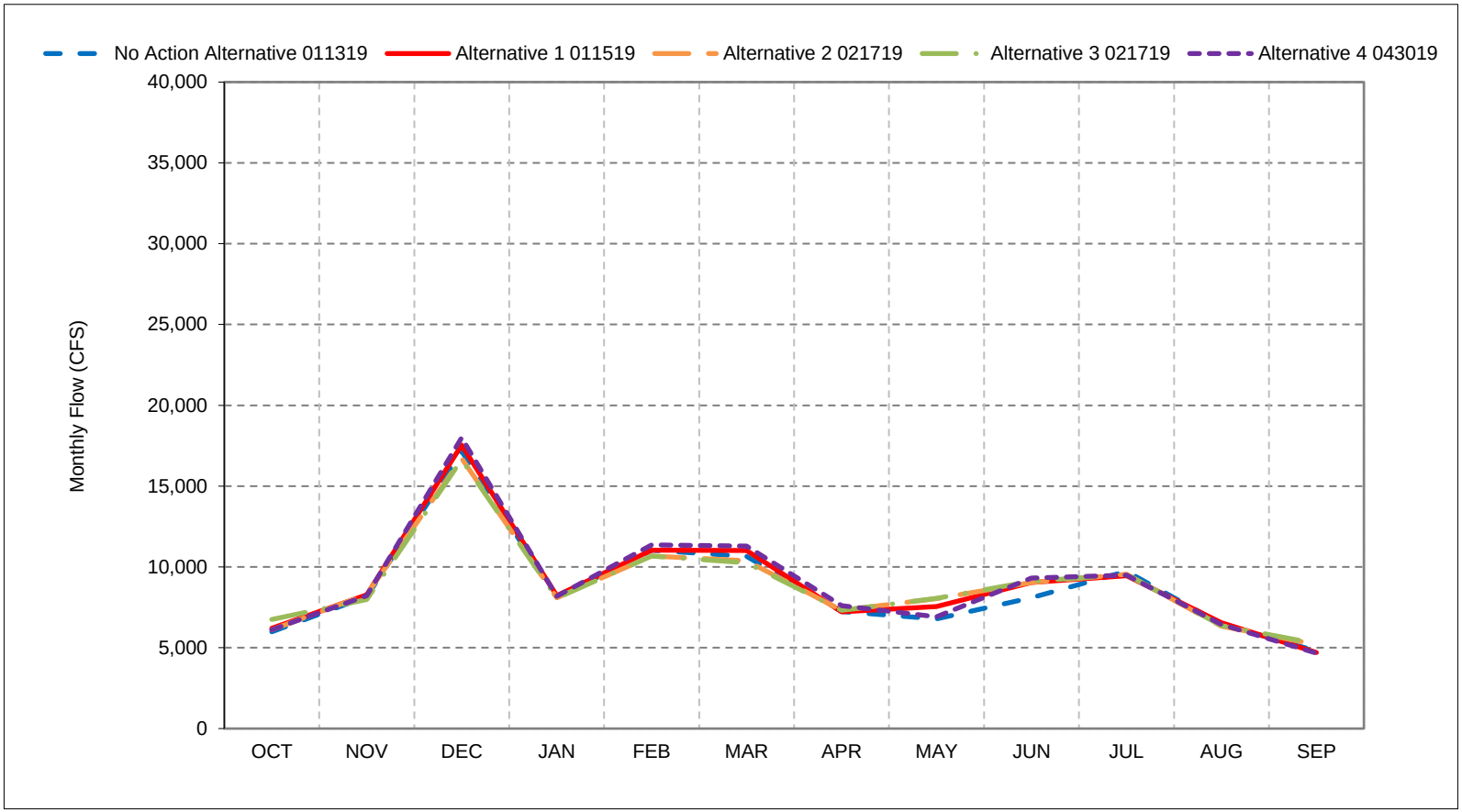
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-5. Sacramento River Flow at Hamilton City, Dry Year Average Flow



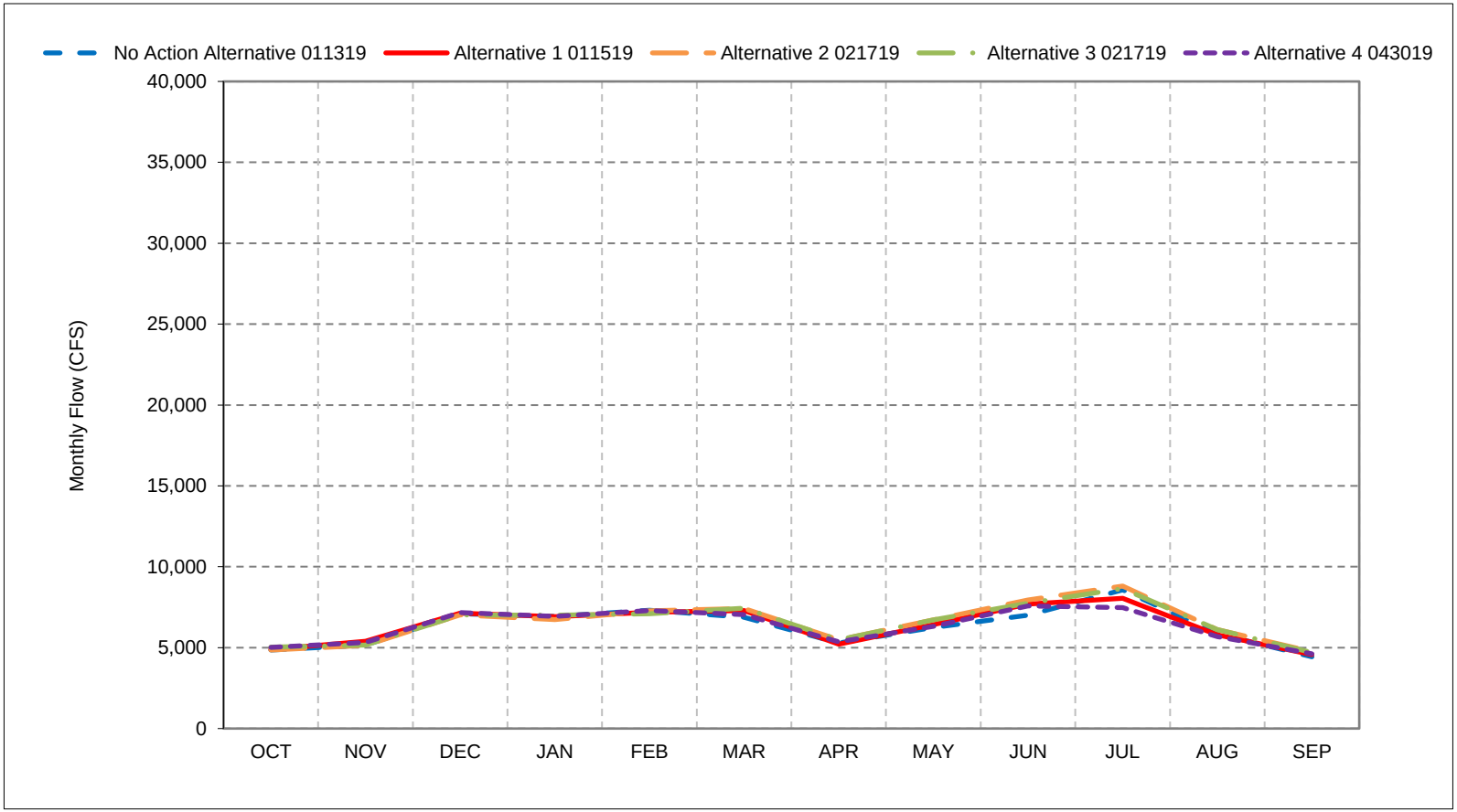
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

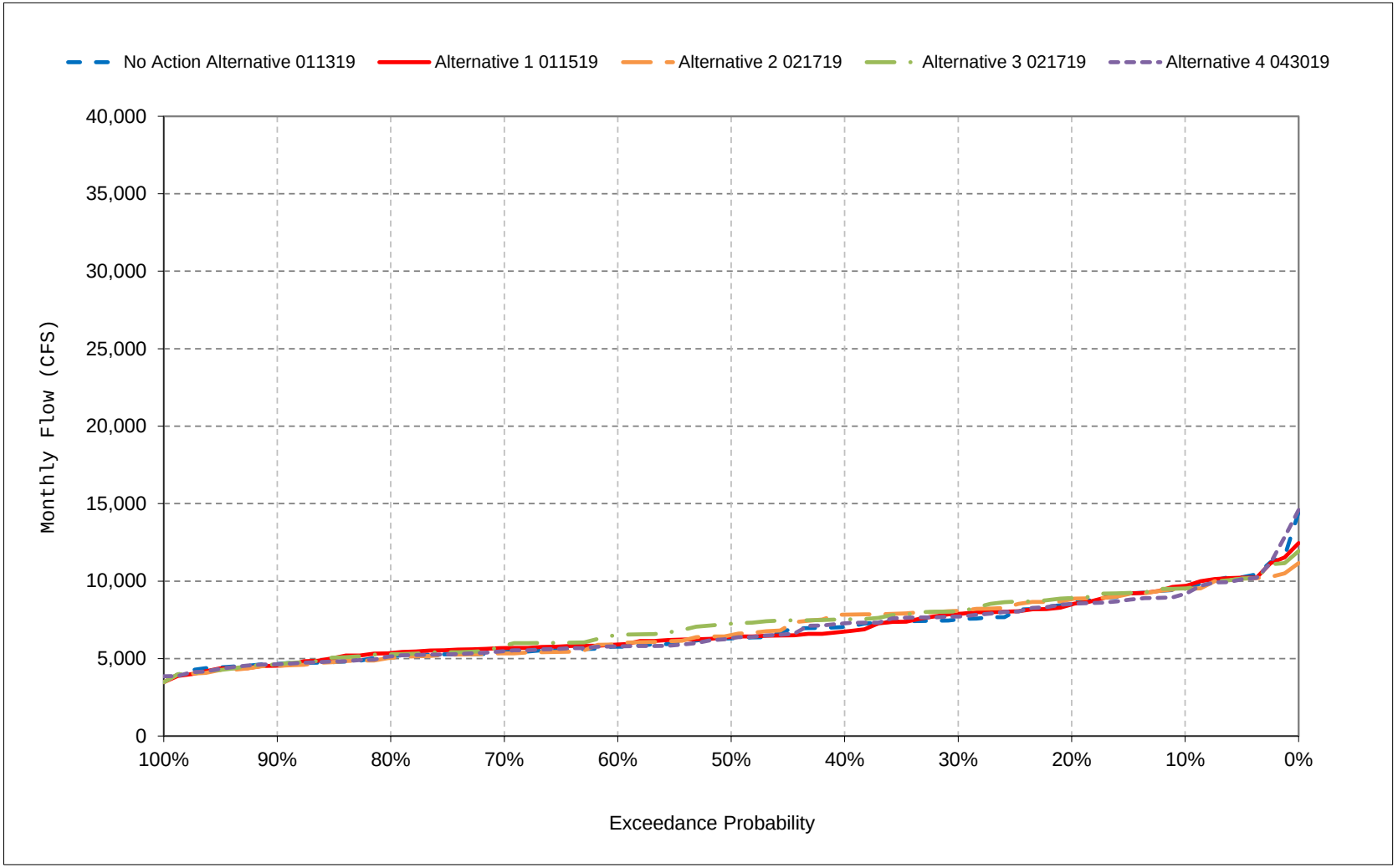
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-6. Sacramento River Flow at Hamilton City, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

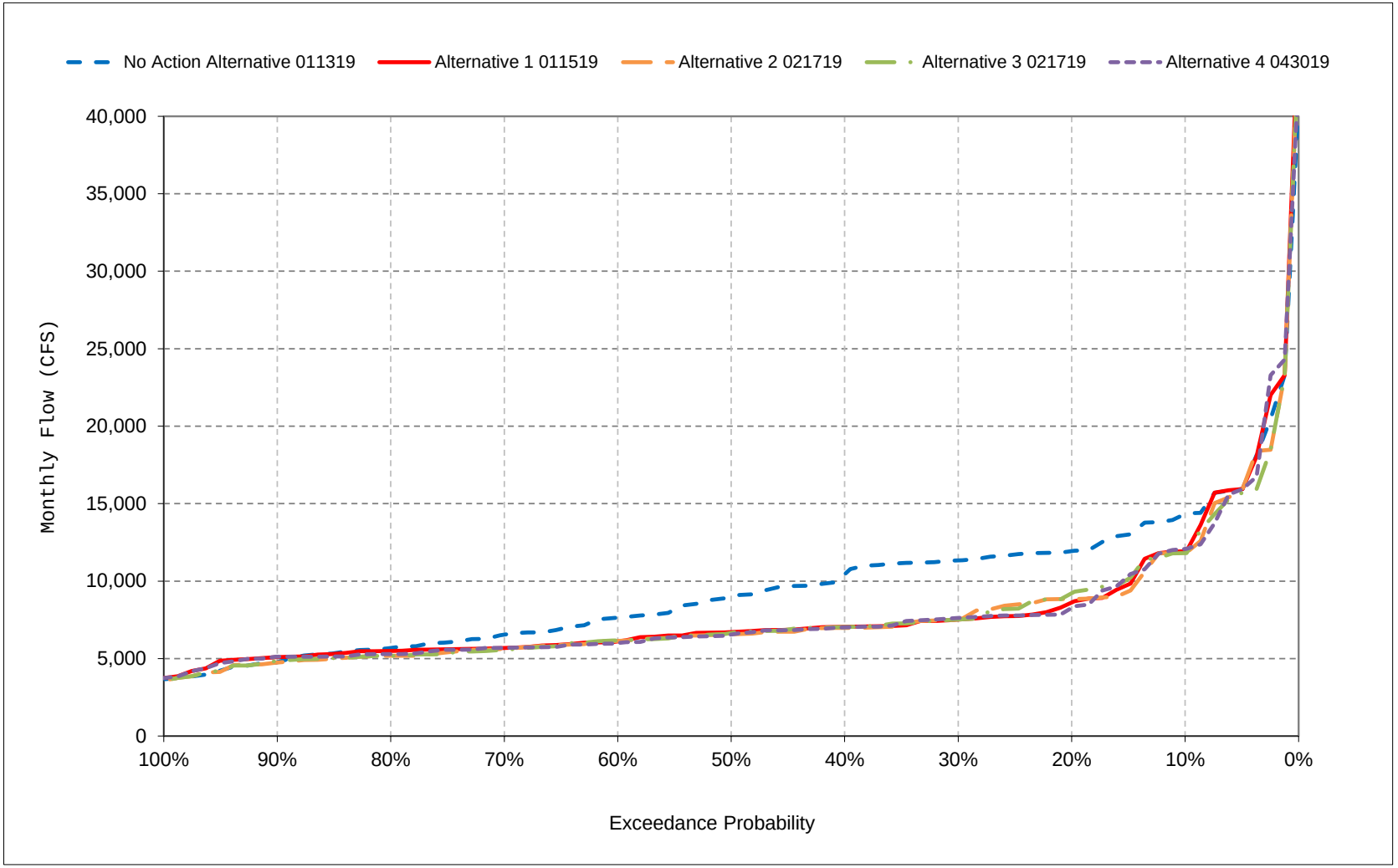
Figure 18-7. Sacramento River Flow at Hamilton City, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

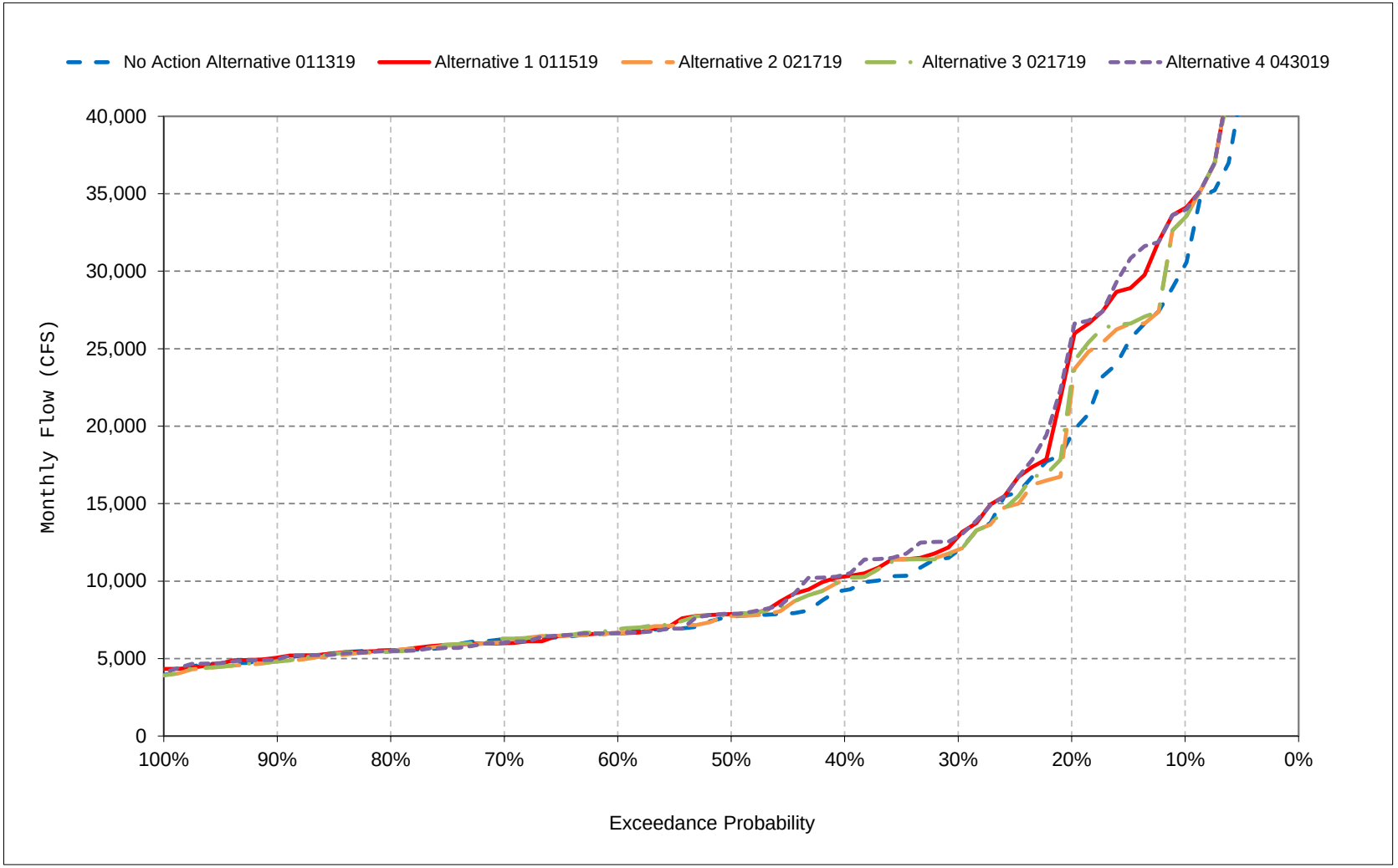
Figure 18-8. Sacramento River Flow at Hamilton City, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

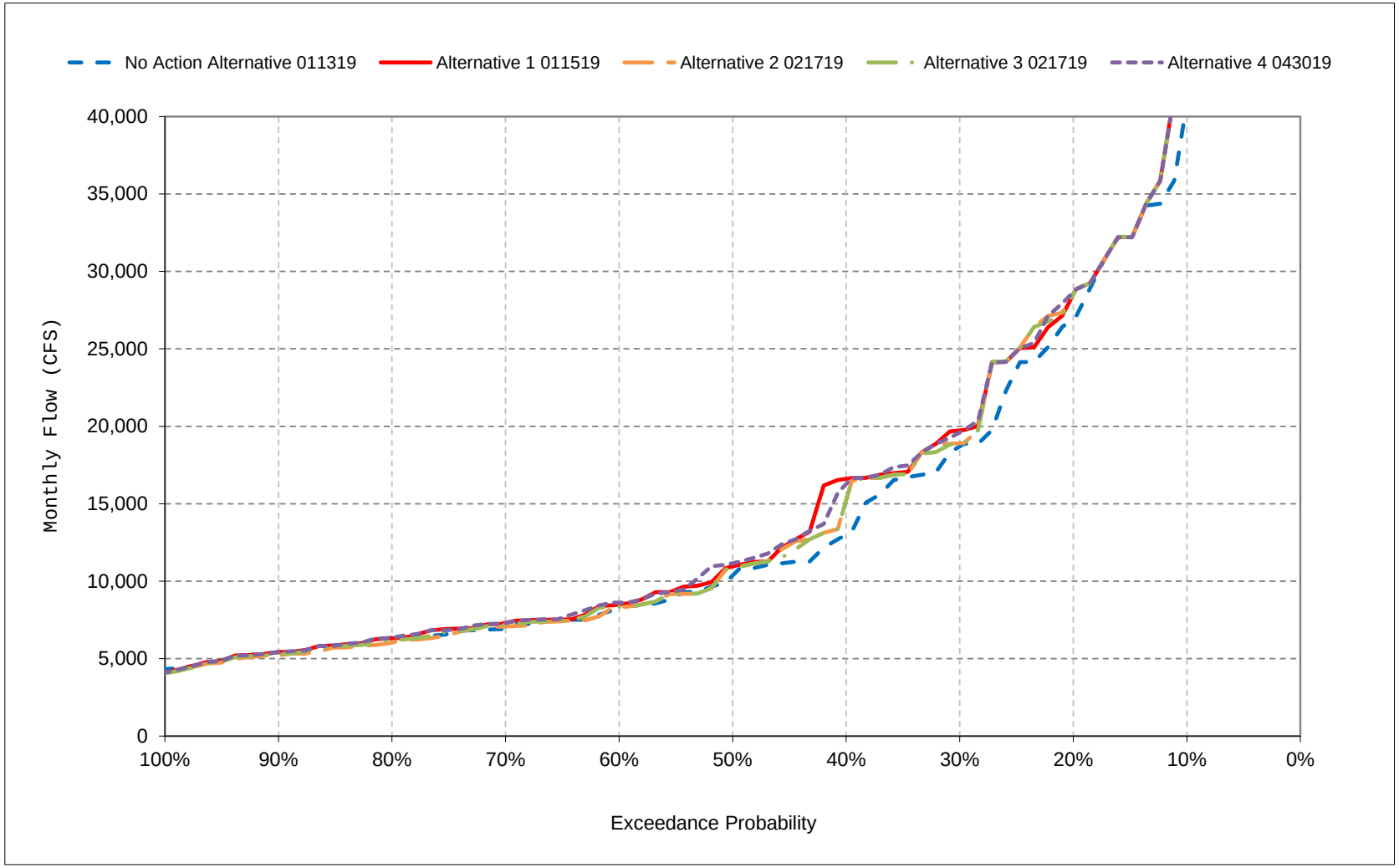
Figure 18-9. Sacramento River Flow at Hamilton City, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

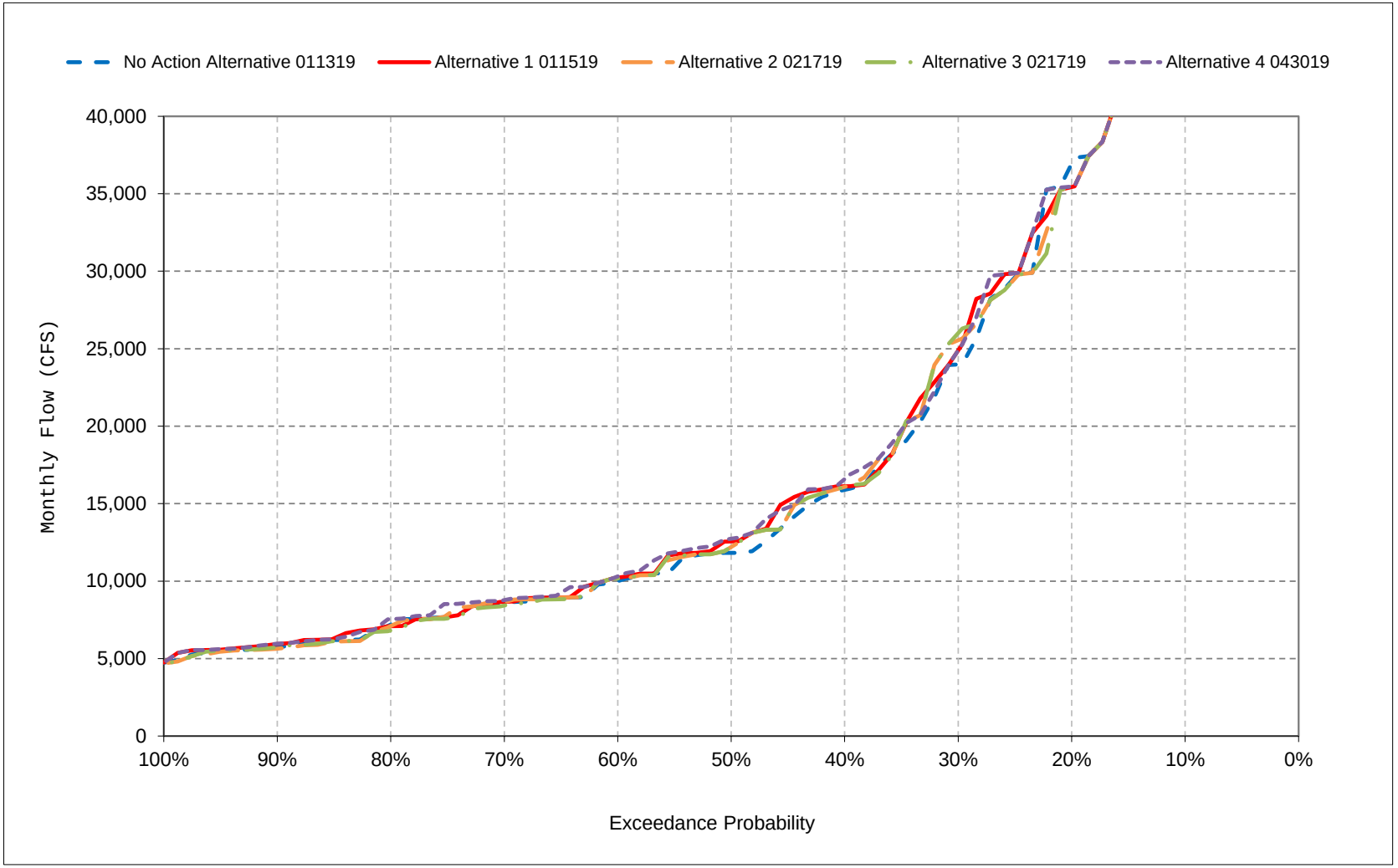
Figure 18-10. Sacramento River Flow at Hamilton City, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

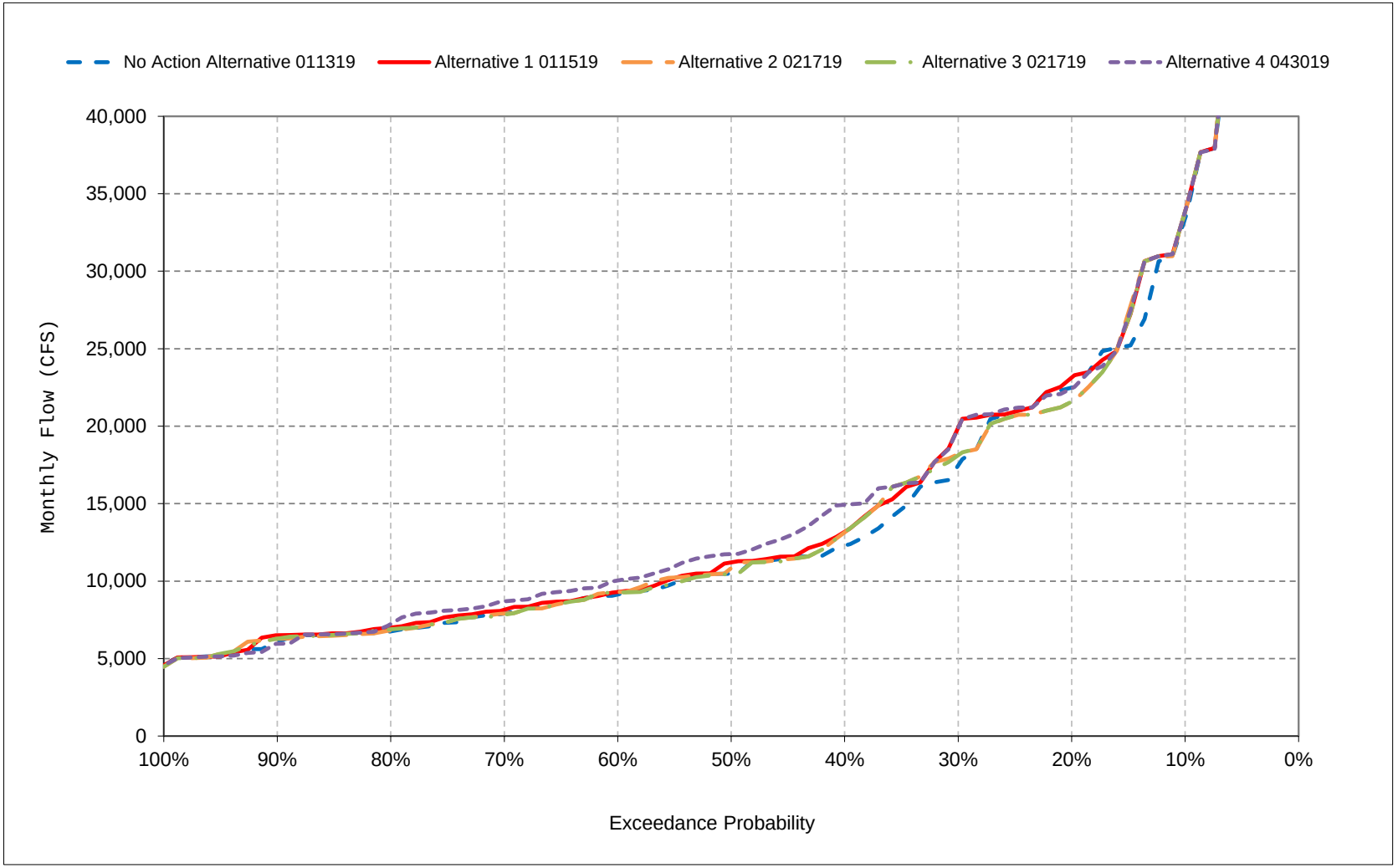
Figure 18-11. Sacramento River Flow at Hamilton City, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

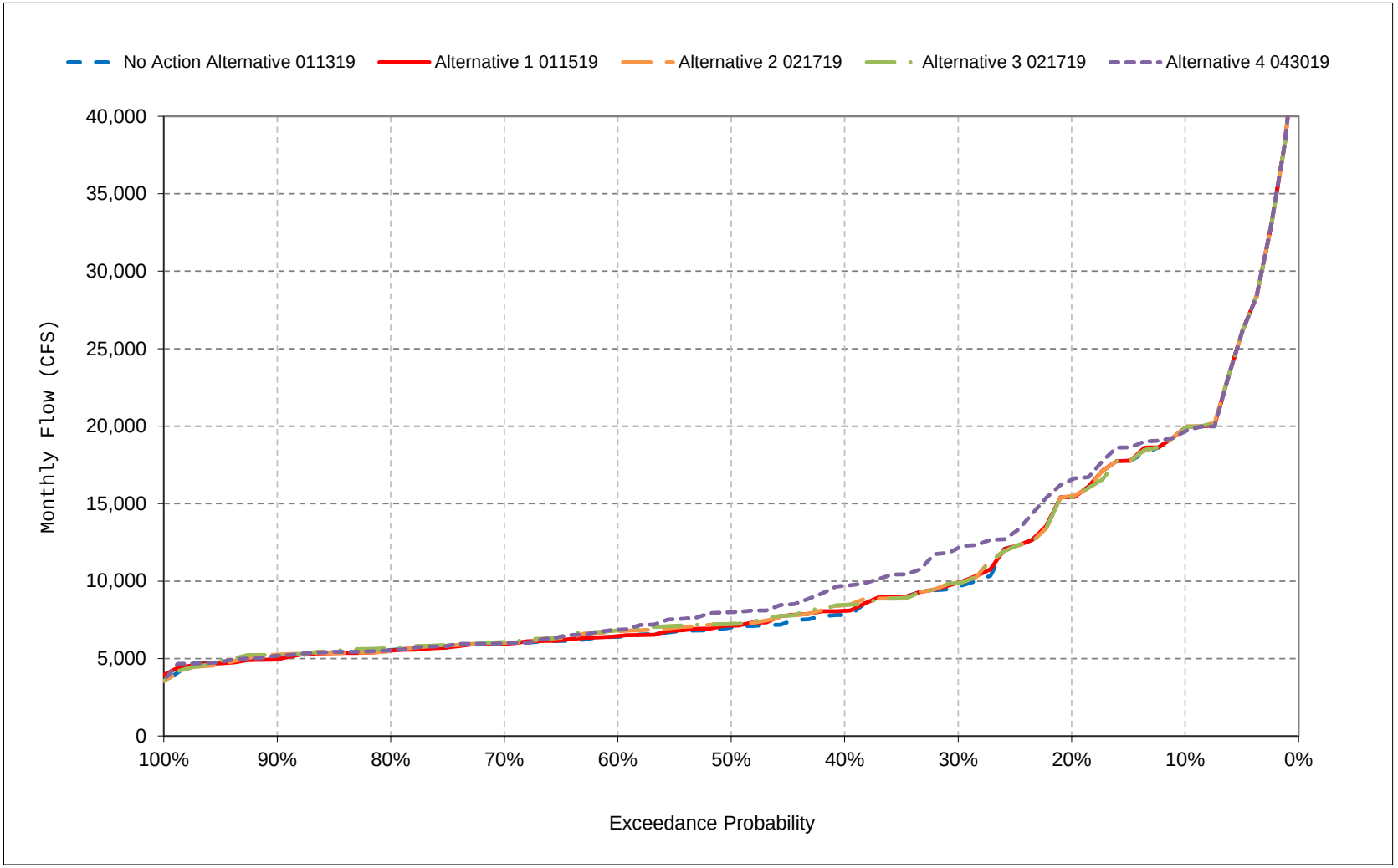
Figure 18-12. Sacramento River Flow at Hamilton City, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

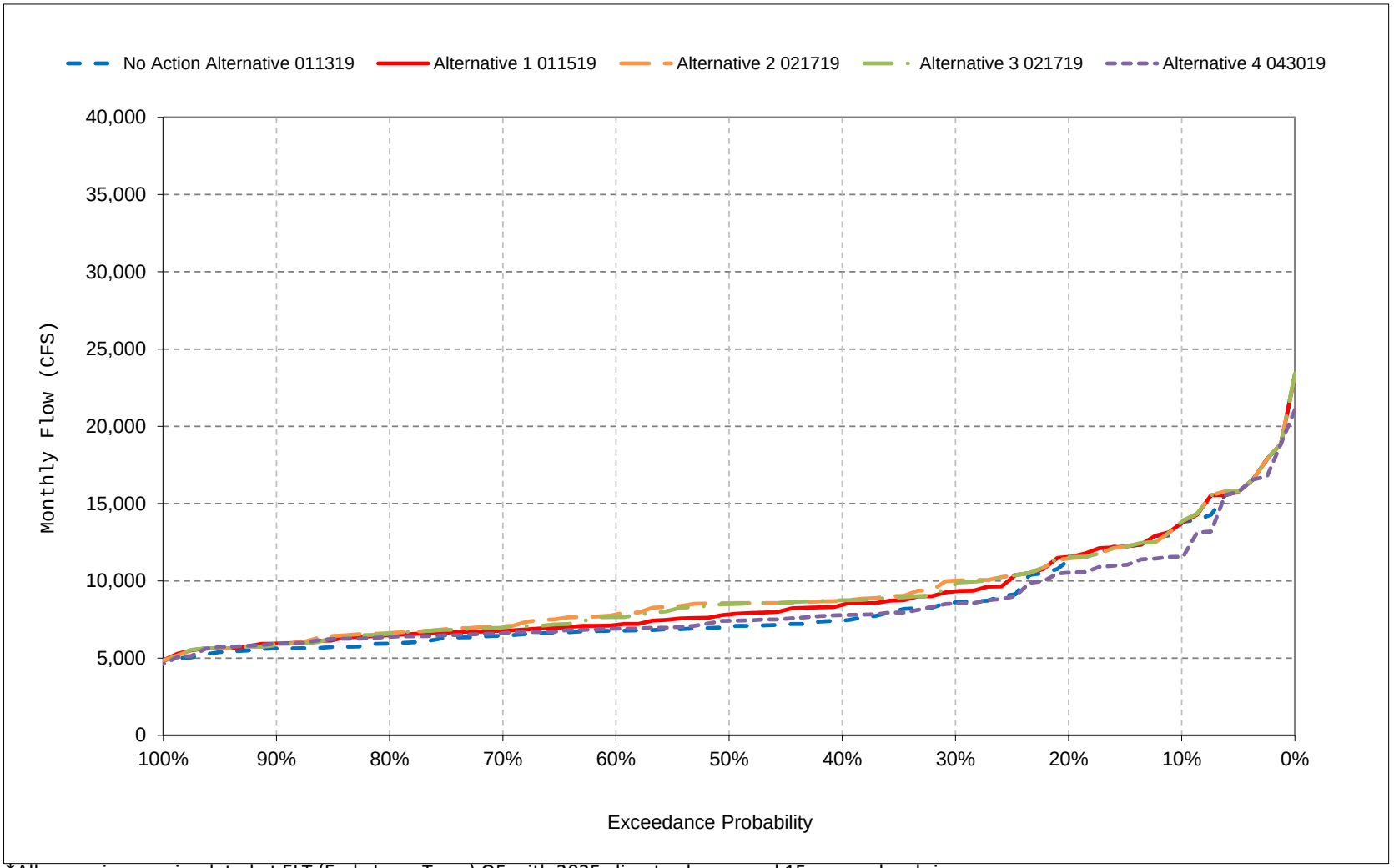
Figure 18-13. Sacramento River Flow at Hamilton City, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

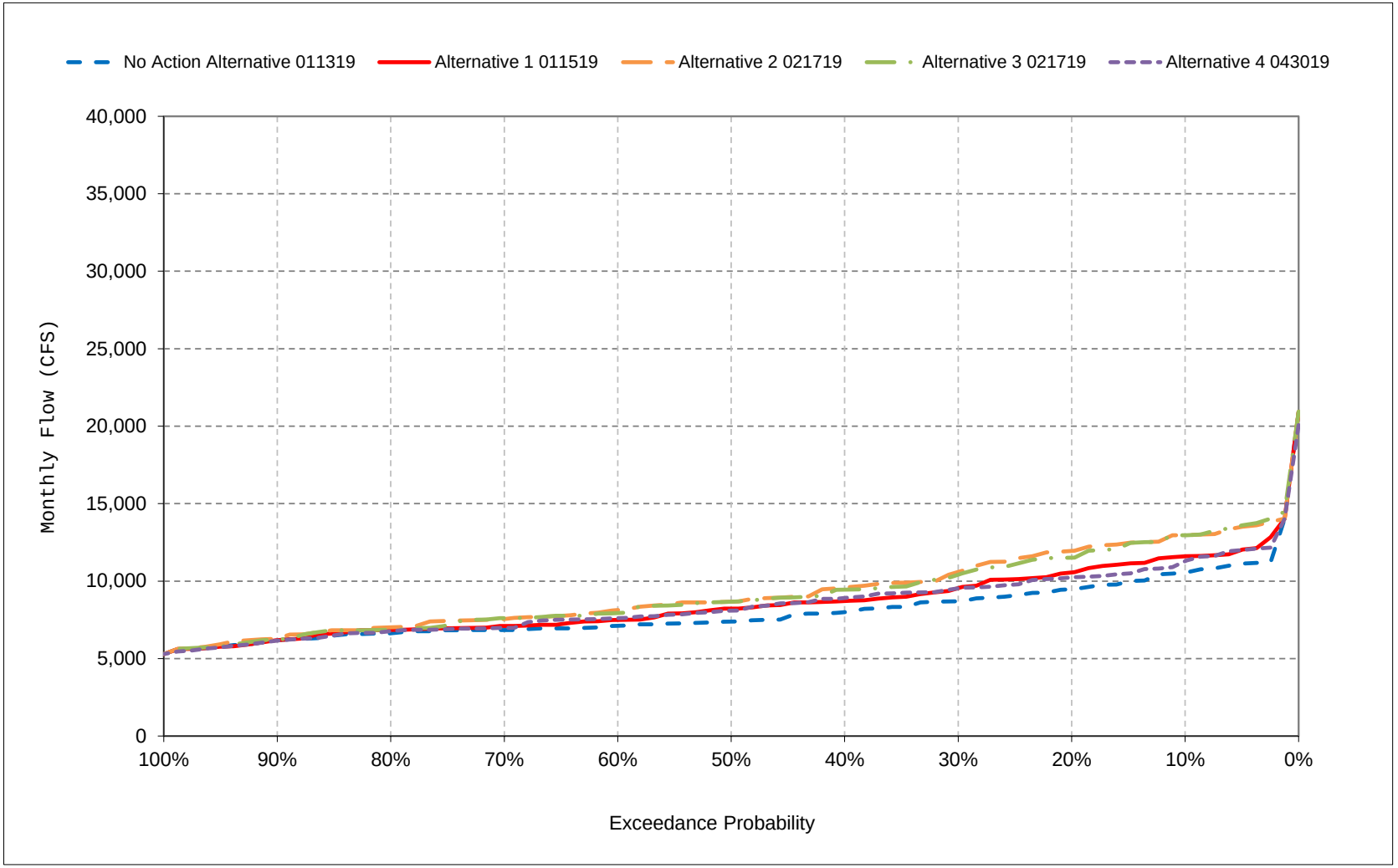
Figure 18-14. Sacramento River Flow at Hamilton City, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

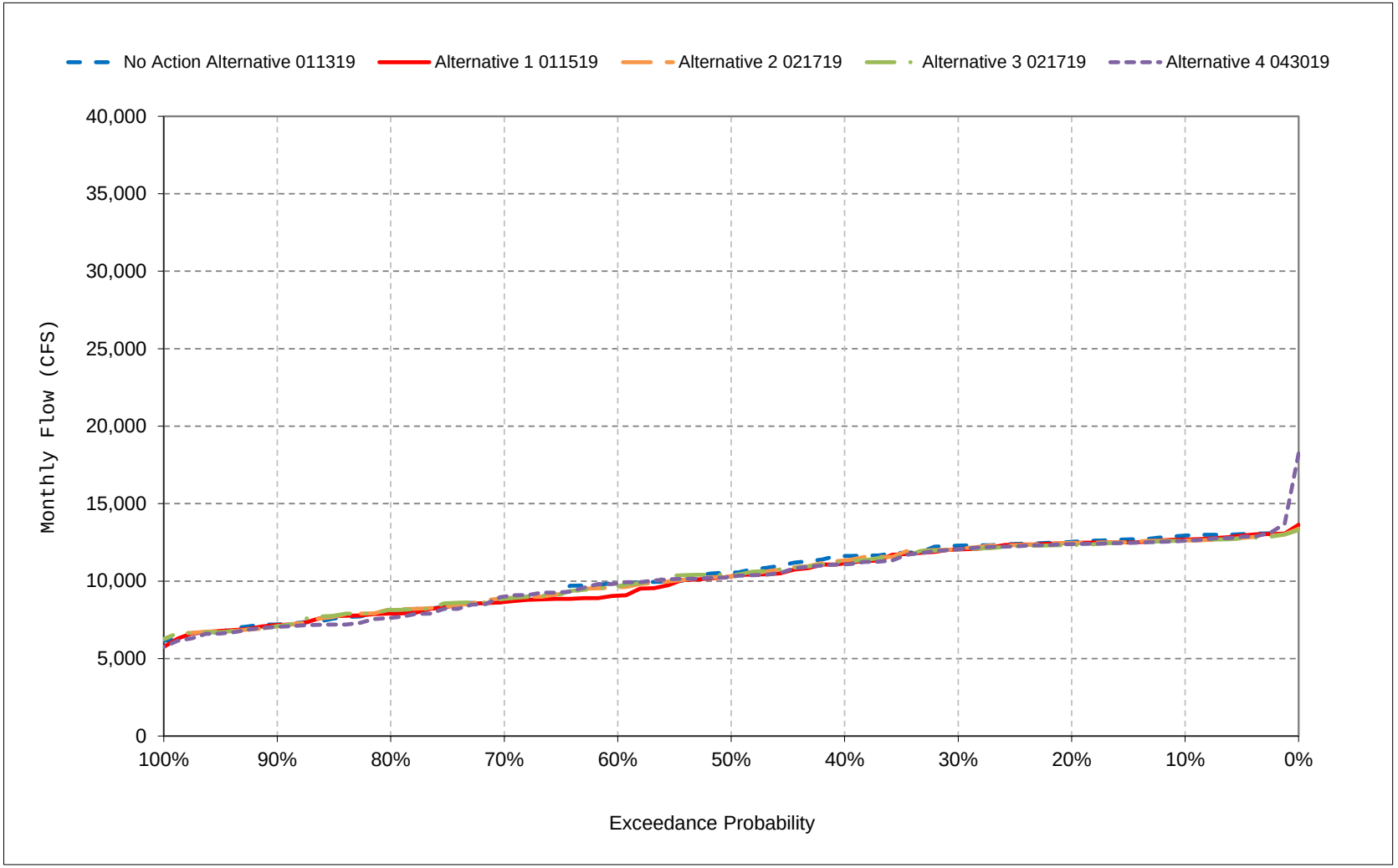
Figure 18-15. Sacramento River Flow at Hamilton City, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

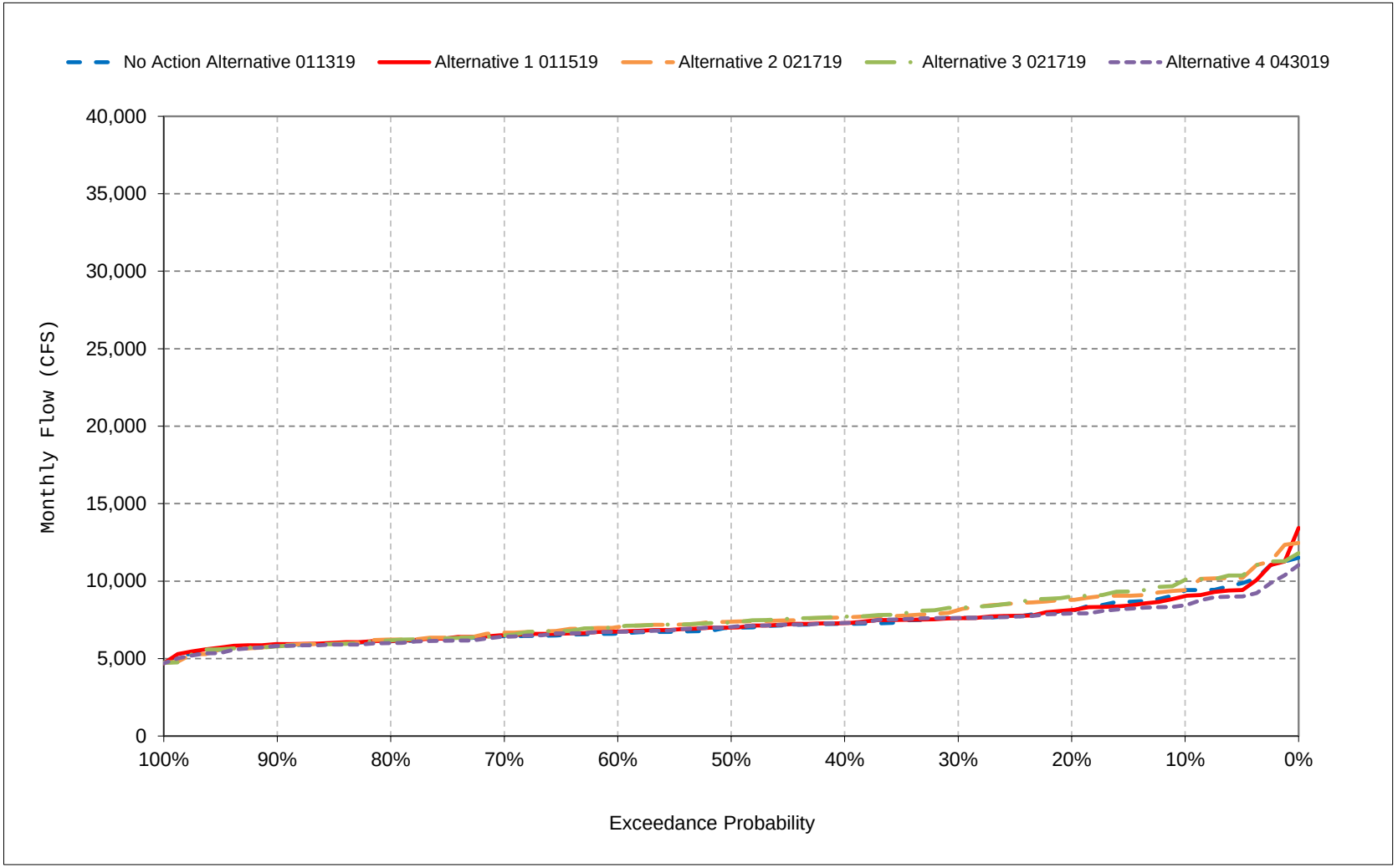
Figure 18-16. Sacramento River Flow at Hamilton City, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

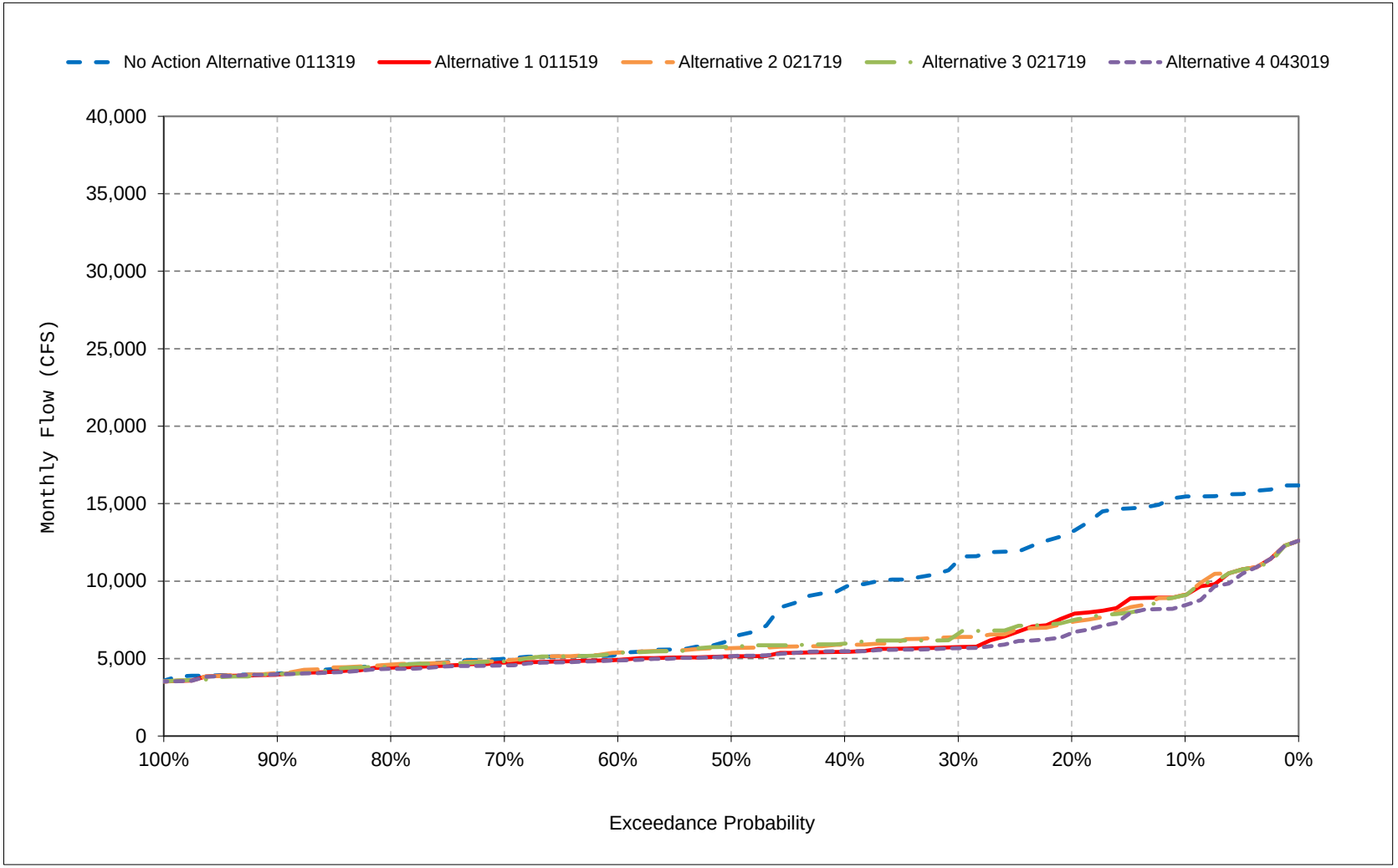
Figure 18-17. Sacramento River Flow at Hamilton City, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-18. Sacramento River Flow at Hamilton City, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 19-1. Sacramento River at Wilkins Slough Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,085	13,566	21,070	22,006	22,665	21,630	19,305	12,626	7,804	9,695	6,594	15,000
20%	7,608	12,869	19,597	21,247	21,557	20,323	17,774	9,258	7,069	9,423	5,495	13,681
30%	6,693	10,941	13,753	19,601	20,870	19,029	11,344	6,213	6,008	9,174	5,161	11,042
40%	6,148	10,268	11,687	15,569	19,624	15,809	9,173	5,248	5,478	8,710	4,673	9,367
50%	5,810	9,256	8,468	10,929	15,927	13,550	7,720	4,655	5,002	7,804	4,545	6,275
60%	5,268	7,240	7,263	9,489	12,622	10,302	6,911	4,442	4,834	6,628	4,520	5,260
70%	4,638	5,992	6,017	7,886	10,266	8,916	6,329	3,999	4,707	5,820	4,244	4,623
80%	4,497	5,159	5,612	6,942	7,686	7,980	5,718	3,711	4,165	4,710	3,951	4,372
90%	3,994	4,289	4,854	6,012	6,308	6,211	5,161	3,476	3,495	4,331	3,442	3,965
Long Term												
Full Simulation Period[a]	6,124	9,152	11,234	13,460	15,249	13,881	10,343	6,529	5,684	7,294	4,903	8,377
Water Year Types[b,c]												
Wet (32%)	7,511	12,176	11,622	18,870	19,567	17,810	14,598	9,612	6,426	7,574	5,293	13,916
Above Normal (16%)	6,711	11,184	11,185	16,976	18,484	17,432	12,412	7,174	6,171	8,650	5,448	9,654
Below Normal (13%)	6,046	6,466	11,361	10,381	13,627	9,842	7,454	5,489	5,958	7,948	5,637	5,132
Dry (24%)	5,215	8,027	12,724	9,098	12,422	12,174	8,077	4,381	5,159	6,678	4,291	4,665
Critical (15%)	4,072	4,733	7,847	8,021	8,590	8,066	5,306	3,683	4,176	5,648	3,817	4,154

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,181	12,897	21,341	22,437	22,719	21,616	19,295	12,630	8,569	9,712	6,557	9,602
20%	7,810	8,695	20,686	21,191	21,536	20,380	17,770	9,257	7,906	9,336	5,602	7,566
30%	7,320	7,179	15,241	19,739	20,918	19,077	11,867	7,391	7,191	8,865	5,242	5,748
40%	6,201	6,433	12,099	18,093	19,504	16,467	9,178	6,110	6,270	8,048	4,842	5,327
50%	5,774	6,062	8,866	11,884	16,481	14,327	7,705	5,353	5,687	7,280	4,586	4,892
60%	5,420	5,867	7,486	9,715	13,216	10,957	7,099	4,891	5,055	6,236	4,531	4,678
70%	5,033	5,244	5,950	8,244	10,560	8,896	6,563	4,633	4,775	5,607	4,502	4,521
80%	4,813	4,780	5,542	6,857	7,728	8,001	5,660	4,317	4,630	4,739	4,055	4,277
90%	4,279	4,525	5,156	6,008	6,386	7,406	5,086	3,558	3,683	4,410	3,601	4,012
Long Term												
Full Simulation Period[a]	6,369	7,485	11,587	13,801	15,397	14,114	10,393	6,998	6,215	7,087	4,973	5,861
Water Year Types[b,c]												
Wet (32%)	7,748	8,561	12,436	19,016	19,589	17,809	14,692	9,833	6,480	7,456	5,443	8,143
Above Normal (16%)	7,140	7,623	11,560	18,020	19,043	17,543	12,411	7,649	6,450	8,644	5,406	4,930
Below Normal (13%)	6,084	6,474	11,387	11,282	14,081	10,582	7,801	6,255	7,050	7,831	5,668	5,622
Dry (24%)	5,573	8,060	12,840	9,160	12,462	12,395	8,037	5,163	6,067	6,378	4,418	4,573
Critical (15%)	4,130	4,972	7,869	7,978	8,466	8,492	5,196	3,891	4,864	5,097	3,774	4,286

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	96	**-669**	271	431	54	**-14**	**-10**	3	765	16	**-37**	**-5,398**
20%	202	**-4,174**	1,090	**-56**	**-21**	58	**-5**	**-1**	837	**-87**	107	**-6,115**
30%	628	**-3,763**	1,489	137	48	48	523	1,178	1,183	**-309**	81	**-5,294**
40%	54	**-3,835**	412	2,524	**-120**	658	5	862	792	**-662**	169	**-4,040**
50%	**-36**	**-3,194**	398	954	554	777	**-15**	698	685	**-525**	41	**-1,383**
60%	151	**-1,373**	223	226	594	655	188	449	221	**-392**	12	**-582**
70%	395	**-748**	**-67**	358	294	**-21**	234	634	67	**-214**	257	**-102**
80%	316	**-379**	**-70**	**-85**	42	22	**-58**	605	465	30	104	**-95**
90%	285	236	302	**-3**	78	1,195	**-75**	82	188	79	159	47
Long Term												
Full Simulation Period[a]	244	**-1,667**	352	341	148	233	51	469	530	**-208**	70	**-2,517**
Water Year Types[b,c]												
Wet (32%)	237	**-3,615**	814	146	22	**0**	94	221	54	**-118**	151	**-5,773**
Above Normal (16%)	429	**-3,561**	375	1,044	559	111	**-1**	475	279	**-6**	**-42**	**-4,723**
Below Normal (13%)	38	8	26	901	453	739	348	765	1,092	**-117**	31	491
Dry (24%)	359	33	116	62	40	221	**-40**	782	908	**-300**	127	**-92**
Critical (15%)	58	239	22	**-43**	**-124**	427	**-110**	207	689	**-551**	**-43**	132

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 19-2. Sacramento River at Wilkins Slough Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,085	13,566	21,070	22,006	22,665	21,630	19,305	12,626	7,804	9,695	6,594	15,000
20%	7,608	12,869	19,597	21,247	21,557	20,323	17,774	9,258	7,069	9,423	5,495	13,681
30%	6,693	10,941	13,753	19,601	20,870	19,029	11,344	6,213	6,008	9,174	5,161	11,042
40%	6,148	10,268	11,687	15,569	19,624	15,809	9,173	5,248	5,478	8,710	4,673	9,367
50%	5,810	9,256	8,468	10,929	15,927	13,550	7,720	4,655	5,002	7,804	4,545	6,275
60%	5,268	7,240	7,263	9,489	12,622	10,302	6,911	4,442	4,834	6,628	4,520	5,260
70%	4,638	5,992	6,017	7,886	10,266	8,916	6,329	3,999	4,707	5,820	4,244	4,623
80%	4,497	5,159	5,612	6,942	7,686	7,980	5,718	3,711	4,165	4,710	3,951	4,372
90%	3,994	4,289	4,854	6,012	6,308	6,211	5,161	3,476	3,495	4,331	3,442	3,965
Long Term												
Full Simulation Period[a]	6,124	9,152	11,234	13,460	15,249	13,881	10,343	6,529	5,684	7,294	4,903	8,377
Water Year Types[b,c]												
Wet (32%)	7,511	12,176	11,622	18,870	19,567	17,810	14,598	9,612	6,426	7,574	5,293	13,916
Above Normal (16%)	6,711	11,184	11,185	16,976	18,484	17,432	12,412	7,174	6,171	8,650	5,448	9,654
Below Normal (13%)	6,046	6,466	11,361	10,381	13,627	9,842	7,454	5,489	5,958	7,948	5,637	5,132
Dry (24%)	5,215	8,027	12,724	9,098	12,422	12,174	8,077	4,381	5,159	6,678	4,291	4,665
Critical (15%)	4,072	4,733	7,847	8,021	8,590	8,066	5,306	3,683	4,176	5,648	3,817	4,154

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,089	12,781	21,300	22,259	22,724	21,621	19,309	12,710	10,135	9,580	7,330	9,595
20%	8,498	8,744	19,938	21,206	21,461	20,197	17,736	9,255	9,101	9,223	6,512	7,397
30%	7,494	7,817	14,700	19,743	20,992	19,028	11,767	7,685	7,948	8,784	5,830	6,425
40%	6,629	6,526	12,005	17,749	19,433	16,469	9,150	6,591	7,030	8,289	5,291	5,814
50%	5,930	6,141	8,679	11,645	16,123	14,276	7,713	6,133	6,335	7,232	4,824	5,420
60%	5,361	5,758	7,372	9,473	13,094	11,316	7,132	5,531	5,742	6,778	4,545	5,011
70%	4,714	4,957	6,271	7,836	10,469	9,023	6,596	4,950	5,102	5,864	4,511	4,634
80%	4,469	4,557	5,536	6,767	7,818	7,900	6,076	4,403	4,756	4,812	4,018	4,528
90%	3,638	4,043	4,639	5,923	6,286	6,226	5,304	3,558	3,710	4,585	3,569	4,283
Long Term												
Full Simulation Period[a]	6,282	7,379	11,405	13,596	15,329	14,021	10,462	7,262	6,906	7,160	5,282	6,067
Water Year Types[b,c]												
Wet (32%)	7,547	8,450	12,284	18,868	19,583	17,786	14,684	9,903	7,239	7,355	5,691	7,796
Above Normal (16%)	7,503	7,157	11,329	17,508	19,060	17,407	12,361	7,824	8,469	8,448	5,983	5,480
Below Normal (13%)	6,019	6,446	10,958	11,107	13,832	10,522	7,898	6,691	7,795	7,851	6,785	6,187
Dry (24%)	5,319	8,224	12,723	9,041	12,253	12,092	8,148	5,639	6,044	6,472	4,191	5,087
Critical (15%)	4,065	4,749	7,796	7,809	8,570	8,616	5,467	4,161	5,110	5,856	4,073	4,478

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3	**-784**	230	252	59	**-9**	3	83	2,331	**-116**	736	**-5,405**
20%	890	**-4,125**	341	**-41**	**-96**	**-125**	**-39**	**-3**	2,032	**-200**	1,017	**-6,284**
30%	802	**-3,124**	947	142	122	**-1**	422	1,472	1,940	**-389**	668	**-4,617**
40%	481	**-3,742**	318	2,180	**-191**	660	**-23**	1,342	1,552	**-421**	618	**-3,552**
50%	120	**-3,115**	211	715	196	726	**-7**	1,478	1,334	**-572**	279	**-856**
60%	93	**-1,482**	109	**-16**	472	1,013	220	1,089	908	150	25	**-249**
70%	76	**-1,035**	253	**-50**	203	106	267	951	395	44	267	11
80%	**-29**	**-602**	**-75**	**-175**	133	**-79**	358	692	591	102	67	156
90%	**-357**	**-246**	**-215**	**-89**	**-22**	15	143	82	216	254	127	318
Long Term												
Full Simulation Period[a]	158	**-1,773**	171	136	80	140	120	733	1,221	**-134**	378	**-2,311**
Water Year Types[b,c]												
Wet (32%)	36	**-3,727**	662	**-2**	17	**-23**	86	290	813	**-219**	399	**-6,121**
Above Normal (16%)	791	**-4,028**	144	532	576	**-25**	**-51**	650	2,298	**-202**	535	**-4,174**
Below Normal (13%)	**-27**	**-20**	**-403**	727	205	680	444	1,201	1,837	**-97**	1,148	1,056
Dry (24%)	105	197	**0**	**-58**	**-169**	**-82**	71	1,258	885	**-206**	**-100**	422
Critical (15%)	**-7**	16	**-51**	**-211**	**-20**	550	162	478	935	208	256	323

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 19-3. Sacramento River at Wilkins Slough Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,085	13,566	21,070	22,006	22,665	21,630	19,305	12,626	7,804	9,695	6,594	15,000
20%	7,608	12,869	19,597	21,247	21,557	20,323	17,774	9,258	7,069	9,423	5,495	13,681
30%	6,693	10,941	13,753	19,601	20,870	19,029	11,344	6,213	6,008	9,174	5,161	11,042
40%	6,148	10,268	11,687	15,569	19,624	15,809	9,173	5,248	5,478	8,710	4,673	9,367
50%	5,810	9,256	8,468	10,929	15,927	13,550	7,720	4,655	5,002	7,804	4,545	6,275
60%	5,268	7,240	7,263	9,489	12,622	10,302	6,911	4,442	4,834	6,628	4,520	5,260
70%	4,638	5,992	6,017	7,886	10,266	8,916	6,329	3,999	4,707	5,820	4,244	4,623
80%	4,497	5,159	5,612	6,942	7,686	7,980	5,718	3,711	4,165	4,710	3,951	4,372
90%	3,994	4,289	4,854	6,012	6,308	6,211	5,161	3,476	3,495	4,331	3,442	3,965
Long Term												
Full Simulation Period[a]	6,124	9,152	11,234	13,460	15,249	13,881	10,343	6,529	5,684	7,294	4,903	8,377
Water Year Types[b,c]												
Wet (32%)	7,511	12,176	11,622	18,870	19,567	17,810	14,598	9,612	6,426	7,574	5,293	13,916
Above Normal (16%)	6,711	11,184	11,185	16,976	18,484	17,432	12,412	7,174	6,171	8,650	5,448	9,654
Below Normal (13%)	6,046	6,466	11,361	10,381	13,627	9,842	7,454	5,489	5,958	7,948	5,637	5,132
Dry (24%)	5,215	8,027	12,724	9,098	12,422	12,174	8,077	4,381	5,159	6,678	4,291	4,665
Critical (15%)	4,072	4,733	7,847	8,021	8,590	8,066	5,306	3,683	4,176	5,648	3,817	4,154

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,091	12,739	21,296	22,226	22,724	21,622	19,308	12,710	10,184	9,494	7,752	9,555
20%	8,424	9,145	20,067	21,206	21,469	20,205	17,693	9,256	9,015	9,157	6,631	7,520
30%	7,888	7,542	14,646	19,697	20,991	19,028	11,769	7,672	7,826	8,772	5,813	6,298
40%	7,171	6,563	12,028	17,745	19,413	16,473	9,145	6,453	6,933	8,332	5,521	5,787
50%	6,402	6,233	8,690	11,190	16,230	13,884	7,855	6,012	6,390	7,417	4,953	5,423
60%	5,839	5,813	7,493	9,470	13,095	11,087	7,188	5,328	5,507	6,891	4,555	4,981
70%	5,245	5,034	6,249	8,061	10,468	9,025	6,765	4,885	5,073	5,866	4,485	4,651
80%	4,574	4,562	5,552	6,772	7,459	7,896	6,062	4,317	4,738	4,942	3,898	4,522
90%	3,984	4,180	4,722	5,918	6,352	6,802	5,332	3,558	3,683	4,629	3,445	4,065
Long Term												
Full Simulation Period[a]	6,518	7,406	11,480	13,615	15,295	13,991	10,502	7,184	6,816	7,159	5,307	6,061
Water Year Types[b,c]												
Wet (32%)	7,728	8,481	12,451	18,865	19,581	17,783	14,758	9,616	7,172	7,412	5,883	7,648
Above Normal (16%)	7,129	7,637	11,394	17,419	19,027	17,396	12,379	7,851	8,217	8,460	5,866	5,639
Below Normal (13%)	6,417	6,436	11,016	11,068	13,824	10,527	7,977	6,718	7,695	7,867	6,563	6,243
Dry (24%)	5,958	7,982	12,741	9,034	12,260	11,964	8,156	5,659	6,106	6,465	4,241	5,144
Critical (15%)	4,258	4,753	7,795	8,089	8,374	8,642	5,473	4,159	4,904	5,707	4,079	4,440

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	6	**-826**	226	220	59	**-8**	2	83	2,380	**-202**	1,158	**-5,445**
20%	816	**-3,724**	470	**-41**	**-87**	**-117**	**-81**	**-2**	1,946	**-266**	1,136	**-6,161**
30%	1,196	**-3,399**	894	96	121	**-1**	425	1,459	1,818	**-402**	651	**-4,744**
40%	1,024	**-3,704**	341	2,176	**-211**	664	**-27**	1,205	1,454	**-377**	848	**-3,580**
50%	592	**-3,023**	221	260	303	334	135	1,357	1,388	**-388**	408	**-852**
60%	571	**-1,427**	231	**-19**	472	785	277	886	673	263	35	**-279**
70%	607	**-958**	232	175	202	108	436	885	365	46	241	28
80%	77	**-597**	**-59**	**-170**	**-227**	**-83**	344	605	573	232	**-54**	150
90%	**-10**	**-109**	**-132**	**-93**	44	591	171	82	188	298	3	100
Long Term												
Full Simulation Period[a]	393	**-1,746**	246	155	46	111	159	655	1,131	**-136**	404	**-2,316**
Water Year Types[b,c]												
Wet (32%)	217	**-3,695**	828	**-4**	14	**-27**	159	4	745	**-162**	590	**-6,268**
Above Normal (16%)	417	**-3,547**	210	443	543	**-36**	**-33**	677	2,047	**-190**	418	**-4,014**
Below Normal (13%)	372	**-30**	**-345**	687	197	685	523	1,229	1,737	**-81**	926	1,111
Dry (24%)	743	**-46**	17	**-65**	**-161**	**-210**	79	1,278	947	**-213**	**-50**	480
Critical (15%)	186	20	**-52**	68	**-216**	576	167	476	729	60	262	285

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 19-4. Sacramento River at Wilkins Slough Flow, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,085	13,566	21,070	22,006	22,665	21,630	19,305	12,626	7,804	9,695	6,594	15,000
20%	7,608	12,869	19,597	21,247	21,557	20,323	17,774	9,258	7,069	9,423	5,495	13,681
30%	6,693	10,941	13,753	19,601	20,870	19,029	11,344	6,213	6,008	9,174	5,161	11,042
40%	6,148	10,268	11,687	15,569	19,624	15,809	9,173	5,248	5,478	8,710	4,673	9,367
50%	5,810	9,256	8,468	10,929	15,927	13,550	7,720	4,655	5,002	7,804	4,545	6,275
60%	5,268	7,240	7,263	9,489	12,622	10,302	6,911	4,442	4,834	6,628	4,520	5,260
70%	4,638	5,992	6,017	7,886	10,266	8,916	6,329	3,999	4,707	5,820	4,244	4,623
80%	4,497	5,159	5,612	6,942	7,686	7,980	5,718	3,711	4,165	4,710	3,951	4,372
90%	3,994	4,289	4,854	6,012	6,308	6,211	5,161	3,476	3,495	4,331	3,442	3,965
Long Term												
Full Simulation Period[a]	6,124	9,152	11,234	13,460	15,249	13,881	10,343	6,529	5,684	7,294	4,903	8,377
Water Year Types[b,c]												
Wet (32%)	7,511	12,176	11,622	18,870	19,567	17,810	14,598	9,612	6,426	7,574	5,293	13,916
Above Normal (16%)	6,711	11,184	11,185	16,976	18,484	17,432	12,412	7,174	6,171	8,650	5,448	9,654
Below Normal (13%)	6,046	6,466	11,361	10,381	13,627	9,842	7,454	5,489	5,958	7,948	5,637	5,132
Dry (24%)	5,215	8,027	12,724	9,098	12,422	12,174	8,077	4,381	5,159	6,678	4,291	4,665
Critical (15%)	4,072	4,733	7,847	8,021	8,590	8,066	5,306	3,683	4,176	5,648	3,817	4,154

Alternative 4 043019

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,139	12,837	21,333	22,424	22,716	21,621	19,272	11,449	8,253	9,693	5,823	8,950
20%	7,720	9,246	20,705	21,185	21,605	20,304	18,243	8,113	7,749	9,148	5,427	6,704
30%	7,251	7,322	15,430	19,598	20,881	19,189	14,430	6,159	7,187	8,784	5,248	5,631
40%	6,612	6,275	12,889	17,933	19,610	17,180	10,390	5,460	6,247	8,065	4,918	5,319
50%	5,812	5,983	8,770	12,332	16,457	15,159	8,773	4,842	5,772	7,208	4,577	4,892
60%	5,414	5,629	7,538	9,800	13,412	12,135	7,547	4,674	5,306	6,777	4,529	4,685
70%	4,853	5,202	5,904	8,172	11,060	9,806	6,560	4,510	4,866	5,921	4,406	4,549
80%	4,546	4,858	5,324	6,923	7,555	8,157	5,630	4,066	4,342	4,629	3,857	4,128
90%	4,014	4,378	4,852	6,015	6,424	5,769	5,111	3,459	3,649	4,219	3,411	3,870
Long Term												
Full Simulation Period[a]	6,319	7,399	11,640	13,795	15,489	14,390	10,903	6,477	6,173	7,146	4,787	5,659
Water Year Types[b,c]												
Wet (32%)	7,731	8,227	12,360	19,086	19,761	18,166	15,402	9,482	6,502	7,586	5,366	7,739
Above Normal (16%)	6,923	7,682	11,680	17,775	19,057	17,928	13,212	6,945	6,090	9,288	5,289	5,169
Below Normal (13%)	6,082	6,616	11,415	11,444	14,026	11,043	8,122	5,367	6,684	7,842	4,903	4,810
Dry (24%)	5,480	8,067	13,034	9,102	12,597	12,717	8,409	4,512	6,372	6,379	4,306	4,538
Critical (15%)	4,219	4,901	7,919	8,000	8,528	8,232	5,361	3,754	4,750	4,513	3,686	4,327

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54	**-729**	264	417	51	**-9**	**-33**	**-1,178**	449	**-3**	**-771**	**-6,050**
20%	112	**-3,623**	1,109	**-62**	48	**-18**	468	**-1,145**	679	**-276**	**-69**	**-6,977**
30%	558	**-3,620**	1,677	**-3**	12	160	3,086	**-53**	1,179	**-389**	87	**-5,411**
40%	464	**-3,993**	1,202	2,364	**-14**	1,371	1,217	211	769	**-644**	246	**-4,048**
50%	2	**-3,273**	302	1,403	530	1,608	1,053	187	770	**-597**	32	**-1,383**
60%	145	**-1,612**	275	312	790	1,832	636	232	472	149	9	**-575**
70%	215	**-790**	**-114**	286	794	889	231	511	159	101	161	**-74**
80%	49	**-301**	**-287**	**-19**	**-131**	177	**-88**	355	176	**-81**	**-95**	**-244**
90%	19	90	**-2**	3	115	**-442**	**-50**	**-17**	154	**-112**	**-32**	**-96**
Long Term												
Full Simulation Period[a]	194	**-1,753**	406	336	239	509	561	**-52**	488	**-148**	**-116**	**-2,718**
Water Year Types[b,c]												
Wet (32%)	220	**-3,950**	738	216	194	356	804	**-131**	75	12	73	**-6,177**
Above Normal (16%)	211	**-3,502**	496	799	573	496	800	**-229**	**-81**	638	**-159**	**-4,485**
Below Normal (13%)	36	150	54	1,063	399	1,201	669	**-122**	727	**-106**	**-734**	**-322**
Dry (24%)	266	39	310	3	175	543	332	131	1,213	**-299**	15	**-126**
Critical (15%)	147	168	72	**-20**	**-62**	166	56	71	574	**-1,134**	**-130**	172

a Based on the 82-year simulation period.

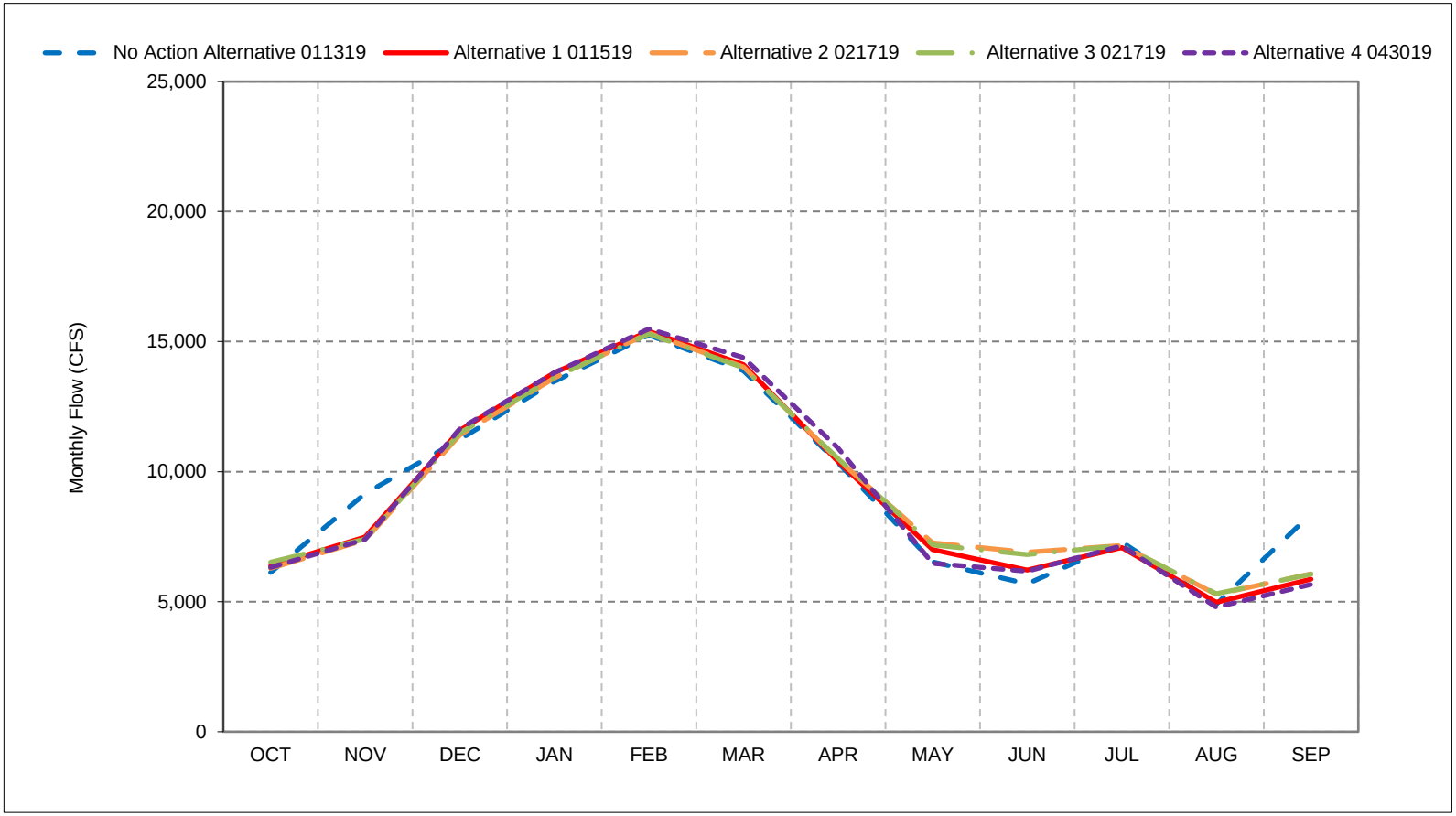
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-1. Sacramento River at Wilkins Slough Flow, Long-Term Average Flow



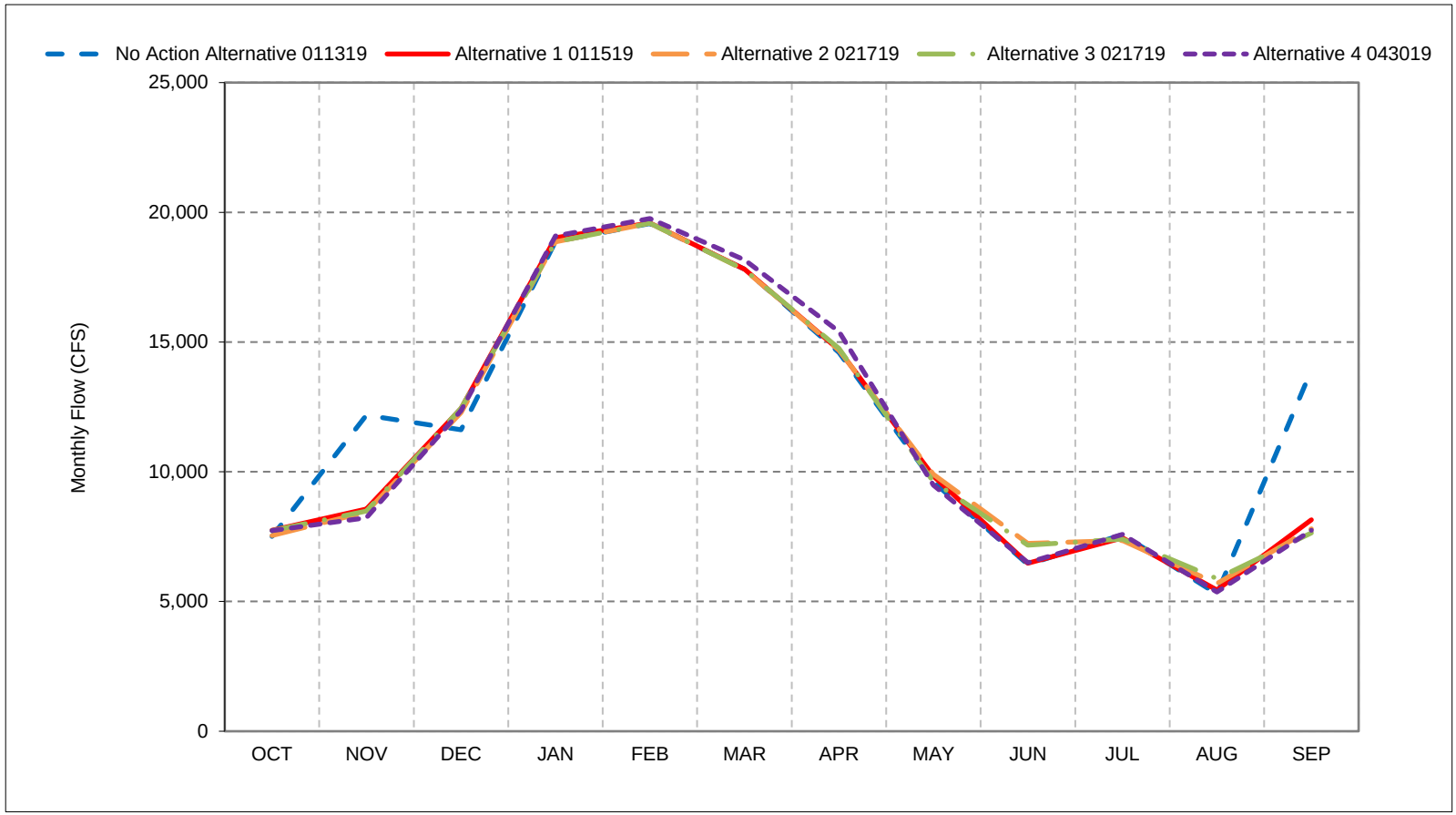
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-2. Sacramento River at Wilkins Slough Flow, Wet Year Average Flow



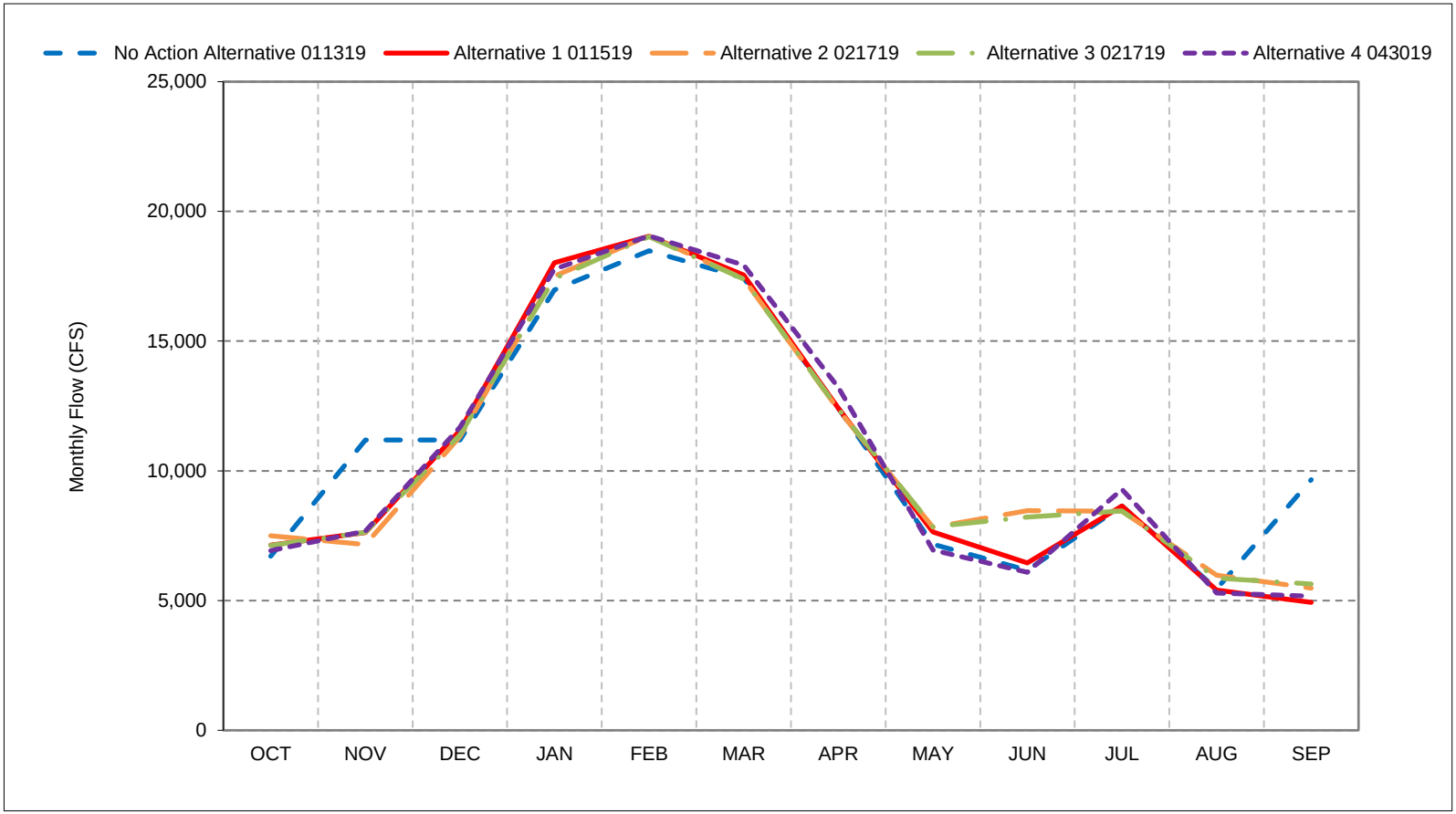
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-3. Sacramento River at Wilkins Slough Flow, Above Normal Year Average Flow



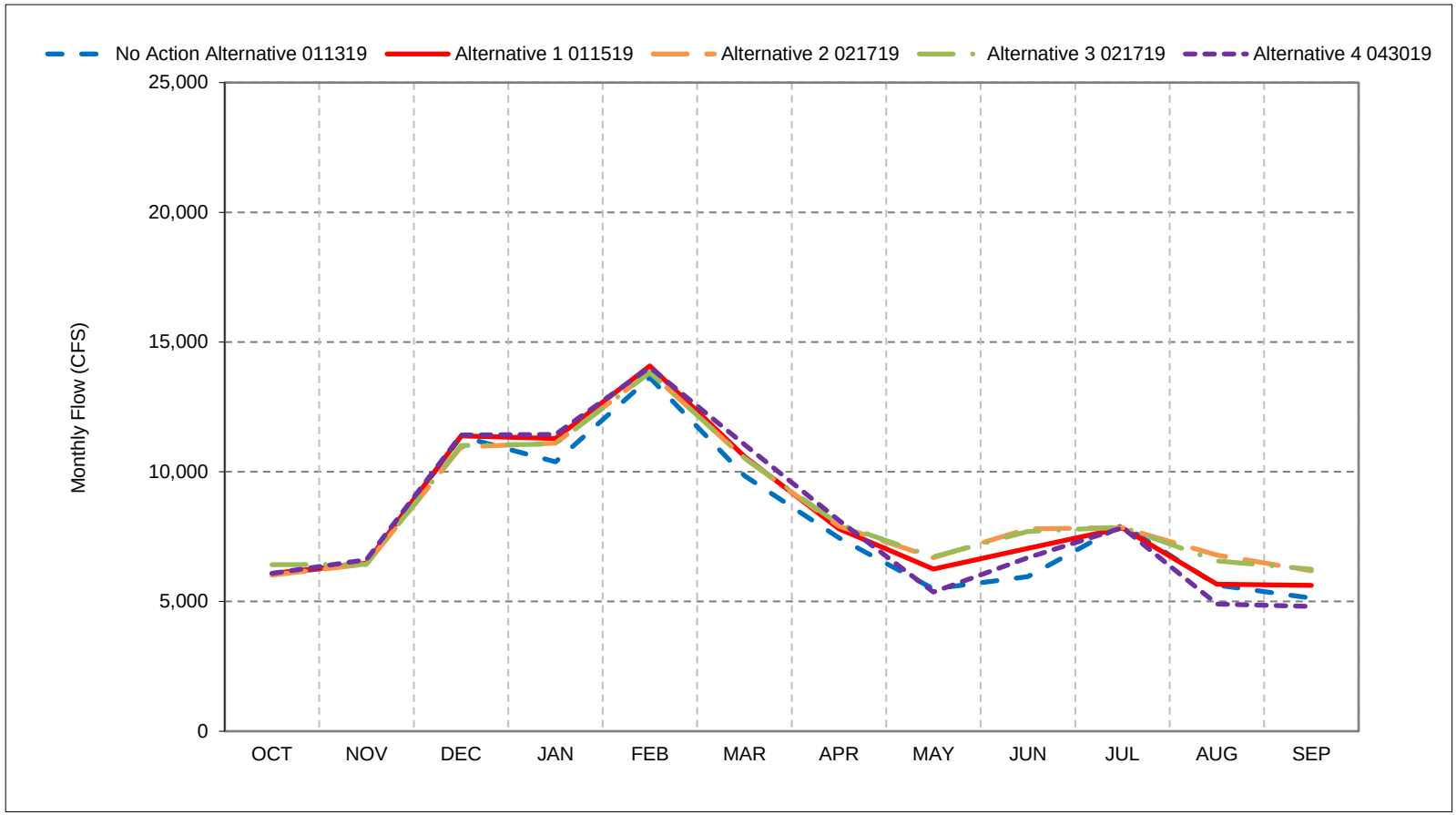
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

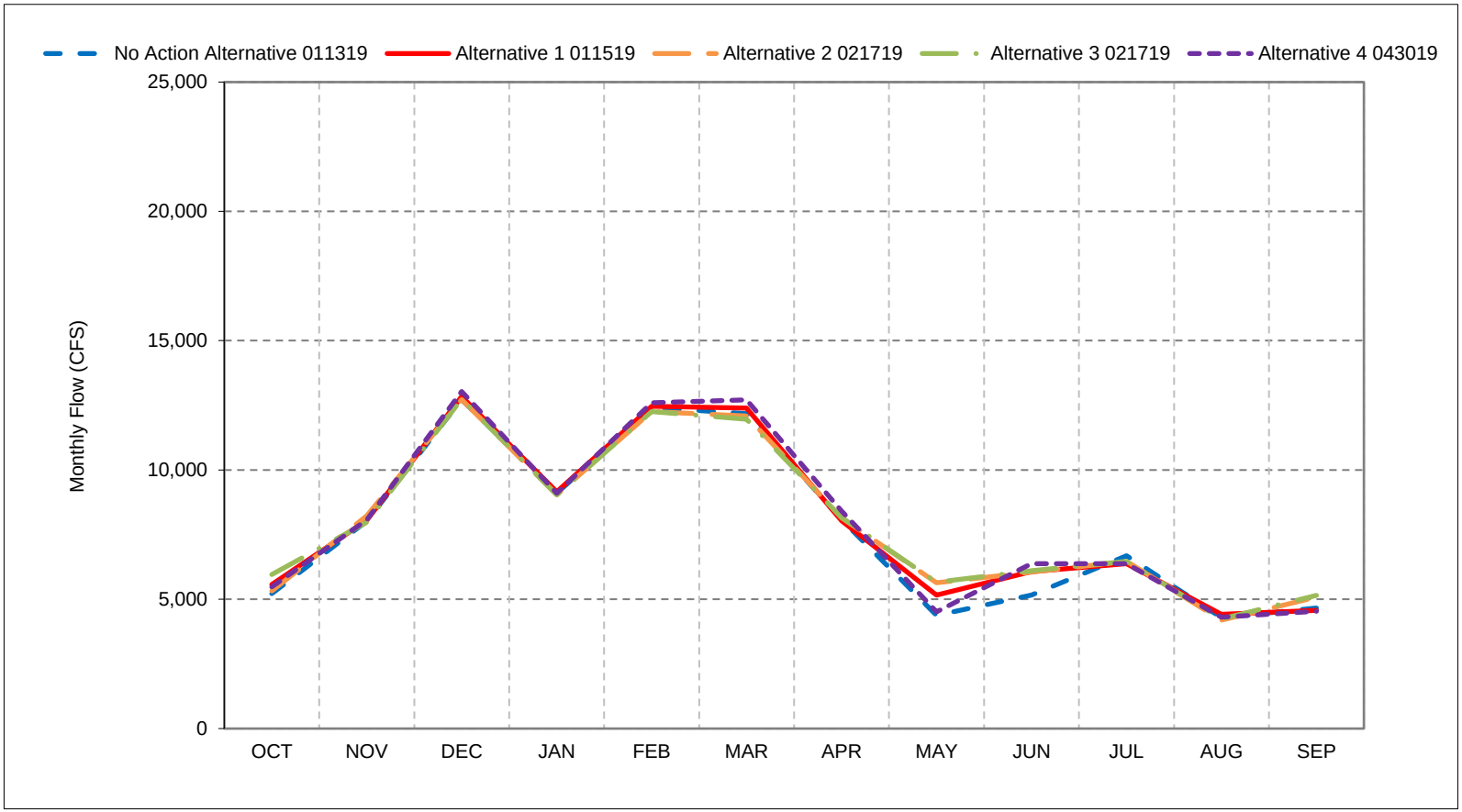
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-4. Sacramento River at Wilkins Slough Flow, Below Normal Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-5. Sacramento River at Wilkins Slough Flow, Dry Year Average Flow



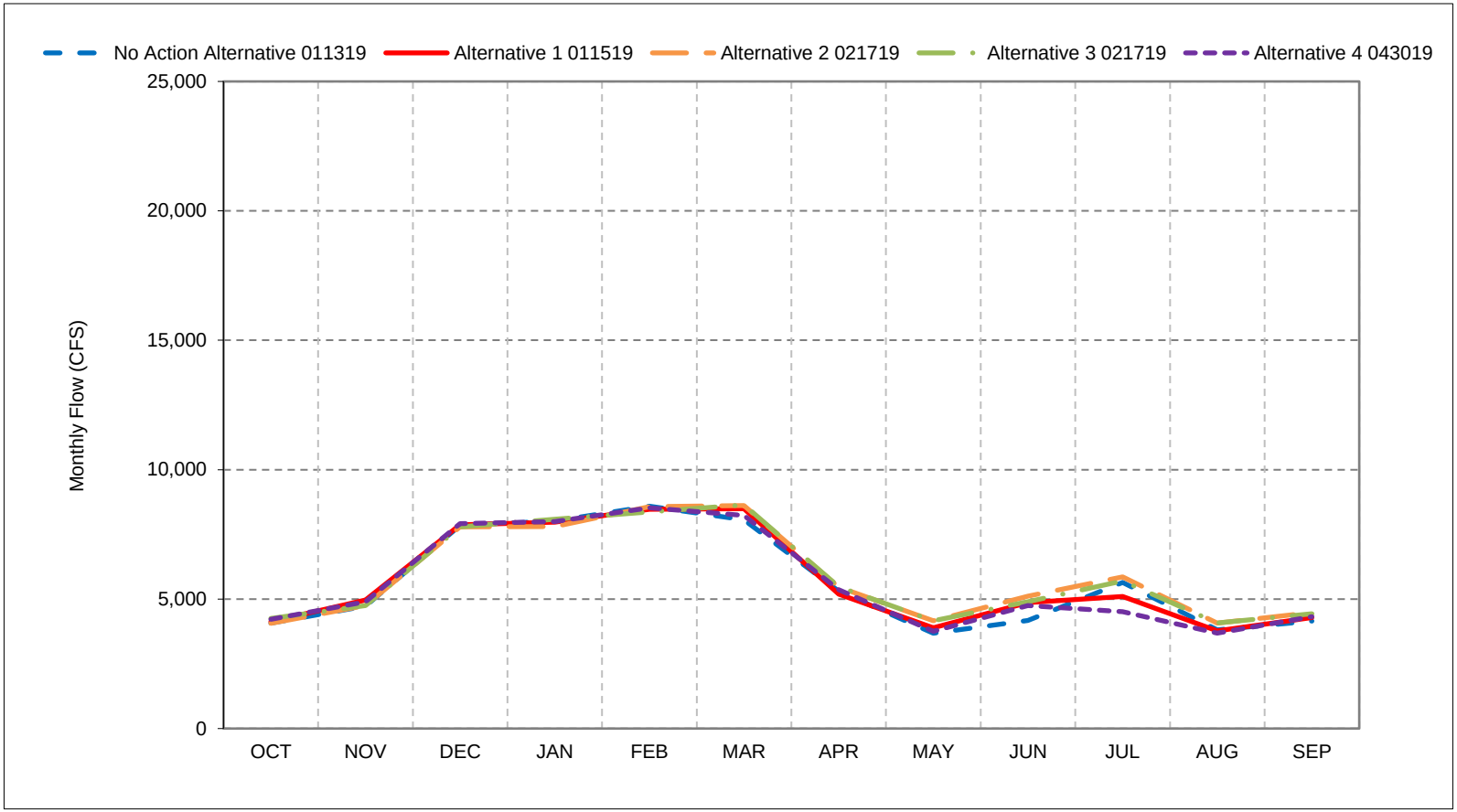
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

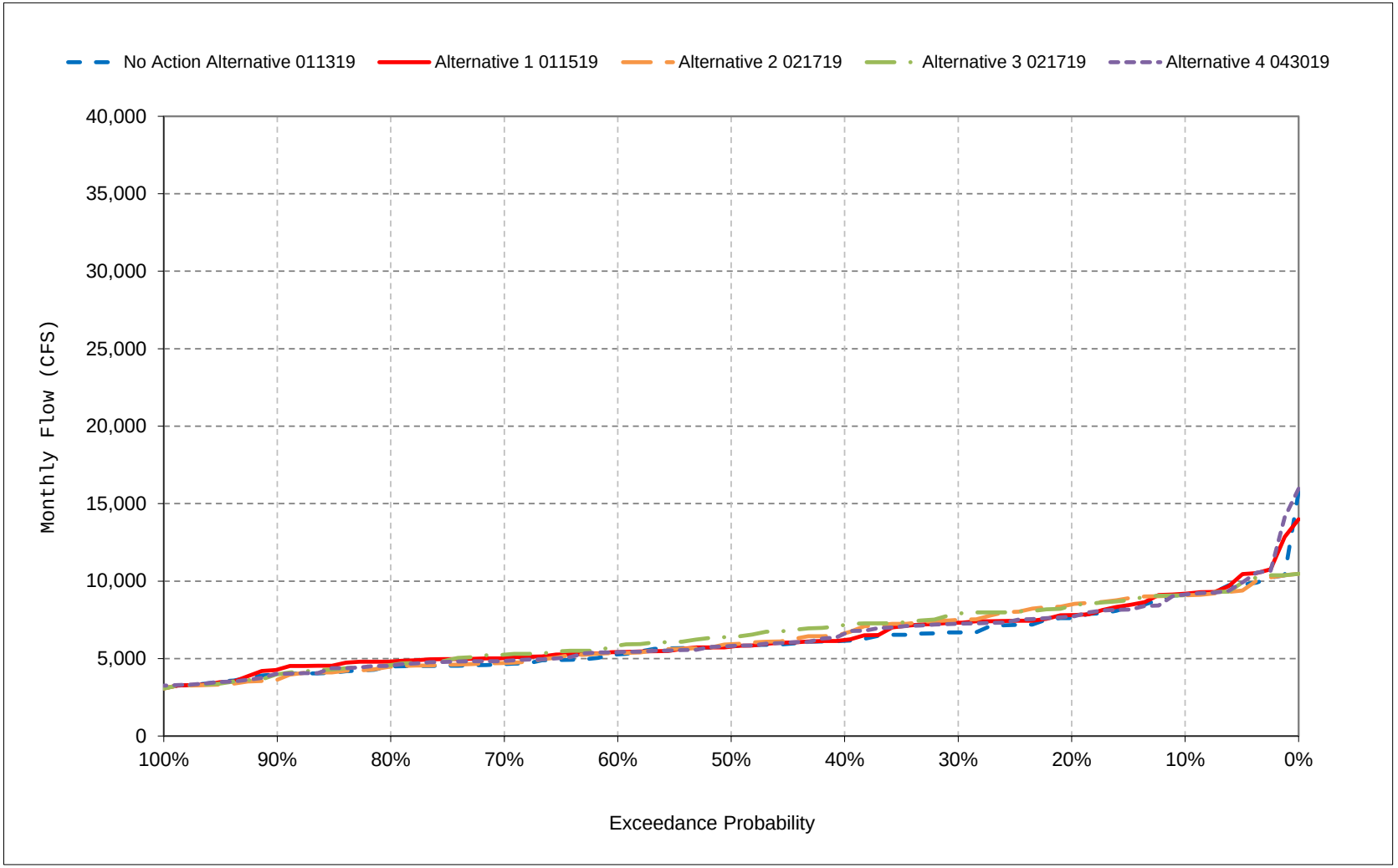
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-6. Sacramento River at Wilkins Slough Flow, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

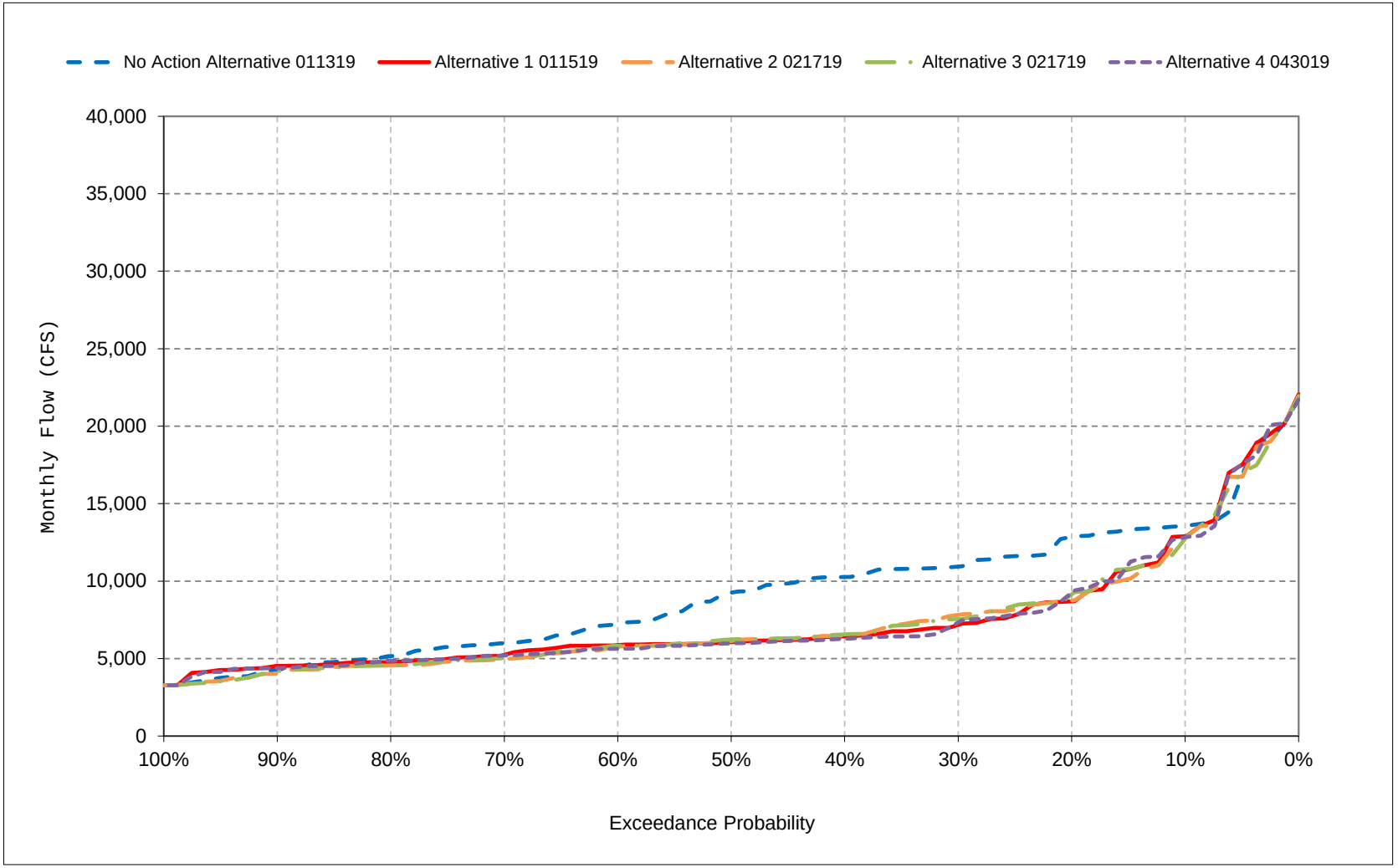
Figure 19-7. Sacramento River at Wilkins Slough Flow, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

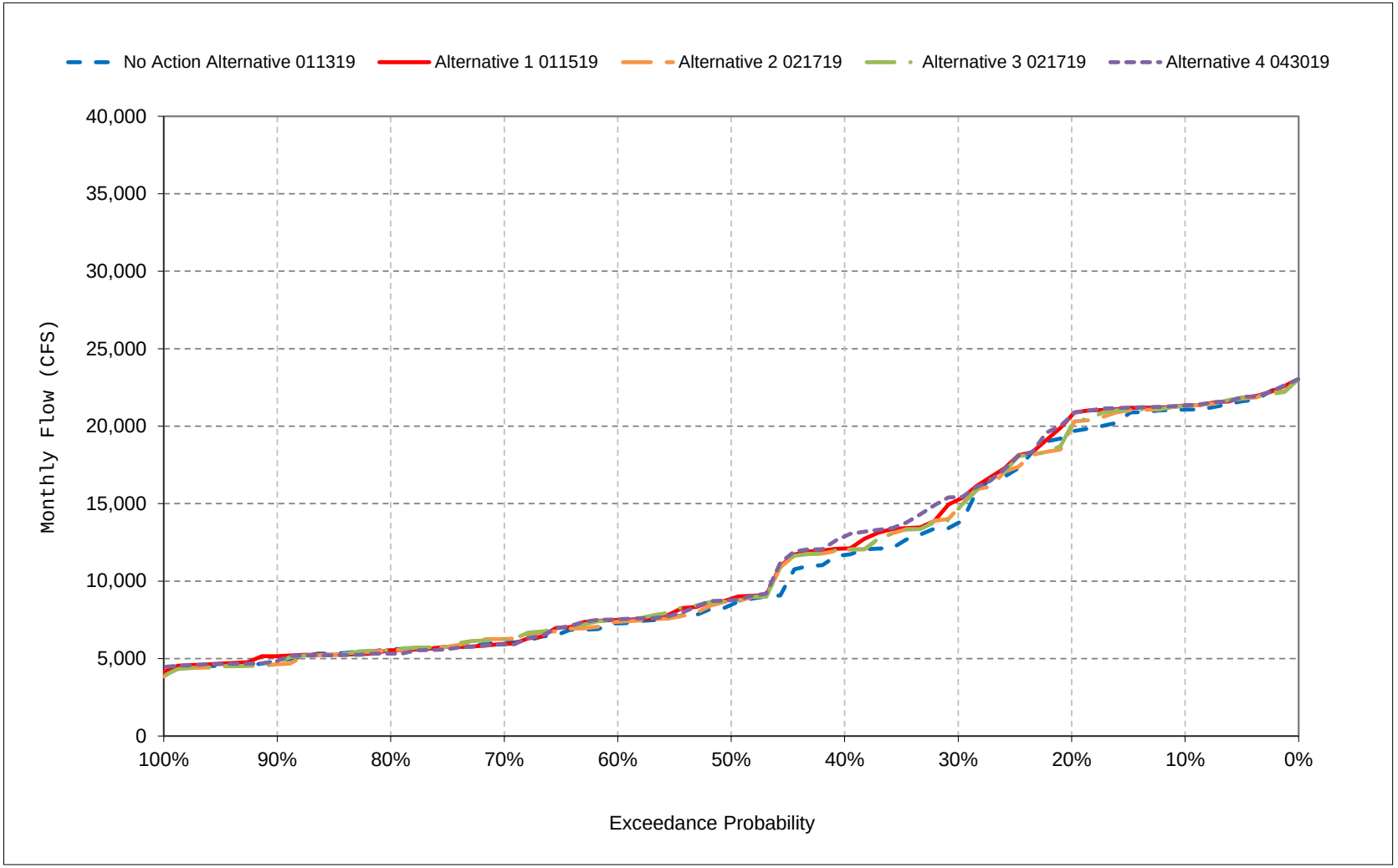
Figure 19-8. Sacramento River at Wilkins Slough Flow, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

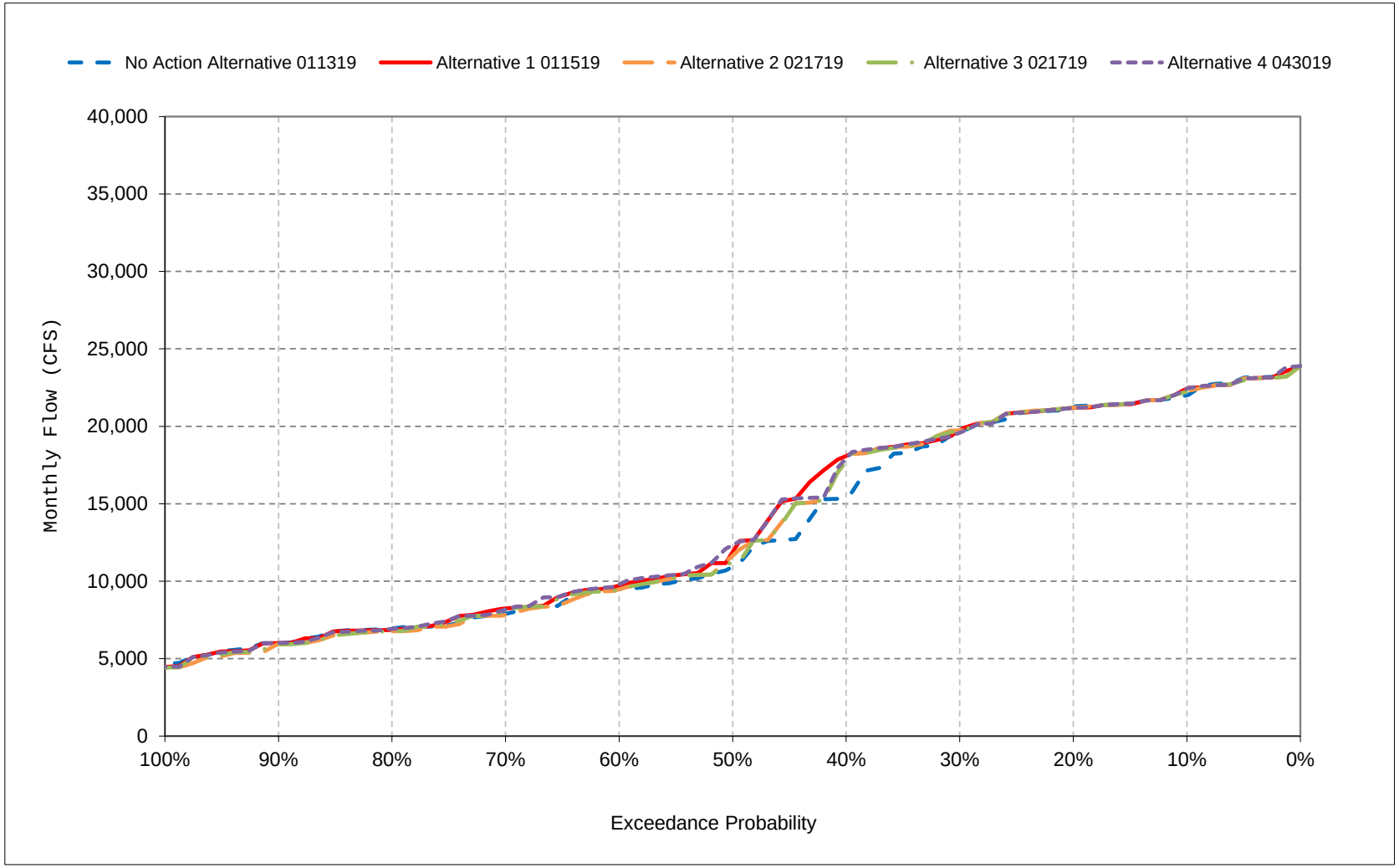
Figure 19-9. Sacramento River at Wilkins Slough Flow, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

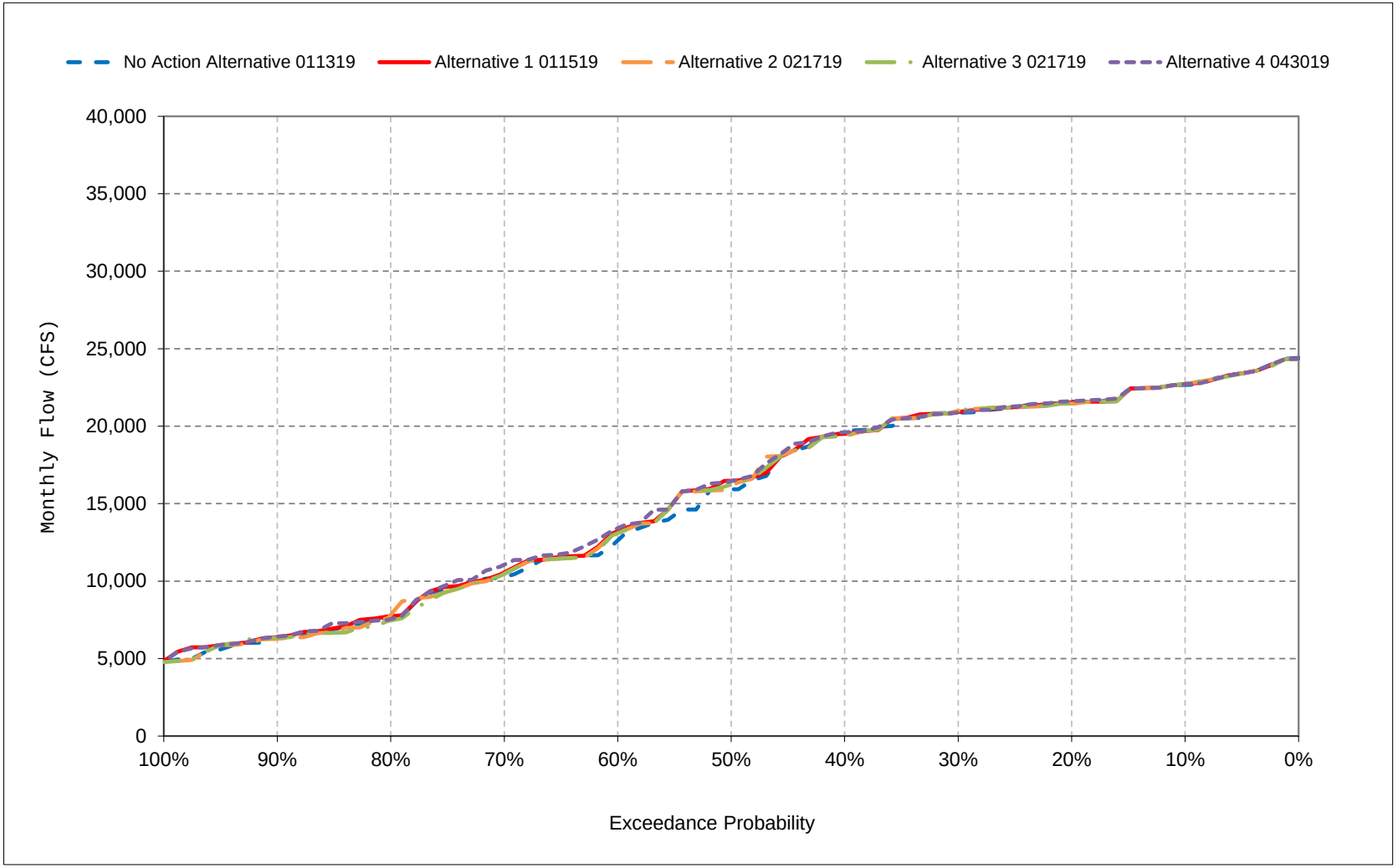
Figure 19-10. Sacramento River at Wilkins Slough Flow, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

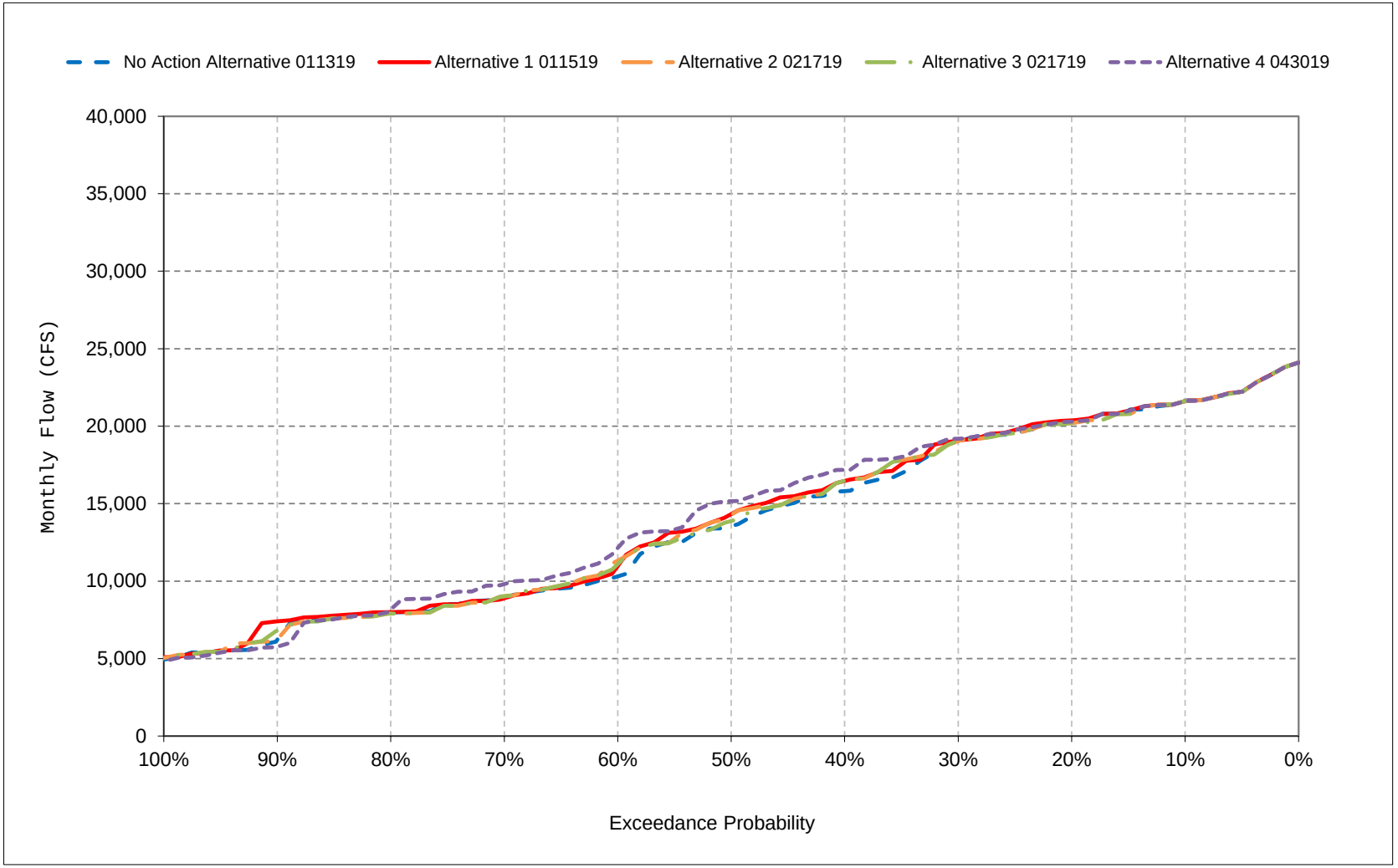
Figure 19-11. Sacramento River at Wilkins Slough Flow, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

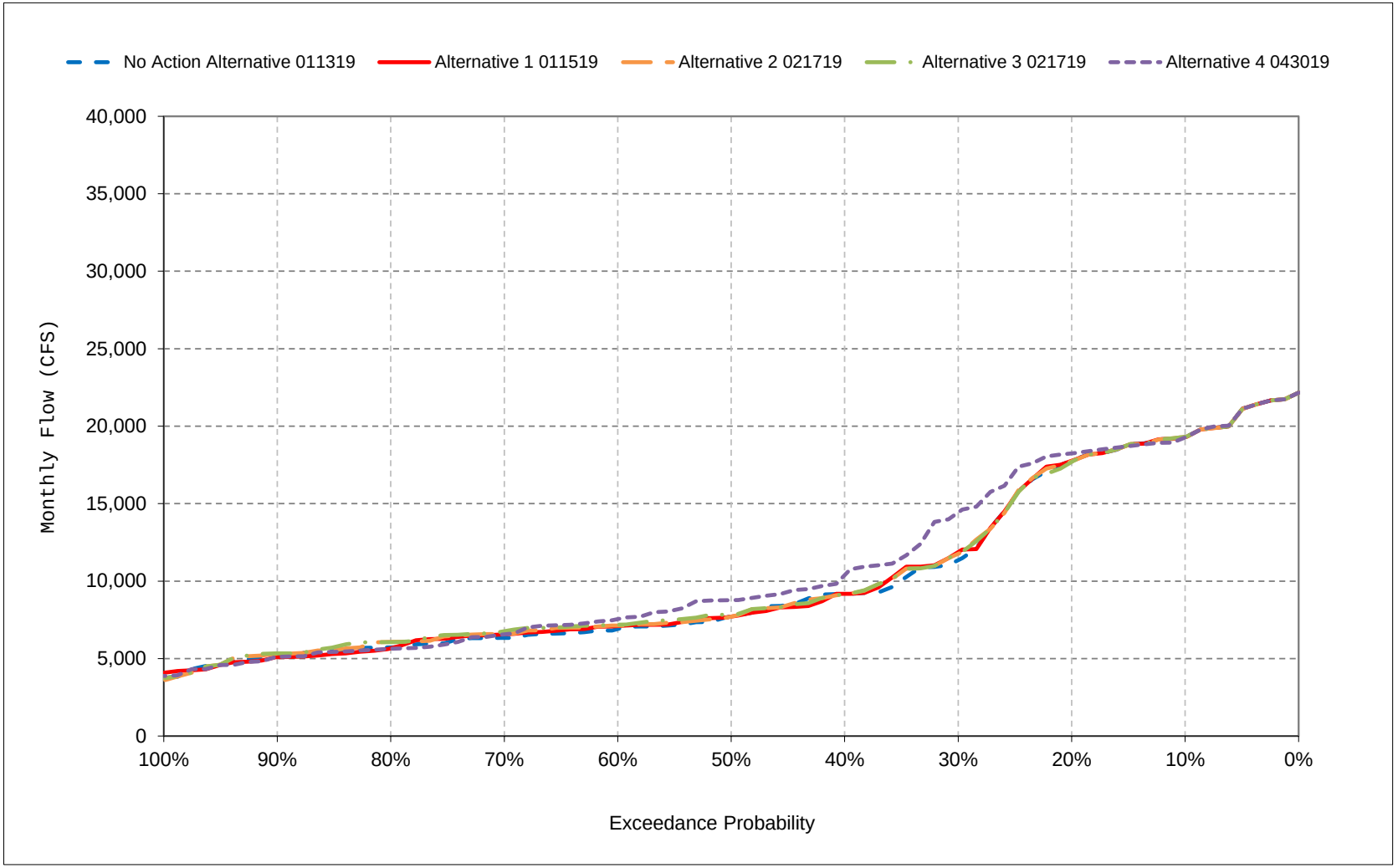
Figure 19-12. Sacramento River at Wilkins Slough Flow, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

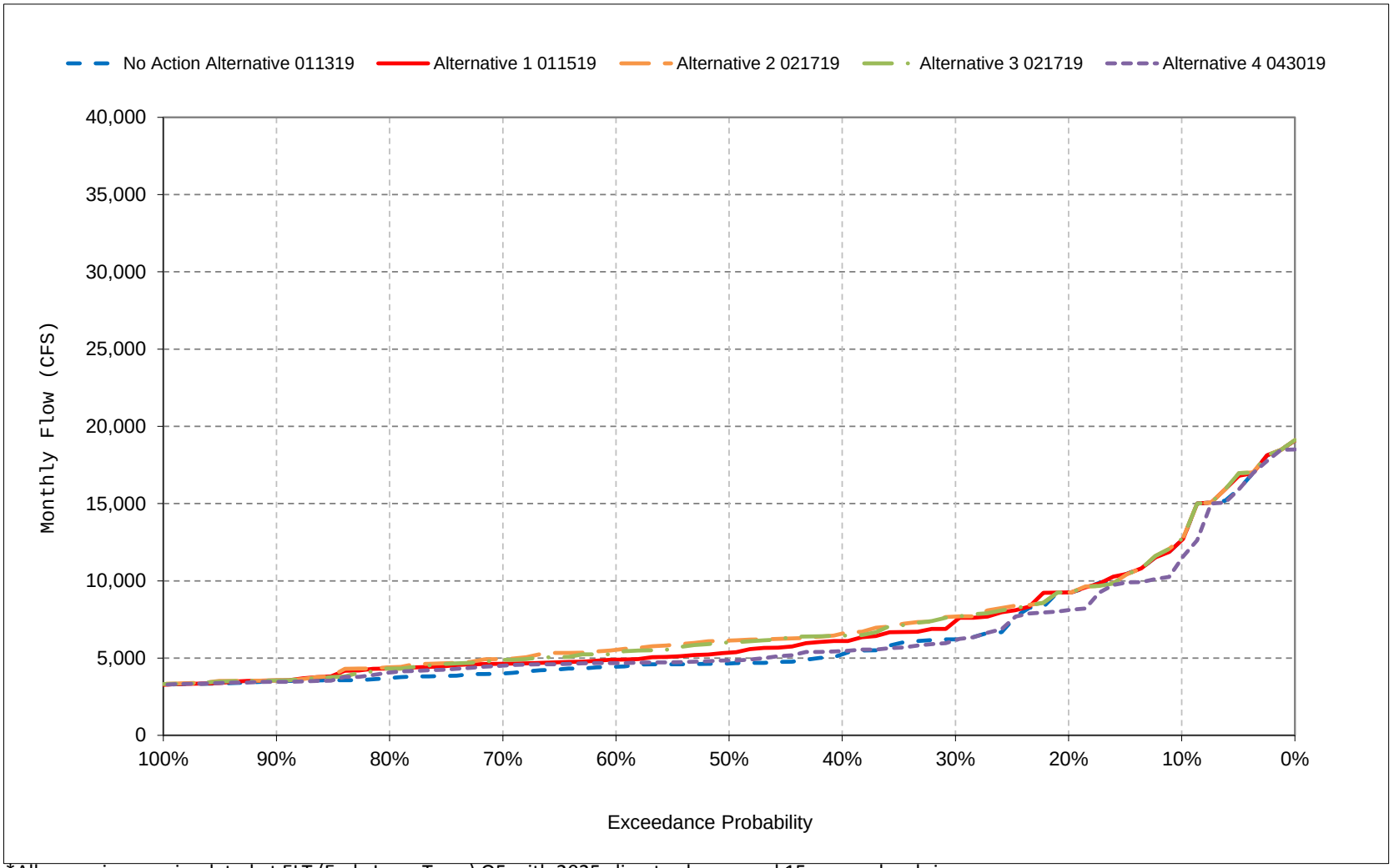
Figure 19-13. Sacramento River at Wilkins Slough Flow, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

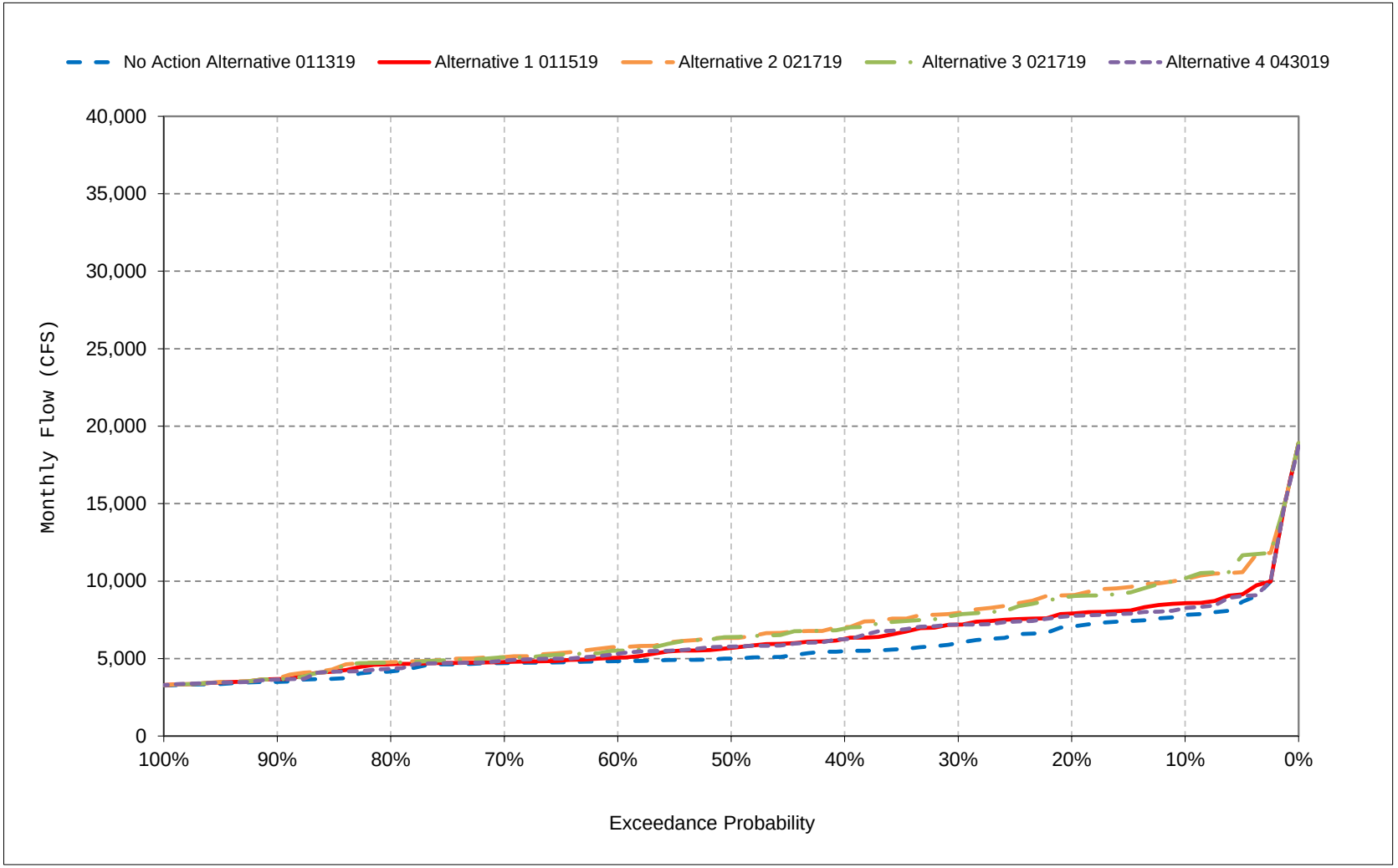
Figure 19-14. Sacramento River at Wilkins Slough Flow, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

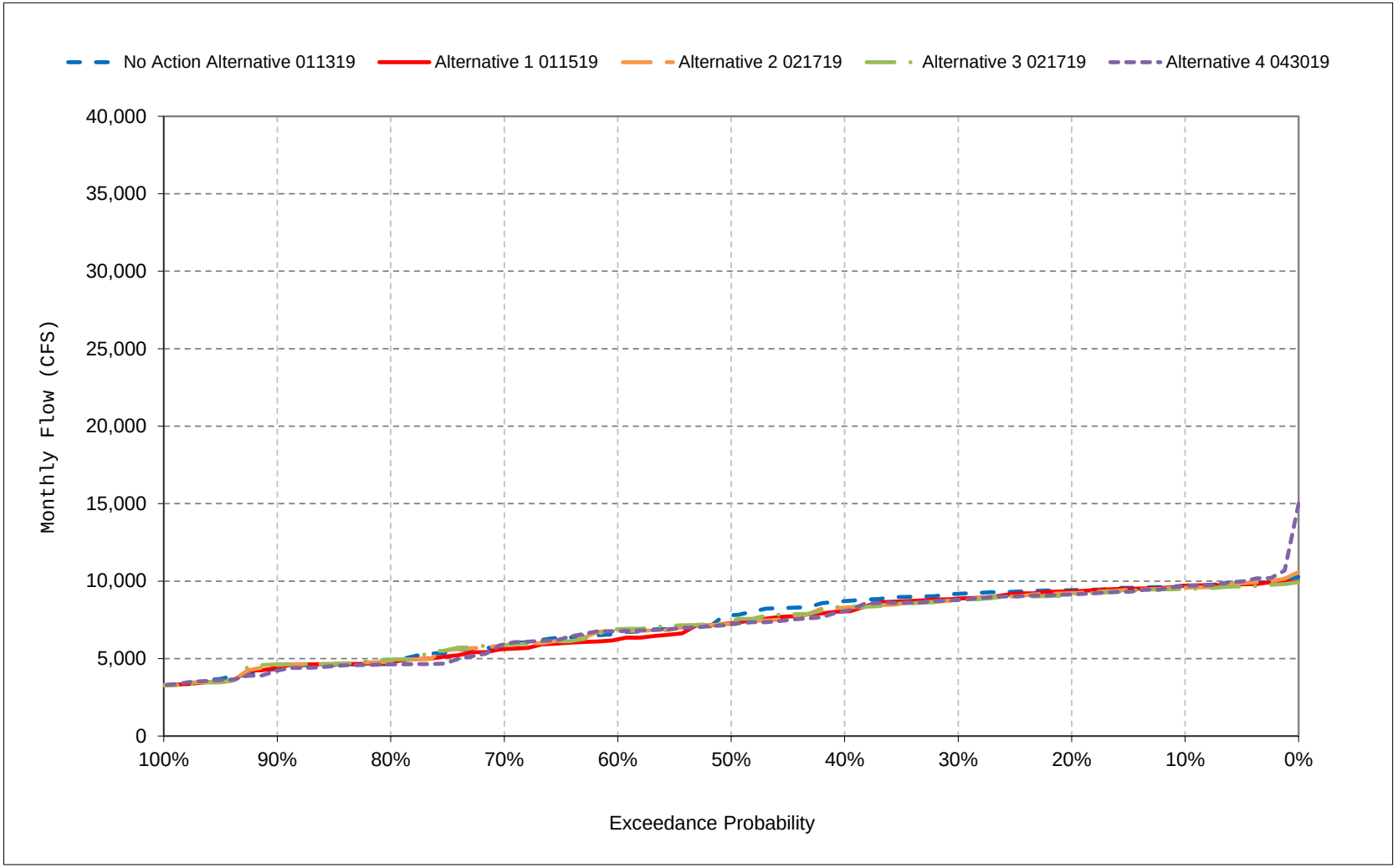
Figure 19-15. Sacramento River at Wilkins Slough Flow, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

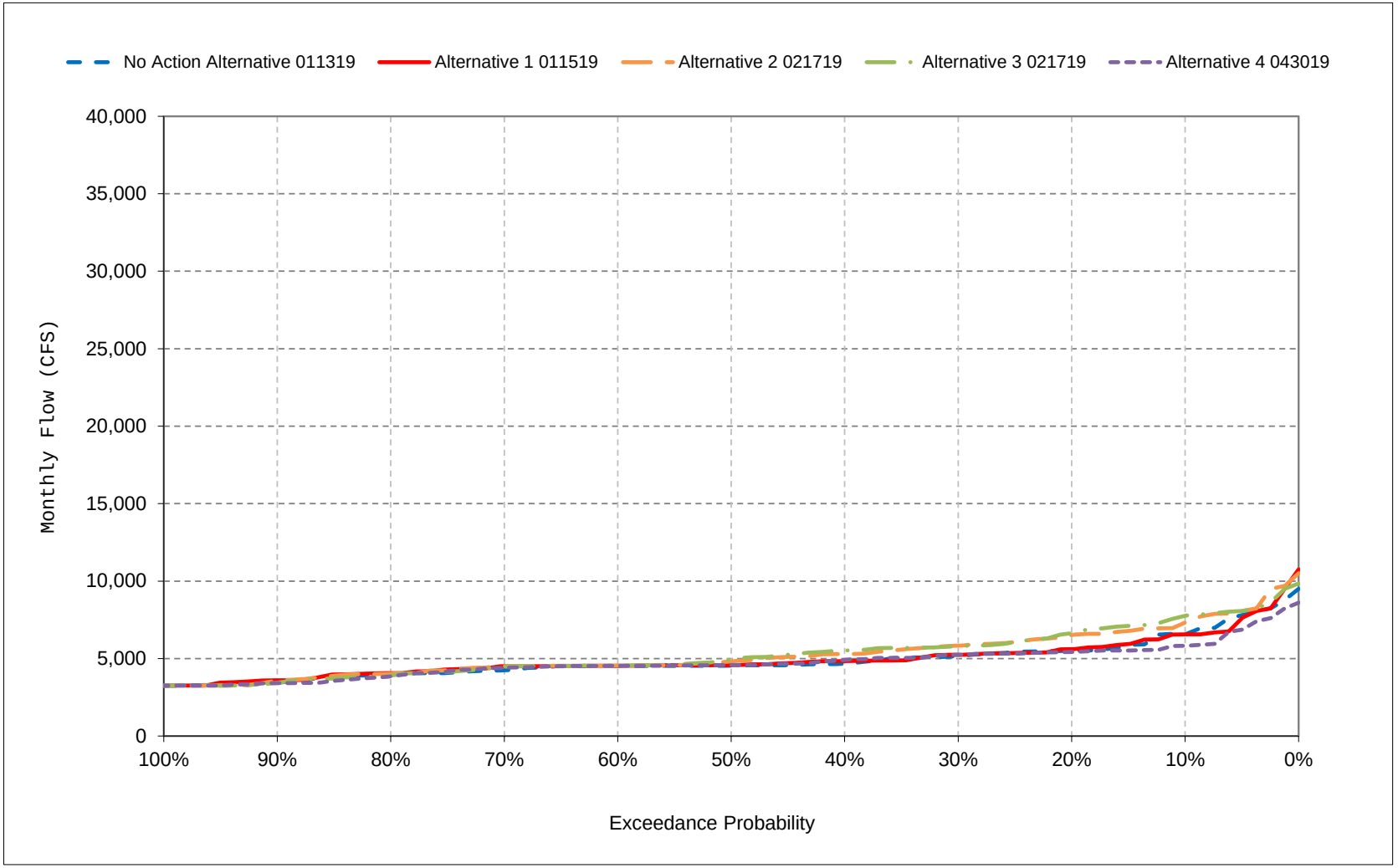
Figure 19-16. Sacramento River at Wilkins Slough Flow, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

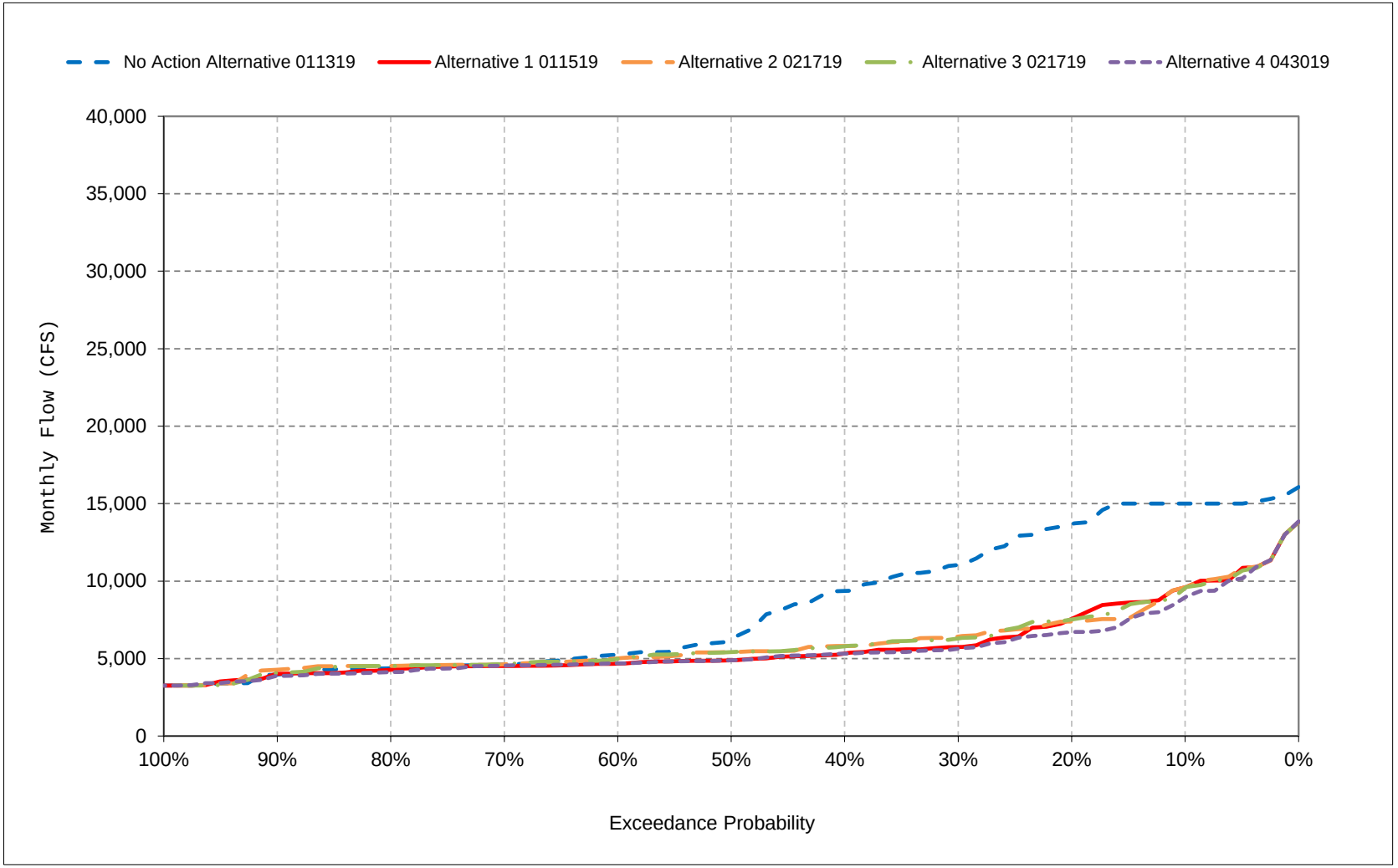
Figure 19-17. Sacramento River at Wilkins Slough Flow, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-18. Sacramento River at Wilkins Slough Flow, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 21-1. Feather River Flow downstream of Thermalito, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,000	2,500	5,018	13,760	17,606	14,415	8,407	8,325	5,575	9,607	7,960	9,472
20%	4,000	2,500	3,321	2,011	11,135	8,902	3,686	5,400	4,238	9,053	7,531	8,992
30%	4,000	2,426	2,087	1,700	4,284	6,734	2,554	3,081	3,871	8,782	7,277	7,869
40%	3,034	1,826	1,700	1,700	1,700	4,737	1,605	2,427	3,235	8,422	6,212	7,419
50%	1,762	1,700	1,700	1,700	1,700	1,700	1,153	1,996	2,947	8,000	4,705	3,893
60%	1,700	1,700	1,700	1,700	1,700	1,700	1,000	1,420	2,667	7,392	2,848	1,736
70%	1,700	1,200	1,700	1,200	1,700	1,700	1,000	1,000	2,450	4,752	2,261	1,203
80%	1,200	1,200	1,200	960	1,200	1,000	1,000	1,000	2,189	3,844	1,900	1,007
90%	900	900	900	900	900	800	758	1,000	1,716	3,226	1,410	1,000
Long Term												
Full Simulation Period[a]	2,473	1,970	2,802	4,459	5,438	6,099	3,050	3,479	3,340	6,888	4,625	4,841
Water Year Types[b,c]												
Wet (32%)	3,811	3,024	4,380	10,636	12,626	13,568	6,591	6,937	3,748	7,115	5,721	8,774
Above Normal (16%)	3,362	2,151	2,430	2,389	4,133	6,286	2,129	2,013	2,140	8,734	7,622	7,550
Below Normal (13%)	1,589	1,564	1,575	1,595	1,589	1,907	1,279	1,880	2,604	8,687	5,874	2,506
Dry (24%)	1,388	1,310	2,388	1,360	1,505	1,299	1,139	1,816	4,103	6,399	1,899	1,305
Critical (15%)	1,234	965	1,600	1,108	1,360	1,554	1,184	1,814	3,162	3,566	2,402	1,420

Alternative 1 011519

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,000	2,500	5,380	13,768	18,491	14,399	8,408	8,271	6,433	9,812	7,864	5,604
20%	3,963	2,469	3,501	2,739	11,947	10,484	3,603	5,387	5,100	9,307	7,588	4,860
30%	3,350	1,700	2,492	1,700	6,891	7,392	2,577	3,566	4,645	9,002	7,153	3,787
40%	2,035	1,700	1,700	1,700	1,807	5,124	1,633	3,176	4,239	8,702	6,560	2,195
50%	1,748	1,700	1,700	1,700	1,700	2,483	1,187	2,489	3,886	8,075	4,652	1,349
60%	1,700	1,700	1,700	1,700	1,700	1,700	1,000	1,917	3,420	7,255	2,835	1,198
70%	1,700	1,200	1,700	1,200	1,700	1,700	1,000	1,143	2,980	4,356	2,253	1,059
80%	1,200	1,200	1,200	960	1,200	1,000	1,000	1,000	2,559	3,673	1,888	1,000
90%	900	900	900	900	900	800	758	1,000	2,145	3,212	1,578	1,000
Long Term												
Full Simulation Period[a]	2,275	1,888	3,169	4,765	5,948	6,399	3,063	3,745	3,974	6,925	4,671	2,569
Water Year Types[b,c]												
Wet (32%)	3,116	2,832	5,556	11,597	13,163	13,954	6,587	7,086	4,039	7,190	5,539	2,614
Above Normal (16%)	3,404	2,024	2,406	2,389	4,833	7,250	2,205	2,265	2,649	9,083	7,563	5,401
Below Normal (13%)	1,593	1,564	1,564	1,607	3,317	2,064	1,278	2,387	3,520	9,244	6,623	2,470
Dry (24%)	1,402	1,310	2,397	1,360	1,505	1,309	1,126	2,179	5,129	5,966	2,004	1,444
Critical (15%)	1,307	959	1,583	1,108	1,341	1,563	1,221	1,959	3,759	3,483	2,317	1,367

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	362	9	885	**-17**	1	**-53**	858	205	**-96**	**-3,868**
20%	**-37**	**-31**	180	728	812	1,582	**-83**	**-13**	862	255	57	**-4,133**
30%	**-650**	**-726**	405	0	2,606	657	24	484	775	220	**-123**	**-4,082**
40%	**-999**	**-126**	0	0	107	387	28	750	1,004	281	347	**-5,224**
50%	**-13**	0	0	0	0	783	34	493	940	74	**-54**	**-2,544**
60%	0	0	0	0	0	0	0	497	753	**-137**	**-13**	**-538**
70%	0	0	0	0	0	0	0	143	531	**-396**	**-8**	**-145**
80%	0	0	0	0	0	0	0	0	370	**-171**	**-12**	**-7**
90%	0	0	0	0	0	0	**0**	0	429	**-13**	168	0
Long Term												
Full Simulation Period[a]	**-199**	**-82**	367	306	510	300	13	265	634	36	47	**-2,272**
Water Year Types[b,c]												
Wet (32%)	**-694**	**-192**	1,176	961	537	386	**-4**	150	291	75	**-182**	**-6,159**
Above Normal (16%)	43	**-127**	**-24**	**-1**	701	965	76	253	510	349	**-59**	**-2,149**
Below Normal (13%)	4	0	**-10**	12	1,729	157	**-1**	507	916	558	749	**-36**
Dry (24%)	14	0	8	0	**0**	10	**-12**	363	1,027	**-433**	105	139
Critical (15%)	74	**-7**	**-17**	0	**-20**	9	37	145	597	**-83**	**-86**	**-53**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 21-2. Feather River Flow downstream of Thermalito, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,000	2,500	5,018	13,760	17,606	14,415	8,407	8,325	5,575	9,607	7,960	9,472
20%	4,000	2,500	3,321	2,011	11,135	8,902	3,686	5,400	4,238	9,053	7,531	8,992
30%	4,000	2,426	2,087	1,700	4,284	6,734	2,554	3,081	3,871	8,782	7,277	7,869
40%	3,034	1,826	1,700	1,700	1,700	4,737	1,605	2,427	3,235	8,422	6,212	7,419
50%	1,762	1,700	1,700	1,700	1,700	1,700	1,153	1,996	2,947	8,000	4,705	3,893
60%	1,700	1,700	1,700	1,700	1,700	1,700	1,000	1,420	2,667	7,392	2,848	1,736
70%	1,700	1,200	1,700	1,200	1,700	1,700	1,000	1,000	2,450	4,752	2,261	1,203
80%	1,200	1,200	1,200	960	1,200	1,000	1,000	1,000	2,189	3,844	1,900	1,007
90%	900	900	900	900	900	800	758	1,000	1,716	3,226	1,410	1,000
Long Term												
Full Simulation Period[a]	2,473	1,970	2,802	4,459	5,438	6,099	3,050	3,479	3,340	6,888	4,625	4,841
Water Year Types[b,c]												
Wet (32%)	3,811	3,024	4,380	10,636	12,626	13,568	6,591	6,937	3,748	7,115	5,721	8,774
Above Normal (16%)	3,362	2,151	2,430	2,389	4,133	6,286	2,129	2,013	2,140	8,734	7,622	7,550
Below Normal (13%)	1,589	1,564	1,575	1,595	1,589	1,907	1,279	1,880	2,604	8,687	5,874	2,506
Dry (24%)	1,388	1,310	2,388	1,360	1,505	1,299	1,139	1,816	4,103	6,399	1,899	1,305
Critical (15%)	1,234	965	1,600	1,108	1,360	1,554	1,184	1,814	3,162	3,566	2,402	1,420

Alternative 2 021719

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,000	2,500	5,312	14,314	19,581	14,789	8,407	8,325	8,724	9,415	7,792	5,490
20%	4,000	2,500	3,425	2,795	11,479	10,484	3,602	6,126	7,147	8,811	6,873	4,227
30%	3,809	1,700	2,531	1,700	6,134	7,174	2,646	4,099	6,017	8,354	5,253	3,469
40%	2,800	1,700	1,707	1,700	1,808	5,134	1,671	3,377	5,336	7,679	3,837	2,052
50%	1,972	1,700	1,700	1,700	1,700	2,500	1,180	2,515	4,876	6,727	3,031	1,318
60%	1,700	1,700	1,700	1,700	1,700	1,700	1,000	2,193	4,341	4,885	2,472	1,144
70%	1,700	1,257	1,700	1,200	1,700	1,700	1,000	1,454	3,959	4,268	2,051	1,012
80%	1,200	1,200	1,200	960	1,200	1,005	1,000	1,000	2,976	3,555	1,778	1,000
90%	949	900	900	900	900	800	758	1,000	2,352	3,065	1,297	1,000
Long Term												
Full Simulation Period[a]	2,455	1,936	3,163	4,831	5,902	6,363	3,072	3,929	5,161	6,268	3,887	2,436
Water Year Types[b,c]												
Wet (32%)	3,562	2,934	5,558	11,761	13,062	13,825	6,590	7,161	4,604	6,763	4,518	2,586
Above Normal (16%)	3,214	2,001	2,334	2,388	4,845	7,203	2,205	2,433	4,361	8,821	6,750	4,916
Below Normal (13%)	1,856	1,682	1,571	1,712	3,148	2,065	1,339	3,011	7,224	7,505	3,981	2,156
Dry (24%)	1,441	1,310	2,401	1,360	1,505	1,343	1,125	2,347	6,064	4,952	2,053	1,408
Critical (15%)	1,474	980	1,604	1,108	1,390	1,594	1,223	2,025	3,841	3,490	2,390	1,395

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	294	554	1,975	374	0	0	3,149	**-192**	**-168**	**-3,982**
20%	0	0	104	784	344	1,582	**-84**	726	2,908	**-242**	**-658**	**-4,766**
30%	**-191**	**-726**	444	0	1,849	440	92	1,018	2,146	**-428**	**-2,024**	**-4,400**
40%	**-233**	**-126**	7	0	108	396	66	950	2,101	**-742**	**-2,375**	**-5,367**
50%	210	0	0	0	0	800	27	519	1,930	**-1,273**	**-1,675**	**-2,575**
60%	0	0	0	0	0	0	0	773	1,673	**-2,507**	**-376**	**-593**
70%	0	57	0	0	0	0	0	454	1,509	**-485**	**-210**	**-192**
80%	0	0	0	0	0	5	0	0	787	**-289**	**-122**	**-7**
90%	49	0	0	0	0	0	**0**	0	636	**-161**	**-113**	0
Long Term												
Full Simulation Period[a]	**-18**	**-34**	361	372	464	264	22	450	1,821	**-620**	**-738**	**-2,405**
Water Year Types[b,c]												
Wet (32%)	**-248**	**-90**	1,178	1,125	436	256	**-1**	224	856	**-351**	**-1,202**	**-6,187**
Above Normal (16%)	**-147**	**-150**	**-96**	**-1**	712	917	76	421	2,221	87	**-872**	**-2,634**
Below Normal (13%)	267	118	**-4**	117	1,559	157	60	1,130	4,620	**-1,182**	**-1,893**	**-349**
Dry (24%)	53	0	12	0	**0**	44	**-13**	531	1,962	**-1,446**	154	103
Critical (15%)	240	14	4	0	30	40	39	211	679	**-77**	**-13**	**-25**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 21-3. Feather River Flow downstream of Thermalito, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,000	2,500	5,018	13,760	17,606	14,415	8,407	8,325	5,575	9,607	7,960	9,472
20%	4,000	2,500	3,321	2,011	11,135	8,902	3,686	5,400	4,238	9,053	7,531	8,992
30%	4,000	2,426	2,087	1,700	4,284	6,734	2,554	3,081	3,871	8,782	7,277	7,869
40%	3,034	1,826	1,700	1,700	1,700	4,737	1,605	2,427	3,235	8,422	6,212	7,419
50%	1,762	1,700	1,700	1,700	1,700	1,700	1,153	1,996	2,947	8,000	4,705	3,893
60%	1,700	1,700	1,700	1,700	1,700	1,700	1,000	1,420	2,667	7,392	2,848	1,736
70%	1,700	1,200	1,700	1,200	1,700	1,700	1,000	1,000	2,450	4,752	2,261	1,203
80%	1,200	1,200	1,200	960	1,200	1,000	1,000	1,000	2,189	3,844	1,900	1,007
90%	900	900	900	900	900	800	758	1,000	1,716	3,226	1,410	1,000
Long Term												
Full Simulation Period[a]	2,473	1,970	2,802	4,459	5,438	6,099	3,050	3,479	3,340	6,888	4,625	4,841
Water Year Types[b,c]												
Wet (32%)	3,811	3,024	4,380	10,636	12,626	13,568	6,591	6,937	3,748	7,115	5,721	8,774
Above Normal (16%)	3,362	2,151	2,430	2,389	4,133	6,286	2,129	2,013	2,140	8,734	7,622	7,550
Below Normal (13%)	1,589	1,564	1,575	1,595	1,589	1,907	1,279	1,880	2,604	8,687	5,874	2,506
Dry (24%)	1,388	1,310	2,388	1,360	1,505	1,299	1,139	1,816	4,103	6,399	1,899	1,305
Critical (15%)	1,234	965	1,600	1,108	1,360	1,554	1,184	1,814	3,162	3,566	2,402	1,420

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,000	2,500	5,363	14,314	19,704	14,873	8,407	8,305	8,093	9,270	7,615	5,272
20%	4,000	2,500	3,931	2,799	11,482	10,484	3,602	6,050	6,786	8,867	6,348	4,399
30%	3,960	1,979	2,737	1,700	6,249	7,198	2,680	4,046	5,921	8,354	4,721	3,133
40%	3,252	1,700	1,700	1,700	2,148	5,140	1,776	3,283	5,319	7,682	3,558	2,463
50%	1,952	1,700	1,700	1,700	1,700	2,500	1,179	2,543	4,706	6,824	2,874	1,323
60%	1,761	1,700	1,700	1,700	1,700	1,700	1,000	1,992	4,231	5,040	2,325	1,117
70%	1,700	1,257	1,700	1,216	1,700	1,700	1,000	1,450	3,760	4,309	2,054	1,056
80%	1,223	1,200	1,200	960	1,200	1,000	1,000	1,000	3,270	3,478	1,747	1,000
90%	908	900	900	900	900	800	758	1,000	2,206	2,940	1,110	1,000
Long Term												
Full Simulation Period[a]	2,528	1,952	3,261	4,879	5,927	6,416	3,078	3,904	5,029	6,248	3,740	2,456
Water Year Types[b,c]												
Wet (32%)	3,553	2,990	5,775	11,894	13,060	13,967	6,598	6,992	4,687	6,791	3,993	2,725
Above Normal (16%)	3,476	1,987	2,530	2,389	4,916	7,248	2,205	2,408	3,943	8,816	6,831	4,881
Below Normal (13%)	1,973	1,678	1,571	1,733	3,307	2,065	1,349	2,972	6,836	7,761	4,084	1,963
Dry (24%)	1,506	1,310	2,389	1,364	1,505	1,348	1,133	2,515	6,043	4,712	2,046	1,393
Critical (15%)	1,496	986	1,608	1,123	1,341	1,590	1,226	2,005	3,601	3,462	2,349	1,467

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	346	554	2,098	458	0	**-19**	2,519	**-337**	**-345**	**-4,200**
20%	0	0	610	788	347	1,582	**-84**	650	2,548	**-185**	**-1,183**	**-4,594**
30%	**-40**	**-448**	651	0	1,965	463	126	965	2,050	**-428**	**-2,555**	**-4,735**
40%	218	**-126**	0	0	448	402	171	857	2,084	**-740**	**-2,654**	**-4,956**
50%	190	0	0	0	0	800	26	547	1,759	**-1,176**	**-1,831**	**-2,570**
60%	61	0	0	0	0	0	0	573	1,564	**-2,352**	**-523**	**-619**
70%	0	57	0	16	0	0	0	450	1,310	**-443**	**-207**	**-148**
80%	23	0	0	0	0	0	0	0	1,081	**-366**	**-153**	**-7**
90%	8	0	0	0	0	0	**0**	0	490	**-286**	**-300**	0
Long Term												
Full Simulation Period[a]	55	**-18**	459	420	489	317	29	425	1,689	**-641**	**-885**	**-2,385**
Water Year Types[b,c]												
Wet (32%)	**-258**	**-34**	1,395	1,258	434	398	7	56	939	**-324**	**-1,727**	**-6,048**
Above Normal (16%)	114	**-164**	100	**0**	784	962	76	396	1,803	82	**-790**	**-2,669**
Below Normal (13%)	384	114	**-4**	139	1,719	157	70	1,091	4,232	**-926**	**-1,790**	**-543**
Dry (24%)	118	0	1	4	**0**	49	**-6**	699	1,940	**-1,687**	147	88
Critical (15%)	262	21	8	15	**-20**	36	42	190	439	**-105**	**-54**	47

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 21-4. Feather River Flow downstream of Thermalito, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,000	2,500	5,018	13,760	17,606	14,415	8,407	8,325	5,575	9,607	7,960	9,472
20%	4,000	2,500	3,321	2,011	11,135	8,902	3,686	5,400	4,238	9,053	7,531	8,992
30%	4,000	2,426	2,087	1,700	4,284	6,734	2,554	3,081	3,871	8,782	7,277	7,869
40%	3,034	1,826	1,700	1,700	1,700	4,737	1,605	2,427	3,235	8,422	6,212	7,419
50%	1,762	1,700	1,700	1,700	1,700	1,700	1,153	1,996	2,947	8,000	4,705	3,893
60%	1,700	1,700	1,700	1,700	1,700	1,700	1,000	1,420	2,667	7,392	2,848	1,736
70%	1,700	1,200	1,700	1,200	1,700	1,700	1,000	1,000	2,450	4,752	2,261	1,203
80%	1,200	1,200	1,200	960	1,200	1,000	1,000	1,000	2,189	3,844	1,900	1,007
90%	900	900	900	900	900	800	758	1,000	1,716	3,226	1,410	1,000
Long Term												
Full Simulation Period[a]	2,473	1,970	2,802	4,459	5,438	6,099	3,050	3,479	3,340	6,888	4,625	4,841
Water Year Types[b,c]												
Wet (32%)	3,811	3,024	4,380	10,636	12,626	13,568	6,591	6,937	3,748	7,115	5,721	8,774
Above Normal (16%)	3,362	2,151	2,430	2,389	4,133	6,286	2,129	2,013	2,140	8,734	7,622	7,550
Below Normal (13%)	1,589	1,564	1,575	1,595	1,589	1,907	1,279	1,880	2,604	8,687	5,874	2,506
Dry (24%)	1,388	1,310	2,388	1,360	1,505	1,299	1,139	1,816	4,103	6,399	1,899	1,305
Critical (15%)	1,234	965	1,600	1,108	1,360	1,554	1,184	1,814	3,162	3,566	2,402	1,420

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,000	2,500	4,894	13,585	17,887	13,988	8,816	8,479	5,566	9,143	7,922	4,898
20%	3,379	2,219	3,178	3,897	11,329	9,112	7,221	6,676	4,640	8,844	7,499	3,916
30%	2,197	1,865	2,551	2,381	5,693	6,571	5,651	4,286	4,099	8,341	6,575	2,621
40%	1,853	1,700	1,866	1,795	3,638	5,257	4,867	3,071	3,760	8,068	4,987	1,554
50%	1,700	1,700	1,700	1,700	2,440	4,382	3,500	2,682	3,411	7,497	2,970	1,242
60%	1,700	1,700	1,700	1,700	1,843	2,404	2,324	2,348	3,203	6,560	2,255	1,071
70%	1,700	1,200	1,700	1,485	1,700	1,700	1,352	1,999	2,705	4,215	1,955	1,000
80%	1,200	1,200	1,200	1,200	1,200	1,700	1,000	1,502	2,450	3,496	1,642	1,000
90%	900	900	900	900	900	820	1,000	1,095	2,000	2,819	1,253	1,000
Long Term												
Full Simulation Period[a]	2,119	1,938	3,089	4,830	5,922	6,603	4,565	4,087	3,618	6,489	4,165	2,171
Water Year Types[b,c]												
Wet (32%)	2,870	2,794	5,341	11,396	12,705	13,718	8,304	7,630	3,498	7,013	5,567	2,518
Above Normal (16%)	2,674	1,921	2,125	2,109	4,343	7,068	5,364	3,536	2,580	8,245	7,378	4,819
Below Normal (13%)	2,175	1,648	1,953	2,515	3,017	3,789	3,895	2,568	3,604	8,375	3,436	1,226
Dry (24%)	1,406	1,583	2,306	1,497	2,355	1,650	1,595	2,051	4,373	5,502	1,792	1,040
Critical (15%)	1,029	959	1,600	1,226	1,545	1,516	1,163	1,790	3,758	3,365	2,271	1,301

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	**-123**	**-175**	281	**-427**	409	154	**-8**	**-464**	**-38**	**-4,574**
20%	**-621**	**-281**	**-143**	1,887	194	211	3,534	1,276	401	**-209**	**-32**	**-5,076**
30%	**-1,803**	**-562**	465	681	1,408	**-163**	3,097	1,204	229	**-441**	**-701**	**-5,248**
40%	**-1,180**	**-126**	166	95	1,938	520	3,262	644	525	**-354**	**-1,225**	**-5,865**
50%	**-62**	0	0	0	740	2,682	2,347	686	465	**-503**	**-1,736**	**-2,652**
60%	0	0	0	0	143	704	1,324	928	536	**-833**	**-593**	**-665**
70%	0	0	0	285	0	0	352	999	255	**-537**	**-306**	**-203**
80%	0	0	0	240	0	700	0	502	261	**-349**	**-258**	**-7**
90%	0	0	0	0	0	20	242	95	284	**-407**	**-157**	0
Long Term												
Full Simulation Period[a]	**-354**	**-32**	287	371	484	504	1,515	608	278	**-400**	**-459**	**-2,670**
Water Year Types[b,c]												
Wet (32%)	**-941**	**-230**	961	760	79	150	1,713	694	**-250**	**-102**	**-153**	**-6,255**
Above Normal (16%)	**-687**	**-229**	**-305**	**-281**	210	782	3,235	1,523	441	**-489**	**-244**	**-2,731**
Below Normal (13%)	586	85	378	920	1,428	1,882	2,616	688	1,000	**-311**	**-2,438**	**-1,279**
Dry (24%)	18	273	**-83**	137	850	351	456	235	270	**-896**	**-107**	**-265**
Critical (15%)	**-205**	**-6**	**0**	118	185	**-38**	**-21**	**-24**	596	**-201**	**-131**	**-119**

a Based on the 82-year simulation period.

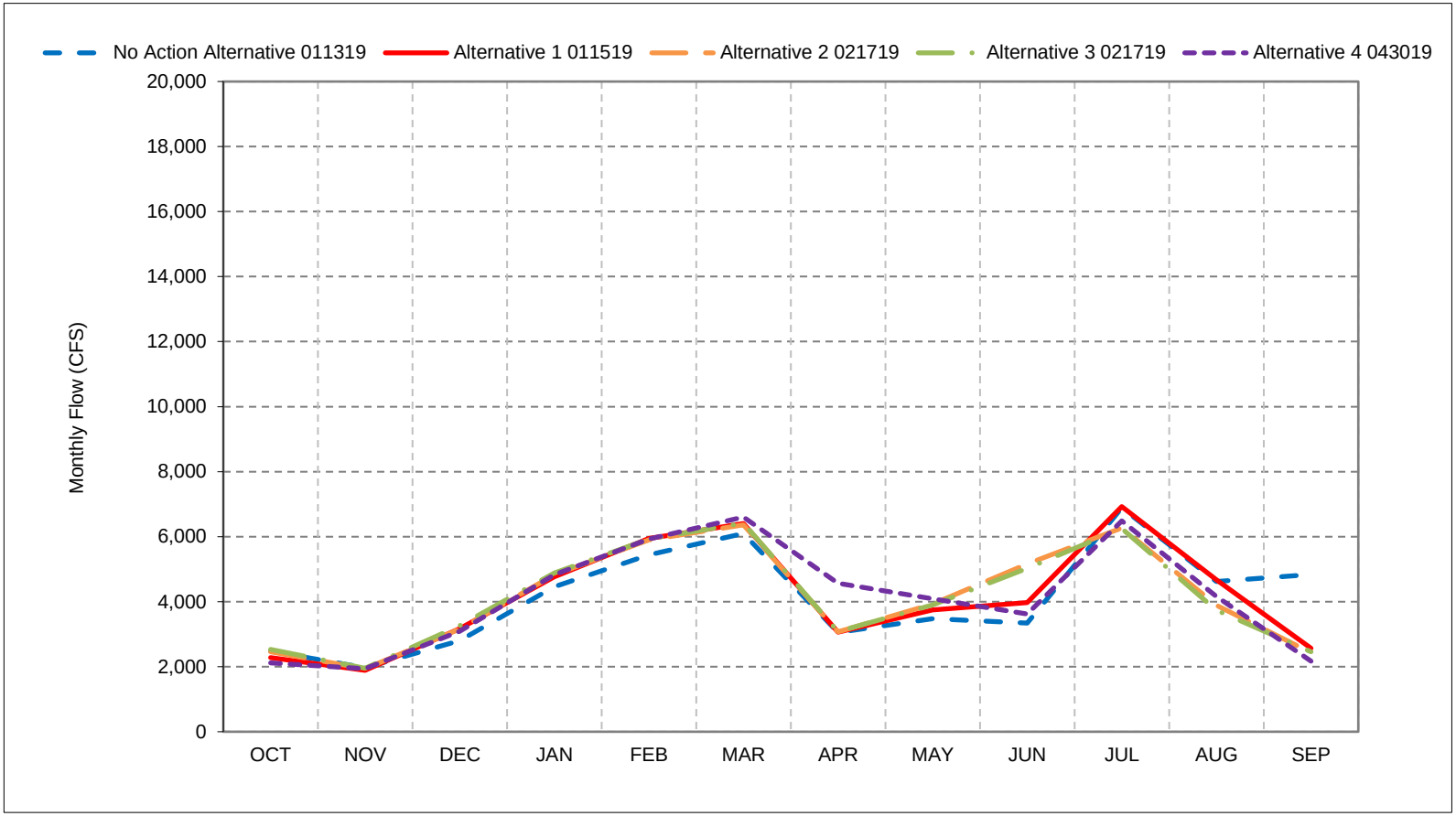
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-1. Feather River Flow downstream of Thermalito, Long-Term Average Flow



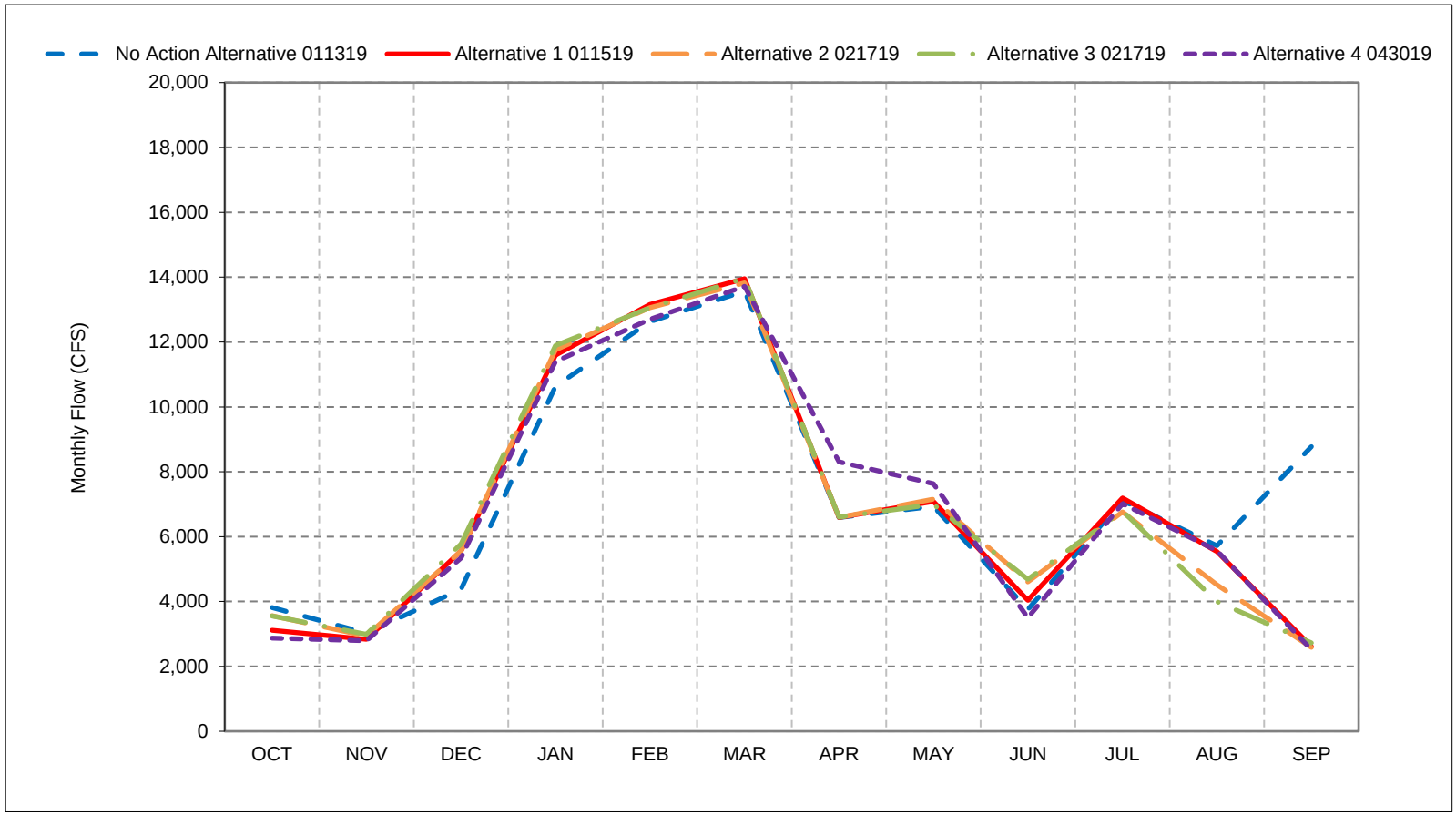
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-2. Feather River Flow downstream of Thermalito, Wet Year Average Flow



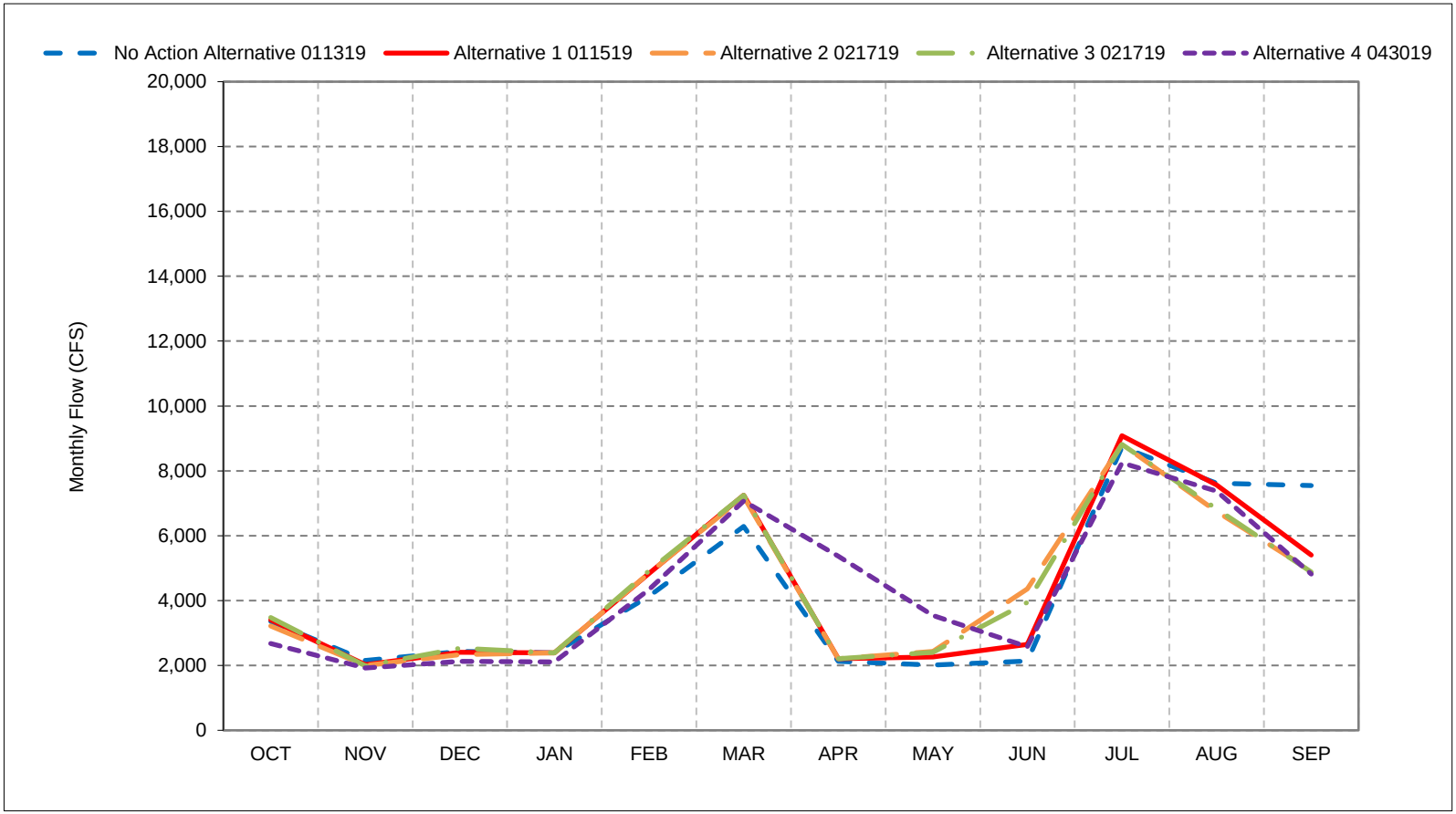
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-3. Feather River Flow downstream of Thermalito, Above Normal Year Average Flow



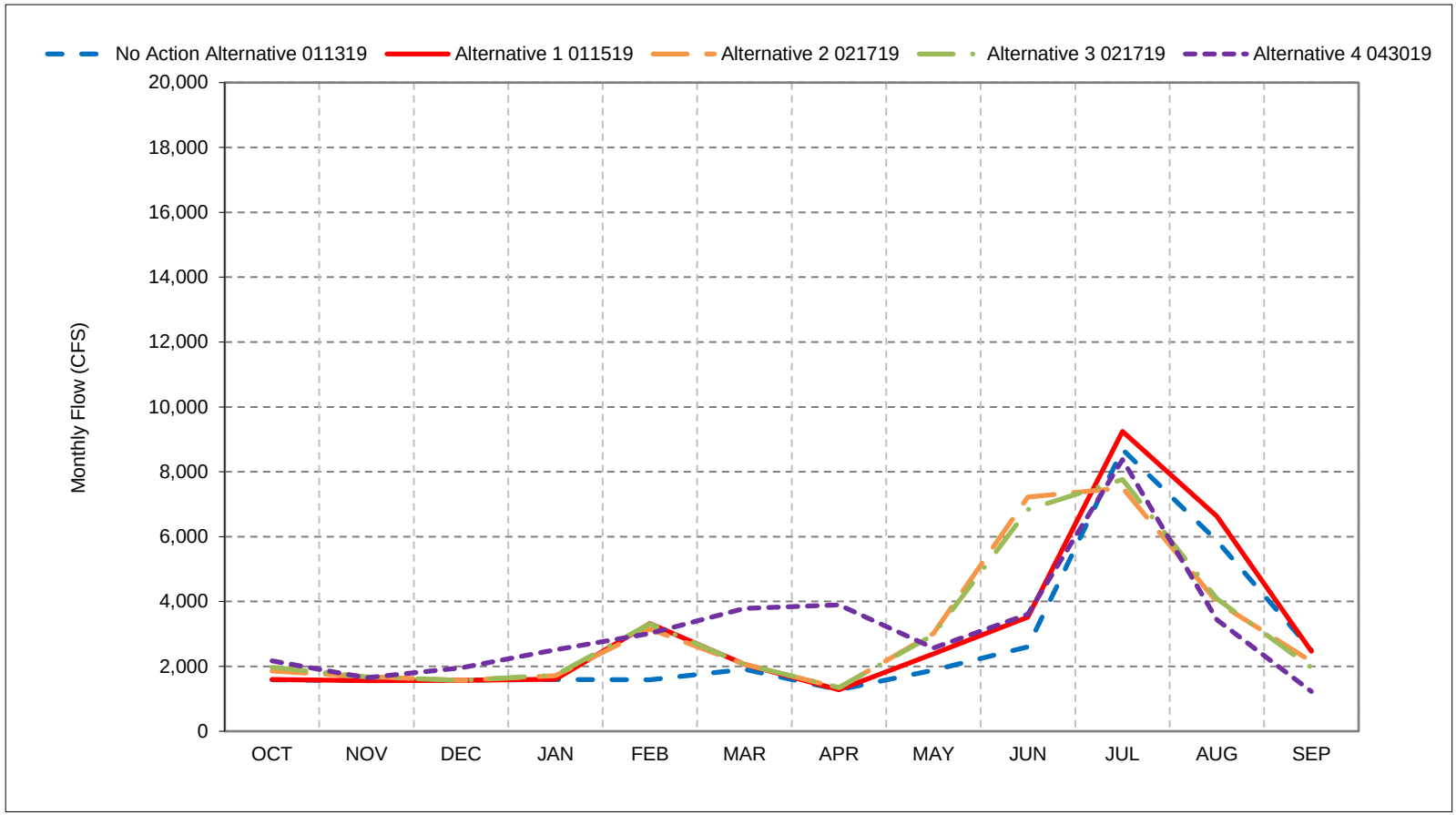
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-4. Feather River Flow downstream of Thermalito, Below Normal Year Average Flow



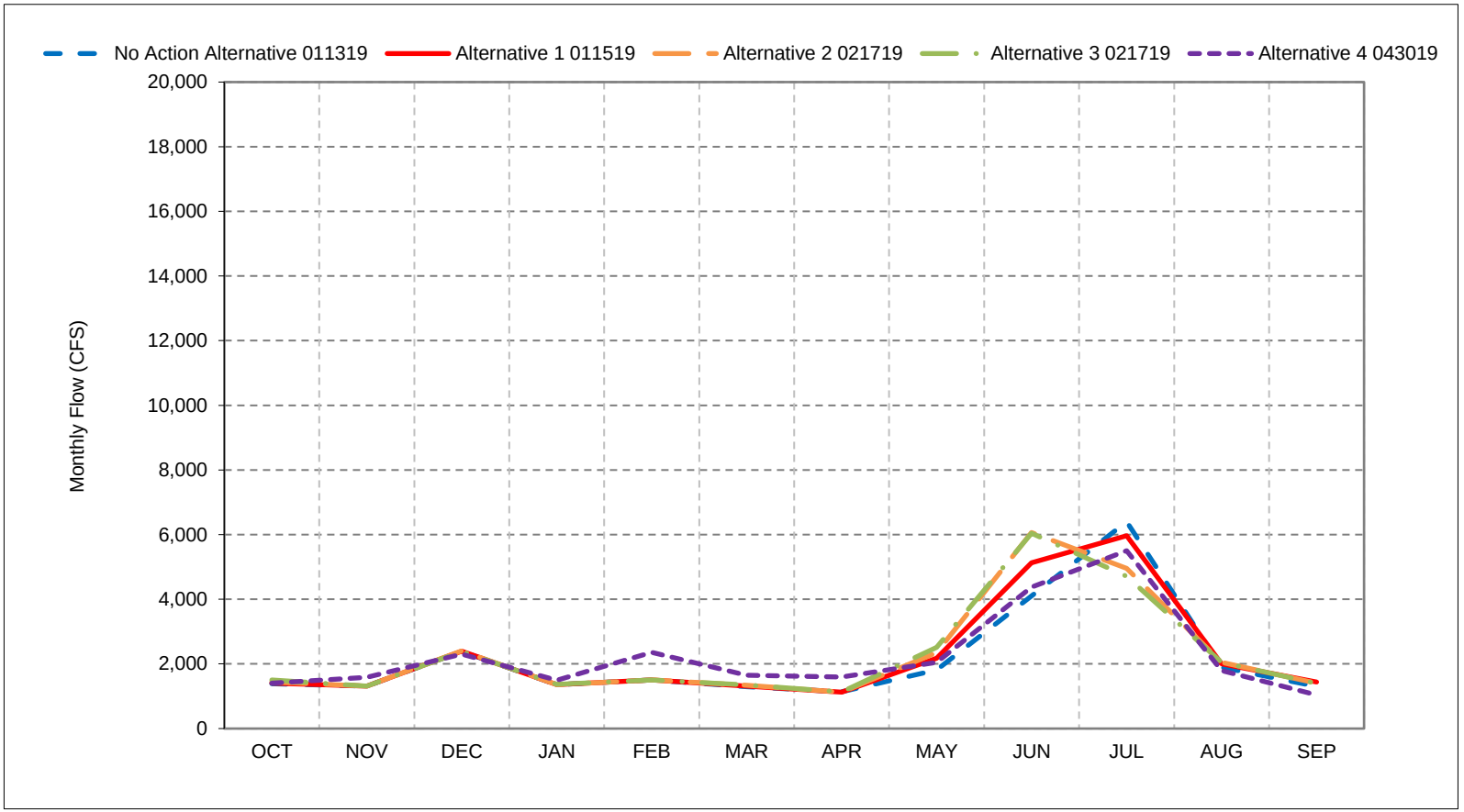
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-5. Feather River Flow downstream of Thermalito, Dry Year Average Flow



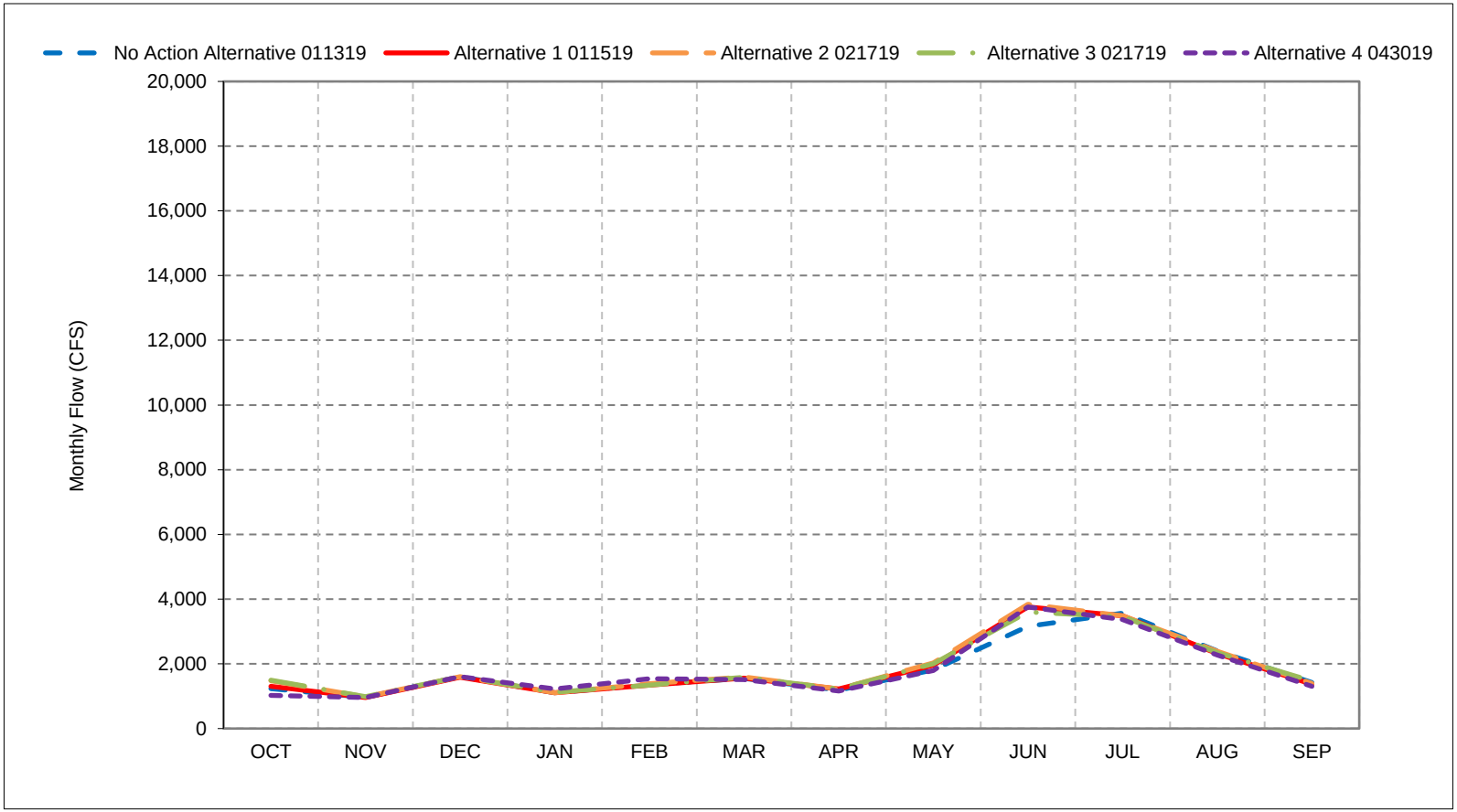
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-6. Feather River Flow downstream of Thermalito, Critical Year Average Flow



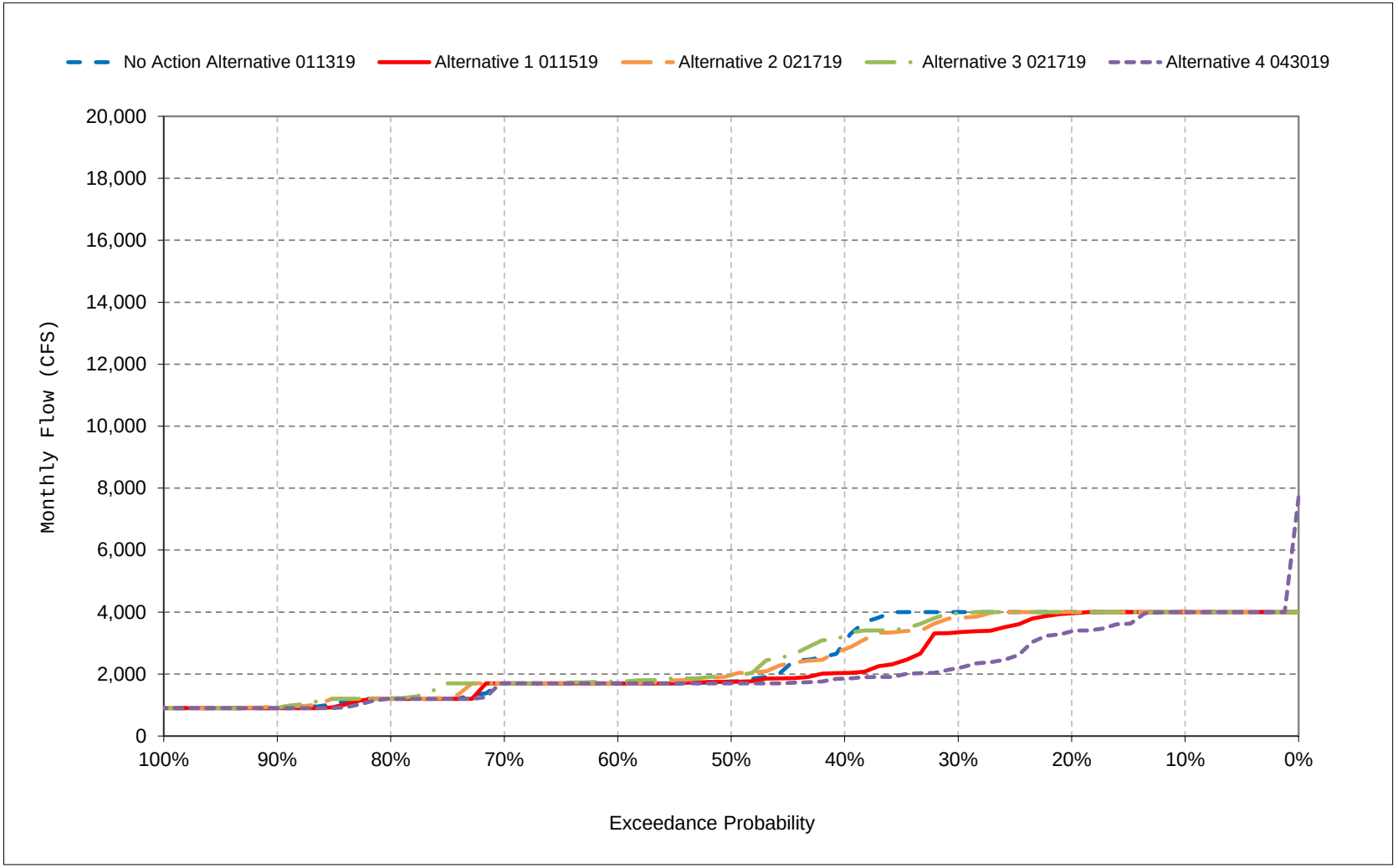
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

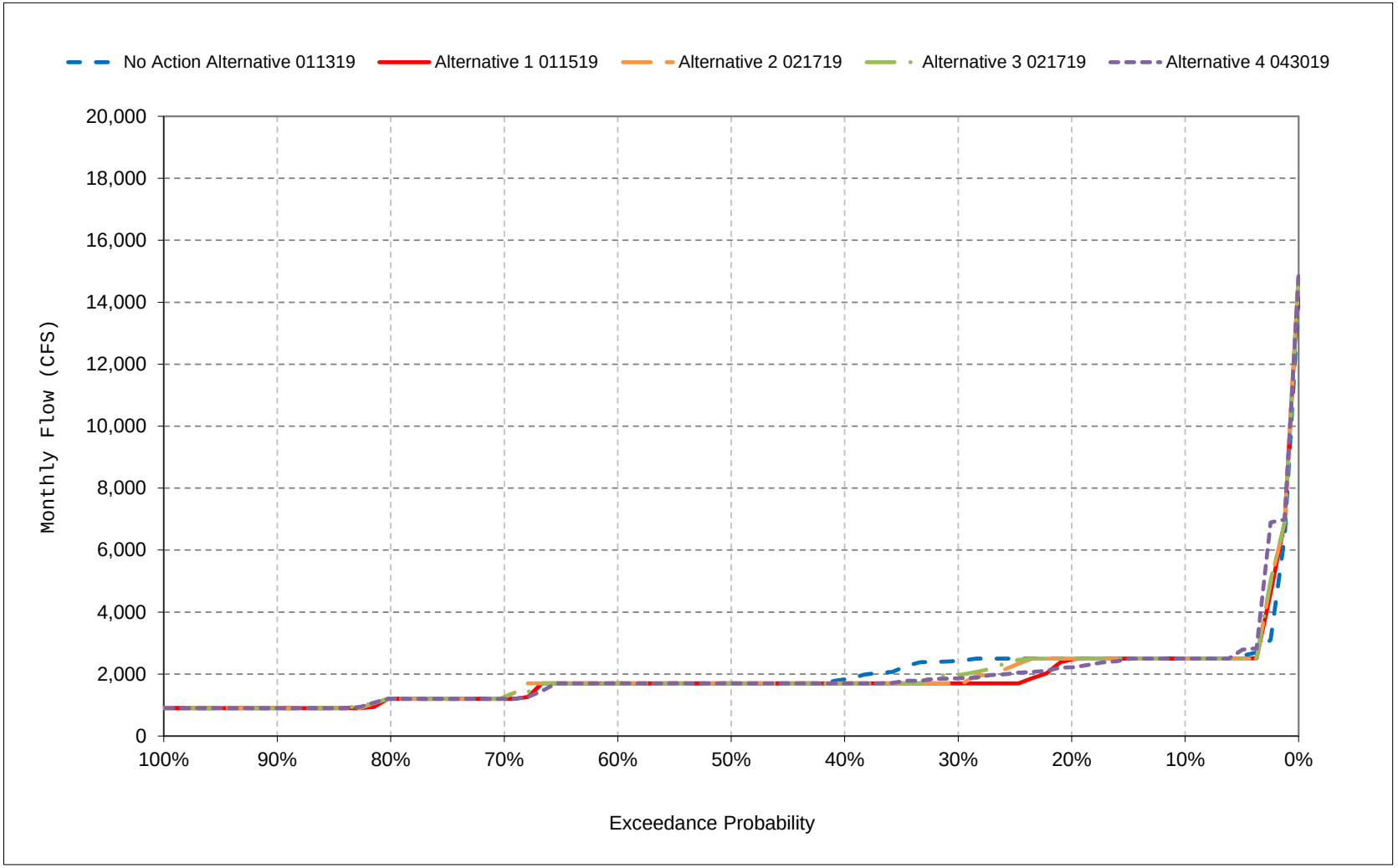
Figure 21-7. Feather River Flow downstream of Thermalito, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

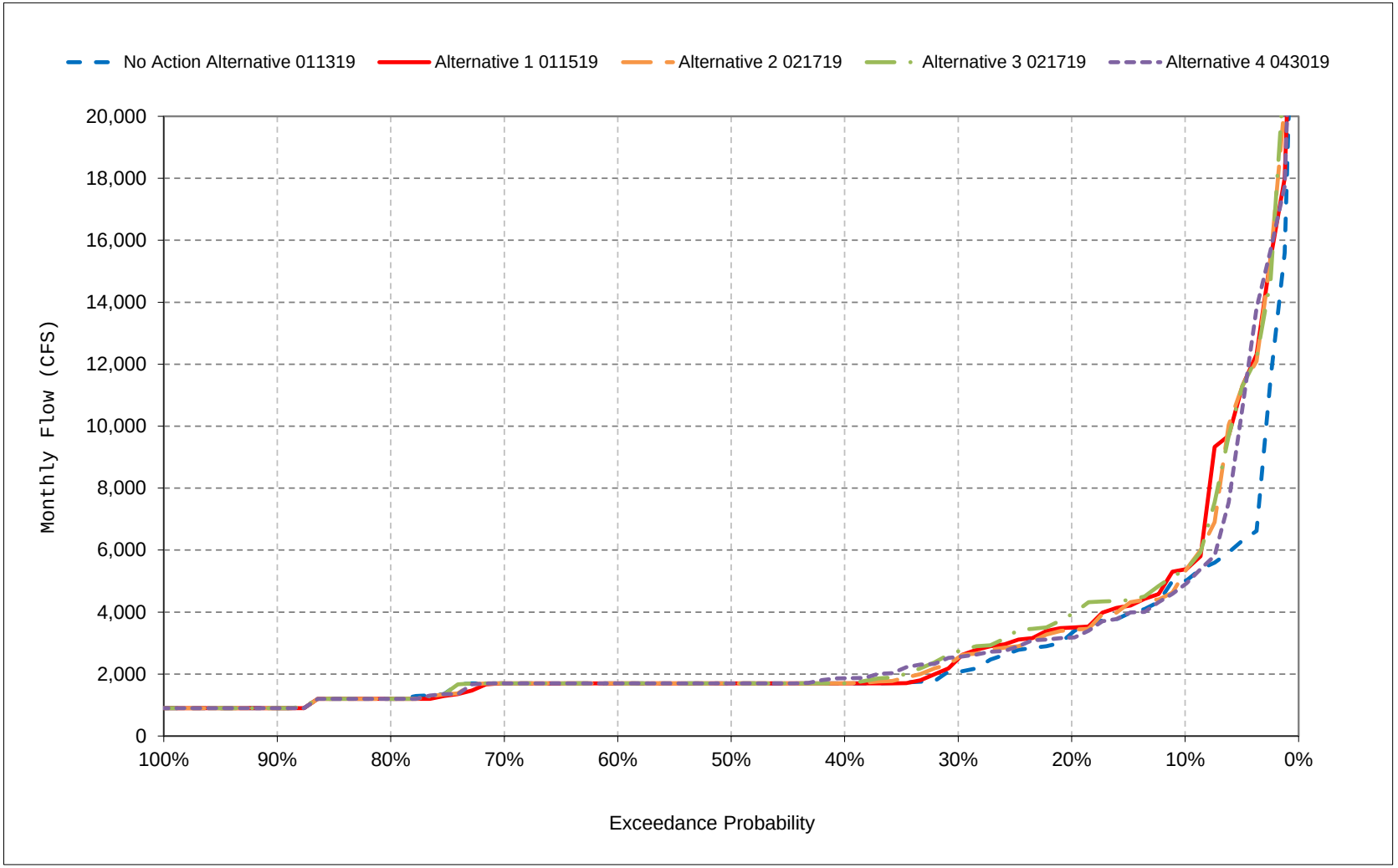
Figure 21-8. Feather River Flow downstream of Thermalito, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

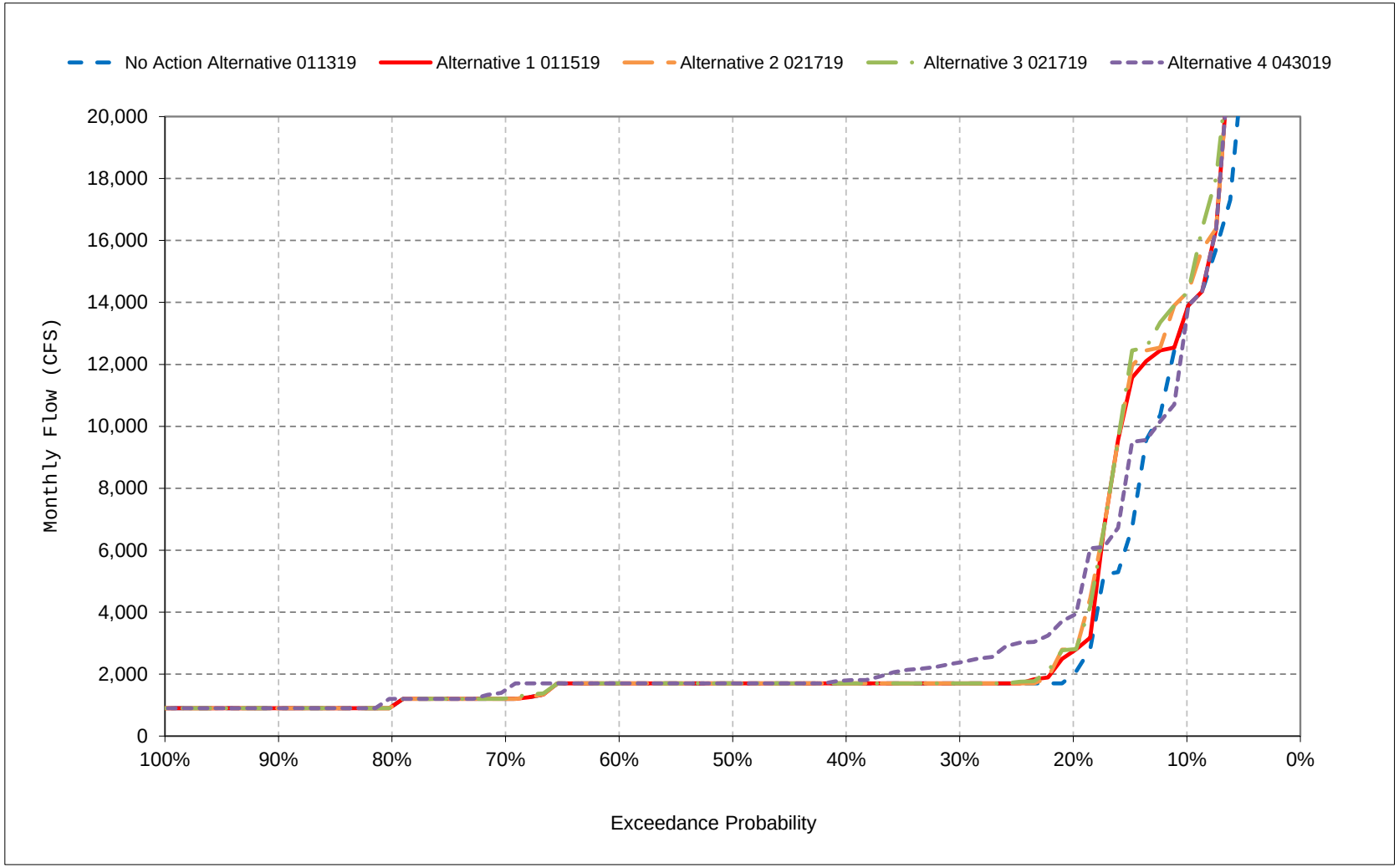
Figure 21-9. Feather River Flow downstream of Thermalito, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

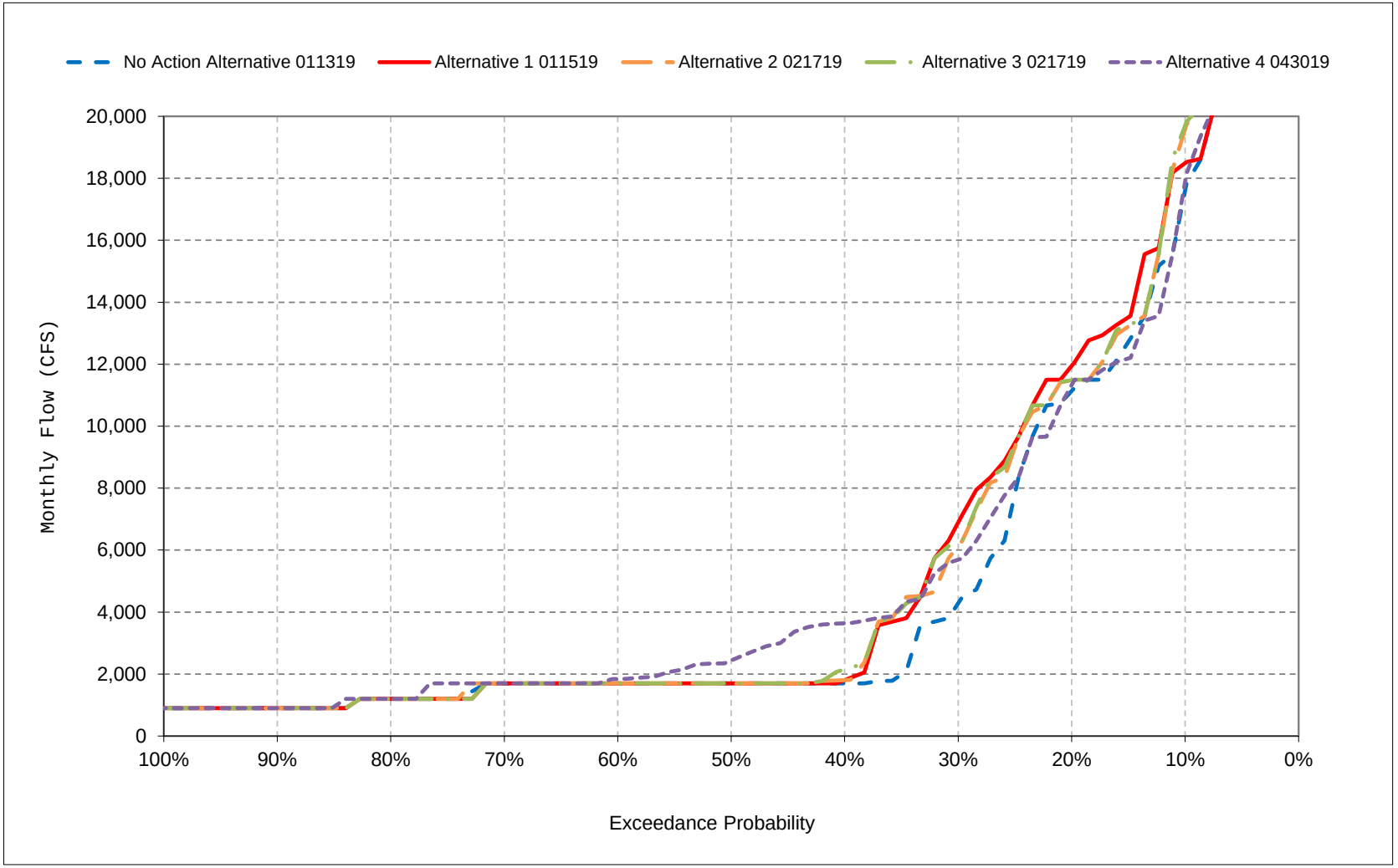
Figure 21-10. Feather River Flow downstream of Thermalito, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

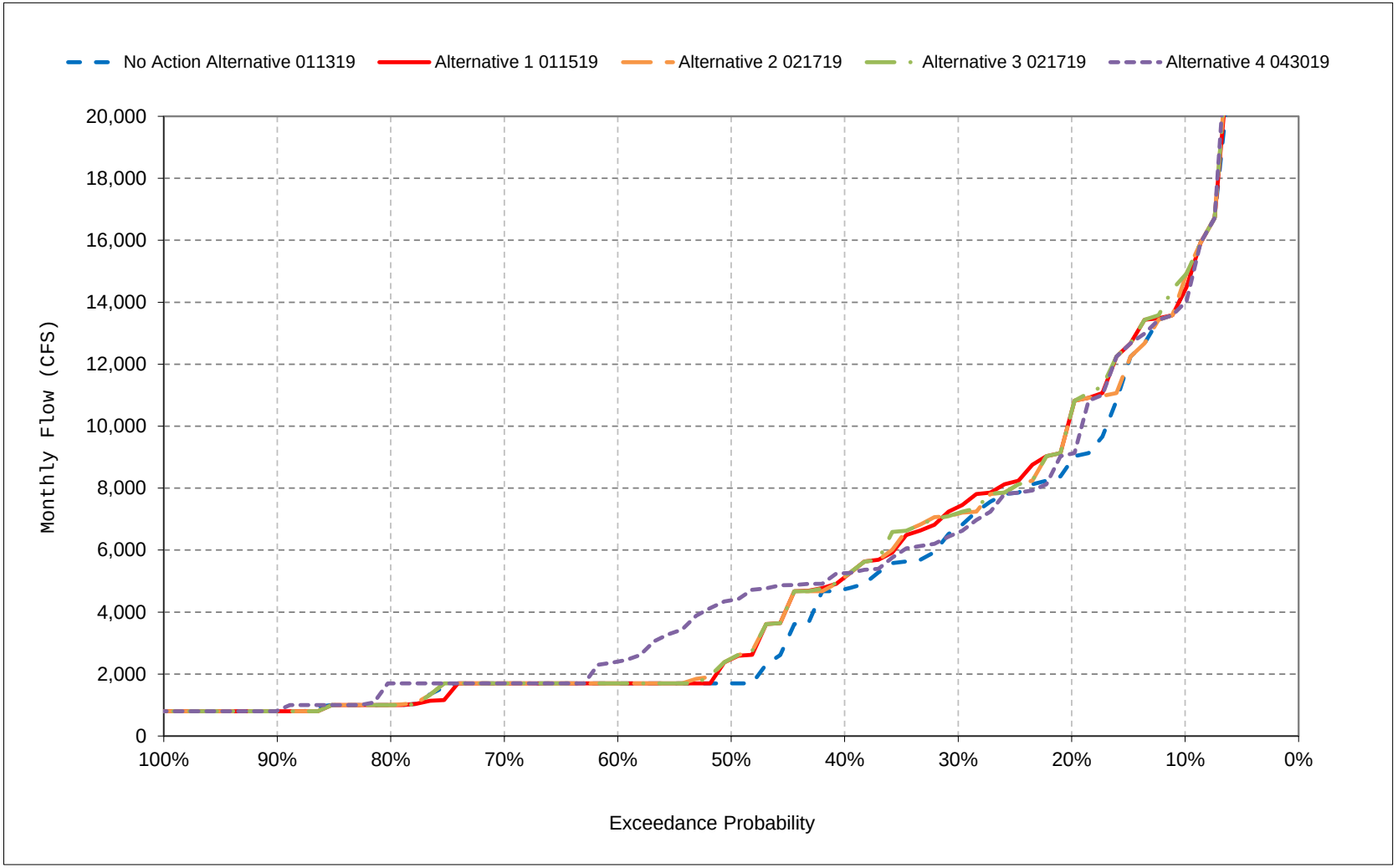
Figure 21-11. Feather River Flow downstream of Thermalito, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

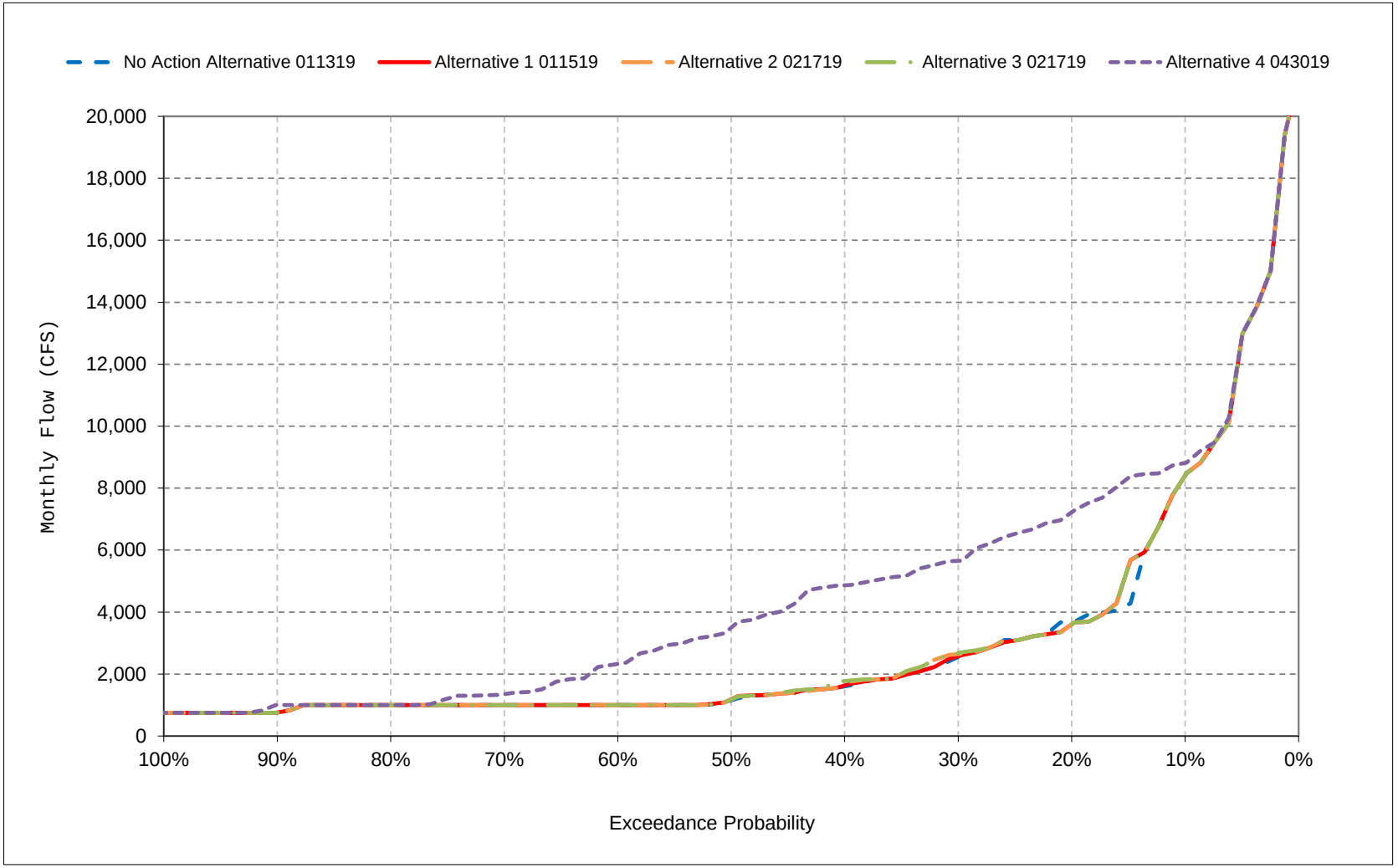
Figure 21-12. Feather River Flow downstream of Thermalito, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

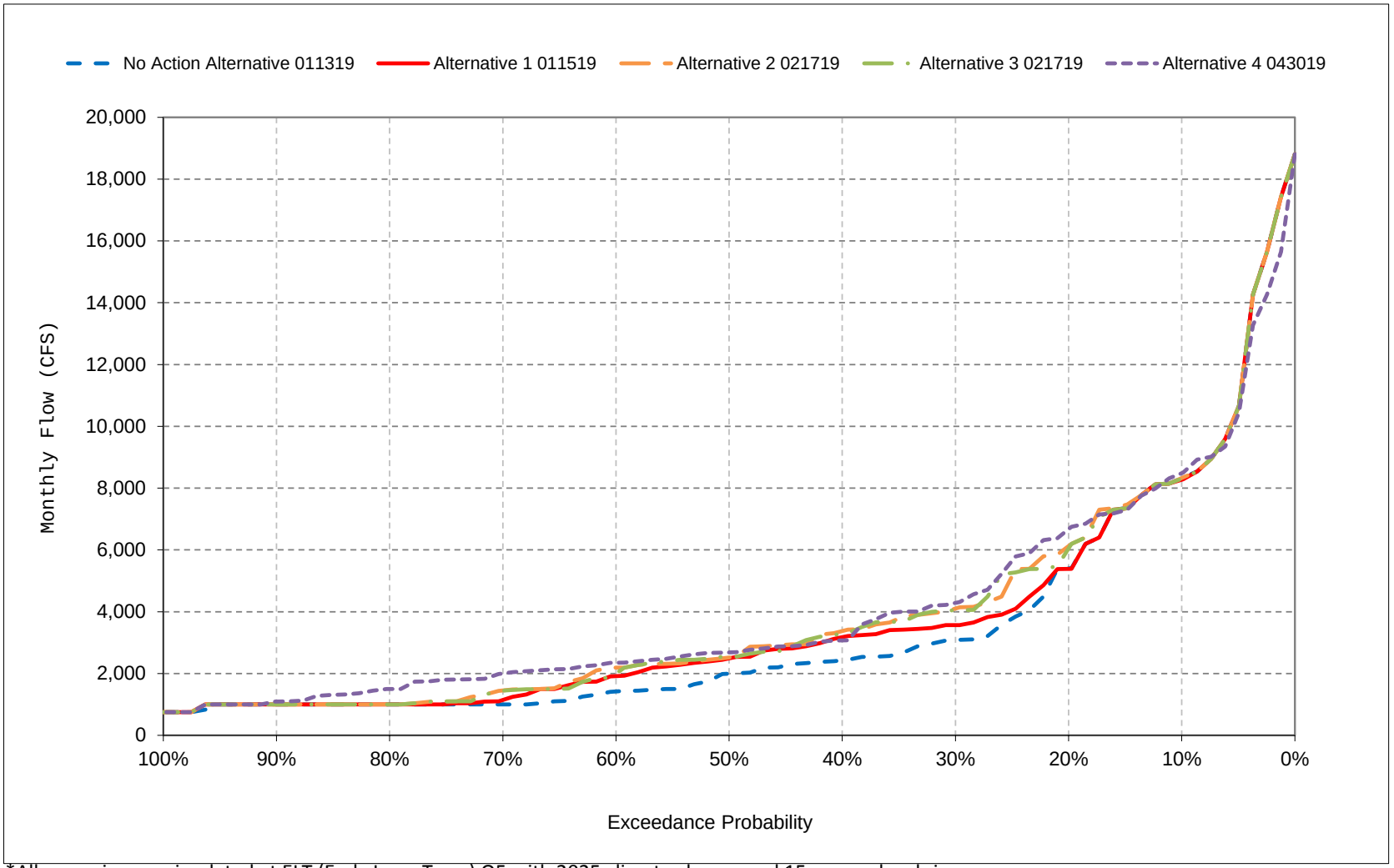
Figure 21-13. Feather River Flow downstream of Thermalito, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

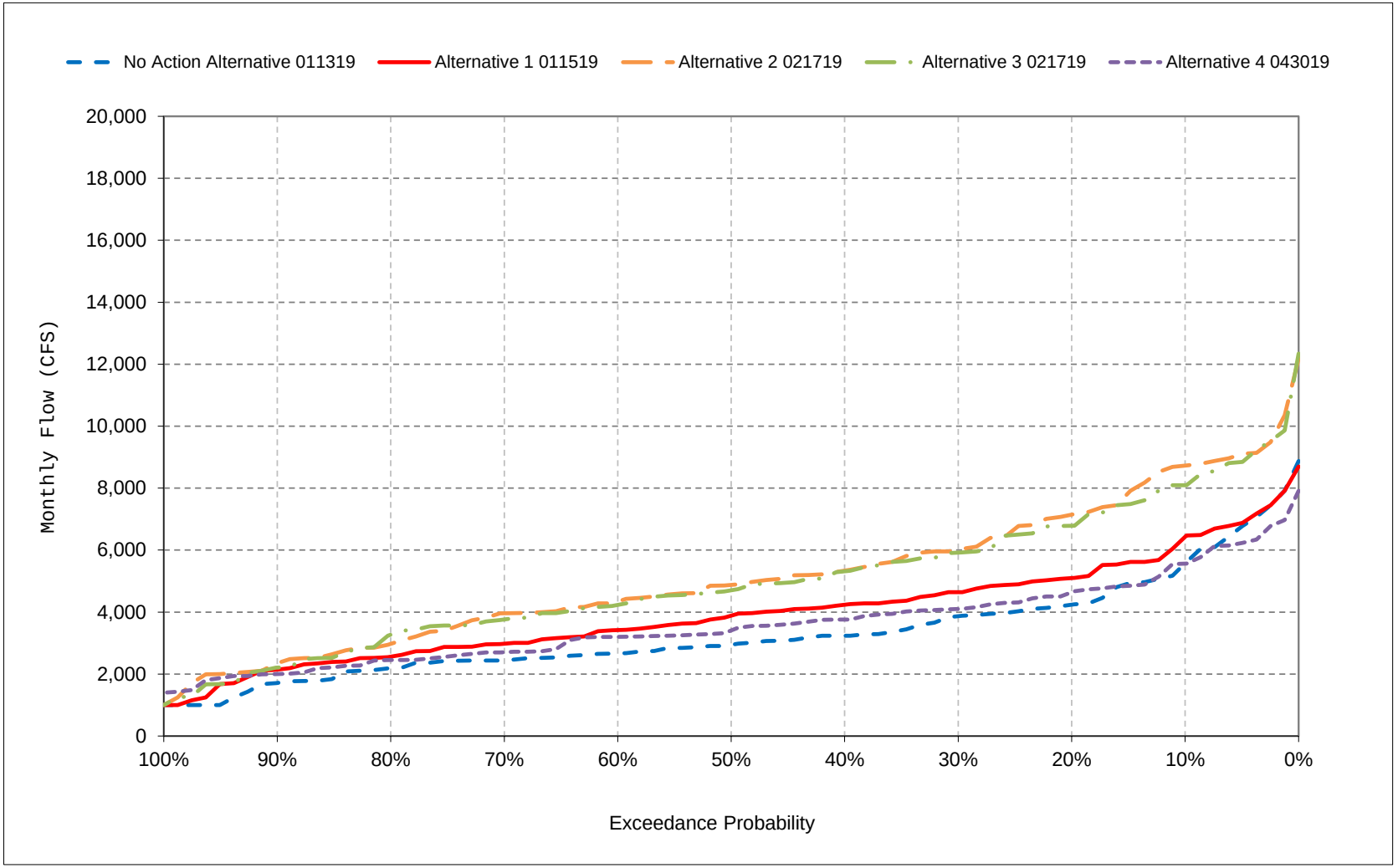
Figure 21-14. Feather River Flow downstream of Thermalito, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

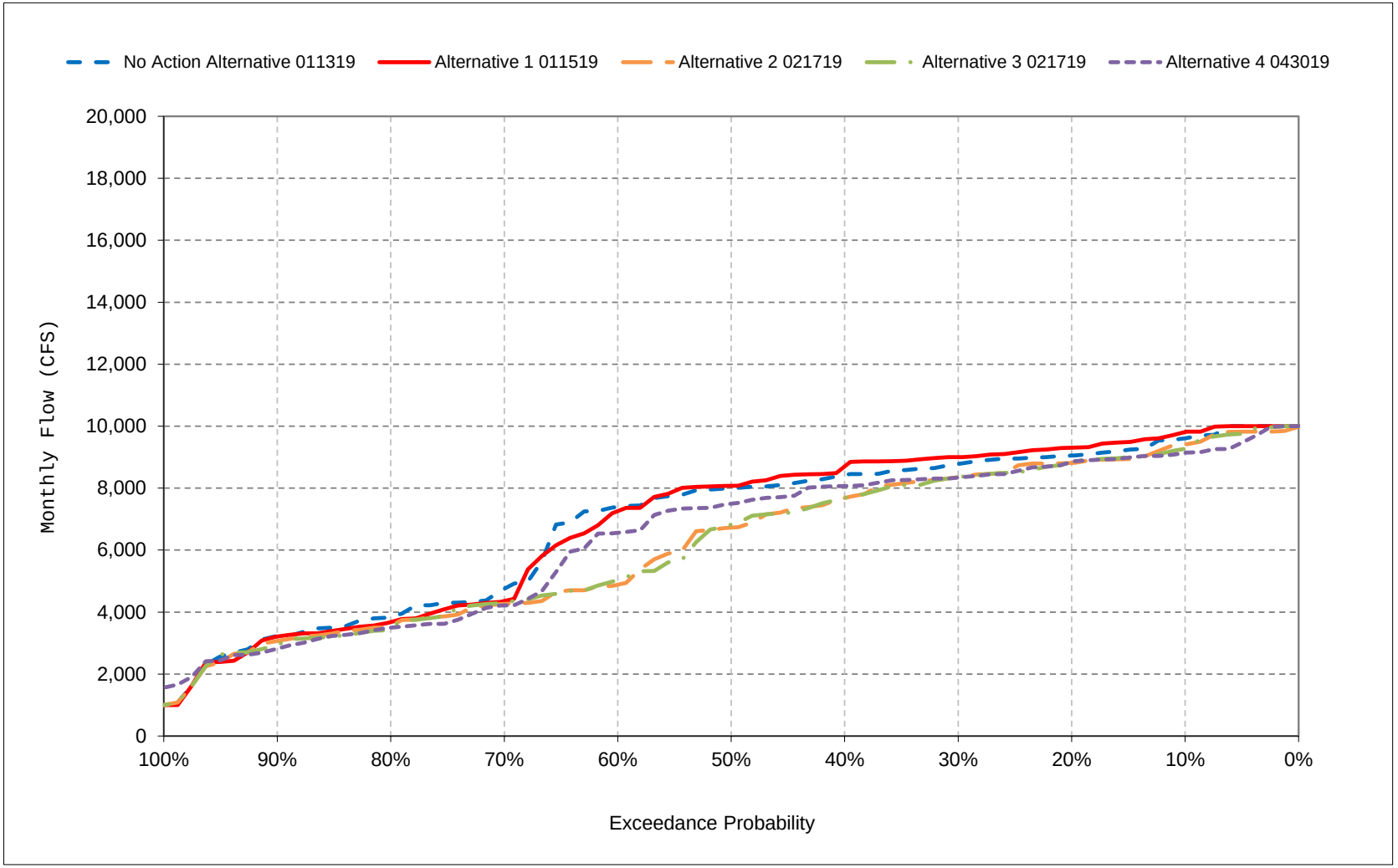
Figure 21-15. Feather River Flow downstream of Thermalito, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

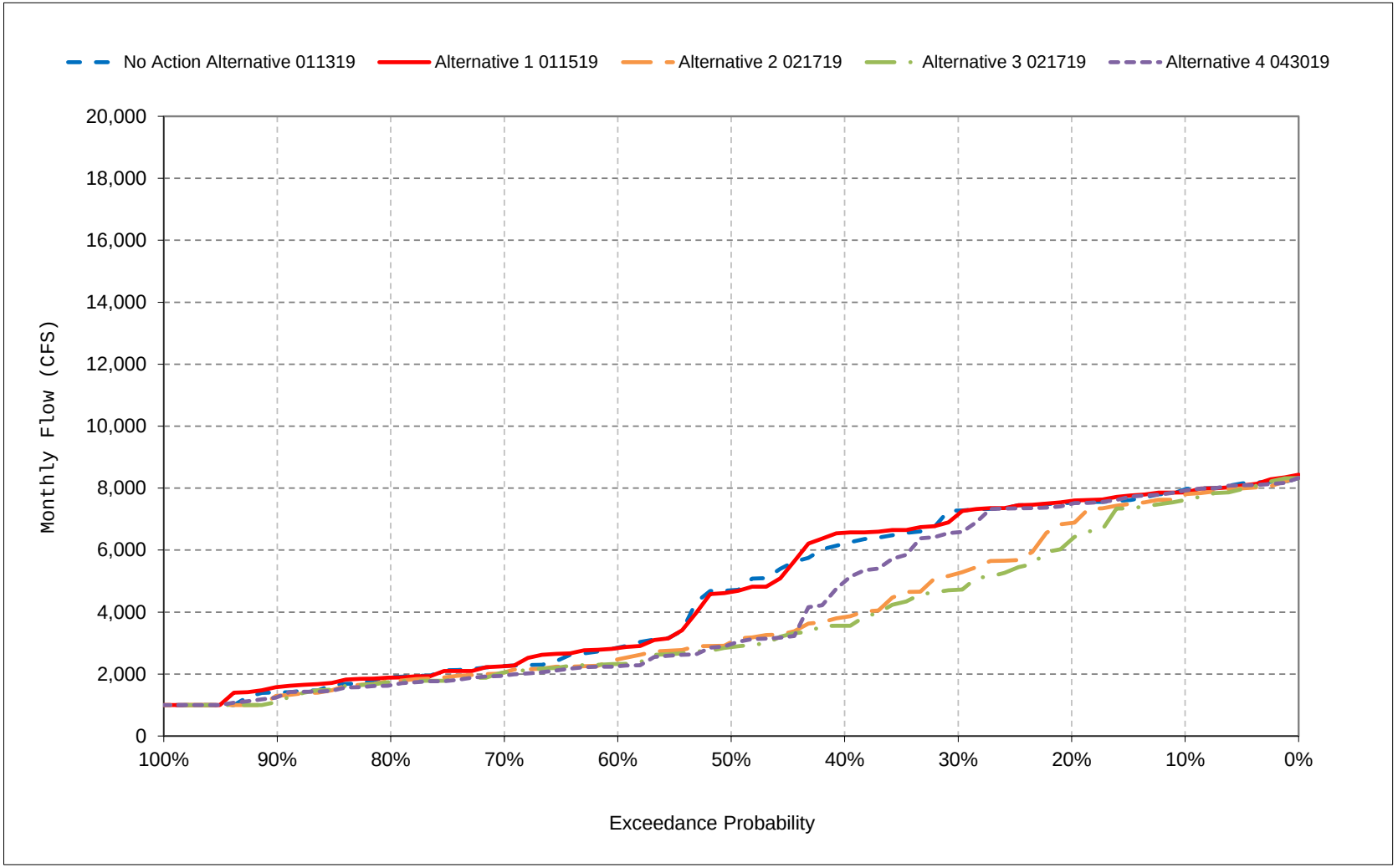
Figure 21-16. Feather River Flow downstream of Thermalito, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

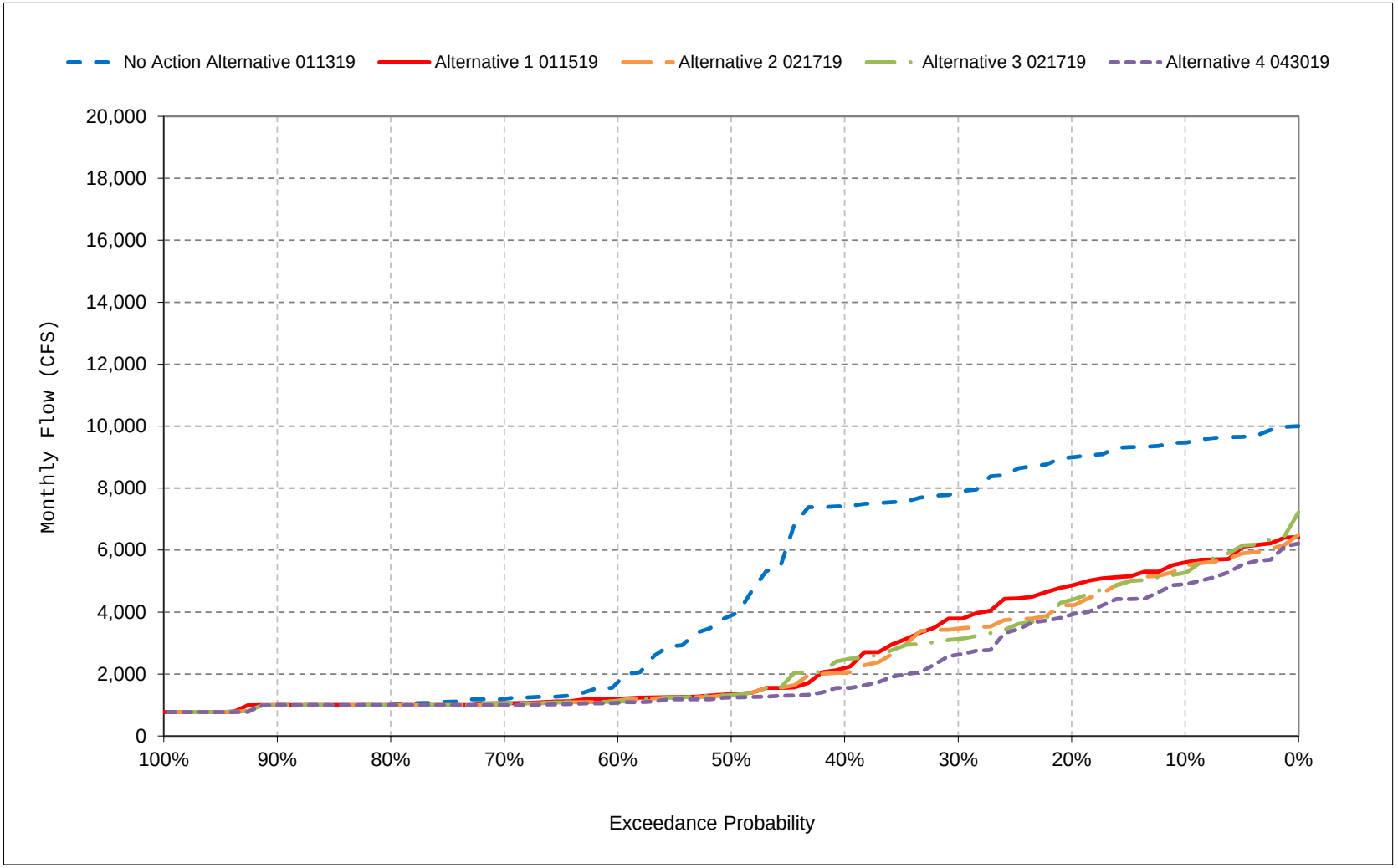
Figure 21-17. Feather River Flow downstream of Thermalito, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-18. Feather River Flow downstream of Thermalito, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 22-1. Feather River at Sacramento River Confluence Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,771	4,662	10,758	23,582	33,696	31,622	20,964	15,603	9,008	9,734	8,603	11,413
20%	4,500	3,132	6,608	16,878	24,867	21,198	11,924	10,225	6,123	9,430	8,347	11,004
30%	3,945	2,893	4,943	10,861	16,465	13,726	8,375	6,606	5,106	8,874	8,015	9,872
40%	3,450	2,648	3,867	8,535	11,070	11,442	6,524	4,917	4,506	8,659	7,235	9,069
50%	2,514	2,404	3,265	5,369	6,814	8,320	5,725	4,423	3,908	8,075	6,139	6,110
60%	2,076	2,184	2,676	4,544	5,322	5,671	4,106	3,879	3,489	7,286	3,146	3,109
70%	1,758	1,793	1,937	3,715	4,240	4,169	3,607	3,551	3,316	5,113	2,534	2,832
80%	1,602	1,445	1,700	2,922	2,615	3,230	3,033	2,937	2,944	3,792	2,342	2,609
90%	1,397	1,212	1,206	2,274	1,736	2,301	2,800	2,800	2,442	2,767	2,153	2,530
Long Term												
Full Simulation Period[a]	2,974	2,923	5,614	11,560	13,513	13,355	8,710	7,260	5,251	6,975	5,380	6,541
Water Year Types[b,c]												
Wet (32%)	4,197	3,846	8,266	23,743	27,715	25,043	16,023	13,872	8,211	7,810	6,891	10,812
Above Normal (16%)	3,893	3,150	4,191	11,529	13,491	18,430	9,251	5,612	3,678	8,640	8,429	9,395
Below Normal (13%)	2,966	2,514	4,204	4,187	6,827	5,807	4,598	4,369	3,545	8,705	6,515	4,337
Dry (24%)	1,746	2,840	6,157	4,376	4,912	5,511	4,583	4,059	4,554	6,192	2,566	3,068
Critical (15%)	1,385	1,187	1,800	3,929	3,226	2,529	2,926	2,702	3,269	3,081	2,453	2,005

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,702	4,660	13,489	23,633	33,863	31,638	20,966	15,602	9,547	9,827	8,648	7,353
20%	4,233	2,929	6,229	18,543	24,930	21,189	12,534	10,221	7,059	9,521	8,316	6,918
30%	3,557	2,729	5,012	11,249	17,550	15,218	8,280	6,636	5,641	9,300	7,997	6,088
40%	2,718	2,346	3,903	8,535	12,313	12,863	6,523	5,400	5,126	8,759	7,272	3,842
50%	2,264	2,209	3,313	5,400	7,072	8,371	5,723	4,821	4,813	8,224	5,692	3,101
60%	1,900	1,951	2,476	4,565	5,242	5,673	4,109	4,422	4,563	7,288	3,272	2,830
70%	1,700	1,716	1,910	3,795	4,241	4,164	3,609	3,978	4,112	5,573	2,629	2,684
80%	1,611	1,447	1,696	2,920	2,614	3,228	2,917	3,583	3,679	3,375	2,295	2,585
90%	1,279	1,214	1,207	2,286	1,734	2,298	2,800	2,800	2,955	2,804	2,019	2,360
Long Term												
Full Simulation Period[a]	2,788	2,839	5,981	11,885	14,045	13,671	8,724	7,528	5,888	7,006	5,397	4,249
Water Year Types[b,c]												
Wet (32%)	3,531	3,652	9,438	24,717	28,267	25,442	16,022	14,026	8,510	7,879	6,677	4,656
Above Normal (16%)	3,949	3,013	4,168	11,549	14,203	19,400	9,324	5,868	4,189	8,989	8,371	7,248
Below Normal (13%)	2,975	2,517	4,198	4,225	8,587	5,992	4,599	4,879	4,461	9,270	7,276	4,308
Dry (24%)	1,760	2,841	6,166	4,385	4,942	5,532	4,571	4,424	5,580	5,742	2,585	3,116
Critical (15%)	1,460	1,180	1,784	3,966	3,233	2,565	2,963	2,850	3,868	2,996	2,368	1,952

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-69**	**-2**	2,731	51	167	15	3	**0**	539	94	45	**-4,060**
20%	**-266**	**-203**	**-379**	1,664	62	**-9**	610	**-4**	936	91	**-31**	**-4,086**
30%	**-389**	**-164**	69	388	1,085	1,492	**-95**	30	535	426	**-18**	**-3,784**
40%	**-732**	**-301**	35	**-1**	1,242	1,421	**-1**	483	620	100	37	**-5,227**
50%	**-249**	**-195**	48	31	258	51	**-2**	398	905	149	**-447**	**-3,009**
60%	**-176**	**-233**	**-201**	20	**-80**	3	4	543	1,074	3	126	**-279**
70%	**-58**	**-77**	**-27**	81	0	**-5**	1	427	796	460	95	**-148**
80%	9	1	**-4**	**-2**	**-1**	**-2**	**-116**	646	735	**-418**	**-46**	**-24**
90%	**-119**	2	0	12	**-2**	**-2**	0	0	512	37	**-134**	**-170**
Long Term												
Full Simulation Period[a]	**-187**	**-84**	367	325	532	316	14	268	636	31	17	**-2,292**
Water Year Types[b,c]												
Wet (32%)	**-666**	**-194**	1,172	974	552	399	**-1**	154	299	68	**-215**	**-6,156**
Above Normal (16%)	56	**-137**	**-23**	20	712	970	74	256	511	348	**-58**	**-2,147**
Below Normal (13%)	8	4	**-7**	38	1,760	185	0	510	916	565	761	**-30**
Dry (24%)	14	1	9	9	29	21	**-12**	365	1,025	**-450**	19	48
Critical (15%)	75	**-8**	**-16**	37	6	37	37	147	599	**-85**	**-84**	**-53**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 22-2. Feather River at Sacramento River Confluence Flow, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,771	4,662	10,758	23,582	33,696	31,622	20,964	15,603	9,008	9,734	8,603	11,413
20%	4,500	3,132	6,608	16,878	24,867	21,198	11,924	10,225	6,123	9,430	8,347	11,004
30%	3,945	2,893	4,943	10,861	16,465	13,726	8,375	6,606	5,106	8,874	8,015	9,872
40%	3,450	2,648	3,867	8,535	11,070	11,442	6,524	4,917	4,506	8,659	7,235	9,069
50%	2,514	2,404	3,265	5,369	6,814	8,320	5,725	4,423	3,908	8,075	6,139	6,110
60%	2,076	2,184	2,676	4,544	5,322	5,671	4,106	3,879	3,489	7,286	3,146	3,109
70%	1,758	1,793	1,937	3,715	4,240	4,169	3,607	3,551	3,316	5,113	2,534	2,832
80%	1,602	1,445	1,700	2,922	2,615	3,230	3,033	2,937	2,944	3,792	2,342	2,609
90%	1,397	1,212	1,206	2,274	1,736	2,301	2,800	2,800	2,442	2,767	2,153	2,530
Long Term												
Full Simulation Period[a]	2,974	2,923	5,614	11,560	13,513	13,355	8,710	7,260	5,251	6,975	5,380	6,541
Water Year Types[b,c]												
Wet (32%)	4,197	3,846	8,266	23,743	27,715	25,043	16,023	13,872	8,211	7,810	6,891	10,812
Above Normal (16%)	3,893	3,150	4,191	11,529	13,491	18,430	9,251	5,612	3,678	8,640	8,429	9,395
Below Normal (13%)	2,966	2,514	4,204	4,187	6,827	5,807	4,598	4,369	3,545	8,705	6,515	4,337
Dry (24%)	1,746	2,840	6,157	4,376	4,912	5,511	4,583	4,059	4,554	6,192	2,566	3,068
Critical (15%)	1,385	1,187	1,800	3,929	3,226	2,529	2,926	2,702	3,269	3,081	2,453	2,005

Alternative 2 021719

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,736	4,660	13,489	23,632	33,759	31,623	20,967	15,604	11,612	9,442	8,459	7,539
20%	4,402	2,948	6,765	18,790	24,606	21,200	12,534	10,221	8,893	9,011	7,981	6,619
30%	3,761	2,822	4,992	11,250	17,541	14,704	8,278	7,701	8,202	8,628	6,208	5,493
40%	3,042	2,512	3,960	8,537	12,110	12,859	6,523	5,841	6,800	7,924	4,774	3,842
50%	2,539	2,273	2,989	5,371	7,043	8,291	5,725	5,092	6,291	6,911	3,603	2,977
60%	2,260	2,009	2,480	4,544	5,240	5,551	4,115	4,555	5,685	5,182	3,025	2,836
70%	1,859	1,713	1,912	3,715	4,244	4,321	3,615	4,161	5,112	4,434	2,537	2,733
80%	1,636	1,450	1,700	2,906	2,643	3,228	3,081	3,635	4,232	3,575	2,351	2,579
90%	1,431	1,215	1,207	2,286	1,968	2,303	2,800	2,807	3,361	2,780	2,080	2,492
Long Term												
Full Simulation Period[a]	2,970	2,884	5,975	11,910	13,953	13,605	8,734	7,713	7,078	6,362	4,680	4,154
Water Year Types[b,c]												
Wet (32%)	3,977	3,753	9,439	24,824	28,127	25,285	16,023	14,099	9,069	7,467	5,746	4,630
Above Normal (16%)	3,761	2,991	4,096	11,528	14,205	19,342	9,324	6,035	5,901	8,717	7,561	6,769
Below Normal (13%)	3,240	2,634	4,197	4,307	8,386	5,958	4,661	5,503	8,164	7,502	4,657	4,019
Dry (24%)	1,802	2,845	6,173	4,352	4,865	5,528	4,573	4,595	6,516	4,737	2,729	3,175
Critical (15%)	1,628	1,181	1,803	3,912	3,220	2,550	2,970	2,919	3,983	3,081	2,523	2,047

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-35**	**-3**	2,730	50	63	0	3	1	2,603	**-292**	**-144**	**-3,874**
20%	**-98**	**-183**	157	1,912	**-261**	2	610	**-4**	2,770	**-419**	**-366**	**-4,385**
30%	**-184**	**-71**	49	388	1,076	979	**-97**	1,095	3,095	**-246**	**-1,807**	**-4,378**
40%	**-407**	**-136**	93	1	1,040	1,417	**-1**	924	2,295	**-735**	**-2,462**	**-5,227**
50%	25	**-132**	**-276**	2	229	**-29**	1	669	2,383	**-1,164**	**-2,536**	**-3,133**
60%	184	**-176**	**-196**	0	**-82**	**-119**	9	675	2,196	**-2,104**	**-121**	**-273**
70%	101	**-80**	**-25**	0	3	153	7	610	1,796	**-678**	4	**-99**
80%	34	4	0	**-16**	28	**-2**	48	699	1,288	**-217**	9	**-30**
90%	34	3	0	13	232	2	0	7	918	13	**-72**	**-38**
Long Term												
Full Simulation Period[a]	**-5**	**-39**	361	350	441	249	24	453	1,827	**-612**	**-700**	**-2,387**
Water Year Types[b,c]												
Wet (32%)	**-219**	**-93**	1,174	1,081	412	242	0	226	858	**-343**	**-1,145**	**-6,182**
Above Normal (16%)	**-132**	**-159**	**-95**	**-1**	714	912	73	423	2,223	77	**-868**	**-2,626**
Below Normal (13%)	273	120	**-7**	121	1,558	152	63	1,134	4,619	**-1,202**	**-1,858**	**-318**
Dry (24%)	56	4	17	**-23**	**-48**	17	**-10**	535	1,962	**-1,454**	163	106
Critical (15%)	243	**-7**	3	**-17**	**-6**	22	44	217	714	0	70	42

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 22-3. Feather River at Sacramento River Confluence Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,771	4,662	10,758	23,582	33,696	31,622	20,964	15,603	9,008	9,734	8,603	11,413
20%	4,500	3,132	6,608	16,878	24,867	21,198	11,924	10,225	6,123	9,430	8,347	11,004
30%	3,945	2,893	4,943	10,861	16,465	13,726	8,375	6,606	5,106	8,874	8,015	9,872
40%	3,450	2,648	3,867	8,535	11,070	11,442	6,524	4,917	4,506	8,659	7,235	9,069
50%	2,514	2,404	3,265	5,369	6,814	8,320	5,725	4,423	3,908	8,075	6,139	6,110
60%	2,076	2,184	2,676	4,544	5,322	5,671	4,106	3,879	3,489	7,286	3,146	3,109
70%	1,758	1,793	1,937	3,715	4,240	4,169	3,607	3,551	3,316	5,113	2,534	2,832
80%	1,602	1,445	1,700	2,922	2,615	3,230	3,033	2,937	2,944	3,792	2,342	2,609
90%	1,397	1,212	1,206	2,274	1,736	2,301	2,800	2,800	2,442	2,767	2,153	2,530
Long Term												
Full Simulation Period[a]	2,974	2,923	5,614	11,560	13,513	13,355	8,710	7,260	5,251	6,975	5,380	6,541
Water Year Types[b,c]												
Wet (32%)	4,197	3,846	8,266	23,743	27,715	25,043	16,023	13,872	8,211	7,810	6,891	10,812
Above Normal (16%)	3,893	3,150	4,191	11,529	13,491	18,430	9,251	5,612	3,678	8,640	8,429	9,395
Below Normal (13%)	2,966	2,514	4,204	4,187	6,827	5,807	4,598	4,369	3,545	8,705	6,515	4,337
Dry (24%)	1,746	2,840	6,157	4,376	4,912	5,511	4,583	4,059	4,554	6,192	2,566	3,068
Critical (15%)	1,385	1,187	1,800	3,929	3,226	2,529	2,926	2,702	3,269	3,081	2,453	2,005

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,778	4,660	13,488	23,858	33,680	31,623	20,967	15,604	11,261	9,531	8,539	7,431
20%	4,505	2,946	6,852	18,790	24,946	21,194	12,530	10,221	8,527	8,997	7,603	6,744
30%	3,949	2,756	5,059	11,251	17,536	16,563	8,280	7,361	7,856	8,628	5,843	5,140
40%	3,339	2,537	4,002	8,537	12,110	12,675	6,523	5,937	6,761	7,868	4,872	4,248
50%	2,637	2,295	3,314	5,371	7,046	8,334	5,725	5,173	5,967	6,755	3,638	2,977
60%	2,281	2,085	2,413	4,544	5,239	5,554	4,115	4,532	5,572	5,326	2,911	2,837
70%	1,815	1,712	2,015	3,715	4,243	4,346	3,618	4,073	5,078	4,301	2,477	2,720
80%	1,694	1,448	1,700	2,908	2,614	3,228	3,080	3,393	4,734	3,572	2,255	2,577
90%	1,430	1,214	1,207	2,289	1,870	2,302	2,800	2,806	3,467	2,801	2,038	2,492
Long Term												
Full Simulation Period[a]	3,043	2,899	6,072	11,958	13,978	13,656	8,740	7,689	6,947	6,343	4,533	4,174
Water Year Types[b,c]												
Wet (32%)	3,965	3,809	9,656	24,956	28,125	25,426	16,032	13,931	9,154	7,495	5,223	4,777
Above Normal (16%)	4,024	2,976	4,292	11,527	14,277	19,387	9,324	6,011	5,483	8,714	7,647	6,733
Below Normal (13%)	3,358	2,629	4,197	4,330	8,546	5,957	4,671	5,464	7,775	7,759	4,745	3,811
Dry (24%)	1,867	2,844	6,161	4,355	4,865	5,533	4,580	4,763	6,494	4,497	2,726	3,159
Critical (15%)	1,651	1,182	1,803	3,927	3,171	2,545	2,973	2,899	3,744	3,054	2,482	2,120

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	7	**-2**	2,730	276	**-16**	1	3	1	2,253	**-203**	**-64**	**-3,982**
20%	5	**-185**	244	1,912	79	**-4**	606	**-4**	2,404	**-433**	**-744**	**-4,260**
30%	3	**-137**	116	390	1,071	2,838	**-95**	756	2,750	**-246**	**-2,172**	**-4,732**
40%	**-110**	**-110**	134	2	1,040	1,233	**-1**	1,020	2,255	**-791**	**-2,363**	**-4,821**
50%	123	**-110**	49	2	232	13	1	750	2,059	**-1,320**	**-2,501**	**-3,133**
60%	204	**-99**	**-263**	0	**-82**	**-117**	9	652	2,083	**-1,959**	**-234**	**-272**
70%	57	**-80**	78	0	3	177	11	522	1,762	**-812**	**-56**	**-112**
80%	92	3	0	**-14**	**-2**	**-2**	47	457	1,790	**-221**	**-87**	**-32**
90%	32	2	0	16	134	2	0	6	1,024	34	**-115**	**-38**
Long Term												
Full Simulation Period[a]	69	**-24**	458	398	465	301	30	429	1,695	**-632**	**-847**	**-2,367**
Water Year Types[b,c]												
Wet (32%)	**-231**	**-37**	1,391	1,213	410	383	9	59	943	**-315**	**-1,668**	**-6,035**
Above Normal (16%)	131	**-175**	101	**-2**	786	957	74	399	1,805	74	**-782**	**-2,662**
Below Normal (13%)	391	116	**-7**	143	1,719	150	73	1,095	4,230	**-946**	**-1,770**	**-526**
Dry (24%)	122	4	5	**-20**	**-47**	22	**-3**	703	1,940	**-1,695**	160	91
Critical (15%)	266	**-5**	3	**-2**	**-55**	16	47	196	474	**-26**	29	115

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 22-4. Feather River at Sacramento River Confluence Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,771	4,662	10,758	23,582	33,696	31,622	20,964	15,603	9,008	9,734	8,603	11,413
20%	4,500	3,132	6,608	16,878	24,867	21,198	11,924	10,225	6,123	9,430	8,347	11,004
30%	3,945	2,893	4,943	10,861	16,465	13,726	8,375	6,606	5,106	8,874	8,015	9,872
40%	3,450	2,648	3,867	8,535	11,070	11,442	6,524	4,917	4,506	8,659	7,235	9,069
50%	2,514	2,404	3,265	5,369	6,814	8,320	5,725	4,423	3,908	8,075	6,139	6,110
60%	2,076	2,184	2,676	4,544	5,322	5,671	4,106	3,879	3,489	7,286	3,146	3,109
70%	1,758	1,793	1,937	3,715	4,240	4,169	3,607	3,551	3,316	5,113	2,534	2,832
80%	1,602	1,445	1,700	2,922	2,615	3,230	3,033	2,937	2,944	3,792	2,342	2,609
90%	1,397	1,212	1,206	2,274	1,736	2,301	2,800	2,800	2,442	2,767	2,153	2,530
Long Term												
Full Simulation Period[a]	2,974	2,923	5,614	11,560	13,513	13,355	8,710	7,260	5,251	6,975	5,380	6,541
Water Year Types[b,c]												
Wet (32%)	4,197	3,846	8,266	23,743	27,715	25,043	16,023	13,872	8,211	7,810	6,891	10,812
Above Normal (16%)	3,893	3,150	4,191	11,529	13,491	18,430	9,251	5,612	3,678	8,640	8,429	9,395
Below Normal (13%)	2,966	2,514	4,204	4,187	6,827	5,807	4,598	4,369	3,545	8,705	6,515	4,337
Dry (24%)	1,746	2,840	6,157	4,376	4,912	5,511	4,583	4,059	4,554	6,192	2,566	3,068
Critical (15%)	1,385	1,187	1,800	3,929	3,226	2,529	2,926	2,702	3,269	3,081	2,453	2,005

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,528	4,709	13,250	24,019	33,713	31,934	22,961	15,834	7,958	9,213	8,275	6,819
20%	3,374	2,932	6,565	17,339	23,291	21,633	15,033	12,539	6,571	8,702	7,992	5,855
30%	2,690	2,610	4,975	12,000	16,663	15,325	11,770	8,182	5,389	8,329	7,268	4,383
40%	2,528	2,327	3,721	8,882	12,583	12,347	10,115	6,405	4,770	7,775	5,669	3,492
50%	2,212	2,167	2,917	5,865	8,837	9,339	7,208	5,200	4,408	7,108	2,901	2,987
60%	1,868	2,005	2,405	4,855	6,812	7,125	5,576	4,284	4,113	6,246	2,434	2,591
70%	1,700	1,727	1,850	3,974	5,325	5,261	3,689	3,677	3,752	4,484	2,092	2,577
80%	1,515	1,445	1,695	3,244	3,218	3,781	3,219	2,861	3,348	3,124	1,956	2,559
90%	1,248	1,275	1,206	2,720	2,150	2,604	2,800	2,800	2,806	2,492	1,735	2,278
Long Term												
Full Simulation Period[a]	2,630	2,885	5,898	12,190	14,288	14,117	10,199	7,804	5,451	6,320	4,536	3,781
Water Year Types[b,c]												
Wet (32%)	3,283	3,610	9,221	24,768	28,068	25,440	17,708	14,462	7,908	7,445	6,226	4,539
Above Normal (16%)	3,219	2,913	3,890	11,505	13,981	19,479	12,475	7,047	3,867	7,847	7,840	6,648
Below Normal (13%)	3,557	2,591	4,578	5,393	8,612	7,933	7,126	5,025	4,528	8,127	3,669	2,932
Dry (24%)	1,761	3,109	6,068	4,740	6,075	6,133	5,026	4,243	4,771	5,006	2,077	2,601
Critical (15%)	1,177	1,182	1,799	4,330	3,654	2,752	2,903	2,678	3,825	2,763	2,188	1,774

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-243**	47	2,491	438	17	312	1,998	232	**-1,050**	**-521**	**-328**	**-4,595**
20%	**-1,126**	**-200**	**-43**	461	**-1,576**	435	3,110	2,314	449	**-728**	**-355**	**-5,149**
30%	**-1,255**	**-282**	32	1,139	198	1,599	3,395	1,576	283	**-545**	**-747**	**-5,489**
40%	**-922**	**-320**	**-146**	346	1,513	905	3,590	1,488	264	**-884**	**-1,566**	**-5,577**
50%	**-302**	**-237**	**-348**	496	2,023	1,019	1,483	777	500	**-967**	**-3,238**	**-3,124**
60%	**-208**	**-180**	**-271**	311	1,490	1,454	1,470	404	624	**-1,040**	**-711**	**-518**
70%	**-58**	**-65**	**-87**	259	1,085	1,093	81	125	435	**-628**	**-442**	**-255**
80%	**-86**	**-1**	**-5**	322	603	551	185	**-75**	404	**-668**	**-386**	**-50**
90%	**-150**	63	**0**	446	414	304	0	0	363	**-275**	**-417**	**-253**
Long Term												
Full Simulation Period[a]	**-344**	**-38**	284	630	775	762	1,489	544	200	**-654**	**-844**	**-2,761**
Water Year Types[b,c]												
Wet (32%)	**-914**	**-236**	956	1,025	353	397	1,685	590	**-303**	**-365**	**-666**	**-6,273**
Above Normal (16%)	**-674**	**-238**	**-301**	**-24**	490	1,049	3,224	1,435	189	**-793**	**-589**	**-2,747**
Below Normal (13%)	590	77	374	1,206	1,785	2,126	2,527	657	983	**-577**	**-2,847**	**-1,405**
Dry (24%)	16	269	**-88**	365	1,162	622	443	184	216	**-1,186**	**-489**	**-468**
Critical (15%)	**-208**	**-5**	**-1**	400	428	223	**-23**	**-25**	555	**-318**	**-265**	**-231**

a Based on the 82-year simulation period.

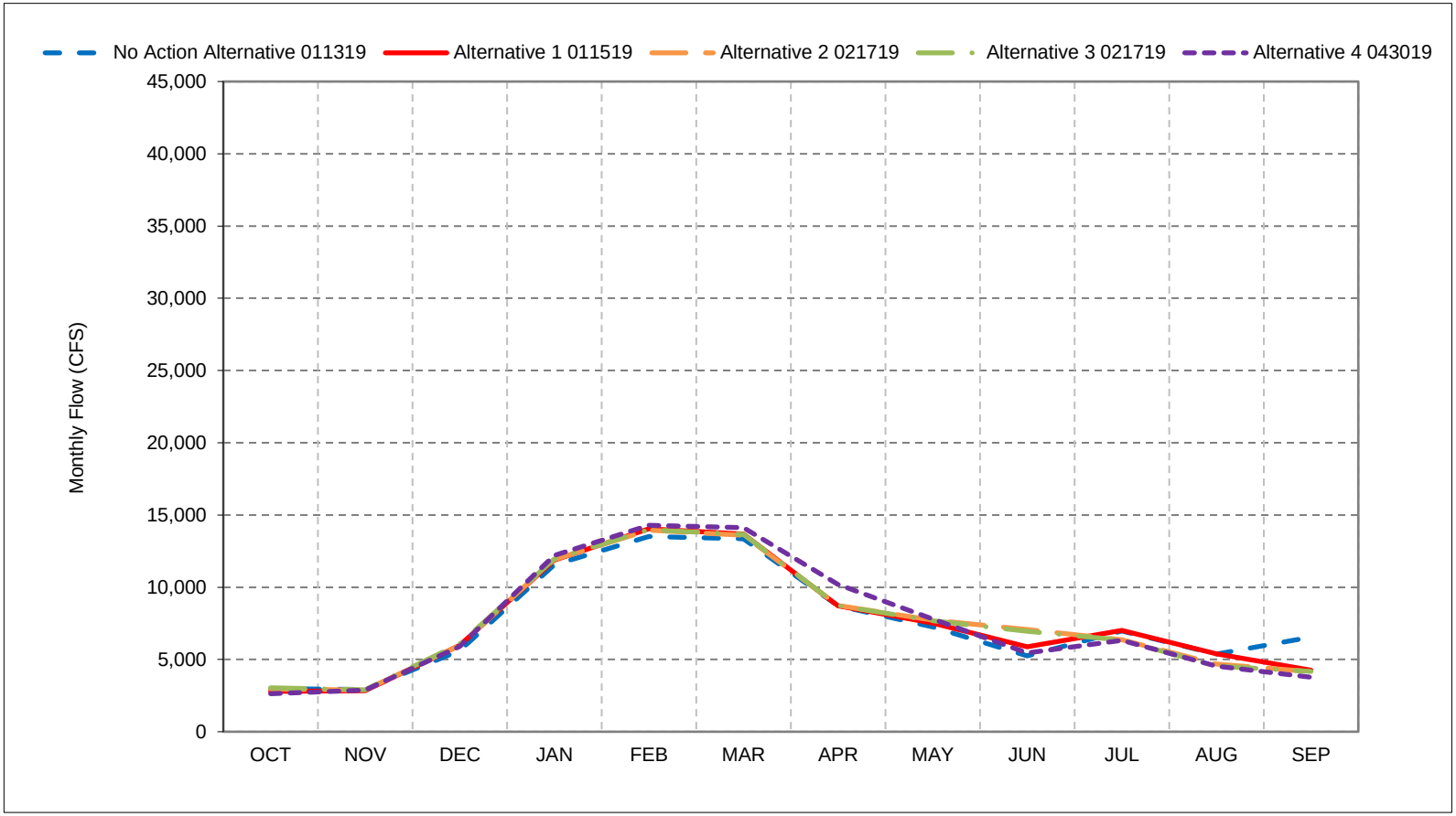
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

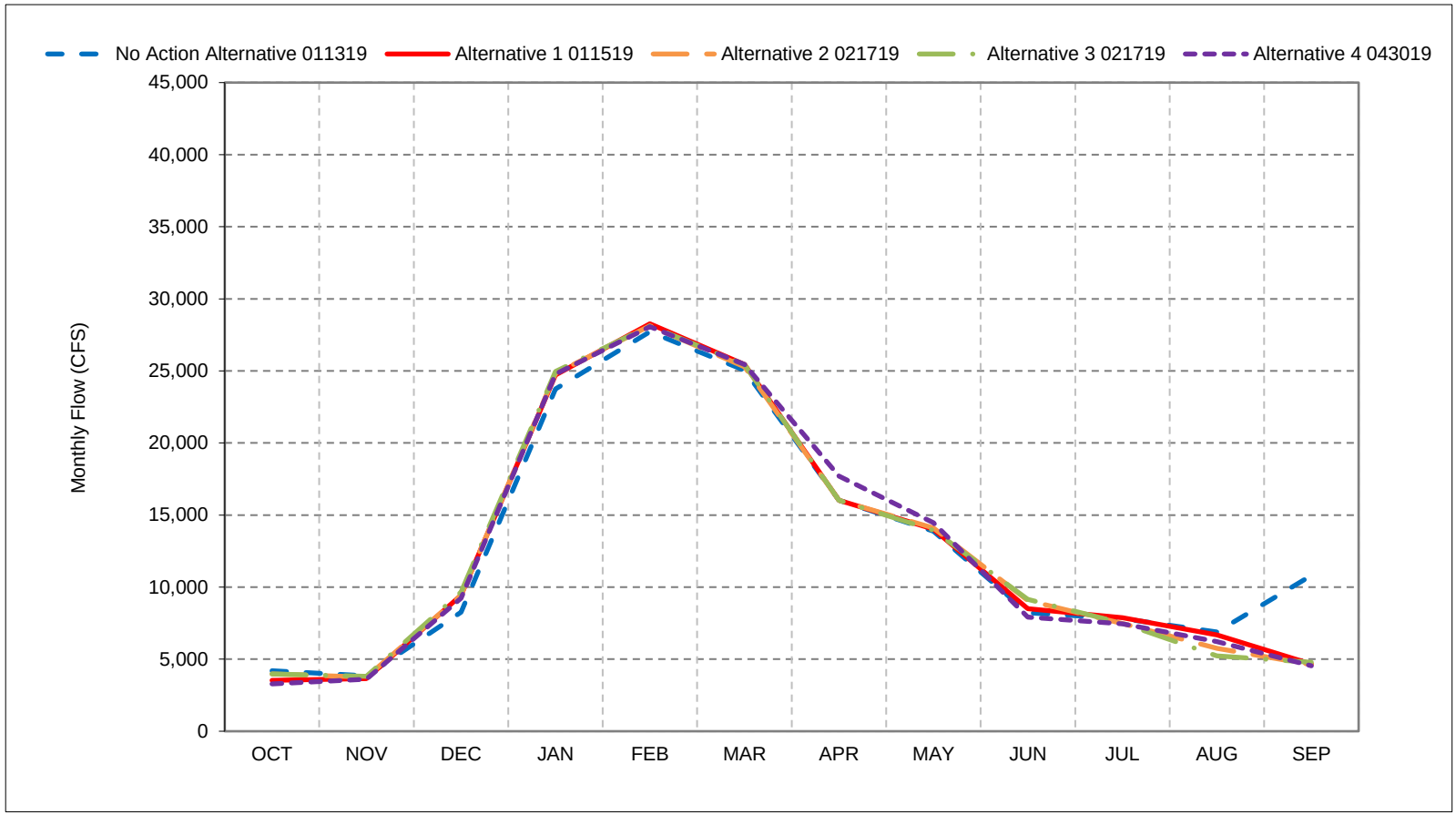
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-1. Feather River at Sacramento River Confluence Flow, Long-Term Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-2. Feather River at Sacramento River Confluence Flow, Wet Year Average Flow



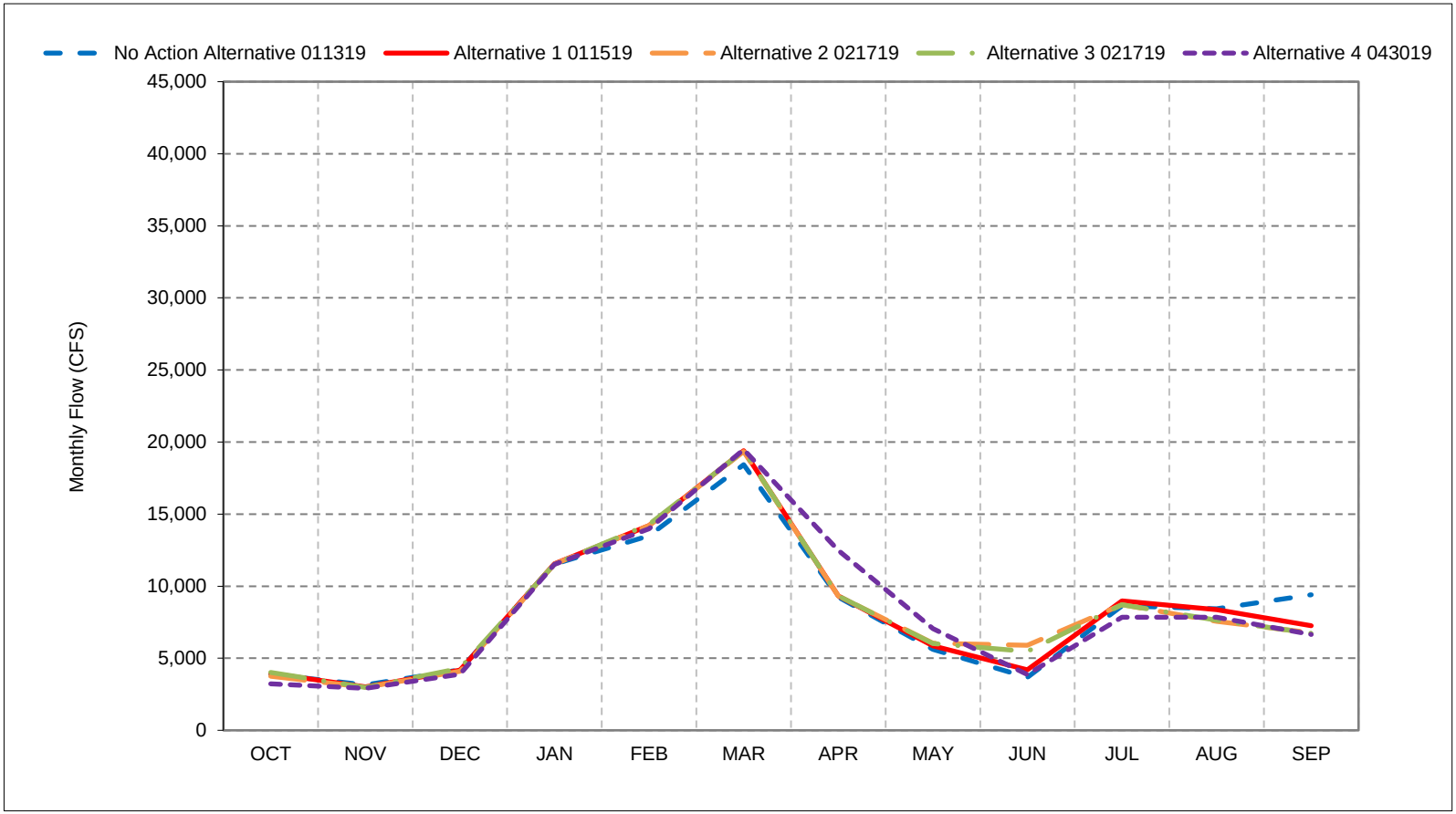
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

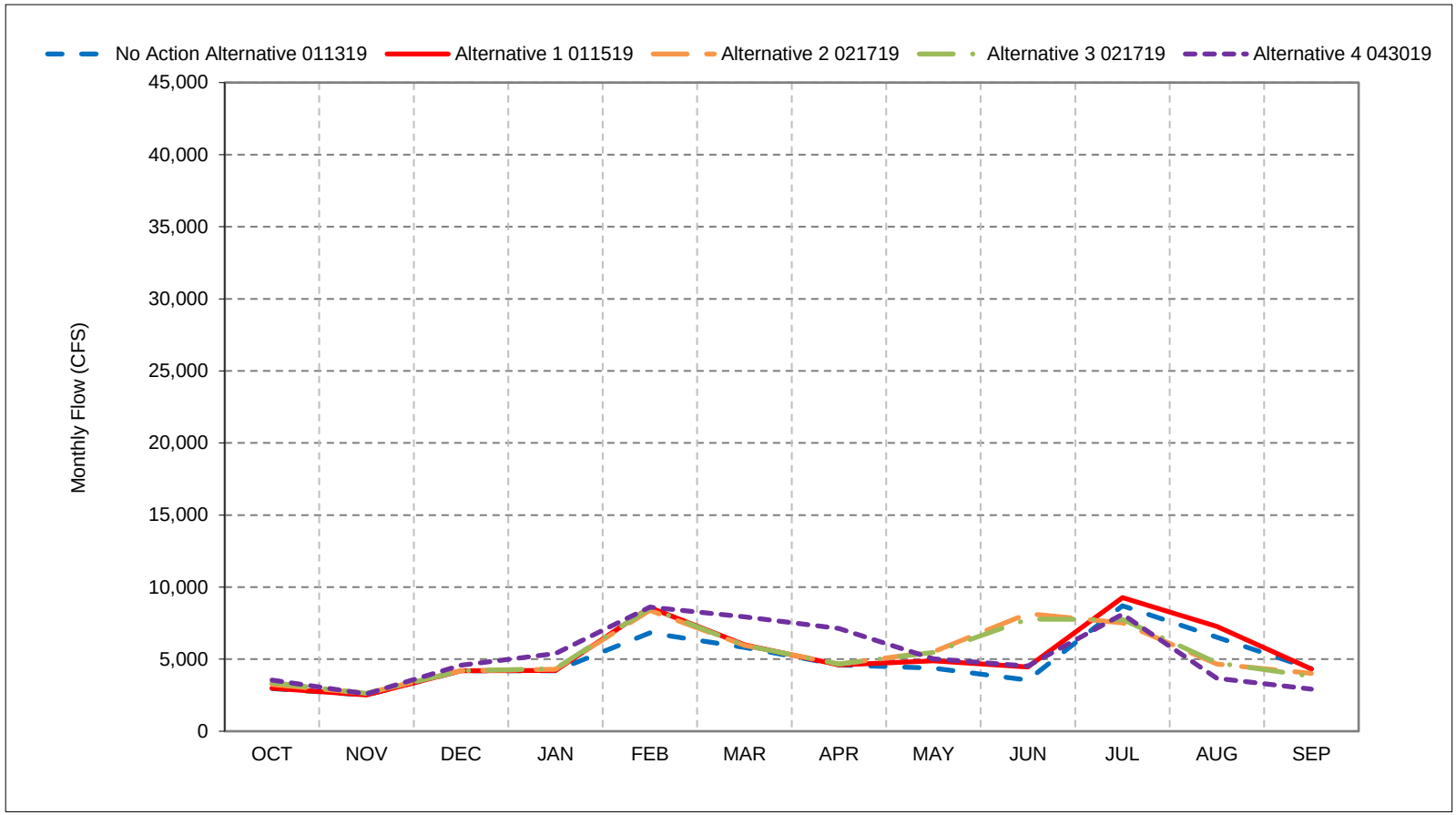
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-3. Feather River at Sacramento River Confluence Flow, Above Normal Year Average Flov



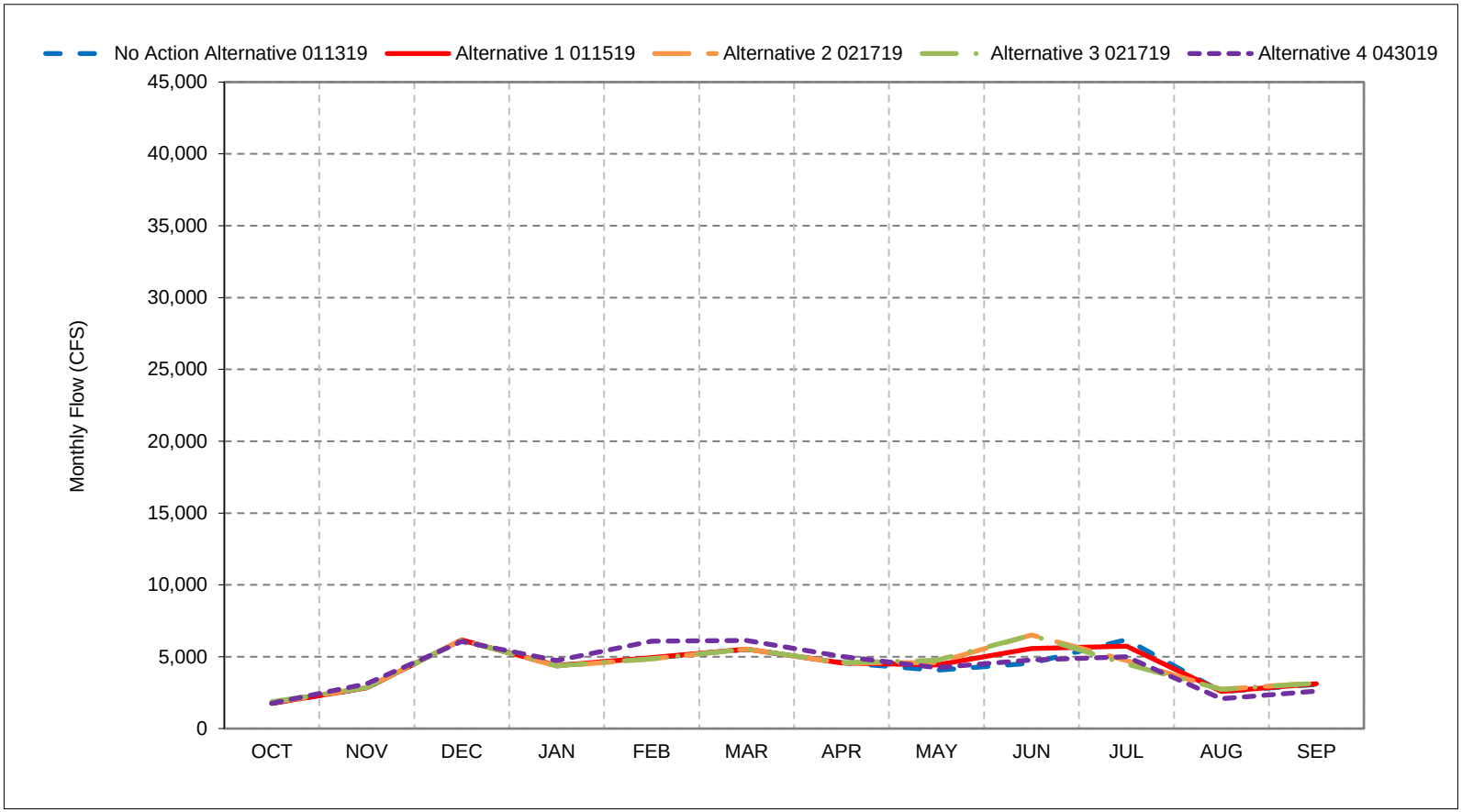
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-4. Feather River at Sacramento River Confluence Flow, Below Normal Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-5. Feather River at Sacramento River Confluence Flow, Dry Year Average Flow



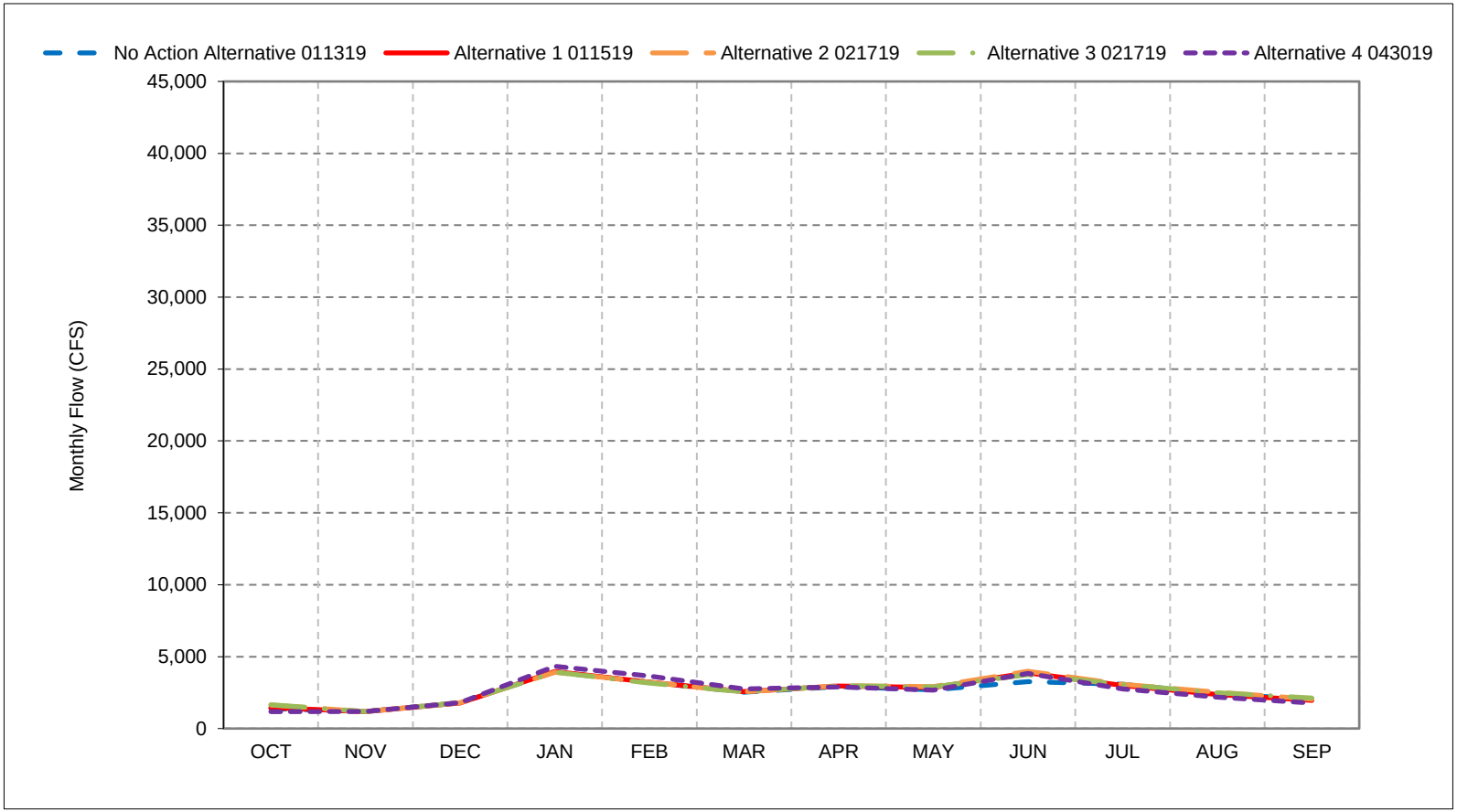
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

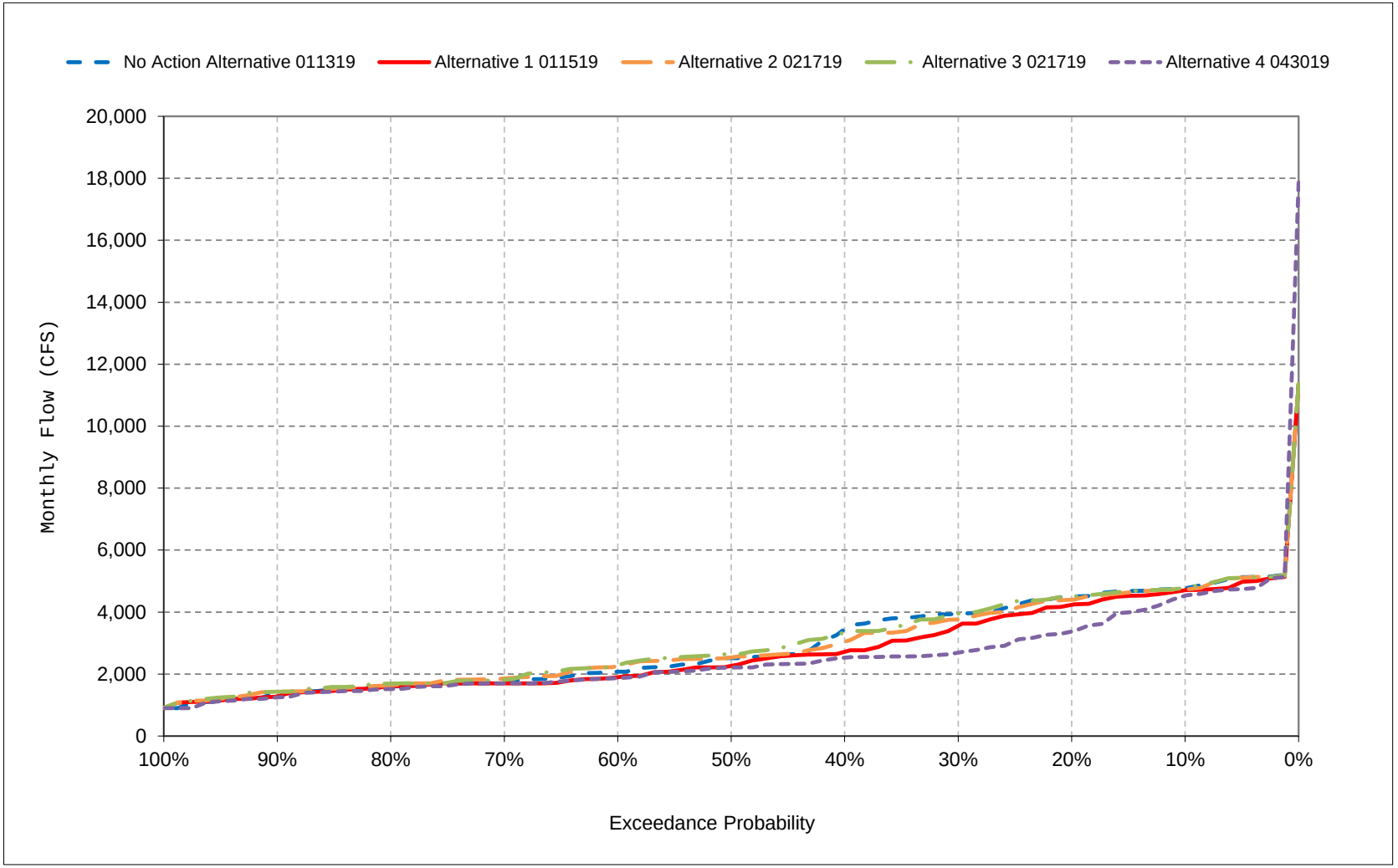
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-6. Feather River at Sacramento River Confluence Flow, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

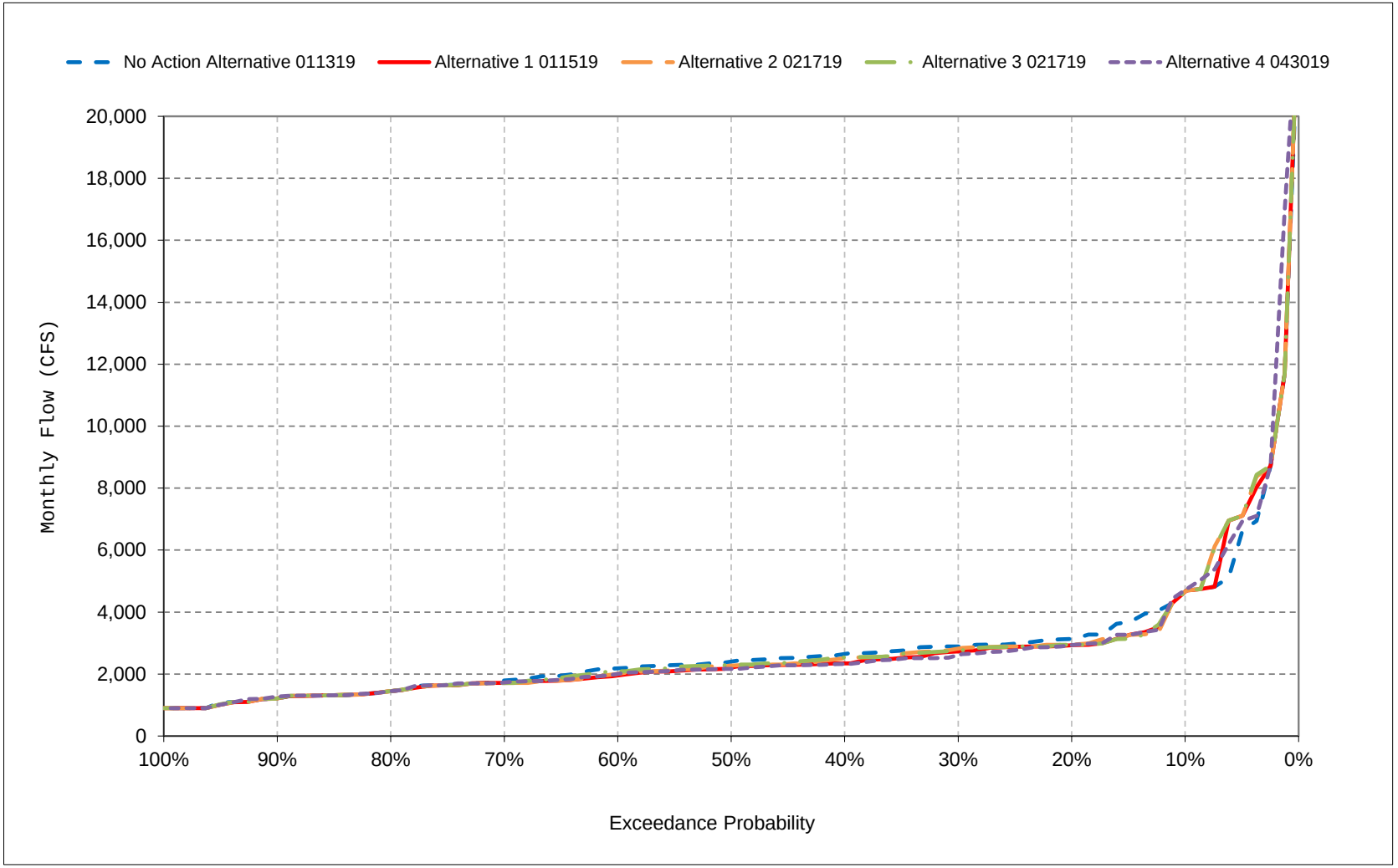
Figure 22-7. Feather River at Sacramento River Confluence Flow, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

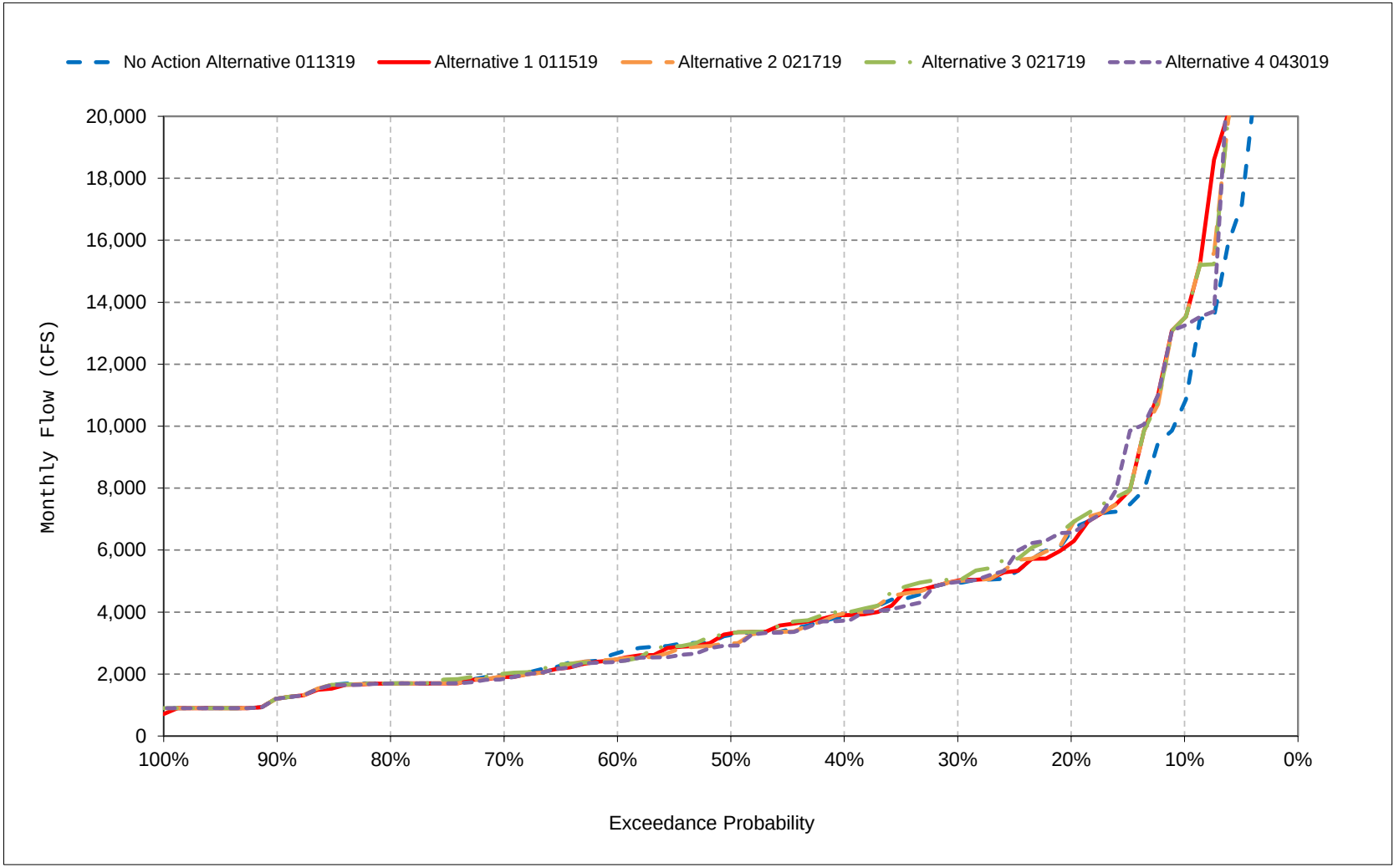
Figure 22-8. Feather River at Sacramento River Confluence Flow, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

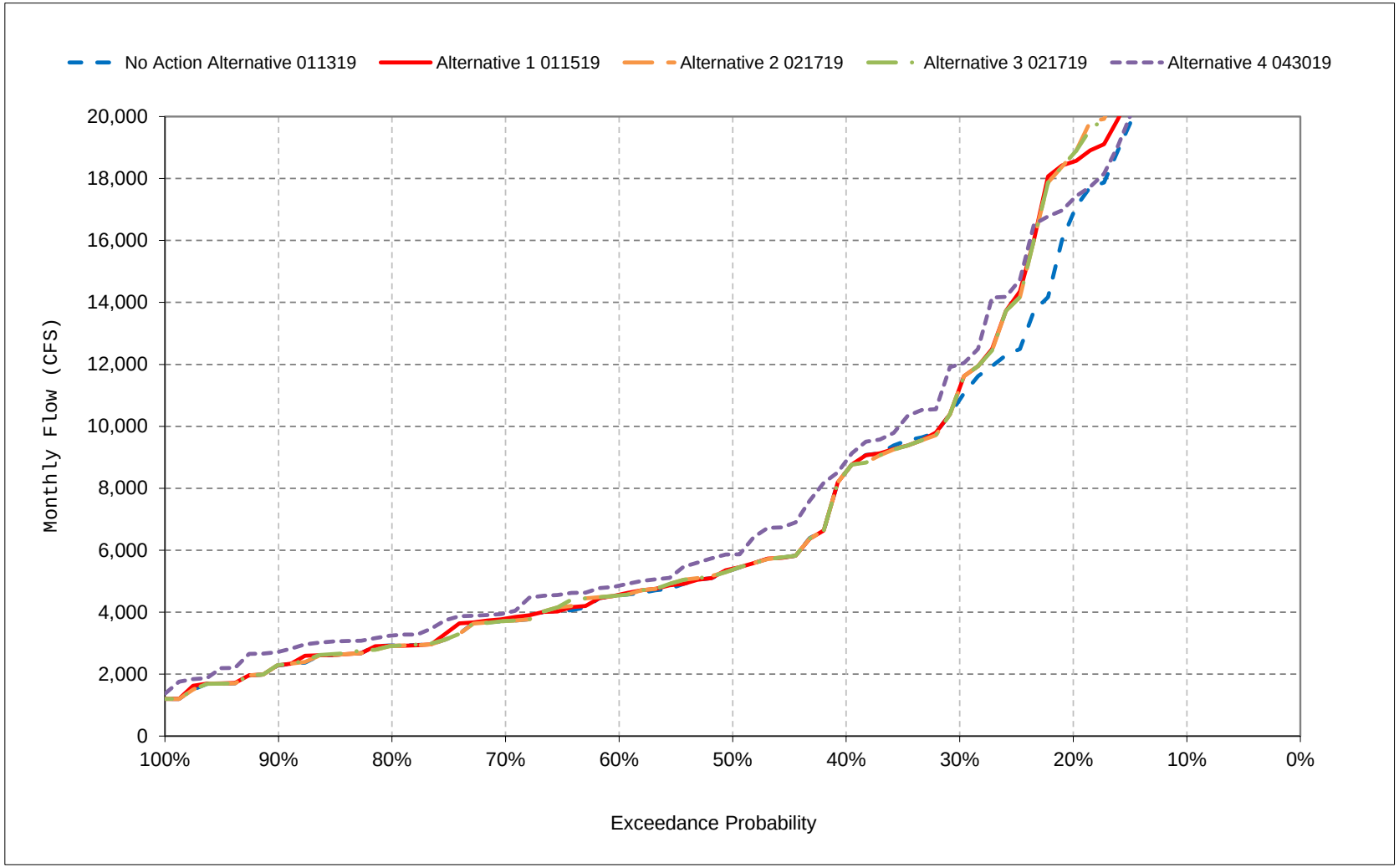
Figure 22-9. Feather River at Sacramento River Confluence Flow, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

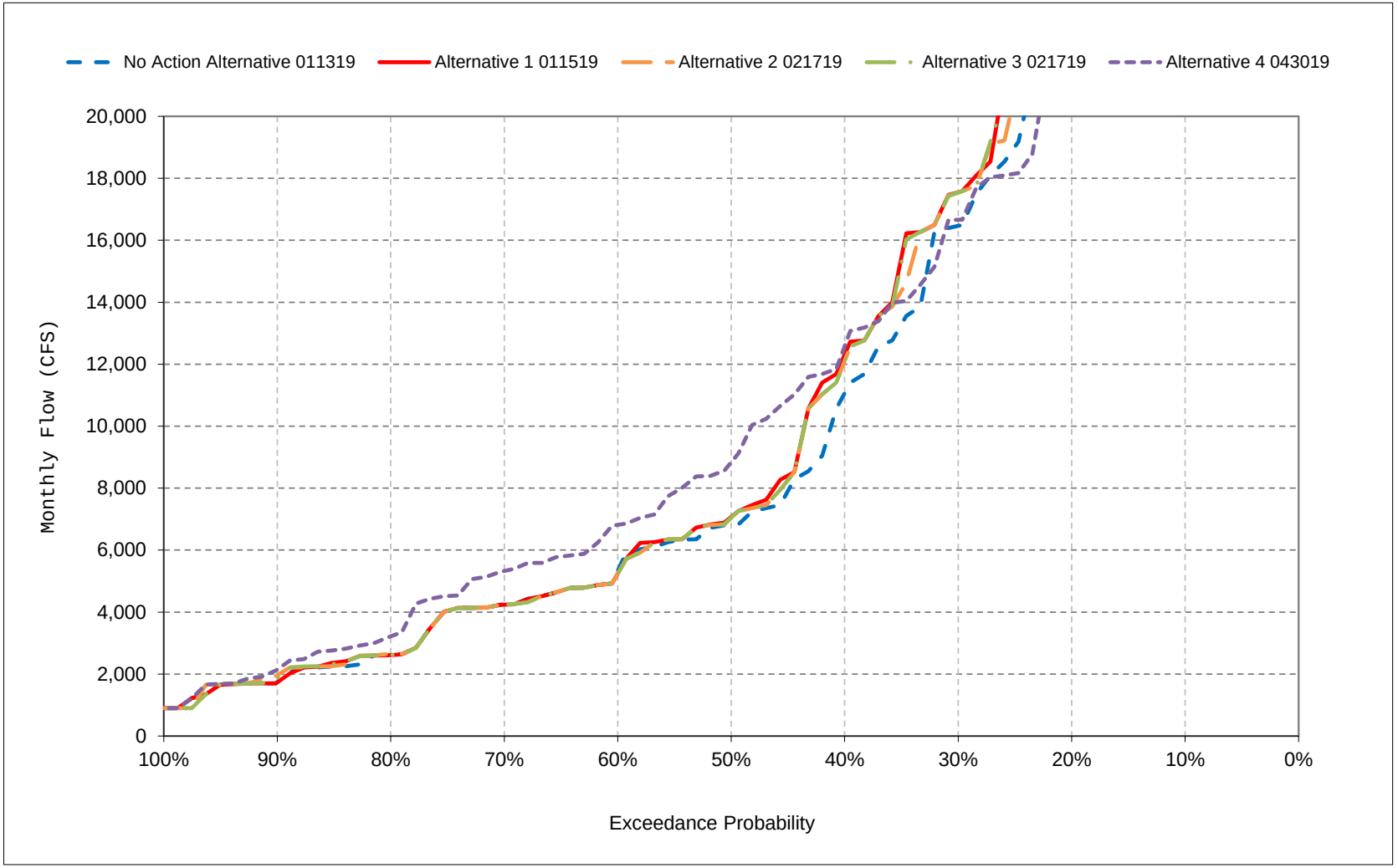
Figure 22-10. Feather River at Sacramento River Confluence Flow, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

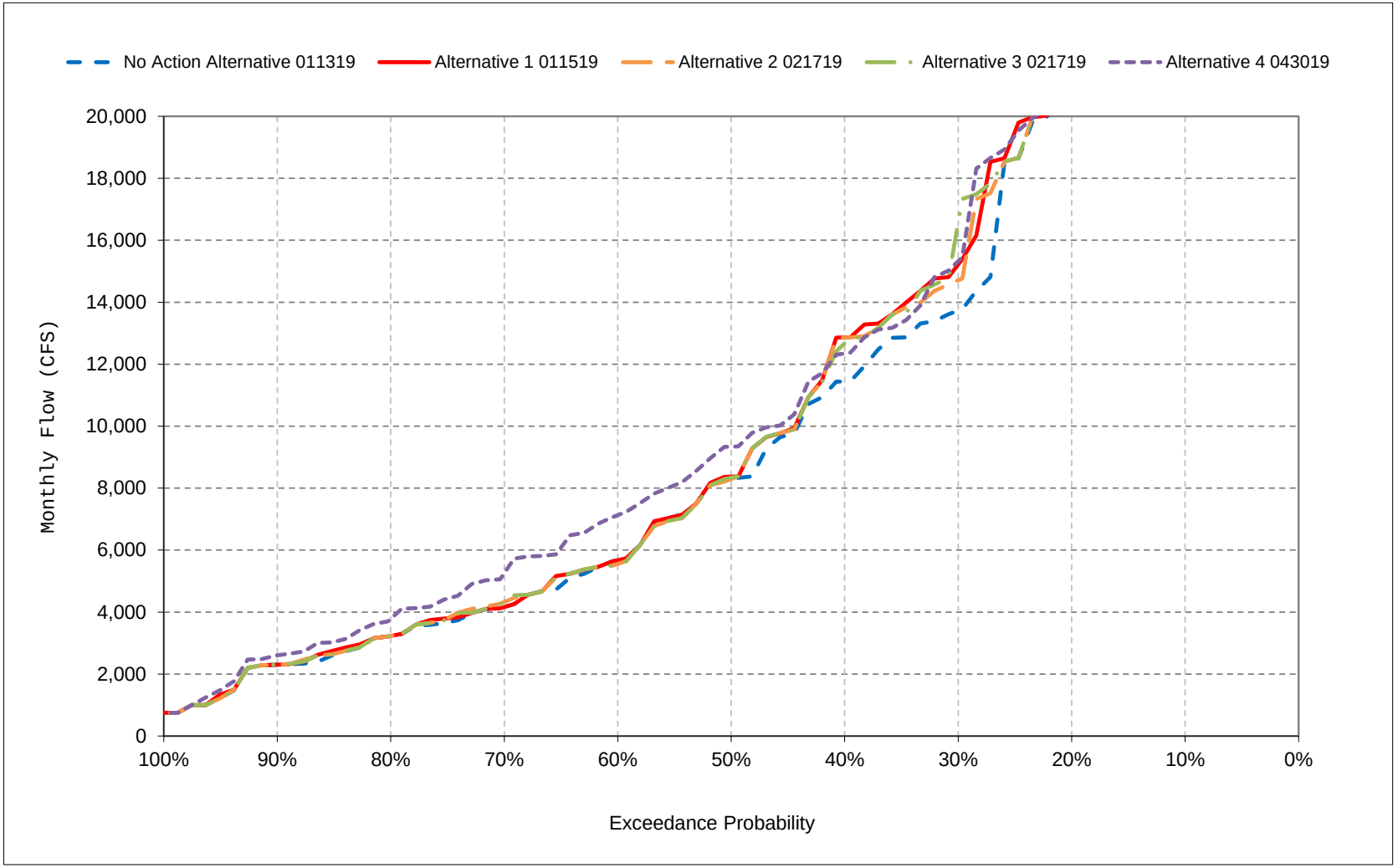
Figure 22-11. Feather River at Sacramento River Confluence Flow, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

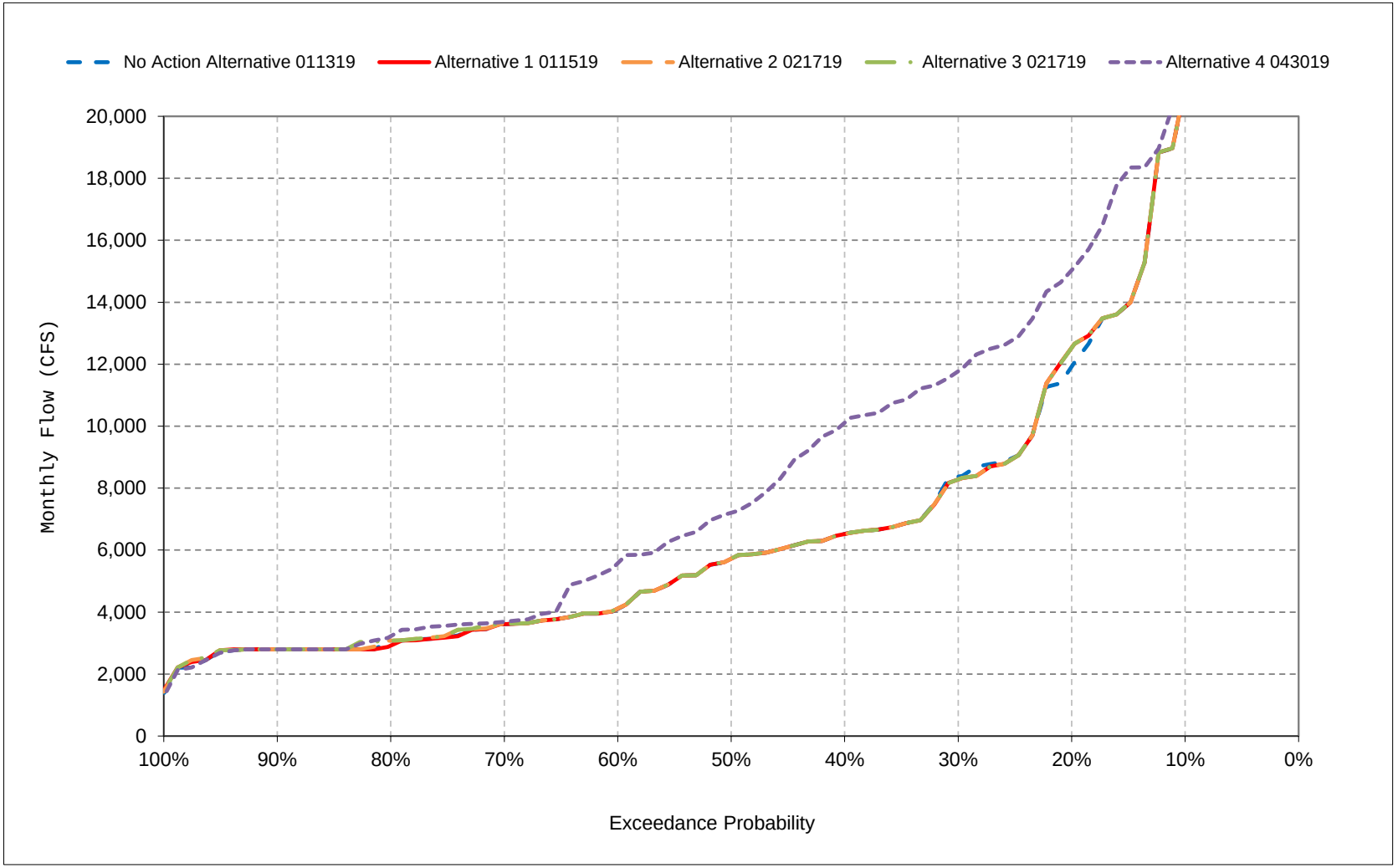
Figure 22-12. Feather River at Sacramento River Confluence Flow, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

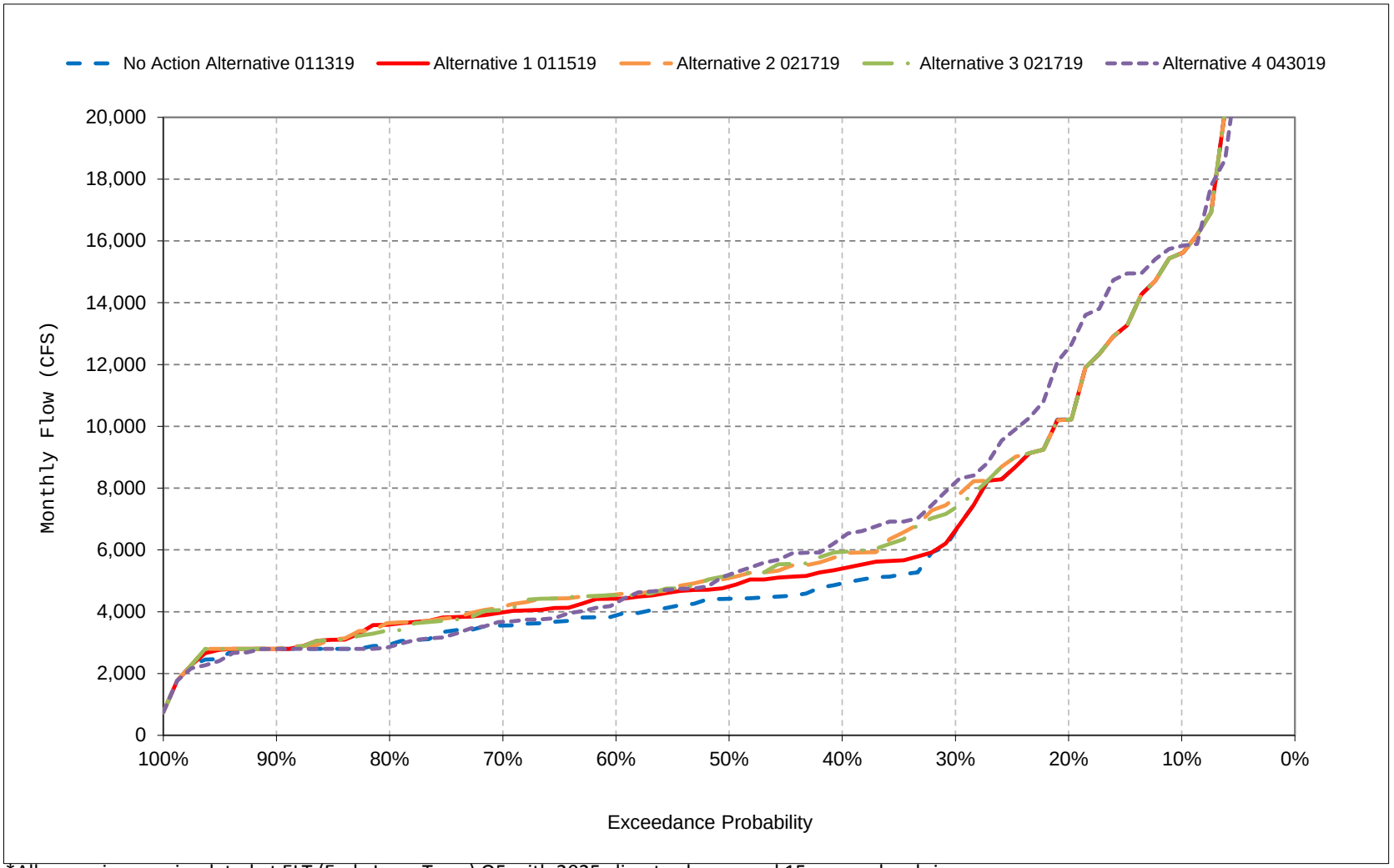
Figure 22-13. Feather River at Sacramento River Confluence Flow, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

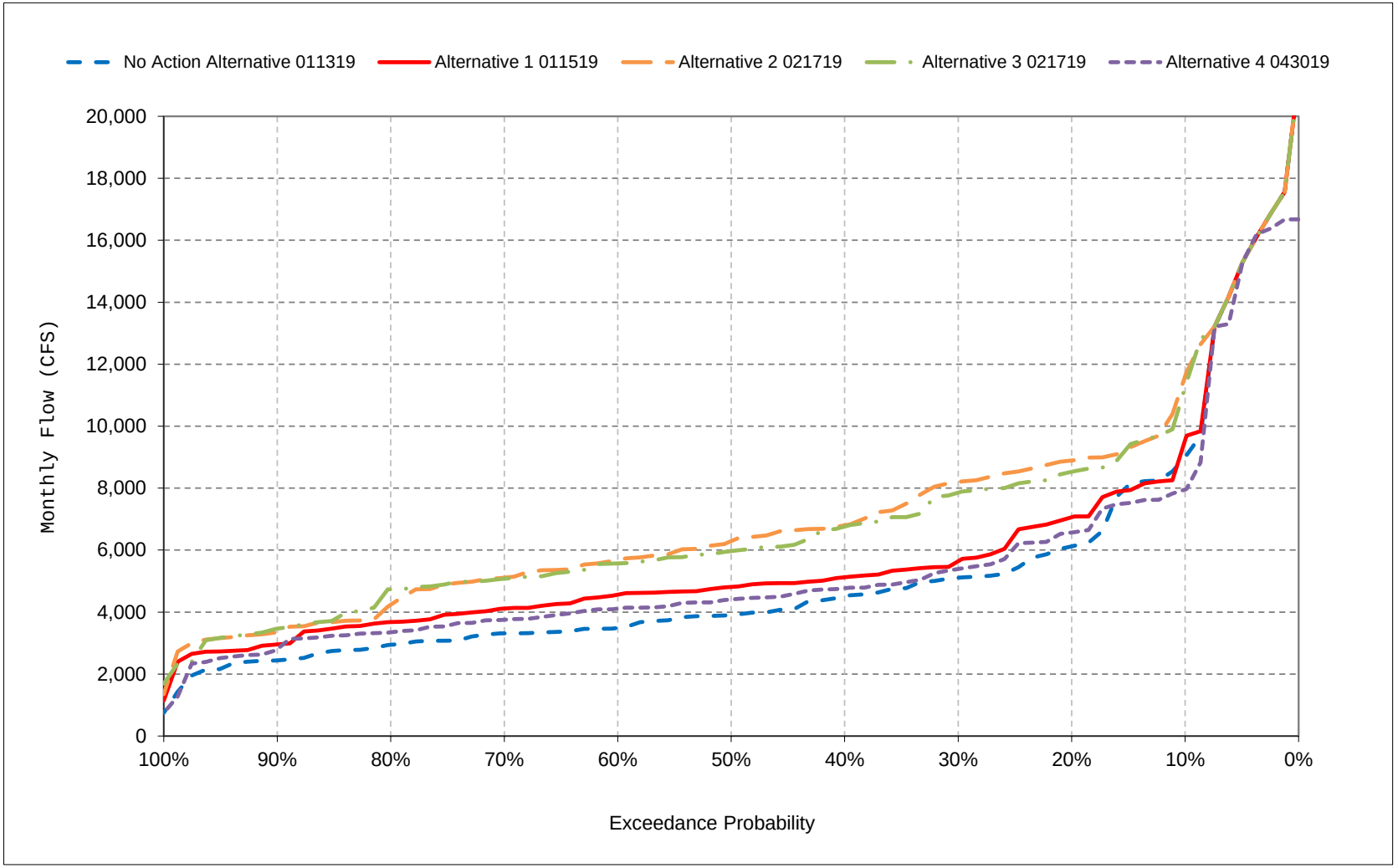
Figure 22-14. Feather River at Sacramento River Confluence Flow, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

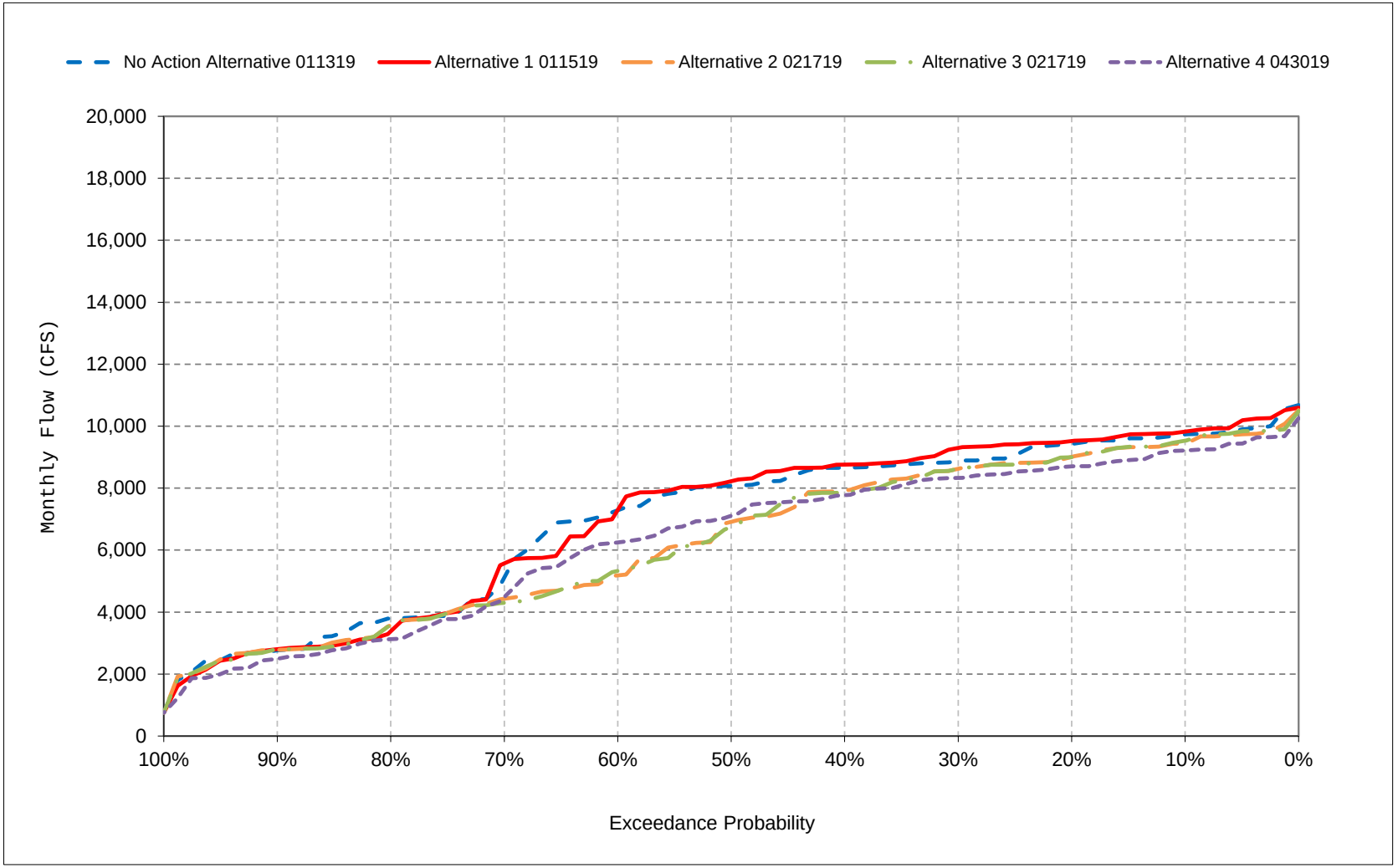
Figure 22-15. Feather River at Sacramento River Confluence Flow, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

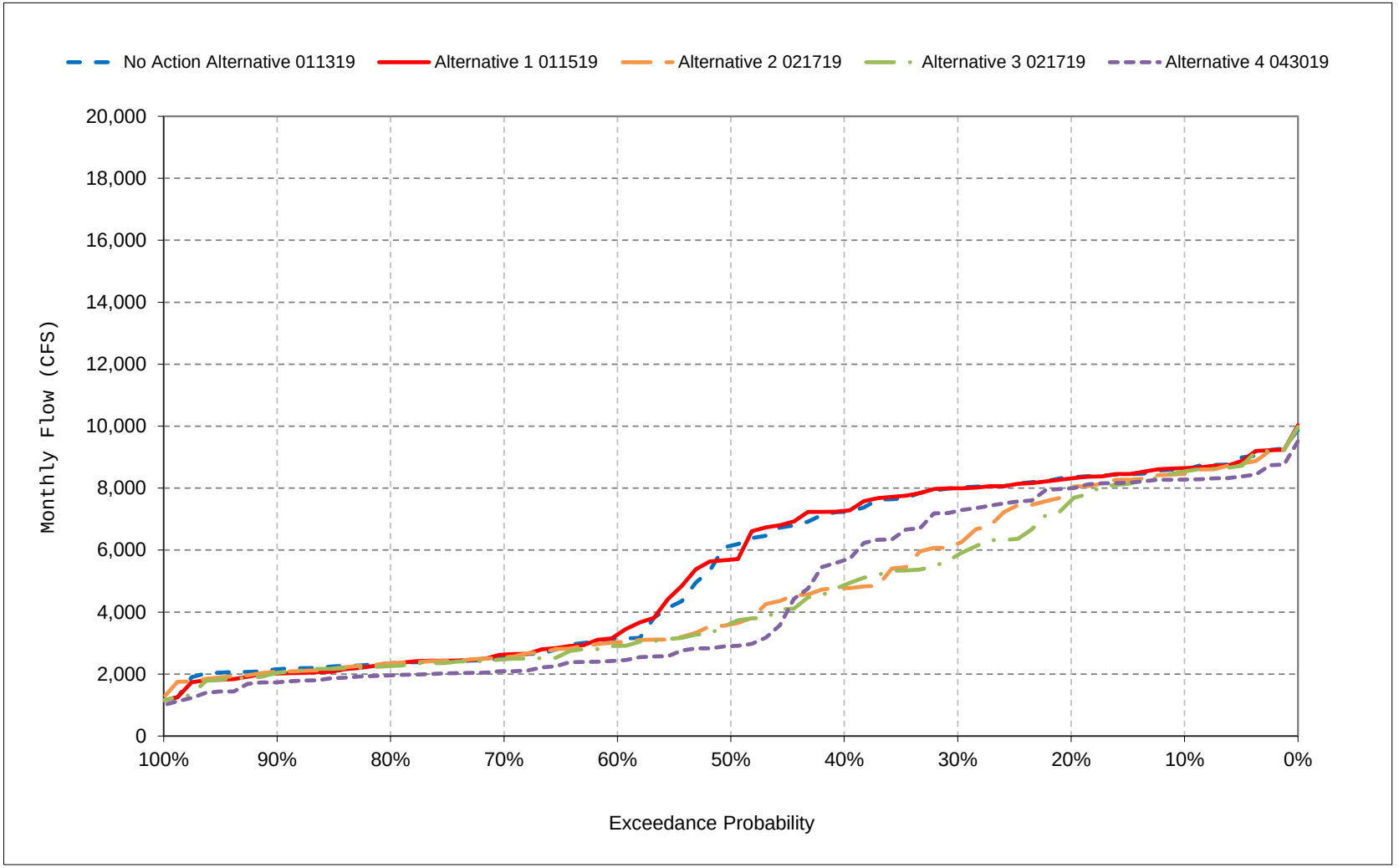
Figure 22-16. Feather River at Sacramento River Confluence Flow, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

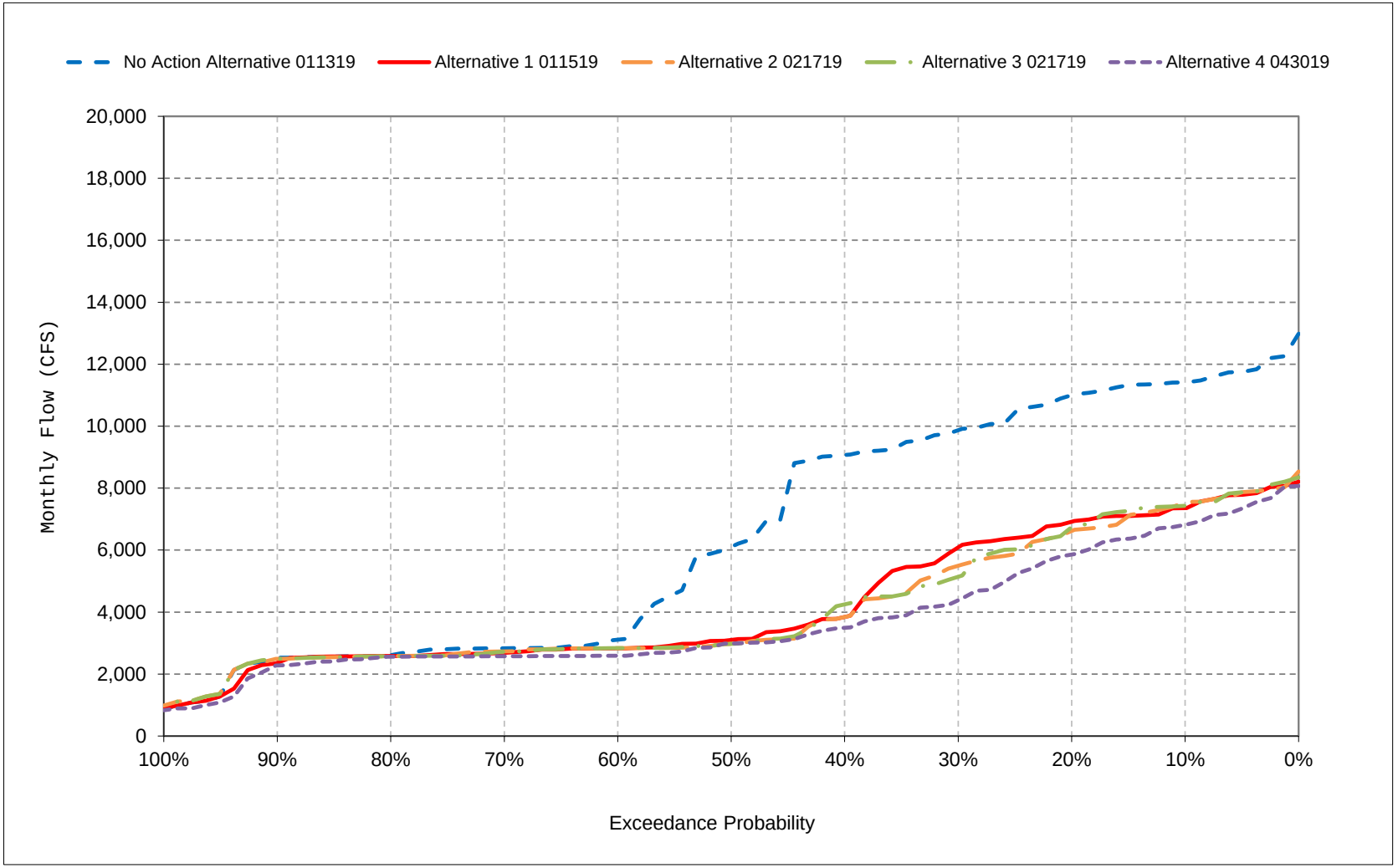
Figure 22-17. Feather River at Sacramento River Confluence Flow, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-18. Feather River at Sacramento River Confluence Flow, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 24-1. Fremont Weir Spills, Monthly Spills

No Action Alternative 011319

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	301	7,187	24,201	44,517	14,376	1,904	0	0	0	0	0
20%	0	75	2,202	9,905	14,249	4,769	0	0	0	0	0	0
30%	0	53	505	4,192	6,128	2,111	0	0	0	0	0	0
40%	0	23	138	907	3,893	1,029	0	0	0	0	0	0
50%	0	5	91	485	2,331	296	0	0	0	0	0	0
60%	0	0	20	202	910	144	0	0	0	0	0	0
70%	0	0	8	37	336	82	0	0	0	0	0	0
80%	0	0	0	15	93	15	0	0	0	0	0	0
90%	0	0	0	4	40	1	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	18	375	3,007	8,766	12,004	6,631	1,213	51	7	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	478	4,305	24,513	28,643	17,559	3,706	161	22	0	0	0
Above Normal (16%)	0	807	1,037	5,129	13,268	5,785	184	1	0	0	0	0
Below Normal (13%)	136	23	2,233	354	3,020	241	0	0	0	0	0	0
Dry (24%)	0	377	4,792	455	1,510	443	38	0	0	0	0	0
Critical (15%)	0	2	66	150	308	42	0	0	0	0	0	0

Alternative 1 011519

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	448	9,441	29,156	45,271	15,313	1,896	0	0	0	0	0
20%	0	40	3,176	9,909	13,394	4,463	0	0	0	0	0	0
30%	0	9	602	4,204	8,702	2,600	0	0	0	0	0	0
40%	0	0	161	1,258	4,388	1,030	0	0	0	0	0	0
50%	0	0	91	664	2,140	347	0	0	0	0	0	0
60%	0	0	21	224	1,034	164	0	0	0	0	0	0
70%	0	0	6	51	321	82	0	0	0	0	0	0
80%	0	0	0	19	101	15	0	0	0	0	0	0
90%	0	0	0	4	31	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	18	428	3,531	9,140	12,483	6,809	1,213	51	7	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	496	5,689	25,558	29,184	17,864	3,706	161	22	0	0	0
Above Normal (16%)	0	1,063	1,402	5,263	14,451	6,185	184	1	0	0	0	0
Below Normal (13%)	132	22	2,219	504	3,987	308	0	0	0	0	0	0
Dry (24%)	0	405	4,912	461	1,479	480	38	0	0	0	0	0
Critical (15%)	0	2	64	154	297	42	0	0	0	0	0	0

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	147	2,255	4,955	754	938	**-8**	0	0	0	0	0
20%	0	**-35**	974	5	**-854**	**-306**	0	0	0	0	0	0
30%	0	**-44**	97	12	2,574	489	0	0	0	0	0	0
40%	0	**-23**	23	351	494	0	0	0	0	0	0	0
50%	0	**-5**	**0**	179	**-192**	51	0	0	0	0	0	0
60%	0	**0**	1	22	124	20	0	0	0	0	0	0
70%	0	0	**-2**	14	**-14**	0	0	0	0	0	0	0
80%	0	0	0	4	8	0	0	0	0	0	0	0
90%	0	0	0	**0**	**-10**	**0**	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**0**	53	524	374	480	178	**0**	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	18	1,384	1,044	541	305	0	0	0	0	0	0
Above Normal (16%)	0	256	365	134	1,183	400	**-1**	**0**	0	0	0	0
Below Normal (13%)	**-3**	**-1**	**-14**	150	967	67	0	0	0	0	0	0
Dry (24%)	0	28	121	6	**-31**	37	**0**	0	0	0	0	0
Critical (15%)	0	**0**	**-1**	4	**-11**	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 24-2. Fremont Weir Spills, Monthly Spills

No Action Alternative 011319

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	301	7,187	24,201	44,517	14,376	1,904	0	0	0	0	0
20%	0	75	2,202	9,905	14,249	4,769	0	0	0	0	0	0
30%	0	53	505	4,192	6,128	2,111	0	0	0	0	0	0
40%	0	23	138	907	3,893	1,029	0	0	0	0	0	0
50%	0	5	91	485	2,331	296	0	0	0	0	0	0
60%	0	0	20	202	910	144	0	0	0	0	0	0
70%	0	0	8	37	336	82	0	0	0	0	0	0
80%	0	0	0	15	93	15	0	0	0	0	0	0
90%	0	0	0	4	40	1	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	18	375	3,007	8,766	12,004	6,631	1,213	51	7	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	478	4,305	24,513	28,643	17,559	3,706	161	22	0	0	0
Above Normal (16%)	0	807	1,037	5,129	13,268	5,785	184	1	0	0	0	0
Below Normal (13%)	136	23	2,233	354	3,020	241	0	0	0	0	0	0
Dry (24%)	0	377	4,792	455	1,510	443	38	0	0	0	0	0
Critical (15%)	0	2	66	150	308	42	0	0	0	0	0	0

Alternative 2 021719

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	460	9,299	29,758	45,403	15,307	1,847	0	0	0	0	0
20%	0	35	2,242	9,985	12,633	4,478	0	0	0	0	0	0
30%	0	14	579	4,207	7,368	2,355	0	0	0	0	0	0
40%	0	1	158	1,249	4,380	891	0	0	0	0	0	0
50%	0	0	85	631	2,321	347	0	0	0	0	0	0
60%	0	0	18	220	941	145	0	0	0	0	0	0
70%	0	0	4	34	310	81	0	0	0	0	0	0
80%	0	0	0	13	69	18	0	0	0	0	0	0
90%	0	0	0	5	35	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	8	399	3,383	8,973	12,374	6,740	1,213	51	7	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	493	5,661	25,076	29,195	17,742	3,706	161	22	0	0	0
Above Normal (16%)	0	981	1,073	5,195	14,318	6,111	179	1	0	0	0	0
Below Normal (13%)	56	21	2,144	494	3,439	306	0	0	0	0	0	0
Dry (24%)	0	344	4,594	454	1,406	404	37	0	0	0	0	0
Critical (15%)	0	2	65	146	294	45	0	0	0	0	0	0

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	159	2,113	5,557	886	931	**-57**	0	0	0	0	0
20%	0	**-39**	40	81	**-1,615**	**-292**	0	0	0	0	0	0
30%	0	**-39**	74	15	1,240	244	0	0	0	0	0	0
40%	0	**-22**	20	342	487	**-138**	0	0	0	0	0	0
50%	0	**-5**	**-6**	146	**-10**	51	0	0	0	0	0	0
60%	0	**0**	**-2**	18	31	1	0	0	0	0	0	0
70%	0	0	**-3**	**-3**	**-25**	**-1**	0	0	0	0	0	0
80%	0	0	0	**-2**	**-25**	3	0	0	0	0	0	0
90%	0	0	0	1	**-5**	**-1**	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**-11**	24	375	207	371	109	**-1**	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	15	1,356	563	553	183	0	0	0	0	0	0
Above Normal (16%)	0	174	35	65	1,051	326	**-5**	**0**	0	0	0	0
Below Normal (13%)	**-80**	**-2**	**-89**	139	420	65	0	0	0	0	0	0
Dry (24%)	0	**-32**	**-198**	**-1**	**-104**	**-38**	**-1**	0	0	0	0	0
Critical (15%)	0	**0**	**-1**	**-4**	**-14**	3	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 24-3. Fremont Weir Spills, Monthly Spills

No Action Alternative 011319

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	301	7,187	24,201	44,517	14,376	1,904	0	0	0	0	0
20%	0	75	2,202	9,905	14,249	4,769	0	0	0	0	0	0
30%	0	53	505	4,192	6,128	2,111	0	0	0	0	0	0
40%	0	23	138	907	3,893	1,029	0	0	0	0	0	0
50%	0	5	91	485	2,331	296	0	0	0	0	0	0
60%	0	0	20	202	910	144	0	0	0	0	0	0
70%	0	0	8	37	336	82	0	0	0	0	0	0
80%	0	0	0	15	93	15	0	0	0	0	0	0
90%	0	0	0	4	40	1	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	18	375	3,007	8,766	12,004	6,631	1,213	51	7	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	478	4,305	24,513	28,643	17,559	3,706	161	22	0	0	0
Above Normal (16%)	0	807	1,037	5,129	13,268	5,785	184	1	0	0	0	0
Below Normal (13%)	136	23	2,233	354	3,020	241	0	0	0	0	0	0
Dry (24%)	0	377	4,792	455	1,510	443	38	0	0	0	0	0
Critical (15%)	0	2	66	150	308	42	0	0	0	0	0	0

Alternative 3 021719

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	413	9,297	30,135	44,795	15,241	1,843	0	0	0	0	0
20%	0	45	2,253	10,186	12,730	4,982	0	0	0	0	0	0
30%	0	8	575	4,205	7,627	2,335	0	0	0	0	0	0
40%	0	0	158	1,219	4,380	895	0	0	0	0	0	0
50%	0	0	103	599	2,318	318	0	0	0	0	0	0
60%	0	0	23	221	974	145	0	0	0	0	0	0
70%	0	0	4	37	303	81	0	0	0	0	0	0
80%	0	0	0	15	68	15	0	0	0	0	0	0
90%	0	0	0	5	36	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	7	386	3,380	8,968	12,344	6,763	1,213	51	7	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	492	5,714	25,071	29,104	17,783	3,706	162	22	0	0	0
Above Normal (16%)	0	962	1,129	5,185	14,288	6,172	179	1	0	0	0	0
Below Normal (13%)	53	22	2,129	484	3,475	307	0	0	0	0	0	0
Dry (24%)	0	306	4,489	453	1,406	404	37	0	0	0	0	0
Critical (15%)	0	2	64	149	289	44	0	0	0	0	0	0

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	112	2,111	5,934	278	866	**-61**	0	0	0	0	0
20%	0	**-29**	51	281	**-1,518**	213	0	0	0	0	0	0
30%	0	**-45**	70	13	1,499	225	0	0	0	0	0	0
40%	0	**-23**	20	312	487	**-134**	0	0	0	0	0	0
50%	0	**-5**	12	115	**-13**	22	0	0	0	0	0	0
60%	0	**0**	3	19	64	1	0	0	0	0	0	0
70%	0	0	**-3**	**0**	**-33**	**-1**	0	0	0	0	0	0
80%	0	0	0	1	**-25**	0	0	0	0	0	0	0
90%	0	0	0	1	**-4**	**-1**	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**-11**	12	373	202	341	132	**-1**	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	14	1,408	558	461	225	0	1	0	0	0	0
Above Normal (16%)	0	155	92	56	1,020	386	**-5**	**0**	0	0	0	0
Below Normal (13%)	**-83**	**0**	**-104**	129	455	66	0	0	0	0	0	0
Dry (24%)	0	**-71**	**-303**	**-2**	**-104**	**-39**	**-1**	0	0	0	0	0
Critical (15%)	0	**0**	**-1**	**-1**	**-19**	2	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 24-4. Fremont Weir Spills, Monthly Spills

No Action Alternative 011319

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	301	7,187	24,201	44,517	14,376	1,904	0	0	0	0	0
20%	0	75	2,202	9,905	14,249	4,769	0	0	0	0	0	0
30%	0	53	505	4,192	6,128	2,111	0	0	0	0	0	0
40%	0	23	138	907	3,893	1,029	0	0	0	0	0	0
50%	0	5	91	485	2,331	296	0	0	0	0	0	0
60%	0	0	20	202	910	144	0	0	0	0	0	0
70%	0	0	8	37	336	82	0	0	0	0	0	0
80%	0	0	0	15	93	15	0	0	0	0	0	0
90%	0	0	0	4	40	1	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	18	375	3,007	8,766	12,004	6,631	1,213	51	7	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	478	4,305	24,513	28,643	17,559	3,706	161	22	0	0	0
Above Normal (16%)	0	807	1,037	5,129	13,268	5,785	184	1	0	0	0	0
Below Normal (13%)	136	23	2,233	354	3,020	241	0	0	0	0	0	0
Dry (24%)	0	377	4,792	455	1,510	443	38	0	0	0	0	0
Critical (15%)	0	2	66	150	308	42	0	0	0	0	0	0

Alternative 4 043019

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	525	8,918	30,187	45,049	15,528	2,001	0	0	0	0	0
20%	0	46	3,158	10,085	14,197	5,000	10	0	0	0	0	0
30%	0	8	681	4,141	8,270	2,468	0	0	0	0	0	0
40%	0	0	163	1,451	4,420	1,338	0	0	0	0	0	0
50%	0	0	102	754	2,693	405	0	0	0	0	0	0
60%	0	0	23	288	1,176	210	0	0	0	0	0	0
70%	0	0	3	65	542	111	0	0	0	0	0	0
80%	0	0	0	24	111	18	0	0	0	0	0	0
90%	0	0	0	6	32	8	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	49	409	3,546	9,273	12,469	6,901	1,232	42	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	494	5,673	25,843	29,072	17,981	3,721	131	1	0	0	0
Above Normal (16%)	0	855	1,244	5,292	14,246	6,311	247	0	0	0	0	0
Below Normal (13%)	368	23	2,300	716	3,913	474	17	0	0	0	0	0
Dry (24%)	0	463	5,047	488	1,719	524	43	0	0	0	0	0
Critical (15%)	0	2	68	172	333	49	0	0	0	0	0	0

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Spills (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	224	1,731	5,986	532	1,152	97	0	0	0	0	0
20%	0	**-28**	956	180	**-52**	231	10	0	0	0	0	0
30%	0	**-45**	176	**-51**	2,142	357	0	0	0	0	0	0
40%	0	**-22**	25	544	527	309	0	0	0	0	0	0
50%	0	**-5**	11	269	362	109	0	0	0	0	0	0
60%	0	**0**	3	86	265	66	0	0	0	0	0	0
70%	0	0	**-4**	28	206	29	0	0	0	0	0	0
80%	0	0	0	10	17	4	0	0	0	0	0	0
90%	0	0	0	2	**-8**	7	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	31	34	538	507	466	270	18	**-10**	**-7**	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	16	1,368	1,330	429	422	15	**-30**	**-21**	0	0	0
Above Normal (16%)	0	49	207	163	978	526	62	**-1**	0	0	0	0
Below Normal (13%)	232	1	67	362	894	233	17	0	0	0	0	0
Dry (24%)	0	86	255	32	209	82	5	0	0	0	0	0
Critical (15%)	0	**0**	3	22	25	7	0	0	0	0	0	0

a Based on the 82-year simulation period.

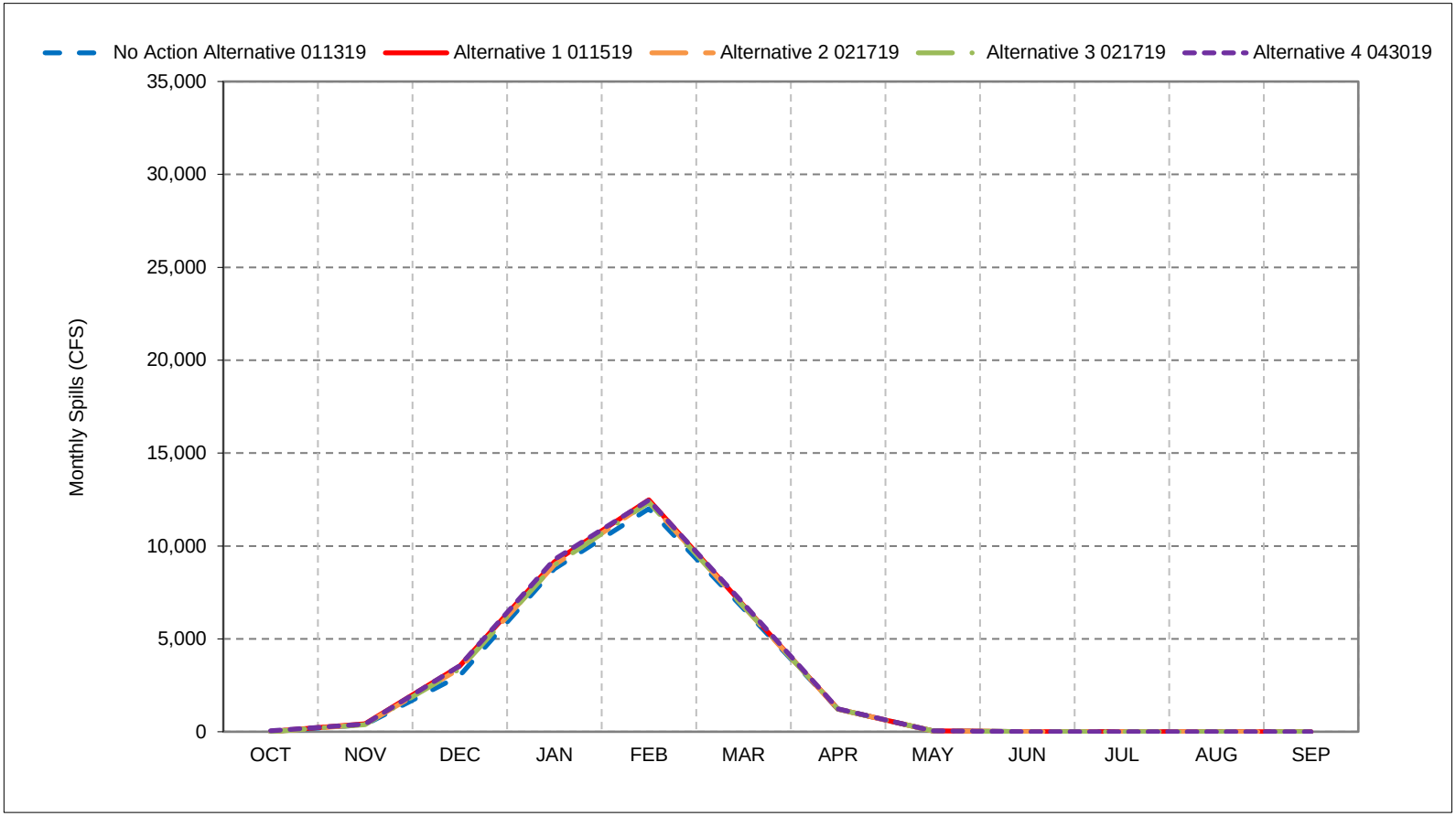
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

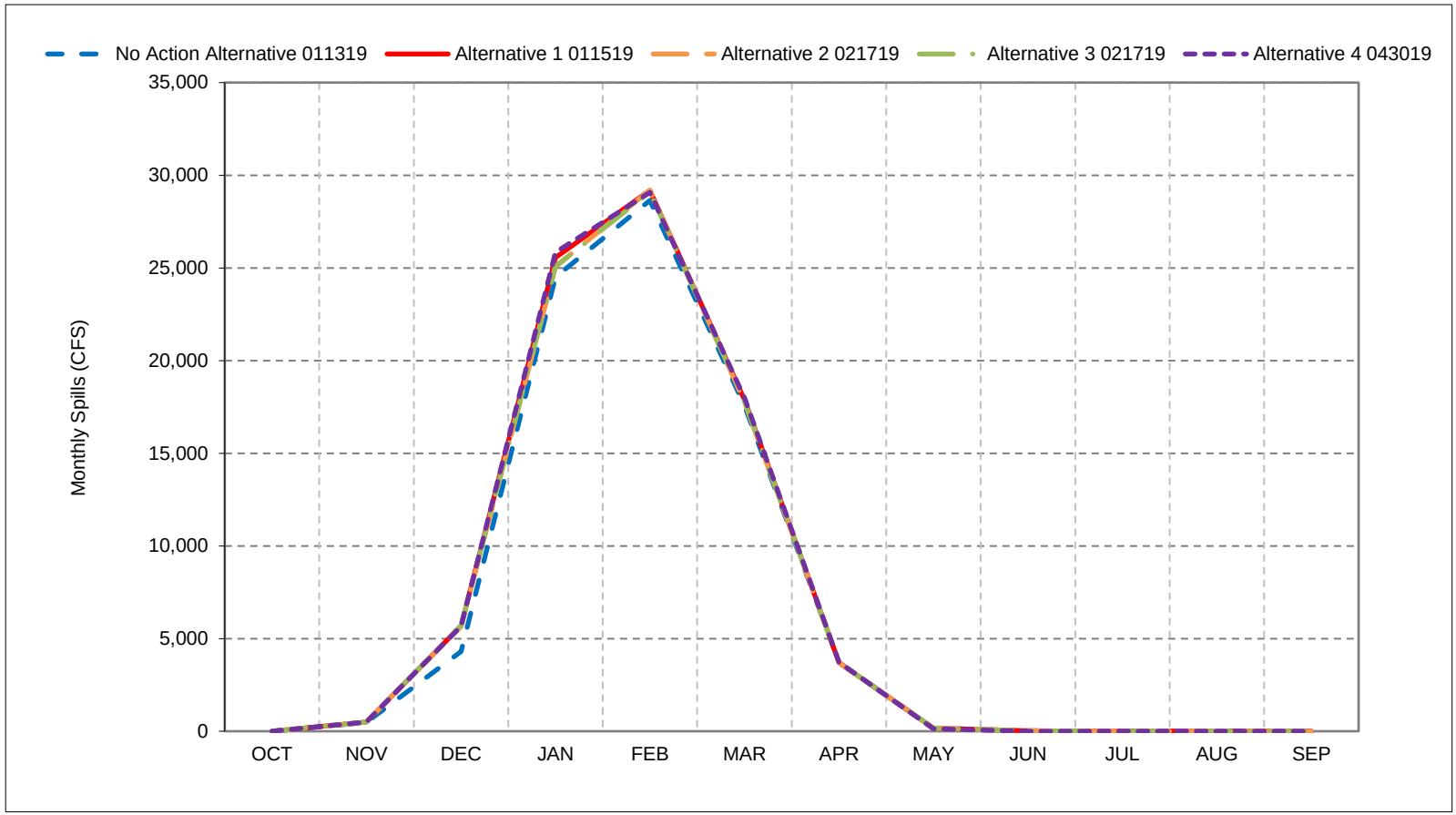
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 24-1. Fremont Weir Spills, Long-Term Average Spills



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 24-2. Fremont Weir Spills, Wet Year Average Spills



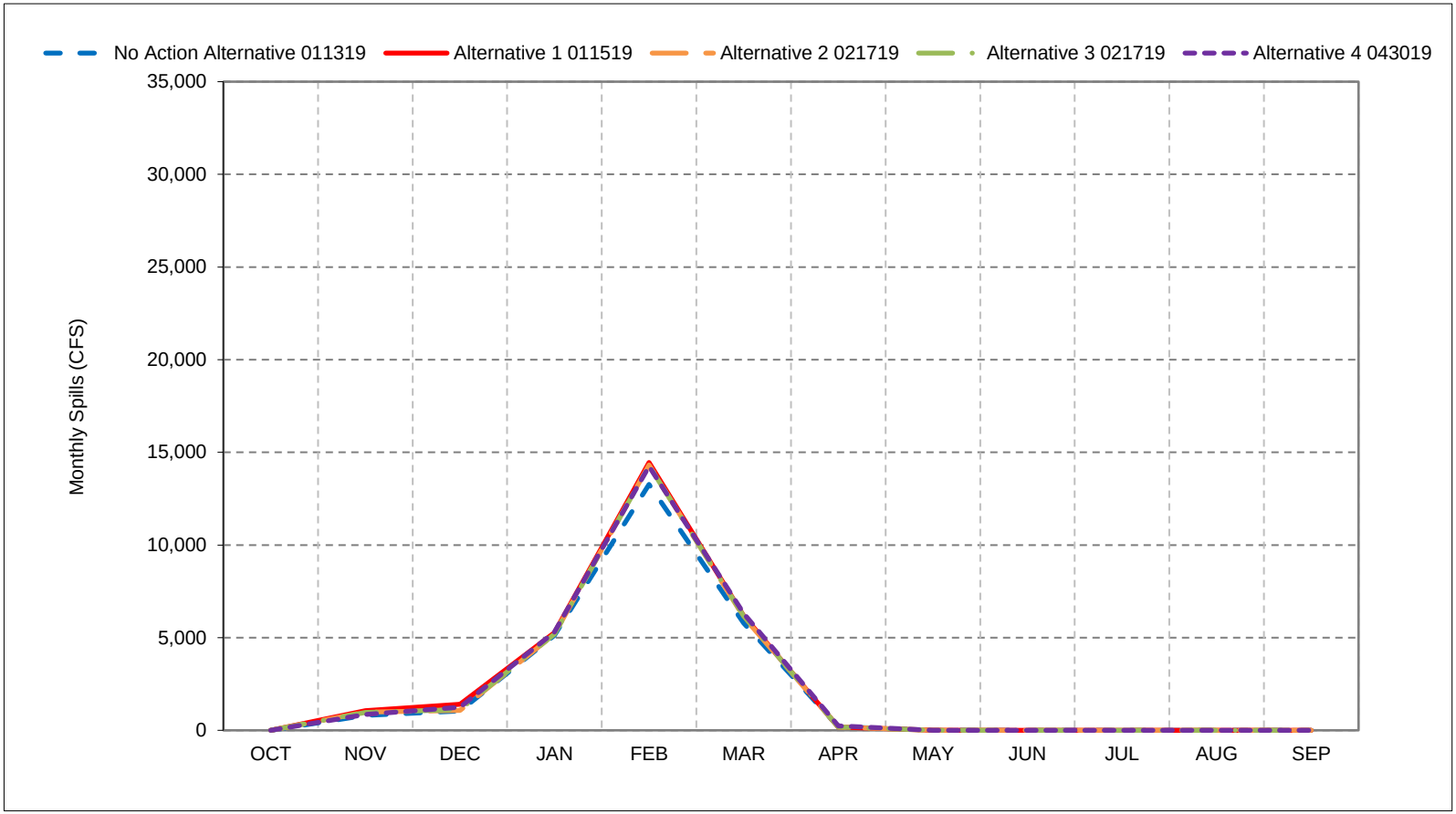
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

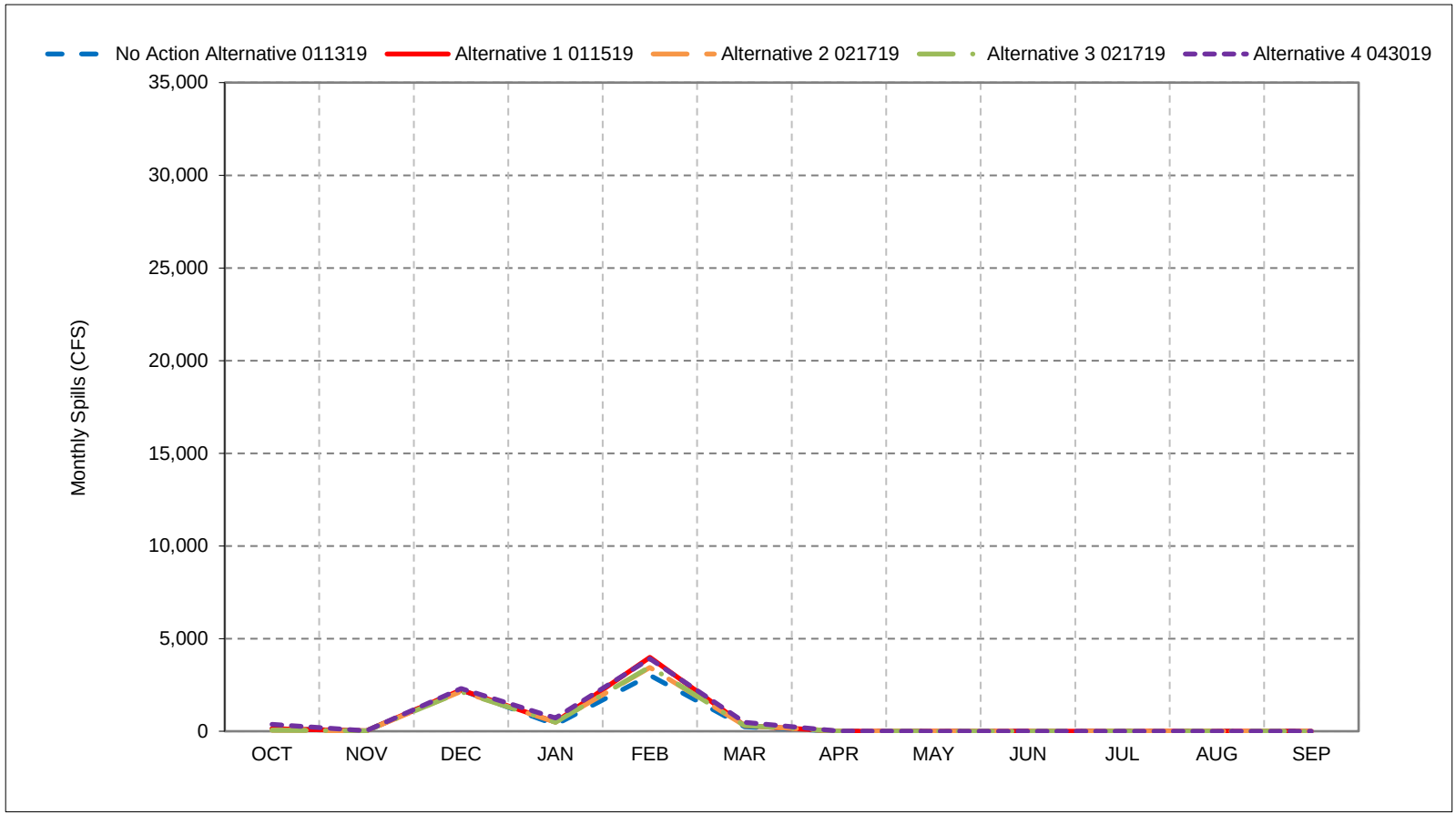
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 24-3. Fremont Weir Spills, Above Normal Year Average Spills



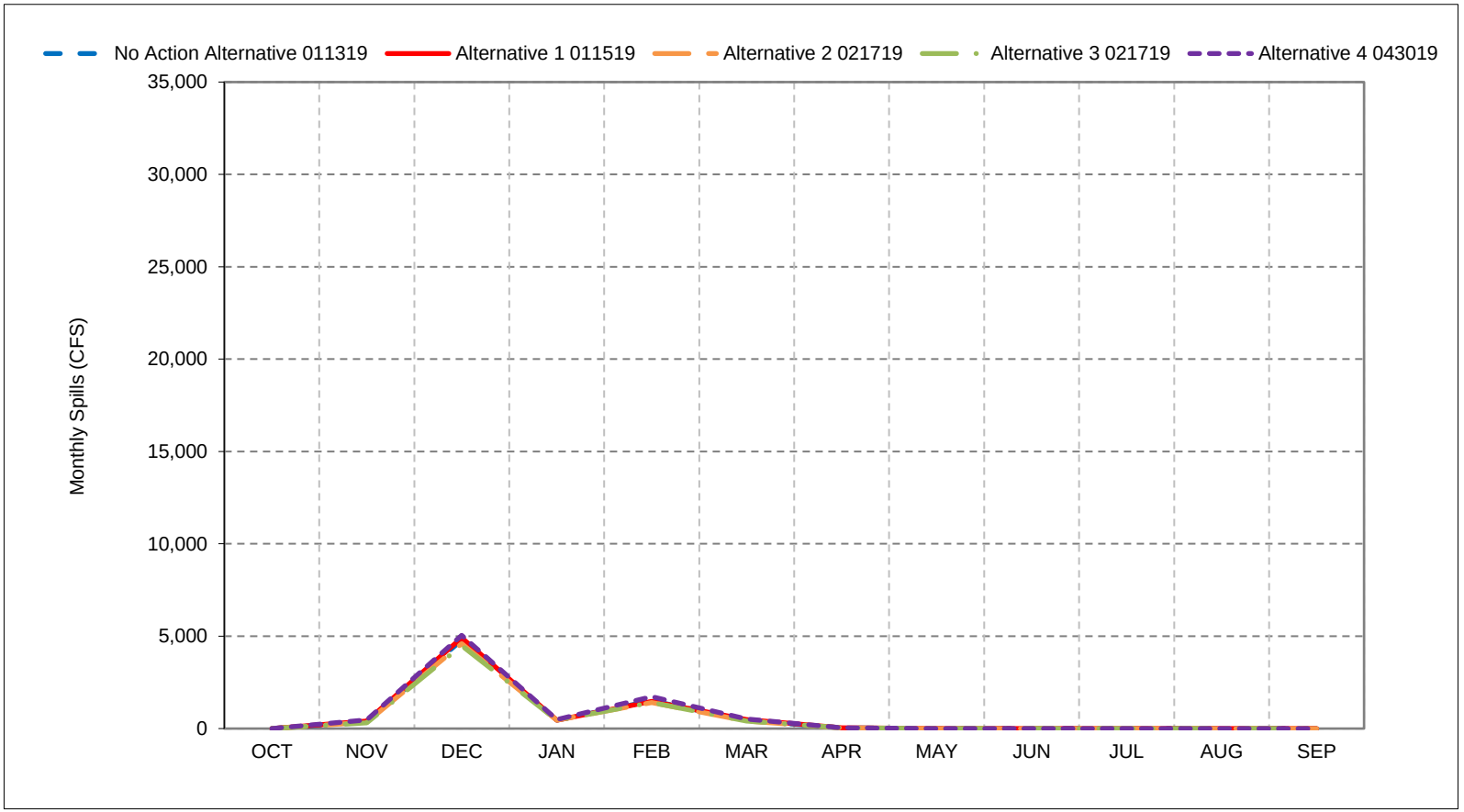
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 24-4. Fremont Weir Spills, Below Normal Year Average Spills



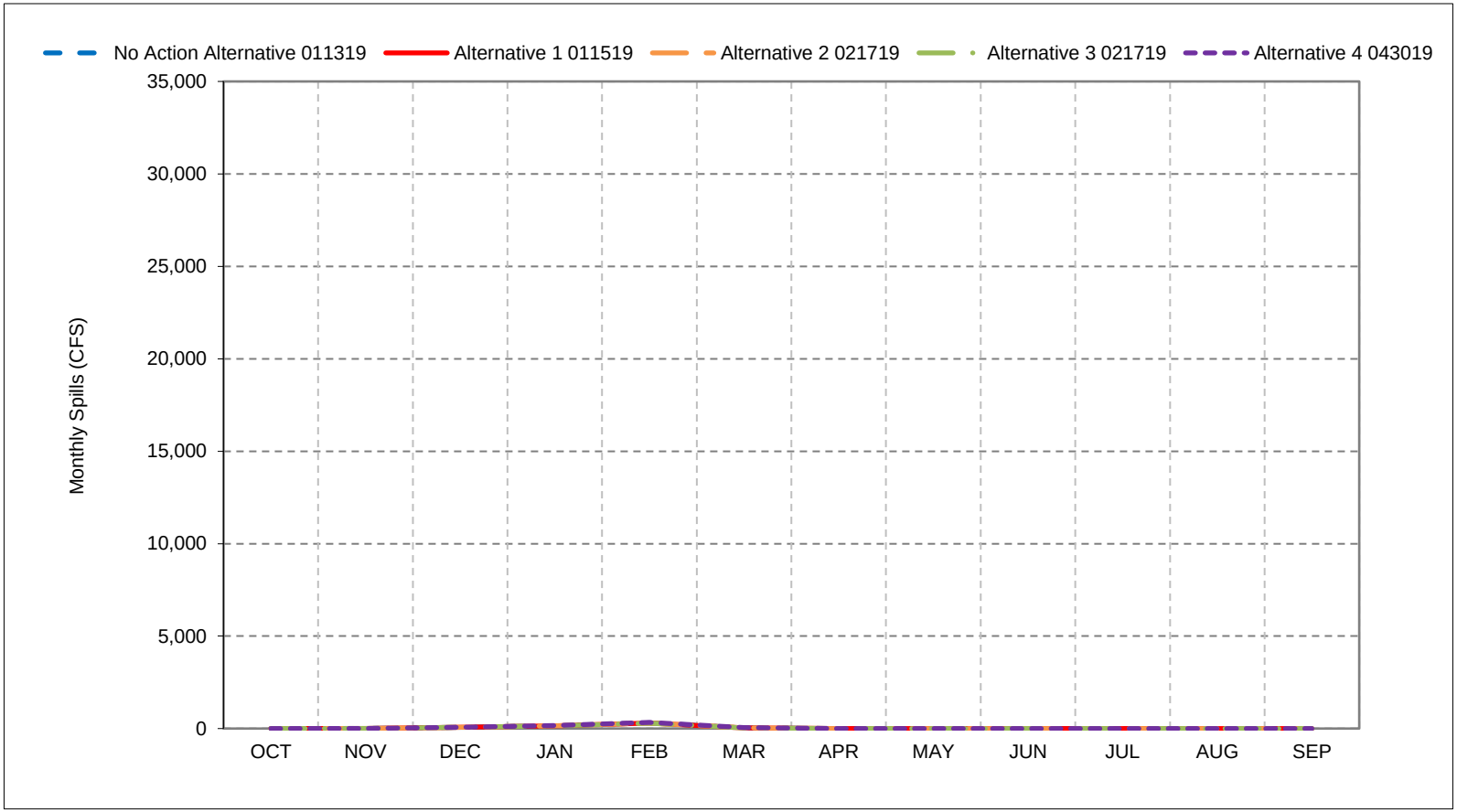
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 24-5. Fremont Weir Spills, Dry Year Average Spills



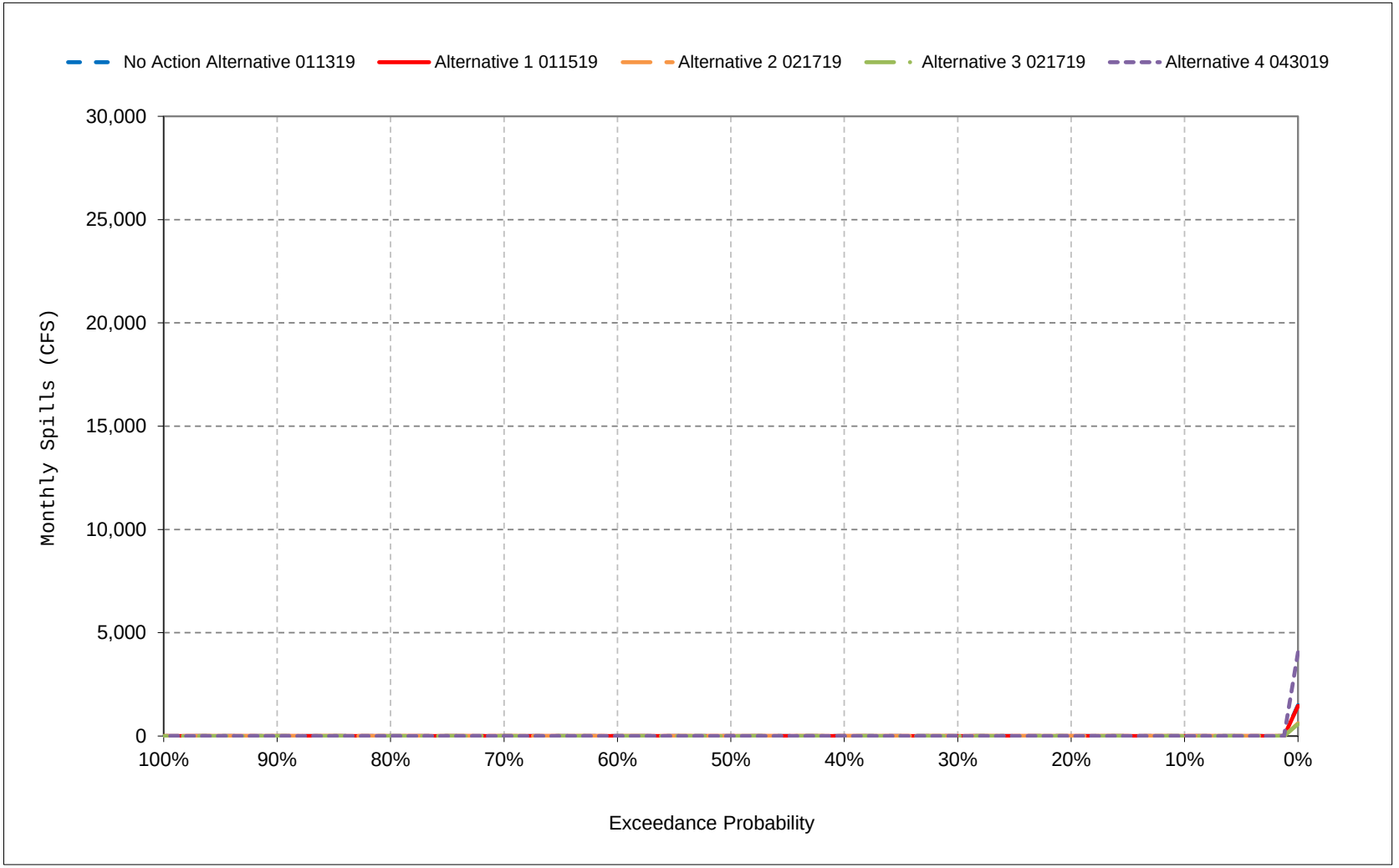
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 24-6. Fremont Weir Spills, Critical Year Average Spills



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

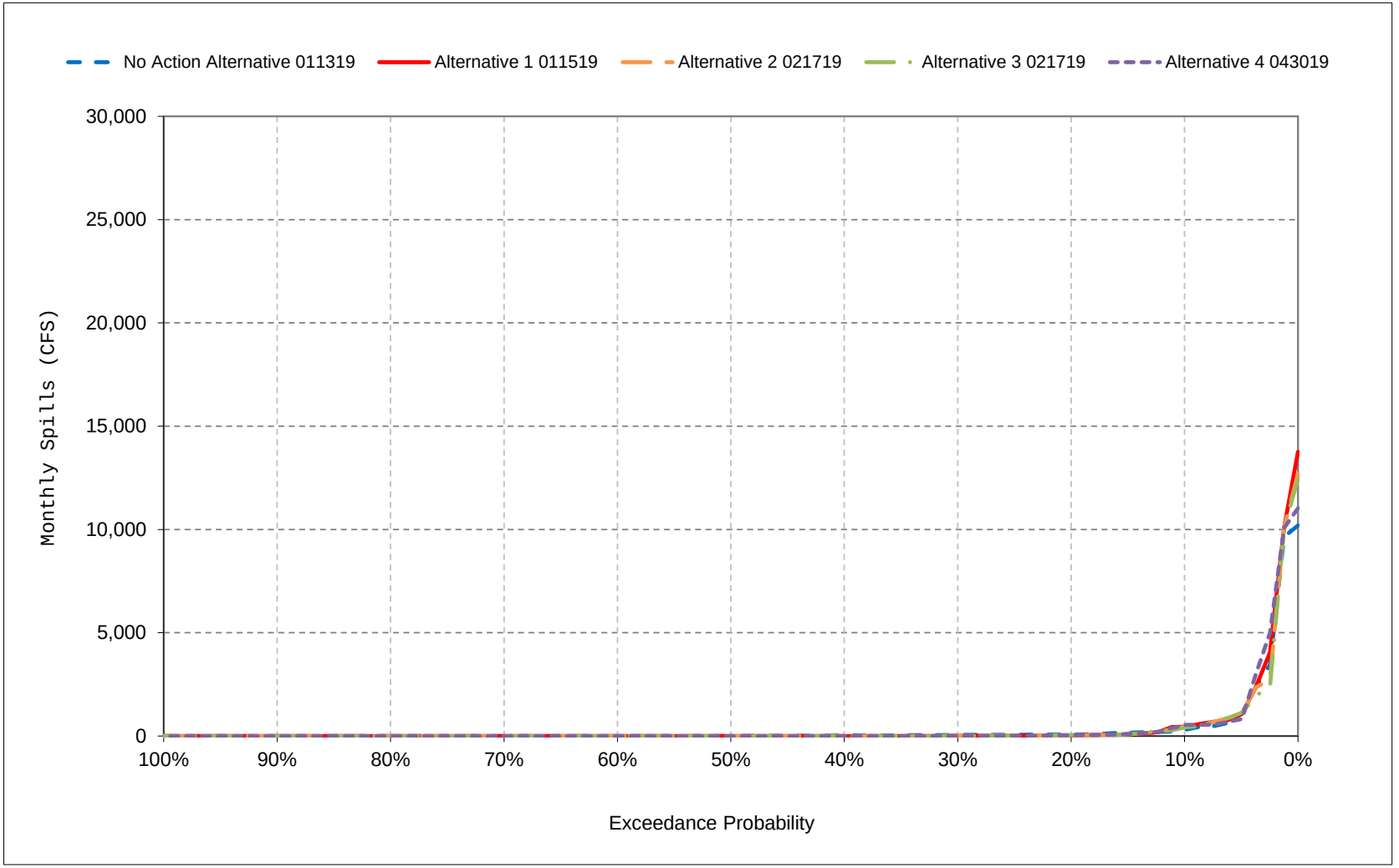
Figure 24-7. Fremont Weir Spills, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

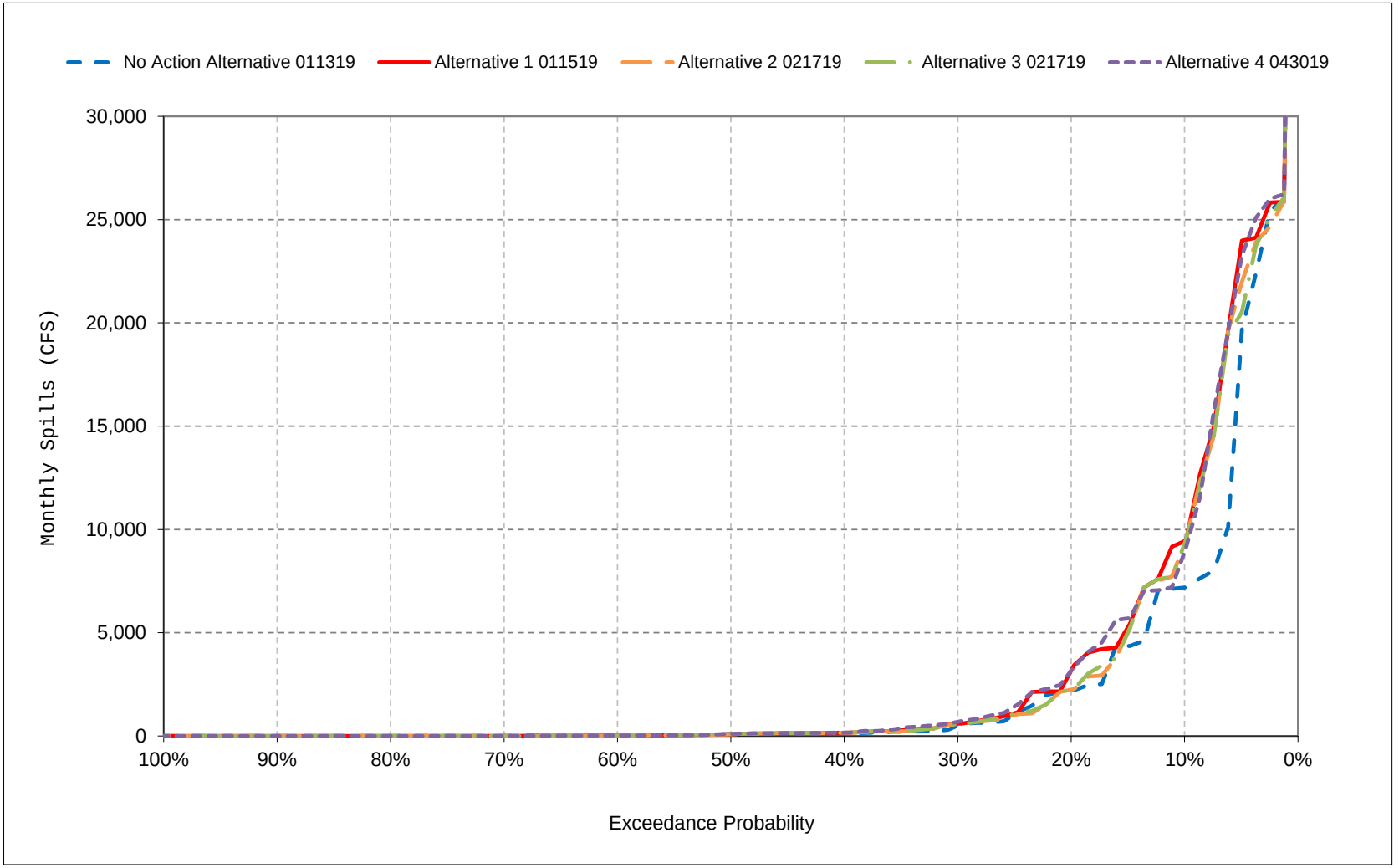
Figure 24-8. Fremont Weir Spills, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

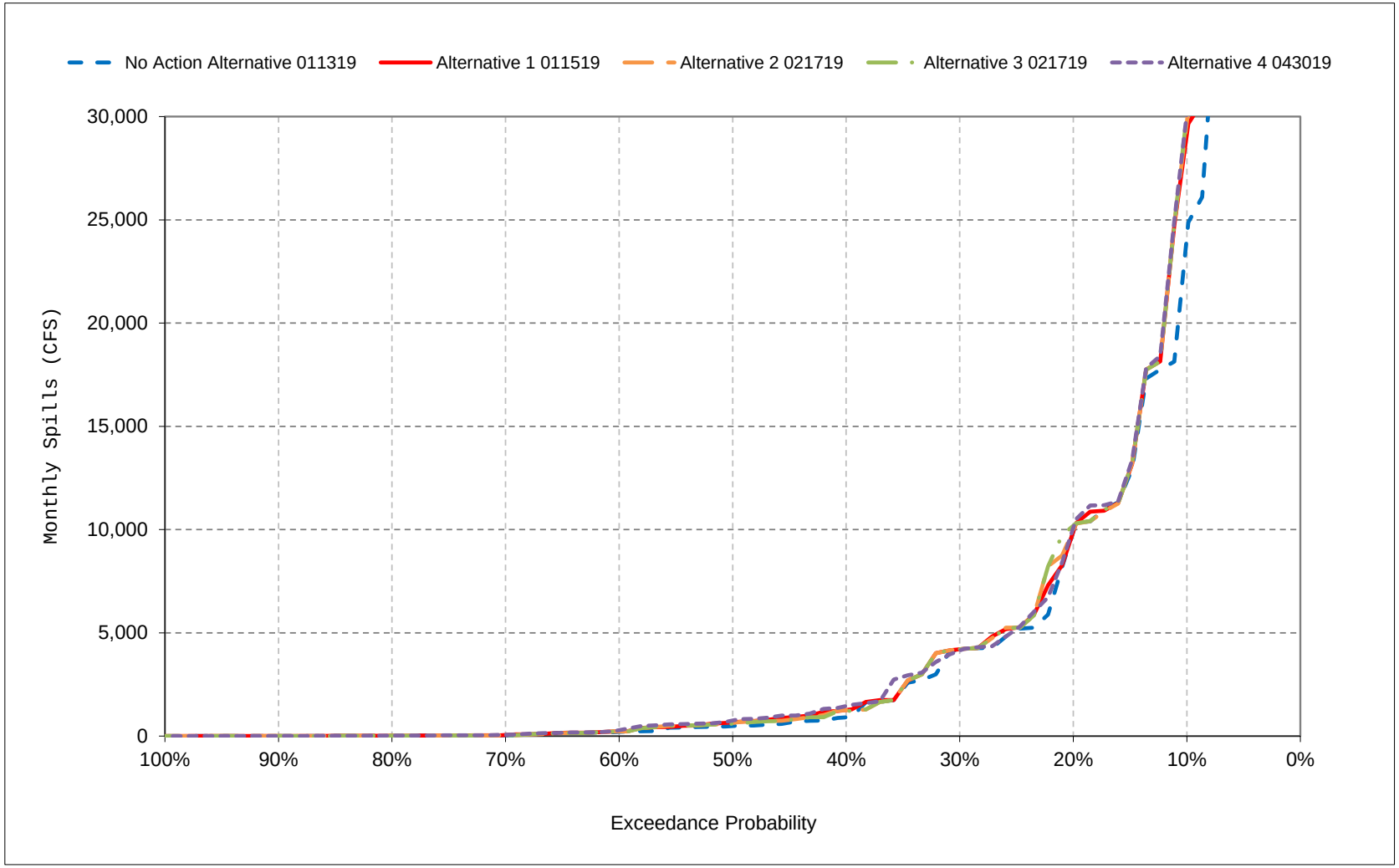
Figure 24-9. Fremont Weir Spills, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

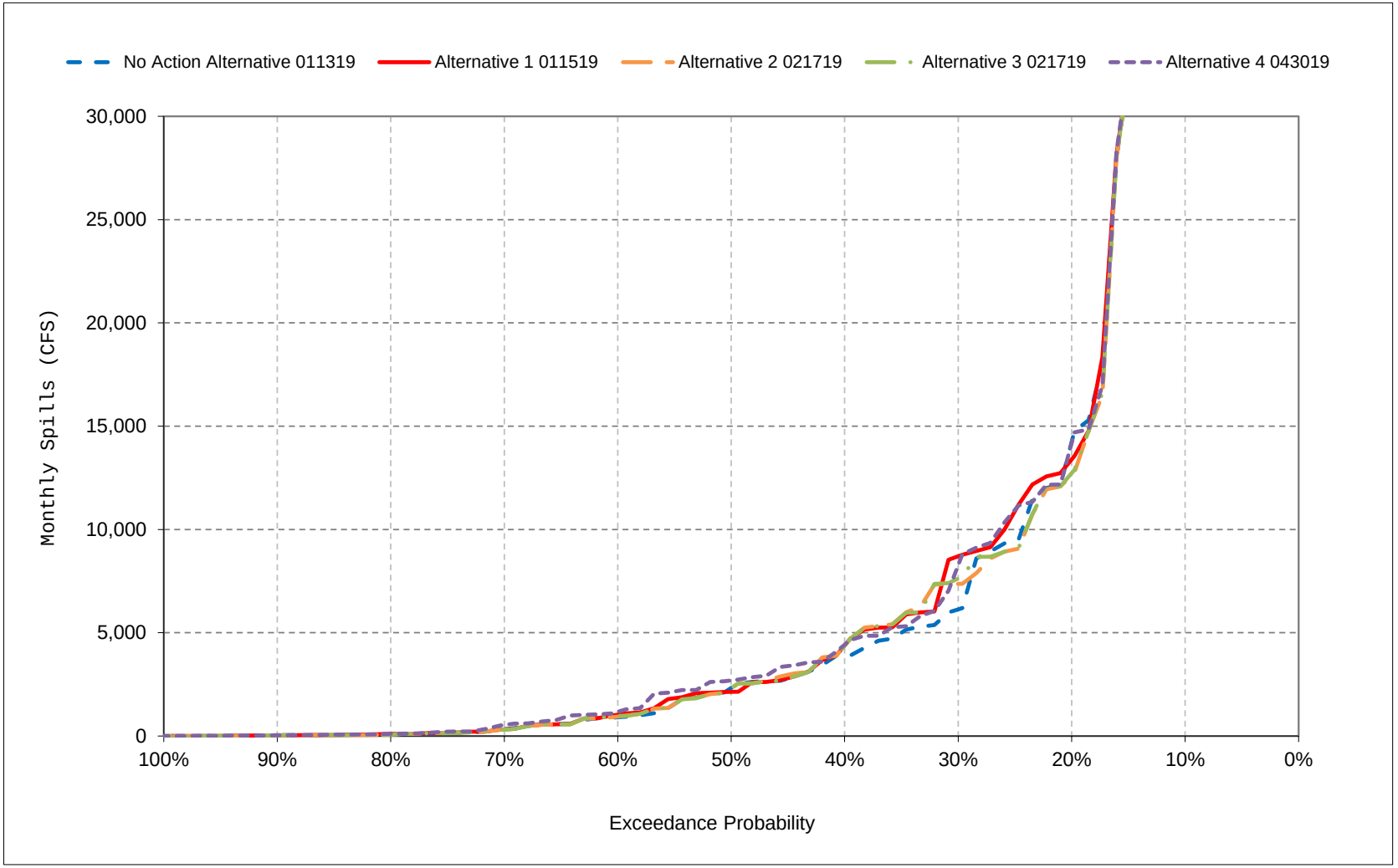
Figure 24-10. Fremont Weir Spills, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

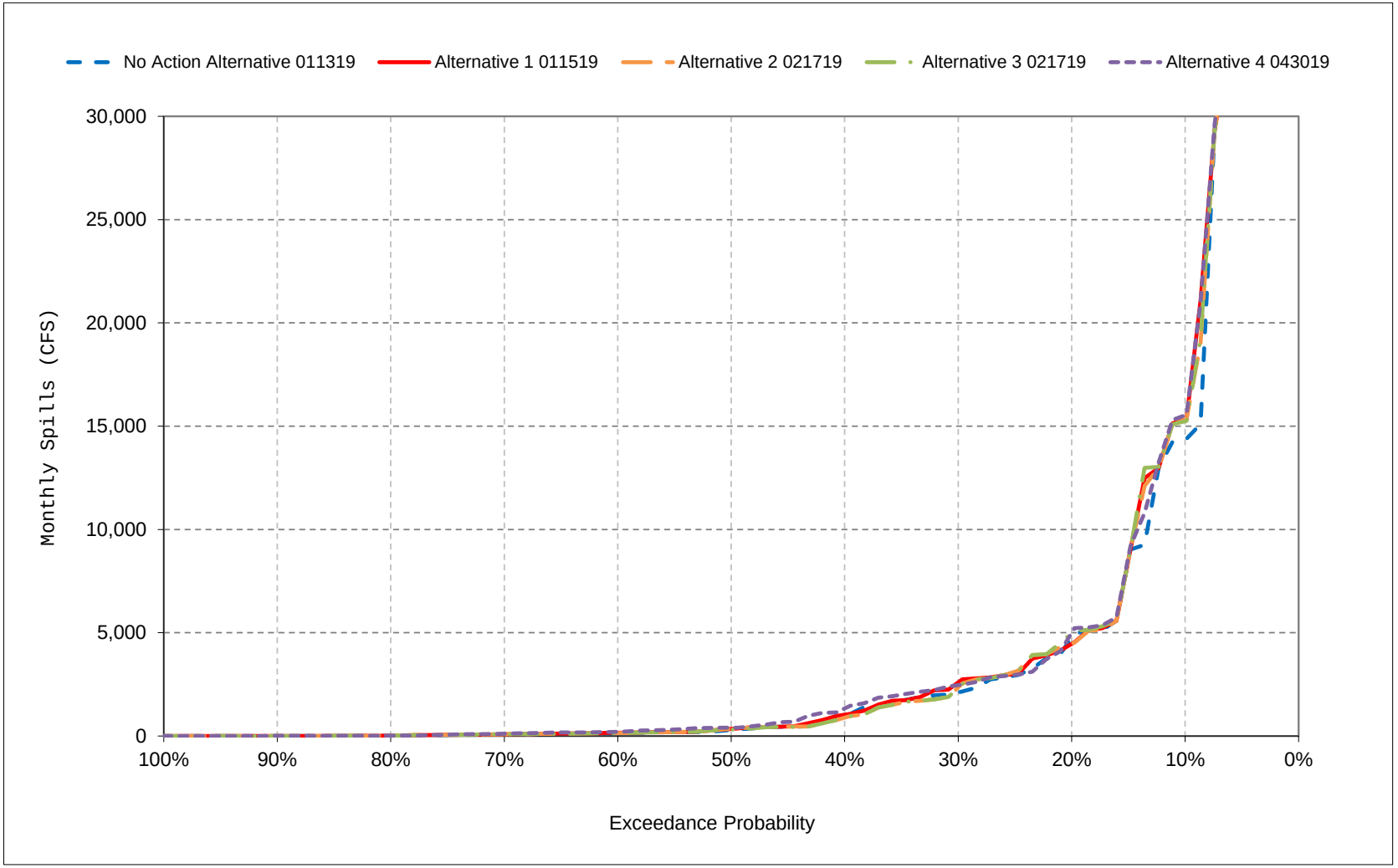
Figure 24-11. Fremont Weir Spills, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

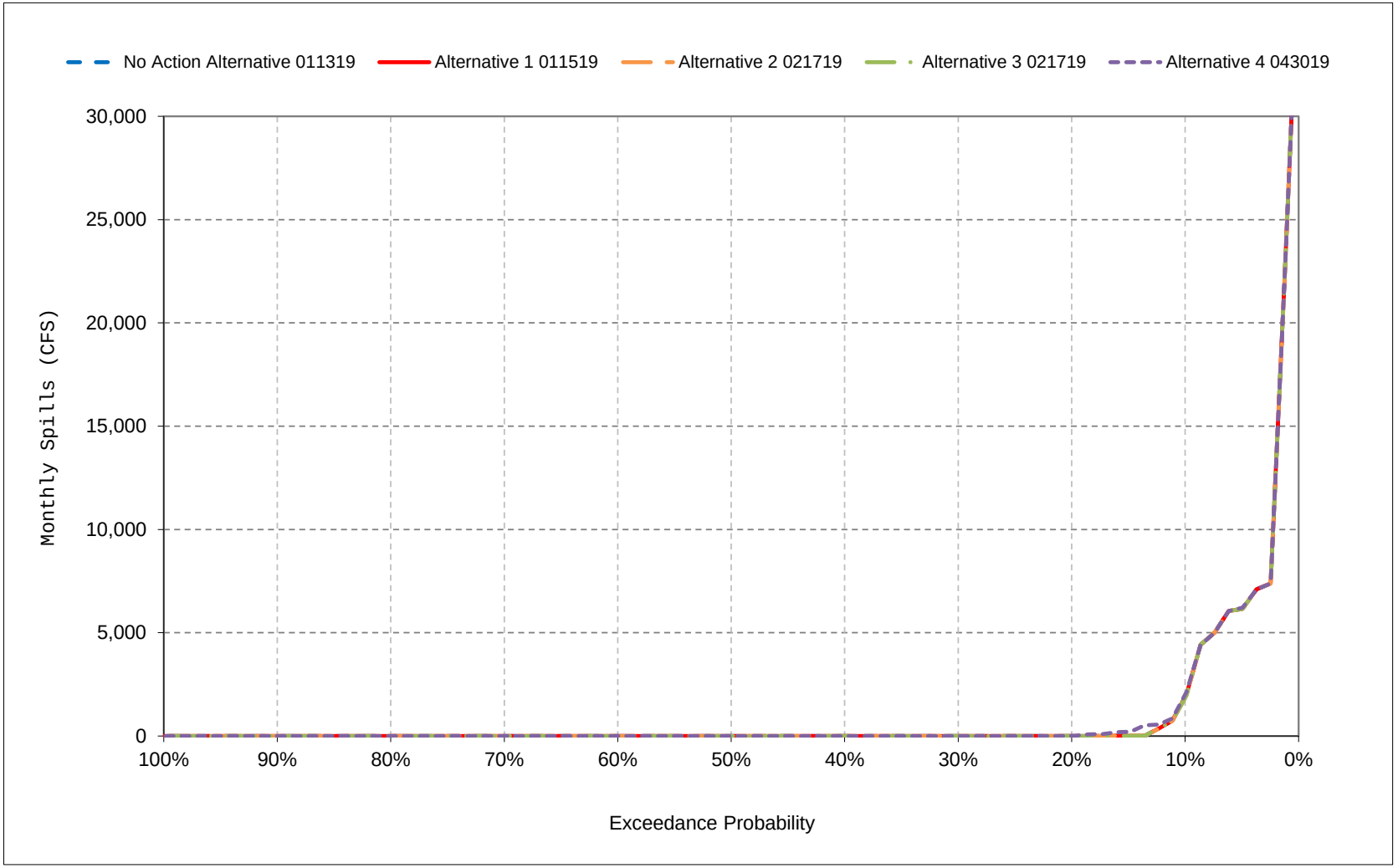
Figure 24-12. Fremont Weir Spills, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

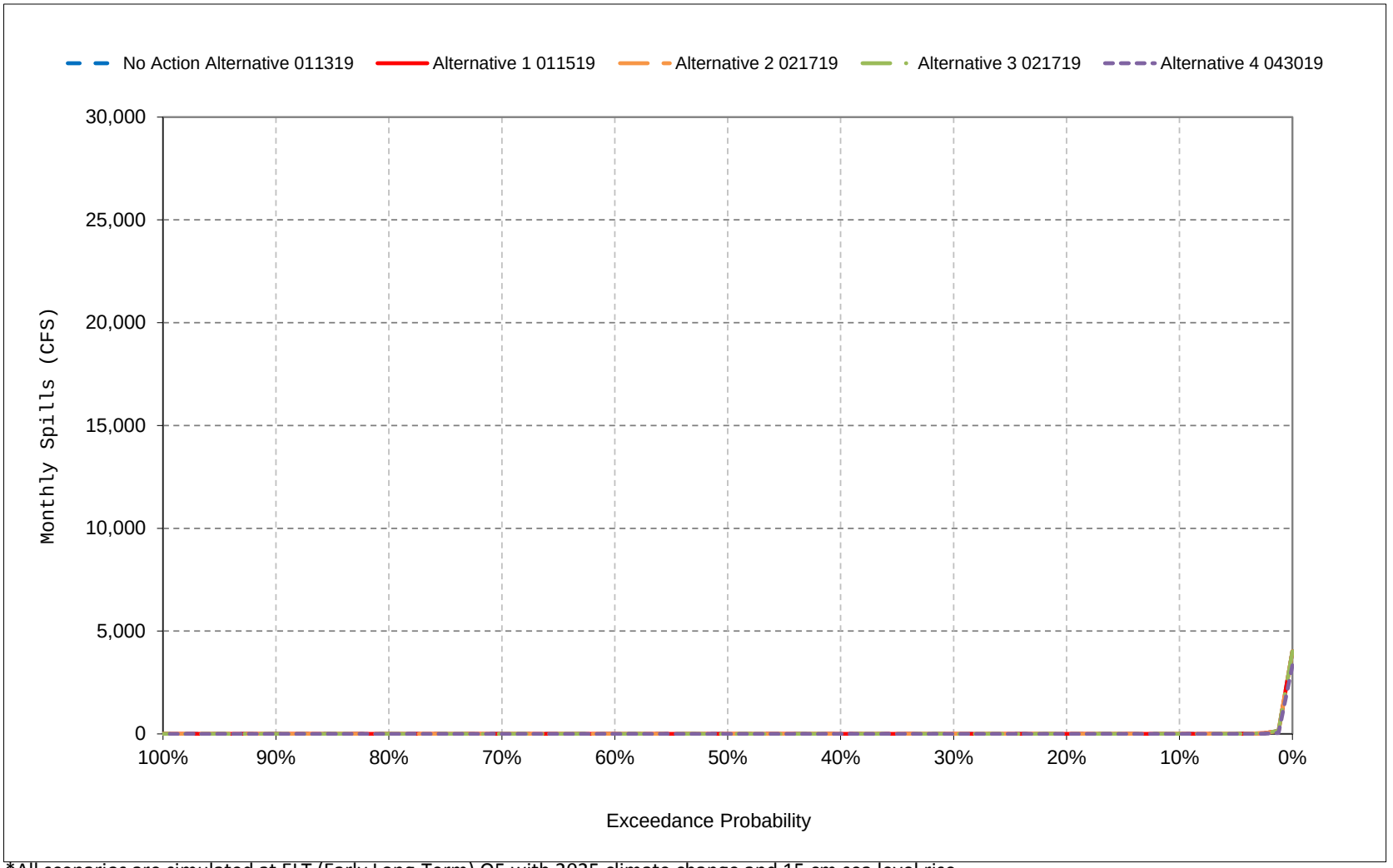
Figure 24-13. Fremont Weir Spills, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

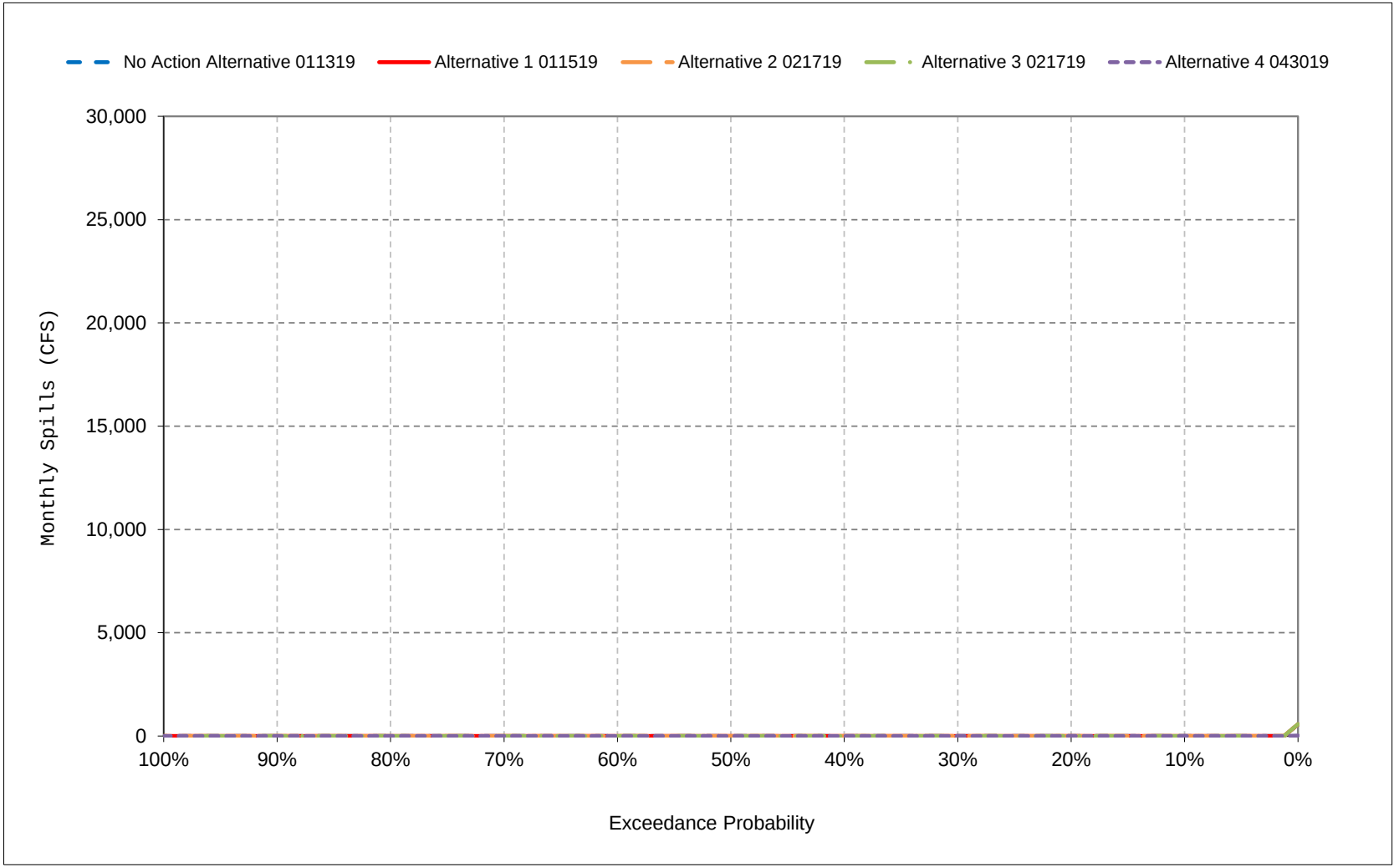
Figure 24-14. Fremont Weir Spills, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

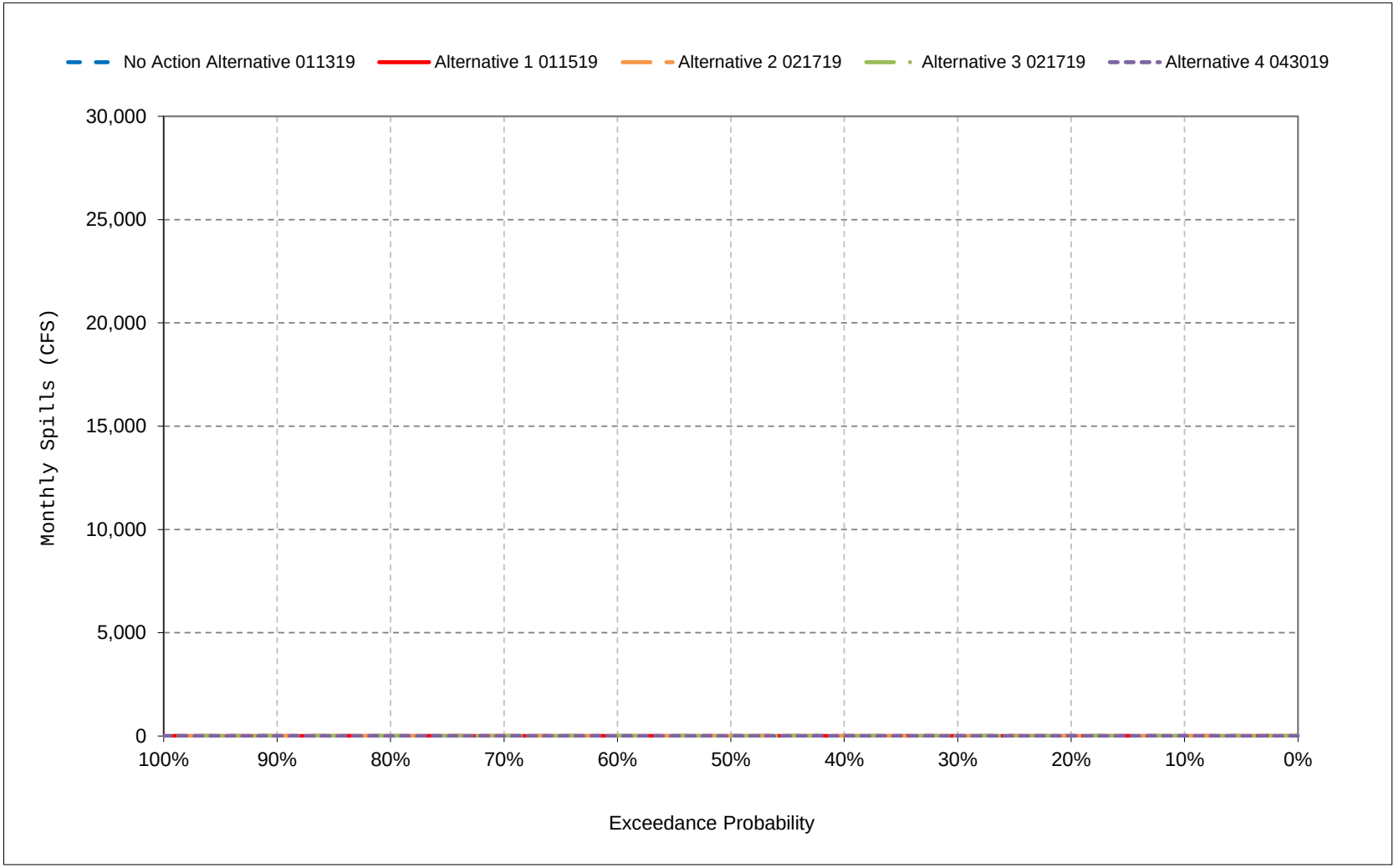
Figure 24-15. Fremont Weir Spills, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

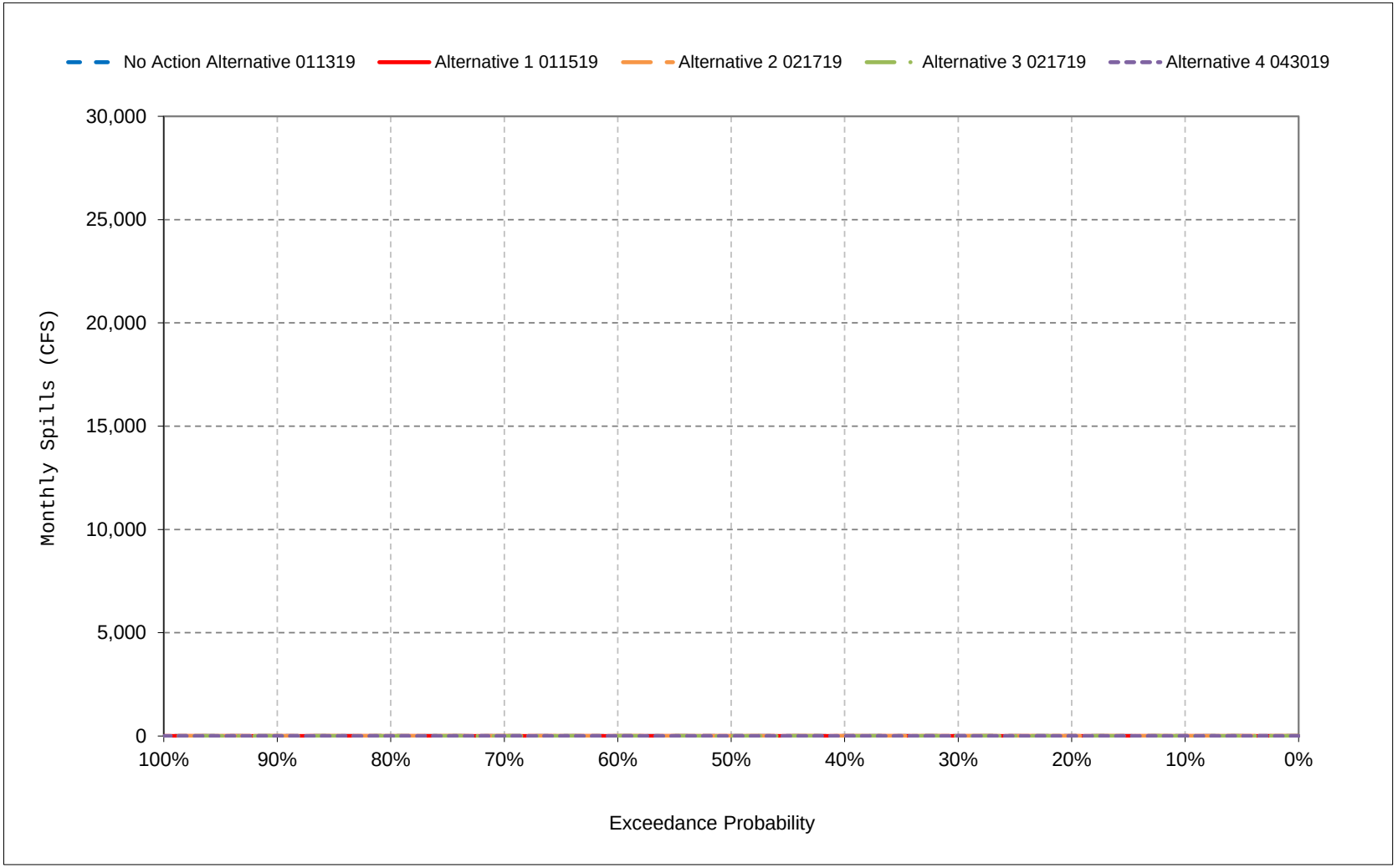
Figure 24-16. Fremont Weir Spills, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

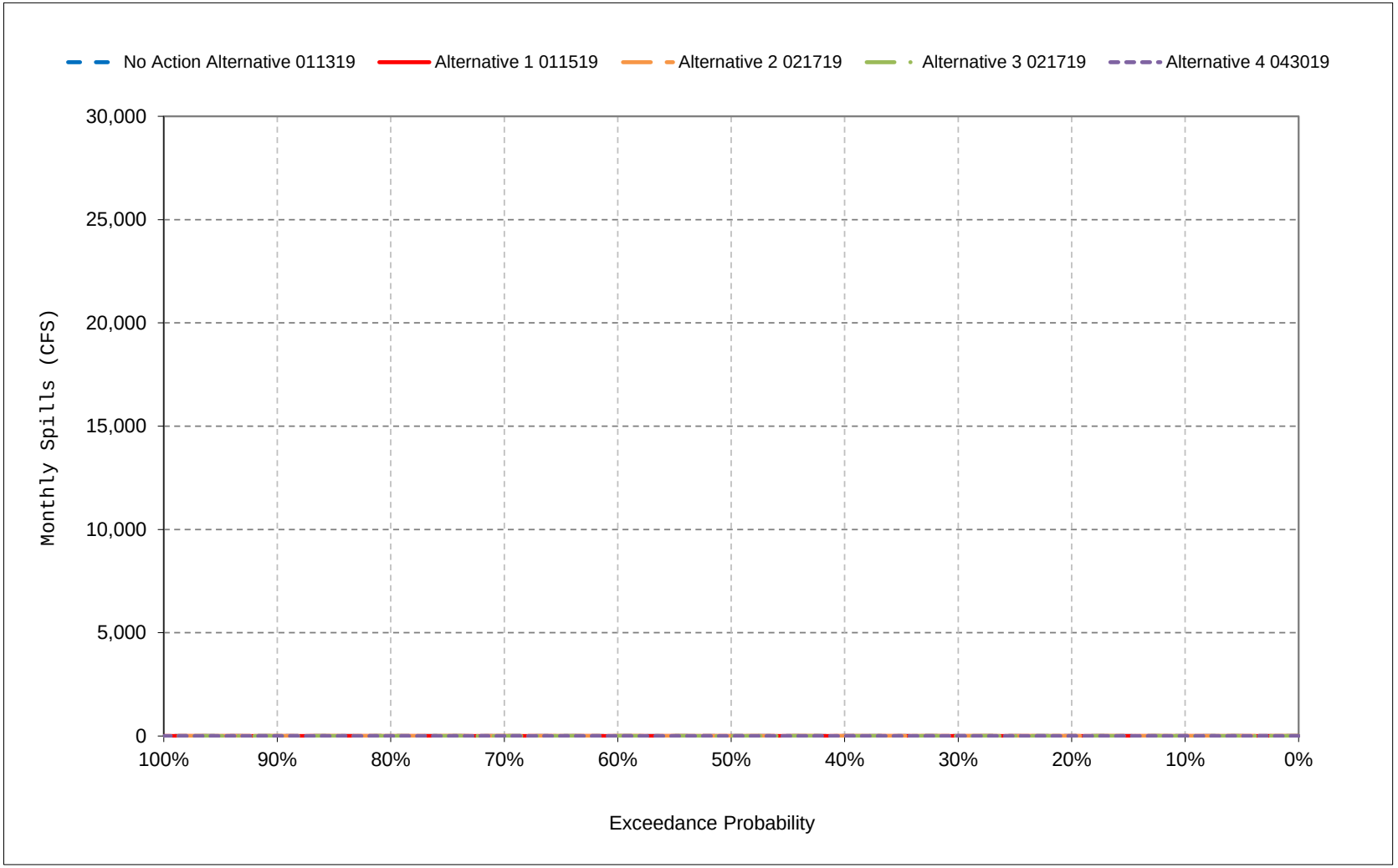
Figure 24-17. Fremont Weir Spills, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 24-18. Fremont Weir Spills, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 25-1. Yolo Bypass Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	63	809	11,129	34,648	52,391	18,726	7,044	243	68	48	183	247
20%	61	183	4,918	14,959	20,814	8,859	3,162	78	68	48	55	125
30%	58	82	1,543	7,015	11,267	4,861	1,068	73	68	48	55	59
40%	53	58	462	3,161	6,859	2,901	229	70	68	48	55	59
50%	45	33	293	901	4,170	1,135	135	68	67	48	55	59
60%	40	18	138	490	1,552	437	111	65	67	48	55	59
70%	29	9	51	273	580	187	88	63	66	48	55	58
80%	16	5	18	76	184	90	78	59	64	48	55	56
90%	4	0	1	37	68	37	56	53	62	48	54	52
Long Term												
Full Simulation Period[a]	124	552	4,394	11,835	15,819	9,271	2,651	210	88	48	101	115
Water Year Types[b,c]												
Wet (32%)	86	746	5,586	31,695	36,486	23,473	6,899	453	135	48	147	209
Above Normal (16%)	38	927	1,909	8,363	17,697	8,800	1,823	185	66	48	92	65
Below Normal (13%)	556	117	3,567	927	4,807	657	234	69	66	48	130	92
Dry (24%)	40	610	7,304	1,097	2,875	1,223	522	75	67	48	61	70
Critical (15%)	42	29	410	465	671	320	105	67	65	48	55	61

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	63	857	13,922	37,216	52,602	24,480	7,044	243	68	48	160	127
20%	61	159	5,783	15,734	21,983	8,877	3,162	78	68	48	55	59
30%	58	62	1,649	7,148	11,557	5,312	1,068	73	68	48	55	59
40%	53	36	463	3,255	9,181	2,933	229	70	68	48	55	59
50%	45	10	283	1,469	4,067	1,251	135	68	67	48	55	59
60%	39	8	163	523	2,182	469	111	65	67	48	55	59
70%	29	5	51	284	576	240	88	63	66	48	55	57
80%	15	2	20	93	213	104	78	59	64	48	55	55
90%	4	0	0	19	67	45	56	53	62	48	54	52
Long Term												
Full Simulation Period[a]	88	608	4,980	12,251	16,336	9,480	2,650	211	88	48	101	71
Water Year Types[b,c]												
Wet (32%)	86	794	7,054	32,787	37,029	23,784	6,900	453	135	48	147	73
Above Normal (16%)	38	1,165	2,294	8,573	18,973	9,220	1,822	185	66	48	92	65
Below Normal (13%)	298	116	3,551	1,181	5,973	806	234	69	66	48	130	92
Dry (24%)	37	621	7,558	1,108	2,822	1,321	520	75	67	48	57	70
Critical (15%)	42	29	410	461	664	321	105	67	65	48	55	58

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	48	2,792	2,568	210	5,754	0	0	0	0	**-23**	**-120**
20%	0	**-24**	866	775	1,169	18	0	0	0	0	0	**-66**
30%	0	**-20**	106	134	290	451	0	0	0	0	0	0
40%	0	**-22**	1	95	2,323	32	0	0	0	0	0	0
50%	0	**-22**	**-10**	568	**-103**	115	0	0	0	0	0	0
60%	**-1**	**-9**	26	32	629	32	0	0	0	0	0	**-1**
70%	0	**-4**	1	11	**-5**	52	0	0	0	0	0	**-1**
80%	**-1**	**-3**	2	17	29	14	0	0	0	0	0	**-1**
90%	**0**	**0**	**-1**	**-18**	**-1**	8	0	0	0	0	0	**0**
Long Term												
Full Simulation Period[a]	**-35**	56	586	416	517	209	**0**	0	0	0	**-1**	**-44**
Water Year Types[b,c]												
Wet (32%)	0	48	1,467	1,092	543	311	0	0	0	0	0	**-137**
Above Normal (16%)	0	238	385	209	1,275	420	**-1**	**0**	0	0	0	0
Below Normal (13%)	**-258**	**-1**	**-16**	254	1,166	149	0	0	0	0	0	0
Dry (24%)	**-3**	11	254	11	**-53**	98	**-2**	0	0	0	**-4**	0
Critical (15%)	0	**0**	0	**-4**	**-7**	2	0	0	0	0	0	**-4**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 25-2. Yolo Bypass Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	63	809	11,129	34,648	52,391	18,726	7,044	243	68	48	183	247
20%	61	183	4,918	14,959	20,814	8,859	3,162	78	68	48	55	125
30%	58	82	1,543	7,015	11,267	4,861	1,068	73	68	48	55	59
40%	53	58	462	3,161	6,859	2,901	229	70	68	48	55	59
50%	45	33	293	901	4,170	1,135	135	68	67	48	55	59
60%	40	18	138	490	1,552	437	111	65	67	48	55	59
70%	29	9	51	273	580	187	88	63	66	48	55	58
80%	16	5	18	76	184	90	78	59	64	48	55	56
90%	4	0	1	37	68	37	56	53	62	48	54	52
Long Term												
Full Simulation Period[a]	124	552	4,394	11,835	15,819	9,271	2,651	210	88	48	101	115
Water Year Types[b,c]												
Wet (32%)	86	746	5,586	31,695	36,486	23,473	6,899	453	135	48	147	209
Above Normal (16%)	38	927	1,909	8,363	17,697	8,800	1,823	185	66	48	92	65
Below Normal (13%)	556	117	3,567	927	4,807	657	234	69	66	48	130	92
Dry (24%)	40	610	7,304	1,097	2,875	1,223	522	75	67	48	61	70
Critical (15%)	42	29	410	465	671	320	105	67	65	48	55	61

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	63	859	13,915	37,351	53,749	22,992	7,044	244	68	48	183	127
20%	61	159	4,657	15,661	20,606	8,878	3,162	78	68	48	55	59
30%	58	51	1,400	7,150	11,280	5,283	1,068	73	68	48	55	59
40%	53	26	426	3,153	9,440	2,896	229	70	68	48	55	59
50%	45	10	268	1,197	4,005	1,241	135	68	67	48	55	59
60%	40	8	164	523	2,144	443	111	65	67	48	55	59
70%	29	5	47	280	570	236	88	63	66	48	55	57
80%	16	1	15	57	208	101	78	59	64	48	55	55
90%	4	0	0	17	65	49	56	53	62	48	54	52
Long Term												
Full Simulation Period[a]	78	590	4,776	12,055	16,223	9,399	2,651	211	88	48	101	71
Water Year Types[b,c]												
Wet (32%)	86	807	7,025	32,241	37,032	23,641	6,900	454	135	48	147	73
Above Normal (16%)	38	1,097	1,944	8,451	18,844	9,136	1,818	185	66	48	92	65
Below Normal (13%)	216	115	3,398	1,169	5,379	804	243	69	66	48	130	92
Dry (24%)	41	577	7,083	1,099	2,767	1,228	521	75	67	48	61	70
Critical (15%)	42	26	387	457	664	324	105	67	65	48	55	58

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	50	2,786	2,703	1,358	4,266	0	1	0	0	0	**-120**
20%	0	**-24**	**-261**	702	**-208**	19	0	0	0	0	0	**-66**
30%	0	**-31**	**-143**	136	14	422	0	0	0	0	0	0
40%	0	**-32**	**-37**	**-8**	2,581	**-5**	0	0	0	0	0	0
50%	0	**-23**	**-25**	295	**-165**	105	0	0	0	0	0	0
60%	0	**-9**	26	32	592	6	0	0	0	0	0	**-1**
70%	0	**-4**	**-3**	6	**-11**	49	0	0	0	0	0	**-1**
80%	0	**-4**	**-3**	**-20**	24	11	0	0	0	0	0	**-1**
90%	0	**0**	**-1**	**-20**	**-3**	13	0	0	0	0	0	**0**
Long Term												
Full Simulation Period[a]	**-45**	38	382	219	404	128	0	0	0	0	0	**-44**
Water Year Types[b,c]												
Wet (32%)	0	61	1,439	547	546	168	0	0	0	0	0	**-137**
Above Normal (16%)	0	170	36	88	1,147	336	**-5**	**0**	0	0	0	0
Below Normal (13%)	**-340**	**-2**	**-169**	243	571	147	9	0	0	0	0	0
Dry (24%)	1	**-33**	**-220**	3	**-109**	5	**-1**	0	0	0	0	0
Critical (15%)	0	**-2**	**-23**	**-8**	**-7**	4	0	0	0	0	0	**-4**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 25-3. Yolo Bypass Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	63	809	11,129	34,648	52,391	18,726	7,044	243	68	48	183	247
20%	61	183	4,918	14,959	20,814	8,859	3,162	78	68	48	55	125
30%	58	82	1,543	7,015	11,267	4,861	1,068	73	68	48	55	59
40%	53	58	462	3,161	6,859	2,901	229	70	68	48	55	59
50%	45	33	293	901	4,170	1,135	135	68	67	48	55	59
60%	40	18	138	490	1,552	437	111	65	67	48	55	59
70%	29	9	51	273	580	187	88	63	66	48	55	58
80%	16	5	18	76	184	90	78	59	64	48	55	56
90%	4	0	1	37	68	37	56	53	62	48	54	52
Long Term												
Full Simulation Period[a]	124	552	4,394	11,835	15,819	9,271	2,651	210	88	48	101	115
Water Year Types[b,c]												
Wet (32%)	86	746	5,586	31,695	36,486	23,473	6,899	453	135	48	147	209
Above Normal (16%)	38	927	1,909	8,363	17,697	8,800	1,823	185	66	48	92	65
Below Normal (13%)	556	117	3,567	927	4,807	657	234	69	66	48	130	92
Dry (24%)	40	610	7,304	1,097	2,875	1,223	522	75	67	48	61	70
Critical (15%)	42	29	410	465	671	320	105	67	65	48	55	61

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64	870	13,923	37,453	53,819	23,279	7,044	244	68	48	183	127
20%	62	182	4,667	16,496	21,346	8,878	3,162	78	68	48	55	59
30%	60	66	1,544	7,151	11,394	5,287	1,068	73	68	48	55	59
40%	54	41	429	3,153	9,475	2,897	229	70	68	48	55	59
50%	47	25	268	1,197	3,972	1,240	125	68	67	48	55	59
60%	42	10	165	523	2,146	443	111	65	67	48	55	59
70%	32	7	66	280	570	236	88	63	66	48	55	57
80%	18	5	29	87	180	101	78	59	64	48	55	55
90%	9	0	0	37	62	49	56	53	62	48	54	52
Long Term												
Full Simulation Period[a]	81	585	4,772	12,060	16,190	9,422	2,647	211	88	48	100	71
Water Year Types[b,c]												
Wet (32%)	86	809	7,082	32,250	36,931	23,683	6,896	454	135	48	143	73
Above Normal (16%)	45	1,090	2,009	8,447	18,814	9,198	1,811	185	66	48	92	65
Below Normal (13%)	221	137	3,381	1,159	5,408	805	234	69	66	48	130	92
Dry (24%)	44	544	6,956	1,109	2,768	1,228	521	75	67	48	61	70
Critical (15%)	42	31	397	470	660	324	105	67	65	48	55	58

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	61	2,794	2,805	1,427	4,553	0	1	0	0	0	**-120**
20%	1	**-1**	**-250**	1,537	531	19	0	0	0	0	0	**-66**
30%	2	**-16**	1	136	127	426	0	0	0	0	0	0
40%	1	**-17**	**-33**	**-8**	2,616	**-5**	0	0	0	0	0	0
50%	2	**-8**	**-26**	295	**-198**	105	**-10**	0	0	0	0	0
60%	3	**-8**	27	32	594	6	**-1**	0	0	0	0	**-1**
70%	3	**-2**	16	7	**-10**	49	0	0	0	0	0	**-1**
80%	2	**0**	11	11	**-4**	11	0	0	0	0	0	**-1**
90%	4	0	**-1**	0	**-6**	13	0	0	0	0	0	**0**
Long Term												
Full Simulation Period[a]	**-43**	33	378	224	371	151	**-3**	0	0	0	**-1**	**-44**
Water Year Types[b,c]												
Wet (32%)	0	64	1,496	555	445	210	**-4**	1	0	0	**-4**	**-137**
Above Normal (16%)	6	163	100	84	1,117	399	**-12**	**0**	0	0	0	0
Below Normal (13%)	**-335**	20	**-186**	233	601	148	0	0	0	0	0	0
Dry (24%)	4	**-66**	**-348**	12	**-107**	5	**-1**	0	0	0	0	0
Critical (15%)	0	3	**-13**	5	**-11**	4	0	0	0	0	0	**-4**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 25-4. Yolo Bypass Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	63	809	11,129	34,648	52,391	18,726	7,044	243	68	48	183	247
20%	61	183	4,918	14,959	20,814	8,859	3,162	78	68	48	55	125
30%	58	82	1,543	7,015	11,267	4,861	1,068	73	68	48	55	59
40%	53	58	462	3,161	6,859	2,901	229	70	68	48	55	59
50%	45	33	293	901	4,170	1,135	135	68	67	48	55	59
60%	40	18	138	490	1,552	437	111	65	67	48	55	59
70%	29	9	51	273	580	187	88	63	66	48	55	58
80%	16	5	18	76	184	90	78	59	64	48	55	56
90%	4	0	1	37	68	37	56	53	62	48	54	52
Long Term												
Full Simulation Period[a]	124	552	4,394	11,835	15,819	9,271	2,651	210	88	48	101	115
Water Year Types[b,c]												
Wet (32%)	86	746	5,586	31,695	36,486	23,473	6,899	453	135	48	147	209
Above Normal (16%)	38	927	1,909	8,363	17,697	8,800	1,823	185	66	48	92	65
Below Normal (13%)	556	117	3,567	927	4,807	657	234	69	66	48	130	92
Dry (24%)	40	610	7,304	1,097	2,875	1,223	522	75	67	48	61	70
Critical (15%)	42	29	410	465	671	320	105	67	65	48	55	61

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	63	857	13,522	37,541	52,871	24,732	7,045	147	68	48	183	127
20%	61	159	5,766	15,312	20,678	9,008	3,257	78	68	48	55	59
30%	57	62	1,778	6,465	10,852	5,182	1,264	73	68	48	55	59
40%	53	34	464	3,250	9,081	3,279	224	70	68	48	55	59
50%	45	10	302	1,572	4,646	1,318	125	68	67	48	55	59
60%	39	9	151	555	2,336	608	111	64	67	48	55	59
70%	29	5	52	341	594	273	89	63	66	48	55	58
80%	15	2	22	105	227	121	78	58	64	48	55	55
90%	4	0	2	25	76	45	56	53	62	48	54	52
Long Term												
Full Simulation Period[a]	155	590	5,004	12,387	16,329	9,591	2,711	200	81	48	101	72
Water Year Types[b,c]												
Wet (32%)	86	792	7,036	33,090	36,924	23,919	6,997	423	114	48	147	73
Above Normal (16%)	38	956	2,205	8,584	18,788	9,372	1,886	184	66	48	92	65
Below Normal (13%)	794	118	3,634	1,392	5,898	1,048	251	69	66	48	130	92
Dry (24%)	37	688	7,687	1,135	3,073	1,363	593	70	67	48	61	70
Critical (15%)	42	29	416	482	698	328	105	67	65	48	55	61

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	48	2,392	2,894	480	6,006	1	**-95**	0	0	0	**-120**
20%	**0**	**-25**	849	353	**-136**	149	95	**0**	0	0	0	**-66**
30%	**-1**	**-20**	235	**-549**	**-415**	321	196	**0**	0	0	0	0
40%	**0**	**-24**	2	89	2,223	377	**-5**	**0**	0	0	0	0
50%	**0**	**-23**	9	670	476	183	**-10**	**0**	0	0	0	0
60%	**-1**	**-9**	13	65	784	170	**-1**	**0**	0	0	0	**0**
70%	0	**-4**	1	68	14	85	0	**0**	0	0	0	**-1**
80%	**-1**	**-3**	4	29	42	31	0	**0**	0	0	0	**-1**
90%	**0**	**0**	1	**-12**	7	8	0	**-1**	0	0	0	0
Long Term												
Full Simulation Period[a]	31	38	610	551	510	320	60	**-11**	**-7**	0	0	**-43**
Water Year Types[b,c]												
Wet (32%)	0	46	1,450	1,395	438	446	97	**-30**	**-21**	0	0	**-137**
Above Normal (16%)	0	29	296	221	1,091	572	63	**-1**	0	0	0	0
Below Normal (13%)	238	1	66	465	1,091	391	17	0	0	0	0	0
Dry (24%)	**-3**	77	384	38	198	140	71	**-5**	0	0	0	0
Critical (15%)	0	**0**	6	17	27	8	0	0	0	0	0	0

a Based on the 82-year simulation period.

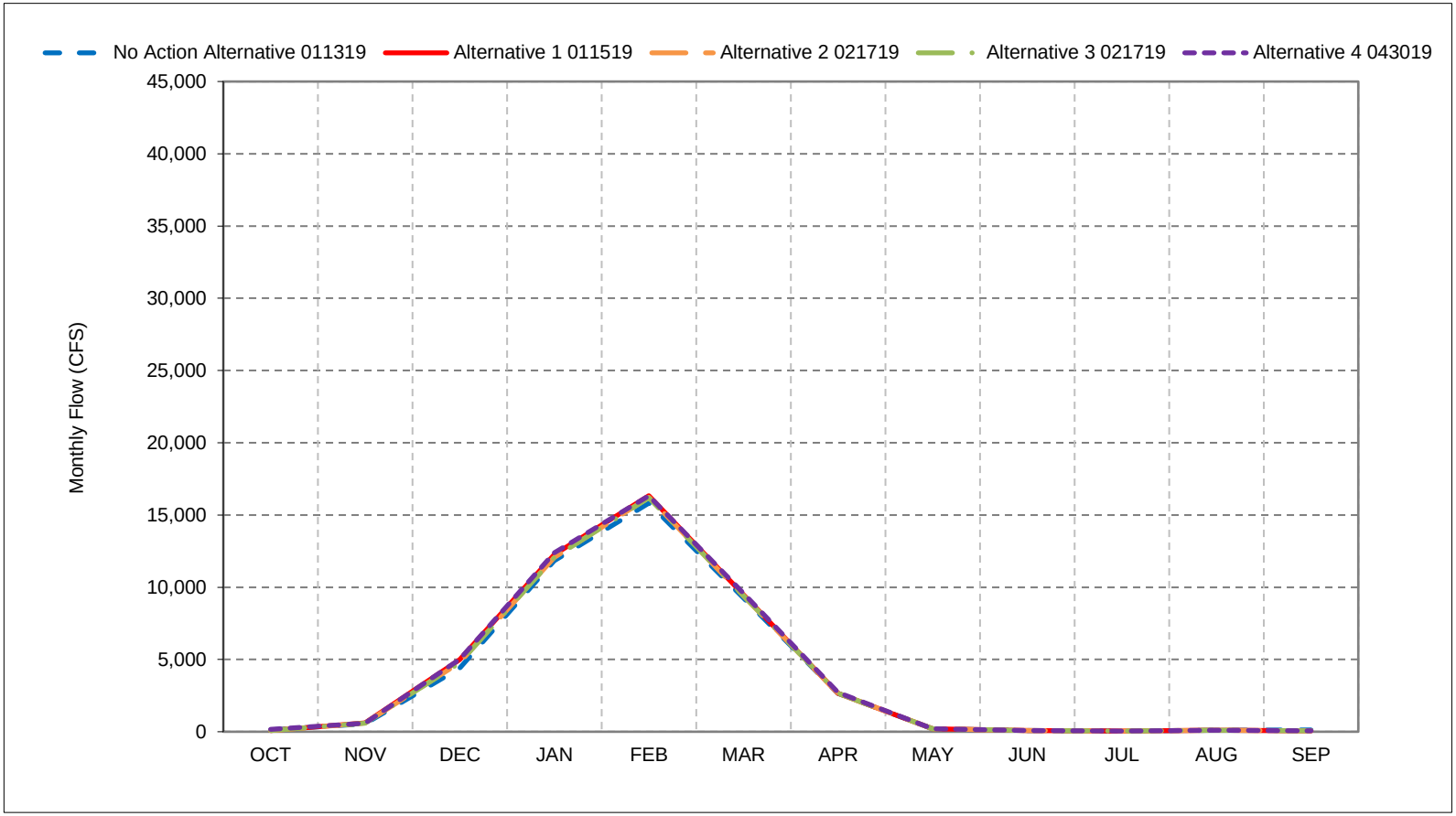
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

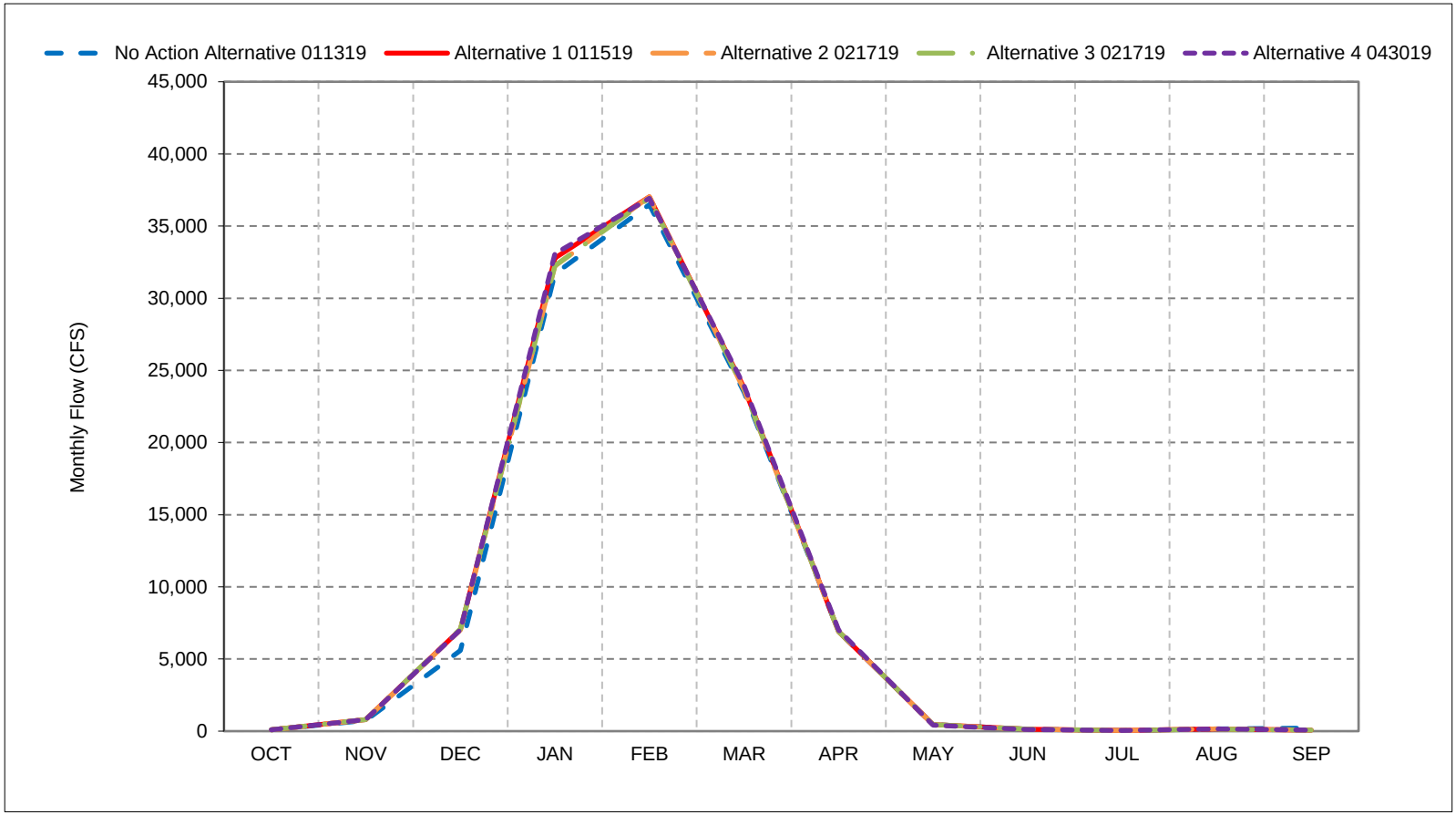
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 25-1. Yolo Bypass Flow, Long-Term Average Flow



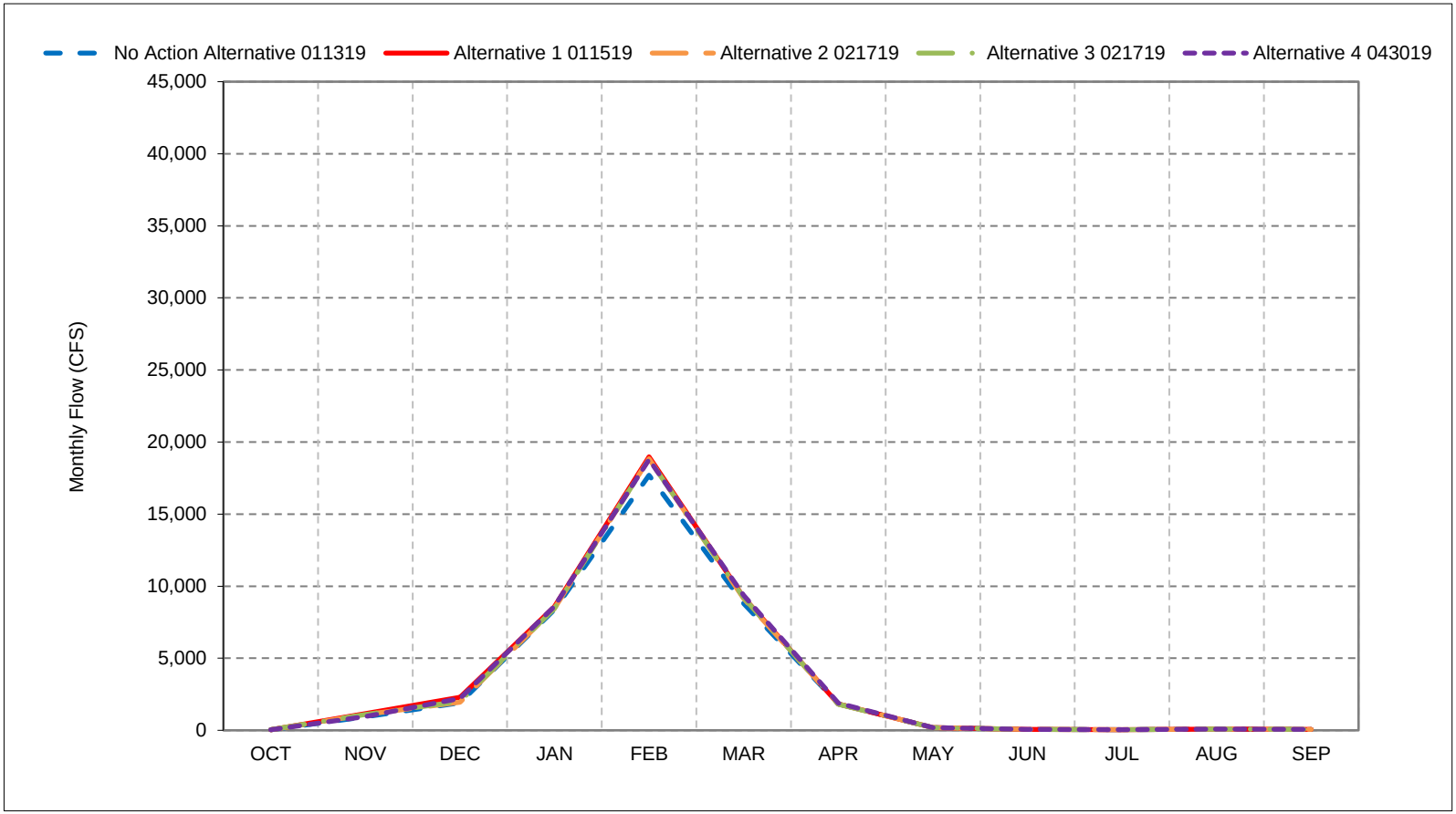
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 25-2. Yolo Bypass Flow, Wet Year Average Flow



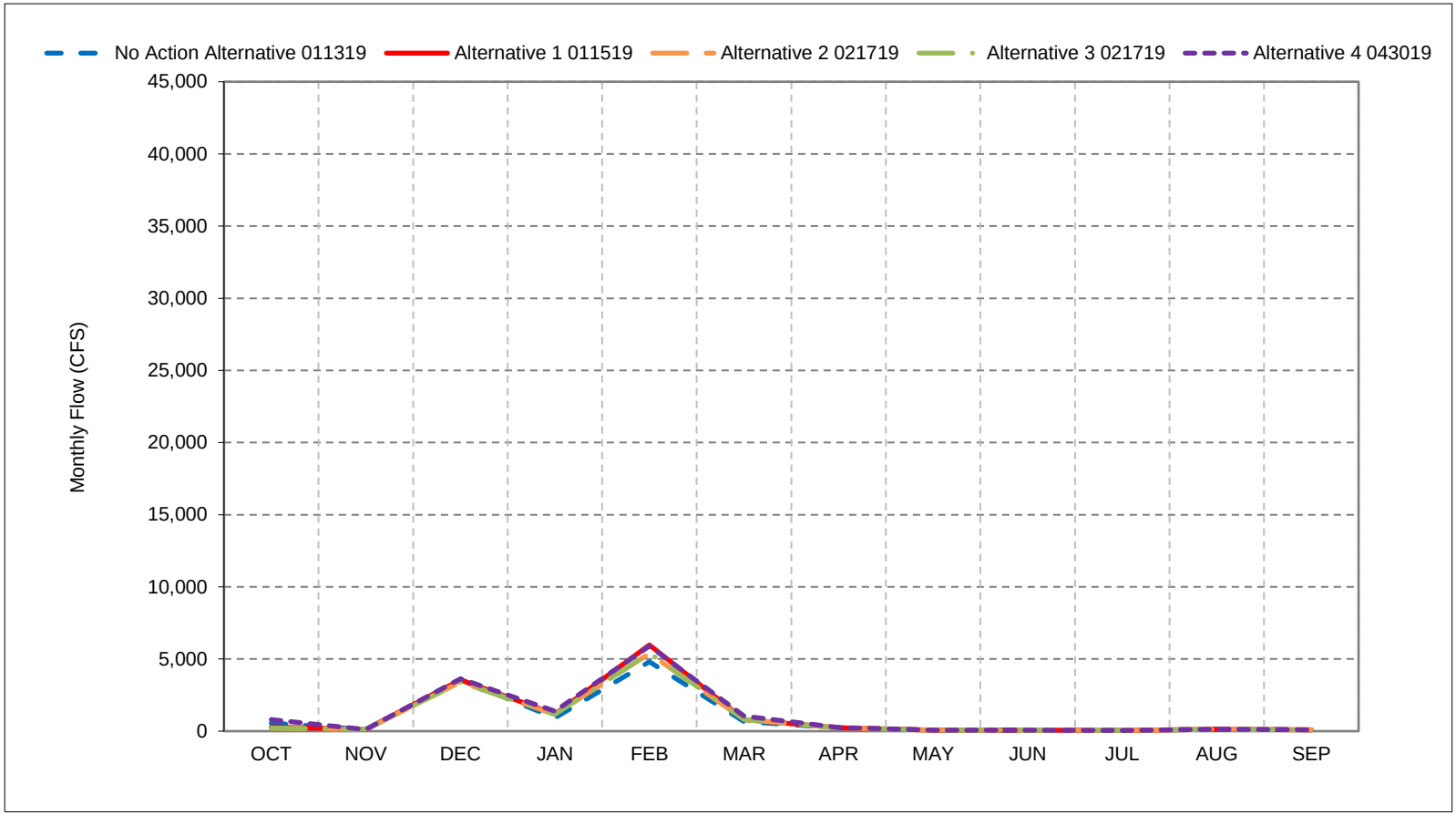
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 25-3. Yolo Bypass Flow, Above Normal Year Average Flow



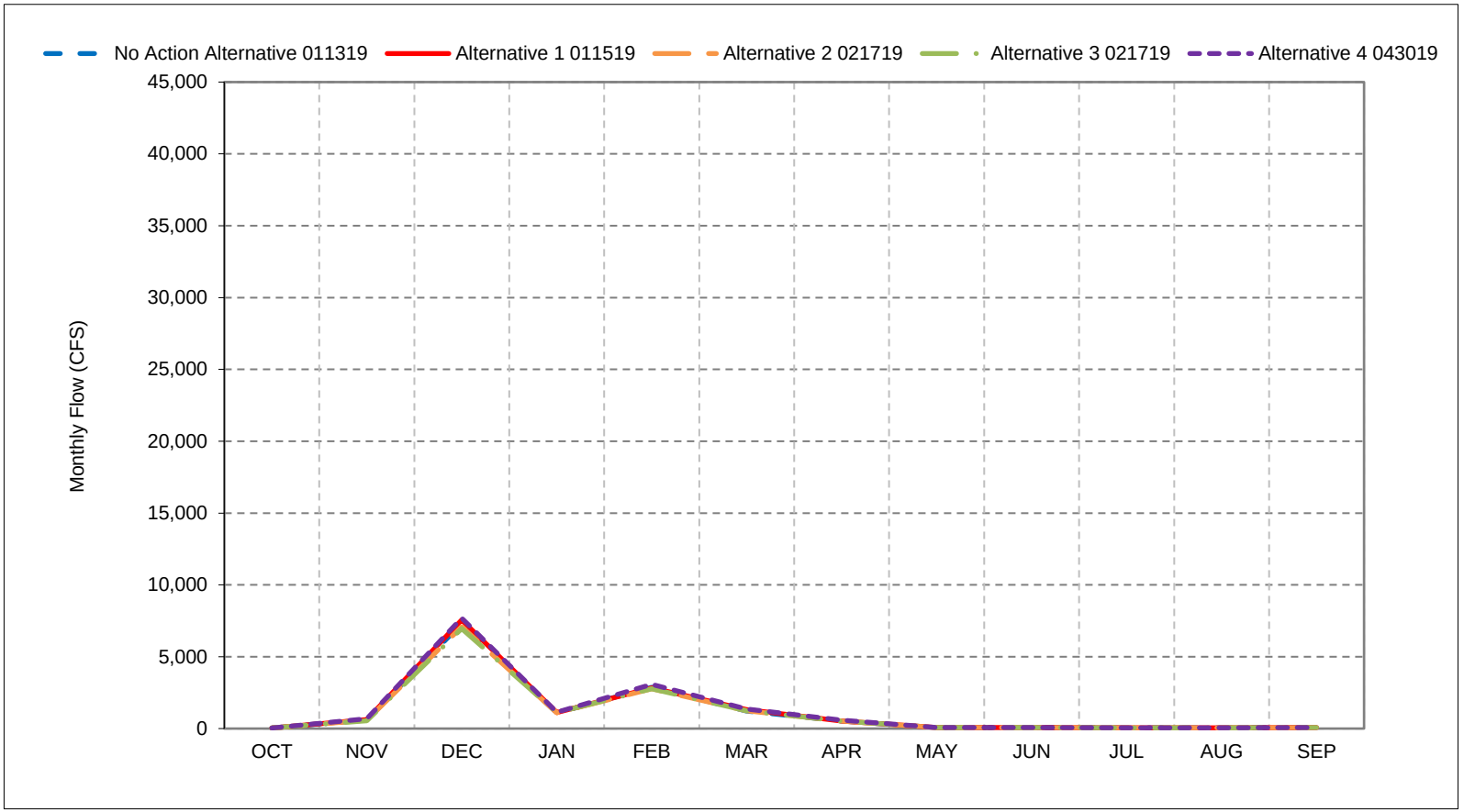
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 25-4. Yolo Bypass Flow, Below Normal Year Average Flow



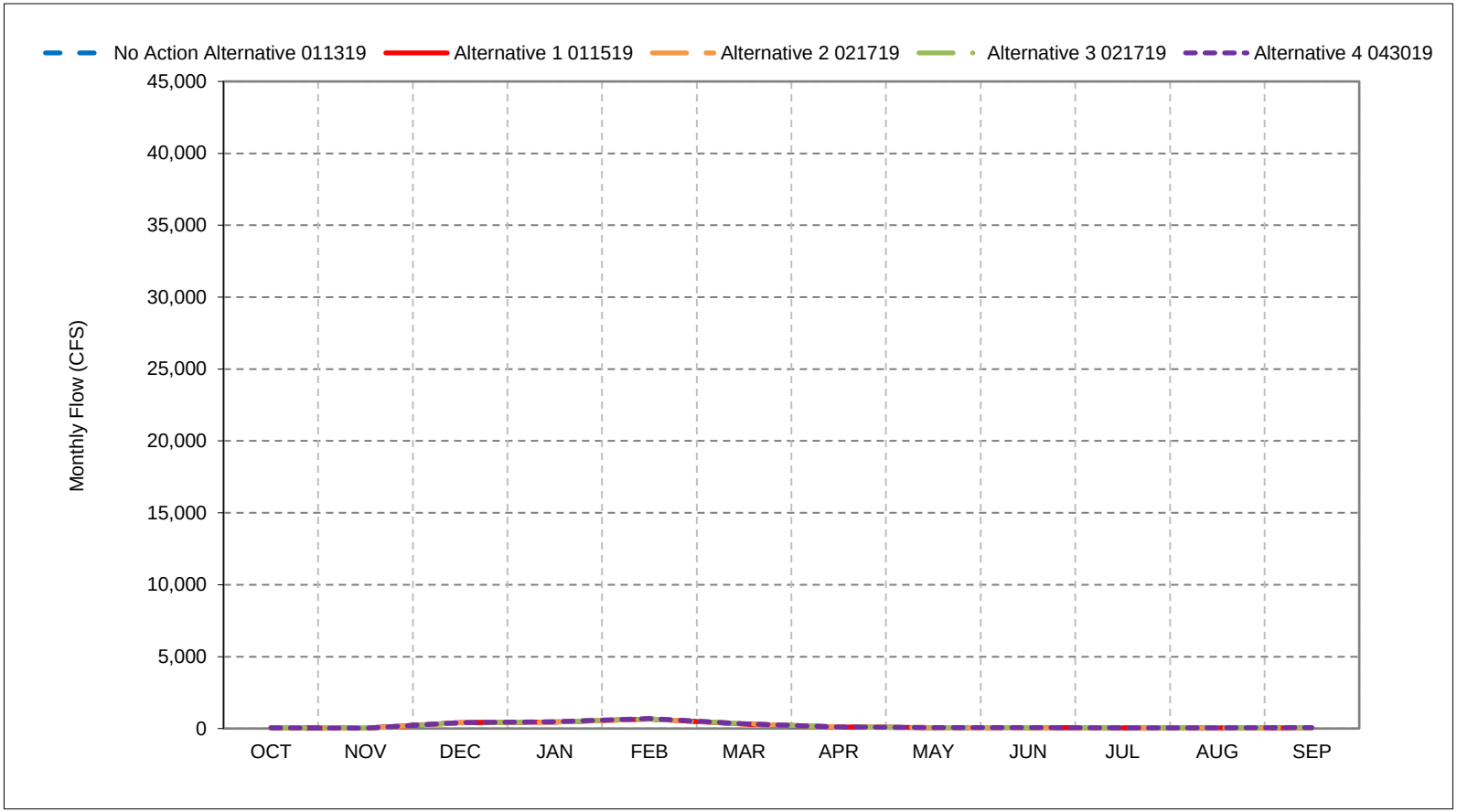
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 25-5. Yolo Bypass Flow, Dry Year Average Flow



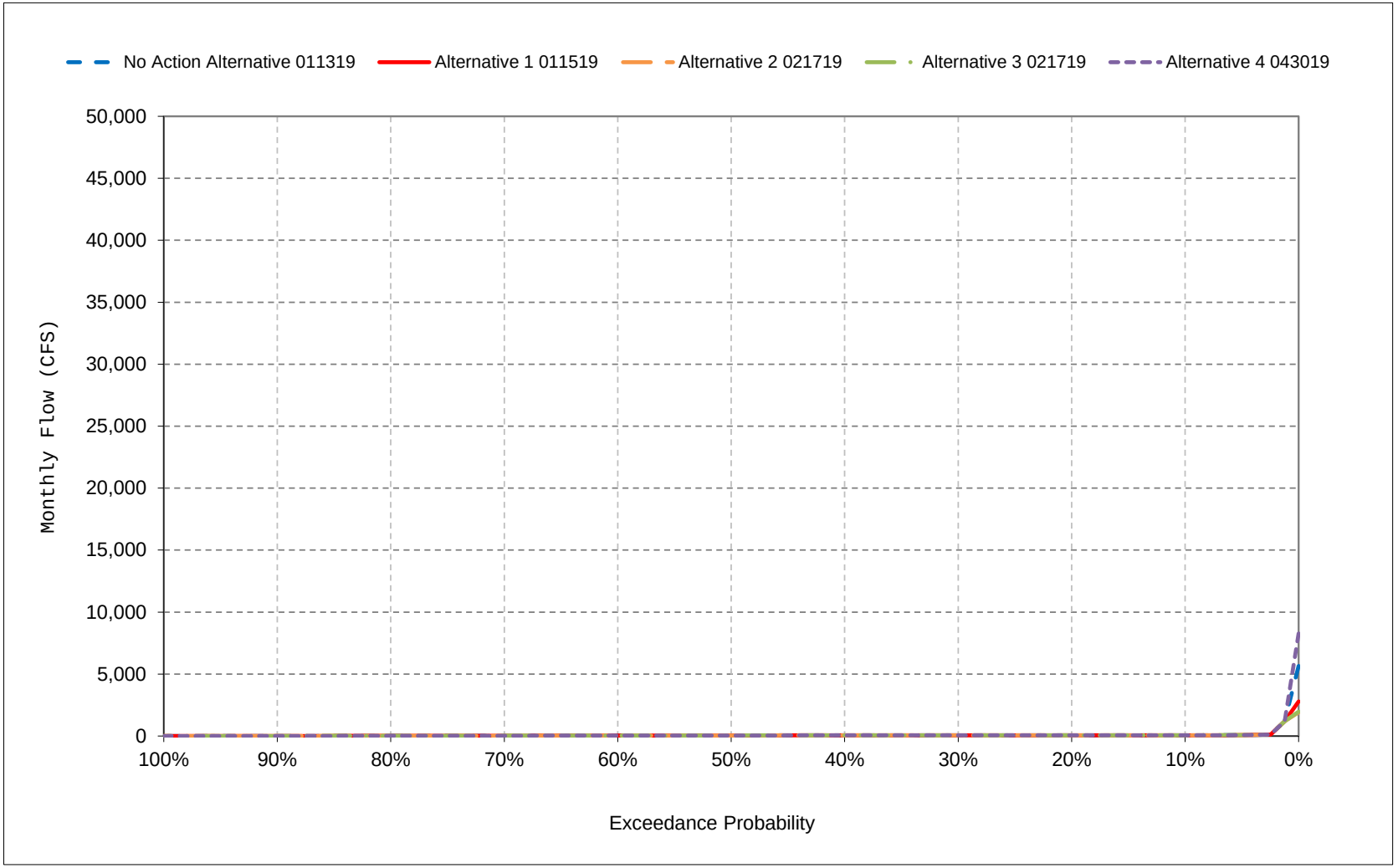
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 25-6. Yolo Bypass Flow, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

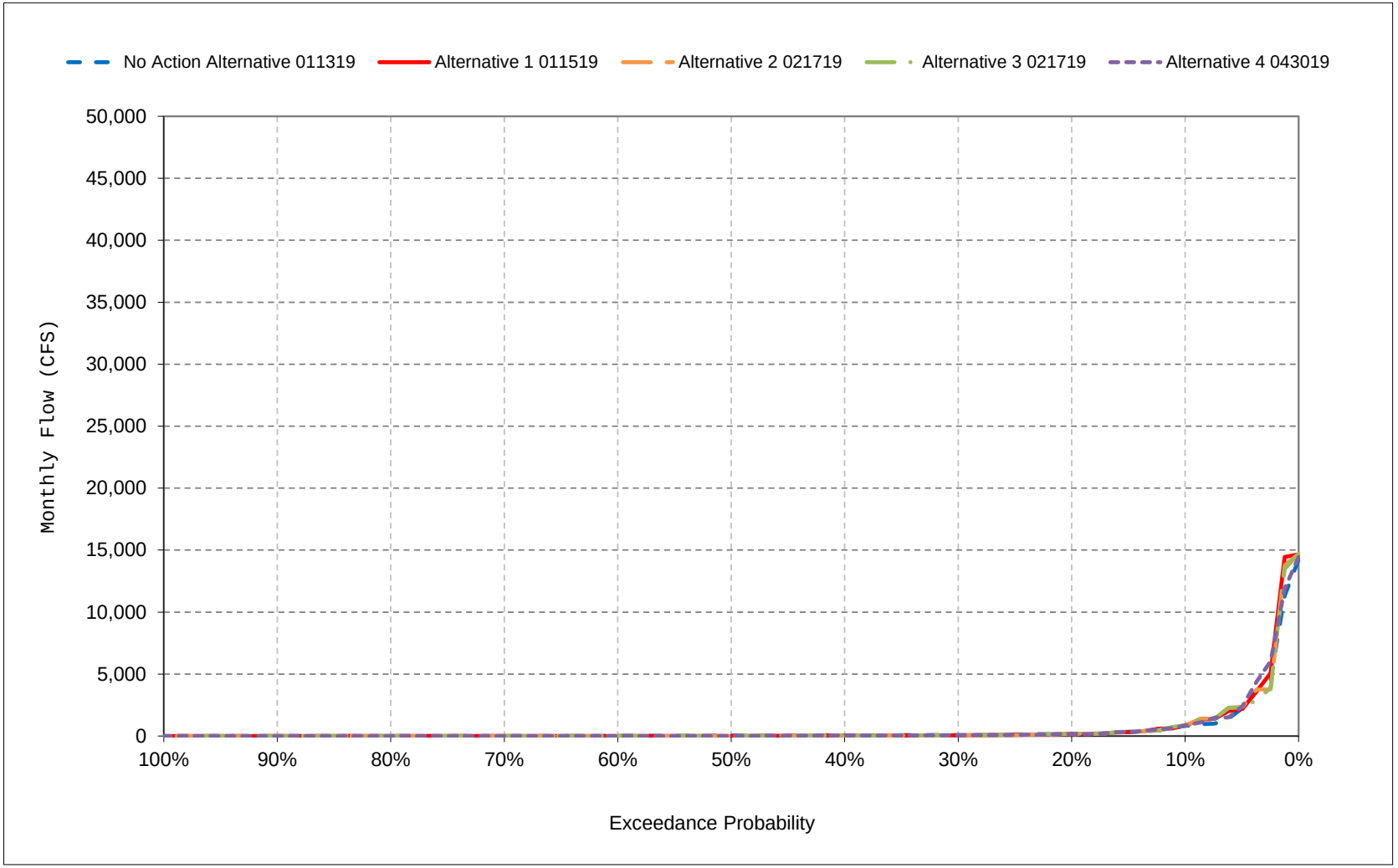
Figure 25-7. Yolo Bypass Flow, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

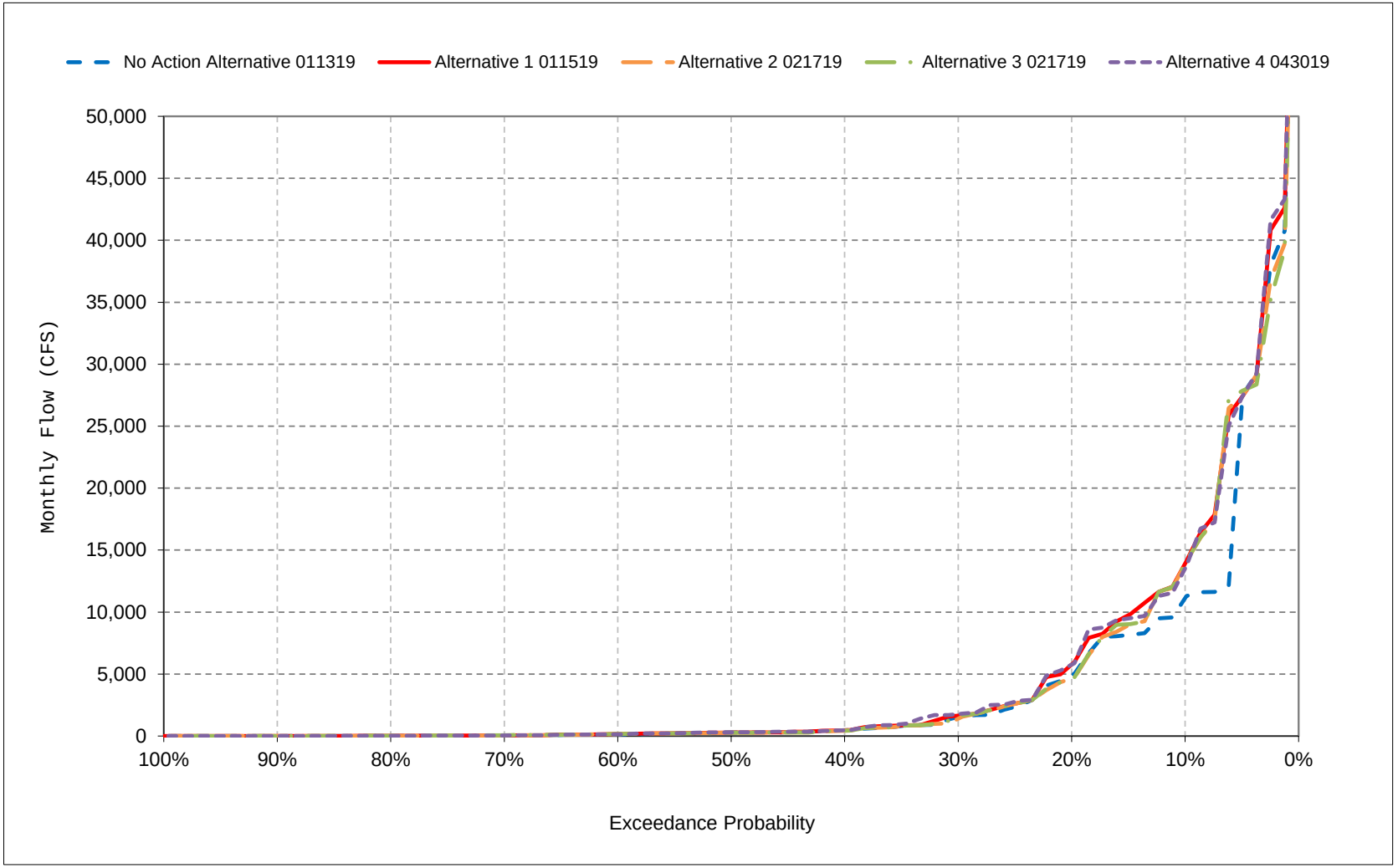
Figure 25-8. Yolo Bypass Flow, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

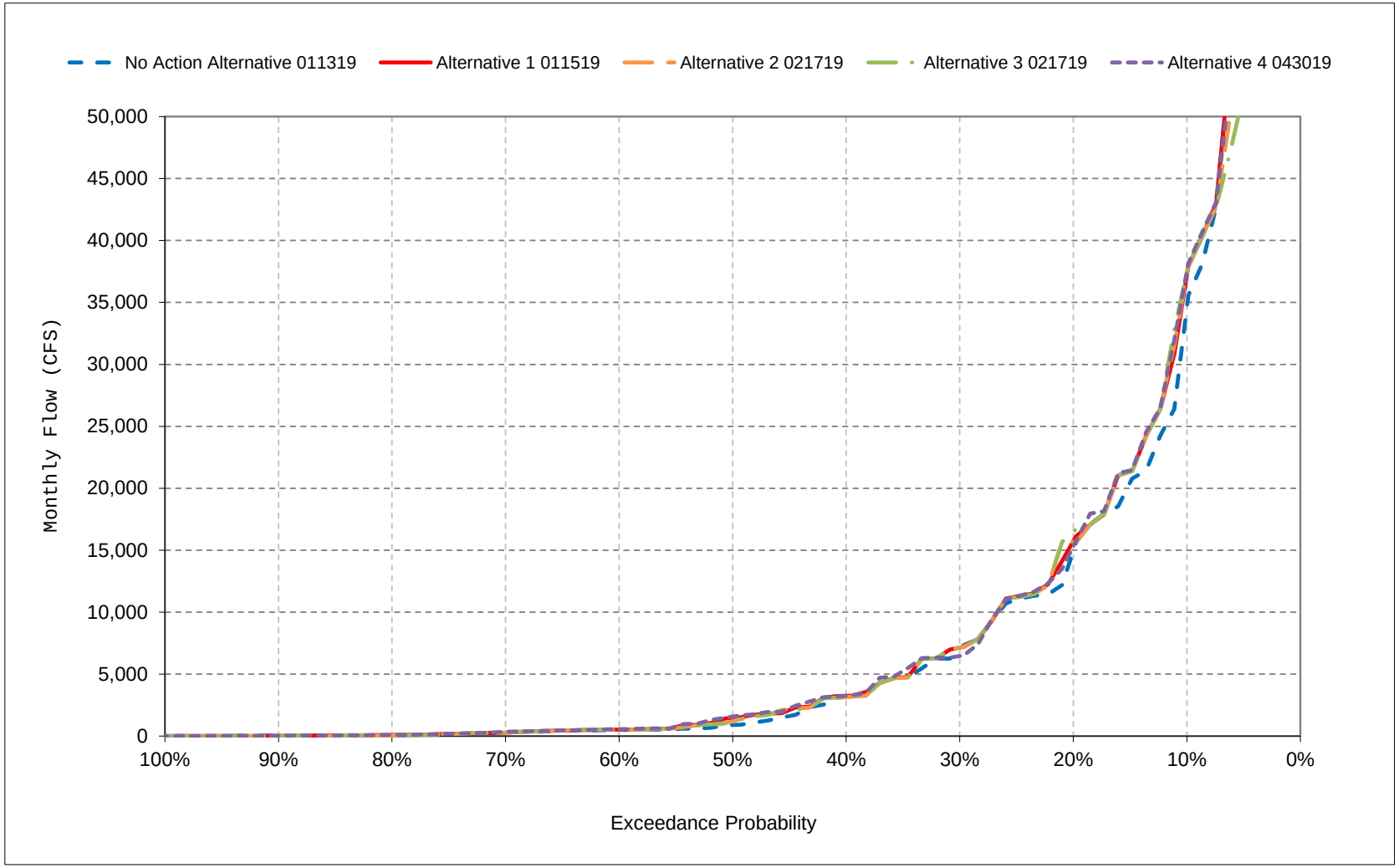
Figure 25-9. Yolo Bypass Flow, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

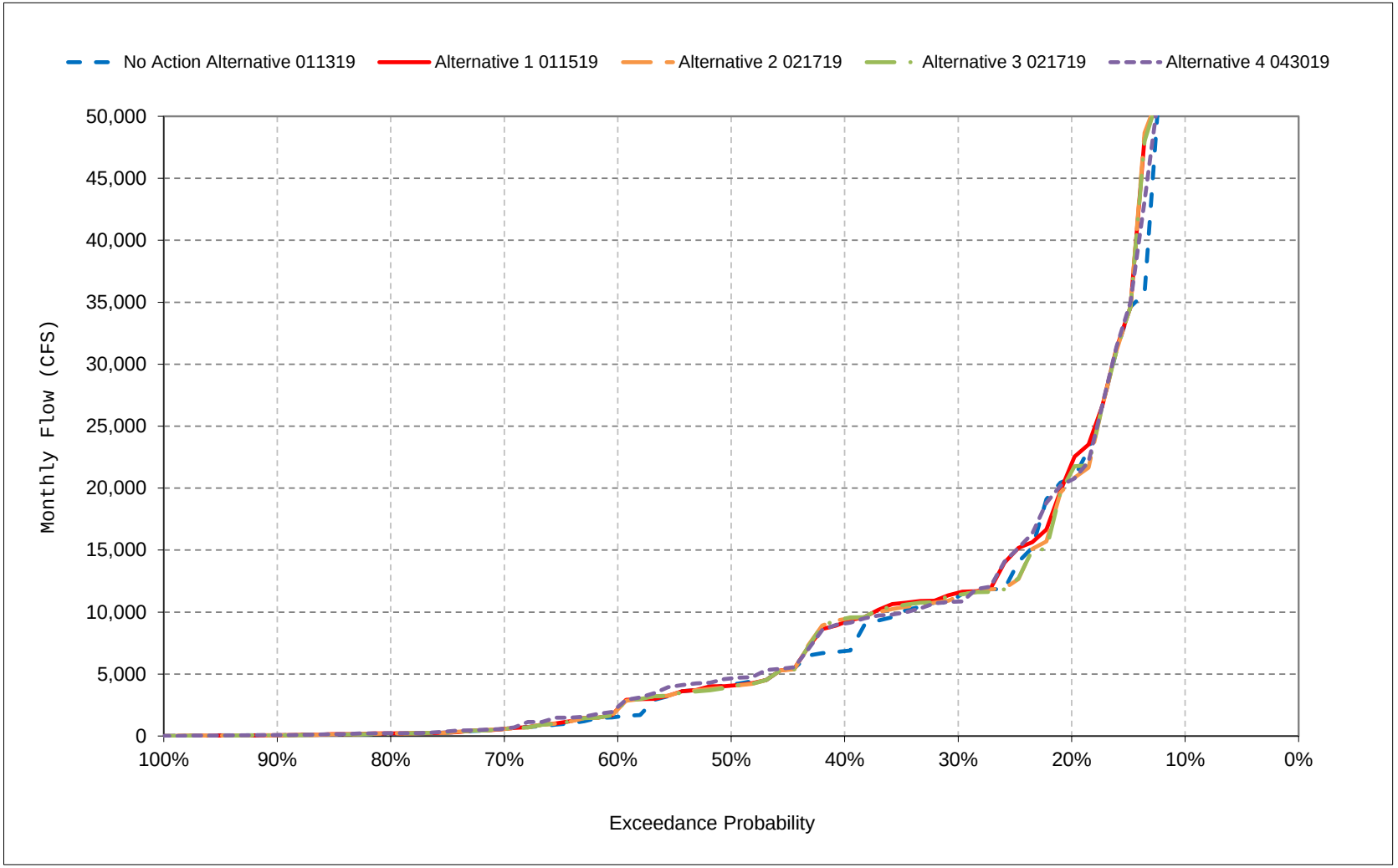
Figure 25-10. Yolo Bypass Flow, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

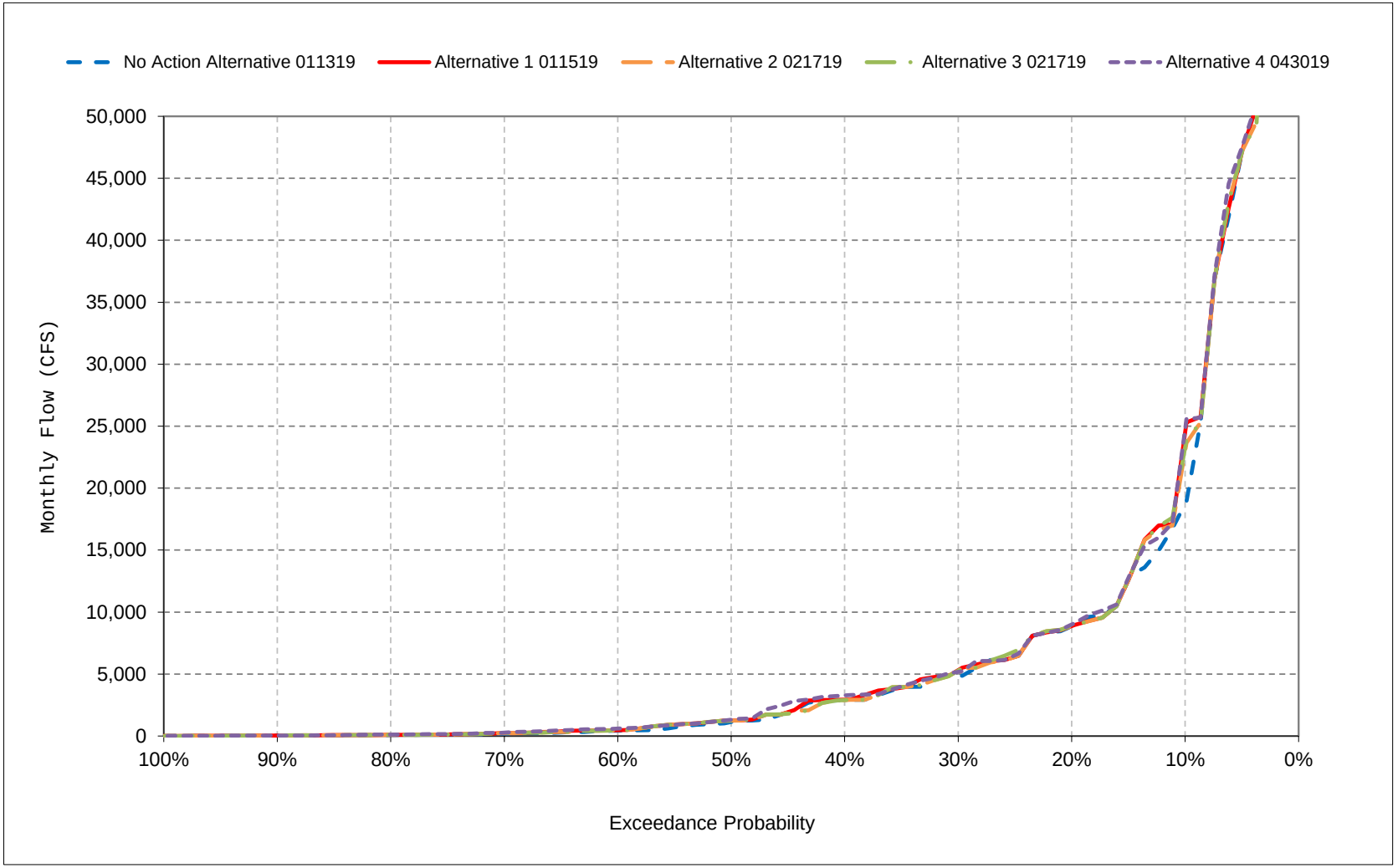
Figure 25-11. Yolo Bypass Flow, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

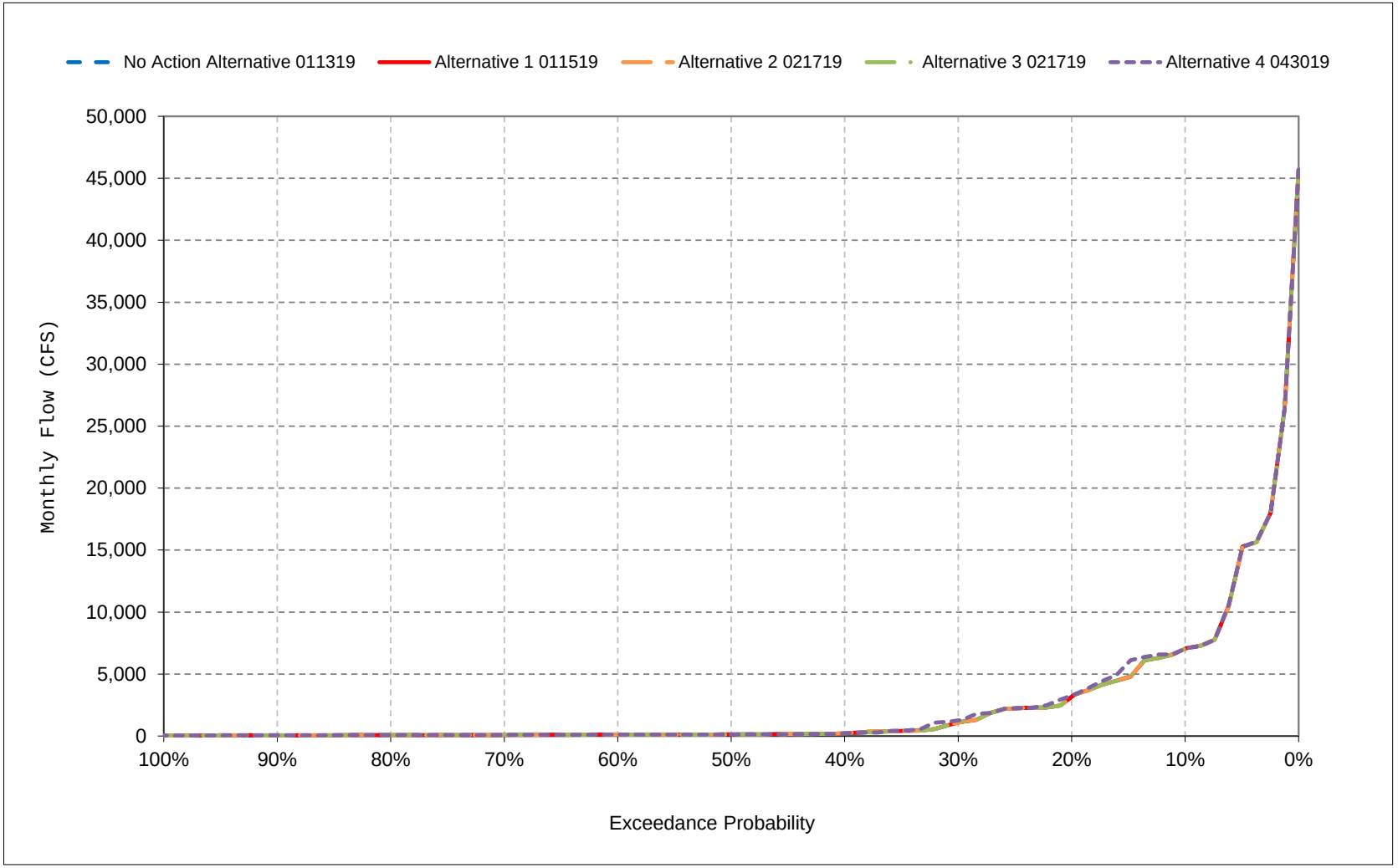
Figure 25-12. Yolo Bypass Flow, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

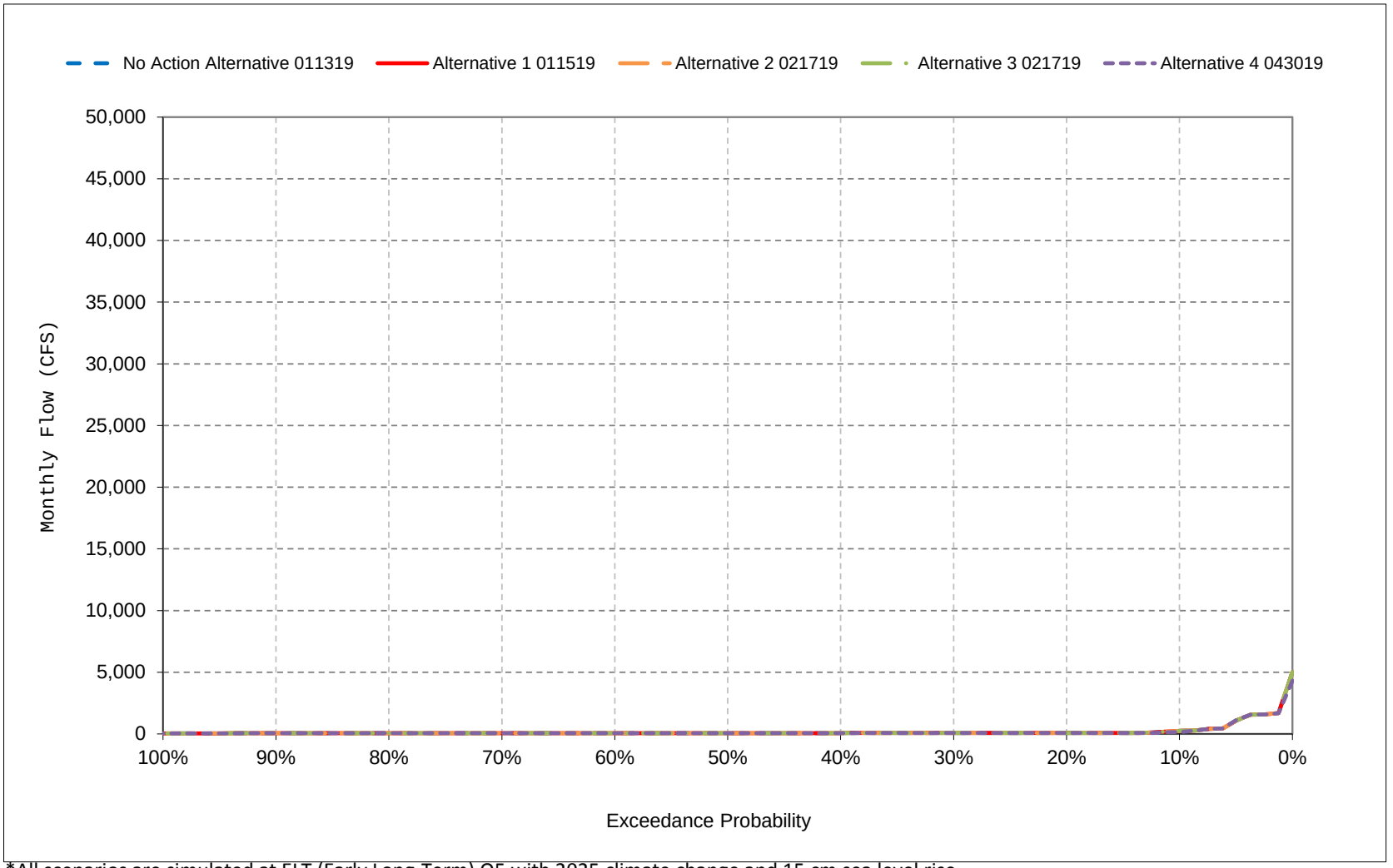
Figure 25-13. Yolo Bypass Flow, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

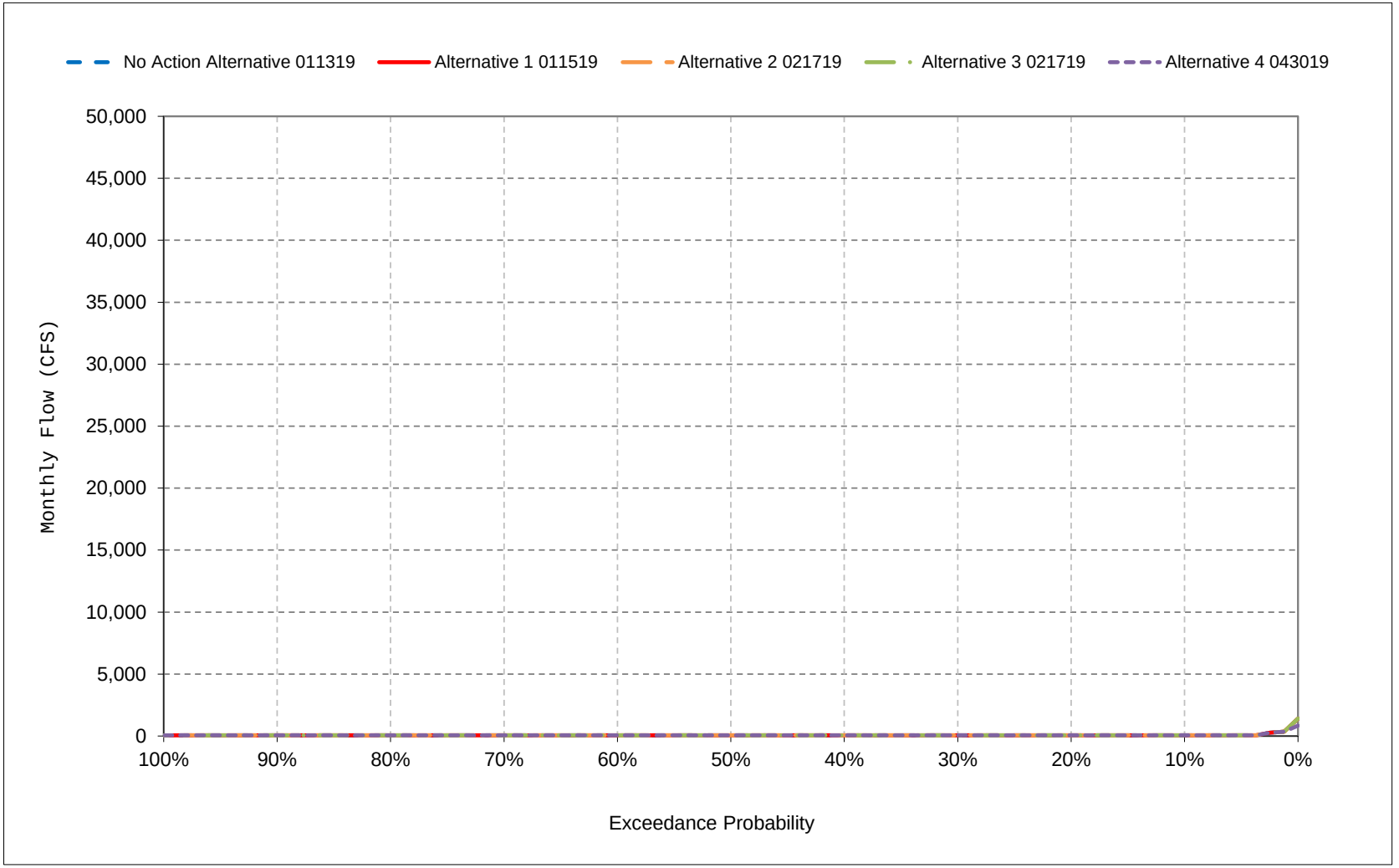
Figure 25-14. Yolo Bypass Flow, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

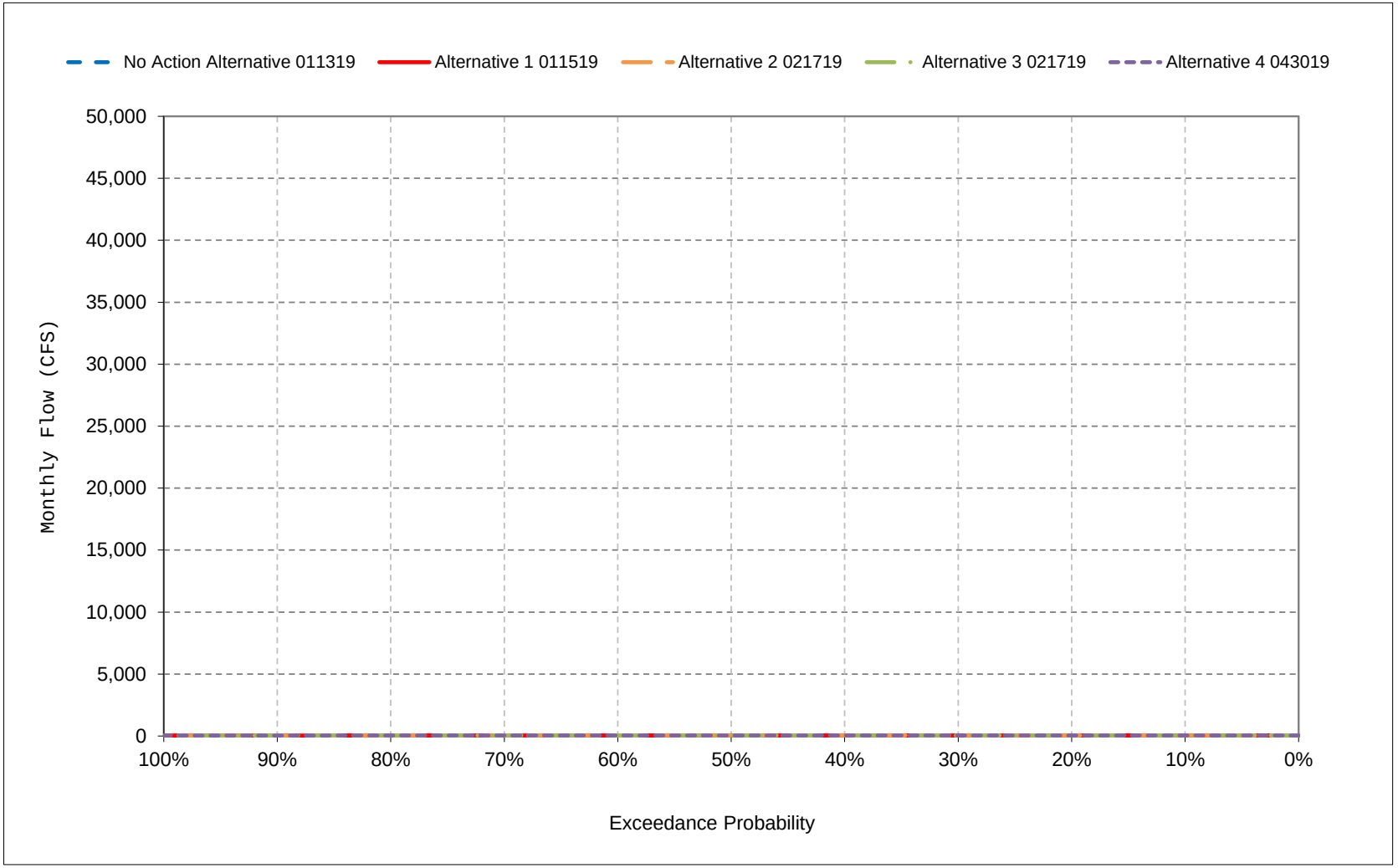
Figure 25-15. Yolo Bypass Flow, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

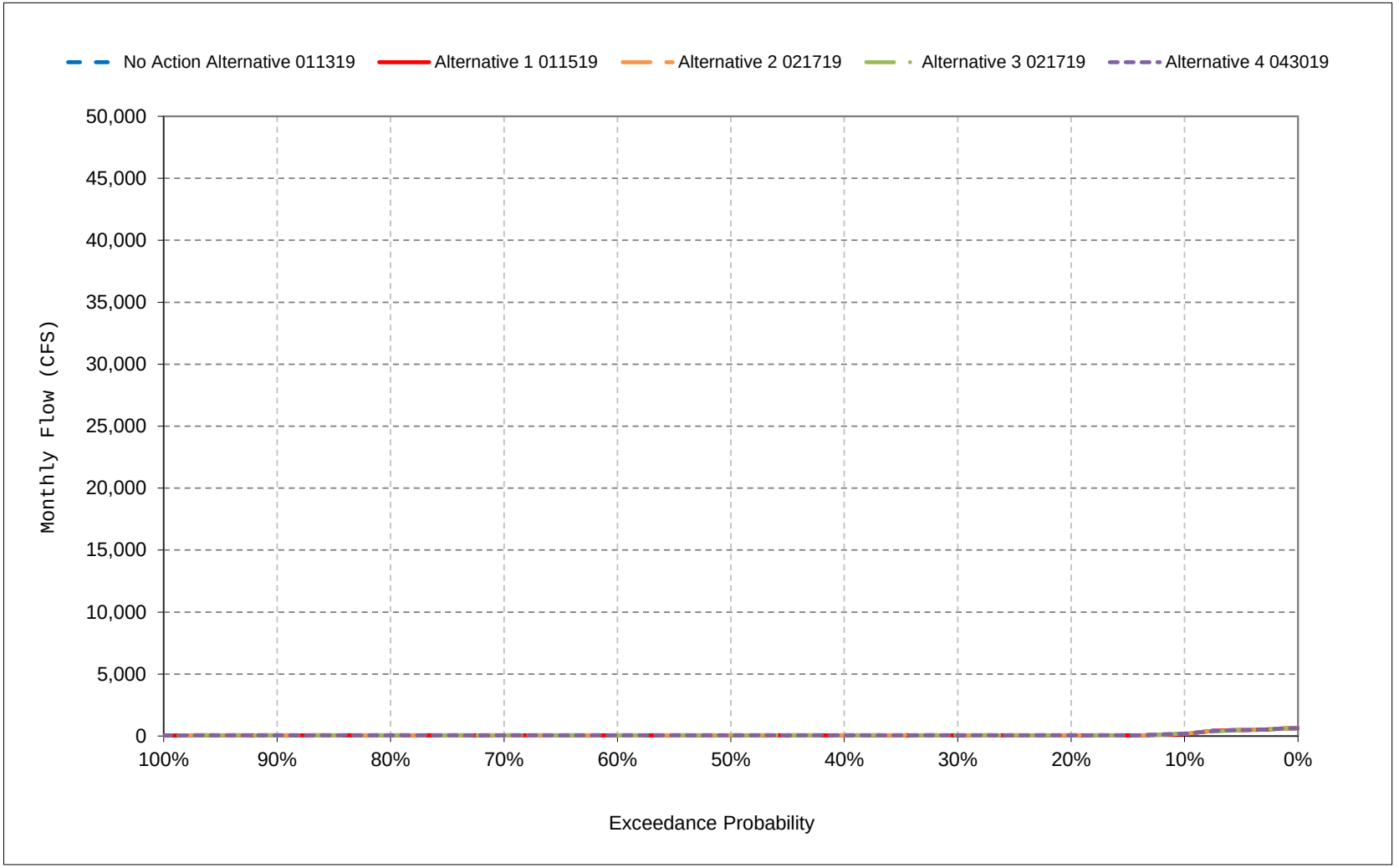
Figure 25-16. Yolo Bypass Flow, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

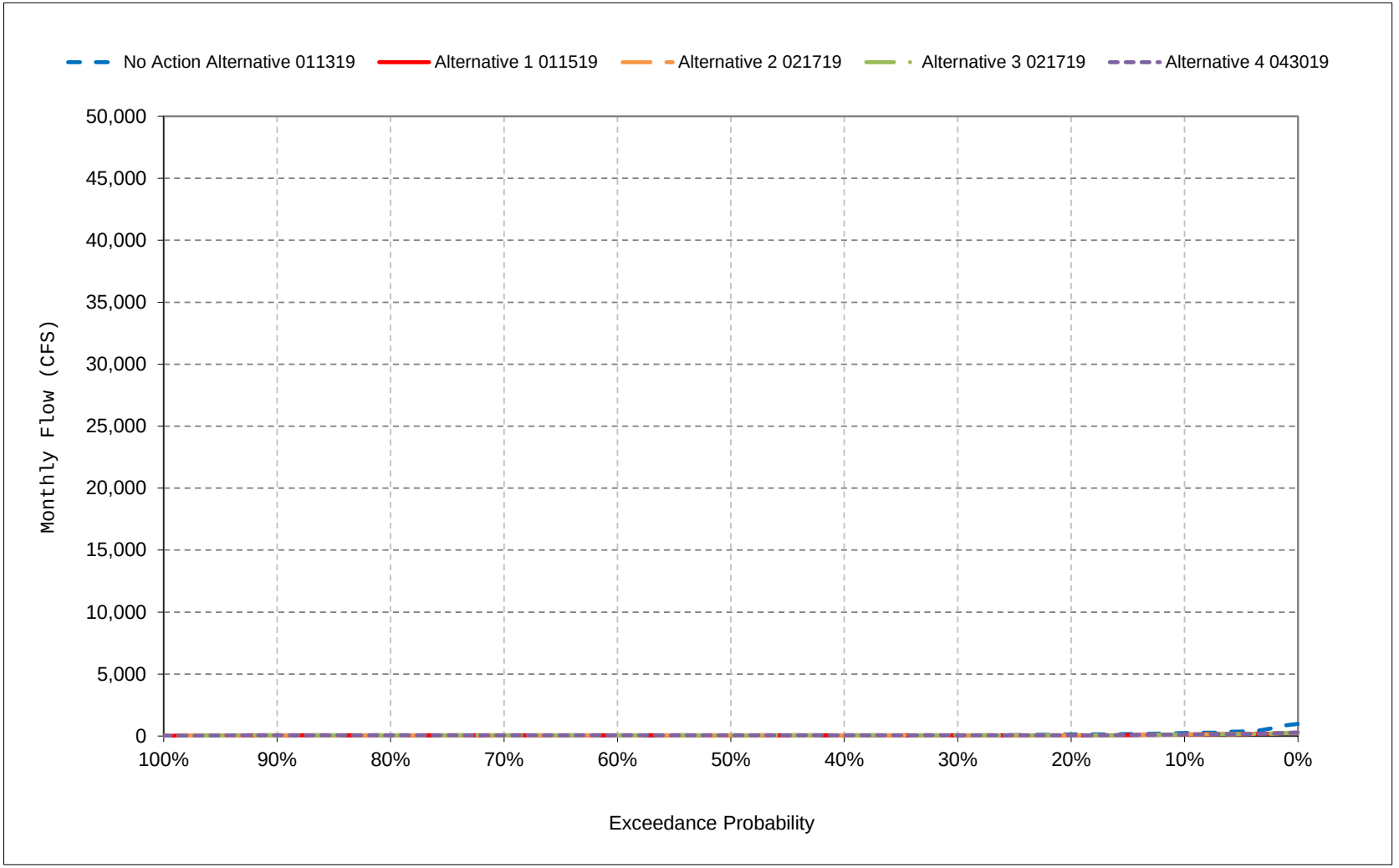
Figure 25-17. Yolo Bypass Flow, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 25-18. Yolo Bypass Flow, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 27-1. American River below Nimbus Dam Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,741	3,756	8,397	12,142	14,637	9,735	6,685	7,387	4,560	5,480	2,916	3,219
20%	1,997	3,254	3,830	7,660	10,885	6,795	5,026	4,409	3,679	4,822	2,438	2,808
30%	1,639	2,599	2,285	5,538	7,067	5,020	4,431	3,523	3,146	3,854	1,953	2,438
40%	1,500	2,149	2,000	3,503	5,724	4,151	3,391	2,648	2,662	3,358	1,750	2,077
50%	1,500	1,925	2,000	1,750	2,905	2,971	2,486	1,899	2,219	2,836	1,750	1,670
60%	1,500	1,683	2,000	1,700	1,771	2,249	2,044	1,750	1,857	2,512	1,750	1,533
70%	1,500	1,559	1,730	1,700	1,445	1,750	1,747	1,632	1,750	1,989	1,634	1,515
80%	1,051	1,128	1,211	1,468	1,268	833	876	1,067	1,162	1,750	1,151	808
90%	800	800	800	950	945	800	800	800	800	886	800	800
Long Term												
Full Simulation Period[a]	1,679	2,500	3,676	5,045	5,836	4,233	3,338	3,035	2,687	3,018	1,812	1,926
Water Year Types[b,c]												
Wet (32%)	2,330	3,667	4,420	10,469	10,458	7,190	5,483	5,489	4,154	3,449	2,372	2,955
Above Normal (16%)	1,634	2,171	2,828	5,591	7,610	5,914	3,524	2,486	2,489	4,679	1,830	1,966
Below Normal (13%)	1,572	1,996	2,991	2,228	4,824	2,152	2,387	1,967	2,065	3,803	1,585	1,389
Dry (24%)	1,344	2,391	5,298	1,549	2,173	2,442	2,162	1,870	2,018	2,226	1,630	1,315
Critical (15%)	971	969	905	1,108	934	896	1,320	1,231	1,406	887	1,089	1,163

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,825	4,392	10,055	12,142	14,637	10,410	6,685	7,387	4,560	4,602	2,973	1,916
20%	1,534	3,485	4,672	7,854	10,946	6,796	5,026	4,409	3,679	3,915	2,460	1,750
30%	1,500	2,236	2,606	5,650	7,486	5,020	4,397	3,523	3,255	3,493	2,006	1,750
40%	1,500	2,000	2,195	3,503	5,724	4,144	3,282	2,602	2,873	2,941	1,817	1,750
50%	1,500	2,000	2,000	2,152	3,557	3,000	2,494	1,863	2,519	2,720	1,750	1,750
60%	1,500	1,923	2,000	1,613	2,696	2,234	2,096	1,565	2,094	2,379	1,750	1,750
70%	1,159	1,159	1,813	1,400	1,750	1,750	1,469	1,495	1,673	1,890	1,671	1,669
80%	749	730	802	1,400	1,400	1,442	1,017	1,144	1,212	1,750	1,511	1,545
90%	595	588	626	714	1,388	953	953	953	784	968	877	880
Long Term												
Full Simulation Period[a]	1,376	2,485	3,905	5,106	6,081	4,367	3,340	3,024	2,771	2,771	1,867	1,628
Water Year Types[b,c]												
Wet (32%)	1,789	3,979	5,132	10,620	10,566	7,189	5,453	5,456	4,288	3,131	2,388	1,839
Above Normal (16%)	1,535	2,125	2,921	5,730	7,949	6,117	3,478	2,463	2,657	4,232	1,872	1,763
Below Normal (13%)	1,348	1,693	2,886	2,284	5,585	2,322	2,434	2,070	2,211	3,537	1,903	1,604
Dry (24%)	1,078	2,233	5,424	1,540	2,172	2,600	2,118	1,817	2,044	1,950	1,677	1,537
Critical (15%)	832	787	715	1,013	1,307	1,173	1,480	1,249	1,334	1,073	1,017	1,196

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-916**	636	1,658	0	0	675	0	0	0	**-878**	57	**-1,303**
20%	**-463**	231	842	195	61	1	0	0	0	**-907**	22	**-1,058**
30%	**-139**	**-363**	321	111	419	0	**-34**	**0**	109	**-361**	53	**-688**
40%	0	**-149**	195	**0**	**0**	**-7**	**-109**	**-46**	212	**-418**	67	**-327**
50%	0	75	0	402	651	28	8	**-35**	300	**-116**	0	80
60%	0	239	0	**-87**	924	**-15**	52	**-185**	237	**-133**	0	217
70%	**-341**	**-400**	83	**-300**	305	0	**-278**	**-137**	**-77**	**-99**	37	154
80%	**-302**	**-399**	**-409**	**-68**	132	609	141	76	50	0	361	737
90%	**-205**	**-212**	**-174**	**-236**	442	153	153	153	**-16**	82	77	80
Long Term												
Full Simulation Period[a]	**-303**	**-14**	229	62	244	134	2	**-10**	85	**-247**	55	**-298**
Water Year Types[b,c]												
Wet (32%)	**-541**	311	712	152	108	**-1**	**-30**	**-33**	134	**-318**	16	**-1,117**
Above Normal (16%)	**-99**	**-46**	93	139	338	204	**-46**	**-23**	168	**-447**	43	**-204**
Below Normal (13%)	**-224**	**-303**	**-105**	56	762	169	47	103	146	**-266**	318	215
Dry (24%)	**-266**	**-158**	126	**-9**	**-1**	158	**-44**	**-53**	26	**-276**	47	222
Critical (15%)	**-140**	**-182**	**-190**	**-95**	373	276	160	18	**-73**	186	**-72**	33

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 27-2. American River below Nimbus Dam Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,741	3,756	8,397	12,142	14,637	9,735	6,685	7,387	4,560	5,480	2,916	3,219
20%	1,997	3,254	3,830	7,660	10,885	6,795	5,026	4,409	3,679	4,822	2,438	2,808
30%	1,639	2,599	2,285	5,538	7,067	5,020	4,431	3,523	3,146	3,854	1,953	2,438
40%	1,500	2,149	2,000	3,503	5,724	4,151	3,391	2,648	2,662	3,358	1,750	2,077
50%	1,500	1,925	2,000	1,750	2,905	2,971	2,486	1,899	2,219	2,836	1,750	1,670
60%	1,500	1,683	2,000	1,700	1,771	2,249	2,044	1,750	1,857	2,512	1,750	1,533
70%	1,500	1,559	1,730	1,700	1,445	1,750	1,747	1,632	1,750	1,989	1,634	1,515
80%	1,051	1,128	1,211	1,468	1,268	833	876	1,067	1,162	1,750	1,151	808
90%	800	800	800	950	945	800	800	800	800	886	800	800
Long Term												
Full Simulation Period[a]	1,679	2,500	3,676	5,045	5,836	4,233	3,338	3,035	2,687	3,018	1,812	1,926
Water Year Types[b,c]												
Wet (32%)	2,330	3,667	4,420	10,469	10,458	7,190	5,483	5,489	4,154	3,449	2,372	2,955
Above Normal (16%)	1,634	2,171	2,828	5,591	7,610	5,914	3,524	2,486	2,489	4,679	1,830	1,966
Below Normal (13%)	1,572	1,996	2,991	2,228	4,824	2,152	2,387	1,967	2,065	3,803	1,585	1,389
Dry (24%)	1,344	2,391	5,298	1,549	2,173	2,442	2,162	1,870	2,018	2,226	1,630	1,315
Critical (15%)	971	969	905	1,108	934	896	1,320	1,231	1,406	887	1,089	1,163

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,952	3,780	10,051	12,142	14,637	9,735	6,685	7,387	5,235	4,997	2,922	1,922
20%	1,655	3,235	3,926	7,854	10,794	6,780	5,026	4,409	4,359	4,504	2,605	1,717
30%	1,500	2,249	2,693	5,748	7,296	5,020	4,397	3,523	3,672	3,827	2,338	1,535
40%	1,500	1,925	2,000	3,503	5,724	4,146	3,275	2,947	3,451	2,958	1,750	1,533
50%	1,500	1,743	2,000	1,911	3,485	3,017	2,519	2,197	2,879	2,744	1,750	1,533
60%	1,500	1,553	1,783	1,700	2,532	1,986	2,124	1,850	2,472	2,494	1,750	1,533
70%	1,329	1,329	1,397	1,700	1,446	1,750	1,750	1,747	2,057	2,019	1,487	1,493
80%	1,031	1,031	1,227	1,231	1,275	956	1,024	1,397	1,679	1,753	850	808
90%	800	800	800	873	850	800	800	965	947	809	623	800
Long Term												
Full Simulation Period[a]	1,457	2,391	3,808	5,057	5,968	4,246	3,364	3,150	3,107	2,938	1,798	1,455
Water Year Types[b,c]												
Wet (32%)	1,820	3,745	5,074	10,424	10,566	7,189	5,481	5,543	4,444	3,106	2,558	1,688
Above Normal (16%)	1,426	1,742	2,613	5,622	7,945	6,074	3,504	2,576	3,598	4,693	1,785	1,476
Below Normal (13%)	1,188	1,524	2,702	2,396	5,188	2,168	2,380	2,174	3,064	3,834	1,715	1,410
Dry (24%)	1,433	2,406	5,281	1,541	2,160	2,397	2,175	2,028	2,150	2,182	1,431	1,336
Critical (15%)	992	933	915	1,111	924	878	1,511	1,352	1,311	1,112	857	1,167

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-790**	24	1,654	0	**0**	0	0	0	675	**-482**	6	**-1,297**
20%	**-342**	**-19**	96	195	**-91**	**-15**	0	0	679	**-318**	166	**-1,091**
30%	**-139**	**-350**	408	209	229	0	**-34**	**0**	526	**-26**	385	**-903**
40%	0	**-224**	0	**0**	**0**	**-5**	**-116**	299	790	**-400**	0	**-544**
50%	0	**-182**	0	161	580	45	33	298	660	**-92**	0	**-137**
60%	0	**-130**	**-217**	0	761	**-263**	80	100	615	**-18**	0	0
70%	**-171**	**-229**	**-332**	0	1	0	3	114	307	31	**-147**	**-22**
80%	**-19**	**-97**	16	**-238**	8	123	148	330	516	3	**-300**	0
90%	0	0	0	**-77**	**-95**	0	0	165	147	**-77**	**-177**	0
Long Term												
Full Simulation Period[a]	**-222**	**-108**	132	12	131	14	26	115	420	**-80**	**-13**	**-471**
Water Year Types[b,c]												
Wet (32%)	**-511**	77	654	**-44**	108	**-1**	**-2**	53	290	**-343**	186	**-1,267**
Above Normal (16%)	**-208**	**-429**	**-215**	32	334	160	**-20**	90	1,109	14	**-45**	**-490**
Below Normal (13%)	**-384**	**-472**	**-289**	168	364	16	**-7**	207	999	32	129	21
Dry (24%)	89	15	**-17**	**-8**	**-13**	**-45**	13	158	132	**-43**	**-199**	21
Critical (15%)	21	**-36**	10	3	**-10**	**-18**	191	122	**-95**	225	**-232**	3

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 27-3. American River below Nimbus Dam Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,741	3,756	8,397	12,142	14,637	9,735	6,685	7,387	4,560	5,480	2,916	3,219
20%	1,997	3,254	3,830	7,660	10,885	6,795	5,026	4,409	3,679	4,822	2,438	2,808
30%	1,639	2,599	2,285	5,538	7,067	5,020	4,431	3,523	3,146	3,854	1,953	2,438
40%	1,500	2,149	2,000	3,503	5,724	4,151	3,391	2,648	2,662	3,358	1,750	2,077
50%	1,500	1,925	2,000	1,750	2,905	2,971	2,486	1,899	2,219	2,836	1,750	1,670
60%	1,500	1,683	2,000	1,700	1,771	2,249	2,044	1,750	1,857	2,512	1,750	1,533
70%	1,500	1,559	1,730	1,700	1,445	1,750	1,747	1,632	1,750	1,989	1,634	1,515
80%	1,051	1,128	1,211	1,468	1,268	833	876	1,067	1,162	1,750	1,151	808
90%	800	800	800	950	945	800	800	800	800	886	800	800
Long Term												
Full Simulation Period[a]	1,679	2,500	3,676	5,045	5,836	4,233	3,338	3,035	2,687	3,018	1,812	1,926
Water Year Types[b,c]												
Wet (32%)	2,330	3,667	4,420	10,469	10,458	7,190	5,483	5,489	4,154	3,449	2,372	2,955
Above Normal (16%)	1,634	2,171	2,828	5,591	7,610	5,914	3,524	2,486	2,489	4,679	1,830	1,966
Below Normal (13%)	1,572	1,996	2,991	2,228	4,824	2,152	2,387	1,967	2,065	3,803	1,585	1,389
Dry (24%)	1,344	2,391	5,298	1,549	2,173	2,442	2,162	1,870	2,018	2,226	1,630	1,315
Critical (15%)	971	969	905	1,108	934	896	1,320	1,231	1,406	887	1,089	1,163

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,012	3,829	10,051	12,142	14,637	9,735	6,685	7,387	4,768	5,237	3,035	1,966
20%	1,638	3,232	3,912	7,854	10,777	6,780	5,026	4,409	3,990	4,474	2,588	1,712
30%	1,500	2,156	2,647	5,793	7,296	5,020	4,397	3,523	3,626	3,952	2,218	1,533
40%	1,500	1,925	2,000	3,502	5,724	4,149	3,276	2,944	3,227	2,961	1,811	1,533
50%	1,500	1,748	2,000	1,807	3,478	2,993	2,519	2,190	2,891	2,701	1,750	1,533
60%	1,500	1,549	1,807	1,700	2,595	1,984	2,124	1,792	2,471	2,518	1,750	1,533
70%	1,368	1,368	1,432	1,700	1,445	1,750	1,750	1,747	2,112	2,008	1,493	1,493
80%	1,055	1,055	1,169	1,286	1,149	973	1,380	1,386	1,619	1,750	942	800
90%	800	800	800	806	804	800	800	944	935	843	624	687
Long Term												
Full Simulation Period[a]	1,484	2,409	3,811	5,081	5,957	4,245	3,371	3,140	3,050	2,939	1,807	1,453
Water Year Types[b,c]												
Wet (32%)	1,878	3,711	5,085	10,505	10,588	7,189	5,481	5,492	4,448	3,240	2,494	1,624
Above Normal (16%)	1,402	1,708	2,597	5,634	7,955	6,069	3,504	2,578	3,315	4,760	1,952	1,607
Below Normal (13%)	1,277	1,641	2,768	2,399	5,167	2,169	2,426	2,191	2,983	3,543	1,680	1,427
Dry (24%)	1,437	2,473	5,272	1,521	2,123	2,392	2,198	2,038	2,147	2,219	1,424	1,319
Critical (15%)	985	942	889	1,124	871	878	1,479	1,361	1,303	963	917	1,163

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-729**	73	1,654	0	**0**	0	0	0	209	**-242**	119	**-1,253**
20%	**-360**	**-22**	82	195	**-108**	**-15**	0	0	310	**-348**	150	**-1,096**
30%	**-139**	**-443**	362	254	229	0	**-34**	**0**	480	98	265	**-905**
40%	0	**-224**	0	**-1**	**0**	**-2**	**-115**	297	565	**-397**	61	**-544**
50%	0	**-177**	0	57	573	22	33	292	671	**-136**	0	**-137**
60%	0	**-134**	**-193**	0	823	**-265**	80	42	614	6	0	0
70%	**-132**	**-191**	**-297**	0	0	0	3	114	362	19	**-141**	**-22**
80%	4	**-73**	**-42**	**-182**	**-118**	139	504	318	457	0	**-208**	**-8**
90%	0	0	0	**-144**	**-141**	0	0	144	135	**-43**	**-176**	**-113**
Long Term												
Full Simulation Period[a]	**-195**	**-91**	136	37	120	12	34	105	364	**-79**	**-4**	**-473**
Water Year Types[b,c]												
Wet (32%)	**-453**	43	665	36	130	**-1**	**-2**	3	294	**-209**	123	**-1,332**
Above Normal (16%)	**-232**	**-463**	**-231**	43	345	156	**-20**	92	826	81	122	**-359**
Below Normal (13%)	**-295**	**-355**	**-223**	171	343	17	38	224	919	**-260**	95	38
Dry (24%)	93	82	**-26**	**-28**	**-50**	**-50**	36	168	129	**-7**	**-205**	4
Critical (15%)	14	**-27**	**-16**	16	**-64**	**-18**	160	130	**-104**	76	**-173**	**0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 27-4. American River below Nimbus Dam Flow, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,741	3,756	8,397	12,142	14,637	9,735	6,685	7,387	4,560	5,480	2,916	3,219
20%	1,997	3,254	3,830	7,660	10,885	6,795	5,026	4,409	3,679	4,822	2,438	2,808
30%	1,639	2,599	2,285	5,538	7,067	5,020	4,431	3,523	3,146	3,854	1,953	2,438
40%	1,500	2,149	2,000	3,503	5,724	4,151	3,391	2,648	2,662	3,358	1,750	2,077
50%	1,500	1,925	2,000	1,750	2,905	2,971	2,486	1,899	2,219	2,836	1,750	1,670
60%	1,500	1,683	2,000	1,700	1,771	2,249	2,044	1,750	1,857	2,512	1,750	1,533
70%	1,500	1,559	1,730	1,700	1,445	1,750	1,747	1,632	1,750	1,989	1,634	1,515
80%	1,051	1,128	1,211	1,468	1,268	833	876	1,067	1,162	1,750	1,151	808
90%	800	800	800	950	945	800	800	800	800	886	800	800
Long Term												
Full Simulation Period[a]	1,679	2,500	3,676	5,045	5,836	4,233	3,338	3,035	2,687	3,018	1,812	1,926
Water Year Types[b,c]												
Wet (32%)	2,330	3,667	4,420	10,469	10,458	7,190	5,483	5,489	4,154	3,449	2,372	2,955
Above Normal (16%)	1,634	2,171	2,828	5,591	7,610	5,914	3,524	2,486	2,489	4,679	1,830	1,966
Below Normal (13%)	1,572	1,996	2,991	2,228	4,824	2,152	2,387	1,967	2,065	3,803	1,585	1,389
Dry (24%)	1,344	2,391	5,298	1,549	2,173	2,442	2,162	1,870	2,018	2,226	1,630	1,315
Critical (15%)	971	969	905	1,108	934	896	1,320	1,231	1,406	887	1,089	1,163

Alternative 4 043019

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,975	4,130	10,055	12,142	14,637	10,410	6,685	7,387	4,560	4,573	2,901	1,909
20%	1,676	3,252	5,026	7,854	10,946	6,789	5,239	5,500	3,258	4,021	2,011	1,750
30%	1,500	2,099	2,886	5,845	7,343	4,906	4,641	4,736	2,932	3,228	1,946	1,750
40%	1,500	2,000	2,000	3,793	5,741	4,122	3,650	3,059	2,557	2,823	1,750	1,750
50%	1,500	2,000	2,000	2,155	3,803	2,998	2,728	2,182	2,250	2,518	1,750	1,750
60%	1,500	1,883	2,000	1,603	2,710	1,991	1,954	1,638	1,913	2,387	1,750	1,750
70%	1,344	1,159	1,813	1,400	1,750	1,750	1,424	1,348	1,500	1,997	1,733	1,663
80%	749	730	857	1,400	1,400	1,411	962	1,057	1,028	1,750	1,513	1,513
90%	607	588	633	714	1,387	953	953	953	783	959	880	820
Long Term												
Full Simulation Period[a]	1,430	2,369	3,914	5,136	6,103	4,337	3,462	3,329	2,565	2,731	1,834	1,610
Water Year Types[b,c]												
Wet (32%)	1,846	3,752	5,129	10,627	10,569	7,190	5,620	5,807	4,116	3,038	2,358	1,837
Above Normal (16%)	1,548	2,123	2,936	5,880	7,958	6,116	3,591	3,006	2,256	4,104	1,929	1,749
Below Normal (13%)	1,299	1,677	3,070	2,290	5,552	2,323	2,674	2,268	2,042	3,165	1,929	1,628
Dry (24%)	1,112	2,060	5,343	1,575	2,226	2,519	2,239	2,095	1,781	2,092	1,547	1,532
Critical (15%)	1,048	785	736	979	1,386	1,108	1,408	1,342	1,324	1,245	987	1,082

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-767**	374	1,658	0	0	675	0	0	0	**-906**	**-15**	**-1,310**
20%	**-322**	**-2**	1,196	195	61	**-5**	213	1,091	**-422**	**-801**	**-427**	**-1,058**
30%	**-139**	**-500**	601	307	276	**-114**	210	1,214	**-214**	**-626**	**-7**	**-688**
40%	0	**-149**	0	290	17	**-30**	259	411	**-105**	**-535**	0	**-327**
50%	0	75	0	405	897	26	242	284	31	**-318**	0	80
60%	0	200	0	**-97**	938	**-258**	**-90**	**-112**	56	**-125**	0	217
70%	**-156**	**-400**	83	**-300**	305	0	**-323**	**-285**	**-250**	8	99	148
80%	**-302**	**-399**	**-354**	**-68**	132	578	86	**-10**	**-134**	0	363	705
90%	**-193**	**-212**	**-167**	**-236**	442	153	153	153	**-17**	74	80	20
Long Term												
Full Simulation Period[a]	**-249**	**-131**	239	92	267	105	124	295	**-122**	**-287**	23	**-316**
Water Year Types[b,c]												
Wet (32%)	**-484**	85	709	158	110	**0**	137	318	**-38**	**-411**	**-14**	**-1,118**
Above Normal (16%)	**-87**	**-48**	108	289	348	203	67	519	**-233**	**-576**	100	**-218**
Below Normal (13%)	**-273**	**-319**	79	62	728	170	287	301	**-23**	**-638**	344	239
Dry (24%)	**-232**	**-331**	45	26	53	78	77	226	**-237**	**-134**	**-83**	217
Critical (15%)	77	**-184**	**-169**	**-129**	452	211	88	111	**-83**	358	**-102**	**-81**

a Based on the 82-year simulation period.

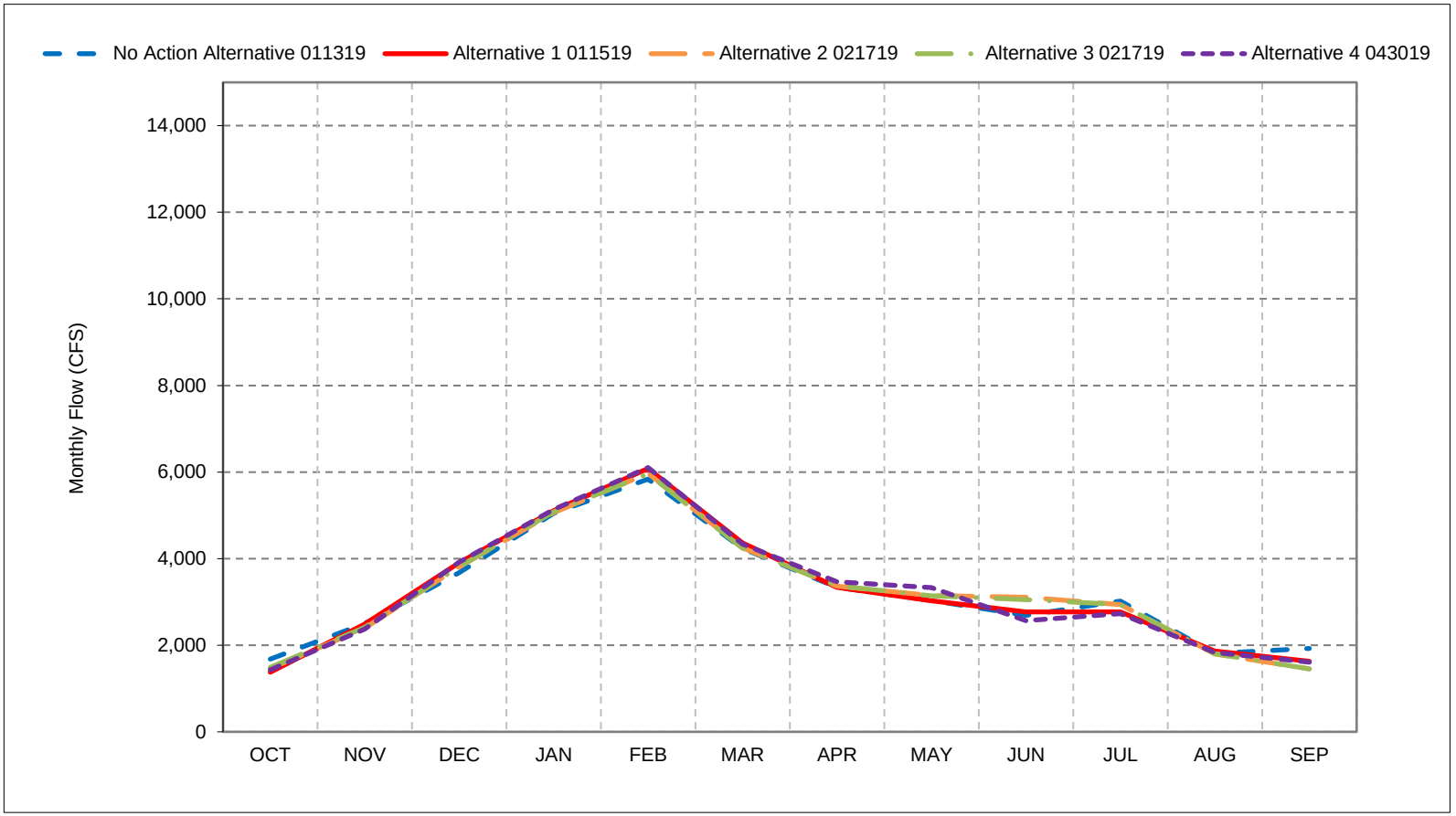
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 27-1. American River below Nimbus Dam Flow, Long-Term Average Flow



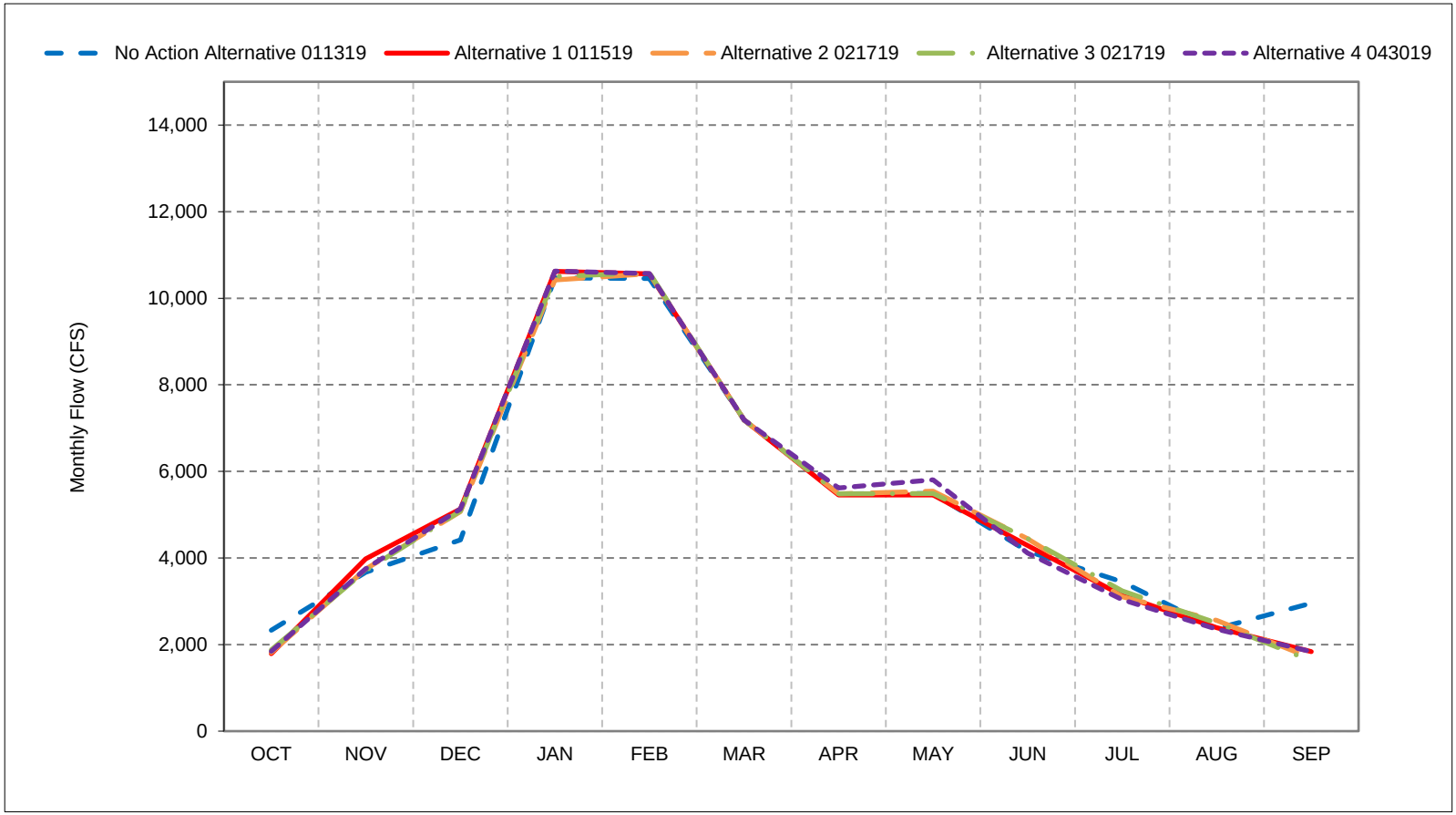
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

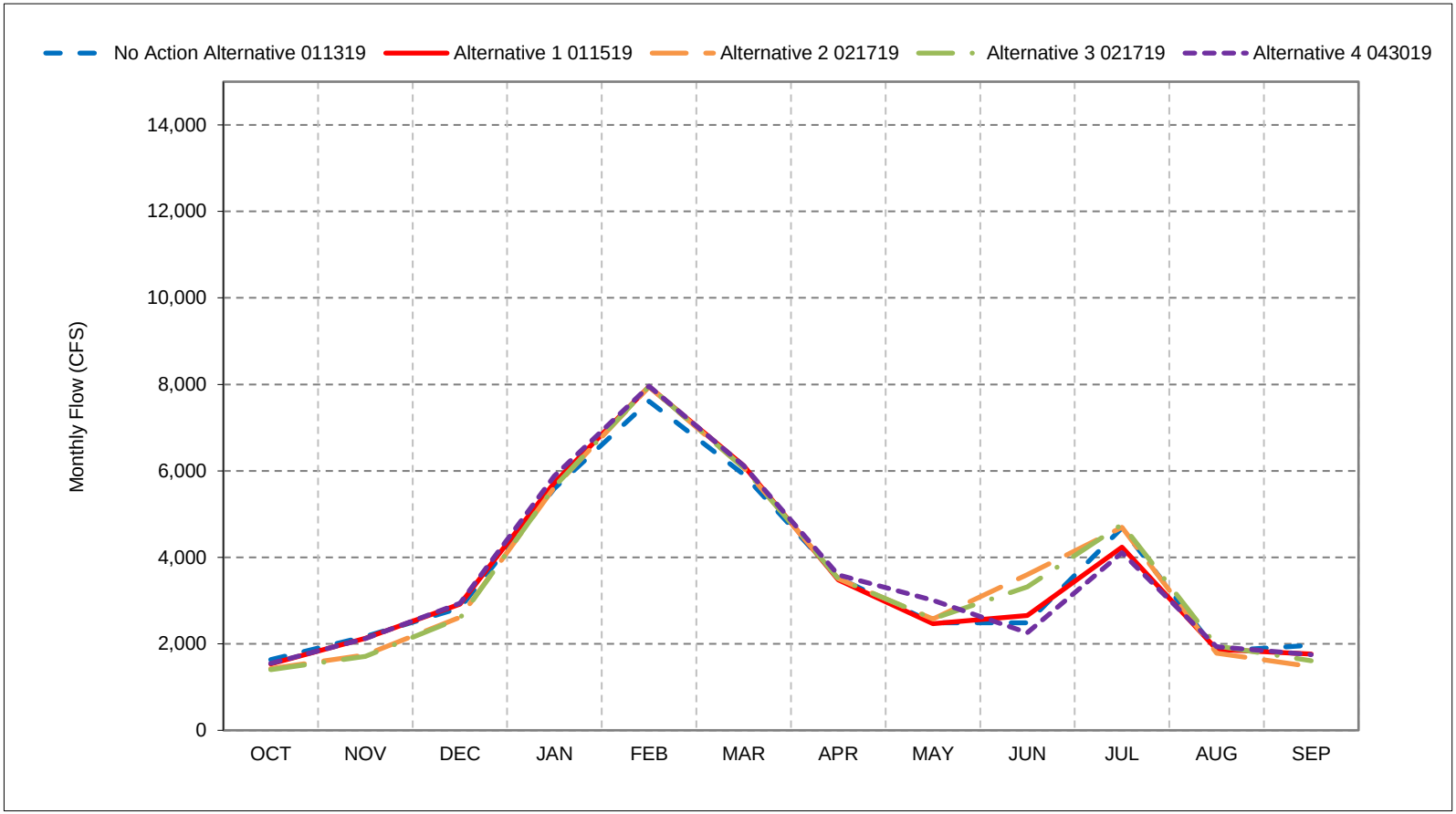
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 27-2. American River below Nimbus Dam Flow, Wet Year Average Flow



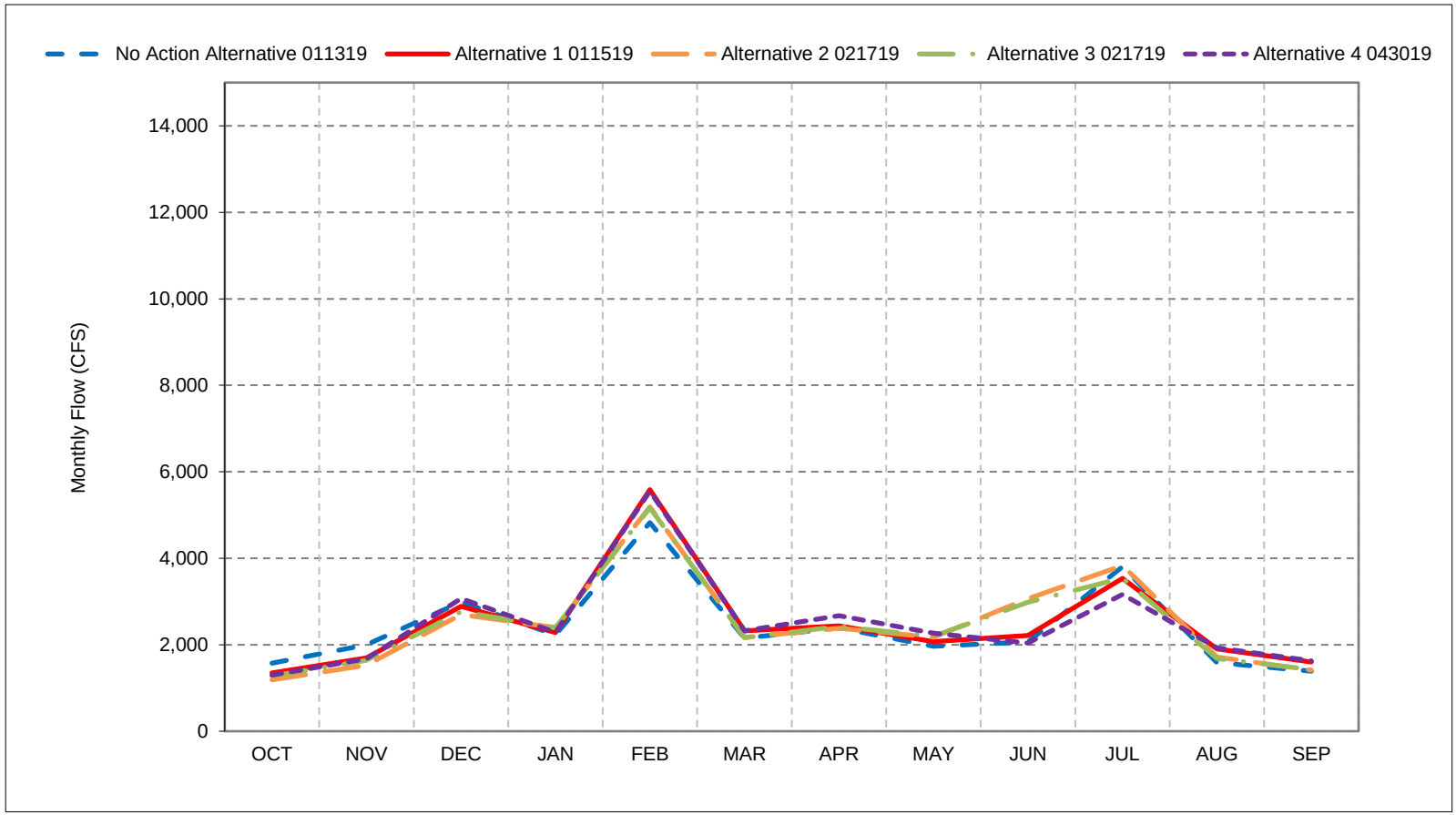
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 27-3. American River below Nimbus Dam Flow, Above Normal Year Average Flow



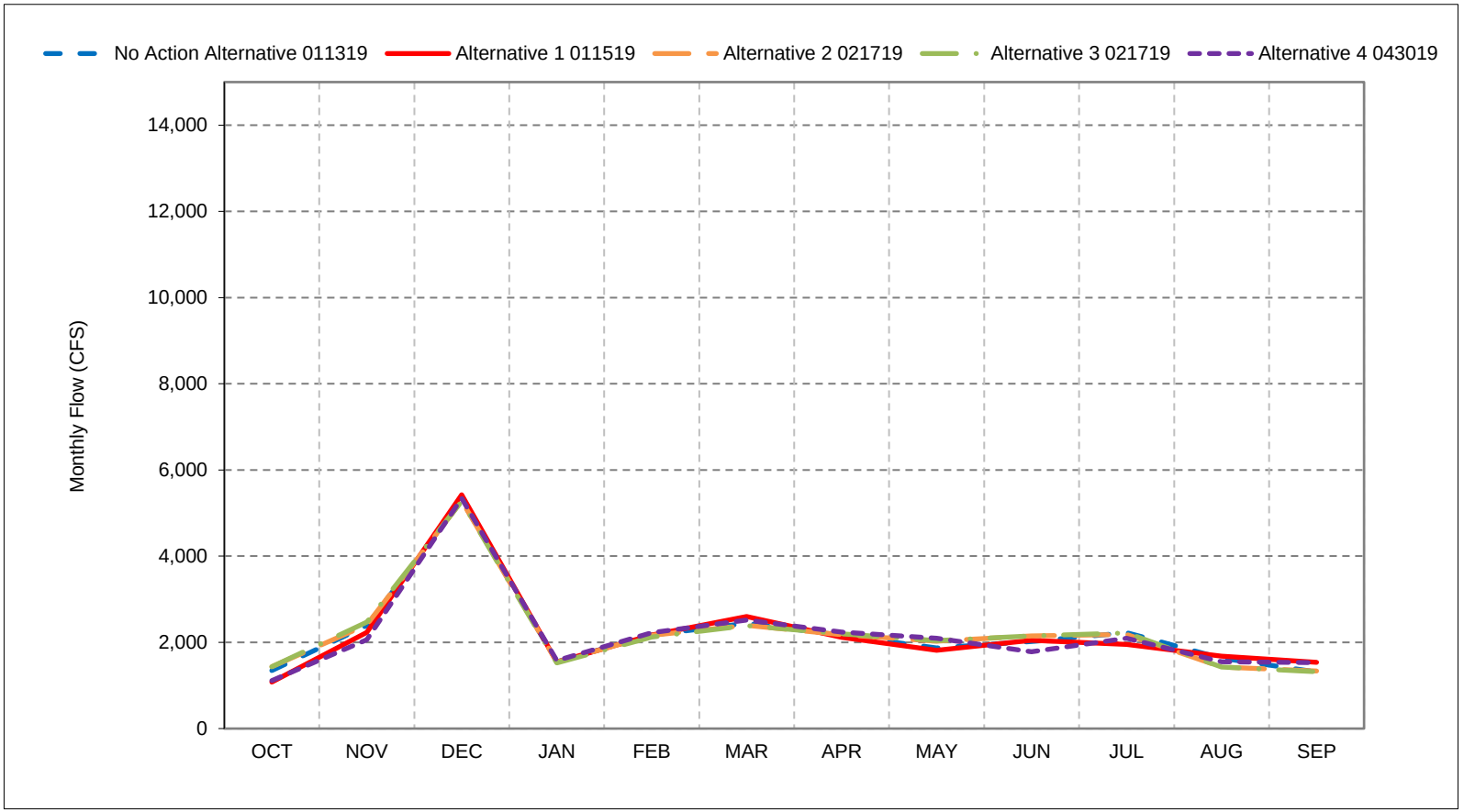
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 27-4. American River below Nimbus Dam Flow, Below Normal Year Average Flow



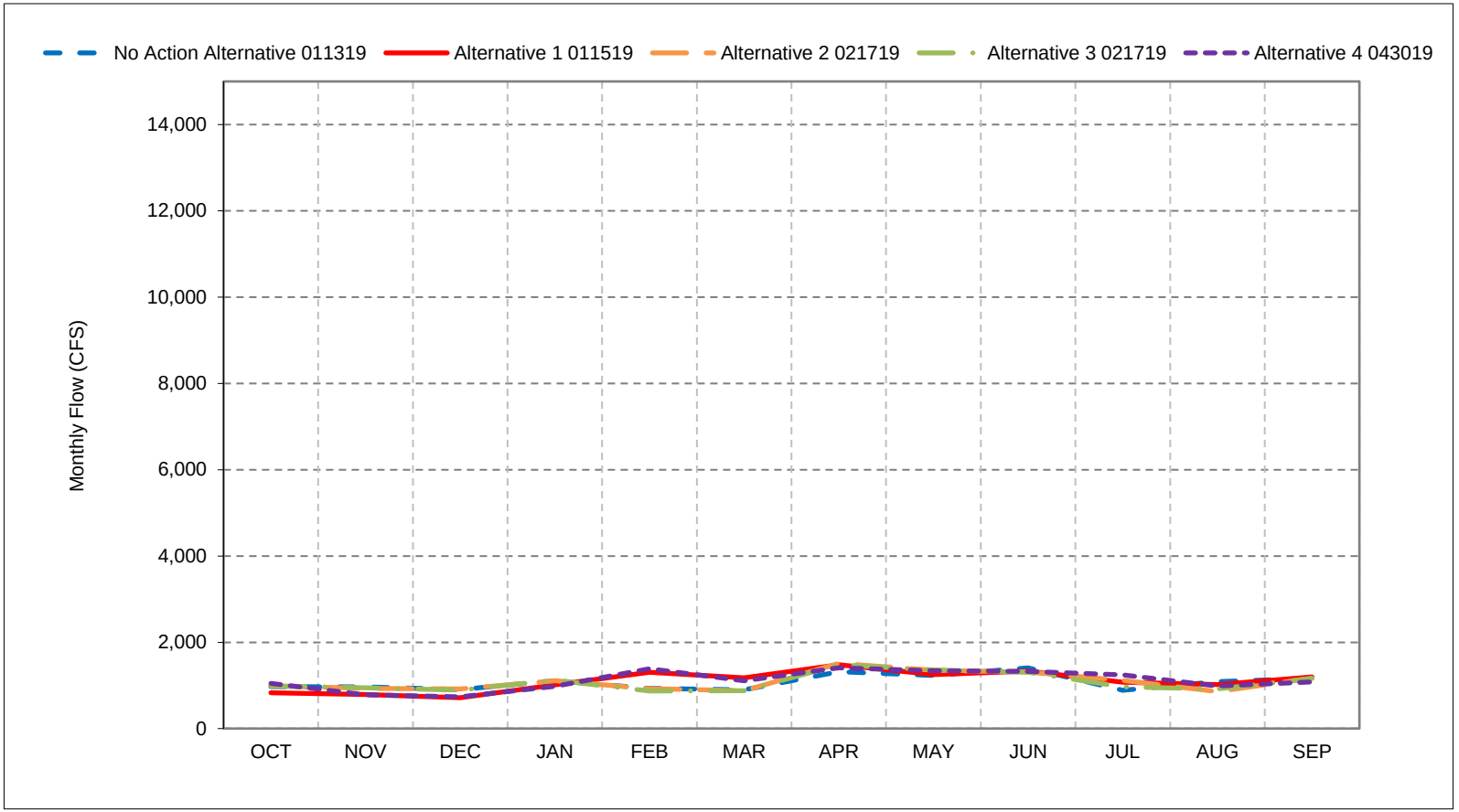
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 27-5. American River below Nimbus Dam Flow, Dry Year Average Flow



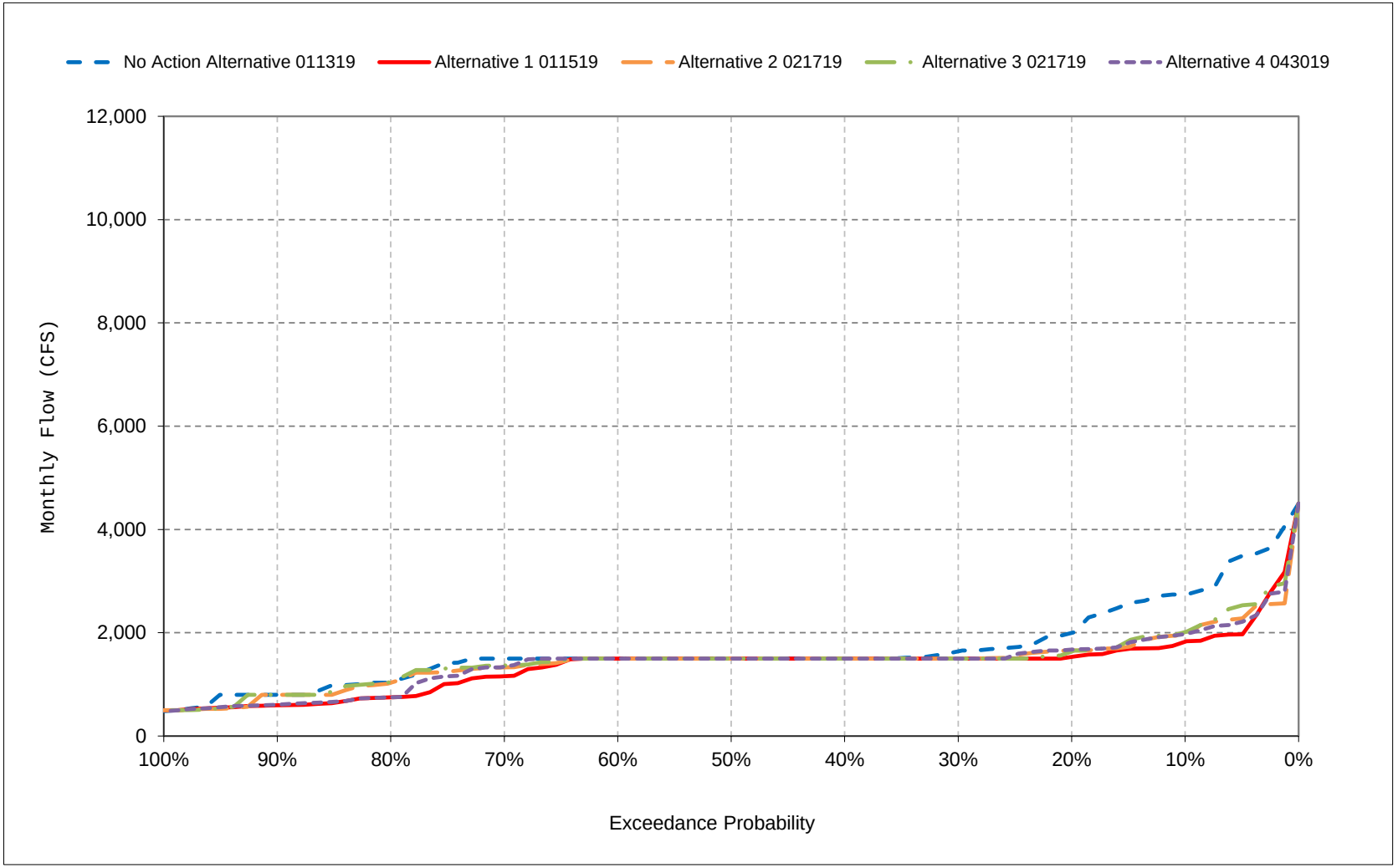
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 27-6. American River below Nimbus Dam Flow, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

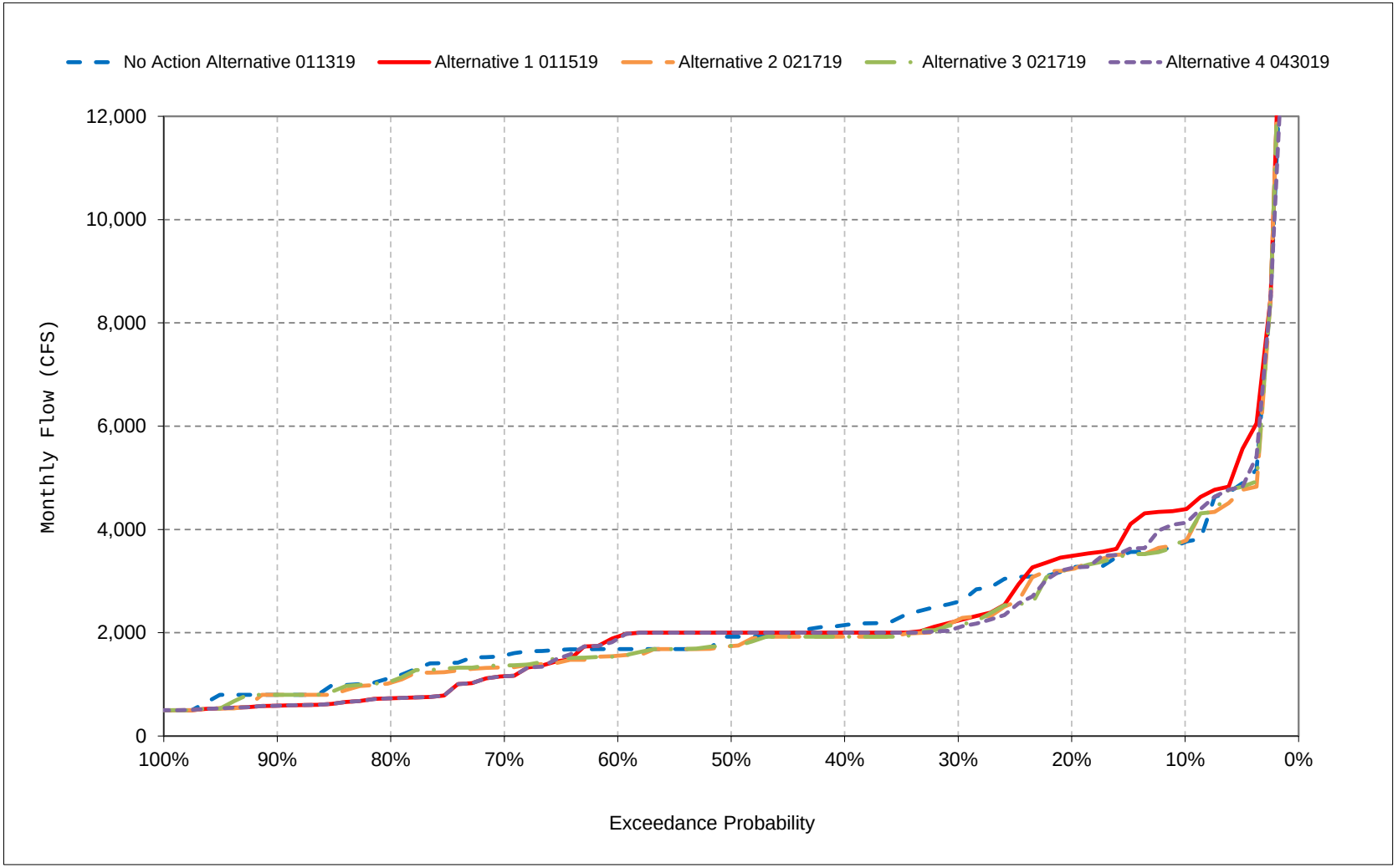
Figure 27-7. American River below Nimbus Dam Flow, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

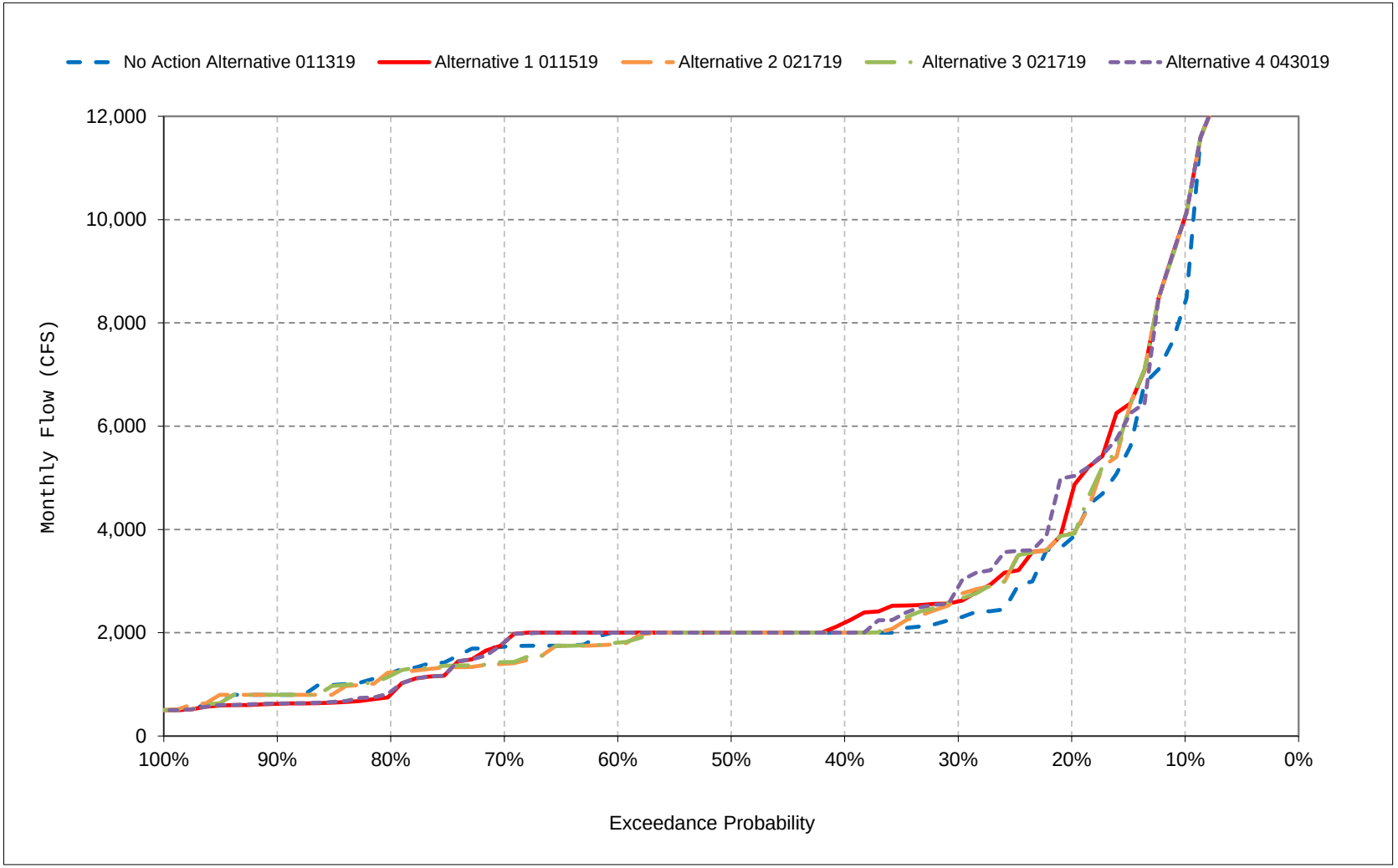
Figure 27-8. American River below Nimbus Dam Flow, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

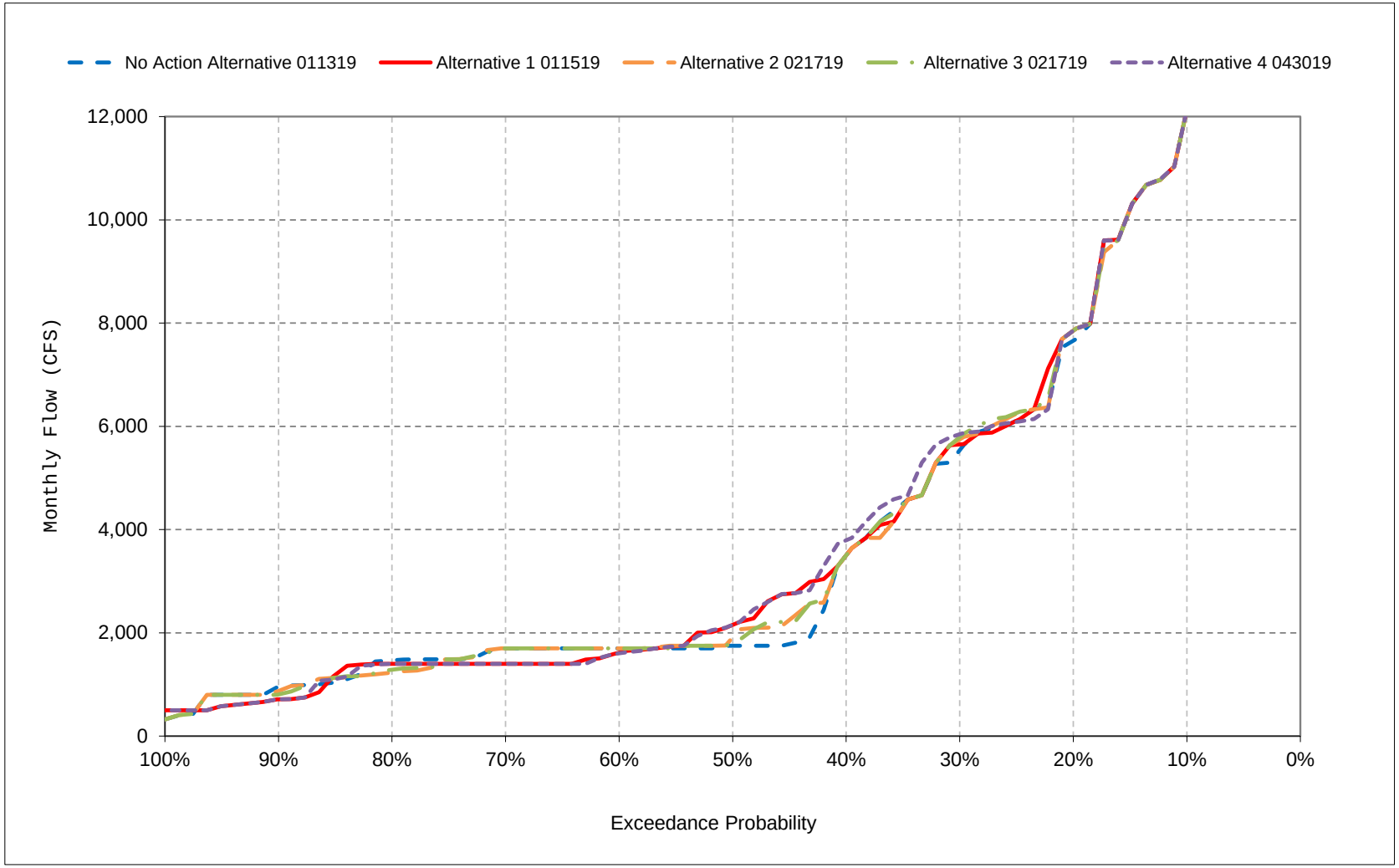
Figure 27-9. American River below Nimbus Dam Flow, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

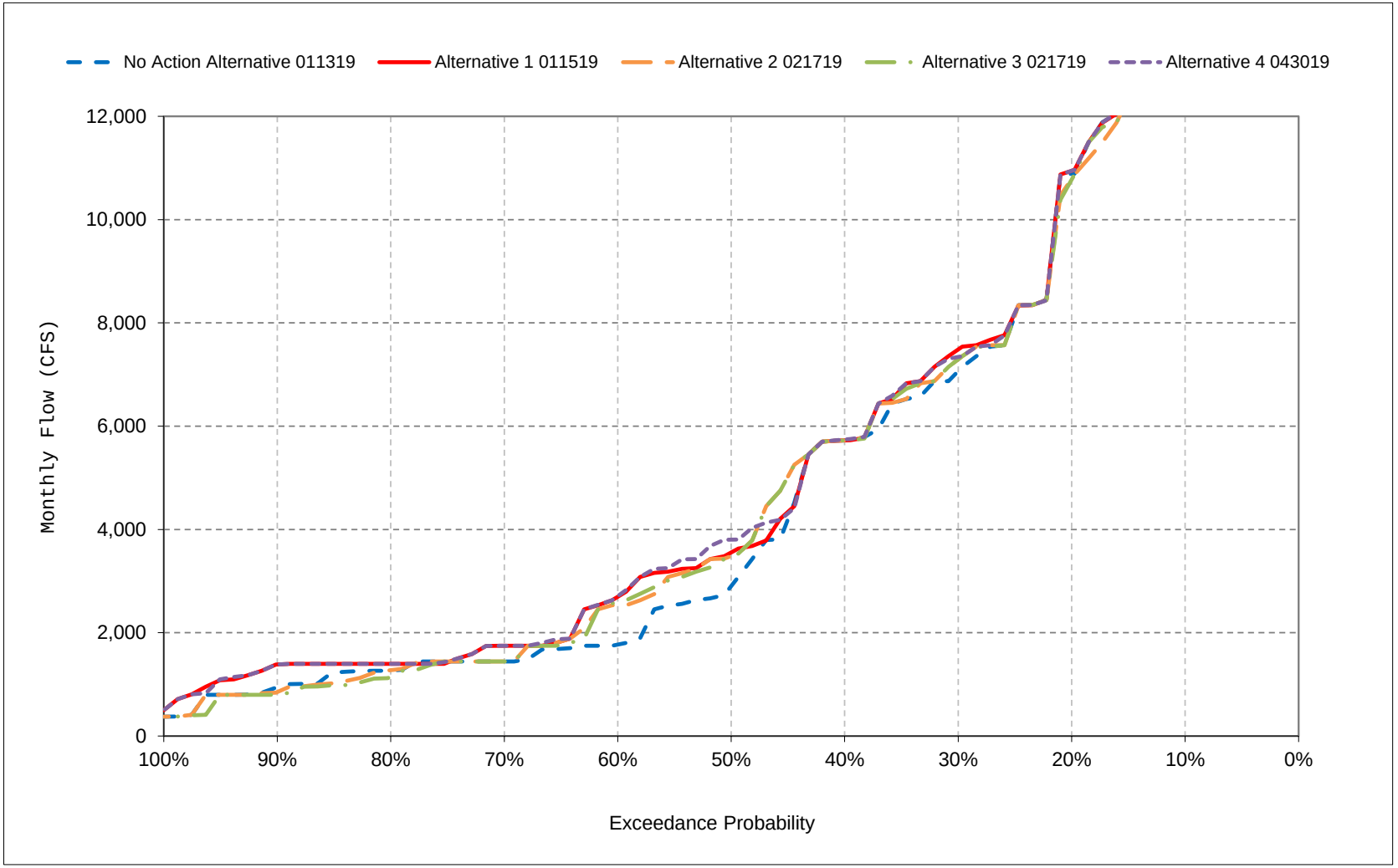
Figure 27-10. American River below Nimbus Dam Flow, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

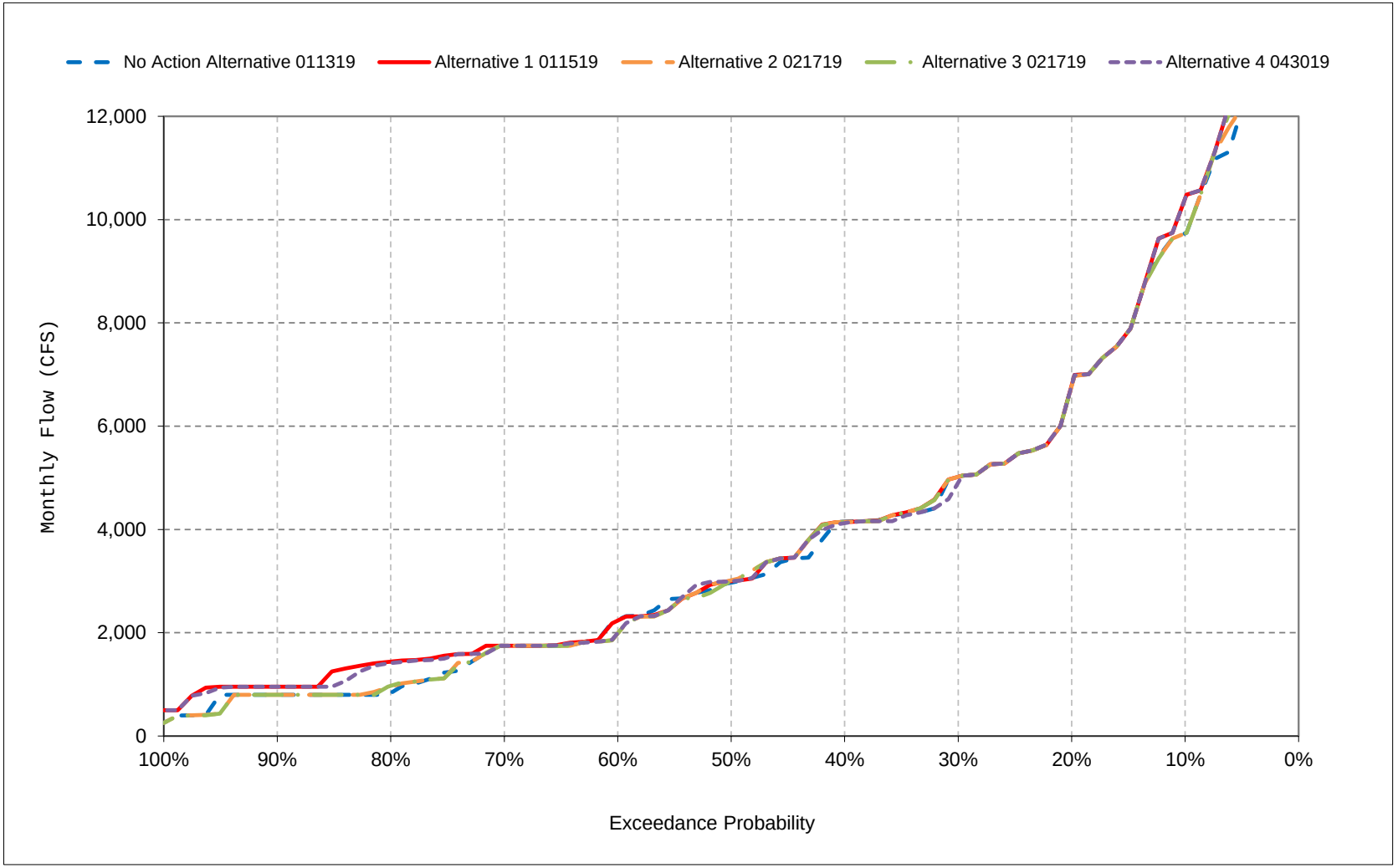
Figure 27-11. American River below Nimbus Dam Flow, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

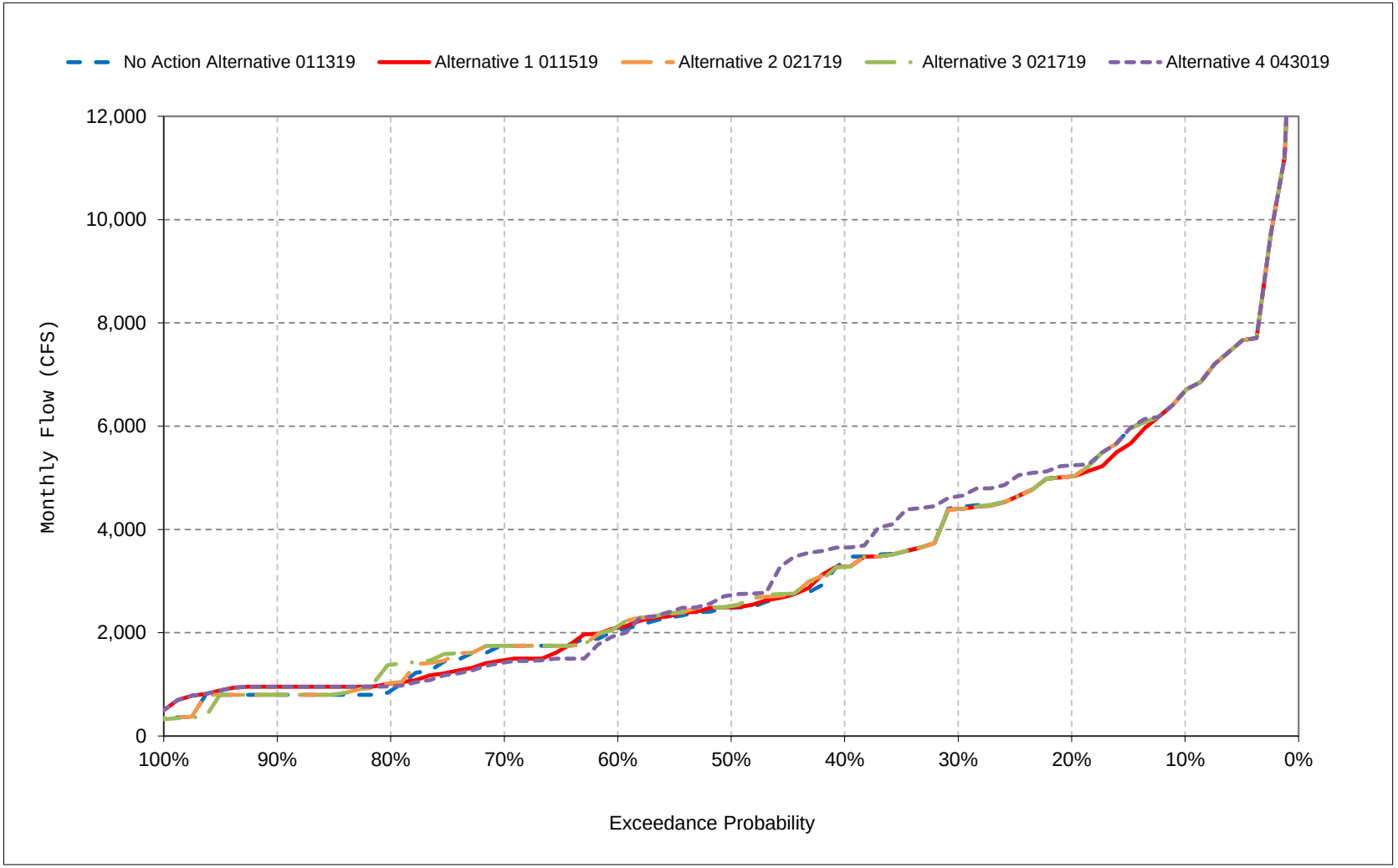
Figure 27-12. American River below Nimbus Dam Flow, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

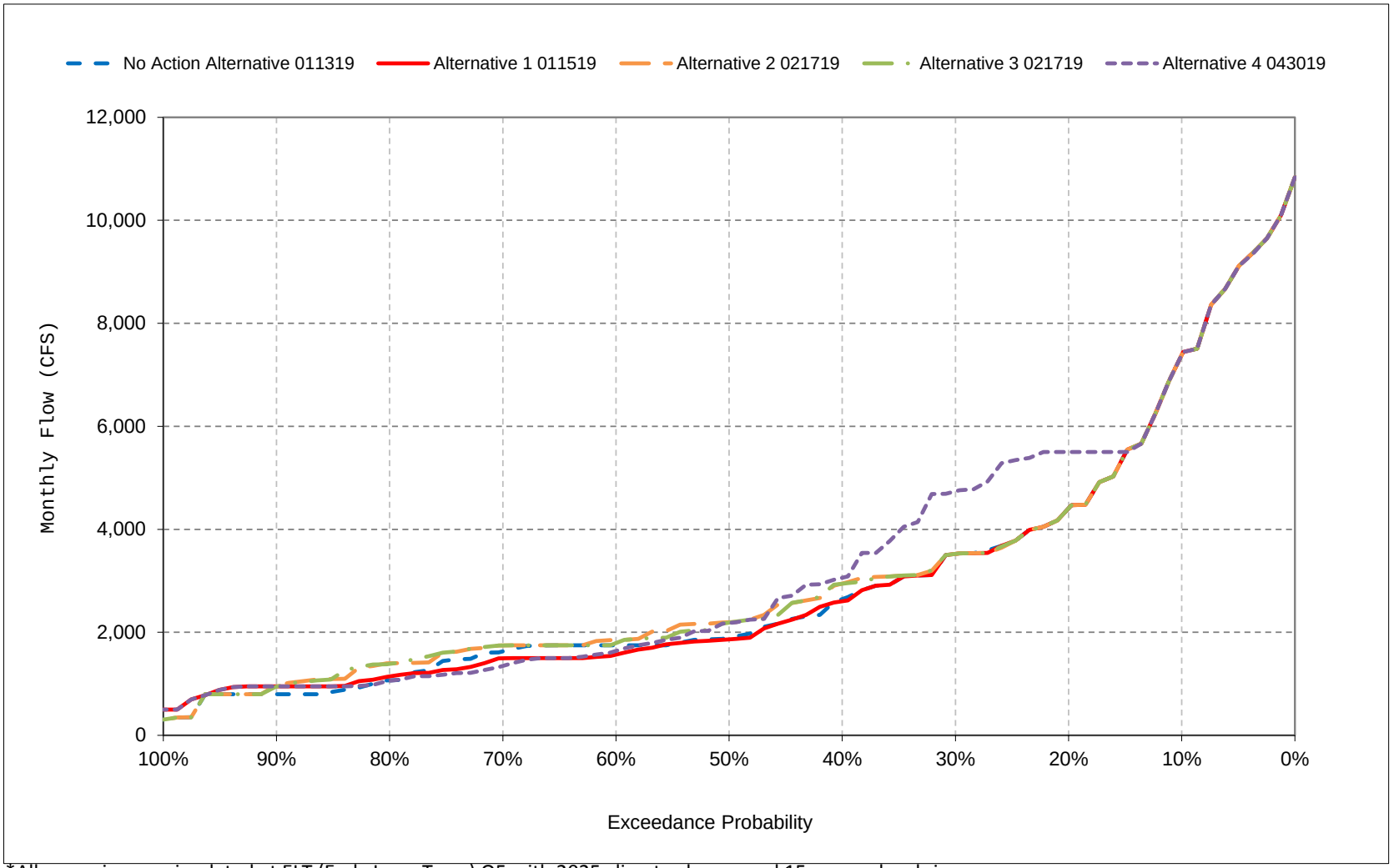
Figure 27-13. American River below Nimbus Dam Flow, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

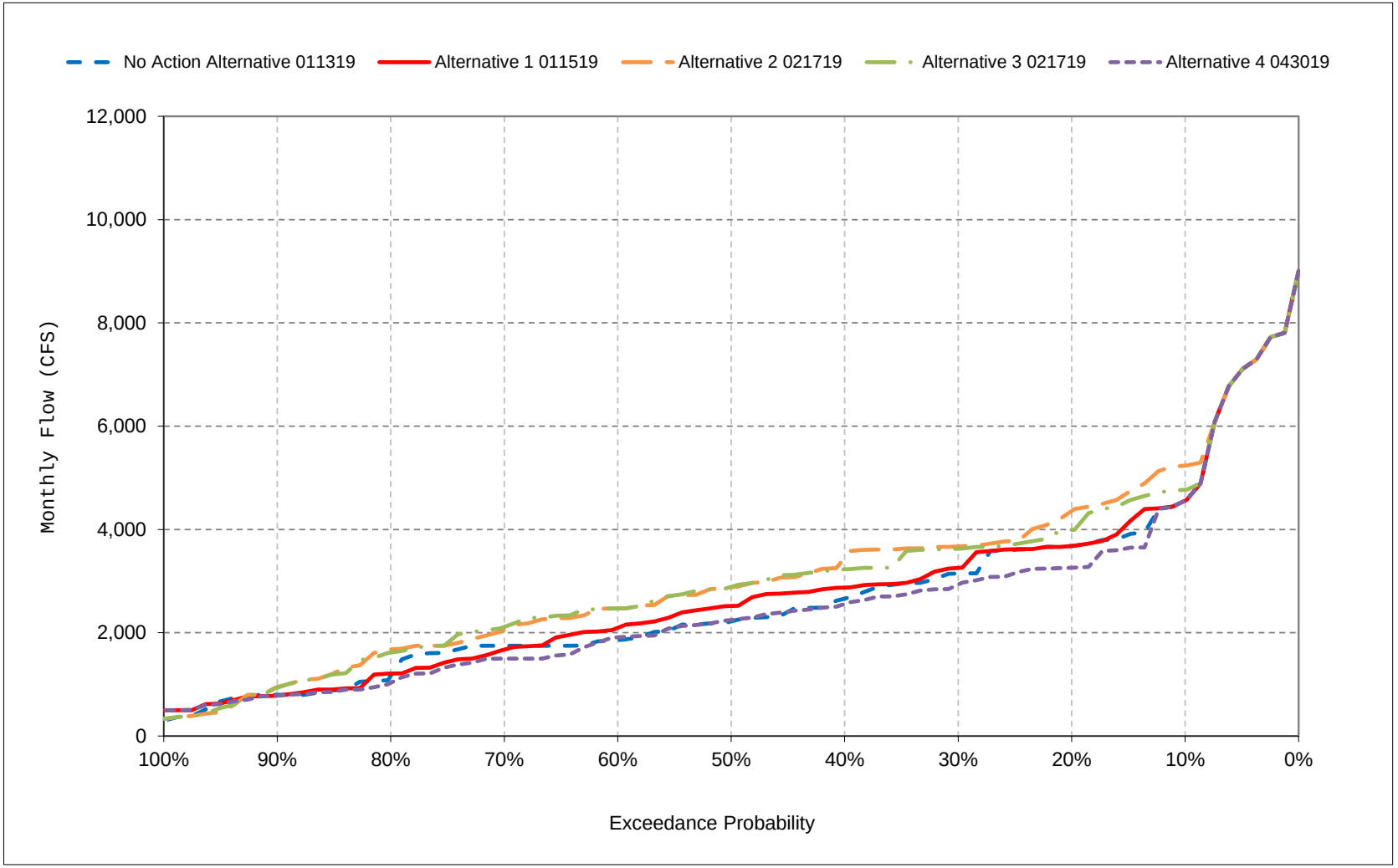
Figure 27-14. American River below Nimbus Dam Flow, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

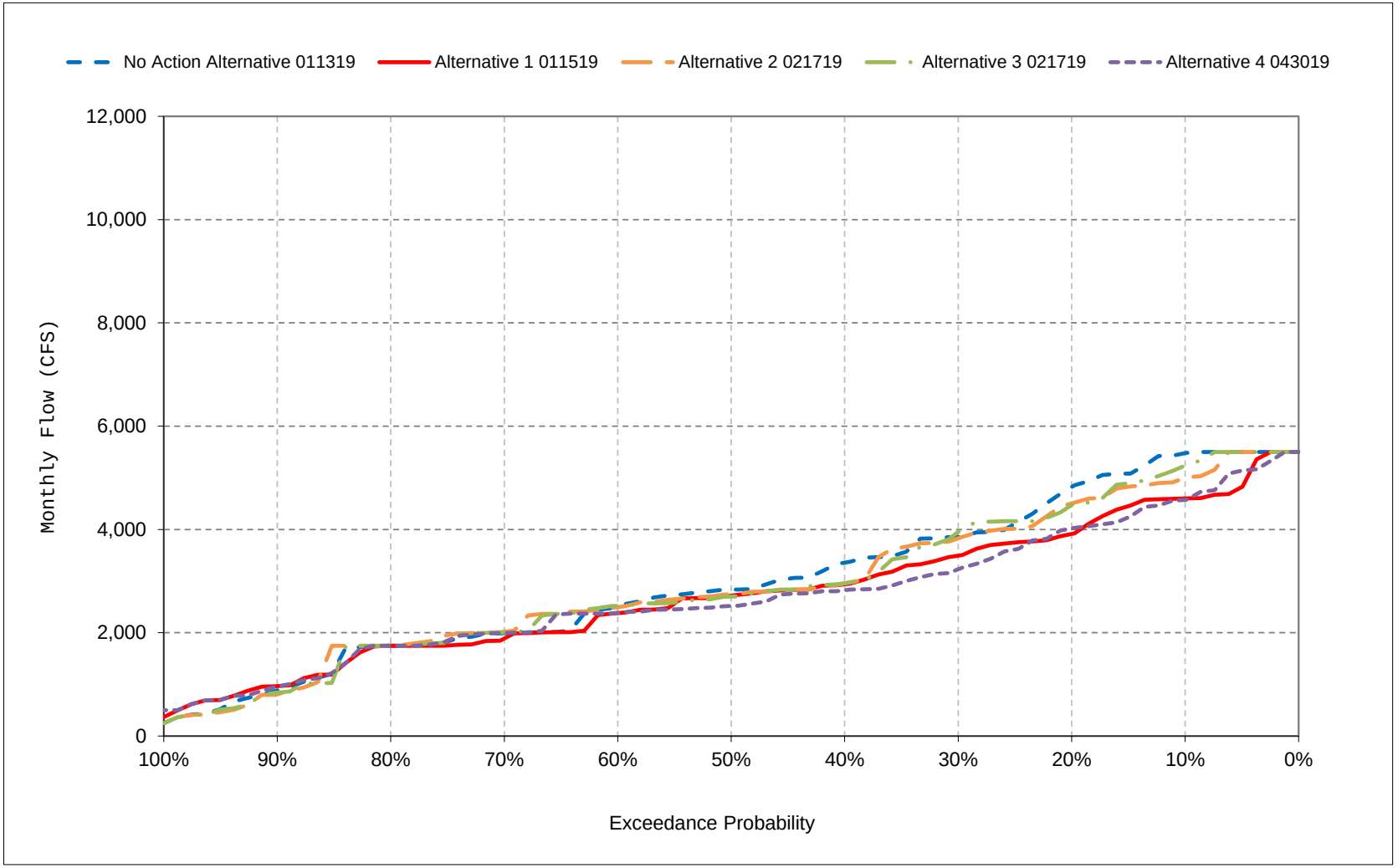
Figure 27-15. American River below Nimbus Dam Flow, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

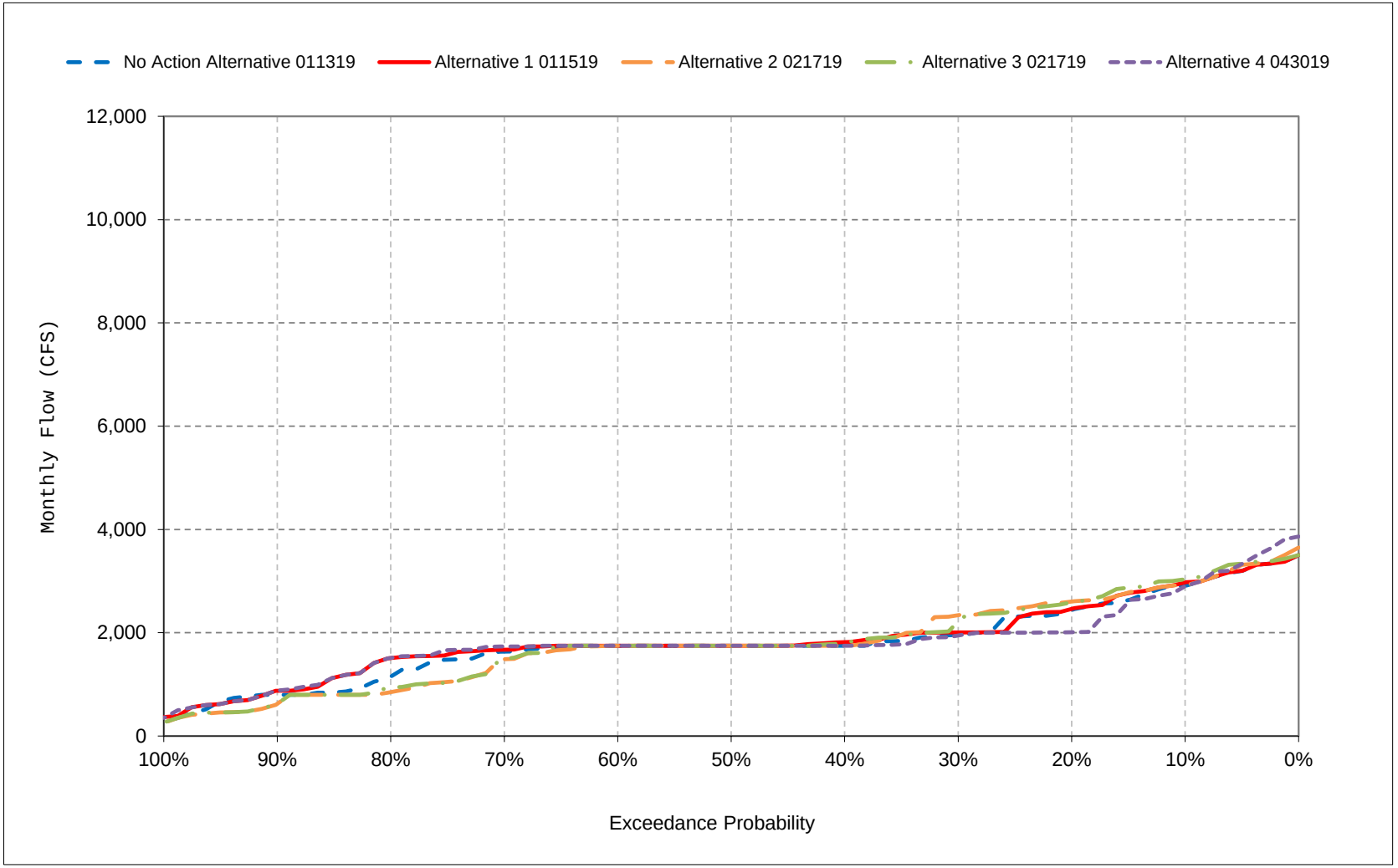
Figure 27-16. American River below Nimbus Dam Flow, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

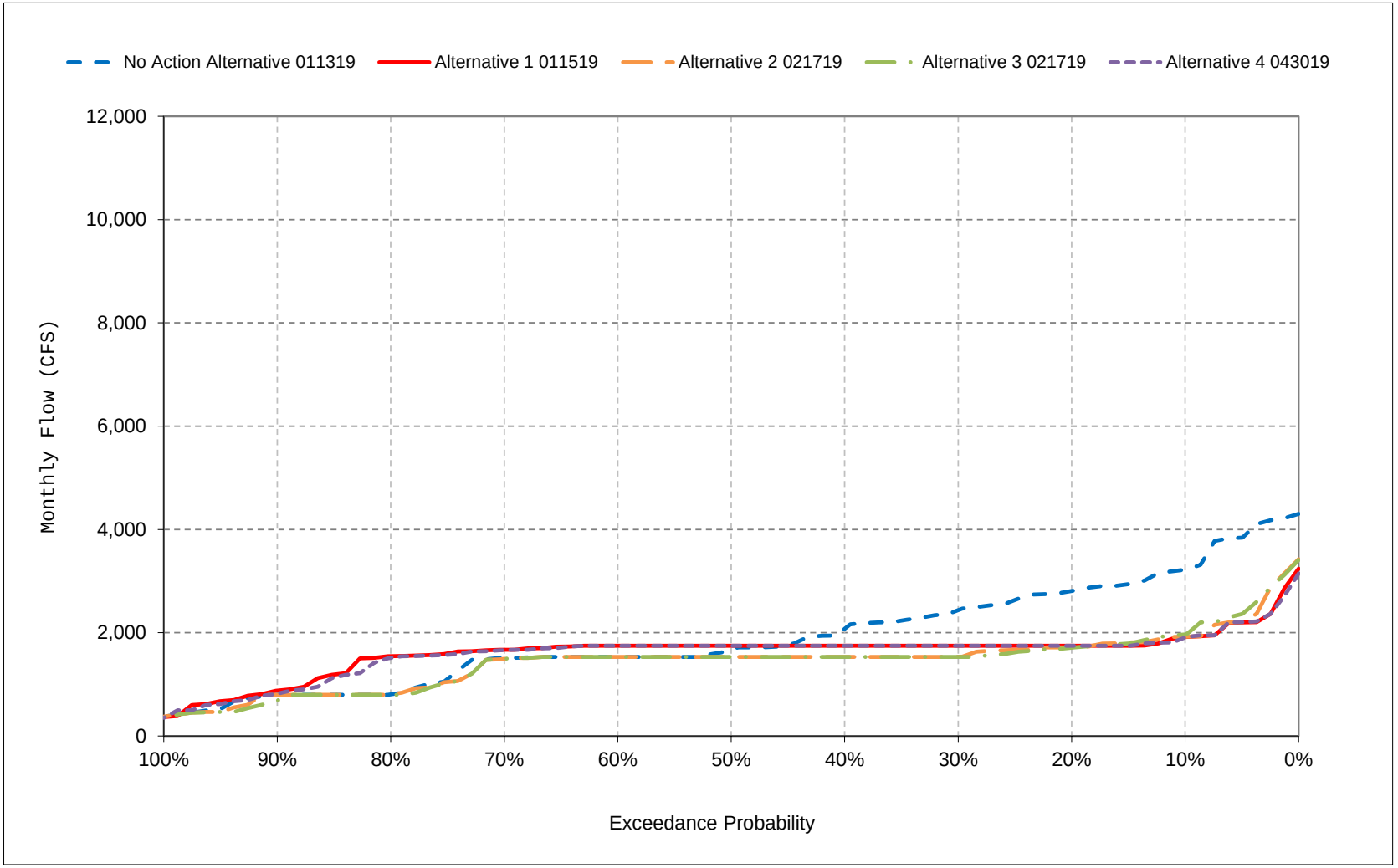
Figure 27-17. American River below Nimbus Dam Flow, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 27-18. American River below Nimbus Dam Flow, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 28-1. American River at H Street, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,436	3,529	8,214	11,989	14,510	9,475	6,247	6,818	3,852	4,842	2,337	2,753
20%	1,854	3,050	3,613	7,335	10,688	6,579	4,612	3,824	3,062	4,225	1,875	2,381
30%	1,474	2,341	2,077	5,318	6,812	4,827	3,948	3,000	2,892	3,243	1,693	2,026
40%	1,364	1,996	1,887	3,415	5,506	3,858	3,000	2,437	2,413	2,707	1,503	1,750
50%	1,343	1,763	1,859	1,598	2,664	2,821	2,275	1,697	1,970	2,173	1,486	1,463
60%	1,330	1,547	1,825	1,560	1,612	2,057	1,843	1,547	1,615	1,813	1,476	1,332
70%	1,316	1,476	1,579	1,514	1,323	1,573	1,527	1,439	1,502	1,748	1,393	1,316
80%	919	973	1,082	1,308	1,150	715	717	870	938	1,484	925	648
90%	650	687	707	822	783	622	619	612	565	630	551	599
Long Term												
Full Simulation Period[a]	1,499	2,341	3,538	4,886	5,643	4,033	3,057	2,732	2,328	2,531	1,474	1,637
Water Year Types[b,c]												
Wet (32%)	2,098	3,470	4,257	10,282	10,189	6,940	5,145	5,068	3,669	2,891	1,951	2,548
Above Normal (16%)	1,464	2,015	2,699	5,444	7,426	5,688	3,174	2,204	2,156	4,051	1,515	1,677
Below Normal (13%)	1,410	1,845	2,841	2,064	4,659	1,952	2,136	1,686	1,719	3,224	1,265	1,158
Dry (24%)	1,194	2,257	5,157	1,415	2,023	2,292	1,935	1,633	1,735	1,811	1,320	1,106
Critical (15%)	829	842	828	964	799	749	1,118	1,028	1,159	665	846	943

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,660	4,262	9,951	11,969	14,510	10,212	6,247	6,818	3,855	3,964	2,386	1,700
20%	1,414	3,281	4,509	7,617	10,744	6,579	4,613	3,831	3,062	3,270	1,883	1,554
30%	1,358	2,000	2,435	5,445	7,106	4,824	3,947	3,000	2,996	2,863	1,750	1,547
40%	1,343	1,875	1,982	3,412	5,494	3,888	3,000	2,395	2,619	2,321	1,550	1,547
50%	1,329	1,853	1,869	1,986	3,391	2,841	2,309	1,645	2,255	2,084	1,497	1,541
60%	1,324	1,778	1,846	1,443	2,437	2,035	1,897	1,376	1,851	1,750	1,484	1,538
70%	990	1,064	1,681	1,255	1,584	1,583	1,268	1,270	1,437	1,638	1,425	1,469
80%	612	620	655	1,238	1,273	1,333	840	965	971	1,478	1,254	1,345
90%	445	459	500	579	1,221	802	769	756	548	735	625	693
Long Term												
Full Simulation Period[a]	1,218	2,335	3,761	4,943	5,883	4,163	3,060	2,721	2,408	2,285	1,535	1,413
Water Year Types[b,c]												
Wet (32%)	1,620	3,789	4,952	10,425	10,296	6,938	5,115	5,036	3,777	2,572	1,982	1,600
Above Normal (16%)	1,378	1,990	2,793	5,578	7,752	5,885	3,147	2,181	2,323	3,603	1,561	1,562
Below Normal (13%)	1,190	1,552	2,740	2,113	5,408	2,115	2,181	1,789	1,896	2,918	1,556	1,409
Dry (24%)	925	2,106	5,278	1,402	2,021	2,450	1,889	1,581	1,762	1,575	1,385	1,328
Critical (15%)	689	654	641	870	1,168	1,020	1,272	1,043	1,079	842	770	994

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-776**	732	1,737	**-20**	**0**	737	**0**	0	3	**-878**	49	**-1,053**
20%	**-440**	231	896	282	56	0	1	7	0	**-955**	8	**-826**
30%	**-116**	**-341**	358	127	294	**-3**	**-1**	0	104	**-380**	57	**-479**
40%	**-22**	**-121**	95	**-3**	**-12**	30	0	**-42**	206	**-386**	47	**-203**
50%	**-14**	90	10	388	727	20	34	**-53**	284	**-89**	11	78
60%	**-5**	231	21	**-117**	826	**-22**	54	**-171**	236	**-63**	8	206
70%	**-326**	**-412**	103	**-260**	262	10	**-259**	**-169**	**-65**	**-110**	32	153
80%	**-307**	**-353**	**-427**	**-69**	123	617	123	96	33	**-5**	329	697
90%	**-205**	**-227**	**-207**	**-243**	438	180	150	144	**-17**	105	74	94
Long Term												
Full Simulation Period[a]	**-281**	**-6**	224	56	240	131	4	**-11**	80	**-245**	61	**-224**
Water Year Types[b,c]												
Wet (32%)	**-478**	320	695	143	107	**-2**	**-30**	**-33**	108	**-319**	31	**-948**
Above Normal (16%)	**-86**	**-25**	94	134	326	197	**-28**	**-23**	168	**-449**	46	**-115**
Below Normal (13%)	**-220**	**-293**	**-102**	49	749	163	45	102	177	**-307**	291	251
Dry (24%)	**-268**	**-151**	121	**-13**	**-1**	158	**-46**	**-53**	27	**-236**	64	221
Critical (15%)	**-140**	**-188**	**-187**	**-93**	369	271	154	15	**-80**	177	**-77**	51

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 28-2. American River at H Street, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,436	3,529	8,214	11,989	14,510	9,475	6,247	6,818	3,852	4,842	2,337	2,753
20%	1,854	3,050	3,613	7,335	10,688	6,579	4,612	3,824	3,062	4,225	1,875	2,381
30%	1,474	2,341	2,077	5,318	6,812	4,827	3,948	3,000	2,892	3,243	1,693	2,026
40%	1,364	1,996	1,887	3,415	5,506	3,858	3,000	2,437	2,413	2,707	1,503	1,750
50%	1,343	1,763	1,859	1,598	2,664	2,821	2,275	1,697	1,970	2,173	1,486	1,463
60%	1,330	1,547	1,825	1,560	1,612	2,057	1,843	1,547	1,615	1,813	1,476	1,332
70%	1,316	1,476	1,579	1,514	1,323	1,573	1,527	1,439	1,502	1,748	1,393	1,316
80%	919	973	1,082	1,308	1,150	715	717	870	938	1,484	925	648
90%	650	687	707	822	783	622	619	612	565	630	551	599
Long Term												
Full Simulation Period[a]	1,499	2,341	3,538	4,886	5,643	4,033	3,057	2,732	2,328	2,531	1,474	1,637
Water Year Types[b,c]												
Wet (32%)	2,098	3,470	4,257	10,282	10,189	6,940	5,145	5,068	3,669	2,891	1,951	2,548
Above Normal (16%)	1,464	2,015	2,699	5,444	7,426	5,688	3,174	2,204	2,156	4,051	1,515	1,677
Below Normal (13%)	1,410	1,845	2,841	2,064	4,659	1,952	2,136	1,686	1,719	3,224	1,265	1,158
Dry (24%)	1,194	2,257	5,157	1,415	2,023	2,292	1,935	1,633	1,735	1,811	1,320	1,106
Critical (15%)	829	842	828	964	799	749	1,118	1,028	1,159	665	846	943

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,771	3,653	9,947	11,969	14,510	9,476	6,247	6,818	4,614	4,353	2,355	1,713
20%	1,501	3,016	3,774	7,618	10,521	6,579	4,613	3,824	3,646	3,885	2,034	1,520
30%	1,365	2,050	2,473	5,492	6,812	4,827	3,947	3,000	3,034	3,201	1,751	1,369
40%	1,350	1,788	1,882	3,416	5,507	3,874	3,000	2,724	3,000	2,321	1,507	1,334
50%	1,334	1,627	1,853	1,783	3,301	2,858	2,344	1,999	2,615	2,107	1,491	1,330
60%	1,329	1,452	1,632	1,576	2,292	1,795	1,917	1,644	2,222	1,802	1,479	1,325
70%	1,203	1,221	1,290	1,517	1,328	1,574	1,535	1,524	1,786	1,750	1,226	1,292
80%	873	930	1,123	1,102	1,162	777	847	1,202	1,436	1,506	594	648
90%	642	653	701	729	767	631	627	771	710	576	392	602
Long Term												
Full Simulation Period[a]	1,294	2,241	3,668	4,896	5,771	4,044	3,086	2,847	2,702	2,428	1,444	1,239
Water Year Types[b,c]												
Wet (32%)	1,632	3,558	4,899	10,235	10,297	6,938	5,143	5,122	3,917	2,546	2,068	1,457
Above Normal (16%)	1,272	1,608	2,488	5,473	7,749	5,842	3,173	2,294	3,121	4,056	1,470	1,277
Below Normal (13%)	1,046	1,385	2,564	2,229	5,009	1,965	2,129	1,894	2,647	3,207	1,337	1,197
Dry (24%)	1,271	2,270	5,139	1,405	2,010	2,244	1,949	1,791	1,865	1,745	1,170	1,129
Critical (15%)	851	806	838	966	789	731	1,309	1,148	1,060	832	619	950

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-665**	124	1,733	**-20**	**0**	0	**0**	0	762	**-489**	18	**-1,040**
20%	**-353**	**-34**	161	283	**-167**	0	1	0	584	**-340**	159	**-861**
30%	**-108**	**-291**	396	174	0	1	**-1**	0	142	**-42**	58	**-656**
40%	**-14**	**-207**	**-4**	1	1	16	0	287	587	**-386**	4	**-416**
50%	**-9**	**-136**	**-6**	186	637	36	69	301	645	**-66**	5	**-133**
60%	**-1**	**-96**	**-193**	16	681	**-262**	74	97	607	**-11**	3	**-7**
70%	**-113**	**-255**	**-289**	2	6	0	9	85	283	2	**-167**	**-24**
80%	**-46**	**-44**	41	**-206**	12	62	130	332	498	22	**-330**	0
90%	**-8**	**-34**	**-6**	**-93**	**-16**	9	8	159	146	**-54**	**-159**	2
Long Term												
Full Simulation Period[a]	**-205**	**-100**	130	10	128	11	29	115	374	**-103**	**-30**	**-398**
Water Year Types[b,c]												
Wet (32%)	**-466**	88	642	**-47**	108	**-2**	**-2**	53	248	**-345**	117	**-1,091**
Above Normal (16%)	**-192**	**-407**	**-211**	28	323	153	**-2**	90	965	4	**-45**	**-401**
Below Normal (13%)	**-364**	**-459**	**-277**	165	350	13	**-7**	208	928	**-17**	73	39
Dry (24%)	78	14	**-17**	**-10**	**-13**	**-48**	14	158	131	**-66**	**-150**	23
Critical (15%)	21	**-36**	11	2	**-10**	**-18**	191	120	**-99**	166	**-227**	7

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 28-3. American River at H Street, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,436	3,529	8,214	11,989	14,510	9,475	6,247	6,818	3,852	4,842	2,337	2,753
20%	1,854	3,050	3,613	7,335	10,688	6,579	4,612	3,824	3,062	4,225	1,875	2,381
30%	1,474	2,341	2,077	5,318	6,812	4,827	3,948	3,000	2,892	3,243	1,693	2,026
40%	1,364	1,996	1,887	3,415	5,506	3,858	3,000	2,437	2,413	2,707	1,503	1,750
50%	1,343	1,763	1,859	1,598	2,664	2,821	2,275	1,697	1,970	2,173	1,486	1,463
60%	1,330	1,547	1,825	1,560	1,612	2,057	1,843	1,547	1,615	1,813	1,476	1,332
70%	1,316	1,476	1,579	1,514	1,323	1,573	1,527	1,439	1,502	1,748	1,393	1,316
80%	919	973	1,082	1,308	1,150	715	717	870	938	1,484	925	648
90%	650	687	707	822	783	622	619	612	565	630	551	599
Long Term												
Full Simulation Period[a]	1,499	2,341	3,538	4,886	5,643	4,033	3,057	2,732	2,328	2,531	1,474	1,637
Water Year Types[b,c]												
Wet (32%)	2,098	3,470	4,257	10,282	10,189	6,940	5,145	5,068	3,669	2,891	1,951	2,548
Above Normal (16%)	1,464	2,015	2,699	5,444	7,426	5,688	3,174	2,204	2,156	4,051	1,515	1,677
Below Normal (13%)	1,410	1,845	2,841	2,064	4,659	1,952	2,136	1,686	1,719	3,224	1,265	1,158
Dry (24%)	1,194	2,257	5,157	1,415	2,023	2,292	1,935	1,633	1,735	1,811	1,320	1,106
Critical (15%)	829	842	828	964	799	749	1,118	1,028	1,159	665	846	943

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,870	3,702	9,954	11,969	14,510	9,476	6,247	6,818	4,133	4,626	2,438	1,750
20%	1,489	3,011	3,761	7,618	10,504	6,579	4,613	3,824	3,402	3,836	2,004	1,498
30%	1,360	2,000	2,421	5,492	6,812	4,827	3,947	3,000	3,000	3,307	1,750	1,348
40%	1,342	1,789	1,879	3,418	5,491	3,878	3,000	2,719	2,973	2,323	1,564	1,334
50%	1,331	1,621	1,847	1,693	3,252	2,842	2,344	1,974	2,645	2,052	1,499	1,330
60%	1,328	1,470	1,664	1,569	2,389	1,795	1,917	1,607	2,215	1,866	1,476	1,324
70%	1,219	1,249	1,333	1,514	1,315	1,570	1,535	1,532	1,872	1,750	1,232	1,292
80%	907	958	1,058	1,155	1,010	794	1,212	1,191	1,378	1,501	698	622
90%	647	647	682	704	713	631	626	752	698	609	394	494
Long Term												
Full Simulation Period[a]	1,321	2,258	3,670	4,919	5,760	4,042	3,093	2,837	2,664	2,433	1,460	1,234
Water Year Types[b,c]												
Wet (32%)	1,689	3,527	4,908	10,315	10,318	6,938	5,143	5,071	3,936	2,680	2,039	1,393
Above Normal (16%)	1,246	1,575	2,472	5,484	7,759	5,837	3,173	2,296	2,895	4,125	1,610	1,388
Below Normal (13%)	1,135	1,500	2,628	2,222	4,988	1,966	2,174	1,910	2,566	2,916	1,305	1,215
Dry (24%)	1,279	2,337	5,129	1,386	1,973	2,240	1,972	1,801	1,881	1,781	1,163	1,112
Critical (15%)	843	815	812	979	735	732	1,278	1,157	1,051	712	679	945

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-565**	172	1,741	**-20**	**0**	0	**0**	0	282	**-216**	101	**-1,003**
20%	**-365**	**-39**	148	283	**-185**	0	1	0	341	**-390**	130	**-882**
30%	**-114**	**-341**	344	173	0	1	**-1**	0	108	64	57	**-677**
40%	**-22**	**-207**	**-8**	2	**-15**	21	0	283	560	**-384**	61	**-416**
50%	**-12**	**-142**	**-12**	95	588	20	69	277	675	**-121**	13	**-133**
60%	**-2**	**-77**	**-161**	9	778	**-262**	74	60	601	53	0	**-8**
70%	**-98**	**-226**	**-246**	0	**-7**	**-4**	9	93	369	2	**-161**	**-24**
80%	**-12**	**-15**	**-24**	**-153**	**-140**	78	495	321	440	17	**-227**	**-26**
90%	**-3**	**-40**	**-25**	**-119**	**-69**	9	6	140	134	**-21**	**-157**	**-106**
Long Term												
Full Simulation Period[a]	**-178**	**-82**	133	33	117	10	37	105	336	**-97**	**-14**	**-403**
Water Year Types[b,c]												
Wet (32%)	**-409**	57	651	32	129	**-2**	**-2**	3	268	**-212**	88	**-1,154**
Above Normal (16%)	**-218**	**-440**	**-227**	40	334	149	**-1**	92	739	74	95	**-290**
Below Normal (13%)	**-276**	**-344**	**-213**	158	329	13	38	224	847	**-308**	41	57
Dry (24%)	86	81	**-27**	**-29**	**-50**	**-52**	37	167	147	**-29**	**-157**	6
Critical (15%)	14	**-27**	**-16**	15	**-64**	**-17**	160	129	**-108**	46	**-167**	2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 28-4. American River at H Street, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,436	3,529	8,214	11,989	14,510	9,475	6,247	6,818	3,852	4,842	2,337	2,753
20%	1,854	3,050	3,613	7,335	10,688	6,579	4,612	3,824	3,062	4,225	1,875	2,381
30%	1,474	2,341	2,077	5,318	6,812	4,827	3,948	3,000	2,892	3,243	1,693	2,026
40%	1,364	1,996	1,887	3,415	5,506	3,858	3,000	2,437	2,413	2,707	1,503	1,750
50%	1,343	1,763	1,859	1,598	2,664	2,821	2,275	1,697	1,970	2,173	1,486	1,463
60%	1,330	1,547	1,825	1,560	1,612	2,057	1,843	1,547	1,615	1,813	1,476	1,332
70%	1,316	1,476	1,579	1,514	1,323	1,573	1,527	1,439	1,502	1,748	1,393	1,316
80%	919	973	1,082	1,308	1,150	715	717	870	938	1,484	925	648
90%	650	687	707	822	783	622	619	612	565	630	551	599
Long Term												
Full Simulation Period[a]	1,499	2,341	3,538	4,886	5,643	4,033	3,057	2,732	2,328	2,531	1,474	1,637
Water Year Types[b,c]												
Wet (32%)	2,098	3,470	4,257	10,282	10,189	6,940	5,145	5,068	3,669	2,891	1,951	2,548
Above Normal (16%)	1,464	2,015	2,699	5,444	7,426	5,688	3,174	2,204	2,156	4,051	1,515	1,677
Below Normal (13%)	1,410	1,845	2,841	2,064	4,659	1,952	2,136	1,686	1,719	3,224	1,265	1,158
Dry (24%)	1,194	2,257	5,157	1,415	2,023	2,292	1,935	1,633	1,735	1,811	1,320	1,106
Critical (15%)	829	842	828	964	799	749	1,118	1,028	1,159	665	846	943

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,818	3,909	9,951	11,969	14,510	10,212	6,247	6,818	3,852	3,964	2,327	1,693
20%	1,498	2,985	4,876	7,617	10,744	6,579	4,904	4,980	3,000	3,399	1,750	1,554
30%	1,366	1,979	2,683	5,589	7,103	4,672	4,204	4,215	2,658	2,590	1,693	1,547
40%	1,353	1,875	1,904	3,743	5,502	3,849	3,201	2,837	2,290	2,178	1,507	1,546
50%	1,336	1,850	1,867	1,989	3,655	2,869	2,522	1,965	1,975	1,919	1,499	1,545
60%	1,327	1,746	1,842	1,444	2,450	1,805	1,761	1,462	1,636	1,758	1,488	1,536
70%	1,198	1,064	1,681	1,252	1,581	1,573	1,225	1,139	1,239	1,733	1,475	1,467
80%	612	620	752	1,220	1,273	1,264	813	861	790	1,491	1,257	1,343
90%	460	454	504	579	1,221	788	756	756	547	723	647	638
Long Term												
Full Simulation Period[a]	1,267	2,220	3,774	4,973	5,905	4,134	3,167	3,002	2,238	2,234	1,527	1,396
Water Year Types[b,c]												
Wet (32%)	1,665	3,566	4,954	10,431	10,298	6,938	5,259	5,361	3,657	2,466	1,979	1,599
Above Normal (16%)	1,391	1,988	2,807	5,729	7,760	5,884	3,239	2,672	1,972	3,506	1,619	1,548
Below Normal (13%)	1,147	1,543	2,924	2,119	5,374	2,116	2,410	1,984	1,761	2,619	1,618	1,433
Dry (24%)	959	1,937	5,202	1,437	2,076	2,369	1,995	1,827	1,513	1,661	1,287	1,324
Critical (15%)	897	650	661	836	1,247	954	1,201	1,136	1,097	953	762	880

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-617**	379	1,737	**-20**	**0**	737	**0**	0	0	**-878**	**-10**	**-1,060**
20%	**-356**	**-65**	1,263	282	56	0	292	1,156	**-62**	**-826**	**-125**	**-826**
30%	**-108**	**-362**	606	271	291	**-154**	256	1,215	**-234**	**-653**	**0**	**-479**
40%	**-12**	**-121**	18	328	**-4**	**-9**	201	400	**-124**	**-529**	4	**-204**
50%	**-7**	87	8	391	991	48	246	267	5	**-254**	14	81
60%	**-3**	199	17	**-116**	838	**-252**	**-82**	**-85**	21	**-55**	13	204
70%	**-118**	**-412**	103	**-262**	258	0	**-302**	**-300**	**-263**	**-15**	82	151
80%	**-307**	**-353**	**-330**	**-87**	123	549	97	**-9**	**-148**	7	333	695
90%	**-191**	**-233**	**-203**	**-243**	438	165	137	144	**-18**	93	96	38
Long Term												
Full Simulation Period[a]	**-232**	**-120**	236	86	262	101	110	270	**-90**	**-297**	52	**-241**
Water Year Types[b,c]												
Wet (32%)	**-434**	96	697	149	109	**-1**	114	293	**-12**	**-425**	28	**-949**
Above Normal (16%)	**-73**	**-27**	108	284	334	196	65	468	**-184**	**-546**	104	**-130**
Below Normal (13%)	**-263**	**-301**	83	55	716	164	274	298	42	**-605**	353	275
Dry (24%)	**-235**	**-320**	45	22	53	77	60	194	**-221**	**-150**	**-33**	218
Critical (15%)	68	**-192**	**-166**	**-127**	448	205	83	108	**-62**	288	**-84**	**-63**

a Based on the 82-year simulation period.

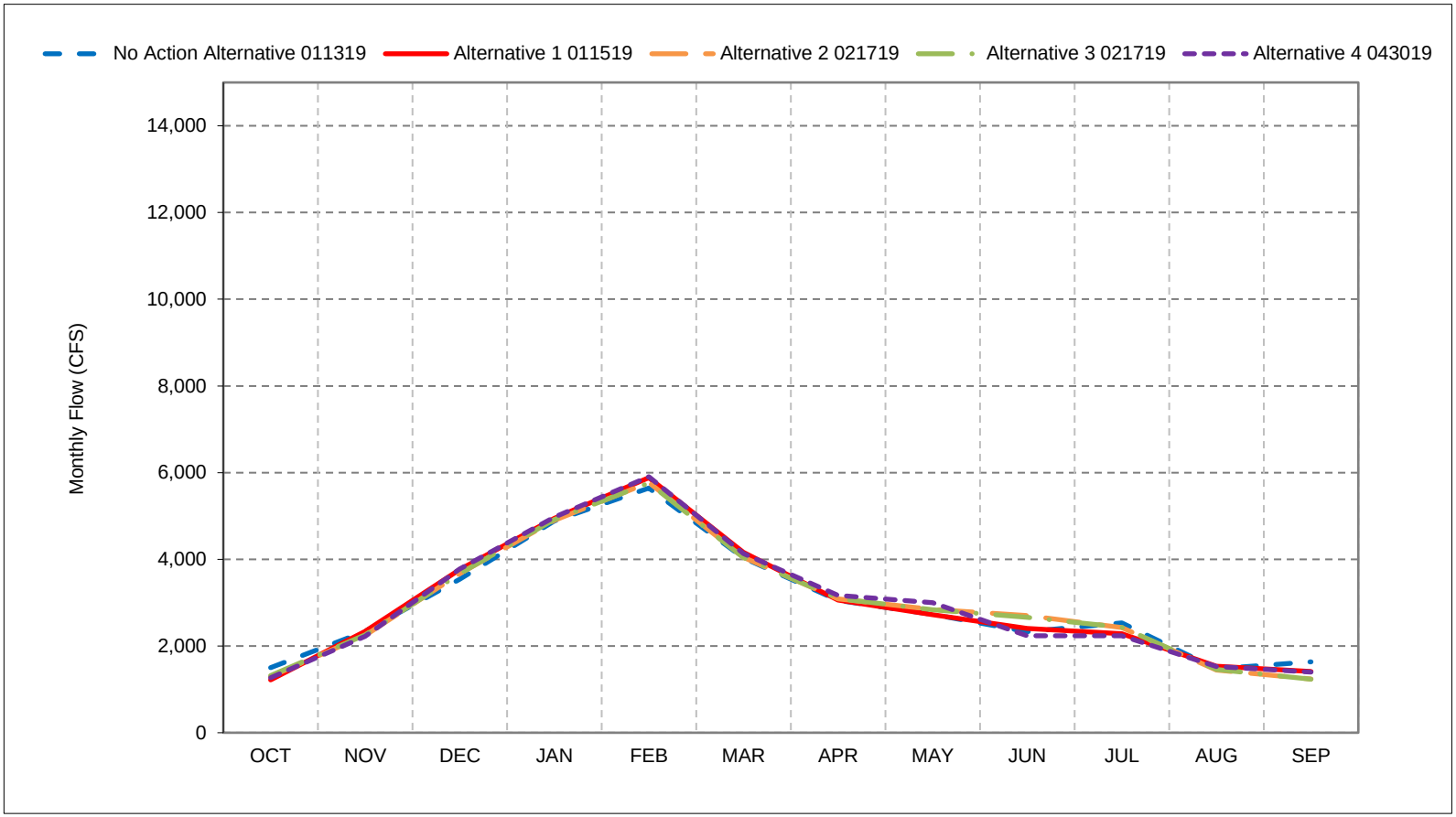
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

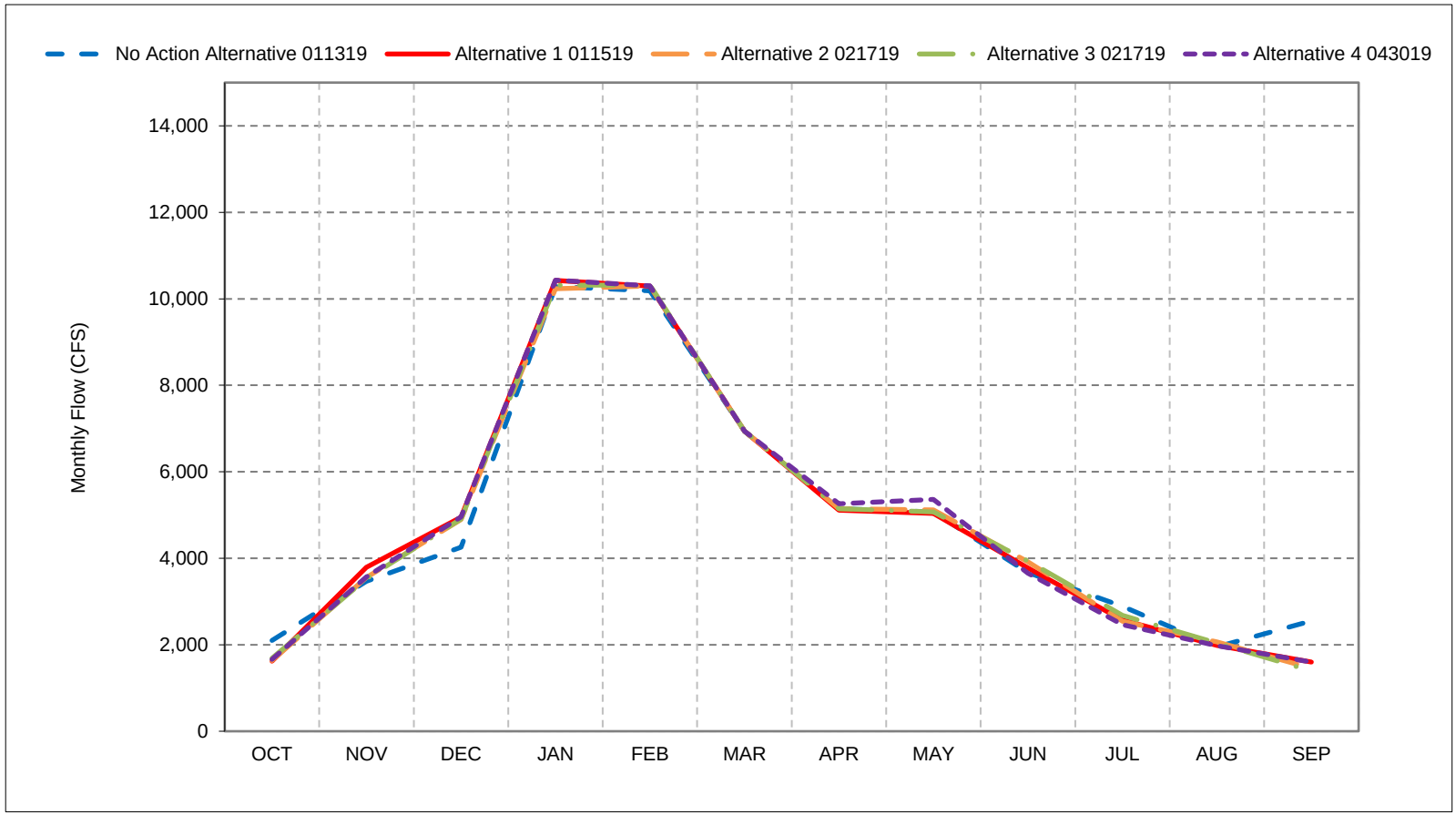
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 28-1. American River at H Street, Long-Term Average Flow



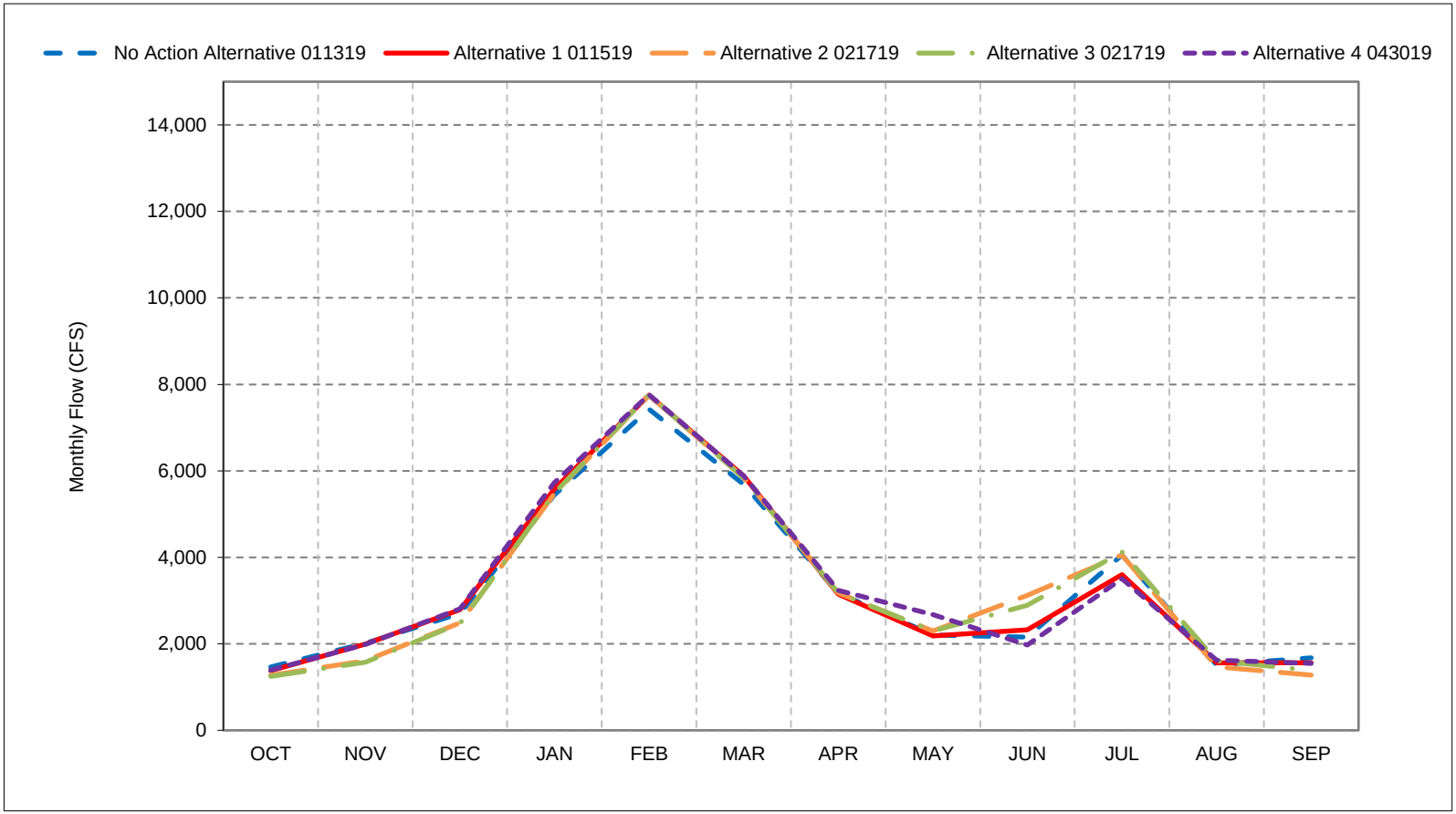
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 28-2. American River at H Street, Wet Year Average Flow



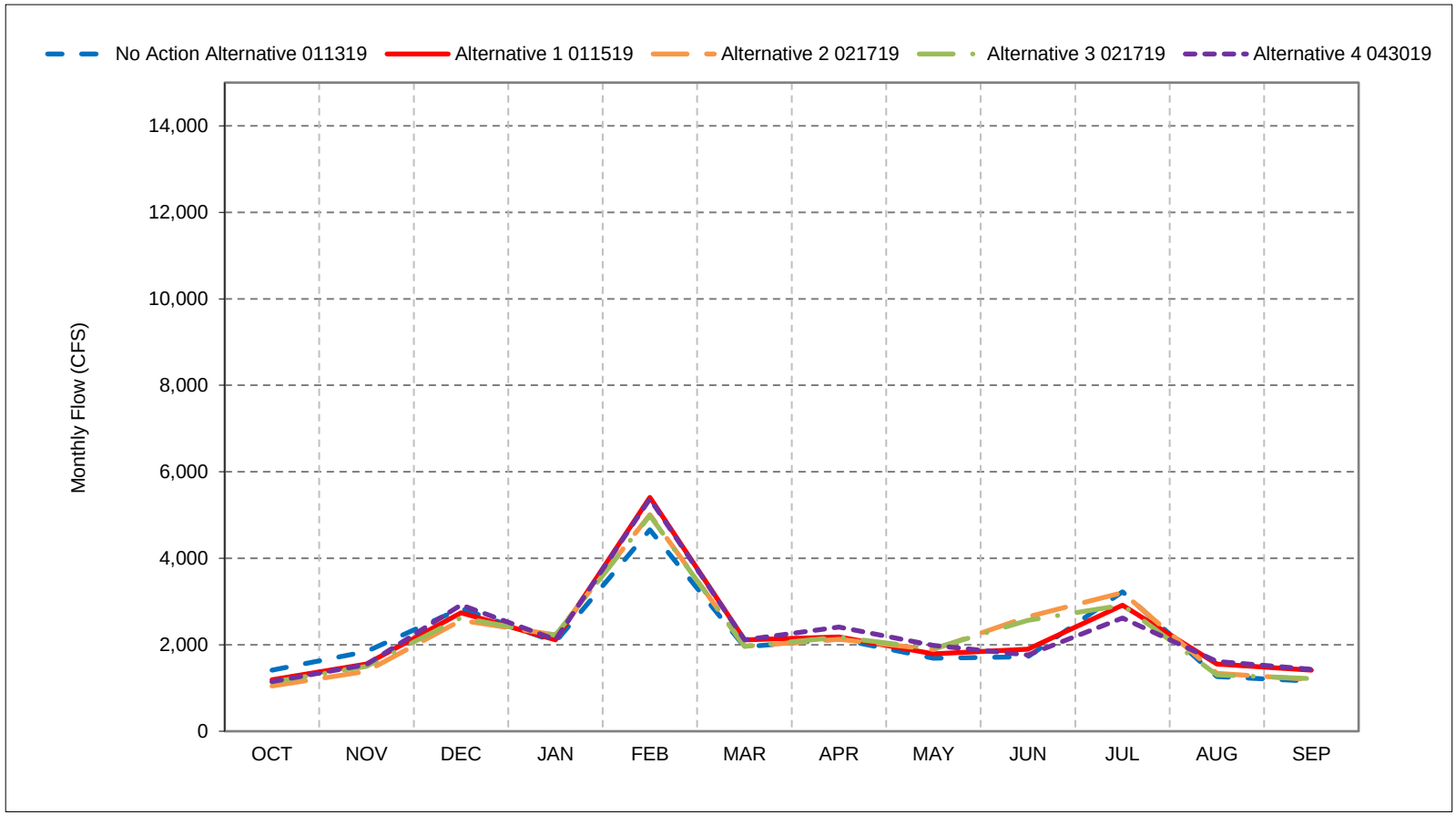
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 28-3. American River at H Street, Above Normal Year Average Flow



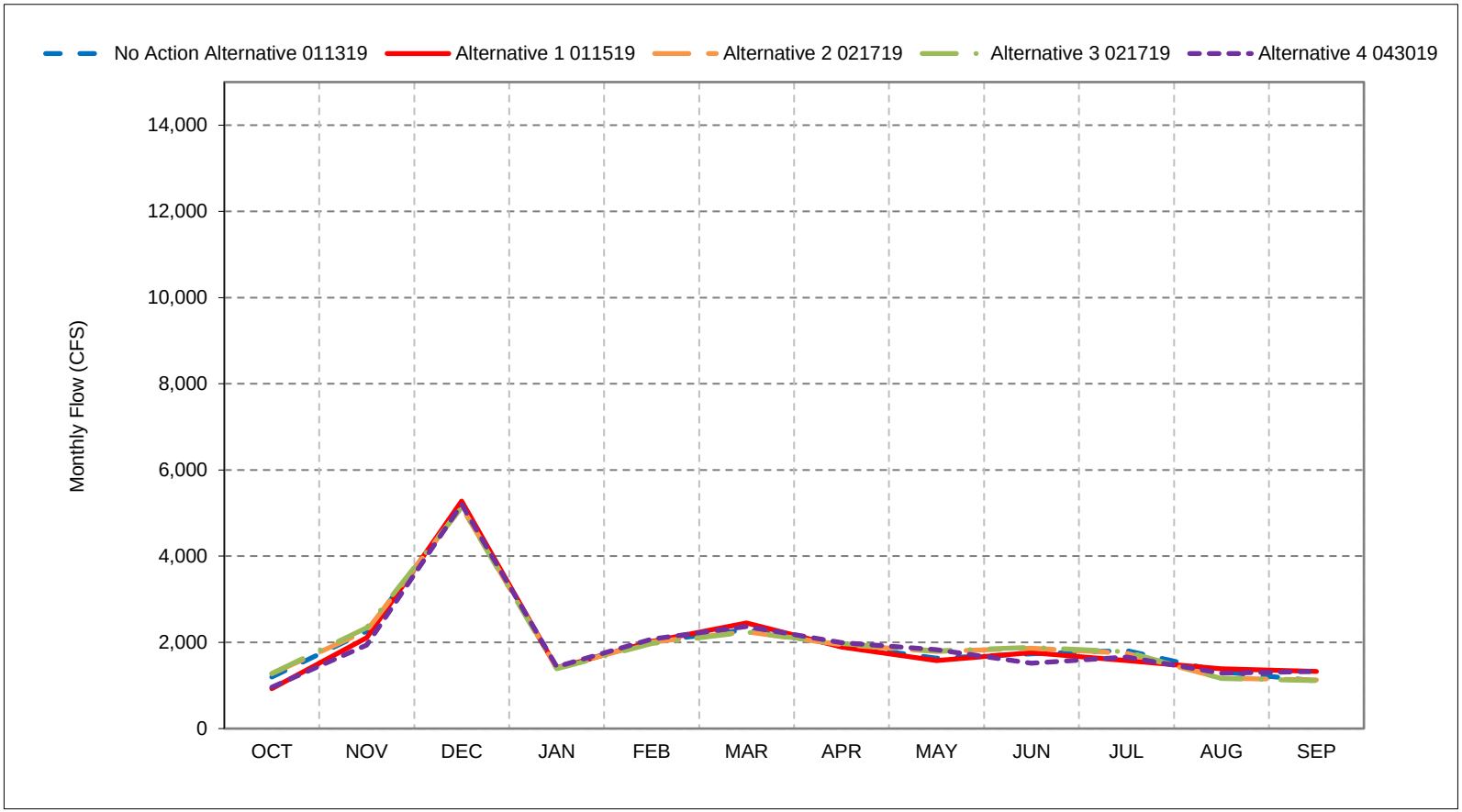
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 28-4. American River at H Street, Below Normal Year Average Flow



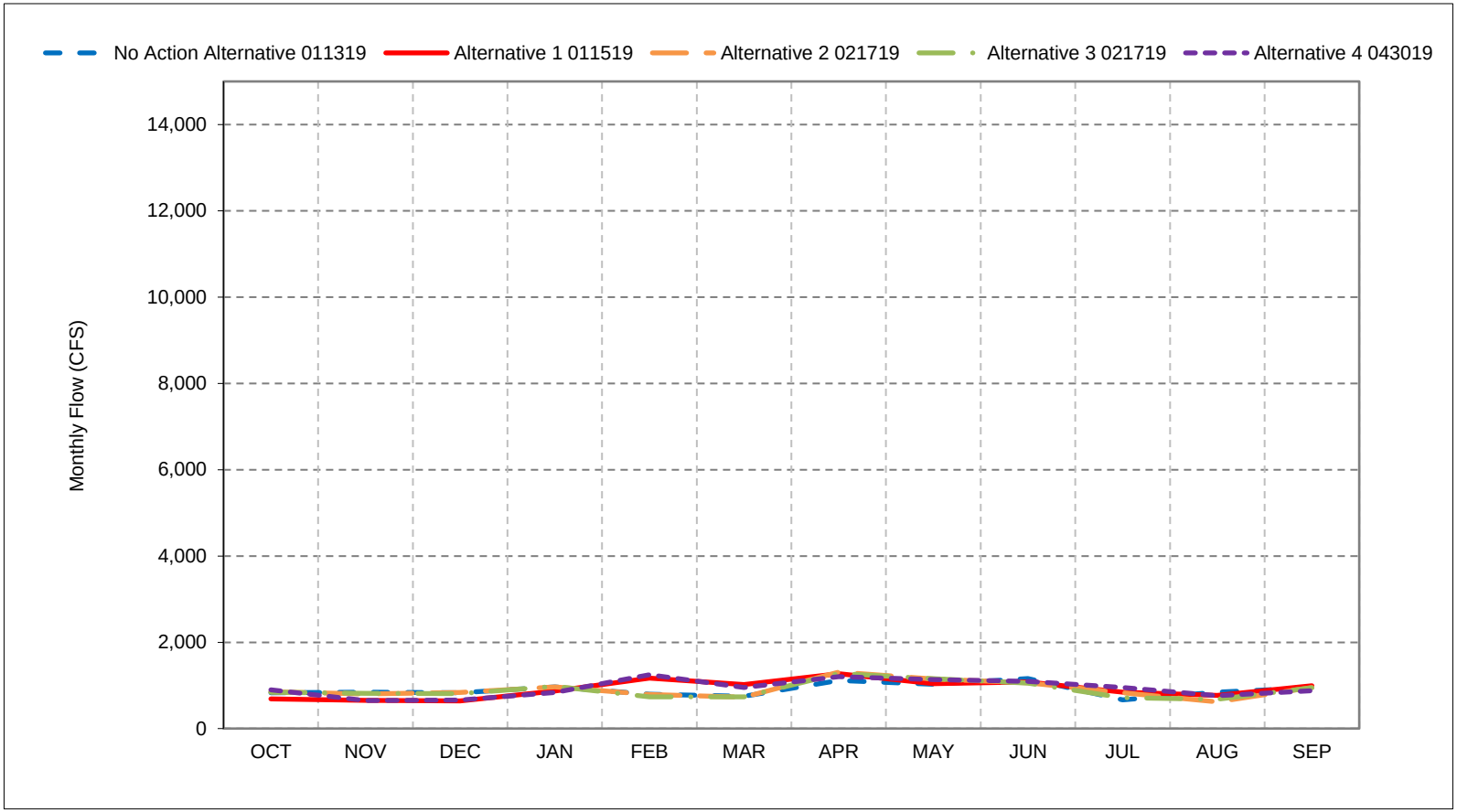
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 28-5. American River at H Street, Dry Year Average Flow



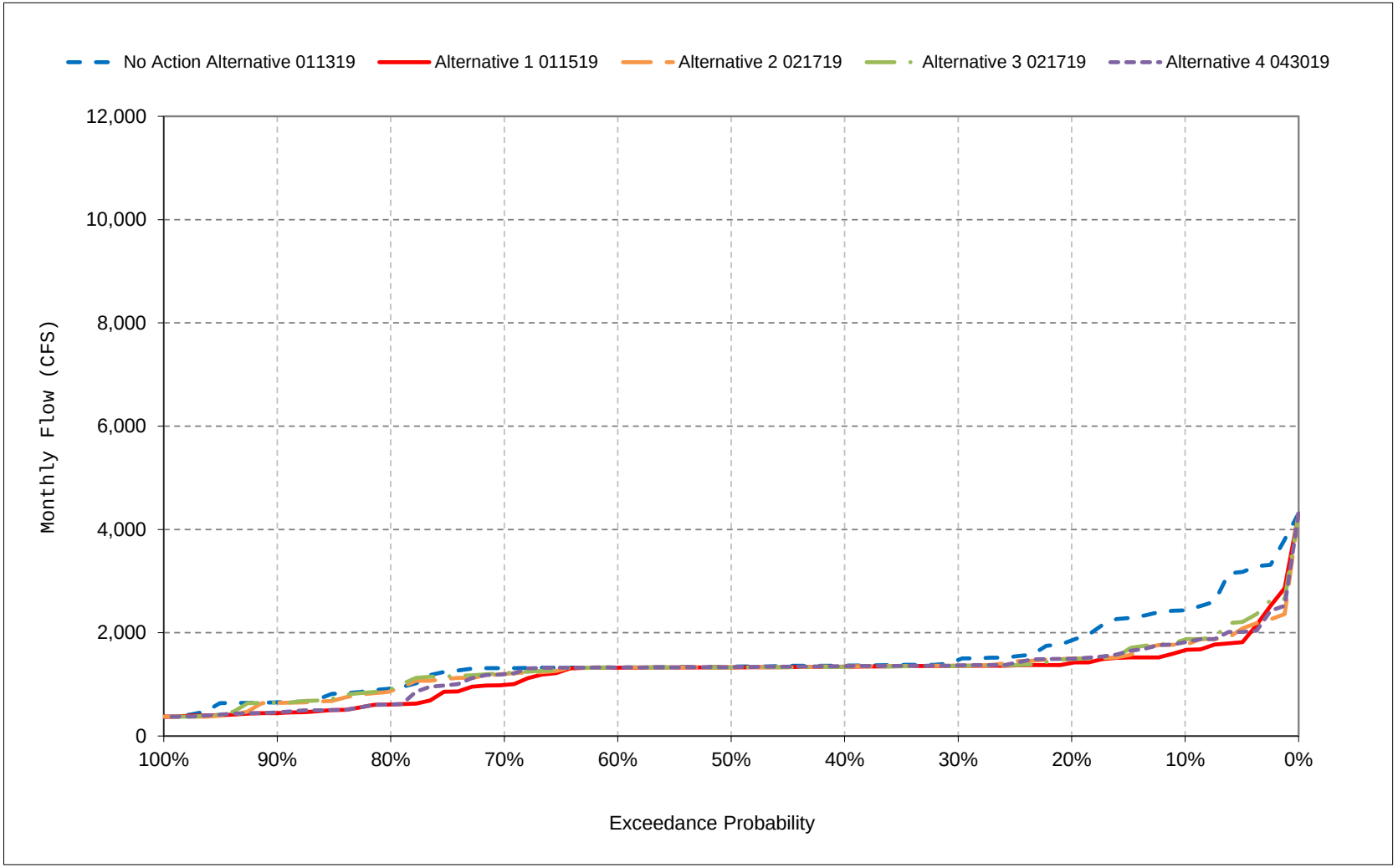
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 28-6. American River at H Street, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

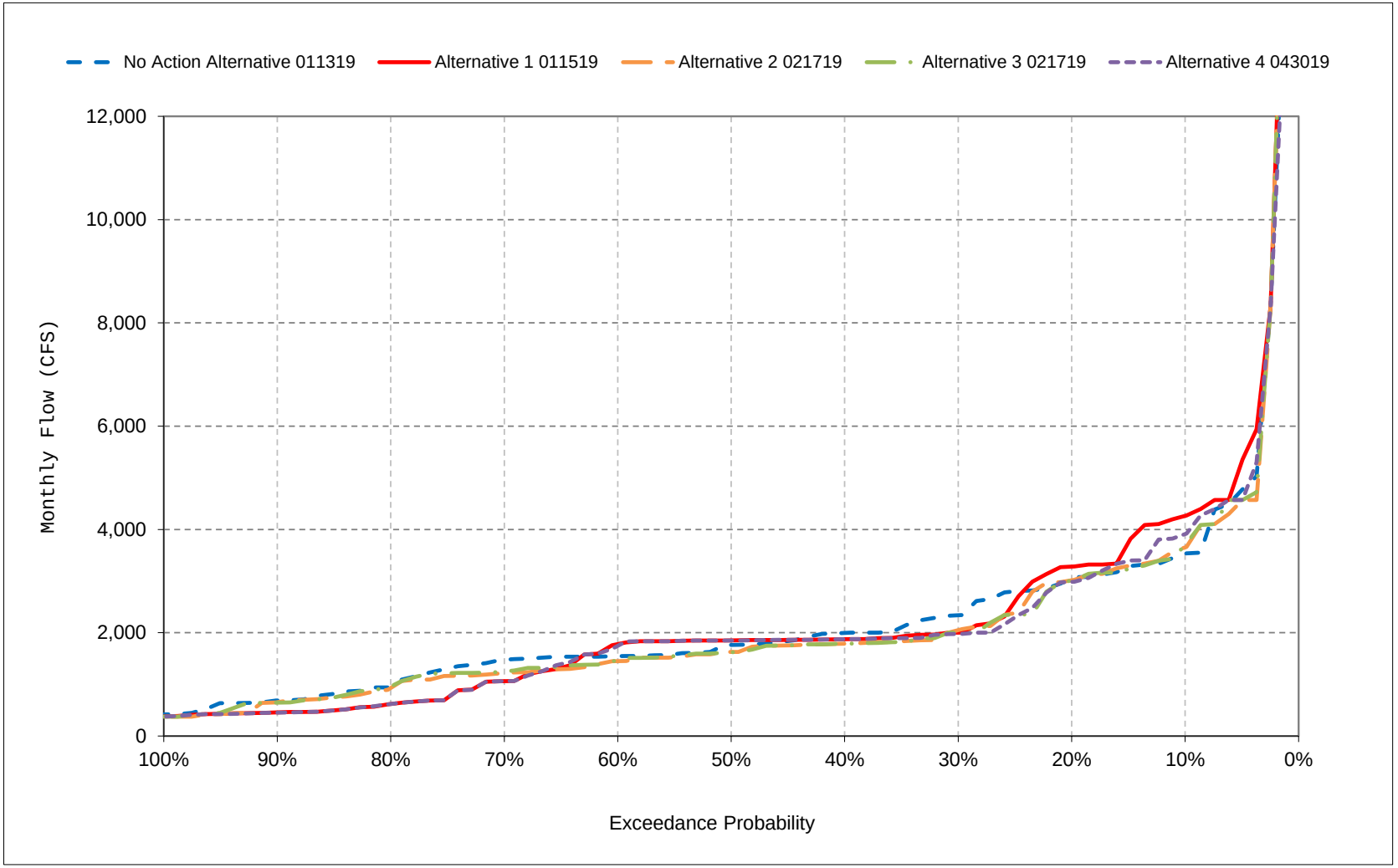
Figure 28-7. American River at H Street, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

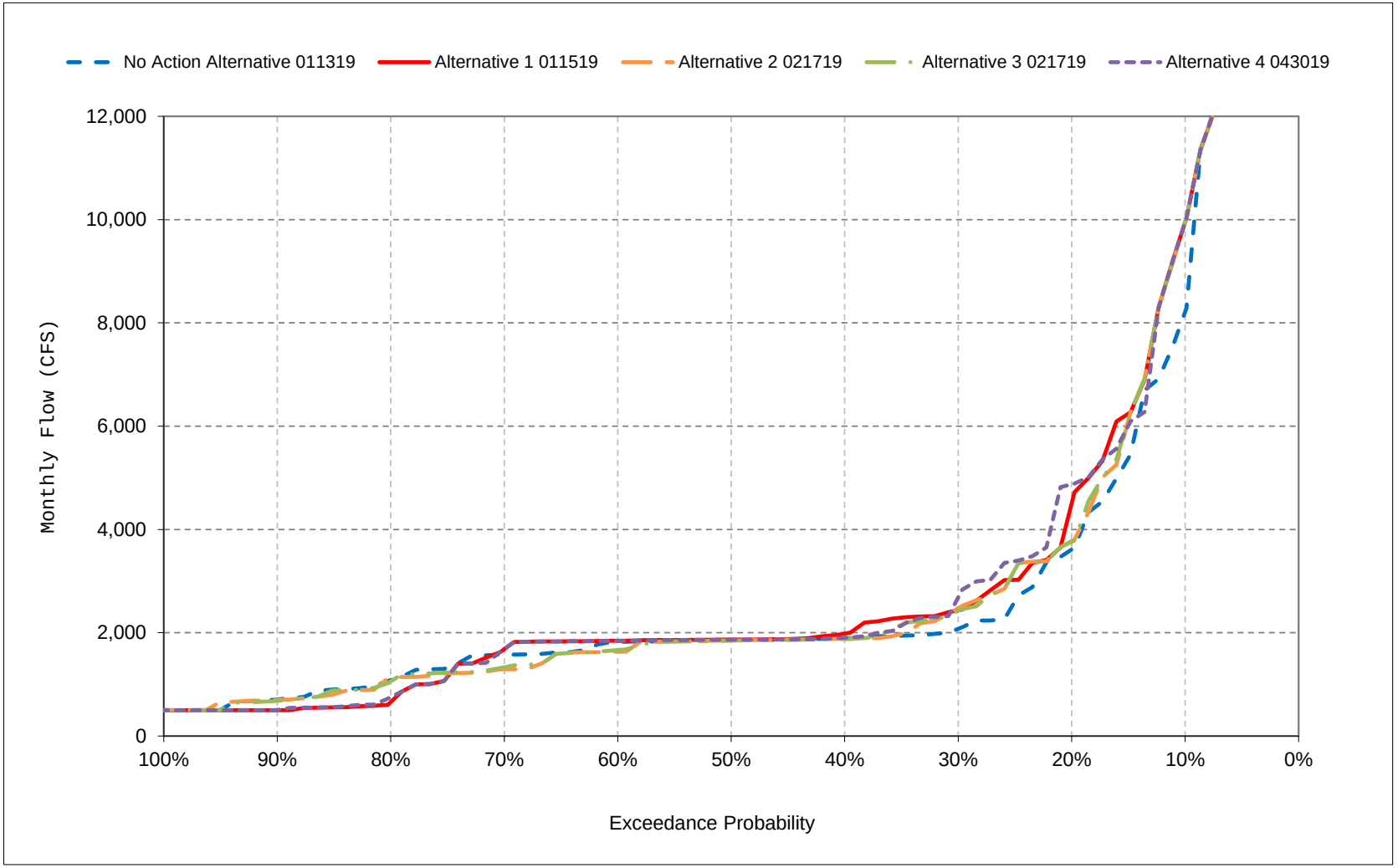
Figure 28-8. American River at H Street, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

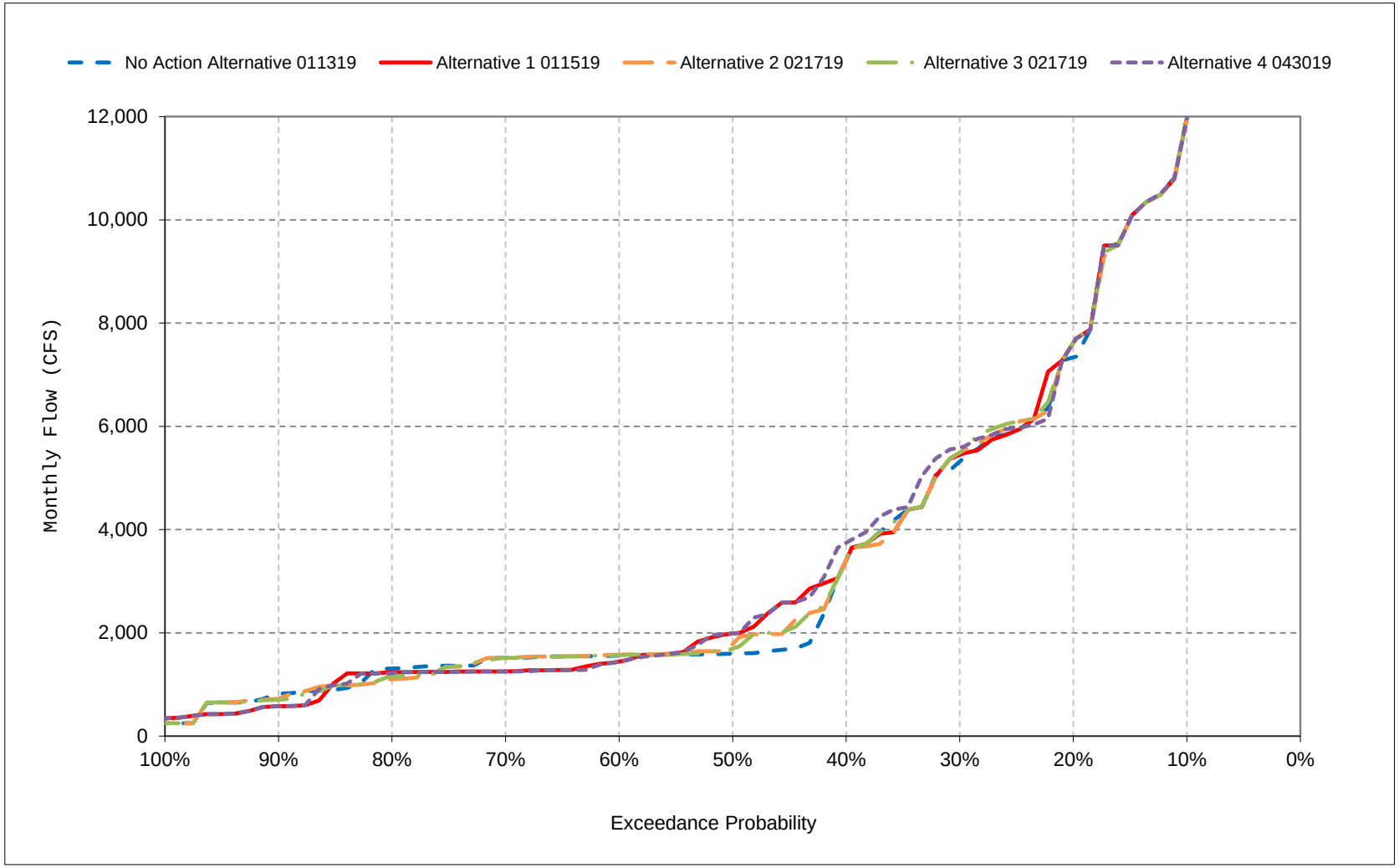
Figure 28-9. American River at H Street, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

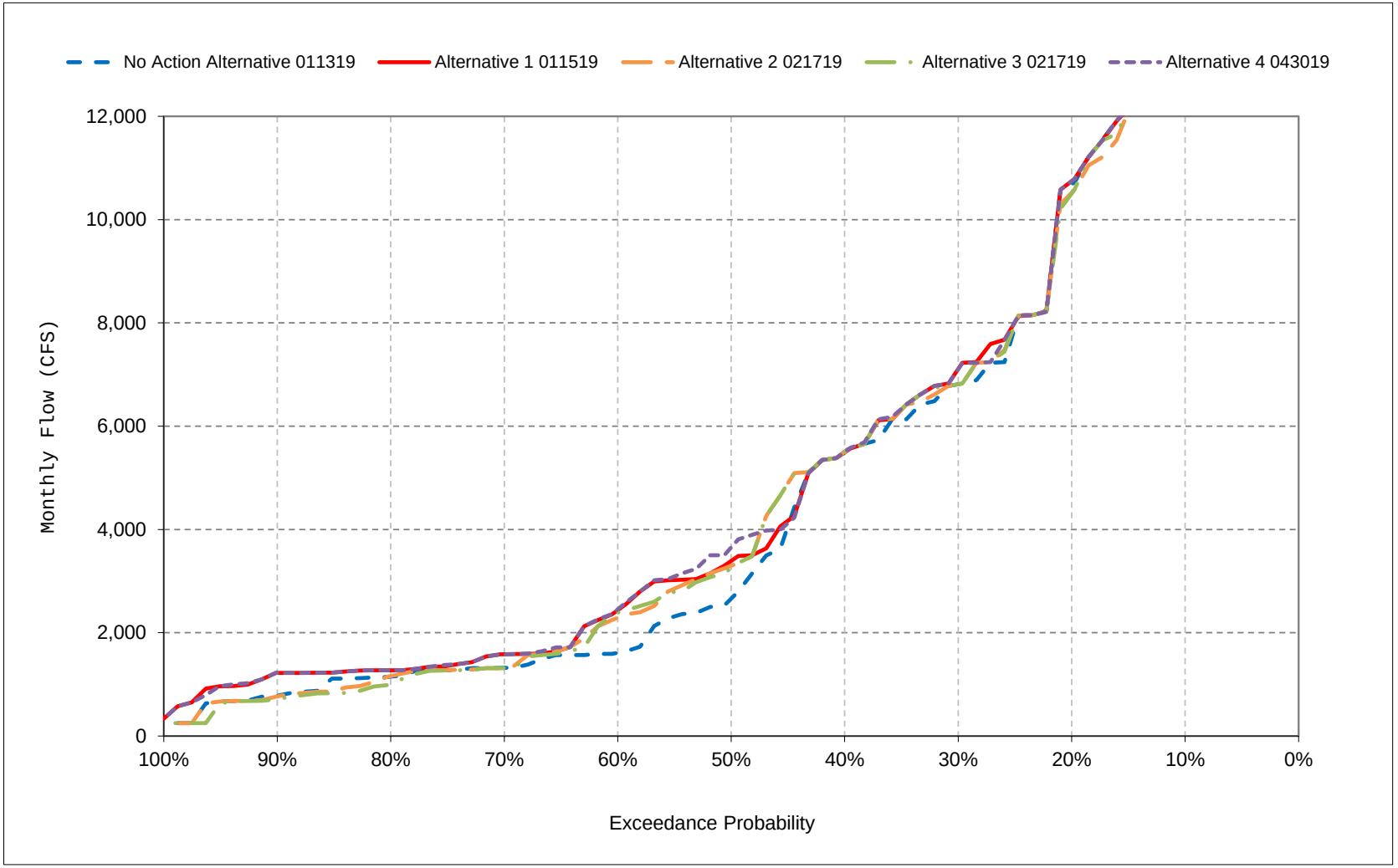
Figure 28-10. American River at H Street, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

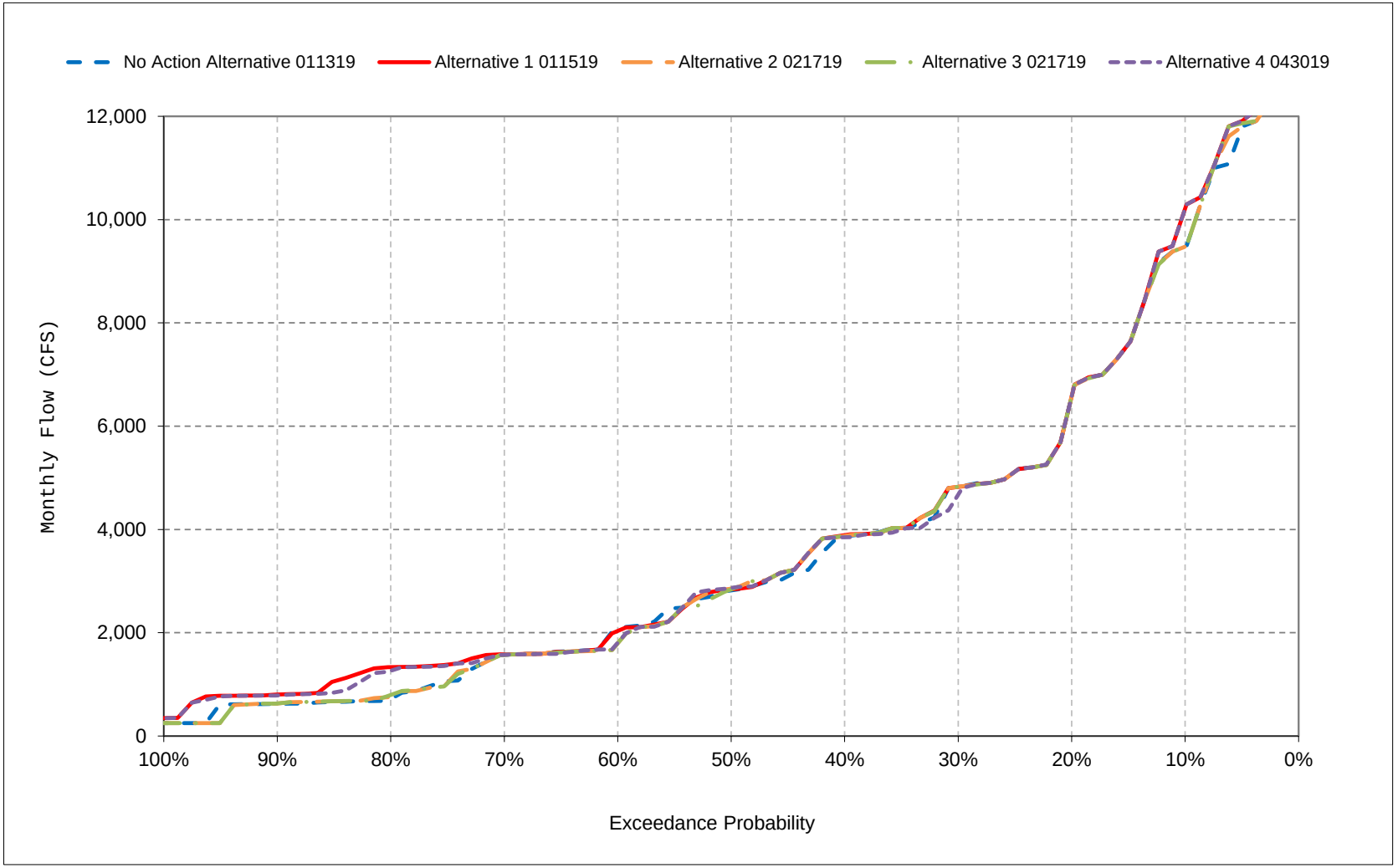
Figure 28-11. American River at H Street, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

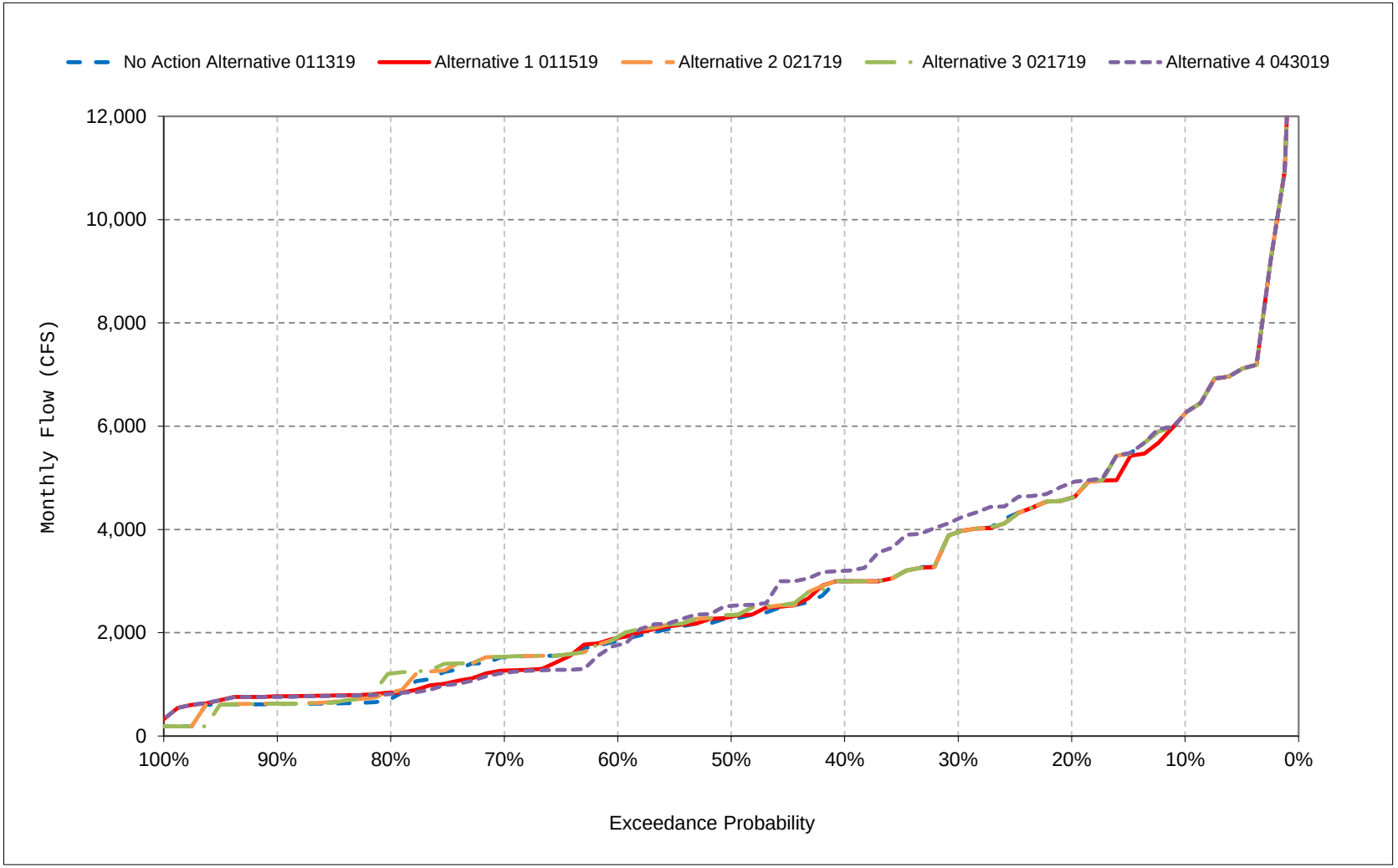
Figure 28-12. American River at H Street, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

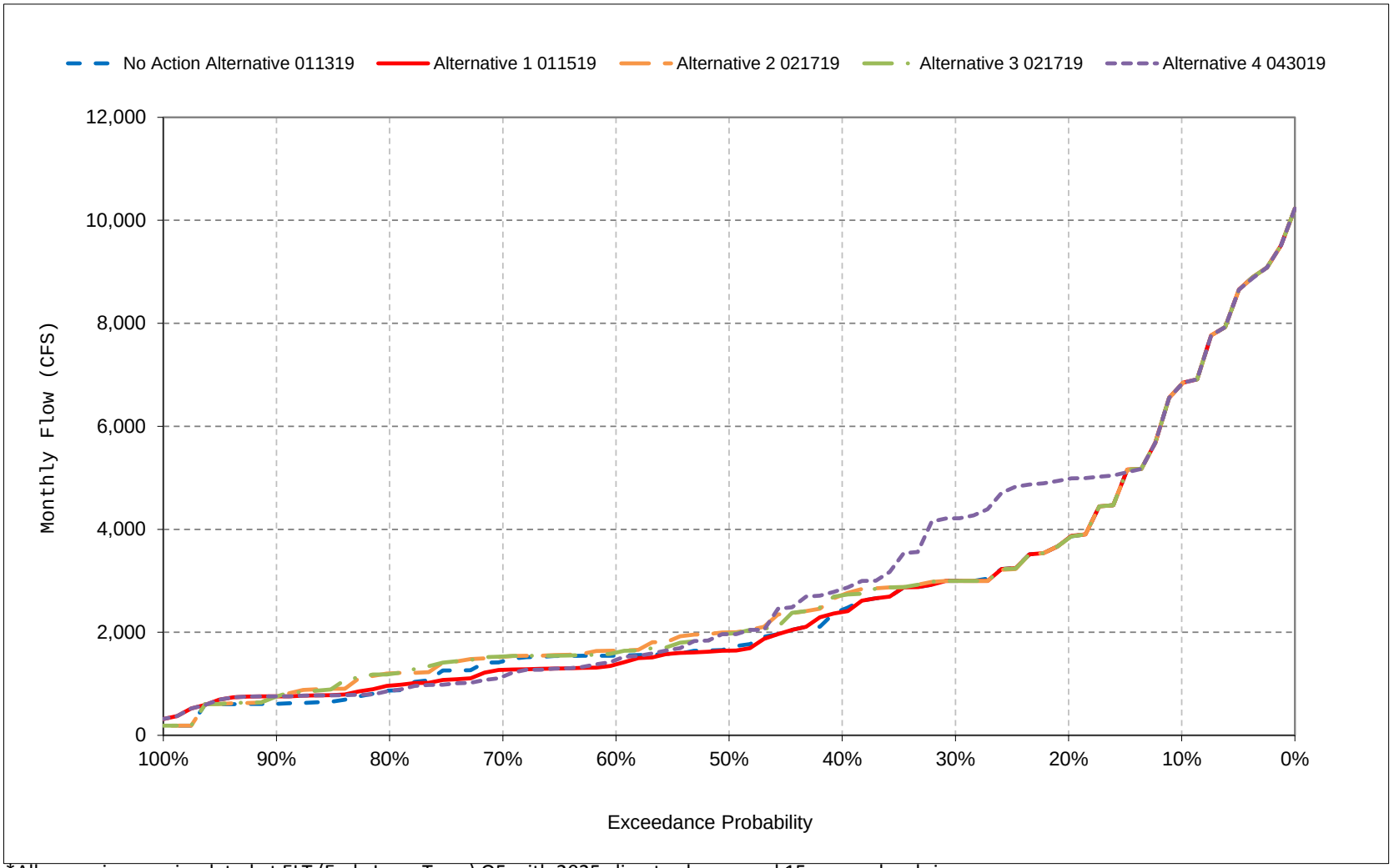
Figure 28-13. American River at H Street, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

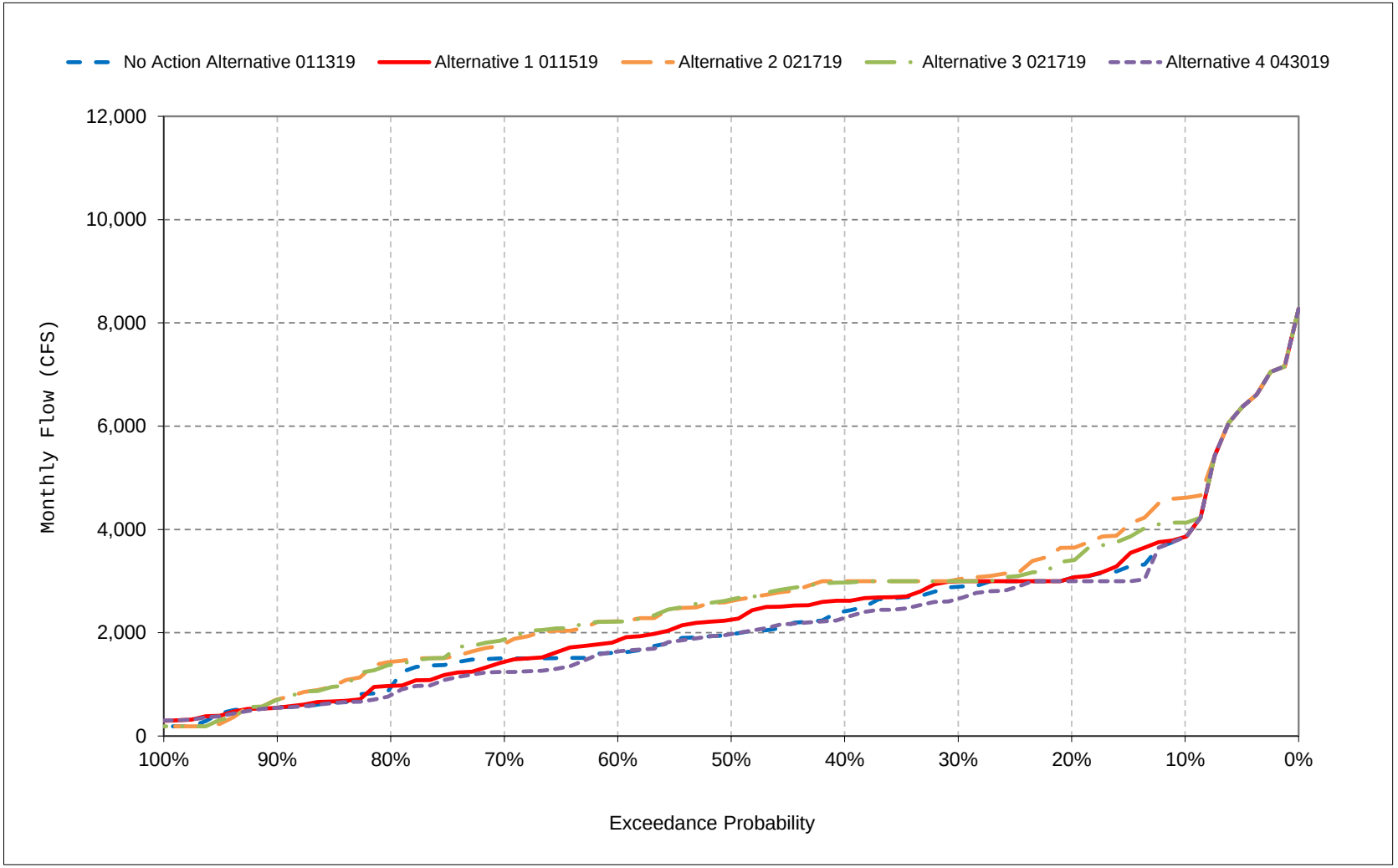
Figure 28-14. American River at H Street, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

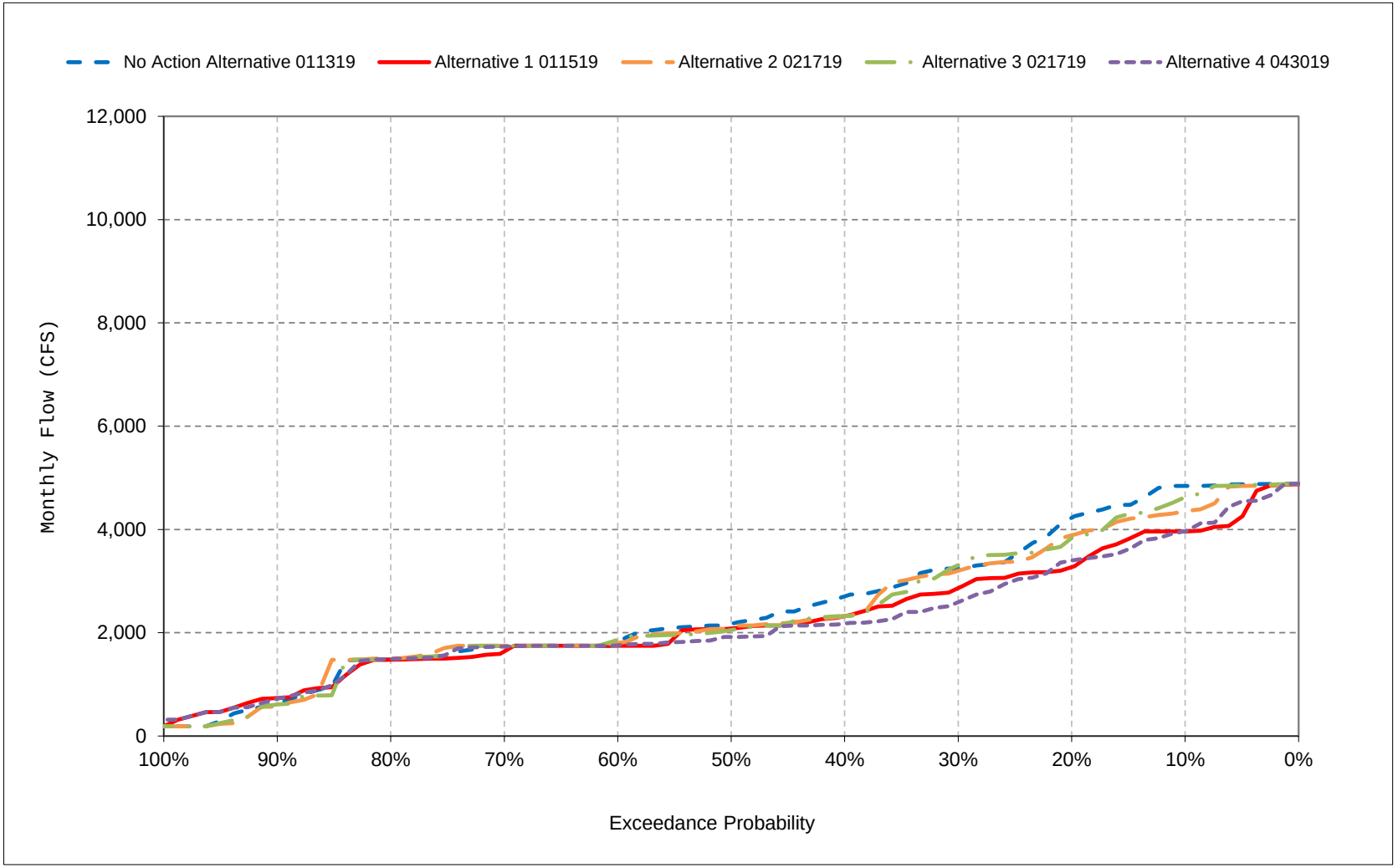
Figure 28-15. American River at H Street, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

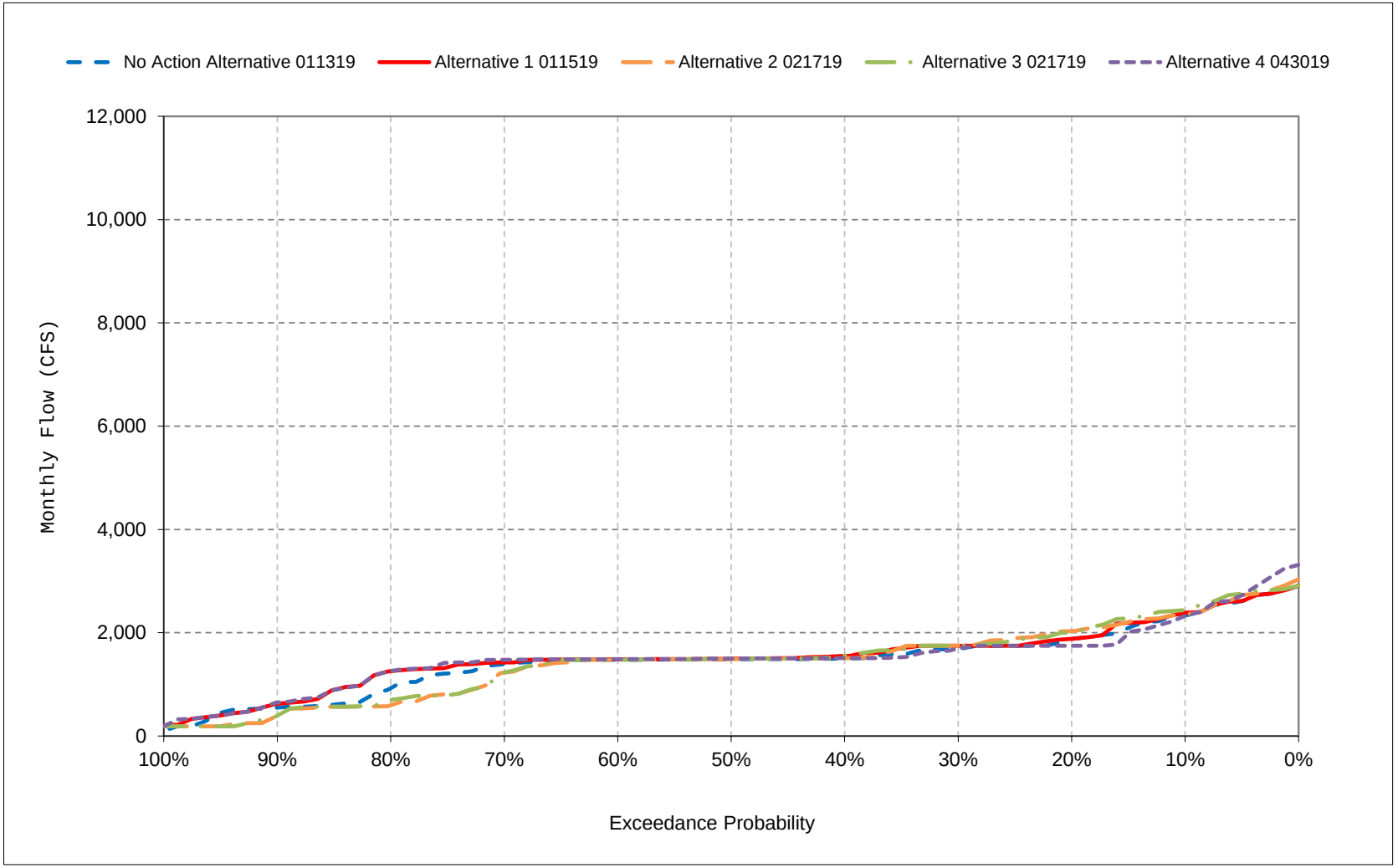
Figure 28-16. American River at H Street, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

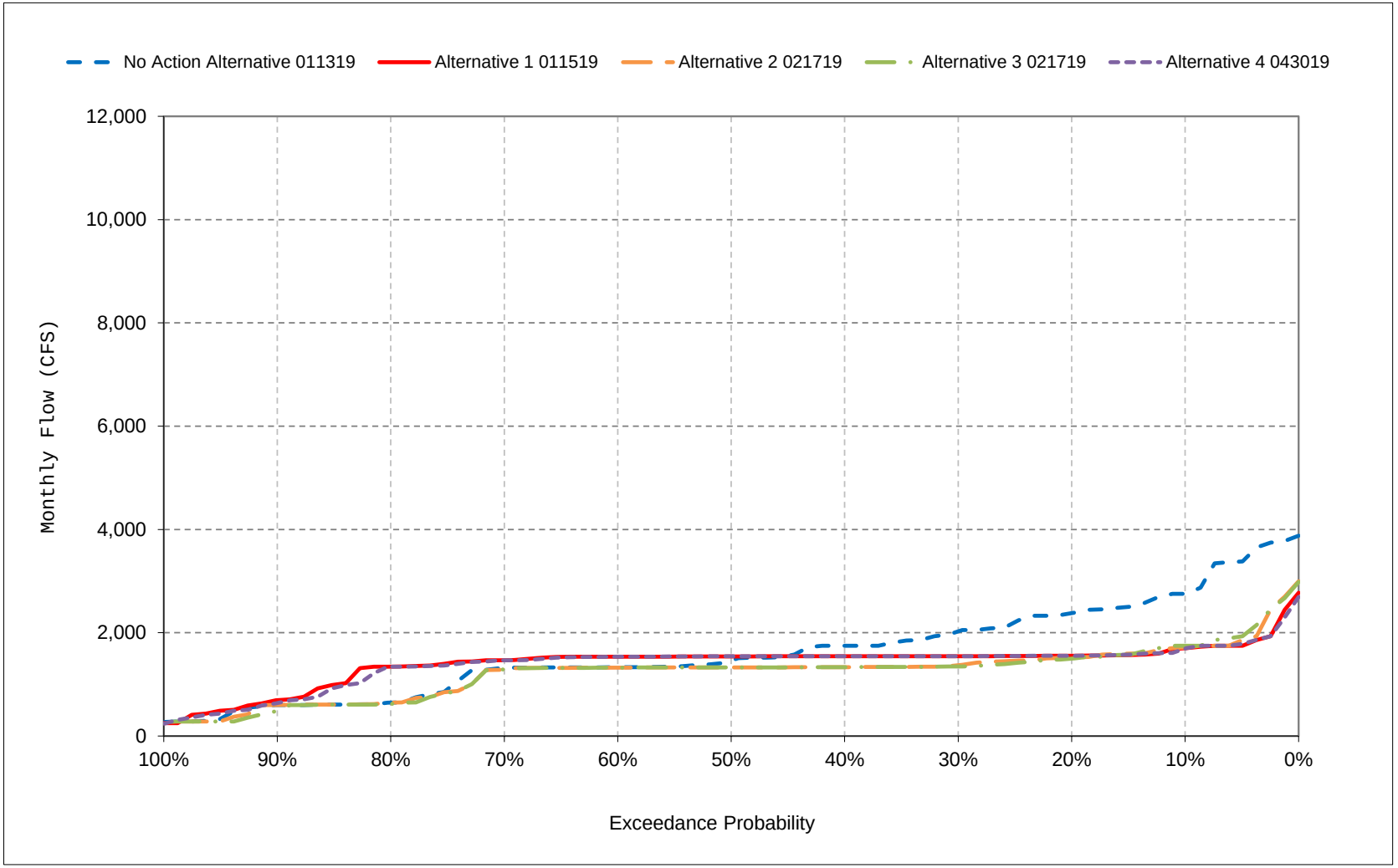
Figure 28-17. American River at H Street, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 28-18. American River at H Street, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 29-1. Sacramento River Flow at Freeport, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,462	21,542	50,195	65,000	69,738	64,827	52,557	38,629	20,654	24,529	16,958	29,451
20%	14,044	19,263	33,944	53,965	62,372	53,989	38,721	28,054	16,178	24,220	16,568	28,488
30%	13,243	18,443	21,814	38,469	50,812	41,513	25,293	16,030	14,030	22,824	16,070	22,484
40%	12,565	17,044	18,066	26,010	43,892	31,089	22,500	13,503	13,452	19,748	15,786	21,731
50%	10,356	15,471	15,521	20,258	33,254	25,635	17,541	12,283	13,093	18,800	15,154	13,854
60%	9,121	13,204	14,767	18,165	25,442	20,351	14,960	11,617	12,619	17,152	13,722	10,719
70%	8,177	10,428	13,379	14,854	20,069	18,975	12,827	10,835	11,599	15,974	9,484	9,942
80%	8,049	9,328	10,586	13,023	16,348	15,258	11,444	10,120	10,846	14,200	8,685	9,222
90%	6,584	7,187	9,357	11,911	14,293	11,409	10,248	8,753	10,213	11,139	8,013	7,852
Long Term												
Full Simulation Period[a]	11,186	15,887	22,809	30,928	38,059	32,551	24,579	18,164	14,924	18,430	13,274	17,499
Water Year Types[b,c]												
Wet (32%)	14,487	20,839	25,490	50,073	56,989	49,902	39,427	30,325	20,392	20,230	16,023	28,227
Above Normal (16%)	12,640	18,546	21,946	39,237	47,178	43,037	27,296	17,159	13,494	22,946	16,776	21,852
Below Normal (13%)	11,241	12,285	21,153	18,490	31,200	18,881	15,326	13,084	12,970	21,656	14,896	11,740
Dry (24%)	8,663	14,783	26,842	17,323	24,217	22,503	16,820	11,656	12,947	16,257	9,702	9,771
Critical (15%)	6,614	7,420	12,728	14,524	16,520	12,876	10,882	8,406	9,709	10,301	7,988	7,702

Alternative 1 011519

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,332	24,078	52,760	65,882	70,031	64,878	52,583	38,630	20,650	24,438	16,984	15,507
20%	13,867	14,883	36,616	56,798	62,813	54,088	38,727	28,053	16,842	23,610	16,813	14,883
30%	12,674	13,625	23,713	41,897	52,576	42,854	25,427	17,030	15,485	22,414	16,194	14,471
40%	11,942	12,714	18,423	27,487	46,456	31,354	22,393	14,552	15,130	19,701	15,857	14,254
50%	10,513	11,405	15,591	22,879	33,864	26,172	17,544	13,630	14,771	18,138	15,377	13,809
60%	9,168	10,889	15,135	18,779	25,320	21,156	14,084	12,654	14,170	17,343	14,046	11,248
70%	8,353	10,011	13,160	14,762	21,000	19,022	12,814	12,007	13,642	14,601	9,840	9,903
80%	8,043	8,549	10,627	12,867	17,363	15,741	11,667	11,158	12,511	12,484	8,967	9,147
90%	6,578	7,476	9,473	12,066	14,543	11,855	10,756	9,959	11,510	10,526	7,795	7,837
Long Term												
Full Simulation Period[a]	10,965	14,008	23,811	31,611	38,640	33,182	24,646	18,902	16,177	18,032	13,434	12,456
Water Year Types[b,c]												
Wet (32%)	13,466	17,131	28,084	51,103	57,254	50,062	39,492	30,674	20,886	19,883	15,978	15,383
Above Normal (16%)	13,023	14,792	22,969	40,490	48,085	44,453	27,323	17,873	14,454	22,948	16,722	14,777
Below Normal (13%)	11,334	11,867	21,060	19,669	33,481	19,910	15,723	14,481	15,126	21,888	16,031	12,421
Dry (24%)	8,787	14,566	27,075	17,377	24,294	22,951	16,725	12,769	14,905	15,224	9,912	9,951
Critical (15%)	6,608	7,423	12,546	14,427	16,719	13,619	10,964	8,785	10,921	9,842	7,847	7,804

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-1,129**	2,536	2,565	882	293	52	25	0	**-4**	**-91**	26	**-13,944**
20%	**-177**	**-4,380**	2,672	2,833	441	99	6	**-1**	664	**-610**	245	**-13,605**
30%	**-569**	**-4,818**	1,899	3,428	1,764	1,342	135	1,000	1,455	**-411**	124	**-8,013**
40%	**-624**	**-4,330**	357	1,477	2,563	264	**-107**	1,050	1,678	**-47**	70	**-7,477**
50%	156	**-4,066**	70	2,621	610	537	4	1,348	1,678	**-663**	223	**-44**
60%	48	**-2,315**	368	613	**-122**	805	**-876**	1,037	1,550	191	324	529
70%	176	**-417**	**-219**	**-92**	931	47	**-13**	1,172	2,043	**-1,373**	355	**-39**
80%	**-6**	**-779**	41	**-157**	1,015	482	222	1,038	1,665	**-1,715**	282	**-74**
90%	**-6**	288	116	155	250	447	509	1,206	1,298	**-613**	**-218**	**-15**
Long Term												
Full Simulation Period[a]	**-221**	**-1,879**	1,002	682	582	631	67	738	1,253	**-398**	160	**-5,044**
Water Year Types[b,c]												
Wet (32%)	**-1,021**	**-3,708**	2,594	1,031	265	161	65	349	494	**-347**	**-45**	**-12,843**
Above Normal (16%)	383	**-3,754**	1,023	1,253	908	1,416	26	714	960	2	**-54**	**-7,075**
Below Normal (13%)	94	**-418**	**-93**	1,178	2,281	1,028	397	1,397	2,157	232	1,135	681
Dry (24%)	124	**-217**	232	55	78	449	**-94**	1,113	1,958	**-1,034**	211	181
Critical (15%)	**-7**	3	**-182**	**-97**	198	742	82	379	1,211	**-459**	**-142**	102

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 29-2. Sacramento River Flow at Freeport, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,462	21,542	50,195	65,000	69,738	64,827	52,557	38,629	20,654	24,529	16,958	29,451
20%	14,044	19,263	33,944	53,965	62,372	53,989	38,721	28,054	16,178	24,220	16,568	28,488
30%	13,243	18,443	21,814	38,469	50,812	41,513	25,293	16,030	14,030	22,824	16,070	22,484
40%	12,565	17,044	18,066	26,010	43,892	31,089	22,500	13,503	13,452	19,748	15,786	21,731
50%	10,356	15,471	15,521	20,258	33,254	25,635	17,541	12,283	13,093	18,800	15,154	13,854
60%	9,121	13,204	14,767	18,165	25,442	20,351	14,960	11,617	12,619	17,152	13,722	10,719
70%	8,177	10,428	13,379	14,854	20,069	18,975	12,827	10,835	11,599	15,974	9,484	9,942
80%	8,049	9,328	10,586	13,023	16,348	15,258	11,444	10,120	10,846	14,200	8,685	9,222
90%	6,584	7,187	9,357	11,911	14,293	11,409	10,248	8,753	10,213	11,139	8,013	7,852
Long Term												
Full Simulation Period[a]	11,186	15,887	22,809	30,928	38,059	32,551	24,579	18,164	14,924	18,430	13,274	17,499
Water Year Types[b,c]												
Wet (32%)	14,487	20,839	25,490	50,073	56,989	49,902	39,427	30,325	20,392	20,230	16,023	28,227
Above Normal (16%)	12,640	18,546	21,946	39,237	47,178	43,037	27,296	17,159	13,494	22,946	16,776	21,852
Below Normal (13%)	11,241	12,285	21,153	18,490	31,200	18,881	15,326	13,084	12,970	21,656	14,896	11,740
Dry (24%)	8,663	14,783	26,842	17,323	24,217	22,503	16,820	11,656	12,947	16,257	9,702	9,771
Critical (15%)	6,614	7,420	12,728	14,524	16,520	12,876	10,882	8,406	9,709	10,301	7,988	7,702

Alternative 2 021719

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,718	21,707	51,282	65,738	69,547	64,870	52,558	38,641	23,686	24,413	17,069	15,663
20%	14,252	14,790	34,731	56,741	62,257	54,086	38,739	28,050	21,808	22,357	16,573	14,877
30%	13,450	13,678	22,719	41,889	52,620	42,199	25,183	17,931	20,075	21,127	15,602	14,240
40%	11,993	13,396	18,811	28,095	46,434	31,437	22,294	15,724	18,863	18,932	15,086	13,863
50%	10,372	11,404	15,642	22,624	33,427	25,816	17,479	14,727	17,452	17,832	14,281	12,978
60%	9,452	10,540	14,263	18,418	25,309	20,979	14,512	13,524	16,522	16,373	12,010	11,361
70%	8,865	9,971	12,729	14,788	20,571	18,917	12,764	12,865	15,245	14,572	9,968	10,284
80%	8,145	8,715	11,088	12,902	16,298	15,156	12,063	11,923	13,154	12,714	8,651	9,428
90%	6,640	7,109	9,871	11,767	14,079	11,720	11,407	10,829	11,477	11,221	8,088	8,092
Long Term												
Full Simulation Period[a]	11,159	13,950	23,348	31,398	38,376	32,881	24,750	19,485	18,398	17,621	12,955	12,396
Water Year Types[b,c]												
Wet (32%)	13,763	17,006	27,690	50,793	57,186	50,019	39,511	30,911	22,362	19,359	15,459	14,847
Above Normal (16%)	13,094	14,015	21,973	40,086	48,126	44,130	27,295	18,335	19,143	22,943	16,398	14,564
Below Normal (13%)	11,449	11,924	20,326	19,641	32,558	19,675	15,821	15,652	20,432	20,334	14,414	12,504
Dry (24%)	8,926	14,974	26,627	17,254	23,928	22,215	16,896	13,632	15,924	14,542	9,527	10,332
Critical (15%)	6,878	7,409	12,735	14,314	16,474	13,441	11,285	9,240	11,265	10,737	8,173	8,078

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-743**	165	1,087	738	**-190**	43	1	12	3,032	**-116**	112	**-13,788**
20%	207	**-4,473**	788	2,776	**-115**	97	19	**-4**	5,629	**-1,863**	5	**-13,611**
30%	207	**-4,765**	905	3,420	1,809	686	**-110**	1,901	6,046	**-1,697**	**-468**	**-8,245**
40%	**-573**	**-3,648**	745	2,085	2,542	348	**-206**	2,222	5,411	**-816**	**-700**	**-7,868**
50%	16	**-4,068**	120	2,365	173	181	**-62**	2,444	4,359	**-969**	**-873**	**-876**
60%	332	**-2,664**	**-503**	252	**-133**	628	**-449**	1,907	3,902	**-779**	**-1,712**	642
70%	688	**-457**	**-650**	**-66**	502	**-58**	**-63**	2,030	3,647	**-1,402**	483	342
80%	95	**-613**	502	**-121**	**-50**	**-102**	618	1,803	2,309	**-1,485**	**-34**	207
90%	56	**-79**	514	**-144**	**-214**	312	1,159	2,076	1,265	82	74	240
Long Term												
Full Simulation Period[a]	**-27**	**-1,937**	540	470	318	329	171	1,321	3,475	**-809**	**-319**	**-5,104**
Water Year Types[b,c]												
Wet (32%)	**-724**	**-3,833**	2,200	721	196	117	85	586	1,971	**-871**	**-564**	**-13,380**
Above Normal (16%)	455	**-4,531**	27	849	948	1,093	**-2**	1,176	5,649	**-4**	**-378**	**-7,288**
Below Normal (13%)	208	**-361**	**-828**	1,150	1,359	793	495	2,567	7,462	**-1,322**	**-482**	763
Dry (24%)	263	191	**-215**	**-69**	**-289**	**-288**	77	1,976	2,976	**-1,715**	**-175**	561
Critical (15%)	264	**-11**	7	**-210**	**-46**	565	403	835	1,555	436	185	376

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 29-3. Sacramento River Flow at Freeport, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,462	21,542	50,195	65,000	69,738	64,827	52,557	38,629	20,654	24,529	16,958	29,451
20%	14,044	19,263	33,944	53,965	62,372	53,989	38,721	28,054	16,178	24,220	16,568	28,488
30%	13,243	18,443	21,814	38,469	50,812	41,513	25,293	16,030	14,030	22,824	16,070	22,484
40%	12,565	17,044	18,066	26,010	43,892	31,089	22,500	13,503	13,452	19,748	15,786	21,731
50%	10,356	15,471	15,521	20,258	33,254	25,635	17,541	12,283	13,093	18,800	15,154	13,854
60%	9,121	13,204	14,767	18,165	25,442	20,351	14,960	11,617	12,619	17,152	13,722	10,719
70%	8,177	10,428	13,379	14,854	20,069	18,975	12,827	10,835	11,599	15,974	9,484	9,942
80%	8,049	9,328	10,586	13,023	16,348	15,258	11,444	10,120	10,846	14,200	8,685	9,222
90%	6,584	7,187	9,357	11,911	14,293	11,409	10,248	8,753	10,213	11,139	8,013	7,852
Long Term												
Full Simulation Period[a]	11,186	15,887	22,809	30,928	38,059	32,551	24,579	18,164	14,924	18,430	13,274	17,499
Water Year Types[b,c]												
Wet (32%)	14,487	20,839	25,490	50,073	56,989	49,902	39,427	30,325	20,392	20,230	16,023	28,227
Above Normal (16%)	12,640	18,546	21,946	39,237	47,178	43,037	27,296	17,159	13,494	22,946	16,776	21,852
Below Normal (13%)	11,241	12,285	21,153	18,490	31,200	18,881	15,326	13,084	12,970	21,656	14,896	11,740
Dry (24%)	8,663	14,783	26,842	17,323	24,217	22,503	16,820	11,656	12,947	16,257	9,702	9,771
Critical (15%)	6,614	7,420	12,728	14,524	16,520	12,876	10,882	8,406	9,709	10,301	7,988	7,702

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,718	22,087	51,133	65,826	69,976	64,855	52,058	38,640	23,232	24,509	17,056	15,735
20%	14,251	15,047	35,062	56,731	62,266	54,087	38,741	28,049	20,867	22,889	16,561	15,036
30%	13,510	13,708	23,231	41,892	52,471	42,163	25,202	17,918	19,810	21,124	15,163	14,405
40%	12,657	13,435	18,741	28,072	46,295	31,449	22,413	15,274	17,939	19,526	14,888	13,520
50%	11,244	11,557	15,663	22,393	33,444	25,816	17,475	14,406	16,975	18,162	13,981	12,494
60%	10,376	10,647	14,825	18,430	25,310	20,985	14,513	13,429	16,073	15,949	11,740	11,273
70%	9,431	10,047	13,571	15,103	20,646	18,913	12,917	12,659	14,693	13,739	9,846	10,368
80%	8,259	8,687	10,459	12,995	16,304	14,706	12,108	12,110	13,050	12,558	8,651	9,404
90%	6,888	6,976	9,870	11,731	13,735	11,726	11,413	10,797	11,573	11,142	8,030	8,098
Long Term												
Full Simulation Period[a]	11,500	13,983	23,535	31,448	38,325	32,870	24,807	19,371	18,118	17,604	12,841	12,412
Water Year Types[b,c]												
Wet (32%)	13,989	17,055	28,038	50,912	57,213	50,098	39,598	30,402	22,382	19,548	15,073	14,792
Above Normal (16%)	12,996	14,427	22,344	39,986	48,086	44,071	27,320	18,341	18,185	22,995	16,531	14,816
Below Normal (13%)	12,056	12,012	20,442	19,584	32,537	19,681	15,964	15,657	19,856	20,434	14,232	12,368
Dry (24%)	9,630	14,723	26,659	17,221	23,889	22,090	16,935	13,831	15,960	14,332	9,581	10,361
Critical (15%)	7,096	7,416	12,694	14,612	16,191	13,464	11,262	9,224	10,810	10,412	8,166	8,107

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-743**	545	938	826	238	28	**-499**	11	2,578	**-20**	99	**-13,716**
20%	207	**-4,216**	1,118	2,766	**-106**	97	21	**-5**	4,689	**-1,331**	**-7**	**-13,452**
30%	267	**-4,735**	1,417	3,423	1,659	650	**-91**	1,888	5,780	**-1,700**	**-907**	**-8,079**
40%	91	**-3,609**	675	2,062	2,403	360	**-87**	1,772	4,487	**-222**	**-898**	**-8,211**
50%	888	**-3,914**	142	2,135	190	180	**-65**	2,123	3,881	**-639**	**-1,173**	**-1,360**
60%	1,256	**-2,557**	59	265	**-132**	634	**-447**	1,812	3,454	**-1,203**	**-1,982**	554
70%	1,254	**-381**	192	250	577	**-63**	90	1,825	3,094	**-2,235**	362	426
80%	209	**-641**	**-127**	**-28**	**-44**	**-552**	664	1,990	2,204	**-1,642**	**-34**	182
90%	304	**-212**	513	**-180**	**-557**	317	1,165	2,044	1,361	2	16	246
Long Term												
Full Simulation Period[a]	314	**-1,905**	726	519	266	319	228	1,207	3,194	**-826**	**-433**	**-5,088**
Water Year Types[b,c]												
Wet (32%)	**-498**	**-3,784**	2,548	839	224	196	172	77	1,991	**-682**	**-950**	**-13,435**
Above Normal (16%)	356	**-4,119**	398	749	908	1,034	24	1,182	4,691	49	**-245**	**-7,036**
Below Normal (13%)	816	**-273**	**-712**	1,094	1,337	800	638	2,573	6,886	**-1,222**	**-663**	628
Dry (24%)	967	**-60**	**-183**	**-102**	**-328**	**-413**	115	2,175	3,013	**-1,925**	**-121**	590
Critical (15%)	482	**-4**	**-33**	88	**-329**	587	380	818	1,101	111	177	405

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 29-4. Sacramento River Flow at Freeport, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,462	21,542	50,195	65,000	69,738	64,827	52,557	38,629	20,654	24,529	16,958	29,451
20%	14,044	19,263	33,944	53,965	62,372	53,989	38,721	28,054	16,178	24,220	16,568	28,488
30%	13,243	18,443	21,814	38,469	50,812	41,513	25,293	16,030	14,030	22,824	16,070	22,484
40%	12,565	17,044	18,066	26,010	43,892	31,089	22,500	13,503	13,452	19,748	15,786	21,731
50%	10,356	15,471	15,521	20,258	33,254	25,635	17,541	12,283	13,093	18,800	15,154	13,854
60%	9,121	13,204	14,767	18,165	25,442	20,351	14,960	11,617	12,619	17,152	13,722	10,719
70%	8,177	10,428	13,379	14,854	20,069	18,975	12,827	10,835	11,599	15,974	9,484	9,942
80%	8,049	9,328	10,586	13,023	16,348	15,258	11,444	10,120	10,846	14,200	8,685	9,222
90%	6,584	7,187	9,357	11,911	14,293	11,409	10,248	8,753	10,213	11,139	8,013	7,852
Long Term												
Full Simulation Period[a]	11,186	15,887	22,809	30,928	38,059	32,551	24,579	18,164	14,924	18,430	13,274	17,499
Water Year Types[b,c]												
Wet (32%)	14,487	20,839	25,490	50,073	56,989	49,902	39,427	30,325	20,392	20,230	16,023	28,227
Above Normal (16%)	12,640	18,546	21,946	39,237	47,178	43,037	27,296	17,159	13,494	22,946	16,776	21,852
Below Normal (13%)	11,241	12,285	21,153	18,490	31,200	18,881	15,326	13,084	12,970	21,656	14,896	11,740
Dry (24%)	8,663	14,783	26,842	17,323	24,217	22,503	16,820	11,656	12,947	16,257	9,702	9,771
Critical (15%)	6,614	7,420	12,728	14,524	16,520	12,876	10,882	8,406	9,709	10,301	7,988	7,702

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	13,995	23,482	54,713	65,934	69,812	64,942	55,447	36,677	20,801	22,837	16,502	15,353
20%	13,540	15,272	37,832	55,751	62,363	54,285	41,545	29,351	15,595	22,825	15,978	14,595
30%	12,405	13,530	24,906	41,614	52,342	43,246	31,896	20,069	14,858	21,629	15,668	14,100
40%	10,969	12,049	19,270	29,239	46,104	34,434	27,077	15,870	14,583	19,015	14,880	13,738
50%	9,805	11,068	15,596	23,722	35,485	27,807	20,973	13,738	13,914	17,900	12,854	11,185
60%	8,773	10,412	14,127	19,805	27,010	23,225	16,385	11,761	13,488	16,752	10,232	9,962
70%	8,267	9,665	12,647	16,199	22,154	19,863	13,245	11,149	12,586	14,591	9,026	9,564
80%	8,013	8,696	10,186	13,187	17,456	15,636	11,471	10,256	12,002	12,597	8,635	8,923
90%	6,584	6,991	9,464	12,170	14,708	11,974	10,419	8,670	11,050	9,536	7,762	7,664
Long Term												
Full Simulation Period[a]	10,738	13,818	23,869	31,942	39,162	33,803	26,769	19,010	15,503	17,326	12,321	11,762
Water Year Types[b,c]												
Wet (32%)	13,262	16,556	27,877	51,240	57,376	50,296	42,112	31,158	20,164	19,458	15,417	14,863
Above Normal (16%)	12,077	14,676	22,869	40,509	48,656	45,065	31,264	18,974	13,365	22,149	16,132	14,400
Below Normal (13%)	11,363	12,075	21,717	20,887	33,641	22,076	19,022	13,977	14,658	20,323	11,653	10,243
Dry (24%)	8,718	14,538	27,237	17,679	25,502	23,695	17,625	12,266	14,142	14,643	9,096	9,379
Critical (15%)	6,613	7,350	12,625	14,756	17,239	13,464	11,000	8,583	10,762	9,206	7,473	7,547

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-1,467**	1,939	4,518	934	74	115	2,890	**-1,953**	147	**-1,692**	**-455**	**-14,098**
20%	**-504**	**-3,991**	3,888	1,786	**-9**	295	2,824	1,298	**-583**	**-1,395**	**-590**	**-13,894**
30%	**-838**	**-4,913**	3,092	3,145	1,530	1,733	6,604	4,039	828	**-1,195**	**-402**	**-8,384**
40%	**-1,597**	**-4,995**	1,204	3,230	2,212	3,345	4,577	2,367	1,131	**-733**	**-906**	**-7,993**
50%	**-551**	**-4,404**	75	3,464	2,231	2,171	3,432	1,455	820	**-901**	**-2,300**	**-2,669**
60%	**-347**	**-2,792**	**-639**	1,640	1,568	2,874	1,425	143	868	**-400**	**-3,490**	**-757**
70%	90	**-762**	**-732**	1,345	2,085	888	418	314	987	**-1,383**	**-458**	**-378**
80%	**-36**	**-633**	**-400**	164	1,108	378	27	136	1,156	**-1,603**	**-50**	**-299**
90%	0	**-196**	107	259	415	565	172	**-83**	837	**-1,603**	**-251**	**-188**
Long Term												
Full Simulation Period[a]	**-448**	**-2,070**	1,060	1,014	1,103	1,252	2,190	846	579	**-1,104**	**-952**	**-5,738**
Water Year Types[b,c]												
Wet (32%)	**-1,225**	**-4,283**	2,387	1,168	387	394	2,685	833	**-228**	**-772**	**-606**	**-13,364**
Above Normal (16%)	**-562**	**-3,870**	923	1,272	1,478	2,028	3,967	1,815	**-129**	**-798**	**-644**	**-7,452**
Below Normal (13%)	123	**-210**	564	2,396	2,442	3,195	3,696	892	1,688	**-1,333**	**-3,243**	**-1,497**
Dry (24%)	55	**-245**	395	356	1,286	1,193	806	610	1,194	**-1,614**	**-606**	**-392**
Critical (15%)	**-1**	**-69**	**-102**	232	718	588	118	177	1,053	**-1,095**	**-516**	**-155**

a Based on the 82-year simulation period.

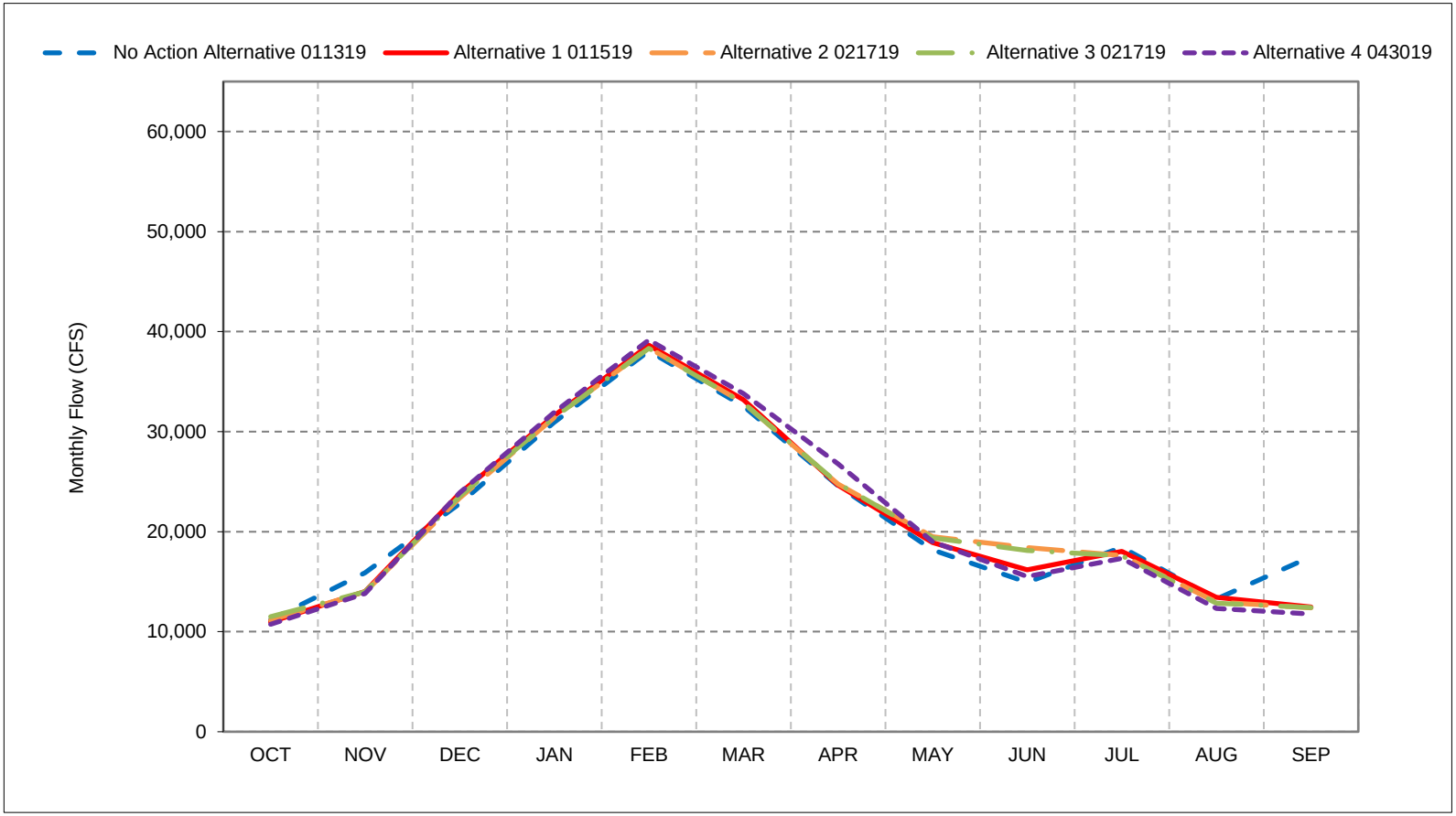
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

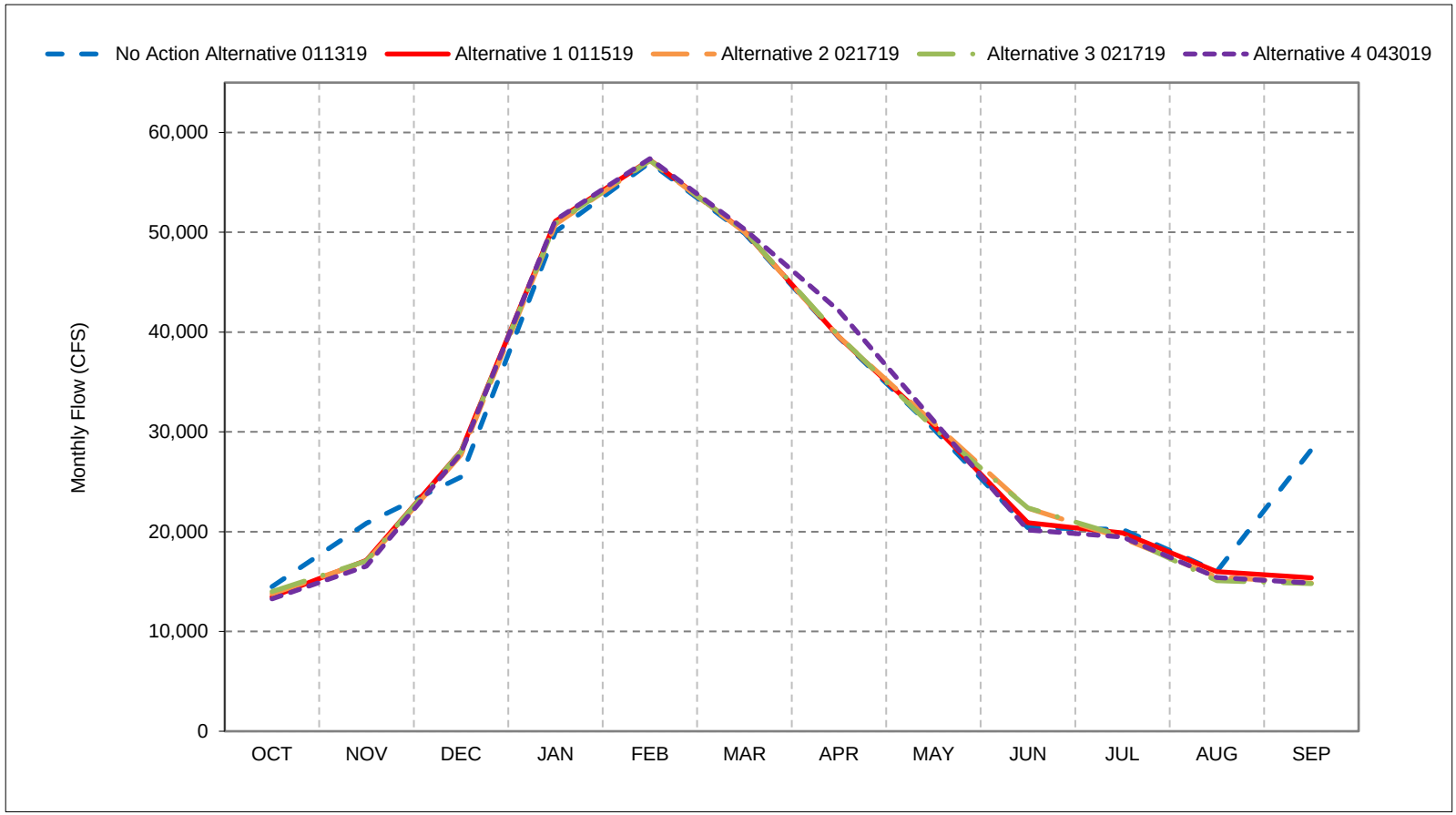
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 29-1. Sacramento River Flow at Freeport, Long-Term Average Flow



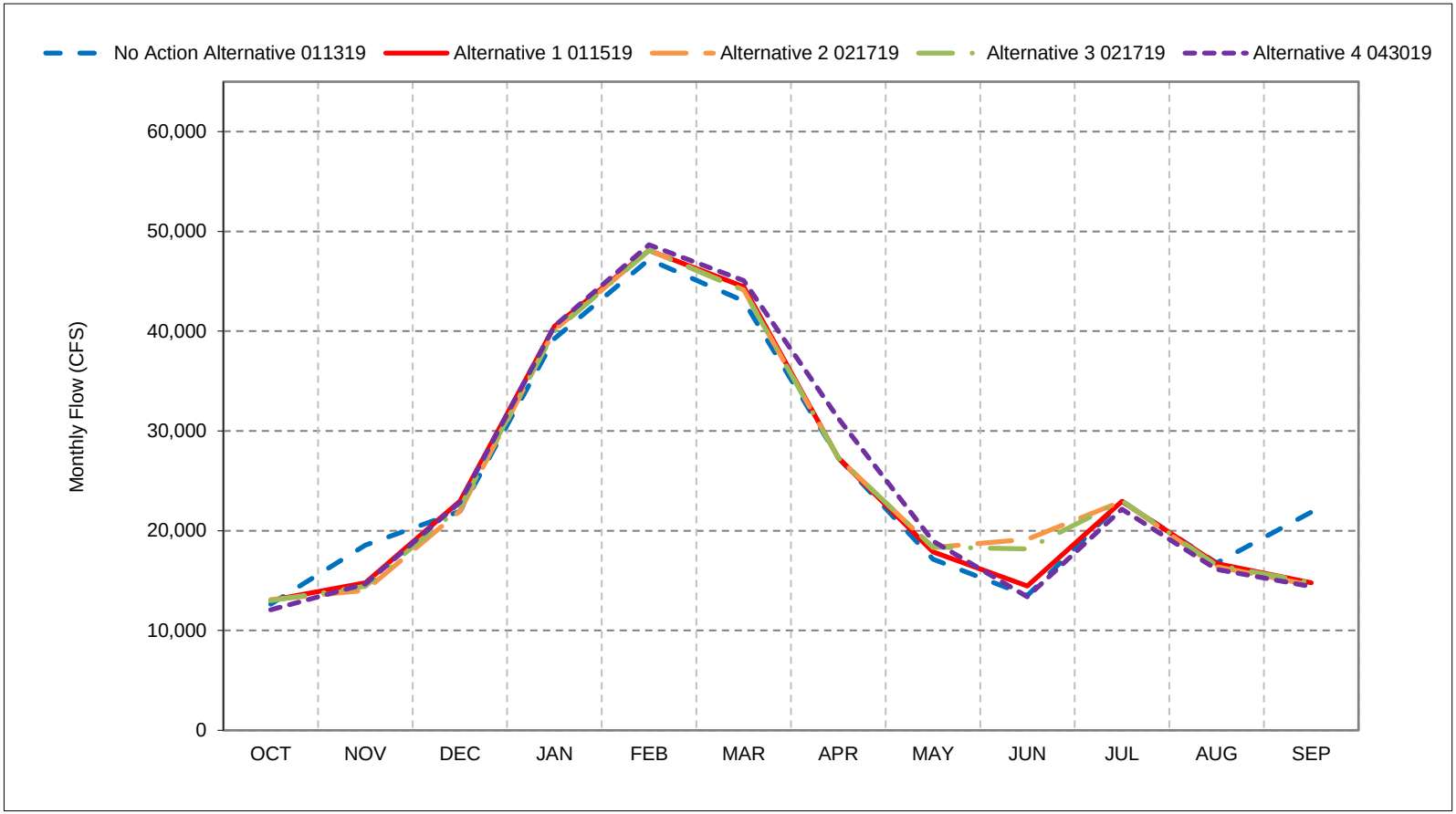
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 29-2. Sacramento River Flow at Freeport, Wet Year Average Flow



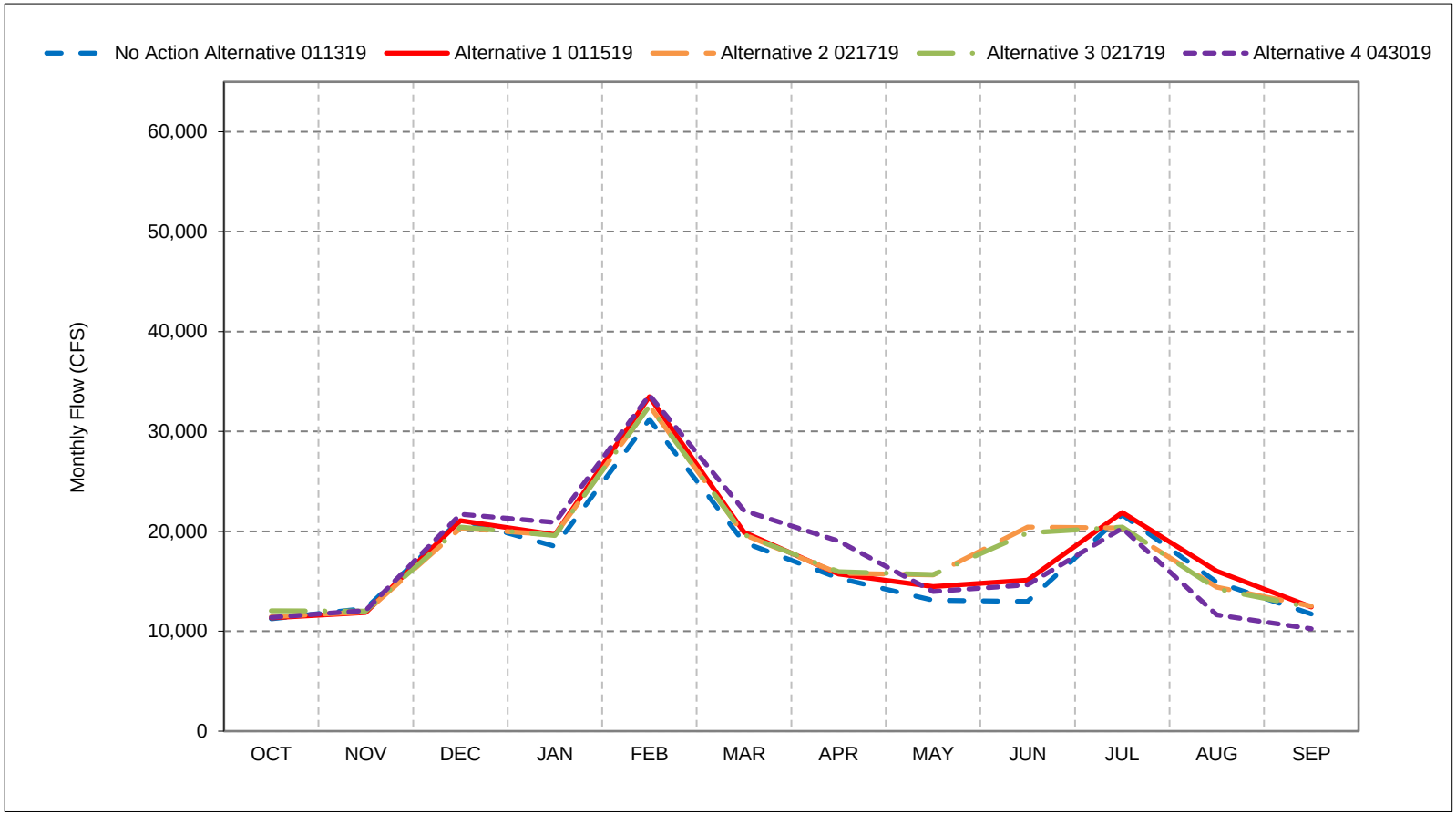
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 29-3. Sacramento River Flow at Freeport, Above Normal Year Average Flow



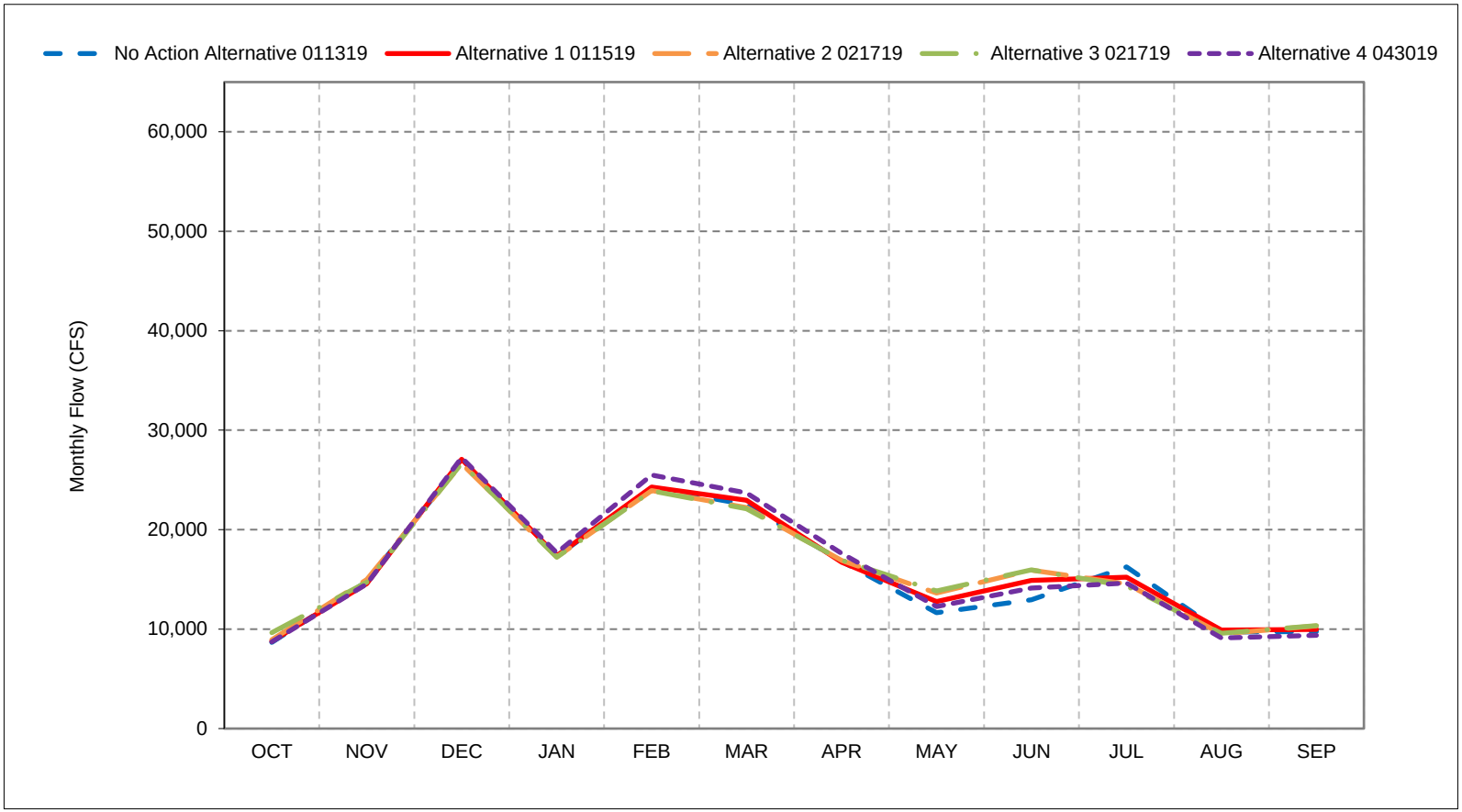
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 29-4. Sacramento River Flow at Freeport, Below Normal Year Average Flow



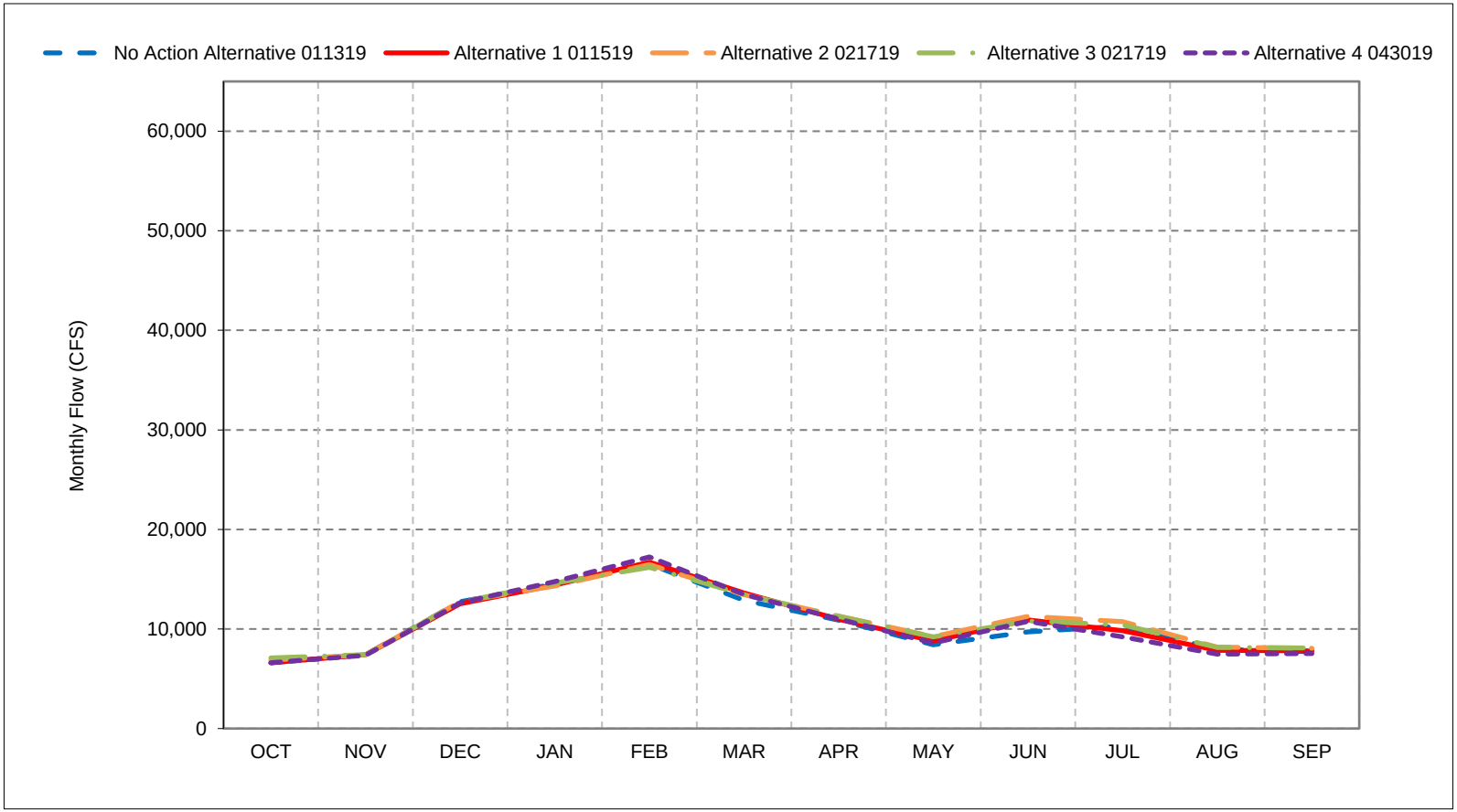
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 29-5. Sacramento River Flow at Freeport, Dry Year Average Flow



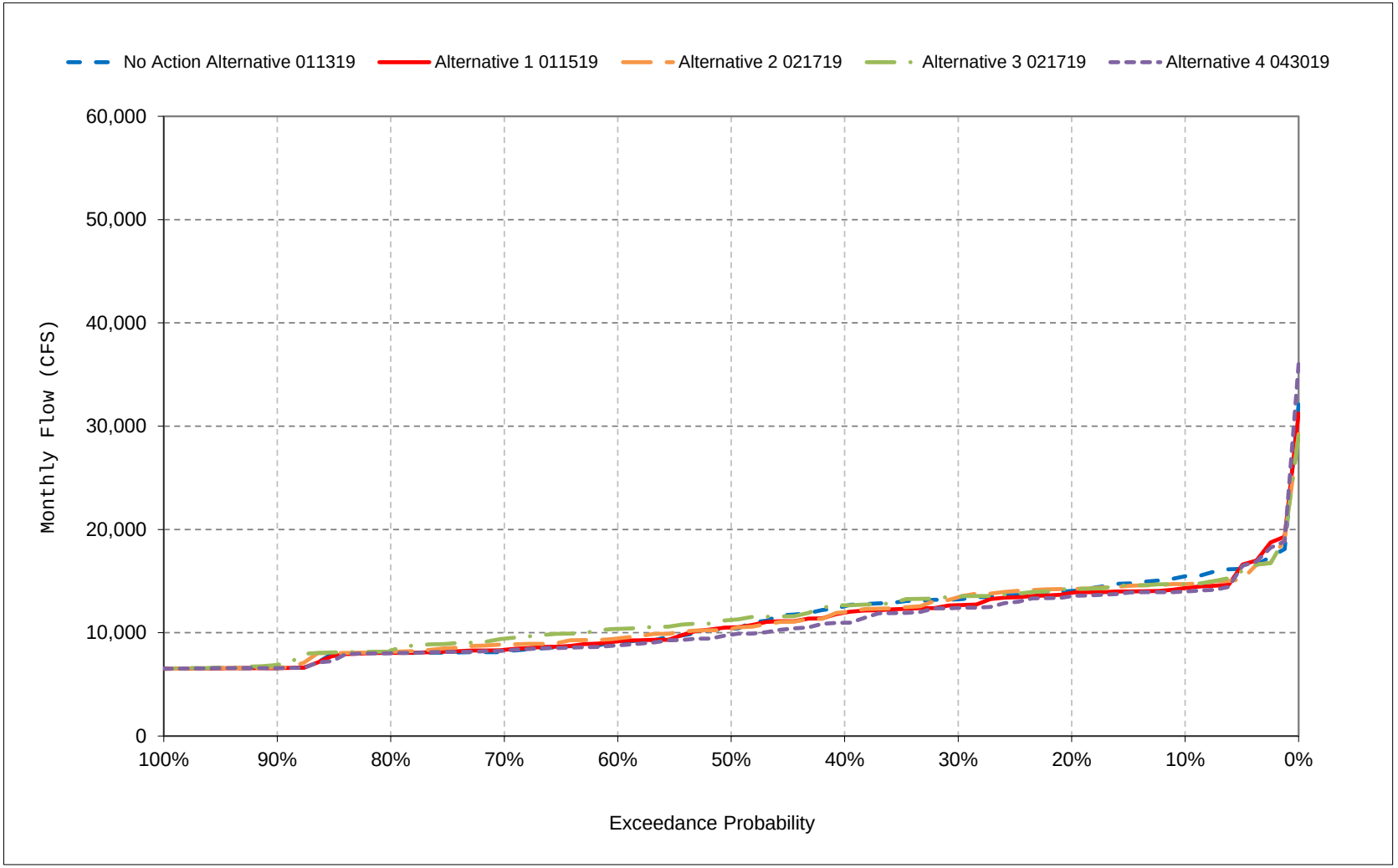
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 29-6. Sacramento River Flow at Freeport, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

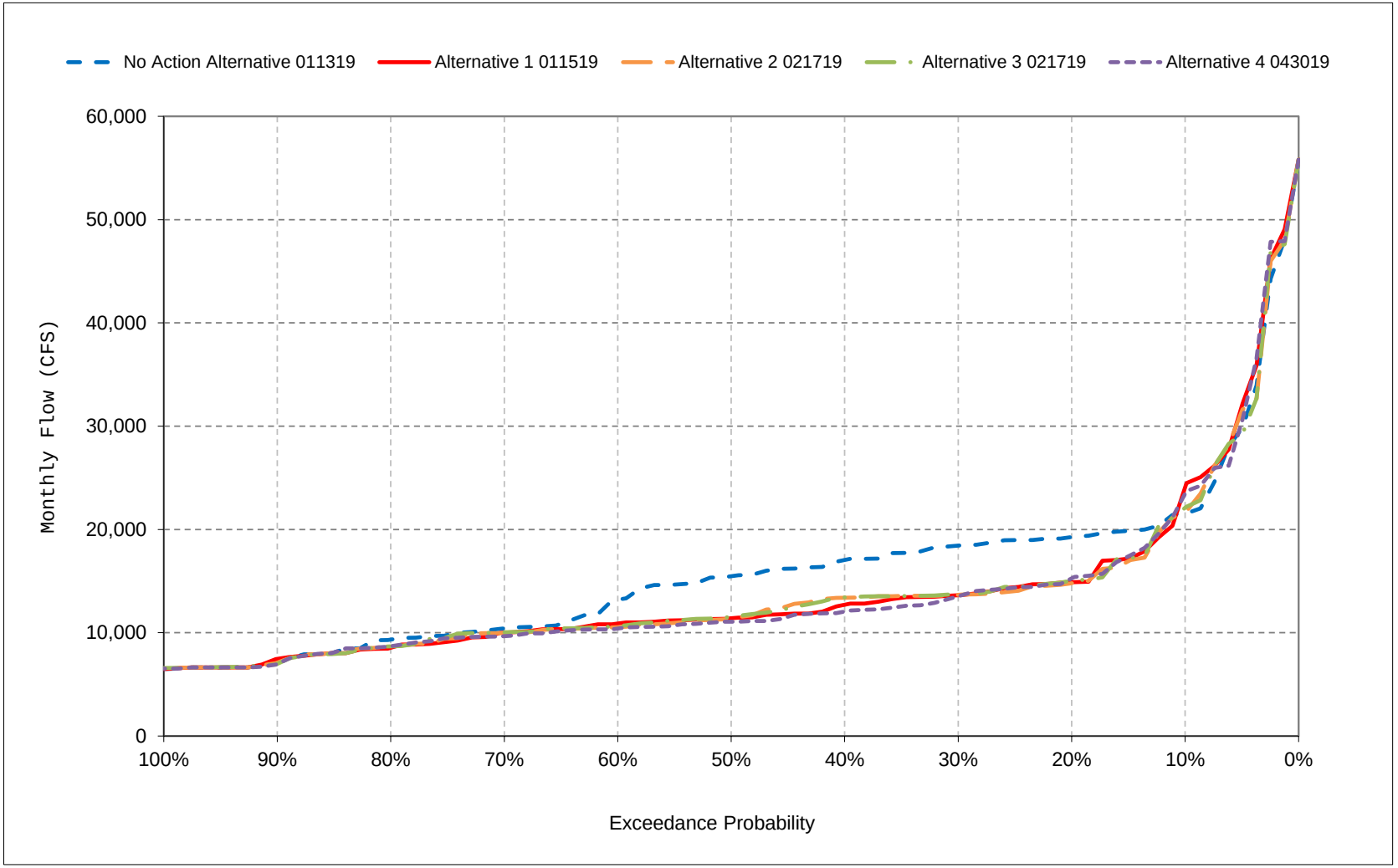
Figure 29-7. Sacramento River Flow at Freeport, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

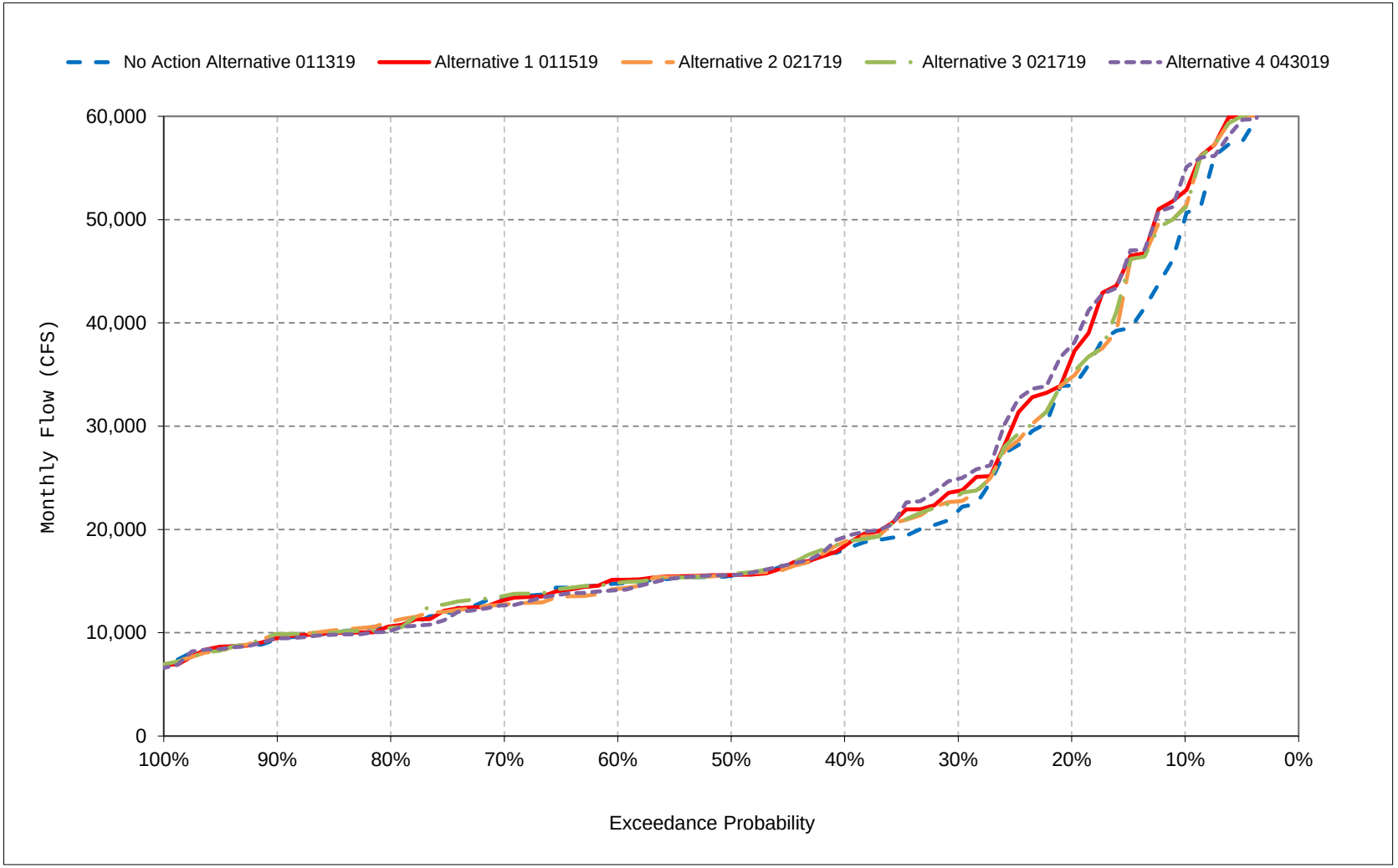
Figure 29-8. Sacramento River Flow at Freeport, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

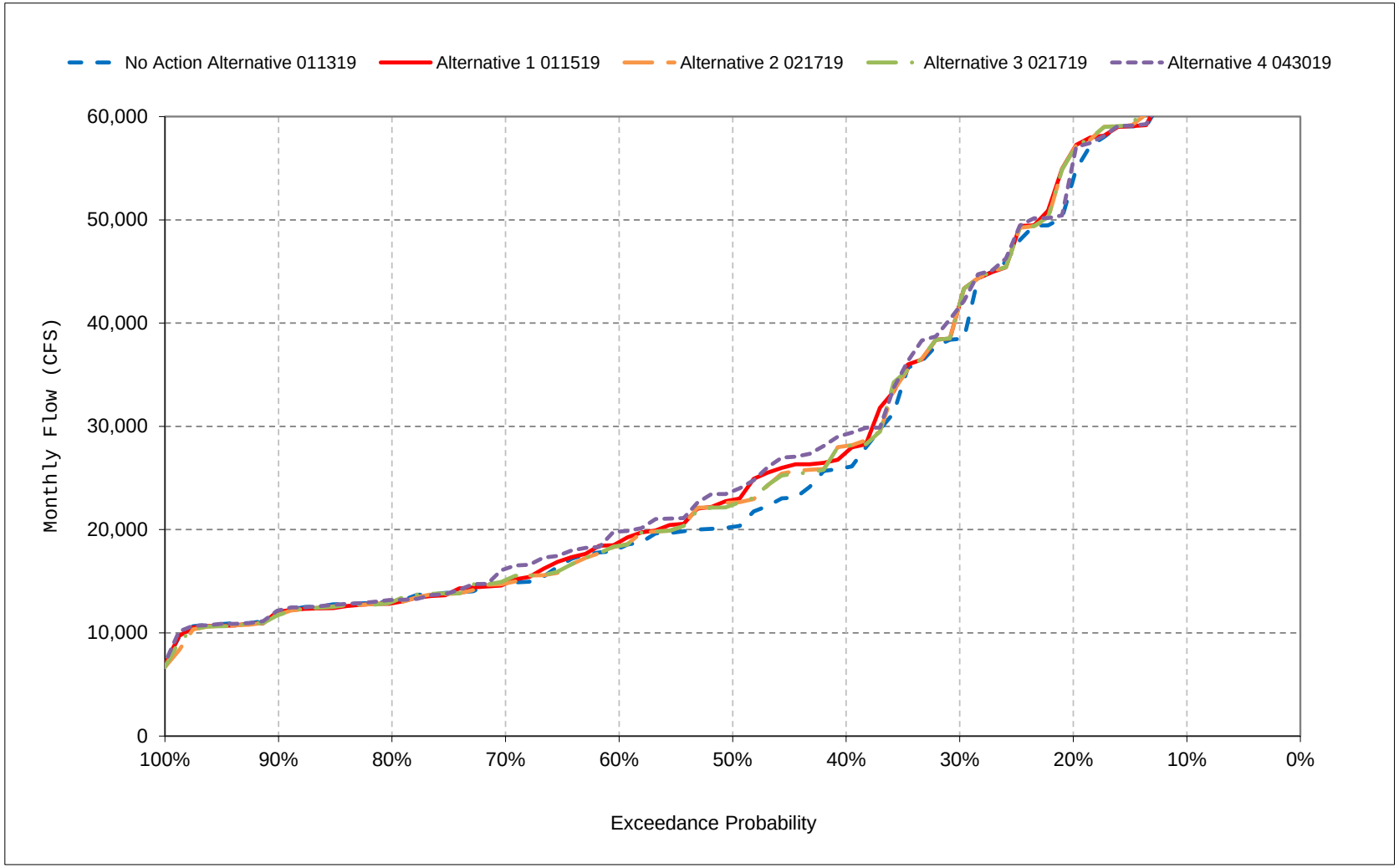
Figure 29-9. Sacramento River Flow at Freeport, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

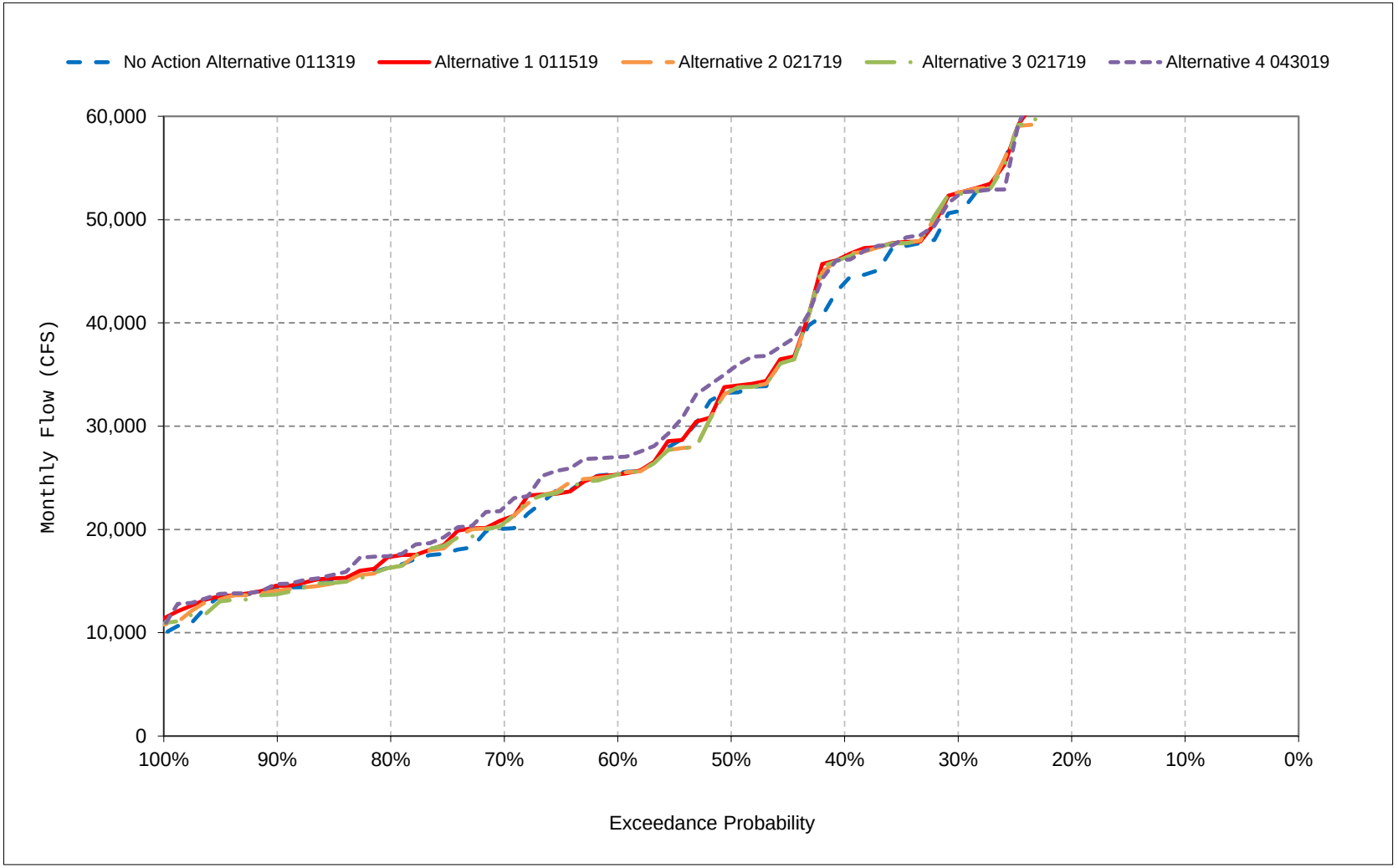
Figure 29-10. Sacramento River Flow at Freeport, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

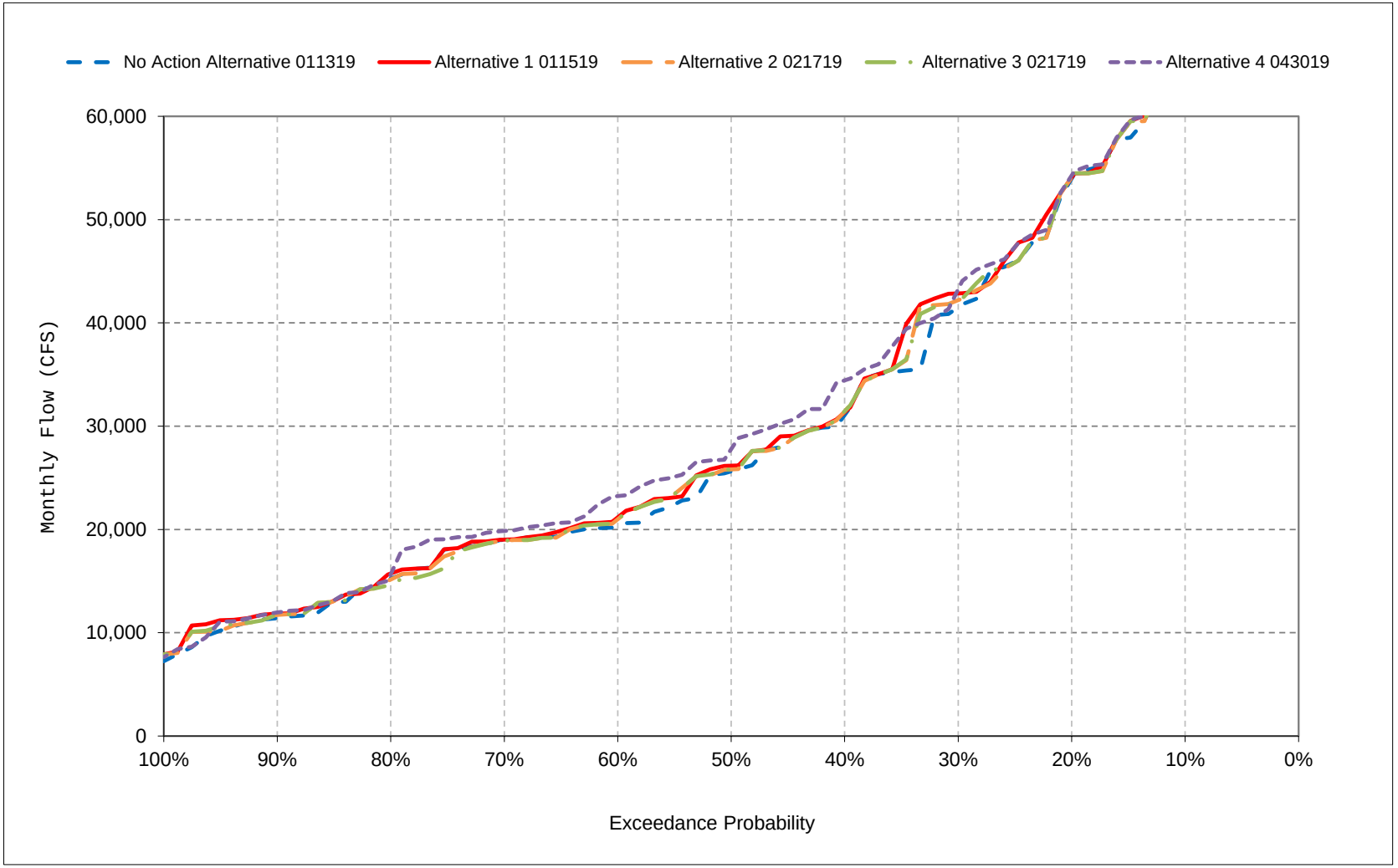
Figure 29-11. Sacramento River Flow at Freeport, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

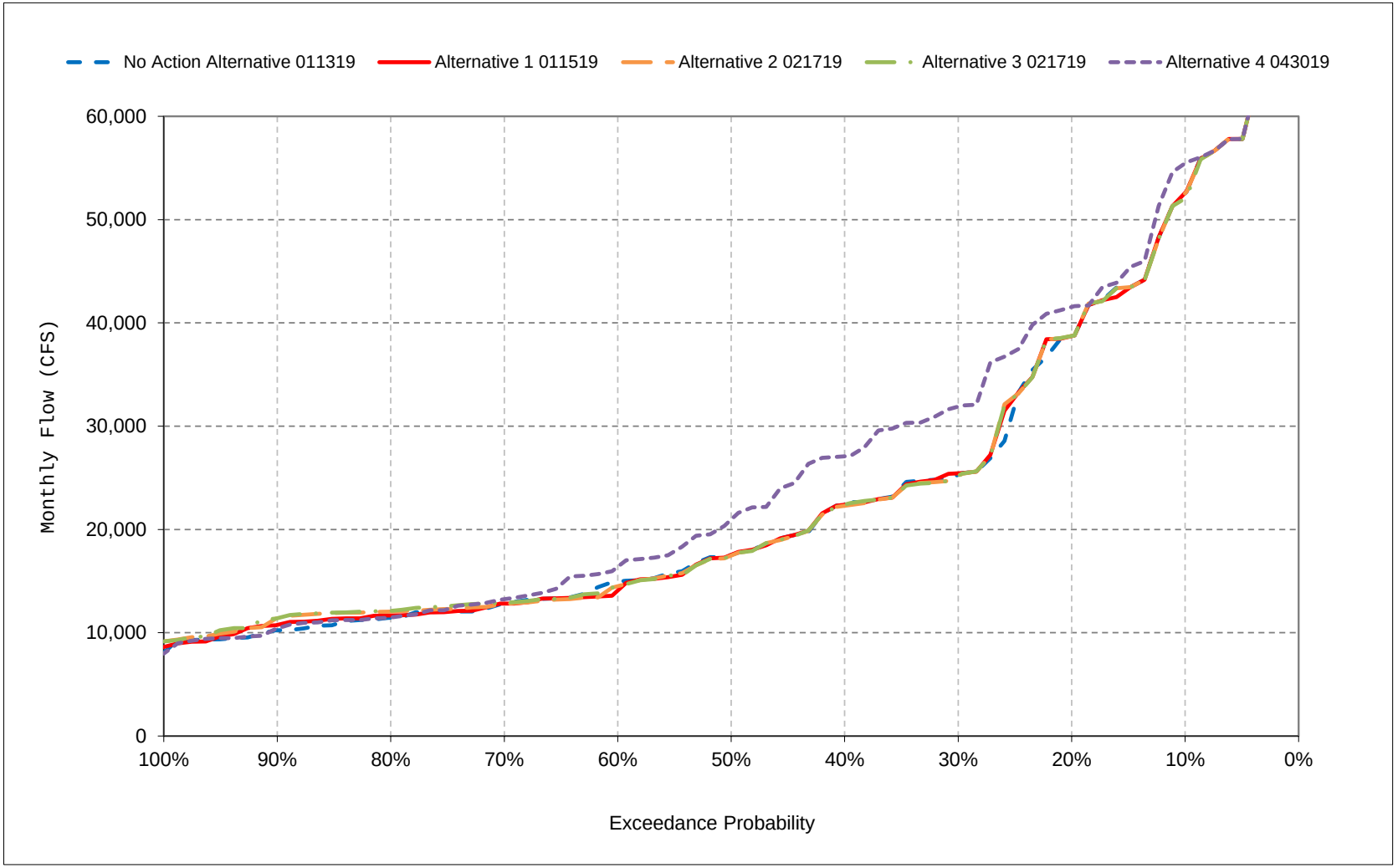
Figure 29-12. Sacramento River Flow at Freeport, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

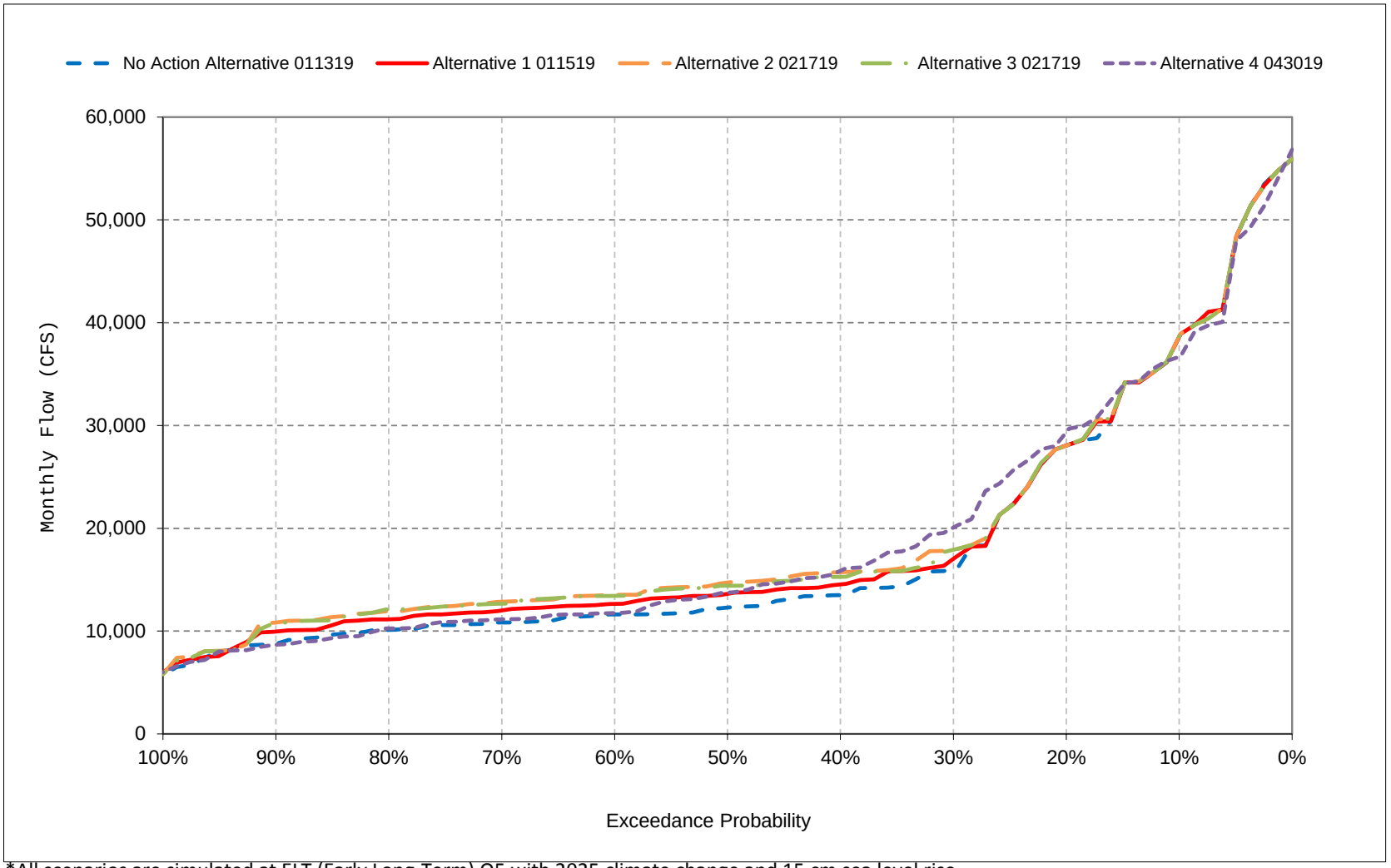
Figure 29-13. Sacramento River Flow at Freeport, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

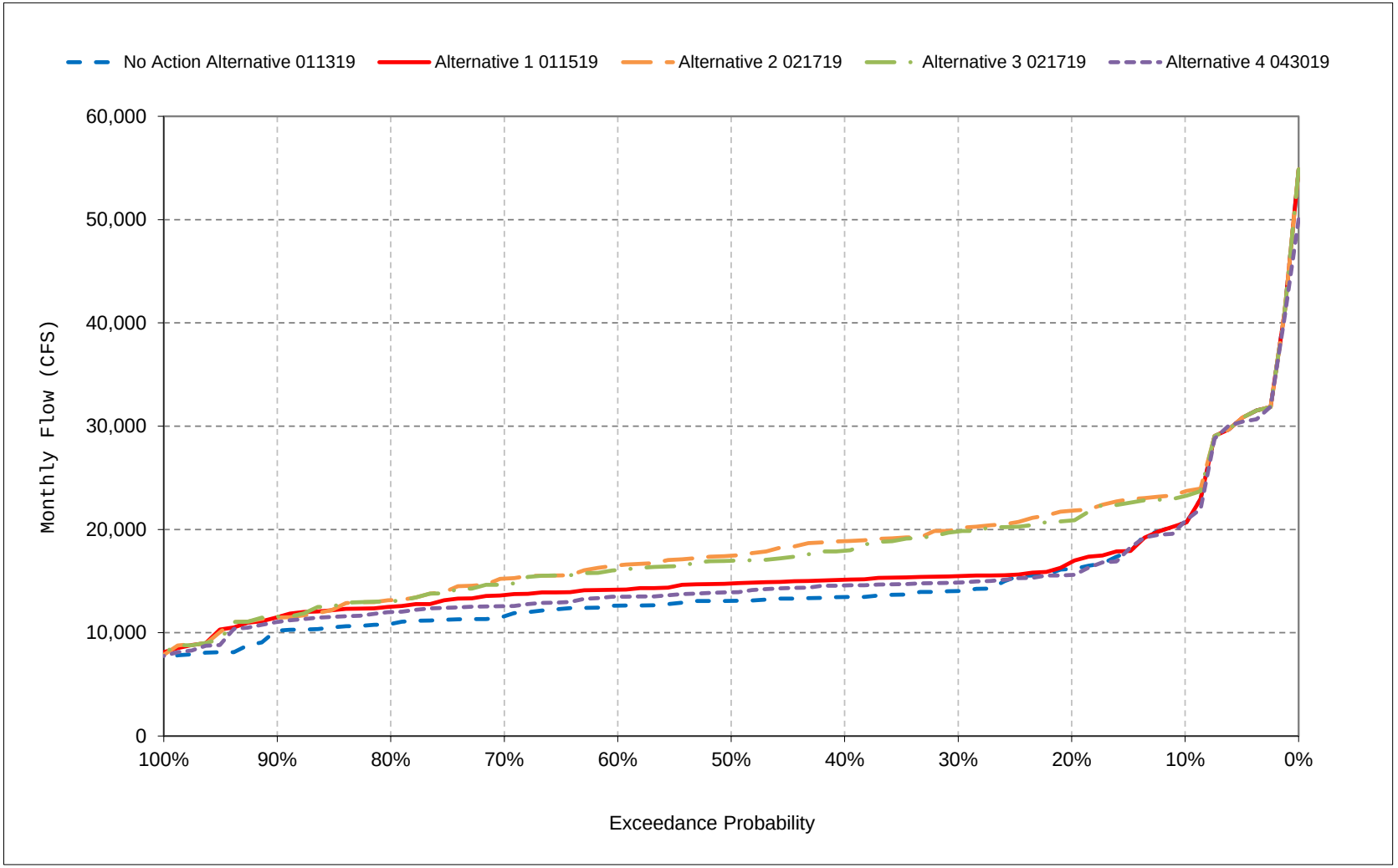
Figure 29-14. Sacramento River Flow at Freeport, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

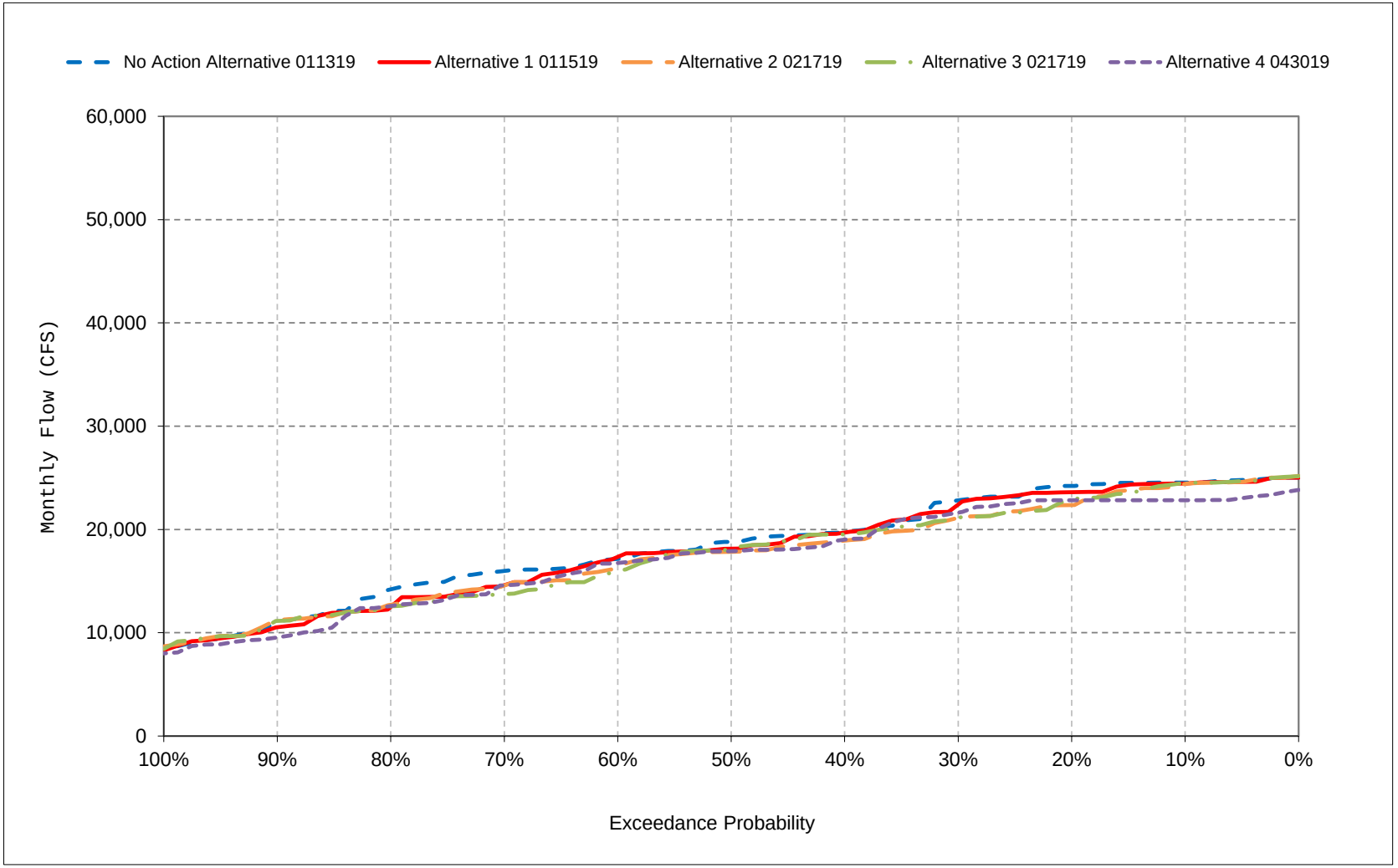
Figure 29-15. Sacramento River Flow at Freeport, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

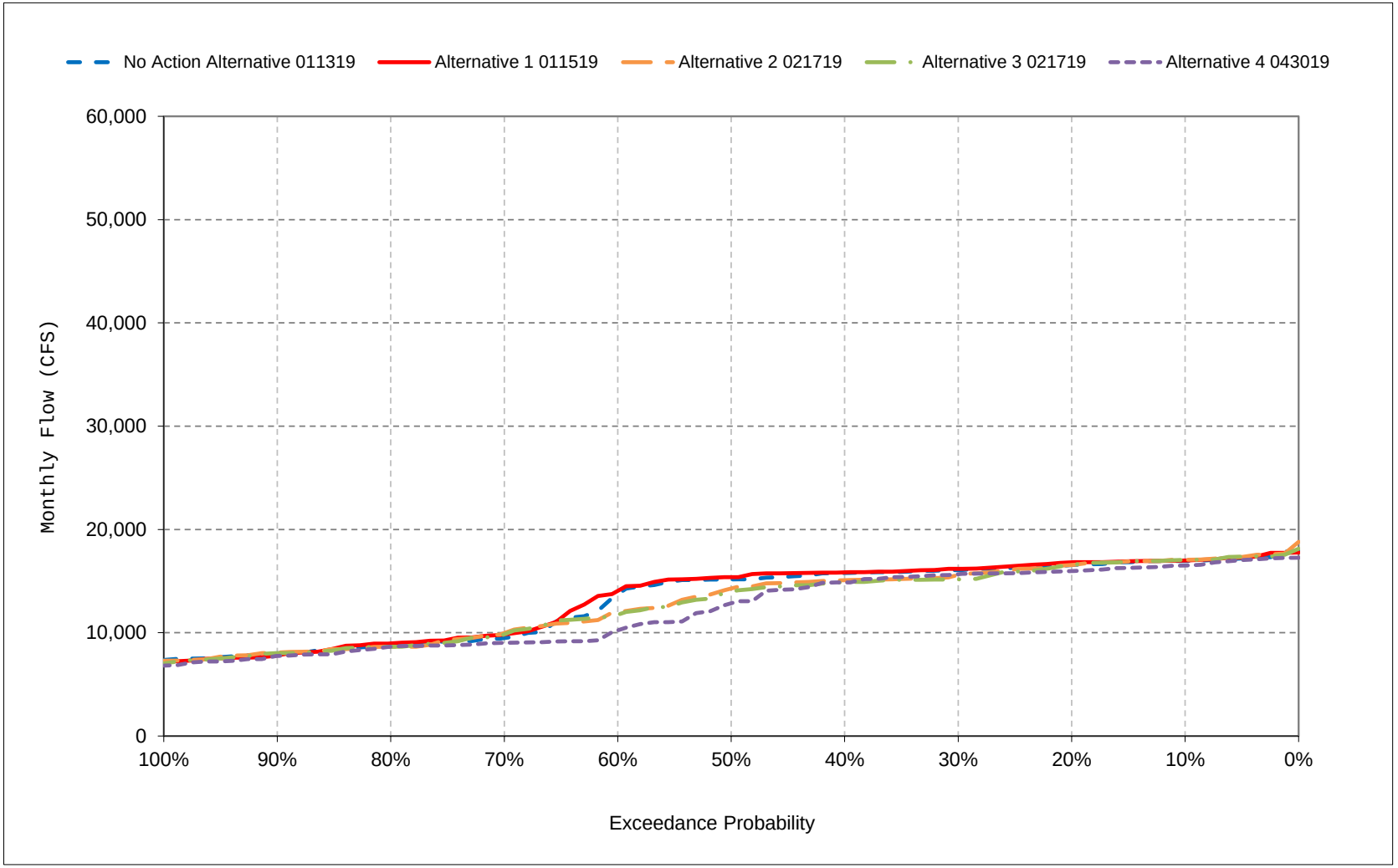
Figure 29-16. Sacramento River Flow at Freeport, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

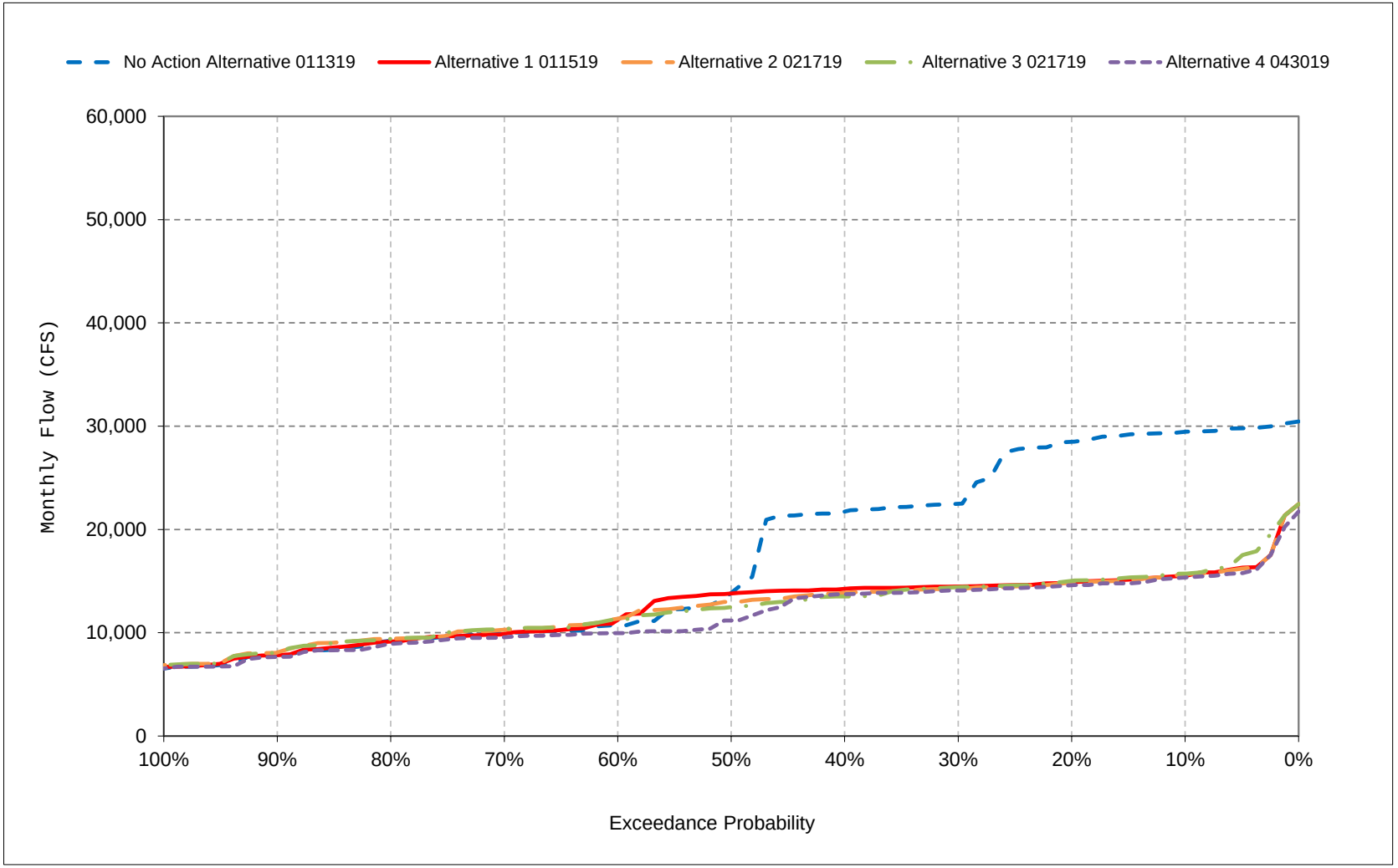
Figure 29-17. Sacramento River Flow at Freeport, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 29-18. Sacramento River Flow at Freeport, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 32-1. Sacramento River Flow at Rio Vista, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,903	18,621	59,795	90,564	115,622	71,578	54,378	32,151	12,575	14,373	9,715	24,126
20%	9,306	15,531	33,264	59,683	75,065	54,949	36,578	22,549	9,094	14,177	9,404	23,512
30%	8,161	14,419	18,523	43,955	55,187	40,265	21,104	12,100	7,689	13,172	9,064	13,705
40%	7,316	12,489	14,842	26,557	44,175	28,903	18,471	9,826	7,217	11,136	8,880	13,181
50%	5,735	11,579	11,994	18,547	31,939	22,096	13,814	8,905	7,070	10,495	8,499	7,859
60%	4,792	8,535	10,708	15,222	22,703	16,751	11,378	8,179	6,674	9,382	7,525	5,753
70%	4,218	6,479	9,550	12,124	16,606	15,413	9,541	7,439	5,981	8,554	4,533	5,220
80%	4,000	5,692	7,002	10,482	13,230	12,084	8,411	6,993	5,455	7,381	4,009	4,655
90%	3,002	4,020	5,869	9,375	11,472	8,470	7,390	5,834	5,003	5,254	3,547	3,742
Long Term												
Full Simulation Period[a]	6,803	12,324	22,567	38,108	48,140	36,365	22,467	14,144	8,825	10,214	7,177	11,805
Water Year Types[b,c]												
Wet (32%)	9,583	17,176	25,983	75,058	85,434	65,804	39,726	24,976	13,818	11,436	9,084	22,317
Above Normal (16%)	7,713	15,026	19,270	42,094	58,153	44,982	23,982	13,276	7,294	13,278	9,560	13,242
Below Normal (13%)	7,280	8,368	20,237	16,001	31,094	15,702	11,888	9,515	6,899	12,387	8,321	6,414
Dry (24%)	4,590	11,315	29,228	15,265	23,021	19,563	13,598	8,341	6,885	8,752	4,700	5,065
Critical (15%)	3,044	4,194	9,768	12,070	13,978	10,189	7,912	5,532	4,668	4,694	3,547	3,651

Alternative 1 011519

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,384	20,662	62,958	91,677	115,656	77,071	54,377	32,151	12,572	14,334	9,804	8,888
20%	8,619	11,055	38,523	60,974	75,487	54,947	36,575	22,548	9,584	13,694	9,567	8,470
30%	7,739	9,566	20,330	44,843	58,999	40,588	21,437	12,834	8,648	12,851	9,257	8,251
40%	6,684	8,216	15,394	27,131	49,242	29,199	18,422	10,894	8,385	11,033	8,989	8,083
50%	5,773	7,254	11,933	20,320	32,162	22,882	13,788	9,791	8,275	10,047	8,647	7,749
60%	4,820	6,725	10,886	15,734	23,301	18,362	10,714	9,134	7,740	9,463	7,584	6,077
70%	4,374	6,150	9,445	12,270	17,373	15,474	9,528	8,748	7,365	7,604	4,935	5,129
80%	4,097	5,125	7,042	10,453	14,113	12,292	8,636	7,938	6,551	6,151	4,272	4,638
90%	3,000	4,173	6,002	9,384	11,555	8,900	7,830	6,806	5,932	4,751	3,388	3,767
Long Term												
Full Simulation Period[a]	6,557	10,461	24,033	39,117	49,161	37,124	22,527	14,786	9,707	9,943	7,286	6,871
Water Year Types[b,c]												
Wet (32%)	8,830	13,269	29,718	77,045	86,207	66,254	39,782	25,280	14,166	11,200	9,052	8,843
Above Normal (16%)	7,686	11,579	20,554	43,391	60,217	46,632	24,004	13,898	7,967	13,280	9,523	8,422
Below Normal (13%)	7,107	8,033	20,157	17,278	34,240	16,744	12,240	10,726	8,412	12,545	9,091	6,878
Dry (24%)	4,674	11,178	29,684	15,323	23,035	20,050	13,515	9,307	8,260	8,048	4,846	5,186
Critical (15%)	3,040	4,199	9,617	11,982	14,137	10,848	7,991	5,867	5,529	4,381	3,448	3,717

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-1,518**	2,041	3,163	1,113	34	5,494	**-1**	0	**-3**	**-39**	88	**-15,238**
20%	**-688**	**-4,476**	5,259	1,291	422	**-2**	**-3**	**-1**	490	**-483**	164	**-15,042**
30%	**-422**	**-4,852**	1,807	888	3,813	323	333	734	959	**-321**	193	**-5,453**
40%	**-632**	**-4,273**	552	574	5,068	296	**-49**	1,068	1,168	**-103**	109	**-5,098**
50%	39	**-4,325**	**-61**	1,773	223	786	**-26**	886	1,205	**-448**	149	**-110**
60%	27	**-1,810**	178	512	598	1,611	**-663**	954	1,066	81	59	324
70%	156	**-329**	**-106**	146	767	61	**-13**	1,309	1,383	**-949**	402	**-91**
80%	97	**-566**	40	**-29**	883	208	225	945	1,097	**-1,230**	263	**-17**
90%	**-2**	153	133	9	83	431	441	973	929	**-503**	**-159**	25
Long Term												
Full Simulation Period[a]	**-246**	**-1,863**	1,466	1,008	1,021	759	60	642	882	**-271**	109	**-4,935**
Water Year Types[b,c]												
Wet (32%)	**-752**	**-3,908**	3,735	1,987	773	450	57	304	348	**-236**	**-32**	**-13,474**
Above Normal (16%)	**-27**	**-3,447**	1,285	1,297	2,064	1,650	22	621	673	1	**-37**	**-4,820**
Below Normal (13%)	**-172**	**-335**	**-80**	1,277	3,146	1,042	352	1,211	1,514	158	771	464
Dry (24%)	83	**-137**	456	58	14	487	**-83**	967	1,376	**-704**	146	121
Critical (15%)	**-3**	5	**-151**	**-89**	159	659	78	336	861	**-313**	**-99**	66

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Table 32-2. Sacramento River Flow at Rio Vista, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,903	18,621	59,795	90,564	115,622	71,578	54,378	32,151	12,575	14,373	9,715	24,126
20%	9,306	15,531	33,264	59,683	75,065	54,949	36,578	22,549	9,094	14,177	9,404	23,512
30%	8,161	14,419	18,523	43,955	55,187	40,265	21,104	12,100	7,689	13,172	9,064	13,705
40%	7,316	12,489	14,842	26,557	44,175	28,903	18,471	9,826	7,217	11,136	8,880	13,181
50%	5,735	11,579	11,994	18,547	31,939	22,096	13,814	8,905	7,070	10,495	8,499	7,859
60%	4,792	8,535	10,708	15,222	22,703	16,751	11,378	8,179	6,674	9,382	7,525	5,753
70%	4,218	6,479	9,550	12,124	16,606	15,413	9,541	7,439	5,981	8,554	4,533	5,220
80%	4,000	5,692	7,002	10,482	13,230	12,084	8,411	6,993	5,455	7,381	4,009	4,655
90%	3,002	4,020	5,869	9,375	11,472	8,470	7,390	5,834	5,003	5,254	3,547	3,742
Long Term												
Full Simulation Period[a]	6,803	12,324	22,567	38,108	48,140	36,365	22,467	14,144	8,825	10,214	7,177	11,805
Water Year Types[b,c]												
Wet (32%)	9,583	17,176	25,983	75,058	85,434	65,804	39,726	24,976	13,818	11,436	9,084	22,317
Above Normal (16%)	7,713	15,026	19,270	42,094	58,153	44,982	23,982	13,276	7,294	13,278	9,560	13,242
Below Normal (13%)	7,280	8,368	20,237	16,001	31,094	15,702	11,888	9,515	6,899	12,387	8,321	6,414
Dry (24%)	4,590	11,315	29,228	15,265	23,021	19,563	13,598	8,341	6,885	8,752	4,700	5,065
Critical (15%)	3,044	4,194	9,768	12,070	13,978	10,189	7,912	5,532	4,668	4,694	3,547	3,651

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,506	15,812	60,937	91,776	115,805	74,940	54,379	32,162	14,450	14,254	9,741	9,008
20%	8,183	9,686	35,251	60,935	73,321	54,860	36,663	22,545	13,074	12,864	9,496	8,465
30%	7,691	8,748	17,381	44,833	55,616	40,272	21,054	13,723	11,900	12,103	8,946	8,130
40%	6,642	8,488	13,428	26,972	48,595	29,036	18,415	11,857	10,991	10,513	8,323	7,823
50%	5,641	7,085	11,070	18,222	31,898	22,707	13,728	10,917	10,083	9,861	7,827	7,214
60%	4,919	6,478	9,925	14,215	23,182	18,181	11,044	9,889	9,449	8,782	6,284	6,158
70%	4,525	6,004	8,371	11,443	17,319	15,357	9,601	9,299	8,570	7,601	4,875	5,405
80%	4,016	5,113	7,059	9,435	13,185	11,797	8,935	8,605	7,047	6,233	3,955	4,773
90%	3,000	3,968	6,189	8,536	11,314	8,753	8,323	7,552	5,870	5,414	3,583	3,996
Long Term												
Full Simulation Period[a]	6,201	9,965	22,880	38,195	48,823	36,784	22,621	15,296	11,278	9,666	6,960	6,830
Water Year Types[b,c]												
Wet (32%)	7,883	12,590	28,927	76,061	86,150	66,073	39,799	25,486	15,210	10,841	8,700	8,477
Above Normal (16%)	7,393	10,543	18,677	42,627	60,124	46,267	23,976	14,299	11,278	13,274	9,302	8,277
Below Normal (13%)	6,998	7,588	18,857	16,646	32,845	16,538	12,334	11,744	12,159	11,508	7,989	6,934
Dry (24%)	4,600	10,988	28,291	14,299	22,665	19,319	13,670	10,070	8,984	7,585	4,584	5,445
Critical (15%)	3,203	4,123	9,005	10,931	13,949	10,716	8,283	6,266	5,772	4,991	3,670	3,903

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-2,397**	**-2,809**	1,142	1,211	183	3,363	1	11	1,876	**-119**	26	**-15,118**
20%	**-1,123**	**-5,845**	1,987	1,252	**-1,745**	**-89**	85	**-4**	3,980	**-1,313**	93	**-15,047**
30%	**-470**	**-5,670**	**-1,142**	878	429	7	**-51**	1,623	4,210	**-1,069**	**-118**	**-5,575**
40%	**-674**	**-4,001**	**-1,414**	416	4,420	133	**-56**	2,031	3,774	**-624**	**-556**	**-5,358**
50%	**-94**	**-4,494**	**-924**	**-325**	**-40**	611	**-86**	2,012	3,013	**-634**	**-672**	**-645**
60%	127	**-2,057**	**-783**	**-1,007**	478	1,430	**-333**	1,710	2,775	**-600**	**-1,241**	405
70%	307	**-474**	**-1,179**	**-681**	713	**-57**	60	1,860	2,589	**-953**	342	186
80%	16	**-579**	57	**-1,047**	**-45**	**-287**	524	1,612	1,592	**-1,148**	**-54**	118
90%	**-2**	**-52**	320	**-839**	**-158**	283	933	1,718	868	160	35	254
Long Term												
Full Simulation Period[a]	**-602**	**-2,360**	314	87	683	419	154	1,152	2,452	**-549**	**-217**	**-4,976**
Water Year Types[b,c]												
Wet (32%)	**-1,699**	**-4,586**	2,944	1,003	716	269	74	510	1,392	**-595**	**-384**	**-13,839**
Above Normal (16%)	**-321**	**-4,484**	**-593**	533	1,971	1,285	**-7**	1,023	3,984	**-5**	**-258**	**-4,966**
Below Normal (13%)	**-282**	**-781**	**-1,381**	646	1,751	836	446	2,229	5,261	**-879**	**-331**	520
Dry (24%)	10	**-327**	**-937**	**-965**	**-355**	**-244**	72	1,730	2,099	**-1,167**	**-116**	380
Critical (15%)	159	**-72**	**-763**	**-1,139**	**-29**	526	370	734	1,104	297	123	253

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Table 32-3. Sacramento River Flow at Rio Vista, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,903	18,621	59,795	90,564	115,622	71,578	54,378	32,151	12,575	14,373	9,715	24,126
20%	9,306	15,531	33,264	59,683	75,065	54,949	36,578	22,549	9,094	14,177	9,404	23,512
30%	8,161	14,419	18,523	43,955	55,187	40,265	21,104	12,100	7,689	13,172	9,064	13,705
40%	7,316	12,489	14,842	26,557	44,175	28,903	18,471	9,826	7,217	11,136	8,880	13,181
50%	5,735	11,579	11,994	18,547	31,939	22,096	13,814	8,905	7,070	10,495	8,499	7,859
60%	4,792	8,535	10,708	15,222	22,703	16,751	11,378	8,179	6,674	9,382	7,525	5,753
70%	4,218	6,479	9,550	12,124	16,606	15,413	9,541	7,439	5,981	8,554	4,533	5,220
80%	4,000	5,692	7,002	10,482	13,230	12,084	8,411	6,993	5,455	7,381	4,009	4,655
90%	3,002	4,020	5,869	9,375	11,472	8,470	7,390	5,834	5,003	5,254	3,547	3,742
Long Term												
Full Simulation Period[a]	6,803	12,324	22,567	38,108	48,140	36,365	22,467	14,144	8,825	10,214	7,177	11,805
Water Year Types[b,c]												
Wet (32%)	9,583	17,176	25,983	75,058	85,434	65,804	39,726	24,976	13,818	11,436	9,084	22,317
Above Normal (16%)	7,713	15,026	19,270	42,094	58,153	44,982	23,982	13,276	7,294	13,278	9,560	13,242
Below Normal (13%)	7,280	8,368	20,237	16,001	31,094	15,702	11,888	9,515	6,899	12,387	8,321	6,414
Dry (24%)	4,590	11,315	29,228	15,265	23,021	19,563	13,598	8,341	6,885	8,752	4,700	5,065
Critical (15%)	3,044	4,194	9,768	12,070	13,978	10,189	7,912	5,532	4,668	4,694	3,547	3,651

Alternative 3 030519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,511	16,751	60,930	92,017	116,096	76,743	54,664	32,456	15,270	15,590	10,806	10,057
20%	9,174	10,555	35,658	62,491	73,758	55,149	36,947	22,845	13,644	14,397	10,462	9,623
30%	8,611	9,515	18,428	45,130	55,897	40,539	21,421	13,992	12,695	13,281	9,649	9,171
40%	8,055	9,272	14,155	27,307	49,450	29,346	18,719	11,672	11,453	12,104	9,238	8,593
50%	7,030	8,062	11,762	19,055	32,176	23,029	14,051	10,960	10,653	11,098	8,617	7,831
60%	6,439	7,262	10,841	14,816	23,474	18,483	11,352	10,198	10,015	9,576	7,268	6,981
70%	5,739	6,764	9,644	12,063	17,623	15,661	10,011	9,522	9,169	7,979	5,835	6,274
80%	4,879	5,649	7,471	10,169	13,532	11,700	9,438	9,068	7,834	7,202	4,933	5,623
90%	3,977	4,469	6,774	8,999	11,327	9,078	8,626	7,765	6,855	6,260	4,495	4,881
Long Term												
Full Simulation Period[a]	7,252	10,630	23,565	38,649	49,081	37,107	22,979	15,511	11,979	10,759	7,865	7,756
Water Year Types[b,c]												
Wet (32%)	9,017	13,339	29,711	76,457	86,363	66,474	40,186	25,342	16,016	12,103	9,444	9,447
Above Normal (16%)	8,333	11,543	19,642	42,884	60,413	46,619	24,291	14,617	11,593	14,547	10,455	9,451
Below Normal (13%)	8,188	8,354	19,487	17,015	33,189	16,850	12,769	12,046	12,790	12,731	8,840	7,805
Dry (24%)	5,734	11,401	28,710	14,818	22,950	19,506	14,010	10,553	9,942	8,490	5,538	6,336
Critical (15%)	3,931	4,575	9,662	11,691	14,148	11,080	8,586	6,617	6,300	5,717	4,627	4,574

Alternative 3 030519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-1,391**	**-1,870**	1,135	1,453	474	5,166	286	305	2,696	1,217	1,091	**-14,070**
20%	**-133**	**-4,976**	2,394	2,808	**-1,308**	200	369	297	4,551	220	1,058	**-13,889**
30%	450	**-4,903**	**-95**	1,176	711	274	317	1,892	5,006	109	585	**-4,534**
40%	739	**-3,217**	**-687**	751	5,275	443	248	1,846	4,236	967	358	**-4,588**
50%	1,295	**-3,517**	**-232**	508	237	933	237	2,055	3,583	603	118	**-28**
60%	1,647	**-1,273**	133	**-407**	770	1,732	**-26**	2,019	3,340	194	**-256**	1,228
70%	1,522	285	94	**-61**	1,017	247	470	2,084	3,187	**-574**	1,302	1,054
80%	879	**-43**	469	**-313**	302	**-384**	1,027	2,075	2,379	**-179**	924	968
90%	976	449	905	**-376**	**-145**	608	1,236	1,931	1,852	1,007	947	1,139
Long Term												
Full Simulation Period[a]	449	**-1,694**	998	540	941	742	512	1,367	3,153	544	688	**-4,050**
Water Year Types[b,c]												
Wet (32%)	**-566**	**-3,838**	3,728	1,398	929	670	460	366	2,198	667	360	**-12,869**
Above Normal (16%)	620	**-3,483**	372	790	2,260	1,637	308	1,340	4,298	1,268	895	**-3,791**
Below Normal (13%)	909	**-14**	**-751**	1,015	2,094	1,147	881	2,531	5,892	343	519	1,391
Dry (24%)	1,144	86	**-518**	**-447**	**-71**	**-57**	412	2,212	3,058	**-262**	838	1,271
Critical (15%)	888	381	**-106**	**-379**	170	890	674	1,085	1,632	1,023	1,080	923

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Table 32-4. Sacramento River Flow at Rio Vista, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,903	18,621	59,795	90,564	115,622	71,578	54,378	32,151	12,575	14,373	9,715	24,126
20%	9,306	15,531	33,264	59,683	75,065	54,949	36,578	22,549	9,094	14,177	9,404	23,512
30%	8,161	14,419	18,523	43,955	55,187	40,265	21,104	12,100	7,689	13,172	9,064	13,705
40%	7,316	12,489	14,842	26,557	44,175	28,903	18,471	9,826	7,217	11,136	8,880	13,181
50%	5,735	11,579	11,994	18,547	31,939	22,096	13,814	8,905	7,070	10,495	8,499	7,859
60%	4,792	8,535	10,708	15,222	22,703	16,751	11,378	8,179	6,674	9,382	7,525	5,753
70%	4,218	6,479	9,550	12,124	16,606	15,413	9,541	7,439	5,981	8,554	4,533	5,220
80%	4,000	5,692	7,002	10,482	13,230	12,084	8,411	6,993	5,455	7,381	4,009	4,655
90%	3,002	4,020	5,869	9,375	11,472	8,470	7,390	5,834	5,003	5,254	3,547	3,742
Long Term												
Full Simulation Period[a]	6,803	12,324	22,567	38,108	48,140	36,365	22,467	14,144	8,825	10,214	7,177	11,805
Water Year Types[b,c]												
Wet (32%)	9,583	17,176	25,983	75,058	85,434	65,804	39,726	24,976	13,818	11,436	9,084	22,317
Above Normal (16%)	7,713	15,026	19,270	42,094	58,153	44,982	23,982	13,276	7,294	13,278	9,560	13,242
Below Normal (13%)	7,280	8,368	20,237	16,001	31,094	15,702	11,888	9,515	6,899	12,387	8,321	6,414
Dry (24%)	4,590	11,315	29,228	15,265	23,021	19,563	13,598	8,341	6,885	8,752	4,700	5,065
Critical (15%)	3,044	4,194	9,768	12,070	13,978	10,189	7,912	5,532	4,668	4,694	3,547	3,651

Alternative 4 043019

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9,360	20,034	59,650	92,000	115,963	76,742	54,544	31,346	12,603	13,218	9,577	8,797
20%	8,538	11,412	40,134	62,313	74,142	55,226	38,665	23,757	8,790	13,168	9,031	8,301
30%	7,310	8,869	21,355	44,785	55,193	40,680	27,894	15,706	8,306	12,392	8,721	7,969
40%	6,236	7,662	16,006	27,848	48,175	29,700	22,562	12,005	8,015	10,638	8,260	7,689
50%	5,226	6,989	12,035	21,150	33,493	24,825	17,351	10,119	7,544	9,828	6,765	6,065
60%	4,580	6,404	10,622	16,918	24,658	20,256	12,745	8,440	7,251	9,074	5,305	5,274
70%	4,164	6,058	8,845	13,092	18,603	16,137	10,006	7,821	6,640	7,575	4,200	4,898
80%	4,000	5,292	6,854	10,491	14,388	12,269	8,356	7,041	6,199	6,310	3,970	4,530
90%	3,000	3,791	5,904	9,601	11,689	8,960	7,458	5,634	5,573	4,215	3,367	3,552
Long Term												
Full Simulation Period[a]	6,432	10,290	24,117	39,540	49,607	37,770	24,428	14,867	9,216	9,462	6,529	6,399
Water Year Types[b,c]												
Wet (32%)	8,564	12,763	29,545	77,467	86,207	66,592	42,155	25,670	13,596	10,910	8,669	8,488
Above Normal (16%)	7,033	11,274	20,394	43,419	60,528	47,314	27,491	14,850	7,201	12,735	9,121	8,165
Below Normal (13%)	7,692	8,279	20,795	18,547	34,301	18,868	15,114	10,289	8,090	11,479	6,114	5,394
Dry (24%)	4,612	11,231	29,958	15,612	24,335	20,734	14,365	8,860	7,728	7,652	4,292	4,800
Critical (15%)	3,043	4,141	9,701	12,289	14,629	10,702	8,015	5,686	5,420	3,948	3,193	3,545

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-1,542**	1,413	**-145**	1,436	341	5,165	165	**-805**	28	**-1,155**	**-139**	**-15,329**
20%	**-768**	**-4,120**	6,869	2,630	**-923**	276	2,087	1,209	**-304**	**-1,009**	**-373**	**-15,211**
30%	**-851**	**-5,549**	2,832	830	7	415	6,790	3,606	616	**-780**	**-343**	**-5,735**
40%	**-1,081**	**-4,827**	1,163	1,291	4,001	797	4,091	2,179	798	**-498**	**-620**	**-5,492**
50%	**-509**	**-4,590**	41	2,603	1,554	2,729	3,537	1,214	474	**-667**	**-1,734**	**-1,795**
60%	**-212**	**-2,131**	**-86**	1,696	1,954	3,505	1,367	261	577	**-308**	**-2,219**	**-480**
70%	**-54**	**-421**	**-705**	968	1,997	724	465	383	658	**-979**	**-333**	**-322**
80%	0	**-400**	**-148**	9	1,159	185	**-55**	49	745	**-1,071**	**-39**	**-125**
90%	**-1**	**-229**	35	226	217	491	68	**-199**	570	**-1,039**	**-180**	**-191**
Long Term												
Full Simulation Period[a]	**-370**	**-2,034**	1,551	1,432	1,468	1,405	1,961	723	390	**-752**	**-648**	**-5,406**
Water Year Types[b,c]												
Wet (32%)	**-1,018**	**-4,413**	3,562	2,409	774	788	2,429	694	**-222**	**-526**	**-415**	**-13,829**
Above Normal (16%)	**-680**	**-3,753**	1,125	1,325	2,374	2,333	3,509	1,574	**-93**	**-544**	**-439**	**-5,077**
Below Normal (13%)	412	**-90**	557	2,546	3,207	3,166	3,226	774	1,191	**-908**	**-2,206**	**-1,020**
Dry (24%)	22	**-84**	729	348	1,314	1,171	767	520	844	**-1,099**	**-408**	**-265**
Critical (15%)	**-1**	**-53**	**-67**	218	651	512	103	154	752	**-746**	**-354**	**-106**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

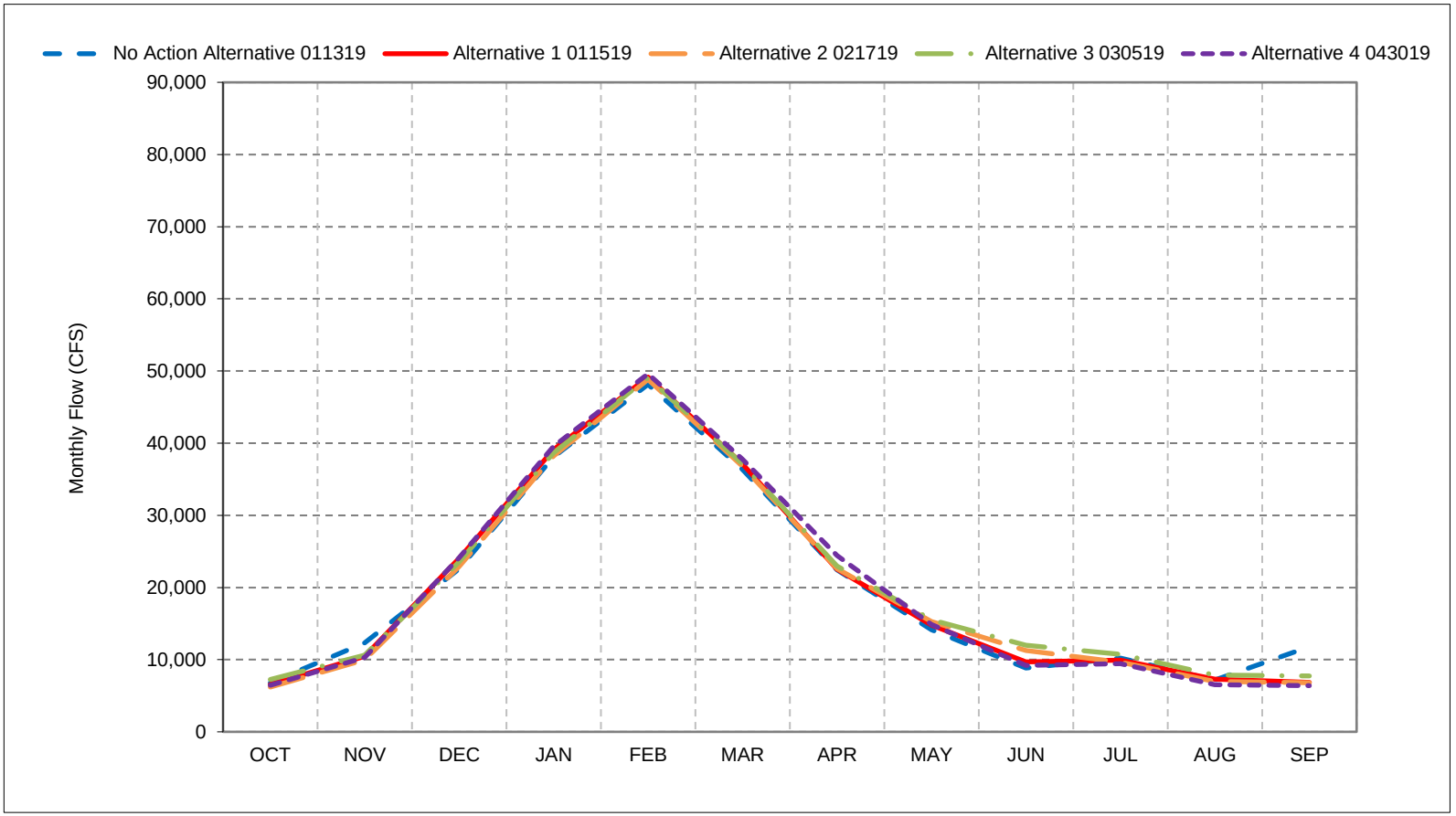
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

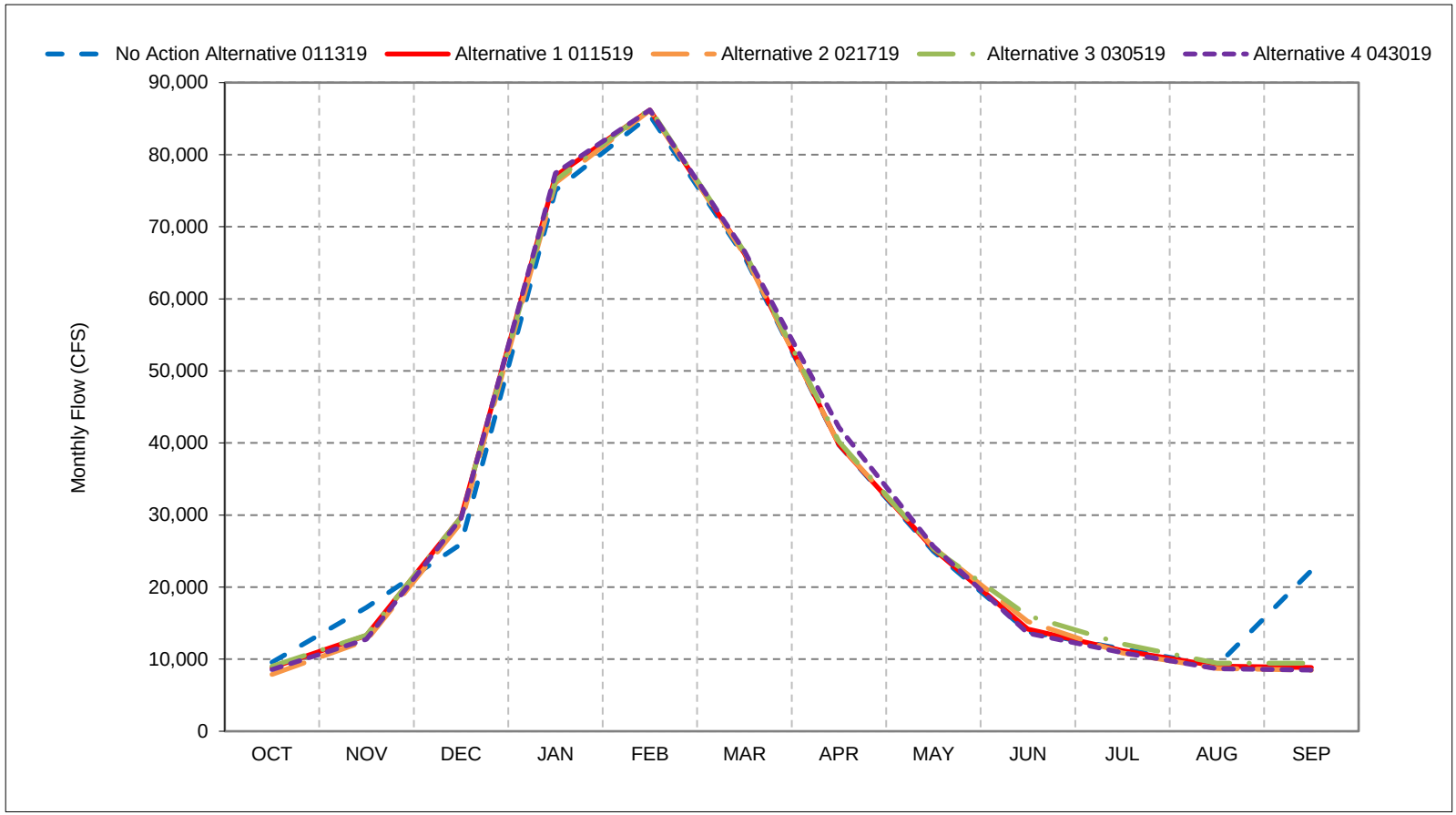
f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-1. Sacramento River Flow at Rio Vista, Long-Term Average Flow



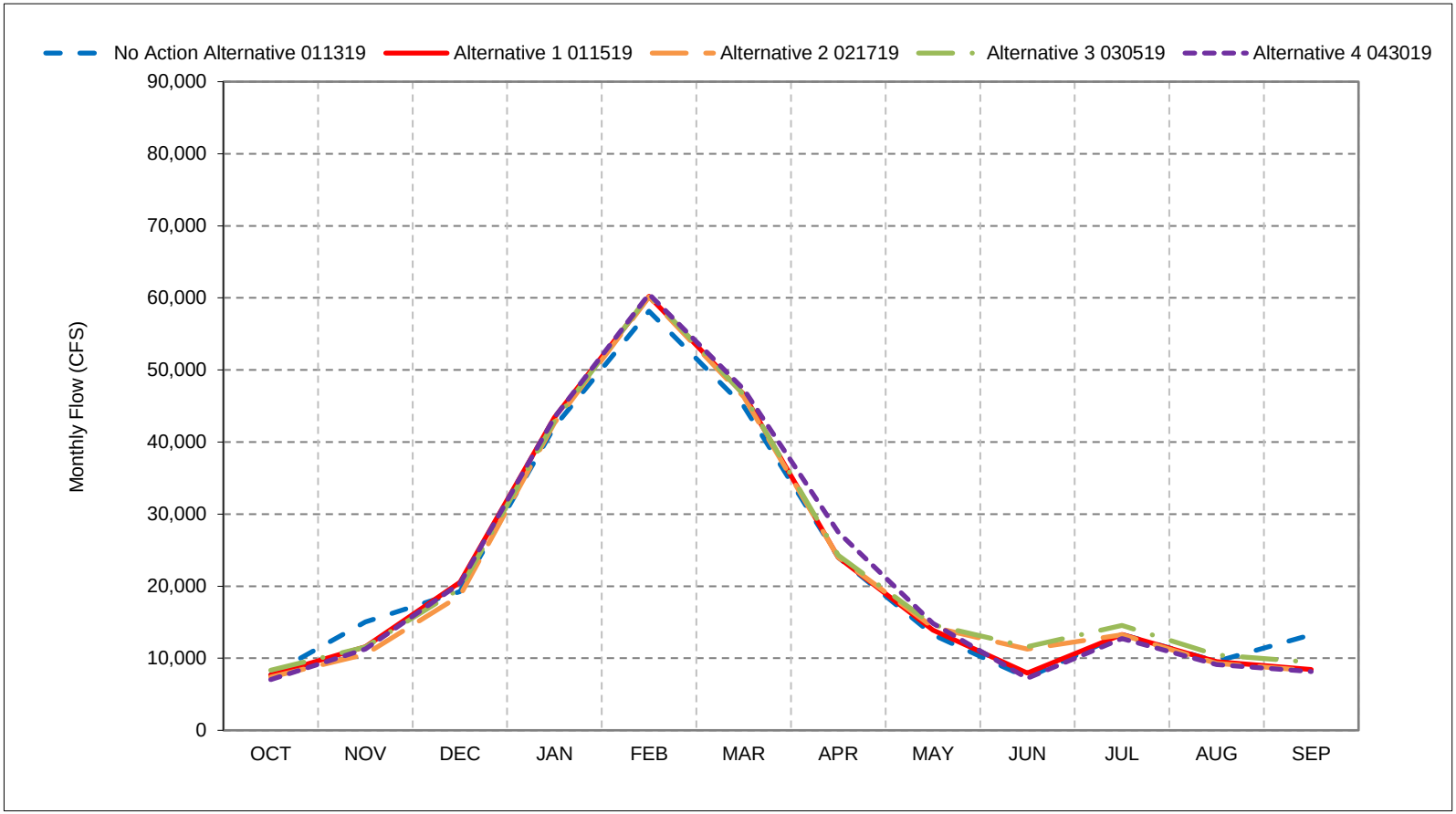
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-2. Sacramento River Flow at Rio Vista, Wet Year Average Flow



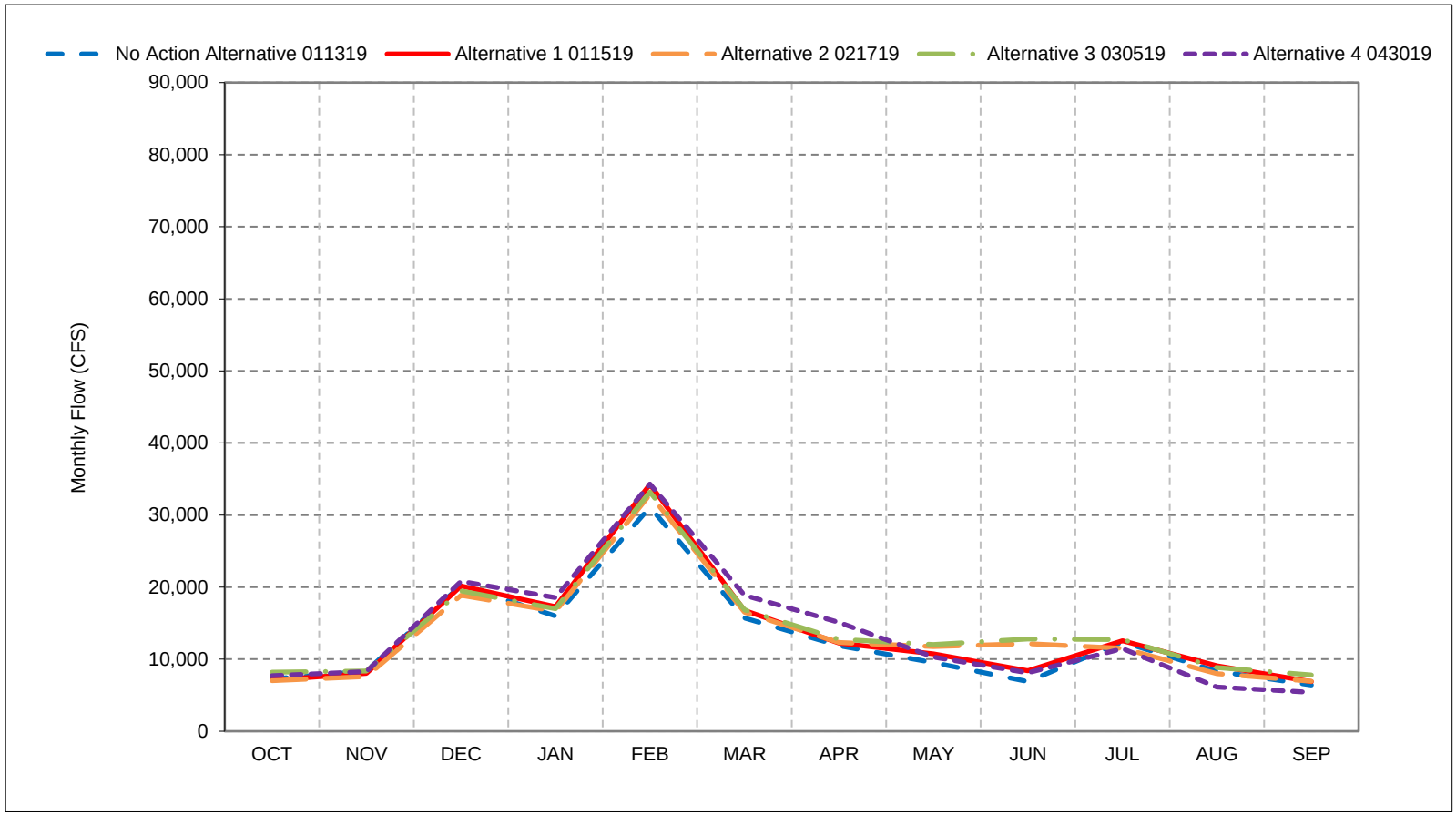
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-3. Sacramento River Flow at Rio Vista, Above Normal Year Average Flow



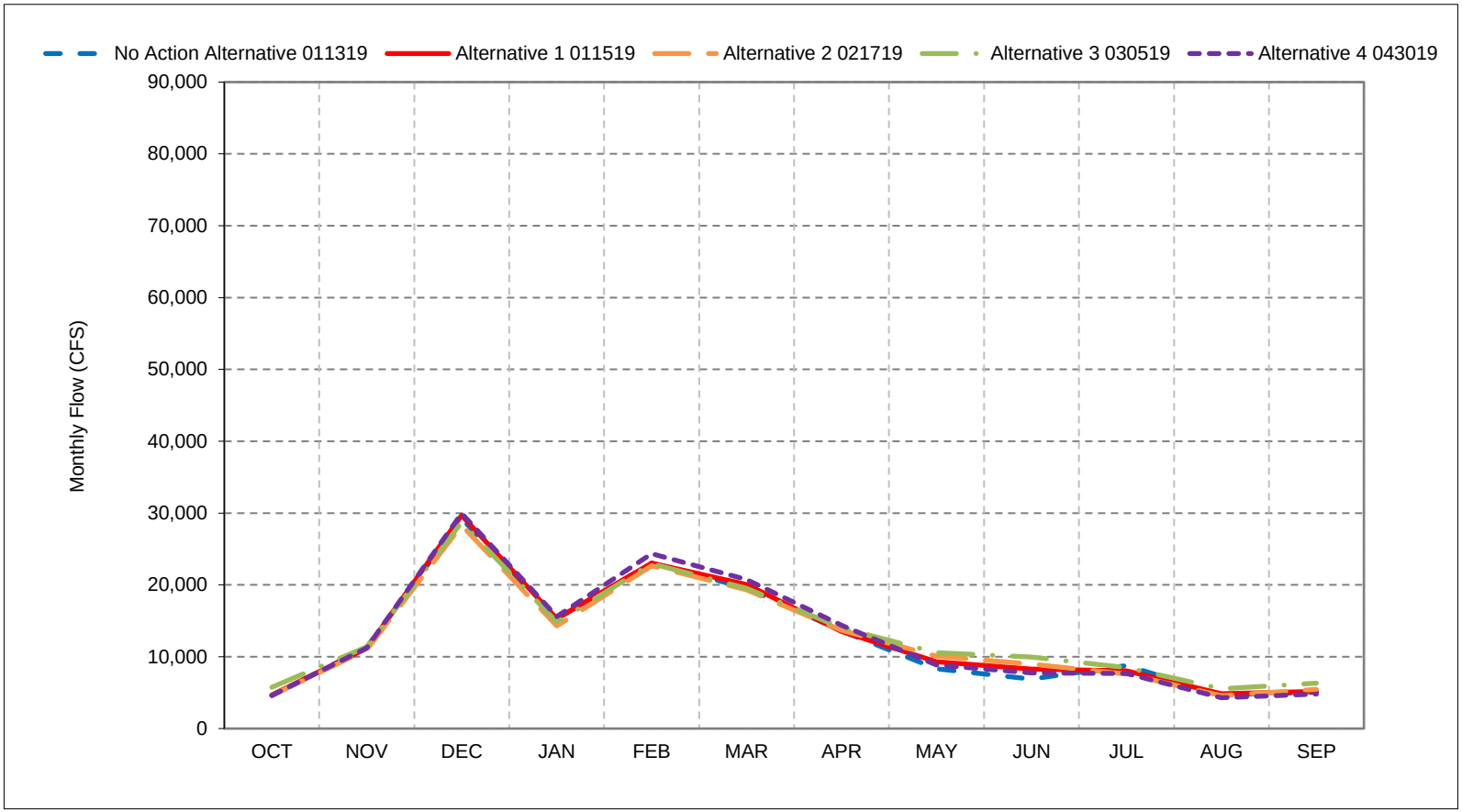
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-4. Sacramento River Flow at Rio Vista, Below Normal Year Average Flow



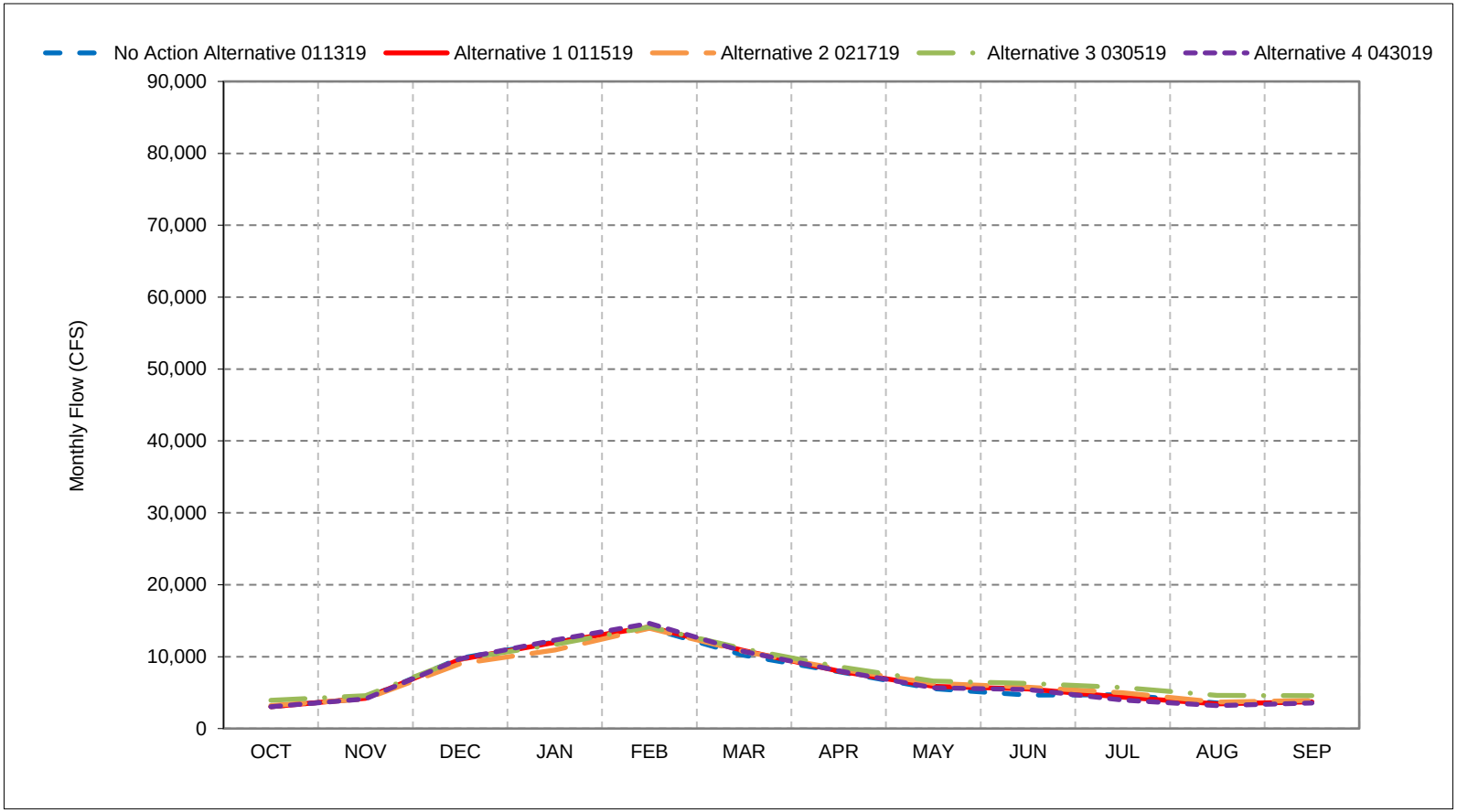
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-5. Sacramento River Flow at Rio Vista, Dry Year Average Flow



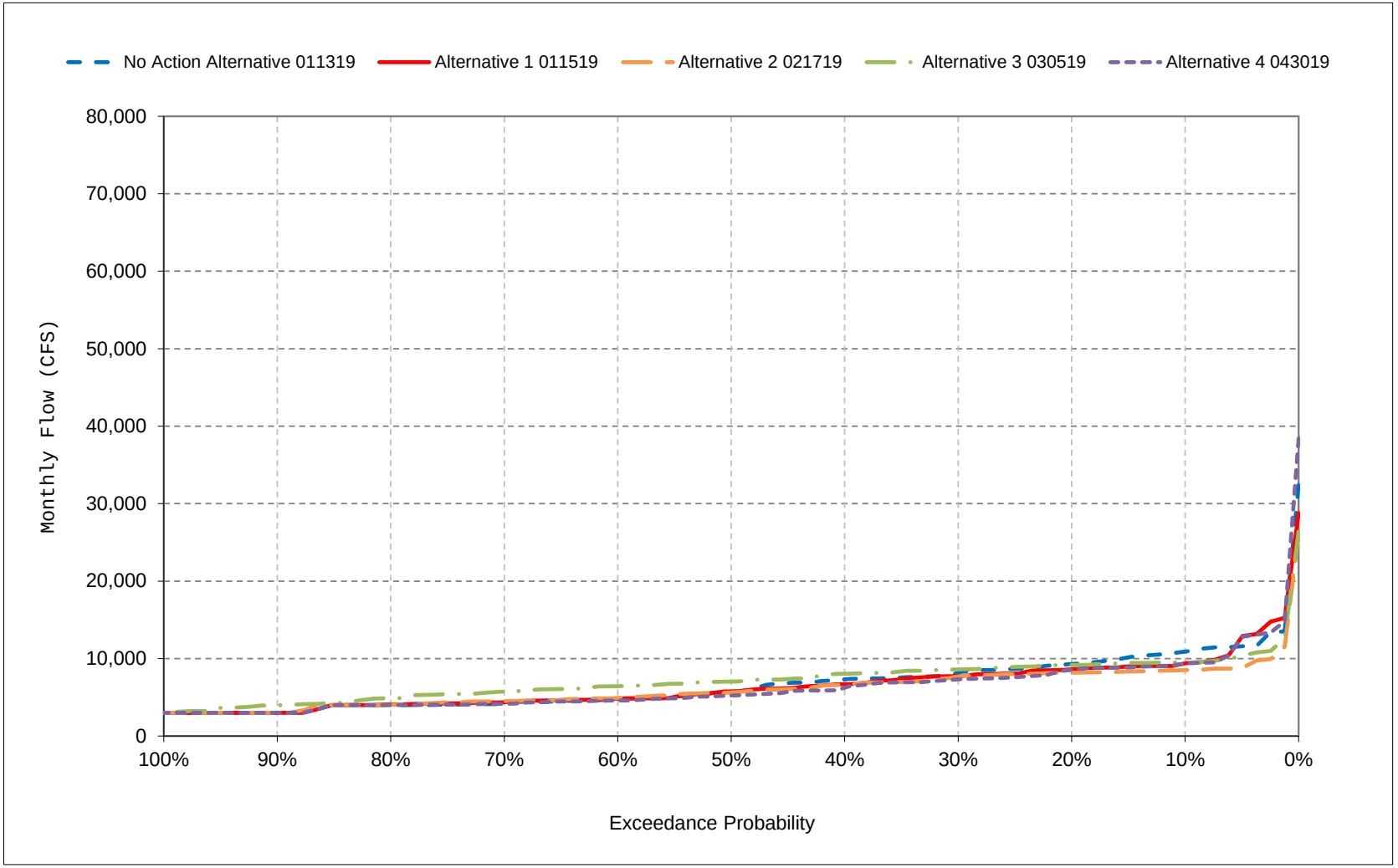
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-6. Sacramento River Flow at Rio Vista, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-7. Sacramento River Flow at Rio Vista, October

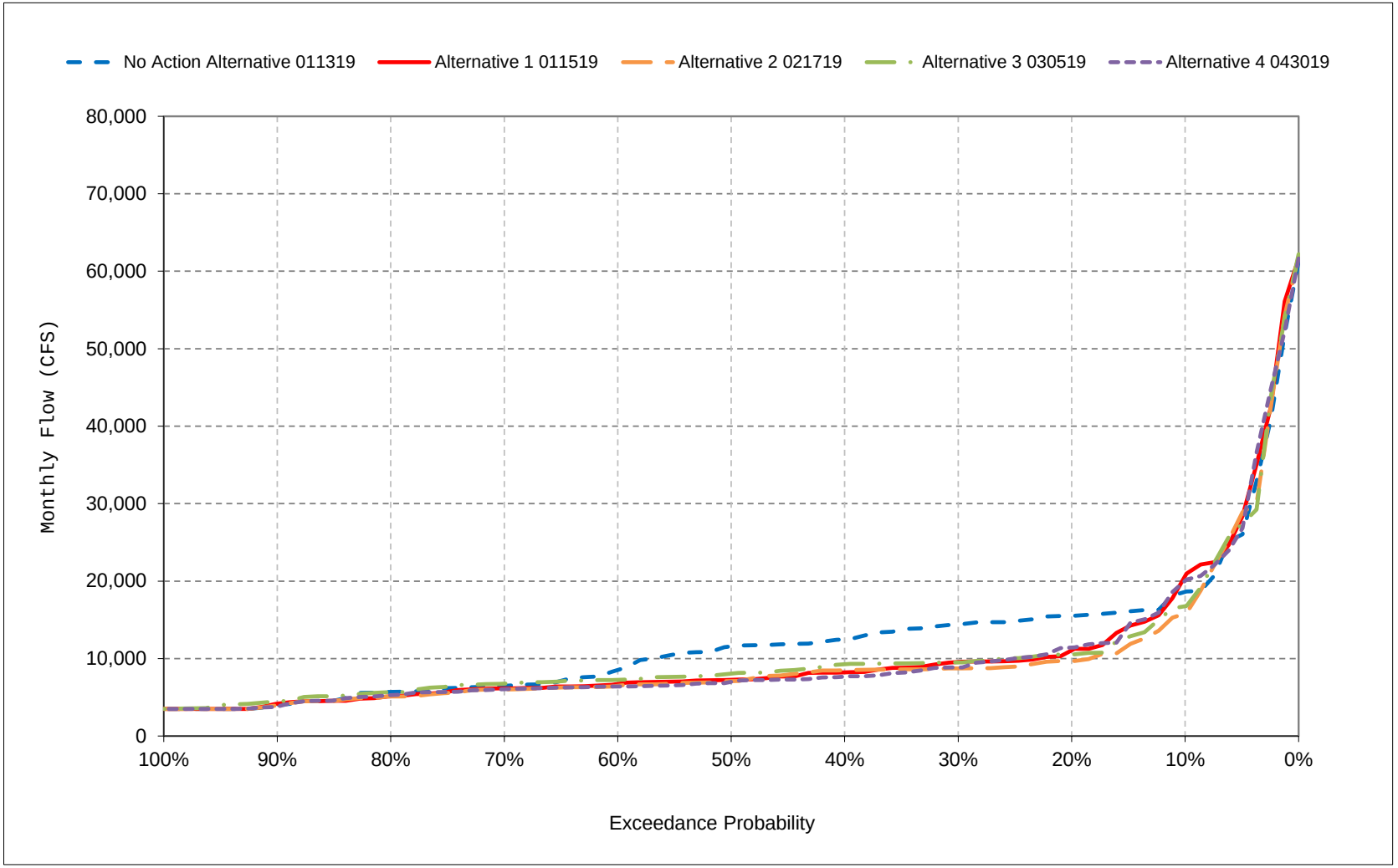


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-8. Sacramento River Flow at Rio Vista, November

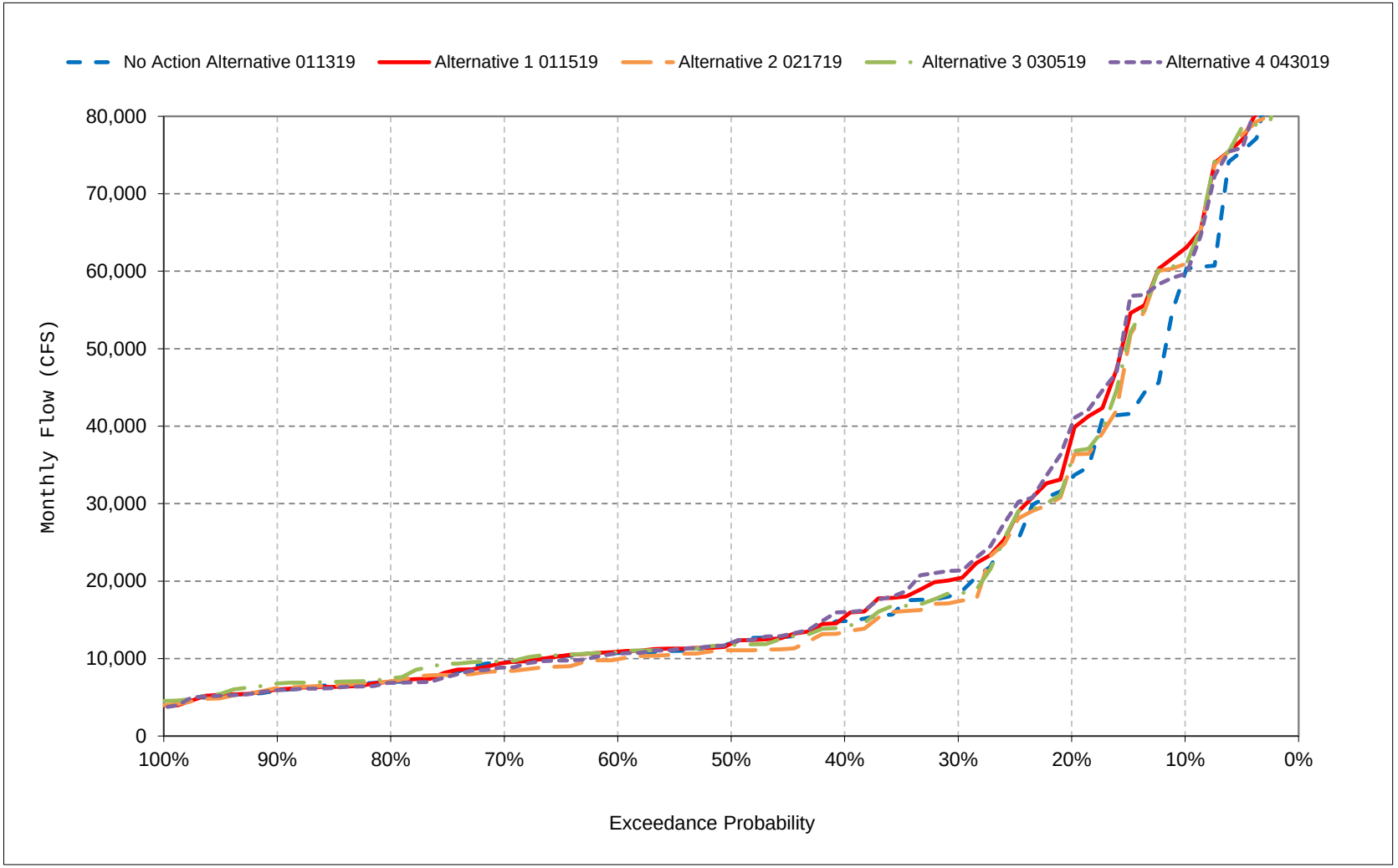


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-9. Sacramento River Flow at Rio Vista, December

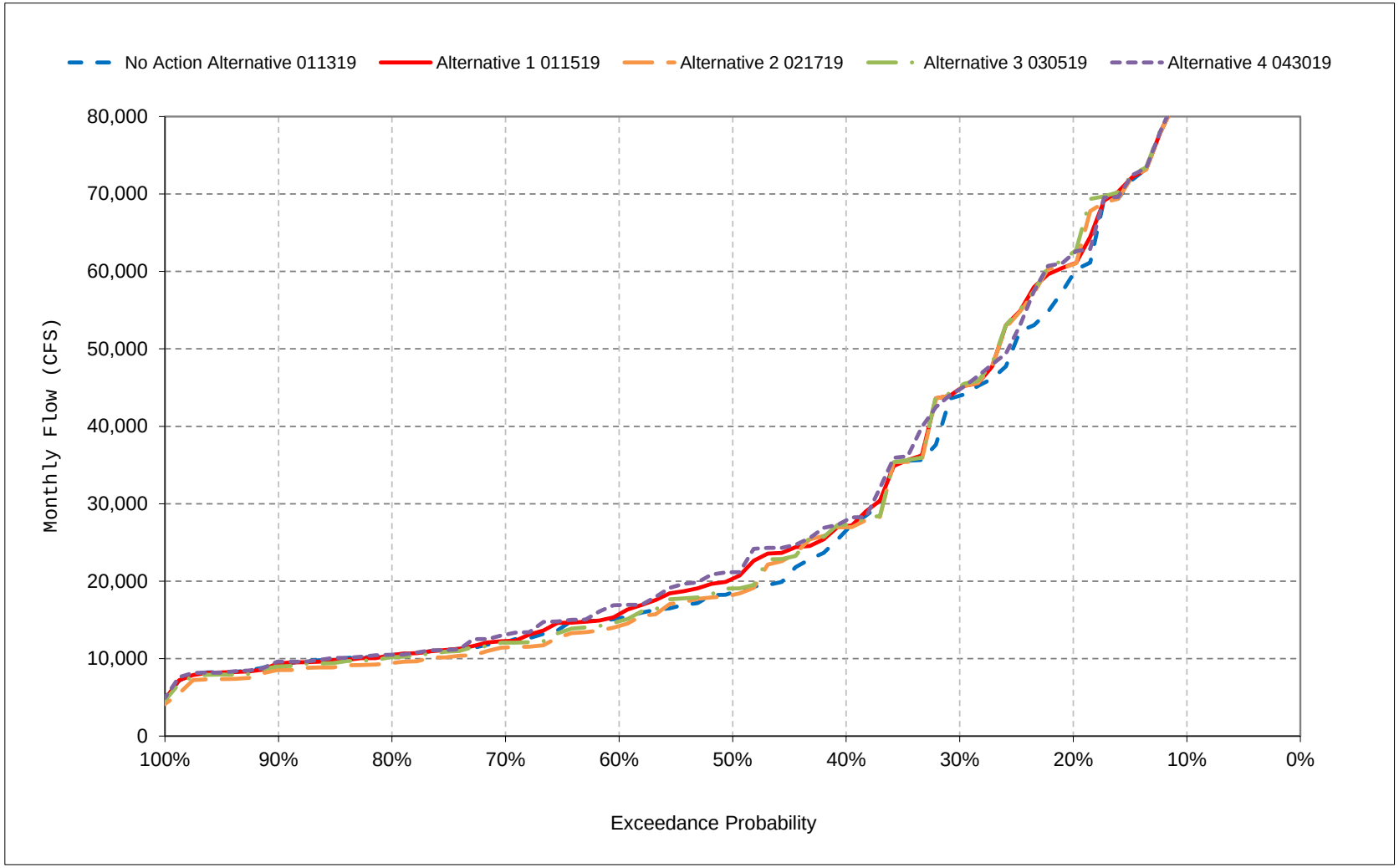


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-10. Sacramento River Flow at Rio Vista, January

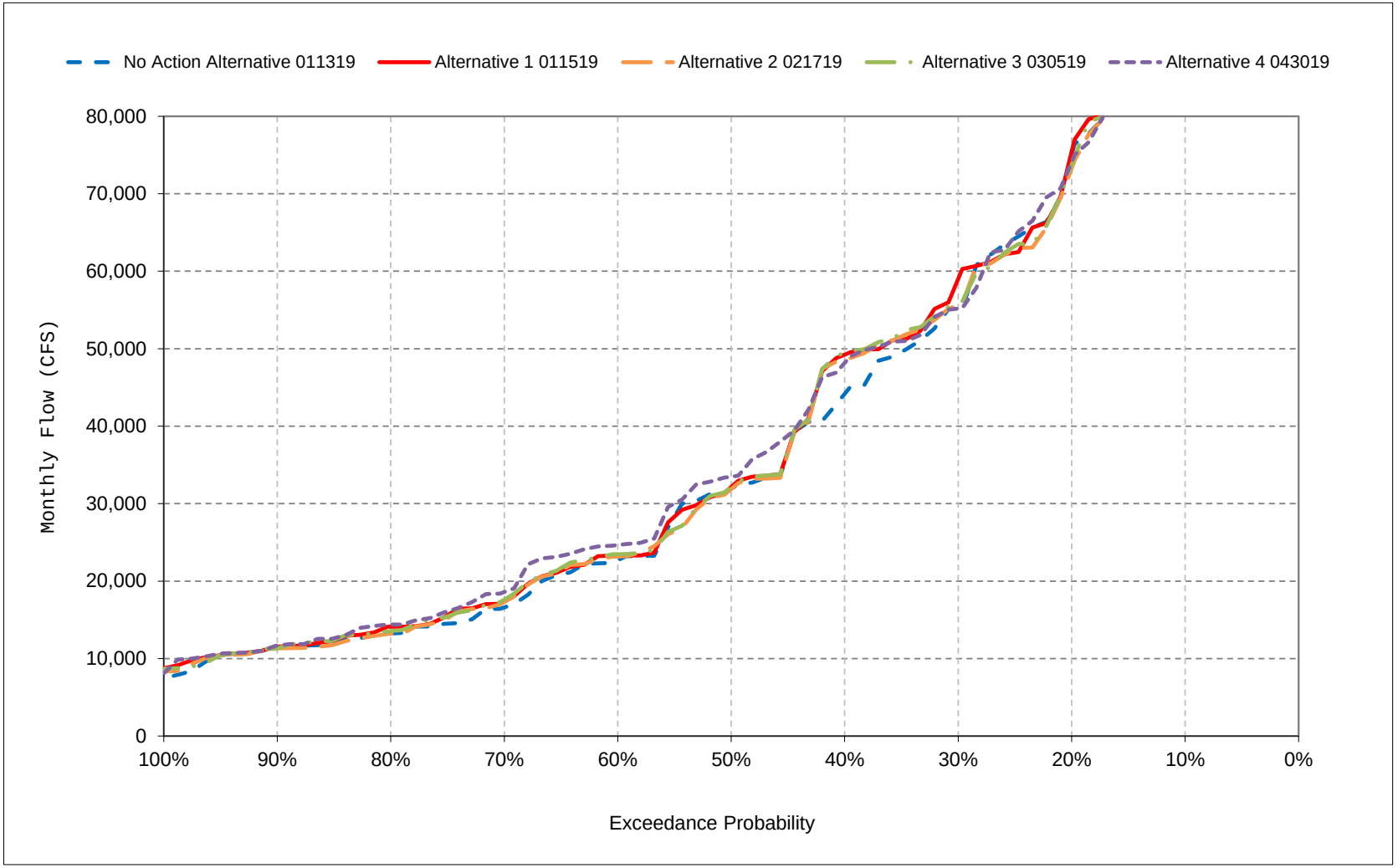


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-11. Sacramento River Flow at Rio Vista, February

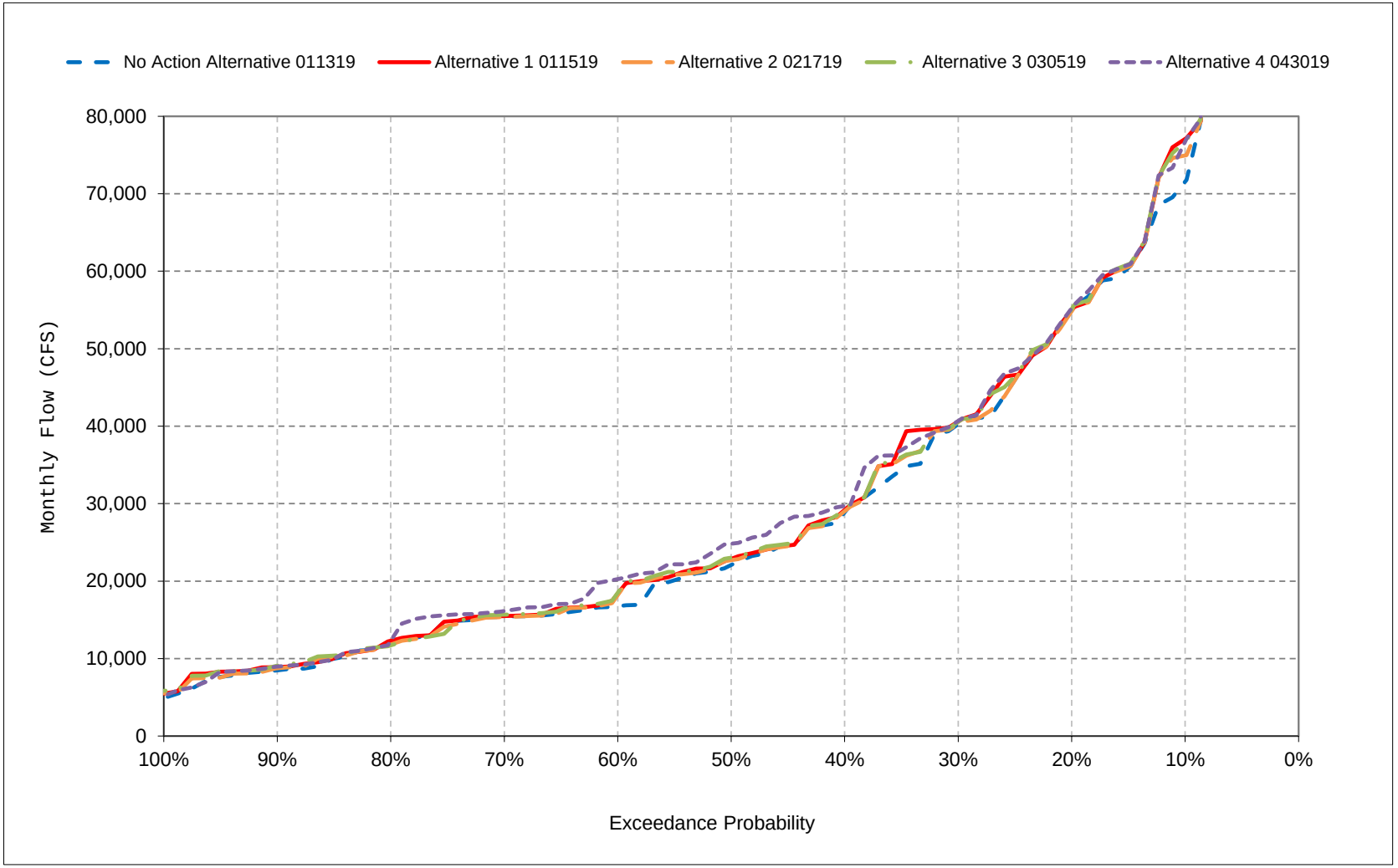


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-12. Sacramento River Flow at Rio Vista, March

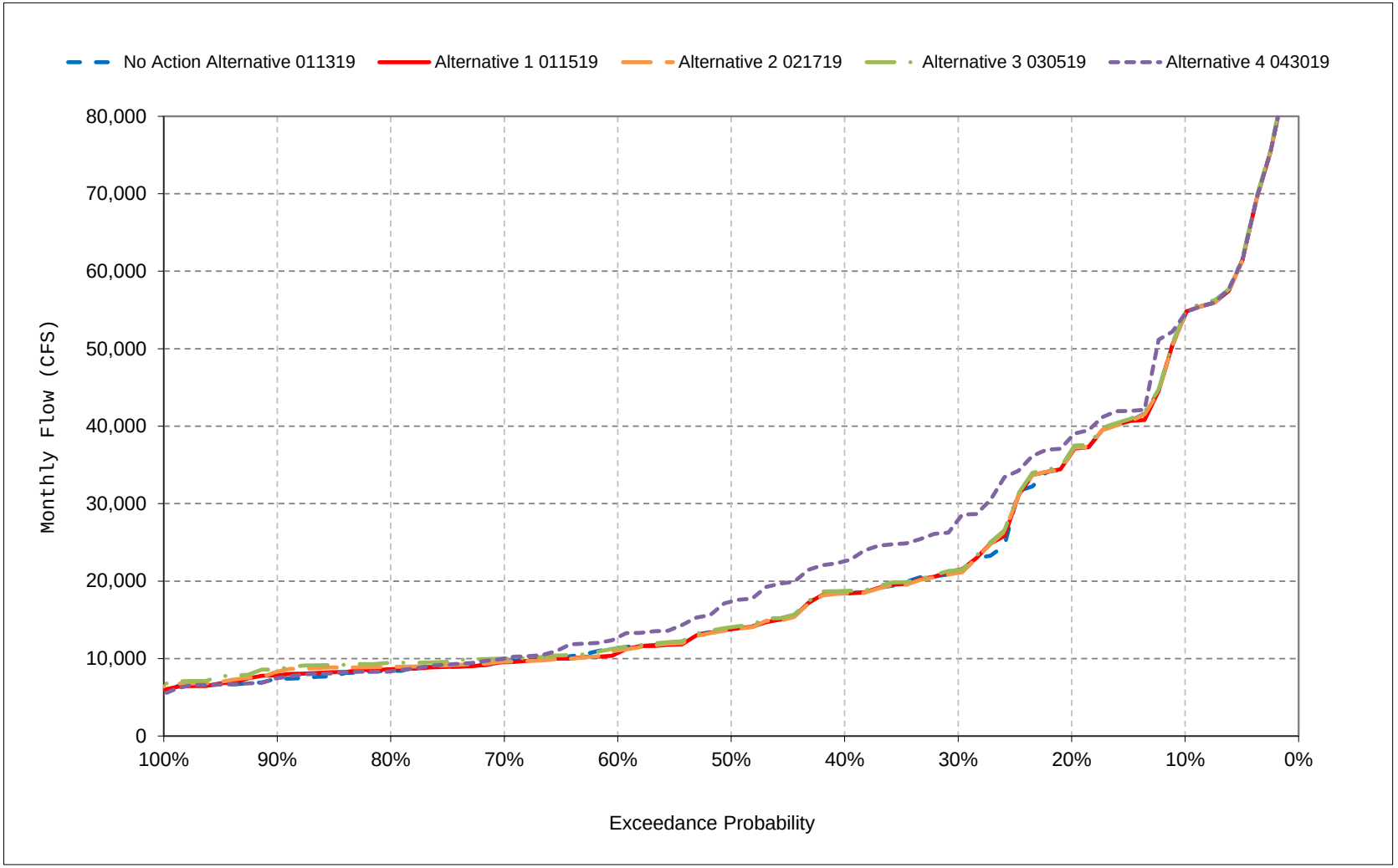


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-13. Sacramento River Flow at Rio Vista, April

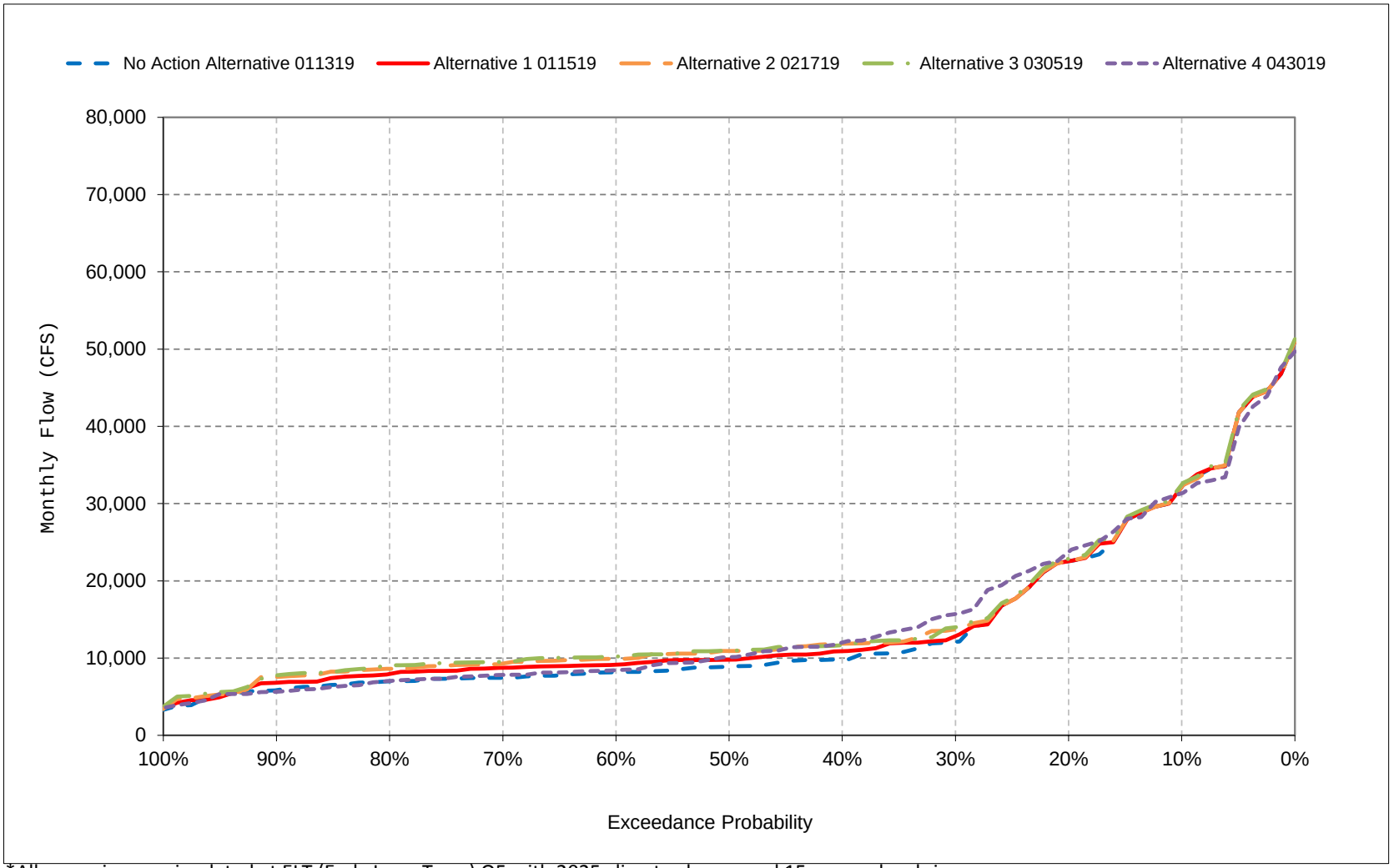


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-14. Sacramento River Flow at Rio Vista, May

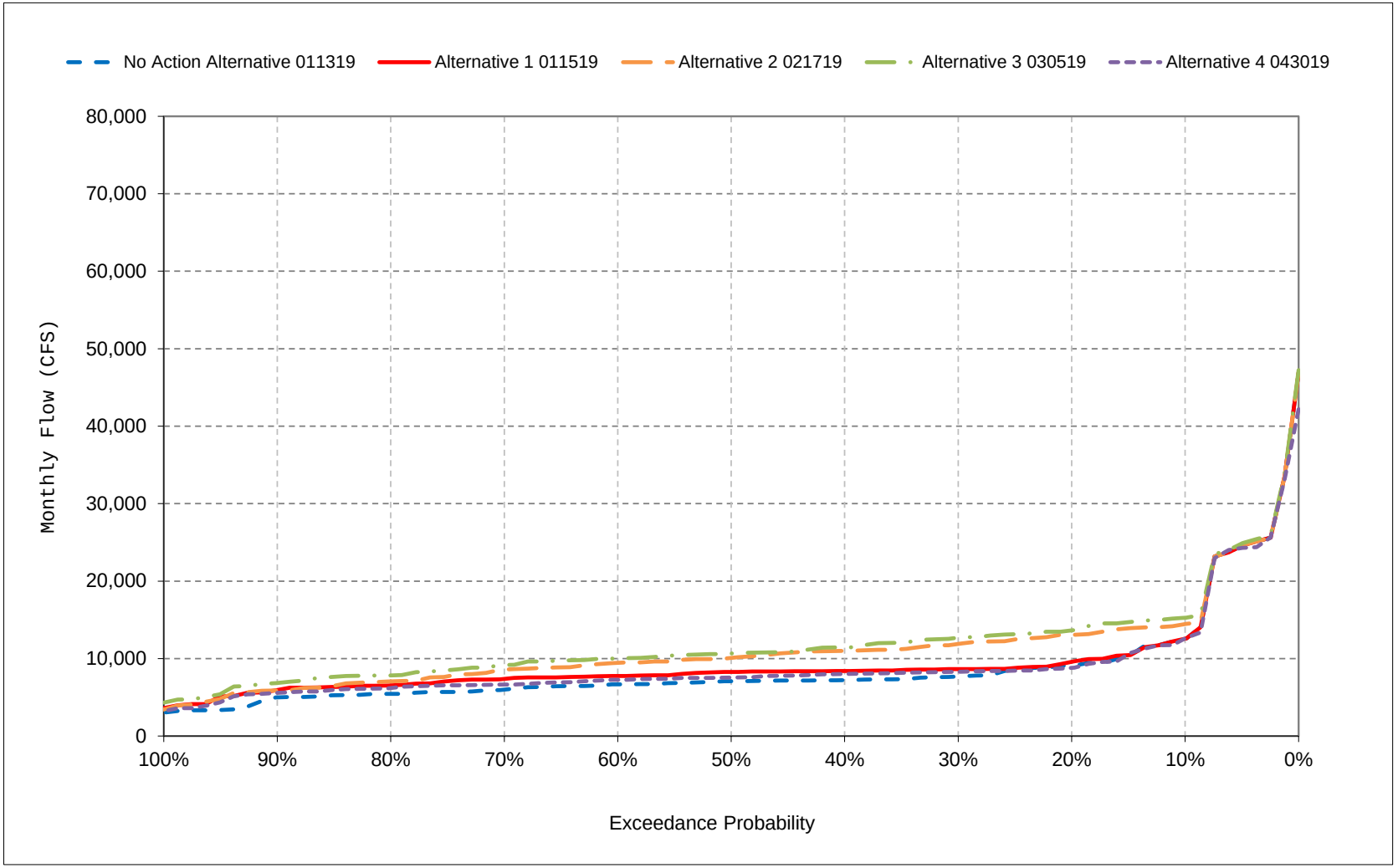


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-15. Sacramento River Flow at Rio Vista, June

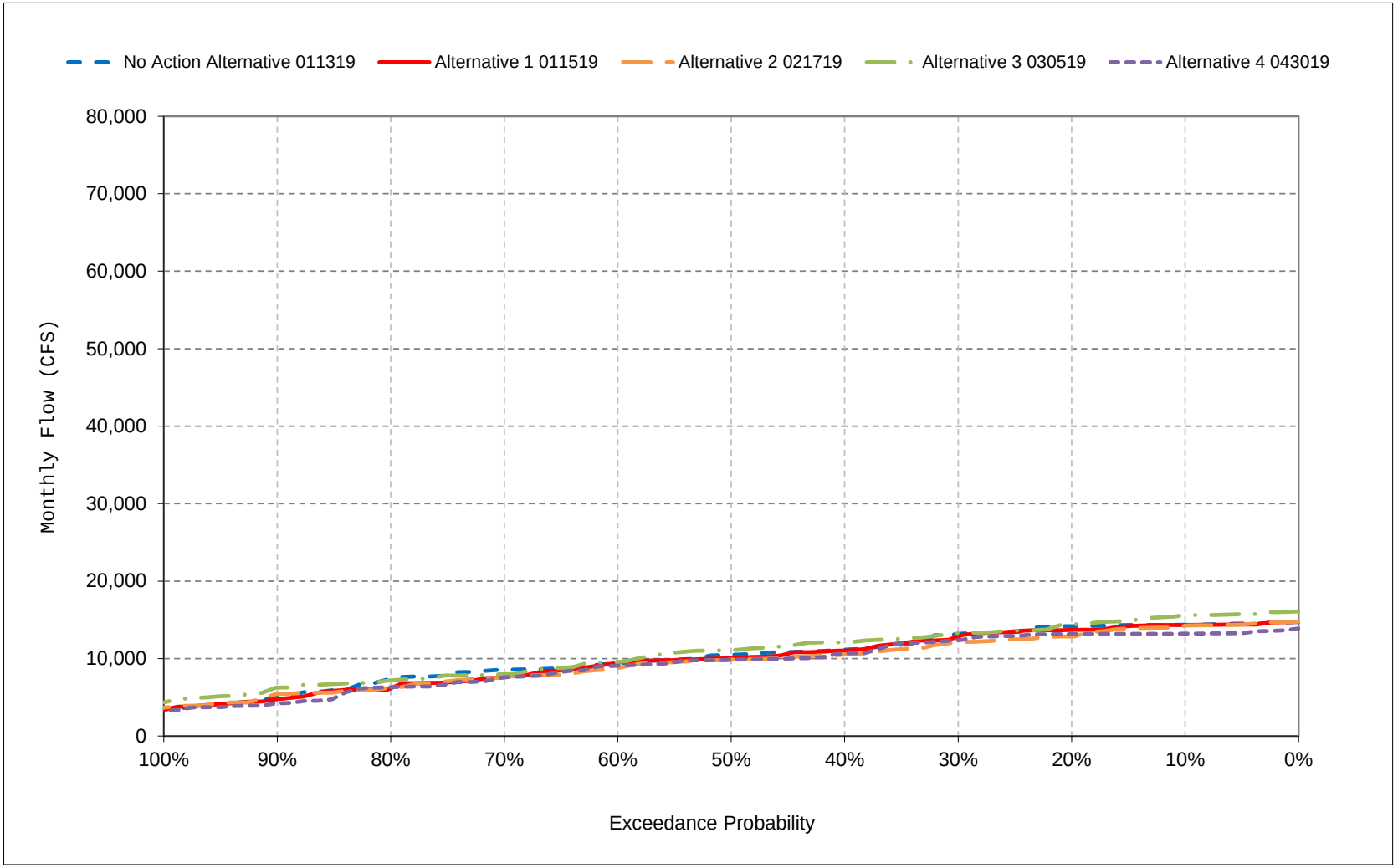


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-16. Sacramento River Flow at Rio Vista, July

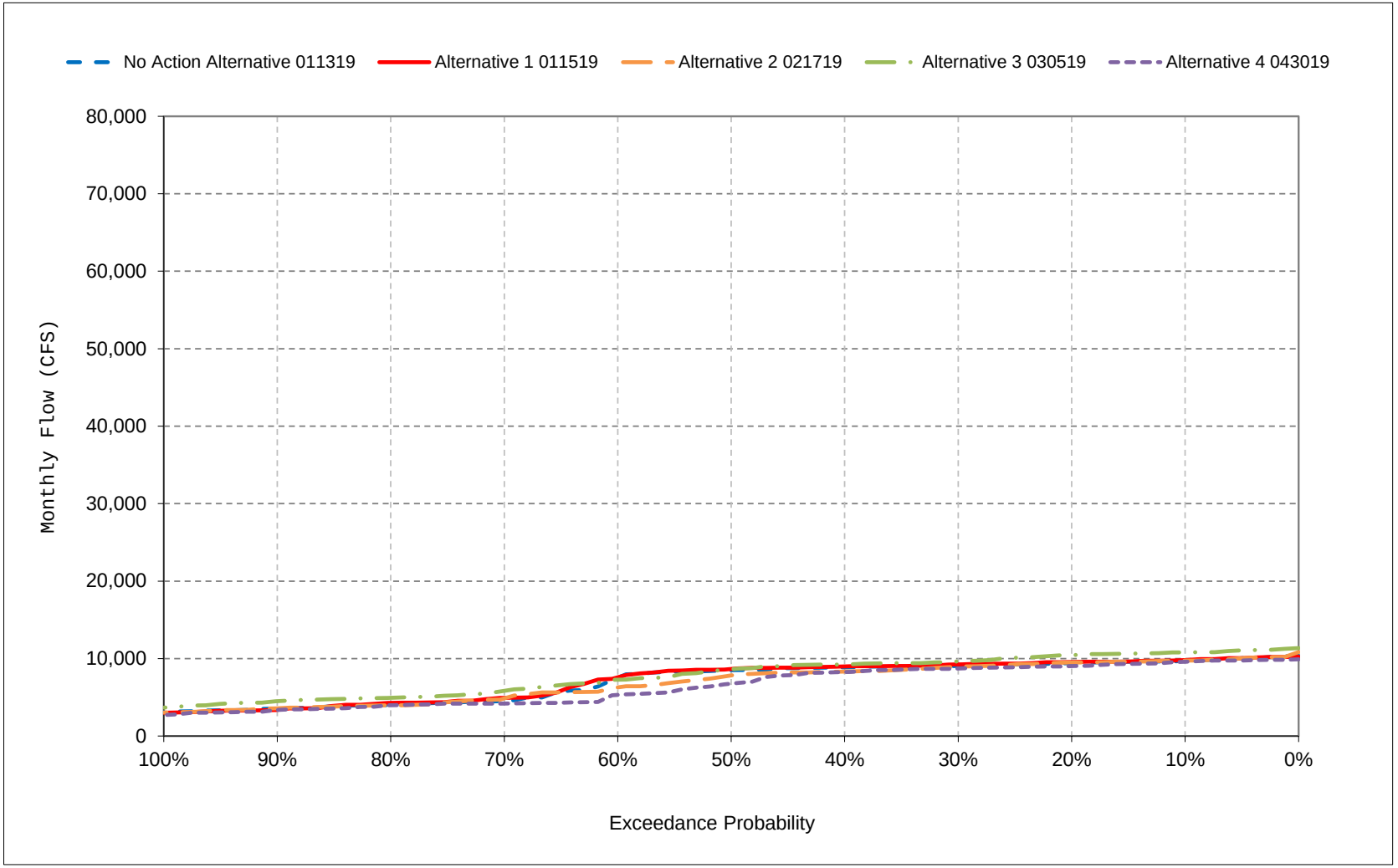


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-17. Sacramento River Flow at Rio Vista, August

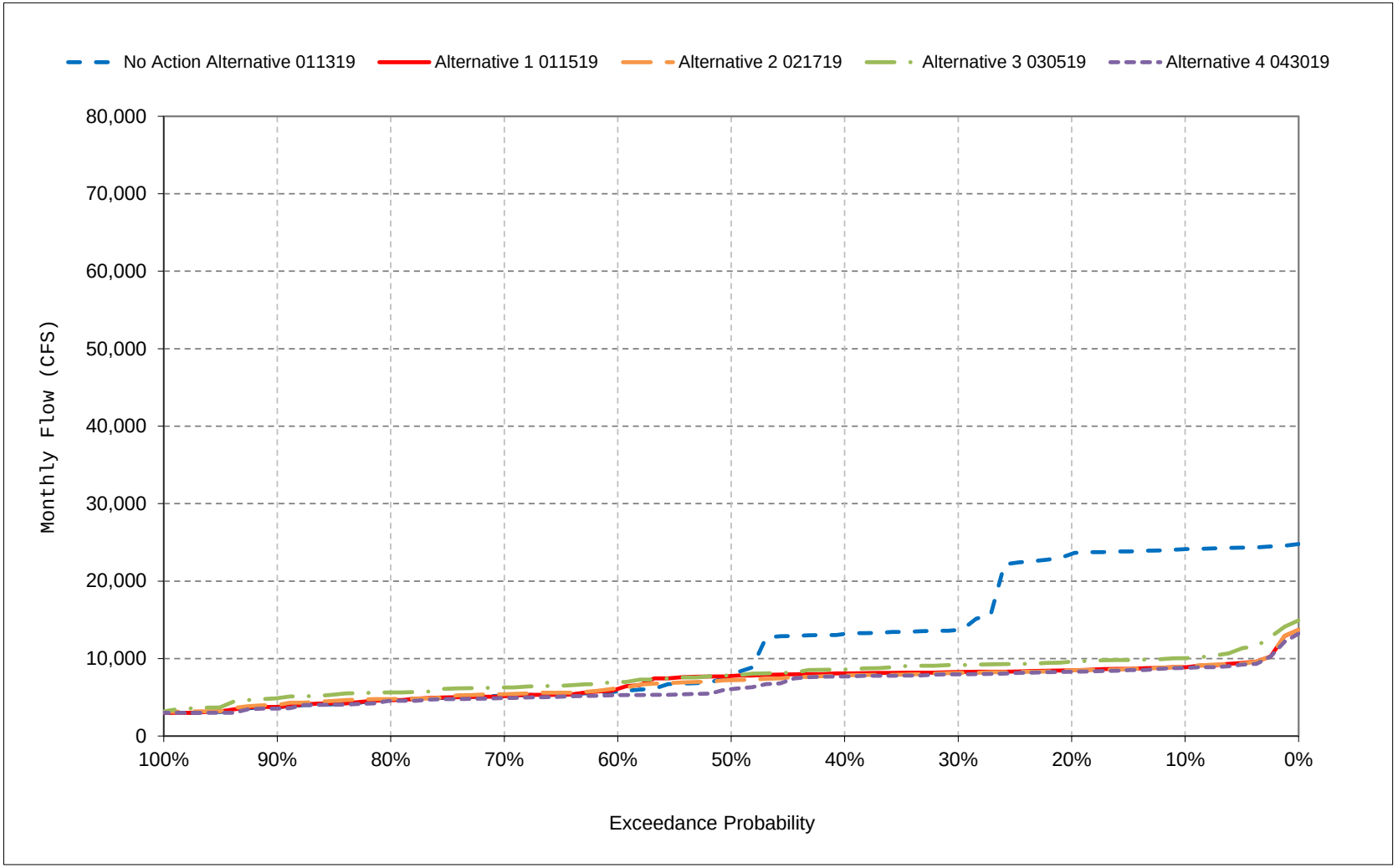


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 32-18. Sacramento River Flow at Rio Vista, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Table 33-1. San Joaquin River Flow at Gravelly Ford, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	191	344	230	728	2,696	2,726	4,098	3,406	2,892	121	121	140
20%	191	344	230	258	807	1,072	3,100	1,774	1,646	121	121	140
30%	191	344	230	251	355	925	3,100	497	320	121	121	140
40%	191	344	230	251	253	886	2,821	160	160	121	121	140
50%	191	344	230	251	253	886	1,858	160	160	121	121	140
60%	191	344	230	251	249	886	1,393	160	160	121	121	140
70%	191	344	230	251	249	886	1,131	160	160	121	121	140
80%	191	344	230	251	249	886	668	160	160	121	121	140
90%	191	344	230	251	249	886	238	160	160	121	121	140
Long Term												
Full Simulation Period[a]	179	337	371	586	781	1,320	2,280	1,071	912	301	113	134
Water Year Types[b,c]												
Wet (23%)	191	409	610	1,602	2,227	2,567	4,661	3,580	3,182	930	121	140
Above Normal (24%)	191	344	234	322	563	1,123	2,867	688	414	121	121	140
Below Normal (10%)	191	344	230	330	250	886	1,922	160	160	121	121	140
Dry (16%)	191	344	539	251	250	886	1,150	160	160	121	121	140
Critical (27%)	147	261	255	240	239	835	486	122	122	94	94	117

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	191	344	230	728	2,696	2,726	4,098	3,406	2,892	121	121	140
20%	191	344	230	258	807	1,072	3,100	1,774	1,646	121	121	140
30%	191	344	230	251	355	925	3,100	497	320	121	121	140
40%	191	344	230	251	253	886	2,821	160	160	121	121	140
50%	191	344	230	251	253	886	1,858	160	160	121	121	140
60%	191	344	230	251	249	886	1,393	160	160	121	121	140
70%	191	344	230	251	249	886	1,131	160	160	121	121	140
80%	191	344	230	251	249	886	668	160	160	121	121	140
90%	191	344	230	251	249	886	238	160	160	121	121	140
Long Term												
Full Simulation Period[a]	179	337	371	586	781	1,320	2,280	1,071	912	301	113	134
Water Year Types[b,c]												
Wet (23%)	191	409	610	1,602	2,227	2,567	4,661	3,580	3,182	930	121	140
Above Normal (24%)	191	344	234	322	563	1,123	2,867	688	414	121	121	140
Below Normal (10%)	191	344	230	330	250	886	1,922	160	160	121	121	140
Dry (16%)	191	344	539	251	250	886	1,150	160	160	121	121	140
Critical (27%)	147	261	255	240	239	835	486	122	122	94	94	117

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	**0**	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (27%)	0	0	**0**	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 33-2. San Joaquin River Flow at Gravelly Ford, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	191	344	230	728	2,696	2,726	4,098	3,406	2,892	121	121	140
20%	191	344	230	258	807	1,072	3,100	1,774	1,646	121	121	140
30%	191	344	230	251	355	925	3,100	497	320	121	121	140
40%	191	344	230	251	253	886	2,821	160	160	121	121	140
50%	191	344	230	251	253	886	1,858	160	160	121	121	140
60%	191	344	230	251	249	886	1,393	160	160	121	121	140
70%	191	344	230	251	249	886	1,131	160	160	121	121	140
80%	191	344	230	251	249	886	668	160	160	121	121	140
90%	191	344	230	251	249	886	238	160	160	121	121	140
Long Term												
Full Simulation Period[a]	179	337	371	586	781	1,320	2,280	1,071	912	301	113	134
Water Year Types[b,c]												
Wet (23%)	191	409	610	1,602	2,227	2,567	4,661	3,580	3,182	930	121	140
Above Normal (24%)	191	344	234	322	563	1,123	2,867	688	414	121	121	140
Below Normal (10%)	191	344	230	330	250	886	1,922	160	160	121	121	140
Dry (16%)	191	344	539	251	250	886	1,150	160	160	121	121	140
Critical (27%)	147	261	255	240	239	835	486	122	122	94	94	117

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	191	344	230	728	2,696	2,726	4,098	3,406	2,892	121	121	140
20%	191	344	230	258	807	1,072	3,100	1,774	1,646	121	121	140
30%	191	344	230	251	355	925	3,100	497	320	121	121	140
40%	191	344	230	251	253	886	2,821	160	160	121	121	140
50%	191	344	230	251	253	886	1,858	160	160	121	121	140
60%	191	344	230	251	249	886	1,393	160	160	121	121	140
70%	191	344	230	251	249	886	1,131	160	160	121	121	140
80%	191	344	230	251	249	886	668	160	160	121	121	140
90%	191	344	230	251	249	886	238	160	160	121	121	140
Long Term												
Full Simulation Period[a]	179	337	371	586	781	1,320	2,280	1,071	912	301	113	134
Water Year Types[b,c]												
Wet (23%)	191	409	610	1,602	2,227	2,567	4,661	3,580	3,182	930	121	140
Above Normal (24%)	191	344	234	322	563	1,123	2,867	688	414	121	121	140
Below Normal (10%)	191	344	230	330	250	886	1,922	160	160	121	121	140
Dry (16%)	191	344	539	251	250	886	1,150	160	160	121	121	140
Critical (27%)	147	261	255	240	239	835	486	122	122	94	94	117

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	**0**	0	**0**	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	0	**0**	0	0	0	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (27%)	0	0	**0**	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 33-3. San Joaquin River Flow at Gravelly Ford, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	191	344	230	728	2,696	2,726	4,098	3,406	2,892	121	121	140
20%	191	344	230	258	807	1,072	3,100	1,774	1,646	121	121	140
30%	191	344	230	251	355	925	3,100	497	320	121	121	140
40%	191	344	230	251	253	886	2,821	160	160	121	121	140
50%	191	344	230	251	253	886	1,858	160	160	121	121	140
60%	191	344	230	251	249	886	1,393	160	160	121	121	140
70%	191	344	230	251	249	886	1,131	160	160	121	121	140
80%	191	344	230	251	249	886	668	160	160	121	121	140
90%	191	344	230	251	249	886	238	160	160	121	121	140
Long Term												
Full Simulation Period[a]	179	337	371	586	781	1,320	2,280	1,071	912	301	113	134
Water Year Types[b,c]												
Wet (23%)	191	409	610	1,602	2,227	2,567	4,661	3,580	3,182	930	121	140
Above Normal (24%)	191	344	234	322	563	1,123	2,867	688	414	121	121	140
Below Normal (10%)	191	344	230	330	250	886	1,922	160	160	121	121	140
Dry (16%)	191	344	539	251	250	886	1,150	160	160	121	121	140
Critical (27%)	147	261	255	240	239	835	486	122	122	94	94	117

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	191	344	230	728	2,696	2,726	4,098	3,406	2,892	121	121	140
20%	191	344	230	258	807	1,072	3,100	1,774	1,646	121	121	140
30%	191	344	230	251	354	925	3,100	497	320	121	121	140
40%	191	344	230	251	253	886	2,821	160	160	121	121	140
50%	191	344	230	251	253	886	1,858	160	160	121	121	140
60%	191	344	230	251	249	886	1,393	160	160	121	121	140
70%	191	344	230	251	249	886	1,131	160	160	121	121	140
80%	191	344	230	251	249	886	668	160	160	121	121	140
90%	191	344	230	251	249	886	238	160	160	121	121	140
Long Term												
Full Simulation Period[a]	179	337	371	586	781	1,320	2,280	1,071	912	301	113	134
Water Year Types[b,c]												
Wet (23%)	191	409	610	1,602	2,227	2,567	4,661	3,580	3,182	930	121	140
Above Normal (24%)	191	344	234	322	563	1,123	2,867	688	414	121	121	140
Below Normal (10%)	191	344	230	330	250	886	1,922	160	160	121	121	140
Dry (16%)	191	344	539	251	250	886	1,150	160	160	121	121	140
Critical (27%)	147	261	255	240	239	835	486	122	122	94	94	117

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	**0**	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	**0**	0	**0**	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	**0**	0	**0**	0	0	0	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	**0**	0	0	0	0	0	0	0	0	0
Critical (27%)	0	0	**0**	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 33-4. San Joaquin River Flow at Gravelly Ford, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	191	344	230	728	2,696	2,726	4,098	3,406	2,892	121	121	140
20%	191	344	230	258	807	1,072	3,100	1,774	1,646	121	121	140
30%	191	344	230	251	355	925	3,100	497	320	121	121	140
40%	191	344	230	251	253	886	2,821	160	160	121	121	140
50%	191	344	230	251	253	886	1,858	160	160	121	121	140
60%	191	344	230	251	249	886	1,393	160	160	121	121	140
70%	191	344	230	251	249	886	1,131	160	160	121	121	140
80%	191	344	230	251	249	886	668	160	160	121	121	140
90%	191	344	230	251	249	886	238	160	160	121	121	140
Long Term												
Full Simulation Period[a]	179	337	371	586	781	1,320	2,280	1,071	912	301	113	134
Water Year Types[b,c]												
Wet (23%)	191	409	610	1,602	2,227	2,567	4,661	3,580	3,182	930	121	140
Above Normal (24%)	191	344	234	322	563	1,123	2,867	688	414	121	121	140
Below Normal (10%)	191	344	230	330	250	886	1,922	160	160	121	121	140
Dry (16%)	191	344	539	251	250	886	1,150	160	160	121	121	140
Critical (27%)	147	261	255	240	239	835	486	122	122	94	94	117

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	191	344	230	728	2,696	2,726	4,098	3,406	2,892	121	121	140
20%	191	344	230	258	807	1,072	3,100	1,774	1,646	121	121	140
30%	191	344	230	251	355	925	3,100	497	320	121	121	140
40%	191	344	230	251	253	886	2,821	160	160	121	121	140
50%	191	344	230	251	253	886	1,858	160	160	121	121	140
60%	191	344	230	251	249	886	1,393	160	160	121	121	140
70%	191	344	230	251	249	886	1,131	160	160	121	121	140
80%	191	344	230	251	249	886	668	160	160	121	121	140
90%	191	344	230	251	249	886	238	160	160	121	121	140
Long Term												
Full Simulation Period[a]	179	337	371	586	781	1,320	2,280	1,071	912	301	113	134
Water Year Types[b,c]												
Wet (23%)	191	409	610	1,602	2,227	2,567	4,661	3,580	3,182	930	121	140
Above Normal (24%)	191	344	234	322	563	1,123	2,867	688	414	121	121	140
Below Normal (10%)	191	344	230	330	250	886	1,922	160	160	121	121	140
Dry (16%)	191	344	539	251	250	886	1,150	160	160	121	121	140
Critical (27%)	147	261	255	240	239	835	486	122	122	94	94	117

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	**0**	0	**0**	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (24%)	0	0	0	0	**0**	0	0	0	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (27%)	0	0	**0**	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

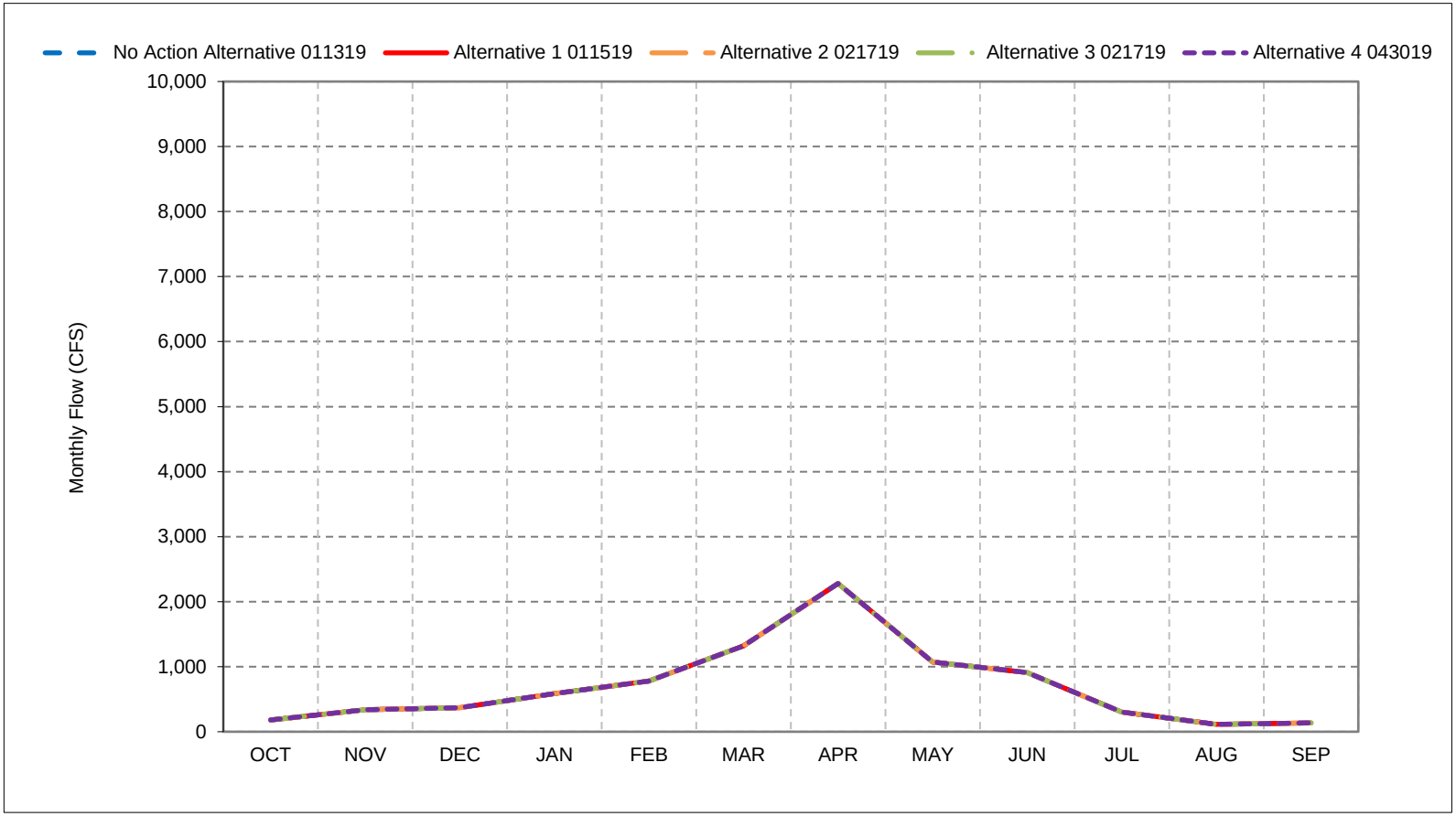
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 33-1. San Joaquin River Flow at Gravelly Ford, Long-Term Average Flow



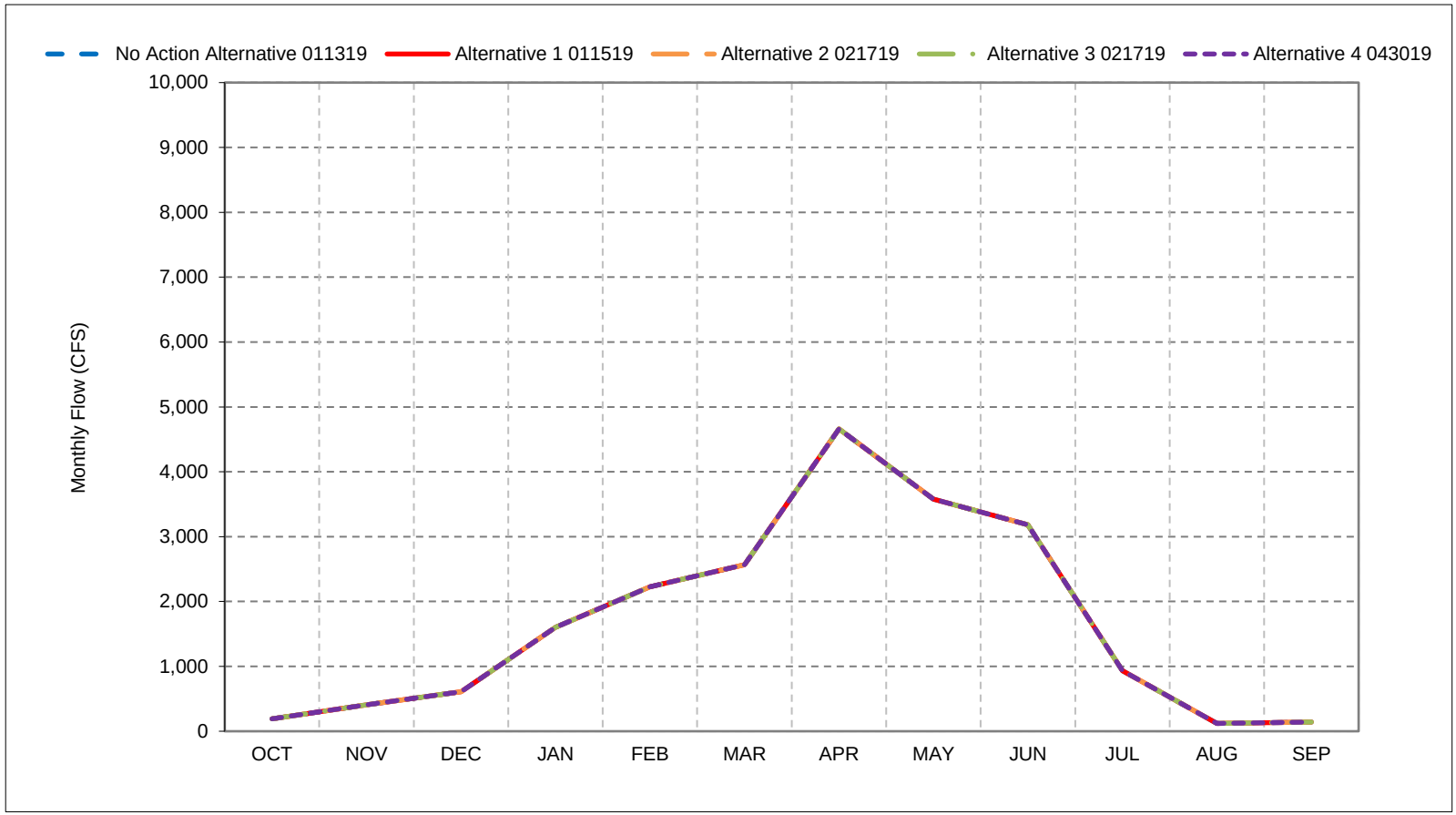
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 33-2. San Joaquin River Flow at Gravelly Ford, Wet Year Average Flow



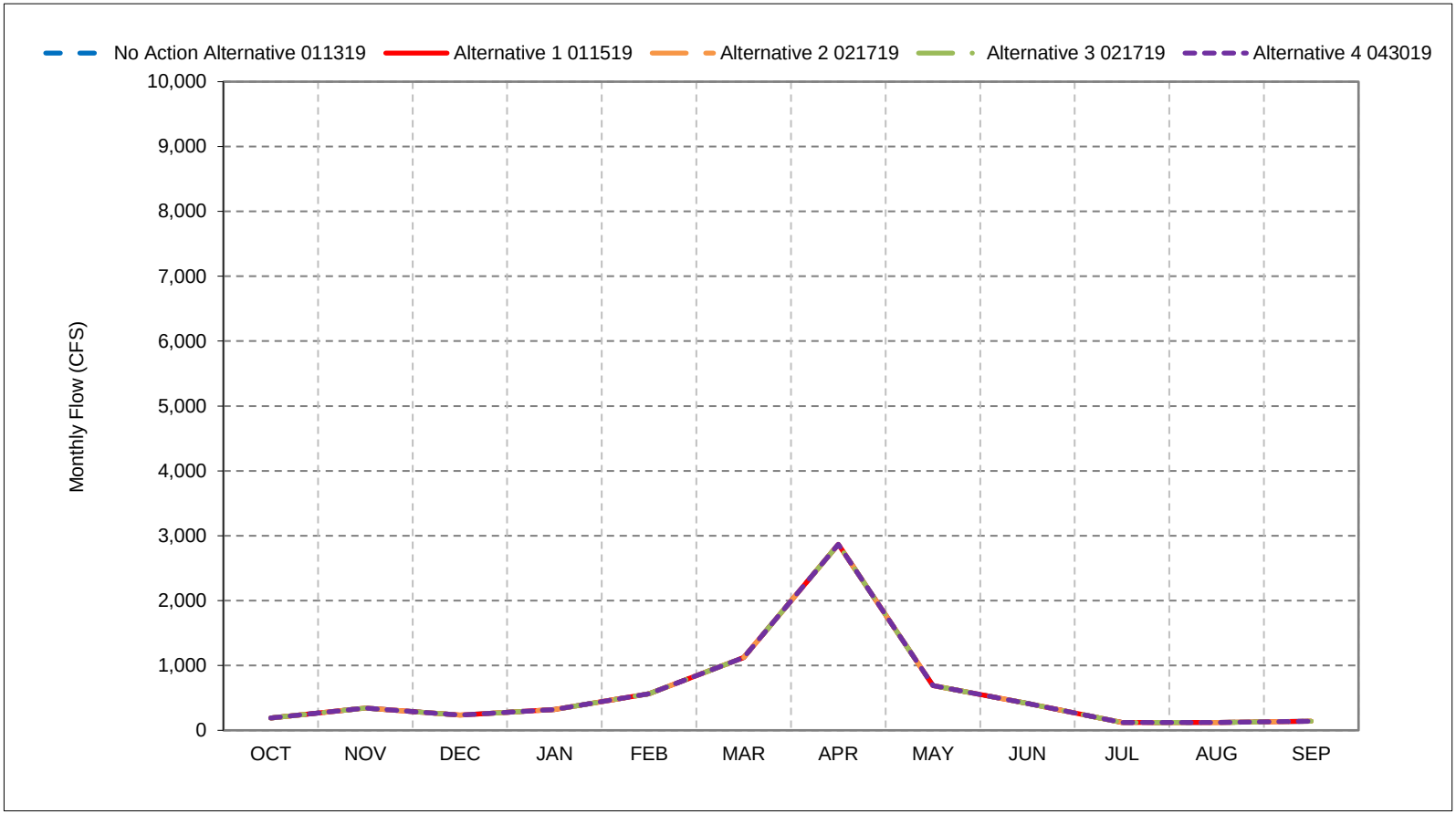
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 33-3. San Joaquin River Flow at Gravelly Ford, Above Normal Year Average Flow



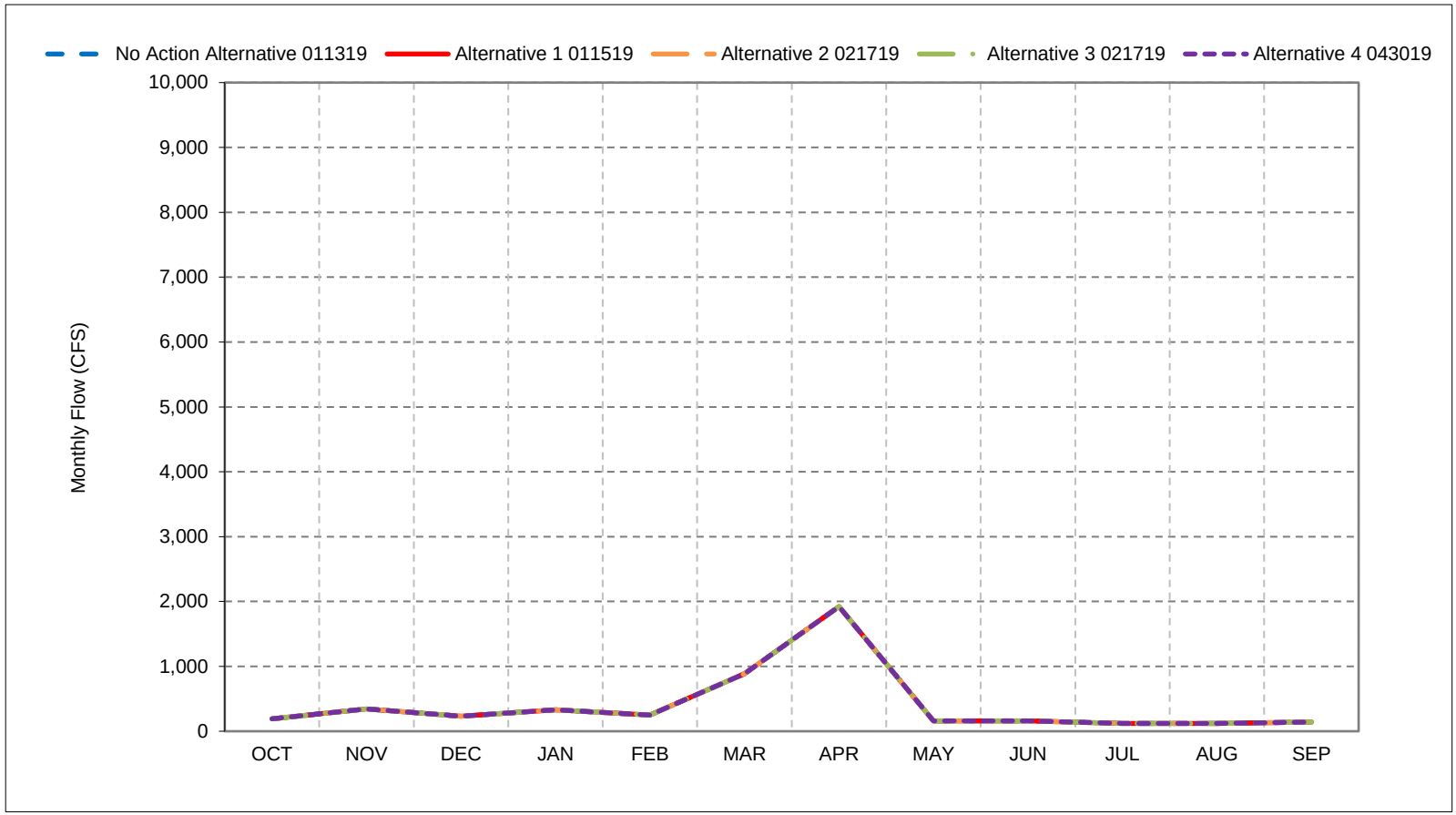
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

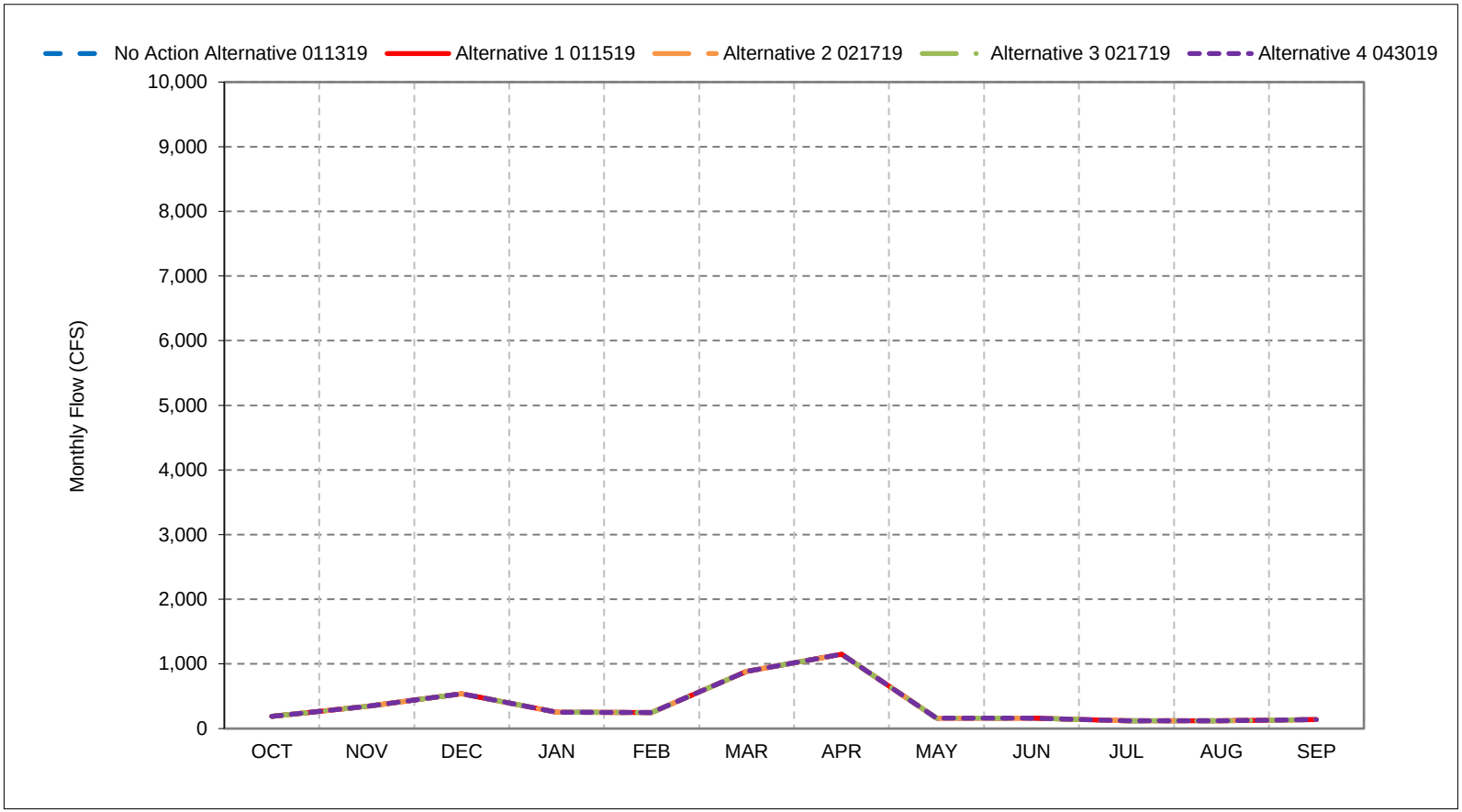
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 33-4. San Joaquin River Flow at Gravelly Ford, Below Normal Year Average Flow



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 33-5. San Joaquin River Flow at Gravelly Ford, Dry Year Average Flow



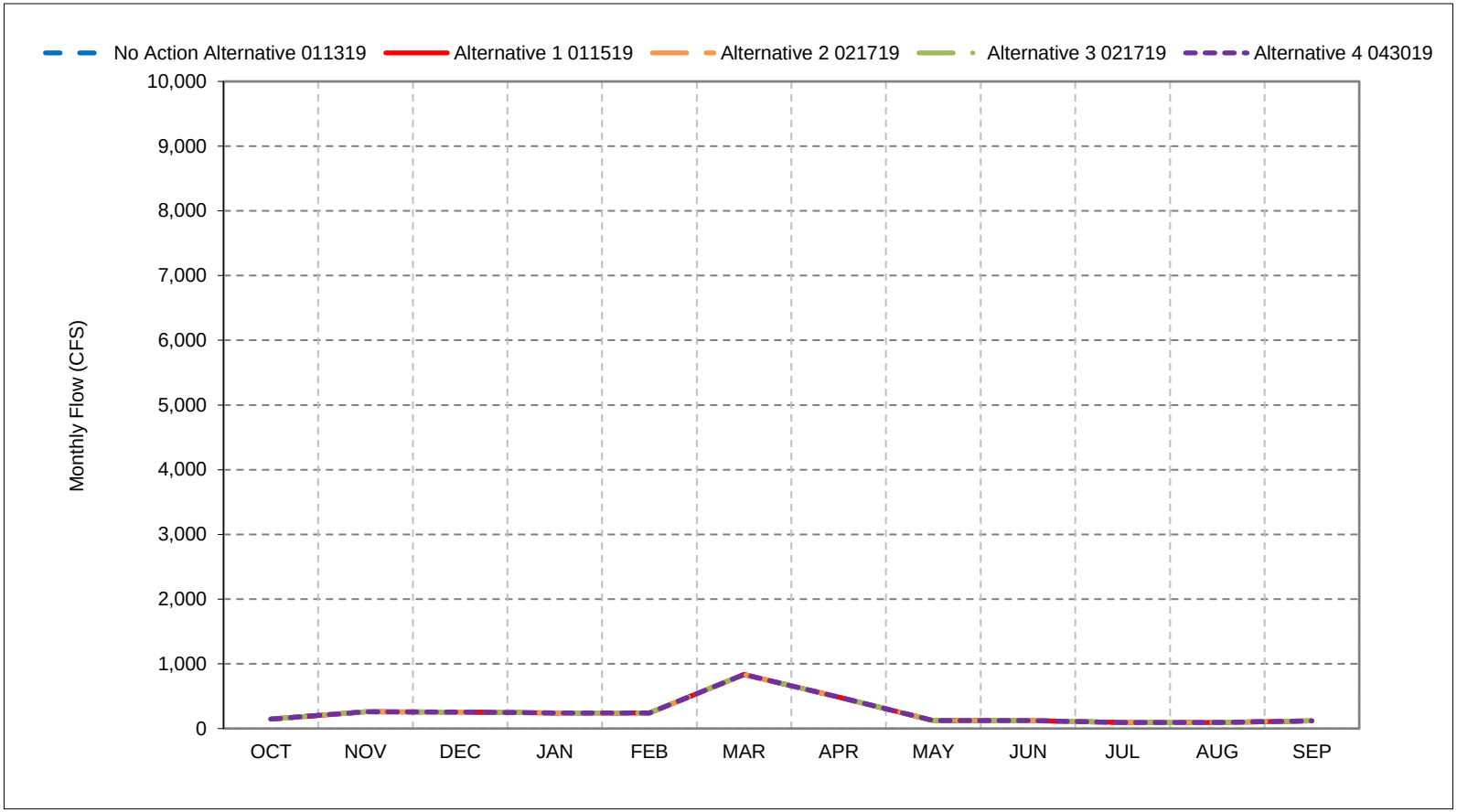
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

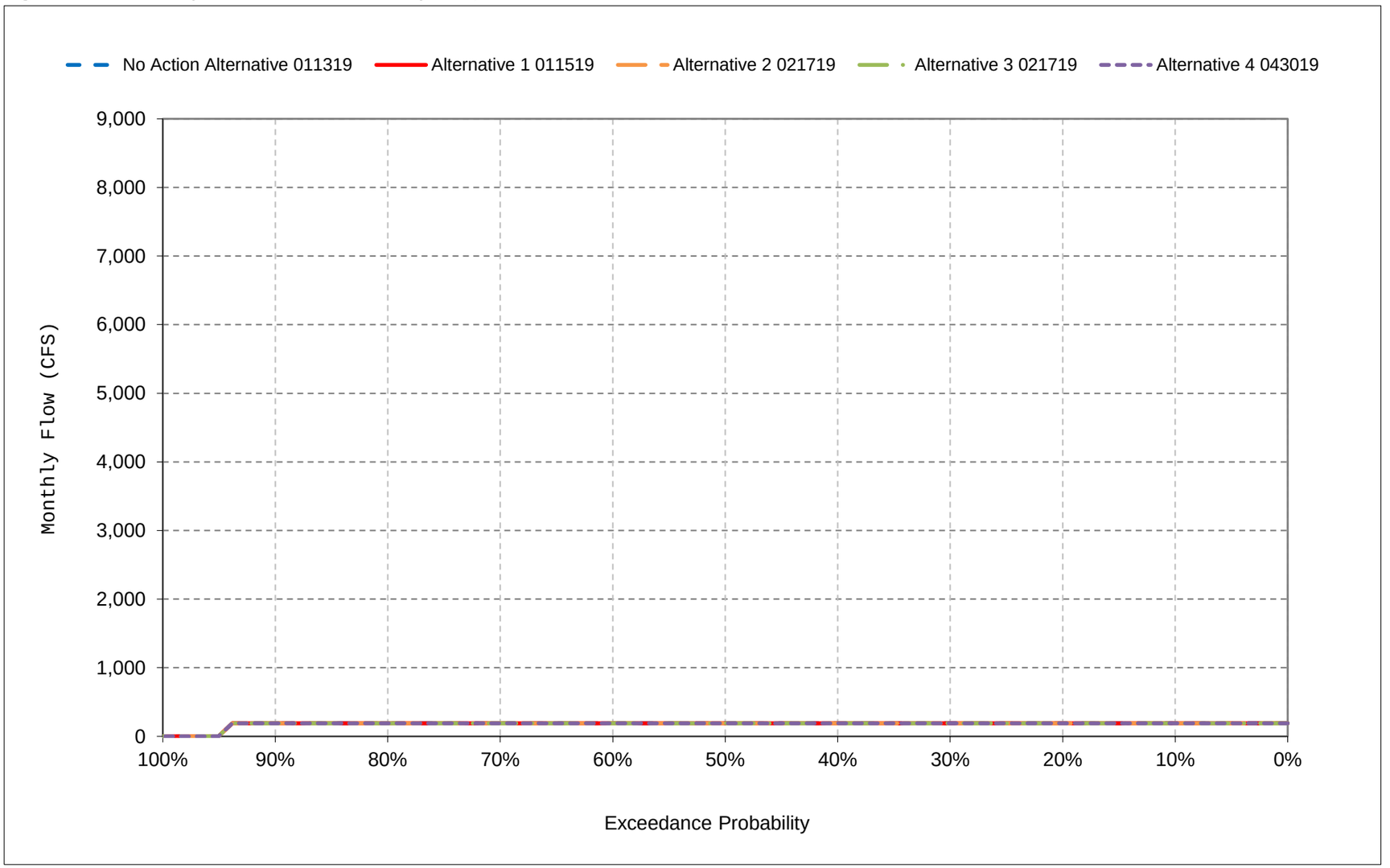
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 33-6. San Joaquin River Flow at Gravelly Ford, Critical Year Average Flow



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

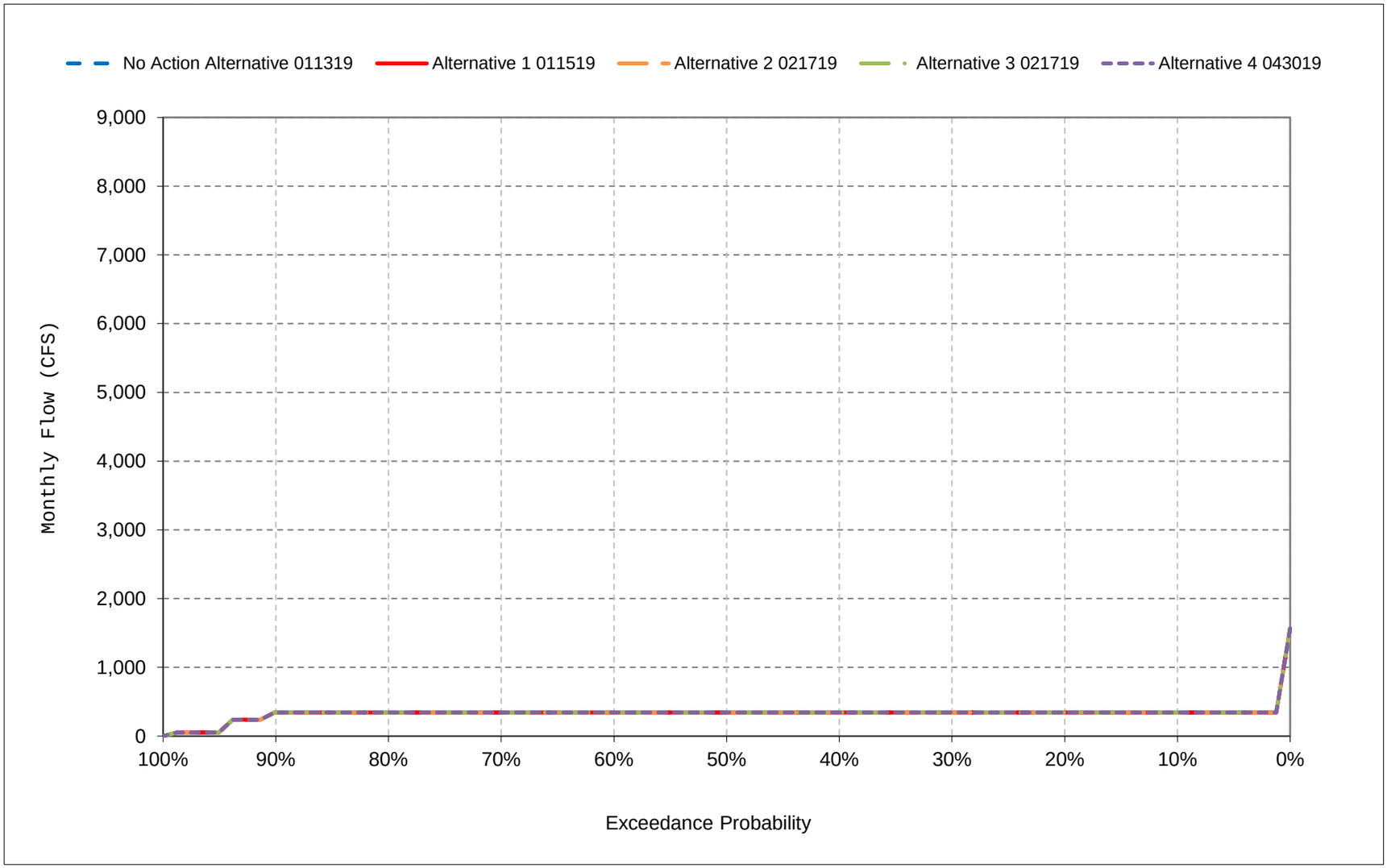
Figure 33-7. San Joaquin River Flow at Gravelly Ford, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

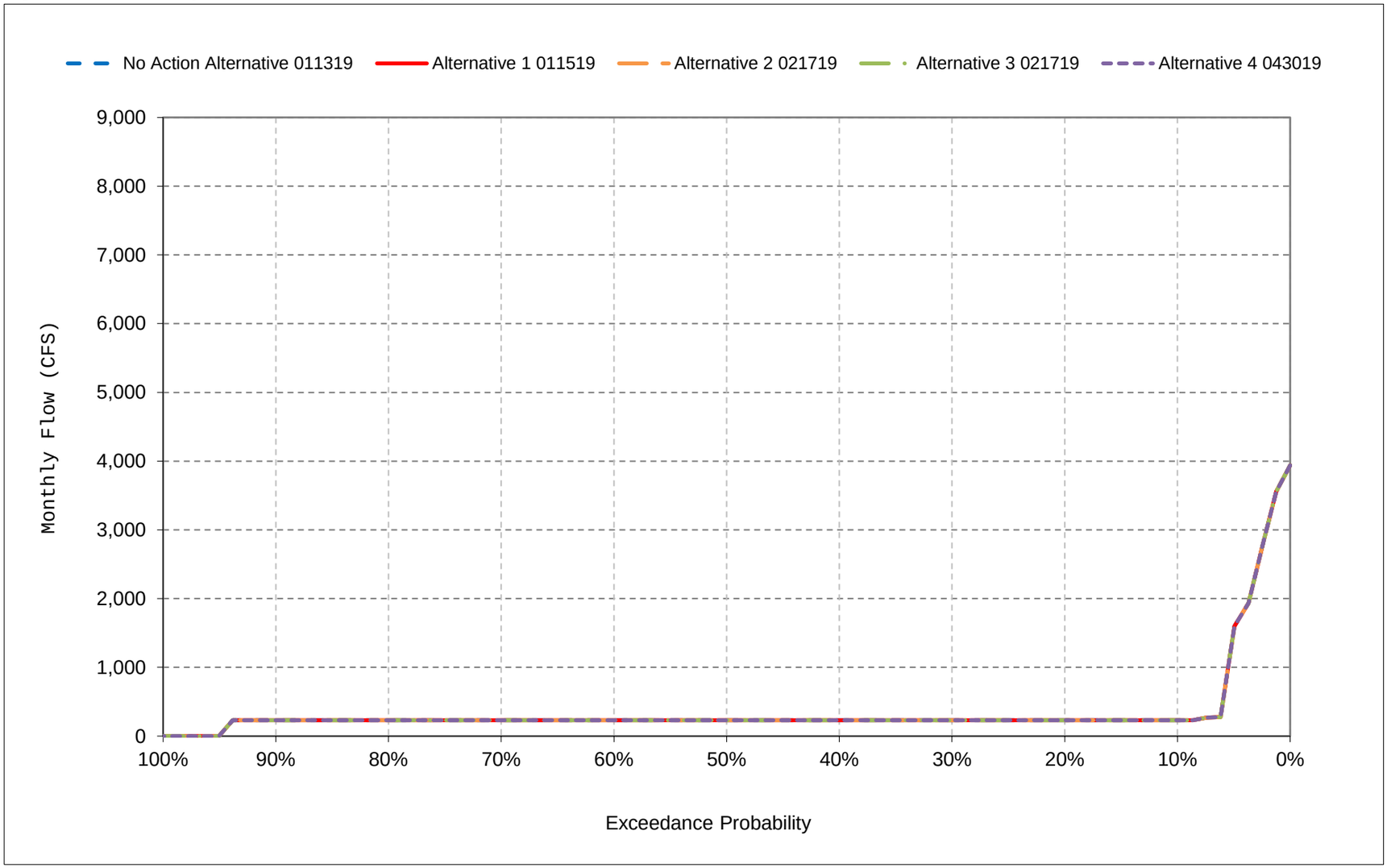
Figure 33-8. San Joaquin River Flow at Gravelly Ford, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

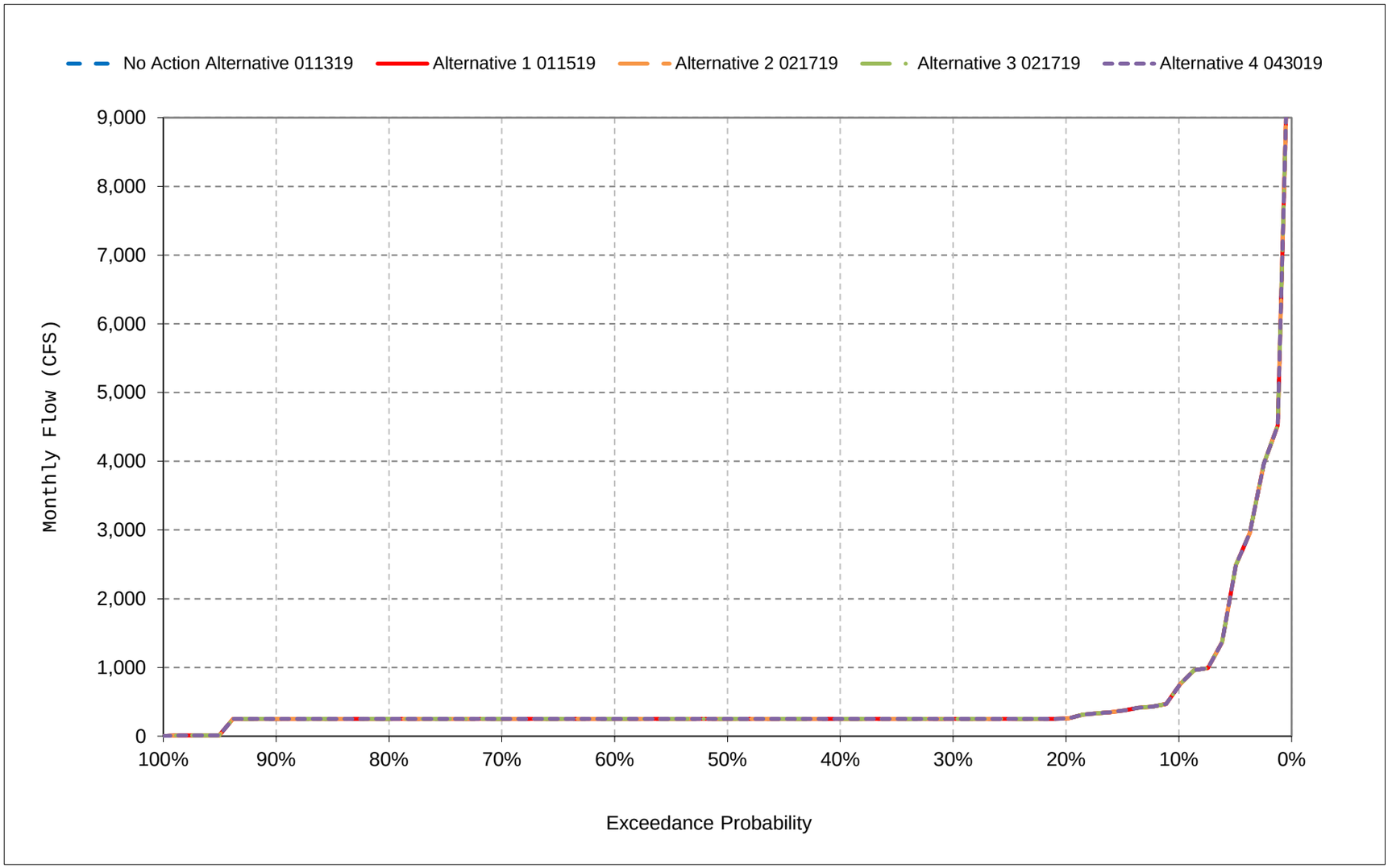
Figure 33-9. San Joaquin River Flow at Gravelly Ford, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

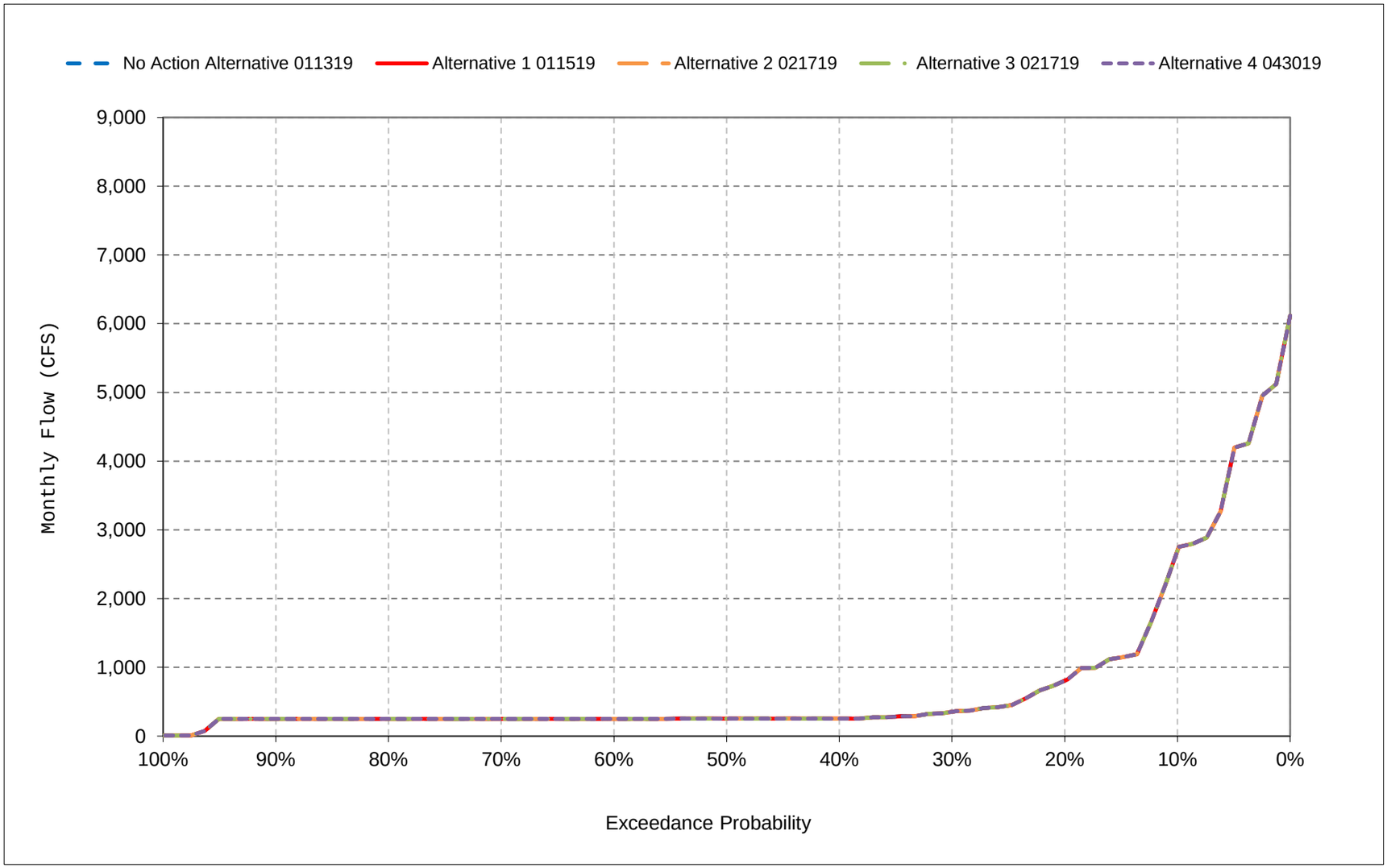
Figure 33-10. San Joaquin River Flow at Gravelly Ford, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

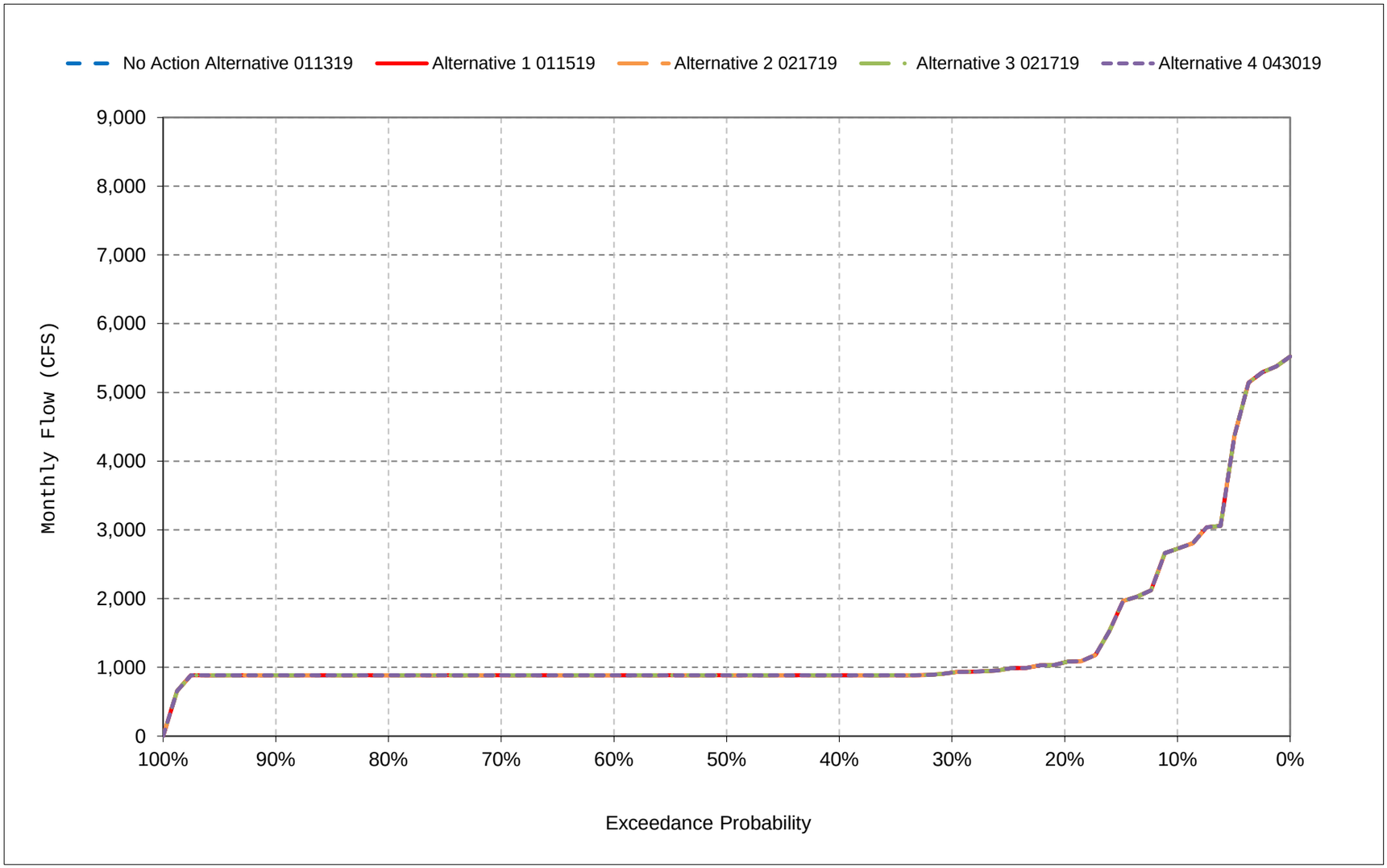
Figure 33-11. San Joaquin River Flow at Gravelly Ford, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

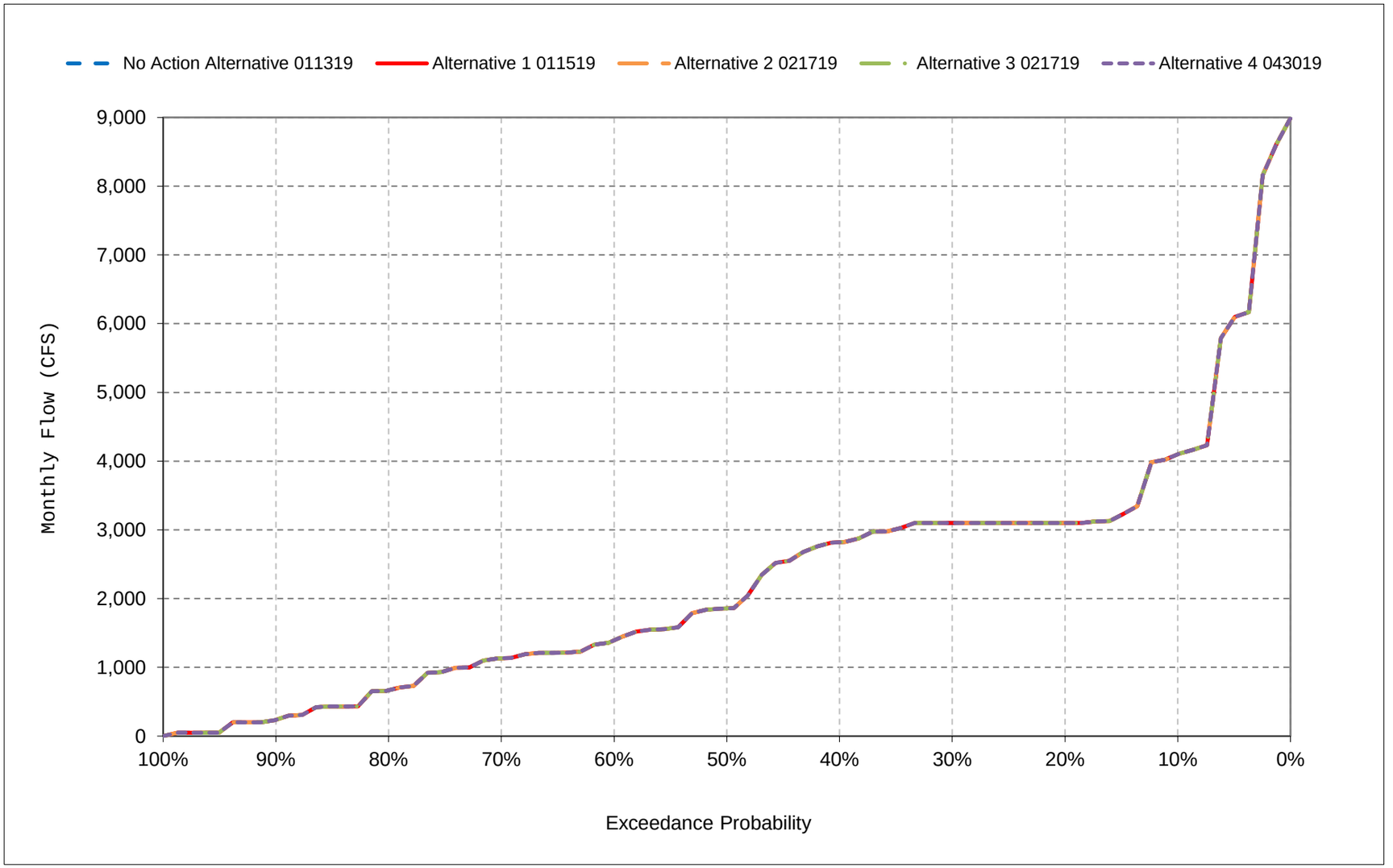
Figure 33-12. San Joaquin River Flow at Gravelly Ford, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

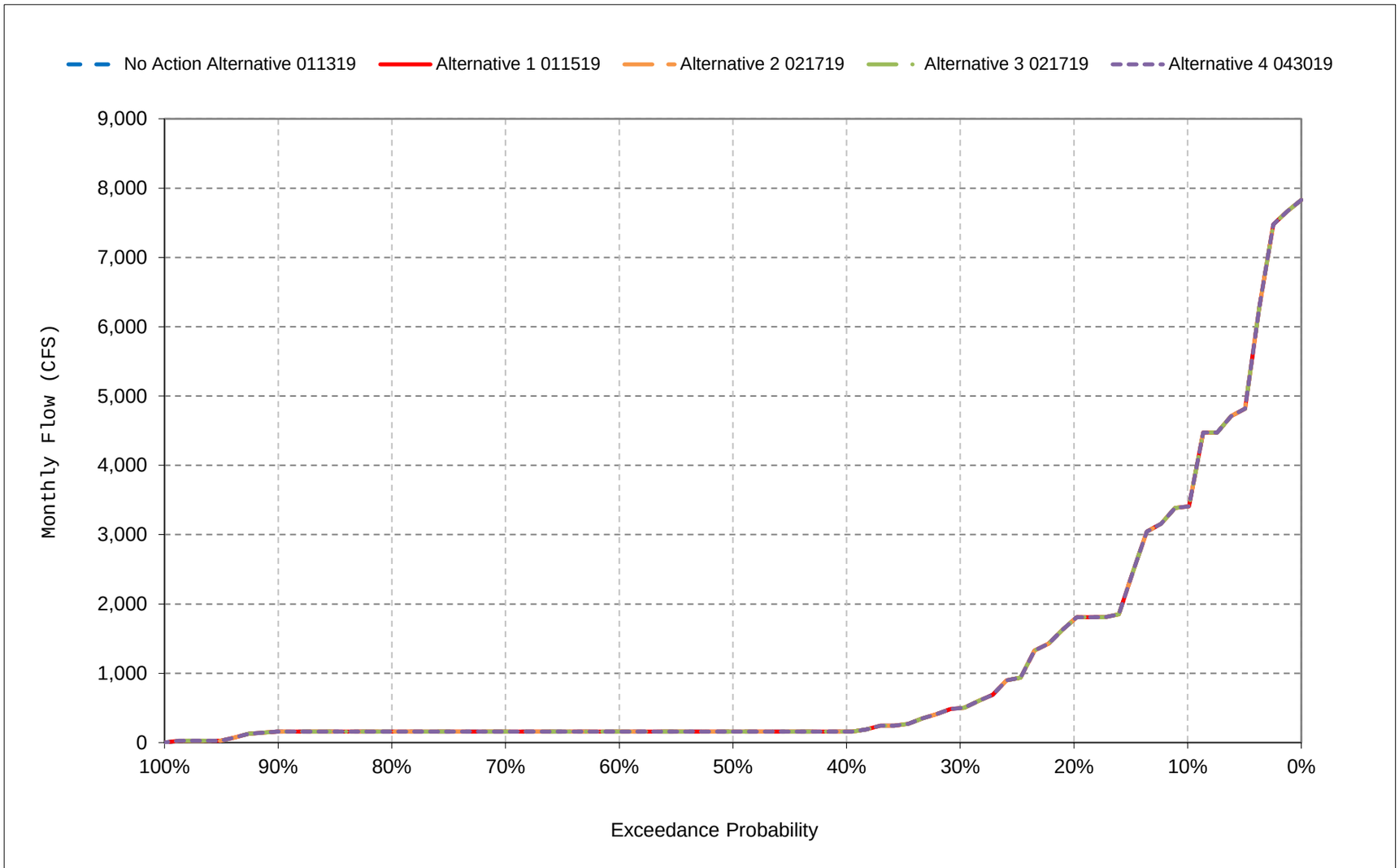
Figure 33-13. San Joaquin River Flow at Gravelly Ford, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

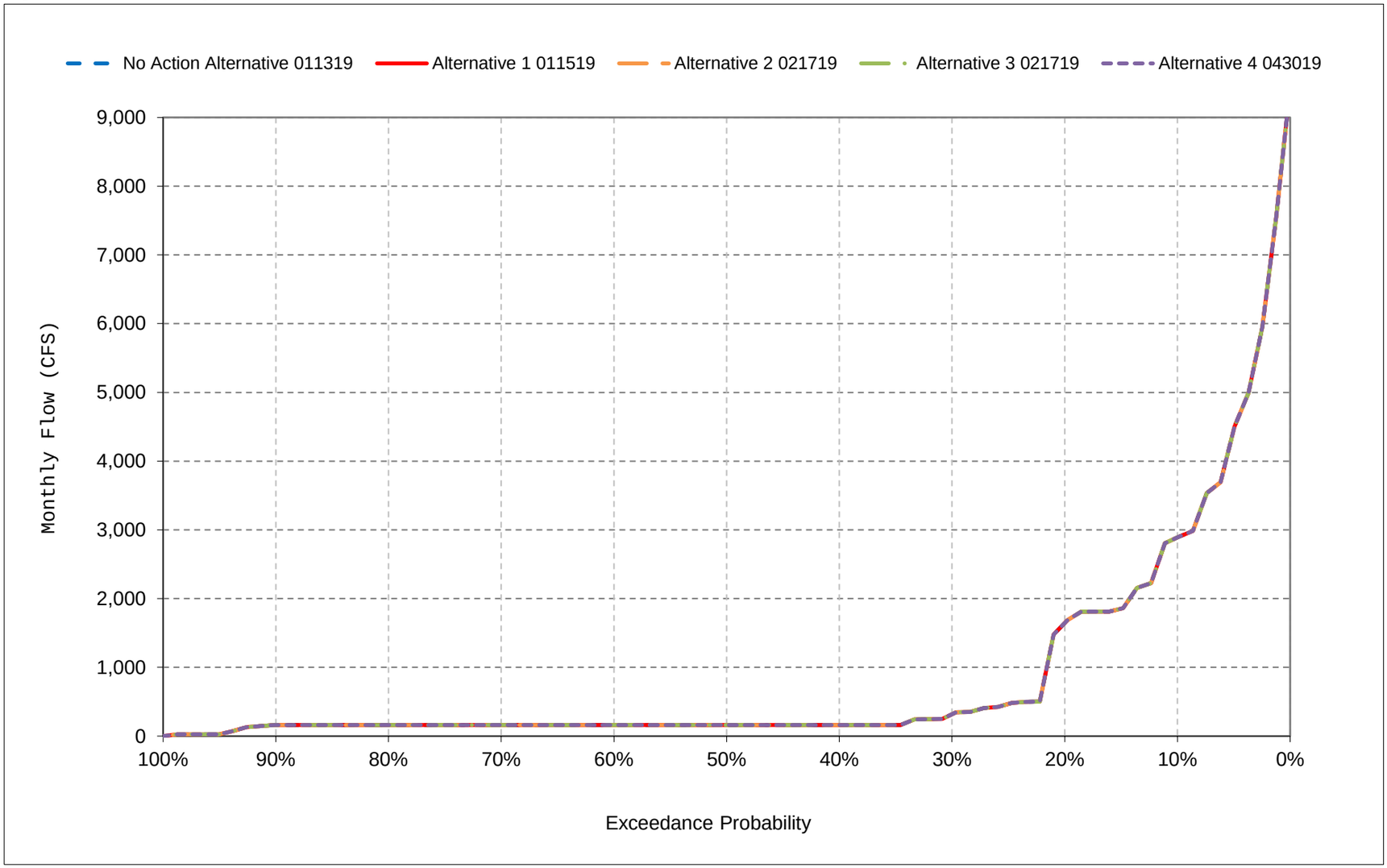
Figure 33-14. San Joaquin River Flow at Gravelly Ford, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

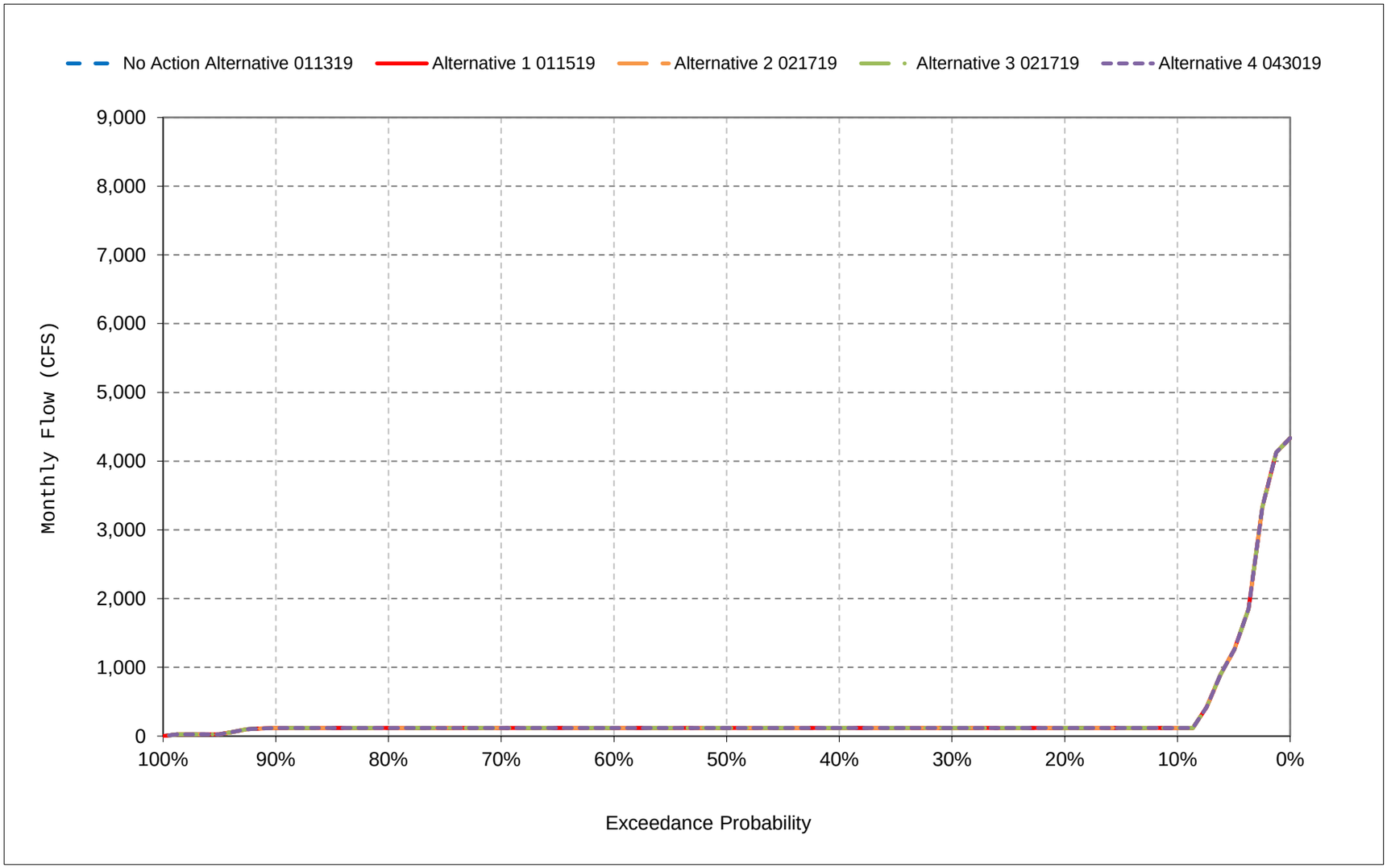
Figure 33-15. San Joaquin River Flow at Gravelly Ford, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

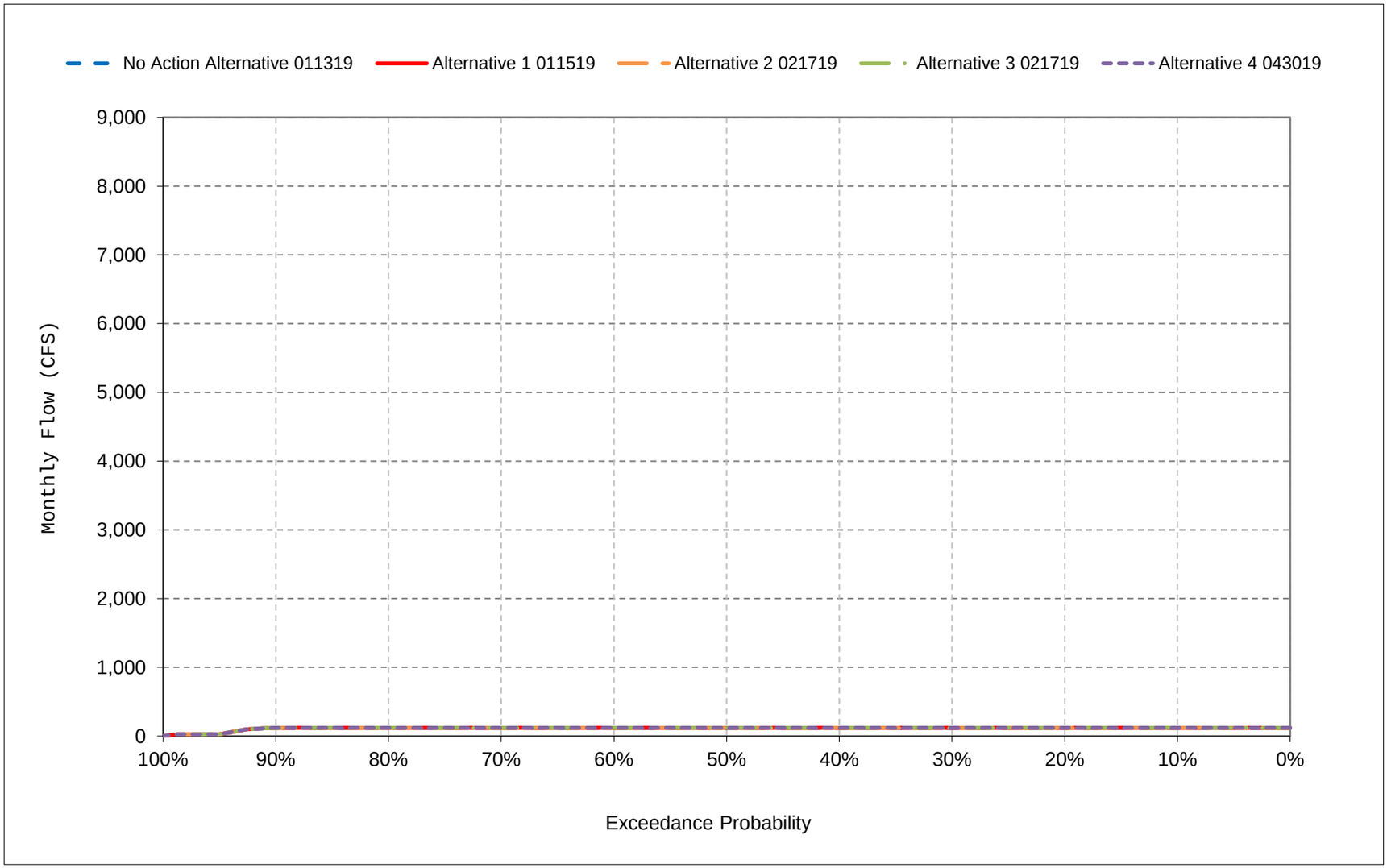
Figure 33-16. San Joaquin River Flow at Gravelly Ford, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

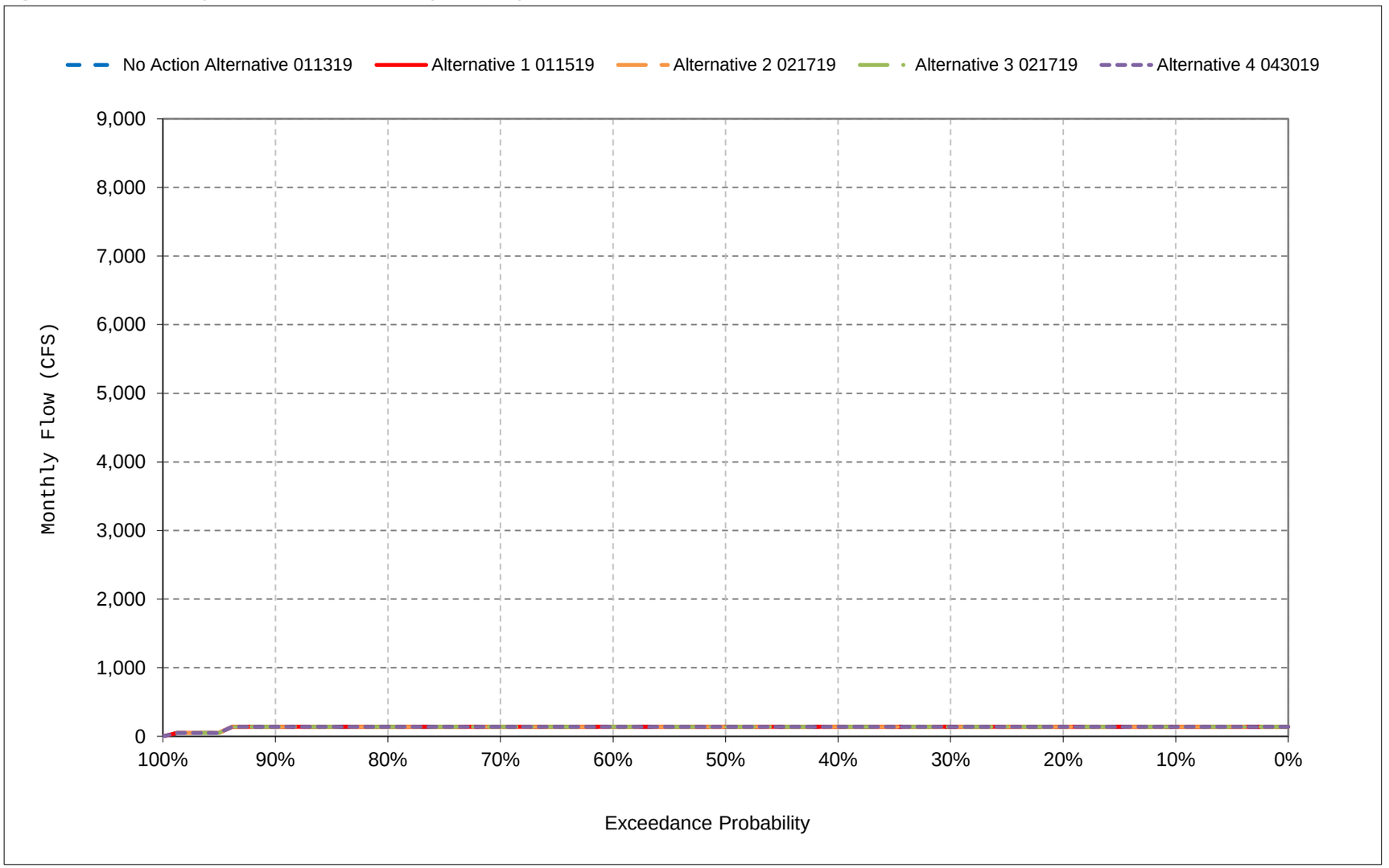
Figure 33-17. San Joaquin River Flow at Gravelly Ford, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 33-18. San Joaquin River Flow at Gravelly Ford, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 34-1. San Joaquin River Flow below Sack Dam, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	86	232	123	1,034	1,172	1,492	3,803	3,955	1,706	20	20	38
20%	86	232	123	143	377	747	2,850	1,432	457	20	20	38
30%	86	232	123	143	145	747	2,850	137	138	20	20	38
40%	86	232	123	143	145	747	2,585	57	57	20	20	38
50%	86	232	123	143	142	747	1,670	57	57	20	20	38
60%	86	232	123	143	142	747	1,228	57	57	20	20	38
70%	86	232	123	143	142	747	980	57	57	20	20	38
80%	86	232	123	143	142	747	539	57	57	20	20	38
90%	86	232	123	143	142	747	131	57	57	20	20	38
Long Term												
Full Simulation Period[a]	86	263	274	456	493	1,041	2,074	806	584	67	18	36
Water Year Types[b,c]												
Wet (23%)	110	442	610	1,262	1,519	1,987	4,330	3,074	2,204	231	20	38
Above Normal (24%)	86	232	167	302	293	826	2,631	280	199	20	20	38
Below Normal (10%)	86	232	123	310	107	747	1,731	57	57	20	20	38
Dry (16%)	86	232	260	143	142	747	998	57	57	20	20	38
Critical (27%)	67	165	147	137	136	703	380	39	40	13	13	29

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	86	232	123	1,033	1,160	1,488	3,802	3,955	1,706	20	20	38
20%	86	232	123	143	381	747	2,850	1,429	457	20	20	38
30%	86	232	123	143	145	747	2,850	137	138	20	20	38
40%	86	232	123	143	145	747	2,585	57	57	20	20	38
50%	86	232	123	143	142	747	1,670	57	57	20	20	38
60%	86	232	123	143	142	747	1,228	57	57	20	20	38
70%	86	232	123	143	142	747	980	57	57	20	20	38
80%	86	232	123	143	142	747	539	57	57	20	20	38
90%	86	232	123	143	142	747	131	57	57	20	20	38
Long Term												
Full Simulation Period[a]	86	263	274	455	491	1,040	2,073	805	584	67	18	36
Water Year Types[b,c]												
Wet (23%)	110	442	610	1,260	1,511	1,982	4,327	3,072	2,203	230	20	38
Above Normal (24%)	86	232	167	301	292	825	2,631	279	199	20	20	38
Below Normal (10%)	86	232	123	310	107	747	1,731	57	57	20	20	38
Dry (16%)	86	232	260	143	142	747	998	57	57	20	20	38
Critical (27%)	67	165	147	137	136	703	380	39	40	13	13	29

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	**0**	**-12**	**-3**	**-1**	**0**	0	0	0	0
20%	0	0	0	0	4	0	0	**-3**	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	**0**	**0**	**-2**	**-1**	**-1**	**-1**	**0**	**0**	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	**0**	**-1**	**-7**	**-4**	**-3**	**-2**	**-1**	**0**	0	0
Above Normal (24%)	0	0	**0**	**0**	**-1**	**-1**	**0**	**-1**	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (27%)	0	0	**0**	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 34-2. San Joaquin River Flow below Sack Dam, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	86	232	123	1,034	1,172	1,492	3,803	3,955	1,706	20	20	38
20%	86	232	123	143	377	747	2,850	1,432	457	20	20	38
30%	86	232	123	143	145	747	2,850	137	138	20	20	38
40%	86	232	123	143	145	747	2,585	57	57	20	20	38
50%	86	232	123	143	142	747	1,670	57	57	20	20	38
60%	86	232	123	143	142	747	1,228	57	57	20	20	38
70%	86	232	123	143	142	747	980	57	57	20	20	38
80%	86	232	123	143	142	747	539	57	57	20	20	38
90%	86	232	123	143	142	747	131	57	57	20	20	38
Long Term												
Full Simulation Period[a]	86	263	274	456	493	1,041	2,074	806	584	67	18	36
Water Year Types[b,c]												
Wet (23%)	110	442	610	1,262	1,519	1,987	4,330	3,074	2,204	231	20	38
Above Normal (24%)	86	232	167	302	293	826	2,631	280	199	20	20	38
Below Normal (10%)	86	232	123	310	107	747	1,731	57	57	20	20	38
Dry (16%)	86	232	260	143	142	747	998	57	57	20	20	38
Critical (27%)	67	165	147	137	136	703	380	39	40	13	13	29

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	86	232	123	1,033	1,155	1,488	3,802	3,953	1,706	20	20	38
20%	86	232	123	143	356	747	2,850	1,429	457	20	20	38
30%	86	232	123	143	145	747	2,850	137	138	20	20	38
40%	86	232	123	143	145	747	2,585	57	57	20	20	38
50%	86	232	123	143	142	747	1,670	57	57	20	20	38
60%	86	232	123	143	142	747	1,228	57	57	20	20	38
70%	86	232	123	143	142	747	980	57	57	20	20	38
80%	86	232	123	143	142	747	539	57	57	20	20	38
90%	86	232	123	143	142	747	131	57	57	20	20	38
Long Term												
Full Simulation Period[a]	86	263	274	455	490	1,040	2,073	805	584	67	18	36
Water Year Types[b,c]												
Wet (23%)	110	442	610	1,260	1,507	1,981	4,326	3,071	2,203	230	20	38
Above Normal (24%)	86	232	167	301	292	825	2,631	279	199	20	20	38
Below Normal (10%)	86	232	123	310	107	747	1,731	57	57	20	20	38
Dry (16%)	86	232	260	143	142	747	998	57	57	20	20	38
Critical (27%)	67	165	147	137	136	703	380	39	40	13	13	29

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	-1	-17	-4	-2	-2	0	0	0	0
20%	0	0	0	0	-22	0	0	-3	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	-3	-2	-1	-1	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	-1	-12	-6	-4	-3	-1	0	0	0
Above Normal (24%)	0	0	0	0	-1	-1	0	-1	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (27%)	0	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 34-3. San Joaquin River Flow below Sack Dam, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	86	232	123	1,034	1,172	1,492	3,803	3,955	1,706	20	20	38
20%	86	232	123	143	377	747	2,850	1,432	457	20	20	38
30%	86	232	123	143	145	747	2,850	137	138	20	20	38
40%	86	232	123	143	145	747	2,585	57	57	20	20	38
50%	86	232	123	143	142	747	1,670	57	57	20	20	38
60%	86	232	123	143	142	747	1,228	57	57	20	20	38
70%	86	232	123	143	142	747	980	57	57	20	20	38
80%	86	232	123	143	142	747	539	57	57	20	20	38
90%	86	232	123	143	142	747	131	57	57	20	20	38
Long Term												
Full Simulation Period[a]	86	263	274	456	493	1,041	2,074	806	584	67	18	36
Water Year Types[b,c]												
Wet (23%)	110	442	610	1,262	1,519	1,987	4,330	3,074	2,204	231	20	38
Above Normal (24%)	86	232	167	302	293	826	2,631	280	199	20	20	38
Below Normal (10%)	86	232	123	310	107	747	1,731	57	57	20	20	38
Dry (16%)	86	232	260	143	142	747	998	57	57	20	20	38
Critical (27%)	67	165	147	137	136	703	380	39	40	13	13	29

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	86	232	123	1,033	1,155	1,488	3,801	3,954	1,706	20	20	38
20%	86	232	123	143	358	747	2,850	1,429	457	20	20	38
30%	86	232	123	143	145	747	2,850	137	138	20	20	38
40%	86	232	123	143	145	747	2,585	57	57	20	20	38
50%	86	232	123	143	142	747	1,670	57	57	20	20	38
60%	86	232	123	143	142	747	1,228	57	57	20	20	38
70%	86	232	123	143	142	747	980	57	57	20	20	38
80%	86	232	123	143	142	747	539	57	57	20	20	38
90%	86	232	123	143	142	747	131	57	57	20	20	38
Long Term												
Full Simulation Period[a]	86	263	274	455	490	1,040	2,073	805	584	67	18	36
Water Year Types[b,c]												
Wet (23%)	110	442	610	1,260	1,508	1,981	4,326	3,072	2,203	230	20	38
Above Normal (24%)	86	232	167	301	292	825	2,631	279	199	20	20	38
Below Normal (10%)	86	232	123	310	107	747	1,731	57	57	20	20	38
Dry (16%)	86	232	260	143	142	747	998	57	57	20	20	38
Critical (27%)	67	165	147	137	136	703	380	39	40	13	13	29

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	-1	-18	-4	-2	-1	0	0	0	0
20%	0	0	0	0	-19	0	0	-3	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	-3	-1	-1	-1	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	-1	-11	-5	-4	-2	-1	0	0	0
Above Normal (24%)	0	0	0	0	-1	-1	0	-1	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (27%)	0	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 34-4. San Joaquin River Flow below Sack Dam, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	86	232	123	1,034	1,172	1,492	3,803	3,955	1,706	20	20	38
20%	86	232	123	143	377	747	2,850	1,432	457	20	20	38
30%	86	232	123	143	145	747	2,850	137	138	20	20	38
40%	86	232	123	143	145	747	2,585	57	57	20	20	38
50%	86	232	123	143	142	747	1,670	57	57	20	20	38
60%	86	232	123	143	142	747	1,228	57	57	20	20	38
70%	86	232	123	143	142	747	980	57	57	20	20	38
80%	86	232	123	143	142	747	539	57	57	20	20	38
90%	86	232	123	143	142	747	131	57	57	20	20	38
Long Term												
Full Simulation Period[a]	86	263	274	456	493	1,041	2,074	806	584	67	18	36
Water Year Types[b,c]												
Wet (23%)	110	442	610	1,262	1,519	1,987	4,330	3,074	2,204	231	20	38
Above Normal (24%)	86	232	167	302	293	826	2,631	280	199	20	20	38
Below Normal (10%)	86	232	123	310	107	747	1,731	57	57	20	20	38
Dry (16%)	86	232	260	143	142	747	998	57	57	20	20	38
Critical (27%)	67	165	147	137	136	703	380	39	40	13	13	29

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	86	232	123	1,035	1,186	1,492	3,806	3,955	1,706	20	20	38
20%	86	232	123	143	391	747	2,850	1,429	457	20	20	38
30%	86	232	123	143	145	747	2,850	137	138	20	20	38
40%	86	232	123	143	145	747	2,585	57	57	20	20	38
50%	86	232	123	143	142	747	1,670	57	57	20	20	38
60%	86	232	123	143	142	747	1,228	57	57	20	20	38
70%	86	232	123	143	142	747	980	57	57	20	20	38
80%	86	232	123	143	142	747	539	57	57	20	20	38
90%	86	232	123	143	142	747	131	57	57	20	20	38
Long Term												
Full Simulation Period[a]	86	263	274	455	493	1,041	2,073	805	584	67	18	36
Water Year Types[b,c]												
Wet (23%)	110	442	610	1,261	1,519	1,985	4,327	3,072	2,203	230	20	38
Above Normal (24%)	86	232	167	302	293	826	2,631	279	199	20	20	38
Below Normal (10%)	86	232	123	310	107	747	1,731	57	57	20	20	38
Dry (16%)	86	232	260	143	142	747	998	57	57	20	20	38
Critical (27%)	67	165	147	137	136	703	380	39	40	13	13	29

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	1	13	0	3	0	0	0	0	0
20%	0	0	0	0	13	0	0	-3	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	-1	0	-2	-2	-2	-1	0	0	0
Above Normal (24%)	0	0	0	0	-1	0	0	0	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (27%)	0	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

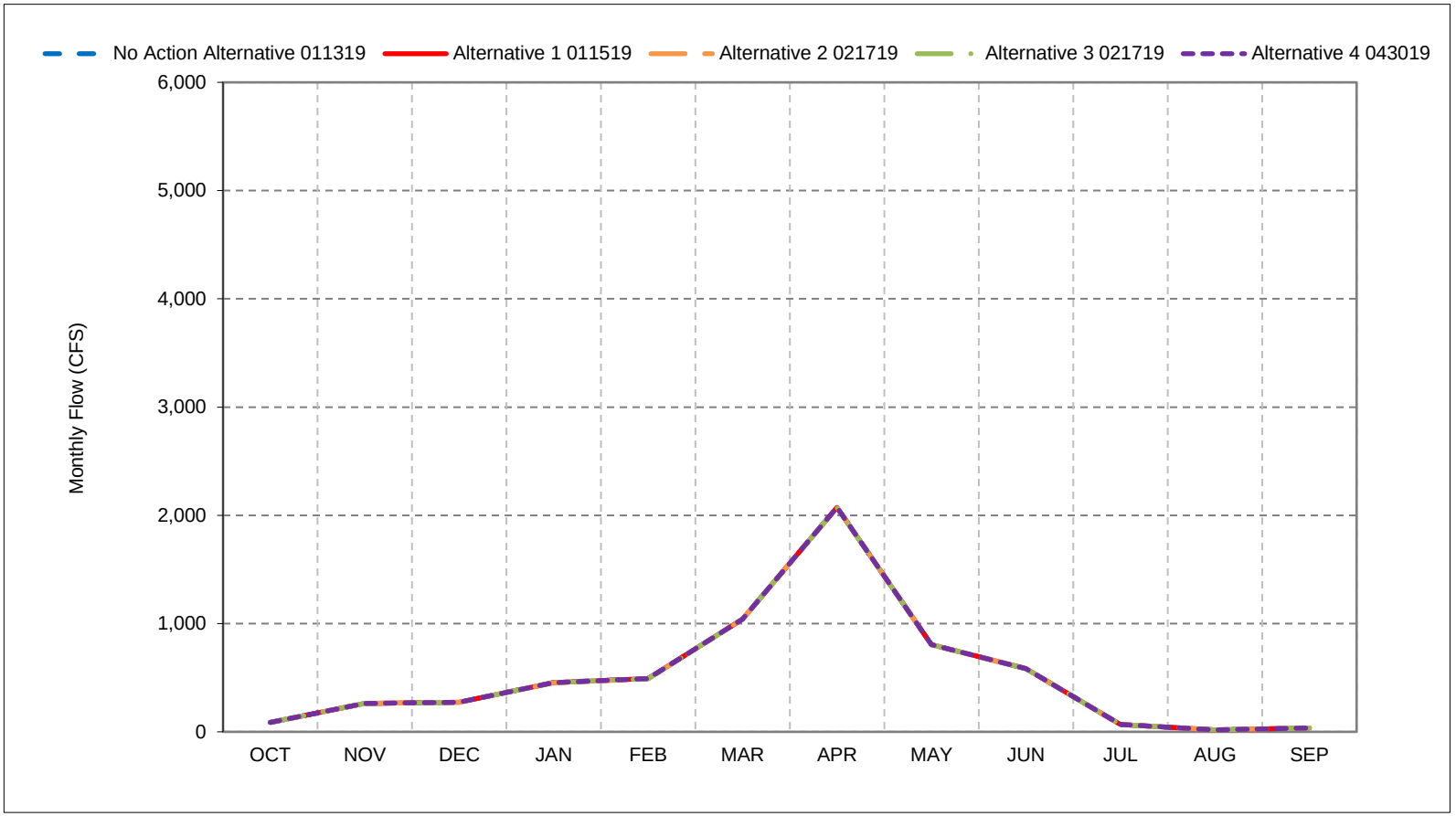
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

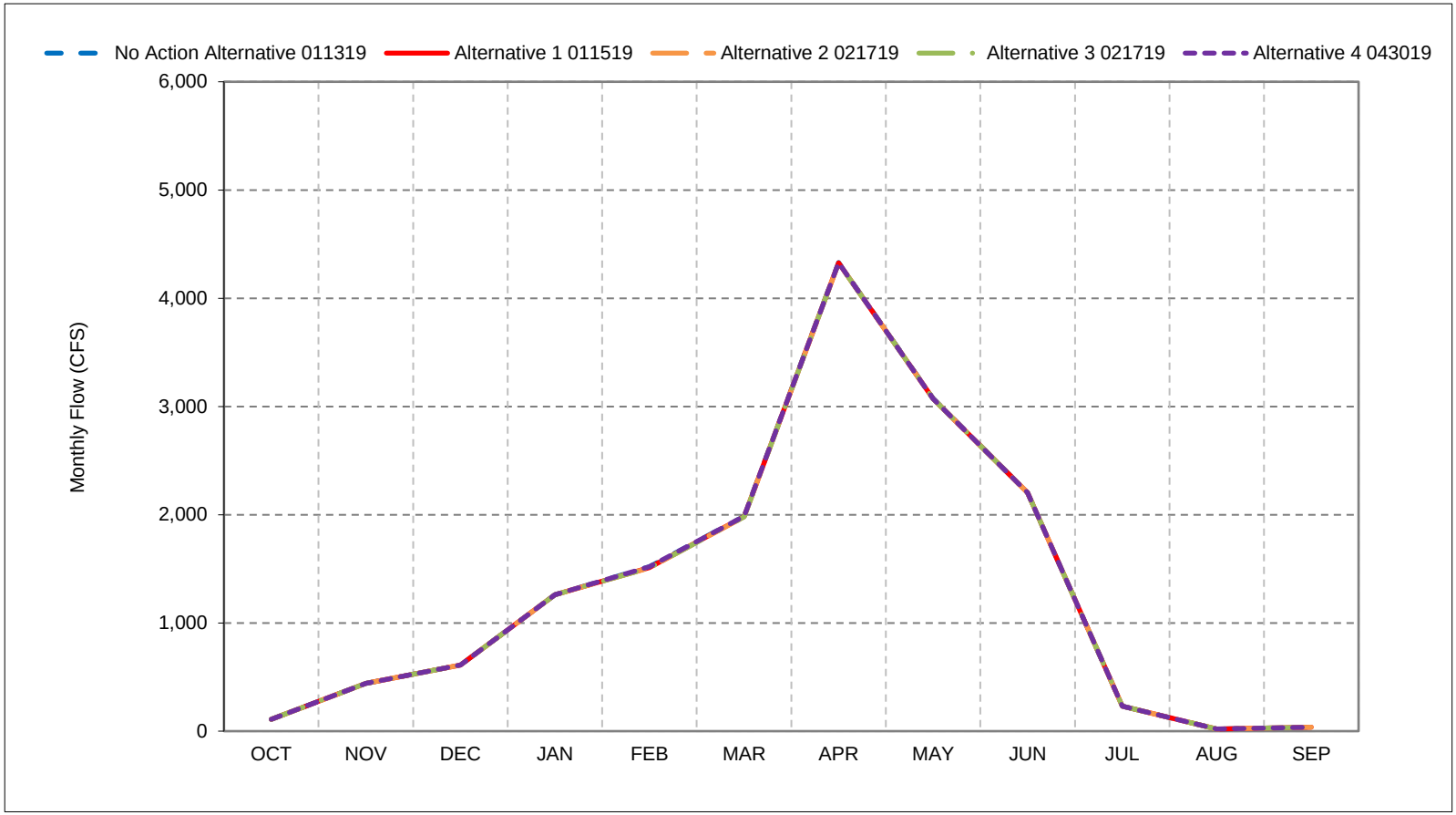
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 34-1. San Joaquin River Flow below Sack Dam, Long-Term Average Flow



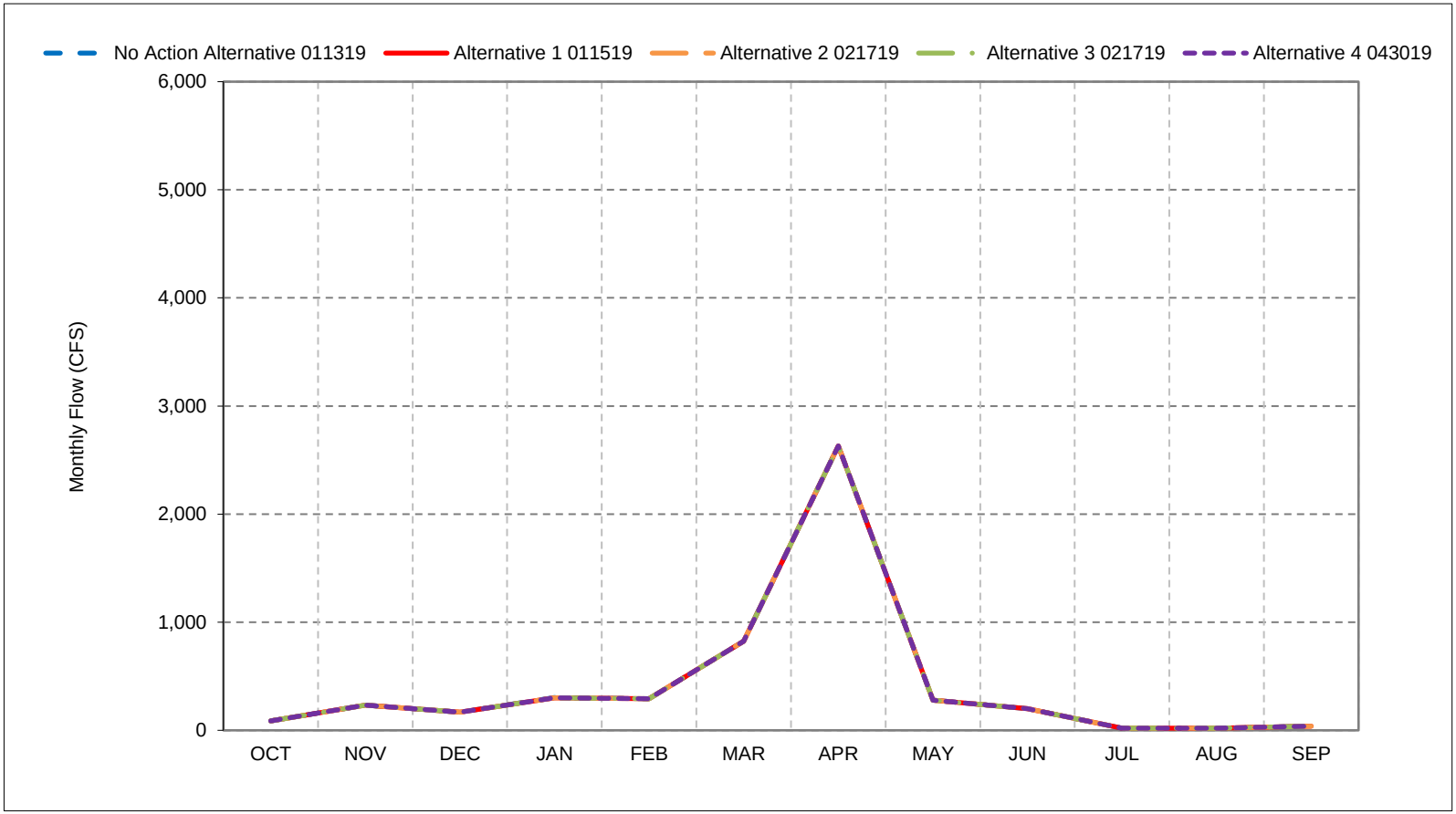
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 34-2. San Joaquin River Flow below Sack Dam, Wet Year Average Flow



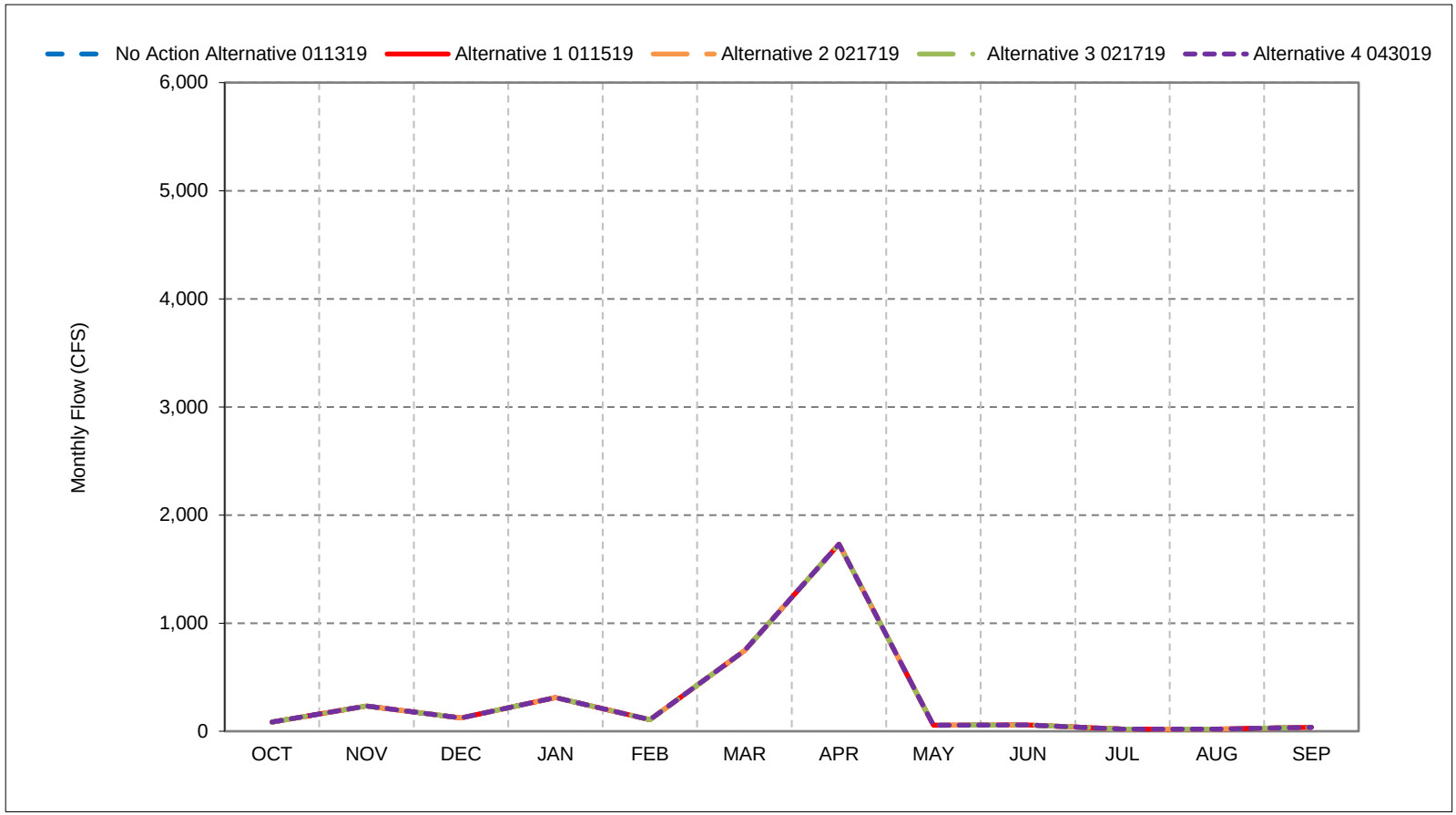
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 34-3. San Joaquin River Flow below Sack Dam, Above Normal Year Average Flow



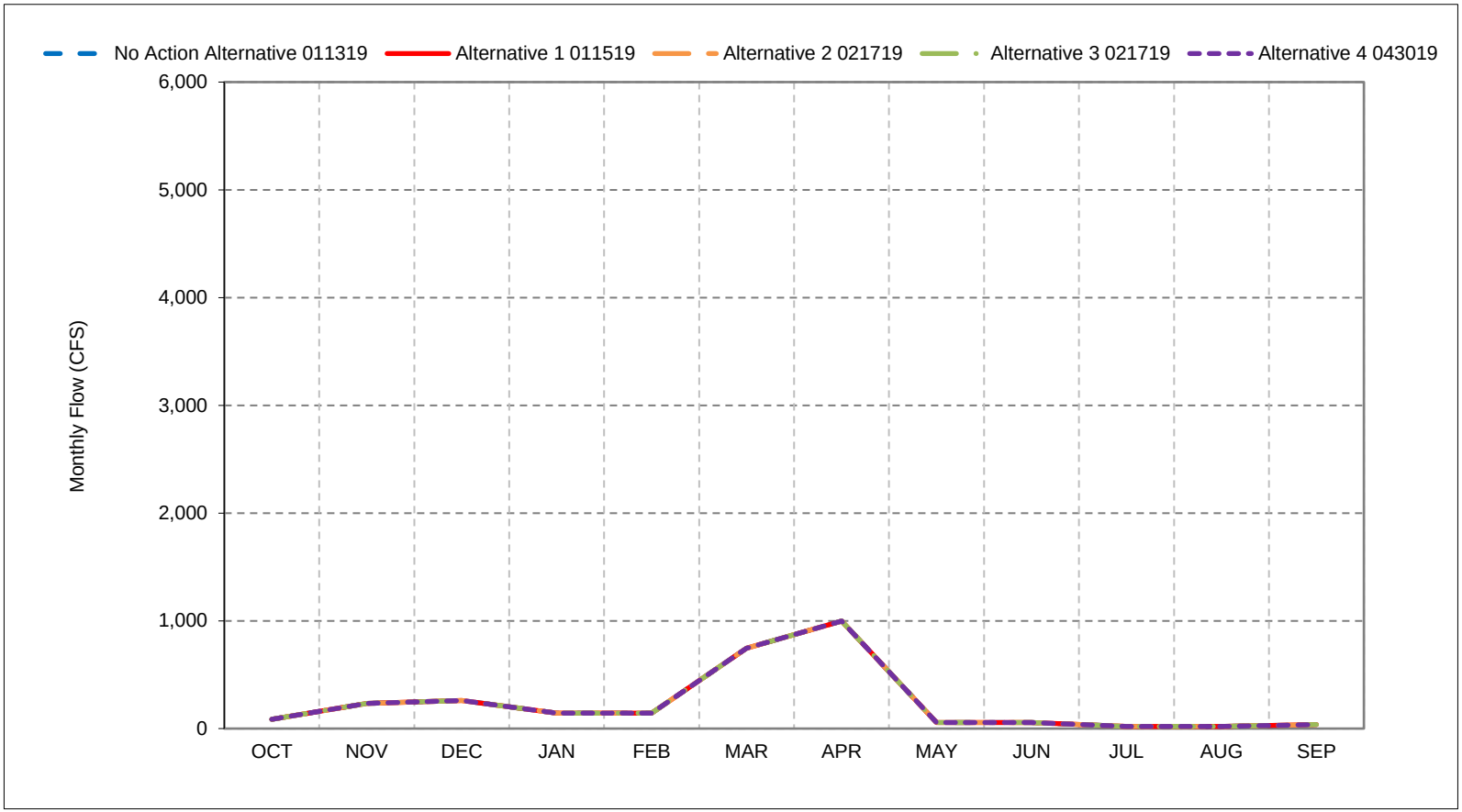
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 34-4. San Joaquin River Flow below Sack Dam, Below Normal Year Average Flow



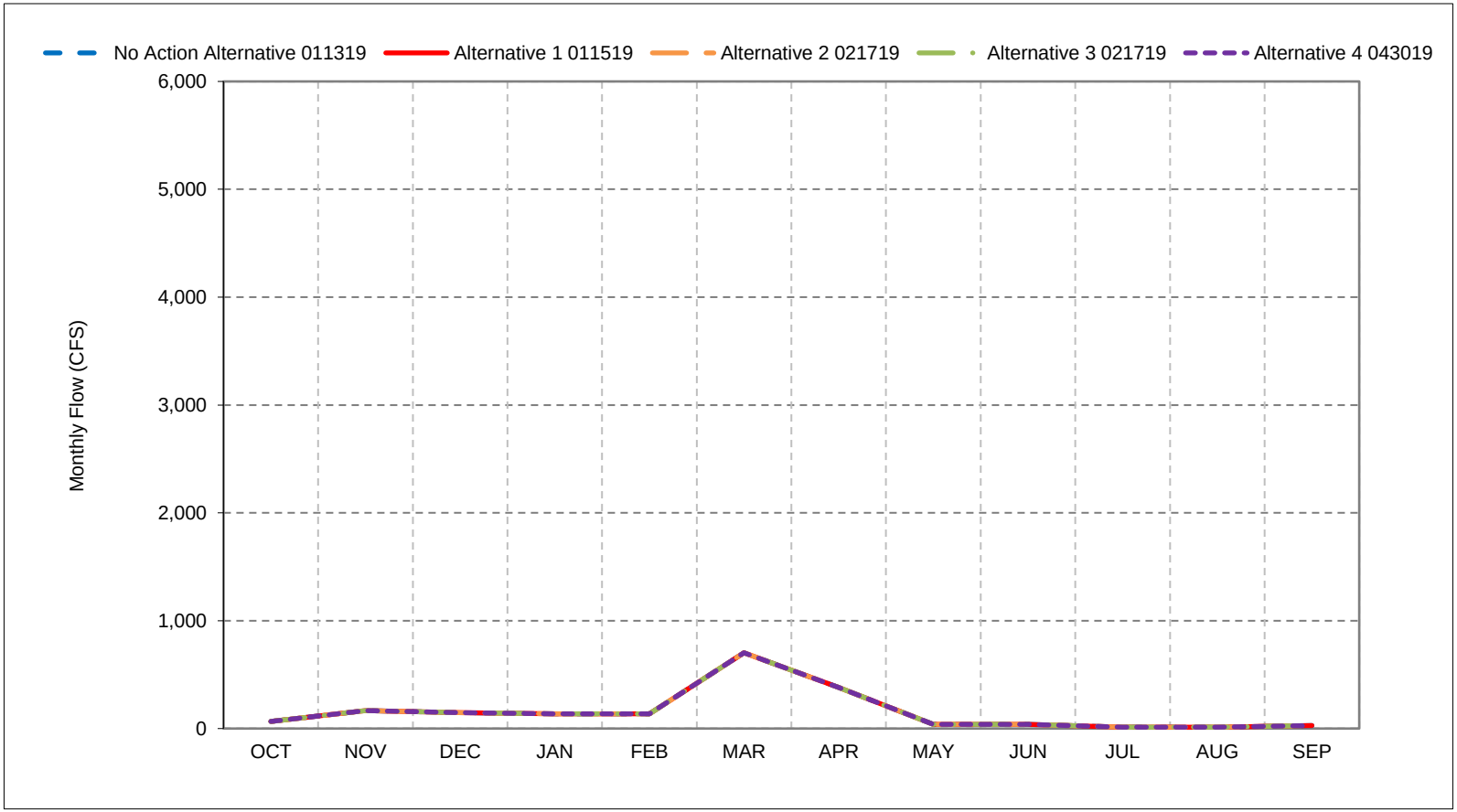
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 34-5. San Joaquin River Flow below Sack Dam, Dry Year Average Flow



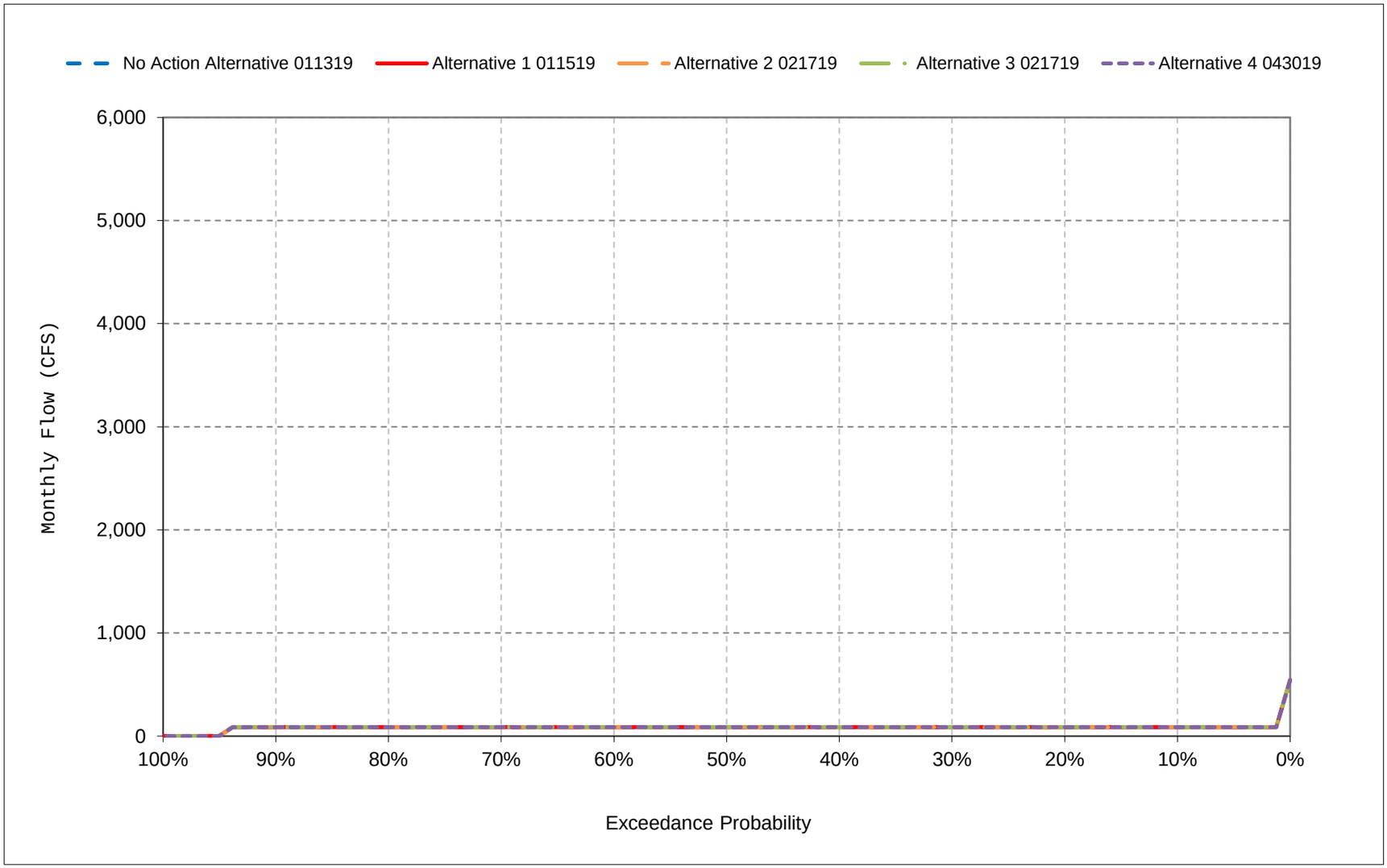
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 34-6. San Joaquin River Flow below Sack Dam, Critical Year Average Flow



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

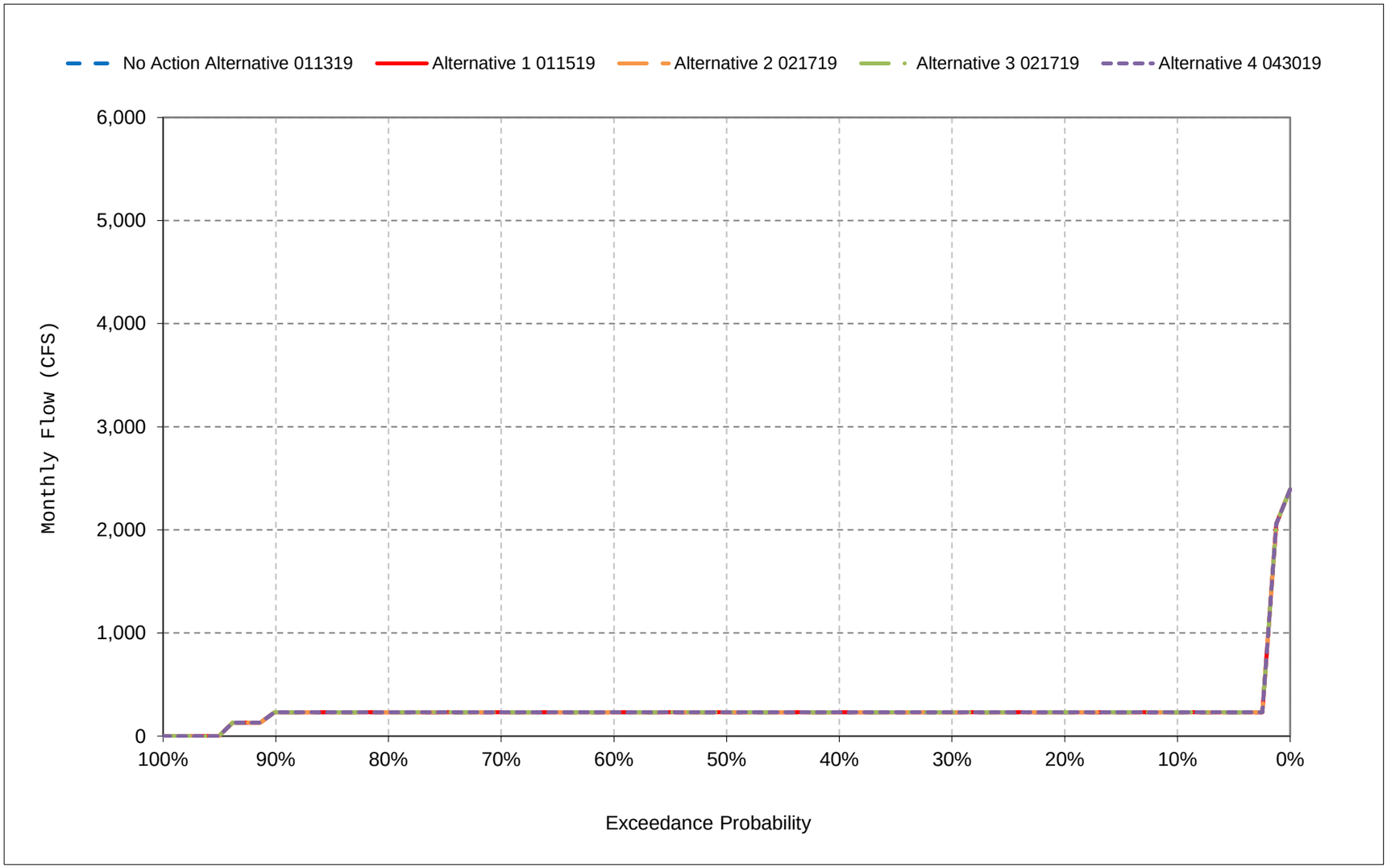
Figure 34-7. San Joaquin River Flow below Sack Dam, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

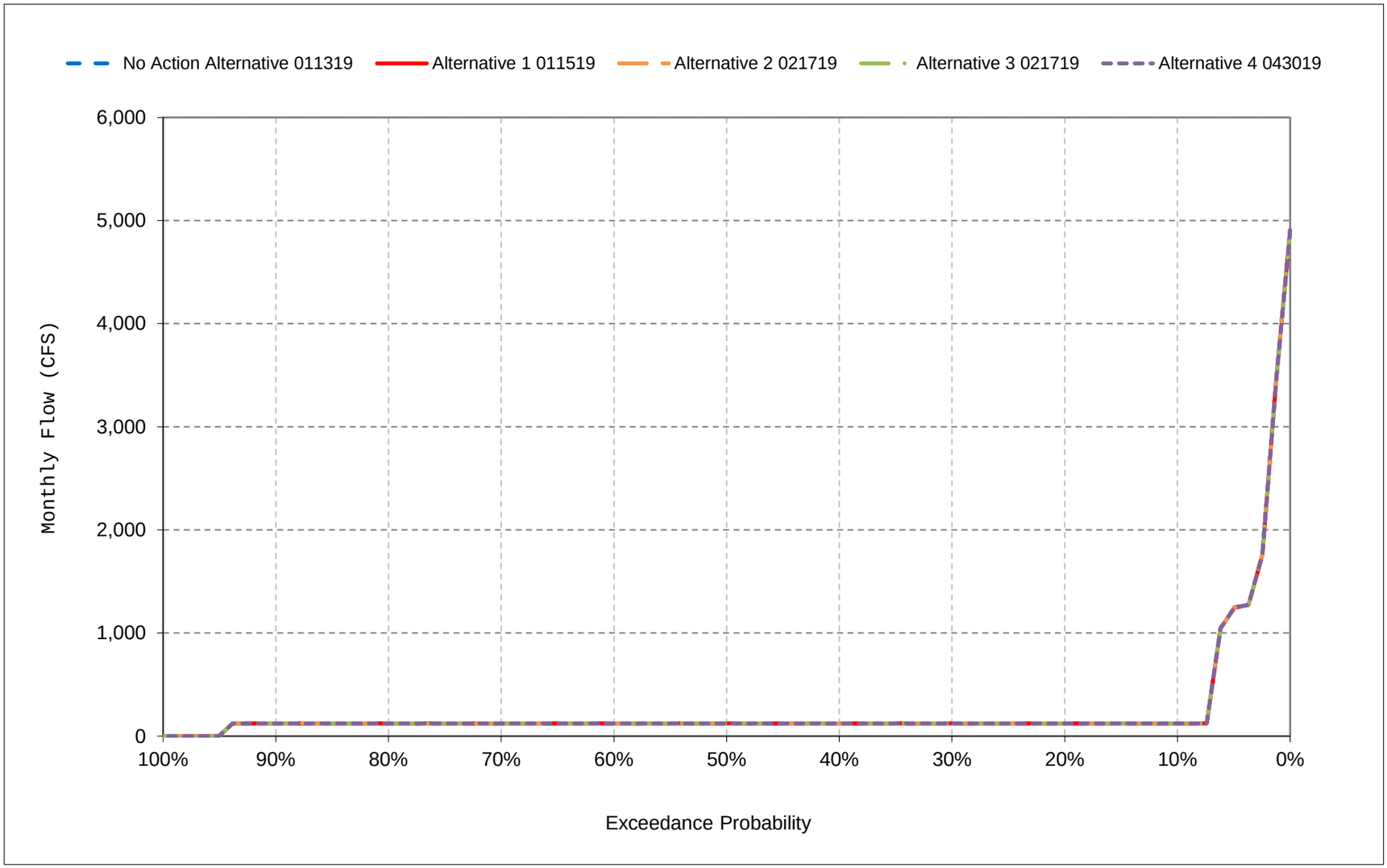
Figure 34-8. San Joaquin River Flow below Sack Dam, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

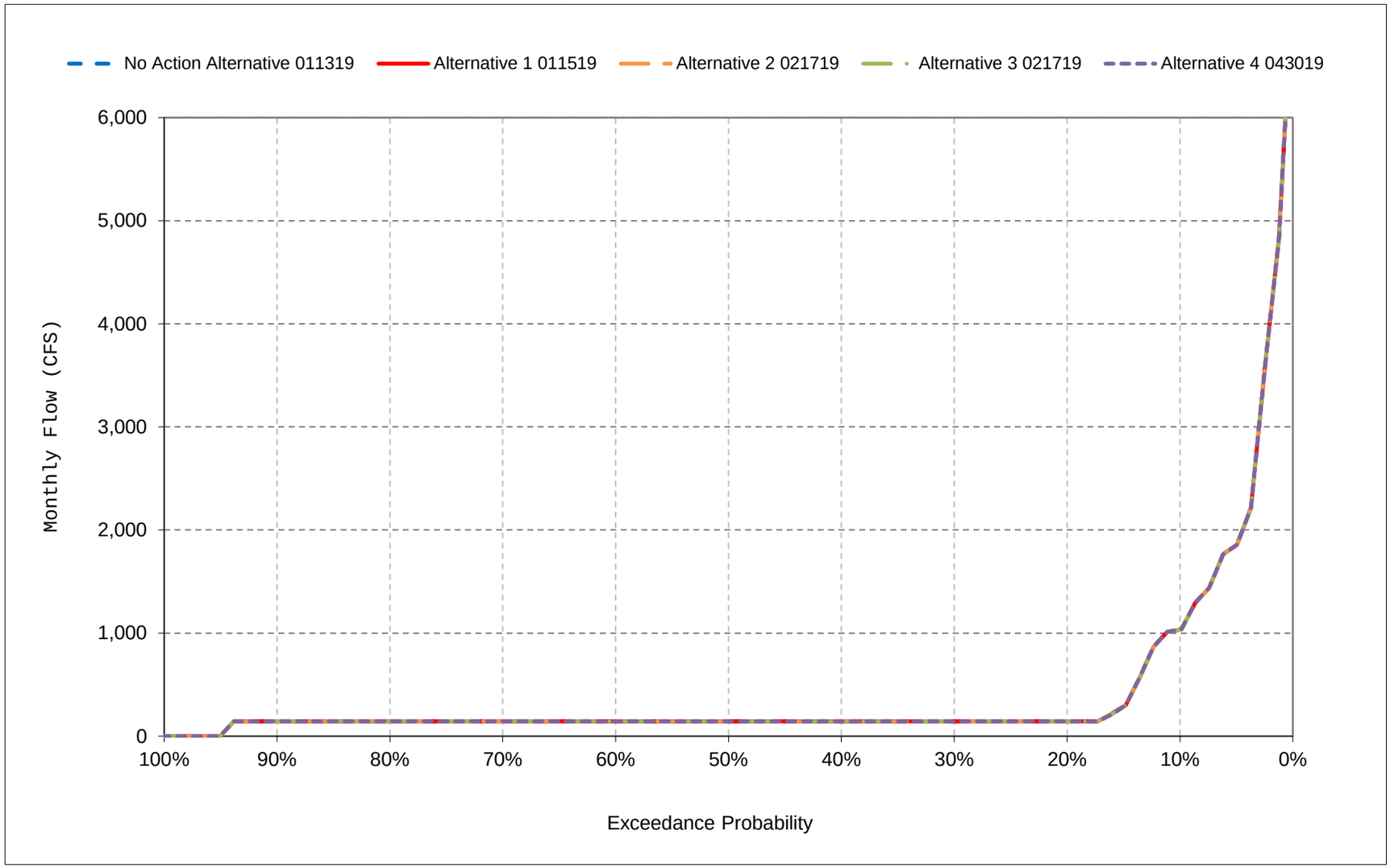
Figure 34-9. San Joaquin River Flow below Sack Dam, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

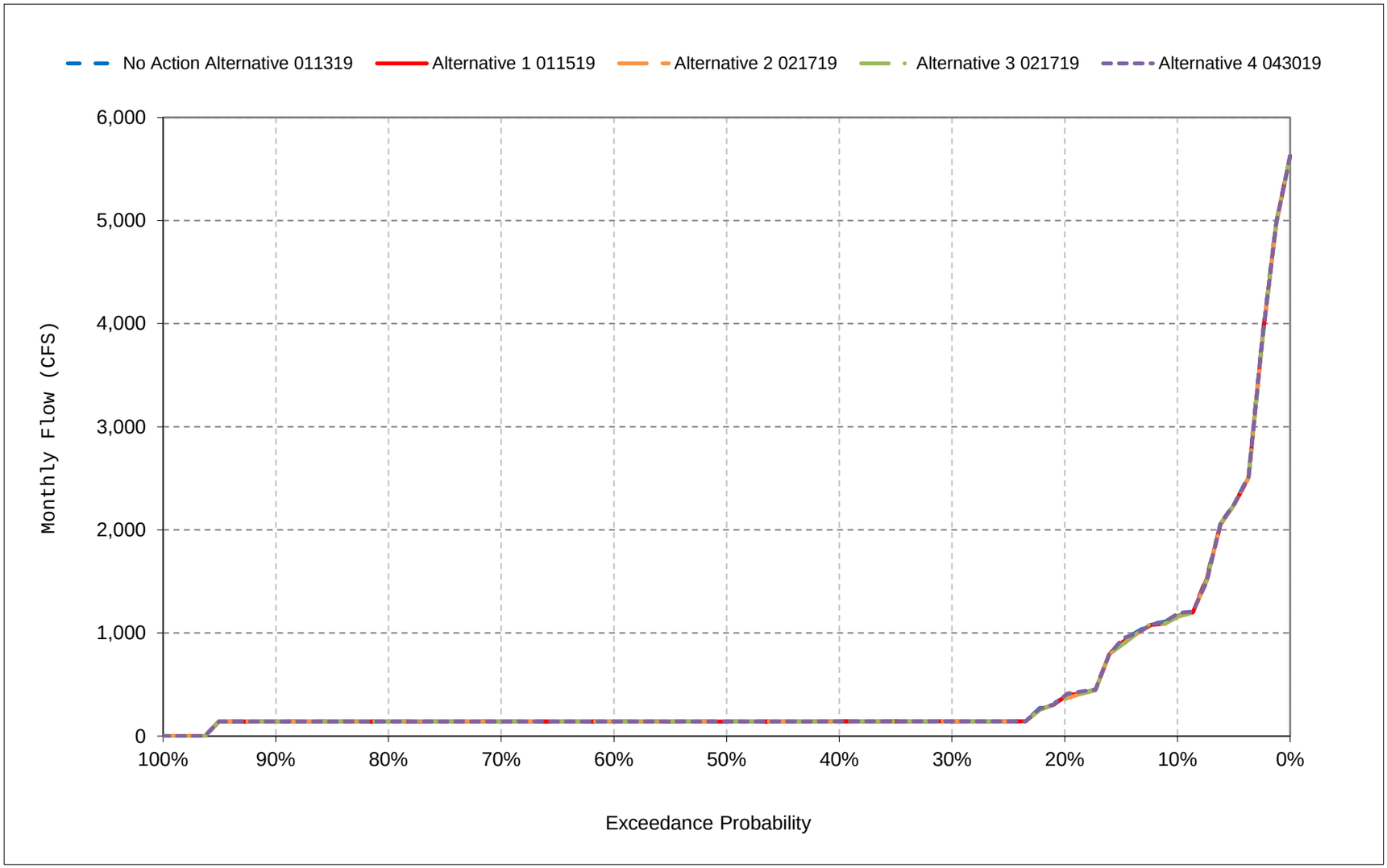
Figure 34-10. San Joaquin River Flow below Sack Dam, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

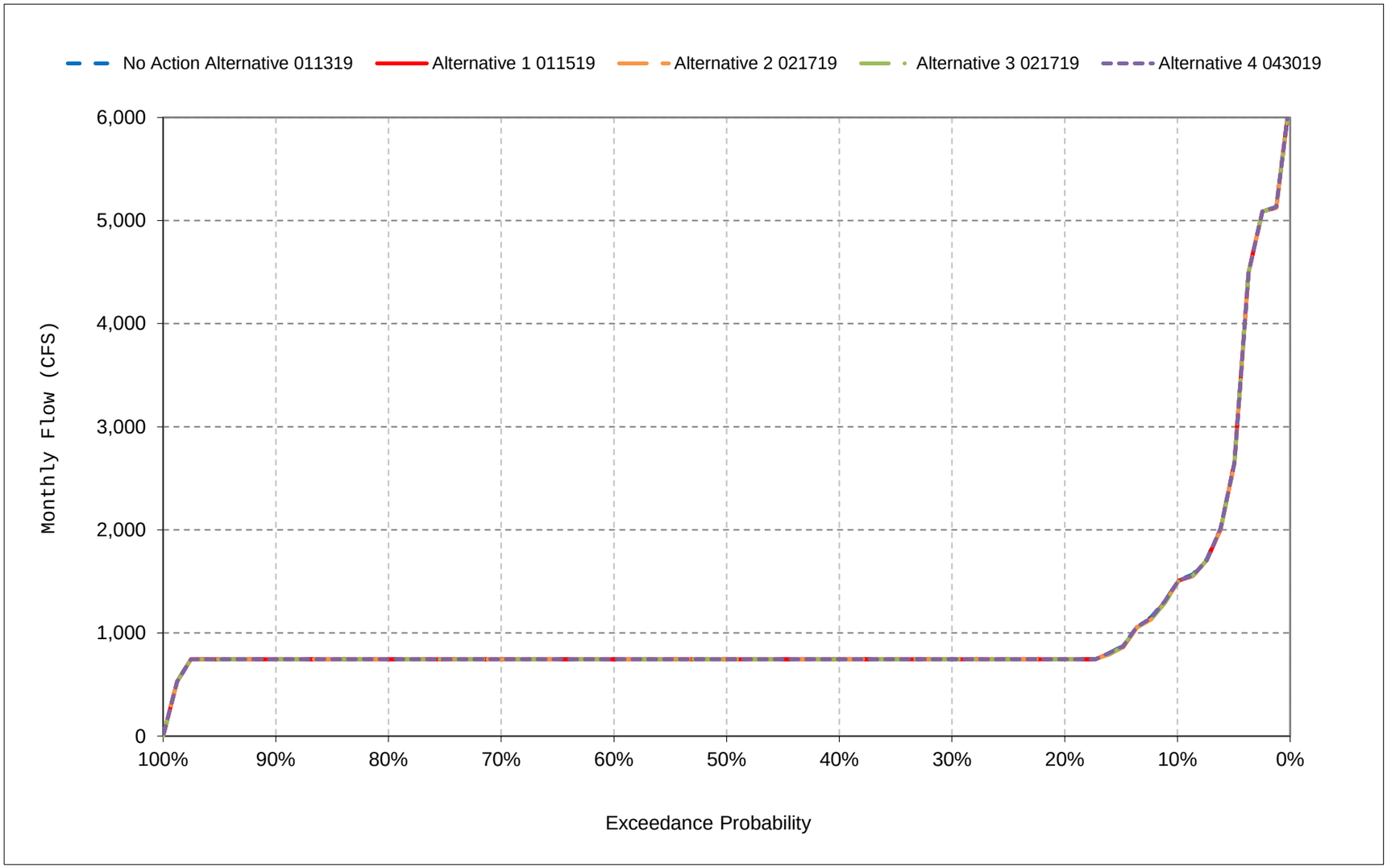
Figure 34-11. San Joaquin River Flow below Sack Dam, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

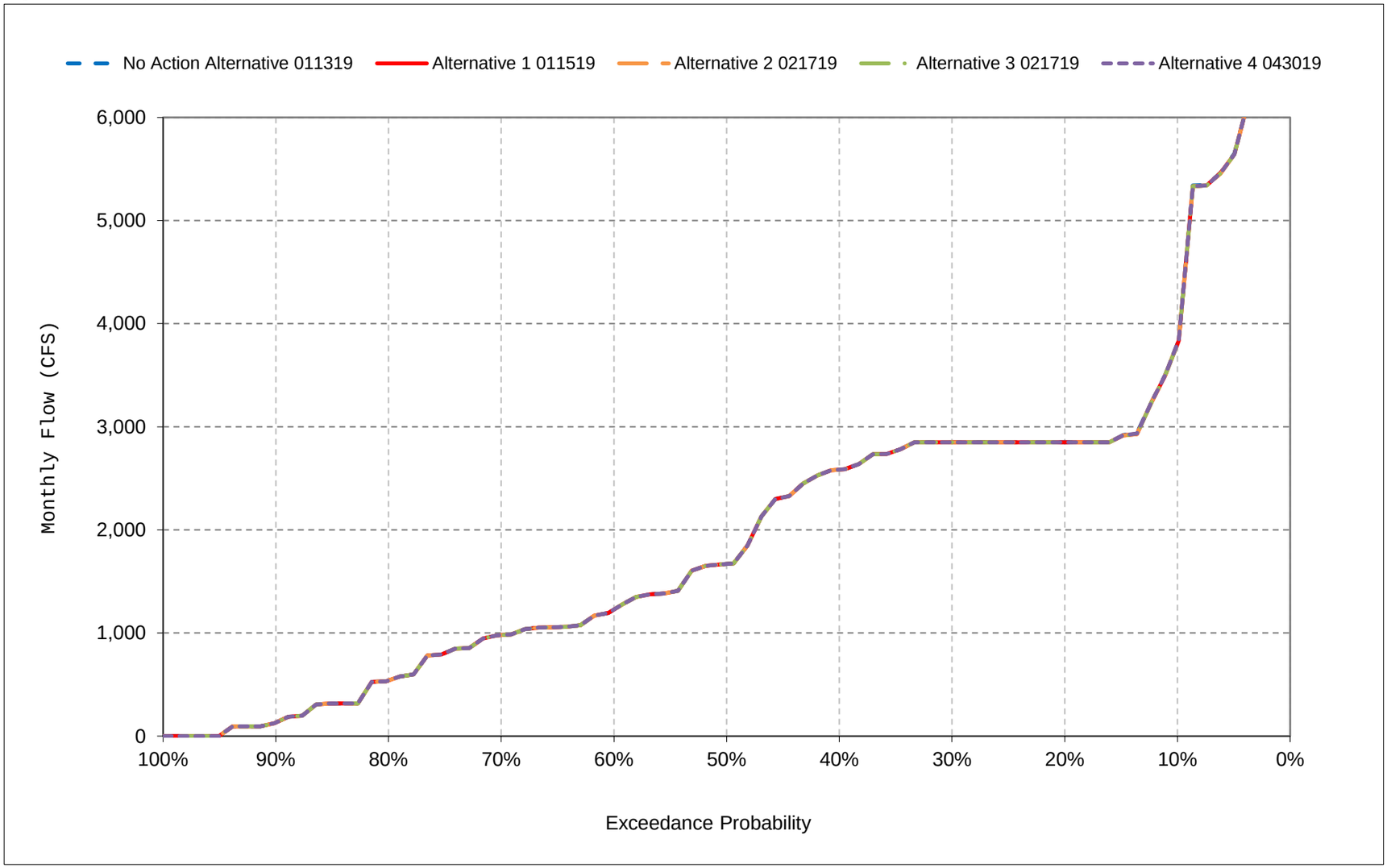
Figure 34-12. San Joaquin River Flow below Sack Dam, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

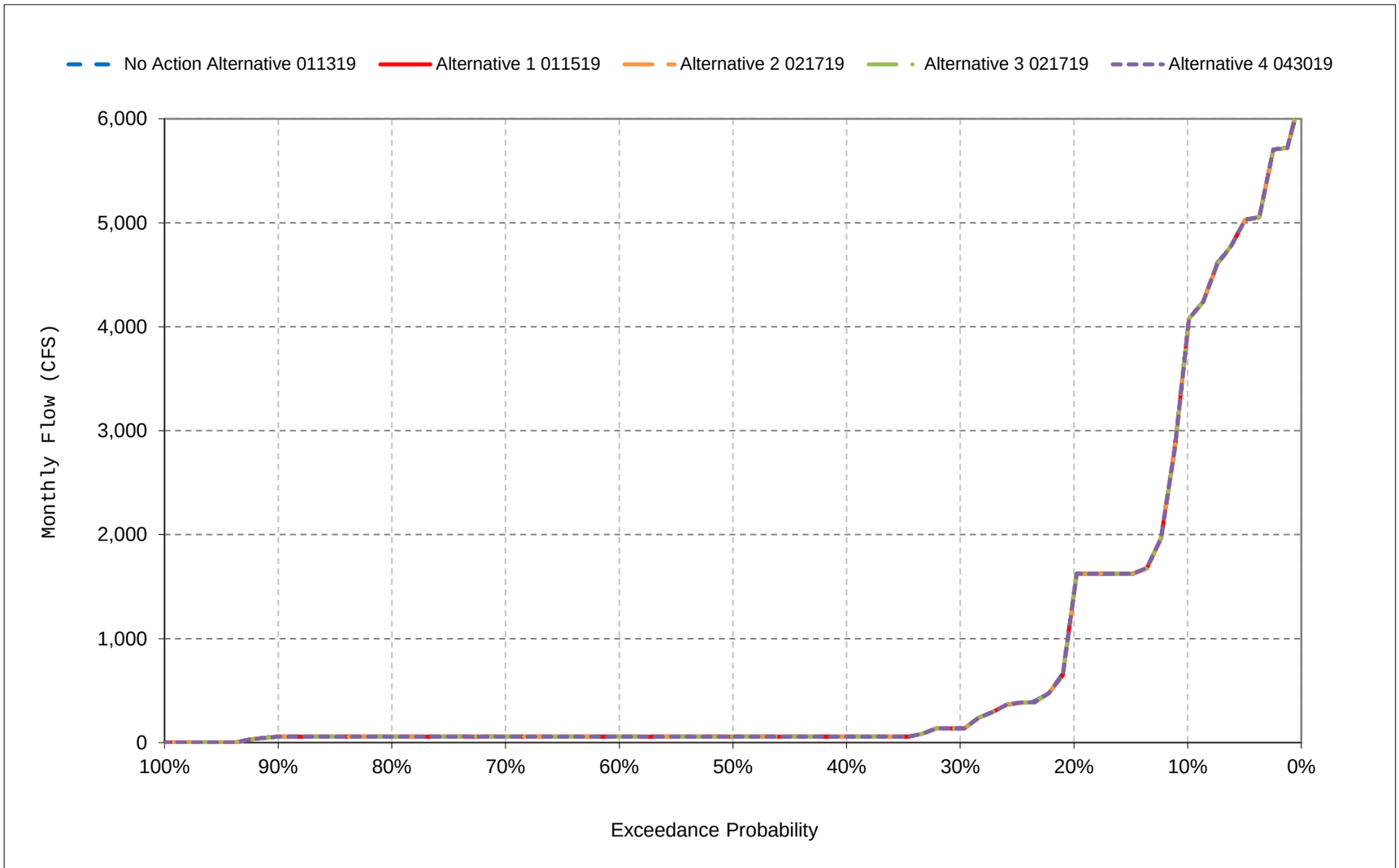
Figure 34-13. San Joaquin River Flow below Sack Dam, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

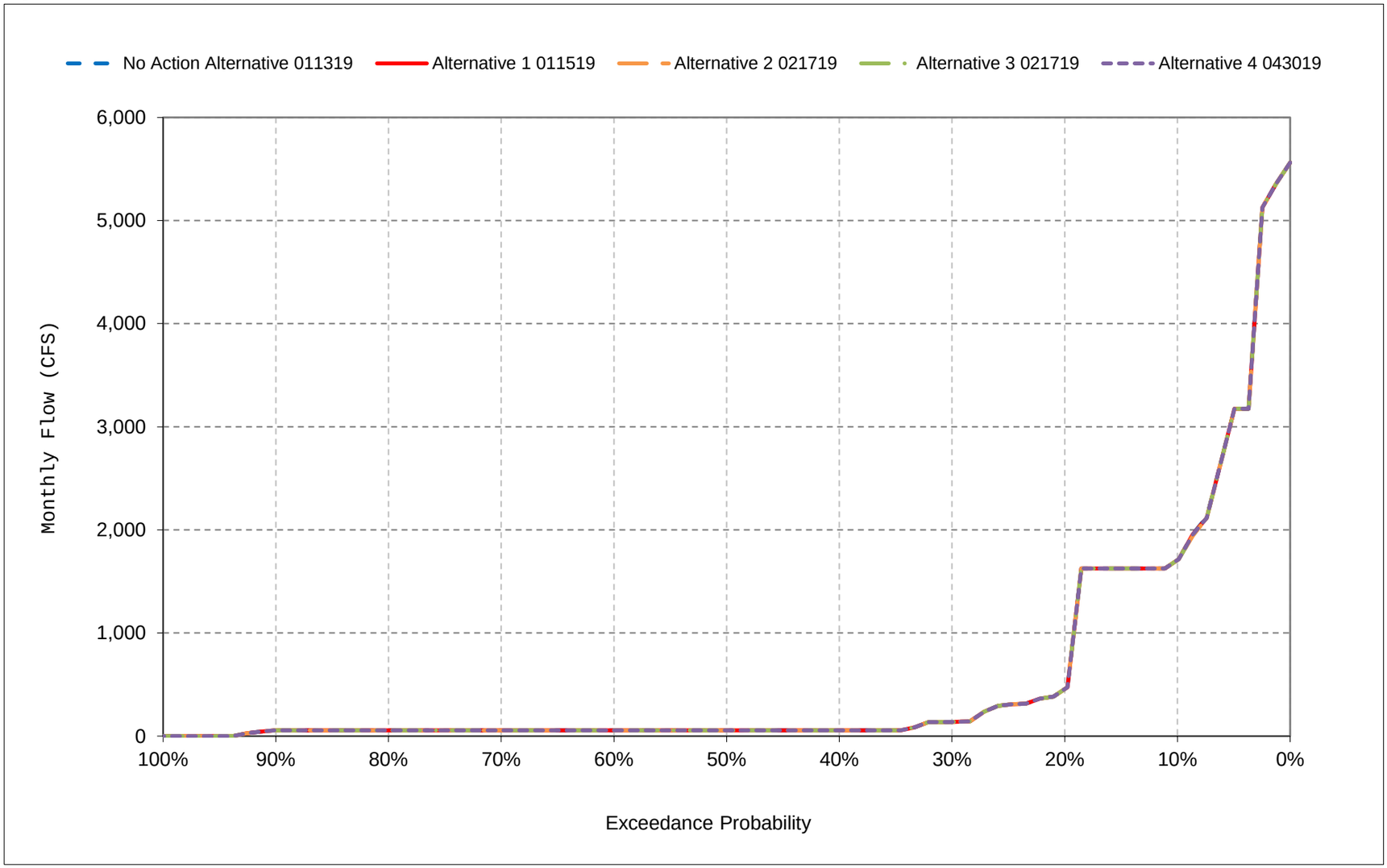
Figure 34-14. San Joaquin River Flow below Sack Dam, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

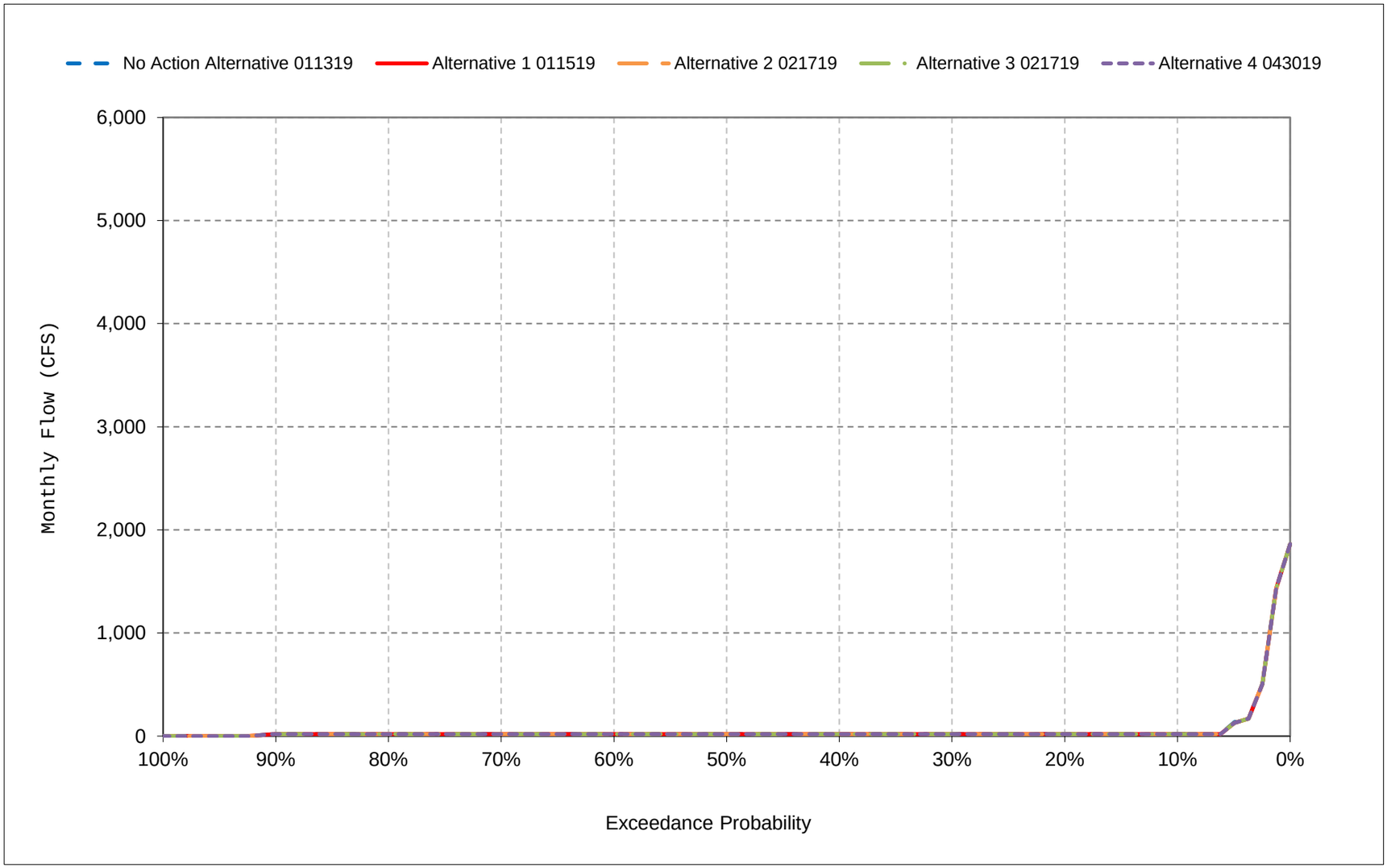
Figure 34-15. San Joaquin River Flow below Sack Dam, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

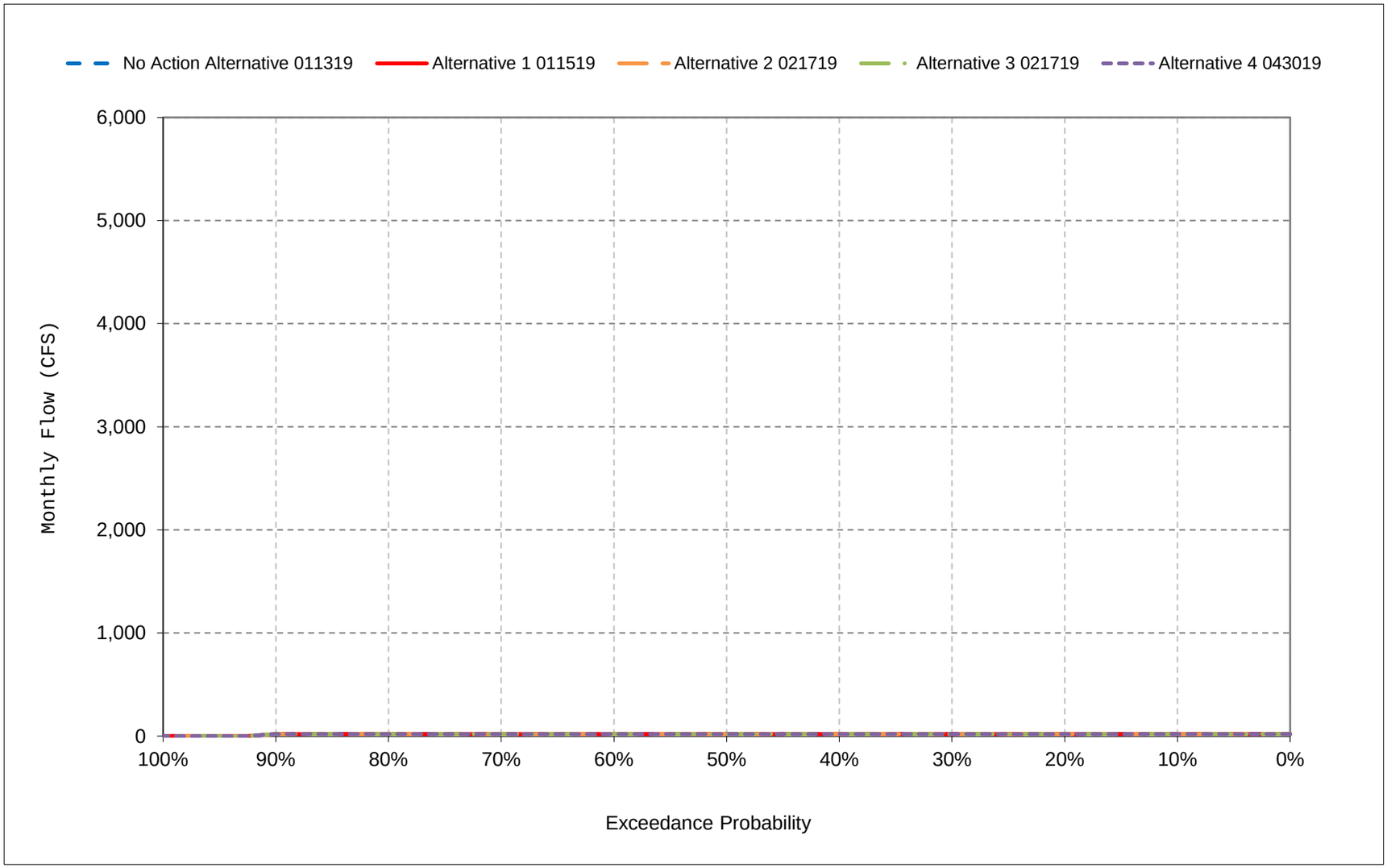
Figure 34-16. San Joaquin River Flow below Sack Dam, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

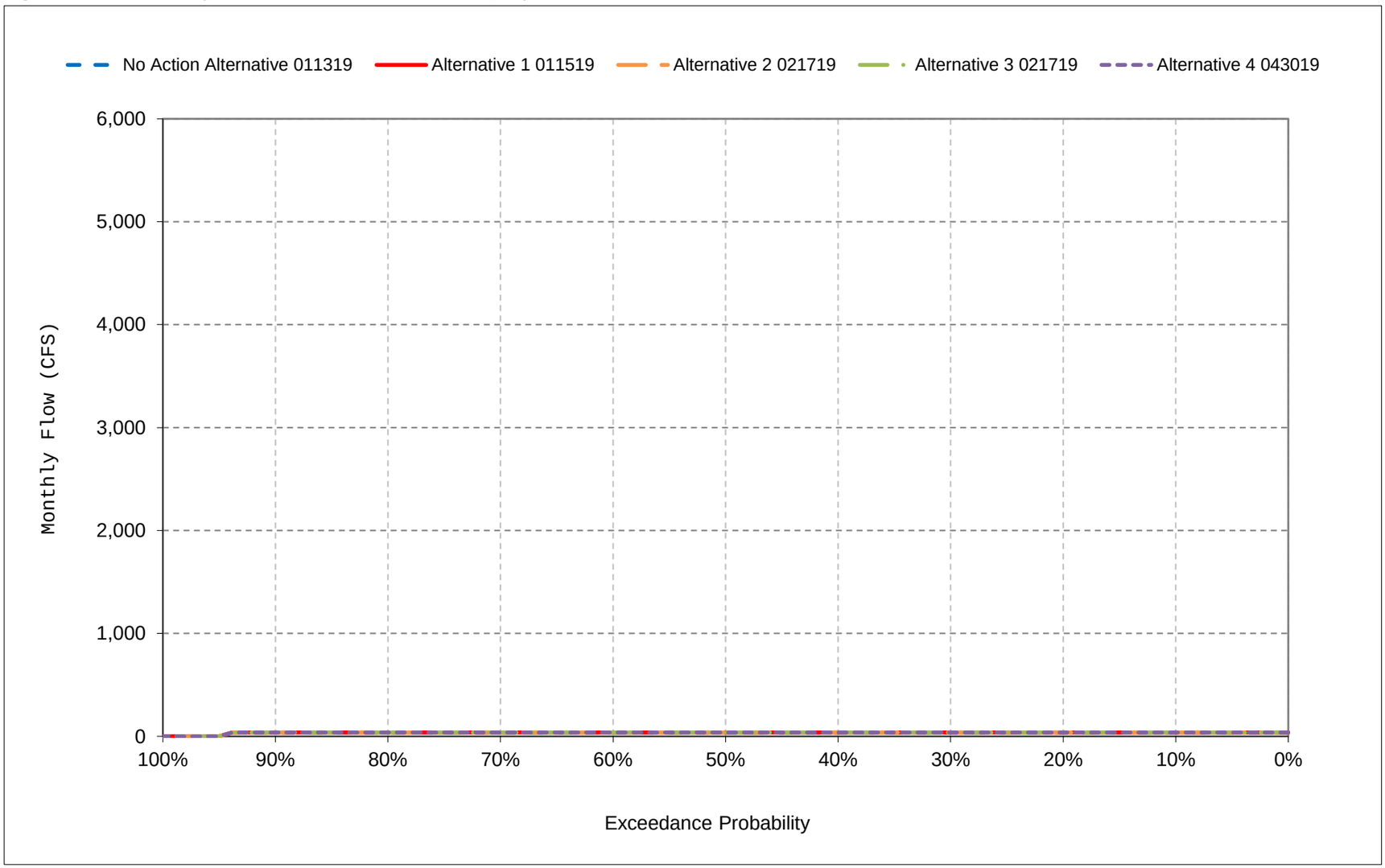
Figure 34-17. San Joaquin River Flow below Sack Dam, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 34-18. San Joaquin River Flow below Sack Dam, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 35-1. San Joaquin River Flow below confluence with Merced , Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	961	1,382	3,009	4,426	9,524	6,041	7,446	8,097	4,050	1,658	1,016	1,095
20%	792	1,288	1,482	2,766	4,303	3,738	4,295	2,720	2,395	825	906	994
30%	691	1,174	1,020	1,845	3,057	2,816	3,740	1,705	670	269	306	891
40%	660	1,114	970	1,219	2,315	2,088	3,330	786	495	216	208	605
50%	587	1,087	935	1,002	1,583	1,813	2,337	577	425	161	152	555
60%	559	1,064	902	926	1,421	1,608	1,761	459	371	148	134	535
70%	504	1,034	890	852	1,222	1,478	1,262	398	297	106	118	521
80%	486	1,004	870	819	1,116	1,378	858	321	220	34	74	496
90%	438	895	810	748	1,018	1,273	326	229	131	0	10	444
Long Term												
Full Simulation Period[a]	675	1,231	1,665	2,463	3,542	3,231	3,315	2,314	1,701	656	379	700
Water Year Types[b,c]												
Wet (23%)	949	1,697	2,787	6,113	8,349	7,546	7,760	7,496	5,902	2,282	936	1,096
Above Normal (24%)	774	1,233	1,481	2,160	3,818	2,934	3,713	1,572	799	329	453	781
Below Normal (10%)	568	1,090	995	1,445	1,865	1,766	2,281	563	473	177	157	532
Dry (16%)	529	1,121	1,638	1,000	1,270	1,565	1,414	416	307	120	129	522
Critical (27%)	463	939	1,130	819	1,092	1,293	615	270	164	40	61	451

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	961	1,382	3,009	4,424	9,511	6,040	7,443	8,097	4,050	1,659	1,016	1,095
20%	792	1,288	1,482	2,766	4,303	3,738	4,295	2,721	2,395	827	907	994
30%	691	1,174	1,020	1,844	3,057	2,816	3,740	1,702	671	271	307	892
40%	660	1,114	970	1,219	2,318	2,088	3,330	787	496	217	209	605
50%	588	1,087	935	1,002	1,584	1,813	2,338	578	426	162	153	555
60%	560	1,064	902	926	1,421	1,608	1,762	460	372	148	135	536
70%	504	1,034	890	852	1,222	1,478	1,262	399	297	107	119	522
80%	486	1,004	870	819	1,116	1,378	858	321	220	35	74	496
90%	438	895	810	748	1,018	1,273	326	229	131	0	10	444
Long Term												
Full Simulation Period[a]	675	1,231	1,665	2,462	3,540	3,230	3,315	2,314	1,702	657	380	700
Water Year Types[b,c]												
Wet (23%)	949	1,697	2,786	6,112	8,342	7,541	7,758	7,495	5,902	2,282	936	1,096
Above Normal (24%)	774	1,233	1,481	2,159	3,816	2,933	3,713	1,572	800	330	454	781
Below Normal (10%)	568	1,090	995	1,445	1,865	1,766	2,282	564	475	179	158	533
Dry (16%)	529	1,121	1,638	1,000	1,270	1,565	1,415	417	308	121	130	523
Critical (27%)	463	939	1,130	819	1,092	1,293	615	270	164	40	61	451

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	-2	-14	-1	-2	0	0	1	0	0
20%	0	0	0	0	0	0	0	1	0	2	1	0
30%	0	0	0	0	0	0	0	-3	1	2	1	1
40%	0	0	0	0	3	0	0	1	1	1	1	0
50%	0	0	0	0	0	0	0	0	1	1	1	0
60%	0	0	0	0	0	0	0	1	1	1	1	0
70%	0	0	0	0	0	0	0	1	0	2	2	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	-2	-1	0	0	1	1	1	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	-1	-7	-4	-2	-1	0	0	0	0
Above Normal (24%)	0	0	0	0	-1	0	0	0	1	1	1	0
Below Normal (10%)	0	0	0	0	0	0	0	1	1	2	1	1
Dry (16%)	0	0	0	0	0	0	0	1	1	1	1	0
Critical (27%)	0	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 35-2. San Joaquin River Flow below confluence with Merced , Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	961	1,382	3,009	4,426	9,524	6,041	7,446	8,097	4,050	1,658	1,016	1,095
20%	792	1,288	1,482	2,766	4,303	3,738	4,295	2,720	2,395	825	906	994
30%	691	1,174	1,020	1,845	3,057	2,816	3,740	1,705	670	269	306	891
40%	660	1,114	970	1,219	2,315	2,088	3,330	786	495	216	208	605
50%	587	1,087	935	1,002	1,583	1,813	2,337	577	425	161	152	555
60%	559	1,064	902	926	1,421	1,608	1,761	459	371	148	134	535
70%	504	1,034	890	852	1,222	1,478	1,262	398	297	106	118	521
80%	486	1,004	870	819	1,116	1,378	858	321	220	34	74	496
90%	438	895	810	748	1,018	1,273	326	229	131	0	10	444
Long Term												
Full Simulation Period[a]	675	1,231	1,665	2,463	3,542	3,231	3,315	2,314	1,701	656	379	700
Water Year Types[b,c]												
Wet (23%)	949	1,697	2,787	6,113	8,349	7,546	7,760	7,496	5,902	2,282	936	1,096
Above Normal (24%)	774	1,233	1,481	2,160	3,818	2,934	3,713	1,572	799	329	453	781
Below Normal (10%)	568	1,090	995	1,445	1,865	1,766	2,281	563	473	177	157	532
Dry (16%)	529	1,121	1,638	1,000	1,270	1,565	1,414	416	307	120	129	522
Critical (27%)	463	939	1,130	819	1,092	1,293	615	270	164	40	61	451

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	961	1,382	3,009	4,424	9,510	6,040	7,437	8,097	4,050	1,658	1,017	1,095
20%	792	1,288	1,482	2,766	4,303	3,738	4,296	2,721	2,395	827	907	994
30%	691	1,174	1,020	1,844	3,057	2,816	3,740	1,702	671	271	307	892
40%	660	1,114	971	1,219	2,305	2,088	3,331	788	497	217	209	605
50%	588	1,087	935	1,002	1,584	1,812	2,338	579	426	163	153	555
60%	560	1,064	902	926	1,421	1,609	1,762	460	373	149	136	536
70%	504	1,034	890	852	1,222	1,478	1,262	400	297	108	120	522
80%	486	1,004	870	820	1,115	1,378	858	322	220	35	72	496
90%	438	895	810	748	1,018	1,273	326	230	131	0	11	444
Long Term												
Full Simulation Period[a]	675	1,232	1,665	2,462	3,539	3,230	3,315	2,314	1,702	657	380	701
Water Year Types[b,c]												
Wet (23%)	949	1,697	2,786	6,112	8,338	7,540	7,757	7,494	5,901	2,283	936	1,096
Above Normal (24%)	774	1,233	1,481	2,159	3,817	2,933	3,714	1,572	800	330	454	781
Below Normal (10%)	568	1,090	995	1,445	1,865	1,766	2,282	565	476	180	159	533
Dry (16%)	529	1,121	1,638	1,000	1,270	1,565	1,415	418	309	122	131	523
Critical (27%)	463	939	1,130	819	1,092	1,293	615	270	164	40	61	451

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	-2	-14	-1	-8	0	0	1	0	0
20%	0	0	0	0	0	0	1	1	0	2	1	0
30%	0	0	0	0	0	0	1	-3	1	2	1	1
40%	0	0	0	0	-9	0	1	1	2	1	2	0
50%	0	0	0	0	0	-1	1	1	1	2	1	1
60%	0	0	0	0	0	0	1	1	3	1	2	1
70%	0	0	0	0	0	0	0	1	1	2	3	0
80%	0	0	0	0	-1	0	1	1	0	0	-2	0
90%	0	0	0	0	0	0	0	1	0	0	1	0
Long Term												
Full Simulation Period[a]	0	0	0	0	-3	-1	0	0	1	1	1	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	-1	-12	-6	-3	-3	-1	0	1	0
Above Normal (24%)	0	0	0	0	-1	0	1	0	1	1	1	0
Below Normal (10%)	0	0	0	0	0	0	1	2	2	3	2	1
Dry (16%)	0	0	0	0	0	0	1	2	2	2	2	1
Critical (27%)	0	0	0	0	0	0	0	1	1	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 35-3. San Joaquin River Flow below confluence with Merced , Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	961	1,382	3,009	4,426	9,524	6,041	7,446	8,097	4,050	1,658	1,016	1,095
20%	792	1,288	1,482	2,766	4,303	3,738	4,295	2,720	2,395	825	906	994
30%	691	1,174	1,020	1,845	3,057	2,816	3,740	1,705	670	269	306	891
40%	660	1,114	970	1,219	2,315	2,088	3,330	786	495	216	208	605
50%	587	1,087	935	1,002	1,583	1,813	2,337	577	425	161	152	555
60%	559	1,064	902	926	1,421	1,608	1,761	459	371	148	134	535
70%	504	1,034	890	852	1,222	1,478	1,262	398	297	106	118	521
80%	486	1,004	870	819	1,116	1,378	858	321	220	34	74	496
90%	438	895	810	748	1,018	1,273	326	229	131	0	10	444
Long Term												
Full Simulation Period[a]	675	1,231	1,665	2,463	3,542	3,231	3,315	2,314	1,701	656	379	700
Water Year Types[b,c]												
Wet (23%)	949	1,697	2,787	6,113	8,349	7,546	7,760	7,496	5,902	2,282	936	1,096
Above Normal (24%)	774	1,233	1,481	2,160	3,818	2,934	3,713	1,572	799	329	453	781
Below Normal (10%)	568	1,090	995	1,445	1,865	1,766	2,281	563	473	177	157	532
Dry (16%)	529	1,121	1,638	1,000	1,270	1,565	1,414	416	307	120	129	522
Critical (27%)	463	939	1,130	819	1,092	1,293	615	270	164	40	61	451

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	961	1,382	3,009	4,424	9,511	6,040	7,440	8,097	4,050	1,659	1,017	1,095
20%	792	1,288	1,482	2,766	4,303	3,738	4,296	2,721	2,395	827	907	994
30%	691	1,174	1,020	1,844	3,057	2,816	3,740	1,702	671	271	307	892
40%	660	1,114	971	1,219	2,307	2,088	3,331	788	496	217	209	605
50%	588	1,087	935	1,002	1,584	1,811	2,338	579	426	163	153	556
60%	560	1,064	902	926	1,421	1,609	1,762	460	374	149	136	536
70%	503	1,034	890	852	1,222	1,478	1,262	399	297	107	120	522
80%	486	1,004	870	820	1,114	1,378	858	322	220	35	70	496
90%	438	895	810	748	1,018	1,273	326	230	131	0	11	444
Long Term												
Full Simulation Period[a]	675	1,232	1,665	2,462	3,539	3,230	3,315	2,314	1,702	657	380	700
Water Year Types[b,c]												
Wet (23%)	949	1,697	2,786	6,112	8,338	7,540	7,757	7,495	5,902	2,282	936	1,096
Above Normal (24%)	774	1,233	1,481	2,159	3,817	2,933	3,714	1,572	800	330	454	781
Below Normal (10%)	568	1,090	995	1,445	1,865	1,766	2,282	565	475	180	159	533
Dry (16%)	529	1,121	1,638	1,000	1,270	1,565	1,415	418	309	122	131	523
Critical (27%)	463	939	1,130	819	1,092	1,293	615	270	164	40	61	451

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	-2	-14	-1	-6	0	0	1	0	0
20%	0	0	0	0	0	0	1	1	0	2	1	0
30%	0	0	0	0	0	0	1	-3	1	2	1	1
40%	0	0	0	0	-8	0	1	1	2	1	2	0
50%	0	0	0	0	0	-1	1	1	1	2	1	1
60%	0	0	0	0	0	0	1	1	3	1	2	1
70%	-1	0	0	0	0	0	1	1	1	1	3	0
80%	0	0	0	0	-2	0	1	1	0	1	-4	0
90%	0	0	0	0	0	0	0	1	0	0	1	0
Long Term												
Full Simulation Period[a]	0	0	0	0	-3	-1	0	0	1	1	1	0
Water Year Types[b,c]												
Wet (23%)	0	0	0	-1	-11	-5	-3	-2	-1	0	0	0
Above Normal (24%)	0	0	0	0	-1	-1	1	0	1	1	1	0
Below Normal (10%)	0	0	0	0	0	0	1	2	2	3	2	1
Dry (16%)	0	0	0	0	0	0	1	2	2	2	2	1
Critical (27%)	0	0	0	0	0	0	0	1	1	0	0	0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 35-4. San Joaquin River Flow below confluence with Merced , Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	961	1,382	3,009	4,426	9,524	6,041	7,446	8,097	4,050	1,658	1,016	1,095
20%	792	1,288	1,482	2,766	4,303	3,738	4,295	2,720	2,395	825	906	994
30%	691	1,174	1,020	1,845	3,057	2,816	3,740	1,705	670	269	306	891
40%	660	1,114	970	1,219	2,315	2,088	3,330	786	495	216	208	605
50%	587	1,087	935	1,002	1,583	1,813	2,337	577	425	161	152	555
60%	559	1,064	902	926	1,421	1,608	1,761	459	371	148	134	535
70%	504	1,034	890	852	1,222	1,478	1,262	398	297	106	118	521
80%	486	1,004	870	819	1,116	1,378	858	321	220	34	74	496
90%	438	895	810	748	1,018	1,273	326	229	131	0	10	444
Long Term												
Full Simulation Period[a]	675	1,231	1,665	2,463	3,542	3,231	3,315	2,314	1,701	656	379	700
Water Year Types[b,c]												
Wet (23%)	949	1,697	2,787	6,113	8,349	7,546	7,760	7,496	5,902	2,282	936	1,096
Above Normal (24%)	774	1,233	1,481	2,160	3,818	2,934	3,713	1,572	799	329	453	781
Below Normal (10%)	568	1,090	995	1,445	1,865	1,766	2,281	563	473	177	157	532
Dry (16%)	529	1,121	1,638	1,000	1,270	1,565	1,414	416	307	120	129	522
Critical (27%)	463	939	1,130	819	1,092	1,293	615	270	164	40	61	451

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	961	1,382	3,009	4,425	9,513	6,040	7,442	8,097	4,050	1,658	1,016	1,095
20%	792	1,288	1,482	2,766	4,303	3,738	4,296	2,720	2,395	826	907	994
30%	691	1,174	1,020	1,845	3,057	2,816	3,739	1,702	670	270	306	891
40%	660	1,114	970	1,219	2,331	2,088	3,330	787	495	216	208	605
50%	588	1,087	935	1,002	1,584	1,813	2,337	577	425	161	152	554
60%	559	1,064	902	926	1,421	1,608	1,761	459	371	148	134	535
70%	504	1,034	890	852	1,222	1,478	1,262	398	296	106	118	521
80%	486	1,004	870	819	1,116	1,378	858	321	219	34	74	496
90%	438	895	810	748	1,018	1,273	326	229	130	0	9	444
Long Term												
Full Simulation Period[a]	675	1,231	1,665	2,462	3,542	3,231	3,315	2,313	1,701	656	379	700
Water Year Types[b,c]												
Wet (23%)	949	1,697	2,787	6,112	8,349	7,544	7,758	7,495	5,902	2,282	936	1,096
Above Normal (24%)	774	1,233	1,481	2,159	3,817	2,934	3,713	1,572	799	329	453	781
Below Normal (10%)	568	1,090	995	1,445	1,865	1,766	2,281	563	473	177	157	532
Dry (16%)	529	1,121	1,638	1,000	1,270	1,565	1,414	416	307	120	128	522
Critical (27%)	463	939	1,130	819	1,092	1,293	615	270	163	40	60	451

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	**0**	0	**-1**	**-12**	**-1**	**-4**	0	0	1	**0**	0
20%	0	**0**	0	0	0	0	1	0	0	0	0	0
30%	0	0	0	0	0	0	**0**	**-3**	1	0	1	0
40%	**0**	0	0	**0**	16	**0**	0	1	0	0	**0**	0
50%	0	0	0	**0**	0	0	0	**-1**	**0**	0	1	**0**
60%	0	**0**	0	0	**0**	0	0	**0**	**0**	0	0	**-1**
70%	0	0	0	0	**0**	0	**0**	**0**	**-1**	1	0	0
80%	**0**	0	0	0	0	0	0	**0**	**-1**	**0**	**0**	**0**
90%	0	**0**	0	**0**	**0**	0	0	**0**	**0**	0	**0**	**0**
Long Term												
Full Simulation Period[a]	**0**	**0**	0	**0**	**0**	**0**	**0**	**-1**	**0**	**0**	**0**	**0**
Water Year Types[b,c]												
Wet (23%)	0	0	**0**	**-1**	**0**	**-2**	**-2**	**-2**	**0**	**0**	0	0
Above Normal (24%)	0	0	0	**0**	**-1**	0	0	**0**	0	0	0	0
Below Normal (10%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (16%)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-1**	**-1**	**-1**	**-1**	**0**
Critical (27%)	**0**	**0**	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

a Based on the 82-year simulation period.

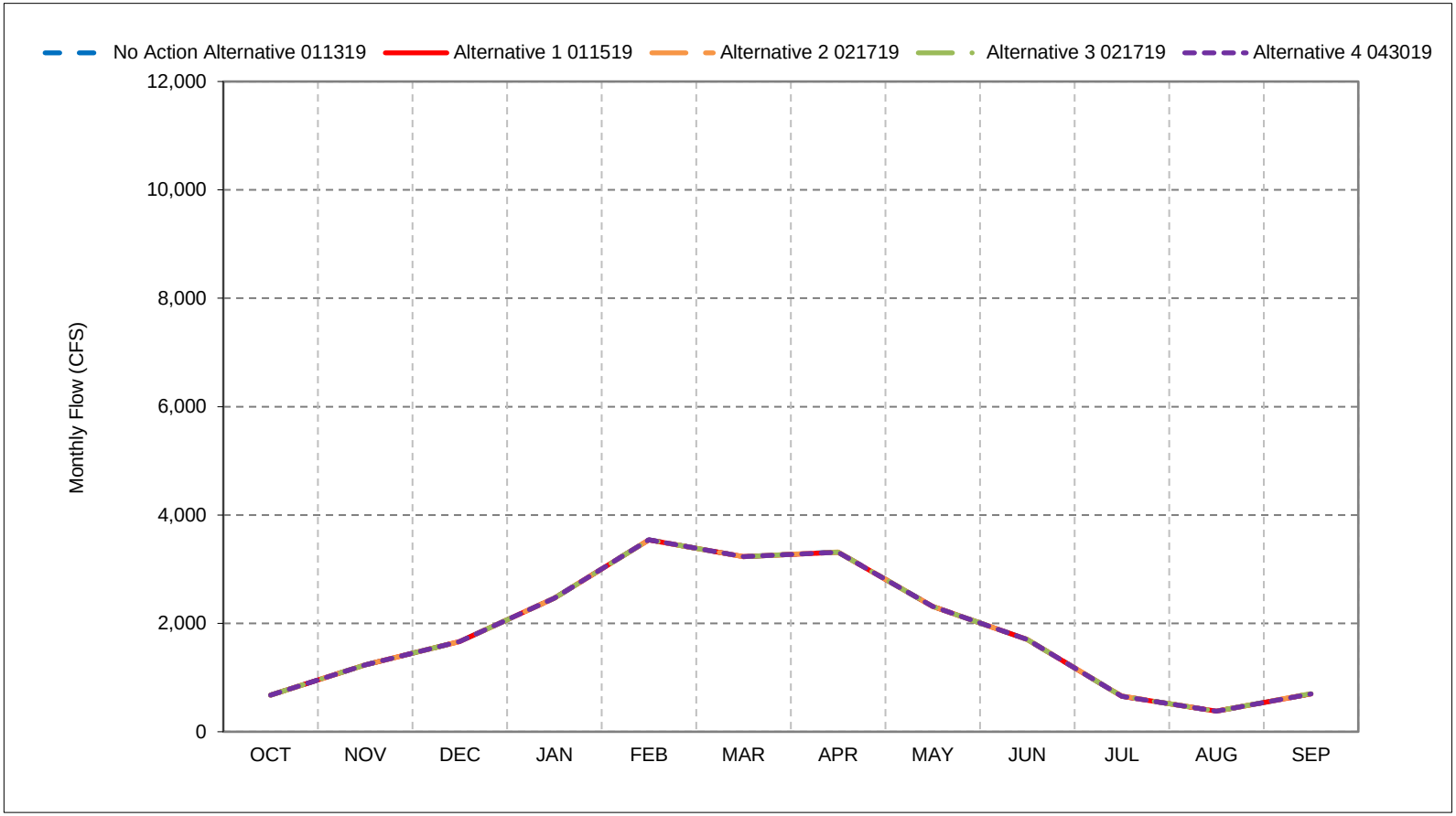
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 35-1. San Joaquin River Flow below confluence with Merced , Long-Term Average Flow



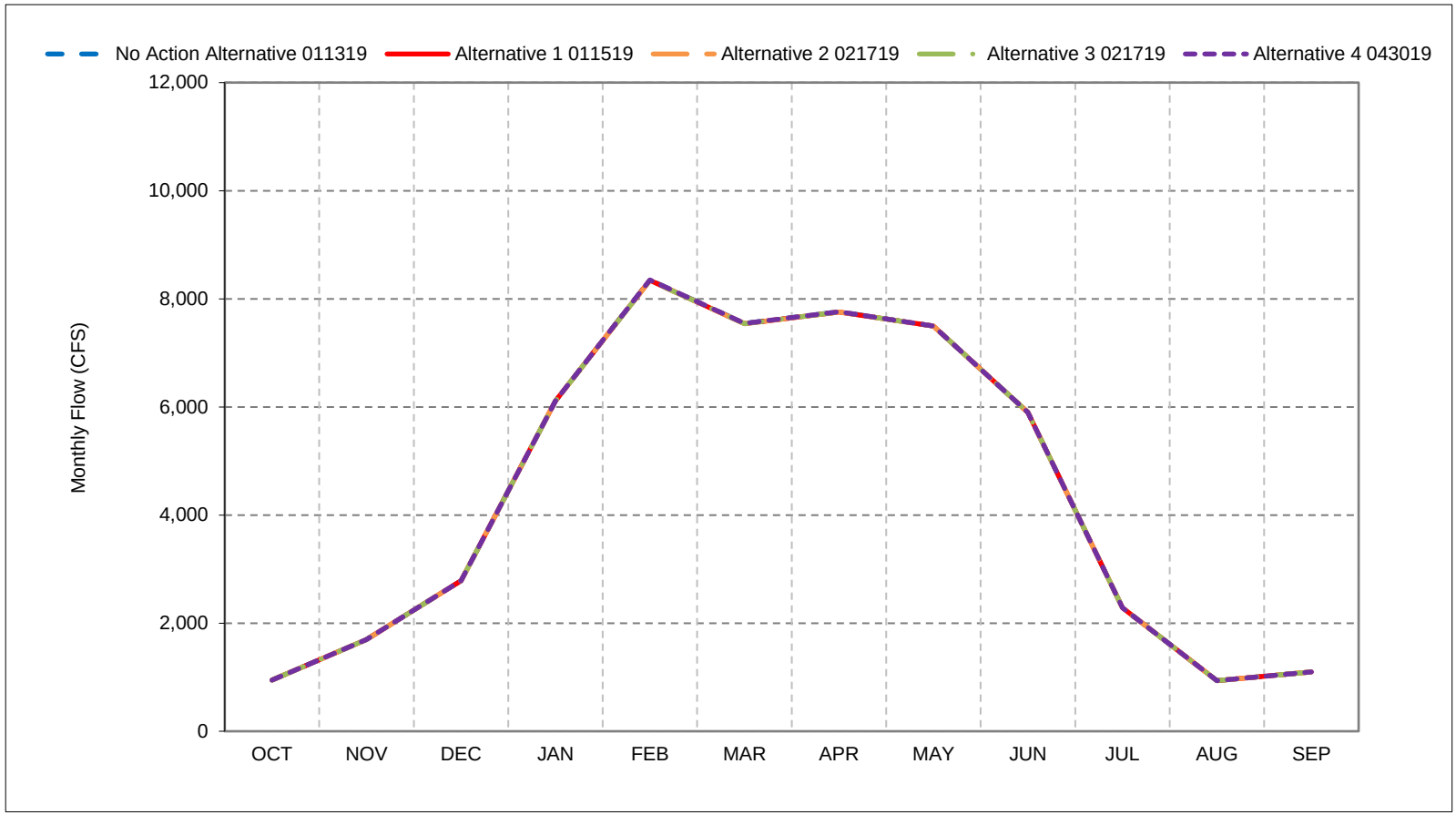
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

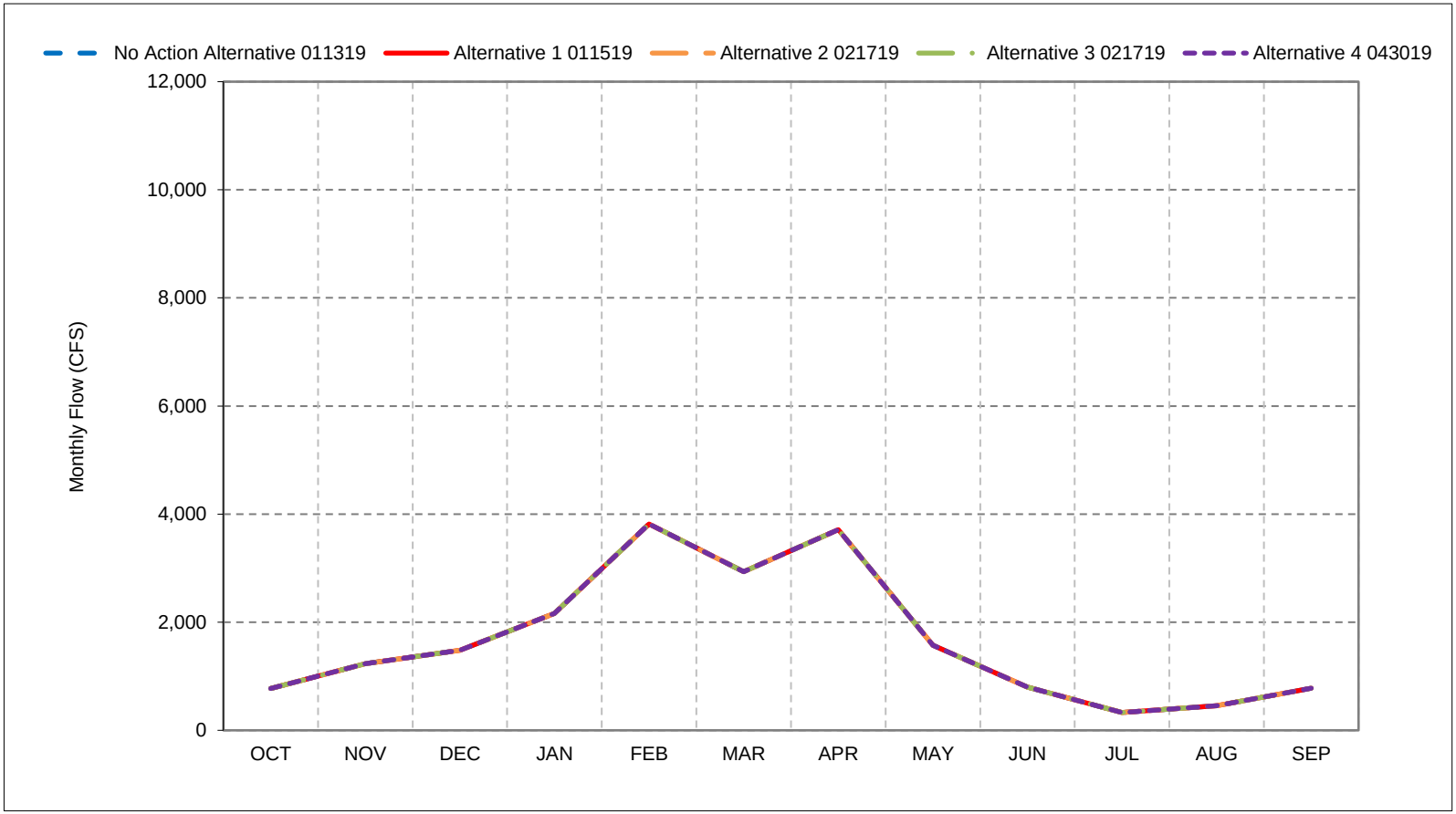
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 35-2. San Joaquin River Flow below confluence with Merced , Wet Year Average Flow



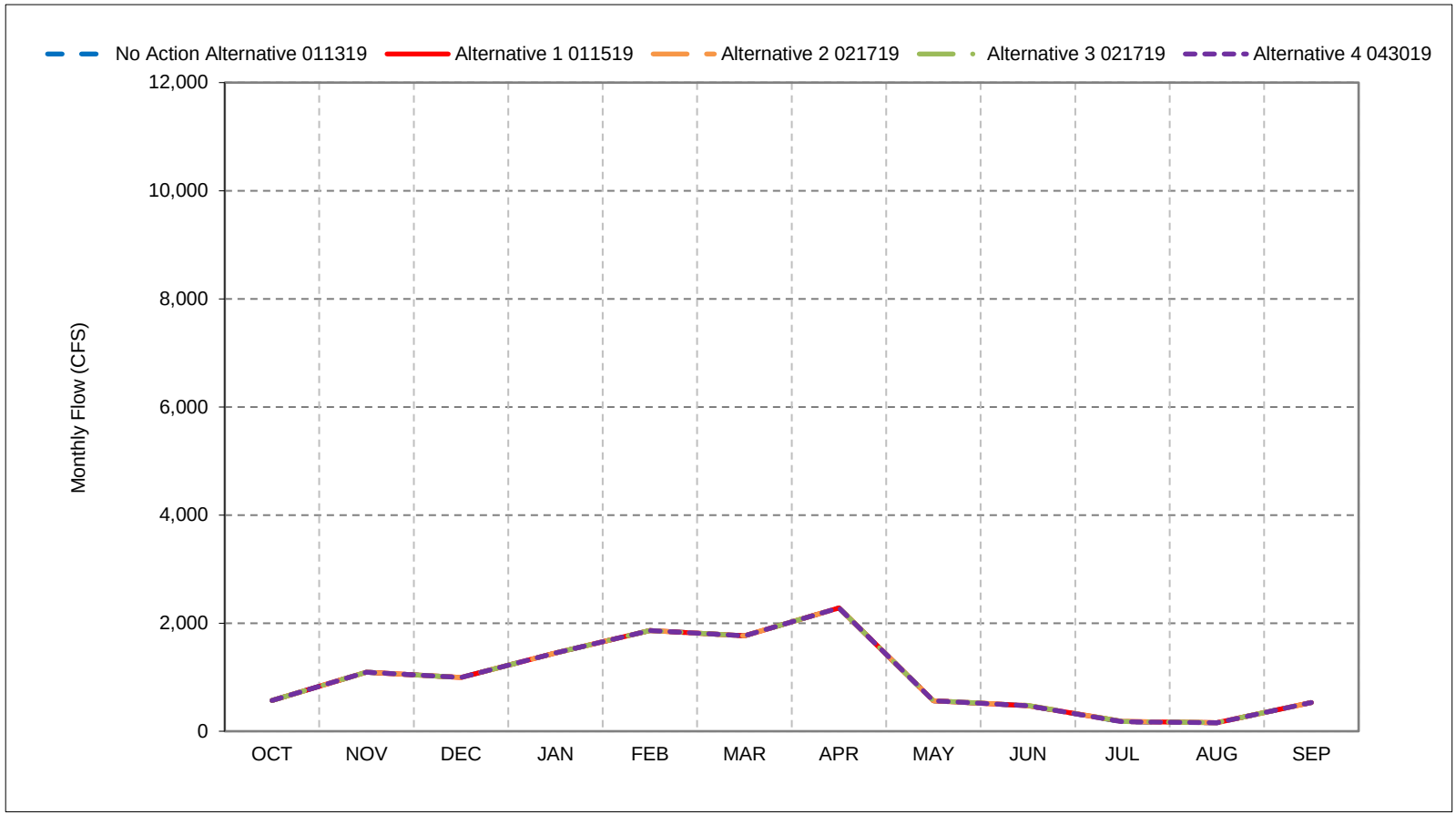
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 35-3. San Joaquin River Flow below confluence with Merced , Above Normal Year Average



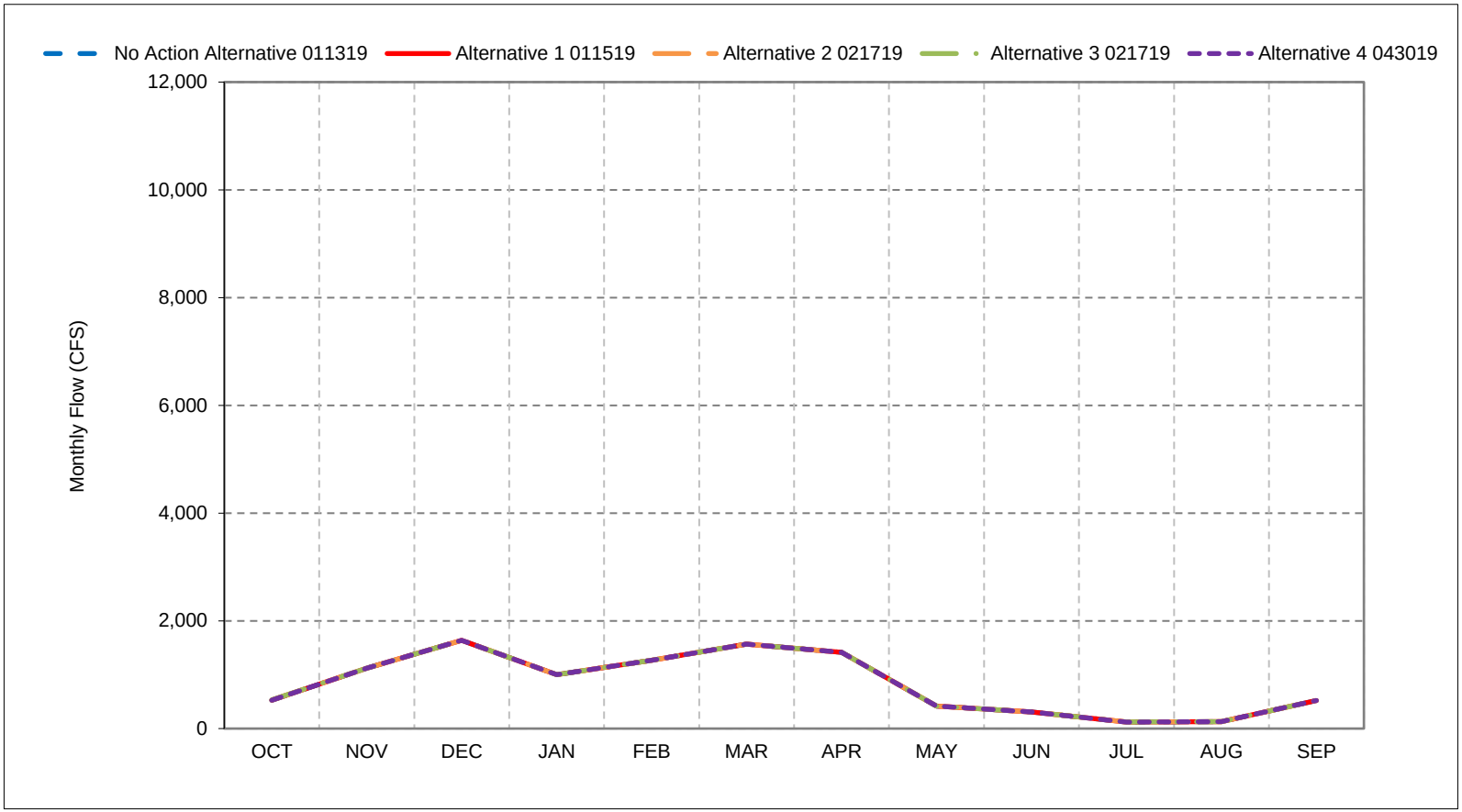
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 35-4. San Joaquin River Flow below confluence with Merced , Below Normal Year Average I



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 35-5. San Joaquin River Flow below confluence with Merced , Dry Year Average Flow



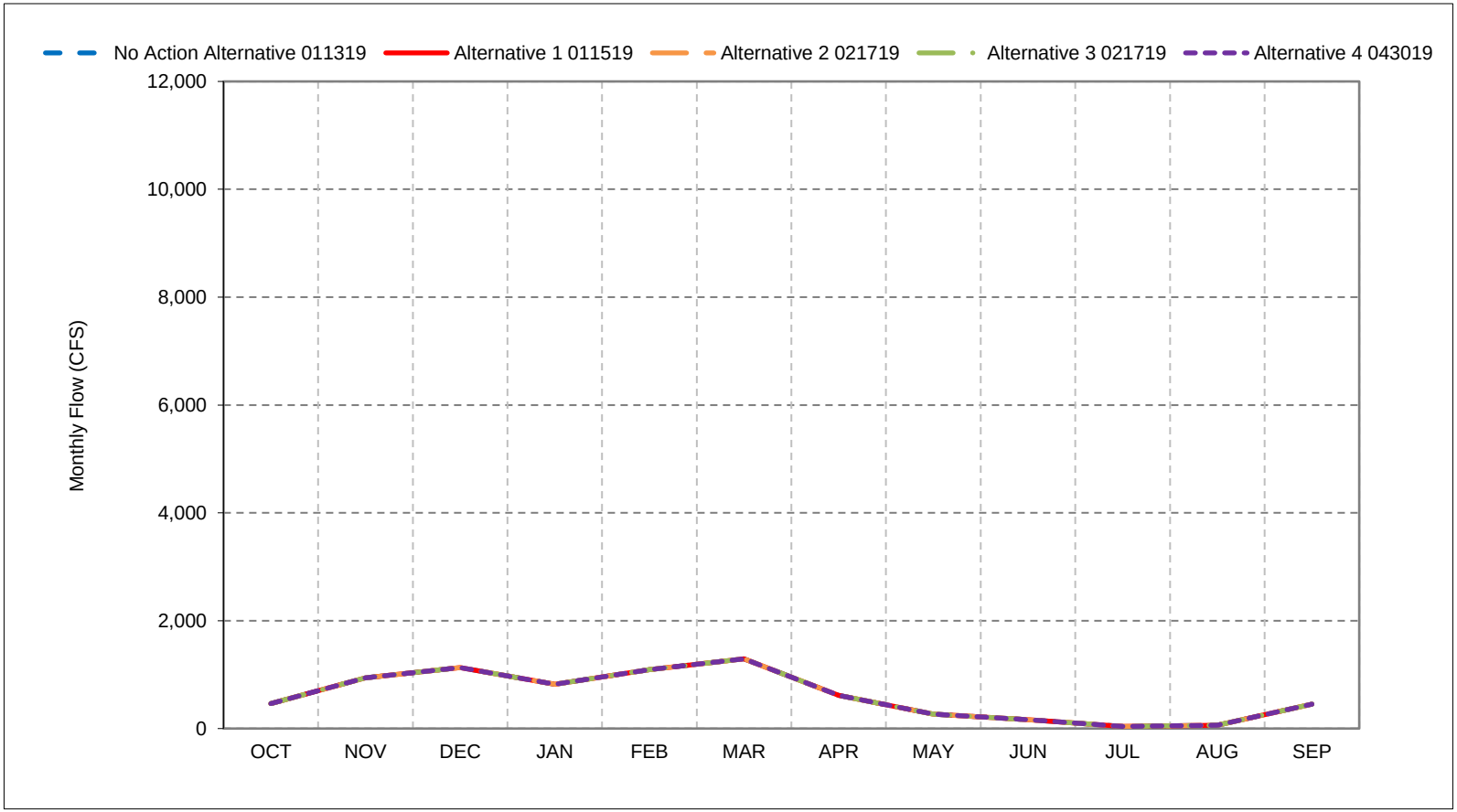
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

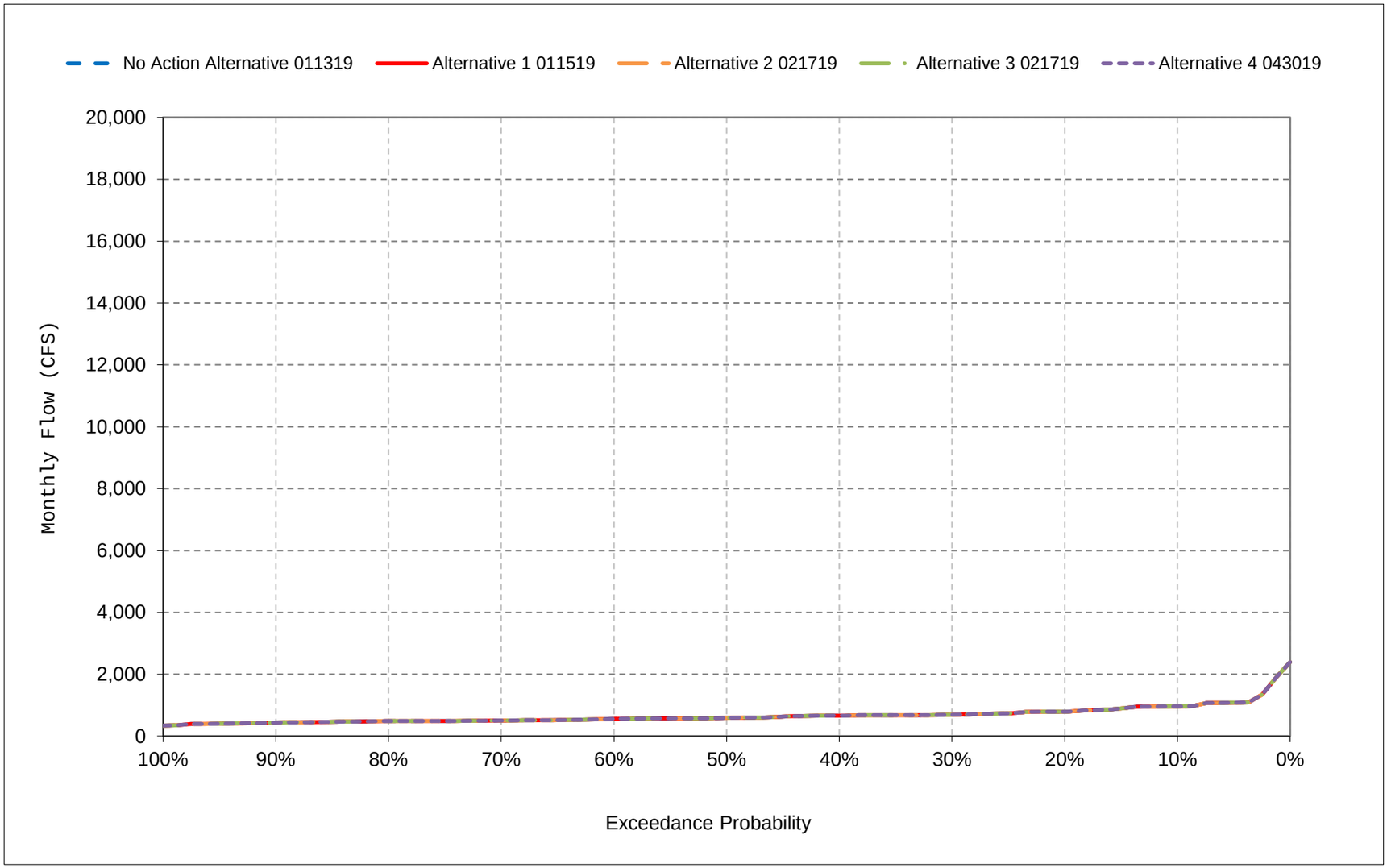
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 35-6. San Joaquin River Flow below confluence with Merced , Critical Year Average Flow



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

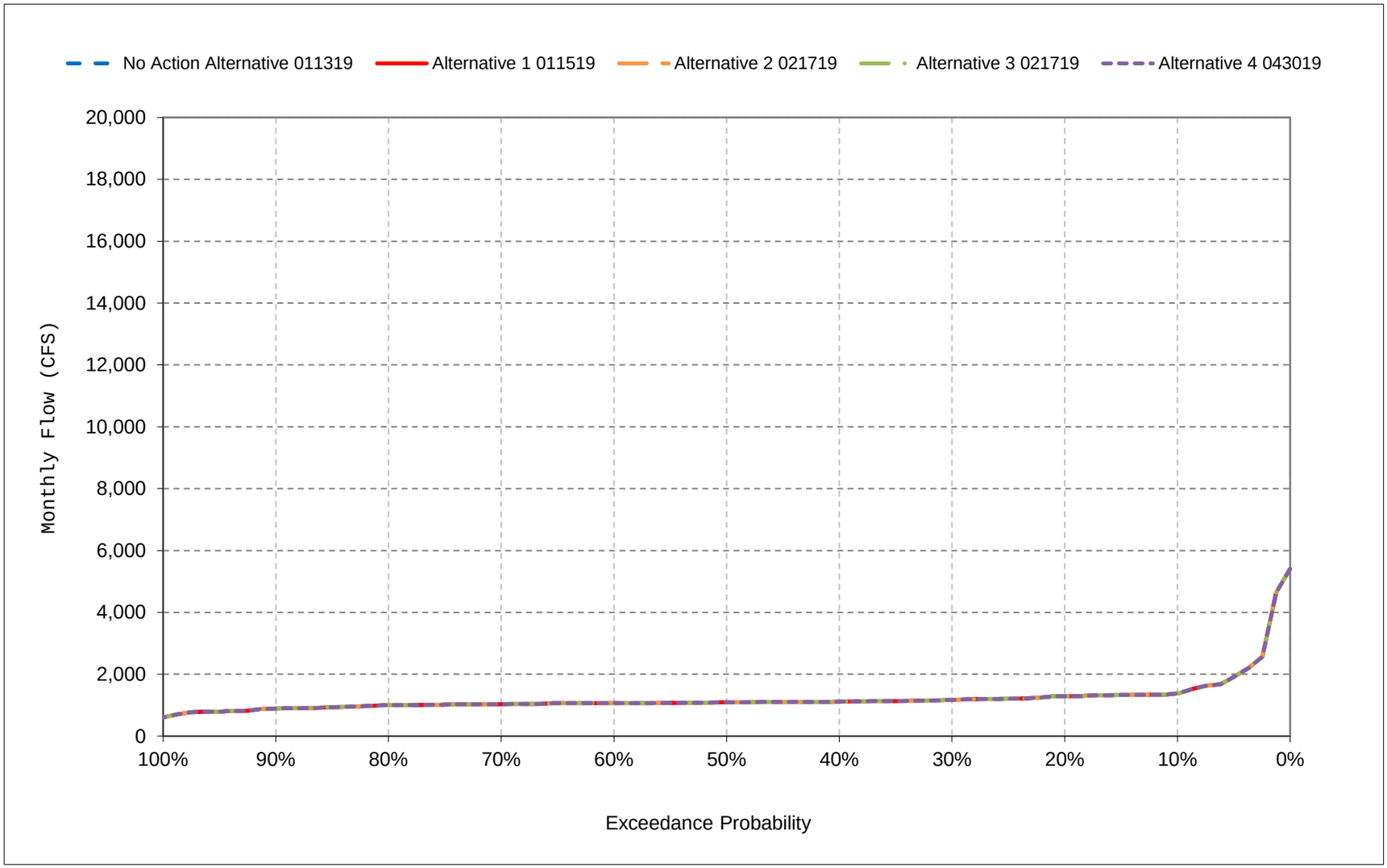
Figure 35-7. San Joaquin River Flow below confluence with Merced , October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

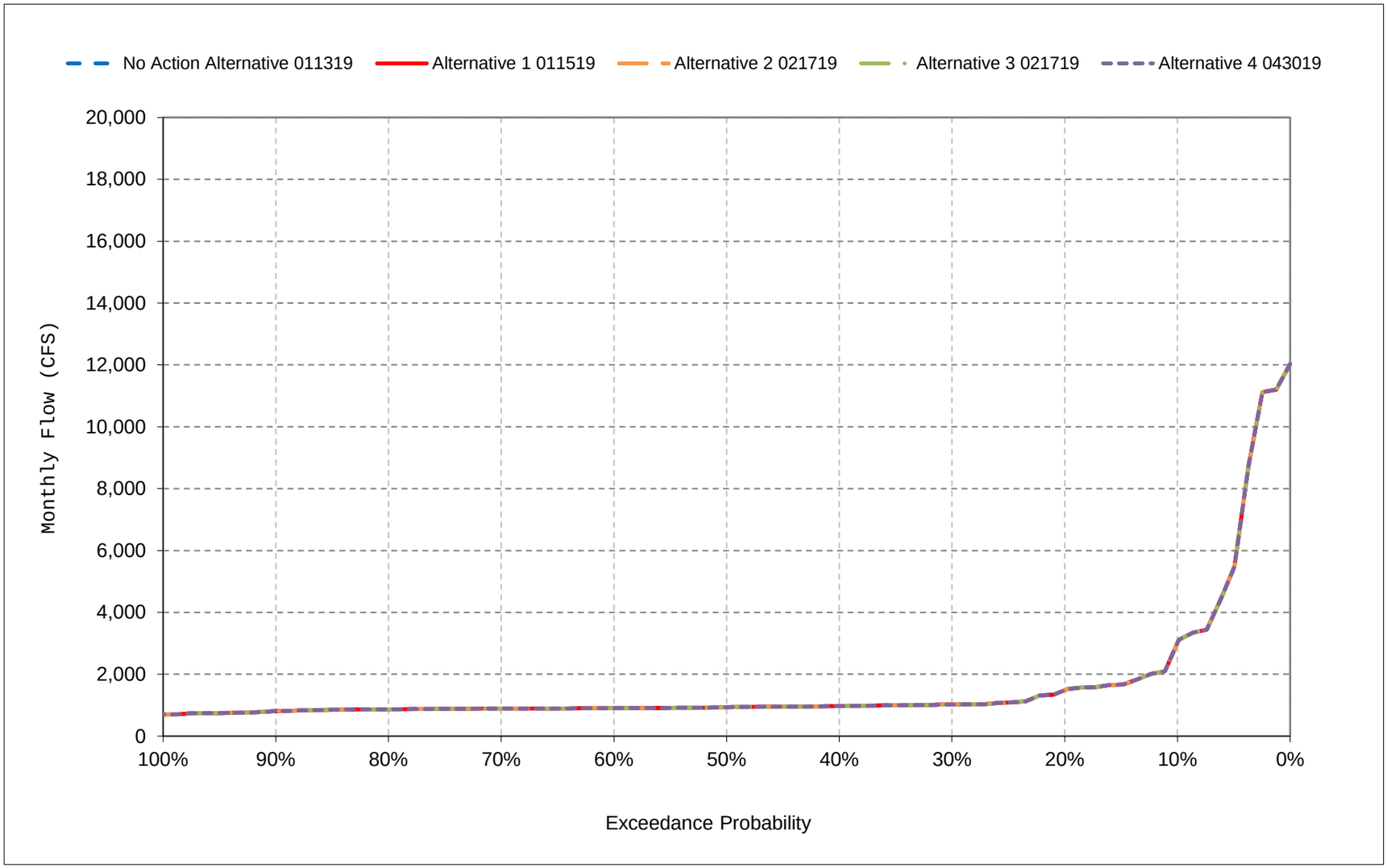
Figure 35-8. San Joaquin River Flow below confluence with Merced , November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

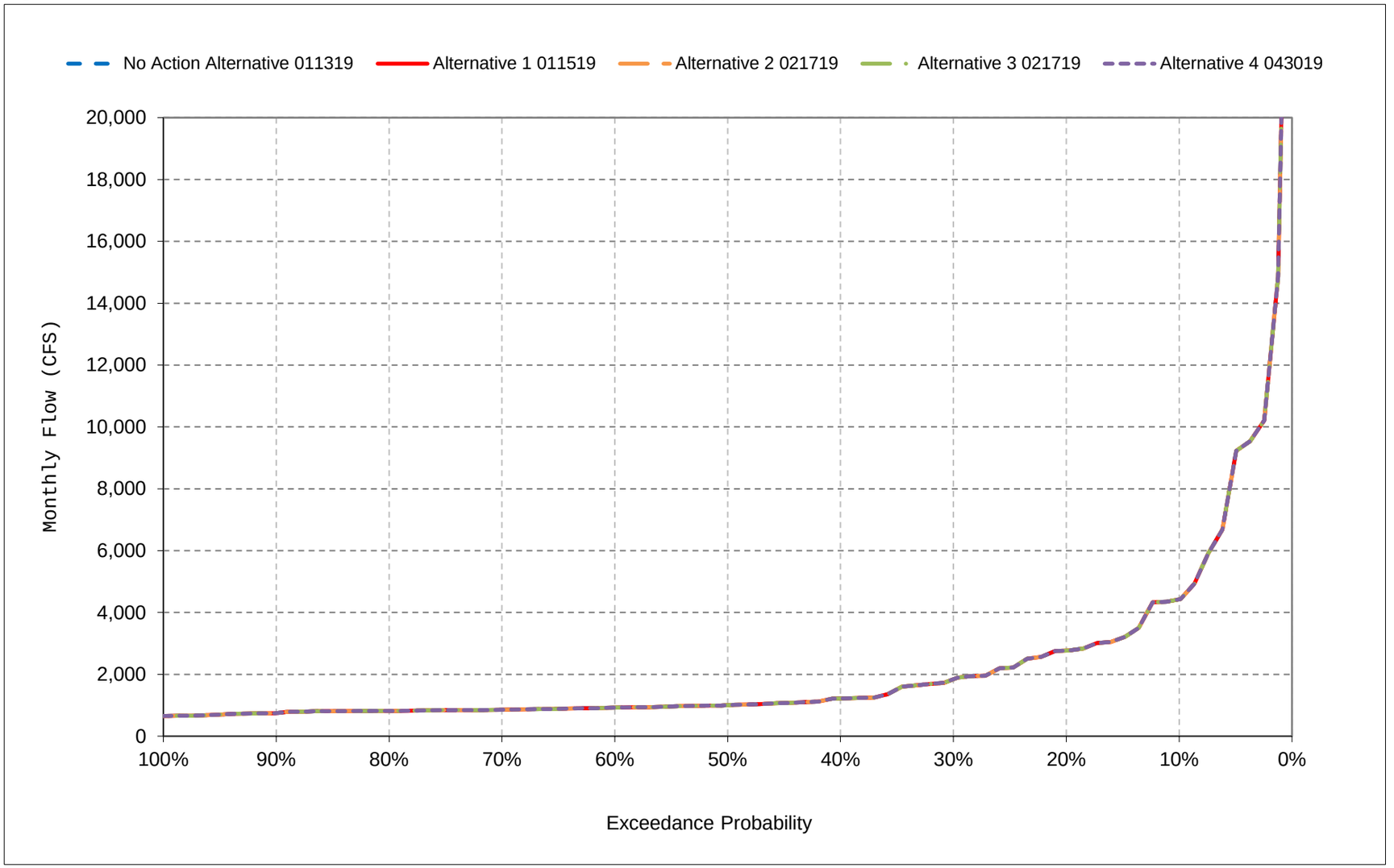
Figure 35-9. San Joaquin River Flow below confluence with Merced , December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

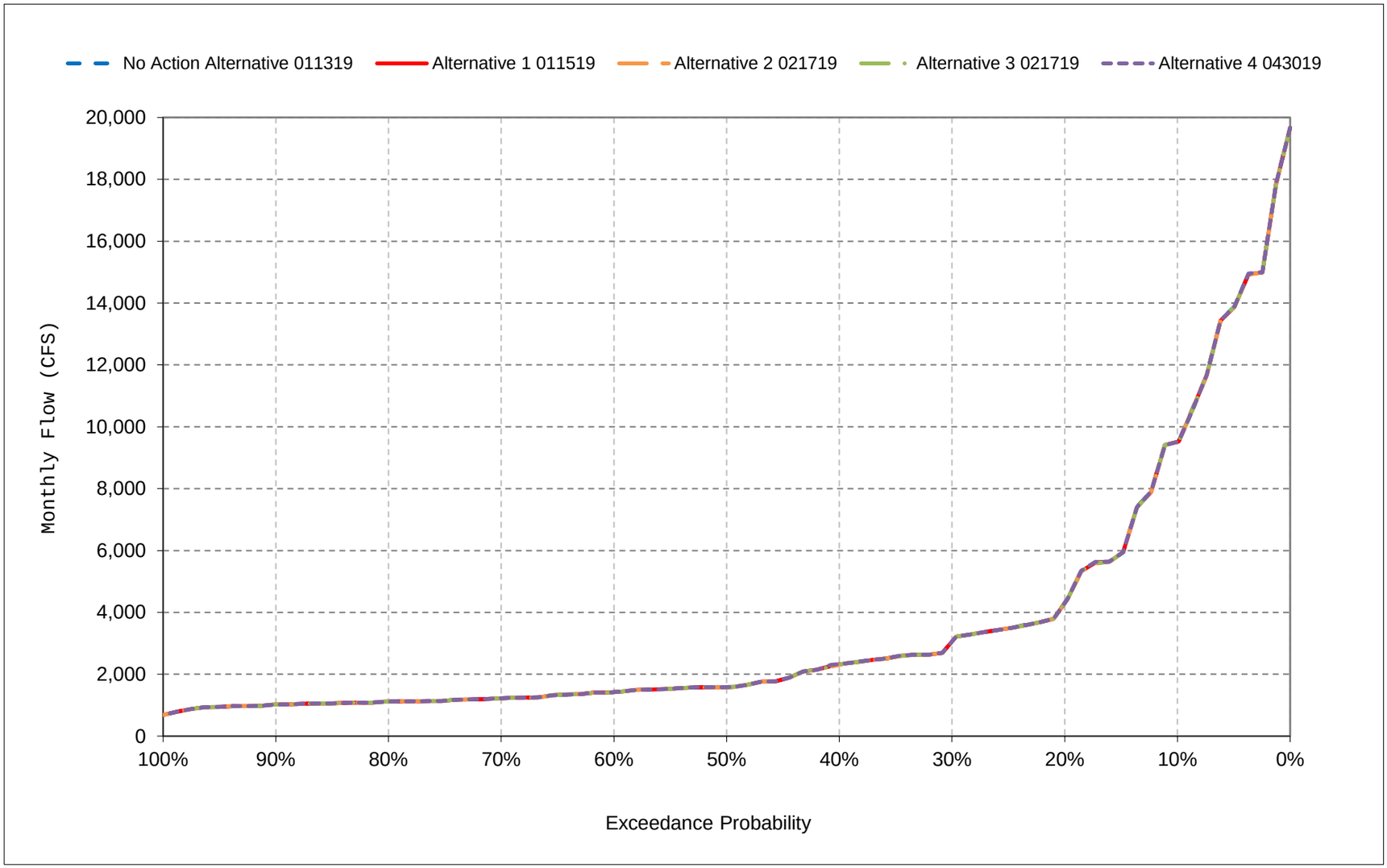
Figure 35-10. San Joaquin River Flow below confluence with Merced , January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

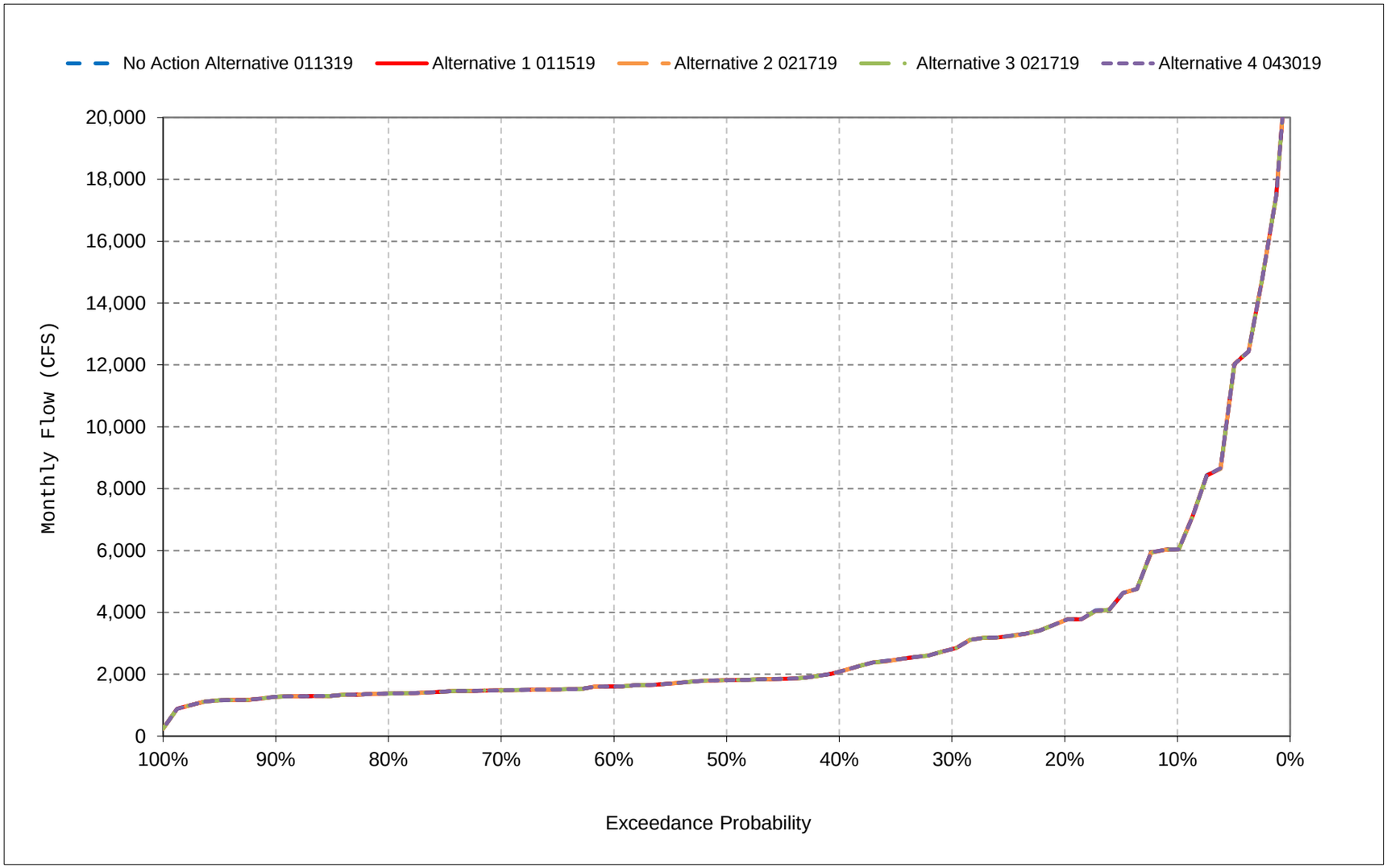
Figure 35-11. San Joaquin River Flow below confluence with Merced , February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

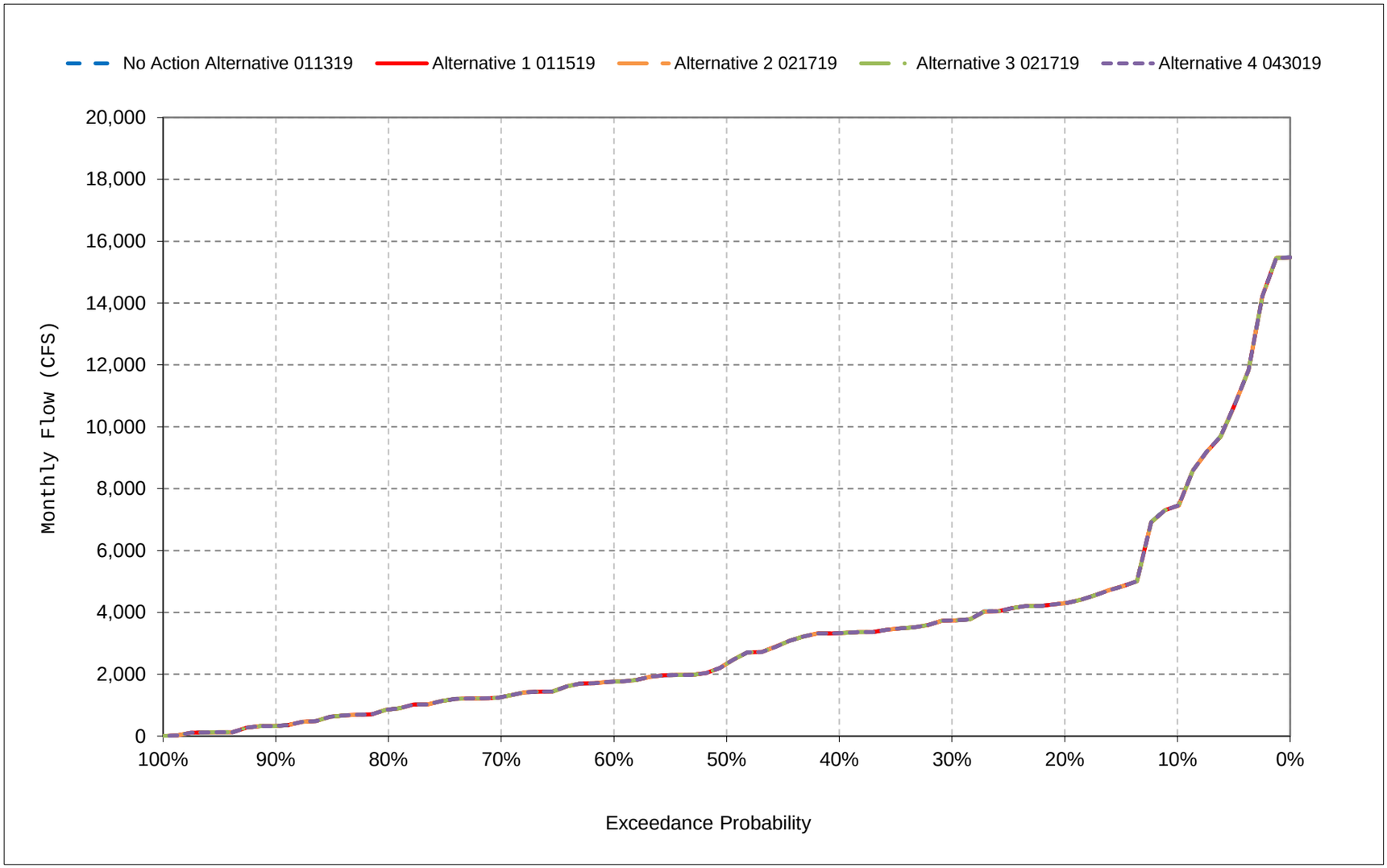
Figure 35-12. San Joaquin River Flow below confluence with Merced , March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

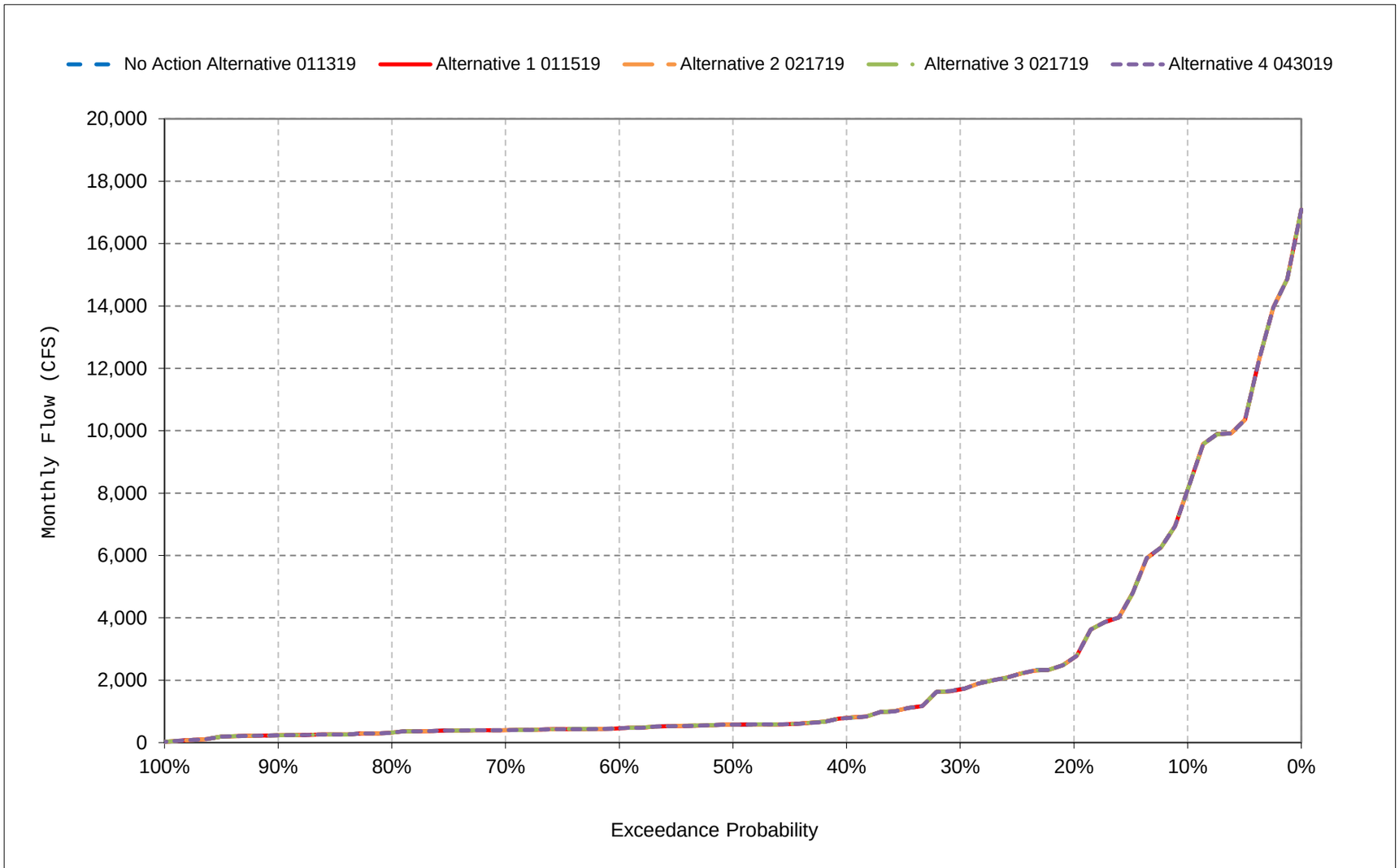
Figure 35-13. San Joaquin River Flow below confluence with Merced , April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

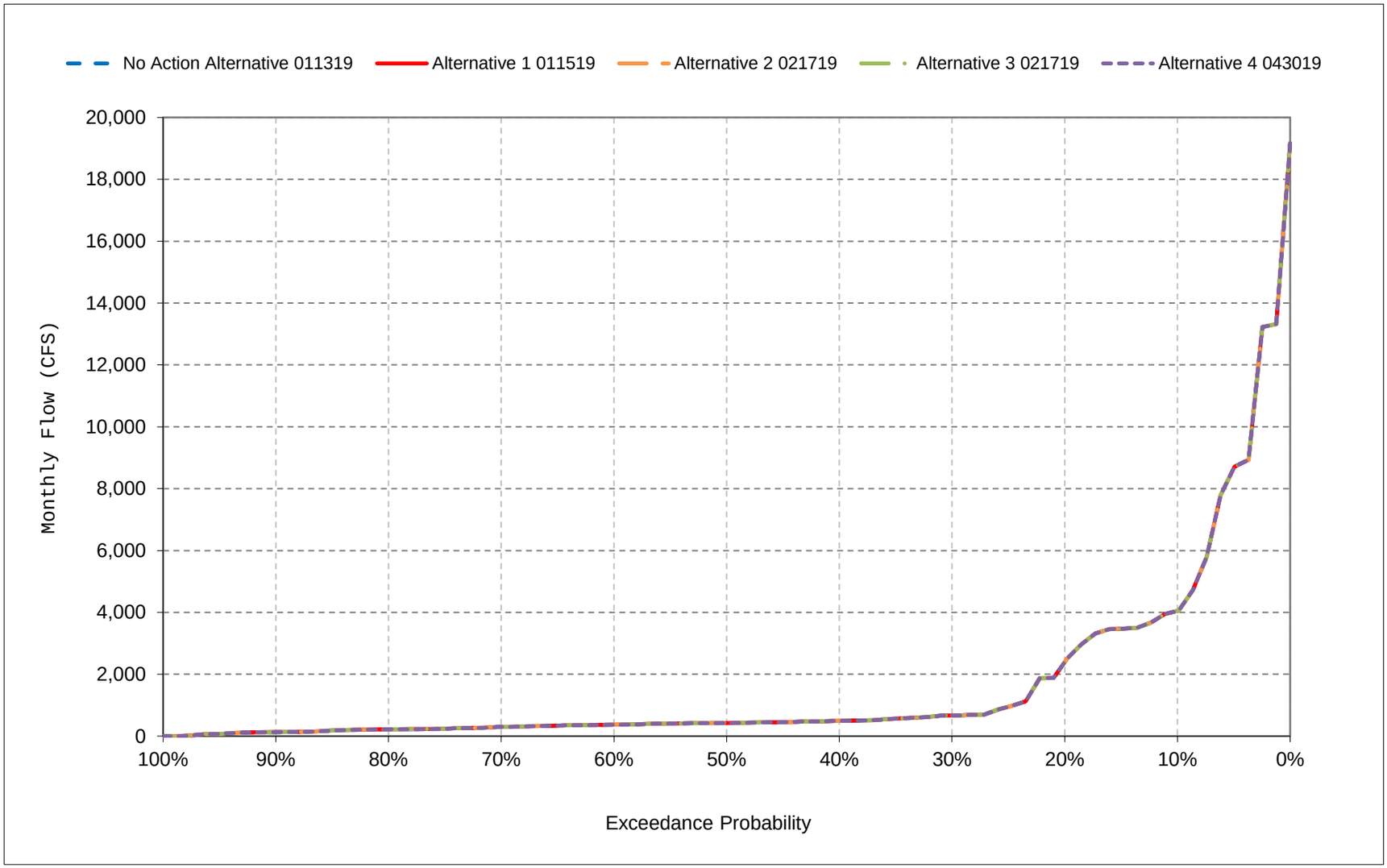
Figure 35-14. San Joaquin River Flow below confluence with Merced , May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

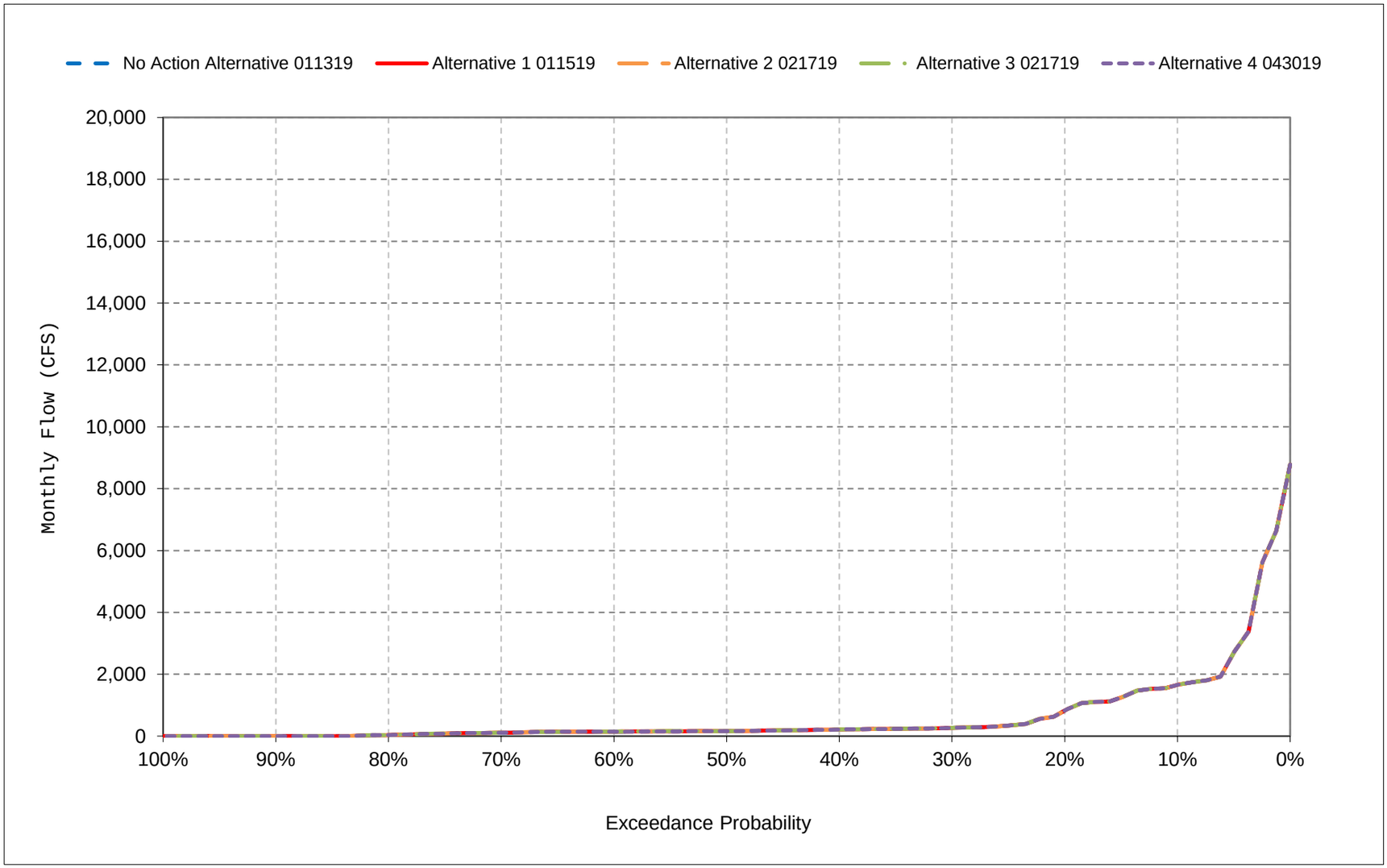
Figure 35-15. San Joaquin River Flow below confluence with Merced , June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

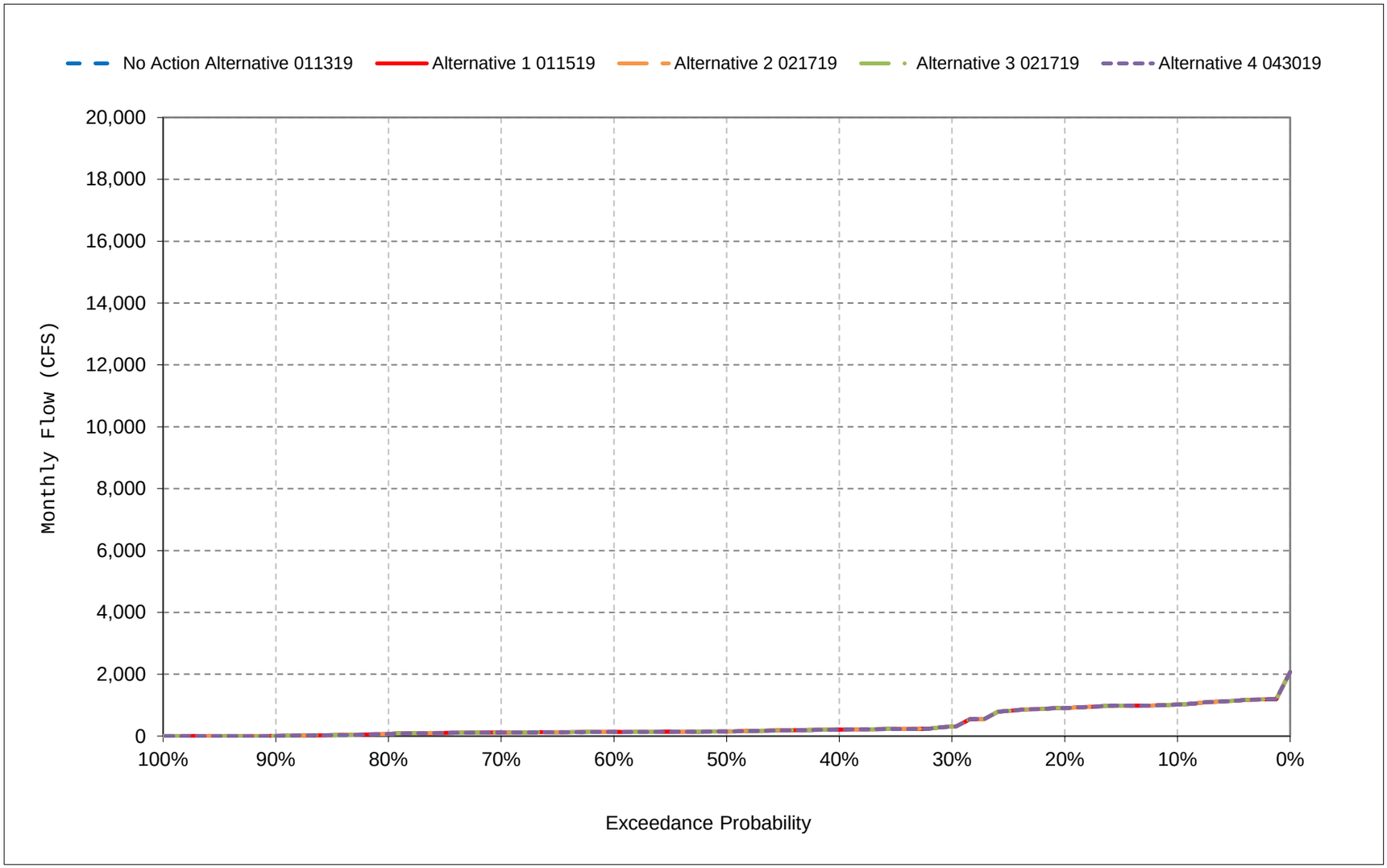
Figure 35-16. San Joaquin River Flow below confluence with Merced , July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

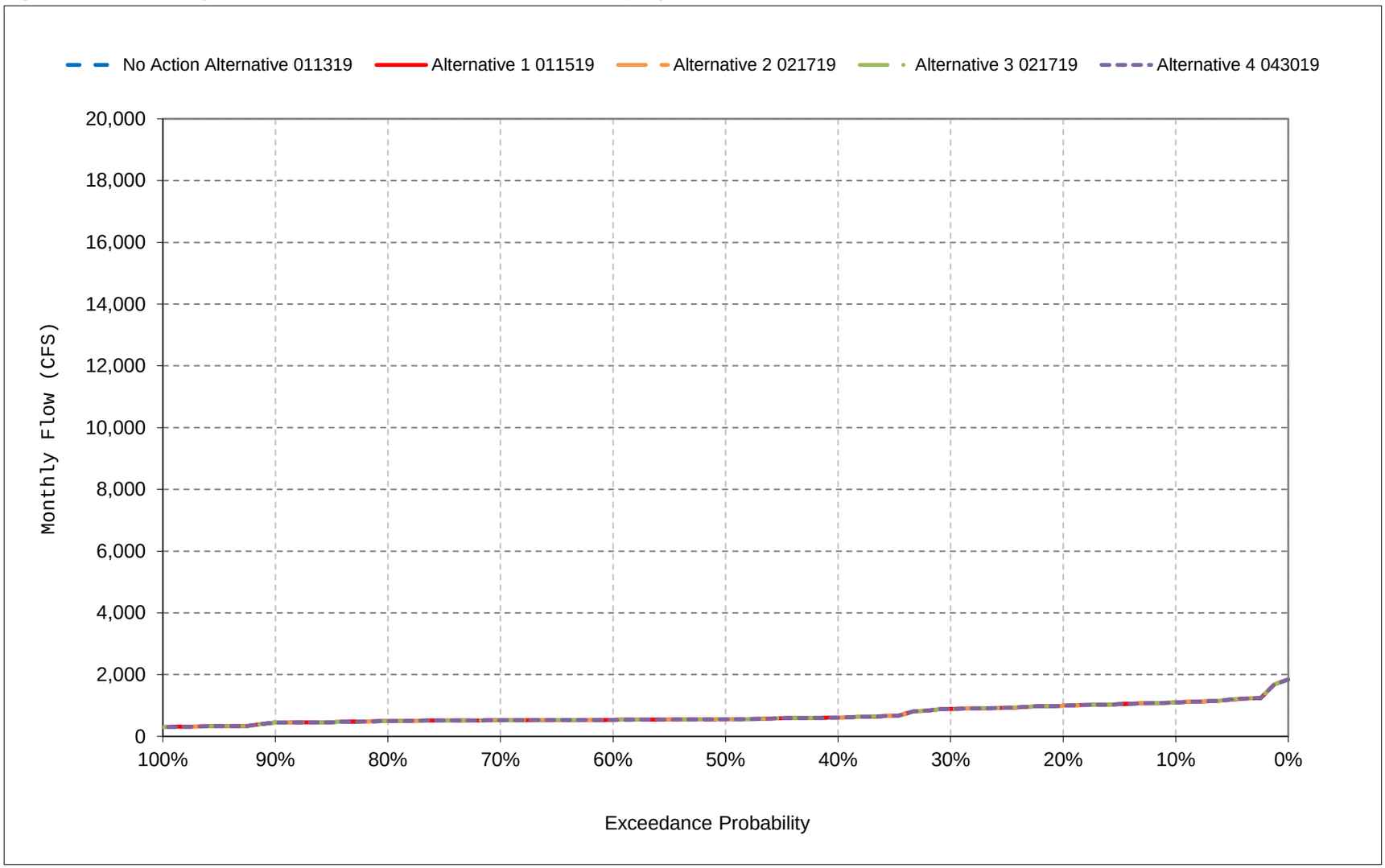
Figure 35-17. San Joaquin River Flow below confluence with Merced , August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 35-18. San Joaquin River Flow below confluence with Merced , September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 37-1. Stanislaus River Flow below Goodwin, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	837	290	306	358	897	1,648	1,633	1,929	1,100	429	392	390
20%	797	200	218	232	405	1,521	1,553	1,555	1,089	318	300	300
30%	774	200	200	232	282	440	1,553	1,294	940	300	283	250
40%	774	200	200	226	236	200	1,400	1,242	853	300	283	250
50%	774	200	200	226	236	200	1,400	1,242	363	275	283	250
60%	636	200	200	219	229	200	812	918	363	265	283	249
70%	636	200	200	219	229	200	767	705	294	265	283	249
80%	578	200	200	214	221	200	767	631	262	265	283	249
90%	577	200	200	213	215	200	504	547	255	265	283	249
Long Term												
Full Simulation Period[a]	723	278	367	519	593	754	1,159	1,124	680	395	362	351
Water Year Types[b,c]												
Wet (23%)	859	532	863	999	1,193	2,014	1,536	1,691	1,140	716	639	692
Above Normal (24%)	728	205	212	664	676	645	1,224	1,146	959	353	292	267
Below Normal (10%)	752	200	202	282	346	365	1,454	1,201	475	269	285	256
Dry (16%)	677	200	200	234	313	200	1,030	930	375	276	277	245
Critical (27%)	614	200	236	227	255	234	742	700	282	272	264	231

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	797	200	306	552	2,259	1,528	1,572	1,555	940	300	300	300
20%	797	200	200	232	294	1,521	1,553	1,555	940	300	300	300
30%	774	200	200	230	236	675	1,553	1,242	363	265	283	250
40%	774	200	200	226	229	200	1,400	1,242	363	265	283	250
50%	774	200	200	226	229	200	1,400	1,242	363	265	283	250
60%	636	200	200	226	229	200	972	819	255	265	283	249
70%	636	200	200	219	221	200	767	631	255	265	283	249
80%	577	200	200	213	214	200	466	400	200	200	200	200
90%	577	200	200	213	214	200	460	400	200	200	200	200
Long Term												
Full Simulation Period[a]	718	272	341	549	722	762	1,147	1,036	566	378	338	339
Water Year Types[b,c]												
Wet (23%)	854	508	735	1,003	1,750	2,189	1,475	1,665	1,499	834	625	691
Above Normal (24%)	774	202	223	694	695	577	1,571	1,255	363	265	283	258
Below Normal (10%)	774	200	202	546	528	247	1,610	1,242	363	265	283	250
Dry (16%)	626	200	209	224	228	200	825	655	256	255	270	241
Critical (27%)	578	200	236	220	222	218	501	445	200	200	200	198

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-41**	**-90**	0	194	1,362	**-121**	**-62**	**-375**	**-160**	**-129**	**-92**	**-90**
20%	0	0	**-18**	0	**-111**	0	0	0	**-149**	**-18**	0	0
30%	0	0	0	**-2**	**-46**	236	0	**-52**	**-577**	**-35**	**0**	0
40%	0	0	0	0	**-7**	0	0	0	**-490**	**-35**	0	0
50%	0	0	0	0	**-7**	0	0	0	0	**-10**	0	0
60%	0	0	0	6	0	0	160	**-99**	**-108**	0	0	0
70%	0	0	0	0	**-7**	0	0	**-75**	**-38**	0	0	0
80%	**-1**	0	0	**-1**	**-7**	0	**-300**	**-231**	**-62**	**-65**	**-83**	**-49**
90%	0	0	0	0	**-1**	0	**-44**	**-147**	**-55**	**-65**	**-83**	**-49**
Long Term												
Full Simulation Period[a]	**-4**	**-6**	**-26**	31	129	8	**-11**	**-87**	**-114**	**-17**	**-24**	**-13**
Water Year Types[b,c]												
Wet (23%)	**-5**	**-24**	**-128**	4	557	175	**-61**	**-26**	359	118	**-14**	**-1**
Above Normal (24%)	46	**-3**	11	31	20	**-68**	347	109	**-596**	**-88**	**-9**	**-9**
Below Normal (10%)	22	0	0	264	183	**-118**	156	41	**-111**	**-4**	**-2**	**-6**
Dry (16%)	**-51**	0	9	**-10**	**-86**	0	**-205**	**-274**	**-119**	**-21**	**-6**	**-4**
Critical (27%)	**-36**	0	0	**-7**	**-33**	**-15**	**-241**	**-255**	**-82**	**-72**	**-64**	**-33**

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 37-2. Stanislaus River Flow below Goodwin, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	837	290	306	358	897	1,648	1,633	1,929	1,100	429	392	390
20%	797	200	218	232	405	1,521	1,553	1,555	1,089	318	300	300
30%	774	200	200	232	282	440	1,553	1,294	940	300	283	250
40%	774	200	200	226	236	200	1,400	1,242	853	300	283	250
50%	774	200	200	226	236	200	1,400	1,242	363	275	283	250
60%	636	200	200	219	229	200	812	918	363	265	283	249
70%	636	200	200	219	229	200	767	705	294	265	283	249
80%	578	200	200	214	221	200	767	631	262	265	283	249
90%	577	200	200	213	215	200	504	547	255	265	283	249
Long Term												
Full Simulation Period[a]	723	278	367	519	593	754	1,159	1,124	680	395	362	351
Water Year Types[b,c]												
Wet (23%)	859	532	863	999	1,193	2,014	1,536	1,691	1,140	716	639	692
Above Normal (24%)	728	205	212	664	676	645	1,224	1,146	959	353	292	267
Below Normal (10%)	752	200	202	282	346	365	1,454	1,201	475	269	285	256
Dry (16%)	677	200	200	234	313	200	1,030	930	375	276	277	245
Critical (27%)	614	200	236	227	255	234	742	700	282	272	264	231

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	333	296	609	1,252	3,443	1,596	1,179	1,145	1,516	977	1,246	1,386
20%	250	296	296	468	1,383	622	1,179	1,145	1,021	320	283	249
30%	170	233	292	296	867	296	843	794	649	286	283	249
40%	117	203	227	207	365	231	563	670	314	265	283	249
50%	110	200	200	144	283	128	472	558	265	265	283	249
60%	110	200	200	125	230	125	416	477	255	265	283	249
70%	110	200	200	125	157	125	383	459	255	265	283	249
80%	110	200	200	125	125	125	383	416	255	265	283	249
90%	110	200	200	125	125	125	383	371	255	265	283	249
Long Term												
Full Simulation Period[a]	201	304	437	571	1,033	609	678	761	751	467	426	428
Water Year Types[b,c]												
Wet (23%)	438	613	1,119	1,109	2,749	1,660	1,169	1,371	1,635	1,065	908	1,029
Above Normal (24%)	166	232	258	797	873	579	685	752	875	313	283	249
Below Normal (10%)	116	203	206	405	589	188	477	458	331	265	283	249
Dry (16%)	110	200	200	240	441	125	427	514	344	277	283	249
Critical (27%)	110	200	232	158	206	167	471	498	268	276	276	244

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-504**	6	304	893	2,546	**-52**	**-454**	**-784**	416	548	854	996
20%	**-547**	96	78	235	978	**-899**	**-374**	**-409**	**-68**	3	**-17**	**-51**
30%	**-604**	33	92	64	585	**-143**	**-711**	**-500**	**-291**	**-14**	**0**	**-1**
40%	**-658**	3	27	**-19**	129	31	**-837**	**-572**	**-539**	**-35**	0	**-1**
50%	**-664**	**0**	**0**	**-82**	48	**-72**	**-928**	**-684**	**-98**	**-10**	0	**-1**
60%	**-526**	**0**	**0**	**-95**	2	**-75**	**-396**	**-440**	**-108**	0	0	0
70%	**-526**	**0**	**0**	**-95**	**-71**	**-75**	**-384**	**-247**	**-38**	0	0	0
80%	**-468**	**0**	**0**	**-89**	**-97**	**-75**	**-384**	**-215**	**-7**	0	0	0
90%	**-468**	**0**	**0**	**-88**	**-90**	**-75**	**-121**	**-177**	0	0	0	0
Long Term												
Full Simulation Period[a]	**-522**	26	70	53	440	**-145**	**-480**	**-363**	71	72	64	77
Water Year Types[b,c]												
Wet (23%)	**-421**	81	256	111	1,556	**-355**	**-367**	**-321**	495	350	270	337
Above Normal (24%)	**-563**	27	46	133	197	**-66**	**-540**	**-393**	**-84**	**-40**	**-9**	**-18**
Below Normal (10%)	**-637**	3	3	123	243	**-177**	**-978**	**-743**	**-144**	**-4**	**-2**	**-7**
Dry (16%)	**-567**	**0**	**0**	6	128	**-75**	**-602**	**-416**	**-31**	1	6	3
Critical (27%)	**-504**	**0**	**-4**	**-68**	**-49**	**-67**	**-271**	**-202**	**-15**	5	12	13

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 37-3. Stanislaus River Flow below Goodwin, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	837	290	306	358	897	1,648	1,633	1,929	1,100	429	392	390
20%	797	200	218	232	405	1,521	1,553	1,555	1,089	318	300	300
30%	774	200	200	232	282	440	1,553	1,294	940	300	283	250
40%	774	200	200	226	236	200	1,400	1,242	853	300	283	250
50%	774	200	200	226	236	200	1,400	1,242	363	275	283	250
60%	636	200	200	219	229	200	812	918	363	265	283	249
70%	636	200	200	219	229	200	767	705	294	265	283	249
80%	578	200	200	214	221	200	767	631	262	265	283	249
90%	577	200	200	213	215	200	504	547	255	265	283	249
Long Term												
Full Simulation Period[a]	723	278	367	519	593	754	1,159	1,124	680	395	362	351
Water Year Types[b,c]												
Wet (23%)	859	532	863	999	1,193	2,014	1,536	1,691	1,140	716	639	692
Above Normal (24%)	728	205	212	664	676	645	1,224	1,146	959	353	292	267
Below Normal (10%)	752	200	202	282	346	365	1,454	1,201	475	269	285	256
Dry (16%)	677	200	200	234	313	200	1,030	930	375	276	277	245
Critical (27%)	614	200	236	227	255	234	742	700	282	272	264	231

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	333	296	609	1,252	3,443	1,596	1,179	1,145	1,516	977	1,246	1,386
20%	250	296	296	468	1,382	622	1,179	1,145	1,021	320	283	249
30%	170	233	292	296	867	296	843	794	649	286	283	249
40%	117	203	227	207	365	231	563	670	316	265	283	249
50%	110	200	200	144	283	128	472	558	265	265	283	249
60%	110	200	200	125	230	125	416	477	255	265	283	249
70%	110	200	200	125	157	125	383	458	255	265	283	249
80%	110	200	200	125	125	125	383	416	255	265	283	249
90%	110	200	200	125	125	125	383	371	255	265	283	249
Long Term												
Full Simulation Period[a]	201	304	437	571	1,033	609	678	761	751	467	426	428
Water Year Types[b,c]												
Wet (23%)	438	613	1,119	1,109	2,749	1,660	1,169	1,371	1,635	1,065	908	1,029
Above Normal (24%)	166	232	258	797	873	579	685	752	876	313	283	249
Below Normal (10%)	116	203	206	405	589	188	477	458	331	265	283	249
Dry (16%)	110	200	200	240	441	125	427	514	344	277	283	249
Critical (27%)	110	200	232	158	206	167	471	498	268	276	276	244

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-504**	6	304	894	2,546	**-52**	**-454**	**-784**	416	548	854	996
20%	**-547**	96	78	235	977	**-899**	**-374**	**-409**	**-68**	3	**-17**	**-51**
30%	**-604**	33	92	64	585	**-143**	**-711**	**-500**	**-291**	**-14**	**0**	**-1**
40%	**-658**	3	27	**-19**	129	31	**-837**	**-572**	**-537**	**-35**	0	**-1**
50%	**-664**	**0**	**0**	**-82**	48	**-72**	**-928**	**-684**	**-98**	**-10**	0	**-1**
60%	**-526**	**0**	**0**	**-95**	2	**-75**	**-396**	**-440**	**-108**	0	0	0
70%	**-526**	**0**	**0**	**-95**	**-71**	**-75**	**-384**	**-247**	**-38**	0	0	0
80%	**-468**	**0**	**0**	**-89**	**-97**	**-75**	**-384**	**-215**	**-7**	0	0	0
90%	**-468**	**0**	**0**	**-88**	**-90**	**-75**	**-121**	**-177**	0	0	0	0
Long Term												
Full Simulation Period[a]	**-522**	26	70	53	440	**-145**	**-480**	**-363**	71	72	64	77
Water Year Types[b,c]												
Wet (23%)	**-421**	81	256	111	1,556	**-355**	**-367**	**-320**	495	350	270	337
Above Normal (24%)	**-563**	27	46	133	197	**-66**	**-540**	**-393**	**-84**	**-40**	**-9**	**-18**
Below Normal (10%)	**-637**	3	3	123	243	**-177**	**-978**	**-743**	**-144**	**-4**	**-2**	**-7**
Dry (16%)	**-567**	**0**	**0**	6	128	**-75**	**-602**	**-416**	**-31**	0	6	3
Critical (27%)	**-504**	**0**	**-4**	**-68**	**-49**	**-67**	**-271**	**-202**	**-14**	5	12	13

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 37-4. Stanislaus River Flow below Goodwin, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	837	290	306	358	897	1,648	1,633	1,929	1,100	429	392	390
20%	797	200	218	232	405	1,521	1,553	1,555	1,089	318	300	300
30%	774	200	200	232	282	440	1,553	1,294	940	300	283	250
40%	774	200	200	226	236	200	1,400	1,242	853	300	283	250
50%	774	200	200	226	236	200	1,400	1,242	363	275	283	250
60%	636	200	200	219	229	200	812	918	363	265	283	249
70%	636	200	200	219	229	200	767	705	294	265	283	249
80%	578	200	200	214	221	200	767	631	262	265	283	249
90%	577	200	200	213	215	200	504	547	255	265	283	249
Long Term												
Full Simulation Period[a]	723	278	367	519	593	754	1,159	1,124	680	395	362	351
Water Year Types[b,c]												
Wet (23%)	859	532	863	999	1,193	2,014	1,536	1,691	1,140	716	639	692
Above Normal (24%)	728	205	212	664	676	645	1,224	1,146	959	353	292	267
Below Normal (10%)	752	200	202	282	346	365	1,454	1,201	475	269	285	256
Dry (16%)	677	200	200	234	313	200	1,030	930	375	276	277	245
Critical (27%)	614	200	236	227	255	234	742	700	282	272	264	231

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	797	200	306	552	2,259	1,528	1,572	1,555	940	300	300	300
20%	797	200	200	232	294	1,521	1,553	1,555	940	300	300	300
30%	774	200	200	230	236	675	1,553	1,242	363	265	283	250
40%	774	200	200	226	229	200	1,400	1,242	363	265	283	250
50%	774	200	200	226	229	200	1,400	1,242	363	265	283	250
60%	636	200	200	226	229	200	972	819	255	265	283	249
70%	636	200	200	219	221	200	767	631	255	265	283	249
80%	577	200	200	213	214	200	466	400	200	200	200	200
90%	577	200	200	213	214	200	460	400	200	200	200	200
Long Term												
Full Simulation Period[a]	718	272	341	549	722	762	1,147	1,036	566	378	338	339
Water Year Types[b,c]												
Wet (23%)	854	508	735	1,003	1,750	2,189	1,475	1,665	1,499	834	625	691
Above Normal (24%)	774	202	223	694	695	577	1,571	1,255	363	265	283	258
Below Normal (10%)	774	200	202	546	528	247	1,610	1,242	363	265	283	250
Dry (16%)	626	200	209	224	228	200	825	655	256	255	270	241
Critical (27%)	578	200	236	220	222	218	501	445	200	200	200	198

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-41**	**-90**	0	194	1,362	**-121**	**-62**	**-375**	**-160**	**-129**	**-92**	**-90**
20%	0	0	**-18**	0	**-111**	0	0	0	**-149**	**-18**	0	0
30%	0	0	0	**-2**	**-46**	236	0	**-52**	**-577**	**-35**	**0**	0
40%	0	0	0	0	**-7**	0	0	0	**-490**	**-35**	0	0
50%	0	0	0	0	**-7**	0	0	0	0	**-10**	0	0
60%	0	0	0	6	0	0	160	**-99**	**-108**	0	0	0
70%	0	0	0	0	**-7**	0	0	**-75**	**-38**	0	0	0
80%	**-1**	0	0	**-1**	**-7**	0	**-300**	**-231**	**-62**	**-65**	**-83**	**-49**
90%	0	0	0	0	**-1**	0	**-44**	**-147**	**-55**	**-65**	**-83**	**-49**
Long Term												
Full Simulation Period[a]	**-4**	**-6**	**-26**	31	129	8	**-11**	**-87**	**-114**	**-17**	**-24**	**-13**
Water Year Types[b,c]												
Wet (23%)	**-5**	**-24**	**-128**	4	557	175	**-61**	**-26**	359	118	**-14**	**-1**
Above Normal (24%)	46	**-3**	11	31	20	**-68**	347	109	**-596**	**-88**	**-9**	**-9**
Below Normal (10%)	22	0	0	264	183	**-118**	156	41	**-111**	**-4**	**-2**	**-6**
Dry (16%)	**-51**	0	9	**-10**	**-86**	0	**-205**	**-274**	**-119**	**-21**	**-6**	**-4**
Critical (27%)	**-36**	0	0	**-7**	**-33**	**-15**	**-241**	**-255**	**-82**	**-72**	**-64**	**-33**

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

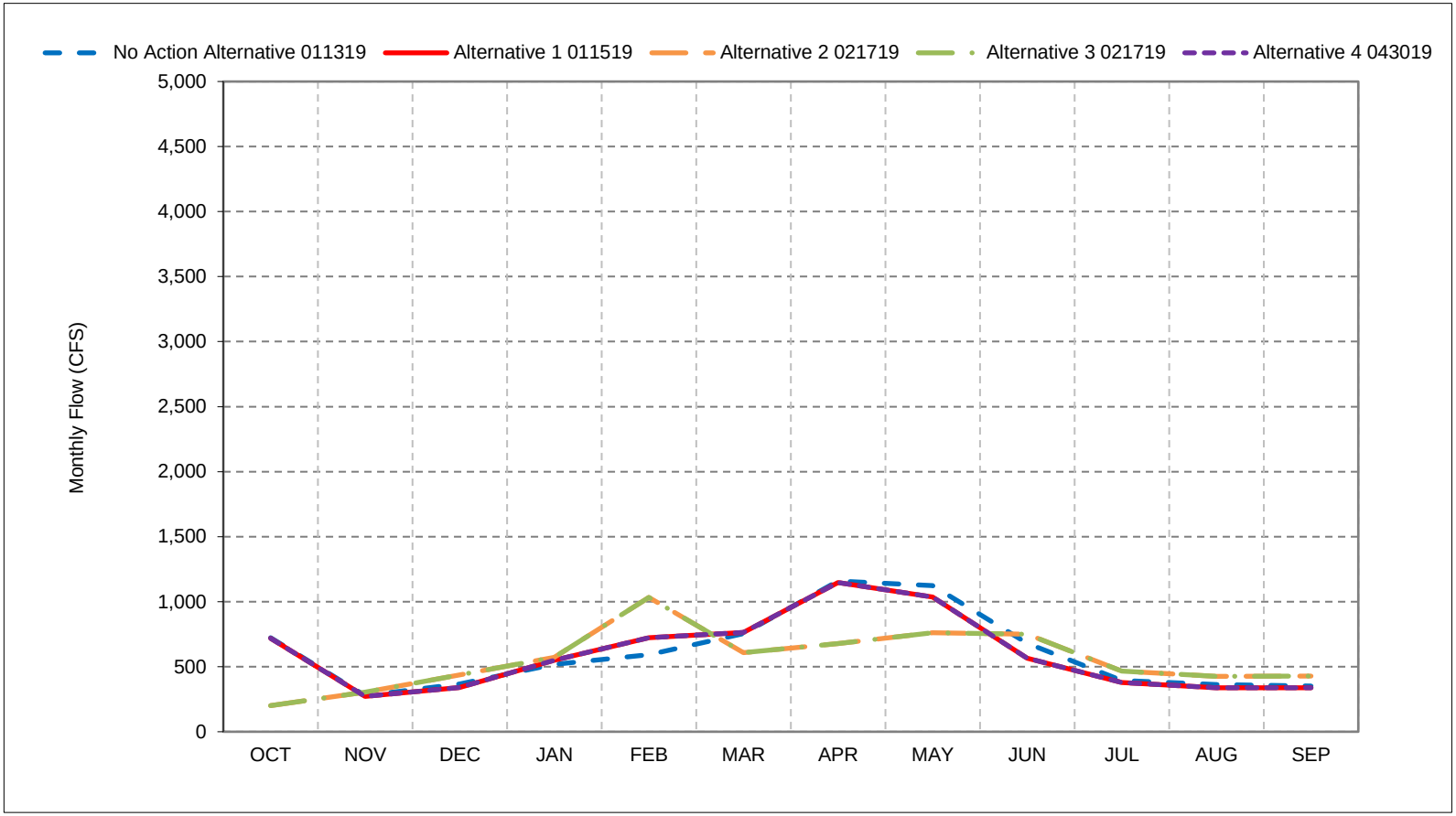
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

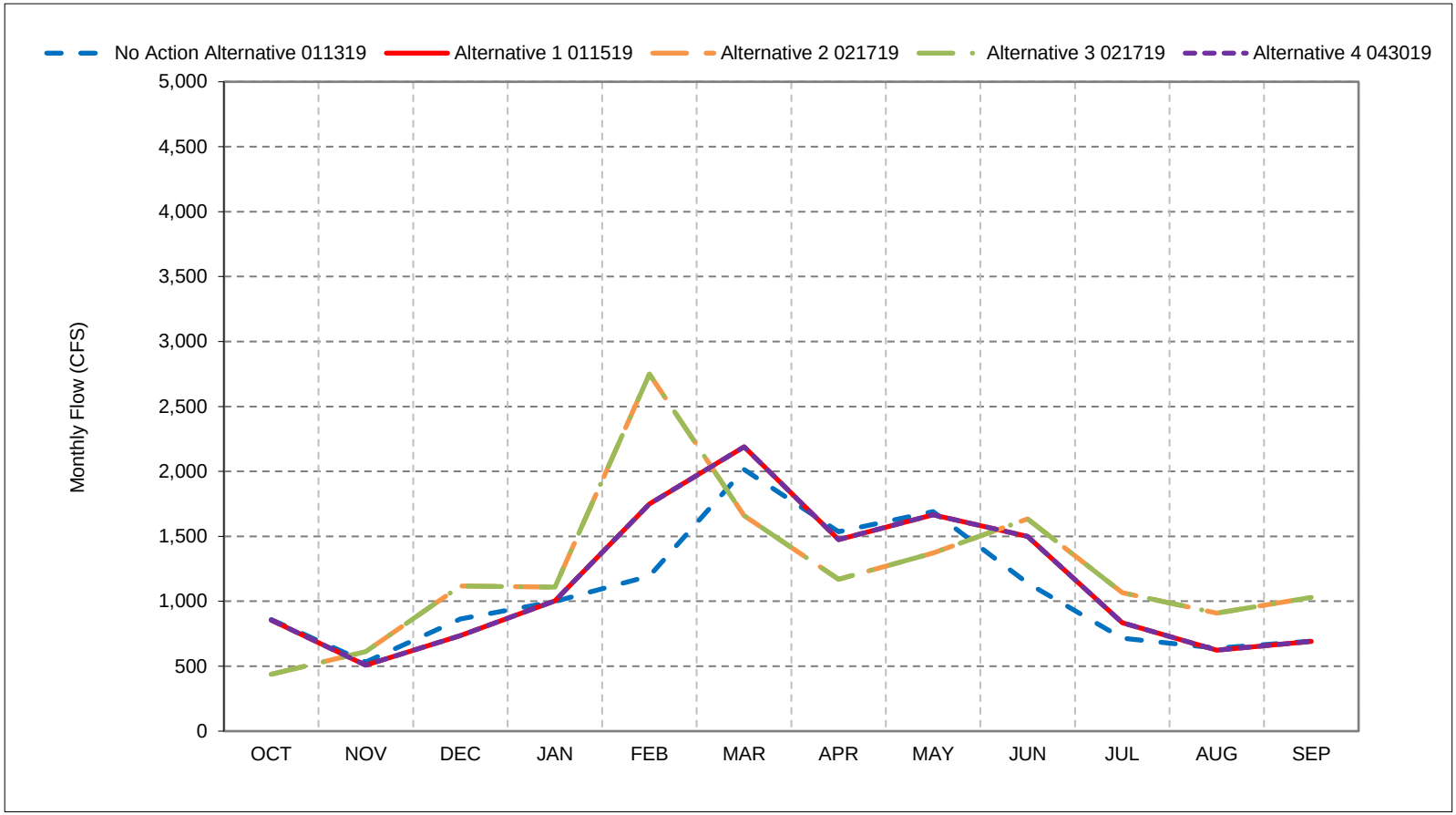
f New Melones forecasts are used as the basis of water operations.

Figure 37-1. Stanislaus River Flow below Goodwin, Long-Term Average Flow



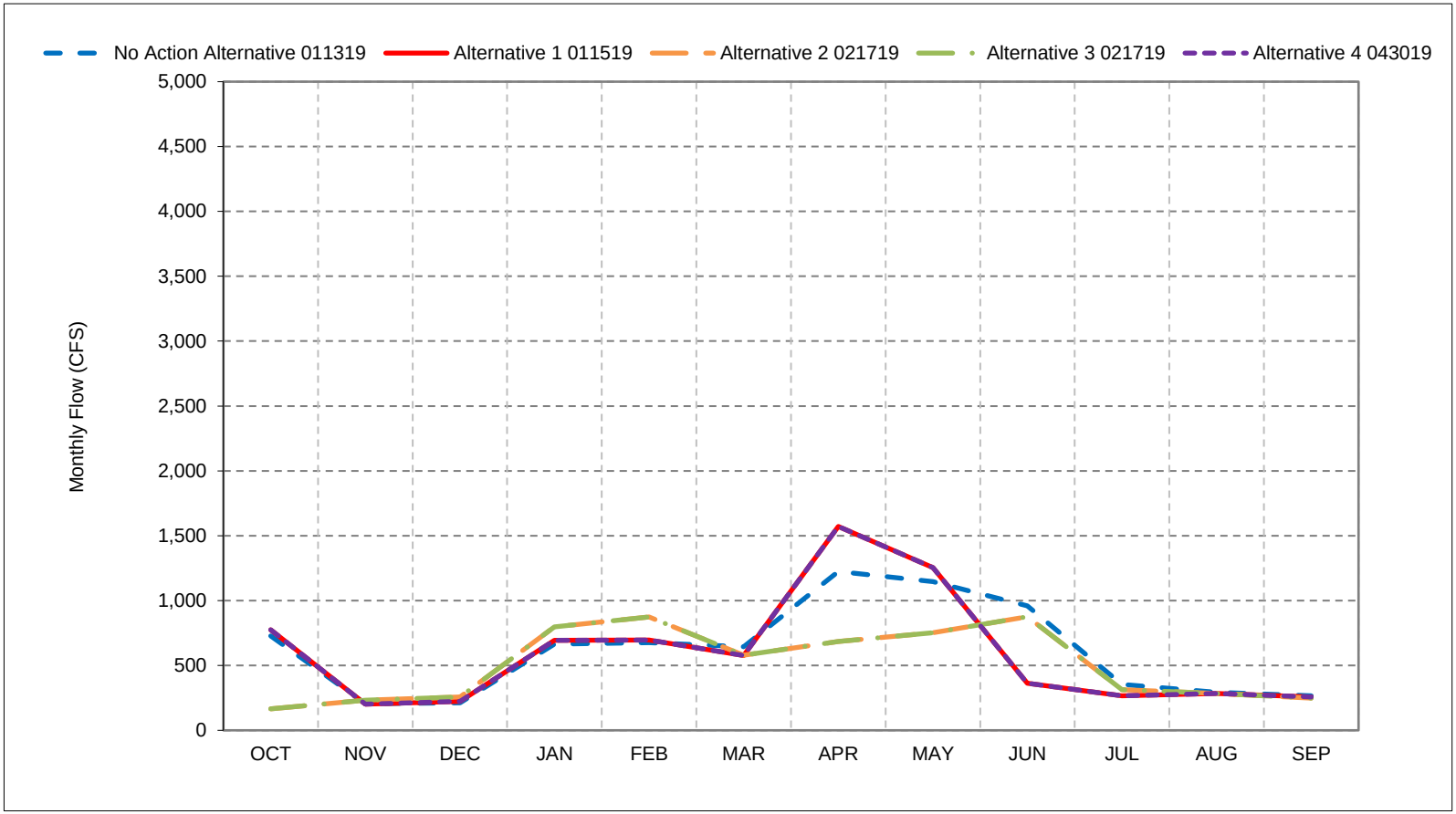
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 37-2. Stanislaus River Flow below Goodwin, Wet Year Average Flow



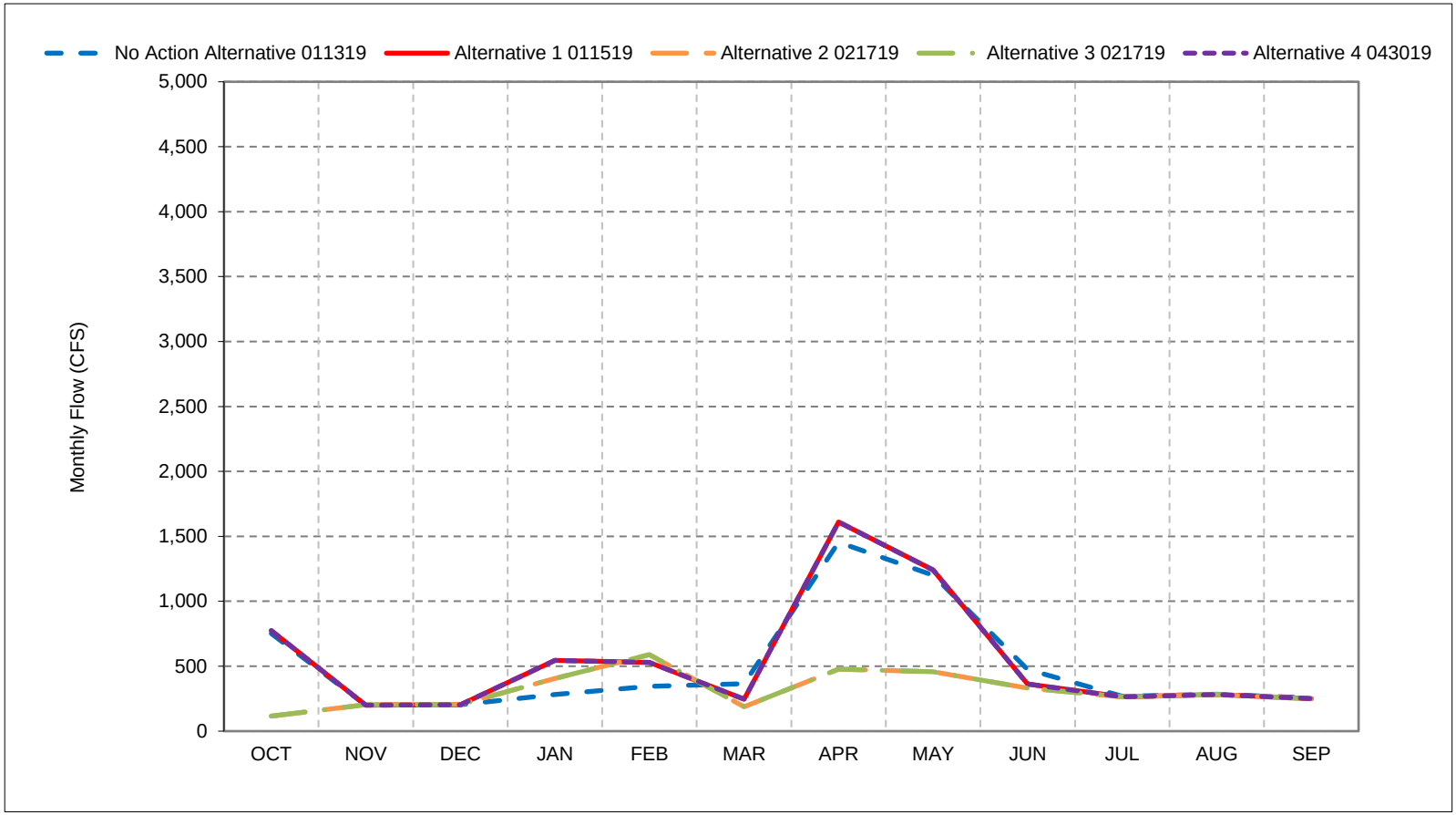
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 37-3. Stanislaus River Flow below Goodwin, Above Normal Year Average Flow



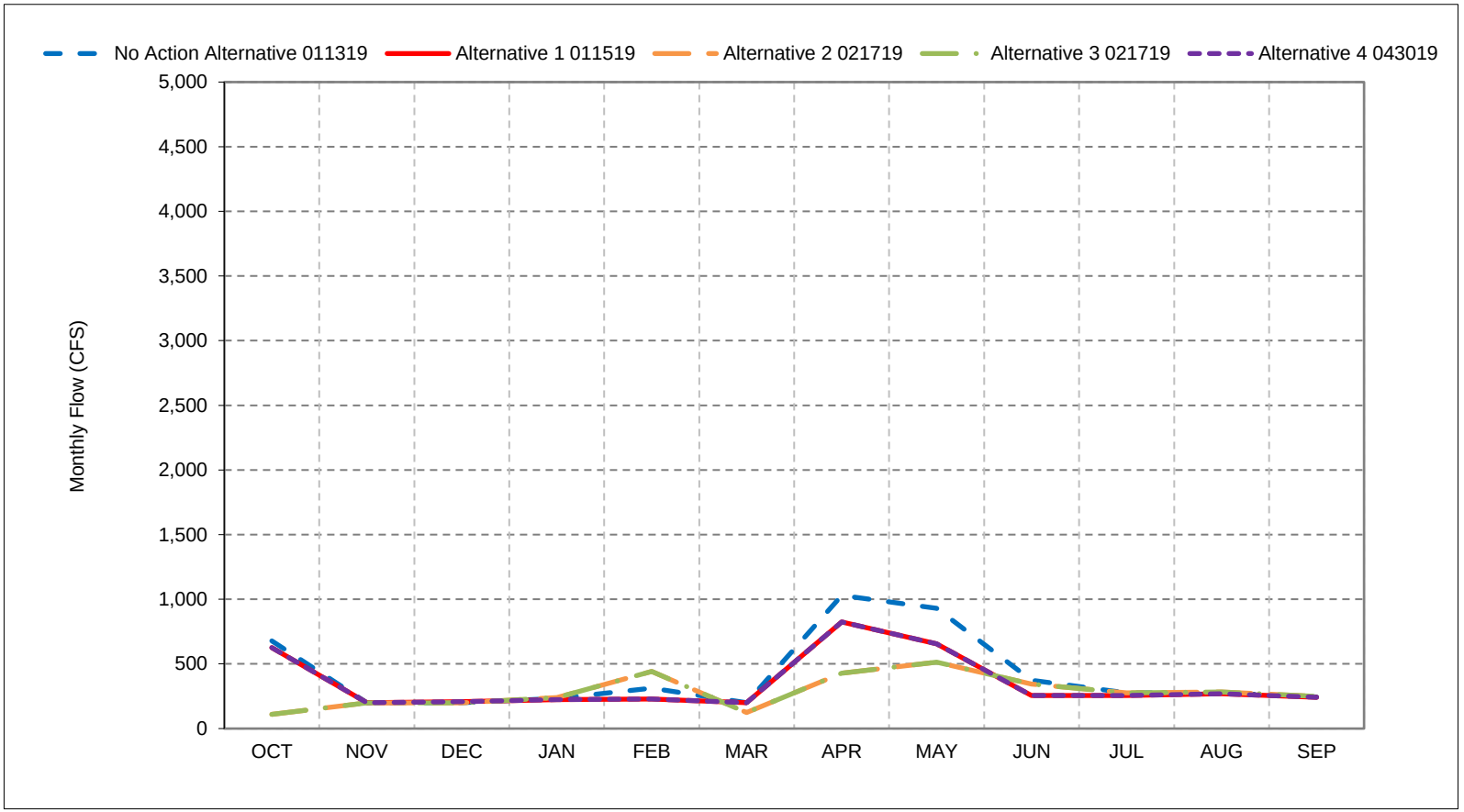
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 37-4. Stanislaus River Flow below Goodwin, Below Normal Year Average Flow



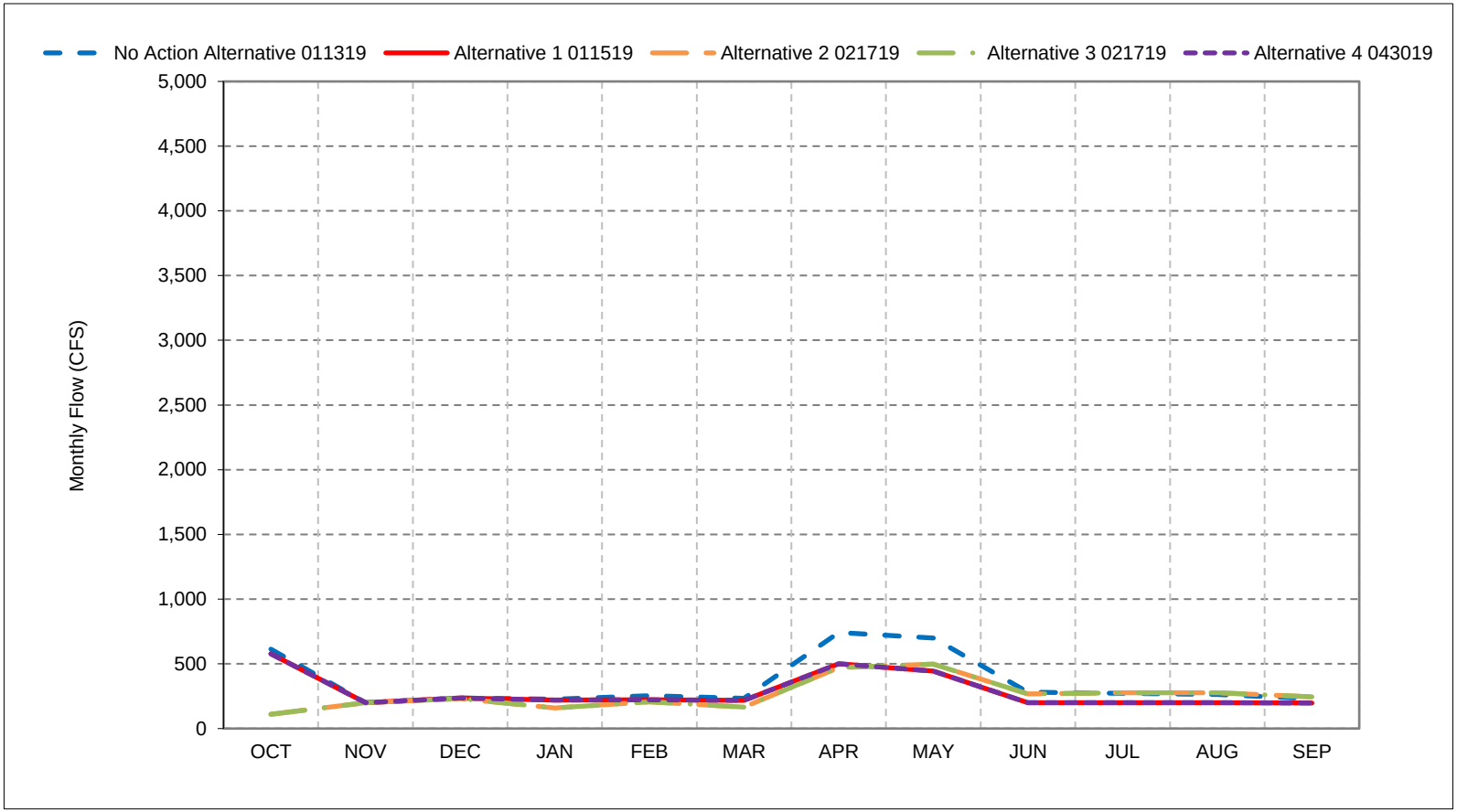
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 37-5. Stanislaus River Flow below Goodwin, Dry Year Average Flow



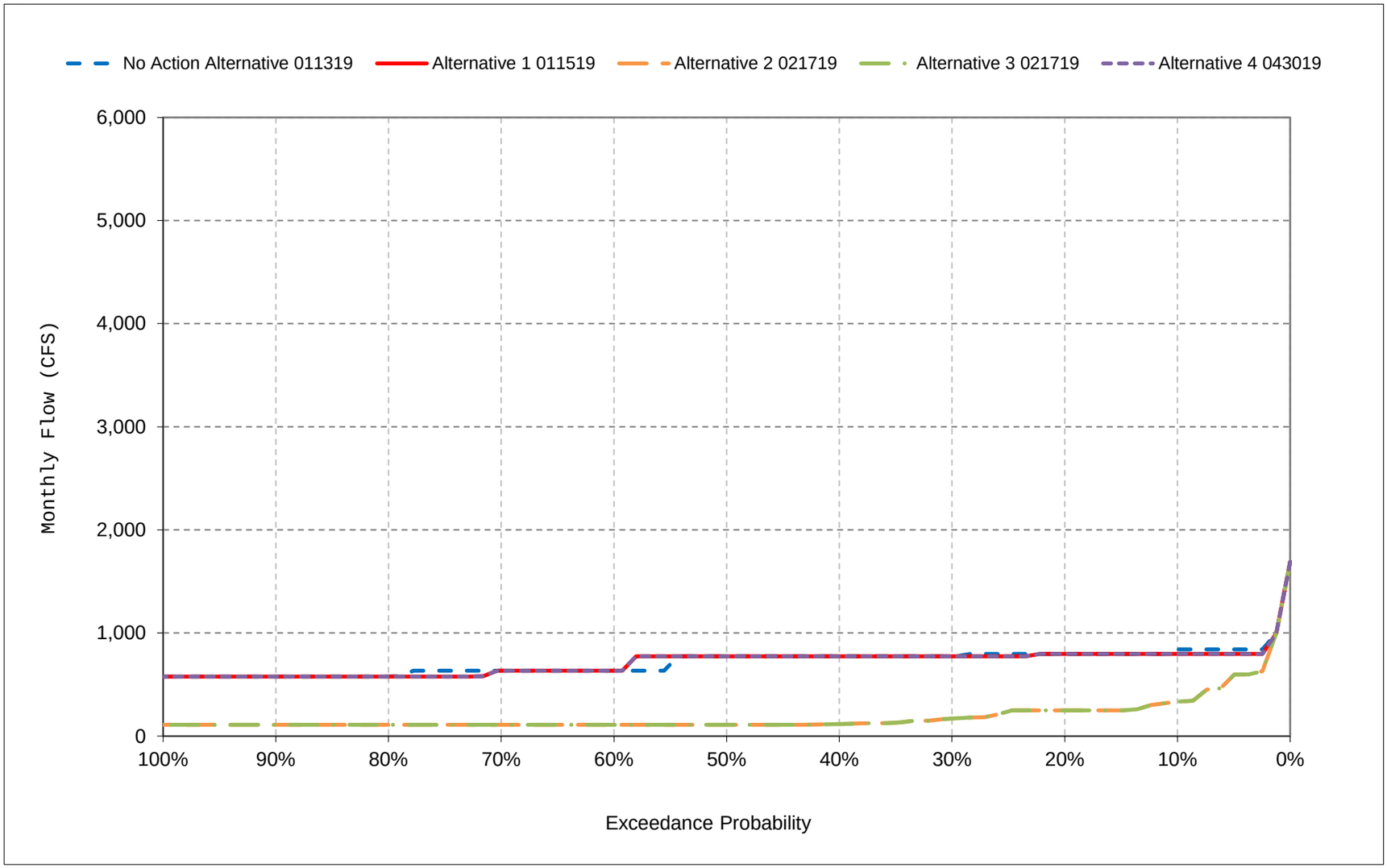
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 37-6. Stanislaus River Flow below Goodwin, Critical Year Average Flow



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

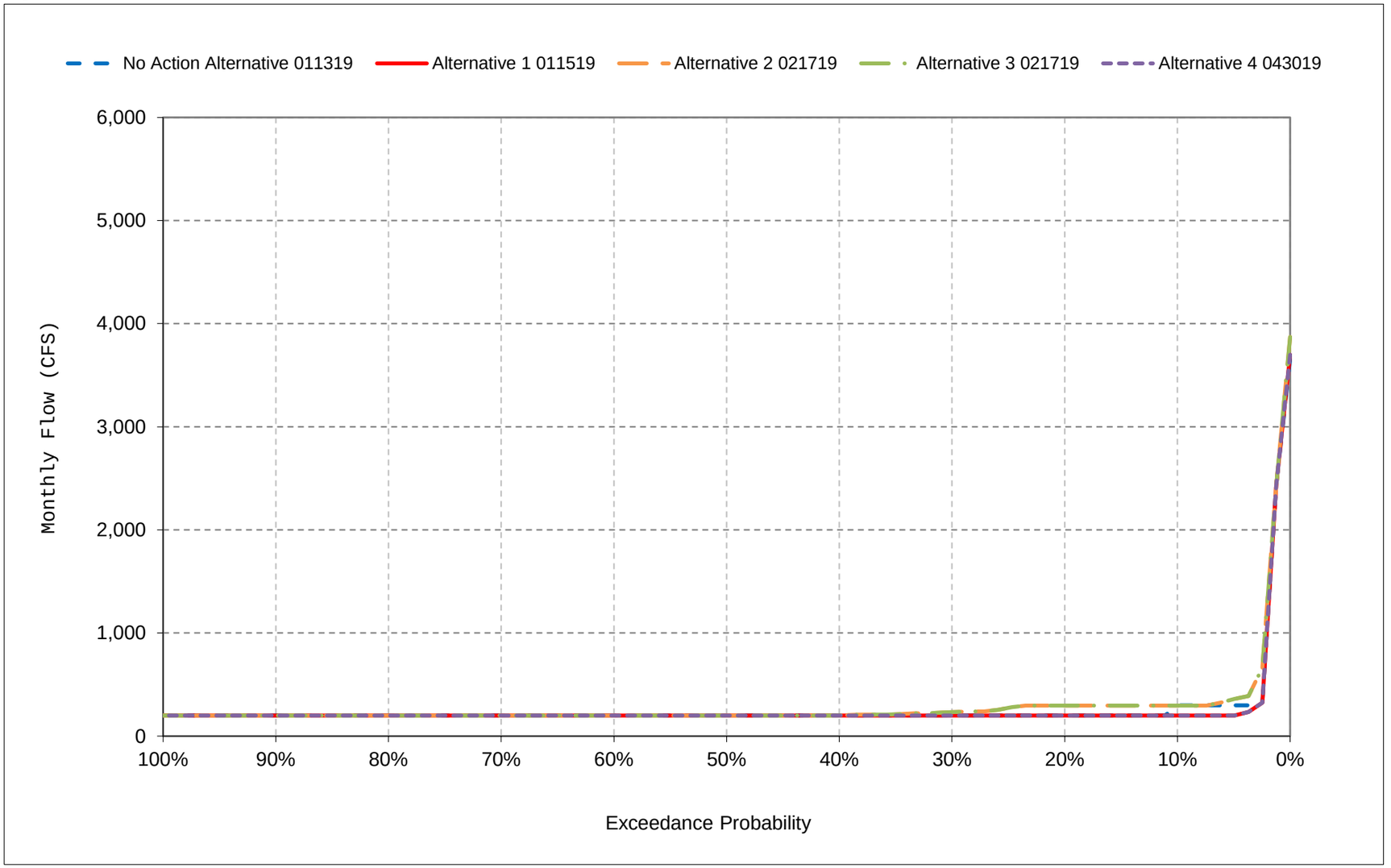
Figure 37-7. Stanislaus River Flow below Goodwin, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

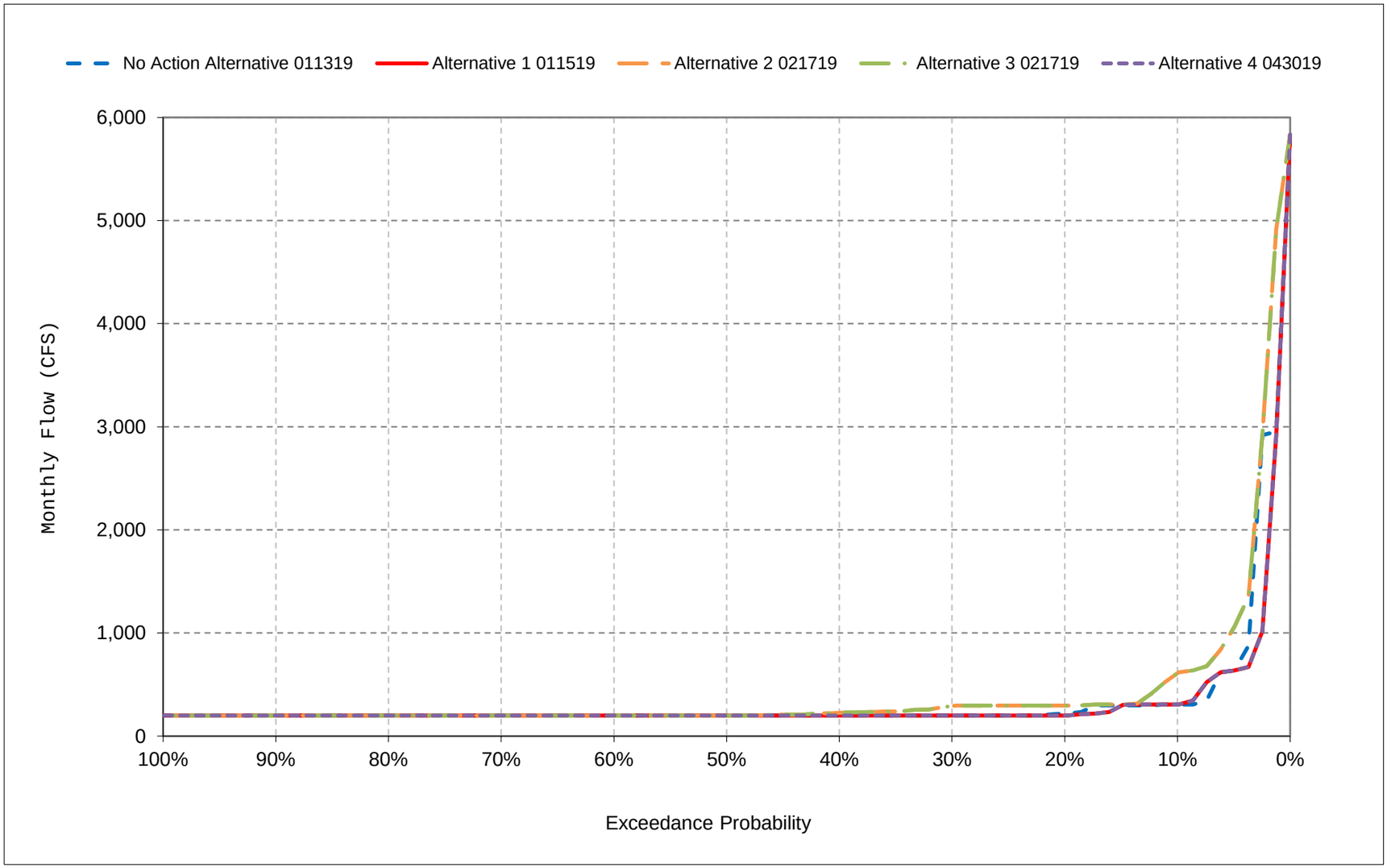
Figure 37-8. Stanislaus River Flow below Goodwin, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

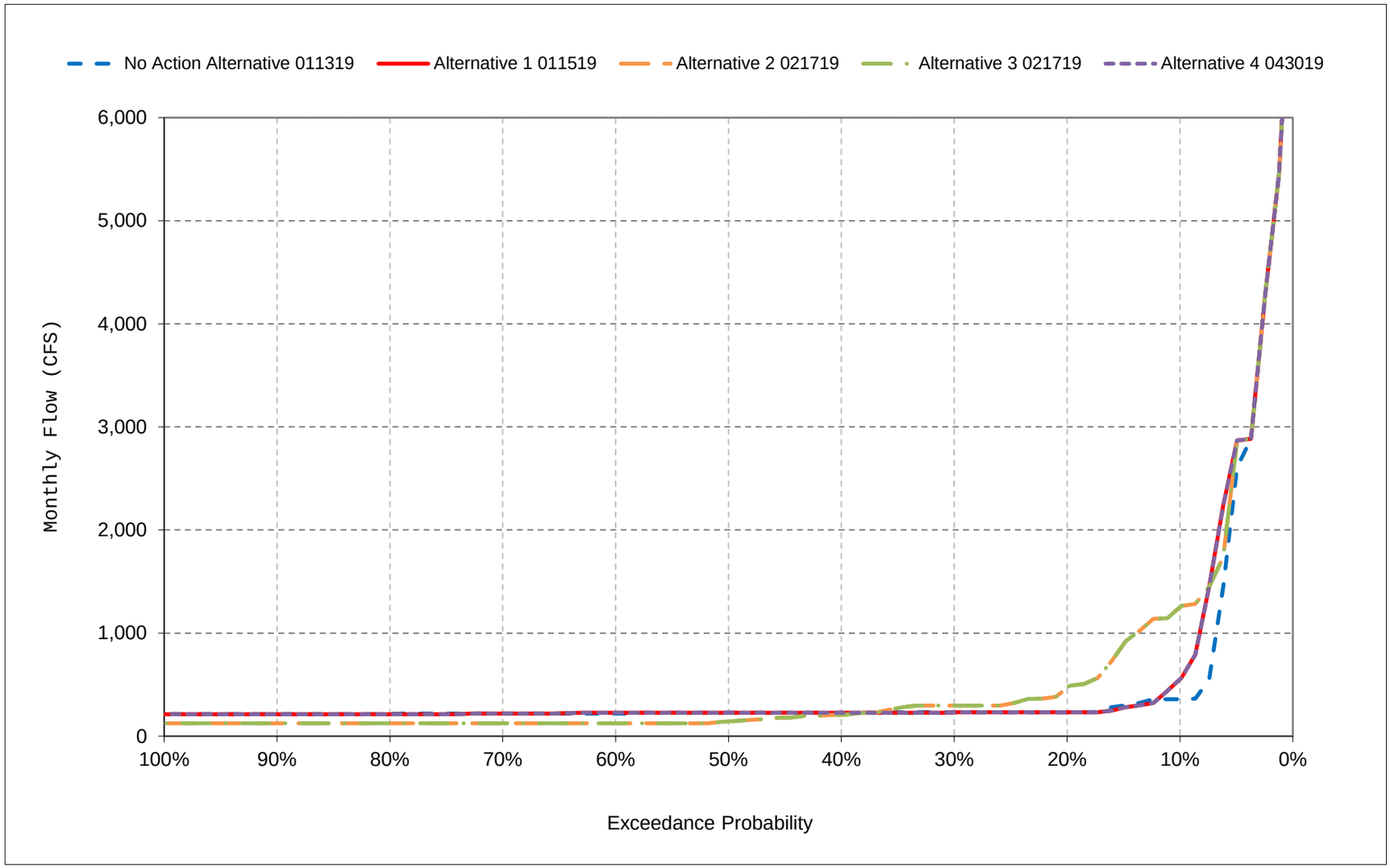
Figure 37-9. Stanislaus River Flow below Goodwin, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

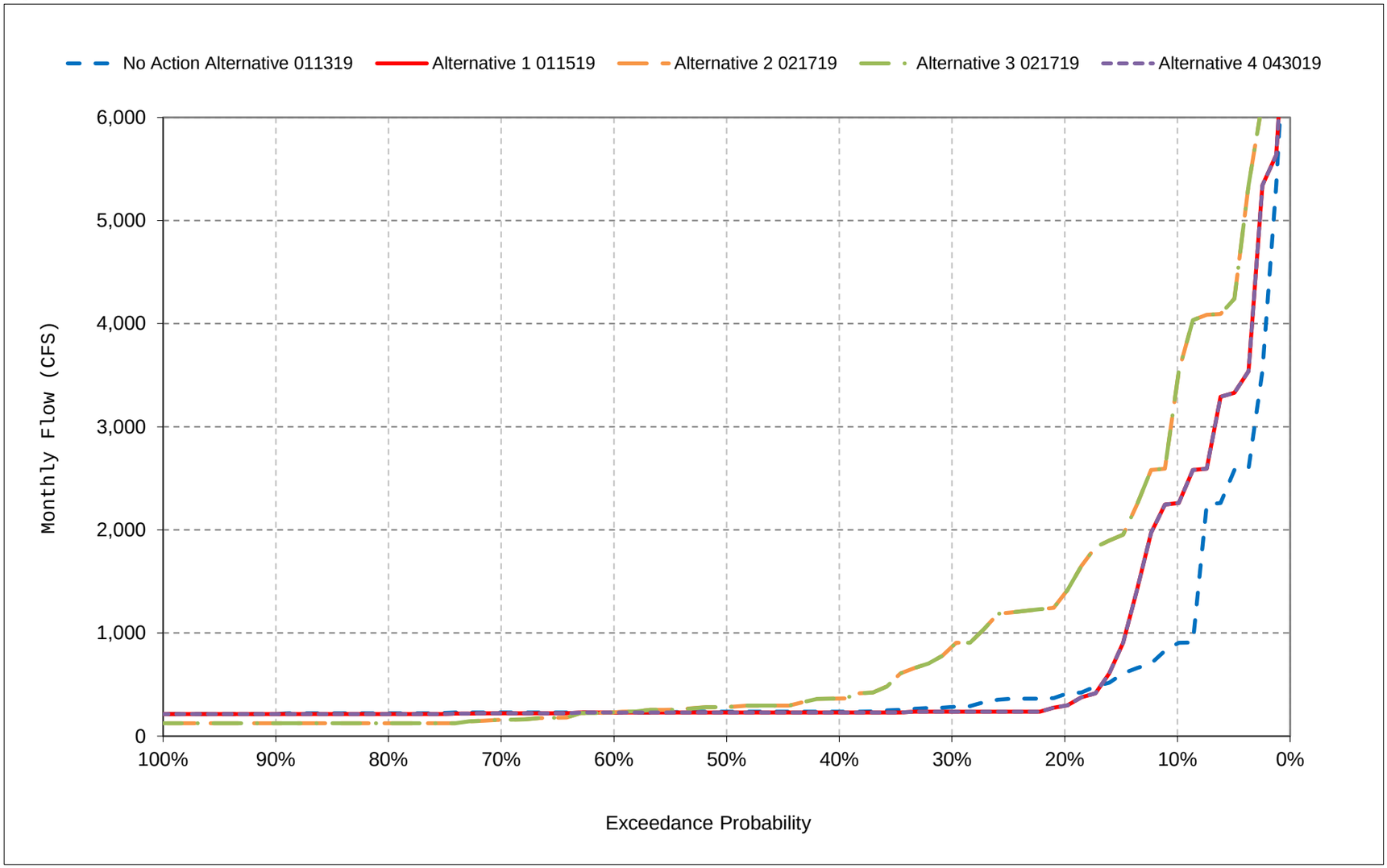
Figure 37-10. Stanislaus River Flow below Goodwin, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

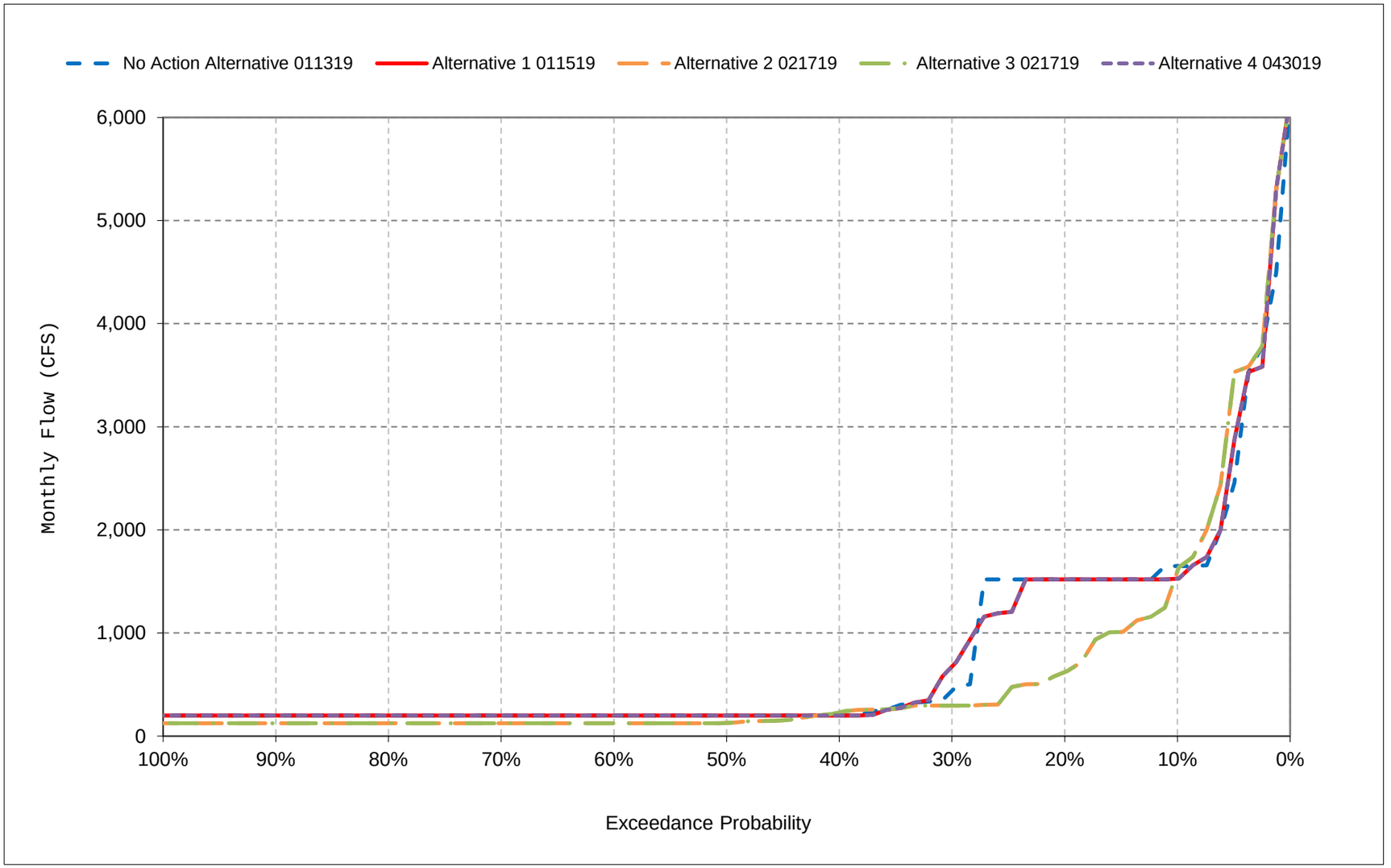
Figure 37-11. Stanislaus River Flow below Goodwin, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

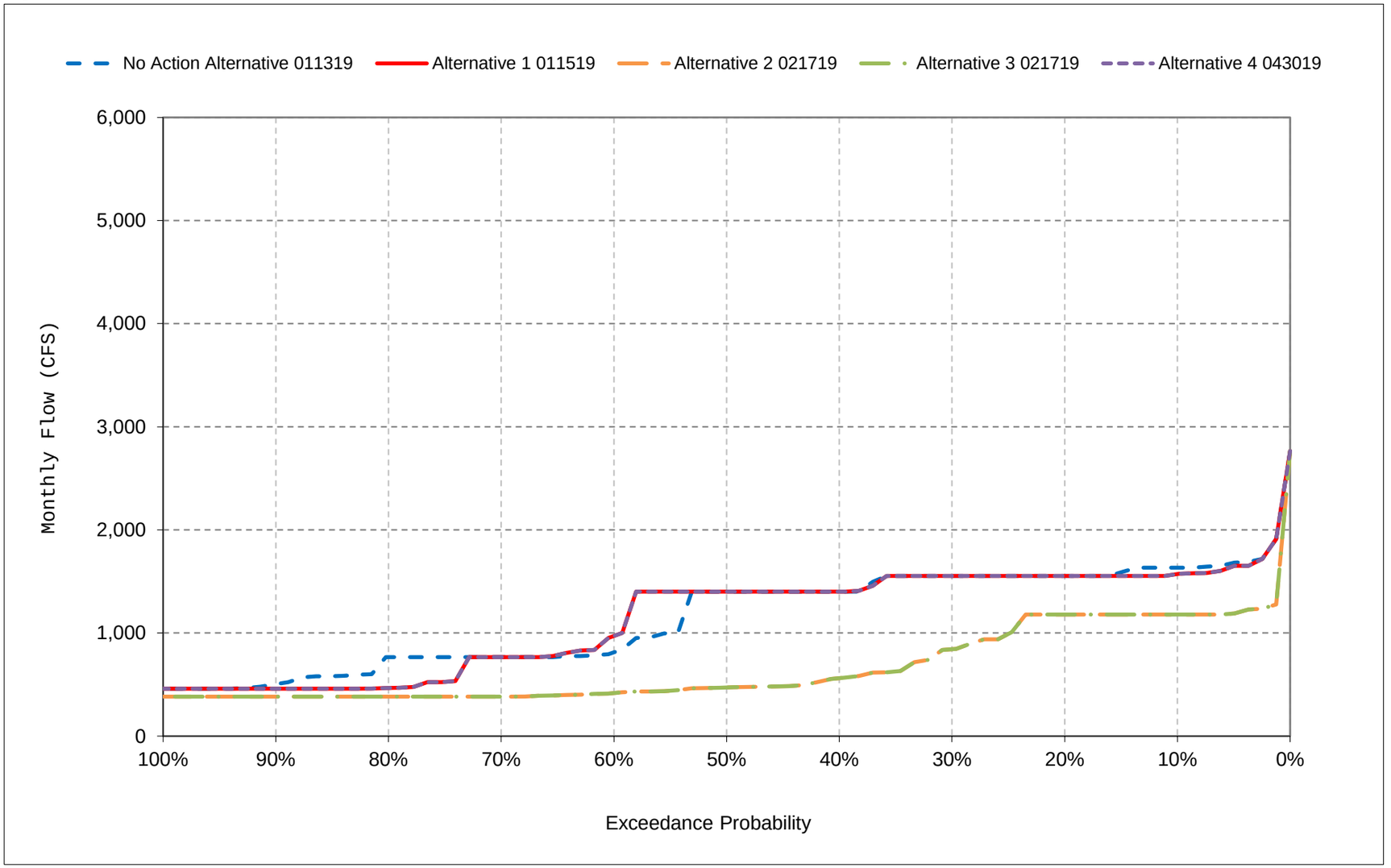
Figure 37-12. Stanislaus River Flow below Goodwin, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

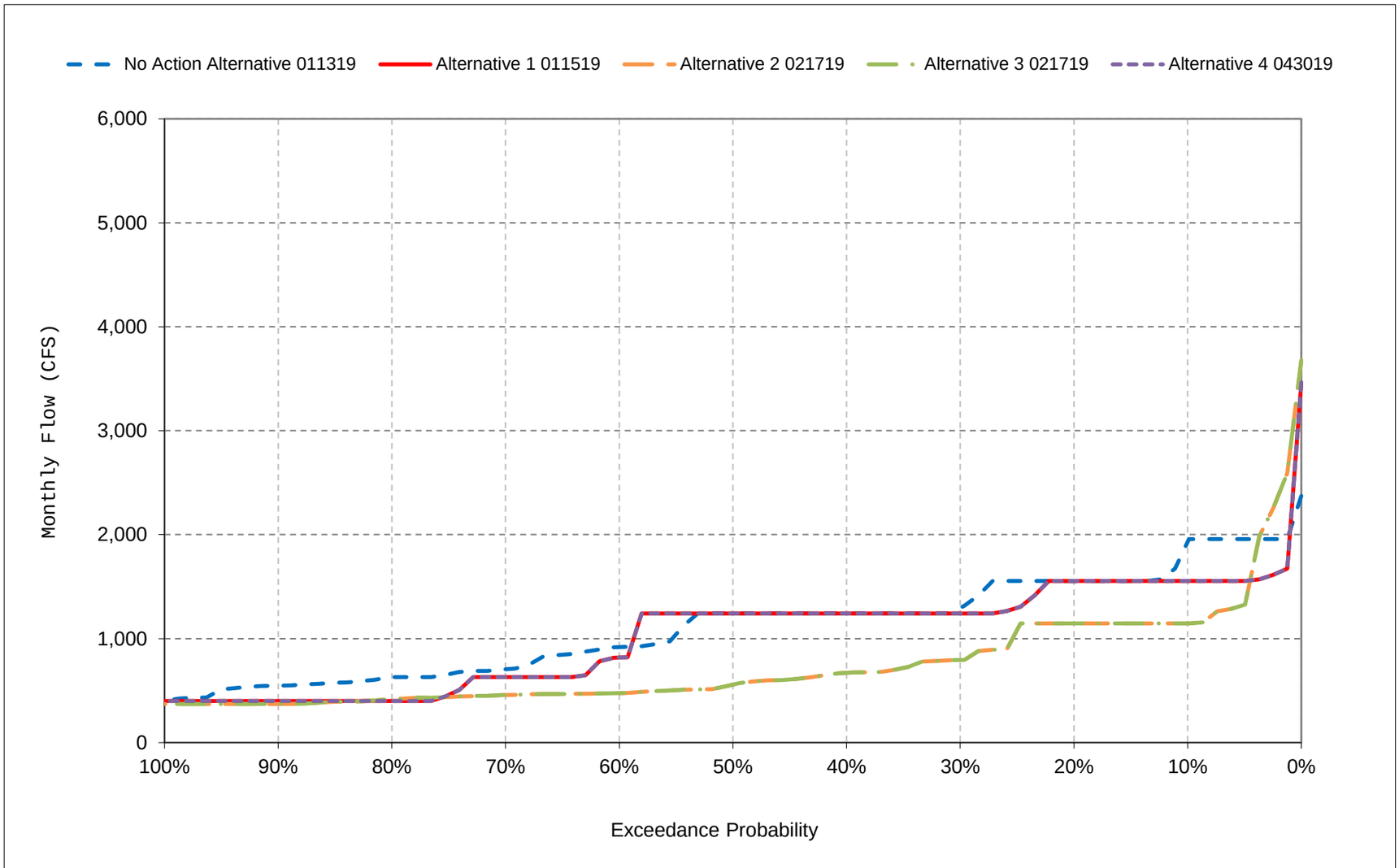
Figure 37-13. Stanislaus River Flow below Goodwin, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

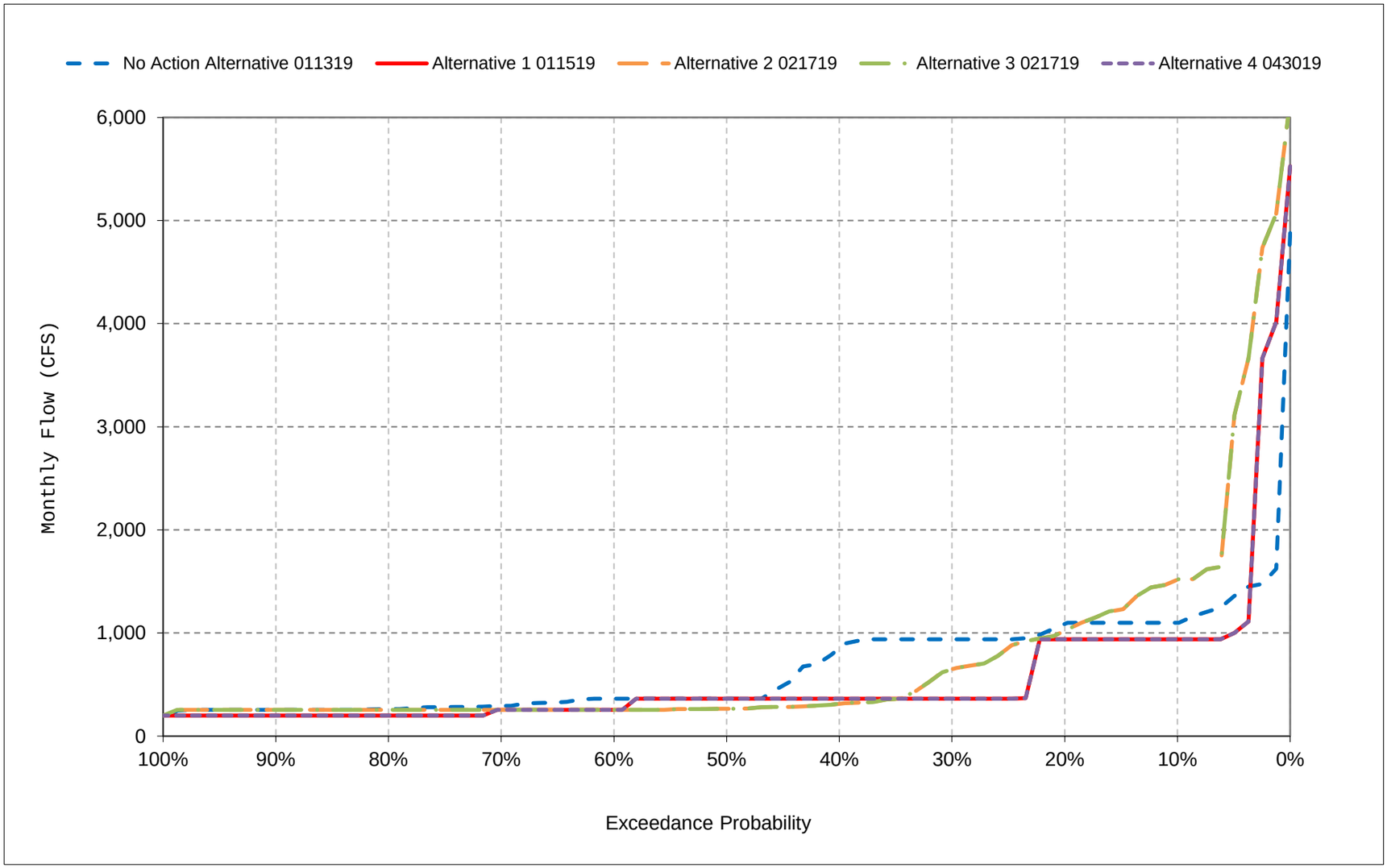
Figure 37-14. Stanislaus River Flow below Goodwin, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

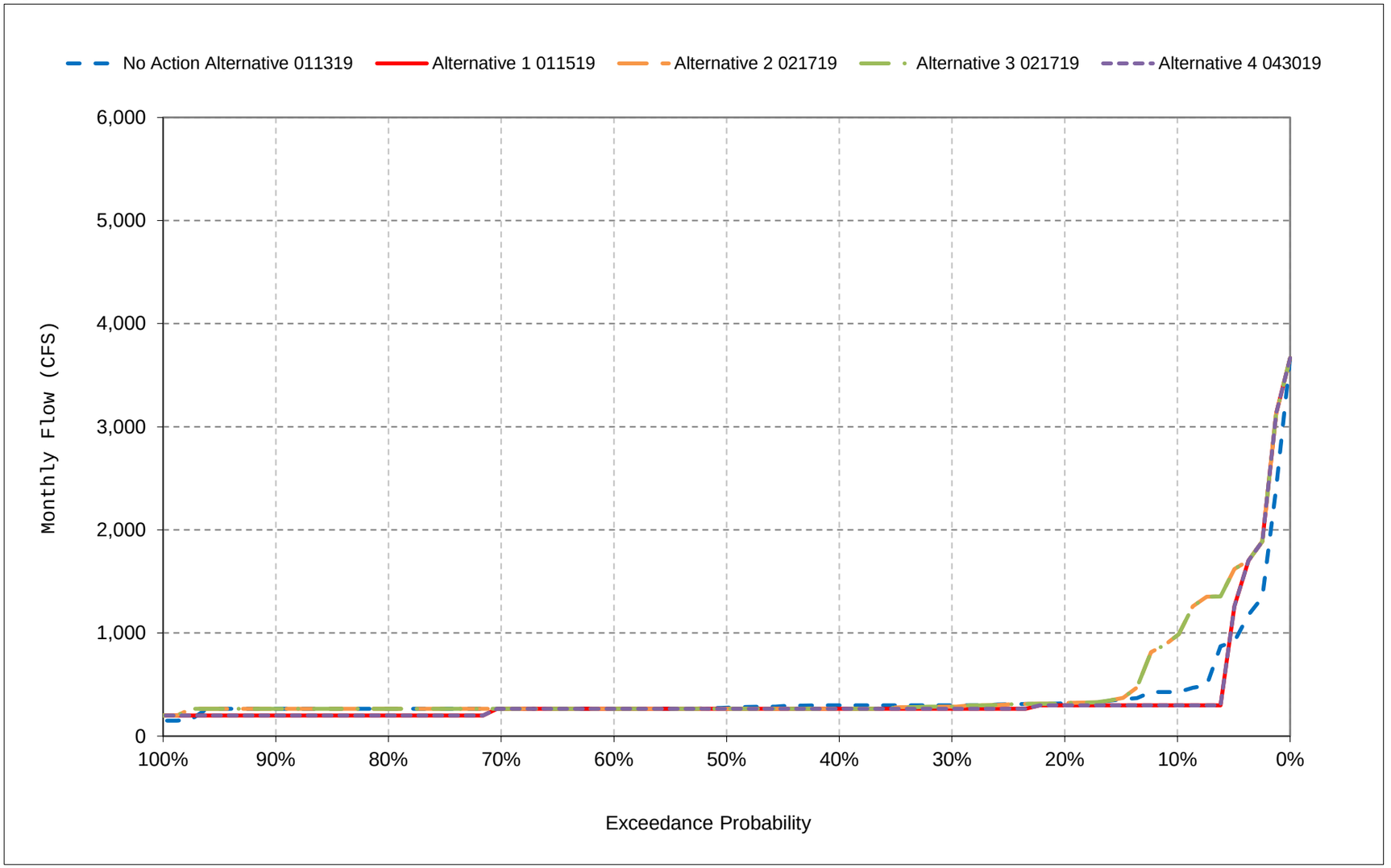
Figure 37-15. Stanislaus River Flow below Goodwin, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

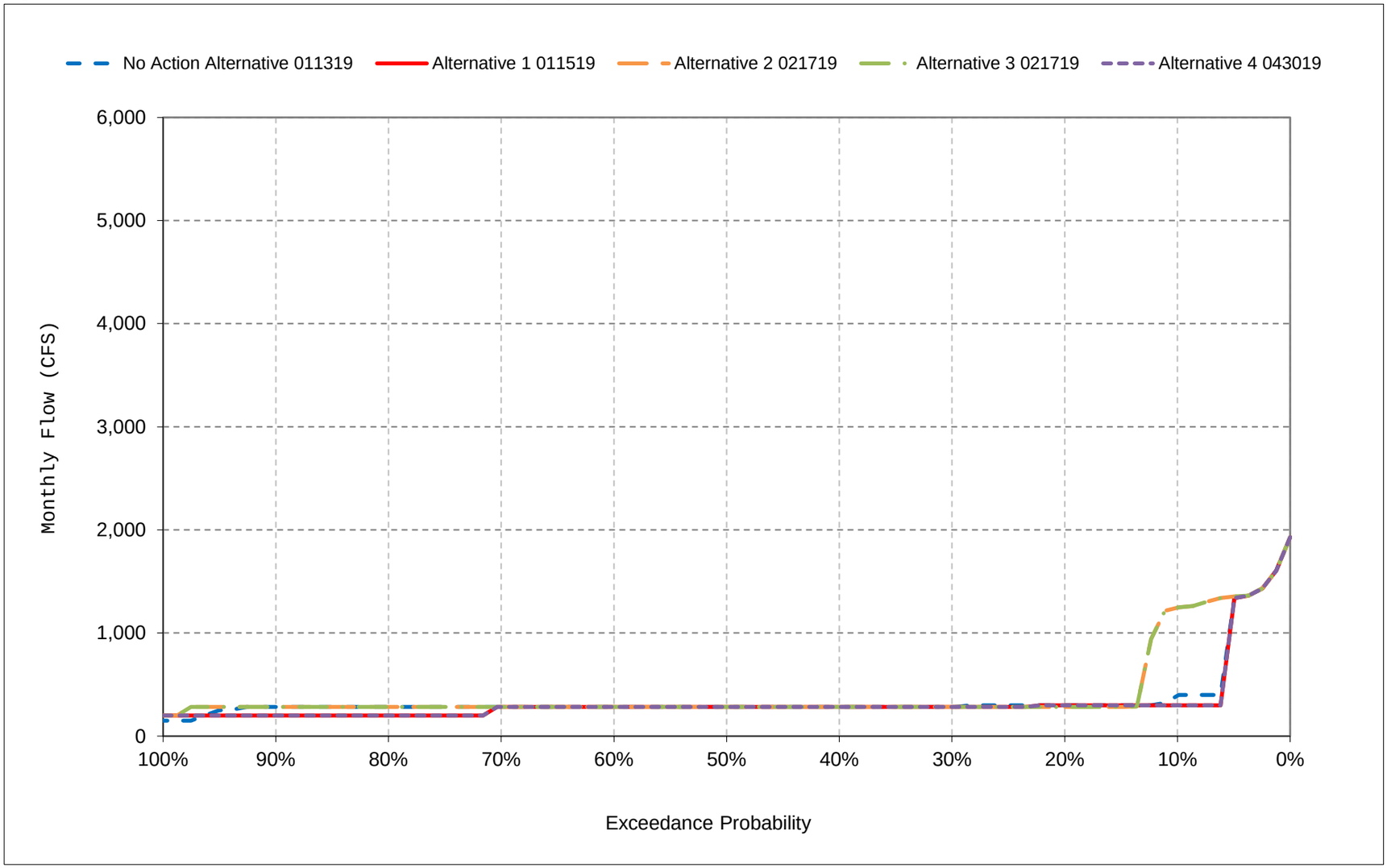
Figure 37-16. Stanislaus River Flow below Goodwin, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

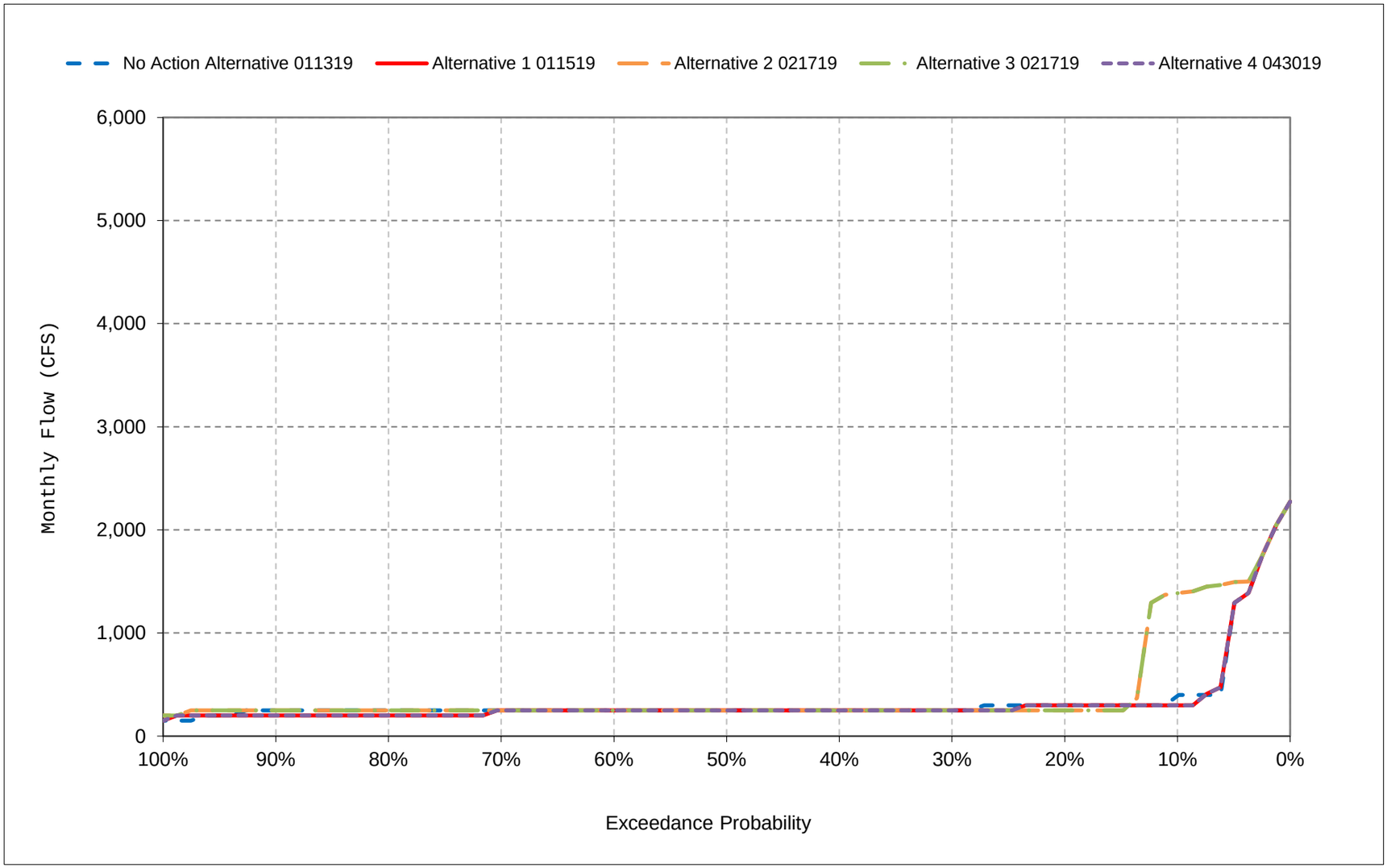
Figure 37-17. Stanislaus River Flow below Goodwin, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 37-18. Stanislaus River Flow below Goodwin, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 38-1. Stanislaus River Flow at Mouth, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,122	463	442	576	1,083	1,969	1,886	1,989	1,535	752	587	646
20%	1,029	384	368	427	643	1,708	1,769	1,647	1,330	606	488	507
30%	982	348	319	368	469	521	1,696	1,536	1,221	502	462	473
40%	958	337	304	347	399	433	1,610	1,362	1,053	443	445	443
50%	879	319	290	337	368	367	1,485	1,289	634	415	445	439
60%	826	292	281	326	331	336	936	869	510	384	416	428
70%	772	267	262	312	279	314	806	755	406	374	395	389
80%	755	260	241	295	253	241	693	647	361	343	371	360
90%	676	248	224	273	230	207	579	577	317	311	331	318
Long Term												
Full Simulation Period[a]	903	398	449	630	717	902	1,279	1,207	883	547	505	533
Water Year Types[b,c]												
Wet (23%)	1,120	701	994	1,115	1,404	2,256	1,779	1,828	1,456	977	831	946
Above Normal (24%)	918	316	288	777	786	801	1,410	1,244	1,254	534	467	480
Below Normal (10%)	950	315	291	430	517	539	1,556	1,378	668	449	440	429
Dry (16%)	832	309	311	349	405	345	1,064	1,002	531	377	397	399
Critical (27%)	722	294	266	317	319	286	755	696	336	323	347	342

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,094	401	403	765	2,628	1,947	1,886	1,726	1,352	633	569	673
20%	1,036	376	338	425	541	1,638	1,817	1,610	1,061	536	482	493
30%	975	347	314	364	449	1,054	1,705	1,443	800	479	458	462
40%	966	335	304	350	388	415	1,553	1,335	615	427	445	441
50%	901	318	288	336	340	362	1,525	1,294	531	398	435	437
60%	821	292	280	325	293	334	976	841	408	376	402	400
70%	766	267	262	308	257	312	767	631	341	309	360	382
80%	751	260	239	294	237	241	545	459	287	282	318	337
90%	659	248	223	273	227	207	460	419	243	231	274	282
Long Term												
Full Simulation Period[a]	898	392	424	661	846	911	1,268	1,120	769	530	482	520
Water Year Types[b,c]												
Wet (23%)	1,115	677	866	1,120	1,961	2,431	1,718	1,802	1,816	1,095	817	945
Above Normal (24%)	964	313	299	808	806	733	1,758	1,353	658	446	457	471
Below Normal (10%)	972	315	291	694	700	421	1,712	1,419	557	445	438	423
Dry (16%)	780	309	320	339	320	345	859	727	412	355	391	395
Critical (27%)	686	294	266	310	286	271	514	441	254	252	284	309

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-29**	**-62**	**-40**	188	1,545	**-22**	0	**-264**	**-183**	**-119**	**-18**	28
20%	7	**-8**	**-29**	**-2**	**-102**	**-70**	48	**-37**	**-269**	**-70**	**-7**	**-14**
30%	**-7**	**-1**	**-4**	**-4**	**-20**	532	8	**-94**	**-421**	**-23**	**-4**	**-11**
40%	7	**-2**	**-1**	2	**-11**	**-18**	**-56**	**-27**	**-438**	**-16**	0	**-3**
50%	23	**-1**	**-1**	**-1**	**-28**	**-5**	41	5	**-103**	**-17**	**-10**	**-2**
60%	**-5**	0	**0**	**0**	**-38**	**-2**	40	**-28**	**-103**	**-7**	**-14**	**-27**
70%	**-6**	0	0	**-4**	**-22**	**-2**	**-39**	**-124**	**-66**	**-65**	**-34**	**-7**
80%	**-4**	0	**-2**	**-1**	**-16**	0	**-149**	**-188**	**-73**	**-61**	**-52**	**-24**
90%	**-17**	0	**-1**	**0**	**-2**	0	**-118**	**-158**	**-74**	**-80**	**-56**	**-36**
Long Term												
Full Simulation Period[a]	**-4**	**-6**	**-26**	31	129	8	**-11**	**-87**	**-114**	**-17**	**-24**	**-13**
Water Year Types[b,c]												
Wet (23%)	**-5**	**-24**	**-128**	4	557	175	**-61**	**-26**	359	118	**-14**	**-1**
Above Normal (24%)	46	**-3**	11	31	20	**-68**	347	109	**-596**	**-88**	**-9**	**-9**
Below Normal (10%)	22	0	0	264	183	**-118**	156	41	**-111**	**-4**	**-2**	**-6**
Dry (16%)	**-51**	0	9	**-10**	**-86**	0	**-205**	**-274**	**-119**	**-21**	**-6**	**-4**
Critical (27%)	**-36**	0	0	**-7**	**-33**	**-15**	**-241**	**-255**	**-82**	**-72**	**-64**	**-33**

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 38-2. Stanislaus River Flow at Mouth, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,122	463	442	576	1,083	1,969	1,886	1,989	1,535	752	587	646
20%	1,029	384	368	427	643	1,708	1,769	1,647	1,330	606	488	507
30%	982	348	319	368	469	521	1,696	1,536	1,221	502	462	473
40%	958	337	304	347	399	433	1,610	1,362	1,053	443	445	443
50%	879	319	290	337	368	367	1,485	1,289	634	415	445	439
60%	826	292	281	326	331	336	936	869	510	384	416	428
70%	772	267	262	312	279	314	806	755	406	374	395	389
80%	755	260	241	295	253	241	693	647	361	343	371	360
90%	676	248	224	273	230	207	579	577	317	311	331	318
Long Term												
Full Simulation Period[a]	903	398	449	630	717	902	1,279	1,207	883	547	505	533
Water Year Types[b,c]												
Wet (23%)	1,120	701	994	1,115	1,404	2,256	1,779	1,828	1,456	977	831	946
Above Normal (24%)	918	316	288	777	786	801	1,410	1,244	1,254	534	467	480
Below Normal (10%)	950	315	291	430	517	539	1,556	1,378	668	449	440	429
Dry (16%)	832	309	311	349	405	345	1,064	1,002	531	377	397	399
Critical (27%)	722	294	266	317	319	286	755	696	336	323	347	342

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	645	505	721	1,305	3,507	1,749	1,494	1,335	1,729	1,293	1,489	1,620
20%	513	432	400	636	1,453	977	1,229	1,243	1,227	555	487	505
30%	367	379	348	421	1,006	476	907	984	946	479	457	451
40%	319	348	321	355	479	395	675	781	677	433	445	439
50%	299	333	304	271	364	300	555	573	523	406	440	435
60%	290	303	288	252	314	265	521	542	408	380	416	431
70%	261	283	268	226	270	240	498	514	374	371	396	395
80%	222	264	248	209	205	174	448	479	343	347	374	360
90%	190	248	225	182	147	145	383	447	302	311	347	320
Long Term												
Full Simulation Period[a]	381	424	520	683	1,157	757	799	844	954	619	570	610
Water Year Types[b,c]												
Wet (23%)	699	782	1,249	1,226	2,960	1,902	1,411	1,508	1,951	1,327	1,101	1,283
Above Normal (24%)	356	343	334	910	984	735	871	851	1,170	495	457	461
Below Normal (10%)	313	318	294	553	760	362	579	635	524	445	438	422
Dry (16%)	265	309	311	354	533	270	462	586	500	377	404	402
Critical (27%)	218	294	262	249	270	219	483	494	321	328	359	355

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-478**	42	279	729	2,423	**-221**	**-392**	**-654**	194	541	902	974
20%	**-516**	48	33	210	810	**-731**	**-540**	**-404**	**-103**	**-51**	**-1**	**-3**
30%	**-615**	31	29	53	537	**-45**	**-789**	**-552**	**-275**	**-23**	**-5**	**-22**
40%	**-640**	11	17	7	80	**-38**	**-935**	**-581**	**-376**	**-9**	0	**-4**
50%	**-580**	14	14	**-66**	**-4**	**-66**	**-930**	**-716**	**-111**	**-10**	**-4**	**-4**
60%	**-536**	11	8	**-74**	**-17**	**-70**	**-415**	**-327**	**-102**	**-3**	0	3
70%	**-510**	16	6	**-86**	**-9**	**-73**	**-308**	**-241**	**-32**	**-3**	2	6
80%	**-532**	4	6	**-86**	**-48**	**-68**	**-245**	**-168**	**-18**	4	4	**0**
90%	**-486**	**0**	1	**-91**	**-82**	**-63**	**-196**	**-131**	**-15**	1	16	2
Long Term												
Full Simulation Period[a]	**-522**	26	70	53	440	**-145**	**-480**	**-363**	71	72	64	77
Water Year Types[b,c]												
Wet (23%)	**-421**	81	256	111	1,556	**-355**	**-367**	**-321**	495	350	270	337
Above Normal (24%)	**-563**	27	46	133	197	**-66**	**-540**	**-393**	**-84**	**-40**	**-9**	**-18**
Below Normal (10%)	**-637**	3	3	123	243	**-177**	**-978**	**-743**	**-144**	**-4**	**-2**	**-7**
Dry (16%)	**-567**	**0**	**0**	6	128	**-75**	**-602**	**-416**	**-31**	1	6	3
Critical (27%)	**-504**	**0**	**-4**	**-68**	**-49**	**-67**	**-271**	**-202**	**-15**	5	12	13

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 38-3. Stanislaus River Flow at Mouth, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,122	463	442	576	1,083	1,969	1,886	1,989	1,535	752	587	646
20%	1,029	384	368	427	643	1,708	1,769	1,647	1,330	606	488	507
30%	982	348	319	368	469	521	1,696	1,536	1,221	502	462	473
40%	958	337	304	347	399	433	1,610	1,362	1,053	443	445	443
50%	879	319	290	337	368	367	1,485	1,289	634	415	445	439
60%	826	292	281	326	331	336	936	869	510	384	416	428
70%	772	267	262	312	279	314	806	755	406	374	395	389
80%	755	260	241	295	253	241	693	647	361	343	371	360
90%	676	248	224	273	230	207	579	577	317	311	331	318
Long Term												
Full Simulation Period[a]	903	398	449	630	717	902	1,279	1,207	883	547	505	533
Water Year Types[b,c]												
Wet (23%)	1,120	701	994	1,115	1,404	2,256	1,779	1,828	1,456	977	831	946
Above Normal (24%)	918	316	288	777	786	801	1,410	1,244	1,254	534	467	480
Below Normal (10%)	950	315	291	430	517	539	1,556	1,378	668	449	440	429
Dry (16%)	832	309	311	349	405	345	1,064	1,002	531	377	397	399
Critical (27%)	722	294	266	317	319	286	755	696	336	323	347	342

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	645	505	721	1,306	3,507	1,749	1,494	1,335	1,729	1,293	1,489	1,620
20%	513	432	400	636	1,453	977	1,229	1,243	1,227	555	487	505
30%	367	379	348	421	1,006	476	907	984	946	479	457	451
40%	319	348	321	355	479	395	675	781	677	433	445	439
50%	299	333	304	271	364	300	555	573	523	406	440	435
60%	290	303	288	252	314	265	521	542	408	380	416	431
70%	261	283	268	226	269	240	498	514	375	371	396	395
80%	222	264	248	209	205	174	448	479	343	346	374	360
90%	190	248	225	182	147	145	383	447	302	311	347	320
Long Term												
Full Simulation Period[a]	381	424	520	683	1,157	757	799	844	954	619	570	610
Water Year Types[b,c]												
Wet (23%)	699	782	1,249	1,226	2,960	1,902	1,411	1,508	1,951	1,327	1,101	1,283
Above Normal (24%)	356	343	334	910	984	735	871	851	1,171	495	457	461
Below Normal (10%)	313	318	294	553	760	362	579	635	524	445	438	422
Dry (16%)	265	309	311	354	533	270	462	586	500	377	404	402
Critical (27%)	218	294	262	249	270	219	483	494	321	328	359	355

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-478**	42	279	730	2,423	**-221**	**-392**	**-654**	194	541	902	974
20%	**-516**	48	33	210	810	**-731**	**-540**	**-404**	**-103**	**-51**	**-1**	**-3**
30%	**-615**	31	29	53	537	**-45**	**-789**	**-552**	**-275**	**-23**	**-5**	**-22**
40%	**-640**	11	17	7	80	**-38**	**-935**	**-581**	**-376**	**-9**	0	**-4**
50%	**-580**	14	14	**-66**	**-4**	**-66**	**-930**	**-716**	**-111**	**-10**	**-4**	**-4**
60%	**-536**	11	8	**-74**	**-17**	**-70**	**-415**	**-327**	**-102**	**-3**	0	3
70%	**-510**	16	6	**-86**	**-10**	**-73**	**-308**	**-241**	**-32**	**-3**	2	6
80%	**-532**	4	6	**-86**	**-48**	**-68**	**-245**	**-168**	**-18**	3	4	**0**
90%	**-486**	**0**	1	**-91**	**-82**	**-63**	**-196**	**-131**	**-15**	1	16	2
Long Term												
Full Simulation Period[a]	**-522**	26	70	53	440	**-145**	**-480**	**-363**	71	72	64	77
Water Year Types[b,c]												
Wet (23%)	**-421**	81	256	111	1,556	**-355**	**-367**	**-320**	495	350	270	337
Above Normal (24%)	**-563**	27	46	133	197	**-66**	**-540**	**-393**	**-84**	**-40**	**-9**	**-18**
Below Normal (10%)	**-637**	3	3	123	243	**-177**	**-978**	**-743**	**-144**	**-4**	**-2**	**-7**
Dry (16%)	**-567**	**0**	**0**	6	128	**-75**	**-602**	**-416**	**-31**	0	6	3
Critical (27%)	**-504**	**0**	**-4**	**-68**	**-49**	**-67**	**-271**	**-202**	**-14**	5	12	13

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 38-4. Stanislaus River Flow at Mouth, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,122	463	442	576	1,083	1,969	1,886	1,989	1,535	752	587	646
20%	1,029	384	368	427	643	1,708	1,769	1,647	1,330	606	488	507
30%	982	348	319	368	469	521	1,696	1,536	1,221	502	462	473
40%	958	337	304	347	399	433	1,610	1,362	1,053	443	445	443
50%	879	319	290	337	368	367	1,485	1,289	634	415	445	439
60%	826	292	281	326	331	336	936	869	510	384	416	428
70%	772	267	262	312	279	314	806	755	406	374	395	389
80%	755	260	241	295	253	241	693	647	361	343	371	360
90%	676	248	224	273	230	207	579	577	317	311	331	318
Long Term												
Full Simulation Period[a]	903	398	449	630	717	902	1,279	1,207	883	547	505	533
Water Year Types[b,c]												
Wet (23%)	1,120	701	994	1,115	1,404	2,256	1,779	1,828	1,456	977	831	946
Above Normal (24%)	918	316	288	777	786	801	1,410	1,244	1,254	534	467	480
Below Normal (10%)	950	315	291	430	517	539	1,556	1,378	668	449	440	429
Dry (16%)	832	309	311	349	405	345	1,064	1,002	531	377	397	399
Critical (27%)	722	294	266	317	319	286	755	696	336	323	347	342

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,094	401	403	765	2,628	1,947	1,886	1,726	1,352	633	569	673
20%	1,036	376	338	425	541	1,638	1,817	1,610	1,061	536	482	493
30%	975	347	314	364	449	1,054	1,705	1,443	800	479	458	462
40%	966	335	304	350	388	415	1,553	1,335	615	427	445	441
50%	901	318	288	336	340	362	1,525	1,294	531	398	435	437
60%	821	292	280	325	293	334	976	841	408	376	402	400
70%	766	267	262	308	257	312	767	631	341	309	360	382
80%	751	260	239	294	237	241	545	459	287	282	318	337
90%	659	248	223	273	227	207	460	419	243	231	274	282
Long Term												
Full Simulation Period[a]	898	392	424	661	846	911	1,268	1,120	769	530	482	520
Water Year Types[b,c]												
Wet (23%)	1,115	677	866	1,120	1,961	2,431	1,718	1,802	1,816	1,095	817	945
Above Normal (24%)	964	313	299	808	806	733	1,758	1,353	658	446	457	471
Below Normal (10%)	972	315	291	694	700	421	1,712	1,419	557	445	438	423
Dry (16%)	780	309	320	339	320	345	859	727	412	355	391	395
Critical (27%)	686	294	266	310	286	271	514	441	254	252	284	309

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-29**	**-62**	**-40**	188	1,545	**-22**	0	**-264**	**-183**	**-119**	**-18**	28
20%	7	**-8**	**-29**	**-2**	**-102**	**-70**	48	**-37**	**-269**	**-70**	**-7**	**-14**
30%	**-7**	**-1**	**-4**	**-4**	**-20**	532	8	**-94**	**-421**	**-23**	**-4**	**-11**
40%	7	**-2**	**-1**	2	**-11**	**-18**	**-56**	**-27**	**-438**	**-16**	0	**-3**
50%	23	**-1**	**-1**	**-1**	**-28**	**-5**	41	5	**-103**	**-17**	**-10**	**-2**
60%	**-5**	0	**0**	**0**	**-38**	**-2**	40	**-28**	**-103**	**-7**	**-14**	**-27**
70%	**-6**	0	0	**-4**	**-22**	**-2**	**-39**	**-124**	**-66**	**-65**	**-34**	**-7**
80%	**-4**	0	**-2**	**-1**	**-16**	0	**-149**	**-188**	**-73**	**-61**	**-52**	**-24**
90%	**-17**	0	**-1**	**0**	**-2**	0	**-118**	**-158**	**-74**	**-80**	**-56**	**-36**
Long Term												
Full Simulation Period[a]	**-4**	**-6**	**-26**	31	129	8	**-11**	**-87**	**-114**	**-17**	**-24**	**-13**
Water Year Types[b,c]												
Wet (23%)	**-5**	**-24**	**-128**	4	557	175	**-61**	**-26**	359	118	**-14**	**-1**
Above Normal (24%)	46	**-3**	11	31	20	**-68**	347	109	**-596**	**-88**	**-9**	**-9**
Below Normal (10%)	22	0	0	264	183	**-118**	156	41	**-111**	**-4**	**-2**	**-6**
Dry (16%)	**-51**	0	9	**-10**	**-86**	0	**-205**	**-274**	**-119**	**-21**	**-6**	**-4**
Critical (27%)	**-36**	0	0	**-7**	**-33**	**-15**	**-241**	**-255**	**-82**	**-72**	**-64**	**-33**

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

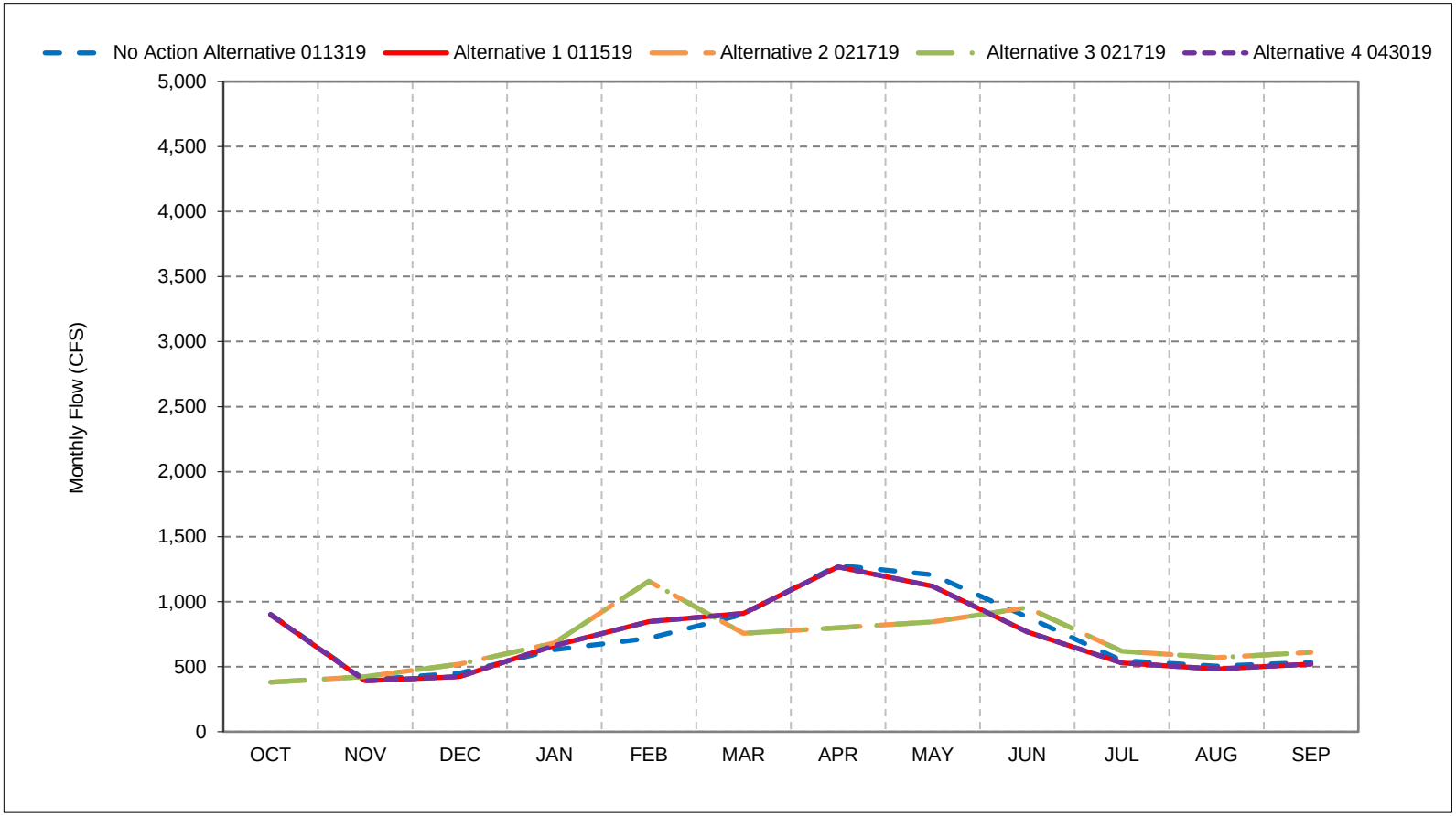
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

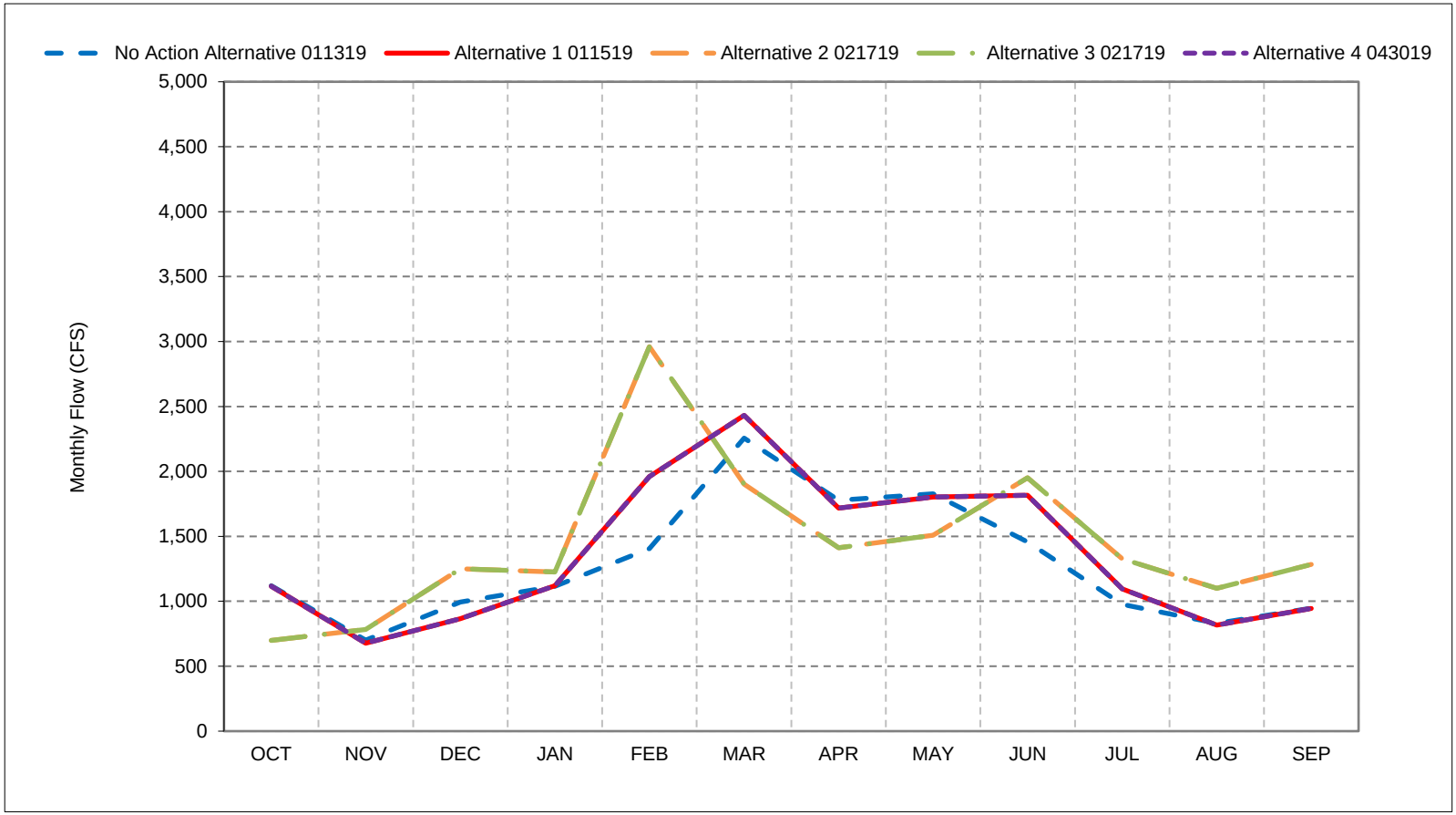
f New Melones forecasts are used as the basis of water operations.

Figure 38-1. Stanislaus River Flow at Mouth, Long-Term Average Flow



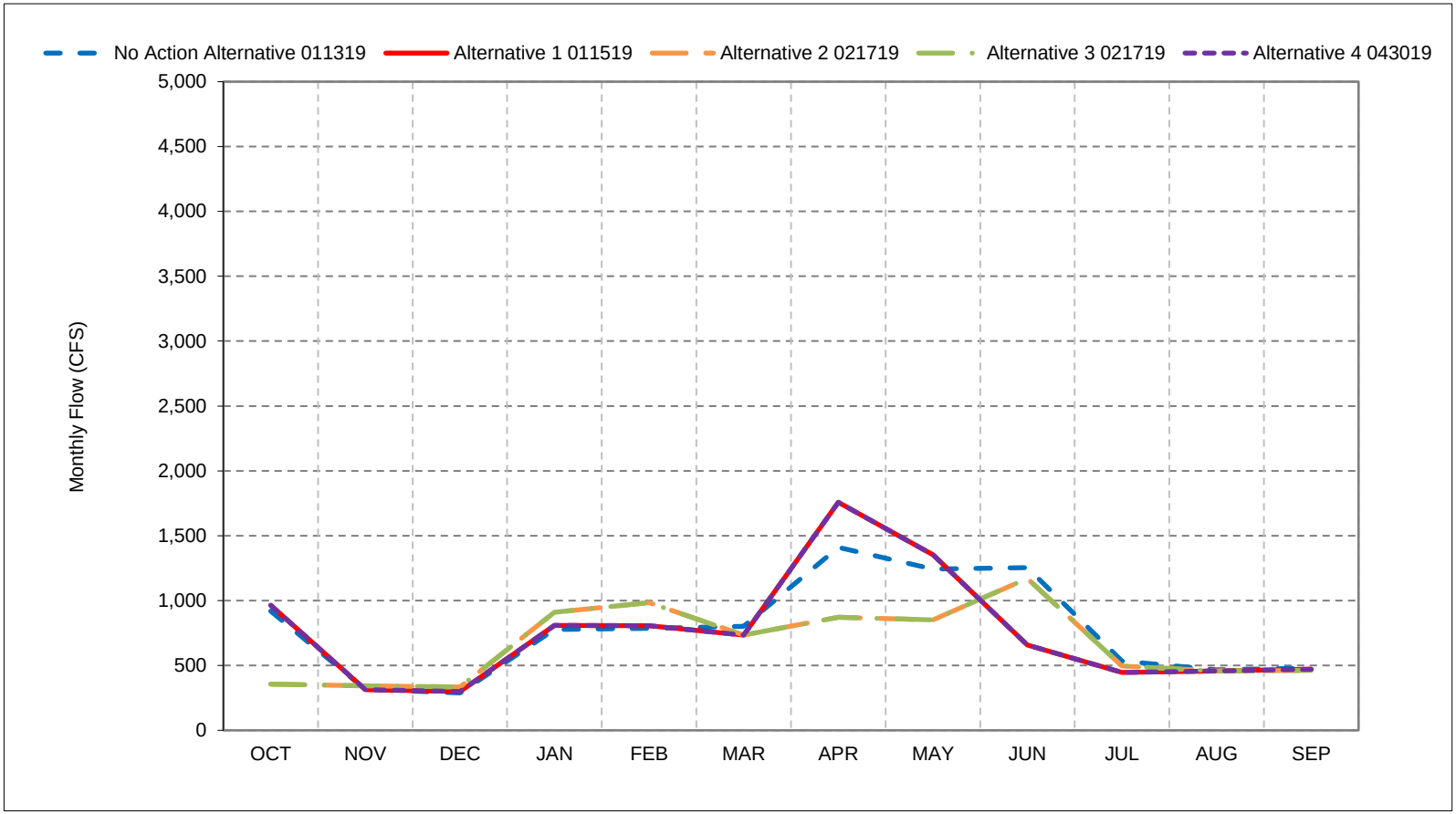
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 38-2. Stanislaus River Flow at Mouth, Wet Year Average Flow



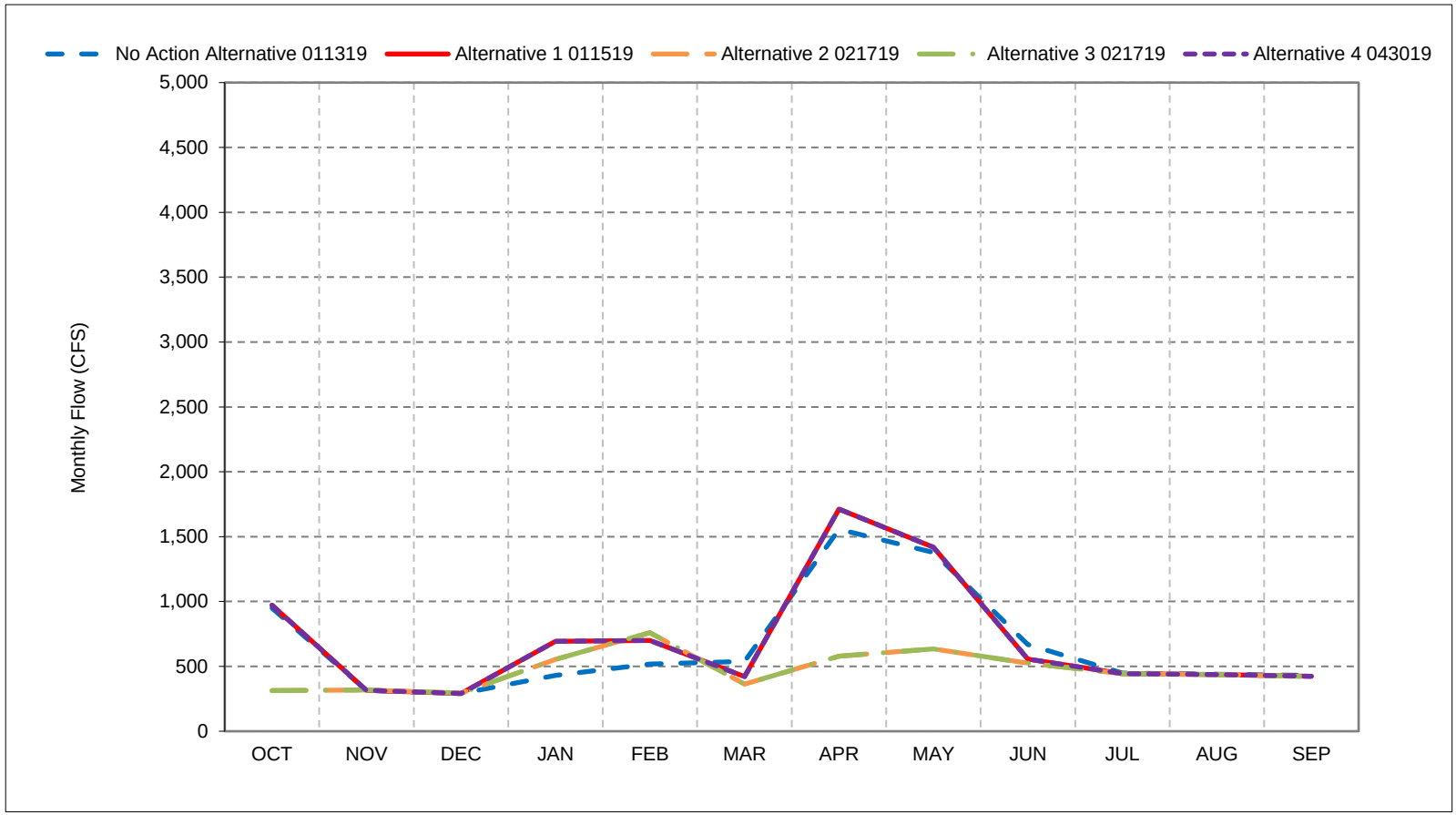
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 38-3. Stanislaus River Flow at Mouth, Above Normal Year Average Flow



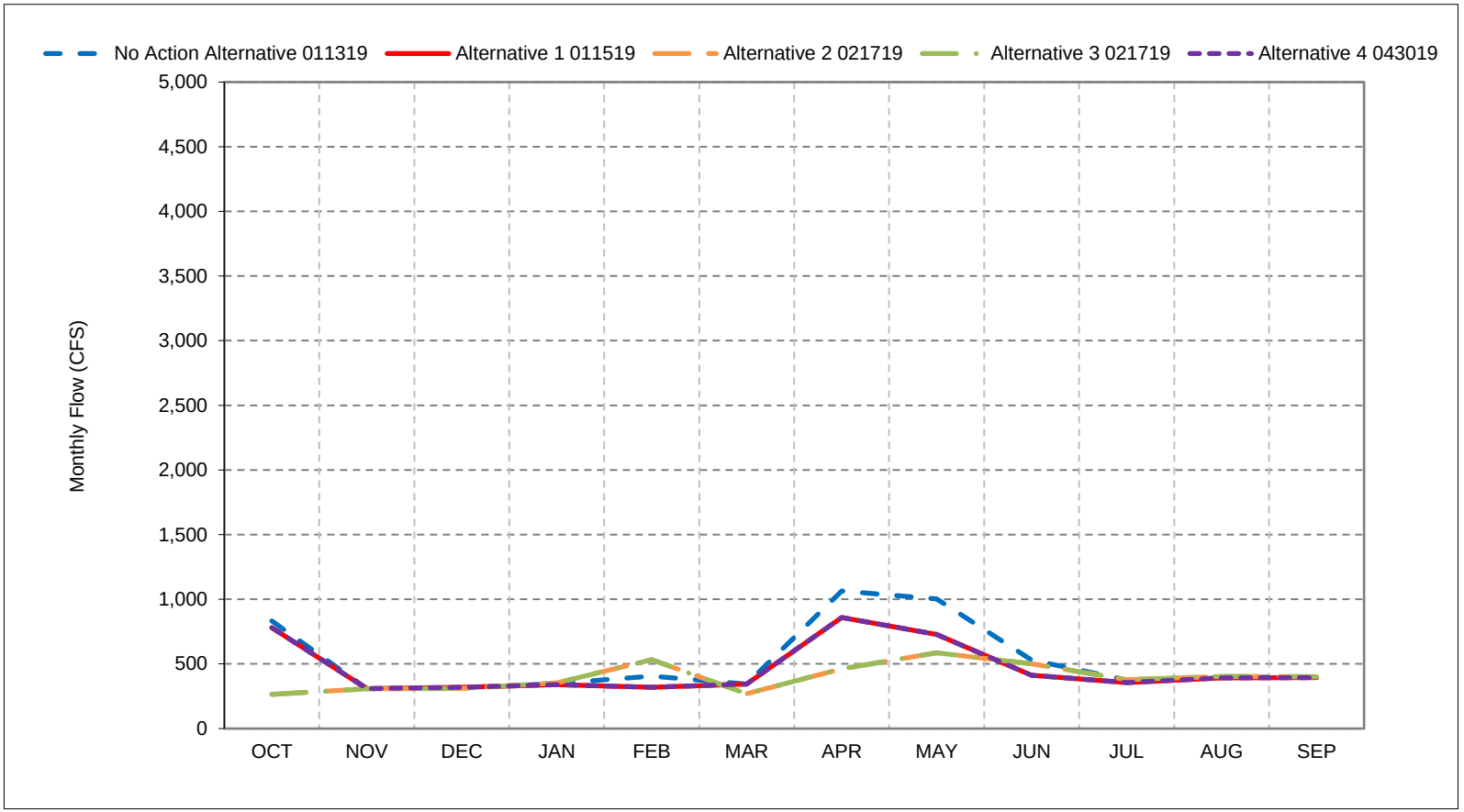
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 38-4. Stanislaus River Flow at Mouth, Below Normal Year Average Flow



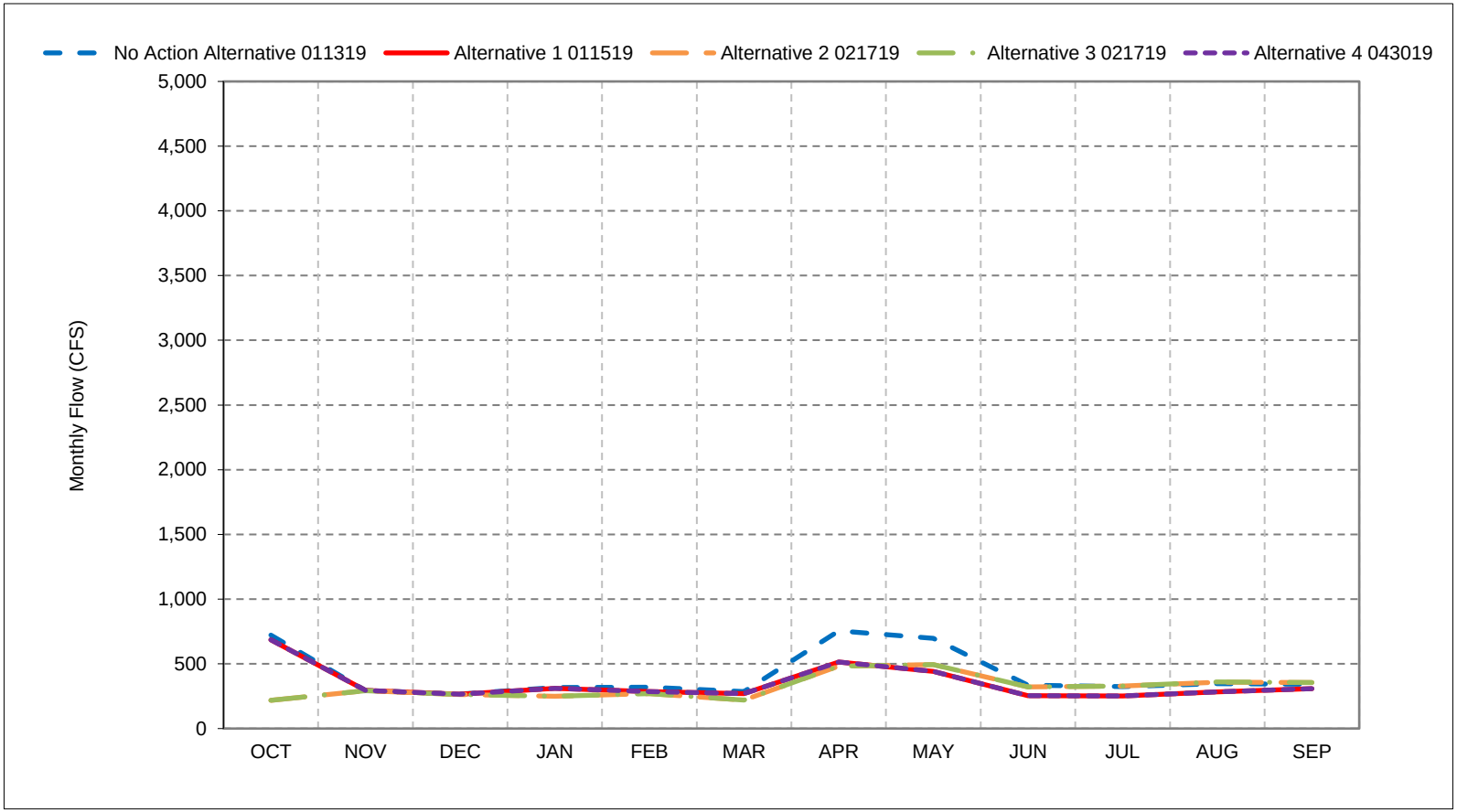
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 38-5. Stanislaus River Flow at Mouth, Dry Year Average Flow



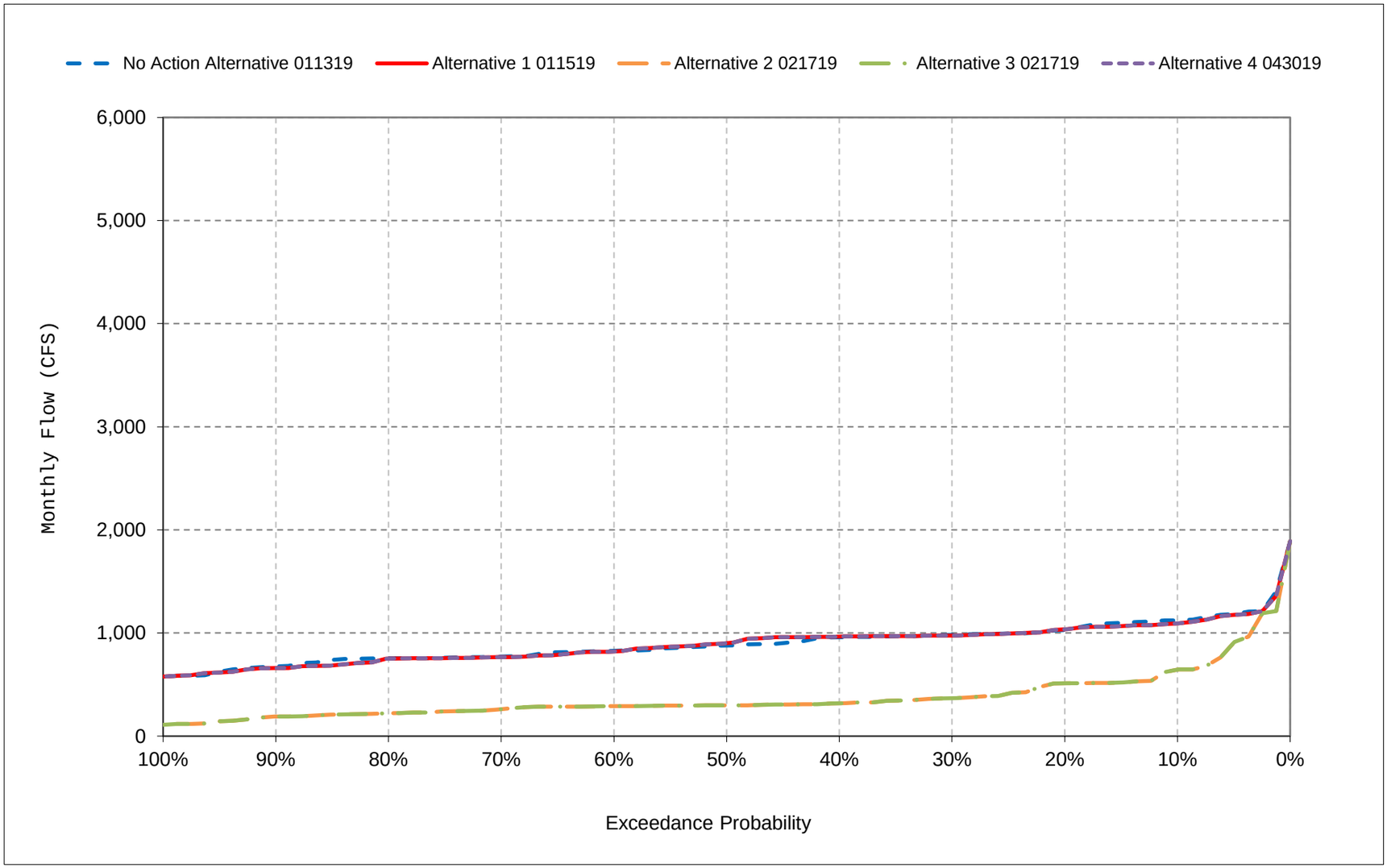
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 38-6. Stanislaus River Flow at Mouth, Critical Year Average Flow



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

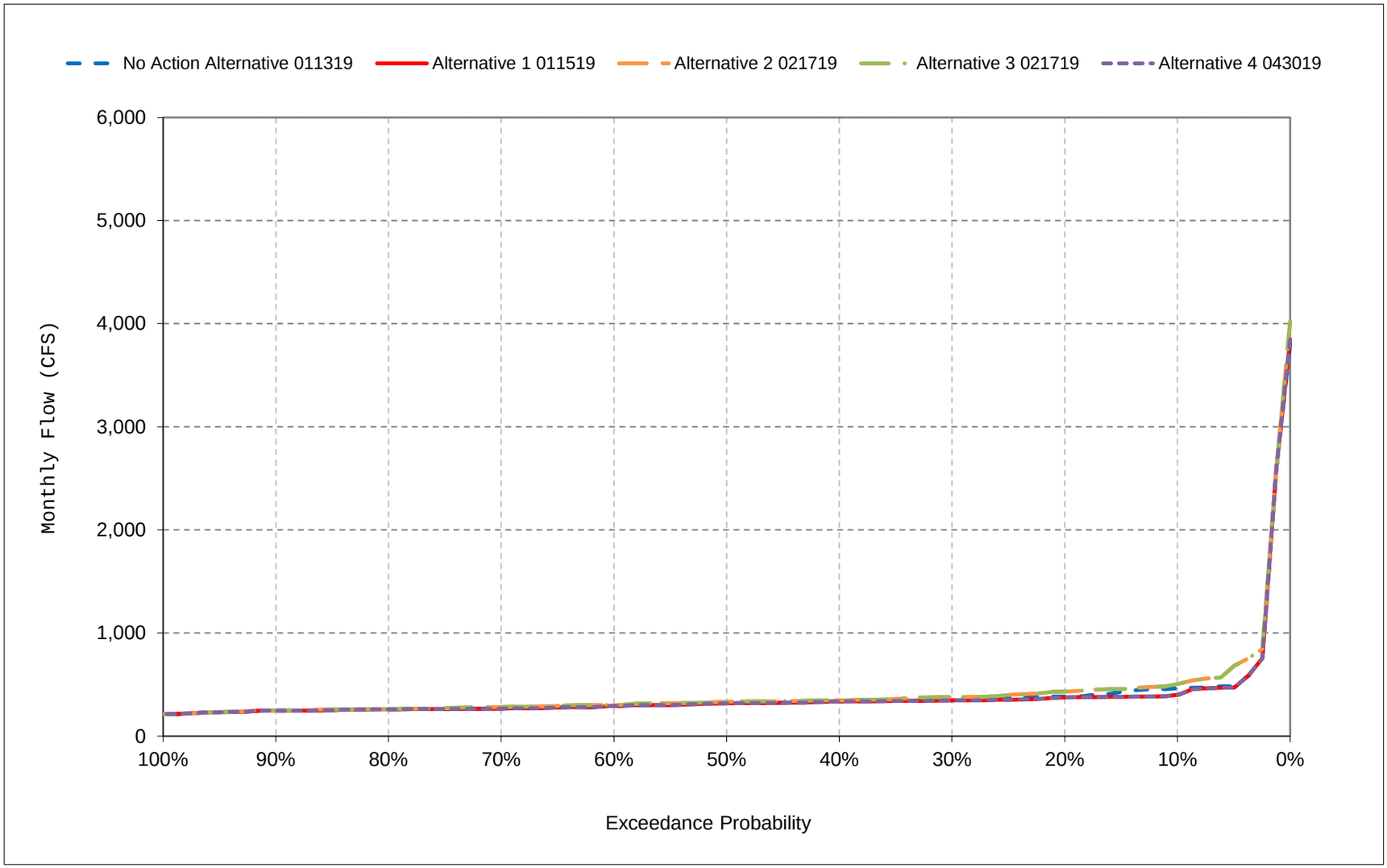
Figure 38-7. Stanislaus River Flow at Mouth, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

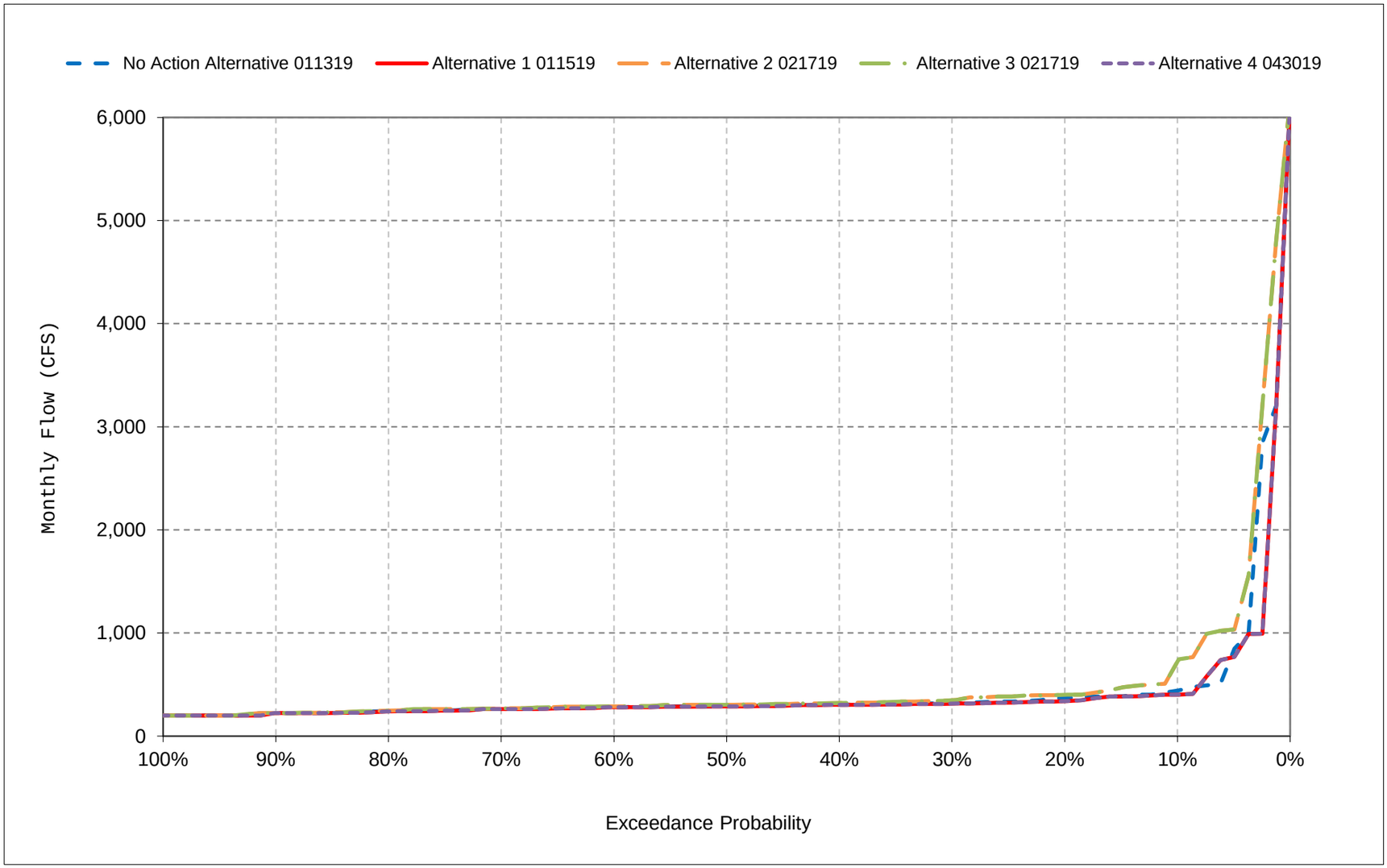
Figure 38-8. Stanislaus River Flow at Mouth, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

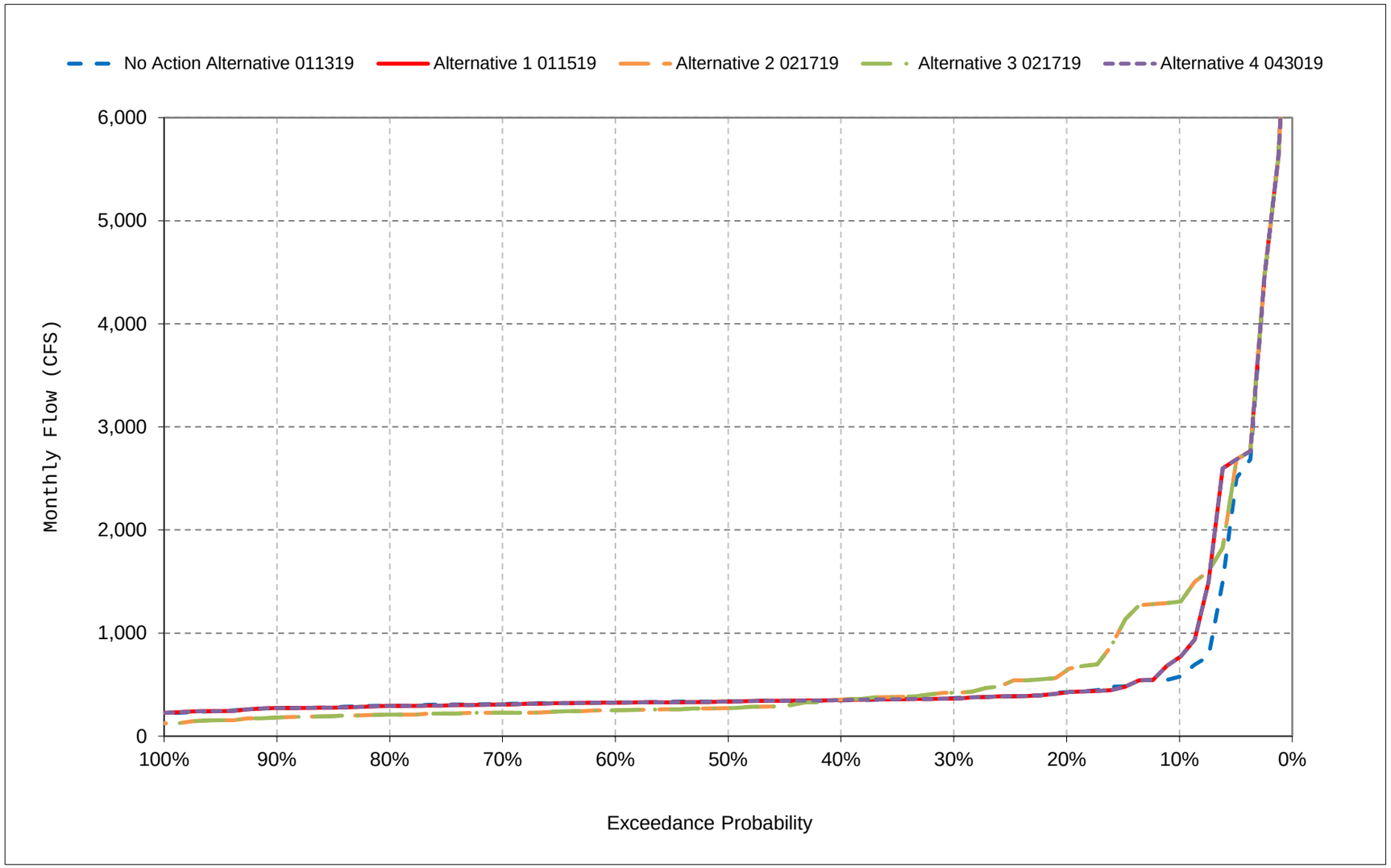
Figure 38-9. Stanislaus River Flow at Mouth, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

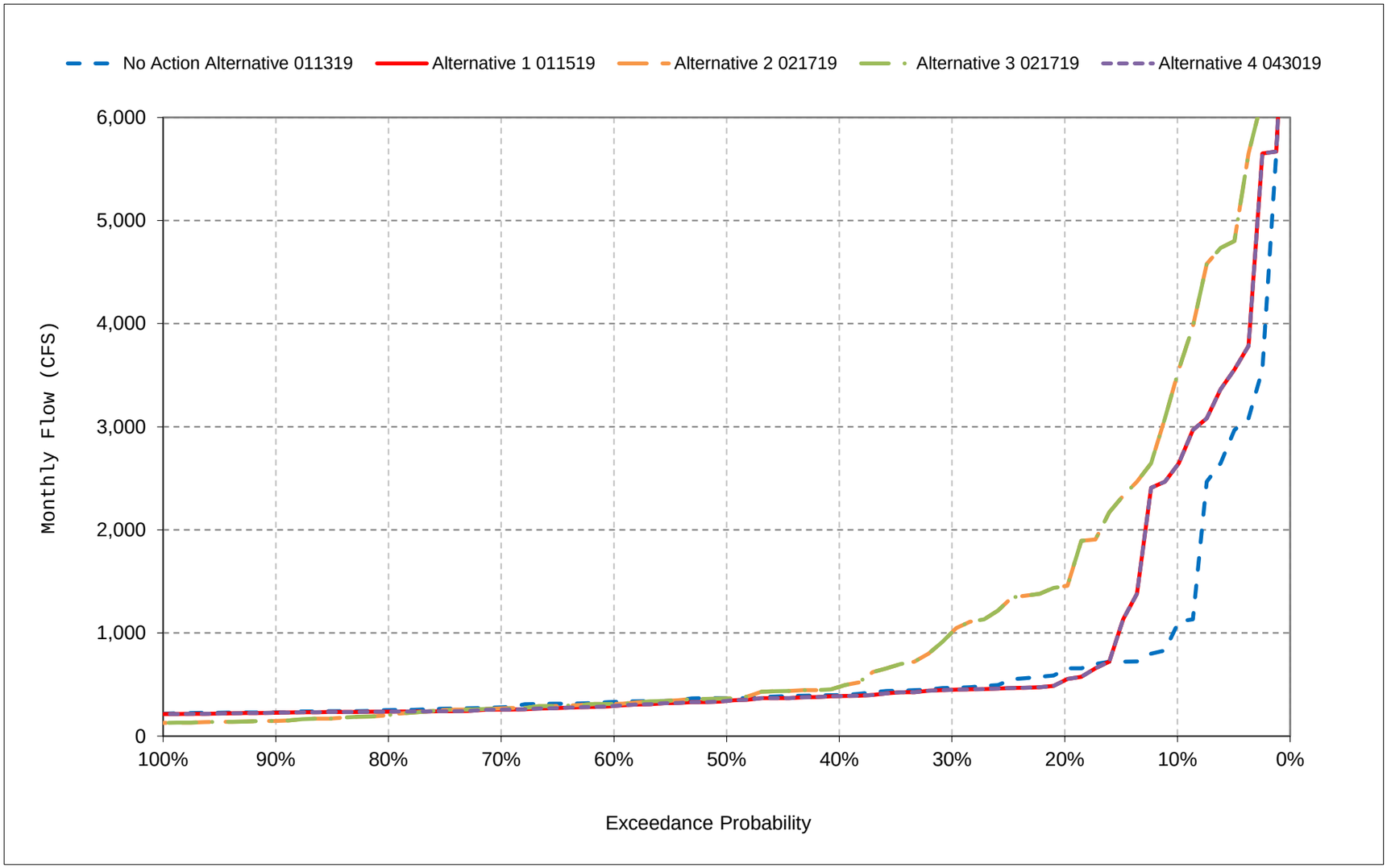
Figure 38-10. Stanislaus River Flow at Mouth, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

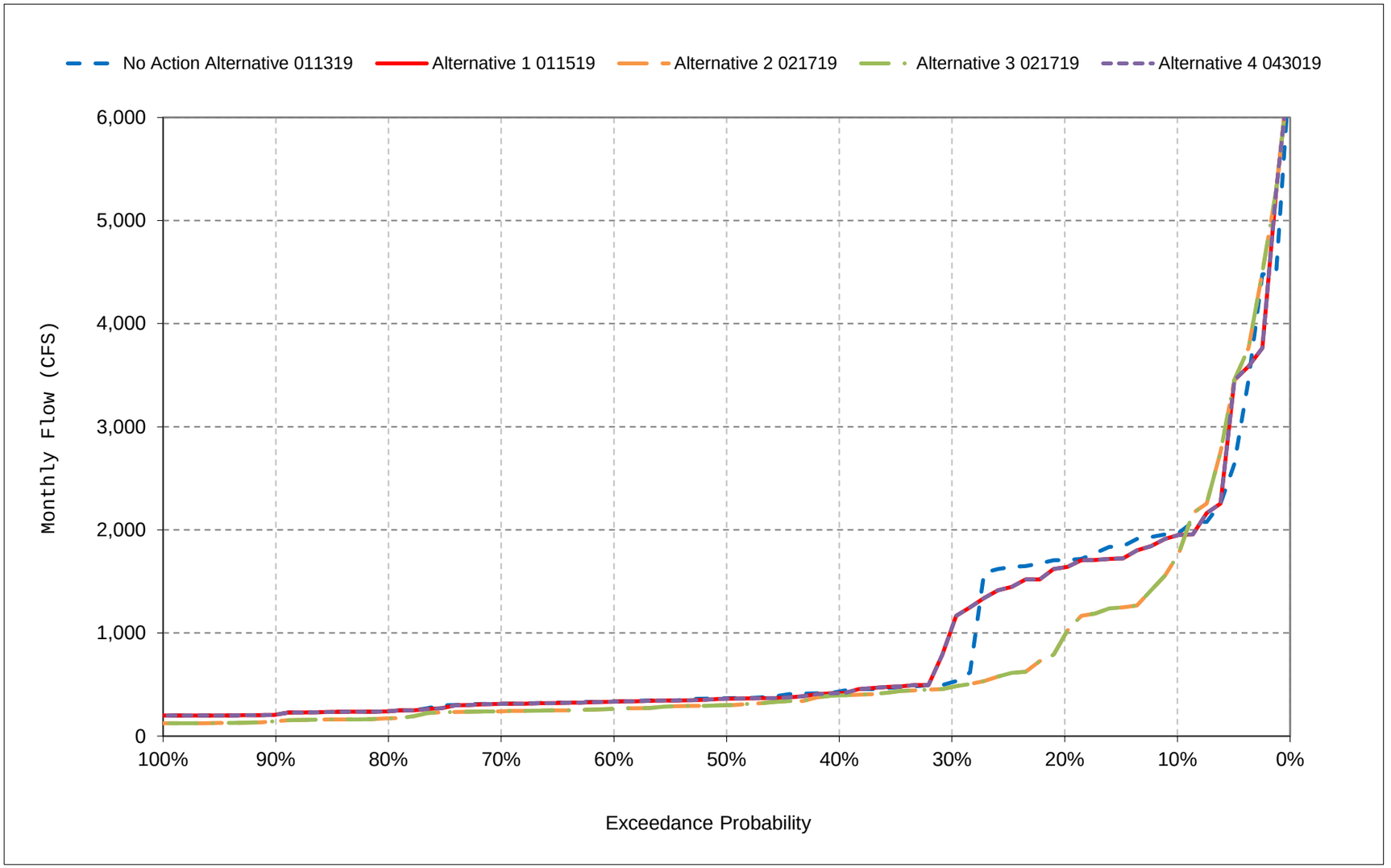
Figure 38-11. Stanislaus River Flow at Mouth, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

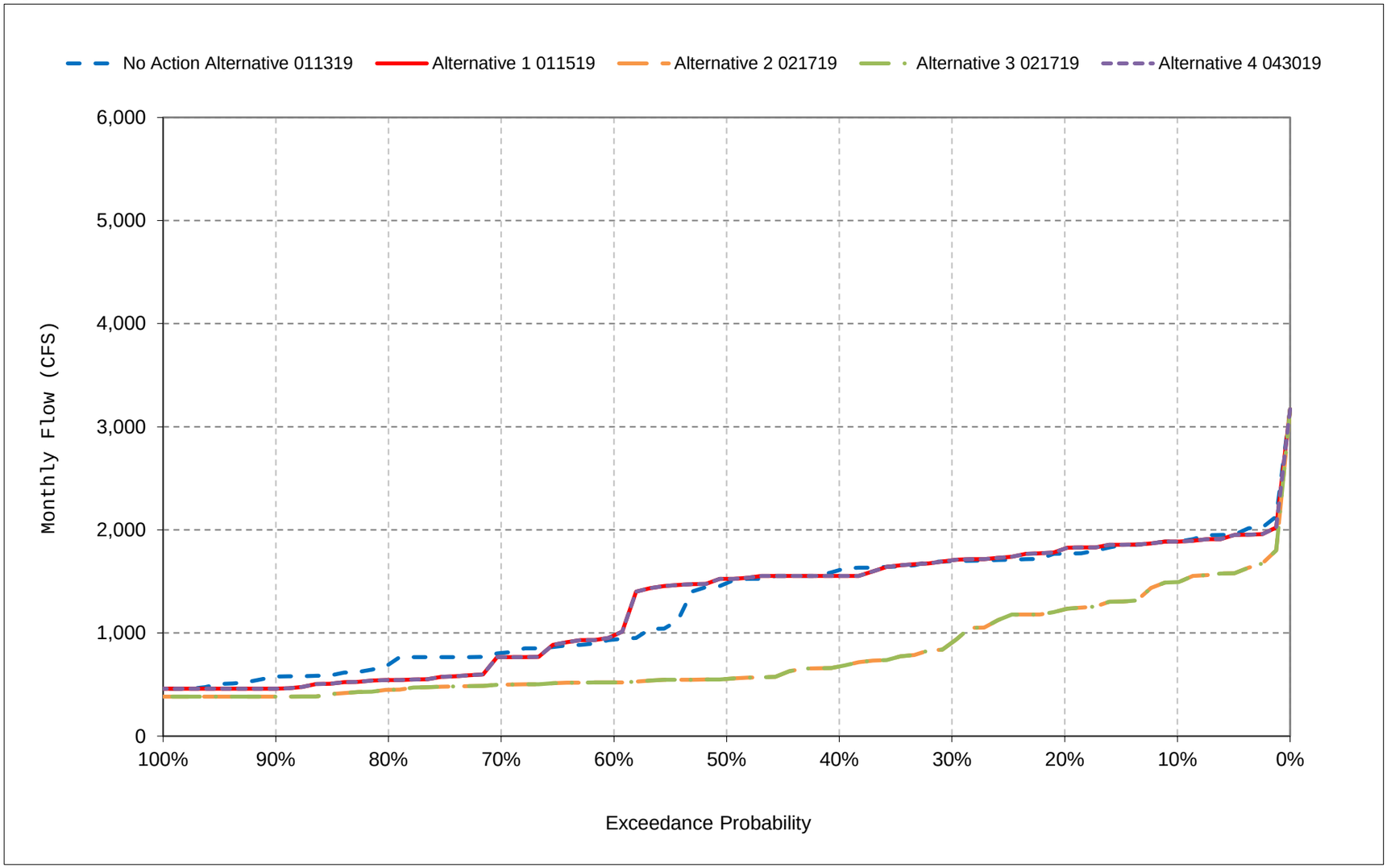
Figure 38-12. Stanislaus River Flow at Mouth, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 38-13. Stanislaus River Flow at Mouth, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

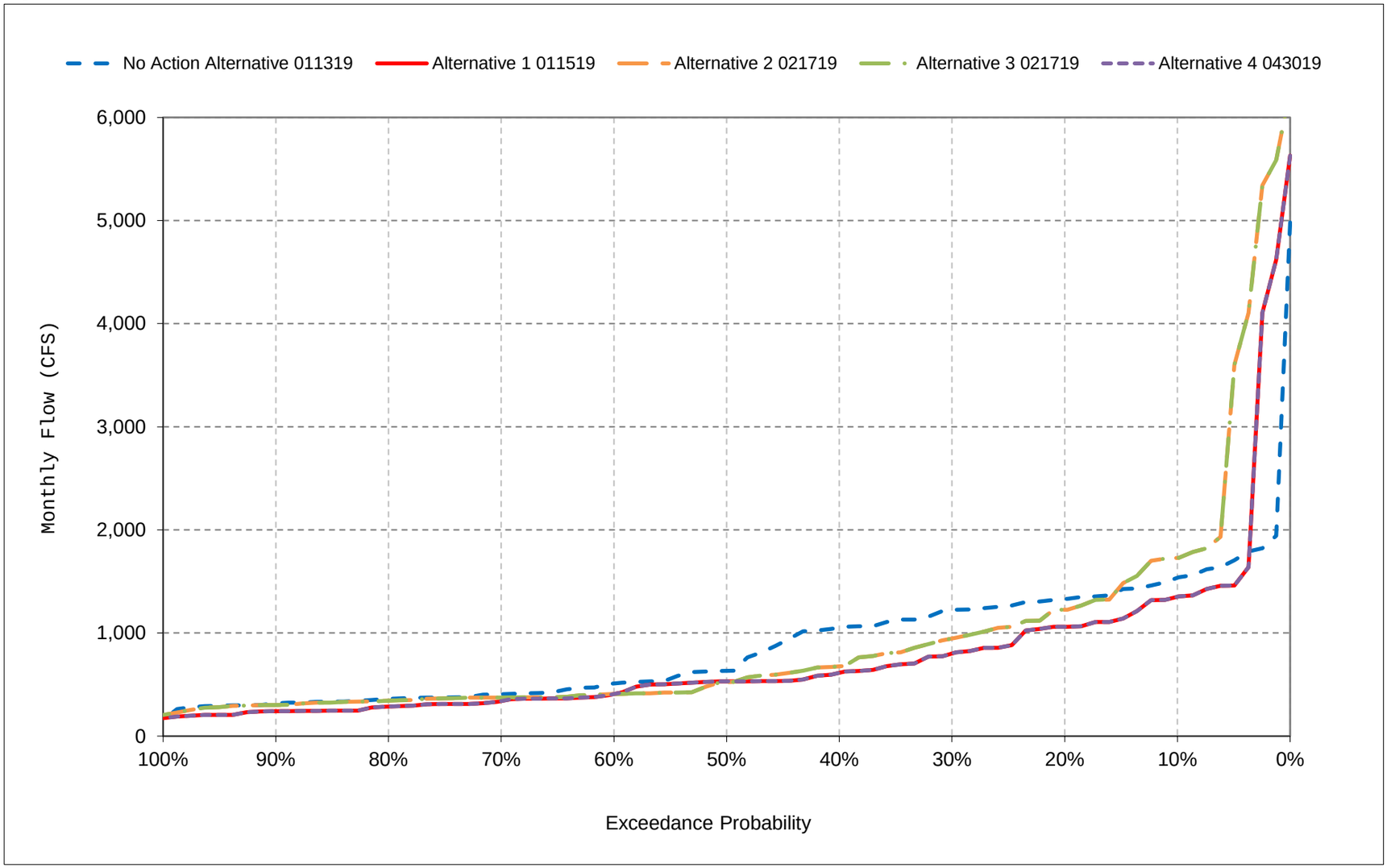
Figure 38-14. Stanislaus River Flow at Mouth, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

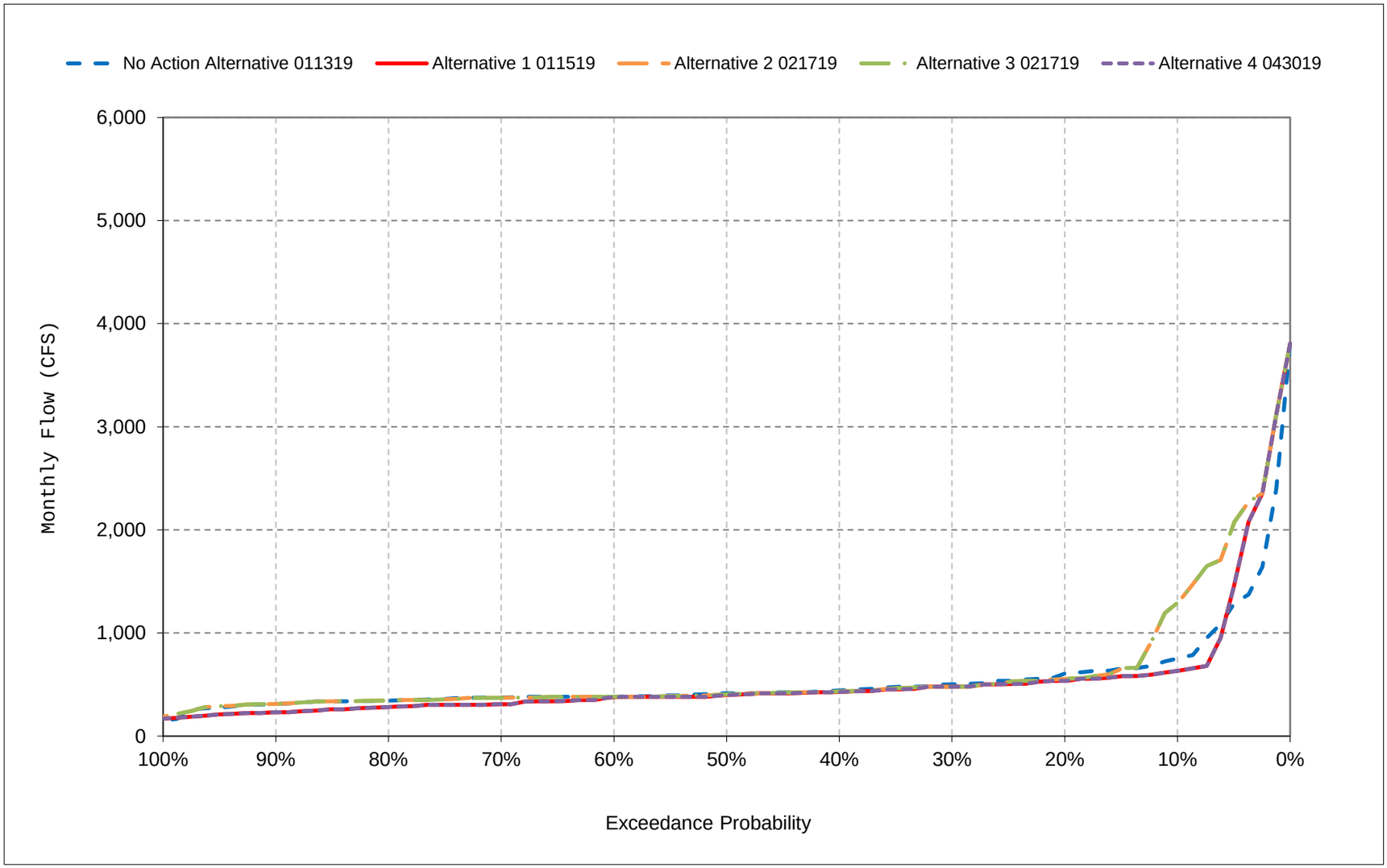
Figure 38-15. Stanislaus River Flow at Mouth, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

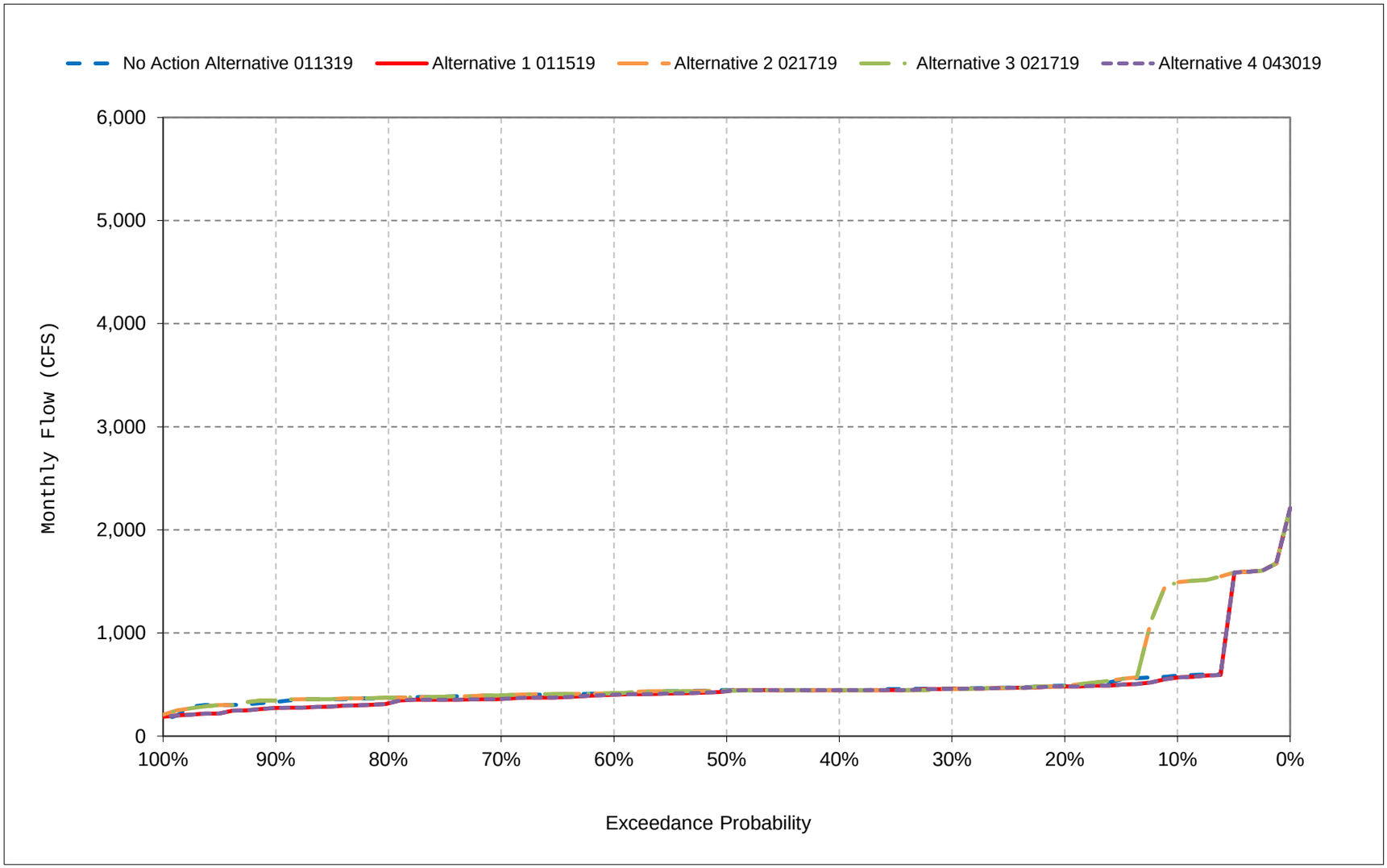
Figure 38-16. Stanislaus River Flow at Mouth, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

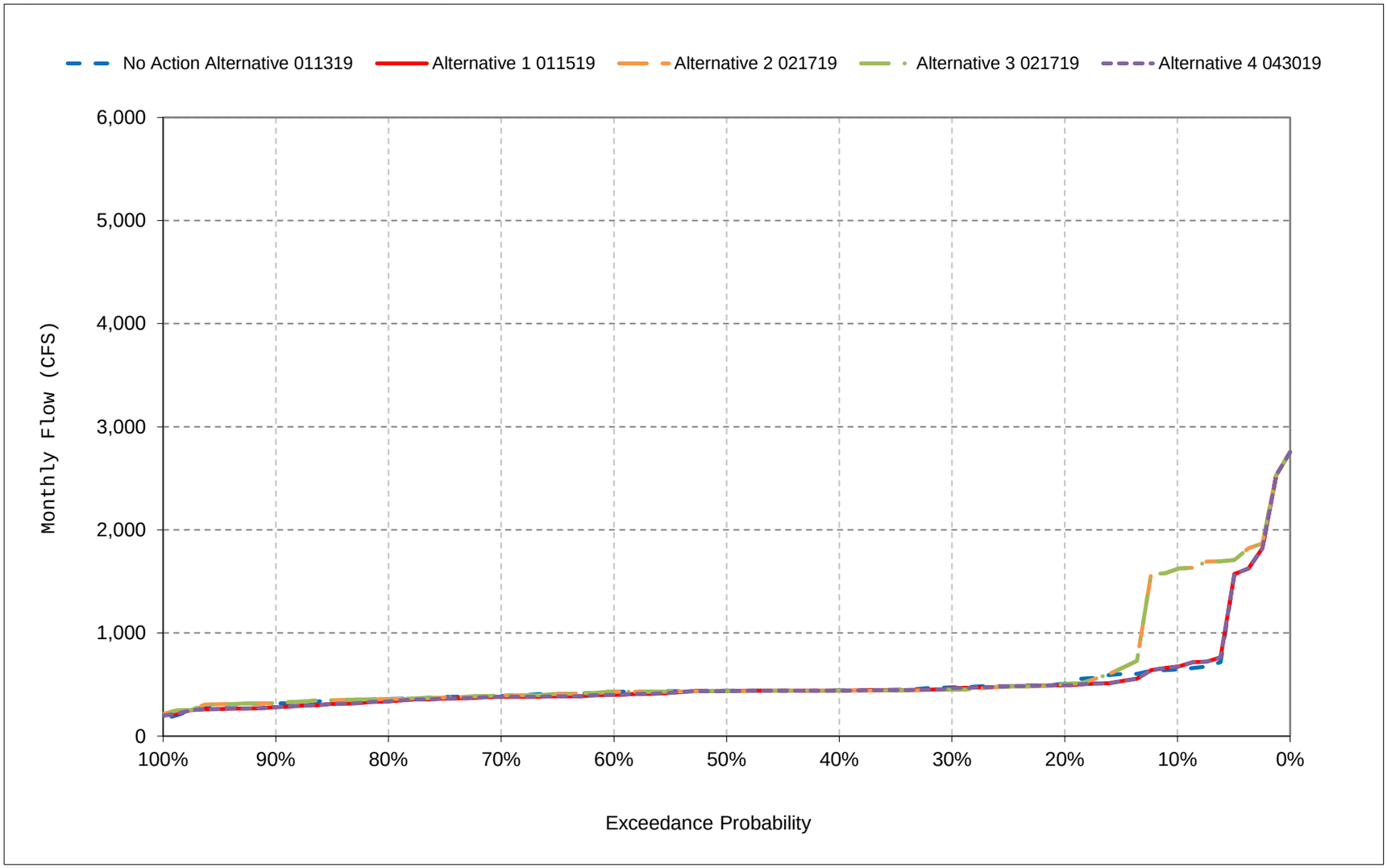
Figure 38-17. Stanislaus River Flow at Mouth, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 38-18. Stanislaus River Flow at Mouth, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 39-1. San Joaquin River at Vernalis, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,499	2,953	4,804	11,236	14,693	15,582	14,771	14,178	9,432	5,890	2,796	3,060
20%	3,162	2,777	2,857	4,812	10,133	10,196	10,640	8,319	4,695	2,634	2,595	2,655
30%	2,980	2,527	2,401	3,611	6,119	8,499	8,616	5,538	3,364	1,990	1,909	2,491
40%	2,796	2,395	2,216	2,629	4,232	5,570	7,564	4,615	2,947	1,741	1,672	2,125
50%	2,602	2,219	2,101	2,402	3,420	3,847	6,019	3,929	2,244	1,493	1,492	1,932
60%	2,401	2,169	2,046	2,293	2,684	3,459	4,835	3,064	1,864	1,370	1,408	1,837
70%	2,247	2,059	1,979	2,114	2,305	2,906	3,778	2,705	1,449	1,163	1,310	1,741
80%	1,995	1,951	1,829	1,883	2,151	2,371	2,792	2,167	1,298	1,099	1,207	1,613
90%	1,849	1,763	1,669	1,699	1,947	2,205	1,888	1,680	1,091	891	1,068	1,477
Long Term												
Full Simulation Period[a]	2,672	2,613	3,393	5,079	6,664	7,282	7,522	6,066	4,211	2,630	1,850	2,225
Water Year Types[b,c]												
Wet (32%)	3,440	3,630	5,116	10,106	12,569	14,033	13,210	11,444	8,798	5,275	2,791	3,062
Above Normal (16%)	2,750	2,461	2,591	4,383	6,149	6,703	7,697	5,516	3,484	2,020	1,768	2,215
Below Normal (13%)	2,558	2,191	2,461	2,701	4,599	4,249	5,598	3,700	2,030	1,494	1,579	1,998
Dry (24%)	2,201	2,118	3,166	2,295	3,124	3,599	4,307	3,261	1,733	1,228	1,348	1,764
Critical (15%)	1,815	1,786	1,764	1,757	2,224	2,199	2,132	1,854	1,192	941	989	1,396

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,500	2,975	4,804	12,398	17,192	15,482	15,015	15,004	9,433	5,780	2,744	3,060
20%	3,148	2,778	2,904	4,838	10,122	10,324	10,641	8,327	4,781	2,503	2,602	2,635
30%	2,996	2,483	2,321	3,613	6,806	8,470	8,960	5,767	2,704	1,957	1,894	2,486
40%	2,835	2,395	2,204	2,681	4,232	5,306	7,921	4,655	2,370	1,730	1,679	2,128
50%	2,628	2,219	2,101	2,371	3,071	3,847	6,437	4,131	2,069	1,507	1,497	1,933
60%	2,402	2,170	2,046	2,290	2,614	3,440	4,786	2,910	1,757	1,362	1,407	1,830
70%	2,137	2,060	1,979	2,084	2,305	2,906	3,212	2,305	1,351	1,153	1,319	1,743
80%	1,978	1,951	1,829	1,883	2,128	2,372	2,500	1,866	1,217	994	1,136	1,575
90%	1,807	1,763	1,669	1,699	1,891	2,205	1,765	1,473	978	874	1,029	1,452
Long Term												
Full Simulation Period[a]	2,669	2,607	3,368	5,109	6,792	7,290	7,513	5,982	4,102	2,619	1,831	2,214
Water Year Types[b,c]												
Wet (32%)	3,431	3,610	5,031	10,141	13,006	14,069	13,188	11,332	8,823	5,341	2,778	3,056
Above Normal (16%)	2,786	2,462	2,591	4,535	6,244	6,808	7,962	5,684	3,217	1,943	1,773	2,218
Below Normal (13%)	2,520	2,191	2,462	2,691	4,545	4,130	5,401	3,453	1,880	1,489	1,577	1,993
Dry (24%)	2,189	2,118	3,172	2,282	3,075	3,599	4,232	3,129	1,589	1,179	1,301	1,737
Critical (15%)	1,827	1,786	1,764	1,757	2,177	2,171	2,132	1,785	1,053	890	958	1,385

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	22	0	1,162	2,499	**-100**	245	826	1	**-111**	**-52**	0
20%	**-14**	0	47	26	**-11**	128	1	7	87	**-131**	7	**-20**
30%	16	**-45**	**-79**	3	687	**-29**	344	229	**-660**	**-33**	**-15**	**-5**
40%	39	0	**-11**	52	0	**-264**	357	39	**-577**	**-11**	7	3
50%	26	0	0	**-30**	**-349**	0	419	202	**-175**	14	5	1
60%	1	0	0	**-3**	**-70**	**-19**	**-48**	**-154**	**-107**	**-9**	**-1**	**-8**
70%	**-111**	1	0	**-30**	0	0	**-566**	**-400**	**-98**	**-10**	9	2
80%	**-17**	1	0	**-1**	**-23**	0	**-292**	**-301**	**-81**	**-105**	**-71**	**-38**
90%	**-42**	0	0	0	**-56**	**0**	**-123**	**-208**	**-113**	**-17**	**-39**	**-25**
Long Term												
Full Simulation Period[a]	**-4**	**-6**	**-26**	31	127	8	**-10**	**-84**	**-110**	**-11**	**-20**	**-11**
Water Year Types[b,c]												
Wet (32%)	**-9**	**-20**	**-85**	35	437	35	**-23**	**-112**	25	66	**-13**	**-6**
Above Normal (16%)	36	0	0	152	94	105	265	168	**-267**	**-76**	5	3
Below Normal (13%)	**-38**	0	0	**-11**	**-53**	**-119**	**-197**	**-247**	**-150**	**-5**	**-1**	**-6**
Dry (24%)	**-13**	0	5	**-13**	**-49**	0	**-74**	**-132**	**-144**	**-49**	**-47**	**-28**
Critical (15%)	12	0	0	0	**-46**	**-28**	**0**	**-70**	**-139**	**-50**	**-32**	**-11**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 39-2. San Joaquin River at Vernalis, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,499	2,953	4,804	11,236	14,693	15,582	14,771	14,178	9,432	5,890	2,796	3,060
20%	3,162	2,777	2,857	4,812	10,133	10,196	10,640	8,319	4,695	2,634	2,595	2,655
30%	2,980	2,527	2,401	3,611	6,119	8,499	8,616	5,538	3,364	1,990	1,909	2,491
40%	2,796	2,395	2,216	2,629	4,232	5,570	7,564	4,615	2,947	1,741	1,672	2,125
50%	2,602	2,219	2,101	2,402	3,420	3,847	6,019	3,929	2,244	1,493	1,492	1,932
60%	2,401	2,169	2,046	2,293	2,684	3,459	4,835	3,064	1,864	1,370	1,408	1,837
70%	2,247	2,059	1,979	2,114	2,305	2,906	3,778	2,705	1,449	1,163	1,310	1,741
80%	1,995	1,951	1,829	1,883	2,151	2,371	2,792	2,167	1,298	1,099	1,207	1,613
90%	1,849	1,763	1,669	1,699	1,947	2,205	1,888	1,680	1,091	891	1,068	1,477
Long Term												
Full Simulation Period[a]	2,672	2,613	3,393	5,079	6,664	7,282	7,522	6,066	4,211	2,630	1,850	2,225
Water Year Types[b,c]												
Wet (32%)	3,440	3,630	5,116	10,106	12,569	14,033	13,210	11,444	8,798	5,275	2,791	3,062
Above Normal (16%)	2,750	2,461	2,591	4,383	6,149	6,703	7,697	5,516	3,484	2,020	1,768	2,215
Below Normal (13%)	2,558	2,191	2,461	2,701	4,599	4,249	5,598	3,700	2,030	1,494	1,579	1,998
Dry (24%)	2,201	2,118	3,166	2,295	3,124	3,599	4,307	3,261	1,733	1,228	1,348	1,764
Critical (15%)	1,815	1,786	1,764	1,757	2,224	2,199	2,132	1,854	1,192	941	989	1,396

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,995	3,035	5,167	11,871	18,275	15,573	14,007	14,108	11,204	6,506	3,628	3,832
20%	2,574	2,785	2,905	5,157	10,195	9,815	9,895	7,826	4,651	2,649	2,604	2,665
30%	2,404	2,566	2,400	3,841	6,878	7,989	8,132	5,189	3,321	1,984	1,896	2,466
40%	2,202	2,412	2,223	2,730	4,465	5,231	6,973	4,097	2,925	1,734	1,677	2,129
50%	1,997	2,270	2,162	2,420	3,420	3,773	5,461	3,526	2,205	1,512	1,505	1,937
60%	1,815	2,176	2,063	2,212	2,741	3,429	4,089	2,737	1,804	1,386	1,421	1,840
70%	1,652	2,064	1,979	2,069	2,325	2,831	2,933	2,172	1,420	1,179	1,329	1,746
80%	1,510	1,952	1,838	1,792	2,065	2,297	2,424	1,977	1,274	1,082	1,218	1,614
90%	1,339	1,763	1,669	1,615	1,928	2,131	1,774	1,563	1,045	946	1,111	1,512
Long Term												
Full Simulation Period[a]	2,152	2,639	3,464	5,131	7,102	7,136	7,046	5,709	4,289	2,712	1,922	2,305
Water Year Types[b,c]												
Wet (32%)	2,964	3,698	5,320	10,273	13,642	13,776	12,742	11,066	9,128	5,527	2,987	3,296
Above Normal (16%)	2,182	2,485	2,614	4,468	6,662	6,617	7,058	5,064	3,418	1,995	1,777	2,221
Below Normal (13%)	1,965	2,200	2,484	2,765	4,816	4,076	4,849	3,155	1,935	1,510	1,591	2,000
Dry (24%)	1,663	2,118	3,162	2,252	3,102	3,524	3,854	2,941	1,721	1,234	1,352	1,766
Critical (15%)	1,344	1,786	1,764	1,676	2,171	2,139	2,022	1,754	1,188	955	1,023	1,427

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-504**	83	364	635	3,582	**-9**	**-764**	**-71**	1,771	615	832	772
20%	**-589**	7	47	346	62	**-381**	**-745**	**-493**	**-44**	14	9	9
30%	**-576**	39	**-1**	231	759	**-510**	**-484**	**-349**	**-43**	**-6**	**-13**	**-26**
40%	**-594**	17	7	102	233	**-339**	**-591**	**-519**	**-22**	**-7**	5	4
50%	**-605**	51	61	19	0	**-73**	**-557**	**-403**	**-39**	18	13	6
60%	**-586**	7	17	**-81**	57	**-31**	**-745**	**-328**	**-60**	15	12	3
70%	**-596**	4	0	**-45**	21	**-75**	**-845**	**-533**	**-29**	16	19	4
80%	**-485**	1	8	**-91**	**-86**	**-74**	**-368**	**-189**	**-24**	**-17**	11	1
90%	**-510**	**0**	0	**-84**	**-19**	**-74**	**-115**	**-118**	**-46**	55	43	36
Long Term												
Full Simulation Period[a]	**-521**	26	70	53	437	**-146**	**-477**	**-357**	78	82	71	80
Water Year Types[b,c]												
Wet (32%)	**-476**	68	204	166	1,073	**-258**	**-468**	**-378**	330	252	196	234
Above Normal (16%)	**-568**	23	23	85	512	**-87**	**-639**	**-452**	**-65**	**-25**	9	6
Below Normal (13%)	**-593**	9	23	64	218	**-174**	**-750**	**-545**	**-95**	15	12	1
Dry (24%)	**-538**	0	**-4**	**-43**	**-23**	**-75**	**-453**	**-320**	**-12**	6	4	2
Critical (15%)	**-471**	0	**0**	**-81**	**-53**	**-60**	**-110**	**-100**	**-4**	14	33	31

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 39-3. San Joaquin River at Vernalis, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,499	2,953	4,804	11,236	14,693	15,582	14,771	14,178	9,432	5,890	2,796	3,060
20%	3,162	2,777	2,857	4,812	10,133	10,196	10,640	8,319	4,695	2,634	2,595	2,655
30%	2,980	2,527	2,401	3,611	6,119	8,499	8,616	5,538	3,364	1,990	1,909	2,491
40%	2,796	2,395	2,216	2,629	4,232	5,570	7,564	4,615	2,947	1,741	1,672	2,125
50%	2,602	2,219	2,101	2,402	3,420	3,847	6,019	3,929	2,244	1,493	1,492	1,932
60%	2,401	2,169	2,046	2,293	2,684	3,459	4,835	3,064	1,864	1,370	1,408	1,837
70%	2,247	2,059	1,979	2,114	2,305	2,906	3,778	2,705	1,449	1,163	1,310	1,741
80%	1,995	1,951	1,829	1,883	2,151	2,371	2,792	2,167	1,298	1,099	1,207	1,613
90%	1,849	1,763	1,669	1,699	1,947	2,205	1,888	1,680	1,091	891	1,068	1,477
Long Term												
Full Simulation Period[a]	2,672	2,613	3,393	5,079	6,664	7,282	7,522	6,066	4,211	2,630	1,850	2,225
Water Year Types[b,c]												
Wet (32%)	3,440	3,630	5,116	10,106	12,569	14,033	13,210	11,444	8,798	5,275	2,791	3,062
Above Normal (16%)	2,750	2,461	2,591	4,383	6,149	6,703	7,697	5,516	3,484	2,020	1,768	2,215
Below Normal (13%)	2,558	2,191	2,461	2,701	4,599	4,249	5,598	3,700	2,030	1,494	1,579	1,998
Dry (24%)	2,201	2,118	3,166	2,295	3,124	3,599	4,307	3,261	1,733	1,228	1,348	1,764
Critical (15%)	1,815	1,786	1,764	1,757	2,224	2,199	2,132	1,854	1,192	941	989	1,396

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,995	3,035	5,167	11,871	18,273	15,574	14,007	14,108	11,204	6,506	3,628	3,832
20%	2,574	2,785	2,905	5,157	10,196	9,815	9,895	7,826	4,651	2,649	2,604	2,664
30%	2,404	2,566	2,400	3,842	6,878	7,989	8,132	5,189	3,321	1,982	1,896	2,466
40%	2,202	2,412	2,223	2,730	4,465	5,231	6,972	4,097	2,925	1,734	1,676	2,129
50%	1,997	2,270	2,162	2,420	3,420	3,773	5,461	3,526	2,206	1,512	1,505	1,937
60%	1,815	2,176	2,063	2,211	2,741	3,428	4,089	2,737	1,805	1,386	1,421	1,840
70%	1,652	2,064	1,979	2,069	2,325	2,831	2,931	2,173	1,420	1,179	1,329	1,746
80%	1,510	1,952	1,838	1,792	2,065	2,297	2,424	1,978	1,274	1,082	1,218	1,615
90%	1,339	1,763	1,669	1,615	1,928	2,130	1,773	1,563	1,045	946	1,111	1,512
Long Term												
Full Simulation Period[a]	2,152	2,639	3,464	5,131	7,102	7,136	7,045	5,709	4,289	2,712	1,921	2,305
Water Year Types[b,c]												
Wet (32%)	2,964	3,698	5,320	10,273	13,642	13,776	12,742	11,066	9,128	5,526	2,987	3,296
Above Normal (16%)	2,182	2,485	2,614	4,468	6,662	6,616	7,058	5,064	3,418	1,995	1,777	2,221
Below Normal (13%)	1,965	2,200	2,484	2,765	4,816	4,076	4,848	3,154	1,935	1,510	1,590	1,999
Dry (24%)	1,663	2,118	3,162	2,252	3,102	3,524	3,854	2,940	1,720	1,234	1,352	1,766
Critical (15%)	1,344	1,786	1,764	1,676	2,170	2,138	2,022	1,754	1,188	955	1,022	1,427

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-504**	83	364	635	3,580	**-8**	**-763**	**-71**	1,771	615	832	772
20%	**-589**	7	47	346	62	**-381**	**-745**	**-493**	**-44**	14	8	9
30%	**-576**	39	**-1**	231	759	**-510**	**-484**	**-349**	**-43**	**-8**	**-12**	**-26**
40%	**-594**	17	7	102	233	**-339**	**-592**	**-518**	**-22**	**-7**	5	4
50%	**-605**	50	61	19	0	**-74**	**-557**	**-403**	**-38**	18	13	6
60%	**-587**	7	17	**-82**	57	**-31**	**-746**	**-328**	**-59**	16	12	2
70%	**-596**	4	0	**-45**	21	**-75**	**-846**	**-533**	**-29**	16	19	4
80%	**-485**	1	8	**-91**	**-86**	**-74**	**-368**	**-189**	**-24**	**-18**	10	1
90%	**-510**	**0**	0	**-84**	**-19**	**-74**	**-115**	**-118**	**-46**	55	43	36
Long Term												
Full Simulation Period[a]	**-521**	26	70	53	437	**-146**	**-477**	**-357**	78	81	71	80
Water Year Types[b,c]												
Wet (32%)	**-476**	68	204	166	1,073	**-258**	**-468**	**-378**	330	251	196	234
Above Normal (16%)	**-568**	23	23	85	512	**-87**	**-639**	**-451**	**-65**	**-25**	9	6
Below Normal (13%)	**-593**	9	23	64	218	**-174**	**-750**	**-546**	**-95**	15	12	1
Dry (24%)	**-538**	0	**-4**	**-43**	**-23**	**-75**	**-453**	**-320**	**-13**	6	4	2
Critical (15%)	**-471**	0	**0**	**-81**	**-53**	**-60**	**-110**	**-101**	**-4**	14	33	31

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 39-4. San Joaquin River at Vernalis, Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,499	2,953	4,804	11,236	14,693	15,582	14,771	14,178	9,432	5,890	2,796	3,060
20%	3,162	2,777	2,857	4,812	10,133	10,196	10,640	8,319	4,695	2,634	2,595	2,655
30%	2,980	2,527	2,401	3,611	6,119	8,499	8,616	5,538	3,364	1,990	1,909	2,491
40%	2,796	2,395	2,216	2,629	4,232	5,570	7,564	4,615	2,947	1,741	1,672	2,125
50%	2,602	2,219	2,101	2,402	3,420	3,847	6,019	3,929	2,244	1,493	1,492	1,932
60%	2,401	2,169	2,046	2,293	2,684	3,459	4,835	3,064	1,864	1,370	1,408	1,837
70%	2,247	2,059	1,979	2,114	2,305	2,906	3,778	2,705	1,449	1,163	1,310	1,741
80%	1,995	1,951	1,829	1,883	2,151	2,371	2,792	2,167	1,298	1,099	1,207	1,613
90%	1,849	1,763	1,669	1,699	1,947	2,205	1,888	1,680	1,091	891	1,068	1,477
Long Term												
Full Simulation Period[a]	2,672	2,613	3,393	5,079	6,664	7,282	7,522	6,066	4,211	2,630	1,850	2,225
Water Year Types[b,c]												
Wet (32%)	3,440	3,630	5,116	10,106	12,569	14,033	13,210	11,444	8,798	5,275	2,791	3,062
Above Normal (16%)	2,750	2,461	2,591	4,383	6,149	6,703	7,697	5,516	3,484	2,020	1,768	2,215
Below Normal (13%)	2,558	2,191	2,461	2,701	4,599	4,249	5,598	3,700	2,030	1,494	1,579	1,998
Dry (24%)	2,201	2,118	3,166	2,295	3,124	3,599	4,307	3,261	1,733	1,228	1,348	1,764
Critical (15%)	1,815	1,786	1,764	1,757	2,224	2,199	2,132	1,854	1,192	941	989	1,396

Alternative 4 043019

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,498	2,975	4,804	12,398	17,169	15,483	15,014	15,003	9,433	5,780	2,735	3,060
20%	3,148	2,777	2,904	4,837	10,124	10,324	10,639	8,320	4,775	2,492	2,599	2,635
30%	2,996	2,483	2,321	3,612	6,813	8,476	8,957	5,766	2,698	1,955	1,888	2,483
40%	2,834	2,396	2,204	2,680	4,232	5,306	7,919	4,652	2,368	1,735	1,674	2,131
50%	2,627	2,219	2,101	2,371	3,070	3,847	6,432	4,126	2,064	1,490	1,493	1,929
60%	2,401	2,169	2,046	2,290	2,613	3,440	4,785	2,909	1,747	1,343	1,399	1,818
70%	2,136	2,058	1,979	2,084	2,305	2,907	3,205	2,297	1,329	1,140	1,307	1,737
80%	1,977	1,951	1,829	1,882	2,127	2,371	2,498	1,866	1,215	987	1,128	1,575
90%	1,806	1,763	1,669	1,698	1,891	2,205	1,762	1,472	971	860	1,025	1,453
Long Term												
Full Simulation Period[a]	2,668	2,607	3,368	5,109	6,793	7,290	7,510	5,978	4,097	2,613	1,826	2,212
Water Year Types[b,c]												
Wet (32%)	3,430	3,610	5,031	10,141	13,010	14,070	13,186	11,330	8,820	5,337	2,775	3,054
Above Normal (16%)	2,785	2,461	2,591	4,535	6,245	6,808	7,961	5,680	3,212	1,937	1,768	2,216
Below Normal (13%)	2,518	2,191	2,461	2,690	4,545	4,129	5,397	3,446	1,872	1,477	1,568	1,989
Dry (24%)	2,188	2,118	3,172	2,282	3,075	3,599	4,231	3,125	1,585	1,173	1,297	1,735
Critical (15%)	1,826	1,786	1,764	1,757	2,177	2,170	2,129	1,780	1,047	883	952	1,382

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-1**	22	1	1,162	2,476	**-99**	244	825	1	**-111**	**-61**	0
20%	**-14**	**0**	47	26	**-10**	127	**0**	1	80	**-142**	4	**-21**
30%	16	**-45**	**-80**	2	694	**-23**	341	228	**-666**	**-35**	**-21**	**-8**
40%	38	1	**-12**	51	0	**-264**	355	37	**-579**	**-6**	2	6
50%	25	**0**	**0**	**-30**	**-350**	**0**	413	196	**-180**	**-3**	1	**-2**
60%	**0**	**0**	0	**-3**	**-70**	**-20**	**-50**	**-156**	**-117**	**-27**	**-9**	**-19**
70%	**-111**	**-1**	**0**	**-31**	**0**	0	**-572**	**-408**	**-120**	**-23**	**-3**	**-4**
80%	**-18**	**0**	**0**	**-1**	**-24**	0	**-294**	**-301**	**-84**	**-112**	**-80**	**-39**
90%	**-43**	**0**	0	**-1**	**-57**	0	**-126**	**-208**	**-120**	**-31**	**-43**	**-24**
Long Term												
Full Simulation Period[a]	**-5**	**-6**	**-26**	31	129	8	**-12**	**-88**	**-115**	**-18**	**-24**	**-13**
Water Year Types[b,c]												
Wet (32%)	**-9**	**-20**	**-85**	35	441	37	**-24**	**-114**	22	62	**-16**	**-8**
Above Normal (16%)	35	0	0	152	96	105	264	164	**-271**	**-83**	0	1
Below Normal (13%)	**-40**	**0**	**0**	**-11**	**-54**	**-120**	**-201**	**-254**	**-159**	**-17**	**-10**	**-10**
Dry (24%)	**-14**	**0**	5	**-13**	**-50**	0	**-76**	**-135**	**-148**	**-55**	**-51**	**-30**
Critical (15%)	11	**0**	**0**	**0**	**-47**	**-28**	**-4**	**-75**	**-145**	**-58**	**-37**	**-14**

a Based on the 82-year simulation period.

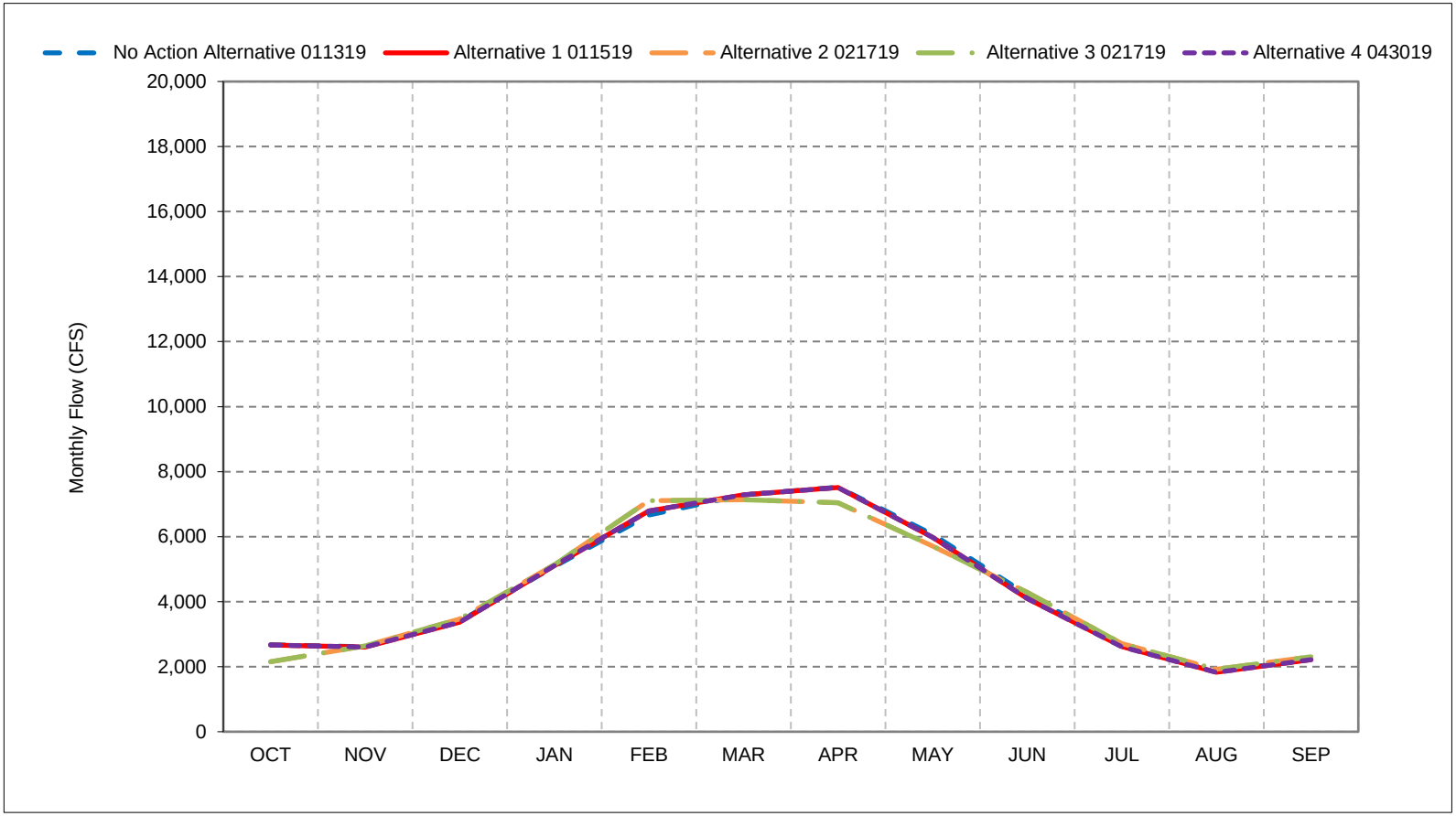
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 39-1. San Joaquin River at Vernalis, Long-Term Average Flow



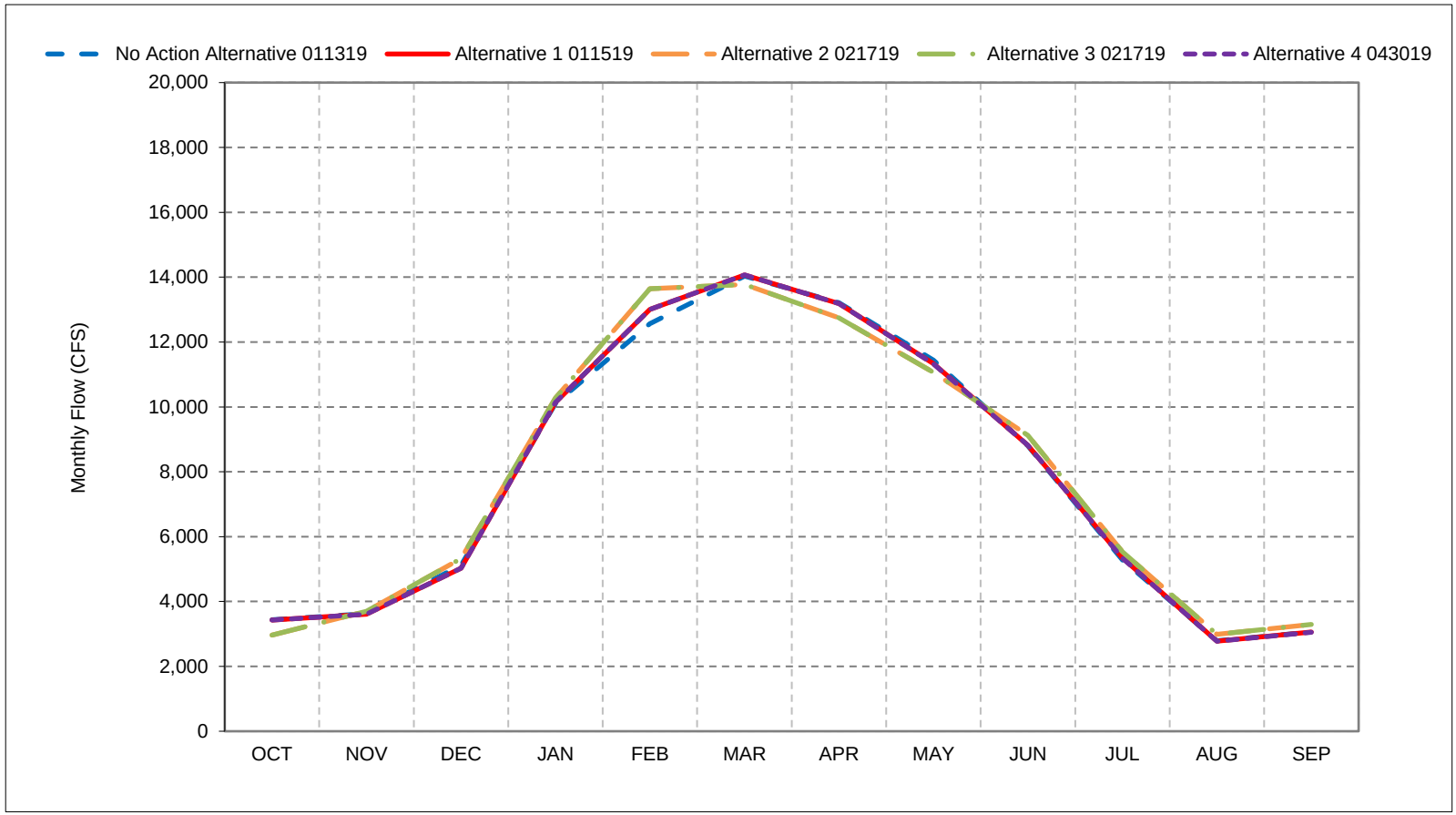
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

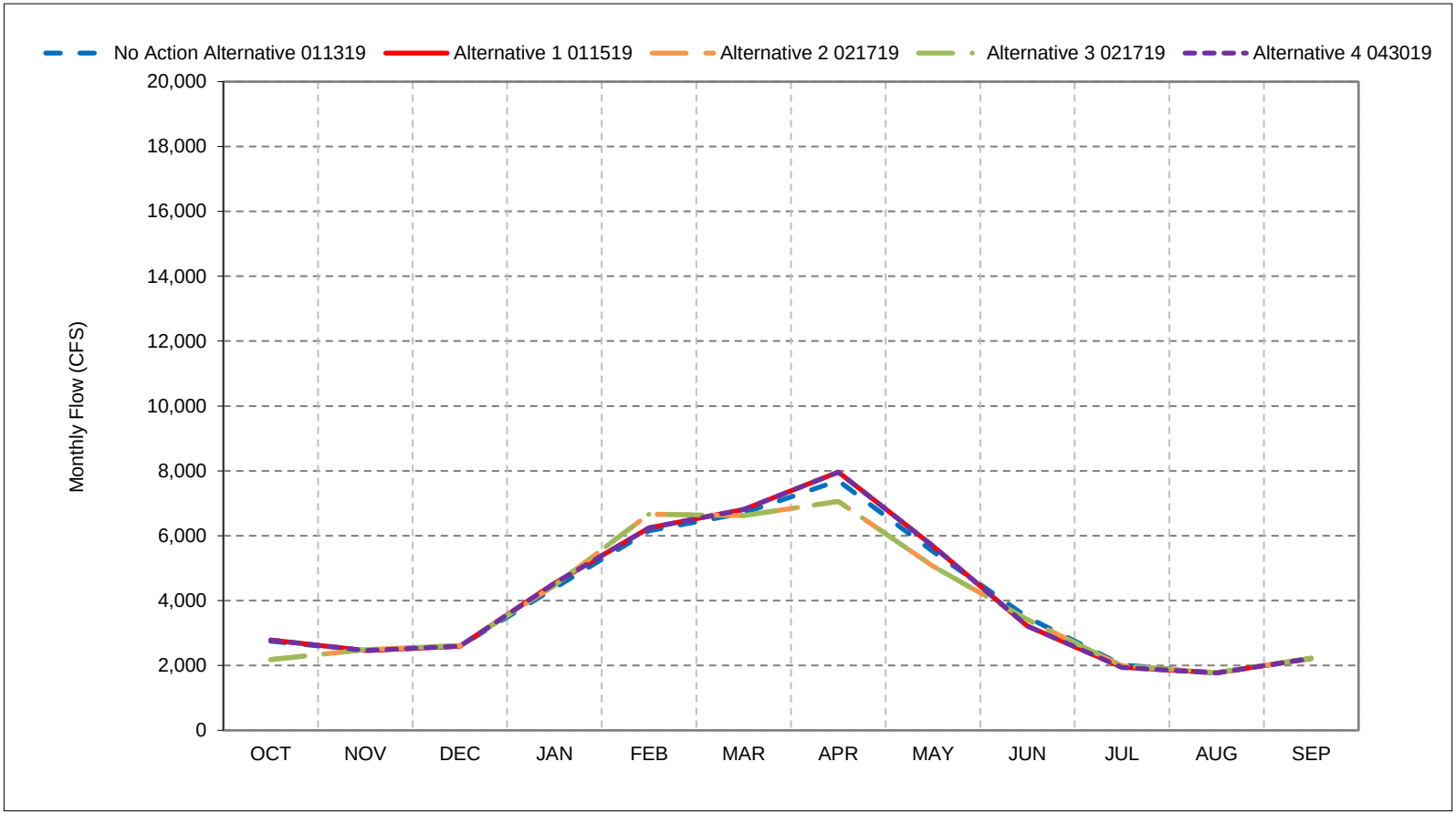
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39-2. San Joaquin River at Vernalis, Wet Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39-3. San Joaquin River at Vernalis, Above Normal Year Average Flow



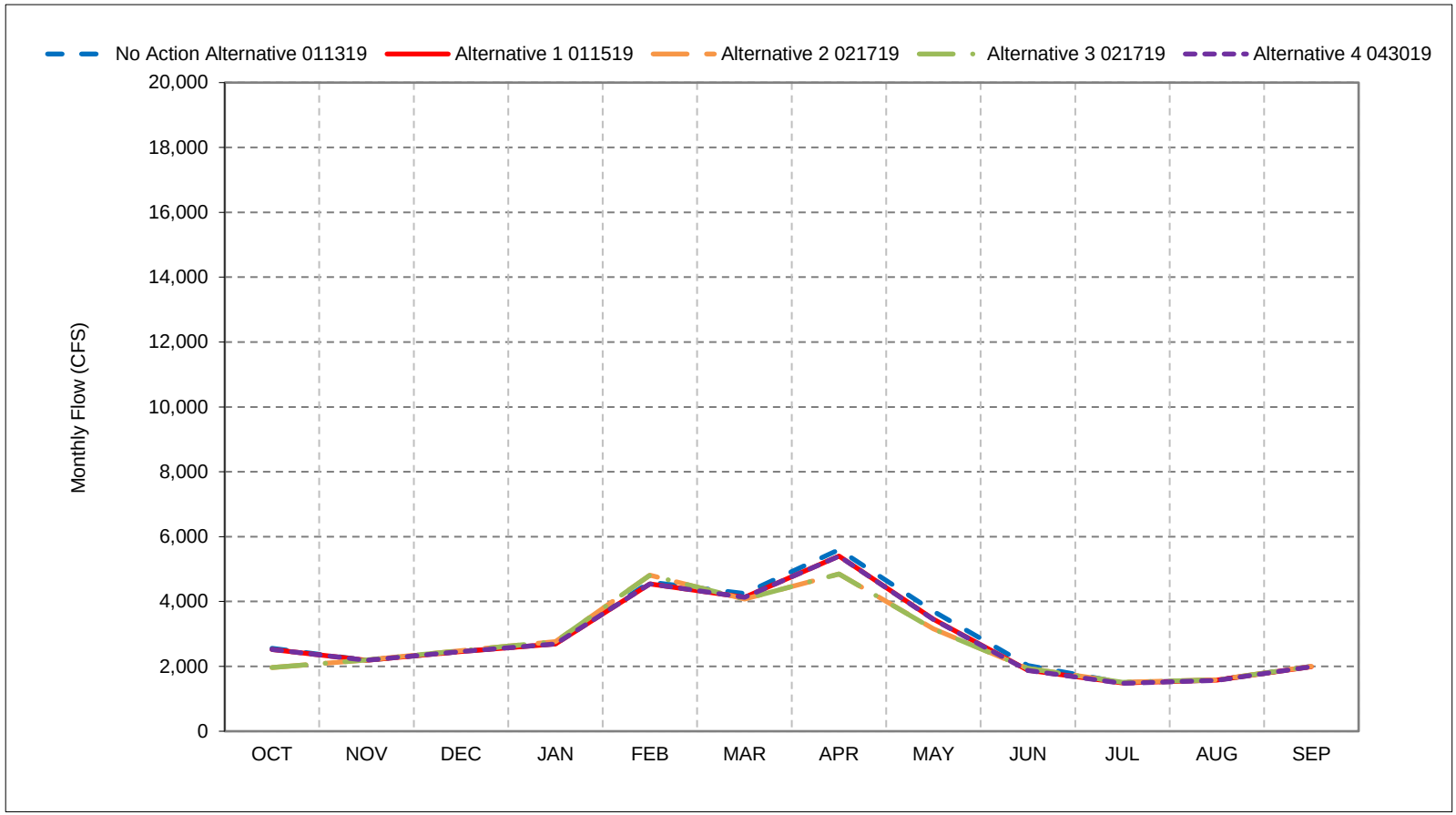
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39-4. San Joaquin River at Vernalis, Below Normal Year Average Flow



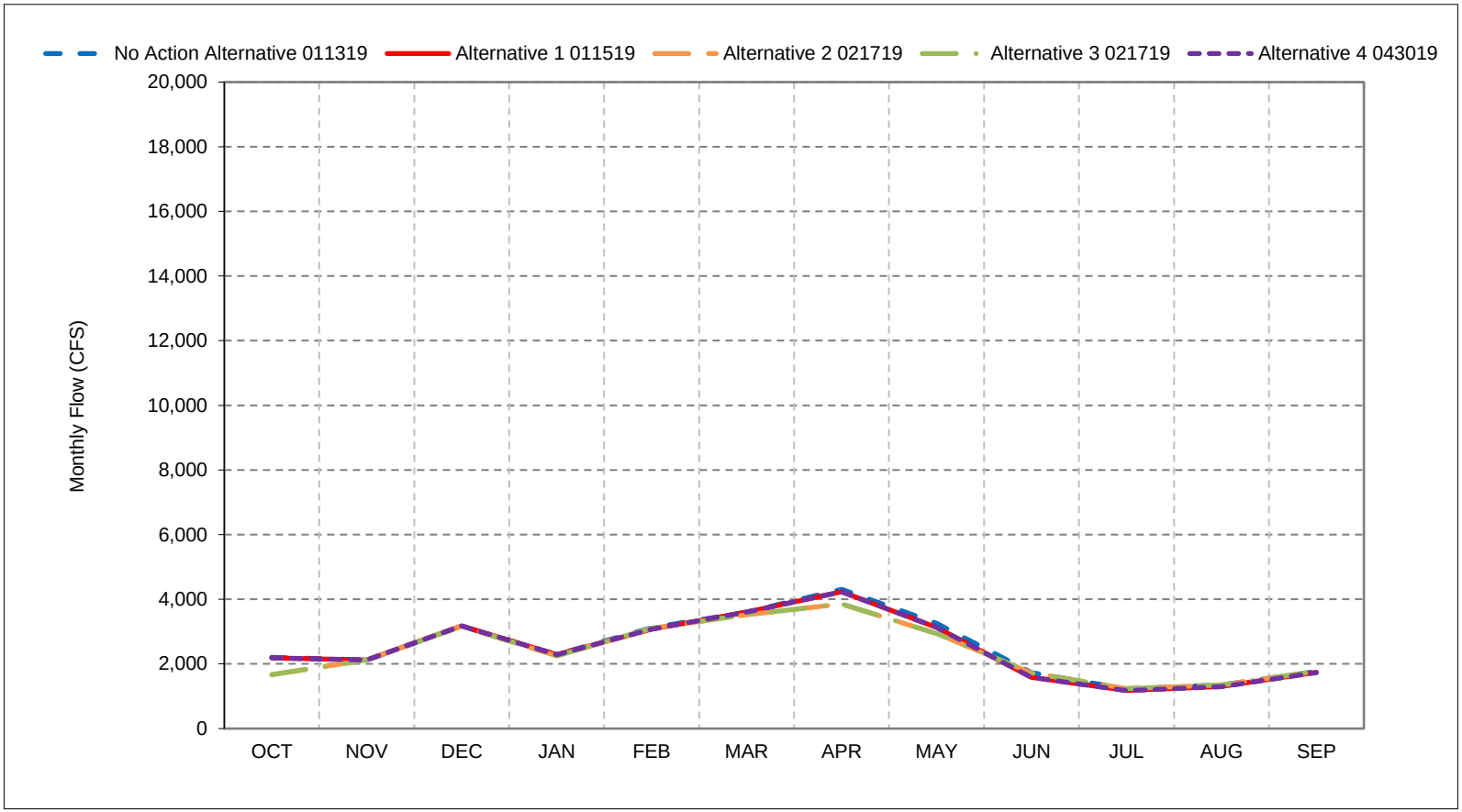
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39-5. San Joaquin River at Vernalis, Dry Year Average Flow



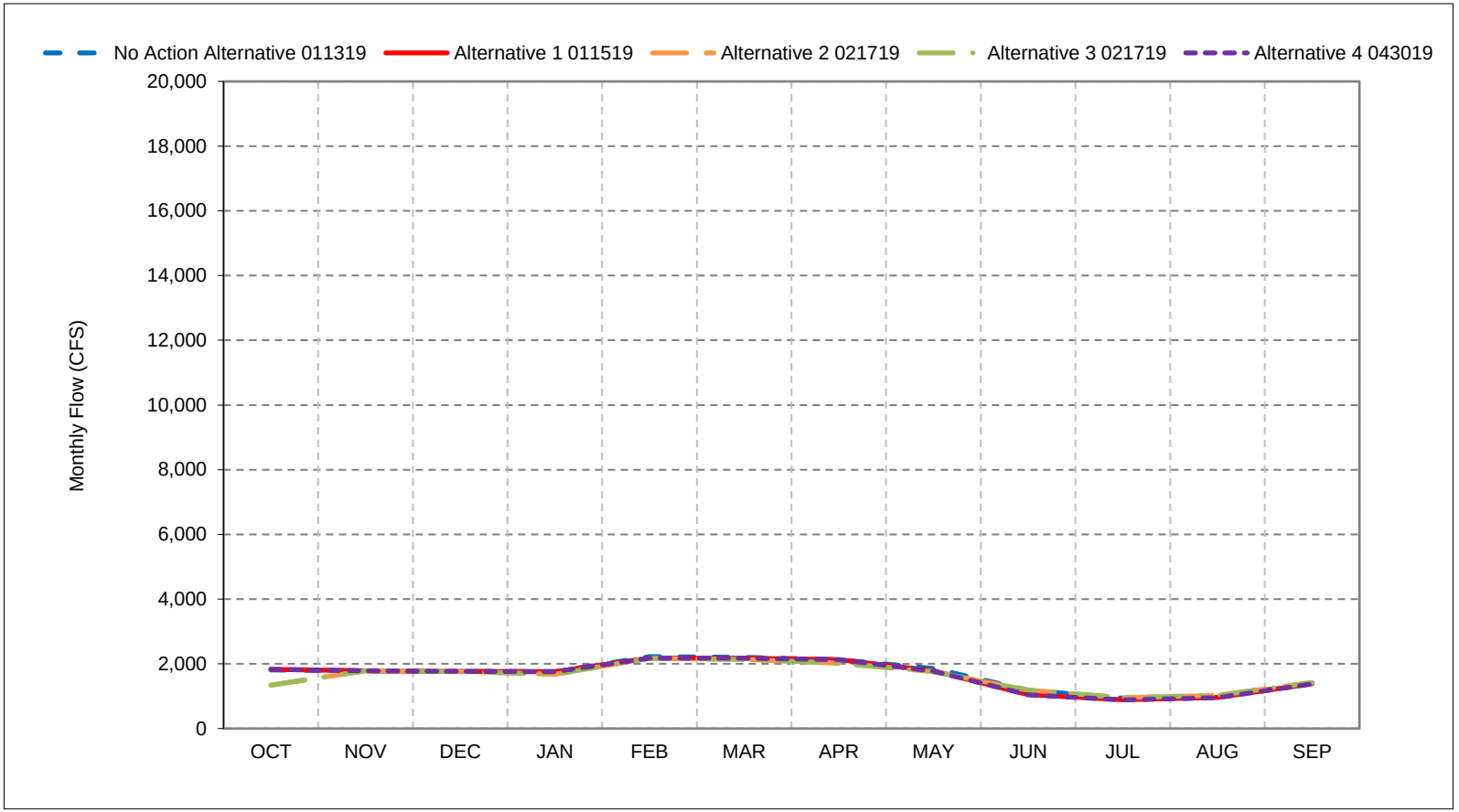
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

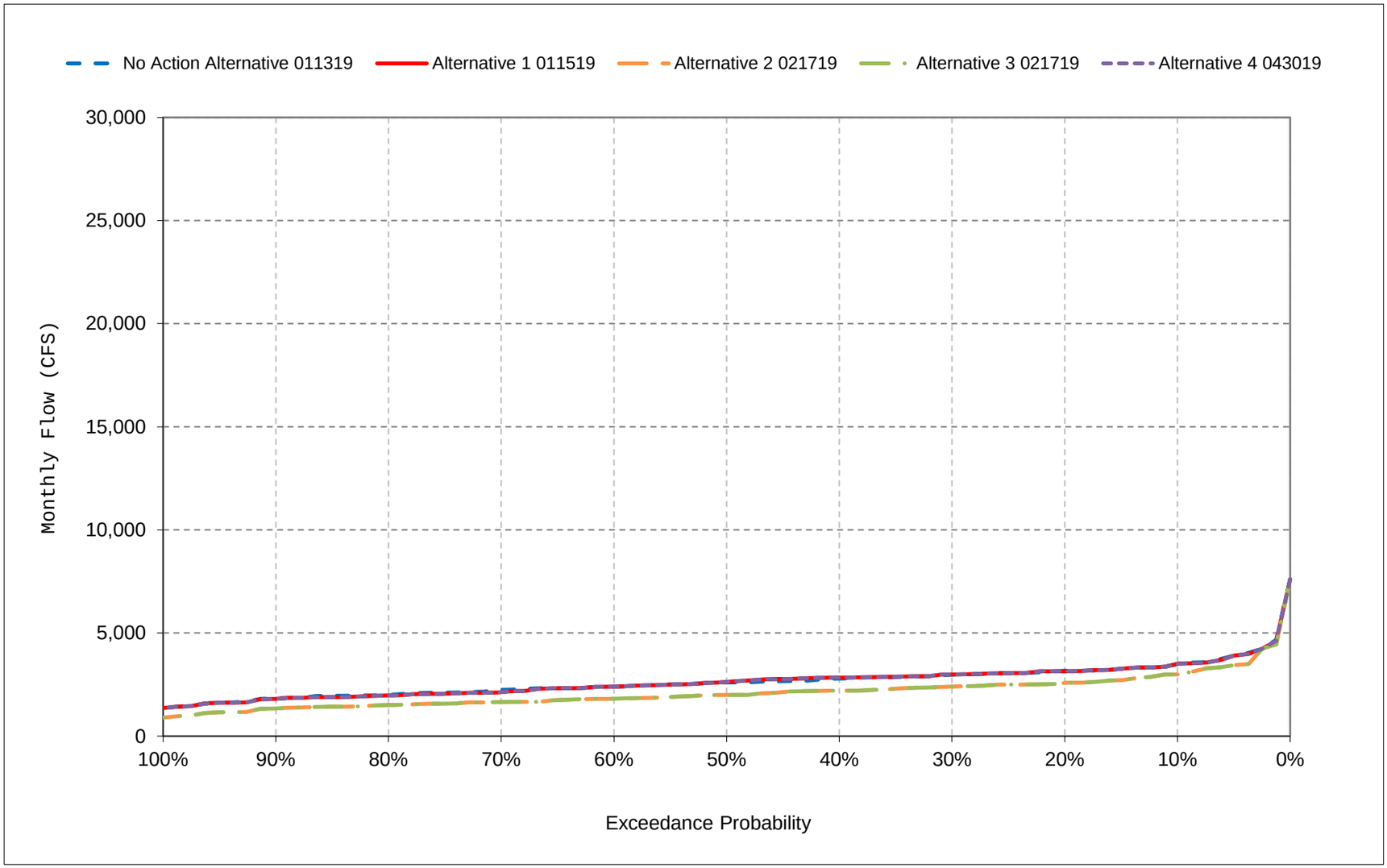
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39-6. San Joaquin River at Vernalis, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

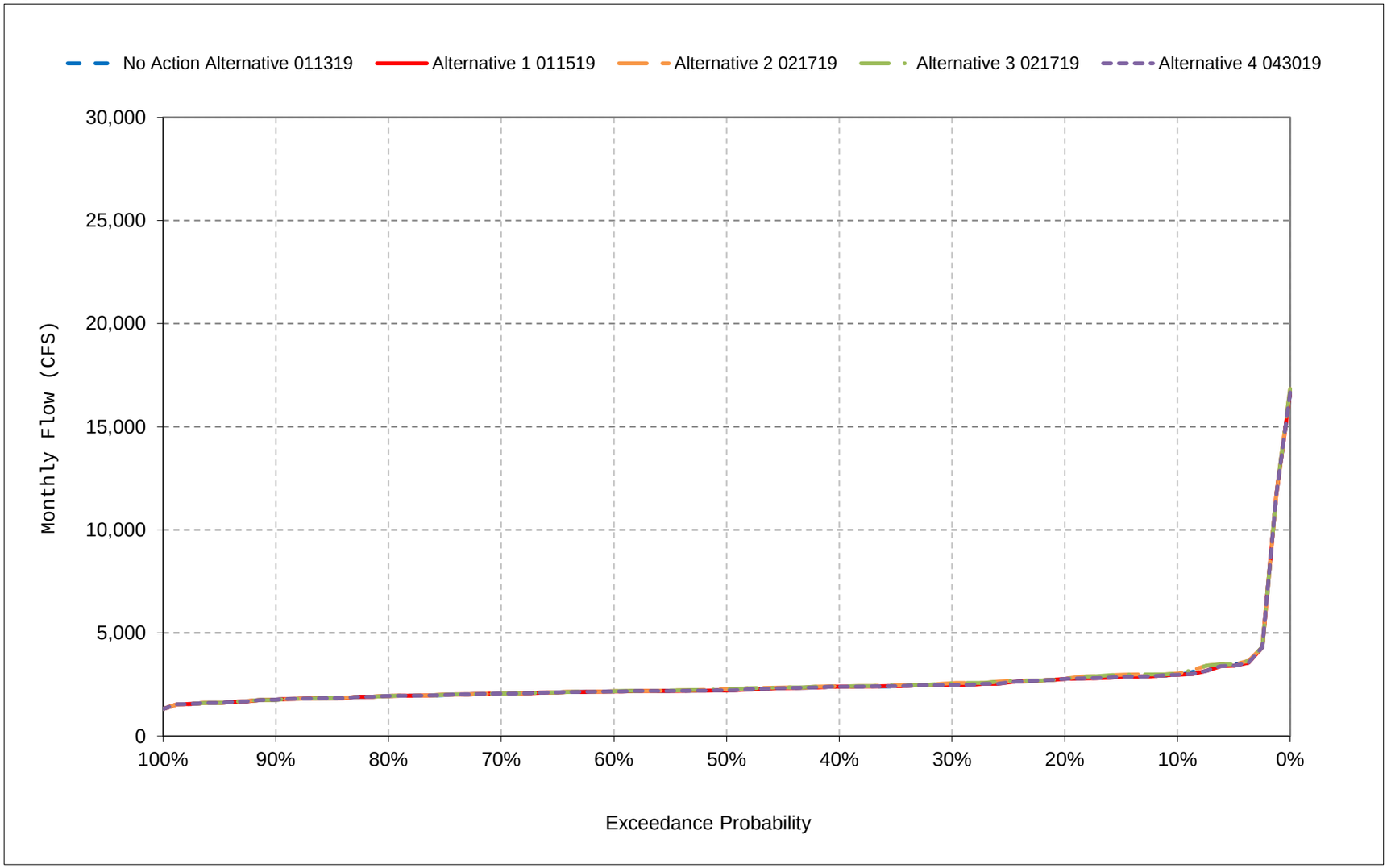
Figure 39-7. San Joaquin River at Vernalis, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

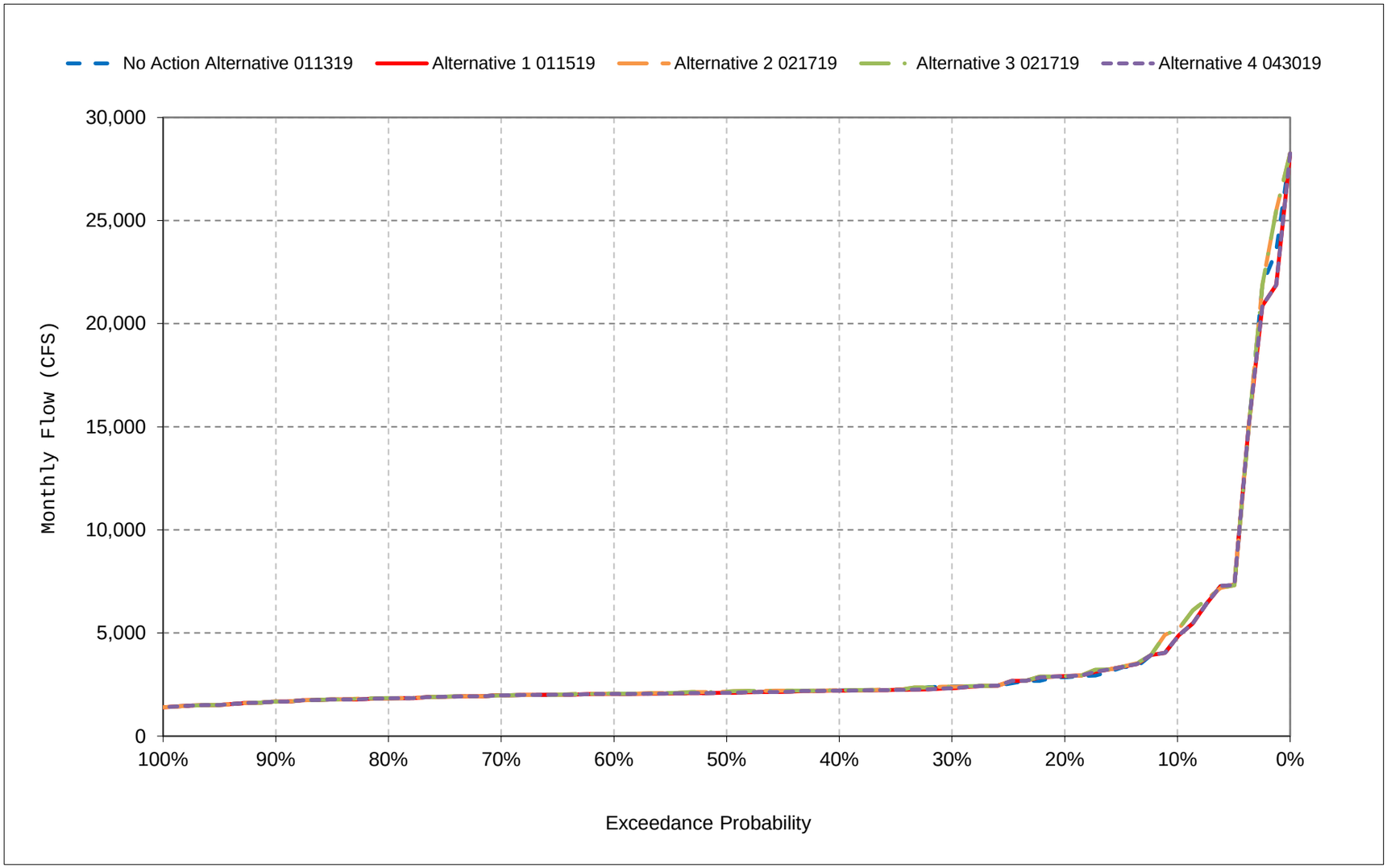
Figure 39-8. San Joaquin River at Vernalis, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

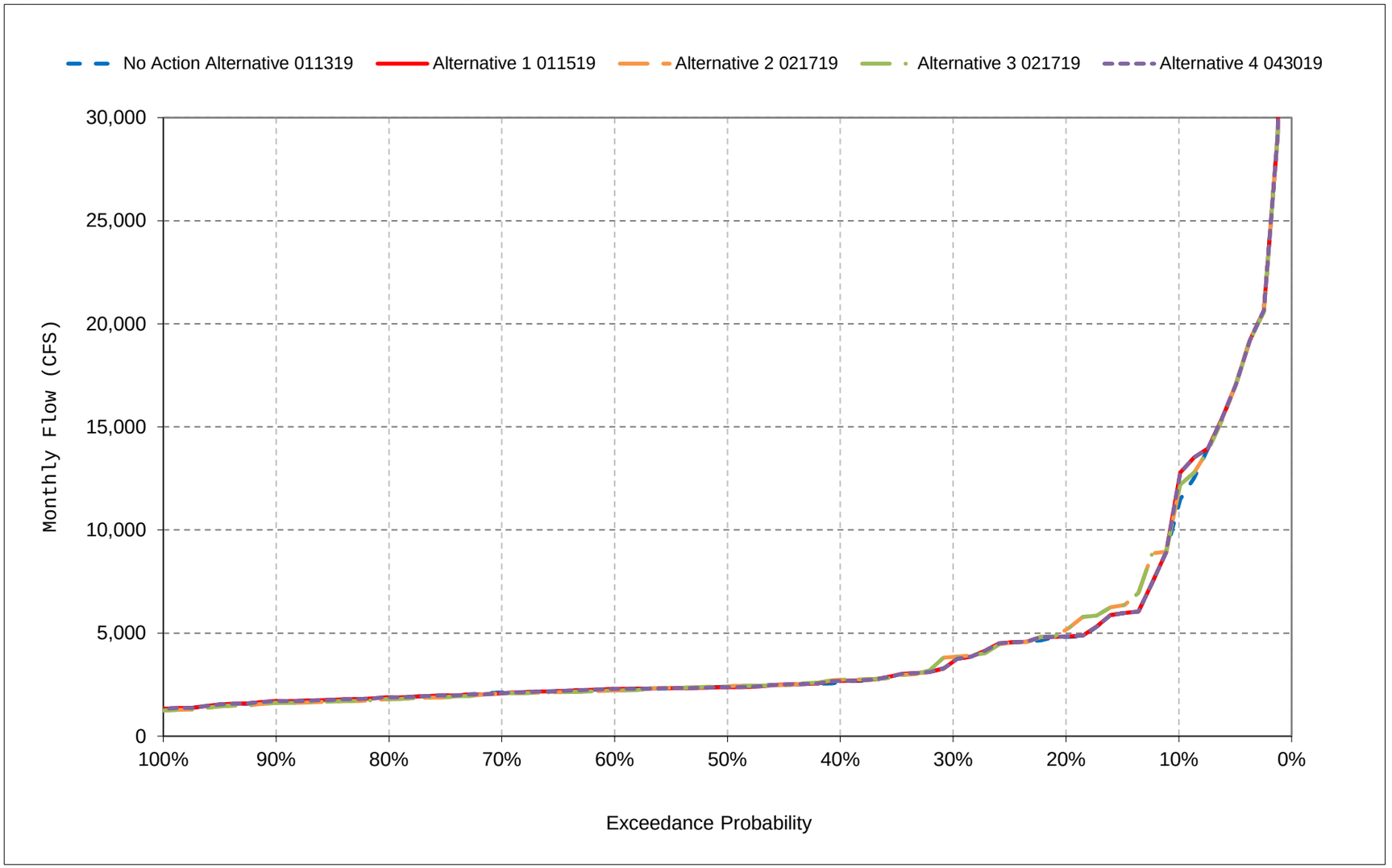
Figure 39-9. San Joaquin River at Vernalis, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

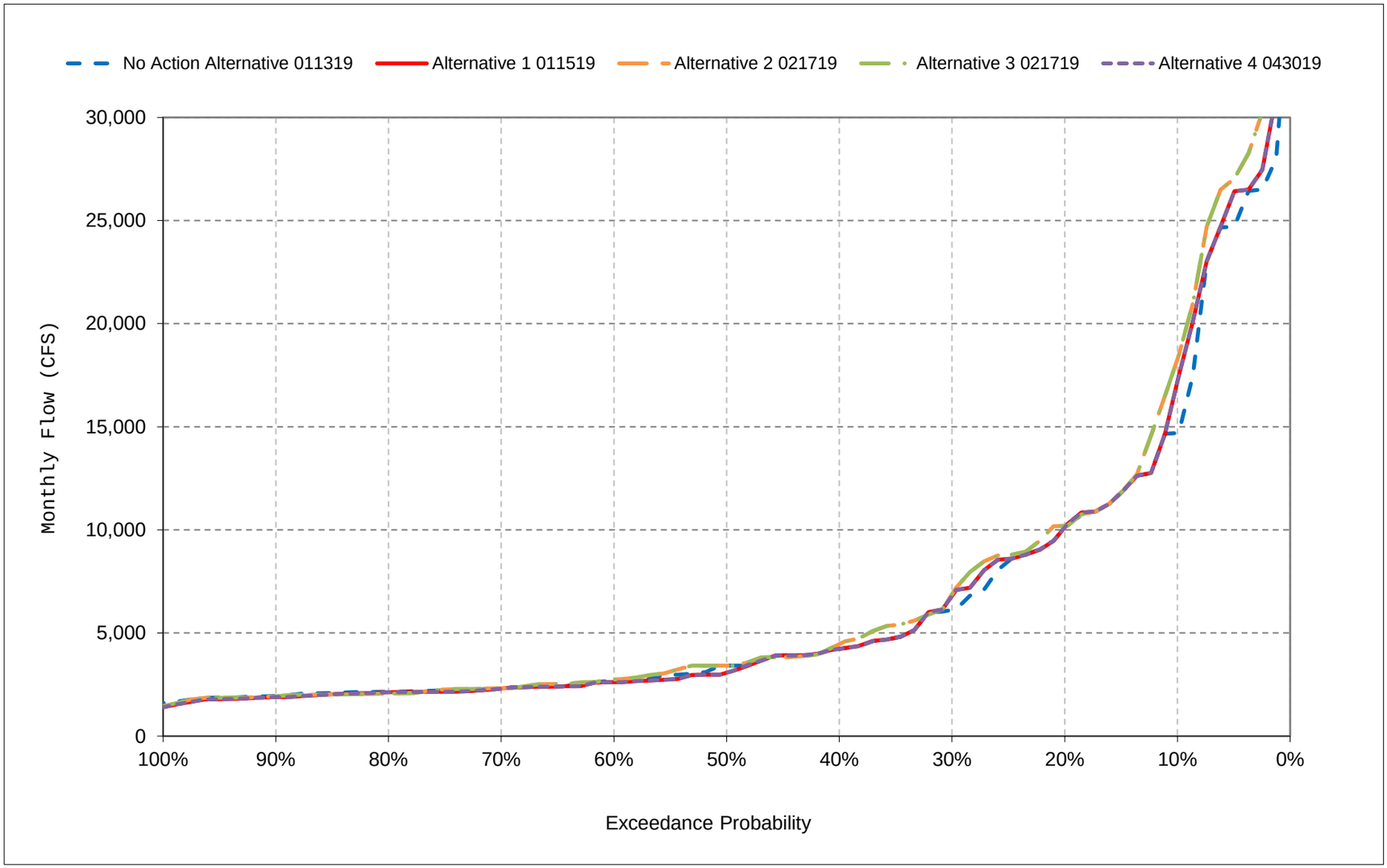
Figure 39-10. San Joaquin River at Vernalis, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

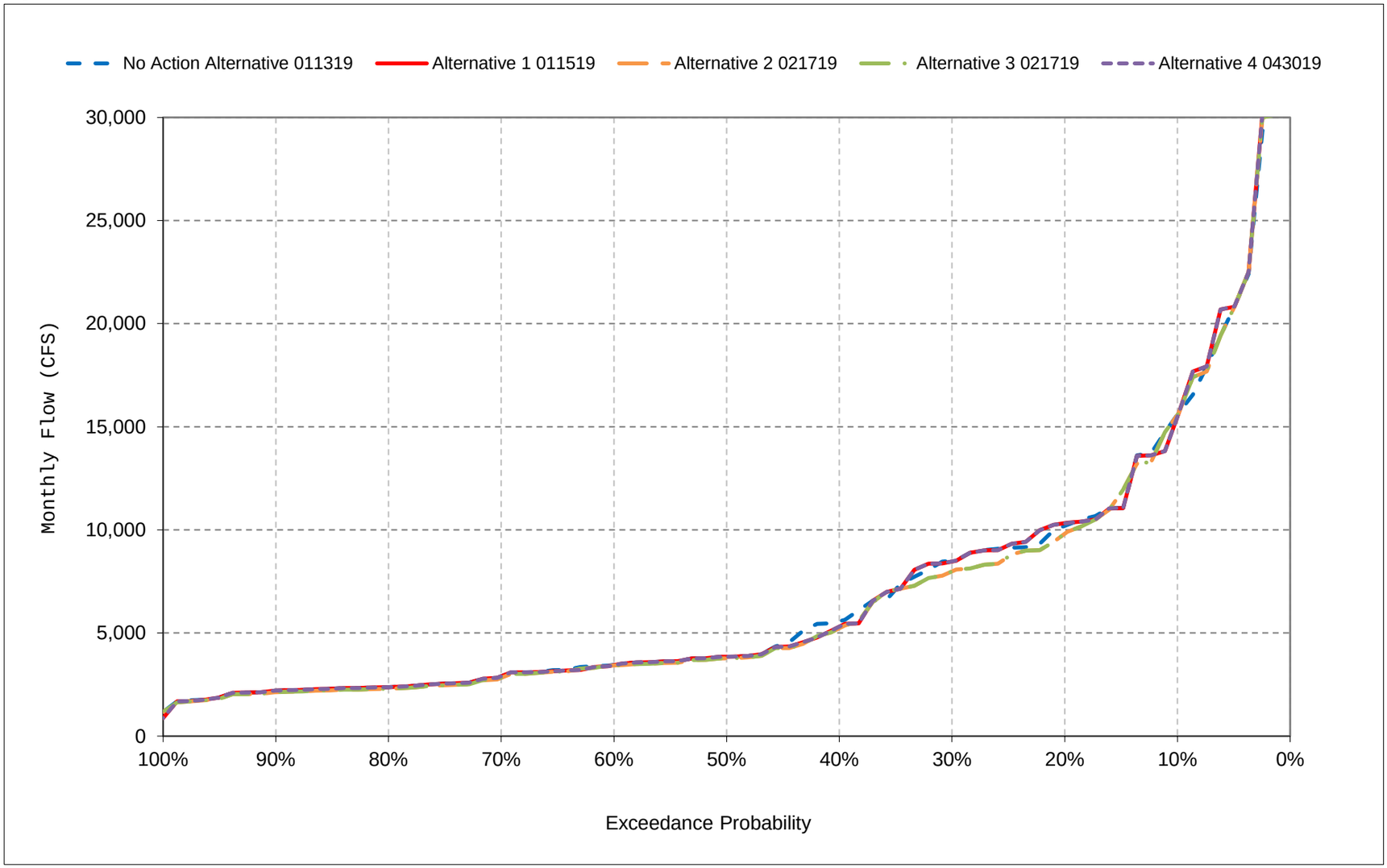
Figure 39-11. San Joaquin River at Vernalis, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

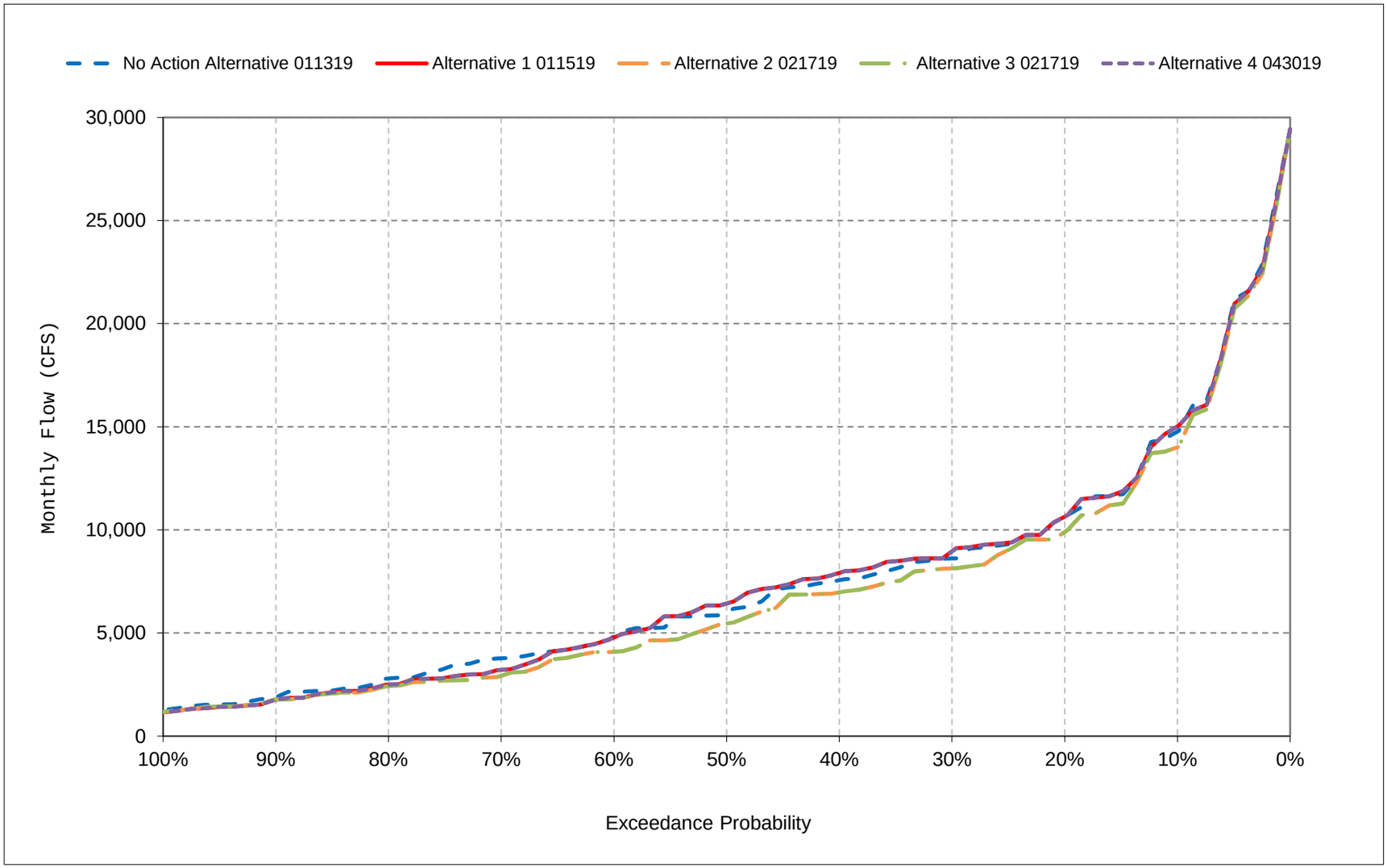
Figure 39-12. San Joaquin River at Vernalis, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

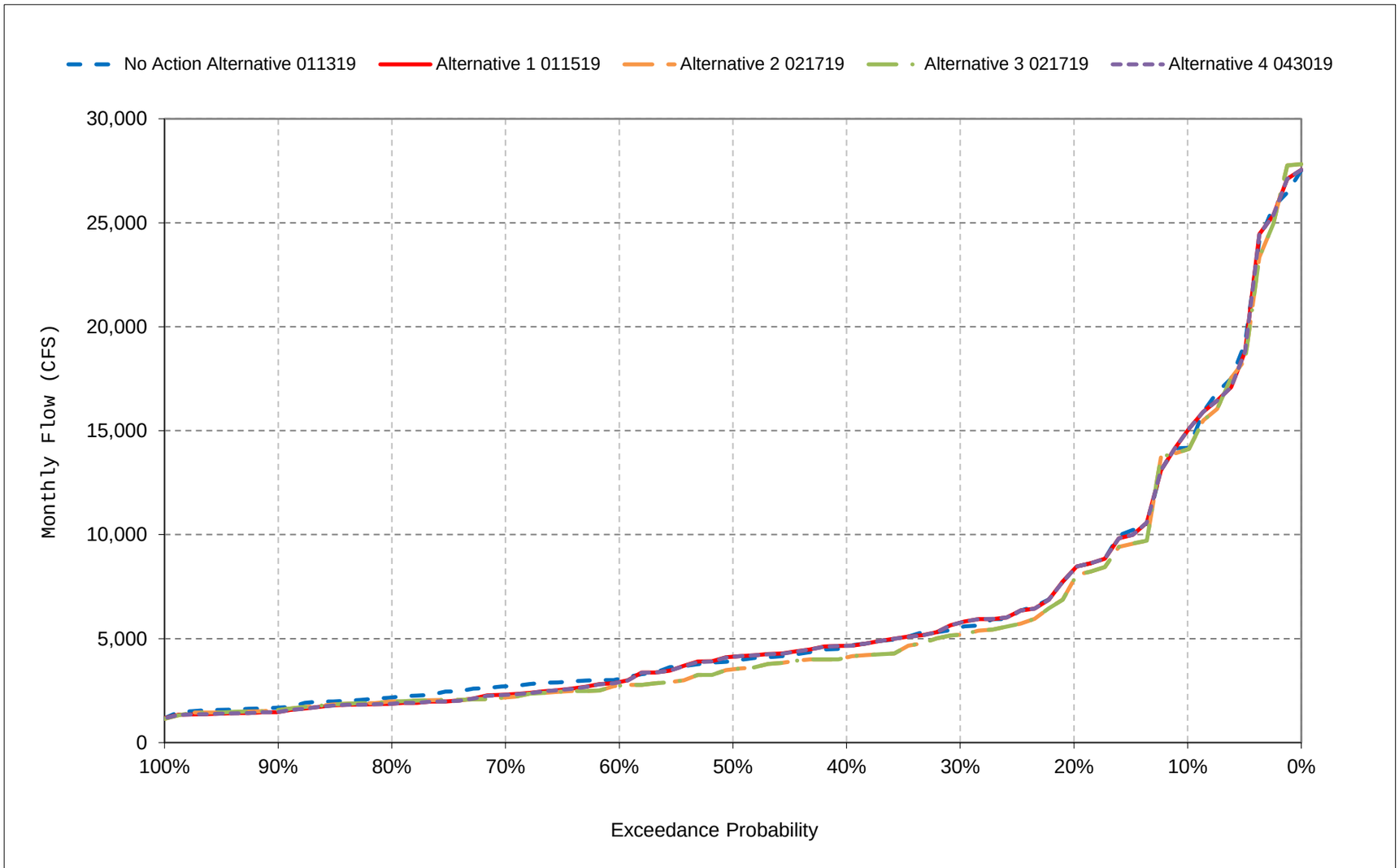
Figure 39-13. San Joaquin River at Vernalis, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

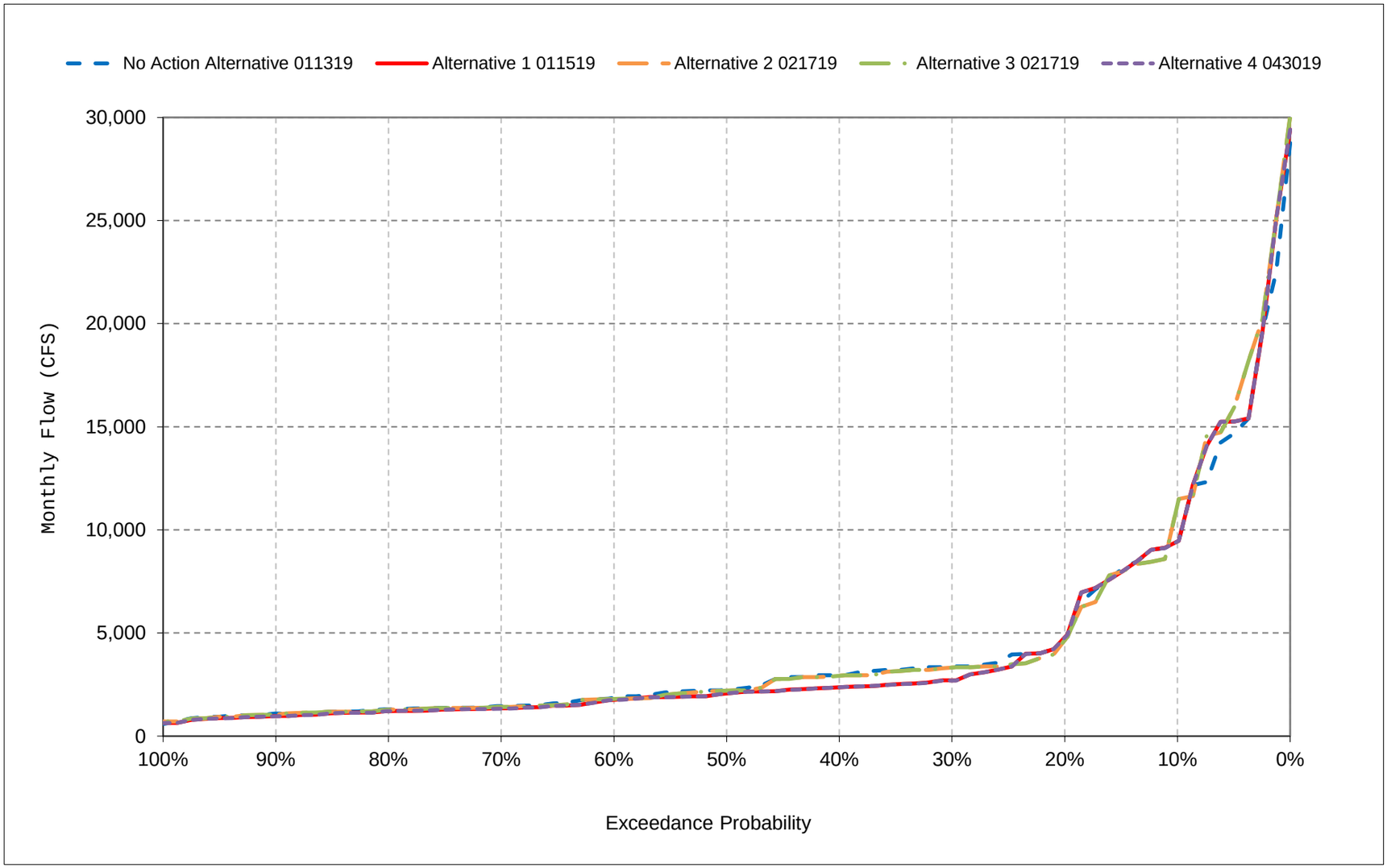
Figure 39-14. San Joaquin River at Vernalis, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

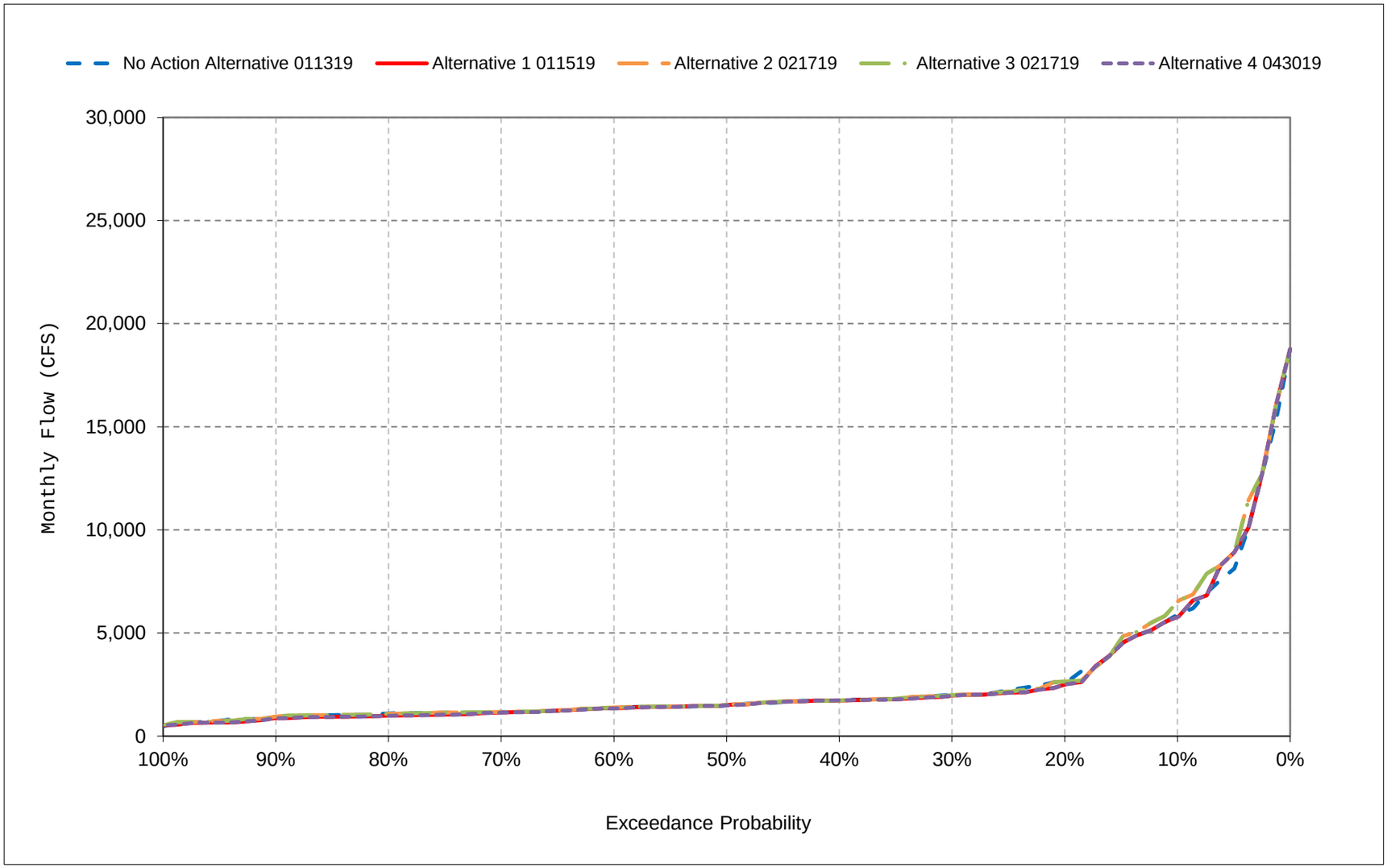
Figure 39-15. San Joaquin River at Vernalis, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

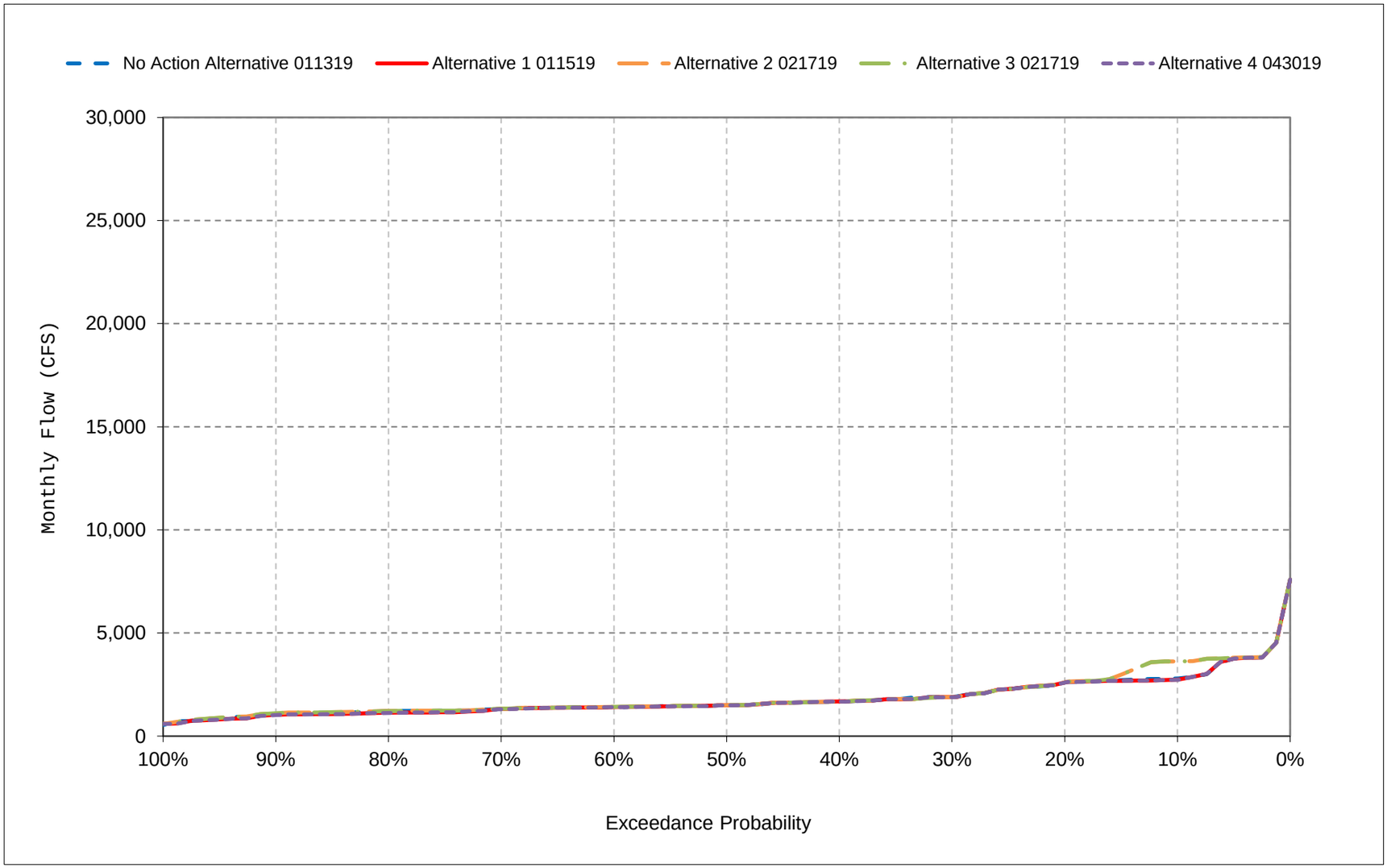
Figure 39-16. San Joaquin River at Vernalis, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

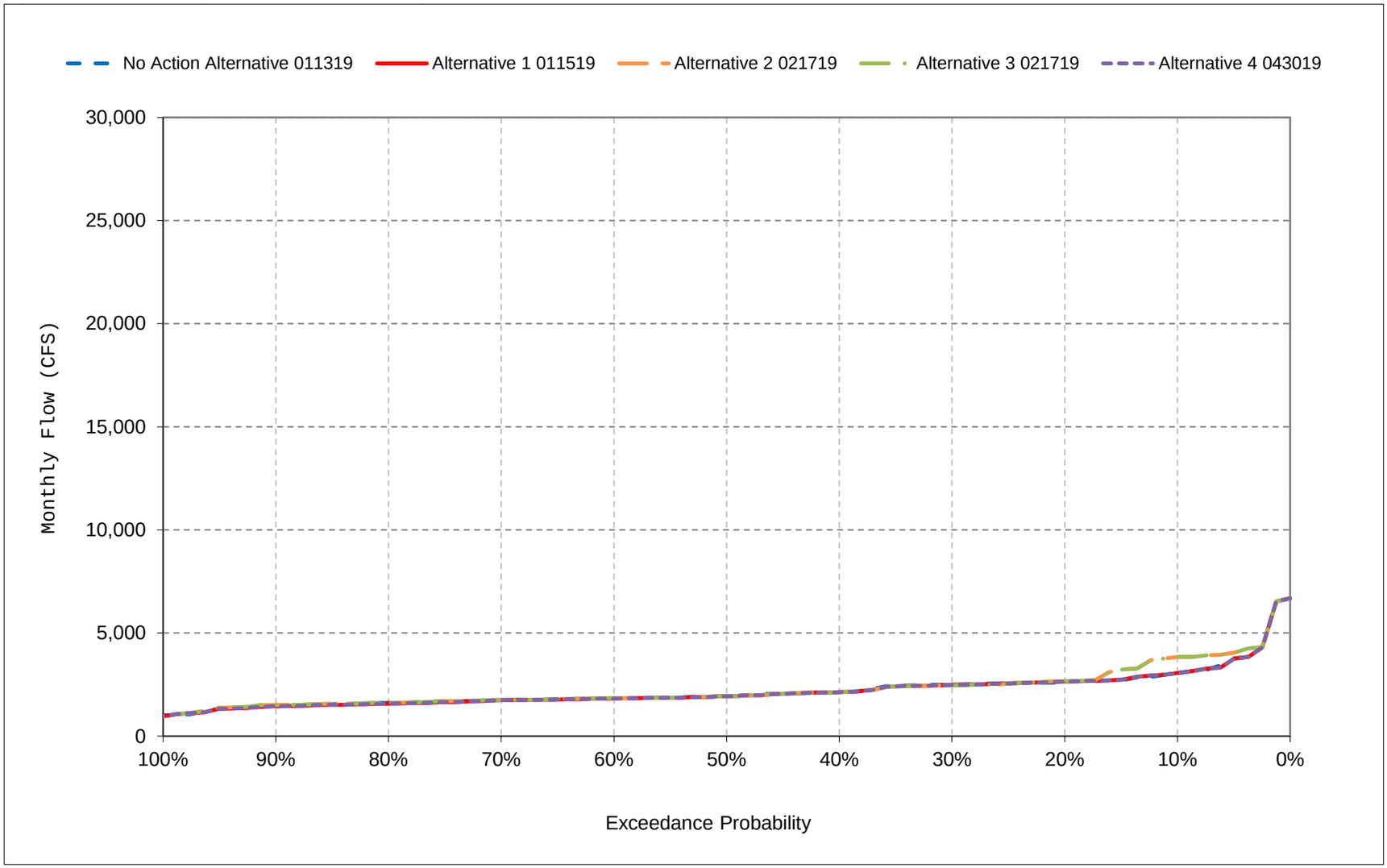
Figure 39-17. San Joaquin River at Vernalis, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39-18. San Joaquin River at Vernalis, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 39b-1. San Joaquin River at Vernalis (60-20-20), Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,499	2,953	4,804	11,236	14,693	15,582	14,771	14,178	9,432	5,890	2,796	3,060
20%	3,162	2,777	2,857	4,812	10,133	10,196	10,640	8,319	4,695	2,634	2,595	2,655
30%	2,980	2,527	2,401	3,611	6,119	8,499	8,616	5,538	3,364	1,990	1,909	2,491
40%	2,796	2,395	2,216	2,629	4,232	5,570	7,564	4,615	2,947	1,741	1,672	2,125
50%	2,602	2,219	2,101	2,402	3,420	3,847	6,019	3,929	2,244	1,493	1,492	1,932
60%	2,401	2,169	2,046	2,293	2,684	3,459	4,835	3,064	1,864	1,370	1,408	1,837
70%	2,247	2,059	1,979	2,114	2,305	2,906	3,778	2,705	1,449	1,163	1,310	1,741
80%	1,995	1,951	1,829	1,883	2,151	2,371	2,792	2,167	1,298	1,099	1,207	1,613
90%	1,849	1,763	1,669	1,699	1,947	2,205	1,888	1,680	1,091	891	1,068	1,477
Long Term												
Full Simulation Period[a]	2,672	2,613	3,393	5,079	6,664	7,282	7,522	6,066	4,211	2,630	1,850	2,225
Water Year Types[b,c]												
Wet (23%)	3,611	4,025	6,134	11,463	15,794	16,880	15,399	14,703	11,398	6,693	3,136	3,417
Above Normal (24%)	2,947	2,582	2,953	4,898	6,903	7,536	8,537	5,295	3,282	1,996	1,979	2,347
Below Normal (10%)	2,518	2,133	2,067	3,520	3,651	4,149	6,338	4,142	2,077	1,466	1,448	1,838
Dry (16%)	2,289	2,153	3,123	2,402	2,549	3,241	3,998	2,808	1,685	1,260	1,351	1,778
Critical (27%)	1,864	1,849	2,077	1,878	2,091	2,288	2,310	1,932	1,119	932	1,064	1,489

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,500	2,975	4,804	12,398	17,192	15,482	15,015	15,004	9,433	5,780	2,744	3,060
20%	3,148	2,778	2,904	4,838	10,122	10,324	10,641	8,327	4,781	2,503	2,602	2,635
30%	2,996	2,483	2,321	3,613	6,806	8,470	8,960	5,767	2,704	1,957	1,894	2,486
40%	2,835	2,395	2,204	2,681	4,232	5,306	7,921	4,655	2,370	1,730	1,679	2,128
50%	2,628	2,219	2,101	2,371	3,071	3,847	6,437	4,131	2,069	1,507	1,497	1,933
60%	2,402	2,170	2,046	2,290	2,614	3,440	4,786	2,910	1,757	1,362	1,407	1,830
70%	2,137	2,060	1,979	2,084	2,305	2,906	3,212	2,305	1,351	1,153	1,319	1,743
80%	1,978	1,951	1,829	1,883	2,128	2,372	2,500	1,866	1,217	994	1,136	1,575
90%	1,807	1,763	1,669	1,699	1,891	2,205	1,765	1,473	978	874	1,029	1,452
Long Term												
Full Simulation Period[a]	2,669	2,607	3,368	5,109	6,792	7,290	7,513	5,982	4,102	2,619	1,831	2,214
Water Year Types[b,c]												
Wet (23%)	3,607	4,001	6,006	11,466	16,343	17,052	15,339	14,678	11,759	6,815	3,125	3,417
Above Normal (24%)	2,994	2,579	2,964	4,928	6,922	7,468	8,887	5,409	2,691	1,915	1,976	2,340
Below Normal (10%)	2,542	2,133	2,067	3,784	3,834	4,032	6,497	4,189	1,974	1,473	1,454	1,836
Dry (16%)	2,239	2,153	3,132	2,393	2,464	3,241	3,795	2,537	1,570	1,245	1,349	1,776
Critical (27%)	1,829	1,849	2,077	1,871	2,058	2,274	2,071	1,680	1,040	864	1,003	1,457

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	22	0	1,162	2,499	**-100**	245	826	1	**-111**	**-52**	0
20%	**-14**	0	47	26	**-11**	128	1	7	87	**-131**	7	**-20**
30%	16	**-45**	**-79**	3	687	**-29**	344	229	**-660**	**-33**	**-15**	**-5**
40%	39	0	**-11**	52	0	**-264**	357	39	**-577**	**-11**	7	3
50%	26	0	0	**-30**	**-349**	0	419	202	**-175**	14	5	1
60%	1	0	0	**-3**	**-70**	**-19**	**-48**	**-154**	**-107**	**-9**	**-1**	**-8**
70%	**-111**	1	0	**-30**	0	0	**-566**	**-400**	**-98**	**-10**	9	2
80%	**-17**	1	0	**-1**	**-23**	0	**-292**	**-301**	**-81**	**-105**	**-71**	**-38**
90%	**-42**	0	0	0	**-56**	**0**	**-123**	**-208**	**-113**	**-17**	**-39**	**-25**
Long Term												
Full Simulation Period[a]	**-4**	**-6**	**-26**	31	127	8	**-10**	**-84**	**-110**	**-11**	**-20**	**-11**
Water Year Types[b,c]												
Wet (23%)	**-4**	**-24**	**-128**	3	550	171	**-61**	**-25**	362	122	**-11**	0
Above Normal (24%)	47	**-3**	11	31	19	**-68**	349	114	**-591**	**-80**	**-4**	**-6**
Below Normal (10%)	23	0	0	264	183	**-117**	159	47	**-103**	7	6	**-2**
Dry (16%)	**-50**	0	9	**-9**	**-85**	1	**-203**	**-271**	**-114**	**-15**	**-1**	**-2**
Critical (27%)	**-36**	0	0	**-7**	**-33**	**-15**	**-239**	**-253**	**-80**	**-68**	**-61**	**-32**

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 39b-2. San Joaquin River at Vernalis (60-20-20), Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,499	2,953	4,804	11,236	14,693	15,582	14,771	14,178	9,432	5,890	2,796	3,060
20%	3,162	2,777	2,857	4,812	10,133	10,196	10,640	8,319	4,695	2,634	2,595	2,655
30%	2,980	2,527	2,401	3,611	6,119	8,499	8,616	5,538	3,364	1,990	1,909	2,491
40%	2,796	2,395	2,216	2,629	4,232	5,570	7,564	4,615	2,947	1,741	1,672	2,125
50%	2,602	2,219	2,101	2,402	3,420	3,847	6,019	3,929	2,244	1,493	1,492	1,932
60%	2,401	2,169	2,046	2,293	2,684	3,459	4,835	3,064	1,864	1,370	1,408	1,837
70%	2,247	2,059	1,979	2,114	2,305	2,906	3,778	2,705	1,449	1,163	1,310	1,741
80%	1,995	1,951	1,829	1,883	2,151	2,371	2,792	2,167	1,298	1,099	1,207	1,613
90%	1,849	1,763	1,669	1,699	1,947	2,205	1,888	1,680	1,091	891	1,068	1,477
Long Term												
Full Simulation Period[a]	2,672	2,613	3,393	5,079	6,664	7,282	7,522	6,066	4,211	2,630	1,850	2,225
Water Year Types[b,c]												
Wet (23%)	3,611	4,025	6,134	11,463	15,794	16,880	15,399	14,703	11,398	6,693	3,136	3,417
Above Normal (24%)	2,947	2,582	2,953	4,898	6,903	7,536	8,537	5,295	3,282	1,996	1,979	2,347
Below Normal (10%)	2,518	2,133	2,067	3,520	3,651	4,149	6,338	4,142	2,077	1,466	1,448	1,838
Dry (16%)	2,289	2,153	3,123	2,402	2,549	3,241	3,998	2,808	1,685	1,260	1,351	1,778
Critical (27%)	1,864	1,849	2,077	1,878	2,091	2,288	2,310	1,932	1,119	932	1,064	1,489

Alternative 2 021719

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,995	3,035	5,167	11,871	18,275	15,573	14,007	14,108	11,204	6,506	3,628	3,832
20%	2,574	2,785	2,905	5,157	10,195	9,815	9,895	7,826	4,651	2,649	2,604	2,665
30%	2,404	2,566	2,400	3,841	6,878	7,989	8,132	5,189	3,321	1,984	1,896	2,466
40%	2,202	2,412	2,223	2,730	4,465	5,231	6,973	4,097	2,925	1,734	1,677	2,129
50%	1,997	2,270	2,162	2,420	3,420	3,773	5,461	3,526	2,205	1,512	1,505	1,937
60%	1,815	2,176	2,063	2,212	2,741	3,429	4,089	2,737	1,804	1,386	1,421	1,840
70%	1,652	2,064	1,979	2,069	2,325	2,831	2,933	2,172	1,420	1,179	1,329	1,746
80%	1,510	1,952	1,838	1,792	2,065	2,297	2,424	1,977	1,274	1,082	1,218	1,614
90%	1,339	1,763	1,669	1,615	1,928	2,131	1,774	1,563	1,045	946	1,111	1,512
Long Term												
Full Simulation Period[a]	2,152	2,639	3,464	5,131	7,102	7,136	7,046	5,709	4,289	2,712	1,922	2,305
Water Year Types[b,c]												
Wet (23%)	3,190	4,106	6,390	11,573	17,339	16,521	15,032	14,382	11,895	7,047	3,409	3,755
Above Normal (24%)	2,386	2,610	2,999	5,031	7,100	7,471	8,003	4,909	3,205	1,967	1,978	2,332
Below Normal (10%)	1,885	2,137	2,071	3,643	3,895	3,974	5,368	3,412	1,948	1,482	1,461	1,838
Dry (16%)	1,724	2,153	3,123	2,408	2,677	3,167	3,401	2,402	1,664	1,275	1,368	1,786
Critical (27%)	1,362	1,849	2,073	1,810	2,043	2,222	2,041	1,734	1,109	943	1,080	1,504

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-504**	83	364	635	3,582	**-9**	**-764**	**-71**	1,771	615	832	772
20%	**-589**	7	47	346	62	**-381**	**-745**	**-493**	**-44**	14	9	9
30%	**-576**	39	**-1**	231	759	**-510**	**-484**	**-349**	**-43**	**-6**	**-13**	**-26**
40%	**-594**	17	7	102	233	**-339**	**-591**	**-519**	**-22**	**-7**	5	4
50%	**-605**	51	61	19	0	**-73**	**-557**	**-403**	**-39**	18	13	6
60%	**-586**	7	17	**-81**	57	**-31**	**-745**	**-328**	**-60**	15	12	3
70%	**-596**	4	0	**-45**	21	**-75**	**-845**	**-533**	**-29**	16	19	4
80%	**-485**	1	8	**-91**	**-86**	**-74**	**-368**	**-189**	**-24**	**-17**	11	1
90%	**-510**	**0**	0	**-84**	**-19**	**-74**	**-115**	**-118**	**-46**	55	43	36
Long Term												
Full Simulation Period[a]	**-521**	26	70	53	437	**-146**	**-477**	**-357**	78	82	71	80
Water Year Types[b,c]												
Wet (23%)	**-420**	81	256	109	1,545	**-359**	**-368**	**-321**	497	354	273	338
Above Normal (24%)	**-561**	28	46	133	197	**-65**	**-535**	**-387**	**-76**	**-29**	**-1**	**-15**
Below Normal (10%)	**-634**	4	4	123	244	**-175**	**-970**	**-730**	**-130**	16	13	**0**
Dry (16%)	**-565**	0	0	6	128	**-74**	**-596**	**-406**	**-21**	15	17	8
Critical (27%)	**-503**	0	**-4**	**-68**	**-48**	**-67**	**-268**	**-198**	**-10**	10	16	16

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 39b-3. San Joaquin River at Vernalis (60-20-20), Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,499	2,953	4,804	11,236	14,693	15,582	14,771	14,178	9,432	5,890	2,796	3,060
20%	3,162	2,777	2,857	4,812	10,133	10,196	10,640	8,319	4,695	2,634	2,595	2,655
30%	2,980	2,527	2,401	3,611	6,119	8,499	8,616	5,538	3,364	1,990	1,909	2,491
40%	2,796	2,395	2,216	2,629	4,232	5,570	7,564	4,615	2,947	1,741	1,672	2,125
50%	2,602	2,219	2,101	2,402	3,420	3,847	6,019	3,929	2,244	1,493	1,492	1,932
60%	2,401	2,169	2,046	2,293	2,684	3,459	4,835	3,064	1,864	1,370	1,408	1,837
70%	2,247	2,059	1,979	2,114	2,305	2,906	3,778	2,705	1,449	1,163	1,310	1,741
80%	1,995	1,951	1,829	1,883	2,151	2,371	2,792	2,167	1,298	1,099	1,207	1,613
90%	1,849	1,763	1,669	1,699	1,947	2,205	1,888	1,680	1,091	891	1,068	1,477
Long Term												
Full Simulation Period[a]	2,672	2,613	3,393	5,079	6,664	7,282	7,522	6,066	4,211	2,630	1,850	2,225
Water Year Types[b,c]												
Wet (23%)	3,611	4,025	6,134	11,463	15,794	16,880	15,399	14,703	11,398	6,693	3,136	3,417
Above Normal (24%)	2,947	2,582	2,953	4,898	6,903	7,536	8,537	5,295	3,282	1,996	1,979	2,347
Below Normal (10%)	2,518	2,133	2,067	3,520	3,651	4,149	6,338	4,142	2,077	1,466	1,448	1,838
Dry (16%)	2,289	2,153	3,123	2,402	2,549	3,241	3,998	2,808	1,685	1,260	1,351	1,778
Critical (27%)	1,864	1,849	2,077	1,878	2,091	2,288	2,310	1,932	1,119	932	1,064	1,489

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,995	3,035	5,167	11,871	18,273	15,574	14,007	14,108	11,204	6,506	3,628	3,832
20%	2,574	2,785	2,905	5,157	10,196	9,815	9,895	7,826	4,651	2,649	2,604	2,664
30%	2,404	2,566	2,400	3,842	6,878	7,989	8,132	5,189	3,321	1,982	1,896	2,466
40%	2,202	2,412	2,223	2,730	4,465	5,231	6,972	4,097	2,925	1,734	1,676	2,129
50%	1,997	2,270	2,162	2,420	3,420	3,773	5,461	3,526	2,206	1,512	1,505	1,937
60%	1,815	2,176	2,063	2,211	2,741	3,428	4,089	2,737	1,805	1,386	1,421	1,840
70%	1,652	2,064	1,979	2,069	2,325	2,831	2,931	2,173	1,420	1,179	1,329	1,746
80%	1,510	1,952	1,838	1,792	2,065	2,297	2,424	1,978	1,274	1,082	1,218	1,615
90%	1,339	1,763	1,669	1,615	1,928	2,130	1,773	1,563	1,045	946	1,111	1,512
Long Term												
Full Simulation Period[a]	2,152	2,639	3,464	5,131	7,102	7,136	7,045	5,709	4,289	2,712	1,921	2,305
Water Year Types[b,c]												
Wet (23%)	3,190	4,106	6,390	11,573	17,340	16,521	15,032	14,383	11,895	7,046	3,408	3,755
Above Normal (24%)	2,386	2,610	2,999	5,031	7,100	7,470	8,002	4,909	3,205	1,966	1,978	2,332
Below Normal (10%)	1,885	2,137	2,071	3,643	3,895	3,974	5,368	3,411	1,947	1,481	1,461	1,838
Dry (16%)	1,724	2,153	3,123	2,408	2,677	3,167	3,401	2,402	1,664	1,275	1,367	1,786
Critical (27%)	1,362	1,849	2,073	1,810	2,043	2,222	2,041	1,734	1,109	942	1,080	1,504

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-504**	83	364	635	3,580	**-8**	**-763**	**-71**	1,771	615	832	772
20%	**-589**	7	47	346	62	**-381**	**-745**	**-493**	**-44**	14	8	9
30%	**-576**	39	**-1**	231	759	**-510**	**-484**	**-349**	**-43**	**-8**	**-12**	**-26**
40%	**-594**	17	7	102	233	**-339**	**-592**	**-518**	**-22**	**-7**	5	4
50%	**-605**	50	61	19	0	**-74**	**-557**	**-403**	**-38**	18	13	6
60%	**-587**	7	17	**-82**	57	**-31**	**-746**	**-328**	**-59**	16	12	2
70%	**-596**	4	0	**-45**	21	**-75**	**-846**	**-533**	**-29**	16	19	4
80%	**-485**	1	8	**-91**	**-86**	**-74**	**-368**	**-189**	**-24**	**-18**	10	1
90%	**-510**	**0**	0	**-84**	**-19**	**-74**	**-115**	**-118**	**-46**	55	43	36
Long Term												
Full Simulation Period[a]	**-521**	26	70	53	437	**-146**	**-477**	**-357**	78	81	71	80
Water Year Types[b,c]												
Wet (23%)	**-421**	81	256	110	1,546	**-359**	**-368**	**-320**	497	353	273	338
Above Normal (24%)	**-561**	28	46	133	197	**-66**	**-535**	**-387**	**-76**	**-29**	**-2**	**-15**
Below Normal (10%)	**-634**	4	4	123	244	**-175**	**-970**	**-731**	**-130**	15	12	**-1**
Dry (16%)	**-565**	0	0	6	128	**-74**	**-596**	**-406**	**-21**	15	17	8
Critical (27%)	**-503**	0	**-4**	**-68**	**-48**	**-67**	**-269**	**-199**	**-10**	10	16	15

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 39b-4. San Joaquin River at Vernalis (60-20-20), Monthly Flow

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,499	2,953	4,804	11,236	14,693	15,582	14,771	14,178	9,432	5,890	2,796	3,060
20%	3,162	2,777	2,857	4,812	10,133	10,196	10,640	8,319	4,695	2,634	2,595	2,655
30%	2,980	2,527	2,401	3,611	6,119	8,499	8,616	5,538	3,364	1,990	1,909	2,491
40%	2,796	2,395	2,216	2,629	4,232	5,570	7,564	4,615	2,947	1,741	1,672	2,125
50%	2,602	2,219	2,101	2,402	3,420	3,847	6,019	3,929	2,244	1,493	1,492	1,932
60%	2,401	2,169	2,046	2,293	2,684	3,459	4,835	3,064	1,864	1,370	1,408	1,837
70%	2,247	2,059	1,979	2,114	2,305	2,906	3,778	2,705	1,449	1,163	1,310	1,741
80%	1,995	1,951	1,829	1,883	2,151	2,371	2,792	2,167	1,298	1,099	1,207	1,613
90%	1,849	1,763	1,669	1,699	1,947	2,205	1,888	1,680	1,091	891	1,068	1,477
Long Term												
Full Simulation Period[a]	2,672	2,613	3,393	5,079	6,664	7,282	7,522	6,066	4,211	2,630	1,850	2,225
Water Year Types[b,c]												
Wet (23%)	3,611	4,025	6,134	11,463	15,794	16,880	15,399	14,703	11,398	6,693	3,136	3,417
Above Normal (24%)	2,947	2,582	2,953	4,898	6,903	7,536	8,537	5,295	3,282	1,996	1,979	2,347
Below Normal (10%)	2,518	2,133	2,067	3,520	3,651	4,149	6,338	4,142	2,077	1,466	1,448	1,838
Dry (16%)	2,289	2,153	3,123	2,402	2,549	3,241	3,998	2,808	1,685	1,260	1,351	1,778
Critical (27%)	1,864	1,849	2,077	1,878	2,091	2,288	2,310	1,932	1,119	932	1,064	1,489

Alternative 4 043019

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,498	2,975	4,804	12,398	17,169	15,483	15,014	15,003	9,433	5,780	2,735	3,060
20%	3,148	2,777	2,904	4,837	10,124	10,324	10,639	8,320	4,775	2,492	2,599	2,635
30%	2,996	2,483	2,321	3,612	6,813	8,476	8,957	5,766	2,698	1,955	1,888	2,483
40%	2,834	2,396	2,204	2,680	4,232	5,306	7,919	4,652	2,368	1,735	1,674	2,131
50%	2,627	2,219	2,101	2,371	3,070	3,847	6,432	4,126	2,064	1,490	1,493	1,929
60%	2,401	2,169	2,046	2,290	2,613	3,440	4,785	2,909	1,747	1,343	1,399	1,818
70%	2,136	2,058	1,979	2,084	2,305	2,907	3,205	2,297	1,329	1,140	1,307	1,737
80%	1,977	1,951	1,829	1,882	2,127	2,371	2,498	1,866	1,215	987	1,128	1,575
90%	1,806	1,763	1,669	1,698	1,891	2,205	1,762	1,472	971	860	1,025	1,453
Long Term												
Full Simulation Period[a]	2,668	2,607	3,368	5,109	6,793	7,290	7,510	5,978	4,097	2,613	1,826	2,212
Water Year Types[b,c]												
Wet (23%)	3,607	4,001	6,006	11,466	16,350	17,053	15,338	14,677	11,758	6,814	3,124	3,416
Above Normal (24%)	2,993	2,579	2,964	4,928	6,922	7,468	8,885	5,406	2,687	1,909	1,971	2,338
Below Normal (10%)	2,540	2,133	2,067	3,783	3,834	4,032	6,494	4,183	1,966	1,463	1,447	1,832
Dry (16%)	2,237	2,153	3,131	2,392	2,464	3,241	3,791	2,529	1,560	1,232	1,339	1,771
Critical (27%)	1,828	1,849	2,077	1,871	2,057	2,273	2,068	1,676	1,035	859	999	1,455

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-1**	22	1	1,162	2,476	**-99**	244	825	1	**-111**	**-61**	0
20%	**-14**	**0**	47	26	**-10**	127	**0**	1	80	**-142**	4	**-21**
30%	16	**-45**	**-80**	2	694	**-23**	341	228	**-666**	**-35**	**-21**	**-8**
40%	38	1	**-12**	51	0	**-264**	355	37	**-579**	**-6**	2	6
50%	25	**0**	**0**	**-30**	**-350**	**0**	413	196	**-180**	**-3**	1	**-2**
60%	**0**	**0**	0	**-3**	**-70**	**-20**	**-50**	**-156**	**-117**	**-27**	**-9**	**-19**
70%	**-111**	**-1**	**0**	**-31**	**0**	0	**-572**	**-408**	**-120**	**-23**	**-3**	**-4**
80%	**-18**	**0**	**0**	**-1**	**-24**	0	**-294**	**-301**	**-84**	**-112**	**-80**	**-39**
90%	**-43**	**0**	0	**-1**	**-57**	0	**-126**	**-208**	**-120**	**-31**	**-43**	**-24**
Long Term												
Full Simulation Period[a]	**-5**	**-6**	**-26**	31	129	8	**-12**	**-88**	**-115**	**-18**	**-24**	**-13**
Water Year Types[b,c]												
Wet (23%)	**-4**	**-24**	**-128**	3	556	173	**-62**	**-26**	360	121	**-12**	**0**
Above Normal (24%)	46	**-3**	11	31	19	**-68**	348	110	**-595**	**-86**	**-8**	**-9**
Below Normal (10%)	22	0	0	264	183	**-118**	156	41	**-111**	**-3**	**-1**	**-6**
Dry (16%)	**-52**	**0**	9	**-10**	**-86**	**0**	**-207**	**-279**	**-124**	**-28**	**-12**	**-7**
Critical (27%)	**-37**	**0**	0	**-7**	**-34**	**-15**	**-242**	**-256**	**-84**	**-74**	**-66**	**-34**

a Based on the 82-year simulation period.

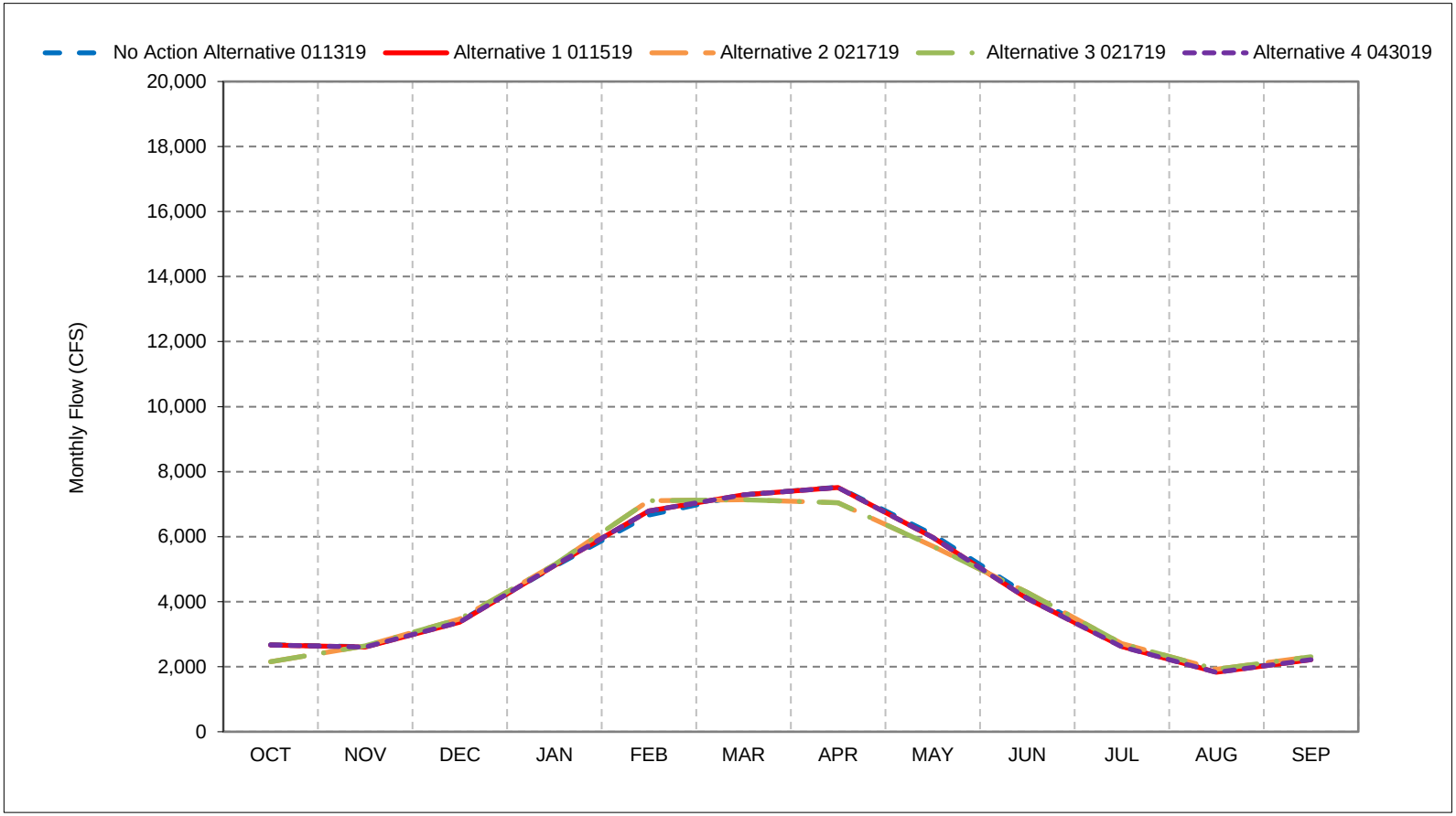
b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 39b-1. San Joaquin River at Vernalis (60-20-20), Long-Term Average Flow



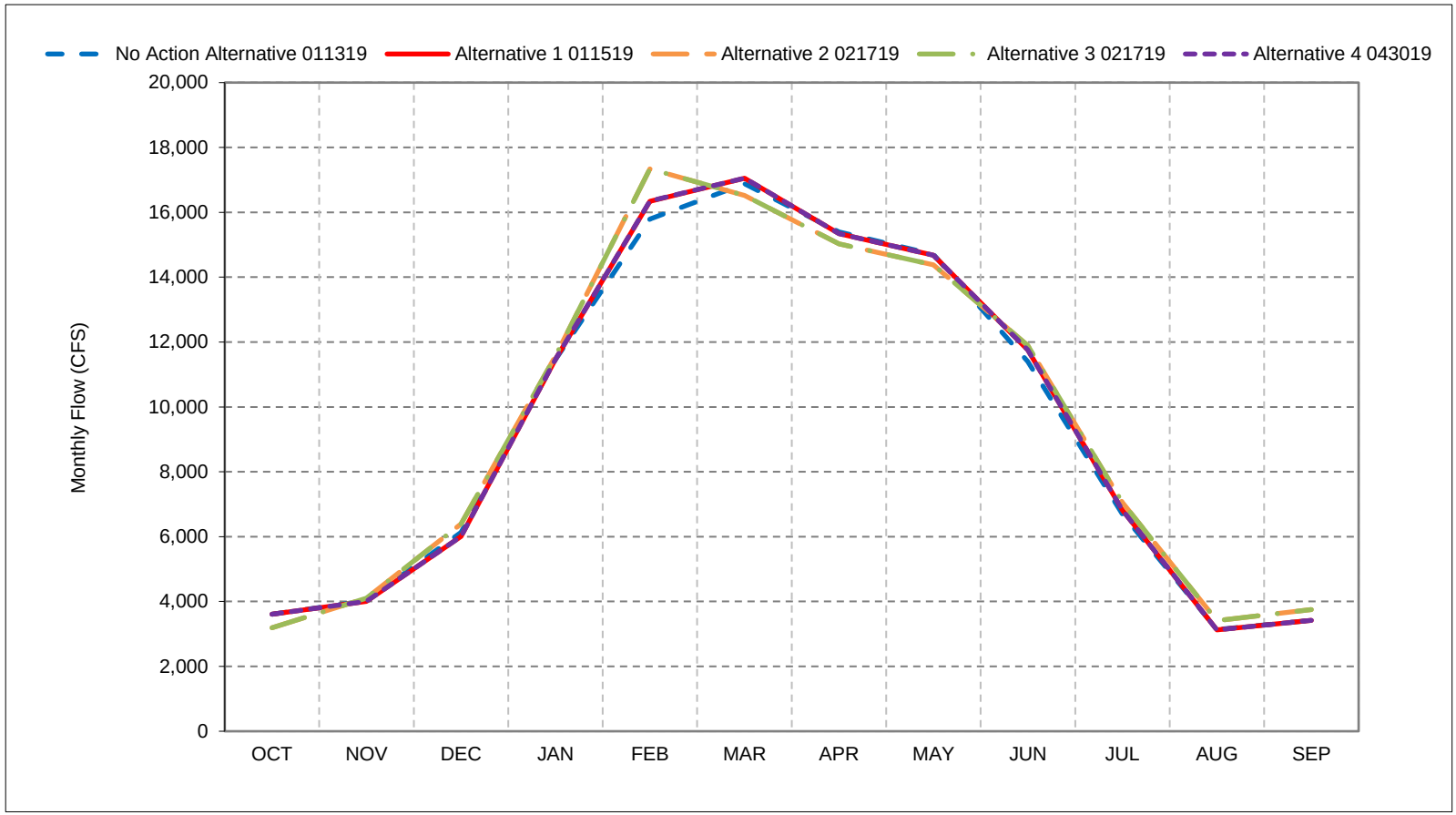
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39b-2. San Joaquin River at Vernalis (60-20-20), Wet Year Average Flow



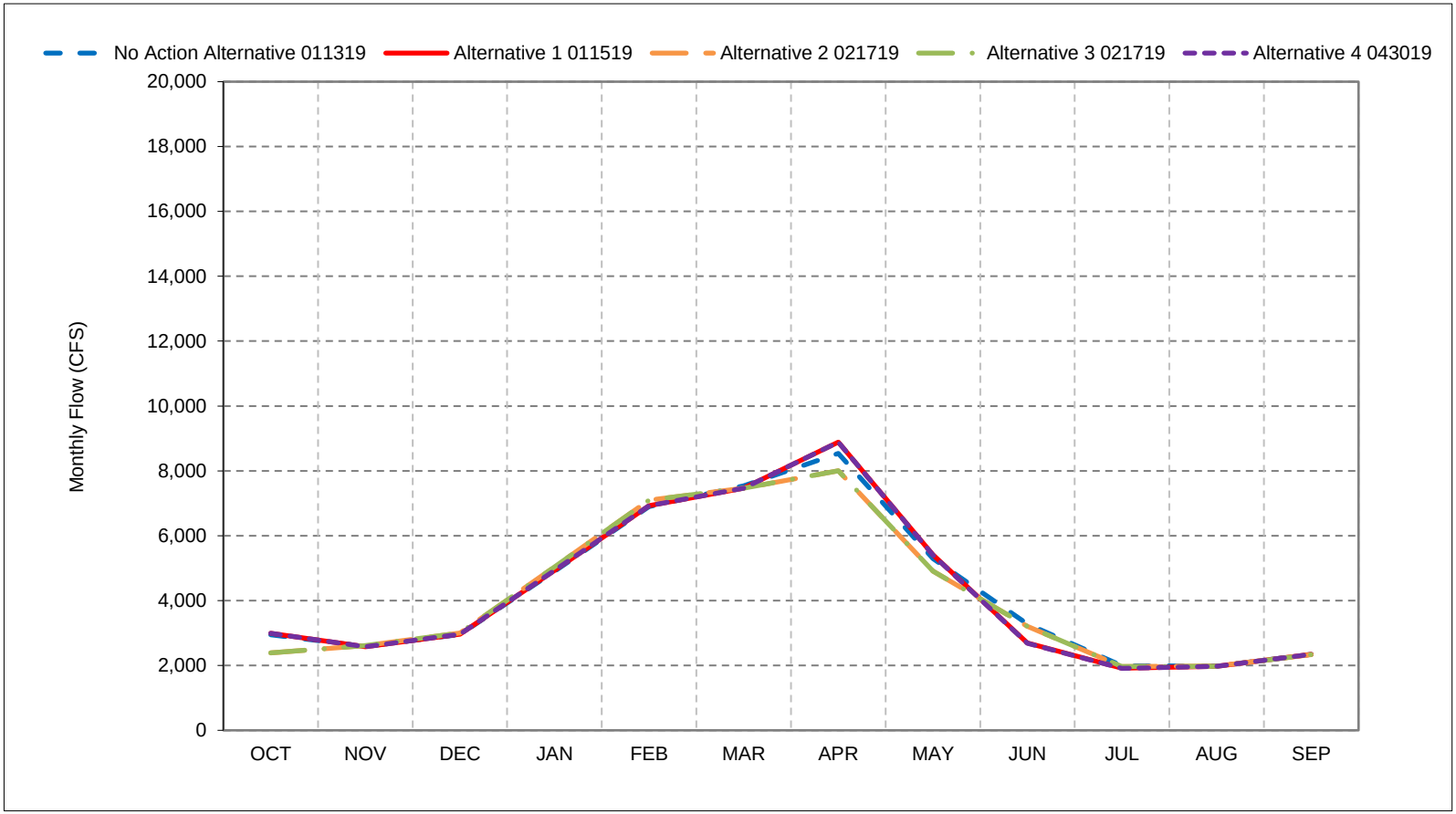
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39b-3. San Joaquin River at Vernalis (60-20-20), Above Normal Year Average Flow



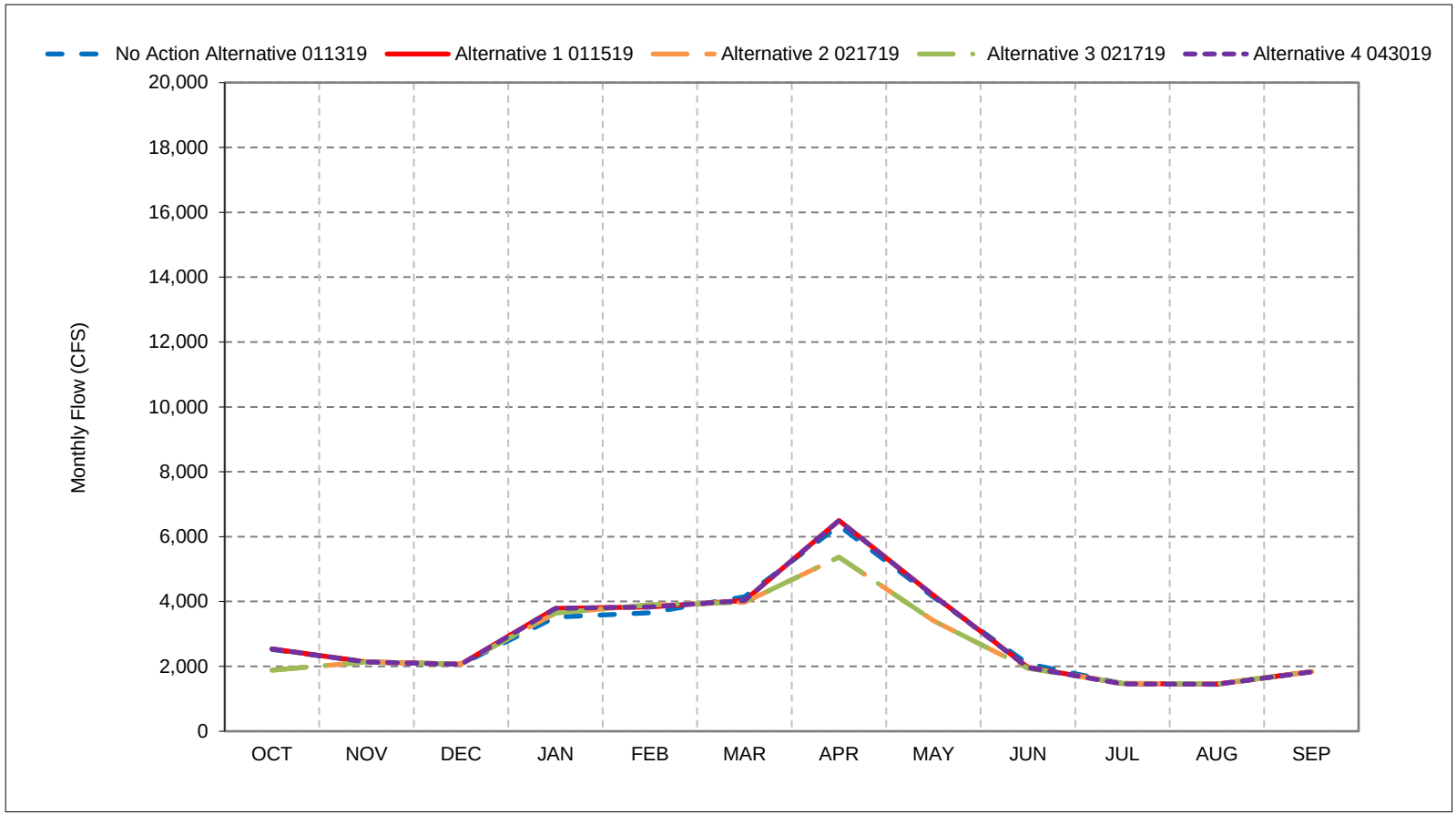
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39b-4. San Joaquin River at Vernalis (60-20-20), Below Normal Year Average Flow



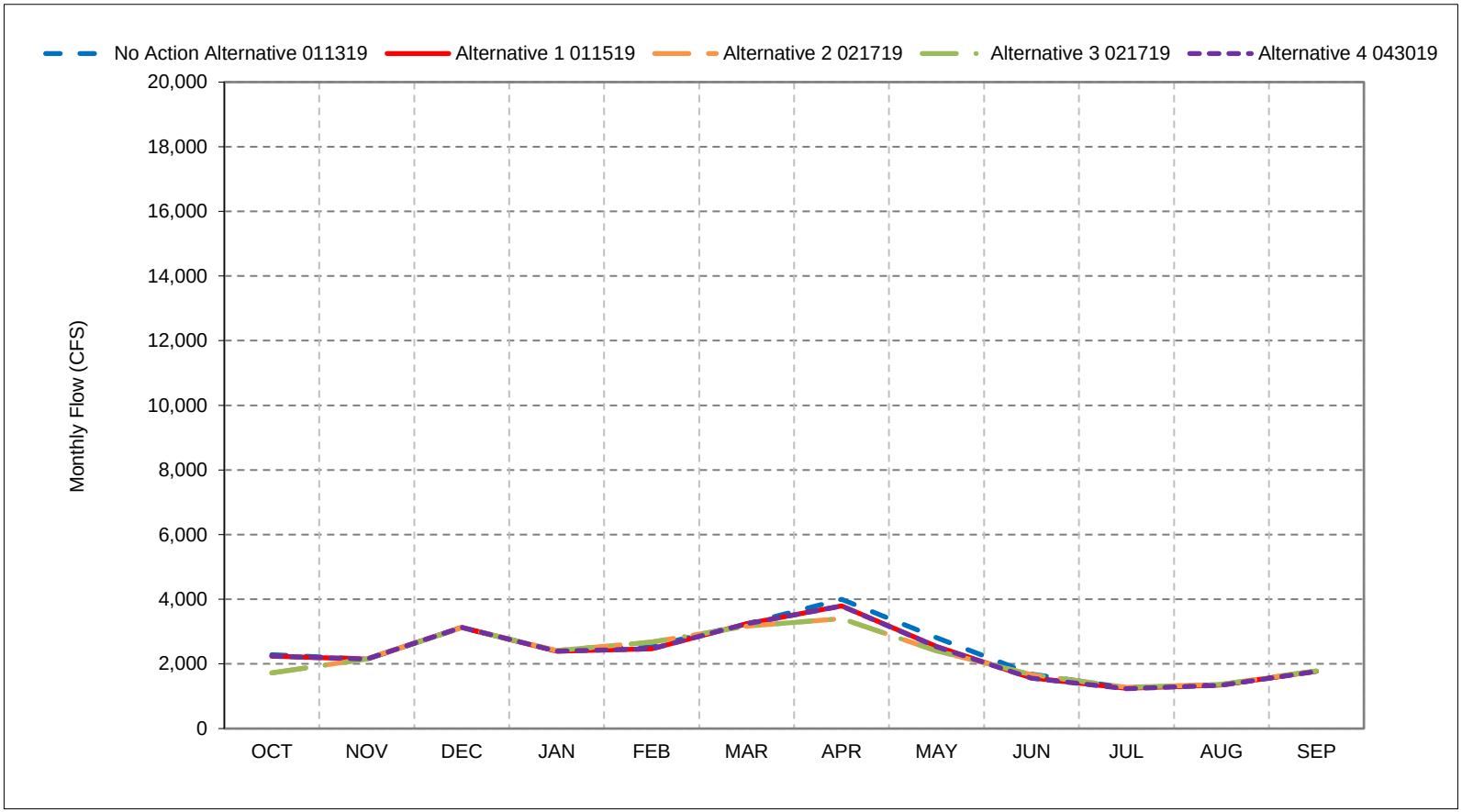
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39b-5. San Joaquin River at Vernalis (60-20-20), Dry Year Average Flow



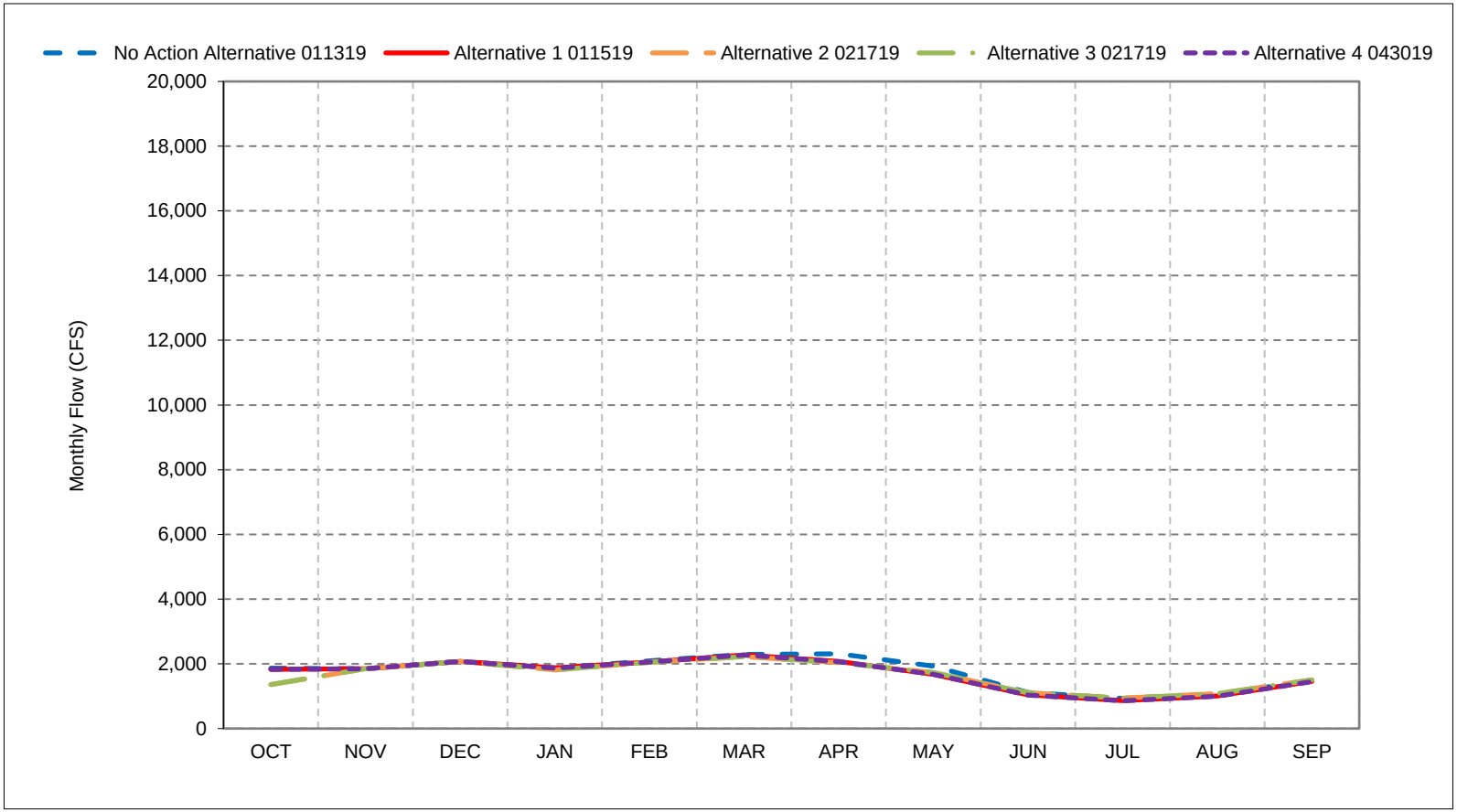
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 39b-6. San Joaquin River at Vernalis (60-20-20), Critical Year Average Flow



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 40-1. Old and Middle River Flow, Monthly Flow (combined flows)

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-3,899	-4,158	-3,846	-2,823	-1,197	-1,150	3,171	2,828	-1,150	-3,145	-2,644	-4,097
20%	-4,145	-4,633	-4,581	-2,823	-1,905	-1,582	2,206	1,315	-1,882	-6,033	-3,489	-5,563
30%	-4,567	-5,444	-5,379	-3,355	-2,768	-3,140	1,603	614	-3,500	-6,887	-4,143	-6,221
40%	-4,884	-5,890	-5,871	-4,348	-3,500	-3,500	1,268	242	-3,500	-7,781	-7,881	-7,025
50%	-5,162	-6,288	-5,871	-4,710	-4,145	-4,017	612	-34	-3,500	-8,770	-9,726	-8,539
60%	-5,506	-6,592	-5,871	-4,993	-5,000	-4,885	-223	-490	-4,317	-9,176	-10,281	-9,573
70%	-5,969	-7,139	-7,069	-5,000	-5,000	-5,000	-599	-766	-5,000	-9,674	-10,684	-9,932
80%	-6,627	-8,064	-9,343	-5,000	-5,000	-5,000	-1,024	-1,055	-5,000	-10,180	-10,772	-10,027
90%	-7,018	-9,851	-9,681	-5,000	-5,000	-5,000	-1,389	-1,422	-5,000	-11,025	-10,967	-10,211
Long Term												
Full Simulation Period[a]	-5,404	-6,485	-6,168	-3,632	-3,102	-2,938	910	309	-3,542	-7,887	-7,667	-7,776
Water Year Types[b,c]												
Wet (32%)	-5,759	-6,524	-6,777	-2,059	-2,135	-1,800	3,139	2,058	-4,304	-8,723	-10,544	-9,575
Above Normal (16%)	-5,990	-7,820	-7,734	-3,716	-3,859	-4,141	1,193	434	-4,479	-8,805	-10,805	-10,094
Below Normal (13%)	-6,354	-6,704	-6,038	-4,380	-3,662	-4,055	181	-305	-3,407	-10,088	-8,919	-7,920
Dry (24%)	-4,923	-6,843	-5,283	-4,640	-3,644	-3,640	-744	-936	-3,260	-7,836	-4,189	-6,133
Critical (15%)	-3,933	-4,157	-4,748	-4,579	-2,962	-1,903	-802	-980	-1,472	-3,145	-2,680	-3,975

Alternative 1 011519

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-3,176	-3,431	-3,956	-2,948	-2,524	-982	-772	-1,369	-2,397	-2,974	-2,553	-3,856
20%	-3,662	-3,954	-4,508	-4,516	-4,302	-3,396	-1,358	-1,686	-3,919	-4,570	-3,637	-5,098
30%	-4,003	-4,629	-5,135	-4,516	-4,464	-4,069	-1,736	-2,314	-4,500	-6,173	-4,625	-5,950
40%	-4,364	-5,367	-5,290	-4,516	-4,464	-4,516	-2,056	-2,821	-4,500	-7,730	-7,998	-7,192
50%	-5,360	-6,363	-5,290	-4,516	-4,464	-4,516	-2,196	-2,978	-4,500	-8,533	-9,939	-8,985
60%	-6,762	-7,112	-5,290	-5,000	-4,483	-4,516	-2,459	-3,211	-4,500	-9,114	-10,362	-9,393
70%	-7,981	-8,121	-6,412	-5,226	-4,892	-4,924	-2,830	-3,258	-5,000	-9,685	-10,660	-9,537
80%	-8,694	-8,875	-6,827	-5,226	-5,193	-5,000	-3,134	-3,619	-5,000	-10,362	-10,737	-9,645
90%	-9,108	-9,271	-9,744	-5,226	-5,250	-5,000	-3,490	-4,026	-5,000	-10,957	-11,081	-9,750
Long Term												
Full Simulation Period[a]	-5,831	-6,293	-5,701	-3,980	-3,700	-3,296	-1,797	-2,458	-4,201	-7,654	-7,816	-7,561
Water Year Types[b,c]												
Wet (32%)	-7,235	-7,620	-6,463	-2,354	-1,838	-1,308	-915	-1,849	-4,079	-8,689	-10,466	-9,337
Above Normal (16%)	-7,485	-7,177	-6,284	-4,445	-3,955	-3,885	-2,671	-3,116	-4,451	-9,267	-10,749	-9,707
Below Normal (13%)	-5,598	-5,968	-5,472	-5,032	-4,663	-4,610	-2,422	-3,107	-5,000	-10,315	-9,935	-7,991
Dry (24%)	-4,585	-5,809	-5,128	-4,780	-4,914	-4,764	-2,227	-2,899	-4,747	-6,769	-4,459	-5,889
Critical (15%)	-3,291	-3,564	-4,581	-4,699	-4,548	-3,315	-1,470	-1,735	-2,551	-2,703	-2,551	-3,781

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	723	727	**-110**	**-125**	**-1,327**	168	**-3,943**	**-4,197**	**-1,246**	171	91	241
20%	483	678	72	**-1,694**	**-2,397**	**-1,813**	**-3,565**	**-3,001**	**-2,036**	1,463	**-148**	466
30%	564	815	244	**-1,161**	**-1,696**	**-929**	**-3,338**	**-2,928**	**-1,000**	713	**-483**	271
40%	521	522	581	**-168**	**-964**	**-1,016**	**-3,325**	**-3,063**	**-1,000**	50	**-117**	**-166**
50%	**-198**	**-75**	581	194	**-319**	**-499**	**-2,808**	**-2,944**	**-1,000**	236	**-213**	**-445**
60%	**-1,257**	**-520**	581	**-7**	517	369	**-2,236**	**-2,721**	**-183**	62	**-81**	180
70%	**-2,012**	**-982**	657	**-226**	108	76	**-2,230**	**-2,492**	0	**-12**	24	394
80%	**-2,067**	**-811**	2,516	**-226**	**-193**	0	**-2,110**	**-2,564**	0	**-182**	35	383
90%	**-2,090**	580	**-63**	**-226**	**-250**	0	**-2,102**	**-2,605**	0	68	**-114**	461
Long Term												
Full Simulation Period[a]	**-427**	192	468	**-348**	**-598**	**-359**	**-2,706**	**-2,767**	**-658**	232	**-150**	215
Water Year Types[b,c]												
Wet (32%)	**-1,476**	**-1,096**	314	**-295**	297	493	**-4,053**	**-3,907**	225	34	78	238
Above Normal (16%)	**-1,495**	643	1,450	**-729**	**-96**	256	**-3,865**	**-3,550**	28	**-463**	56	387
Below Normal (13%)	756	736	566	**-652**	**-1,001**	**-555**	**-2,603**	**-2,802**	**-1,593**	**-226**	**-1,016**	**-71**
Dry (24%)	338	1,034	155	**-139**	**-1,271**	**-1,124**	**-1,482**	**-1,963**	**-1,487**	1,067	**-270**	244
Critical (15%)	641	593	167	**-120**	**-1,587**	**-1,412**	**-668**	**-755**	**-1,079**	443	129	195

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 40-2. Old and Middle River Flow, Monthly Flow (combined flows)

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-3,899	-4,158	-3,846	-2,823	-1,197	-1,150	3,171	2,828	-1,150	-3,145	-2,644	-4,097
20%	-4,145	-4,633	-4,581	-2,823	-1,905	-1,582	2,206	1,315	-1,882	-6,033	-3,489	-5,563
30%	-4,567	-5,444	-5,379	-3,355	-2,768	-3,140	1,603	614	-3,500	-6,887	-4,143	-6,221
40%	-4,884	-5,890	-5,871	-4,348	-3,500	-3,500	1,268	242	-3,500	-7,781	-7,881	-7,025
50%	-5,162	-6,288	-5,871	-4,710	-4,145	-4,017	612	-34	-3,500	-8,770	-9,726	-8,539
60%	-5,506	-6,592	-5,871	-4,993	-5,000	-4,885	-223	-490	-4,317	-9,176	-10,281	-9,573
70%	-5,969	-7,139	-7,069	-5,000	-5,000	-5,000	-599	-766	-5,000	-9,674	-10,684	-9,932
80%	-6,627	-8,064	-9,343	-5,000	-5,000	-5,000	-1,024	-1,055	-5,000	-10,180	-10,772	-10,027
90%	-7,018	-9,851	-9,681	-5,000	-5,000	-5,000	-1,389	-1,422	-5,000	-11,025	-10,967	-10,211
Long Term												
Full Simulation Period[a]	-5,404	-6,485	-6,168	-3,632	-3,102	-2,938	910	309	-3,542	-7,887	-7,667	-7,776
Water Year Types[b,c]												
Wet (32%)	-5,759	-6,524	-6,777	-2,059	-2,135	-1,800	3,139	2,058	-4,304	-8,723	-10,544	-9,575
Above Normal (16%)	-5,990	-7,820	-7,734	-3,716	-3,859	-4,141	1,193	434	-4,479	-8,805	-10,805	-10,094
Below Normal (13%)	-6,354	-6,704	-6,038	-4,380	-3,662	-4,055	181	-305	-3,407	-10,088	-8,919	-7,920
Dry (24%)	-4,923	-6,843	-5,283	-4,640	-3,644	-3,640	-744	-936	-3,260	-7,836	-4,189	-6,133
Critical (15%)	-3,933	-4,157	-4,748	-4,579	-2,962	-1,903	-802	-980	-1,472	-3,145	-2,680	-3,975

Alternative 2 021719

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-3,474	-4,199	-4,092	-2,706	-808	-580	-3,177	-3,272	-2,393	-3,394	-2,557	-4,786
20%	-3,721	-5,049	-6,211	-5,088	-3,118	-1,937	-3,646	-3,791	-3,341	-4,894	-3,292	-5,775
30%	-4,412	-6,527	-7,256	-6,109	-4,170	-3,590	-4,031	-4,378	-4,697	-6,155	-4,971	-6,553
40%	-5,359	-6,904	-7,761	-7,251	-5,735	-4,418	-5,124	-4,893	-5,797	-7,219	-6,335	-7,884
50%	-6,630	-7,853	-8,349	-8,204	-6,683	-5,085	-5,973	-5,954	-6,436	-8,699	-8,498	-8,969
60%	-8,436	-9,237	-8,854	-8,797	-8,202	-5,671	-6,490	-6,419	-6,745	-9,528	-10,010	-9,579
70%	-9,070	-9,791	-9,343	-9,118	-8,855	-6,413	-7,182	-7,080	-7,179	-10,062	-10,350	-9,828
80%	-10,042	-9,996	-9,539	-9,639	-9,106	-7,510	-7,647	-7,421	-7,509	-10,571	-10,722	-10,117
90%	-10,271	-10,150	-9,720	-9,793	-9,656	-8,930	-7,963	-8,143	-8,166	-10,970	-10,986	-10,212
Long Term												
Full Simulation Period[a]	-6,818	-7,631	-7,470	-6,593	-5,415	-4,193	-5,584	-5,703	-5,674	-7,782	-7,404	-8,014
Water Year Types[b,c]												
Wet (32%)	-9,356	-9,140	-7,343	-4,899	-2,754	-1,592	-6,867	-7,428	-5,632	-8,609	-10,145	-9,585
Above Normal (16%)	-8,987	-7,882	-8,527	-8,519	-6,705	-5,926	-7,048	-6,629	-7,201	-10,147	-10,485	-10,081
Below Normal (13%)	-6,423	-7,549	-7,542	-8,043	-6,045	-5,635	-5,497	-5,396	-7,640	-10,360	-8,272	-8,437
Dry (24%)	-4,372	-7,501	-7,368	-7,030	-7,444	-6,044	-4,638	-4,677	-5,494	-6,284	-4,109	-6,603
Critical (15%)	-3,409	-4,379	-6,700	-6,118	-5,824	-3,542	-2,871	-2,953	-2,611	-3,557	-2,823	-4,336

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	425	**-41**	**-246**	116	389	571	**-6,349**	**-6,101**	**-1,242**	**-249**	88	**-689**
20%	424	**-416**	**-1,630**	**-2,265**	**-1,213**	**-354**	**-5,852**	**-5,106**	**-1,458**	1,139	197	**-212**
30%	155	**-1,083**	**-1,877**	**-2,754**	**-1,402**	**-450**	**-5,634**	**-4,992**	**-1,197**	731	**-829**	**-332**
40%	**-475**	**-1,014**	**-1,890**	**-2,903**	**-2,235**	**-918**	**-6,393**	**-5,135**	**-2,297**	562	1,545	**-858**
50%	**-1,468**	**-1,565**	**-2,478**	**-3,495**	**-2,538**	**-1,069**	**-6,585**	**-5,919**	**-2,936**	70	1,228	**-430**
60%	**-2,930**	**-2,645**	**-2,983**	**-3,803**	**-3,202**	**-786**	**-6,267**	**-5,928**	**-2,428**	**-351**	271	**-6**
70%	**-3,101**	**-2,652**	**-2,274**	**-4,118**	**-3,855**	**-1,413**	**-6,583**	**-6,315**	**-2,179**	**-388**	334	104
80%	**-3,415**	**-1,932**	**-196**	**-4,639**	**-4,106**	**-2,510**	**-6,623**	**-6,366**	**-2,509**	**-391**	50	**-90**
90%	**-3,254**	**-299**	**-39**	**-4,793**	**-4,656**	**-3,930**	**-6,574**	**-6,721**	**-3,166**	56	**-19**	**-1**
Long Term												
Full Simulation Period[a]	**-1,414**	**-1,146**	**-1,301**	**-2,961**	**-2,313**	**-1,255**	**-6,493**	**-6,011**	**-2,132**	105	263	**-238**
Water Year Types[b,c]												
Wet (32%)	**-3,597**	**-2,616**	**-566**	**-2,839**	**-619**	208	**-10,006**	**-9,486**	**-1,329**	114	400	**-9**
Above Normal (16%)	**-2,997**	**-62**	**-793**	**-4,803**	**-2,847**	**-1,784**	**-8,242**	**-7,063**	**-2,723**	**-1,343**	320	13
Below Normal (13%)	**-69**	**-845**	**-1,504**	**-3,664**	**-2,384**	**-1,579**	**-5,678**	**-5,091**	**-4,233**	**-272**	647	**-517**
Dry (24%)	550	**-658**	**-2,085**	**-2,389**	**-3,800**	**-2,404**	**-3,893**	**-3,741**	**-2,234**	1,552	80	**-470**
Critical (15%)	524	**-222**	**-1,952**	**-1,540**	**-2,862**	**-1,638**	**-2,069**	**-1,972**	**-1,138**	**-412**	**-143**	**-361**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 40-3. Old and Middle River Flow, Monthly Flow (combined flows)

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-3,899	-4,158	-3,846	-2,823	-1,197	-1,150	3,171	2,828	-1,150	-3,145	-2,644	-4,097
20%	-4,145	-4,633	-4,581	-2,823	-1,905	-1,582	2,206	1,315	-1,882	-6,033	-3,489	-5,563
30%	-4,567	-5,444	-5,379	-3,355	-2,768	-3,140	1,603	614	-3,500	-6,887	-4,143	-6,221
40%	-4,884	-5,890	-5,871	-4,348	-3,500	-3,500	1,268	242	-3,500	-7,781	-7,881	-7,025
50%	-5,162	-6,288	-5,871	-4,710	-4,145	-4,017	612	-34	-3,500	-8,770	-9,726	-8,539
60%	-5,506	-6,592	-5,871	-4,993	-5,000	-4,885	-223	-490	-4,317	-9,176	-10,281	-9,573
70%	-5,969	-7,139	-7,069	-5,000	-5,000	-5,000	-599	-766	-5,000	-9,674	-10,684	-9,932
80%	-6,627	-8,064	-9,343	-5,000	-5,000	-5,000	-1,024	-1,055	-5,000	-10,180	-10,772	-10,027
90%	-7,018	-9,851	-9,681	-5,000	-5,000	-5,000	-1,389	-1,422	-5,000	-11,025	-10,967	-10,211
Long Term												
Full Simulation Period[a]	-5,404	-6,485	-6,168	-3,632	-3,102	-2,938	910	309	-3,542	-7,887	-7,667	-7,776
Water Year Types[b,c]												
Wet (32%)	-5,759	-6,524	-6,777	-2,059	-2,135	-1,800	3,139	2,058	-4,304	-8,723	-10,544	-9,575
Above Normal (16%)	-5,990	-7,820	-7,734	-3,716	-3,859	-4,141	1,193	434	-4,479	-8,805	-10,805	-10,094
Below Normal (13%)	-6,354	-6,704	-6,038	-4,380	-3,662	-4,055	181	-305	-3,407	-10,088	-8,919	-7,920
Dry (24%)	-4,923	-6,843	-5,283	-4,640	-3,644	-3,640	-744	-936	-3,260	-7,836	-4,189	-6,133
Critical (15%)	-3,933	-4,157	-4,748	-4,579	-2,962	-1,903	-802	-980	-1,472	-3,145	-2,680	-3,975

Alternative 3 021719

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-3,289	-3,960	-4,080	-3,903	68	-164	-3,039	-3,277	-2,277	-3,271	-2,388	-4,812
20%	-3,709	-5,218	-5,740	-4,826	-3,126	-3,029	-3,716	-4,214	-3,591	-4,514	-3,291	-5,740
30%	-4,316	-6,487	-7,404	-5,934	-4,273	-3,495	-4,078	-4,471	-4,900	-5,657	-4,492	-6,546
40%	-5,034	-7,326	-8,373	-7,281	-5,638	-4,308	-4,881	-5,024	-5,740	-7,434	-6,120	-7,887
50%	-6,720	-7,916	-8,767	-8,401	-6,553	-5,039	-5,726	-5,934	-6,179	-8,251	-8,438	-8,461
60%	-8,183	-9,022	-9,339	-8,962	-7,884	-5,556	-6,292	-6,414	-6,579	-9,440	-9,587	-9,490
70%	-9,295	-9,975	-9,492	-9,288	-8,825	-6,315	-7,001	-6,990	-6,919	-10,031	-10,308	-9,684
80%	-9,957	-10,110	-9,629	-9,696	-9,030	-7,351	-7,533	-7,421	-7,419	-10,558	-10,703	-10,070
90%	-10,306	-10,209	-9,749	-9,848	-9,606	-8,653	-7,909	-8,126	-7,834	-11,079	-10,995	-10,166
Long Term												
Full Simulation Period[a]	-6,720	-7,663	-7,665	-6,543	-5,412	-4,126	-5,481	-5,724	-5,583	-7,679	-7,269	-7,944
Water Year Types[b,c]												
Wet (32%)	-9,456	-9,272	-7,648	-4,539	-2,935	-1,613	-6,492	-7,374	-5,639	-8,822	-9,747	-9,455
Above Normal (16%)	-8,874	-8,265	-8,665	-8,772	-6,706	-5,680	-7,043	-6,654	-6,892	-9,767	-10,590	-9,903
Below Normal (13%)	-6,409	-7,486	-7,662	-8,172	-5,563	-5,670	-5,547	-5,471	-7,454	-10,269	-8,243	-8,338
Dry (24%)	-4,113	-7,419	-7,486	-7,120	-7,413	-5,869	-4,662	-4,782	-5,522	-6,057	-4,083	-6,639
Critical (15%)	-3,092	-4,095	-6,922	-6,016	-5,903	-3,565	-2,904	-2,946	-2,432	-3,269	-2,723	-4,363

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	610	198	**-234**	**-1,081**	1,265	987	**-6,210**	**-6,106**	**-1,126**	**-125**	256	**-715**
20%	437	**-585**	**-1,159**	**-2,003**	**-1,222**	**-1,447**	**-5,922**	**-5,529**	**-1,709**	1,519	198	**-177**
30%	251	**-1,043**	**-2,025**	**-2,579**	**-1,505**	**-355**	**-5,681**	**-5,085**	**-1,400**	1,229	**-349**	**-324**
40%	**-150**	**-1,436**	**-2,502**	**-2,933**	**-2,138**	**-808**	**-6,149**	**-5,266**	**-2,240**	347	1,761	**-861**
50%	**-1,558**	**-1,628**	**-2,896**	**-3,691**	**-2,407**	**-1,022**	**-6,338**	**-5,900**	**-2,679**	519	1,288	79
60%	**-2,677**	**-2,430**	**-3,468**	**-3,968**	**-2,884**	**-670**	**-6,069**	**-5,923**	**-2,262**	**-264**	695	82
70%	**-3,326**	**-2,836**	**-2,423**	**-4,288**	**-3,825**	**-1,315**	**-6,402**	**-6,224**	**-1,919**	**-357**	376	248
80%	**-3,330**	**-2,046**	**-286**	**-4,696**	**-4,030**	**-2,351**	**-6,509**	**-6,366**	**-2,419**	**-378**	69	**-42**
90%	**-3,288**	**-358**	**-68**	**-4,848**	**-4,606**	**-3,653**	**-6,520**	**-6,705**	**-2,834**	**-53**	**-28**	45
Long Term												
Full Simulation Period[a]	**-1,316**	**-1,179**	**-1,497**	**-2,911**	**-2,310**	**-1,188**	**-6,391**	**-6,033**	**-2,041**	207	397	**-168**
Water Year Types[b,c]												
Wet (32%)	**-3,697**	**-2,748**	**-871**	**-2,479**	**-800**	188	**-9,630**	**-9,432**	**-1,335**	**-99**	798	121
Above Normal (16%)	**-2,884**	**-446**	**-931**	**-5,056**	**-2,847**	**-1,539**	**-8,236**	**-7,088**	**-2,413**	**-963**	215	190
Below Normal (13%)	**-55**	**-783**	**-1,624**	**-3,792**	**-1,902**	**-1,614**	**-5,728**	**-5,166**	**-4,047**	**-181**	676	**-418**
Dry (24%)	810	**-576**	**-2,203**	**-2,479**	**-3,769**	**-2,229**	**-3,918**	**-3,846**	**-2,261**	1,779	105	**-506**
Critical (15%)	841	62	**-2,173**	**-1,437**	**-2,941**	**-1,661**	**-2,102**	**-1,965**	**-959**	**-124**	**-43**	**-387**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 40-4. Old and Middle River Flow, Monthly Flow (combined flows)

No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-3,899	-4,158	-3,846	-2,823	-1,197	-1,150	3,171	2,828	-1,150	-3,145	-2,644	-4,097
20%	-4,145	-4,633	-4,581	-2,823	-1,905	-1,582	2,206	1,315	-1,882	-6,033	-3,489	-5,563
30%	-4,567	-5,444	-5,379	-3,355	-2,768	-3,140	1,603	614	-3,500	-6,887	-4,143	-6,221
40%	-4,884	-5,890	-5,871	-4,348	-3,500	-3,500	1,268	242	-3,500	-7,781	-7,881	-7,025
50%	-5,162	-6,288	-5,871	-4,710	-4,145	-4,017	612	-34	-3,500	-8,770	-9,726	-8,539
60%	-5,506	-6,592	-5,871	-4,993	-5,000	-4,885	-223	-490	-4,317	-9,176	-10,281	-9,573
70%	-5,969	-7,139	-7,069	-5,000	-5,000	-5,000	-599	-766	-5,000	-9,674	-10,684	-9,932
80%	-6,627	-8,064	-9,343	-5,000	-5,000	-5,000	-1,024	-1,055	-5,000	-10,180	-10,772	-10,027
90%	-7,018	-9,851	-9,681	-5,000	-5,000	-5,000	-1,389	-1,422	-5,000	-11,025	-10,967	-10,211
Long Term												
Full Simulation Period[a]	-5,404	-6,485	-6,168	-3,632	-3,102	-2,938	910	309	-3,542	-7,887	-7,667	-7,776
Water Year Types[b,c]												
Wet (32%)	-5,759	-6,524	-6,777	-2,059	-2,135	-1,800	3,139	2,058	-4,304	-8,723	-10,544	-9,575
Above Normal (16%)	-5,990	-7,820	-7,734	-3,716	-3,859	-4,141	1,193	434	-4,479	-8,805	-10,805	-10,094
Below Normal (13%)	-6,354	-6,704	-6,038	-4,380	-3,662	-4,055	181	-305	-3,407	-10,088	-8,919	-7,920
Dry (24%)	-4,923	-6,843	-5,283	-4,640	-3,644	-3,640	-744	-936	-3,260	-7,836	-4,189	-6,133
Critical (15%)	-3,933	-4,157	-4,748	-4,579	-2,962	-1,903	-802	-980	-1,472	-3,145	-2,680	-3,975

Alternative 4 043019

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-3,171	-3,477	-3,888	-3,473	-2,461	0	727	132	-1,946	-2,192	-2,329	-3,540
20%	-3,780	-3,917	-4,450	-4,516	-4,464	0	0	0	-3,813	-4,322	-2,989	-5,040
30%	-4,053	-4,571	-5,074	-4,516	-4,464	0	0	0	-4,474	-5,712	-3,563	-5,560
40%	-4,441	-5,091	-5,290	-4,516	-4,464	0	0	0	-4,500	-6,988	-4,563	-6,162
50%	-5,394	-5,914	-5,290	-4,516	-4,464	0	0	0	-4,500	-7,942	-7,658	-7,097
60%	-6,510	-6,553	-5,316	-5,000	-4,483	0	0	-122	-4,500	-8,424	-9,620	-9,021
70%	-7,743	-7,534	-5,977	-5,226	-5,000	-161	-153	-595	-4,544	-8,976	-10,101	-9,419
80%	-8,383	-8,074	-6,698	-5,226	-5,044	-339	-532	-791	-5,000	-9,330	-10,368	-9,601
90%	-9,036	-9,149	-9,498	-5,226	-5,250	-582	-809	-1,010	-5,000	-10,294	-10,685	-9,704
Long Term												
Full Simulation Period[a]	-5,806	-6,027	-5,570	-4,013	-3,590	539	315	10	-4,100	-6,998	-6,812	-7,117
Water Year Types[b,c]												
Wet (32%)	-7,456	-7,160	-5,930	-2,373	-1,738	2,041	1,557	1,012	-4,018	-8,283	-9,958	-9,183
Above Normal (16%)	-7,345	-6,958	-6,211	-4,511	-3,487	274	55	-8	-4,429	-8,267	-10,153	-9,491
Below Normal (13%)	-5,242	-5,468	-5,868	-5,032	-4,636	-94	-107	-358	-4,960	-9,104	-5,930	-6,327
Dry (24%)	-4,479	-5,763	-5,144	-4,815	-4,936	-237	-258	-569	-4,537	-6,280	-3,783	-5,461
Critical (15%)	-3,289	-3,515	-4,533	-4,758	-4,513	-552	-751	-843	-2,403	-2,105	-2,234	-3,551

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Flow (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	728	681	**-42**	**-651**	**-1,264**	1,150	**-2,444**	**-2,697**	**-796**	953	316	556
20%	365	716	131	**-1,694**	**-2,560**	1,582	**-2,206**	**-1,315**	**-1,930**	1,710	500	524
30%	515	873	305	**-1,161**	**-1,696**	3,140	**-1,603**	**-614**	**-974**	1,175	580	661
40%	443	798	581	**-168**	**-964**	3,500	**-1,268**	**-242**	**-1,000**	793	3,318	863
50%	**-232**	374	581	194	**-319**	4,017	**-612**	34	**-1,000**	828	2,068	1,442
60%	**-1,004**	38	555	**-7**	517	4,885	223	368	**-183**	752	661	552
70%	**-1,774**	**-395**	1,092	**-226**	0	4,839	447	171	456	698	584	513
80%	**-1,755**	**-10**	2,645	**-226**	**-44**	4,661	491	264	0	850	404	426
90%	**-2,018**	702	183	**-226**	**-250**	4,418	579	412	0	732	282	507
Long Term												
Full Simulation Period[a]	**-402**	458	598	**-382**	**-488**	3,477	**-594**	**-299**	**-557**	889	854	660
Water Year Types[b,c]												
Wet (32%)	**-1,698**	**-636**	847	**-313**	397	3,841	**-1,581**	**-1,046**	286	440	586	392
Above Normal (16%)	**-1,355**	861	1,523	**-795**	372	4,415	**-1,138**	**-442**	50	538	652	602
Below Normal (13%)	1,112	1,236	170	**-652**	**-975**	3,962	**-288**	**-53**	**-1,553**	985	2,989	1,593
Dry (24%)	444	1,080	140	**-174**	**-1,292**	3,403	486	367	**-1,277**	1,556	405	672
Critical (15%)	643	641	215	**-179**	**-1,551**	1,352	51	137	**-931**	1,041	446	425

a Based on the 82-year simulation period.

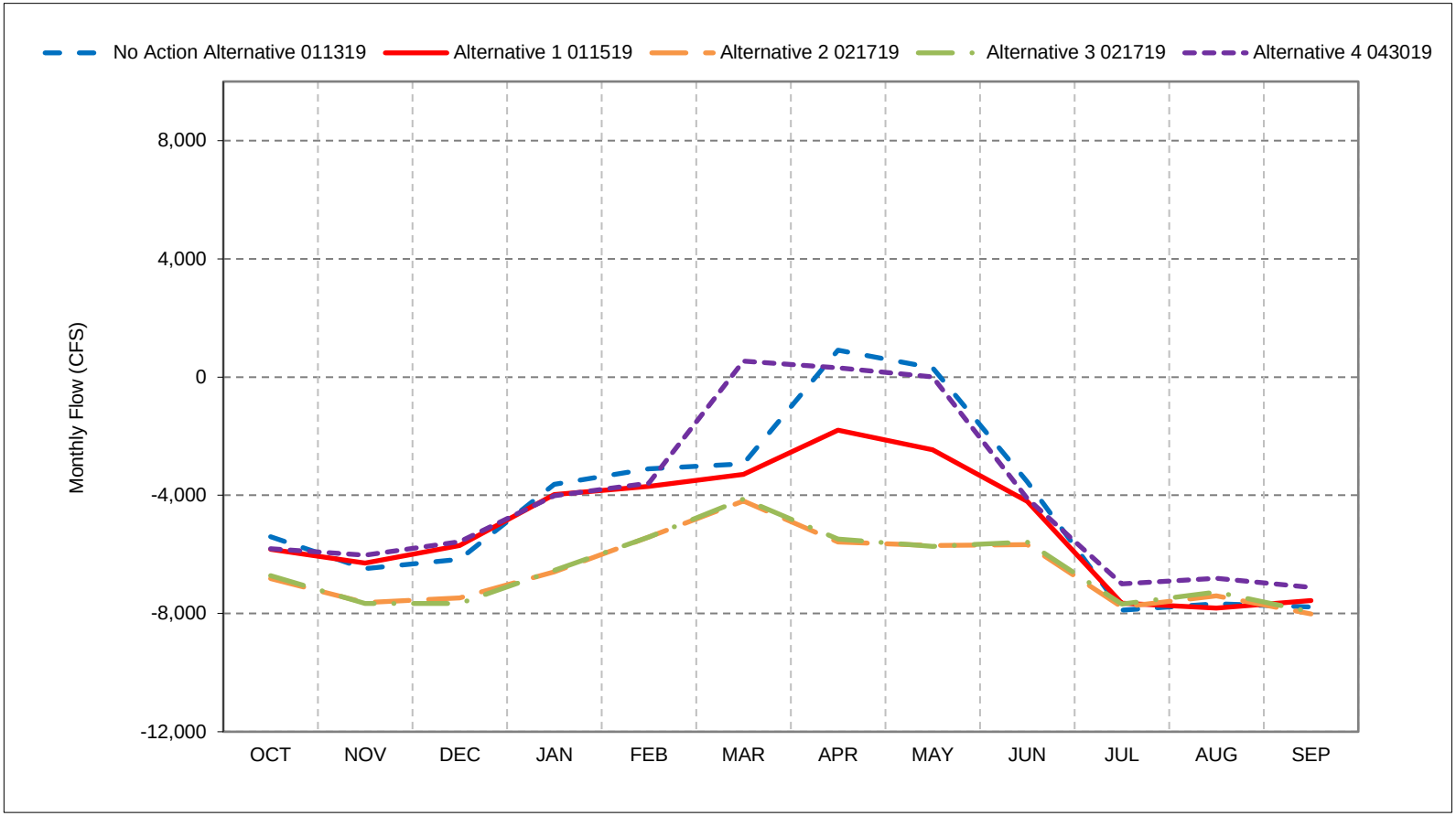
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

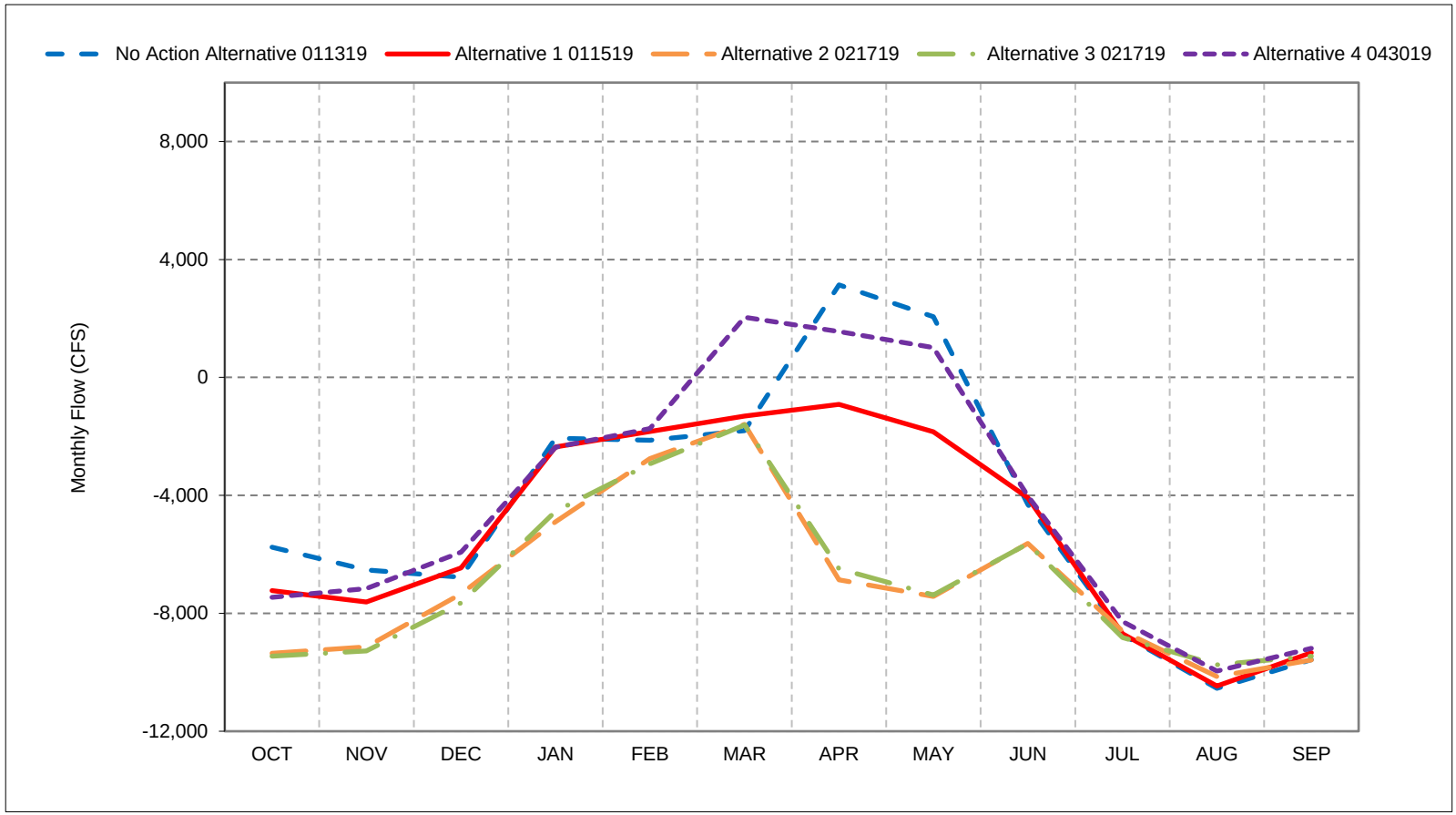
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 40-1. Old and Middle River Flow, Long-Term Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 40-2. Old and Middle River Flow, Wet Year Average Flow



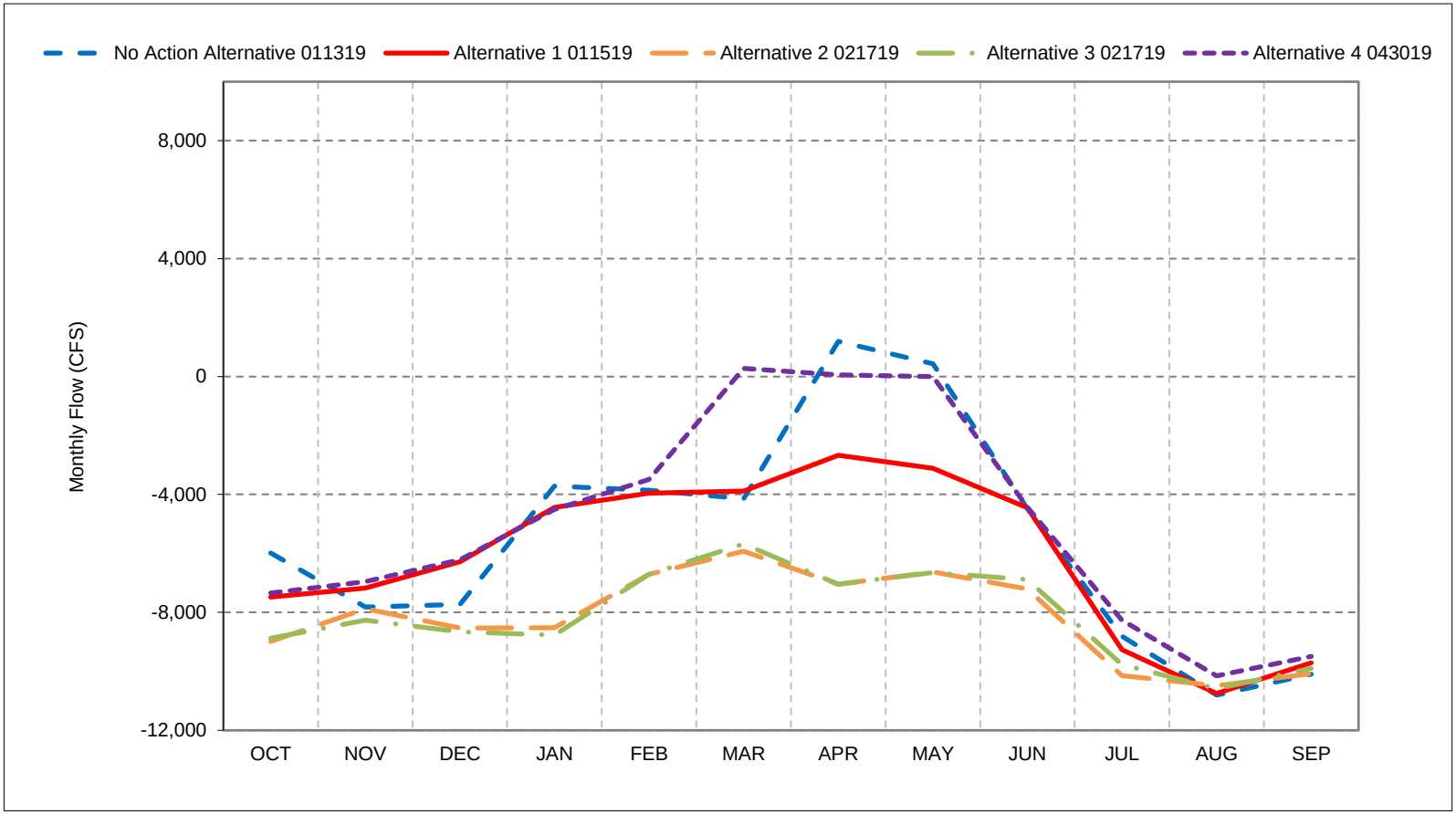
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

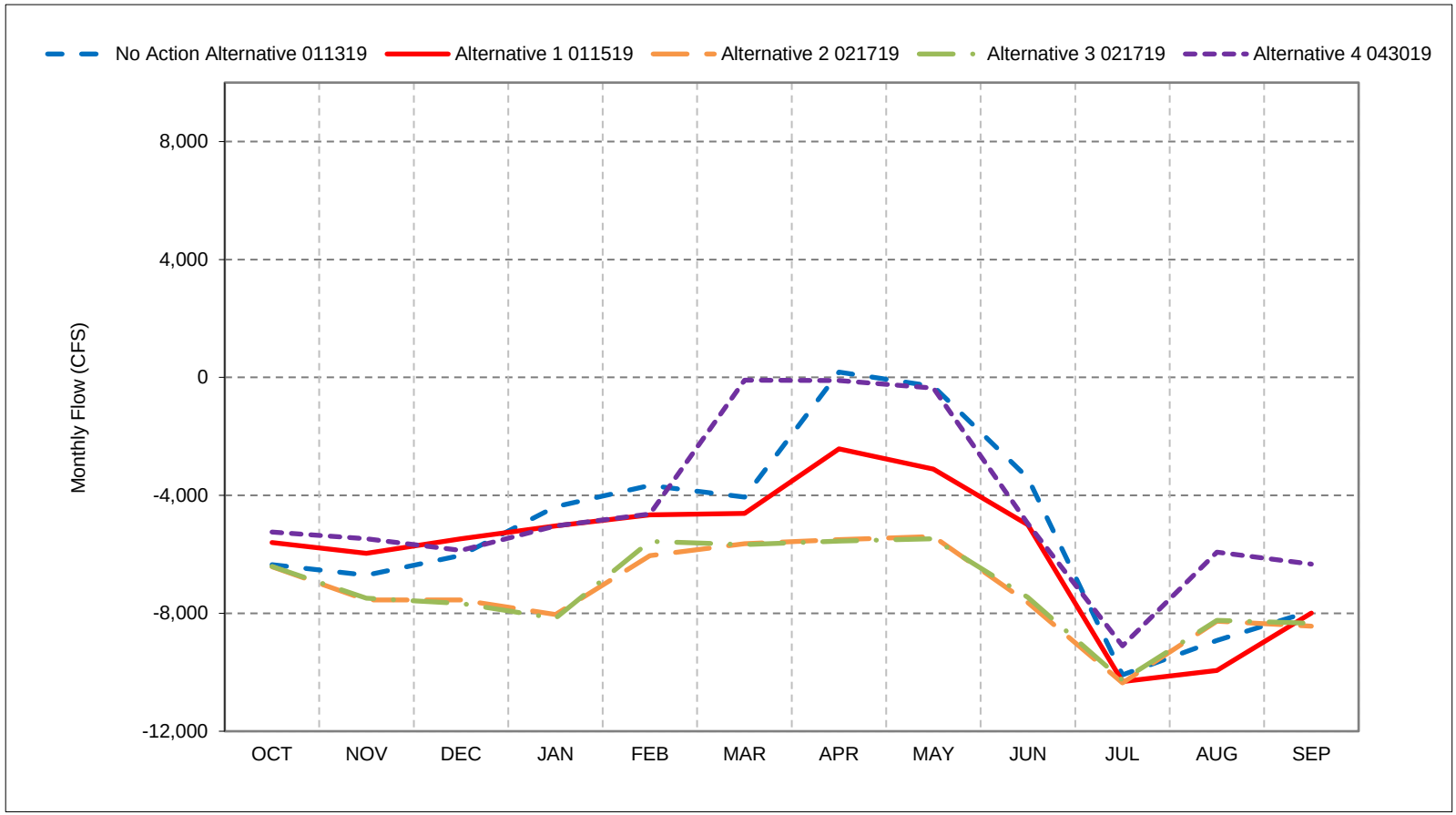
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 40-3. Old and Middle River Flow, Above Normal Year Average Flow



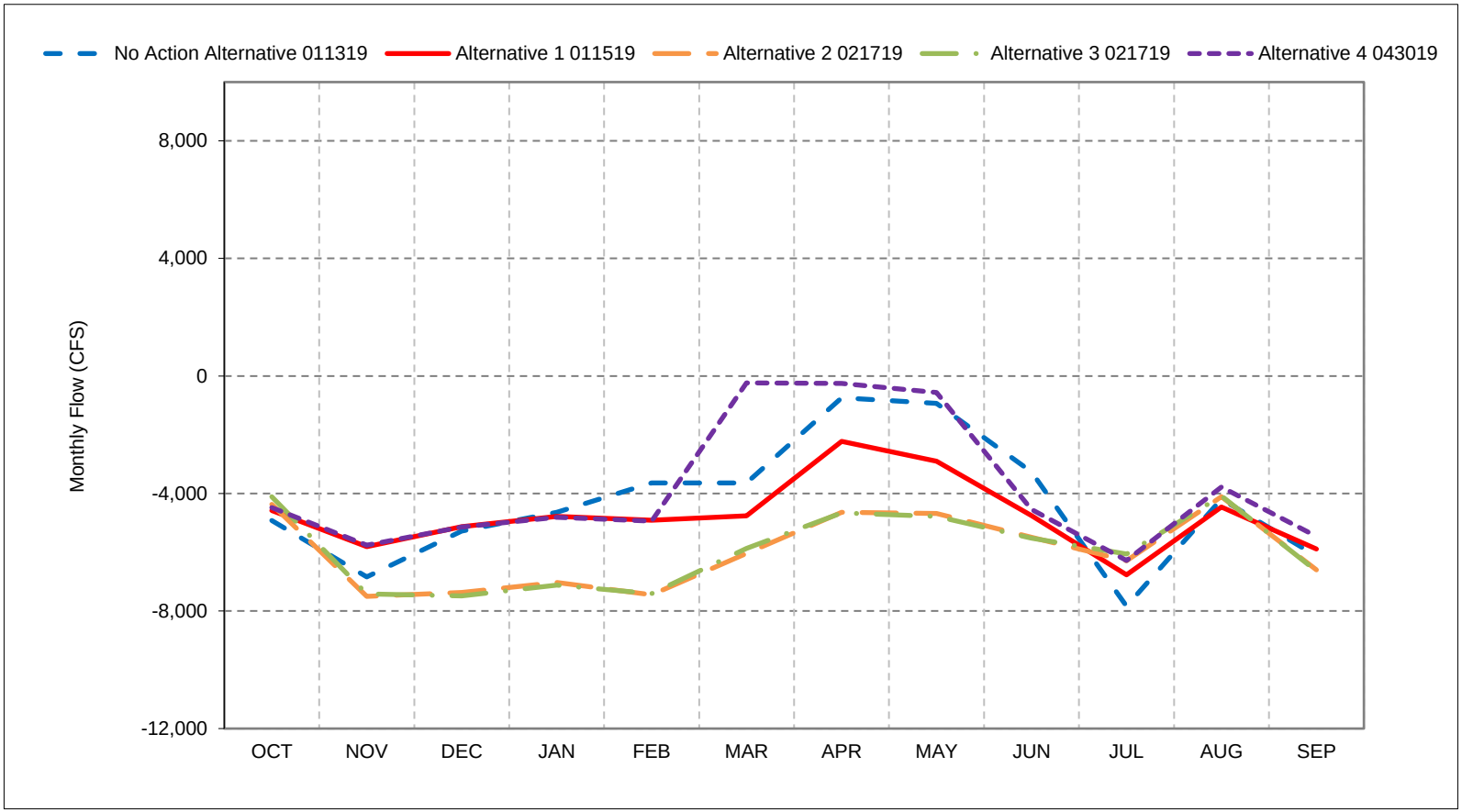
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 40-4. Old and Middle River Flow, Below Normal Year Average Flow



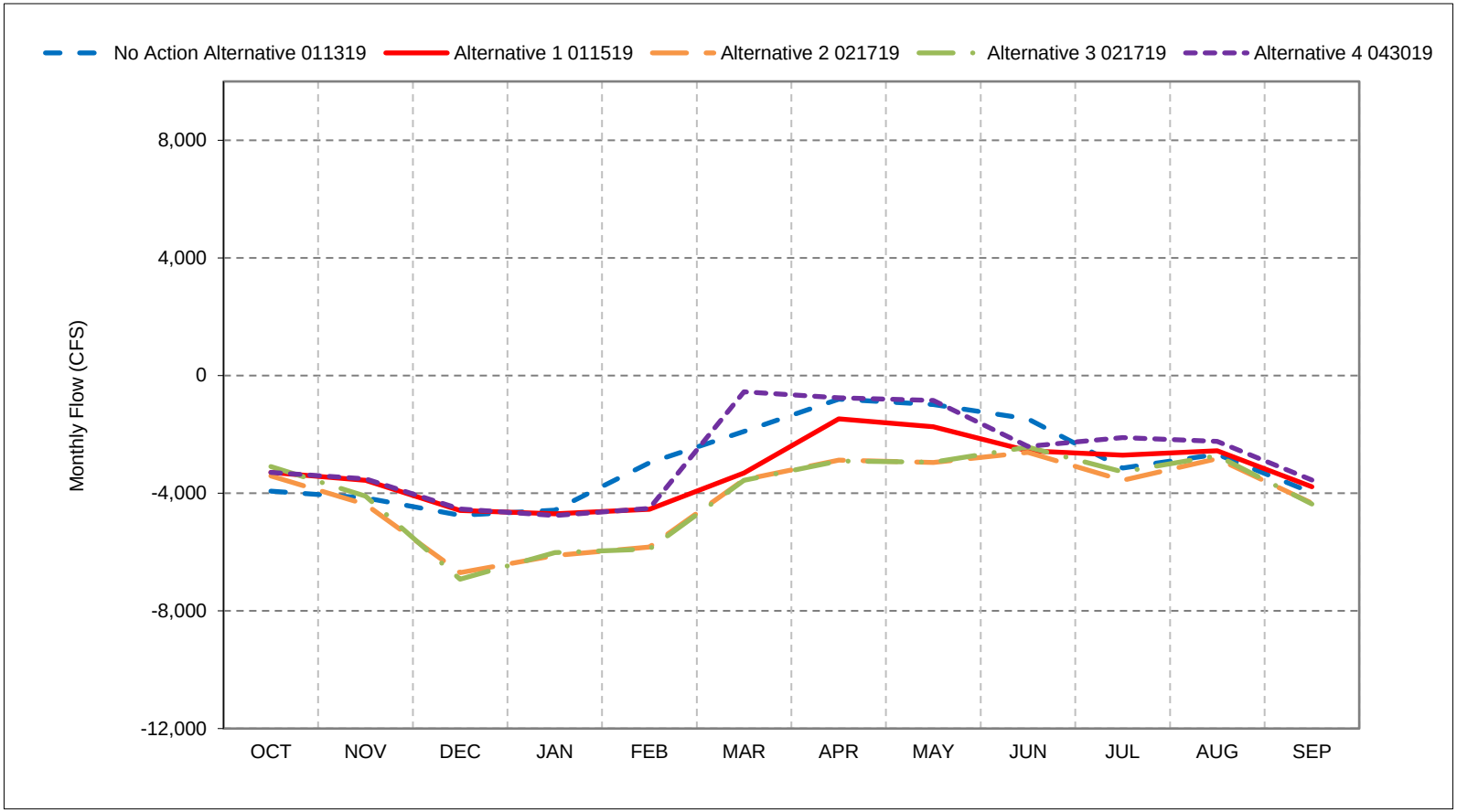
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 40-5. Old and Middle River Flow, Dry Year Average Flow



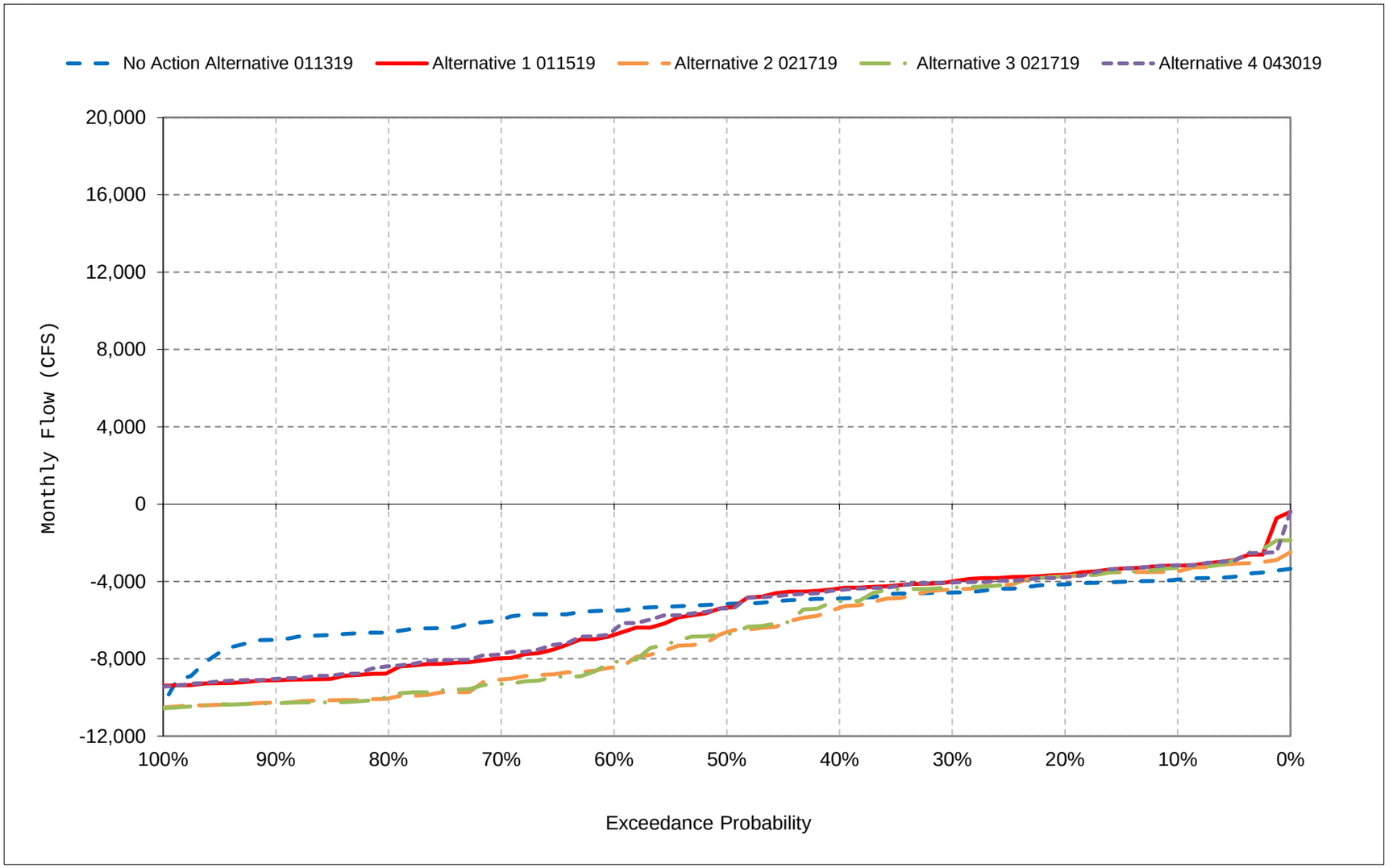
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 40-6. Old and Middle River Flow, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

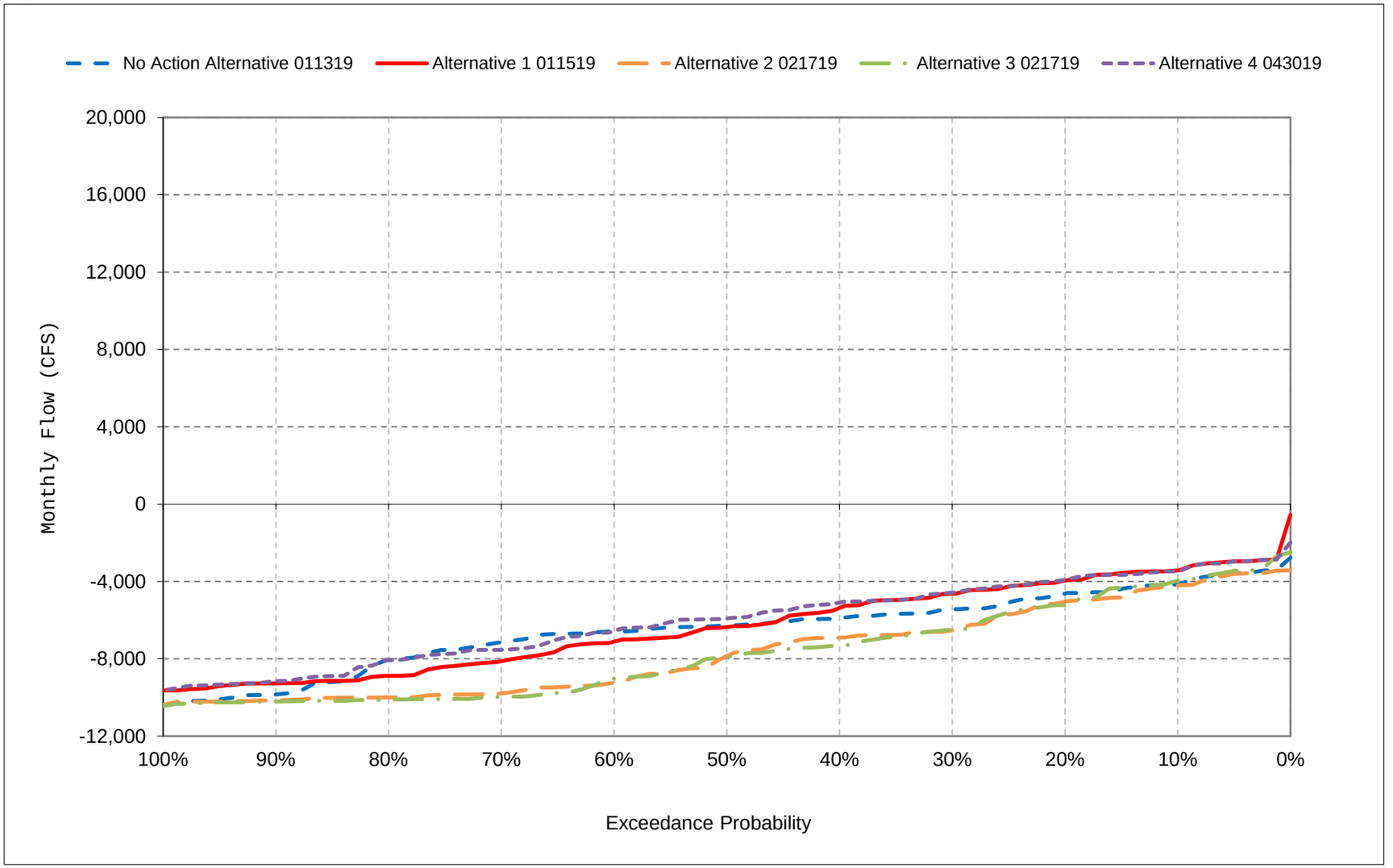
Figure 40-7. Old and Middle River Flow, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

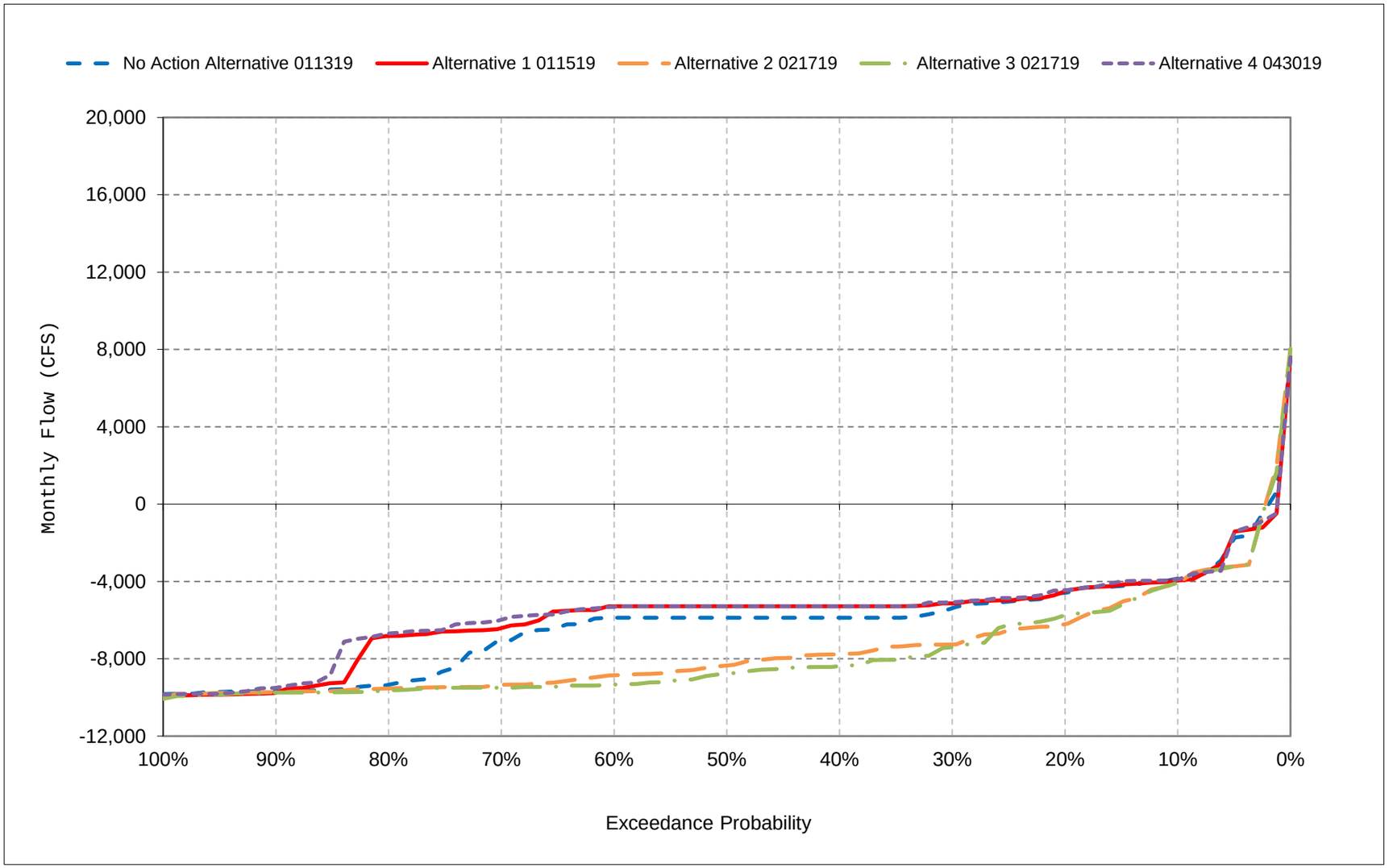
Figure 40-8. Old and Middle River Flow, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

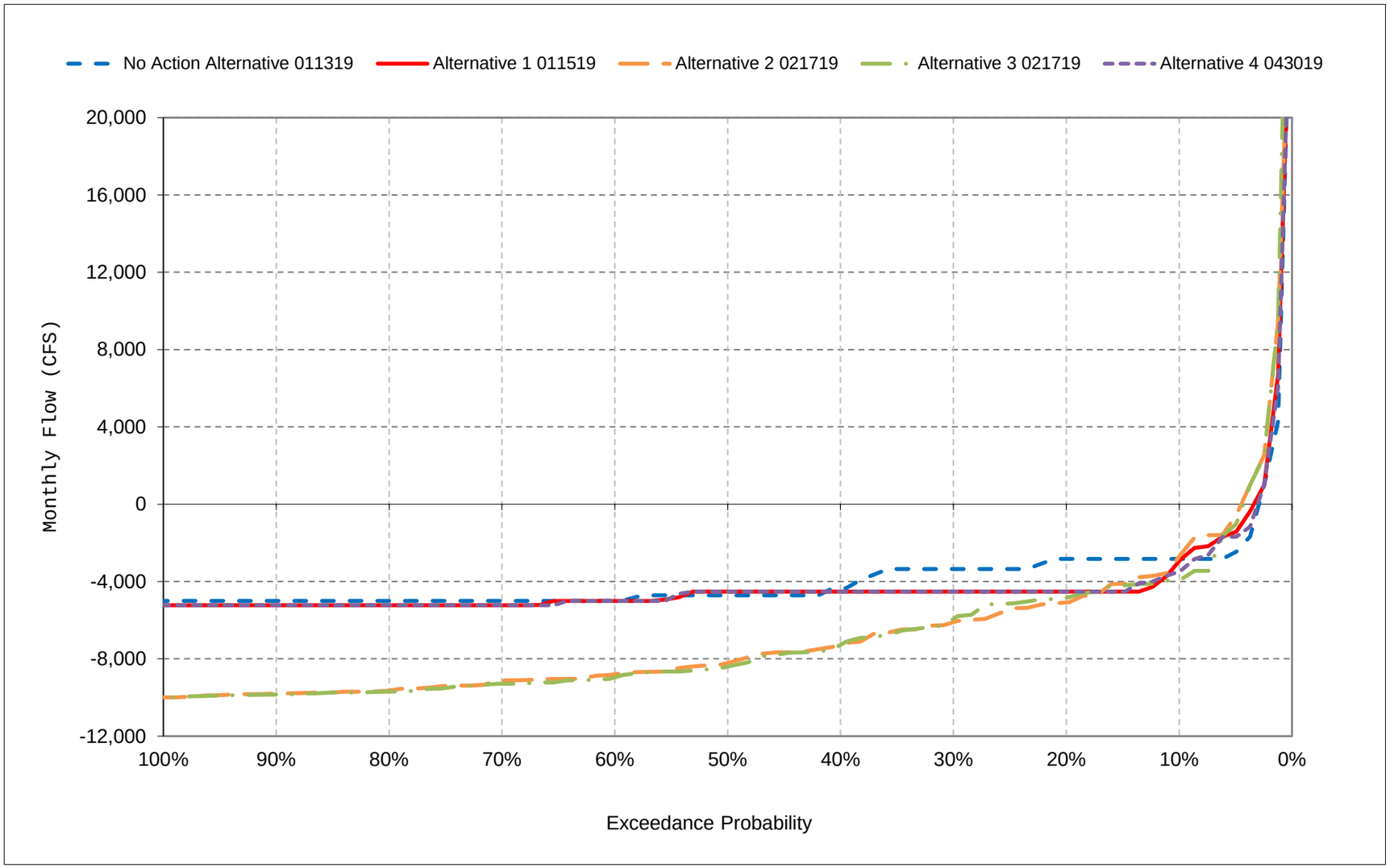
Figure 40-9. Old and Middle River Flow, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

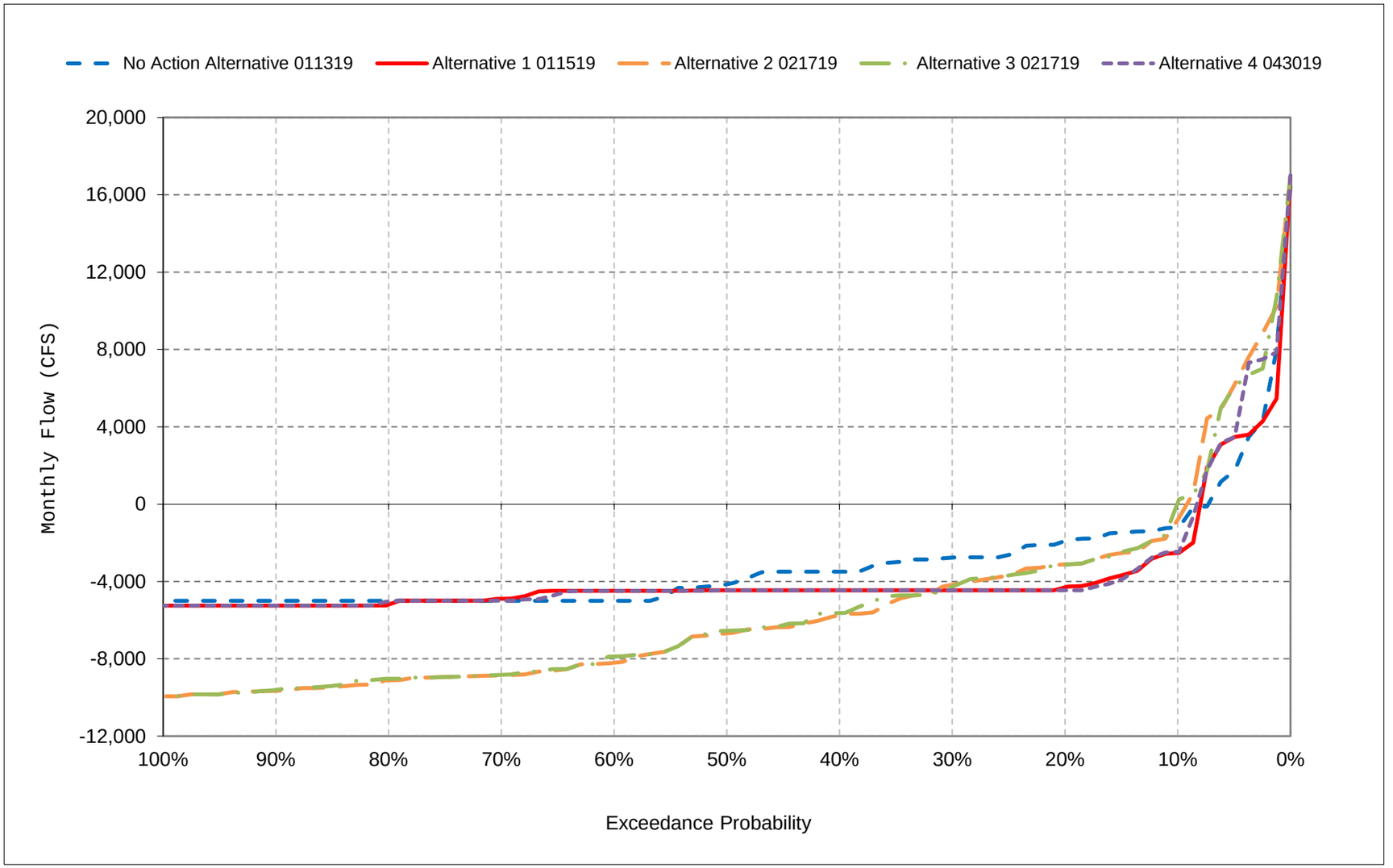
Figure 40-10. Old and Middle River Flow, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

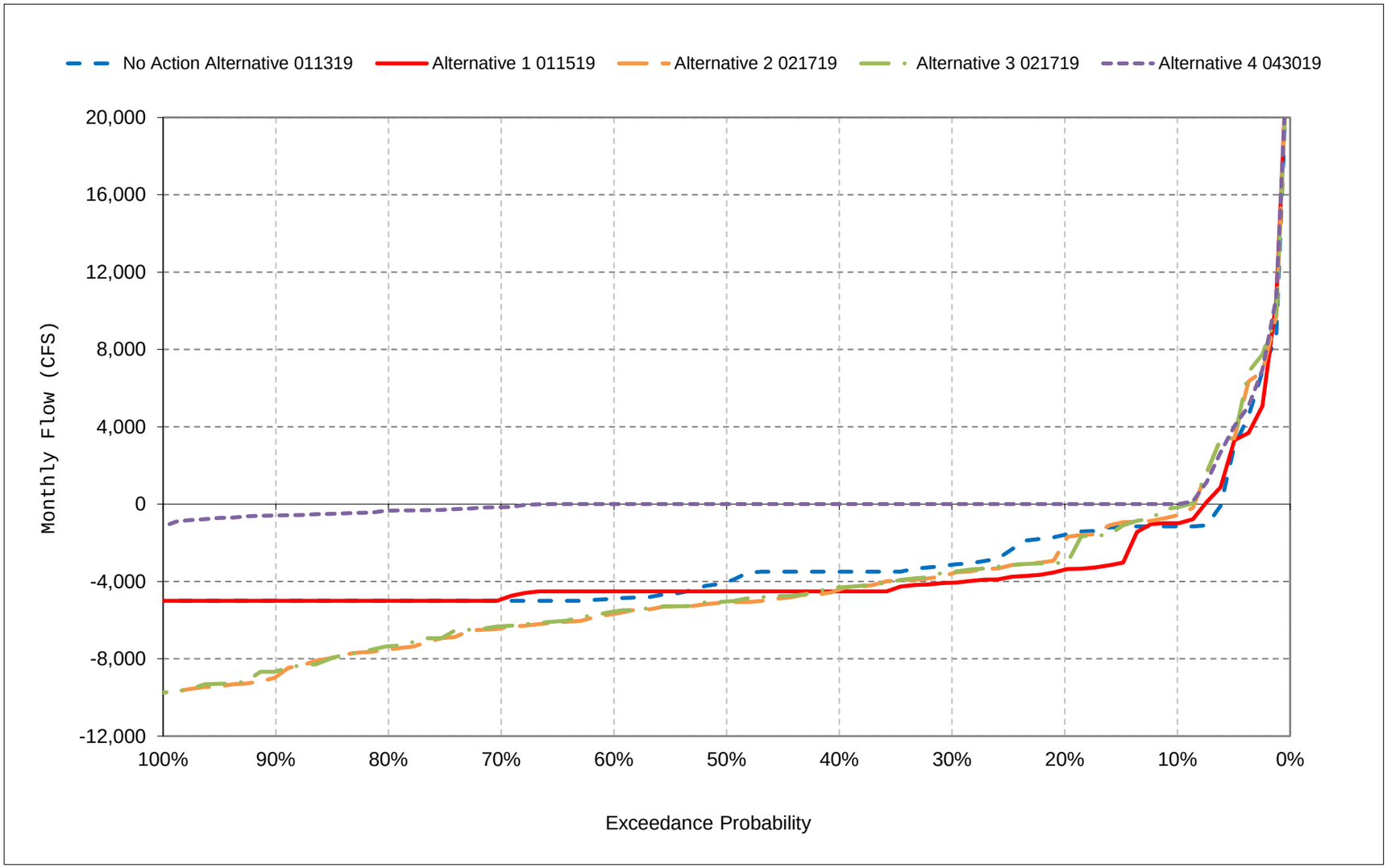
Figure 40-11. Old and Middle River Flow, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

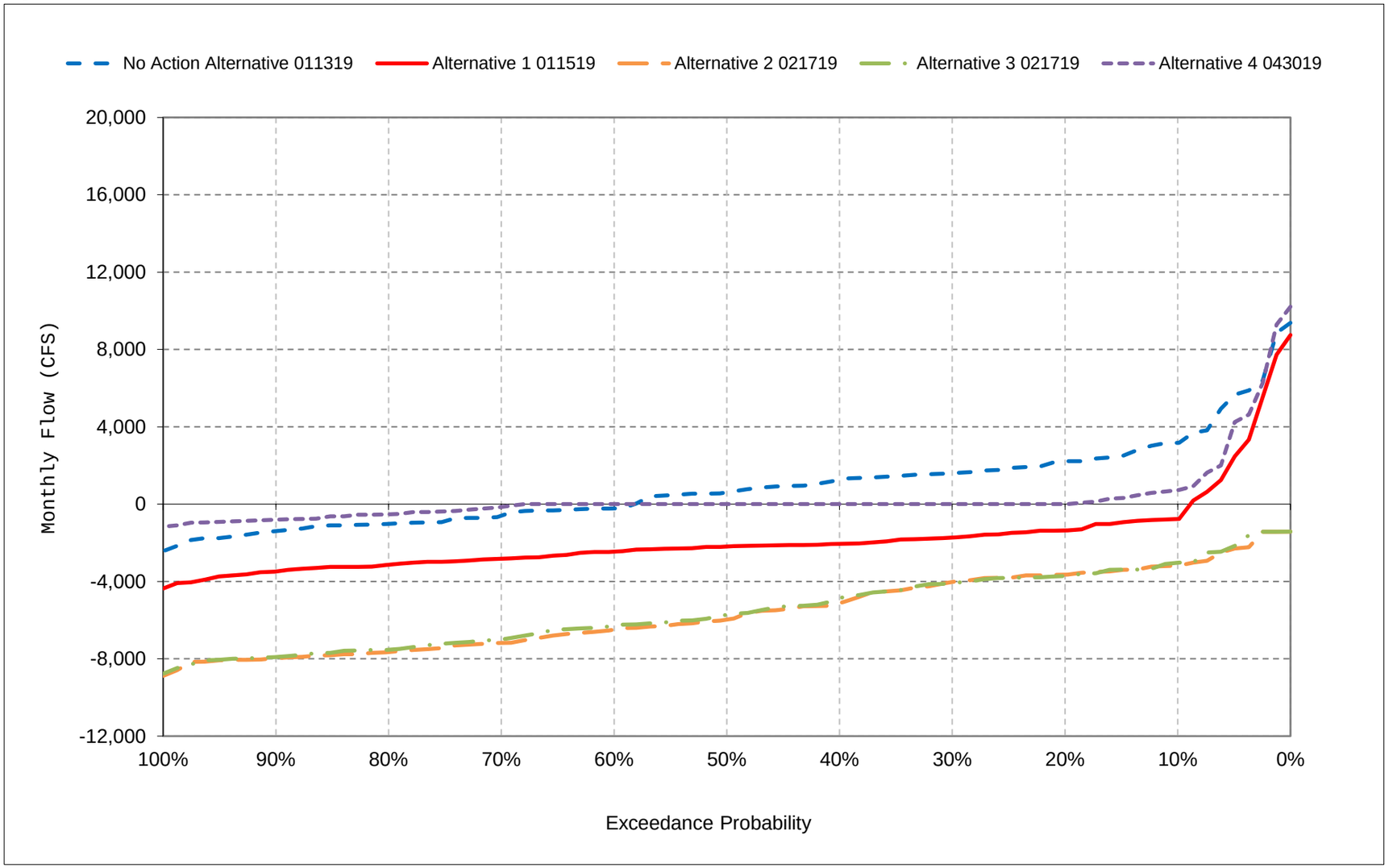
Figure 40-12. Old and Middle River Flow, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 40-13. Old and Middle River Flow, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

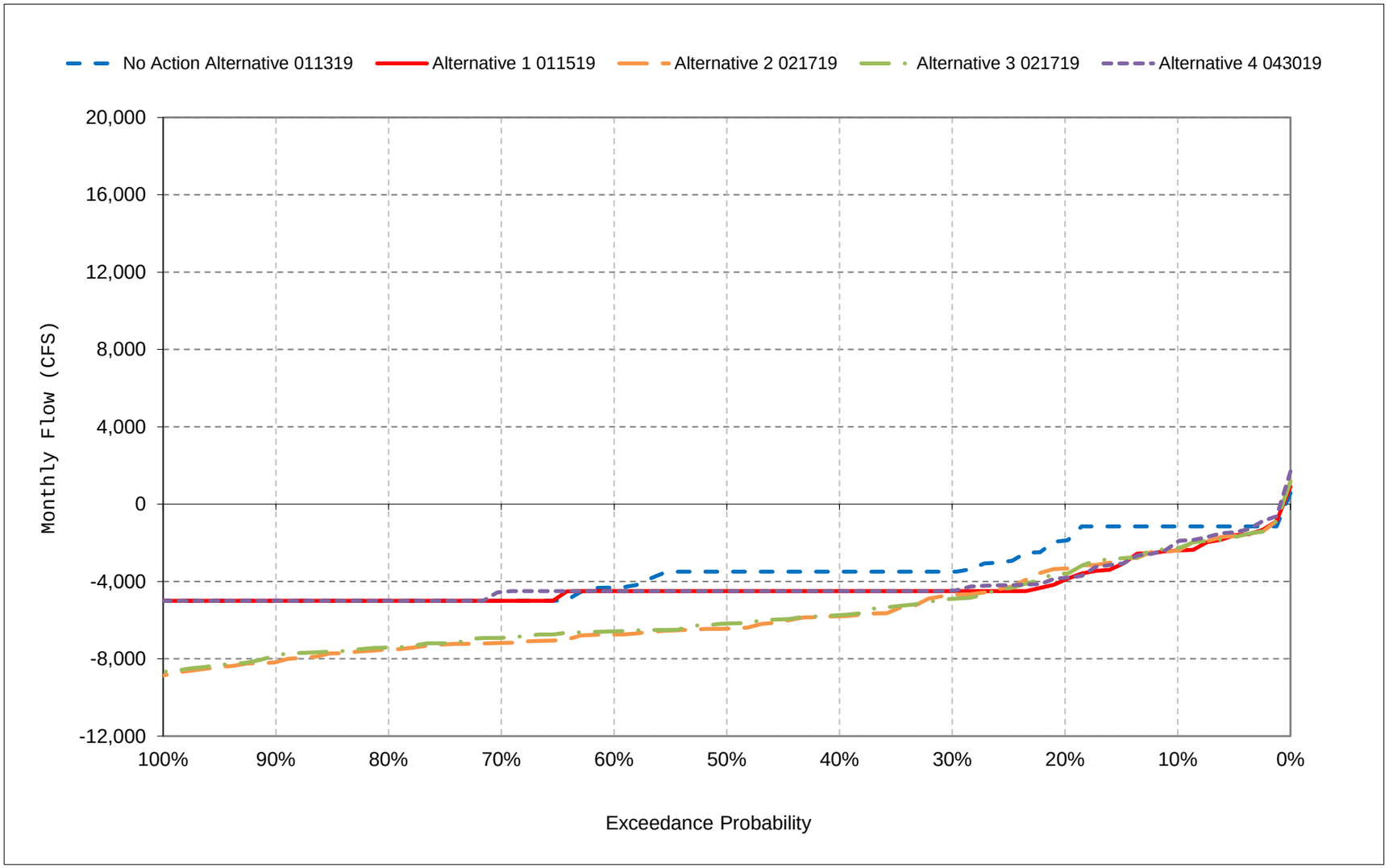
Figure 40-14. Old and Middle River Flow, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

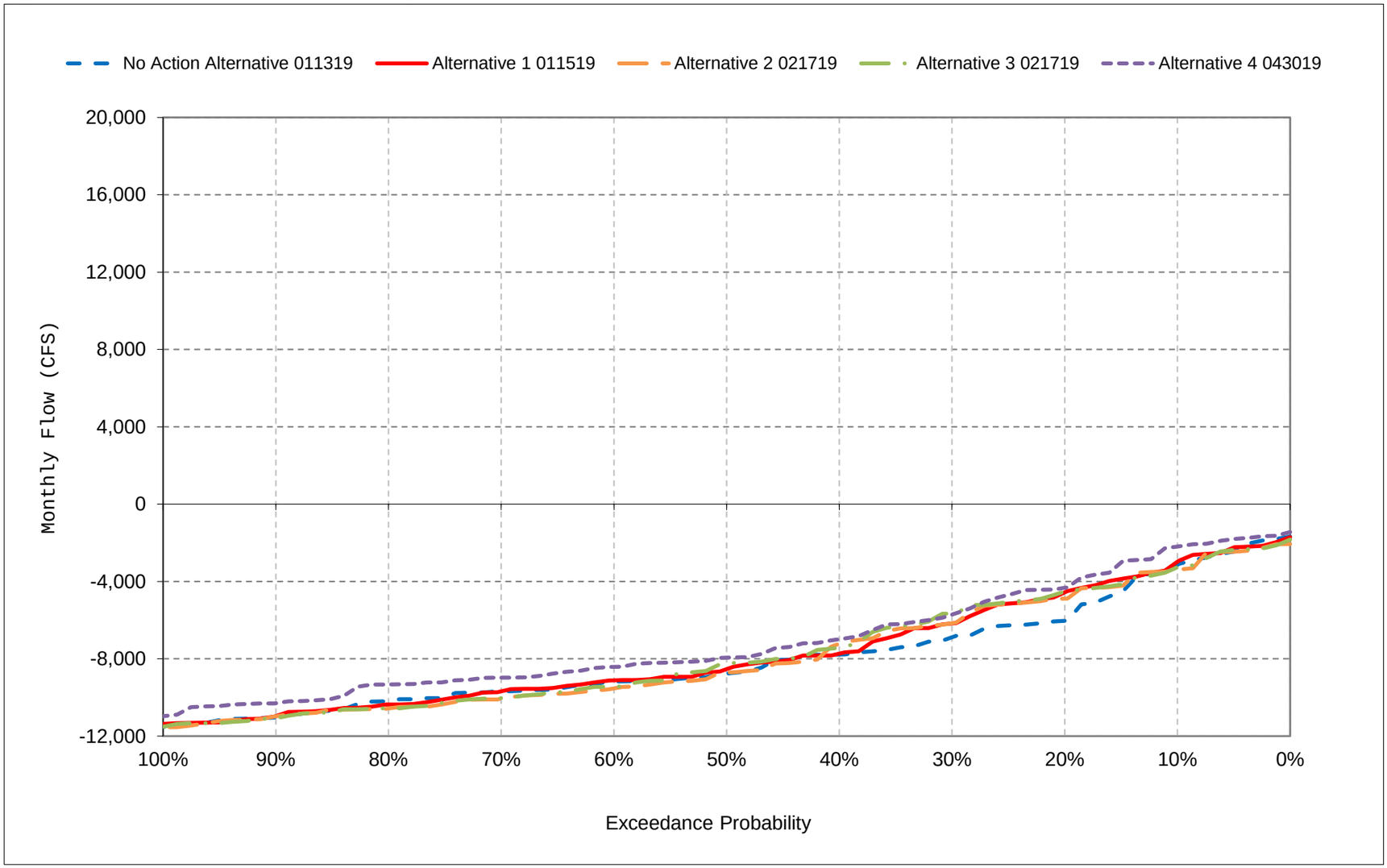
Figure 40-15. Old and Middle River Flow, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

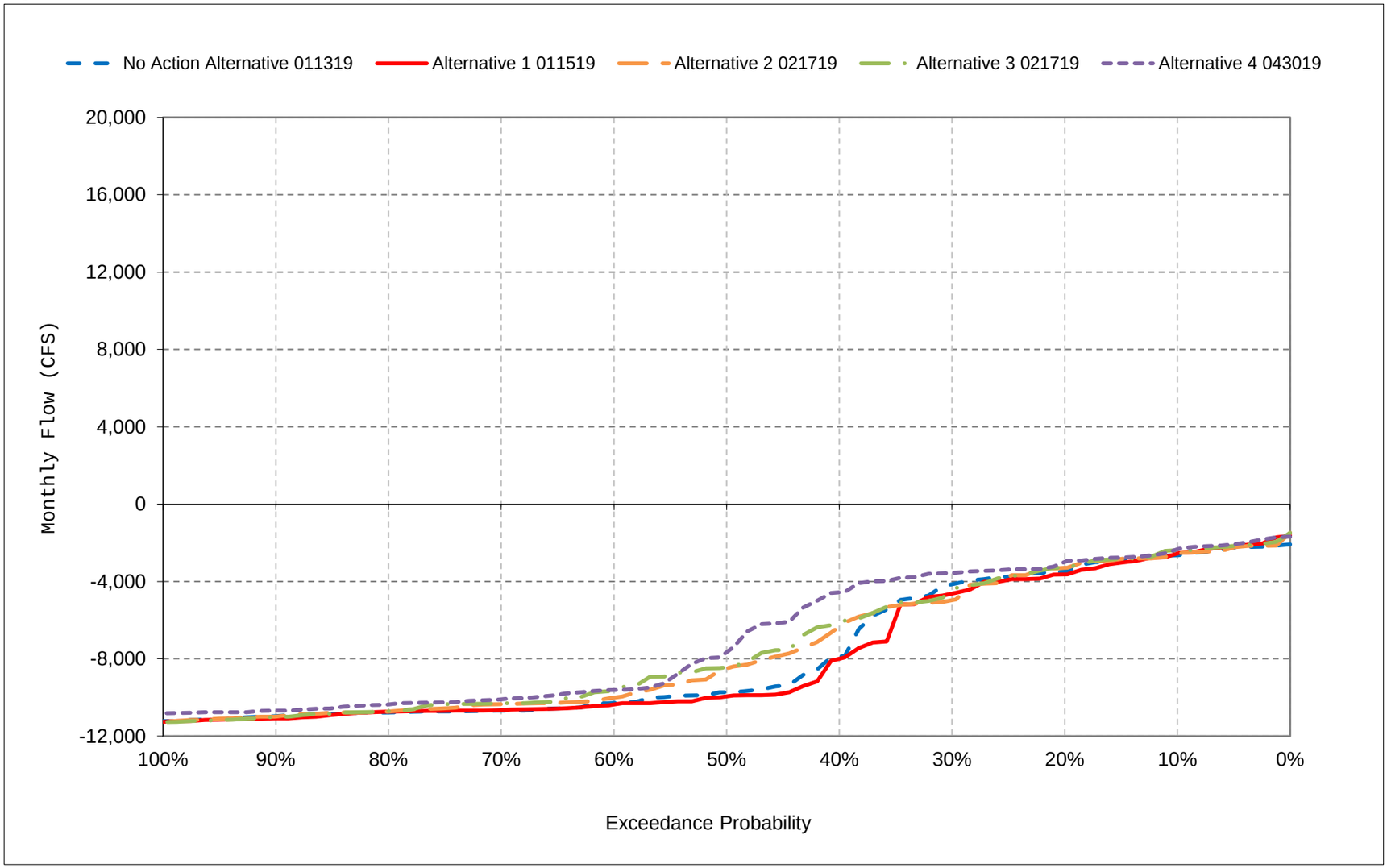
Figure 40-16. Old and Middle River Flow, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

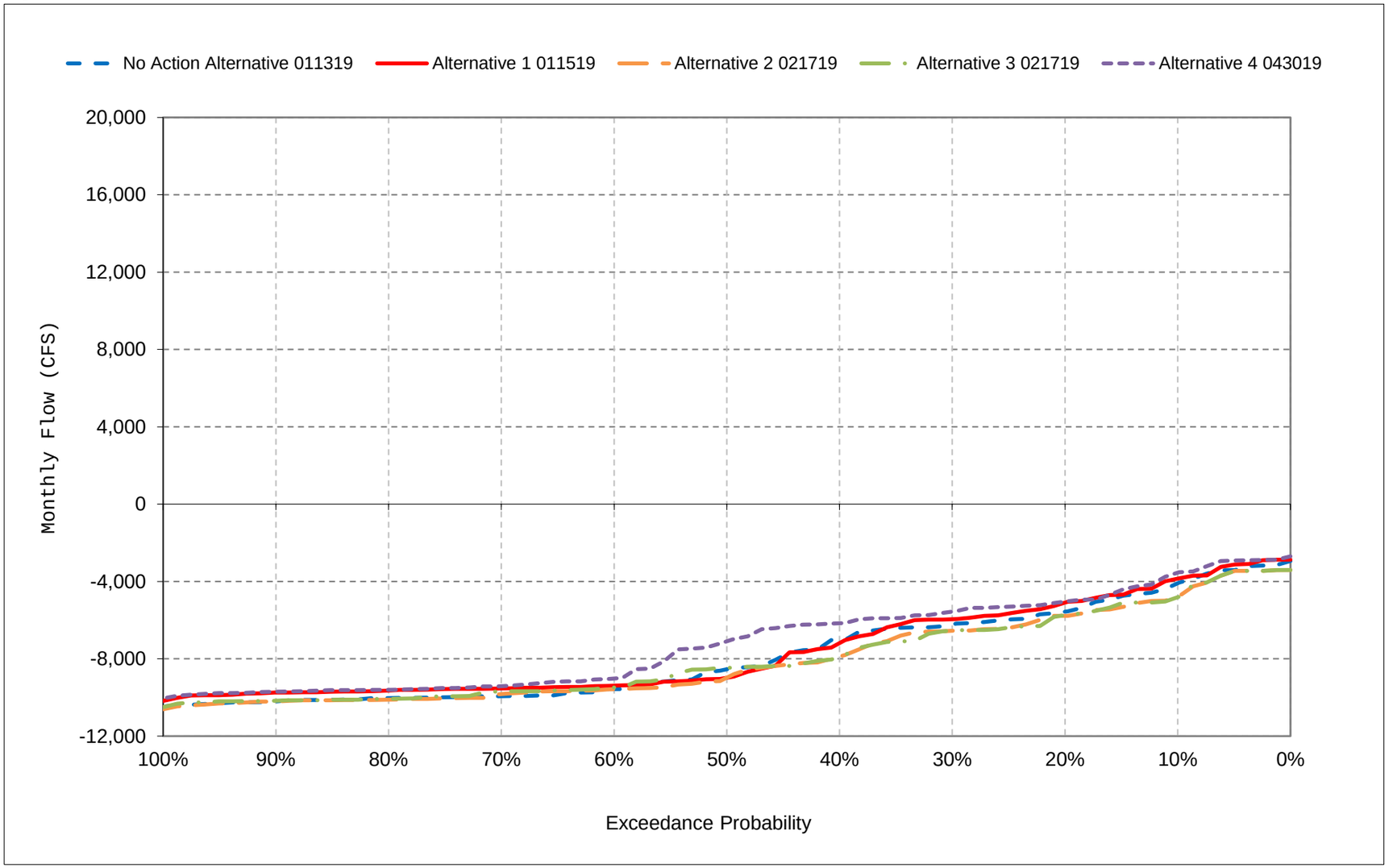
Figure 40-17. Old and Middle River Flow, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 40-18. Old and Middle River Flow, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 41-1. Delta Outflow, Monthly Outflow

No Action Alternative 011319

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,145	15,772	68,184	104,336	138,819	88,087	72,968	46,571	21,259	12,473	4,225	19,516
20%	9,688	14,688	34,582	70,505	88,193	67,845	51,982	30,398	10,131	11,453	4,012	19,313
30%	9,375	13,956	16,201	51,309	68,795	47,758	32,889	19,349	8,976	9,370	4,000	15,362
40%	6,969	12,159	12,260	29,208	51,379	35,067	26,974	16,153	7,676	8,000	4,000	10,938
50%	5,374	9,844	10,005	20,041	36,843	26,853	22,260	13,850	7,243	8,000	4,000	3,712
60%	4,000	6,311	5,880	16,488	25,051	19,793	16,421	11,720	7,100	6,500	4,000	3,000
70%	4,000	4,500	4,950	12,714	18,539	16,589	13,863	9,663	6,937	5,000	3,961	3,000
80%	4,000	4,500	4,511	9,226	15,146	12,431	11,165	8,183	6,044	5,000	3,726	3,000
90%	3,000	3,500	4,500	7,964	11,043	10,764	9,540	7,038	5,391	4,000	3,500	3,000
Long Term												
Full Simulation Period[a]	6,653	11,625	23,116	44,275	56,959	43,806	32,053	20,967	10,940	8,052	4,054	9,423
Water Year Types[b,c]												
Wet (32%)	9,943	17,965	27,333	90,345	102,661	81,638	57,700	39,294	19,071	10,682	4,469	19,040
Above Normal (16%)	7,332	12,903	17,298	49,558	67,693	52,646	34,414	19,816	7,961	11,126	4,035	11,118
Below Normal (13%)	6,260	6,705	19,835	17,008	37,036	17,592	18,032	13,213	7,486	8,099	4,082	3,307
Dry (24%)	4,343	9,898	31,709	15,608	26,159	22,368	18,215	10,819	7,276	5,038	3,832	3,037
Critical (15%)	3,000	3,894	8,967	11,509	15,905	12,017	9,843	6,527	5,825	4,000	3,517	3,000

Alternative 1 011519

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	7,824	17,900	71,116	106,223	140,258	92,678	67,790	41,291	21,795	11,775	4,316	5,458
20%	4,692	8,678	37,251	73,144	89,151	68,282	47,454	27,083	10,857	10,922	4,000	4,164
30%	4,152	6,120	20,706	51,064	68,288	46,609	29,065	15,948	9,617	9,435	4,000	4,075
40%	4,000	4,892	13,246	29,261	55,133	33,861	22,998	12,150	8,417	8,000	4,000	3,996
50%	4,000	4,644	10,760	21,453	37,061	26,295	17,899	11,152	7,760	8,000	4,000	3,855
60%	4,000	4,500	6,976	16,196	24,552	20,895	13,567	10,233	7,338	6,500	4,000	3,000
70%	4,000	4,500	5,509	12,915	17,723	15,688	11,381	8,944	7,100	5,000	3,789	3,000
80%	4,000	4,500	4,918	9,107	13,995	12,199	9,673	7,921	7,100	5,000	3,514	3,000
90%	3,000	3,500	4,500	7,818	10,541	9,271	8,953	6,804	5,717	4,000	3,500	3,000
Long Term												
Full Simulation Period[a]	5,079	9,103	25,249	44,985	57,425	44,256	29,104	18,600	11,420	7,904	4,010	4,123
Water Year Types[b,c]												
Wet (32%)	6,358	12,022	31,810	92,116	103,918	82,647	53,254	35,255	19,822	10,416	4,471	5,743
Above Normal (16%)	5,350	9,275	20,373	50,231	69,739	54,821	30,246	16,659	8,801	10,620	4,025	4,049
Below Normal (13%)	5,949	6,237	20,351	17,747	39,393	18,100	15,435	11,403	7,829	8,125	4,137	3,474
Dry (24%)	4,007	9,928	32,352	15,515	24,766	21,687	16,439	9,699	7,540	5,094	3,651	3,094
Critical (15%)	3,000	3,845	8,967	11,268	14,309	11,218	9,181	6,051	5,809	4,000	3,477	3,000

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-2,320**	2,128	2,932	1,887	1,439	4,592	**-5,178**	**-5,280**	536	**-698**	91	**-14,058**
20%	**-4,996**	**-6,009**	2,669	2,638	957	437	**-4,528**	**-3,315**	727	**-532**	**-12**	**-15,148**
30%	**-5,223**	**-7,836**	4,505	**-245**	**-506**	**-1,149**	**-3,824**	**-3,400**	641	66	0	**-11,288**
40%	**-2,969**	**-7,267**	986	53	3,753	**-1,206**	**-3,976**	**-4,003**	741	0	0	**-6,941**
50%	**-1,374**	**-5,199**	755	1,412	217	**-558**	**-4,361**	**-2,698**	516	0	0	142
60%	0	**-1,811**	1,097	**-293**	**-499**	1,102	**-2,854**	**-1,487**	238	0	0	0
70%	0	0	560	201	**-815**	**-902**	**-2,482**	**-719**	163	0	**-173**	0
80%	0	0	406	**-119**	**-1,150**	**-232**	**-1,492**	**-263**	1,056	0	**-211**	0
90%	0	0	0	**-146**	**-502**	**-1,493**	**-587**	**-234**	326	0	0	0
Long Term												
Full Simulation Period[a]	**-1,574**	**-2,522**	2,133	709	466	450	**-2,949**	**-2,367**	479	**-147**	**-44**	**-5,300**
Water Year Types[b,c]												
Wet (32%)	**-3,584**	**-5,943**	4,477	1,771	1,256	1,009	**-4,446**	**-4,039**	751	**-266**	1	**-13,297**
Above Normal (16%)	**-1,982**	**-3,628**	3,075	673	2,046	2,175	**-4,167**	**-3,157**	840	**-506**	**-10**	**-7,069**
Below Normal (13%)	**-312**	**-467**	516	739	2,357	508	**-2,597**	**-1,810**	343	26	55	167
Dry (24%)	**-335**	30	644	**-93**	**-1,392**	**-680**	**-1,777**	**-1,120**	264	56	**-181**	57
Critical (15%)	0	**-48**	0	**-241**	**-1,596**	**-799**	**-663**	**-476**	**-16**	0	**-40**	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 41-2. Delta Outflow, Monthly Outflow

No Action Alternative 011319

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,145	15,772	68,184	104,336	138,819	88,087	72,968	46,571	21,259	12,473	4,225	19,516
20%	9,688	14,688	34,582	70,505	88,193	67,845	51,982	30,398	10,131	11,453	4,012	19,313
30%	9,375	13,956	16,201	51,309	68,795	47,758	32,889	19,349	8,976	9,370	4,000	15,362
40%	6,969	12,159	12,260	29,208	51,379	35,067	26,974	16,153	7,676	8,000	4,000	10,938
50%	5,374	9,844	10,005	20,041	36,843	26,853	22,260	13,850	7,243	8,000	4,000	3,712
60%	4,000	6,311	5,880	16,488	25,051	19,793	16,421	11,720	7,100	6,500	4,000	3,000
70%	4,000	4,500	4,950	12,714	18,539	16,589	13,863	9,663	6,937	5,000	3,961	3,000
80%	4,000	4,500	4,511	9,226	15,146	12,431	11,165	8,183	6,044	5,000	3,726	3,000
90%	3,000	3,500	4,500	7,964	11,043	10,764	9,540	7,038	5,391	4,000	3,500	3,000
Long Term												
Full Simulation Period[a]	6,653	11,625	23,116	44,275	56,959	43,806	32,053	20,967	10,940	8,052	4,054	9,423
Water Year Types[b,c]												
Wet (32%)	9,943	17,965	27,333	90,345	102,661	81,638	57,700	39,294	19,071	10,682	4,469	19,040
Above Normal (16%)	7,332	12,903	17,298	49,558	67,693	52,646	34,414	19,816	7,961	11,126	4,035	11,118
Below Normal (13%)	6,260	6,705	19,835	17,008	37,036	17,592	18,032	13,213	7,486	8,099	4,082	3,307
Dry (24%)	4,343	9,898	31,709	15,608	26,159	22,368	18,215	10,819	7,276	5,038	3,832	3,037
Critical (15%)	3,000	3,894	8,967	11,509	15,905	12,017	9,843	6,527	5,825	4,000	3,517	3,000

Alternative 2 021719

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	5,774	14,244	65,583	103,374	143,563	92,939	67,318	41,409	20,608	10,654	4,221	5,069
20%	4,643	6,640	33,943	72,872	85,297	70,033	46,045	23,968	11,602	9,726	4,000	4,079
30%	4,480	5,070	14,607	46,556	63,089	40,472	26,524	14,858	10,835	8,433	4,000	3,982
40%	4,262	4,691	10,022	24,538	50,278	32,272	21,372	12,321	10,395	8,000	4,000	3,865
50%	4,000	4,500	7,470	16,526	32,253	23,833	16,001	10,994	9,650	6,520	4,000	3,703
60%	4,000	4,500	6,086	11,759	20,569	18,121	12,282	9,973	8,525	6,500	4,000	3,000
70%	4,000	4,500	5,054	10,274	15,655	14,200	10,674	9,465	7,849	5,000	3,940	3,000
80%	4,000	4,500	4,500	7,916	12,866	11,970	9,679	8,591	7,107	5,000	3,677	3,000
90%	3,400	3,500	4,500	6,360	11,046	9,678	9,028	7,107	7,100	4,000	3,500	3,000
Long Term												
Full Simulation Period[a]	4,664	8,545	22,652	41,743	55,307	42,820	28,264	18,336	12,149	7,402	4,057	4,067
Water Year Types[b,c]												
Wet (32%)	4,995	11,433	30,420	88,580	103,090	82,012	52,764	34,761	19,785	10,070	4,446	5,657
Above Normal (16%)	4,139	8,535	16,484	45,267	66,839	52,089	28,369	15,459	10,622	9,654	4,015	3,850
Below Normal (13%)	5,611	5,463	17,232	14,417	36,455	16,718	14,252	11,496	10,307	6,514	4,306	3,510
Dry (24%)	4,778	9,430	29,045	12,921	21,626	19,410	15,649	9,998	7,825	5,000	3,739	3,086
Critical (15%)	3,459	3,653	6,813	9,531	12,699	10,806	8,934	6,035	6,156	4,000	3,563	3,000

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-4,370**	**-1,528**	**-2,600**	**-962**	4,744	4,853	**-5,650**	**-5,163**	**-651**	**-1,819**	**-4**	**-14,447**
20%	**-5,045**	**-8,048**	**-639**	2,367	**-2,897**	2,188	**-5,937**	**-6,429**	1,472	**-1,728**	**-12**	**-15,234**
30%	**-4,895**	**-8,886**	**-1,594**	**-4,753**	**-5,705**	**-7,286**	**-6,366**	**-4,491**	1,859	**-937**	0	**-11,380**
40%	**-2,707**	**-7,468**	**-2,238**	**-4,670**	**-1,102**	**-2,795**	**-5,603**	**-3,831**	2,719	0	0	**-7,072**
50%	**-1,374**	**-5,344**	**-2,535**	**-3,515**	**-4,590**	**-3,020**	**-6,259**	**-2,856**	2,407	**-1,480**	0	**-9**
60%	0	**-1,811**	206	**-4,729**	**-4,482**	**-1,672**	**-4,139**	**-1,747**	1,425	0	0	0
70%	0	0	104	**-2,440**	**-2,883**	**-2,390**	**-3,190**	**-197**	913	0	**-21**	0
80%	0	0	**-11**	**-1,310**	**-2,279**	**-461**	**-1,486**	408	1,063	0	**-49**	0
90%	400	0	0	**-1,604**	3	**-1,086**	**-512**	69	1,709	0	0	0
Long Term												
Full Simulation Period[a]	**-1,988**	**-3,080**	**-464**	**-2,532**	**-1,652**	**-986**	**-3,789**	**-2,631**	1,209	**-649**	3	**-5,356**
Water Year Types[b,c]												
Wet (32%)	**-4,947**	**-6,533**	3,087	**-1,765**	429	374	**-4,936**	**-4,533**	713	**-612**	**-24**	**-13,383**
Above Normal (16%)	**-3,192**	**-4,368**	**-814**	**-4,290**	**-854**	**-557**	**-6,044**	**-4,357**	2,661	**-1,472**	**-20**	**-7,268**
Below Normal (13%)	**-649**	**-1,242**	**-2,603**	**-2,591**	**-581**	**-874**	**-3,780**	**-1,717**	2,821	**-1,585**	224	203
Dry (24%)	435	**-468**	**-2,664**	**-2,687**	**-4,533**	**-2,958**	**-2,566**	**-821**	550	**-38**	**-93**	50
Critical (15%)	459	**-240**	**-2,153**	**-1,979**	**-3,206**	**-1,211**	**-909**	**-493**	331	0	45	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 41-3. Delta Outflow, Monthly Outflow

No Action Alternative 011319

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,145	15,772	68,184	104,336	138,819	88,087	72,968	46,571	21,259	12,473	4,225	19,516
20%	9,688	14,688	34,582	70,505	88,193	67,845	51,982	30,398	10,131	11,453	4,012	19,313
30%	9,375	13,956	16,201	51,309	68,795	47,758	32,889	19,349	8,976	9,370	4,000	15,362
40%	6,969	12,159	12,260	29,208	51,379	35,067	26,974	16,153	7,676	8,000	4,000	10,938
50%	5,374	9,844	10,005	20,041	36,843	26,853	22,260	13,850	7,243	8,000	4,000	3,712
60%	4,000	6,311	5,880	16,488	25,051	19,793	16,421	11,720	7,100	6,500	4,000	3,000
70%	4,000	4,500	4,950	12,714	18,539	16,589	13,863	9,663	6,937	5,000	3,961	3,000
80%	4,000	4,500	4,511	9,226	15,146	12,431	11,165	8,183	6,044	5,000	3,726	3,000
90%	3,000	3,500	4,500	7,964	11,043	10,764	9,540	7,038	5,391	4,000	3,500	3,000
Long Term												
Full Simulation Period[a]	6,653	11,625	23,116	44,275	56,959	43,806	32,053	20,967	10,940	8,052	4,054	9,423
Water Year Types[b,c]												
Wet (32%)	9,943	17,965	27,333	90,345	102,661	81,638	57,700	39,294	19,071	10,682	4,469	19,040
Above Normal (16%)	7,332	12,903	17,298	49,558	67,693	52,646	34,414	19,816	7,961	11,126	4,035	11,118
Below Normal (13%)	6,260	6,705	19,835	17,008	37,036	17,592	18,032	13,213	7,486	8,099	4,082	3,307
Dry (24%)	4,343	9,898	31,709	15,608	26,159	22,368	18,215	10,819	7,276	5,038	3,832	3,037
Critical (15%)	3,000	3,894	8,967	11,509	15,905	12,017	9,843	6,527	5,825	4,000	3,517	3,000

Alternative 3 021719

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	7,318	14,716	65,549	103,203	143,525	93,479	67,308	41,224	20,609	11,039	4,354	5,940
20%	5,762	6,052	34,313	72,230	85,577	70,604	45,994	23,855	11,362	9,939	4,000	4,224
30%	5,087	5,382	15,018	46,614	61,966	41,003	26,575	14,564	10,614	8,569	4,000	4,084
40%	4,737	4,966	9,761	24,667	50,764	32,300	21,341	12,112	10,019	8,000	4,000	3,953
50%	4,533	4,653	7,318	16,592	32,200	23,134	16,501	10,923	9,317	7,213	4,000	3,383
60%	4,357	4,500	5,961	12,200	20,609	18,175	12,156	9,912	8,539	6,500	4,000	3,000
70%	4,142	4,500	5,125	9,903	16,803	14,325	11,134	9,098	7,711	5,000	4,000	3,000
80%	4,000	4,500	4,500	7,836	13,030	11,672	9,698	8,329	7,100	5,000	3,746	3,000
90%	4,000	4,500	4,500	6,486	10,194	9,672	8,621	7,114	6,966	4,000	3,500	3,000
Long Term												
Full Simulation Period[a]	5,223	8,601	22,672	41,861	55,234	42,900	28,375	18,166	11,969	7,503	4,069	4,170
Water Year Types[b,c]												
Wet (32%)	5,354	11,501	30,591	89,072	102,813	82,105	53,168	34,248	19,798	10,036	4,452	5,752
Above Normal (16%)	4,422	8,683	16,863	44,890	66,770	52,360	28,315	15,379	10,000	10,129	4,000	4,351
Below Normal (13%)	6,229	5,630	17,209	14,237	37,039	16,687	14,287	11,409	9,934	6,769	4,192	3,482
Dry (24%)	5,754	9,207	28,834	12,835	21,646	19,471	15,644	10,072	7,832	5,010	3,789	3,076
Critical (15%)	4,000	3,943	6,546	9,989	12,304	10,787	8,857	6,025	5,902	4,000	3,671	3,000

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-2,826**	**-1,056**	**-2,635**	**-1,133**	4,706	5,392	**-5,660**	**-5,347**	**-650**	**-1,434**	129	**-13,576**
20%	**-3,926**	**-8,635**	**-269**	1,725	**-2,617**	2,759	**-5,988**	**-6,543**	1,232	**-1,514**	**-12**	**-15,089**
30%	**-4,288**	**-8,574**	**-1,183**	**-4,695**	**-6,829**	**-6,755**	**-6,314**	**-4,785**	1,637	**-800**	0	**-11,278**
40%	**-2,232**	**-7,193**	**-2,499**	**-4,541**	**-615**	**-2,767**	**-5,633**	**-4,040**	2,343	0	0	**-6,985**
50%	**-841**	**-5,191**	**-2,688**	**-3,449**	**-4,643**	**-3,719**	**-5,759**	**-2,928**	2,074	**-787**	0	**-329**
60%	357	**-1,811**	82	**-4,288**	**-4,443**	**-1,618**	**-4,265**	**-1,808**	1,439	0	0	0
70%	142	0	175	**-2,811**	**-1,735**	**-2,264**	**-2,730**	**-565**	774	0	39	0
80%	0	0	**-11**	**-1,390**	**-2,116**	**-759**	**-1,467**	146	1,056	0	21	0
90%	1,000	1,000	0	**-1,478**	**-849**	**-1,092**	**-919**	76	1,575	0	0	0
Long Term												
Full Simulation Period[a]	**-1,430**	**-3,024**	**-444**	**-2,414**	**-1,725**	**-905**	**-3,678**	**-2,801**	1,029	**-548**	16	**-5,253**
Water Year Types[b,c]												
Wet (32%)	**-4,589**	**-6,464**	3,258	**-1,273**	152	466	**-4,532**	**-5,046**	726	**-647**	**-17**	**-13,288**
Above Normal (16%)	**-2,910**	**-4,220**	**-436**	**-4,667**	**-923**	**-286**	**-6,099**	**-4,437**	2,039	**-997**	**-35**	**-6,767**
Below Normal (13%)	**-31**	**-1,074**	**-2,626**	**-2,772**	3	**-905**	**-3,745**	**-1,804**	2,448	**-1,330**	110	175
Dry (24%)	1,411	**-691**	**-2,875**	**-2,773**	**-4,513**	**-2,896**	**-2,571**	**-747**	556	**-28**	**-43**	40
Critical (15%)	1,000	49	**-2,421**	**-1,520**	**-3,600**	**-1,230**	**-987**	**-502**	77	0	154	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 41-4. Delta Outflow, Monthly Outflow

No Action Alternative 011319

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,145	15,772	68,184	104,336	138,819	88,087	72,968	46,571	21,259	12,473	4,225	19,516
20%	9,688	14,688	34,582	70,505	88,193	67,845	51,982	30,398	10,131	11,453	4,012	19,313
30%	9,375	13,956	16,201	51,309	68,795	47,758	32,889	19,349	8,976	9,370	4,000	15,362
40%	6,969	12,159	12,260	29,208	51,379	35,067	26,974	16,153	7,676	8,000	4,000	10,938
50%	5,374	9,844	10,005	20,041	36,843	26,853	22,260	13,850	7,243	8,000	4,000	3,712
60%	4,000	6,311	5,880	16,488	25,051	19,793	16,421	11,720	7,100	6,500	4,000	3,000
70%	4,000	4,500	4,950	12,714	18,539	16,589	13,863	9,663	6,937	5,000	3,961	3,000
80%	4,000	4,500	4,511	9,226	15,146	12,431	11,165	8,183	6,044	5,000	3,726	3,000
90%	3,000	3,500	4,500	7,964	11,043	10,764	9,540	7,038	5,391	4,000	3,500	3,000
Long Term												
Full Simulation Period[a]	6,653	11,625	23,116	44,275	56,959	43,806	32,053	20,967	10,940	8,052	4,054	9,423
Water Year Types[b,c]												
Wet (32%)	9,943	17,965	27,333	90,345	102,661	81,638	57,700	39,294	19,071	10,682	4,469	19,040
Above Normal (16%)	7,332	12,903	17,298	49,558	67,693	52,646	34,414	19,816	7,961	11,126	4,035	11,118
Below Normal (13%)	6,260	6,705	19,835	17,008	37,036	17,592	18,032	13,213	7,486	8,099	4,082	3,307
Dry (24%)	4,343	9,898	31,709	15,608	26,159	22,368	18,215	10,819	7,276	5,038	3,832	3,037
Critical (15%)	3,000	3,894	8,967	11,509	15,905	12,017	9,843	6,527	5,825	4,000	3,517	3,000

Alternative 4 043019

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,799	16,936	67,326	106,681	139,235	94,980	72,240	45,239	20,874	12,145	4,000	4,312
20%	4,392	9,677	38,920	72,812	89,217	73,490	50,182	33,422	10,941	10,574	4,000	4,045
30%	4,130	6,194	22,156	51,731	64,053	51,969	37,260	22,275	8,801	8,740	4,000	3,924
40%	4,000	4,991	13,956	30,080	54,730	39,682	32,935	18,473	7,598	8,000	4,000	3,785
50%	4,000	4,579	10,749	22,403	39,391	33,865	25,498	15,815	7,100	8,000	4,000	3,000
60%	4,000	4,500	7,167	17,023	26,966	27,358	18,658	11,992	7,100	6,500	4,000	3,000
70%	4,000	4,500	5,667	13,223	18,885	22,188	13,874	9,550	6,610	5,000	3,694	3,000
80%	4,000	4,500	4,676	9,151	15,059	17,281	11,484	8,264	6,082	5,000	3,504	3,000
90%	3,000	3,500	4,500	8,082	10,763	12,087	9,528	6,922	5,452	4,000	3,500	3,000
Long Term												
Full Simulation Period[a]	4,942	9,191	25,467	45,421	58,064	49,180	33,649	21,408	10,848	7,897	3,954	3,909
Water Year Types[b,c]												
Wet (32%)	5,901	11,949	32,168	92,535	104,041	86,674	58,708	38,858	19,143	10,420	4,391	5,367
Above Normal (16%)	4,558	9,213	20,263	50,209	70,662	60,133	37,319	21,173	7,735	10,861	4,025	3,903
Below Normal (13%)	6,863	6,997	20,618	19,170	39,483	25,466	21,383	13,914	7,406	7,819	4,000	3,116
Dry (24%)	4,052	10,017	32,622	15,822	26,216	27,422	19,626	11,750	7,008	5,071	3,599	3,000
Critical (15%)	3,000	3,826	9,105	11,551	14,910	14,081	9,994	6,818	5,801	4,000	3,477	3,000

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-5,345**	1,164	**-857**	2,345	416	6,893	**-729**	**-1,333**	**-385**	**-328**	**-225**	**-15,204**
20%	**-5,295**	**-5,011**	4,338	2,307	1,024	5,645	**-1,800**	3,024	811	**-879**	**-12**	**-15,268**
30%	**-5,245**	**-7,762**	5,955	422	**-4,742**	4,211	4,371	2,926	**-175**	**-630**	0	**-11,438**
40%	**-2,969**	**-7,168**	1,696	872	3,350	4,615	5,961	2,320	**-78**	0	0	**-7,152**
50%	**-1,374**	**-5,264**	743	2,362	2,547	7,013	3,238	1,965	**-143**	0	0	**-712**
60%	0	**-1,811**	1,287	535	1,915	7,565	2,237	273	0	0	0	0
70%	0	0	718	509	347	5,599	10	**-113**	**-327**	0	**-267**	0
80%	0	0	164	**-74**	**-86**	4,850	319	81	37	0	**-221**	0
90%	0	0	0	118	**-280**	1,323	**-12**	**-116**	61	0	0	0
Long Term												
Full Simulation Period[a]	**-1,711**	**-2,434**	2,351	1,146	1,105	5,375	1,596	441	**-93**	**-155**	**-100**	**-5,513**
Water Year Types[b,c]												
Wet (32%)	**-4,042**	**-6,016**	4,835	2,189	1,380	5,036	1,008	**-436**	72	**-262**	**-78**	**-13,672**
Above Normal (16%)	**-2,773**	**-3,689**	2,965	651	2,969	7,487	2,905	1,358	**-225**	**-265**	**-11**	**-7,215**
Below Normal (13%)	603	292	783	2,161	2,448	7,874	3,351	701	**-80**	**-280**	**-82**	**-190**
Dry (24%)	**-291**	120	913	214	57	5,054	1,411	931	**-268**	33	**-233**	**-37**
Critical (15%)	0	**-68**	138	42	**-994**	2,064	151	290	**-24**	0	**-41**	0

a Based on the 82-year simulation period.

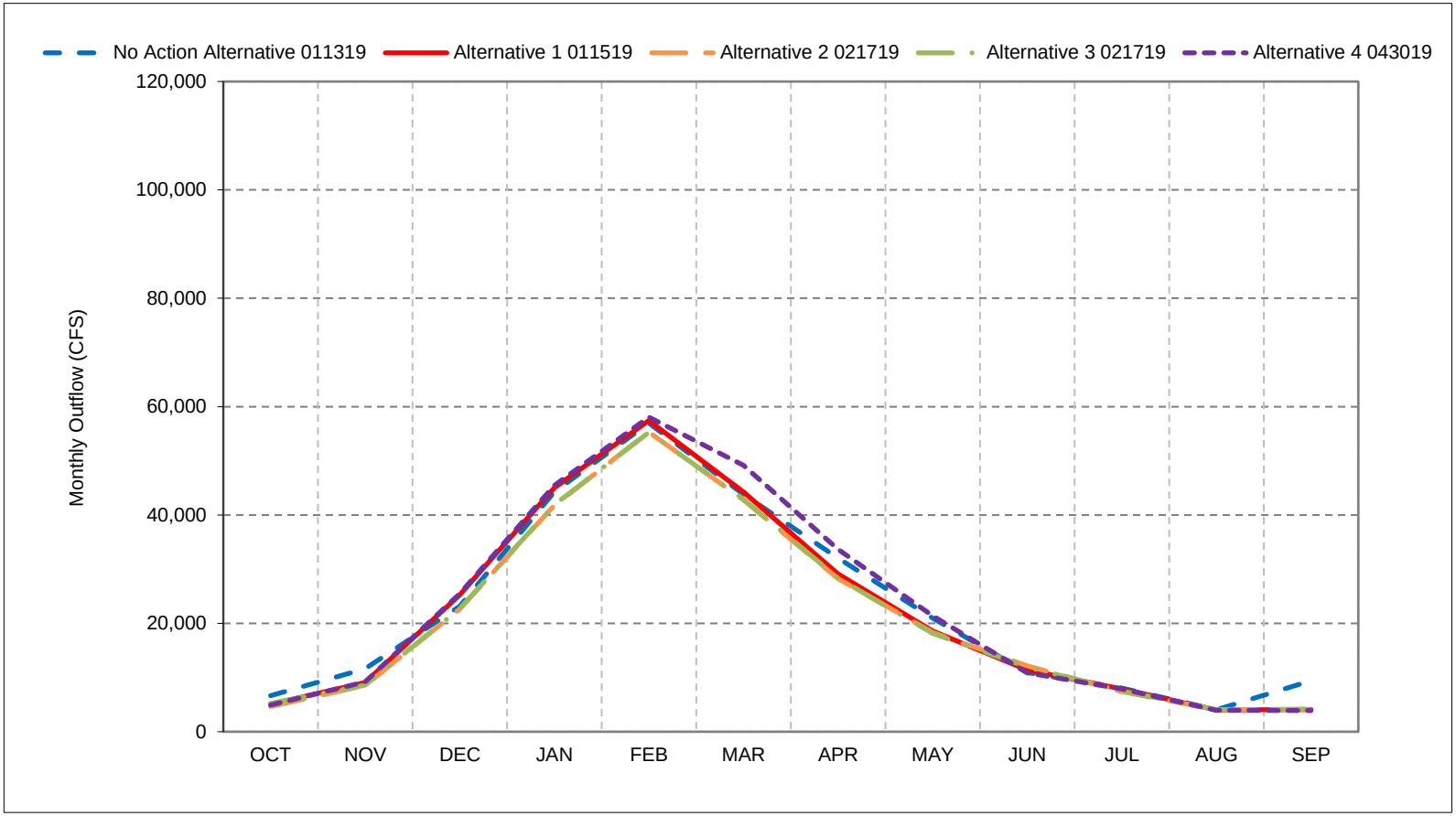
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

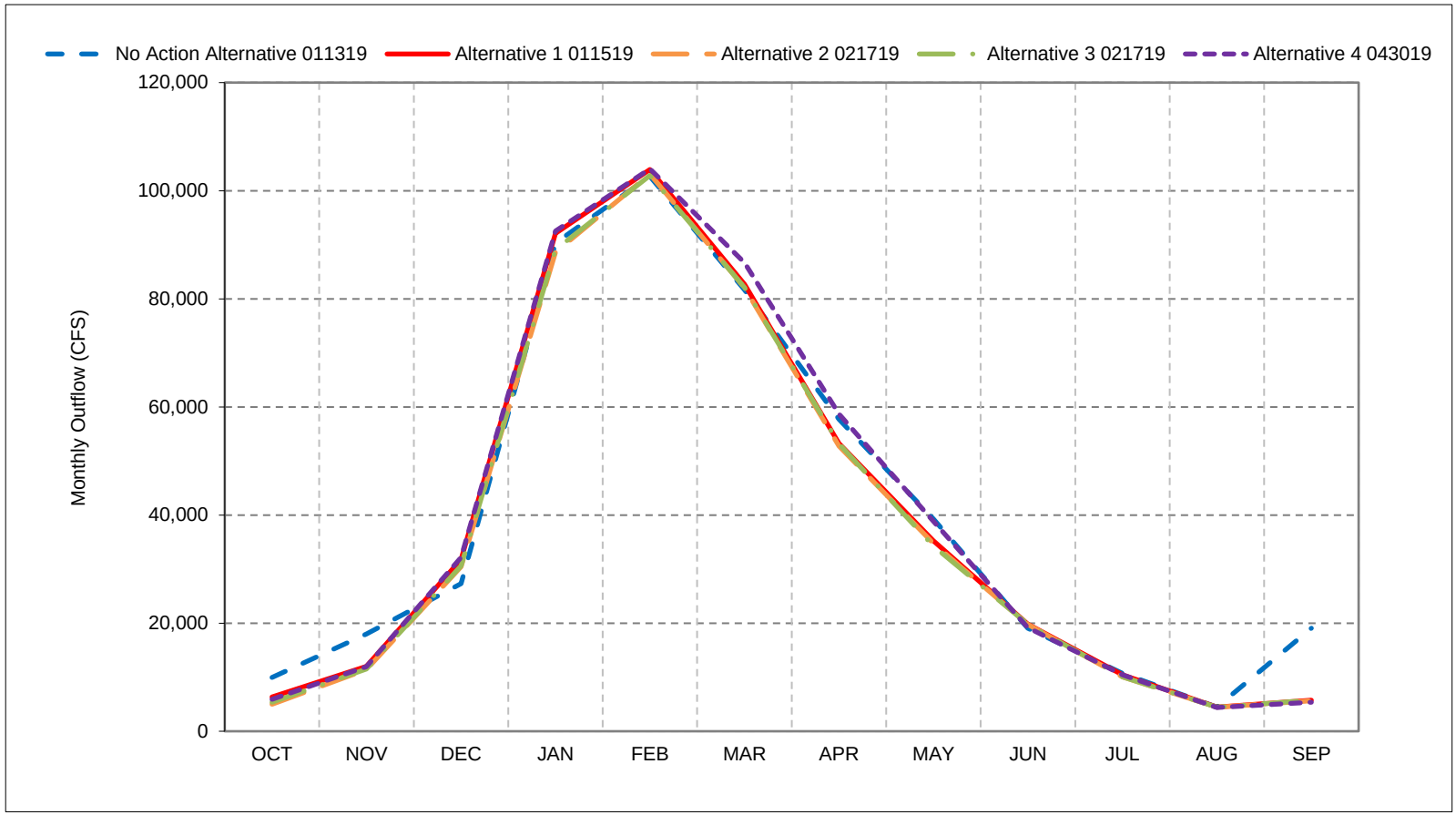
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 41-1. Delta Outflow, Long-Term Average Outflow



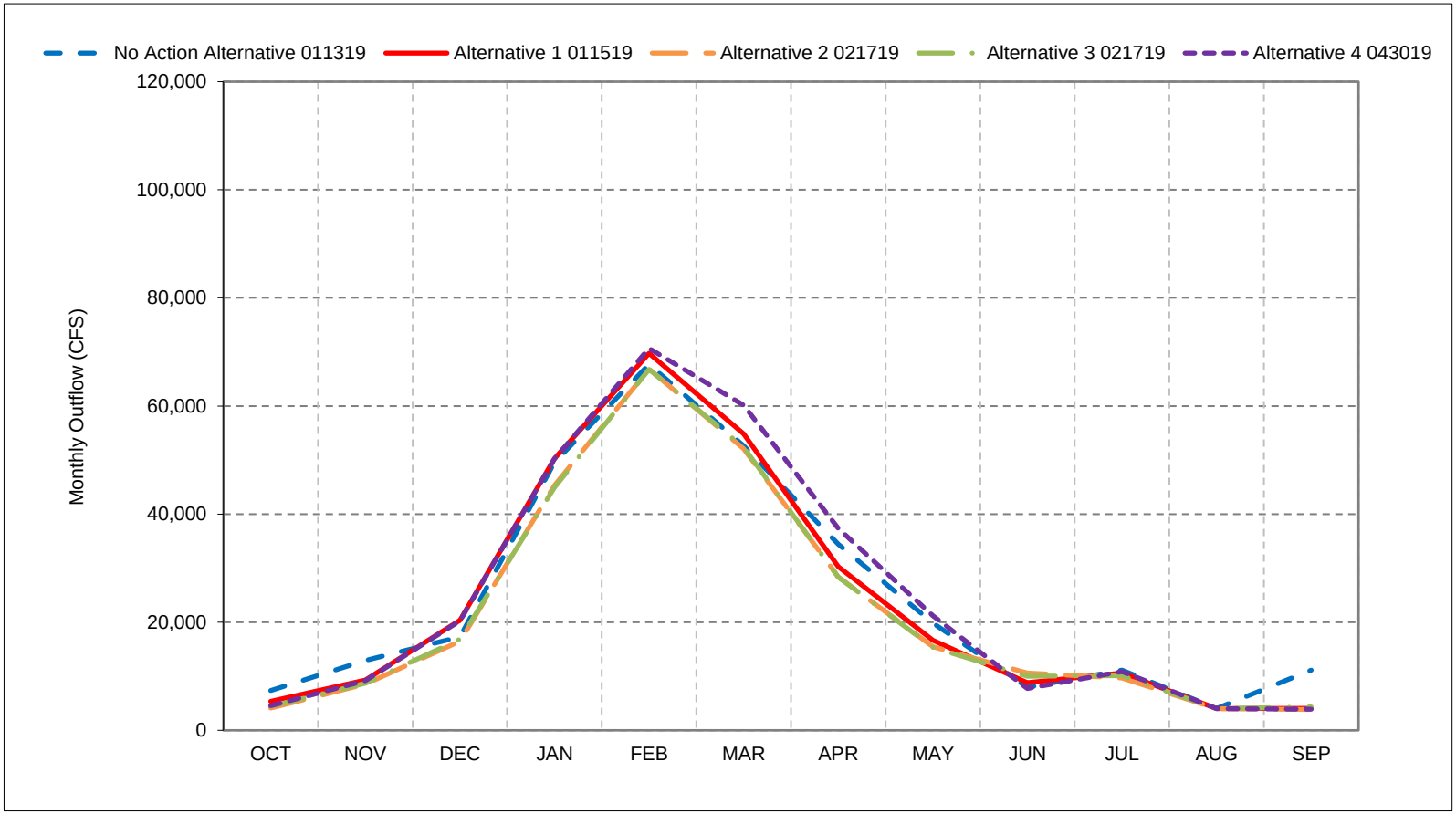
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 41-2. Delta Outflow, Wet Year Average Outflow



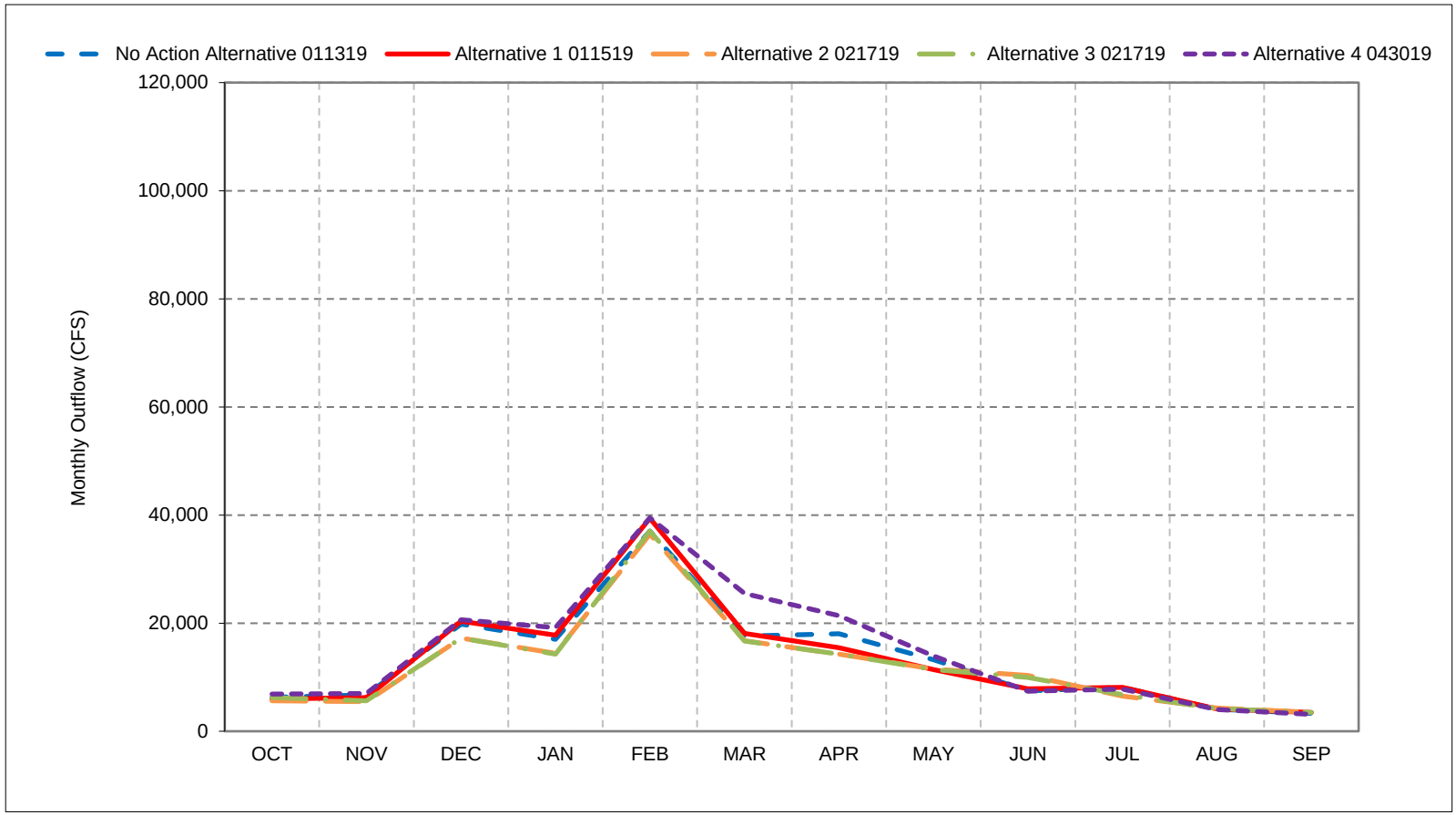
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 41-3. Delta Outflow, Above Normal Year Average Outflow



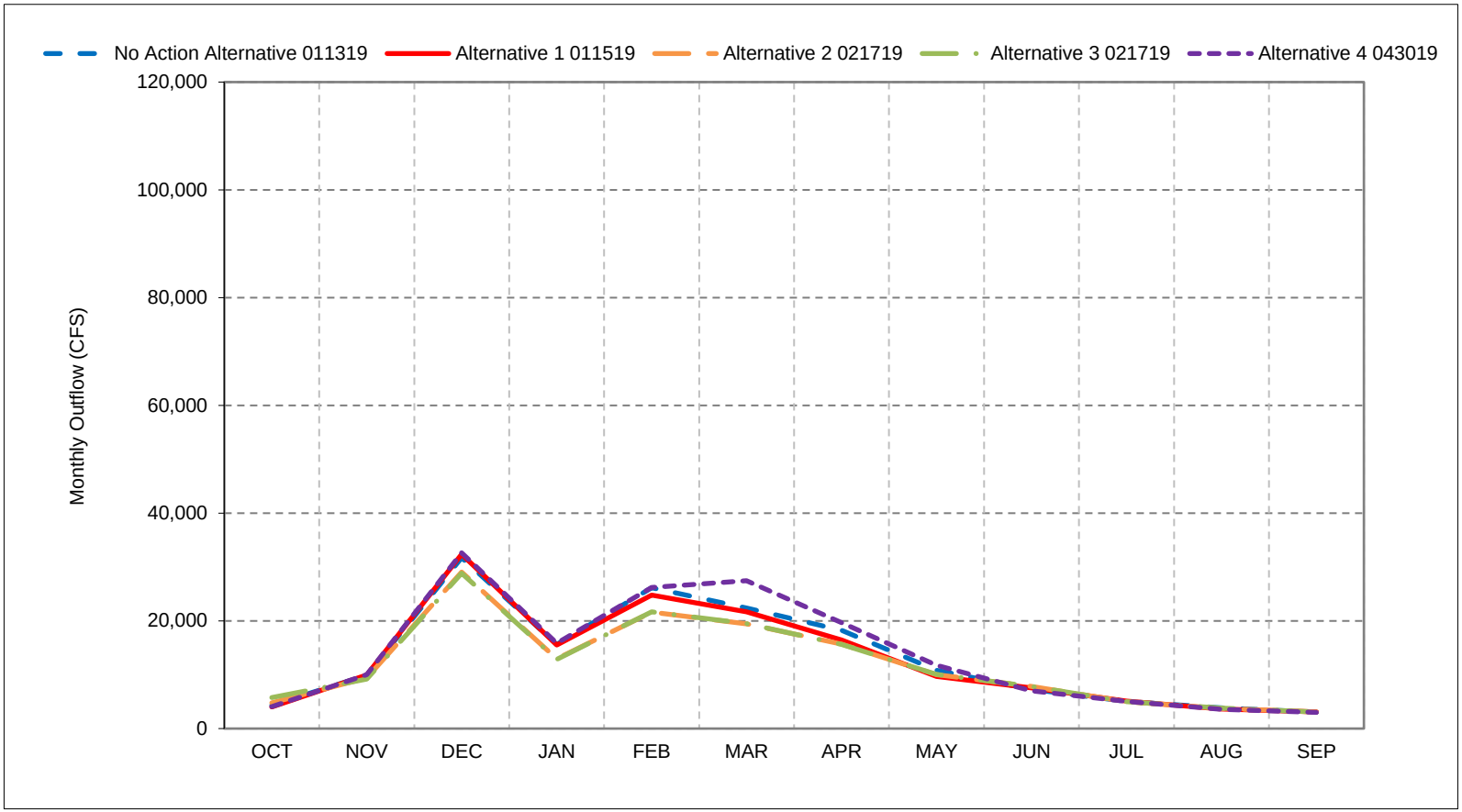
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 41-4. Delta Outflow, Below Normal Year Average Outflow



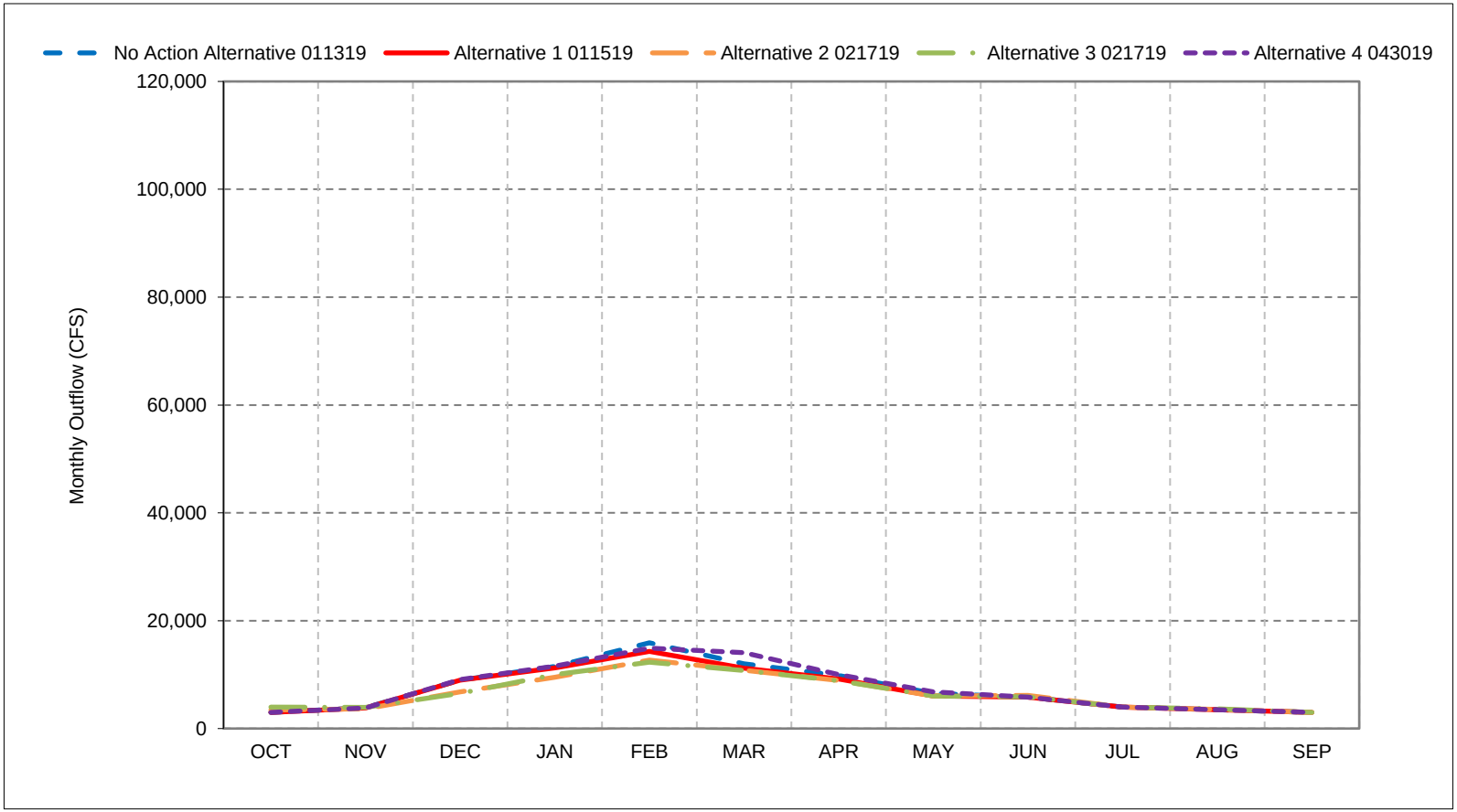
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 41-5. Delta Outflow, Dry Year Average Outflow



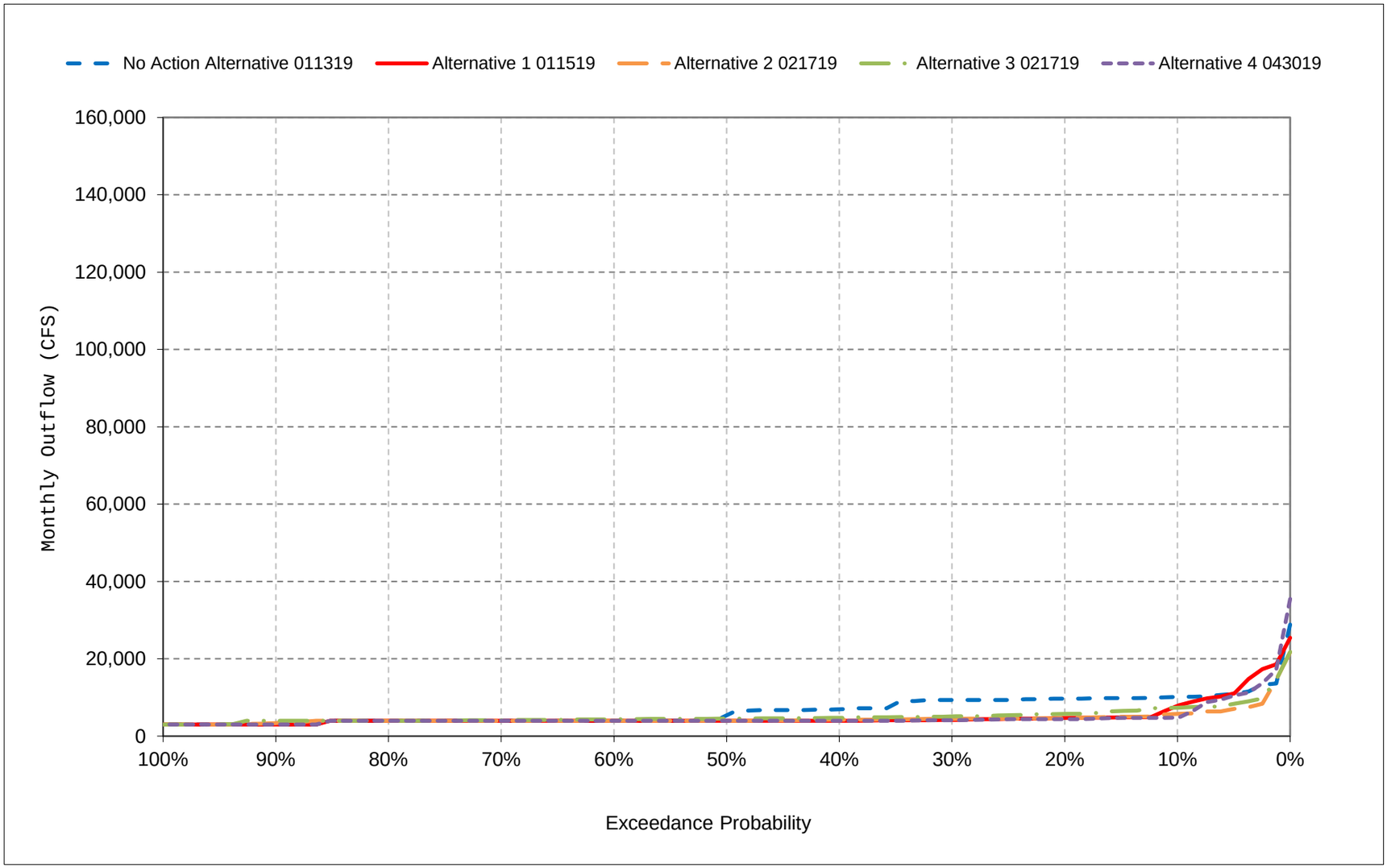
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 41-6. Delta Outflow, Critical Year Average Outflow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

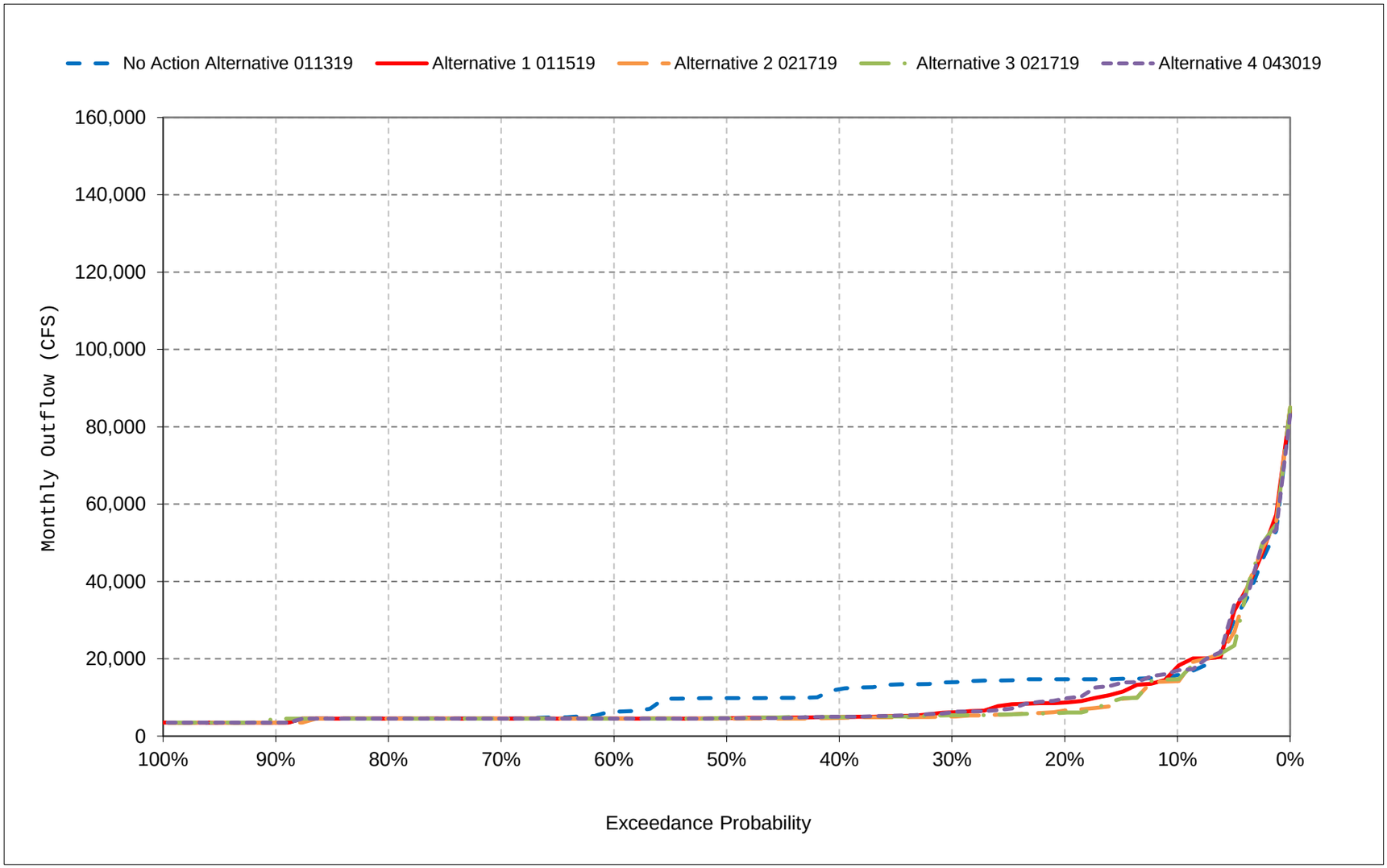
Figure 41-7. Delta Outflow, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

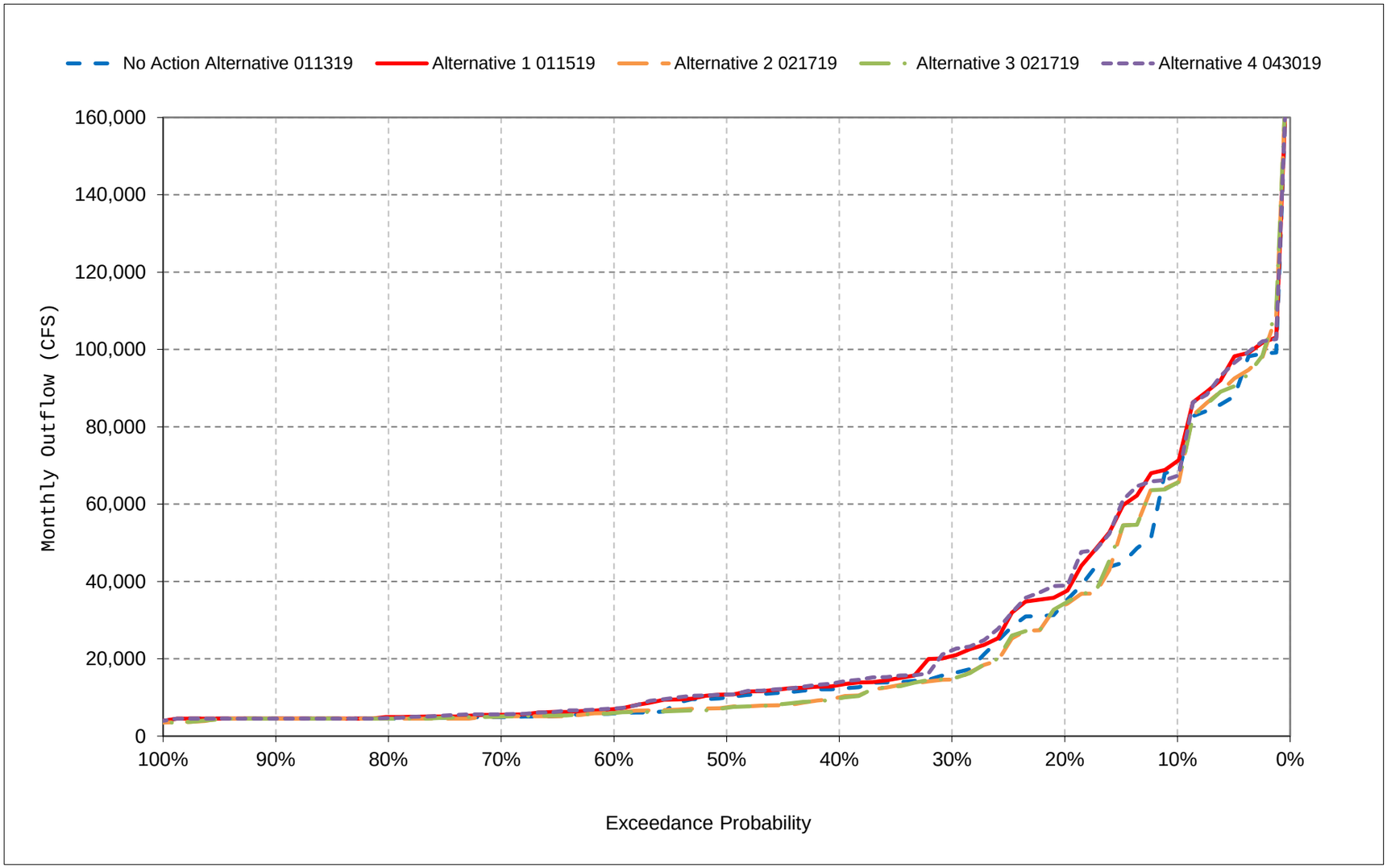
Figure 41-8. Delta Outflow, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

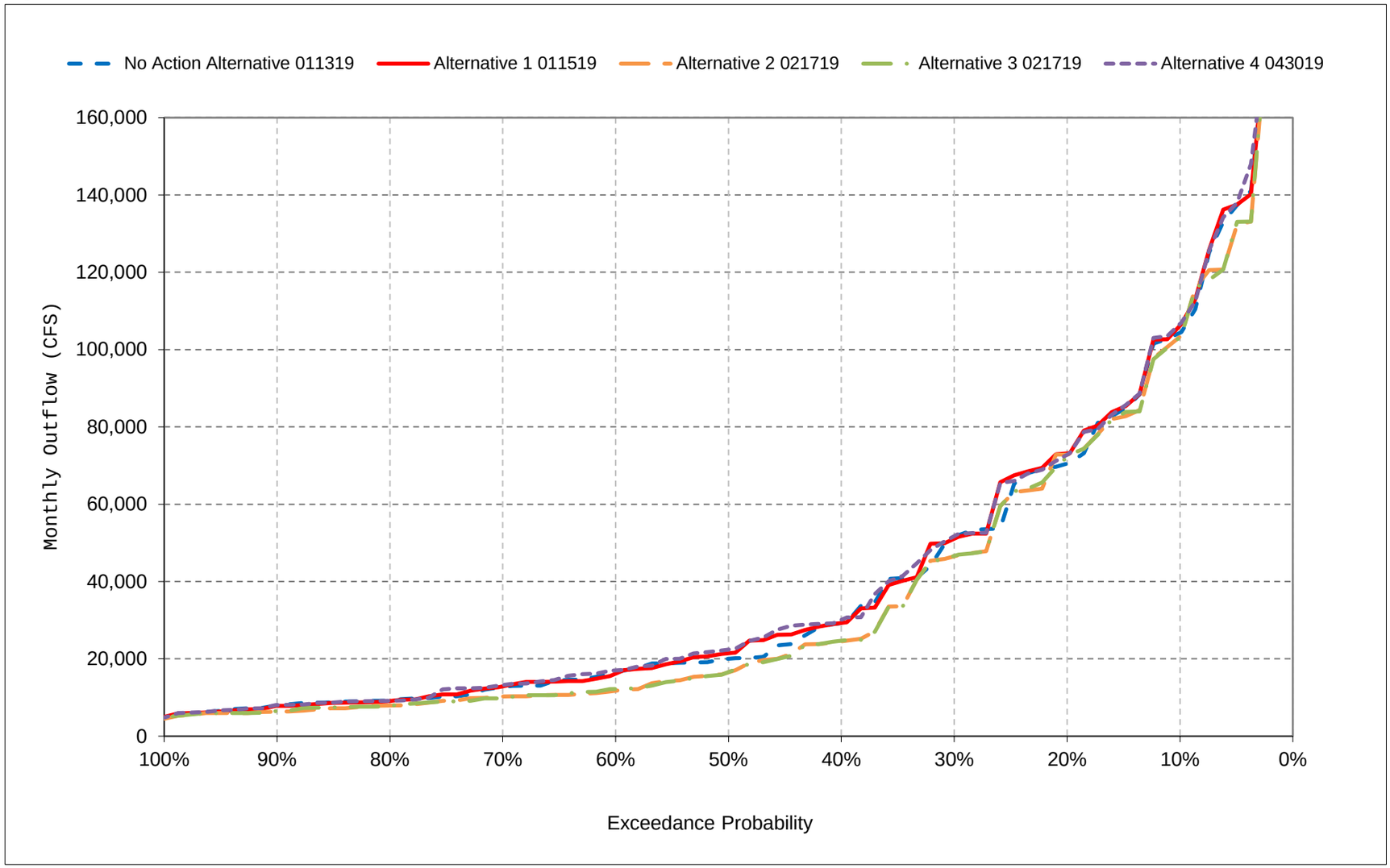
Figure 41-9. Delta Outflow, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

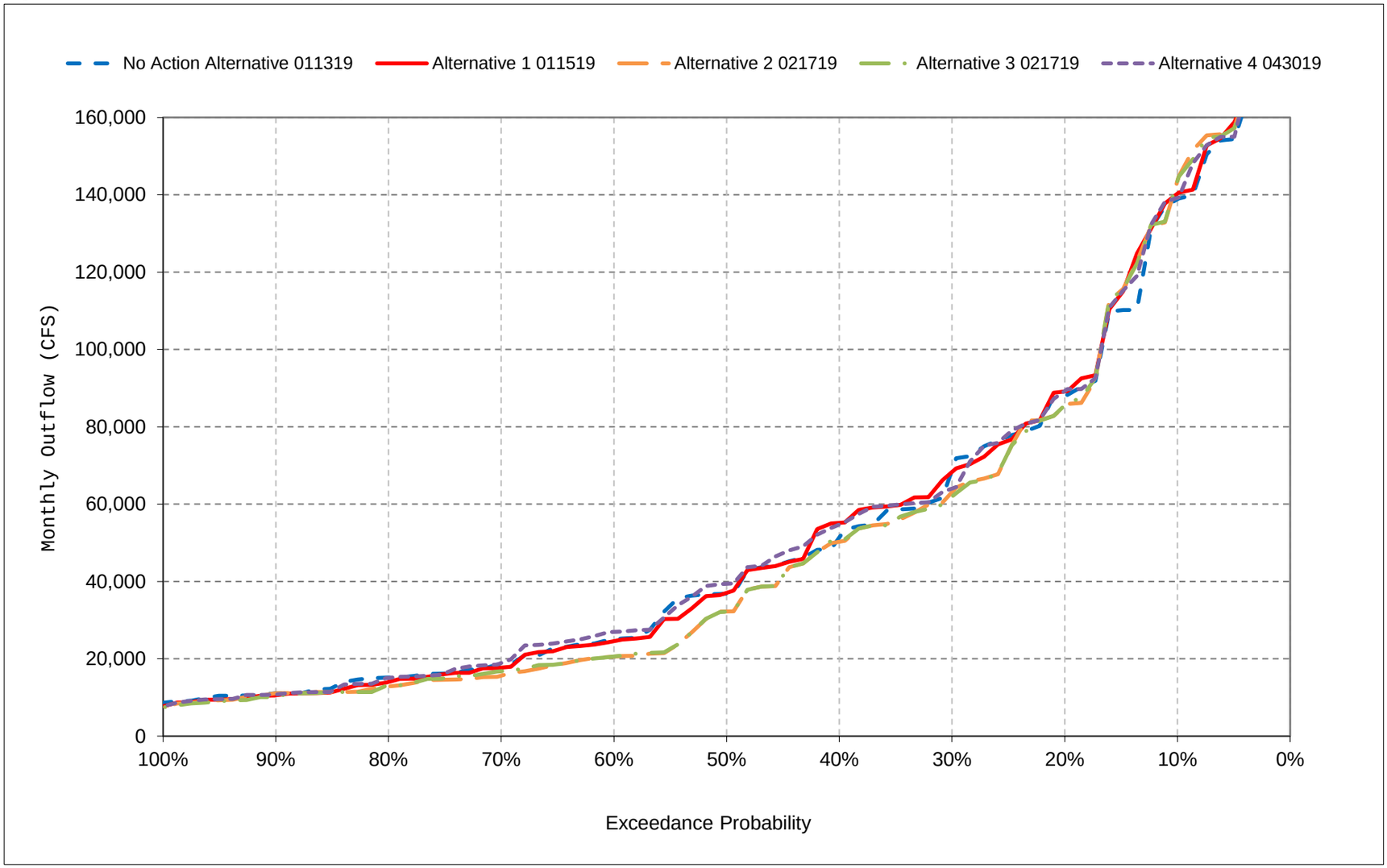
Figure 41-10. Delta Outflow, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

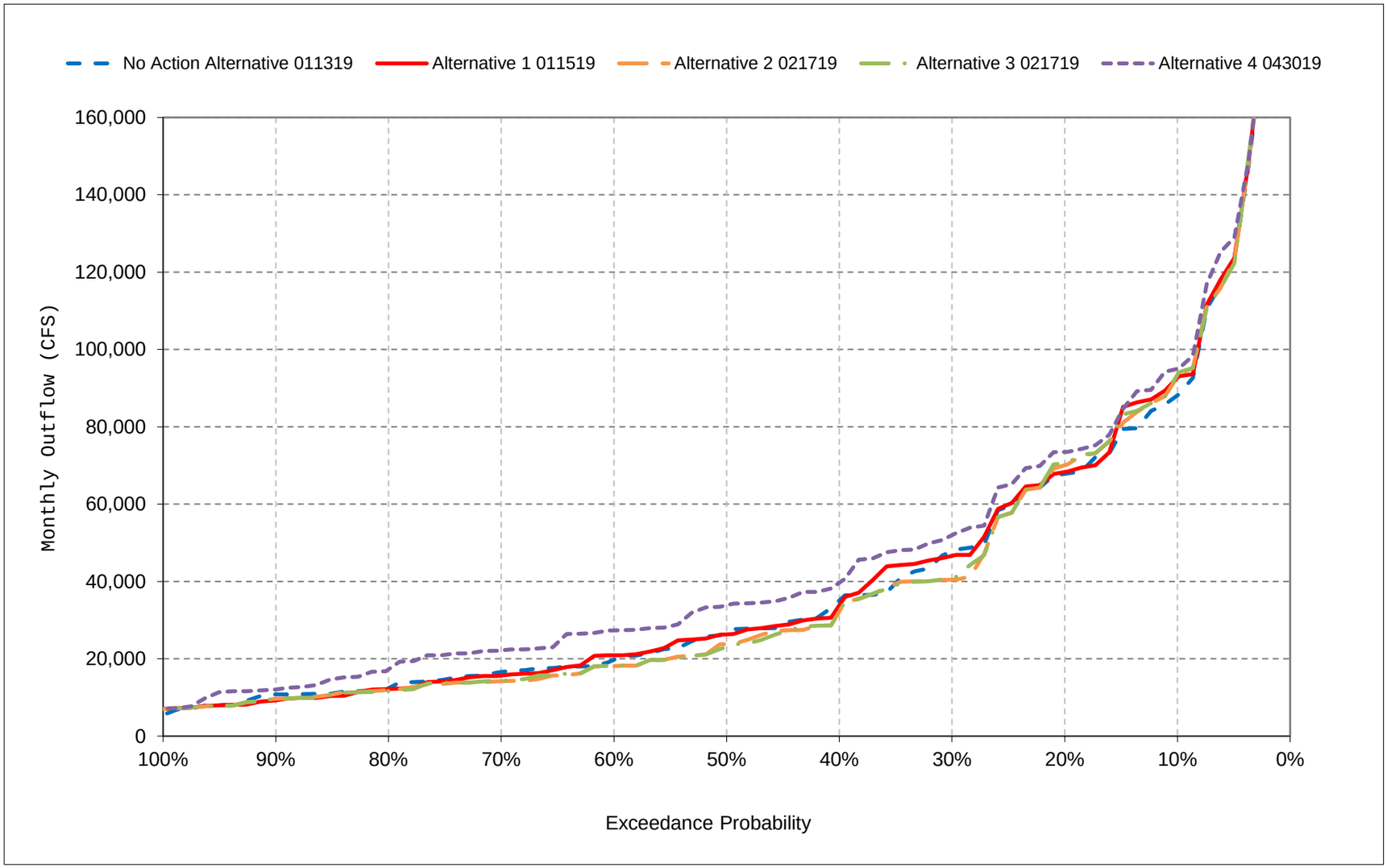
Figure 41-11. Delta Outflow, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

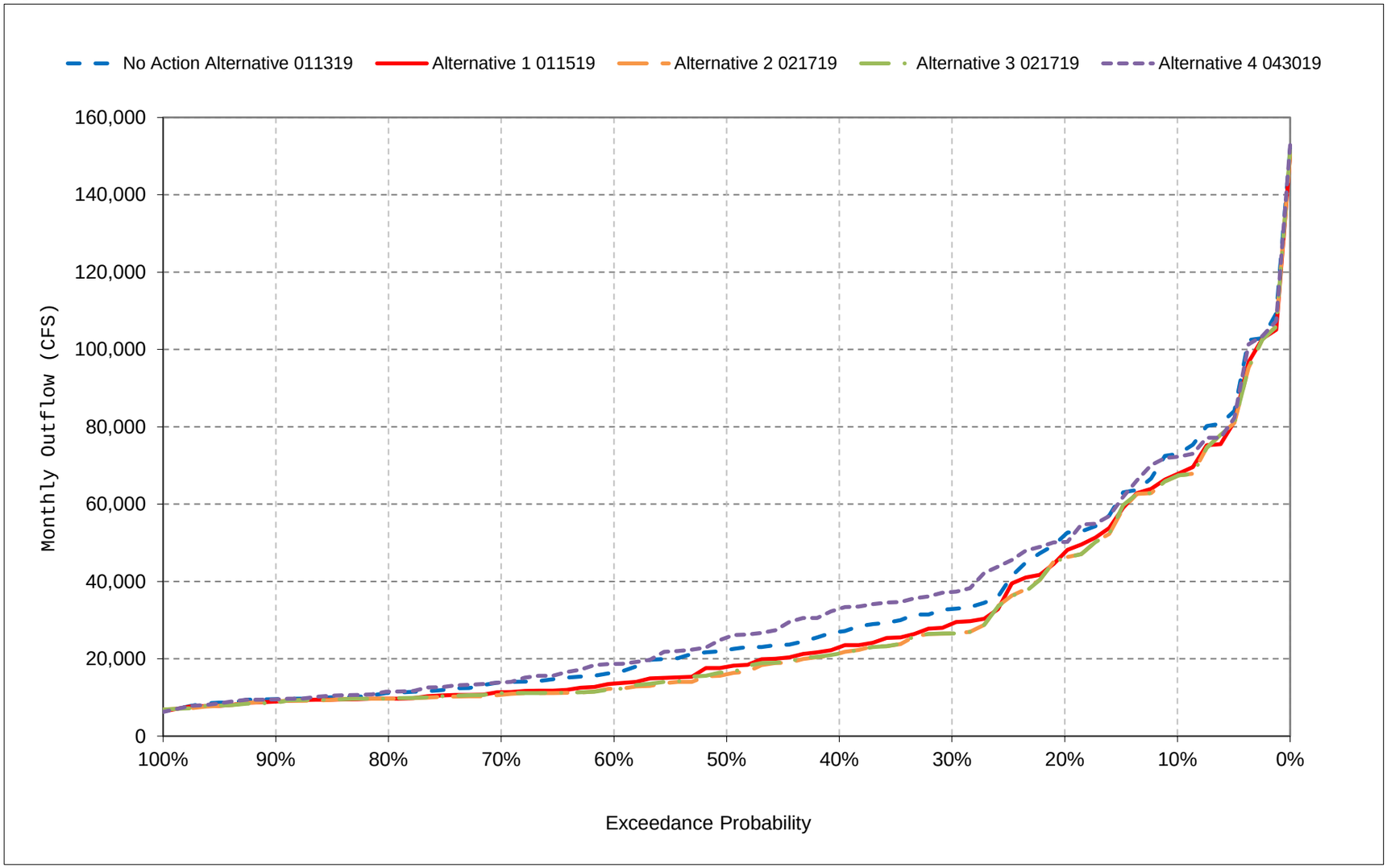
Figure 41-12. Delta Outflow, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

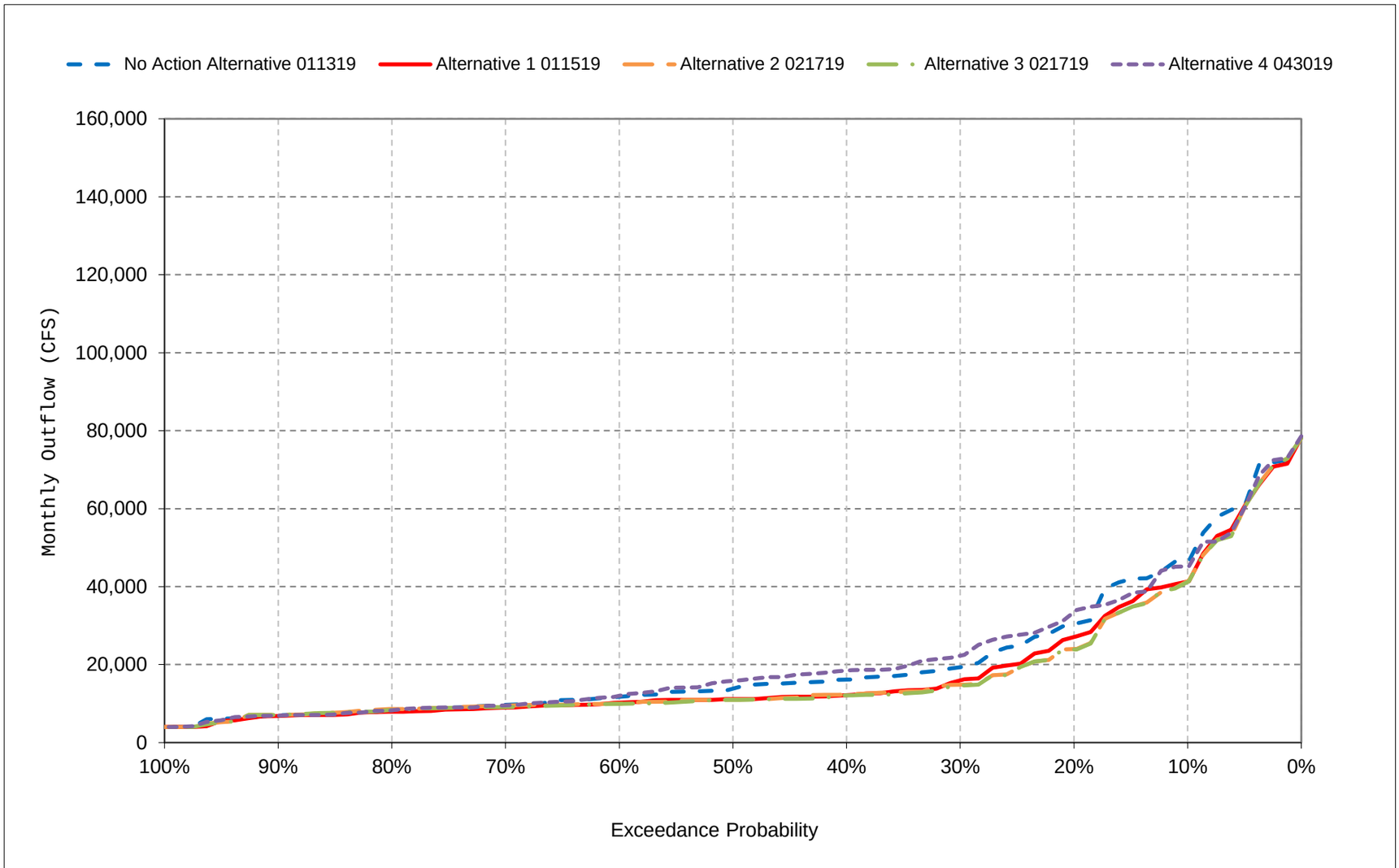
Figure 41-13. Delta Outflow, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

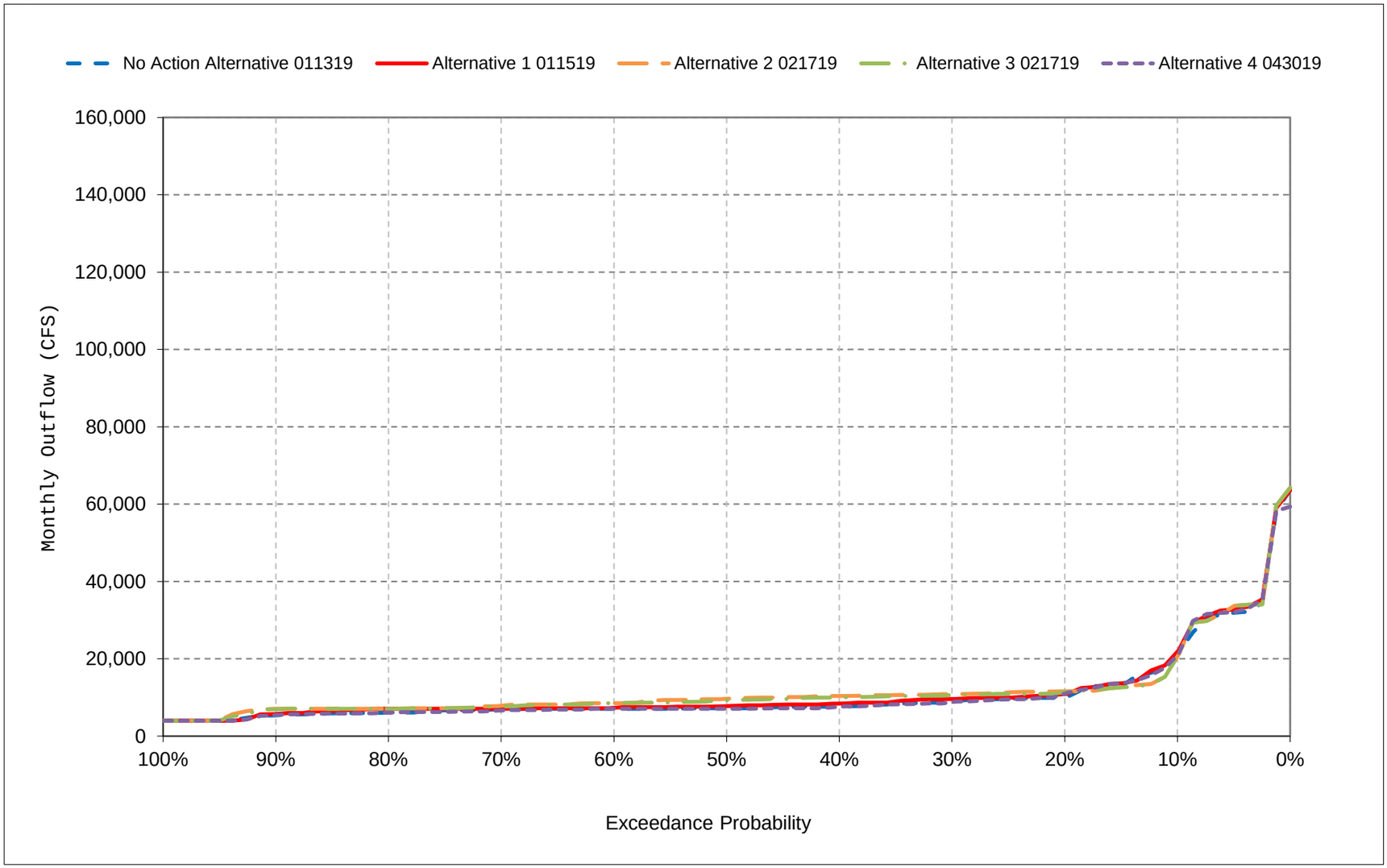
Figure 41-14. Delta Outflow, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

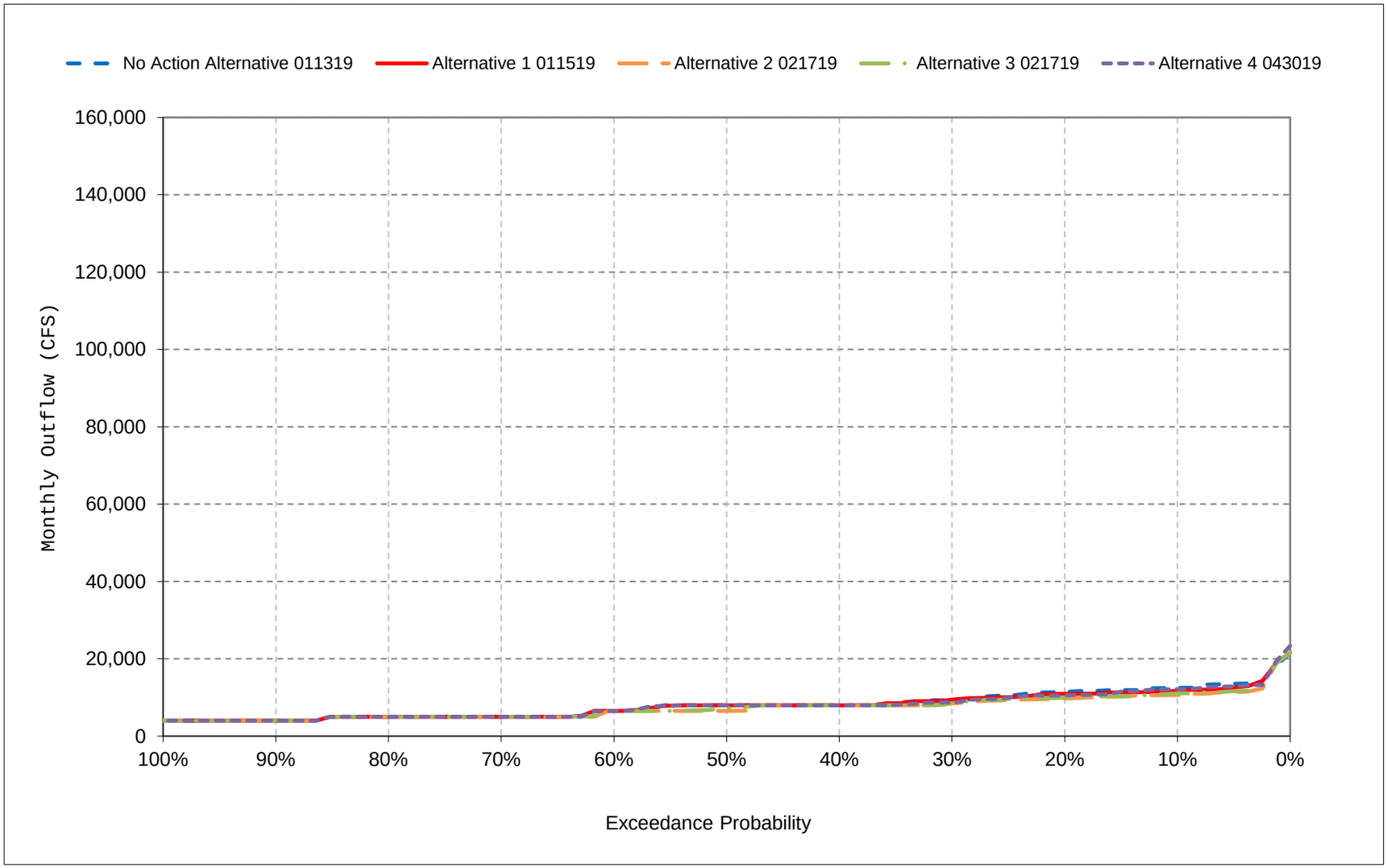
Figure 41-15. Delta Outflow, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

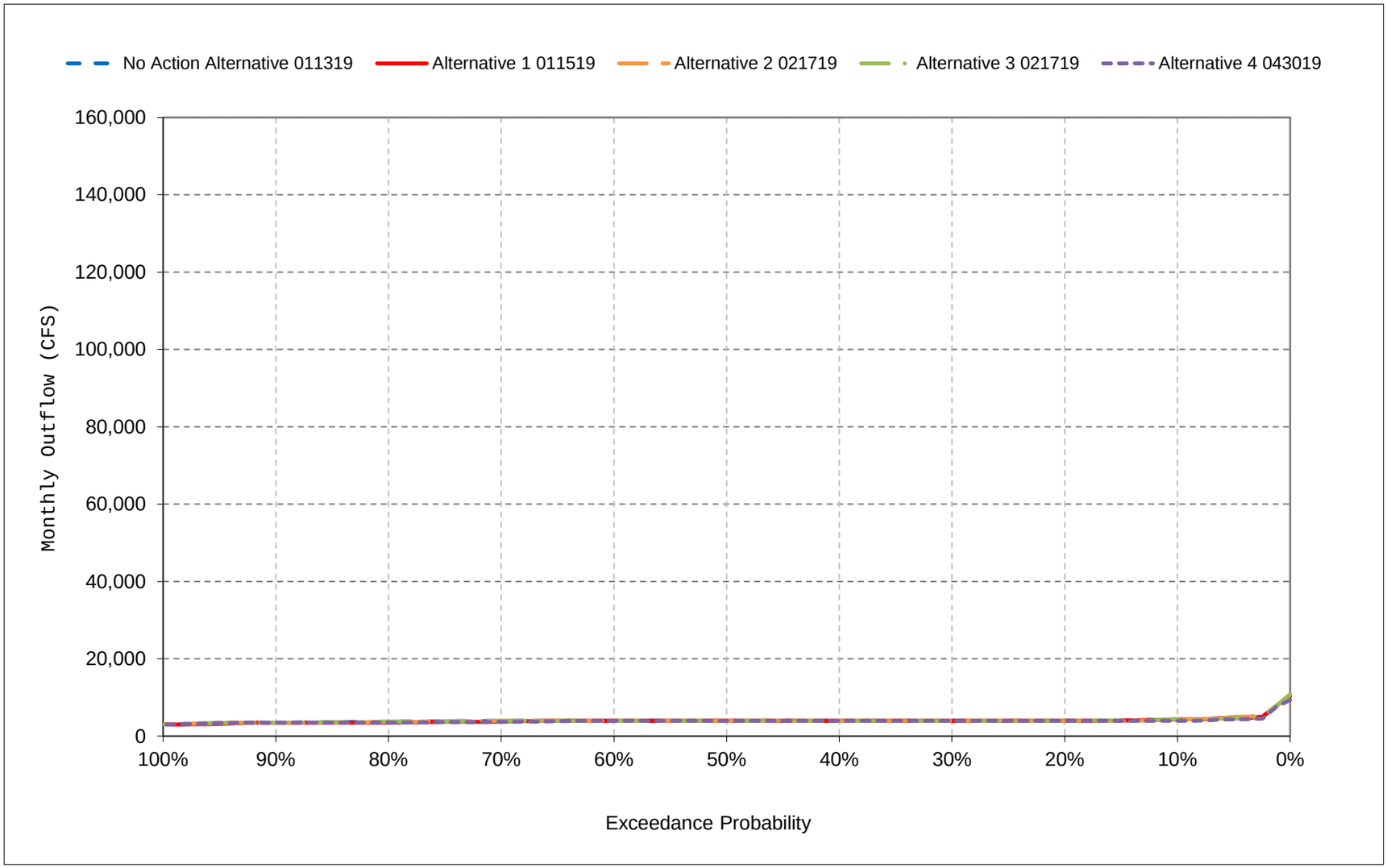
Figure 41-16. Delta Outflow, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

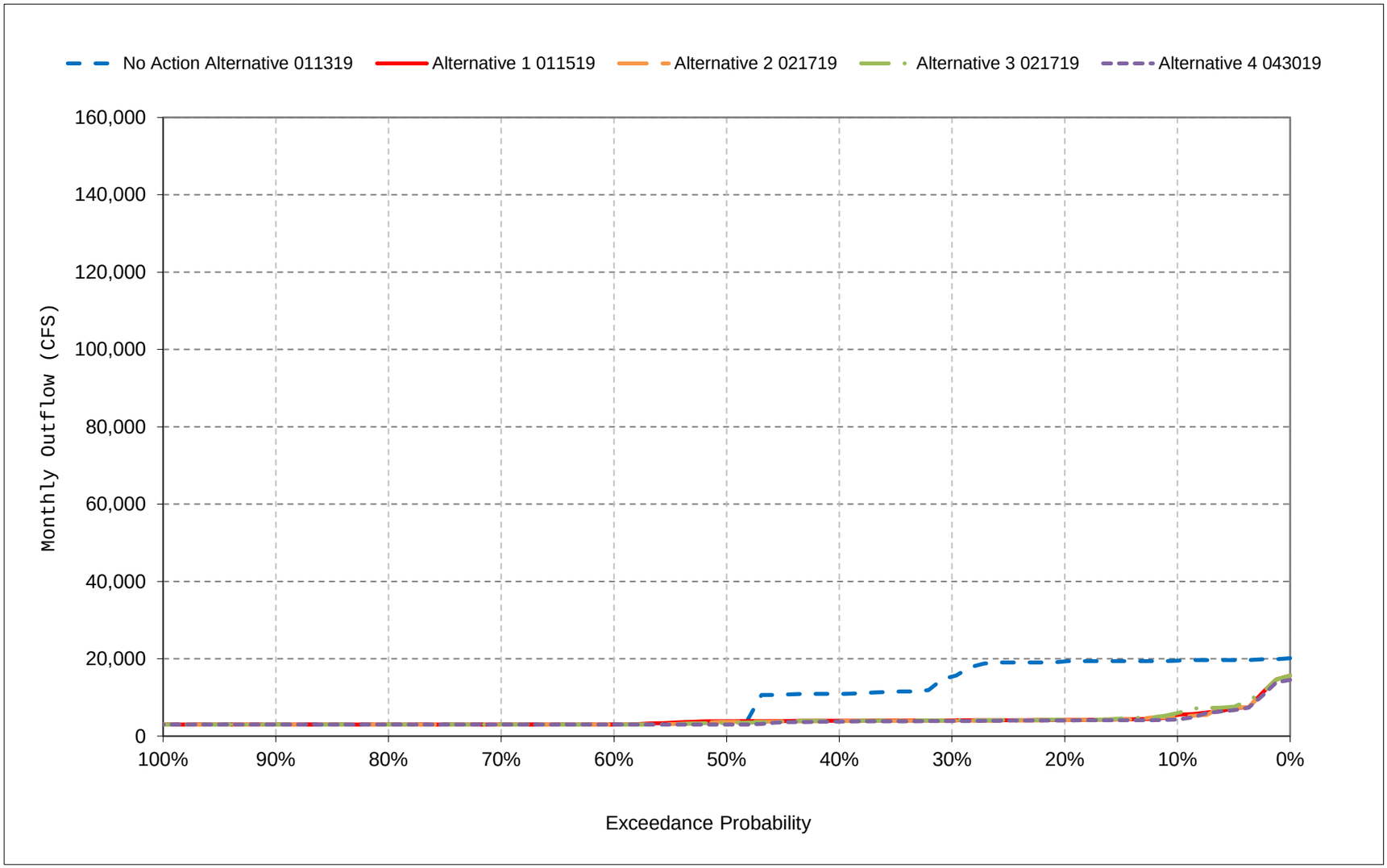
Figure 41-17. Delta Outflow, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 41-18. Delta Outflow, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Attachment 3-3 – Diversion Results (CalSim II)

The following results of the CalSim II model are included for diversions at key project locations for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Trinity Import – Clear Creek Tunnel	D100	46-1 to 46-4	46-1 to 46-18
Red Bluff Diversion – Tehama Colusa Canal	D112	47-1 to 47-4	47-1 to 47-18
Hamilton City Diversion – Glenn Colusa Canal	D114	48-1 to 48-4	48-1 to 48-18
Folsom South Canal Diversion	D9	49-1 to 49-4	49-1 to 49-18
Friant-Kern Canal Diversion	D18A	50-1 to 50-4	50-1 to 50-18
Madera Canal Diversion	D18B	51-1 to 51-4	51-1 to 51-18
DCC Flow (Alternative 3 revised DXC equation)[1]	C401B_DXC	52-1 to 52-4	52-1 to 52-18
Total Delta Exports	TOTAL_EXP	53-1 to 53-4	53-1 to 53-18
Jones PP Exports	D418	54-1 to 54-4	54-1 to 54-18
CVP Banks PP Exports	D419_CVP	55-1 to 55-4	55-1 to 55-18
SWP Banks PP Exports	D419_SWP	56-1 to 56-4	56-1 to 56-18
DMC - CA Intertie Flow	C700A	57-1 to 57-4	57-1 to 57-18

[1] Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Appendix F – Modeling

Attachment 3-3 – Diversion Results (CalSim II)

The following results of the CalSim II model are included for diversions at key project locations for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Trinity Import - Clear Creek Tunnel	D100	46-1 to 46-4	46-1 to 46-18
Red Bluff Diversion - Tehama Colusa Canal	D112	47-1 to 47-4	47-1 to 47-18
Hamilton City Diversion - Glenn Colusa Canal	D114	48-1 to 48-4	48-1 to 48-18
Folsom South Canal Diversion	D9	49-1 to 49-4	49-1 to 49-18
Friant-Kern Canal Diversion	D18A	50-1 to 50-4	50-1 to 50-18
Madera Canal Diversion	D18B	51-1 to 51-4	51-1 to 51-18
DCC Flow (Alternative 3 revised DXC equation)[1]	C401B_DXC	52-1 to 52-4	52-1 to 52-18
Total Delta Exports	TOTAL_EXP	53-1 to 53-4	53-1 to 53-18
Jones PP Exports	D418	54-1 to 54-4	54-1 to 54-18
CVP Banks PP Exports	D419_CVP	55-1 to 55-4	55-1 to 55-18
SWP Banks PP Exports	D419_SWP	56-1 to 56-4	56-1 to 56-18
DMC - CA Intertie Flow	C700A	57-1 to 57-4	57-1 to 57-18

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Notes

[1] Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Table 46-1. Trinity Import - Clear Creek Tunnel, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,785	1,339	375	1,673	200	659	503	250	1,250	2,988	2,434	2,724
20%	1,372	500	250	639	100	242	401	197	766	2,000	2,000	2,336
30%	1,250	468	200	200	100	194	323	93	625	1,714	2,000	2,000
40%	750	450	141	116	50	107	251	0	262	1,500	1,773	1,798
50%	700	209	75	100	19	100	200	0	200	1,500	1,500	1,375
60%	625	75	50	50	0	54	160	0	156	1,352	1,500	1,300
70%	307	50	0	0	0	0	100	0	40	1,125	1,500	1,250
80%	200	0	0	0	0	0	0	0	0	775	1,125	750
90%	12	0	0	0	0	0	0	0	0	73	950	550
Long Term												
Full Simulation Period[a]	858	478	229	417	88	238	305	161	493	1,447	1,649	1,553
Water Year Types[b,c]												
Wet (32%)	1,361	866	497	516	118	354	369	205	284	1,252	1,583	2,190
Above Normal (16%)	1,177	764	291	136	48	331	358	0	206	1,266	1,955	1,876
Below Normal (13%)	594	223	66	348	46	239	219	256	816	1,734	2,010	1,611
Dry (24%)	360	146	40	481	106	95	194	182	842	1,891	1,552	1,002
Critical (15%)	491	113	46	465	76	120	374	119	379	1,062	1,292	693

Alternative 1 011519

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,838	532	424	2,109	130	874	456	250	1,374	3,300	2,500	2,202
20%	1,412	450	224	578	100	446	406	200	750	2,443	2,000	2,000
30%	823	450	161	118	100	200	355	99	700	2,000	2,000	1,827
40%	700	352	102	100	65	119	282	0	378	1,500	1,980	1,457
50%	700	91	75	100	0	100	208	0	250	1,500	1,720	1,300
60%	407	75	50	50	0	75	149	0	182	1,475	1,500	1,250
70%	200	0	0	0	0	0	91	0	40	1,125	1,500	1,200
80%	151	0	0	0	0	0	0	0	0	1,086	1,151	750
90%	0	0	0	0	0	0	0	0	0	73	950	550
Long Term												
Full Simulation Period[a]	778	298	201	437	89	299	283	170	513	1,609	1,727	1,386
Water Year Types[b,c]												
Wet (32%)	1,352	370	396	522	99	381	292	213	312	1,315	1,642	1,715
Above Normal (16%)	790	308	258	280	74	459	355	0	346	1,415	1,968	1,765
Below Normal (13%)	721	332	105	443	57	489	251	288	1,016	1,778	2,167	1,398
Dry (24%)	374	256	54	390	120	71	207	196	625	2,028	1,648	1,048
Critical (15%)	244	171	52	497	58	150	341	107	485	1,602	1,381	819

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	53	**-807**	50	436	**-70**	216	**-47**	0	124	312	66	**-522**
20%	41	**-50**	**-26**	**-61**	0	204	5	3	**-16**	443	0	**-336**
30%	**-427**	**-17**	**-39**	**-82**	0	6	32	5	75	286	0	**-173**
40%	**-50**	**-98**	**-39**	**-16**	15	12	30	0	116	0	207	**-341**
50%	0	**-118**	0	0	**-19**	0	8	0	50	0	220	**-75**
60%	**-218**	0	0	0	0	21	**-11**	0	26	123	0	**-50**
70%	**-107**	**-50**	0	0	0	0	**-9**	0	0	0	0	**-50**
80%	**-49**	0	0	0	0	0	0	0	0	311	26	0
90%	**-12**	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**-80**	**-180**	**-28**	20	1	61	**-23**	9	20	162	78	**-167**
Water Year Types[b,c]												
Wet (32%)	**-9**	**-497**	**-102**	5	**-19**	27	**-78**	9	28	63	59	**-475**
Above Normal (16%)	**-387**	**-456**	**-33**	144	26	128	**-3**	0	140	149	14	**-111**
Below Normal (13%)	126	110	39	95	10	251	32	32	200	44	157	**-213**
Dry (24%)	14	109	14	**-91**	15	**-24**	13	14	**-217**	136	95	46
Critical (15%)	**-247**	58	6	32	**-18**	30	**-34**	**-11**	106	540	88	125

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 46-2. Trinity Import - Clear Creek Tunnel, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,785	1,339	375	1,673	200	659	503	250	1,250	2,988	2,434	2,724
20%	1,372	500	250	639	100	242	401	197	766	2,000	2,000	2,336
30%	1,250	468	200	200	100	194	323	93	625	1,714	2,000	2,000
40%	750	450	141	116	50	107	251	0	262	1,500	1,773	1,798
50%	700	209	75	100	19	100	200	0	200	1,500	1,500	1,375
60%	625	75	50	50	0	54	160	0	156	1,352	1,500	1,300
70%	307	50	0	0	0	0	100	0	40	1,125	1,500	1,250
80%	200	0	0	0	0	0	0	0	0	775	1,125	750
90%	12	0	0	0	0	0	0	0	0	73	950	550
Long Term												
Full Simulation Period[a]	858	478	229	417	88	238	305	161	493	1,447	1,649	1,553
Water Year Types[b,c]												
Wet (32%)	1,361	866	497	516	118	354	369	205	284	1,252	1,583	2,190
Above Normal (16%)	1,177	764	291	136	48	331	358	0	206	1,266	1,955	1,876
Below Normal (13%)	594	223	66	348	46	239	219	256	816	1,734	2,010	1,611
Dry (24%)	360	146	40	481	106	95	194	182	842	1,891	1,552	1,002
Critical (15%)	491	113	46	465	76	120	374	119	379	1,062	1,292	693

Alternative 2 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,869	500	385	2,027	100	753	408	248	1,374	3,300	2,929	2,540
20%	1,683	470	200	527	100	191	337	119	750	2,647	2,410	2,001
30%	1,105	347	100	170	75	116	265	75	700	2,000	2,000	2,000
40%	750	98	75	100	50	100	203	0	478	2,000	1,950	1,589
50%	700	75	50	75	0	98	129	0	200	1,500	1,764	1,300
60%	625	50	7	45	0	0	100	0	37	1,500	1,500	1,250
70%	200	0	0	0	0	0	51	0	0	1,204	1,500	816
80%	200	0	0	0	0	0	0	0	0	1,086	1,500	750
90%	129	0	0	0	0	0	0	0	0	45	1,125	282
Long Term												
Full Simulation Period[a]	858	249	150	428	59	262	268	152	507	1,670	1,817	1,446
Water Year Types[b,c]												
Wet (32%)	1,365	349	306	491	53	375	347	189	267	1,329	1,684	1,744
Above Normal (16%)	1,051	300	173	233	82	339	329	0	313	1,587	2,243	1,735
Below Normal (13%)	1,072	326	61	441	43	466	155	260	882	2,054	2,176	1,918
Dry (24%)	329	145	34	387	69	51	135	184	775	2,068	1,617	1,067
Critical (15%)	236	85	64	563	44	95	356	87	448	1,484	1,651	685

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	84	**-839**	10	354	**-100**	94	**-95**	**-2**	124	312	496	**-184**
20%	311	**-30**	**-50**	**-112**	0	**-51**	**-64**	**-78**	**-16**	647	410	**-335**
30%	**-145**	**-120**	**-100**	**-30**	**-25**	**-78**	**-58**	**-18**	75	286	0	0
40%	0	**-352**	**-66**	**-16**	0	**-7**	**-49**	0	216	500	177	**-210**
50%	0	**-134**	**-25**	**-25**	**-19**	**-2**	**-71**	0	0	0	264	**-75**
60%	0	**-25**	**-43**	**-5**	0	**-54**	**-60**	0	**-120**	148	0	**-50**
70%	**-107**	**-50**	0	0	0	0	**-49**	0	**-40**	79	0	**-434**
80%	0	0	0	0	0	0	0	0	0	311	375	0
90%	117	0	0	0	0	0	0	0	0	**-28**	175	**-268**
Long Term												
Full Simulation Period[a]	0	**-228**	**-79**	11	**-29**	24	**-37**	**-9**	14	223	168	**-108**
Water Year Types[b,c]												
Wet (32%)	4	**-518**	**-191**	**-26**	**-64**	21	**-22**	**-16**	**-18**	78	101	**-445**
Above Normal (16%)	**-126**	**-464**	**-118**	97	34	8	**-29**	0	108	321	289	**-141**
Below Normal (13%)	477	103	**-4**	93	**-3**	227	**-64**	4	66	321	166	307
Dry (24%)	**-32**	**-2**	**-6**	**-95**	**-37**	**-44**	**-59**	2	**-67**	177	64	65
Critical (15%)	**-254**	**-28**	17	98	**-32**	**-25**	**-18**	**-31**	69	422	359	**-8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 46-3. Trinity Import - Clear Creek Tunnel, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,785	1,339	375	1,673	200	659	503	250	1,250	2,988	2,434	2,724
20%	1,372	500	250	639	100	242	401	197	766	2,000	2,000	2,336
30%	1,250	468	200	200	100	194	323	93	625	1,714	2,000	2,000
40%	750	450	141	116	50	107	251	0	262	1,500	1,773	1,798
50%	700	209	75	100	19	100	200	0	200	1,500	1,500	1,375
60%	625	75	50	50	0	54	160	0	156	1,352	1,500	1,300
70%	307	50	0	0	0	0	100	0	40	1,125	1,500	1,250
80%	200	0	0	0	0	0	0	0	0	775	1,125	750
90%	12	0	0	0	0	0	0	0	0	73	950	550
Long Term												
Full Simulation Period[a]	858	478	229	417	88	238	305	161	493	1,447	1,649	1,553
Water Year Types[b,c]												
Wet (32%)	1,361	866	497	516	118	354	369	205	284	1,252	1,583	2,190
Above Normal (16%)	1,177	764	291	136	48	331	358	0	206	1,266	1,955	1,876
Below Normal (13%)	594	223	66	348	46	239	219	256	816	1,734	2,010	1,611
Dry (24%)	360	146	40	481	106	95	194	182	842	1,891	1,552	1,002
Critical (15%)	491	113	46	465	76	120	374	119	379	1,062	1,292	693

Alternative 3 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,873	502	416	2,045	100	701	408	250	1,362	3,299	3,030	2,572
20%	1,740	475	220	524	100	218	313	119	787	2,750	2,410	2,112
30%	1,250	450	176	200	75	138	255	75	732	2,000	2,000	2,000
40%	750	97	75	100	50	100	169	0	460	1,978	1,950	1,544
50%	700	75	63	75	3	95	108	0	200	1,500	1,728	1,300
60%	684	75	1	45	0	5	100	0	24	1,500	1,500	1,250
70%	200	0	0	0	0	0	29	0	0	1,204	1,500	970
80%	200	0	0	0	0	0	0	0	0	975	1,462	750
90%	125	0	0	0	0	0	0	0	0	44	1,125	410
Long Term												
Full Simulation Period[a]	912	258	183	427	61	259	251	159	502	1,652	1,795	1,431
Water Year Types[b,c]												
Wet (32%)	1,386	368	346	492	53	358	276	189	244	1,298	1,690	1,703
Above Normal (16%)	964	327	277	221	74	355	328	0	358	1,551	2,171	1,668
Below Normal (13%)	1,332	303	95	444	43	466	182	278	864	2,053	2,184	1,892
Dry (24%)	403	153	34	359	80	59	120	186	775	2,082	1,573	1,099
Critical (15%)	292	82	57	604	45	86	394	110	431	1,443	1,630	712

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	88	**-837**	42	372	**-100**	43	**-95**	0	112	311	597	**-153**
20%	369	**-25**	**-30**	**-115**	0	**-24**	**-88**	**-78**	20	750	410	**-224**
30%	0	**-17**	**-24**	0	**-25**	**-56**	**-68**	**-18**	107	286	0	0
40%	0	**-353**	**-66**	**-16**	0	**-7**	**-83**	0	198	478	177	**-254**
50%	0	**-134**	**-12**	**-25**	**-16**	**-5**	**-92**	0	0	0	228	**-75**
60%	59	0	**-49**	**-5**	0	**-49**	**-60**	0	**-132**	148	0	**-50**
70%	**-107**	**-50**	0	0	0	0	**-71**	0	**-40**	79	0	**-280**
80%	0	0	0	0	0	0	0	0	0	201	337	0
90%	113	0	0	0	0	0	0	0	0	**-29**	175	**-140**
Long Term												
Full Simulation Period[a]	55	**-219**	**-46**	9	**-28**	22	**-54**	**-2**	9	205	146	**-123**
Water Year Types[b,c]												
Wet (32%)	25	**-499**	**-152**	**-24**	**-64**	4	**-93**	**-16**	**-41**	46	107	**-487**
Above Normal (16%)	**-213**	**-437**	**-14**	85	26	24	**-31**	0	152	285	217	**-208**
Below Normal (13%)	738	80	29	96	**-3**	227	**-37**	22	48	320	174	281
Dry (24%)	43	7	**-6**	**-123**	**-26**	**-37**	**-74**	4	**-67**	191	20	97
Critical (15%)	**-199**	**-31**	11	139	**-31**	**-34**	20	**-9**	53	381	338	19

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 46-4. Trinity Import - Clear Creek Tunnel, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,785	1,339	375	1,673	200	659	503	250	1,250	2,988	2,434	2,724
20%	1,372	500	250	639	100	242	401	197	766	2,000	2,000	2,336
30%	1,250	468	200	200	100	194	323	93	625	1,714	2,000	2,000
40%	750	450	141	116	50	107	251	0	262	1,500	1,773	1,798
50%	700	209	75	100	19	100	200	0	200	1,500	1,500	1,375
60%	625	75	50	50	0	54	160	0	156	1,352	1,500	1,300
70%	307	50	0	0	0	0	100	0	40	1,125	1,500	1,250
80%	200	0	0	0	0	0	0	0	0	775	1,125	750
90%	12	0	0	0	0	0	0	0	0	73	950	550
Long Term												
Full Simulation Period[a]	858	478	229	417	88	238	305	161	493	1,447	1,649	1,553
Water Year Types[b,c]												
Wet (32%)	1,361	866	497	516	118	354	369	205	284	1,252	1,583	2,190
Above Normal (16%)	1,177	764	291	136	48	331	358	0	206	1,266	1,955	1,876
Below Normal (13%)	594	223	66	348	46	239	219	256	816	1,734	2,010	1,611
Dry (24%)	360	146	40	481	106	95	194	182	842	1,891	1,552	1,002
Critical (15%)	491	113	46	465	76	120	374	119	379	1,062	1,292	693

Alternative 4 043019

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,838	500	424	1,624	157	1,017	839	250	1,321	2,795	2,500	2,502
20%	1,642	450	220	245	100	518	492	198	750	2,000	2,045	2,000
30%	750	450	186	200	100	214	404	100	700	1,950	2,000	2,000
40%	700	332	102	100	87	167	351	0	313	1,500	1,974	1,300
50%	700	77	75	100	50	100	240	0	200	1,500	1,681	1,275
60%	625	50	50	50	0	100	208	0	173	1,500	1,500	1,250
70%	200	0	0	0	0	5	181	0	49	1,248	1,500	750
80%	200	0	0	0	0	0	100	0	0	1,125	1,150	750
90%	0	0	0	0	0	0	0	0	0	581	950	250
Long Term												
Full Simulation Period[a]	789	279	187	383	79	323	395	145	439	1,584	1,712	1,371
Water Year Types[b,c]												
Wet (32%)	1,240	372	335	491	75	423	440	216	329	1,364	1,654	1,730
Above Normal (16%)	944	381	258	181	78	486	672	0	288	1,457	2,023	1,842
Below Normal (13%)	475	258	77	438	66	503	247	176	677	2,024	1,942	1,381
Dry (24%)	452	244	71	252	103	81	226	147	558	1,844	1,673	1,093
Critical (15%)	491	44	85	540	61	169	417	118	423	1,361	1,356	537

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	53	**-839**	50	**-49**	**-43**	359	336	0	71	**-194**	66	**-223**
20%	270	**-50**	**-30**	**-394**	0	277	91	1	**-16**	0	45	**-336**
30%	**-500**	**-17**	**-14**	0	0	20	81	7	75	236	0	0
40%	**-50**	**-118**	**-39**	**-16**	37	60	99	0	51	0	202	**-498**
50%	0	**-132**	0	0	31	0	40	0	0	0	181	**-100**
60%	0	**-25**	**0**	0	0	46	48	0	17	148	0	**-50**
70%	**-107**	**-50**	0	0	0	5	81	0	9	123	0	**-500**
80%	0	0	0	0	0	0	100	0	0	350	25	0
90%	**-12**	0	0	0	0	0	0	0	0	508	0	**-300**
Long Term												
Full Simulation Period[a]	**-69**	**-199**	**-42**	**-34**	**-9**	86	90	**-16**	**-54**	137	63	**-183**
Water Year Types[b,c]												
Wet (32%)	**-121**	**-494**	**-162**	**-26**	**-43**	69	70	12	44	112	71	**-460**
Above Normal (16%)	**-233**	**-383**	**-33**	45	30	155	314	0	82	191	69	**-34**
Below Normal (13%)	**-119**	36	12	90	19	264	28	**-80**	**-139**	290	**-68**	**-230**
Dry (24%)	92	98	31	**-230**	**-2**	**-15**	32	**-35**	**-284**	**-47**	121	91
Critical (15%)	1	**-69**	39	76	**-15**	50	43	**-1**	44	299	64	**-156**

a Based on the 82-year simulation period.

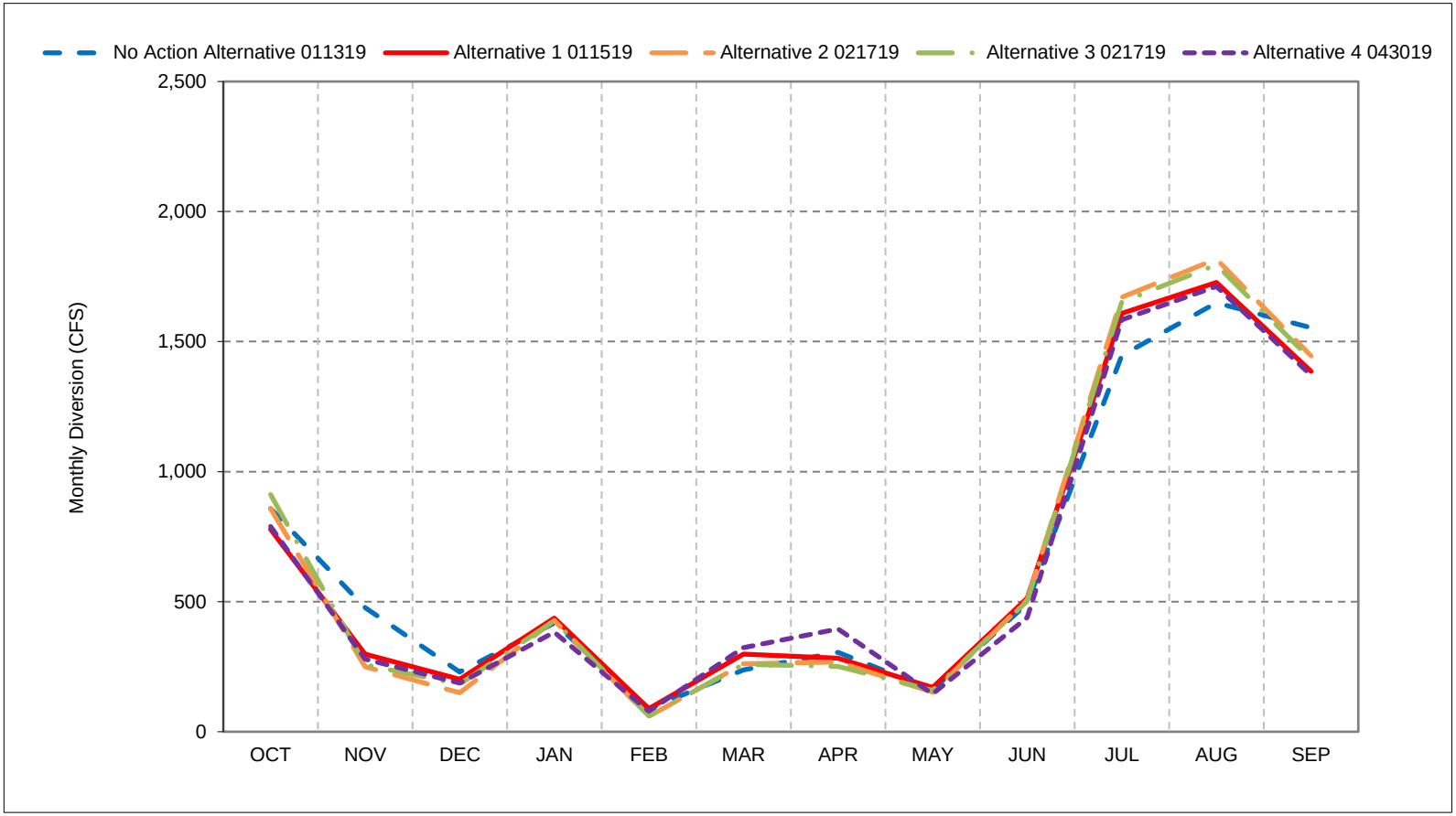
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

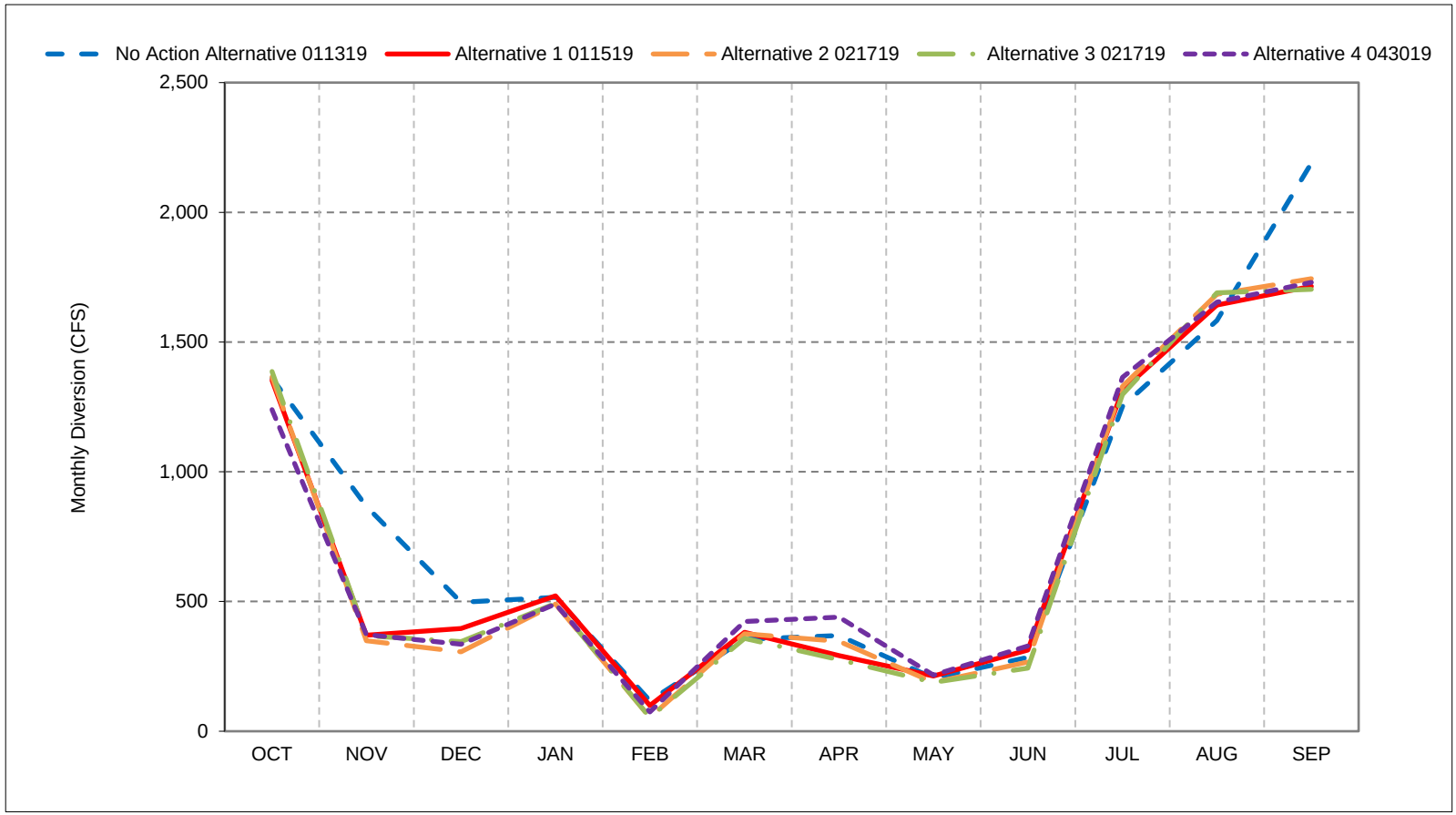
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 46-1. Trinity Import - Clear Creek Tunnel, Long-Term Average Diversion



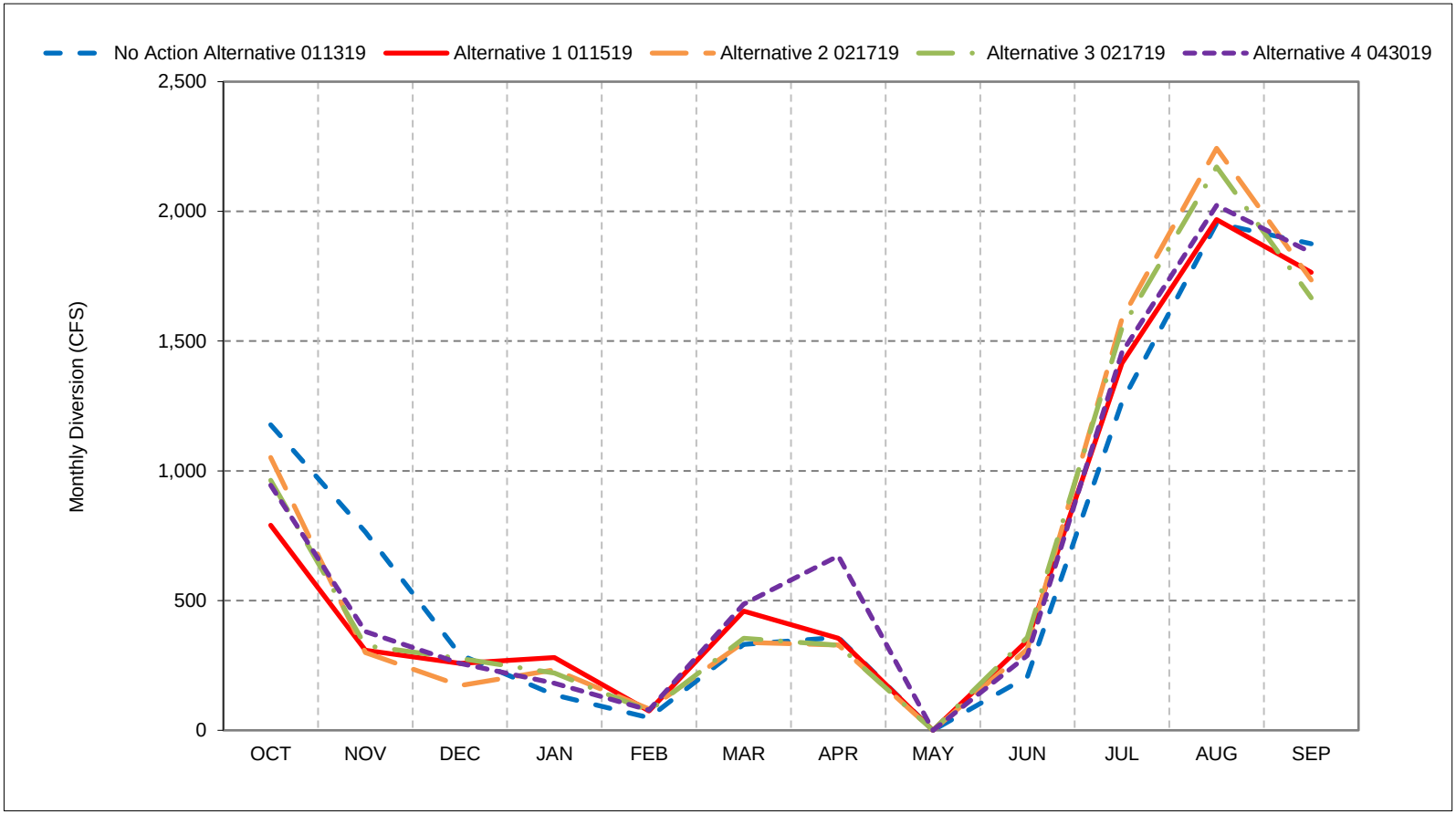
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 46-2. Trinity Import - Clear Creek Tunnel, Wet Year Average Diversion



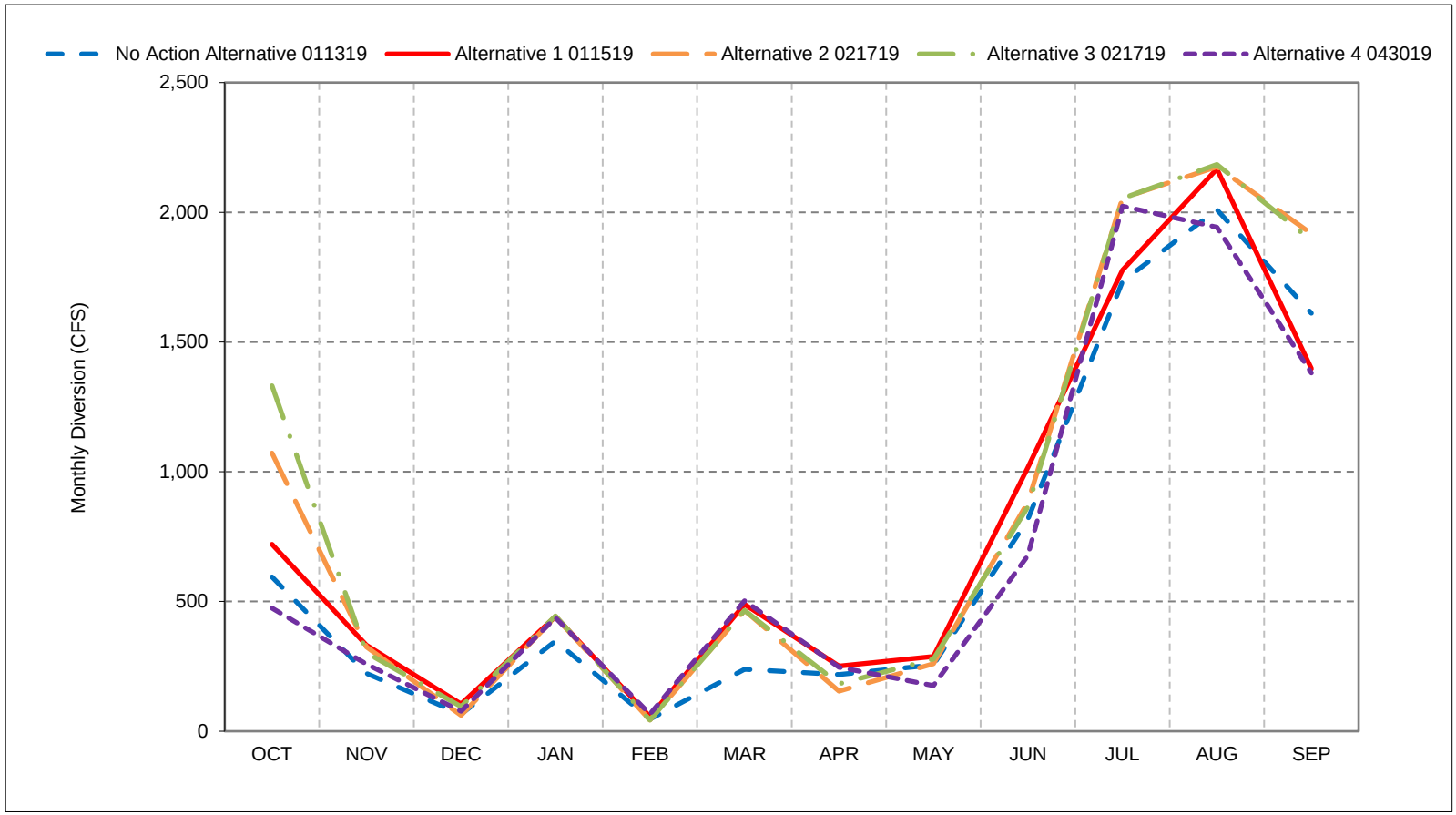
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 46-3. Trinity Import - Clear Creek Tunnel, Above Normal Year Average Diversion



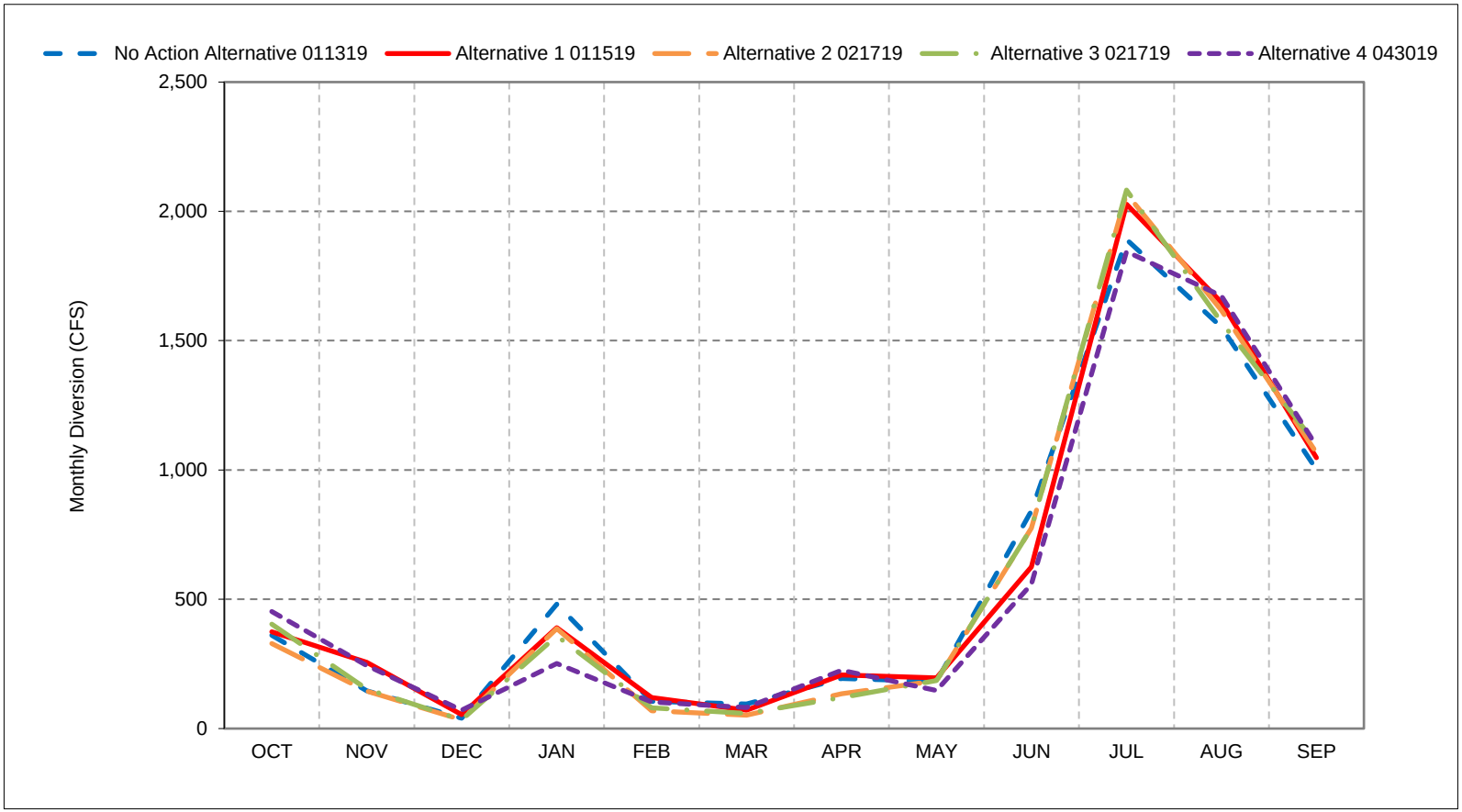
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 46-4. Trinity Import - Clear Creek Tunnel, Below Normal Year Average Diversion



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 46-5. Trinity Import - Clear Creek Tunnel, Dry Year Average Diversion



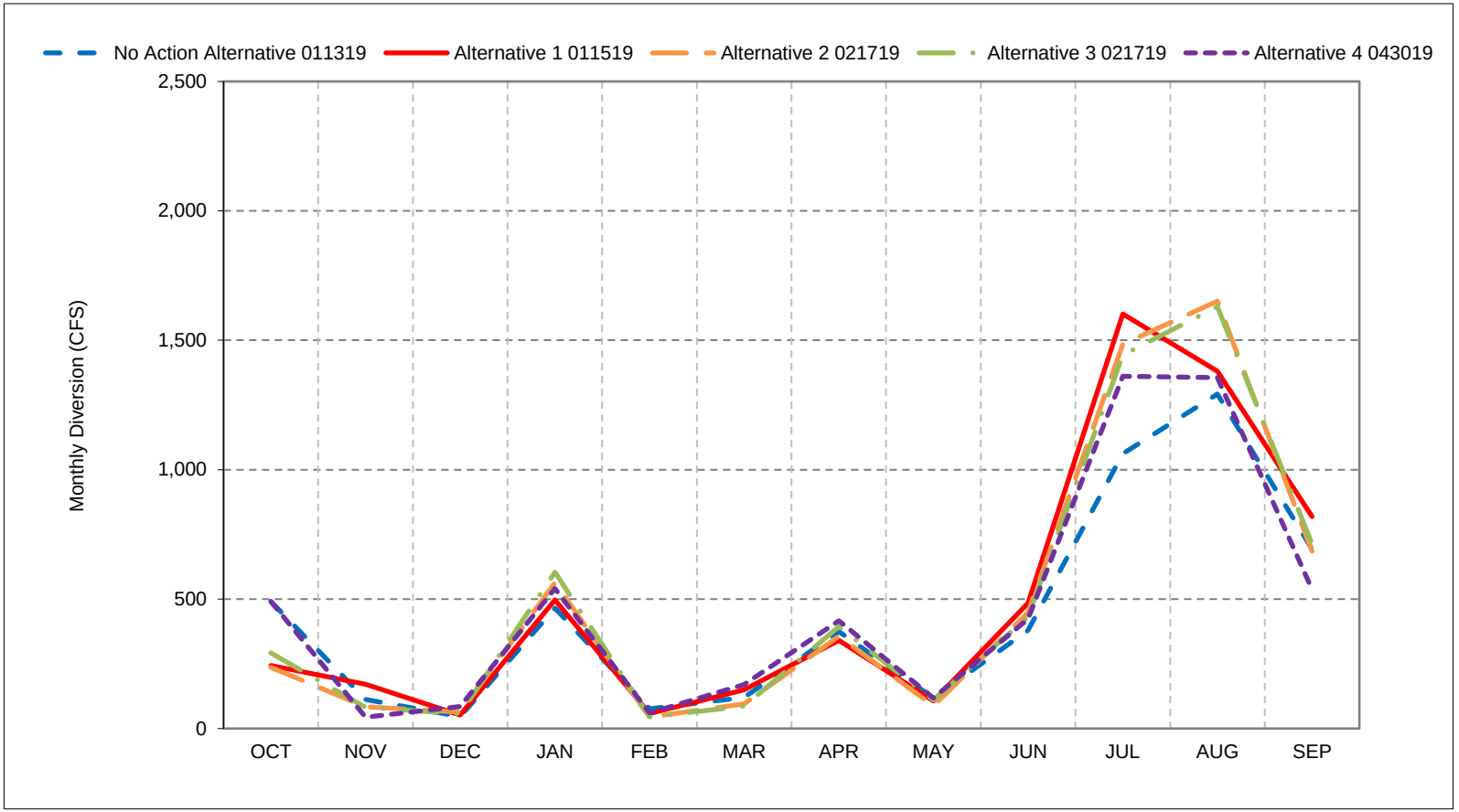
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

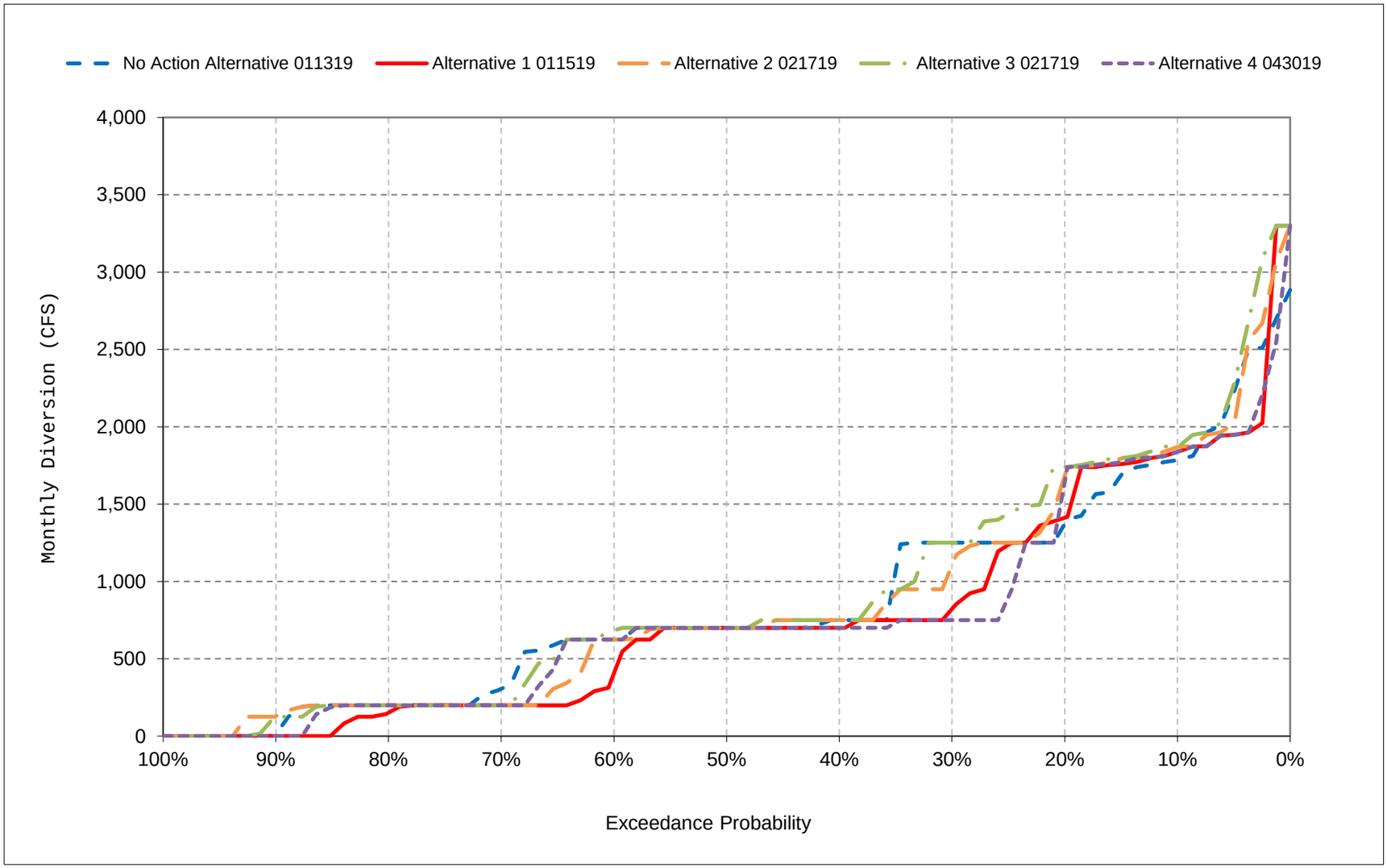
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 46-6. Trinity Import - Clear Creek Tunnel, Critical Year Average Diversion



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

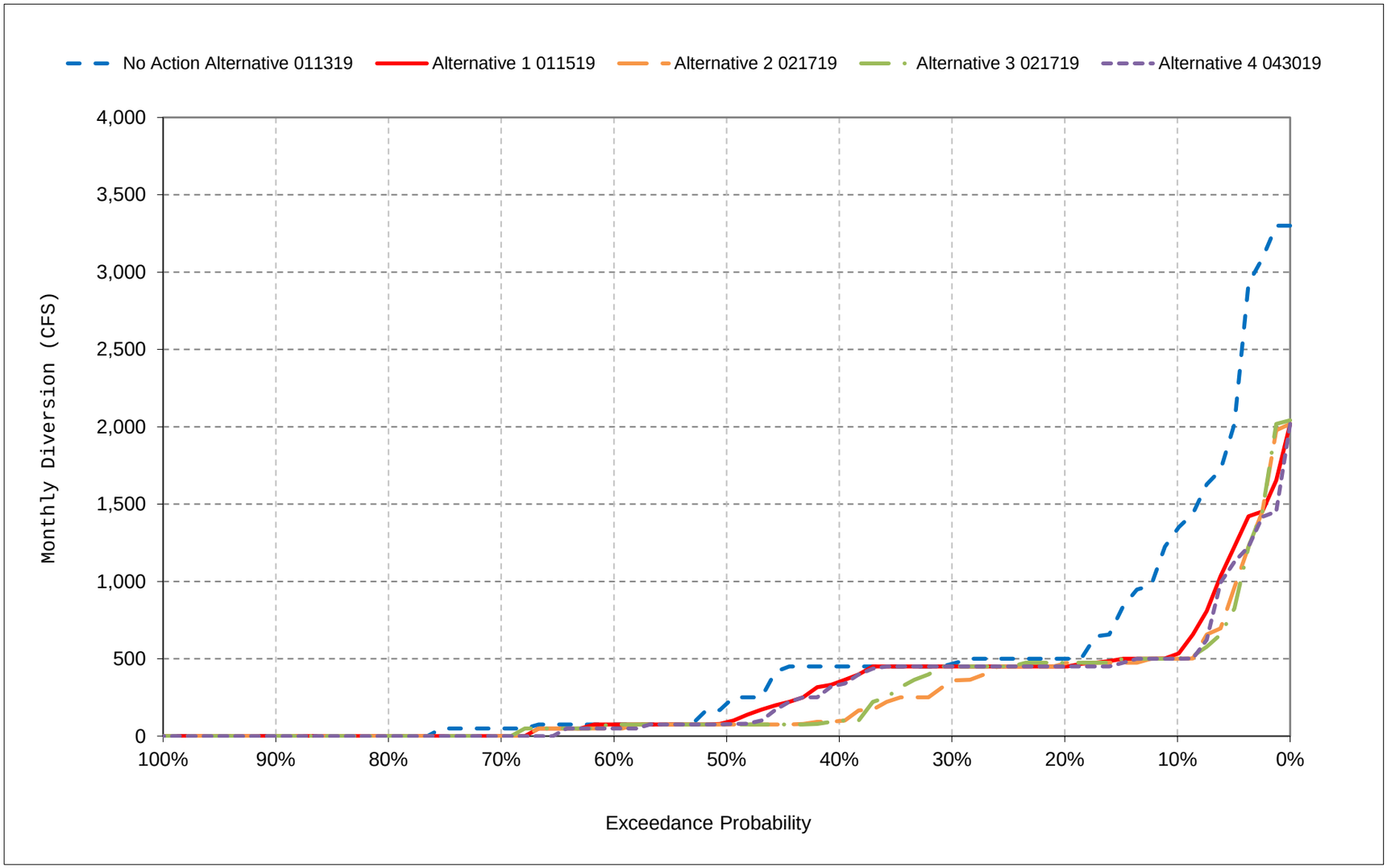
Figure 46-7. Trinity Import - Clear Creek Tunnel, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

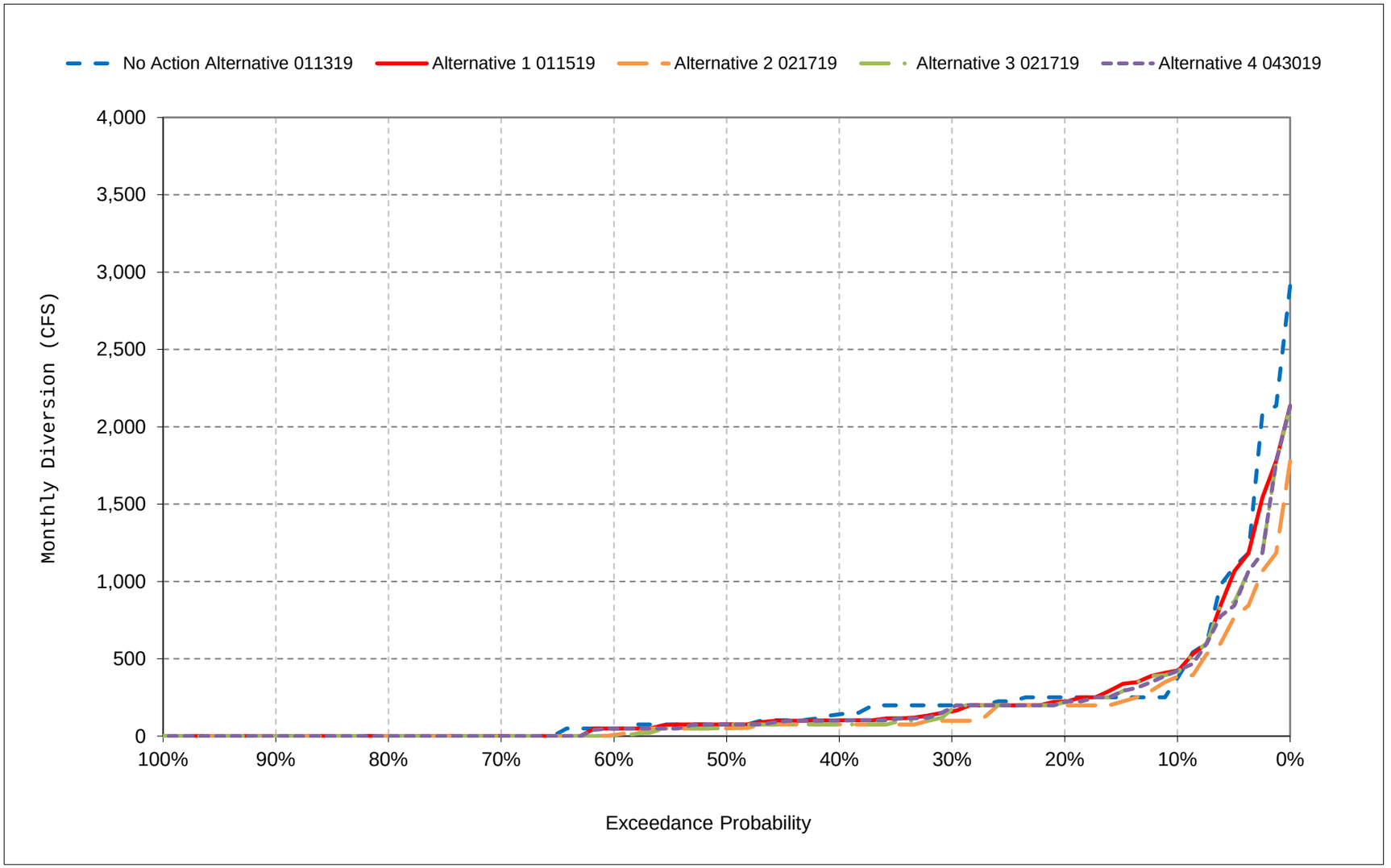
Figure 46-8. Trinity Import - Clear Creek Tunnel, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

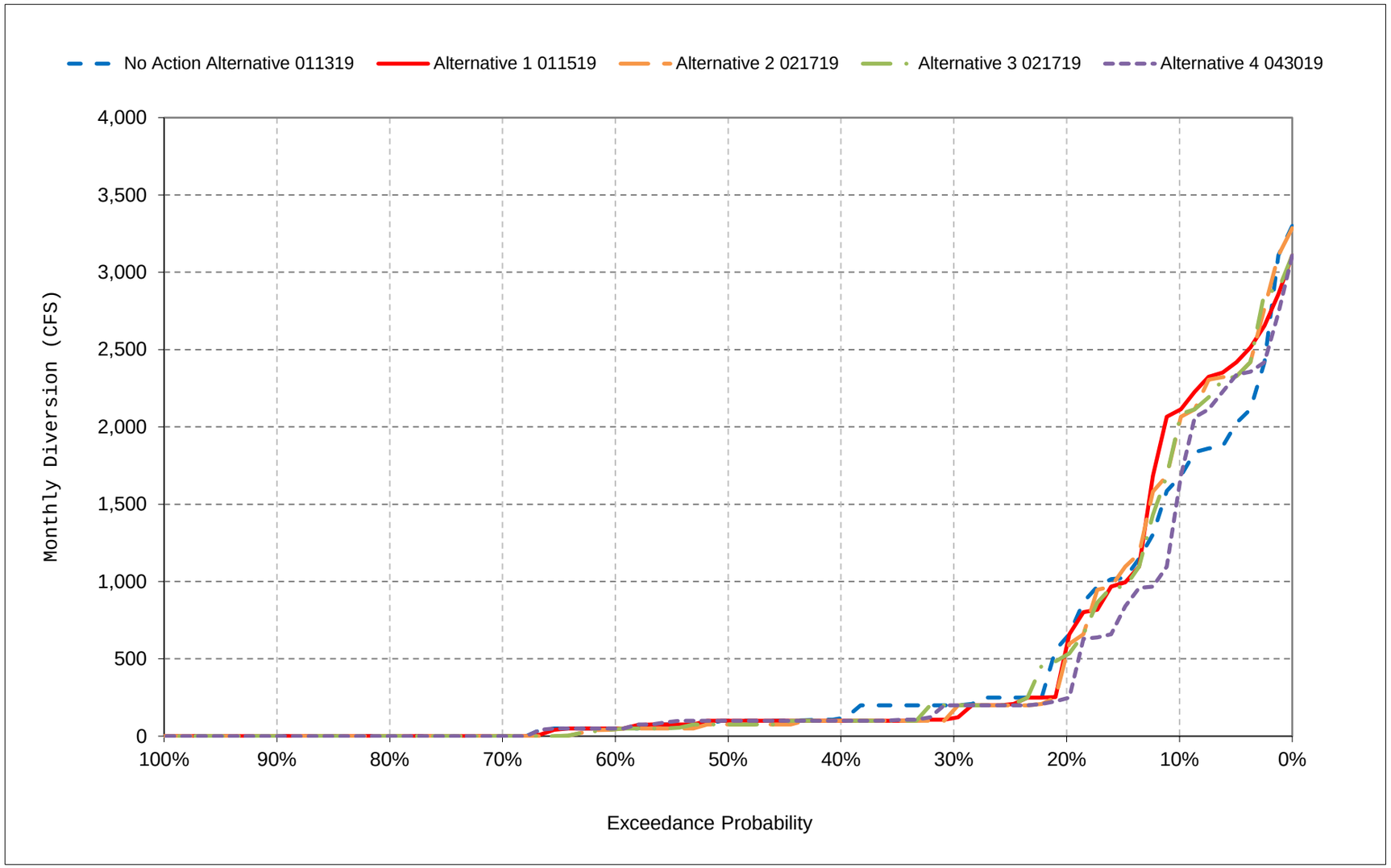
Figure 46-9. Trinity Import - Clear Creek Tunnel, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

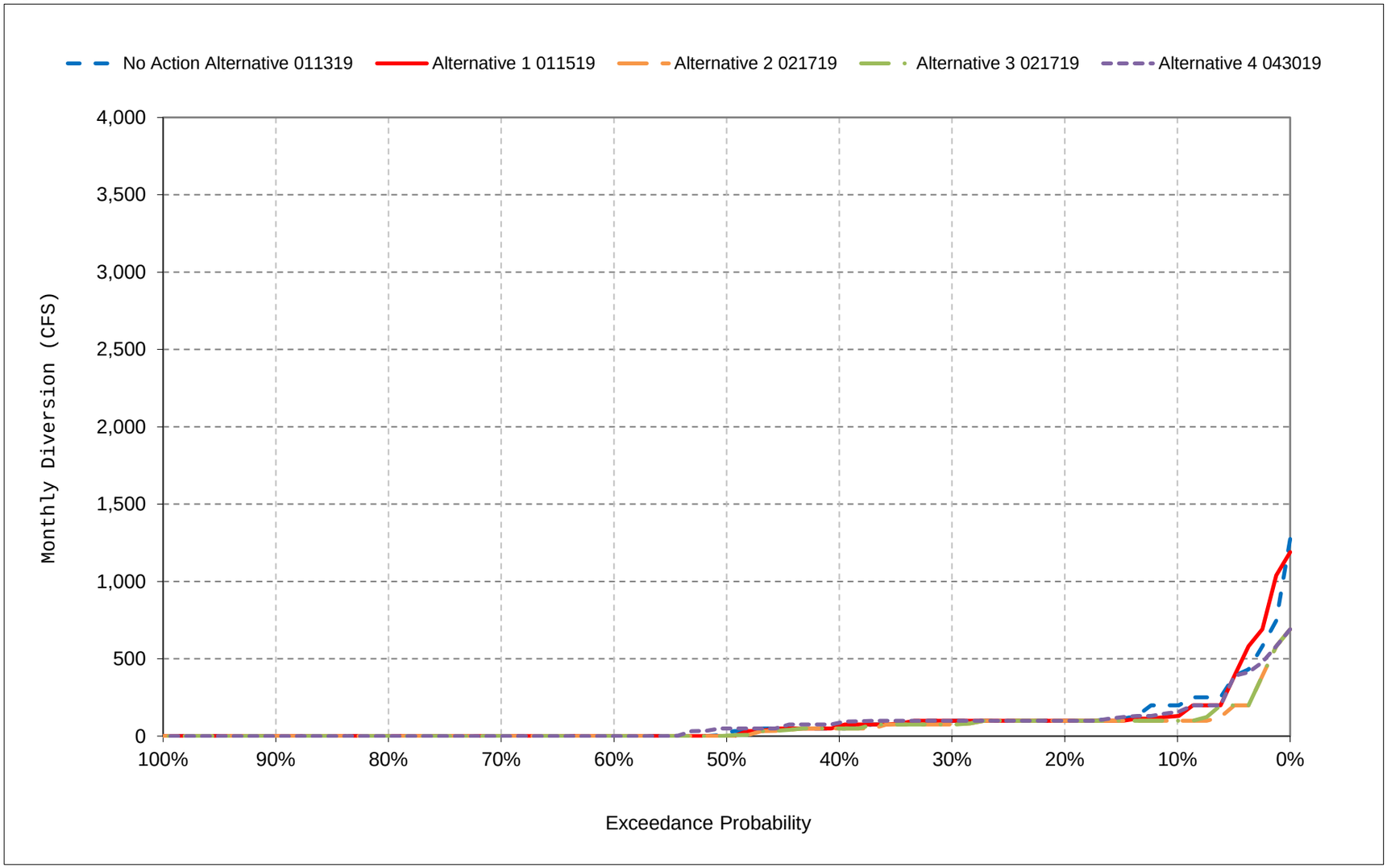
Figure 46-10. Trinity Import - Clear Creek Tunnel, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

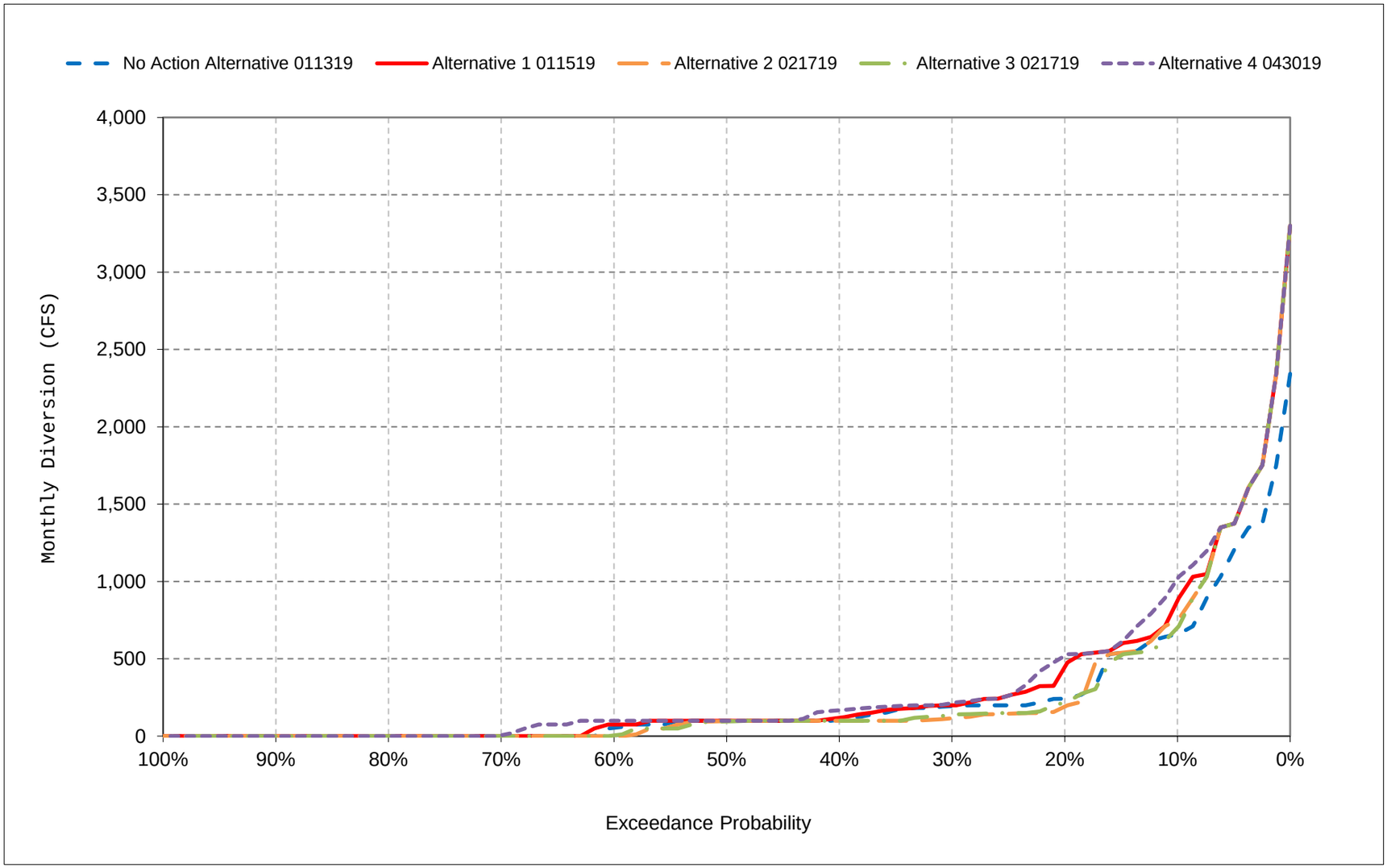
Figure 46-11. Trinity Import - Clear Creek Tunnel, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

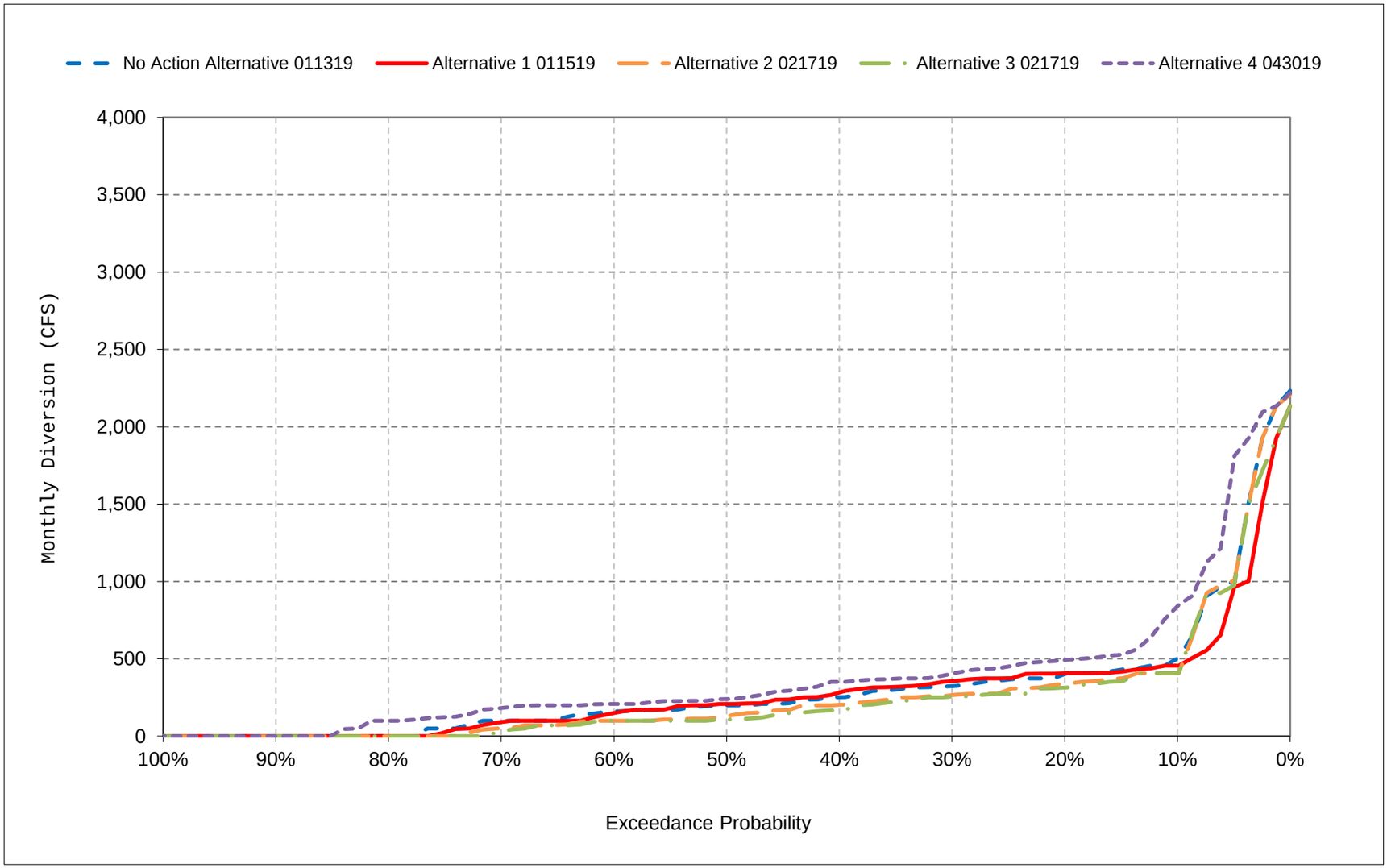
Figure 46-12. Trinity Import - Clear Creek Tunnel, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

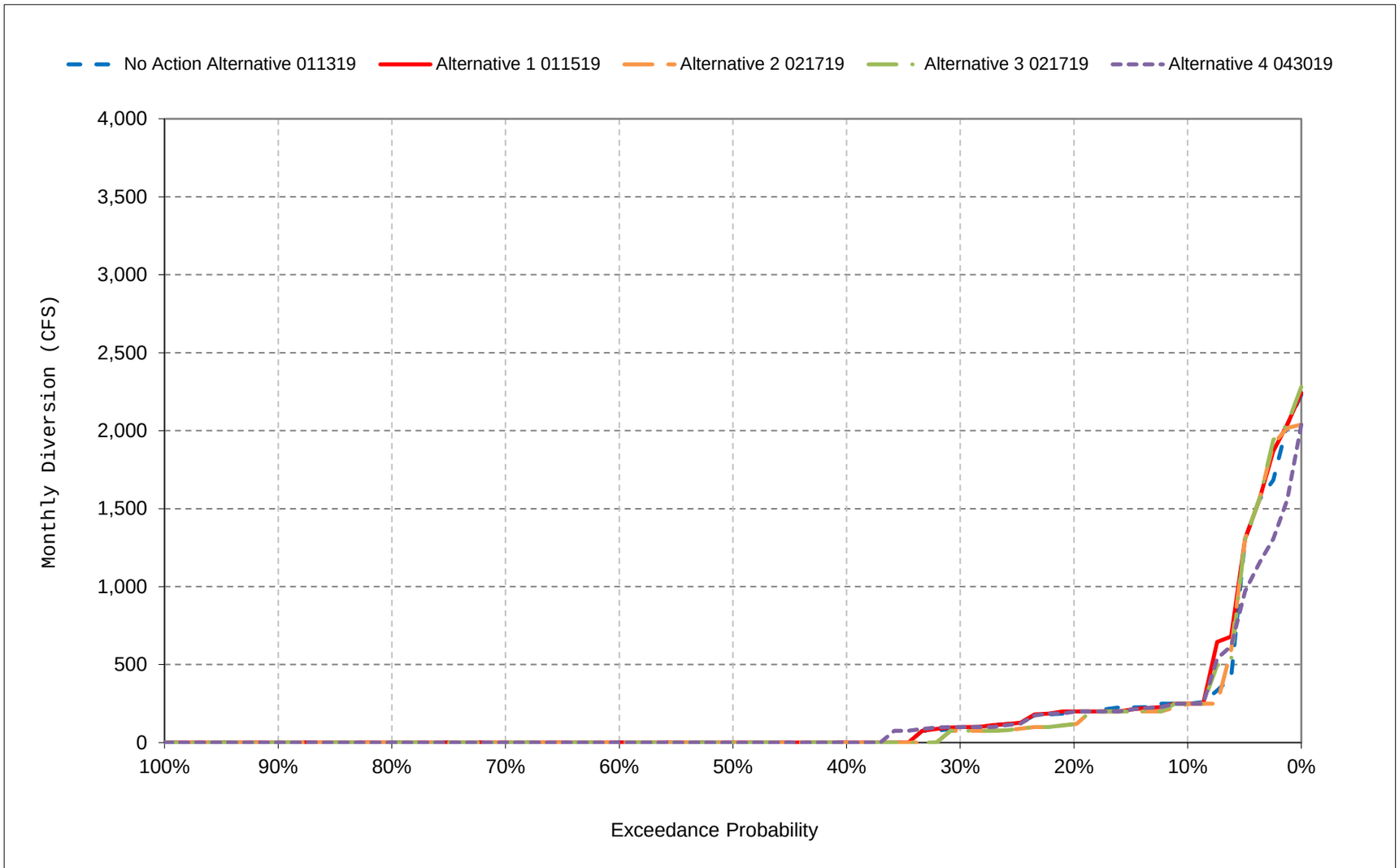
Figure 46-13. Trinity Import - Clear Creek Tunnel, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

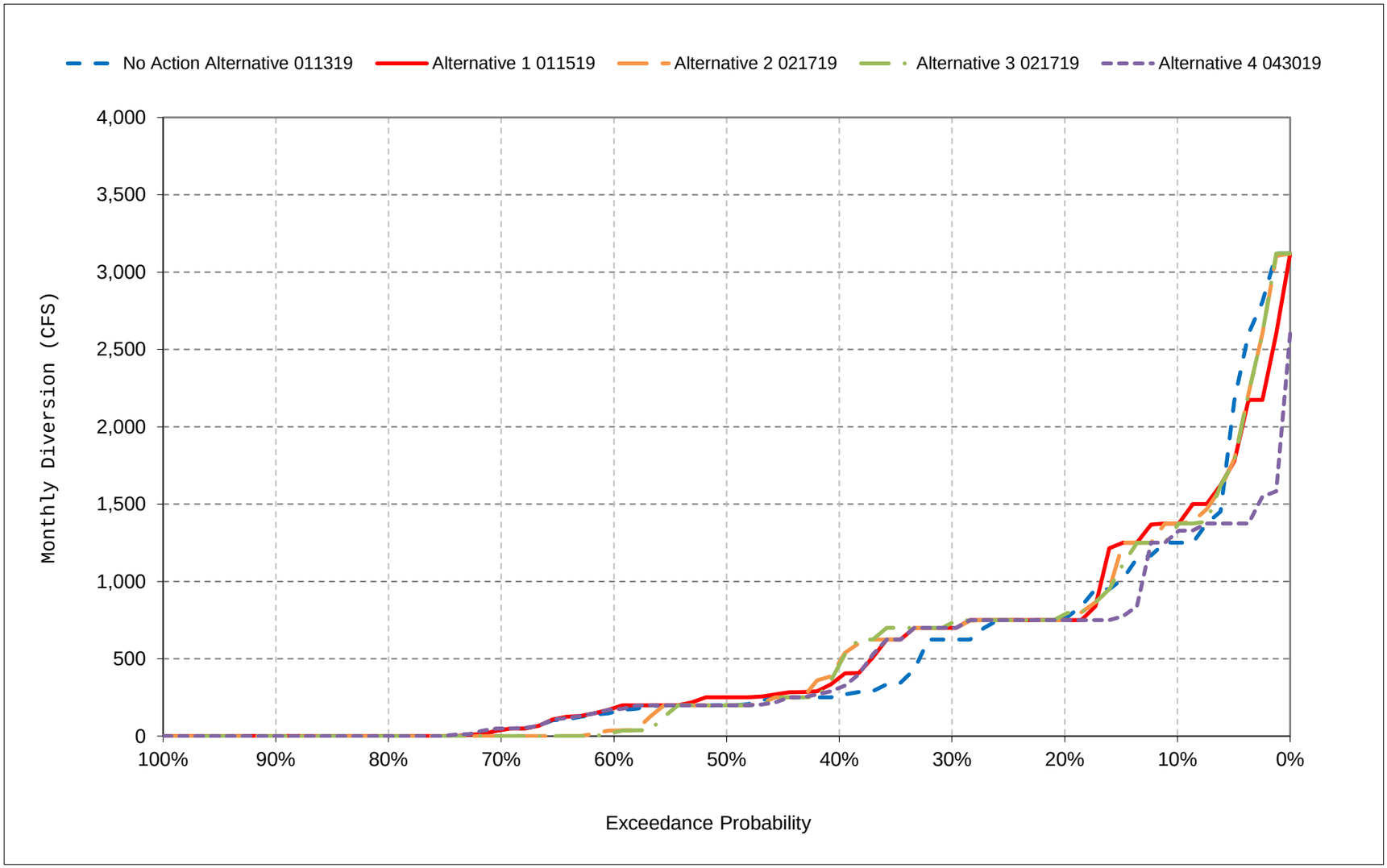
Figure 46-14. Trinity Import - Clear Creek Tunnel, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

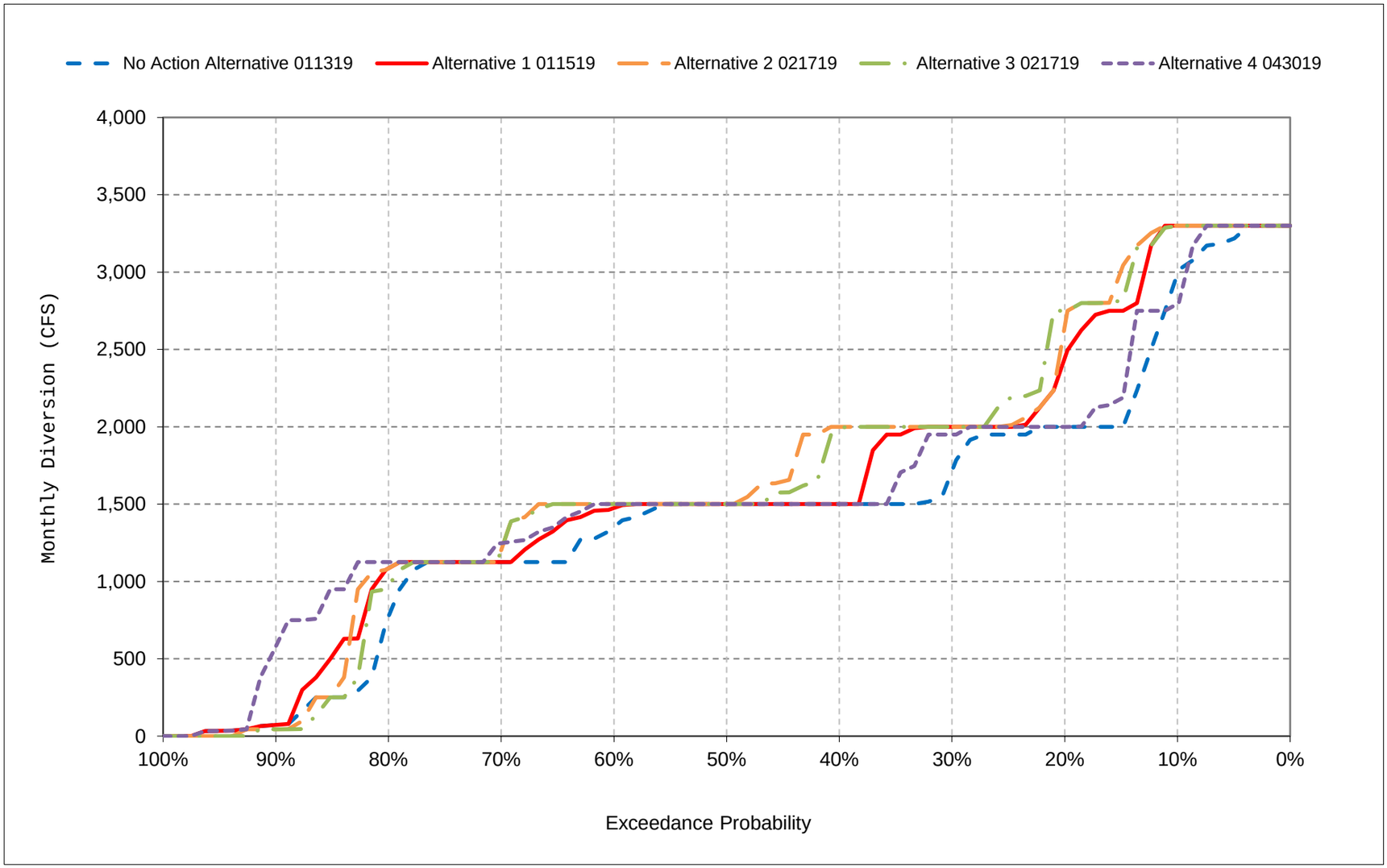
Figure 46-15. Trinity Import - Clear Creek Tunnel, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

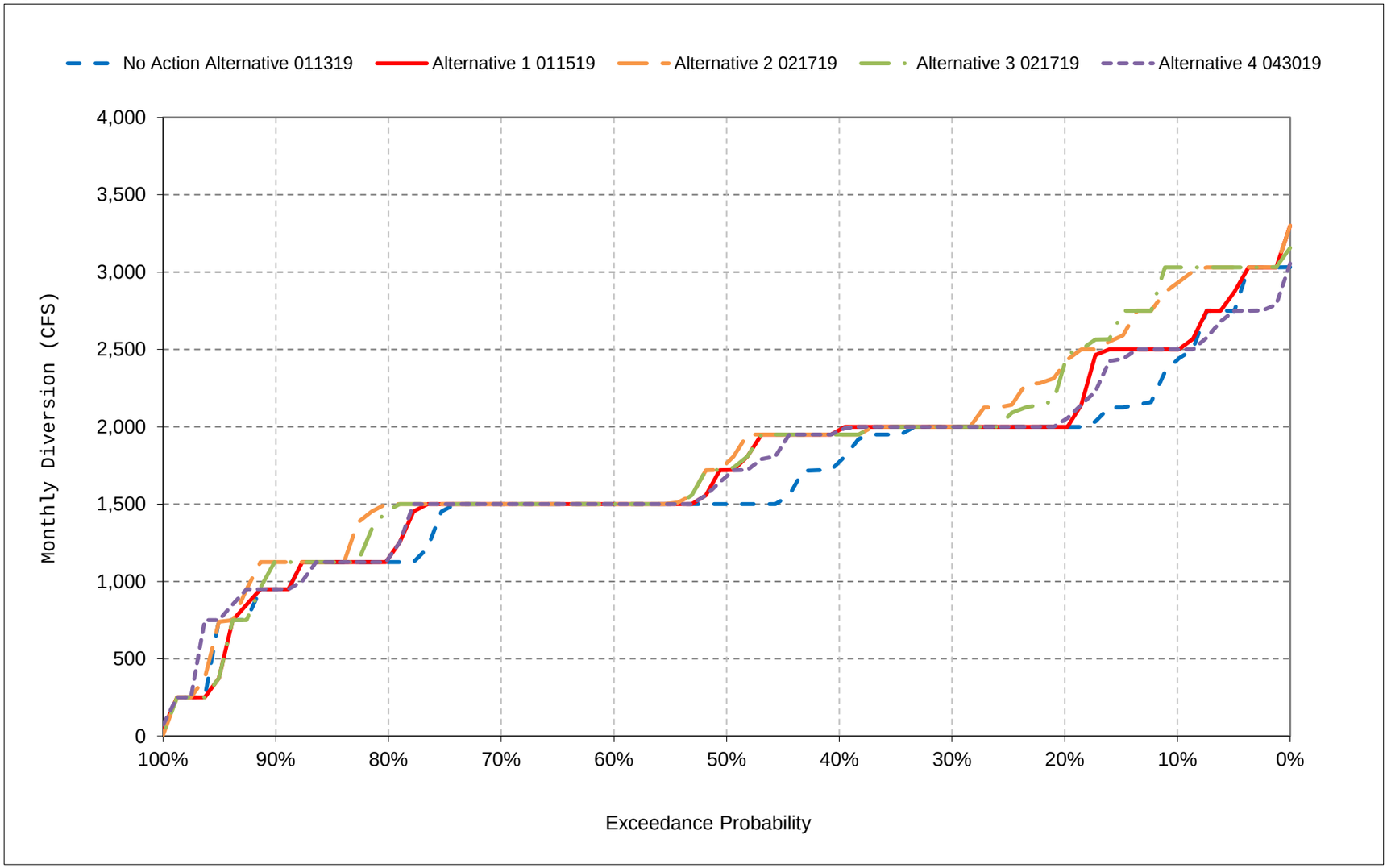
Figure 46-16. Trinity Import - Clear Creek Tunnel, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

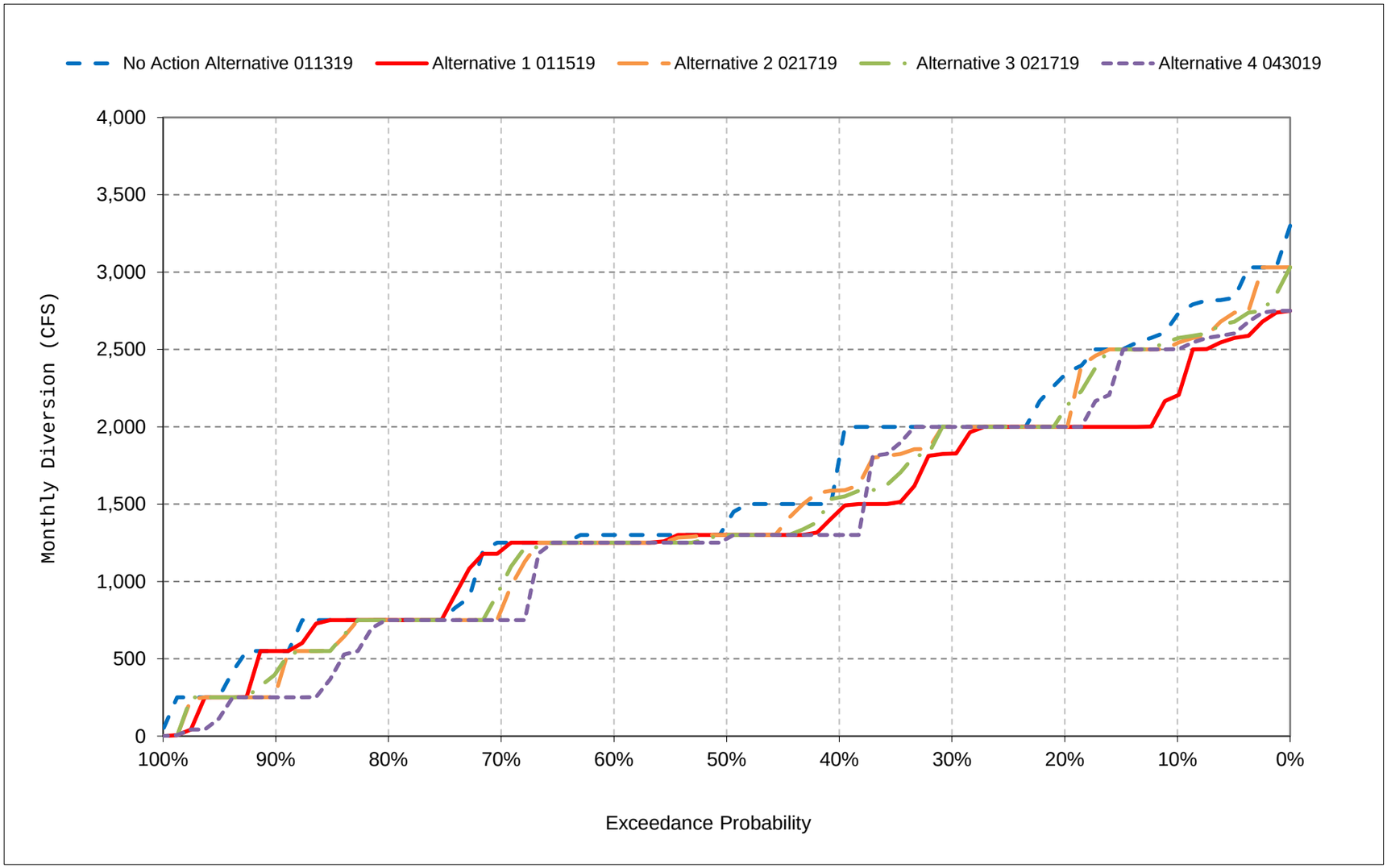
Figure 46-17. Trinity Import - Clear Creek Tunnel, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 46-18. Trinity Import - Clear Creek Tunnel, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 47-1. Red Bluff Diversion - Tehama Colusa Canal, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	186	19	0	0	0	46	454	778	1,189	1,375	1,092	299
20%	169	17	0	0	0	30	342	722	1,096	1,282	1,024	272
30%	141	15	0	0	0	17	277	639	1,004	1,155	900	212
40%	117	3	0	0	0	3	224	532	861	958	756	164
50%	105	0	0	0	0	0	202	476	768	879	663	141
60%	83	0	0	0	0	0	163	370	656	725	579	114
70%	76	0	0	0	0	0	95	302	518	605	478	94
80%	66	0	0	0	0	0	41	221	356	423	334	73
90%	56	0	0	0	0	0	22	129	222	245	195	24
Long Term												
Full Simulation Period[a]	115	7	0	0	2	18	215	463	729	839	663	157
Water Year Types[b,c]												
Wet (32%)	146	7	0	0	0	10	179	631	1,042	1,202	953	225
Above Normal (16%)	121	4	0	0	0	8	284	664	996	1,140	893	213
Below Normal (13%)	114	8	0	0	8	50	321	468	658	778	611	134
Dry (24%)	93	4	0	0	4	13	185	276	467	529	420	73
Critical (15%)	76	14	0	0	1	22	171	185	259	299	238	113

Alternative 1 011519

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	153	23	0	0	0	55	470	831	1,189	1,377	1,094	299
20%	132	19	0	0	0	35	412	764	1,106	1,283	1,027	272
30%	103	17	0	0	0	21	345	725	1,059	1,252	991	247
40%	86	17	0	0	0	3	286	643	1,012	1,138	891	214
50%	66	17	0	0	0	1	204	529	929	1,065	825	197
60%	49	17	0	0	0	0	182	456	832	911	717	165
70%	35	17	0	0	0	0	105	330	545	645	526	108
80%	22	17	0	0	0	0	45	248	426	500	419	65
90%	5	17	0	0	0	0	24	133	302	343	278	19
Long Term												
Full Simulation Period[a]	75	17	0	0	2	21	247	512	804	926	736	175
Water Year Types[b,c]												
Wet (32%)	97	17	0	0	0	12	196	649	1,075	1,238	980	237
Above Normal (16%)	78	17	0	0	0	9	310	680	1,061	1,213	951	236
Below Normal (13%)	85	21	0	0	9	65	385	641	839	992	778	166
Dry (24%)	48	16	0	0	4	15	228	333	573	648	514	96
Critical (15%)	59	18	0	0	1	25	195	214	295	343	302	114

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-34**	4	0	0	0	9	16	53	0	2	3	0
20%	**-37**	2	0	0	0	5	70	43	10	1	4	0
30%	**-38**	2	0	0	0	4	68	86	55	97	91	35
40%	**-30**	14	0	0	0	0	62	112	151	181	135	51
50%	**-38**	17	0	0	0	0	2	53	161	186	163	55
60%	**-33**	17	0	0	0	0	19	86	176	186	138	51
70%	**-41**	17	0	0	0	0	10	28	27	40	49	14
80%	**-44**	17	0	0	0	0	4	27	70	77	85	**-7**
90%	**-51**	17	0	0	0	0	2	3	80	98	83	**-4**
Long Term												
Full Simulation Period[a]	**-40**	10	0	0	0	4	32	50	76	87	73	18
Water Year Types[b,c]												
Wet (32%)	**-48**	10	0	0	0	1	17	18	32	36	27	13
Above Normal (16%)	**-43**	14	0	0	0	1	26	17	66	73	58	22
Below Normal (13%)	**-28**	13	0	0	0	16	64	172	180	214	168	32
Dry (24%)	**-46**	11	0	0	0	2	43	57	105	119	95	23
Critical (15%)	**-17**	4	0	0	0	3	24	29	36	44	64	1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 47-2. Red Bluff Diversion - Tehama Colusa Canal, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	186	19	0	0	0	46	454	778	1,189	1,375	1,092	299
20%	169	17	0	0	0	30	342	722	1,096	1,282	1,024	272
30%	141	15	0	0	0	17	277	639	1,004	1,155	900	212
40%	117	3	0	0	0	3	224	532	861	958	756	164
50%	105	0	0	0	0	0	202	476	768	879	663	141
60%	83	0	0	0	0	0	163	370	656	725	579	114
70%	76	0	0	0	0	0	95	302	518	605	478	94
80%	66	0	0	0	0	0	41	221	356	423	334	73
90%	56	0	0	0	0	0	22	129	222	245	195	24
Long Term												
Full Simulation Period[a]	115	7	0	0	2	18	215	463	729	839	663	157
Water Year Types[b,c]												
Wet (32%)	146	7	0	0	0	10	179	631	1,042	1,202	953	225
Above Normal (16%)	121	4	0	0	0	8	284	664	996	1,140	893	213
Below Normal (13%)	114	8	0	0	8	50	321	468	658	778	611	134
Dry (24%)	93	4	0	0	4	13	185	276	467	529	420	73
Critical (15%)	76	14	0	0	1	22	171	185	259	299	238	113

Alternative 2 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	208	19	0	0	0	54	506	801	1,191	1,375	1,092	299
20%	186	17	0	0	0	33	398	756	1,104	1,315	1,027	273
30%	156	15	0	0	0	19	326	720	1,068	1,247	963	242
40%	129	4	0	0	0	3	269	629	1,025	1,157	926	214
50%	103	0	0	0	0	1	200	526	928	1,078	843	198
60%	89	0	0	0	0	0	172	465	824	906	718	159
70%	77	0	0	0	0	0	101	379	528	623	529	111
80%	68	0	0	0	0	0	41	244	375	447	390	69
90%	56	0	0	0	0	0	24	131	306	337	269	21
Long Term												
Full Simulation Period[a]	121	7	0	0	2	22	243	510	801	921	732	176
Water Year Types[b,c]												
Wet (32%)	150	7	0	0	0	12	198	646	1,081	1,245	986	238
Above Normal (16%)	128	4	0	0	0	10	320	681	1,079	1,232	966	240
Below Normal (13%)	131	8	0	0	9	69	376	669	861	1,016	798	169
Dry (24%)	98	4	0	0	4	14	214	314	535	606	481	100
Critical (15%)	79	14	0	0	1	24	184	210	278	322	286	107

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	22	0	0	0	0	8	52	23	2	0	0	0
20%	17	0	0	0	0	2	56	35	8	33	4	1
30%	15	0	0	0	0	2	49	81	64	92	63	30
40%	12	1	0	0	0	0	45	97	164	199	170	50
50%	**-1**	0	0	0	0	0	**-1**	50	160	199	180	56
60%	6	0	0	0	0	0	9	94	168	180	140	45
70%	1	0	0	0	0	0	6	77	10	17	51	16
80%	2	0	0	0	0	0	**-1**	23	19	24	56	**-3**
90%	0	0	0	0	0	0	2	2	84	92	74	**-2**
Long Term												
Full Simulation Period[a]	6	0	0	0	0	4	28	47	72	82	69	19
Water Year Types[b,c]												
Wet (32%)	5	0	0	0	0	2	19	15	39	43	33	14
Above Normal (16%)	7	0	0	0	0	2	36	17	83	92	73	27
Below Normal (13%)	18	1	0	0	0	19	55	201	203	238	187	35
Dry (24%)	4	0	0	0	0	2	29	38	68	77	61	28
Critical (15%)	3	0	0	0	0	2	13	25	19	24	48	**-7**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 47-3. Red Bluff Diversion - Tehama Colusa Canal, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	186	19	0	0	0	46	454	778	1,189	1,375	1,092	299
20%	169	17	0	0	0	30	342	722	1,096	1,282	1,024	272
30%	141	15	0	0	0	17	277	639	1,004	1,155	900	212
40%	117	3	0	0	0	3	224	532	861	958	756	164
50%	105	0	0	0	0	0	202	476	768	879	663	141
60%	83	0	0	0	0	0	163	370	656	725	579	114
70%	76	0	0	0	0	0	95	302	518	605	478	94
80%	66	0	0	0	0	0	41	221	356	423	334	73
90%	56	0	0	0	0	0	22	129	222	245	195	24
Long Term												
Full Simulation Period[a]	115	7	0	0	2	18	215	463	729	839	663	157
Water Year Types[b,c]												
Wet (32%)	146	7	0	0	0	10	179	631	1,042	1,202	953	225
Above Normal (16%)	121	4	0	0	0	8	284	664	996	1,140	893	213
Below Normal (13%)	114	8	0	0	8	50	321	468	658	778	611	134
Dry (24%)	93	4	0	0	4	13	185	276	467	529	420	73
Critical (15%)	76	14	0	0	1	22	171	185	259	299	238	113

Alternative 3 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	208	19	0	0	0	54	471	788	1,191	1,377	1,094	299
20%	186	17	0	0	0	33	401	754	1,107	1,320	1,027	273
30%	153	17	0	0	0	18	299	710	1,070	1,252	968	248
40%	129	4	0	0	0	3	265	620	1,031	1,156	918	214
50%	104	1	0	0	0	1	196	529	922	1,077	810	198
60%	88	0	0	0	0	0	170	437	777	880	700	145
70%	77	0	0	0	0	0	90	349	536	631	497	100
80%	69	0	0	0	0	0	40	245	375	439	350	59
90%	56	0	0	0	0	0	24	134	285	311	247	19
Long Term												
Full Simulation Period[a]	120	7	0	0	2	21	233	502	795	915	723	172
Water Year Types[b,c]												
Wet (32%)	149	7	0	0	0	12	193	631	1,074	1,237	980	236
Above Normal (16%)	128	5	0	0	0	10	297	686	1,079	1,233	966	241
Below Normal (13%)	132	8	0	0	9	66	346	655	863	1,019	800	172
Dry (24%)	96	4	0	0	4	15	212	309	525	594	471	86
Critical (15%)	78	14	0	0	1	24	180	205	271	314	251	103

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	21	**0**	0	0	0	8	17	11	2	2	3	0
20%	16	0	0	0	0	3	59	32	11	39	4	1
30%	13	2	0	0	0	1	22	71	67	97	68	35
40%	12	1	0	0	0	0	41	88	170	199	162	51
50%	**-1**	1	0	0	0	0	**-6**	53	154	197	148	57
60%	6	0	0	0	0	0	6	67	121	155	121	31
70%	1	0	0	0	0	0	**-5**	47	18	26	20	6
80%	3	0	0	0	0	0	**-1**	24	19	16	16	**-14**
90%	0	0	0	0	0	0	2	4	63	66	52	**-5**
Long Term												
Full Simulation Period[a]	6	0	0	0	0	4	18	40	66	76	60	15
Water Year Types[b,c]												
Wet (32%)	4	0	0	0	0	1	14	0	31	35	27	11
Above Normal (16%)	7	1	0	0	0	2	13	22	84	93	73	27
Below Normal (13%)	18	1	0	0	0	16	25	187	205	241	189	38
Dry (24%)	3	0	0	0	0	2	27	33	58	65	52	13
Critical (15%)	2	0	0	0	0	2	9	20	12	16	13	**-11**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 47-4. Red Bluff Diversion - Tehama Colusa Canal, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	186	19	0	0	0	46	454	778	1,189	1,375	1,092	299
20%	169	17	0	0	0	30	342	722	1,096	1,282	1,024	272
30%	141	15	0	0	0	17	277	639	1,004	1,155	900	212
40%	117	3	0	0	0	3	224	532	861	958	756	164
50%	105	0	0	0	0	0	202	476	768	879	663	141
60%	83	0	0	0	0	0	163	370	656	725	579	114
70%	76	0	0	0	0	0	95	302	518	605	478	94
80%	66	0	0	0	0	0	41	221	356	423	334	73
90%	56	0	0	0	0	0	22	129	222	245	195	24
Long Term												
Full Simulation Period[a]	115	7	0	0	2	18	215	463	729	839	663	157
Water Year Types[b,c]												
Wet (32%)	146	7	0	0	0	10	179	631	1,042	1,202	953	225
Above Normal (16%)	121	4	0	0	0	8	284	664	996	1,140	893	213
Below Normal (13%)	114	8	0	0	8	50	321	468	658	778	611	134
Dry (24%)	93	4	0	0	4	13	185	276	467	529	420	73
Critical (15%)	76	14	0	0	1	22	171	185	259	299	238	113

Alternative 4 043019

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	144	19	0	0	0	46	373	763	1,200	1,375	1,092	298
20%	117	17	0	0	0	26	324	722	1,100	1,283	1,027	272
30%	87	17	0	0	0	4	243	635	1,054	1,184	944	216
40%	65	17	0	0	0	1	190	549	932	1,020	808	176
50%	54	17	0	0	0	0	154	475	770	911	695	150
60%	47	17	0	0	0	0	75	393	667	737	588	110
70%	34	17	0	0	0	0	40	265	460	544	432	57
80%	20	17	0	0	0	0	24	158	371	404	319	19
90%	6	13	0	0	0	0	0	3	4	4	3	1
Long Term												
Full Simulation Period[a]	68	17	0	0	2	14	170	444	719	828	653	146
Water Year Types[b,c]												
Wet (32%)	95	16	0	0	0	11	150	618	1,054	1,215	962	228
Above Normal (16%)	74	18	0	0	0	9	250	625	1,028	1,176	922	238
Below Normal (13%)	71	18	0	0	9	38	215	533	685	809	634	107
Dry (24%)	42	16	0	0	4	15	202	295	502	570	452	76
Critical (15%)	39	17	0	0	1	4	31	34	50	59	46	21

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-43**	0	0	0	0	**0**	**-81**	**-14**	11	0	0	**-1**
20%	**-52**	0	0	0	0	**-4**	**-18**	0	3	1	4	0
30%	**-54**	2	0	0	0	**-13**	**-34**	**-4**	51	29	44	4
40%	**-52**	14	0	0	0	**-2**	**-34**	17	71	62	52	12
50%	**-50**	17	0	0	0	**0**	**-48**	**-1**	2	32	33	9
60%	**-36**	17	0	0	0	0	**-88**	23	11	12	10	**-5**
70%	**-42**	17	0	0	0	0	**-55**	**-38**	**-58**	**-61**	**-45**	**-38**
80%	**-46**	17	0	0	0	0	**-17**	**-63**	14	**-19**	**-15**	**-54**
90%	**-50**	13	0	0	0	0	**-22**	**-127**	**-218**	**-241**	**-192**	**-22**
Long Term												
Full Simulation Period[a]	**-47**	10	0	0	0	**-3**	**-45**	**-19**	**-10**	**-11**	**-10**	**-11**
Water Year Types[b,c]												
Wet (32%)	**-51**	9	0	0	0	1	**-29**	**-13**	12	13	9	4
Above Normal (16%)	**-47**	14	0	0	0	1	**-34**	**-39**	32	36	29	25
Below Normal (13%)	**-42**	10	0	0	0	**-11**	**-106**	65	26	31	24	**-27**
Dry (24%)	**-51**	11	0	0	0	2	17	19	35	40	32	4
Critical (15%)	**-37**	4	0	0	0	**-18**	**-140**	**-151**	**-209**	**-240**	**-192**	**-92**

a Based on the 82-year simulation period.

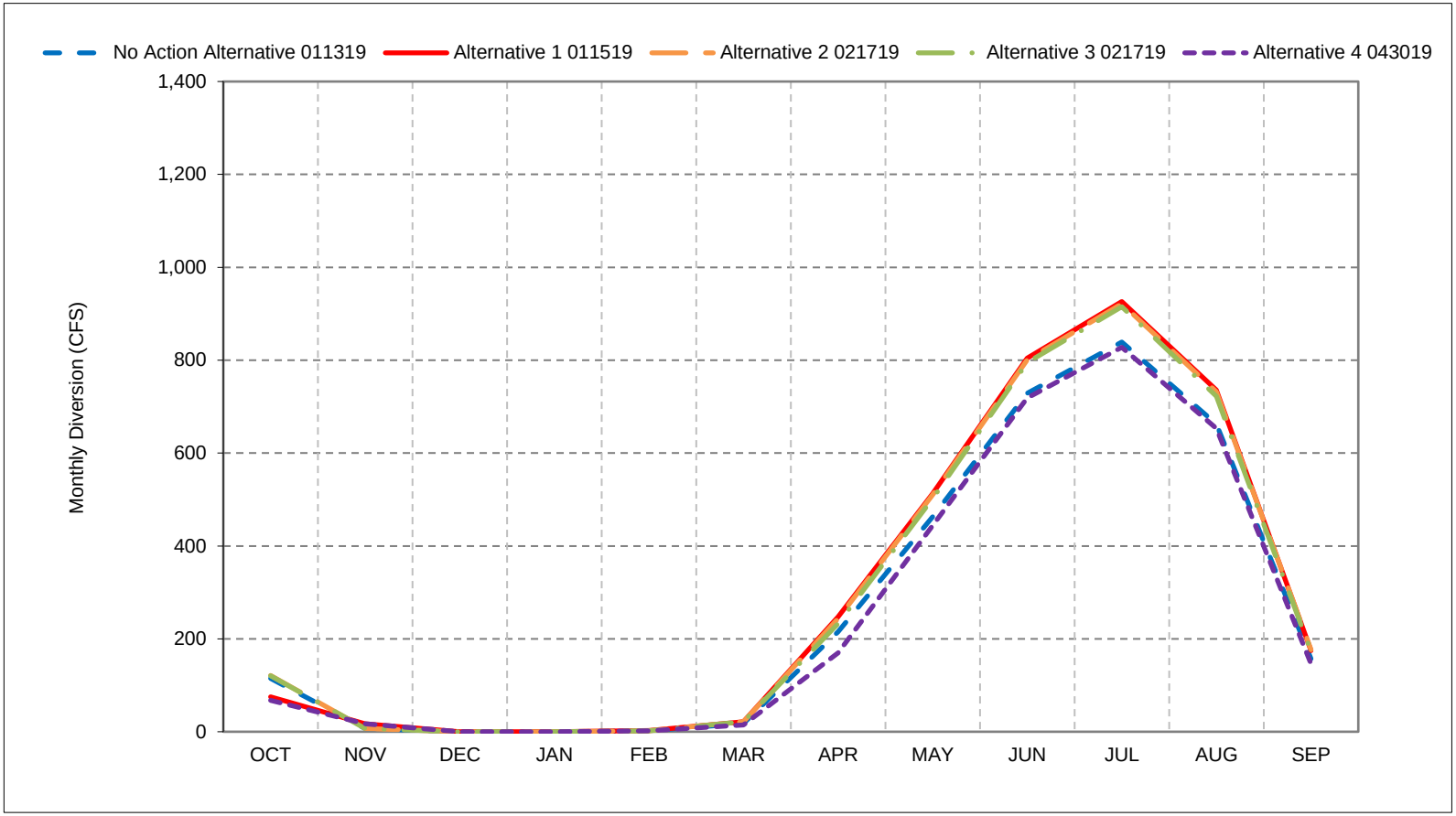
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

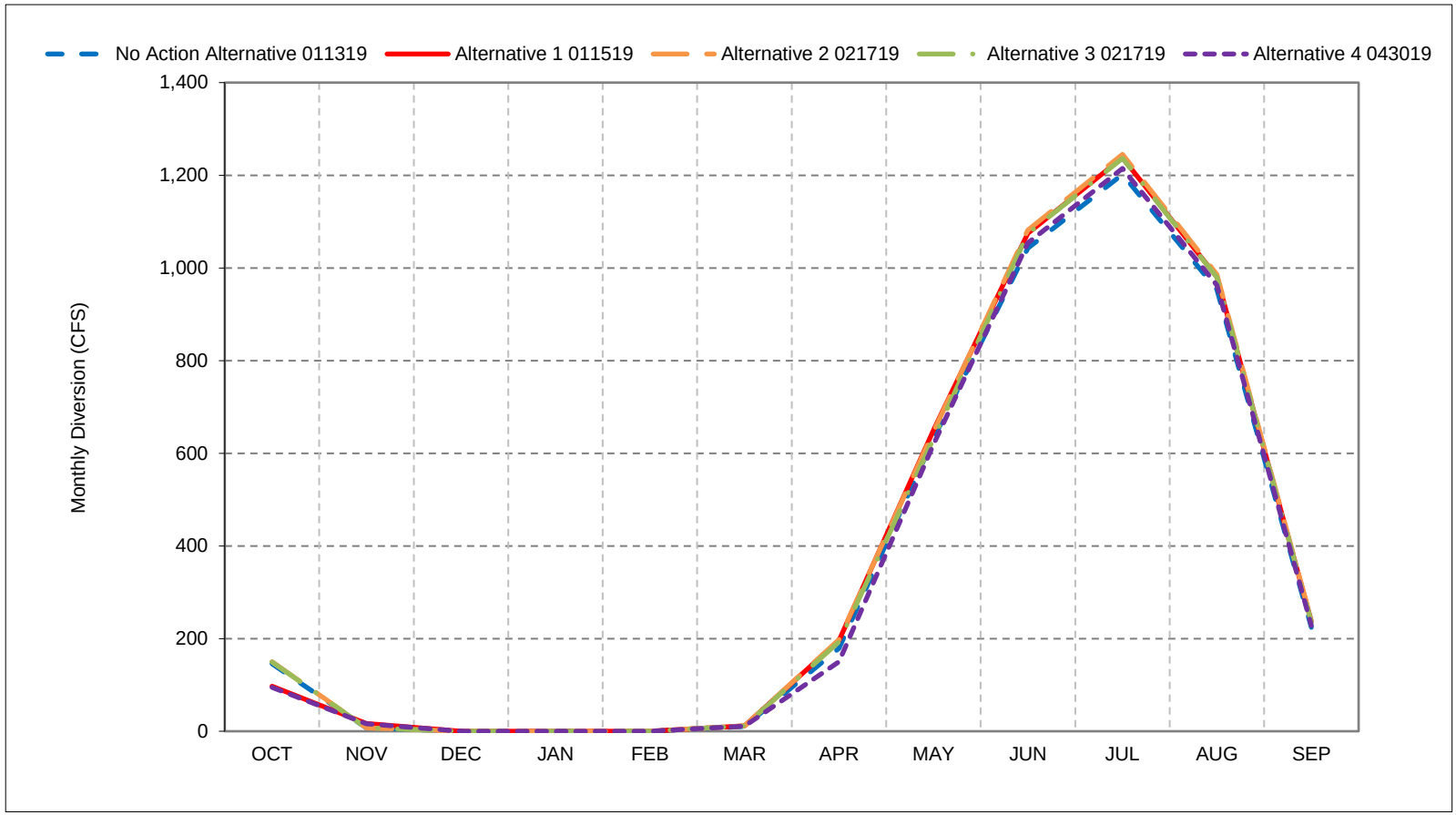
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 47-1. Red Bluff Diversion - Tehama Colusa Canal, Long-Term Average Diversion



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 47-2. Red Bluff Diversion - Tehama Colusa Canal, Wet Year Average Diversion



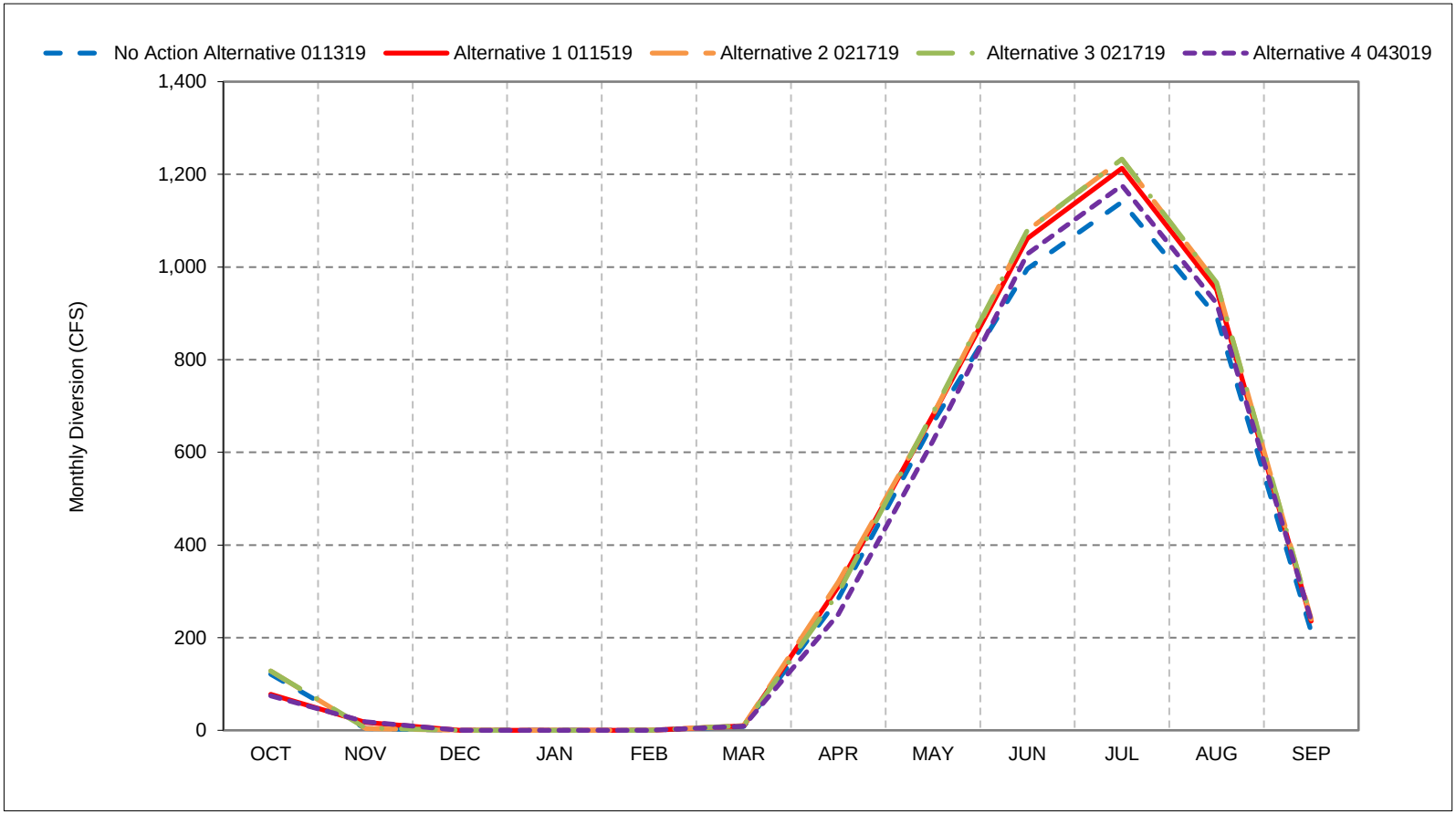
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

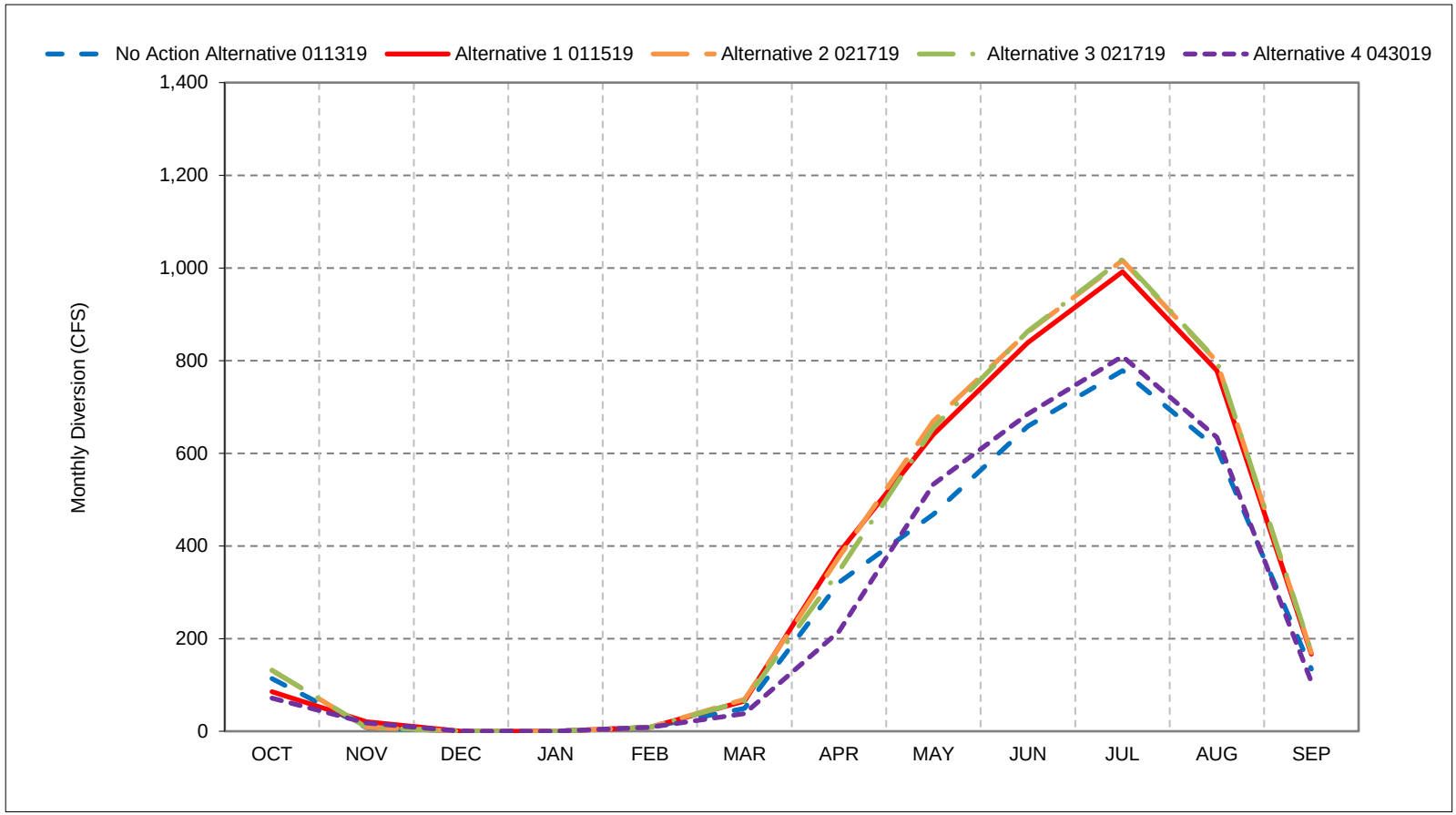
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 47-3. Red Bluff Diversion - Tehama Colusa Canal, Above Normal Year Average Diversion



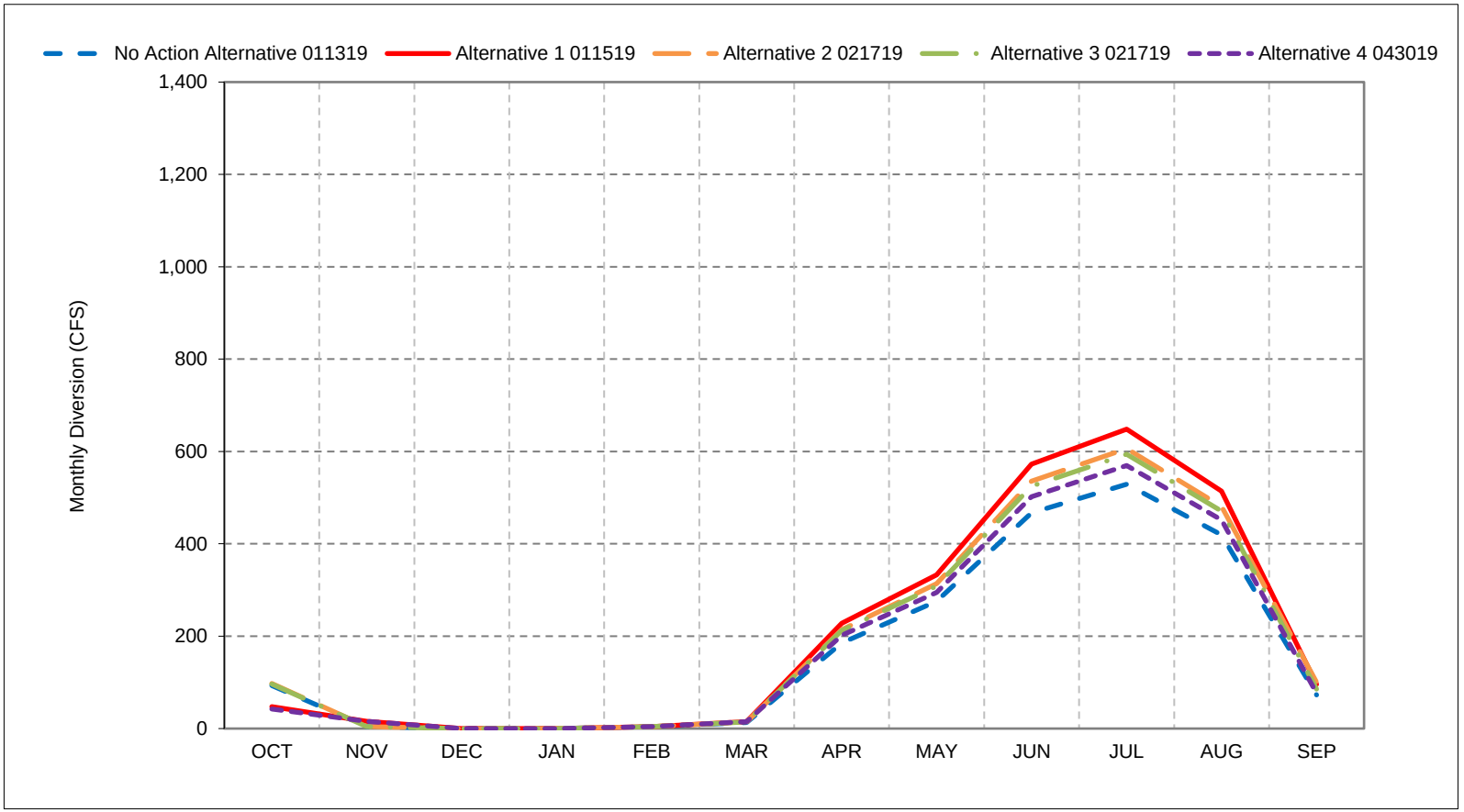
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 47-4. Red Bluff Diversion - Tehama Colusa Canal, Below Normal Year Average Diversion



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 47-5. Red Bluff Diversion - Tehama Colusa Canal, Dry Year Average Diversion



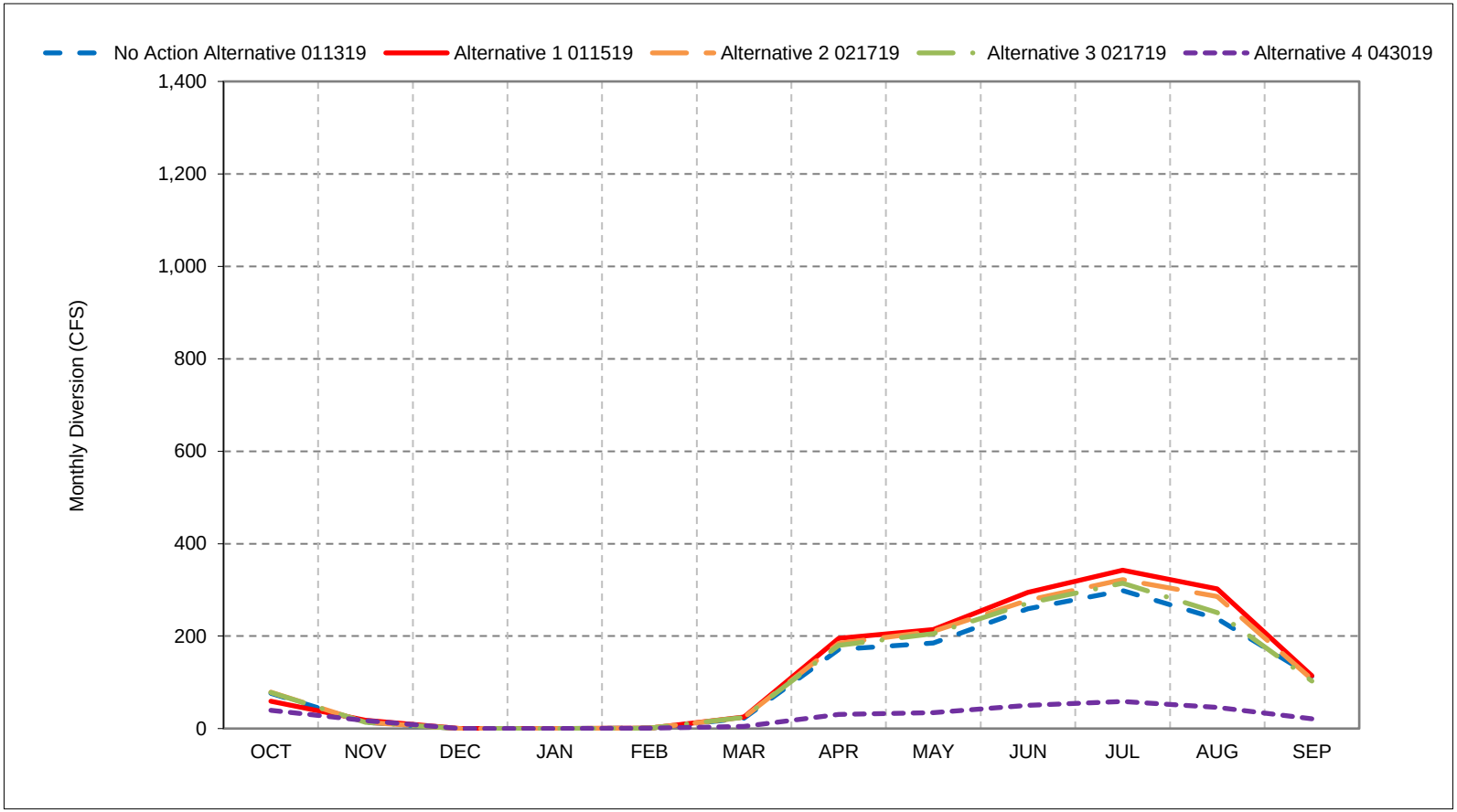
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 47-6. Red Bluff Diversion - Tehama Colusa Canal, Critical Year Average Diversion



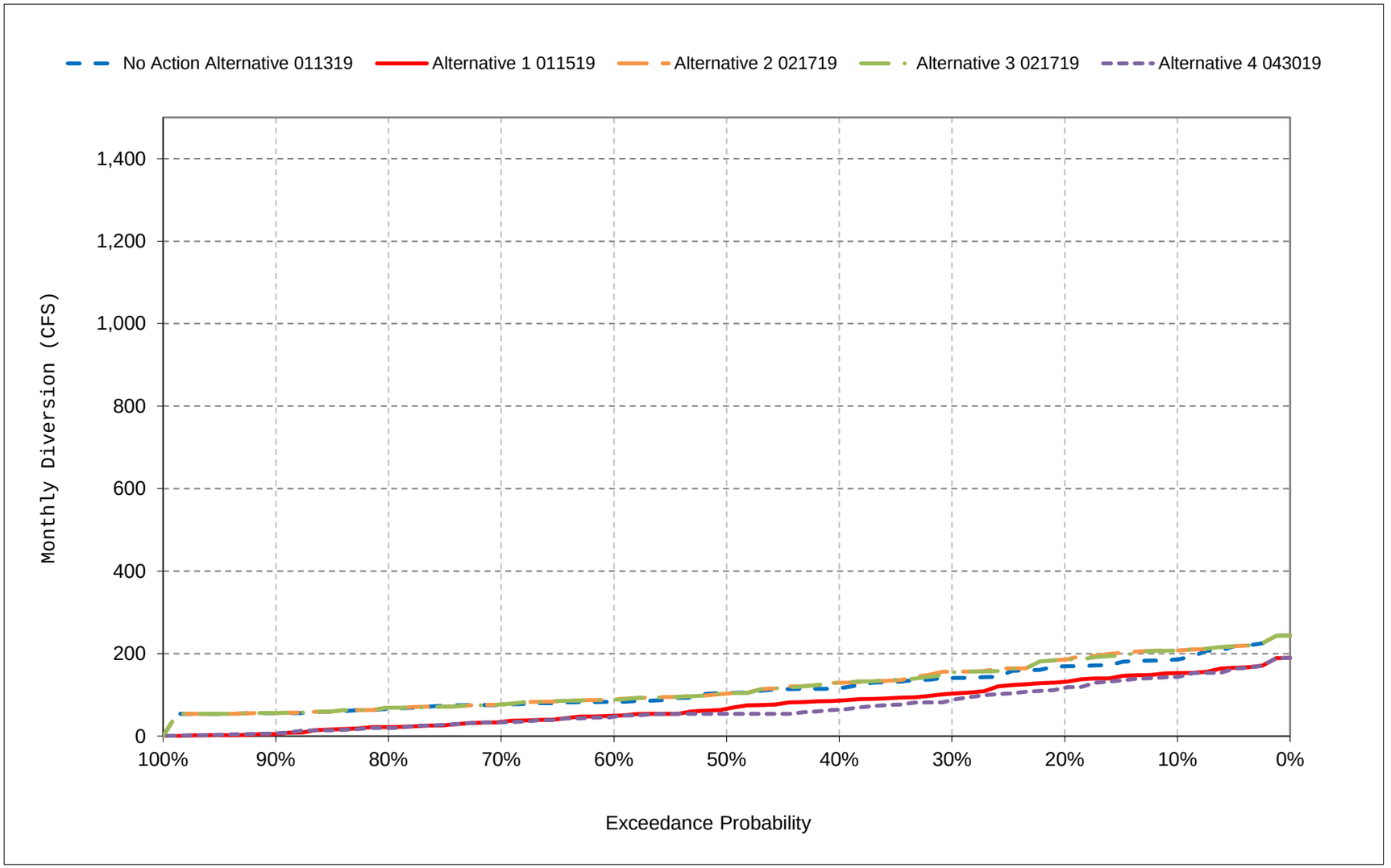
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

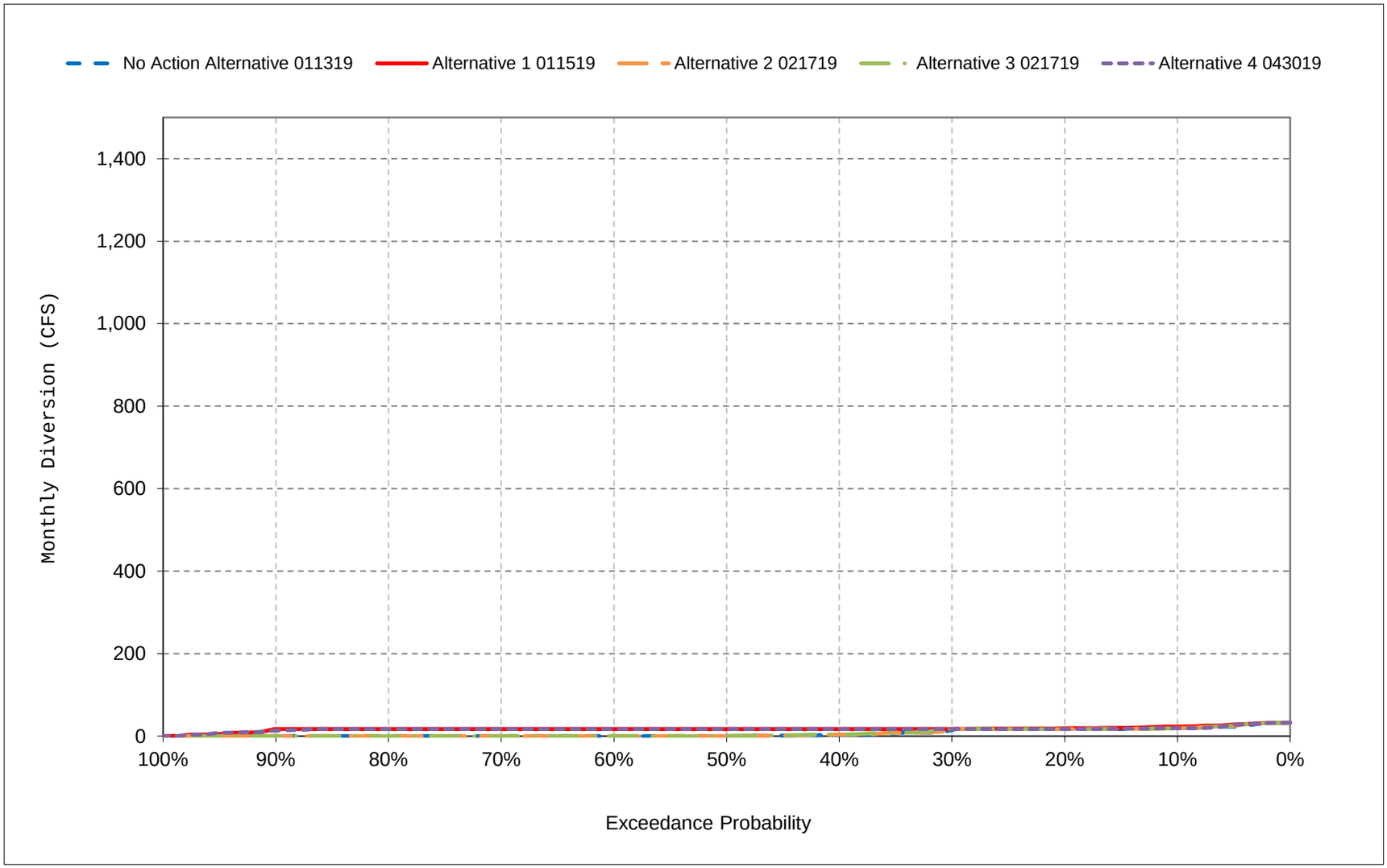
Figure 47-7. Red Bluff Diversion - Tehama Colusa Canal, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

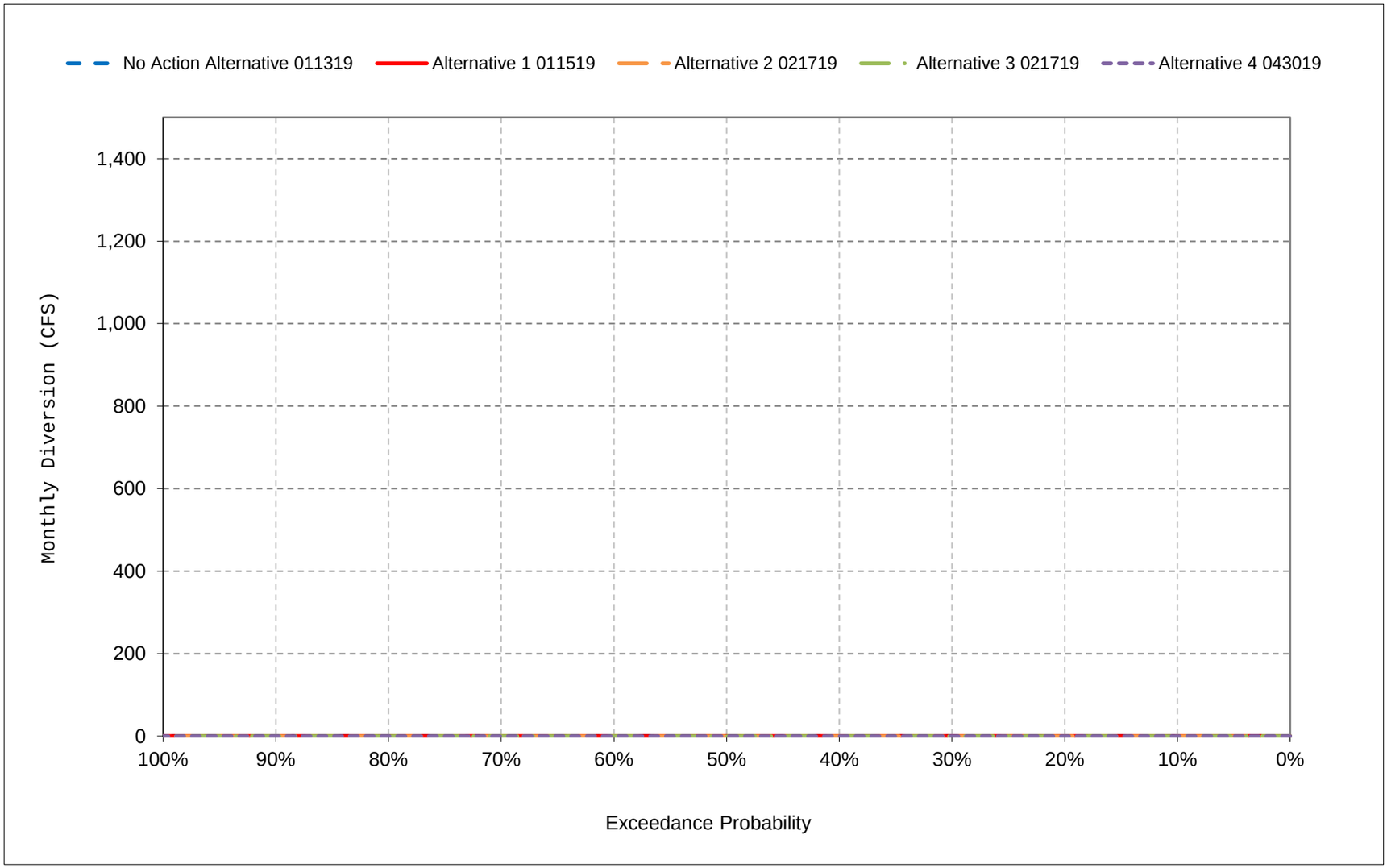
Figure 47-8. Red Bluff Diversion - Tehama Colusa Canal, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

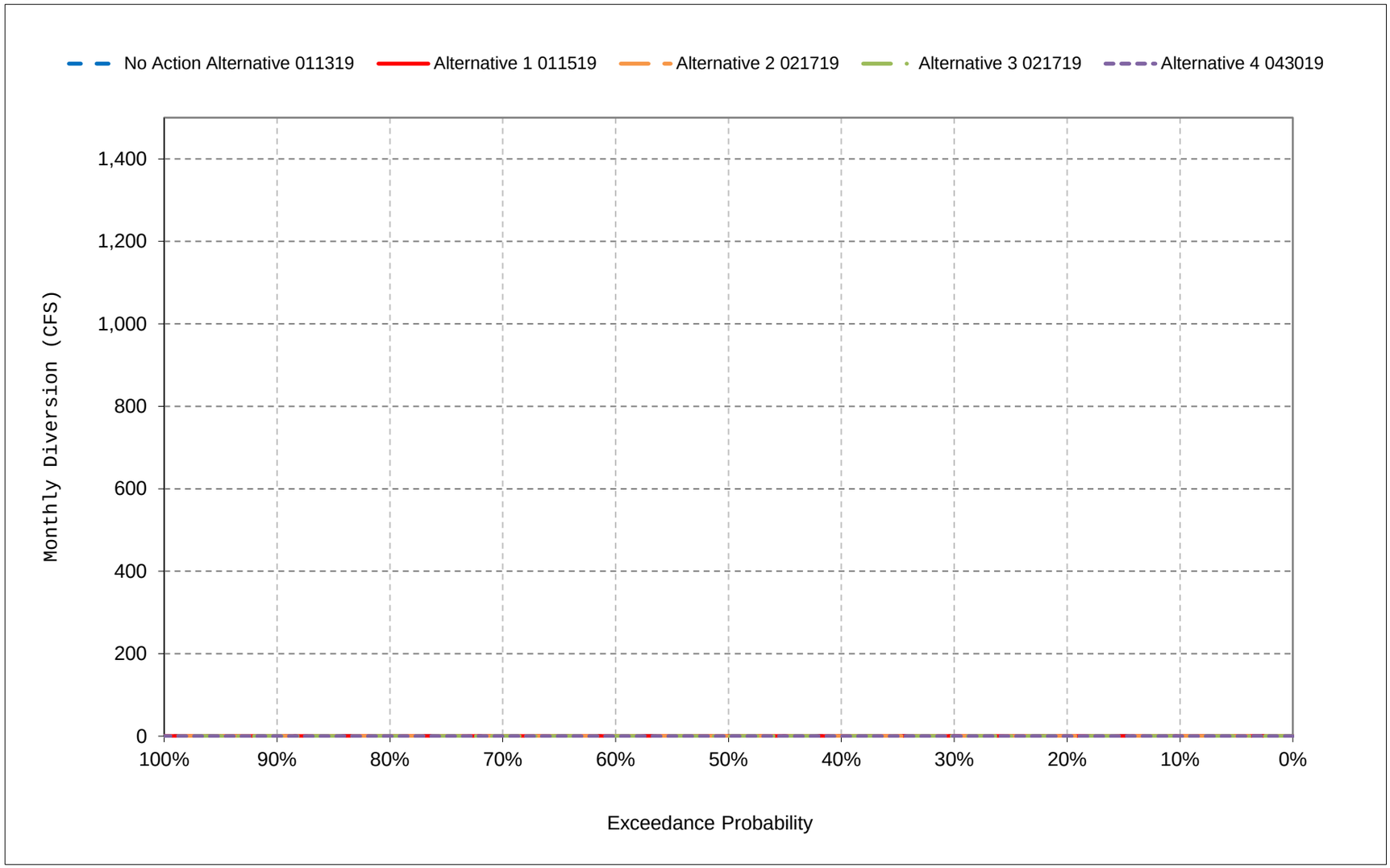
Figure 47-9. Red Bluff Diversion - Tehama Colusa Canal, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

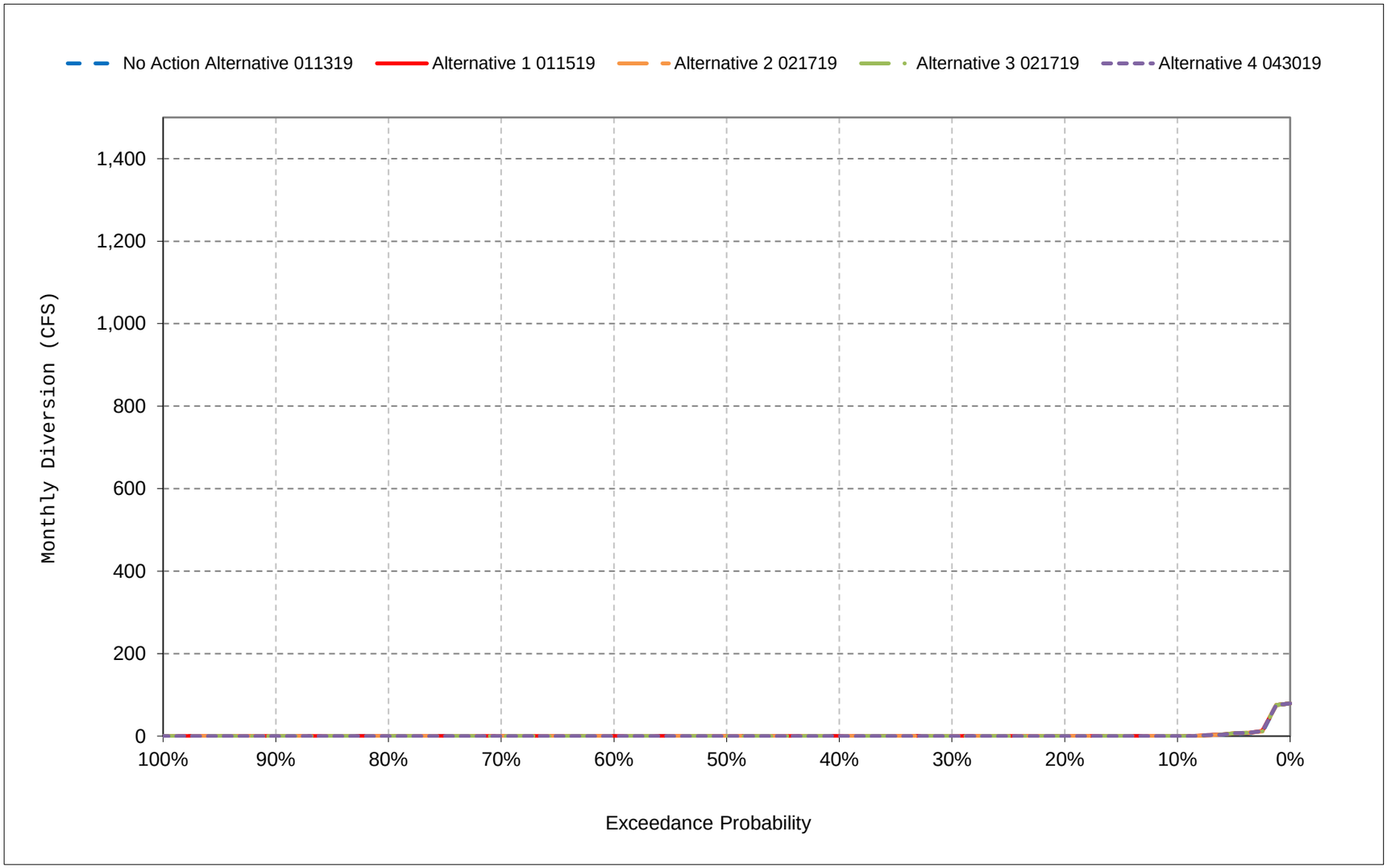
Figure 47-10. Red Bluff Diversion - Tehama Colusa Canal, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

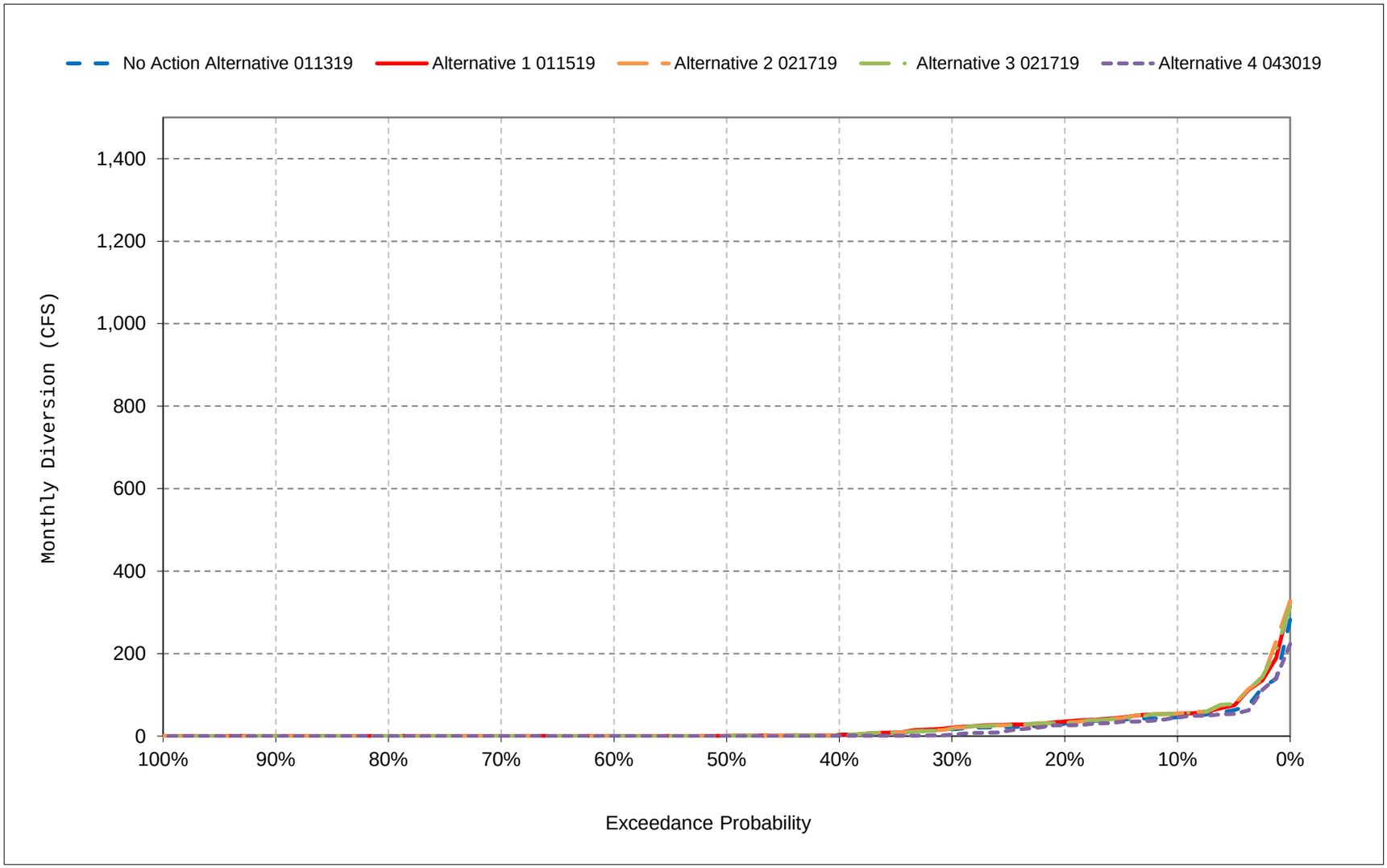
Figure 47-11. Red Bluff Diversion - Tehama Colusa Canal, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

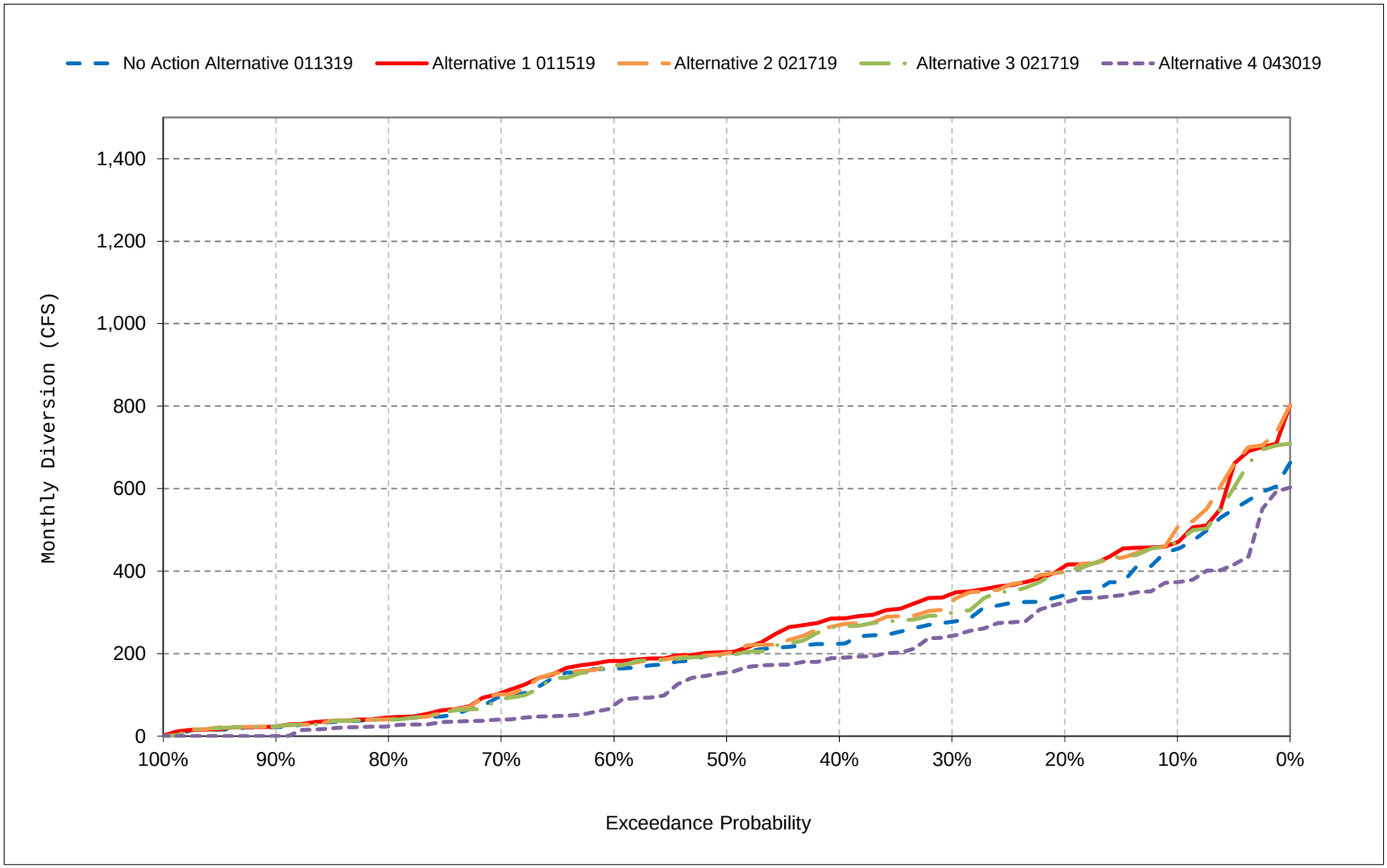
Figure 47-12. Red Bluff Diversion - Tehama Colusa Canal, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

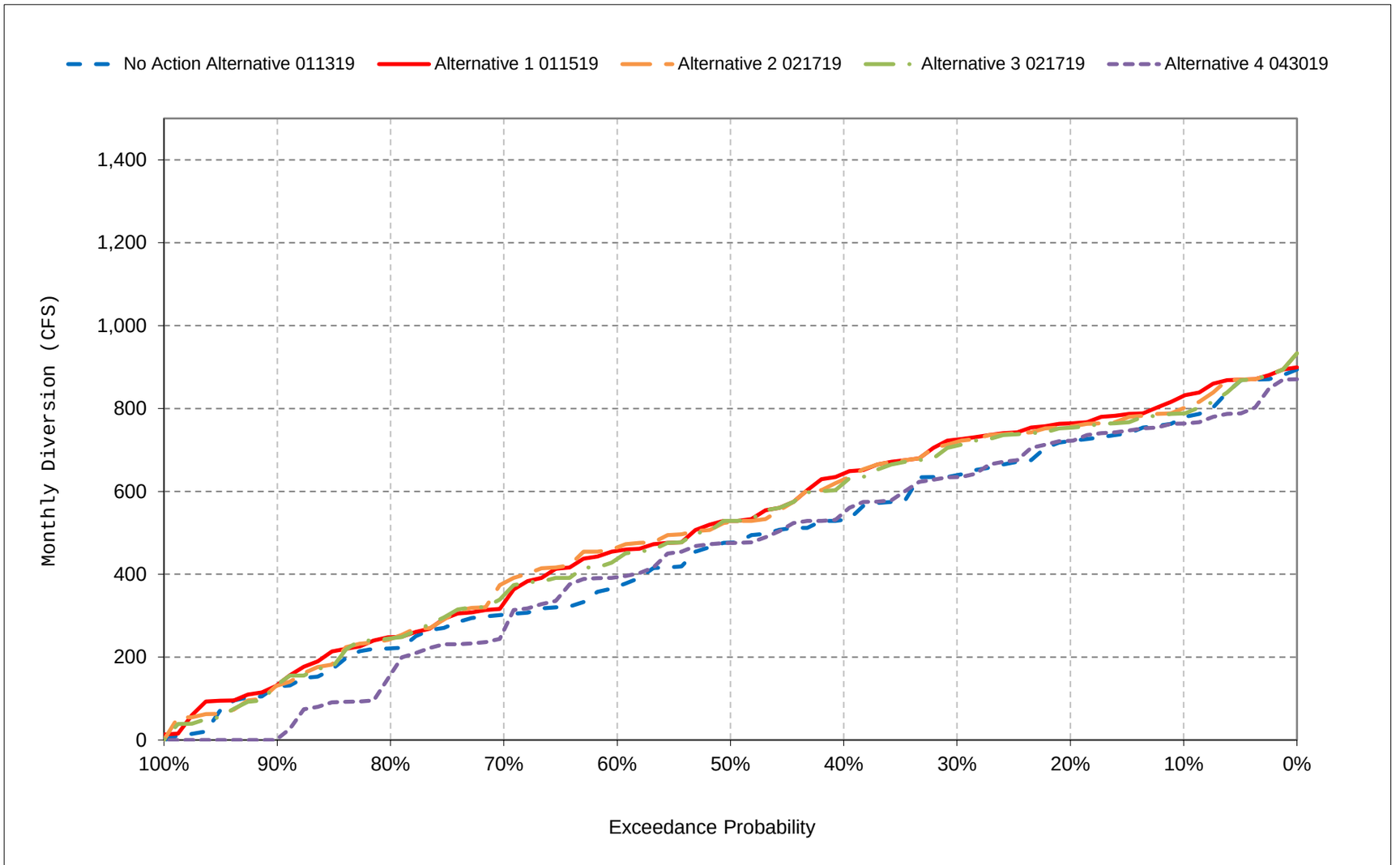
Figure 47-13. Red Bluff Diversion - Tehama Colusa Canal, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

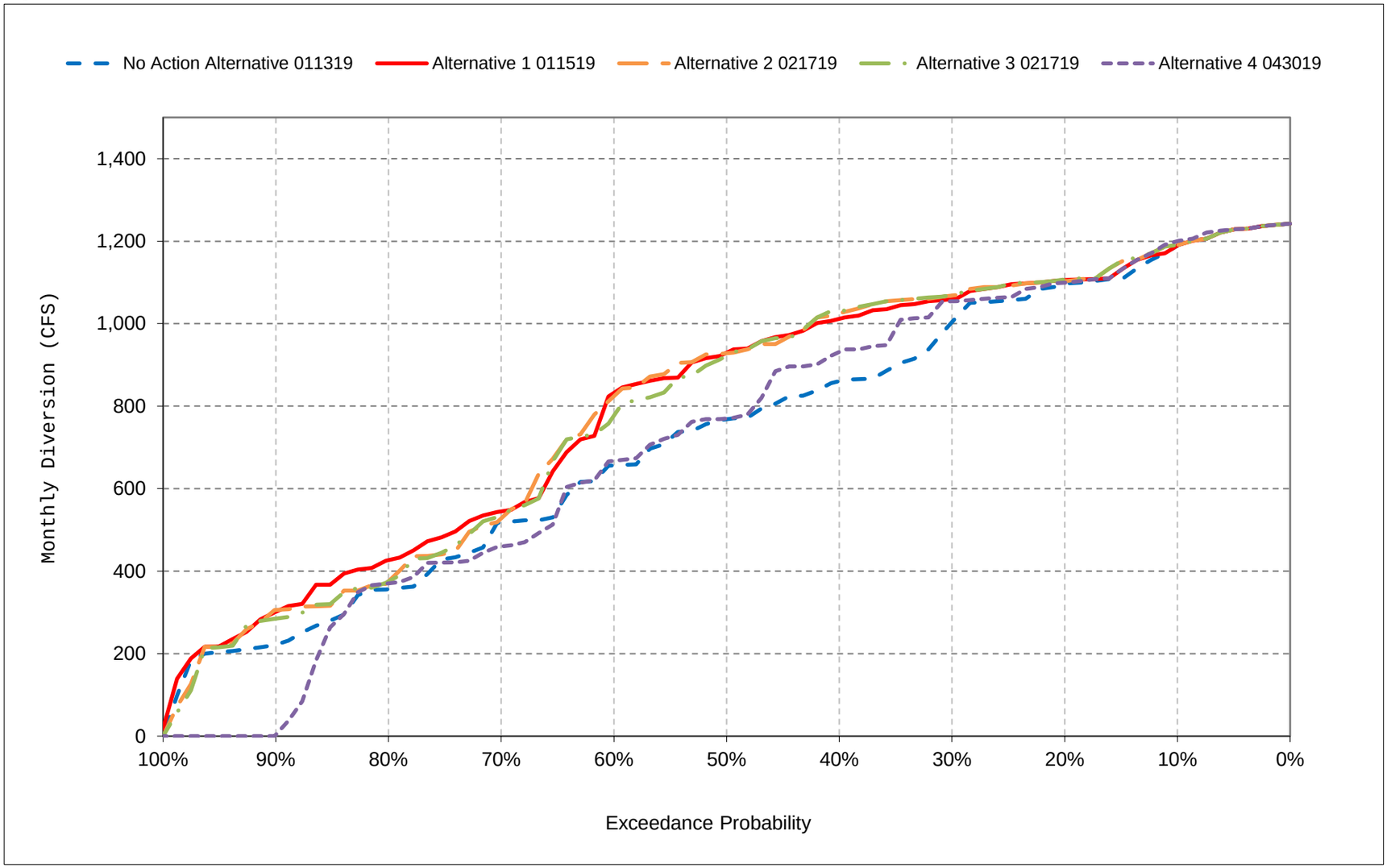
Figure 47-14. Red Bluff Diversion - Tehama Colusa Canal, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

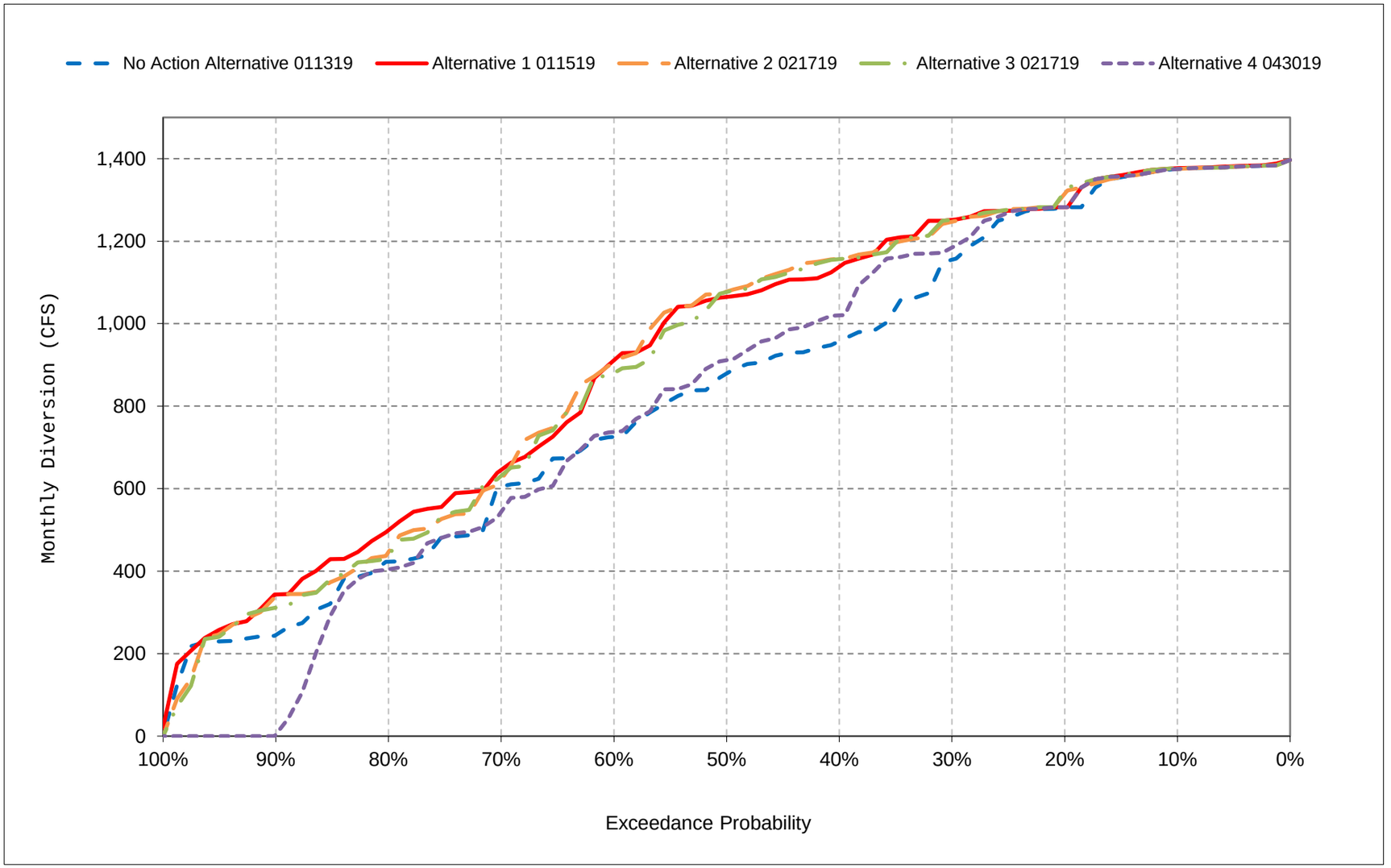
Figure 47-15. Red Bluff Diversion - Tehama Colusa Canal, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

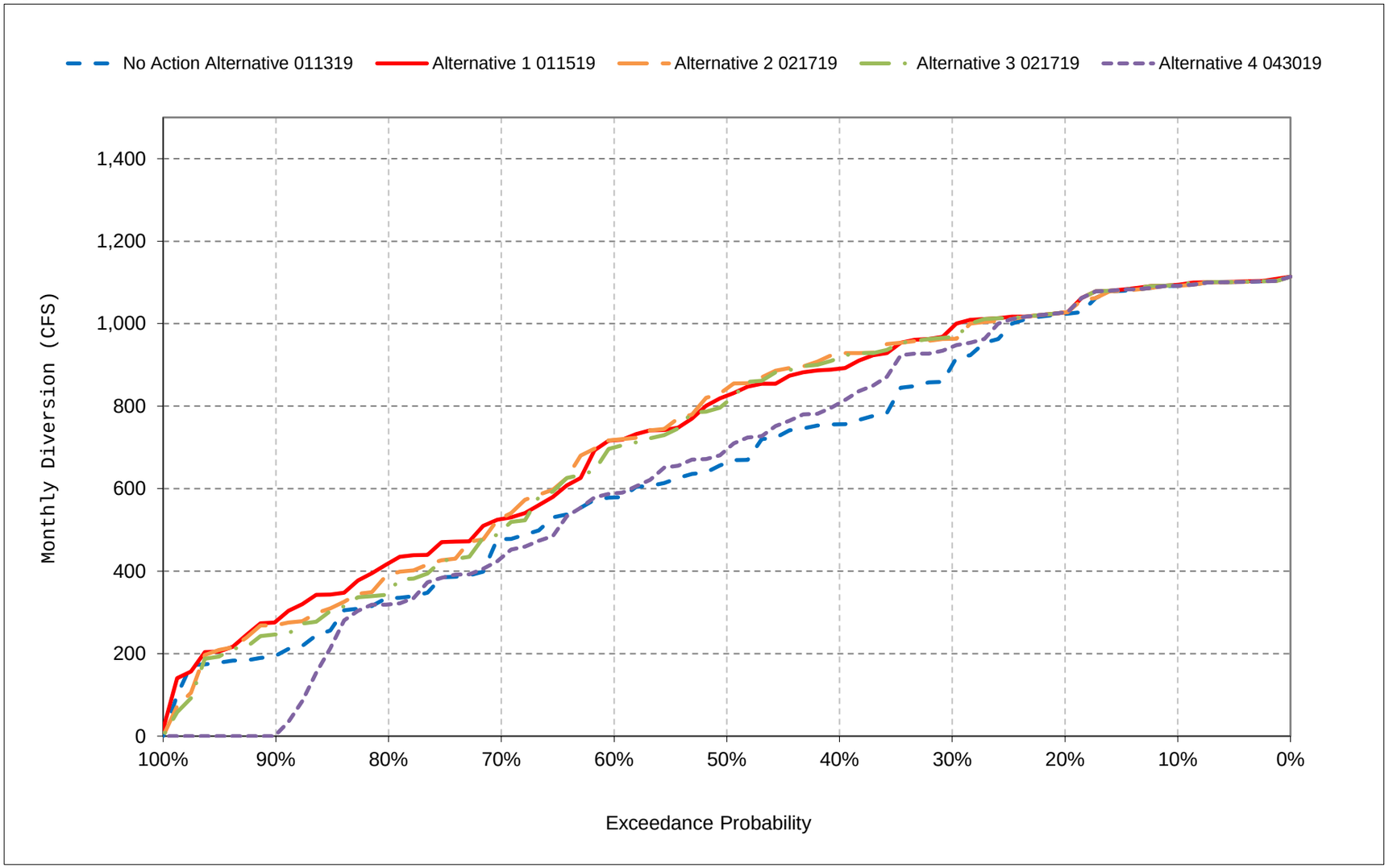
Figure 47-16. Red Bluff Diversion - Tehama Colusa Canal, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

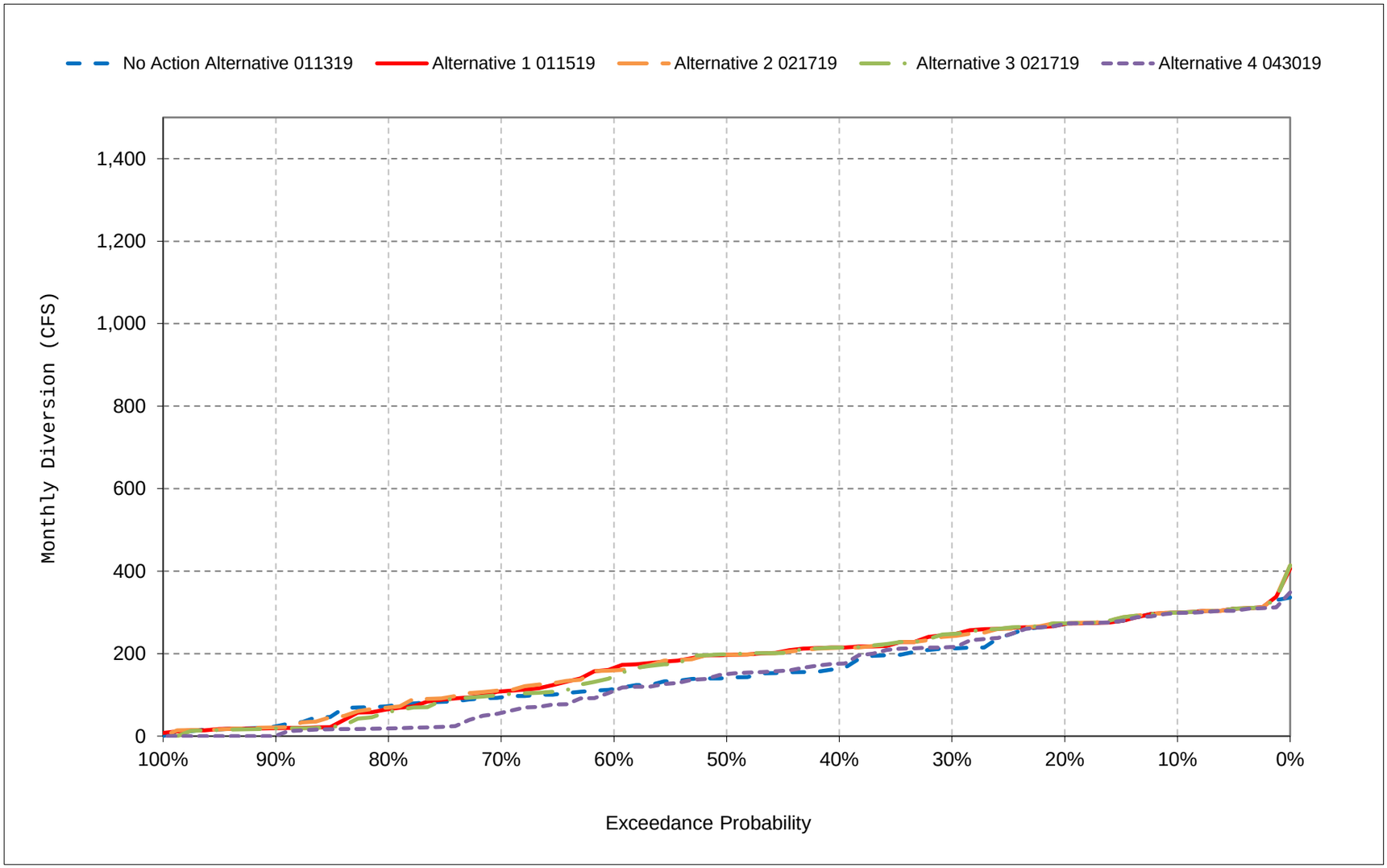
Figure 47-17. Red Bluff Diversion - Tehama Colusa Canal, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 47-18. Red Bluff Diversion - Tehama Colusa Canal, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 48-1. Hamilton City Diversion - Glenn Colusa Canal, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	851	564	292	127	68	84	552	2,331	2,705	2,617	2,241	633
20%	845	546	270	86	68	65	527	2,297	2,621	2,611	2,130	633
30%	837	515	240	75	68	50	493	2,260	2,556	2,563	2,090	633
40%	823	478	224	75	68	35	467	2,245	2,483	2,538	2,040	630
50%	808	441	202	75	68	21	451	2,212	2,416	2,538	1,981	628
60%	790	420	181	75	68	20	427	2,153	2,339	2,537	1,928	612
70%	771	391	161	75	67	20	411	2,079	2,325	2,521	1,917	602
80%	745	354	158	75	66	20	391	2,007	2,271	2,446	1,862	569
90%	636	330	158	75	53	20	306	1,842	2,226	2,285	1,795	504
Long Term												
Full Simulation Period[a]	777	448	211	84	67	43	443	2,137	2,433	2,512	1,996	596
Water Year Types[b,c]												
Wet (32%)	811	460	227	81	67	32	402	2,119	2,261	2,565	2,141	614
Above Normal (16%)	796	461	207	76	65	28	432	2,098	2,359	2,537	2,023	616
Below Normal (13%)	781	466	212	98	73	63	472	2,170	2,561	2,534	1,994	583
Dry (24%)	807	435	218	85	66	43	447	2,200	2,645	2,532	1,910	605
Critical (15%)	630	415	166	84	66	65	512	2,086	2,413	2,313	1,799	530

Alternative 1 011519

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	866	556	284	127	68	84	552	2,340	2,705	2,617	2,241	633
20%	846	535	268	86	68	65	527	2,305	2,621	2,607	2,131	633
30%	828	509	239	75	68	50	493	2,277	2,571	2,563	2,090	633
40%	810	470	224	75	68	35	467	2,250	2,483	2,538	2,040	630
50%	783	437	202	75	68	21	451	2,225	2,416	2,538	1,981	628
60%	763	417	181	75	68	20	427	2,173	2,347	2,525	1,928	613
70%	735	380	161	75	67	20	411	2,086	2,328	2,521	1,917	603
80%	709	338	158	75	66	20	391	2,013	2,277	2,468	1,862	585
90%	649	314	158	75	53	20	306	1,853	2,226	2,318	1,795	504
Long Term												
Full Simulation Period[a]	764	438	210	84	67	43	443	2,146	2,437	2,512	1,993	592
Water Year Types[b,c]												
Wet (32%)	797	450	227	81	67	32	402	2,123	2,267	2,558	2,143	617
Above Normal (16%)	783	448	202	76	65	28	432	2,101	2,365	2,528	2,023	616
Below Normal (13%)	772	454	212	98	73	63	472	2,184	2,568	2,569	1,995	583
Dry (24%)	785	424	218	85	66	43	447	2,215	2,644	2,532	1,910	605
Critical (15%)	630	411	166	84	66	65	510	2,095	2,418	2,313	1,772	501

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15	-8	-7	0	0	0	0	10	0	0	0	0
20%	2	-11	-1	0	0	0	0	8	0	-4	1	0
30%	-10	-6	-2	0	0	0	0	17	15	0	0	0
40%	-13	-7	0	0	0	0	0	5	0	0	0	0
50%	-24	-4	0	0	0	0	0	13	0	0	0	0
60%	-27	-3	0	0	0	0	0	21	7	-12	0	1
70%	-35	-11	0	0	0	0	0	7	3	0	0	1
80%	-36	-15	0	0	0	0	0	6	7	21	0	15
90%	14	-15	0	0	0	0	0	11	0	33	0	0
Long Term												
Full Simulation Period[a]	-13	-10	-1	0	0	0	0	9	4	1	-3	-3
Water Year Types[b,c]												
Wet (32%)	-15	-10	0	0	0	0	0	5	6	-8	2	3
Above Normal (16%)	-13	-13	-5	0	0	0	0	3	6	-9	0	0
Below Normal (13%)	-9	-12	0	0	0	0	0	15	7	35	1	0
Dry (24%)	-22	-11	0	0	0	0	0	14	-1	0	0	0
Critical (15%)	0	-4	0	0	0	0	-1	10	5	0	-26	-29

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 48-2. Hamilton City Diversion - Glenn Colusa Canal, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	851	564	292	127	68	84	552	2,331	2,705	2,617	2,241	633
20%	845	546	270	86	68	65	527	2,297	2,621	2,611	2,130	633
30%	837	515	240	75	68	50	493	2,260	2,556	2,563	2,090	633
40%	823	478	224	75	68	35	467	2,245	2,483	2,538	2,040	630
50%	808	441	202	75	68	21	451	2,212	2,416	2,538	1,981	628
60%	790	420	181	75	68	20	427	2,153	2,339	2,537	1,928	612
70%	771	391	161	75	67	20	411	2,079	2,325	2,521	1,917	602
80%	745	354	158	75	66	20	391	2,007	2,271	2,446	1,862	569
90%	636	330	158	75	53	20	306	1,842	2,226	2,285	1,795	504
Long Term												
Full Simulation Period[a]	777	448	211	84	67	43	443	2,137	2,433	2,512	1,996	596
Water Year Types[b,c]												
Wet (32%)	811	460	227	81	67	32	402	2,119	2,261	2,565	2,141	614
Above Normal (16%)	796	461	207	76	65	28	432	2,098	2,359	2,537	2,023	616
Below Normal (13%)	781	466	212	98	73	63	472	2,170	2,561	2,534	1,994	583
Dry (24%)	807	435	218	85	66	43	447	2,200	2,645	2,532	1,910	605
Critical (15%)	630	415	166	84	66	65	512	2,086	2,413	2,313	1,799	530

Alternative 2 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	851	564	284	127	68	84	552	2,346	2,705	2,631	2,240	633
20%	845	545	263	86	68	65	527	2,305	2,621	2,615	2,131	633
30%	837	511	239	75	68	50	493	2,277	2,571	2,548	2,067	633
40%	823	475	224	75	68	35	467	2,250	2,483	2,538	2,032	630
50%	808	438	202	75	68	21	451	2,225	2,416	2,538	1,981	628
60%	790	420	181	75	68	20	427	2,173	2,352	2,521	1,928	610
70%	771	391	161	75	67	20	411	2,086	2,329	2,521	1,917	599
80%	745	354	158	75	66	20	391	2,026	2,277	2,468	1,862	552
90%	636	330	158	75	53	20	306	1,853	2,226	2,285	1,795	504
Long Term												
Full Simulation Period[a]	776	447	210	84	67	43	443	2,148	2,440	2,511	1,991	590
Water Year Types[b,c]												
Wet (32%)	811	460	227	81	67	32	402	2,125	2,267	2,547	2,146	611
Above Normal (16%)	796	457	202	76	65	28	432	2,101	2,382	2,510	2,023	616
Below Normal (13%)	781	463	212	98	73	63	472	2,184	2,574	2,597	1,975	580
Dry (24%)	807	434	218	85	66	43	447	2,217	2,643	2,536	1,910	602
Critical (15%)	624	415	166	84	66	65	512	2,100	2,418	2,313	1,767	503

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	-7	0	0	0	0	15	0	14	-1	0
20%	0	-1	-6	0	0	0	0	8	0	3	1	0
30%	0	-4	-2	0	0	0	0	17	15	-14	-22	0
40%	0	-3	0	0	0	0	0	5	0	0	-8	0
50%	0	-3	0	0	0	0	0	13	0	0	0	0
60%	0	0	0	0	0	0	0	21	13	-16	0	-3
70%	0	0	0	0	0	0	0	7	3	0	0	-3
80%	0	0	0	0	0	0	0	18	7	21	0	-17
90%	0	0	0	0	0	0	0	11	0	0	0	0
Long Term												
Full Simulation Period[a]	-1	-1	-1	0	0	0	0	11	8	0	-5	-6
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	6	6	-18	6	-3
Above Normal (16%)	0	-4	-5	0	0	0	0	3	23	-26	0	0
Below Normal (13%)	0	-3	0	0	0	0	0	15	14	63	-19	-2
Dry (24%)	0	0	0	0	0	0	0	16	-1	5	0	-3
Critical (15%)	-6	0	0	0	0	0	0	15	5	0	-31	-26

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 48-3. Hamilton City Diversion - Glenn Colusa Canal, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	851	564	292	127	68	84	552	2,331	2,705	2,617	2,241	633
20%	845	546	270	86	68	65	527	2,297	2,621	2,611	2,130	633
30%	837	515	240	75	68	50	493	2,260	2,556	2,563	2,090	633
40%	823	478	224	75	68	35	467	2,245	2,483	2,538	2,040	630
50%	808	441	202	75	68	21	451	2,212	2,416	2,538	1,981	628
60%	790	420	181	75	68	20	427	2,153	2,339	2,537	1,928	612
70%	771	391	161	75	67	20	411	2,079	2,325	2,521	1,917	602
80%	745	354	158	75	66	20	391	2,007	2,271	2,446	1,862	569
90%	636	330	158	75	53	20	306	1,842	2,226	2,285	1,795	504
Long Term												
Full Simulation Period[a]	777	448	211	84	67	43	443	2,137	2,433	2,512	1,996	596
Water Year Types[b,c]												
Wet (32%)	811	460	227	81	67	32	402	2,119	2,261	2,565	2,141	614
Above Normal (16%)	796	461	207	76	65	28	432	2,098	2,359	2,537	2,023	616
Below Normal (13%)	781	466	212	98	73	63	472	2,170	2,561	2,534	1,994	583
Dry (24%)	807	435	218	85	66	43	447	2,200	2,645	2,532	1,910	605
Critical (15%)	630	415	166	84	66	65	512	2,086	2,413	2,313	1,799	530

Alternative 3 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	851	564	284	127	68	84	552	2,340	2,705	2,617	2,240	633
20%	845	546	265	86	68	65	527	2,305	2,621	2,616	2,131	633
30%	837	515	240	75	68	50	493	2,277	2,571	2,561	2,068	633
40%	823	475	224	75	68	35	467	2,249	2,483	2,538	2,059	630
50%	808	438	202	75	68	21	451	2,220	2,416	2,538	1,982	628
60%	790	420	181	75	68	20	427	2,170	2,348	2,535	1,928	608
70%	771	391	161	75	67	20	411	2,086	2,328	2,518	1,912	595
80%	745	354	158	75	66	20	391	2,013	2,277	2,468	1,857	565
90%	636	330	158	75	53	20	306	1,853	2,226	2,285	1,795	504
Long Term												
Full Simulation Period[a]	777	447	210	84	67	43	443	2,146	2,437	2,513	1,996	590
Water Year Types[b,c]												
Wet (32%)	811	460	227	81	67	32	402	2,120	2,264	2,554	2,146	614
Above Normal (16%)	796	455	204	76	65	28	432	2,101	2,376	2,530	2,037	616
Below Normal (13%)	781	466	212	98	73	63	472	2,184	2,568	2,571	1,975	579
Dry (24%)	807	435	218	85	66	43	447	2,218	2,643	2,535	1,903	601
Critical (15%)	629	415	166	84	66	65	512	2,098	2,418	2,313	1,799	500

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	-7	0	0	0	0	10	0	0	-1	0
20%	0	0	-4	0	0	0	0	8	0	5	1	0
30%	0	0	0	0	0	0	0	17	15	-2	-22	0
40%	0	-3	0	0	0	0	0	4	0	0	19	0
50%	0	-3	0	0	0	0	0	8	0	0	1	0
60%	0	0	0	0	0	0	0	18	9	-2	0	-5
70%	0	0	0	0	0	0	0	7	3	-3	-6	-7
80%	0	0	0	0	0	0	0	6	7	21	-5	-4
90%	0	0	0	0	0	0	0	11	0	0	0	0
Long Term												
Full Simulation Period[a]	0	-1	-1	0	0	0	0	9	5	1	0	-6
Water Year Types[b,c]												
Wet (32%)	0	0	-1	0	0	0	0	2	3	-11	6	-1
Above Normal (16%)	0	-6	-3	0	0	0	0	3	17	-7	14	0
Below Normal (13%)	0	0	0	0	0	0	0	15	7	37	-19	-4
Dry (24%)	0	0	0	0	0	0	0	18	-1	3	-7	-4
Critical (15%)	-1	0	0	0	0	0	0	12	5	0	0	-30

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 48-4. Hamilton City Diversion - Glenn Colusa Canal, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	851	564	292	127	68	84	552	2,331	2,705	2,617	2,241	633
20%	845	546	270	86	68	65	527	2,297	2,621	2,611	2,130	633
30%	837	515	240	75	68	50	493	2,260	2,556	2,563	2,090	633
40%	823	478	224	75	68	35	467	2,245	2,483	2,538	2,040	630
50%	808	441	202	75	68	21	451	2,212	2,416	2,538	1,981	628
60%	790	420	181	75	68	20	427	2,153	2,339	2,537	1,928	612
70%	771	391	161	75	67	20	411	2,079	2,325	2,521	1,917	602
80%	745	354	158	75	66	20	391	2,007	2,271	2,446	1,862	569
90%	636	330	158	75	53	20	306	1,842	2,226	2,285	1,795	504
Long Term												
Full Simulation Period[a]	777	448	211	84	67	43	443	2,137	2,433	2,512	1,996	596
Water Year Types[b,c]												
Wet (32%)	811	460	227	81	67	32	402	2,119	2,261	2,565	2,141	614
Above Normal (16%)	796	461	207	76	65	28	432	2,098	2,359	2,537	2,023	616
Below Normal (13%)	781	466	212	98	73	63	472	2,170	2,561	2,534	1,994	583
Dry (24%)	807	435	218	85	66	43	447	2,200	2,645	2,532	1,910	605
Critical (15%)	630	415	166	84	66	65	512	2,086	2,413	2,313	1,799	530

Alternative 4 043019

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	866	556	284	127	68	84	551	2,340	2,705	2,631	2,241	633
20%	846	535	270	86	68	65	527	2,313	2,647	2,617	2,131	633
30%	828	509	240	75	68	50	493	2,288	2,556	2,610	2,093	633
40%	810	463	224	75	68	35	467	2,249	2,483	2,563	2,065	630
50%	783	437	202	75	68	21	451	2,212	2,416	2,545	1,994	626
60%	763	417	181	75	68	20	427	2,183	2,350	2,538	1,928	610
70%	735	380	161	75	67	20	411	2,081	2,327	2,537	1,919	597
80%	709	338	158	75	66	20	391	2,013	2,275	2,517	1,874	554
90%	649	314	158	75	53	20	306	1,853	2,226	2,285	1,795	504
Long Term												
Full Simulation Period[a]	773	438	211	84	67	43	443	2,148	2,439	2,528	2,009	596
Water Year Types[b,c]												
Wet (32%)	797	451	227	81	67	32	402	2,128	2,269	2,580	2,149	612
Above Normal (16%)	783	447	205	76	65	28	432	2,104	2,365	2,568	2,037	616
Below Normal (13%)	772	456	212	98	73	63	472	2,173	2,568	2,570	2,034	583
Dry (24%)	785	424	218	85	66	43	446	2,217	2,651	2,541	1,916	601
Critical (15%)	690	411	166	84	66	65	512	2,100	2,418	2,313	1,806	542

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15	-8	-7	0	0	0	-1	10	0	14	0	0
20%	2	-11	0	0	0	0	0	16	26	6	1	0
30%	-10	-6	0	0	0	0	0	28	0	47	3	0
40%	-13	-14	0	0	0	0	0	4	0	25	25	0
50%	-24	-4	0	0	0	0	0	0	0	7	13	-1
60%	-27	-3	0	0	0	0	0	30	11	1	0	-3
70%	-35	-11	0	0	0	0	0	2	2	16	1	-5
80%	-36	-15	0	0	0	0	0	6	4	70	12	-16
90%	14	-15	0	0	0	0	0	11	0	0	0	0
Long Term												
Full Simulation Period[a]	-5	-10	0	0	0	0	0	11	7	17	12	0
Water Year Types[b,c]												
Wet (32%)	-15	-9	0	0	0	0	0	9	8	14	8	-2
Above Normal (16%)	-13	-14	-2	0	0	0	0	6	6	31	14	0
Below Normal (13%)	-9	-11	0	0	0	0	0	4	7	36	40	0
Dry (24%)	-22	-11	0	0	0	0	-1	16	6	9	6	-4
Critical (15%)	60	-4	0	0	0	0	0	14	5	0	7	12

a Based on the 82-year simulation period.

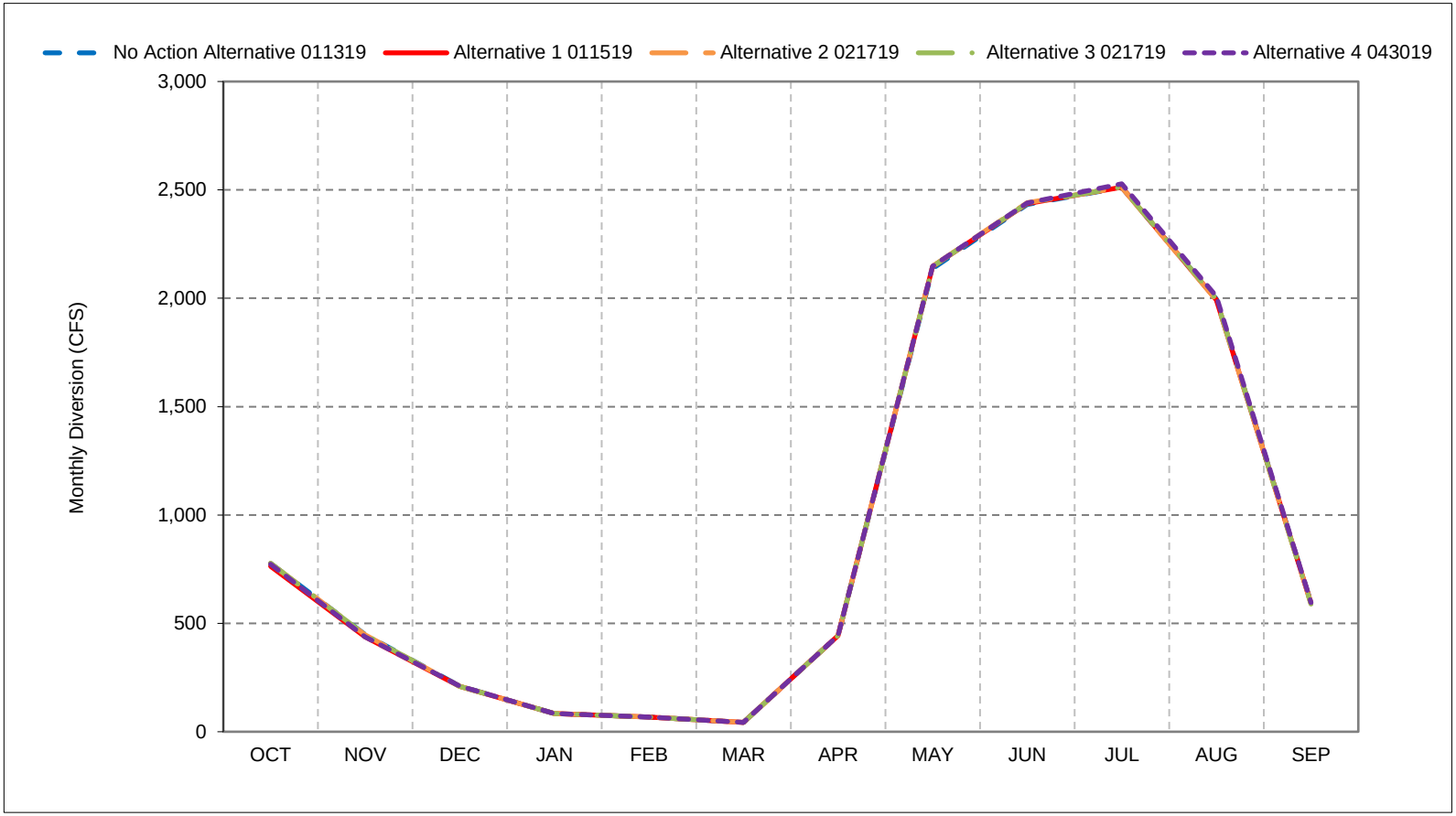
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

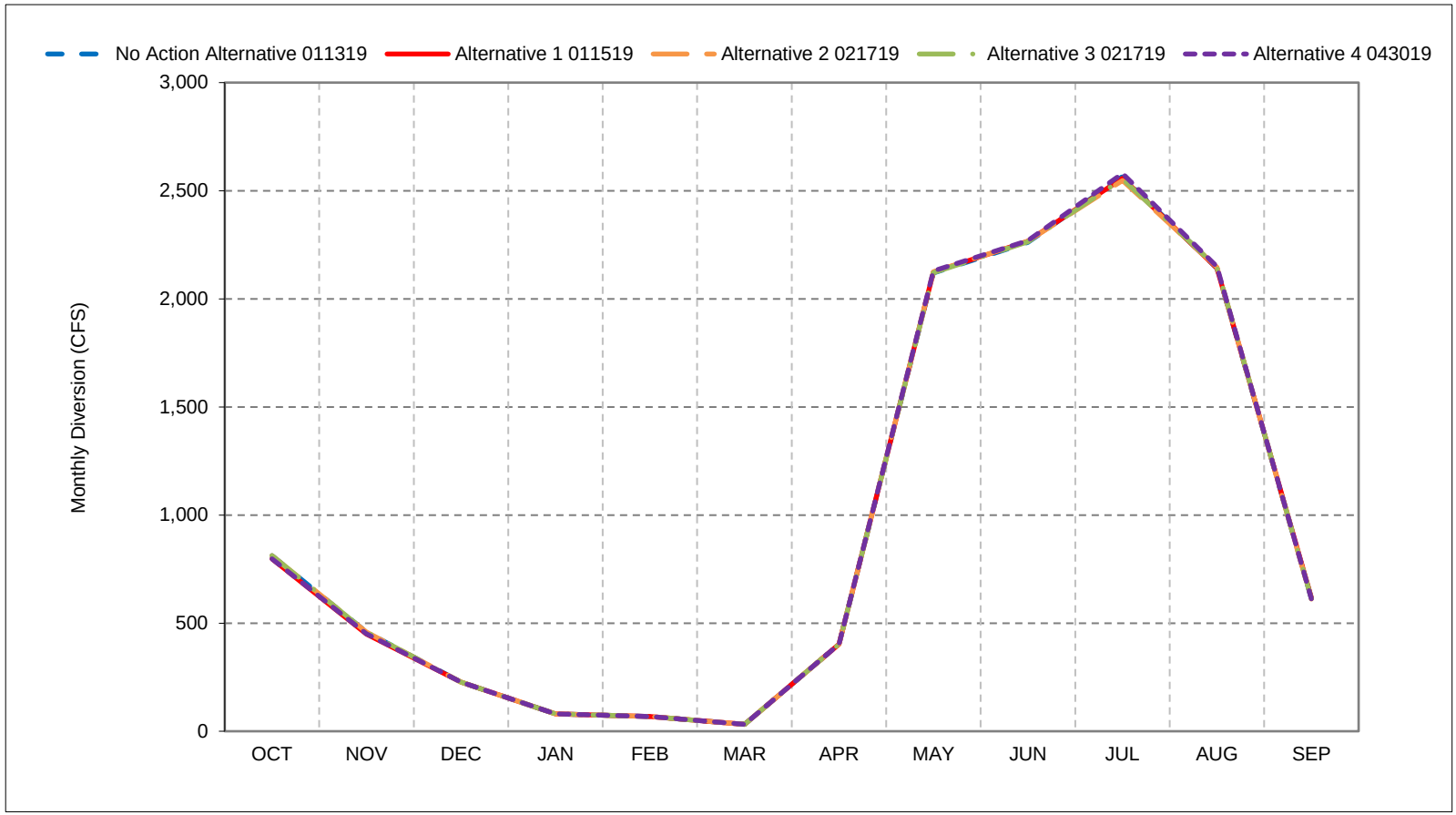
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 48-1. Hamilton City Diversion - Glenn Colusa Canal, Long-Term Average Diversion



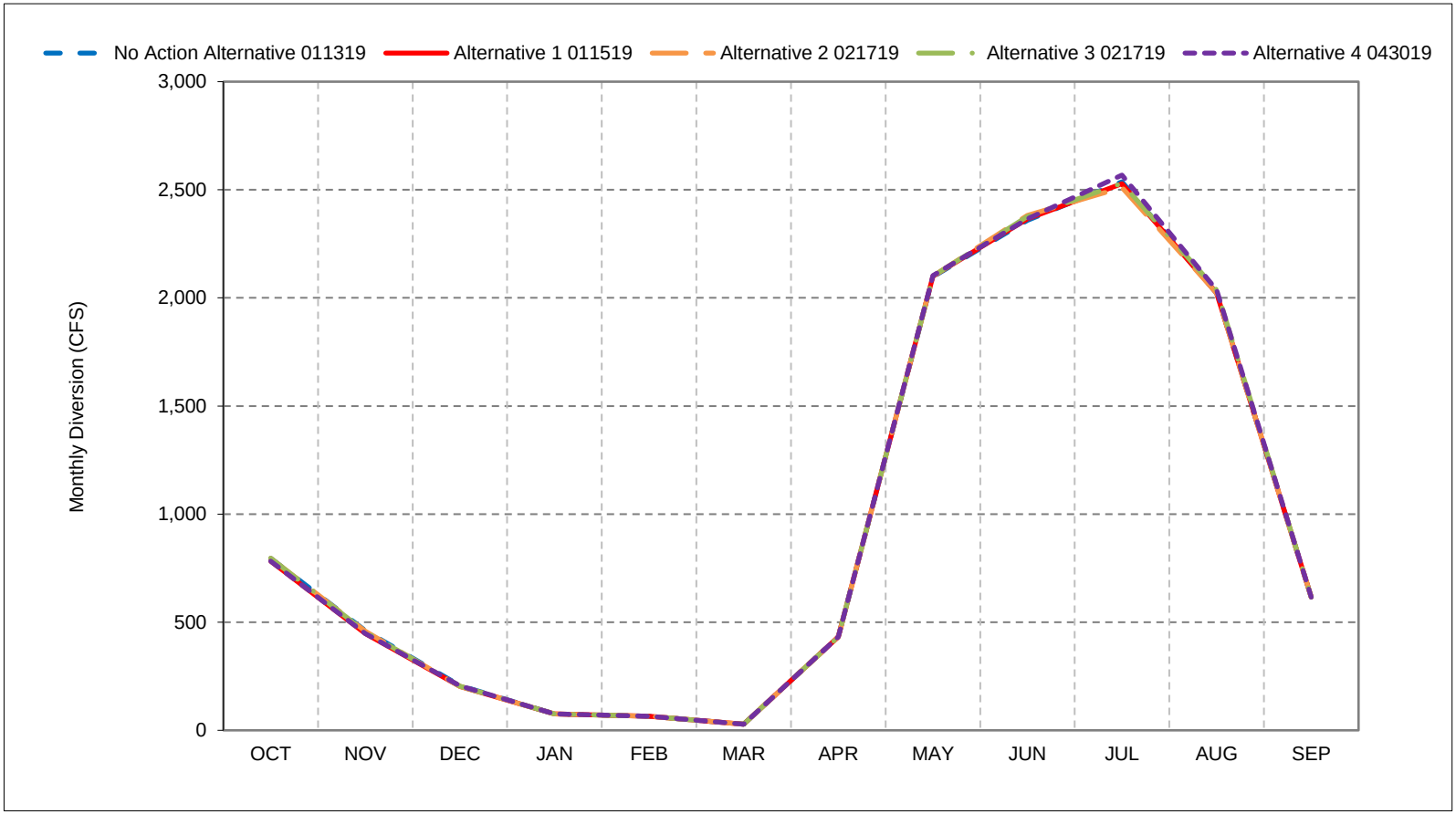
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 48-2. Hamilton City Diversion - Glenn Colusa Canal, Wet Year Average Diversion



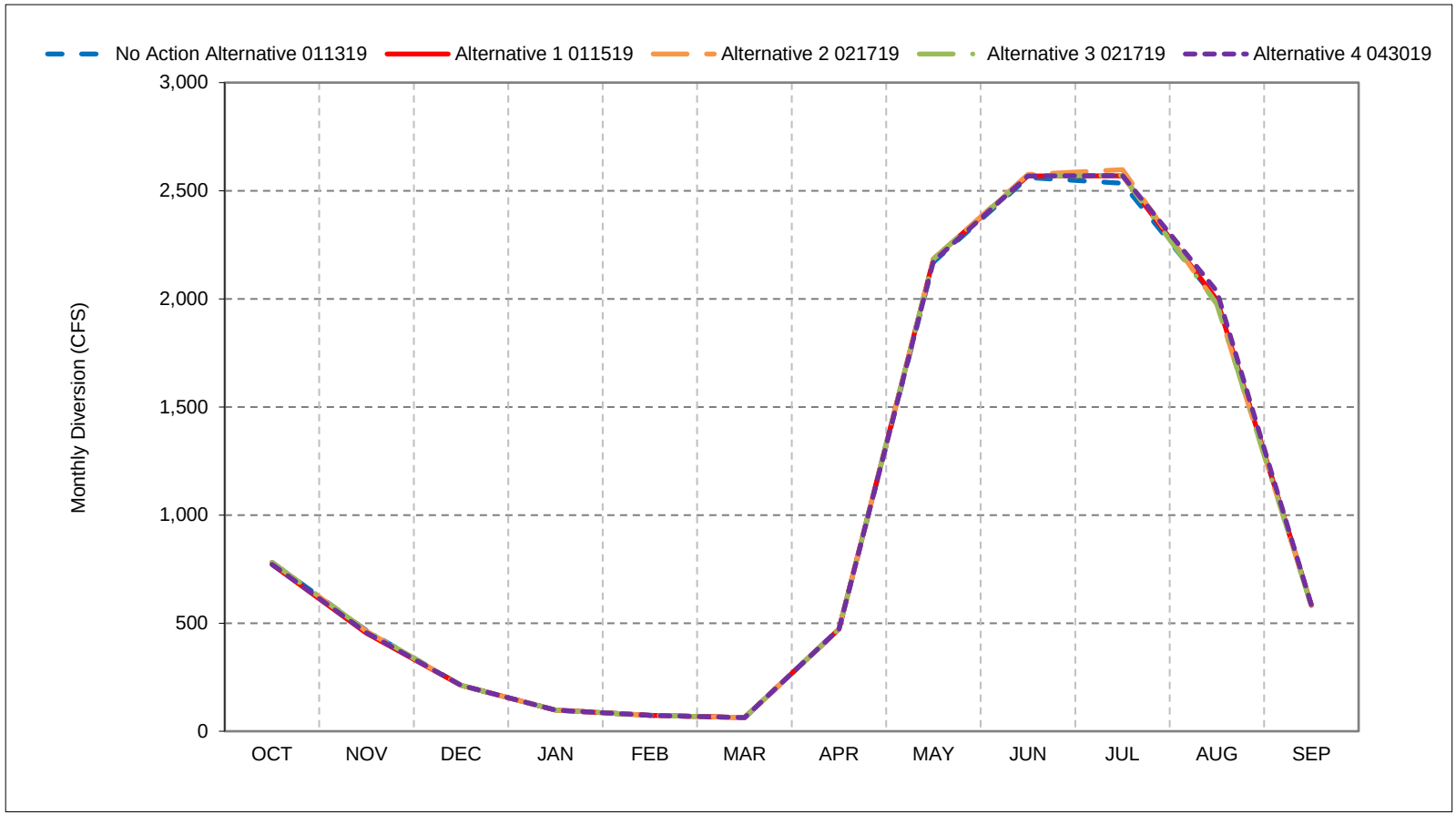
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 48-3. Hamilton City Diversion - Glenn Colusa Canal, Above Normal Year Average Diversion



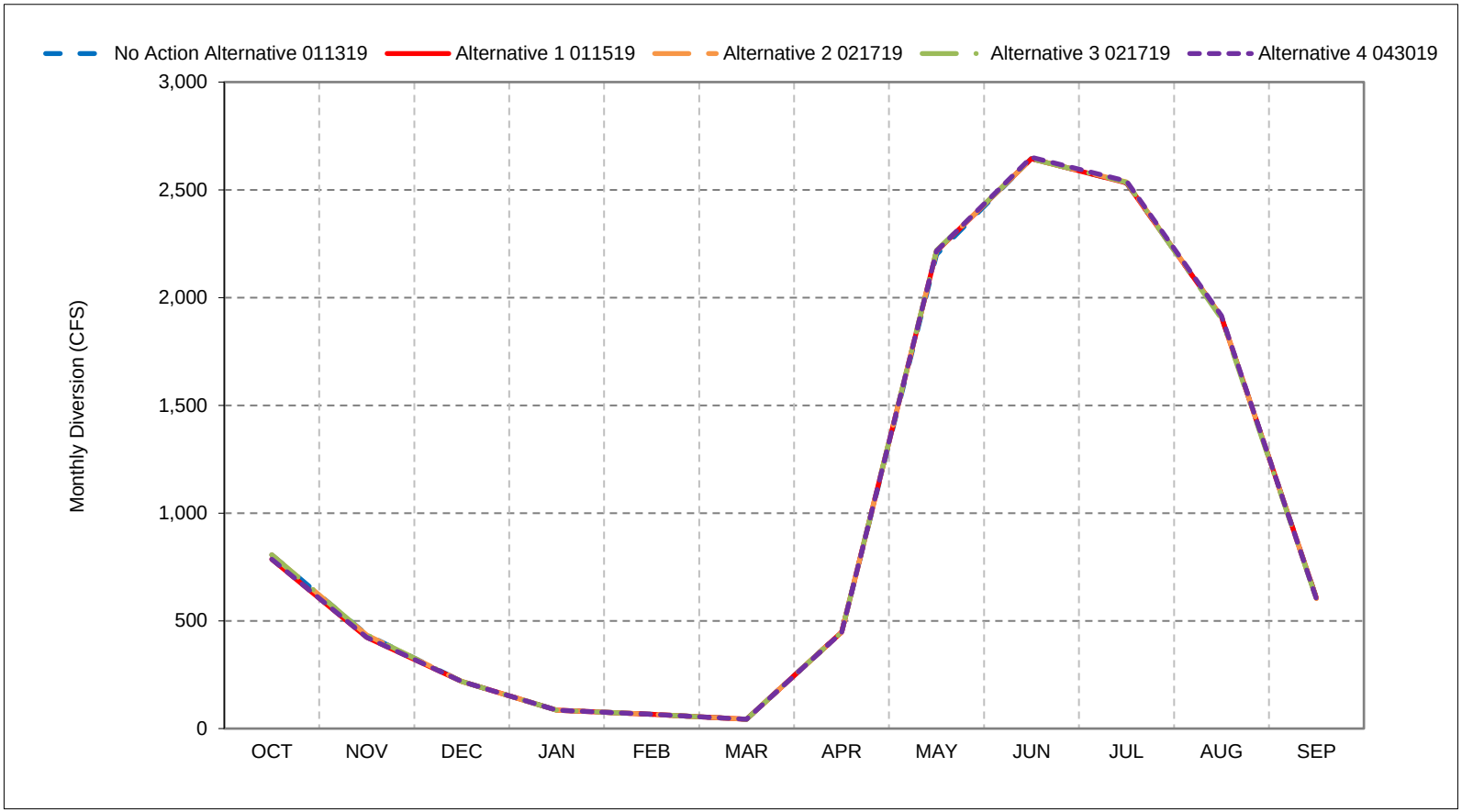
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 48-4. Hamilton City Diversion - Glenn Colusa Canal, Below Normal Year Average Diversion



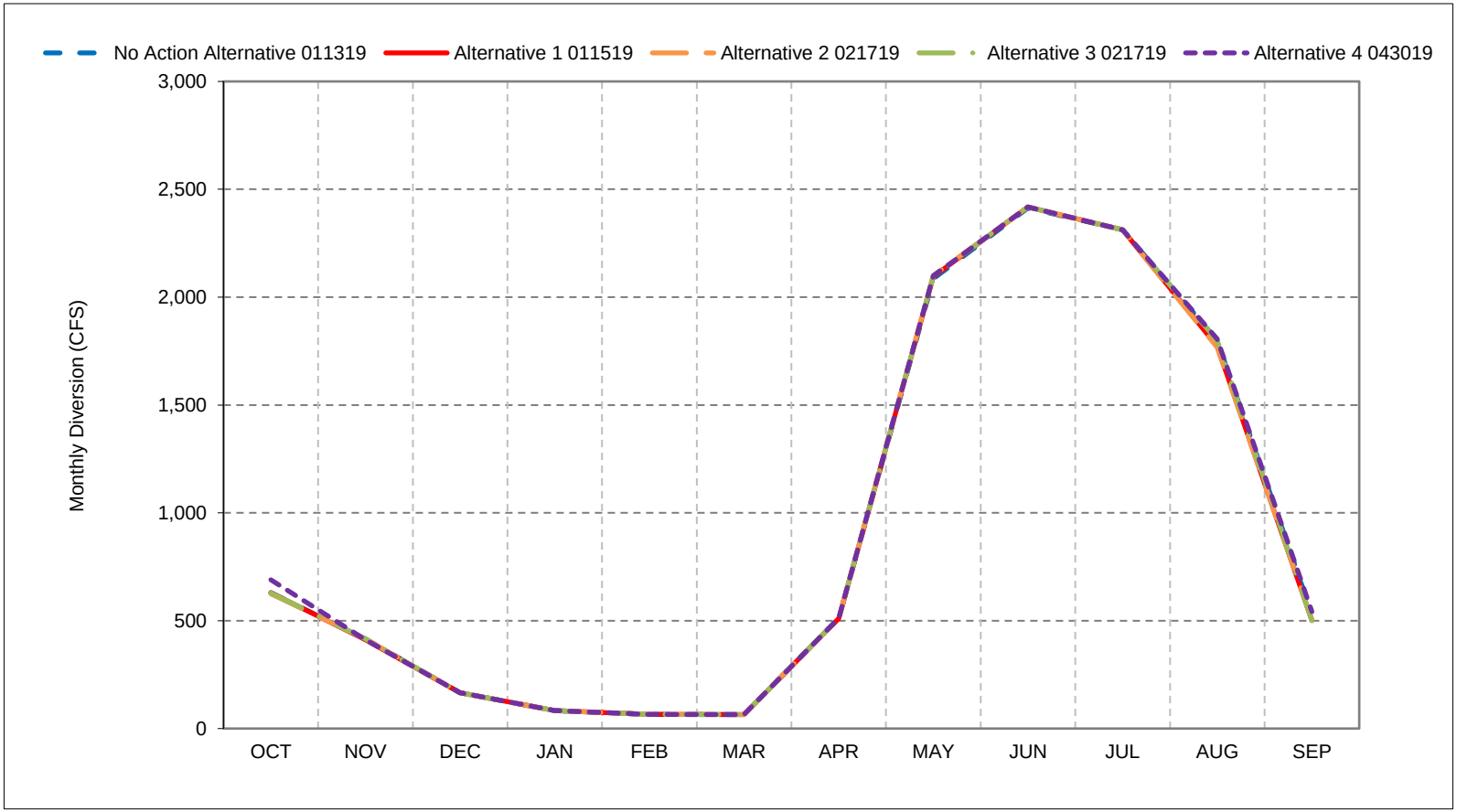
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 48-5. Hamilton City Diversion - Glenn Colusa Canal, Dry Year Average Diversion



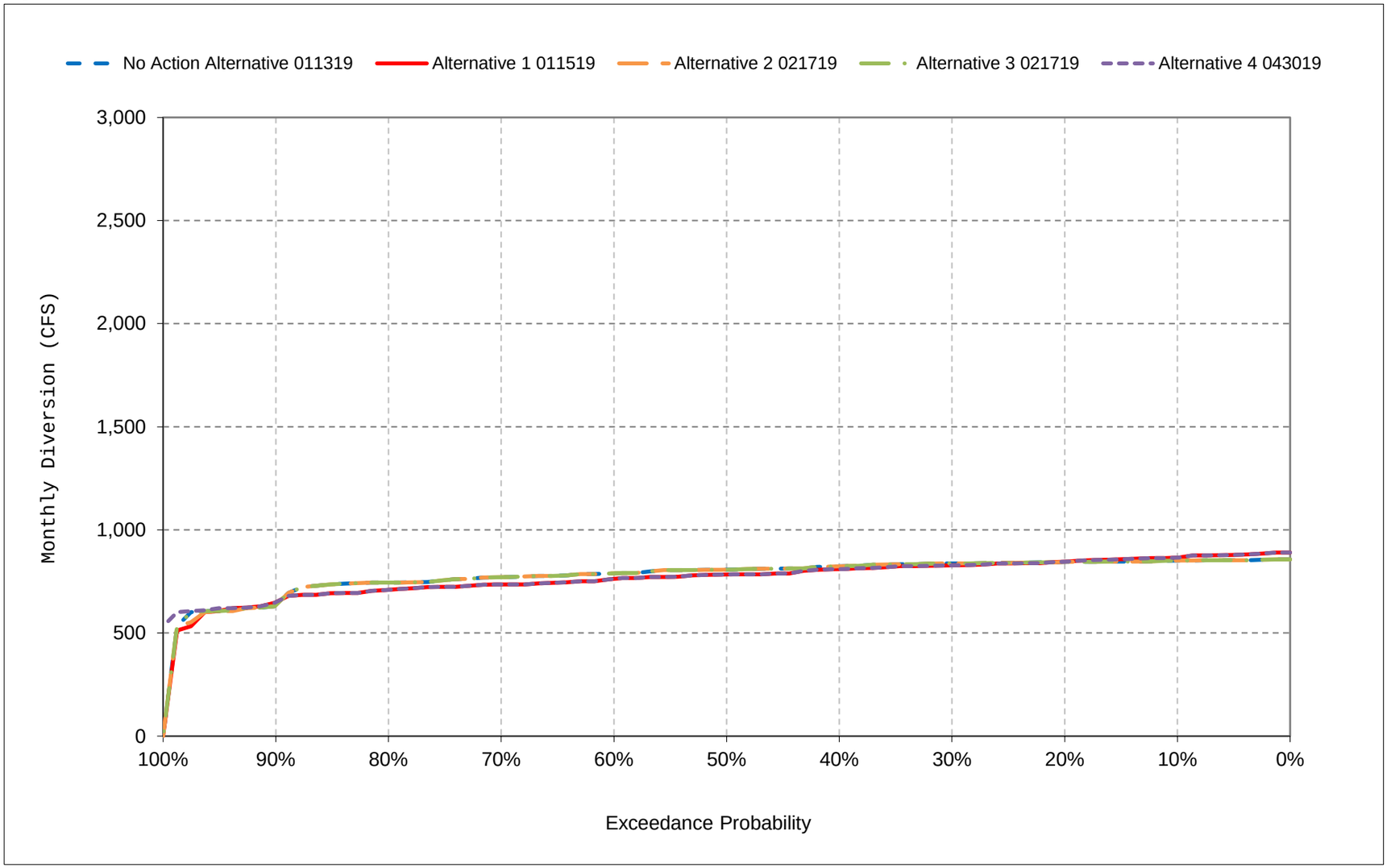
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 48-6. Hamilton City Diversion - Glenn Colusa Canal, Critical Year Average Diversion



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

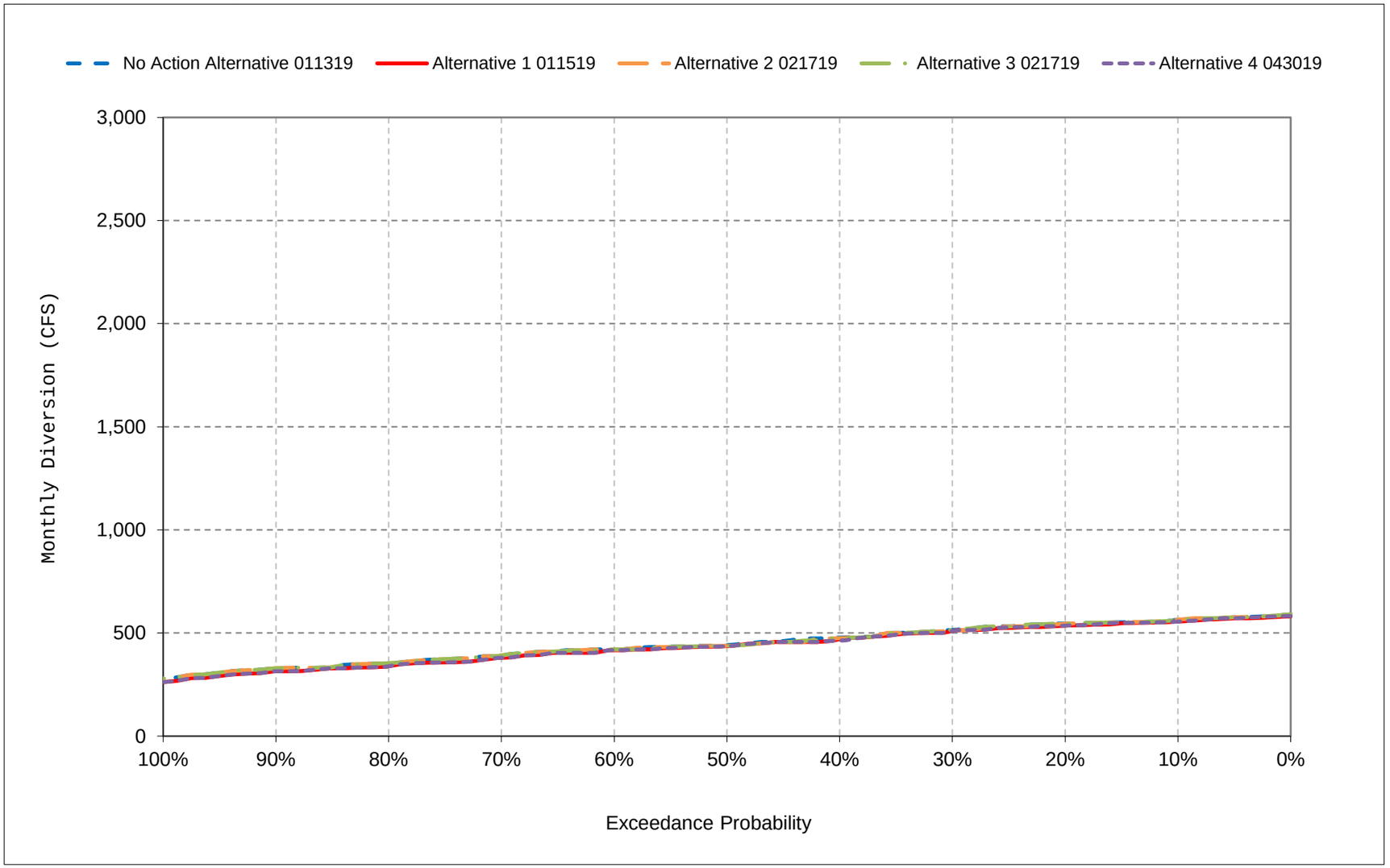
Figure 48-7. Hamilton City Diversion - Glenn Colusa Canal, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

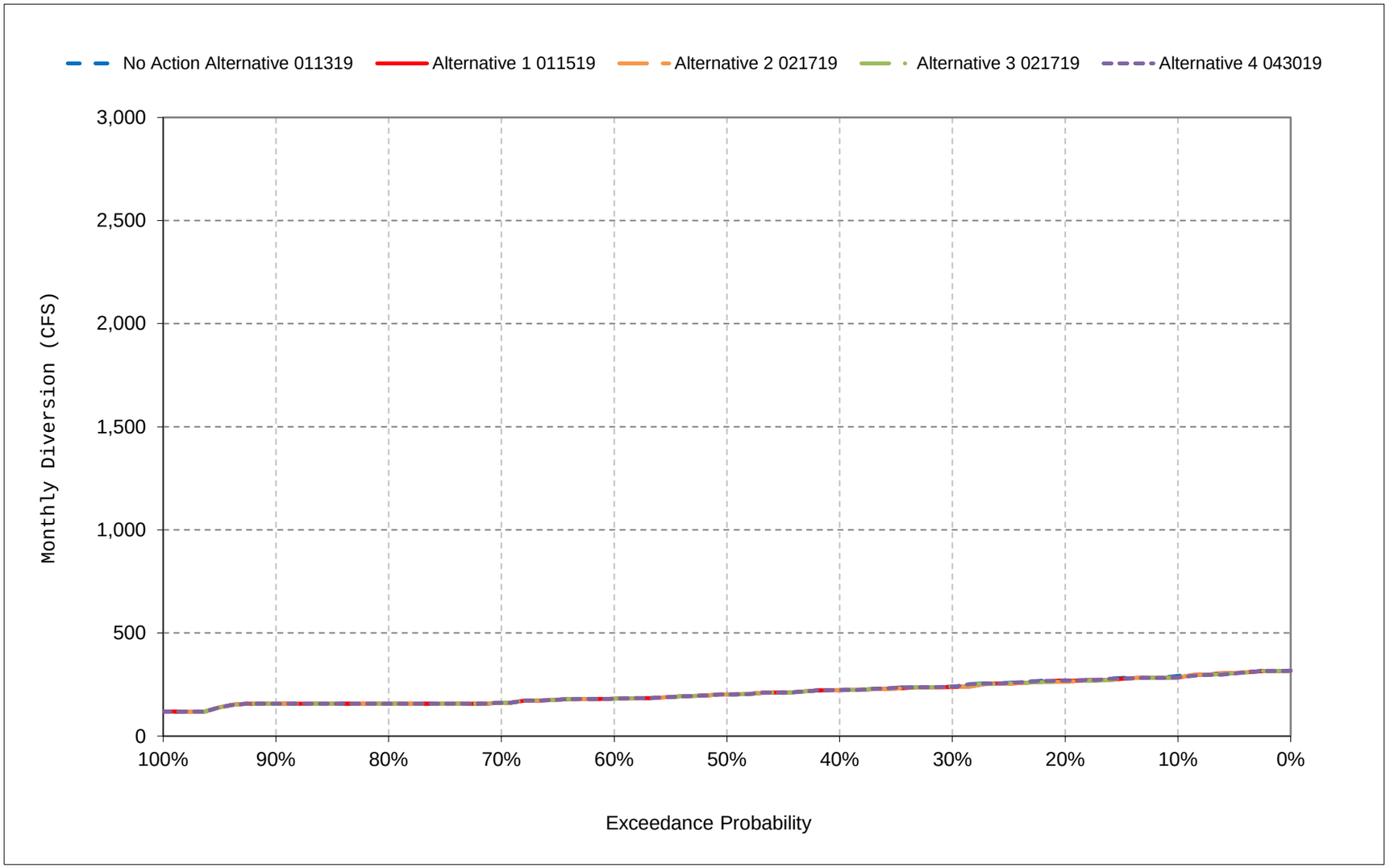
Figure 48-8. Hamilton City Diversion - Glenn Colusa Canal, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

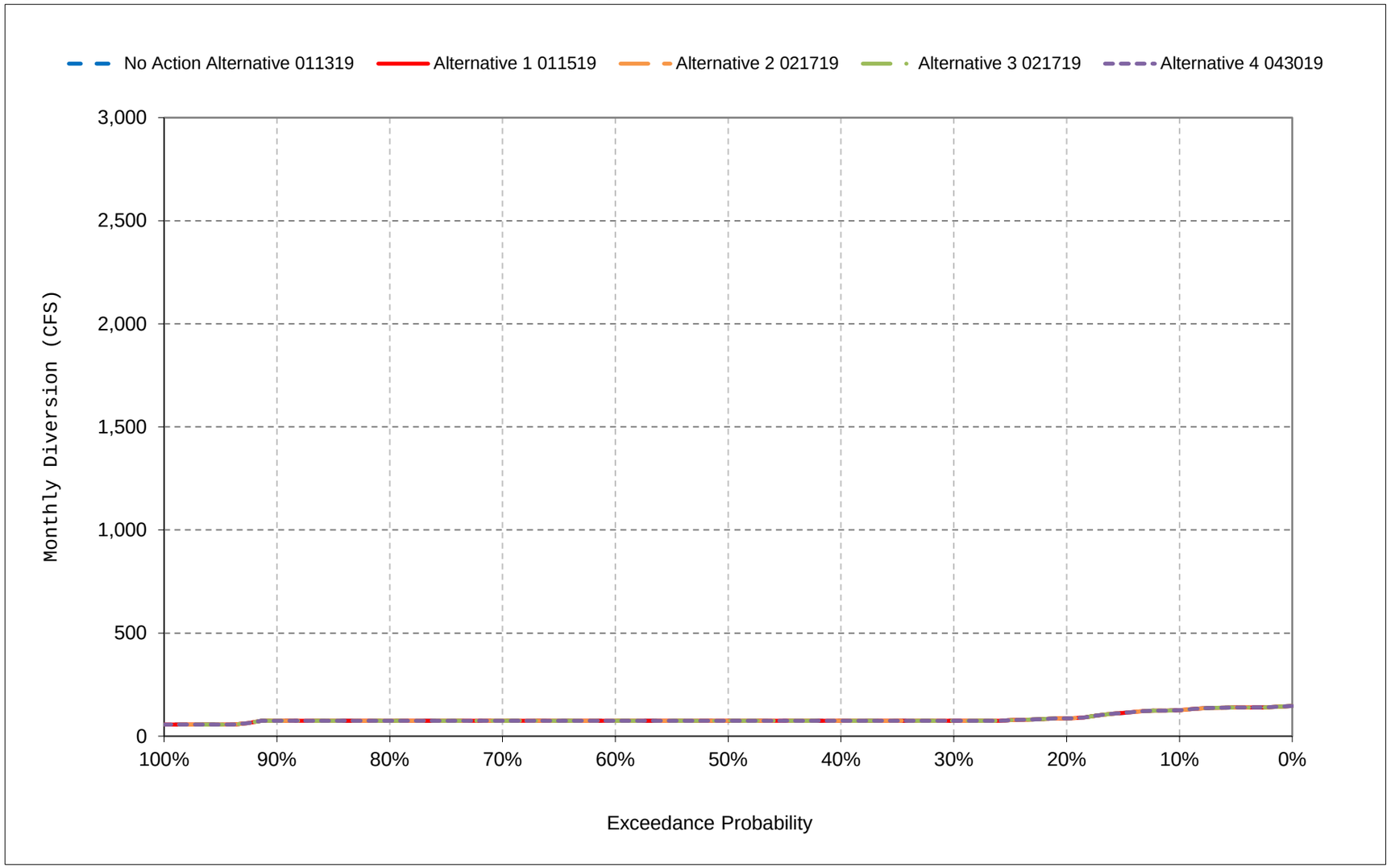
Figure 48-9. Hamilton City Diversion - Glenn Colusa Canal, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

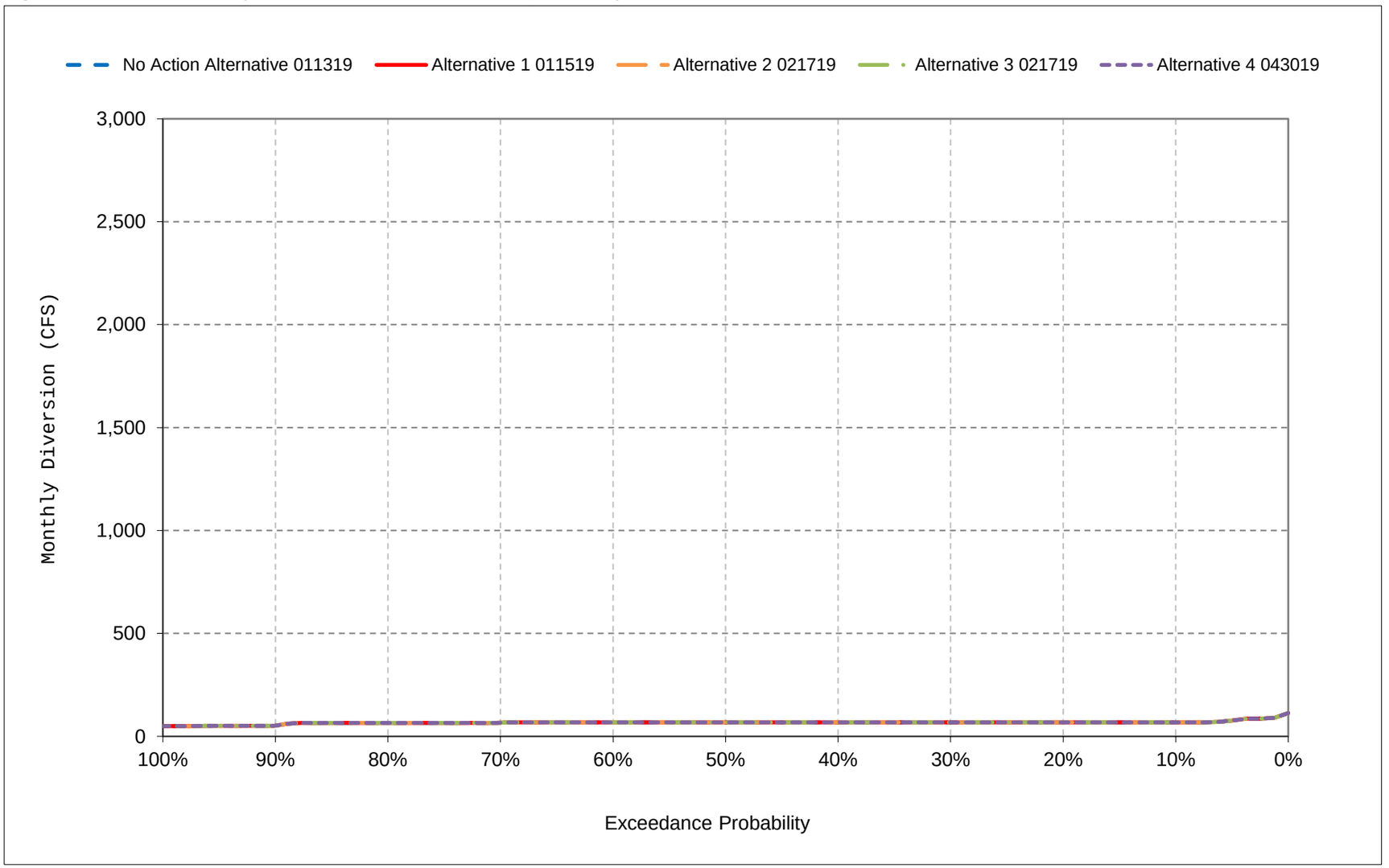
Figure 48-10. Hamilton City Diversion - Glenn Colusa Canal, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

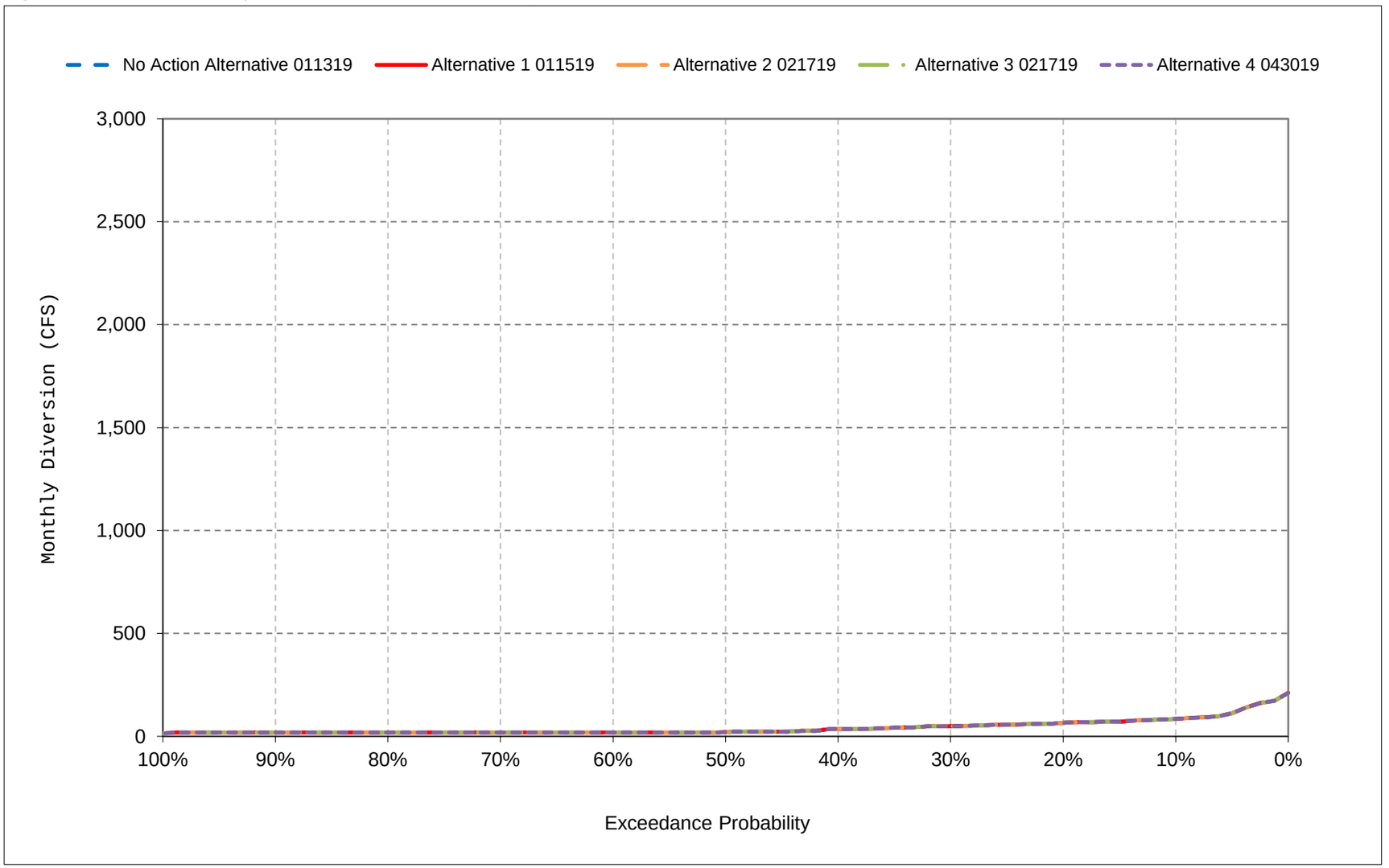
Figure 48-11. Hamilton City Diversion - Glenn Colusa Canal, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

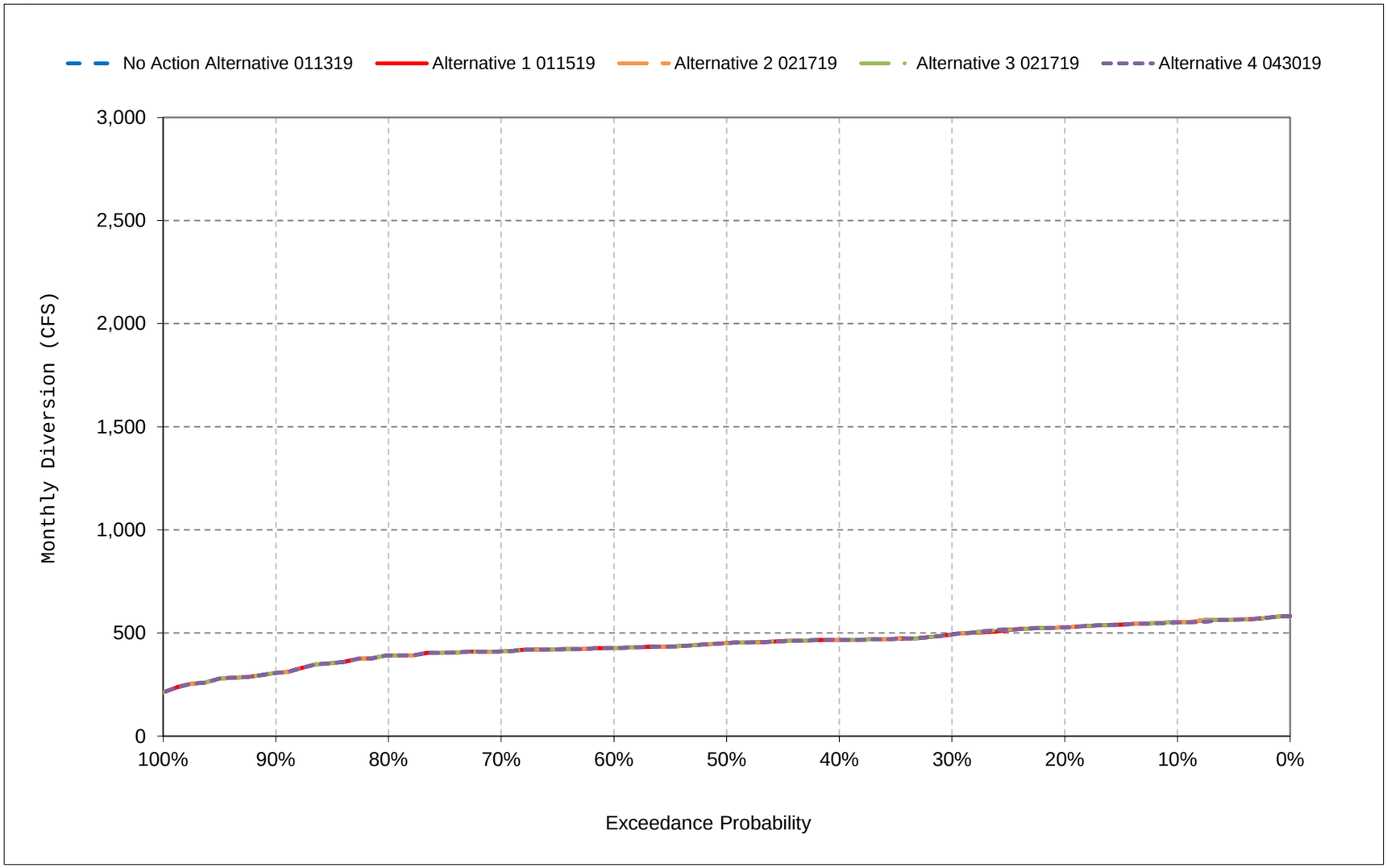
Figure 48-12. Hamilton City Diversion - Glenn Colusa Canal, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

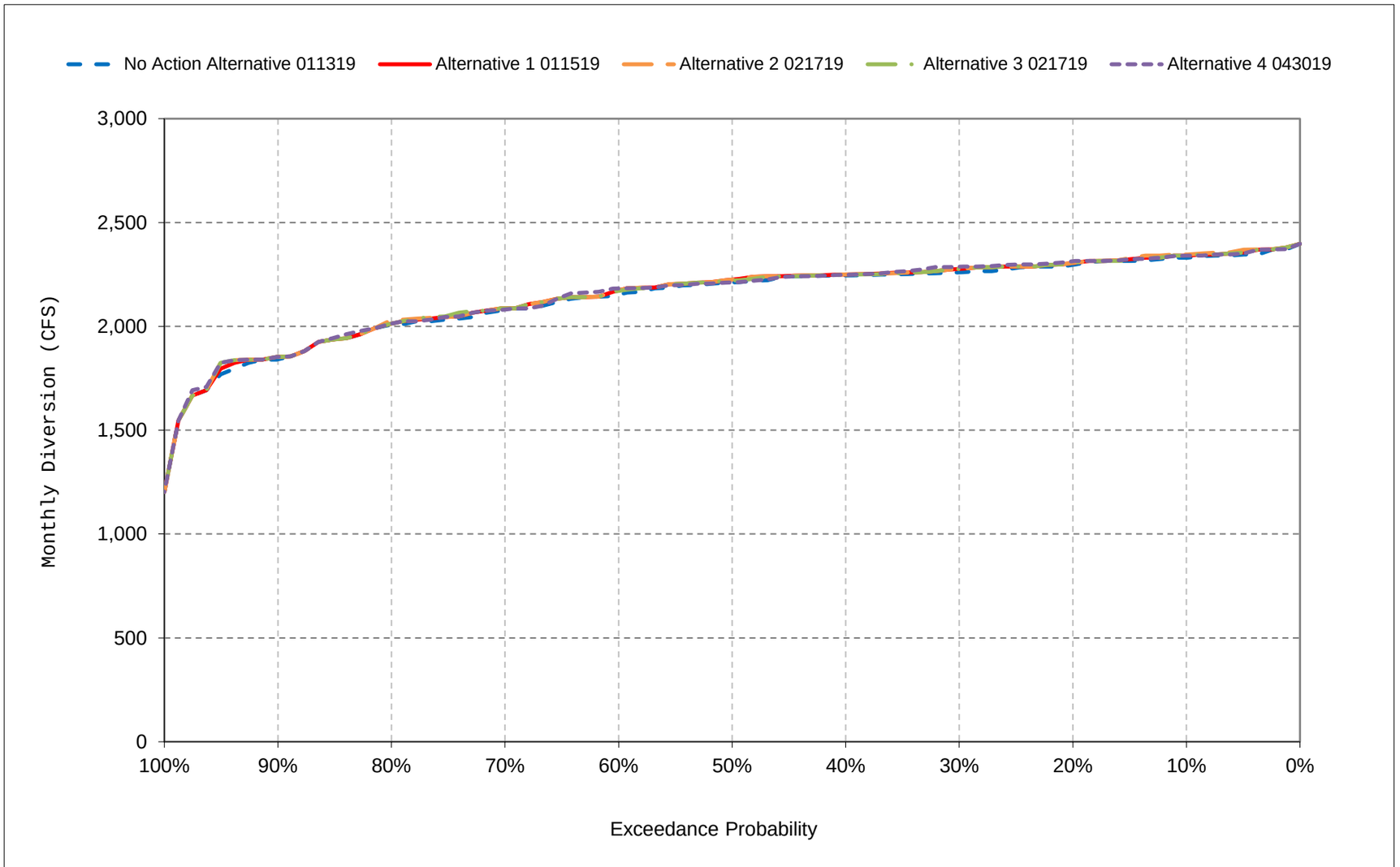
Figure 48-13. Hamilton City Diversion - Glenn Colusa Canal, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

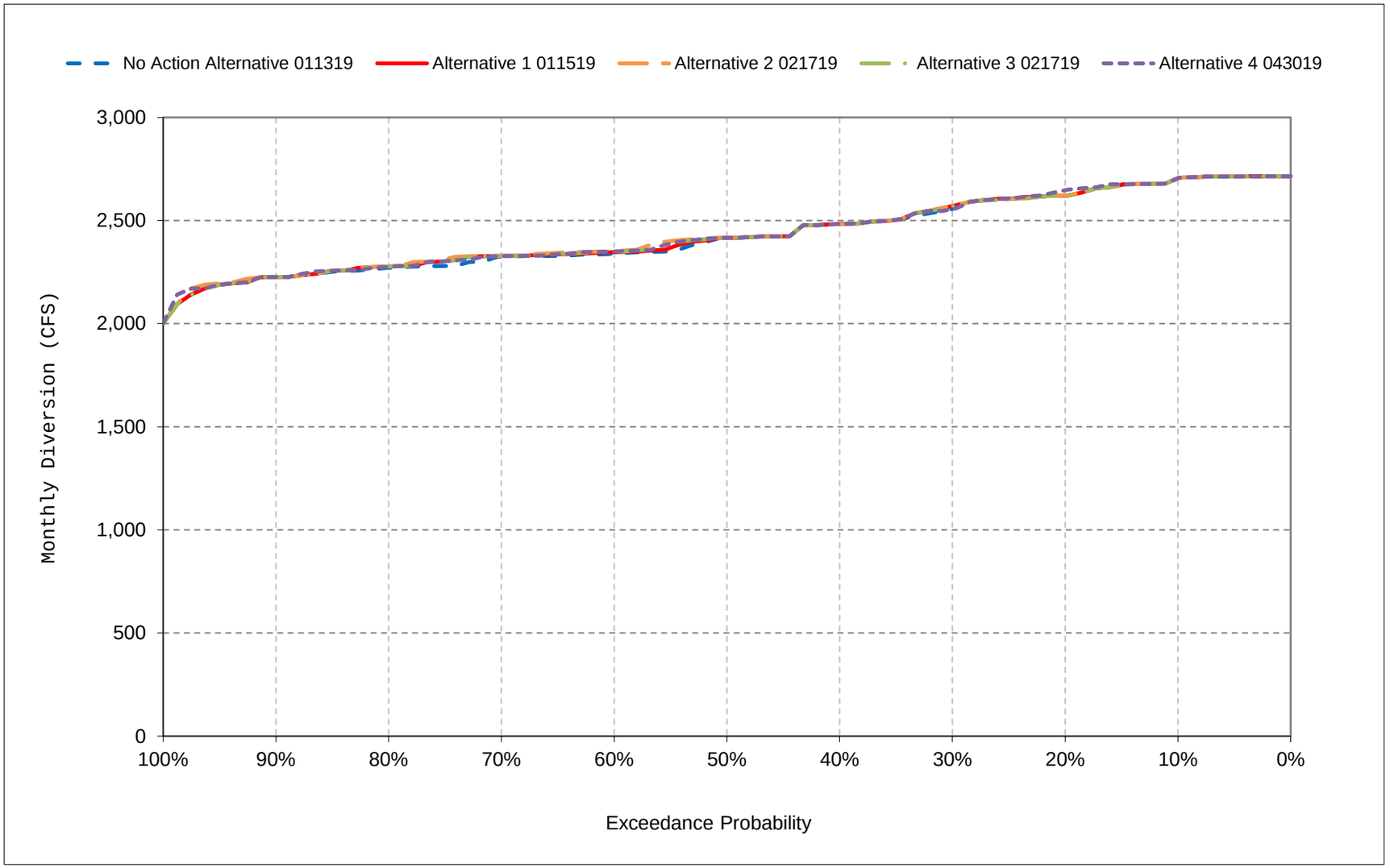
Figure 48-14. Hamilton City Diversion - Glenn Colusa Canal, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

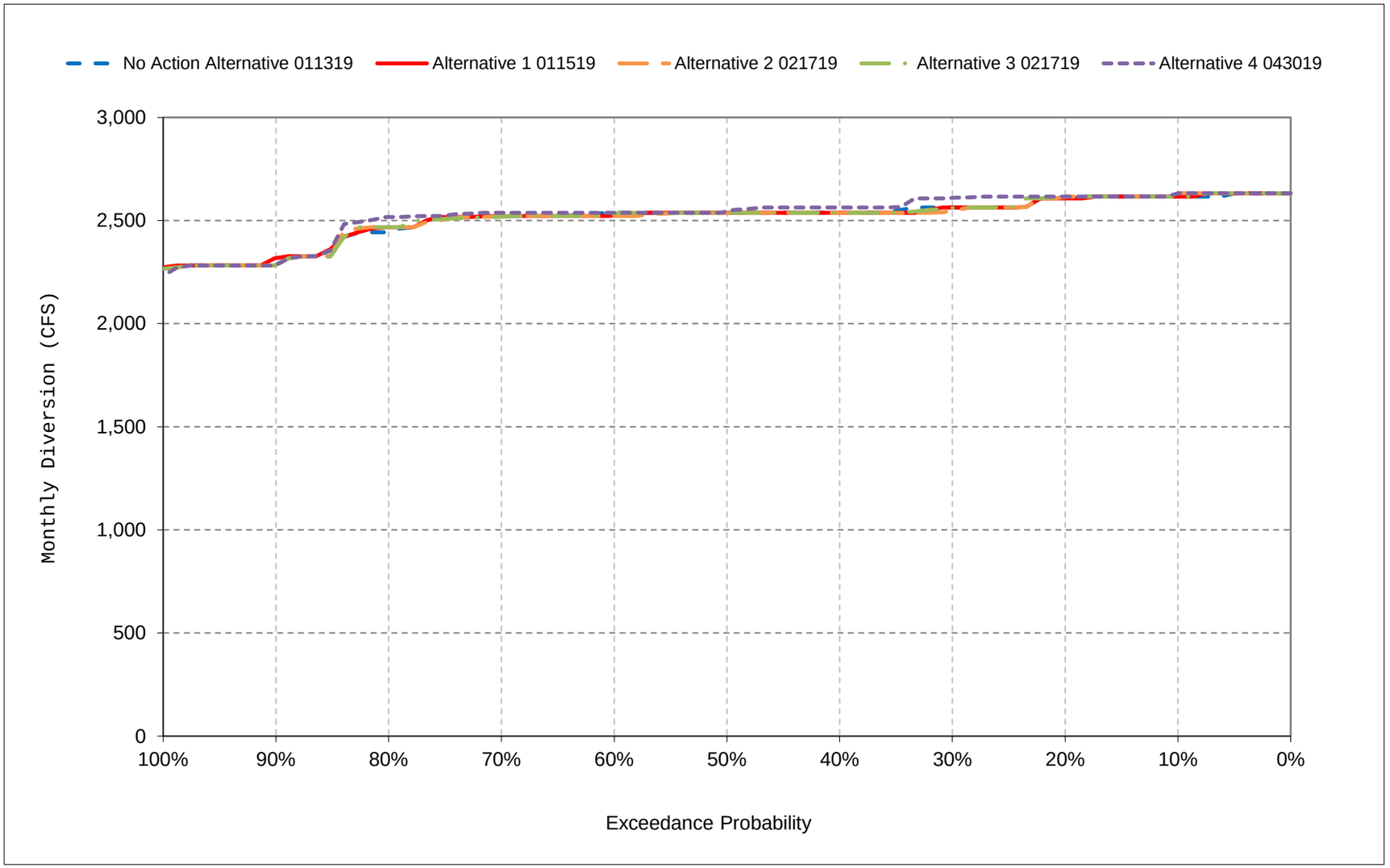
Figure 48-15. Hamilton City Diversion - Glenn Colusa Canal, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

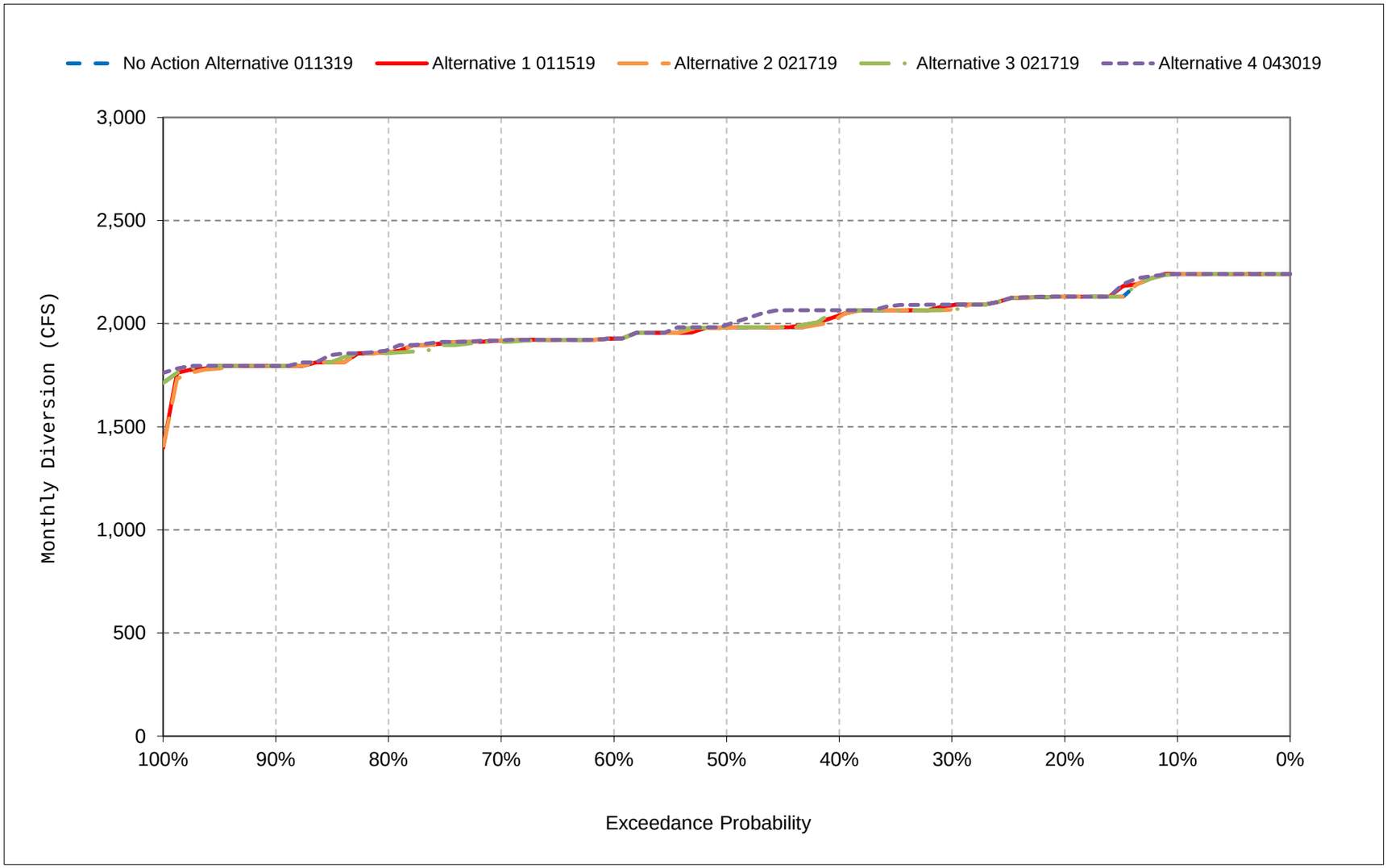
Figure 48-16. Hamilton City Diversion - Glenn Colusa Canal, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

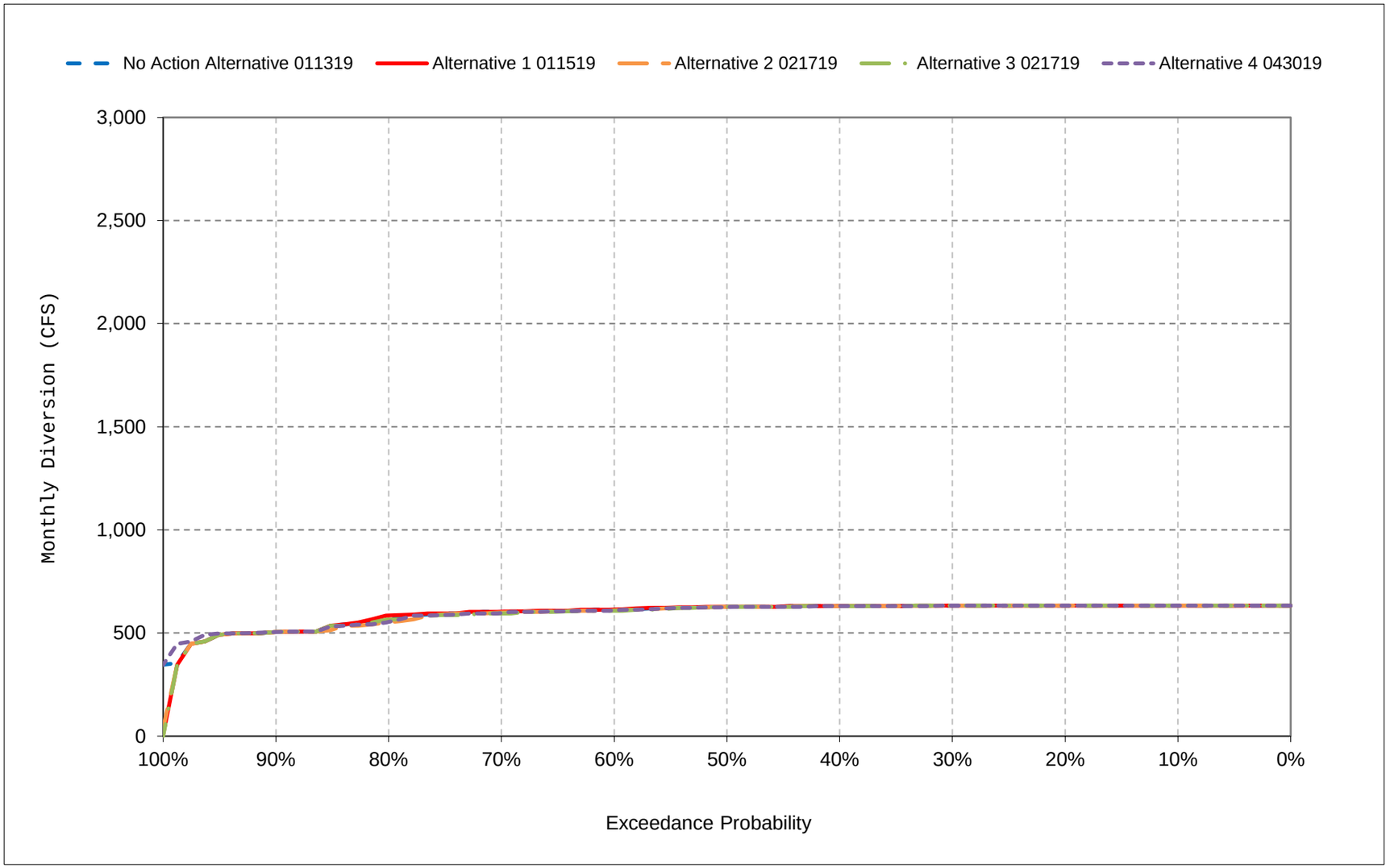
Figure 48-17. Hamilton City Diversion - Glenn Colusa Canal, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 48-18. Hamilton City Diversion - Glenn Colusa Canal, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 49-1. Folsom South Canal Diversion, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67	64	51	51	56	62	79	85	101	113	106	97
20%	67	64	51	51	56	61	77	85	100	113	105	97
30%	66	64	51	51	56	61	77	85	100	112	105	97
40%	65	63	51	51	55	58	75	84	99	111	104	96
50%	64	62	49	49	54	55	73	83	97	109	102	93
60%	60	57	46	46	51	53	68	77	89	100	94	86
70%	56	54	43	43	48	52	67	72	85	95	89	82
80%	55	54	43	43	47	52	66	72	84	95	88	81
90%	54	53	42	42	46	50	64	69	82	92	86	79
Long Term												
Full Simulation Period[a]	61	59	47	47	52	56	71	79	93	103	97	89
Water Year Types[b,c]												
Wet (32%)	66	63	51	49	55	61	75	84	100	112	104	96
Above Normal (16%)	66	63	50	46	51	59	77	84	99	111	104	96
Below Normal (13%)	61	59	47	48	52	54	71	79	92	104	97	89
Dry (24%)	57	55	44	47	52	51	66	74	86	97	91	83
Critical (15%)	55	52	42	43	47	51	65	69	82	88	86	79

Alternative 1 011519

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67	64	51	51	56	62	79	85	101	114	106	97
20%	67	64	51	51	56	61	79	85	100	113	105	97
30%	67	64	51	51	56	61	78	85	100	113	105	97
40%	66	64	51	51	56	61	77	84	100	112	105	97
50%	65	64	51	51	55	58	74	84	100	112	105	96
60%	64	63	50	50	55	54	71	83	99	111	104	95
70%	57	54	43	43	48	53	67	73	86	96	90	82
80%	56	54	43	43	48	52	66	72	85	95	89	81
90%	55	54	43	43	46	51	65	71	83	94	88	81
Long Term												
Full Simulation Period[a]	62	60	48	48	53	57	72	80	94	105	99	91
Water Year Types[b,c]												
Wet (32%)	66	63	51	50	55	61	76	84	100	112	105	96
Above Normal (16%)	66	63	51	48	52	60	77	84	100	112	104	96
Below Normal (13%)	65	62	50	48	53	58	75	83	98	110	103	94
Dry (24%)	58	56	45	48	53	52	68	75	88	99	93	85
Critical (15%)	55	53	42	44	48	51	66	70	83	91	87	80

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	1	1	0	0	0	0	0
20%	0	0	0	0	0	0	1	0	0	0	0	0
30%	1	0	0	0	1	0	1	0	0	0	0	0
40%	1	0	0	0	2	3	2	0	1	1	1	1
50%	1	1	2	2	1	3	1	0	3	3	3	3
60%	4	6	5	5	4	1	3	5	9	10	10	8
70%	0	1	0	0	0	1	1	1	1	1	1	1
80%	1	0	0	0	0	0	1	0	0	0	0	0
90%	1	1	1	1	0	1	1	2	1	2	2	2
Long Term												
Full Simulation Period[a]	1	1	1	1	1	1	1	1	1	2	2	1
Water Year Types[b,c]												
Wet (32%)	0	0	0	1	1	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	1	2	1	0	0	0	0	0	0
Below Normal (13%)	4	3	3	0	0	3	4	3	5	6	6	5
Dry (24%)	1	1	1	1	1	1	2	1	2	2	2	2
Critical (15%)	1	1	0	1	1	1	1	1	1	3	1	1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 49-2. Folsom South Canal Diversion, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67	64	51	51	56	62	79	85	101	113	106	97
20%	67	64	51	51	56	61	77	85	100	113	105	97
30%	66	64	51	51	56	61	77	85	100	112	105	97
40%	65	63	51	51	55	58	75	84	99	111	104	96
50%	64	62	49	49	54	55	73	83	97	109	102	93
60%	60	57	46	46	51	53	68	77	89	100	94	86
70%	56	54	43	43	48	52	67	72	85	95	89	82
80%	55	54	43	43	47	52	66	72	84	95	88	81
90%	54	53	42	42	46	50	64	69	82	92	86	79
Long Term												
Full Simulation Period[a]	61	59	47	47	52	56	71	79	93	103	97	89
Water Year Types[b,c]												
Wet (32%)	66	63	51	49	55	61	75	84	100	112	104	96
Above Normal (16%)	66	63	50	46	51	59	77	84	99	111	104	96
Below Normal (13%)	61	59	47	48	52	54	71	79	92	104	97	89
Dry (24%)	57	55	44	47	52	51	66	74	86	97	91	83
Critical (15%)	55	52	42	43	47	51	65	69	82	88	86	79

Alternative 2 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67	64	51	51	56	62	79	85	101	114	106	97
20%	67	64	51	51	56	61	79	85	100	113	105	97
30%	67	64	51	51	56	61	78	85	100	113	105	97
40%	66	64	51	51	56	61	76	85	100	112	105	97
50%	65	64	51	51	55	60	74	84	100	112	105	96
60%	64	63	50	50	55	54	73	83	98	110	103	94
70%	57	54	43	43	48	53	68	73	86	96	89	82
80%	56	54	43	43	48	52	66	72	84	95	89	81
90%	55	54	43	43	46	50	65	71	83	94	88	81
Long Term												
Full Simulation Period[a]	62	60	48	48	53	57	72	80	94	105	99	91
Water Year Types[b,c]												
Wet (32%)	66	63	51	50	55	61	76	85	100	112	105	96
Above Normal (16%)	66	64	51	48	52	61	77	85	100	112	105	97
Below Normal (13%)	65	63	50	48	53	58	76	84	98	111	103	95
Dry (24%)	58	56	45	48	53	52	67	75	88	99	92	85
Critical (15%)	55	53	42	44	48	51	65	69	82	88	86	79

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	1	1	0	0	0	0	0
20%	0	0	0	0	0	0	1	0	0	0	0	0
30%	1	0	0	0	1	0	1	0	0	0	0	0
40%	1	0	0	0	2	3	2	1	1	1	1	1
50%	1	1	2	2	1	5	1	1	3	3	3	3
60%	4	6	5	5	4	1	5	6	9	10	9	8
70%	0	1	0	0	0	1	1	1	1	0	0	0
80%	1	0	0	0	0	0	0	0	0	0	0	0
90%	1	1	1	1	0	**0**	1	2	1	2	2	2
Long Term												
Full Simulation Period[a]	1	1	1	1	1	1	1	1	2	2	2	1
Water Year Types[b,c]												
Wet (32%)	0	0	0	1	1	0	0	0	1	1	1	1
Above Normal (16%)	1	1	0	1	2	2	1	1	1	1	1	1
Below Normal (13%)	4	4	3	0	0	4	4	4	6	7	6	6
Dry (24%)	1	1	1	1	1	1	1	1	2	2	2	1
Critical (15%)	0	0	0	1	1	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 49-3. Folsom South Canal Diversion, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67	64	51	51	56	62	79	85	101	113	106	97
20%	67	64	51	51	56	61	77	85	100	113	105	97
30%	66	64	51	51	56	61	77	85	100	112	105	97
40%	65	63	51	51	55	58	75	84	99	111	104	96
50%	64	62	49	49	54	55	73	83	97	109	102	93
60%	60	57	46	46	51	53	68	77	89	100	94	86
70%	56	54	43	43	48	52	67	72	85	95	89	82
80%	55	54	43	43	47	52	66	72	84	95	88	81
90%	54	53	42	42	46	50	64	69	82	92	86	79
Long Term												
Full Simulation Period[a]	61	59	47	47	52	56	71	79	93	103	97	89
Water Year Types[b,c]												
Wet (32%)	66	63	51	49	55	61	75	84	100	112	104	96
Above Normal (16%)	66	63	50	46	51	59	77	84	99	111	104	96
Below Normal (13%)	61	59	47	48	52	54	71	79	92	104	97	89
Dry (24%)	57	55	44	47	52	51	66	74	86	97	91	83
Critical (15%)	55	52	42	43	47	51	65	69	82	88	86	79

Alternative 3 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67	64	51	51	56	62	79	85	101	114	106	97
20%	67	64	51	51	56	61	79	85	100	113	105	97
30%	66	64	51	51	56	61	78	85	100	113	105	97
40%	66	64	51	51	56	61	76	84	100	112	105	97
50%	65	64	51	51	55	59	74	84	100	112	105	96
60%	64	62	50	50	55	55	72	83	97	109	102	94
70%	57	54	43	43	48	53	67	73	85	96	89	82
80%	56	54	43	43	48	52	66	72	84	95	88	81
90%	55	54	43	43	46	51	65	71	83	94	88	81
Long Term												
Full Simulation Period[a]	62	60	48	48	53	57	72	80	94	105	99	91
Water Year Types[b,c]												
Wet (32%)	66	63	51	50	55	61	76	84	100	112	105	96
Above Normal (16%)	66	64	51	47	52	61	77	85	100	112	105	96
Below Normal (13%)	65	63	50	48	53	58	75	83	98	110	103	94
Dry (24%)	58	55	45	48	52	52	67	75	88	98	92	84
Critical (15%)	54	52	42	44	48	51	65	69	82	88	86	79

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	1	1	0	0	0	0	0
20%	0	0	0	0	0	0	1	0	0	0	0	0
30%	0	0	0	0	1	0	1	0	0	0	0	0
40%	1	0	0	0	2	3	2	0	1	1	1	1
50%	1	1	2	2	1	4	1	0	3	3	3	3
60%	4	5	4	4	4	2	4	5	7	9	8	8
70%	0	1	0	0	0	1	0	1	0	0	0	0
80%	1	0	0	0	0	0	0	0	0	0	0	0
90%	1	1	1	1	0	1	1	2	1	2	2	2
Long Term												
Full Simulation Period[a]	1	1	1	1	1	1	1	1	1	1	1	1
Water Year Types[b,c]												
Wet (32%)	0	0	0	1	1	0	0	0	0	1	1	0
Above Normal (16%)	1	1	0	1	1	2	1	1	1	1	1	1
Below Normal (13%)	4	4	3	0	0	4	4	4	6	6	6	5
Dry (24%)	1	1	1	1	1	1	1	0	1	1	1	1
Critical (15%)	**0**	**0**	**0**	1	1	0	**0**	**0**	**0**	**0**	**0**	**0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 49-4. Folsom South Canal Diversion, Monthly Diversion

No Action Alternative 011319

Statistic	Monthly Diversion (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67	64	51	51	56	62	79	85	101	113	106	97
20%	67	64	51	51	56	61	77	85	100	113	105	97
30%	66	64	51	51	56	61	77	85	100	112	105	97
40%	65	63	51	51	55	58	75	84	99	111	104	96
50%	64	62	49	49	54	55	73	83	97	109	102	93
60%	60	57	46	46	51	53	68	77	89	100	94	86
70%	56	54	43	43	48	52	67	72	85	95	89	82
80%	55	54	43	43	47	52	66	72	84	95	88	81
90%	54	53	42	42	46	50	64	69	82	92	86	79
Long Term												
Full Simulation Period[a]	61	59	47	47	52	56	71	79	93	103	97	89
Water Year Types[b,c]												
Wet (32%)	66	63	51	49	55	61	75	84	100	112	104	96
Above Normal (16%)	66	63	50	46	51	59	77	84	99	111	104	96
Below Normal (13%)	61	59	47	48	52	54	71	79	92	104	97	89
Dry (24%)	57	55	44	47	52	51	66	74	86	97	91	83
Critical (15%)	55	52	42	43	47	51	65	69	82	88	86	79

Alternative 4 043019

Statistic	Monthly Diversion (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67	64	51	51	56	62	79	85	101	113	106	97
20%	67	64	51	51	56	61	77	85	100	113	105	97
30%	66	64	51	51	56	61	77	85	100	112	105	97
40%	66	64	51	51	55	61	74	84	100	112	105	96
50%	64	62	50	50	55	56	73	84	98	110	102	94
60%	60	57	46	46	51	53	69	78	90	102	95	88
70%	56	54	43	43	48	52	66	72	85	95	89	82
80%	55	54	43	43	48	51	65	71	84	95	88	81
90%	46	44	35	35	39	43	56	59	69	77	72	67
Long Term												
Full Simulation Period[a]	60	58	46	46	51	55	70	78	91	103	96	88
Water Year Types[b,c]												
Wet (32%)	66	63	51	49	54	61	75	84	100	112	105	96
Above Normal (16%)	65	63	50	45	50	60	76	84	99	111	104	95
Below Normal (13%)	61	59	47	48	53	55	72	81	93	104	97	89
Dry (24%)	57	55	44	46	51	52	67	74	87	98	91	84
Critical (15%)	47	46	36	42	46	44	57	60	71	80	75	69

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Diversion (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	1	0	0	0	0	0	0	0
40%	0	0	0	0	0	3	0	0	1	0	0	1
50%	-1	0	1	1	1	2	0	0	1	1	1	1
60%	-1	1	0	0	0	0	1	1	1	1	1	1
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	-1	0	0	0	0	0
90%	-8	-8	-7	-7	-7	-7	-8	-10	-13	-15	-14	-12
Long Term												
Full Simulation Period[a]	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1
Water Year Types[b,c]												
Wet (32%)	0	0	0	-1	-1	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	-1	-1	1	0	0	0	-1	0	0
Below Normal (13%)	0	0	0	0	0	1	0	2	0	0	0	0
Dry (24%)	0	0	0	-1	-1	1	0	0	1	1	1	1
Critical (15%)	-7	-7	-5	-1	-1	-6	-8	-9	-11	-8	-11	-10

a Based on the 82-year simulation period.

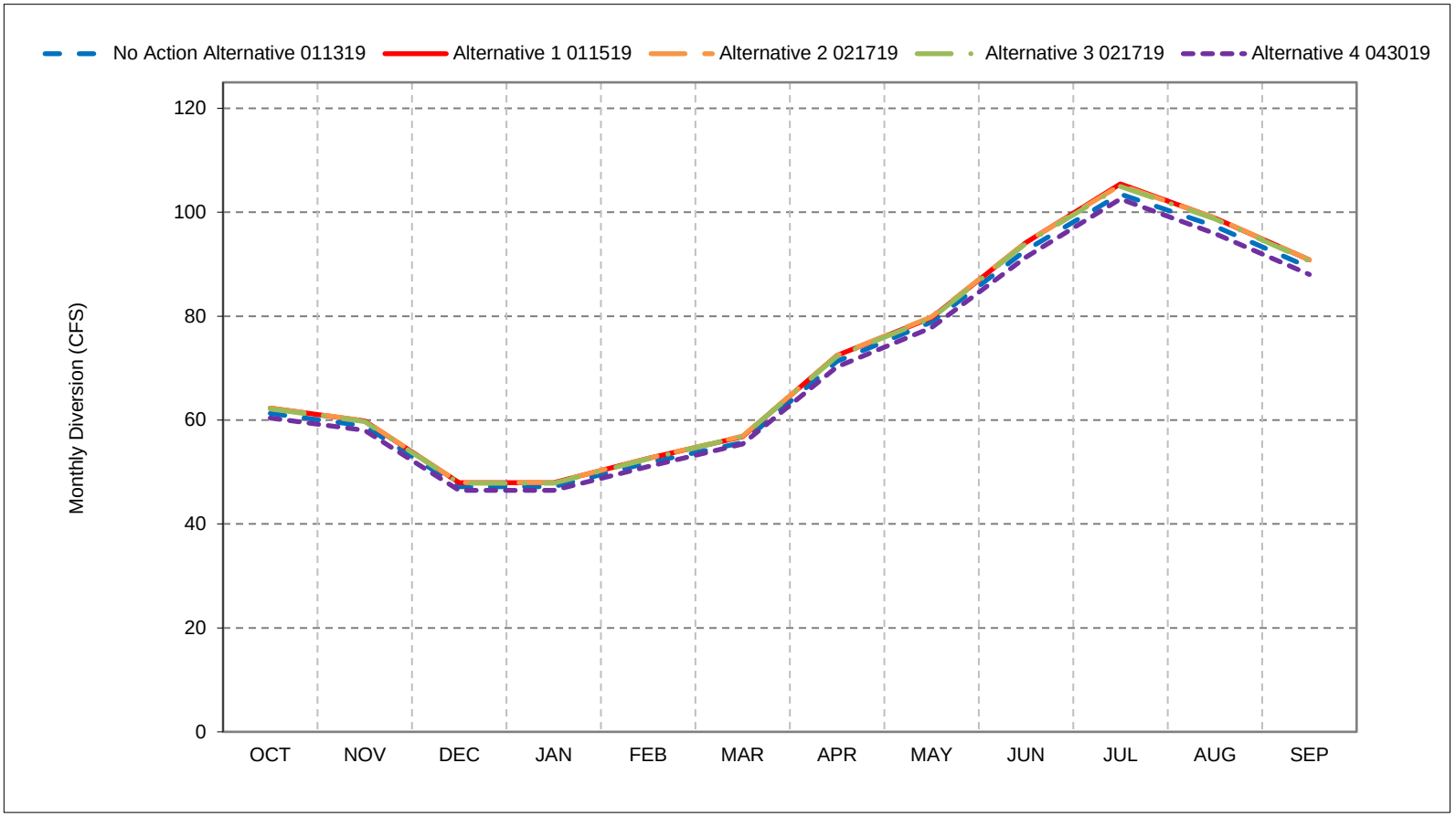
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

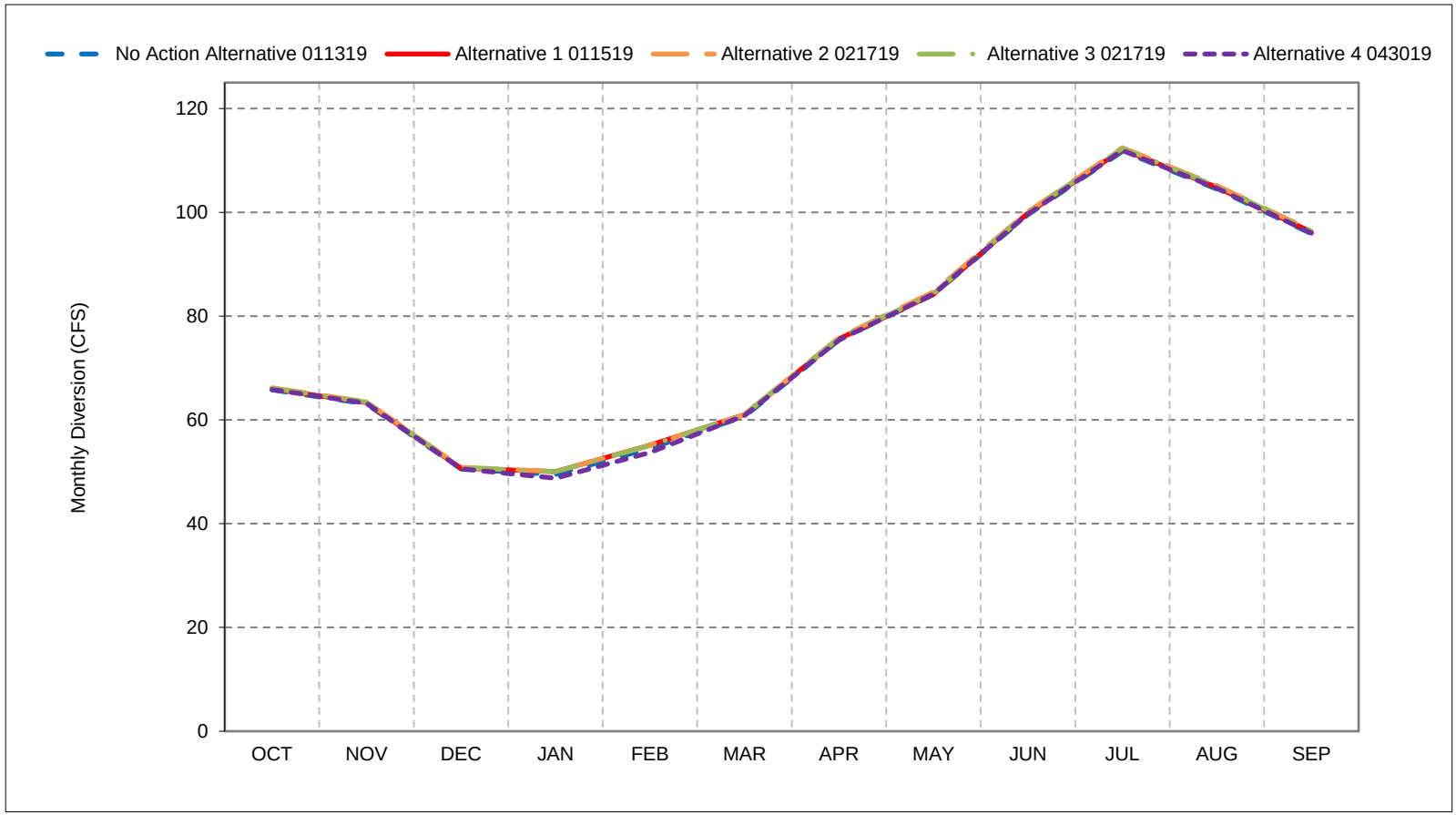
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 49-1. Folsom South Canal Diversion, Long-Term Average Diversion



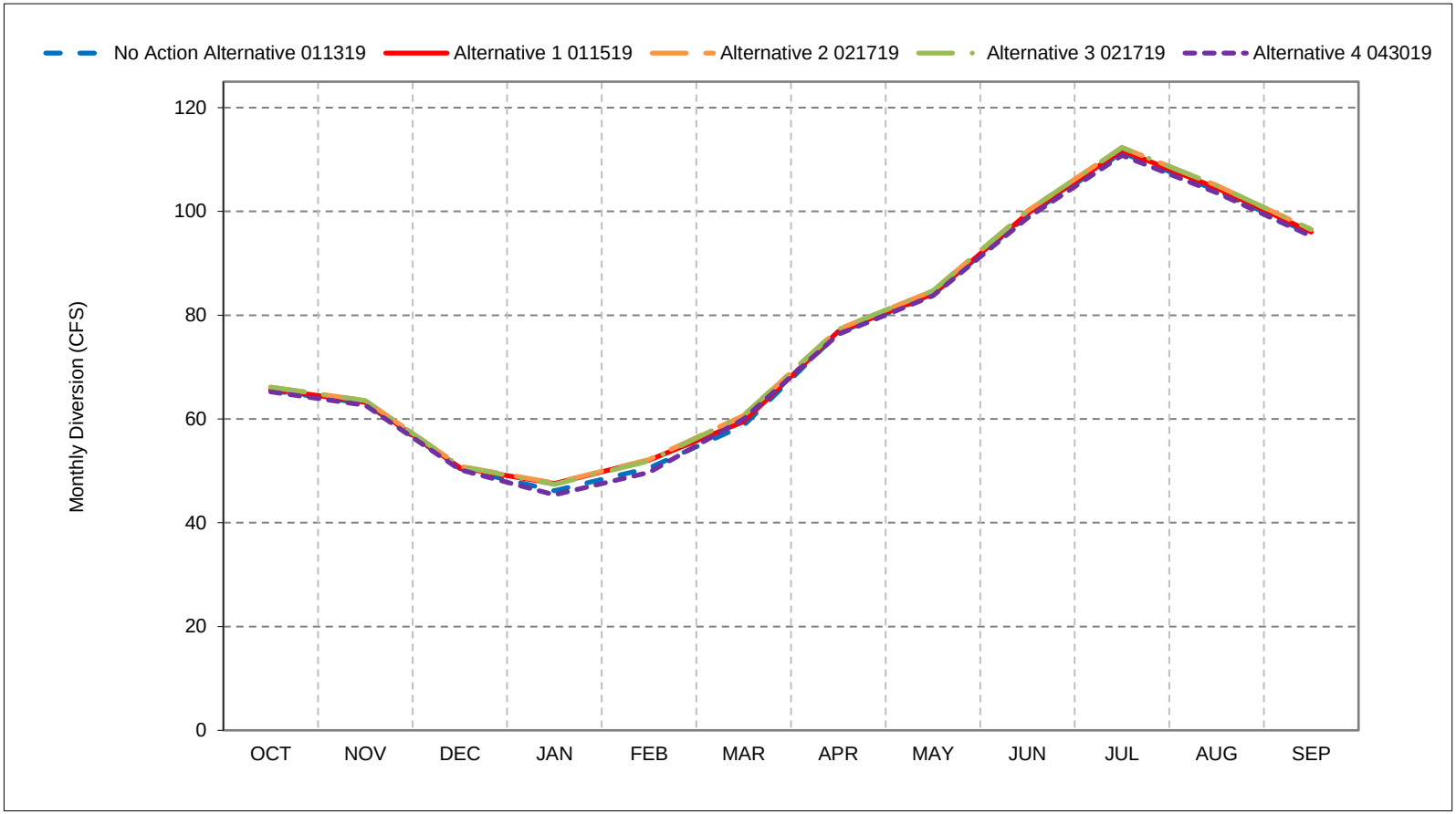
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 49-2. Folsom South Canal Diversion, Wet Year Average Diversion



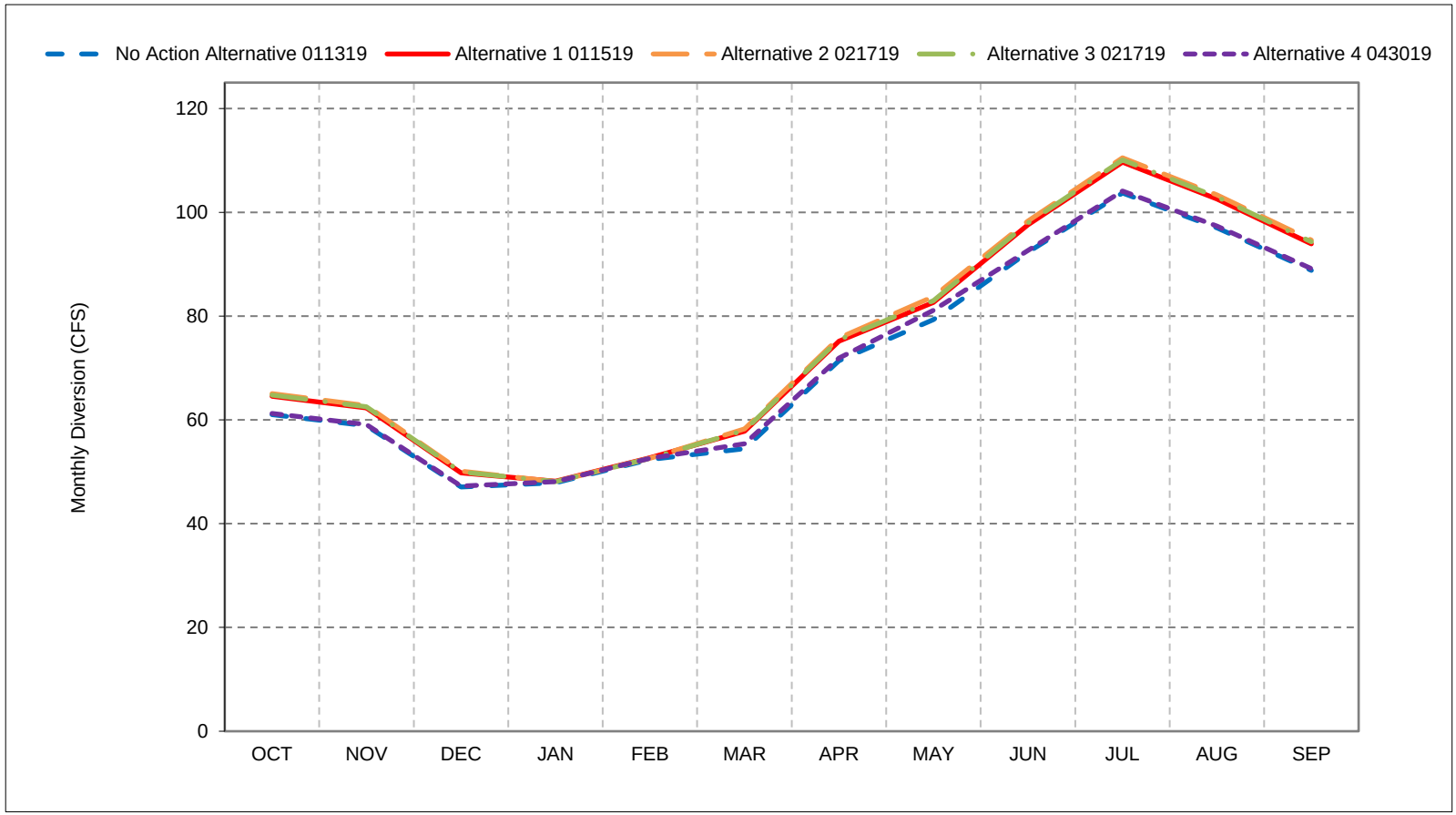
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 49-3. Folsom South Canal Diversion, Above Normal Year Average Diversion



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 49-4. Folsom South Canal Diversion, Below Normal Year Average Diversion



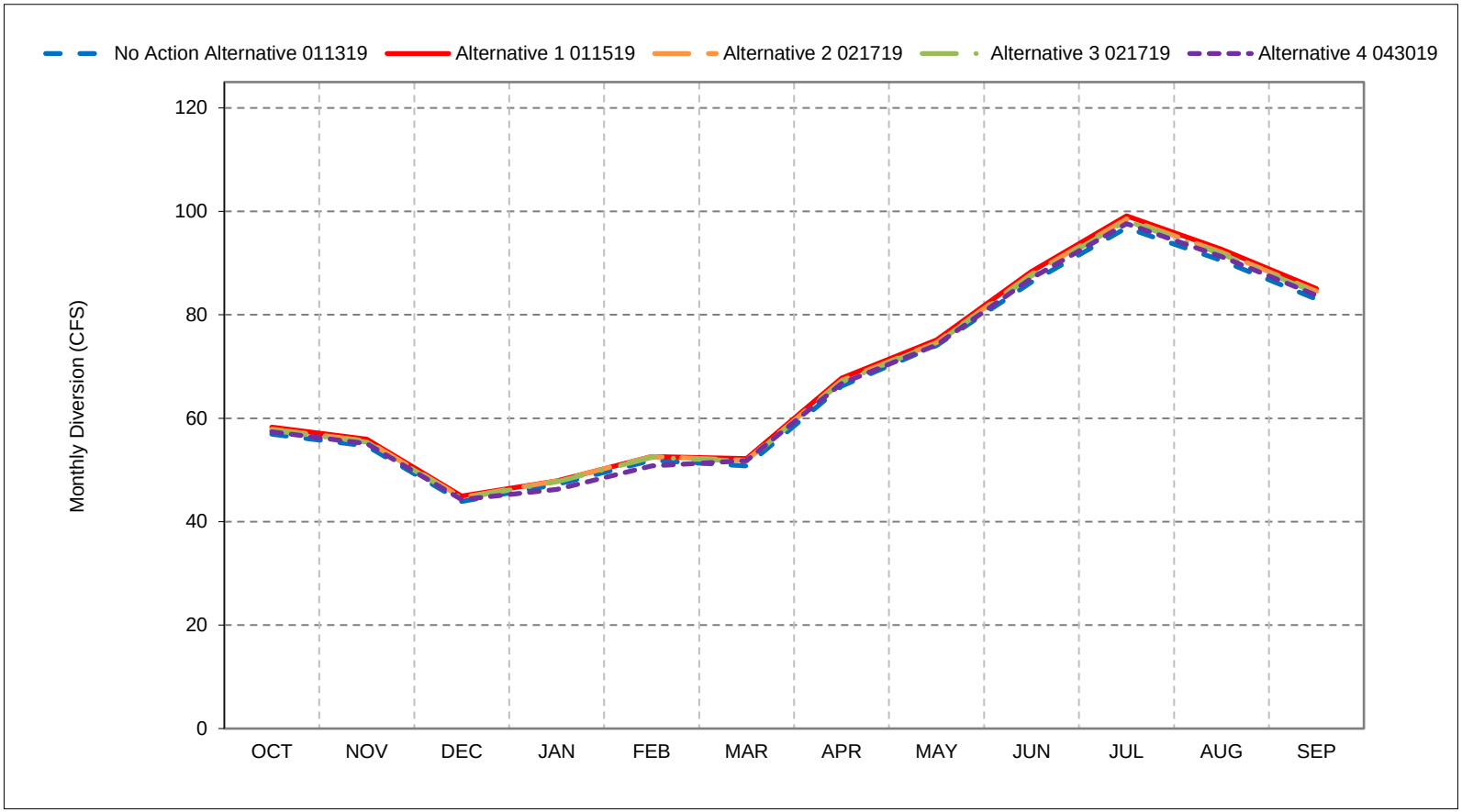
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

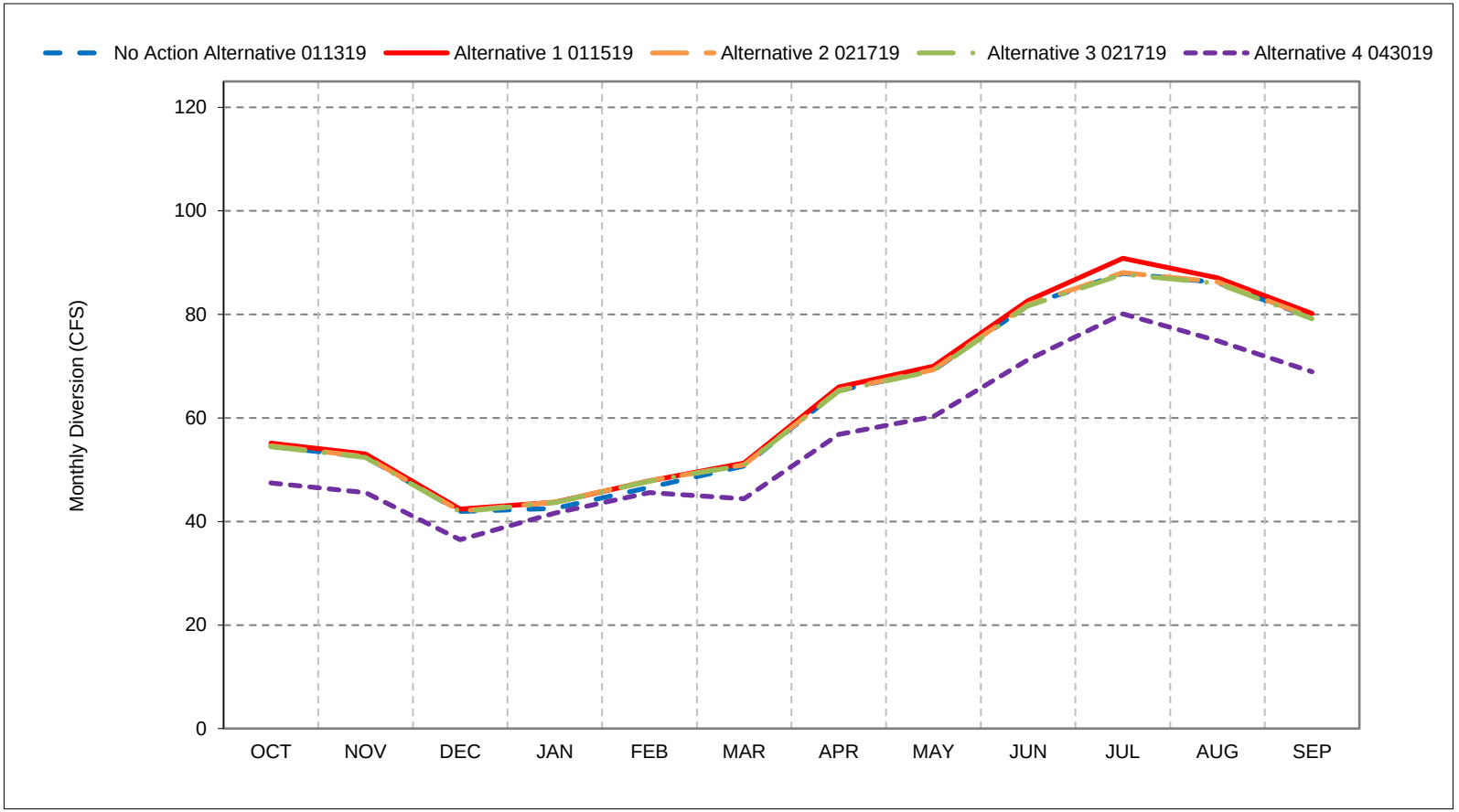
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 49-5. Folsom South Canal Diversion, Dry Year Average Diversion



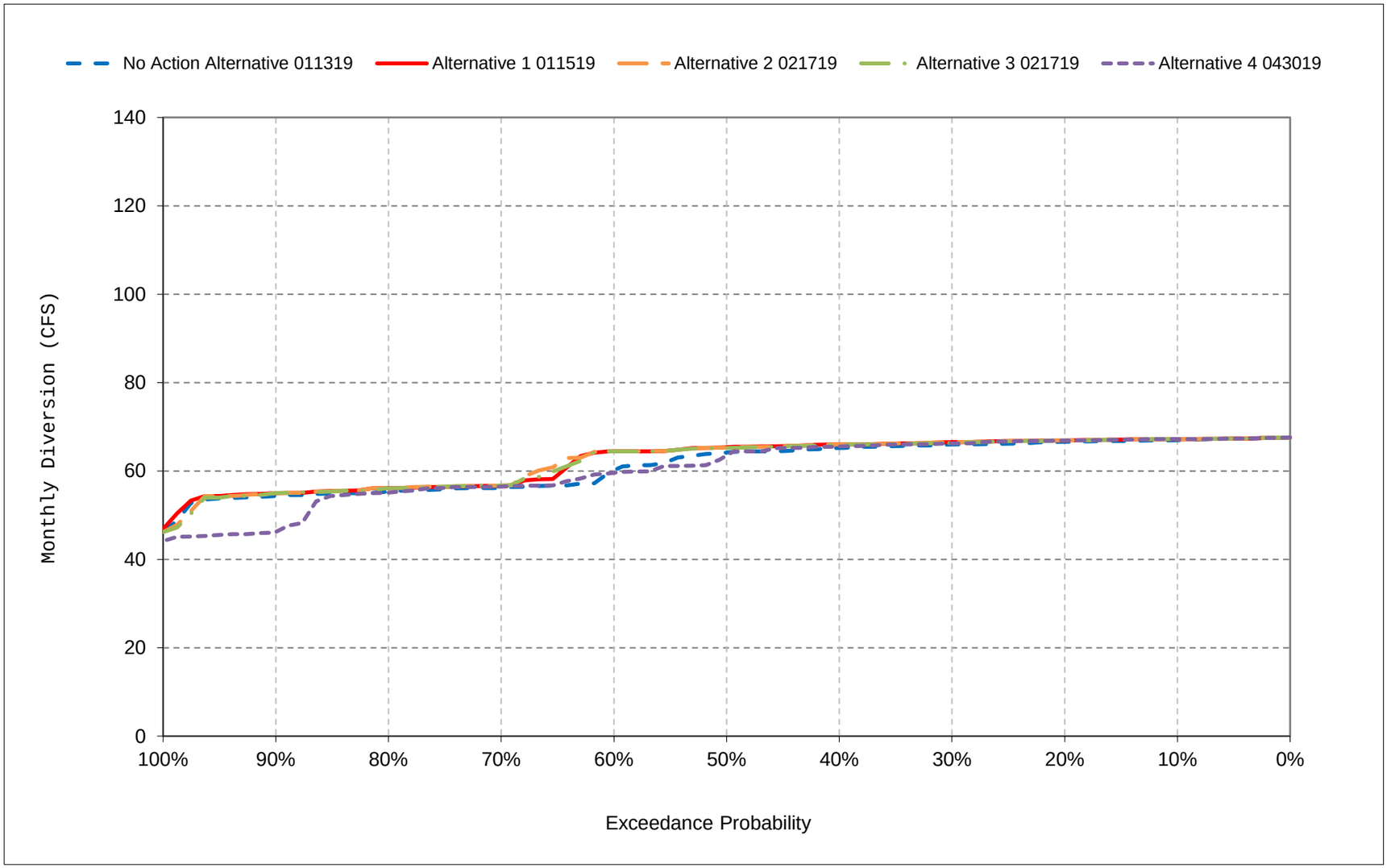
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 49-6. Folsom South Canal Diversion, Critical Year Average Diversion



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

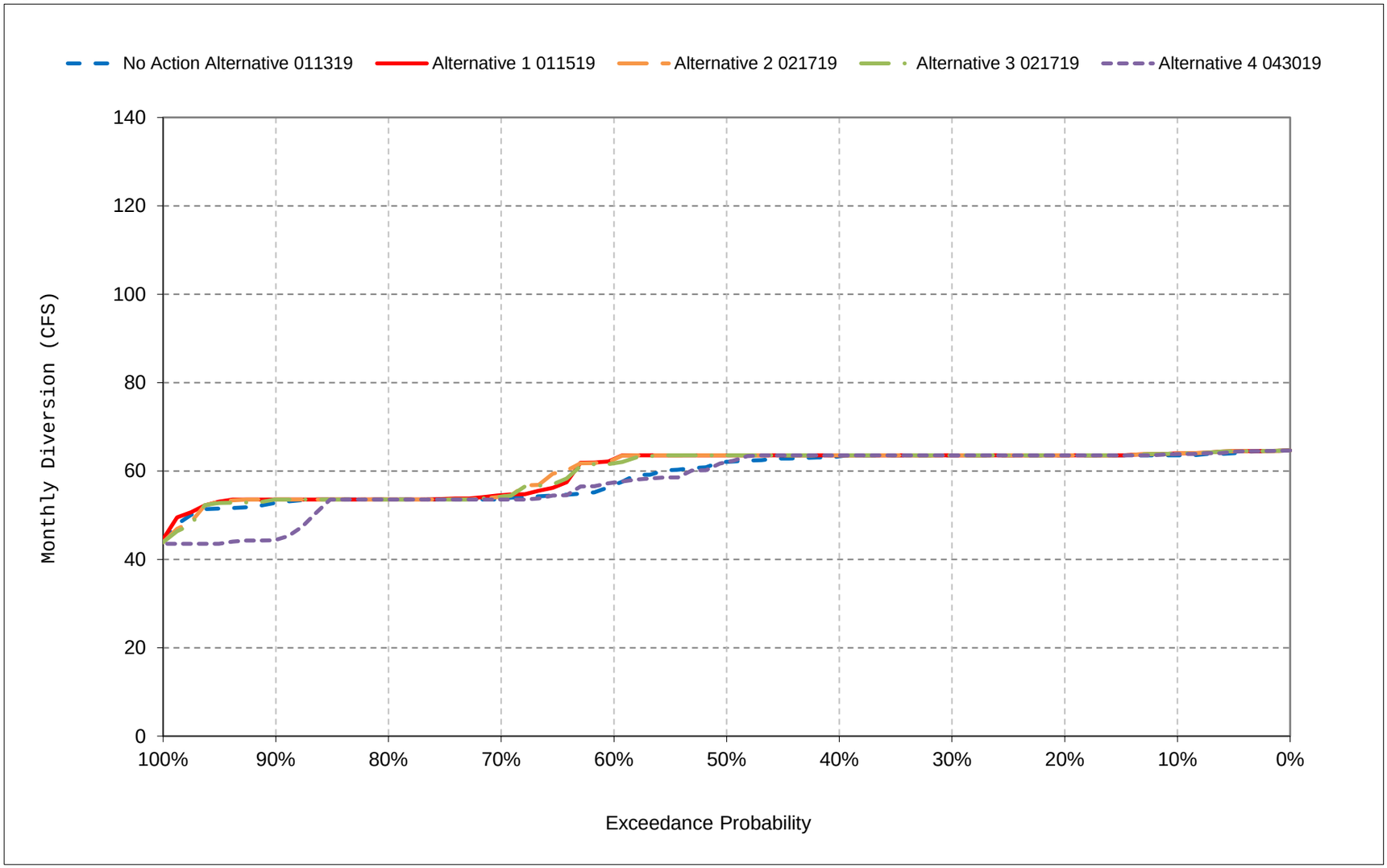
Figure 49-7. Folsom South Canal Diversion, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

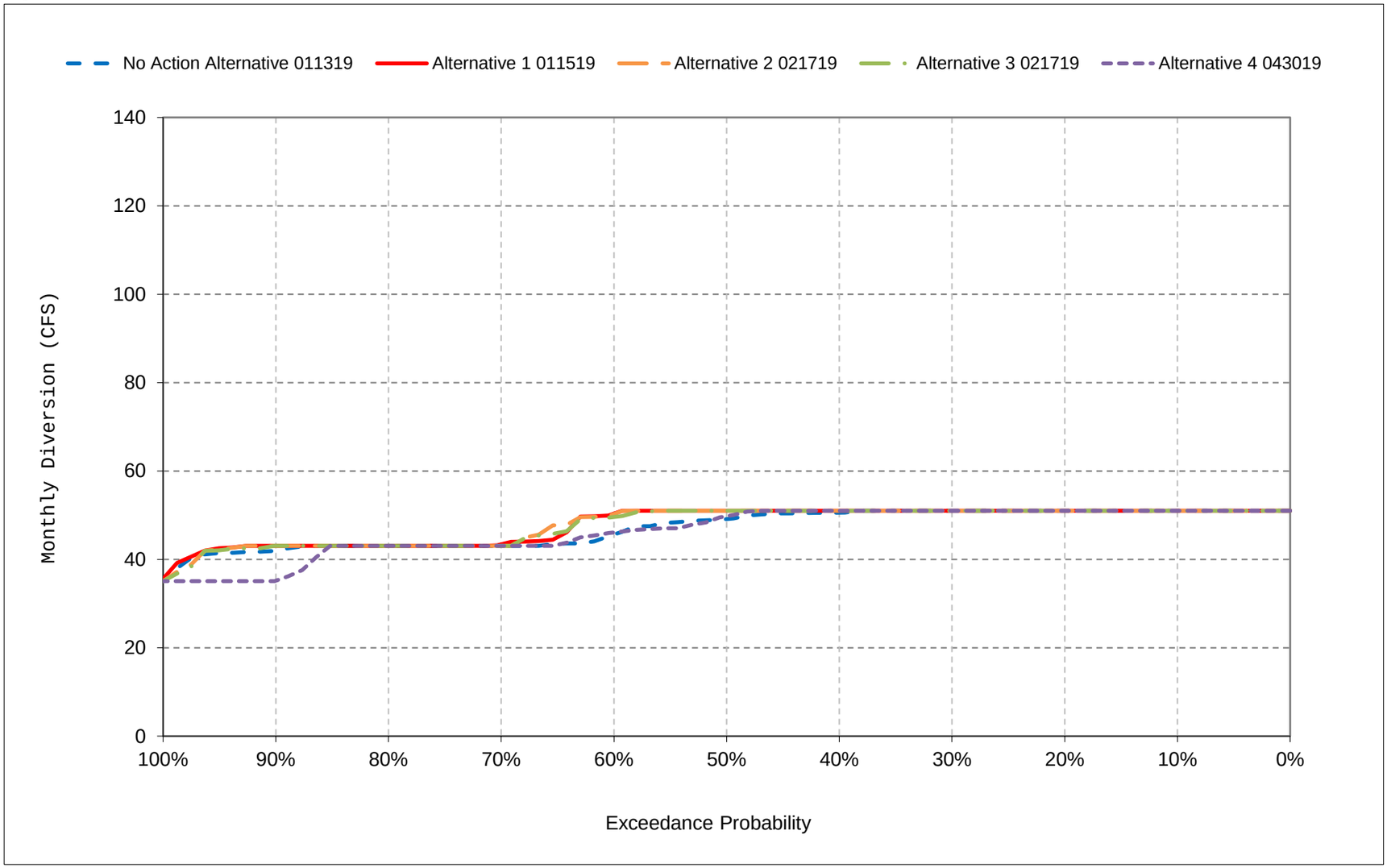
Figure 49-8. Folsom South Canal Diversion, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

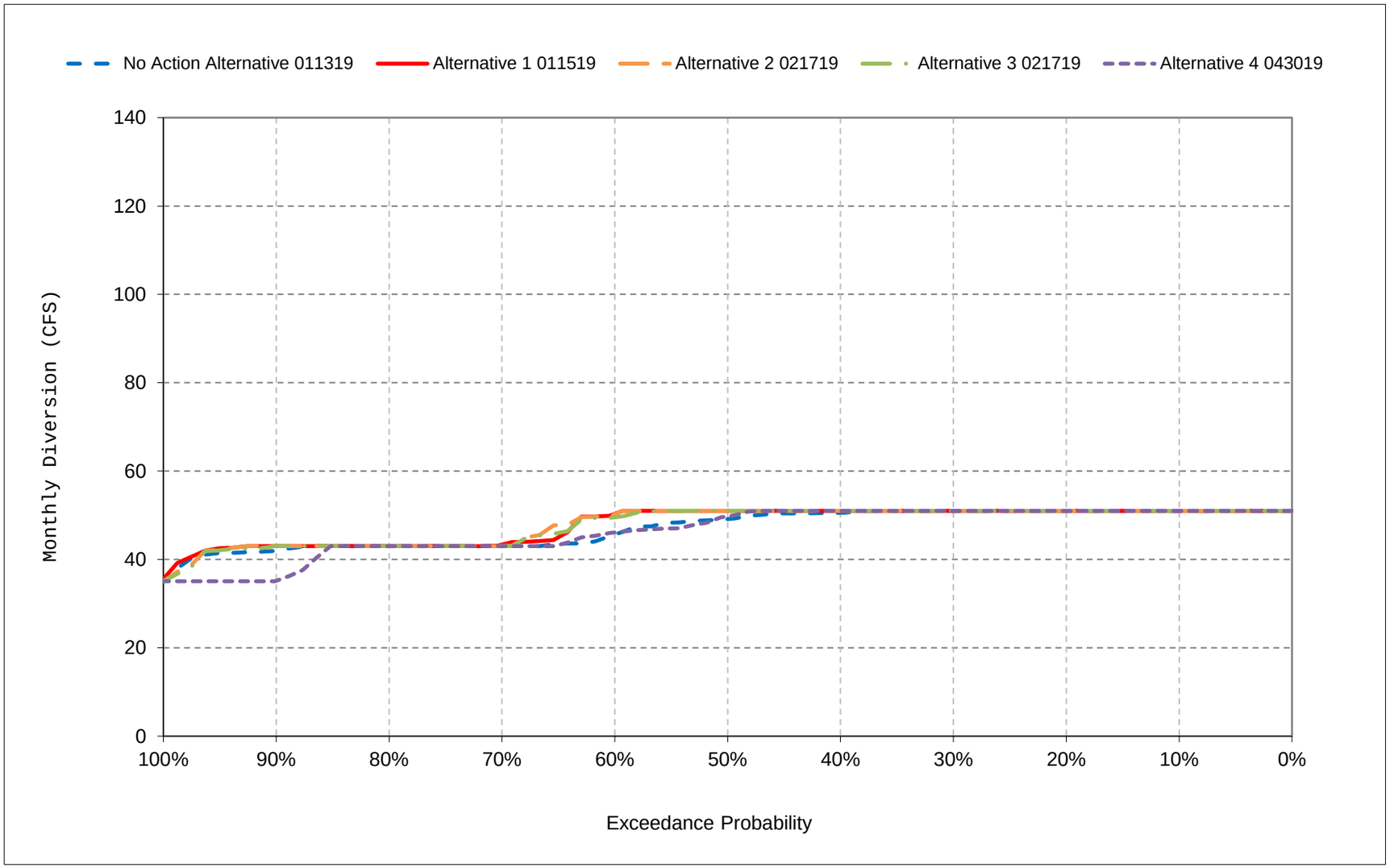
Figure 49-9. Folsom South Canal Diversion, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

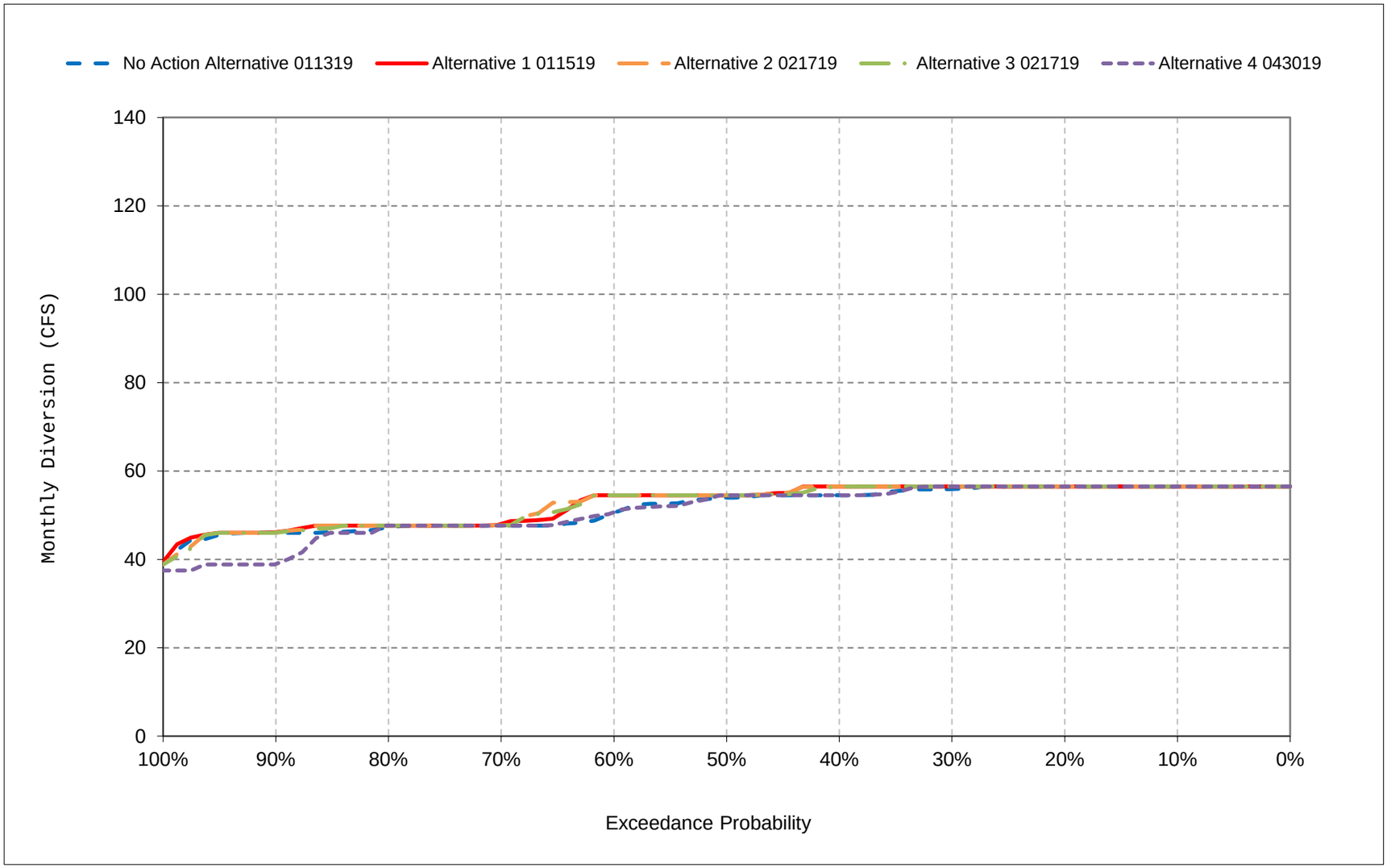
Figure 49-10. Folsom South Canal Diversion, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

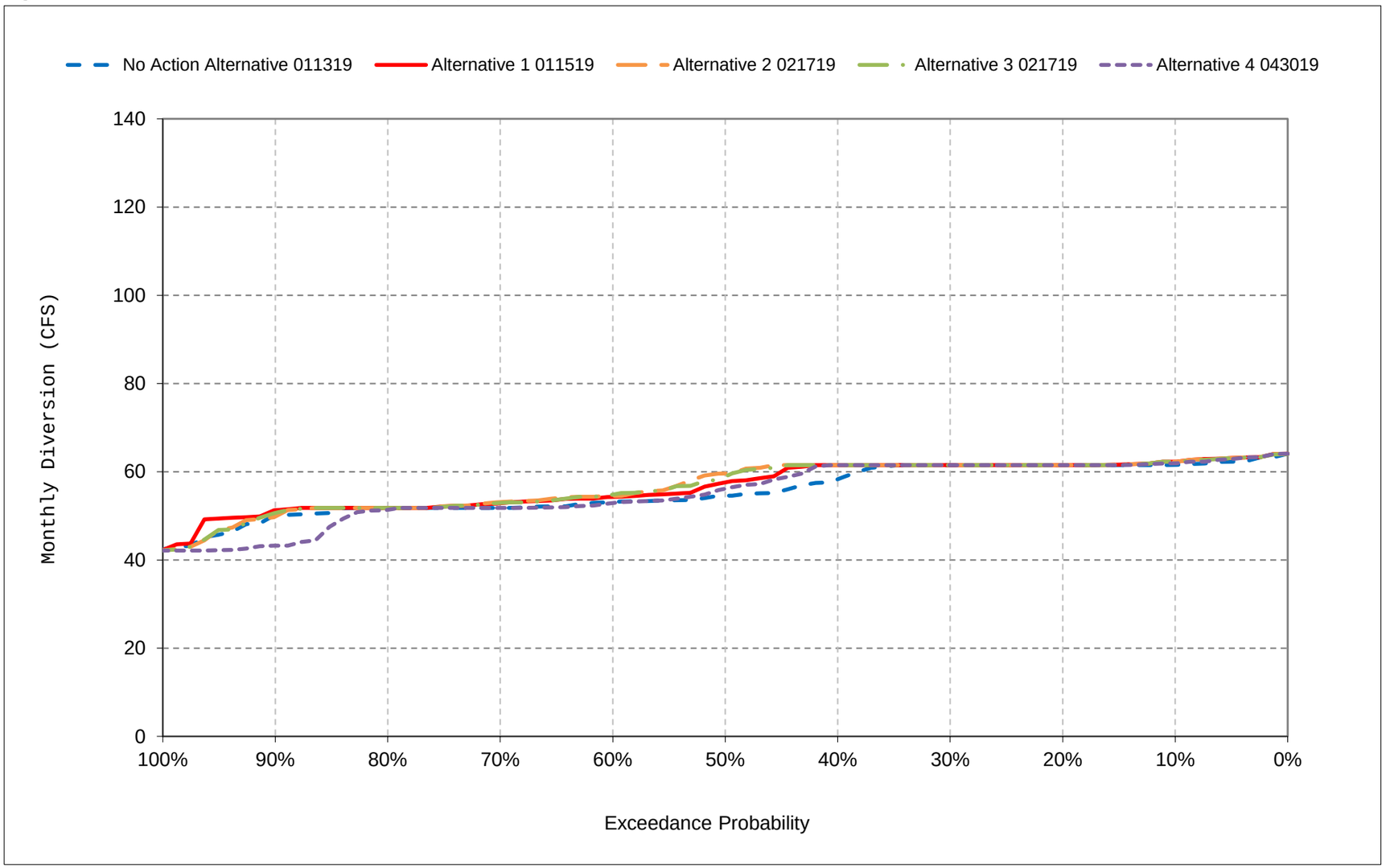
Figure 49-11. Folsom South Canal Diversion, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

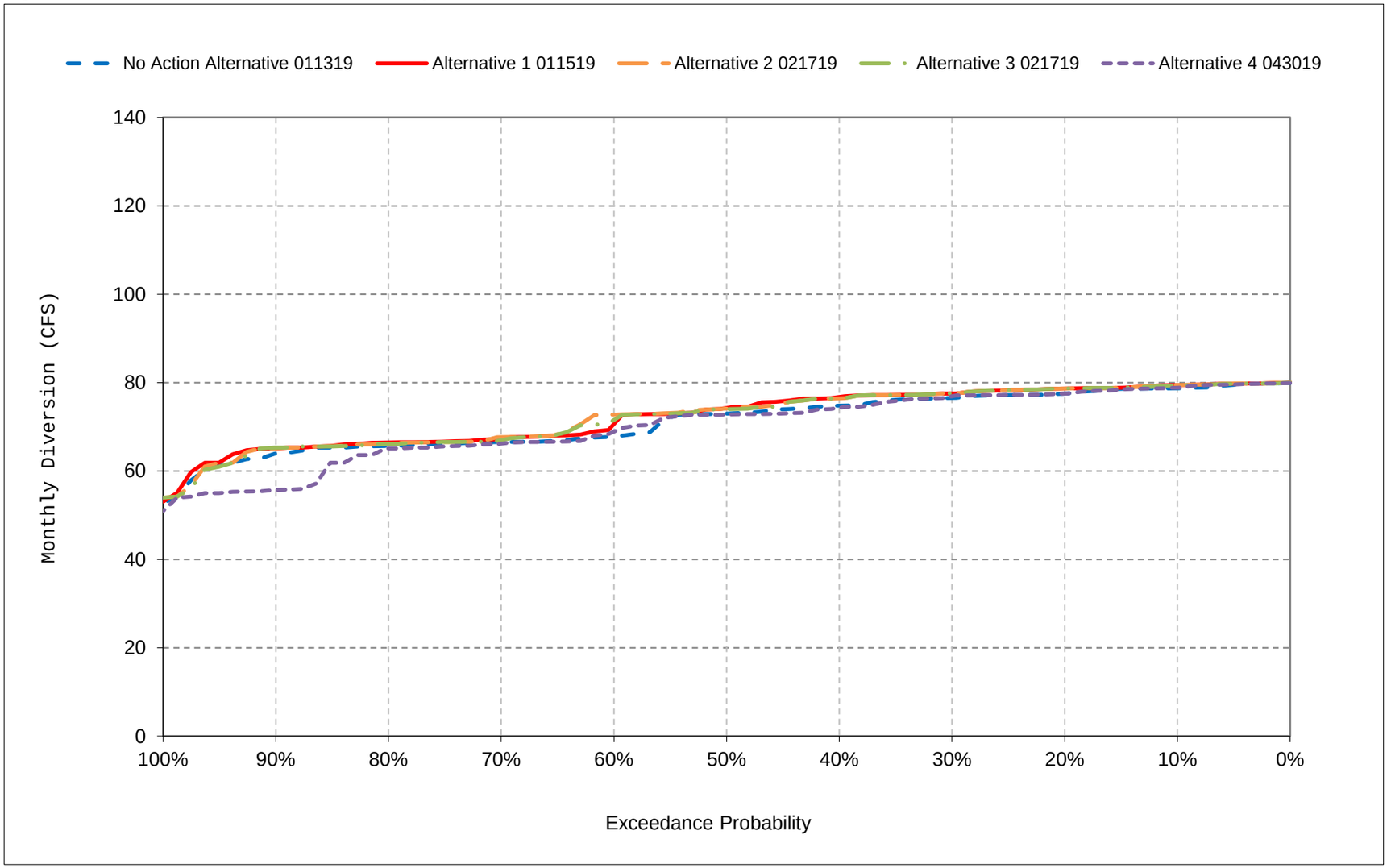
Figure 49-12. Folsom South Canal Diversion, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

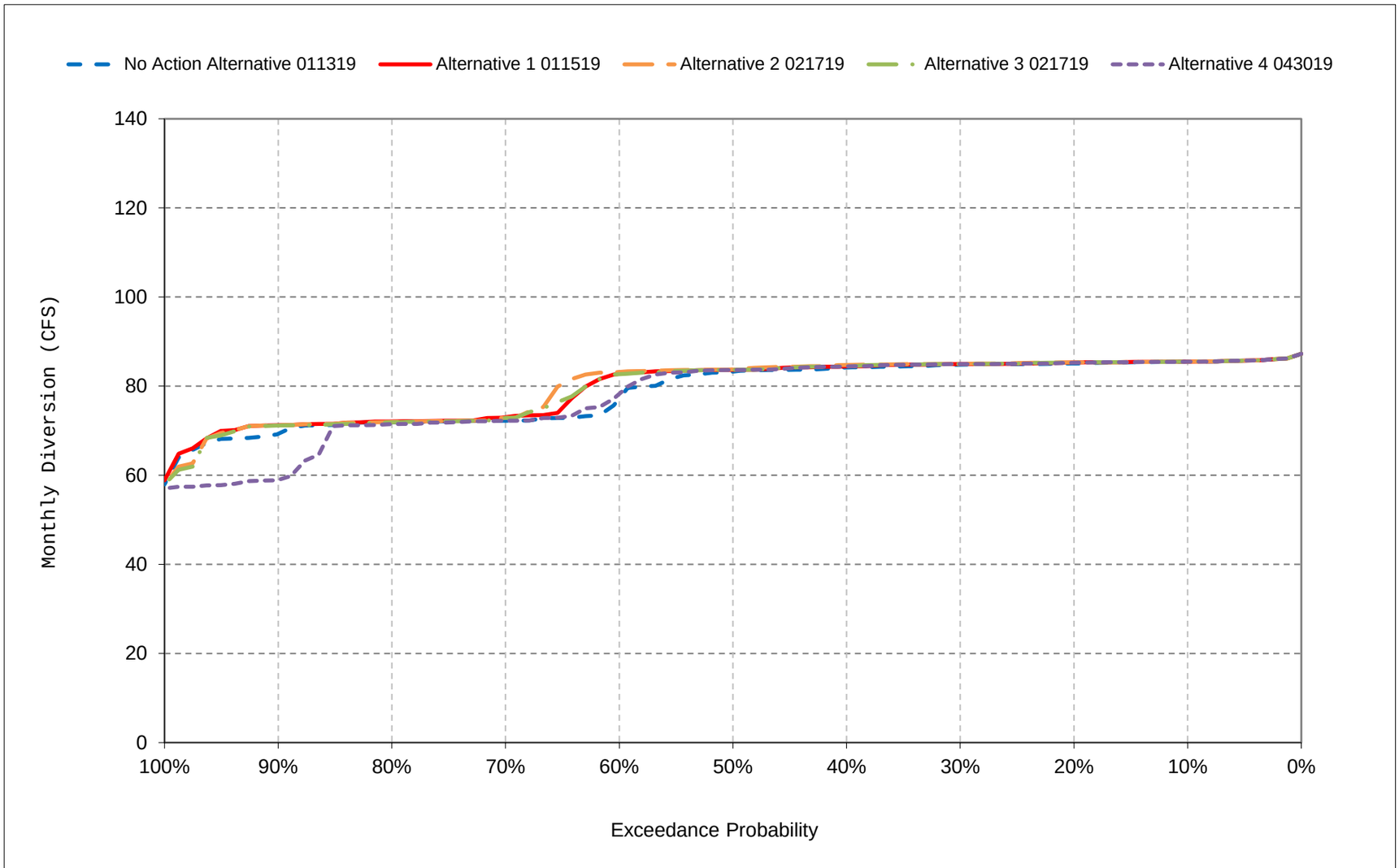
Figure 49-13. Folsom South Canal Diversion, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

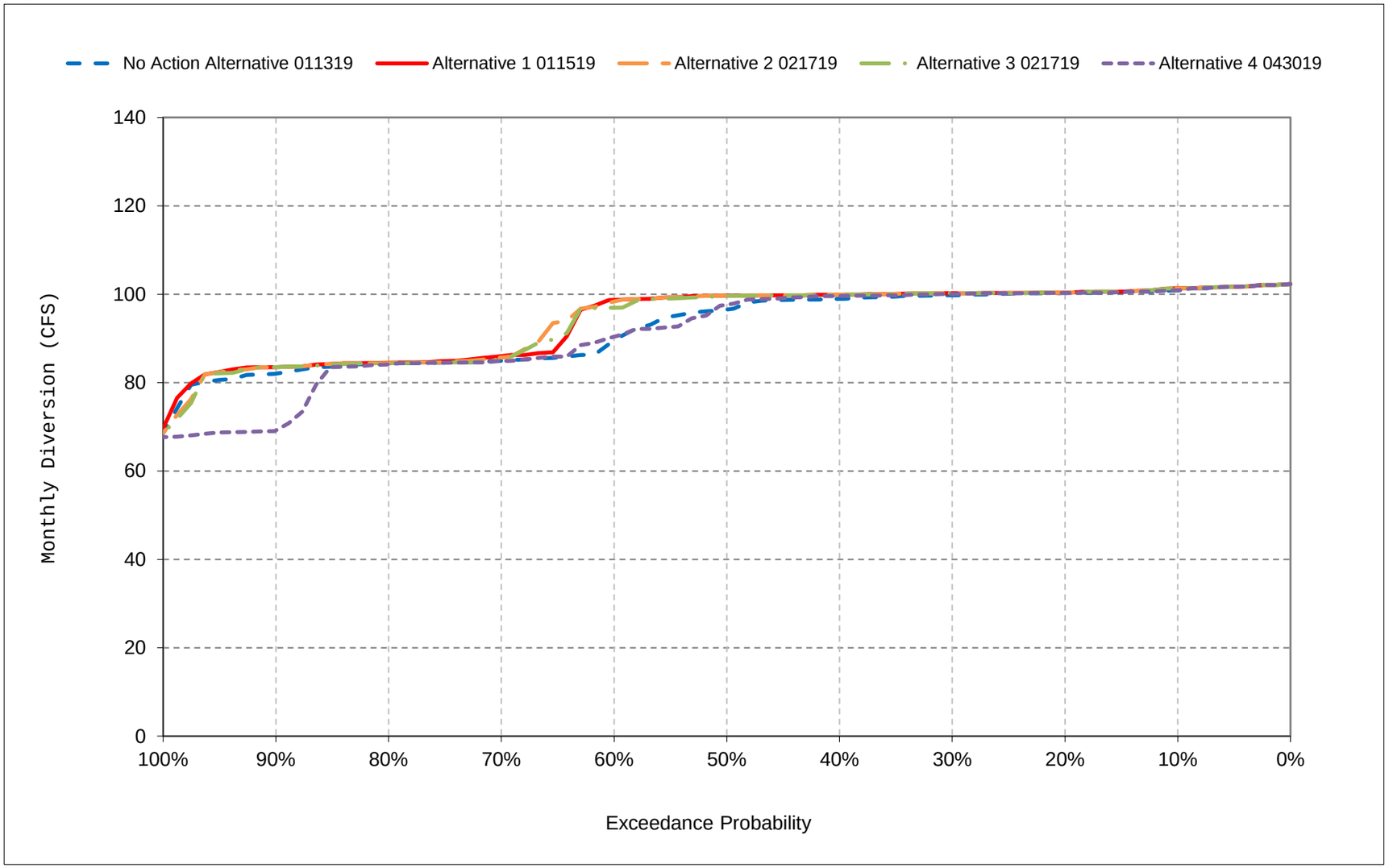
Figure 49-14. Folsom South Canal Diversion, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

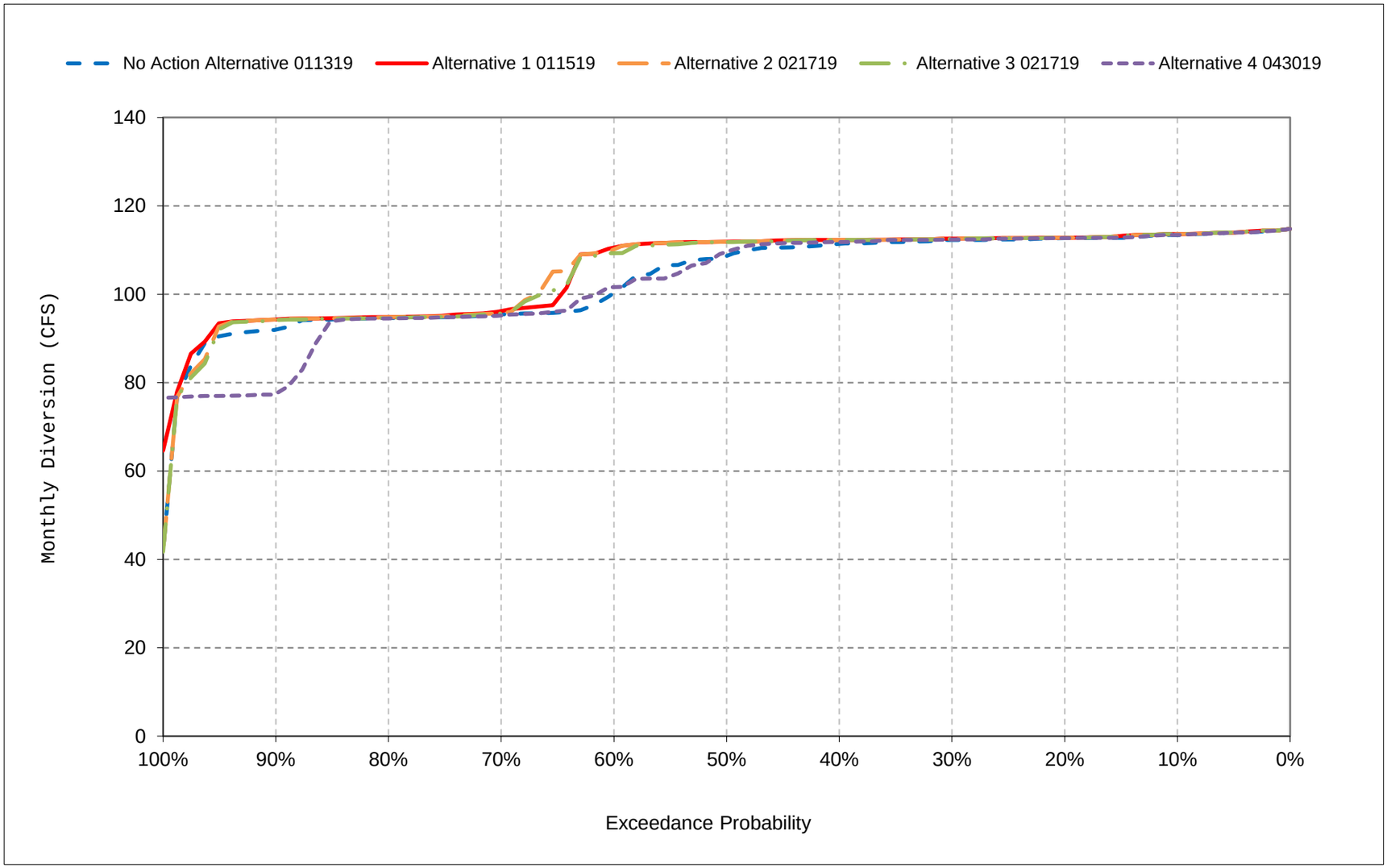
Figure 49-15. Folsom South Canal Diversion, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

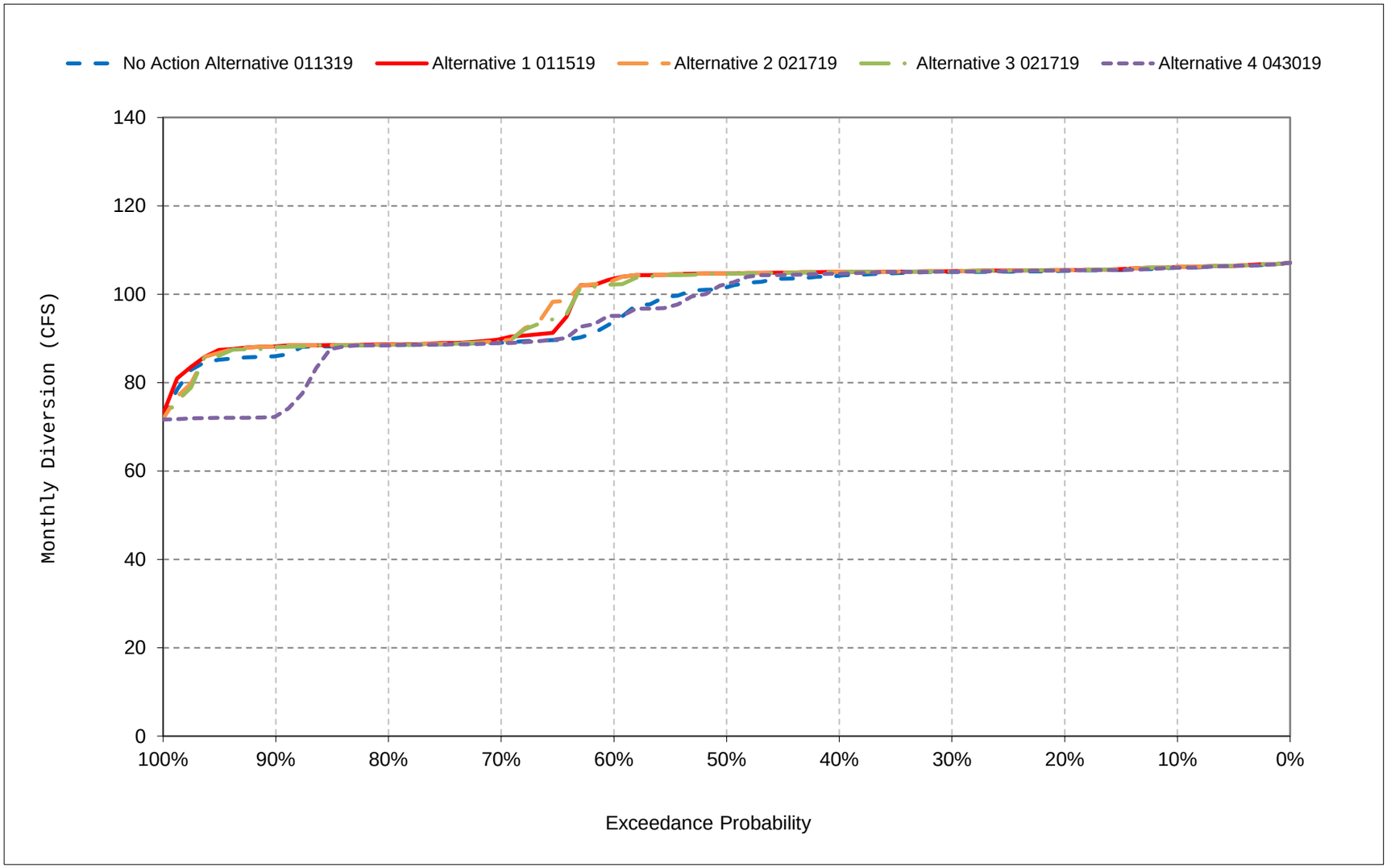
Figure 49-16. Folsom South Canal Diversion, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

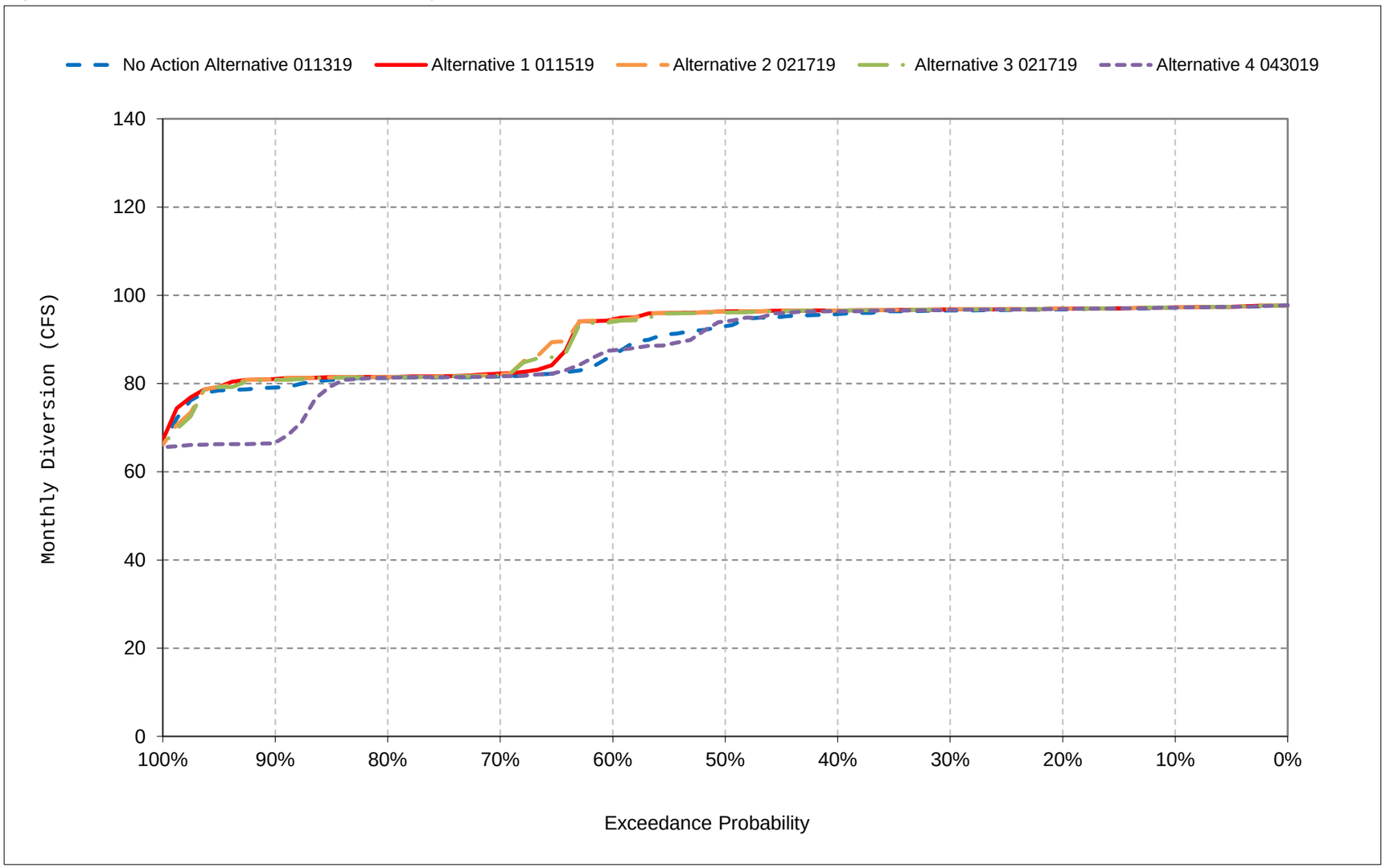
Figure 49-17. Folsom South Canal Diversion, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 49-18. Folsom South Canal Diversion, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 50-1. Friant-Kern Canal Diversion, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	635	240	204	675	1,675	1,576	1,693	3,143	4,362	3,742	3,254	1,819
20%	575	203	98	108	1,199	865	1,593	2,278	3,958	3,162	2,772	1,555
30%	540	166	88	92	777	777	1,518	2,047	3,021	2,878	2,523	1,419
40%	506	150	82	86	654	634	1,363	1,748	2,590	2,705	2,373	1,329
50%	482	143	72	77	499	553	1,048	1,452	2,164	2,300	2,056	1,104
60%	436	137	65	66	389	532	966	1,346	1,986	2,204	1,878	1,018
70%	395	132	29	61	355	472	788	1,215	1,836	2,056	1,499	911
80%	377	119	16	16	301	392	493	731	1,593	1,873	1,197	698
90%	353	117	16	16	209	291	389	548	1,170	1,460	890	529
Long Term												
Full Simulation Period[a]	526	184	104	199	718	738	1,171	1,645	2,527	2,517	2,055	1,180
Water Year Types[b,c]												
Wet (32%)	719	250	144	400	1,168	1,080	1,630	2,236	3,427	3,332	2,839	1,658
Above Normal (16%)	471	140	86	235	586	859	1,567	2,200	2,991	2,766	2,422	1,353
Below Normal (13%)	489	166	88	91	597	666	1,075	1,600	2,339	2,418	1,873	1,075
Dry (24%)	421	154	120	71	497	507	794	1,144	1,881	1,979	1,549	867
Critical (15%)	376	158	23	39	362	320	466	635	1,322	1,467	967	574

Alternative 1 011519

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	635	240	204	675	1,675	1,576	1,693	3,143	4,362	3,742	3,254	1,819
20%	575	203	98	108	1,199	865	1,593	2,278	3,958	3,162	2,772	1,555
30%	540	166	88	92	777	777	1,518	2,047	3,021	2,878	2,523	1,419
40%	506	150	82	86	654	634	1,363	1,748	2,590	2,705	2,373	1,329
50%	482	143	72	77	499	553	1,048	1,452	2,164	2,300	2,056	1,104
60%	436	137	65	66	389	532	966	1,346	1,986	2,204	1,878	1,018
70%	395	132	29	61	355	472	788	1,215	1,836	2,056	1,499	911
80%	377	119	16	16	301	392	493	731	1,593	1,873	1,197	698
90%	353	117	16	16	209	291	389	548	1,170	1,460	890	529
Long Term												
Full Simulation Period[a]	526	184	104	199	718	738	1,171	1,645	2,527	2,517	2,055	1,180
Water Year Types[b,c]												
Wet (32%)	719	250	144	400	1,168	1,080	1,630	2,236	3,427	3,332	2,839	1,658
Above Normal (16%)	471	140	86	235	586	859	1,567	2,200	2,991	2,766	2,422	1,353
Below Normal (13%)	489	166	88	91	597	666	1,075	1,600	2,339	2,418	1,873	1,075
Dry (24%)	421	154	120	71	497	507	794	1,144	1,881	1,979	1,549	867
Critical (15%)	376	158	23	39	362	320	466	635	1,322	1,467	967	574

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	**0**	**0**	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**0**	0	0	0	**0**	**0**	**0**	**0**	0	0	**0**	**0**
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	0	0	0	0	0	**0**	0	**0**	0
Below Normal (13%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (24%)	0	0	0	0	0	**0**	**0**	**0**	0	**0**	**0**	0
Critical (15%)	**0**	0	0	0	**0**	0	0	**0**	**0**	0	0	**0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 50-2. Friant-Kern Canal Diversion, Monthly Diversion

No Action Alternative 011319

Statistic	Monthly Diversion (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	635	240	204	675	1,675	1,576	1,693	3,143	4,362	3,742	3,254	1,819
20%	575	203	98	108	1,199	865	1,593	2,278	3,958	3,162	2,772	1,555
30%	540	166	88	92	777	777	1,518	2,047	3,021	2,878	2,523	1,419
40%	506	150	82	86	654	634	1,363	1,748	2,590	2,705	2,373	1,329
50%	482	143	72	77	499	553	1,048	1,452	2,164	2,300	2,056	1,104
60%	436	137	65	66	389	532	966	1,346	1,986	2,204	1,878	1,018
70%	395	132	29	61	355	472	788	1,215	1,836	2,056	1,499	911
80%	377	119	16	16	301	392	493	731	1,593	1,873	1,197	698
90%	353	117	16	16	209	291	389	548	1,170	1,460	890	529
Long Term												
Full Simulation Period[a]	526	184	104	199	718	738	1,171	1,645	2,527	2,517	2,055	1,180
Water Year Types[b,c]												
Wet (32%)	719	250	144	400	1,168	1,080	1,630	2,236	3,427	3,332	2,839	1,658
Above Normal (16%)	471	140	86	235	586	859	1,567	2,200	2,991	2,766	2,422	1,353
Below Normal (13%)	489	166	88	91	597	666	1,075	1,600	2,339	2,418	1,873	1,075
Dry (24%)	421	154	120	71	497	507	794	1,144	1,881	1,979	1,549	867
Critical (15%)	376	158	23	39	362	320	466	635	1,322	1,467	967	574

Alternative 2 021719

Statistic	Monthly Diversion (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	635	240	204	675	1,675	1,576	1,691	3,143	4,362	3,742	3,254	1,819
20%	575	203	98	108	1,199	863	1,593	2,278	3,958	3,151	2,762	1,549
30%	540	166	88	92	777	777	1,518	2,047	3,021	2,878	2,523	1,419
40%	506	150	82	86	654	634	1,363	1,748	2,590	2,705	2,373	1,329
50%	482	143	72	77	499	553	1,048	1,452	2,164	2,300	2,056	1,104
60%	436	137	65	66	389	532	966	1,346	1,986	2,204	1,878	1,018
70%	395	132	29	61	355	472	788	1,215	1,836	2,056	1,499	911
80%	377	119	16	16	301	392	493	731	1,593	1,873	1,197	698
90%	353	117	16	16	209	291	389	548	1,170	1,460	890	529
Long Term												
Full Simulation Period[a]	526	184	104	199	717	738	1,171	1,644	2,526	2,516	2,054	1,180
Water Year Types[b,c]												
Wet (32%)	719	250	144	400	1,168	1,080	1,630	2,236	3,427	3,332	2,839	1,658
Above Normal (16%)	471	140	86	235	586	859	1,567	2,200	2,991	2,766	2,422	1,353
Below Normal (13%)	489	166	88	91	597	666	1,075	1,600	2,339	2,418	1,873	1,075
Dry (24%)	421	154	120	71	497	507	794	1,144	1,881	1,979	1,549	867
Critical (15%)	375	158	23	39	362	320	465	634	1,319	1,464	964	573

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Diversion (CFS)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	**0**	0	0	0	0	**-2**	0	0	0	0	0
20%	0	0	0	0	0	**-2**	0	0	0	**-11**	**-10**	**-5**
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	**0**	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (13%)	0	**0**	0	0	0	0	0	0	0	0	0	0
Dry (24%)	0	0	0	**0**	0	0	0	0	0	0	0	0
Critical (15%)	**0**	**0**	**0**	**0**	**-1**	**-1**	**-1**	**-2**	**-2**	**-3**	**-2**	**-1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 50-3. Friant-Kern Canal Diversion, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	635	240	204	675	1,675	1,576	1,693	3,143	4,362	3,742	3,254	1,819
20%	575	203	98	108	1,199	865	1,593	2,278	3,958	3,162	2,772	1,555
30%	540	166	88	92	777	777	1,518	2,047	3,021	2,878	2,523	1,419
40%	506	150	82	86	654	634	1,363	1,748	2,590	2,705	2,373	1,329
50%	482	143	72	77	499	553	1,048	1,452	2,164	2,300	2,056	1,104
60%	436	137	65	66	389	532	966	1,346	1,986	2,204	1,878	1,018
70%	395	132	29	61	355	472	788	1,215	1,836	2,056	1,499	911
80%	377	119	16	16	301	392	493	731	1,593	1,873	1,197	698
90%	353	117	16	16	209	291	389	548	1,170	1,460	890	529
Long Term												
Full Simulation Period[a]	526	184	104	199	718	738	1,171	1,645	2,527	2,517	2,055	1,180
Water Year Types[b,c]												
Wet (32%)	719	250	144	400	1,168	1,080	1,630	2,236	3,427	3,332	2,839	1,658
Above Normal (16%)	471	140	86	235	586	859	1,567	2,200	2,991	2,766	2,422	1,353
Below Normal (13%)	489	166	88	91	597	666	1,075	1,600	2,339	2,418	1,873	1,075
Dry (24%)	421	154	120	71	497	507	794	1,144	1,881	1,979	1,549	867
Critical (15%)	376	158	23	39	362	320	466	635	1,322	1,467	967	574

Alternative 3 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	635	240	204	675	1,675	1,576	1,689	3,143	4,362	3,742	3,254	1,819
20%	575	203	98	108	1,199	861	1,593	2,278	3,958	3,146	2,757	1,547
30%	539	166	88	92	777	777	1,518	2,047	3,021	2,878	2,523	1,419
40%	506	150	82	86	654	634	1,363	1,748	2,590	2,705	2,373	1,329
50%	482	143	72	77	499	553	1,048	1,452	2,164	2,300	2,056	1,104
60%	436	137	65	66	389	532	966	1,346	1,986	2,204	1,878	1,018
70%	395	132	29	61	355	472	788	1,215	1,836	2,056	1,499	911
80%	377	119	16	16	301	392	493	731	1,593	1,873	1,197	698
90%	353	117	16	16	209	291	389	548	1,170	1,460	890	529
Long Term												
Full Simulation Period[a]	526	184	104	199	717	738	1,171	1,644	2,526	2,516	2,054	1,179
Water Year Types[b,c]												
Wet (32%)	719	250	144	400	1,168	1,080	1,630	2,236	3,427	3,332	2,839	1,658
Above Normal (16%)	471	140	86	235	585	859	1,567	2,200	2,991	2,766	2,422	1,353
Below Normal (13%)	489	166	88	91	597	666	1,075	1,600	2,339	2,418	1,873	1,075
Dry (24%)	421	154	120	71	497	507	794	1,144	1,881	1,979	1,549	867
Critical (15%)	375	158	23	39	361	318	463	632	1,316	1,461	962	571

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	-3	0	0	0	0	0
20%	0	0	0	0	0	-4	0	0	0	-17	-15	-8
30%	-1	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	-1	-1	-1	-1	0
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	-1	0	0	0	-1	-2	-3	-4	-5	-6	-5	-3

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 50-4. Friant-Kern Canal Diversion, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	635	240	204	675	1,675	1,576	1,693	3,143	4,362	3,742	3,254	1,819
20%	575	203	98	108	1,199	865	1,593	2,278	3,958	3,162	2,772	1,555
30%	540	166	88	92	777	777	1,518	2,047	3,021	2,878	2,523	1,419
40%	506	150	82	86	654	634	1,363	1,748	2,590	2,705	2,373	1,329
50%	482	143	72	77	499	553	1,048	1,452	2,164	2,300	2,056	1,104
60%	436	137	65	66	389	532	966	1,346	1,986	2,204	1,878	1,018
70%	395	132	29	61	355	472	788	1,215	1,836	2,056	1,499	911
80%	377	119	16	16	301	392	493	731	1,593	1,873	1,197	698
90%	353	117	16	16	209	291	389	548	1,170	1,460	890	529
Long Term												
Full Simulation Period[a]	526	184	104	199	718	738	1,171	1,645	2,527	2,517	2,055	1,180
Water Year Types[b,c]												
Wet (32%)	719	250	144	400	1,168	1,080	1,630	2,236	3,427	3,332	2,839	1,658
Above Normal (16%)	471	140	86	235	586	859	1,567	2,200	2,991	2,766	2,422	1,353
Below Normal (13%)	489	166	88	91	597	666	1,075	1,600	2,339	2,418	1,873	1,075
Dry (24%)	421	154	120	71	497	507	794	1,144	1,881	1,979	1,549	867
Critical (15%)	376	158	23	39	362	320	466	635	1,322	1,467	967	574

Alternative 4 043019

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	635	240	204	675	1,675	1,576	1,693	3,143	4,362	3,742	3,254	1,819
20%	575	203	98	108	1,199	865	1,593	2,278	3,958	3,162	2,772	1,555
30%	540	166	88	92	777	777	1,518	2,047	3,021	2,878	2,523	1,419
40%	506	150	82	86	654	634	1,363	1,748	2,590	2,705	2,373	1,329
50%	482	143	72	77	499	553	1,048	1,452	2,164	2,300	2,056	1,104
60%	436	137	65	66	389	532	966	1,346	1,986	2,204	1,878	1,018
70%	395	132	29	61	355	472	788	1,215	1,836	2,056	1,499	911
80%	377	119	16	16	301	392	493	731	1,593	1,873	1,197	698
90%	353	117	16	16	209	291	389	548	1,170	1,460	890	529
Long Term												
Full Simulation Period[a]	526	184	104	199	718	738	1,171	1,645	2,527	2,517	2,055	1,180
Water Year Types[b,c]												
Wet (32%)	719	250	144	400	1,168	1,080	1,630	2,236	3,427	3,332	2,839	1,658
Above Normal (16%)	471	140	86	235	586	859	1,567	2,200	2,991	2,766	2,422	1,353
Below Normal (13%)	489	166	88	91	597	666	1,075	1,600	2,339	2,418	1,873	1,075
Dry (24%)	421	154	120	71	497	507	794	1,144	1,881	1,979	1,549	867
Critical (15%)	376	158	23	39	362	320	466	635	1,322	1,467	967	574

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	**0**	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	**0**	0	0	0	**0**	0	**0**	0	**0**
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (24%)	0	0	0	**0**	0	0	0	0	0	**0**	0	0
Critical (15%)	0	0	0	0	0	0	0	**0**	0	0	0	**0**

a Based on the 82-year simulation period.

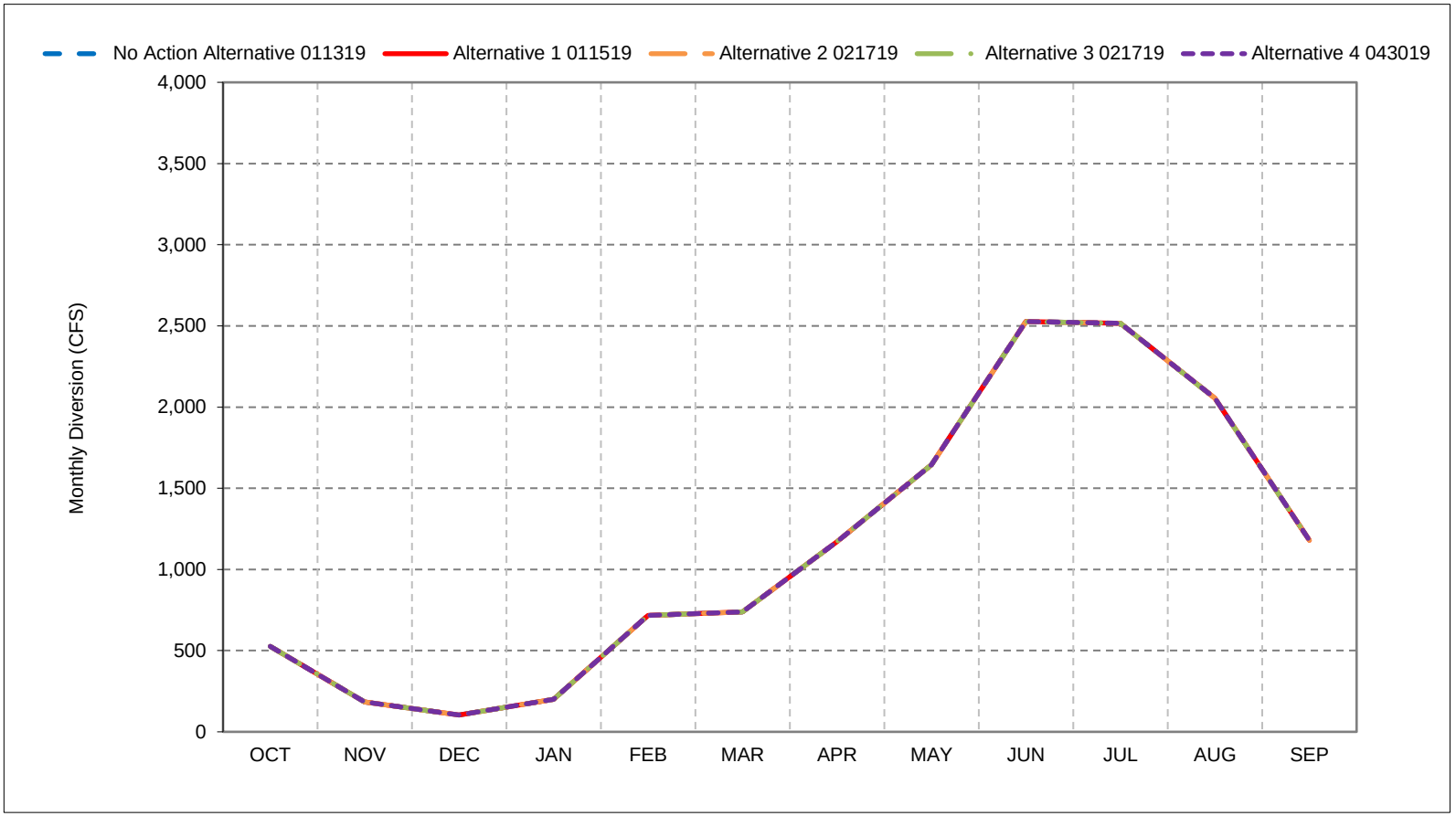
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

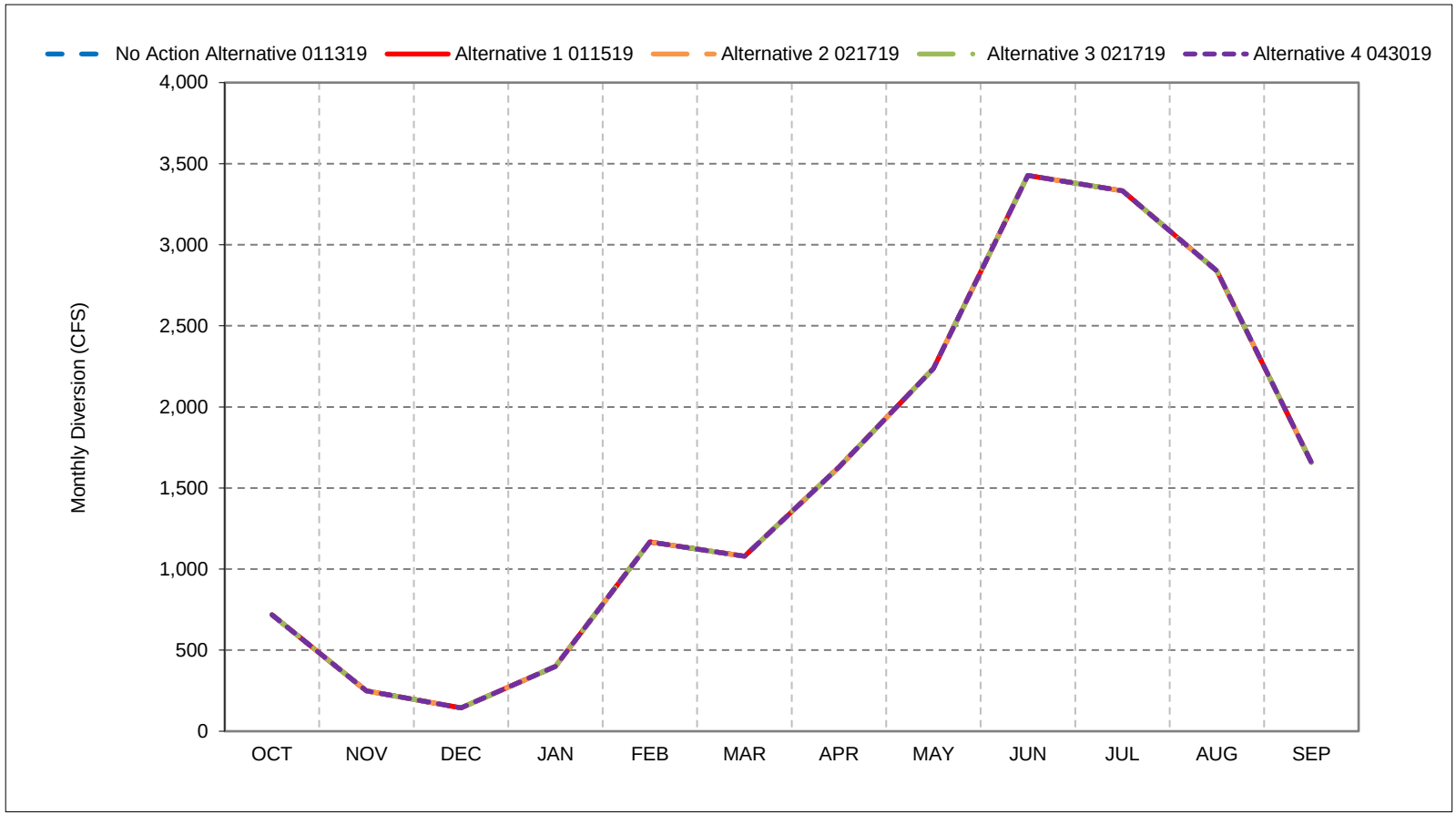
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 50-1. Friant-Kern Canal Diversion, Long-Term Average Diversion



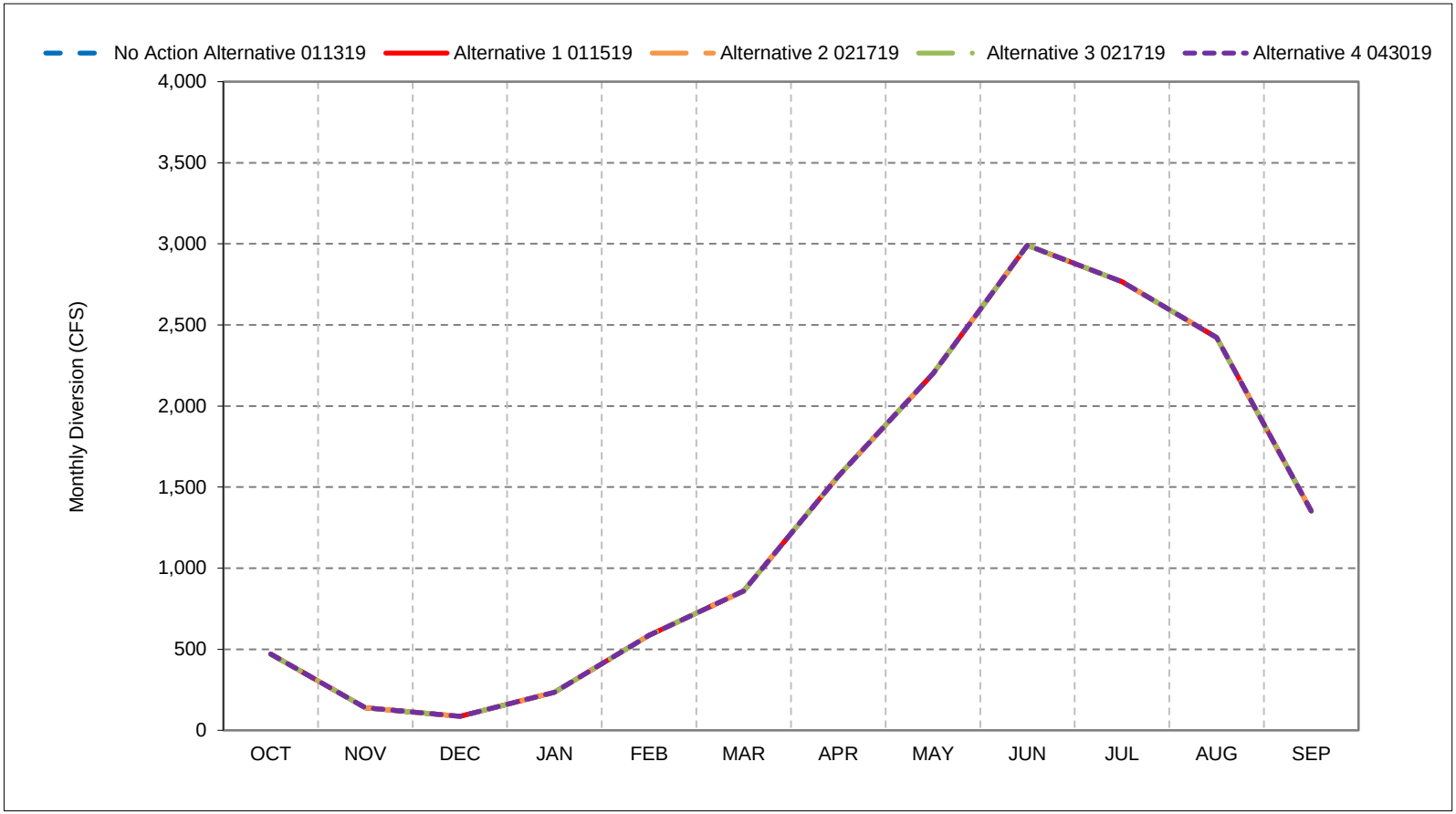
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 50-2. Friant-Kern Canal Diversion, Wet Year Average Diversion



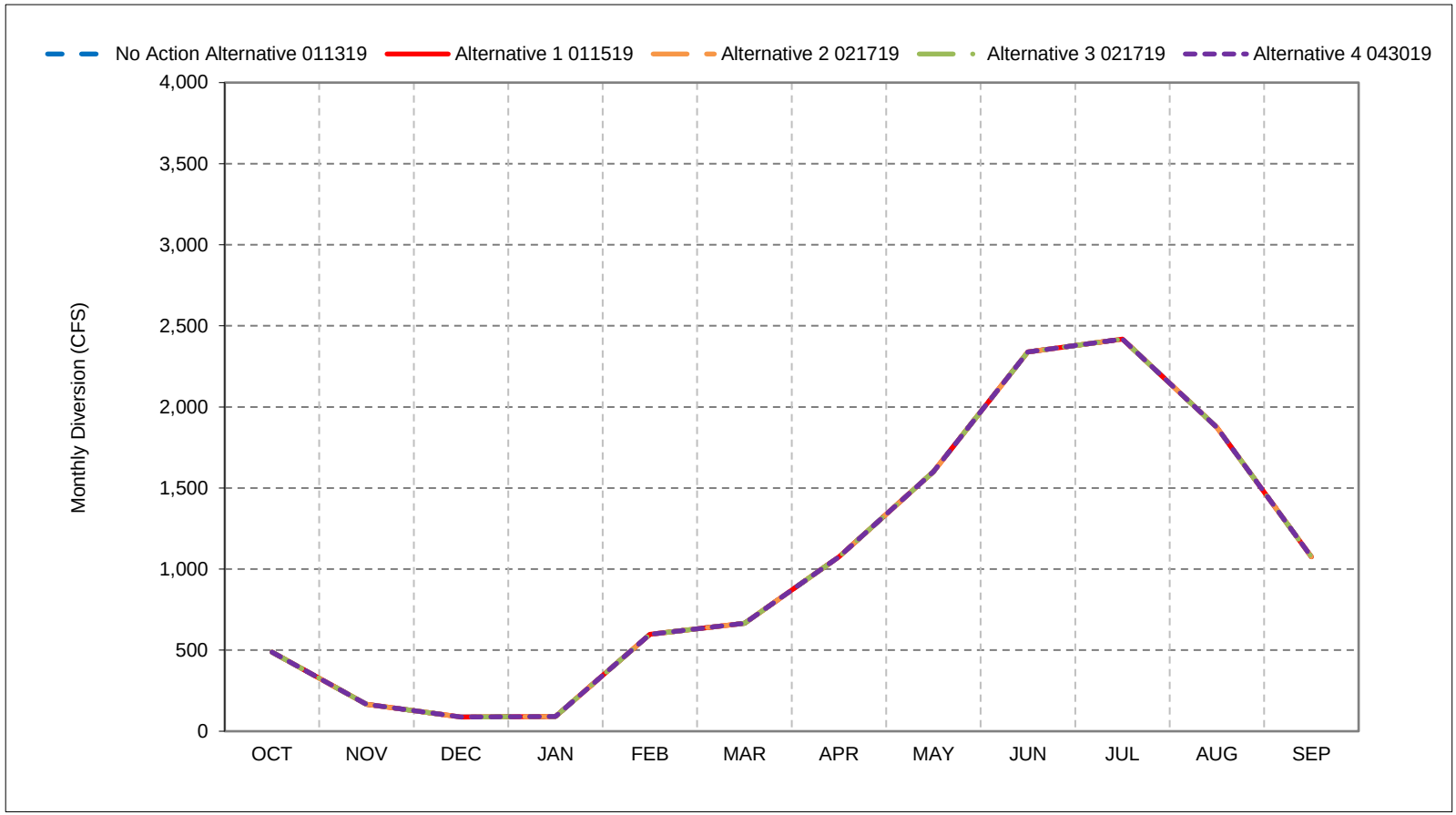
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 50-3. Friant-Kern Canal Diversion, Above Normal Year Average Diversion



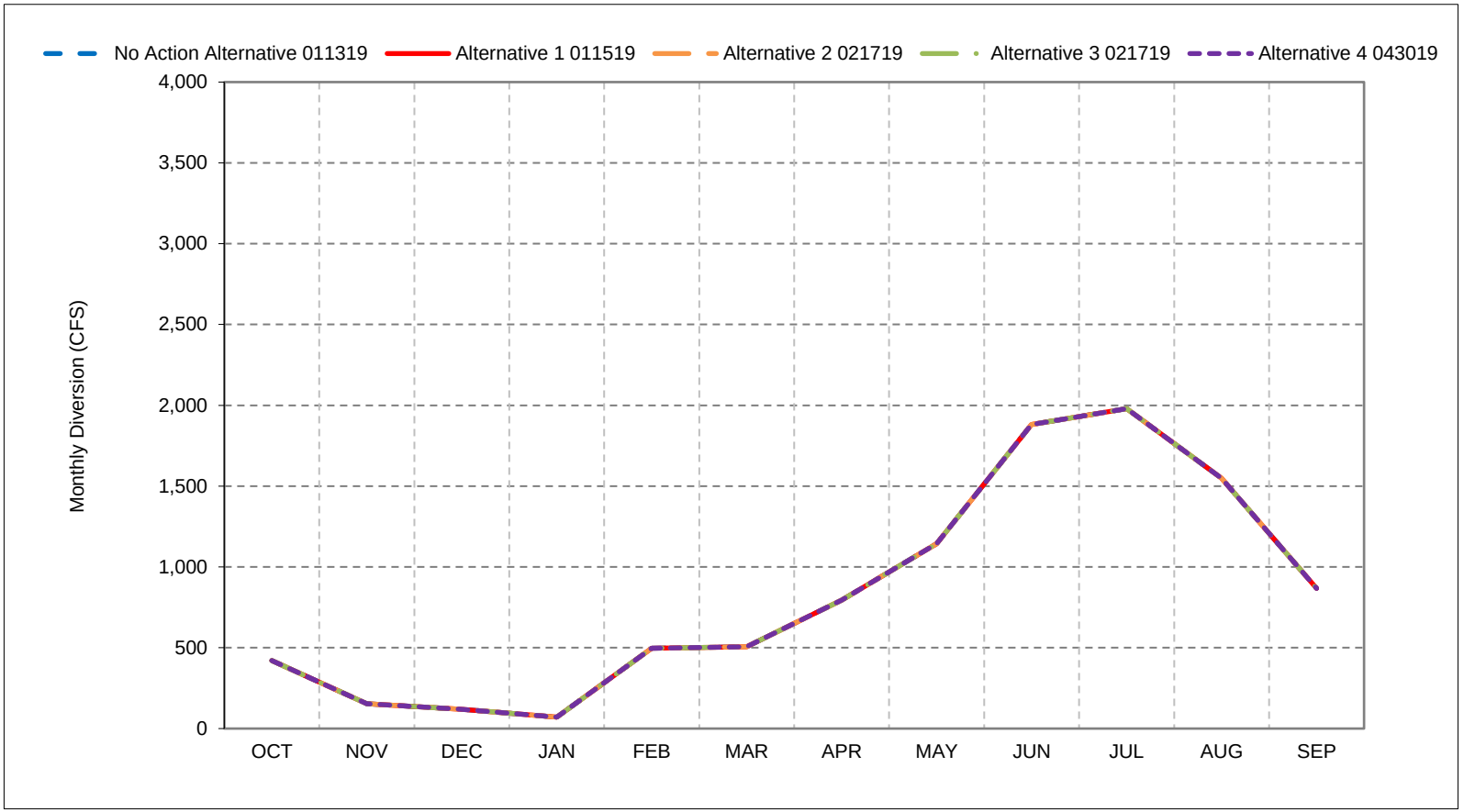
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 50-4. Friant-Kern Canal Diversion, Below Normal Year Average Diversion



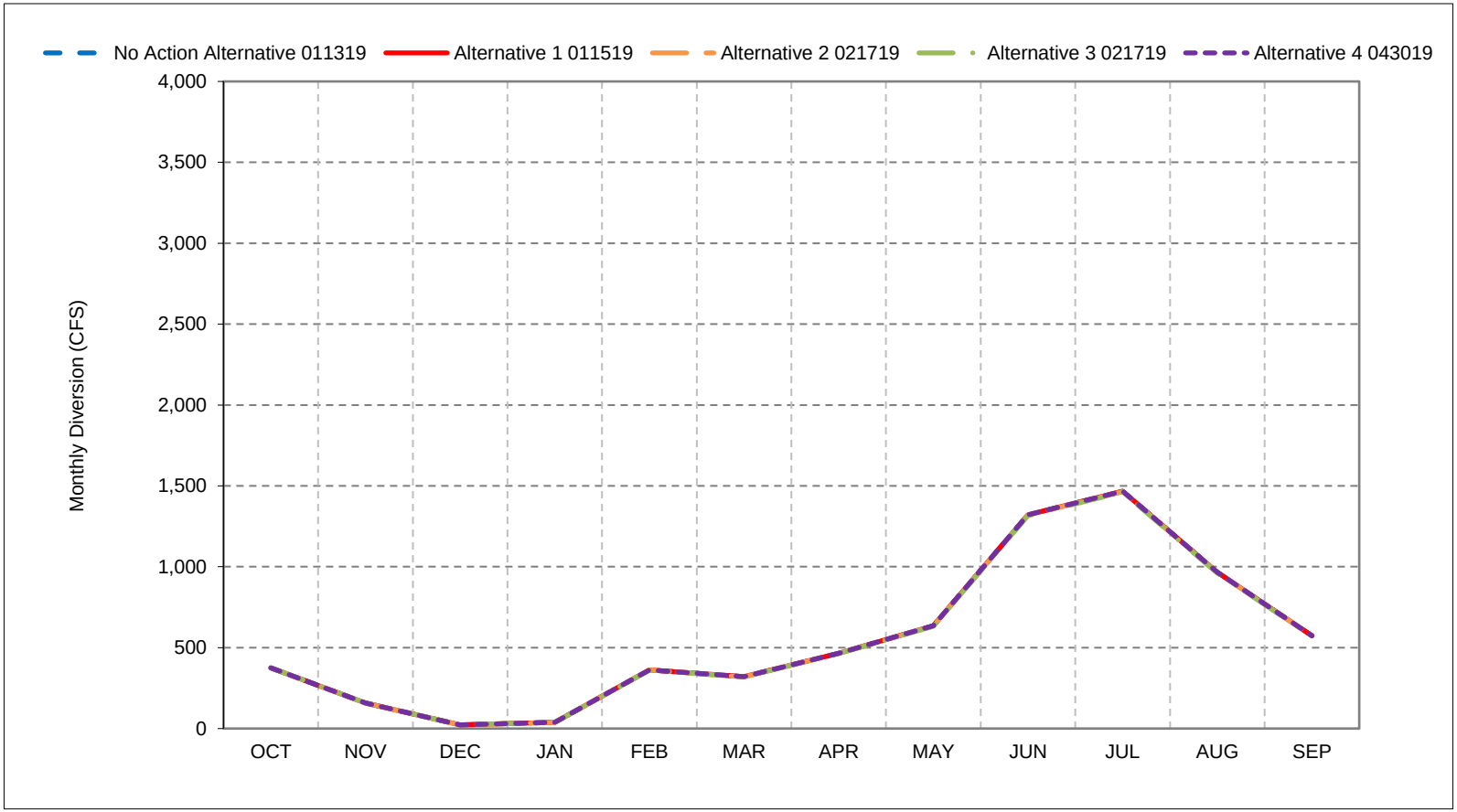
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 50-5. Friant-Kern Canal Diversion, Dry Year Average Diversion



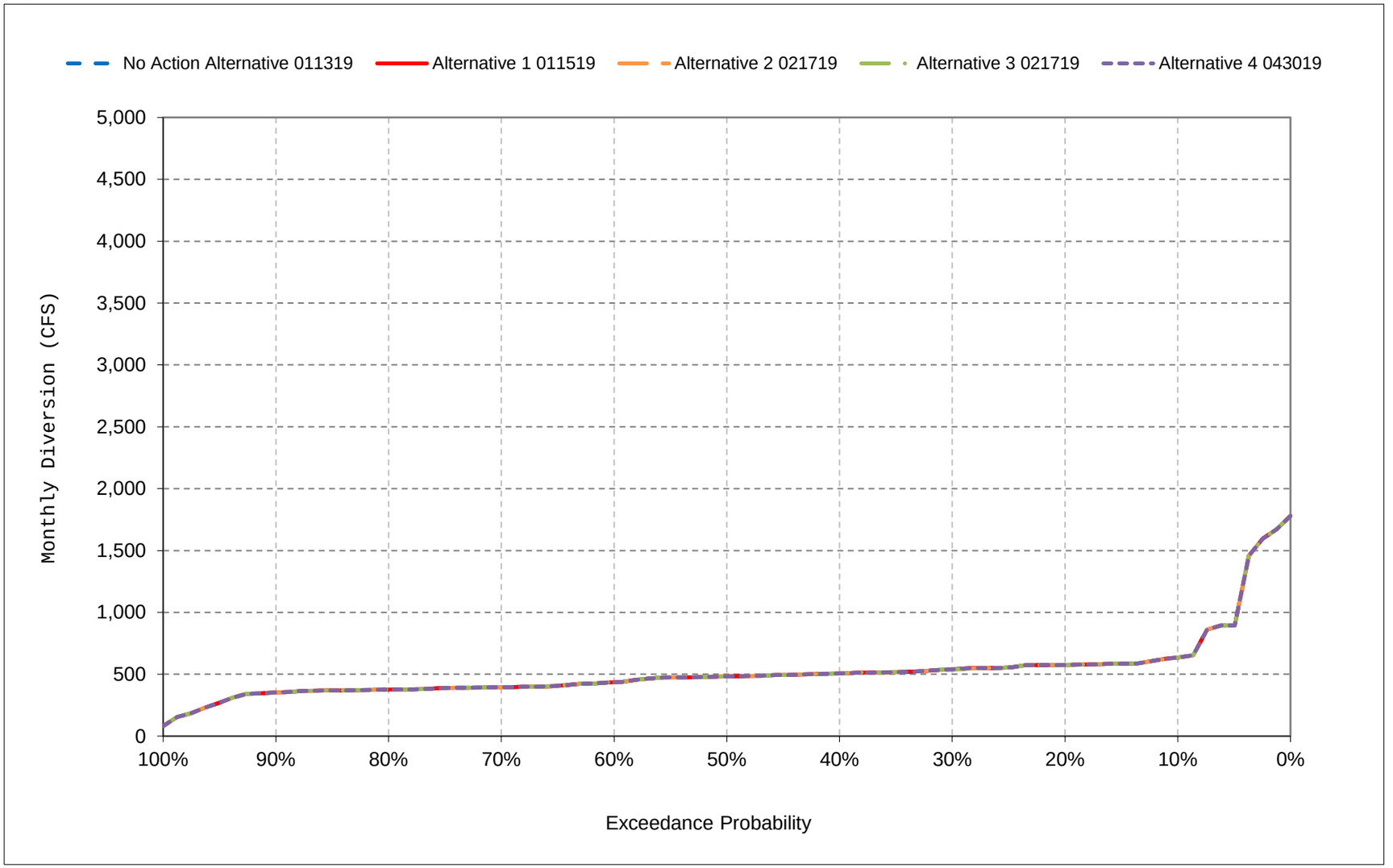
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 50-6. Friant-Kern Canal Diversion, Critical Year Average Diversion



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

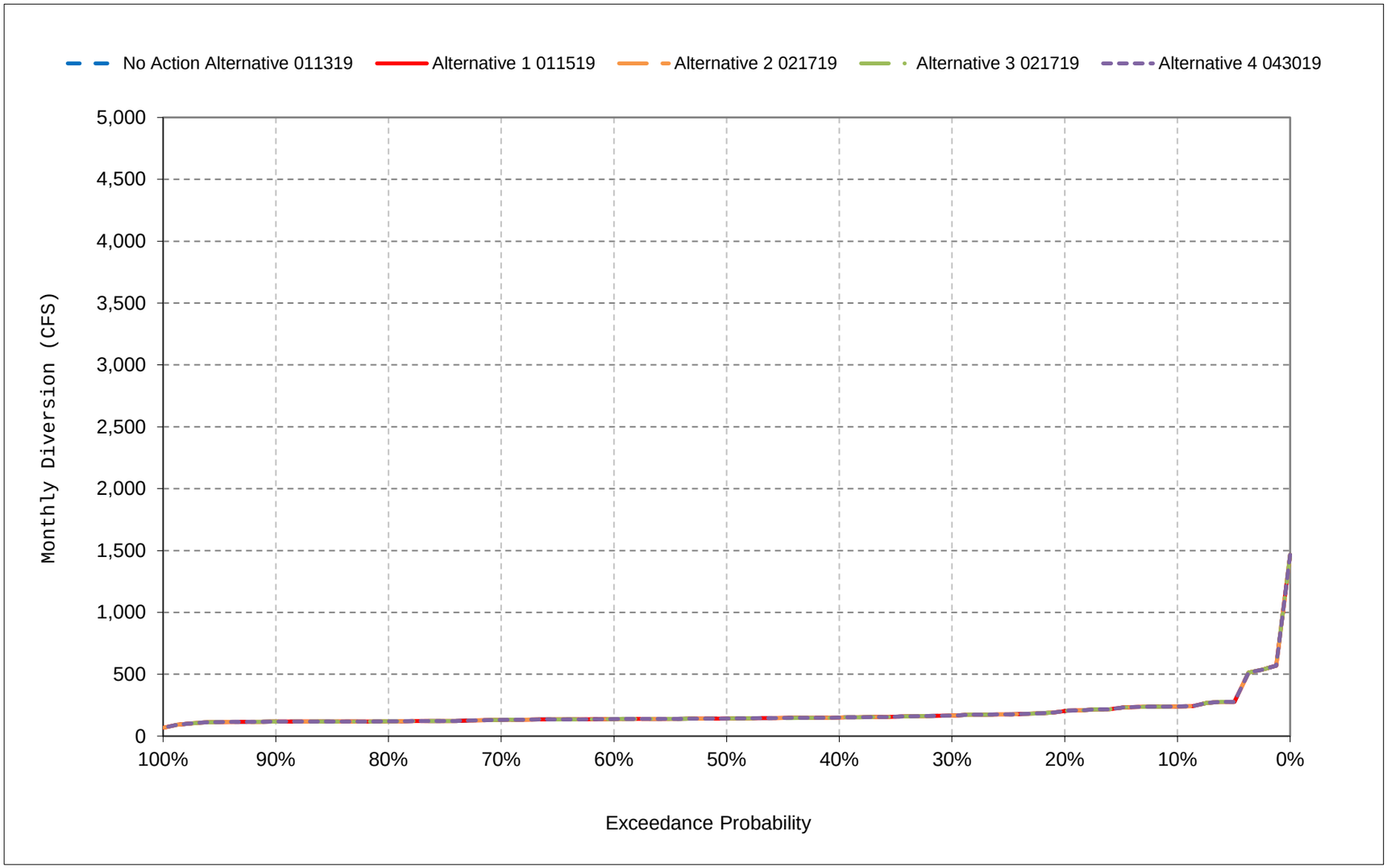
Figure 50-7. Friant-Kern Canal Diversion, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

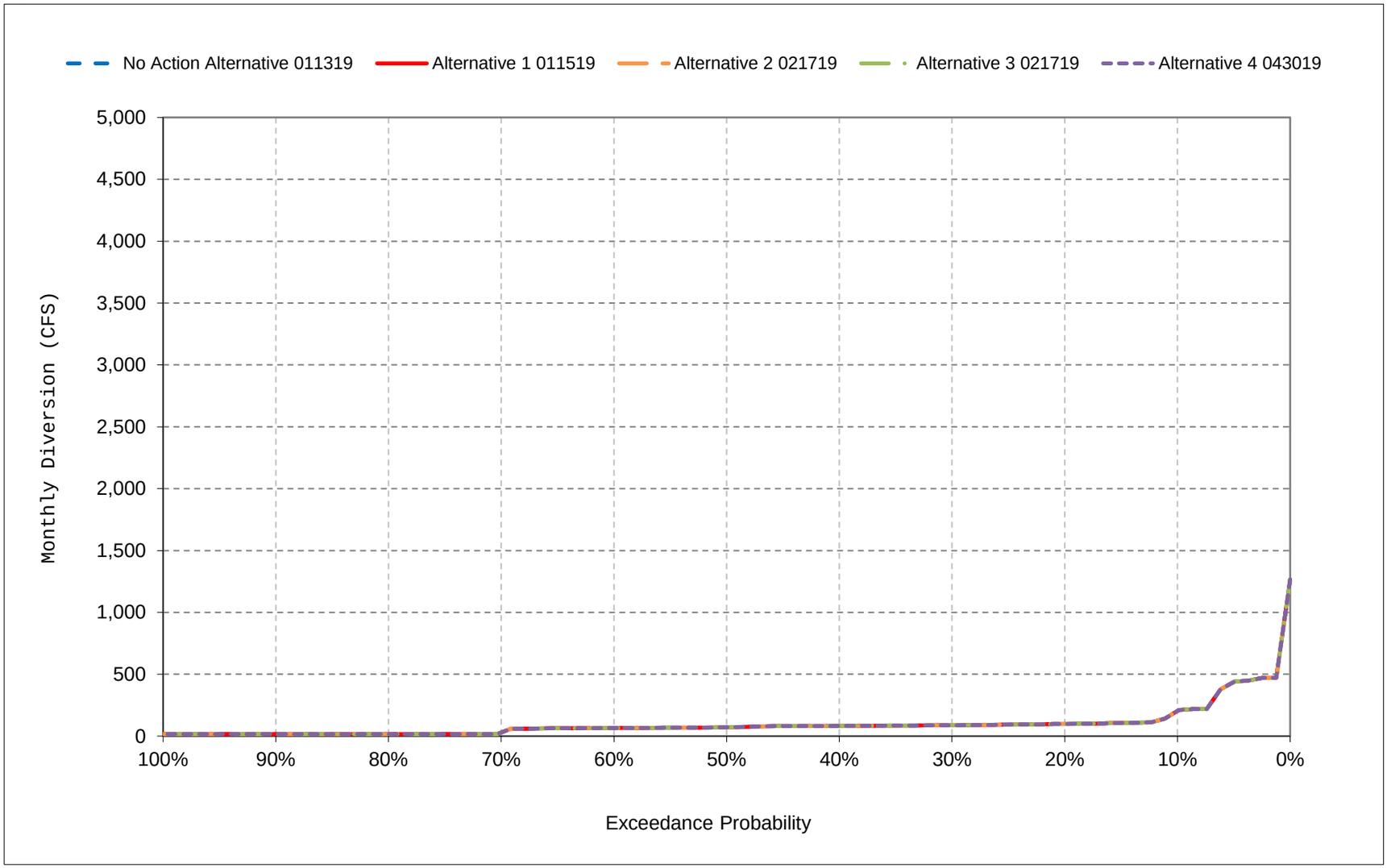
Figure 50-8. Friant-Kern Canal Diversion, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

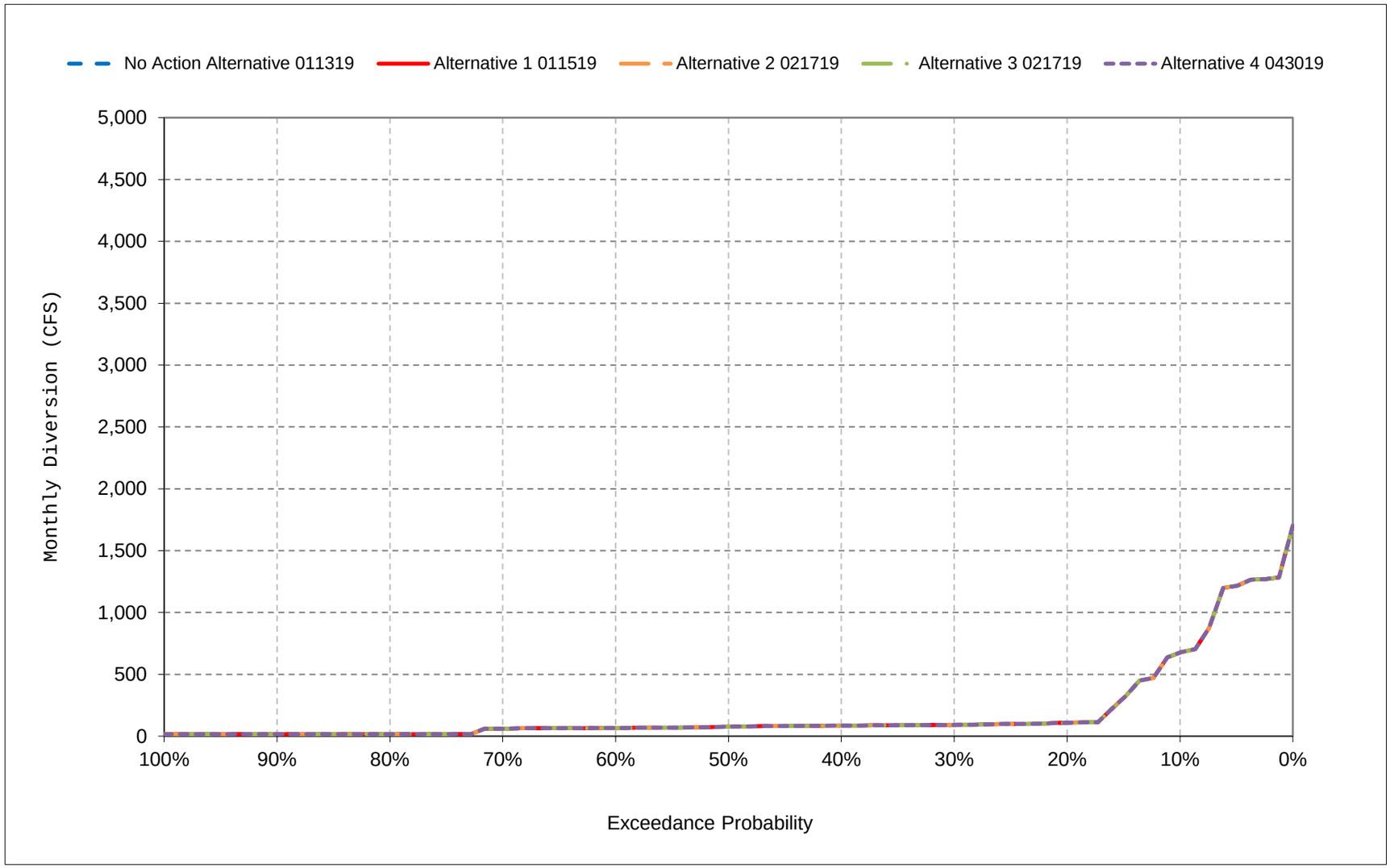
Figure 50-9. Friant-Kern Canal Diversion, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

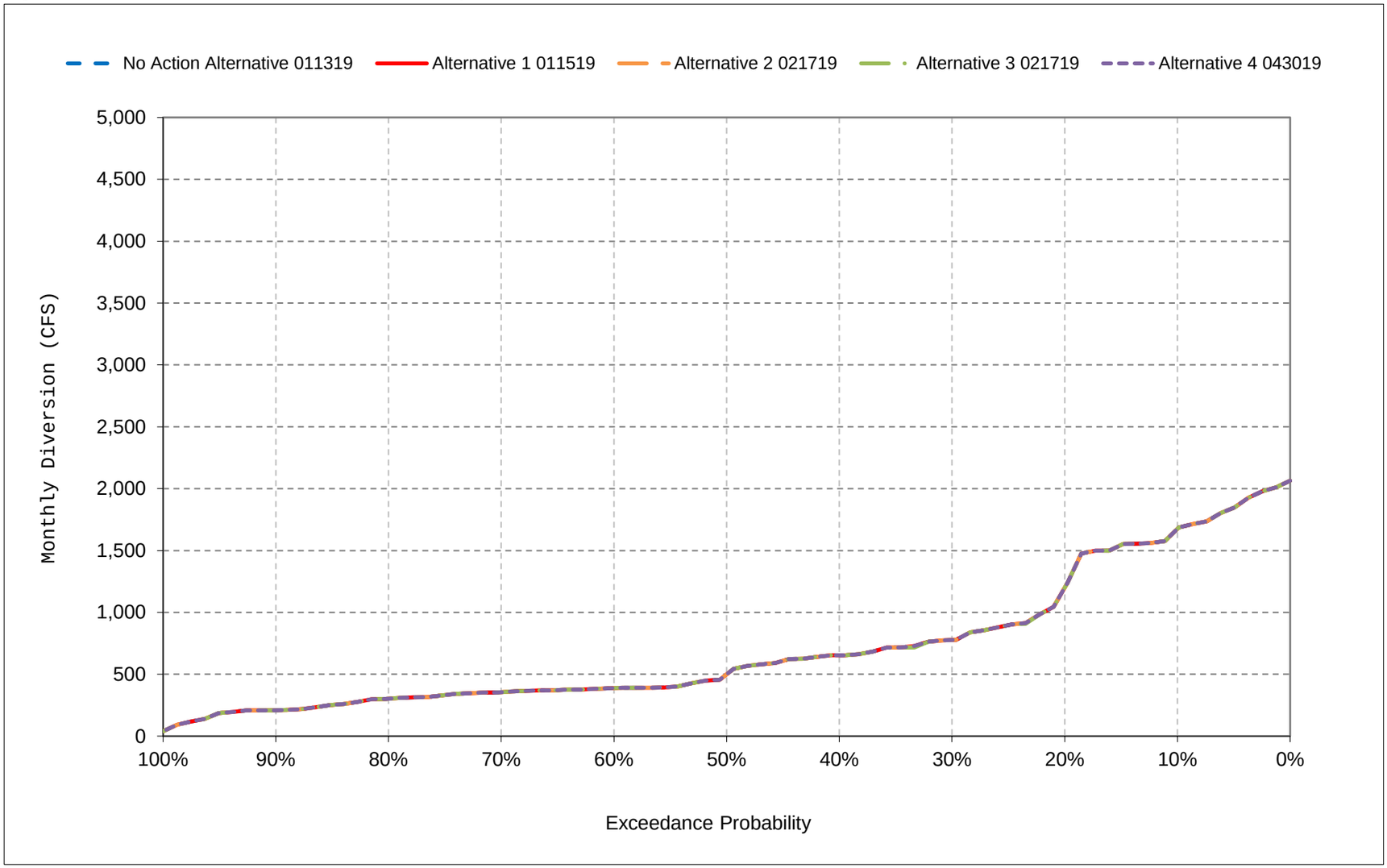
Figure 50-10. Friant-Kern Canal Diversion, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

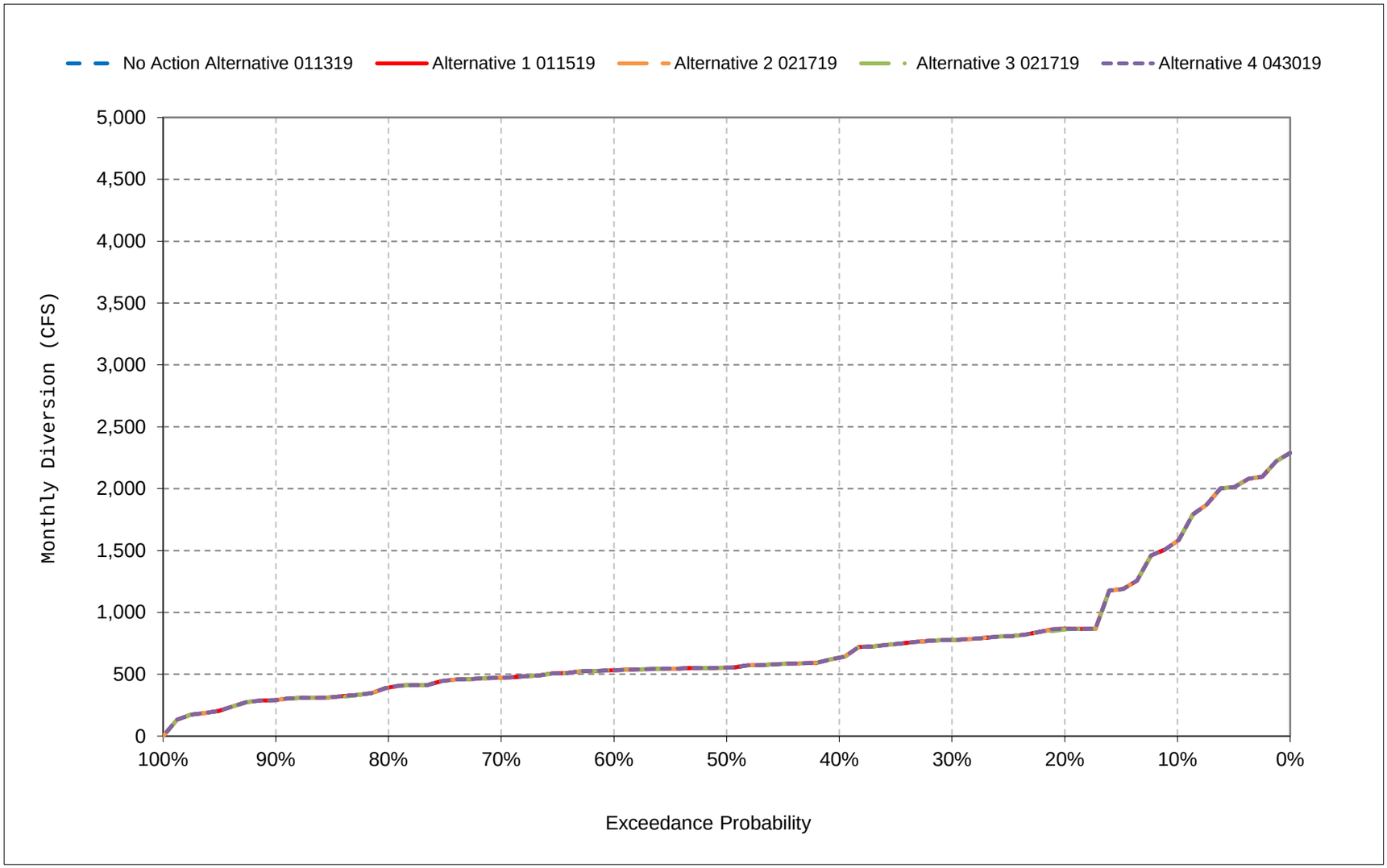
Figure 50-11. Friant-Kern Canal Diversion, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

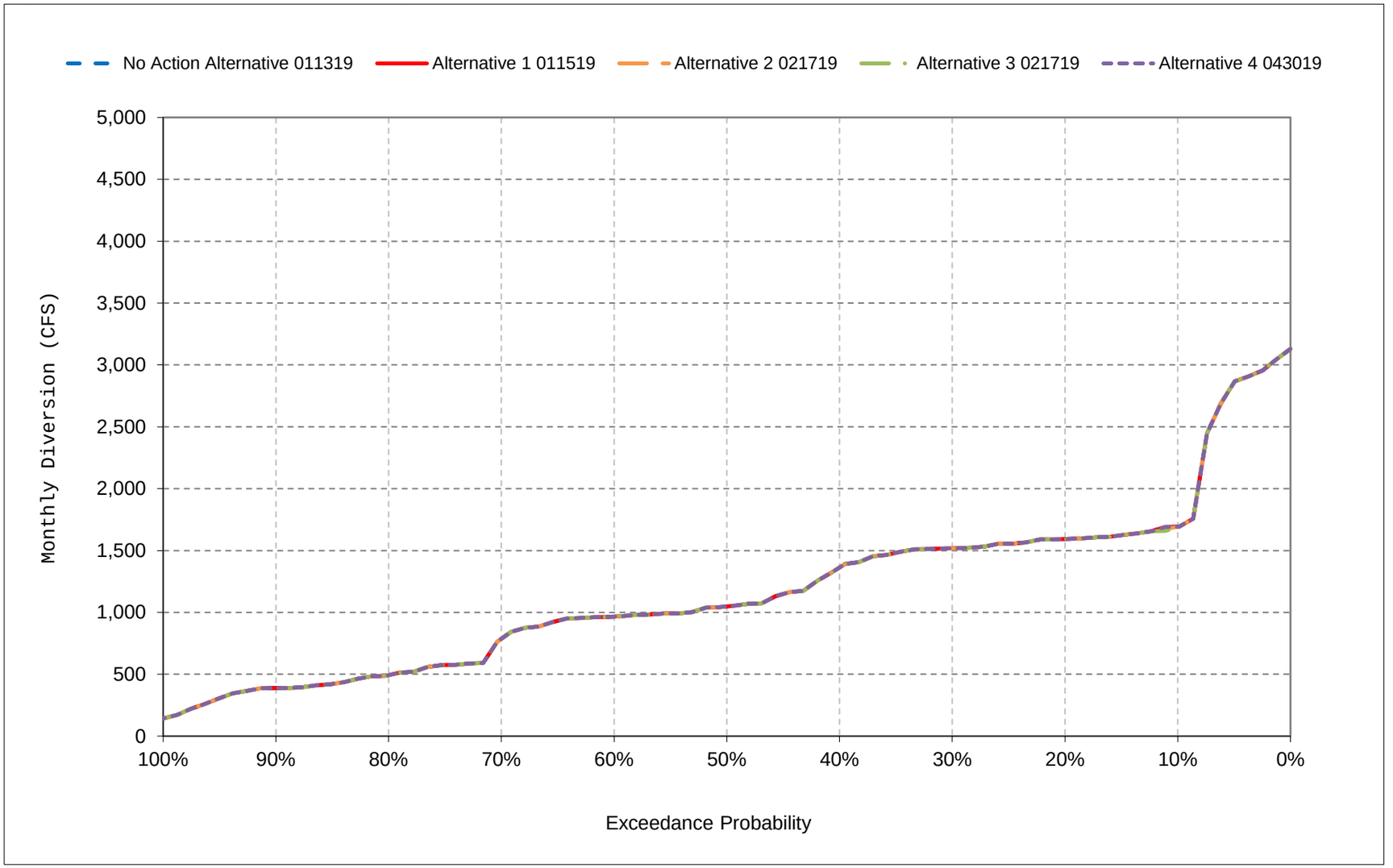
Figure 50-12. Friant-Kern Canal Diversion, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

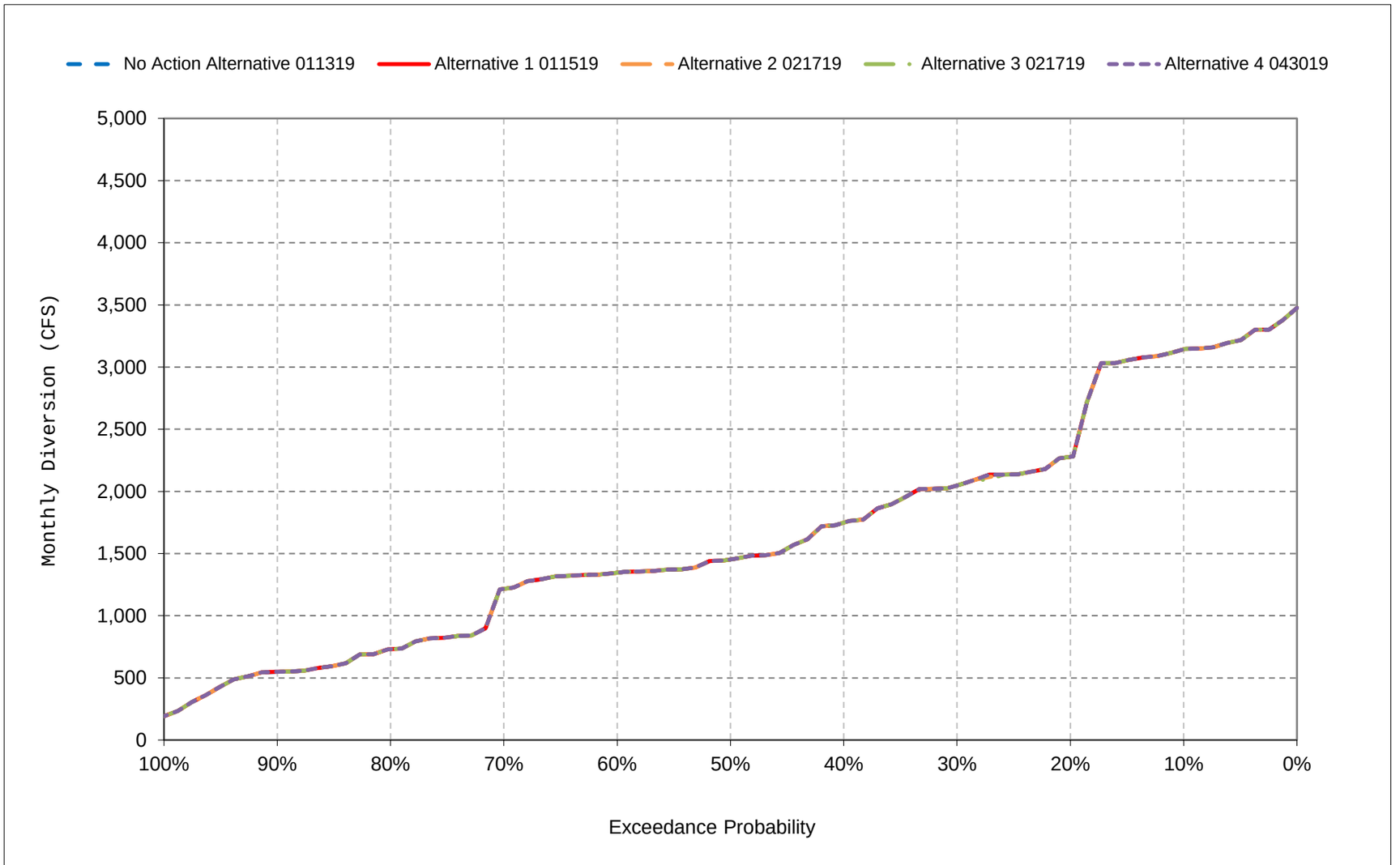
Figure 50-13. Friant-Kern Canal Diversion, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

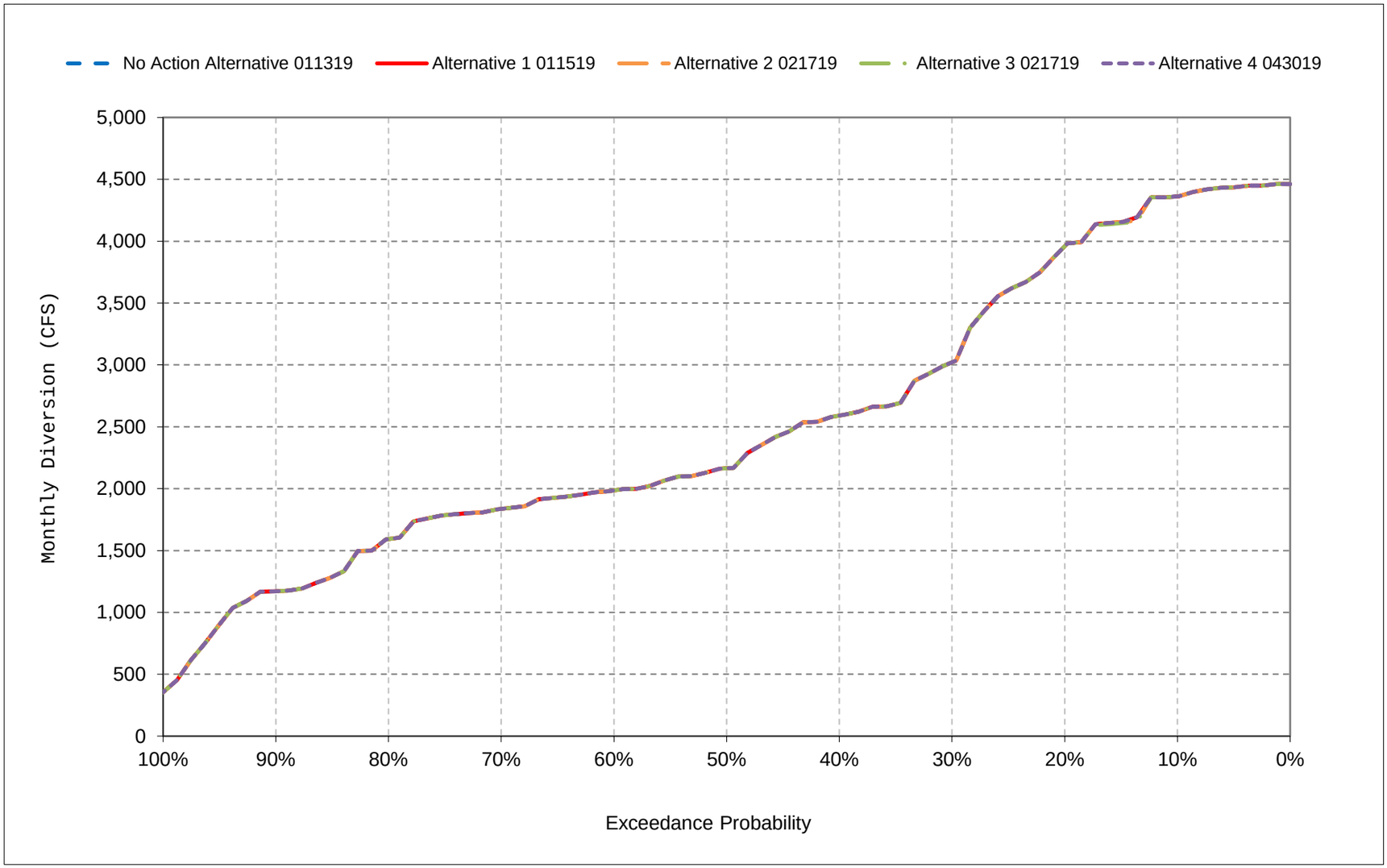
Figure 50-14. Friant-Kern Canal Diversion, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

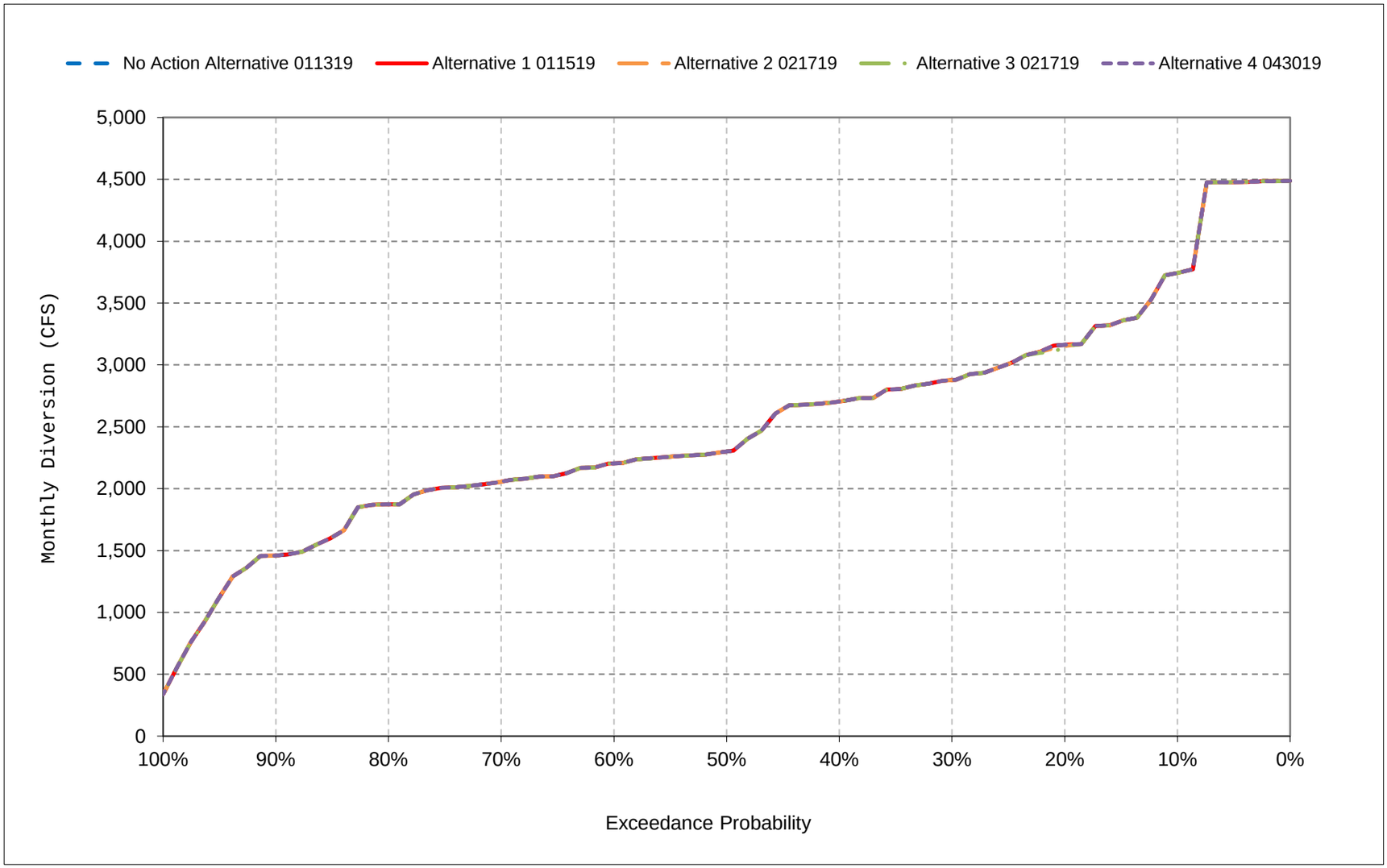
Figure 50-15. Friant-Kern Canal Diversion, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

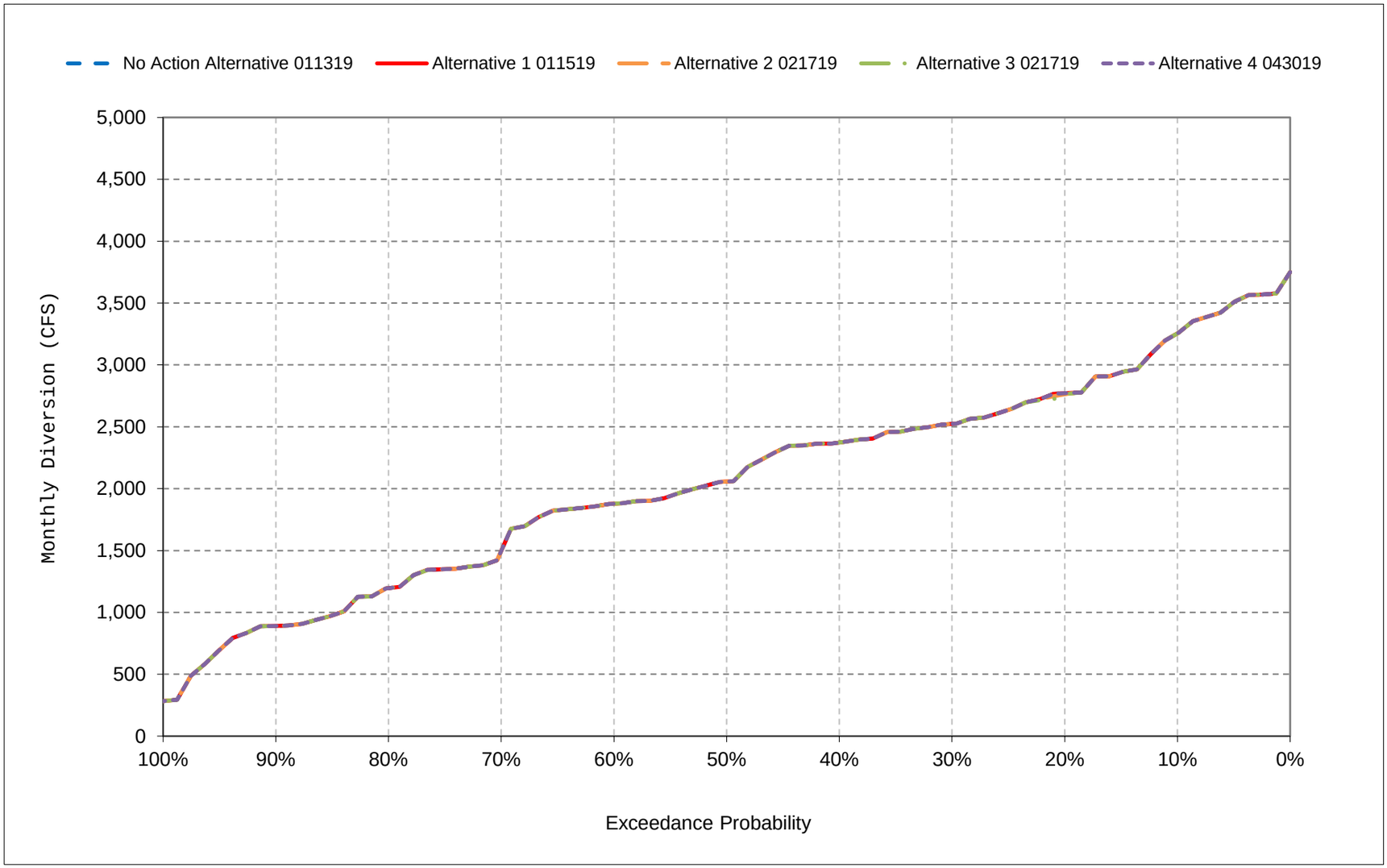
Figure 50-16. Friant-Kern Canal Diversion, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

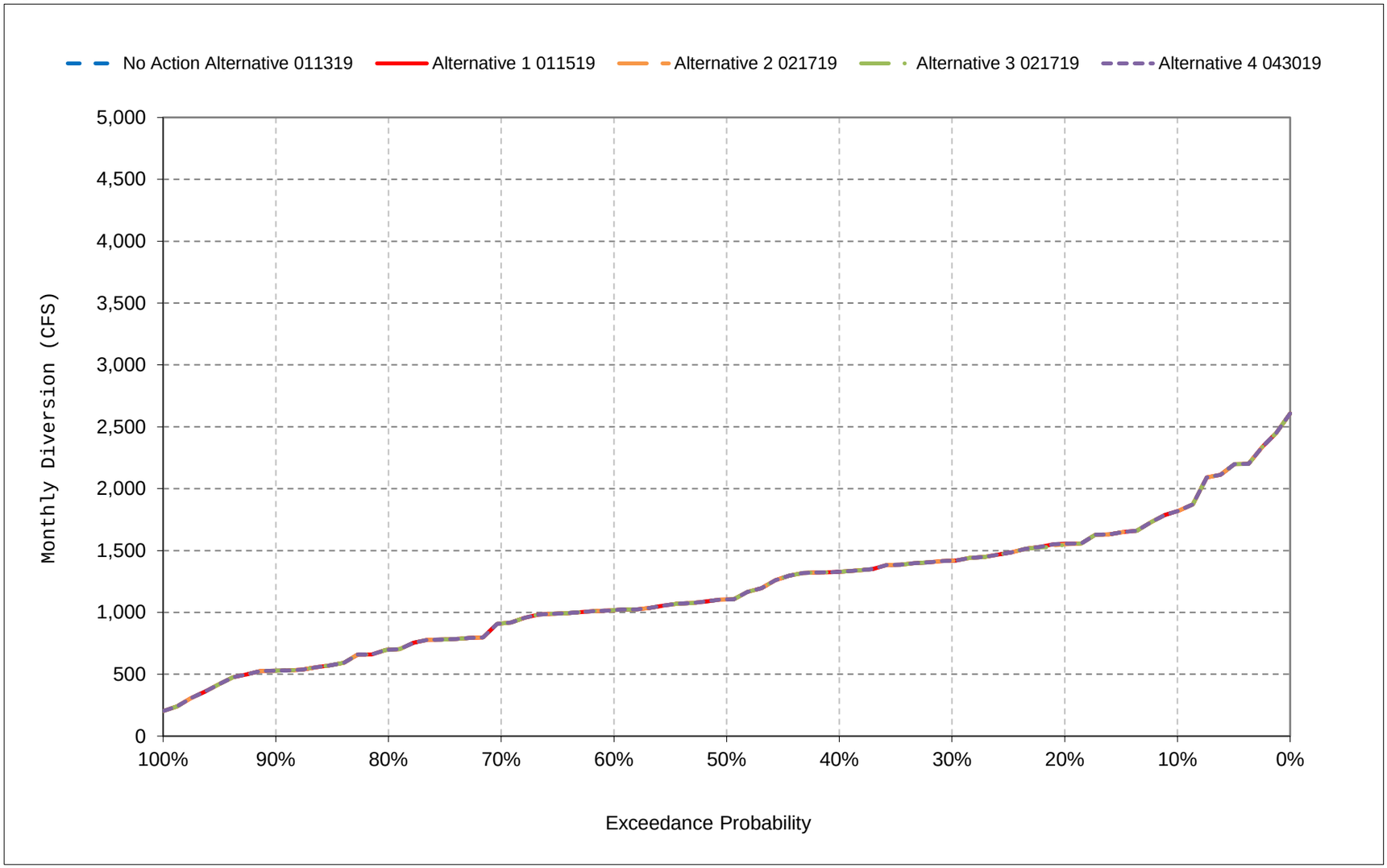
Figure 50-17. Friant-Kern Canal Diversion, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 50-18. Friant-Kern Canal Diversion, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 51-1. Madera Canal Diversion, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	44	9	1	33	100	121	333	996	1,250	1,250	1,106	424
20%	38	1	0	1	48	89	299	823	1,161	1,233	924	332
30%	0	0	0	0	20	31	46	618	1,042	1,112	859	260
40%	0	0	0	0	3	0	0	558	953	1,009	807	134
50%	0	0	0	0	0	0	0	257	740	899	621	110
60%	0	0	0	0	0	0	0	227	677	823	565	91
70%	0	0	0	0	0	0	0	207	604	735	497	86
80%	0	0	0	0	0	0	0	175	509	620	410	74
90%	0	0	0	0	0	0	0	135	379	463	321	50
Long Term												
Full Simulation Period[a]	18	3	11	25	32	40	103	469	803	886	676	193
Water Year Types[b,c]												
Wet (32%)	46	9	21	68	63	89	202	800	1,077	1,130	950	333
Above Normal (16%)	14	1	0	19	47	38	108	535	937	1,030	784	193
Below Normal (13%)	7	0	0	0	26	25	90	366	749	869	586	178
Dry (24%)	0	0	19	0	4	4	25	234	627	738	510	79
Critical (15%)	3	0	0	0	2	9	28	167	406	465	325	94

Alternative 1 011519

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	44	9	1	33	100	121	333	996	1,250	1,250	1,106	424
20%	38	1	0	1	48	89	299	823	1,161	1,233	924	332
30%	0	0	0	0	20	31	46	618	1,042	1,112	859	260
40%	0	0	0	0	3	0	0	558	953	1,009	807	134
50%	0	0	0	0	0	0	0	257	740	899	621	110
60%	0	0	0	0	0	0	0	227	677	823	565	91
70%	0	0	0	0	0	0	0	207	604	735	497	86
80%	0	0	0	0	0	0	0	175	509	620	410	74
90%	0	0	0	0	0	0	0	135	379	463	321	50
Long Term												
Full Simulation Period[a]	18	3	11	25	32	40	103	469	803	886	676	193
Water Year Types[b,c]												
Wet (32%)	46	9	21	68	63	89	202	800	1,077	1,130	950	333
Above Normal (16%)	14	1	0	19	47	38	108	535	937	1,030	784	193
Below Normal (13%)	7	0	0	0	26	25	90	366	749	869	586	178
Dry (24%)	0	0	19	0	4	4	25	234	627	738	510	79
Critical (15%)	3	0	0	0	2	9	28	167	406	465	325	94

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	0	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 51-2. Madera Canal Diversion, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	44	9	1	33	100	121	333	996	1,250	1,250	1,106	424
20%	38	1	0	1	48	89	299	823	1,161	1,233	924	332
30%	0	0	0	0	20	31	46	618	1,042	1,112	859	260
40%	0	0	0	0	3	0	0	558	953	1,009	807	134
50%	0	0	0	0	0	0	0	257	740	899	621	110
60%	0	0	0	0	0	0	0	227	677	823	565	91
70%	0	0	0	0	0	0	0	207	604	735	497	86
80%	0	0	0	0	0	0	0	175	509	620	410	74
90%	0	0	0	0	0	0	0	135	379	463	321	50
Long Term												
Full Simulation Period[a]	18	3	11	25	32	40	103	469	803	886	676	193
Water Year Types[b,c]												
Wet (32%)	46	9	21	68	63	89	202	800	1,077	1,130	950	333
Above Normal (16%)	14	1	0	19	47	38	108	535	937	1,030	784	193
Below Normal (13%)	7	0	0	0	26	25	90	366	749	869	586	178
Dry (24%)	0	0	19	0	4	4	25	234	627	738	510	79
Critical (15%)	3	0	0	0	2	9	28	167	406	465	325	94

Alternative 2 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	44	9	1	33	100	121	329	996	1,250	1,250	1,106	424
20%	38	1	0	1	48	89	299	823	1,161	1,233	924	332
30%	0	0	0	0	20	31	46	618	1,042	1,112	859	260
40%	0	0	0	0	3	0	0	558	953	1,009	807	134
50%	0	0	0	0	0	0	0	257	740	899	621	110
60%	0	0	0	0	0	0	0	227	677	823	565	91
70%	0	0	0	0	0	0	0	207	604	735	497	86
80%	0	0	0	0	0	0	0	175	509	620	410	74
90%	0	0	0	0	0	0	0	135	379	463	321	50
Long Term												
Full Simulation Period[a]	18	3	11	25	32	40	103	469	803	886	676	193
Water Year Types[b,c]												
Wet (32%)	46	9	21	68	63	89	202	800	1,077	1,130	950	333
Above Normal (16%)	14	1	0	19	47	38	108	535	937	1,030	784	193
Below Normal (13%)	7	0	0	0	26	25	90	366	749	869	586	178
Dry (24%)	0	0	19	0	4	4	25	234	627	738	510	79
Critical (15%)	3	0	0	0	2	9	27	167	405	464	324	93

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	**-4**	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	**0**
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	**0**
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**0**	**0**	0	0	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	**0**	0	0	0	0	0	0	0
Dry (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	**0**	**0**	0	0	0	**0**	**0**	**-1**	**-1**	**-1**	**-1**	**0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 51-3. Madera Canal Diversion, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	44	9	1	33	100	121	333	996	1,250	1,250	1,106	424
20%	38	1	0	1	48	89	299	823	1,161	1,233	924	332
30%	0	0	0	0	20	31	46	618	1,042	1,112	859	260
40%	0	0	0	0	3	0	0	558	953	1,009	807	134
50%	0	0	0	0	0	0	0	257	740	899	621	110
60%	0	0	0	0	0	0	0	227	677	823	565	91
70%	0	0	0	0	0	0	0	207	604	735	497	86
80%	0	0	0	0	0	0	0	175	509	620	410	74
90%	0	0	0	0	0	0	0	135	379	463	321	50
Long Term												
Full Simulation Period[a]	18	3	11	25	32	40	103	469	803	886	676	193
Water Year Types[b,c]												
Wet (32%)	46	9	21	68	63	89	202	800	1,077	1,130	950	333
Above Normal (16%)	14	1	0	19	47	38	108	535	937	1,030	784	193
Below Normal (13%)	7	0	0	0	26	25	90	366	749	869	586	178
Dry (24%)	0	0	19	0	4	4	25	234	627	738	510	79
Critical (15%)	3	0	0	0	2	9	28	167	406	465	325	94

Alternative 3 021719

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	44	9	1	33	100	121	326	996	1,250	1,250	1,106	424
20%	38	1	0	1	48	89	299	823	1,161	1,233	924	332
30%	0	0	0	0	20	31	46	618	1,042	1,112	859	260
40%	0	0	0	0	3	0	0	558	953	1,001	807	134
50%	0	0	0	0	0	0	0	257	740	899	621	110
60%	0	0	0	0	0	0	0	227	677	823	565	91
70%	0	0	0	0	0	0	0	207	604	735	497	86
80%	0	0	0	0	0	0	0	175	509	620	410	74
90%	0	0	0	0	0	0	0	135	379	463	321	50
Long Term												
Full Simulation Period[a]	18	3	11	25	32	40	103	469	803	886	676	193
Water Year Types[b,c]												
Wet (32%)	46	9	21	68	63	89	202	800	1,077	1,130	950	333
Above Normal (16%)	14	1	0	19	47	38	108	535	937	1,030	784	193
Below Normal (13%)	7	0	0	0	26	25	90	366	749	869	586	178
Dry (24%)	0	0	19	0	4	4	25	234	627	738	510	79
Critical (15%)	3	0	0	0	2	9	27	166	404	462	323	93

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	**-7**	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	**0**
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	**-8**	0	0
50%	0	0	0	0	0	0	0	0	0	**0**	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	**0**
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	**0**	**0**	**0**	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	0	**0**	0	0	0	0	**0**	0	0
Below Normal (13%)	0	0	**0**	0	**0**	0	0	0	0	0	0	0
Dry (24%)	0	0	**0**	0	0	0	0	0	0	0	0	**0**
Critical (15%)	**0**	**0**	0	0	0	**0**	**-1**	**-1**	**-2**	**-2**	**-2**	**-1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 51-4. Madera Canal Diversion, Monthly Diversion

No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	44	9	1	33	100	121	333	996	1,250	1,250	1,106	424
20%	38	1	0	1	48	89	299	823	1,161	1,233	924	332
30%	0	0	0	0	20	31	46	618	1,042	1,112	859	260
40%	0	0	0	0	3	0	0	558	953	1,009	807	134
50%	0	0	0	0	0	0	0	257	740	899	621	110
60%	0	0	0	0	0	0	0	227	677	823	565	91
70%	0	0	0	0	0	0	0	207	604	735	497	86
80%	0	0	0	0	0	0	0	175	509	620	410	74
90%	0	0	0	0	0	0	0	135	379	463	321	50
Long Term												
Full Simulation Period[a]	18	3	11	25	32	40	103	469	803	886	676	193
Water Year Types[b,c]												
Wet (32%)	46	9	21	68	63	89	202	800	1,077	1,130	950	333
Above Normal (16%)	14	1	0	19	47	38	108	535	937	1,030	784	193
Below Normal (13%)	7	0	0	0	26	25	90	366	749	869	586	178
Dry (24%)	0	0	19	0	4	4	25	234	627	738	510	79
Critical (15%)	3	0	0	0	2	9	28	167	406	465	325	94

Alternative 4 043019

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	44	9	1	33	100	121	333	996	1,250	1,250	1,106	424
20%	38	1	0	1	48	89	299	823	1,161	1,233	924	332
30%	0	0	0	0	20	31	46	618	1,042	1,112	859	260
40%	0	0	0	0	3	0	0	558	953	1,009	807	134
50%	0	0	0	0	0	0	0	257	740	899	621	110
60%	0	0	0	0	0	0	0	227	677	823	565	91
70%	0	0	0	0	0	0	0	207	604	735	497	86
80%	0	0	0	0	0	0	0	175	509	620	410	74
90%	0	0	0	0	0	0	0	135	379	463	321	50
Long Term												
Full Simulation Period[a]	18	3	11	25	32	40	103	469	803	886	676	193
Water Year Types[b,c]												
Wet (32%)	46	9	21	68	63	89	202	800	1,077	1,130	950	333
Above Normal (16%)	14	1	0	19	47	38	108	535	937	1,030	784	193
Below Normal (13%)	7	0	0	0	26	25	90	366	749	869	586	178
Dry (24%)	0	0	19	0	4	4	25	234	627	738	510	79
Critical (15%)	3	0	0	0	2	9	28	167	406	465	325	94

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Diversion (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	**0**	0	0	**0**	0	0	0	**0**
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	**0**	0	0	0	0	0	0	0
Dry (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	0	0	0	0	0	0	0	**0**	**0**	0	0	**0**

a Based on the 82-year simulation period.

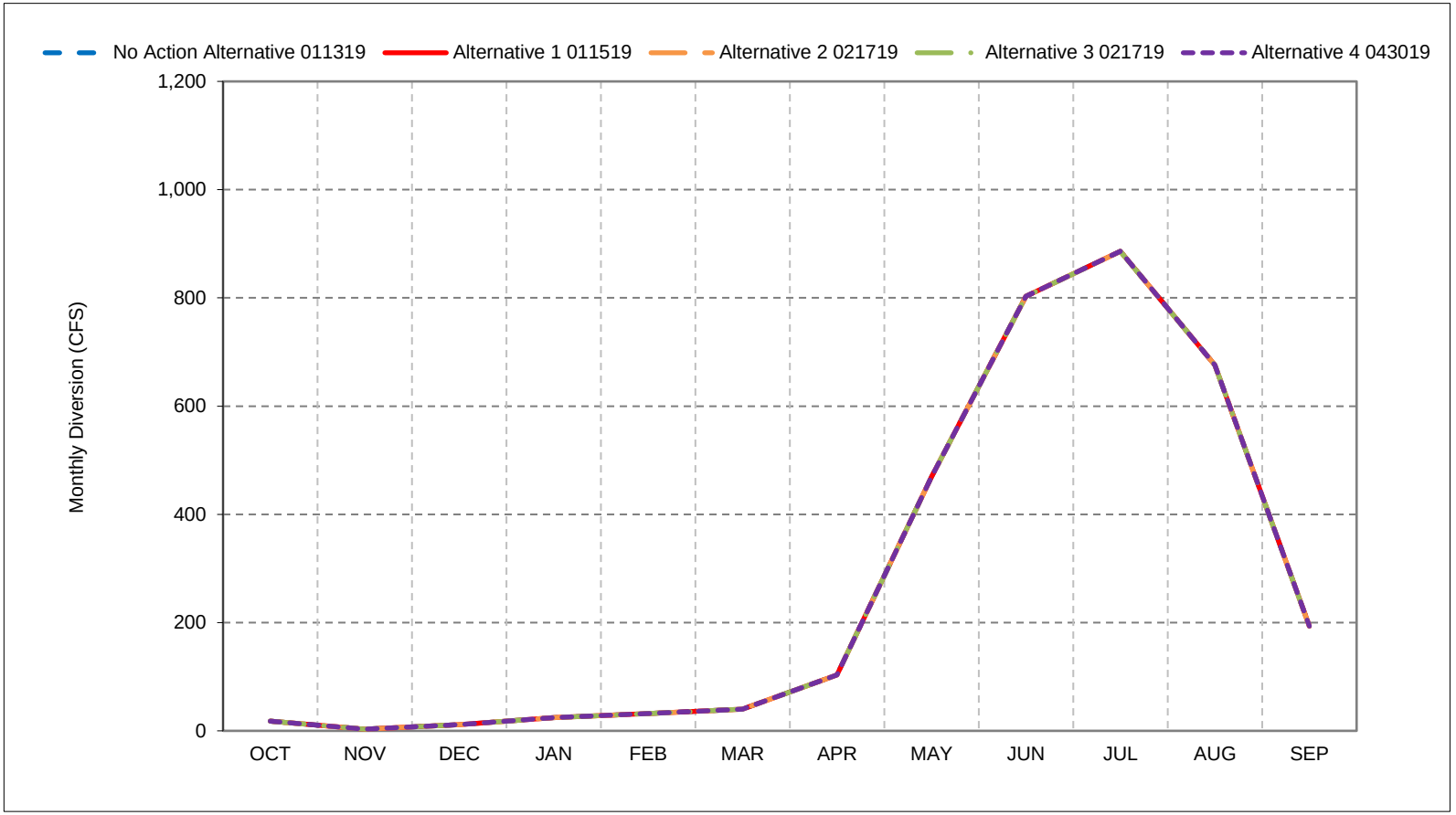
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 51-1. Madera Canal Diversion, Long-Term Average Diversion



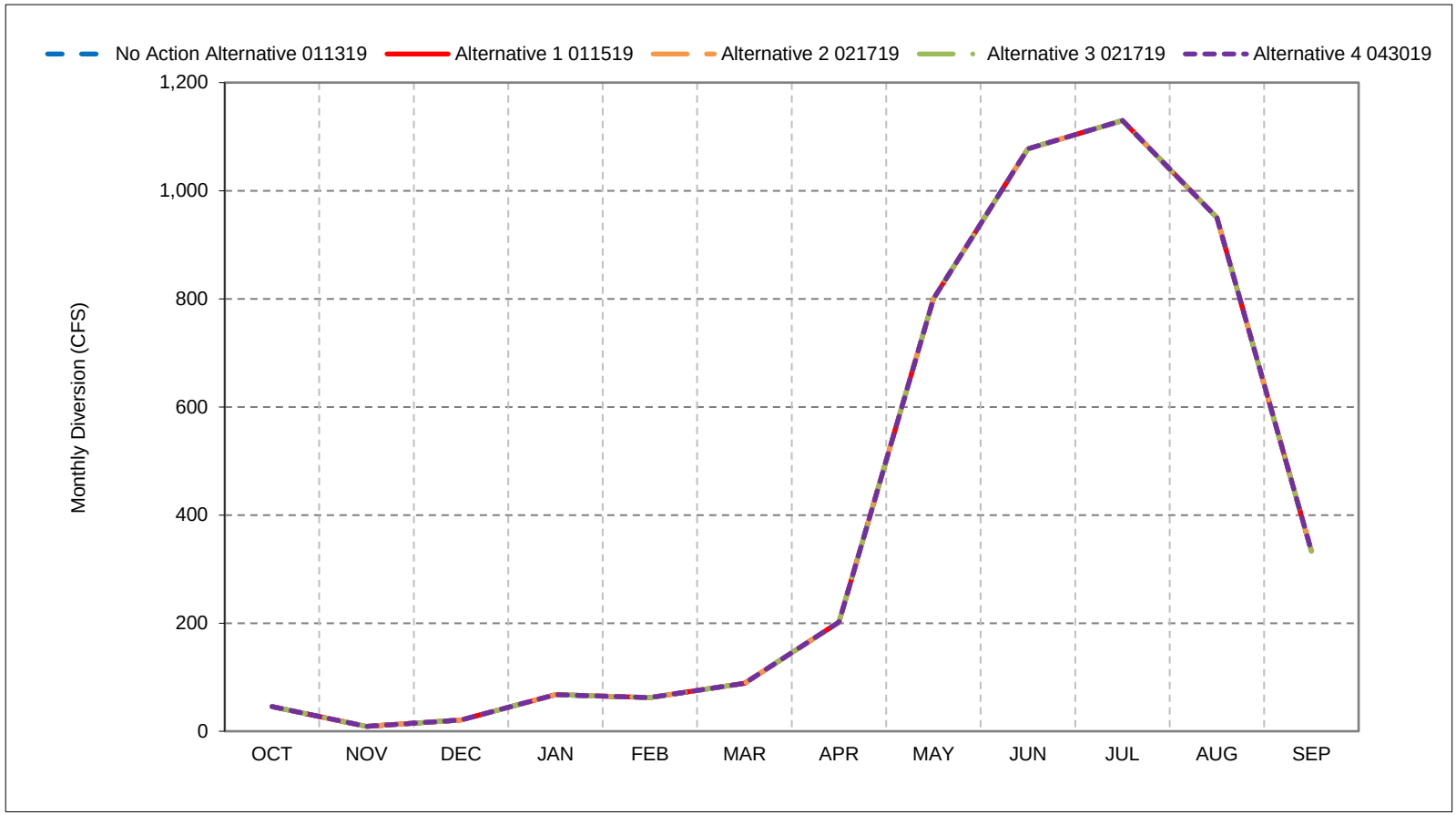
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 51-2. Madera Canal Diversion, Wet Year Average Diversion



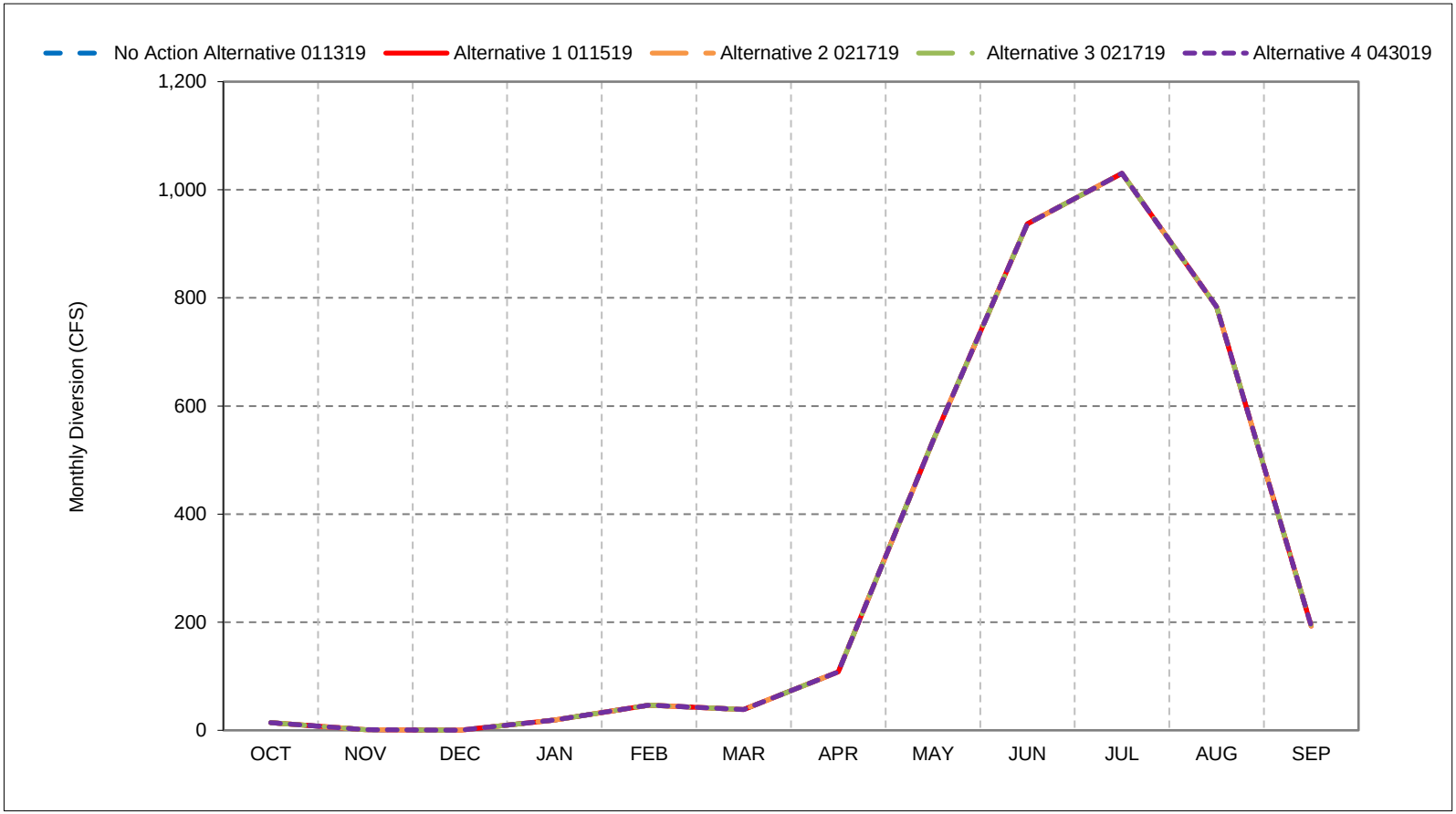
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

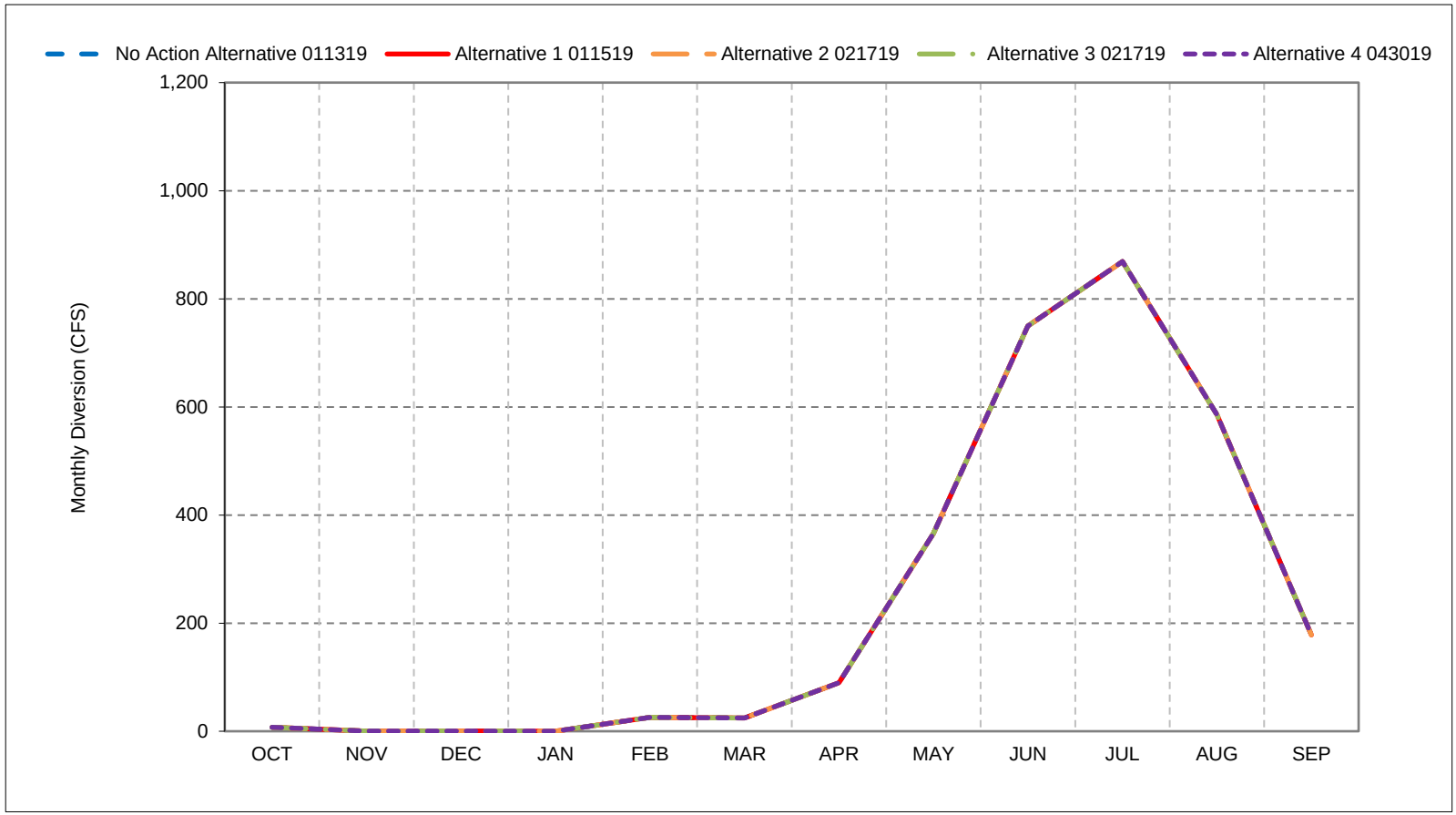
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 51-3. Madera Canal Diversion, Above Normal Year Average Diversion



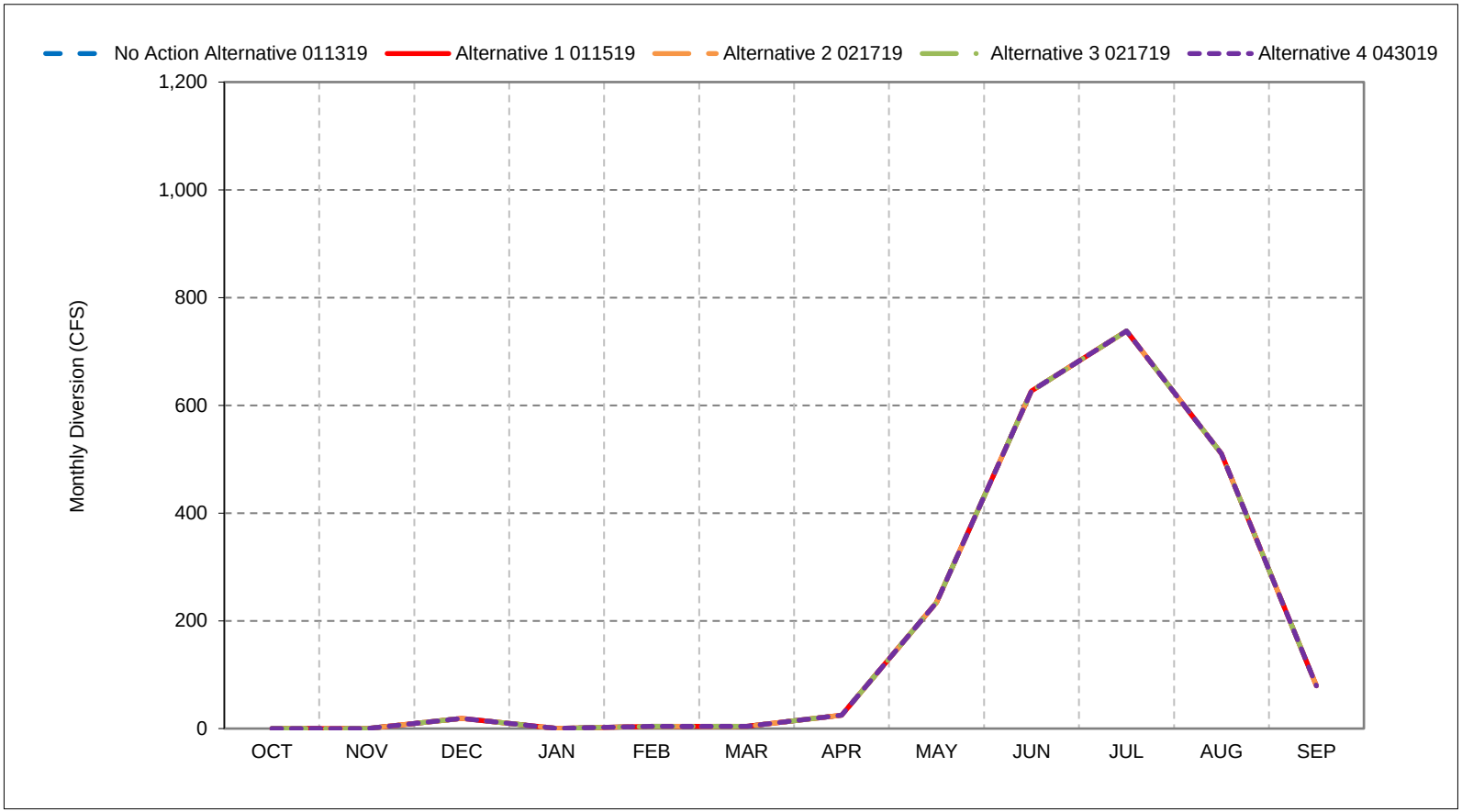
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 51-4. Madera Canal Diversion, Below Normal Year Average Diversion



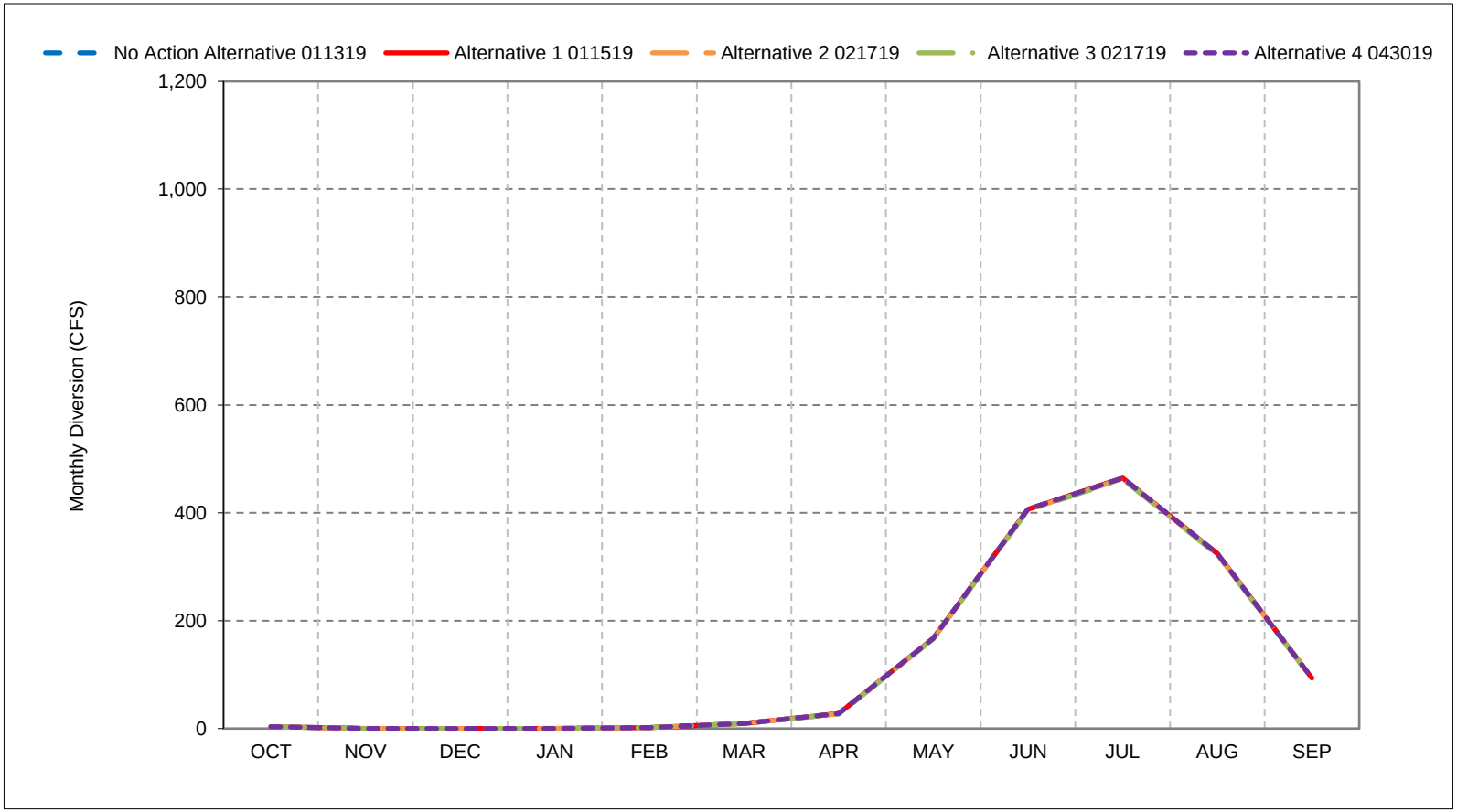
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 51-5. Madera Canal Diversion, Dry Year Average Diversion



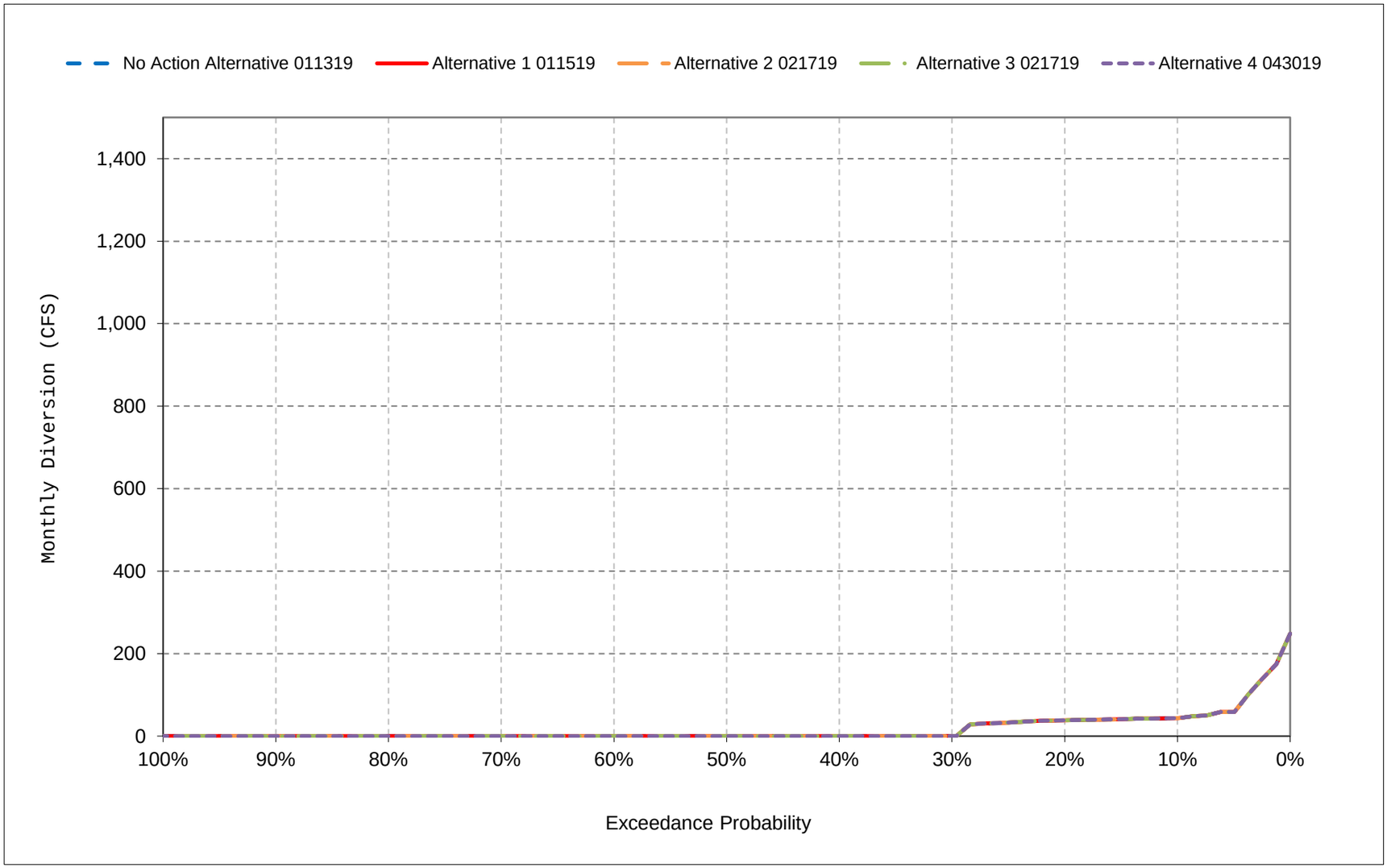
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 51-6. Madera Canal Diversion, Critical Year Average Diversion



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

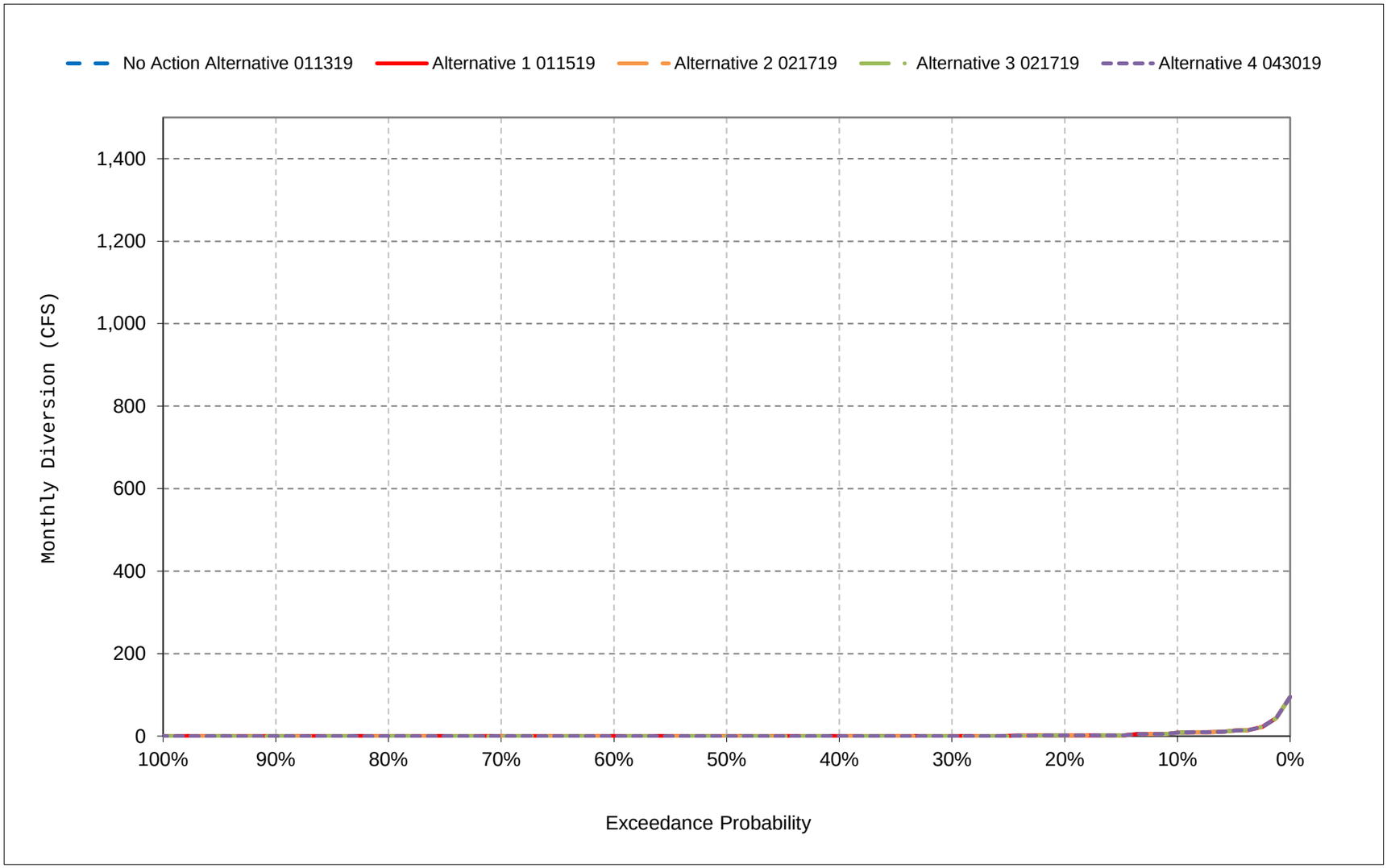
Figure 51-7. Madera Canal Diversion, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

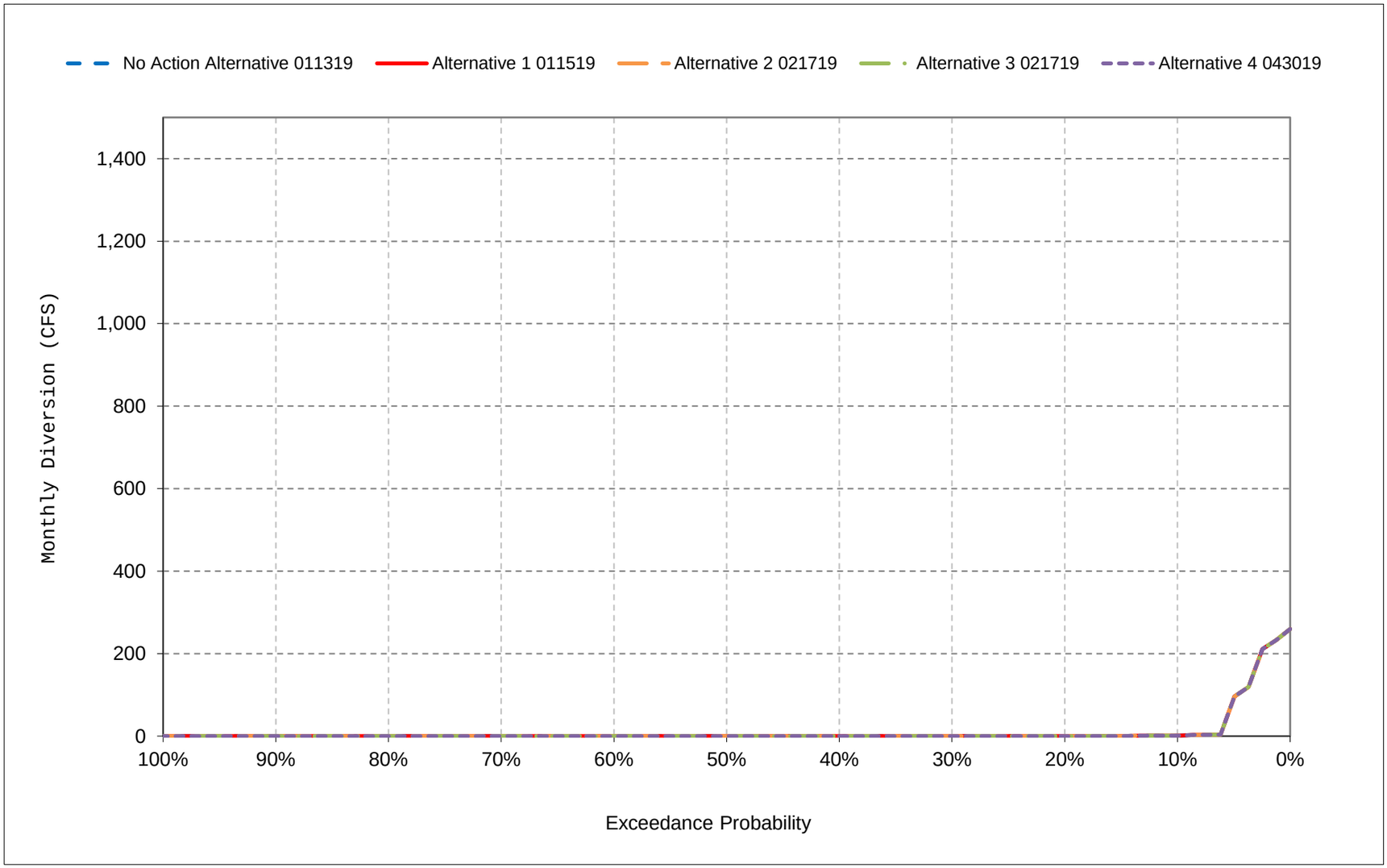
Figure 51-8. Madera Canal Diversion, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

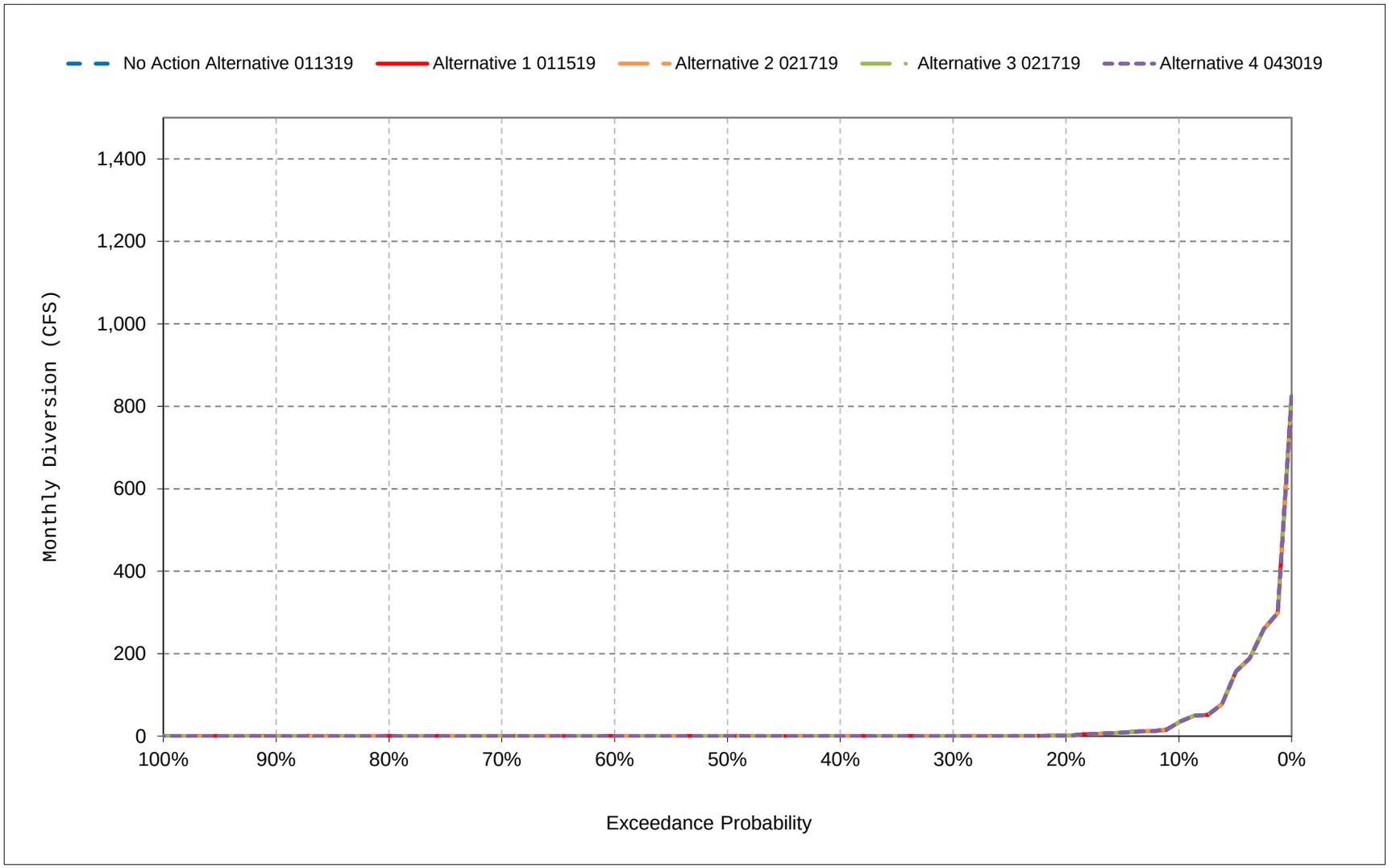
Figure 51-9. Madera Canal Diversion, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

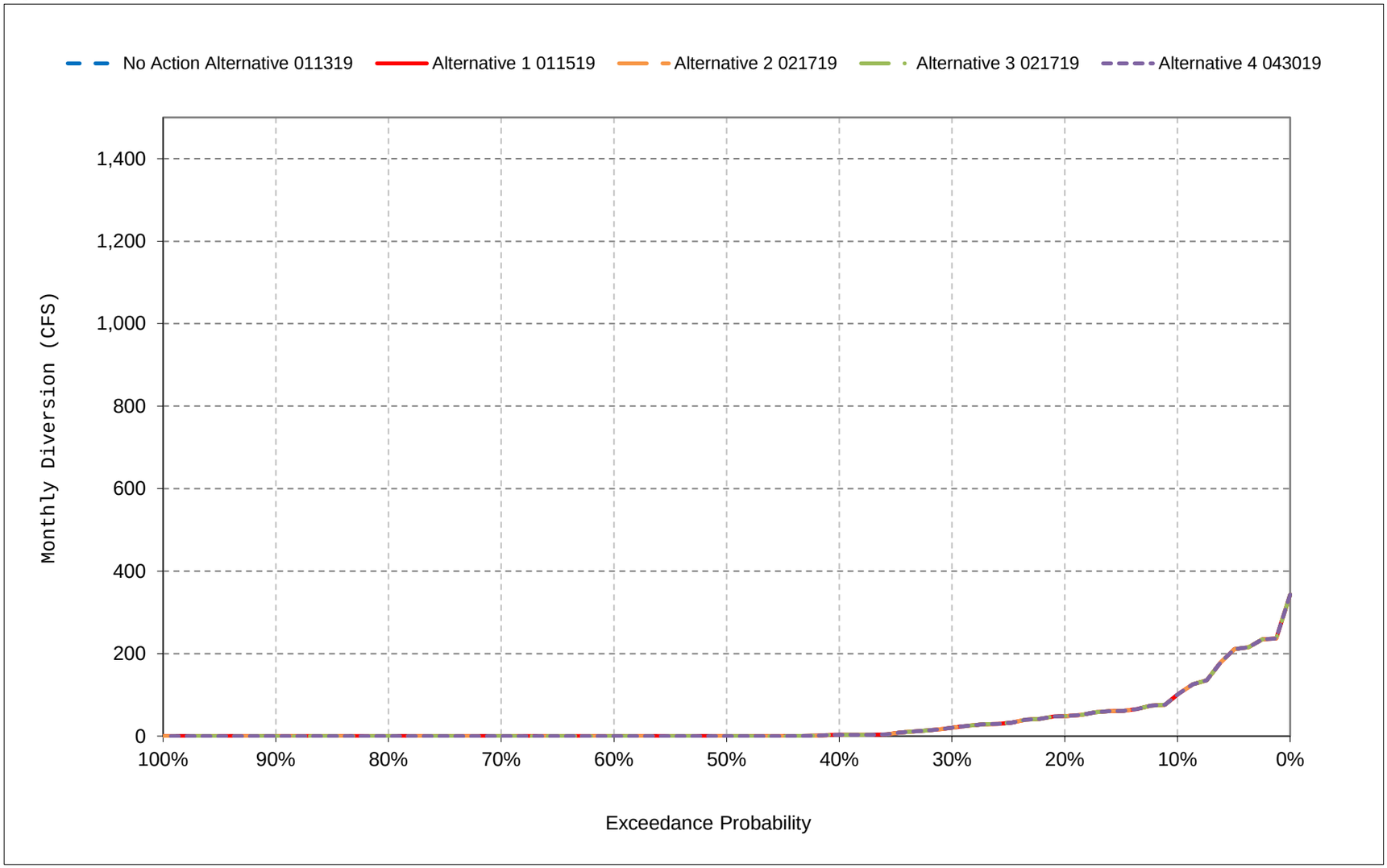
Figure 51-10. Madera Canal Diversion, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

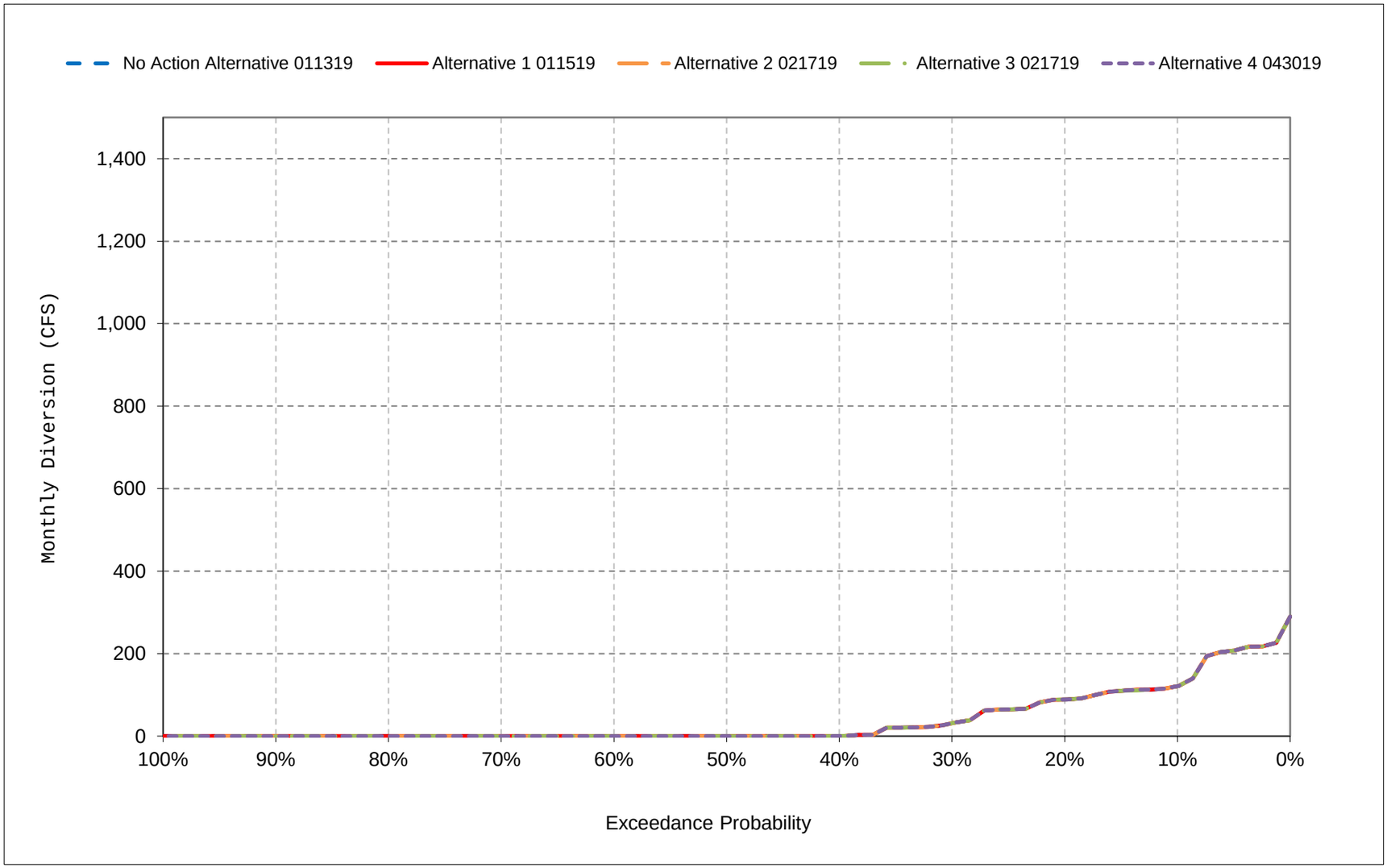
Figure 51-11. Madera Canal Diversion, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

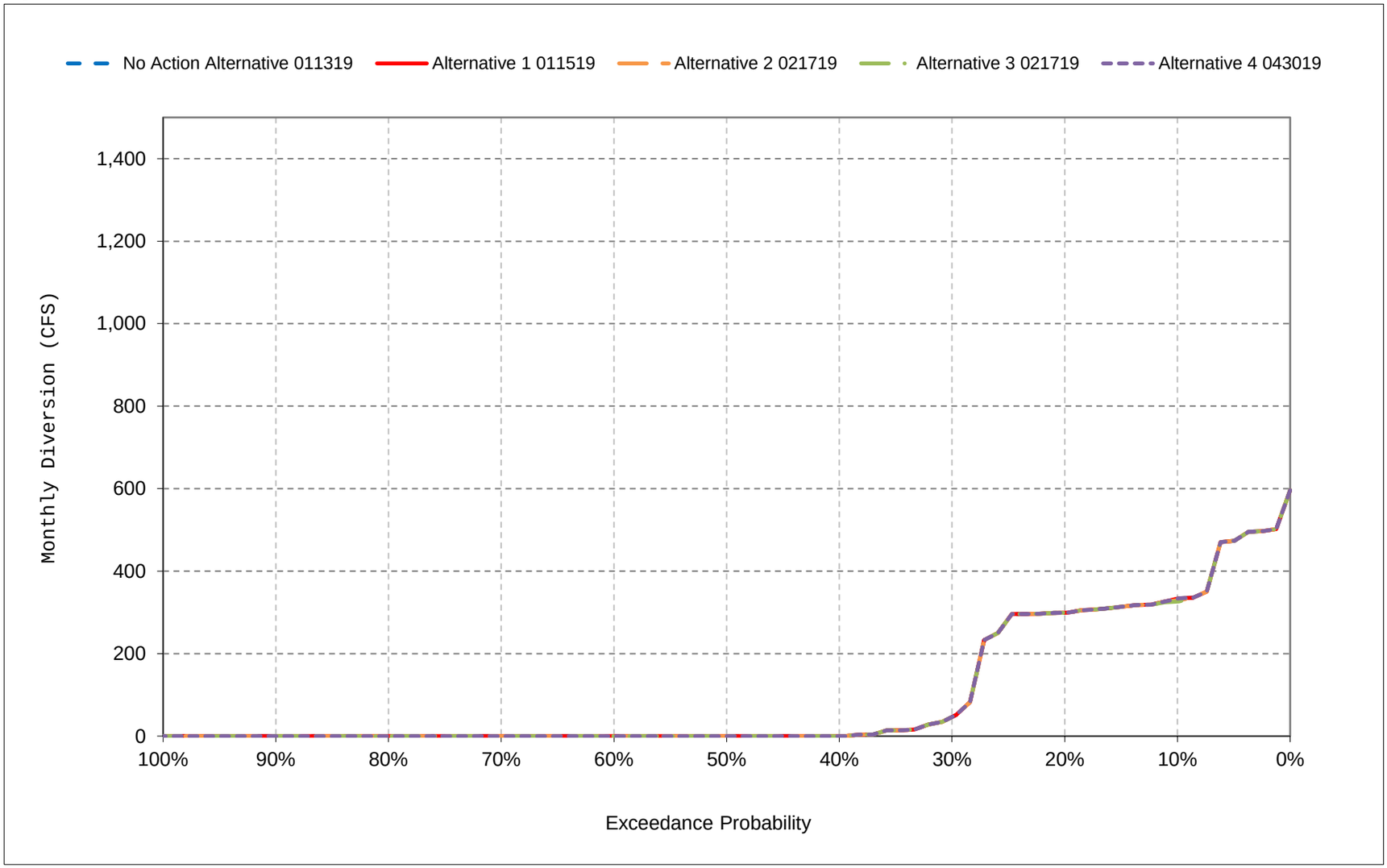
Figure 51-12. Madera Canal Diversion, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

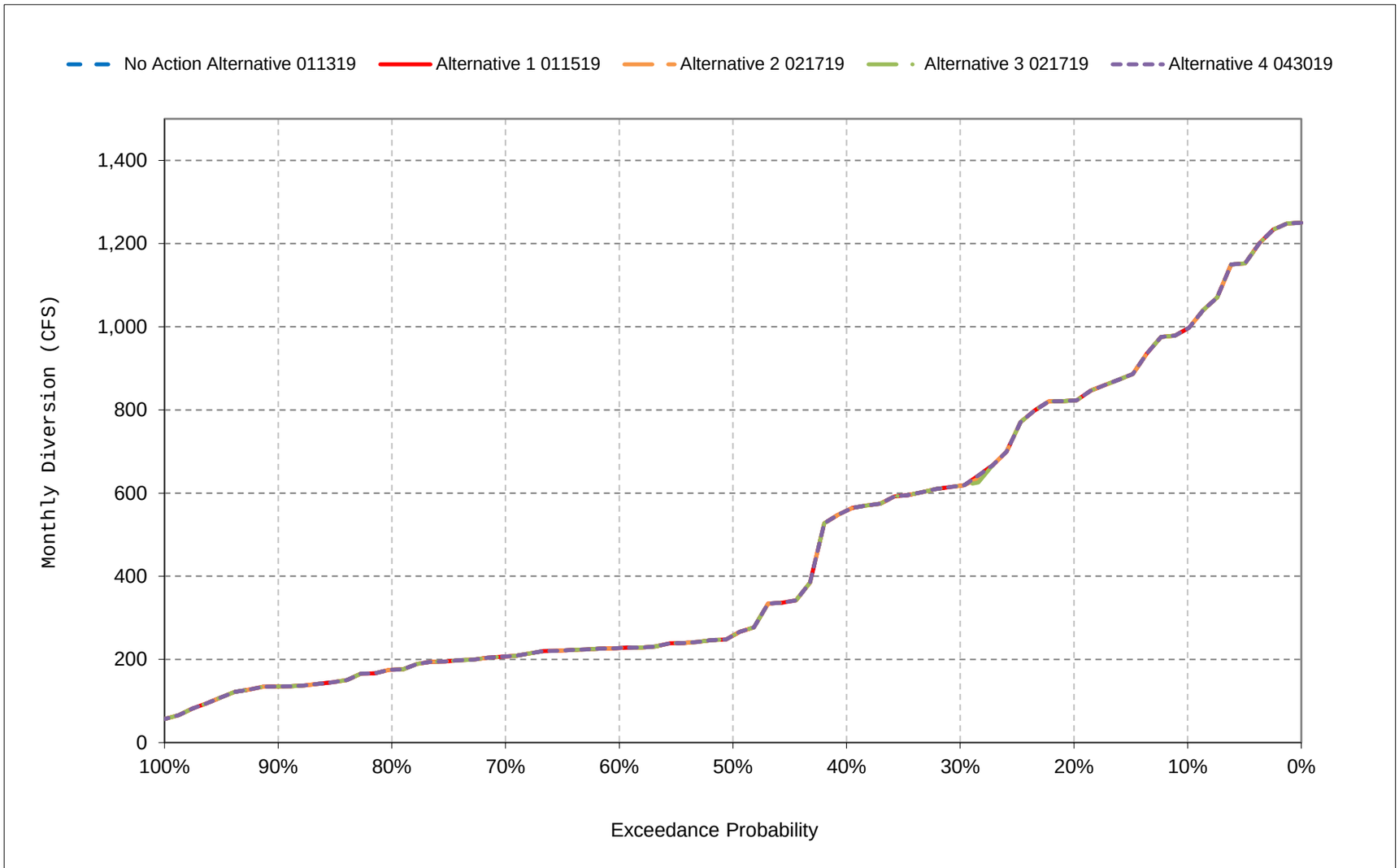
Figure 51-13. Madera Canal Diversion, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

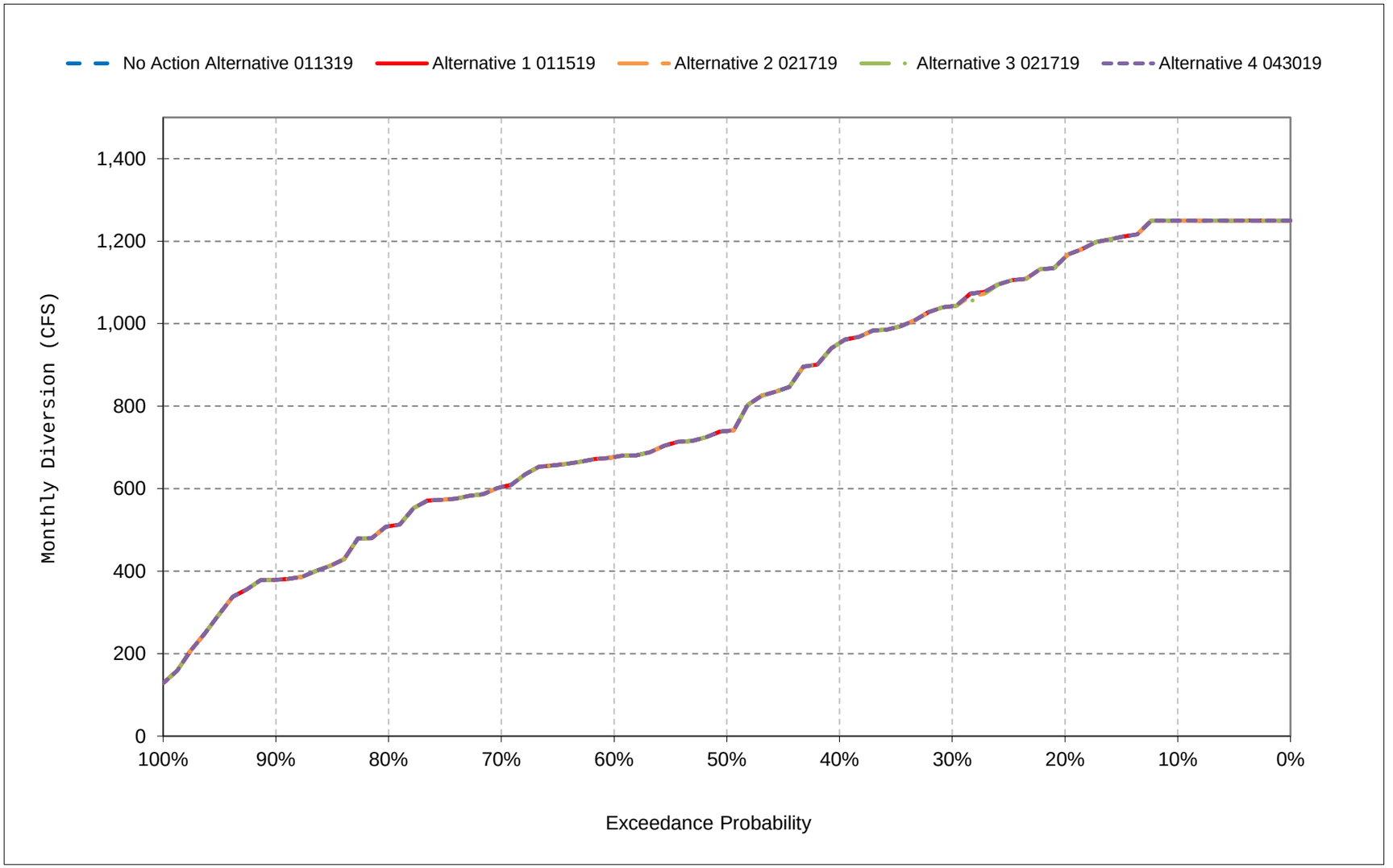
Figure 51-14. Madera Canal Diversion, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

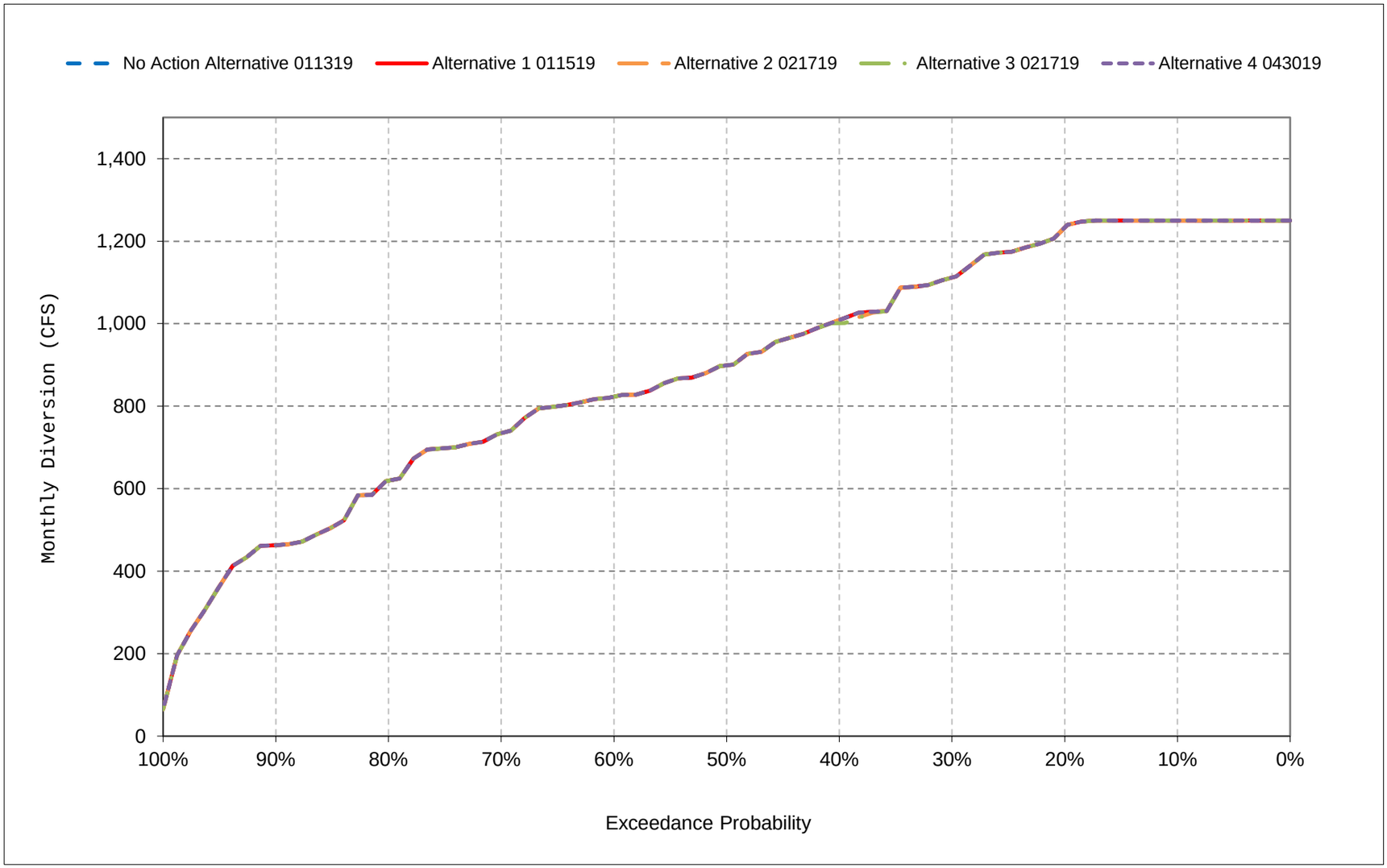
Figure 51-15. Madera Canal Diversion, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

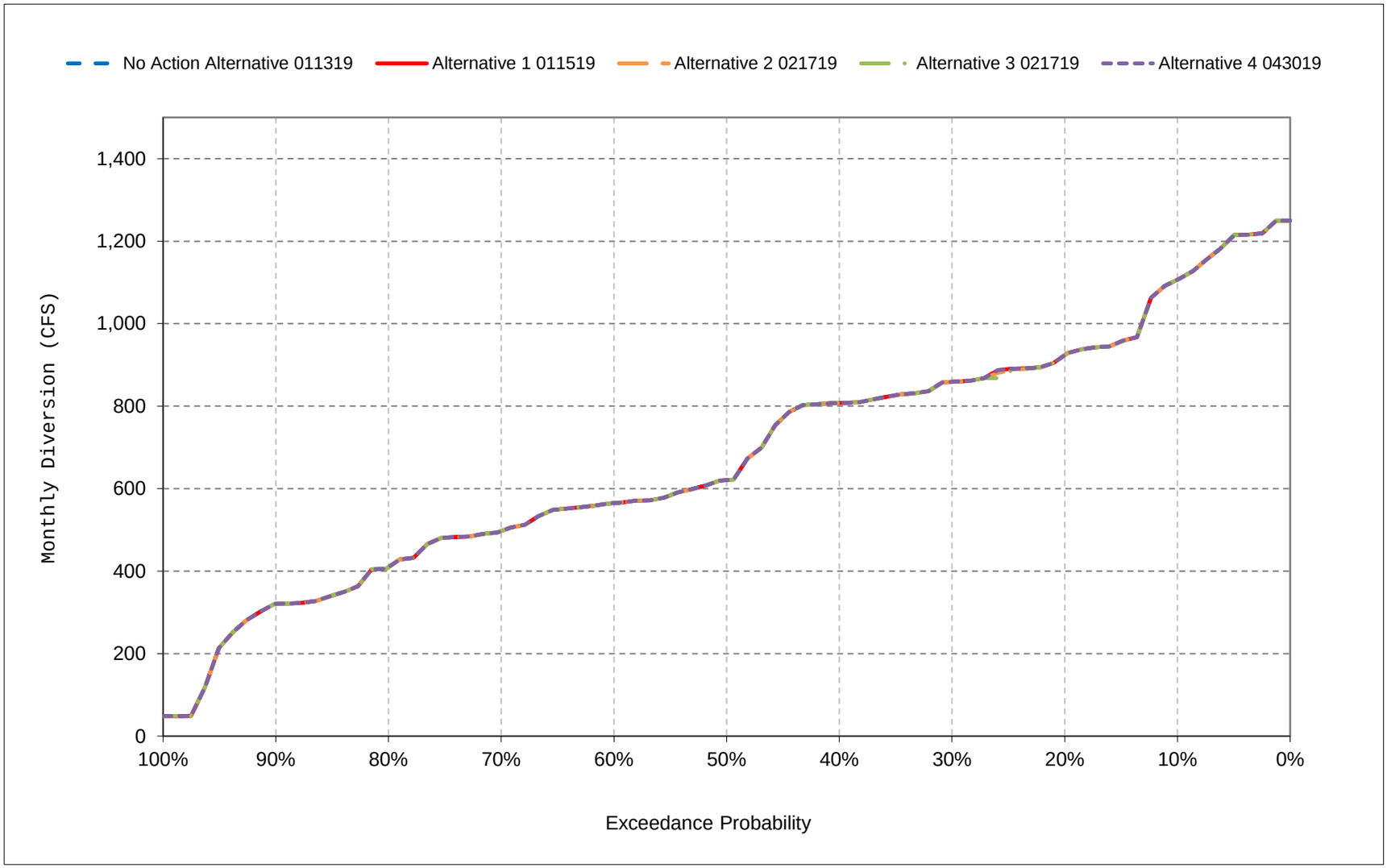
Figure 51-16. Madera Canal Diversion, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

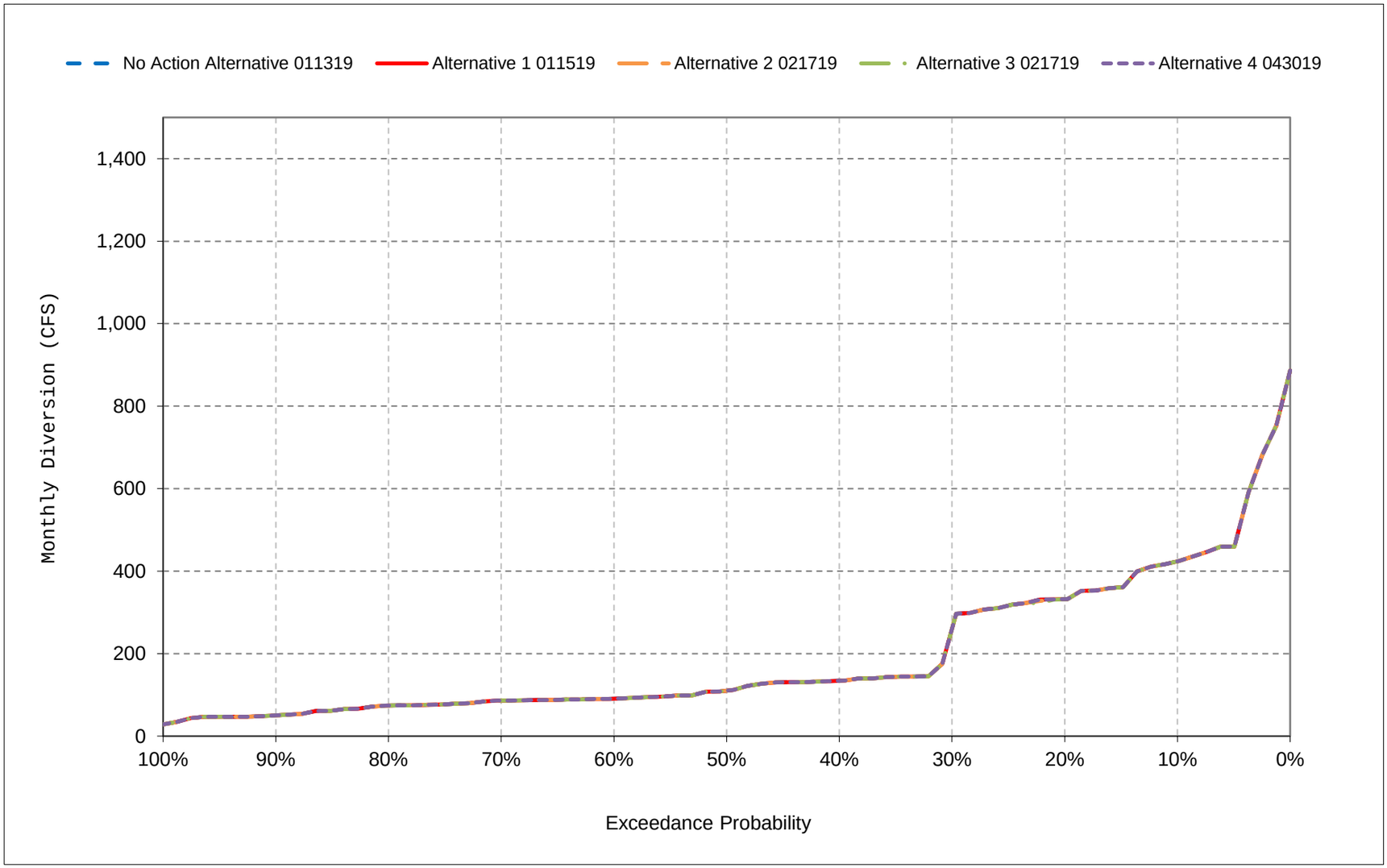
Figure 51-17. Madera Canal Diversion, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 51-18. Madera Canal Diversion, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 52-1. DCC Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,182	1,272	914	0	0	0	0	0	2,626	4,540	3,137	4,085
20%	1,841	1,084	829	0	0	0	0	0	2,264	4,485	3,064	3,687
30%	1,721	949	778	0	0	0	0	0	2,141	4,221	2,971	2,065
40%	1,596	813	689	0	0	0	0	0	2,085	3,646	2,917	1,864
50%	1,492	693	497	0	0	0	0	0	2,009	3,470	2,802	1,741
60%	1,466	411	0	0	0	0	0	0	1,893	3,162	2,533	1,523
70%	1,206	198	0	0	0	0	0	0	1,757	2,940	1,739	1,235
80%	1,196	0	0	0	0	0	0	0	1,630	2,604	1,588	0
90%	801	0	0	0	0	0	0	0	1,221	2,032	1,467	0
Long Term												
Full Simulation Period[a]	1,474	613	433	0	0	0	0	0	1,889	3,399	2,448	1,795
Water Year Types[b,c]												
Wet (32%)	1,483	265	506	0	0	0	0	0	1,725	3,737	2,963	669
Above Normal (16%)	1,713	577	464	0	0	0	0	0	2,147	4,245	3,104	4,063
Below Normal (13%)	1,504	1,012	450	0	0	0	0	0	2,061	4,002	2,752	2,173
Dry (24%)	1,448	733	282	0	0	0	0	0	2,057	2,992	1,780	1,803
Critical (15%)	1,211	840	475	0	0	0	0	0	1,529	1,872	1,459	1,416

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,248	1,454	947	0	0	0	0	0	2,765	4,525	3,145	2,875
20%	1,973	1,347	821	0	0	0	0	0	2,476	4,367	3,110	2,758
30%	1,746	1,278	732	0	0	0	0	0	2,416	4,141	2,994	2,681
40%	1,666	1,128	644	0	0	0	0	0	2,365	3,635	2,933	2,642
50%	1,531	965	458	0	0	0	0	0	2,268	3,346	2,842	2,557
60%	1,448	831	0	0	0	0	0	0	2,192	3,196	2,591	2,081
70%	1,216	773	0	0	0	0	0	0	2,004	2,683	1,811	1,826
80%	1,199	304	0	0	0	0	0	0	1,887	2,286	1,645	1,684
90%	610	0	0	0	0	0	0	0	1,341	1,910	1,422	1,444
Long Term												
Full Simulation Period[a]	1,494	888	418	0	0	0	0	0	2,092	3,324	2,478	2,305
Water Year Types[b,c]												
Wet (32%)	1,346	977	479	0	0	0	0	0	1,805	3,672	2,954	2,853
Above Normal (16%)	2,071	980	437	0	0	0	0	0	2,303	4,245	3,094	2,739
Below Normal (13%)	1,499	983	447	0	0	0	0	0	2,411	4,046	2,964	2,300
Dry (24%)	1,478	689	283	0	0	0	0	0	2,374	2,799	1,820	1,837
Critical (15%)	1,213	841	466	0	0	0	0	0	1,725	1,786	1,433	1,435

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66	182	33	0	0	0	0	0	139	**-15**	8	**-1,210**
20%	132	263	**-7**	0	0	0	0	0	212	**-118**	46	**-929**
30%	25	329	**-46**	0	0	0	0	0	275	**-80**	24	616
40%	70	314	**-45**	0	0	0	0	0	280	**-12**	16	777
50%	39	272	**-39**	0	0	0	0	0	259	**-124**	40	816
60%	**-18**	420	0	0	0	0	0	0	299	35	58	558
70%	10	575	0	0	0	0	0	0	247	**-257**	72	591
80%	2	304	0	0	0	0	0	0	256	**-318**	57	1,684
90%	**-190**	0	0	0	0	0	0	0	120	**-122**	**-45**	1,444
Long Term												
Full Simulation Period[a]	20	275	**-14**	0	0	0	0	0	203	**-74**	30	511
Water Year Types[b,c]												
Wet (32%)	**-137**	711	**-27**	0	0	0	0	0	80	**-65**	**-8**	2,184
Above Normal (16%)	357	403	**-27**	0	0	0	0	0	156	0	**-10**	**-1,324**
Below Normal (13%)	**-4**	**-29**	**-3**	0	0	0	0	0	350	43	212	127
Dry (24%)	29	**-44**	0	0	0	0	0	0	317	**-193**	39	34
Critical (15%)	2	1	**-9**	0	0	0	0	0	196	**-86**	**-26**	19

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Table 52-2. DCC Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,182	1,272	914	0	0	0	0	0	2,626	4,540	3,137	4,085
20%	1,841	1,084	829	0	0	0	0	0	2,264	4,485	3,064	3,687
30%	1,721	949	778	0	0	0	0	0	2,141	4,221	2,971	2,065
40%	1,596	813	689	0	0	0	0	0	2,085	3,646	2,917	1,864
50%	1,492	693	497	0	0	0	0	0	2,009	3,470	2,802	1,741
60%	1,466	411	0	0	0	0	0	0	1,893	3,162	2,533	1,523
70%	1,206	198	0	0	0	0	0	0	1,757	2,940	1,739	1,235
80%	1,196	0	0	0	0	0	0	0	1,630	2,604	1,588	0
90%	801	0	0	0	0	0	0	0	1,221	2,032	1,467	0
Long Term												
Full Simulation Period[a]	1,474	613	433	0	0	0	0	0	1,889	3,399	2,448	1,795
Water Year Types[b,c]												
Wet (32%)	1,483	265	506	0	0	0	0	0	1,725	3,737	2,963	669
Above Normal (16%)	1,713	577	464	0	0	0	0	0	2,147	4,245	3,104	4,063
Below Normal (13%)	1,504	1,012	450	0	0	0	0	0	2,061	4,002	2,752	2,173
Dry (24%)	1,448	733	282	0	0	0	0	0	2,057	2,992	1,780	1,803
Critical (15%)	1,211	840	475	0	0	0	0	0	1,529	1,872	1,459	1,416

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,725	1,861	1,857	1,320	0	0	0	0	3,512	4,519	3,160	2,908
20%	2,638	1,699	1,520	1,037	0	0	0	0	3,246	4,134	3,065	2,758
30%	2,435	1,662	1,392	906	0	0	0	0	3,028	3,906	2,883	2,639
40%	2,163	1,442	1,232	820	0	0	0	0	2,817	3,490	2,787	2,568
50%	1,893	1,322	1,097	692	0	0	0	0	2,659	3,290	2,637	2,403
60%	1,723	1,237	946	0	0	0	0	0	2,453	3,014	2,213	2,102
70%	1,620	1,085	701	0	0	0	0	0	2,105	2,678	1,830	1,899
80%	1,490	939	0	0	0	0	0	0	1,832	2,321	1,582	1,738
90%	1,211	810	0	0	0	0	0	0	1,374	2,053	1,485	1,492
Long Term												
Full Simulation Period[a]	1,998	1,321	969	542	0	0	0	0	2,453	3,247	2,389	2,294
Water Year Types[b,c]												
Wet (32%)	2,552	1,562	900	170	0	0	0	0	2,045	3,574	2,857	2,752
Above Normal (16%)	2,427	1,276	1,106	293	0	0	0	0	3,063	4,244	3,033	2,699
Below Normal (13%)	1,624	1,477	957	603	0	0	0	0	3,271	3,755	2,662	2,315
Dry (24%)	1,647	1,198	822	912	0	0	0	0	2,539	2,671	1,748	1,908
Critical (15%)	1,263	911	1,226	949	0	0	0	0	1,781	1,954	1,494	1,486

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	543	589	942	1,320	0	0	0	0	886	**-21**	23	**-1,177**
20%	798	615	691	1,037	0	0	0	0	982	**-351**	1	**-929**
30%	714	713	614	906	0	0	0	0	886	**-316**	**-88**	574
40%	566	629	543	820	0	0	0	0	733	**-157**	**-131**	704
50%	401	630	600	692	0	0	0	0	650	**-180**	**-164**	662
60%	257	826	946	0	0	0	0	0	560	**-148**	**-320**	578
70%	414	887	701	0	0	0	0	0	348	**-262**	91	664
80%	294	939	0	0	0	0	0	0	202	**-284**	**-6**	1,738
90%	410	810	0	0	0	0	0	0	153	21	18	1,492
Long Term												
Full Simulation Period[a]	524	708	536	542	0	0	0	0	563	**-151**	**-60**	500
Water Year Types[b,c]												
Wet (32%)	1,069	1,296	394	170	0	0	0	0	319	**-163**	**-106**	2,084
Above Normal (16%)	714	699	642	293	0	0	0	0	916	**-1**	**-71**	**-1,364**
Below Normal (13%)	120	465	507	603	0	0	0	0	1,210	**-247**	**-90**	143
Dry (24%)	199	465	539	912	0	0	0	0	483	**-321**	**-33**	105
Critical (15%)	53	71	752	949	0	0	0	0	252	82	35	70

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Table 52-3. DCC Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,182	1,272	914	0	0	0	0	0	2,626	4,540	3,137	4,085
20%	1,841	1,084	829	0	0	0	0	0	2,264	4,485	3,064	3,687
30%	1,721	949	778	0	0	0	0	0	2,141	4,221	2,971	2,065
40%	1,596	813	689	0	0	0	0	0	2,085	3,646	2,917	1,864
50%	1,492	693	497	0	0	0	0	0	2,009	3,470	2,802	1,741
60%	1,466	411	0	0	0	0	0	0	1,893	3,162	2,533	1,523
70%	1,206	198	0	0	0	0	0	0	1,757	2,940	1,739	1,235
80%	1,196	0	0	0	0	0	0	0	1,630	2,604	1,588	0
90%	801	0	0	0	0	0	0	0	1,221	2,032	1,467	0
Long Term												
Full Simulation Period[a]	1,474	613	433	0	0	0	0	0	1,889	3,399	2,448	1,795
Water Year Types[b,c]												
Wet (32%)	1,483	265	506	0	0	0	0	0	1,725	3,737	2,963	669
Above Normal (16%)	1,713	577	464	0	0	0	0	0	2,147	4,245	3,104	4,063
Below Normal (13%)	1,504	1,012	450	0	0	0	0	0	2,061	4,002	2,752	2,173
Dry (24%)	1,448	733	282	0	0	0	0	0	2,057	2,992	1,780	1,803
Critical (15%)	1,211	840	475	0	0	0	0	0	1,529	1,872	1,459	1,416

Alternative 3 030519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,033	1,401	1,449	1,019	0	0	0	0	2,704	3,565	2,395	2,189
20%	1,958	1,256	1,161	779	0	0	0	0	2,449	3,309	2,315	2,084
30%	1,827	1,230	1,088	672	0	0	0	0	2,246	3,029	2,096	1,981
40%	1,692	1,042	989	596	0	0	0	0	2,057	2,778	2,051	1,847
50%	1,455	942	843	486	0	0	0	0	1,942	2,553	1,911	1,678
60%	1,299	886	662	0	0	0	0	0	1,786	2,208	1,552	1,486
70%	1,161	734	460	0	0	0	0	0	1,547	1,847	1,289	1,333
80%	987	580	0	0	0	0	0	0	1,329	1,677	1,091	1,189
90%	787	425	0	0	0	0	0	0	922	1,446	975	1,019
Long Term												
Full Simulation Period[a]	1,454	950	753	407	0	0	0	0	1,819	2,475	1,734	1,661
Water Year Types[b,c]												
Wet (32%)	1,918	1,163	774	130	0	0	0	0	1,558	2,778	2,080	2,044
Above Normal (16%)	1,772	959	844	221	0	0	0	0	2,221	3,327	2,313	2,047
Below Normal (13%)	1,210	1,069	713	447	0	0	0	0	2,451	2,919	1,944	1,666
Dry (24%)	1,183	836	603	681	0	0	0	0	1,913	1,964	1,222	1,339
Critical (15%)	780	561	895	719	0	0	0	0	1,211	1,339	1,016	946

Alternative 3 030519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-149**	129	535	1,019	0	0	0	0	78	**-975**	**-742**	**-1,896**
20%	117	172	332	779	0	0	0	0	186	**-1,176**	**-749**	**-1,603**
30%	106	281	310	672	0	0	0	0	104	**-1,192**	**-875**	**-83**
40%	96	229	300	596	0	0	0	0	**-27**	**-869**	**-866**	**-18**
50%	**-37**	249	346	486	0	0	0	0	**-67**	**-917**	**-890**	**-63**
60%	**-167**	475	662	0	0	0	0	0	**-107**	**-954**	**-981**	**-37**
70%	**-45**	536	460	0	0	0	0	0	**-209**	**-1,093**	**-450**	97
80%	**-209**	580	0	0	0	0	0	0	**-301**	**-927**	**-497**	1,189
90%	**-14**	425	0	0	0	0	0	0	**-299**	**-586**	**-492**	1,019
Long Term												
Full Simulation Period[a]	**-20**	337	320	407	0	0	0	0	**-71**	**-924**	**-715**	**-133**
Water Year Types[b,c]												
Wet (32%)	435	898	269	130	0	0	0	0	**-167**	**-959**	**-882**	1,375
Above Normal (16%)	59	381	380	221	0	0	0	0	74	**-918**	**-791**	**-2,016**
Below Normal (13%)	**-294**	57	263	447	0	0	0	0	390	**-1,083**	**-808**	**-506**
Dry (24%)	**-266**	103	320	681	0	0	0	0	**-143**	**-1,028**	**-558**	**-464**
Critical (15%)	**-430**	**-279**	421	719	0	0	0	0	**-318**	**-533**	**-443**	**-470**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Table 52-4. DCC Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,182	1,272	914	0	0	0	0	0	2,626	4,540	3,137	4,085
20%	1,841	1,084	829	0	0	0	0	0	2,264	4,485	3,064	3,687
30%	1,721	949	778	0	0	0	0	0	2,141	4,221	2,971	2,065
40%	1,596	813	689	0	0	0	0	0	2,085	3,646	2,917	1,864
50%	1,492	693	497	0	0	0	0	0	2,009	3,470	2,802	1,741
60%	1,466	411	0	0	0	0	0	0	1,893	3,162	2,533	1,523
70%	1,206	198	0	0	0	0	0	0	1,757	2,940	1,739	1,235
80%	1,196	0	0	0	0	0	0	0	1,630	2,604	1,588	0
90%	801	0	0	0	0	0	0	0	1,221	2,032	1,467	0
Long Term												
Full Simulation Period[a]	1,474	613	433	0	0	0	0	0	1,889	3,399	2,448	1,795
Water Year Types[b,c]												
Wet (32%)	1,483	265	506	0	0	0	0	0	1,725	3,737	2,963	669
Above Normal (16%)	1,713	577	464	0	0	0	0	0	2,147	4,245	3,104	4,063
Below Normal (13%)	1,504	1,012	450	0	0	0	0	0	2,061	4,002	2,752	2,173
Dry (24%)	1,448	733	282	0	0	0	0	0	2,057	2,992	1,780	1,803
Critical (15%)	1,211	840	475	0	0	0	0	0	1,529	1,872	1,459	1,416

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,164	1,435	902	0	0	0	0	0	2,593	4,224	3,051	2,847
20%	1,868	1,314	810	0	0	0	0	0	2,384	4,224	2,954	2,706
30%	1,709	1,258	733	0	0	0	0	0	2,328	3,999	2,895	2,613
40%	1,605	1,155	673	0	0	0	0	0	2,228	3,510	2,749	2,544
50%	1,512	969	418	0	0	0	0	0	2,149	3,296	2,368	2,071
60%	1,472	829	0	0	0	0	0	0	2,010	3,085	1,879	1,843
70%	1,321	703	0	0	0	0	0	0	1,918	2,681	1,654	1,765
80%	1,203	330	0	0	0	0	0	0	1,774	2,310	1,586	1,644
90%	754	0	0	0	0	0	0	0	1,275	1,732	1,416	1,409
Long Term												
Full Simulation Period[a]	1,487	877	409	0	0	0	0	0	1,996	3,192	2,270	2,175
Water Year Types[b,c]												
Wet (32%)	1,435	980	458	0	0	0	0	0	1,728	3,592	2,849	2,755
Above Normal (16%)	1,904	980	420	0	0	0	0	0	2,126	4,096	2,984	2,669
Below Normal (13%)	1,436	920	452	0	0	0	0	0	2,335	3,753	2,145	1,892
Dry (24%)	1,477	677	284	0	0	0	0	0	2,250	2,690	1,667	1,730
Critical (15%)	1,210	838	459	0	0	0	0	0	1,699	1,667	1,363	1,387

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**-18**	163	**-13**	0	0	0	0	0	**-34**	**-317**	**-86**	**-1,239**
20%	27	230	**-19**	0	0	0	0	0	121	**-261**	**-110**	**-981**
30%	**-12**	310	**-45**	0	0	0	0	0	187	**-223**	**-76**	549
40%	9	342	**-16**	0	0	0	0	0	144	**-136**	**-168**	679
50%	20	276	**-79**	0	0	0	0	0	139	**-174**	**-434**	330
60%	6	418	0	0	0	0	0	0	117	**-76**	**-654**	320
70%	114	505	0	0	0	0	0	0	161	**-259**	**-85**	529
80%	7	330	0	0	0	0	0	0	144	**-295**	**-2**	1,644
90%	**-46**	0	0	0	0	0	0	0	54	**-300**	**-51**	1,409
Long Term												
Full Simulation Period[a]	13	264	**-24**	0	0	0	0	0	106	**-207**	**-178**	381
Water Year Types[b,c]												
Wet (32%)	**-48**	714	**-48**	0	0	0	0	0	3	**-144**	**-113**	2,086
Above Normal (16%)	190	402	**-43**	0	0	0	0	0	**-21**	**-149**	**-120**	**-1,394**
Below Normal (13%)	**-67**	**-92**	2	0	0	0	0	0	274	**-249**	**-607**	**-280**
Dry (24%)	29	**-57**	1	0	0	0	0	0	194	**-302**	**-113**	**-73**
Critical (15%)	**0**	**-2**	**-15**	0	0	0	0	0	171	**-205**	**-96**	**-29**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

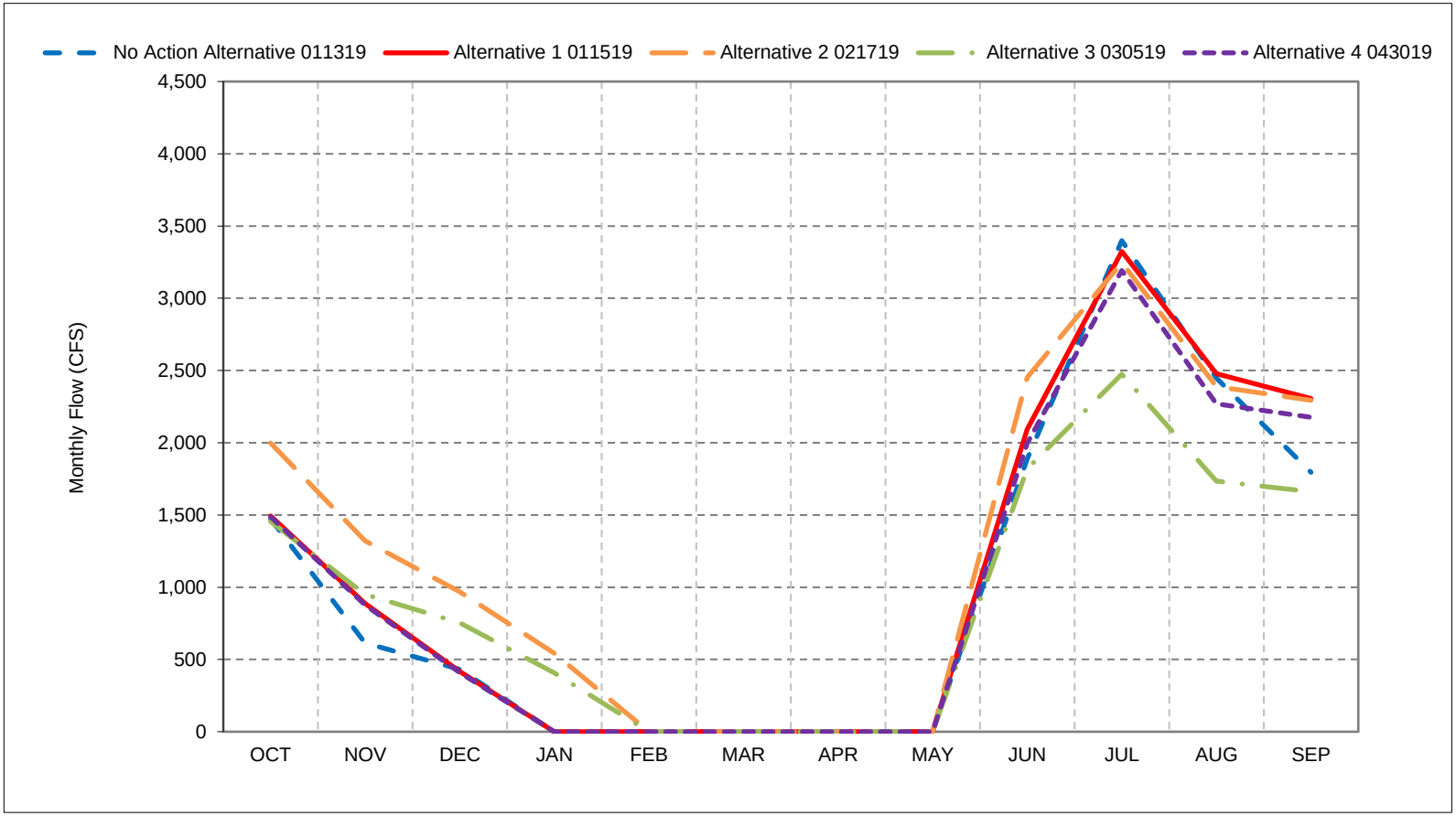
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

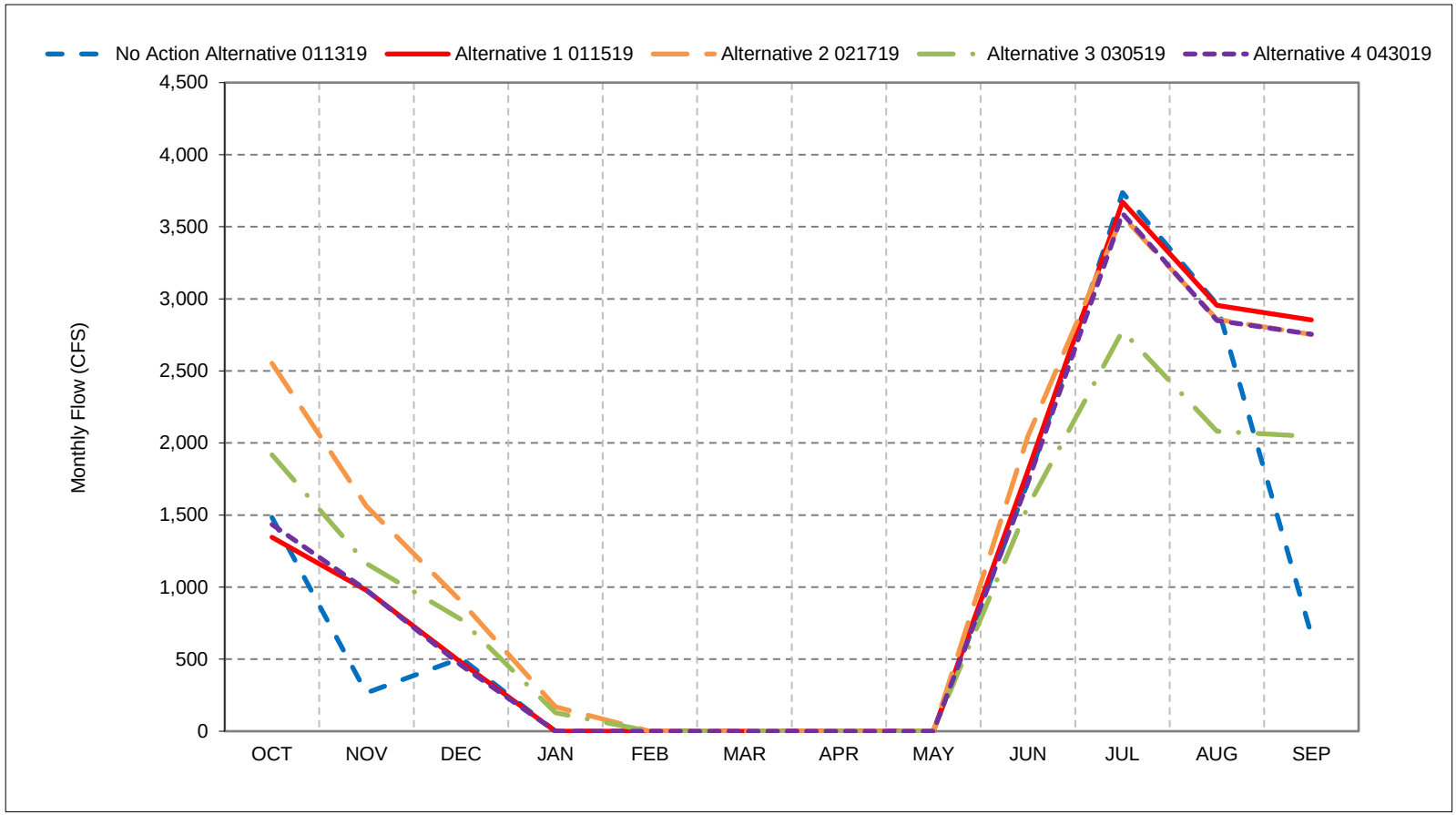
f Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-1. DCC Flow, Long-Term Average Flow



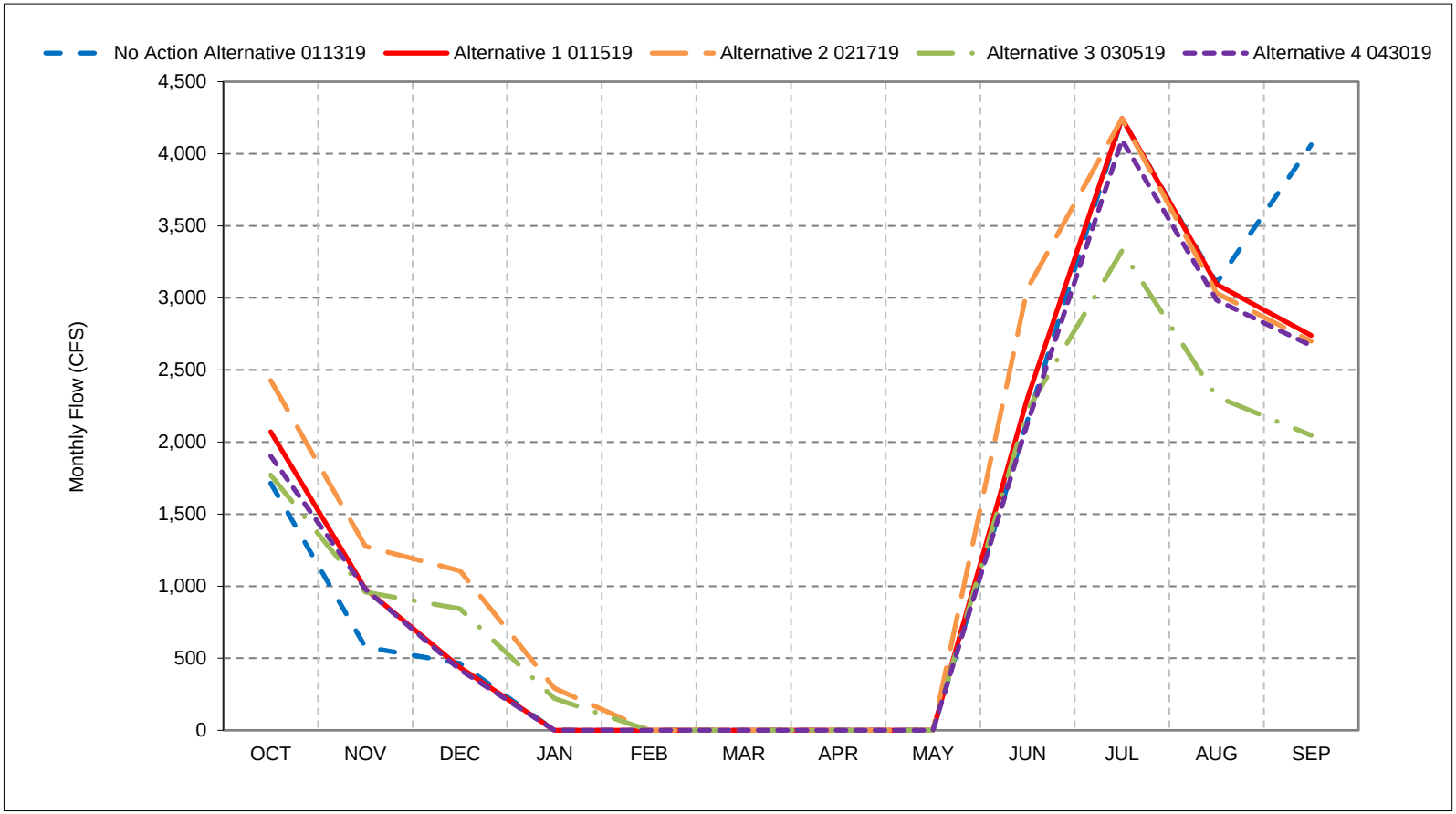
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-2. DCC Flow, Wet Year Average Flow



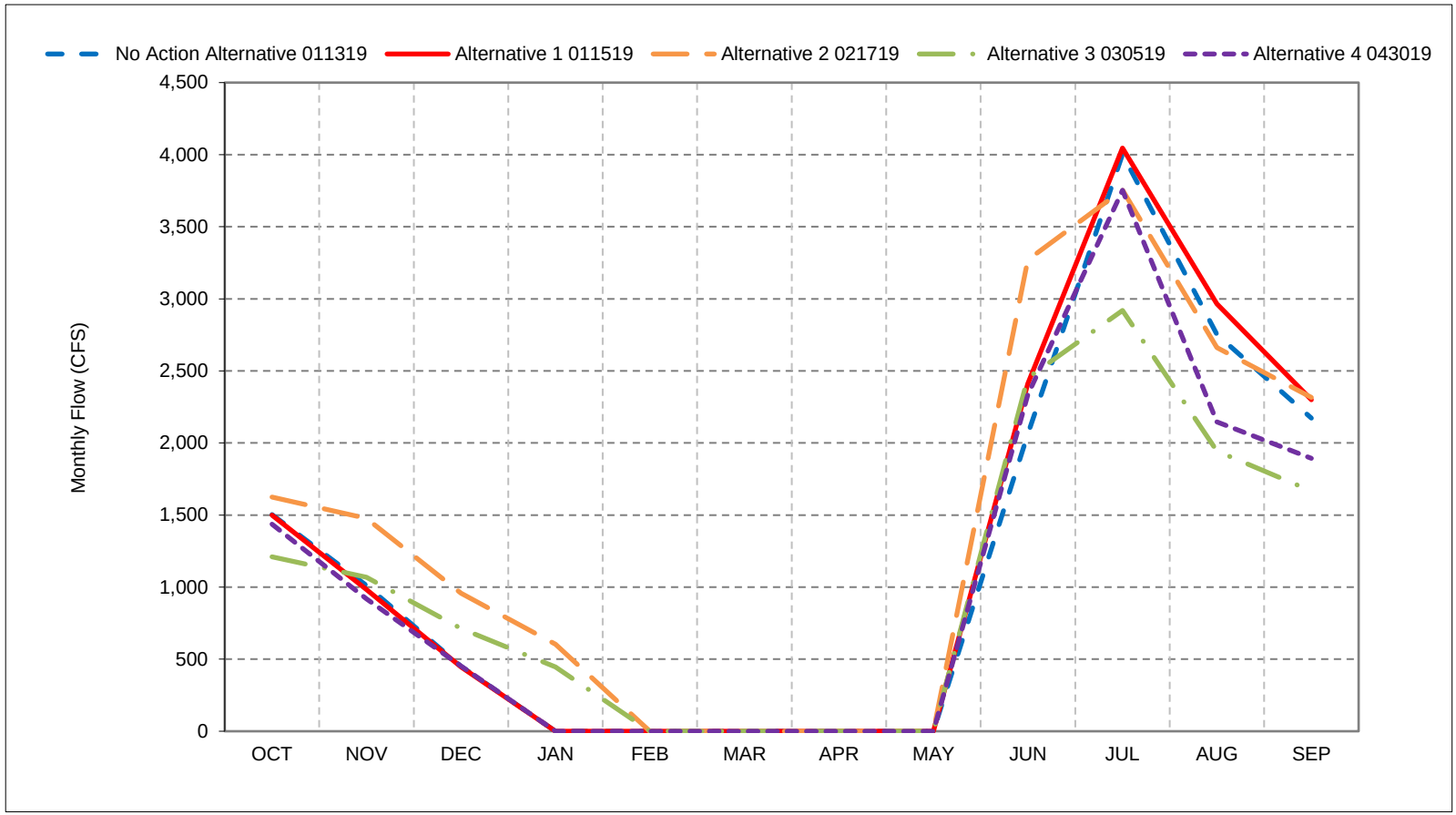
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-3. DCC Flow, Above Normal Year Average Flow



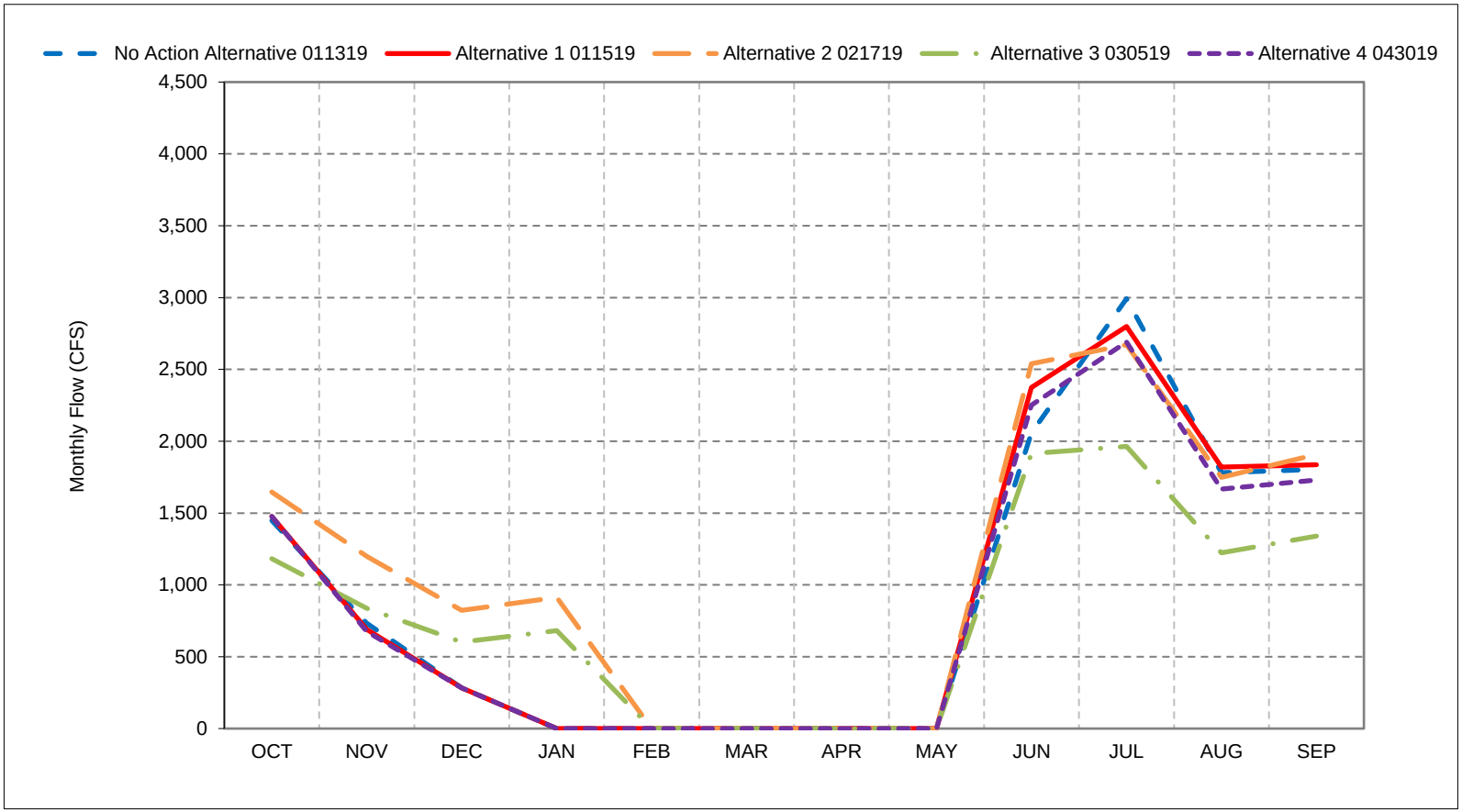
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-4. DCC Flow, Below Normal Year Average Flow



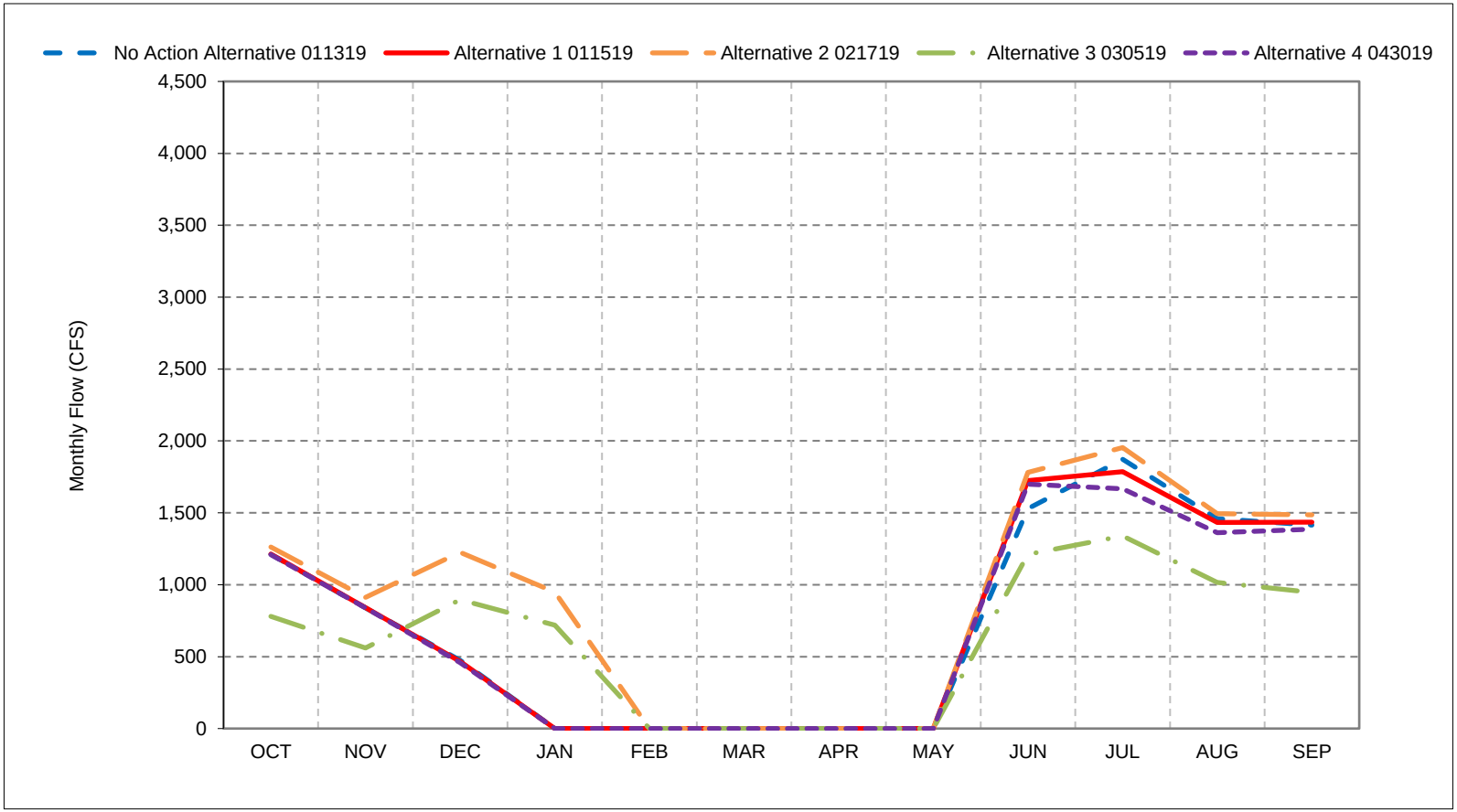
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-5. DCC Flow, Dry Year Average Flow



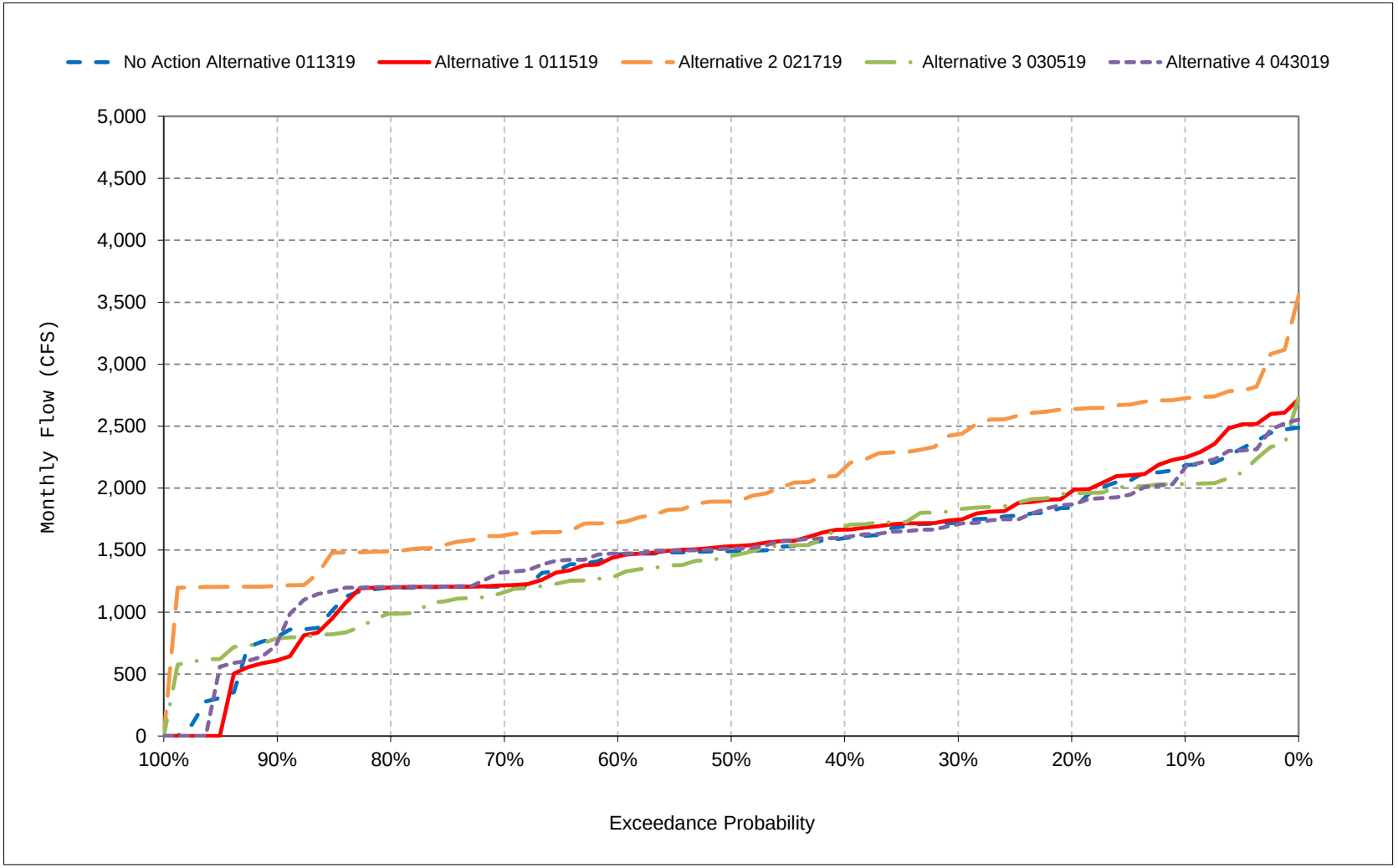
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-6. DCC Flow, Critical Year Average Flow



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-7. DCC Flow, October

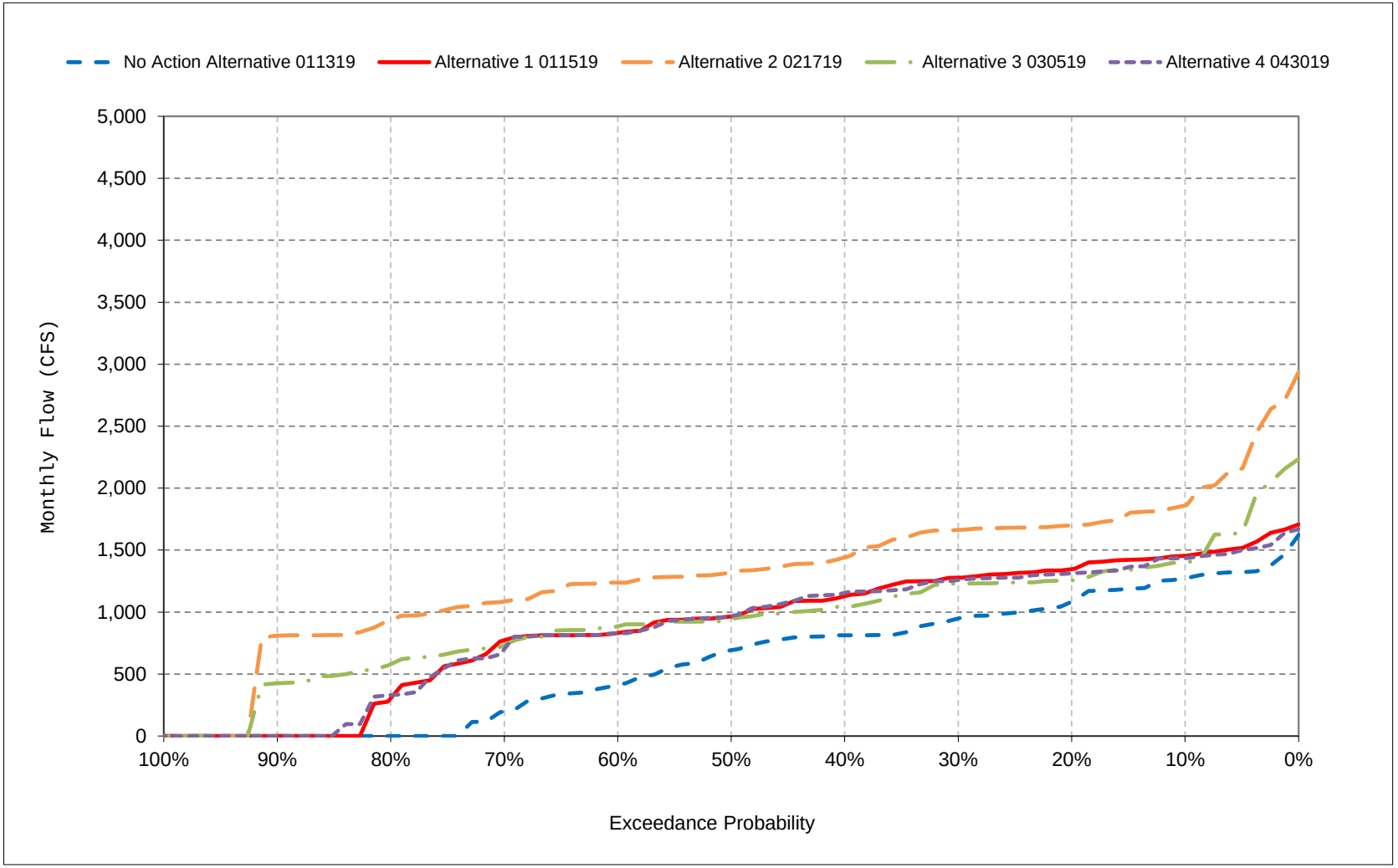


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-8. DCC Flow, November

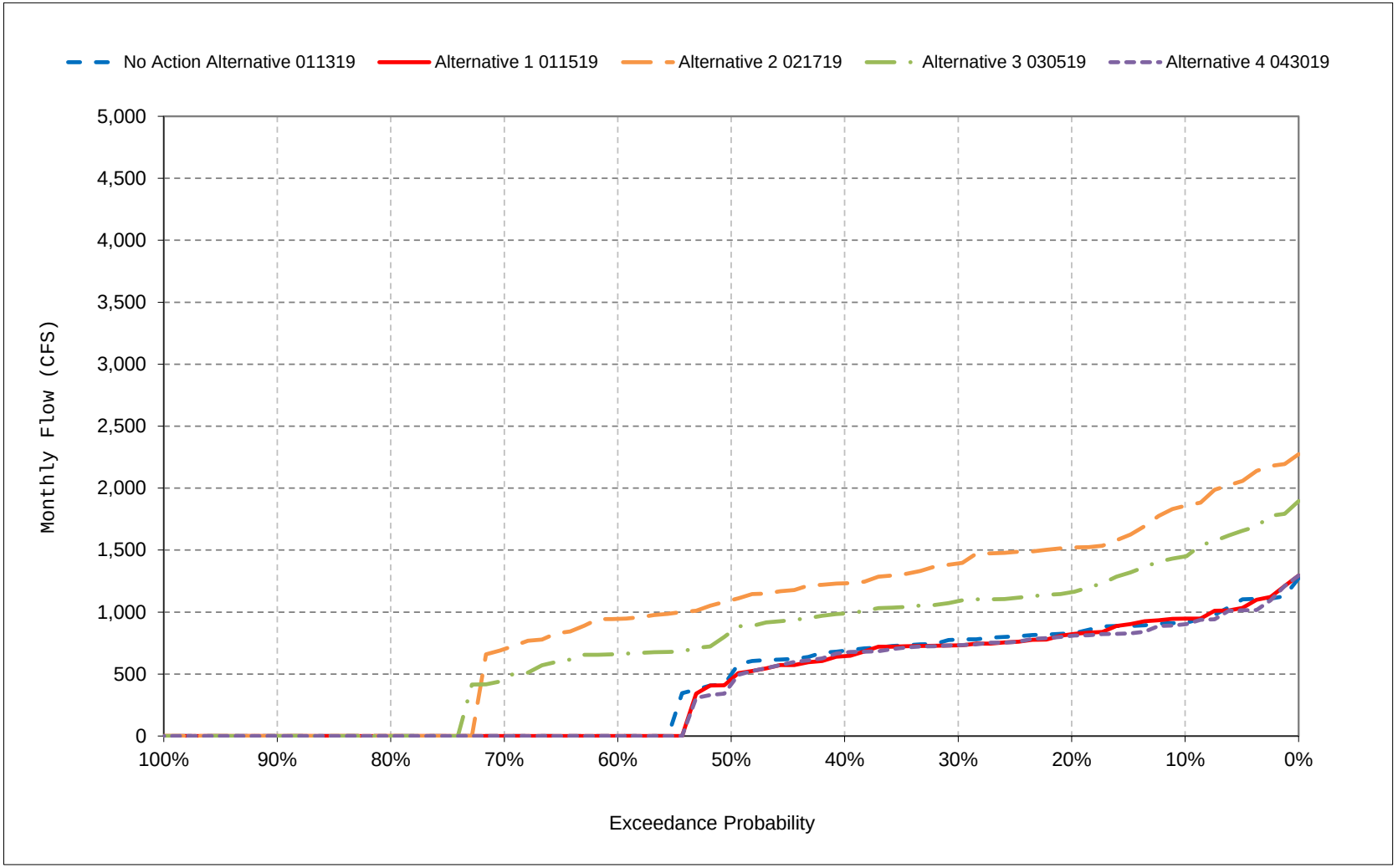


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-9. DCC Flow, December

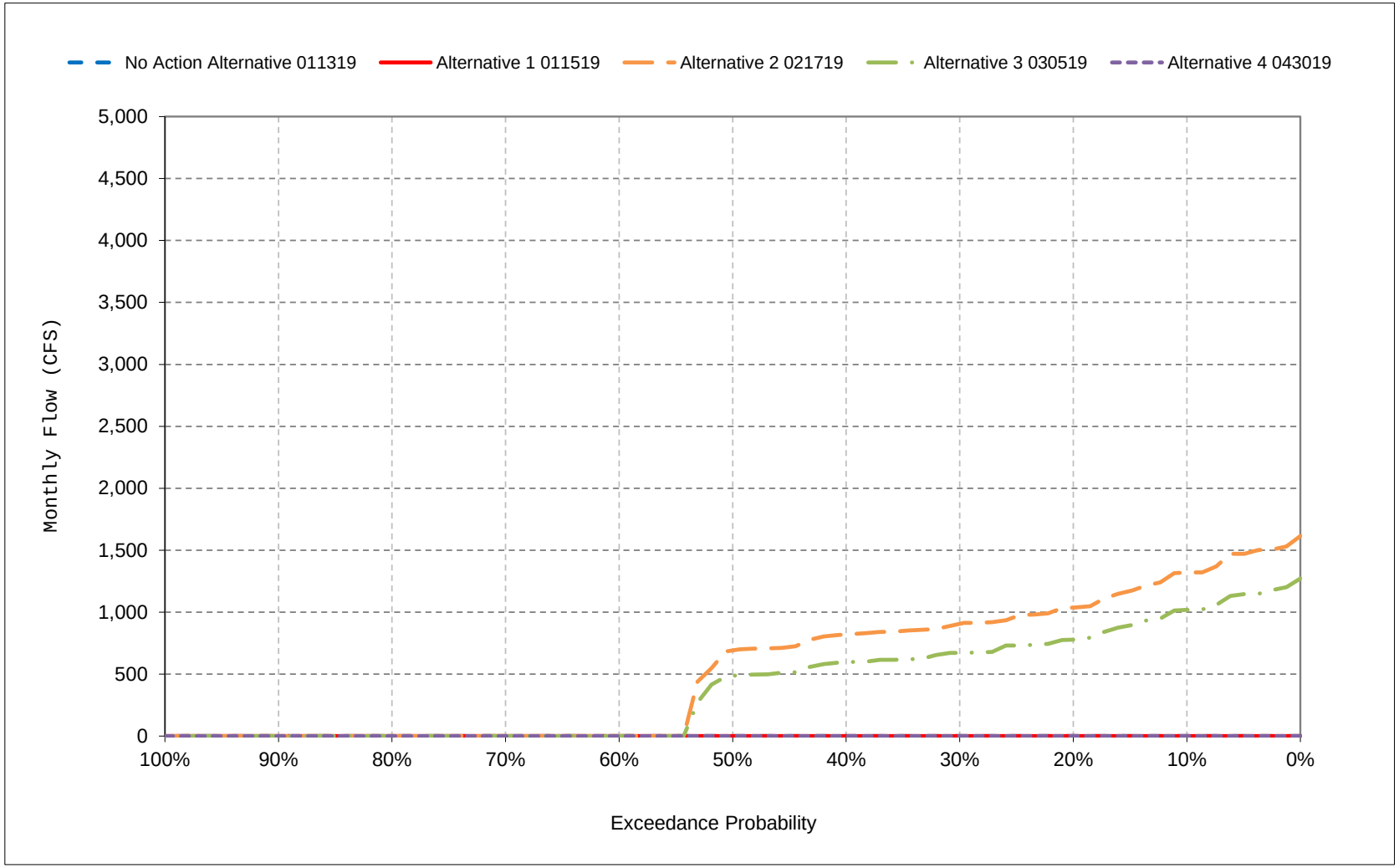


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-10. DCC Flow, January

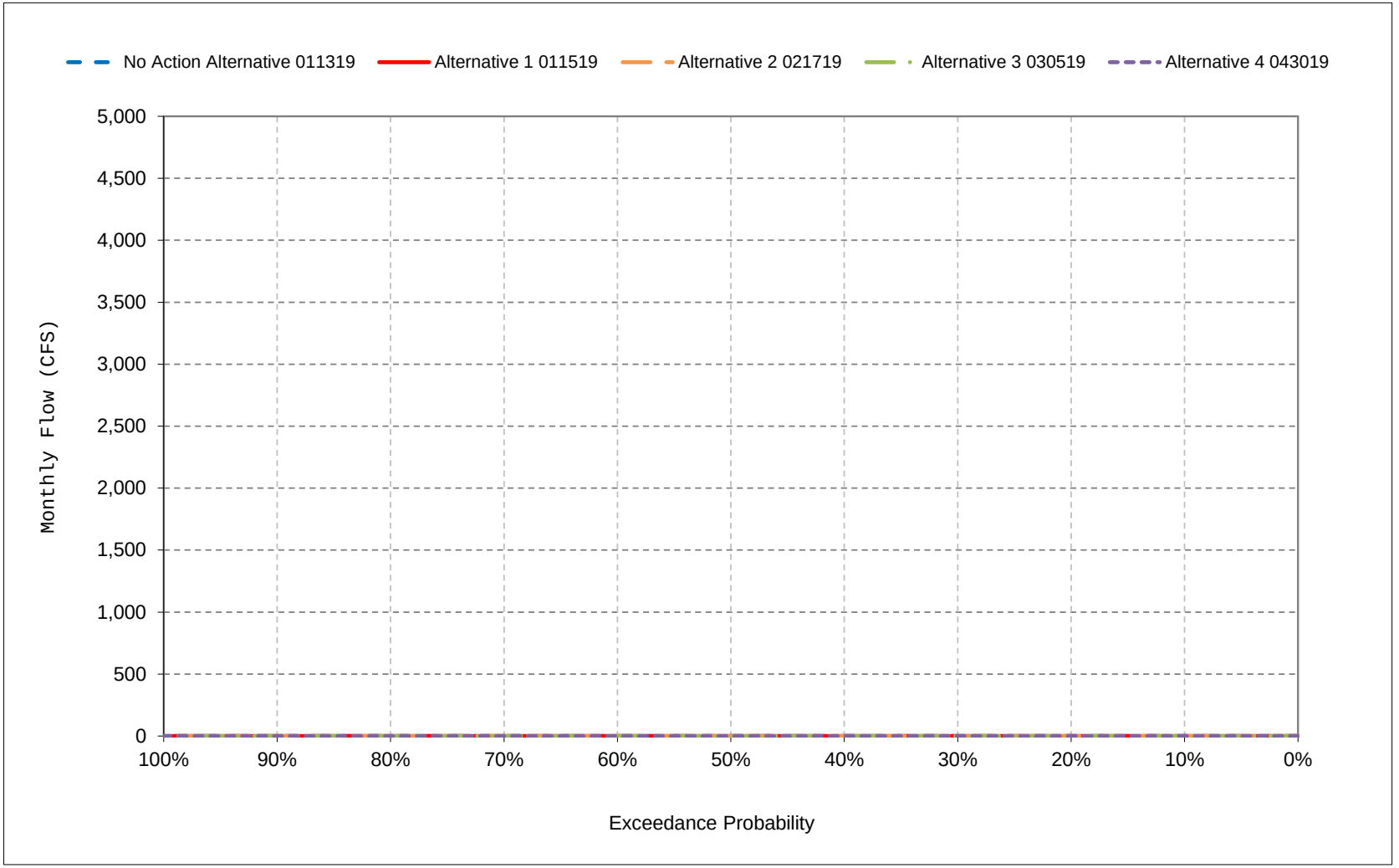


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-11. DCC Flow, February

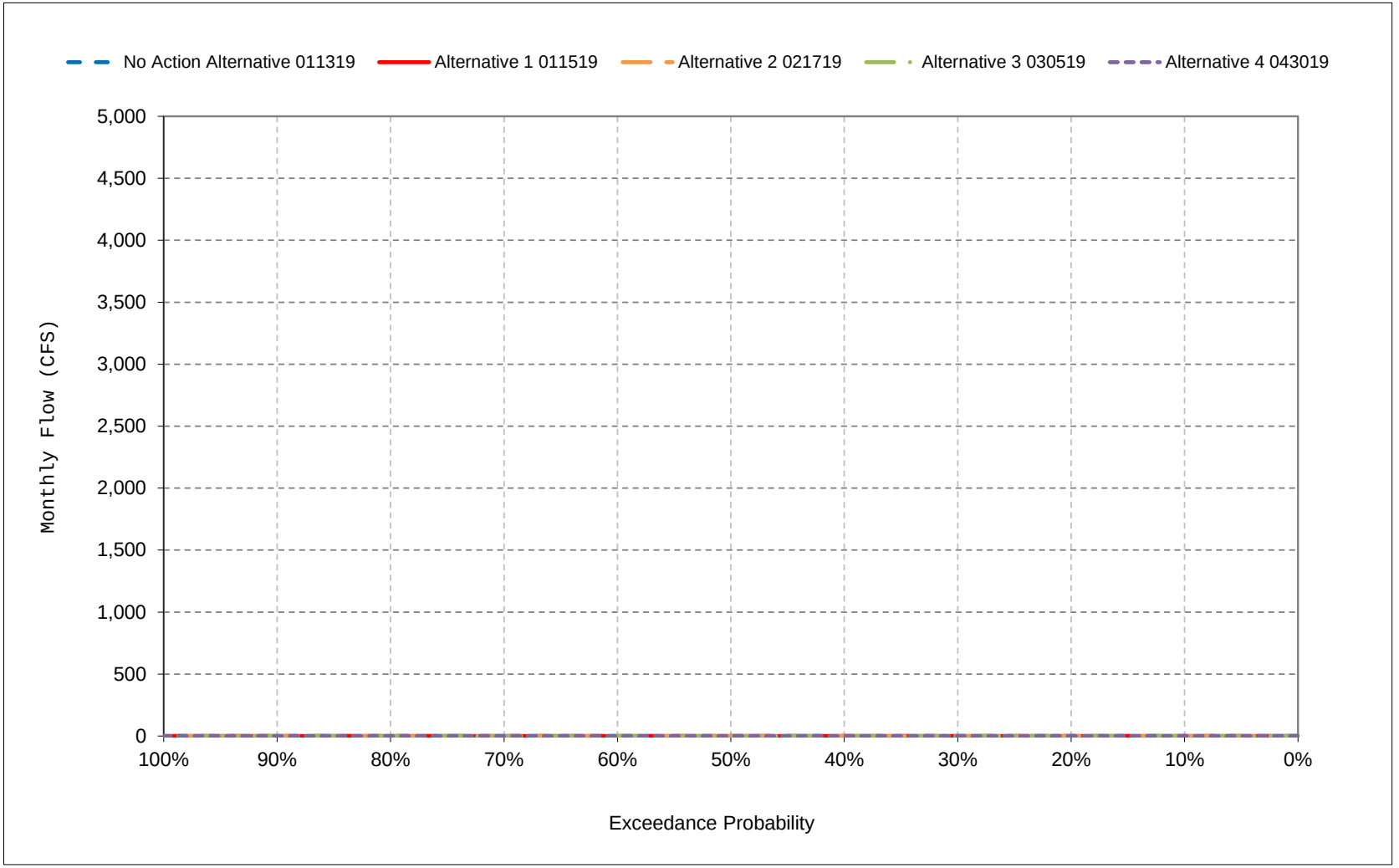


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-12. DCC Flow, March

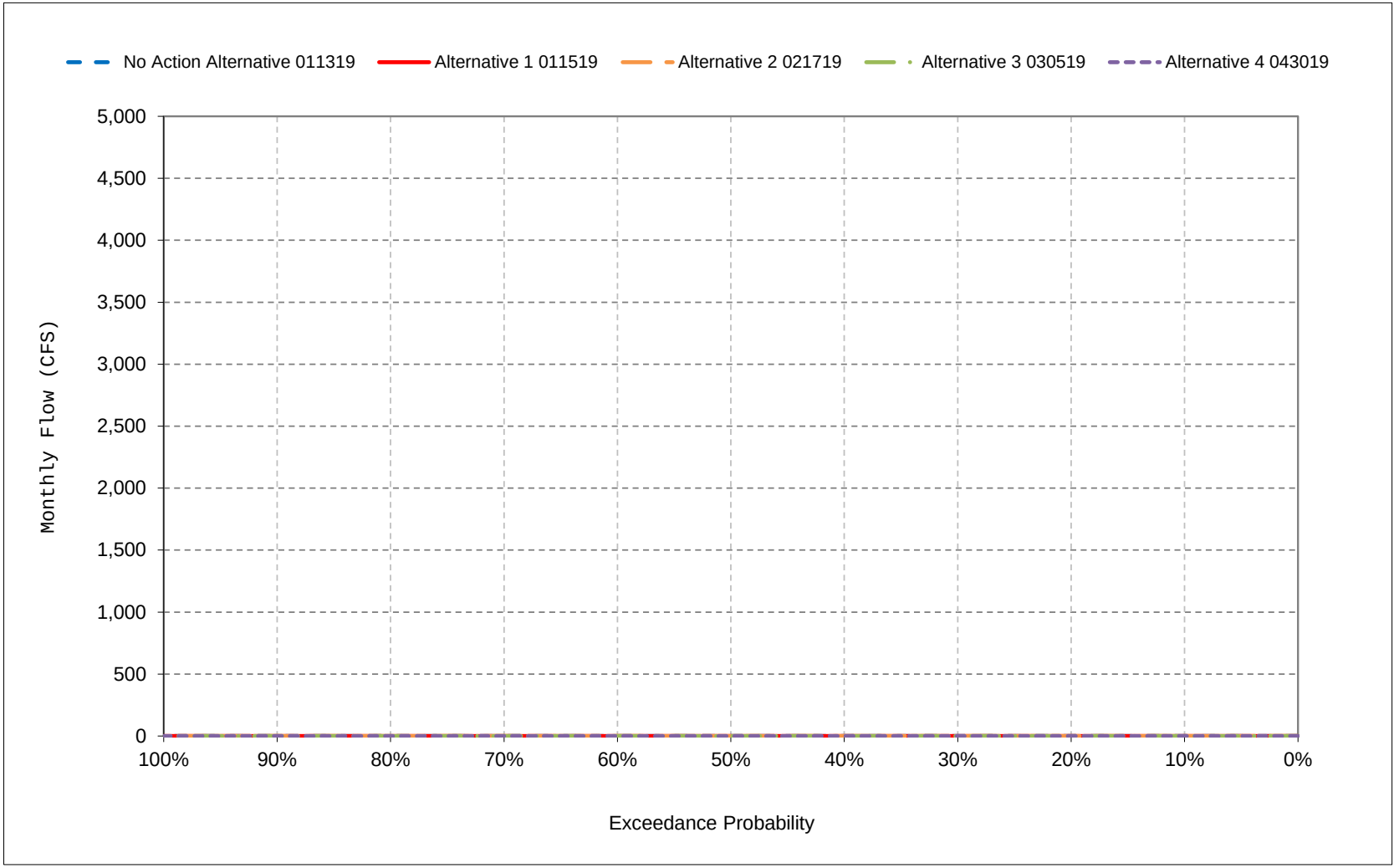


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-13. DCC Flow, April

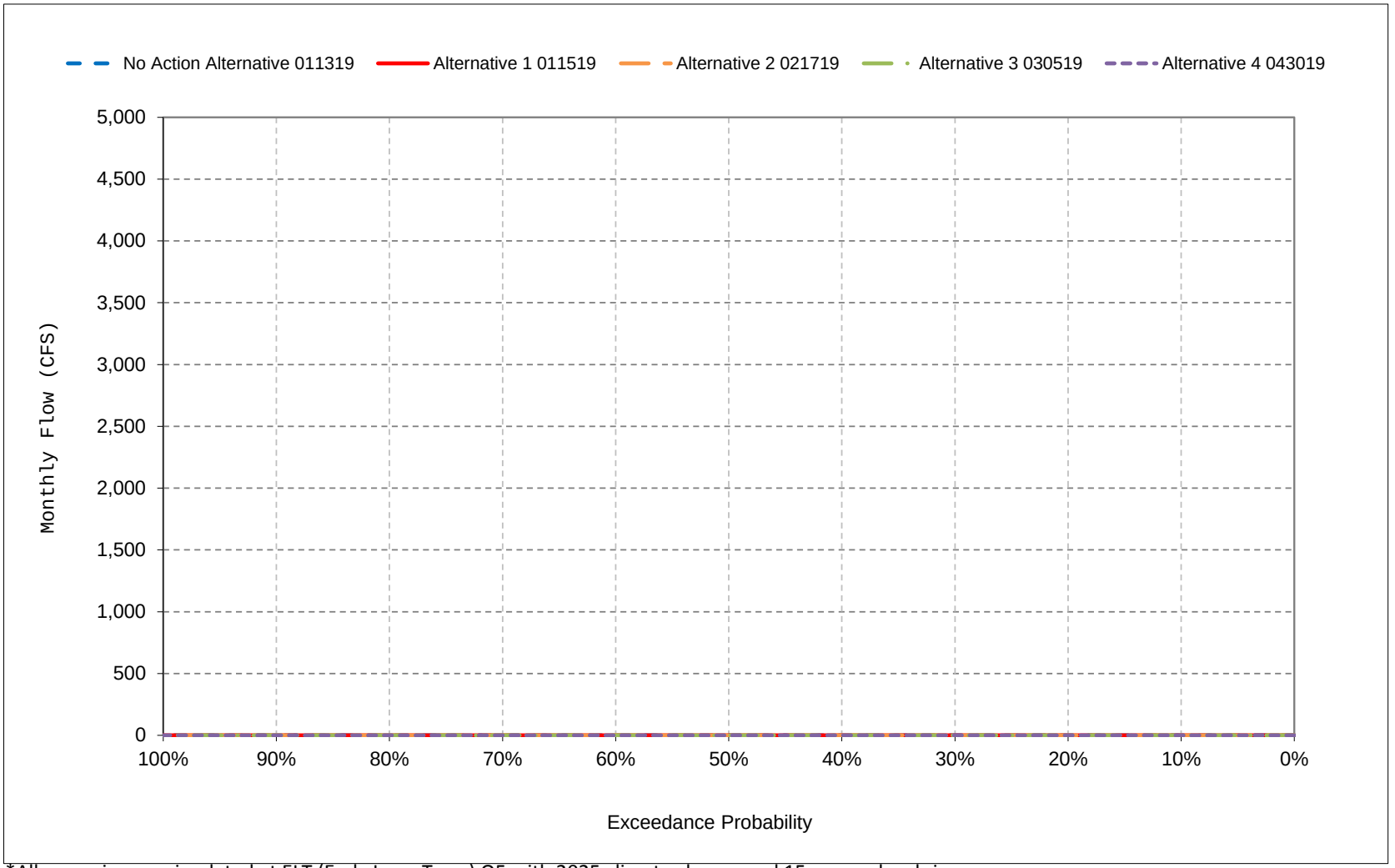


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-14. DCC Flow, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-15. DCC Flow, June

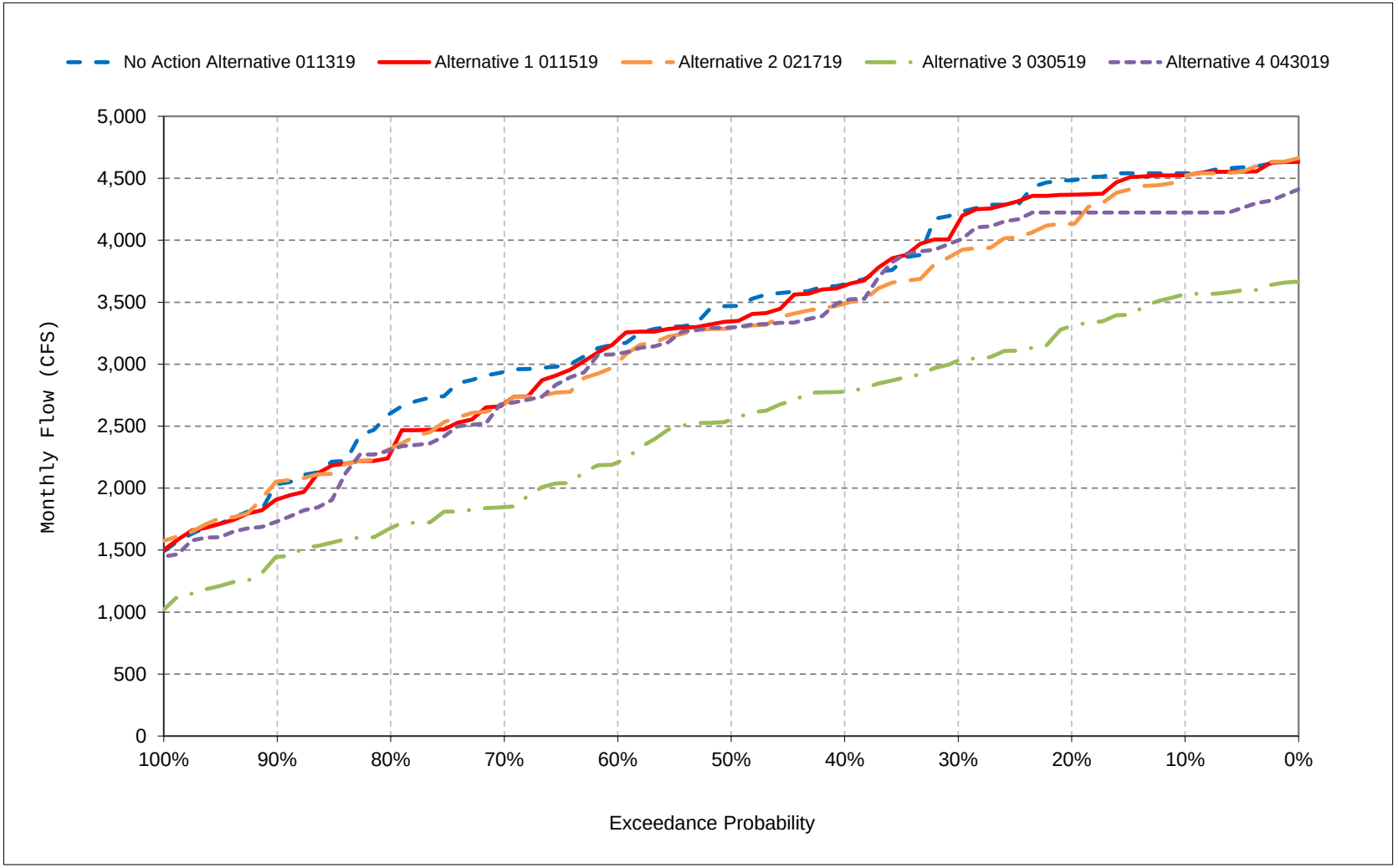


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-16. DCC Flow, July

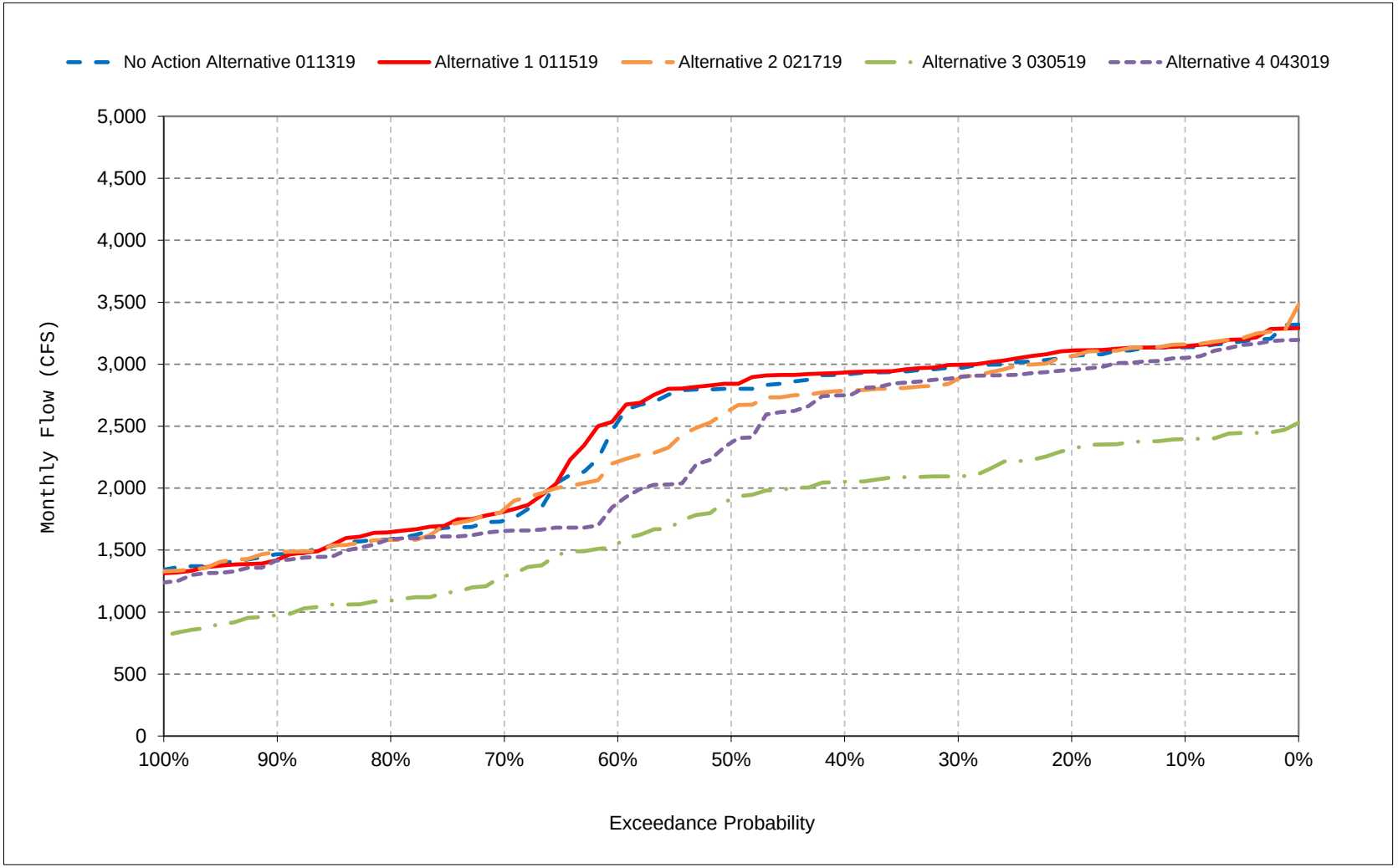


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-17. DCC Flow, August

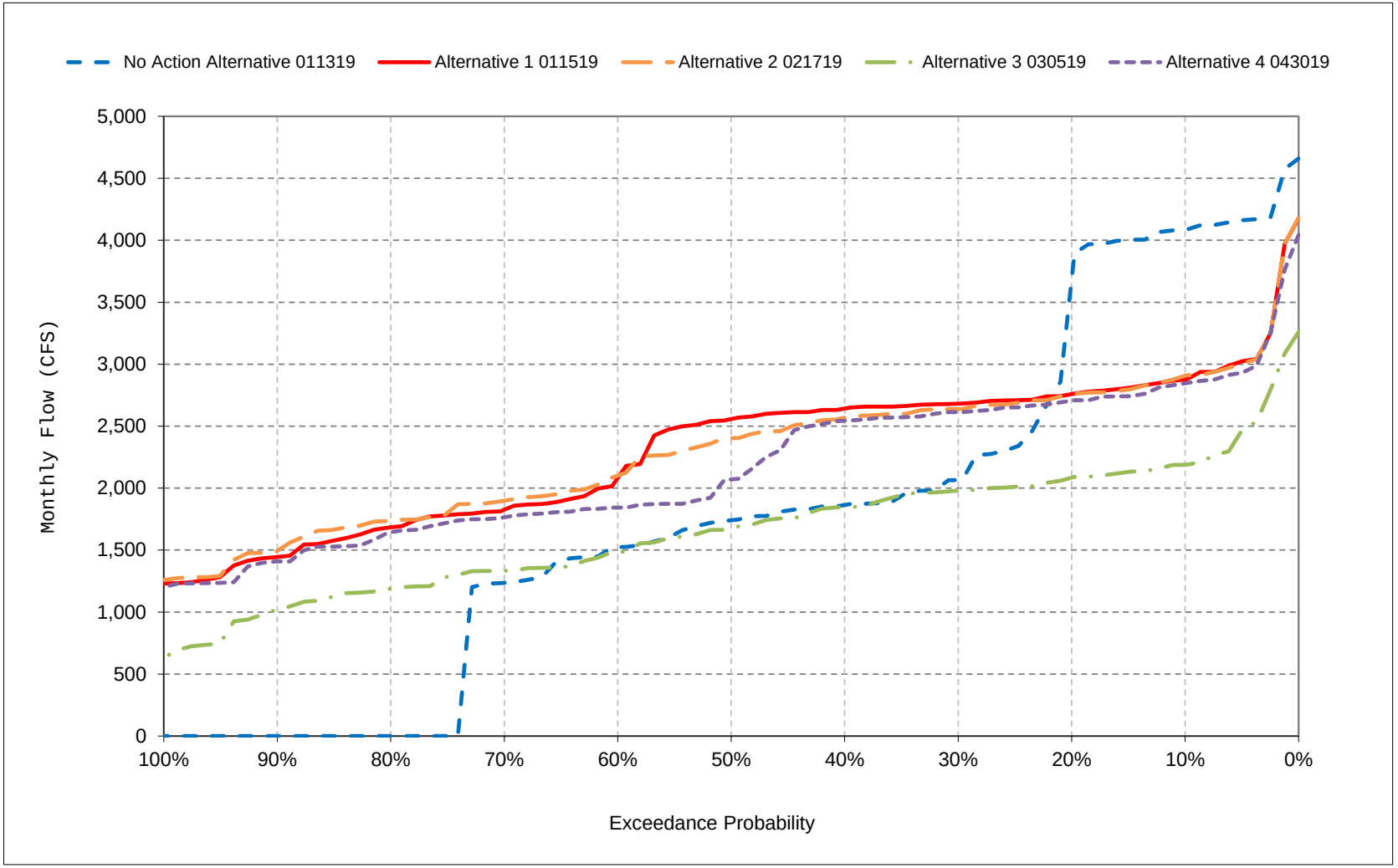


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Figure 52-18. DCC Flow, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Revised version of Alternative 3 (Alternative 3 030519) with updated DXC equation.

Table 53-1. Total Delta Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	7,819	11,248	11,719	9,868	12,025	10,933	4,070	3,934	8,587	11,511	11,780	11,280
20%	7,553	9,335	11,653	7,982	9,886	10,082	3,046	2,488	6,033	11,280	11,780	11,280
30%	6,693	8,207	10,209	6,932	8,445	8,885	2,653	2,116	5,707	10,886	11,630	11,280
40%	6,237	7,573	8,872	6,792	7,458	7,598	2,336	1,720	5,344	10,413	11,280	11,150
50%	5,757	7,125	8,023	6,615	6,717	6,893	2,168	1,567	4,141	9,927	10,345	10,004
60%	5,415	6,669	7,733	6,513	6,386	6,479	2,069	1,500	3,485	8,524	8,485	7,744
70%	5,105	6,257	7,384	6,198	5,818	5,341	1,899	1,500	3,233	7,375	4,339	6,929
80%	4,708	5,370	6,346	5,659	4,561	4,813	1,813	1,500	2,191	5,931	3,232	6,075
90%	4,264	4,649	5,344	4,747	3,037	2,800	1,532	1,500	713	2,661	2,247	4,439
Long Term												
Full Simulation Period[a]	6,090	7,359	8,523	7,058	7,273	7,160	2,593	2,307	4,606	8,437	8,117	8,714
Water Year Types[b,c]												
Wet (32%)	6,698	7,714	10,288	8,533	9,784	9,931	3,377	3,410	7,533	10,642	11,658	10,986
Above Normal (16%)	6,731	8,709	9,689	6,637	7,894	8,032	2,193	1,712	5,248	9,215	11,451	11,135
Below Normal (13%)	7,078	7,458	7,770	6,309	6,523	6,552	2,248	1,633	3,468	10,232	9,338	8,807
Dry (24%)	5,458	7,609	7,380	6,431	5,712	5,790	2,633	2,068	3,170	7,661	4,131	6,779
Critical (15%)	4,228	4,622	6,035	6,050	4,450	3,051	1,576	1,575	1,004	2,467	2,357	4,309

Alternative 1 011519

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,280	11,280	11,684	9,742	11,885	10,485	8,598	8,505	8,066	11,522	11,780	11,280
20%	11,191	11,280	10,895	8,028	9,808	9,518	7,861	7,462	5,943	11,280	11,780	11,280
30%	9,908	10,288	8,539	7,465	8,460	8,526	7,150	6,351	5,343	11,029	11,610	11,280
40%	8,567	9,148	8,099	7,104	7,671	7,650	6,773	5,806	5,020	10,320	11,280	11,280
50%	7,056	8,297	7,323	7,013	7,120	7,104	6,006	5,260	4,889	9,421	10,888	11,023
60%	5,777	7,160	7,037	6,821	6,759	6,797	5,131	4,336	4,781	8,110	9,411	8,492
70%	5,287	6,087	6,684	6,578	6,547	6,486	3,606	3,711	4,634	6,592	4,459	6,793
80%	4,735	5,139	6,299	6,339	6,264	6,038	3,118	3,234	4,494	4,469	3,383	5,901
90%	4,091	4,627	5,225	6,128	5,988	4,997	2,486	2,377	2,154	1,996	2,279	4,334
Long Term												
Full Simulation Period[a]	7,487	8,086	7,975	7,451	8,015	7,564	5,564	5,284	5,266	8,165	8,265	8,929
Water Year Types[b,c]												
Wet (32%)	9,386	10,055	9,813	8,846	9,753	9,429	7,853	7,654	7,301	10,618	11,579	11,290
Above Normal (16%)	9,376	8,967	8,110	7,536	8,043	7,807	6,627	5,678	5,096	9,615	11,393	11,279
Below Normal (13%)	7,177	7,510	7,155	7,046	7,594	7,099	4,985	4,498	5,124	10,458	10,437	9,326
Dry (24%)	5,903	7,327	7,223	6,579	7,082	7,024	4,182	4,136	4,714	6,500	4,382	6,847
Critical (15%)	4,251	4,655	5,852	6,160	6,159	4,587	2,289	2,356	2,093	1,955	2,179	4,373

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,461	32	**-35**	**-126**	**-140**	**-449**	4,529	4,571	**-521**	11	0	0
20%	3,638	1,945	**-758**	46	**-78**	**-565**	4,815	4,974	**-90**	0	0	0
30%	3,215	2,081	**-1,670**	533	15	**-359**	4,497	4,235	**-364**	144	**-20**	0
40%	2,330	1,575	**-773**	312	213	53	4,438	4,086	**-324**	**-93**	0	130
50%	1,299	1,172	**-700**	398	402	211	3,838	3,693	747	**-506**	543	1,019
60%	361	491	**-696**	308	373	318	3,062	2,836	1,296	**-415**	926	747
70%	182	**-170**	**-700**	380	729	1,145	1,707	2,211	1,401	**-783**	120	**-136**
80%	27	**-231**	**-47**	680	1,703	1,225	1,304	1,734	2,304	**-1,462**	151	**-173**
90%	**-174**	**-21**	**-118**	1,381	2,951	2,198	954	877	1,441	**-665**	32	**-105**
Long Term												
Full Simulation Period[a]	1,397	726	**-548**	393	742	404	2,971	2,977	660	**-272**	149	215
Water Year Types[b,c]												
Wet (32%)	2,688	2,341	**-474**	312	**-31**	**-502**	4,476	4,244	**-232**	**-24**	**-79**	304
Above Normal (16%)	2,645	258	**-1,579**	899	149	**-225**	4,433	3,966	**-152**	400	**-58**	144
Below Normal (13%)	99	52	**-615**	737	1,071	548	2,737	2,865	1,656	226	1,099	518
Dry (24%)	445	**-281**	**-157**	148	1,371	1,234	1,549	2,069	1,544	**-1,161**	252	69
Critical (15%)	24	34	**-183**	110	1,709	1,535	713	781	1,089	**-512**	**-178**	64

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 53-2. Total Delta Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	7,819	11,248	11,719	9,868	12,025	10,933	4,070	3,934	8,587	11,511	11,780	11,280
20%	7,553	9,335	11,653	7,982	9,886	10,082	3,046	2,488	6,033	11,280	11,780	11,280
30%	6,693	8,207	10,209	6,932	8,445	8,885	2,653	2,116	5,707	10,886	11,630	11,280
40%	6,237	7,573	8,872	6,792	7,458	7,598	2,336	1,720	5,344	10,413	11,280	11,150
50%	5,757	7,125	8,023	6,615	6,717	6,893	2,168	1,567	4,141	9,927	10,345	10,004
60%	5,415	6,669	7,733	6,513	6,386	6,479	2,069	1,500	3,485	8,524	8,485	7,744
70%	5,105	6,257	7,384	6,198	5,818	5,341	1,899	1,500	3,233	7,375	4,339	6,929
80%	4,708	5,370	6,346	5,659	4,561	4,813	1,813	1,500	2,191	5,931	3,232	6,075
90%	4,264	4,649	5,344	4,747	3,037	2,800	1,532	1,500	713	2,661	2,247	4,439
Long Term												
Full Simulation Period[a]	6,090	7,359	8,523	7,058	7,273	7,160	2,593	2,307	4,606	8,437	8,117	8,714
Water Year Types[b,c]												
Wet (32%)	6,698	7,714	10,288	8,533	9,784	9,931	3,377	3,410	7,533	10,642	11,658	10,986
Above Normal (16%)	6,731	8,709	9,689	6,637	7,894	8,032	2,193	1,712	5,248	9,215	11,451	11,135
Below Normal (13%)	7,078	7,458	7,770	6,309	6,523	6,552	2,248	1,633	3,468	10,232	9,338	8,807
Dry (24%)	5,458	7,609	7,380	6,431	5,712	5,790	2,633	2,068	3,170	7,661	4,131	6,779
Critical (15%)	4,228	4,622	6,035	6,050	4,450	3,051	1,576	1,575	1,004	2,467	2,357	4,309

Alternative 2 021719

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,280	11,280	12,161	13,348	13,908	11,762	8,673	9,292	11,152	11,588	11,780	11,280
20%	11,280	11,280	11,770	12,520	12,557	11,219	8,360	7,963	8,823	11,434	11,780	11,280
30%	10,007	11,049	11,679	12,077	12,189	10,095	8,024	7,365	8,306	11,261	11,527	11,280
40%	9,303	10,202	11,639	11,972	11,962	9,460	7,207	6,609	7,947	10,823	10,892	11,264
50%	7,272	9,356	11,151	11,809	10,857	8,923	6,642	6,060	7,413	10,105	9,229	10,503
60%	5,836	7,709	9,599	10,093	9,161	8,070	5,678	4,737	6,959	8,707	6,394	8,922
70%	4,774	7,375	8,982	8,781	8,490	7,096	4,160	4,217	6,339	6,238	5,013	7,223
80%	3,974	5,818	8,117	8,132	7,423	6,023	3,715	3,761	5,101	4,564	3,009	6,398
90%	3,550	4,688	6,345	5,982	6,106	4,866	3,108	3,073	2,342	2,901	2,255	5,404
Long Term												
Full Simulation Period[a]	7,477	8,593	9,990	10,341	10,099	8,465	6,084	5,918	6,951	8,361	7,863	9,004
Water Year Types[b,c]												
Wet (32%)	10,444	10,544	11,032	11,749	11,170	9,584	7,932	8,152	9,121	10,633	11,314	11,086
Above Normal (16%)	9,800	8,771	10,557	11,956	11,361	9,938	7,599	6,800	8,165	10,657	11,109	11,124
Below Normal (13%)	6,993	8,368	9,441	10,378	9,252	8,195	5,790	5,373	8,006	10,533	8,643	9,367
Dry (24%)	4,726	8,315	9,665	9,031	9,872	8,391	4,830	4,595	5,581	5,982	4,046	7,295
Critical (15%)	3,560	4,843	8,161	7,693	7,565	4,818	2,799	2,826	2,250	2,925	2,517	4,713

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,461	32	442	3,480	1,883	829	4,603	5,358	2,565	77	0	0
20%	3,727	1,945	117	4,538	2,671	1,137	5,314	5,475	2,790	154	0	0
30%	3,314	2,842	1,470	5,145	3,744	1,210	5,371	5,249	2,600	376	**-103**	0
40%	3,066	2,629	2,767	5,180	4,504	1,862	4,871	4,890	2,603	411	**-388**	114
50%	1,516	2,231	3,128	5,194	4,140	2,029	4,475	4,493	3,271	178	**-1,116**	499
60%	421	1,039	1,867	3,581	2,776	1,591	3,610	3,237	3,474	182	**-2,091**	1,177
70%	**-331**	1,118	1,598	2,584	2,672	1,755	2,261	2,717	3,106	**-1,137**	675	293
80%	**-735**	448	1,771	2,473	2,863	1,209	1,902	2,261	2,910	**-1,367**	**-223**	324
90%	**-715**	40	1,001	1,236	3,069	2,066	1,576	1,573	1,629	240	8	965
Long Term												
Full Simulation Period[a]	1,387	1,234	1,467	3,283	2,826	1,305	3,491	3,611	2,345	**-76**	**-254**	290
Water Year Types[b,c]												
Wet (32%)	3,746	2,830	745	3,216	1,386	**-347**	4,555	4,742	1,588	**-9**	**-344**	100
Above Normal (16%)	3,069	62	868	5,318	3,466	1,906	5,405	5,087	2,917	1,442	**-342**	**-11**
Below Normal (13%)	**-85**	910	1,672	4,069	2,729	1,644	3,542	3,740	4,538	301	**-695**	559
Dry (24%)	**-732**	706	2,285	2,600	4,160	2,600	2,196	2,527	2,412	**-1,679**	**-85**	516
Critical (15%)	**-668**	221	2,126	1,643	3,115	1,767	1,223	1,251	1,247	458	160	404

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 53-3. Total Delta Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	7,819	11,248	11,719	9,868	12,025	10,933	4,070	3,934	8,587	11,511	11,780	11,280
20%	7,553	9,335	11,653	7,982	9,886	10,082	3,046	2,488	6,033	11,280	11,780	11,280
30%	6,693	8,207	10,209	6,932	8,445	8,885	2,653	2,116	5,707	10,886	11,630	11,280
40%	6,237	7,573	8,872	6,792	7,458	7,598	2,336	1,720	5,344	10,413	11,280	11,150
50%	5,757	7,125	8,023	6,615	6,717	6,893	2,168	1,567	4,141	9,927	10,345	10,004
60%	5,415	6,669	7,733	6,513	6,386	6,479	2,069	1,500	3,485	8,524	8,485	7,744
70%	5,105	6,257	7,384	6,198	5,818	5,341	1,899	1,500	3,233	7,375	4,339	6,929
80%	4,708	5,370	6,346	5,659	4,561	4,813	1,813	1,500	2,191	5,931	3,232	6,075
90%	4,264	4,649	5,344	4,747	3,037	2,800	1,532	1,500	713	2,661	2,247	4,439
Long Term												
Full Simulation Period[a]	6,090	7,359	8,523	7,058	7,273	7,160	2,593	2,307	4,606	8,437	8,117	8,714
Water Year Types[b,c]												
Wet (32%)	6,698	7,714	10,288	8,533	9,784	9,931	3,377	3,410	7,533	10,642	11,658	10,986
Above Normal (16%)	6,731	8,709	9,689	6,637	7,894	8,032	2,193	1,712	5,248	9,215	11,451	11,135
Below Normal (13%)	7,078	7,458	7,770	6,309	6,523	6,552	2,248	1,633	3,468	10,232	9,338	8,807
Dry (24%)	5,458	7,609	7,380	6,431	5,712	5,790	2,633	2,068	3,170	7,661	4,131	6,779
Critical (15%)	4,228	4,622	6,035	6,050	4,450	3,051	1,576	1,575	1,004	2,467	2,357	4,309

Alternative 3 021719

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,280	11,280	12,161	13,348	13,918	11,774	8,668	9,292	11,153	11,605	11,780	11,280
20%	11,280	11,280	11,800	12,335	12,906	10,934	8,297	7,963	8,672	11,423	11,780	11,280
30%	10,235	11,280	11,684	12,098	12,191	10,198	7,979	7,360	8,081	11,120	11,568	11,280
40%	9,084	10,186	11,658	11,981	11,962	9,468	7,138	6,592	7,823	10,833	10,603	10,991
50%	7,405	9,144	11,496	11,828	10,611	8,980	6,572	6,023	7,312	10,075	8,736	9,800
60%	5,491	8,267	10,676	10,353	9,577	8,095	5,600	4,800	6,874	8,004	6,227	8,769
70%	4,660	7,298	9,579	8,712	8,603	6,815	4,053	4,263	6,310	5,996	4,678	7,300
80%	4,047	5,951	7,850	7,861	7,414	5,942	3,719	3,964	5,021	4,224	2,969	6,426
90%	3,490	4,483	6,721	5,758	5,565	4,904	2,930	3,070	2,279	2,884	2,128	5,474
Long Term												
Full Simulation Period[a]	7,349	8,609	10,181	10,262	10,087	8,393	5,981	5,923	6,848	8,230	7,723	8,948
Water Year Types[b,c]												
Wet (32%)	10,457	10,615	11,287	11,318	11,364	9,610	7,594	8,127	9,128	10,836	10,893	10,930
Above Normal (16%)	9,691	9,228	10,757	12,200	11,348	9,669	7,636	6,801	7,829	10,197	11,222	11,032
Below Normal (13%)	6,998	8,294	9,549	10,506	8,719	8,234	5,810	5,373	7,805	10,386	8,612	9,313
Dry (24%)	4,466	8,218	9,787	9,104	9,825	8,198	4,819	4,670	5,612	5,754	4,015	7,351
Critical (15%)	3,204	4,531	8,398	7,580	7,647	4,843	2,789	2,792	2,028	2,603	2,430	4,722

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,461	32	442	3,480	1,893	840	4,598	5,358	2,566	94	0	0
20%	3,727	1,945	146	4,353	3,020	852	5,251	5,476	2,639	143	0	0
30%	3,542	3,073	1,475	5,166	3,746	1,313	5,325	5,244	2,375	234	**-62**	0
40%	2,847	2,614	2,786	5,189	4,504	1,870	4,803	4,872	2,479	420	**-677**	**-159**
50%	1,648	2,019	3,473	5,213	3,894	2,087	4,404	4,456	3,170	148	**-1,609**	**-204**
60%	75	1,597	2,943	3,840	3,191	1,616	3,531	3,300	3,389	**-520**	**-2,258**	1,025
70%	**-445**	1,040	2,195	2,514	2,785	1,474	2,154	2,763	3,077	**-1,379**	339	370
80%	**-662**	580	1,504	2,202	2,854	1,128	1,905	2,464	2,830	**-1,707**	**-263**	352
90%	**-774**	**-165**	1,377	1,011	2,527	2,105	1,398	1,570	1,566	223	**-119**	1,035
Long Term												
Full Simulation Period[a]	1,259	1,249	1,658	3,204	2,814	1,233	3,388	3,617	2,242	**-207**	**-394**	234
Water Year Types[b,c]												
Wet (32%)	3,759	2,901	999	2,785	1,580	**-321**	4,217	4,717	1,595	194	**-765**	**-56**
Above Normal (16%)	2,960	519	1,068	5,562	3,454	1,637	5,442	5,089	2,582	982	**-229**	**-103**
Below Normal (13%)	**-79**	836	1,779	4,197	2,196	1,682	3,563	3,740	4,336	154	**-726**	506
Dry (24%)	**-993**	609	2,407	2,673	4,113	2,408	2,185	2,602	2,442	**-1,907**	**-115**	573
Critical (15%)	**-1,024**	**-91**	2,363	1,529	3,196	1,792	1,213	1,217	1,024	136	74	413

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 53-4. Total Delta Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	7,819	11,248	11,719	9,868	12,025	10,933	4,070	3,934	8,587	11,511	11,780	11,280
20%	7,553	9,335	11,653	7,982	9,886	10,082	3,046	2,488	6,033	11,280	11,780	11,280
30%	6,693	8,207	10,209	6,932	8,445	8,885	2,653	2,116	5,707	10,886	11,630	11,280
40%	6,237	7,573	8,872	6,792	7,458	7,598	2,336	1,720	5,344	10,413	11,280	11,150
50%	5,757	7,125	8,023	6,615	6,717	6,893	2,168	1,567	4,141	9,927	10,345	10,004
60%	5,415	6,669	7,733	6,513	6,386	6,479	2,069	1,500	3,485	8,524	8,485	7,744
70%	5,105	6,257	7,384	6,198	5,818	5,341	1,899	1,500	3,233	7,375	4,339	6,929
80%	4,708	5,370	6,346	5,659	4,561	4,813	1,813	1,500	2,191	5,931	3,232	6,075
90%	4,264	4,649	5,344	4,747	3,037	2,800	1,532	1,500	713	2,661	2,247	4,439
Long Term												
Full Simulation Period[a]	6,090	7,359	8,523	7,058	7,273	7,160	2,593	2,307	4,606	8,437	8,117	8,714
Water Year Types[b,c]												
Wet (32%)	6,698	7,714	10,288	8,533	9,784	9,931	3,377	3,410	7,533	10,642	11,658	10,986
Above Normal (16%)	6,731	8,709	9,689	6,637	7,894	8,032	2,193	1,712	5,248	9,215	11,451	11,135
Below Normal (13%)	7,078	7,458	7,770	6,309	6,523	6,552	2,248	1,633	3,468	10,232	9,338	8,807
Dry (24%)	5,458	7,609	7,380	6,431	5,712	5,790	2,633	2,068	3,170	7,661	4,131	6,779
Critical (15%)	4,228	4,622	6,035	6,050	4,450	3,051	1,576	1,575	1,004	2,467	2,357	4,309

Alternative 4 043019

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,280	11,280	11,684	9,655	11,554	6,793	6,005	6,776	8,079	11,280	11,280	11,280
20%	10,770	10,678	9,795	8,055	9,293	5,215	4,627	3,632	5,678	10,751	11,280	11,280
30%	9,824	9,545	8,323	7,465	8,139	4,274	4,095	2,347	5,339	10,231	11,280	11,280
40%	8,449	8,491	7,710	7,096	7,554	2,616	3,701	1,869	4,945	9,427	10,753	10,996
50%	6,827	7,687	7,332	7,028	7,082	1,941	2,991	1,600	4,870	8,154	8,553	8,291
60%	5,897	6,723	7,025	6,820	6,720	1,662	2,165	1,391	4,731	7,277	4,464	7,220
70%	5,384	6,188	6,664	6,557	6,544	1,602	1,500	1,355	4,590	5,743	3,342	6,523
80%	4,892	5,219	6,137	6,317	6,250	1,586	1,500	1,308	4,192	3,885	2,975	5,989
90%	4,219	4,695	5,205	6,027	6,005	1,575	1,432	1,260	2,147	1,371	2,102	4,140
Long Term												
Full Simulation Period[a]	7,467	7,806	7,837	7,472	7,897	3,358	3,295	2,630	5,157	7,436	7,192	8,448
Water Year Types[b,c]												
Wet (32%)	9,635	9,561	9,224	8,862	9,654	5,770	5,136	4,510	7,234	10,152	11,053	11,104
Above Normal (16%)	9,209	8,726	8,031	7,565	7,533	3,234	3,696	2,380	5,071	8,539	10,746	11,015
Below Normal (13%)	6,793	6,991	7,620	7,024	7,565	2,141	2,496	1,561	5,077	9,133	6,098	7,477
Dry (24%)	5,771	7,253	7,230	6,601	7,100	2,055	2,137	1,673	4,485	5,934	3,650	6,400
Critical (15%)	4,329	4,674	5,834	6,226	6,120	1,553	1,537	1,402	1,945	1,304	1,882	4,214

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,461	32	**-35**	**-213**	**-471**	**-4,141**	1,935	2,842	**-508**	**-231**	**-500**	0
20%	3,218	1,343	**-1,859**	73	**-593**	**-4,867**	1,582	1,145	**-354**	**-529**	**-500**	0
30%	3,130	1,338	**-1,886**	533	**-306**	**-4,612**	1,442	231	**-367**	**-655**	**-350**	0
40%	2,212	918	**-1,162**	303	96	**-4,982**	1,366	149	**-399**	**-986**	**-527**	**-154**
50%	1,070	562	**-691**	413	365	**-4,952**	823	33	729	**-1,773**	**-1,792**	**-1,713**
60%	482	53	**-708**	308	334	**-4,817**	96	**-109**	1,247	**-1,248**	**-4,021**	**-524**
70%	280	**-69**	**-721**	359	726	**-3,738**	**-399**	**-145**	1,356	**-1,632**	**-997**	**-406**
80%	183	**-151**	**-209**	658	1,690	**-3,227**	**-313**	**-192**	2,001	**-2,046**	**-257**	**-86**
90%	**-45**	47	**-139**	1,280	2,967	**-1,225**	**-100**	**-240**	1,434	**-1,290**	**-145**	**-299**
Long Term												
Full Simulation Period[a]	1,377	447	**-686**	414	624	**-3,802**	703	324	551	**-1,001**	**-925**	**-266**
Water Year Types[b,c]												
Wet (32%)	2,937	1,848	**-1,063**	329	**-130**	**-4,161**	1,759	1,100	**-299**	**-490**	**-605**	118
Above Normal (16%)	2,478	17	**-1,658**	927	**-361**	**-4,798**	1,503	668	**-177**	**-675**	**-706**	**-119**
Below Normal (13%)	**-285**	**-467**	**-150**	715	1,042	**-4,411**	249	**-72**	1,609	**-1,099**	**-3,240**	**-1,331**
Dry (24%)	313	**-355**	**-150**	170	1,388	**-3,735**	**-496**	**-394**	1,315	**-1,727**	**-480**	**-379**
Critical (15%)	101	53	**-201**	175	1,670	**-1,498**	**-39**	**-173**	941	**-1,163**	**-475**	**-95**

a Based on the 82-year simulation period.

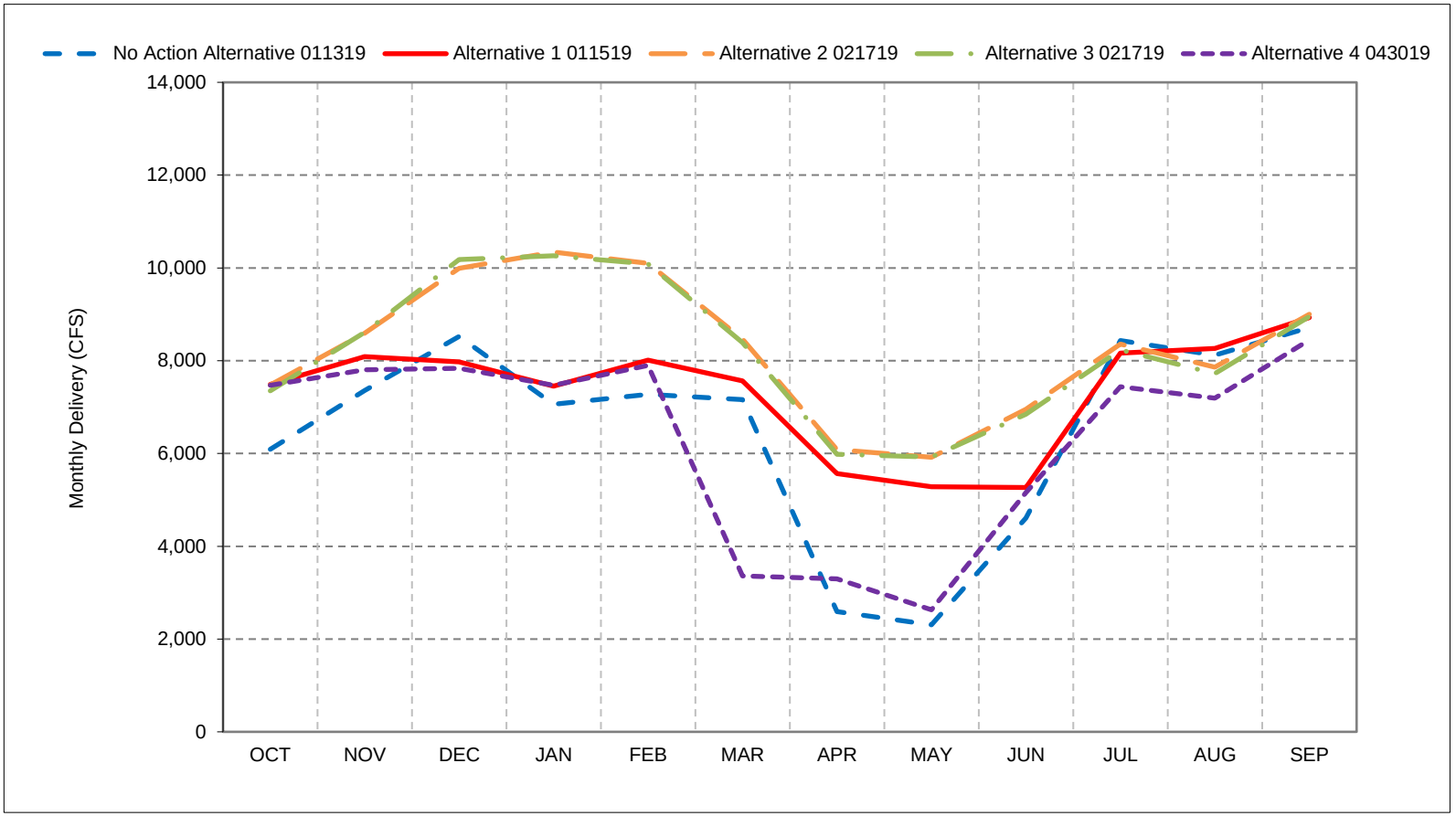
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

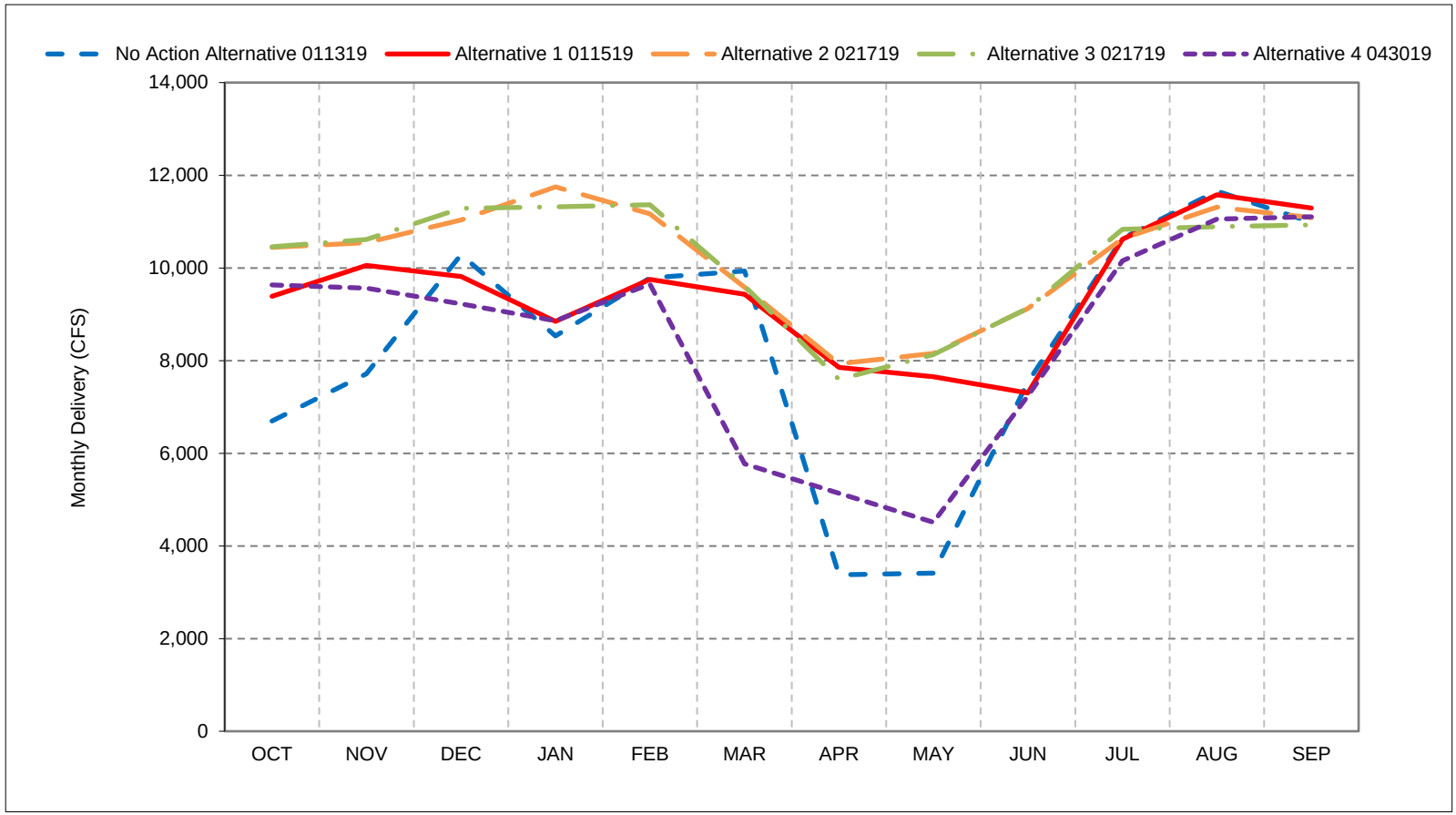
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 53-1. Total Delta Exports, Long-Term Average Delivery



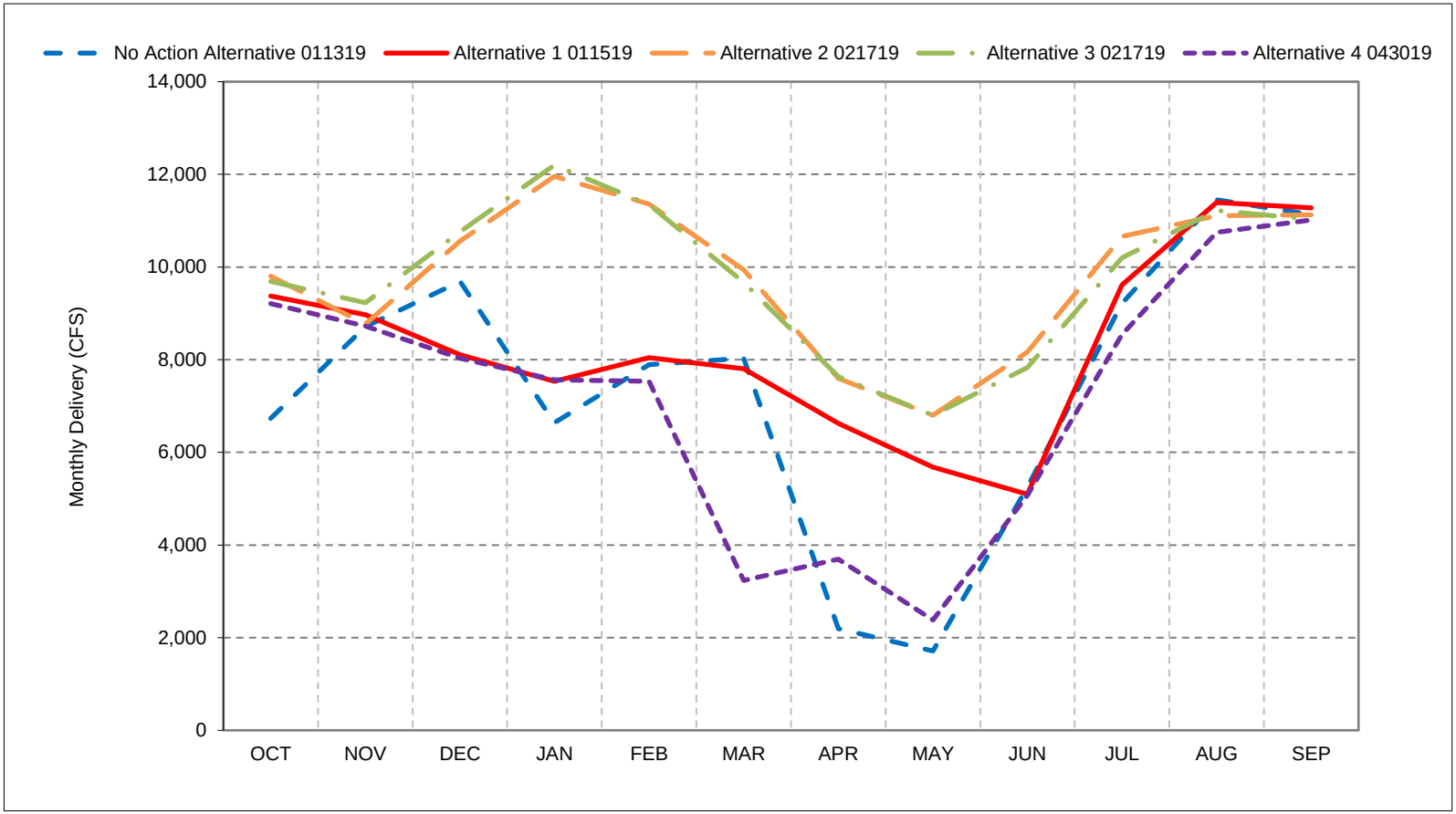
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 53-2. Total Delta Exports, Wet Year Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 53-3. Total Delta Exports, Above Normal Year Average Delivery



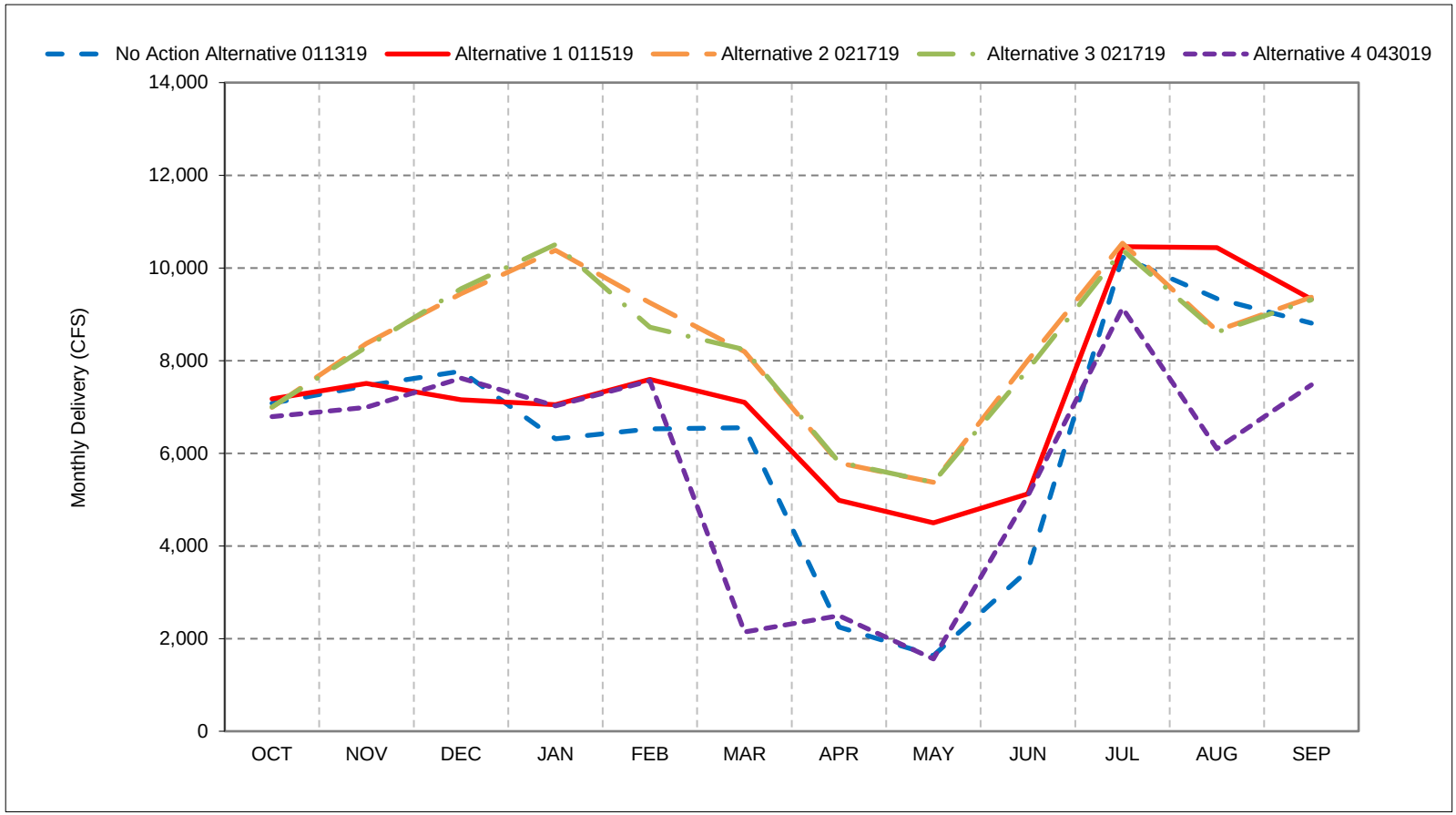
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 53-4. Total Delta Exports, Below Normal Year Average Delivery



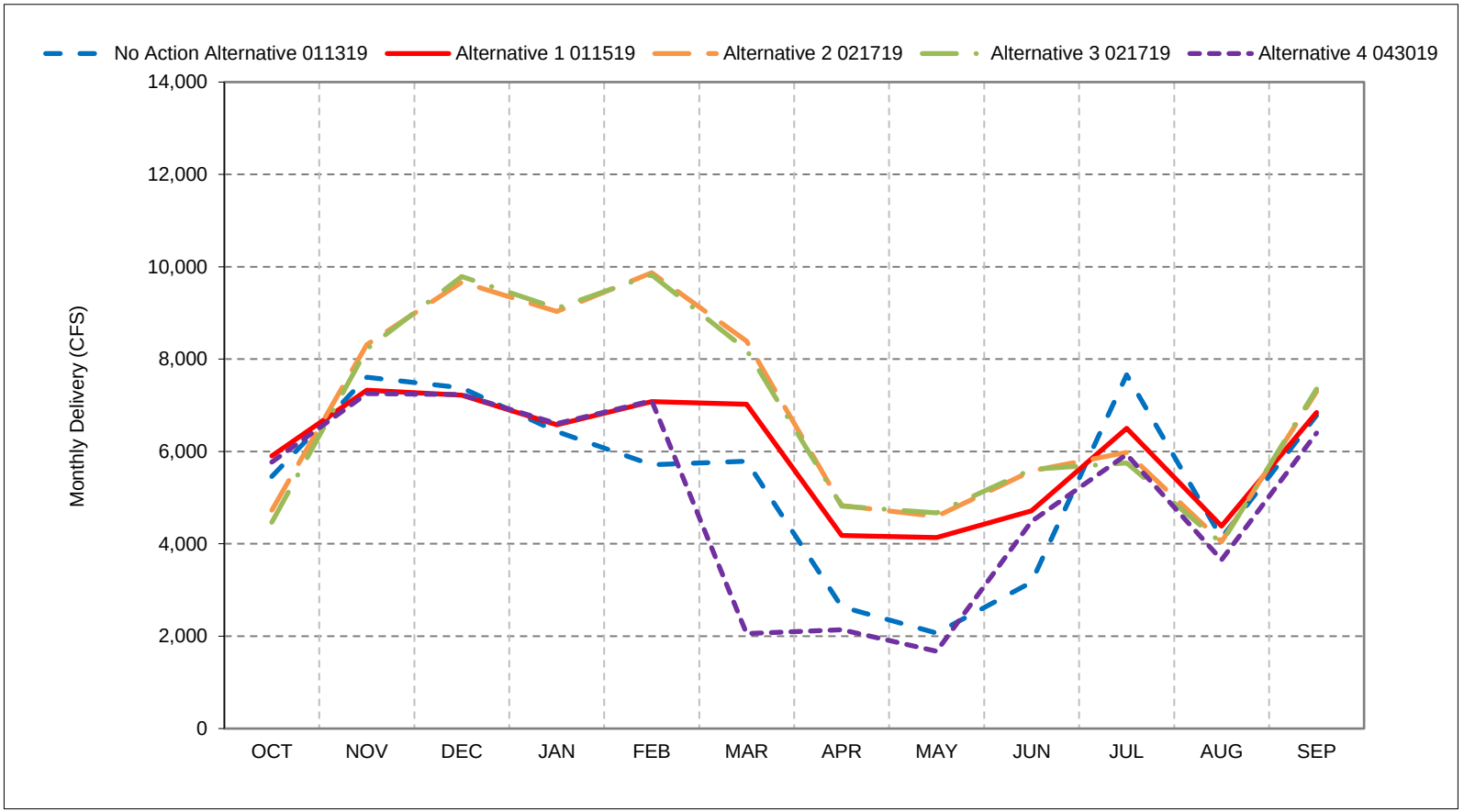
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

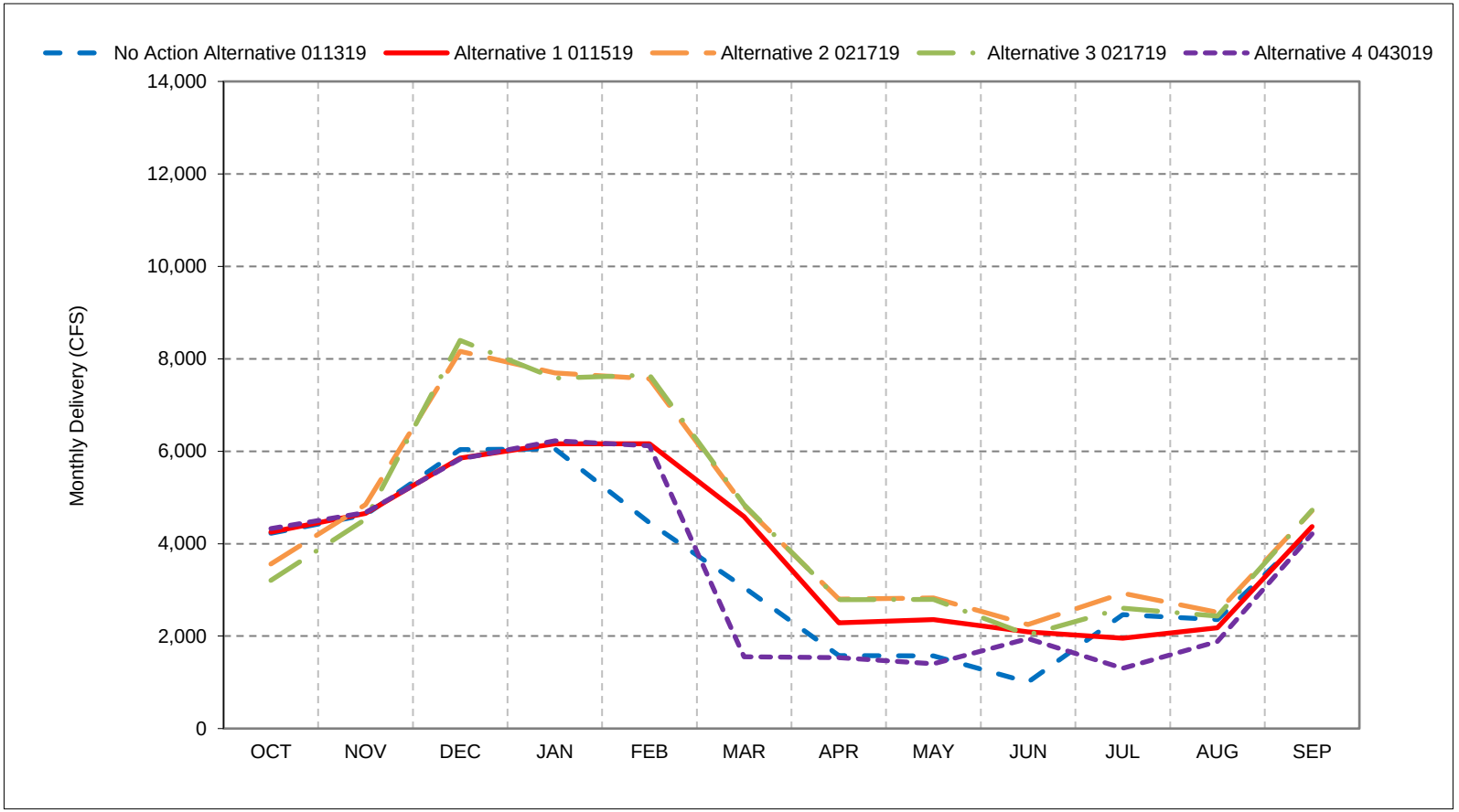
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 53-5. Total Delta Exports, Dry Year Average Delivery



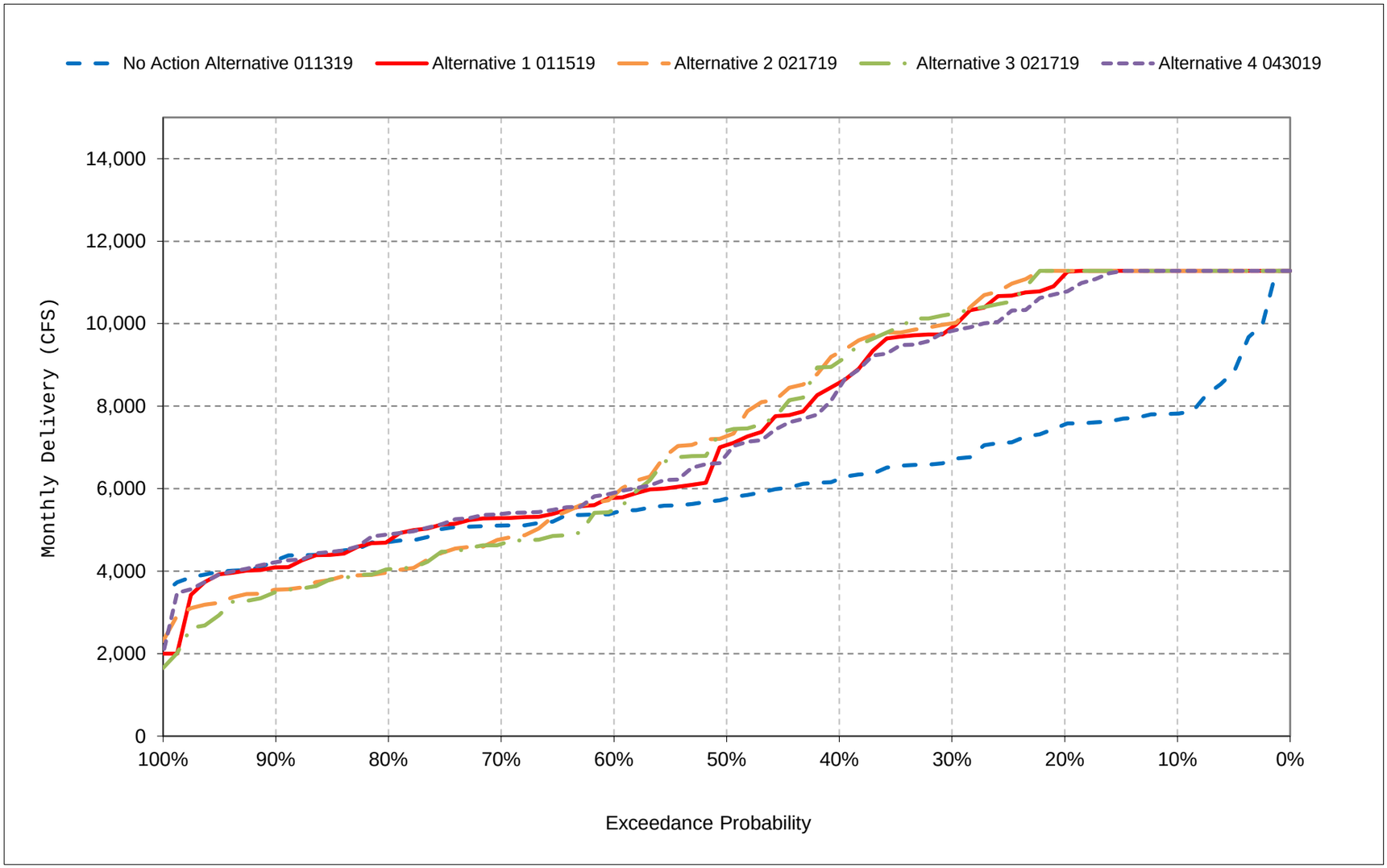
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 53-6. Total Delta Exports, Critical Year Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

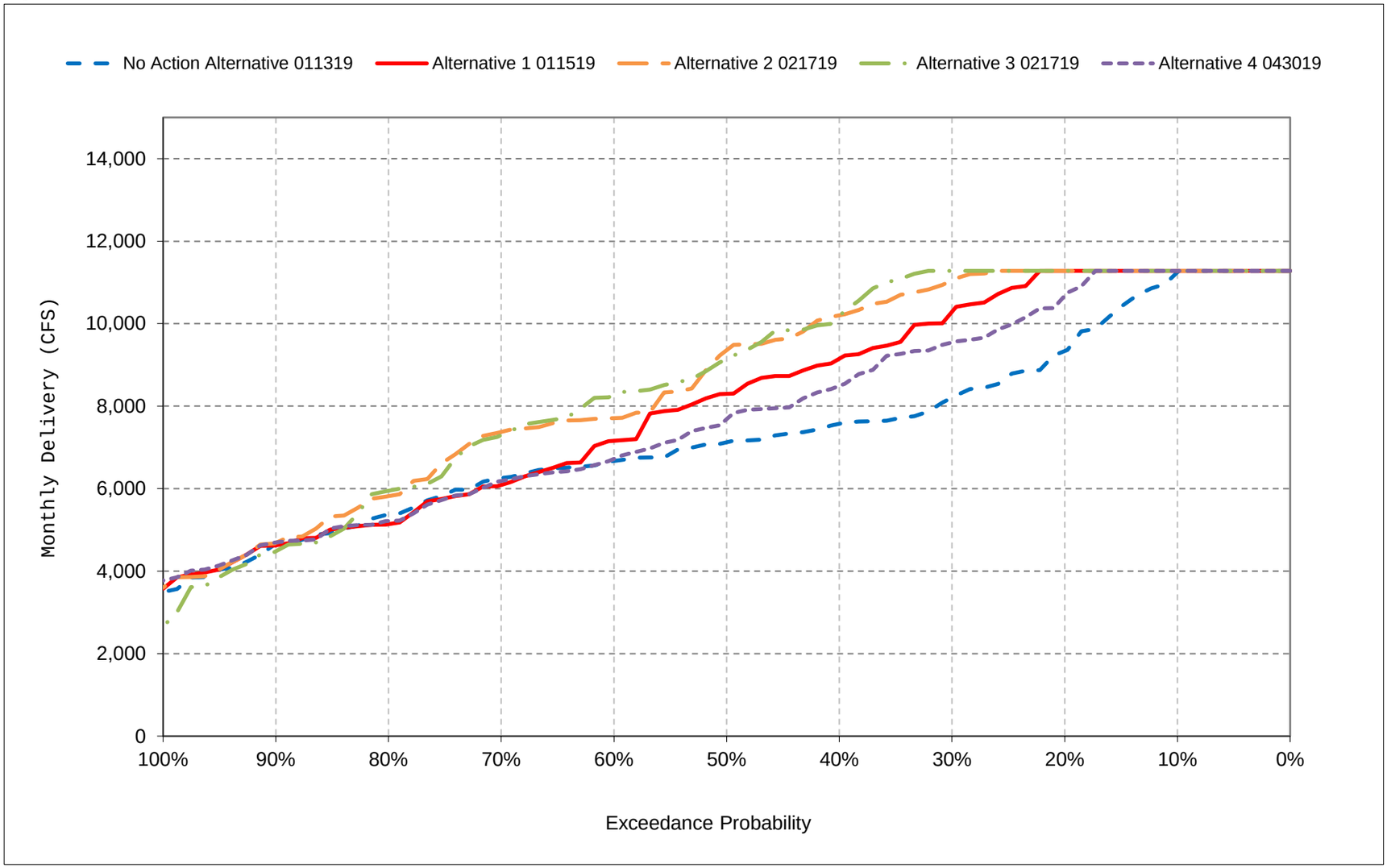
Figure 53-7. Total Delta Exports, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

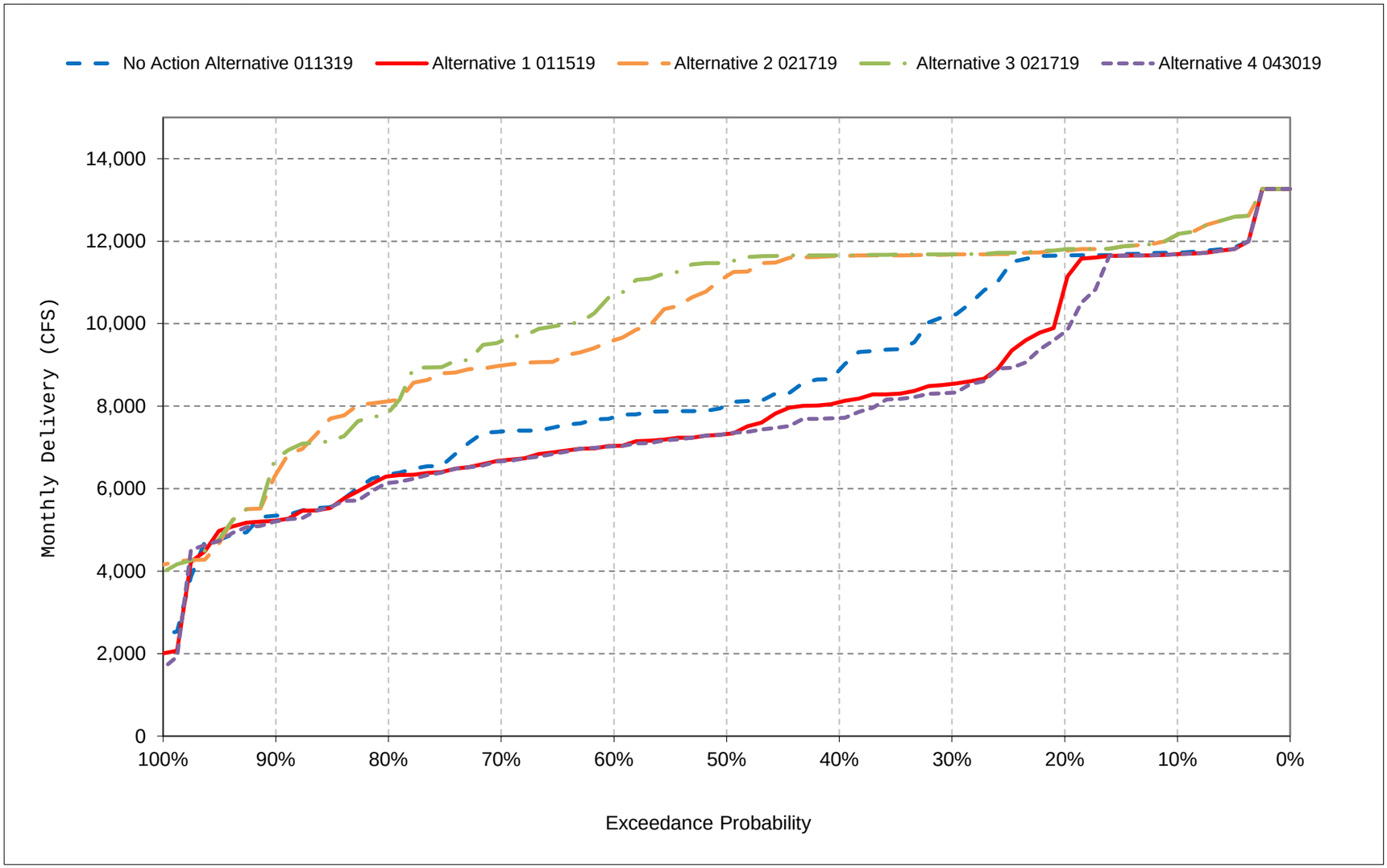
Figure 53-8. Total Delta Exports, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

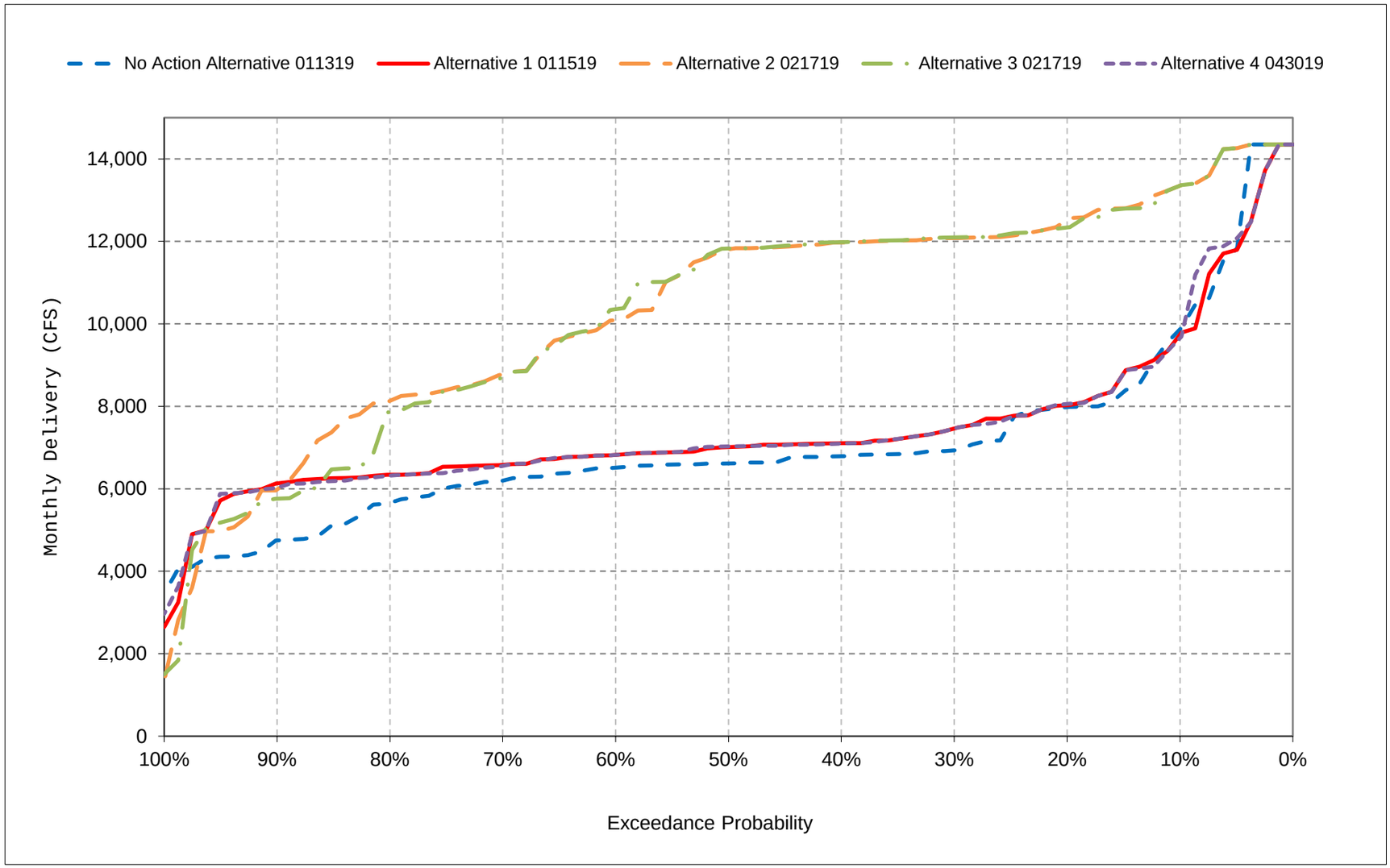
Figure 53-9. Total Delta Exports, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

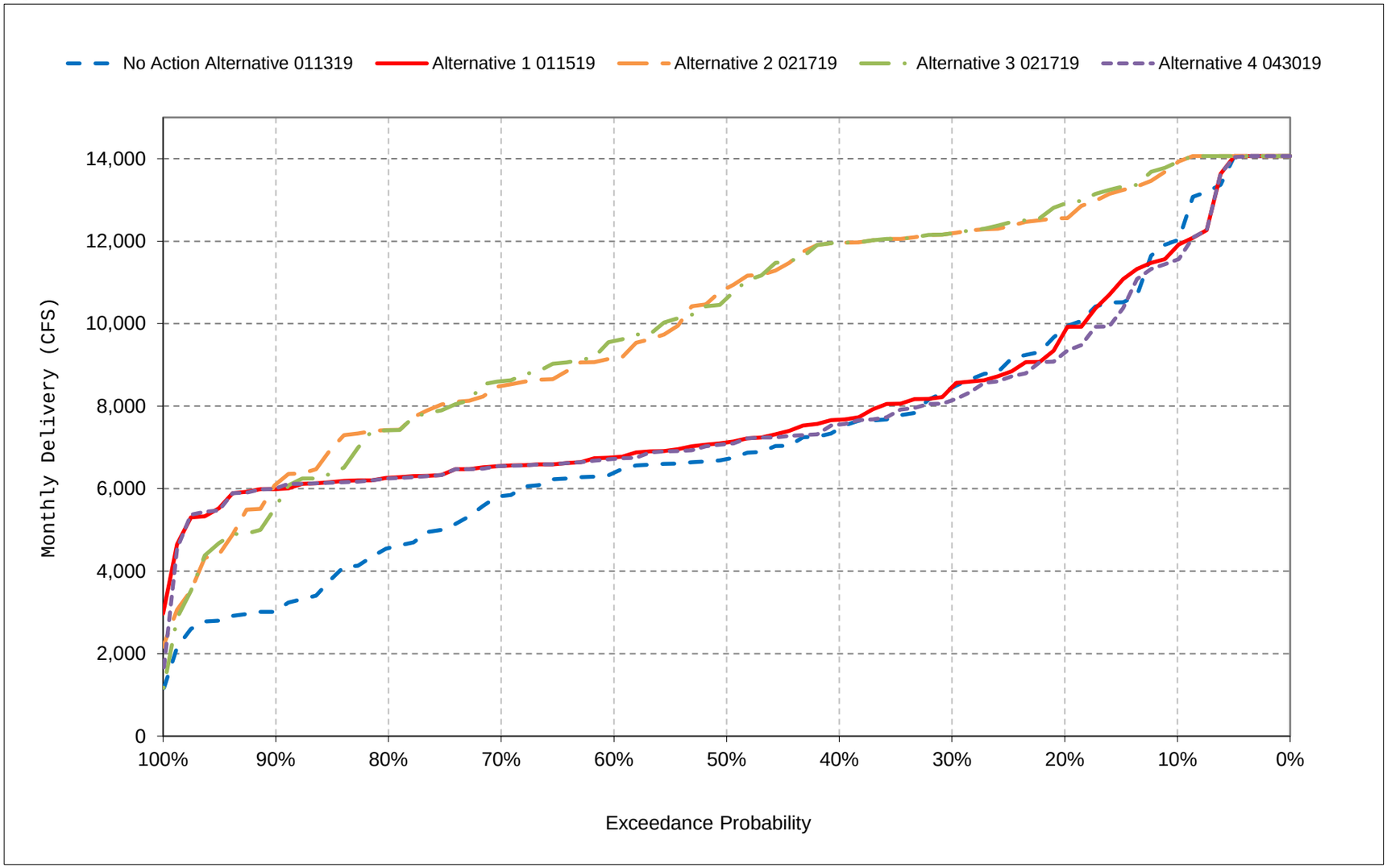
Figure 53-10. Total Delta Exports, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

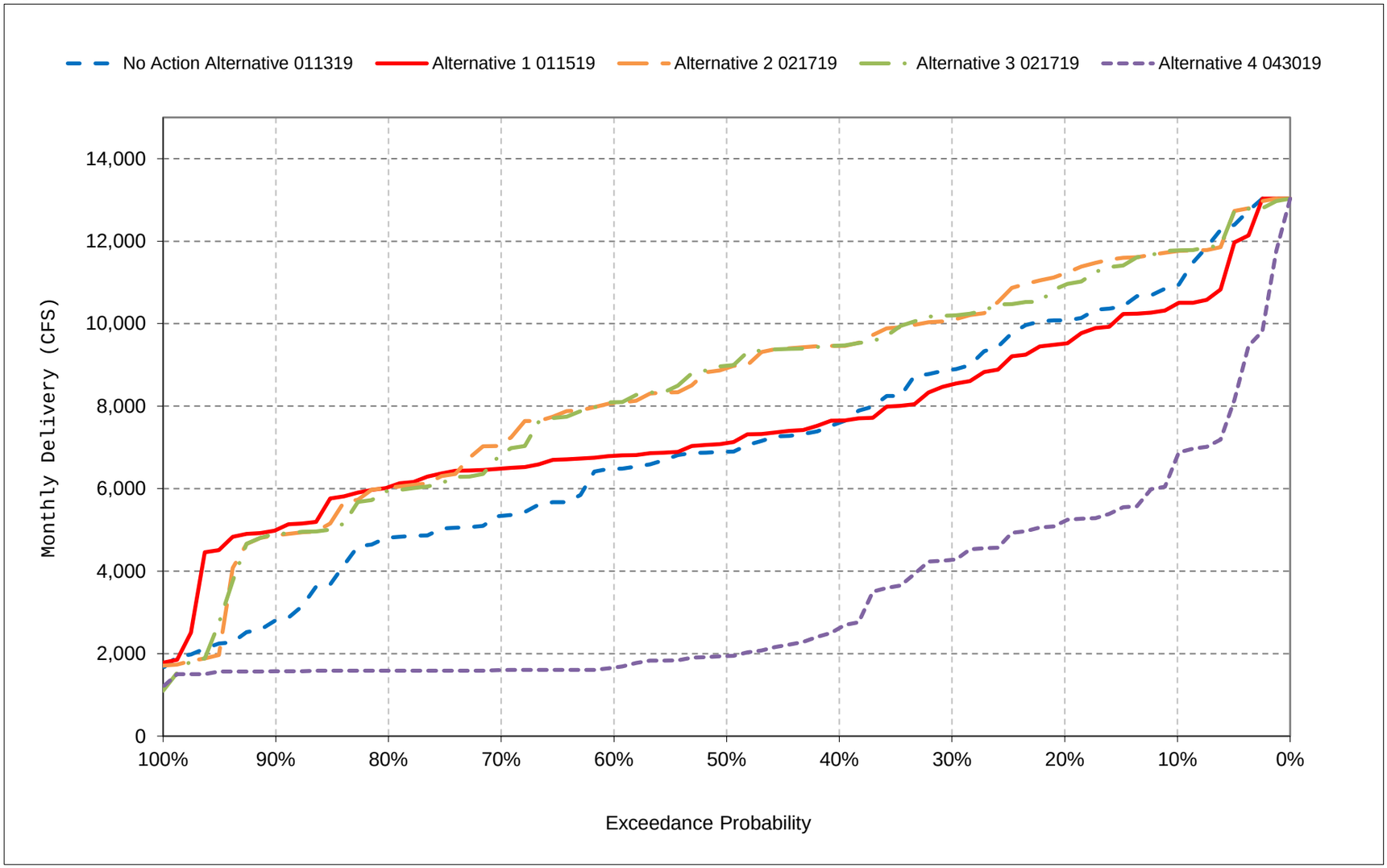
Figure 53-11. Total Delta Exports, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

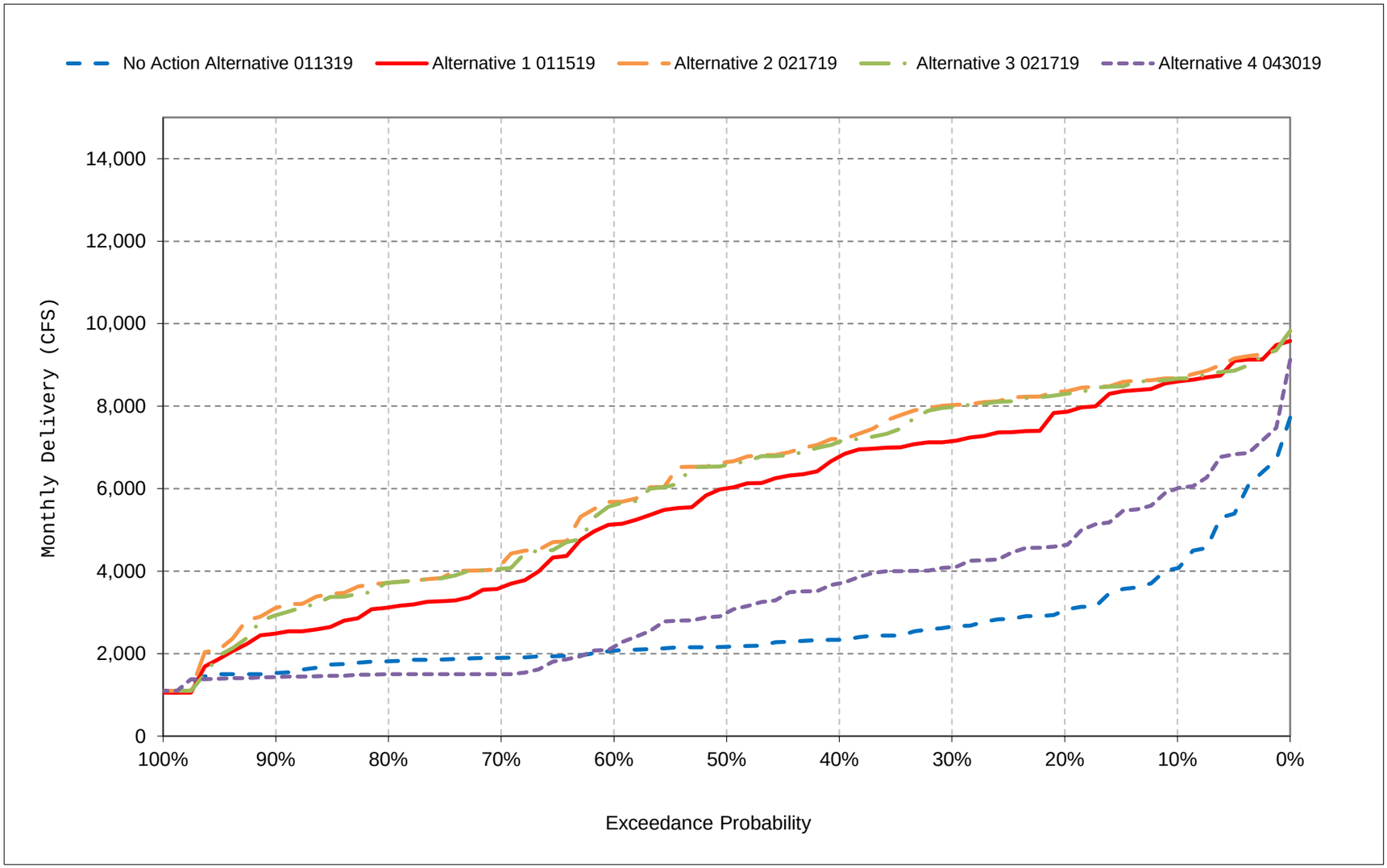
Figure 53-12. Total Delta Exports, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

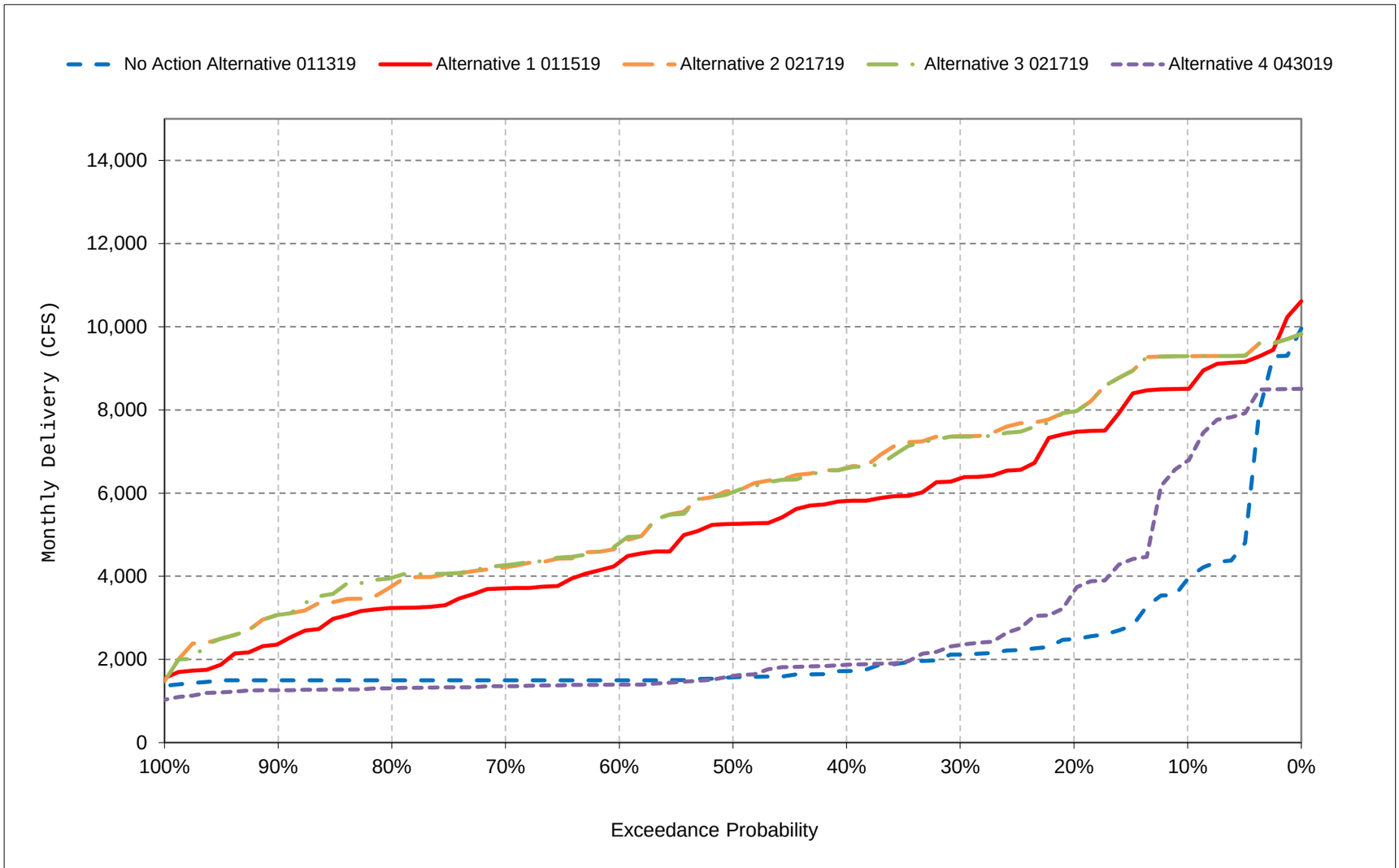
Figure 53-13. Total Delta Exports, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

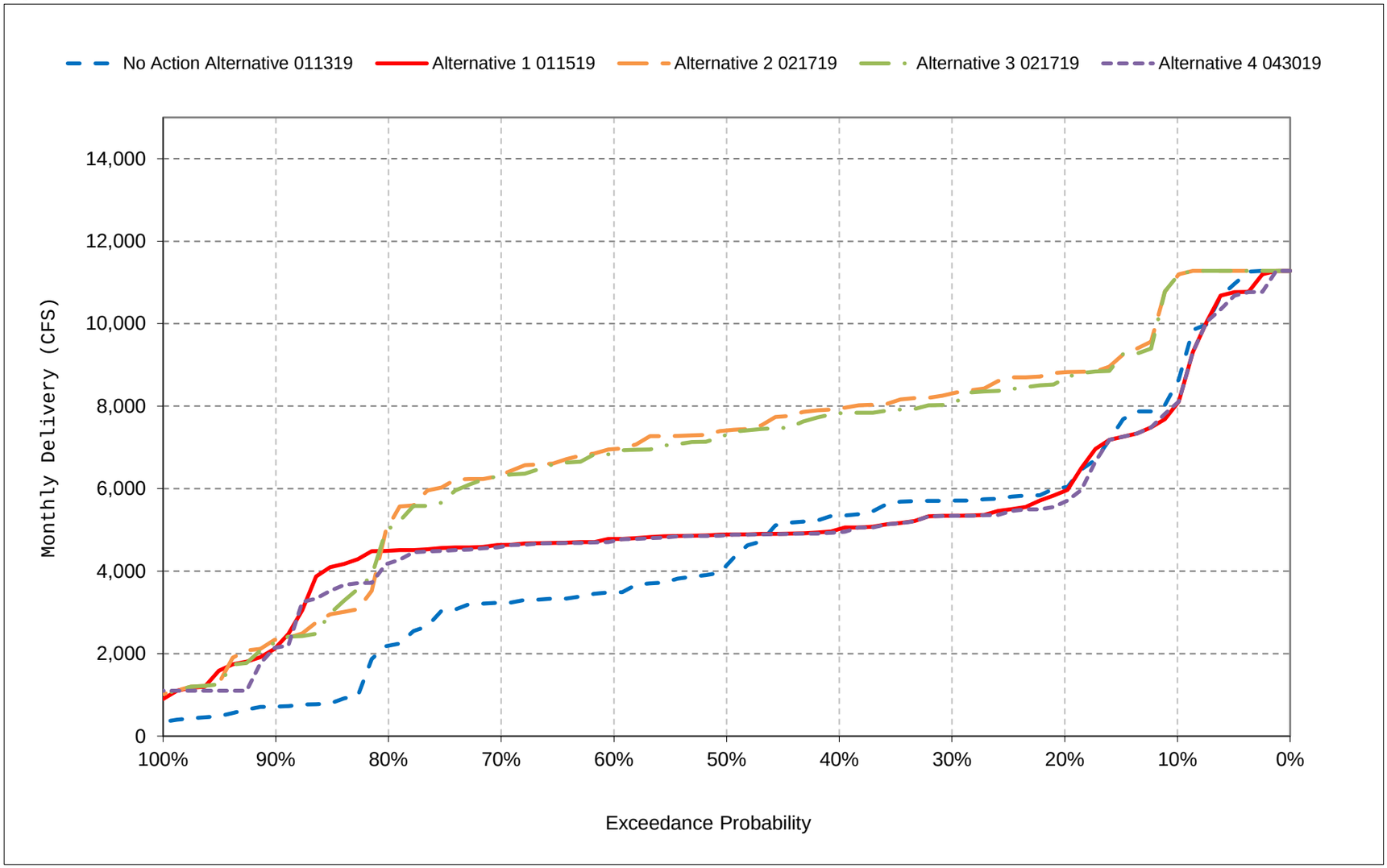
Figure 53-14. Total Delta Exports, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

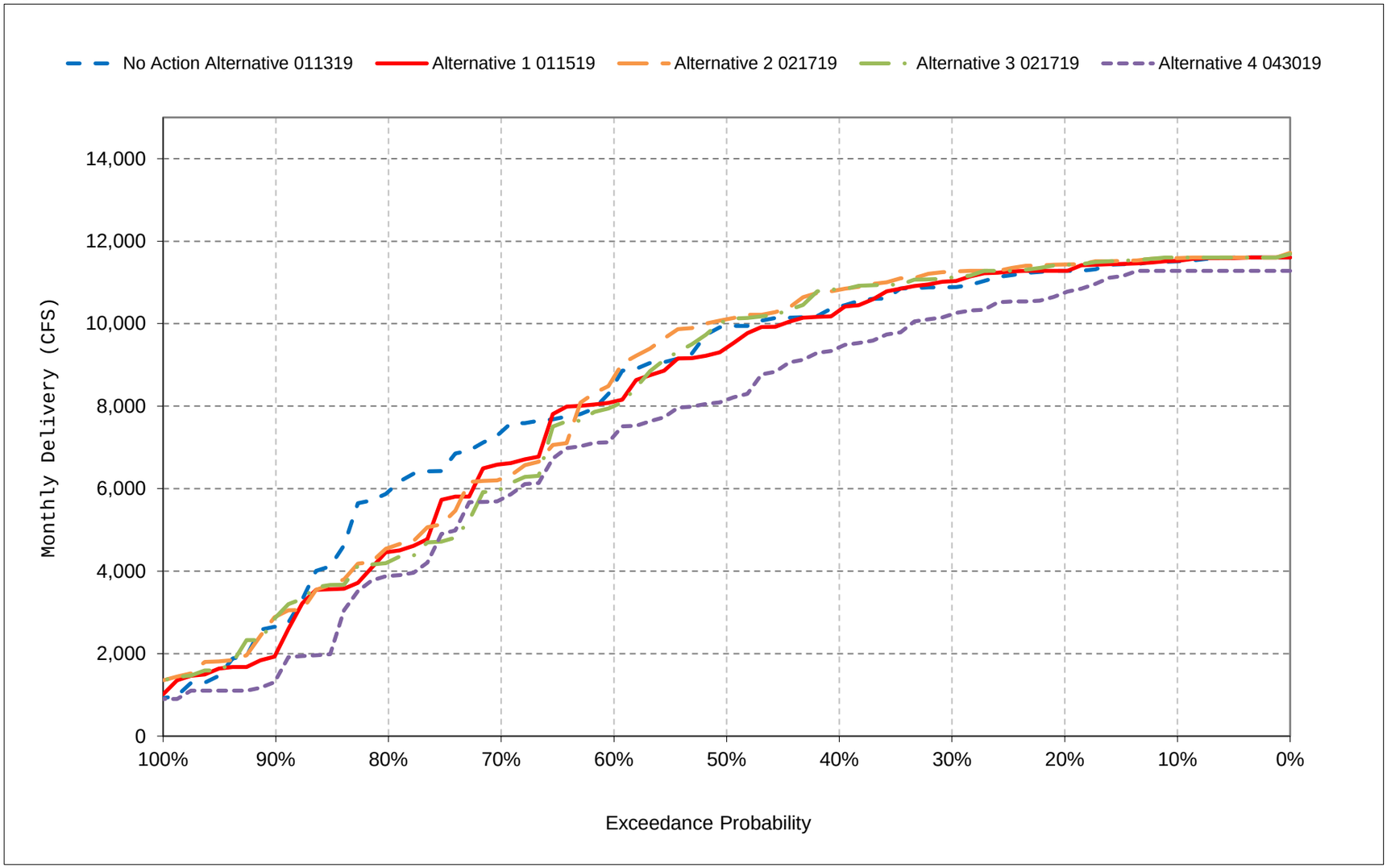
Figure 53-15. Total Delta Exports, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

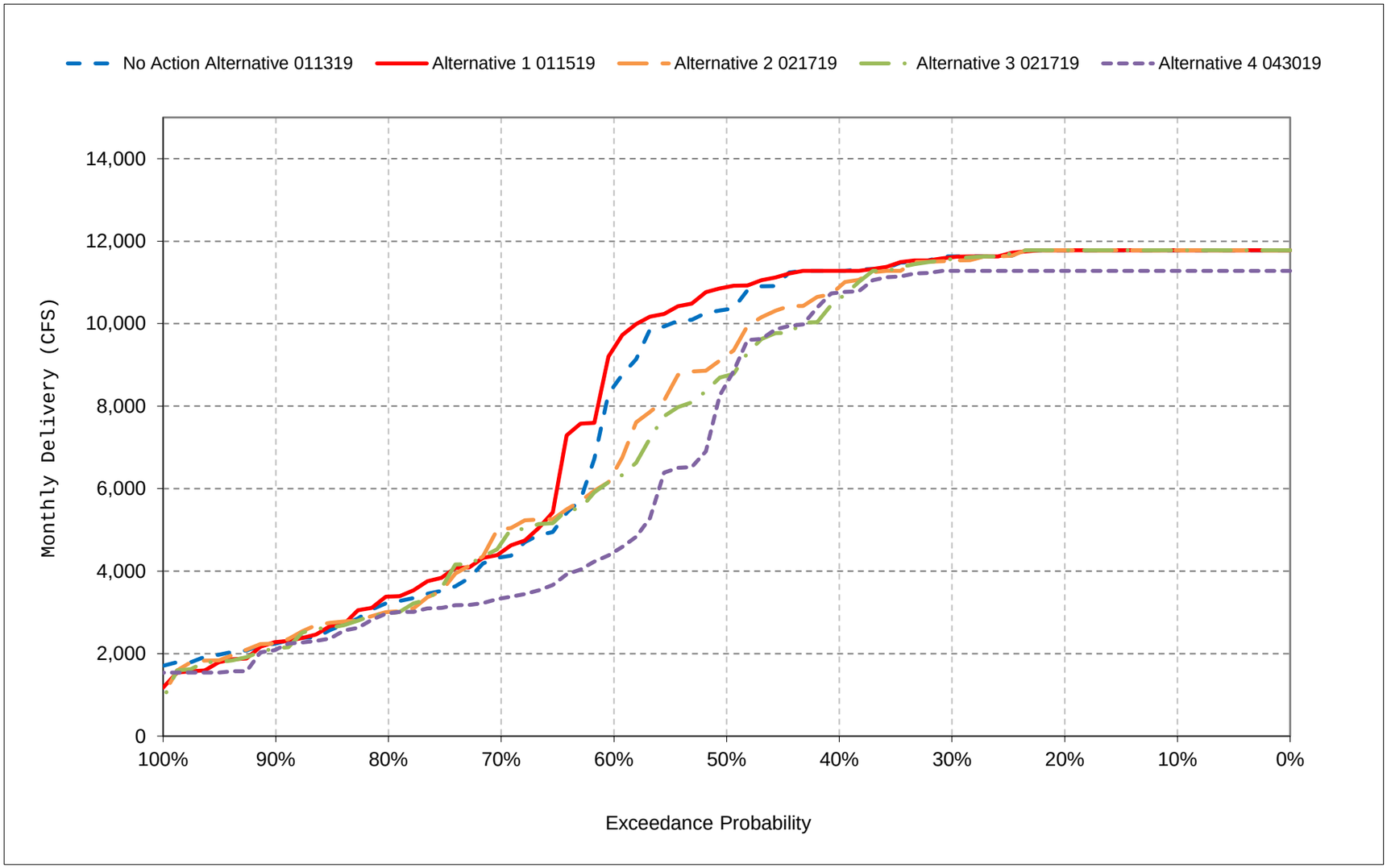
Figure 53-16. Total Delta Exports, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

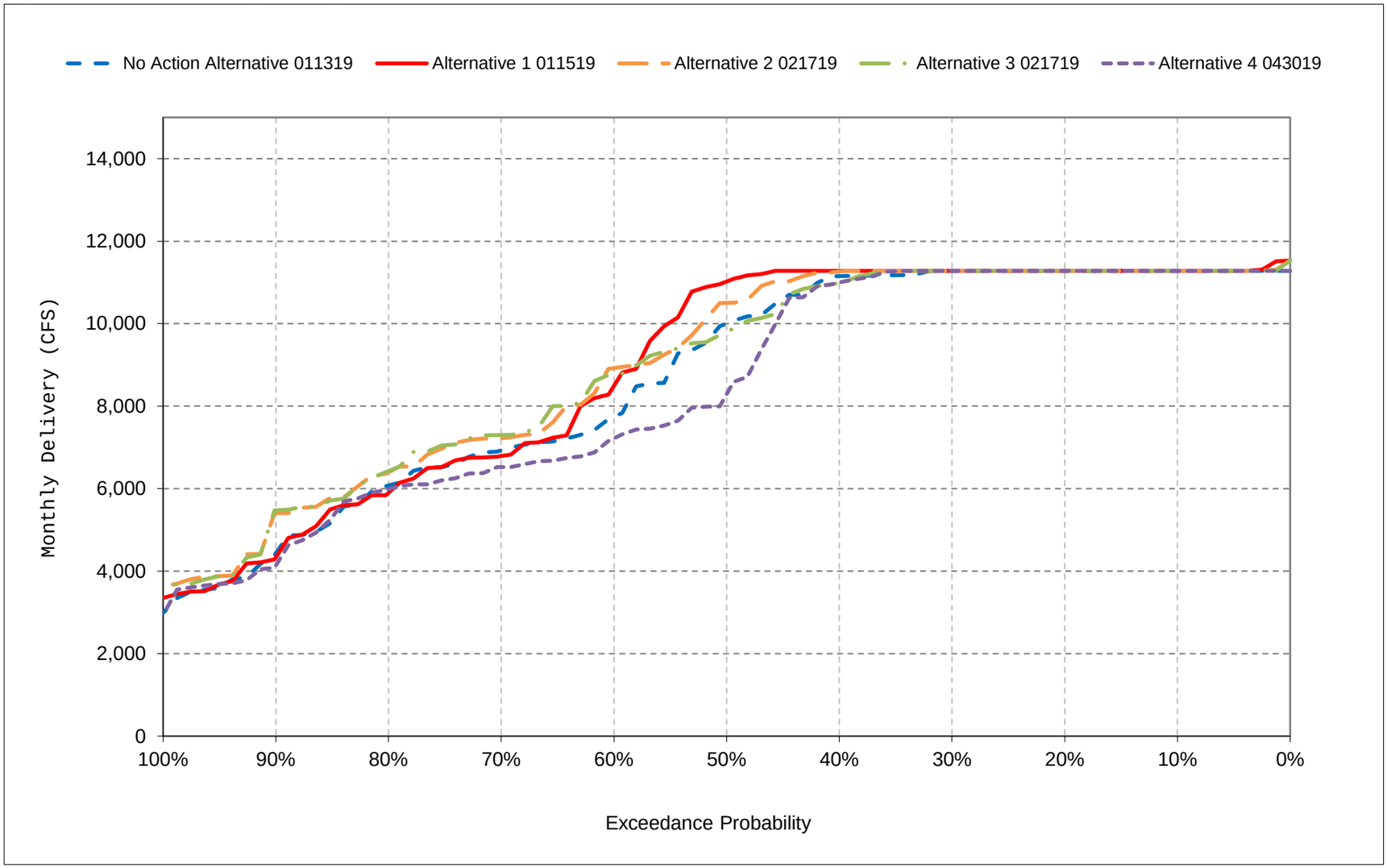
Figure 53-17. Total Delta Exports, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 53-18. Total Delta Exports, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 54-1. Jones PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,600	4,600	4,600	4,600	4,600	4,600	2,442	2,360	4,600	4,600	4,600	4,600
20%	4,084	4,600	4,600	4,600	4,600	4,426	1,831	1,493	3,977	4,600	4,600	4,600
30%	3,597	4,427	4,600	4,139	4,600	4,179	1,566	1,283	3,704	4,534	4,600	4,600
40%	3,433	4,105	4,600	4,070	4,353	3,962	1,394	1,149	3,318	4,152	4,496	4,600
50%	3,342	3,510	4,445	3,961	3,981	3,420	1,307	1,048	2,557	3,776	4,139	4,483
60%	3,177	3,156	4,189	3,875	3,742	3,085	1,241	975	2,217	3,183	3,553	4,153
70%	2,898	2,692	3,689	3,614	3,024	2,641	1,129	900	2,086	2,690	2,977	3,724
80%	2,730	2,184	2,882	3,107	2,519	2,262	1,023	900	1,371	1,729	2,427	3,311
90%	2,145	1,675	2,064	2,618	1,807	1,574	900	900	572	903	1,760	2,974
Long Term												
Full Simulation Period[a]	3,289	3,369	3,818	3,763	3,596	3,316	1,451	1,353	2,675	3,278	3,606	3,997
Water Year Types[b,c]												
Wet (32%)	3,609	3,732	4,331	4,027	4,190	3,696	1,822	1,834	4,028	4,162	4,556	4,434
Above Normal (16%)	3,283	3,772	4,490	3,654	4,018	3,927	1,316	1,039	3,460	2,940	4,448	4,482
Below Normal (13%)	3,458	3,320	3,500	3,748	3,611	3,618	1,246	1,001	2,209	3,799	3,551	4,071
Dry (24%)	3,077	3,249	3,571	3,779	3,211	3,250	1,479	1,263	1,770	3,017	2,865	3,780
Critical (15%)	2,799	2,393	2,678	3,299	2,482	1,663	935	1,124	830	1,685	1,922	2,822

Alternative 1 011519

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,600	4,600	4,600	4,600	4,600	4,600	4,433	4,455	4,600	4,600	4,600	4,600
20%	4,600	4,600	4,600	4,600	4,600	4,499	3,991	3,932	3,686	4,554	4,600	4,600
30%	4,594	4,600	4,477	4,325	4,599	4,147	3,498	3,665	3,272	4,232	4,600	4,600
40%	3,819	4,359	4,268	4,245	4,313	4,064	3,215	3,435	3,140	3,744	4,600	4,600
50%	3,392	3,839	4,033	4,118	4,160	3,915	2,813	3,084	3,027	3,176	4,169	4,600
60%	3,228	3,187	3,515	3,956	3,960	3,793	2,526	2,586	2,912	2,721	3,782	4,504
70%	3,101	2,664	3,081	3,792	3,792	3,217	1,956	2,325	2,634	1,952	3,149	4,125
80%	2,832	2,257	2,568	3,539	3,619	2,610	1,425	1,962	2,004	1,131	2,431	3,405
90%	2,234	1,611	1,806	2,811	2,815	1,978	1,001	1,613	1,322	807	1,778	2,961
Long Term												
Full Simulation Period[a]	3,526	3,435	3,550	3,876	3,938	3,555	2,738	2,981	2,916	2,948	3,648	4,139
Water Year Types[b,c]												
Wet (32%)	3,909	4,335	4,106	4,033	3,893	3,607	3,686	3,950	3,759	3,952	4,572	4,600
Above Normal (16%)	3,909	3,642	3,596	3,966	4,051	3,894	3,660	3,416	3,087	2,841	4,390	4,579
Below Normal (13%)	3,440	2,963	3,321	4,058	4,094	3,706	2,422	2,673	3,183	3,617	3,806	4,328
Dry (24%)	3,301	3,016	3,555	3,818	4,094	3,757	2,067	2,457	2,475	2,445	3,005	3,876
Critical (15%)	2,734	2,389	2,498	3,364	3,512	2,596	1,096	1,569	1,393	1,112	1,769	2,927

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	1,991	2,094	0	0	0	0
20%	516	0	0	0	0	72	2,160	2,439	**-291**	**-46**	0	0
30%	998	173	**-123**	186	**-1**	**-32**	1,932	2,382	**-432**	**-301**	0	0
40%	386	254	**-332**	176	**-40**	102	1,820	2,286	**-178**	**-408**	104	0
50%	50	329	**-412**	157	179	495	1,506	2,035	470	**-600**	30	117
60%	51	30	**-674**	81	218	708	1,285	1,611	695	**-462**	229	351
70%	203	**-28**	**-607**	178	767	576	827	1,425	548	**-738**	172	401
80%	102	74	**-314**	432	1,099	347	402	1,062	633	**-597**	4	94
90%	89	**-64**	**-258**	193	1,008	405	101	713	750	**-96**	18	**-14**
Long Term												
Full Simulation Period[a]	237	66	**-267**	112	342	239	1,287	1,628	241	**-330**	42	141
Water Year Types[b,c]												
Wet (32%)	300	603	**-225**	6	**-297**	**-88**	1,864	2,116	**-269**	**-210**	16	166
Above Normal (16%)	626	**-129**	**-894**	312	33	**-33**	2,343	2,377	**-373**	**-99**	**-58**	97
Below Normal (13%)	**-19**	**-357**	**-180**	310	483	88	1,176	1,672	974	**-182**	255	257
Dry (24%)	224	**-233**	**-16**	39	883	508	588	1,194	705	**-571**	141	96
Critical (15%)	**-65**	**-3**	**-179**	65	1,029	933	161	445	563	**-573**	**-153**	105

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 54-2. Jones PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,600	4,600	4,600	4,600	4,600	4,600	2,442	2,360	4,600	4,600	4,600	4,600
20%	4,084	4,600	4,600	4,600	4,600	4,426	1,831	1,493	3,977	4,600	4,600	4,600
30%	3,597	4,427	4,600	4,139	4,600	4,179	1,566	1,283	3,704	4,534	4,600	4,600
40%	3,433	4,105	4,600	4,070	4,353	3,962	1,394	1,149	3,318	4,152	4,496	4,600
50%	3,342	3,510	4,445	3,961	3,981	3,420	1,307	1,048	2,557	3,776	4,139	4,483
60%	3,177	3,156	4,189	3,875	3,742	3,085	1,241	975	2,217	3,183	3,553	4,153
70%	2,898	2,692	3,689	3,614	3,024	2,641	1,129	900	2,086	2,690	2,977	3,724
80%	2,730	2,184	2,882	3,107	2,519	2,262	1,023	900	1,371	1,729	2,427	3,311
90%	2,145	1,675	2,064	2,618	1,807	1,574	900	900	572	903	1,760	2,974
Long Term												
Full Simulation Period[a]	3,289	3,369	3,818	3,763	3,596	3,316	1,451	1,353	2,675	3,278	3,606	3,997
Water Year Types[b,c]												
Wet (32%)	3,609	3,732	4,331	4,027	4,190	3,696	1,822	1,834	4,028	4,162	4,556	4,434
Above Normal (16%)	3,283	3,772	4,490	3,654	4,018	3,927	1,316	1,039	3,460	2,940	4,448	4,482
Below Normal (13%)	3,458	3,320	3,500	3,748	3,611	3,618	1,246	1,001	2,209	3,799	3,551	4,071
Dry (24%)	3,077	3,249	3,571	3,779	3,211	3,250	1,479	1,263	1,770	3,017	2,865	3,780
Critical (15%)	2,799	2,393	2,678	3,299	2,482	1,663	935	1,124	830	1,685	1,922	2,822

Alternative 2 021719

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,600	4,600	4,600	4,600	4,600	4,600	3,989	4,266	4,600	4,600	4,600	4,600
20%	4,600	4,600	4,600	4,600	4,600	4,600	3,687	3,936	4,600	4,600	4,600	4,600
30%	4,600	4,600	4,600	4,600	4,600	4,600	3,548	3,920	4,600	4,600	4,600	4,600
40%	3,933	4,502	4,600	4,600	4,600	4,321	3,231	3,467	4,600	4,506	4,600	4,600
50%	3,516	3,997	4,600	4,600	4,600	3,836	2,756	3,264	4,088	3,847	4,544	4,600
60%	3,155	3,534	4,285	4,600	4,600	3,208	2,627	3,092	3,114	3,278	4,074	4,577
70%	2,984	2,927	3,751	4,191	4,011	3,035	1,992	2,889	2,666	2,757	3,143	4,234
80%	2,627	2,617	3,460	3,274	2,956	2,000	955	2,407	1,872	1,669	2,294	3,737
90%	2,286	2,278	2,552	2,242	2,379	1,826	800	1,934	1,436	1,039	1,686	3,187
Long Term												
Full Simulation Period[a]	3,510	3,673	3,998	3,995	3,983	3,474	2,629	3,177	3,408	3,333	3,680	4,226
Water Year Types[b,c]												
Wet (32%)	4,363	4,424	4,278	4,110	3,875	3,286	3,349	3,882	4,449	4,200	4,555	4,598
Above Normal (16%)	4,214	3,497	4,336	4,335	4,224	3,845	3,429	3,643	4,474	3,908	4,465	4,576
Below Normal (13%)	3,458	3,587	3,704	4,104	3,722	3,719	2,558	3,085	3,532	4,059	4,210	4,455
Dry (24%)	2,686	3,639	3,915	4,025	4,317	3,929	2,041	2,680	2,419	2,464	2,751	4,047
Critical (15%)	2,318	2,375	3,435	3,229	3,637	2,492	1,248	2,056	1,531	1,618	1,996	3,125

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	1,547	1,905	0	0	0	0
20%	516	0	0	0	0	174	1,856	2,444	623	0	0	0
30%	1,003	173	0	461	0	421	1,982	2,636	896	66	0	0
40%	500	398	0	530	247	359	1,836	2,318	1,282	354	104	0
50%	174	487	155	639	619	417	1,448	2,216	1,531	71	405	117
60%	**-22**	378	95	725	858	122	1,386	2,117	897	95	521	424
70%	85	236	62	577	986	394	864	1,989	580	67	166	510
80%	**-102**	433	578	166	436	**-263**	**-68**	1,507	502	**-59**	**-133**	426
90%	141	603	488	**-376**	572	252	**-100**	1,034	864	136	**-74**	213
Long Term												
Full Simulation Period[a]	221	304	181	232	387	158	1,178	1,824	732	56	74	228
Water Year Types[b,c]												
Wet (32%)	754	692	**-53**	83	**-315**	**-409**	1,527	2,048	421	38	**-1**	165
Above Normal (16%)	930	**-274**	**-154**	681	206	**-82**	2,112	2,604	1,013	968	18	94
Below Normal (13%)	**0**	267	204	356	111	100	1,312	2,084	1,323	260	660	383
Dry (24%)	**-391**	389	344	246	1,106	680	563	1,416	649	**-553**	**-114**	267
Critical (15%)	**-481**	**-17**	757	**-70**	1,155	829	313	932	700	**-67**	75	303

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 54-3. Jones PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,600	4,600	4,600	4,600	4,600	4,600	2,442	2,360	4,600	4,600	4,600	4,600
20%	4,084	4,600	4,600	4,600	4,600	4,426	1,831	1,493	3,977	4,600	4,600	4,600
30%	3,597	4,427	4,600	4,139	4,600	4,179	1,566	1,283	3,704	4,534	4,600	4,600
40%	3,433	4,105	4,600	4,070	4,353	3,962	1,394	1,149	3,318	4,152	4,496	4,600
50%	3,342	3,510	4,445	3,961	3,981	3,420	1,307	1,048	2,557	3,776	4,139	4,483
60%	3,177	3,156	4,189	3,875	3,742	3,085	1,241	975	2,217	3,183	3,553	4,153
70%	2,898	2,692	3,689	3,614	3,024	2,641	1,129	900	2,086	2,690	2,977	3,724
80%	2,730	2,184	2,882	3,107	2,519	2,262	1,023	900	1,371	1,729	2,427	3,311
90%	2,145	1,675	2,064	2,618	1,807	1,574	900	900	572	903	1,760	2,974
Long Term												
Full Simulation Period[a]	3,289	3,369	3,818	3,763	3,596	3,316	1,451	1,353	2,675	3,278	3,606	3,997
Water Year Types[b,c]												
Wet (32%)	3,609	3,732	4,331	4,027	4,190	3,696	1,822	1,834	4,028	4,162	4,556	4,434
Above Normal (16%)	3,283	3,772	4,490	3,654	4,018	3,927	1,316	1,039	3,460	2,940	4,448	4,482
Below Normal (13%)	3,458	3,320	3,500	3,748	3,611	3,618	1,246	1,001	2,209	3,799	3,551	4,071
Dry (24%)	3,077	3,249	3,571	3,779	3,211	3,250	1,479	1,263	1,770	3,017	2,865	3,780
Critical (15%)	2,799	2,393	2,678	3,299	2,482	1,663	935	1,124	830	1,685	1,922	2,822

Alternative 3 021719

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,600	4,600	4,600	4,600	4,600	4,600	3,974	4,232	4,600	4,600	4,600	4,600
20%	4,600	4,600	4,600	4,600	4,600	4,600	3,679	3,936	4,600	4,600	4,600	4,600
30%	4,600	4,600	4,600	4,600	4,600	4,600	3,364	3,920	4,600	4,582	4,600	4,600
40%	4,303	4,600	4,600	4,600	4,600	4,220	2,997	3,424	4,563	4,381	4,600	4,600
50%	3,757	4,203	4,600	4,600	4,600	3,796	2,732	3,183	3,912	3,962	4,531	4,600
60%	3,158	3,455	4,402	4,600	4,600	3,115	2,489	3,059	3,087	3,128	3,940	4,600
70%	2,886	2,877	3,977	4,107	3,960	2,865	1,921	2,777	2,552	2,648	3,075	4,359
80%	2,582	2,608	3,557	3,392	2,991	2,086	855	2,383	1,948	1,670	2,258	3,761
90%	2,131	2,165	2,737	2,260	2,309	1,891	800	1,714	1,372	1,018	1,456	3,103
Long Term												
Full Simulation Period[a]	3,550	3,664	4,040	4,006	3,966	3,418	2,563	3,116	3,374	3,312	3,648	4,228
Water Year Types[b,c]												
Wet (32%)	4,402	4,392	4,253	3,974	3,940	3,355	3,190	3,754	4,352	4,273	4,528	4,598
Above Normal (16%)	4,208	3,834	4,349	4,475	4,333	3,679	3,477	3,612	4,471	3,681	4,520	4,599
Below Normal (13%)	3,593	3,571	3,810	4,205	3,403	3,753	2,574	3,060	3,461	4,013	4,092	4,459
Dry (24%)	2,799	3,532	4,047	4,062	4,277	3,679	1,964	2,666	2,478	2,456	2,749	4,086
Critical (15%)	2,200	2,206	3,444	3,291	3,622	2,528	1,201	1,998	1,483	1,617	1,890	3,052

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	1,532	1,871	0	0	0	0
20%	516	0	0	0	0	174	1,849	2,444	623	0	0	0
30%	1,003	173	0	461	0	421	1,798	2,636	896	48	0	0
40%	870	495	0	530	247	258	1,603	2,275	1,246	229	104	0
50%	415	694	155	639	619	376	1,425	2,134	1,355	186	393	117
60%	**-19**	299	213	725	858	29	1,247	2,084	870	**-55**	387	447
70%	**-12**	186	288	493	936	224	792	1,877	466	**-43**	99	635
80%	**-148**	424	675	285	472	**-176**	**-168**	1,483	577	**-58**	**-169**	450
90%	**-14**	490	673	**-358**	501	318	**-100**	814	801	114	**-304**	129
Long Term												
Full Simulation Period[a]	261	294	222	243	370	102	1,112	1,763	699	35	43	231
Water Year Types[b,c]												
Wet (32%)	793	660	**-79**	**-53**	**-250**	**-341**	1,368	1,920	323	111	**-28**	164
Above Normal (16%)	925	62	**-141**	821	315	**-248**	2,161	2,573	1,011	742	72	117
Below Normal (13%)	135	251	309	458	**-208**	134	1,328	2,059	1,253	214	541	388
Dry (24%)	**-278**	283	476	283	1,066	430	486	1,402	708	**-561**	**-115**	306
Critical (15%)	**-599**	**-186**	766	**-8**	1,140	864	266	874	652	**-68**	**-32**	230

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 54-4. Jones PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,600	4,600	4,600	4,600	4,600	4,600	2,442	2,360	4,600	4,600	4,600	4,600
20%	4,084	4,600	4,600	4,600	4,600	4,426	1,831	1,493	3,977	4,600	4,600	4,600
30%	3,597	4,427	4,600	4,139	4,600	4,179	1,566	1,283	3,704	4,534	4,600	4,600
40%	3,433	4,105	4,600	4,070	4,353	3,962	1,394	1,149	3,318	4,152	4,496	4,600
50%	3,342	3,510	4,445	3,961	3,981	3,420	1,307	1,048	2,557	3,776	4,139	4,483
60%	3,177	3,156	4,189	3,875	3,742	3,085	1,241	975	2,217	3,183	3,553	4,153
70%	2,898	2,692	3,689	3,614	3,024	2,641	1,129	900	2,086	2,690	2,977	3,724
80%	2,730	2,184	2,882	3,107	2,519	2,262	1,023	900	1,371	1,729	2,427	3,311
90%	2,145	1,675	2,064	2,618	1,807	1,574	900	900	572	903	1,760	2,974
Long Term												
Full Simulation Period[a]	3,289	3,369	3,818	3,763	3,596	3,316	1,451	1,353	2,675	3,278	3,606	3,997
Water Year Types[b,c]												
Wet (32%)	3,609	3,732	4,331	4,027	4,190	3,696	1,822	1,834	4,028	4,162	4,556	4,434
Above Normal (16%)	3,283	3,772	4,490	3,654	4,018	3,927	1,316	1,039	3,460	2,940	4,448	4,482
Below Normal (13%)	3,458	3,320	3,500	3,748	3,611	3,618	1,246	1,001	2,209	3,799	3,551	4,071
Dry (24%)	3,077	3,249	3,571	3,779	3,211	3,250	1,479	1,263	1,770	3,017	2,865	3,780
Critical (15%)	2,799	2,393	2,678	3,299	2,482	1,663	935	1,124	830	1,685	1,922	2,822

Alternative 4 043019

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,600	4,600	4,600	4,600	4,600	2,944	2,961	3,907	4,596	4,600	4,600	4,600
20%	4,600	4,600	4,600	4,600	4,600	2,525	2,697	2,081	3,761	4,415	4,600	4,600
30%	4,491	4,600	4,475	4,327	4,509	1,962	2,401	1,408	3,340	3,873	4,600	4,600
40%	3,933	4,236	4,222	4,241	4,231	1,499	2,156	1,121	3,188	3,524	4,458	4,600
50%	3,578	3,897	4,084	4,161	4,045	1,233	1,734	1,087	3,051	3,195	3,802	4,526
60%	3,307	3,286	3,672	3,986	3,883	1,098	1,299	975	2,966	2,987	3,244	4,249
70%	3,217	2,741	3,225	3,792	3,672	1,006	937	900	2,903	2,030	2,879	3,712
80%	2,989	2,500	2,642	3,594	2,907	986	900	900	2,363	1,308	2,464	3,492
90%	2,626	1,842	1,756	2,846	1,205	968	869	800	803	800	1,734	3,057
Long Term												
Full Simulation Period[a]	3,662	3,509	3,606	3,908	3,643	1,674	1,835	1,540	2,997	2,917	3,497	4,089
Water Year Types[b,c]												
Wet (32%)	4,232	4,219	4,049	4,093	3,743	2,433	2,709	2,446	3,901	3,951	4,553	4,595
Above Normal (16%)	4,061	3,707	3,728	4,152	3,529	1,766	2,140	1,429	3,217	2,858	4,253	4,518
Below Normal (13%)	3,326	3,254	3,680	4,139	4,083	1,290	1,494	1,017	2,987	3,154	3,158	4,076
Dry (24%)	3,218	3,196	3,621	3,639	3,736	1,228	1,202	1,050	2,807	2,651	2,971	3,858
Critical (15%)	3,047	2,512	2,419	3,479	2,988	1,022	974	992	1,125	966	1,582	2,926

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	**-1,656**	519	1,546	**-4**	0	0	0
20%	516	0	0	0	0	**-1,901**	866	588	**-216**	**-185**	0	0
30%	894	173	**-125**	188	**-91**	**-2,216**	835	125	**-364**	**-661**	0	0
40%	500	131	**-378**	171	**-122**	**-2,463**	762	**-27**	**-129**	**-628**	**-38**	0
50%	236	387	**-361**	200	64	**-2,186**	426	38	494	**-581**	**-337**	43
60%	130	130	**-517**	111	141	**-1,987**	57	0	749	**-195**	**-309**	96
70%	319	49	**-464**	178	648	**-1,635**	**-191**	0	817	**-660**	**-98**	**-12**
80%	259	316	**-240**	486	387	**-1,276**	**-123**	0	992	**-421**	37	181
90%	482	167	**-308**	228	**-602**	**-606**	**-31**	**-100**	231	**-103**	**-26**	83
Long Term												
Full Simulation Period[a]	374	140	**-212**	145	46	**-1,642**	384	186	321	**-361**	**-108**	92
Water Year Types[b,c]												
Wet (32%)	622	487	**-282**	66	**-447**	**-1,262**	887	612	**-128**	**-211**	**-3**	161
Above Normal (16%)	778	**-64**	**-763**	498	**-489**	**-2,161**	824	390	**-243**	**-82**	**-195**	35
Below Normal (13%)	**-133**	**-66**	179	392	472	**-2,328**	248	16	779	**-645**	**-393**	4
Dry (24%)	141	**-54**	50	**-140**	525	**-2,022**	**-277**	**-214**	1,037	**-365**	106	78
Critical (15%)	248	119	**-259**	180	506	**-641**	39	**-132**	295	**-719**	**-340**	104

a Based on the 82-year simulation period.

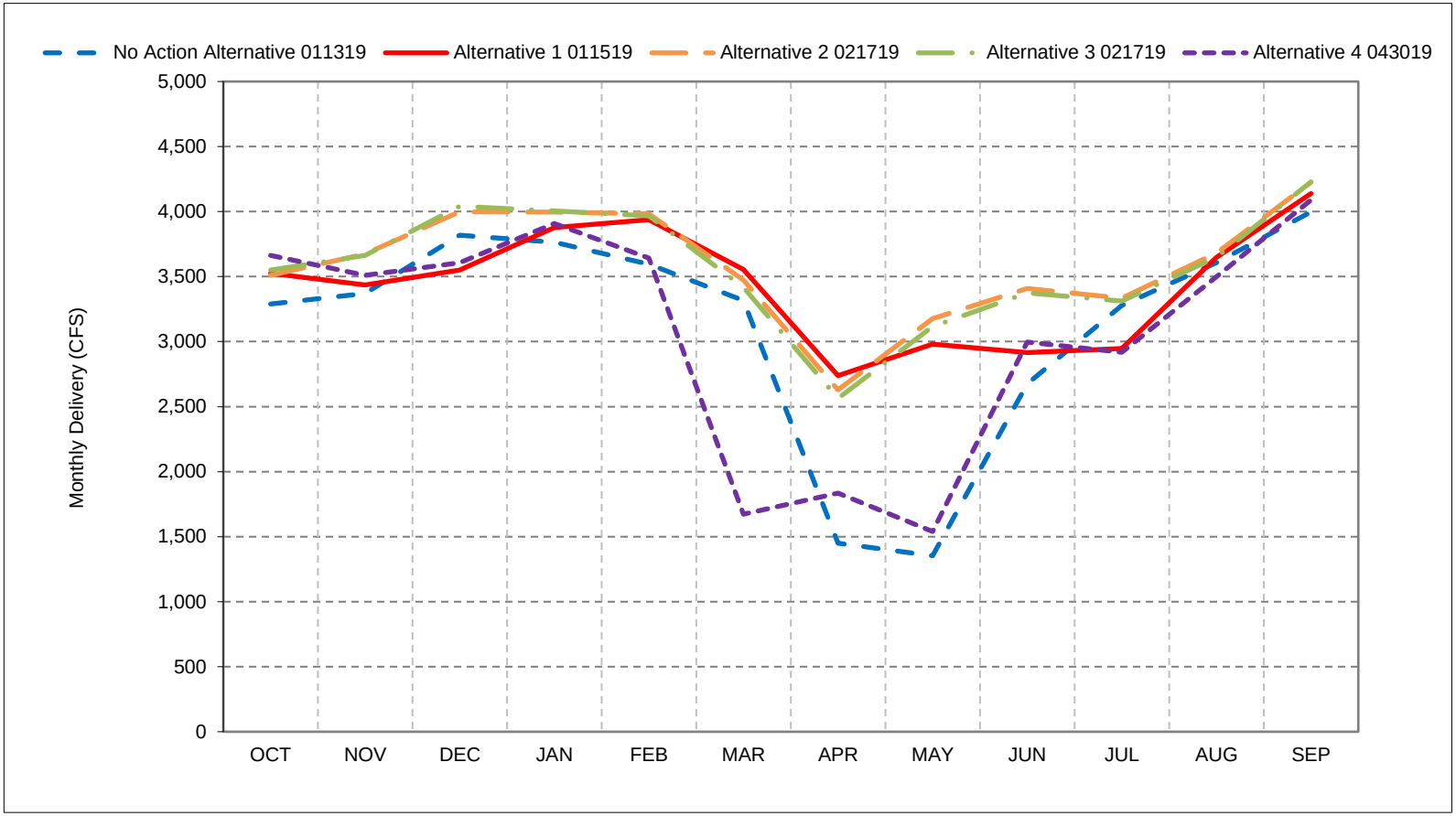
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

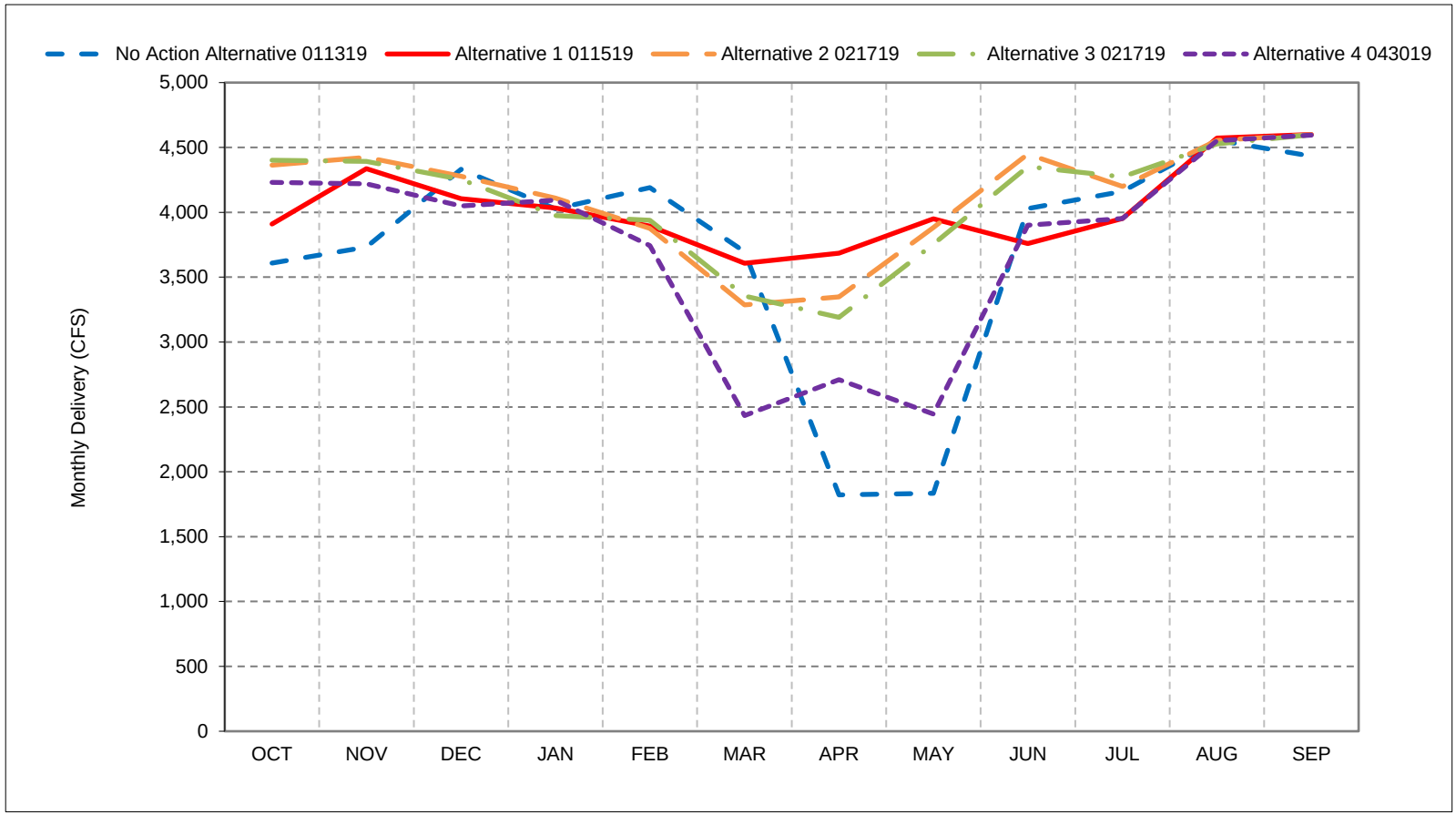
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 54-1. Jones PP Exports, Long-Term Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 54-2. Jones PP Exports, Wet Year Average Delivery



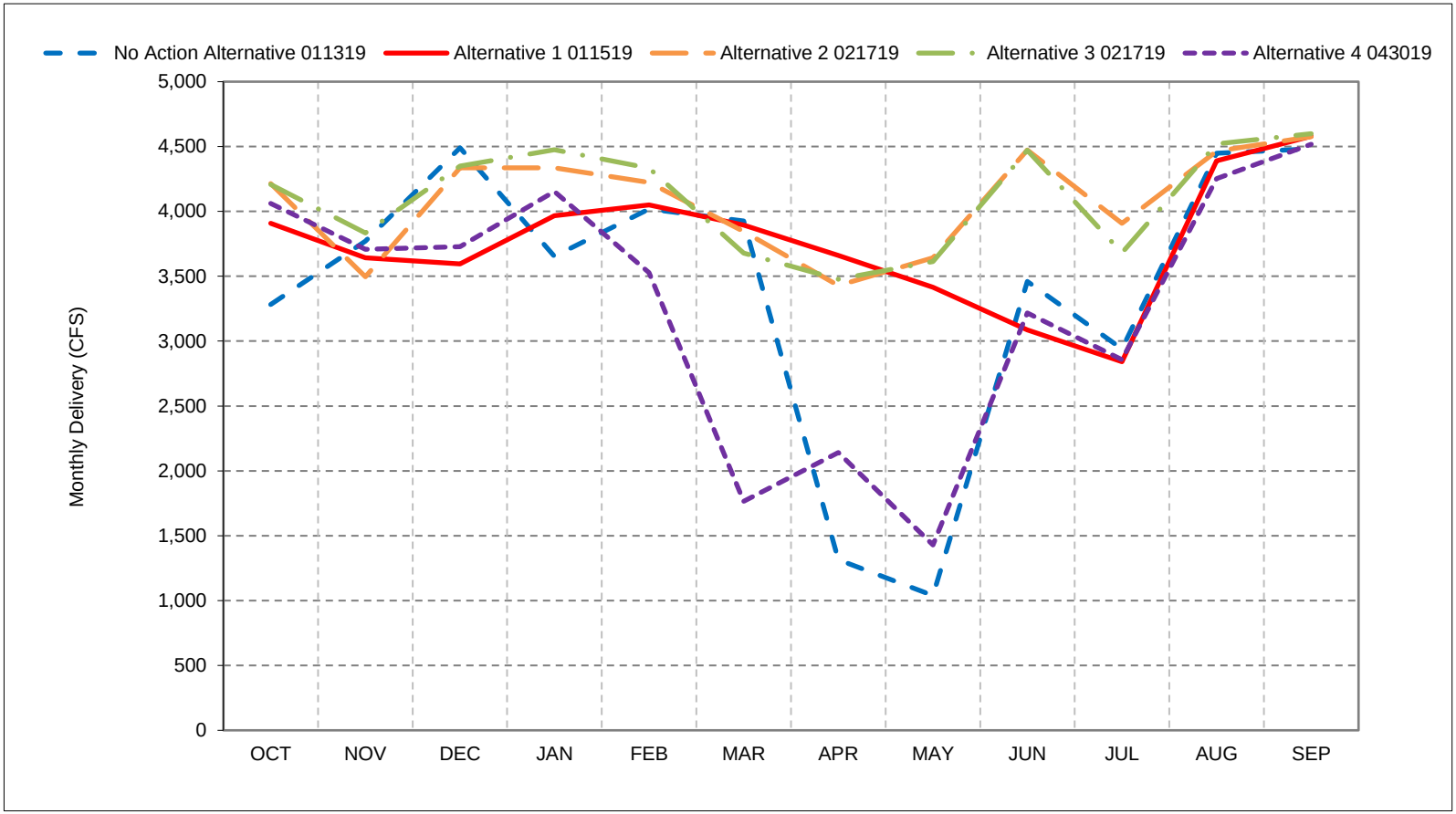
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

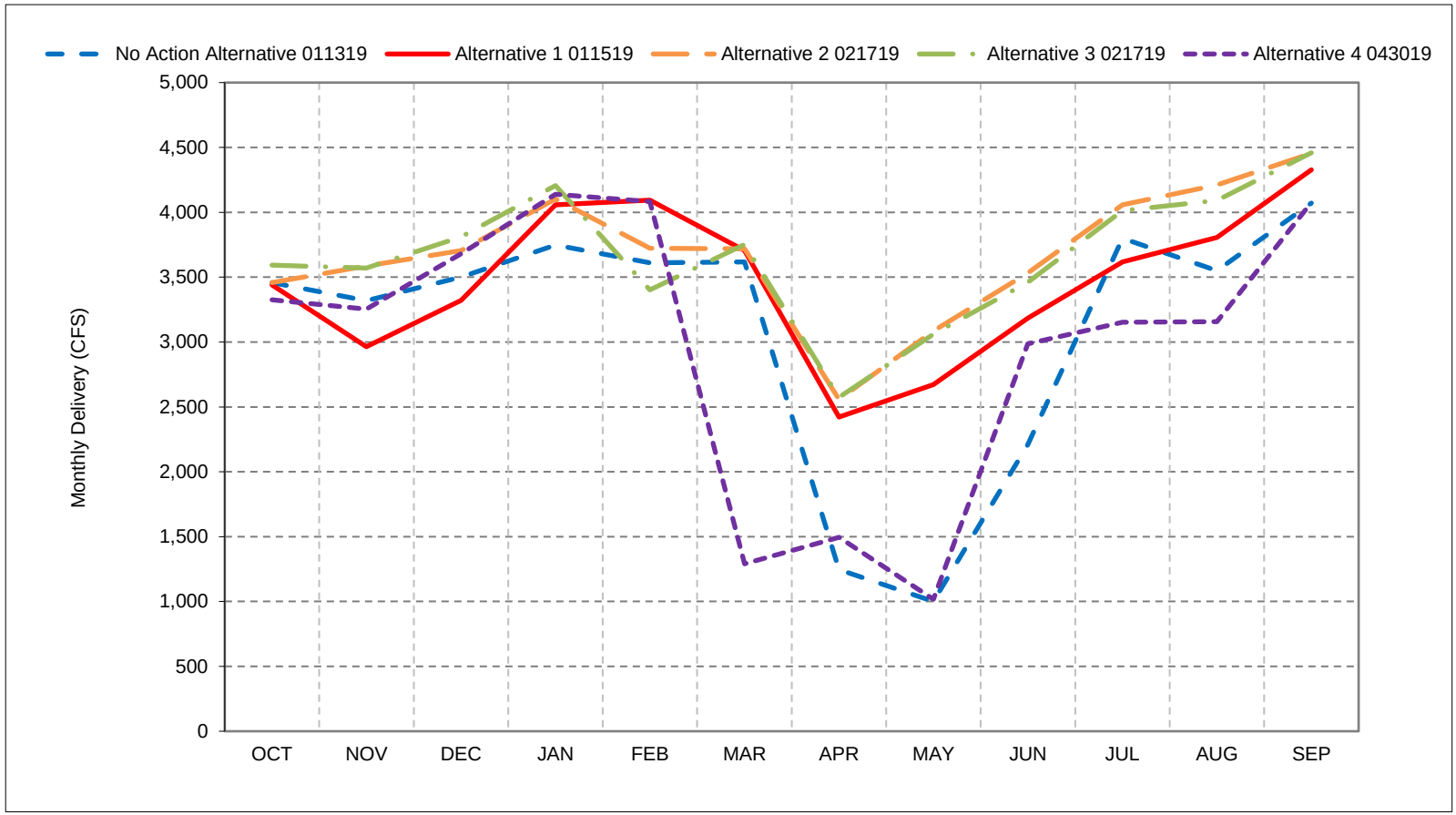
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 54-3. Jones PP Exports, Above Normal Year Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 54-4. Jones PP Exports, Below Normal Year Average Delivery



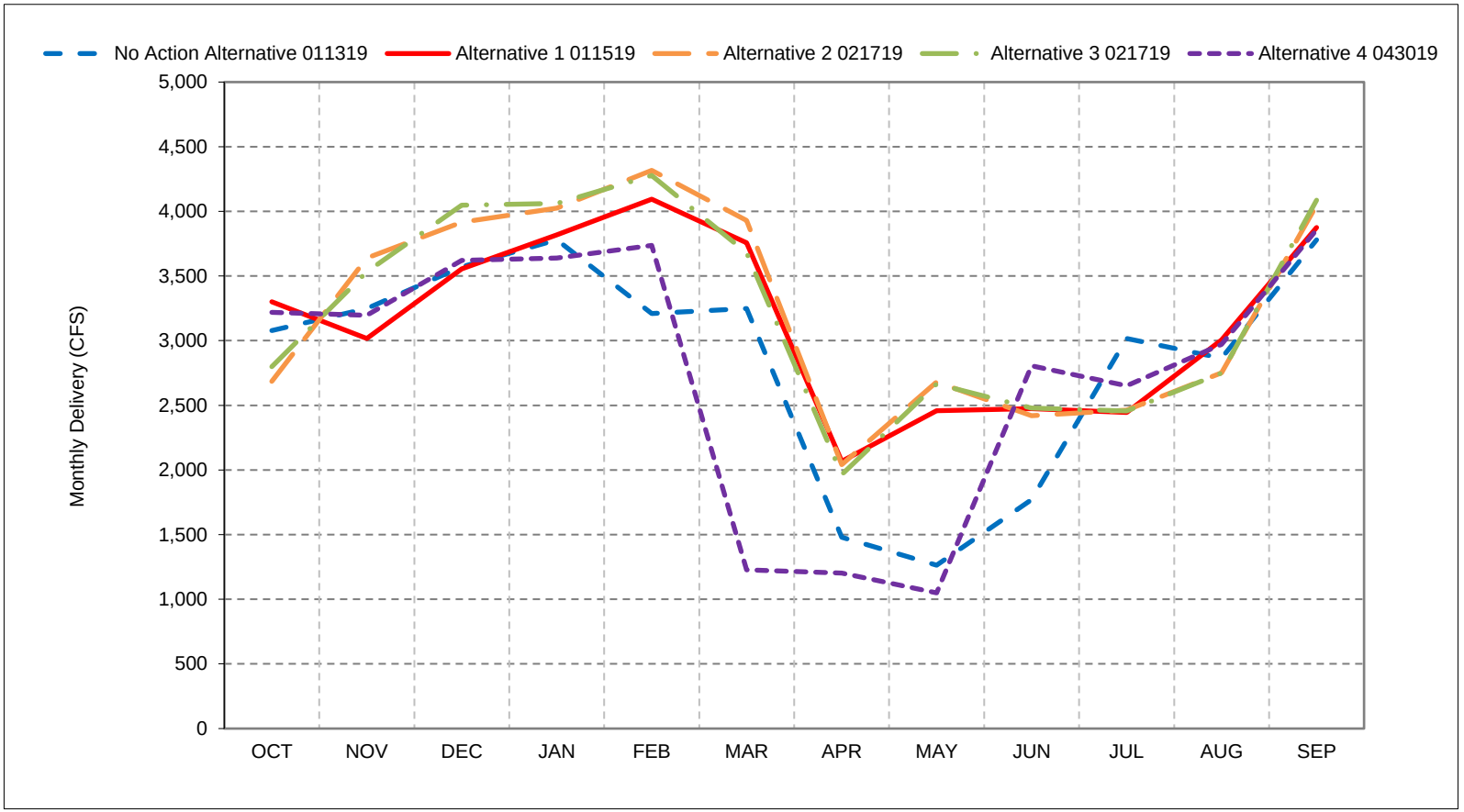
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

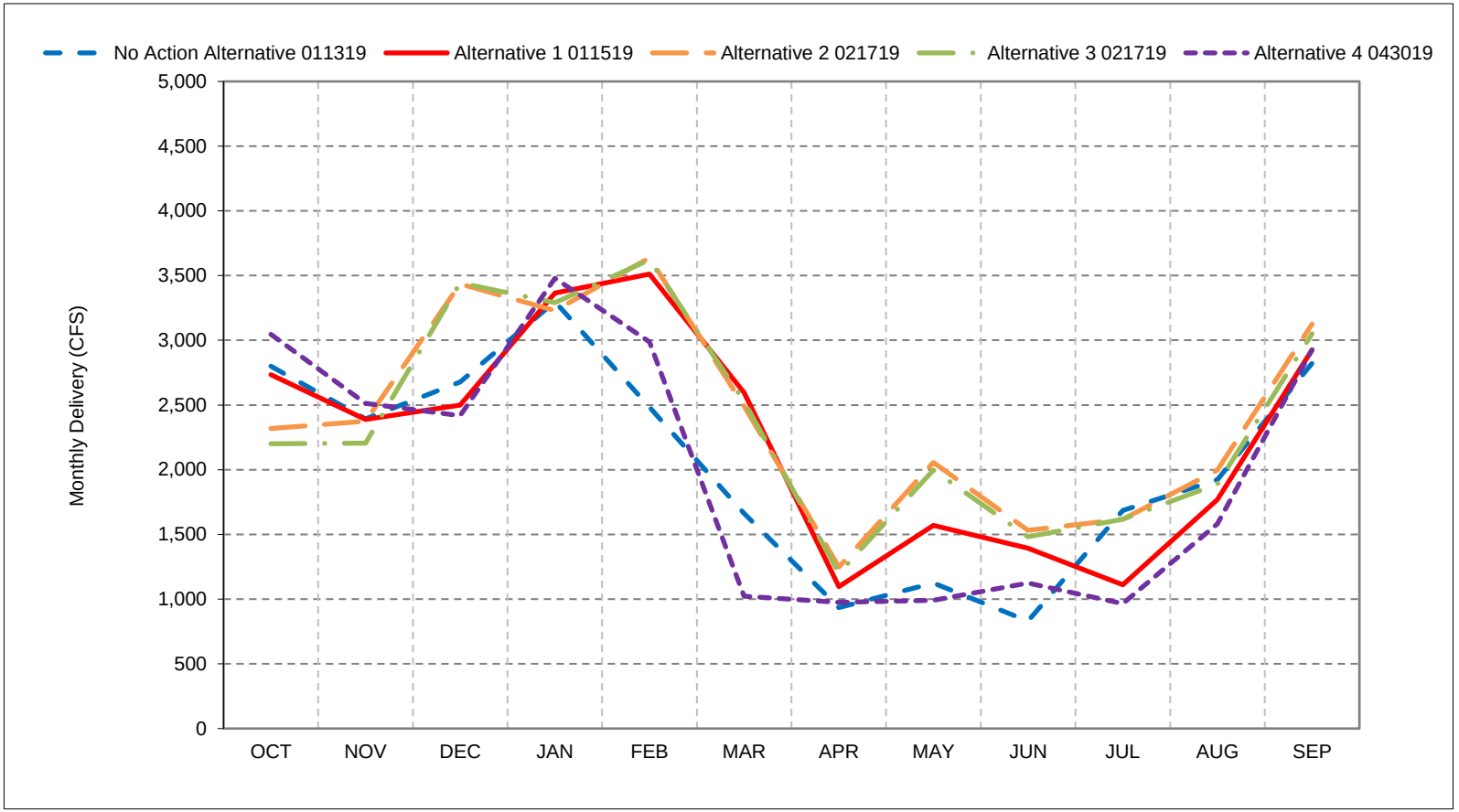
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 54-5. Jones PP Exports, Dry Year Average Delivery



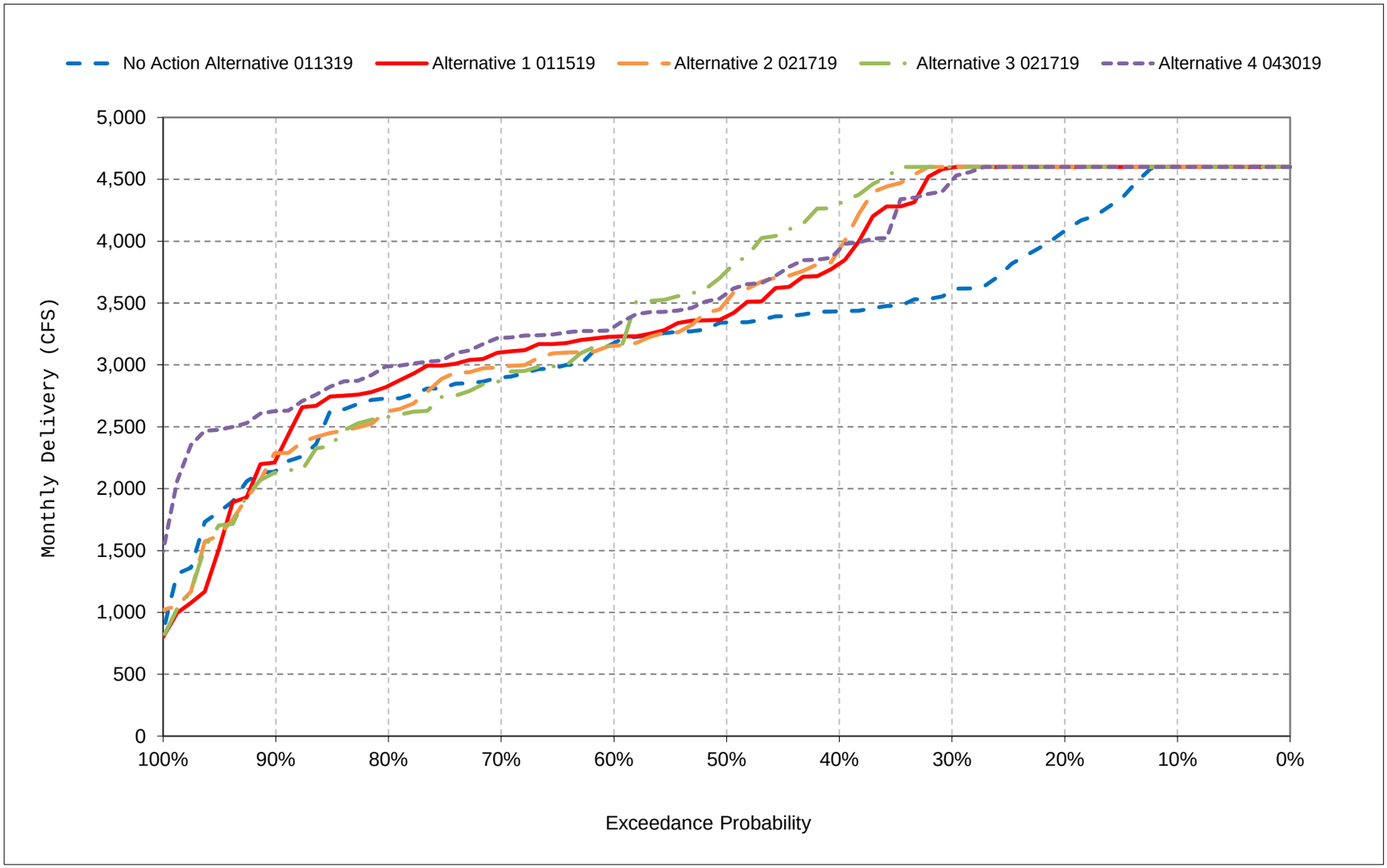
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 54-6. Jones PP Exports, Critical Year Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

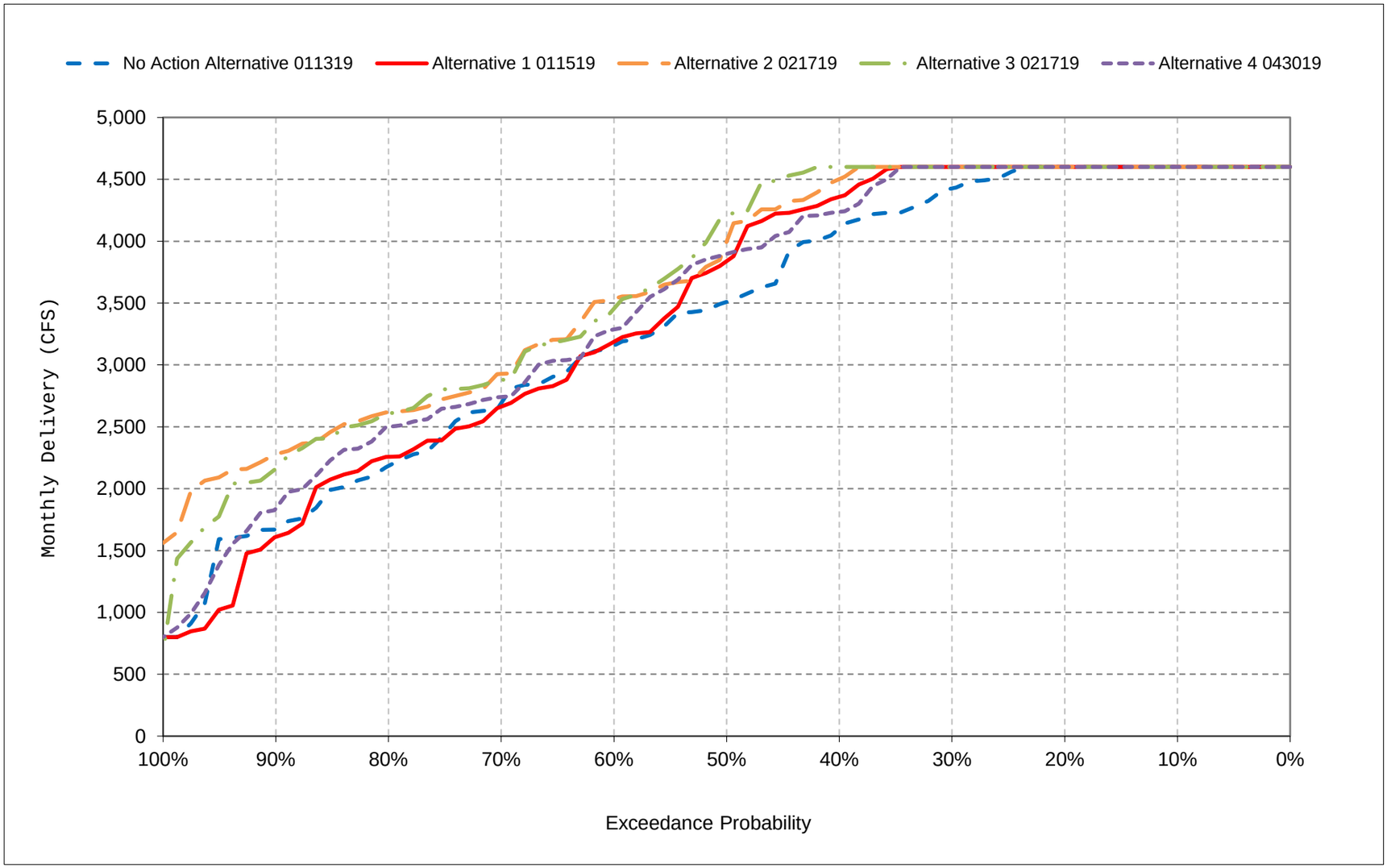
Figure 54-7. Jones PP Exports, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

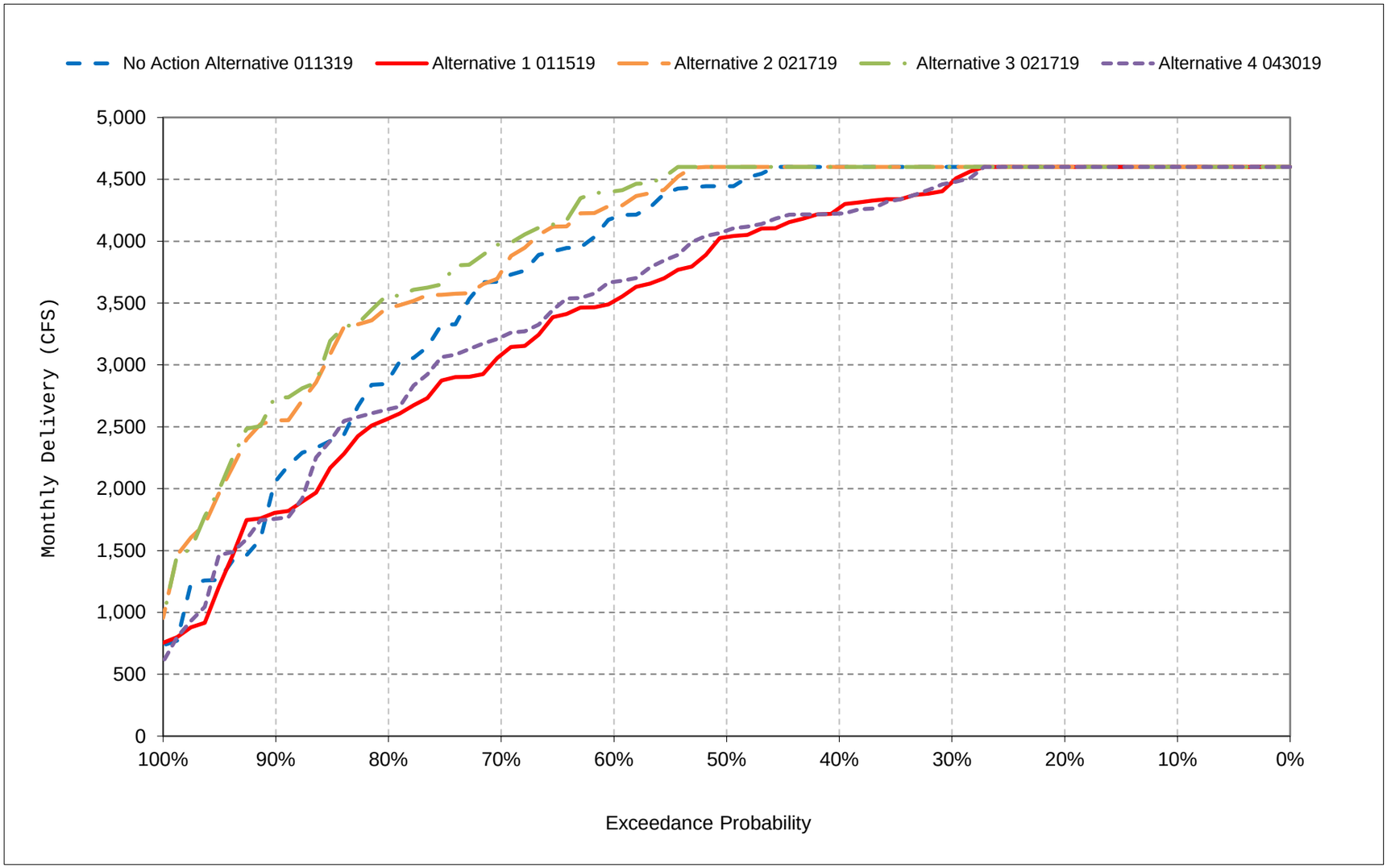
Figure 54-8. Jones PP Exports, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

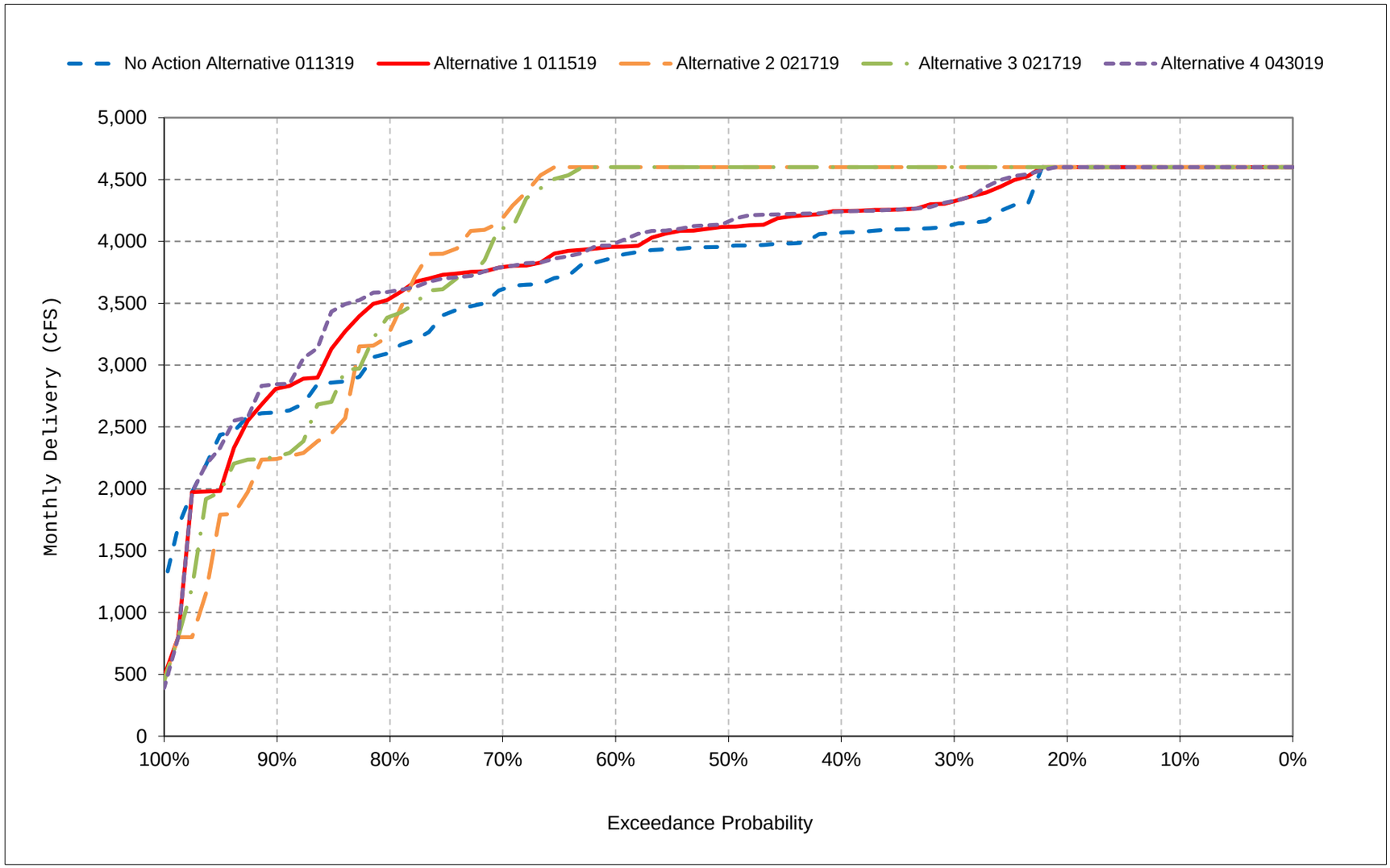
Figure 54-9. Jones PP Exports, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

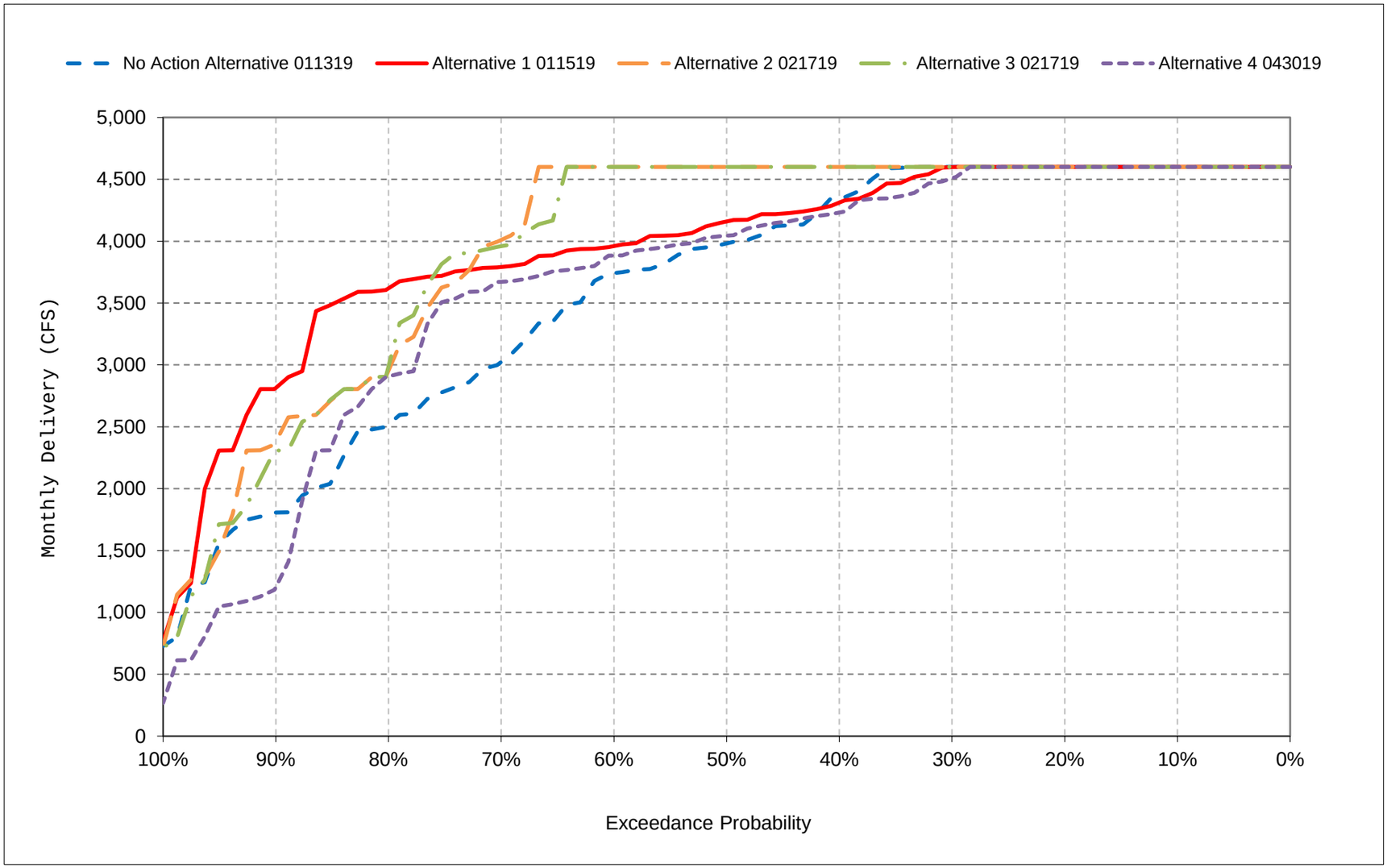
Figure 54-10. Jones PP Exports, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

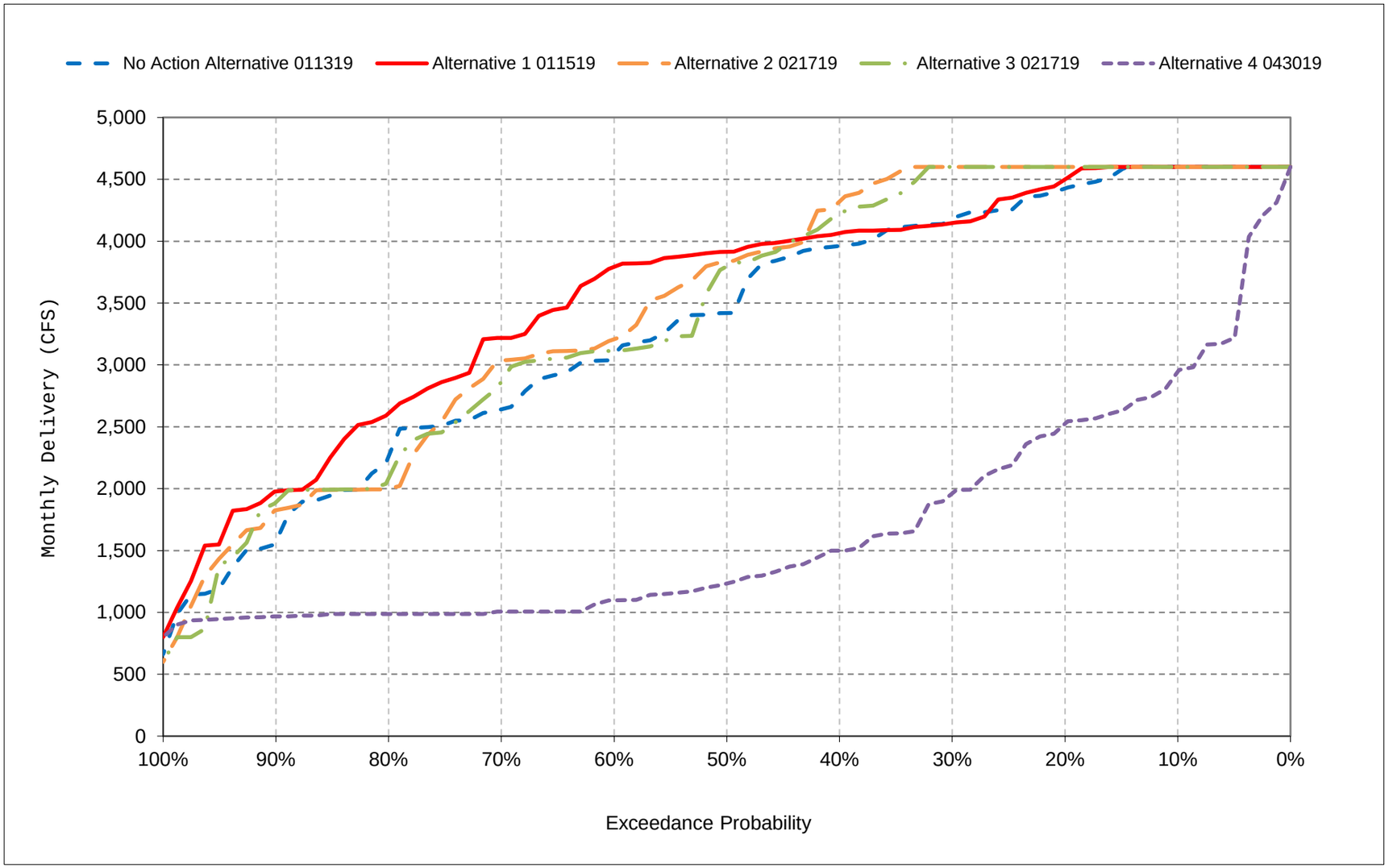
Figure 54-11. Jones PP Exports, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

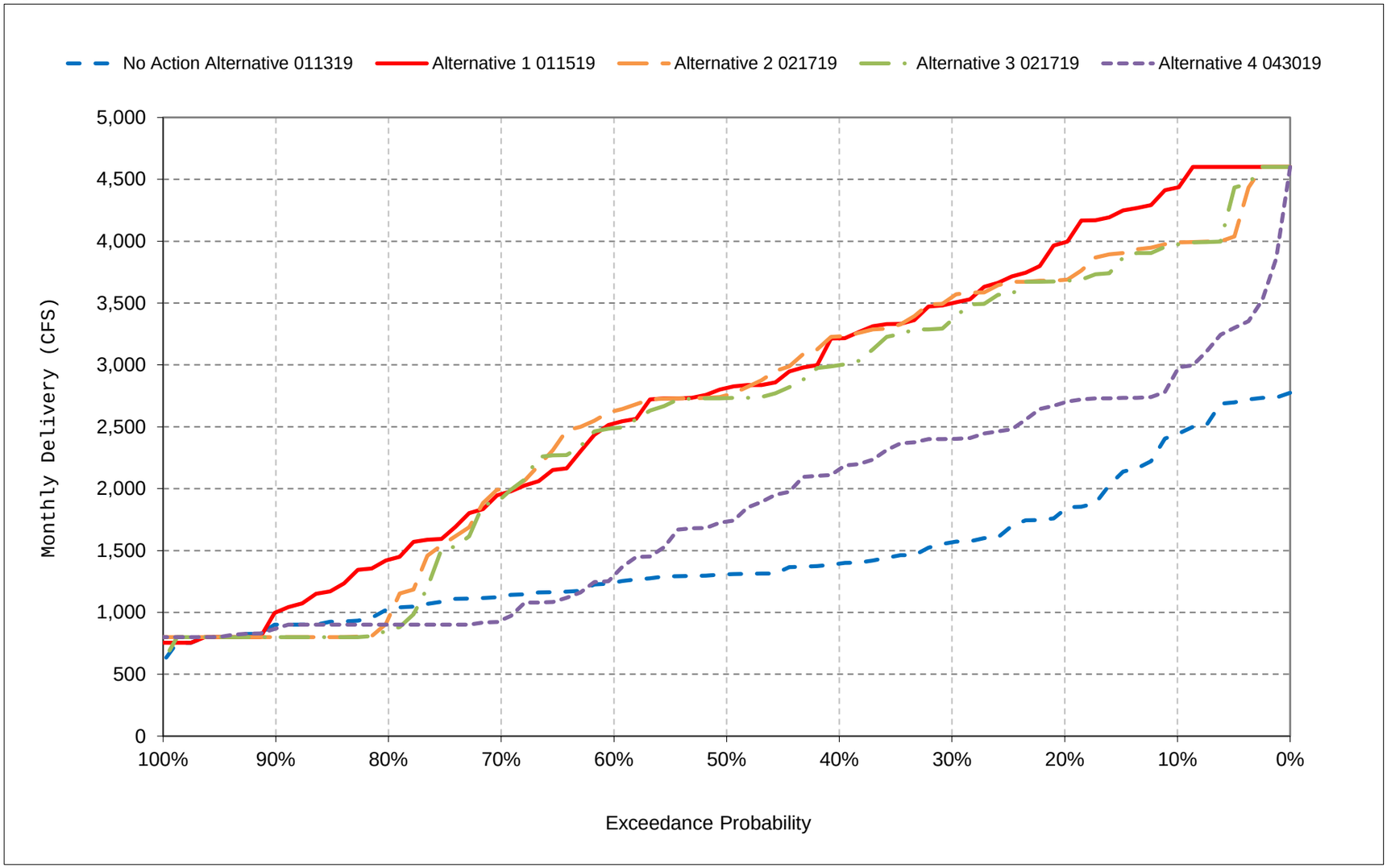
Figure 54-12. Jones PP Exports, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

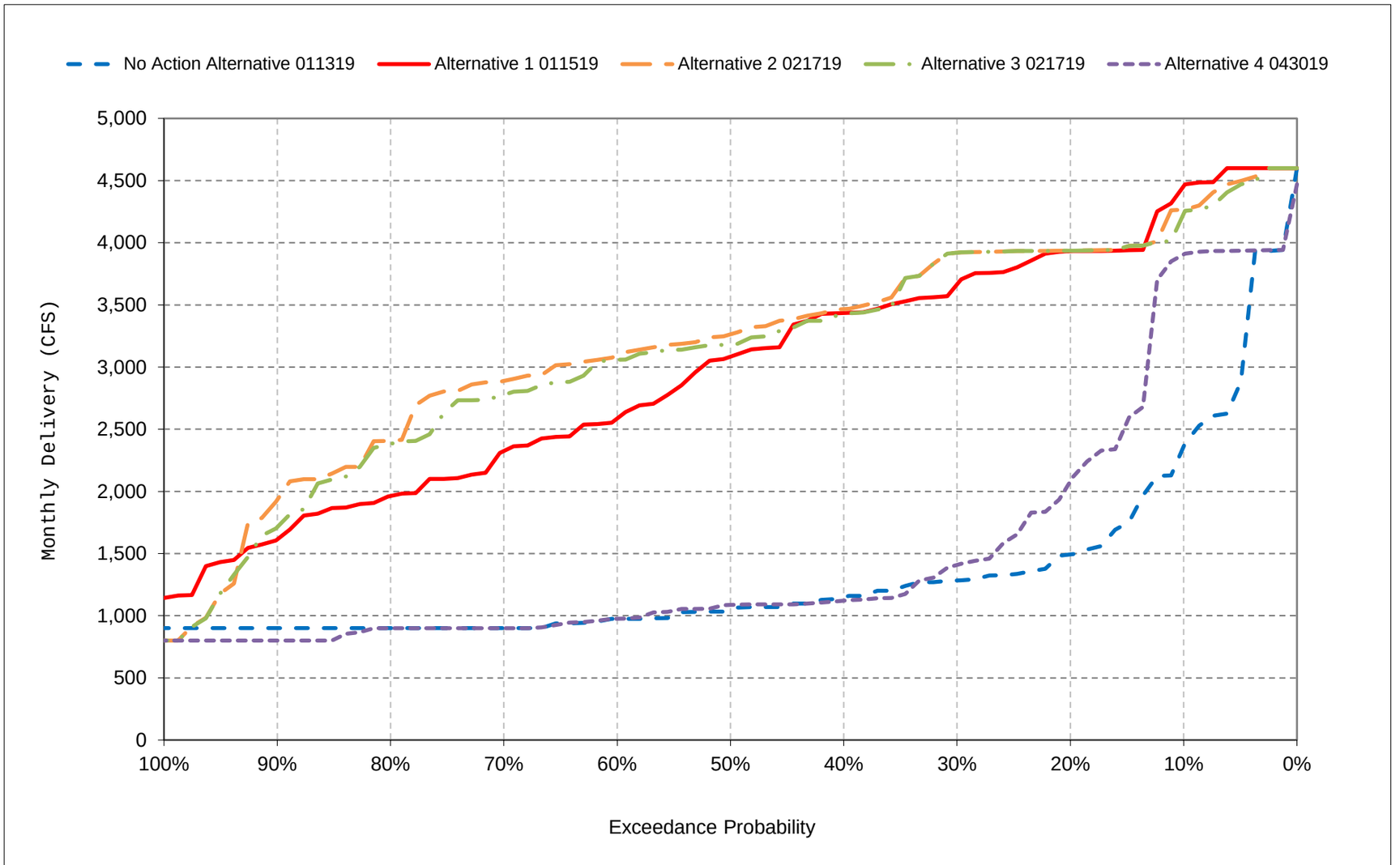
Figure 54-13. Jones PP Exports, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

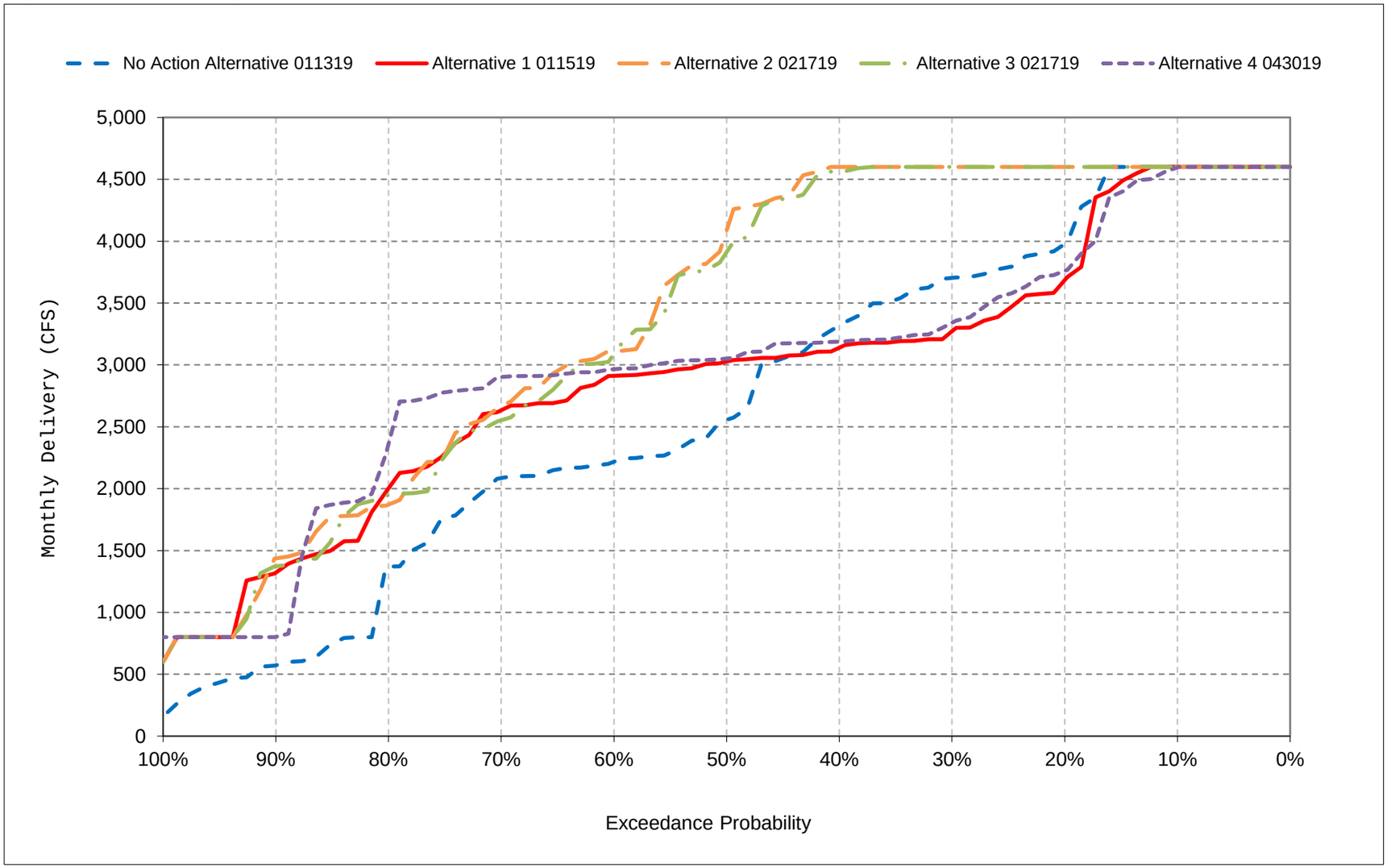
Figure 54-14. Jones PP Exports, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

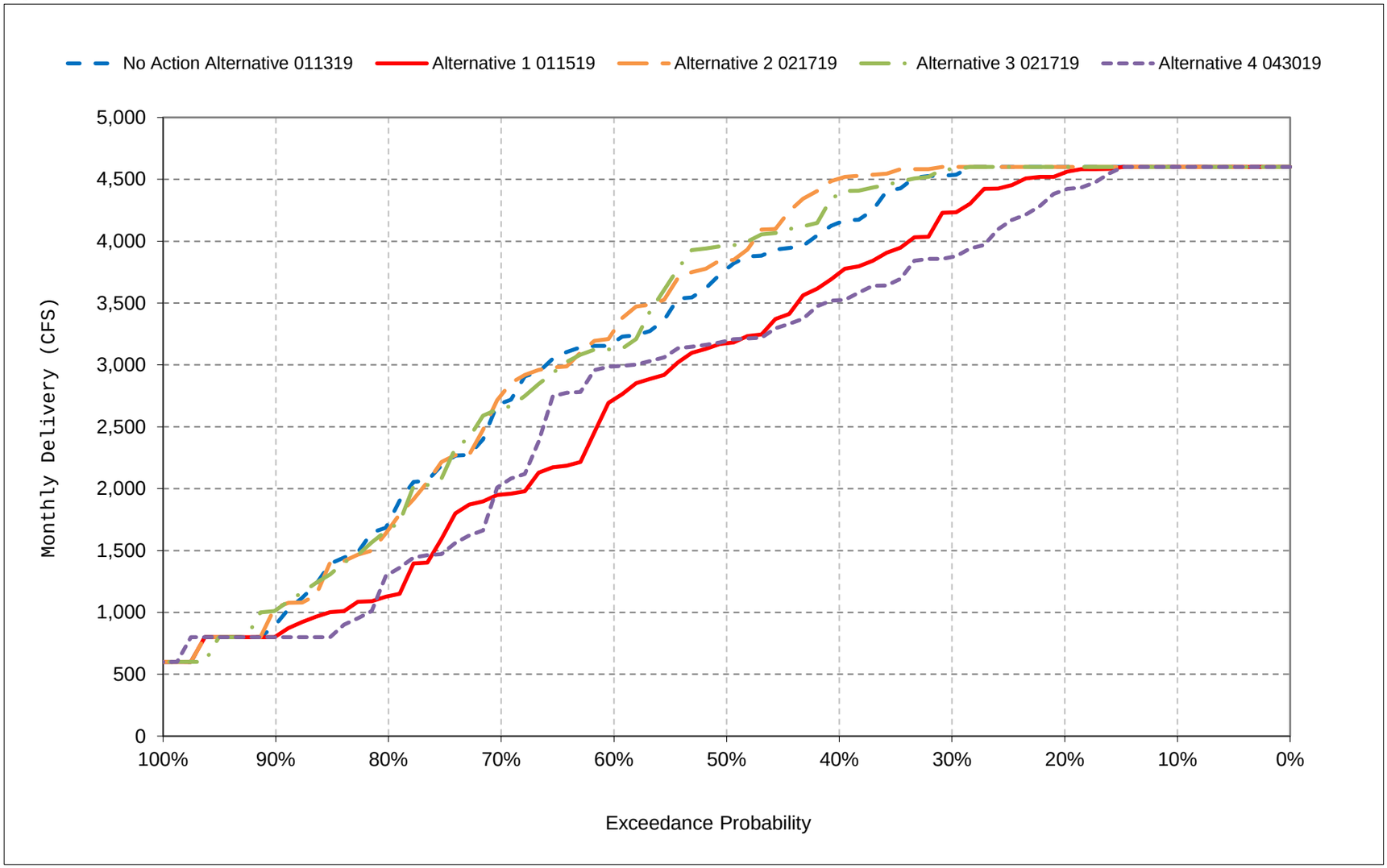
Figure 54-15. Jones PP Exports, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

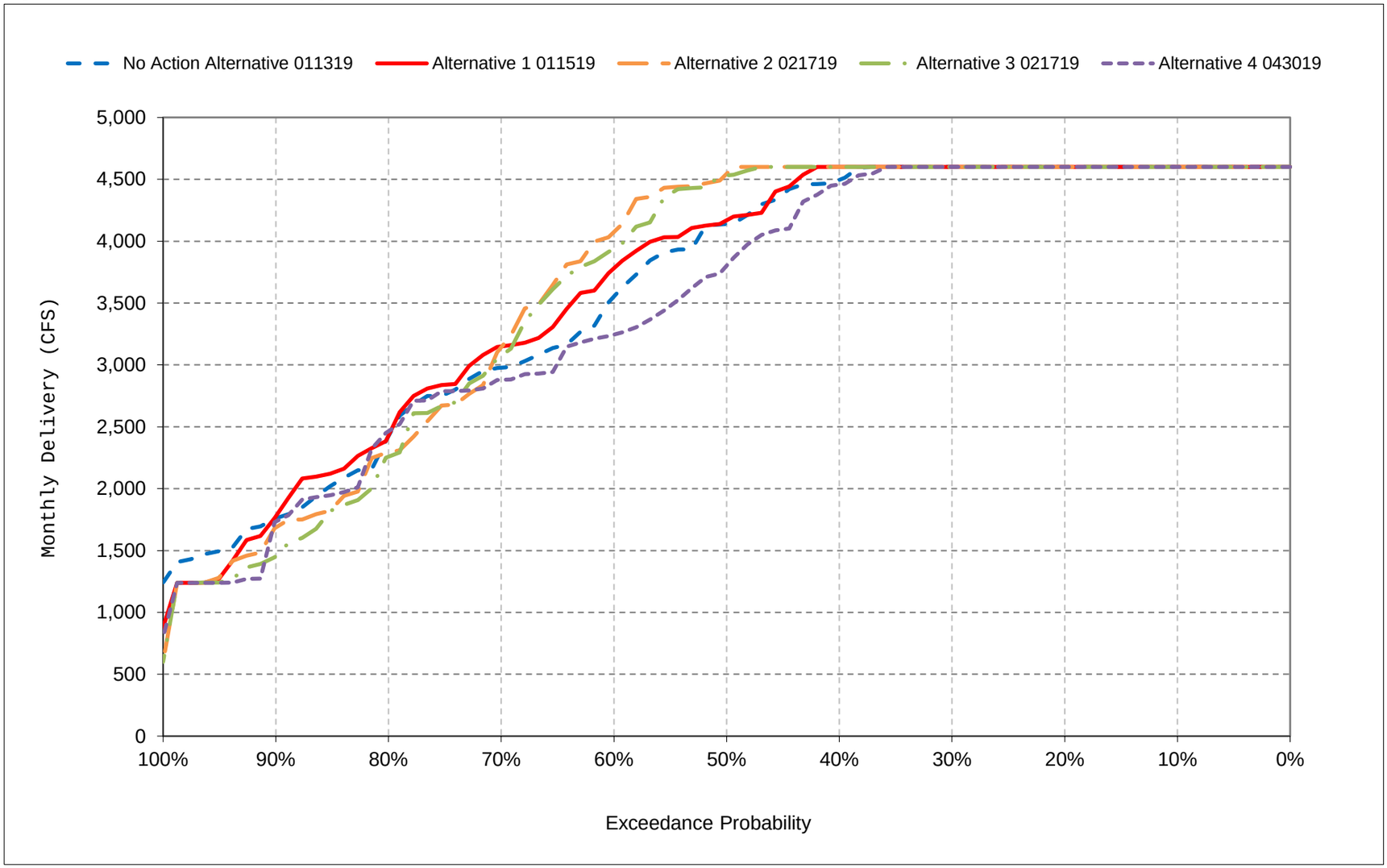
Figure 54-16. Jones PP Exports, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

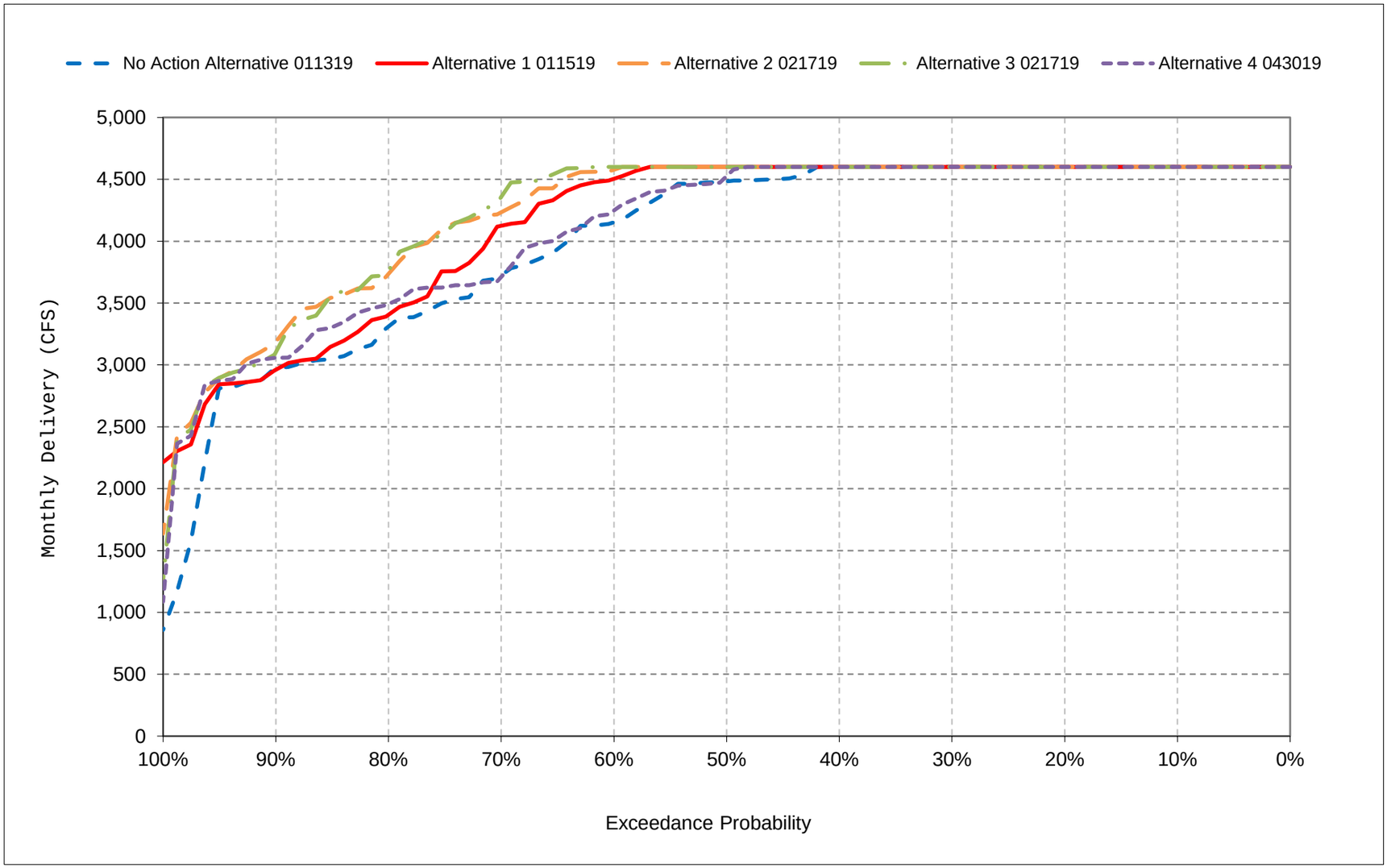
Figure 54-17. Jones PP Exports, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 54-18. Jones PP Exports, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 55-1. CVP Banks PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	1,867	0	0	0	0	0	0	0	861	339	0
20%	0	1,678	0	0	0	0	0	0	0	495	0	0
30%	0	1,235	0	0	0	0	0	0	0	78	0	0
40%	0	512	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	23	652	16	12	31	19	0	0	19	249	104	42
Water Year Types[b,c]												
Wet (32%)	0	1,421	40	38	96	2	0	0	60	50	0	0
Above Normal (16%)	0	1,255	22	0	0	0	0	0	0	0	0	0
Below Normal (13%)	173	0	0	0	0	0	0	0	0	92	449	317
Dry (24%)	0	10	0	0	0	76	0	0	0	757	178	0
Critical (15%)	0	0	0	0	0	0	0	0	0	246	0	0

Alternative 1 011519

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,415	404	0	0	0	0	0	0	0	903	633	548
20%	368	0	0	0	0	0	0	0	0	590	0	0
30%	29	0	0	0	0	0	0	0	0	193	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	296	128	28	15	65	28	0	0	19	250	179	204
Water Year Types[b,c]												
Wet (32%)	316	300	88	49	168	45	0	0	60	53	144	340
Above Normal (16%)	1,020	207	0	0	75	0	0	0	0	0	0	28
Below Normal (13%)	256	0	0	0	0	0	0	0	0	0	578	682
Dry (24%)	0	0	0	0	0	56	0	0	0	713	229	0
Critical (15%)	0	0	0	0	0	0	0	0	0	405	0	0

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,415	**-1,463**	0	0	0	0	0	0	0	42	294	548
20%	368	**-1,678**	0	0	0	0	0	0	0	95	0	0
30%	29	**-1,235**	0	0	0	0	0	0	0	115	0	0
40%	0	**-512**	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	273	**-524**	12	3	35	9	0	0	0	1	75	161
Water Year Types[b,c]												
Wet (32%)	316	**-1,121**	48	11	72	43	0	0	0	3	144	340
Above Normal (16%)	1,020	**-1,048**	**-22**	0	75	0	0	0	0	0	0	28
Below Normal (13%)	83	0	0	0	0	0	0	0	0	**-92**	128	366
Dry (24%)	0	**-10**	0	0	0	**-20**	0	0	0	**-45**	51	0
Critical (15%)	0	0	0	0	0	0	0	0	0	159	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 55-2. CVP Banks PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	1,867	0	0	0	0	0	0	0	861	339	0
20%	0	1,678	0	0	0	0	0	0	0	495	0	0
30%	0	1,235	0	0	0	0	0	0	0	78	0	0
40%	0	512	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	23	652	16	12	31	19	0	0	19	249	104	42
Water Year Types[b,c]												
Wet (32%)	0	1,421	40	38	96	2	0	0	60	50	0	0
Above Normal (16%)	0	1,255	22	0	0	0	0	0	0	0	0	0
Below Normal (13%)	173	0	0	0	0	0	0	0	0	92	449	317
Dry (24%)	0	10	0	0	0	76	0	0	0	757	178	0
Critical (15%)	0	0	0	0	0	0	0	0	0	246	0	0

Alternative 2 021719

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,409	288	0	0	586	198	0	0	0	1,679	1,760	1,181
20%	591	0	0	0	0	0	0	0	0	949	897	233
30%	0	0	0	0	0	0	0	0	0	671	0	0
40%	0	0	0	0	0	0	0	0	0	511	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	297	110	13	105	279	138	1	0	20	572	399	252
Water Year Types[b,c]												
Wet (32%)	274	323	42	258	468	297	0	0	60	84	591	188
Above Normal (16%)	1,303	37	0	62	741	217	0	0	0	143	402	222
Below Normal (13%)	25	2	0	97	97	0	10	0	0	1,064	1,015	887
Dry (24%)	0	5	0	0	0	11	0	0	4	1,097	47	158
Critical (15%)	0	0	0	0	0	48	0	0	0	770	0	0

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,409	**-1,578**	0	0	586	198	0	0	0	818	1,421	1,181
20%	591	**-1,678**	0	0	0	0	0	0	0	454	897	233
30%	0	**-1,235**	0	0	0	0	0	0	0	593	0	0
40%	0	**-512**	0	0	0	0	0	0	0	511	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	274	**-542**	**-3**	93	248	119	1	0	1	324	295	210
Water Year Types[b,c]												
Wet (32%)	274	**-1,098**	2	220	372	295	0	0	0	33	591	188
Above Normal (16%)	1,303	**-1,218**	**-22**	62	741	217	0	0	0	143	402	222
Below Normal (13%)	**-148**	2	0	97	97	0	10	0	0	973	566	570
Dry (24%)	0	**-4**	0	0	0	**-65**	0	0	4	340	**-131**	158
Critical (15%)	0	0	0	0	0	48	0	0	0	524	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 55-3. CVP Banks PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	1,867	0	0	0	0	0	0	0	861	339	0
20%	0	1,678	0	0	0	0	0	0	0	495	0	0
30%	0	1,235	0	0	0	0	0	0	0	78	0	0
40%	0	512	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	23	652	16	12	31	19	0	0	19	249	104	42
Water Year Types[b,c]												
Wet (32%)	0	1,421	40	38	96	2	0	0	60	50	0	0
Above Normal (16%)	0	1,255	22	0	0	0	0	0	0	0	0	0
Below Normal (13%)	173	0	0	0	0	0	0	0	0	92	449	317
Dry (24%)	0	10	0	0	0	76	0	0	0	757	178	0
Critical (15%)	0	0	0	0	0	0	0	0	0	246	0	0

Alternative 3 021719

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	904	546	0	0	991	292	0	0	0	1,350	1,833	1,343
20%	85	0	0	0	0	0	0	0	0	941	1,279	244
30%	0	0	0	0	0	0	0	0	0	696	0	0
40%	0	0	0	0	0	0	0	0	0	486	0	0
50%	0	0	0	0	0	0	0	0	0	59	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	232	148	50	84	326	126	1	0	23	506	453	266
Water Year Types[b,c]												
Wet (32%)	242	325	159	210	446	325	0	0	60	182	745	83
Above Normal (16%)	971	225	0	0	1,054	83	0	0	0	0	426	338
Below Normal (13%)	8	0	0	130	129	0	10	0	0	747	1,004	1,032
Dry (24%)	0	36	0	0	0	25	0	0	16	1,129	29	194
Critical (15%)	0	0	0	0	0	27	0	0	0	495	51	0

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	904	**-1,321**	0	0	991	292	0	0	0	490	1,495	1,343
20%	85	**-1,678**	0	0	0	0	0	0	0	446	1,279	244
30%	0	**-1,235**	0	0	0	0	0	0	0	618	0	0
40%	0	**-512**	0	0	0	0	0	0	0	486	0	0
50%	0	0	0	0	0	0	0	0	0	59	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	208	**-504**	34	72	295	107	1	0	4	257	349	223
Water Year Types[b,c]												
Wet (32%)	242	**-1,096**	119	172	350	323	0	0	0	132	745	83
Above Normal (16%)	971	**-1,029**	**-22**	0	1,054	83	0	0	0	0	426	338
Below Normal (13%)	**-165**	0	0	130	129	0	10	0	0	655	555	716
Dry (24%)	0	27	0	0	0	**-51**	0	0	16	372	**-149**	194
Critical (15%)	0	0	0	0	0	27	0	0	0	250	51	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 55-4. CVP Banks PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	1,867	0	0	0	0	0	0	0	861	339	0
20%	0	1,678	0	0	0	0	0	0	0	495	0	0
30%	0	1,235	0	0	0	0	0	0	0	78	0	0
40%	0	512	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	23	652	16	12	31	19	0	0	19	249	104	42
Water Year Types[b,c]												
Wet (32%)	0	1,421	40	38	96	2	0	0	60	50	0	0
Above Normal (16%)	0	1,255	22	0	0	0	0	0	0	0	0	0
Below Normal (13%)	173	0	0	0	0	0	0	0	0	92	449	317
Dry (24%)	0	10	0	0	0	76	0	0	0	757	178	0
Critical (15%)	0	0	0	0	0	0	0	0	0	246	0	0

Alternative 4 043019

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,429	96	0	0	0	0	0	0	0	749	612	332
20%	688	0	0	0	0	0	0	0	0	510	19	0
30%	0	0	0	0	0	0	0	0	0	311	0	0
40%	0	0	0	0	0	0	0	0	0	52	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	326	70	56	23	119	2	0	0	0	233	156	176
Water Year Types[b,c]												
Wet (32%)	489	174	130	35	375	6	0	0	0	64	240	379
Above Normal (16%)	1,076	92	8	74	0	0	0	0	0	134	14	133
Below Normal (13%)	0	0	9	0	0	0	0	0	0	220	465	256
Dry (24%)	0	2	50	0	0	0	0	0	0	642	60	0
Critical (15%)	0	0	0	0	0	0	0	0	0	39	0	0

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,429	**-1,771**	0	0	0	0	0	0	0	**-111**	274	332
20%	688	**-1,678**	0	0	0	0	0	0	0	15	19	0
30%	0	**-1,235**	0	0	0	0	0	0	0	233	0	0
40%	0	**-512**	0	0	0	0	0	0	0	52	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	302	**-582**	40	11	88	**-17**	0	0	**-19**	**-16**	52	133
Water Year Types[b,c]												
Wet (32%)	489	**-1,247**	90	**-3**	279	4	0	0	**-60**	13	240	379
Above Normal (16%)	1,076	**-1,162**	**-14**	74	0	0	0	0	0	134	14	133
Below Normal (13%)	**-173**	0	9	0	0	0	0	0	0	129	16	**-61**
Dry (24%)	0	**-7**	50	0	0	**-76**	0	0	0	**-116**	**-118**	0
Critical (15%)	0	0	0	0	0	0	0	0	0	**-207**	0	0

a Based on the 82-year simulation period.

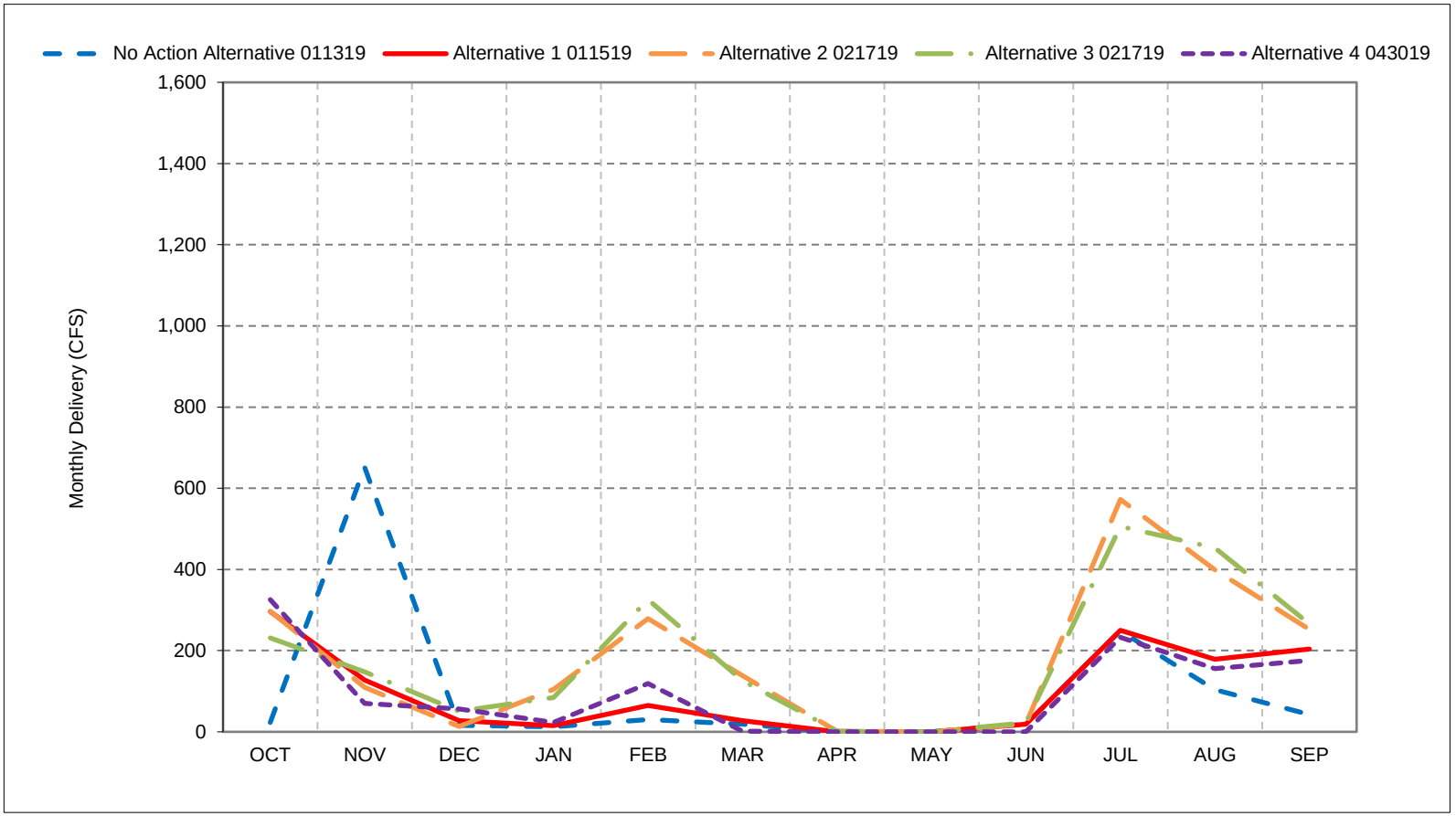
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

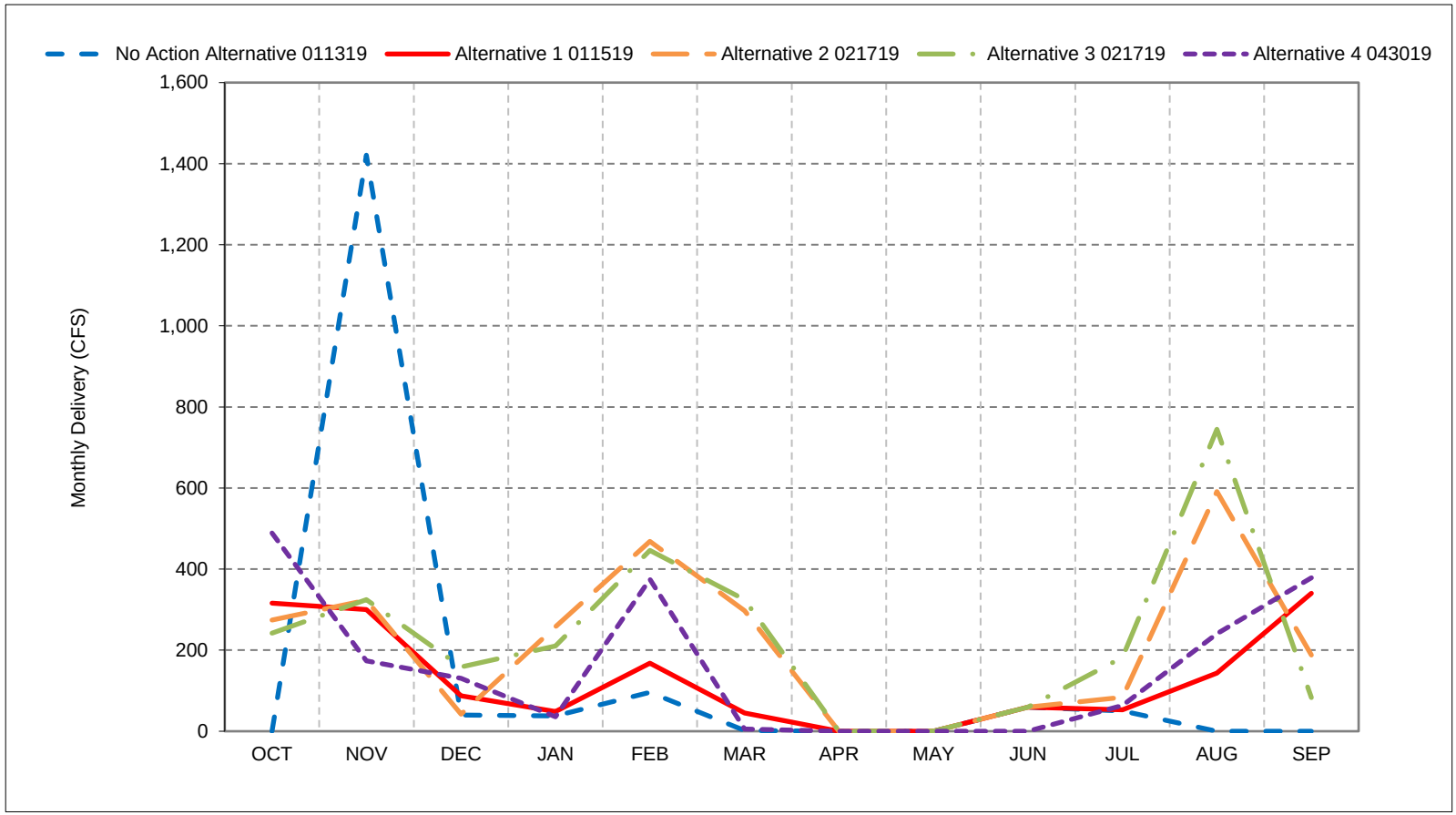
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 55-1. CVP Banks PP Exports, Long-Term Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 55-2. CVP Banks PP Exports, Wet Year Average Delivery



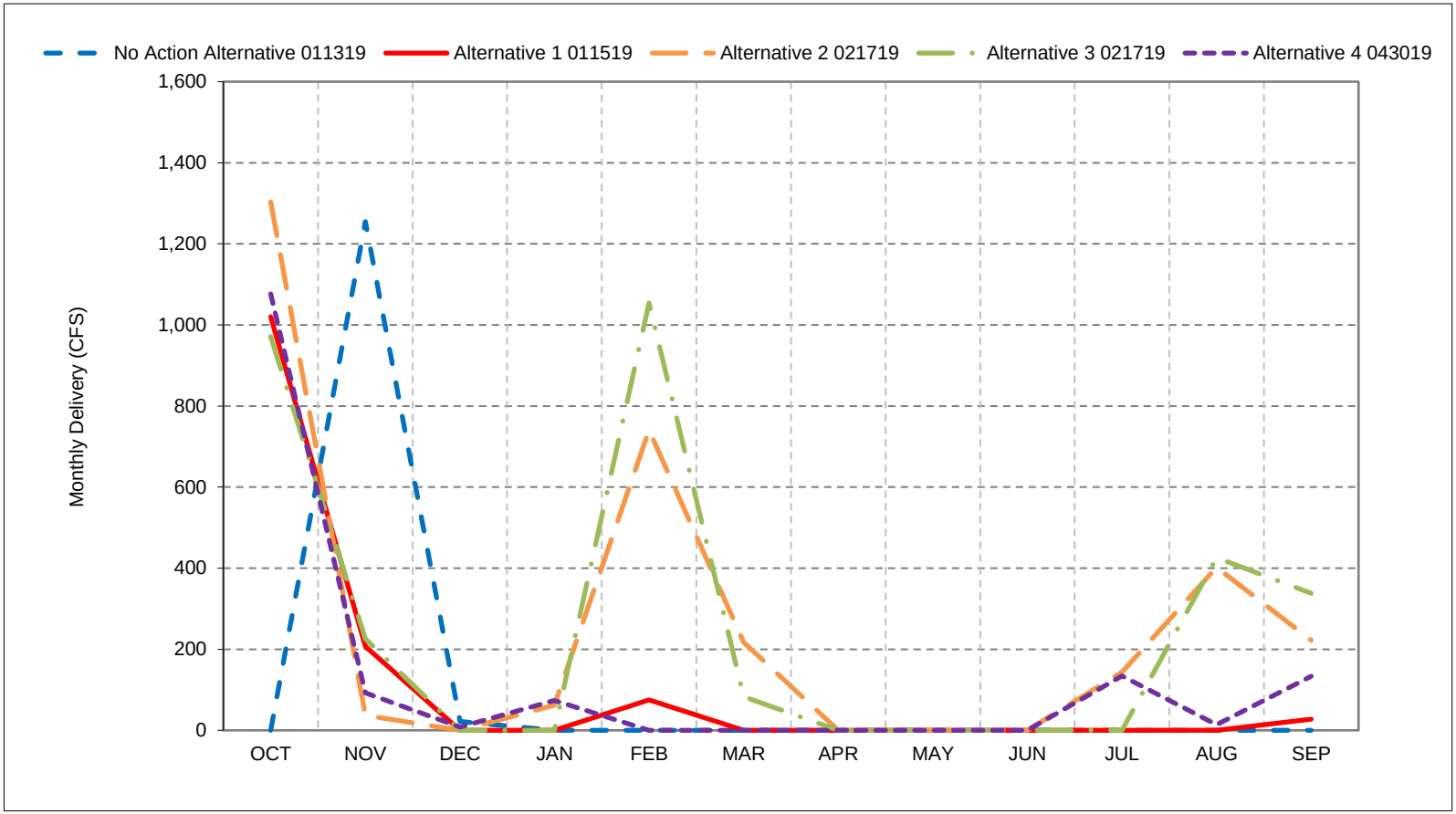
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

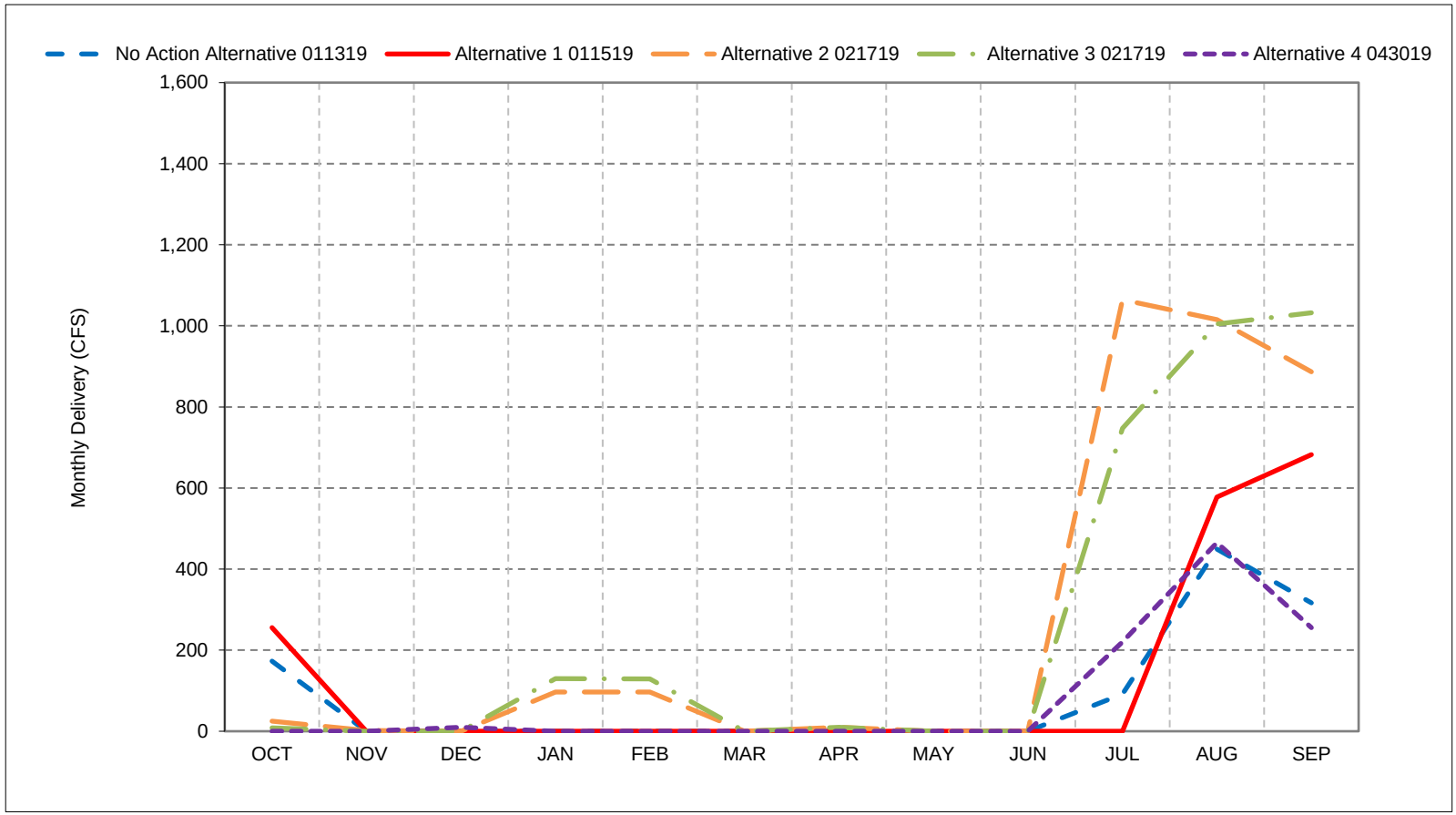
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 55-3. CVP Banks PP Exports, Above Normal Year Average Delivery



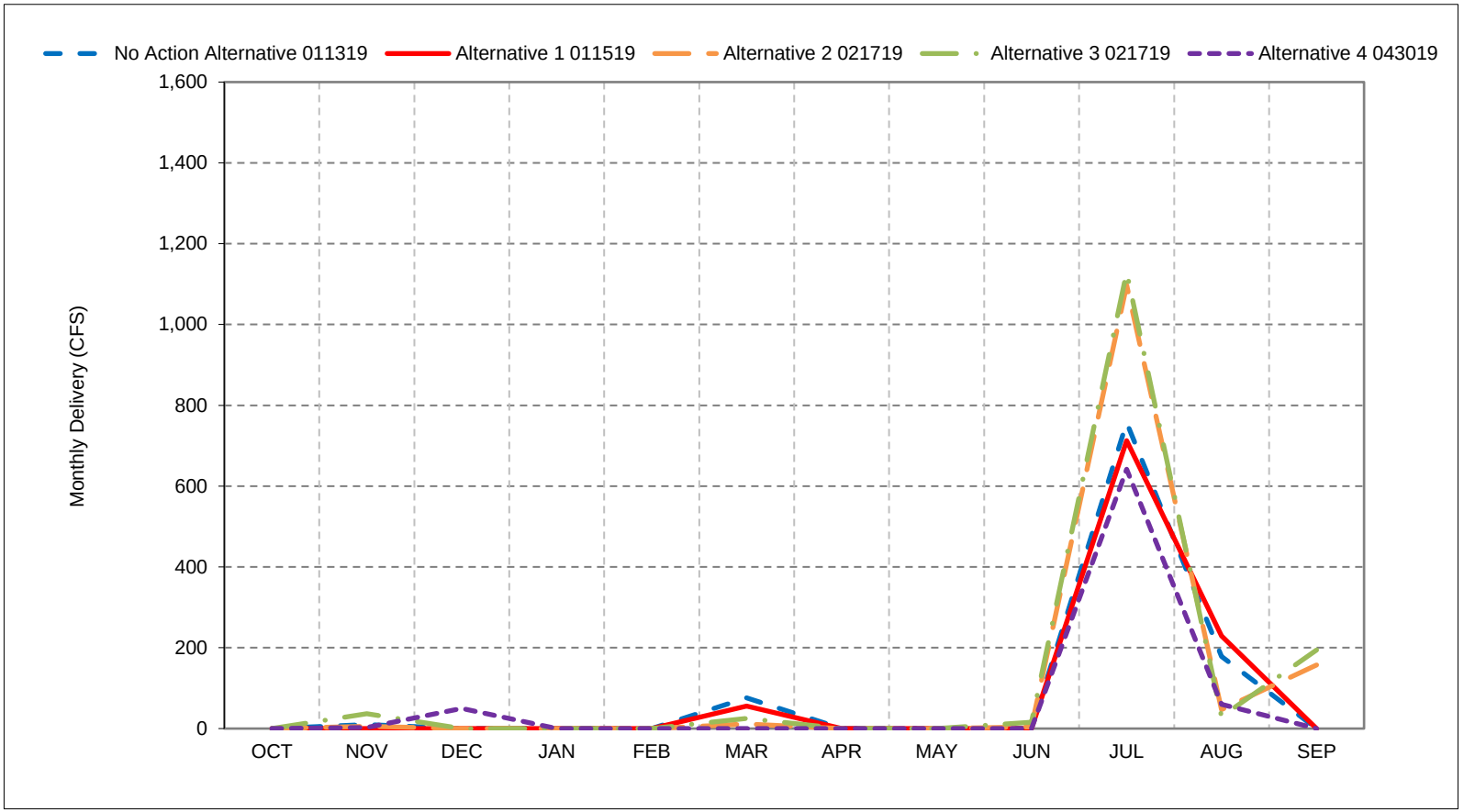
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 55-4. CVP Banks PP Exports, Below Normal Year Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 55-5. CVP Banks PP Exports, Dry Year Average Delivery



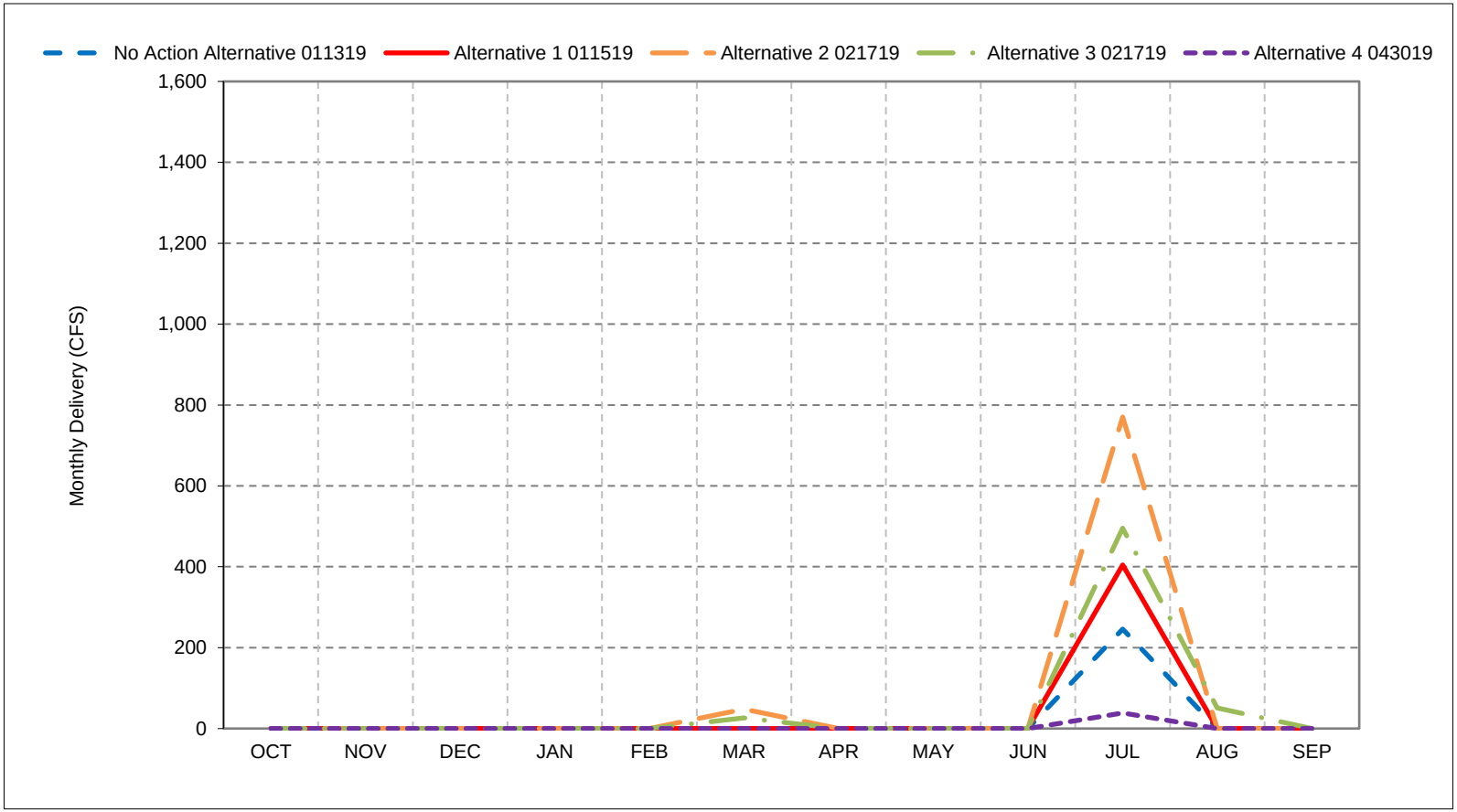
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

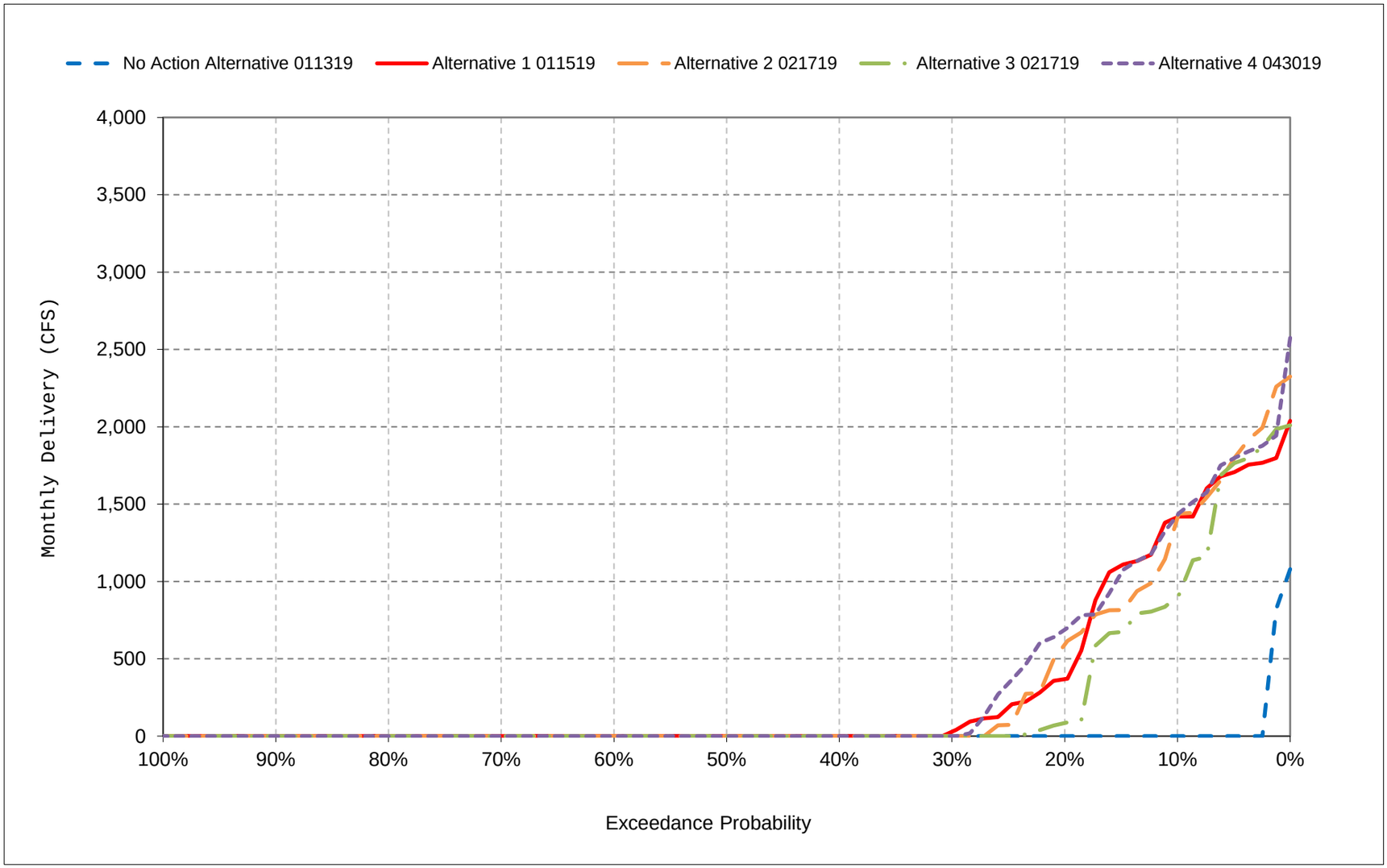
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 55-6. CVP Banks PP Exports, Critical Year Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

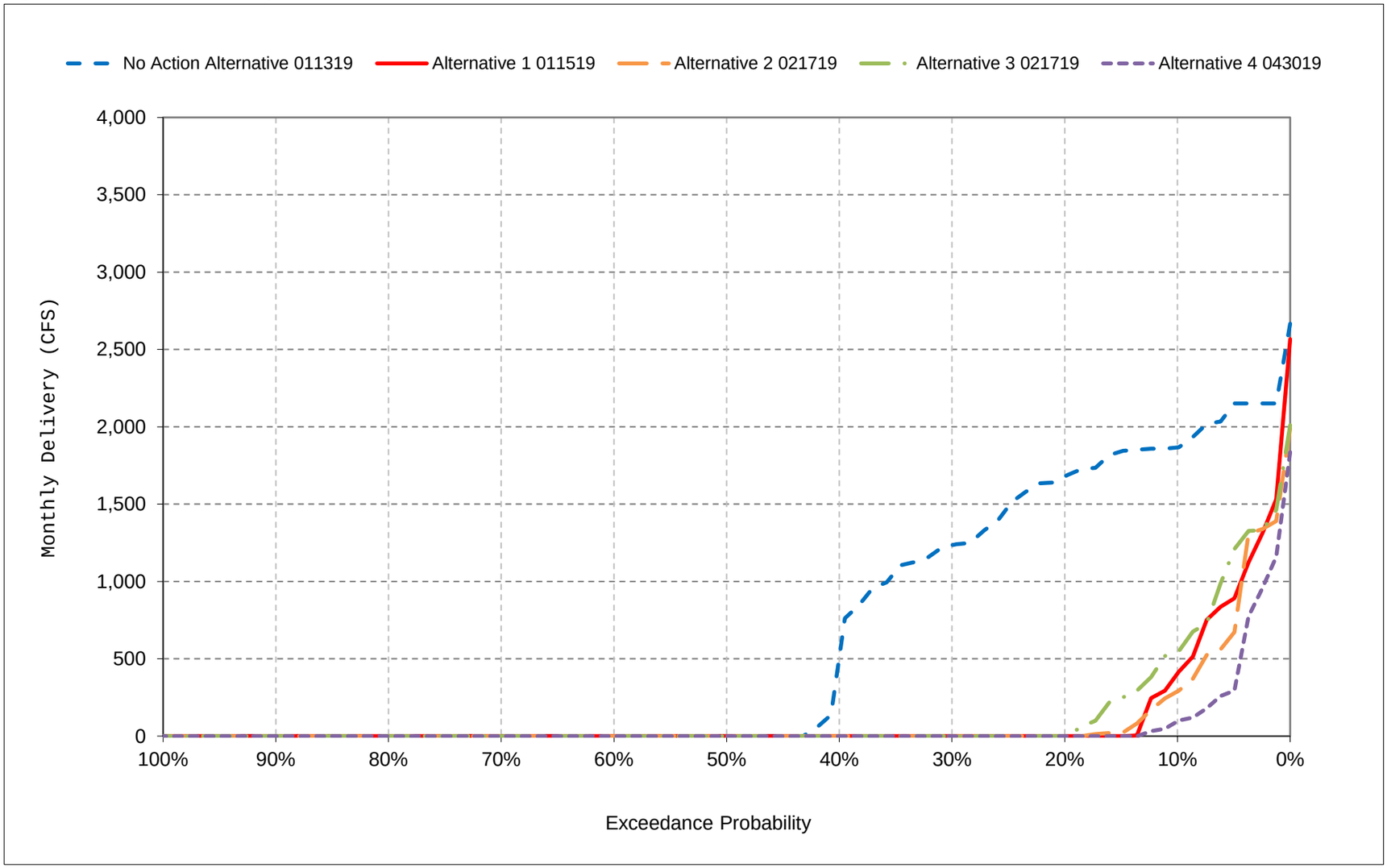
Figure 55-7. CVP Banks PP Exports, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

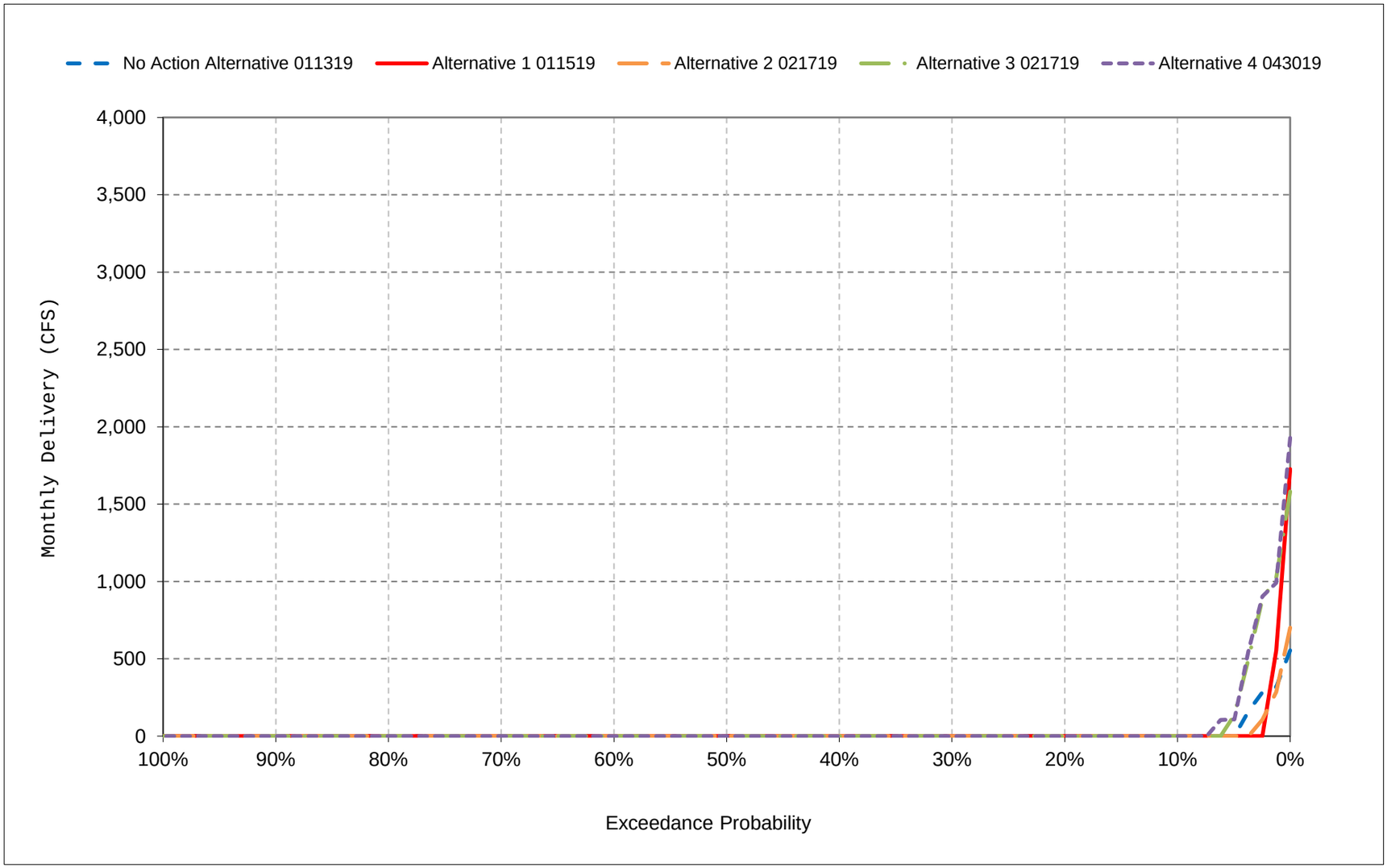
Figure 55-8. CVP Banks PP Exports, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

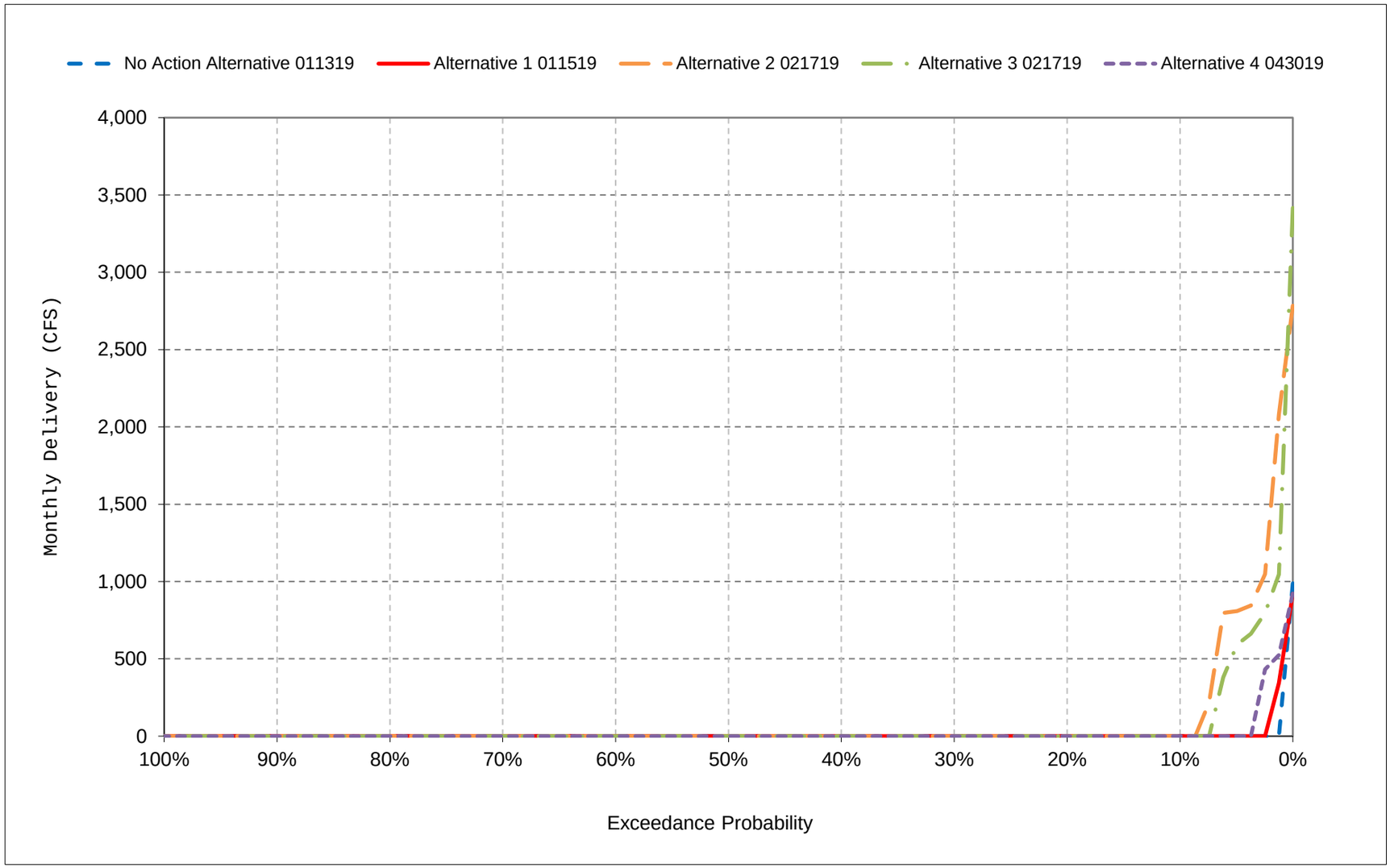
Figure 55-9. CVP Banks PP Exports, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

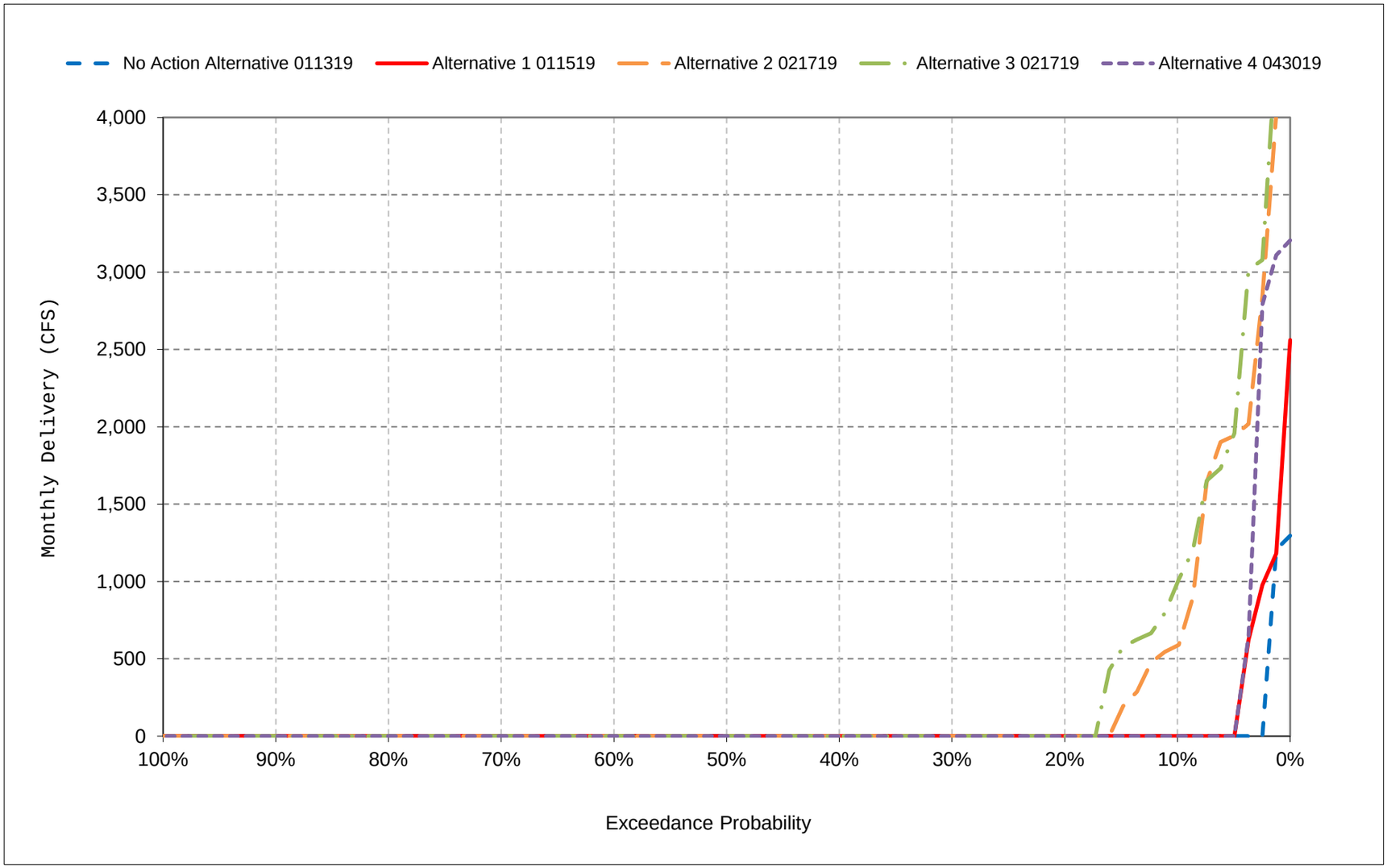
Figure 55-10. CVP Banks PP Exports, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

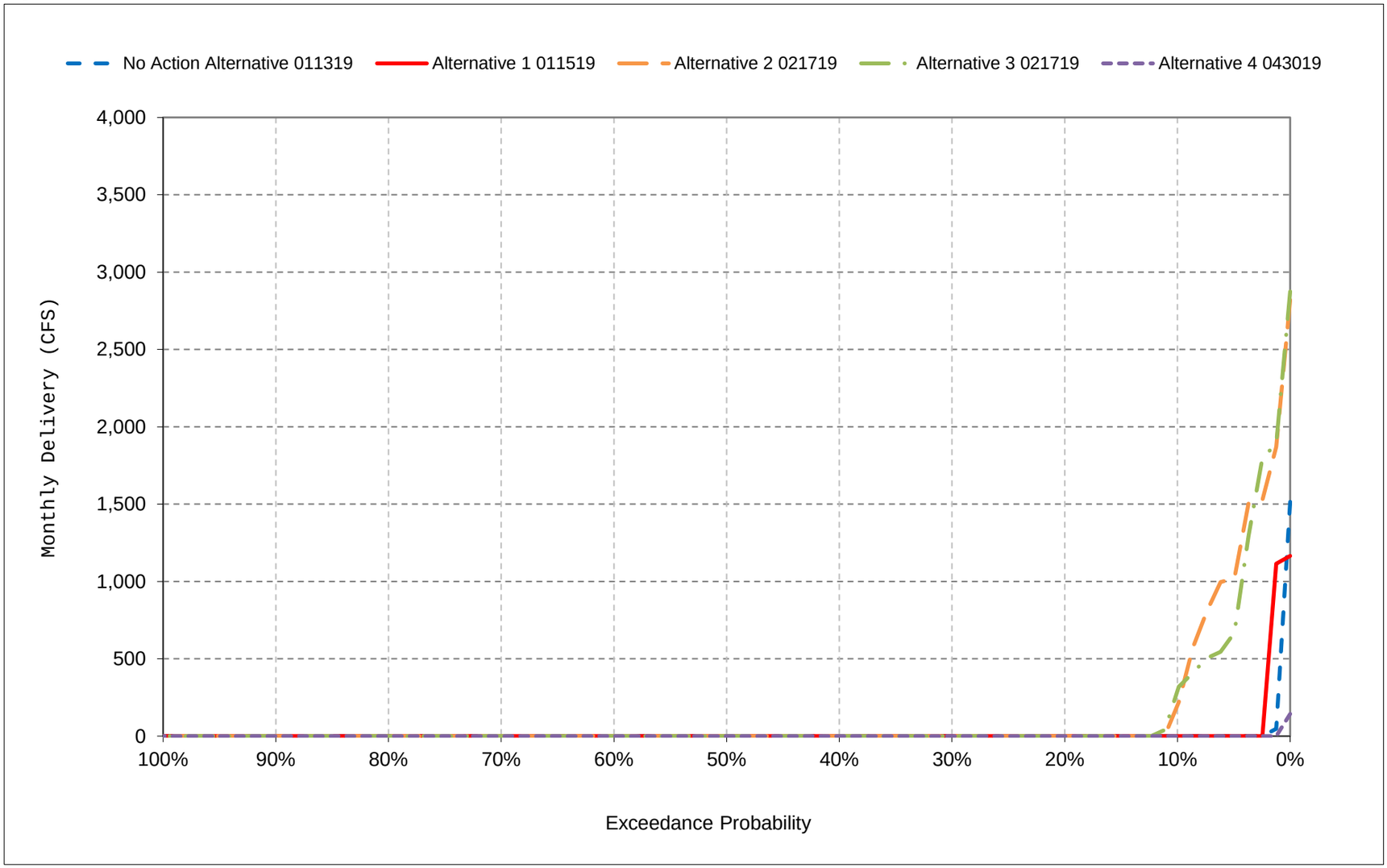
Figure 55-11. CVP Banks PP Exports, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

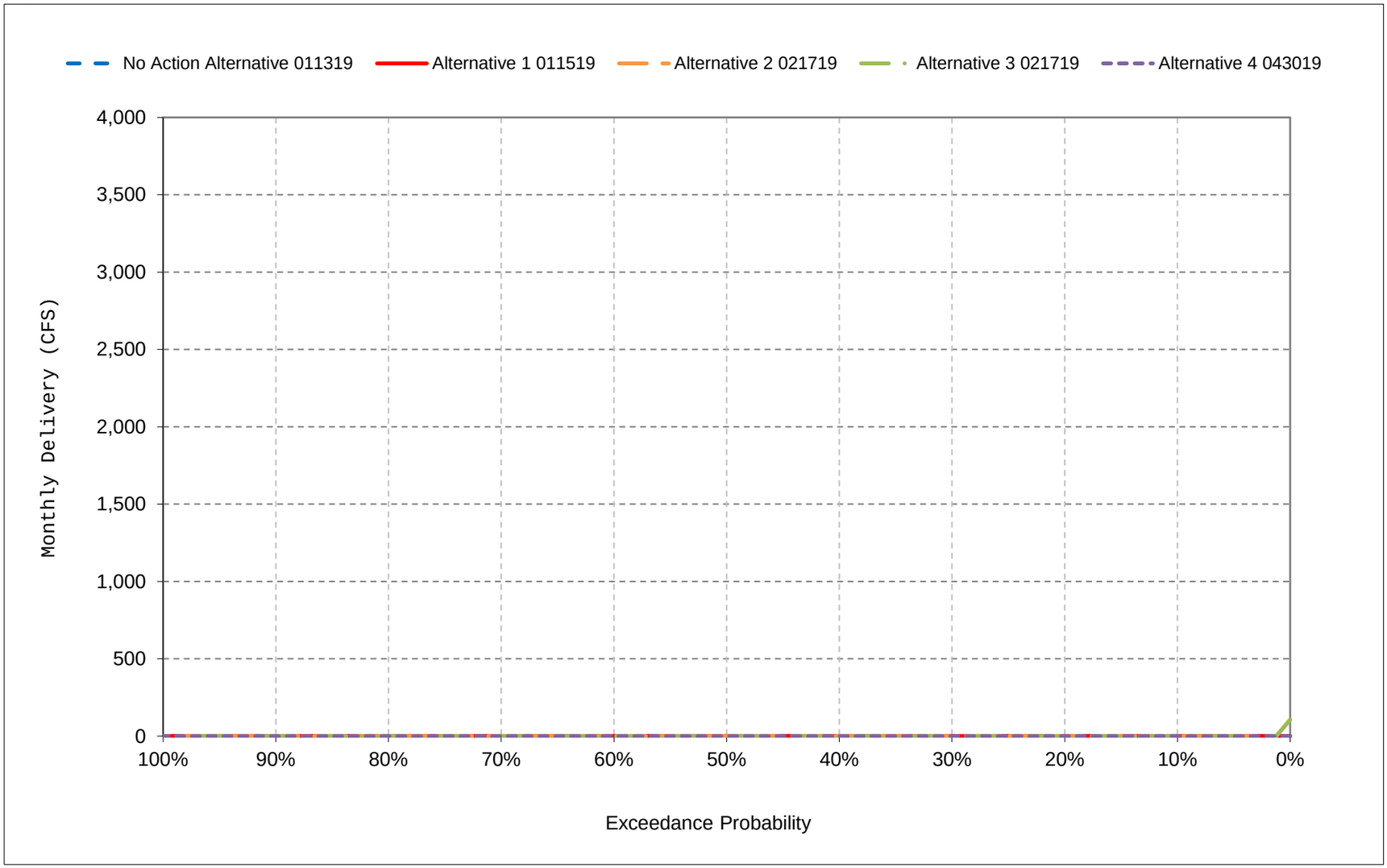
Figure 55-12. CVP Banks PP Exports, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

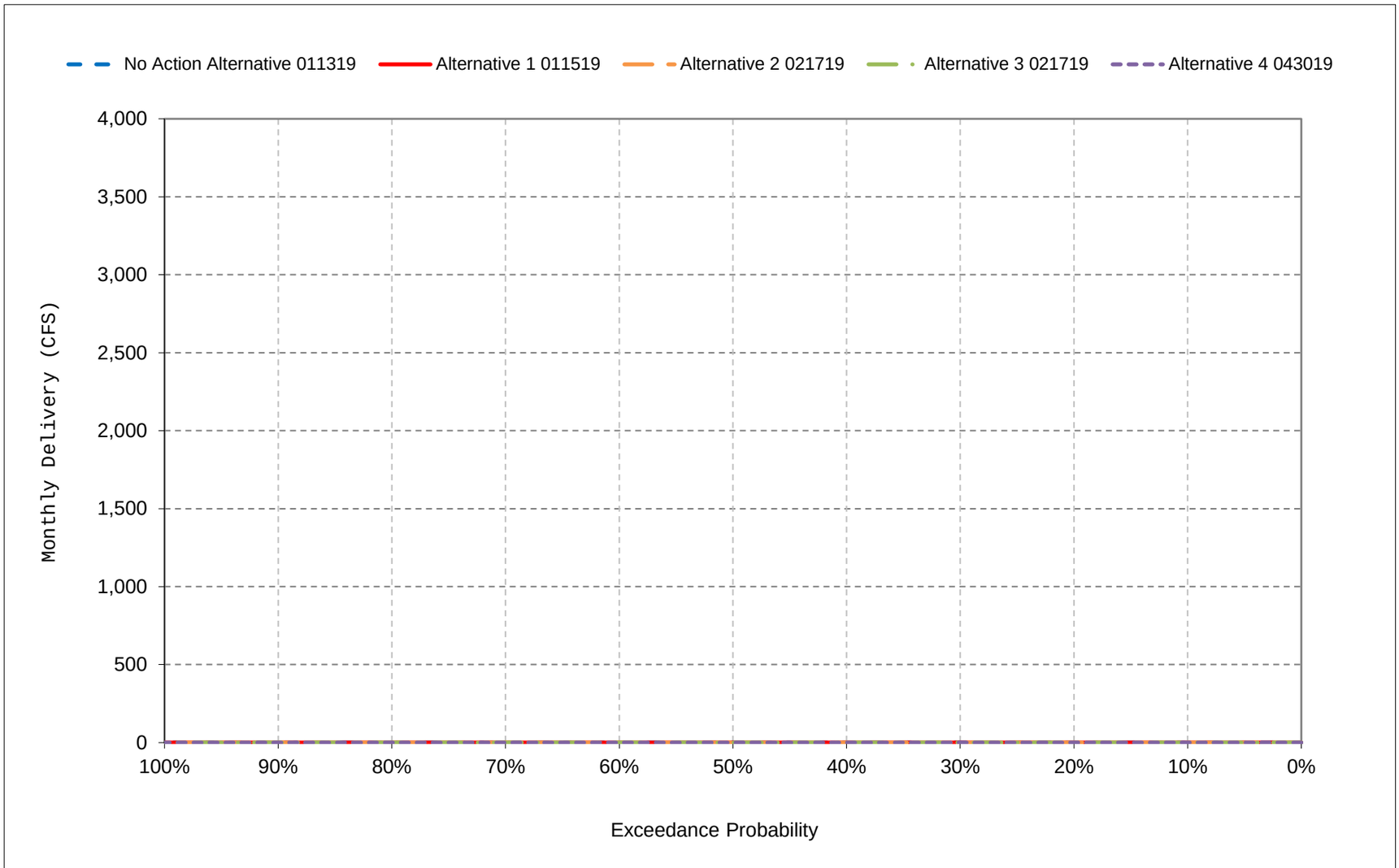
Figure 55-13. CVP Banks PP Exports, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

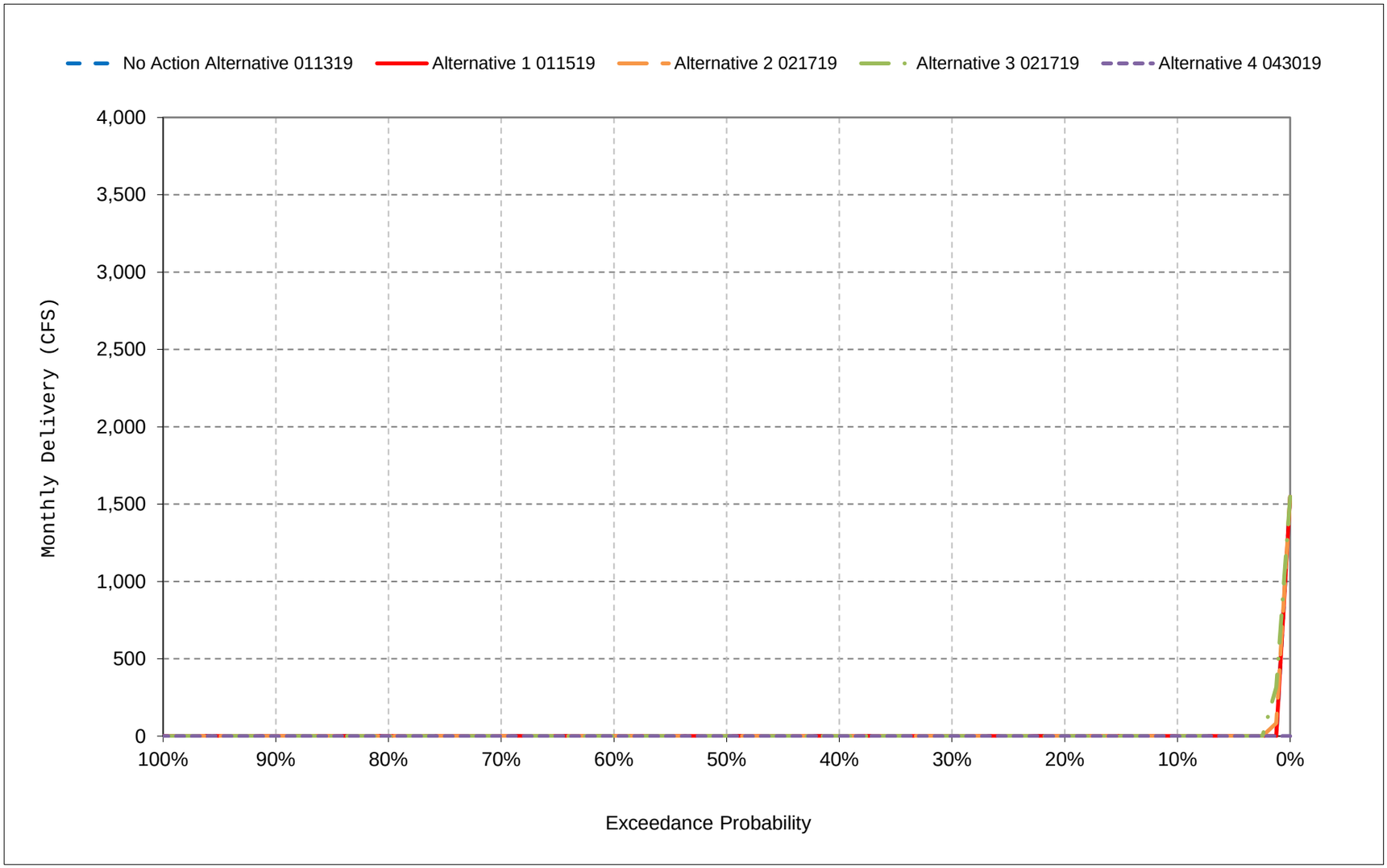
Figure 55-14. CVP Banks PP Exports, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

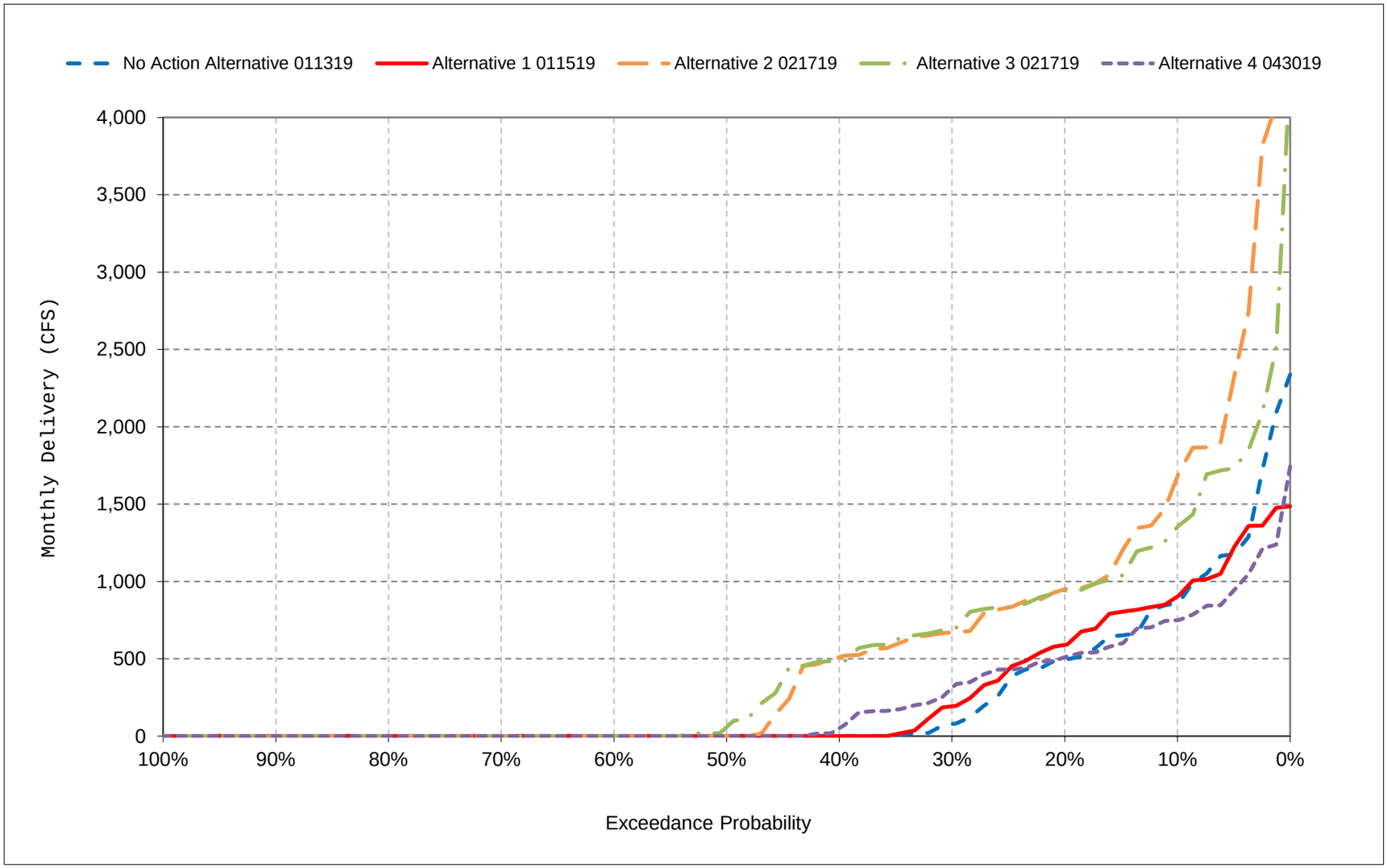
Figure 55-15. CVP Banks PP Exports, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

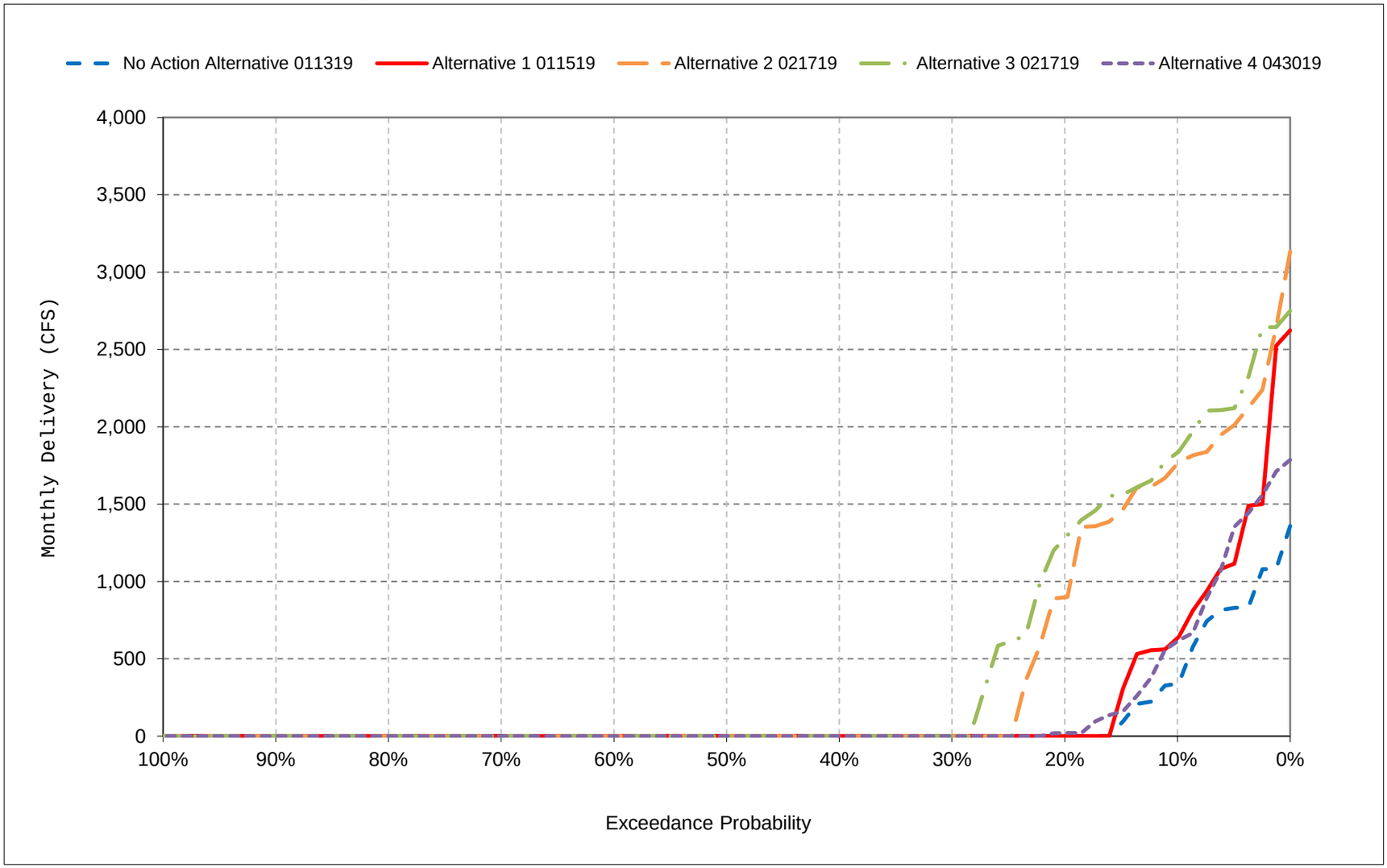
Figure 55-16. CVP Banks PP Exports, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

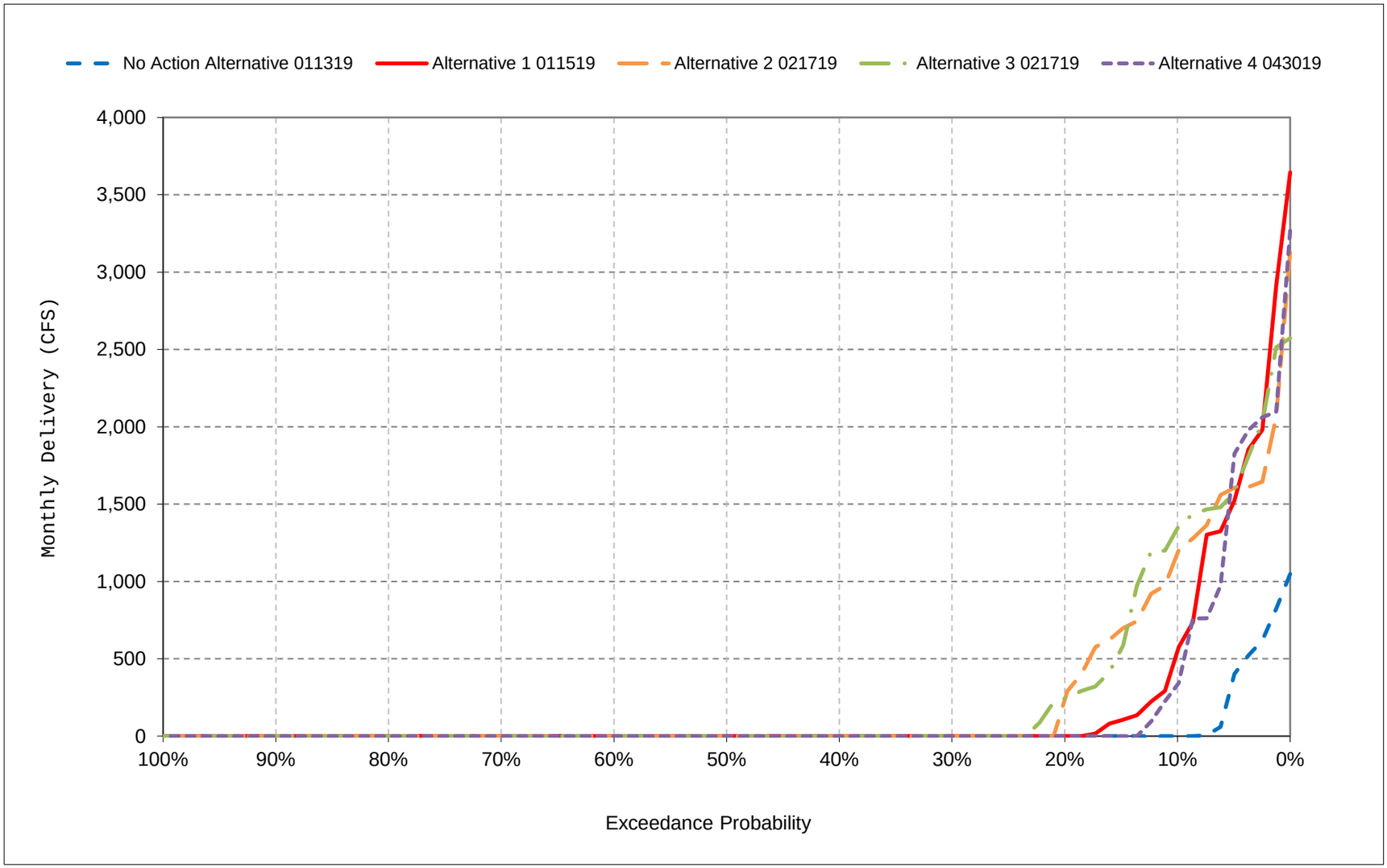
Figure 55-17. CVP Banks PP Exports, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 55-18. CVP Banks PP Exports, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 56-1. SWP Banks PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,251	6,680	7,119	5,838	8,359	7,950	1,788	1,574	4,948	6,680	6,680	6,680
20%	3,339	5,505	7,058	3,400	5,746	6,286	1,282	979	2,584	6,680	6,680	6,680
30%	3,094	4,470	6,264	2,952	3,845	5,473	1,070	846	2,040	6,680	6,680	6,680
40%	2,981	3,491	4,875	2,736	3,116	3,638	975	658	1,867	6,663	6,680	6,680
50%	2,692	2,809	4,108	2,658	2,858	2,921	893	600	1,540	6,230	6,649	5,542
60%	2,568	2,220	3,622	2,630	2,605	2,652	853	600	1,212	5,426	2,650	3,251
70%	2,262	1,808	3,279	2,492	2,206	2,137	767	600	1,132	4,218	324	2,639
80%	1,916	1,247	3,029	2,251	1,824	1,709	715	600	300	1,114	300	2,415
90%	1,166	741	2,572	1,899	1,214	1,273	600	525	164	300	300	1,743
Long Term												
Full Simulation Period[a]	2,777	3,265	4,687	3,283	3,645	3,825	1,142	953	1,902	4,693	4,041	4,596
Water Year Types[b,c]												
Wet (32%)	3,089	2,484	5,912	4,468	5,498	6,234	1,555	1,576	3,437	6,243	6,678	6,552
Above Normal (16%)	3,448	3,376	5,166	2,983	3,876	4,105	877	673	1,777	6,142	6,679	6,652
Below Normal (13%)	3,440	4,138	4,269	2,561	2,905	2,933	1,002	632	1,259	6,064	4,840	4,329
Dry (24%)	2,381	4,350	3,809	2,652	2,501	2,465	1,155	804	1,388	3,561	703	2,798
Critical (15%)	1,429	2,229	3,357	2,751	1,968	1,388	641	451	159	396	300	1,373

Alternative 1 011519

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	6,584	6,680	7,100	6,278	6,961	7,421	4,391	4,555	4,483	6,680	6,680	6,680
20%	5,423	6,680	7,047	4,158	6,164	5,777	4,030	3,475	3,147	6,680	6,680	6,680
30%	4,757	5,784	5,191	3,138	4,364	5,232	3,884	2,739	2,587	6,680	6,680	6,680
40%	4,266	5,336	4,278	2,922	3,402	4,259	3,392	2,291	2,176	6,680	6,680	6,680
50%	3,128	4,740	3,663	2,834	2,970	3,113	2,916	2,099	1,885	6,668	6,660	4,984
60%	2,788	4,122	3,348	2,754	2,772	2,746	2,249	1,665	1,730	6,053	3,359	3,212
70%	2,387	3,551	2,979	2,673	2,625	2,650	1,931	1,354	1,673	3,934	381	2,613
80%	2,043	2,794	2,824	2,536	2,484	2,523	1,503	1,166	1,587	307	300	2,446
90%	1,198	1,927	2,684	2,401	2,361	1,738	993	923	300	300	300	1,627
Long Term												
Full Simulation Period[a]	3,633	4,518	4,396	3,560	4,012	3,982	2,826	2,303	2,318	4,724	4,107	4,506
Water Year Types[b,c]												
Wet (32%)	5,146	5,404	5,618	4,764	5,693	5,777	4,167	3,704	3,472	6,383	6,443	6,323
Above Normal (16%)	4,283	5,118	4,513	3,570	3,917	3,913	2,967	2,263	2,009	6,514	6,679	6,652
Below Normal (13%)	3,471	4,546	3,834	2,988	3,499	3,393	2,563	1,825	1,941	6,570	5,657	4,107
Dry (24%)	2,602	4,311	3,668	2,760	2,988	3,212	2,115	1,679	2,218	3,041	828	2,882
Critical (15%)	1,518	2,266	3,353	2,796	2,647	1,991	1,192	786	665	300	300	1,314

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,333	0	**-18**	440	**-1,398**	**-529**	2,603	2,981	**-465**	0	0	0
20%	2,085	1,175	**-11**	758	418	**-509**	2,749	2,496	563	0	0	0
30%	1,662	1,314	**-1,073**	186	519	**-241**	2,815	1,893	547	0	0	0
40%	1,285	1,845	**-597**	186	285	621	2,417	1,633	309	17	0	0
50%	436	1,931	**-446**	176	112	193	2,023	1,499	345	437	11	**-558**
60%	220	1,902	**-274**	125	167	94	1,396	1,065	518	627	709	**-39**
70%	126	1,743	**-300**	181	419	512	1,164	754	541	**-285**	57	**-25**
80%	127	1,547	**-204**	285	660	814	788	566	1,287	**-807**	0	31
90%	32	1,186	112	502	1,147	465	393	398	136	0	0	**-116**
Long Term												
Full Simulation Period[a]	856	1,253	**-290**	277	366	157	1,684	1,349	416	30	66	**-91**
Water Year Types[b,c]												
Wet (32%)	2,057	2,919	**-294**	296	195	**-457**	2,612	2,128	35	140	**-234**	**-229**
Above Normal (16%)	836	1,742	**-653**	586	41	**-192**	2,090	1,589	232	372	**0**	**0**
Below Normal (13%)	31	408	**-435**	427	594	460	1,561	1,193	681	505	818	**-221**
Dry (24%)	221	**-38**	**-141**	109	487	747	960	875	830	**-520**	125	83
Critical (15%)	89	37	**-4**	44	679	603	552	336	507	**-96**	0	**-59**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 56-2. SWP Banks PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,251	6,680	7,119	5,838	8,359	7,950	1,788	1,574	4,948	6,680	6,680	6,680
20%	3,339	5,505	7,058	3,400	5,746	6,286	1,282	979	2,584	6,680	6,680	6,680
30%	3,094	4,470	6,264	2,952	3,845	5,473	1,070	846	2,040	6,680	6,680	6,680
40%	2,981	3,491	4,875	2,736	3,116	3,638	975	658	1,867	6,663	6,680	6,680
50%	2,692	2,809	4,108	2,658	2,858	2,921	893	600	1,540	6,230	6,649	5,542
60%	2,568	2,220	3,622	2,630	2,605	2,652	853	600	1,212	5,426	2,650	3,251
70%	2,262	1,808	3,279	2,492	2,206	2,137	767	600	1,132	4,218	324	2,639
80%	1,916	1,247	3,029	2,251	1,824	1,709	715	600	300	1,114	300	2,415
90%	1,166	741	2,572	1,899	1,214	1,273	600	525	164	300	300	1,743
Long Term												
Full Simulation Period[a]	2,777	3,265	4,687	3,283	3,645	3,825	1,142	953	1,902	4,693	4,041	4,596
Water Year Types[b,c]												
Wet (32%)	3,089	2,484	5,912	4,468	5,498	6,234	1,555	1,576	3,437	6,243	6,678	6,552
Above Normal (16%)	3,448	3,376	5,166	2,983	3,876	4,105	877	673	1,777	6,142	6,679	6,652
Below Normal (13%)	3,440	4,138	4,269	2,561	2,905	2,933	1,002	632	1,259	6,064	4,840	4,329
Dry (24%)	2,381	4,350	3,809	2,652	2,501	2,465	1,155	804	1,388	3,561	703	2,798
Critical (15%)	1,429	2,229	3,357	2,751	1,968	1,388	641	451	159	396	300	1,373

Alternative 2 021719

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	6,680	6,680	7,561	8,614	8,635	7,159	5,166	5,332	6,664	6,680	6,680	6,680
20%	5,866	6,680	7,200	7,908	7,648	6,351	4,732	4,460	5,029	6,680	6,680	6,680
30%	5,144	6,657	7,084	7,473	7,413	6,337	4,567	3,978	4,455	6,680	6,680	6,680
40%	4,262	5,862	7,058	7,363	6,587	6,223	4,104	3,440	3,973	6,674	4,292	6,315
50%	3,613	5,212	6,997	7,235	6,282	5,609	3,779	2,388	3,639	5,339	3,139	4,844
60%	2,639	4,203	6,238	6,391	6,217	4,418	3,206	2,101	3,434	3,740	1,350	2,987
70%	2,285	3,713	4,743	5,190	4,149	3,604	2,825	1,571	2,833	1,767	479	2,631
80%	1,587	3,029	4,385	3,932	3,248	2,615	2,157	1,085	1,336	390	300	2,407
90%	909	2,082	3,476	2,880	2,751	1,680	1,310	300	300	300	300	1,776
Long Term												
Full Simulation Period[a]	3,640	4,810	5,978	6,239	5,836	4,853	3,454	2,741	3,510	4,181	3,381	4,425
Water Year Types[b,c]												
Wet (32%)	5,807	5,797	6,711	7,381	6,827	6,000	4,583	4,270	4,612	6,089	5,659	6,280
Above Normal (16%)	4,113	5,237	6,221	7,559	6,396	5,876	4,170	3,157	3,691	6,326	5,867	6,292
Below Normal (13%)	3,481	4,779	5,737	6,160	5,426	4,477	3,222	2,288	4,474	5,139	2,956	3,917
Dry (24%)	2,040	4,671	5,750	5,005	5,555	4,450	2,788	1,915	3,142	2,089	883	2,889
Critical (15%)	1,241	2,467	4,727	4,464	3,927	2,273	1,551	770	656	335	307	1,410

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,429	0	443	2,776	275	**-791**	3,377	3,759	1,716	0	0	0
20%	2,527	1,175	143	4,508	1,902	65	3,450	3,481	2,446	0	0	0
30%	2,049	2,187	820	4,521	3,568	863	3,497	3,132	2,415	0	0	0
40%	1,281	2,371	2,182	4,627	3,471	2,585	3,129	2,782	2,106	10	**-2,388**	**-365**
50%	921	2,403	2,889	4,577	3,424	2,688	2,886	1,788	2,099	**-891**	**-3,511**	**-698**
60%	71	1,983	2,615	3,761	3,612	1,765	2,353	1,501	2,222	**-1,686**	**-1,301**	**-264**
70%	23	1,904	1,464	2,698	1,944	1,466	2,058	971	1,702	**-2,451**	154	**-8**
80%	**-329**	1,782	1,356	1,681	1,424	906	1,443	485	1,036	**-724**	0	**-8**
90%	**-257**	1,340	903	981	1,537	407	710	**-225**	136	0	0	33
Long Term												
Full Simulation Period[a]	862	1,545	1,291	2,956	2,191	1,028	2,312	1,788	1,608	**-512**	**-659**	**-171**
Water Year Types[b,c]												
Wet (32%)	2,718	3,312	800	2,913	1,329	**-233**	3,028	2,694	1,175	**-155**	**-1,019**	**-272**
Above Normal (16%)	665	1,861	1,055	4,575	2,520	1,771	3,293	2,483	1,914	184	**-811**	**-360**
Below Normal (13%)	42	641	1,468	3,599	2,521	1,543	2,220	1,656	3,215	**-925**	**-1,884**	**-412**
Dry (24%)	**-341**	321	1,941	2,354	3,054	1,985	1,634	1,111	1,754	**-1,472**	180	91
Critical (15%)	**-187**	238	1,369	1,713	1,960	885	911	319	498	**-61**	7	37

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 56-3. SWP Banks PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,251	6,680	7,119	5,838	8,359	7,950	1,788	1,574	4,948	6,680	6,680	6,680
20%	3,339	5,505	7,058	3,400	5,746	6,286	1,282	979	2,584	6,680	6,680	6,680
30%	3,094	4,470	6,264	2,952	3,845	5,473	1,070	846	2,040	6,680	6,680	6,680
40%	2,981	3,491	4,875	2,736	3,116	3,638	975	658	1,867	6,663	6,680	6,680
50%	2,692	2,809	4,108	2,658	2,858	2,921	893	600	1,540	6,230	6,649	5,542
60%	2,568	2,220	3,622	2,630	2,605	2,652	853	600	1,212	5,426	2,650	3,251
70%	2,262	1,808	3,279	2,492	2,206	2,137	767	600	1,132	4,218	324	2,639
80%	1,916	1,247	3,029	2,251	1,824	1,709	715	600	300	1,114	300	2,415
90%	1,166	741	2,572	1,899	1,214	1,273	600	525	164	300	300	1,743
Long Term												
Full Simulation Period[a]	2,777	3,265	4,687	3,283	3,645	3,825	1,142	953	1,902	4,693	4,041	4,596
Water Year Types[b,c]												
Wet (32%)	3,089	2,484	5,912	4,468	5,498	6,234	1,555	1,576	3,437	6,243	6,678	6,552
Above Normal (16%)	3,448	3,376	5,166	2,983	3,876	4,105	877	673	1,777	6,142	6,679	6,652
Below Normal (13%)	3,440	4,138	4,269	2,561	2,905	2,933	1,002	632	1,259	6,064	4,840	4,329
Dry (24%)	2,381	4,350	3,809	2,652	2,501	2,465	1,155	804	1,388	3,561	703	2,798
Critical (15%)	1,429	2,229	3,357	2,751	1,968	1,388	641	451	159	396	300	1,373

Alternative 3 021719

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	6,680	6,680	7,561	8,693	9,043	7,174	5,166	5,332	6,615	6,680	6,680	6,680
20%	5,836	6,680	7,208	7,950	7,640	6,364	4,740	4,506	5,249	6,680	6,680	6,680
30%	5,124	6,662	7,109	7,503	7,367	6,341	4,511	3,977	4,249	6,680	6,680	6,680
40%	4,320	5,984	7,077	7,394	6,345	6,253	4,023	3,440	3,814	6,662	4,218	5,619
50%	3,597	5,180	7,055	7,235	6,249	5,658	3,770	2,443	3,376	5,454	2,635	4,574
60%	2,636	4,295	6,749	6,173	6,164	4,358	3,161	2,191	3,196	3,734	1,067	3,038
70%	2,053	3,690	5,428	4,938	4,201	3,649	2,857	1,638	2,550	1,821	449	2,638
80%	1,082	2,970	4,441	3,589	3,179	2,629	2,253	1,203	1,823	340	300	2,440
90%	720	2,059	3,503	2,746	2,252	1,680	1,174	653	300	300	300	1,786
Long Term												
Full Simulation Period[a]	3,542	4,790	6,088	6,166	5,794	4,849	3,417	2,807	3,435	4,162	3,213	4,342
Water Year Types[b,c]												
Wet (32%)	5,813	5,898	6,872	7,134	6,978	5,931	4,403	4,373	4,716	6,153	5,074	6,230
Above Normal (16%)	4,368	5,122	6,395	7,725	5,961	5,907	4,158	3,189	3,358	6,259	5,906	6,076
Below Normal (13%)	3,375	4,723	5,739	6,133	5,180	4,481	3,227	2,312	4,343	5,361	3,076	3,679
Dry (24%)	1,667	4,649	5,740	5,038	5,548	4,494	2,854	2,004	3,091	1,858	867	2,865
Critical (15%)	1,004	2,324	4,955	4,289	4,024	2,289	1,587	794	482	314	300	1,441

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,429	0	442	2,855	684	**-777**	3,377	3,759	1,666	0	0	0
20%	2,497	1,175	150	4,550	1,894	78	3,458	3,527	2,665	0	0	0
30%	2,030	2,191	845	4,551	3,522	868	3,441	3,131	2,209	0	0	0
40%	1,339	2,493	2,201	4,658	3,229	2,615	3,048	2,783	1,947	**-2**	**-2,462**	**-1,061**
50%	905	2,371	2,946	4,577	3,391	2,737	2,877	1,843	1,836	**-776**	**-4,014**	**-968**
60%	68	2,076	3,127	3,544	3,559	1,705	2,308	1,591	1,984	**-1,691**	**-1,583**	**-213**
70%	**-208**	1,882	2,149	2,445	1,995	1,512	2,091	1,038	1,418	**-2,397**	125	**-1**
80%	**-834**	1,722	1,412	1,338	1,354	920	1,538	603	1,523	**-775**	0	25
90%	**-446**	1,318	931	848	1,038	407	574	128	136	0	0	43
Long Term												
Full Simulation Period[a]	765	1,525	1,401	2,883	2,149	1,024	2,275	1,854	1,533	**-532**	**-827**	**-255**
Water Year Types[b,c]												
Wet (32%)	2,724	3,413	960	2,666	1,480	**-303**	2,848	2,797	1,279	**-90**	**-1,604**	**-322**
Above Normal (16%)	920	1,746	1,229	4,742	2,085	1,802	3,281	2,515	1,581	117	**-772**	**-576**
Below Normal (13%)	**-65**	585	1,470	3,572	2,275	1,548	2,225	1,680	3,084	**-703**	**-1,764**	**-650**
Dry (24%)	**-714**	300	1,931	2,386	3,047	2,029	1,700	1,200	1,703	**-1,703**	164	66
Critical (15%)	**-424**	95	1,597	1,537	2,057	901	947	343	323	**-82**	0	68

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 56-4. SWP Banks PP Exports, Monthly Delivery

No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,251	6,680	7,119	5,838	8,359	7,950	1,788	1,574	4,948	6,680	6,680	6,680
20%	3,339	5,505	7,058	3,400	5,746	6,286	1,282	979	2,584	6,680	6,680	6,680
30%	3,094	4,470	6,264	2,952	3,845	5,473	1,070	846	2,040	6,680	6,680	6,680
40%	2,981	3,491	4,875	2,736	3,116	3,638	975	658	1,867	6,663	6,680	6,680
50%	2,692	2,809	4,108	2,658	2,858	2,921	893	600	1,540	6,230	6,649	5,542
60%	2,568	2,220	3,622	2,630	2,605	2,652	853	600	1,212	5,426	2,650	3,251
70%	2,262	1,808	3,279	2,492	2,206	2,137	767	600	1,132	4,218	324	2,639
80%	1,916	1,247	3,029	2,251	1,824	1,709	715	600	300	1,114	300	2,415
90%	1,166	741	2,572	1,899	1,214	1,273	600	525	164	300	300	1,743
Long Term												
Full Simulation Period[a]	2,777	3,265	4,687	3,283	3,645	3,825	1,142	953	1,902	4,693	4,041	4,596
Water Year Types[b,c]												
Wet (32%)	3,089	2,484	5,912	4,468	5,498	6,234	1,555	1,576	3,437	6,243	6,678	6,552
Above Normal (16%)	3,448	3,376	5,166	2,983	3,876	4,105	877	673	1,777	6,142	6,679	6,652
Below Normal (13%)	3,440	4,138	4,269	2,561	2,905	2,933	1,002	632	1,259	6,064	4,840	4,329
Dry (24%)	2,381	4,350	3,809	2,652	2,501	2,465	1,155	804	1,388	3,561	703	2,798
Critical (15%)	1,429	2,229	3,357	2,751	1,968	1,388	641	451	159	396	300	1,373

Alternative 4 043019

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	6,400	6,680	7,084	6,107	6,596	3,895	3,157	2,917	3,963	6,680	6,680	6,680
20%	5,191	5,883	6,028	4,222	6,196	2,384	2,080	1,453	2,887	6,680	6,680	6,680
30%	4,441	5,278	4,721	3,280	4,768	1,765	1,638	939	2,142	6,490	6,680	6,680
40%	3,964	4,773	4,032	2,902	4,018	1,046	1,480	747	1,926	5,912	6,660	5,678
50%	3,209	4,233	3,641	2,823	3,175	776	1,196	640	1,812	5,325	3,685	3,380
60%	2,780	3,760	3,145	2,755	2,890	675	866	518	1,713	4,710	1,089	2,934
70%	2,374	3,246	2,923	2,654	2,687	600	638	463	1,636	3,225	300	2,640
80%	1,822	2,528	2,760	2,527	2,544	600	600	375	1,568	300	300	2,375
90%	1,072	1,915	2,454	2,408	2,402	600	587	300	300	300	300	1,642
Long Term												
Full Simulation Period[a]	3,479	4,227	4,176	3,542	4,136	1,683	1,461	1,091	2,160	4,286	3,539	4,183
Water Year Types[b,c]												
Wet (32%)	4,915	5,169	5,045	4,734	5,536	3,332	2,426	2,065	3,333	6,137	6,260	6,130
Above Normal (16%)	4,072	4,926	4,295	3,339	4,004	1,468	1,556	951	1,854	5,548	6,479	6,364
Below Normal (13%)	3,467	3,737	3,931	2,884	3,482	851	1,002	543	2,090	5,759	2,475	3,145
Dry (24%)	2,553	4,055	3,560	2,962	3,364	828	935	624	1,678	2,641	619	2,542
Critical (15%)	1,282	2,163	3,415	2,746	3,132	530	563	410	820	300	300	1,289

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Delivery (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,149	0	**-35**	269	**-1,763**	**-4,055**	1,368	1,343	**-985**	0	0	0
20%	1,852	378	**-1,030**	822	450	**-3,902**	798	474	303	0	0	0
30%	1,346	808	**-1,543**	328	923	**-3,708**	568	92	102	**-190**	0	0
40%	983	1,282	**-843**	166	902	**-2,592**	505	90	59	**-752**	**-20**	**-1,002**
50%	517	1,423	**-468**	165	317	**-2,144**	303	40	272	**-905**	**-2,964**	**-2,162**
60%	212	1,541	**-477**	125	285	**-1,978**	13	**-82**	501	**-716**	**-1,561**	**-316**
70%	113	1,438	**-356**	162	481	**-1,537**	**-129**	**-137**	504	**-993**	**-24**	1
80%	**-94**	1,280	**-268**	276	720	**-1,109**	**-115**	**-225**	1,268	**-814**	0	**-40**
90%	**-94**	1,174	**-118**	509	1,188	**-673**	**-13**	**-225**	136	0	0	**-101**
Long Term												
Full Simulation Period[a]	702	962	**-511**	259	491	**-2,142**	319	137	258	**-407**	**-502**	**-413**
Water Year Types[b,c]												
Wet (32%)	1,826	2,684	**-867**	266	38	**-2,902**	872	489	**-104**	**-107**	**-418**	**-422**
Above Normal (16%)	624	1,550	**-871**	355	128	**-2,637**	678	278	77	**-594**	**-200**	**-288**
Below Normal (13%)	27	**-401**	**-338**	323	577	**-2,083**	0	**-89**	830	**-305**	**-2,365**	**-1,184**
Dry (24%)	172	**-294**	**-249**	311	863	**-1,637**	**-219**	**-180**	290	**-920**	**-84**	**-256**
Critical (15%)	**-147**	**-66**	57	**-5**	1,164	**-858**	**-78**	**-41**	661	**-96**	0	**-85**

a Based on the 82-year simulation period.

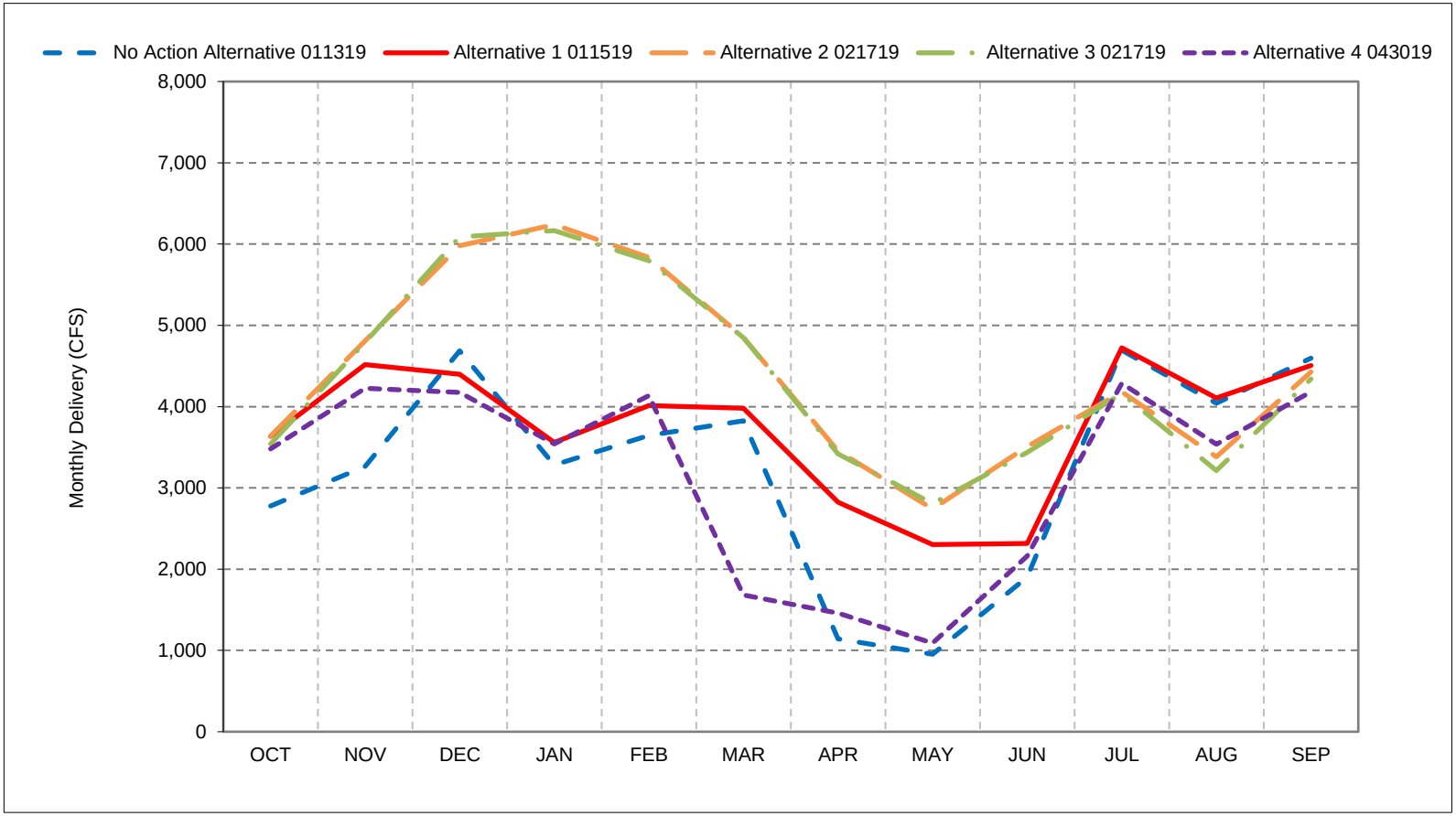
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

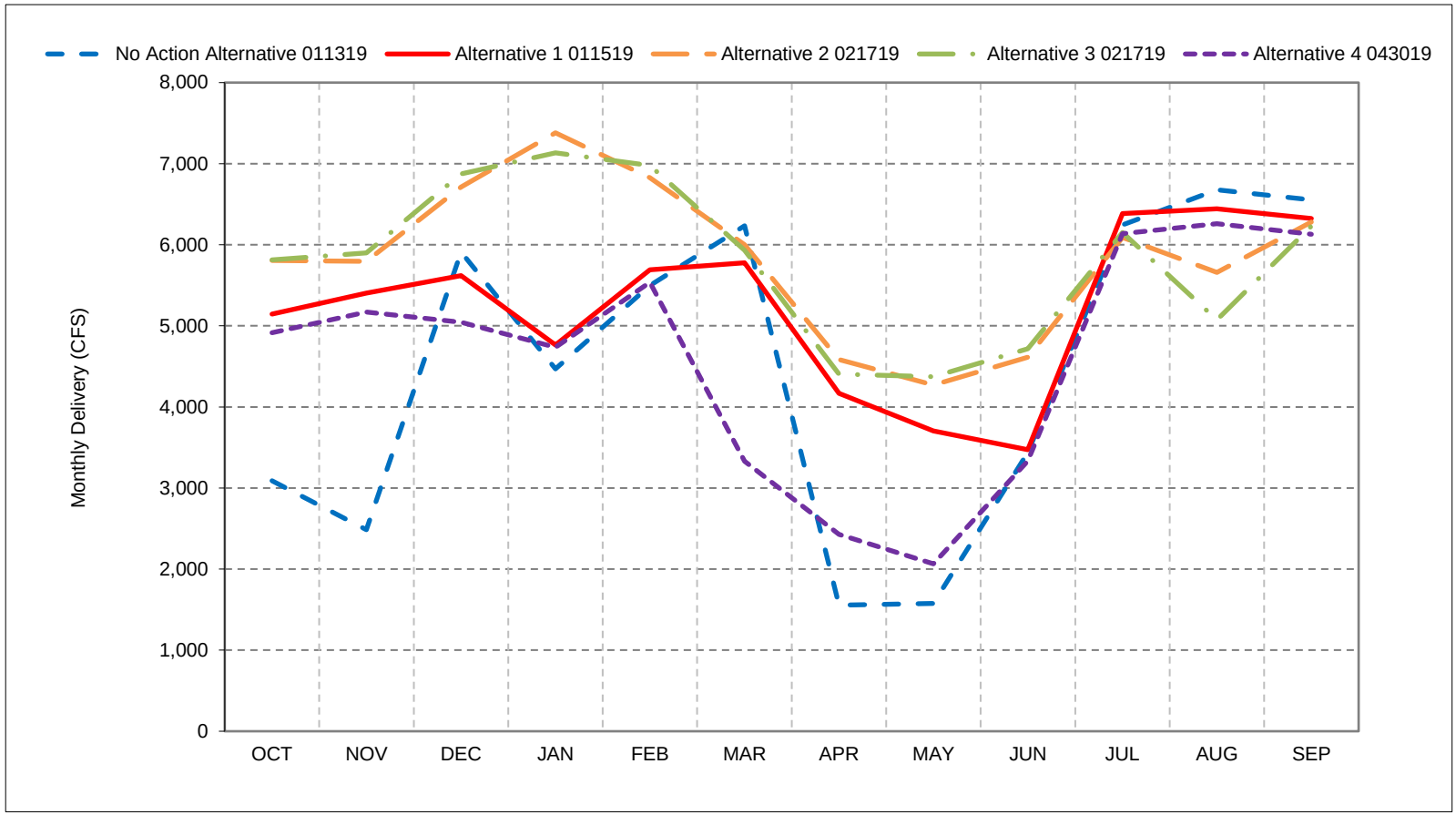
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 56-1. SWP Banks PP Exports, Long-Term Average Delivery



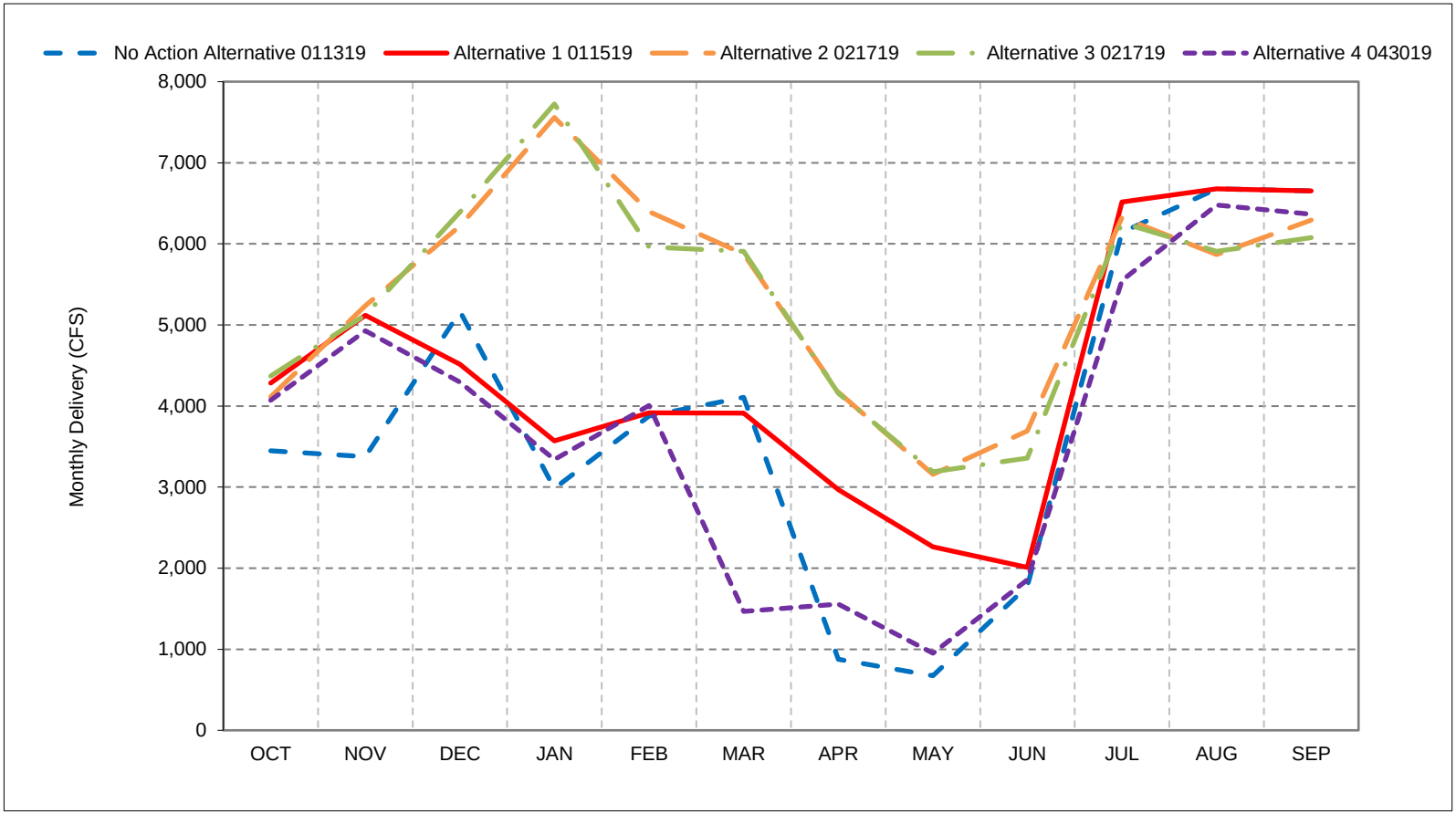
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 56-2. SWP Banks PP Exports, Wet Year Average Delivery



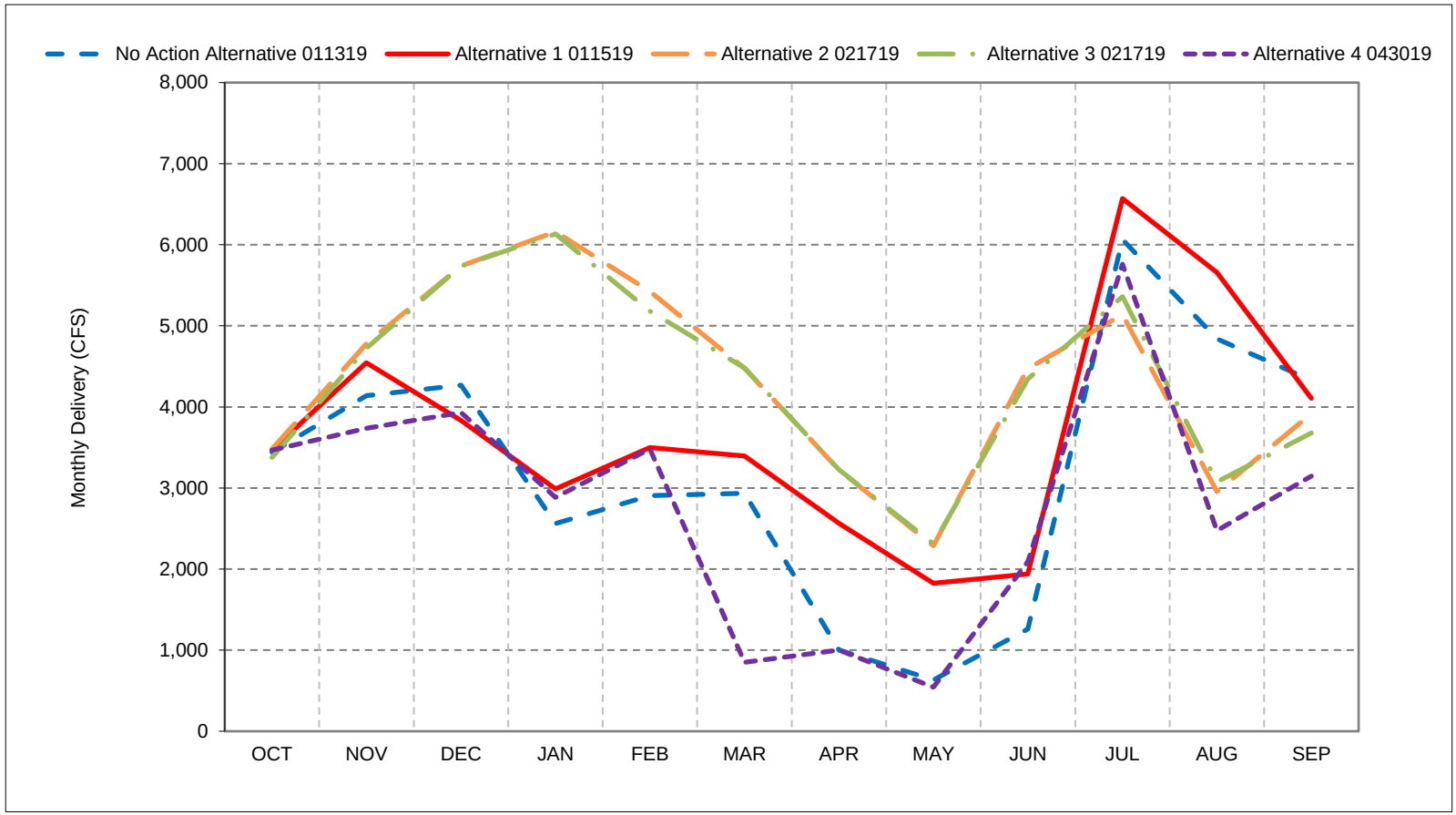
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 56-3. SWP Banks PP Exports, Above Normal Year Average Delivery



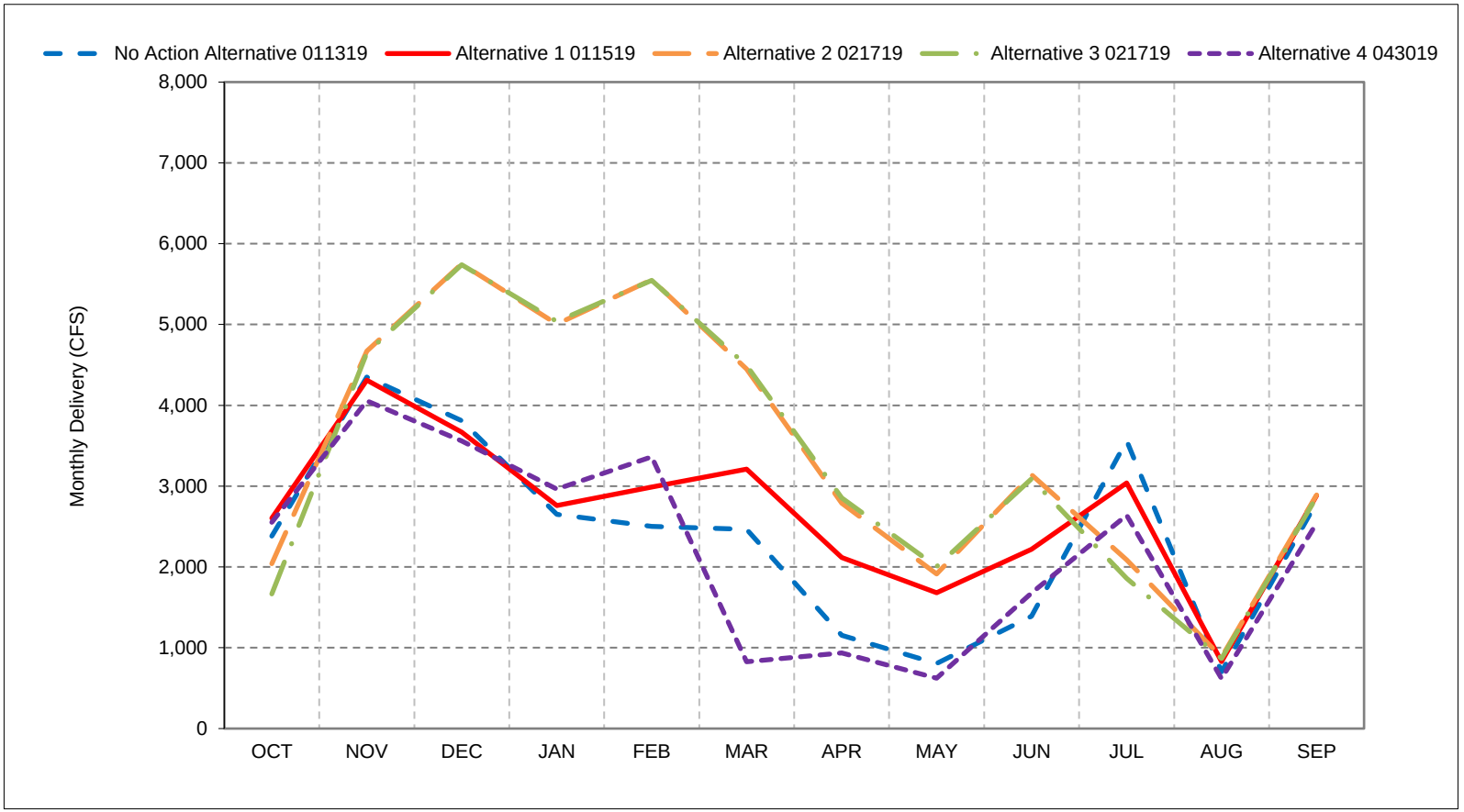
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 56-4. SWP Banks PP Exports, Below Normal Year Average Delivery



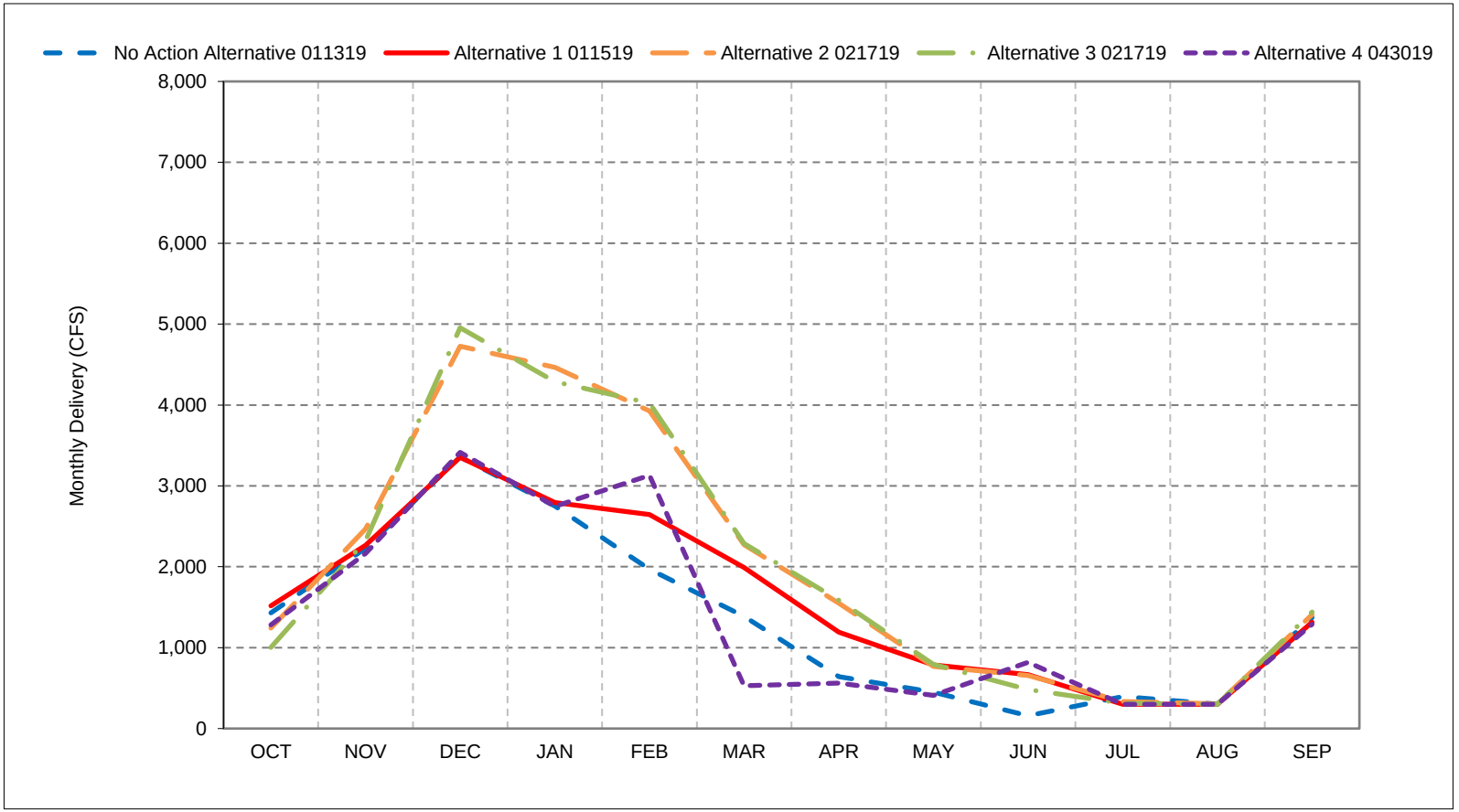
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 56-5. SWP Banks PP Exports, Dry Year Average Delivery



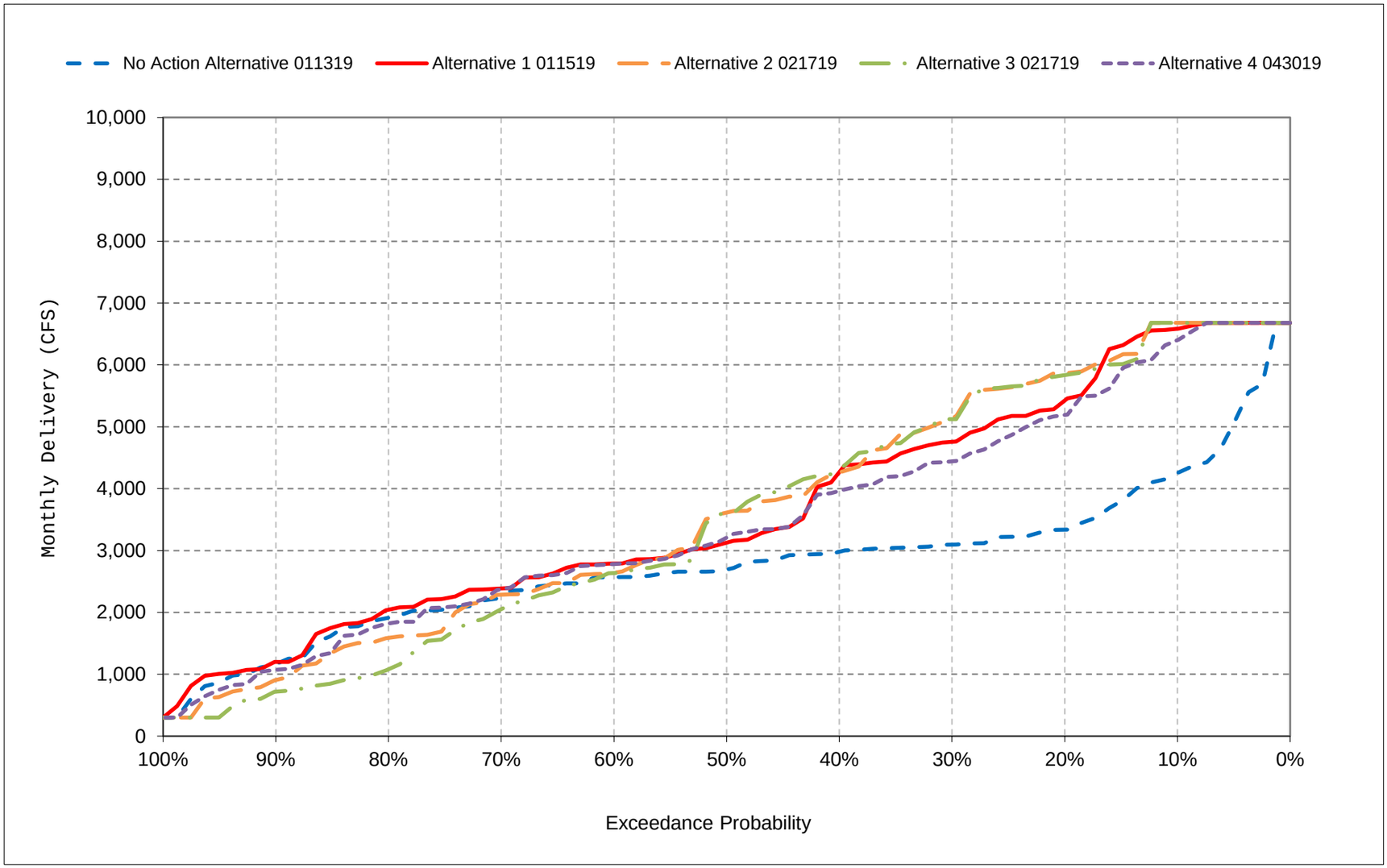
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 56-6. SWP Banks PP Exports, Critical Year Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

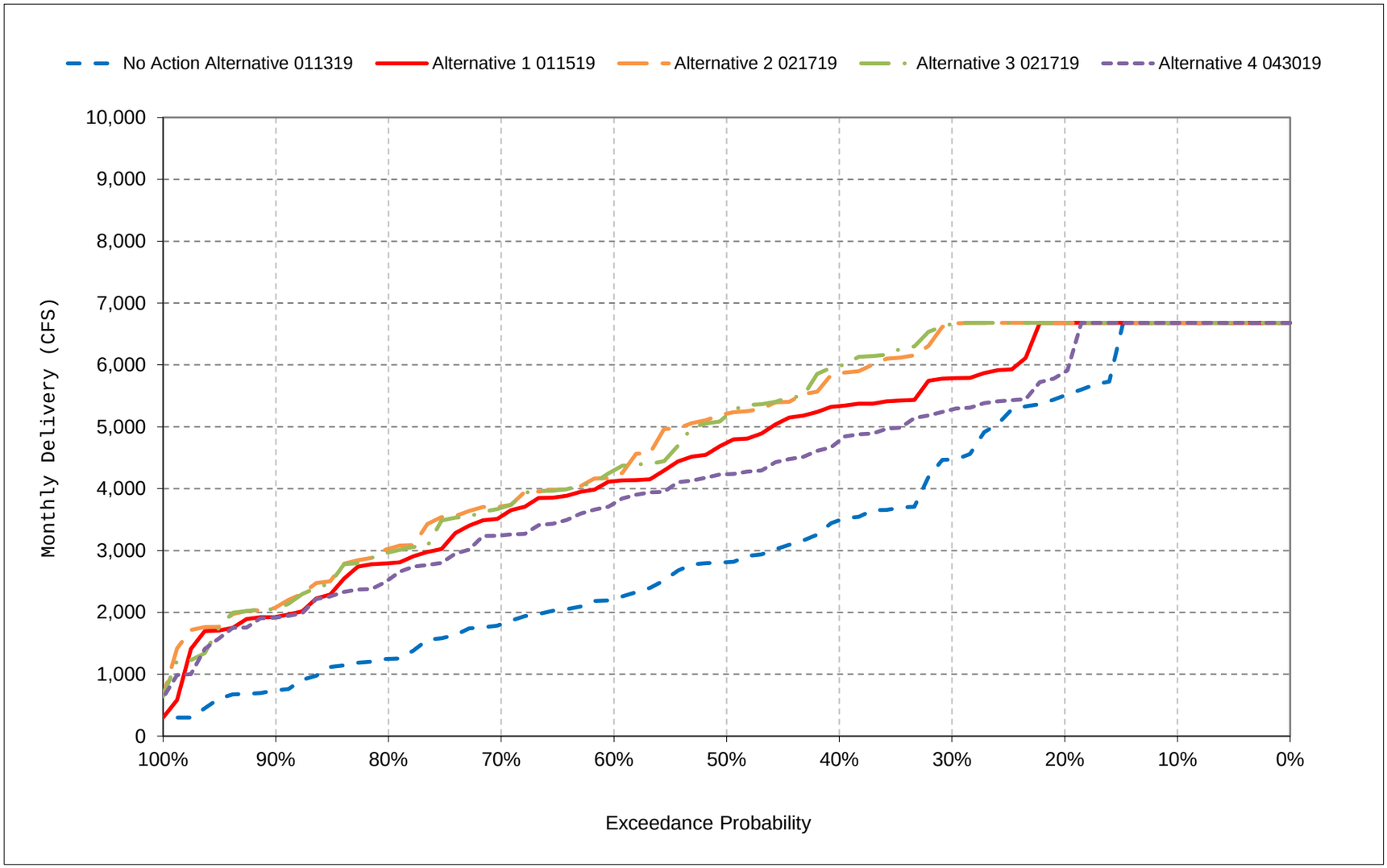
Figure 56-7. SWP Banks PP Exports, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

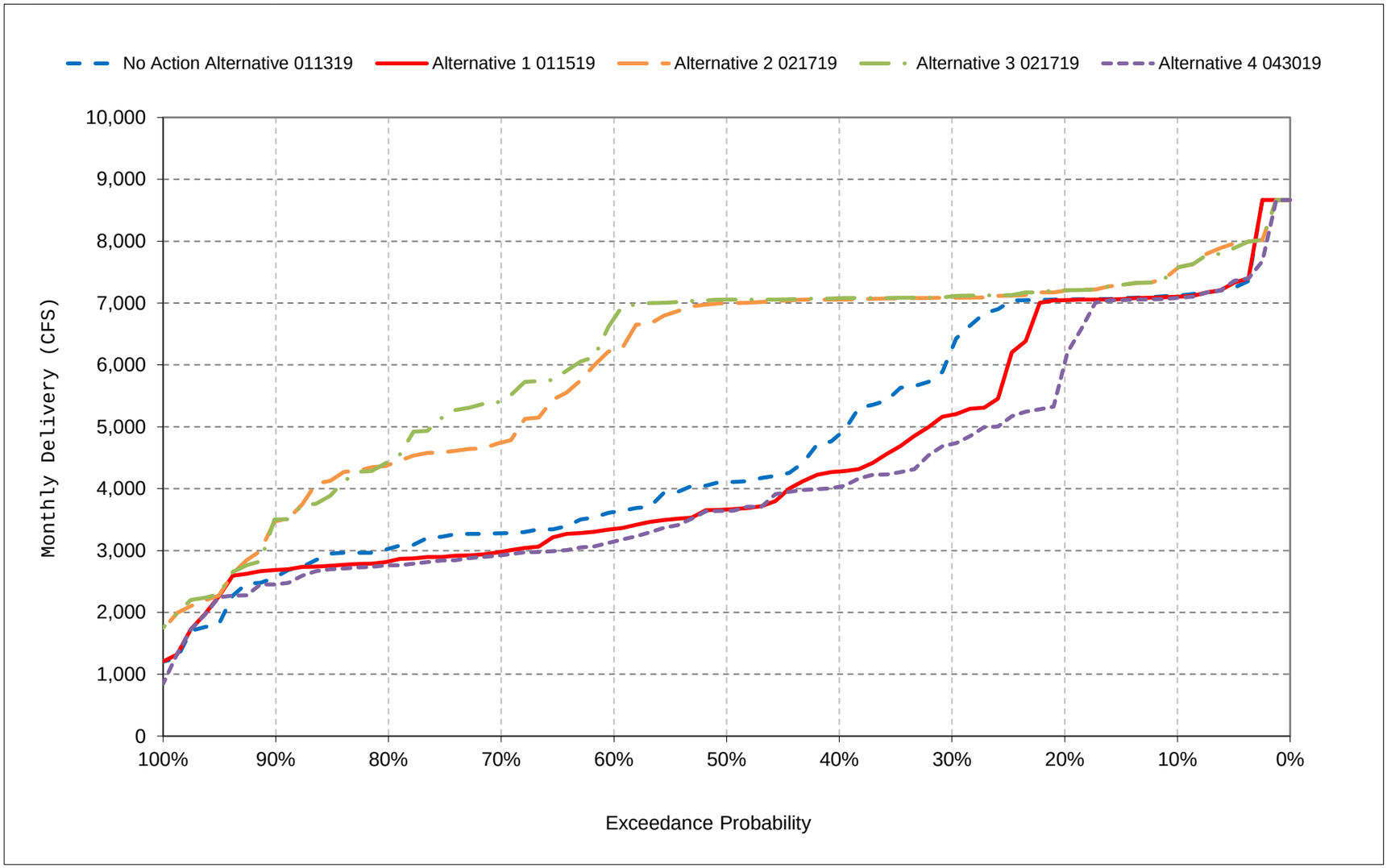
Figure 56-8. SWP Banks PP Exports, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

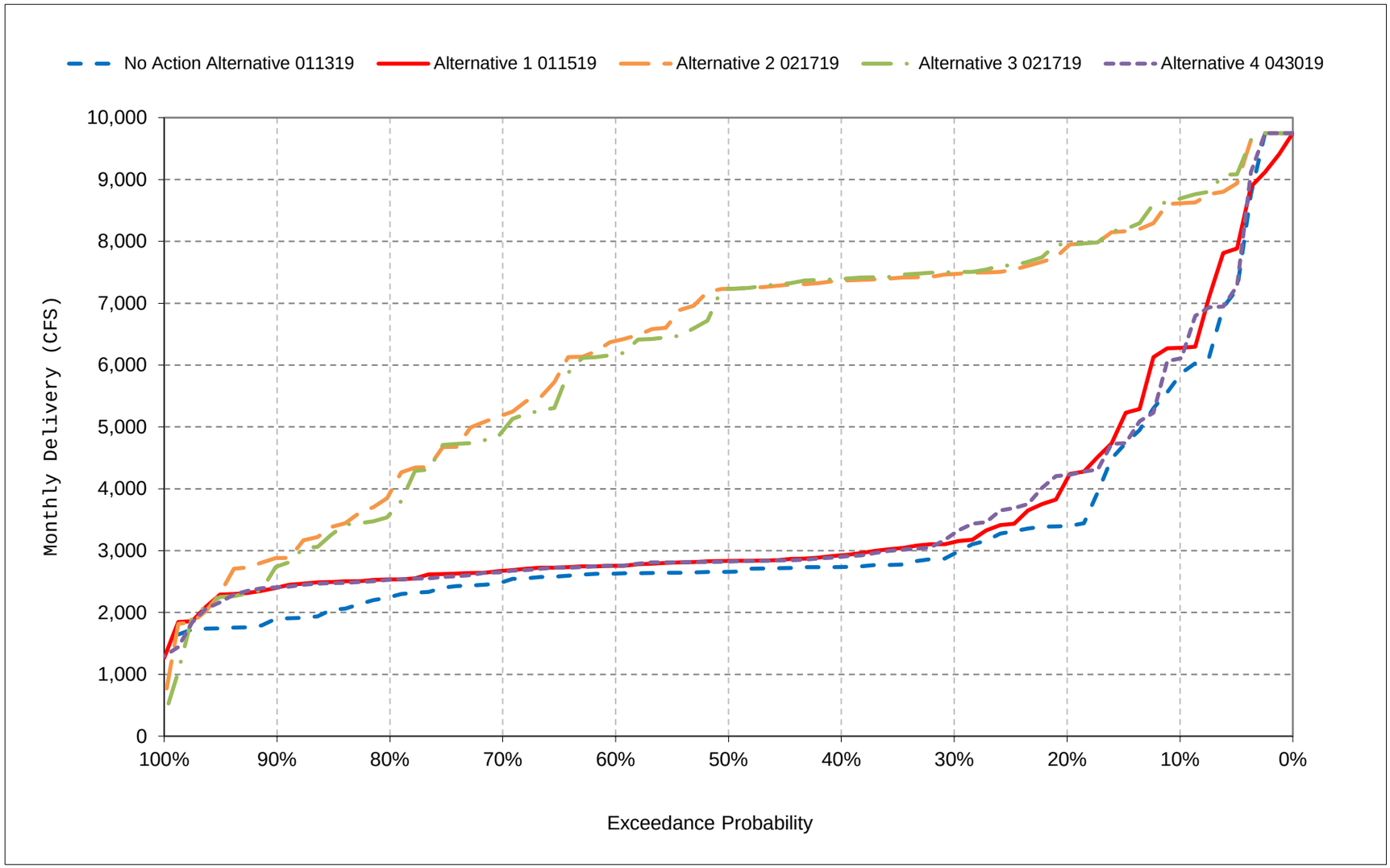
Figure 56-9. SWP Banks PP Exports, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

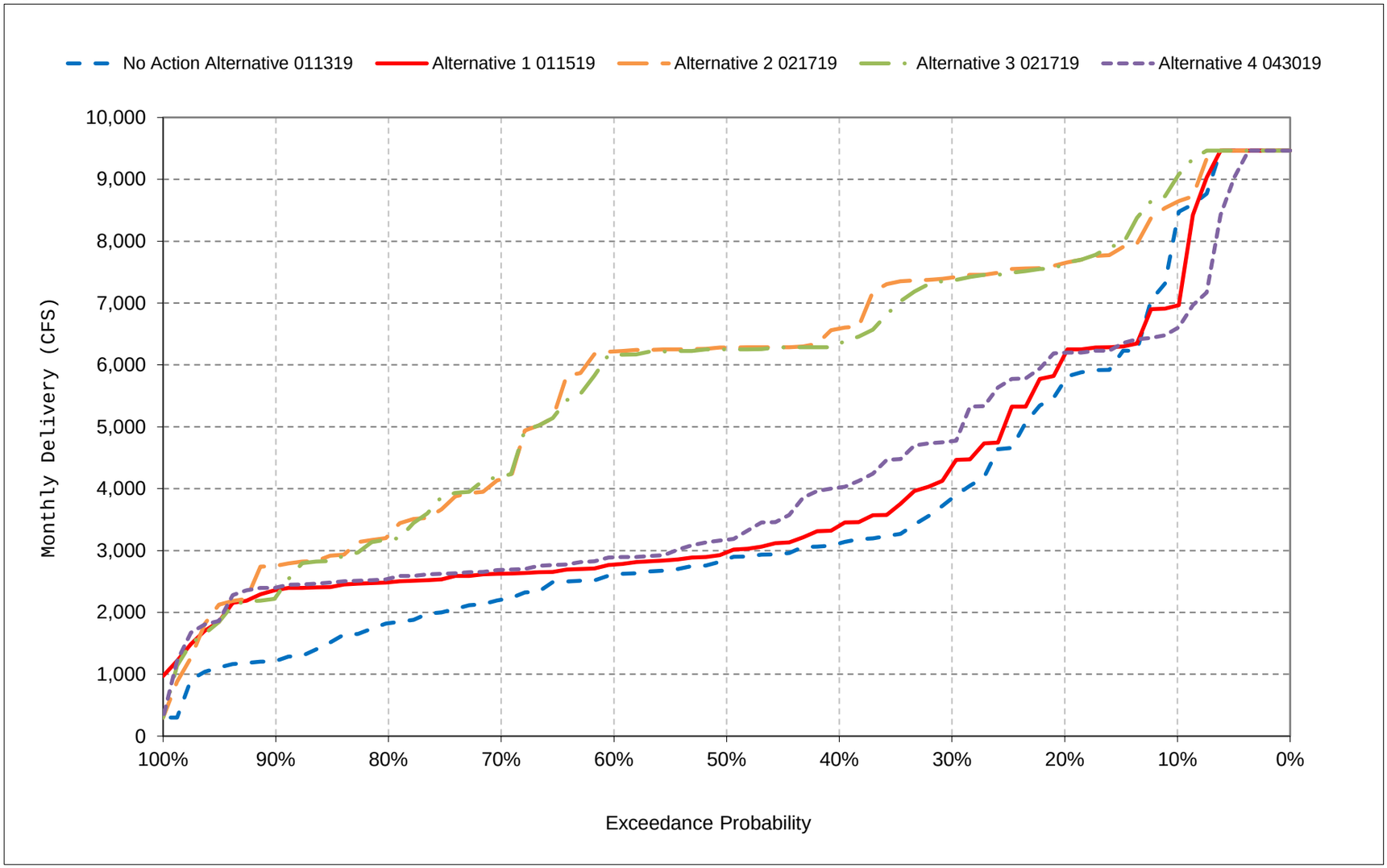
Figure 56-10. SWP Banks PP Exports, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

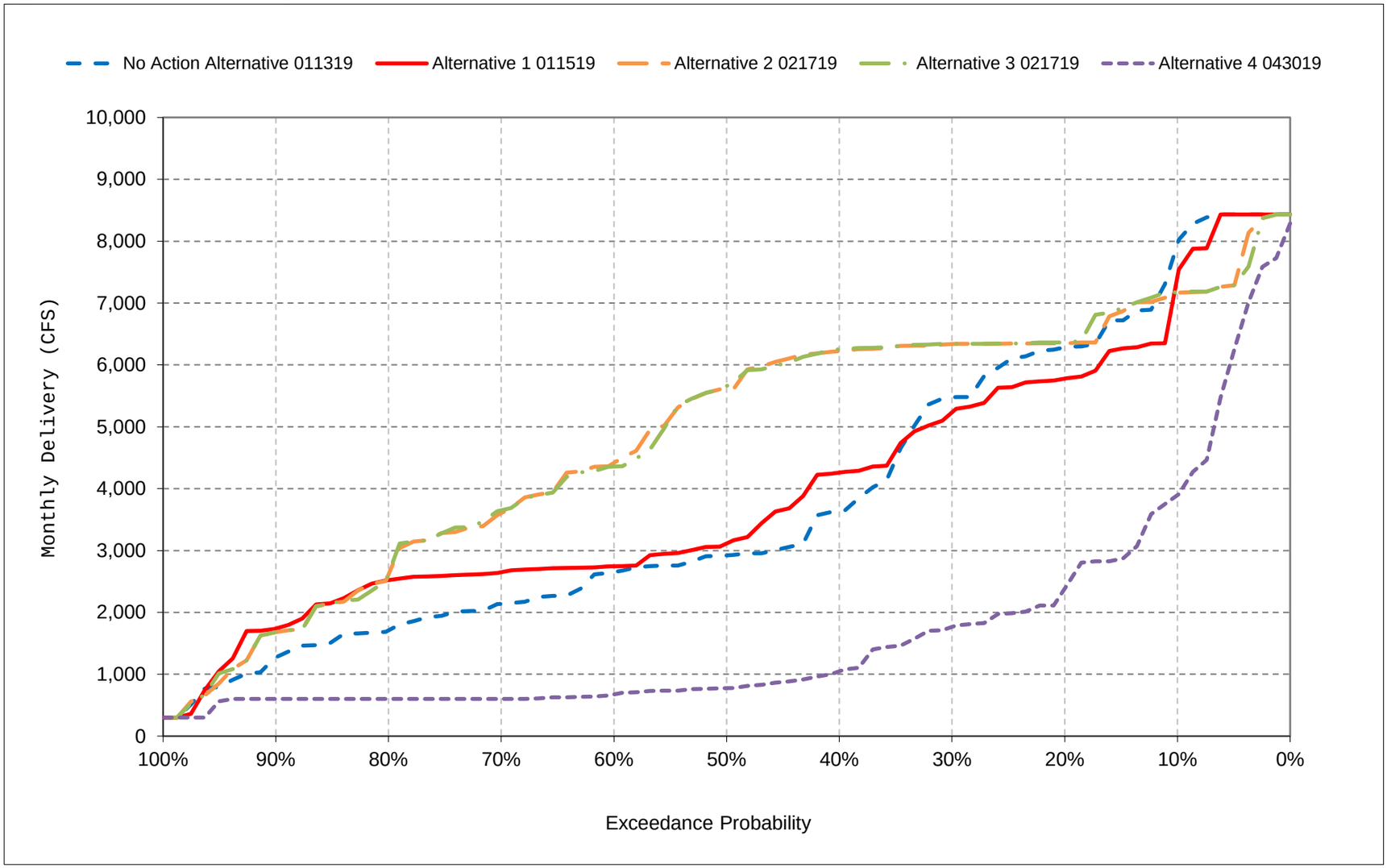
Figure 56-11. SWP Banks PP Exports, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

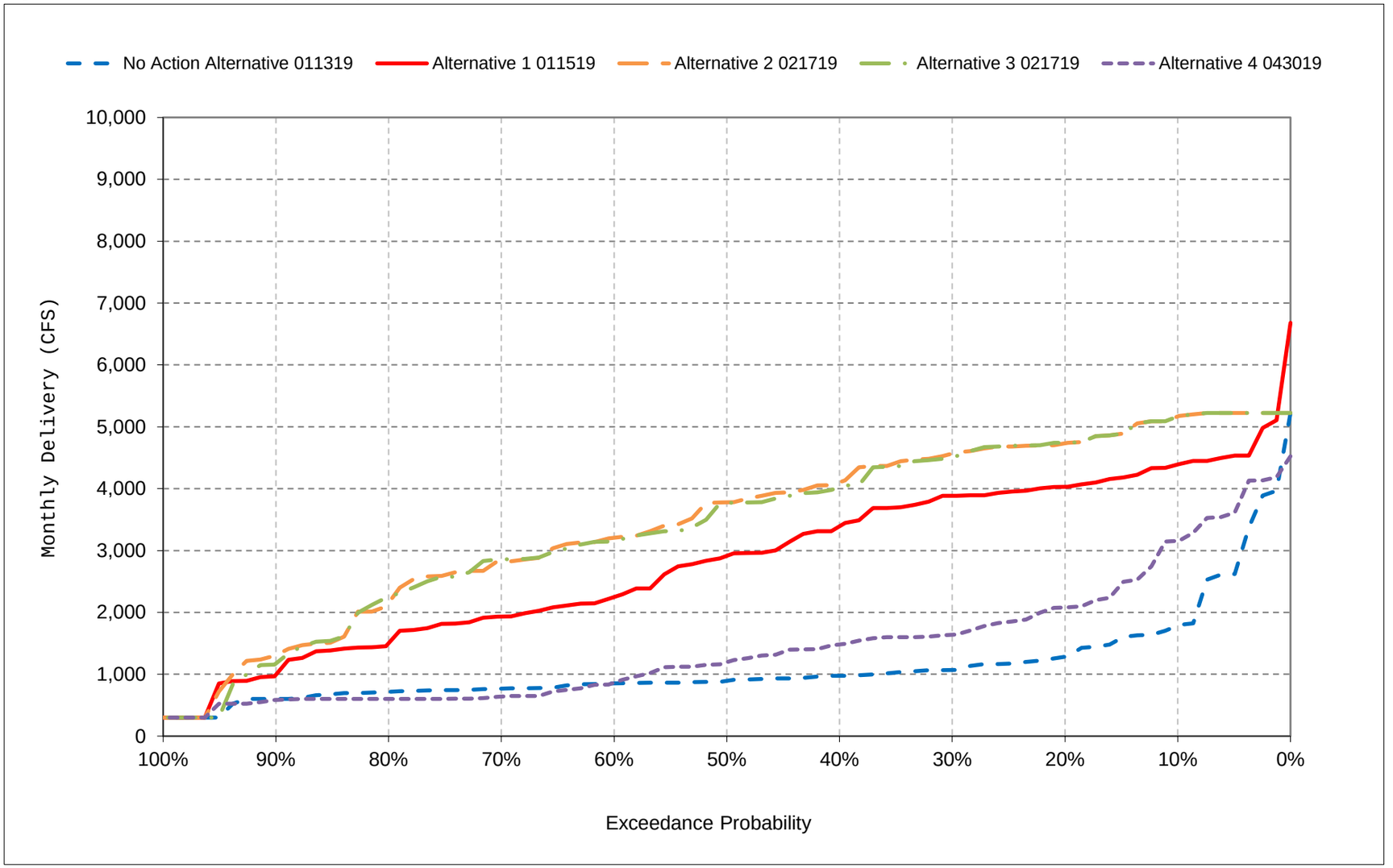
Figure 56-12. SWP Banks PP Exports, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

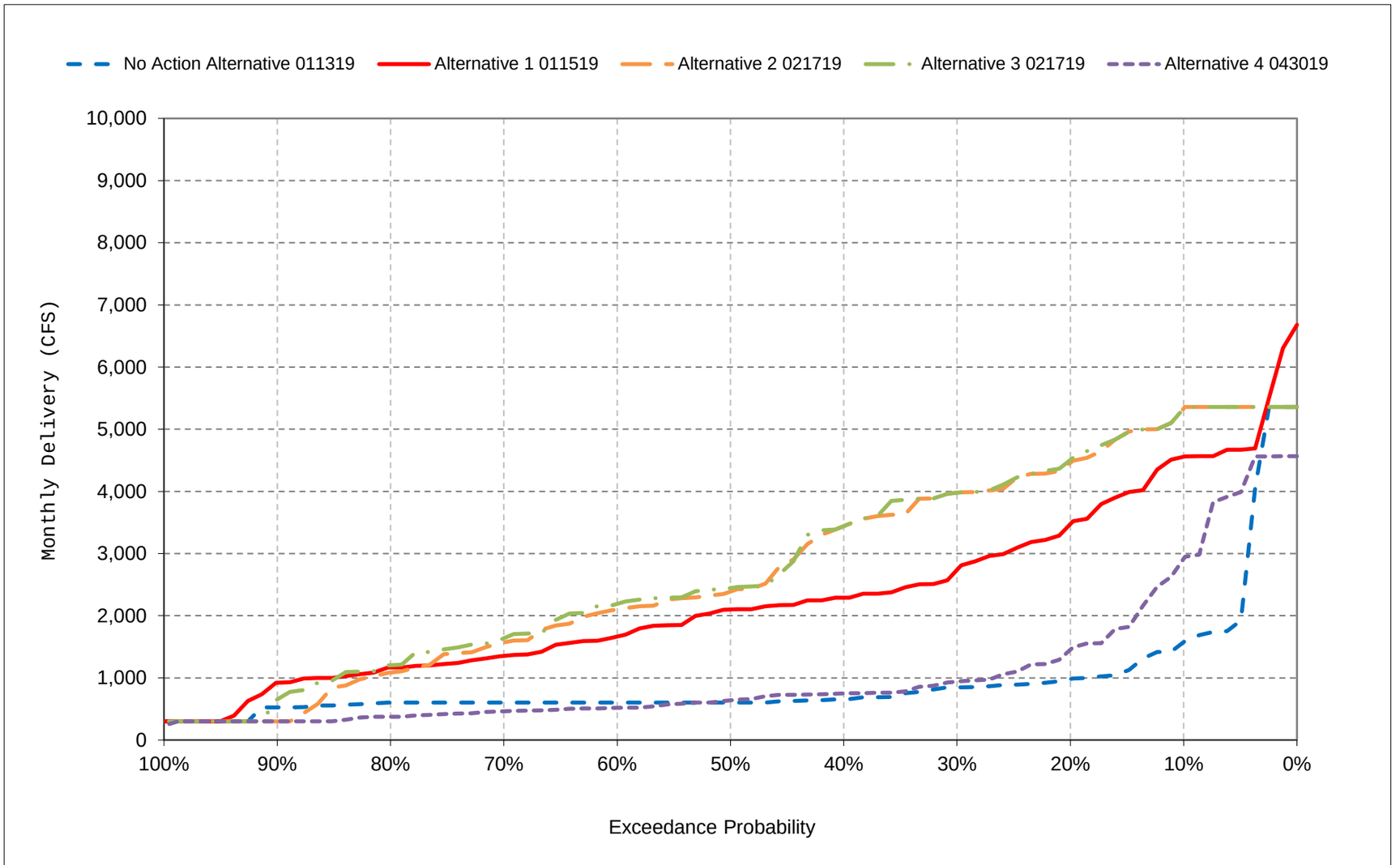
Figure 56-13. SWP Banks PP Exports, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

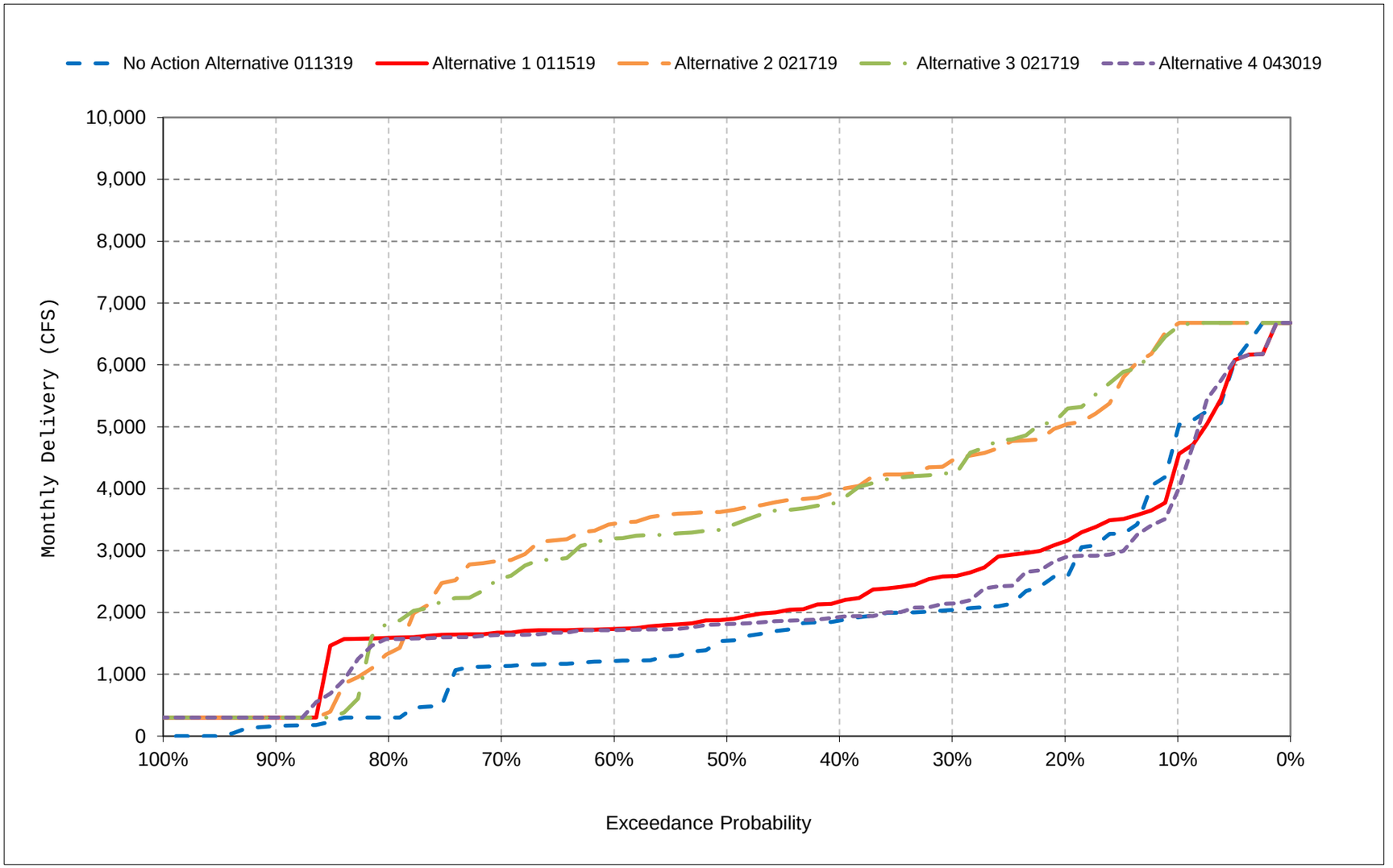
Figure 56-14. SWP Banks PP Exports, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

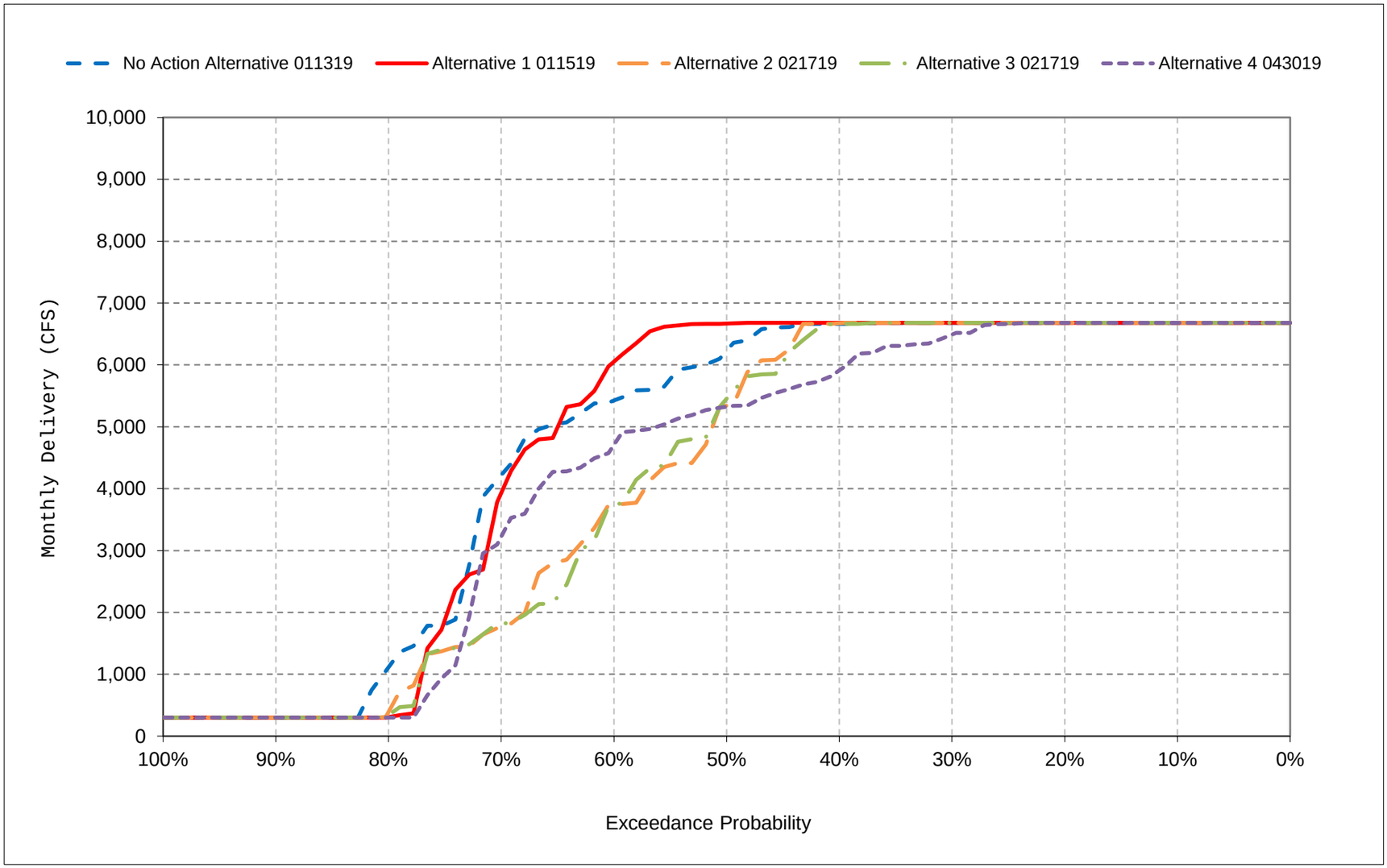
Figure 56-15. SWP Banks PP Exports, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

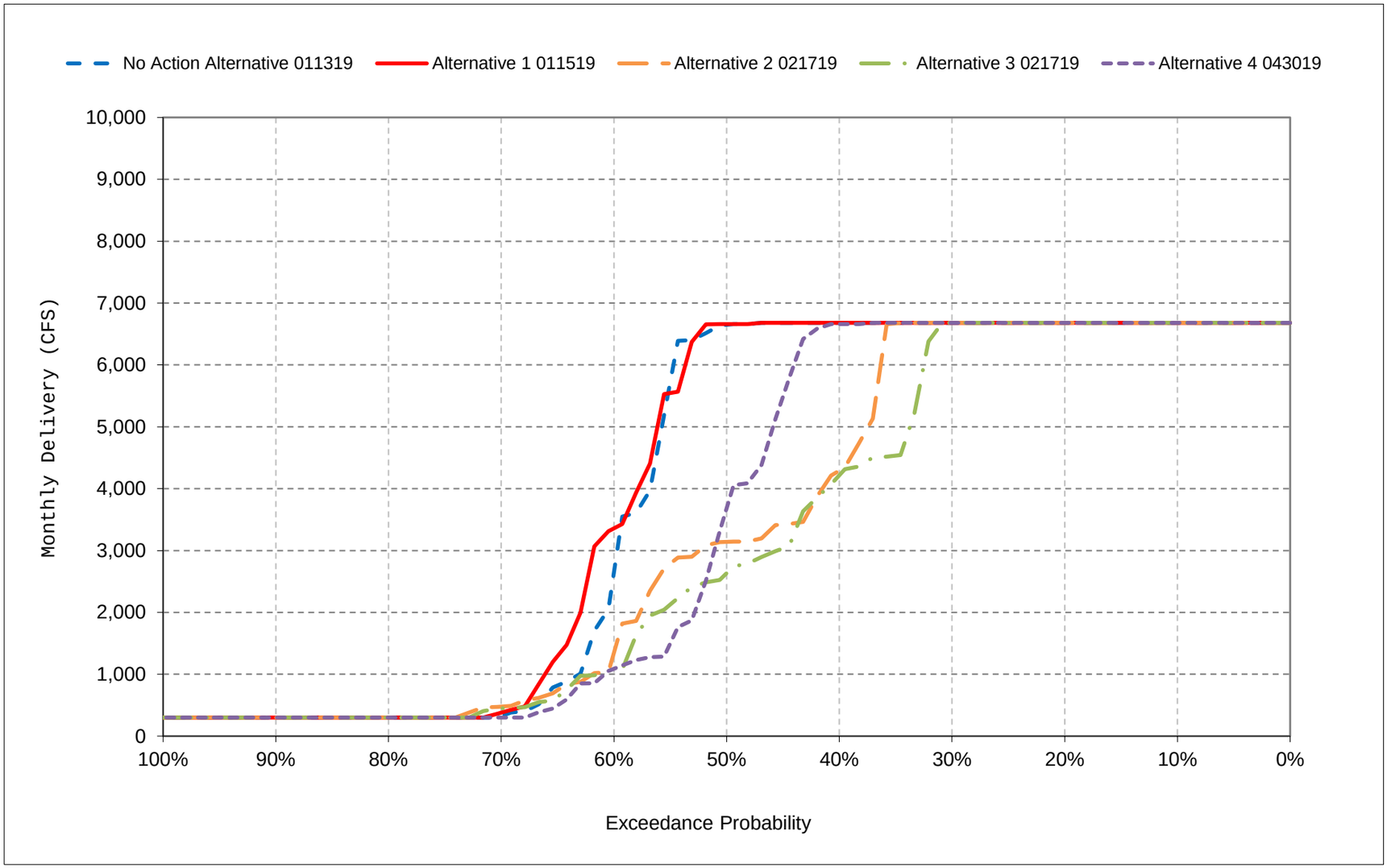
Figure 56-16. SWP Banks PP Exports, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

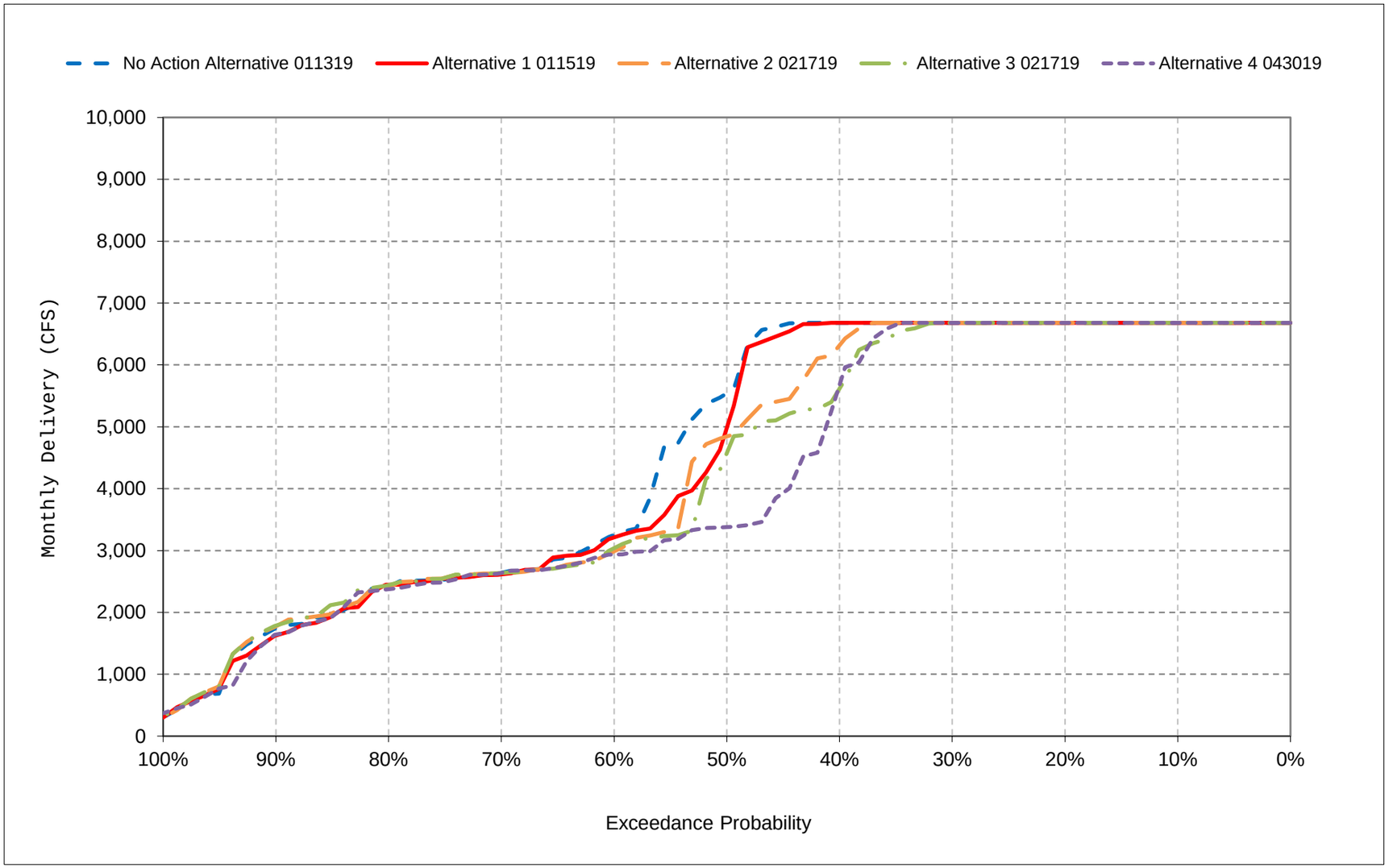
Figure 56-17. SWP Banks PP Exports, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 56-18. SWP Banks PP Exports, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 57-1. DMC - CA Intertie Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	213	354	383	375	369	328	0	0	36	63	83	160
20%	0	345	380	369	361	161	0	0	0	20	64	138
30%	0	182	377	0	350	0	0	0	0	0	29	130
40%	0	0	374	0	115	0	0	0	0	0	9	110
50%	0	0	229	0	0	0	0	0	0	0	0	4
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	36	105	199	89	140	67	0	1	8	14	26	71
Water Year Types[b,c]												
Wet (32%)	78	157	280	190	242	106	0	3	23	11	48	98
Above Normal (16%)	19	129	305	87	220	100	0	0	5	3	60	97
Below Normal (13%)	64	58	130	68	99	76	0	0	0	24	1	75
Dry (24%)	0	112	145	24	44	31	0	0	0	25	6	41
Critical (15%)	0	0	65	0	32	0	0	0	0	7	0	32

Alternative 1 011519

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	228	349	377	372	362	314	0	0	36	0	68	174
20%	213	336	374	369	350	243	0	0	0	0	40	131
30%	213	336	251	102	347	0	0	0	0	0	29	117
40%	0	111	47	19	74	0	0	0	0	0	29	110
50%	0	0	0	0	0	0	0	0	0	0	0	110
60%	0	0	0	0	0	0	0	0	0	0	0	57
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	75	135	126	106	131	72	13	5	5	1	21	82
Water Year Types[b,c]												
Wet (32%)	141	278	219	222	189	116	24	13	14	1	32	116
Above Normal (16%)	126	118	120	96	199	113	25	6	3	0	42	121
Below Normal (13%)	54	66	41	77	144	46	0	0	0	4	12	83
Dry (24%)	13	80	90	39	70	47	8	0	0	2	11	45
Critical (15%)	0	0	65	3	21	0	0	0	0	0	0	31

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15	**-5**	**-6**	**-3**	**-6**	**-14**	0	0	0	**-63**	**-15**	14
20%	213	**-9**	**-6**	0	**-11**	82	0	0	0	**-20**	**-23**	**-8**
30%	213	155	**-126**	102	**-4**	0	0	0	0	0	0	**-13**
40%	0	111	**-327**	19	**-41**	0	0	0	0	0	20	0
50%	0	0	**-229**	0	0	0	0	0	0	0	0	106
60%	0	0	0	0	0	0	0	0	0	0	0	57
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	39	30	**-74**	17	**-10**	5	13	4	**-3**	**-13**	**-5**	11
Water Year Types[b,c]												
Wet (32%)	64	120	**-61**	32	**-54**	10	24	10	**-9**	**-10**	**-15**	18
Above Normal (16%)	107	**-12**	**-185**	8	**-21**	13	25	6	**-2**	**-3**	**-18**	24
Below Normal (13%)	**-10**	8	**-89**	8	45	**-30**	0	0	0	**-20**	10	7
Dry (24%)	13	**-32**	**-54**	14	26	15	8	0	0	**-23**	5	3
Critical (15%)	0	0	**0**	3	**-11**	0	0	0	0	**-7**	0	**-1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 57-2. DMC - CA Intertie Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	213	354	383	375	369	328	0	0	36	63	83	160
20%	0	345	380	369	361	161	0	0	0	20	64	138
30%	0	182	377	0	350	0	0	0	0	0	29	130
40%	0	0	374	0	115	0	0	0	0	0	9	110
50%	0	0	229	0	0	0	0	0	0	0	0	4
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	36	105	199	89	140	67	0	1	8	14	26	71
Water Year Types[b,c]												
Wet (32%)	78	157	280	190	242	106	0	3	23	11	48	98
Above Normal (16%)	19	129	305	87	220	100	0	0	5	3	60	97
Below Normal (13%)	64	58	130	68	99	76	0	0	0	24	1	75
Dry (24%)	0	112	145	24	44	31	0	0	0	25	6	41
Critical (15%)	0	0	65	0	32	0	0	0	0	7	0	32

Alternative 2 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	213	345	382	383	371	334	0	0	36	0	42	129
20%	213	336	376	378	359	310	0	0	36	0	29	117
30%	213	336	374	373	353	282	0	0	36	0	29	110
40%	0	256	374	370	350	28	0	0	36	0	29	110
50%	0	0	374	369	349	0	0	0	0	0	14	110
60%	0	0	61	369	347	0	0	0	0	0	0	98
70%	0	0	0	18	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	75	144	214	253	239	121	4	2	17	1	18	81
Water Year Types[b,c]												
Wet (32%)	158	278	265	283	217	89	4	8	28	0	31	112
Above Normal (16%)	132	41	256	346	302	157	10	0	32	0	27	101
Below Normal (13%)	32	133	177	253	193	77	11	0	11	4	20	84
Dry (24%)	0	127	187	210	285	184	0	0	6	0	6	54
Critical (15%)	0	0	134	159	181	87	0	0	0	2	0	32

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	-9	-1	8	3	6	0	0	0	-63	-41	-31
20%	213	-9	-3	9	-2	149	0	0	36	-20	-35	-22
30%	213	155	-3	373	3	282	0	0	36	0	0	-21
40%	0	256	0	370	235	28	0	0	36	0	20	0
50%	0	0	144	369	349	0	0	0	0	0	14	106
60%	0	0	61	369	347	0	0	0	0	0	0	98
70%	0	0	0	18	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	39	38	14	164	99	54	4	2	9	-13	-8	9
Water Year Types[b,c]												
Wet (32%)	80	121	-15	94	-25	-17	4	5	5	-11	-17	13
Above Normal (16%)	113	-88	-49	258	82	57	10	0	28	-3	-33	5
Below Normal (13%)	-32	75	46	184	94	1	11	0	11	-20	19	9
Dry (24%)	0	15	43	185	242	153	0	0	6	-25	0	12
Critical (15%)	0	0	69	159	149	87	0	0	0	-5	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 57-3. DMC - CA Intertie Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	213	354	383	375	369	328	0	0	36	63	83	160
20%	0	345	380	369	361	161	0	0	0	20	64	138
30%	0	182	377	0	350	0	0	0	0	0	29	130
40%	0	0	374	0	115	0	0	0	0	0	9	110
50%	0	0	229	0	0	0	0	0	0	0	0	4
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	36	105	199	89	140	67	0	1	8	14	26	71
Water Year Types[b,c]												
Wet (32%)	78	157	280	190	242	106	0	3	23	11	48	98
Above Normal (16%)	19	129	305	87	220	100	0	0	5	3	60	97
Below Normal (13%)	64	58	130	68	99	76	0	0	0	24	1	75
Dry (24%)	0	112	145	24	44	31	0	0	0	25	6	41
Critical (15%)	0	0	65	0	32	0	0	0	0	7	0	32

Alternative 3 021719

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	213	347	382	382	368	331	0	0	36	0	44	137
20%	213	336	377	377	359	306	0	0	36	0	29	120
30%	213	336	374	373	354	281	0	0	36	0	29	111
40%	19	336	374	370	350	0	0	0	0	0	29	110
50%	0	0	374	369	347	0	0	0	0	0	0	110
60%	0	0	176	369	347	0	0	0	0	0	0	110
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	80	160	224	249	230	111	4	2	16	1	18	85
Water Year Types[b,c]												
Wet (32%)	173	285	269	269	217	96	4	8	26	0	27	112
Above Normal (16%)	108	104	272	346	331	142	10	0	30	0	27	114
Below Normal (13%)	57	140	217	263	162	75	11	0	10	3	24	95
Dry (24%)	3	141	197	204	267	143	0	0	7	2	4	57
Critical (15%)	0	0	128	159	150	87	0	0	0	3	6	32

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	-6	-1	7	0	2	0	0	0	-63	-40	-23
20%	213	-9	-3	9	-2	145	0	0	36	-20	-35	-18
30%	213	155	-3	373	3	281	0	0	36	0	0	-19
40%	19	336	0	370	235	0	0	0	0	0	20	0
50%	0	0	144	369	347	0	0	0	0	0	0	106
60%	0	0	176	369	347	0	0	0	0	0	0	110
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	44	54	25	160	90	43	4	2	8	-13	-8	13
Water Year Types[b,c]												
Wet (32%)	95	127	-11	79	-25	-10	4	5	3	-11	-20	13
Above Normal (16%)	89	-25	-33	259	111	42	10	0	25	-3	-33	17
Below Normal (13%)	-7	82	87	195	62	-1	11	0	10	-21	23	19
Dry (24%)	3	28	52	180	223	112	0	0	7	-22	-1	16
Critical (15%)	0	0	63	159	118	87	0	0	0	-5	6	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 57-4. DMC - CA Intertie Flow, Monthly Flow

No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	213	354	383	375	369	328	0	0	36	63	83	160
20%	0	345	380	369	361	161	0	0	0	20	64	138
30%	0	182	377	0	350	0	0	0	0	0	29	130
40%	0	0	374	0	115	0	0	0	0	0	9	110
50%	0	0	229	0	0	0	0	0	0	0	0	4
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	36	105	199	89	140	67	0	1	8	14	26	71
Water Year Types[b,c]												
Wet (32%)	78	157	280	190	242	106	0	3	23	11	48	98
Above Normal (16%)	19	129	305	87	220	100	0	0	5	3	60	97
Below Normal (13%)	64	58	130	68	99	76	0	0	0	24	1	75
Dry (24%)	0	112	145	24	44	31	0	0	0	25	6	41
Critical (15%)	0	0	65	0	32	0	0	0	0	7	0	32

Alternative 4 043019

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	238	360	381	373	367	0	0	0	33	0	75	161
20%	213	339	375	369	351	0	0	0	0	0	43	135
30%	171	336	255	107	270	0	0	0	0	0	29	121
40%	0	0	4	17	0	0	0	0	0	0	0	111
50%	0	0	0	0	0	0	0	0	0	0	0	110
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	75	130	124	108	122	4	1	0	5	1	22	77
Water Year Types[b,c]												
Wet (32%)	176	259	198	222	188	14	5	0	14	4	42	121
Above Normal (16%)	92	116	110	119	151	0	0	0	0	0	46	118
Below Normal (13%)	31	53	113	82	146	0	0	0	0	0	4	67
Dry (24%)	0	93	97	29	67	0	0	0	0	0	5	35
Critical (15%)	0	0	33	3	20	0	0	0	0	0	0	19

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Flow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	25	6	-3	-2	-1	-328	0	0	-4	-63	-8	2
20%	213	-6	-5	0	-9	-161	0	0	0	-20	-20	-4
30%	171	155	-122	107	-80	0	0	0	0	0	0	-9
40%	0	0	-369	17	-115	0	0	0	0	0	-9	1
50%	0	0	-229	0	0	0	0	0	0	0	0	106
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	38	25	-76	19	-18	-63	1	-1	-4	-13	-4	6
Water Year Types[b,c]												
Wet (32%)	98	102	-82	32	-54	-93	5	-3	-9	-7	-5	23
Above Normal (16%)	73	-14	-195	32	-69	-100	0	0	-5	-3	-15	21
Below Normal (13%)	-33	-5	-17	14	47	-76	0	0	0	-24	3	-9
Dry (24%)	0	-19	-47	5	23	-31	0	0	0	-25	-1	-7
Critical (15%)	0	0	-32	3	-12	0	0	0	0	-7	0	-13

a Based on the 82-year simulation period.

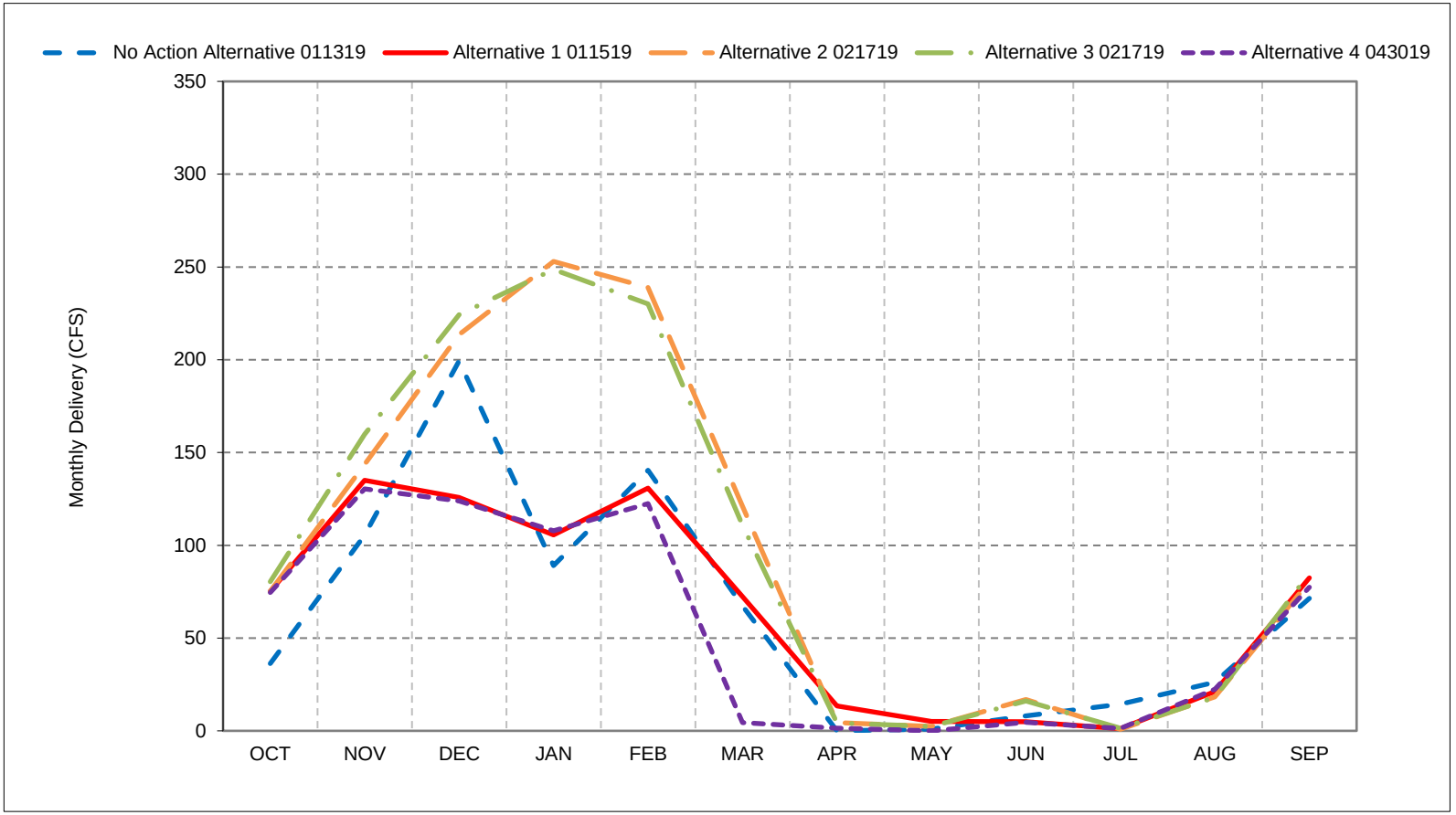
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

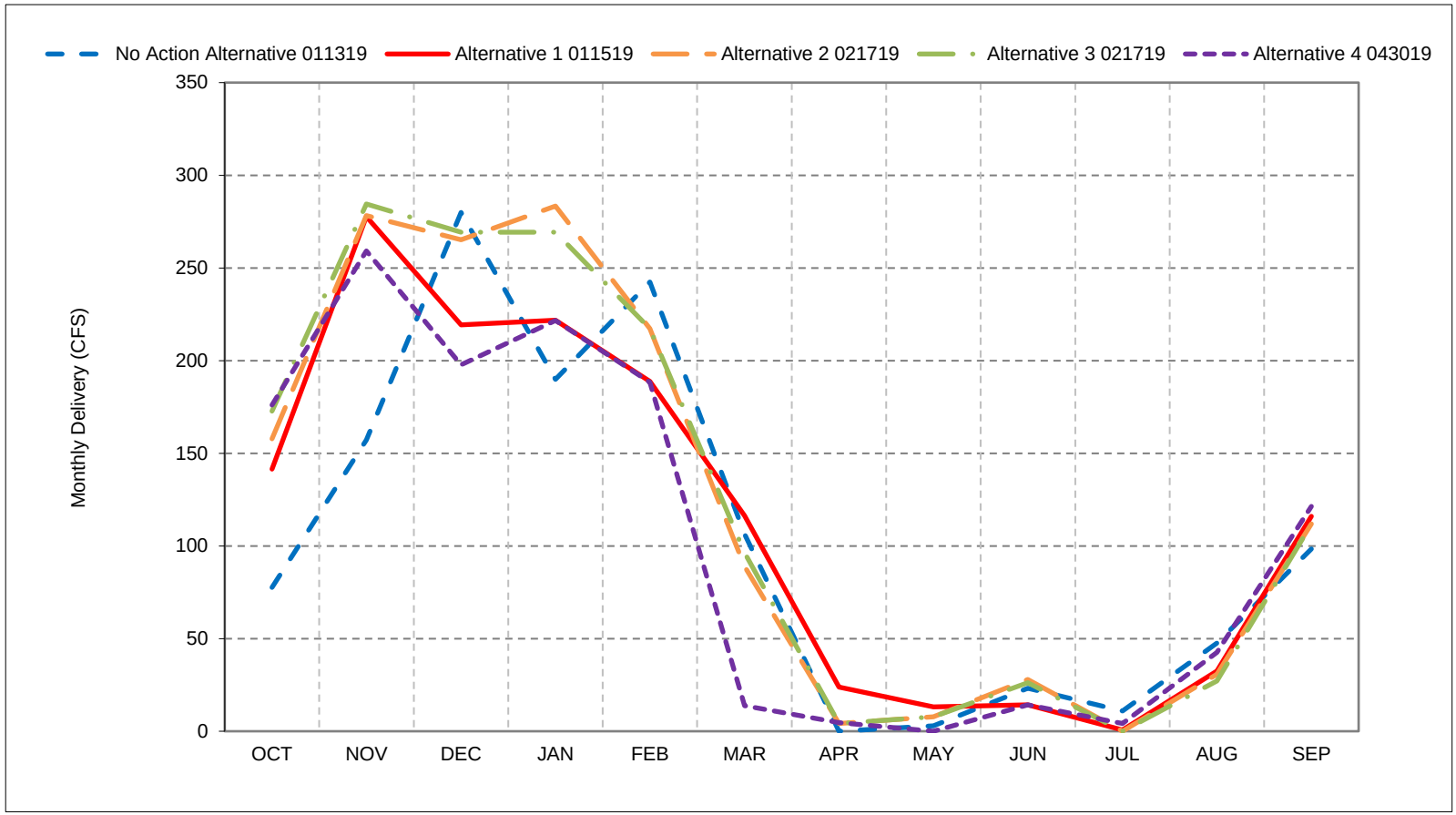
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 57-1. DMC - CA Intertie Flow, Long-Term Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 57-2. DMC - CA Intertie Flow, Wet Year Average Delivery



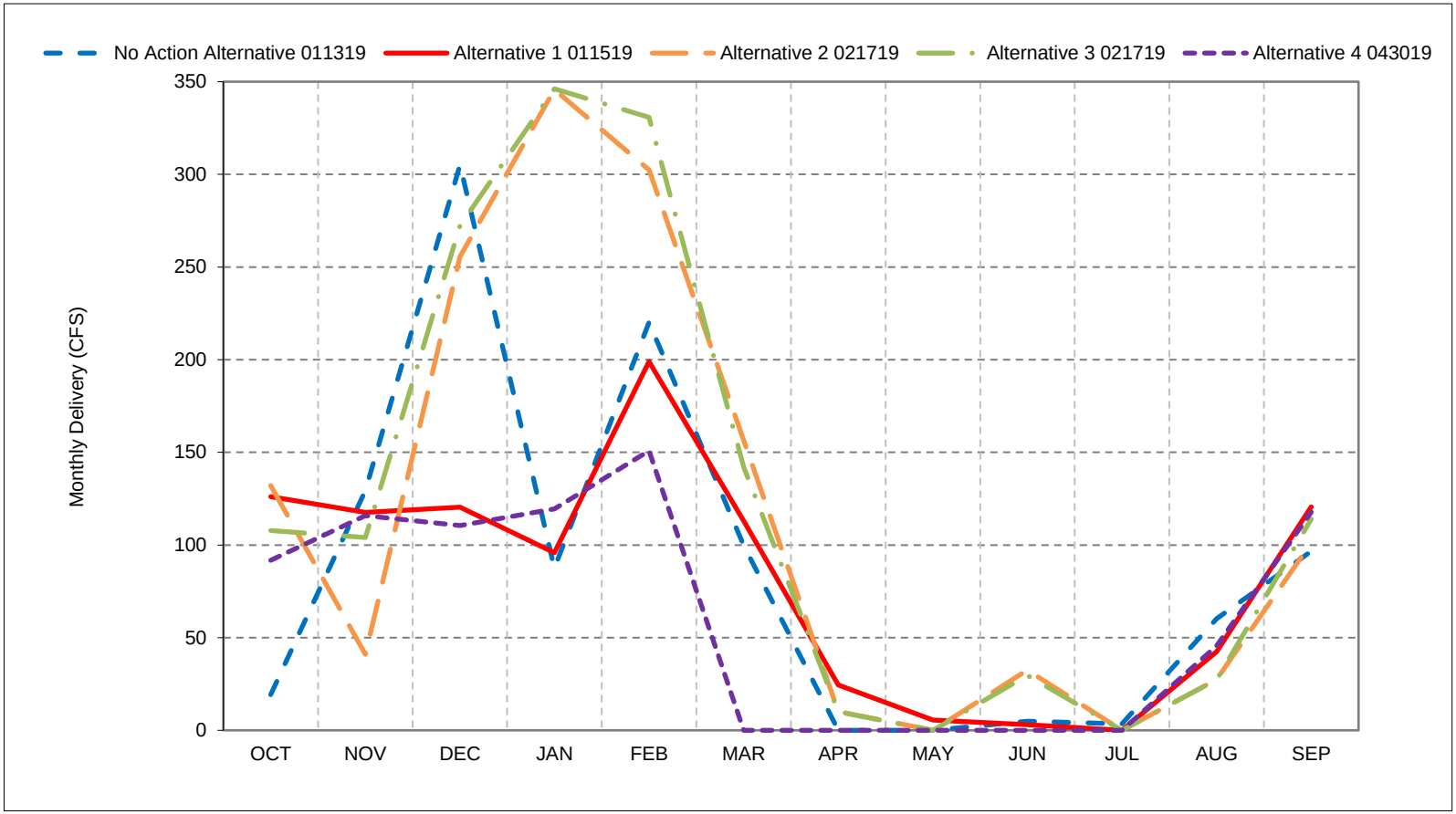
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 57-3. DMC - CA Intertie Flow, Above Normal Year Average Delivery



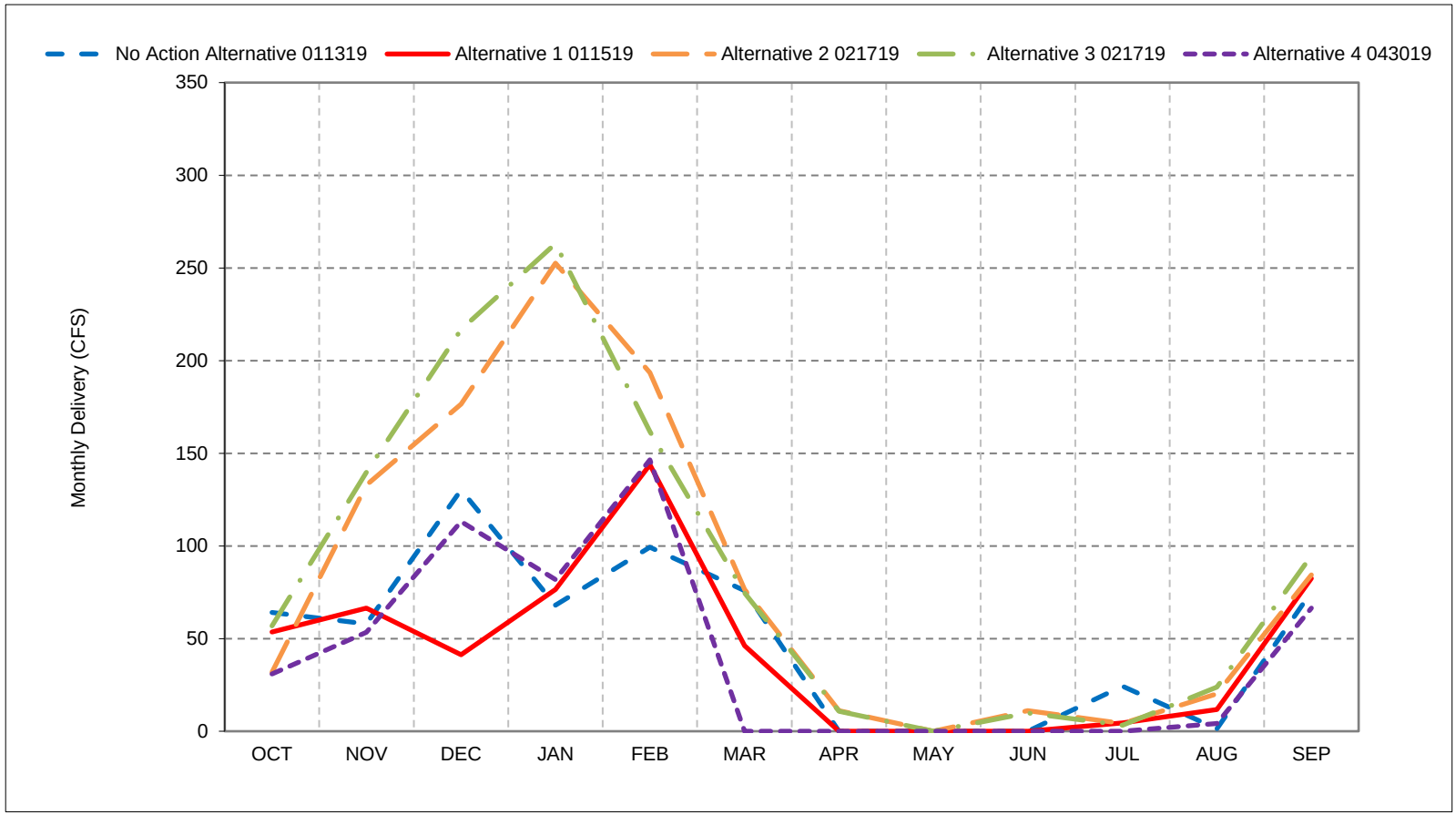
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

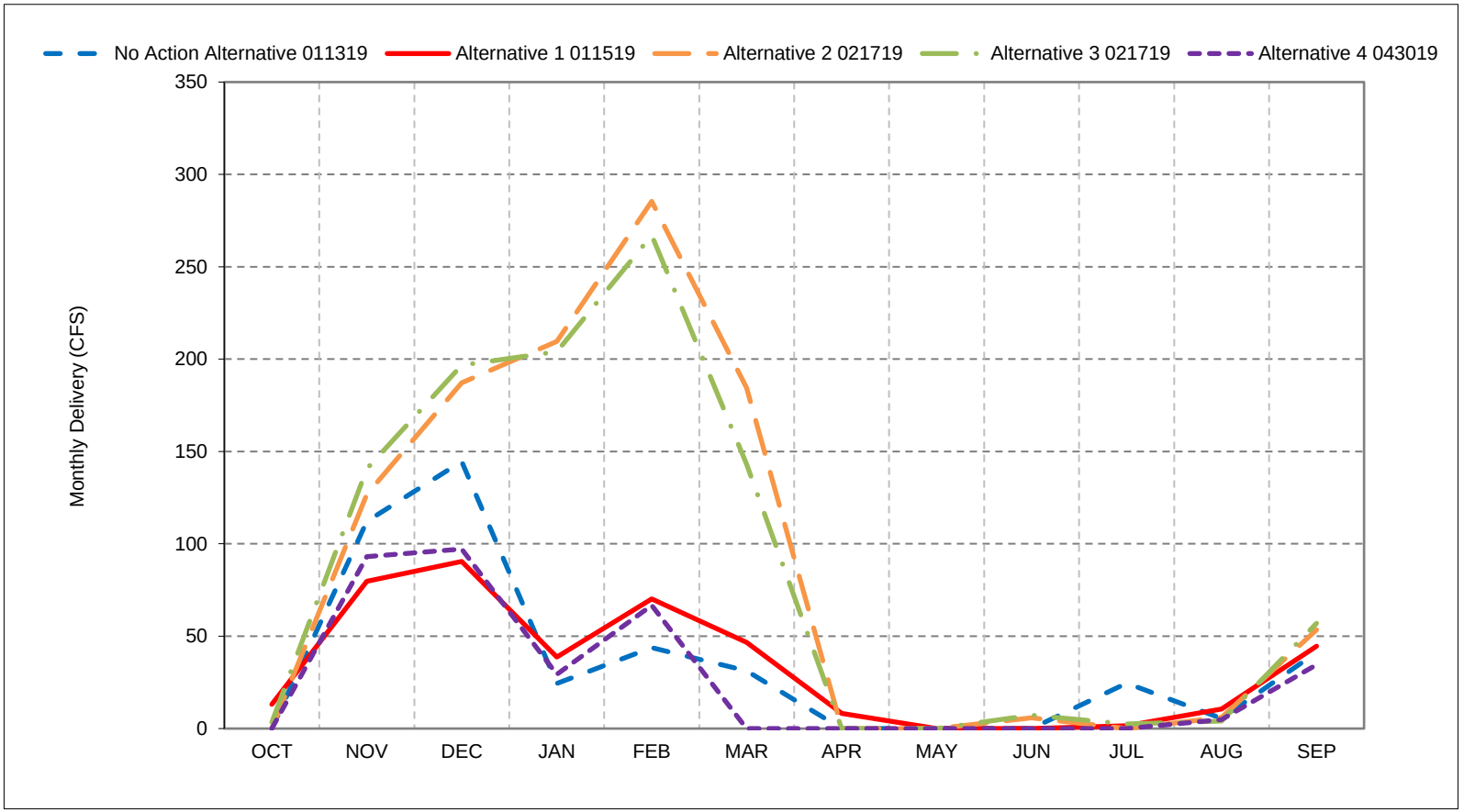
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 57-4. DMC - CA Intertie Flow, Below Normal Year Average Delivery



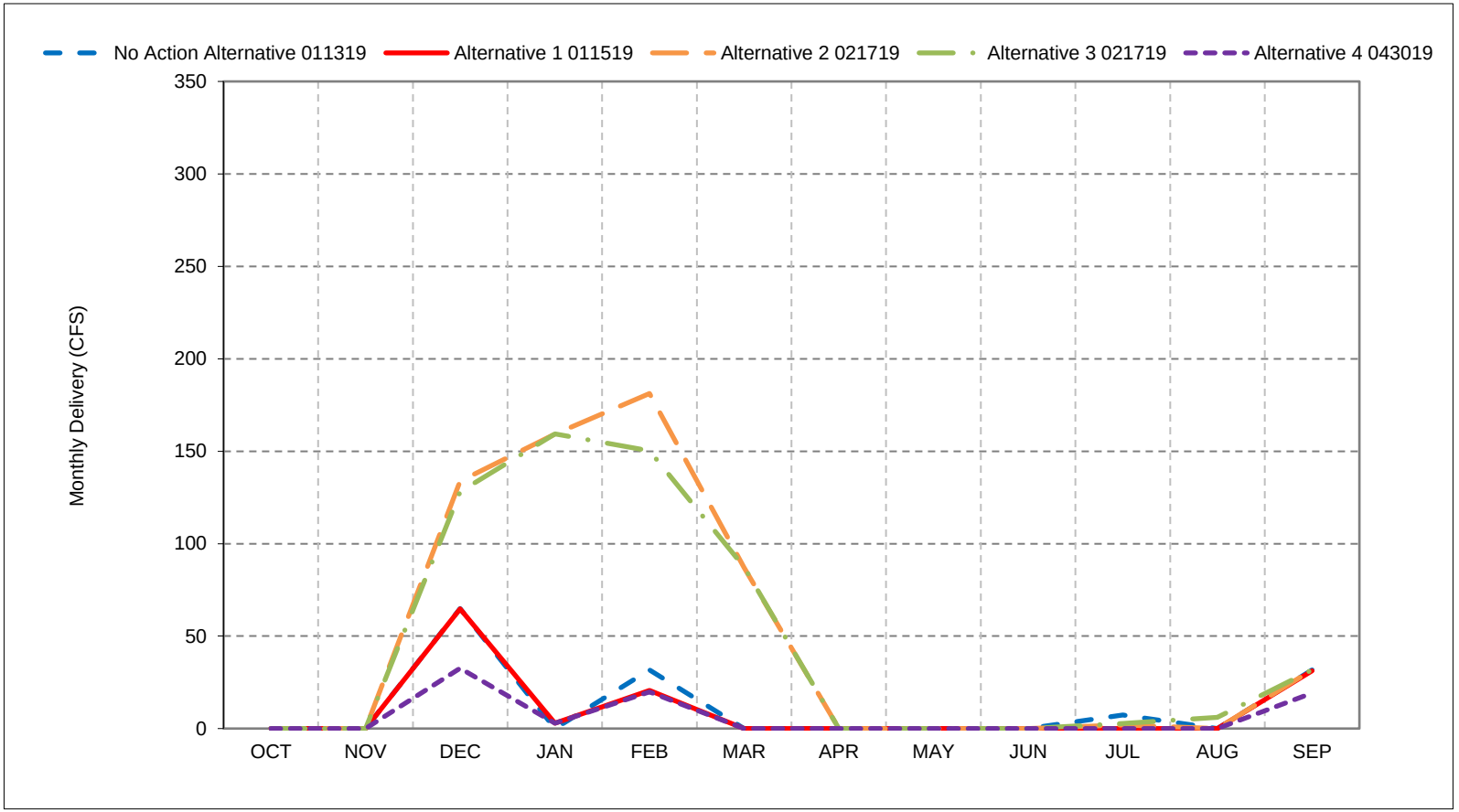
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 57-5. DMC - CA Intertie Flow, Dry Year Average Delivery



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 57-6. DMC - CA Intertie Flow, Critical Year Average Delivery



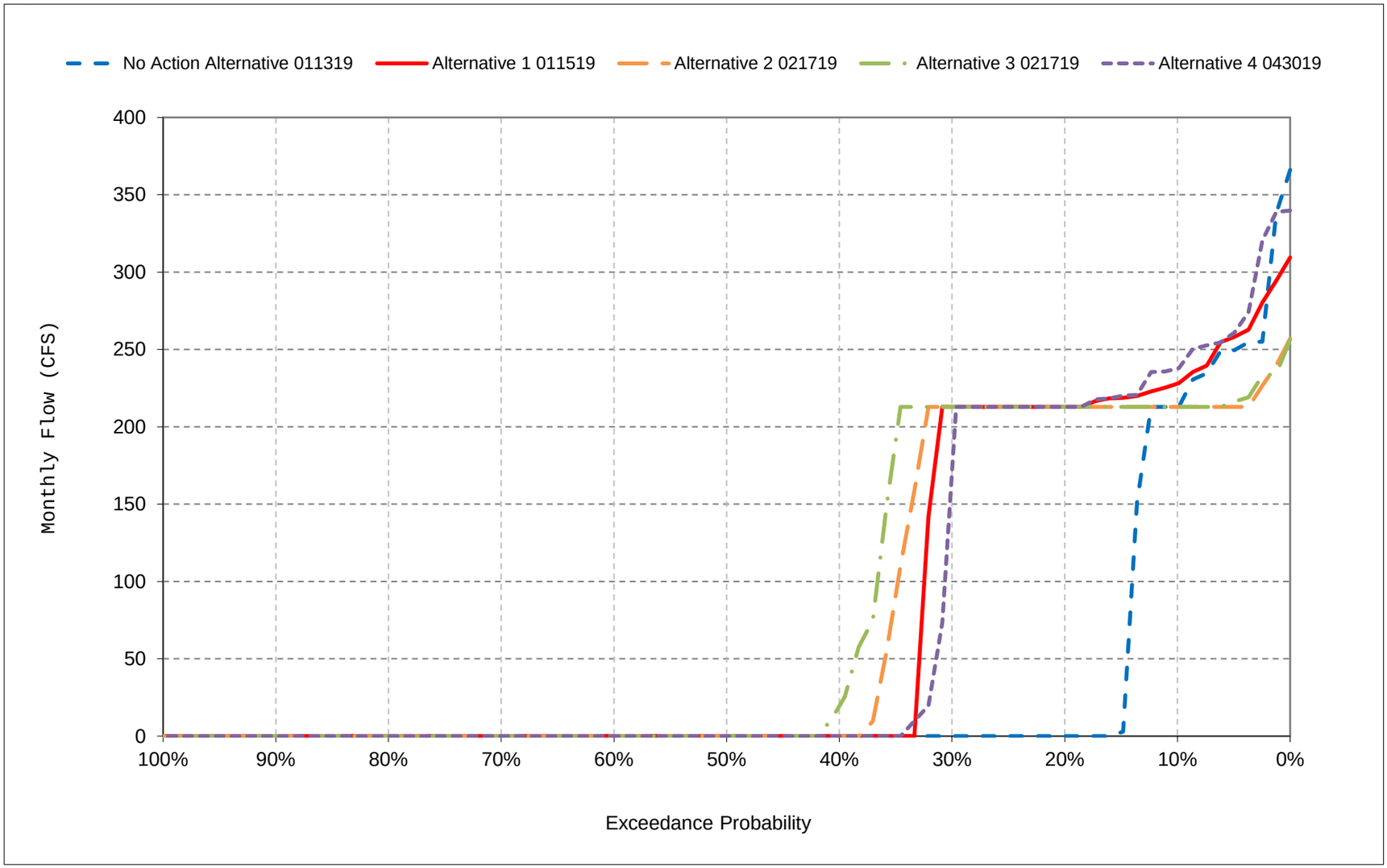
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

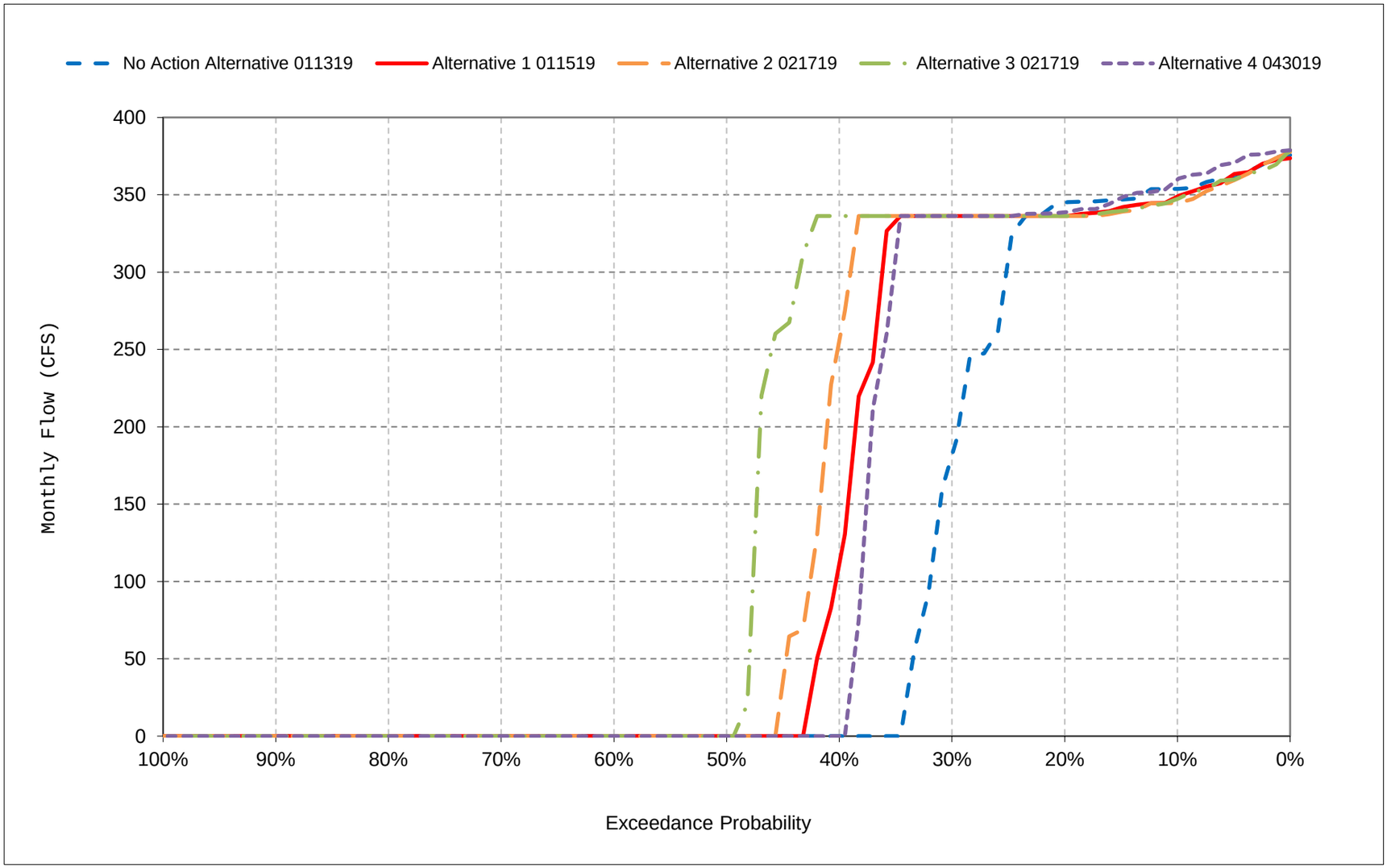
Figure 57-7. DMC - CA Intertie Flow, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

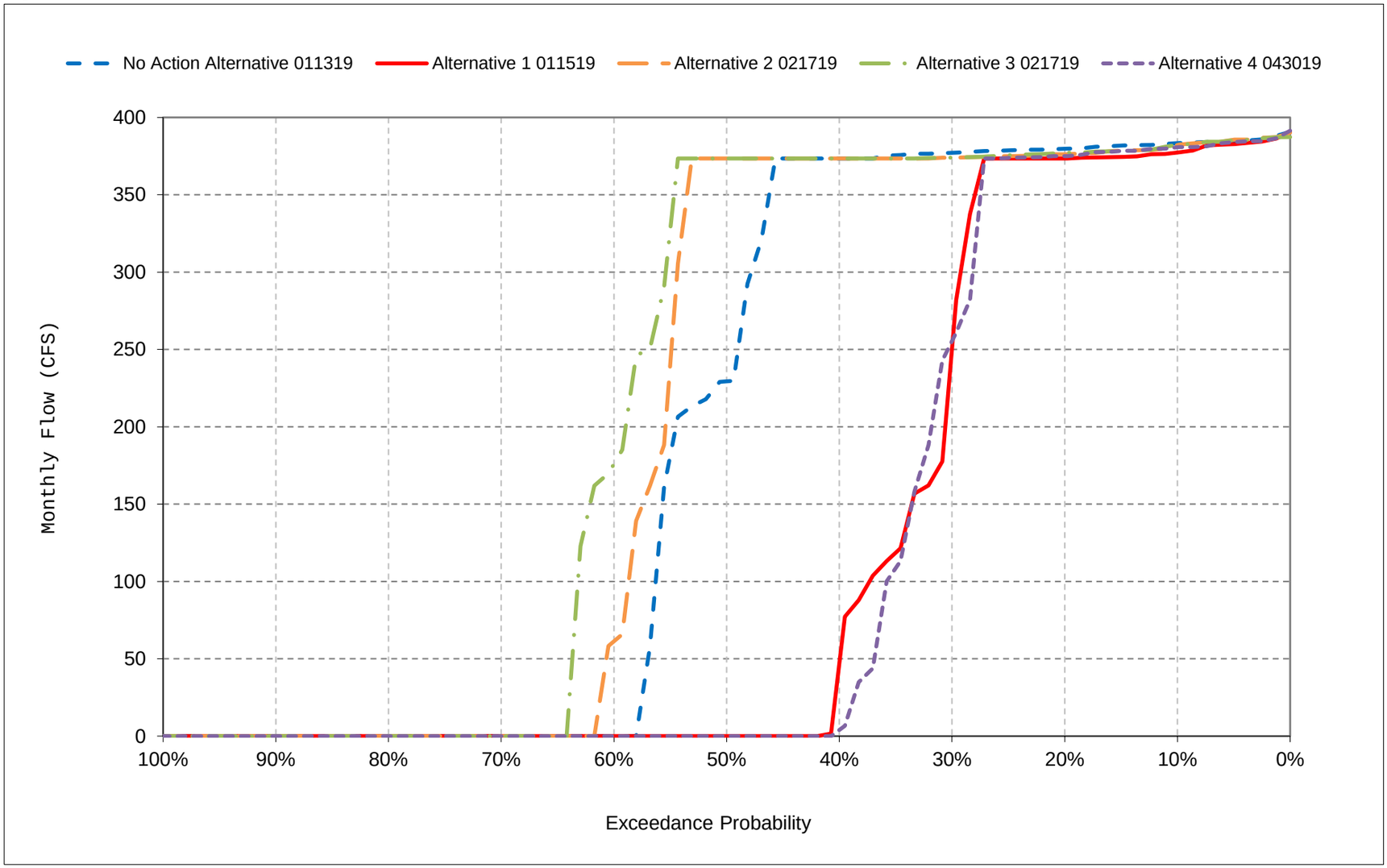
Figure 57-8. DMC - CA Intertie Flow, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

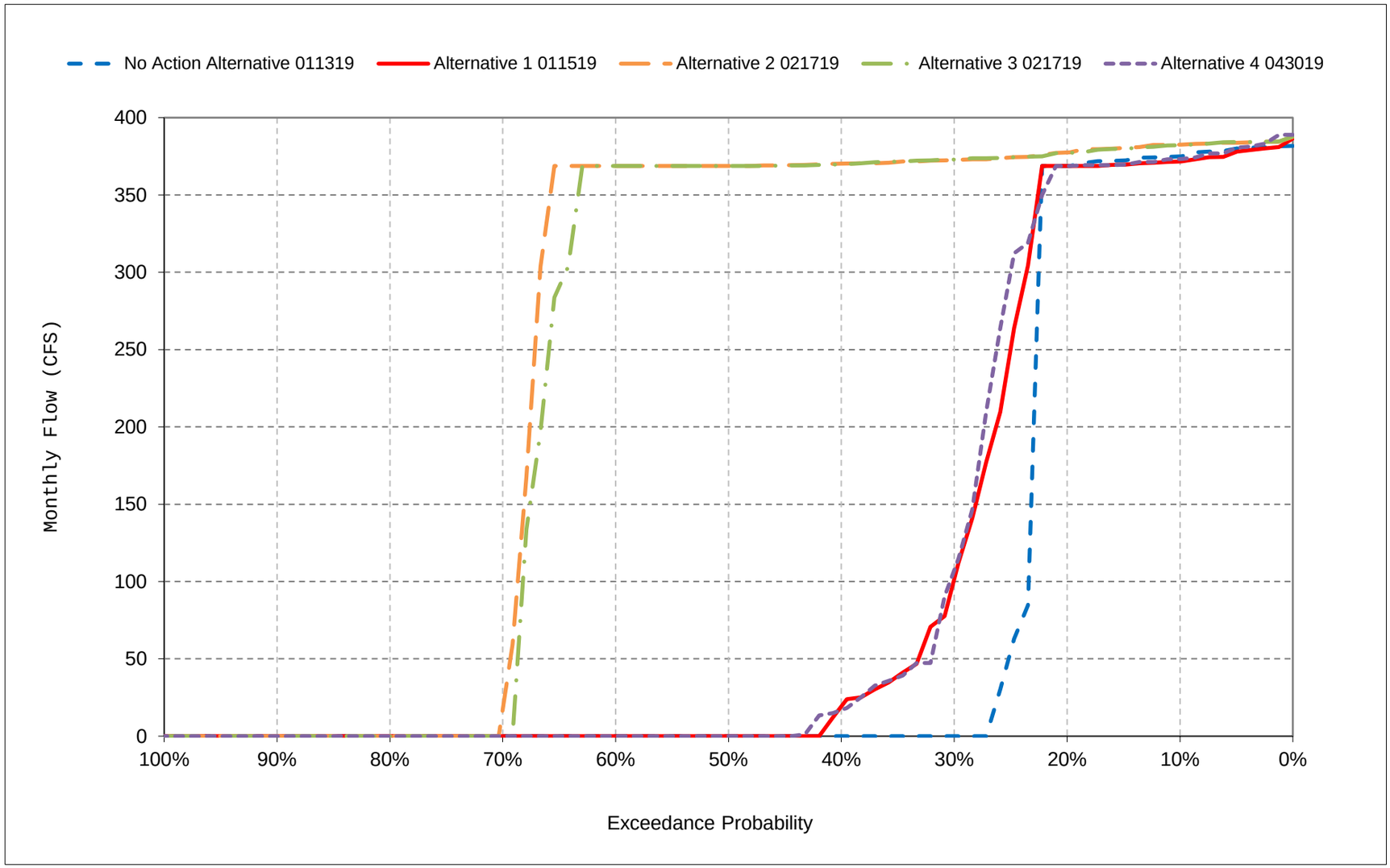
Figure 57-9. DMC - CA Intertie Flow, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

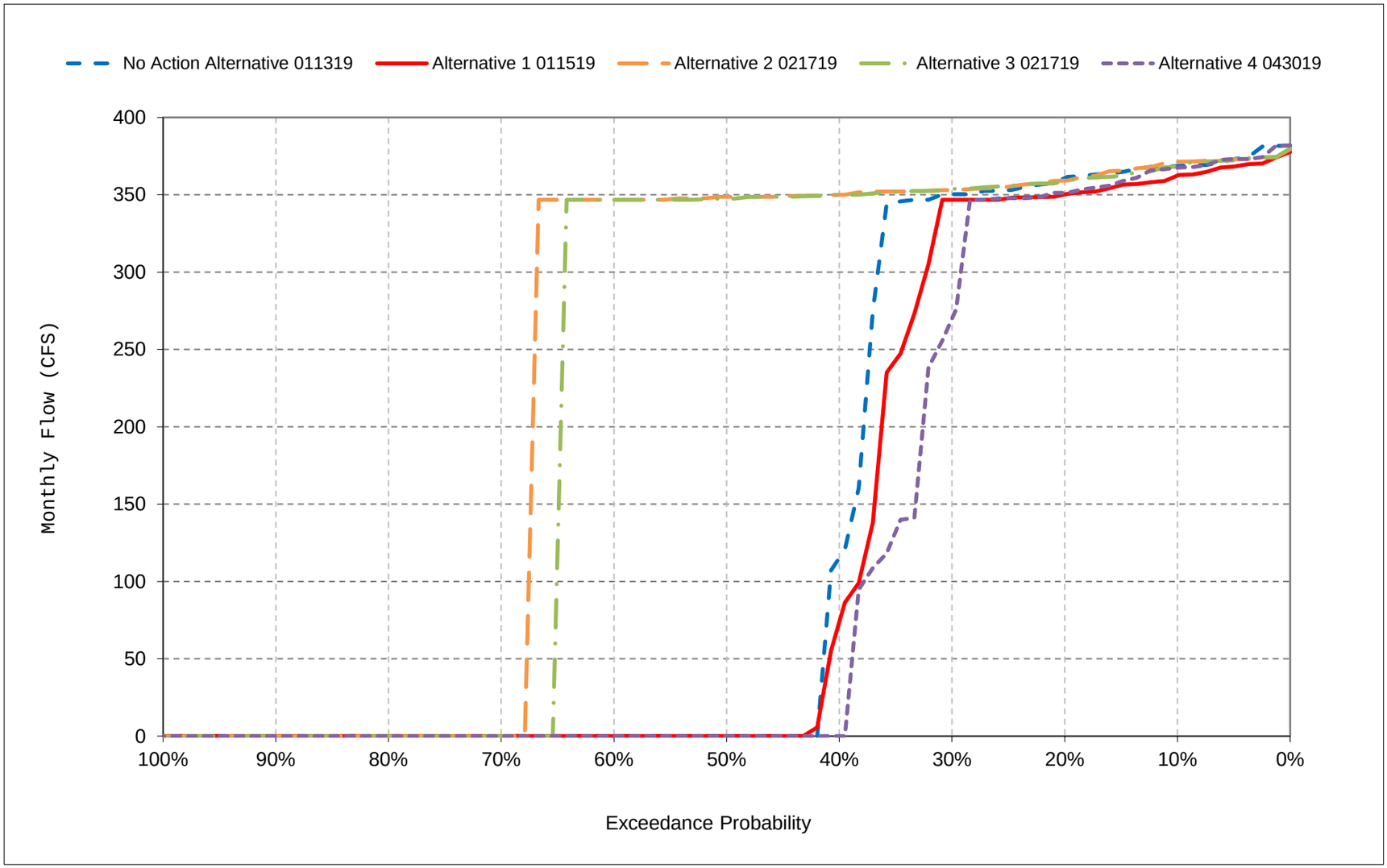
Figure 57-10. DMC - CA Intertie Flow, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

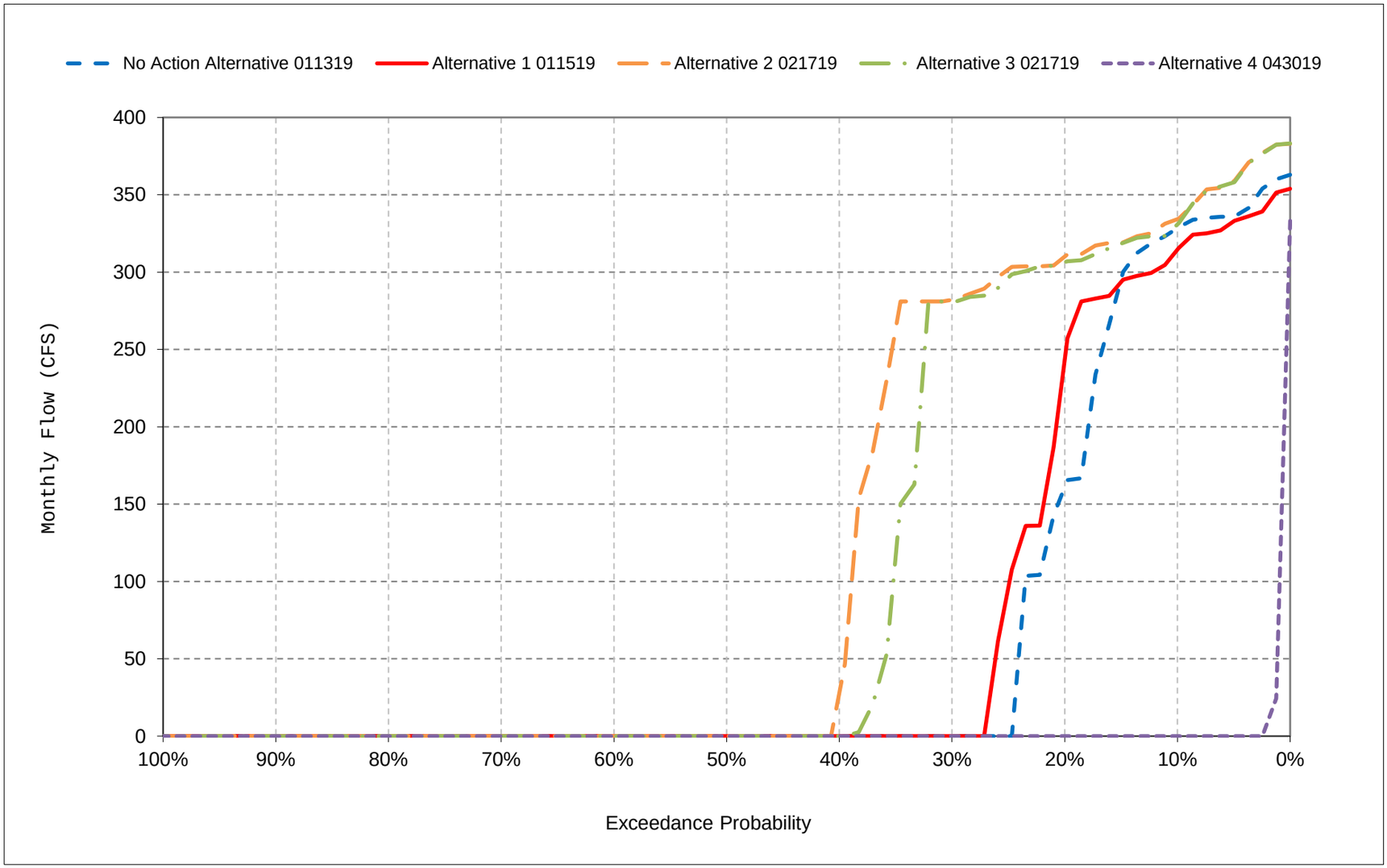
Figure 57-11. DMC - CA Intertie Flow, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

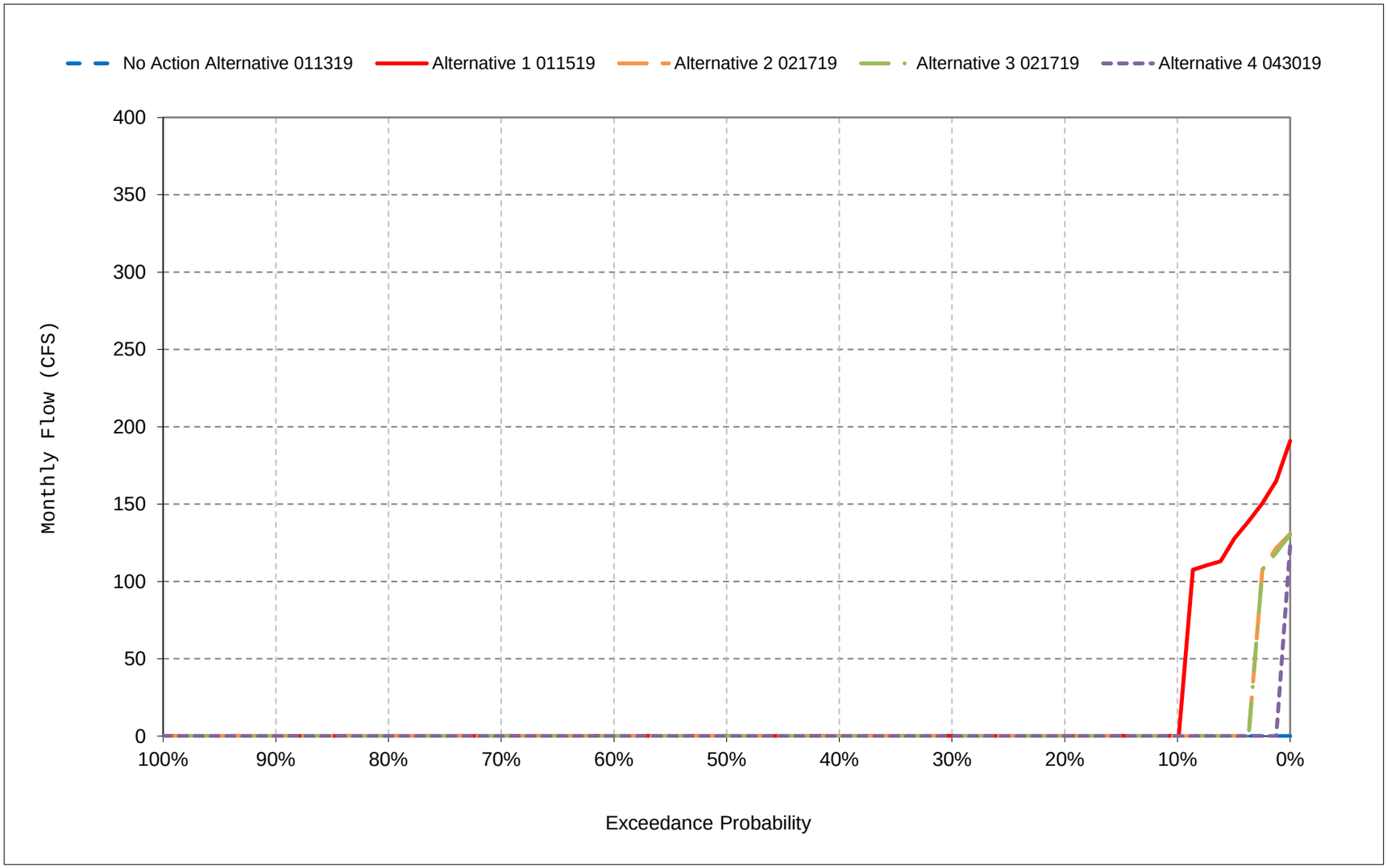
Figure 57-12. DMC - CA Intertie Flow, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

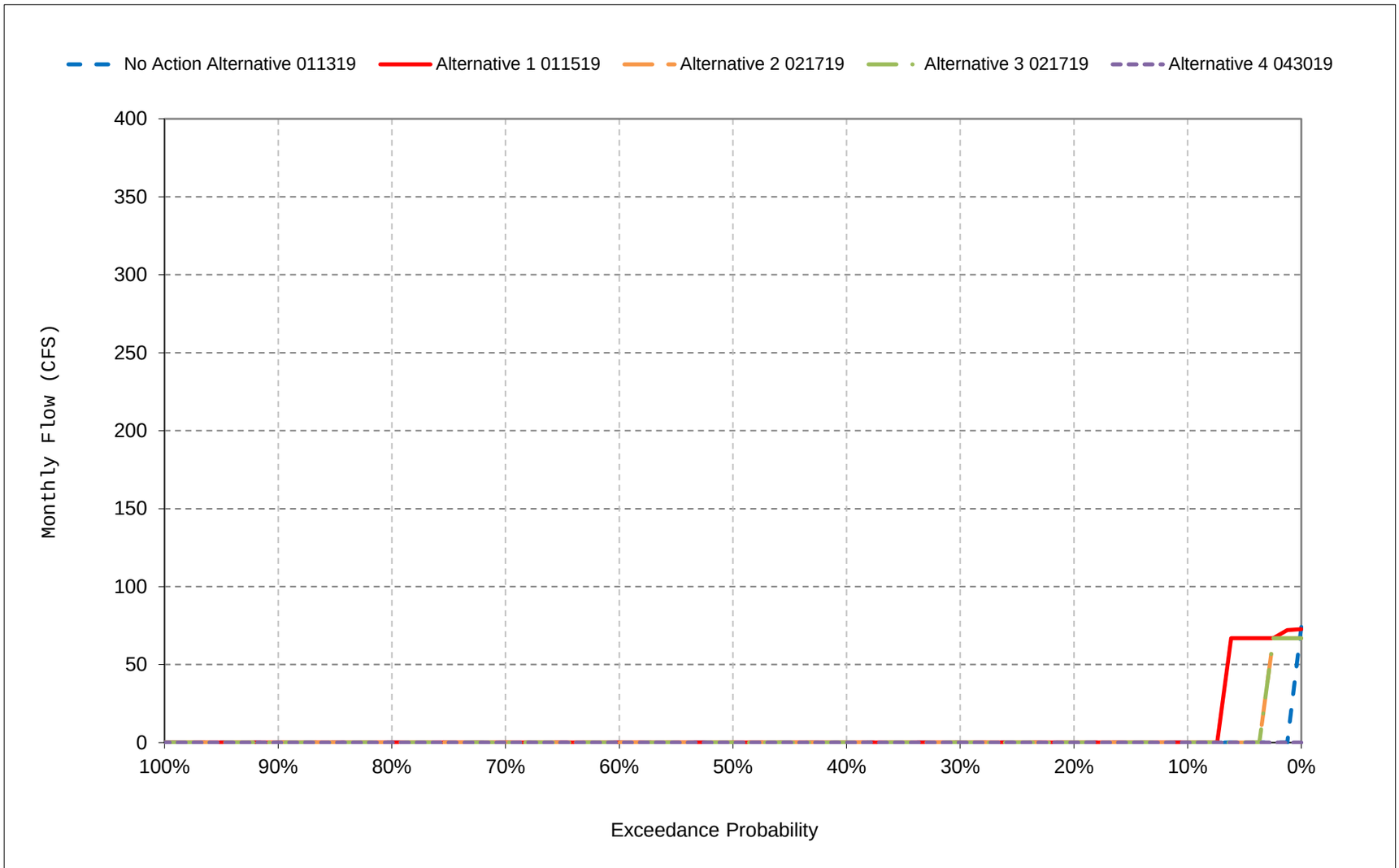
Figure 57-13. DMC - CA Intertie Flow, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

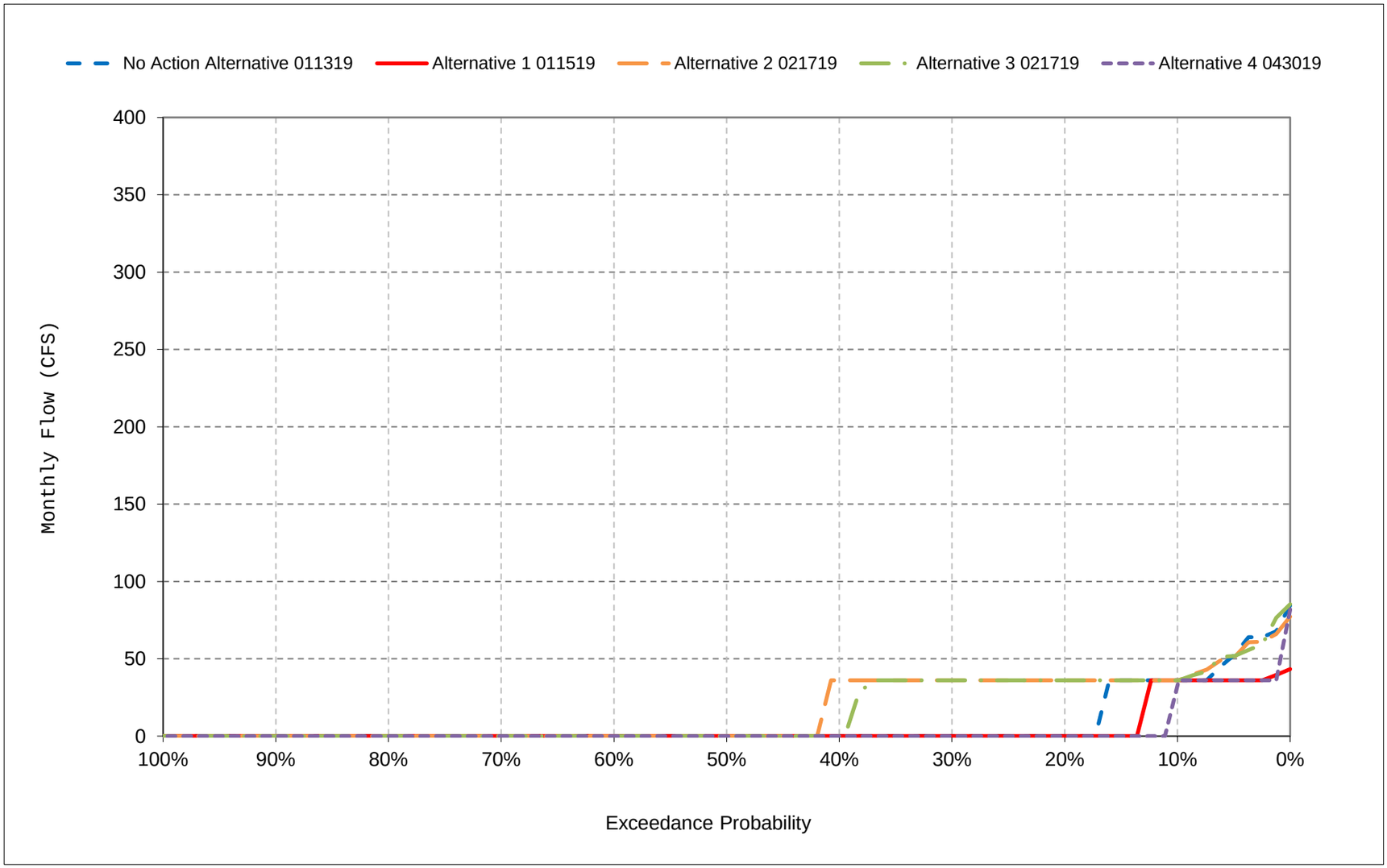
Figure 57-14. DMC - CA Intertie Flow, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

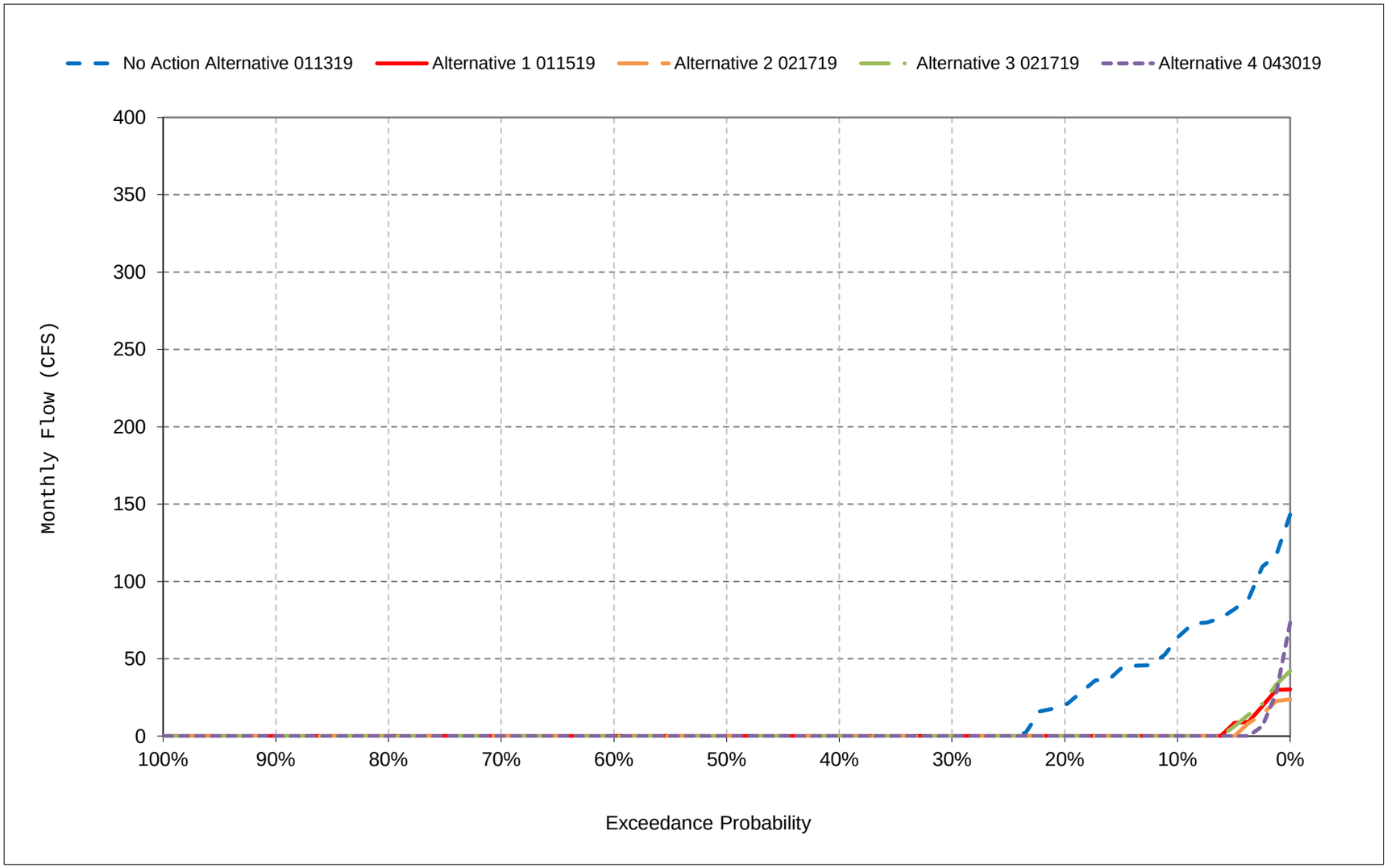
Figure 57-15. DMC - CA Intertie Flow, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

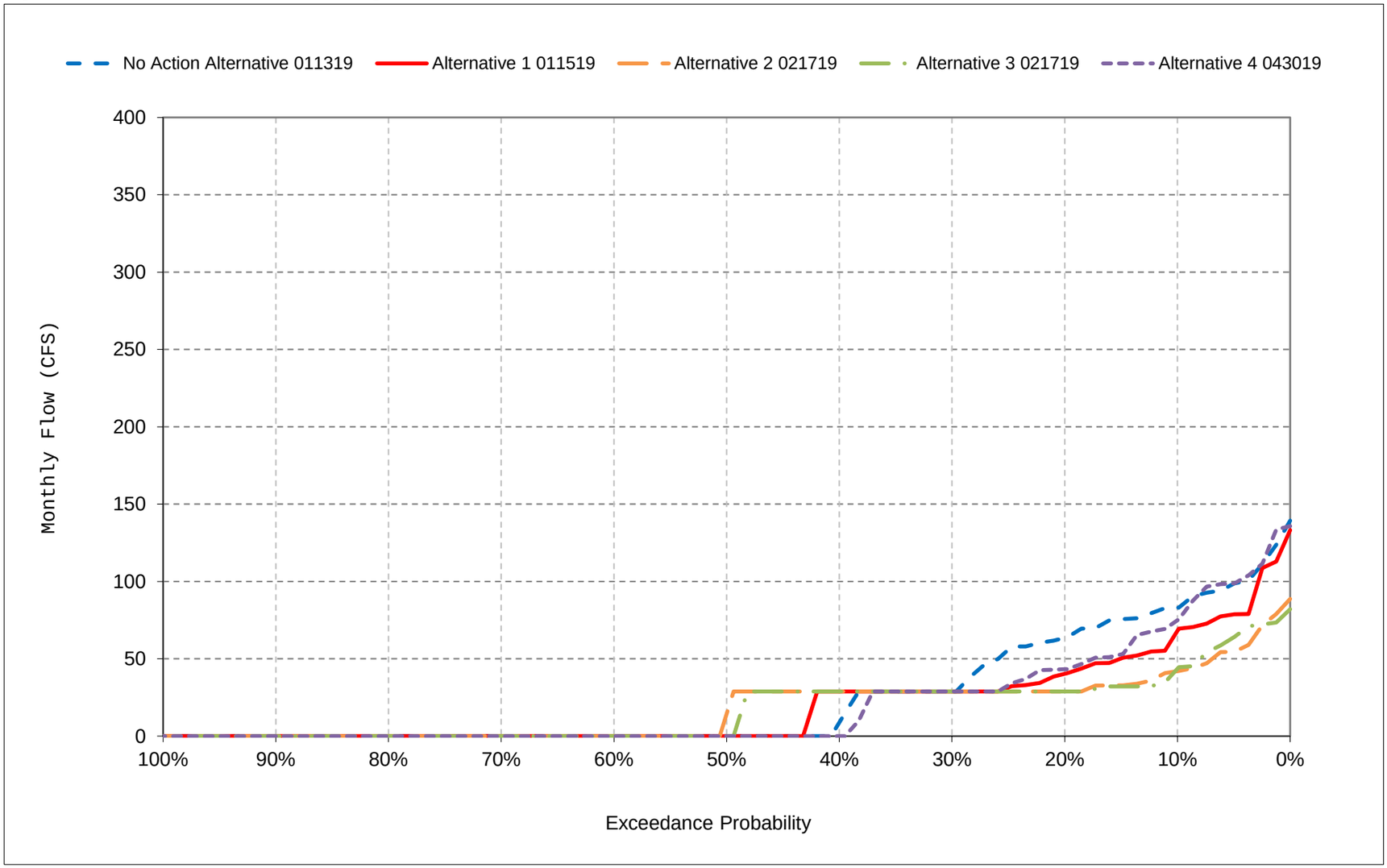
Figure 57-16. DMC - CA Intertie Flow, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

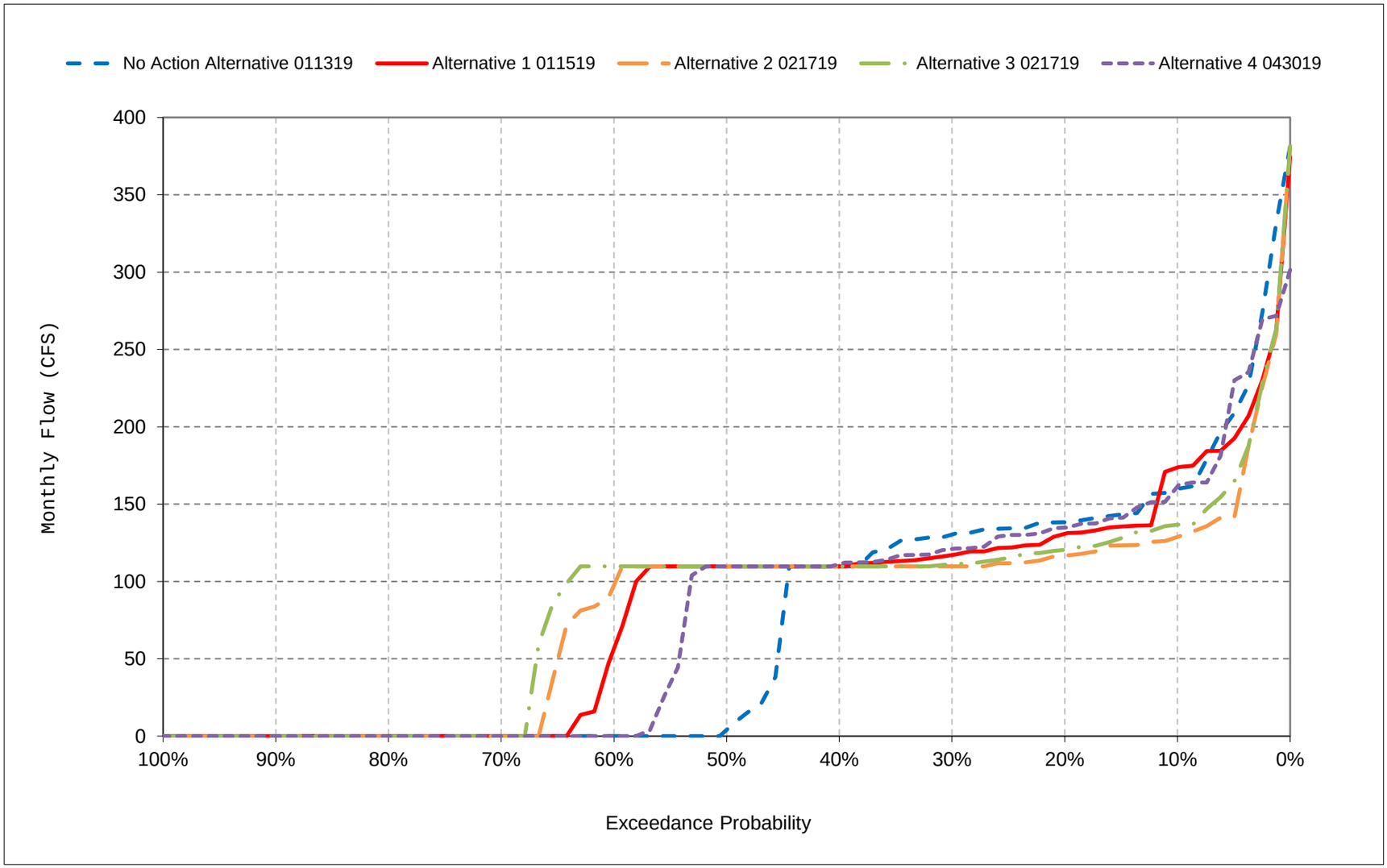
Figure 57-17. DMC - CA Intertie Flow, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 57-18. DMC - CA Intertie Flow, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Attachment 3-4 Temperature Results (HEC-5Q)

The following results of the HEC-5Q model are included for river temperature conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Trinity River below Lewiston Dam	BLW Lewiston	to 1-4	1-1 to 1-18
Clear Creek below Whiskeytown	Whiskeytown	to 2-4	2-1 to 2-18
Clear Creek at Igo	IGO	3-1 to 3-4	3-1 to 3-18
Clear Creek at Mouth	ABV Sacramento	4-1 to 4-4	4-1 to 4-18
Sacramento River below Keswick	BLW Keswick	5-1 to 5-4	5-1 to 5-18
Sacramento River at Clear Creek	BLW Clear Creek	6-1 to 6-4	6-1 to 6-18
Sacramento River at Balls Ferry	Balls Ferry	7-1 to 7-4	7-1 to 7-18
Sacramento River at Jellys Ferry	Jellys Ferry	8-1 to 8-4	8-1 to 8-18
Sacramento River at Bend Bridge	Bend Bridge	9-1 to 9-4	9-1 to 9-18
Sacramento River at Red Bluff	Red Bluff Dam	10-1 to 10-4	10-1 to 10-18
Sacramento River below Red Bluff	Below_RBDD_Tehama	11-1 to 11-4	11-1 to 11-18
Sacramento River below Hamilton City	Hamilton City	12-1 to 12-4	12-1 to 12-18
Sacramento River at Delevan	Moultin Weir	13-1 to 13-4	13-1 to 13-18
Sacramento River at Knights Landing	Knights LDG	14-1 to 14-4	14-1 to 14-18
American River below Nimbus Dam	BLW Nimbus(Hazel Ave)	15-1 to 15-4	15-1 to 15-18
American River at Watt Avenue	Watt Ave	16-1 to 16-4	16-1 to 16-18
American River at the Mouth	ABV Confluence	17-1 to 17-4	17-1 to 17-18
Trinity River at Douglas City	Douglas_City	18-1 to 18-4	18-1 to 18-18

Title	Model Parameter	Table Numbers	Figure Numbers
Trinity River at North Fork	At_N_Fork	19-1 to 19-4	19-1 to 19-18
Stanislaus River below New Melones Reservoir	BLW New Melones	20-1 to 10-4	20-1 to 20-18
Stanislaus River below Tulloch Reservoir	BLW Tulloch	21-1 to 21-4	21-1 to 21-18
Stanislaus River below Goodwin Dam	BLW Goodwin	22-1 to 22-4	22-1 to 22-18
Stanislaus River at Orange Blossom Bridge	BLW Orbl Br	23-1 to 23-4	23-1 to 23-18
Stanislaus River at Mouth	ABV Confluence	24-1 to 24-4	24-1 to 24-18

1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Appendix F – Modeling

Attachment 3-4 – Temperature Results (HEC5Q)

The following results of the HEC5Q model are included for river temperature conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Trinity River below Lewiston Dam	BLW LEWISTON	1-1 to 1-4	1-1 to 1-18
Clear Creek below Whiskeytown	WHISKEYTOWN	2-1 to 2-4	2-1 to 2-18
Clear Creek at Igo	IGO	3-1 to 3-4	3-1 to 3-18
Clear Creek at Mouth	ABV SACRAMENTO	4-1 to 4-4	4-1 to 4-18
Sacramento River below Keswick	BLW KESWICK	5-1 to 5-4	5-1 to 5-18
Sacramento River at Clear Creek	BLW CLEAR CREEK	6-1 to 6-4	6-1 to 6-18
Sacramento River at Balls Ferry	BALLS FERRY	7-1 to 7-4	7-1 to 7-18
Sacramento River at Jellys Ferry	JELLYS FERRY	8-1 to 8-4	8-1 to 8-18
Sacramento River at Bend Bridge	BEND BRIDGE	9-1 to 9-4	9-1 to 9-18
Sacramento River at Red Bluff	RED BLUFF DAM	10-1 to 10-4	10-1 to 10-18
Sacramento River below Red Bluff	BELOW_RBDD_TEHAMA	11-1 to 11-4	11-1 to 11-18
Sacramento River below Hamilton City	HAMILTON CITY	12-1 to 12-4	12-1 to 12-18
Sacramento River at Delevan	MOULTIN WEIR	13-1 to 13-4	13-1 to 13-18
Sacramento River at Knights Landing	KNIGHTS LDG	14-1 to 14-4	14-1 to 14-18
American River below Nimbus Dam	BLW NIMBUS(HAZEL AVE)	15-1 to 15-4	15-1 to 15-18
American River at Watt Avenue	WATT AVE	16-1 to 16-4	16-1 to 16-18
American River at the Mouth	ABV CONFLUENCE	17-1 to 17-4	17-1 to 17-18
Trinity River at Douglas City	DOUGLAS_CITY	18-1 to 18-4	18-1 to 18-18
Trinity River at North Fork	AT_N_FORK	19-1 to 19-4	19-1 to 19-18
Stanislaus River below New Melones Reservoir	BLW NEW MELONES	20-1 to 10-4	20-1 to 20-18
Stanislaus River below Tulloch Reservoir	BLW TULLOCH	21-1 to 21-4	21-1 to 21-18
Stanislaus River below	BLW GOODWIN	22-1 to 22-4	22-1 to 22-18

Goodwin Dam			
Stanislaus River at Orange Blossom Bridge	BLW ORBL BR	23-1 to 23-4	23-1 to 23-18
Stanislaus River at Mouth	ABV CONFLUENCE	24-1 to 24-4	24-1 to 24-18

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Table 1-1. Trinity River below Lewiston Dam, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.9	52.9	51.5	49.7	50.4	52.4	52.7	51.0	55.5	54.5	54.6	54.6
20%	54.4	51.9	50.5	49.2	49.6	51.9	52.2	49.4	52.3	53.1	53.2	53.8
30%	53.2	51.4	50.0	48.4	48.5	50.9	52.0	47.8	51.6	52.1	52.4	52.6
40%	52.5	50.9	49.5	47.9	47.8	49.9	51.5	47.0	50.9	51.7	51.9	51.9
50%	51.8	50.6	49.0	47.6	47.3	49.5	51.3	46.2	50.0	51.5	51.3	51.3
60%	51.0	50.4	48.3	47.1	46.7	48.9	50.8	45.8	49.1	51.1	51.0	50.5
70%	50.4	49.5	47.7	46.3	46.3	48.3	50.0	45.3	48.5	50.9	50.6	50.1
80%	49.8	49.2	46.4	45.1	45.3	47.6	48.8	45.0	47.1	50.3	50.3	49.6
90%	49.2	48.7	45.6	44.0	44.6	46.3	47.8	44.5	45.6	49.7	49.6	49.2
Long Term												
Full Simulation Period[a]	52.0	50.5	48.7	47.3	47.4	49.4	50.7	47.0	50.1	51.9	51.8	51.7
Water Year Types[b,c]												
Wet (32%)	50.0	49.8	49.0	46.0	46.1	47.5	49.1	45.8	47.7	50.9	50.8	49.8
Above Normal (16%)	50.5	50.1	49.0	46.6	46.7	49.0	50.3	45.2	47.7	50.6	50.2	50.0
Below Normal (13%)	52.7	50.6	48.3	48.1	47.3	49.7	51.6	47.0	50.5	51.6	51.6	51.9
Dry (24%)	53.6	51.1	47.9	48.1	48.6	50.8	51.7	47.9	51.6	51.9	52.4	52.8
Critical (15%)	54.5	51.4	49.9	49.0	49.3	51.5	51.8	50.4	55.4	55.5	54.8	55.7

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.1	52.8	51.0	49.6	50.4	52.3	52.4	50.8	55.3	53.9	54.7	54.7
20%	54.4	52.0	50.4	48.8	49.3	51.8	52.2	49.3	52.8	52.7	52.7	53.2
30%	53.4	51.4	49.7	48.1	48.5	51.0	51.9	47.8	51.6	52.0	52.0	52.4
40%	52.2	50.9	49.0	47.7	48.0	49.9	51.5	47.1	50.7	51.7	51.5	52.1
50%	51.7	50.7	48.4	47.4	47.2	49.4	51.2	46.2	50.1	51.4	51.2	51.4
60%	51.1	50.4	47.9	47.0	46.7	48.8	50.8	45.9	49.1	51.1	51.0	51.0
70%	50.4	49.4	47.2	46.3	46.1	48.3	50.2	45.4	48.7	50.6	50.7	50.4
80%	49.6	49.1	46.3	45.0	45.3	47.6	48.9	45.0	47.1	50.2	50.2	49.8
90%	49.0	48.0	45.5	44.1	44.5	46.3	47.8	44.6	45.6	49.6	49.6	49.2
Long Term												
Full Simulation Period[a]	51.6	50.5	48.5	47.2	47.3	49.4	50.6	47.1	50.2	51.6	51.8	51.8
Water Year Types[b,c]												
Wet (32%)	49.9	49.6	48.0	46.0	45.9	47.7	49.3	45.9	47.7	50.9	50.8	50.3
Above Normal (16%)	50.8	49.3	47.9	46.2	46.3	48.4	50.3	45.2	47.9	50.5	50.2	50.2
Below Normal (13%)	52.4	50.4	48.7	47.2	47.3	49.7	51.7	47.0	50.3	51.6	51.5	51.9
Dry (24%)	53.5	51.1	48.3	48.0	48.6	50.6	51.4	47.9	51.9	51.7	52.2	52.5
Critical (15%)	52.1	52.8	50.1	49.3	49.6	51.8	51.6	50.2	55.0	54.1	55.3	55.7

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.8	-0.1	-0.5	-0.2	**0.0**	-0.1	-0.3	-0.2	-0.2	-0.6	**0.1**	**0.1**
20%	**0.0**	**0.0**	-0.1	-0.4	-0.3	-0.1	0.0	-0.1	**0.4**	-0.4	-0.5	-0.6
30%	**0.2**	**0.0**	-0.3	-0.3	0.0	**0.1**	-0.1	-0.1	0.0	-0.1	-0.4	-0.2
40%	-0.3	0.0	-0.5	-0.2	**0.1**	**0.0**	0.0	**0.0**	-0.2	0.0	-0.4	**0.2**
50%	0.0	**0.0**	-0.6	-0.1	-0.1	-0.1	-0.1	**0.0**	**0.1**	0.0	-0.1	**0.2**
60%	**0.1**	**0.1**	-0.4	-0.1	0.0	-0.1	0.0	**0.1**	**0.1**	0.0	0.0	**0.4**
70%	**0.0**	-0.1	-0.5	**0.0**	-0.1	**0.0**	**0.2**	**0.0**	**0.2**	-0.3	**0.0**	**0.3**
80%	-0.3	-0.1	0.0	-0.1	0.0	0.0	**0.1**	**0.0**	**0.0**	-0.1	-0.1	**0.3**
90%	-0.2	-0.7	-0.2	**0.1**	-0.1	0.0	**0.1**	**0.0**	**0.0**	-0.1	-0.1	**0.1**
Long Term												
Full Simulation Period[a]	-0.4	**0.0**	-0.3	-0.2	-0.1	0.0	0.0	**0.0**	**0.0**	-0.3	0.0	**0.1**
Water Year Types[b,c]												
Wet (32%)	0.0	-0.2	-1.0	0.0	-0.2	**0.2**	**0.2**	**0.0**	**0.0**	-0.1	0.0	**0.4**
Above Normal (16%)	**0.3**	-0.7	-1.1	-0.5	-0.5	-0.6	0.0	**0.0**	**0.2**	-0.1	**0.1**	**0.2**
Below Normal (13%)	-0.3	-0.2	**0.4**	-0.9	0.0	0.0	**0.1**	0.0	-0.1	**0.0**	-0.2	**0.0**
Dry (24%)	-0.1	**0.0**	**0.4**	-0.1	**0.0**	-0.2	-0.3	**0.0**	**0.3**	-0.2	-0.2	-0.3
Critical (15%)	-2.4	**1.4**	**0.3**	**0.3**	**0.3**	**0.3**	-0.2	-0.1	-0.3	-1.3	**0.4**	**0.0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-2. Trinity River below Lewiston Dam, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.9	52.9	51.5	49.7	50.4	52.4	52.7	51.0	55.5	54.5	54.6	54.6
20%	54.4	51.9	50.5	49.2	49.6	51.9	52.2	49.4	52.3	53.1	53.2	53.8
30%	53.2	51.4	50.0	48.4	48.5	50.9	52.0	47.8	51.6	52.1	52.4	52.6
40%	52.5	50.9	49.5	47.9	47.8	49.9	51.5	47.0	50.9	51.7	51.9	51.9
50%	51.8	50.6	49.0	47.6	47.3	49.5	51.3	46.2	50.0	51.5	51.3	51.3
60%	51.0	50.4	48.3	47.1	46.7	48.9	50.8	45.8	49.1	51.1	51.0	50.5
70%	50.4	49.5	47.7	46.3	46.3	48.3	50.0	45.3	48.5	50.9	50.6	50.1
80%	49.8	49.2	46.4	45.1	45.3	47.6	48.8	45.0	47.1	50.3	50.3	49.6
90%	49.2	48.7	45.6	44.0	44.6	46.3	47.8	44.5	45.6	49.7	49.6	49.2
Long Term												
Full Simulation Period[a]	52.0	50.5	48.7	47.3	47.4	49.4	50.7	47.0	50.1	51.9	51.8	51.7
Water Year Types[b,c]												
Wet (32%)	50.0	49.8	49.0	46.0	46.1	47.5	49.1	45.8	47.7	50.9	50.8	49.8
Above Normal (16%)	50.5	50.1	49.0	46.6	46.7	49.0	50.3	45.2	47.7	50.6	50.2	50.0
Below Normal (13%)	52.7	50.6	48.3	48.1	47.3	49.7	51.6	47.0	50.5	51.6	51.6	51.9
Dry (24%)	53.6	51.1	47.9	48.1	48.6	50.8	51.7	47.9	51.6	51.9	52.4	52.8
Critical (15%)	54.5	51.4	49.9	49.0	49.3	51.5	51.8	50.4	55.4	55.5	54.8	55.7

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.3	53.6	51.0	49.6	50.4	52.2	52.7	50.7	55.3	53.8	54.9	54.8
20%	54.7	52.2	50.6	48.8	49.4	51.7	52.2	49.1	52.3	52.5	52.8	53.7
30%	53.9	51.8	49.6	48.2	48.4	50.8	51.8	47.7	51.9	52.0	52.1	52.6
40%	52.8	51.1	48.6	47.7	47.9	49.7	51.4	47.0	50.6	51.6	51.7	52.0
50%	52.0	50.8	47.9	47.3	47.1	49.3	51.0	46.2	49.6	51.3	51.4	51.5
60%	51.0	50.5	47.6	46.6	46.5	48.8	50.7	45.7	48.9	50.9	51.0	50.9
70%	50.5	49.7	46.8	45.9	46.1	48.2	50.0	45.3	48.1	50.3	50.6	50.4
80%	49.7	49.1	46.0	44.6	45.4	47.6	48.8	45.0	47.0	50.0	50.0	50.0
90%	49.2	48.4	45.4	44.1	44.5	46.3	47.9	44.6	45.6	49.6	49.7	49.4
Long Term												
Full Simulation Period[a]	51.8	50.8	48.2	47.0	47.3	49.3	50.6	47.0	50.0	51.5	51.7	52.0
Water Year Types[b,c]												
Wet (32%)	49.9	49.6	47.5	45.9	45.9	47.7	49.3	45.8	47.3	50.7	50.7	50.3
Above Normal (16%)	50.8	49.9	48.7	46.3	46.6	48.8	50.2	45.2	47.7	50.3	50.1	50.3
Below Normal (13%)	52.8	51.1	48.6	47.0	47.0	49.4	51.3	47.0	50.2	51.2	51.5	51.7
Dry (24%)	54.1	51.4	47.7	47.8	48.6	50.2	51.4	47.8	51.6	51.7	52.3	52.7
Critical (15%)	52.2	52.9	49.7	48.9	49.3	51.8	51.8	50.0	55.2	54.7	55.0	56.2

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.6	**0.6**	-0.5	-0.1	0.0	-0.1	-0.1	-0.3	-0.2	-0.7	**0.3**	**0.1**
20%	**0.3**	**0.3**	**0.1**	-0.5	-0.2	-0.2	**0.0**	-0.3	**0.0**	-0.6	-0.4	-0.1
30%	**0.7**	**0.4**	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	**0.2**	-0.2	-0.3	**0.0**
40%	**0.3**	**0.1**	-0.8	-0.2	**0.1**	-0.1	-0.1	**0.0**	-0.3	-0.1	-0.2	**0.1**
50%	**0.2**	**0.1**	-1.1	-0.3	-0.1	-0.2	-0.3	-0.1	-0.4	-0.2	**0.0**	**0.3**
60%	**0.0**	**0.1**	-0.7	-0.5	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	0.0	**0.4**
70%	**0.2**	**0.2**	-0.9	-0.4	-0.2	-0.1	0.0	0.0	-0.5	-0.5	-0.1	**0.3**
80%	-0.2	-0.1	-0.4	-0.5	**0.1**	0.0	0.0	**0.0**	0.0	-0.3	-0.3	**0.4**
90%	0.0	-0.3	-0.2	**0.1**	0.0	**0.0**	**0.2**	**0.0**	0.0	-0.1	**0.0**	**0.2**
Long Term												
Full Simulation Period[a]	-0.2	**0.3**	-0.5	-0.3	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.1	**0.2**
Water Year Types[b,c]												
Wet (32%)	0.0	-0.2	-1.5	-0.2	-0.2	**0.2**	**0.2**	0.0	-0.3	-0.2	-0.1	**0.5**
Above Normal (16%)	**0.3**	-0.1	-0.3	-0.4	-0.2	-0.2	-0.1	**0.0**	0.0	-0.3	-0.1	**0.3**
Below Normal (13%)	**0.1**	**0.5**	**0.3**	-1.1	-0.3	-0.3	-0.3	0.0	-0.3	-0.4	-0.1	-0.2
Dry (24%)	**0.5**	**0.3**	-0.2	-0.3	0.0	-0.6	-0.3	-0.1	**0.0**	-0.3	-0.1	-0.1
Critical (15%)	-2.3	**1.4**	-0.1	-0.1	0.0	**0.3**	**0.1**	-0.4	-0.2	-0.7	**0.2**	**0.5**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-3. Trinity River below Lewiston Dam, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.9	52.9	51.5	49.7	50.4	52.4	52.7	51.0	55.5	54.5	54.6	54.6
20%	54.4	51.9	50.5	49.2	49.6	51.9	52.2	49.4	52.3	53.1	53.2	53.8
30%	53.2	51.4	50.0	48.4	48.5	50.9	52.0	47.8	51.6	52.1	52.4	52.6
40%	52.5	50.9	49.5	47.9	47.8	49.9	51.5	47.0	50.9	51.7	51.9	51.9
50%	51.8	50.6	49.0	47.6	47.3	49.5	51.3	46.2	50.0	51.5	51.3	51.3
60%	51.0	50.4	48.3	47.1	46.7	48.9	50.8	45.8	49.1	51.1	51.0	50.5
70%	50.4	49.5	47.7	46.3	46.3	48.3	50.0	45.3	48.5	50.9	50.6	50.1
80%	49.8	49.2	46.4	45.1	45.3	47.6	48.8	45.0	47.1	50.3	50.3	49.6
90%	49.2	48.7	45.6	44.0	44.6	46.3	47.8	44.5	45.6	49.7	49.6	49.2
Long Term												
Full Simulation Period[a]	52.0	50.5	48.7	47.3	47.4	49.4	50.7	47.0	50.1	51.9	51.8	51.7
Water Year Types[b,c]												
Wet (32%)	50.0	49.8	49.0	46.0	46.1	47.5	49.1	45.8	47.7	50.9	50.8	49.8
Above Normal (16%)	50.5	50.1	49.0	46.6	46.7	49.0	50.3	45.2	47.7	50.6	50.2	50.0
Below Normal (13%)	52.7	50.6	48.3	48.1	47.3	49.7	51.6	47.0	50.5	51.6	51.6	51.9
Dry (24%)	53.6	51.1	47.9	48.1	48.6	50.8	51.7	47.9	51.6	51.9	52.4	52.8
Critical (15%)	54.5	51.4	49.9	49.0	49.3	51.5	51.8	50.4	55.4	55.5	54.8	55.7

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.5	53.0	51.2	49.6	50.4	52.3	52.6	50.7	55.3	54.1	54.9	54.5
20%	54.6	52.2	50.4	48.9	49.3	51.7	52.1	49.2	52.4	52.8	52.9	53.3
30%	53.6	51.7	49.5	48.2	48.6	50.5	51.8	47.9	51.8	52.0	52.1	52.5
40%	52.6	51.2	48.6	47.7	47.9	49.9	51.4	47.0	50.6	51.6	51.7	52.0
50%	51.8	50.9	48.0	47.5	47.1	49.4	50.9	46.2	49.5	51.2	51.4	51.4
60%	51.1	50.6	47.6	46.5	46.5	49.0	50.8	45.7	48.9	50.9	51.0	50.9
70%	50.5	49.6	46.6	45.9	46.1	48.3	49.9	45.2	48.0	50.4	50.6	50.4
80%	49.7	49.1	45.9	44.7	45.3	47.6	48.8	45.0	47.0	50.0	50.0	50.0
90%	49.2	47.9	45.4	44.1	44.5	46.3	47.9	44.5	45.6	49.6	49.7	49.3
Long Term												
Full Simulation Period[a]	52.0	50.8	48.2	47.0	47.3	49.4	50.6	46.9	50.0	51.6	51.8	51.7
Water Year Types[b,c]												
Wet (32%)	49.9	49.6	47.7	45.9	45.9	47.8	49.4	45.8	47.2	50.7	50.7	50.3
Above Normal (16%)	50.8	49.5	48.6	46.3	46.4	48.8	50.2	45.2	47.7	50.4	50.1	50.3
Below Normal (13%)	52.5	51.2	48.8	47.0	47.0	49.4	51.2	47.0	50.2	51.3	51.5	51.7
Dry (24%)	53.8	51.5	47.7	47.8	48.7	50.4	51.3	47.7	51.6	51.6	52.4	52.7
Critical (15%)	54.5	52.9	49.5	48.9	49.3	51.7	51.8	50.0	55.3	54.9	55.3	54.3

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.3	**0.1**	-0.3	-0.1	0.0	-0.1	-0.1	-0.3	-0.2	-0.4	**0.3**	-0.1
20%	**0.2**	**0.3**	-0.1	-0.3	-0.3	-0.2	-0.2	-0.3	**0.1**	-0.3	-0.3	-0.5
30%	**0.4**	**0.3**	-0.5	-0.2	**0.0**	-0.4	-0.2	**0.1**	**0.2**	-0.1	-0.3	0.0
40%	**0.1**	**0.2**	-0.8	-0.2	**0.0**	0.0	-0.2	**0.0**	-0.4	-0.2	-0.2	**0.1**
50%	**0.1**	**0.2**	-1.0	-0.1	-0.2	-0.2	-0.4	-0.1	-0.5	-0.3	**0.1**	**0.1**
60%	**0.0**	**0.2**	-0.7	-0.6	-0.2	**0.0**	0.0	-0.1	-0.2	-0.3	0.0	**0.3**
70%	**0.1**	**0.1**	-1.1	-0.4	-0.2	0.0	-0.1	-0.1	-0.5	-0.5	-0.1	**0.3**
80%	-0.1	-0.1	-0.5	-0.5	**0.0**	0.0	**0.1**	**0.0**	0.0	-0.3	-0.3	**0.4**
90%	0.0	-0.8	-0.2	**0.1**	-0.1	0.0	**0.2**	0.0	0.0	-0.1	**0.0**	**0.1**
Long Term												
Full Simulation Period[a]	**0.0**	**0.2**	-0.5	-0.3	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	0.0	0.0
Water Year Types[b,c]												
Wet (32%)	-0.1	-0.2	-1.3	-0.1	-0.2	**0.3**	**0.3**	-0.1	-0.4	-0.2	-0.1	**0.5**
Above Normal (16%)	**0.3**	-0.6	-0.4	-0.3	-0.3	-0.2	-0.1	**0.0**	0.0	-0.2	-0.1	**0.3**
Below Normal (13%)	-0.2	**0.6**	**0.5**	-1.1	-0.3	-0.3	-0.4	0.0	-0.2	-0.3	-0.1	-0.2
Dry (24%)	**0.2**	**0.4**	-0.2	-0.3	**0.1**	-0.4	-0.5	-0.1	**0.0**	-0.3	0.0	-0.1
Critical (15%)	-0.1	**1.5**	-0.4	-0.1	**0.0**	**0.2**	**0.0**	-0.4	-0.1	-0.6	**0.4**	-1.4

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-4. Trinity River below Lewiston Dam, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.9	52.9	51.5	49.7	50.4	52.4	52.7	51.0	55.5	54.5	54.6	54.6
20%	54.4	51.9	50.5	49.2	49.6	51.9	52.2	49.4	52.3	53.1	53.2	53.8
30%	53.2	51.4	50.0	48.4	48.5	50.9	52.0	47.8	51.6	52.1	52.4	52.6
40%	52.5	50.9	49.5	47.9	47.8	49.9	51.5	47.0	50.9	51.7	51.9	51.9
50%	51.8	50.6	49.0	47.6	47.3	49.5	51.3	46.2	50.0	51.5	51.3	51.3
60%	51.0	50.4	48.3	47.1	46.7	48.9	50.8	45.8	49.1	51.1	51.0	50.5
70%	50.4	49.5	47.7	46.3	46.3	48.3	50.0	45.3	48.5	50.9	50.6	50.1
80%	49.8	49.2	46.4	45.1	45.3	47.6	48.8	45.0	47.1	50.3	50.3	49.6
90%	49.2	48.7	45.6	44.0	44.6	46.3	47.8	44.5	45.6	49.7	49.6	49.2
Long Term												
Full Simulation Period[a]	52.0	50.5	48.7	47.3	47.4	49.4	50.7	47.0	50.1	51.9	51.8	51.7
Water Year Types[b,c]												
Wet (32%)	50.0	49.8	49.0	46.0	46.1	47.5	49.1	45.8	47.7	50.9	50.8	49.8
Above Normal (16%)	50.5	50.1	49.0	46.6	46.7	49.0	50.3	45.2	47.7	50.6	50.2	50.0
Below Normal (13%)	52.7	50.6	48.3	48.1	47.3	49.7	51.6	47.0	50.5	51.6	51.6	51.9
Dry (24%)	53.6	51.1	47.9	48.1	48.6	50.8	51.7	47.9	51.6	51.9	52.4	52.8
Critical (15%)	54.5	51.4	49.9	49.0	49.3	51.5	51.8	50.4	55.4	55.5	54.8	55.7

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.6	52.6	51.1	49.8	50.4	52.3	52.6	50.8	55.3	53.8	54.3	55.2
20%	54.5	51.8	50.3	49.1	49.4	51.7	52.1	49.5	53.1	52.5	52.7	53.3
30%	53.5	51.2	49.7	48.4	48.9	51.1	52.0	48.1	51.9	52.0	52.1	52.5
40%	52.4	51.0	48.9	47.9	48.4	50.3	51.7	47.1	50.8	51.8	51.6	52.2
50%	51.9	50.6	48.2	47.4	48.0	49.4	51.4	46.3	50.1	51.5	51.2	51.4
60%	51.0	49.9	47.8	46.9	46.8	48.9	50.8	45.9	49.3	51.1	50.9	51.0
70%	50.8	49.4	46.9	46.2	46.0	48.2	49.9	45.4	48.6	50.6	50.6	50.5
80%	49.8	49.1	46.0	45.2	45.3	47.2	48.8	45.1	47.1	50.1	50.2	49.9
90%	49.3	48.0	45.2	44.1	44.5	45.6	47.9	44.6	45.7	49.6	49.7	49.3
Long Term												
Full Simulation Period[a]	52.2	50.4	48.3	47.2	47.5	49.4	50.7	47.1	50.3	51.5	51.6	51.8
Water Year Types[b,c]												
Wet (32%)	50.2	49.5	47.7	45.8	45.9	47.5	49.1	45.9	47.8	50.8	50.7	50.6
Above Normal (16%)	50.7	49.7	48.0	46.3	46.3	48.2	49.9	45.3	47.7	50.5	50.2	50.2
Below Normal (13%)	52.5	50.3	48.3	47.3	47.5	49.9	51.8	47.0	50.7	51.2	51.7	51.9
Dry (24%)	53.3	51.1	48.2	48.3	49.0	50.7	51.8	47.9	52.0	51.8	52.1	52.4
Critical (15%)	56.0	52.3	50.2	49.5	49.7	51.8	51.9	50.3	55.0	54.1	54.3	55.2

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.3	-0.4	-0.4	**0.1**	0.0	-0.1	-0.1	-0.2	-0.3	-0.7	-0.4	**0.6**
20%	**0.1**	-0.2	-0.2	-0.1	-0.2	-0.2	-0.1	**0.1**	**0.8**	-0.5	-0.5	-0.4
30%	**0.3**	-0.2	-0.3	-0.1	**0.4**	**0.2**	0.0	**0.3**	**0.2**	-0.1	-0.3	0.0
40%	-0.1	**0.0**	-0.5	-0.1	**0.5**	**0.4**	**0.1**	**0.1**	-0.1	**0.0**	-0.3	**0.3**
50%	**0.1**	0.0	-0.8	-0.1	**0.7**	-0.1	**0.1**	**0.0**	**0.1**	**0.0**	-0.2	**0.1**
60%	**0.0**	-0.5	-0.5	-0.2	**0.1**	0.0	**0.1**	**0.1**	**0.3**	0.0	-0.1	**0.5**
70%	**0.5**	-0.1	-0.8	-0.1	-0.3	-0.1	-0.1	**0.1**	**0.1**	-0.3	0.0	**0.4**
80%	**0.0**	-0.1	-0.4	**0.1**	0.0	-0.4	**0.0**	**0.1**	**0.1**	-0.2	-0.1	**0.3**
90%	**0.1**	-0.7	-0.4	**0.0**	-0.1	-0.7	**0.2**	**0.1**	**0.1**	-0.1	**0.1**	**0.2**
Long Term												
Full Simulation Period[a]	**0.2**	-0.1	-0.4	-0.1	**0.1**	-0.1	**0.0**	**0.1**	**0.1**	-0.3	-0.2	**0.1**
Water Year Types[b,c]												
Wet (32%)	**0.2**	-0.3	-1.3	-0.2	-0.1	0.0	0.0	**0.1**	**0.1**	-0.1	-0.2	**0.8**
Above Normal (16%)	**0.2**	-0.4	-0.9	-0.3	-0.4	-0.8	-0.4	**0.1**	**0.0**	-0.1	**0.1**	**0.2**
Below Normal (13%)	-0.2	-0.3	0.0	-0.8	**0.2**	**0.1**	**0.2**	**0.1**	**0.2**	-0.4	**0.1**	0.0
Dry (24%)	-0.4	-0.1	**0.3**	**0.2**	**0.4**	0.0	**0.1**	**0.1**	**0.5**	-0.1	-0.3	-0.4
Critical (15%)	**1.5**	**0.8**	**0.3**	**0.5**	**0.4**	**0.3**	**0.1**	0.0	-0.3	-1.4	-0.5	-0.5

a Based on the 82-year simulation period.

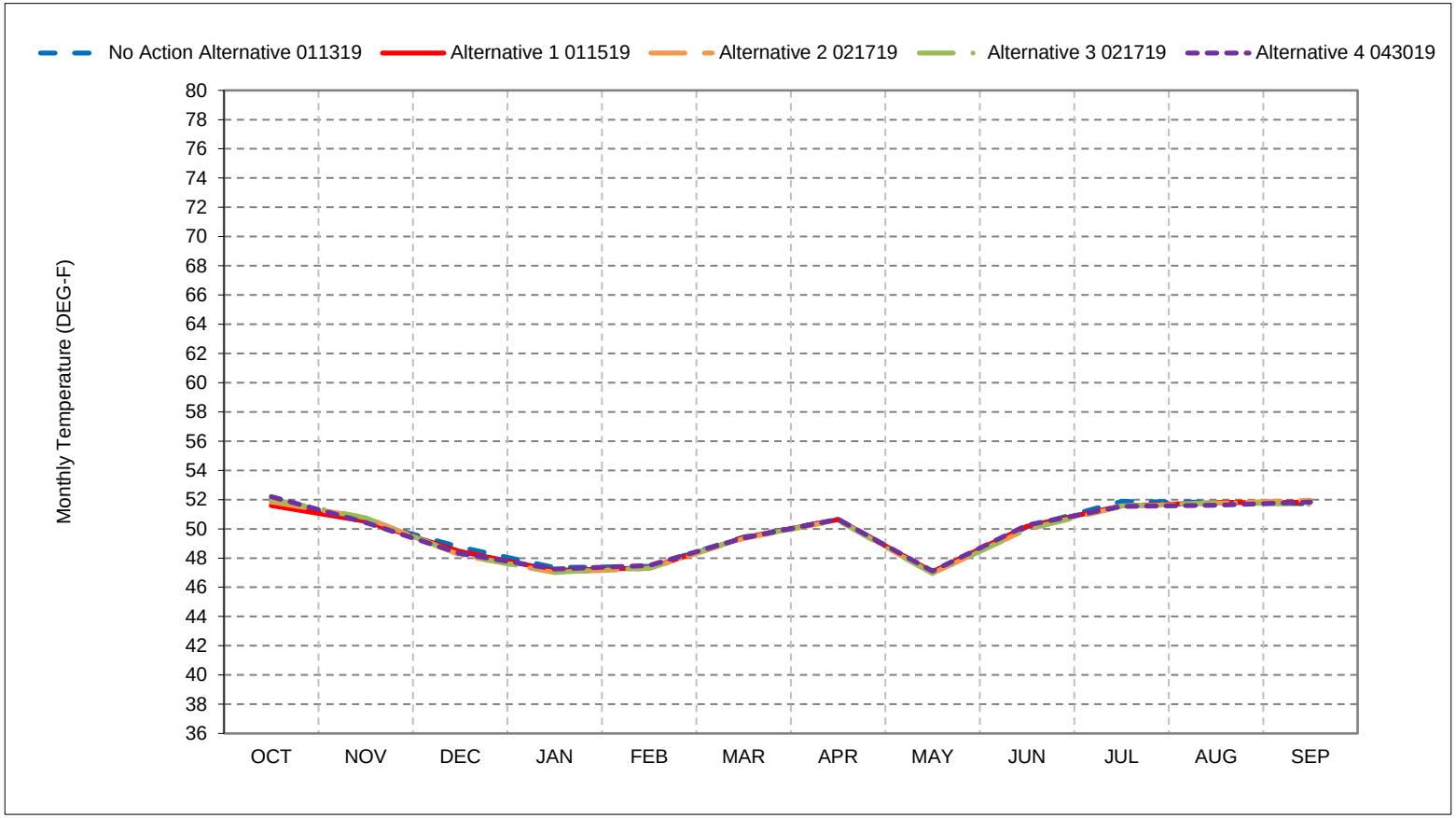
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-1. Trinity River below Lewiston Dam, Long-Term Average Temperature



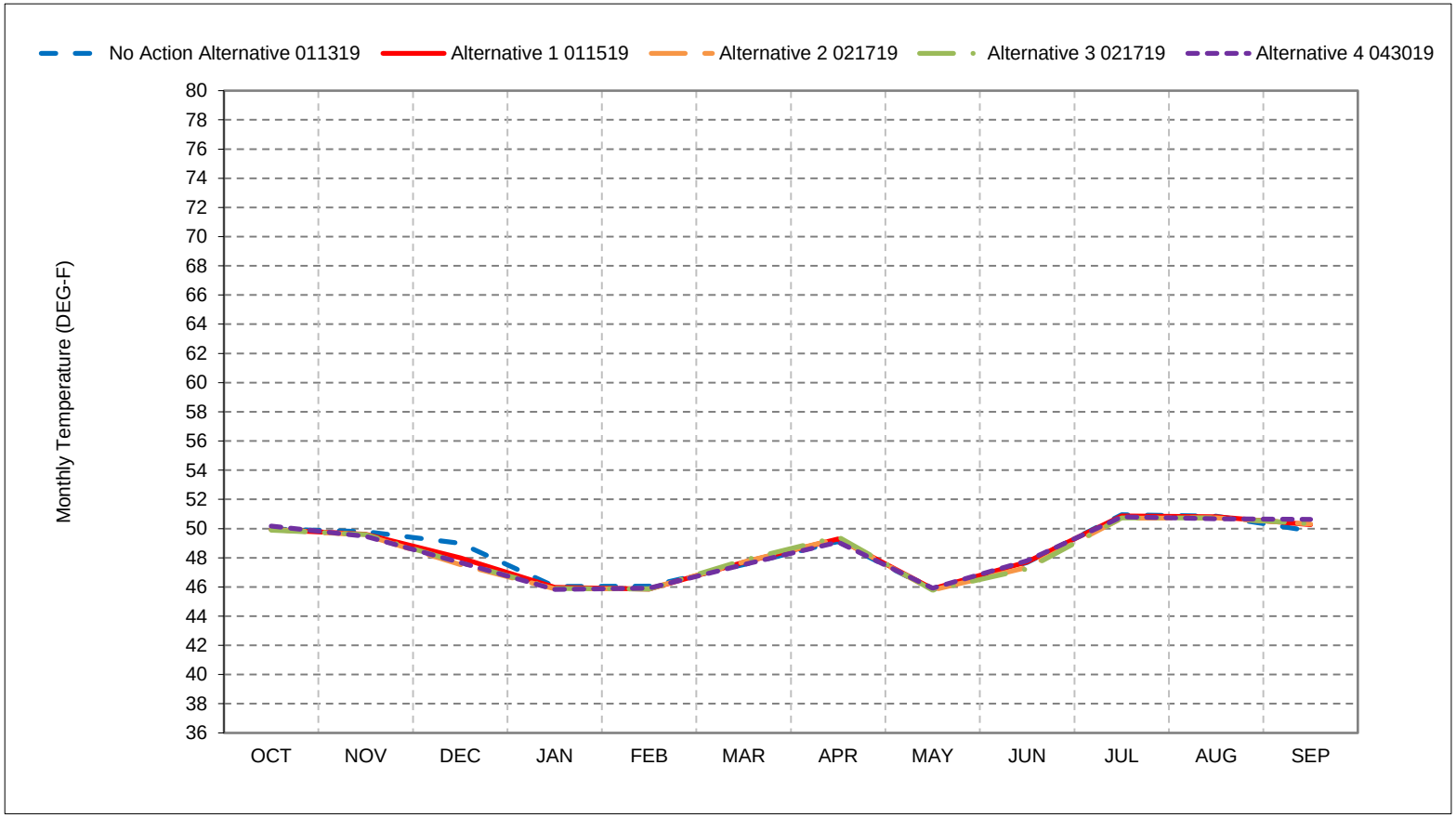
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-2. Trinity River below Lewiston Dam, Wet Year Average Temperature



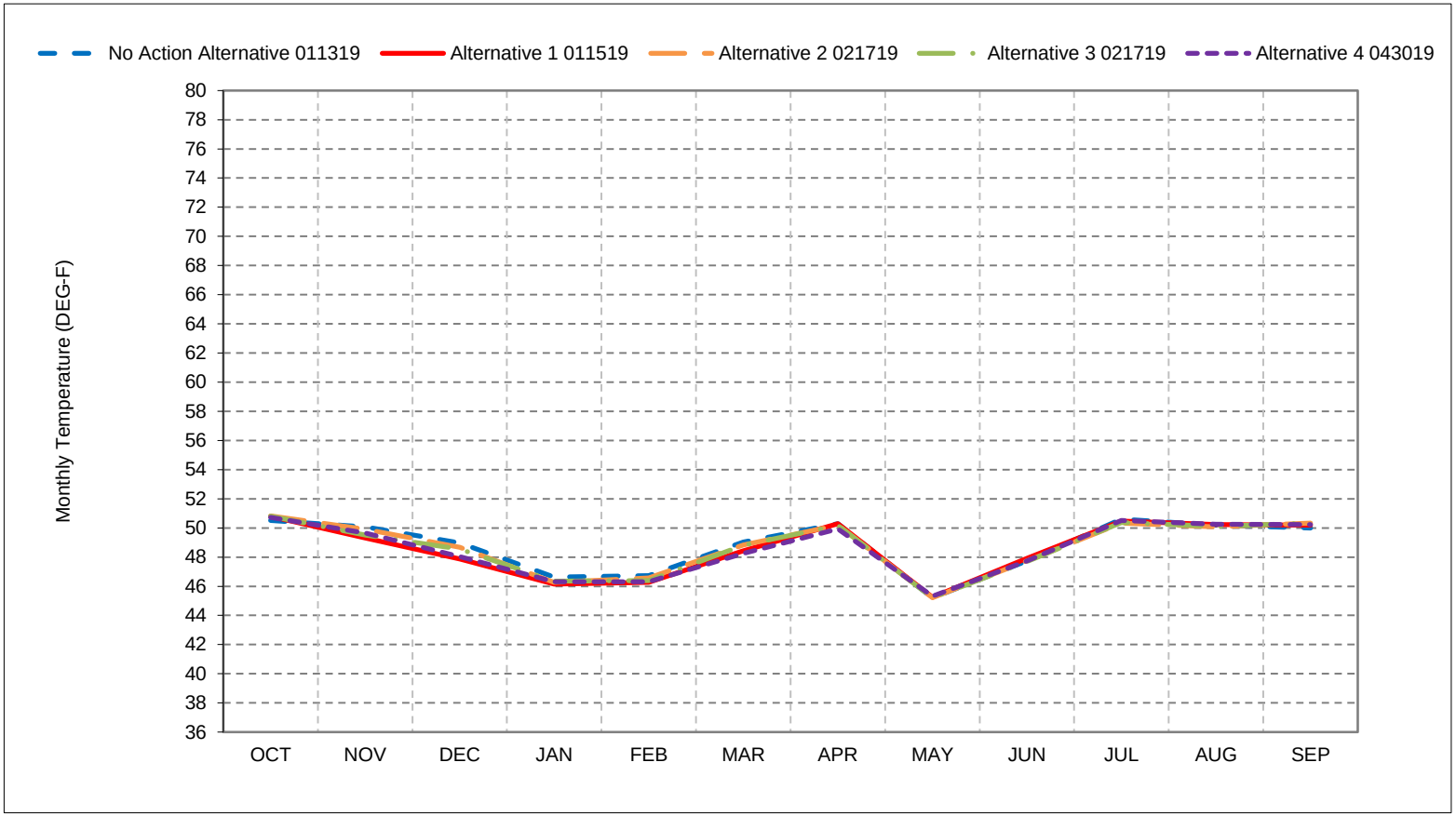
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-3. Trinity River below Lewiston Dam, Above Normal Year Average Temperature



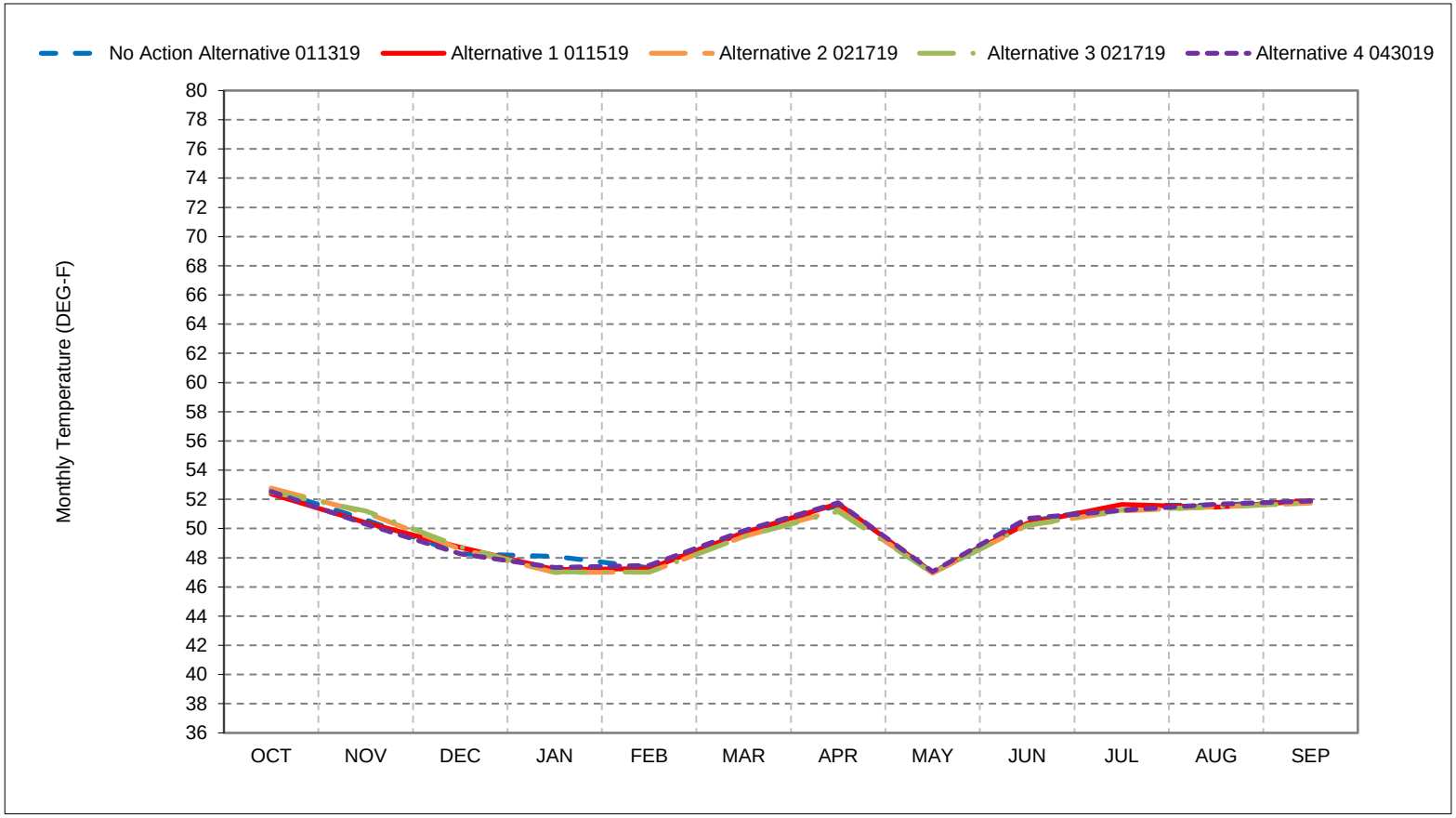
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-4. Trinity River below Lewiston Dam, Below Normal Year Average Temperature



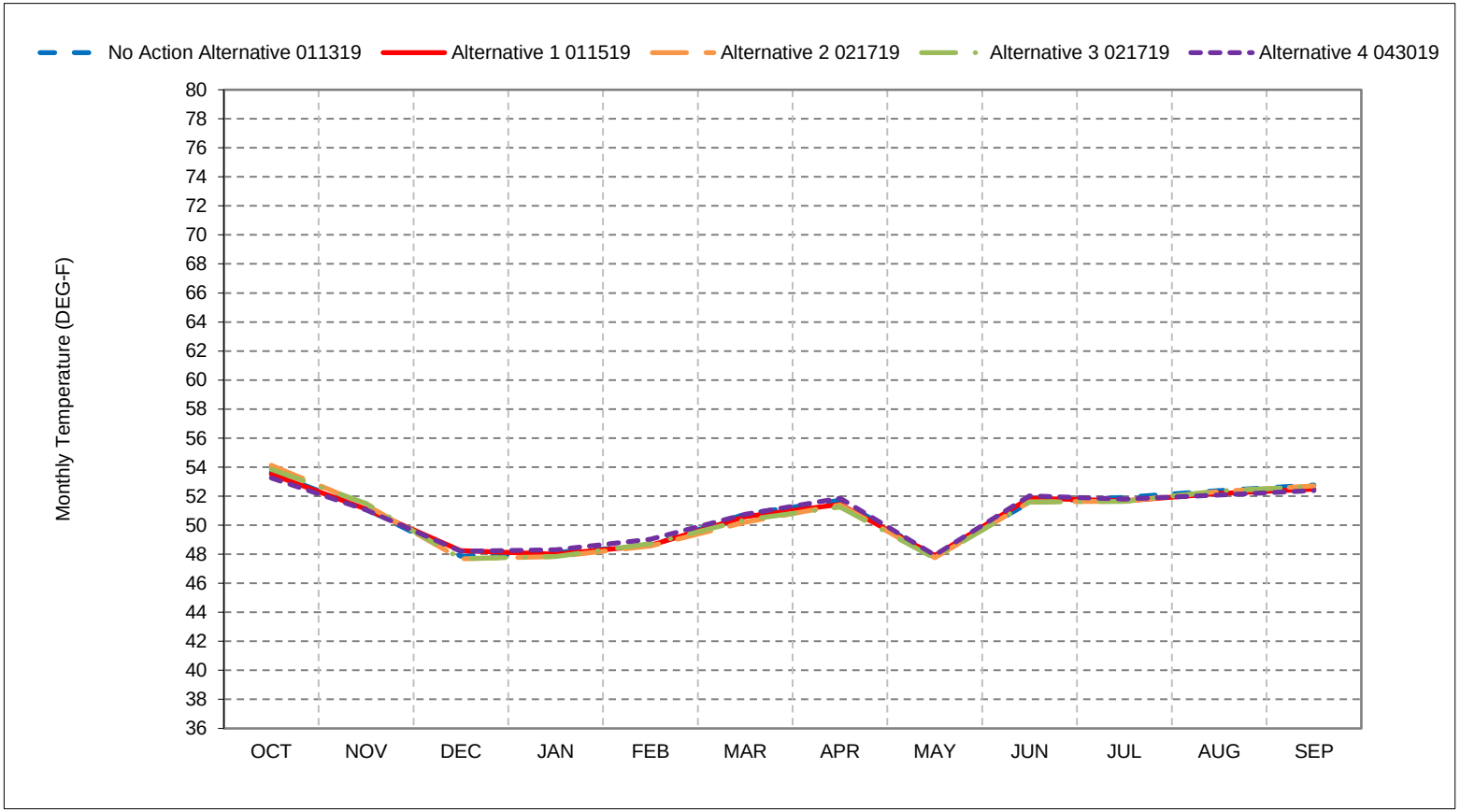
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-5. Trinity River below Lewiston Dam, Dry Year Average Temperature



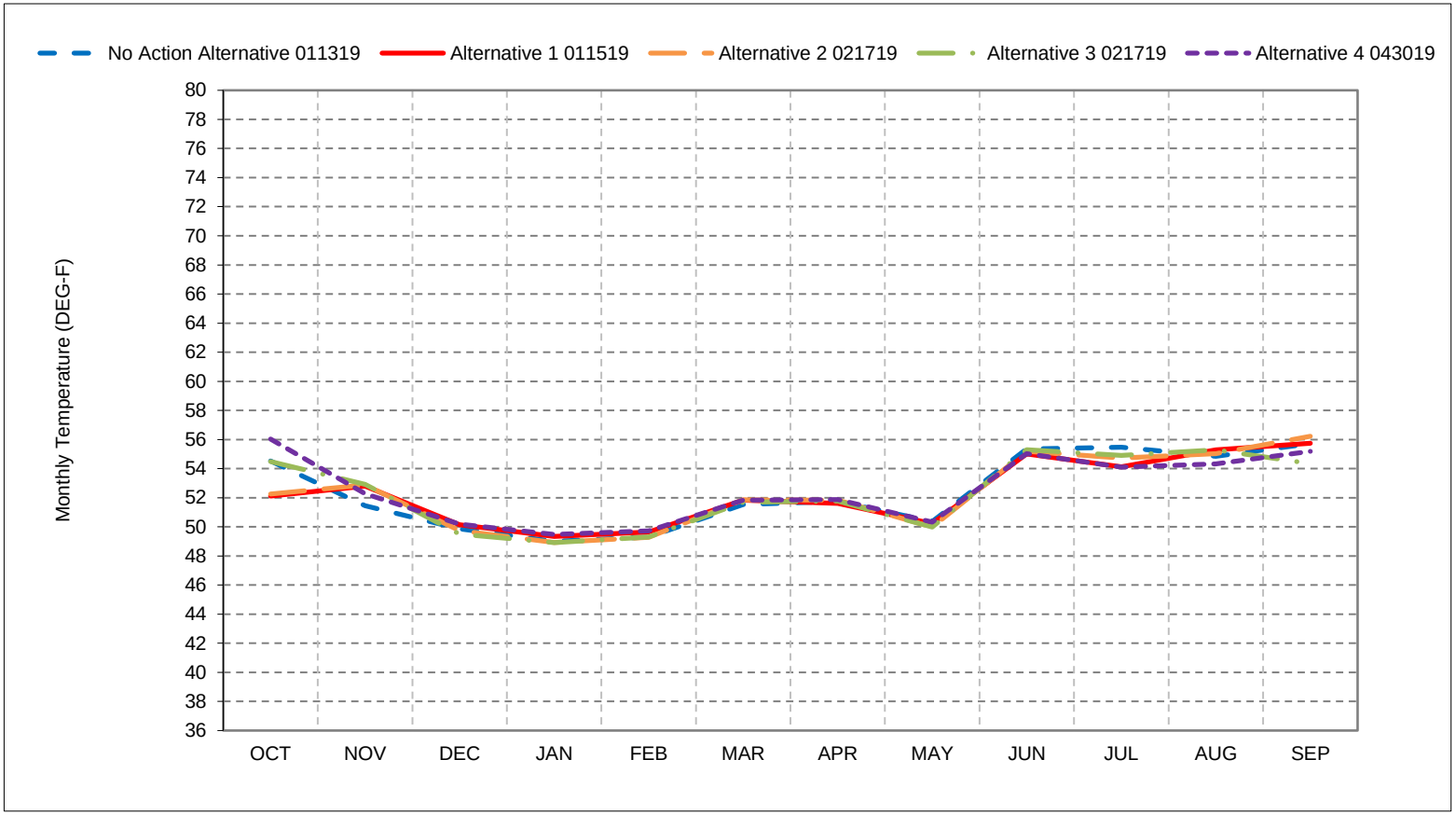
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-6. Trinity River below Lewiston Dam, Critical Year Average Temperature



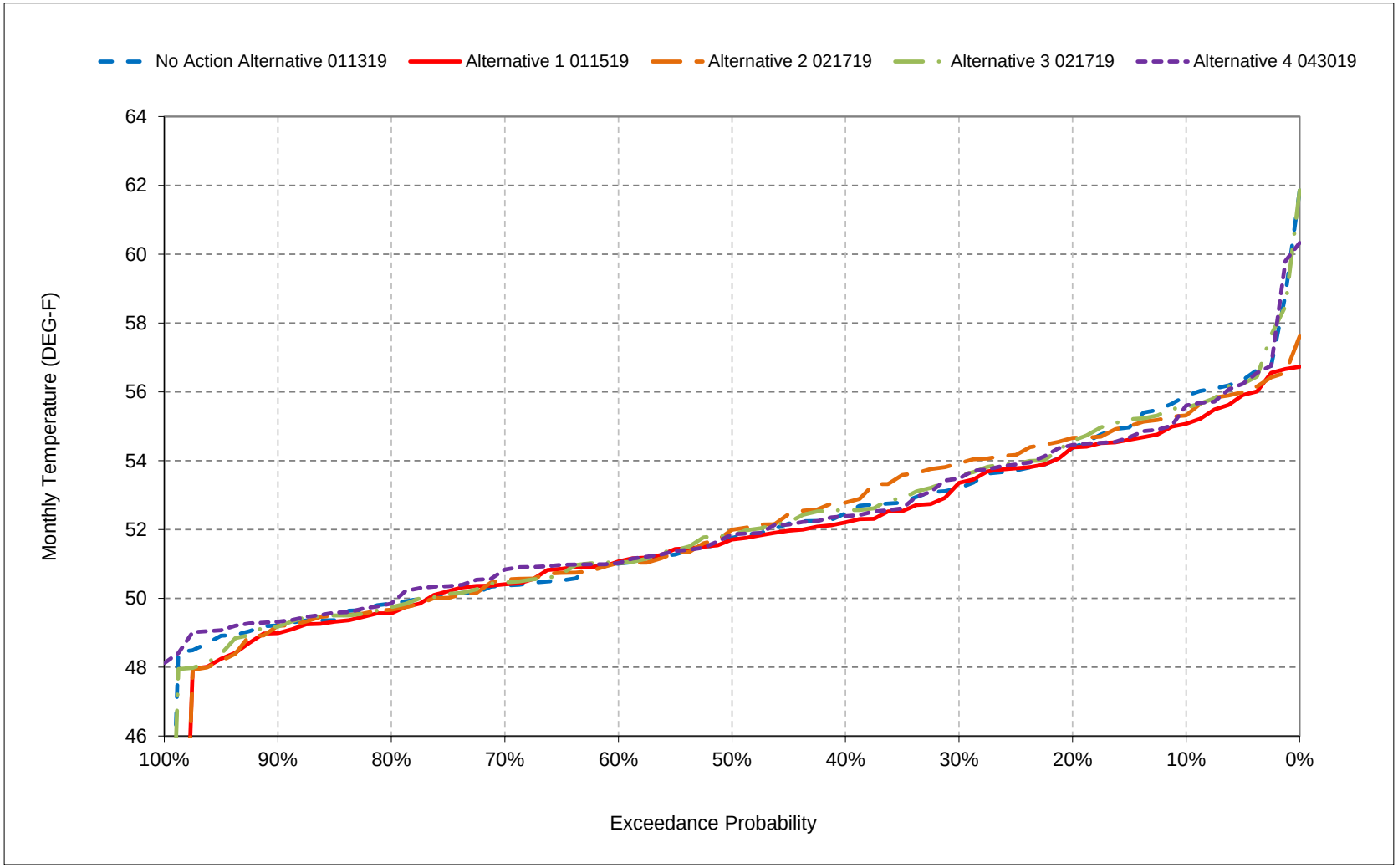
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

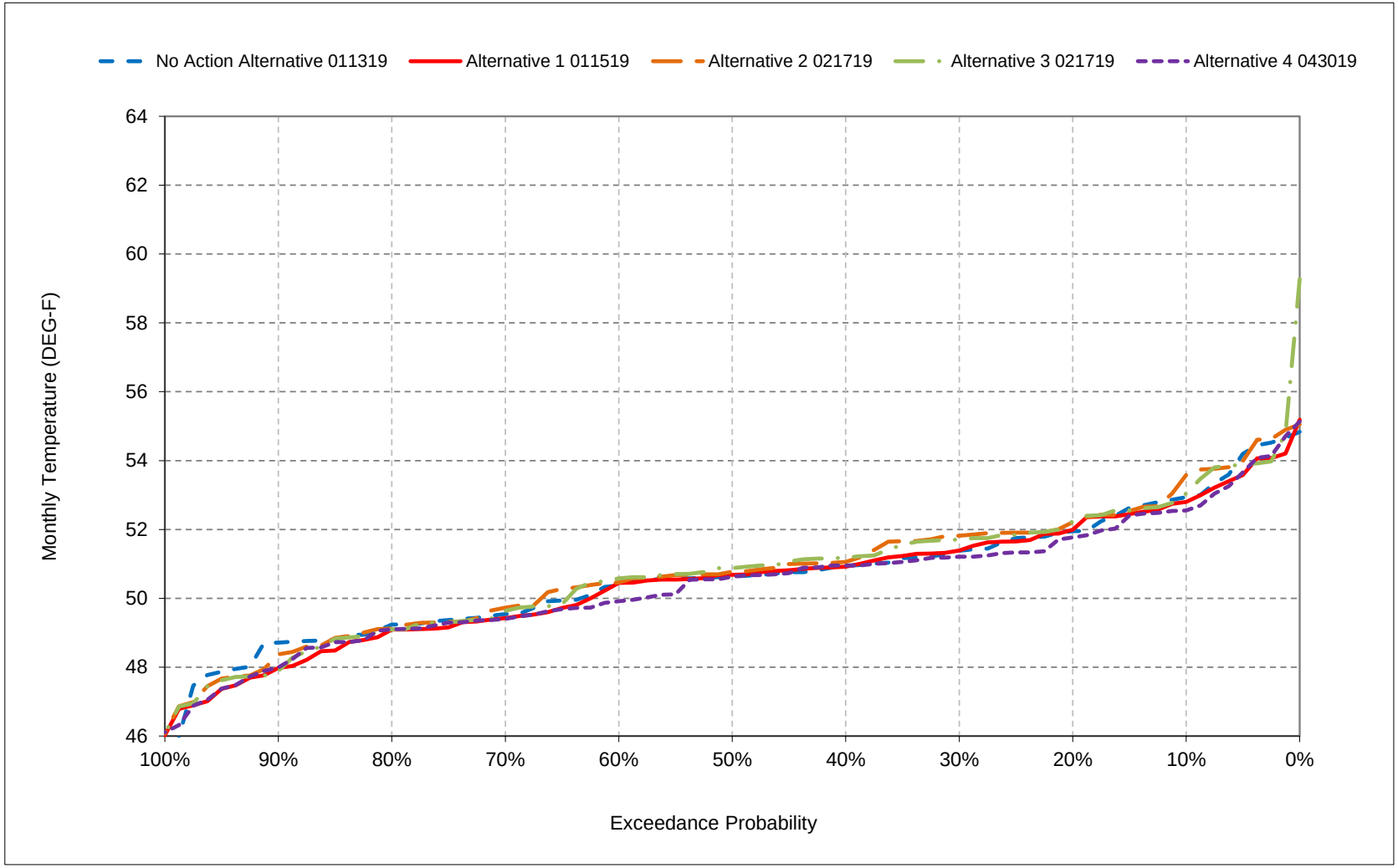
Figure 1-7. Trinity River below Lewiston Dam, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

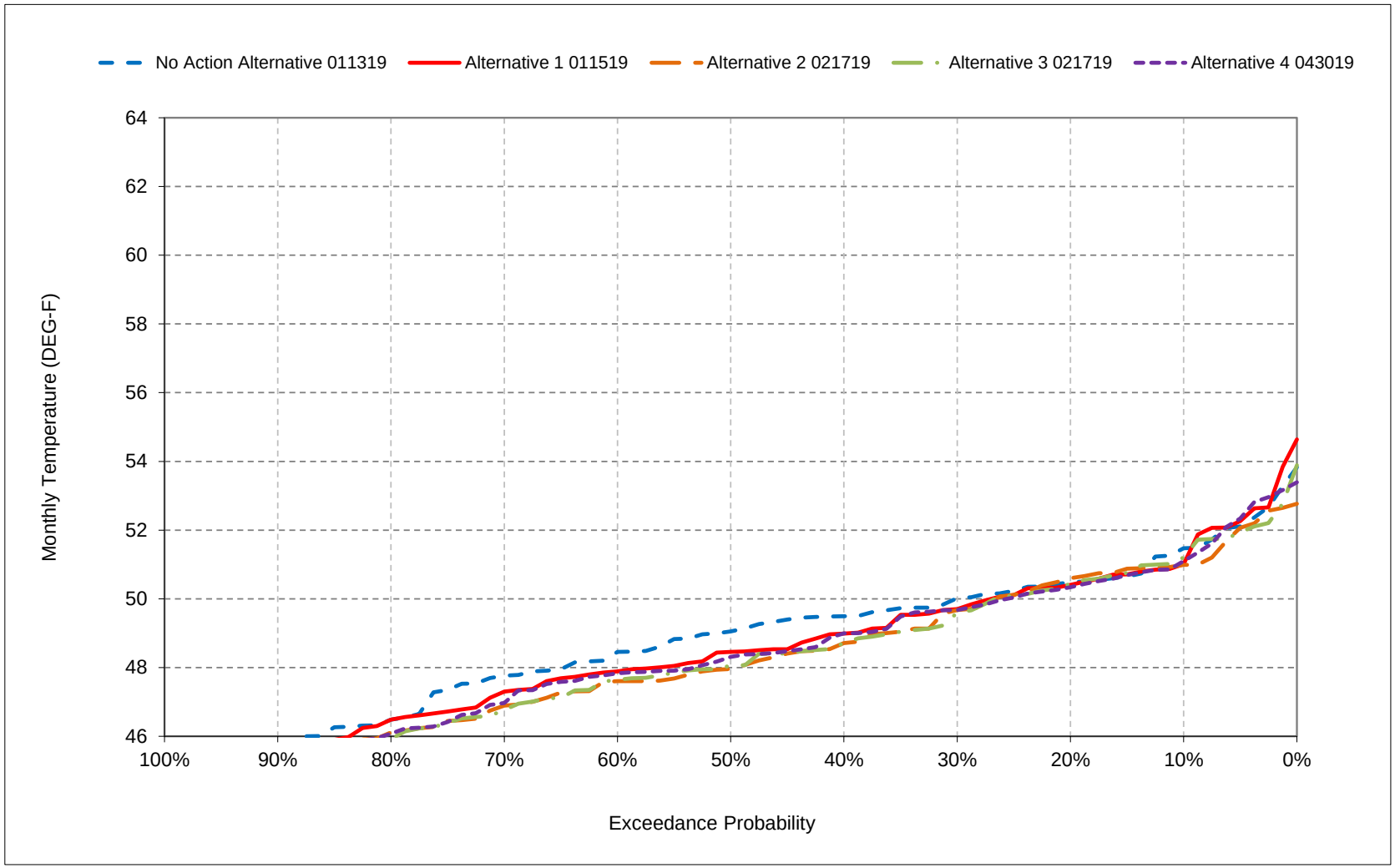
Figure 1-8. Trinity River below Lewiston Dam, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

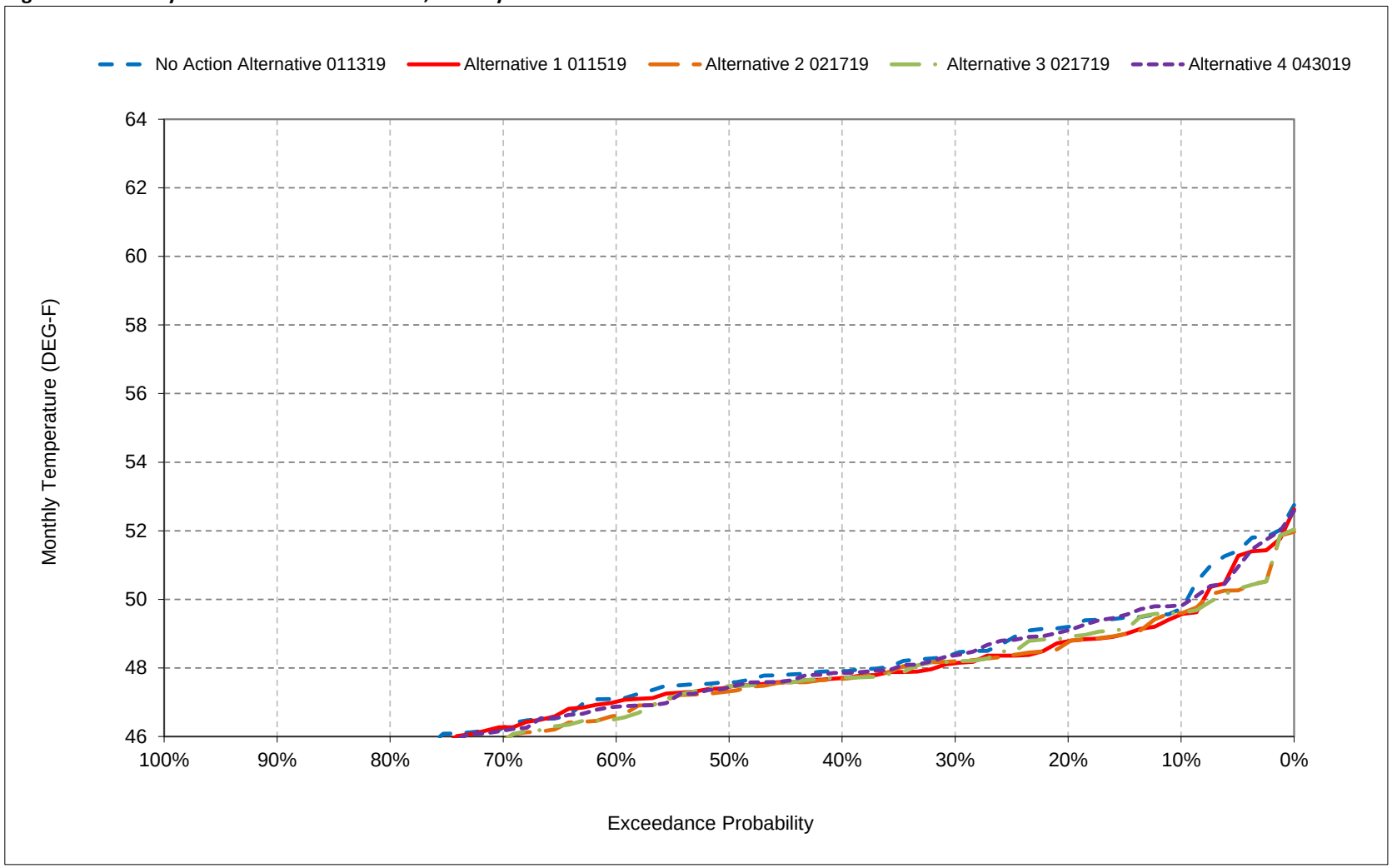
Figure 1-9. Trinity River below Lewiston Dam, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

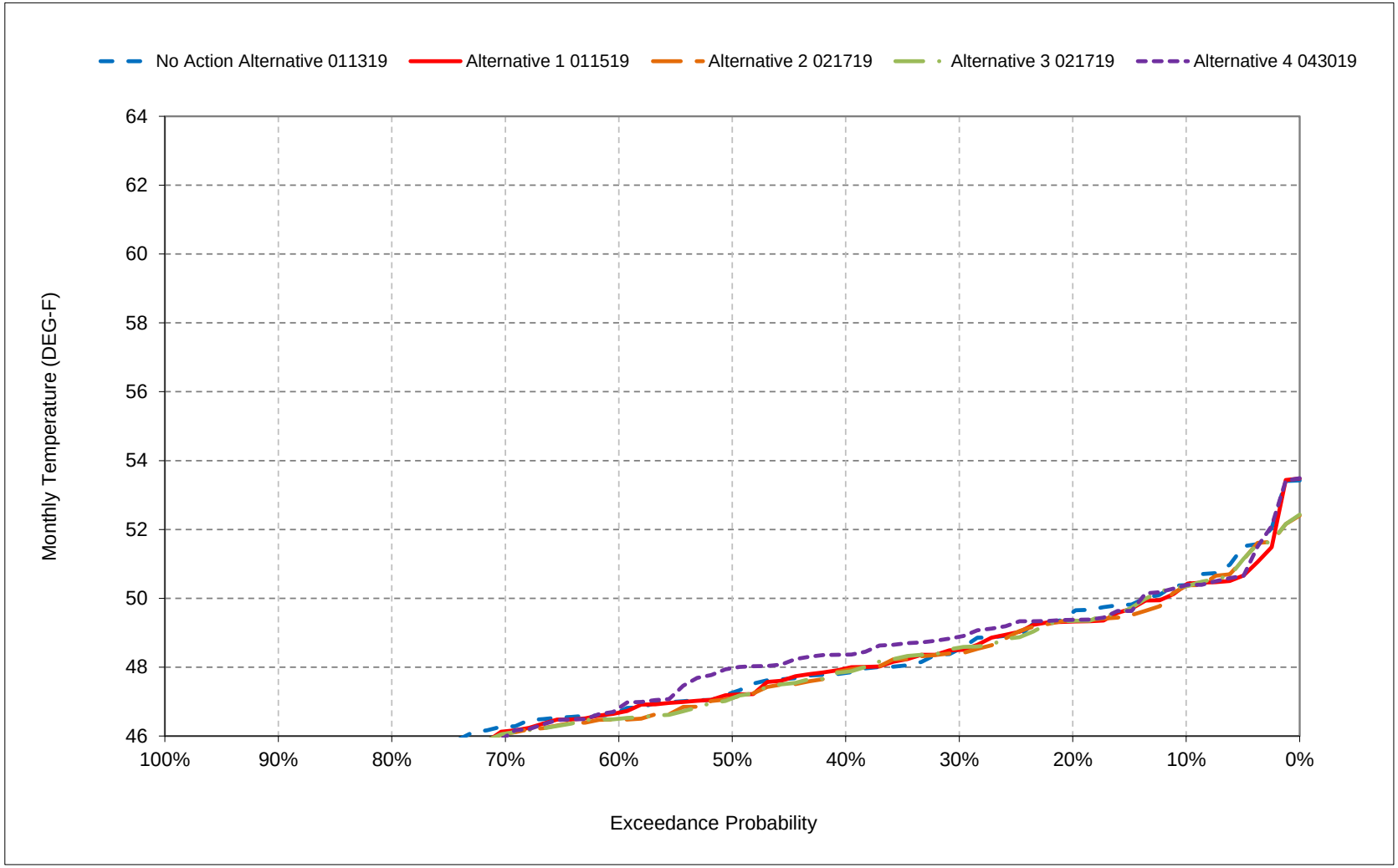
Figure 1-10. Trinity River below Lewiston Dam, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

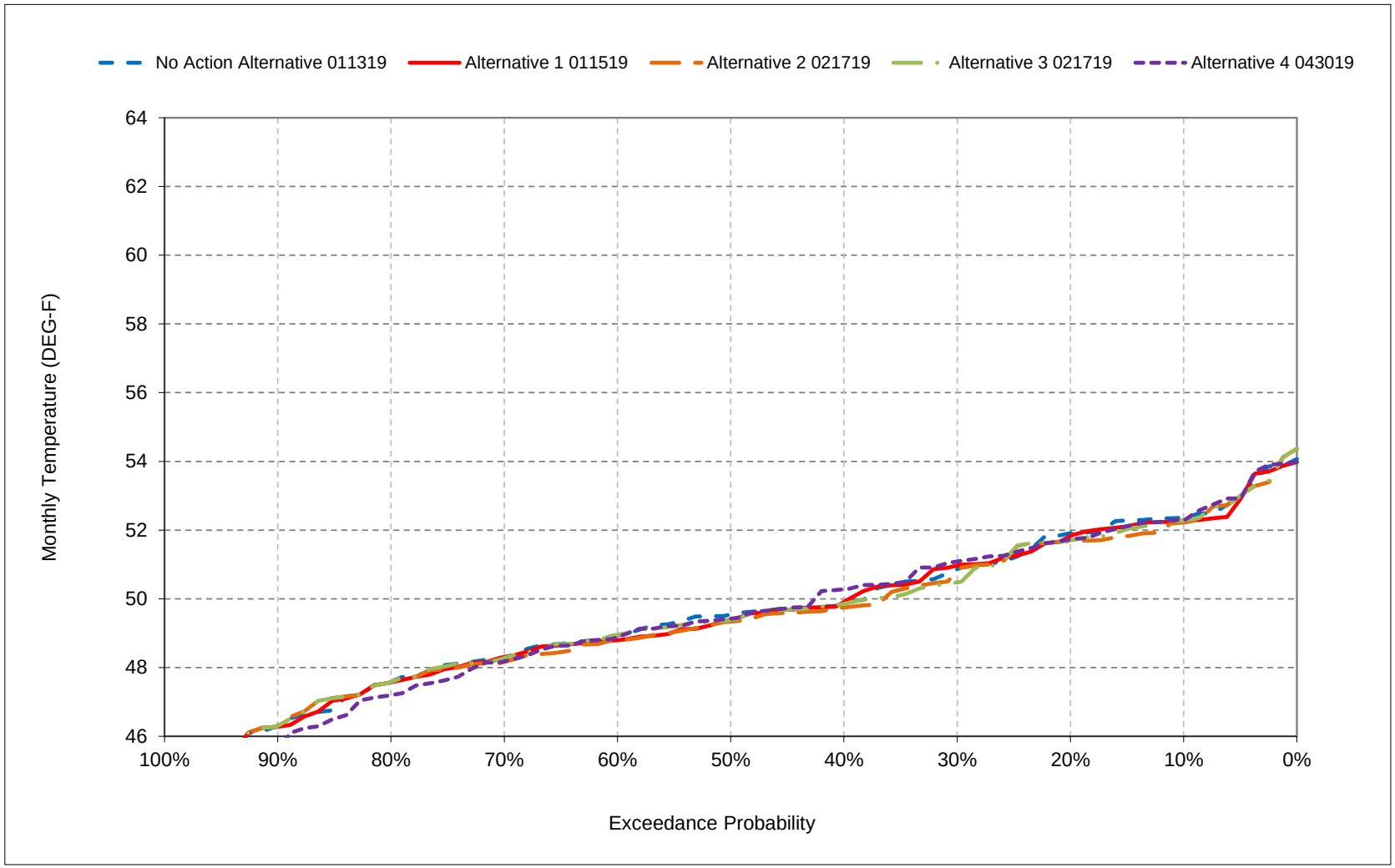
Figure 1-11. Trinity River below Lewiston Dam, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

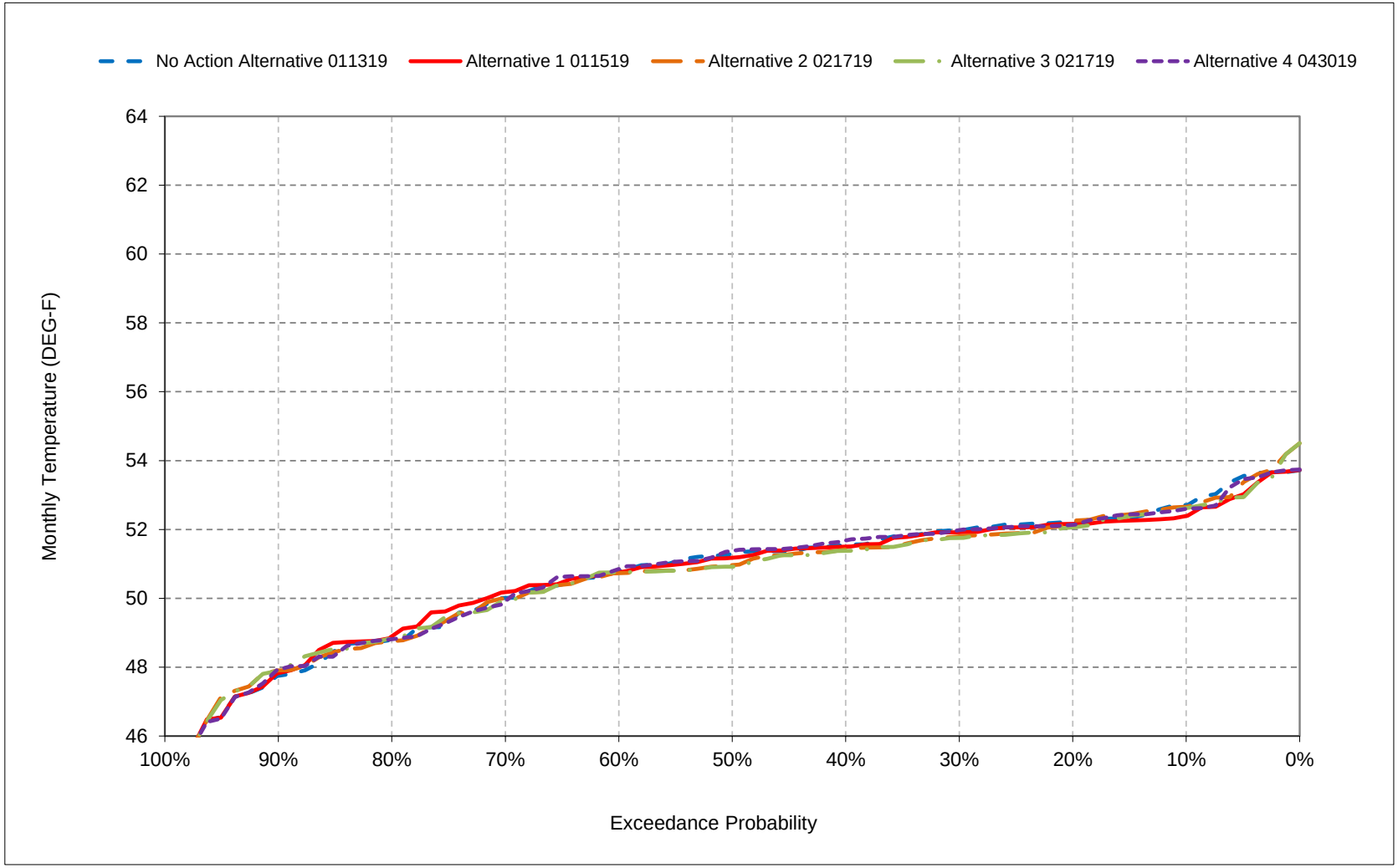
Figure 1-12. Trinity River below Lewiston Dam, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

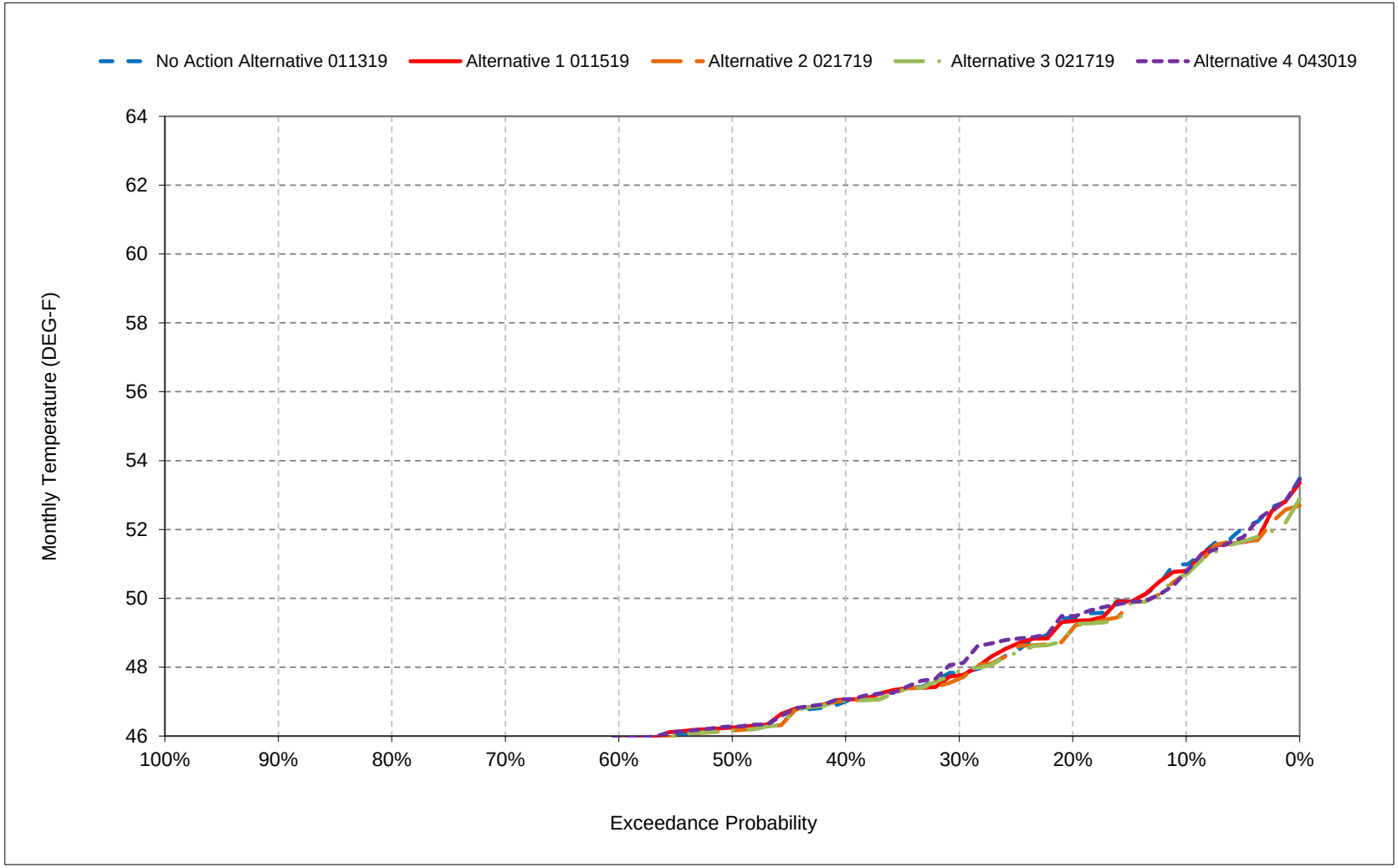
Figure 1-13. Trinity River below Lewiston Dam, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

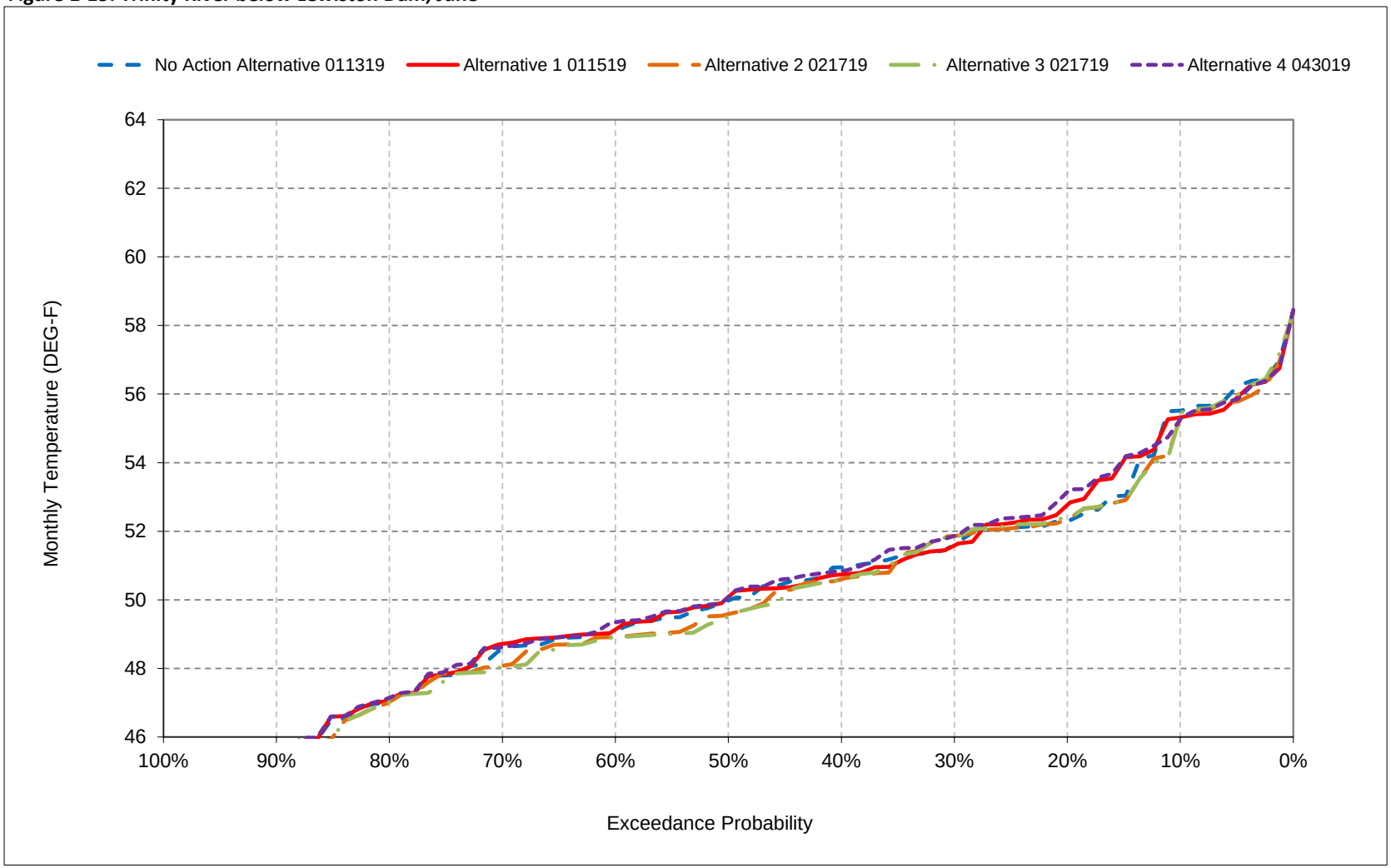
Figure 1-14. Trinity River below Lewiston Dam, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

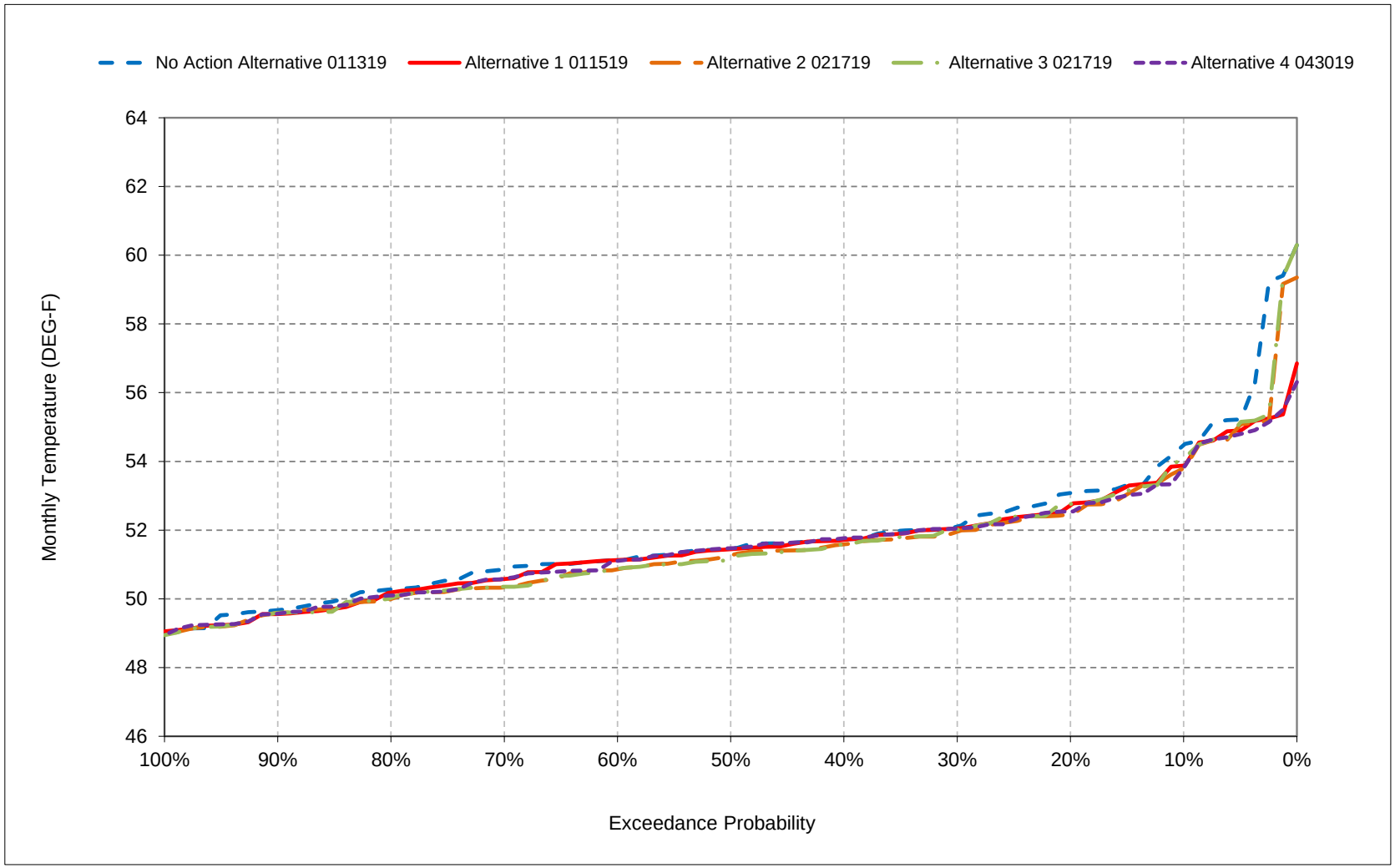
Figure 1-15. Trinity River below Lewiston Dam, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

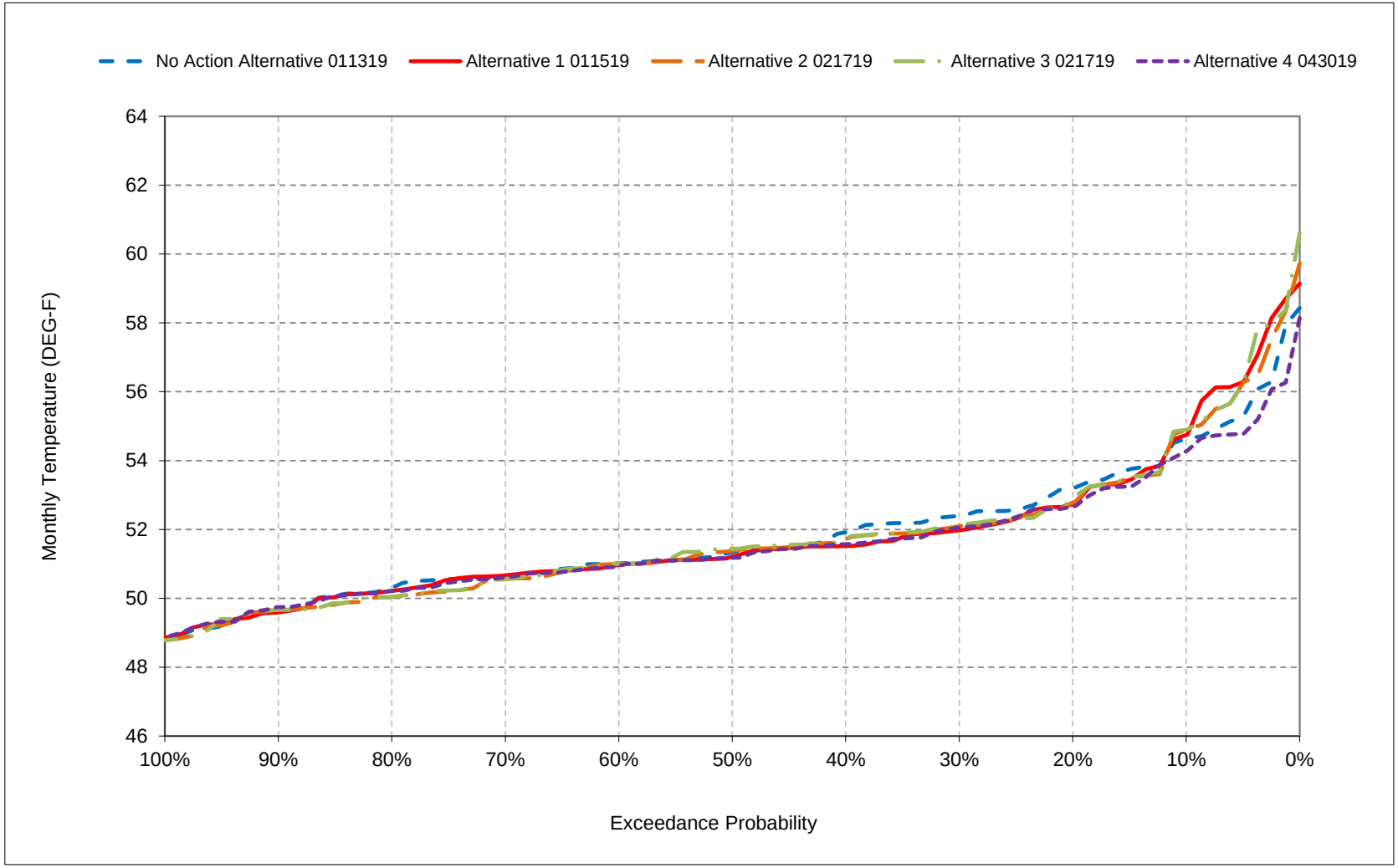
Figure 1-16. Trinity River below Lewiston Dam, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

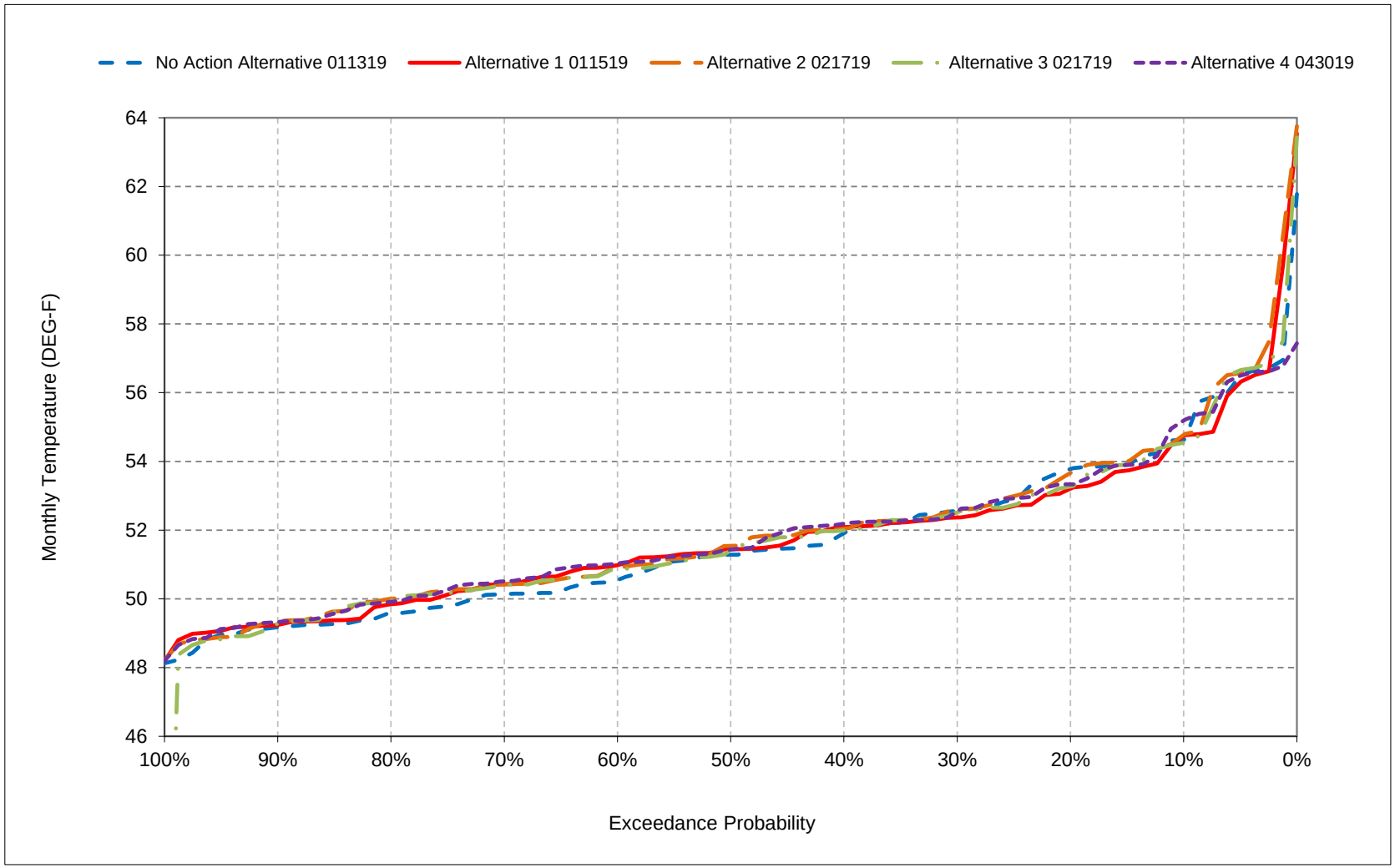
Figure 1-17. Trinity River below Lewiston Dam, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-18. Trinity River below Lewiston Dam, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 2-1. Clear Creek below Whiskeytown, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54.8	52.2	48.7	46.0	45.8	46.7	48.0	49.2	50.9	52.9	53.7	54.6
20%	53.9	51.8	48.0	45.3	45.1	46.1	47.5	48.7	50.4	52.2	53.2	53.6
30%	53.4	51.0	47.1	45.0	44.8	45.6	47.2	48.5	50.0	51.7	52.8	53.2
40%	52.8	50.7	46.7	44.8	44.5	45.3	46.9	48.1	49.7	51.4	52.3	52.4
50%	52.4	50.4	46.4	44.3	44.3	45.2	46.6	47.9	49.4	51.1	52.1	52.1
60%	51.7	50.2	46.2	44.2	44.1	45.1	46.4	47.6	49.2	50.9	51.8	51.6
70%	51.1	50.0	46.0	43.9	43.9	44.9	46.1	47.4	49.0	50.7	51.6	51.2
80%	50.6	49.6	45.8	43.6	43.6	44.6	45.9	46.9	48.4	50.3	51.1	50.9
90%	50.3	49.2	45.5	43.4	43.3	44.1	45.4	46.3	47.8	49.8	50.8	50.4
Long Term												
Full Simulation Period[a]	52.5	50.6	46.8	44.6	44.5	45.3	46.7	47.8	49.4	51.2	52.1	52.3
Water Year Types[b,c]												
Wet (32%)	50.8	49.8	46.5	44.3	44.1	44.8	46.3	47.7	49.3	51.1	51.7	51.2
Above Normal (16%)	51.2	49.8	46.2	44.4	44.2	44.9	46.3	47.6	49.1	51.0	51.6	51.2
Below Normal (13%)	52.5	50.9	46.8	44.1	44.2	45.2	46.6	47.5	49.1	51.1	52.0	52.1
Dry (24%)	53.4	51.0	47.2	44.8	44.7	45.6	46.9	47.9	49.4	51.4	52.7	53.1
Critical (15%)	55.7	52.1	47.4	45.6	45.5	46.4	47.7	48.8	50.4	51.6	52.8	54.5

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54.5	52.2	48.7	46.0	45.8	46.6	47.9	49.2	50.9	52.9	53.5	54.3
20%	53.6	51.6	48.0	45.3	45.2	46.1	47.6	48.8	50.4	52.2	53.2	53.4
30%	53.2	51.0	47.0	45.0	44.8	45.6	47.2	48.5	49.9	51.7	52.6	52.9
40%	52.8	50.7	46.7	44.7	44.5	45.3	46.9	48.1	49.6	51.4	52.4	52.5
50%	52.4	50.5	46.3	44.3	44.3	45.2	46.6	47.8	49.5	51.2	52.2	52.1
60%	52.0	50.2	46.1	44.2	44.1	45.1	46.4	47.6	49.2	51.0	52.0	51.7
70%	51.2	49.9	46.0	43.9	43.9	44.9	46.2	47.4	48.9	50.8	51.7	51.4
80%	50.6	49.5	45.8	43.7	43.6	44.6	45.9	47.0	48.5	50.5	51.3	51.0
90%	50.1	49.2	45.3	43.4	43.3	44.2	45.4	46.4	47.8	49.8	50.9	50.7
Long Term												
Full Simulation Period[a]	52.4	50.6	46.8	44.6	44.5	45.3	46.7	47.8	49.5	51.3	52.2	52.4
Water Year Types[b,c]												
Wet (32%)	50.9	49.9	46.4	44.3	44.1	44.8	46.3	47.6	49.3	51.1	51.7	51.4
Above Normal (16%)	51.3	50.0	46.3	44.4	44.2	45.0	46.4	47.7	49.2	51.1	51.7	51.3
Below Normal (13%)	52.6	50.8	46.8	44.0	44.1	45.2	46.6	47.5	49.2	51.4	52.1	52.2
Dry (24%)	53.1	50.9	47.1	44.8	44.7	45.6	46.9	47.9	49.4	51.4	52.7	52.9
Critical (15%)	55.5	52.1	47.4	45.6	45.5	46.4	47.8	48.8	50.5	51.8	53.3	55.2

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.4	-0.1	**0.0**	0.0	**0.0**	-0.1	-0.1	0.0	0.0	0.0	-0.1	-0.3
20%	-0.3	-0.1	**0.0**	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	-0.1
30%	-0.2	**0.0**	-0.1	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**	-0.2	-0.2
40%	0.0	**0.0**	0.0	-0.1	**0.0**	0.0	**0.0**	**0.0**	-0.1	**0.0**	**0.1**	**0.1**
50%	0.0	**0.1**	-0.1	0.0	-0.1	0.0	**0.0**	-0.1	**0.0**	**0.0**	**0.1**	**0.0**
60%	**0.3**	-0.1	0.0	**0.0**	**0.0**	0.0	**0.1**	0.0	**0.0**	**0.1**	**0.2**	**0.1**
70%	**0.2**	0.0	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	-0.1	**0.1**	**0.1**	**0.2**
80%	**0.0**	-0.1	0.0	**0.0**	0.0	0.0	0.0	**0.1**	**0.1**	**0.2**	**0.2**	**0.1**
90%	-0.2	0.0	-0.2	**0.0**	**0.1**	**0.0**	**0.0**	**0.1**	0.0	**0.1**	**0.1**	**0.3**
Long Term												
Full Simulation Period[a]	-0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	**0.1**
Water Year Types[b,c]												
Wet (32%)	**0.0**	**0.0**	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0	**0.2**
Above Normal (16%)	**0.2**	**0.2**	**0.0**	0.0	0.0	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
Below Normal (13%)	**0.0**	0.0	**0.0**	-0.1	-0.1	0.0	0.0	0.0	**0.1**	**0.2**	**0.0**	**0.0**
Dry (24%)	-0.3	-0.1	-0.1	**0.0**	**0.0**	**0.0**	0.0	0.0	0.0	-0.1	-0.1	-0.2
Critical (15%)	-0.2	-0.1	**0.0**	0.0	0.0	0.0	**0.0**	**0.0**	**0.1**	**0.2**	**0.5**	**0.7**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 2-2. Clear Creek below Whiskeytown, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54.8	52.2	48.7	46.0	45.8	46.7	48.0	49.2	50.9	52.9	53.7	54.6
20%	53.9	51.8	48.0	45.3	45.1	46.1	47.5	48.7	50.4	52.2	53.2	53.6
30%	53.4	51.0	47.1	45.0	44.8	45.6	47.2	48.5	50.0	51.7	52.8	53.2
40%	52.8	50.7	46.7	44.8	44.5	45.3	46.9	48.1	49.7	51.4	52.3	52.4
50%	52.4	50.4	46.4	44.3	44.3	45.2	46.6	47.9	49.4	51.1	52.1	52.1
60%	51.7	50.2	46.2	44.2	44.1	45.1	46.4	47.6	49.2	50.9	51.8	51.6
70%	51.1	50.0	46.0	43.9	43.9	44.9	46.1	47.4	49.0	50.7	51.6	51.2
80%	50.6	49.6	45.8	43.6	43.6	44.6	45.9	46.9	48.4	50.3	51.1	50.9
90%	50.3	49.2	45.5	43.4	43.3	44.1	45.4	46.3	47.8	49.8	50.8	50.4
Long Term												
Full Simulation Period[a]	52.5	50.6	46.8	44.6	44.5	45.3	46.7	47.8	49.4	51.2	52.1	52.3
Water Year Types[b,c]												
Wet (32%)	50.8	49.8	46.5	44.3	44.1	44.8	46.3	47.7	49.3	51.1	51.7	51.2
Above Normal (16%)	51.2	49.8	46.2	44.4	44.2	44.9	46.3	47.6	49.1	51.0	51.6	51.2
Below Normal (13%)	52.5	50.9	46.8	44.1	44.2	45.2	46.6	47.5	49.1	51.1	52.0	52.1
Dry (24%)	53.4	51.0	47.2	44.8	44.7	45.6	46.9	47.9	49.4	51.4	52.7	53.1
Critical (15%)	55.7	52.1	47.4	45.6	45.5	46.4	47.7	48.8	50.4	51.6	52.8	54.5

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54.4	51.7	47.6	45.6	45.8	46.2	47.7	48.9	51.9	53.0	54.1	54.4
20%	53.8	51.2	47.3	45.0	45.0	45.9	47.3	48.6	51.6	52.4	53.5	54.0
30%	53.3	50.8	46.8	44.8	44.7	45.7	47.1	48.3	51.1	52.1	52.9	53.7
40%	53.2	50.4	46.6	44.5	44.6	45.2	46.6	47.9	50.7	51.8	52.7	53.1
50%	52.5	50.1	46.2	44.3	44.3	45.1	46.5	47.7	50.5	51.6	52.4	52.7
60%	51.9	50.0	46.1	44.0	44.0	45.0	46.3	47.4	50.3	51.4	52.2	52.5
70%	51.5	49.8	45.9	43.8	43.8	44.8	46.1	47.2	50.0	51.1	52.0	52.2
80%	51.0	49.4	45.6	43.5	43.6	44.6	45.8	46.8	49.7	50.8	51.8	51.8
90%	50.7	49.1	45.3	43.3	43.2	44.2	45.3	46.5	49.1	50.2	51.2	51.5
Long Term												
Full Simulation Period[a]	52.6	50.3	46.4	44.4	44.4	45.2	46.5	47.7	50.6	51.6	52.6	52.9
Water Year Types[b,c]												
Wet (32%)	51.3	49.8	46.2	44.3	44.2	44.8	46.3	47.7	50.6	51.6	52.2	52.2
Above Normal (16%)	51.7	49.7	46.1	44.4	44.2	45.0	46.3	47.6	50.5	51.4	52.1	52.2
Below Normal (13%)	52.6	50.4	46.2	43.9	43.9	45.0	46.4	47.3	50.2	51.4	52.6	52.8
Dry (24%)	53.3	50.6	46.7	44.4	44.5	45.4	46.6	47.7	50.5	51.7	52.9	53.6
Critical (15%)	54.9	51.7	47.0	44.9	45.2	46.1	47.4	48.4	51.1	52.2	53.3	54.4

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.4	-0.5	-1.0	-0.5	0.0	-0.4	-0.3	-0.3	**1.0**	**0.1**	**0.4**	-0.2
20%	-0.1	-0.6	-0.7	-0.3	-0.1	-0.1	-0.3	-0.1	**1.2**	**0.3**	**0.3**	**0.4**
30%	-0.1	-0.2	-0.3	-0.2	-0.1	**0.1**	-0.1	-0.2	**1.2**	**0.5**	**0.2**	**0.5**
40%	**0.3**	-0.3	-0.1	-0.2	**0.0**	-0.1	-0.3	-0.2	**1.0**	**0.4**	**0.4**	**0.7**
50%	**0.1**	-0.2	-0.1	-0.1	0.0	-0.2	-0.1	-0.2	**1.0**	**0.4**	**0.3**	**0.6**
60%	**0.3**	-0.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	**1.1**	**0.5**	**0.4**	**0.8**
70%	**0.4**	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	-0.2	**1.0**	**0.4**	**0.4**	**1.0**
80%	**0.4**	-0.2	-0.2	-0.1	0.0	0.0	-0.1	-0.1	**1.2**	**0.5**	**0.7**	**0.9**
90%	**0.4**	-0.1	-0.2	-0.1	-0.1	**0.0**	-0.1	**0.2**	**1.3**	**0.4**	**0.4**	**1.1**
Long Term												
Full Simulation Period[a]	**0.1**	-0.3	-0.4	-0.2	-0.1	-0.1	-0.2	-0.1	**1.1**	**0.4**	**0.4**	**0.7**
Water Year Types[b,c]												
Wet (32%)	**0.5**	-0.1	-0.3	0.0	**0.0**	**0.0**	0.0	**0.0**	**1.3**	**0.5**	**0.4**	**1.0**
Above Normal (16%)	**0.6**	-0.1	-0.1	0.0	**0.1**	**0.1**	**0.0**	**0.0**	**1.4**	**0.5**	**0.6**	**1.0**
Below Normal (13%)	**0.0**	-0.5	-0.5	-0.3	-0.3	-0.3	-0.2	-0.2	**1.1**	**0.3**	**0.5**	**0.7**
Dry (24%)	0.0	-0.3	-0.5	-0.4	-0.2	-0.2	-0.3	-0.2	**1.1**	**0.3**	**0.2**	**0.5**
Critical (15%)	-0.8	-0.4	-0.4	-0.7	-0.3	-0.3	-0.4	-0.4	**0.7**	**0.5**	**0.5**	0.0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 2-3. Clear Creek below Whiskeytown, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54.8	52.2	48.7	46.0	45.8	46.7	48.0	49.2	50.9	52.9	53.7	54.6
20%	53.9	51.8	48.0	45.3	45.1	46.1	47.5	48.7	50.4	52.2	53.2	53.6
30%	53.4	51.0	47.1	45.0	44.8	45.6	47.2	48.5	50.0	51.7	52.8	53.2
40%	52.8	50.7	46.7	44.8	44.5	45.3	46.9	48.1	49.7	51.4	52.3	52.4
50%	52.4	50.4	46.4	44.3	44.3	45.2	46.6	47.9	49.4	51.1	52.1	52.1
60%	51.7	50.2	46.2	44.2	44.1	45.1	46.4	47.6	49.2	50.9	51.8	51.6
70%	51.1	50.0	46.0	43.9	43.9	44.9	46.1	47.4	49.0	50.7	51.6	51.2
80%	50.6	49.6	45.8	43.6	43.6	44.6	45.9	46.9	48.4	50.3	51.1	50.9
90%	50.3	49.2	45.5	43.4	43.3	44.1	45.4	46.3	47.8	49.8	50.8	50.4
Long Term												
Full Simulation Period[a]	52.5	50.6	46.8	44.6	44.5	45.3	46.7	47.8	49.4	51.2	52.1	52.3
Water Year Types[b,c]												
Wet (32%)	50.8	49.8	46.5	44.3	44.1	44.8	46.3	47.7	49.3	51.1	51.7	51.2
Above Normal (16%)	51.2	49.8	46.2	44.4	44.2	44.9	46.3	47.6	49.1	51.0	51.6	51.2
Below Normal (13%)	52.5	50.9	46.8	44.1	44.2	45.2	46.6	47.5	49.1	51.1	52.0	52.1
Dry (24%)	53.4	51.0	47.2	44.8	44.7	45.6	46.9	47.9	49.4	51.4	52.7	53.1
Critical (15%)	55.7	52.1	47.4	45.6	45.5	46.4	47.7	48.8	50.4	51.6	52.8	54.5

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54.5	51.7	47.7	45.5	45.8	46.2	47.7	48.9	51.9	53.1	54.1	54.6
20%	53.7	51.2	47.3	45.0	45.0	45.9	47.3	48.6	51.5	52.4	53.4	54.0
30%	53.3	50.8	46.8	44.8	44.7	45.6	47.1	48.2	51.1	52.1	52.9	53.6
40%	53.0	50.4	46.6	44.6	44.6	45.3	46.6	47.9	50.7	51.8	52.7	53.1
50%	52.5	50.1	46.2	44.2	44.3	45.1	46.4	47.7	50.4	51.6	52.4	52.8
60%	51.9	50.0	46.0	44.0	44.0	45.0	46.3	47.4	50.3	51.4	52.2	52.5
70%	51.4	49.8	45.9	43.8	43.8	44.8	46.1	47.2	49.9	51.1	51.9	52.2
80%	51.0	49.4	45.7	43.5	43.6	44.6	45.8	46.8	49.6	50.8	51.7	51.7
90%	50.7	49.1	45.3	43.3	43.2	44.2	45.3	46.5	49.2	50.2	51.2	51.5
Long Term												
Full Simulation Period[a]	52.5	50.3	46.4	44.4	44.4	45.2	46.5	47.7	50.6	51.6	52.5	53.0
Water Year Types[b,c]												
Wet (32%)	51.3	49.7	46.2	44.3	44.2	44.8	46.2	47.6	50.5	51.5	52.1	52.2
Above Normal (16%)	51.7	49.7	46.1	44.4	44.2	45.0	46.3	47.6	50.5	51.5	52.2	52.2
Below Normal (13%)	52.5	50.3	46.2	43.8	43.9	45.0	46.4	47.4	50.2	51.4	52.5	52.8
Dry (24%)	53.3	50.6	46.8	44.4	44.5	45.4	46.7	47.7	50.5	51.7	52.9	53.6
Critical (15%)	54.8	51.7	47.0	44.9	45.2	46.1	47.4	48.5	51.1	52.2	53.2	54.5

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.4	-0.5	-1.0	-0.5	0.0	-0.4	-0.3	-0.3	**0.9**	**0.2**	**0.5**	0.0
20%	-0.3	-0.6	-0.7	-0.3	-0.1	-0.1	-0.3	-0.2	**1.2**	**0.2**	**0.2**	**0.4**
30%	-0.1	-0.2	-0.2	-0.2	-0.1	**0.0**	-0.1	-0.2	**1.1**	**0.4**	**0.1**	**0.5**
40%	**0.2**	-0.3	-0.1	-0.2	**0.1**	-0.1	-0.3	-0.2	**1.0**	**0.4**	**0.4**	**0.7**
50%	**0.1**	-0.2	-0.2	-0.1	0.0	-0.2	-0.2	-0.2	**1.0**	**0.4**	**0.3**	**0.7**
60%	**0.2**	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	**1.1**	**0.5**	**0.4**	**0.9**
70%	**0.4**	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	-0.2	**1.0**	**0.4**	**0.4**	**1.0**
80%	**0.5**	-0.2	-0.1	-0.1	0.0	0.0	-0.1	-0.1	**1.2**	**0.5**	**0.5**	**0.8**
90%	**0.3**	-0.1	-0.2	-0.1	0.0	**0.0**	-0.1	**0.2**	**1.4**	**0.4**	**0.4**	**1.1**
Long Term												
Full Simulation Period[a]	**0.1**	-0.3	-0.4	-0.2	-0.1	-0.1	-0.2	-0.1	**1.1**	**0.4**	**0.4**	**0.7**
Water Year Types[b,c]												
Wet (32%)	**0.5**	-0.1	-0.3	0.0	**0.0**	**0.0**	-0.1	-0.1	**1.2**	**0.4**	**0.4**	**1.0**
Above Normal (16%)	**0.5**	-0.1	-0.2	**0.0**	**0.1**	**0.1**	**0.0**	**0.1**	**1.4**	**0.5**	**0.6**	**1.0**
Below Normal (13%)	**0.0**	-0.5	-0.5	-0.3	-0.3	-0.3	-0.2	-0.2	**1.1**	**0.3**	**0.5**	**0.7**
Dry (24%)	0.0	-0.3	-0.4	-0.4	-0.2	-0.2	-0.3	-0.2	**1.1**	**0.3**	**0.2**	**0.5**
Critical (15%)	-1.0	-0.5	-0.5	-0.7	-0.3	-0.3	-0.3	-0.3	**0.7**	**0.6**	**0.5**	**0.0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 2-4. Clear Creek below Whiskeytown, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54.8	52.2	48.7	46.0	45.8	46.7	48.0	49.2	50.9	52.9	53.7	54.6
20%	53.9	51.8	48.0	45.3	45.1	46.1	47.5	48.7	50.4	52.2	53.2	53.6
30%	53.4	51.0	47.1	45.0	44.8	45.6	47.2	48.5	50.0	51.7	52.8	53.2
40%	52.8	50.7	46.7	44.8	44.5	45.3	46.9	48.1	49.7	51.4	52.3	52.4
50%	52.4	50.4	46.4	44.3	44.3	45.2	46.6	47.9	49.4	51.1	52.1	52.1
60%	51.7	50.2	46.2	44.2	44.1	45.1	46.4	47.6	49.2	50.9	51.8	51.6
70%	51.1	50.0	46.0	43.9	43.9	44.9	46.1	47.4	49.0	50.7	51.6	51.2
80%	50.6	49.6	45.8	43.6	43.6	44.6	45.9	46.9	48.4	50.3	51.1	50.9
90%	50.3	49.2	45.5	43.4	43.3	44.1	45.4	46.3	47.8	49.8	50.8	50.4
Long Term												
Full Simulation Period[a]	52.5	50.6	46.8	44.6	44.5	45.3	46.7	47.8	49.4	51.2	52.1	52.3
Water Year Types[b,c]												
Wet (32%)	50.8	49.8	46.5	44.3	44.1	44.8	46.3	47.7	49.3	51.1	51.7	51.2
Above Normal (16%)	51.2	49.8	46.2	44.4	44.2	44.9	46.3	47.6	49.1	51.0	51.6	51.2
Below Normal (13%)	52.5	50.9	46.8	44.1	44.2	45.2	46.6	47.5	49.1	51.1	52.0	52.1
Dry (24%)	53.4	51.0	47.2	44.8	44.7	45.6	46.9	47.9	49.4	51.4	52.7	53.1
Critical (15%)	55.7	52.1	47.4	45.6	45.5	46.4	47.7	48.8	50.4	51.6	52.8	54.5

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54.8	52.2	48.7	46.2	46.5	47.0	48.3	49.5	51.0	52.7	53.4	54.4
20%	53.6	51.8	48.3	45.7	45.5	46.6	48.1	49.0	50.4	52.1	53.1	53.4
30%	53.2	51.0	47.4	45.3	45.0	46.1	47.8	48.7	50.0	51.8	52.9	52.9
40%	52.7	50.7	46.8	44.9	44.8	45.8	47.3	48.5	49.8	51.5	52.4	52.6
50%	52.2	50.4	46.6	44.5	44.5	45.7	47.0	48.2	49.6	51.1	52.2	52.1
60%	51.8	50.2	46.2	44.2	44.3	45.4	46.9	48.0	49.4	51.0	52.0	51.8
70%	51.3	49.9	46.0	44.0	44.1	45.2	46.5	47.8	49.2	50.9	51.7	51.4
80%	50.8	49.7	45.8	43.7	43.8	44.8	46.2	47.4	48.9	50.5	51.5	51.1
90%	50.3	49.4	45.4	43.4	43.5	44.5	45.6	46.7	48.0	50.1	51.1	50.7
Long Term												
Full Simulation Period[a]	52.4	50.6	46.9	44.8	44.7	45.7	47.1	48.2	49.6	51.3	52.3	52.3
Water Year Types[b,c]												
Wet (32%)	51.0	50.0	46.6	44.6	44.4	45.4	46.8	48.0	49.5	51.1	51.9	51.4
Above Normal (16%)	51.3	50.2	46.5	44.6	44.8	45.2	46.8	48.1	49.3	51.1	51.8	51.3
Below Normal (13%)	52.6	50.8	46.9	44.1	44.3	45.5	46.9	47.8	49.3	51.2	52.1	52.2
Dry (24%)	53.1	50.9	47.2	44.8	44.8	45.8	47.1	48.1	49.5	51.4	52.6	52.9
Critical (15%)	55.2	52.1	47.5	45.6	45.6	46.6	48.1	49.1	50.7	51.9	53.3	54.8

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	0.0	**0.0**	**0.1**	**0.2**	**0.7**	**0.3**	**0.3**	**0.3**	**0.1**	-0.2	-0.3	-0.2
20%	-0.3	**0.0**	**0.3**	**0.4**	**0.4**	**0.5**	**0.6**	**0.3**	**0.0**	-0.1	0.0	-0.1
30%	-0.2	**0.1**	**0.3**	**0.3**	**0.2**	**0.5**	**0.6**	**0.2**	**0.1**	**0.2**	**0.1**	-0.2
40%	-0.1	0.0	**0.1**	**0.1**	**0.2**	**0.5**	**0.4**	**0.4**	**0.2**	**0.1**	**0.1**	**0.2**
50%	-0.2	**0.1**	**0.2**	**0.2**	**0.2**	**0.4**	**0.4**	**0.3**	**0.2**	0.0	**0.1**	**0.0**
60%	**0.1**	0.0	**0.1**	**0.0**	**0.2**	**0.3**	**0.5**	**0.4**	**0.2**	**0.1**	**0.2**	**0.1**
70%	**0.2**	0.0	0.0	**0.1**	**0.2**	**0.4**	**0.4**	**0.4**	**0.2**	**0.2**	**0.1**	**0.2**
80%	**0.2**	**0.1**	**0.0**	**0.0**	**0.2**	**0.2**	**0.3**	**0.4**	**0.4**	**0.2**	**0.3**	**0.2**
90%	**0.0**	**0.1**	-0.1	**0.0**	**0.3**	**0.3**	**0.3**	**0.4**	**0.2**	**0.3**	**0.3**	**0.3**
Long Term												
Full Simulation Period[a]	-0.1	**0.0**	**0.1**	**0.2**	**0.3**	**0.4**	**0.4**	**0.3**	**0.2**	**0.1**	**0.1**	**0.1**
Water Year Types[b,c]												
Wet (32%)	**0.2**	**0.1**	**0.1**	**0.4**	**0.3**	**0.6**	**0.5**	**0.4**	**0.2**	0.0	**0.1**	**0.2**
Above Normal (16%)	**0.1**	**0.4**	**0.2**	**0.2**	**0.7**	**0.3**	**0.5**	**0.5**	**0.2**	**0.1**	**0.2**	**0.1**
Below Normal (13%)	**0.0**	-0.1	**0.1**	**0.0**	**0.1**	**0.3**	**0.3**	**0.3**	**0.2**	**0.1**	**0.1**	**0.1**
Dry (24%)	-0.3	-0.1	0.0	**0.0**	**0.1**	**0.2**	**0.2**	**0.2**	**0.0**	0.0	-0.1	-0.2
Critical (15%)	-0.5	0.0	**0.1**	**0.0**	**0.1**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.5**	**0.3**

a Based on the 82-year simulation period.

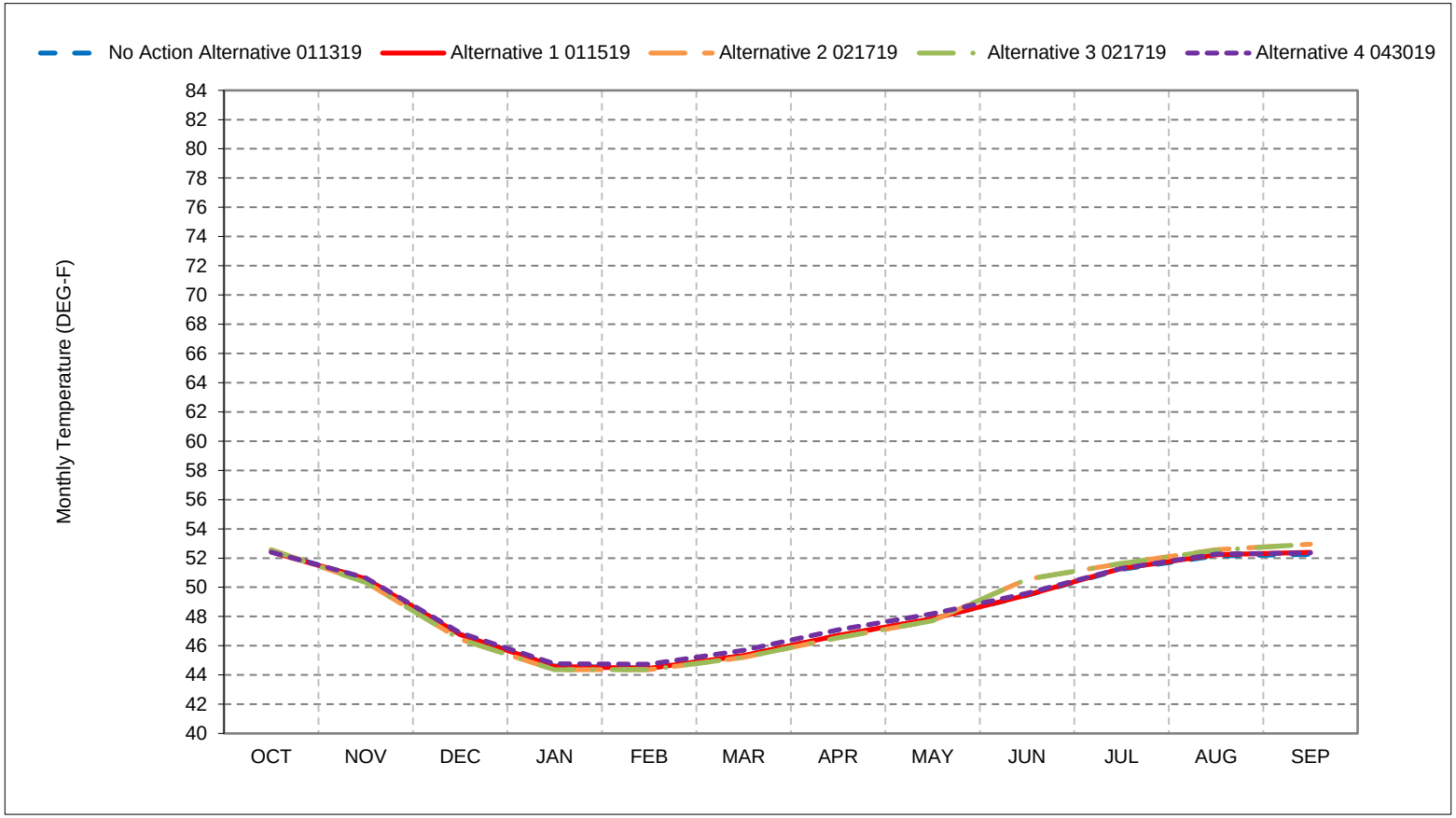
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-1. Clear Creek below Whiskeytown, Long-Term Average Temperature



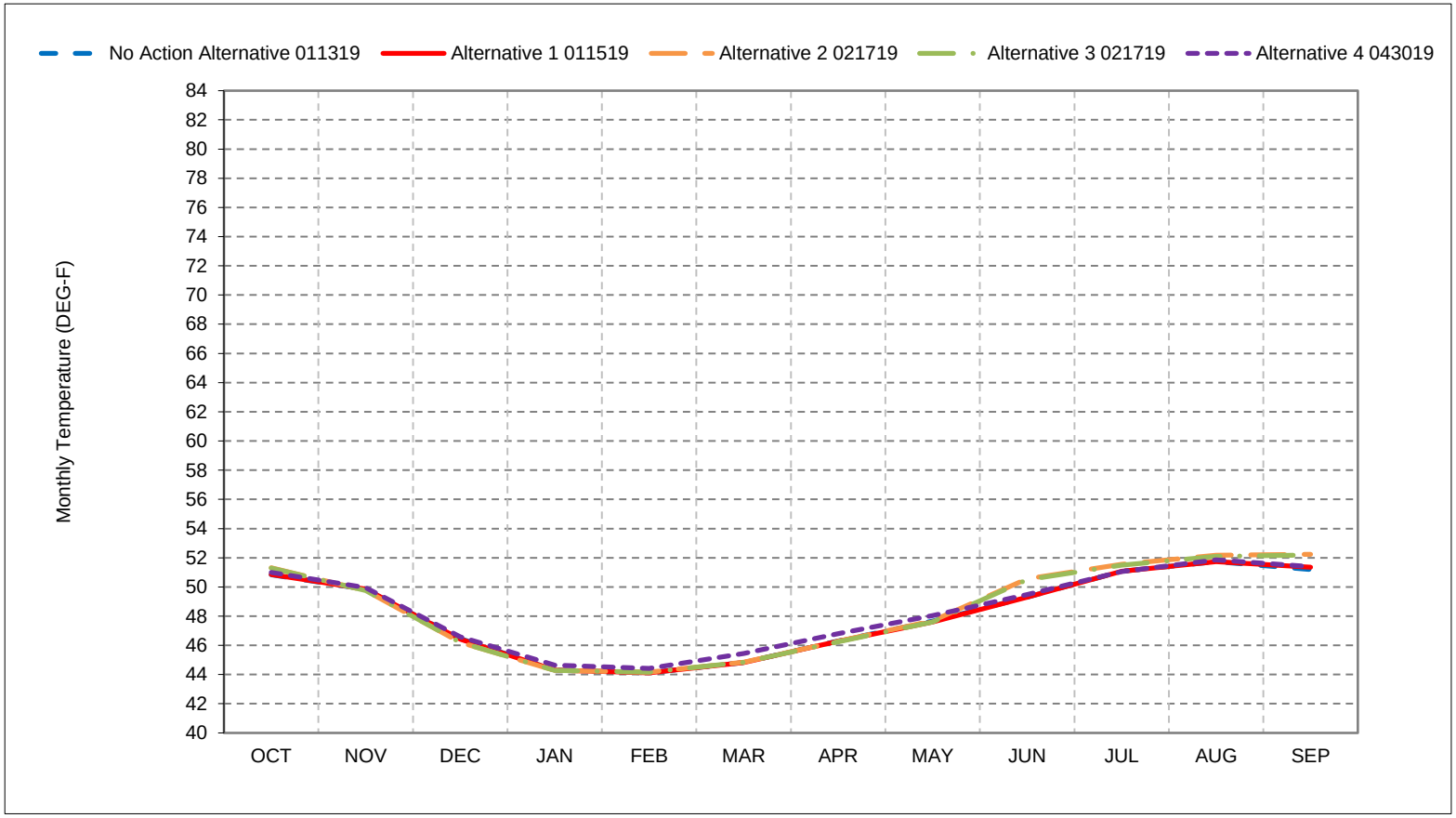
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-2. Clear Creek below Whiskeytown, Wet Year Average Temperature



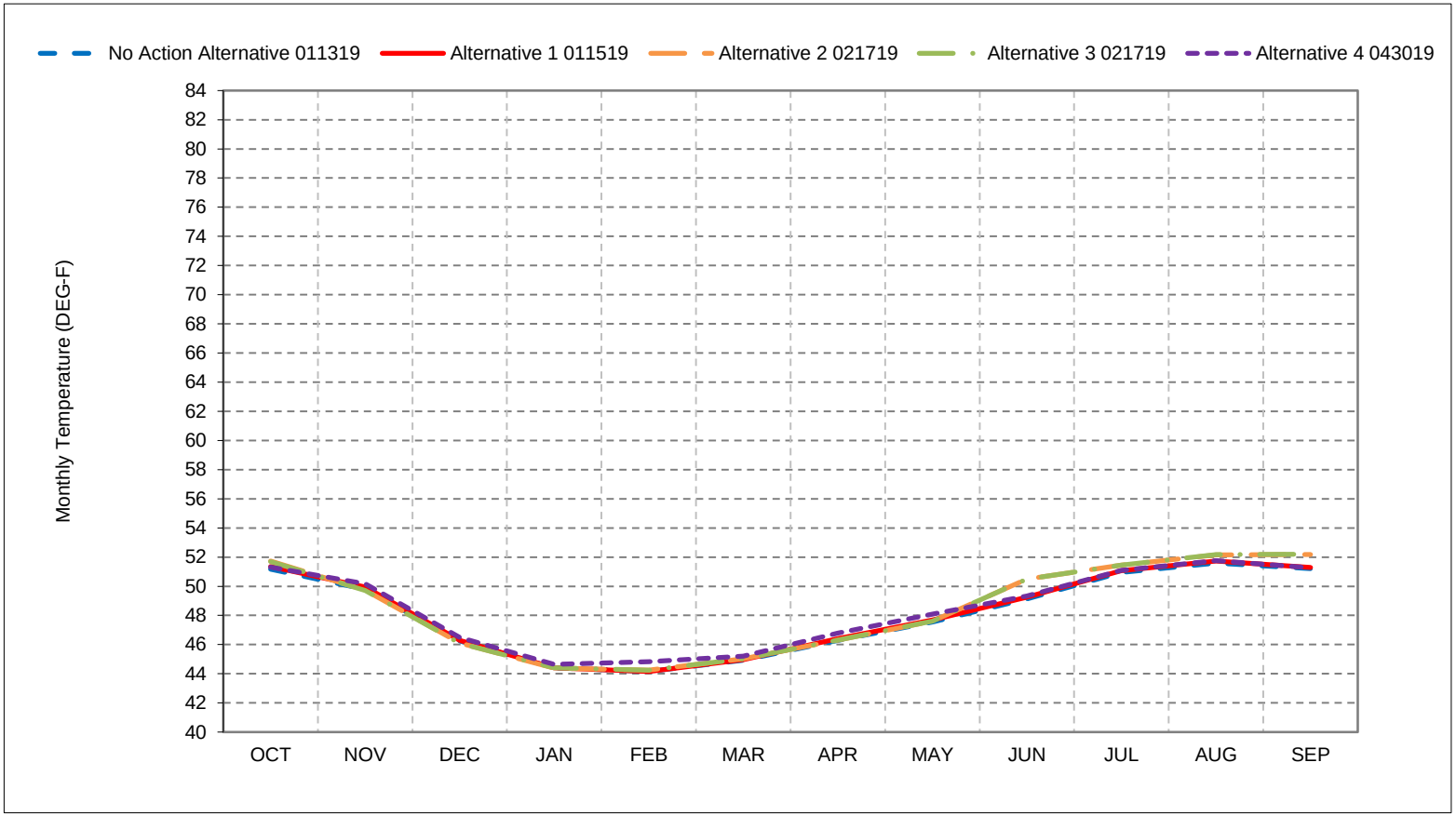
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-3. Clear Creek below Whiskeytown, Above Normal Year Average Temperature



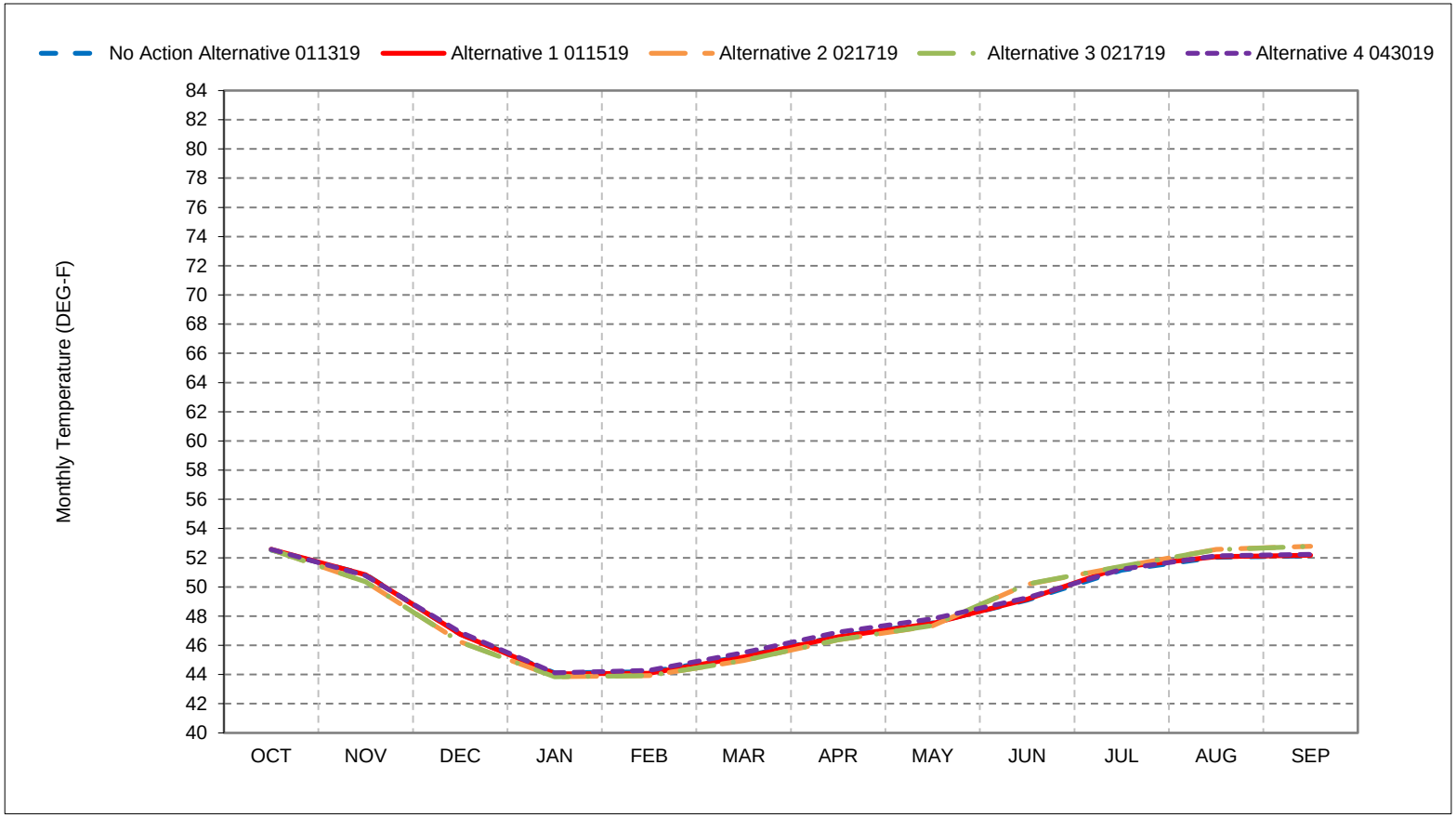
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-4. Clear Creek below Whiskeytown, Below Normal Year Average Temperature



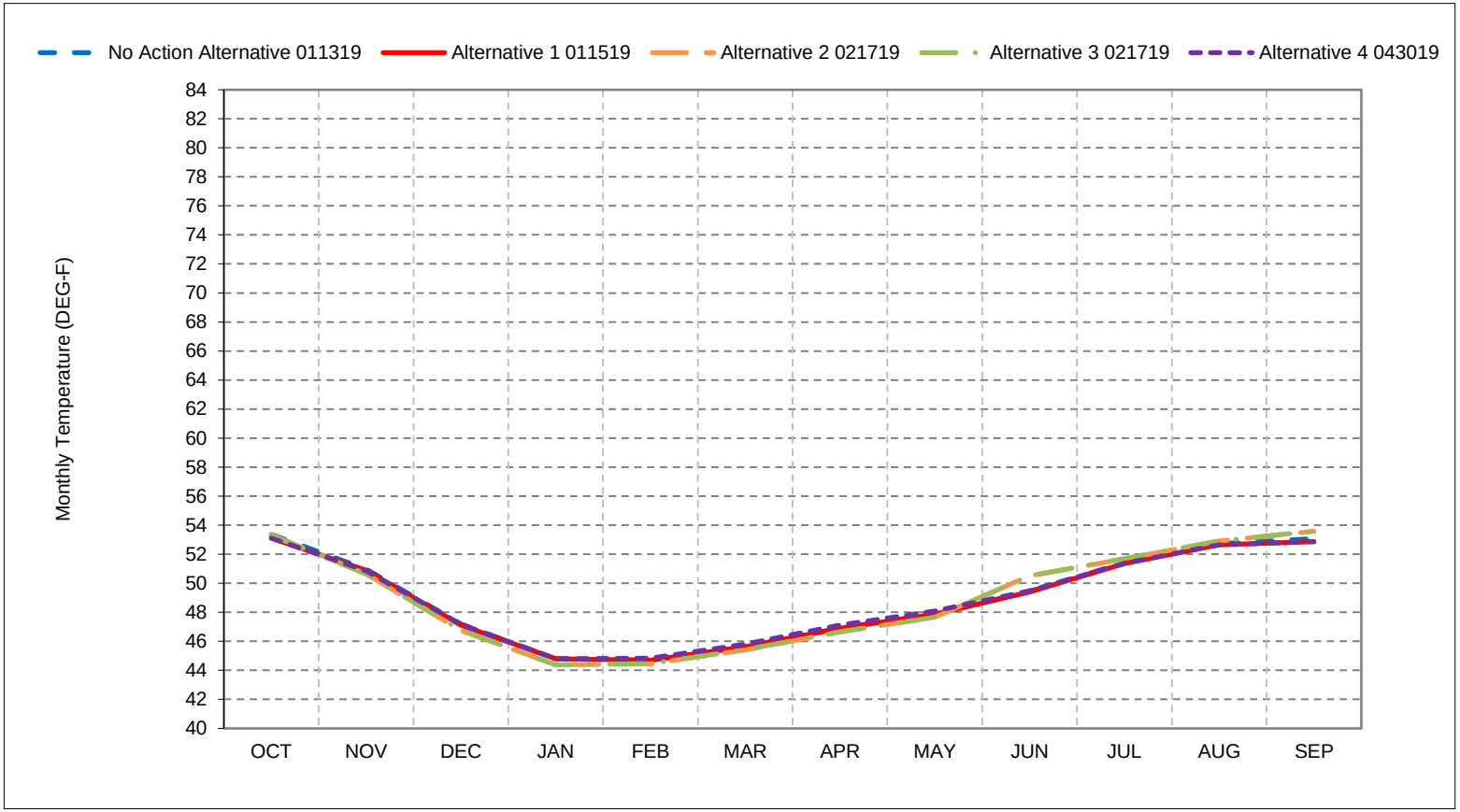
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-5. Clear Creek below Whiskeytown, Dry Year Average Temperature



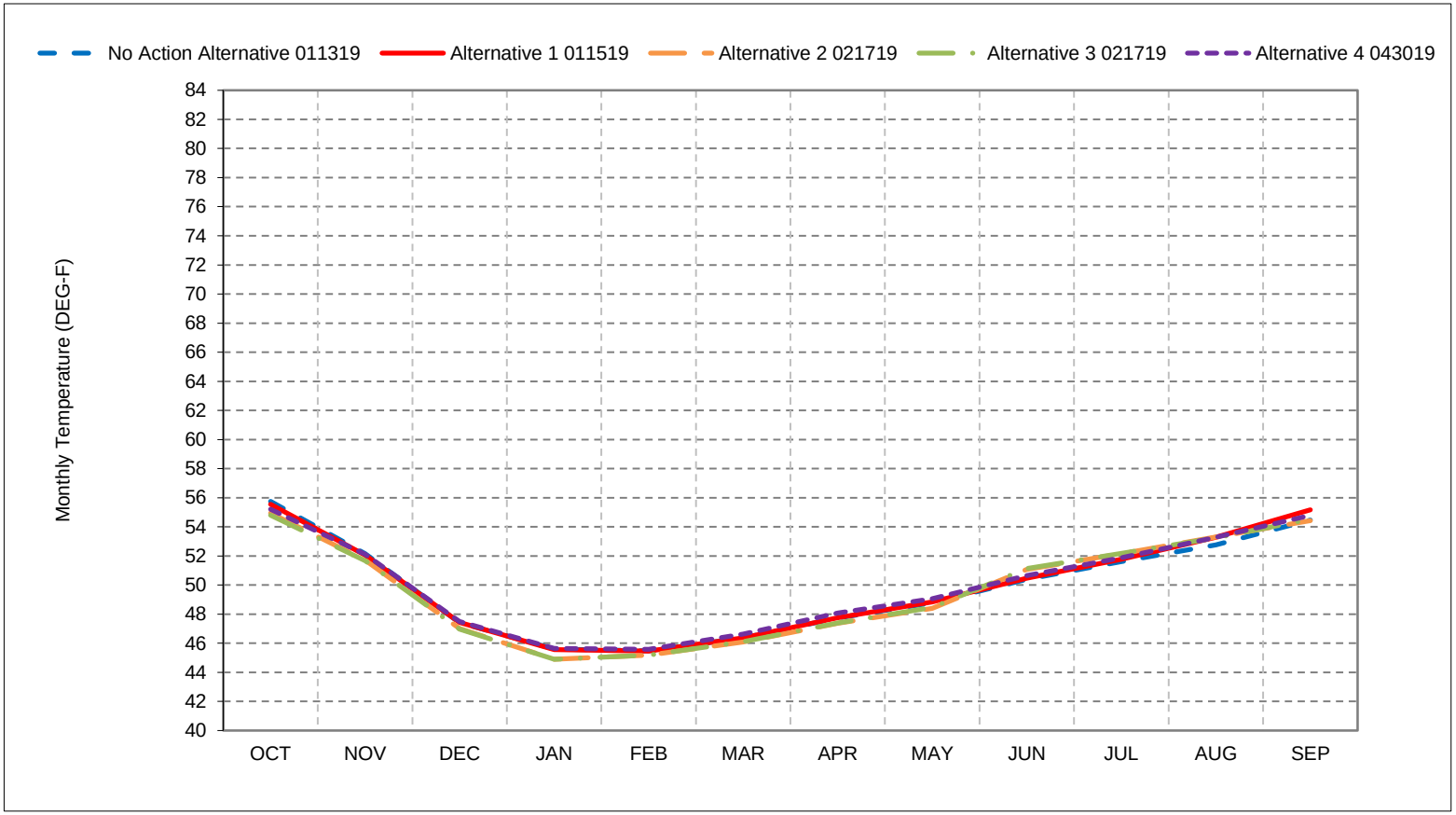
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-6. Clear Creek below Whiskeytown, Critical Year Average Temperature



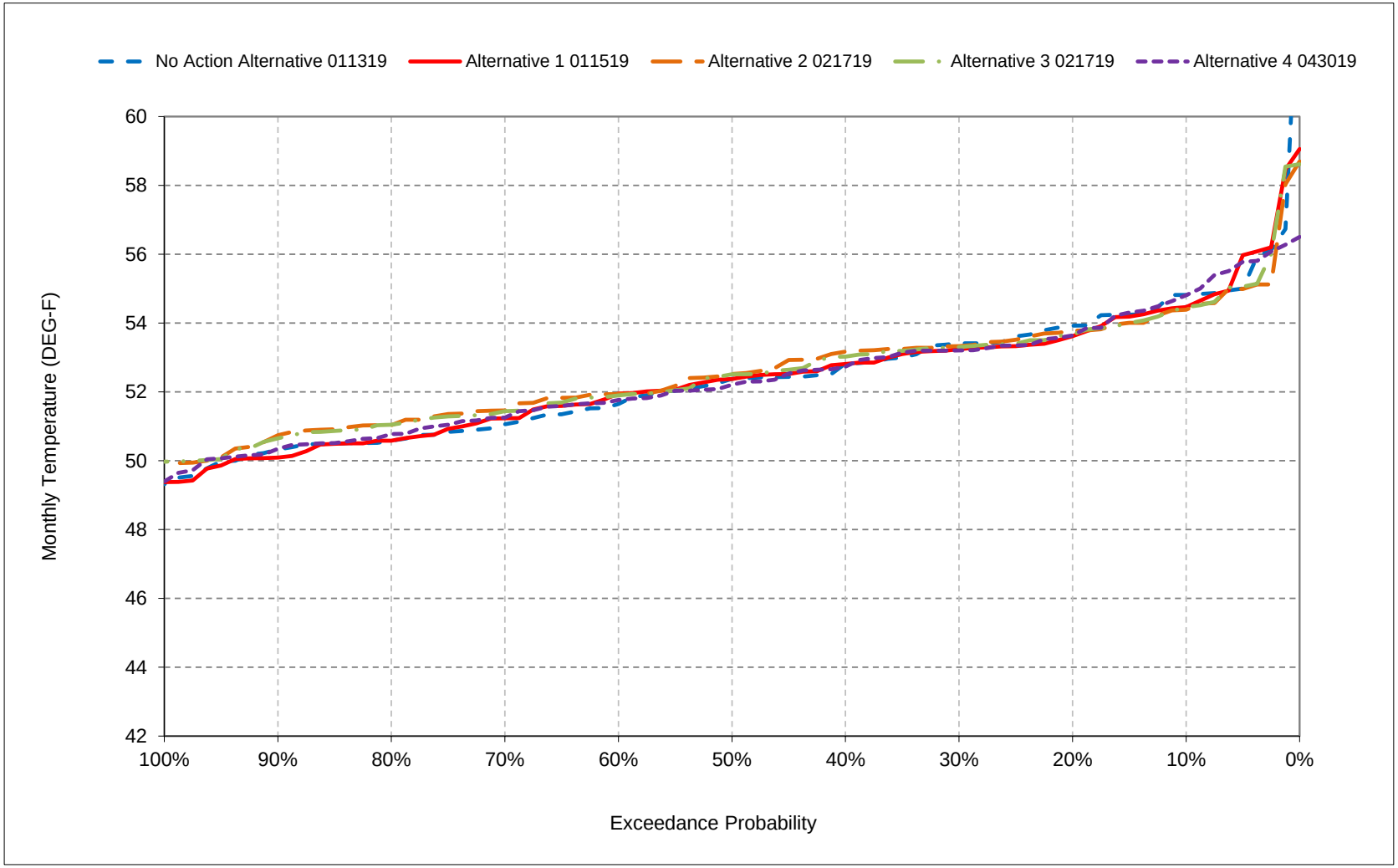
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

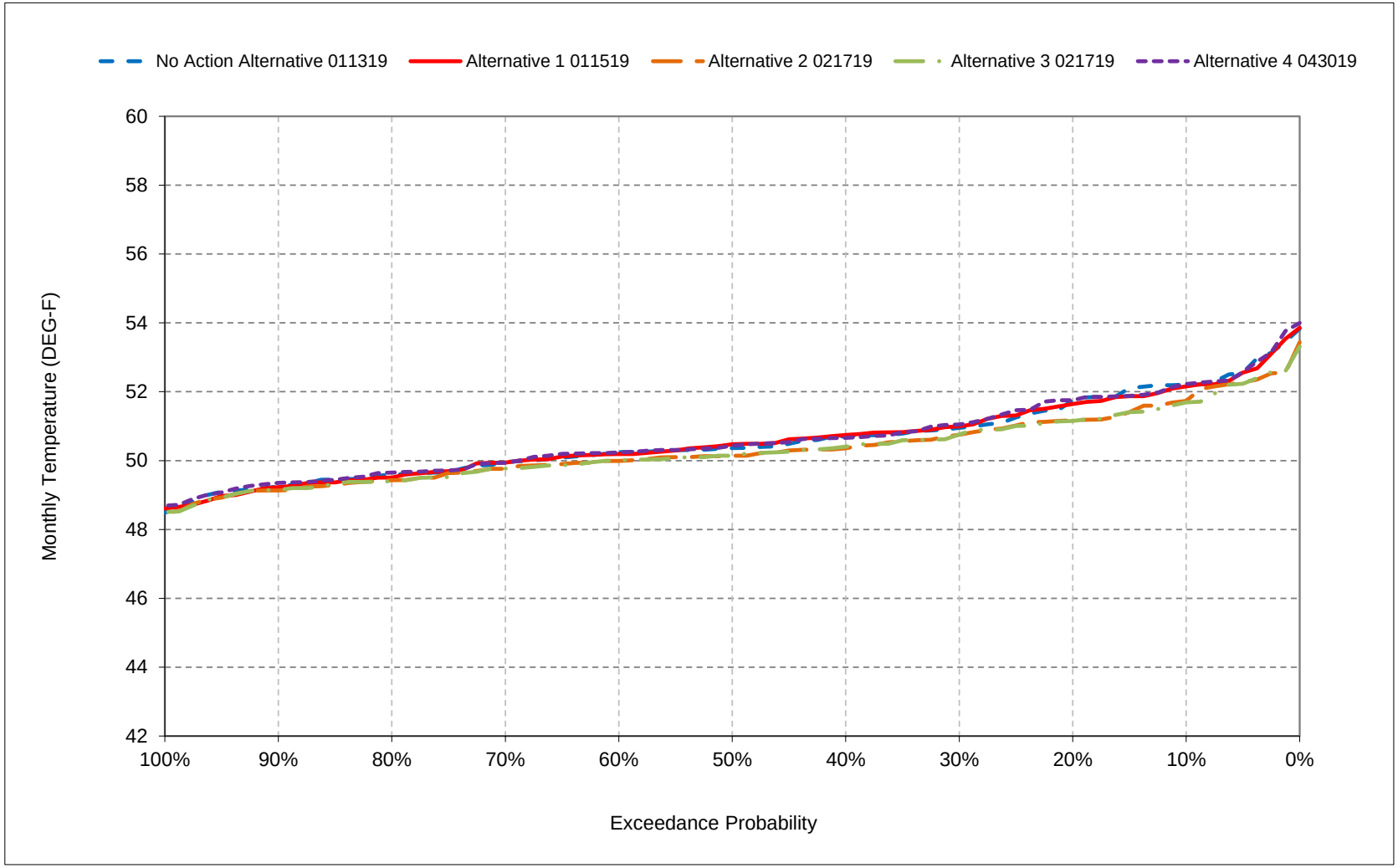
Figure 2-7. Clear Creek below Whiskeytown, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

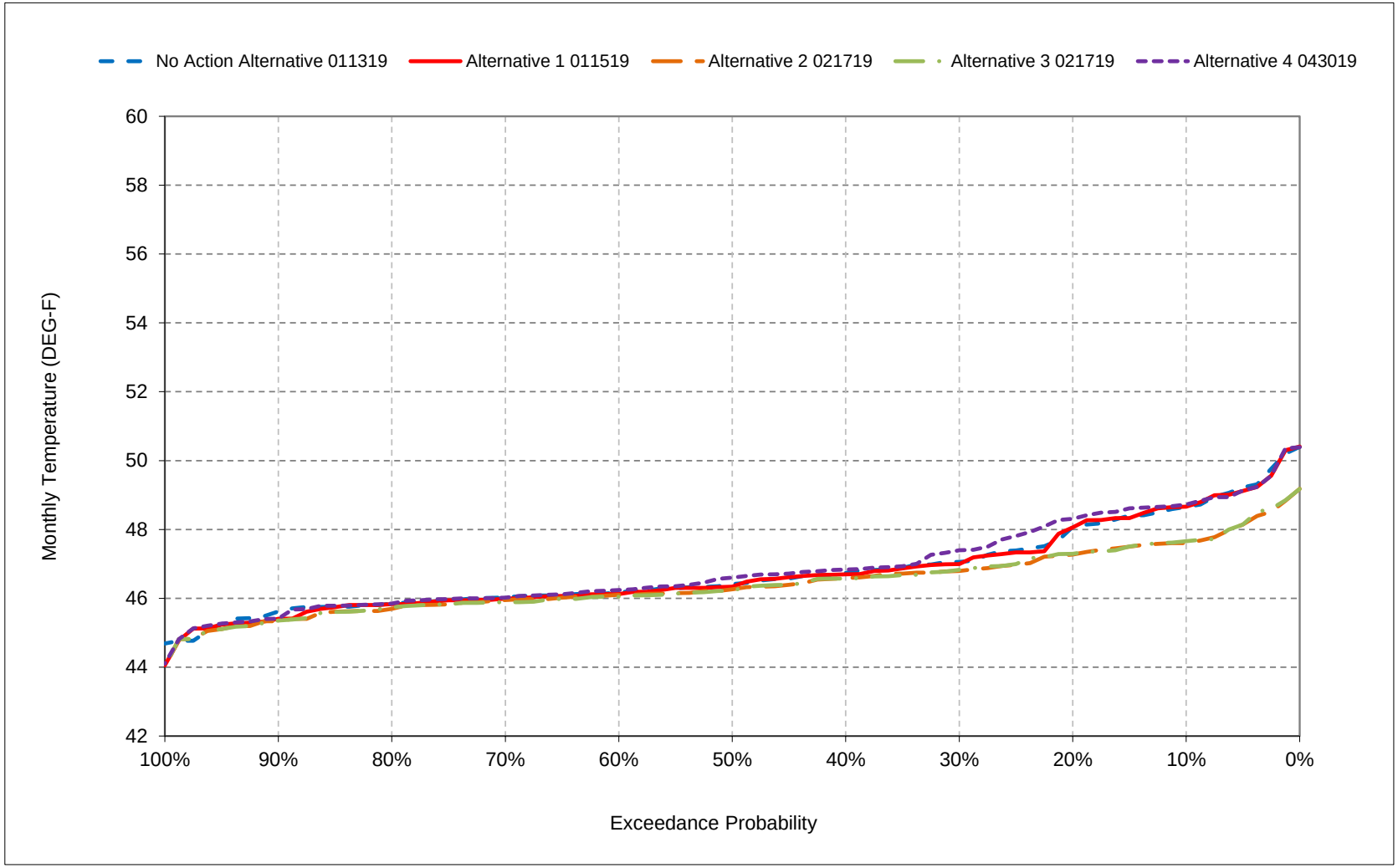
Figure 2-8. Clear Creek below Whiskeytown, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

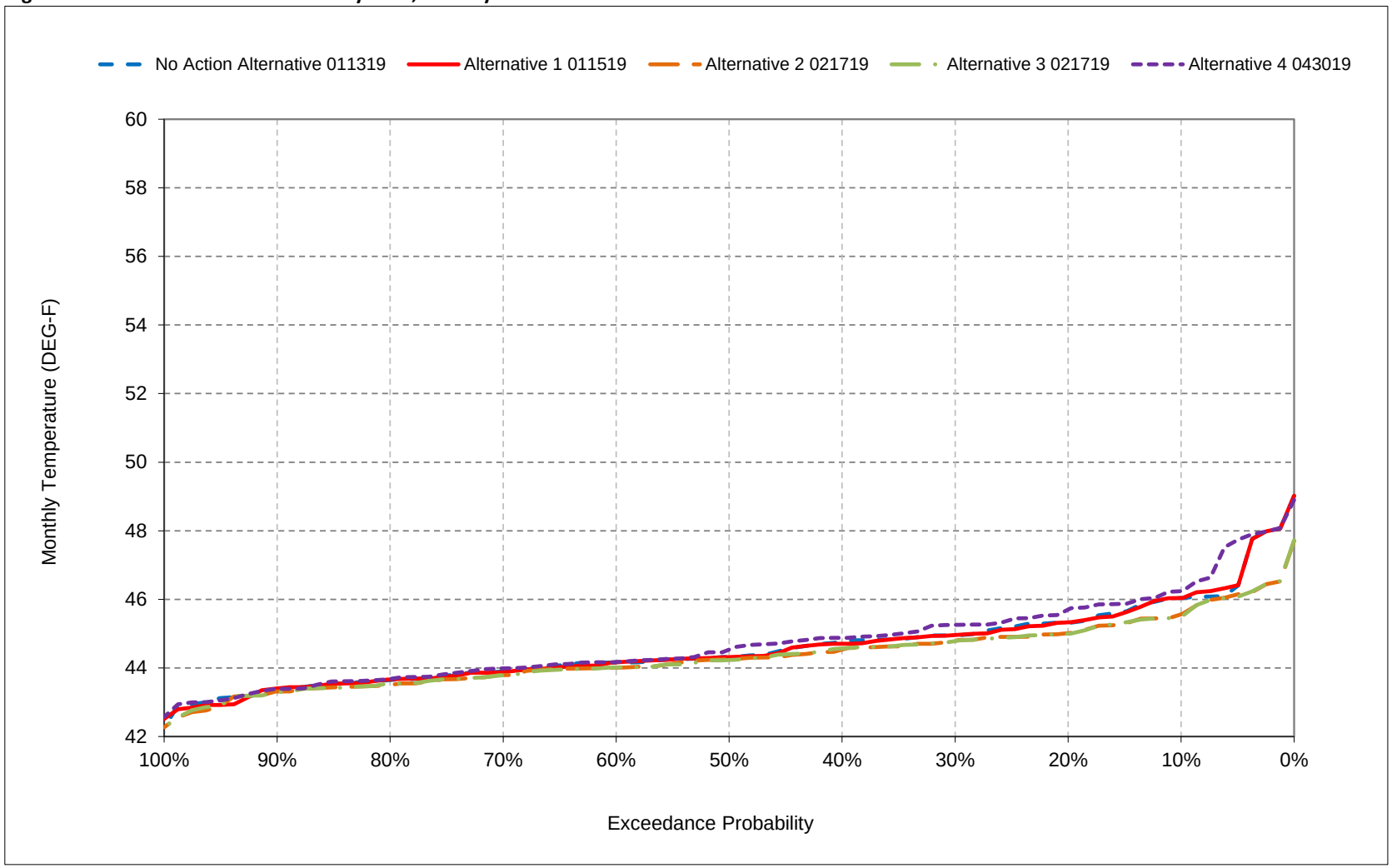
Figure 2-9. Clear Creek below Whiskeytown, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

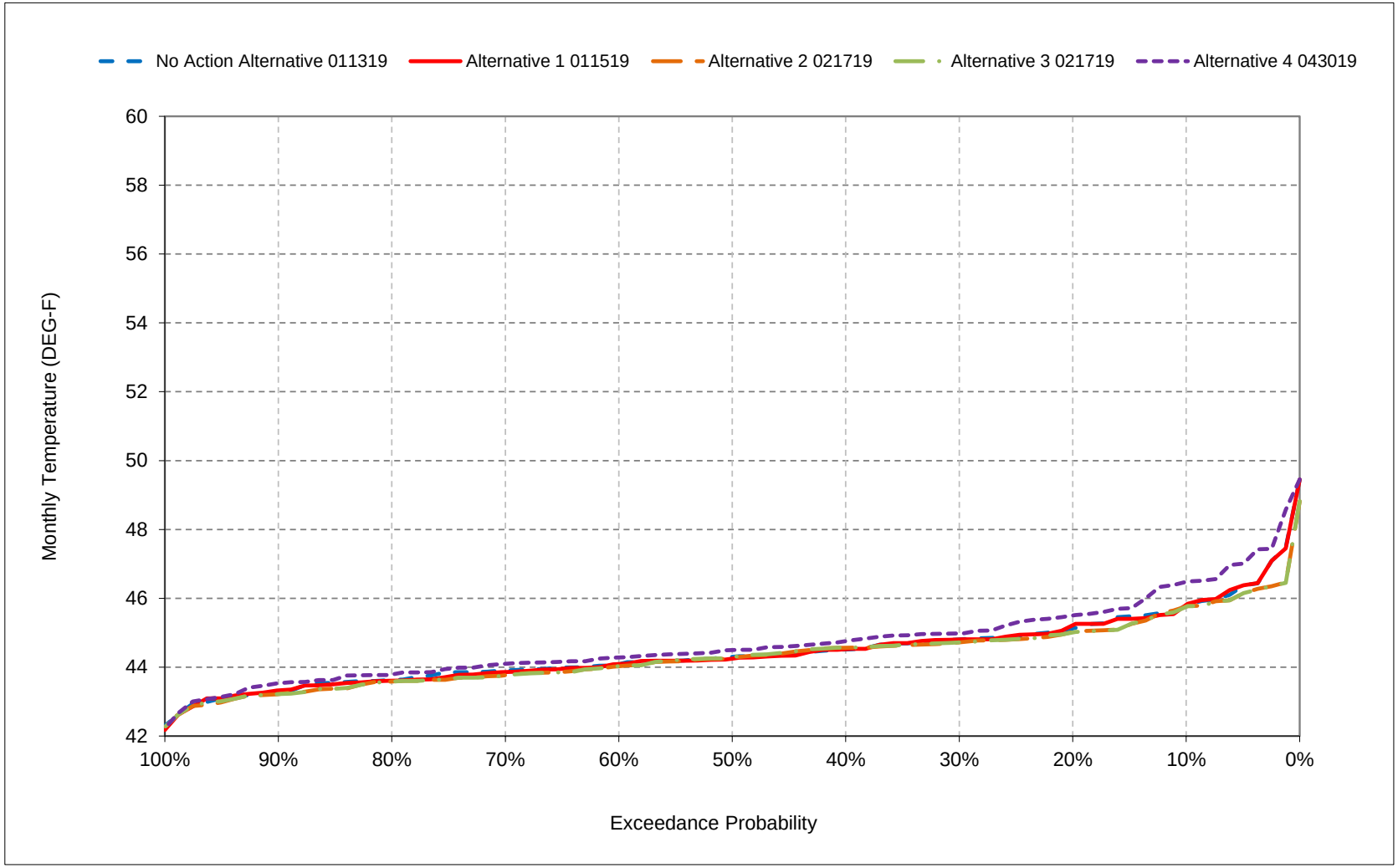
Figure 2-10. Clear Creek below Whiskeytown, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

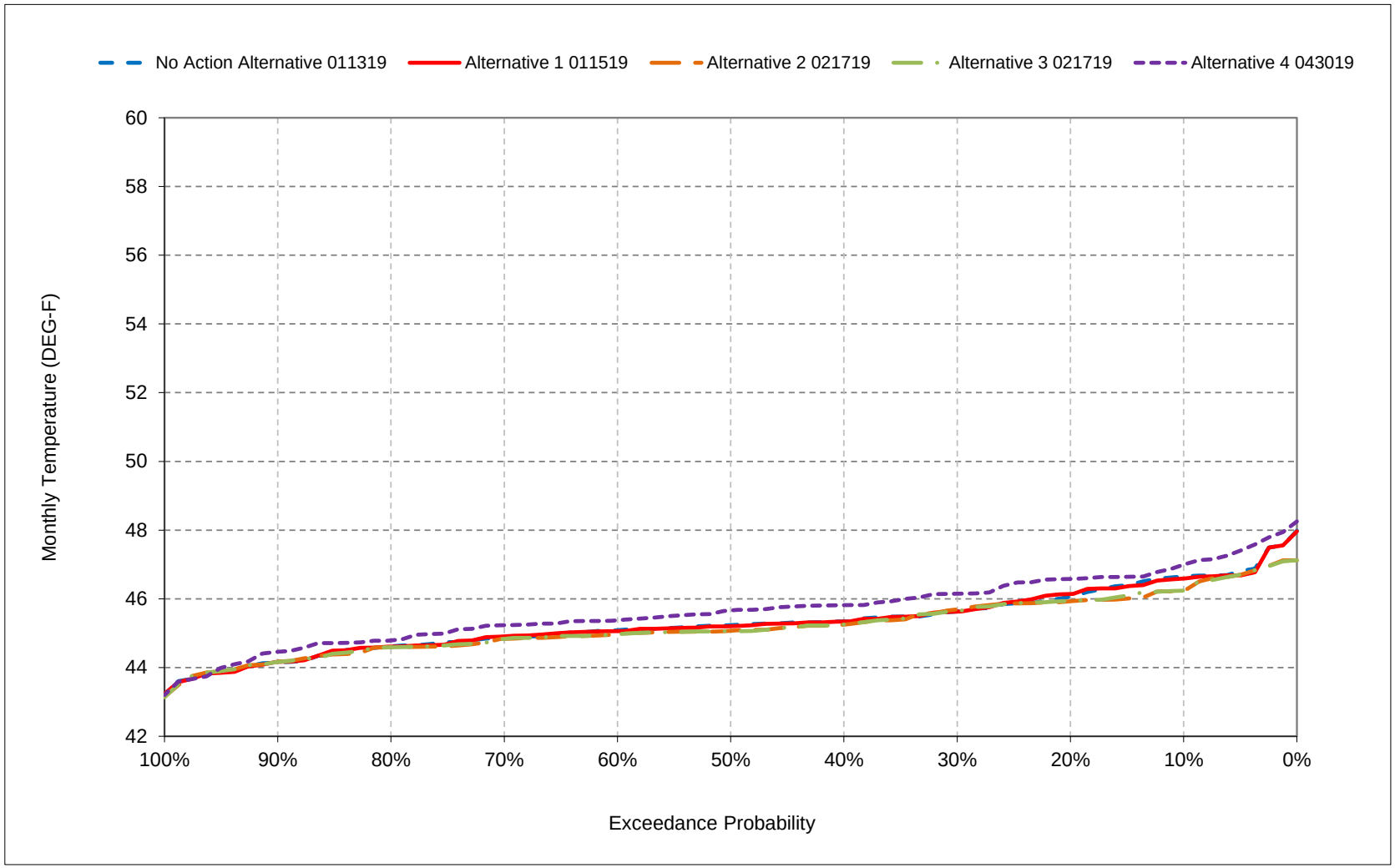
Figure 2-11. Clear Creek below Whiskeytown, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

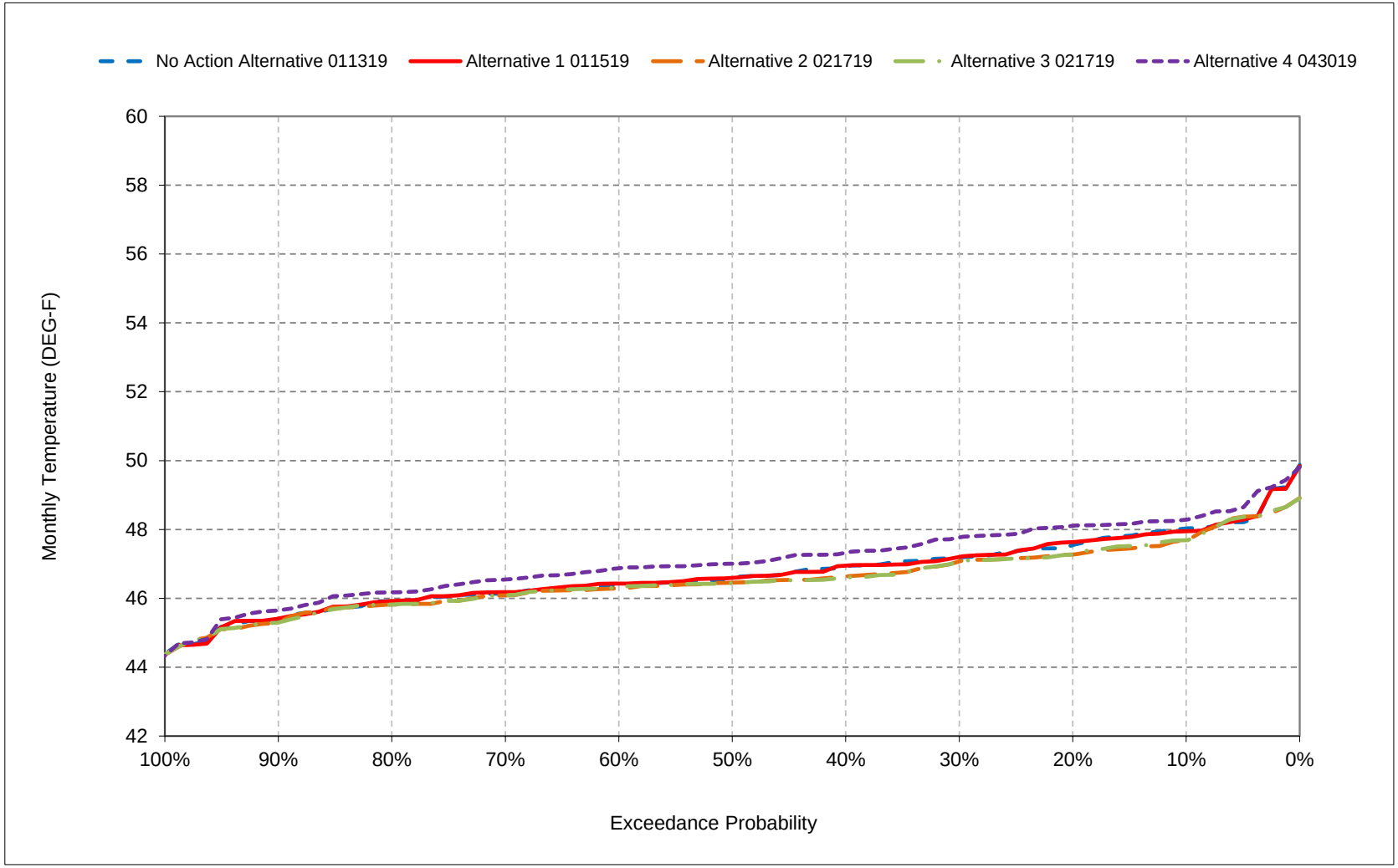
Figure 2-12. Clear Creek below Whiskeytown, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

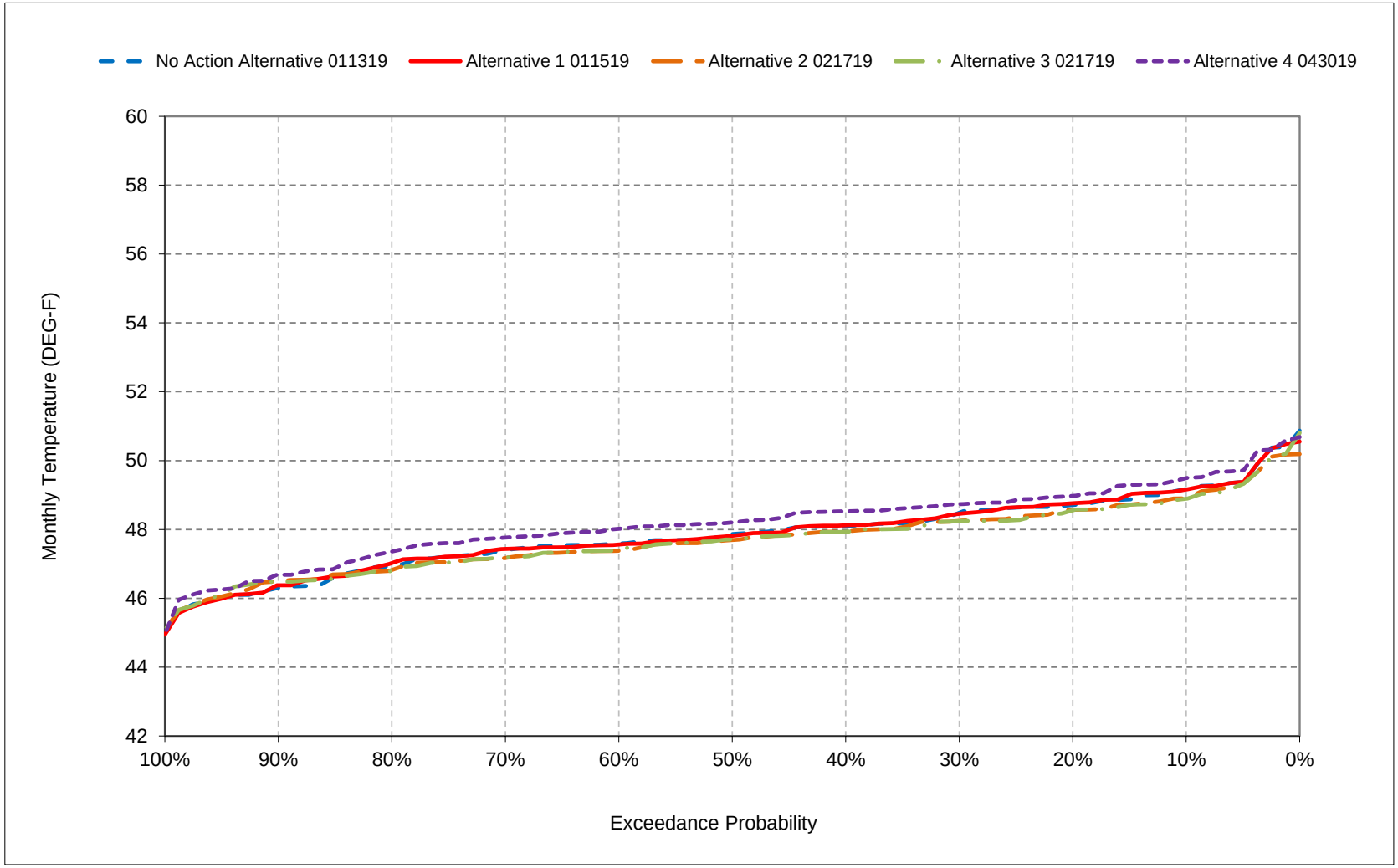
Figure 2-13. Clear Creek below Whiskeytown, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

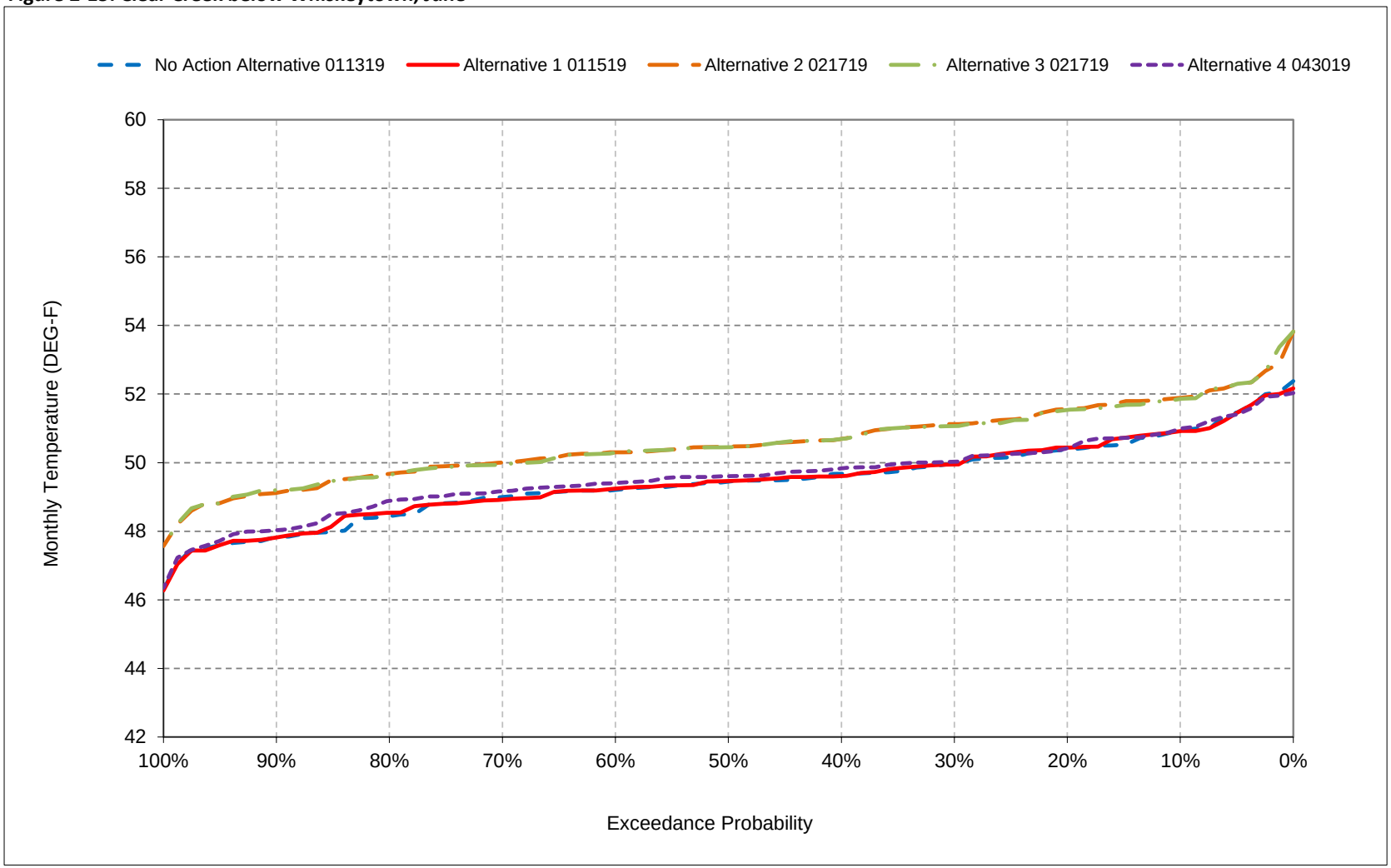
Figure 2-14. Clear Creek below Whiskeytown, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

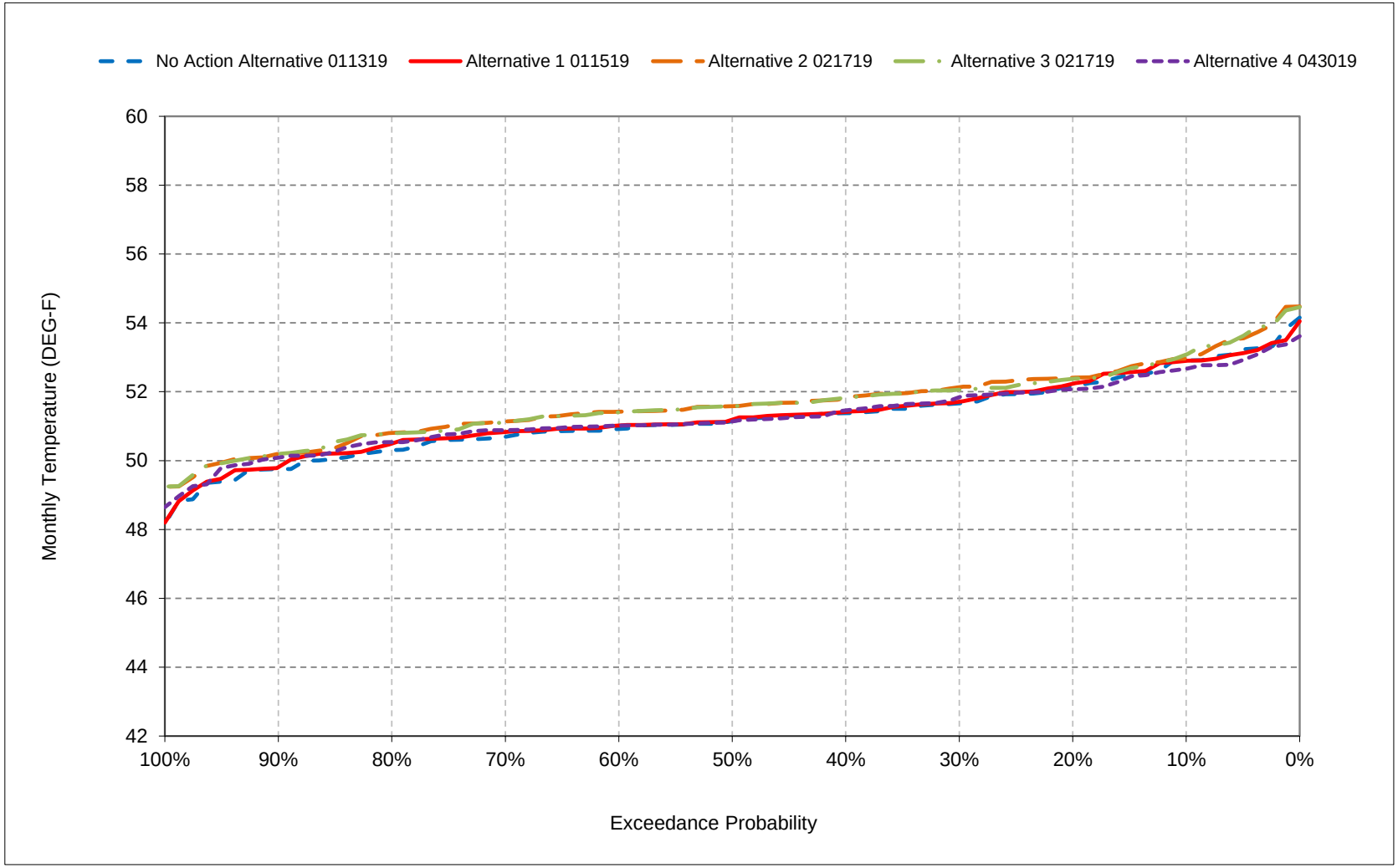
Figure 2-15. Clear Creek below Whiskeytown, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

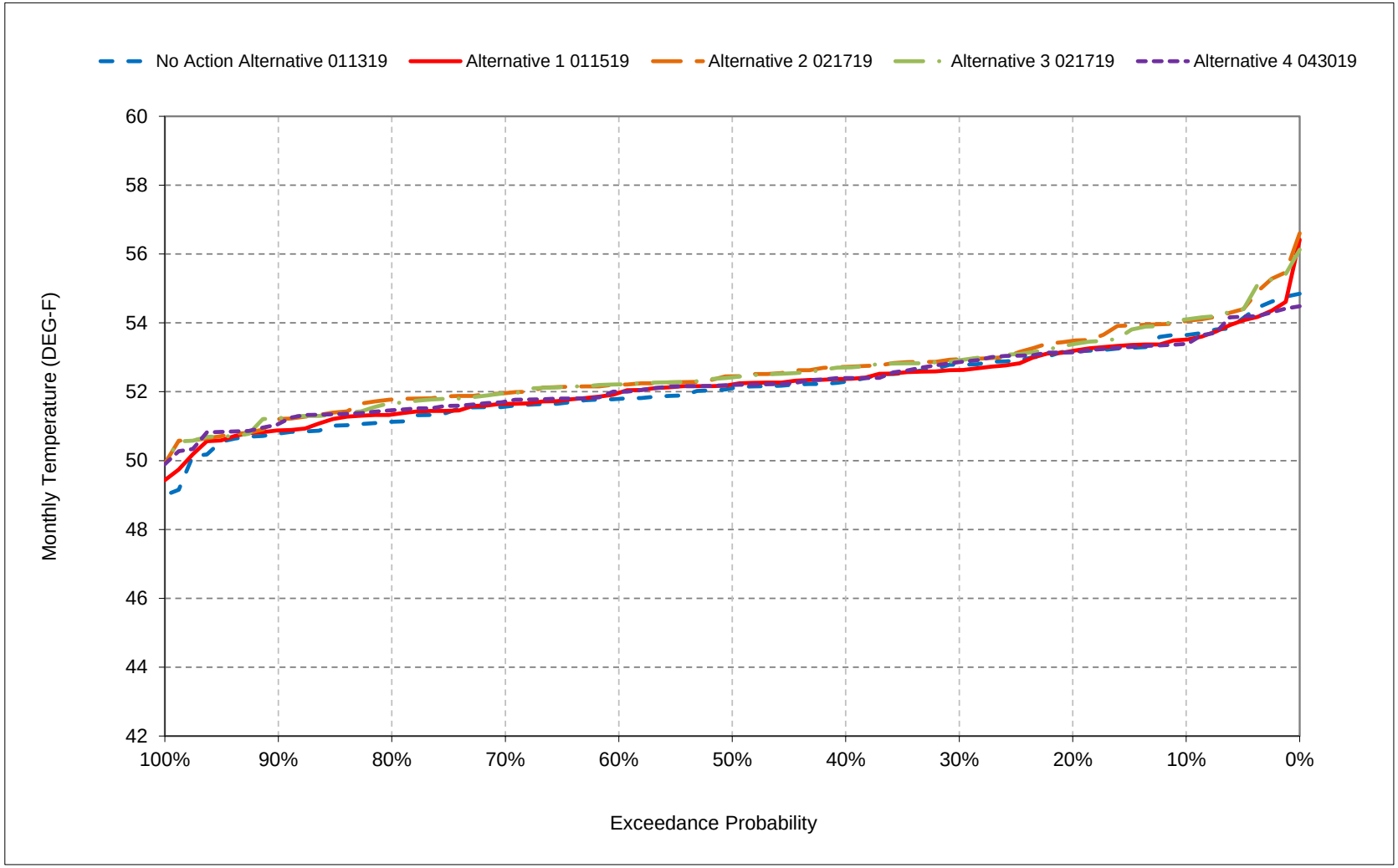
Figure 2-16. Clear Creek below Whiskeytown, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

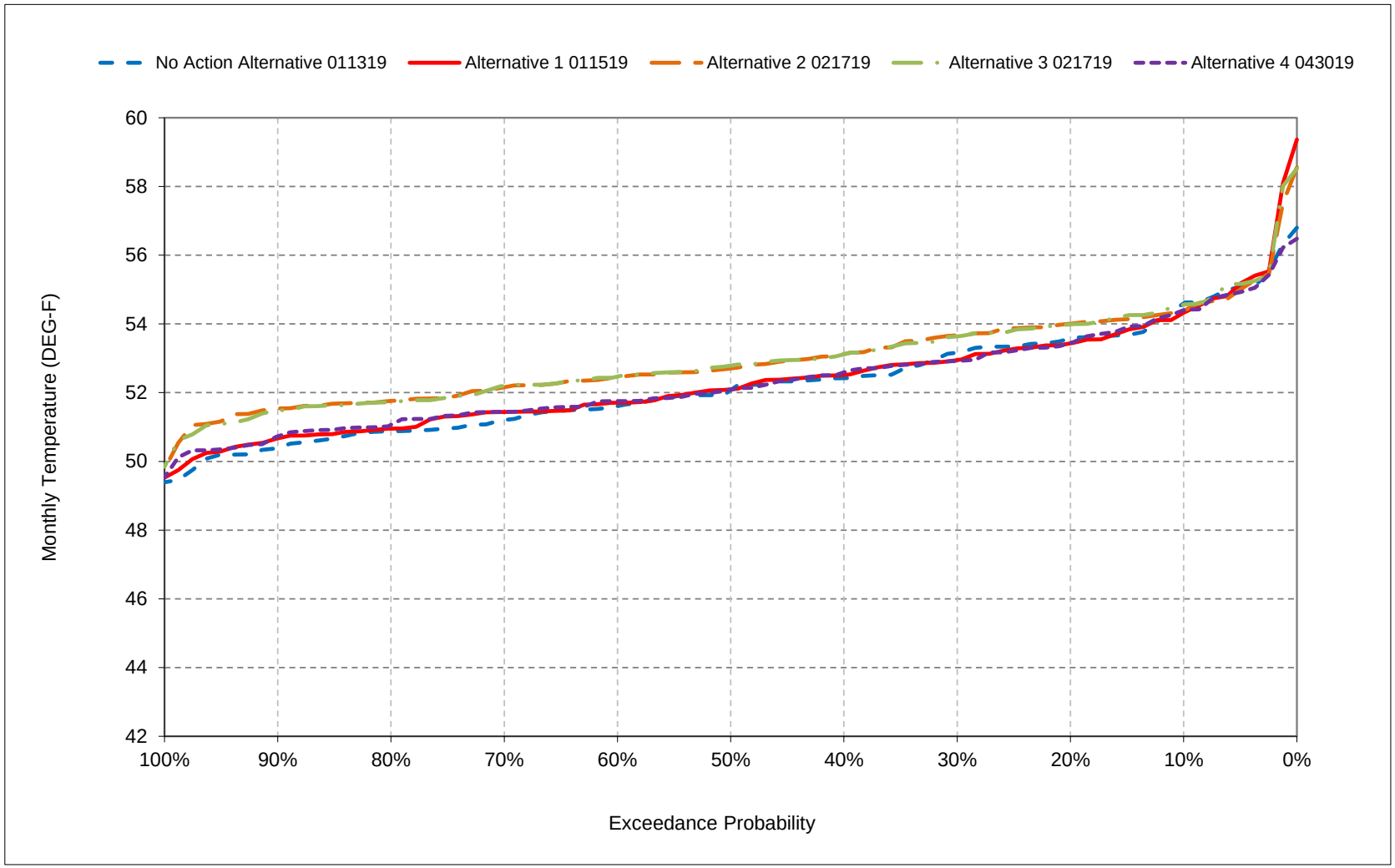
Figure 2-17. Clear Creek below Whiskeytown, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-18. Clear Creek below Whiskeytown, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 3-1. Clear Creek at Igo, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.4	52.4	48.7	46.2	46.1	47.3	49.1	50.3	53.1	56.4	56.7	55.9
20%	54.5	51.9	48.0	45.6	45.6	46.8	48.6	49.9	52.5	56.0	56.2	54.9
30%	53.9	51.1	47.2	45.2	45.2	46.4	48.1	49.4	51.9	55.3	55.8	54.4
40%	53.3	50.9	46.8	45.0	45.0	46.2	47.9	49.1	51.5	55.1	55.6	53.8
50%	52.9	50.5	46.5	44.6	44.7	45.9	47.5	49.0	51.2	55.0	55.2	53.5
60%	52.1	50.4	46.3	44.4	44.5	45.8	47.4	48.7	51.1	54.6	55.0	53.0
70%	51.6	50.2	46.1	44.1	44.3	45.5	47.2	48.5	50.7	54.4	54.8	52.6
80%	51.1	49.8	45.9	43.8	44.1	45.3	46.9	48.0	50.1	54.1	54.3	52.3
90%	50.9	49.5	45.6	43.6	43.7	44.8	46.4	47.4	49.6	53.7	54.0	51.8
Long Term												
Full Simulation Period[a]	53.1	50.8	46.9	44.8	44.9	46.0	47.7	48.9	51.4	55.0	55.3	53.7
Water Year Types[b,c]												
Wet (32%)	51.4	50.1	46.6	44.5	44.5	45.5	47.2	48.7	50.9	54.9	55.0	52.6
Above Normal (16%)	51.7	50.0	46.4	44.6	44.6	45.6	47.3	48.6	50.8	54.7	54.7	52.6
Below Normal (13%)	53.0	51.0	46.8	44.3	44.6	45.9	47.7	48.5	50.8	54.8	55.1	53.5
Dry (24%)	53.9	51.2	47.3	45.0	45.1	46.3	47.9	48.9	51.3	55.1	55.8	54.4
Critical (15%)	56.7	52.5	47.5	45.8	46.0	47.2	48.9	50.1	53.3	55.4	55.9	56.0

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.0	52.2	48.7	46.3	46.1	47.3	49.1	50.3	53.1	56.6	56.6	55.6
20%	54.2	51.8	48.2	45.6	45.6	46.9	48.6	49.9	52.5	56.0	56.2	54.7
30%	53.8	51.1	47.1	45.2	45.2	46.5	48.1	49.4	51.9	55.4	55.7	54.3
40%	53.4	50.9	46.8	44.9	45.0	46.1	47.9	49.2	51.6	55.2	55.6	54.0
50%	53.0	50.6	46.5	44.6	44.8	45.9	47.6	48.9	51.2	55.0	55.3	53.5
60%	52.4	50.4	46.3	44.3	44.5	45.7	47.4	48.6	50.9	54.6	55.2	53.1
70%	51.8	50.2	46.1	44.1	44.2	45.5	47.2	48.4	50.7	54.5	54.9	52.9
80%	51.2	49.8	45.9	43.9	44.0	45.3	46.9	48.1	50.3	54.2	54.5	52.4
90%	50.7	49.4	45.5	43.6	43.8	44.8	46.4	47.4	49.6	53.8	54.0	52.1
Long Term												
Full Simulation Period[a]	53.0	50.8	46.9	44.8	44.9	46.0	47.7	48.9	51.4	55.0	55.3	53.8
Water Year Types[b,c]												
Wet (32%)	51.4	50.1	46.5	44.5	44.5	45.5	47.2	48.6	50.9	54.9	55.0	52.8
Above Normal (16%)	51.9	50.1	46.4	44.6	44.6	45.7	47.4	48.7	50.9	54.8	54.9	52.7
Below Normal (13%)	53.1	51.0	46.8	44.2	44.5	45.9	47.6	48.5	50.9	55.0	55.2	53.5
Dry (24%)	53.6	51.1	47.2	45.0	45.1	46.3	47.9	48.9	51.3	55.0	55.7	54.2
Critical (15%)	56.3	52.3	47.5	45.7	46.0	47.2	48.9	50.1	53.4	55.5	56.2	56.7

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.4	-0.2	0.0	**0.1**	0.0	0.0	-0.1	0.0	0.0	**0.2**	0.0	-0.2
20%	-0.4	-0.1	**0.2**	0.0	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	0.0	-0.1	-0.1
30%	-0.2	**0.1**	0.0	0.0	**0.0**	**0.1**	0.0	**0.0**	0.0	**0.1**	-0.1	-0.1
40%	**0.0**	0.0	0.0	-0.1	**0.0**	-0.1	0.0	**0.0**	**0.1**	**0.1**	**0.0**	**0.2**
50%	**0.1**	**0.1**	0.0	**0.0**	**0.0**	0.0	**0.0**	0.0	0.0	-0.1	**0.1**	**0.0**
60%	**0.3**	0.0	0.0	0.0	0.0	-0.1	**0.1**	-0.1	-0.2	**0.0**	**0.2**	**0.0**
70%	**0.2**	0.0	-0.1	0.0	-0.1	0.0	0.0	-0.1	-0.1	**0.1**	**0.1**	**0.2**
80%	**0.0**	0.0	**0.0**	**0.1**	-0.1	0.0	**0.0**	**0.0**	**0.2**	**0.1**	**0.2**	**0.1**
90%	-0.2	-0.1	-0.1	**0.0**	**0.1**	0.0	**0.1**	**0.0**	**0.0**	**0.1**	**0.0**	**0.3**
Long Term												
Full Simulation Period[a]	-0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	**0.1**
Water Year Types[b,c]												
Wet (32%)	**0.0**	**0.0**	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0	**0.2**
Above Normal (16%)	**0.2**	**0.2**	**0.0**	0.0	0.0	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
Below Normal (13%)	**0.0**	0.0	**0.0**	-0.1	-0.1	0.0	0.0	0.0	**0.1**	**0.2**	**0.0**	**0.0**
Dry (24%)	-0.2	-0.1	-0.1	**0.0**	**0.0**	**0.0**	0.0	0.0	0.0	0.0	-0.1	-0.2
Critical (15%)	-0.4	-0.2	**0.0**	0.0	0.0	0.0	**0.0**	**0.0**	**0.1**	**0.2**	**0.3**	**0.7**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3-2. Clear Creek at Igo, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.4	52.4	48.7	46.2	46.1	47.3	49.1	50.3	53.1	56.4	56.7	55.9
20%	54.5	51.9	48.0	45.6	45.6	46.8	48.6	49.9	52.5	56.0	56.2	54.9
30%	53.9	51.1	47.2	45.2	45.2	46.4	48.1	49.4	51.9	55.3	55.8	54.4
40%	53.3	50.9	46.8	45.0	45.0	46.2	47.9	49.1	51.5	55.1	55.6	53.8
50%	52.9	50.5	46.5	44.6	44.7	45.9	47.5	49.0	51.2	55.0	55.2	53.5
60%	52.1	50.4	46.3	44.4	44.5	45.8	47.4	48.7	51.1	54.6	55.0	53.0
70%	51.6	50.2	46.1	44.1	44.3	45.5	47.2	48.5	50.7	54.4	54.8	52.6
80%	51.1	49.8	45.9	43.8	44.1	45.3	46.9	48.0	50.1	54.1	54.3	52.3
90%	50.9	49.5	45.6	43.6	43.7	44.8	46.4	47.4	49.6	53.7	54.0	51.8
Long Term												
Full Simulation Period[a]	53.1	50.8	46.9	44.8	44.9	46.0	47.7	48.9	51.4	55.0	55.3	53.7
Water Year Types[b,c]												
Wet (32%)	51.4	50.1	46.6	44.5	44.5	45.5	47.2	48.7	50.9	54.9	55.0	52.6
Above Normal (16%)	51.7	50.0	46.4	44.6	44.6	45.6	47.3	48.6	50.8	54.7	54.7	52.6
Below Normal (13%)	53.0	51.0	46.8	44.3	44.6	45.9	47.7	48.5	50.8	54.8	55.1	53.5
Dry (24%)	53.9	51.2	47.3	45.0	45.1	46.3	47.9	48.9	51.3	55.1	55.8	54.4
Critical (15%)	56.7	52.5	47.5	45.8	46.0	47.2	48.9	50.1	53.3	55.4	55.9	56.0

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.0	52.1	47.9	46.1	46.3	47.7	49.9	50.7	57.3	58.7	58.8	57.8
20%	55.4	51.6	47.4	45.4	45.9	47.4	49.5	50.3	56.9	58.4	58.3	57.5
30%	55.1	51.2	47.0	45.2	45.5	47.2	49.1	50.0	56.4	58.0	57.9	57.1
40%	54.8	50.8	46.9	44.9	45.3	47.0	48.6	49.7	56.2	57.6	57.6	56.7
50%	54.5	50.5	46.4	44.7	45.1	46.4	48.4	49.5	55.8	57.4	57.4	56.2
60%	53.7	50.3	46.3	44.4	44.9	46.2	48.2	49.2	55.6	57.1	57.2	55.9
70%	53.4	50.1	46.1	44.1	44.5	46.0	47.9	48.9	55.2	56.9	56.9	55.7
80%	53.1	49.8	45.8	43.8	44.3	45.8	47.6	48.6	55.0	56.6	56.6	55.3
90%	52.6	49.5	45.4	43.6	44.1	45.4	47.1	48.2	54.6	56.2	56.0	55.1
Long Term												
Full Simulation Period[a]	54.4	50.7	46.6	44.7	45.2	46.6	48.5	49.5	55.9	57.5	57.5	56.4
Water Year Types[b,c]												
Wet (32%)	53.2	50.2	46.4	44.7	45.0	46.2	48.2	49.4	55.8	57.5	57.2	55.9
Above Normal (16%)	53.6	50.0	46.3	44.8	45.1	46.4	48.2	49.4	55.9	57.3	57.0	55.7
Below Normal (13%)	54.3	50.7	46.4	44.2	44.7	46.2	48.3	49.0	55.5	57.2	57.4	56.2
Dry (24%)	55.0	51.0	47.0	44.7	45.3	46.7	48.6	49.4	55.9	57.4	57.7	56.9
Critical (15%)	56.5	52.1	47.2	45.2	46.1	47.5	49.4	50.2	56.3	58.0	58.1	57.7

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.5**	-0.3	-0.8	-0.1	**0.2**	**0.4**	**0.8**	**0.4**	**4.2**	**2.3**	**2.2**	**1.9**
20%	**0.9**	-0.4	-0.6	-0.2	**0.3**	**0.6**	**0.8**	**0.4**	**4.5**	**2.4**	**2.1**	**2.7**
30%	**1.2**	**0.1**	-0.1	0.0	**0.3**	**0.7**	**1.0**	**0.6**	**4.5**	**2.7**	**2.1**	**2.7**
40%	**1.5**	-0.1	**0.0**	-0.1	**0.3**	**0.8**	**0.6**	**0.6**	**4.6**	**2.5**	**2.0**	**2.9**
50%	**1.6**	**0.0**	-0.1	**0.1**	**0.4**	**0.5**	**0.9**	**0.6**	**4.6**	**2.4**	**2.1**	**2.7**
60%	**1.6**	-0.1	**0.0**	**0.0**	**0.4**	**0.4**	**0.8**	**0.5**	**4.5**	**2.5**	**2.2**	**2.9**
70%	**1.8**	0.0	0.0	0.0	**0.2**	**0.4**	**0.7**	**0.4**	**4.5**	**2.5**	**2.2**	**3.1**
80%	**1.9**	0.0	-0.1	**0.1**	**0.2**	**0.5**	**0.8**	**0.6**	**4.9**	**2.5**	**2.3**	**2.9**
90%	**1.7**	**0.0**	-0.2	-0.1	**0.4**	**0.6**	**0.8**	**0.8**	**5.0**	**2.5**	**2.0**	**3.3**
Long Term												
Full Simulation Period[a]	**1.3**	-0.1	-0.2	-0.1	**0.3**	**0.5**	**0.8**	**0.5**	**4.5**	**2.5**	**2.2**	**2.8**
Water Year Types[b,c]												
Wet (32%)	**1.8**	**0.1**	-0.1	**0.2**	**0.5**	**0.7**	**1.0**	**0.7**	**4.9**	**2.6**	**2.2**	**3.3**
Above Normal (16%)	**1.8**	**0.1**	0.0	**0.2**	**0.5**	**0.8**	**0.9**	**0.8**	**5.1**	**2.6**	**2.3**	**3.1**
Below Normal (13%)	**1.2**	-0.3	-0.4	-0.1	**0.1**	**0.3**	**0.6**	**0.5**	**4.7**	**2.4**	**2.2**	**2.7**
Dry (24%)	**1.2**	-0.2	-0.4	-0.3	**0.2**	**0.4**	**0.6**	**0.4**	**4.6**	**2.4**	**1.9**	**2.5**
Critical (15%)	-0.2	-0.4	-0.3	-0.6	**0.1**	**0.3**	**0.4**	**0.1**	**3.0**	**2.6**	**2.2**	**1.7**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3-3. Clear Creek at Igo, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.4	52.4	48.7	46.2	46.1	47.3	49.1	50.3	53.1	56.4	56.7	55.9
20%	54.5	51.9	48.0	45.6	45.6	46.8	48.6	49.9	52.5	56.0	56.2	54.9
30%	53.9	51.1	47.2	45.2	45.2	46.4	48.1	49.4	51.9	55.3	55.8	54.4
40%	53.3	50.9	46.8	45.0	45.0	46.2	47.9	49.1	51.5	55.1	55.6	53.8
50%	52.9	50.5	46.5	44.6	44.7	45.9	47.5	49.0	51.2	55.0	55.2	53.5
60%	52.1	50.4	46.3	44.4	44.5	45.8	47.4	48.7	51.1	54.6	55.0	53.0
70%	51.6	50.2	46.1	44.1	44.3	45.5	47.2	48.5	50.7	54.4	54.8	52.6
80%	51.1	49.8	45.9	43.8	44.1	45.3	46.9	48.0	50.1	54.1	54.3	52.3
90%	50.9	49.5	45.6	43.6	43.7	44.8	46.4	47.4	49.6	53.7	54.0	51.8
Long Term												
Full Simulation Period[a]	53.1	50.8	46.9	44.8	44.9	46.0	47.7	48.9	51.4	55.0	55.3	53.7
Water Year Types[b,c]												
Wet (32%)	51.4	50.1	46.6	44.5	44.5	45.5	47.2	48.7	50.9	54.9	55.0	52.6
Above Normal (16%)	51.7	50.0	46.4	44.6	44.6	45.6	47.3	48.6	50.8	54.7	54.7	52.6
Below Normal (13%)	53.0	51.0	46.8	44.3	44.6	45.9	47.7	48.5	50.8	54.8	55.1	53.5
Dry (24%)	53.9	51.2	47.3	45.0	45.1	46.3	47.9	48.9	51.3	55.1	55.8	54.4
Critical (15%)	56.7	52.5	47.5	45.8	46.0	47.2	48.9	50.1	53.3	55.4	55.9	56.0

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.0	52.1	47.9	46.1	46.3	47.7	49.9	50.8	57.3	59.0	58.8	57.9
20%	55.4	51.6	47.5	45.4	45.9	47.4	49.5	50.3	56.8	58.4	58.2	57.4
30%	54.9	51.2	47.0	45.2	45.5	47.2	49.1	49.9	56.4	57.9	57.8	57.1
40%	54.8	50.7	46.8	44.9	45.3	47.0	48.6	49.7	56.2	57.6	57.6	56.7
50%	54.1	50.5	46.4	44.7	45.2	46.4	48.4	49.5	55.9	57.4	57.4	56.2
60%	53.7	50.3	46.3	44.4	44.9	46.2	48.2	49.2	55.6	57.1	57.2	55.9
70%	53.2	50.1	46.1	44.1	44.5	46.0	47.9	48.9	55.2	56.9	56.9	55.7
80%	52.9	49.8	45.8	43.8	44.3	45.8	47.7	48.6	55.0	56.6	56.5	55.2
90%	52.5	49.5	45.4	43.5	44.1	45.3	47.2	48.2	54.7	56.2	56.0	55.0
Long Term												
Full Simulation Period[a]	54.3	50.7	46.6	44.7	45.2	46.6	48.5	49.5	55.9	57.5	57.4	56.4
Water Year Types[b,c]												
Wet (32%)	53.2	50.2	46.4	44.7	45.0	46.2	48.2	49.3	55.8	57.4	57.1	55.9
Above Normal (16%)	53.5	50.0	46.3	44.9	45.1	46.4	48.2	49.4	55.9	57.3	57.0	55.7
Below Normal (13%)	54.3	50.7	46.4	44.2	44.7	46.2	48.3	49.1	55.6	57.2	57.4	56.2
Dry (24%)	55.0	51.0	47.0	44.7	45.3	46.8	48.6	49.4	55.9	57.5	57.7	56.9
Critical (15%)	56.4	52.0	47.1	45.2	46.1	47.5	49.4	50.3	56.4	58.0	58.1	57.8

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.5**	-0.3	-0.8	-0.1	**0.2**	**0.4**	**0.8**	**0.5**	**4.3**	**2.6**	**2.1**	**2.0**
20%	**0.9**	-0.3	-0.5	-0.2	**0.3**	**0.6**	**0.8**	**0.4**	**4.4**	**2.4**	**2.0**	**2.6**
30%	**1.0**	**0.1**	-0.1	0.0	**0.3**	**0.8**	**0.9**	**0.5**	**4.6**	**2.6**	**2.1**	**2.7**
40%	**1.5**	-0.2	0.0	-0.1	**0.3**	**0.8**	**0.6**	**0.6**	**4.6**	**2.4**	**2.0**	**2.9**
50%	**1.2**	0.0	-0.1	**0.1**	**0.4**	**0.5**	**0.9**	**0.5**	**4.7**	**2.3**	**2.1**	**2.8**
60%	**1.6**	-0.2	**0.0**	0.0	**0.4**	**0.4**	**0.8**	**0.5**	**4.5**	**2.5**	**2.2**	**2.9**
70%	**1.6**	-0.1	-0.1	0.0	**0.2**	**0.4**	**0.7**	**0.4**	**4.5**	**2.5**	**2.2**	**3.1**
80%	**1.8**	0.0	-0.1	**0.0**	**0.2**	**0.5**	**0.8**	**0.5**	**4.9**	**2.5**	**2.2**	**2.9**
90%	**1.7**	**0.0**	-0.2	-0.1	**0.4**	**0.6**	**0.8**	**0.8**	**5.1**	**2.5**	**2.0**	**3.2**
Long Term												
Full Simulation Period[a]	**1.3**	-0.1	-0.3	-0.1	**0.3**	**0.5**	**0.8**	**0.5**	**4.5**	**2.5**	**2.1**	**2.8**
Water Year Types[b,c]												
Wet (32%)	**1.8**	**0.1**	-0.2	**0.2**	**0.4**	**0.7**	**1.0**	**0.6**	**4.8**	**2.5**	**2.2**	**3.2**
Above Normal (16%)	**1.8**	**0.1**	-0.1	**0.2**	**0.5**	**0.8**	**0.9**	**0.8**	**5.1**	**2.6**	**2.3**	**3.1**
Below Normal (13%)	**1.2**	-0.3	-0.4	-0.1	**0.1**	**0.3**	**0.6**	**0.5**	**4.7**	**2.4**	**2.2**	**2.7**
Dry (24%)	**1.1**	-0.2	-0.3	-0.3	**0.2**	**0.4**	**0.6**	**0.4**	**4.6**	**2.4**	**1.9**	**2.6**
Critical (15%)	-0.3	-0.5	-0.4	-0.6	**0.1**	**0.3**	**0.5**	**0.2**	**3.0**	**2.6**	**2.2**	**1.8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3-4. Clear Creek at Igo, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.4	52.4	48.7	46.2	46.1	47.3	49.1	50.3	53.1	56.4	56.7	55.9
20%	54.5	51.9	48.0	45.6	45.6	46.8	48.6	49.9	52.5	56.0	56.2	54.9
30%	53.9	51.1	47.2	45.2	45.2	46.4	48.1	49.4	51.9	55.3	55.8	54.4
40%	53.3	50.9	46.8	45.0	45.0	46.2	47.9	49.1	51.5	55.1	55.6	53.8
50%	52.9	50.5	46.5	44.6	44.7	45.9	47.5	49.0	51.2	55.0	55.2	53.5
60%	52.1	50.4	46.3	44.4	44.5	45.8	47.4	48.7	51.1	54.6	55.0	53.0
70%	51.6	50.2	46.1	44.1	44.3	45.5	47.2	48.5	50.7	54.4	54.8	52.6
80%	51.1	49.8	45.9	43.8	44.1	45.3	46.9	48.0	50.1	54.1	54.3	52.3
90%	50.9	49.5	45.6	43.6	43.7	44.8	46.4	47.4	49.6	53.7	54.0	51.8
Long Term												
Full Simulation Period[a]	53.1	50.8	46.9	44.8	44.9	46.0	47.7	48.9	51.4	55.0	55.3	53.7
Water Year Types[b,c]												
Wet (32%)	51.4	50.1	46.6	44.5	44.5	45.5	47.2	48.7	50.9	54.9	55.0	52.6
Above Normal (16%)	51.7	50.0	46.4	44.6	44.6	45.6	47.3	48.6	50.8	54.7	54.7	52.6
Below Normal (13%)	53.0	51.0	46.8	44.3	44.6	45.9	47.7	48.5	50.8	54.8	55.1	53.5
Dry (24%)	53.9	51.2	47.3	45.0	45.1	46.3	47.9	48.9	51.3	55.1	55.8	54.4
Critical (15%)	56.7	52.5	47.5	45.8	46.0	47.2	48.9	50.1	53.3	55.4	55.9	56.0

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.6	52.4	48.7	46.4	46.6	47.4	49.2	50.5	53.2	56.5	56.5	55.6
20%	54.1	52.0	48.3	45.7	45.8	47.0	48.7	49.9	52.4	55.7	56.2	54.8
30%	53.7	51.3	47.4	45.4	45.3	46.6	48.5	49.7	51.9	55.4	55.8	54.2
40%	53.2	50.8	46.9	45.0	45.0	46.2	48.1	49.5	51.7	55.0	55.5	54.0
50%	52.7	50.6	46.6	44.7	44.7	46.0	47.7	49.2	51.3	54.8	55.3	53.5
60%	52.2	50.4	46.3	44.3	44.4	45.9	47.4	49.0	51.0	54.7	55.1	53.1
70%	51.9	50.1	46.1	44.1	44.3	45.5	47.1	48.7	50.8	54.5	54.7	52.8
80%	51.4	49.8	45.9	43.8	44.1	45.2	46.8	48.3	50.5	54.1	54.5	52.5
90%	51.0	49.5	45.5	43.5	43.8	44.8	46.4	47.7	49.8	53.3	54.0	52.1
Long Term												
Full Simulation Period[a]	53.0	50.8	47.0	44.9	45.0	46.1	47.7	49.2	51.5	54.9	55.3	53.7
Water Year Types[b,c]												
Wet (32%)	51.6	50.1	46.7	44.7	44.6	45.8	47.3	49.0	51.0	54.5	55.0	52.8
Above Normal (16%)	51.8	50.3	46.6	44.7	45.0	45.5	47.3	49.1	51.0	54.7	54.7	52.7
Below Normal (13%)	53.1	50.9	47.0	44.2	44.5	46.0	47.7	48.8	51.0	54.7	55.1	53.5
Dry (24%)	53.6	51.0	47.2	44.9	45.1	46.2	47.9	49.1	51.3	55.0	55.7	54.2
Critical (15%)	56.0	52.3	47.5	45.8	46.0	47.2	49.0	50.2	53.5	55.6	56.3	56.3

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.1**	-0.1	**0.0**	**0.2**	**0.5**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	-0.1	-0.2
20%	-0.4	**0.1**	**0.4**	**0.2**	**0.2**	**0.1**	**0.1**	0.0	-0.1	-0.3	0.0	-0.1
30%	-0.2	**0.3**	**0.2**	**0.1**	**0.1**	**0.2**	**0.3**	**0.3**	**0.0**	**0.2**	**0.0**	-0.1
40%	-0.1	-0.1	**0.1**	**0.0**	**0.0**	**0.0**	**0.1**	**0.4**	**0.1**	-0.2	-0.1	**0.3**
50%	-0.2	**0.1**	**0.1**	**0.1**	-0.1	**0.1**	**0.2**	**0.2**	**0.1**	-0.2	**0.0**	**0.0**
60%	**0.2**	0.0	**0.0**	-0.1	0.0	**0.1**	**0.0**	**0.4**	0.0	**0.1**	**0.1**	**0.0**
70%	**0.2**	0.0	-0.1	0.0	**0.0**	0.0	-0.1	**0.3**	**0.0**	**0.0**	0.0	**0.2**
80%	**0.2**	**0.0**	**0.0**	0.0	0.0	-0.1	-0.1	**0.3**	**0.4**	0.0	**0.2**	**0.1**
90%	**0.1**	**0.0**	-0.1	-0.1	**0.1**	0.0	**0.0**	**0.2**	**0.2**	-0.5	0.0	**0.4**
Long Term												
Full Simulation Period[a]	-0.1	**0.0**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.2**	**0.1**	-0.1	**0.0**	**0.1**
Water Year Types[b,c]												
Wet (32%)	**0.2**	**0.1**	**0.1**	**0.2**	**0.1**	**0.3**	**0.0**	**0.3**	**0.1**	-0.3	0.0	**0.2**
Above Normal (16%)	**0.1**	**0.3**	**0.2**	**0.1**	**0.4**	-0.1	**0.1**	**0.4**	**0.1**	**0.0**	**0.0**	**0.1**
Below Normal (13%)	**0.0**	-0.1	**0.1**	0.0	-0.1	**0.1**	**0.1**	**0.3**	**0.2**	-0.1	0.0	**0.1**
Dry (24%)	-0.3	-0.1	-0.1	0.0	**0.0**	-0.1	0.0	**0.1**	**0.0**	0.0	-0.1	-0.2
Critical (15%)	-0.7	-0.2	**0.0**	**0.0**	**0.0**	0.0	**0.1**	**0.2**	**0.1**	**0.2**	**0.5**	**0.2**

a Based on the 82-year simulation period.

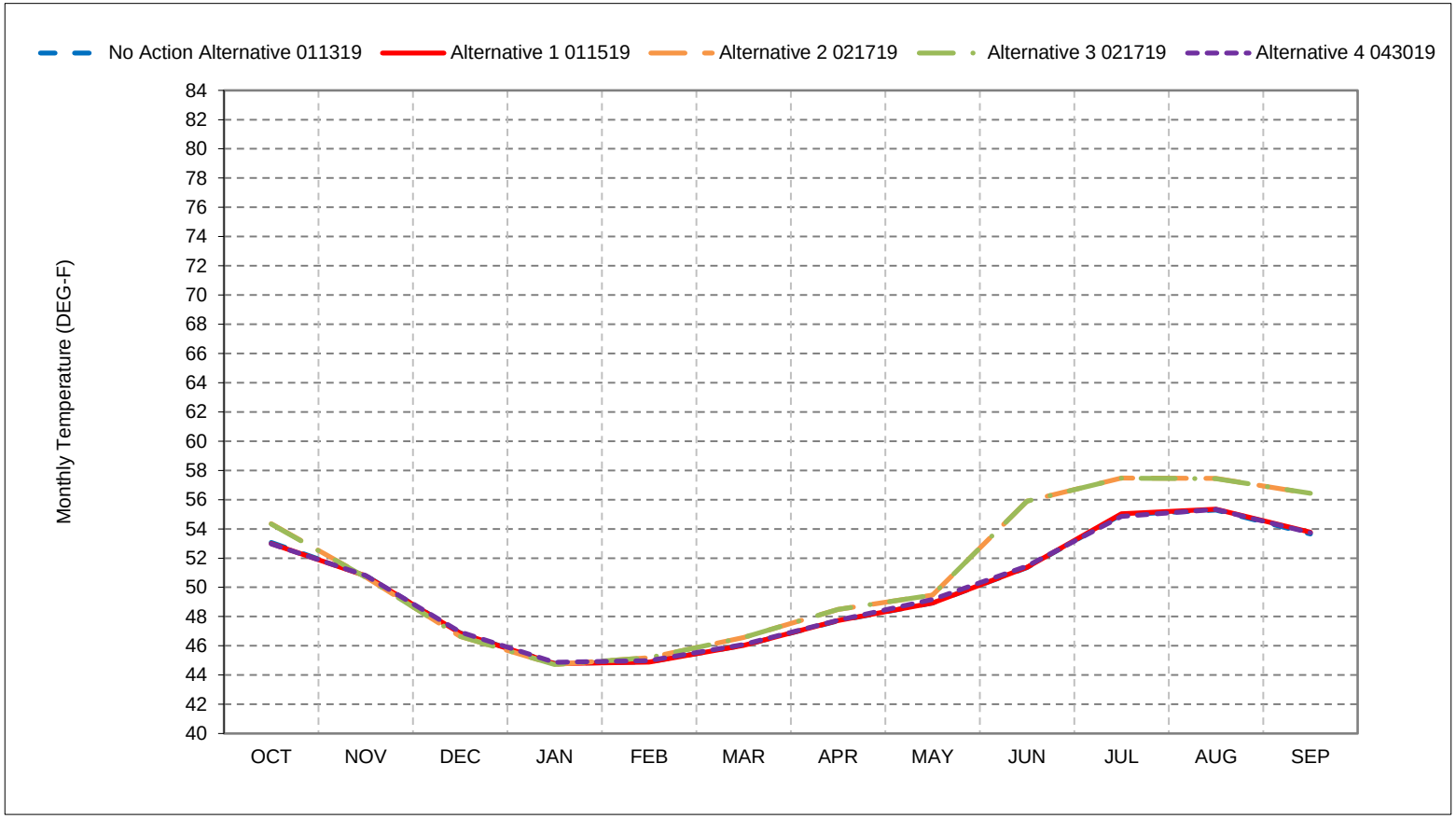
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-1. Clear Creek at Igo, Long-Term Average Temperature



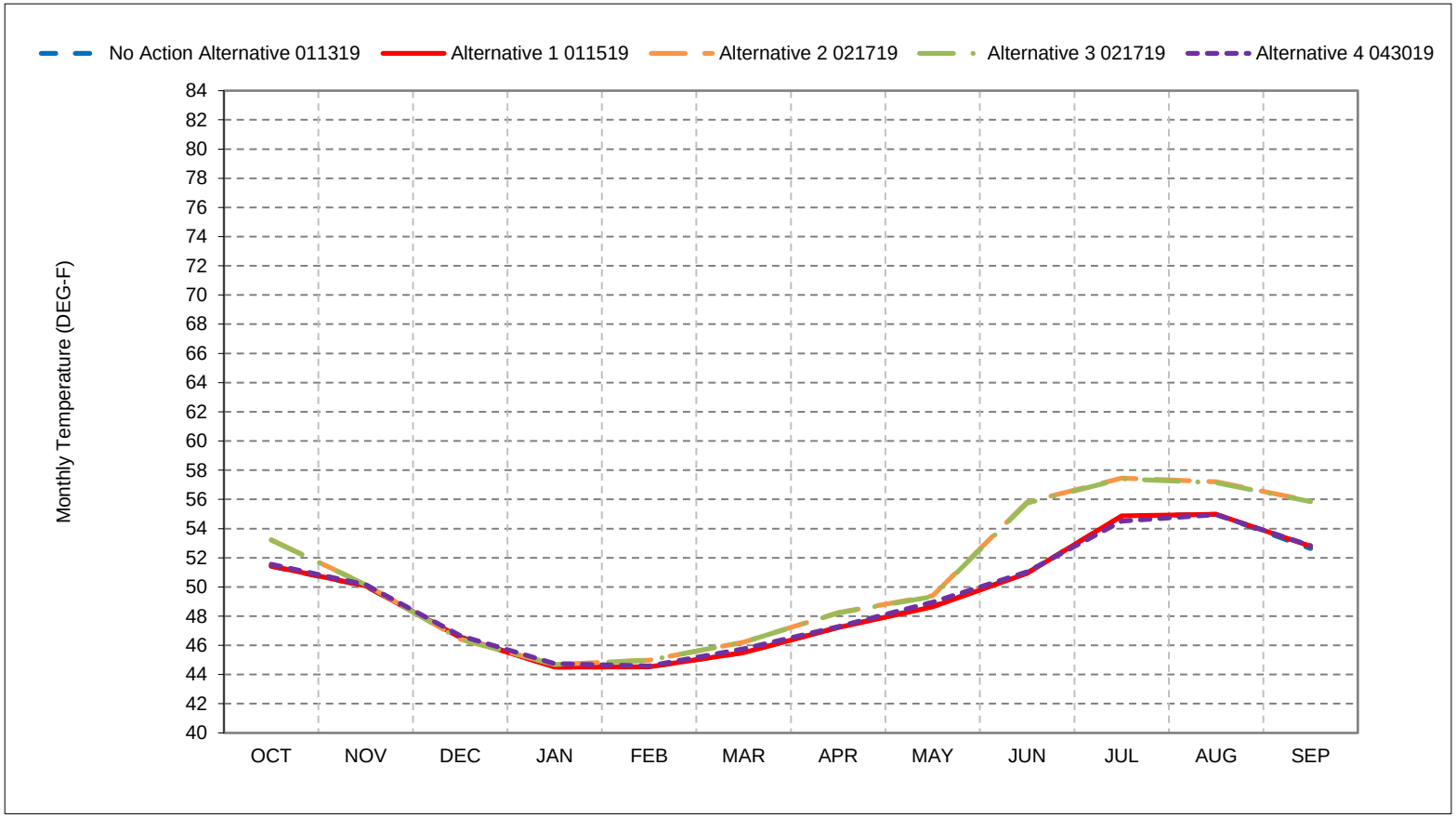
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-2. Clear Creek at Igo, Wet Year Average Temperature



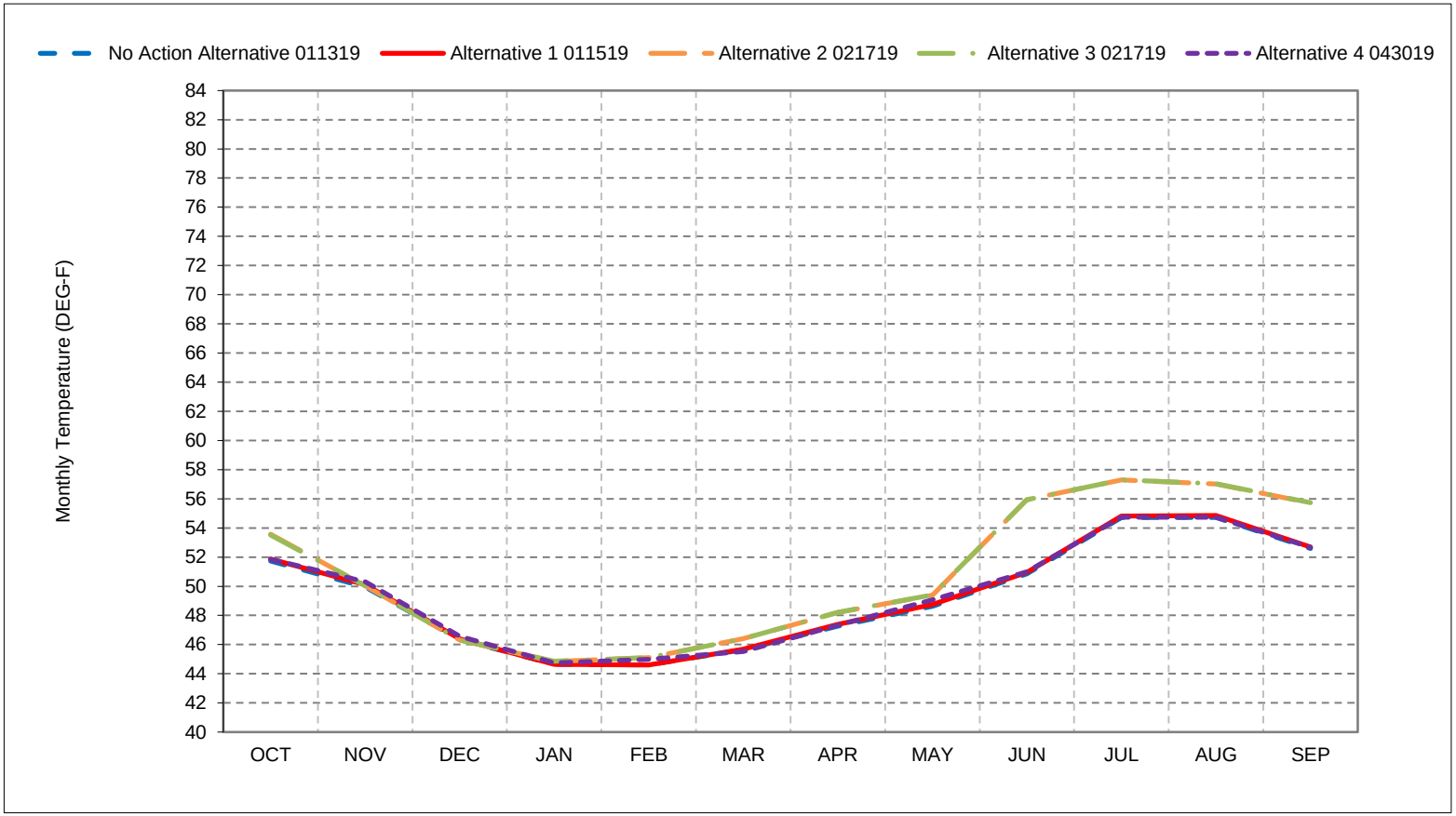
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-3. Clear Creek at Igo, Above Normal Year Average Temperature



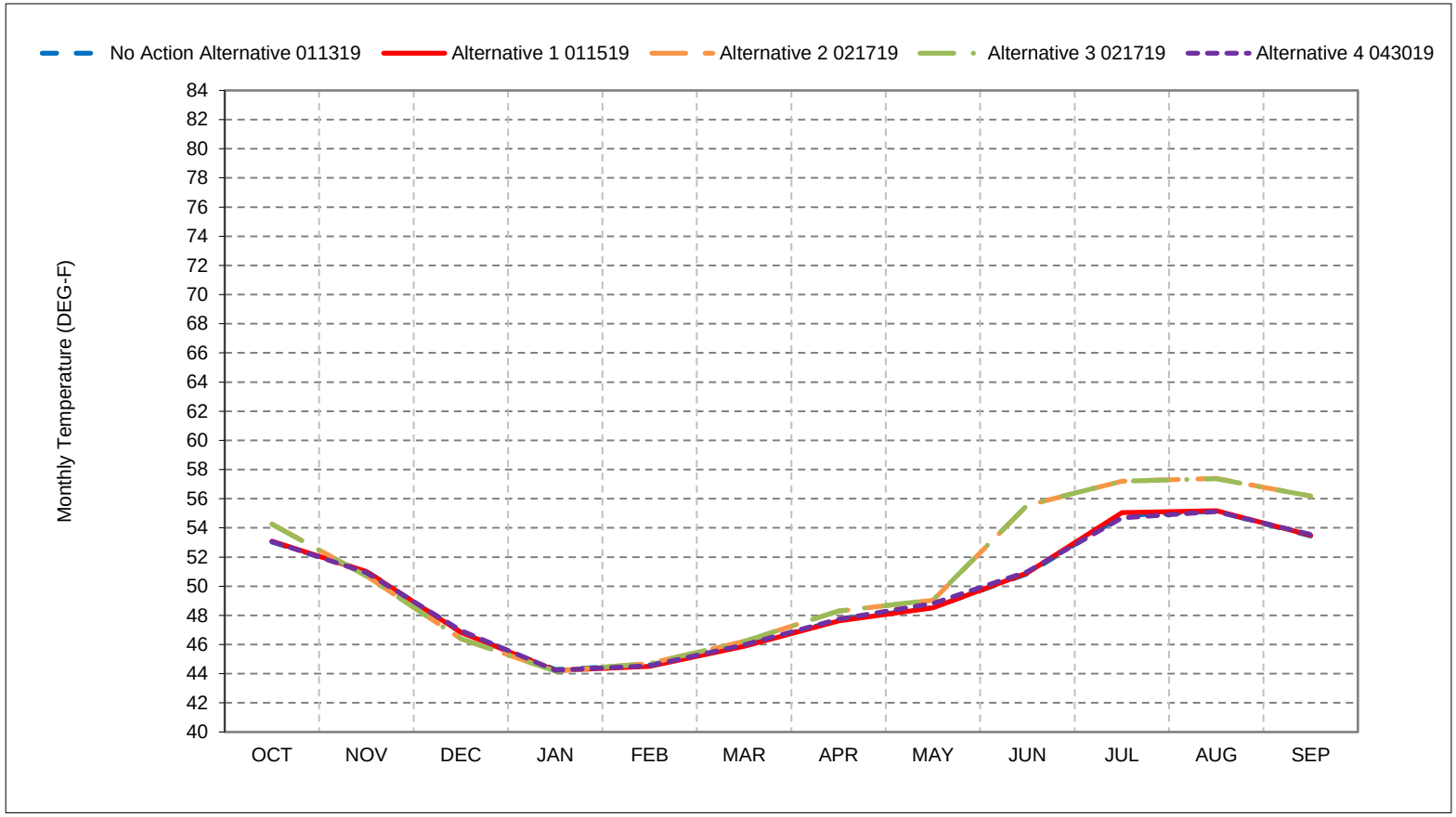
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-4. Clear Creek at Igo, Below Normal Year Average Temperature



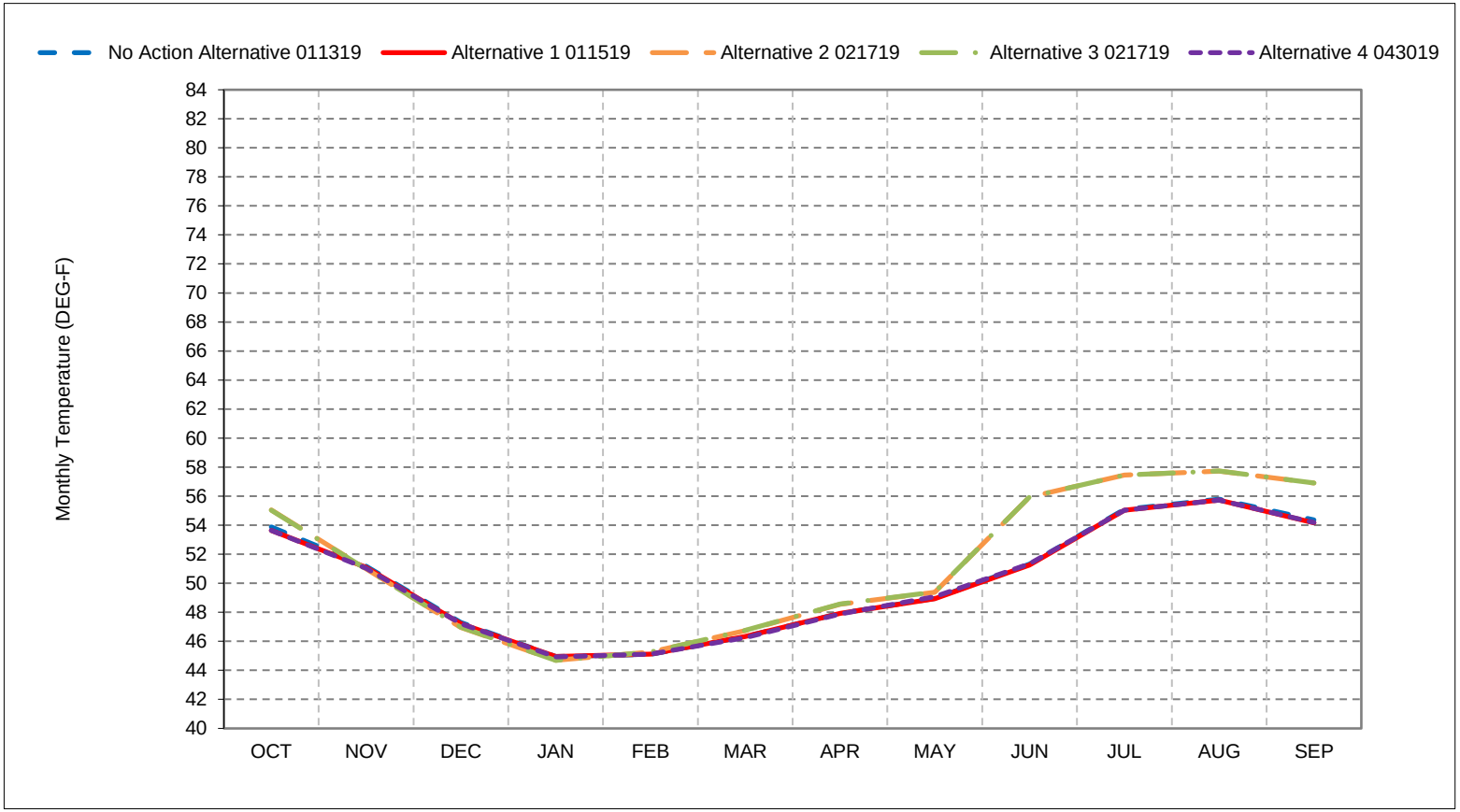
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-5. Clear Creek at Igo, Dry Year Average Temperature



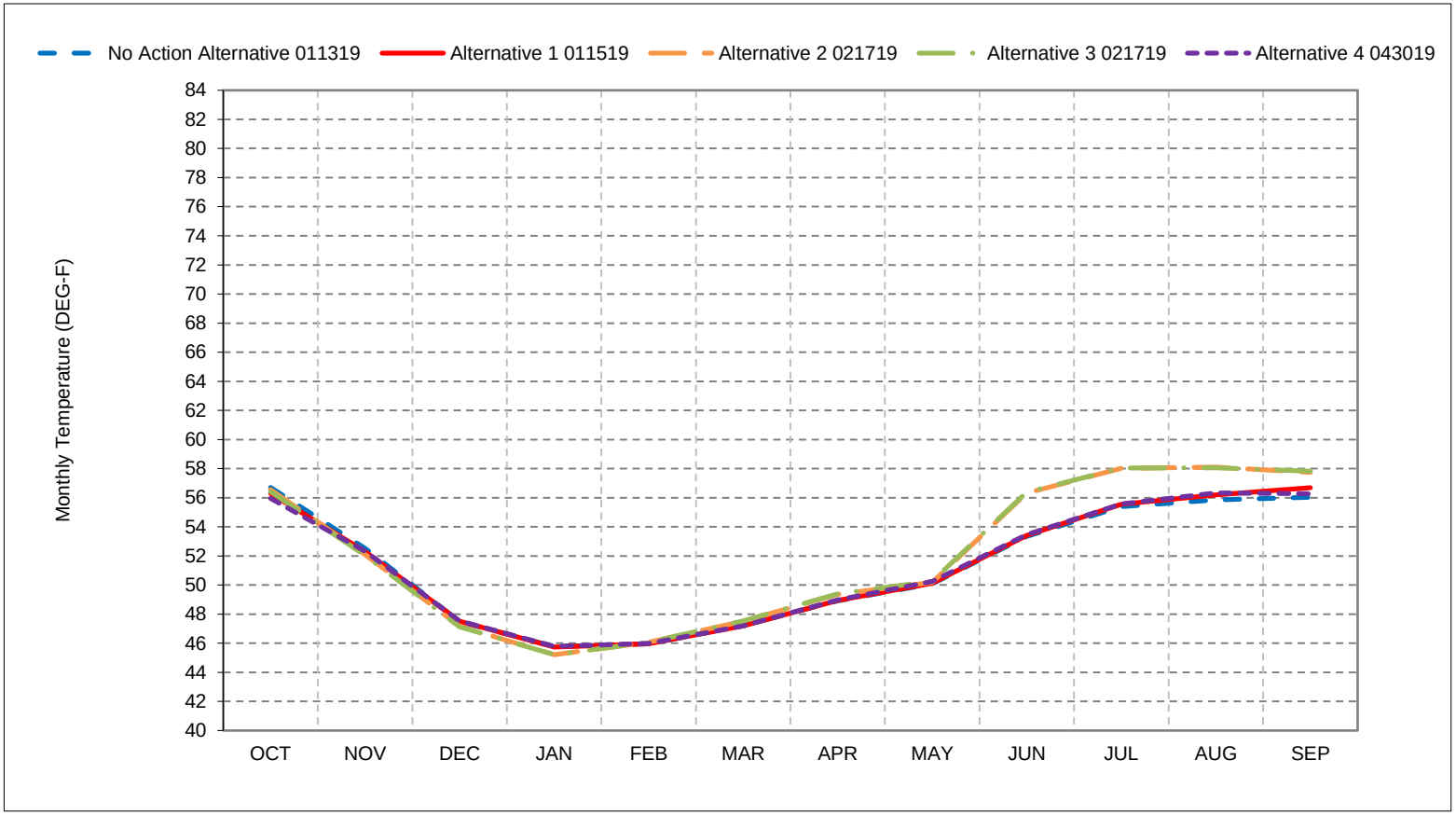
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-6. Clear Creek at Igo, Critical Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

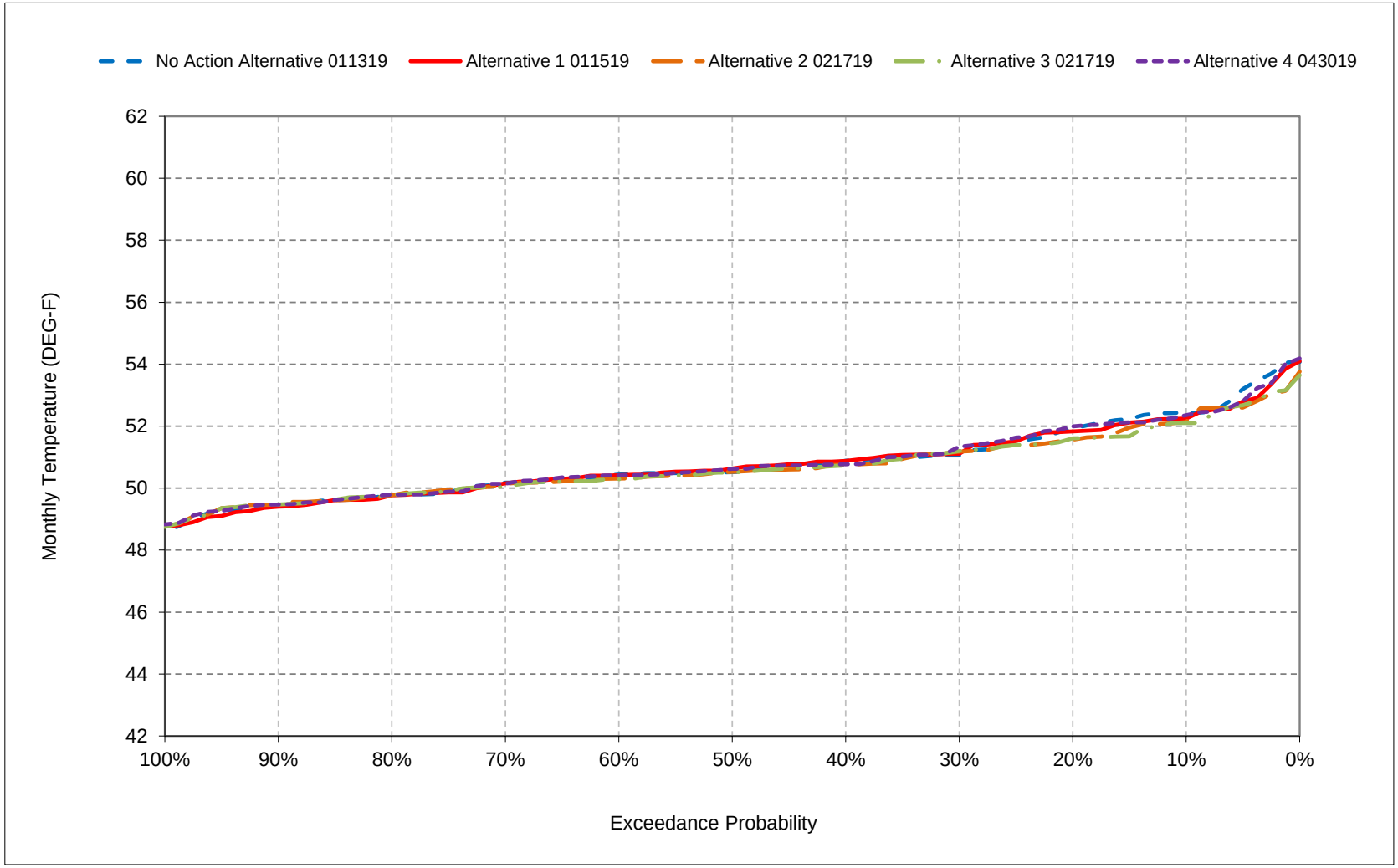
Figure 3-7. Clear Creek at Igo, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

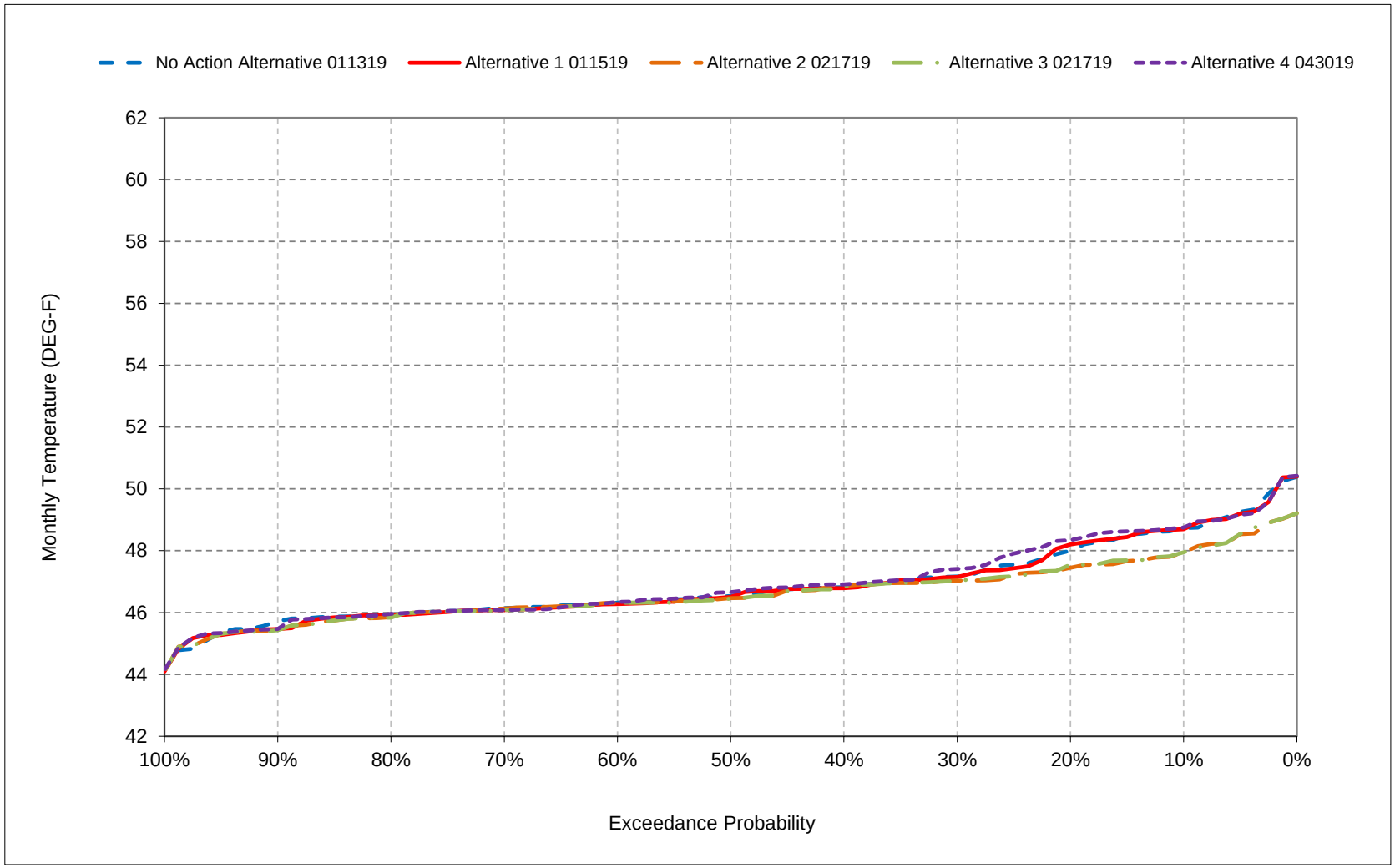
Figure 3-8. Clear Creek at Igo, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

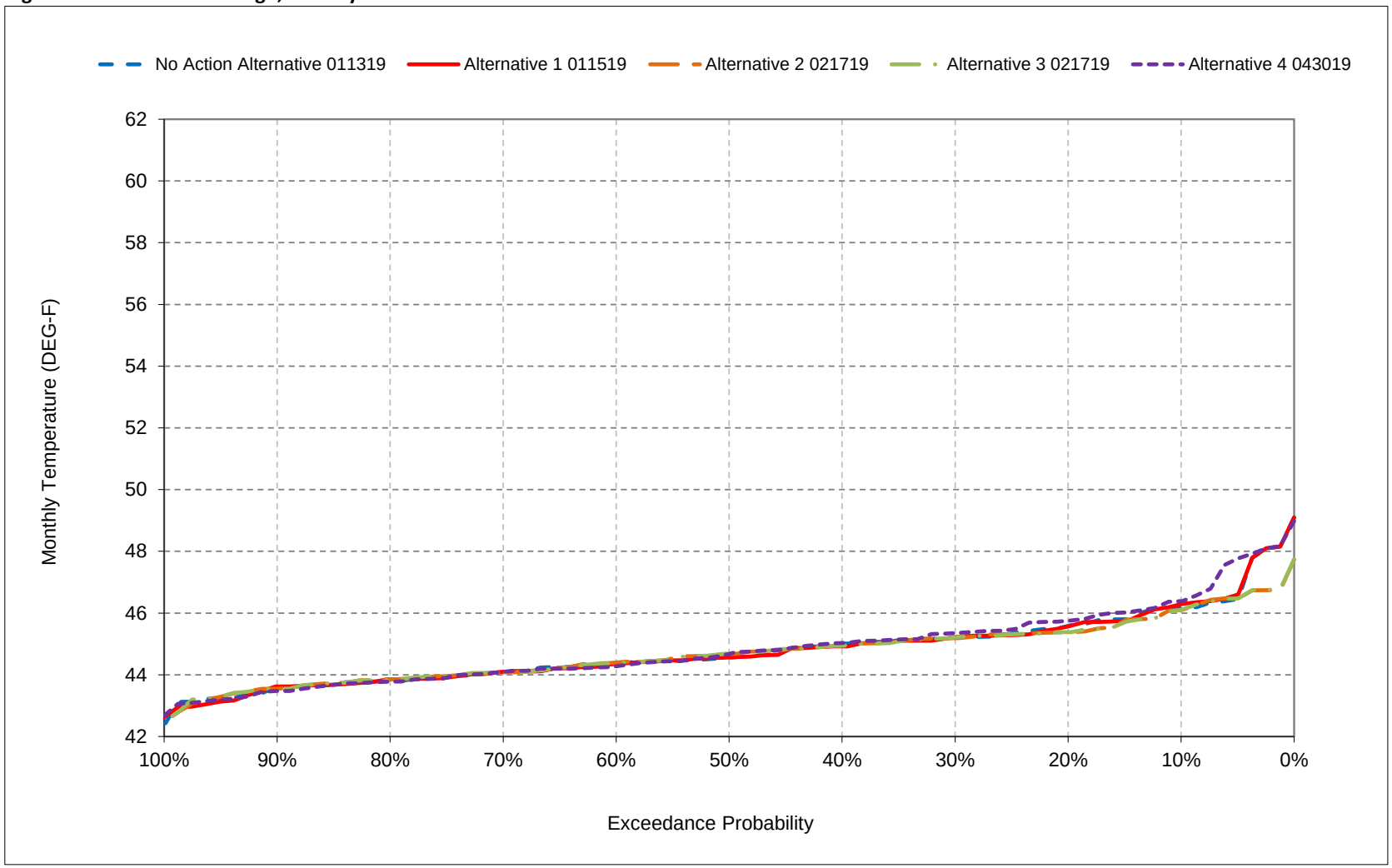
Figure 3-9. Clear Creek at Igo, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

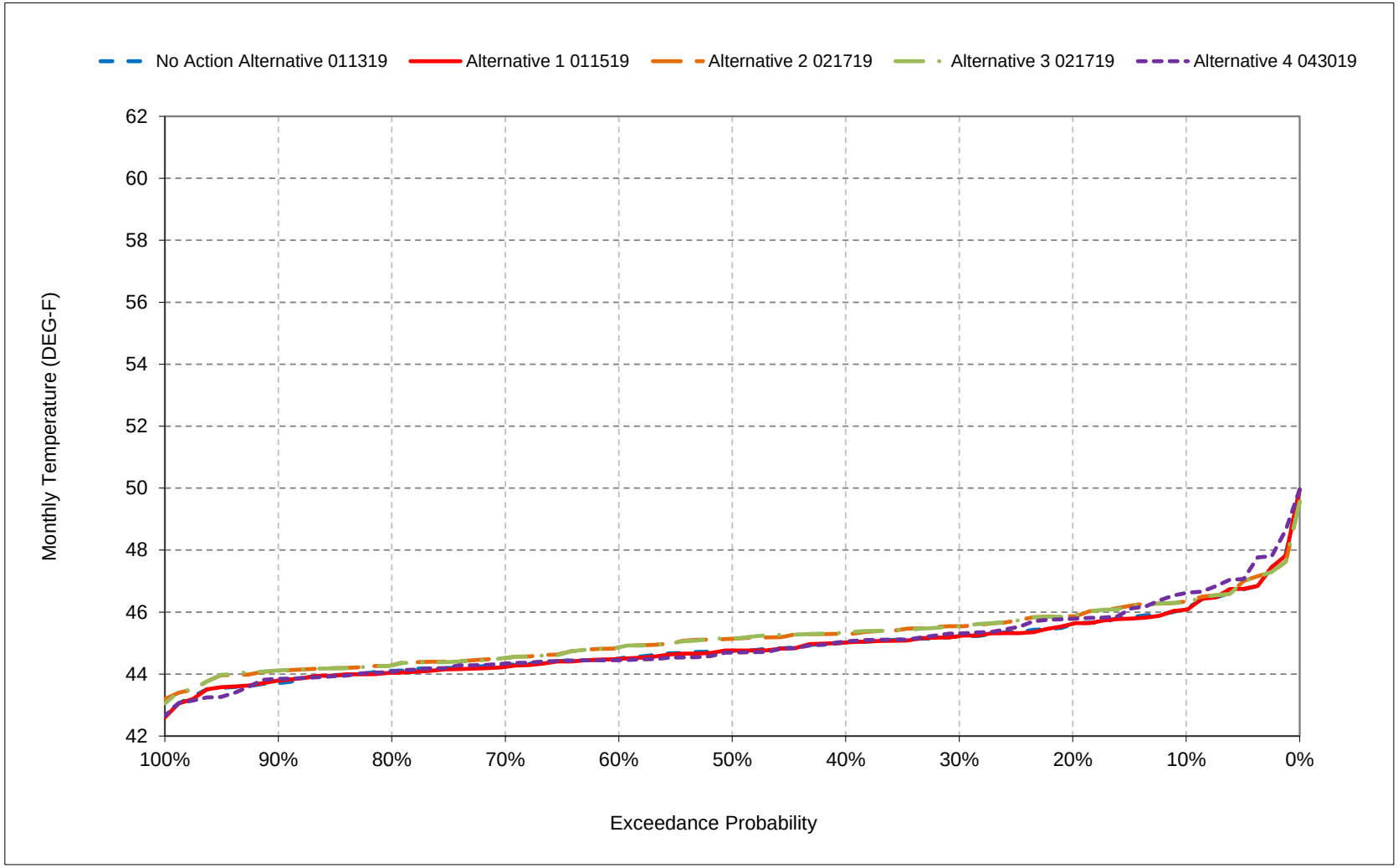
Figure 3-10. Clear Creek at Igo, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

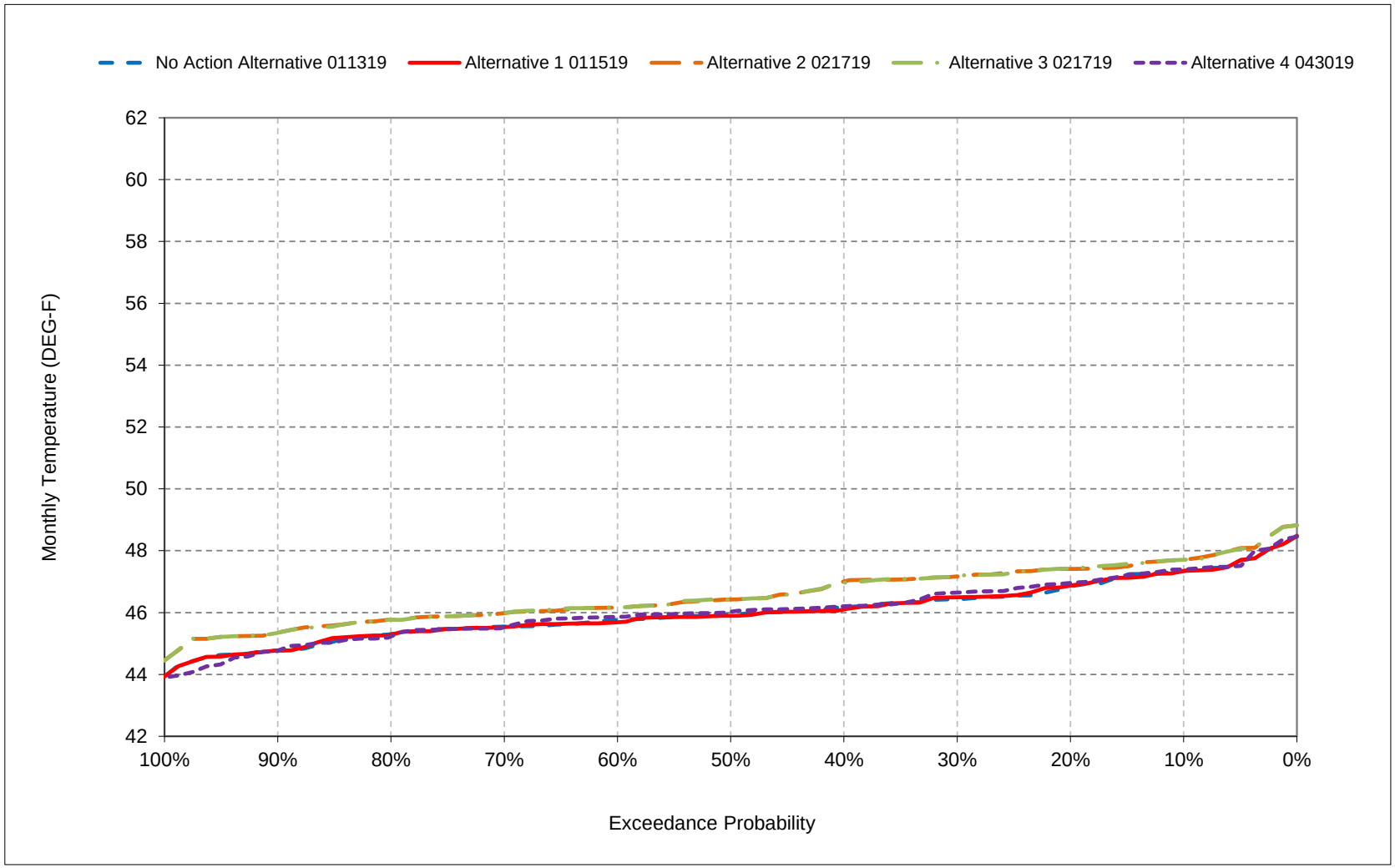
Figure 3-11. Clear Creek at Igo, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

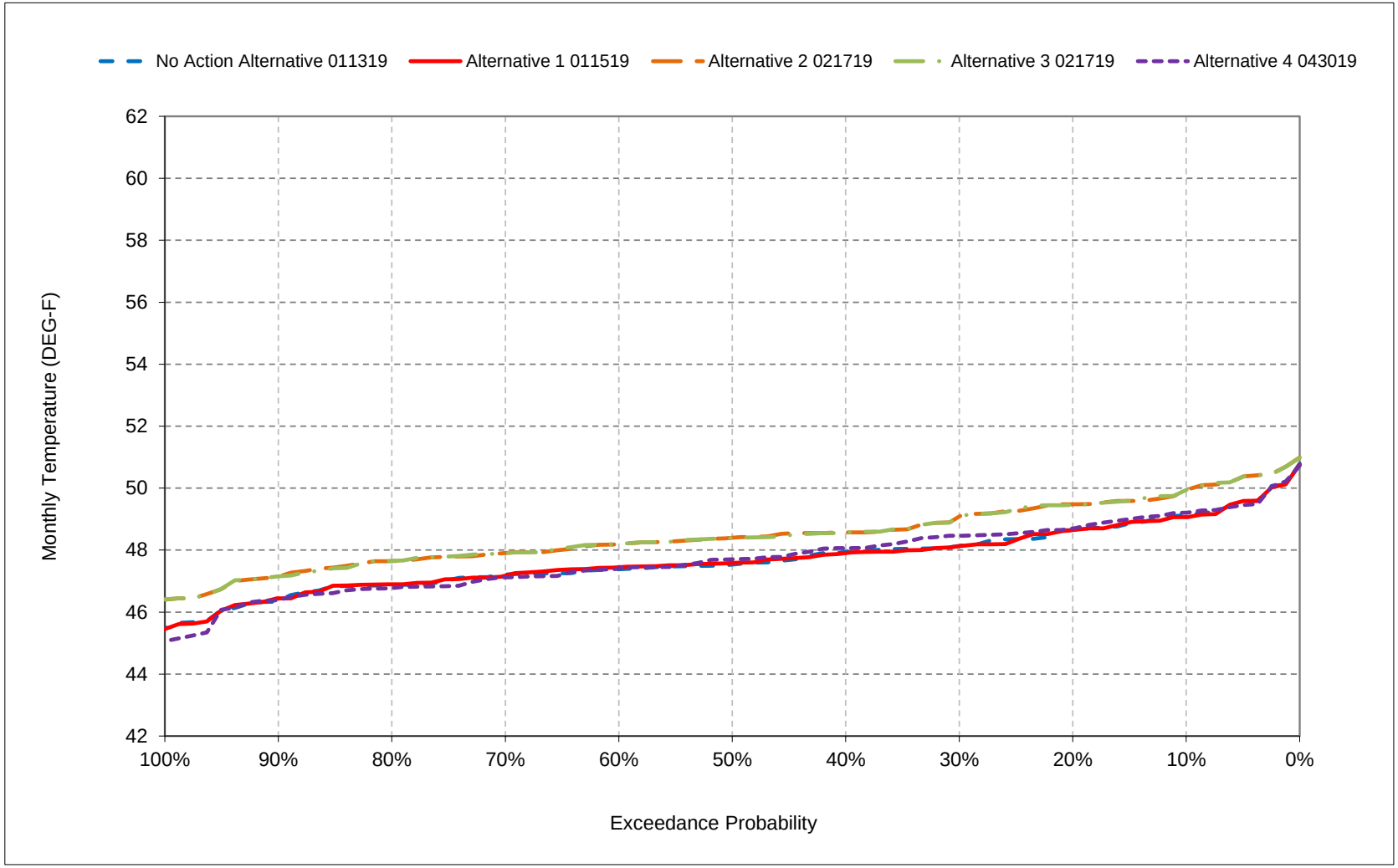
Figure 3-12. Clear Creek at Igo, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

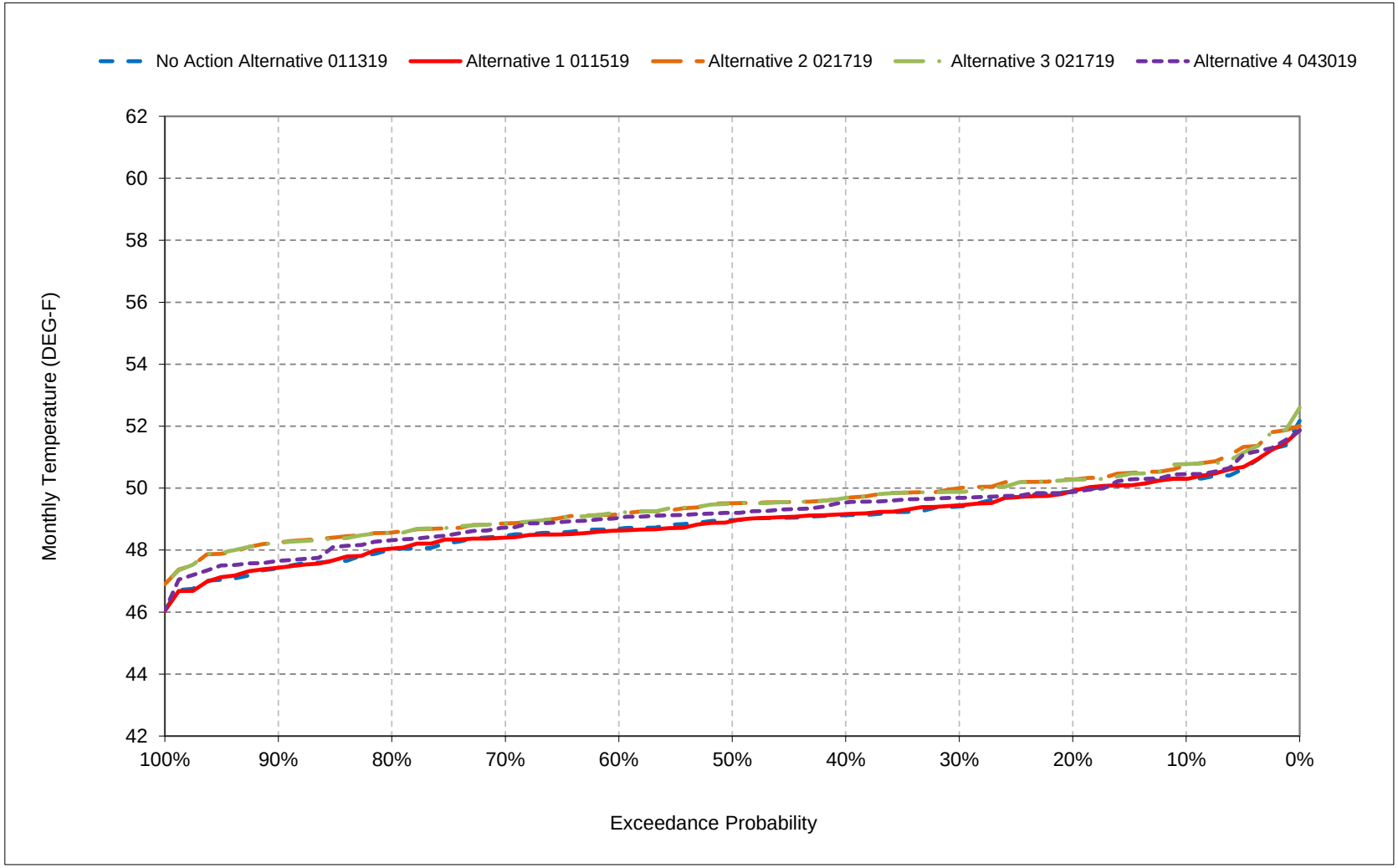
Figure 3-13. Clear Creek at Igo, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

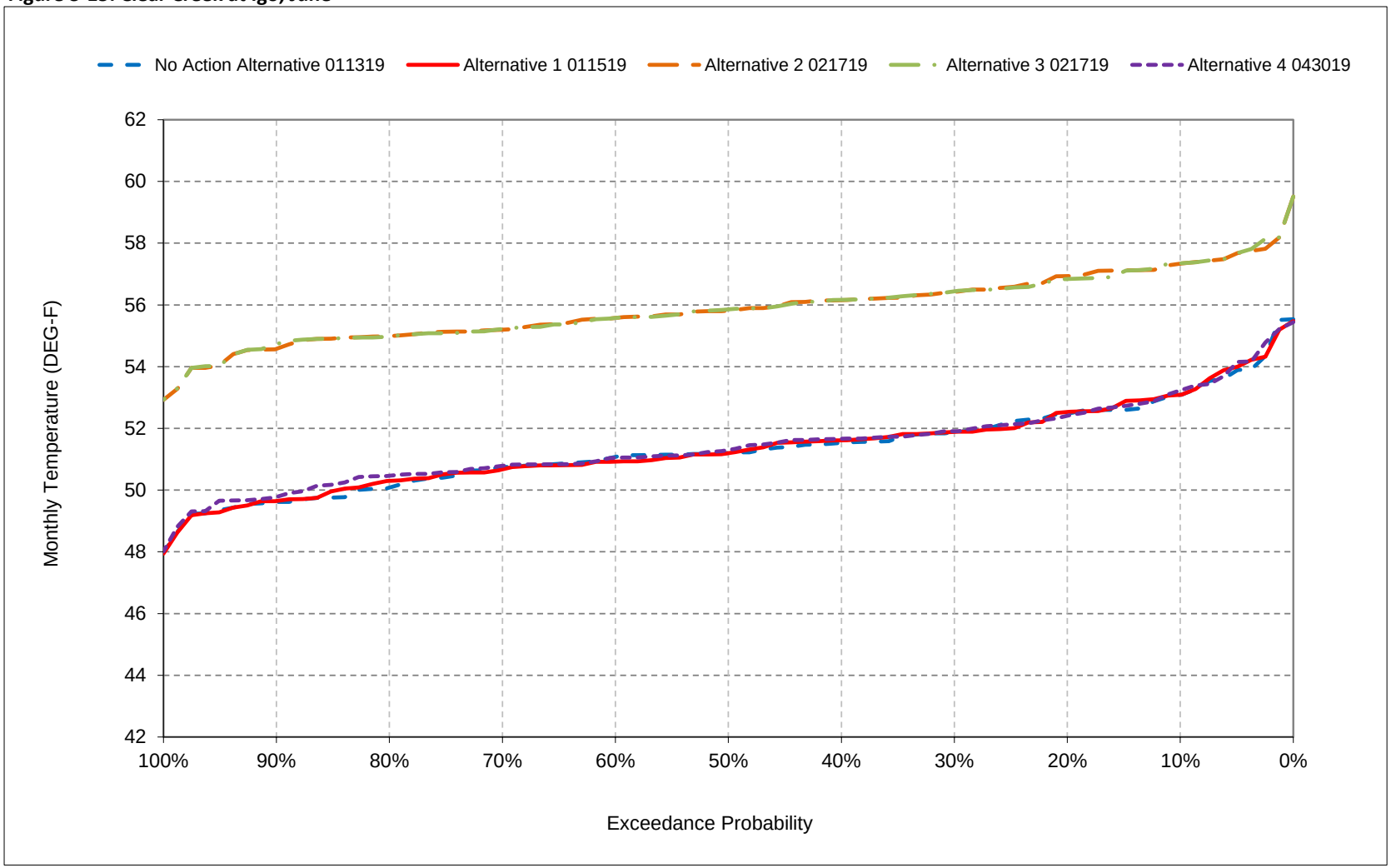
Figure 3-14. Clear Creek at Igo, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-15. Clear Creek at Igo, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-16. Clear Creek at Igo, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

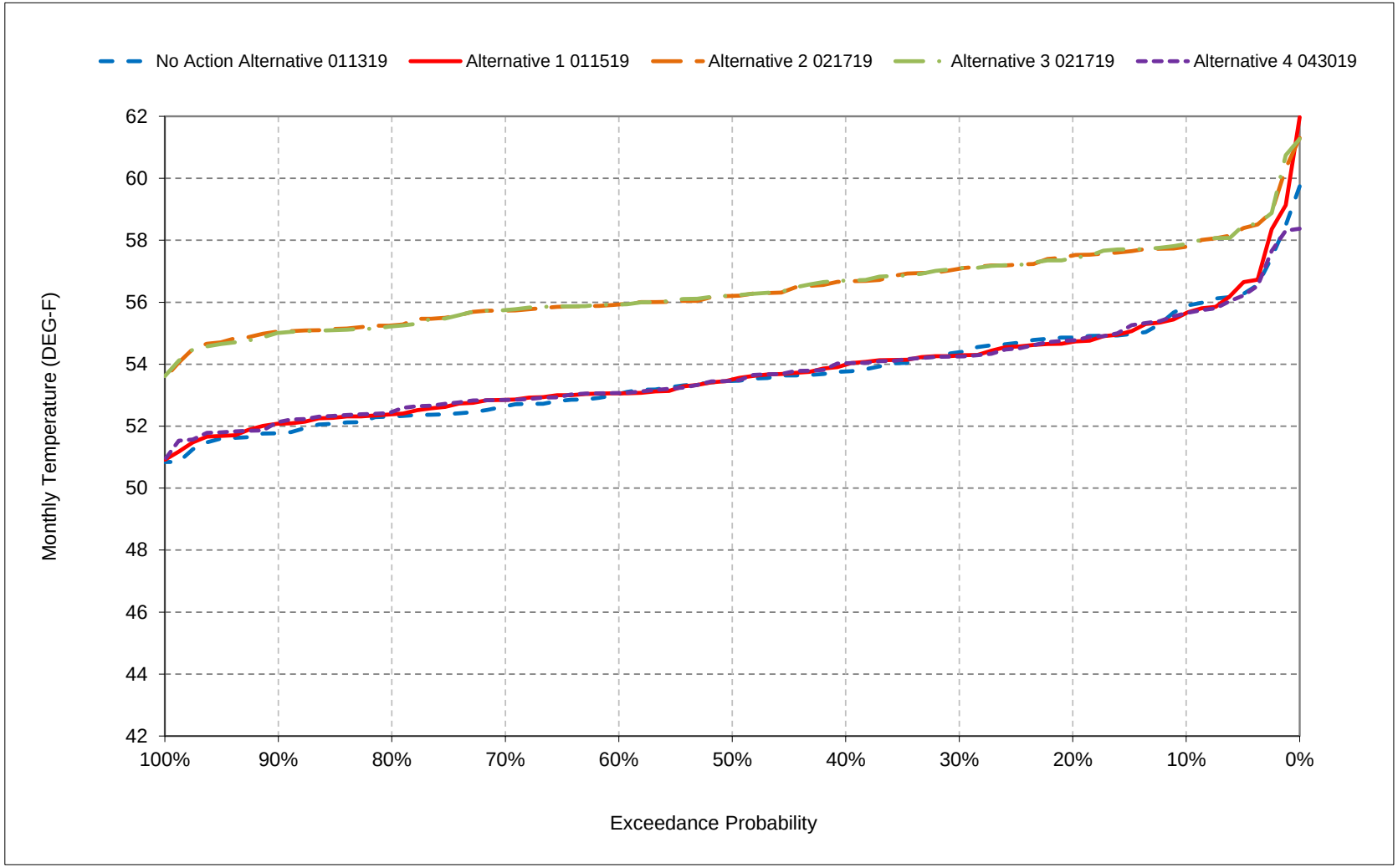
Figure 3-17. Clear Creek at Igo, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-18. Clear Creek at Igo, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 4-1. Clear Creek at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.4	52.8	48.9	46.4	46.6	48.4	50.9	52.3	56.8	62.2	61.5	57.9
20%	55.5	52.3	48.3	45.8	46.3	48.2	50.3	51.7	55.4	61.6	61.0	57.0
30%	54.8	51.5	47.4	45.6	45.9	47.7	49.8	51.3	54.9	61.1	60.7	56.6
40%	54.1	51.2	47.0	45.4	45.8	47.4	49.6	51.0	54.5	60.9	60.5	56.1
50%	53.8	50.9	46.8	45.0	45.5	47.1	49.2	50.7	54.1	60.6	60.2	55.8
60%	53.1	50.7	46.5	44.7	45.2	46.9	49.0	50.6	53.8	60.3	60.0	55.3
70%	52.6	50.5	46.3	44.4	45.0	46.6	48.8	50.2	53.4	60.1	59.7	55.0
80%	52.1	50.0	46.1	44.1	44.7	46.4	48.5	49.8	53.1	59.9	59.3	54.7
90%	51.8	49.8	45.7	43.9	44.5	45.9	48.1	49.2	52.5	59.5	59.0	54.1
Long Term												
Full Simulation Period[a]	54.0	51.1	47.1	45.1	45.6	47.2	49.4	50.8	54.5	60.6	60.2	56.0
Water Year Types[b,c]												
Wet (32%)	52.4	50.4	46.8	44.9	45.2	46.6	48.8	50.5	53.7	60.6	60.0	55.0
Above Normal (16%)	52.6	50.2	46.5	45.0	45.3	46.8	48.9	50.5	53.7	60.4	59.6	54.9
Below Normal (13%)	53.9	51.3	47.0	44.6	45.3	47.0	49.4	50.3	53.7	60.5	60.0	55.7
Dry (24%)	54.8	51.5	47.5	45.2	45.8	47.5	49.6	50.8	54.4	60.7	60.6	56.5
Critical (15%)	57.9	52.9	47.6	46.0	46.8	48.5	50.9	52.2	57.8	61.2	60.7	58.6

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.0	52.6	48.9	46.6	46.6	48.4	50.9	52.1	56.9	62.2	61.4	57.7
20%	55.1	52.1	48.3	45.9	46.3	48.2	50.3	51.8	55.5	61.7	61.0	56.9
30%	54.6	51.6	47.4	45.5	45.9	47.9	49.8	51.3	54.9	61.1	60.7	56.6
40%	54.2	51.2	47.0	45.3	45.8	47.4	49.5	50.9	54.5	60.8	60.5	56.3
50%	53.9	50.9	46.8	44.9	45.5	47.0	49.2	50.7	54.1	60.6	60.2	55.8
60%	53.1	50.7	46.5	44.7	45.2	46.9	49.1	50.5	53.8	60.4	60.1	55.4
70%	52.7	50.5	46.3	44.3	45.0	46.6	48.9	50.2	53.4	60.1	59.8	55.2
80%	52.2	50.1	46.1	44.1	44.7	46.4	48.5	49.9	53.1	59.9	59.4	54.8
90%	51.8	49.7	45.6	43.9	44.5	45.9	48.1	49.1	52.5	59.5	59.1	54.4
Long Term												
Full Simulation Period[a]	53.9	51.1	47.0	45.1	45.6	47.2	49.4	50.8	54.5	60.7	60.2	56.1
Water Year Types[b,c]												
Wet (32%)	52.4	50.4	46.7	44.9	45.2	46.6	48.8	50.4	53.7	60.6	60.0	55.2
Above Normal (16%)	52.8	50.4	46.6	45.0	45.3	46.9	49.0	50.6	53.8	60.5	59.8	55.0
Below Normal (13%)	53.9	51.3	47.0	44.5	45.2	47.0	49.4	50.3	53.8	60.6	60.0	55.7
Dry (24%)	54.5	51.4	47.4	45.2	45.8	47.5	49.6	50.7	54.3	60.7	60.6	56.4
Critical (15%)	57.5	52.7	47.6	46.0	46.8	48.5	50.9	52.3	57.9	61.3	60.8	59.1

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.4	-0.2	**0.0**	**0.1**	**0.0**	0.0	0.0	-0.2	**0.1**	**0.1**	0.0	-0.2
20%	-0.4	-0.2	**0.1**	**0.1**	**0.0**	0.0	0.0	**0.1**	**0.1**	**0.1**	-0.1	-0.1
30%	-0.3	**0.1**	0.0	0.0	**0.0**	**0.1**	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**
40%	**0.1**	**0.0**	0.0	-0.1	0.0	0.0	0.0	0.0	**0.0**	-0.1	0.0	**0.2**
50%	**0.0**	**0.1**	0.0	0.0	0.0	-0.1	**0.1**	0.0	**0.1**	0.0	**0.0**	**0.1**
60%	**0.1**	**0.1**	0.0	0.0	0.0	0.0	**0.1**	-0.1	**0.0**	**0.1**	**0.1**	**0.1**
70%	**0.1**	**0.0**	0.0	-0.1	0.0	0.0	**0.0**	0.0	**0.0**	**0.1**	**0.1**	**0.3**
80%	**0.0**	**0.1**	**0.0**	**0.0**	0.0	0.0	**0.0**	**0.1**	**0.0**	**0.0**	**0.1**	**0.1**
90%	0.0	-0.1	-0.1	**0.0**	0.0	**0.0**	0.0	-0.1	-0.1	0.0	**0.1**	**0.3**
Long Term												
Full Simulation Period[a]	-0.1	0.0	0.0	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.1**
Water Year Types[b,c]												
Wet (32%)	**0.0**	**0.0**	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0	**0.2**
Above Normal (16%)	**0.1**	**0.1**	**0.0**	0.0	0.0	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
Below Normal (13%)	**0.0**	0.0	**0.0**	-0.1	-0.1	0.0	0.0	0.0	**0.1**	**0.2**	**0.0**	**0.0**
Dry (24%)	-0.2	-0.1	-0.1	**0.0**	**0.0**	**0.0**	0.0	0.0	0.0	0.0	-0.1	-0.2
Critical (15%)	-0.4	-0.2	**0.0**	0.0	0.0	0.0	**0.0**	**0.0**	**0.1**	**0.1**	**0.1**	**0.6**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4-2. Clear Creek at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.4	52.8	48.9	46.4	46.6	48.4	50.9	52.3	56.8	62.2	61.5	57.9
20%	55.5	52.3	48.3	45.8	46.3	48.2	50.3	51.7	55.4	61.6	61.0	57.0
30%	54.8	51.5	47.4	45.6	45.9	47.7	49.8	51.3	54.9	61.1	60.7	56.6
40%	54.1	51.2	47.0	45.4	45.8	47.4	49.6	51.0	54.5	60.9	60.5	56.1
50%	53.8	50.9	46.8	45.0	45.5	47.1	49.2	50.7	54.1	60.6	60.2	55.8
60%	53.1	50.7	46.5	44.7	45.2	46.9	49.0	50.6	53.8	60.3	60.0	55.3
70%	52.6	50.5	46.3	44.4	45.0	46.6	48.8	50.2	53.4	60.1	59.7	55.0
80%	52.1	50.0	46.1	44.1	44.7	46.4	48.5	49.8	53.1	59.9	59.3	54.7
90%	51.8	49.8	45.7	43.9	44.5	45.9	48.1	49.2	52.5	59.5	59.0	54.1
Long Term												
Full Simulation Period[a]	54.0	51.1	47.1	45.1	45.6	47.2	49.4	50.8	54.5	60.6	60.2	56.0
Water Year Types[b,c]												
Wet (32%)	52.4	50.4	46.8	44.9	45.2	46.6	48.8	50.5	53.7	60.6	60.0	55.0
Above Normal (16%)	52.6	50.2	46.5	45.0	45.3	46.8	48.9	50.5	53.7	60.4	59.6	54.9
Below Normal (13%)	53.9	51.3	47.0	44.6	45.3	47.0	49.4	50.3	53.7	60.5	60.0	55.7
Dry (24%)	54.8	51.5	47.5	45.2	45.8	47.5	49.6	50.8	54.4	60.7	60.6	56.5
Critical (15%)	57.9	52.9	47.6	46.0	46.8	48.5	50.9	52.2	57.8	61.2	60.7	58.6

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.4	52.9	48.5	46.9	47.8	50.3	53.4	53.6	64.8	67.1	65.8	63.2
20%	58.0	52.2	47.6	46.1	47.2	49.7	52.6	53.1	64.3	66.7	65.3	62.6
30%	57.7	51.9	47.4	45.8	46.8	49.3	52.2	52.9	63.7	66.1	65.0	62.2
40%	57.4	51.3	47.1	45.5	46.5	49.0	51.6	52.6	63.4	65.8	64.8	61.8
50%	56.9	51.1	46.8	45.3	46.3	48.5	51.3	52.3	63.2	65.6	64.5	61.4
60%	56.4	50.9	46.5	45.0	46.1	48.2	51.1	52.0	62.8	65.3	64.2	61.2
70%	56.1	50.6	46.4	44.6	45.8	47.8	50.8	51.8	62.5	65.0	64.0	60.8
80%	55.8	50.4	46.1	44.3	45.6	47.6	50.4	51.3	62.1	64.8	63.7	60.5
90%	55.3	50.0	45.7	44.0	45.2	47.3	49.9	51.0	61.6	64.4	63.3	60.2
Long Term												
Full Simulation Period[a]	57.0	51.3	47.0	45.3	46.5	48.7	51.5	52.3	63.1	65.7	64.5	61.6
Water Year Types[b,c]												
Wet (32%)	56.1	50.8	46.8	45.3	46.2	48.4	51.3	52.3	63.0	65.7	64.5	61.3
Above Normal (16%)	56.3	50.5	46.6	45.5	46.5	48.5	51.2	52.3	63.3	65.5	64.1	61.0
Below Normal (13%)	56.8	51.3	46.7	44.7	45.9	48.2	51.4	51.8	62.8	65.4	64.3	61.2
Dry (24%)	57.6	51.5	47.3	45.2	46.5	48.8	51.5	52.2	63.3	65.6	64.7	61.9
Critical (15%)	59.0	52.7	47.4	45.7	47.4	49.7	52.5	53.1	63.5	66.2	65.0	62.6

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**2.0**	**0.0**	-0.4	**0.5**	**1.3**	**1.9**	**2.4**	**1.3**	**8.0**	**4.9**	**4.3**	**5.3**
20%	**2.6**	-0.1	-0.6	**0.2**	**0.9**	**1.5**	**2.3**	**1.4**	**8.9**	**5.1**	**4.3**	**5.6**
30%	**2.9**	**0.4**	**0.0**	**0.3**	**0.9**	**1.5**	**2.4**	**1.6**	**8.8**	**5.0**	**4.3**	**5.6**
40%	**3.3**	**0.1**	**0.1**	**0.2**	**0.8**	**1.6**	**2.0**	**1.6**	**8.9**	**4.9**	**4.3**	**5.7**
50%	**3.1**	**0.2**	**0.1**	**0.3**	**0.8**	**1.4**	**2.1**	**1.6**	**9.1**	**5.0**	**4.3**	**5.7**
60%	**3.3**	**0.2**	**0.0**	**0.3**	**0.9**	**1.3**	**2.1**	**1.4**	**9.1**	**5.0**	**4.3**	**5.9**
70%	**3.5**	**0.1**	**0.1**	**0.2**	**0.8**	**1.2**	**1.9**	**1.5**	**9.2**	**4.9**	**4.3**	**5.9**
80%	**3.6**	**0.4**	**0.1**	**0.2**	**0.9**	**1.2**	**1.8**	**1.5**	**9.0**	**4.9**	**4.3**	**5.7**
90%	**3.5**	**0.3**	0.0	**0.1**	**0.7**	**1.4**	**1.9**	**1.8**	**9.1**	**4.9**	**4.3**	**6.1**
Long Term												
Full Simulation Period[a]	**3.0**	**0.2**	-0.1	**0.2**	**0.8**	**1.5**	**2.1**	**1.6**	**8.7**	**5.0**	**4.3**	**5.6**
Water Year Types[b,c]												
Wet (32%)	**3.7**	**0.4**	**0.0**	**0.4**	**1.0**	**1.7**	**2.5**	**1.8**	**9.3**	**5.1**	**4.4**	**6.2**
Above Normal (16%)	**3.7**	**0.3**	**0.1**	**0.5**	**1.1**	**1.7**	**2.3**	**1.9**	**9.6**	**5.1**	**4.4**	**6.0**
Below Normal (13%)	**2.9**	0.0	-0.3	**0.1**	**0.6**	**1.1**	**1.9**	**1.6**	**9.1**	**4.9**	**4.3**	**5.5**
Dry (24%)	**2.8**	**0.1**	-0.2	0.0	**0.7**	**1.3**	**1.9**	**1.5**	**8.9**	**4.9**	**4.1**	**5.3**
Critical (15%)	**1.0**	-0.2	-0.2	-0.3	**0.6**	**1.1**	**1.6**	**0.9**	**5.6**	**5.0**	**4.3**	**4.1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4-3. Clear Creek at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.4	52.8	48.9	46.4	46.6	48.4	50.9	52.3	56.8	62.2	61.5	57.9
20%	55.5	52.3	48.3	45.8	46.3	48.2	50.3	51.7	55.4	61.6	61.0	57.0
30%	54.8	51.5	47.4	45.6	45.9	47.7	49.8	51.3	54.9	61.1	60.7	56.6
40%	54.1	51.2	47.0	45.4	45.8	47.4	49.6	51.0	54.5	60.9	60.5	56.1
50%	53.8	50.9	46.8	45.0	45.5	47.1	49.2	50.7	54.1	60.6	60.2	55.8
60%	53.1	50.7	46.5	44.7	45.2	46.9	49.0	50.6	53.8	60.3	60.0	55.3
70%	52.6	50.5	46.3	44.4	45.0	46.6	48.8	50.2	53.4	60.1	59.7	55.0
80%	52.1	50.0	46.1	44.1	44.7	46.4	48.5	49.8	53.1	59.9	59.3	54.7
90%	51.8	49.8	45.7	43.9	44.5	45.9	48.1	49.2	52.5	59.5	59.0	54.1
Long Term												
Full Simulation Period[a]	54.0	51.1	47.1	45.1	45.6	47.2	49.4	50.8	54.5	60.6	60.2	56.0
Water Year Types[b,c]												
Wet (32%)	52.4	50.4	46.8	44.9	45.2	46.6	48.8	50.5	53.7	60.6	60.0	55.0
Above Normal (16%)	52.6	50.2	46.5	45.0	45.3	46.8	48.9	50.5	53.7	60.4	59.6	54.9
Below Normal (13%)	53.9	51.3	47.0	44.6	45.3	47.0	49.4	50.3	53.7	60.5	60.0	55.7
Dry (24%)	54.8	51.5	47.5	45.2	45.8	47.5	49.6	50.8	54.4	60.7	60.6	56.5
Critical (15%)	57.9	52.9	47.6	46.0	46.8	48.5	50.9	52.2	57.8	61.2	60.7	58.6

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.5	52.8	48.5	46.9	47.8	50.3	53.4	53.6	64.7	67.1	65.8	63.1
20%	58.0	52.2	47.7	46.1	47.2	49.7	52.6	53.1	64.2	66.7	65.3	62.5
30%	57.7	51.9	47.4	45.8	46.8	49.3	52.2	52.9	63.7	66.1	65.0	62.2
40%	57.4	51.3	47.1	45.6	46.5	49.0	51.6	52.6	63.4	65.7	64.7	61.8
50%	56.9	51.0	46.8	45.3	46.3	48.5	51.3	52.3	63.2	65.6	64.4	61.5
60%	56.3	50.9	46.5	45.0	46.1	48.2	51.1	52.0	62.8	65.3	64.3	61.2
70%	56.1	50.5	46.3	44.6	45.8	47.8	50.8	51.8	62.5	65.0	64.0	60.8
80%	55.7	50.3	46.1	44.3	45.6	47.6	50.4	51.4	62.1	64.8	63.7	60.4
90%	55.2	50.0	45.7	44.0	45.2	47.3	49.9	51.0	61.6	64.4	63.3	60.2
Long Term												
Full Simulation Period[a]	57.0	51.3	47.0	45.3	46.5	48.7	51.5	52.3	63.1	65.6	64.5	61.6
Water Year Types[b,c]												
Wet (32%)	56.1	50.8	46.8	45.3	46.2	48.4	51.2	52.2	62.9	65.7	64.4	61.3
Above Normal (16%)	56.3	50.5	46.6	45.6	46.5	48.5	51.2	52.3	63.3	65.5	64.1	61.0
Below Normal (13%)	56.8	51.3	46.6	44.7	45.9	48.2	51.4	51.9	62.9	65.4	64.3	61.2
Dry (24%)	57.6	51.5	47.3	45.2	46.5	48.8	51.6	52.2	63.3	65.6	64.7	61.9
Critical (15%)	58.9	52.6	47.4	45.7	47.4	49.7	52.5	53.2	63.5	66.2	65.0	62.7

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**2.1**	**0.0**	-0.4	**0.4**	**1.3**	**1.8**	**2.4**	**1.2**	**7.9**	**4.9**	**4.3**	**5.2**
20%	**2.5**	-0.1	-0.5	**0.2**	**0.9**	**1.5**	**2.3**	**1.4**	**8.9**	**5.1**	**4.3**	**5.5**
30%	**2.8**	**0.4**	**0.0**	**0.2**	**0.9**	**1.6**	**2.4**	**1.6**	**8.8**	**5.0**	**4.3**	**5.6**
40%	**3.3**	**0.1**	**0.1**	**0.2**	**0.8**	**1.6**	**2.0**	**1.6**	**8.9**	**4.8**	**4.1**	**5.7**
50%	**3.1**	**0.2**	**0.0**	**0.3**	**0.8**	**1.4**	**2.1**	**1.6**	**9.2**	**5.0**	**4.2**	**5.7**
60%	**3.3**	**0.2**	**0.0**	**0.3**	**0.9**	**1.3**	**2.1**	**1.5**	**9.1**	**5.0**	**4.3**	**5.9**
70%	**3.5**	**0.1**	**0.1**	**0.2**	**0.8**	**1.2**	**1.9**	**1.5**	**9.1**	**5.0**	**4.3**	**5.9**
80%	**3.6**	**0.3**	**0.0**	**0.2**	**0.9**	**1.2**	**1.8**	**1.6**	**9.0**	**4.9**	**4.3**	**5.7**
90%	**3.4**	**0.2**	0.0	**0.1**	**0.7**	**1.4**	**1.9**	**1.8**	**9.1**	**4.8**	**4.3**	**6.1**
Long Term												
Full Simulation Period[a]	**3.0**	**0.2**	-0.1	**0.2**	**0.8**	**1.5**	**2.1**	**1.6**	**8.7**	**5.0**	**4.3**	**5.6**
Water Year Types[b,c]												
Wet (32%)	**3.7**	**0.4**	**0.0**	**0.4**	**1.0**	**1.7**	**2.4**	**1.7**	**9.2**	**5.1**	**4.4**	**6.2**
Above Normal (16%)	**3.6**	**0.3**	**0.1**	**0.5**	**1.1**	**1.7**	**2.3**	**1.9**	**9.6**	**5.1**	**4.4**	**6.1**
Below Normal (13%)	**2.9**	0.0	-0.3	**0.1**	**0.6**	**1.1**	**1.9**	**1.6**	**9.1**	**4.9**	**4.3**	**5.5**
Dry (24%)	**2.8**	**0.1**	-0.2	0.0	**0.7**	**1.3**	**1.9**	**1.5**	**8.9**	**4.9**	**4.1**	**5.3**
Critical (15%)	**0.9**	-0.2	-0.2	-0.3	**0.6**	**1.2**	**1.6**	**0.9**	**5.7**	**5.1**	**4.3**	**4.2**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4-4. Clear Creek at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.4	52.8	48.9	46.4	46.6	48.4	50.9	52.3	56.8	62.2	61.5	57.9
20%	55.5	52.3	48.3	45.8	46.3	48.2	50.3	51.7	55.4	61.6	61.0	57.0
30%	54.8	51.5	47.4	45.6	45.9	47.7	49.8	51.3	54.9	61.1	60.7	56.6
40%	54.1	51.2	47.0	45.4	45.8	47.4	49.6	51.0	54.5	60.9	60.5	56.1
50%	53.8	50.9	46.8	45.0	45.5	47.1	49.2	50.7	54.1	60.6	60.2	55.8
60%	53.1	50.7	46.5	44.7	45.2	46.9	49.0	50.6	53.8	60.3	60.0	55.3
70%	52.6	50.5	46.3	44.4	45.0	46.6	48.8	50.2	53.4	60.1	59.7	55.0
80%	52.1	50.0	46.1	44.1	44.7	46.4	48.5	49.8	53.1	59.9	59.3	54.7
90%	51.8	49.8	45.7	43.9	44.5	45.9	48.1	49.2	52.5	59.5	59.0	54.1
Long Term												
Full Simulation Period[a]	54.0	51.1	47.1	45.1	45.6	47.2	49.4	50.8	54.5	60.6	60.2	56.0
Water Year Types[b,c]												
Wet (32%)	52.4	50.4	46.8	44.9	45.2	46.6	48.8	50.5	53.7	60.6	60.0	55.0
Above Normal (16%)	52.6	50.2	46.5	45.0	45.3	46.8	48.9	50.5	53.7	60.4	59.6	54.9
Below Normal (13%)	53.9	51.3	47.0	44.6	45.3	47.0	49.4	50.3	53.7	60.5	60.0	55.7
Dry (24%)	54.8	51.5	47.5	45.2	45.8	47.5	49.6	50.8	54.4	60.7	60.6	56.5
Critical (15%)	57.9	52.9	47.6	46.0	46.8	48.5	50.9	52.2	57.8	61.2	60.7	58.6

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.7	52.7	48.8	46.6	46.9	48.3	50.8	52.3	56.4	62.1	61.5	57.7
20%	55.2	52.3	48.3	46.1	46.3	47.6	50.1	51.6	55.4	61.4	61.0	57.0
30%	54.5	51.7	47.5	45.5	45.8	47.4	49.6	51.4	55.0	61.0	60.7	56.6
40%	54.2	51.1	47.0	45.3	45.3	46.9	49.2	51.1	54.4	60.6	60.5	56.3
50%	53.6	50.9	46.7	44.9	45.1	46.8	48.8	50.9	54.1	60.4	60.2	55.9
60%	53.1	50.7	46.5	44.5	44.9	46.4	48.4	50.6	53.7	60.2	59.9	55.4
70%	52.7	50.5	46.2	44.3	44.7	46.1	48.1	50.3	53.5	59.9	59.6	55.2
80%	52.3	49.9	46.1	44.0	44.6	45.9	47.6	50.0	53.1	59.4	59.3	54.9
90%	51.8	49.7	45.6	43.6	44.2	45.4	47.3	49.4	52.5	58.5	58.8	54.3
Long Term												
Full Simulation Period[a]	53.9	51.1	47.1	45.1	45.4	46.8	48.9	50.9	54.5	60.3	60.1	56.1
Water Year Types[b,c]												
Wet (32%)	52.5	50.5	46.8	44.9	44.9	46.3	48.1	50.5	53.6	59.8	59.8	55.2
Above Normal (16%)	52.7	50.5	46.7	44.9	45.2	46.0	48.3	50.7	53.7	60.3	59.4	55.0
Below Normal (13%)	53.9	51.2	47.0	44.4	45.0	46.8	49.1	50.5	53.9	60.0	59.8	55.8
Dry (24%)	54.5	51.3	47.3	45.1	45.6	47.0	49.2	50.8	54.4	60.6	60.6	56.4
Critical (15%)	57.1	52.7	47.6	46.0	46.7	48.1	50.5	52.2	57.8	61.2	61.1	58.7

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.3**	-0.1	-0.1	**0.2**	**0.3**	-0.2	-0.1	0.0	-0.4	-0.1	**0.0**	-0.2
20%	-0.3	**0.0**	**0.0**	**0.2**	**0.0**	-0.6	-0.3	-0.1	**0.1**	-0.2	-0.1	-0.1
30%	-0.3	**0.2**	**0.1**	-0.1	-0.1	-0.4	-0.2	**0.1**	**0.1**	-0.1	**0.0**	0.0
40%	**0.1**	0.0	0.0	-0.1	-0.4	-0.5	-0.3	**0.2**	-0.1	-0.2	-0.1	**0.2**
50%	-0.2	0.0	0.0	-0.1	-0.5	-0.3	-0.4	**0.1**	0.0	-0.2	0.0	**0.1**
60%	**0.0**	0.0	0.0	-0.2	-0.3	-0.5	-0.6	**0.0**	-0.1	-0.1	0.0	**0.1**
70%	**0.1**	**0.0**	-0.1	-0.1	-0.3	-0.5	-0.7	**0.0**	**0.1**	-0.1	-0.1	**0.2**
80%	**0.2**	-0.1	0.0	-0.2	-0.2	-0.5	-0.9	**0.1**	**0.1**	-0.5	**0.0**	**0.2**
90%	**0.0**	-0.1	-0.1	-0.2	-0.3	-0.5	-0.8	**0.2**	0.0	-1.1	-0.2	**0.3**
Long Term												
Full Simulation Period[a]	-0.1	0.0	**0.0**	0.0	-0.2	-0.4	-0.5	**0.1**	**0.0**	-0.3	-0.1	**0.1**
Water Year Types[b,c]												
Wet (32%)	**0.1**	**0.1**	**0.0**	**0.0**	-0.3	-0.3	-0.7	**0.1**	0.0	-0.8	-0.2	**0.2**
Above Normal (16%)	**0.1**	**0.3**	**0.2**	-0.1	-0.1	-0.8	-0.7	**0.3**	**0.1**	-0.1	-0.2	**0.1**
Below Normal (13%)	**0.0**	-0.1	**0.1**	-0.1	-0.3	-0.3	-0.3	**0.2**	**0.1**	-0.5	-0.2	**0.1**
Dry (24%)	-0.2	-0.2	-0.2	-0.1	-0.2	-0.5	-0.4	**0.0**	**0.0**	-0.1	0.0	-0.2
Critical (15%)	-0.8	-0.2	0.0	0.0	-0.1	-0.4	-0.4	0.0	-0.1	**0.0**	**0.4**	**0.1**

a Based on the 82-year simulation period.

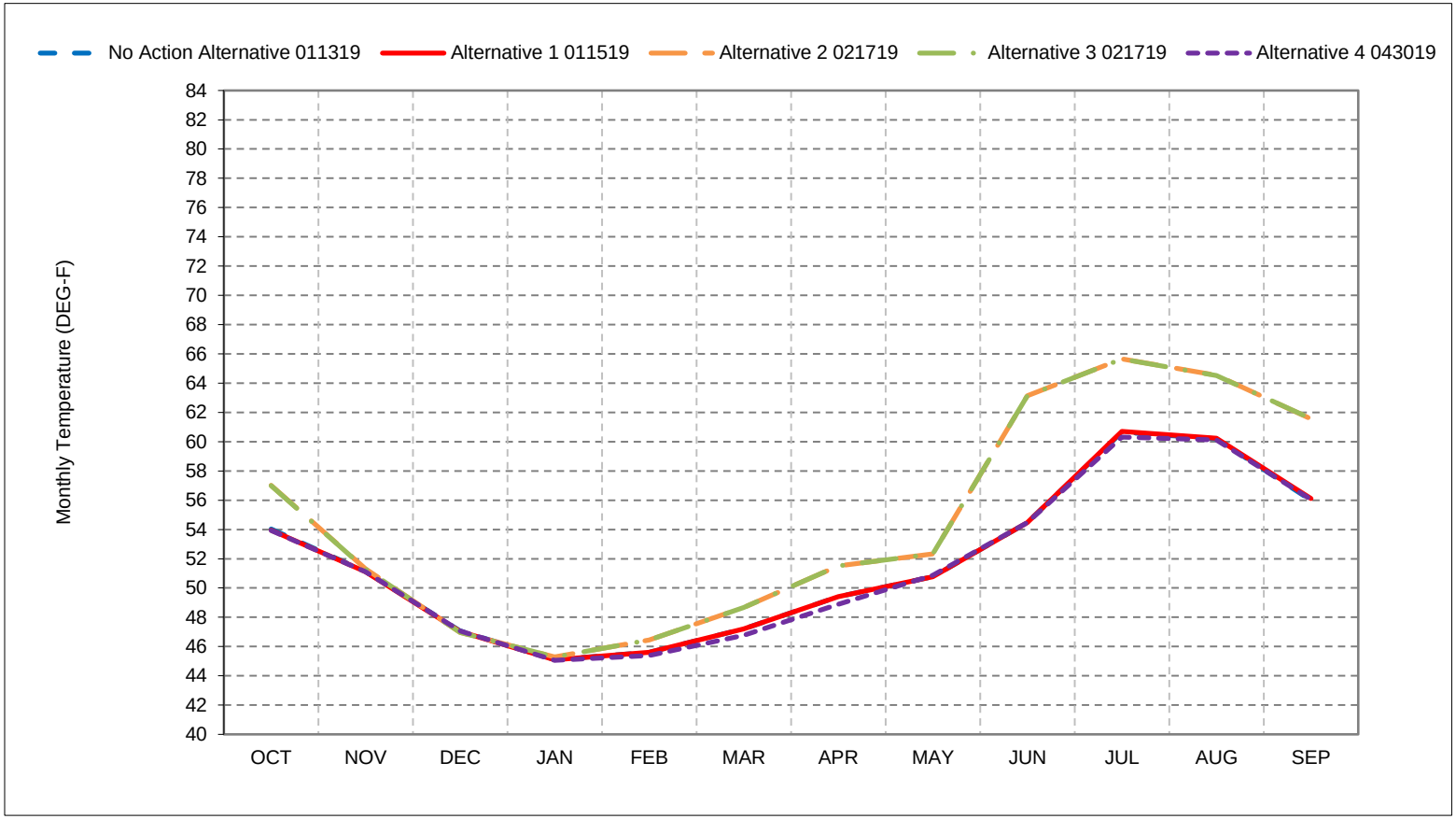
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-1. Clear Creek at Mouth, Long-Term Average Temperature



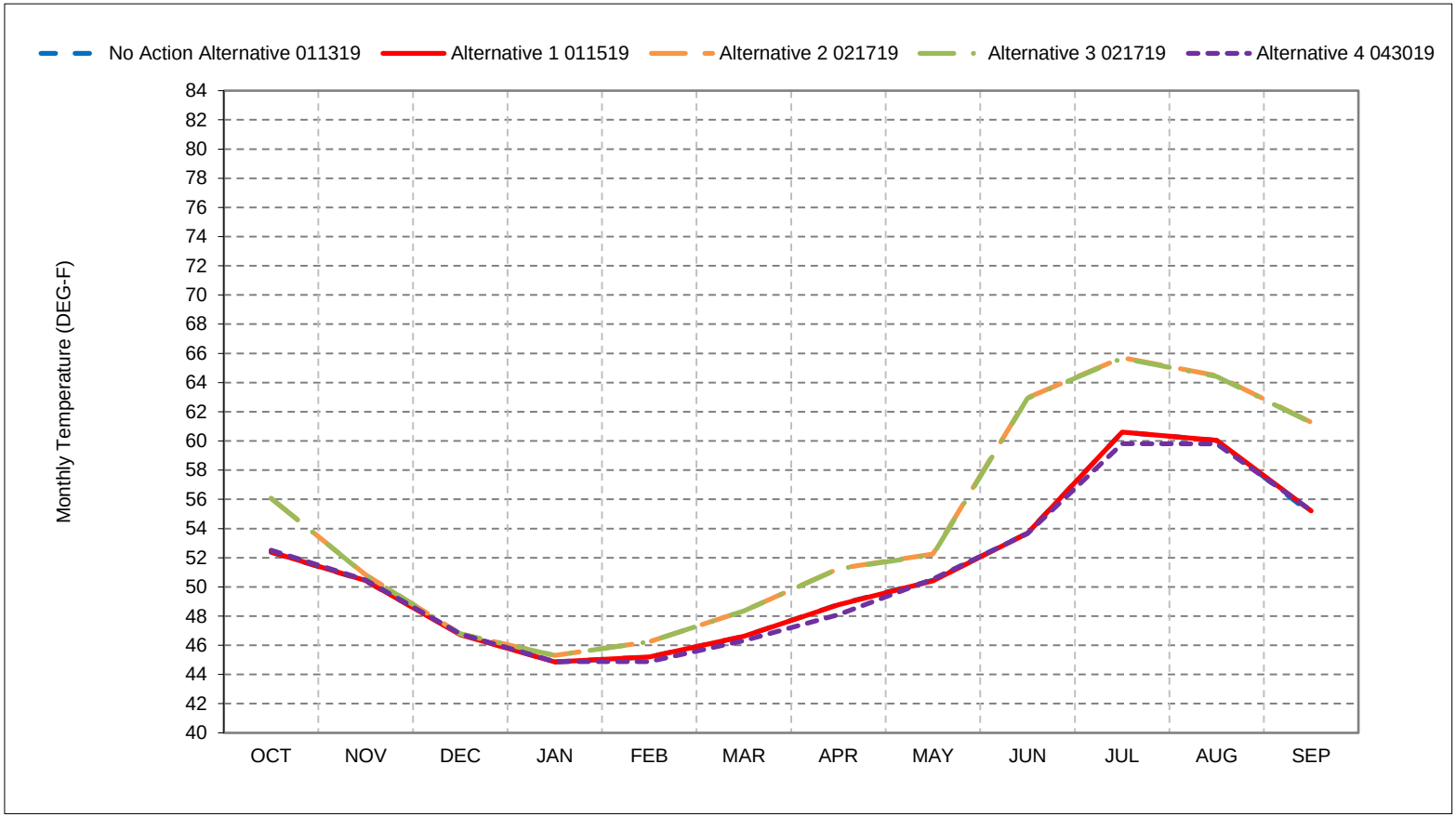
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-2. Clear Creek at Mouth, Wet Year Average Temperature



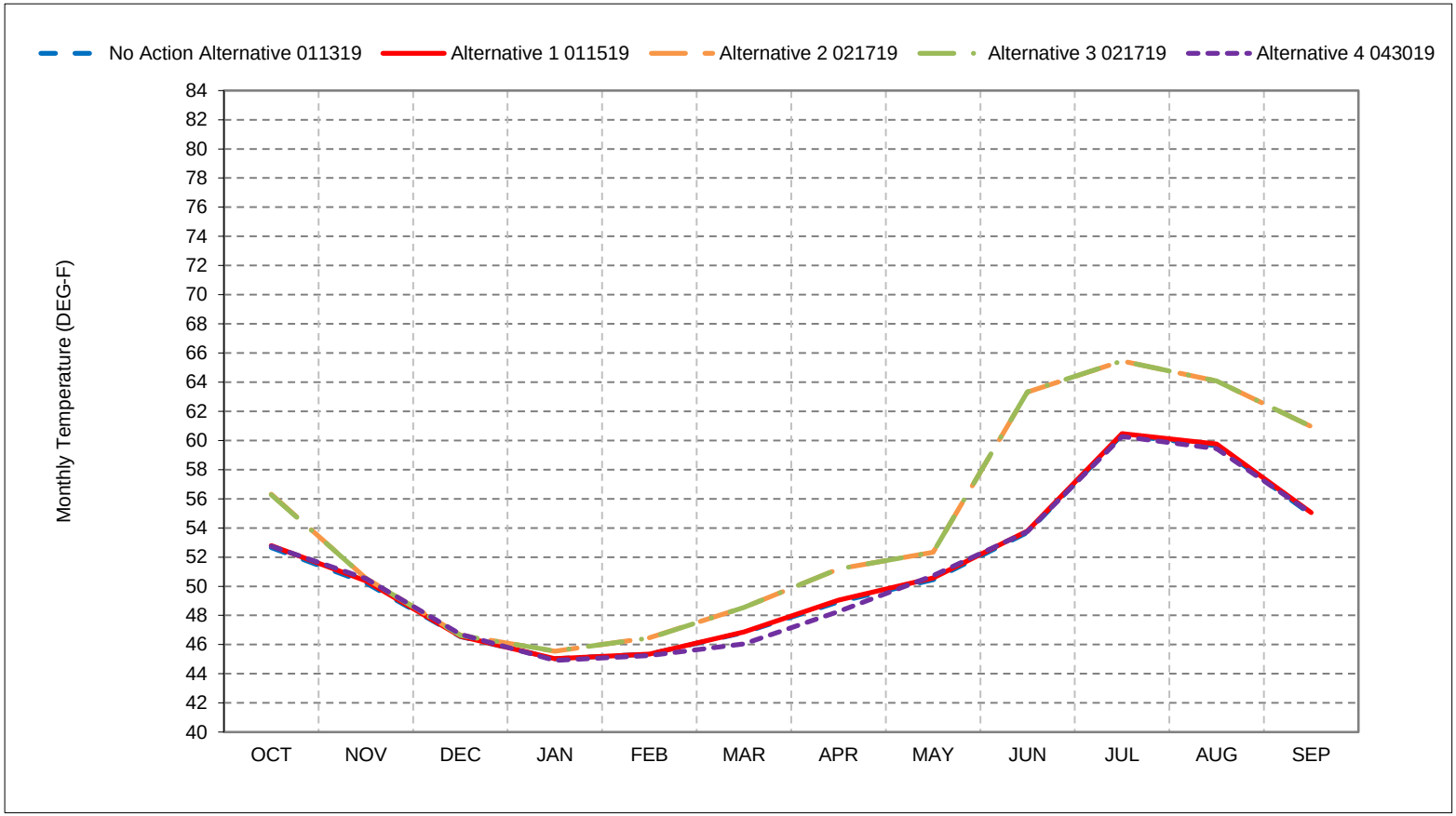
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

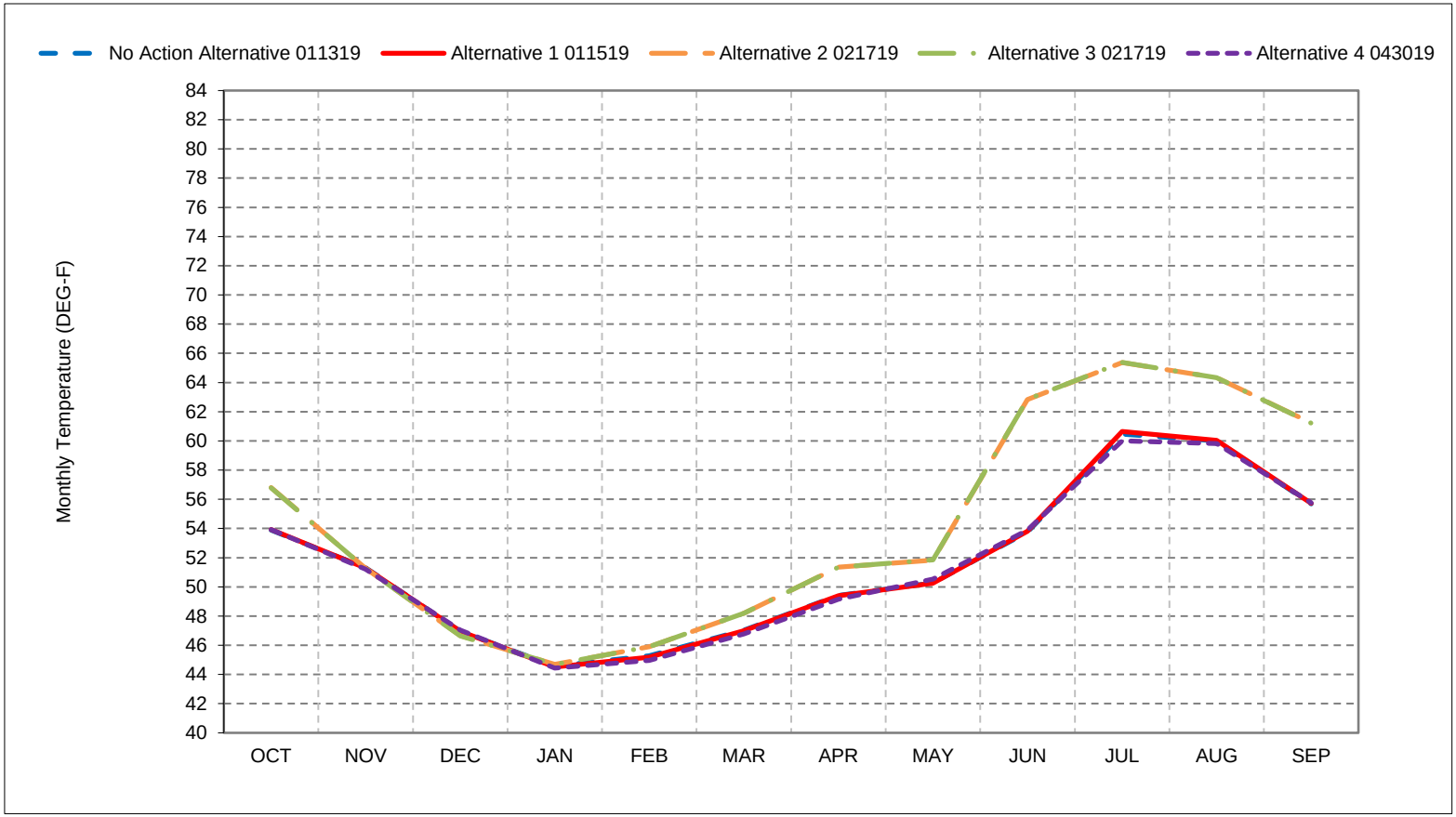
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-3. Clear Creek at Mouth, Above Normal Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-4. Clear Creek at Mouth, Below Normal Year Average Temperature



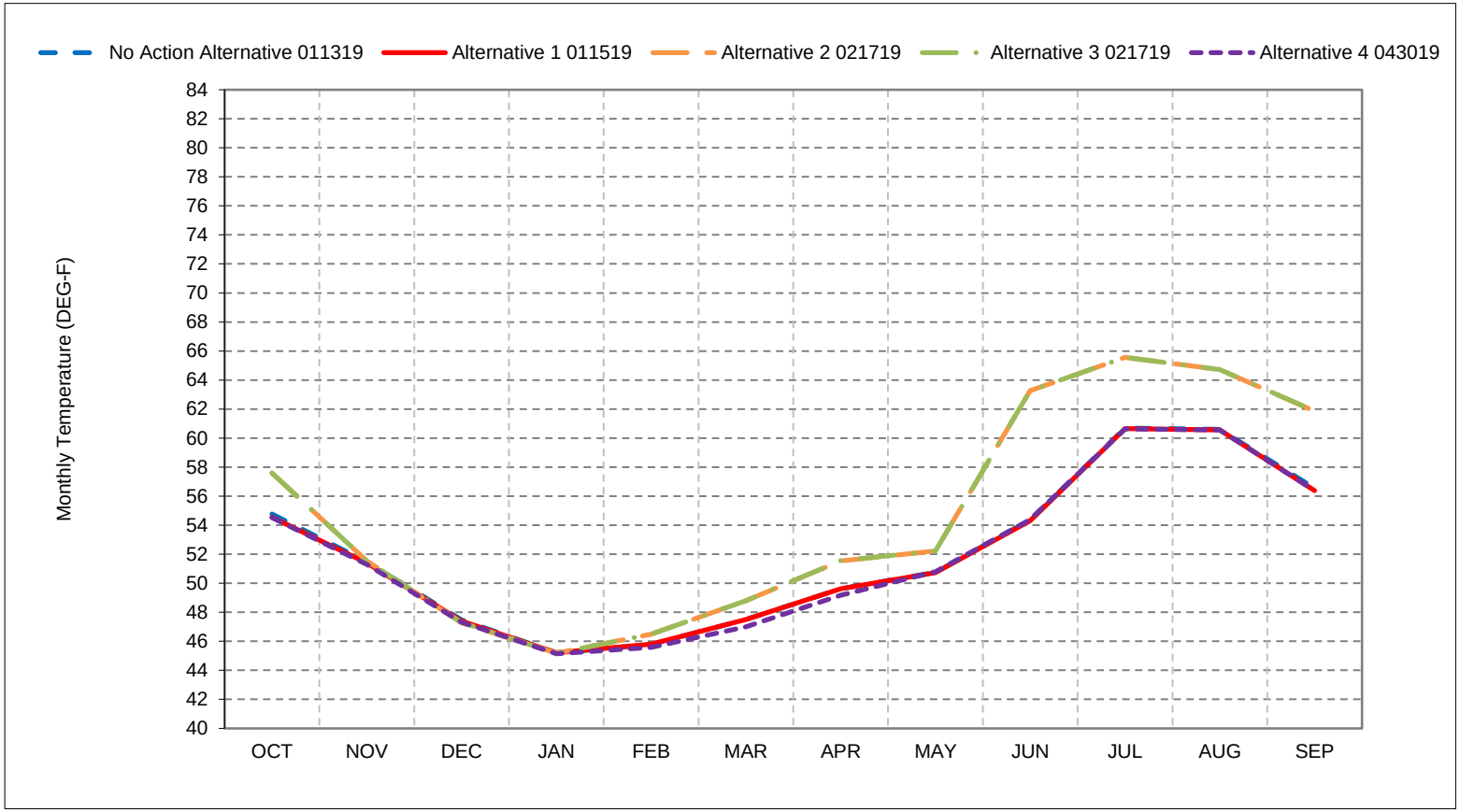
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

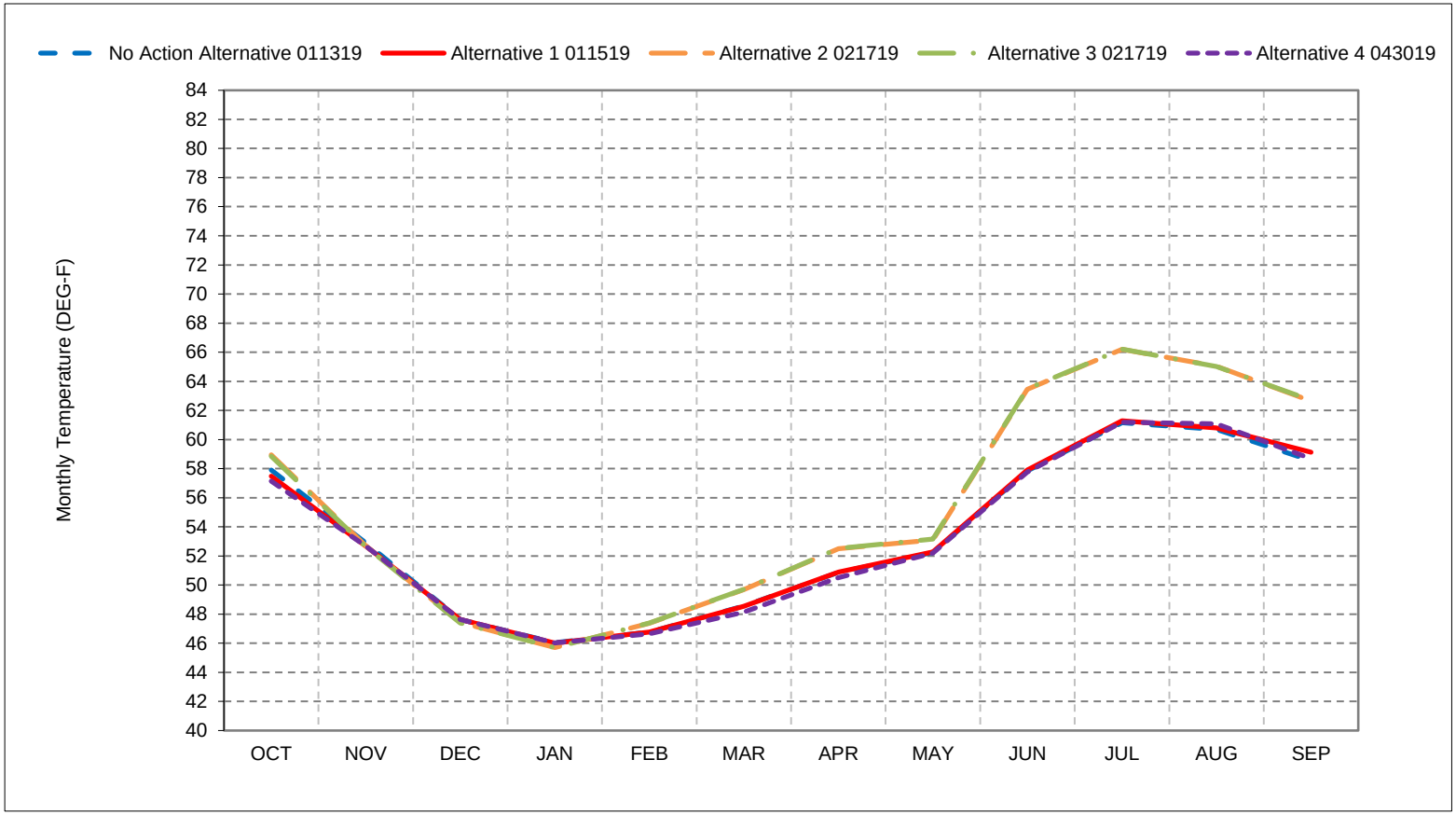
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-5. Clear Creek at Mouth, Dry Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-6. Clear Creek at Mouth, Critical Year Average Temperature



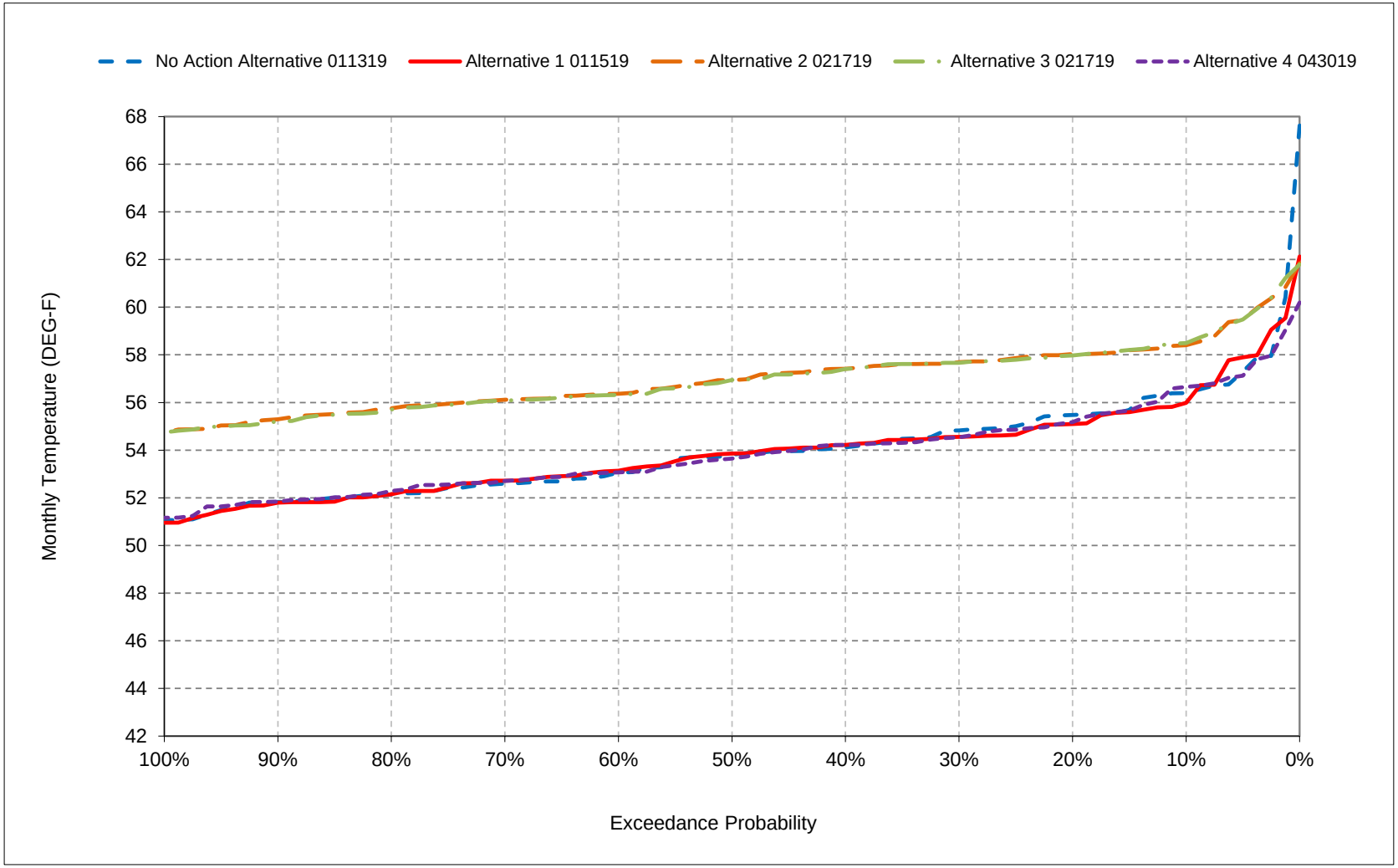
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

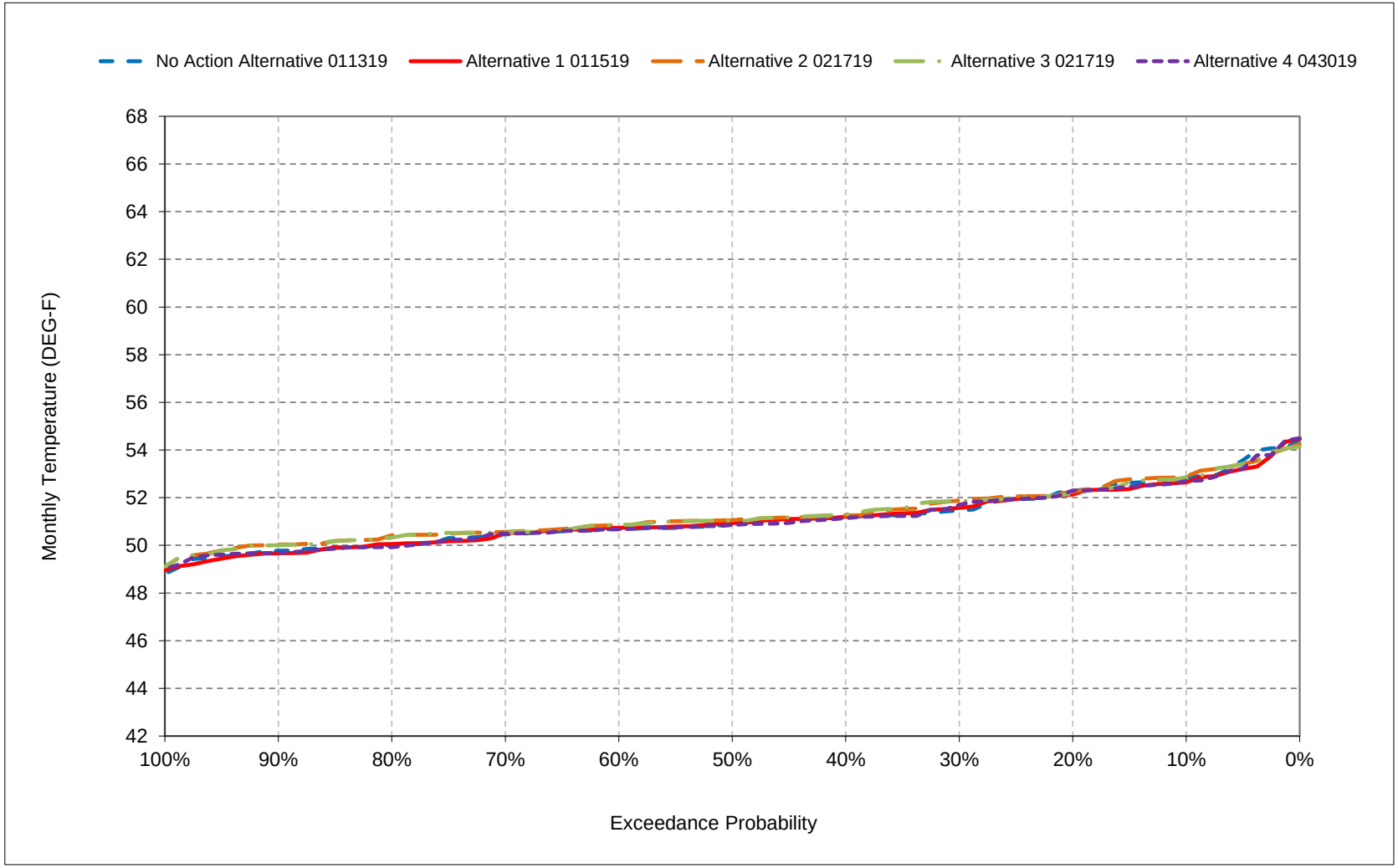
Figure 4-7. Clear Creek at Mouth, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

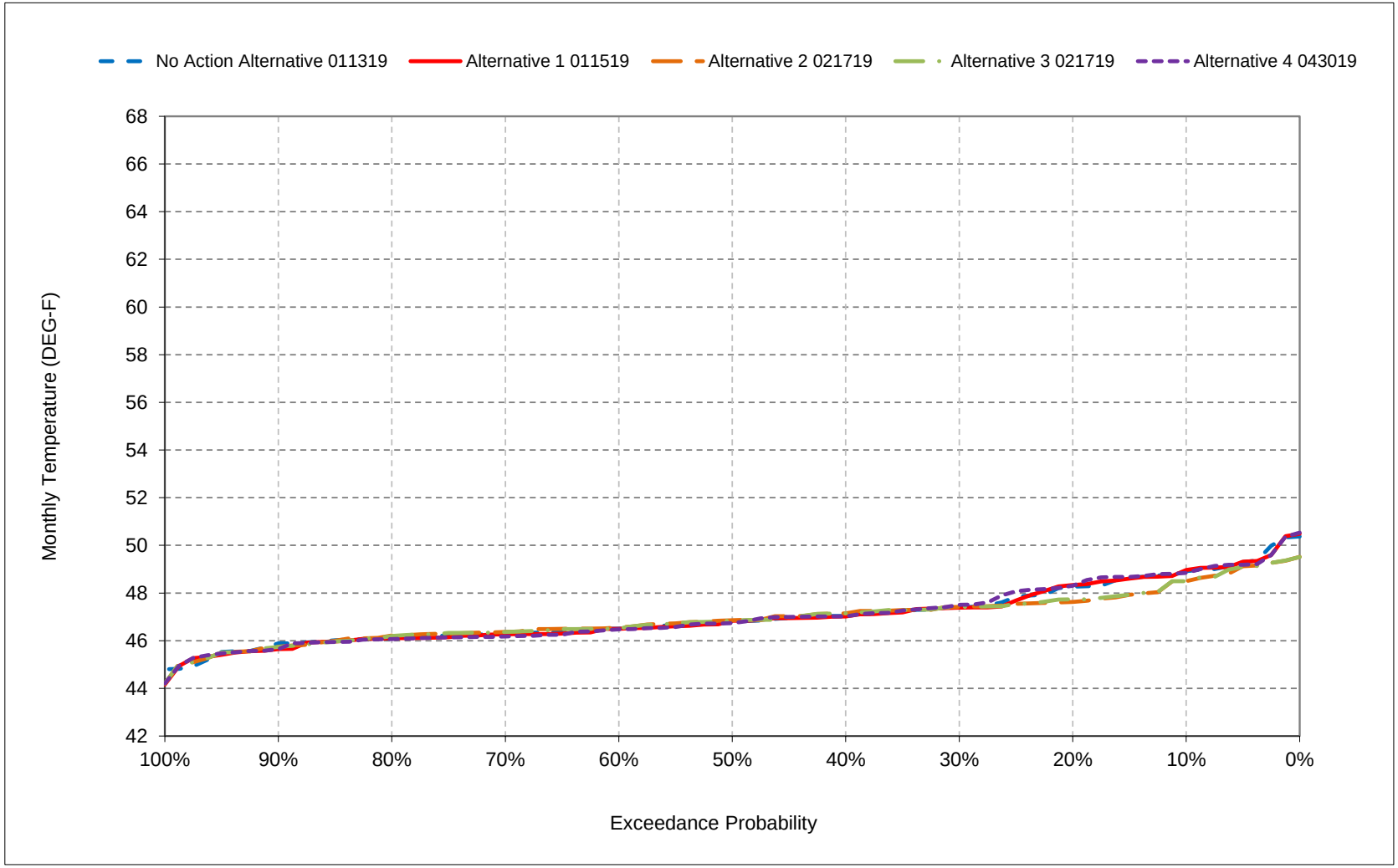
Figure 4-8. Clear Creek at Mouth, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

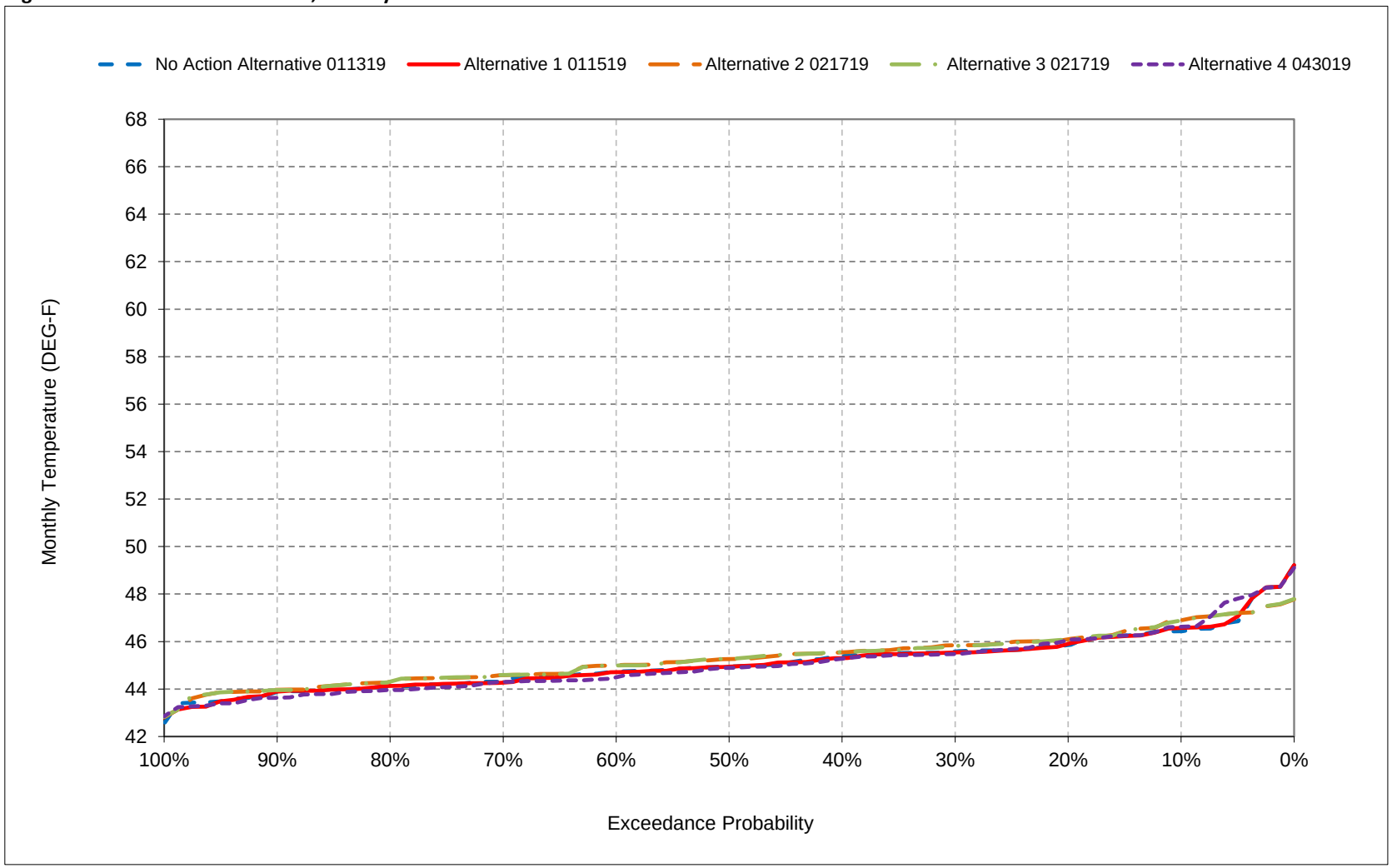
Figure 4-9. Clear Creek at Mouth, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

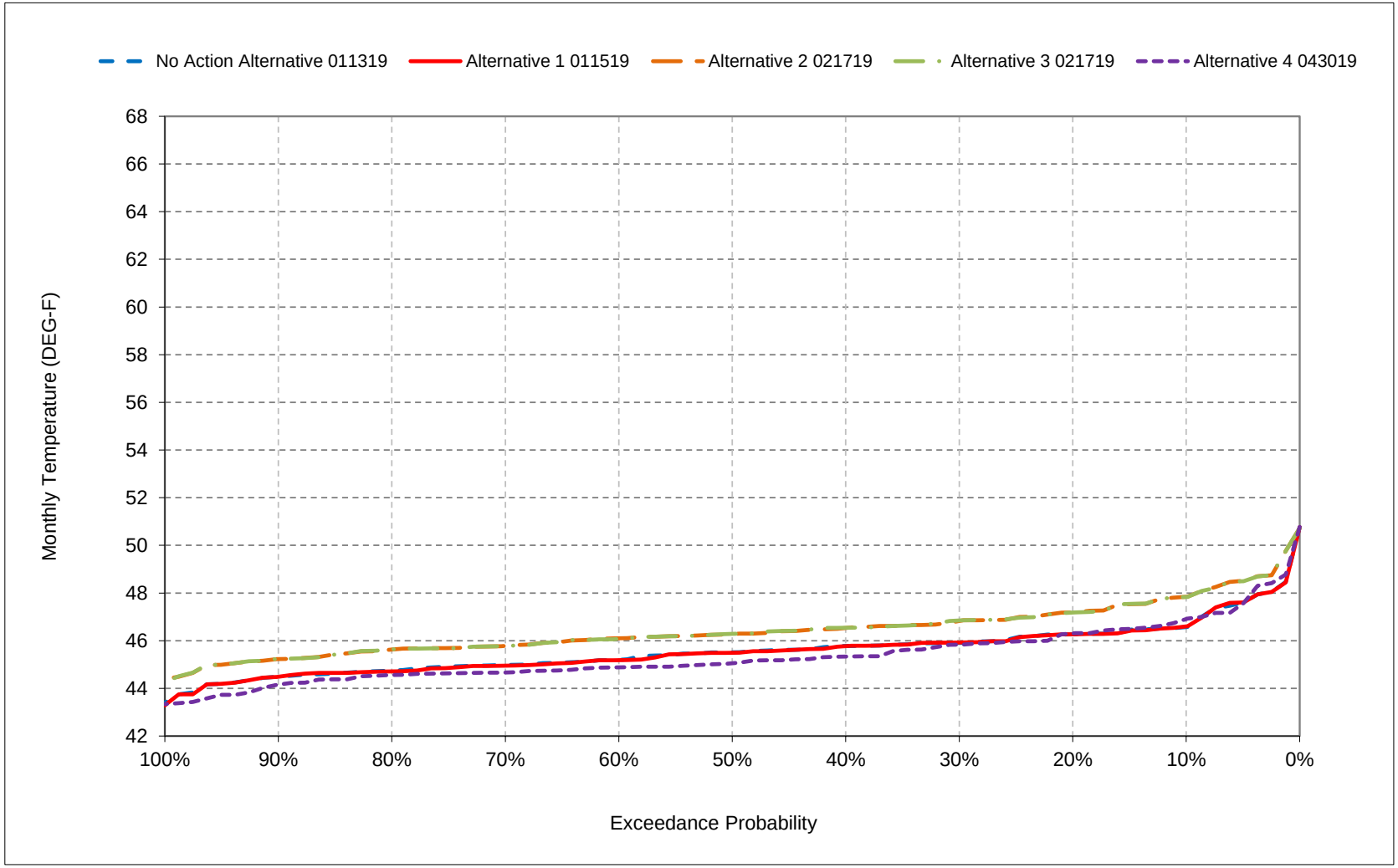
Figure 4-10. Clear Creek at Mouth, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

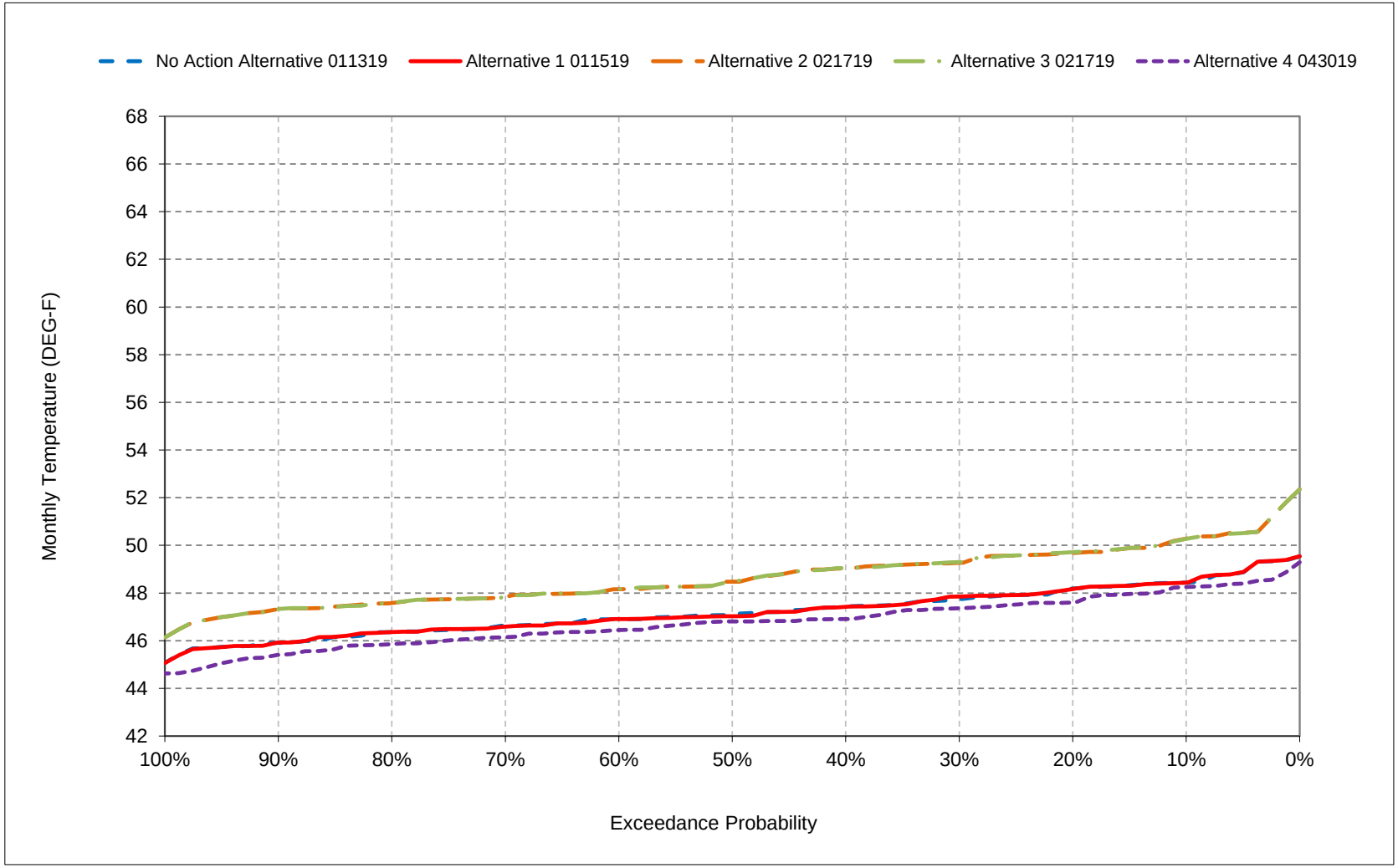
Figure 4-11. Clear Creek at Mouth, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

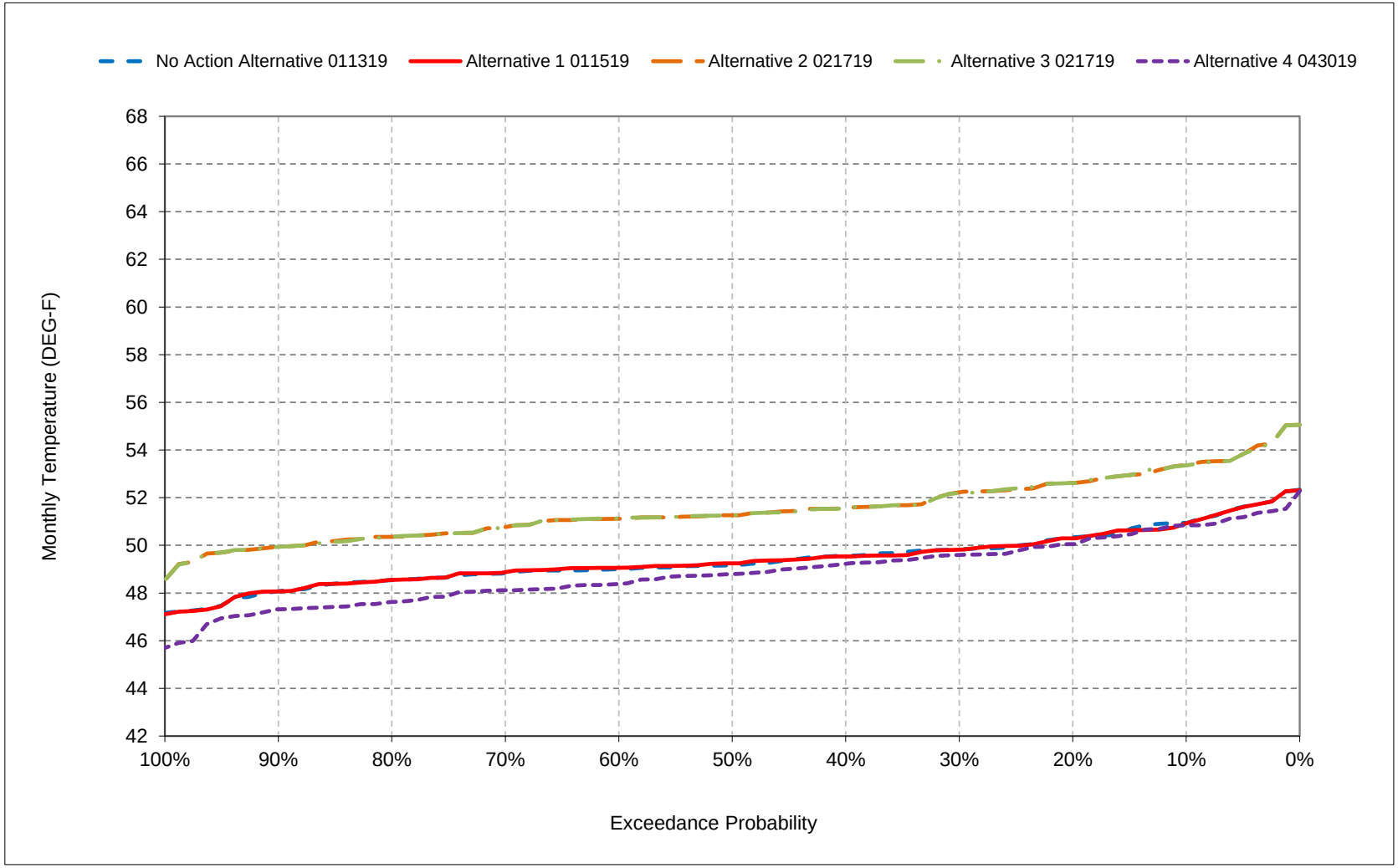
Figure 4-12. Clear Creek at Mouth, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

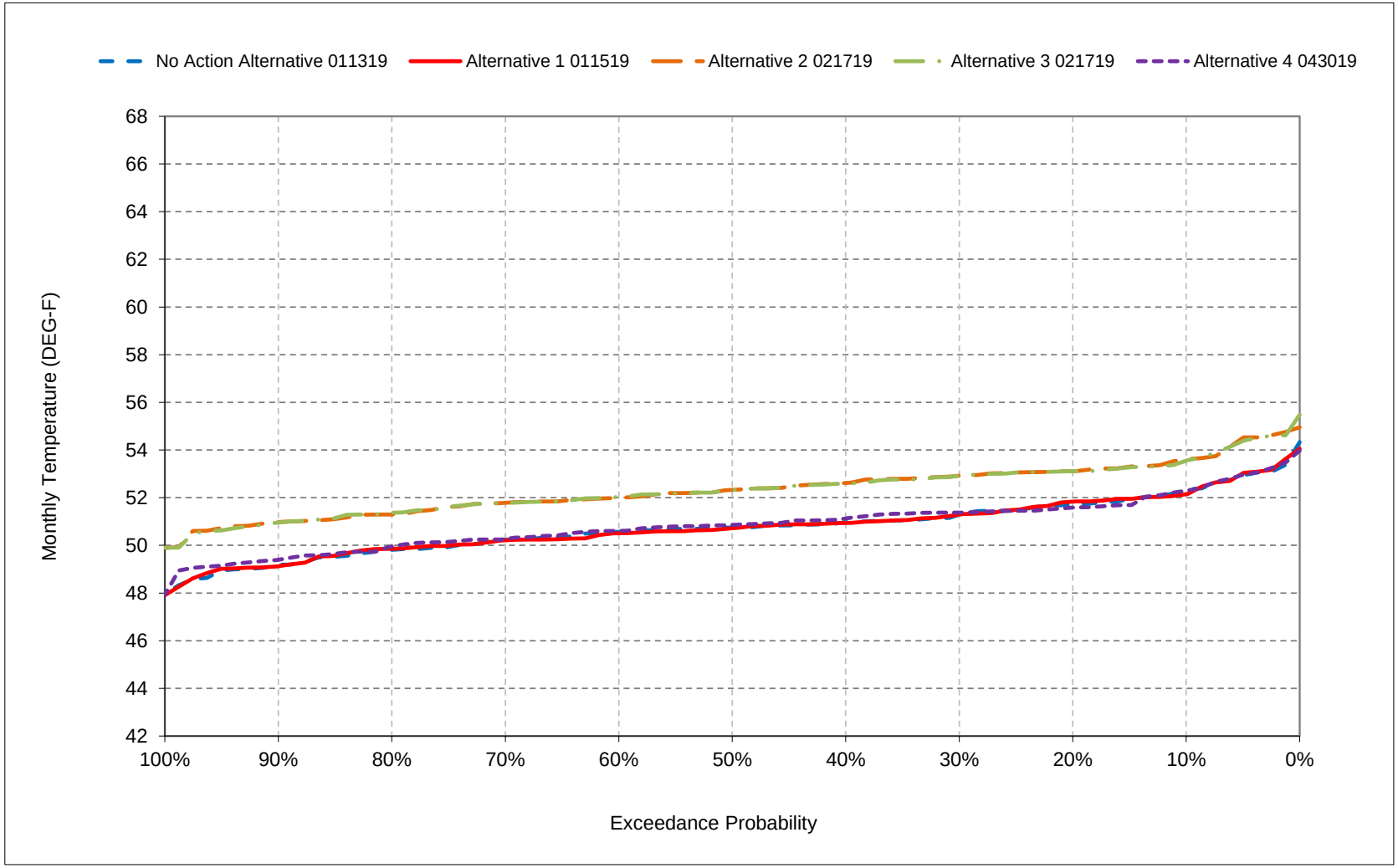
Figure 4-13. Clear Creek at Mouth, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

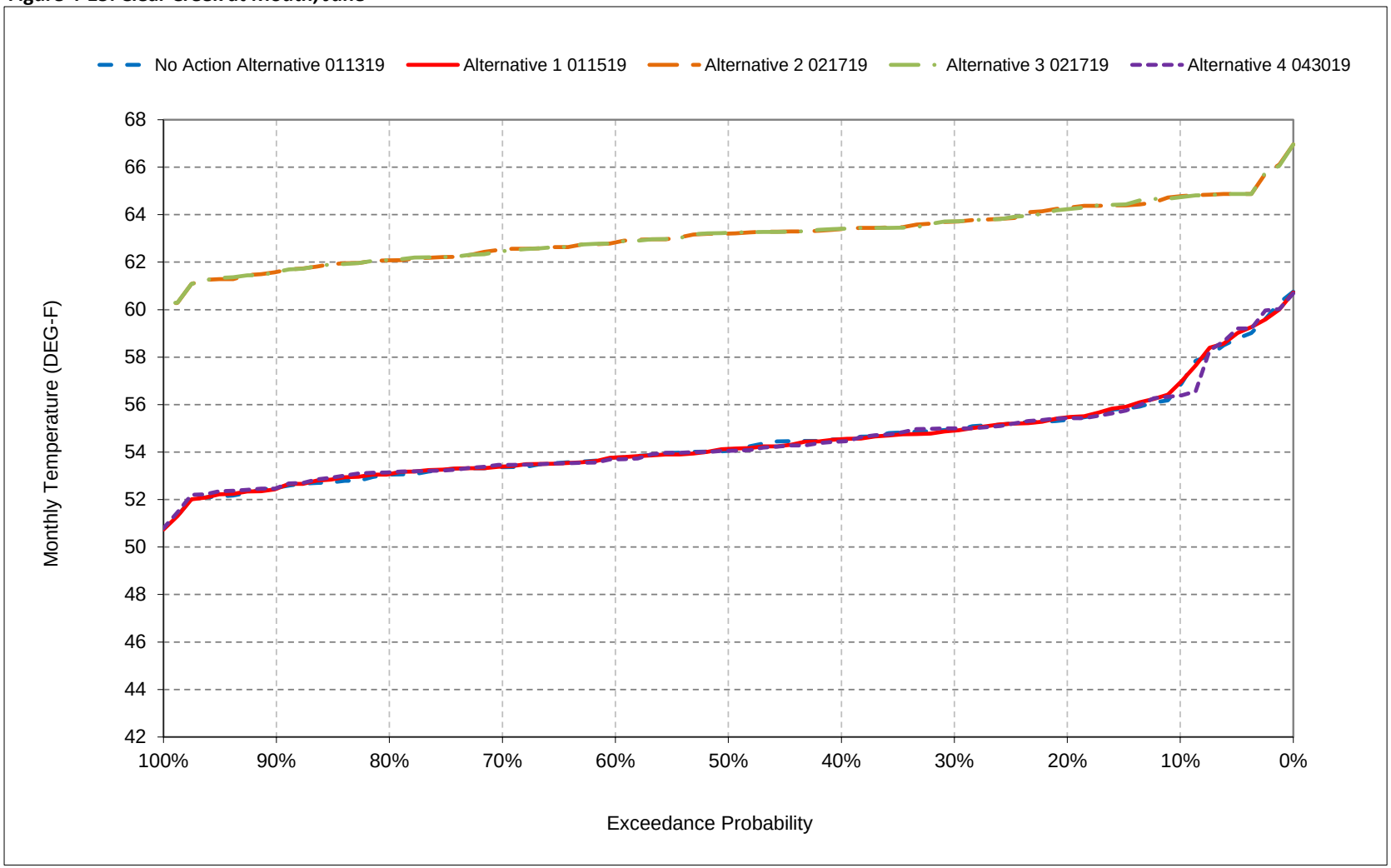
Figure 4-14. Clear Creek at Mouth, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

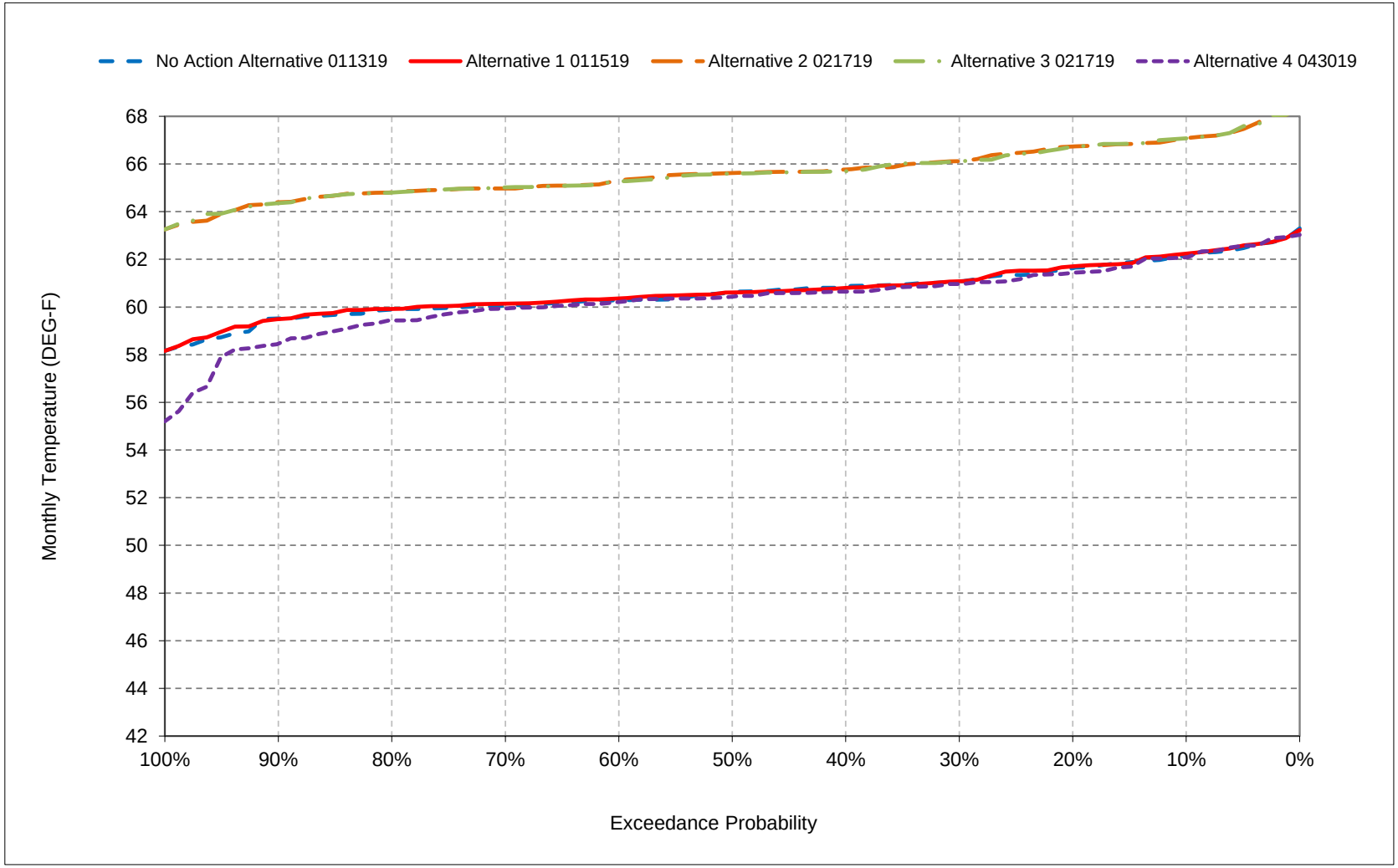
Figure 4-15. Clear Creek at Mouth, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

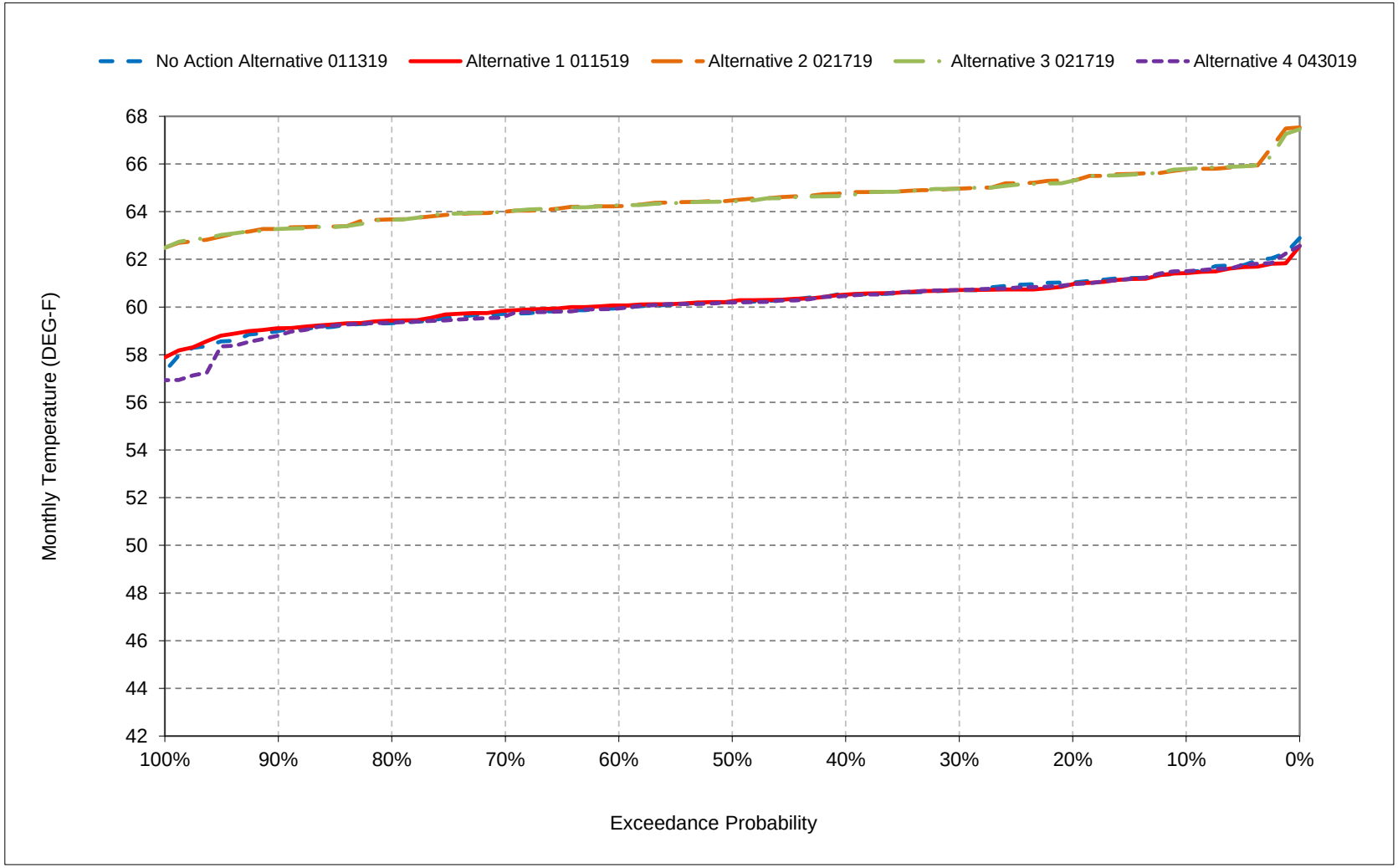
Figure 4-16. Clear Creek at Mouth, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

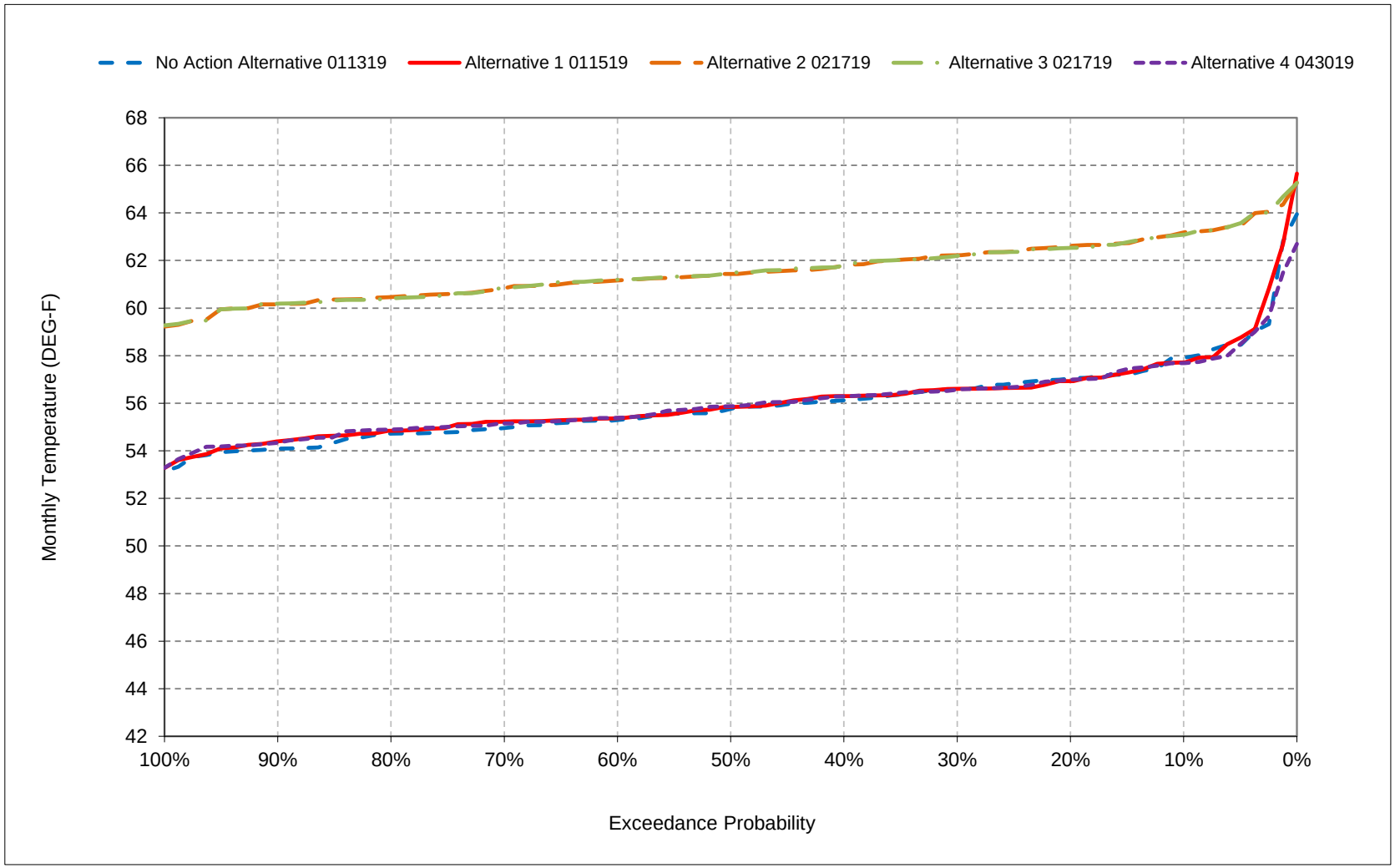
Figure 4-17. Clear Creek at Mouth, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-18. Clear Creek at Mouth, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 5-1. Sacramento River below Keswick, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.1	56.1	53.6	50.2	48.2	49.1	50.3	50.5	52.0	53.9	54.4	54.6
20%	55.5	55.9	52.4	49.2	47.7	48.4	49.7	50.2	51.0	52.4	54.2	54.0
30%	55.2	55.7	52.0	48.6	47.3	48.1	49.3	49.8	50.5	51.9	53.0	53.6
40%	54.7	55.4	51.9	48.1	47.1	47.6	49.1	49.4	50.1	51.1	52.3	52.8
50%	54.4	55.1	51.5	47.8	46.8	47.1	48.7	49.1	49.9	50.8	51.9	52.0
60%	54.1	54.9	50.8	47.4	46.0	46.7	48.2	48.9	49.6	50.5	51.5	51.6
70%	53.9	54.6	50.6	47.1	45.8	46.4	47.9	48.7	49.4	50.1	51.3	51.0
80%	53.7	54.1	50.2	46.7	45.4	45.8	47.5	48.2	49.2	49.8	51.1	50.8
90%	53.5	53.4	49.4	46.0	44.7	45.4	46.8	47.8	48.5	49.3	50.8	50.4
Long Term												
Full Simulation Period[a]	54.9	55.1	51.4	47.9	46.6	47.2	48.6	49.3	50.1	51.2	52.6	52.9
Water Year Types[b,c]												
Wet (32%)	54.3	55.4	52.0	47.3	45.9	46.3	47.8	48.7	49.6	50.4	51.4	51.0
Above Normal (16%)	53.9	54.9	51.4	47.6	46.0	46.5	48.1	48.6	49.3	50.0	51.1	51.0
Below Normal (13%)	54.2	54.3	51.3	48.2	46.9	47.8	49.1	49.4	49.7	50.8	52.0	52.8
Dry (24%)	54.5	54.4	50.8	48.4	47.3	47.8	49.1	49.5	50.1	51.4	53.0	53.2
Critical (15%)	58.9	56.3	51.5	48.2	47.1	48.1	49.5	50.7	52.3	53.9	56.2	58.4

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.6	56.5	53.5	50.2	48.5	49.1	50.3	50.5	51.6	52.5	53.5	56.0
20%	54.6	56.0	52.8	49.4	48.1	48.5	49.8	50.2	51.0	51.9	52.4	54.4
30%	53.5	55.6	52.2	48.9	47.5	48.0	49.5	49.7	50.4	51.7	52.0	53.1
40%	52.8	55.3	51.8	48.3	47.2	47.5	49.2	49.5	50.1	51.3	51.8	52.7
50%	52.7	54.9	51.4	47.9	46.9	47.2	48.9	49.2	49.8	51.0	51.7	52.1
60%	52.6	54.5	51.0	47.7	46.2	46.9	48.2	48.9	49.6	50.7	51.6	51.6
70%	52.5	54.2	50.8	47.4	45.9	46.5	48.0	48.7	49.5	50.3	51.4	51.4
80%	52.4	53.7	50.6	46.8	45.5	45.8	47.7	48.2	49.1	50.0	51.1	51.0
90%	52.2	53.5	49.5	45.9	44.7	45.5	46.8	47.7	48.6	49.6	50.8	50.7
Long Term												
Full Simulation Period[a]	53.9	54.9	51.6	48.1	46.7	47.3	48.7	49.2	50.0	51.1	52.2	53.1
Water Year Types[b,c]												
Wet (32%)	52.7	54.7	51.7	47.5	46.0	46.4	47.8	48.7	49.6	50.5	51.3	51.5
Above Normal (16%)	52.4	54.1	51.1	47.7	46.0	46.6	48.2	48.6	49.4	50.1	51.4	51.9
Below Normal (13%)	53.7	54.8	51.9	48.4	47.0	47.9	49.3	49.2	49.7	50.7	51.6	52.6
Dry (24%)	53.2	54.8	51.4	48.5	47.4	47.9	49.2	49.4	49.9	51.2	52.0	52.6
Critical (15%)	59.0	56.5	51.8	48.6	47.4	48.3	49.7	50.6	51.7	53.3	55.8	59.2

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.6**	**0.4**	-0.1	0.0	**0.3**	**0.0**	**0.0**	**0.0**	-0.4	-1.4	-0.9	**1.3**
20%	-0.9	**0.1**	**0.4**	**0.2**	**0.3**	**0.1**	**0.1**	0.0	0.0	-0.5	-1.8	**0.4**
30%	-1.7	-0.1	**0.1**	**0.3**	**0.2**	-0.1	**0.2**	-0.1	0.0	-0.3	-1.0	-0.5
40%	-1.9	-0.2	-0.1	**0.2**	**0.1**	-0.1	**0.1**	**0.1**	**0.0**	**0.2**	-0.5	-0.1
50%	-1.6	-0.2	-0.1	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	-0.1	**0.2**	-0.3	**0.1**
60%	-1.5	-0.4	**0.2**	**0.3**	**0.1**	**0.2**	**0.0**	0.0	**0.0**	**0.2**	**0.0**	**0.0**
70%	-1.5	-0.4	**0.1**	**0.3**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.3**
80%	-1.3	-0.4	**0.3**	**0.1**	**0.1**	**0.1**	**0.1**	0.0	-0.1	**0.2**	**0.1**	**0.2**
90%	-1.2	**0.1**	**0.1**	-0.1	0.0	**0.1**	**0.1**	-0.1	**0.0**	**0.3**	**0.1**	**0.3**
Long Term												
Full Simulation Period[a]	-1.1	-0.1	**0.1**	**0.2**	**0.1**	**0.1**	**0.1**	-0.1	-0.1	-0.1	-0.4	**0.2**
Water Year Types[b,c]												
Wet (32%)	-1.5	-0.7	-0.2	**0.1**	**0.1**	**0.1**	0.0	-0.1	**0.1**	**0.1**	-0.1	**0.5**
Above Normal (16%)	-1.5	-0.8	-0.3	**0.0**	**0.1**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**0.2**	**0.9**
Below Normal (13%)	-0.5	**0.5**	**0.6**	**0.1**	**0.1**	**0.1**	**0.2**	-0.3	**0.0**	-0.1	-0.4	-0.2
Dry (24%)	-1.3	**0.4**	**0.6**	**0.1**	**0.2**	**0.0**	**0.1**	0.0	-0.1	-0.1	-1.0	-0.6
Critical (15%)	**0.1**	**0.2**	**0.3**	**0.5**	**0.4**	**0.2**	**0.2**	-0.2	-0.5	-0.6	-0.5	**0.8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 5-2. Sacramento River below Keswick, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.1	56.1	53.6	50.2	48.2	49.1	50.3	50.5	52.0	53.9	54.4	54.6
20%	55.5	55.9	52.4	49.2	47.7	48.4	49.7	50.2	51.0	52.4	54.2	54.0
30%	55.2	55.7	52.0	48.6	47.3	48.1	49.3	49.8	50.5	51.9	53.0	53.6
40%	54.7	55.4	51.9	48.1	47.1	47.6	49.1	49.4	50.1	51.1	52.3	52.8
50%	54.4	55.1	51.5	47.8	46.8	47.1	48.7	49.1	49.9	50.8	51.9	52.0
60%	54.1	54.9	50.8	47.4	46.0	46.7	48.2	48.9	49.6	50.5	51.5	51.6
70%	53.9	54.6	50.6	47.1	45.8	46.4	47.9	48.7	49.4	50.1	51.3	51.0
80%	53.7	54.1	50.2	46.7	45.4	45.8	47.5	48.2	49.2	49.8	51.1	50.8
90%	53.5	53.4	49.4	46.0	44.7	45.4	46.8	47.8	48.5	49.3	50.8	50.4
Long Term												
Full Simulation Period[a]	54.9	55.1	51.4	47.9	46.6	47.2	48.6	49.3	50.1	51.2	52.6	52.9
Water Year Types[b,c]												
Wet (32%)	54.3	55.4	52.0	47.3	45.9	46.3	47.8	48.7	49.6	50.4	51.4	51.0
Above Normal (16%)	53.9	54.9	51.4	47.6	46.0	46.5	48.1	48.6	49.3	50.0	51.1	51.0
Below Normal (13%)	54.2	54.3	51.3	48.2	46.9	47.8	49.1	49.4	49.7	50.8	52.0	52.8
Dry (24%)	54.5	54.4	50.8	48.4	47.3	47.8	49.1	49.5	50.1	51.4	53.0	53.2
Critical (15%)	58.9	56.3	51.5	48.2	47.1	48.1	49.5	50.7	52.3	53.9	56.2	58.4

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.3	56.3	53.2	49.9	48.2	48.8	50.2	50.5	51.9	53.4	54.8	55.9
20%	55.5	55.9	52.4	49.1	47.8	48.4	49.7	50.0	50.9	52.6	53.9	53.9
30%	55.0	55.7	51.9	48.6	47.3	48.0	49.4	49.4	50.4	52.1	53.1	53.5
40%	54.6	55.3	51.5	48.1	47.1	47.4	49.0	49.2	50.1	51.4	52.3	52.9
50%	54.4	55.0	51.2	47.7	46.9	47.1	48.7	48.9	49.8	51.1	52.0	52.4
60%	54.2	54.5	50.8	47.5	46.1	46.8	48.1	48.7	49.5	50.7	51.6	52.2
70%	53.7	54.2	50.6	47.0	45.8	46.4	47.9	48.5	49.2	50.3	51.3	51.8
80%	53.5	53.7	50.2	46.7	45.4	45.8	47.5	48.1	48.9	49.9	51.0	51.5
90%	53.3	53.3	49.4	45.7	44.6	45.4	46.6	47.4	48.4	49.7	50.7	51.0
Long Term												
Full Simulation Period[a]	55.0	54.9	51.3	47.8	46.6	47.2	48.6	49.1	50.0	51.3	52.6	53.3
Water Year Types[b,c]												
Wet (32%)	53.8	54.5	51.5	47.3	45.9	46.4	47.8	48.7	49.5	50.6	51.5	51.7
Above Normal (16%)	53.9	54.4	51.1	47.5	45.9	46.5	48.1	48.5	49.1	50.2	51.2	52.2
Below Normal (13%)	54.6	54.9	51.7	48.1	46.8	47.8	49.1	49.2	49.7	51.0	51.8	52.8
Dry (24%)	54.6	54.8	51.0	48.4	47.3	47.8	49.1	49.1	49.9	51.5	53.0	53.1
Critical (15%)	59.6	56.6	51.6	48.4	47.2	48.0	49.5	50.6	52.3	54.1	56.4	58.8

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**2.3**	**0.2**	-0.3	-0.3	**0.0**	-0.2	-0.1	**0.0**	-0.1	-0.5	**0.3**	**1.3**
20%	0.0	**0.1**	0.0	0.0	**0.1**	0.0	0.0	-0.2	-0.1	**0.2**	-0.3	-0.1
30%	-0.1	0.0	-0.1	**0.0**	**0.0**	-0.1	**0.0**	-0.3	-0.1	**0.1**	**0.1**	-0.2
40%	-0.1	-0.1	-0.4	**0.0**	0.0	-0.2	-0.1	-0.1	-0.1	**0.3**	**0.0**	**0.2**
50%	**0.0**	-0.1	-0.3	-0.1	**0.1**	**0.0**	**0.0**	-0.1	-0.1	**0.2**	**0.0**	**0.5**
60%	**0.1**	-0.4	0.0	**0.1**	**0.0**	**0.1**	-0.1	-0.1	-0.1	**0.3**	**0.1**	**0.6**
70%	-0.3	-0.4	-0.1	-0.1	0.0	-0.1	**0.0**	-0.1	-0.2	**0.1**	0.0	**0.7**
80%	-0.2	-0.4	0.0	0.0	0.0	**0.0**	0.0	-0.2	-0.3	**0.1**	-0.1	**0.6**
90%	-0.2	-0.1	**0.0**	-0.4	0.0	**0.0**	-0.1	-0.4	-0.2	**0.4**	-0.1	**0.6**
Long Term												
Full Simulation Period[a]	**0.0**	-0.1	-0.1	0.0	0.0	**0.0**	0.0	-0.2	-0.1	**0.2**	**0.0**	**0.4**
Water Year Types[b,c]												
Wet (32%)	-0.4	-0.9	-0.5	0.0	0.0	**0.0**	**0.0**	0.0	-0.1	**0.1**	**0.0**	**0.7**
Above Normal (16%)	-0.1	-0.5	-0.3	-0.2	0.0	**0.0**	**0.0**	-0.1	-0.2	**0.2**	**0.1**	**1.3**
Below Normal (13%)	**0.4**	**0.6**	**0.4**	-0.2	-0.1	**0.0**	0.0	-0.2	0.0	**0.2**	-0.2	-0.1
Dry (24%)	**0.1**	**0.4**	**0.1**	0.0	**0.0**	**0.0**	0.0	-0.3	-0.2	**0.1**	**0.0**	-0.2
Critical (15%)	**0.7**	**0.3**	**0.1**	**0.2**	**0.1**	-0.1	0.0	-0.1	**0.0**	**0.2**	**0.2**	**0.4**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 5-3. Sacramento River below Keswick, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.1	56.1	53.6	50.2	48.2	49.1	50.3	50.5	52.0	53.9	54.4	54.6
20%	55.5	55.9	52.4	49.2	47.7	48.4	49.7	50.2	51.0	52.4	54.2	54.0
30%	55.2	55.7	52.0	48.6	47.3	48.1	49.3	49.8	50.5	51.9	53.0	53.6
40%	54.7	55.4	51.9	48.1	47.1	47.6	49.1	49.4	50.1	51.1	52.3	52.8
50%	54.4	55.1	51.5	47.8	46.8	47.1	48.7	49.1	49.9	50.8	51.9	52.0
60%	54.1	54.9	50.8	47.4	46.0	46.7	48.2	48.9	49.6	50.5	51.5	51.6
70%	53.9	54.6	50.6	47.1	45.8	46.4	47.9	48.7	49.4	50.1	51.3	51.0
80%	53.7	54.1	50.2	46.7	45.4	45.8	47.5	48.2	49.2	49.8	51.1	50.8
90%	53.5	53.4	49.4	46.0	44.7	45.4	46.8	47.8	48.5	49.3	50.8	50.4
Long Term												
Full Simulation Period[a]	54.9	55.1	51.4	47.9	46.6	47.2	48.6	49.3	50.1	51.2	52.6	52.9
Water Year Types[b,c]												
Wet (32%)	54.3	55.4	52.0	47.3	45.9	46.3	47.8	48.7	49.6	50.4	51.4	51.0
Above Normal (16%)	53.9	54.9	51.4	47.6	46.0	46.5	48.1	48.6	49.3	50.0	51.1	51.0
Below Normal (13%)	54.2	54.3	51.3	48.2	46.9	47.8	49.1	49.4	49.7	50.8	52.0	52.8
Dry (24%)	54.5	54.4	50.8	48.4	47.3	47.8	49.1	49.5	50.1	51.4	53.0	53.2
Critical (15%)	58.9	56.3	51.5	48.2	47.1	48.1	49.5	50.7	52.3	53.9	56.2	58.4

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.5	56.5	53.2	49.9	48.2	48.9	50.1	50.5	52.1	53.7	54.5	56.0
20%	55.4	55.9	52.5	49.1	47.8	48.4	49.6	50.0	50.8	52.7	53.8	54.0
30%	55.0	55.7	52.0	48.6	47.3	48.1	49.4	49.5	50.4	52.0	53.1	53.6
40%	54.6	55.3	51.4	48.0	47.1	47.6	49.0	49.2	50.1	51.4	52.4	53.1
50%	54.4	55.1	51.2	47.7	46.9	47.1	48.7	49.0	49.8	51.0	51.9	52.5
60%	54.2	54.5	50.8	47.5	46.0	46.8	48.1	48.7	49.6	50.7	51.6	52.2
70%	53.7	54.2	50.6	47.0	45.8	46.4	47.9	48.5	49.3	50.2	51.3	51.8
80%	53.5	53.8	50.2	46.7	45.3	45.8	47.5	48.1	48.9	49.9	51.0	51.4
90%	53.2	53.3	49.4	45.7	44.6	45.4	46.6	47.8	48.4	49.7	50.7	51.0
Long Term												
Full Simulation Period[a]	55.0	54.9	51.3	47.8	46.5	47.2	48.6	49.1	50.0	51.3	52.6	53.4
Water Year Types[b,c]												
Wet (32%)	53.8	54.5	51.5	47.3	45.9	46.4	47.8	48.7	49.5	50.5	51.4	51.8
Above Normal (16%)	53.8	54.4	51.1	47.4	45.9	46.6	48.1	48.5	49.1	50.2	51.2	52.2
Below Normal (13%)	54.5	54.9	51.7	48.1	46.8	47.8	49.1	49.2	49.7	51.0	51.8	52.8
Dry (24%)	54.5	54.8	51.0	48.4	47.3	47.9	49.1	49.1	49.9	51.5	53.0	53.1
Critical (15%)	59.9	56.6	51.5	48.3	47.1	48.0	49.4	50.7	52.4	54.1	56.6	59.2

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**3.4**	**0.4**	-0.3	-0.3	0.0	-0.2	-0.2	**0.0**	**0.1**	-0.2	**0.1**	**1.4**
20%	-0.1	**0.0**	**0.1**	-0.1	**0.1**	0.0	0.0	-0.2	-0.2	**0.3**	-0.3	0.0
30%	-0.2	**0.0**	0.0	**0.0**	**0.0**	**0.0**	**0.0**	-0.3	-0.1	**0.1**	**0.1**	0.0
40%	-0.1	-0.1	-0.5	0.0	0.0	0.0	-0.1	-0.2	-0.1	**0.3**	**0.2**	**0.4**
50%	**0.0**	**0.0**	-0.3	-0.1	**0.1**	**0.0**	0.0	-0.1	-0.1	**0.2**	0.0	**0.6**
60%	**0.1**	-0.4	0.0	**0.1**	0.0	**0.1**	-0.1	-0.1	0.0	**0.2**	**0.0**	**0.7**
70%	-0.3	-0.4	0.0	-0.1	**0.0**	-0.1	**0.0**	-0.1	-0.1	**0.1**	0.0	**0.7**
80%	-0.2	-0.3	-0.1	0.0	0.0	**0.0**	-0.1	-0.1	-0.3	**0.1**	-0.1	**0.6**
90%	-0.2	-0.1	**0.0**	-0.3	0.0	**0.0**	-0.2	-0.1	-0.1	**0.4**	-0.1	**0.6**
Long Term												
Full Simulation Period[a]	**0.0**	-0.1	-0.1	0.0	0.0	**0.0**	0.0	-0.1	-0.1	**0.2**	**0.0**	**0.5**
Water Year Types[b,c]												
Wet (32%)	-0.5	-0.9	-0.5	0.0	0.0	**0.0**	-0.1	**0.0**	0.0	**0.1**	0.0	**0.7**
Above Normal (16%)	-0.1	-0.5	-0.3	-0.2	-0.1	**0.0**	0.0	-0.1	-0.2	**0.2**	**0.1**	**1.2**
Below Normal (13%)	**0.4**	**0.6**	**0.4**	-0.2	-0.1	**0.0**	0.0	-0.2	0.0	**0.2**	-0.2	-0.1
Dry (24%)	**0.0**	**0.4**	**0.2**	0.0	**0.0**	**0.1**	0.0	-0.3	-0.2	**0.1**	**0.0**	-0.1
Critical (15%)	**1.0**	**0.3**	**0.0**	**0.1**	**0.1**	-0.1	-0.1	-0.1	**0.1**	**0.2**	**0.3**	**0.8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 5-4. Sacramento River below Keswick, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.1	56.1	53.6	50.2	48.2	49.1	50.3	50.5	52.0	53.9	54.4	54.6
20%	55.5	55.9	52.4	49.2	47.7	48.4	49.7	50.2	51.0	52.4	54.2	54.0
30%	55.2	55.7	52.0	48.6	47.3	48.1	49.3	49.8	50.5	51.9	53.0	53.6
40%	54.7	55.4	51.9	48.1	47.1	47.6	49.1	49.4	50.1	51.1	52.3	52.8
50%	54.4	55.1	51.5	47.8	46.8	47.1	48.7	49.1	49.9	50.8	51.9	52.0
60%	54.1	54.9	50.8	47.4	46.0	46.7	48.2	48.9	49.6	50.5	51.5	51.6
70%	53.9	54.6	50.6	47.1	45.8	46.4	47.9	48.7	49.4	50.1	51.3	51.0
80%	53.7	54.1	50.2	46.7	45.4	45.8	47.5	48.2	49.2	49.8	51.1	50.8
90%	53.5	53.4	49.4	46.0	44.7	45.4	46.8	47.8	48.5	49.3	50.8	50.4
Long Term												
Full Simulation Period[a]	54.9	55.1	51.4	47.9	46.6	47.2	48.6	49.3	50.1	51.2	52.6	52.9
Water Year Types[b,c]												
Wet (32%)	54.3	55.4	52.0	47.3	45.9	46.3	47.8	48.7	49.6	50.4	51.4	51.0
Above Normal (16%)	53.9	54.9	51.4	47.6	46.0	46.5	48.1	48.6	49.3	50.0	51.1	51.0
Below Normal (13%)	54.2	54.3	51.3	48.2	46.9	47.8	49.1	49.4	49.7	50.8	52.0	52.8
Dry (24%)	54.5	54.4	50.8	48.4	47.3	47.8	49.1	49.5	50.1	51.4	53.0	53.2
Critical (15%)	58.9	56.3	51.5	48.2	47.1	48.1	49.5	50.7	52.3	53.9	56.2	58.4

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.4	56.3	53.5	50.2	48.5	49.1	50.2	50.6	51.8	52.5	53.4	55.0
20%	54.0	56.0	52.9	49.5	48.1	48.6	49.8	50.2	51.0	51.9	52.4	54.0
30%	53.6	55.5	52.2	48.9	47.5	48.0	49.6	49.8	50.5	51.7	51.9	53.1
40%	52.9	55.3	51.8	48.5	47.2	47.5	49.0	49.5	50.2	51.3	51.7	52.8
50%	52.7	55.0	51.5	48.0	46.8	47.1	48.4	49.2	49.9	51.0	51.6	52.0
60%	52.6	54.5	51.1	47.7	46.2	46.7	48.0	49.0	49.7	50.9	51.5	51.7
70%	52.5	54.1	50.8	47.4	45.8	46.3	47.8	48.7	49.5	50.3	51.4	51.4
80%	52.4	53.8	50.6	46.8	45.5	45.8	47.2	48.3	49.3	49.9	51.2	51.1
90%	52.4	53.4	49.7	45.7	44.6	45.4	46.5	47.9	48.7	49.6	50.9	50.8
Long Term												
Full Simulation Period[a]	53.7	54.9	51.6	48.1	46.7	47.2	48.6	49.3	50.1	51.1	52.0	52.9
Water Year Types[b,c]												
Wet (32%)	52.8	54.7	51.8	47.5	46.0	46.3	47.6	48.7	49.7	50.5	51.4	51.5
Above Normal (16%)	52.5	54.1	51.2	47.6	46.1	46.5	48.1	48.8	49.5	50.2	51.4	51.8
Below Normal (13%)	53.0	54.7	51.7	48.4	47.1	47.8	49.2	49.3	49.7	50.8	51.6	52.5
Dry (24%)	53.3	54.8	51.5	48.6	47.4	47.8	49.1	49.6	50.0	51.3	51.9	52.8
Critical (15%)	58.4	56.2	52.0	49.0	47.6	48.3	49.9	50.9	52.0	53.1	54.8	57.6

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.4**	**0.2**	-0.1	**0.1**	**0.3**	**0.0**	-0.1	**0.1**	-0.1	-1.4	-1.1	**0.3**
20%	-1.5	**0.1**	**0.5**	**0.3**	**0.4**	**0.2**	**0.1**	**0.1**	**0.0**	-0.4	-1.8	-0.1
30%	-1.6	-0.2	**0.2**	**0.3**	**0.2**	-0.1	**0.2**	**0.1**	**0.1**	-0.2	-1.2	-0.5
40%	-1.8	-0.1	-0.1	**0.4**	**0.2**	-0.1	-0.2	**0.1**	**0.1**	**0.3**	-0.6	**0.0**
50%	-1.6	-0.1	**0.0**	**0.2**	0.0	**0.0**	-0.3	**0.1**	**0.1**	**0.2**	-0.3	**0.0**
60%	-1.5	-0.4	**0.3**	**0.3**	**0.2**	0.0	-0.2	**0.1**	**0.1**	**0.4**	0.0	**0.1**
70%	-1.4	-0.5	**0.2**	**0.3**	**0.0**	-0.1	-0.1	**0.0**	**0.1**	**0.2**	**0.1**	**0.3**
80%	-1.3	-0.3	**0.3**	**0.0**	**0.2**	**0.1**	-0.3	**0.1**	**0.1**	**0.1**	**0.2**	**0.3**
90%	-1.1	**0.0**	**0.3**	-0.3	0.0	0.0	-0.2	**0.1**	**0.2**	**0.3**	**0.1**	**0.4**
Long Term												
Full Simulation Period[a]	-1.2	-0.2	**0.2**	**0.2**	**0.2**	**0.0**	0.0	**0.1**	**0.0**	-0.1	-0.5	**0.0**
Water Year Types[b,c]												
Wet (32%)	-1.5	-0.6	-0.2	**0.2**	**0.1**	0.0	-0.3	0.0	**0.1**	**0.1**	-0.1	**0.5**
Above Normal (16%)	-1.4	-0.7	-0.2	**0.0**	**0.1**	0.0	-0.1	**0.2**	**0.2**	**0.2**	**0.2**	**0.8**
Below Normal (13%)	-1.1	**0.4**	**0.4**	**0.2**	**0.1**	**0.0**	**0.1**	-0.1	**0.0**	0.0	-0.4	-0.3
Dry (24%)	-1.2	**0.4**	**0.7**	**0.2**	**0.2**	0.0	**0.0**	**0.1**	0.0	-0.1	-1.1	-0.5
Critical (15%)	-0.6	0.0	**0.5**	**0.8**	**0.5**	**0.2**	**0.4**	**0.2**	-0.3	-0.8	-1.5	-0.8

a Based on the 82-year simulation period.

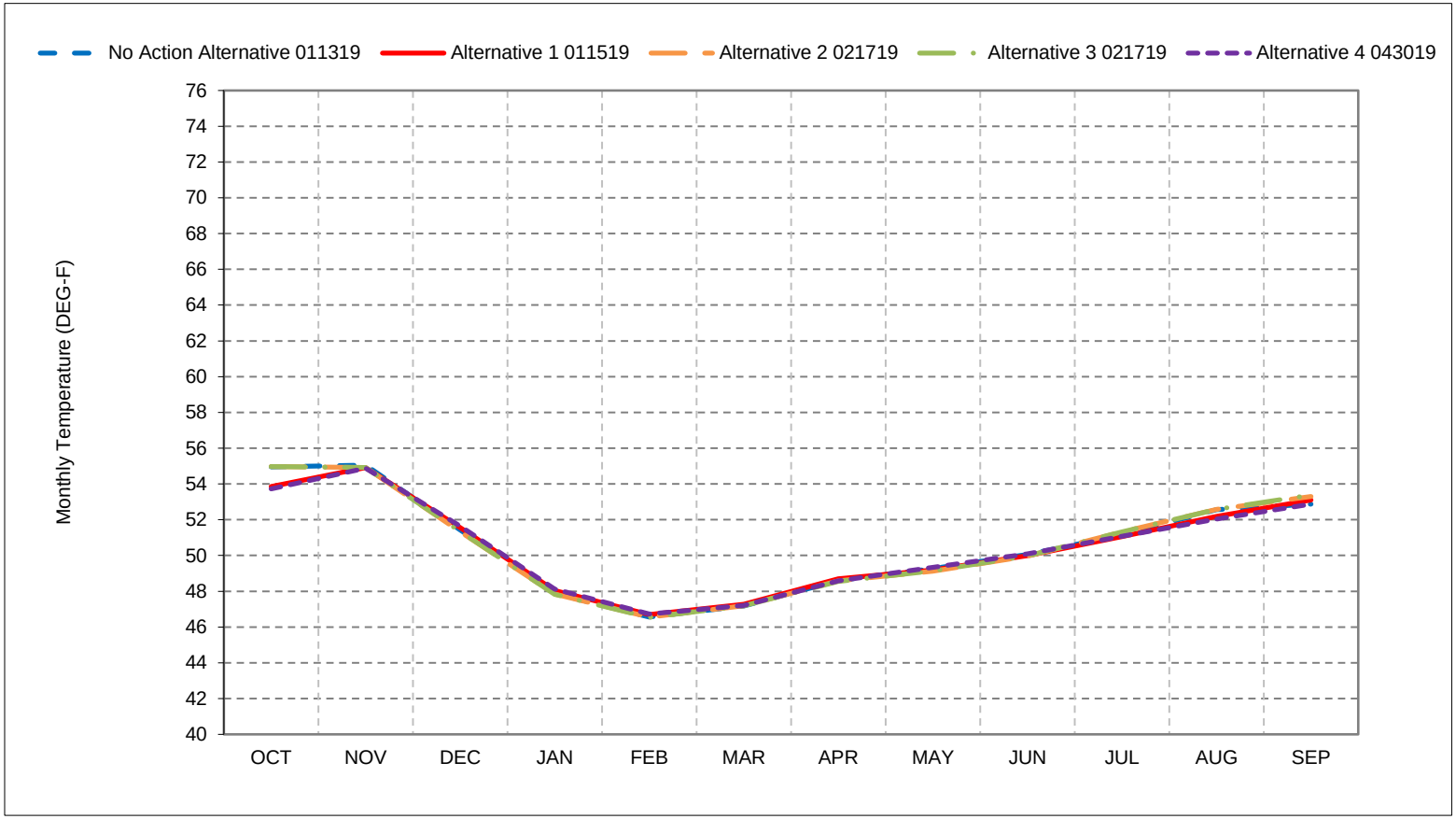
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

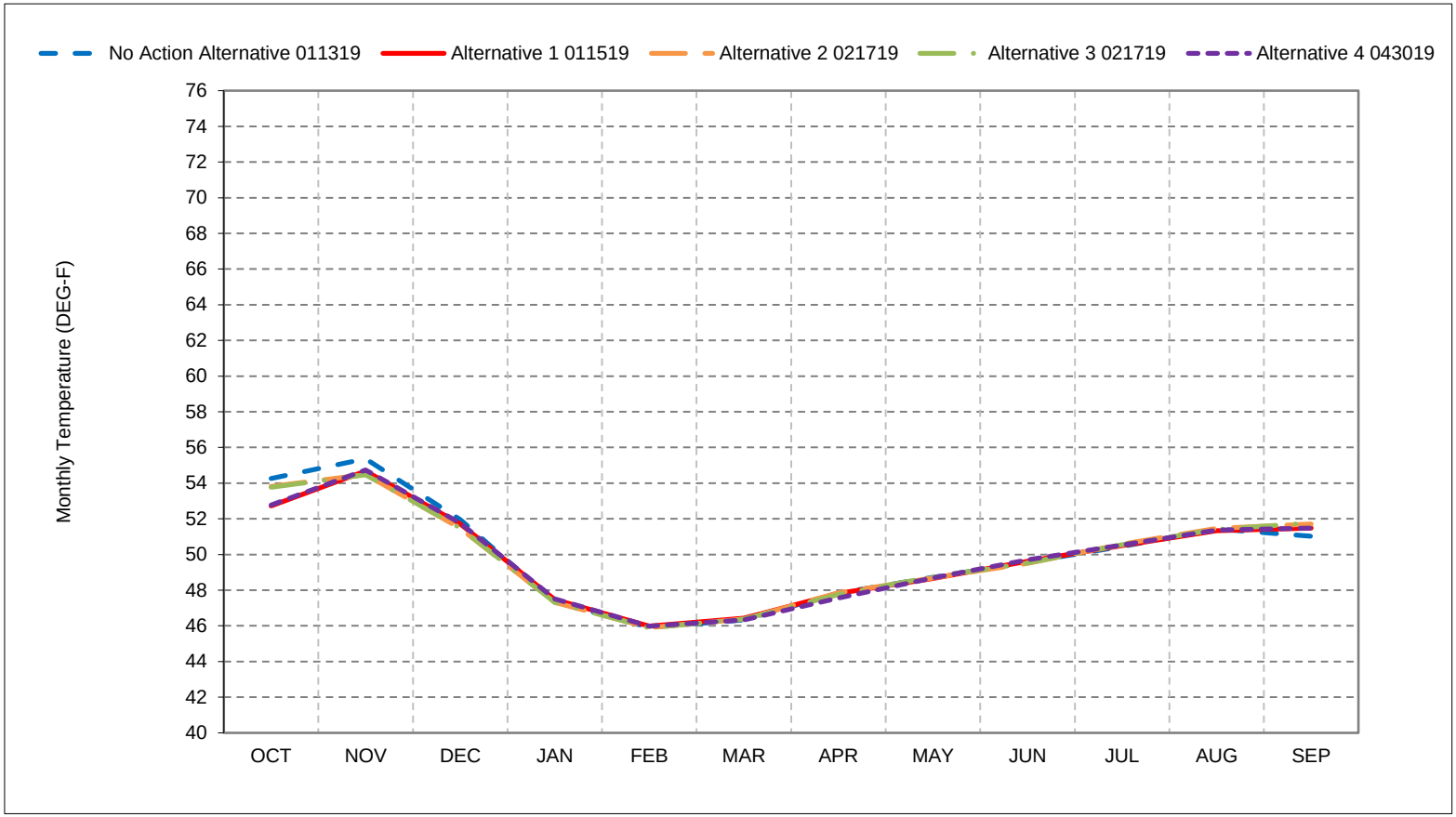
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-1. Sacramento River below Keswick, Long-Term Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-2. Sacramento River below Keswick, Wet Year Average Temperature



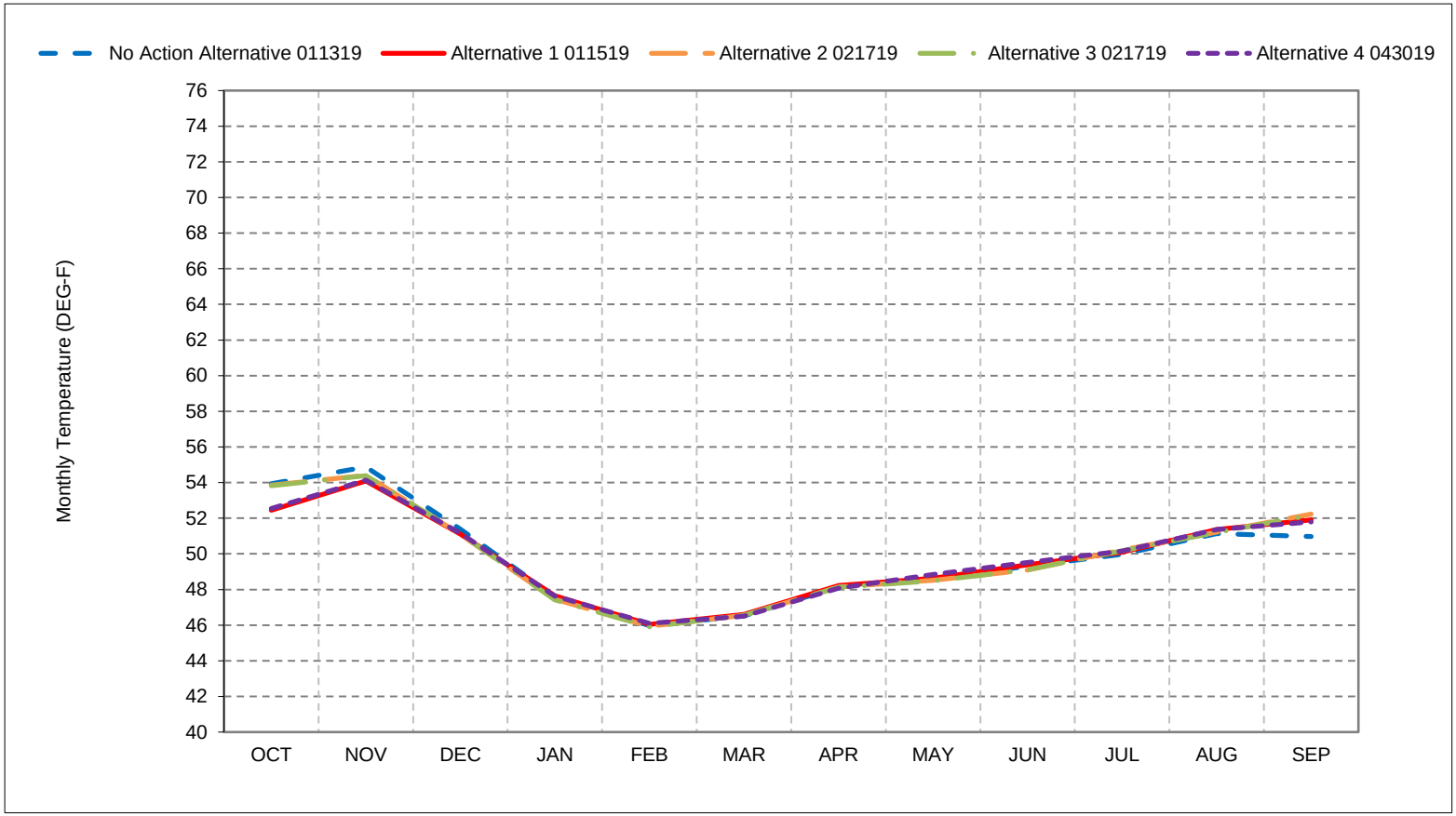
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-3. Sacramento River below Keswick, Above Normal Year Average Temperature



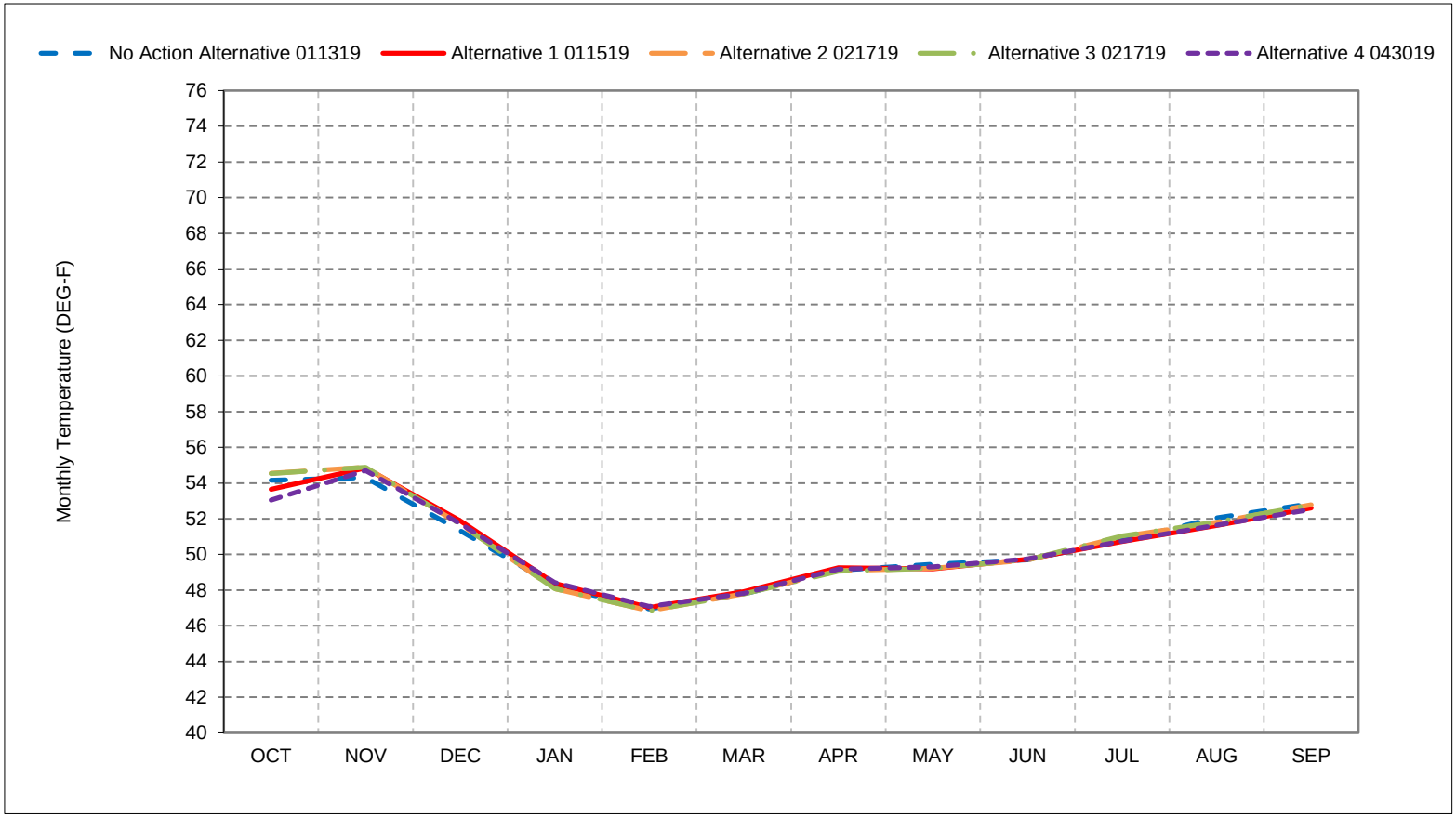
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-4. Sacramento River below Keswick, Below Normal Year Average Temperature



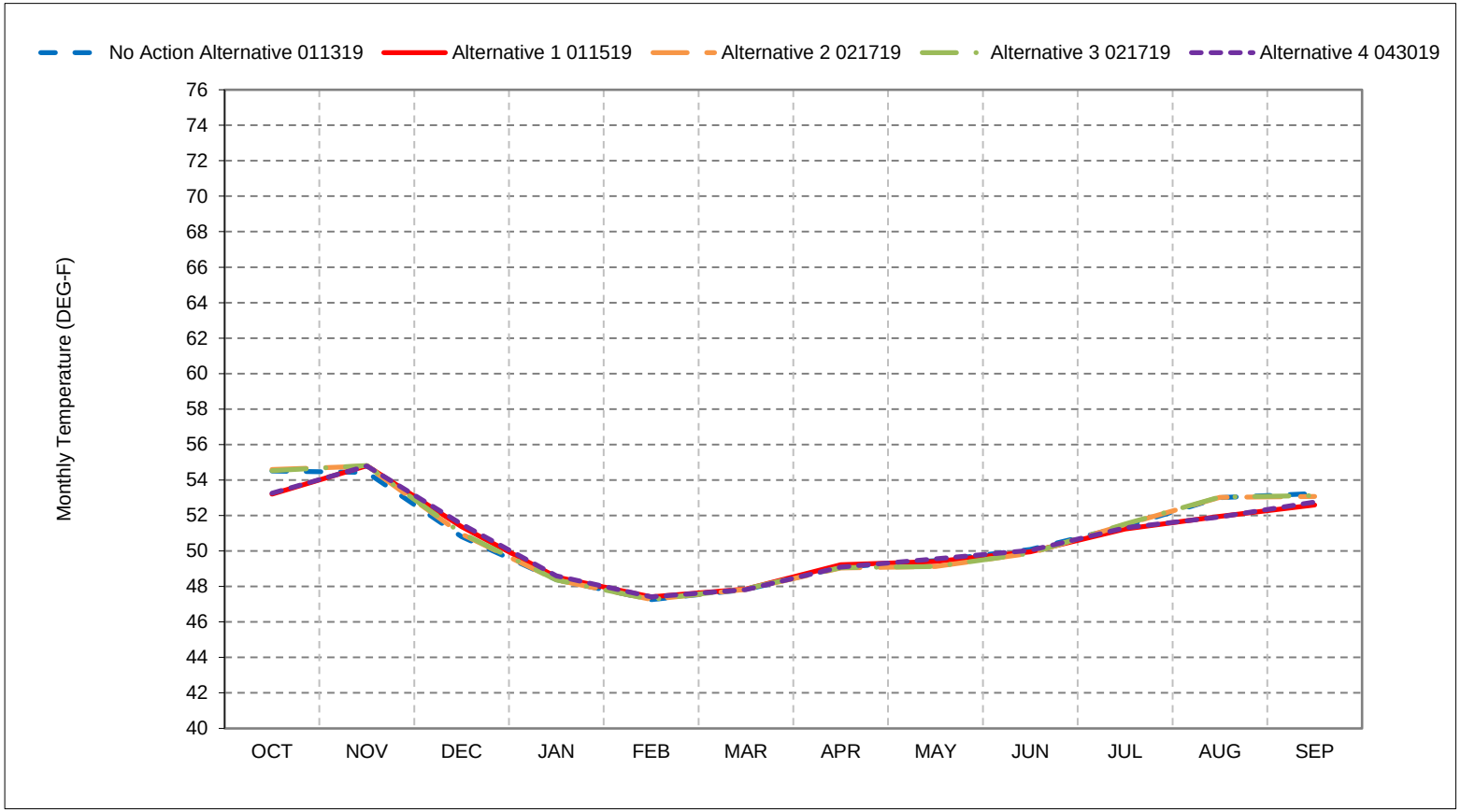
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-5. Sacramento River below Keswick, Dry Year Average Temperature



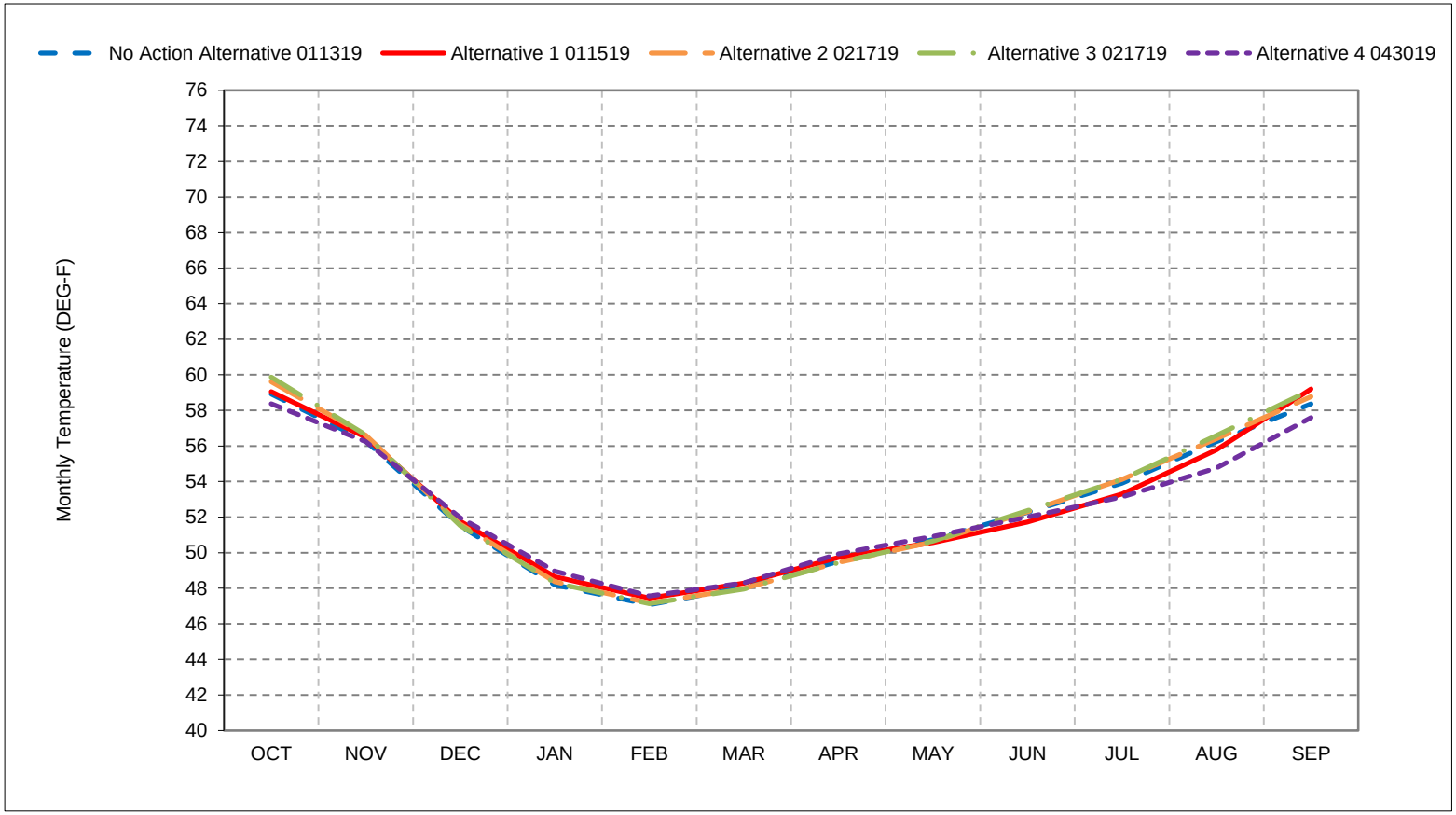
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-6. Sacramento River below Keswick, Critical Year Average Temperature



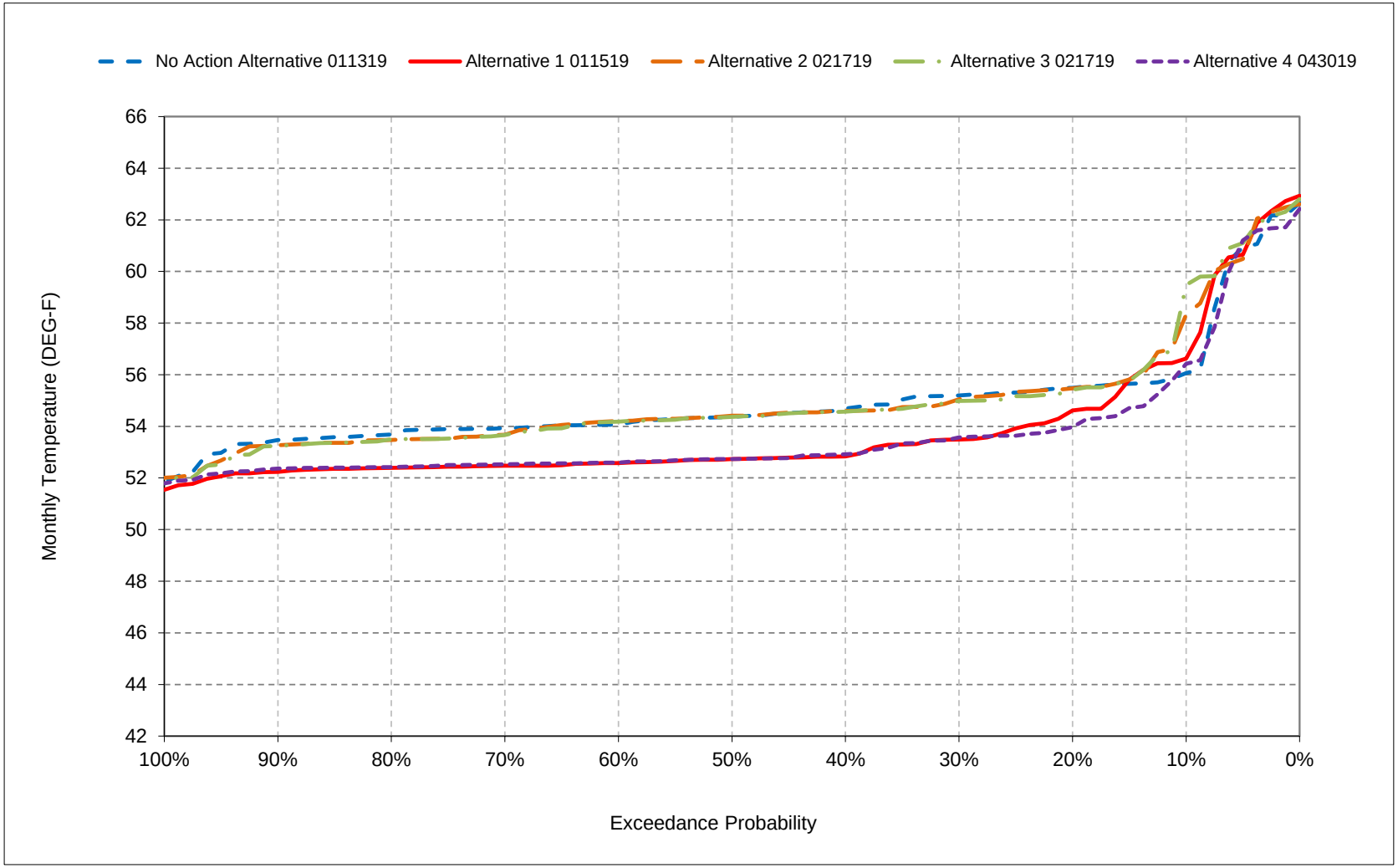
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

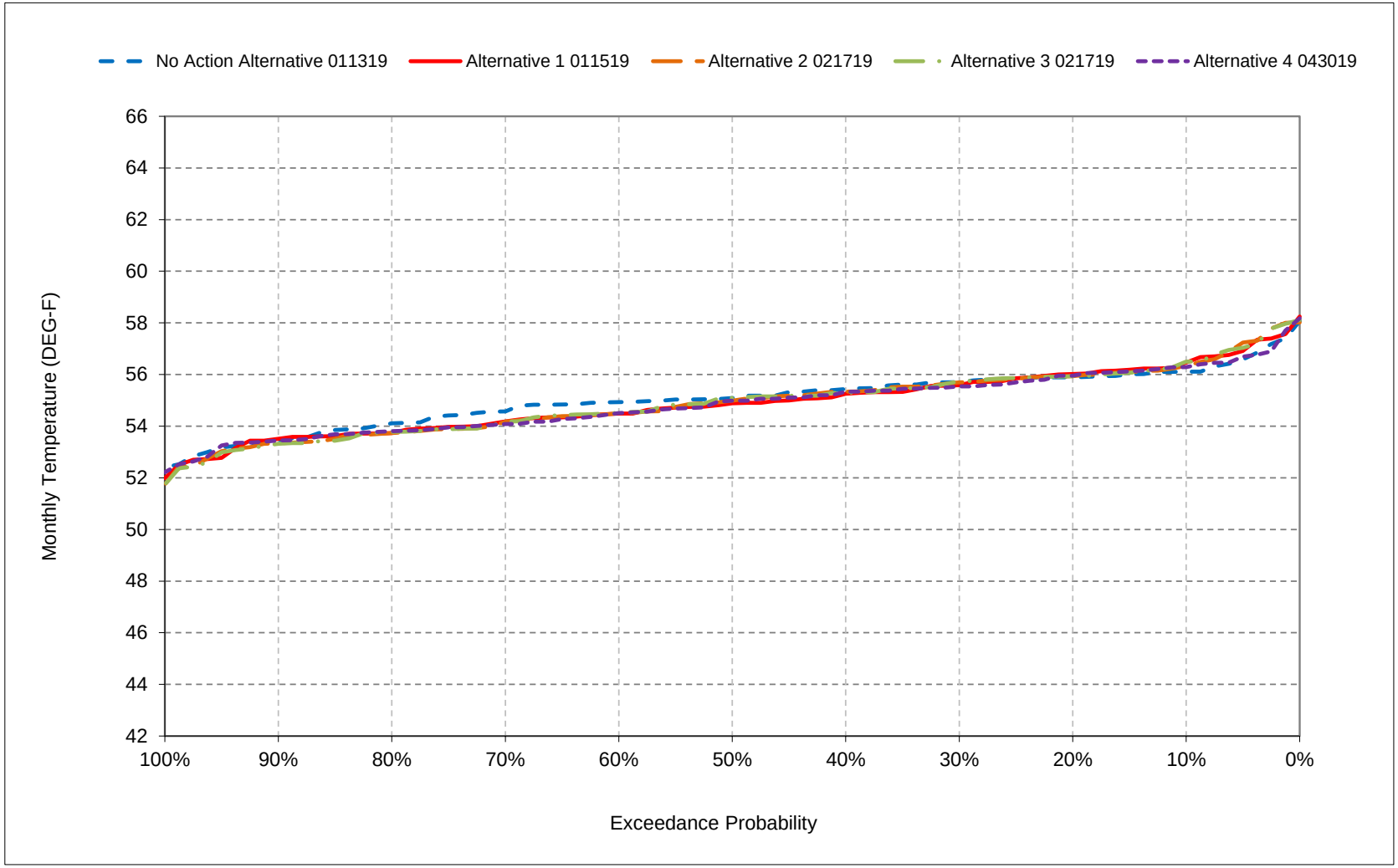
Figure 5-7. Sacramento River below Keswick, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

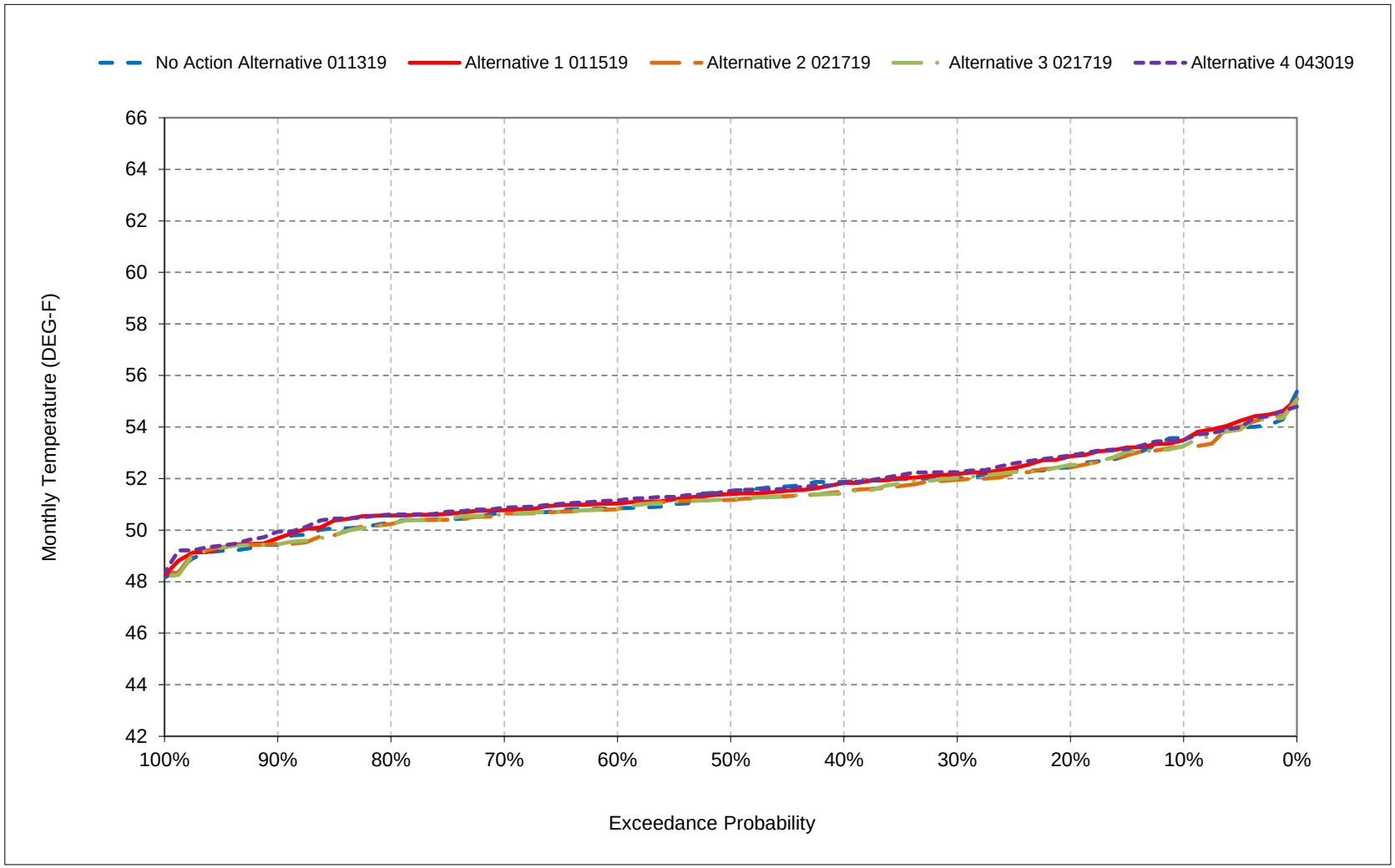
Figure 5-8. Sacramento River below Keswick, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

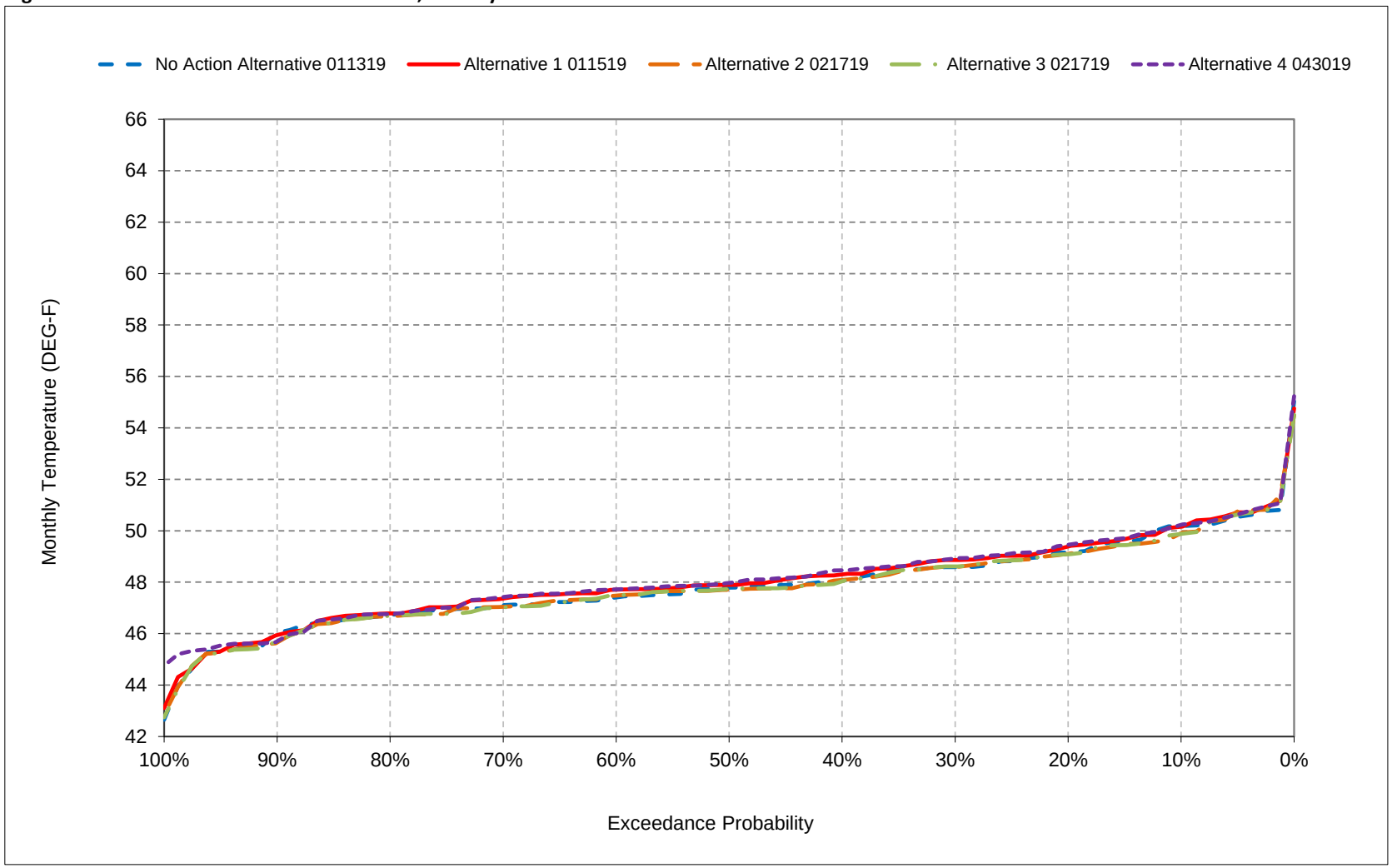
Figure 5-9. Sacramento River below Keswick, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

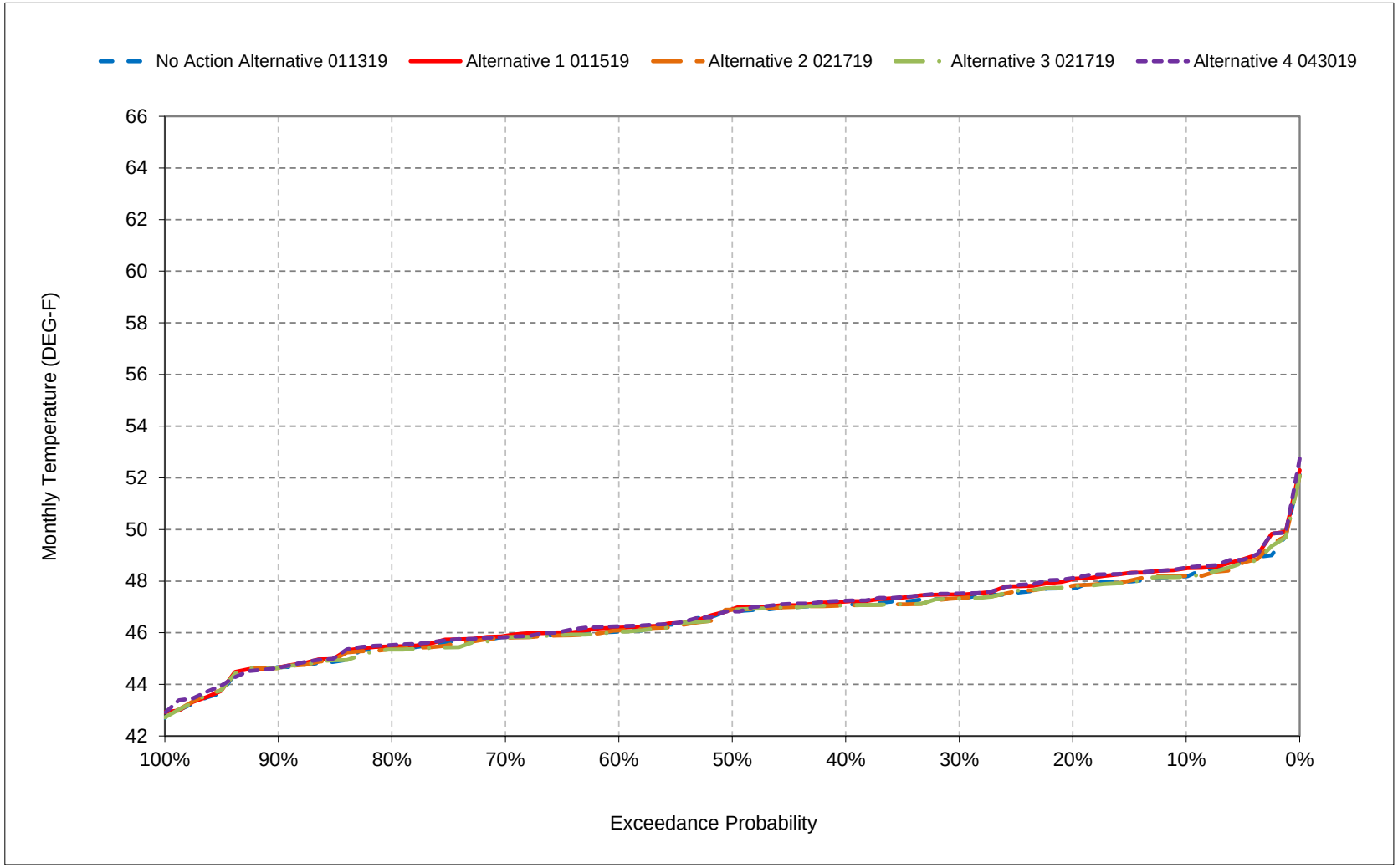
Figure 5-10. Sacramento River below Keswick, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

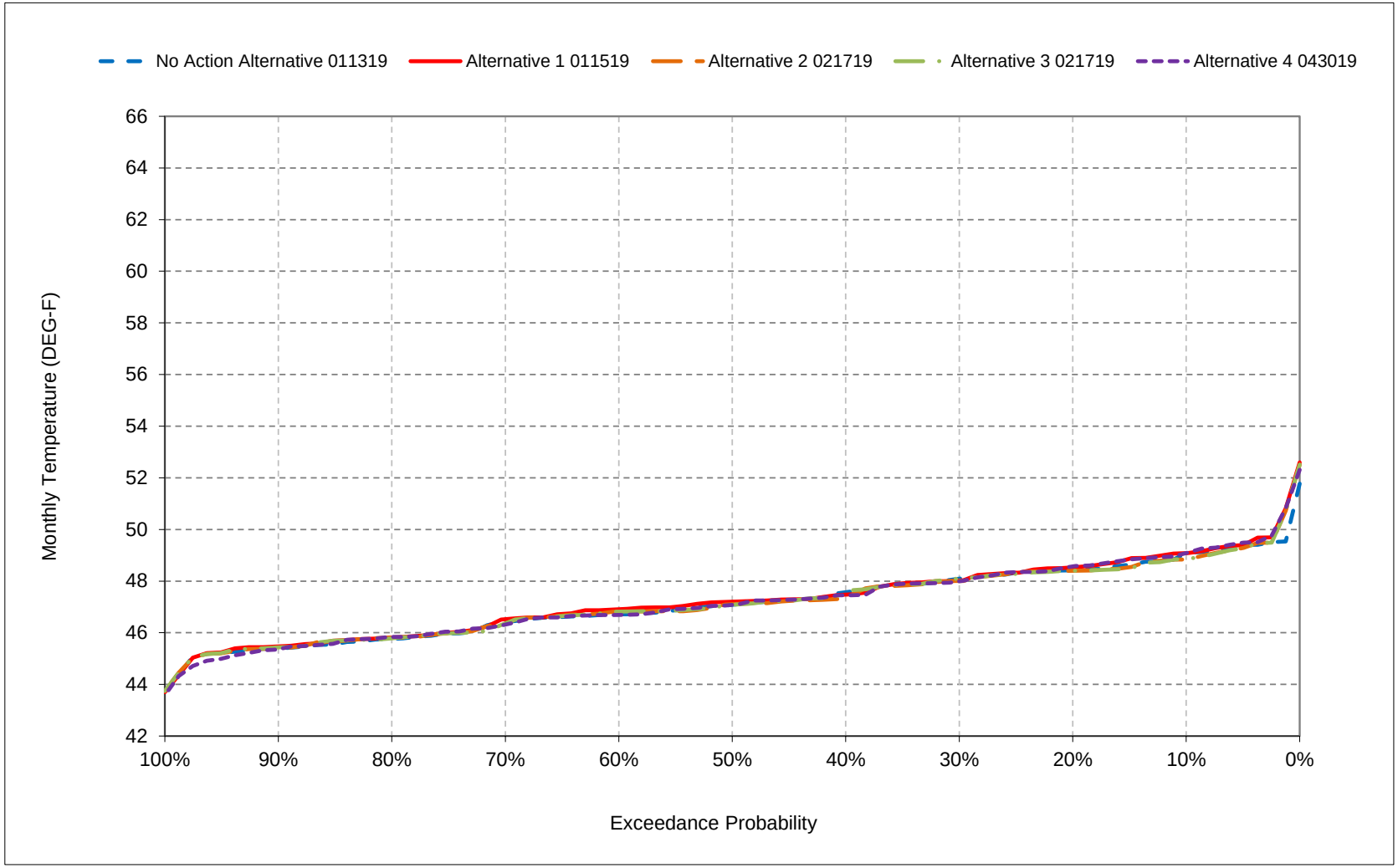
Figure 5-11. Sacramento River below Keswick, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

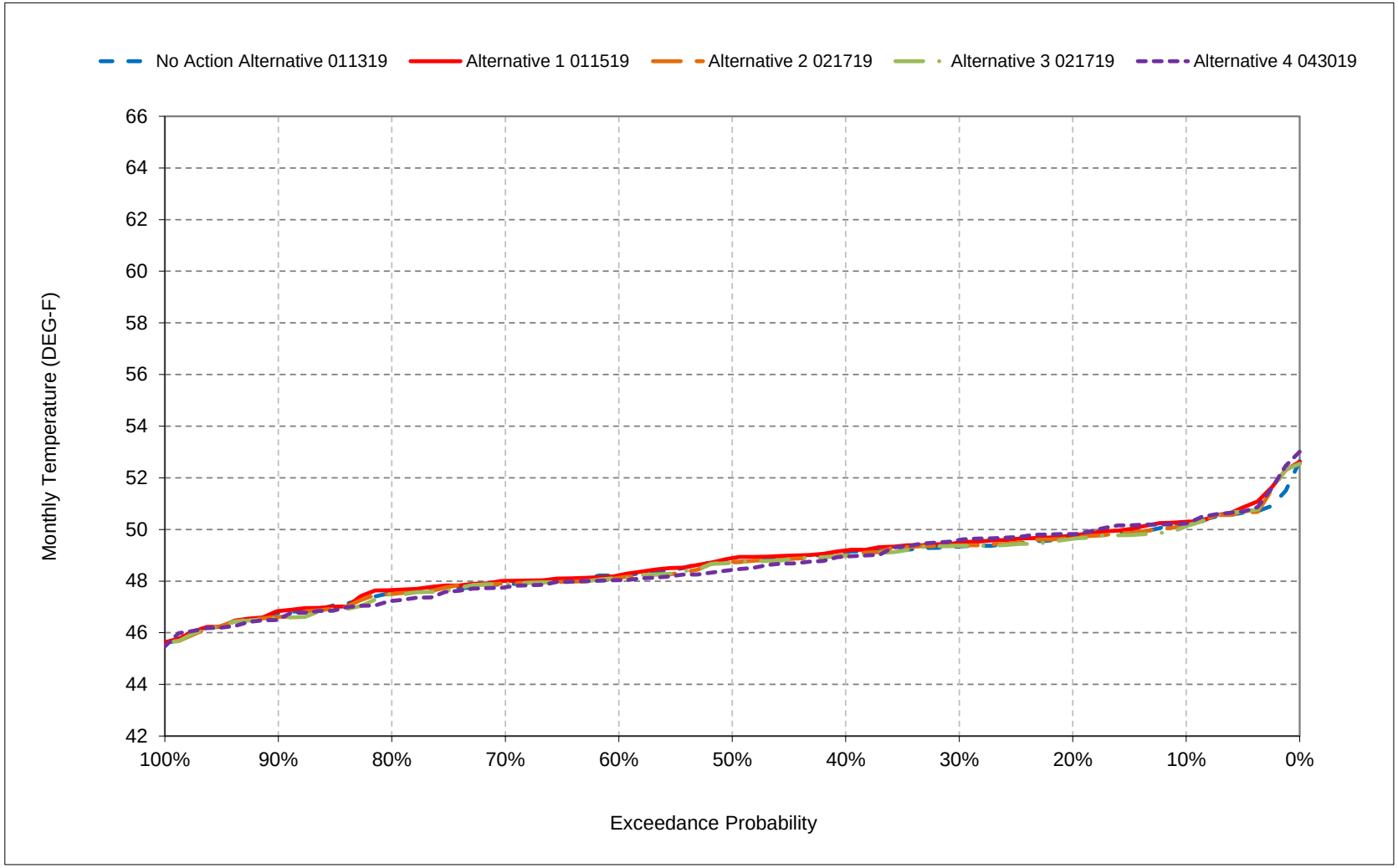
Figure 5-12. Sacramento River below Keswick, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

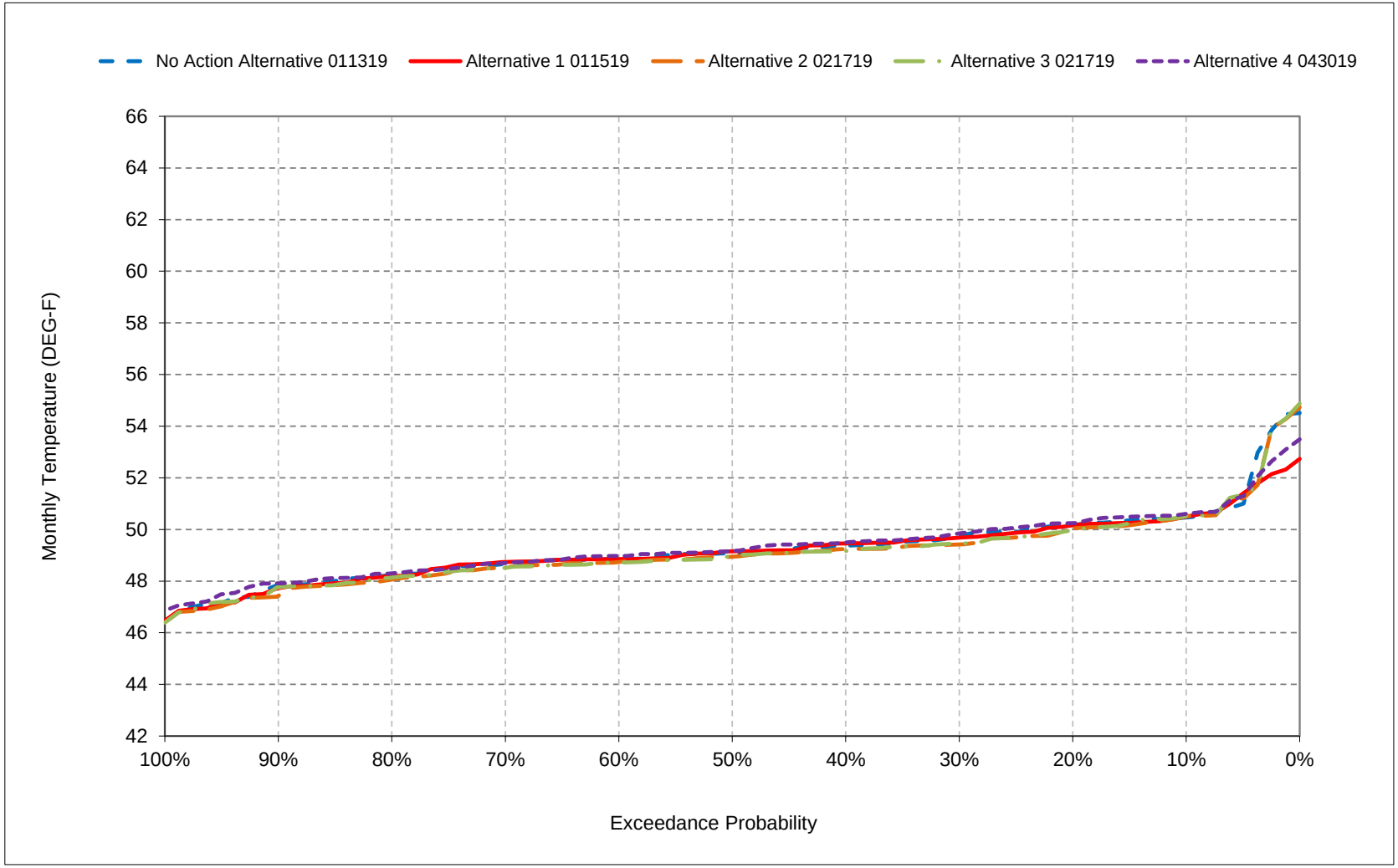
Figure 5-13. Sacramento River below Keswick, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

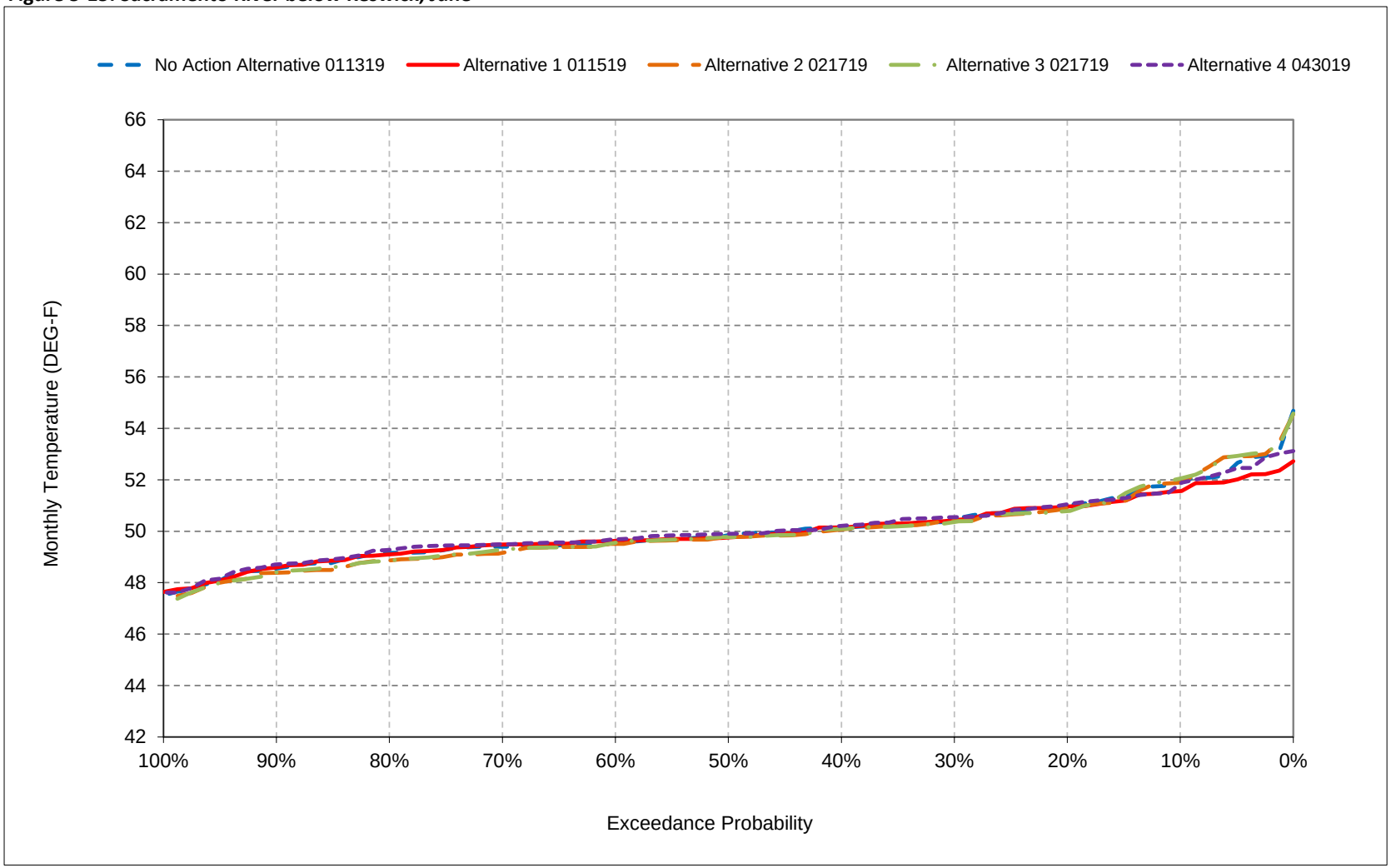
Figure 5-14. Sacramento River below Keswick, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

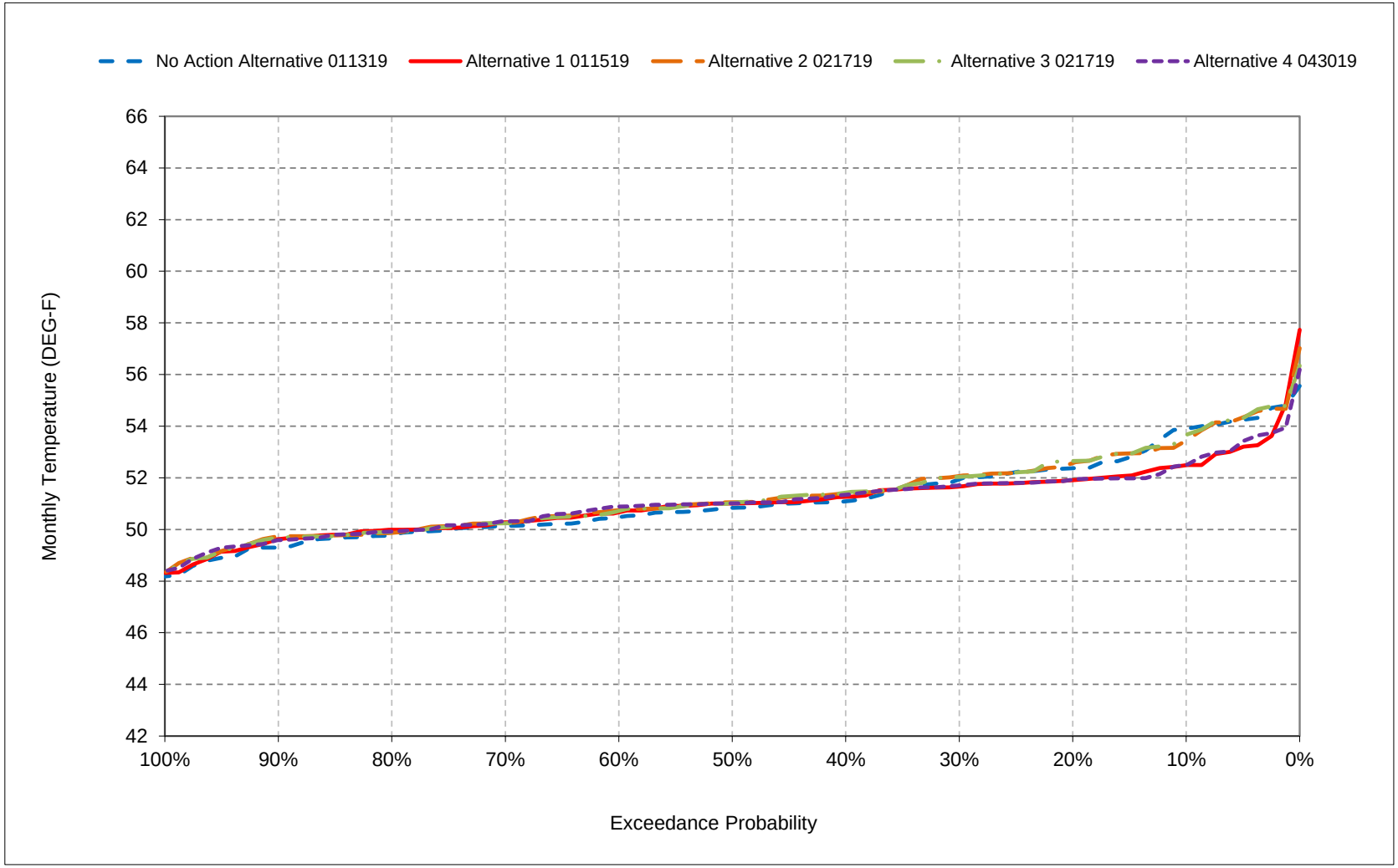
Figure 5-15. Sacramento River below Keswick, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

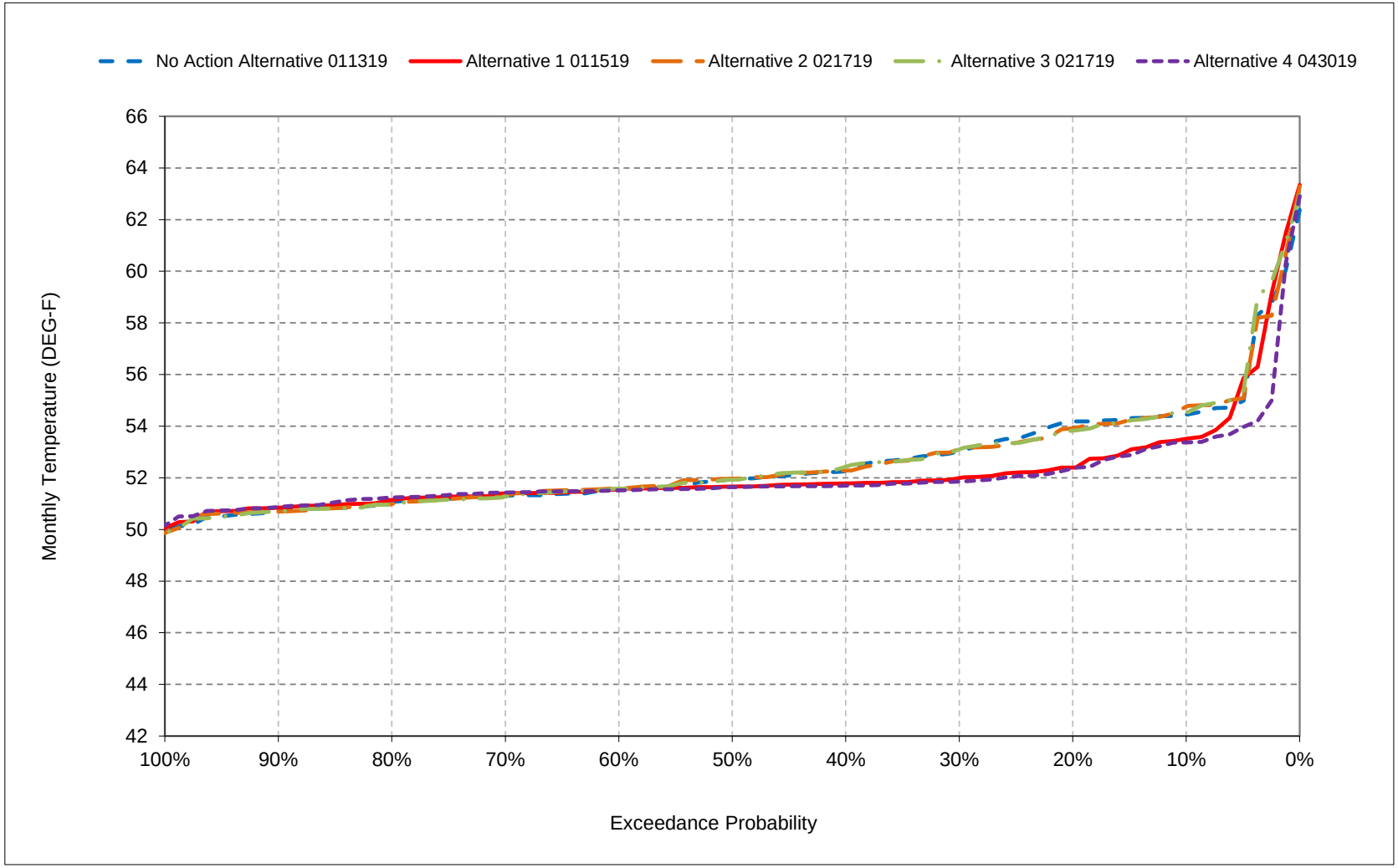
Figure 5-16. Sacramento River below Keswick, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

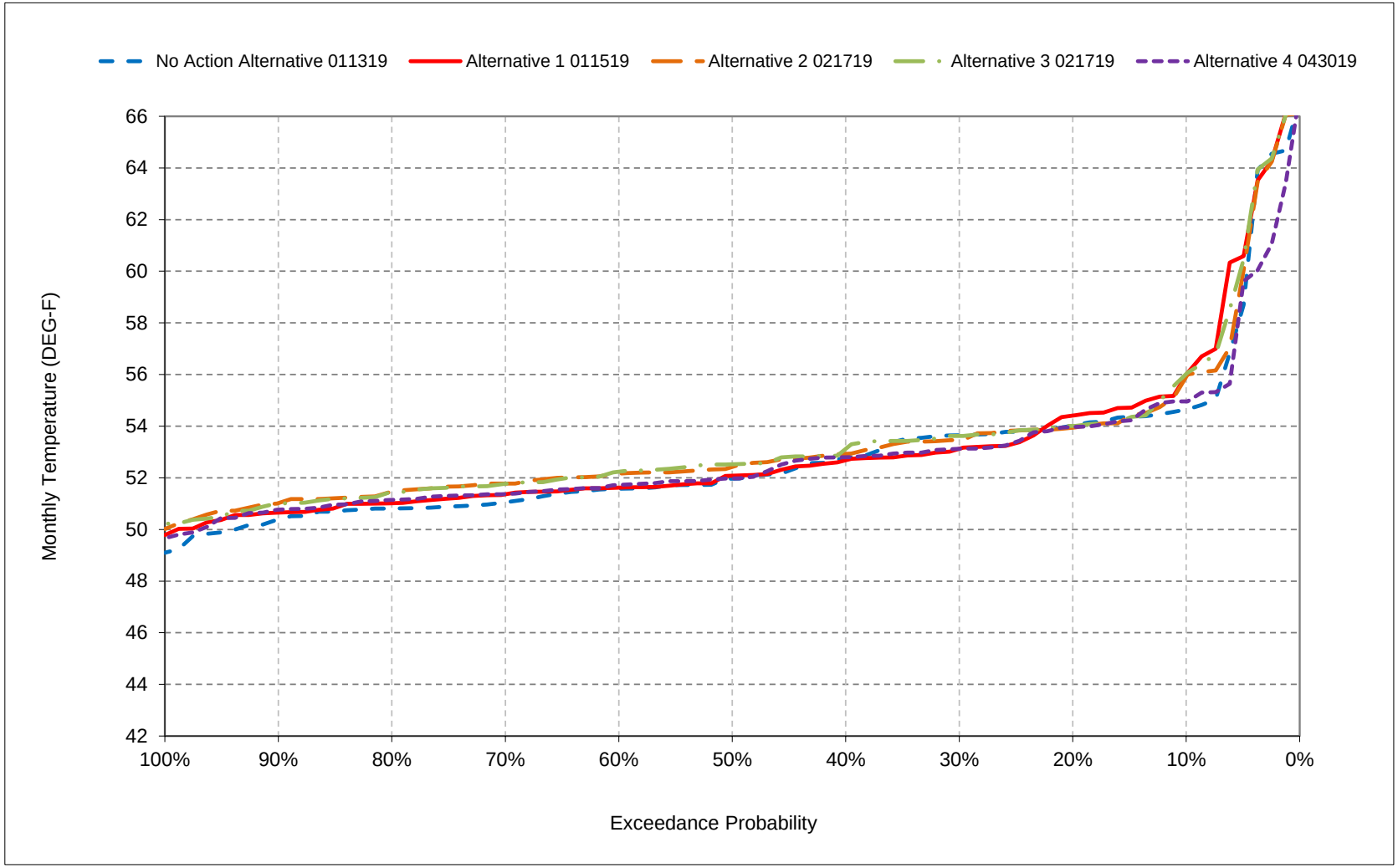
Figure 5-17. Sacramento River below Keswick, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-18. Sacramento River below Keswick, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 6-1. Sacramento River at Clear Creek, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.8	56.1	53.1	50.0	48.8	50.2	52.5	52.5	53.9	55.5	56.3	56.4
20%	56.1	55.8	52.2	49.0	48.3	49.7	51.8	51.8	52.8	53.9	55.6	55.8
30%	55.7	55.6	51.7	48.6	48.0	49.3	51.3	51.5	52.1	53.4	54.5	55.3
40%	55.2	55.3	51.4	48.1	47.8	48.9	51.1	51.0	51.8	52.6	54.0	54.2
50%	54.8	55.0	51.0	47.8	47.2	48.2	50.7	50.9	51.5	52.3	53.4	53.6
60%	54.6	54.7	50.6	47.4	46.6	47.8	50.0	50.6	51.4	51.9	53.1	52.7
70%	54.4	54.4	50.4	47.1	46.2	47.1	49.8	50.2	51.1	51.5	52.8	52.1
80%	54.2	54.0	50.0	46.7	45.5	46.5	48.9	49.9	50.8	51.3	52.5	51.7
90%	53.9	53.4	49.4	46.1	45.1	46.0	47.4	49.1	50.4	50.8	52.1	51.3
Long Term												
Full Simulation Period[a]	55.5	54.9	51.1	47.9	47.0	48.2	50.3	50.9	51.8	52.6	54.1	54.2
Water Year Types[b,c]												
Wet (32%)	54.7	55.3	51.6	47.3	46.2	47.0	49.2	50.3	51.4	51.9	52.9	51.9
Above Normal (16%)	54.4	54.7	51.0	47.7	46.4	47.4	49.9	50.3	51.0	51.3	52.6	52.1
Below Normal (13%)	54.7	54.2	51.0	48.1	47.4	49.0	51.1	51.0	51.3	52.1	53.5	54.5
Dry (24%)	55.2	54.3	50.6	48.3	47.9	49.1	51.0	51.2	51.7	52.8	54.6	55.0
Critical (15%)	59.4	56.1	51.2	48.2	47.8	49.5	51.4	52.4	54.0	55.5	57.8	59.8

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.1	56.5	53.3	50.1	49.0	50.4	52.3	52.6	53.4	54.1	55.3	58.0
20%	55.2	55.9	52.3	49.2	48.5	49.8	51.8	51.7	52.7	53.5	54.0	55.8
30%	54.1	55.4	51.8	48.7	48.1	49.2	51.4	51.4	52.1	53.1	53.6	55.0
40%	53.6	54.9	51.4	48.3	47.6	48.7	51.1	51.0	51.7	52.7	53.4	54.5
50%	53.5	54.7	51.0	47.9	47.2	48.1	50.8	50.9	51.5	52.4	53.2	53.7
60%	53.4	54.3	50.7	47.6	46.7	47.9	50.2	50.4	51.2	52.2	53.0	53.5
70%	53.2	54.0	50.6	47.4	46.2	47.2	49.8	50.2	51.0	51.5	52.8	52.9
80%	52.9	53.6	50.2	46.8	45.6	46.5	49.0	49.7	50.7	51.3	52.7	52.6
90%	52.7	53.4	49.4	46.0	45.1	46.1	47.4	49.0	50.4	51.0	52.2	51.8
Long Term												
Full Simulation Period[a]	54.5	54.8	51.3	48.0	47.2	48.2	50.4	50.8	51.6	52.5	53.7	54.7
Water Year Types[b,c]												
Wet (32%)	53.3	54.6	51.4	47.5	46.3	47.1	49.2	50.2	51.5	52.0	52.8	52.9
Above Normal (16%)	53.1	53.9	50.8	47.7	46.4	47.4	49.9	50.3	51.0	51.4	52.8	53.7
Below Normal (13%)	54.3	54.7	51.5	48.2	47.4	49.0	51.1	50.6	51.2	52.1	53.0	54.2
Dry (24%)	54.0	54.6	51.1	48.4	48.0	49.0	51.2	51.1	51.5	52.7	53.6	54.4
Critical (15%)	59.5	56.3	51.4	48.6	48.2	49.6	51.6	52.2	53.4	55.0	57.4	60.5

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.3**	**0.4**	**0.2**	**0.1**	**0.2**	**0.2**	-0.1	**0.1**	-0.5	-1.4	-0.9	**1.6**
20%	-0.9	**0.1**	**0.1**	**0.2**	**0.2**	**0.1**	0.0	-0.2	-0.1	-0.5	-1.6	**0.1**
30%	-1.6	-0.1	**0.1**	**0.1**	**0.1**	-0.1	**0.1**	-0.1	**0.0**	-0.3	-1.0	-0.3
40%	-1.6	-0.4	**0.0**	**0.2**	-0.2	-0.2	**0.0**	**0.0**	-0.2	**0.1**	-0.5	**0.3**
50%	-1.4	-0.3	**0.0**	**0.2**	**0.0**	-0.1	**0.0**	0.0	0.0	**0.2**	-0.2	**0.1**
60%	-1.2	-0.4	**0.1**	**0.2**	**0.1**	**0.1**	**0.2**	-0.2	-0.2	**0.3**	-0.1	**0.7**
70%	-1.2	-0.5	**0.2**	**0.2**	**0.1**	**0.1**	-0.1	0.0	-0.1	**0.1**	**0.0**	**0.8**
80%	-1.3	-0.4	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	-0.2	0.0	**0.0**	**0.1**	**1.0**
90%	-1.2	**0.1**	**0.0**	-0.1	**0.1**	**0.1**	**0.1**	-0.1	0.0	**0.1**	**0.2**	**0.5**
Long Term												
Full Simulation Period[a]	-1.0	-0.2	**0.1**	**0.1**	**0.1**	**0.0**	**0.1**	-0.2	-0.1	-0.1	-0.4	**0.5**
Water Year Types[b,c]												
Wet (32%)	-1.4	-0.7	-0.2	**0.1**	**0.1**	**0.1**	0.0	-0.1	**0.0**	**0.1**	-0.1	**1.0**
Above Normal (16%)	-1.4	-0.8	-0.3	**0.0**	**0.0**	**0.0**	**0.1**	-0.1	**0.0**	**0.1**	**0.2**	**1.7**
Below Normal (13%)	-0.4	**0.5**	**0.5**	**0.1**	**0.0**	0.0	**0.0**	-0.4	-0.1	-0.1	-0.4	-0.3
Dry (24%)	-1.2	**0.3**	**0.5**	**0.1**	**0.1**	0.0	**0.1**	-0.2	-0.2	-0.1	-1.0	-0.6
Critical (15%)	**0.1**	**0.2**	**0.2**	**0.4**	**0.3**	**0.2**	**0.2**	-0.2	-0.6	-0.5	-0.4	**0.8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6-2. Sacramento River at Clear Creek, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.8	56.1	53.1	50.0	48.8	50.2	52.5	52.5	53.9	55.5	56.3	56.4
20%	56.1	55.8	52.2	49.0	48.3	49.7	51.8	51.8	52.8	53.9	55.6	55.8
30%	55.7	55.6	51.7	48.6	48.0	49.3	51.3	51.5	52.1	53.4	54.5	55.3
40%	55.2	55.3	51.4	48.1	47.8	48.9	51.1	51.0	51.8	52.6	54.0	54.2
50%	54.8	55.0	51.0	47.8	47.2	48.2	50.7	50.9	51.5	52.3	53.4	53.6
60%	54.6	54.7	50.6	47.4	46.6	47.8	50.0	50.6	51.4	51.9	53.1	52.7
70%	54.4	54.4	50.4	47.1	46.2	47.1	49.8	50.2	51.1	51.5	52.8	52.1
80%	54.2	54.0	50.0	46.7	45.5	46.5	48.9	49.9	50.8	51.3	52.5	51.7
90%	53.9	53.4	49.4	46.1	45.1	46.0	47.4	49.1	50.4	50.8	52.1	51.3
Long Term												
Full Simulation Period[a]	55.5	54.9	51.1	47.9	47.0	48.2	50.3	50.9	51.8	52.6	54.1	54.2
Water Year Types[b,c]												
Wet (32%)	54.7	55.3	51.6	47.3	46.2	47.0	49.2	50.3	51.4	51.9	52.9	51.9
Above Normal (16%)	54.4	54.7	51.0	47.7	46.4	47.4	49.9	50.3	51.0	51.3	52.6	52.1
Below Normal (13%)	54.7	54.2	51.0	48.1	47.4	49.0	51.1	51.0	51.3	52.1	53.5	54.5
Dry (24%)	55.2	54.3	50.6	48.3	47.9	49.1	51.0	51.2	51.7	52.8	54.6	55.0
Critical (15%)	59.4	56.1	51.2	48.2	47.8	49.5	51.4	52.4	54.0	55.5	57.8	59.8

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.8	56.3	52.9	49.9	48.9	50.1	52.4	52.5	53.8	54.9	56.5	57.5
20%	56.1	55.9	52.2	49.1	48.4	49.7	51.7	51.5	52.4	53.9	55.3	55.8
30%	55.6	55.5	51.7	48.6	48.0	49.3	51.5	51.2	52.0	53.4	54.4	55.1
40%	55.1	55.2	51.2	48.1	47.8	48.6	51.1	50.8	51.5	52.8	53.8	54.6
50%	54.9	54.8	51.0	47.8	47.2	48.2	50.7	50.6	51.4	52.5	53.4	54.0
60%	54.7	54.4	50.7	47.5	46.6	47.9	50.0	50.3	51.1	52.3	53.1	53.7
70%	54.3	54.1	50.4	47.2	46.2	47.1	49.6	50.1	50.9	51.7	52.8	53.4
80%	53.9	53.7	50.0	46.7	45.6	46.5	48.9	49.3	50.4	51.3	52.4	53.0
90%	53.8	53.3	49.4	45.9	45.1	46.0	47.4	48.9	49.9	51.0	52.1	52.3
Long Term												
Full Simulation Period[a]	55.5	54.8	51.1	47.9	47.1	48.2	50.4	50.7	51.5	52.7	54.0	54.8
Water Year Types[b,c]												
Wet (32%)	54.4	54.5	51.3	47.3	46.2	47.1	49.3	50.2	51.2	52.1	52.9	53.1
Above Normal (16%)	54.4	54.3	50.9	47.6	46.3	47.5	49.9	50.1	50.6	51.5	52.6	53.9
Below Normal (13%)	55.2	54.8	51.4	48.1	47.3	49.0	51.0	50.6	51.1	52.3	53.1	54.2
Dry (24%)	55.3	54.7	50.8	48.3	48.0	49.2	51.0	50.7	51.4	52.9	54.7	54.7
Critical (15%)	60.1	56.5	51.3	48.4	48.0	49.3	51.4	52.2	53.9	55.6	57.9	60.1

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**2.1**	**0.2**	-0.2	-0.1	**0.1**	-0.1	0.0	0.0	0.0	-0.6	**0.2**	**1.1**
20%	**0.0**	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	-0.1	-0.3	-0.3	0.0	-0.3	**0.0**
30%	-0.1	0.0	0.0	**0.0**	0.0	0.0	**0.2**	-0.3	-0.1	**0.1**	-0.1	-0.2
40%	-0.1	-0.1	-0.2	**0.1**	**0.0**	-0.3	**0.0**	-0.2	-0.3	**0.1**	-0.1	**0.4**
50%	**0.1**	-0.2	**0.0**	0.0	-0.1	-0.1	0.0	-0.3	-0.2	**0.2**	**0.0**	**0.5**
60%	**0.1**	-0.4	**0.1**	**0.1**	**0.0**	**0.1**	0.0	-0.3	-0.3	**0.4**	**0.1**	**0.9**
70%	-0.1	-0.4	0.0	**0.0**	0.0	**0.0**	-0.2	-0.2	-0.2	**0.2**	0.0	**1.3**
80%	-0.3	-0.3	0.0	**0.0**	**0.1**	**0.0**	0.0	-0.6	-0.3	**0.0**	-0.1	**1.3**
90%	-0.1	0.0	**0.0**	-0.2	**0.0**	**0.0**	0.0	-0.2	-0.5	**0.2**	0.0	**0.9**
Long Term												
Full Simulation Period[a]	**0.1**	-0.1	0.0	**0.0**	**0.0**	**0.0**	**0.0**	-0.3	-0.2	**0.2**	0.0	**0.6**
Water Year Types[b,c]												
Wet (32%)	-0.3	-0.8	-0.3	**0.0**	**0.0**	**0.1**	**0.0**	-0.1	-0.2	**0.1**	0.0	**1.2**
Above Normal (16%)	0.0	-0.4	-0.2	-0.1	0.0	**0.1**	**0.1**	-0.2	-0.4	**0.2**	**0.0**	**1.8**
Below Normal (13%)	**0.4**	**0.6**	**0.4**	-0.1	-0.1	0.0	-0.1	-0.4	-0.2	**0.2**	-0.4	-0.3
Dry (24%)	**0.1**	**0.4**	**0.2**	**0.1**	**0.1**	**0.1**	**0.0**	-0.5	-0.3	**0.1**	**0.0**	-0.3
Critical (15%)	**0.7**	**0.3**	**0.2**	**0.2**	**0.1**	-0.1	-0.1	-0.2	-0.1	**0.2**	**0.1**	**0.4**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6-3. Sacramento River at Clear Creek, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.8	56.1	53.1	50.0	48.8	50.2	52.5	52.5	53.9	55.5	56.3	56.4
20%	56.1	55.8	52.2	49.0	48.3	49.7	51.8	51.8	52.8	53.9	55.6	55.8
30%	55.7	55.6	51.7	48.6	48.0	49.3	51.3	51.5	52.1	53.4	54.5	55.3
40%	55.2	55.3	51.4	48.1	47.8	48.9	51.1	51.0	51.8	52.6	54.0	54.2
50%	54.8	55.0	51.0	47.8	47.2	48.2	50.7	50.9	51.5	52.3	53.4	53.6
60%	54.6	54.7	50.6	47.4	46.6	47.8	50.0	50.6	51.4	51.9	53.1	52.7
70%	54.4	54.4	50.4	47.1	46.2	47.1	49.8	50.2	51.1	51.5	52.8	52.1
80%	54.2	54.0	50.0	46.7	45.5	46.5	48.9	49.9	50.8	51.3	52.5	51.7
90%	53.9	53.4	49.4	46.1	45.1	46.0	47.4	49.1	50.4	50.8	52.1	51.3
Long Term												
Full Simulation Period[a]	55.5	54.9	51.1	47.9	47.0	48.2	50.3	50.9	51.8	52.6	54.1	54.2
Water Year Types[b,c]												
Wet (32%)	54.7	55.3	51.6	47.3	46.2	47.0	49.2	50.3	51.4	51.9	52.9	51.9
Above Normal (16%)	54.4	54.7	51.0	47.7	46.4	47.4	49.9	50.3	51.0	51.3	52.6	52.1
Below Normal (13%)	54.7	54.2	51.0	48.1	47.4	49.0	51.1	51.0	51.3	52.1	53.5	54.5
Dry (24%)	55.2	54.3	50.6	48.3	47.9	49.1	51.0	51.2	51.7	52.8	54.6	55.0
Critical (15%)	59.4	56.1	51.2	48.2	47.8	49.5	51.4	52.4	54.0	55.5	57.8	59.8

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.1	56.3	53.1	49.9	48.9	50.2	52.3	52.6	54.0	55.0	56.5	57.6
20%	56.1	55.9	52.3	49.1	48.3	49.8	51.7	51.5	52.5	54.0	55.2	55.8
30%	55.5	55.6	51.7	48.6	48.0	49.3	51.3	51.1	52.0	53.4	54.5	55.2
40%	55.2	55.2	51.2	48.0	47.7	48.9	51.1	50.8	51.5	52.8	53.9	54.7
50%	54.9	54.8	51.0	47.8	47.2	48.2	50.7	50.5	51.4	52.5	53.4	54.2
60%	54.7	54.4	50.7	47.5	46.6	47.9	50.0	50.3	51.1	52.2	53.1	53.7
70%	54.3	54.0	50.4	47.1	46.1	47.2	49.6	50.1	50.9	51.6	52.8	53.3
80%	54.0	53.7	50.0	46.7	45.6	46.5	48.8	49.7	50.4	51.3	52.3	52.8
90%	53.7	53.3	49.4	45.8	45.1	46.0	47.4	49.0	49.8	51.0	52.0	52.2
Long Term												
Full Simulation Period[a]	55.5	54.8	51.1	47.9	47.1	48.2	50.3	50.7	51.6	52.7	54.1	54.9
Water Year Types[b,c]												
Wet (32%)	54.3	54.5	51.3	47.3	46.2	47.1	49.2	50.3	51.3	52.0	52.8	53.2
Above Normal (16%)	54.4	54.3	50.9	47.6	46.3	47.5	49.9	50.1	50.6	51.5	52.6	53.8
Below Normal (13%)	55.1	54.8	51.4	48.1	47.3	48.9	50.9	50.6	51.1	52.3	53.1	54.2
Dry (24%)	55.1	54.7	50.8	48.3	48.0	49.2	51.1	50.7	51.4	53.0	54.7	54.8
Critical (15%)	60.3	56.5	51.3	48.3	48.0	49.3	51.4	52.3	53.9	55.7	58.1	60.5

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**3.3**	**0.2**	0.0	-0.1	**0.1**	-0.1	-0.1	**0.0**	**0.1**	-0.5	**0.2**	**1.2**
20%	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	-0.1	-0.3	-0.2	**0.1**	-0.5	**0.1**
30%	-0.2	0.0	**0.0**	**0.1**	0.0	**0.0**	**0.1**	-0.4	-0.1	**0.1**	0.0	-0.1
40%	0.0	-0.1	-0.2	0.0	0.0	**0.0**	**0.0**	-0.2	-0.3	**0.2**	-0.1	**0.4**
50%	**0.1**	-0.2	**0.0**	0.0	0.0	**0.0**	0.0	-0.4	-0.1	**0.2**	**0.0**	**0.7**
60%	**0.1**	-0.3	**0.1**	**0.1**	0.0	**0.1**	0.0	-0.3	-0.3	**0.4**	0.0	**1.0**
70%	-0.1	-0.4	**0.0**	-0.1	-0.1	**0.1**	-0.2	-0.2	-0.2	**0.1**	0.0	**1.2**
80%	-0.3	-0.3	0.0	**0.0**	**0.1**	0.0	-0.1	-0.2	-0.3	0.0	-0.2	**1.2**
90%	-0.2	-0.1	**0.0**	-0.3	**0.0**	**0.0**	0.0	-0.1	-0.6	**0.1**	0.0	**0.9**
Long Term												
Full Simulation Period[a]	**0.0**	-0.1	**0.0**	**0.0**	**0.0**	**0.1**	0.0	-0.2	-0.2	**0.2**	0.0	**0.7**
Water Year Types[b,c]												
Wet (32%)	-0.4	-0.8	-0.3	**0.0**	0.0	**0.1**	-0.1	**0.0**	-0.2	**0.1**	-0.1	**1.3**
Above Normal (16%)	0.0	-0.5	-0.1	-0.1	-0.1	**0.1**	**0.1**	-0.2	-0.4	**0.2**	**0.0**	**1.8**
Below Normal (13%)	**0.4**	**0.6**	**0.4**	-0.1	-0.1	0.0	-0.1	-0.4	-0.2	**0.2**	-0.3	-0.3
Dry (24%)	0.0	**0.4**	**0.2**	**0.1**	**0.1**	**0.2**	**0.0**	-0.5	-0.3	**0.1**	**0.0**	-0.2
Critical (15%)	**0.9**	**0.4**	**0.1**	**0.1**	**0.1**	-0.2	-0.1	-0.1	0.0	**0.2**	**0.3**	**0.7**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 6-4. Sacramento River at Clear Creek, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	56.8	56.1	53.1	50.0	48.8	50.2	52.5	52.5	53.9	55.5	56.3	56.4
20%	56.1	55.8	52.2	49.0	48.3	49.7	51.8	51.8	52.8	53.9	55.6	55.8
30%	55.7	55.6	51.7	48.6	48.0	49.3	51.3	51.5	52.1	53.4	54.5	55.3
40%	55.2	55.3	51.4	48.1	47.8	48.9	51.1	51.0	51.8	52.6	54.0	54.2
50%	54.8	55.0	51.0	47.8	47.2	48.2	50.7	50.9	51.5	52.3	53.4	53.6
60%	54.6	54.7	50.6	47.4	46.6	47.8	50.0	50.6	51.4	51.9	53.1	52.7
70%	54.4	54.4	50.4	47.1	46.2	47.1	49.8	50.2	51.1	51.5	52.8	52.1
80%	54.2	54.0	50.0	46.7	45.5	46.5	48.9	49.9	50.8	51.3	52.5	51.7
90%	53.9	53.4	49.4	46.1	45.1	46.0	47.4	49.1	50.4	50.8	52.1	51.3
Long Term												
Full Simulation Period[a]	55.5	54.9	51.1	47.9	47.0	48.2	50.3	50.9	51.8	52.6	54.1	54.2
Water Year Types[b,c]												
Wet (32%)	54.7	55.3	51.6	47.3	46.2	47.0	49.2	50.3	51.4	51.9	52.9	51.9
Above Normal (16%)	54.4	54.7	51.0	47.7	46.4	47.4	49.9	50.3	51.0	51.3	52.6	52.1
Below Normal (13%)	54.7	54.2	51.0	48.1	47.4	49.0	51.1	51.0	51.3	52.1	53.5	54.5
Dry (24%)	55.2	54.3	50.6	48.3	47.9	49.1	51.0	51.2	51.7	52.8	54.6	55.0
Critical (15%)	59.4	56.1	51.2	48.2	47.8	49.5	51.4	52.4	54.0	55.5	57.8	59.8

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.1	56.2	53.0	50.0	49.0	50.3	52.3	52.6	53.5	54.2	55.1	56.9
20%	54.9	55.8	52.3	49.1	48.5	49.6	51.8	51.9	52.8	53.4	54.0	55.7
30%	54.2	55.3	51.8	48.8	48.0	49.1	51.4	51.4	52.2	53.2	53.5	55.0
40%	53.7	55.0	51.4	48.2	47.7	48.4	50.7	51.1	51.8	52.8	53.3	54.5
50%	53.4	54.7	51.0	47.9	47.1	48.0	50.0	50.9	51.6	52.5	53.3	53.8
60%	53.4	54.3	50.8	47.6	46.5	47.5	49.6	50.6	51.3	52.2	53.0	53.4
70%	53.2	53.9	50.5	47.3	46.3	47.1	49.0	50.4	51.0	51.6	52.9	53.1
80%	53.0	53.6	50.2	46.8	45.6	46.4	48.4	50.0	50.9	51.4	52.7	52.7
90%	52.9	53.3	49.5	46.0	45.0	46.0	47.5	49.2	50.4	51.0	52.2	51.9
Long Term												
Full Simulation Period[a]	54.4	54.7	51.3	48.0	47.1	48.1	50.1	51.0	51.8	52.5	53.6	54.5
Water Year Types[b,c]												
Wet (32%)	53.3	54.6	51.4	47.4	46.2	46.9	48.7	50.3	51.5	52.0	52.9	52.9
Above Normal (16%)	53.2	53.9	50.8	47.6	46.4	47.2	49.5	50.6	51.2	51.4	52.8	53.6
Below Normal (13%)	53.8	54.5	51.3	48.2	47.4	48.7	50.9	50.8	51.3	52.1	53.1	54.3
Dry (24%)	54.0	54.6	51.2	48.4	47.9	48.9	50.9	51.3	51.5	52.8	53.6	54.6
Critical (15%)	58.9	56.1	51.5	48.8	48.2	49.6	51.8	52.6	53.7	54.9	56.5	59.1

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.3**	**0.1**	-0.1	0.0	**0.2**	**0.1**	-0.1	**0.1**	-0.4	-1.3	-1.1	**0.5**
20%	-1.2	**0.0**	**0.2**	**0.1**	**0.2**	-0.1	0.0	**0.1**	**0.0**	-0.6	-1.6	-0.1
30%	-1.6	-0.3	**0.1**	**0.2**	0.0	-0.2	**0.2**	-0.1	**0.1**	-0.2	-1.0	-0.3
40%	-1.6	-0.3	0.0	**0.2**	-0.1	-0.5	-0.4	**0.0**	**0.0**	**0.2**	-0.6	**0.3**
50%	-1.4	-0.4	**0.1**	**0.1**	-0.1	-0.2	-0.7	0.0	**0.0**	**0.2**	-0.2	**0.2**
60%	-1.3	-0.4	**0.2**	**0.2**	-0.1	-0.3	-0.4	0.0	-0.1	**0.3**	-0.1	**0.7**
70%	-1.2	-0.5	**0.2**	**0.1**	**0.1**	0.0	-0.8	**0.2**	-0.1	**0.2**	**0.1**	**1.0**
80%	-1.2	-0.4	**0.2**	**0.1**	**0.1**	-0.1	-0.5	**0.1**	**0.1**	**0.1**	**0.2**	**1.1**
90%	-1.0	0.0	**0.1**	-0.1	-0.1	0.0	**0.2**	**0.1**	-0.1	**0.2**	**0.2**	**0.6**
Long Term												
Full Simulation Period[a]	-1.1	-0.2	**0.1**	**0.2**	**0.1**	-0.1	-0.2	**0.0**	0.0	-0.1	-0.5	**0.3**
Water Year Types[b,c]												
Wet (32%)	-1.3	-0.7	-0.2	**0.1**	0.0	-0.1	-0.5	-0.1	**0.1**	**0.1**	-0.1	**1.0**
Above Normal (16%)	-1.3	-0.8	-0.2	0.0	**0.0**	-0.2	-0.4	**0.3**	**0.2**	**0.1**	**0.2**	**1.5**
Below Normal (13%)	-1.0	**0.3**	**0.3**	**0.1**	0.0	-0.2	-0.2	-0.1	0.0	0.0	-0.3	-0.2
Dry (24%)	-1.1	**0.3**	**0.6**	**0.2**	**0.0**	-0.2	-0.2	**0.0**	-0.2	-0.1	-1.0	-0.4
Critical (15%)	-0.5	-0.1	**0.3**	**0.7**	**0.4**	**0.1**	**0.4**	**0.2**	-0.3	-0.6	-1.3	-0.7

a Based on the 82-year simulation period.

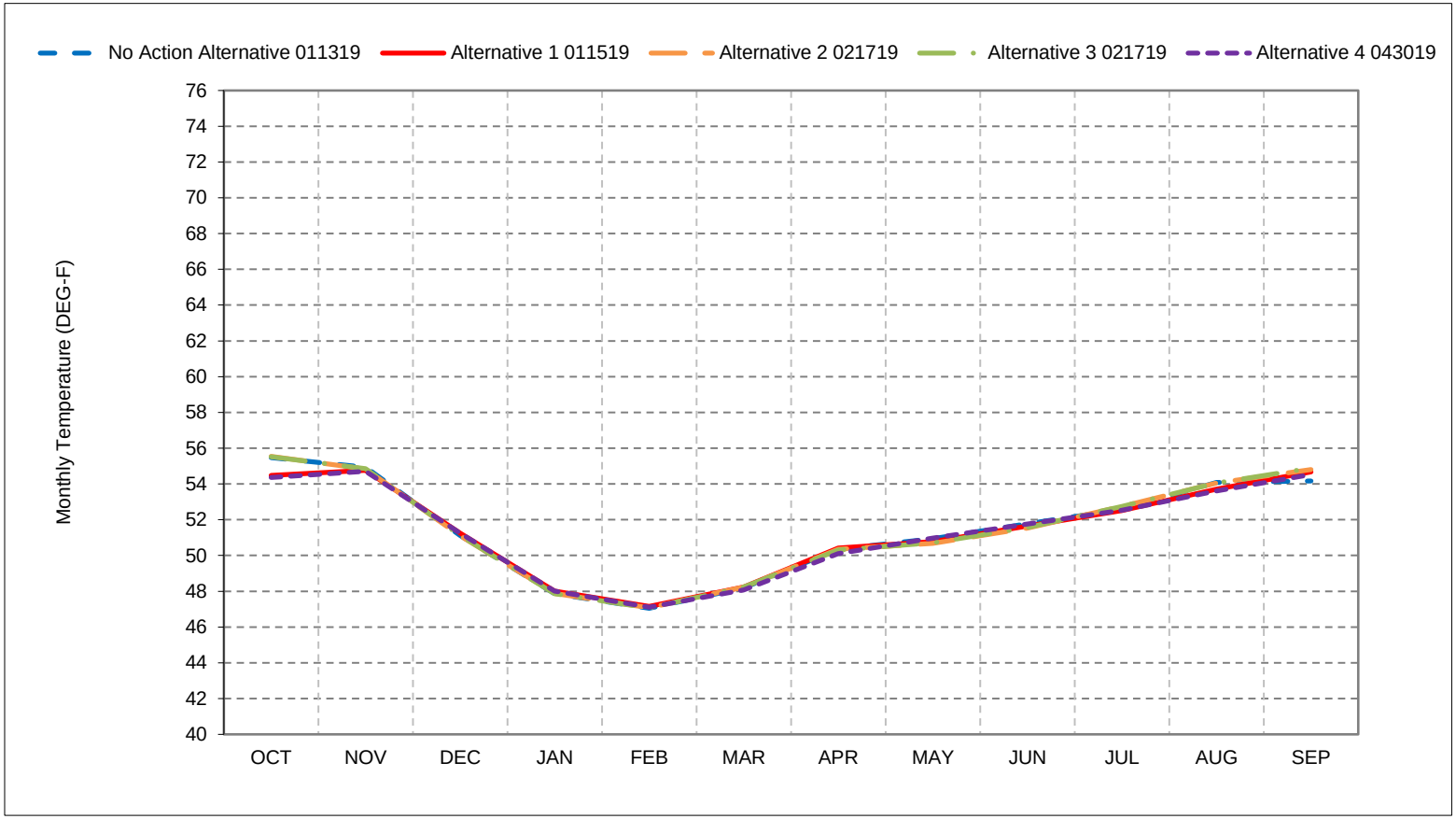
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

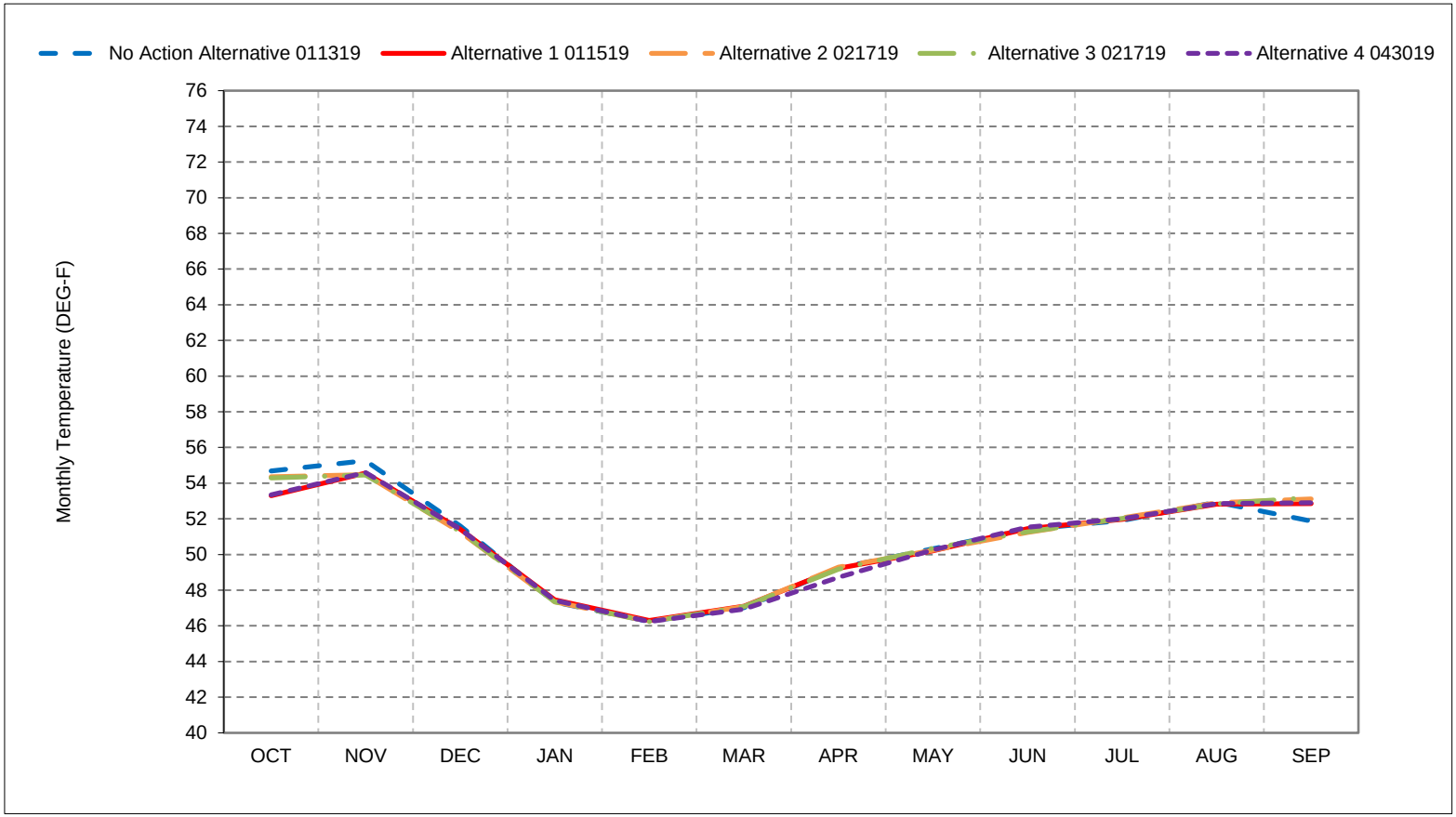
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-1. Sacramento River at Clear Creek, Long-Term Average Temperature



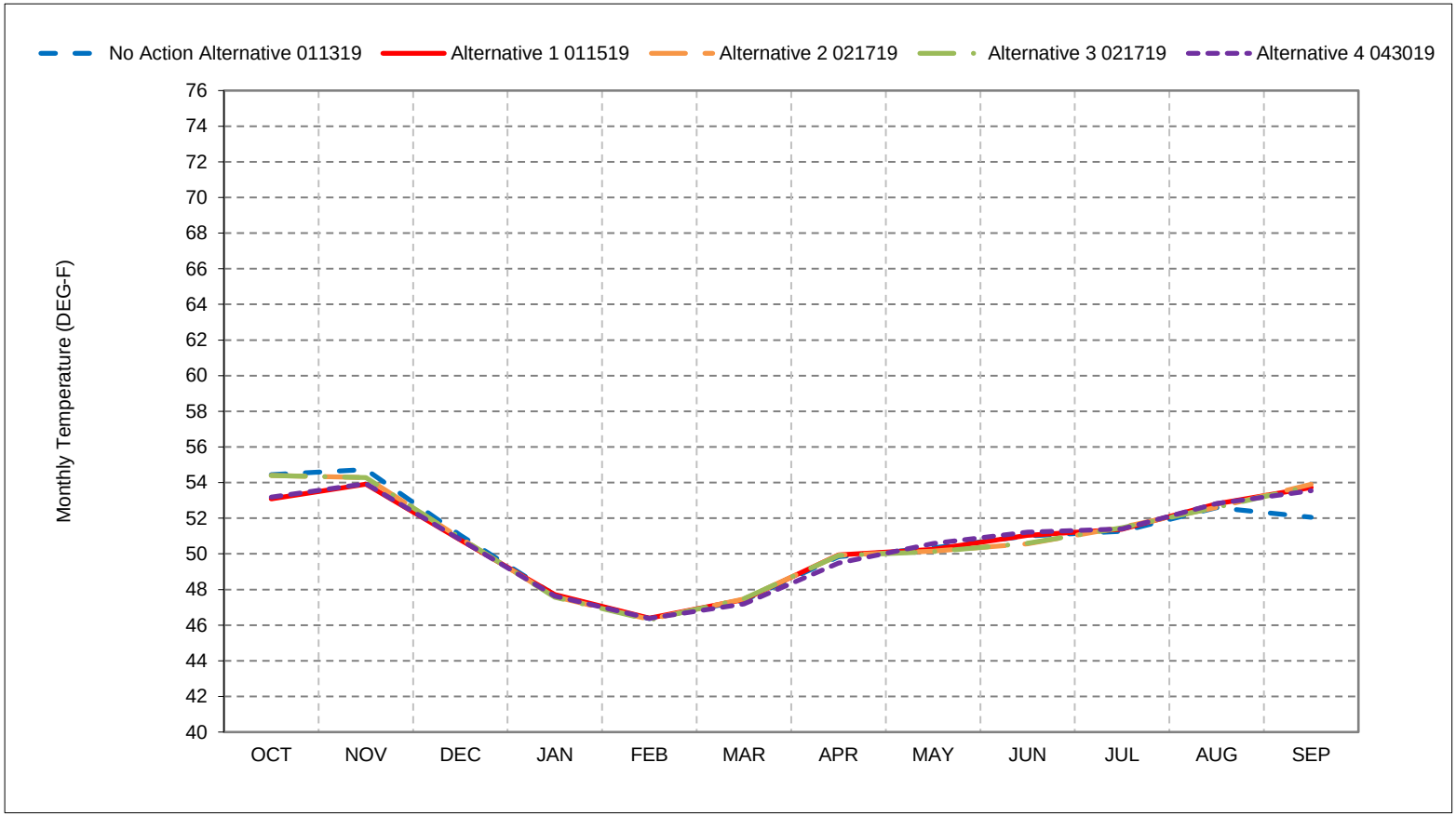
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-2. Sacramento River at Clear Creek, Wet Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-3. Sacramento River at Clear Creek, Above Normal Year Average Temperature



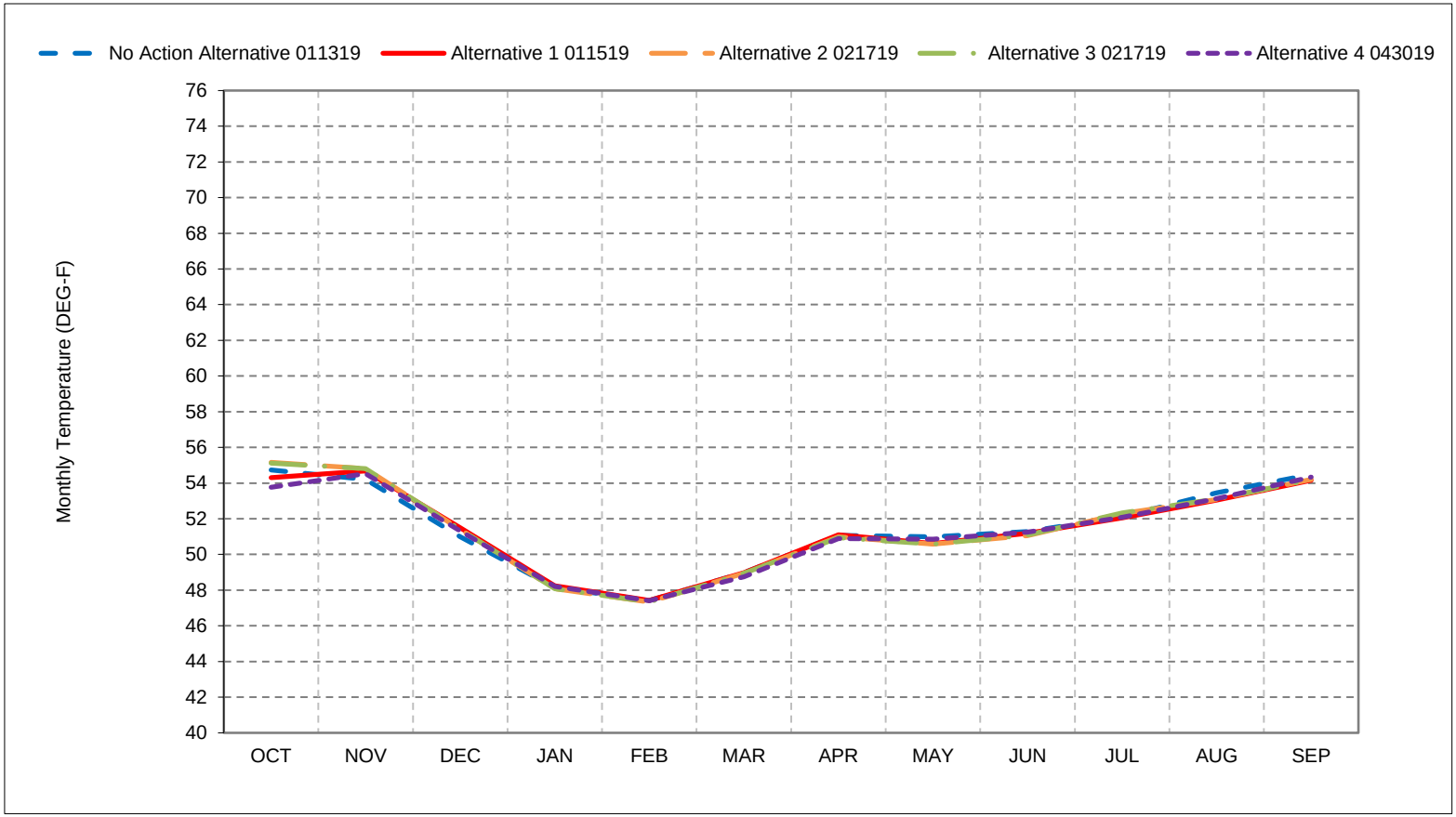
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

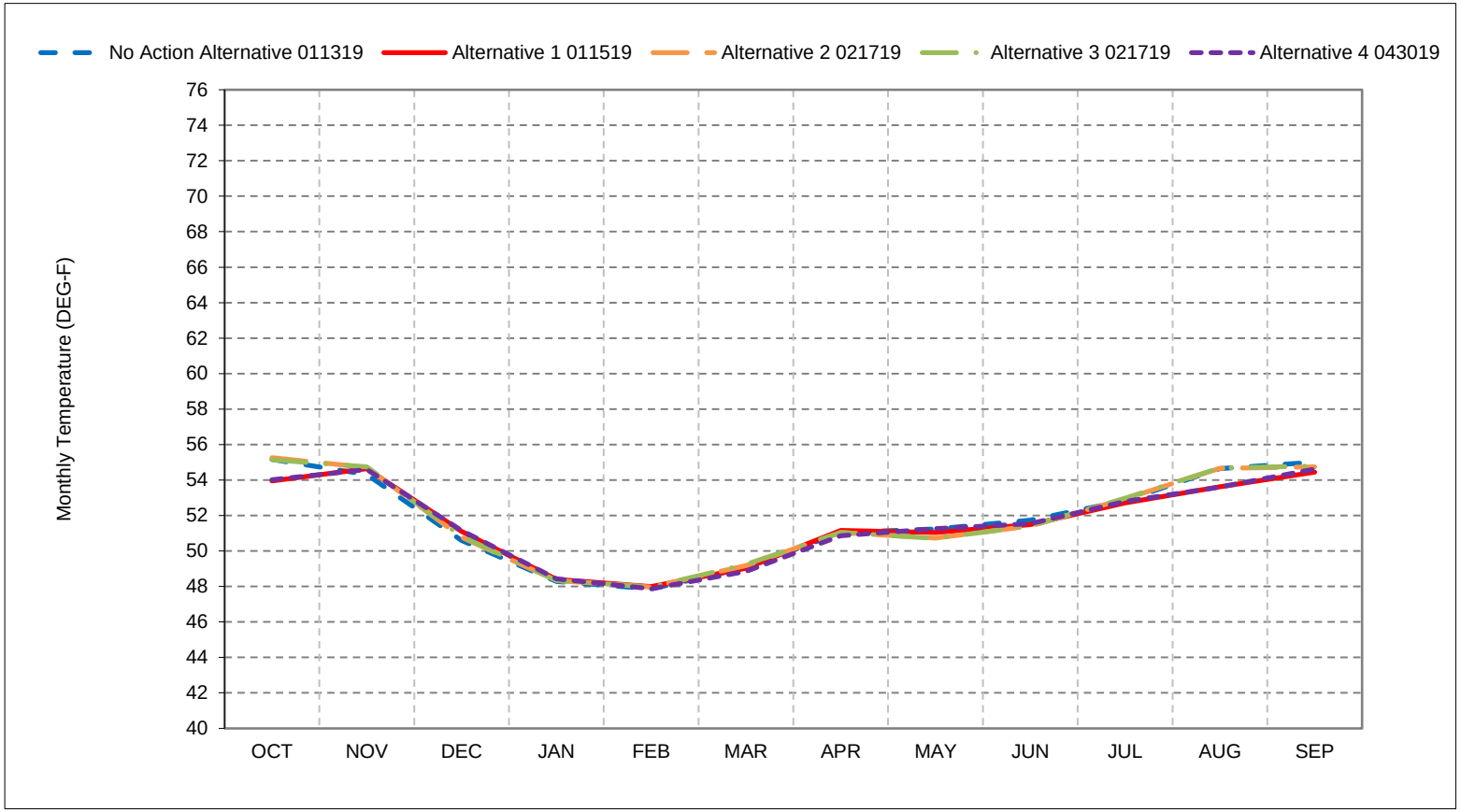
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-4. Sacramento River at Clear Creek, Below Normal Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-5. Sacramento River at Clear Creek, Dry Year Average Temperature



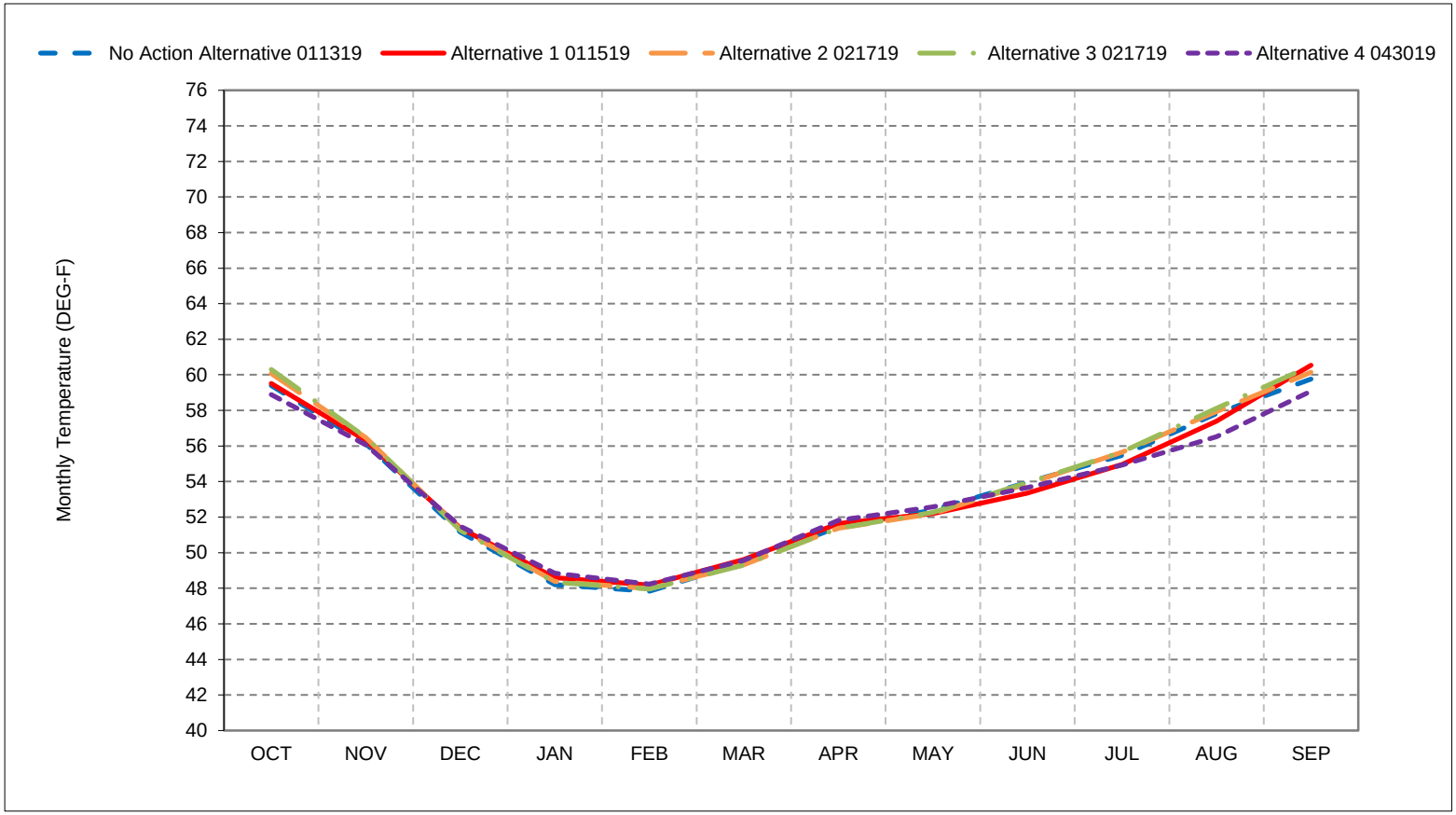
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

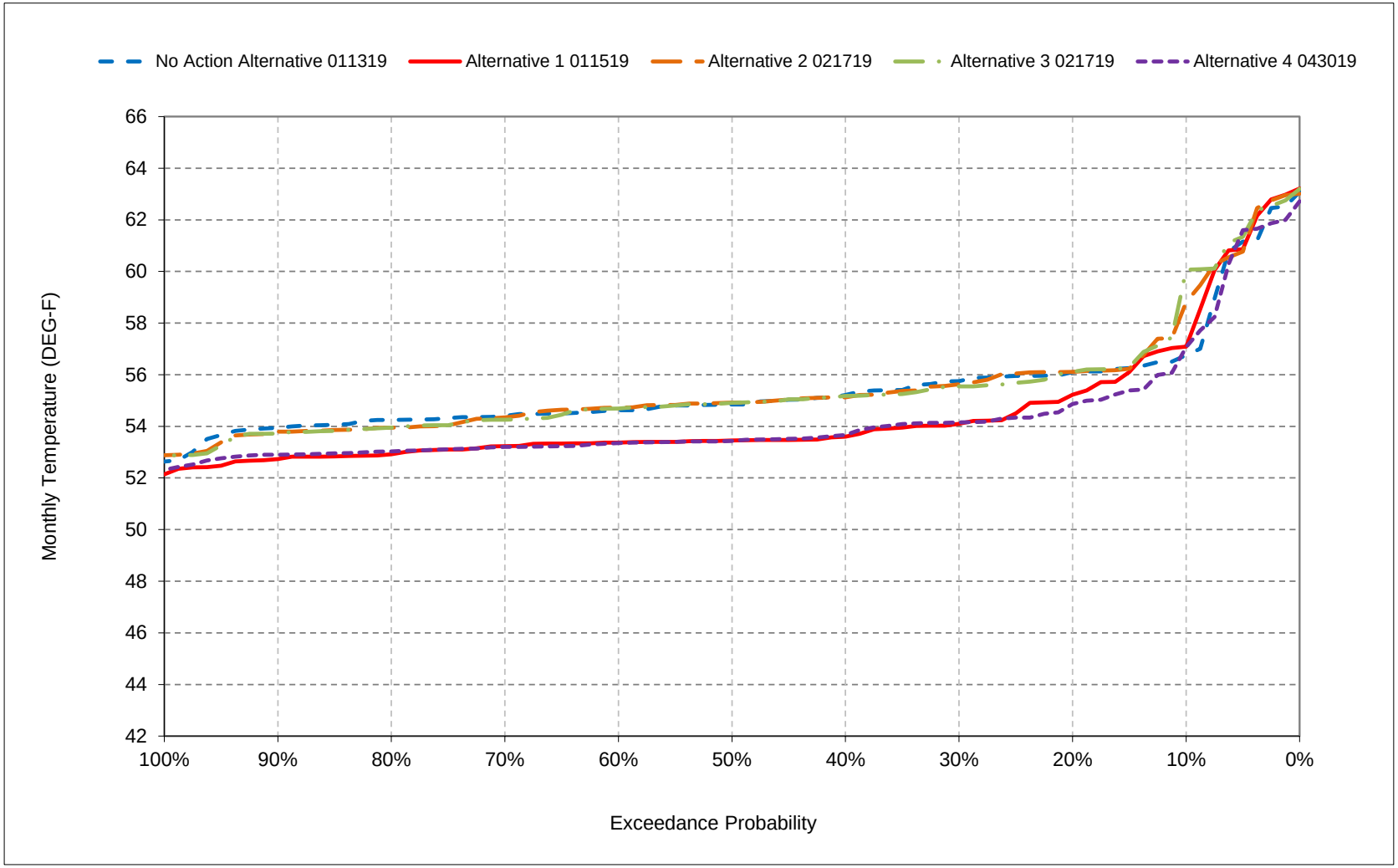
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-6. Sacramento River at Clear Creek, Critical Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

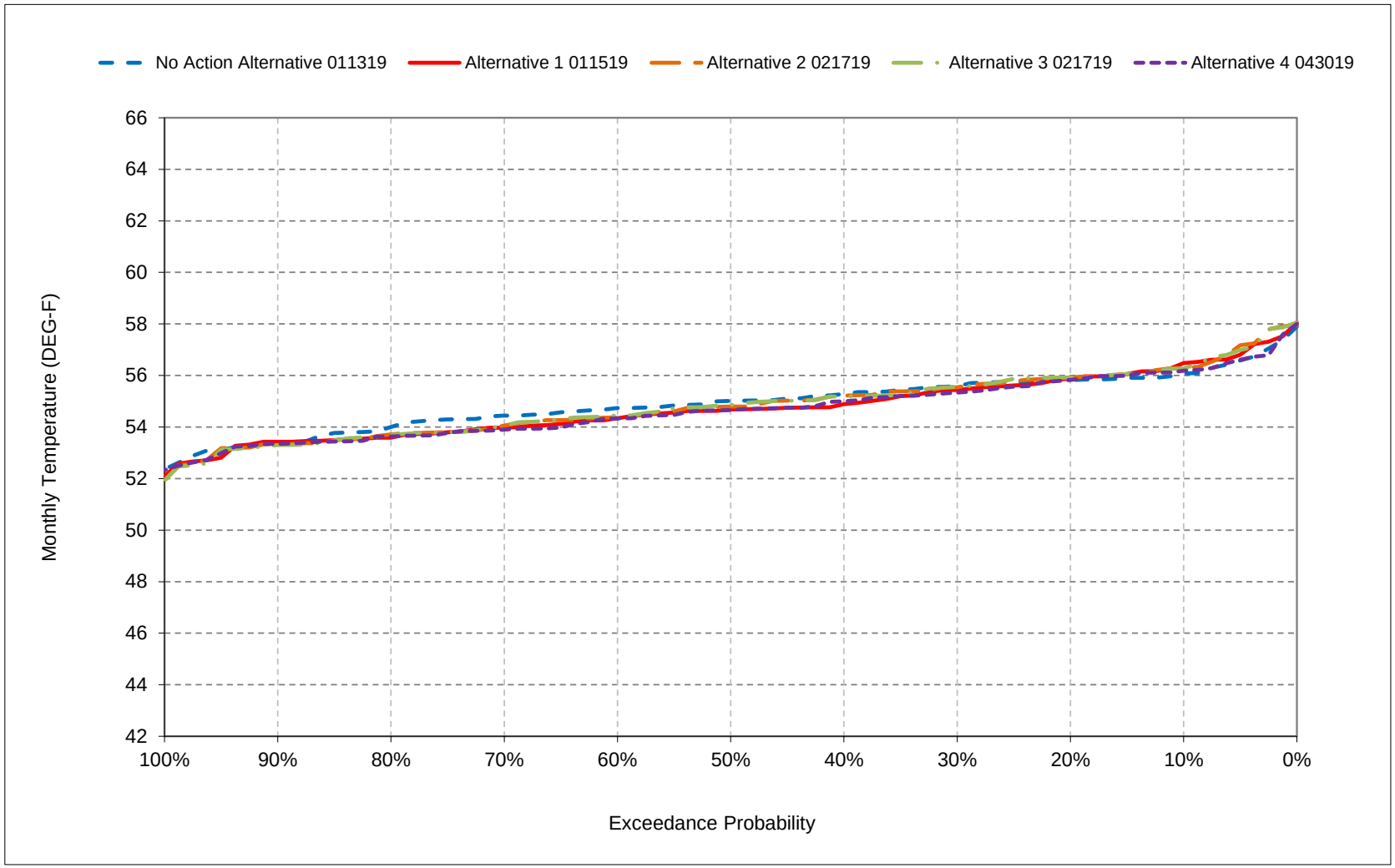
Figure 6-7. Sacramento River at Clear Creek, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

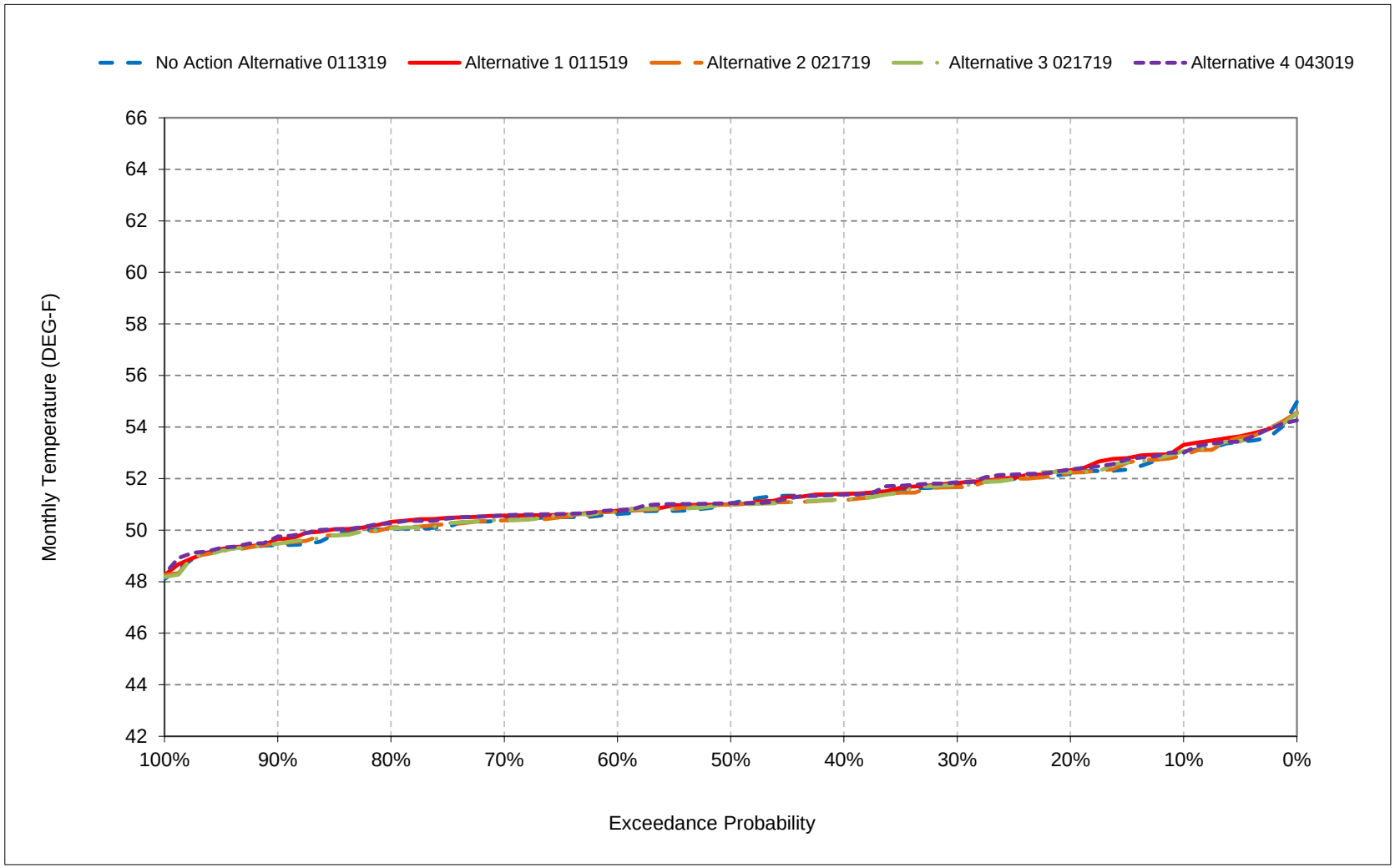
Figure 6-8. Sacramento River at Clear Creek, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

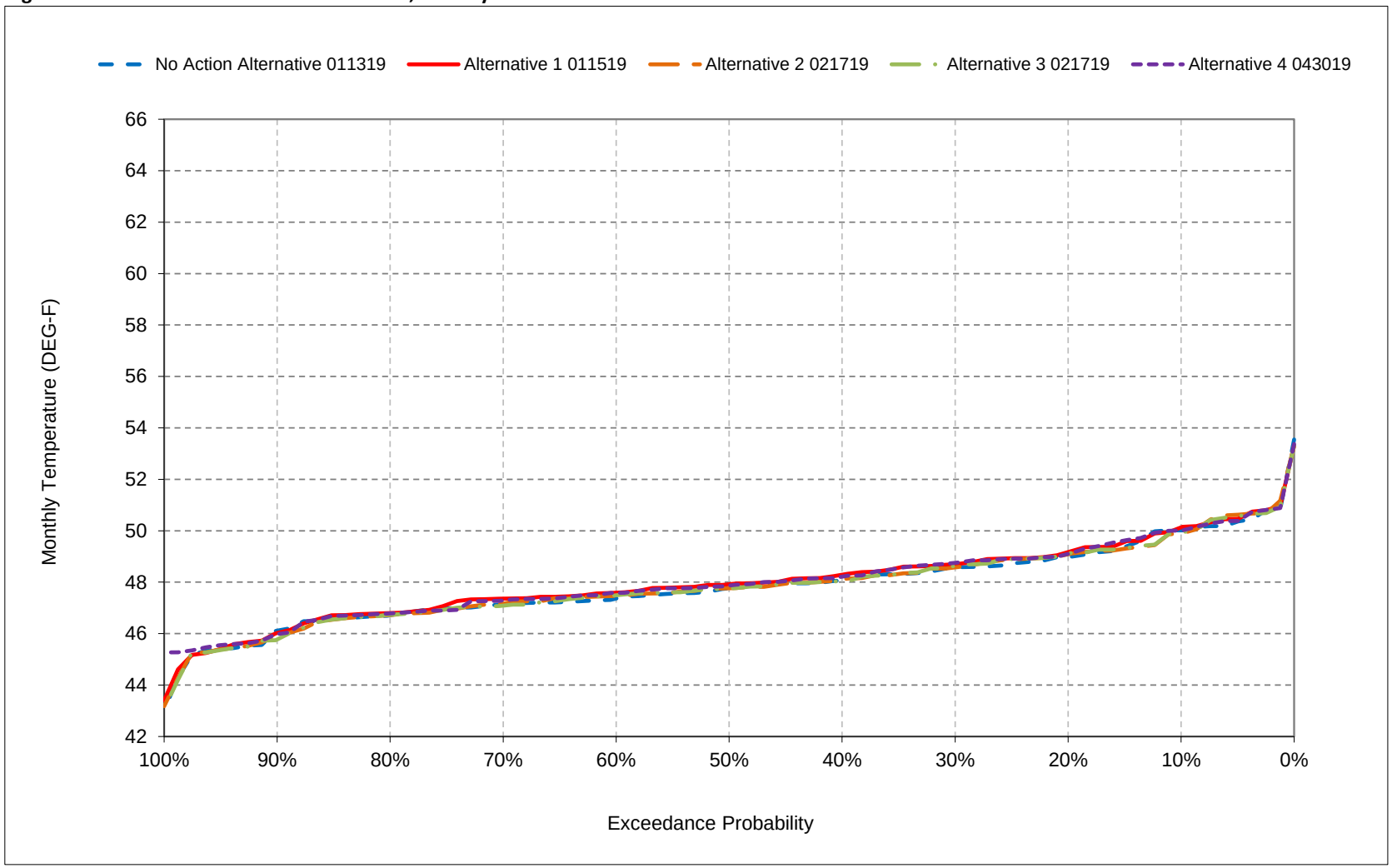
Figure 6-9. Sacramento River at Clear Creek, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

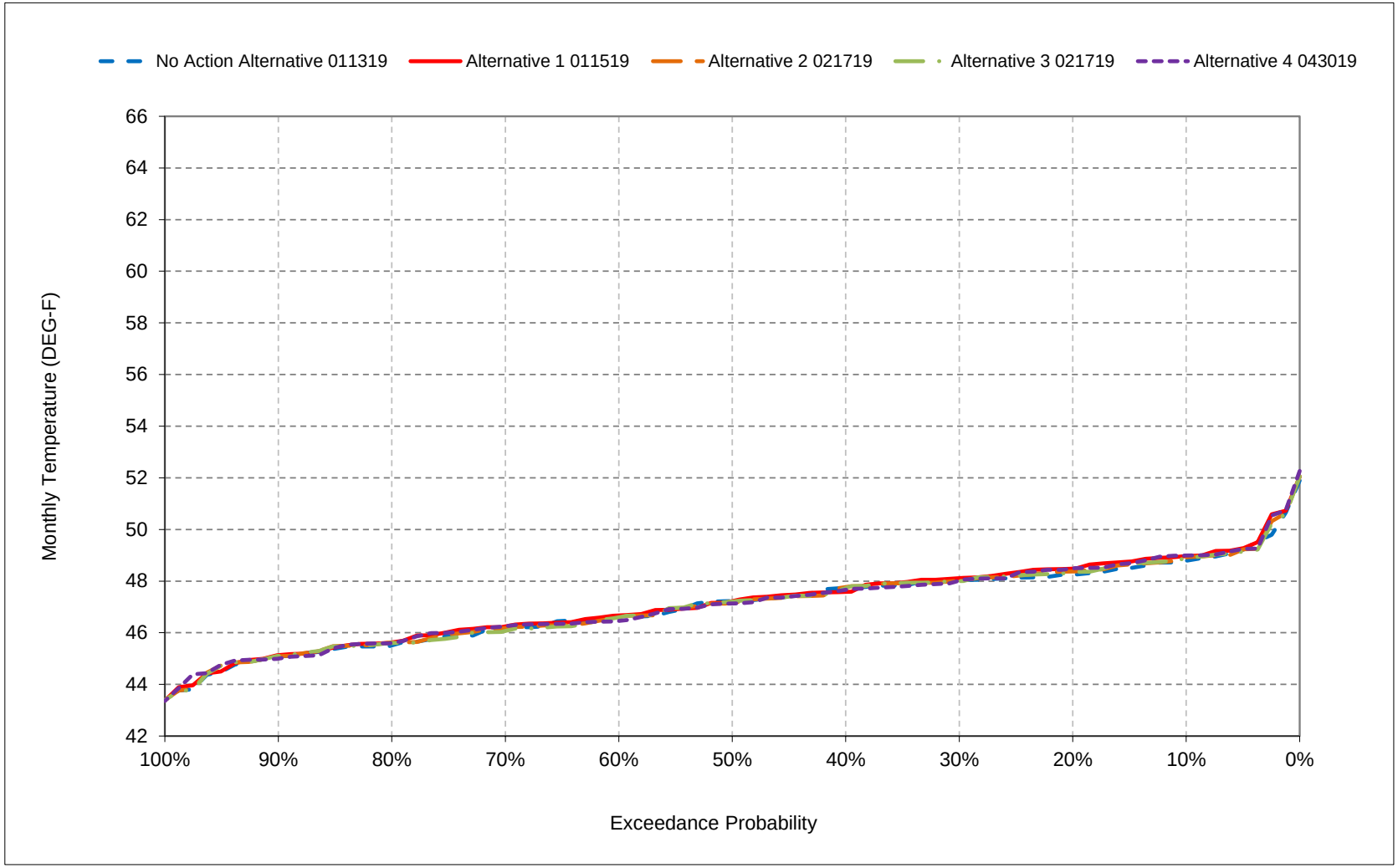
Figure 6-10. Sacramento River at Clear Creek, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

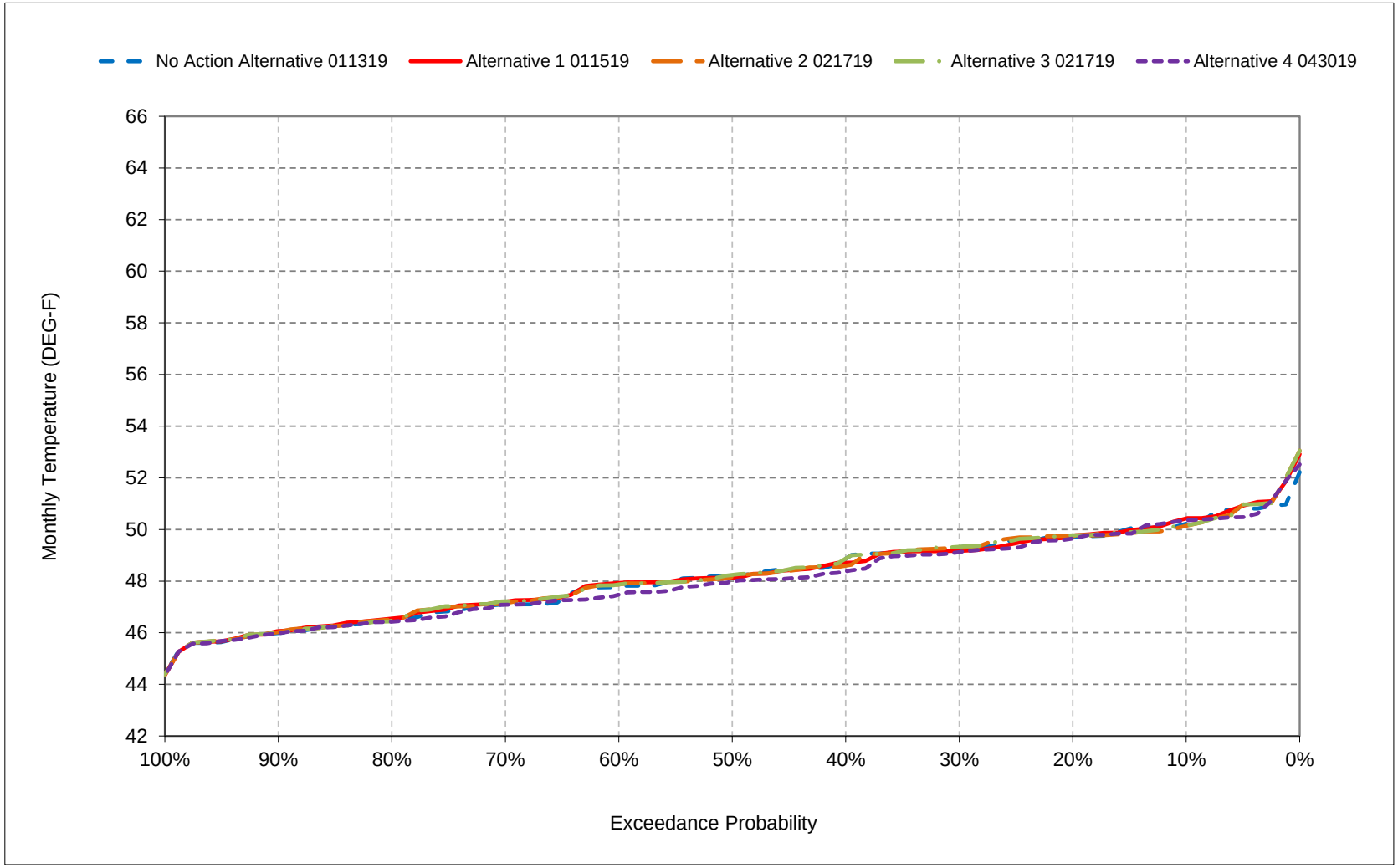
Figure 6-11. Sacramento River at Clear Creek, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

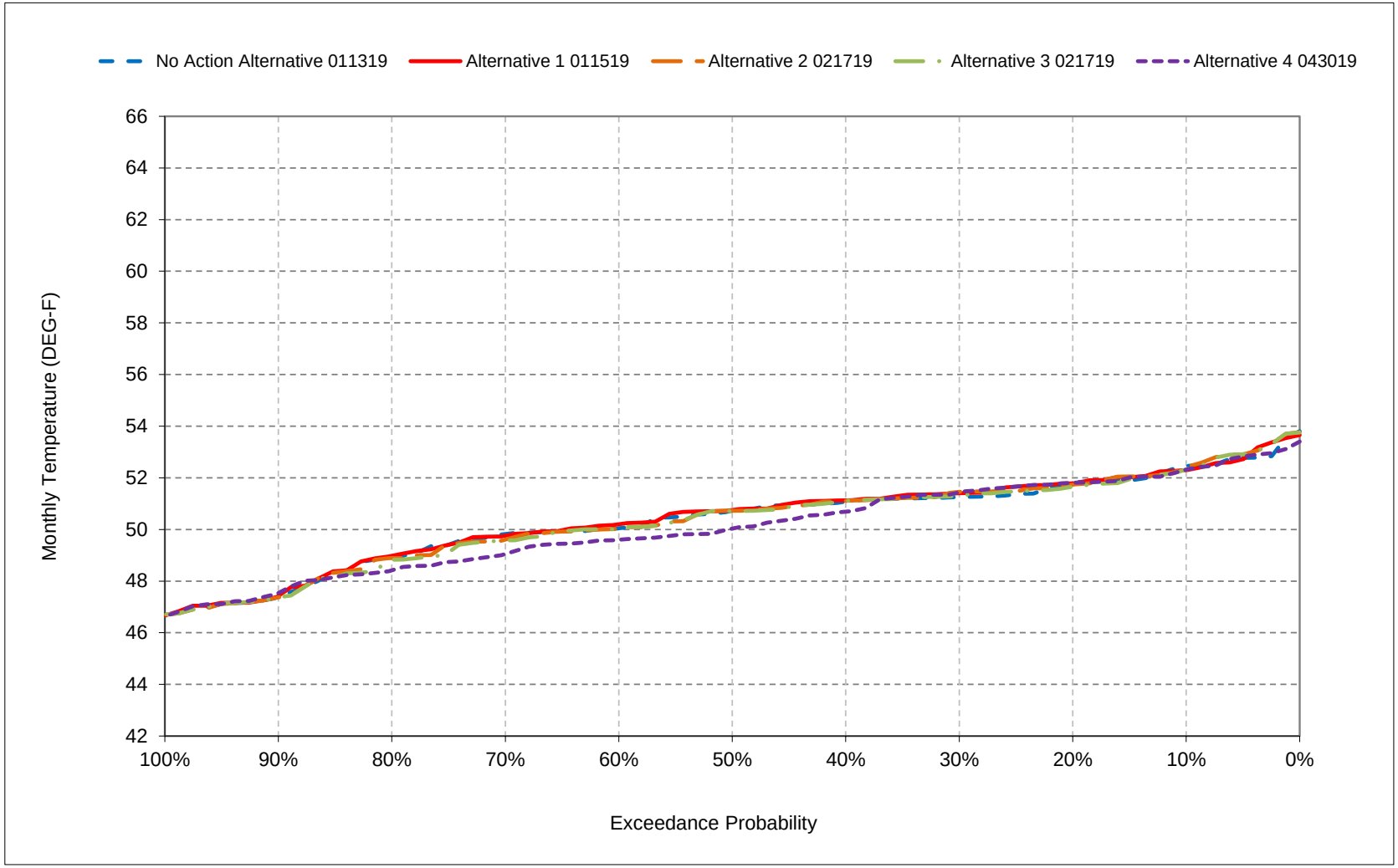
Figure 6-12. Sacramento River at Clear Creek, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

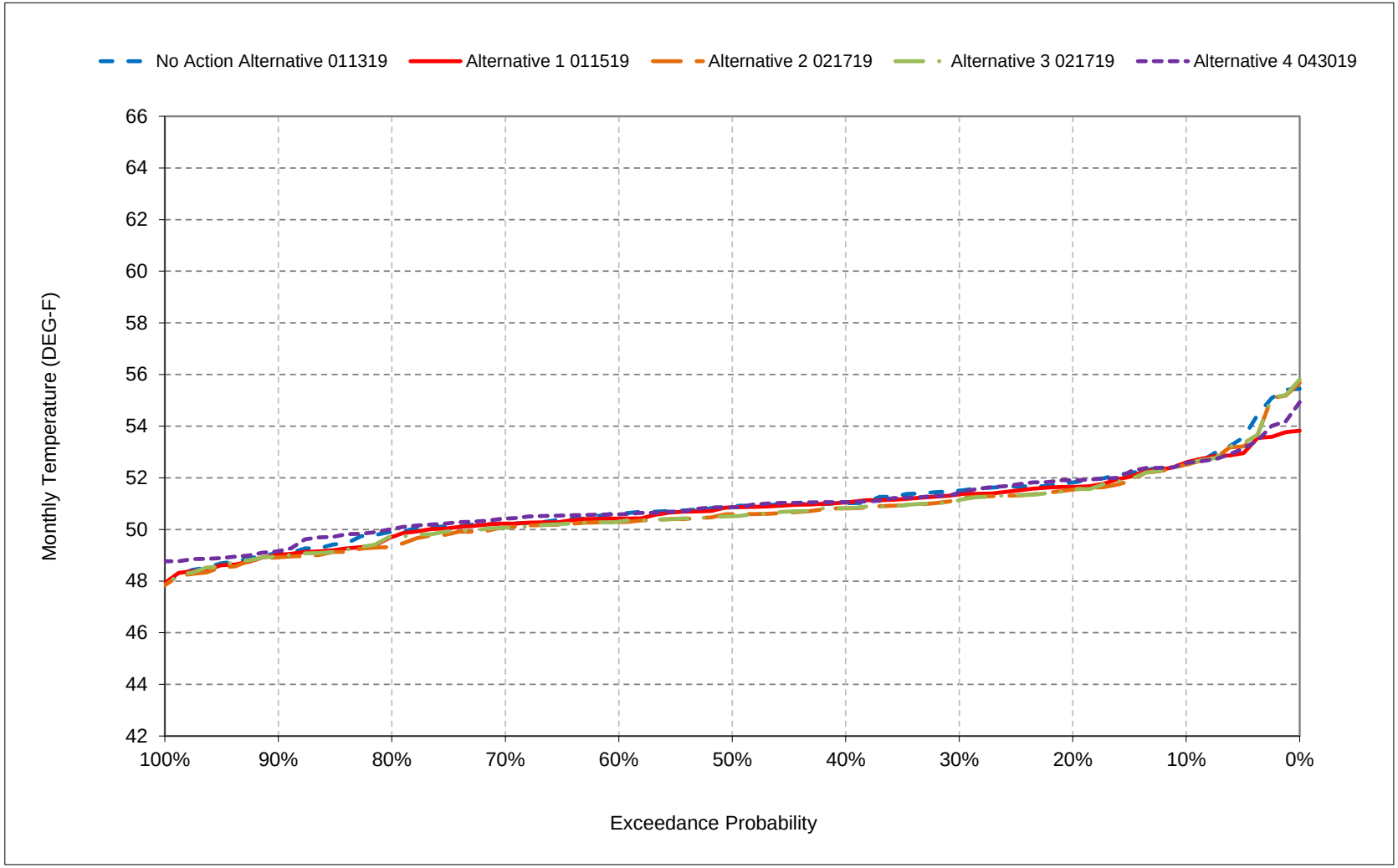
Figure 6-13. Sacramento River at Clear Creek, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

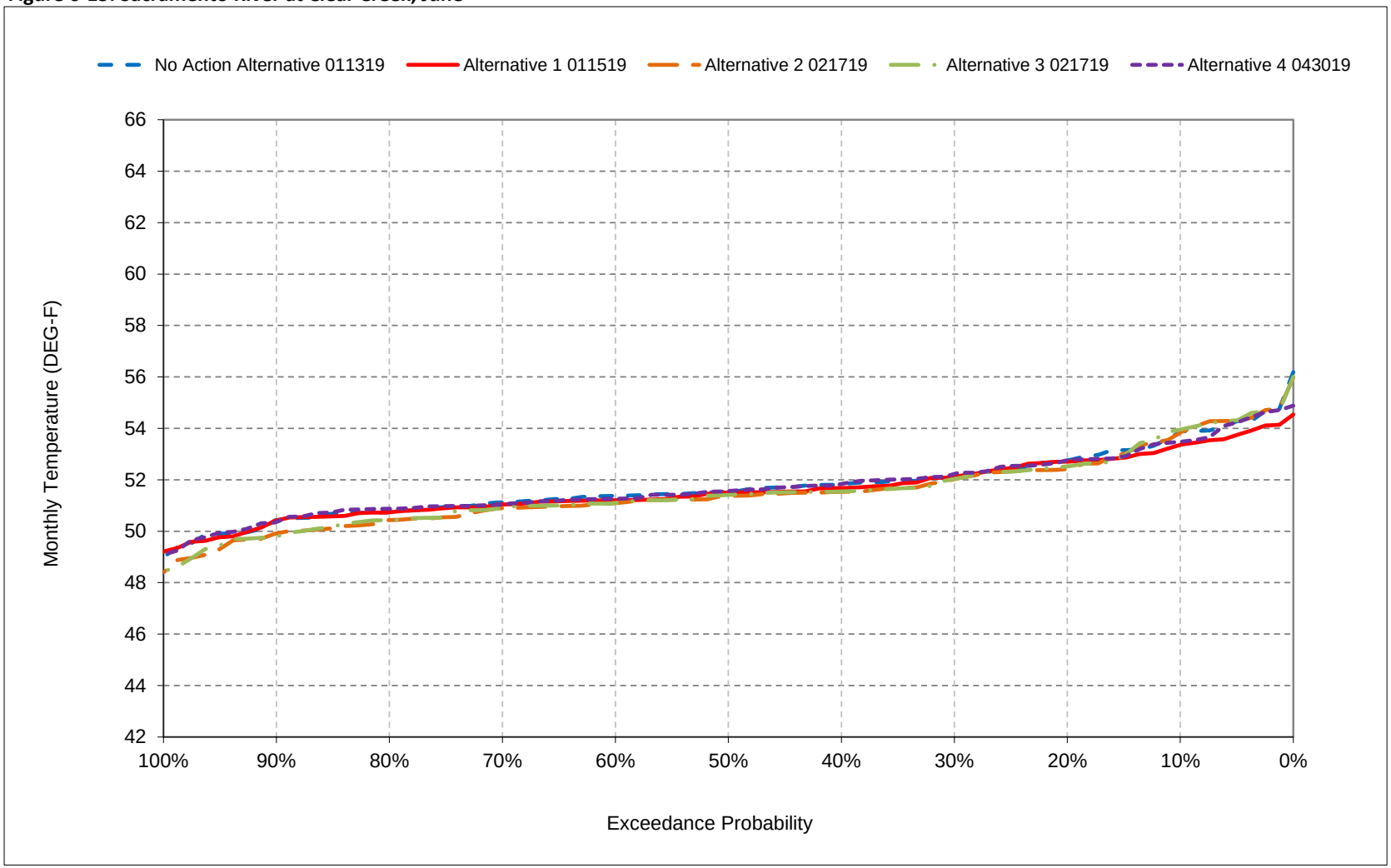
Figure 6-14. Sacramento River at Clear Creek, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

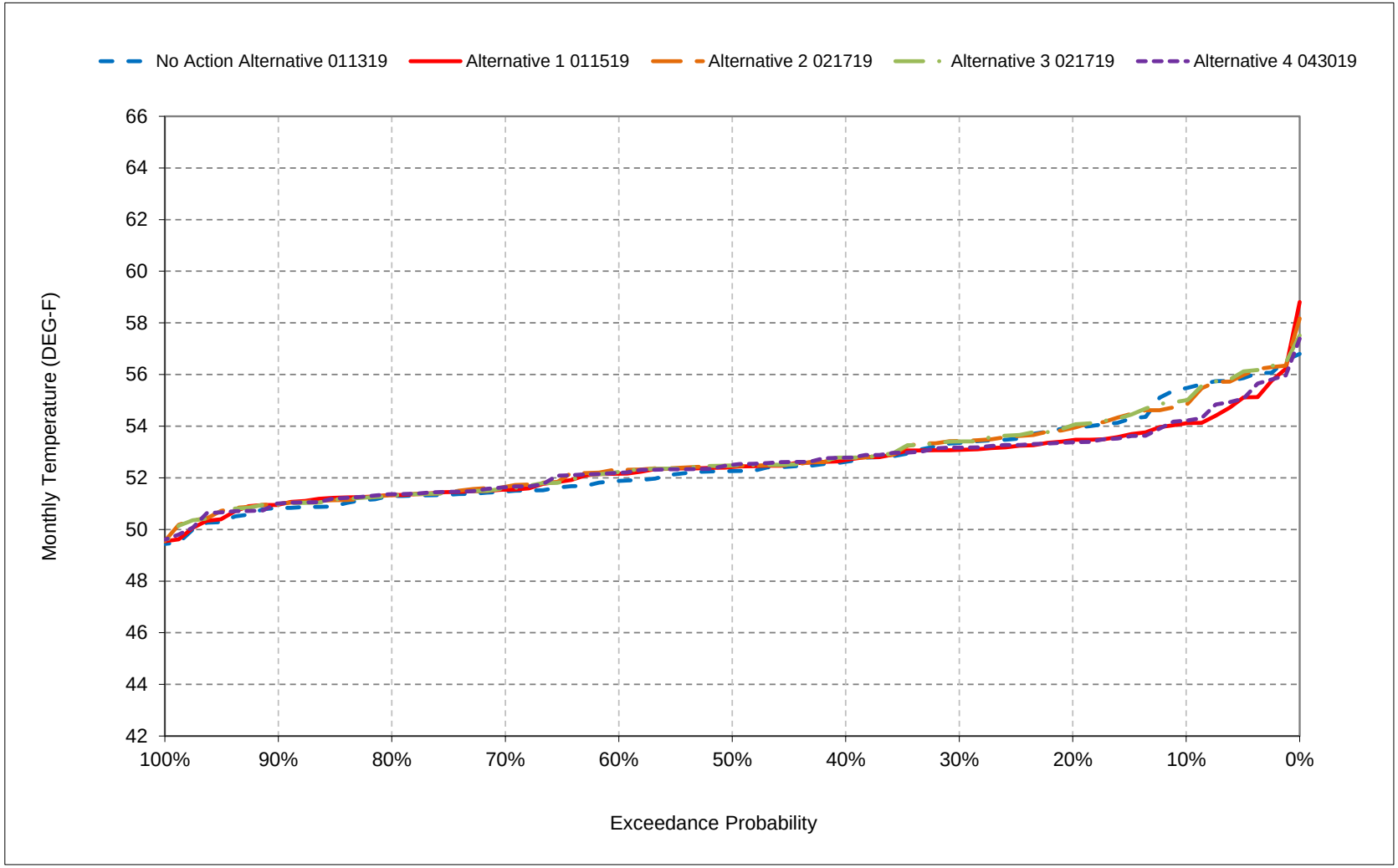
Figure 6-15. Sacramento River at Clear Creek, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

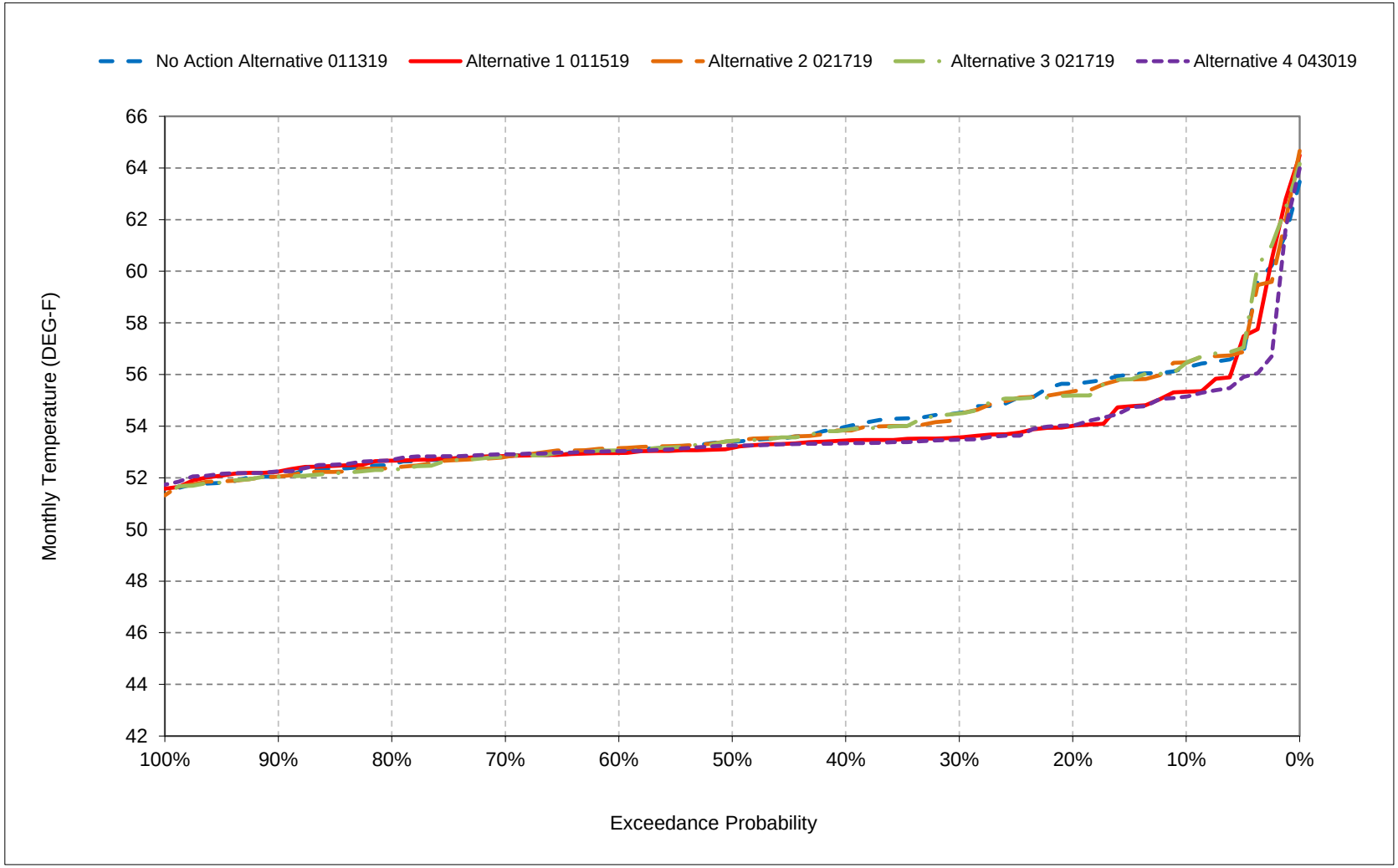
Figure 6-16. Sacramento River at Clear Creek, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-17. Sacramento River at Clear Creek, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-18. Sacramento River at Clear Creek, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 7-1. Sacramento River at Balls Ferry, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.2	55.8	52.5	49.2	48.8	51.1	54.3	54.8	55.4	56.7	57.7	57.8
20%	56.6	55.7	51.3	48.6	48.4	50.4	53.4	53.7	54.6	55.2	56.8	57.2
30%	56.2	55.3	50.8	47.9	48.1	50.1	53.1	53.3	54.1	54.5	55.8	56.5
40%	55.7	55.0	50.4	47.4	47.7	49.5	52.9	52.9	53.7	54.1	55.3	55.5
50%	55.3	54.6	50.2	47.2	47.3	49.2	52.3	52.6	53.3	53.6	54.6	54.7
60%	55.1	54.2	49.7	46.8	46.9	48.5	51.9	52.3	53.1	53.1	54.4	53.7
70%	54.9	53.8	49.4	46.6	46.3	48.0	51.7	52.0	52.8	52.7	54.1	53.0
80%	54.6	53.4	48.8	46.4	45.9	47.2	50.7	51.7	52.6	52.4	53.8	52.4
90%	54.4	52.8	48.4	45.8	45.3	46.6	48.7	51.1	52.0	51.9	53.1	52.1
Long Term												
Full Simulation Period[a]	55.9	54.5	50.2	47.3	47.2	49.0	52.0	52.8	53.5	53.8	55.3	55.2
Water Year Types[b,c]												
Wet (32%)	55.1	54.9	50.7	46.9	46.4	47.7	50.8	52.5	53.6	53.3	54.2	52.6
Above Normal (16%)	54.9	54.4	50.2	47.0	46.6	48.2	51.6	52.3	52.7	52.4	53.8	53.0
Below Normal (13%)	55.3	53.8	50.2	47.4	47.6	49.8	52.9	52.6	52.8	53.3	54.6	55.8
Dry (24%)	55.7	53.8	49.8	47.7	47.9	49.8	52.8	53.0	53.2	54.1	55.9	56.4
Critical (15%)	59.7	55.7	50.1	47.9	48.2	50.4	53.0	54.0	55.4	56.7	59.1	60.8

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.5	56.4	52.6	49.5	49.1	51.2	54.1	54.8	54.8	55.4	56.8	59.1
20%	55.9	55.5	51.5	48.7	48.5	50.5	53.5	53.6	54.5	54.8	55.3	57.1
30%	54.6	54.9	50.8	48.1	48.2	50.0	53.2	53.2	54.0	54.3	54.9	56.3
40%	54.4	54.5	50.5	47.7	47.7	49.5	52.9	52.8	53.8	54.1	54.7	55.9
50%	54.1	54.2	50.2	47.4	47.4	49.2	52.5	52.5	53.2	53.8	54.4	55.1
60%	54.0	53.8	50.0	47.0	46.9	48.6	52.0	52.2	52.8	53.2	54.2	54.8
70%	53.7	53.4	49.8	46.8	46.4	47.9	51.6	51.9	52.6	52.9	54.1	54.2
80%	53.4	53.1	49.2	46.5	45.9	47.3	50.7	51.3	52.3	52.6	53.9	53.8
90%	53.2	52.8	48.7	45.7	45.4	46.7	48.9	51.0	51.9	52.1	53.6	53.0
Long Term												
Full Simulation Period[a]	55.0	54.3	50.4	47.5	47.3	49.0	52.1	52.6	53.3	53.8	55.0	55.9
Water Year Types[b,c]												
Wet (32%)	53.8	54.2	50.7	47.1	46.5	47.8	50.8	52.4	53.6	53.4	54.1	54.0
Above Normal (16%)	53.7	53.5	50.0	47.2	46.6	48.2	51.7	52.1	52.7	52.5	54.0	55.2
Below Normal (13%)	54.9	54.3	50.7	47.6	47.6	49.7	52.8	52.1	52.6	53.2	54.2	55.4
Dry (24%)	54.6	54.1	50.3	47.9	48.0	49.8	52.9	52.7	52.8	53.9	55.0	55.8
Critical (15%)	59.8	55.9	50.3	48.2	48.5	50.5	53.1	53.7	54.7	56.3	58.6	61.5

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.3**	**0.6**	**0.1**	**0.3**	**0.3**	**0.1**	-0.2	-0.1	-0.6	-1.3	-0.9	**1.3**
20%	-0.6	-0.2	**0.2**	**0.1**	**0.1**	**0.0**	**0.1**	-0.1	-0.1	-0.5	-1.5	-0.2
30%	-1.5	-0.4	**0.0**	**0.2**	**0.1**	-0.1	**0.1**	-0.1	-0.1	-0.1	-0.9	-0.2
40%	-1.3	-0.5	**0.0**	**0.3**	0.0	0.0	**0.0**	-0.1	**0.1**	**0.0**	-0.6	**0.5**
50%	-1.2	-0.4	**0.1**	**0.2**	**0.0**	-0.1	**0.2**	-0.1	-0.1	**0.2**	-0.2	**0.4**
60%	-1.1	-0.4	**0.3**	**0.2**	**0.0**	**0.1**	**0.1**	-0.1	-0.4	**0.1**	-0.1	**1.2**
70%	-1.2	-0.4	**0.4**	**0.1**	**0.1**	-0.1	0.0	-0.1	-0.3	**0.2**	0.0	**1.2**
80%	-1.2	-0.3	**0.4**	**0.1**	**0.1**	**0.1**	**0.1**	-0.4	-0.3	**0.2**	**0.0**	**1.5**
90%	-1.2	**0.0**	**0.2**	-0.1	**0.0**	**0.1**	**0.2**	-0.1	-0.1	**0.2**	**0.4**	**0.8**
Long Term												
Full Simulation Period[a]	-0.9	-0.2	**0.2**	**0.2**	**0.1**	**0.0**	**0.0**	-0.2	-0.2	-0.1	-0.4	**0.7**
Water Year Types[b,c]												
Wet (32%)	-1.3	-0.7	0.0	**0.1**	**0.1**	**0.1**	0.0	-0.1	**0.0**	**0.1**	-0.1	**1.4**
Above Normal (16%)	-1.2	-0.9	-0.1	**0.1**	**0.0**	**0.0**	**0.1**	-0.1	0.0	**0.1**	**0.2**	**2.2**
Below Normal (13%)	-0.4	**0.4**	**0.4**	**0.2**	0.0	-0.1	-0.1	-0.5	-0.2	-0.1	-0.4	-0.4
Dry (24%)	-1.1	**0.3**	**0.5**	**0.1**	**0.1**	0.0	**0.1**	-0.3	-0.3	-0.1	-1.0	-0.5
Critical (15%)	**0.1**	**0.2**	**0.2**	**0.3**	**0.3**	**0.1**	**0.2**	-0.2	-0.6	-0.5	-0.4	**0.7**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 7-2. Sacramento River at Balls Ferry, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.2	55.8	52.5	49.2	48.8	51.1	54.3	54.8	55.4	56.7	57.7	57.8
20%	56.6	55.7	51.3	48.6	48.4	50.4	53.4	53.7	54.6	55.2	56.8	57.2
30%	56.2	55.3	50.8	47.9	48.1	50.1	53.1	53.3	54.1	54.5	55.8	56.5
40%	55.7	55.0	50.4	47.4	47.7	49.5	52.9	52.9	53.7	54.1	55.3	55.5
50%	55.3	54.6	50.2	47.2	47.3	49.2	52.3	52.6	53.3	53.6	54.6	54.7
60%	55.1	54.2	49.7	46.8	46.9	48.5	51.9	52.3	53.1	53.1	54.4	53.7
70%	54.9	53.8	49.4	46.6	46.3	48.0	51.7	52.0	52.8	52.7	54.1	53.0
80%	54.6	53.4	48.8	46.4	45.9	47.2	50.7	51.7	52.6	52.4	53.8	52.4
90%	54.4	52.8	48.4	45.8	45.3	46.6	48.7	51.1	52.0	51.9	53.1	52.1
Long Term												
Full Simulation Period[a]	55.9	54.5	50.2	47.3	47.2	49.0	52.0	52.8	53.5	53.8	55.3	55.2
Water Year Types[b,c]												
Wet (32%)	55.1	54.9	50.7	46.9	46.4	47.7	50.8	52.5	53.6	53.3	54.2	52.6
Above Normal (16%)	54.9	54.4	50.2	47.0	46.6	48.2	51.6	52.3	52.7	52.4	53.8	53.0
Below Normal (13%)	55.3	53.8	50.2	47.4	47.6	49.8	52.9	52.6	52.8	53.3	54.6	55.8
Dry (24%)	55.7	53.8	49.8	47.7	47.9	49.8	52.8	53.0	53.2	54.1	55.9	56.4
Critical (15%)	59.7	55.7	50.1	47.9	48.2	50.4	53.0	54.0	55.4	56.7	59.1	60.8

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.1	56.2	52.4	49.5	49.0	50.8	54.1	54.8	55.4	56.2	58.0	58.9
20%	56.7	55.6	51.2	48.6	48.5	50.5	53.6	53.6	54.6	55.2	56.5	57.1
30%	56.1	55.0	50.8	48.0	48.2	50.2	53.2	53.0	53.9	54.7	55.6	56.5
40%	55.6	54.7	50.2	47.6	47.7	49.5	52.9	52.5	53.4	54.1	54.9	55.9
50%	55.4	54.2	50.1	47.3	47.3	49.2	52.3	52.2	52.9	53.8	54.7	55.5
60%	55.2	53.8	49.9	46.9	46.8	48.6	52.0	51.9	52.7	53.4	54.4	54.9
70%	54.9	53.6	49.3	46.6	46.4	48.0	51.2	51.6	52.5	53.0	54.1	54.6
80%	54.5	53.1	48.8	46.4	45.8	47.2	50.5	51.1	51.8	52.4	53.7	54.0
90%	54.1	52.7	48.5	45.5	45.4	46.6	48.8	50.8	51.1	52.2	53.2	53.2
Long Term												
Full Simulation Period[a]	56.0	54.4	50.2	47.4	47.3	49.0	52.0	52.5	53.2	54.0	55.3	56.0
Water Year Types[b,c]												
Wet (32%)	54.8	54.1	50.5	46.9	46.4	47.8	50.9	52.4	53.3	53.5	54.2	54.3
Above Normal (16%)	54.9	53.8	50.0	47.0	46.6	48.3	51.7	52.0	52.1	52.6	53.8	55.3
Below Normal (13%)	55.7	54.4	50.5	47.4	47.5	49.7	52.7	52.0	52.4	53.4	54.2	55.3
Dry (24%)	55.8	54.1	49.9	47.8	48.0	49.9	52.8	52.4	52.8	54.1	56.0	56.0
Critical (15%)	60.3	56.0	50.2	48.1	48.3	50.2	52.9	53.7	55.2	56.9	59.1	61.1

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**1.9**	**0.4**	-0.1	**0.3**	**0.1**	-0.2	-0.2	-0.1	**0.0**	-0.4	**0.3**	**1.1**
20%	**0.1**	-0.1	0.0	**0.0**	**0.1**	**0.1**	**0.1**	-0.1	-0.1	-0.1	-0.4	-0.2
30%	-0.1	-0.2	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	-0.3	-0.2	**0.2**	-0.2	0.0
40%	-0.1	-0.3	-0.2	**0.1**	-0.1	0.0	**0.1**	-0.4	-0.3	**0.0**	-0.4	**0.5**
50%	**0.1**	-0.4	-0.1	**0.1**	0.0	-0.1	0.0	-0.4	-0.3	**0.3**	**0.0**	**0.8**
60%	**0.1**	-0.4	**0.2**	**0.1**	0.0	**0.0**	**0.0**	-0.4	-0.4	**0.2**	**0.0**	**1.3**
70%	0.0	-0.2	-0.1	**0.0**	**0.0**	**0.0**	-0.5	-0.4	-0.4	**0.2**	0.0	**1.6**
80%	-0.1	-0.3	0.0	**0.0**	0.0	**0.1**	-0.1	-0.6	-0.8	**0.0**	-0.2	**1.6**
90%	-0.2	-0.1	**0.0**	-0.3	**0.0**	**0.0**	**0.1**	-0.2	-0.9	**0.3**	**0.0**	**1.1**
Long Term												
Full Simulation Period[a]	**0.1**	-0.1	**0.0**	**0.0**	**0.0**	**0.0**	0.0	-0.4	-0.4	**0.1**	-0.1	**0.8**
Water Year Types[b,c]												
Wet (32%)	-0.3	-0.8	-0.2	**0.0**	**0.0**	**0.1**	**0.0**	-0.1	-0.3	**0.2**	-0.1	**1.7**
Above Normal (16%)	0.0	-0.6	-0.1	**0.0**	0.0	**0.1**	**0.1**	-0.3	-0.6	**0.2**	0.0	**2.3**
Below Normal (13%)	**0.4**	**0.5**	**0.3**	**0.0**	-0.1	-0.1	-0.2	-0.6	-0.4	**0.2**	-0.5	-0.4
Dry (24%)	**0.1**	**0.4**	**0.1**	**0.0**	**0.1**	**0.1**	0.0	-0.7	-0.4	**0.1**	**0.0**	-0.3
Critical (15%)	**0.6**	**0.3**	**0.1**	**0.2**	**0.1**	-0.2	-0.1	-0.2	-0.2	**0.1**	**0.1**	**0.3**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 7-3. Sacramento River at Balls Ferry, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.2	55.8	52.5	49.2	48.8	51.1	54.3	54.8	55.4	56.7	57.7	57.8
20%	56.6	55.7	51.3	48.6	48.4	50.4	53.4	53.7	54.6	55.2	56.8	57.2
30%	56.2	55.3	50.8	47.9	48.1	50.1	53.1	53.3	54.1	54.5	55.8	56.5
40%	55.7	55.0	50.4	47.4	47.7	49.5	52.9	52.9	53.7	54.1	55.3	55.5
50%	55.3	54.6	50.2	47.2	47.3	49.2	52.3	52.6	53.3	53.6	54.6	54.7
60%	55.1	54.2	49.7	46.8	46.9	48.5	51.9	52.3	53.1	53.1	54.4	53.7
70%	54.9	53.8	49.4	46.6	46.3	48.0	51.7	52.0	52.8	52.7	54.1	53.0
80%	54.6	53.4	48.8	46.4	45.9	47.2	50.7	51.7	52.6	52.4	53.8	52.4
90%	54.4	52.8	48.4	45.8	45.3	46.6	48.7	51.1	52.0	51.9	53.1	52.1
Long Term												
Full Simulation Period[a]	55.9	54.5	50.2	47.3	47.2	49.0	52.0	52.8	53.5	53.8	55.3	55.2
Water Year Types[b,c]												
Wet (32%)	55.1	54.9	50.7	46.9	46.4	47.7	50.8	52.5	53.6	53.3	54.2	52.6
Above Normal (16%)	54.9	54.4	50.2	47.0	46.6	48.2	51.6	52.3	52.7	52.4	53.8	53.0
Below Normal (13%)	55.3	53.8	50.2	47.4	47.6	49.8	52.9	52.6	52.8	53.3	54.6	55.8
Dry (24%)	55.7	53.8	49.8	47.7	47.9	49.8	52.8	53.0	53.2	54.1	55.9	56.4
Critical (15%)	59.7	55.7	50.1	47.9	48.2	50.4	53.0	54.0	55.4	56.7	59.1	60.8

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.2	56.3	52.3	49.4	49.0	50.8	54.1	54.8	55.4	56.4	58.0	58.8
20%	56.6	55.5	51.4	48.7	48.5	50.6	53.4	53.6	54.6	55.3	56.4	57.3
30%	56.0	55.1	50.9	48.0	48.2	50.1	53.1	53.0	53.9	54.7	55.8	56.5
40%	55.6	54.7	50.3	47.6	47.7	49.5	52.9	52.5	53.5	54.2	55.0	55.9
50%	55.3	54.3	50.1	47.2	47.3	49.2	52.3	52.2	53.0	53.8	54.7	55.5
60%	55.1	53.8	49.8	46.9	46.8	48.6	51.9	51.9	52.7	53.3	54.4	54.9
70%	54.7	53.6	49.3	46.7	46.3	48.0	51.2	51.7	52.5	52.9	54.1	54.5
80%	54.4	53.1	48.9	46.4	45.8	47.3	50.3	51.3	51.9	52.5	53.5	53.9
90%	54.2	52.6	48.5	45.5	45.4	46.6	48.8	50.9	51.2	52.2	53.1	53.2
Long Term												
Full Simulation Period[a]	56.0	54.4	50.3	47.4	47.2	49.0	52.0	52.5	53.2	54.0	55.3	56.1
Water Year Types[b,c]												
Wet (32%)	54.7	54.1	50.6	46.9	46.4	47.7	50.7	52.5	53.4	53.4	54.1	54.4
Above Normal (16%)	54.9	53.8	50.1	47.0	46.5	48.3	51.7	52.0	52.1	52.6	53.8	55.2
Below Normal (13%)	55.6	54.4	50.5	47.4	47.5	49.7	52.6	52.0	52.5	53.4	54.2	55.3
Dry (24%)	55.6	54.1	50.0	47.8	48.0	50.0	52.8	52.4	52.8	54.2	56.0	56.1
Critical (15%)	60.6	56.1	50.1	48.0	48.3	50.2	52.9	53.8	55.3	56.9	59.3	61.5

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**3.0**	**0.5**	-0.1	**0.2**	**0.2**	-0.2	-0.2	-0.1	**0.0**	-0.3	**0.3**	**1.0**
20%	**0.1**	-0.1	**0.1**	**0.0**	**0.0**	**0.1**	0.0	-0.2	0.0	**0.0**	-0.4	**0.0**
30%	-0.2	-0.2	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	-0.4	-0.2	**0.2**	0.0	0.0
40%	-0.1	-0.3	-0.1	**0.1**	-0.1	**0.0**	**0.0**	-0.4	-0.2	**0.1**	-0.3	**0.5**
50%	0.0	-0.4	-0.1	**0.0**	0.0	0.0	0.0	-0.4	-0.3	**0.2**	**0.0**	**0.8**
60%	**0.0**	-0.3	**0.1**	**0.0**	-0.1	**0.1**	0.0	-0.4	-0.4	**0.1**	0.0	**1.3**
70%	-0.2	-0.2	-0.1	**0.0**	**0.0**	**0.0**	-0.5	-0.3	-0.3	**0.2**	-0.1	**1.5**
80%	-0.2	-0.3	**0.1**	**0.0**	0.0	**0.1**	-0.3	-0.5	-0.7	**0.1**	-0.3	**1.5**
90%	-0.2	-0.2	**0.1**	-0.3	**0.1**	0.0	**0.1**	-0.2	-0.8	**0.2**	0.0	**1.0**
Long Term												
Full Simulation Period[a]	**0.0**	-0.2	**0.0**	**0.0**	**0.0**	**0.0**	-0.1	-0.3	-0.3	**0.1**	-0.1	**0.9**
Water Year Types[b,c]												
Wet (32%)	-0.4	-0.8	-0.1	**0.0**	**0.0**	**0.1**	-0.1	**0.0**	-0.2	**0.1**	-0.2	**1.8**
Above Normal (16%)	0.0	-0.6	-0.1	0.0	-0.1	**0.1**	**0.1**	-0.3	-0.6	**0.2**	0.0	**2.2**
Below Normal (13%)	**0.4**	**0.5**	**0.3**	**0.0**	-0.1	-0.1	-0.2	-0.6	-0.3	**0.2**	-0.4	-0.5
Dry (24%)	-0.1	**0.3**	**0.2**	**0.0**	**0.1**	**0.2**	0.0	-0.7	-0.4	**0.1**	**0.0**	-0.3
Critical (15%)	**0.8**	**0.3**	**0.1**	**0.1**	**0.1**	-0.2	-0.1	-0.2	-0.1	**0.2**	**0.2**	**0.7**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 7-4. Sacramento River at Balls Ferry, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.2	55.8	52.5	49.2	48.8	51.1	54.3	54.8	55.4	56.7	57.7	57.8
20%	56.6	55.7	51.3	48.6	48.4	50.4	53.4	53.7	54.6	55.2	56.8	57.2
30%	56.2	55.3	50.8	47.9	48.1	50.1	53.1	53.3	54.1	54.5	55.8	56.5
40%	55.7	55.0	50.4	47.4	47.7	49.5	52.9	52.9	53.7	54.1	55.3	55.5
50%	55.3	54.6	50.2	47.2	47.3	49.2	52.3	52.6	53.3	53.6	54.6	54.7
60%	55.1	54.2	49.7	46.8	46.9	48.5	51.9	52.3	53.1	53.1	54.4	53.7
70%	54.9	53.8	49.4	46.6	46.3	48.0	51.7	52.0	52.8	52.7	54.1	53.0
80%	54.6	53.4	48.8	46.4	45.9	47.2	50.7	51.7	52.6	52.4	53.8	52.4
90%	54.4	52.8	48.4	45.8	45.3	46.6	48.7	51.1	52.0	51.9	53.1	52.1
Long Term												
Full Simulation Period[a]	55.9	54.5	50.2	47.3	47.2	49.0	52.0	52.8	53.5	53.8	55.3	55.2
Water Year Types[b,c]												
Wet (32%)	55.1	54.9	50.7	46.9	46.4	47.7	50.8	52.5	53.6	53.3	54.2	52.6
Above Normal (16%)	54.9	54.4	50.2	47.0	46.6	48.2	51.6	52.3	52.7	52.4	53.8	53.0
Below Normal (13%)	55.3	53.8	50.2	47.4	47.6	49.8	52.9	52.6	52.8	53.3	54.6	55.8
Dry (24%)	55.7	53.8	49.8	47.7	47.9	49.8	52.8	53.0	53.2	54.1	55.9	56.4
Critical (15%)	59.7	55.7	50.1	47.9	48.2	50.4	53.0	54.0	55.4	56.7	59.1	60.8

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.5	56.0	52.5	49.5	49.1	51.2	54.0	54.1	55.4	55.6	56.6	58.2
20%	55.5	55.4	51.7	48.5	48.5	50.4	53.5	53.6	54.6	54.8	55.5	57.0
30%	54.7	54.8	50.9	48.1	48.1	49.9	53.1	53.3	54.3	54.4	54.9	56.4
40%	54.3	54.5	50.5	47.8	47.7	49.4	52.4	53.1	53.8	54.1	54.7	56.0
50%	54.1	54.1	50.2	47.4	47.3	48.7	51.7	52.8	53.3	53.7	54.6	55.3
60%	53.9	53.8	50.0	47.0	46.7	48.1	51.3	52.4	52.9	53.3	54.3	54.8
70%	53.7	53.5	49.7	46.7	46.5	47.7	50.8	52.1	52.6	53.0	54.2	54.3
80%	53.6	53.1	49.3	46.5	45.9	47.2	50.0	52.0	52.4	52.6	53.9	53.9
90%	53.3	52.6	48.7	45.8	45.4	46.7	49.2	51.3	51.9	52.1	53.5	53.2
Long Term												
Full Simulation Period[a]	54.9	54.3	50.4	47.5	47.3	48.8	51.7	52.8	53.5	53.8	54.9	55.8
Water Year Types[b,c]												
Wet (32%)	53.8	54.2	50.7	47.0	46.4	47.6	50.2	52.4	53.7	53.4	54.2	54.1
Above Normal (16%)	53.7	53.5	50.1	47.1	46.6	47.9	51.1	52.5	52.9	52.5	54.0	55.0
Below Normal (13%)	54.4	54.1	50.5	47.6	47.6	49.5	52.6	52.5	52.7	53.2	54.4	55.7
Dry (24%)	54.6	54.0	50.4	47.9	47.9	49.6	52.6	53.0	52.9	54.0	55.0	56.0
Critical (15%)	59.2	55.7	50.3	48.4	48.6	50.4	53.3	54.1	55.1	56.3	57.9	60.2

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.3**	**0.2**	**0.1**	**0.2**	**0.3**	**0.1**	-0.3	-0.7	0.0	-1.1	-1.1	**0.4**
20%	-1.1	-0.3	**0.4**	-0.1	**0.1**	**0.0**	**0.0**	-0.1	-0.1	-0.5	-1.4	-0.3
30%	-1.5	-0.4	**0.1**	**0.2**	**0.0**	-0.2	0.0	-0.1	**0.2**	0.0	-0.9	-0.2
40%	-1.4	-0.5	**0.1**	**0.4**	0.0	-0.1	-0.5	**0.1**	**0.1**	**0.0**	-0.6	**0.6**
50%	-1.2	-0.5	**0.0**	**0.2**	0.0	-0.6	-0.6	**0.2**	**0.0**	**0.1**	-0.1	**0.6**
60%	-1.2	-0.4	**0.3**	**0.2**	-0.1	-0.4	-0.7	**0.1**	-0.2	**0.2**	-0.1	**1.1**
70%	-1.2	-0.3	**0.3**	**0.1**	**0.1**	-0.3	-0.9	**0.2**	-0.2	**0.3**	**0.1**	**1.3**
80%	-1.0	-0.3	**0.4**	**0.1**	0.0	**0.0**	-0.7	**0.2**	-0.2	**0.1**	**0.0**	**1.5**
90%	-1.1	-0.2	**0.2**	0.0	**0.1**	**0.1**	**0.5**	**0.3**	-0.1	**0.2**	**0.4**	**1.1**
Long Term												
Full Simulation Period[a]	-1.0	-0.3	**0.2**	**0.2**	**0.1**	-0.1	-0.3	0.0	-0.1	0.0	-0.4	**0.6**
Water Year Types[b,c]												
Wet (32%)	-1.2	-0.7	0.0	**0.1**	**0.0**	-0.1	-0.6	-0.1	**0.1**	**0.1**	-0.1	**1.5**
Above Normal (16%)	-1.2	-0.9	-0.1	**0.1**	**0.0**	-0.3	-0.5	**0.3**	**0.2**	**0.1**	**0.2**	**2.0**
Below Normal (13%)	-0.9	**0.3**	**0.3**	**0.2**	0.0	-0.3	-0.3	-0.1	-0.1	0.0	-0.3	0.0
Dry (24%)	-1.1	**0.2**	**0.6**	**0.1**	**0.0**	-0.2	-0.3	-0.1	-0.3	0.0	-1.0	-0.3
Critical (15%)	-0.5	0.0	**0.3**	**0.5**	**0.4**	**0.1**	**0.3**	**0.2**	-0.3	-0.4	-1.2	-0.6

a Based on the 82-year simulation period.

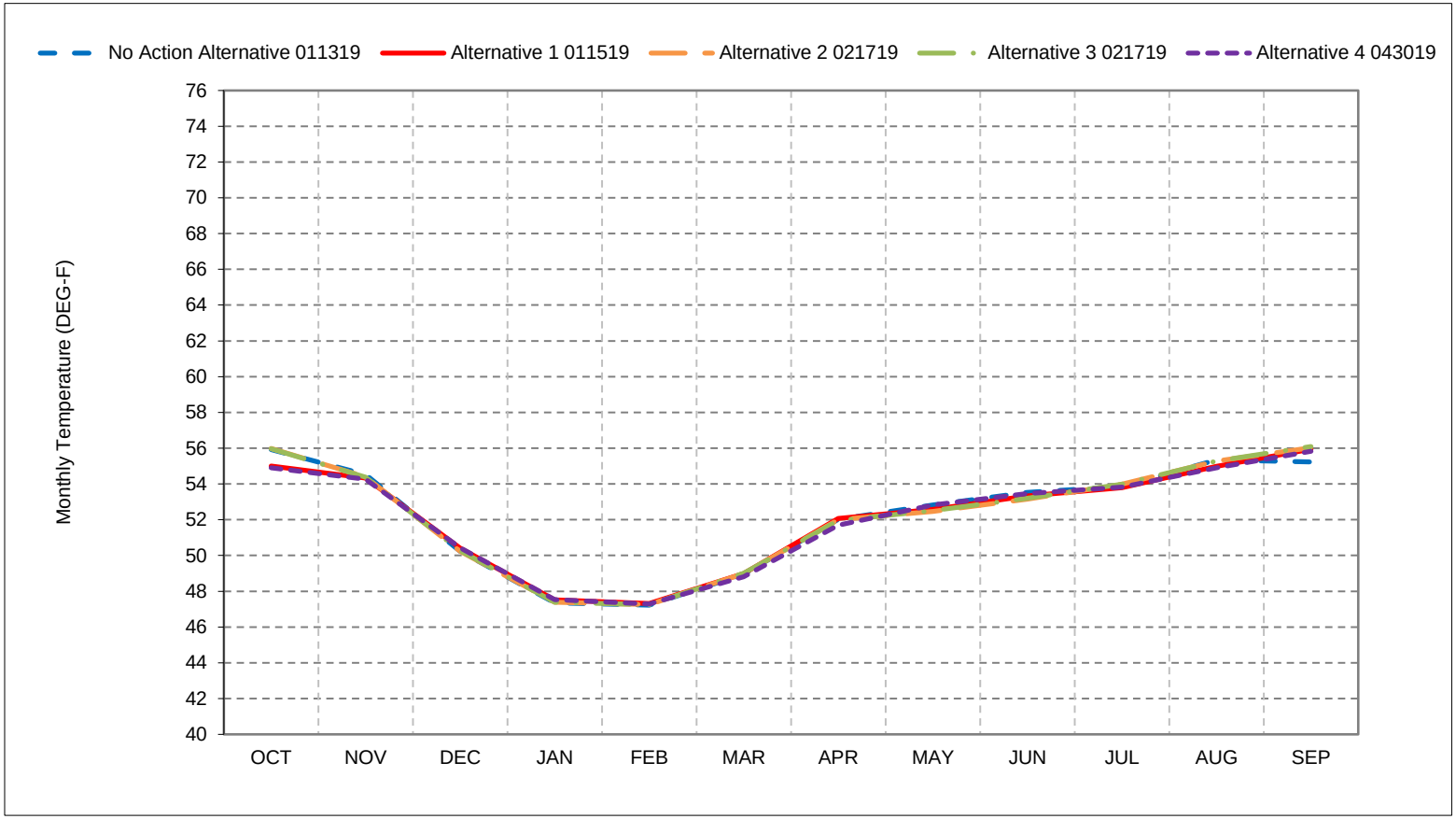
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

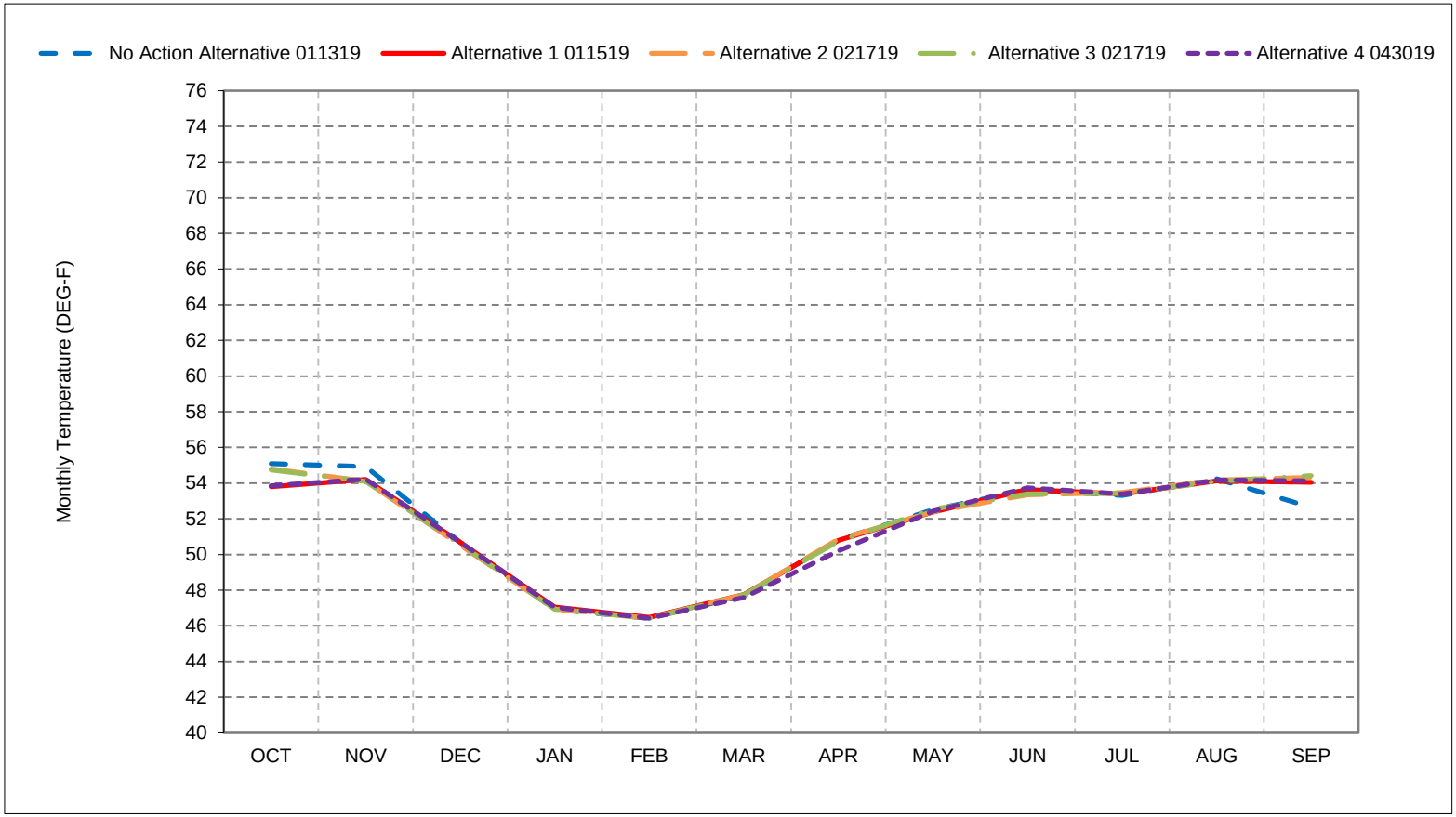
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-1. Sacramento River at Balls Ferry, Long-Term Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-2. Sacramento River at Balls Ferry, Wet Year Average Temperature



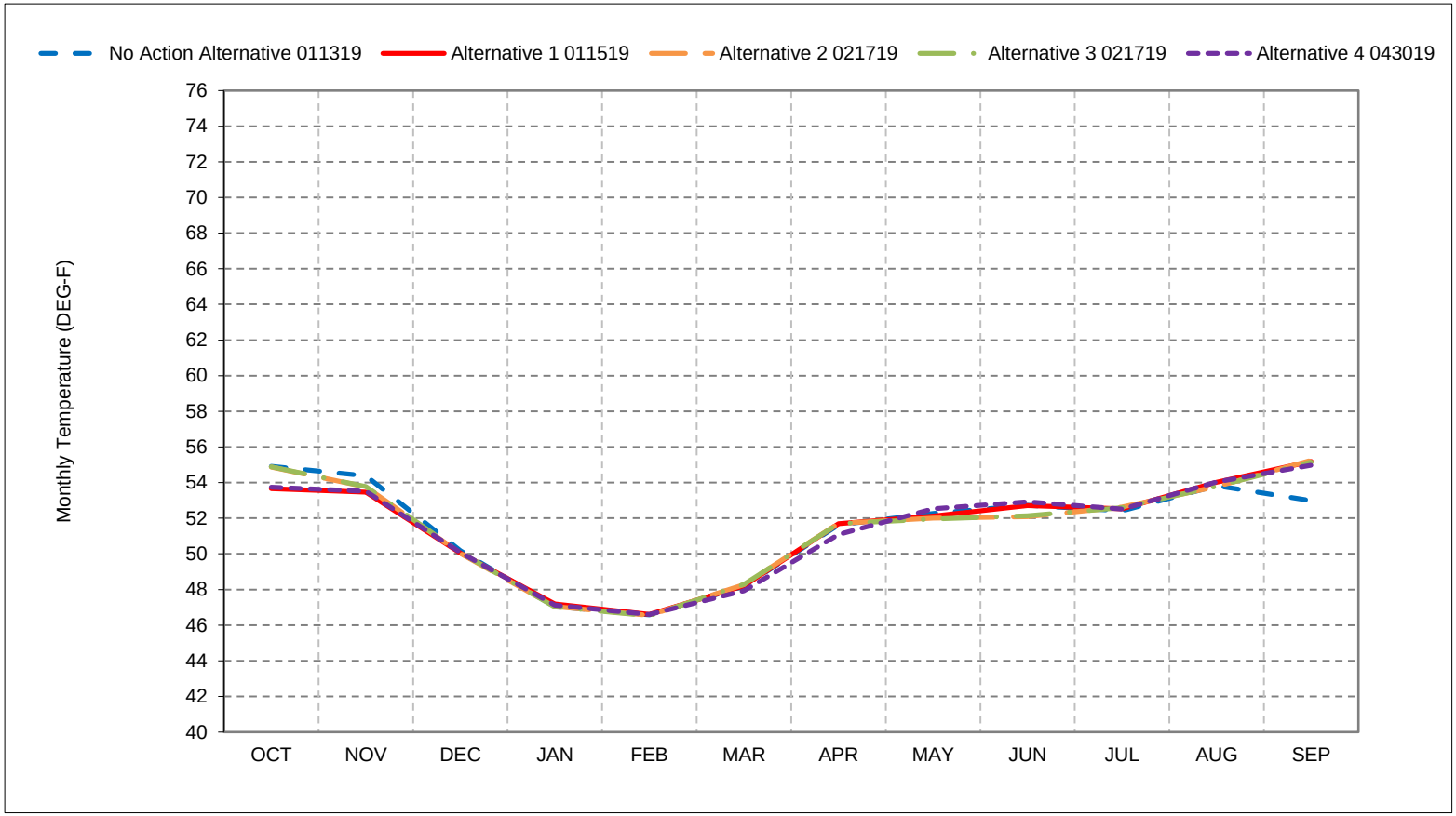
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

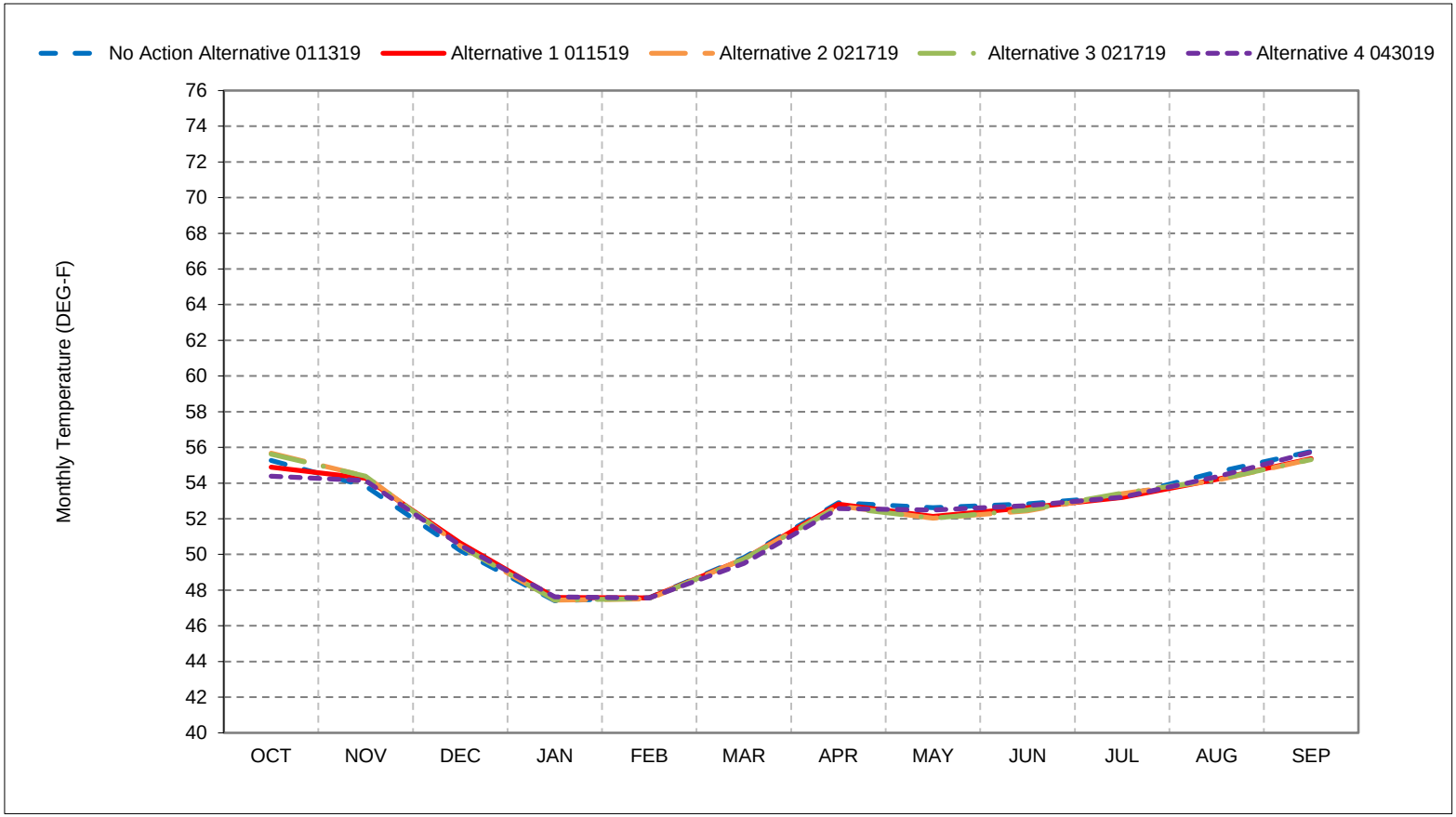
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-3. Sacramento River at Balls Ferry, Above Normal Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-4. Sacramento River at Balls Ferry, Below Normal Year Average Temperature



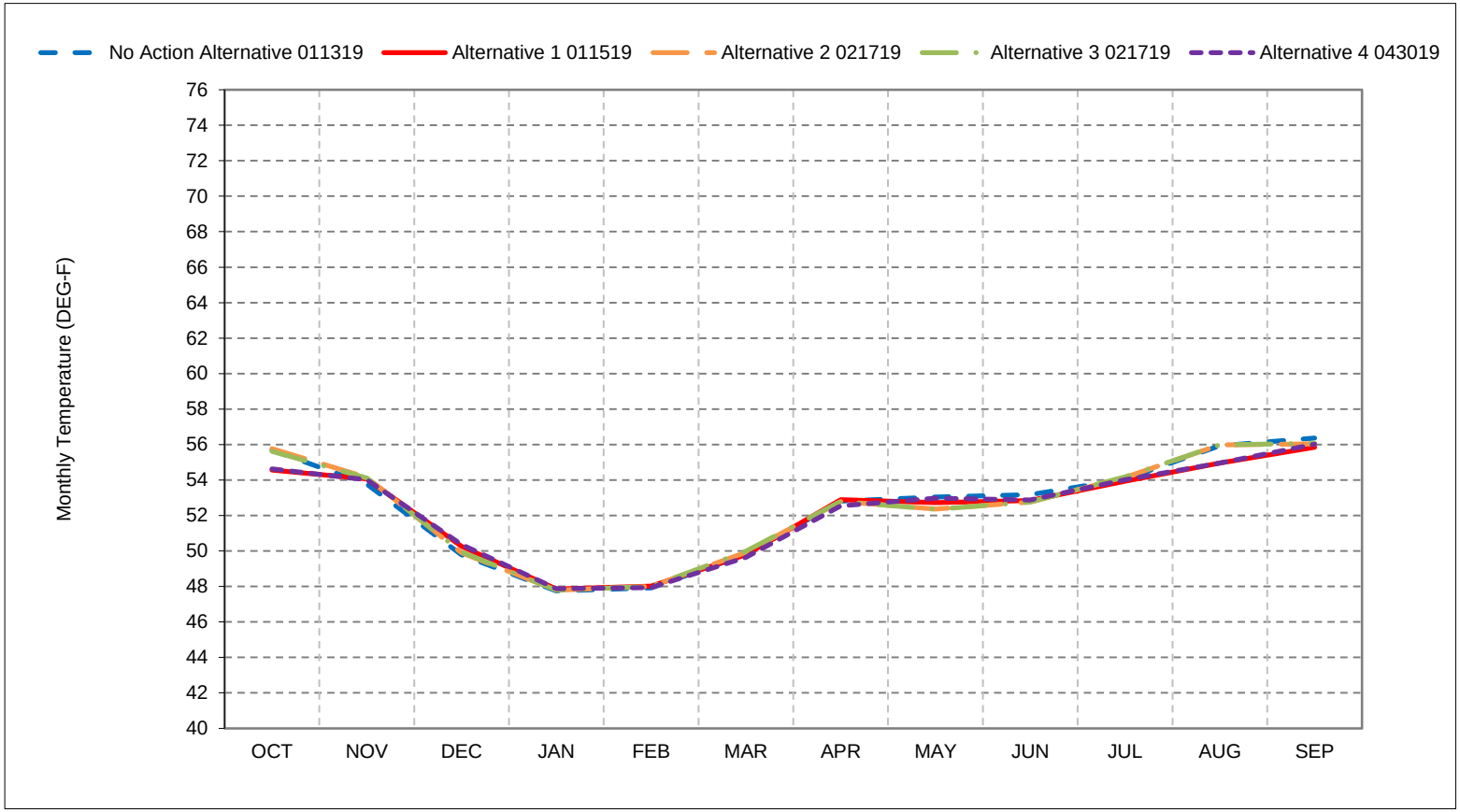
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

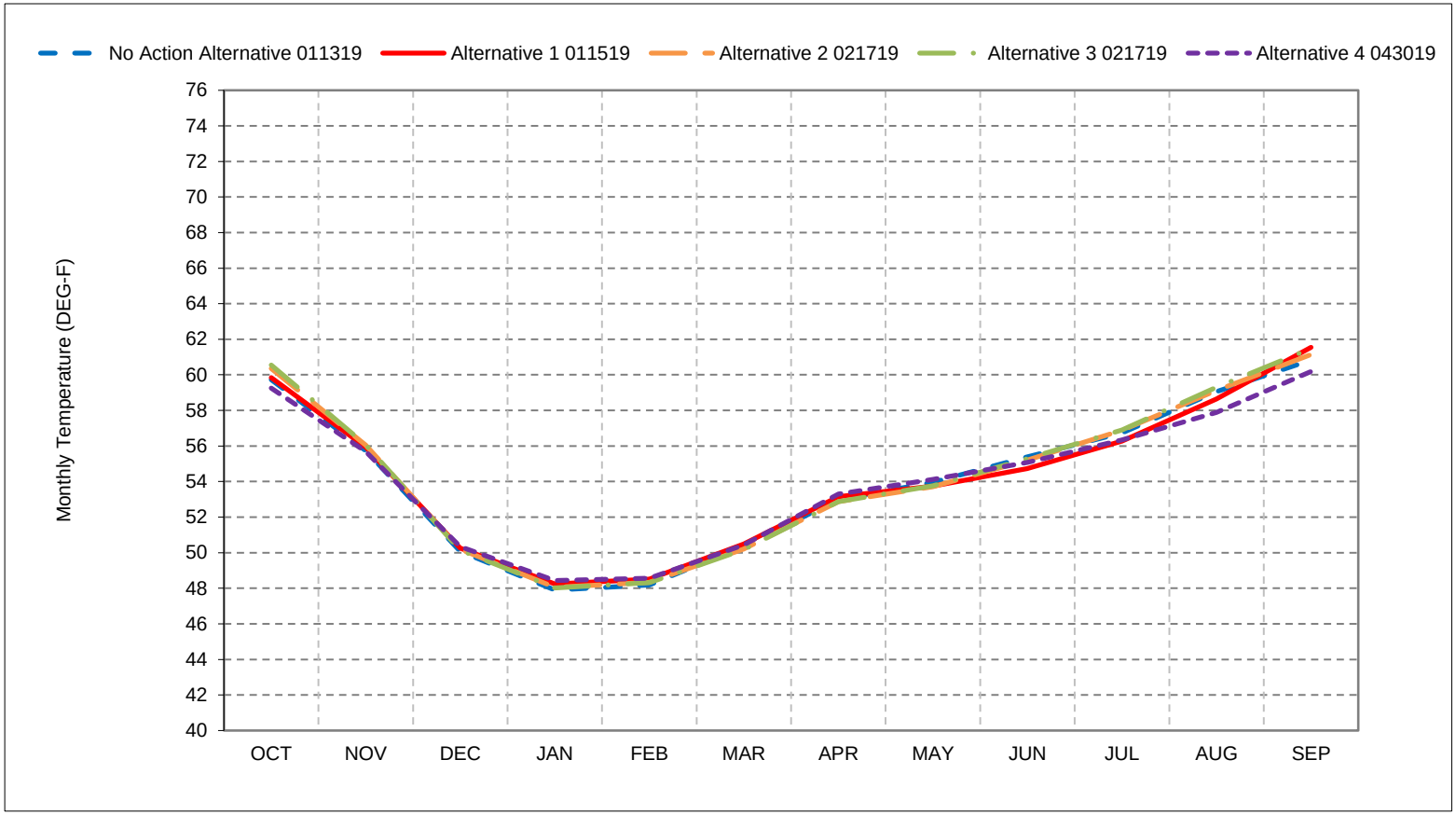
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-5. Sacramento River at Balls Ferry, Dry Year Average Temperature



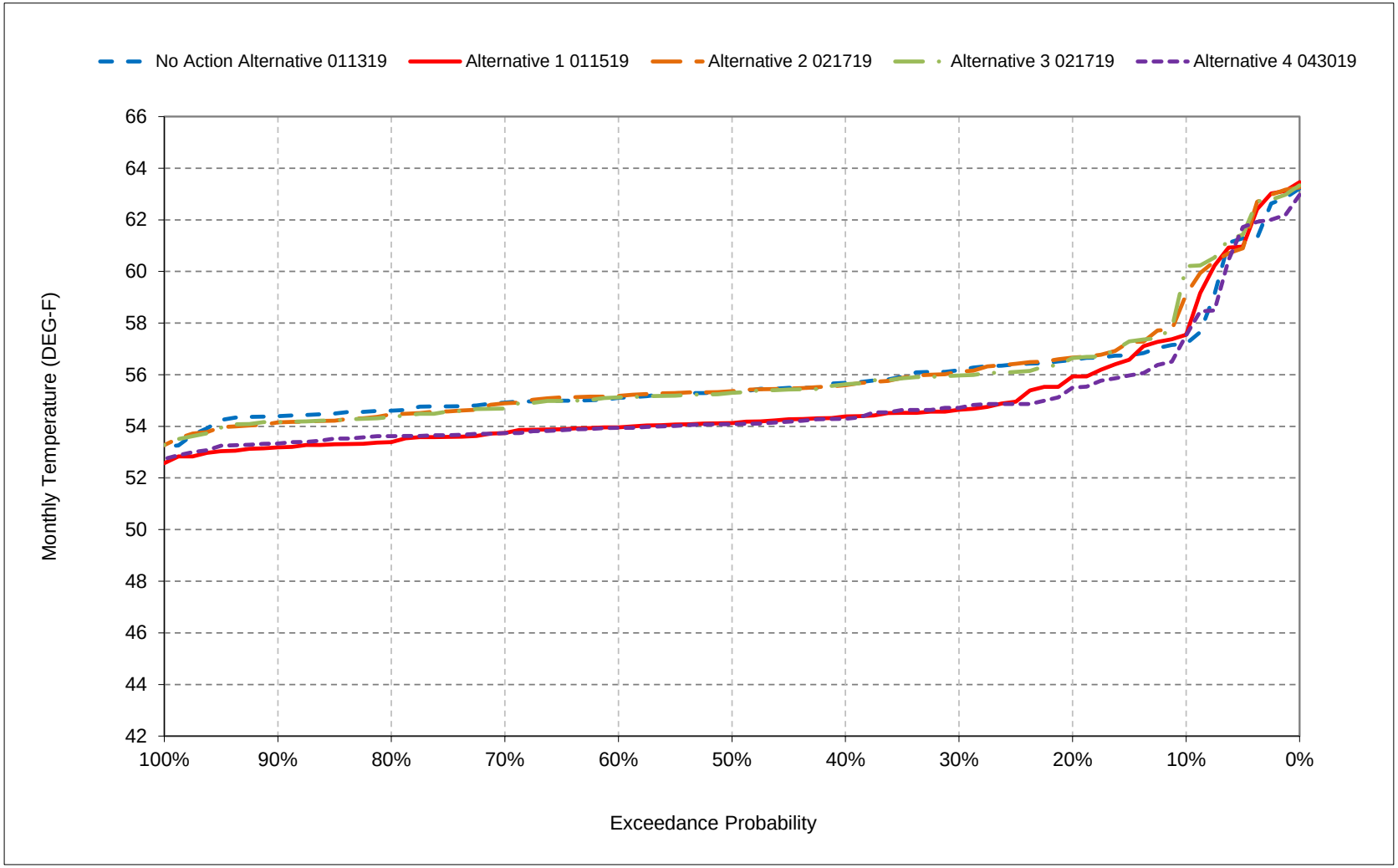
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-6. Sacramento River at Balls Ferry, Critical Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

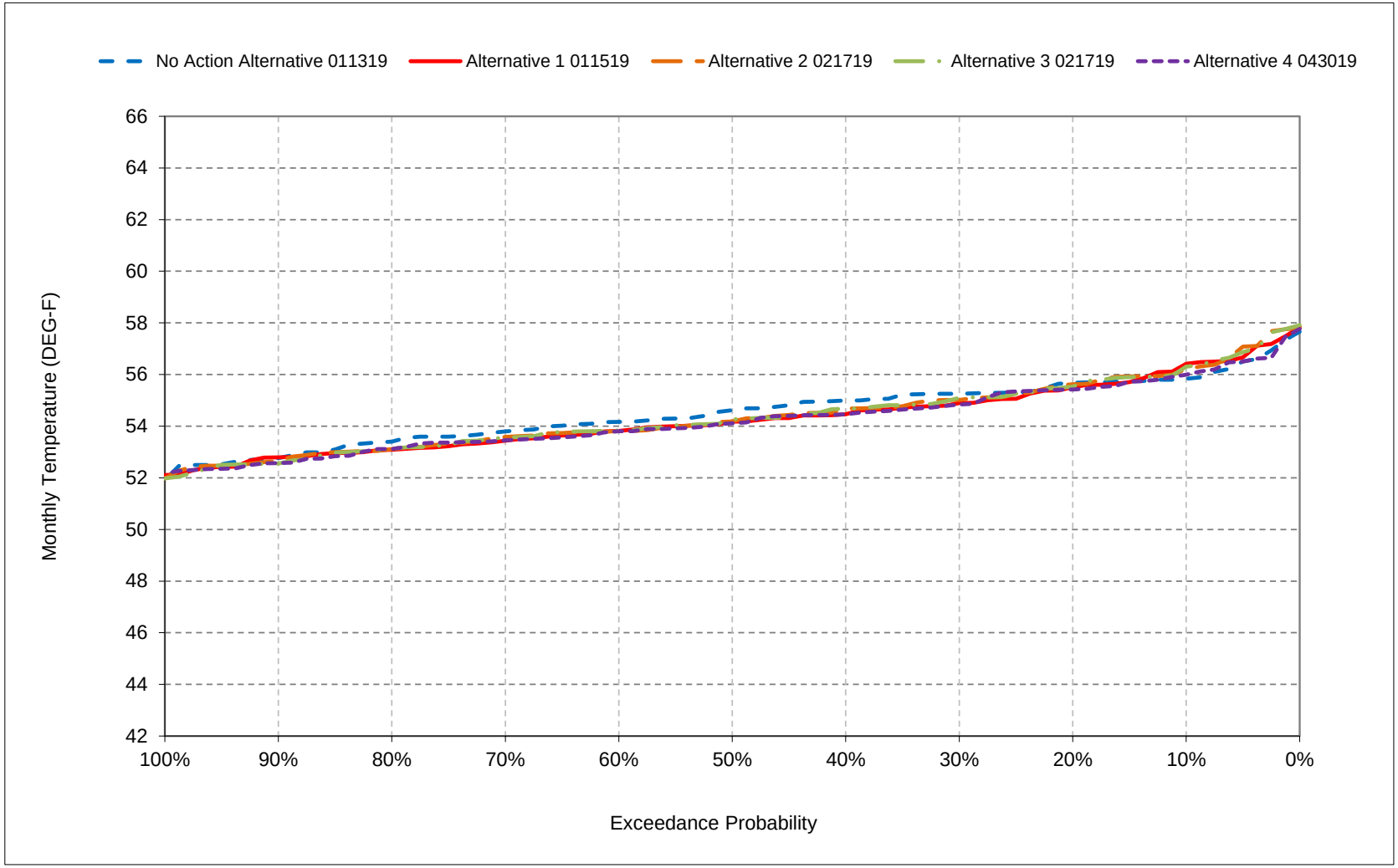
Figure 7-7. Sacramento River at Balls Ferry, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

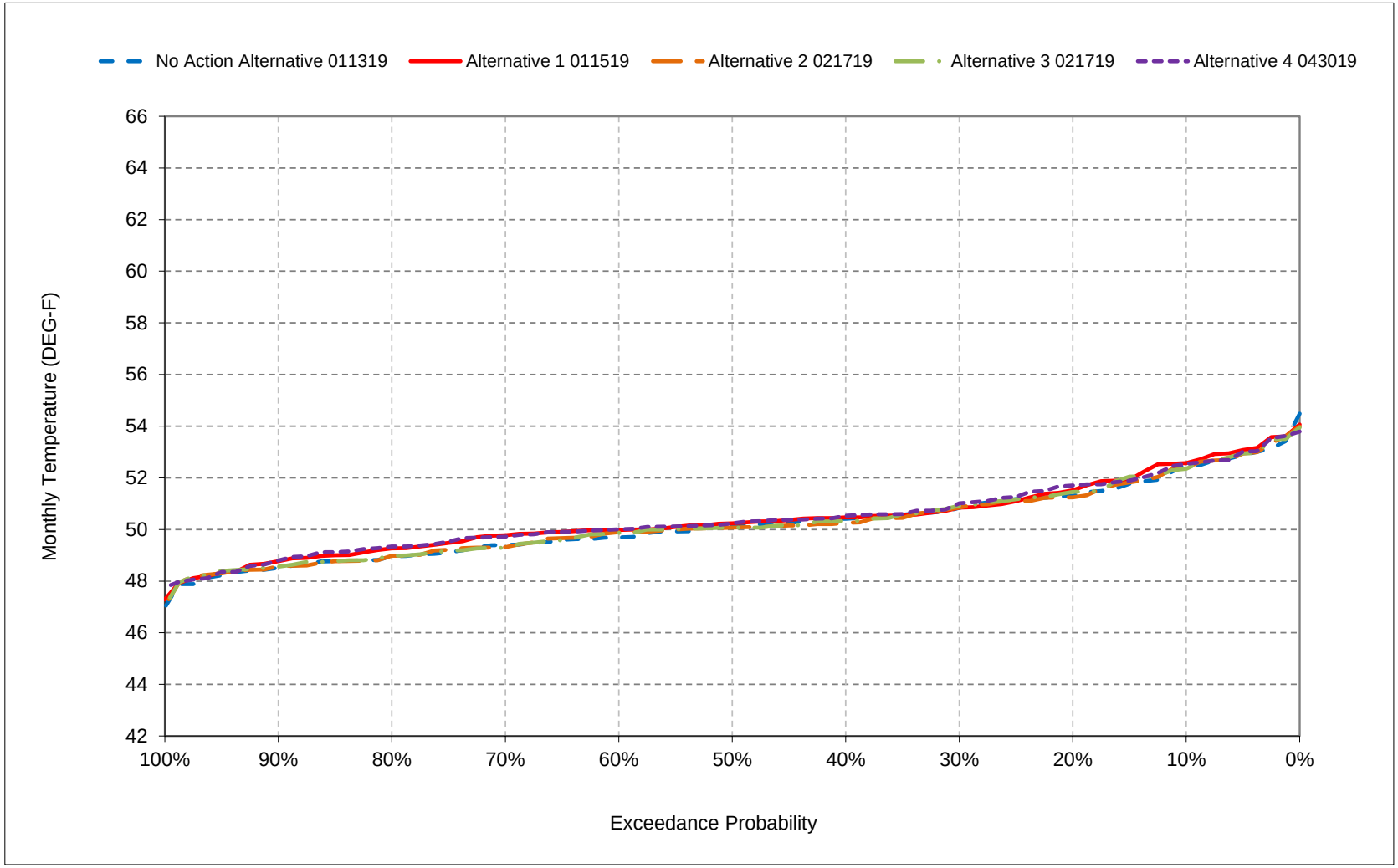
Figure 7-8. Sacramento River at Balls Ferry, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

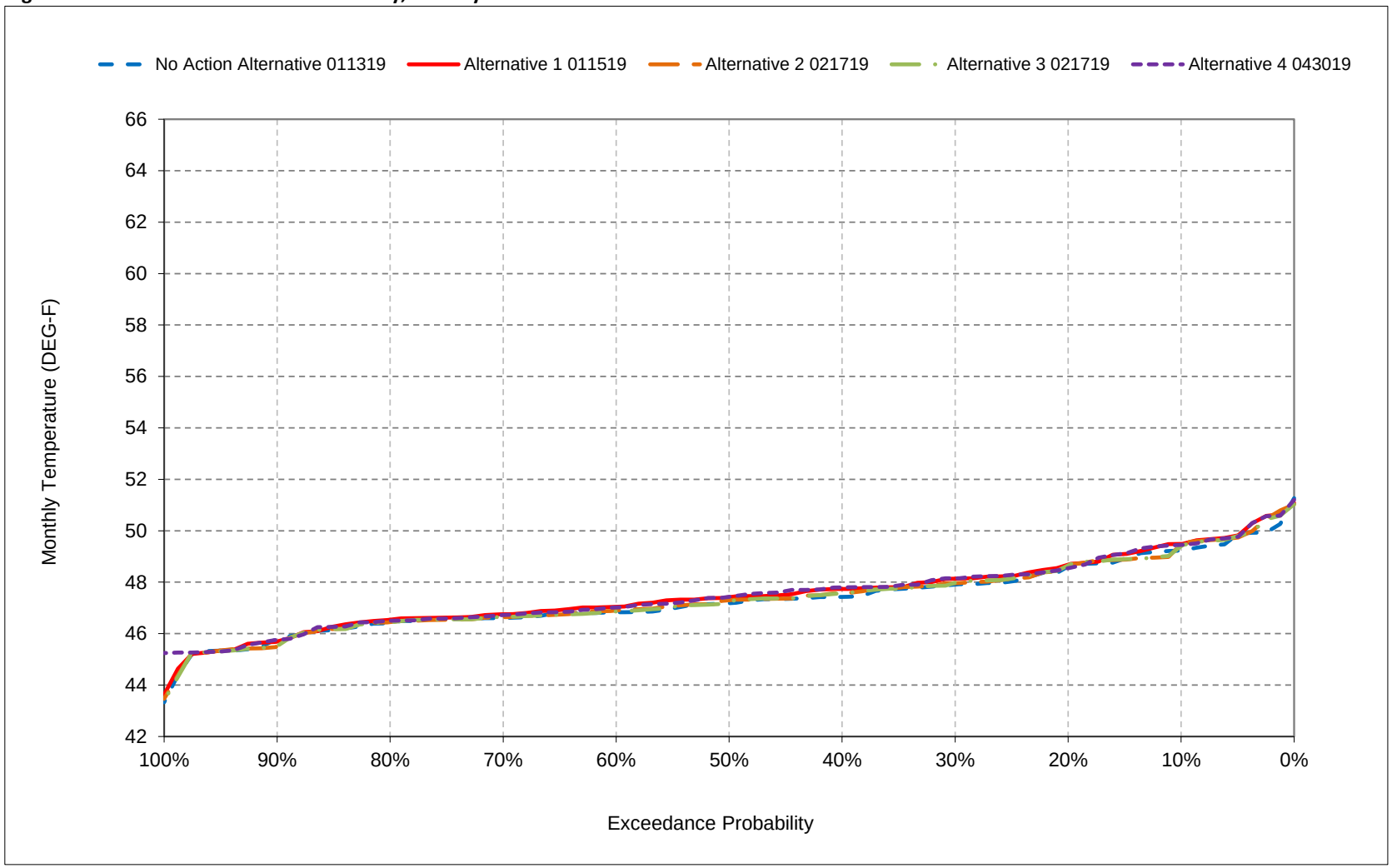
Figure 7-9. Sacramento River at Balls Ferry, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

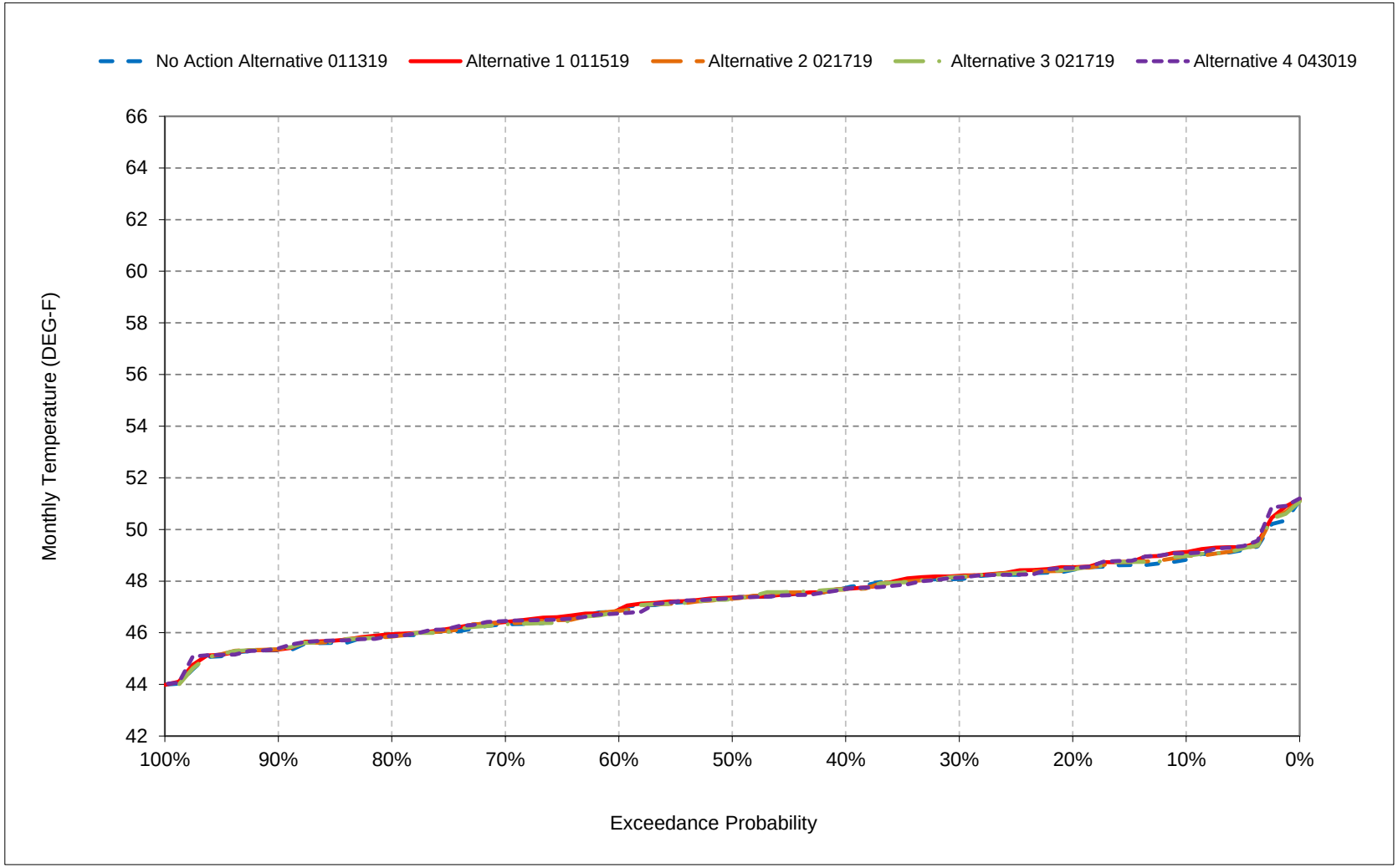
Figure 7-10. Sacramento River at Balls Ferry, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

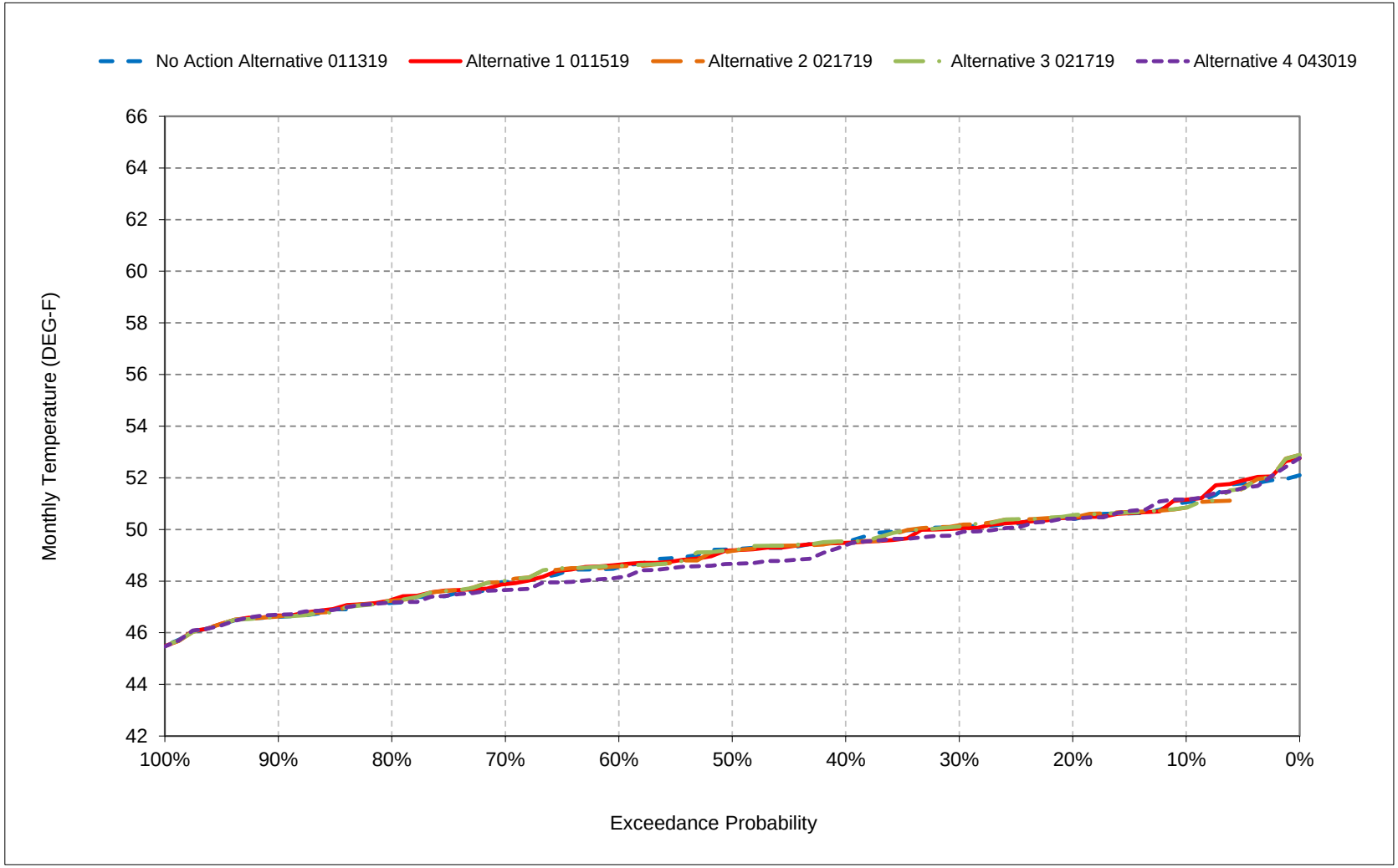
Figure 7-11. Sacramento River at Balls Ferry, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

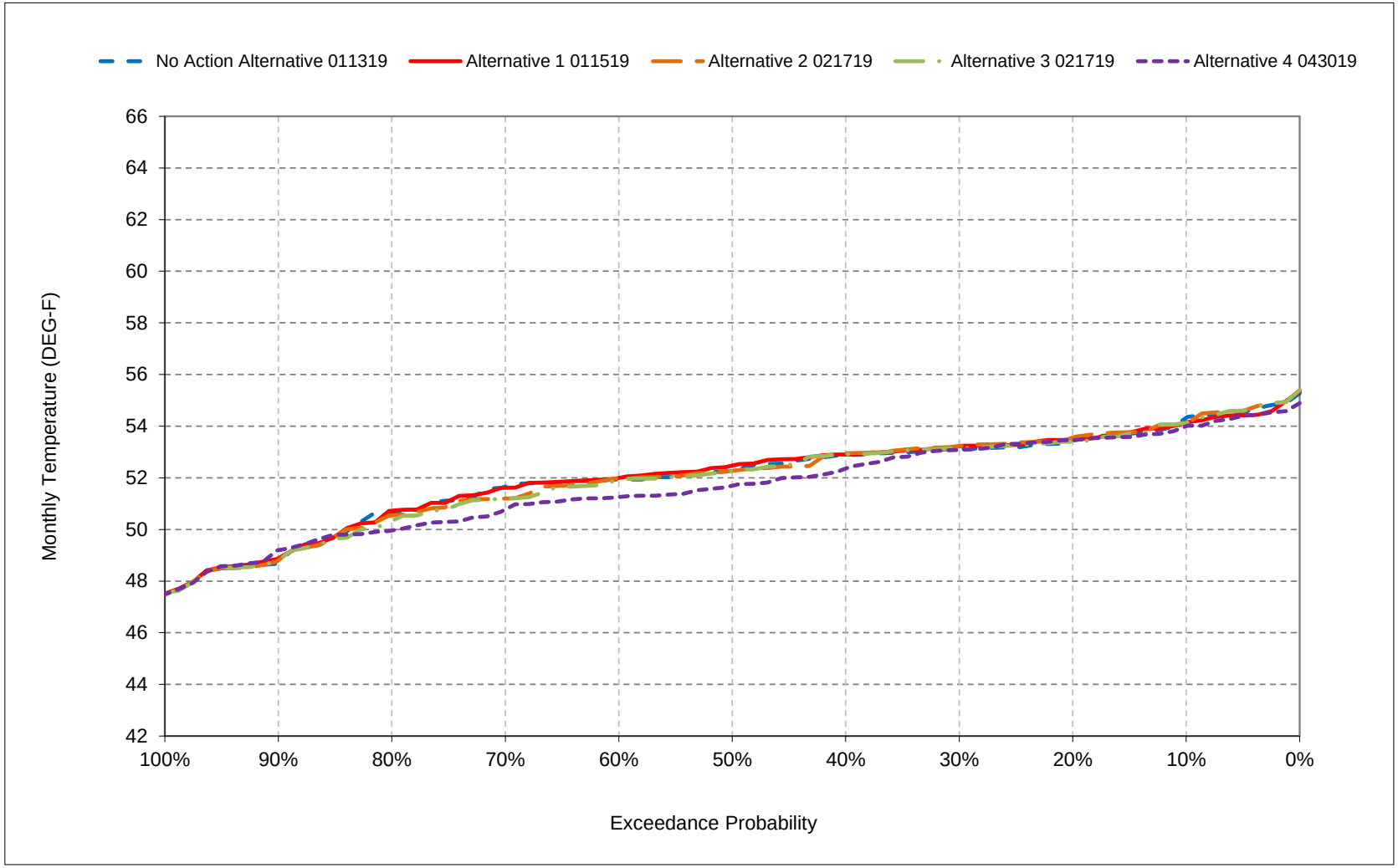
Figure 7-12. Sacramento River at Balls Ferry, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

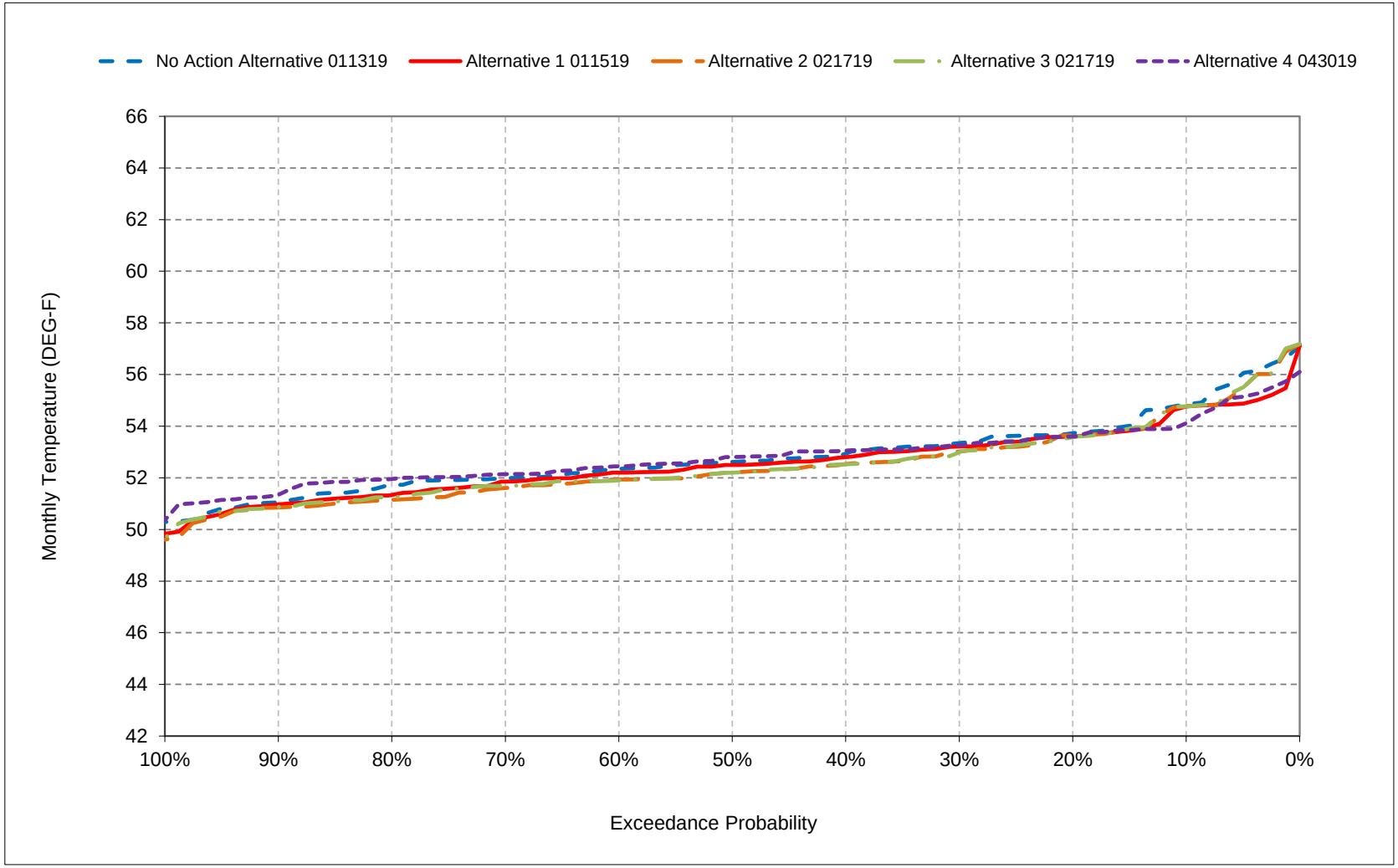
Figure 7-13. Sacramento River at Balls Ferry, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

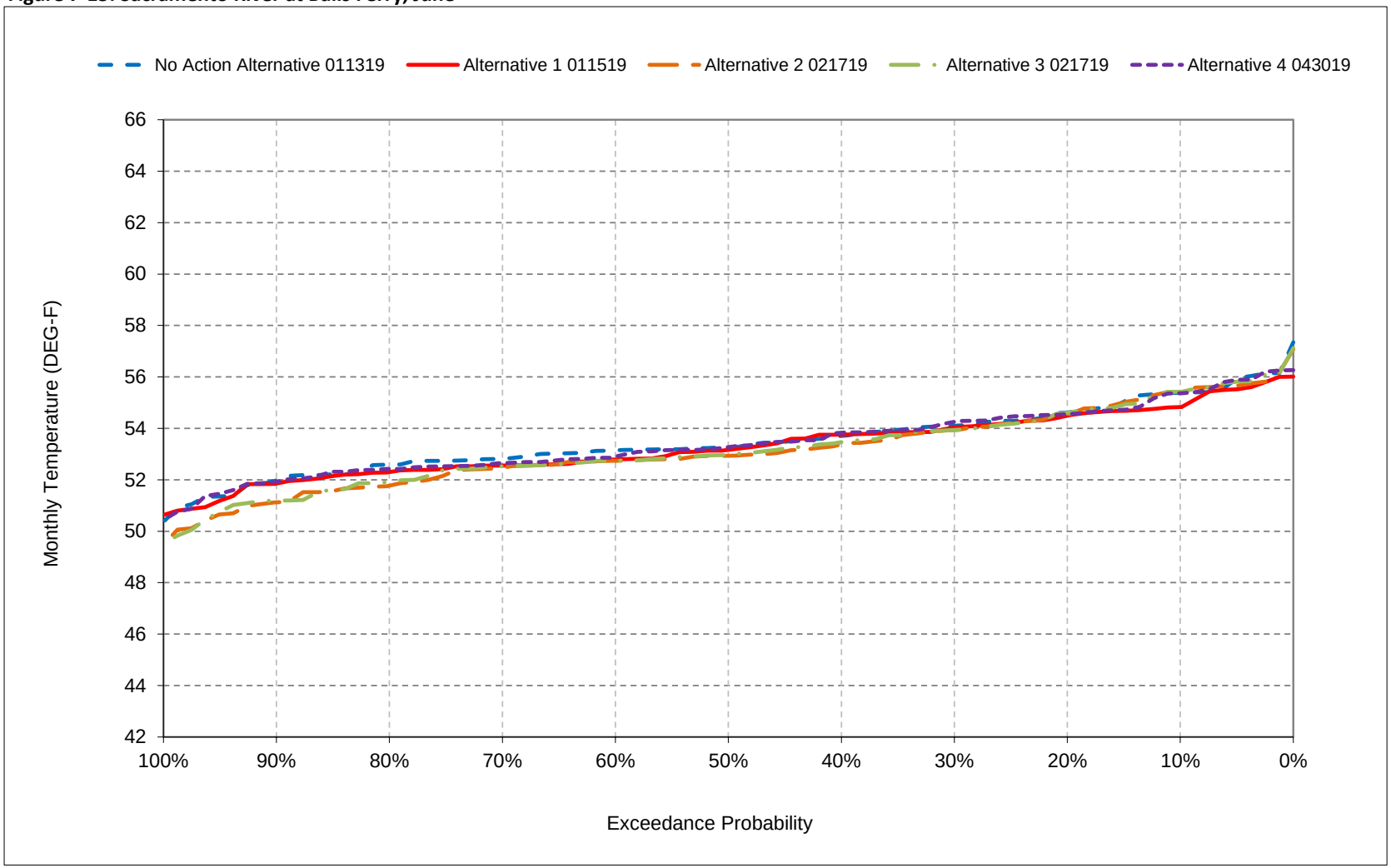
Figure 7-14. Sacramento River at Balls Ferry, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

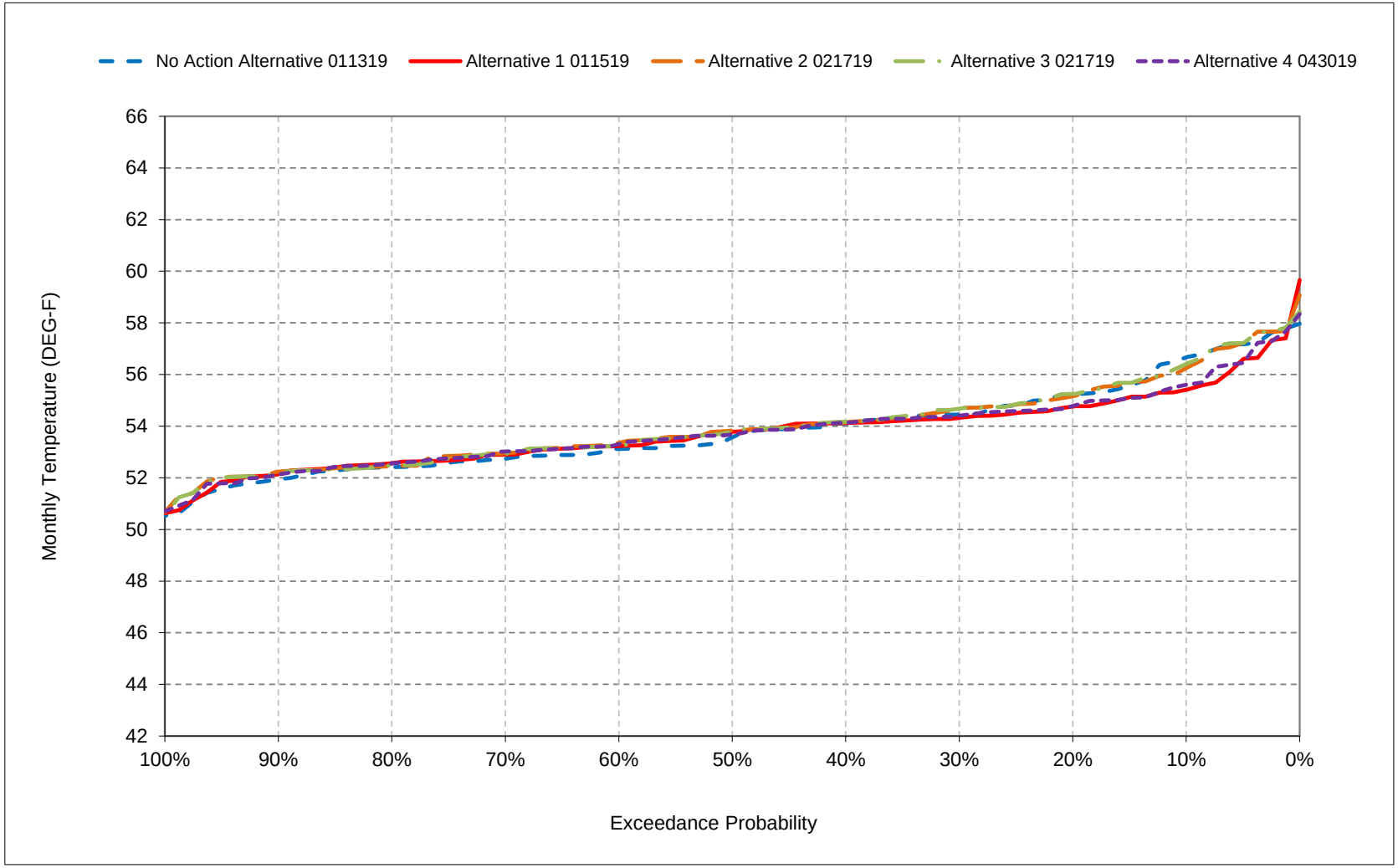
Figure 7-15. Sacramento River at Balls Ferry, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

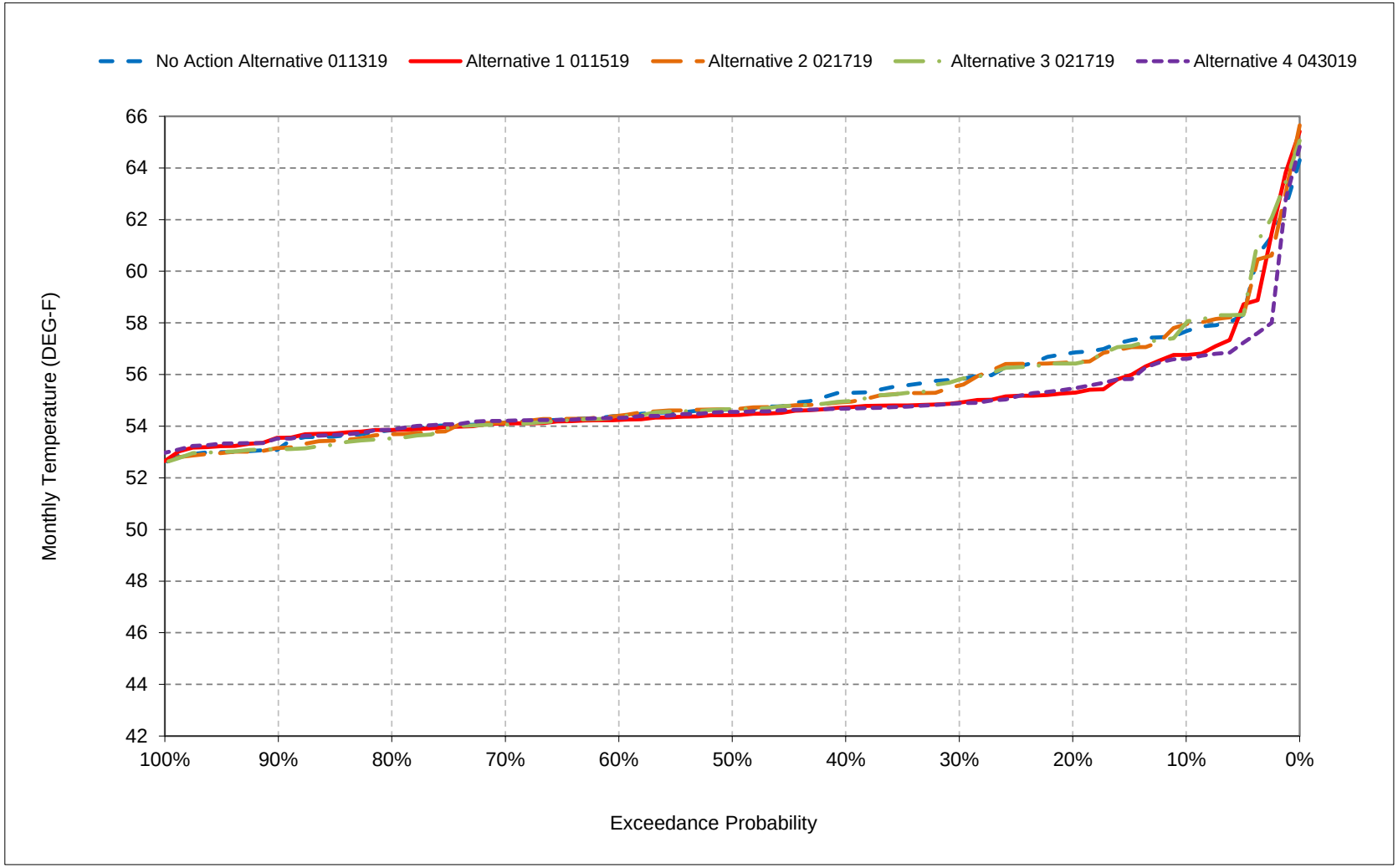
Figure 7-16. Sacramento River at Balls Ferry, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

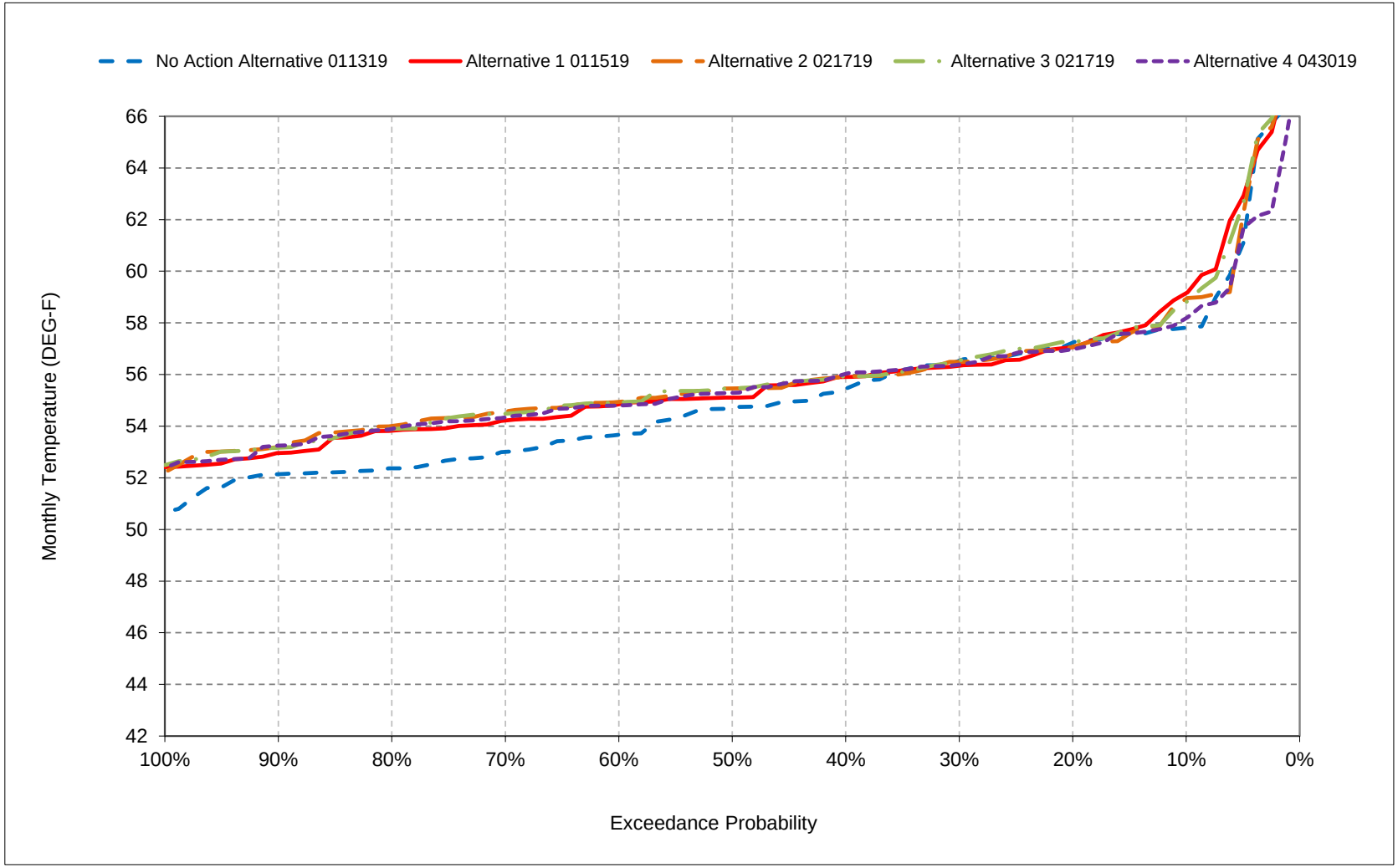
Figure 7-17. Sacramento River at Balls Ferry, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-18. Sacramento River at Balls Ferry, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 8-1. Sacramento River at Jellys Ferry, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.6	55.7	51.3	48.6	48.9	51.8	55.7	57.0	57.6	58.0	59.3	59.5
20%	57.0	55.4	50.5	47.8	48.5	51.2	55.0	56.1	56.8	56.7	58.2	58.8
30%	56.6	54.8	50.0	47.4	48.0	50.7	54.6	55.3	56.5	56.2	57.3	57.9
40%	56.2	54.6	49.5	46.9	47.7	50.3	54.4	55.0	56.0	55.7	56.7	57.1
50%	55.8	54.2	49.2	46.7	47.4	50.0	53.9	54.7	55.4	55.1	56.2	56.1
60%	55.6	53.7	48.7	46.5	47.1	49.4	53.5	54.4	54.9	54.5	56.0	55.0
70%	55.4	53.3	48.4	46.2	46.5	48.7	53.0	54.0	54.6	54.1	55.7	53.9
80%	55.0	53.0	48.1	46.0	46.2	47.9	52.2	53.7	54.4	53.8	55.4	53.3
90%	54.8	52.5	47.7	45.5	45.7	47.3	50.4	53.1	53.7	53.3	54.7	53.0
Long Term												
Full Simulation Period[a]	56.4	54.1	49.4	46.9	47.3	49.7	53.6	54.9	55.6	55.3	56.8	56.5
Water Year Types[b,c]												
Wet (32%)	55.5	54.5	49.8	46.5	46.6	48.4	52.3	54.8	56.2	55.1	55.8	53.6
Above Normal (16%)	55.4	54.0	49.3	46.6	46.7	48.9	53.2	54.5	54.8	53.8	55.3	54.1
Below Normal (13%)	55.8	53.4	49.5	46.8	47.7	50.5	54.5	54.4	54.6	54.6	56.0	57.3
Dry (24%)	56.2	53.3	49.0	47.2	47.9	50.4	54.3	55.0	54.9	55.5	57.4	57.9
Critical (15%)	59.9	55.2	49.2	47.5	48.4	51.1	54.5	55.6	57.1	58.2	60.4	62.0

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.0	56.1	51.8	48.7	49.1	51.8	55.6	56.4	57.4	57.2	58.5	60.6
20%	56.4	55.0	50.7	48.0	48.7	51.1	55.0	55.7	56.8	56.5	56.9	58.8
30%	55.3	54.3	50.0	47.7	48.1	50.8	54.7	55.2	56.1	56.0	56.5	57.9
40%	55.1	54.0	49.7	47.2	47.7	50.1	54.5	54.8	55.9	55.7	56.3	57.5
50%	54.8	53.7	49.3	46.9	47.4	49.9	53.9	54.5	55.3	55.2	56.0	56.9
60%	54.6	53.4	49.0	46.6	47.1	49.3	53.6	54.0	54.6	54.7	55.8	56.5
70%	54.4	53.0	48.9	46.4	46.6	48.8	53.2	53.7	54.1	54.4	55.6	55.7
80%	54.0	52.6	48.3	46.1	46.2	47.9	52.2	53.2	53.9	54.0	55.2	55.3
90%	53.7	52.1	48.0	45.6	45.8	47.3	50.5	52.9	53.6	53.5	54.9	54.3
Long Term												
Full Simulation Period[a]	55.5	53.9	49.6	47.0	47.4	49.7	53.6	54.6	55.3	55.3	56.5	57.4
Water Year Types[b,c]												
Wet (32%)	54.4	53.8	49.9	46.7	46.6	48.4	52.3	54.6	56.2	55.1	55.7	55.5
Above Normal (16%)	54.3	53.0	49.2	46.8	46.7	48.9	53.2	54.3	54.8	53.9	55.5	56.9
Below Normal (13%)	55.4	53.8	49.8	47.0	47.6	50.4	54.3	53.8	54.2	54.5	55.6	56.8
Dry (24%)	55.2	53.6	49.4	47.3	48.0	50.4	54.4	54.6	54.5	55.4	56.5	57.5
Critical (15%)	60.0	55.4	49.4	47.7	48.7	51.2	54.6	55.4	56.4	57.8	60.0	62.6

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.4**	**0.4**	**0.5**	**0.1**	**0.3**	0.0	-0.1	-0.5	-0.2	-0.8	-0.8	**1.2**
20%	-0.6	-0.4	**0.2**	**0.2**	**0.2**	-0.1	**0.0**	-0.4	0.0	-0.2	-1.3	0.0
30%	-1.3	-0.5	**0.0**	**0.2**	**0.1**	**0.0**	**0.1**	-0.1	-0.4	-0.2	-0.8	0.0
40%	-1.1	-0.6	**0.2**	**0.3**	**0.0**	-0.1	**0.1**	-0.1	-0.2	0.0	-0.4	**0.4**
50%	-1.0	-0.5	**0.1**	**0.2**	**0.1**	-0.1	**0.0**	-0.2	-0.1	**0.1**	-0.2	**0.8**
60%	-1.0	-0.3	**0.3**	**0.1**	0.0	0.0	**0.1**	-0.4	-0.4	**0.3**	-0.2	**1.5**
70%	-0.9	-0.3	**0.5**	**0.1**	**0.1**	**0.1**	**0.1**	-0.3	-0.5	**0.3**	-0.1	**1.9**
80%	-1.0	-0.4	**0.2**	**0.1**	**0.0**	**0.0**	**0.1**	-0.5	-0.5	**0.2**	-0.1	**2.0**
90%	-1.1	-0.4	**0.3**	**0.1**	**0.1**	**0.0**	**0.0**	-0.3	-0.1	**0.2**	**0.2**	**1.3**
Long Term												
Full Simulation Period[a]	-0.8	-0.2	**0.2**	**0.2**	**0.1**	0.0	**0.0**	-0.3	-0.3	0.0	-0.4	**1.0**
Water Year Types[b,c]												
Wet (32%)	-1.2	-0.8	**0.1**	**0.1**	**0.0**	**0.0**	0.0	-0.2	0.0	**0.1**	-0.1	**1.9**
Above Normal (16%)	-1.1	-1.0	-0.1	**0.2**	**0.0**	0.0	**0.1**	-0.2	-0.1	**0.1**	**0.2**	**2.8**
Below Normal (13%)	-0.3	**0.4**	**0.4**	**0.2**	0.0	-0.1	-0.2	-0.6	-0.3	-0.1	-0.4	-0.5
Dry (24%)	-1.0	**0.3**	**0.4**	**0.1**	**0.1**	0.0	**0.1**	-0.4	-0.4	-0.1	-0.9	-0.5
Critical (15%)	**0.1**	**0.2**	**0.2**	**0.3**	**0.3**	**0.1**	**0.1**	-0.2	-0.7	-0.4	-0.4	**0.6**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 8-2. Sacramento River at Jellys Ferry, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.6	55.7	51.3	48.6	48.9	51.8	55.7	57.0	57.6	58.0	59.3	59.5
20%	57.0	55.4	50.5	47.8	48.5	51.2	55.0	56.1	56.8	56.7	58.2	58.8
30%	56.6	54.8	50.0	47.4	48.0	50.7	54.6	55.3	56.5	56.2	57.3	57.9
40%	56.2	54.6	49.5	46.9	47.7	50.3	54.4	55.0	56.0	55.7	56.7	57.1
50%	55.8	54.2	49.2	46.7	47.4	50.0	53.9	54.7	55.4	55.1	56.2	56.1
60%	55.6	53.7	48.7	46.5	47.1	49.4	53.5	54.4	54.9	54.5	56.0	55.0
70%	55.4	53.3	48.4	46.2	46.5	48.7	53.0	54.0	54.6	54.1	55.7	53.9
80%	55.0	53.0	48.1	46.0	46.2	47.9	52.2	53.7	54.4	53.8	55.4	53.3
90%	54.8	52.5	47.7	45.5	45.7	47.3	50.4	53.1	53.7	53.3	54.7	53.0
Long Term												
Full Simulation Period[a]	56.4	54.1	49.4	46.9	47.3	49.7	53.6	54.9	55.6	55.3	56.8	56.5
Water Year Types[b,c]												
Wet (32%)	55.5	54.5	49.8	46.5	46.6	48.4	52.3	54.8	56.2	55.1	55.8	53.6
Above Normal (16%)	55.4	54.0	49.3	46.6	46.7	48.9	53.2	54.5	54.8	53.8	55.3	54.1
Below Normal (13%)	55.8	53.4	49.5	46.8	47.7	50.5	54.5	54.4	54.6	54.6	56.0	57.3
Dry (24%)	56.2	53.3	49.0	47.2	47.9	50.4	54.3	55.0	54.9	55.5	57.4	57.9
Critical (15%)	59.9	55.2	49.2	47.5	48.4	51.1	54.5	55.6	57.1	58.2	60.4	62.0

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.3	55.9	51.7	48.5	48.9	51.8	55.7	57.0	57.4	57.9	59.4	59.9
20%	57.1	55.1	50.5	47.7	48.5	51.1	55.1	55.7	56.9	56.7	58.0	58.6
30%	56.6	54.5	50.0	47.5	48.0	50.8	54.8	55.0	56.6	56.2	57.1	58.0
40%	56.1	54.0	49.5	47.1	47.7	50.2	54.5	54.7	55.6	55.7	56.5	57.3
50%	55.8	53.6	49.2	46.7	47.4	49.9	53.8	54.0	54.9	55.3	56.2	57.0
60%	55.7	53.4	48.8	46.5	47.1	49.3	53.4	53.7	54.3	54.7	55.9	56.5
70%	55.4	53.0	48.4	46.3	46.5	49.0	52.8	53.4	54.1	54.5	55.7	56.0
80%	55.0	52.8	48.2	46.0	46.1	47.9	52.1	53.1	53.4	54.0	55.1	55.6
90%	54.6	52.2	47.7	45.5	45.8	47.3	50.4	52.7	52.8	53.6	54.4	54.6
Long Term												
Full Simulation Period[a]	56.4	53.9	49.4	46.9	47.4	49.7	53.5	54.4	55.1	55.5	56.7	57.4
Water Year Types[b,c]												
Wet (32%)	55.3	53.7	49.7	46.5	46.6	48.4	52.3	54.6	55.8	55.2	55.7	55.8
Above Normal (16%)	55.4	53.3	49.2	46.7	46.7	49.0	53.2	54.2	54.0	54.0	55.2	56.8
Below Normal (13%)	56.1	53.9	49.6	46.9	47.6	50.4	54.2	53.7	54.0	54.7	55.4	56.7
Dry (24%)	56.3	53.7	49.1	47.3	48.0	50.5	54.3	54.2	54.4	55.5	57.5	57.6
Critical (15%)	60.5	55.5	49.3	47.6	48.5	50.9	54.4	55.3	56.8	58.3	60.5	62.2

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**1.7**	**0.2**	**0.4**	-0.1	**0.1**	0.0	**0.0**	0.0	-0.2	-0.1	**0.1**	**0.4**
20%	**0.1**	-0.3	-0.1	0.0	**0.0**	-0.1	**0.1**	-0.4	**0.1**	**0.0**	-0.2	-0.3
30%	-0.1	-0.3	0.0	**0.1**	-0.1	**0.1**	**0.1**	-0.3	**0.0**	**0.1**	-0.2	**0.1**
40%	-0.1	-0.6	**0.1**	**0.2**	0.0	0.0	**0.1**	-0.3	-0.4	**0.0**	-0.2	**0.2**
50%	**0.0**	-0.6	**0.0**	**0.0**	**0.0**	-0.1	-0.1	-0.7	-0.6	**0.2**	0.0	**0.9**
60%	**0.1**	-0.3	**0.1**	0.0	0.0	0.0	-0.1	-0.6	-0.6	**0.2**	-0.1	**1.5**
70%	**0.0**	-0.3	**0.0**	**0.1**	**0.0**	**0.2**	-0.2	-0.6	-0.5	**0.3**	**0.0**	**2.1**
80%	-0.1	-0.2	**0.0**	**0.0**	-0.1	**0.0**	-0.1	-0.6	-1.0	**0.2**	-0.3	**2.2**
90%	-0.2	-0.3	0.0	0.0	**0.0**	**0.0**	0.0	-0.5	-0.9	**0.2**	-0.3	**1.6**
Long Term												
Full Simulation Period[a]	**0.1**	-0.2	**0.0**	**0.0**	**0.0**	**0.0**	0.0	-0.5	-0.5	**0.1**	-0.1	**1.0**
Water Year Types[b,c]												
Wet (32%)	-0.2	-0.8	0.0	**0.0**	**0.0**	**0.0**	**0.0**	-0.2	-0.4	**0.2**	-0.1	**2.2**
Above Normal (16%)	-0.1	-0.8	-0.1	**0.0**	0.0	**0.1**	**0.1**	-0.4	-0.9	**0.2**	-0.1	**2.7**
Below Normal (13%)	**0.4**	**0.5**	**0.2**	**0.1**	-0.1	-0.1	-0.3	-0.7	-0.6	**0.1**	-0.6	-0.6
Dry (24%)	**0.1**	**0.3**	**0.1**	**0.0**	**0.1**	**0.1**	0.0	-0.8	-0.5	**0.1**	**0.1**	-0.4
Critical (15%)	**0.5**	**0.3**	**0.1**	**0.1**	**0.1**	-0.2	-0.1	-0.3	-0.3	**0.1**	**0.0**	**0.2**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 8-3. Sacramento River at Jellys Ferry, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.6	55.7	51.3	48.6	48.9	51.8	55.7	57.0	57.6	58.0	59.3	59.5
20%	57.0	55.4	50.5	47.8	48.5	51.2	55.0	56.1	56.8	56.7	58.2	58.8
30%	56.6	54.8	50.0	47.4	48.0	50.7	54.6	55.3	56.5	56.2	57.3	57.9
40%	56.2	54.6	49.5	46.9	47.7	50.3	54.4	55.0	56.0	55.7	56.7	57.1
50%	55.8	54.2	49.2	46.7	47.4	50.0	53.9	54.7	55.4	55.1	56.2	56.1
60%	55.6	53.7	48.7	46.5	47.1	49.4	53.5	54.4	54.9	54.5	56.0	55.0
70%	55.4	53.3	48.4	46.2	46.5	48.7	53.0	54.0	54.6	54.1	55.7	53.9
80%	55.0	53.0	48.1	46.0	46.2	47.9	52.2	53.7	54.4	53.8	55.4	53.3
90%	54.8	52.5	47.7	45.5	45.7	47.3	50.4	53.1	53.7	53.3	54.7	53.0
Long Term												
Full Simulation Period[a]	56.4	54.1	49.4	46.9	47.3	49.7	53.6	54.9	55.6	55.3	56.8	56.5
Water Year Types[b,c]												
Wet (32%)	55.5	54.5	49.8	46.5	46.6	48.4	52.3	54.8	56.2	55.1	55.8	53.6
Above Normal (16%)	55.4	54.0	49.3	46.6	46.7	48.9	53.2	54.5	54.8	53.8	55.3	54.1
Below Normal (13%)	55.8	53.4	49.5	46.8	47.7	50.5	54.5	54.4	54.6	54.6	56.0	57.3
Dry (24%)	56.2	53.3	49.0	47.2	47.9	50.4	54.3	55.0	54.9	55.5	57.4	57.9
Critical (15%)	59.9	55.2	49.2	47.5	48.4	51.1	54.5	55.6	57.1	58.2	60.4	62.0

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.1	56.1	51.7	48.6	48.9	51.8	55.7	57.0	57.3	57.9	59.7	60.1
20%	57.0	54.9	50.6	47.8	48.5	51.3	55.0	55.8	56.9	56.8	58.0	58.9
30%	56.5	54.4	50.0	47.5	48.0	50.8	54.7	55.0	56.6	56.2	57.2	58.0
40%	56.1	54.1	49.6	47.1	47.7	50.2	54.5	54.7	55.7	55.8	56.4	57.4
50%	55.8	53.6	49.2	46.6	47.4	49.9	53.8	54.2	54.9	55.2	56.1	57.1
60%	55.6	53.4	48.8	46.5	47.1	49.3	53.3	53.7	54.4	54.7	55.9	56.4
70%	55.3	53.0	48.4	46.3	46.5	49.0	52.8	53.5	54.1	54.4	55.7	56.0
80%	54.8	52.8	48.2	46.0	46.1	47.9	52.1	53.2	53.6	53.9	55.0	55.3
90%	54.6	52.1	47.7	45.4	45.8	47.3	50.4	52.7	52.8	53.6	54.4	54.5
Long Term												
Full Simulation Period[a]	56.4	53.9	49.4	46.9	47.4	49.7	53.5	54.5	55.1	55.5	56.7	57.5
Water Year Types[b,c]												
Wet (32%)	55.2	53.7	49.8	46.5	46.6	48.4	52.2	54.8	55.8	55.2	55.6	55.9
Above Normal (16%)	55.4	53.3	49.2	46.6	46.7	49.0	53.2	54.1	54.0	54.0	55.2	56.7
Below Normal (13%)	56.1	53.9	49.6	46.9	47.6	50.4	54.2	53.7	54.0	54.7	55.5	56.6
Dry (24%)	56.1	53.6	49.1	47.2	48.0	50.6	54.3	54.2	54.4	55.6	57.5	57.6
Critical (15%)	60.7	55.5	49.3	47.6	48.5	50.9	54.4	55.4	56.9	58.3	60.6	62.5

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**2.5**	**0.4**	**0.4**	0.0	**0.0**	0.0	**0.0**	**0.0**	-0.3	-0.1	**0.4**	**0.6**
20%	0.0	-0.4	**0.0**	0.0	**0.0**	**0.1**	0.0	-0.3	**0.1**	**0.1**	-0.2	**0.1**
30%	-0.2	-0.4	**0.0**	**0.1**	0.0	**0.1**	**0.0**	-0.3	**0.0**	**0.1**	-0.1	**0.1**
40%	-0.1	-0.5	**0.1**	**0.2**	0.0	0.0	**0.1**	-0.3	-0.3	**0.1**	-0.3	**0.3**
50%	0.0	-0.5	0.0	0.0	**0.0**	0.0	-0.1	-0.5	-0.5	**0.1**	0.0	**1.0**
60%	0.0	-0.3	**0.1**	0.0	-0.1	0.0	-0.2	-0.7	-0.6	**0.2**	-0.1	**1.5**
70%	0.0	-0.3	**0.0**	**0.1**	0.0	**0.2**	-0.3	-0.5	-0.5	**0.3**	0.0	**2.2**
80%	-0.2	-0.2	**0.0**	**0.0**	-0.1	**0.0**	-0.1	-0.5	-0.8	**0.1**	-0.4	**2.0**
90%	-0.3	-0.4	0.0	0.0	**0.0**	0.0	0.0	-0.5	-0.9	**0.3**	-0.3	**1.5**
Long Term												
Full Simulation Period[a]	**0.0**	-0.2	**0.0**	**0.0**	**0.0**	**0.0**	-0.1	-0.4	-0.5	**0.1**	-0.1	**1.0**
Water Year Types[b,c]												
Wet (32%)	-0.3	-0.9	**0.0**	**0.0**	**0.0**	**0.0**	-0.1	**0.0**	-0.3	**0.1**	-0.2	**2.3**
Above Normal (16%)	0.0	-0.7	-0.1	**0.0**	0.0	**0.1**	**0.1**	-0.4	-0.8	**0.2**	-0.1	**2.6**
Below Normal (13%)	**0.3**	**0.5**	**0.2**	**0.1**	0.0	-0.1	-0.3	-0.8	-0.5	**0.1**	-0.5	-0.6
Dry (24%)	-0.1	**0.3**	**0.1**	**0.0**	**0.1**	**0.2**	0.0	-0.8	-0.5	**0.1**	**0.1**	-0.4
Critical (15%)	**0.7**	**0.3**	**0.0**	**0.1**	**0.1**	-0.2	-0.1	-0.3	-0.2	**0.1**	**0.2**	**0.5**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 8-4. Sacramento River at Jellys Ferry, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.6	55.7	51.3	48.6	48.9	51.8	55.7	57.0	57.6	58.0	59.3	59.5
20%	57.0	55.4	50.5	47.8	48.5	51.2	55.0	56.1	56.8	56.7	58.2	58.8
30%	56.6	54.8	50.0	47.4	48.0	50.7	54.6	55.3	56.5	56.2	57.3	57.9
40%	56.2	54.6	49.5	46.9	47.7	50.3	54.4	55.0	56.0	55.7	56.7	57.1
50%	55.8	54.2	49.2	46.7	47.4	50.0	53.9	54.7	55.4	55.1	56.2	56.1
60%	55.6	53.7	48.7	46.5	47.1	49.4	53.5	54.4	54.9	54.5	56.0	55.0
70%	55.4	53.3	48.4	46.2	46.5	48.7	53.0	54.0	54.6	54.1	55.7	53.9
80%	55.0	53.0	48.1	46.0	46.2	47.9	52.2	53.7	54.4	53.8	55.4	53.3
90%	54.8	52.5	47.7	45.5	45.7	47.3	50.4	53.1	53.7	53.3	54.7	53.0
Long Term												
Full Simulation Period[a]	56.4	54.1	49.4	46.9	47.3	49.7	53.6	54.9	55.6	55.3	56.8	56.5
Water Year Types[b,c]												
Wet (32%)	55.5	54.5	49.8	46.5	46.6	48.4	52.3	54.8	56.2	55.1	55.8	53.6
Above Normal (16%)	55.4	54.0	49.3	46.6	46.7	48.9	53.2	54.5	54.8	53.8	55.3	54.1
Below Normal (13%)	55.8	53.4	49.5	46.8	47.7	50.5	54.5	54.4	54.6	54.6	56.0	57.3
Dry (24%)	56.2	53.3	49.0	47.2	47.9	50.4	54.3	55.0	54.9	55.5	57.4	57.9
Critical (15%)	59.9	55.2	49.2	47.5	48.4	51.1	54.5	55.6	57.1	58.2	60.4	62.0

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.0	55.6	51.6	48.7	49.1	51.8	55.2	56.0	57.6	57.4	58.4	59.6
20%	56.1	55.1	50.6	48.0	48.6	51.2	54.9	55.6	57.0	56.7	57.1	58.7
30%	55.3	54.4	50.2	47.7	48.0	50.6	54.7	55.4	56.5	56.0	56.6	58.1
40%	55.0	54.0	49.5	47.2	47.7	50.0	54.0	55.2	55.9	55.6	56.3	57.6
50%	54.8	53.8	49.3	46.9	47.4	49.4	53.4	54.7	55.3	55.1	56.0	57.2
60%	54.5	53.2	49.1	46.6	47.1	49.0	52.8	54.5	54.7	54.8	55.9	56.4
70%	54.4	53.1	49.0	46.3	46.5	48.4	52.4	54.1	54.4	54.3	55.7	55.9
80%	54.2	52.7	48.4	46.1	46.2	47.9	51.7	53.9	54.0	54.0	55.2	55.4
90%	53.9	52.1	48.0	45.6	45.8	47.3	50.6	53.6	53.5	53.6	55.0	54.8
Long Term												
Full Simulation Period[a]	55.5	53.8	49.6	47.1	47.4	49.5	53.2	54.9	55.4	55.3	56.4	57.4
Water Year Types[b,c]												
Wet (32%)	54.4	53.8	49.9	46.7	46.6	48.3	51.7	54.7	56.2	55.1	55.8	55.6
Above Normal (16%)	54.4	53.1	49.3	46.7	46.7	48.7	52.6	54.8	55.0	53.8	55.5	56.6
Below Normal (13%)	55.0	53.7	49.7	47.0	47.6	50.2	54.2	54.3	54.4	54.5	55.8	57.4
Dry (24%)	55.3	53.5	49.5	47.3	47.9	50.3	54.1	54.9	54.5	55.4	56.5	57.7
Critical (15%)	59.5	55.1	49.4	47.9	48.7	51.2	54.8	55.8	56.7	58.0	59.4	61.4

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.4**	-0.1	**0.3**	**0.1**	**0.2**	**0.0**	-0.5	-1.0	**0.0**	-0.7	-0.9	**0.1**
20%	-1.0	-0.3	**0.1**	**0.2**	**0.1**	0.0	-0.1	-0.5	**0.2**	**0.0**	-1.1	-0.2
30%	-1.3	-0.4	**0.2**	**0.2**	0.0	-0.1	**0.0**	**0.1**	0.0	-0.2	-0.8	**0.2**
40%	-1.2	-0.6	0.0	**0.3**	0.0	-0.3	-0.4	**0.2**	-0.1	-0.1	-0.4	**0.5**
50%	-1.0	-0.4	**0.1**	**0.2**	**0.1**	-0.6	-0.5	**0.0**	-0.1	**0.0**	-0.2	**1.1**
60%	-1.0	-0.4	**0.4**	**0.1**	-0.1	-0.4	-0.7	**0.1**	-0.2	**0.3**	-0.1	**1.4**
70%	-1.0	-0.2	**0.6**	**0.1**	**0.1**	-0.3	-0.7	**0.1**	-0.2	**0.2**	**0.1**	**2.0**
80%	-0.8	-0.3	**0.2**	**0.1**	0.0	**0.0**	-0.5	**0.2**	-0.4	**0.2**	-0.2	**2.1**
90%	-0.9	-0.4	**0.3**	**0.1**	**0.1**	**0.0**	**0.1**	**0.5**	-0.2	**0.3**	**0.3**	**1.8**
Long Term												
Full Simulation Period[a]	-0.9	-0.3	**0.2**	**0.2**	**0.1**	-0.1	-0.3	0.0	-0.1	0.0	-0.4	**0.9**
Water Year Types[b,c]												
Wet (32%)	-1.1	-0.8	**0.1**	**0.1**	**0.0**	-0.1	-0.6	-0.1	**0.1**	**0.1**	-0.1	**2.0**
Above Normal (16%)	-1.0	-0.9	0.0	**0.1**	**0.0**	-0.3	-0.5	**0.2**	**0.2**	**0.0**	**0.2**	**2.5**
Below Normal (13%)	-0.8	**0.3**	**0.3**	**0.3**	0.0	-0.3	-0.4	-0.1	-0.2	0.0	-0.2	**0.1**
Dry (24%)	-0.9	**0.2**	**0.5**	**0.1**	**0.0**	-0.1	-0.2	-0.1	-0.4	0.0	-0.9	-0.3
Critical (15%)	-0.4	0.0	**0.2**	**0.4**	**0.3**	**0.0**	**0.3**	**0.1**	-0.3	-0.2	-1.0	-0.6

a Based on the 82-year simulation period.

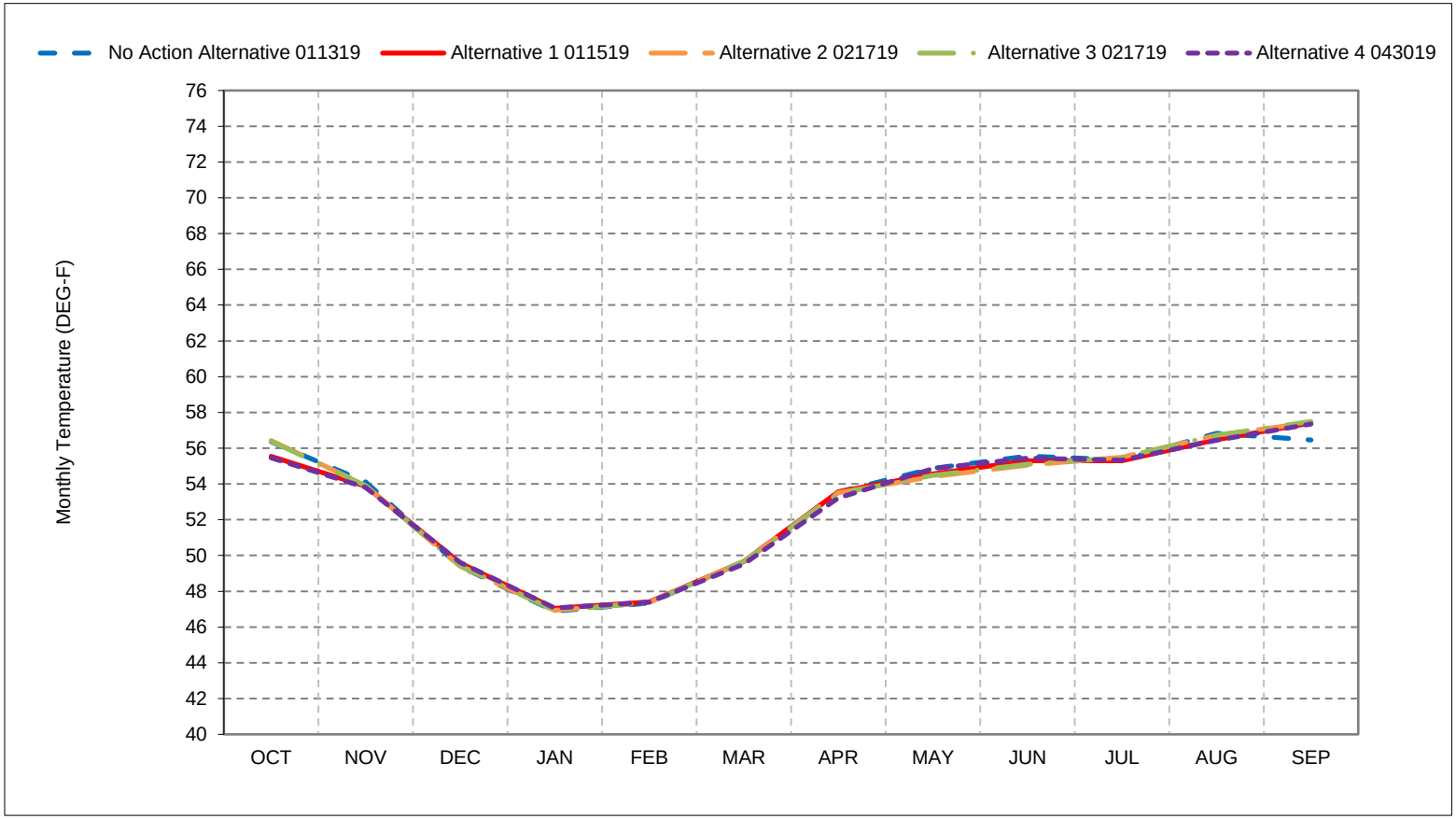
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

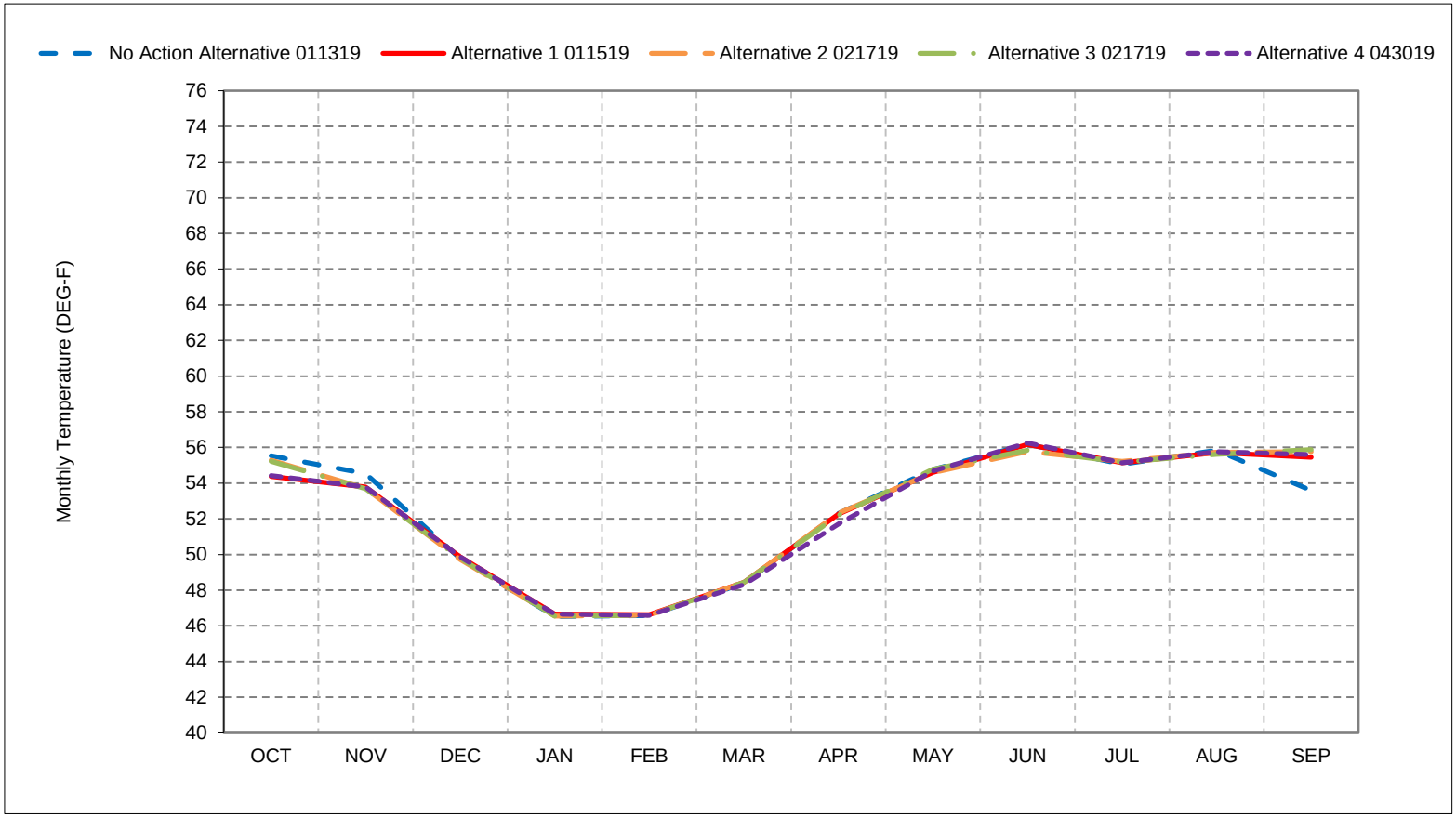
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-1. Sacramento River at Jellys Ferry, Long-Term Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-2. Sacramento River at Jellys Ferry, Wet Year Average Temperature



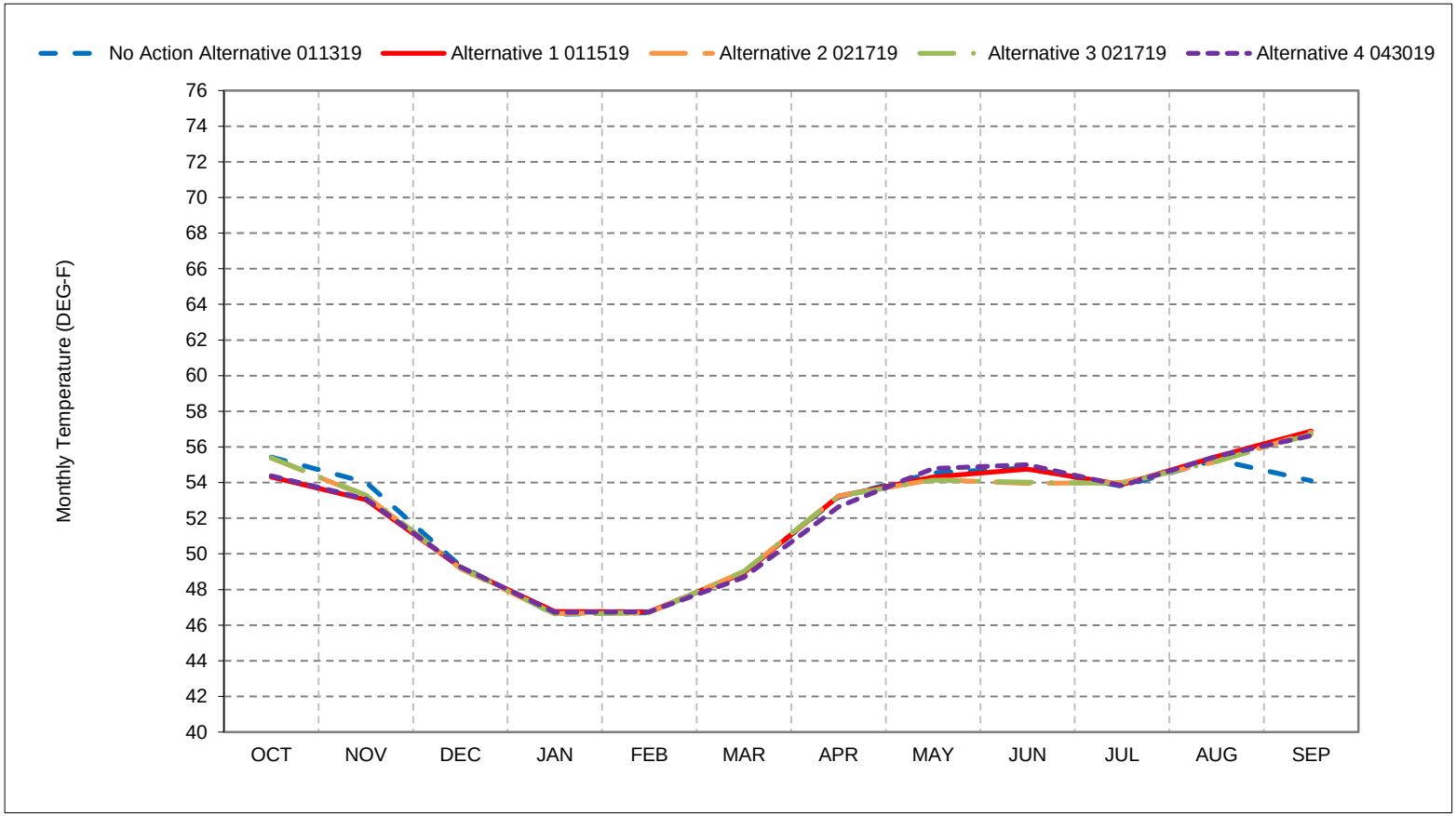
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-3. Sacramento River at Jellys Ferry, Above Normal Year Average Temperature



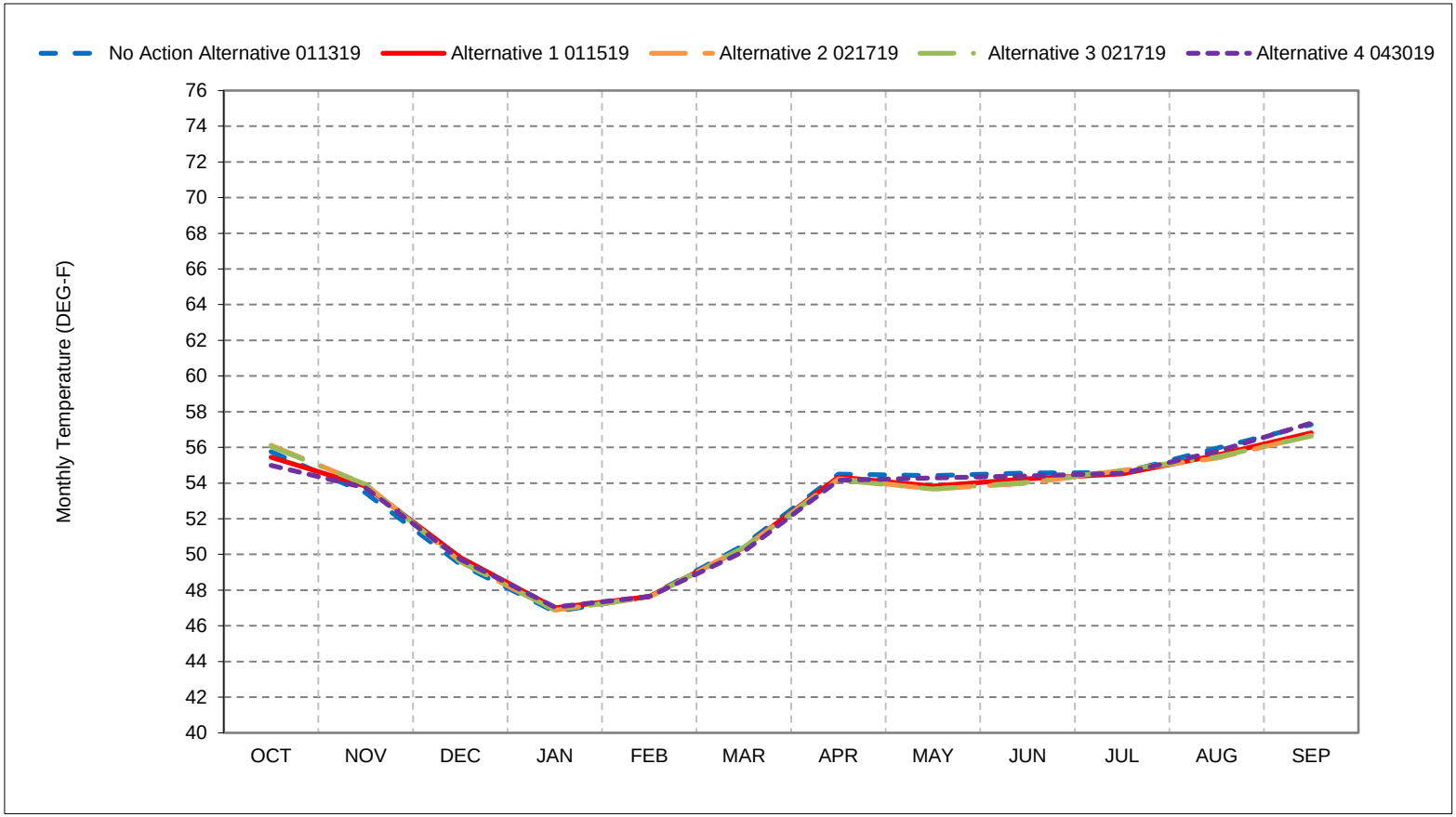
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-4. Sacramento River at Jellys Ferry, Below Normal Year Average Temperature



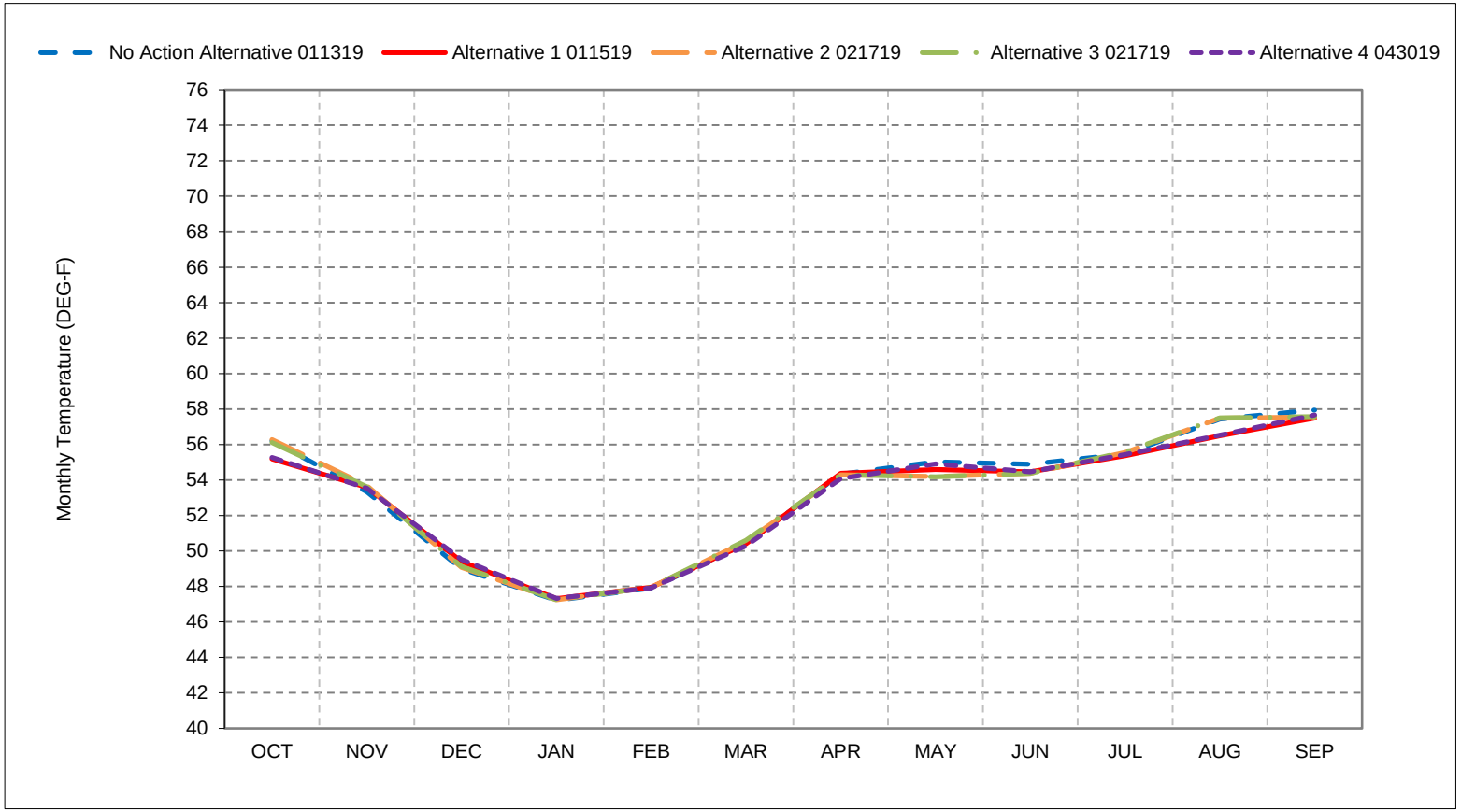
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

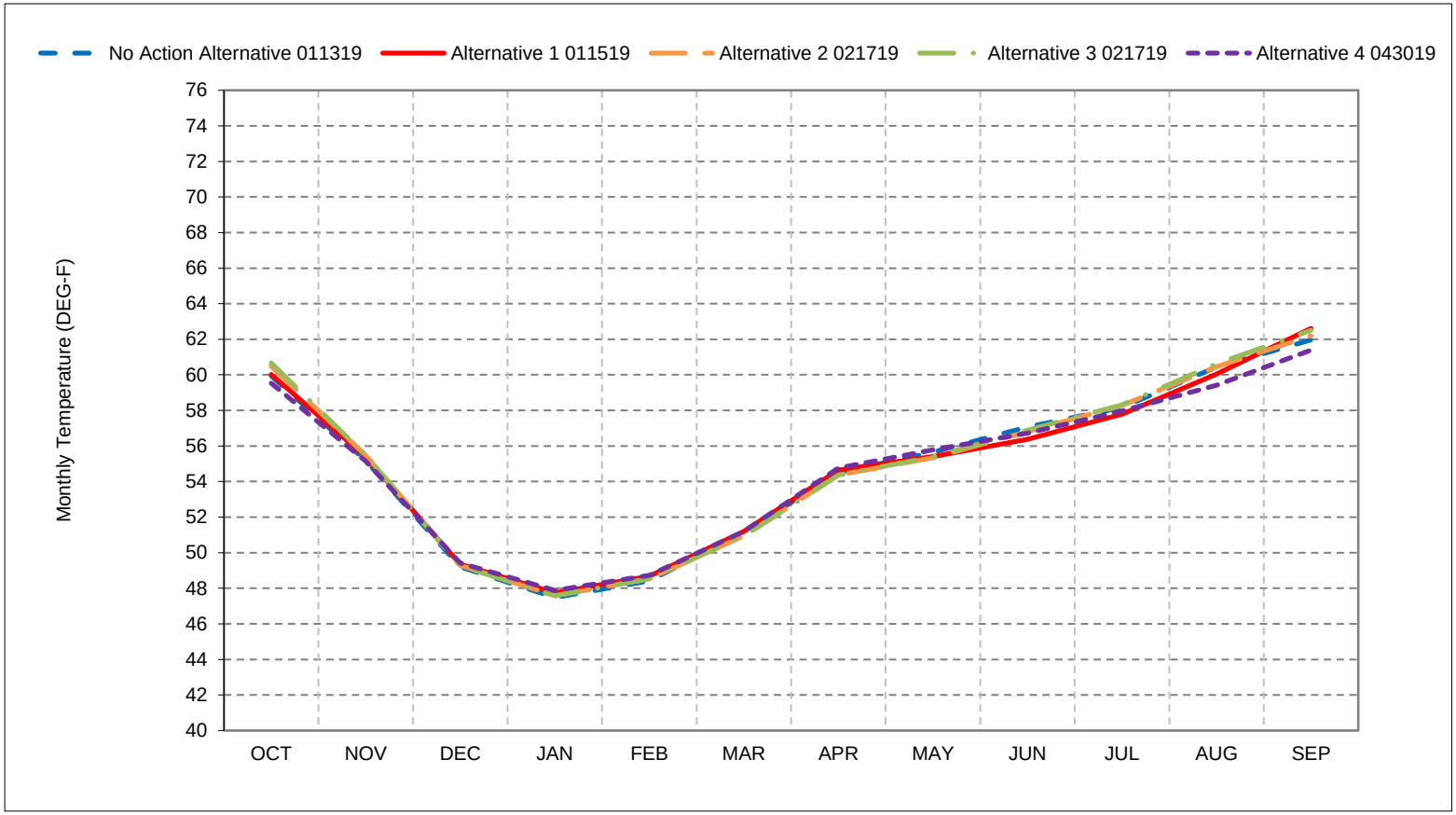
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-5. Sacramento River at Jellys Ferry, Dry Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-6. Sacramento River at Jellys Ferry, Critical Year Average Temperature



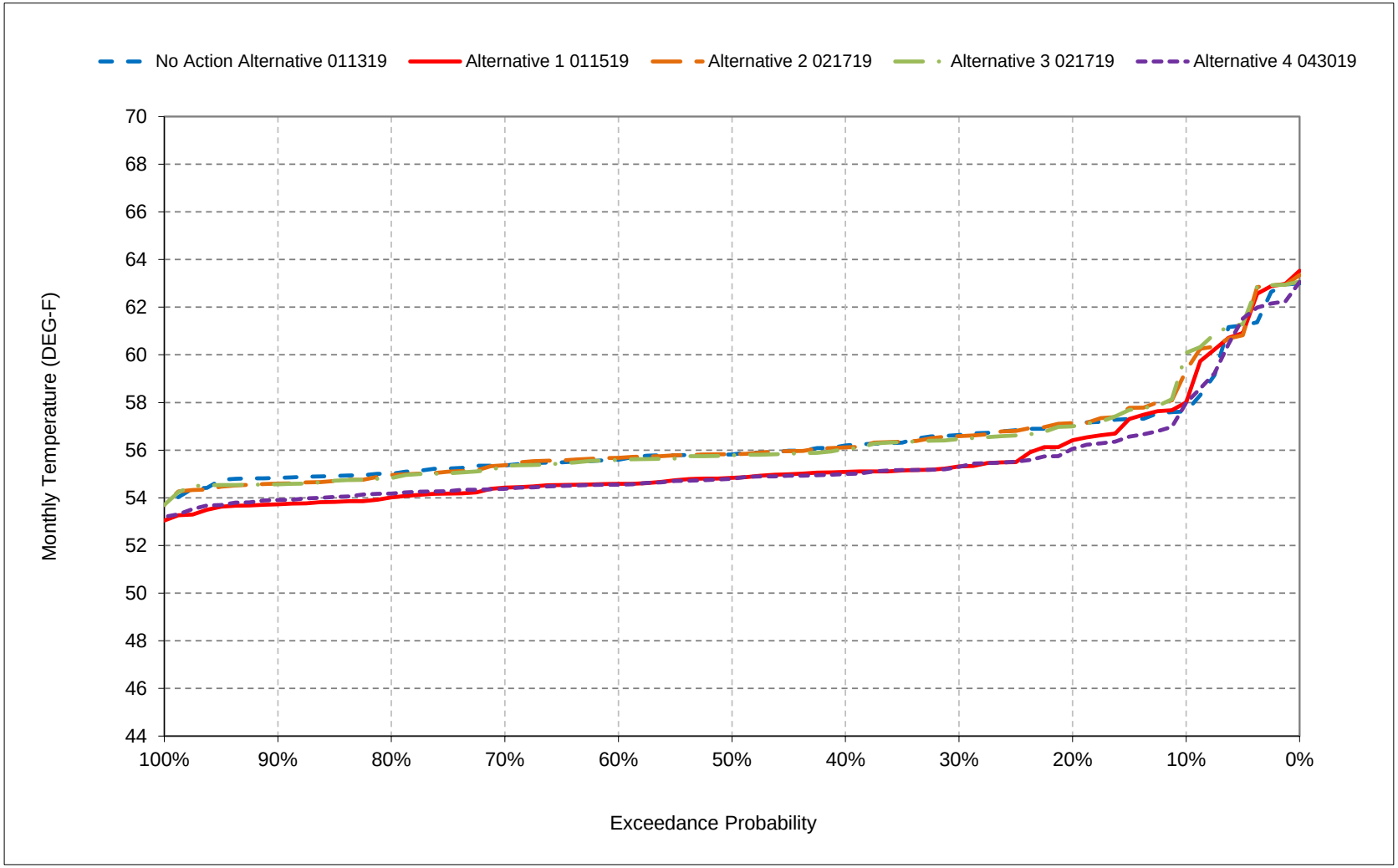
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

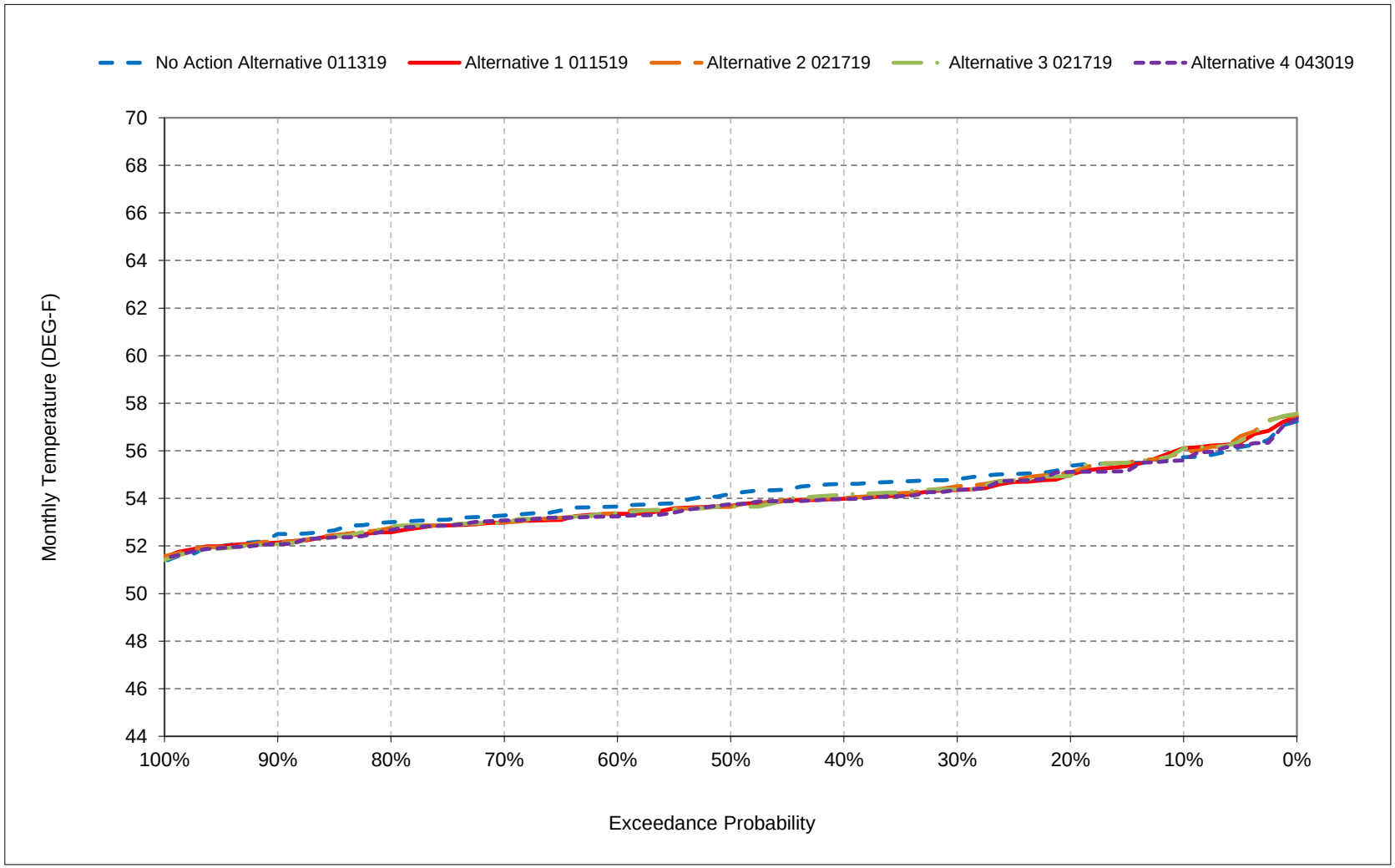
Figure 8-7. Sacramento River at Jellys Ferry, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

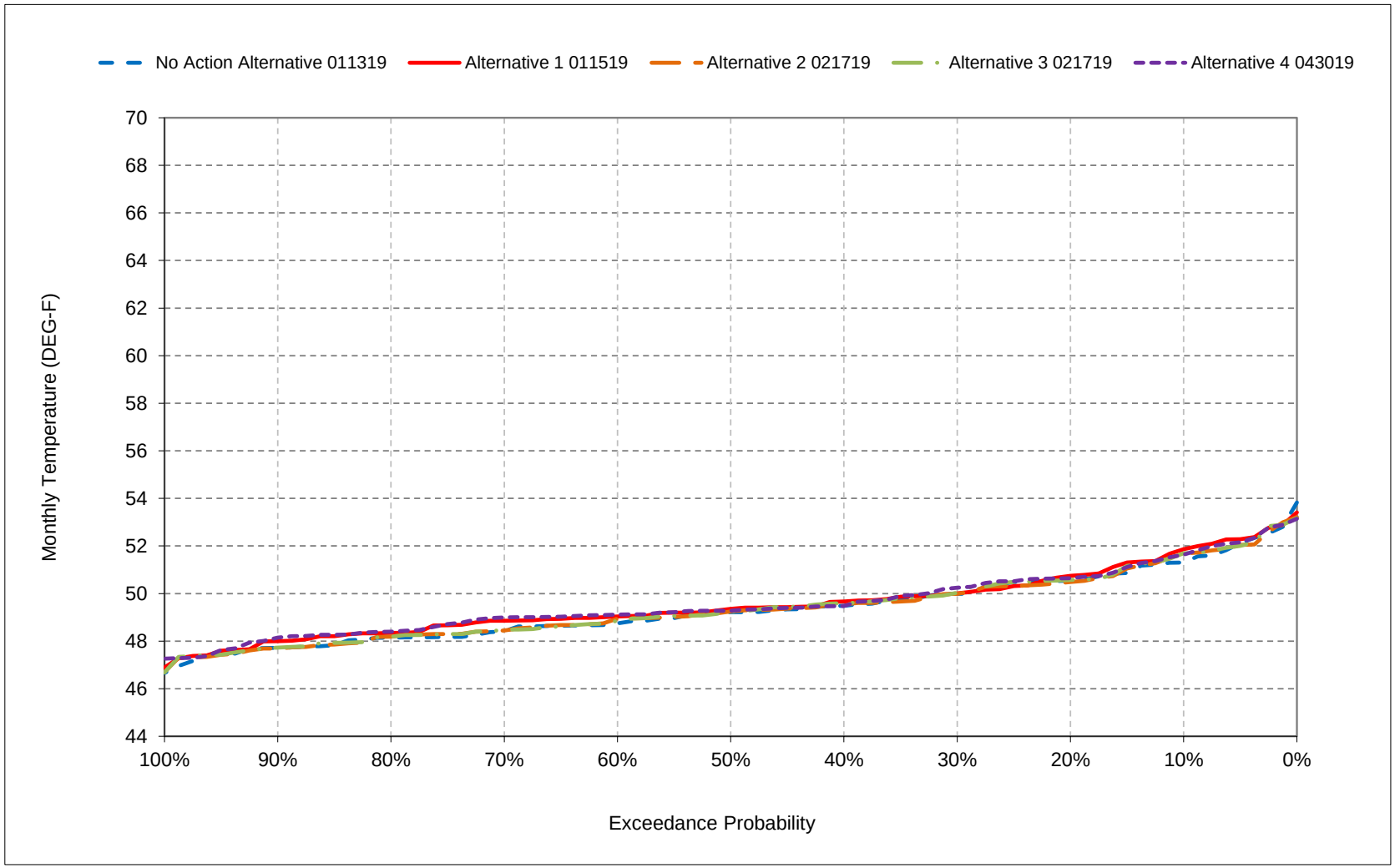
Figure 8-8. Sacramento River at Jellys Ferry, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

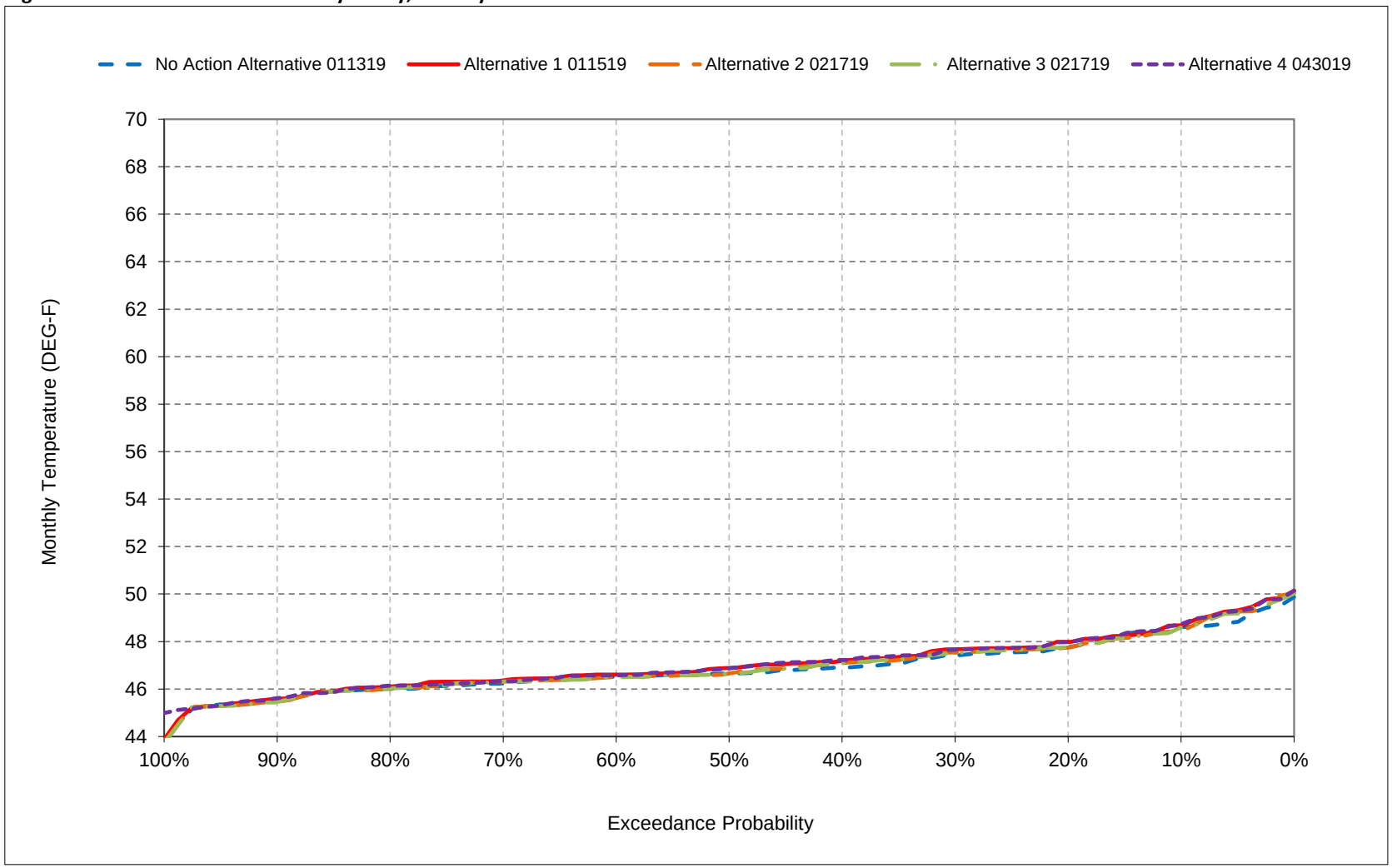
Figure 8-9. Sacramento River at Jellys Ferry, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

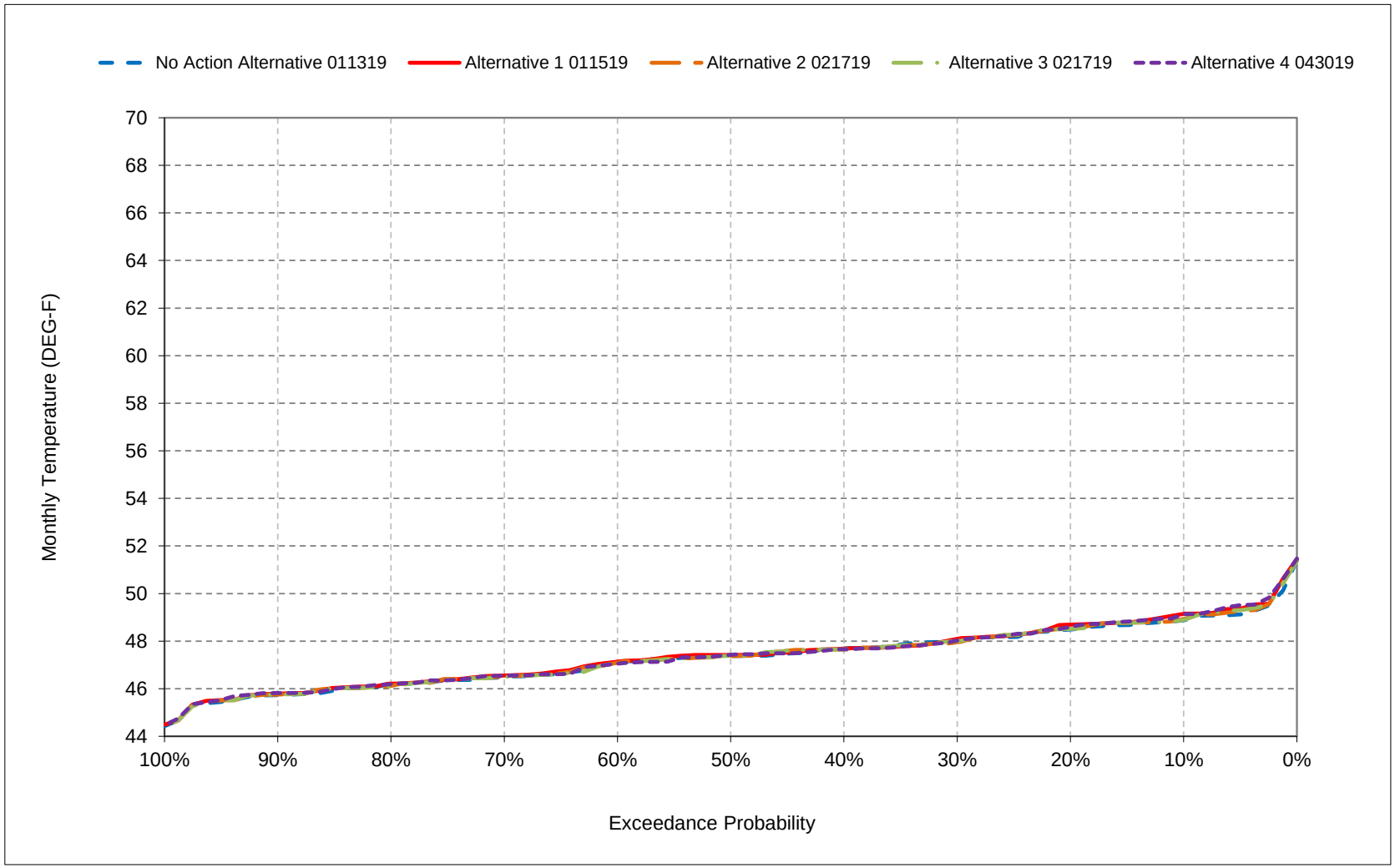
Figure 8-10. Sacramento River at Jellys Ferry, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

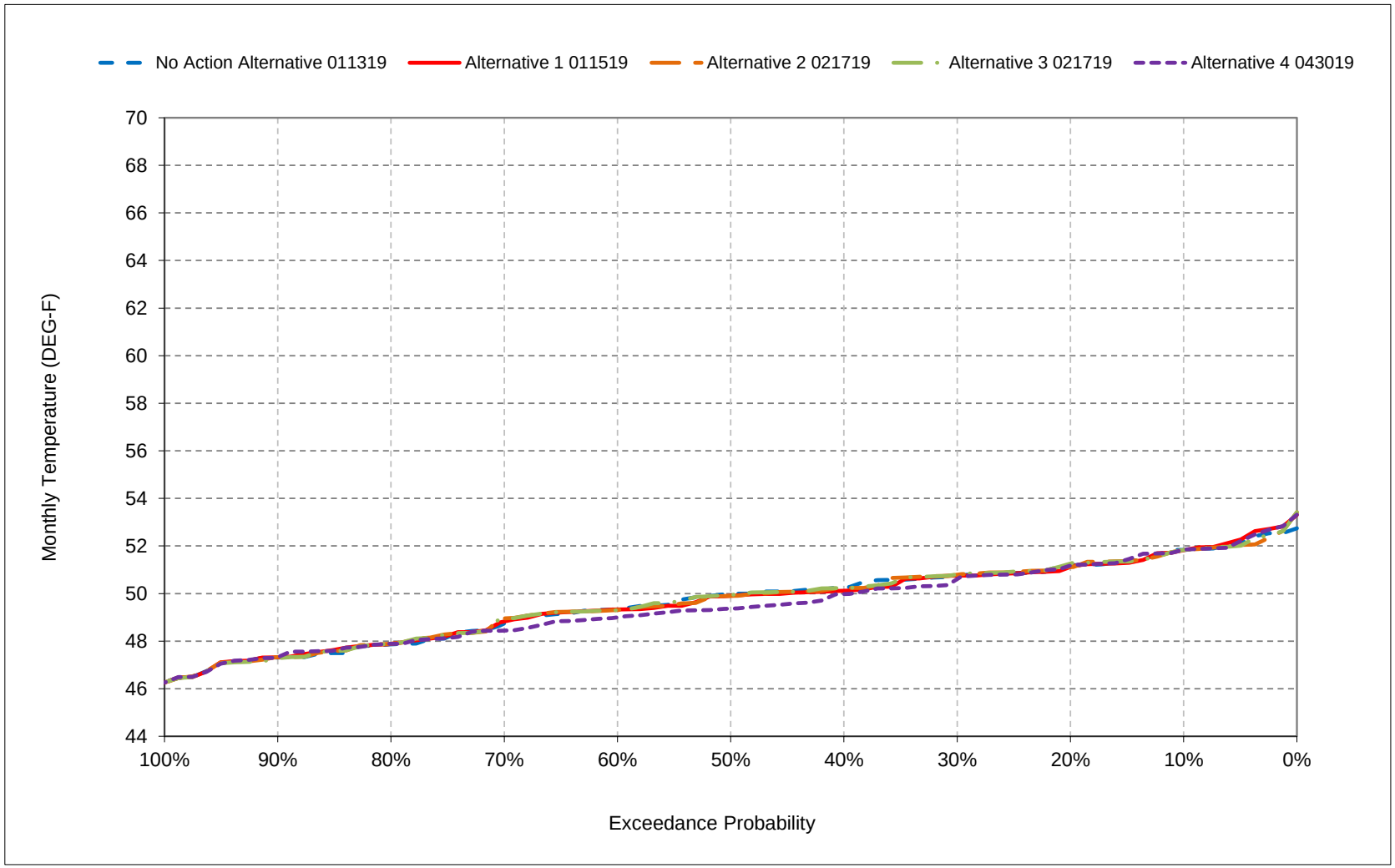
Figure 8-11. Sacramento River at Jellys Ferry, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

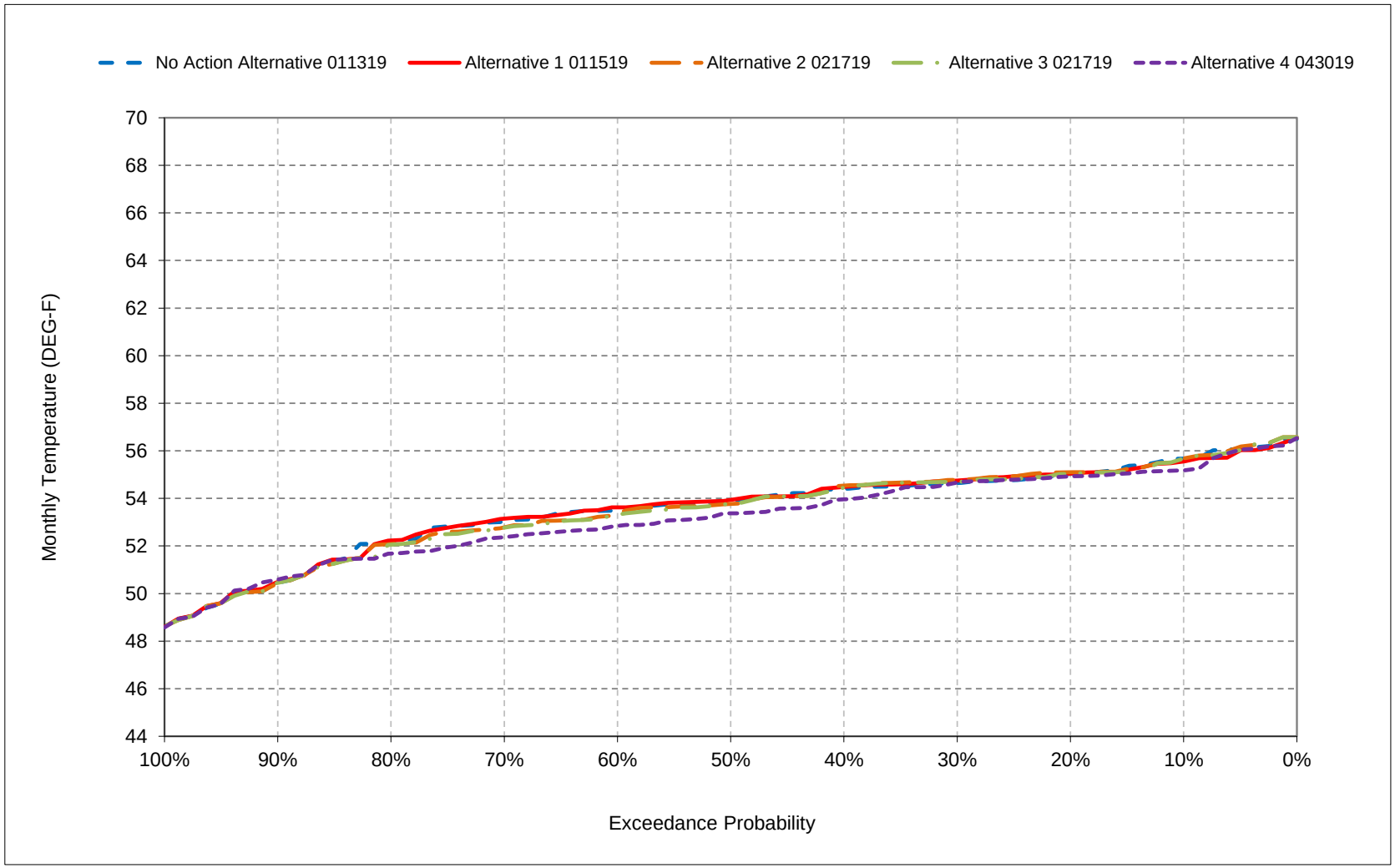
Figure 8-12. Sacramento River at Jellys Ferry, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

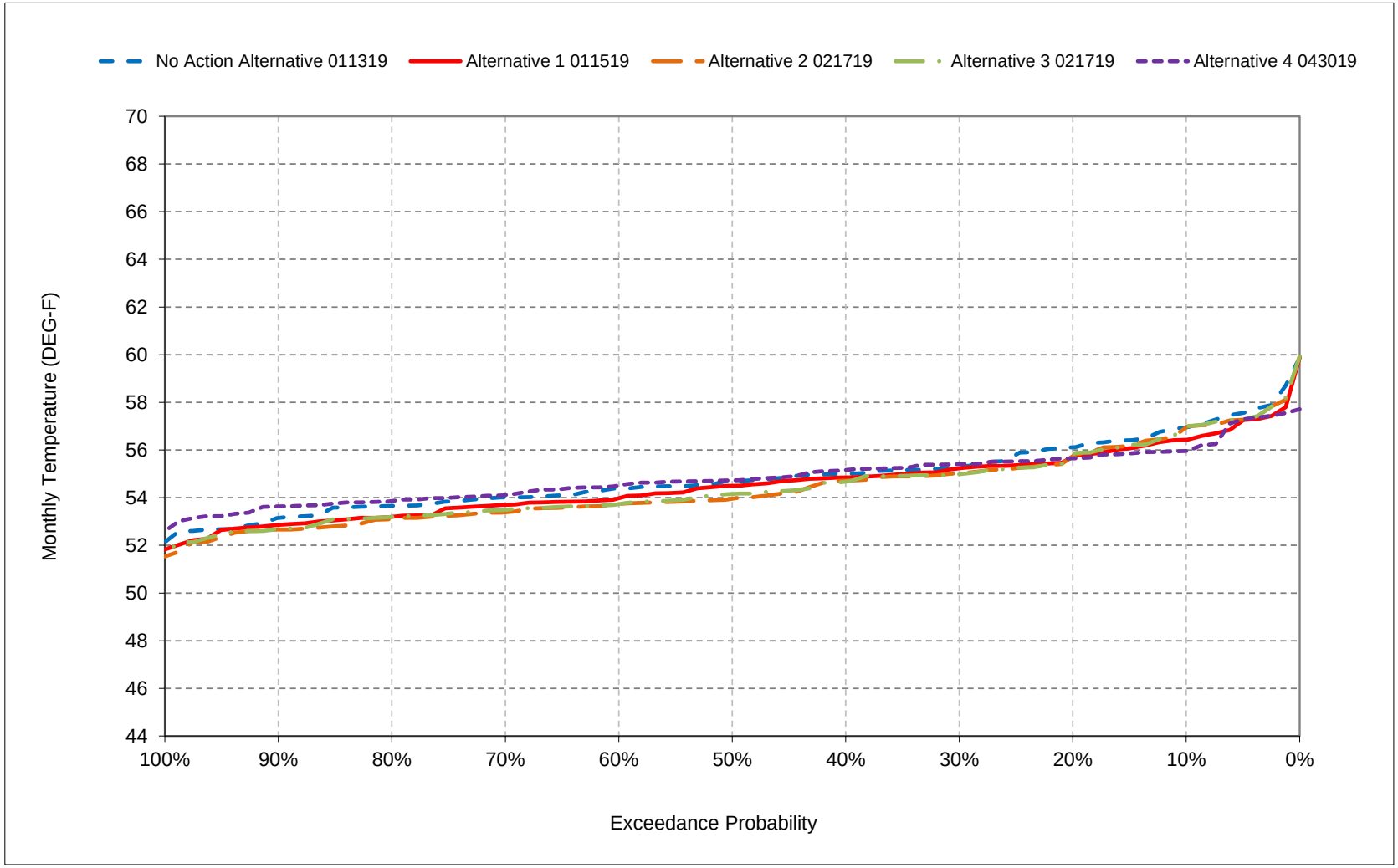
Figure 8-13. Sacramento River at Jellys Ferry, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

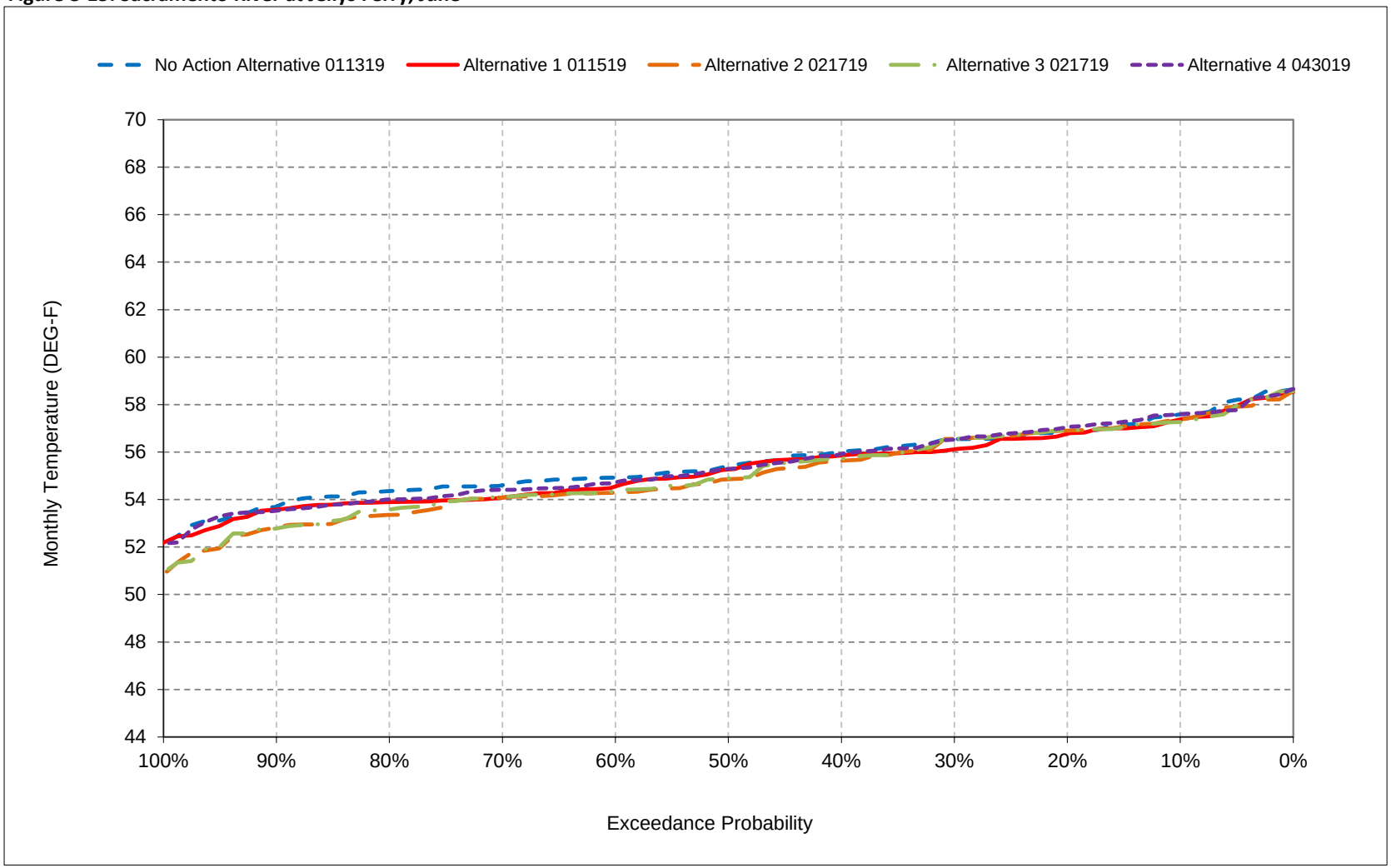
Figure 8-14. Sacramento River at Jellys Ferry, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

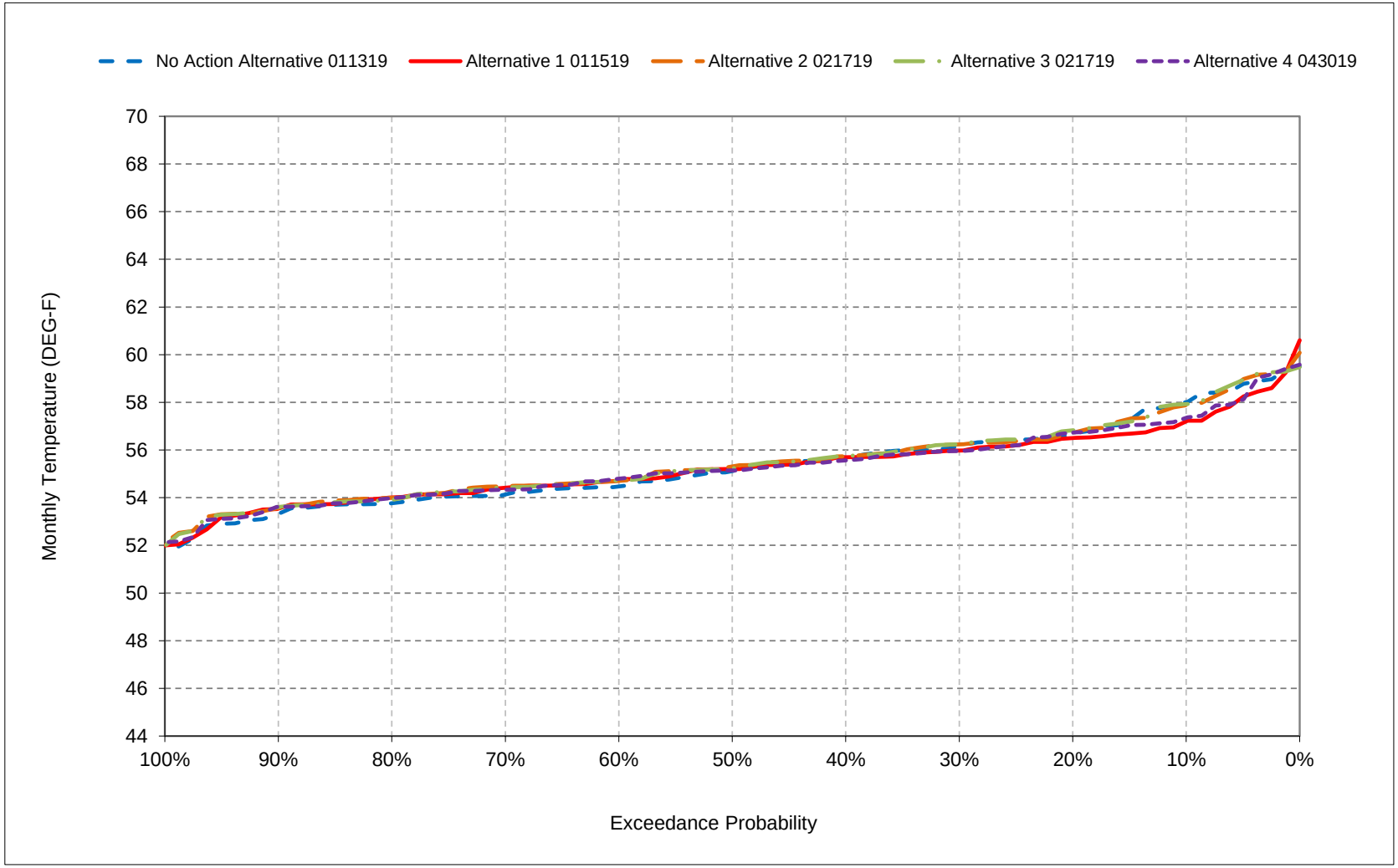
Figure 8-15. Sacramento River at Jellys Ferry, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

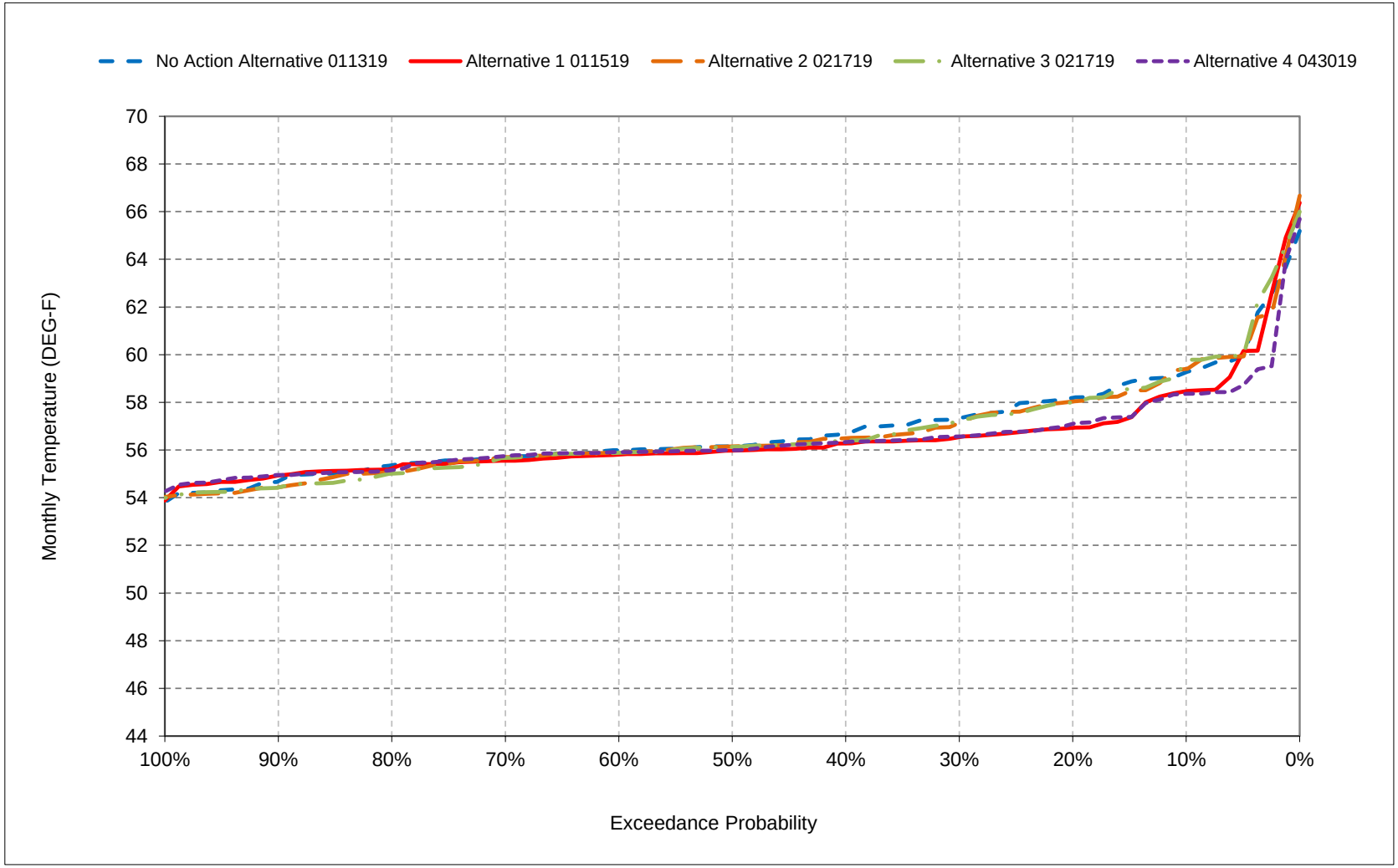
Figure 8-16. Sacramento River at Jellys Ferry, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

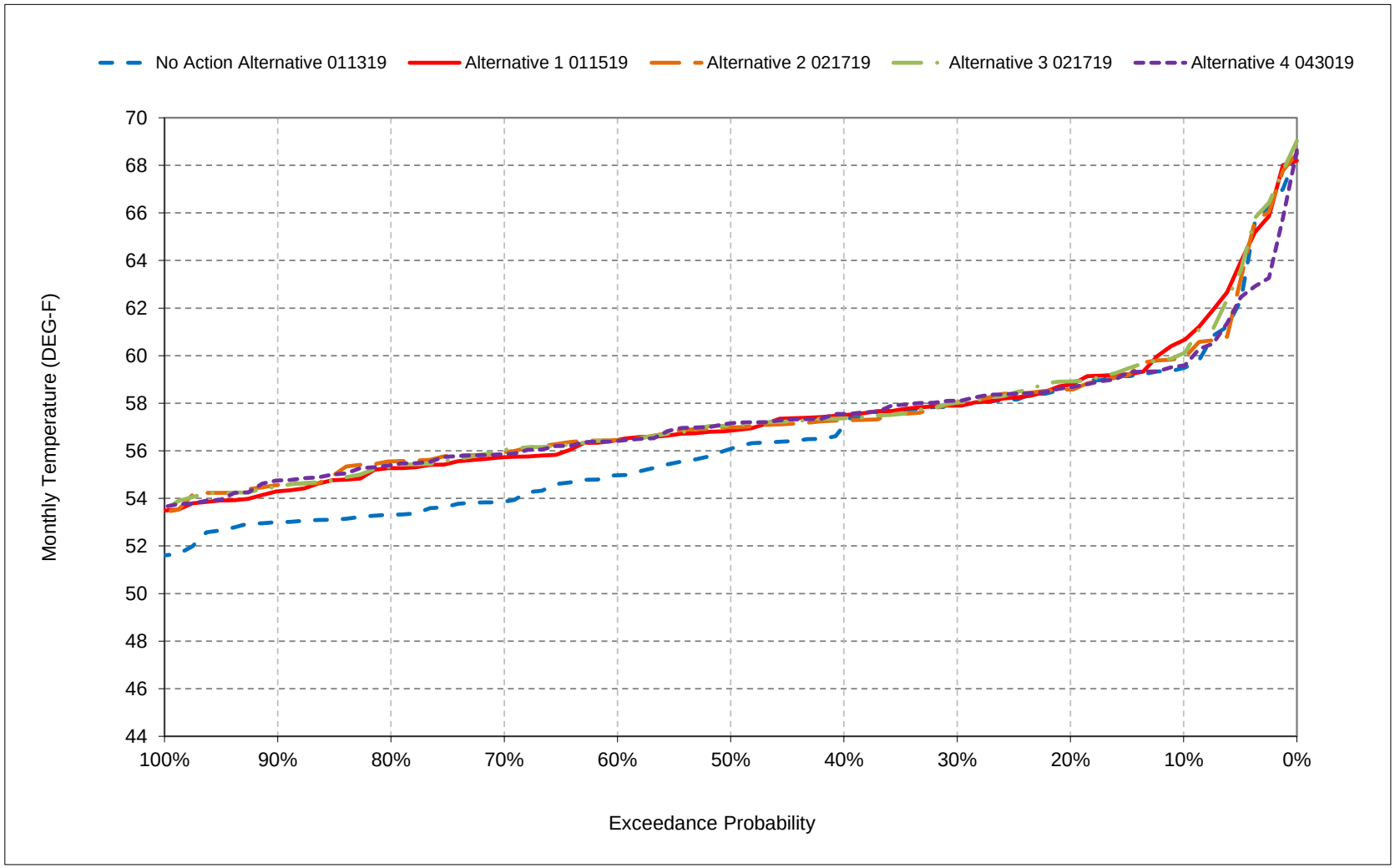
Figure 8-17. Sacramento River at Jellys Ferry, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-18. Sacramento River at Jellys Ferry, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 9-1. Sacramento River at Bend Bridge, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.0	55.6	51.0	48.1	48.9	52.3	56.3	57.9	58.8	59.3	60.6	60.7
20%	57.4	55.2	50.2	47.6	48.5	51.7	55.9	57.1	58.1	58.0	59.4	59.8
30%	56.9	54.6	49.3	47.1	48.2	51.3	55.5	56.6	57.5	57.4	58.9	59.1
40%	56.5	54.2	48.9	46.7	47.7	50.8	55.1	55.9	57.1	56.9	58.0	58.1
50%	56.1	53.8	48.7	46.6	47.5	50.5	54.6	55.6	56.5	56.3	57.5	57.3
60%	56.0	53.2	48.4	46.4	47.2	50.0	54.3	55.4	56.1	55.8	57.1	55.8
70%	55.7	53.0	47.9	46.2	46.7	49.3	54.0	55.1	55.8	55.4	56.9	54.7
80%	55.3	52.5	47.7	46.0	46.4	48.5	52.9	54.6	55.5	54.9	56.4	54.1
90%	55.1	51.9	47.3	45.6	46.0	47.9	51.4	53.9	54.9	54.3	55.9	53.6
Long Term												
Full Simulation Period[a]	56.7	53.8	48.9	46.7	47.5	50.2	54.4	55.8	56.7	56.5	58.0	57.4
Water Year Types[b,c]												
Wet (32%)	55.8	54.3	49.3	46.5	46.8	48.9	53.0	55.6	57.3	56.2	57.0	54.3
Above Normal (16%)	55.7	53.7	48.9	46.5	46.9	49.6	54.1	55.6	55.9	54.8	56.5	55.0
Below Normal (13%)	56.1	53.2	49.0	46.7	47.8	51.1	55.3	55.4	55.6	55.7	57.1	58.4
Dry (24%)	56.6	52.9	48.6	46.9	48.0	51.0	55.1	56.1	56.1	56.7	58.7	59.1
Critical (15%)	60.1	54.6	48.7	47.2	48.5	51.7	55.4	56.6	58.2	59.3	61.5	62.7

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.3	55.9	51.2	48.2	49.0	52.4	56.3	57.3	58.5	58.4	59.5	61.5
20%	56.7	54.7	50.1	47.7	48.6	51.7	55.8	56.6	57.9	57.7	58.4	59.9
30%	55.8	53.9	49.6	47.3	48.2	51.3	55.7	56.2	57.2	57.2	57.9	59.2
40%	55.5	53.6	49.2	47.0	47.7	50.8	55.2	55.7	57.0	56.8	57.5	58.6
50%	55.3	53.3	48.9	46.7	47.5	50.3	54.7	55.5	56.3	56.3	57.2	58.1
60%	55.0	52.9	48.5	46.5	47.2	49.9	54.3	55.1	55.8	56.0	56.9	57.5
70%	54.8	52.7	48.2	46.3	46.7	49.5	54.0	54.6	55.2	55.4	56.7	56.9
80%	54.3	52.3	48.1	46.0	46.4	48.5	53.0	54.1	54.9	55.2	56.4	56.3
90%	54.1	51.8	47.4	45.6	46.0	48.0	51.4	53.7	54.6	54.5	56.0	55.2
Long Term												
Full Simulation Period[a]	55.9	53.5	49.1	46.9	47.5	50.2	54.4	55.5	56.4	56.4	57.7	58.5
Water Year Types[b,c]												
Wet (32%)	54.7	53.5	49.5	46.6	46.8	49.0	53.0	55.4	57.3	56.3	56.9	56.5
Above Normal (16%)	54.7	52.7	48.8	46.7	46.9	49.6	54.2	55.3	55.9	54.9	56.7	58.1
Below Normal (13%)	55.8	53.5	49.3	46.9	47.7	50.9	55.1	54.8	55.3	55.6	56.7	57.9
Dry (24%)	55.6	53.2	48.9	47.0	48.0	50.9	55.2	55.6	55.6	56.6	57.8	58.7
Critical (15%)	60.2	54.8	48.8	47.5	48.8	51.7	55.5	56.4	57.5	59.0	61.1	63.3

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.4**	**0.3**	**0.2**	**0.1**	**0.1**	**0.1**	0.0	-0.6	-0.3	-0.9	-1.1	**0.8**
20%	-0.7	-0.5	-0.1	**0.1**	**0.0**	**0.0**	0.0	-0.4	-0.2	-0.2	-0.9	**0.2**
30%	-1.2	-0.7	**0.2**	**0.3**	-0.1	**0.0**	**0.1**	-0.4	-0.3	-0.2	-0.9	**0.1**
40%	-1.0	-0.7	**0.3**	**0.2**	**0.0**	-0.1	**0.0**	-0.2	-0.2	-0.1	-0.5	**0.5**
50%	-0.8	-0.5	**0.2**	**0.2**	**0.0**	-0.1	**0.1**	-0.1	-0.2	-0.1	-0.2	**0.8**
60%	-1.0	-0.3	**0.1**	**0.1**	**0.0**	-0.1	0.0	-0.3	-0.3	**0.2**	-0.2	**1.6**
70%	-0.9	-0.3	**0.3**	**0.1**	**0.1**	**0.2**	**0.0**	-0.5	-0.6	**0.1**	-0.2	**2.2**
80%	-0.9	-0.2	**0.3**	**0.1**	**0.1**	**0.0**	**0.1**	-0.5	-0.6	**0.3**	0.0	**2.2**
90%	-1.0	-0.2	**0.2**	**0.0**	**0.0**	**0.1**	**0.0**	-0.2	-0.3	**0.2**	**0.1**	**1.6**
Long Term												
Full Simulation Period[a]	-0.8	-0.3	**0.2**	**0.1**	**0.1**	0.0	0.0	-0.3	-0.3	0.0	-0.3	**1.1**
Water Year Types[b,c]												
Wet (32%)	-1.1	-0.8	**0.1**	**0.1**	**0.0**	**0.0**	0.0	-0.2	0.0	**0.1**	-0.1	**2.2**
Above Normal (16%)	-1.0	-1.0	-0.1	**0.2**	**0.0**	0.0	**0.0**	-0.3	-0.1	**0.1**	**0.2**	**3.1**
Below Normal (13%)	-0.3	**0.4**	**0.3**	**0.2**	0.0	-0.2	-0.2	-0.6	-0.4	-0.1	-0.4	-0.5
Dry (24%)	-0.9	**0.2**	**0.4**	**0.1**	**0.0**	0.0	**0.1**	-0.5	-0.5	-0.1	-0.9	-0.4
Critical (15%)	**0.1**	**0.2**	**0.1**	**0.2**	**0.2**	**0.0**	**0.1**	-0.3	-0.7	-0.3	-0.4	**0.6**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 9-2. Sacramento River at Bend Bridge, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.0	55.6	51.0	48.1	48.9	52.3	56.3	57.9	58.8	59.3	60.6	60.7
20%	57.4	55.2	50.2	47.6	48.5	51.7	55.9	57.1	58.1	58.0	59.4	59.8
30%	56.9	54.6	49.3	47.1	48.2	51.3	55.5	56.6	57.5	57.4	58.9	59.1
40%	56.5	54.2	48.9	46.7	47.7	50.8	55.1	55.9	57.1	56.9	58.0	58.1
50%	56.1	53.8	48.7	46.6	47.5	50.5	54.6	55.6	56.5	56.3	57.5	57.3
60%	56.0	53.2	48.4	46.4	47.2	50.0	54.3	55.4	56.1	55.8	57.1	55.8
70%	55.7	53.0	47.9	46.2	46.7	49.3	54.0	55.1	55.8	55.4	56.9	54.7
80%	55.3	52.5	47.7	46.0	46.4	48.5	52.9	54.6	55.5	54.9	56.4	54.1
90%	55.1	51.9	47.3	45.6	46.0	47.9	51.4	53.9	54.9	54.3	55.9	53.6
Long Term												
Full Simulation Period[a]	56.7	53.8	48.9	46.7	47.5	50.2	54.4	55.8	56.7	56.5	58.0	57.4
Water Year Types[b,c]												
Wet (32%)	55.8	54.3	49.3	46.5	46.8	48.9	53.0	55.6	57.3	56.2	57.0	54.3
Above Normal (16%)	55.7	53.7	48.9	46.5	46.9	49.6	54.1	55.6	55.9	54.8	56.5	55.0
Below Normal (13%)	56.1	53.2	49.0	46.7	47.8	51.1	55.3	55.4	55.6	55.7	57.1	58.4
Dry (24%)	56.6	52.9	48.6	46.9	48.0	51.0	55.1	56.1	56.1	56.7	58.7	59.1
Critical (15%)	60.1	54.6	48.7	47.2	48.5	51.7	55.4	56.6	58.2	59.3	61.5	62.7

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.4	55.8	51.0	48.0	48.9	52.3	56.4	57.7	58.5	59.0	60.6	60.8
20%	57.4	54.9	49.9	47.6	48.5	51.7	55.9	56.7	58.1	58.0	59.4	60.0
30%	56.9	54.0	49.5	47.2	48.1	51.3	55.7	56.0	57.4	57.3	58.5	59.1
40%	56.4	53.7	49.1	46.8	47.7	50.8	55.2	55.5	56.8	57.0	57.8	58.5
50%	56.2	53.3	48.7	46.6	47.5	50.3	54.5	55.1	55.9	56.3	57.4	58.0
60%	56.0	52.9	48.3	46.4	47.2	50.0	54.2	54.7	55.4	56.1	57.0	57.6
70%	55.7	52.7	48.0	46.3	46.7	49.5	53.8	54.3	55.1	55.5	56.8	57.1
80%	55.3	52.4	47.8	45.9	46.4	48.5	52.8	53.9	54.4	55.2	56.3	56.6
90%	54.9	51.8	47.2	45.6	46.0	47.8	51.3	53.6	53.8	54.6	55.5	55.3
Long Term												
Full Simulation Period[a]	56.7	53.5	48.9	46.8	47.5	50.2	54.3	55.3	56.1	56.6	57.9	58.4
Water Year Types[b,c]												
Wet (32%)	55.6	53.4	49.3	46.5	46.8	49.0	53.0	55.4	56.8	56.4	56.9	56.8
Above Normal (16%)	55.7	52.8	48.8	46.6	46.9	49.6	54.2	55.2	55.0	55.0	56.4	58.0
Below Normal (13%)	56.4	53.6	49.1	46.7	47.7	50.9	55.0	54.6	55.0	55.8	56.5	57.7
Dry (24%)	56.6	53.3	48.7	47.0	48.0	51.1	55.1	55.2	55.5	56.7	58.8	58.7
Critical (15%)	60.6	54.9	48.8	47.3	48.7	51.4	55.2	56.3	57.8	59.4	61.5	62.9

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**1.5**	**0.2**	0.0	-0.1	0.0	**0.0**	**0.1**	-0.2	-0.2	-0.3	**0.0**	**0.1**
20%	**0.0**	-0.3	-0.3	0.0	0.0	**0.1**	**0.0**	-0.4	**0.0**	0.0	0.0	**0.2**
30%	0.0	-0.6	**0.1**	**0.1**	-0.1	**0.0**	**0.2**	-0.5	-0.1	0.0	-0.4	**0.0**
40%	-0.1	-0.5	**0.2**	**0.0**	**0.1**	0.0	**0.0**	-0.4	-0.3	**0.0**	-0.2	**0.3**
50%	**0.0**	-0.5	**0.1**	**0.0**	**0.0**	-0.1	-0.1	-0.5	-0.7	0.0	-0.1	**0.7**
60%	0.0	-0.3	-0.1	0.0	-0.1	0.0	-0.1	-0.7	-0.7	**0.3**	-0.1	**1.7**
70%	0.0	-0.2	**0.1**	**0.1**	**0.0**	**0.2**	-0.2	-0.8	-0.7	**0.2**	-0.1	**2.3**
80%	0.0	-0.1	**0.1**	0.0	**0.1**	**0.0**	-0.1	-0.7	-1.1	**0.3**	-0.1	**2.5**
90%	-0.2	-0.1	-0.1	0.0	**0.0**	-0.1	0.0	-0.4	-1.1	**0.2**	-0.4	**1.8**
Long Term												
Full Simulation Period[a]	**0.0**	-0.2	**0.0**	**0.0**	**0.0**	0.0	-0.1	-0.5	-0.6	**0.1**	-0.1	**1.1**
Water Year Types[b,c]												
Wet (32%)	-0.2	-0.8	0.0	**0.0**	**0.0**	**0.0**	**0.0**	-0.2	-0.5	**0.2**	-0.2	**2.5**
Above Normal (16%)	-0.1	-0.9	-0.1	**0.0**	0.0	**0.0**	**0.1**	-0.4	-1.0	**0.2**	-0.1	**3.0**
Below Normal (13%)	**0.3**	**0.4**	**0.1**	**0.1**	0.0	-0.1	-0.3	-0.8	-0.7	**0.1**	-0.6	-0.7
Dry (24%)	**0.1**	**0.3**	**0.1**	**0.0**	**0.0**	**0.1**	0.0	-0.9	-0.6	**0.1**	**0.1**	-0.4
Critical (15%)	**0.5**	**0.3**	**0.1**	**0.1**	**0.1**	-0.2	-0.1	-0.3	-0.3	**0.1**	0.0	**0.2**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 9-3. Sacramento River at Bend Bridge, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.0	55.6	51.0	48.1	48.9	52.3	56.3	57.9	58.8	59.3	60.6	60.7
20%	57.4	55.2	50.2	47.6	48.5	51.7	55.9	57.1	58.1	58.0	59.4	59.8
30%	56.9	54.6	49.3	47.1	48.2	51.3	55.5	56.6	57.5	57.4	58.9	59.1
40%	56.5	54.2	48.9	46.7	47.7	50.8	55.1	55.9	57.1	56.9	58.0	58.1
50%	56.1	53.8	48.7	46.6	47.5	50.5	54.6	55.6	56.5	56.3	57.5	57.3
60%	56.0	53.2	48.4	46.4	47.2	50.0	54.3	55.4	56.1	55.8	57.1	55.8
70%	55.7	53.0	47.9	46.2	46.7	49.3	54.0	55.1	55.8	55.4	56.9	54.7
80%	55.3	52.5	47.7	46.0	46.4	48.5	52.9	54.6	55.5	54.9	56.4	54.1
90%	55.1	51.9	47.3	45.6	46.0	47.9	51.4	53.9	54.9	54.3	55.9	53.6
Long Term												
Full Simulation Period[a]	56.7	53.8	48.9	46.7	47.5	50.2	54.4	55.8	56.7	56.5	58.0	57.4
Water Year Types[b,c]												
Wet (32%)	55.8	54.3	49.3	46.5	46.8	48.9	53.0	55.6	57.3	56.2	57.0	54.3
Above Normal (16%)	55.7	53.7	48.9	46.5	46.9	49.6	54.1	55.6	55.9	54.8	56.5	55.0
Below Normal (13%)	56.1	53.2	49.0	46.7	47.8	51.1	55.3	55.4	55.6	55.7	57.1	58.4
Dry (24%)	56.6	52.9	48.6	46.9	48.0	51.0	55.1	56.1	56.1	56.7	58.7	59.1
Critical (15%)	60.1	54.6	48.7	47.2	48.5	51.7	55.4	56.6	58.2	59.3	61.5	62.7

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.1	56.0	51.1	48.0	48.9	52.3	56.4	57.7	58.5	59.2	60.9	61.0
20%	57.4	54.9	50.2	47.6	48.5	51.8	55.8	56.7	58.1	58.0	59.6	60.0
30%	56.8	54.0	49.5	47.2	48.2	51.3	55.5	55.9	57.5	57.4	58.5	59.1
40%	56.3	53.7	49.2	46.8	47.7	50.8	55.1	55.6	57.0	56.9	57.8	58.5
50%	56.1	53.3	48.8	46.6	47.5	50.4	54.5	55.2	55.9	56.4	57.2	58.1
60%	55.9	52.9	48.3	46.4	47.2	50.0	54.1	54.8	55.4	56.0	57.0	57.6
70%	55.6	52.7	48.0	46.3	46.7	49.5	53.7	54.4	55.1	55.5	56.8	57.0
80%	55.2	52.4	47.8	45.9	46.4	48.5	52.8	54.0	54.6	55.3	56.2	56.3
90%	54.9	51.7	47.3	45.6	46.0	47.8	51.4	53.5	53.8	54.6	55.5	55.4
Long Term												
Full Simulation Period[a]	56.7	53.5	49.0	46.8	47.5	50.2	54.2	55.4	56.2	56.6	57.9	58.5
Water Year Types[b,c]												
Wet (32%)	55.5	53.4	49.4	46.5	46.8	49.0	52.9	55.6	56.9	56.3	56.8	56.9
Above Normal (16%)	55.7	52.9	48.8	46.6	46.9	49.6	54.2	55.2	55.0	55.0	56.4	57.8
Below Normal (13%)	56.3	53.6	49.1	46.7	47.7	50.9	54.9	54.6	55.0	55.8	56.5	57.6
Dry (24%)	56.4	53.2	48.7	46.9	48.0	51.1	55.1	55.2	55.5	56.8	58.8	58.7
Critical (15%)	60.8	54.9	48.7	47.3	48.7	51.4	55.2	56.3	57.9	59.5	61.6	63.2

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**2.1**	**0.4**	**0.1**	-0.1	0.0	**0.0**	**0.1**	-0.2	-0.3	-0.1	**0.3**	**0.3**
20%	0.0	-0.3	0.0	0.0	0.0	**0.1**	0.0	-0.4	**0.0**	0.0	**0.2**	**0.2**
30%	-0.2	-0.6	**0.1**	**0.1**	0.0	**0.1**	-0.1	-0.6	0.0	**0.0**	-0.4	**0.0**
40%	-0.2	-0.6	**0.2**	**0.0**	**0.1**	-0.1	0.0	-0.4	-0.1	-0.1	-0.2	**0.3**
50%	0.0	-0.5	**0.1**	**0.0**	0.0	0.0	-0.1	-0.4	-0.6	**0.1**	-0.3	**0.8**
60%	-0.1	-0.3	-0.1	0.0	0.0	0.0	-0.2	-0.6	-0.7	**0.2**	-0.1	**1.7**
70%	-0.1	-0.2	**0.1**	**0.1**	**0.0**	**0.2**	-0.2	-0.7	-0.7	**0.2**	-0.1	**2.3**
80%	0.0	-0.1	**0.1**	0.0	**0.1**	**0.0**	-0.1	-0.6	-0.9	**0.4**	-0.2	**2.2**
90%	-0.2	-0.2	0.0	0.0	**0.0**	-0.1	0.0	-0.4	-1.1	**0.2**	-0.4	**1.8**
Long Term												
Full Simulation Period[a]	**0.0**	-0.2	**0.0**	**0.0**	**0.0**	**0.0**	-0.1	-0.4	-0.5	**0.1**	-0.1	**1.1**
Water Year Types[b,c]												
Wet (32%)	-0.3	-0.9	**0.0**	**0.0**	**0.0**	**0.0**	-0.1	**0.0**	-0.4	**0.1**	-0.3	**2.6**
Above Normal (16%)	0.0	-0.8	-0.1	**0.0**	0.0	**0.1**	**0.1**	-0.4	-0.9	**0.1**	-0.1	**2.9**
Below Normal (13%)	**0.2**	**0.4**	**0.1**	**0.1**	0.0	-0.2	-0.4	-0.8	-0.6	**0.1**	-0.6	-0.8
Dry (24%)	-0.1	**0.3**	**0.1**	**0.0**	**0.0**	**0.2**	0.0	-0.9	-0.6	**0.1**	**0.1**	-0.4
Critical (15%)	**0.7**	**0.3**	**0.0**	**0.1**	**0.1**	-0.2	-0.1	-0.3	-0.2	**0.1**	**0.1**	**0.5**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 9-4. Sacramento River at Bend Bridge, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.0	55.6	51.0	48.1	48.9	52.3	56.3	57.9	58.8	59.3	60.6	60.7
20%	57.4	55.2	50.2	47.6	48.5	51.7	55.9	57.1	58.1	58.0	59.4	59.8
30%	56.9	54.6	49.3	47.1	48.2	51.3	55.5	56.6	57.5	57.4	58.9	59.1
40%	56.5	54.2	48.9	46.7	47.7	50.8	55.1	55.9	57.1	56.9	58.0	58.1
50%	56.1	53.8	48.7	46.6	47.5	50.5	54.6	55.6	56.5	56.3	57.5	57.3
60%	56.0	53.2	48.4	46.4	47.2	50.0	54.3	55.4	56.1	55.8	57.1	55.8
70%	55.7	53.0	47.9	46.2	46.7	49.3	54.0	55.1	55.8	55.4	56.9	54.7
80%	55.3	52.5	47.7	46.0	46.4	48.5	52.9	54.6	55.5	54.9	56.4	54.1
90%	55.1	51.9	47.3	45.6	46.0	47.9	51.4	53.9	54.9	54.3	55.9	53.6
Long Term												
Full Simulation Period[a]	56.7	53.8	48.9	46.7	47.5	50.2	54.4	55.8	56.7	56.5	58.0	57.4
Water Year Types[b,c]												
Wet (32%)	55.8	54.3	49.3	46.5	46.8	48.9	53.0	55.6	57.3	56.2	57.0	54.3
Above Normal (16%)	55.7	53.7	48.9	46.5	46.9	49.6	54.1	55.6	55.9	54.8	56.5	55.0
Below Normal (13%)	56.1	53.2	49.0	46.7	47.8	51.1	55.3	55.4	55.6	55.7	57.1	58.4
Dry (24%)	56.6	52.9	48.6	46.9	48.0	51.0	55.1	56.1	56.1	56.7	58.7	59.1
Critical (15%)	60.1	54.6	48.7	47.2	48.5	51.7	55.4	56.6	58.2	59.3	61.5	62.7

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.3	55.4	51.1	48.3	49.0	52.3	56.0	57.0	58.8	58.8	59.5	60.8
20%	56.5	54.8	50.1	47.6	48.6	51.7	55.7	56.7	58.2	58.0	58.6	59.9
30%	55.7	54.0	49.7	47.4	48.2	51.1	55.3	56.3	57.5	57.2	58.0	59.4
40%	55.5	53.6	49.2	47.0	47.7	50.4	54.7	56.0	57.0	56.8	57.7	58.7
50%	55.2	53.3	48.8	46.8	47.5	50.0	54.1	55.7	56.3	56.4	57.4	58.3
60%	55.0	52.9	48.6	46.5	47.2	49.6	53.6	55.6	55.8	55.9	57.1	57.7
70%	54.8	52.7	48.4	46.3	46.7	49.0	53.2	55.2	55.5	55.4	56.9	57.1
80%	54.5	52.3	48.1	46.1	46.4	48.5	52.5	55.0	55.0	55.1	56.4	56.4
90%	54.2	51.7	47.6	45.7	46.1	48.0	51.4	54.5	54.4	54.6	56.0	55.6
Long Term												
Full Simulation Period[a]	55.8	53.5	49.1	46.9	47.5	50.1	54.0	55.8	56.5	56.5	57.7	58.4
Water Year Types[b,c]												
Wet (32%)	54.8	53.5	49.5	46.6	46.8	48.8	52.5	55.5	57.3	56.3	56.9	56.6
Above Normal (16%)	54.8	52.7	48.9	46.7	46.9	49.3	53.6	55.8	56.1	54.8	56.7	57.8
Below Normal (13%)	55.4	53.5	49.2	46.9	47.7	50.7	54.9	55.3	55.4	55.6	57.0	58.5
Dry (24%)	55.7	53.1	49.0	47.0	48.0	50.9	54.9	56.0	55.6	56.6	57.9	58.9
Critical (15%)	59.8	54.6	48.9	47.6	48.8	51.7	55.6	56.8	57.8	59.3	60.6	62.2

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.3**	-0.3	**0.1**	**0.1**	**0.1**	**0.0**	-0.3	-0.9	**0.0**	-0.5	-1.1	**0.1**
20%	-0.9	-0.4	-0.2	**0.0**	**0.1**	0.0	-0.2	-0.4	**0.1**	**0.1**	-0.8	**0.1**
30%	-1.2	-0.6	**0.4**	**0.4**	-0.1	-0.1	-0.2	-0.3	**0.0**	-0.2	-0.9	**0.3**
40%	-1.1	-0.6	**0.3**	**0.2**	**0.0**	-0.5	-0.4	**0.1**	-0.1	-0.2	-0.3	**0.6**
50%	-0.9	-0.5	**0.2**	**0.2**	**0.0**	-0.5	-0.5	**0.1**	-0.2	**0.0**	-0.1	**1.0**
60%	-1.0	-0.3	**0.1**	**0.1**	0.0	-0.4	-0.7	**0.2**	-0.3	**0.1**	0.0	**1.8**
70%	-0.9	-0.3	**0.4**	**0.1**	**0.0**	-0.3	-0.8	**0.1**	-0.3	**0.0**	0.0	**2.3**
80%	-0.7	-0.2	**0.4**	**0.1**	**0.1**	**0.0**	-0.4	**0.3**	-0.5	**0.2**	-0.1	**2.3**
90%	-0.9	-0.3	**0.3**	**0.1**	**0.1**	**0.1**	**0.0**	**0.5**	-0.5	**0.3**	**0.1**	**2.1**
Long Term												
Full Simulation Period[a]	-0.8	-0.3	**0.2**	**0.2**	**0.0**	-0.1	-0.3	0.0	-0.2	**0.0**	-0.3	**1.1**
Water Year Types[b,c]												
Wet (32%)	-1.0	-0.8	**0.1**	**0.1**	**0.0**	-0.1	-0.6	-0.1	**0.1**	**0.1**	-0.1	**2.3**
Above Normal (16%)	-0.9	-1.0	0.0	**0.1**	**0.0**	-0.3	-0.5	**0.2**	**0.2**	0.0	**0.2**	**2.9**
Below Normal (13%)	-0.7	**0.3**	**0.3**	**0.3**	0.0	-0.4	-0.4	-0.1	-0.2	0.0	-0.1	**0.1**
Dry (24%)	-0.9	**0.2**	**0.5**	**0.1**	**0.0**	-0.1	-0.2	-0.1	-0.5	0.0	-0.8	-0.2
Critical (15%)	-0.4	0.0	**0.2**	**0.3**	**0.3**	**0.0**	**0.2**	**0.1**	-0.4	0.0	-0.9	-0.5

a Based on the 82-year simulation period.

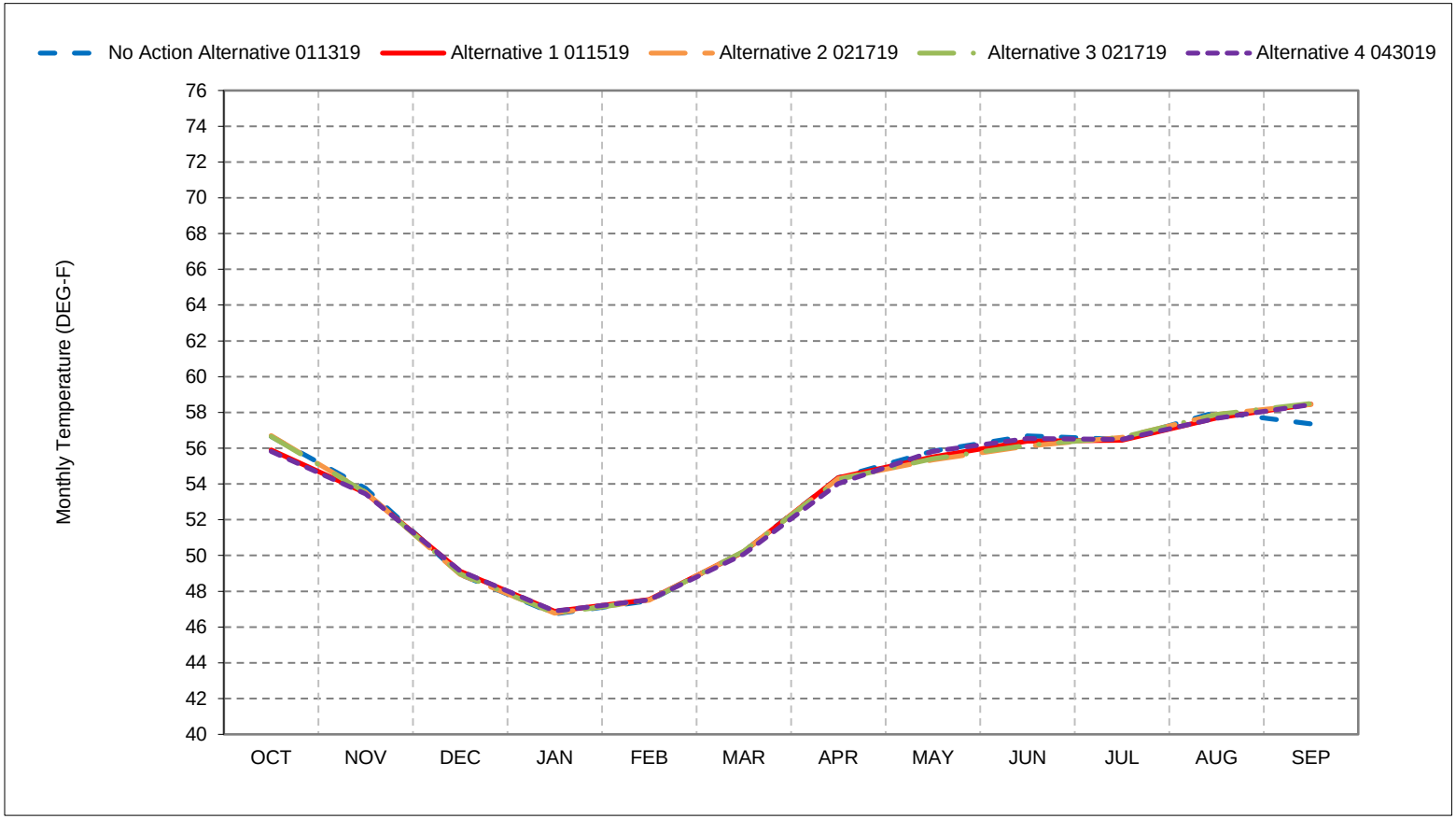
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

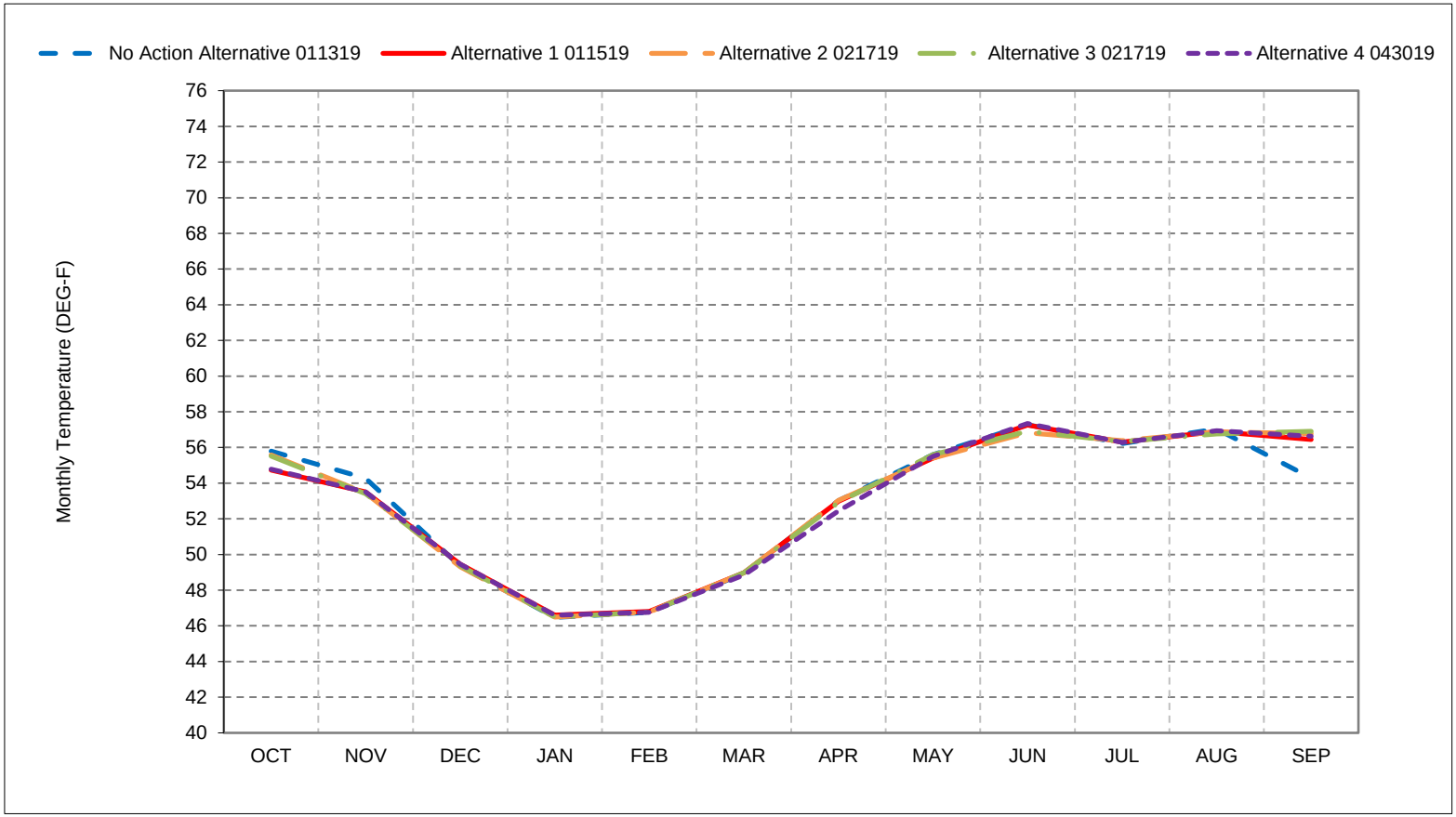
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-1. Sacramento River at Bend Bridge, Long-Term Average Temperature



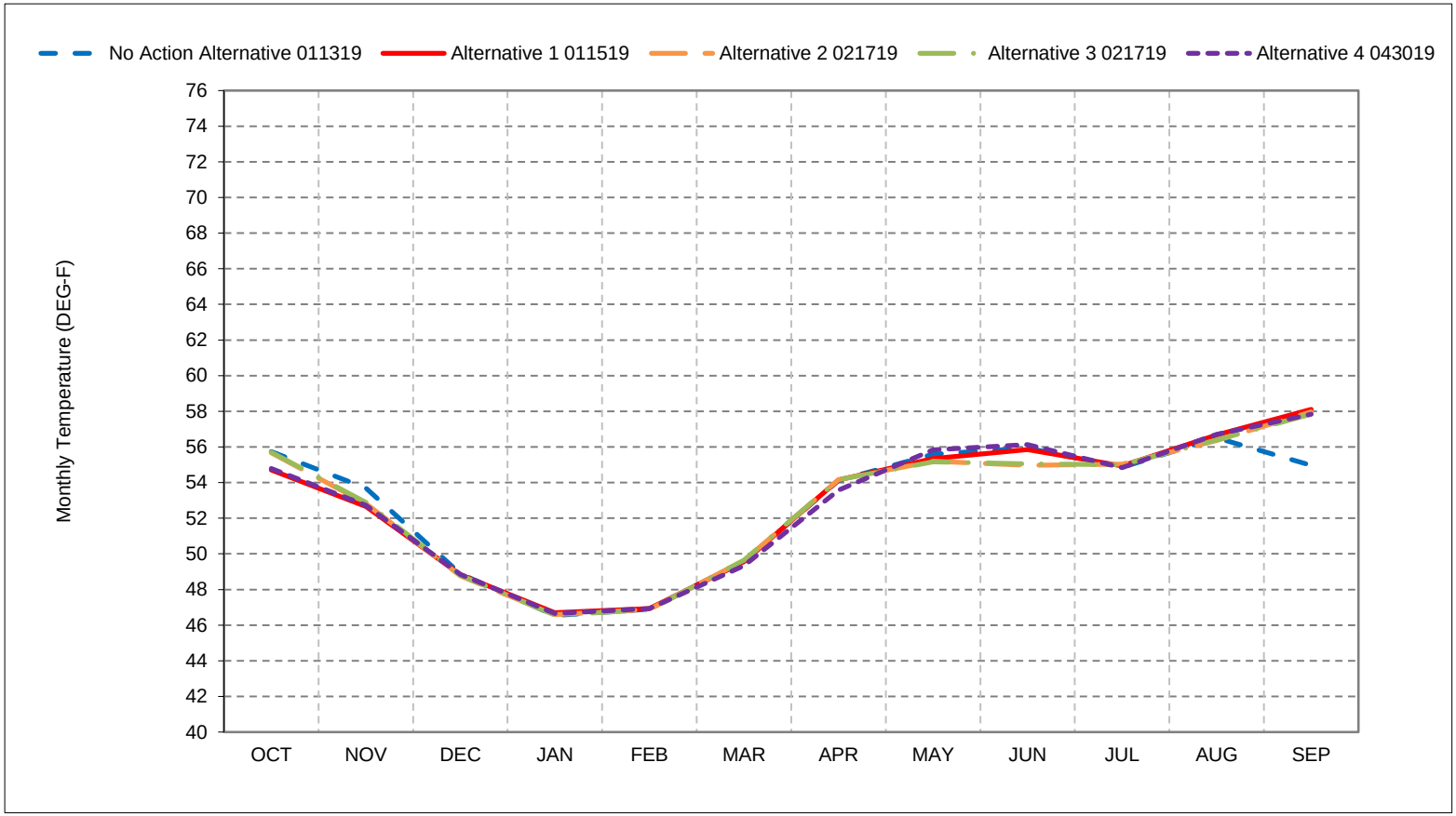
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-2. Sacramento River at Bend Bridge, Wet Year Average Temperature



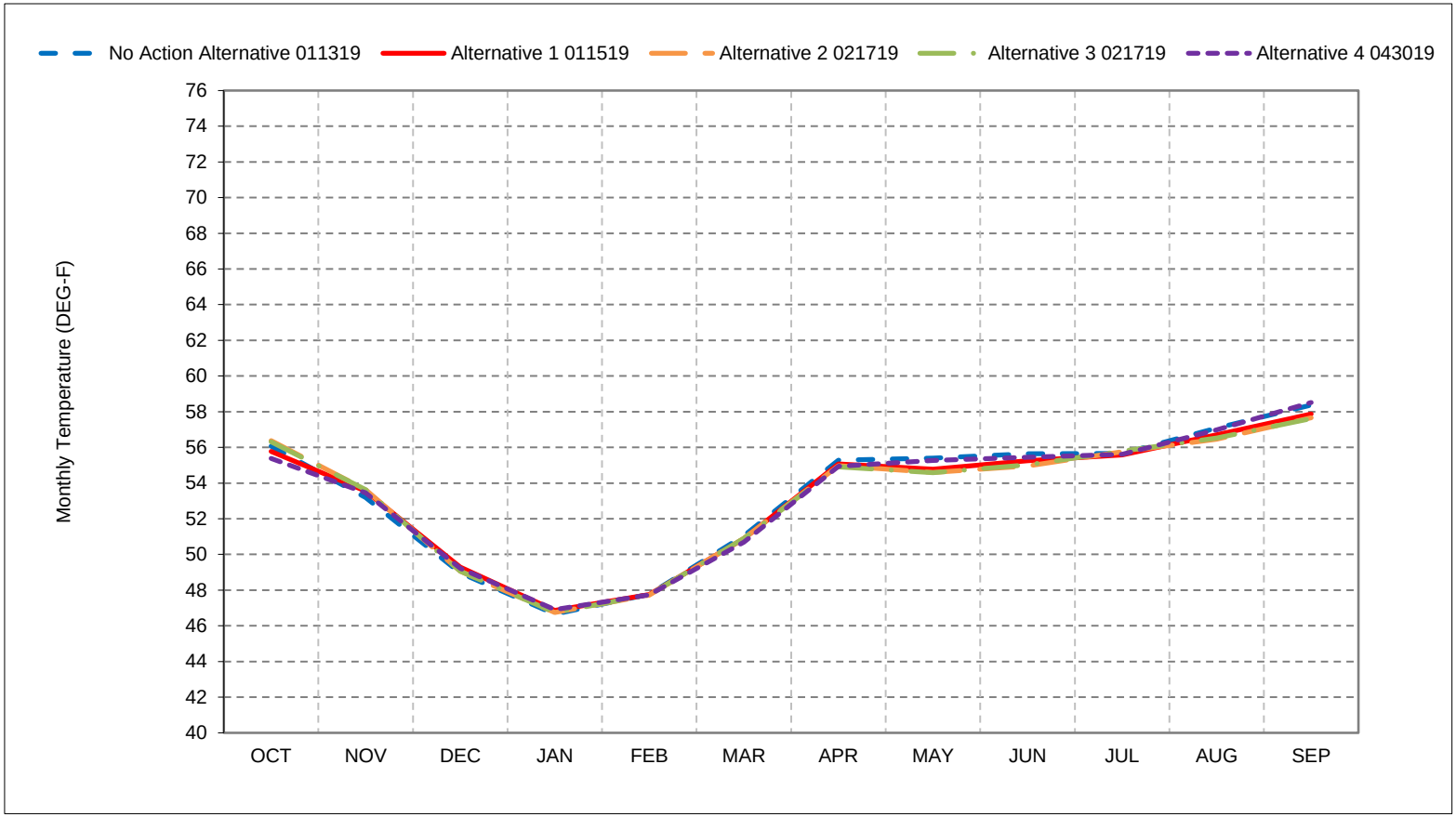
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-3. Sacramento River at Bend Bridge, Above Normal Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-4. Sacramento River at Bend Bridge, Below Normal Year Average Temperature



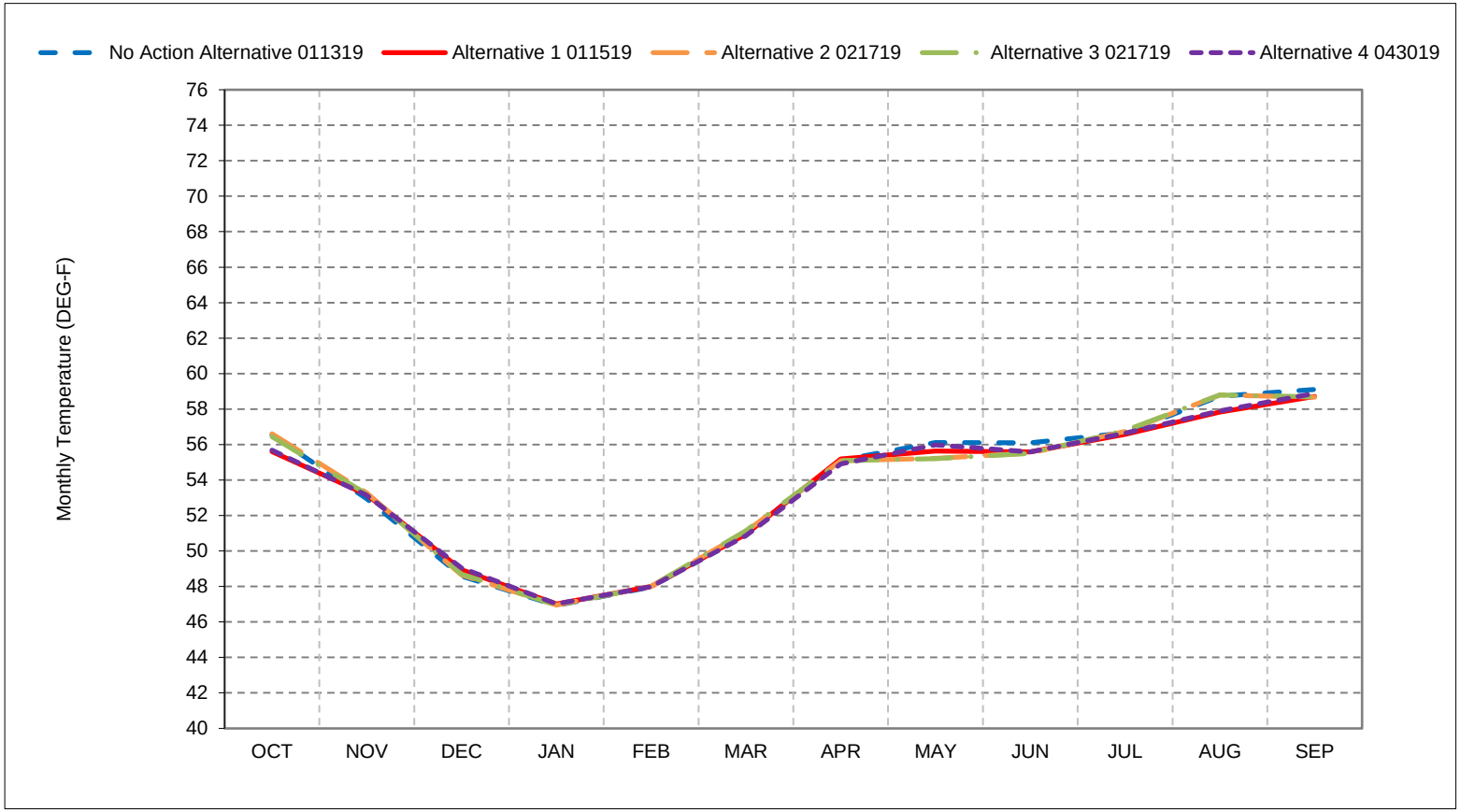
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

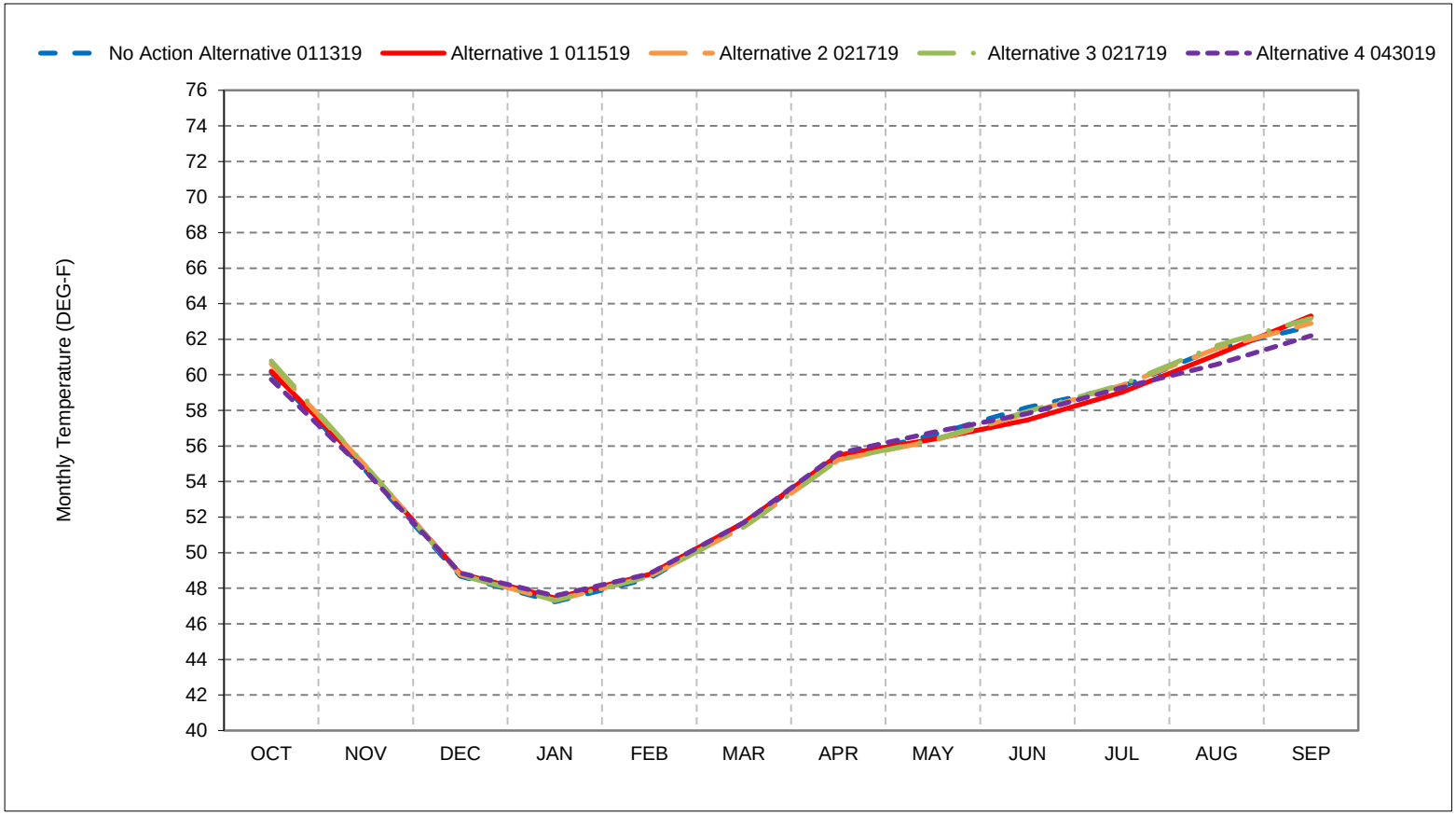
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-5. Sacramento River at Bend Bridge, Dry Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-6. Sacramento River at Bend Bridge, Critical Year Average Temperature



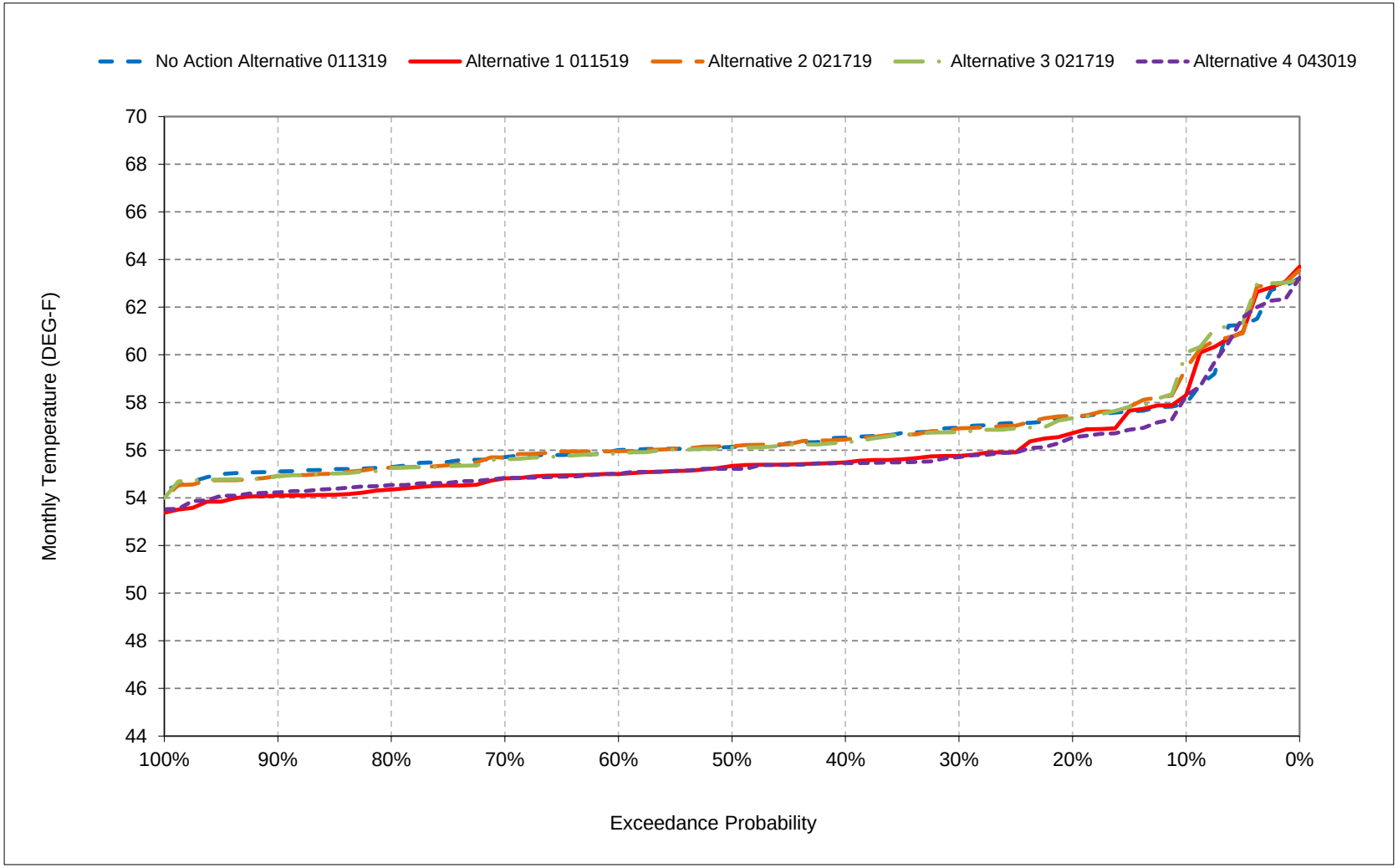
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

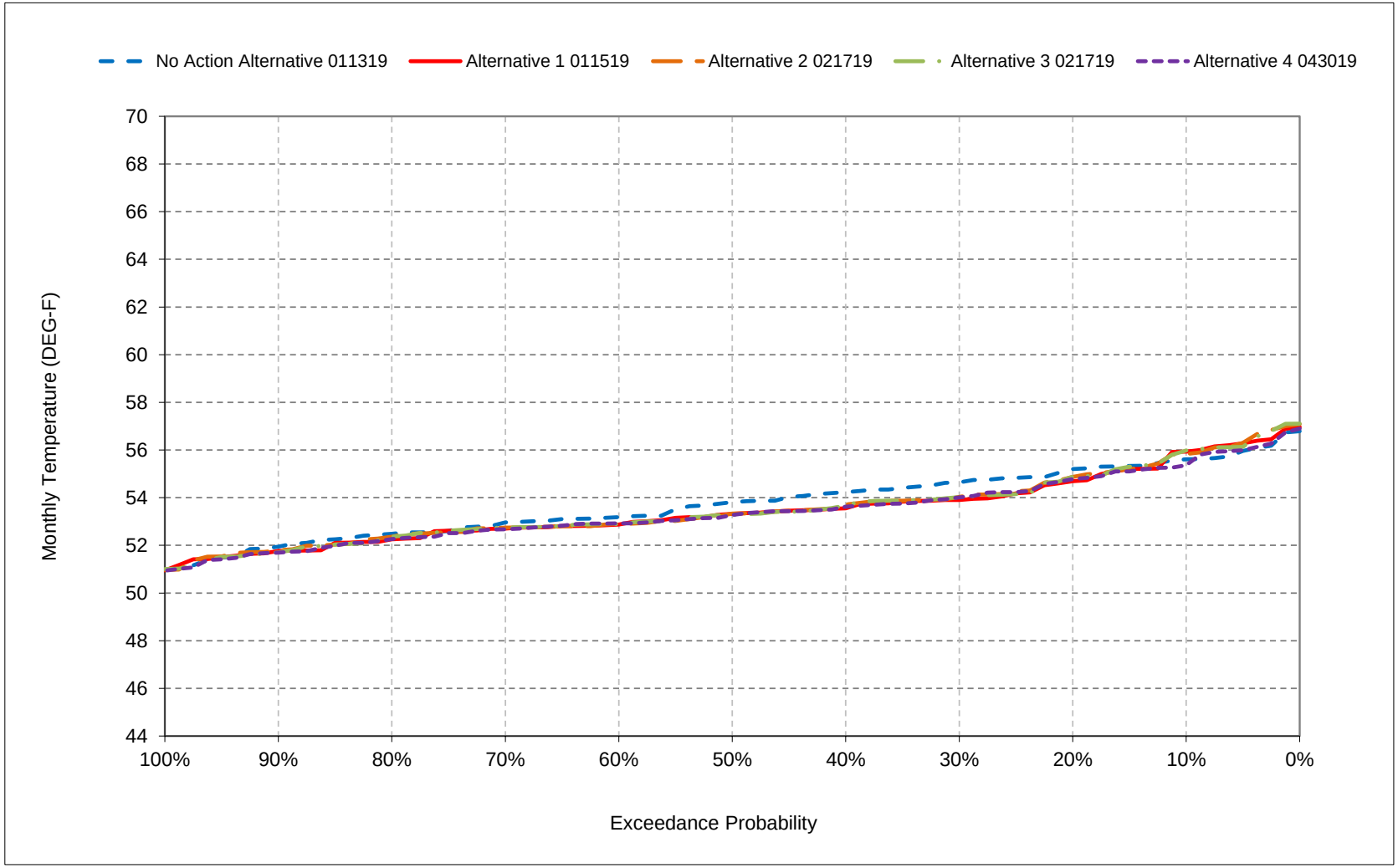
Figure 9-7. Sacramento River at Bend Bridge, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

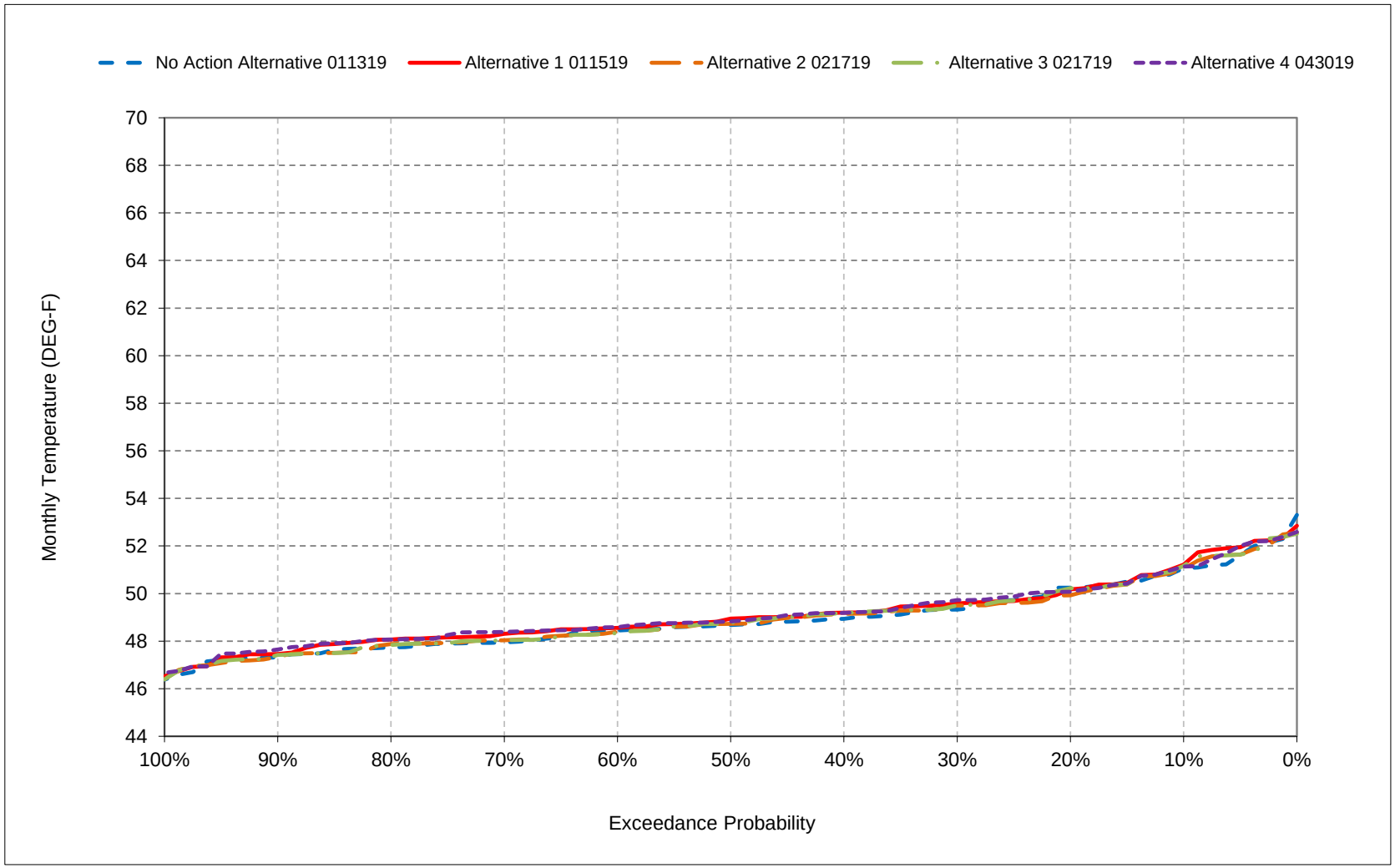
Figure 9-8. Sacramento River at Bend Bridge, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

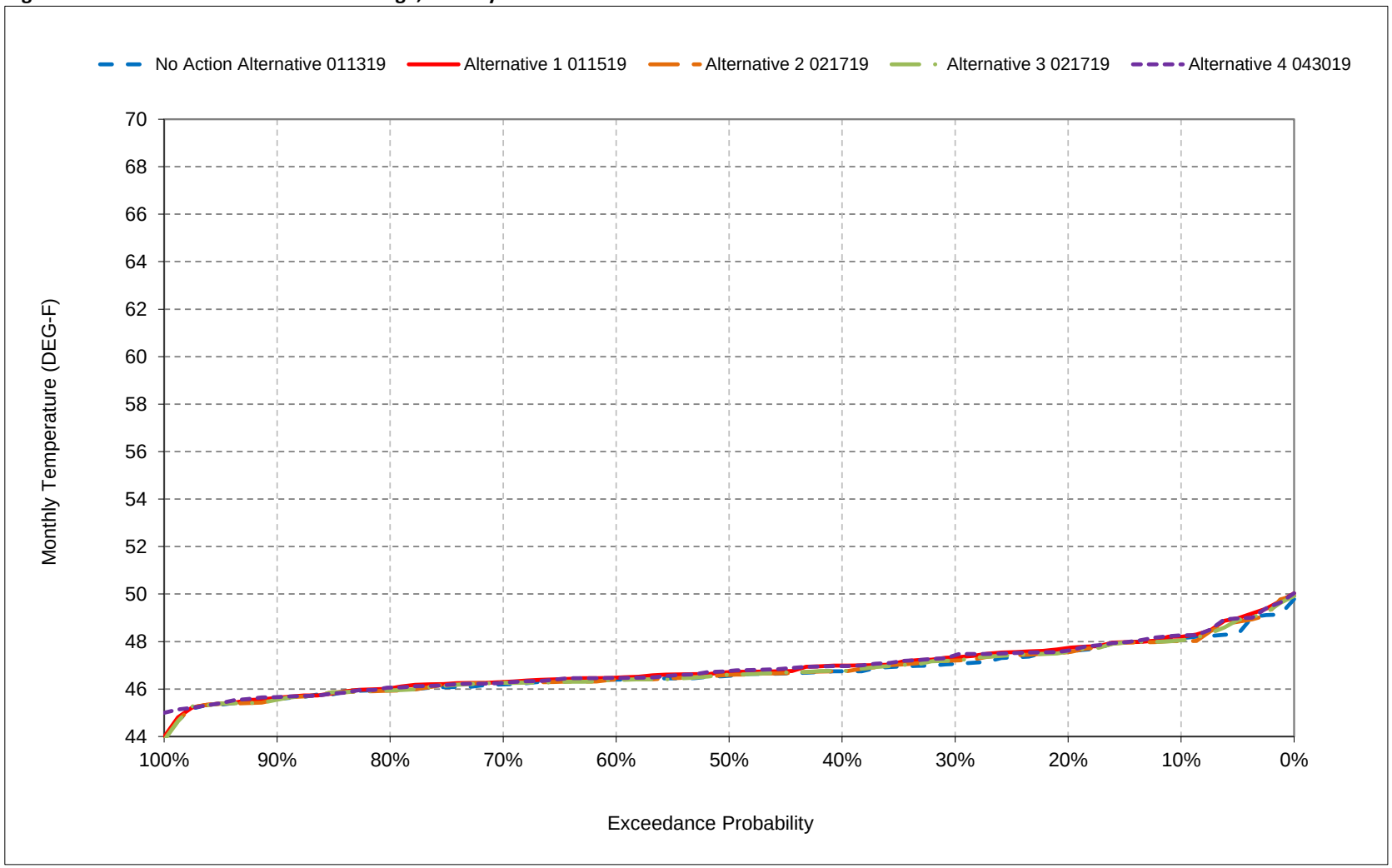
Figure 9-9. Sacramento River at Bend Bridge, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

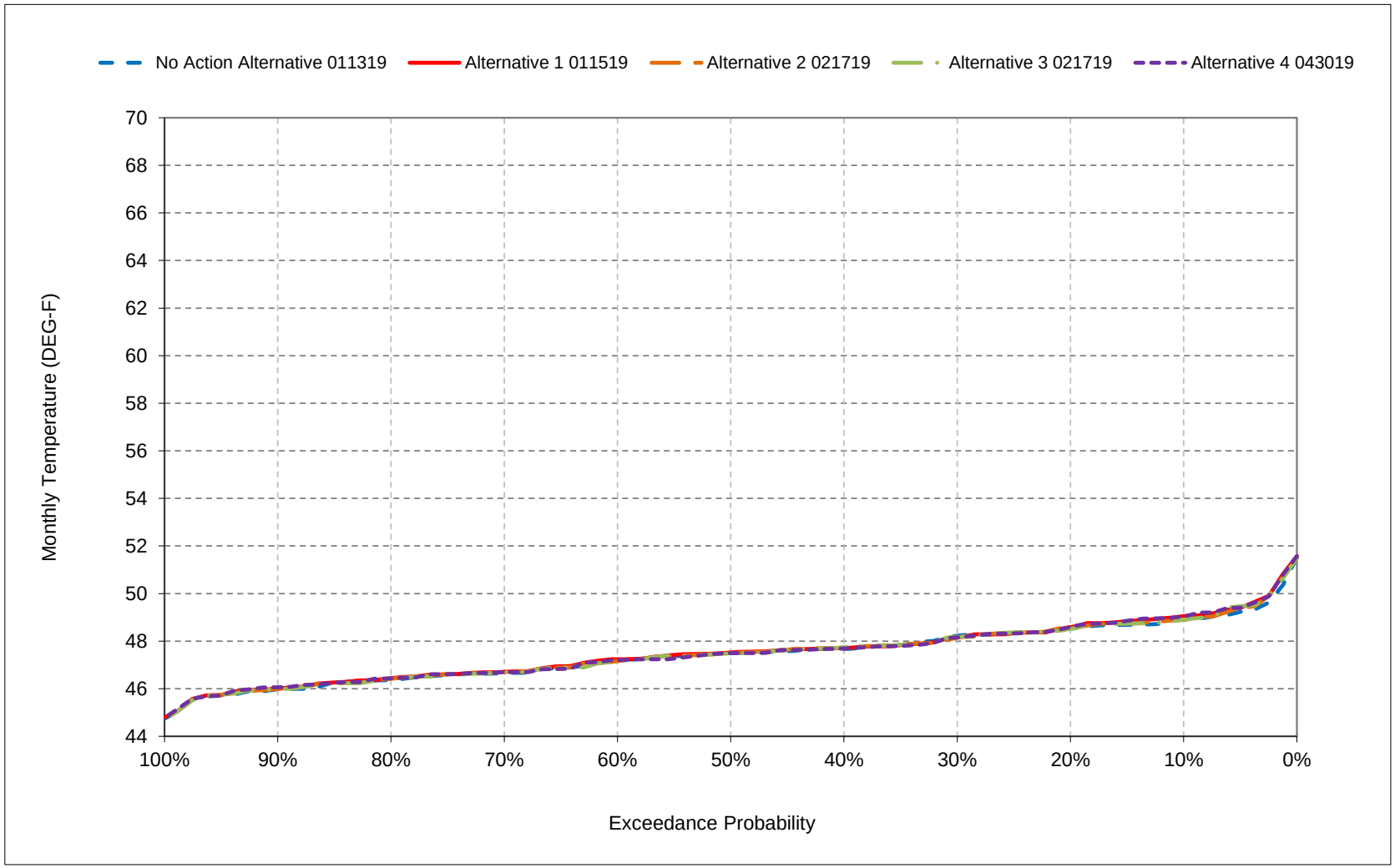
Figure 9-10. Sacramento River at Bend Bridge, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

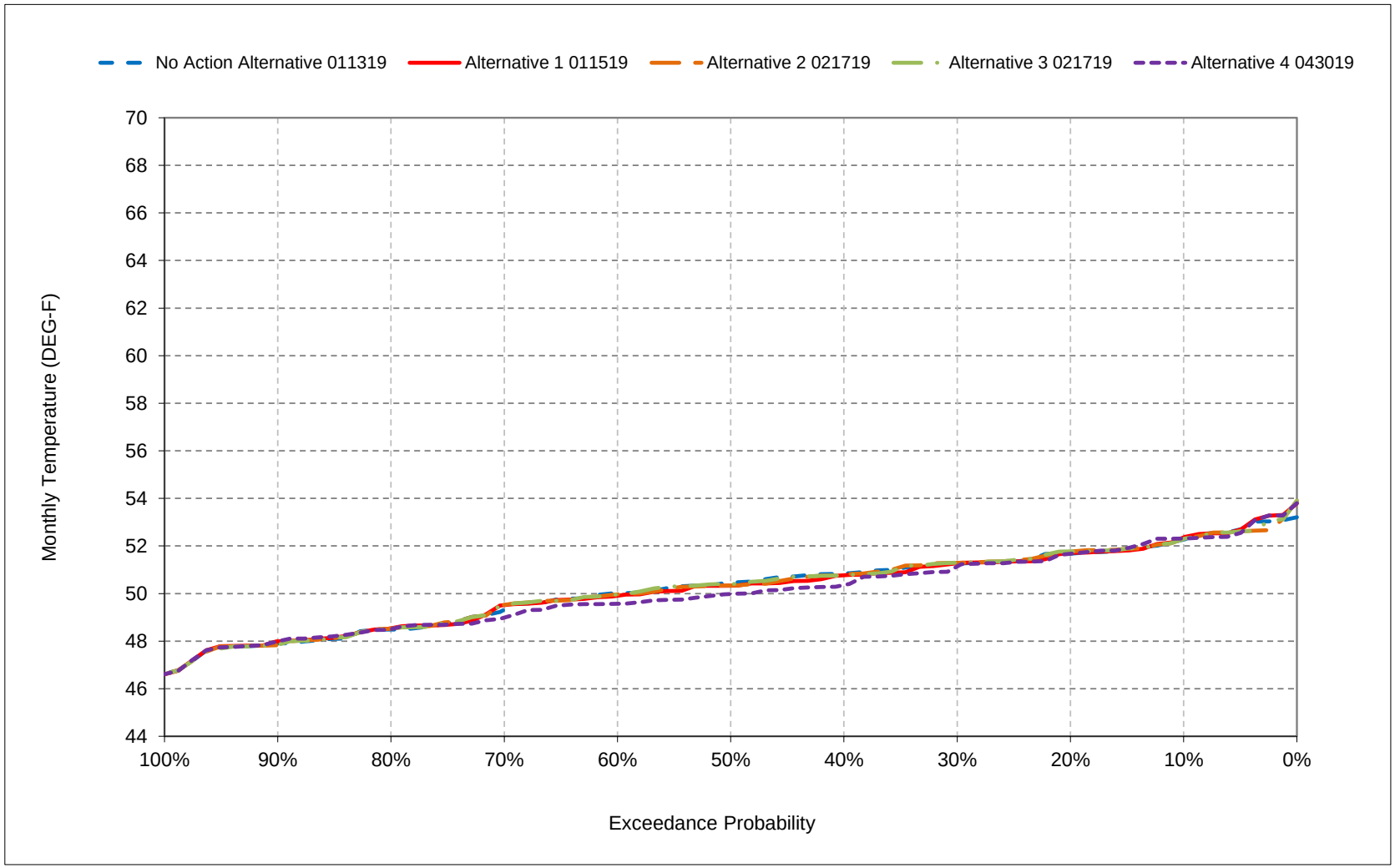
Figure 9-11. Sacramento River at Bend Bridge, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

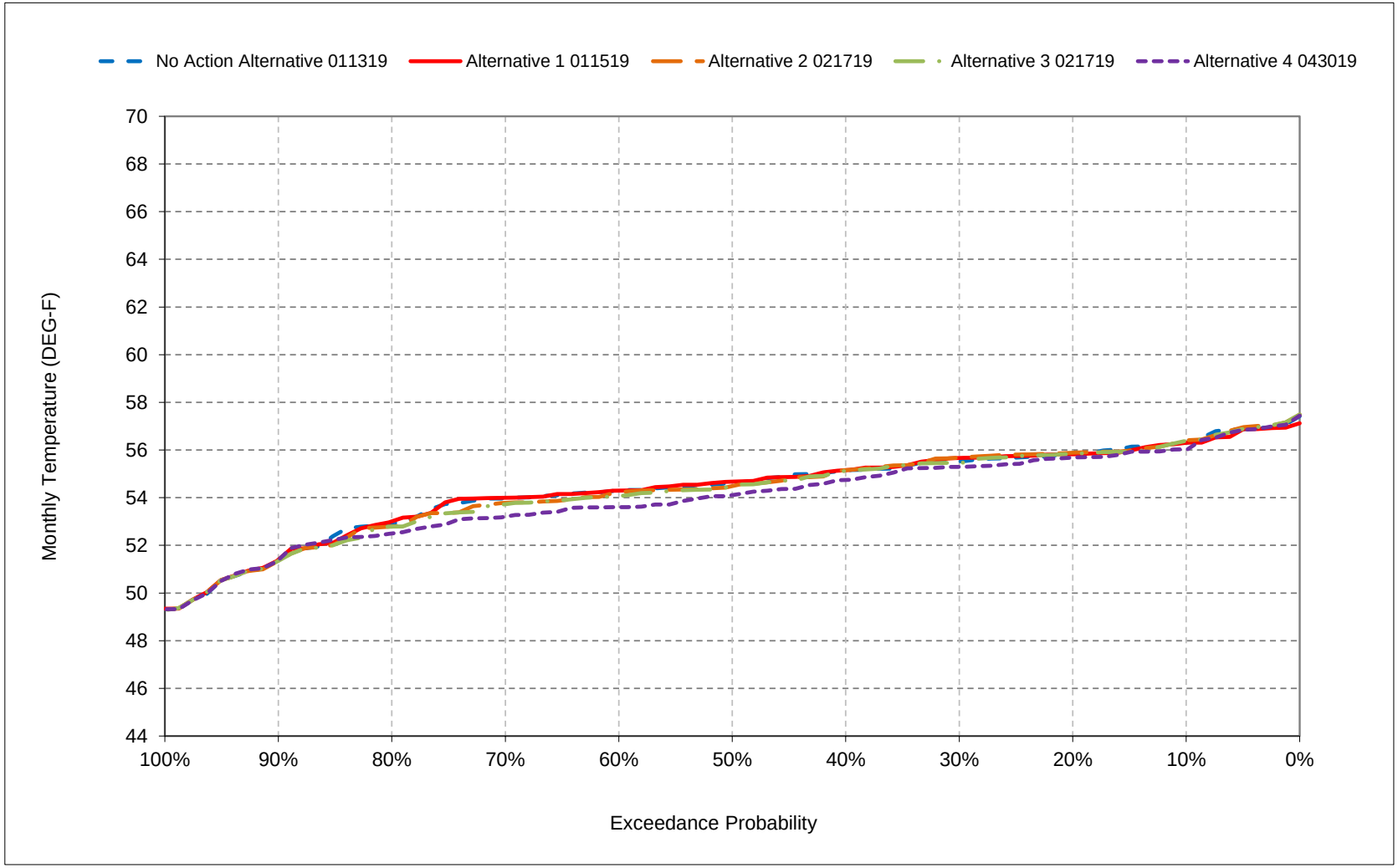
Figure 9-12. Sacramento River at Bend Bridge, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

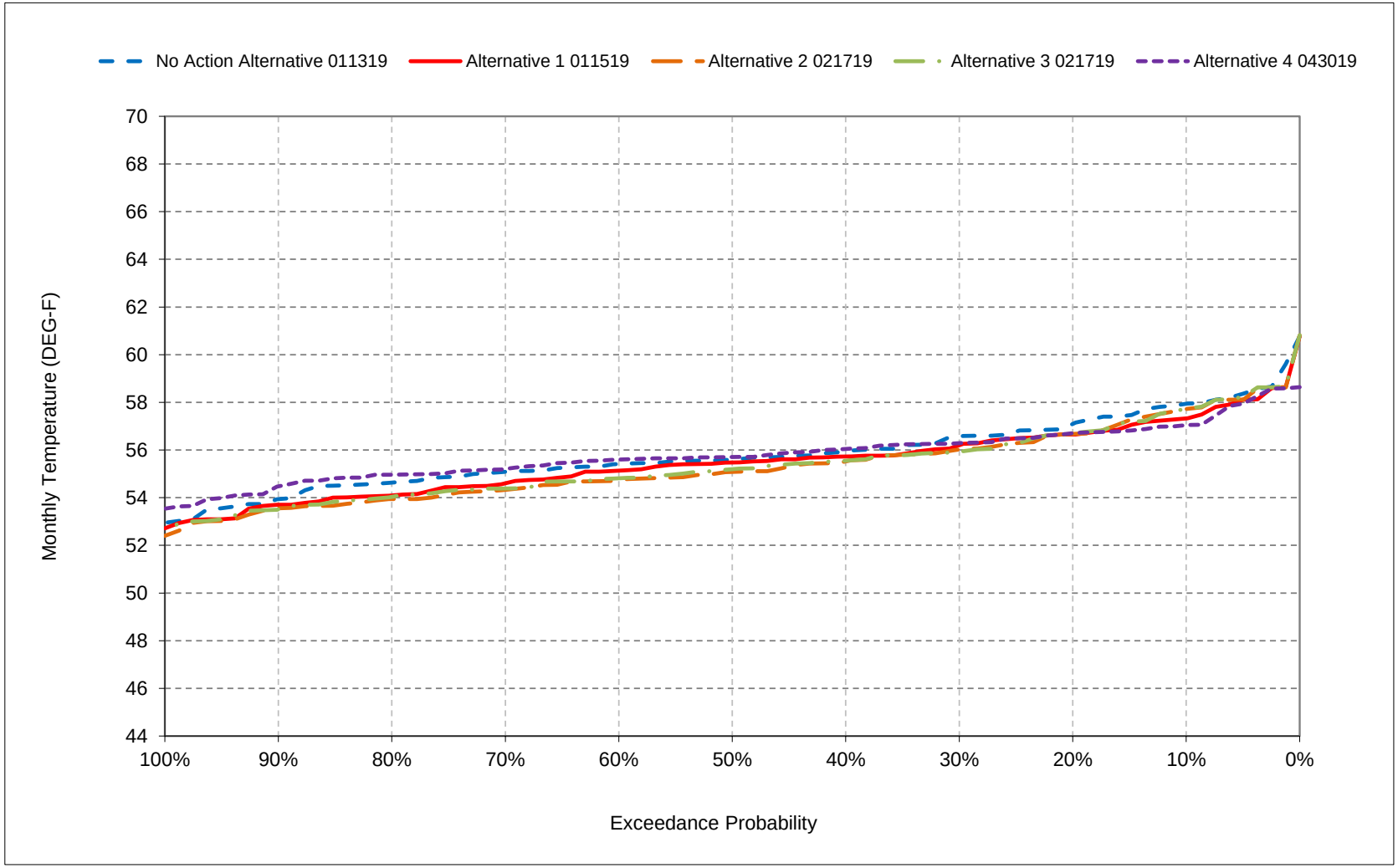
Figure 9-13. Sacramento River at Bend Bridge, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

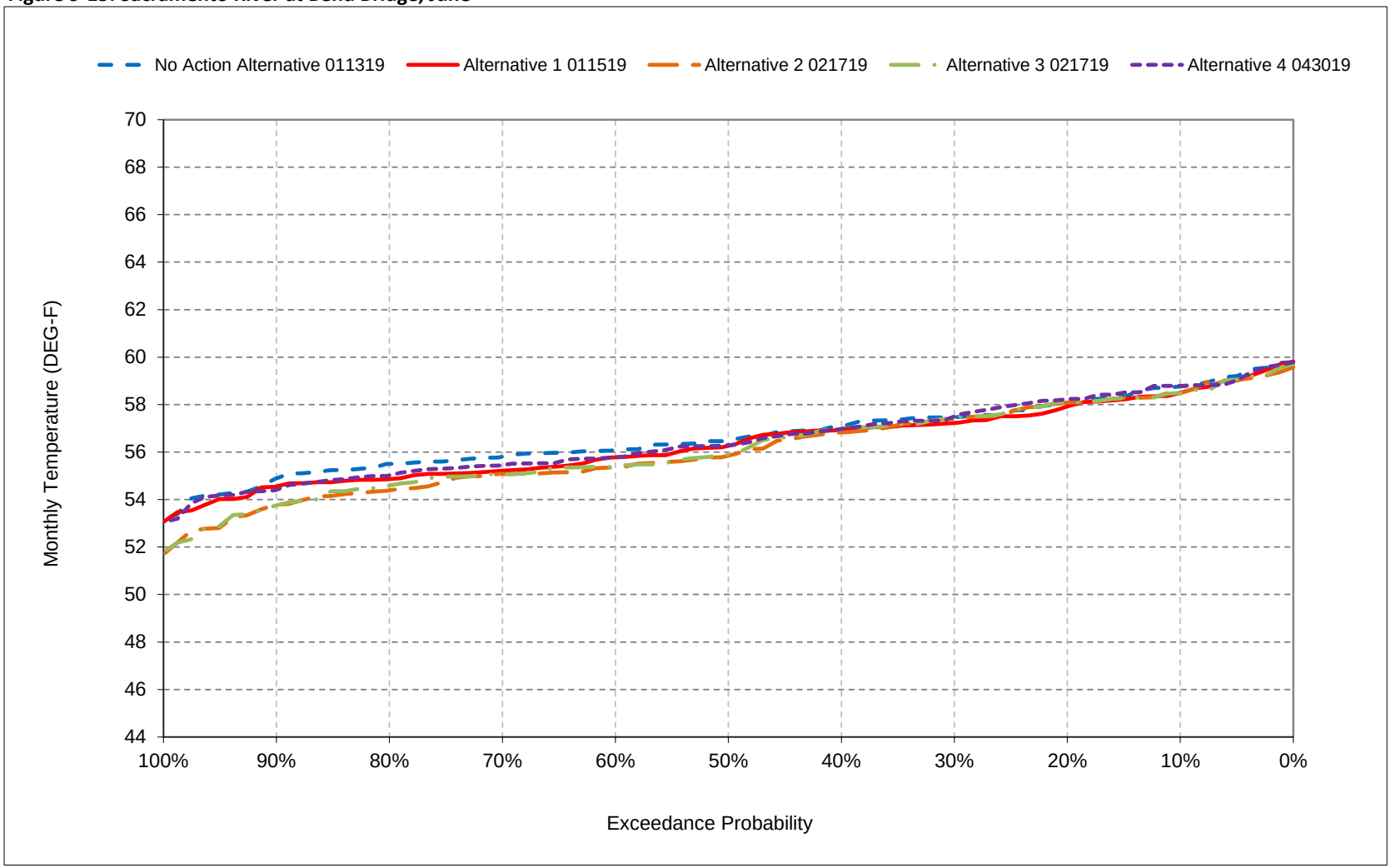
Figure 9-14. Sacramento River at Bend Bridge, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

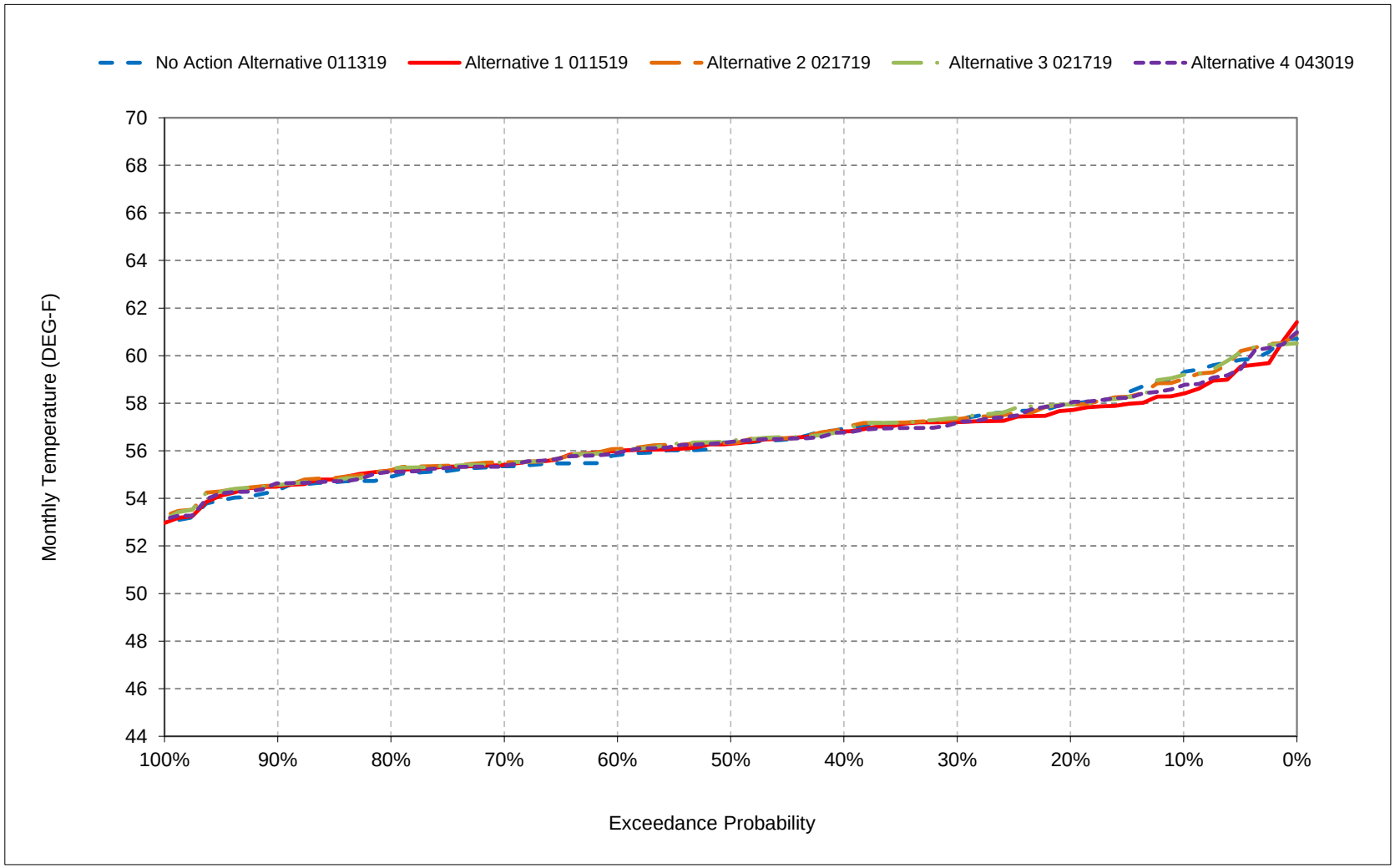
Figure 9-15. Sacramento River at Bend Bridge, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

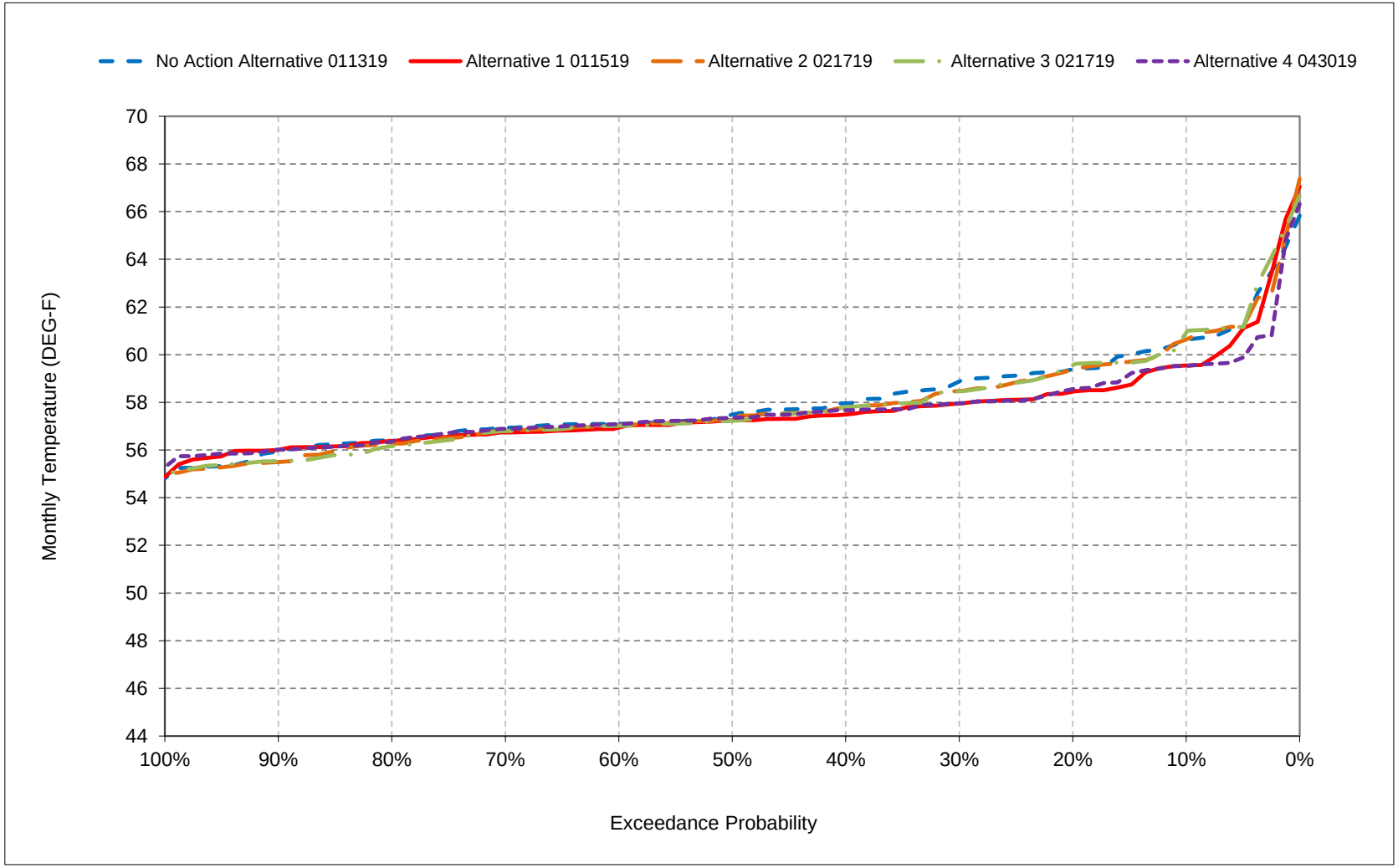
Figure 9-16. Sacramento River at Bend Bridge, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

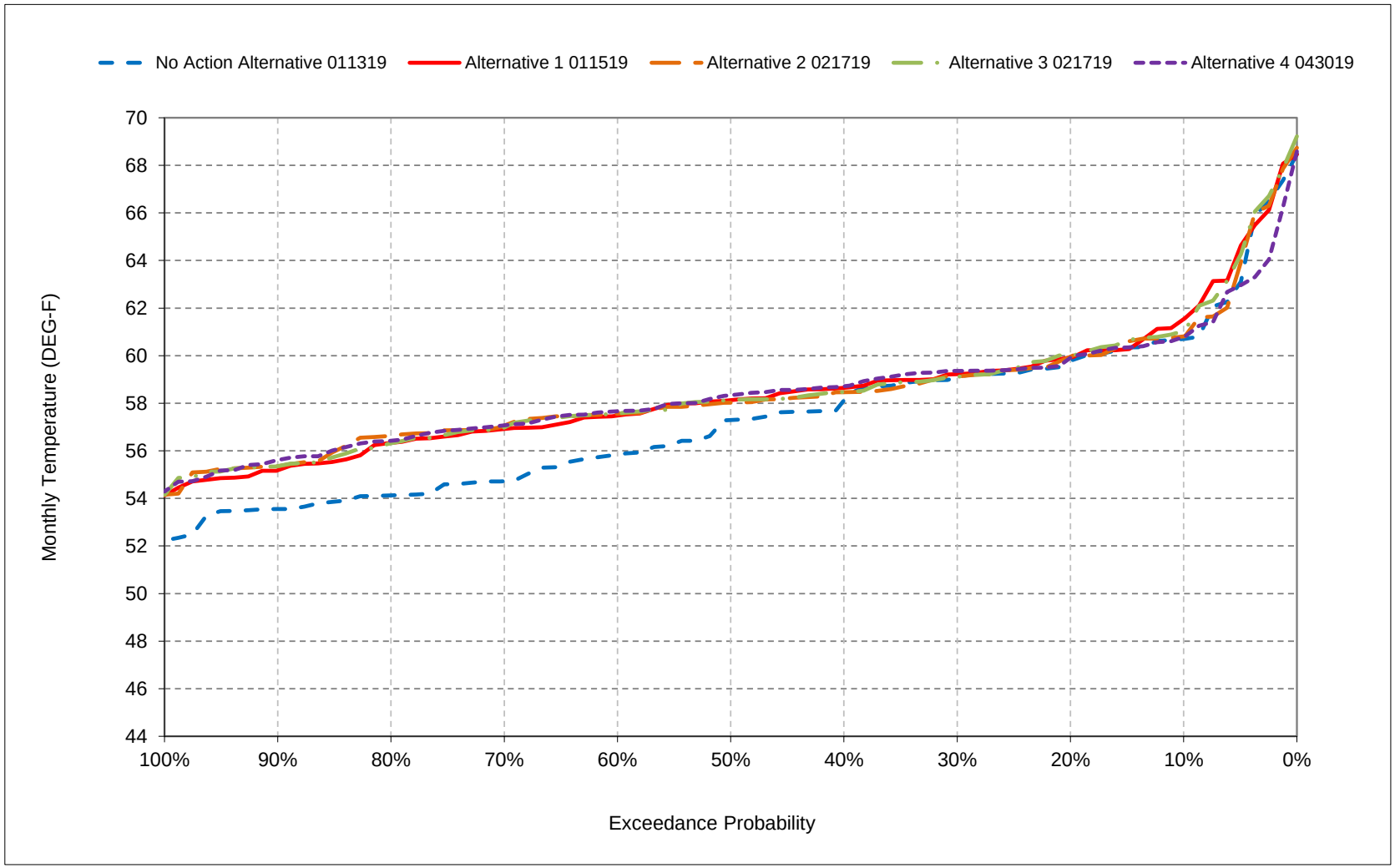
Figure 9-17. Sacramento River at Bend Bridge, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-18. Sacramento River at Bend Bridge, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 10-1. Sacramento River at Red Bluff, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.7	55.7	50.7	48.2	49.3	53.0	57.5	59.3	60.4	61.1	62.5	62.7
20%	58.1	55.3	50.0	47.5	48.8	52.4	56.9	58.5	59.8	59.9	61.2	61.5
30%	57.6	54.7	49.3	47.1	48.6	51.9	56.6	57.9	59.3	59.5	60.8	60.9
40%	57.1	54.2	48.9	46.8	48.0	51.5	56.1	57.2	58.9	58.7	59.7	59.9
50%	56.7	53.8	48.6	46.5	47.7	51.0	55.6	56.9	58.4	58.1	59.4	58.8
60%	56.4	53.2	48.4	46.4	47.4	50.5	55.3	56.7	57.9	57.5	59.0	57.1
70%	56.2	53.0	47.9	46.2	46.9	49.8	54.7	56.3	57.6	57.1	58.7	56.0
80%	55.8	52.5	47.7	46.0	46.6	48.8	53.9	55.9	57.2	56.6	58.1	55.2
90%	55.5	52.1	47.3	45.6	46.1	48.1	51.9	55.1	56.6	55.9	57.9	54.6
Long Term												
Full Simulation Period[a]	57.2	53.8	48.9	46.8	47.7	50.8	55.3	57.1	58.5	58.3	59.9	58.8
Water Year Types[b,c]												
Wet (32%)	56.2	54.3	49.3	46.5	47.0	49.3	53.7	56.7	59.1	58.1	58.9	55.4
Above Normal (16%)	56.2	53.7	48.8	46.6	47.1	50.0	54.9	56.9	57.8	56.5	58.3	56.3
Below Normal (13%)	56.6	53.3	48.9	46.7	48.0	51.7	56.4	56.7	57.4	57.4	58.8	60.1
Dry (24%)	57.1	53.0	48.5	46.9	48.3	51.5	56.1	57.5	57.9	58.5	60.6	60.9
Critical (15%)	60.6	54.7	48.6	47.3	49.0	52.4	56.6	58.0	60.0	61.2	63.3	64.3

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.9	56.0	51.2	48.2	49.4	52.9	57.4	58.8	60.3	60.5	61.6	63.3
20%	57.3	54.7	50.0	47.7	48.9	52.3	57.0	58.0	59.7	59.6	60.4	61.7
30%	56.4	54.0	49.4	47.4	48.4	51.9	56.5	57.5	59.1	59.1	60.0	61.0
40%	56.2	53.5	49.1	47.0	48.0	51.4	56.1	57.0	58.8	58.7	59.4	60.6
50%	55.9	53.3	48.8	46.7	47.7	50.8	55.6	56.7	58.0	58.1	59.1	59.9
60%	55.7	53.0	48.6	46.5	47.4	50.4	55.3	56.4	57.5	57.7	58.9	59.3
70%	55.4	52.7	48.2	46.3	46.9	49.9	54.7	55.7	57.0	57.1	58.4	58.8
80%	54.9	52.3	47.9	46.1	46.6	48.8	53.7	55.4	56.6	56.8	58.1	57.8
90%	54.6	51.8	47.4	45.7	46.2	48.2	51.9	54.8	56.1	56.1	57.7	56.6
Long Term												
Full Simulation Period[a]	56.5	53.5	49.0	46.9	47.8	50.7	55.3	56.7	58.1	58.3	59.5	60.1
Water Year Types[b,c]												
Wet (32%)	55.3	53.6	49.4	46.6	47.0	49.4	53.7	56.5	59.0	58.2	58.7	58.0
Above Normal (16%)	55.3	52.7	48.8	46.8	47.1	50.0	55.0	56.6	57.7	56.6	58.5	59.9
Below Normal (13%)	56.4	53.6	49.2	46.9	48.0	51.5	56.1	56.0	56.9	57.3	58.4	59.5
Dry (24%)	56.3	53.2	48.9	47.0	48.3	51.5	56.2	56.9	57.3	58.4	59.8	60.6
Critical (15%)	60.7	54.9	48.7	47.5	49.2	52.4	56.7	57.7	59.2	61.0	63.0	64.8

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.3**	**0.3**	**0.4**	**0.0**	**0.1**	-0.1	0.0	-0.5	-0.1	-0.6	-0.9	**0.6**
20%	-0.8	-0.5	0.0	**0.2**	**0.1**	0.0	**0.1**	-0.6	-0.2	-0.2	-0.8	**0.2**
30%	-1.1	-0.6	**0.0**	**0.3**	-0.2	-0.1	-0.1	-0.4	-0.2	-0.4	-0.8	**0.1**
40%	-0.8	-0.7	**0.2**	**0.2**	**0.0**	-0.1	0.0	-0.2	-0.1	**0.0**	-0.3	**0.7**
50%	-0.8	-0.5	**0.2**	**0.2**	**0.0**	-0.1	**0.0**	-0.2	-0.4	0.0	-0.3	**1.1**
60%	-0.7	-0.2	**0.1**	**0.1**	**0.0**	-0.1	**0.0**	-0.3	-0.4	**0.3**	0.0	**2.2**
70%	-0.8	-0.3	**0.3**	**0.1**	**0.0**	**0.1**	**0.0**	-0.6	-0.7	**0.0**	-0.3	**2.7**
80%	-0.9	-0.2	**0.3**	**0.1**	**0.0**	**0.0**	-0.2	-0.5	-0.6	**0.2**	**0.0**	**2.6**
90%	-0.9	-0.3	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	-0.3	-0.5	**0.2**	-0.1	**2.0**
Long Term												
Full Simulation Period[a]	-0.7	-0.3	**0.2**	**0.1**	**0.1**	0.0	0.0	-0.4	-0.4	0.0	-0.3	**1.3**
Water Year Types[b,c]												
Wet (32%)	-0.9	-0.7	**0.1**	**0.1**	**0.0**	**0.0**	0.0	-0.2	0.0	**0.1**	-0.2	**2.6**
Above Normal (16%)	-0.9	-1.0	-0.1	**0.1**	**0.0**	0.0	**0.0**	-0.3	-0.1	**0.1**	**0.2**	**3.6**
Below Normal (13%)	-0.3	**0.3**	**0.3**	**0.2**	0.0	-0.2	-0.3	-0.7	-0.5	-0.1	-0.4	-0.6
Dry (24%)	-0.9	**0.2**	**0.3**	**0.1**	**0.0**	0.0	**0.0**	-0.5	-0.6	-0.1	-0.8	-0.4
Critical (15%)	**0.1**	**0.2**	**0.1**	**0.2**	**0.2**	**0.0**	**0.1**	-0.3	-0.7	-0.2	-0.3	**0.5**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 10-2. Sacramento River at Red Bluff, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.7	55.7	50.7	48.2	49.3	53.0	57.5	59.3	60.4	61.1	62.5	62.7
20%	58.1	55.3	50.0	47.5	48.8	52.4	56.9	58.5	59.8	59.9	61.2	61.5
30%	57.6	54.7	49.3	47.1	48.6	51.9	56.6	57.9	59.3	59.5	60.8	60.9
40%	57.1	54.2	48.9	46.8	48.0	51.5	56.1	57.2	58.9	58.7	59.7	59.9
50%	56.7	53.8	48.6	46.5	47.7	51.0	55.6	56.9	58.4	58.1	59.4	58.8
60%	56.4	53.2	48.4	46.4	47.4	50.5	55.3	56.7	57.9	57.5	59.0	57.1
70%	56.2	53.0	47.9	46.2	46.9	49.8	54.7	56.3	57.6	57.1	58.7	56.0
80%	55.8	52.5	47.7	46.0	46.6	48.8	53.9	55.9	57.2	56.6	58.1	55.2
90%	55.5	52.1	47.3	45.6	46.1	48.1	51.9	55.1	56.6	55.9	57.9	54.6
Long Term												
Full Simulation Period[a]	57.2	53.8	48.9	46.8	47.7	50.8	55.3	57.1	58.5	58.3	59.9	58.8
Water Year Types[b,c]												
Wet (32%)	56.2	54.3	49.3	46.5	47.0	49.3	53.7	56.7	59.1	58.1	58.9	55.4
Above Normal (16%)	56.2	53.7	48.8	46.6	47.1	50.0	54.9	56.9	57.8	56.5	58.3	56.3
Below Normal (13%)	56.6	53.3	48.9	46.7	48.0	51.7	56.4	56.7	57.4	57.4	58.8	60.1
Dry (24%)	57.1	53.0	48.5	46.9	48.3	51.5	56.1	57.5	57.9	58.5	60.6	60.9
Critical (15%)	60.6	54.7	48.6	47.3	49.0	52.4	56.6	58.0	60.0	61.2	63.3	64.3

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.9	55.9	51.0	48.1	49.3	52.9	57.6	59.1	60.3	60.9	62.6	62.7
20%	58.1	54.9	49.8	47.5	48.8	52.4	57.0	58.0	59.8	59.8	61.2	61.7
30%	57.4	54.1	49.3	47.2	48.4	51.9	56.6	57.4	59.1	59.3	60.3	60.9
40%	57.0	53.7	49.0	46.8	48.0	51.4	56.1	56.7	58.7	58.6	59.6	60.1
50%	56.7	53.3	48.6	46.6	47.7	50.9	55.5	56.3	57.7	58.3	59.2	59.8
60%	56.5	52.9	48.3	46.4	47.4	50.5	54.9	55.9	57.1	57.8	58.9	59.3
70%	56.2	52.8	48.0	46.3	46.9	49.9	54.6	55.6	56.7	57.2	58.4	58.7
80%	55.8	52.4	47.8	46.0	46.6	48.8	53.7	55.1	56.0	56.8	57.9	58.2
90%	55.4	51.9	47.3	45.6	46.1	48.2	51.9	54.5	55.3	56.1	57.2	56.9
Long Term												
Full Simulation Period[a]	57.2	53.6	48.9	46.8	47.8	50.7	55.2	56.6	57.8	58.4	59.7	60.1
Water Year Types[b,c]												
Wet (32%)	56.1	53.5	49.2	46.5	47.0	49.4	53.7	56.5	58.5	58.2	58.7	58.3
Above Normal (16%)	56.2	52.9	48.7	46.7	47.1	50.1	55.0	56.5	56.6	56.7	58.1	59.6
Below Normal (13%)	56.9	53.7	49.0	46.8	48.0	51.5	56.0	55.8	56.5	57.4	58.1	59.2
Dry (24%)	57.2	53.3	48.6	47.0	48.3	51.7	56.1	56.5	57.3	58.6	60.7	60.5
Critical (15%)	61.1	54.9	48.7	47.3	49.1	52.2	56.4	57.6	59.5	61.3	63.3	64.4

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**1.3**	**0.2**	**0.3**	-0.1	0.0	-0.1	**0.1**	-0.2	-0.1	-0.2	**0.1**	**0.0**
20%	0.0	-0.4	-0.1	**0.1**	0.0	0.0	**0.0**	-0.6	0.0	-0.1	0.0	**0.2**
30%	-0.1	-0.5	-0.1	**0.1**	-0.2	**0.0**	0.0	-0.5	-0.2	-0.1	-0.5	**0.0**
40%	-0.1	-0.5	**0.1**	0.0	**0.1**	-0.1	**0.0**	-0.5	-0.2	0.0	-0.1	**0.2**
50%	**0.1**	-0.6	**0.0**	**0.1**	**0.0**	-0.1	-0.1	-0.6	-0.8	**0.2**	-0.2	**1.0**
60%	**0.1**	-0.3	-0.1	**0.0**	**0.0**	0.0	-0.4	-0.8	-0.8	**0.3**	-0.1	**2.2**
70%	**0.0**	-0.3	**0.1**	**0.0**	**0.0**	**0.1**	-0.1	-0.7	-0.9	**0.2**	-0.2	**2.7**
80%	**0.0**	-0.1	**0.1**	0.0	0.0	**0.0**	-0.2	-0.8	-1.3	**0.2**	-0.2	**3.0**
90%	-0.2	-0.1	-0.1	0.0	**0.0**	**0.0**	0.0	-0.6	-1.4	**0.2**	-0.7	**2.2**
Long Term												
Full Simulation Period[a]	**0.1**	-0.2	**0.0**	**0.0**	**0.0**	0.0	-0.1	-0.5	-0.7	**0.1**	-0.2	**1.2**
Water Year Types[b,c]												
Wet (32%)	-0.2	-0.8	0.0	**0.0**	**0.0**	**0.0**	**0.0**	-0.2	-0.5	**0.2**	-0.2	**2.9**
Above Normal (16%)	0.0	-0.8	-0.1	**0.0**	0.0	**0.0**	**0.1**	-0.4	-1.2	**0.2**	-0.2	**3.4**
Below Normal (13%)	**0.3**	**0.4**	**0.1**	**0.1**	0.0	-0.2	-0.4	-0.9	-0.9	**0.1**	-0.7	-0.9
Dry (24%)	**0.0**	**0.3**	**0.1**	**0.0**	**0.0**	**0.1**	0.0	-1.0	-0.7	**0.1**	**0.1**	-0.5
Critical (15%)	**0.4**	**0.3**	**0.1**	**0.1**	**0.1**	-0.2	-0.2	-0.4	-0.4	**0.0**	-0.1	**0.1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 10-3. Sacramento River at Red Bluff, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.7	55.7	50.7	48.2	49.3	53.0	57.5	59.3	60.4	61.1	62.5	62.7
20%	58.1	55.3	50.0	47.5	48.8	52.4	56.9	58.5	59.8	59.9	61.2	61.5
30%	57.6	54.7	49.3	47.1	48.6	51.9	56.6	57.9	59.3	59.5	60.8	60.9
40%	57.1	54.2	48.9	46.8	48.0	51.5	56.1	57.2	58.9	58.7	59.7	59.9
50%	56.7	53.8	48.6	46.5	47.7	51.0	55.6	56.9	58.4	58.1	59.4	58.8
60%	56.4	53.2	48.4	46.4	47.4	50.5	55.3	56.7	57.9	57.5	59.0	57.1
70%	56.2	53.0	47.9	46.2	46.9	49.8	54.7	56.3	57.6	57.1	58.7	56.0
80%	55.8	52.5	47.7	46.0	46.6	48.8	53.9	55.9	57.2	56.6	58.1	55.2
90%	55.5	52.1	47.3	45.6	46.1	48.1	51.9	55.1	56.6	55.9	57.9	54.6
Long Term												
Full Simulation Period[a]	57.2	53.8	48.9	46.8	47.7	50.8	55.3	57.1	58.5	58.3	59.9	58.8
Water Year Types[b,c]												
Wet (32%)	56.2	54.3	49.3	46.5	47.0	49.3	53.7	56.7	59.1	58.1	58.9	55.4
Above Normal (16%)	56.2	53.7	48.8	46.6	47.1	50.0	54.9	56.9	57.8	56.5	58.3	56.3
Below Normal (13%)	56.6	53.3	48.9	46.7	48.0	51.7	56.4	56.7	57.4	57.4	58.8	60.1
Dry (24%)	57.1	53.0	48.5	46.9	48.3	51.5	56.1	57.5	57.9	58.5	60.6	60.9
Critical (15%)	60.6	54.7	48.6	47.3	49.0	52.4	56.6	58.0	60.0	61.2	63.3	64.3

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.4	56.0	51.1	48.1	49.3	52.9	57.6	59.1	60.2	61.1	62.9	62.7
20%	58.0	54.9	50.1	47.5	48.8	52.4	56.9	58.0	59.8	59.8	61.4	61.8
30%	57.3	54.1	49.2	47.2	48.5	51.9	56.5	57.4	59.1	59.5	60.3	60.9
40%	56.9	53.7	49.1	46.8	48.0	51.4	56.0	56.8	58.8	58.5	59.6	60.2
50%	56.6	53.2	48.7	46.6	47.7	51.0	55.5	56.5	57.7	58.3	59.1	59.9
60%	56.4	53.0	48.3	46.4	47.3	50.5	54.9	56.0	57.1	57.8	58.7	59.3
70%	56.0	52.8	48.0	46.3	46.9	49.9	54.5	55.6	56.8	57.2	58.5	58.6
80%	55.8	52.3	47.8	46.0	46.6	48.9	53.4	55.3	56.2	56.8	57.8	57.7
90%	55.3	51.8	47.3	45.6	46.1	48.2	51.9	54.6	55.2	56.1	57.2	56.8
Long Term												
Full Simulation Period[a]	57.2	53.6	48.9	46.8	47.8	50.8	55.1	56.6	57.9	58.4	59.7	60.1
Water Year Types[b,c]												
Wet (32%)	56.0	53.5	49.3	46.5	47.0	49.4	53.6	56.7	58.6	58.2	58.5	58.5
Above Normal (16%)	56.2	52.9	48.7	46.6	47.1	50.1	55.0	56.4	56.7	56.7	58.2	59.5
Below Normal (13%)	56.8	53.7	49.0	46.8	48.0	51.5	55.9	55.8	56.6	57.5	58.2	59.2
Dry (24%)	57.0	53.3	48.6	47.0	48.3	51.7	56.1	56.5	57.2	58.6	60.7	60.5
Critical (15%)	61.2	54.9	48.6	47.4	49.1	52.2	56.4	57.7	59.6	61.3	63.4	64.6

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**1.7**	**0.4**	**0.3**	-0.1	**0.0**	-0.1	**0.1**	-0.2	-0.2	0.0	**0.4**	0.0
20%	0.0	-0.4	**0.1**	**0.1**	0.0	**0.1**	-0.1	-0.6	0.0	-0.1	**0.1**	**0.2**
30%	-0.3	-0.6	-0.1	**0.1**	-0.1	0.0	-0.1	-0.5	-0.1	**0.0**	-0.5	0.0
40%	-0.2	-0.5	**0.2**	**0.0**	**0.0**	-0.1	-0.1	-0.4	-0.1	-0.1	-0.1	**0.3**
50%	0.0	-0.6	**0.1**	**0.1**	**0.0**	**0.0**	-0.1	-0.4	-0.7	**0.2**	-0.3	**1.0**
60%	**0.0**	-0.2	-0.1	**0.0**	0.0	0.0	-0.4	-0.7	-0.8	**0.3**	-0.2	**2.2**
70%	-0.2	-0.2	**0.1**	**0.0**	**0.0**	**0.1**	-0.2	-0.7	-0.9	**0.1**	-0.2	**2.6**
80%	0.0	-0.2	**0.1**	0.0	0.0	**0.0**	-0.4	-0.6	-1.0	**0.2**	-0.3	**2.5**
90%	-0.2	-0.3	**0.0**	0.0	**0.0**	**0.0**	0.0	-0.5	-1.4	**0.2**	-0.6	**2.2**
Long Term												
Full Simulation Period[a]	**0.0**	-0.2	**0.0**	**0.0**	**0.0**	**0.0**	-0.1	-0.5	-0.6	**0.1**	-0.2	**1.3**
Water Year Types[b,c]												
Wet (32%)	-0.2	-0.8	**0.0**	**0.0**	**0.0**	**0.0**	-0.1	**0.0**	-0.4	**0.1**	-0.3	**3.1**
Above Normal (16%)	0.0	-0.8	-0.1	**0.0**	0.0	**0.1**	**0.1**	-0.5	-1.1	**0.1**	-0.2	**3.2**
Below Normal (13%)	**0.2**	**0.4**	**0.1**	**0.1**	0.0	-0.2	-0.4	-0.9	-0.8	**0.1**	-0.6	-0.9
Dry (24%)	-0.2	**0.2**	**0.1**	**0.0**	**0.0**	**0.2**	0.0	-1.0	-0.7	**0.1**	**0.1**	-0.5
Critical (15%)	**0.6**	**0.3**	**0.0**	**0.1**	**0.1**	-0.2	-0.2	-0.3	-0.3	**0.1**	**0.1**	**0.3**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 10-4. Sacramento River at Red Bluff, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.7	55.7	50.7	48.2	49.3	53.0	57.5	59.3	60.4	61.1	62.5	62.7
20%	58.1	55.3	50.0	47.5	48.8	52.4	56.9	58.5	59.8	59.9	61.2	61.5
30%	57.6	54.7	49.3	47.1	48.6	51.9	56.6	57.9	59.3	59.5	60.8	60.9
40%	57.1	54.2	48.9	46.8	48.0	51.5	56.1	57.2	58.9	58.7	59.7	59.9
50%	56.7	53.8	48.6	46.5	47.7	51.0	55.6	56.9	58.4	58.1	59.4	58.8
60%	56.4	53.2	48.4	46.4	47.4	50.5	55.3	56.7	57.9	57.5	59.0	57.1
70%	56.2	53.0	47.9	46.2	46.9	49.8	54.7	56.3	57.6	57.1	58.7	56.0
80%	55.8	52.5	47.7	46.0	46.6	48.8	53.9	55.9	57.2	56.6	58.1	55.2
90%	55.5	52.1	47.3	45.6	46.1	48.1	51.9	55.1	56.6	55.9	57.9	54.6
Long Term												
Full Simulation Period[a]	57.2	53.8	48.9	46.8	47.7	50.8	55.3	57.1	58.5	58.3	59.9	58.8
Water Year Types[b,c]												
Wet (32%)	56.2	54.3	49.3	46.5	47.0	49.3	53.7	56.7	59.1	58.1	58.9	55.4
Above Normal (16%)	56.2	53.7	48.8	46.6	47.1	50.0	54.9	56.9	57.8	56.5	58.3	56.3
Below Normal (13%)	56.6	53.3	48.9	46.7	48.0	51.7	56.4	56.7	57.4	57.4	58.8	60.1
Dry (24%)	57.1	53.0	48.5	46.9	48.3	51.5	56.1	57.5	57.9	58.5	60.6	60.9
Critical (15%)	60.6	54.7	48.6	47.3	49.0	52.4	56.6	58.0	60.0	61.2	63.3	64.3

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.9	55.5	51.1	48.3	49.3	53.0	57.3	58.5	60.5	60.8	61.7	62.8
20%	57.2	54.7	50.0	47.6	48.9	52.3	56.7	58.1	60.0	59.9	60.6	61.7
30%	56.4	54.1	49.6	47.4	48.4	51.7	56.3	57.4	59.3	59.1	59.9	61.1
40%	56.1	53.5	49.1	47.0	47.9	50.9	55.8	57.3	58.6	58.6	59.7	60.7
50%	55.9	53.2	48.8	46.8	47.7	50.5	55.2	57.1	58.2	58.1	59.3	60.2
60%	55.7	53.0	48.5	46.5	47.4	50.1	54.5	56.9	57.6	57.7	59.0	59.4
70%	55.5	52.7	48.3	46.3	46.8	49.6	54.1	56.4	57.3	57.1	58.7	58.8
80%	55.1	52.4	48.0	46.1	46.7	48.8	53.2	56.2	56.8	56.6	58.1	58.0
90%	54.8	51.8	47.6	45.7	46.2	48.3	51.9	55.6	56.1	56.2	57.7	57.3
Long Term												
Full Simulation Period[a]	56.4	53.5	49.1	46.9	47.8	50.6	54.9	57.1	58.3	58.3	59.6	60.1
Water Year Types[b,c]												
Wet (32%)	55.3	53.6	49.4	46.6	47.0	49.2	53.1	56.6	59.1	58.1	58.8	58.2
Above Normal (16%)	55.4	52.7	48.8	46.7	47.1	49.7	54.3	57.1	58.0	56.5	58.5	59.6
Below Normal (13%)	56.0	53.5	49.1	46.9	48.0	51.3	56.0	56.6	57.1	57.3	58.8	60.3
Dry (24%)	56.3	53.2	49.0	47.0	48.3	51.4	55.9	57.3	57.3	58.5	59.9	60.7
Critical (15%)	60.3	54.6	48.8	47.6	49.2	52.4	56.8	58.1	59.6	61.4	62.6	63.8

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.2**	-0.2	**0.4**	**0.1**	**0.0**	-0.1	-0.2	-0.8	**0.1**	-0.3	-0.8	**0.2**
20%	-0.9	-0.5	0.0	**0.2**	**0.1**	0.0	-0.2	-0.5	**0.1**	**0.0**	-0.7	**0.2**
30%	-1.2	-0.6	**0.2**	**0.3**	-0.2	-0.2	-0.3	-0.4	**0.0**	-0.4	-0.9	**0.2**
40%	-1.0	-0.7	**0.2**	**0.2**	0.0	-0.6	-0.3	**0.1**	-0.3	-0.1	-0.1	**0.8**
50%	-0.8	-0.6	**0.2**	**0.3**	0.0	-0.5	-0.4	**0.2**	-0.3	**0.0**	-0.1	**1.4**
60%	-0.7	-0.3	**0.1**	**0.1**	**0.0**	-0.4	-0.8	**0.2**	-0.3	**0.2**	**0.0**	**2.4**
70%	-0.7	-0.3	**0.4**	**0.1**	-0.1	-0.2	-0.6	**0.1**	-0.4	**0.0**	0.0	**2.8**
80%	-0.7	-0.1	**0.3**	**0.1**	**0.1**	**0.0**	-0.6	**0.4**	-0.4	0.0	0.0	**2.8**
90%	-0.7	-0.3	**0.3**	**0.1**	**0.1**	**0.1**	0.0	**0.5**	-0.6	**0.3**	-0.2	**2.7**
Long Term												
Full Simulation Period[a]	-0.7	-0.3	**0.2**	**0.1**	**0.0**	-0.2	-0.4	0.0	-0.2	**0.0**	-0.3	**1.3**
Water Year Types[b,c]												
Wet (32%)	-0.9	-0.7	**0.1**	**0.1**	0.0	-0.1	-0.6	-0.1	**0.0**	**0.1**	-0.1	**2.8**
Above Normal (16%)	-0.8	-0.9	0.0	**0.1**	**0.0**	-0.3	-0.6	**0.2**	**0.2**	-0.1	**0.2**	**3.3**
Below Normal (13%)	-0.6	**0.2**	**0.2**	**0.2**	0.0	-0.4	-0.4	-0.1	-0.3	0.0	0.0	**0.2**
Dry (24%)	-0.8	**0.2**	**0.4**	**0.1**	**0.0**	-0.1	-0.2	-0.2	-0.6	0.0	-0.8	-0.2
Critical (15%)	-0.3	0.0	**0.2**	**0.3**	**0.3**	**0.0**	**0.2**	**0.1**	-0.4	**0.1**	-0.7	-0.5

a Based on the 82-year simulation period.

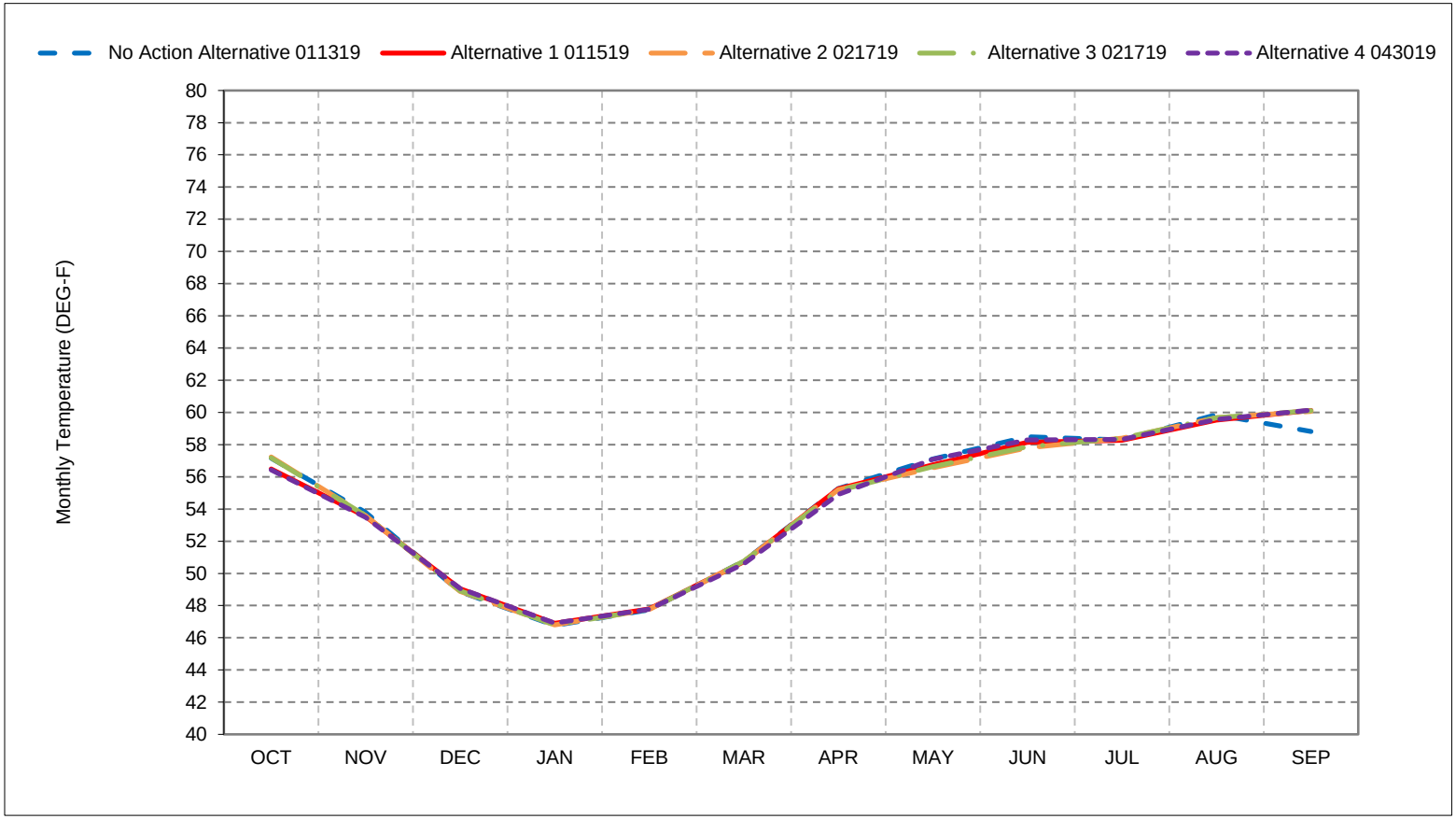
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

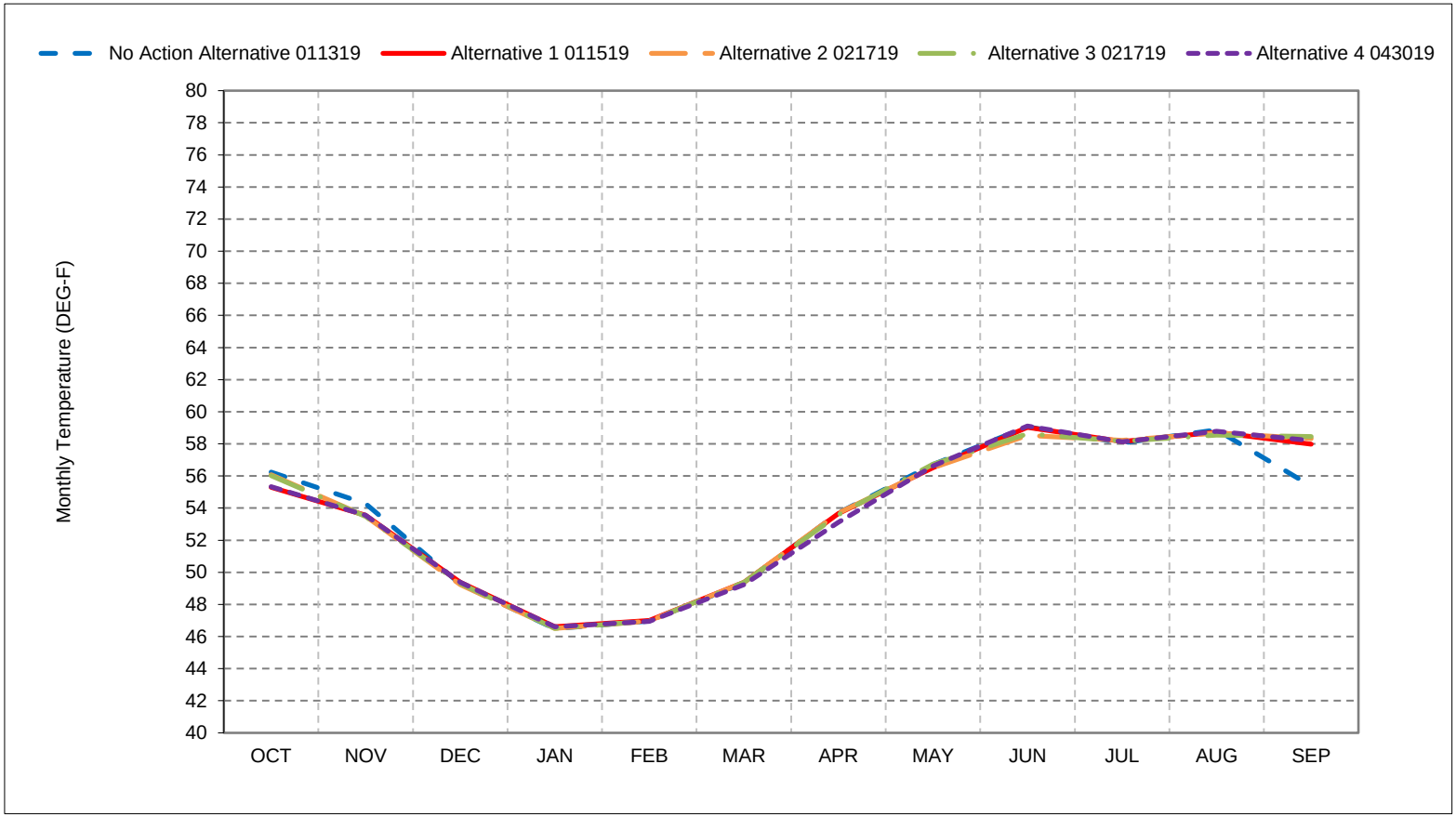
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-1. Sacramento River at Red Bluff, Long-Term Average Temperature



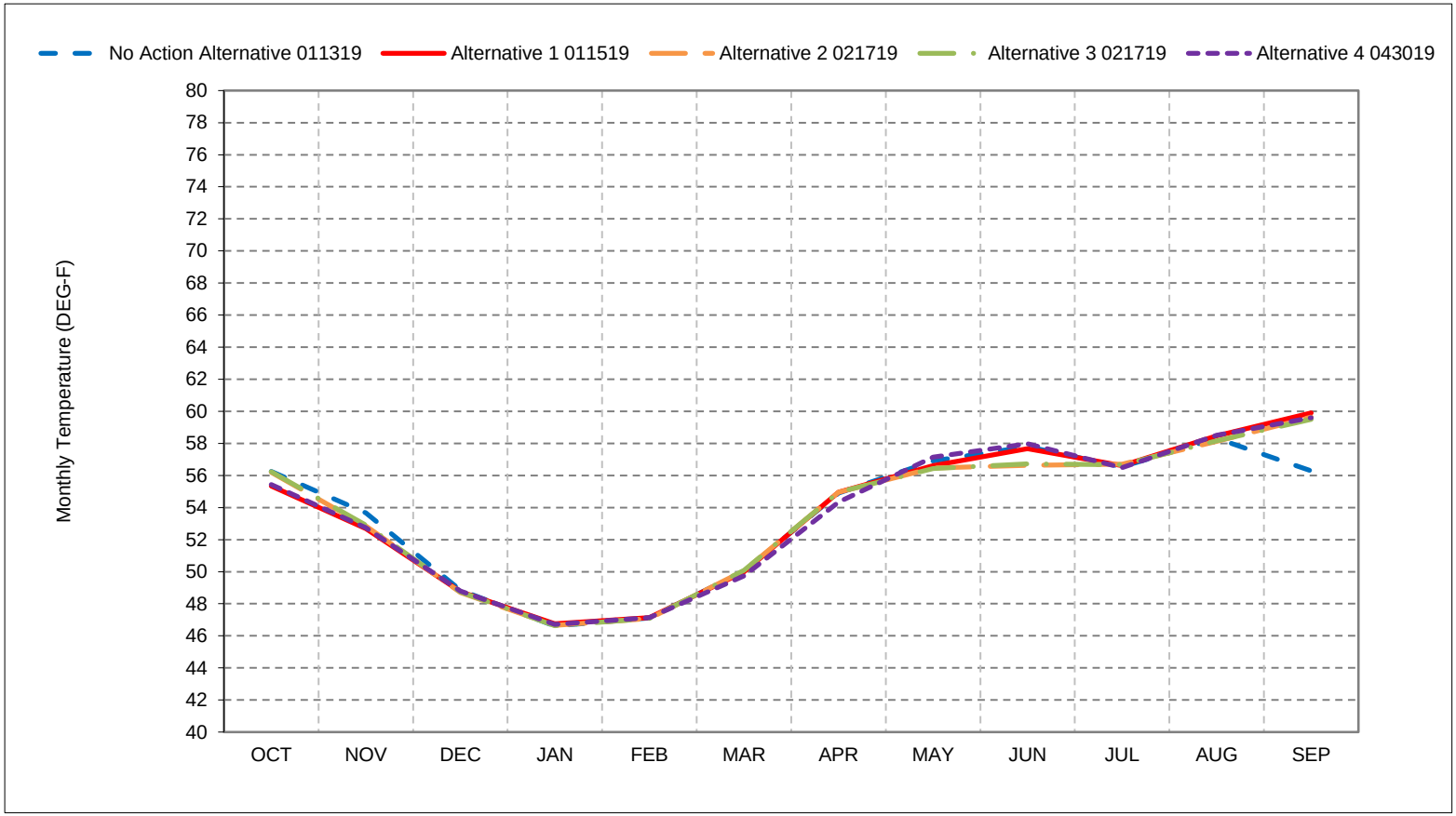
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-2. Sacramento River at Red Bluff, Wet Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-3. Sacramento River at Red Bluff, Above Normal Year Average Temperature



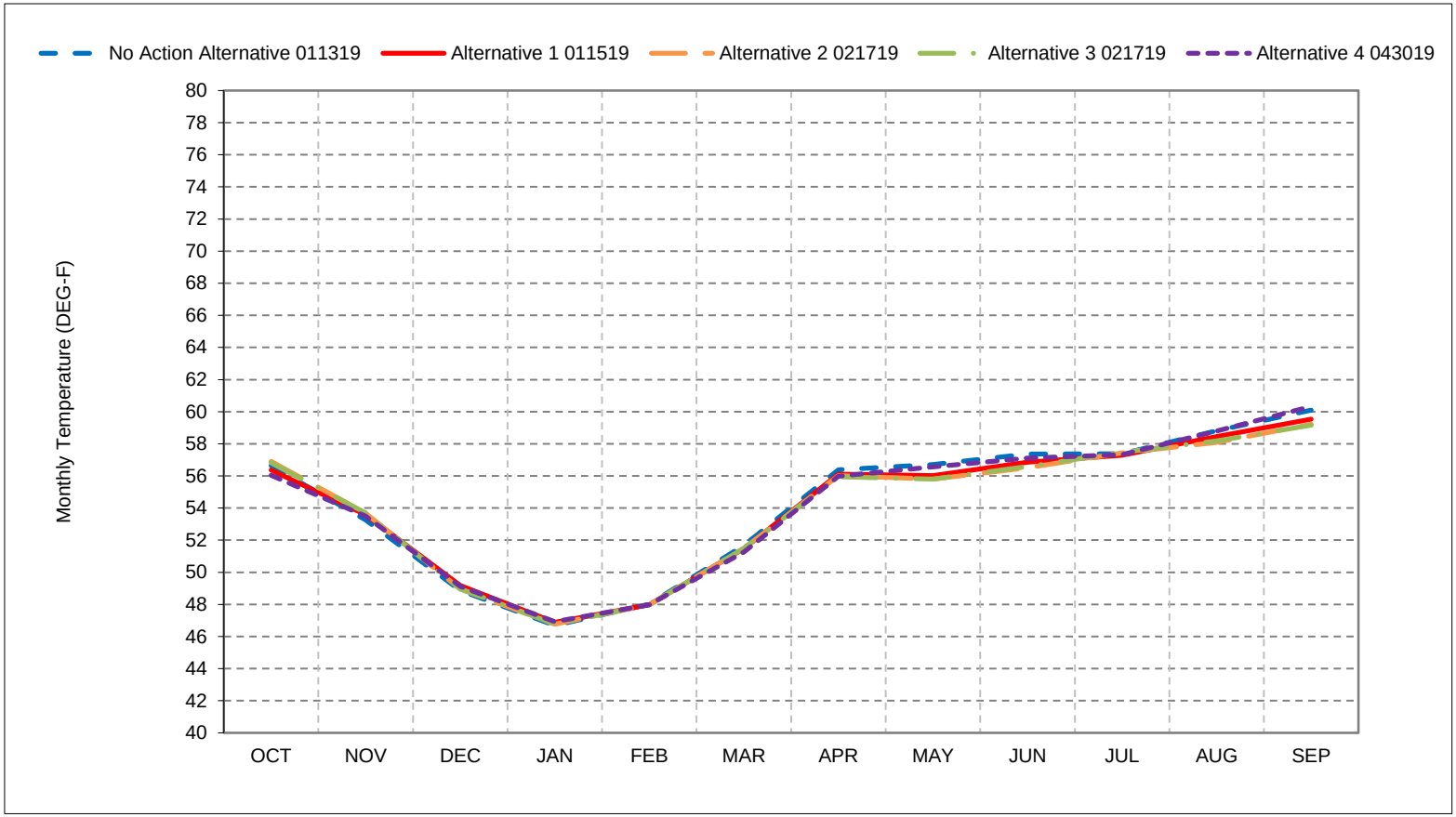
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-4. Sacramento River at Red Bluff, Below Normal Year Average Temperature



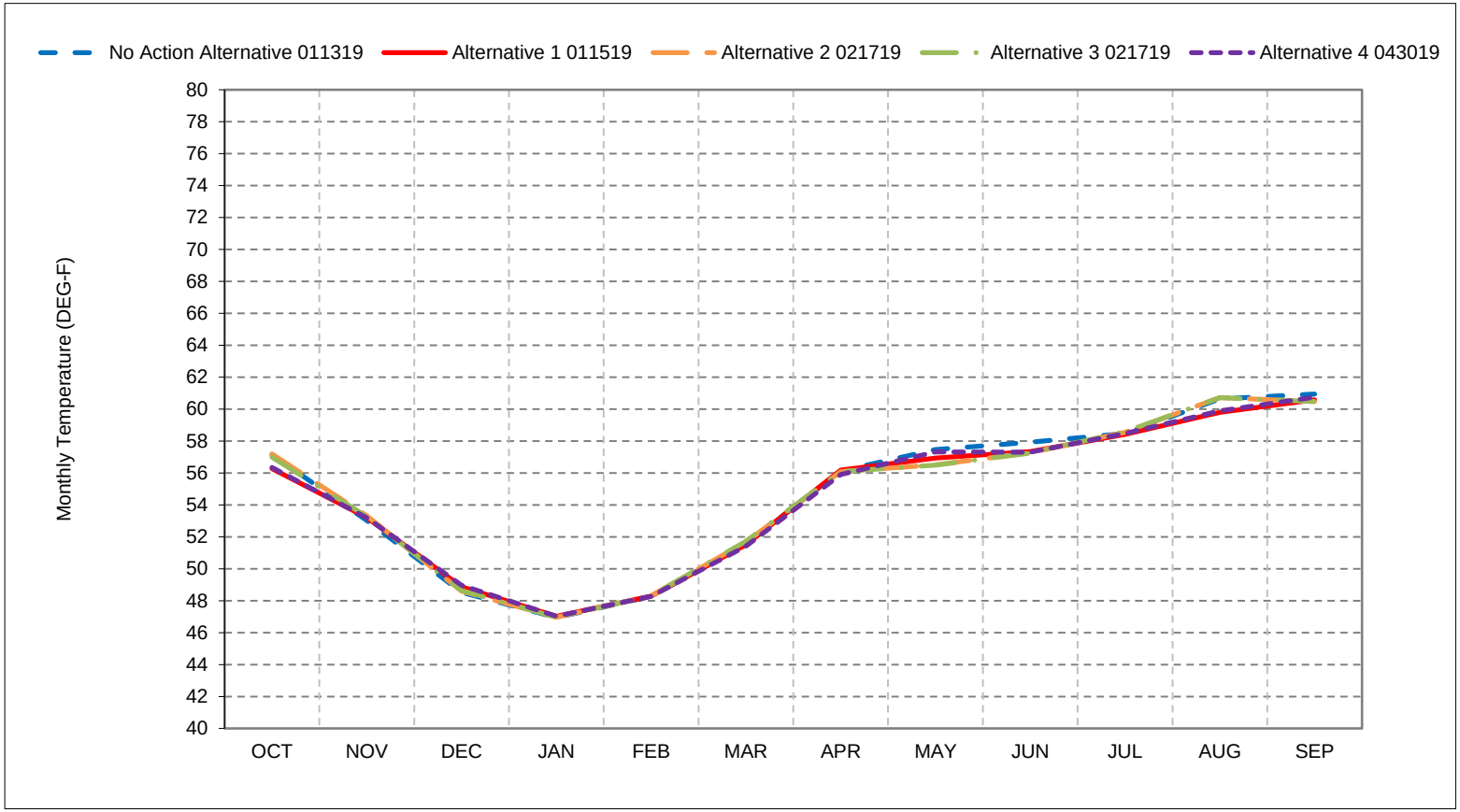
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-5. Sacramento River at Red Bluff, Dry Year Average Temperature



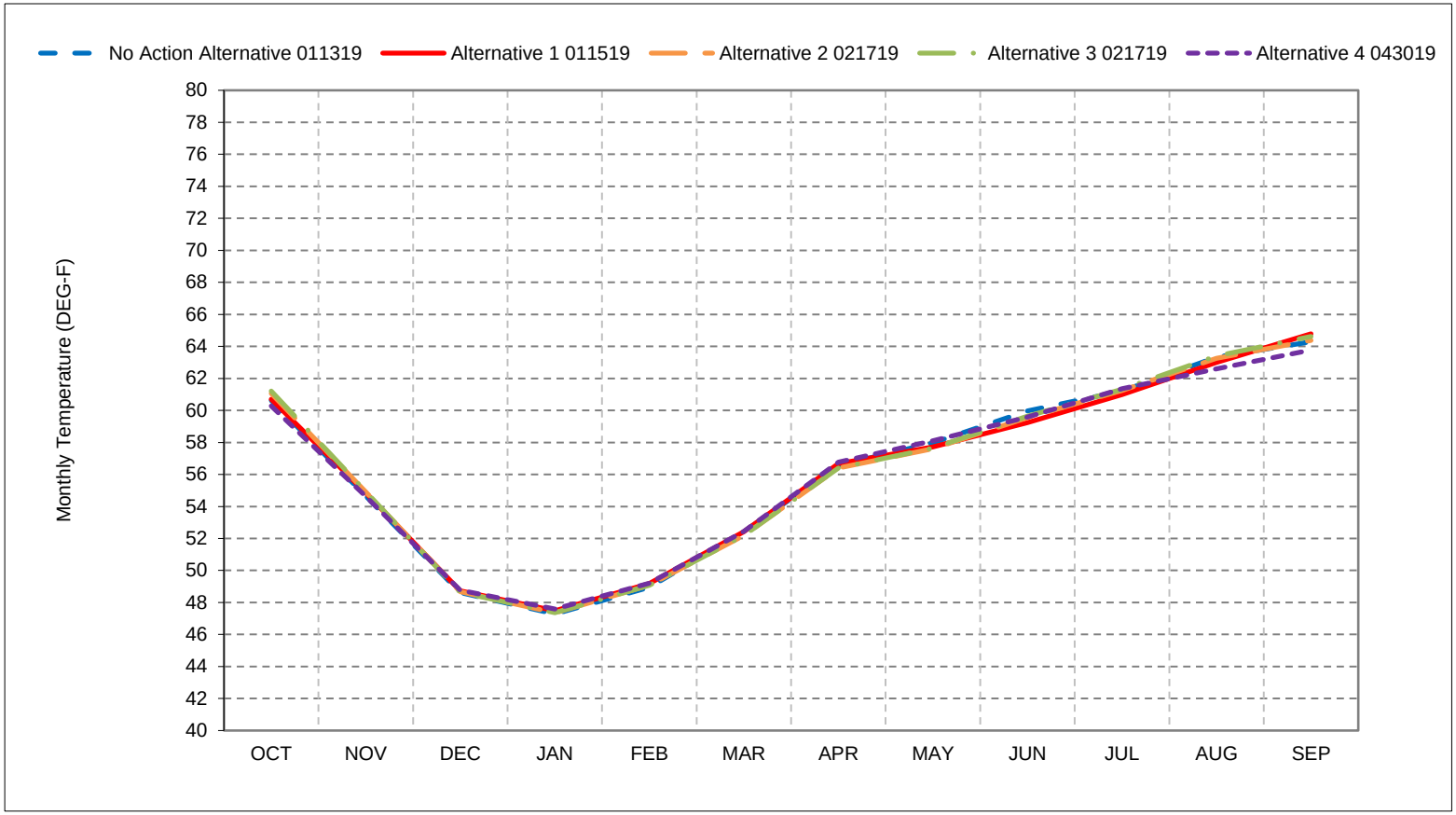
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-6. Sacramento River at Red Bluff, Critical Year Average Temperature



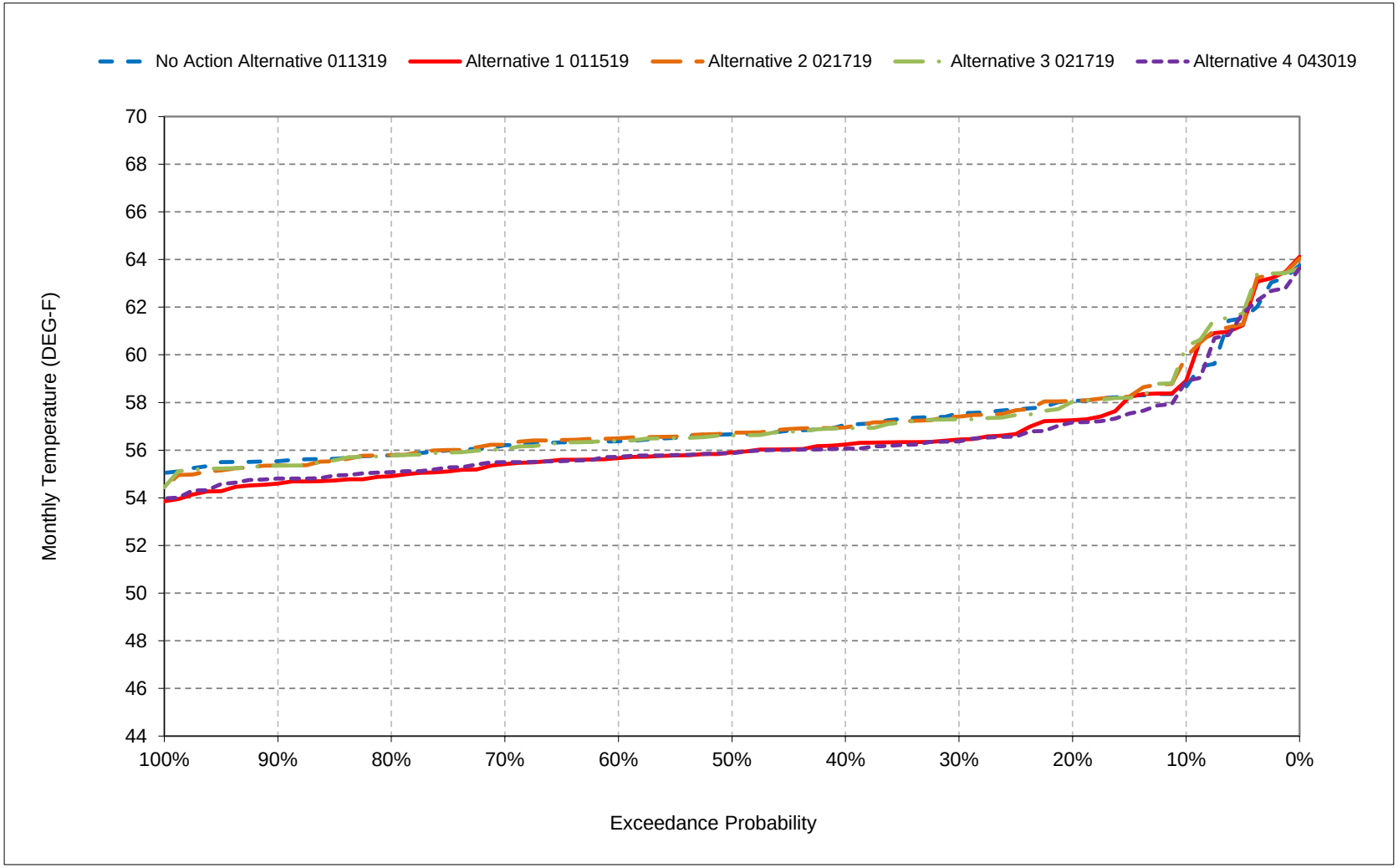
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

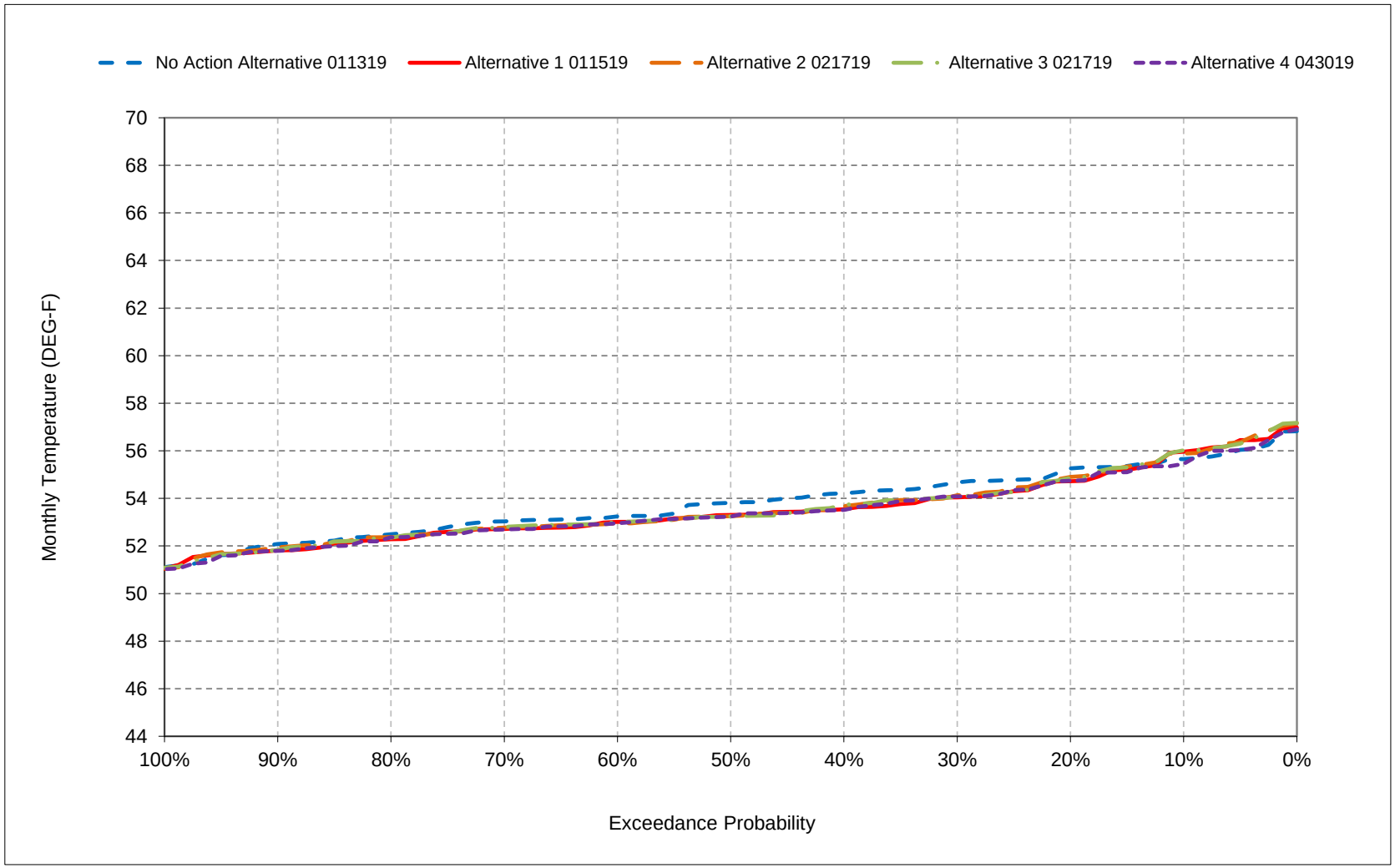
Figure 10-7. Sacramento River at Red Bluff, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

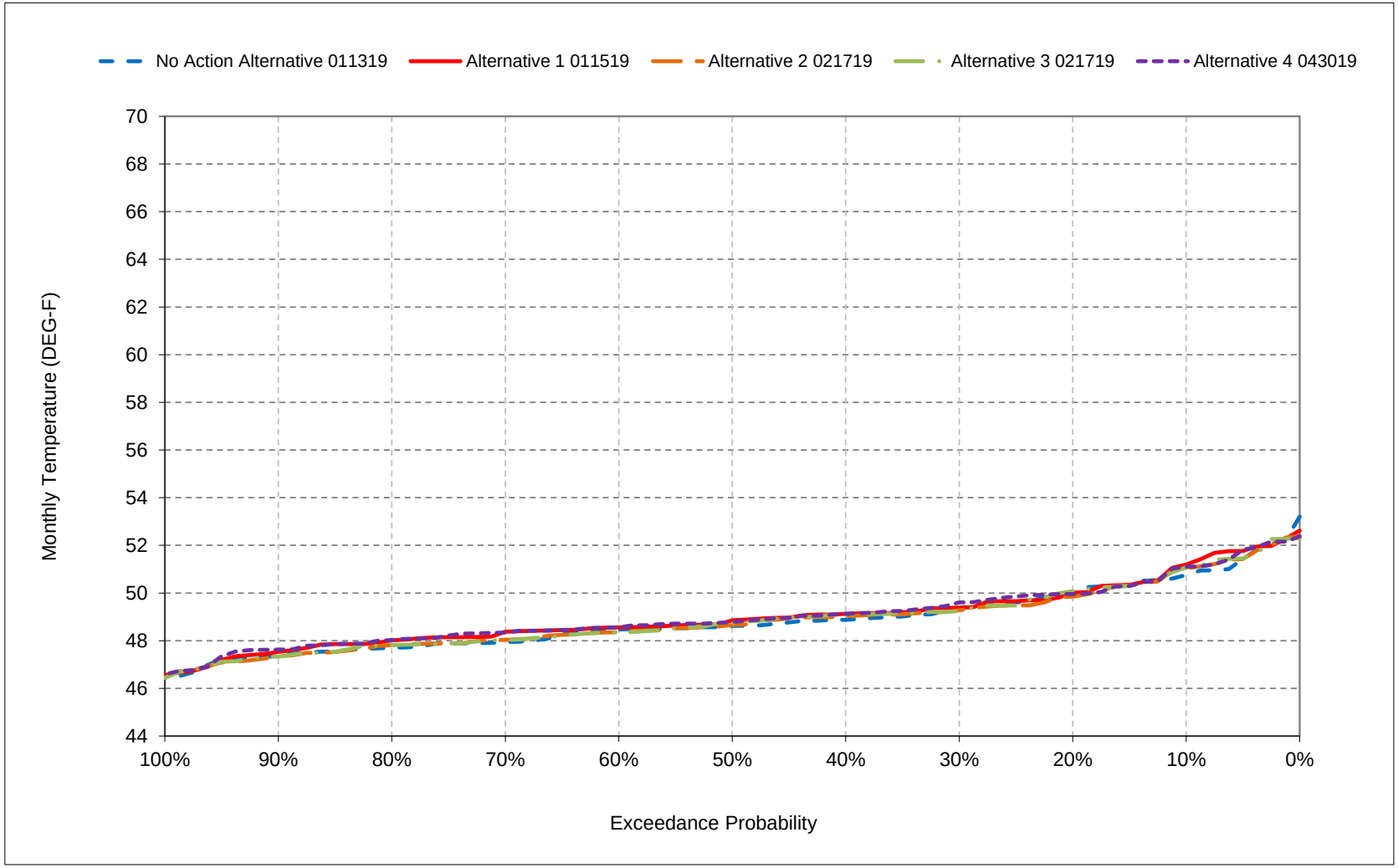
Figure 10-8. Sacramento River at Red Bluff, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

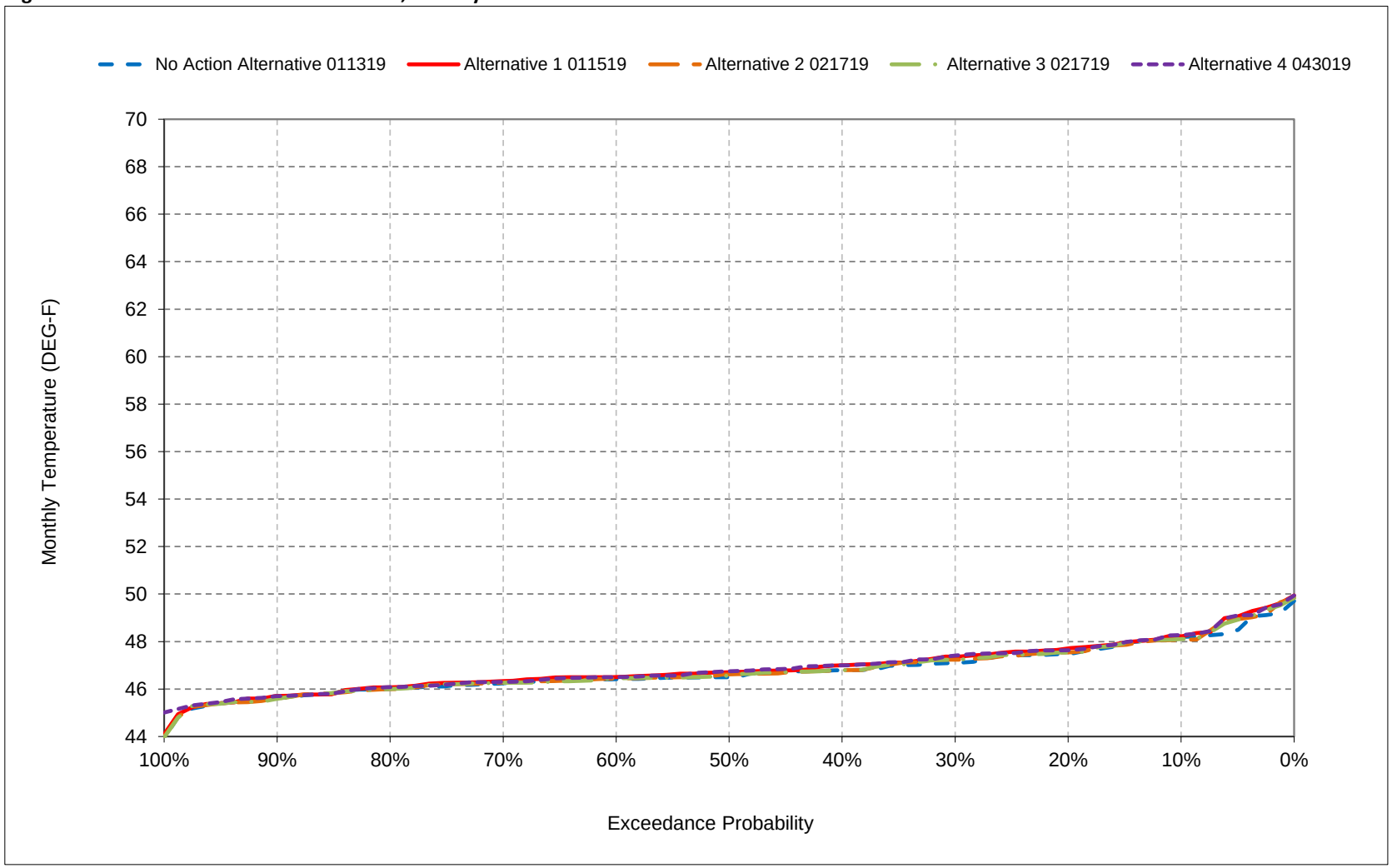
Figure 10-9. Sacramento River at Red Bluff, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

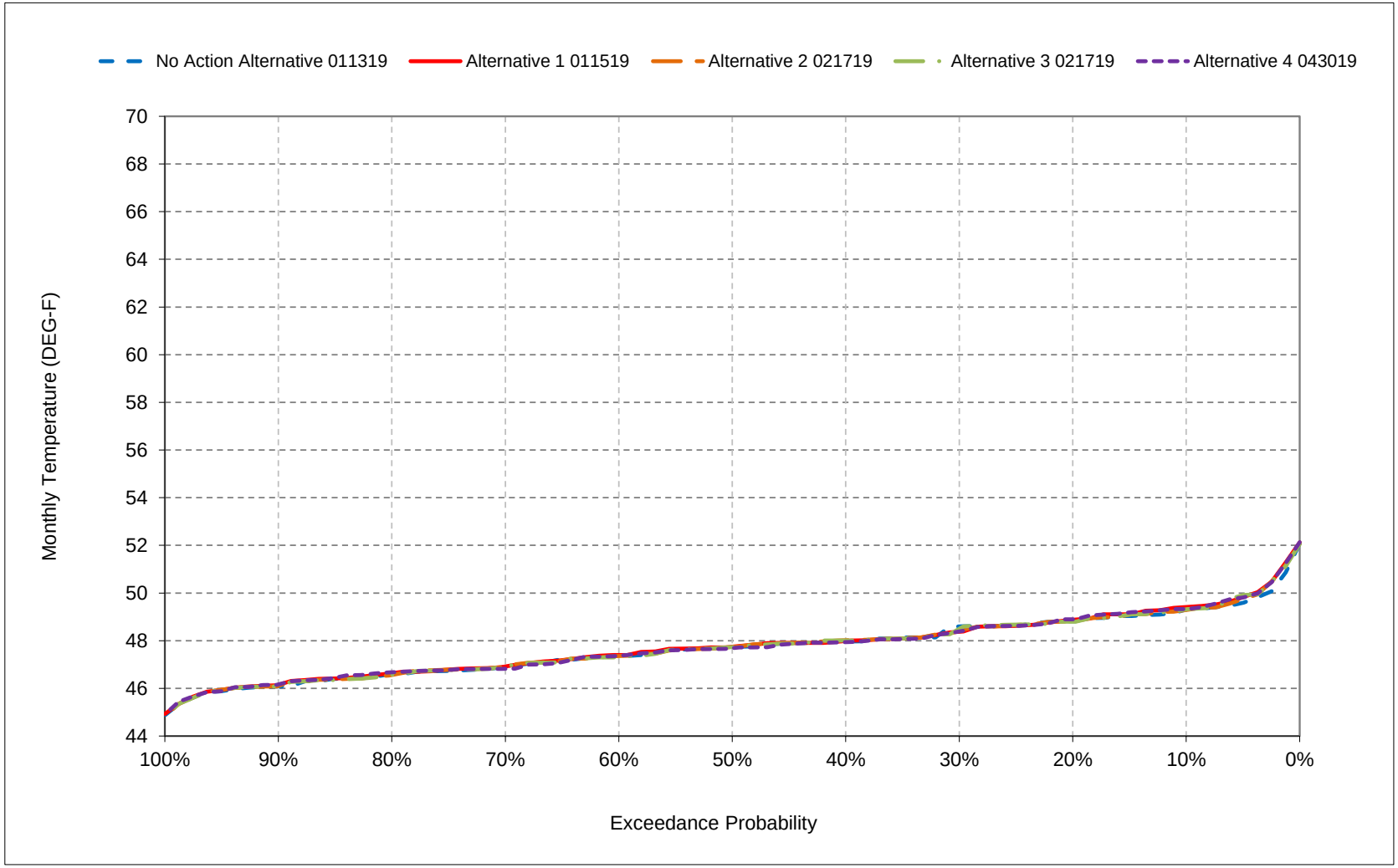
Figure 10-10. Sacramento River at Red Bluff, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

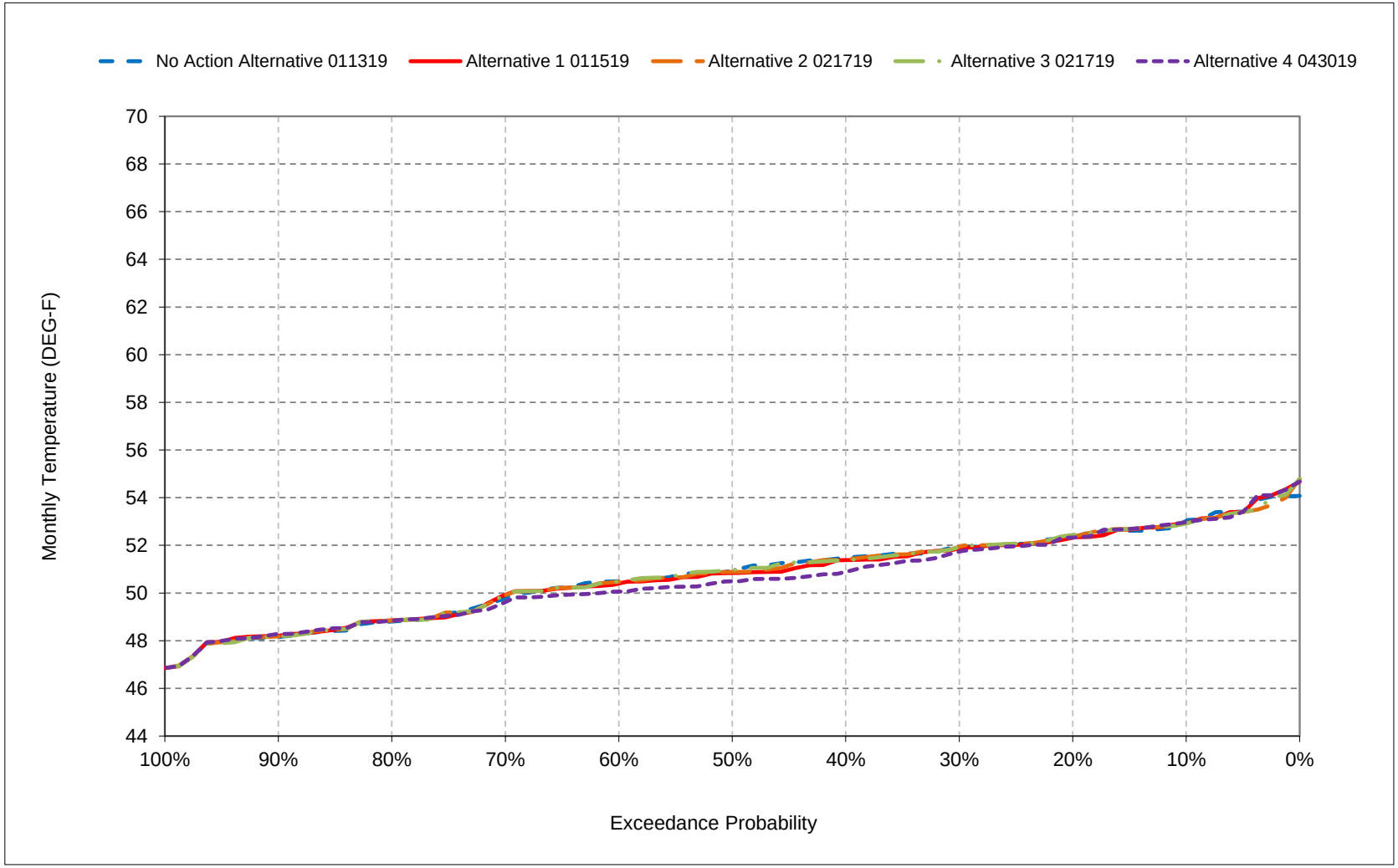
Figure 10-11. Sacramento River at Red Bluff, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

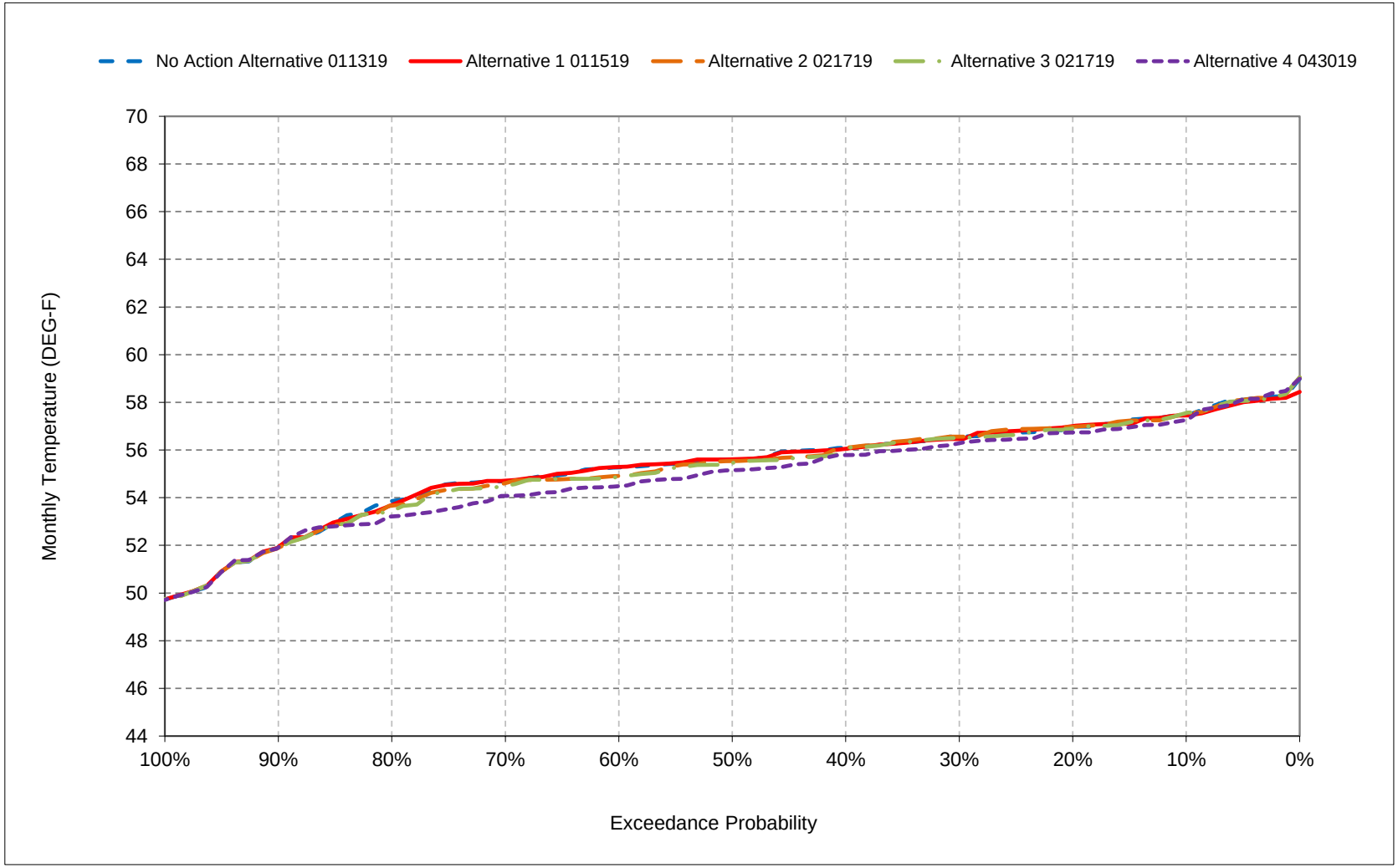
Figure 10-12. Sacramento River at Red Bluff, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

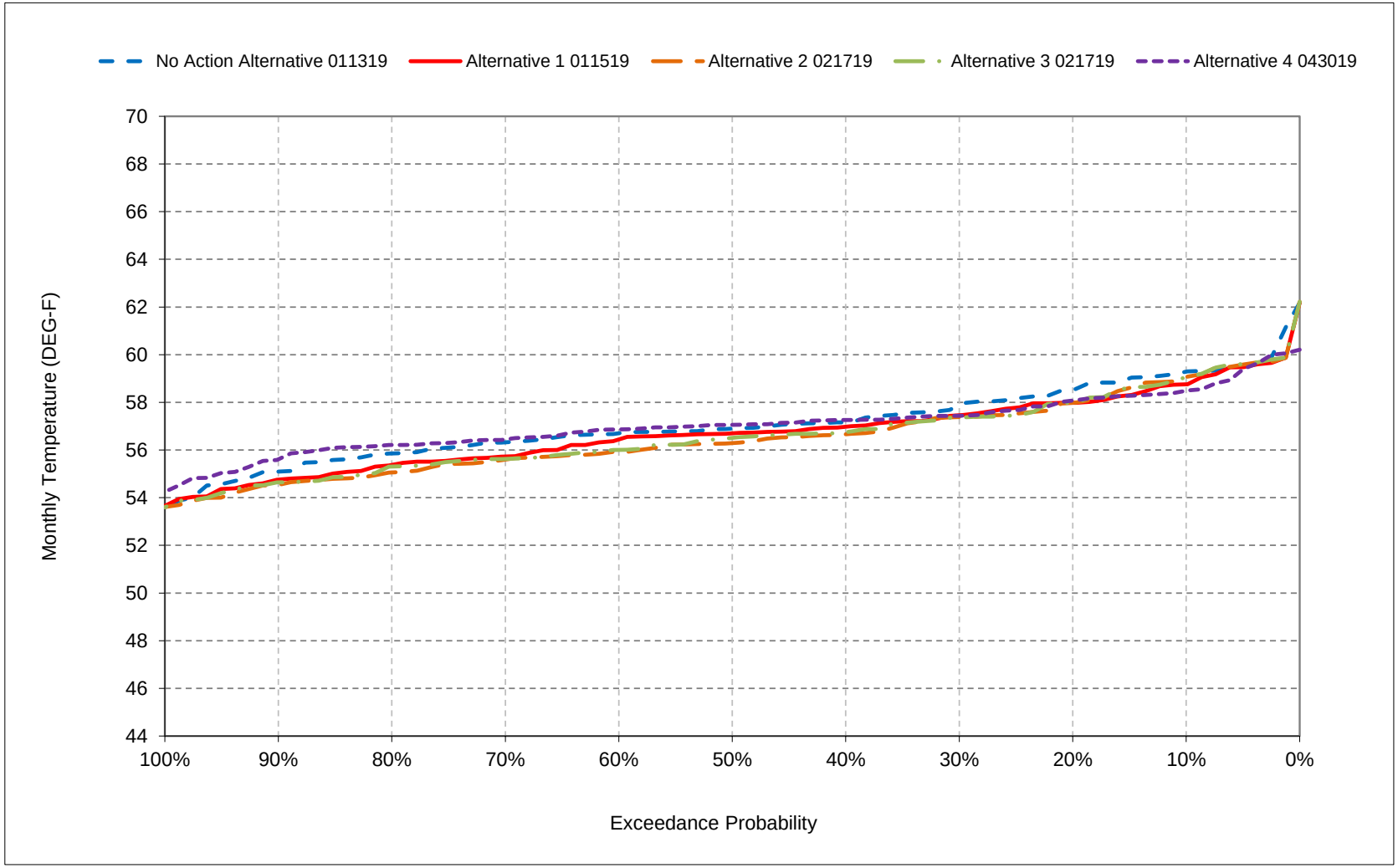
Figure 10-13. Sacramento River at Red Bluff, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

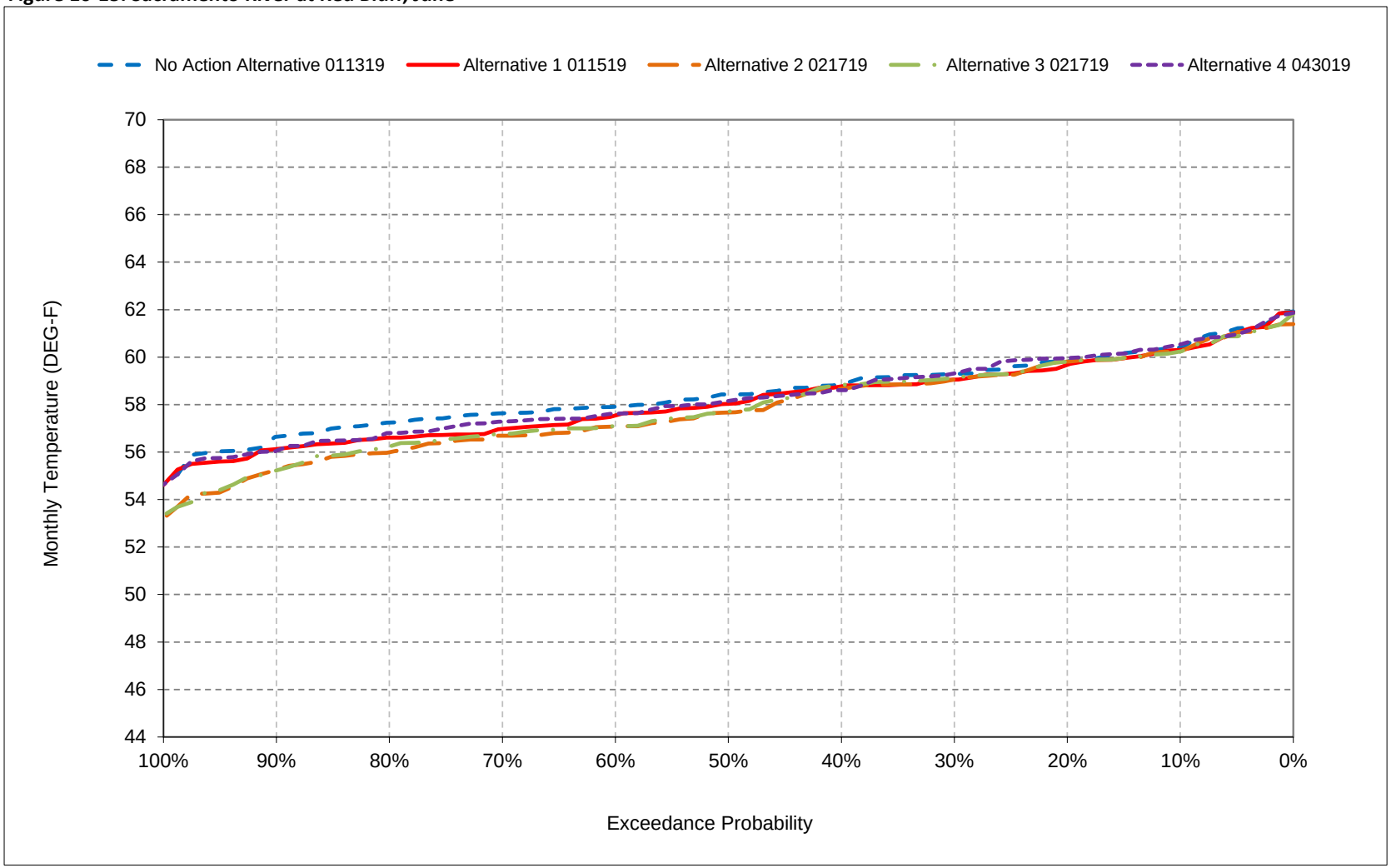
Figure 10-14. Sacramento River at Red Bluff, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

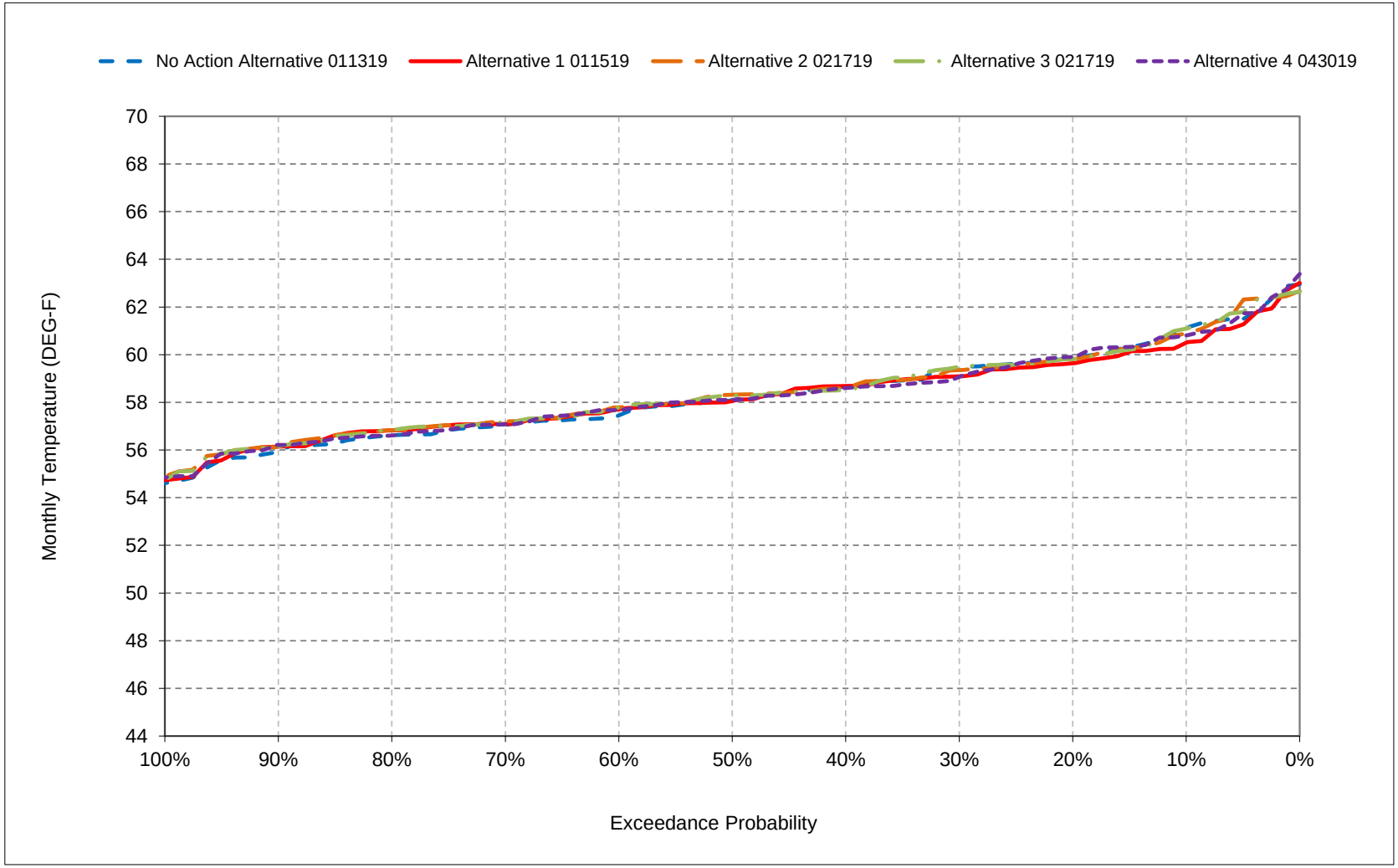
Figure 10-15. Sacramento River at Red Bluff, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

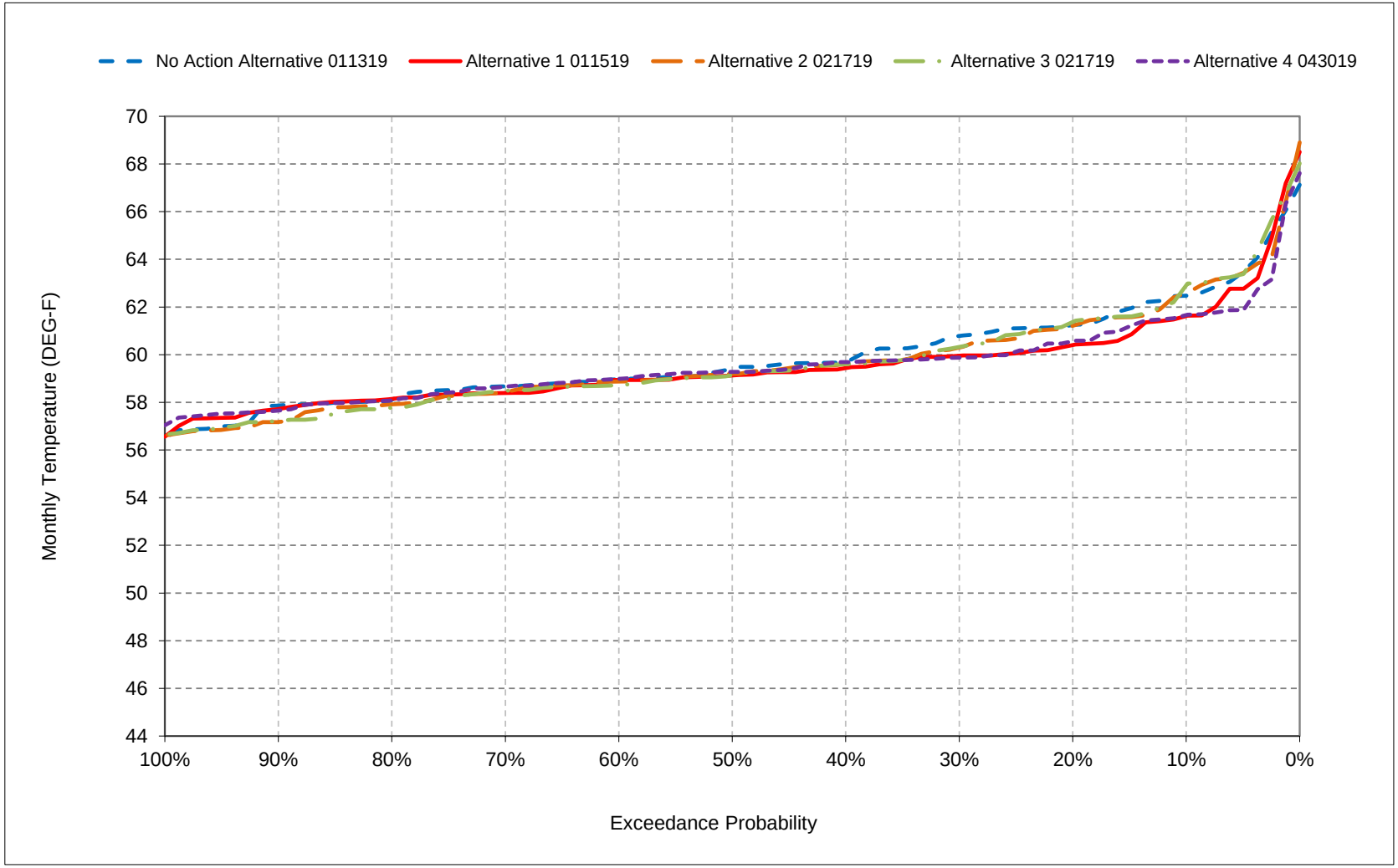
Figure 10-16. Sacramento River at Red Bluff, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-17. Sacramento River at Red Bluff, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-18. Sacramento River at Red Bluff, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 12-1. Sacramento River below Hamilton City, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.6	55.9	50.2	48.2	50.3	54.8	60.1	63.2	65.5	65.6	67.3	67.1
20%	60.0	55.1	49.7	47.7	49.6	53.9	59.6	62.7	64.8	65.0	66.2	65.7
30%	59.5	54.7	48.9	47.1	49.1	53.3	59.0	62.2	64.3	64.4	65.6	65.1
40%	58.9	54.2	48.5	46.8	48.6	52.8	58.5	61.4	63.9	63.4	64.8	63.9
50%	58.4	53.8	48.4	46.6	48.3	52.2	57.9	61.0	63.2	62.9	64.2	62.5
60%	58.2	53.4	48.1	46.4	48.0	51.5	57.6	60.6	62.9	62.2	63.7	60.3
70%	57.7	53.2	47.7	46.2	47.6	50.9	56.6	60.1	62.3	61.4	63.2	59.2
80%	57.5	52.7	47.6	46.0	47.0	49.6	55.3	59.7	61.9	60.8	62.8	58.1
90%	57.1	52.1	47.2	45.7	46.4	49.1	53.6	58.4	61.0	60.2	62.2	57.5
Long Term												
Full Simulation Period[a]	58.9	53.9	48.6	46.8	48.4	52.0	57.5	61.0	63.3	63.0	64.5	62.3
Water Year Types[b,c]												
Wet (32%)	57.8	54.3	48.9	46.5	47.4	50.4	55.4	60.2	64.1	63.0	63.7	58.2
Above Normal (16%)	58.0	53.6	48.6	46.7	47.6	51.1	56.8	61.0	62.8	61.0	62.9	59.6
Below Normal (13%)	58.5	53.5	48.5	46.7	48.6	53.1	58.9	60.7	62.0	61.8	63.2	64.2
Dry (24%)	59.1	53.3	48.3	46.9	49.0	52.8	58.5	61.5	62.7	63.1	65.3	65.1
Critical (15%)	62.2	54.8	48.3	47.4	50.0	54.2	59.6	62.1	64.5	65.9	67.9	67.9

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.9	56.2	50.8	48.2	50.3	54.7	60.2	63.0	65.2	65.7	66.8	67.4
20%	59.2	54.8	49.5	47.8	49.6	53.8	59.6	62.1	64.7	65.0	65.4	66.1
30%	58.8	54.4	48.9	47.3	48.8	53.3	59.0	61.4	64.1	64.2	64.9	65.4
40%	58.4	53.6	48.7	46.9	48.6	52.7	58.5	61.0	63.6	63.6	64.4	64.9
50%	57.9	53.3	48.5	46.8	48.3	51.9	58.0	60.6	63.0	63.0	63.9	64.1
60%	57.7	53.1	48.3	46.5	48.0	51.4	57.5	60.1	62.0	62.1	63.7	63.5
70%	57.4	52.8	48.0	46.3	47.6	50.9	56.4	59.6	61.6	61.5	63.0	62.9
80%	56.9	52.4	47.8	46.0	46.9	49.7	55.3	59.1	61.1	61.0	62.7	61.5
90%	56.3	52.1	47.4	45.7	46.5	49.1	53.6	58.4	60.4	60.3	62.1	60.3
Long Term												
Full Simulation Period[a]	58.4	53.7	48.7	46.9	48.4	52.0	57.4	60.6	62.9	63.0	64.2	64.1
Water Year Types[b,c]												
Wet (32%)	57.2	53.7	49.0	46.6	47.4	50.4	55.3	60.0	64.1	63.1	63.5	61.7
Above Normal (16%)	57.4	52.8	48.5	46.8	47.6	51.0	56.8	60.6	62.6	61.0	63.0	64.2
Below Normal (13%)	58.3	53.7	48.7	46.8	48.6	52.9	58.6	60.0	61.2	61.7	62.9	63.5
Dry (24%)	58.4	53.4	48.6	47.0	49.0	52.8	58.5	60.9	61.9	63.1	64.7	64.9
Critical (15%)	62.2	55.0	48.4	47.5	50.2	54.2	59.7	61.8	63.7	65.9	67.6	68.2

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.3**	**0.3**	**0.6**	**0.0**	**0.0**	-0.1	**0.1**	-0.3	-0.2	**0.1**	-0.5	**0.3**
20%	-0.9	-0.3	-0.2	**0.1**	**0.0**	-0.1	0.0	-0.5	-0.1	0.0	-0.8	**0.4**
30%	-0.7	-0.3	0.0	**0.2**	-0.3	-0.1	0.0	-0.7	-0.3	-0.2	-0.7	**0.3**
40%	-0.5	-0.6	**0.1**	**0.1**	**0.1**	-0.1	**0.0**	-0.4	-0.4	**0.2**	-0.4	**1.0**
50%	-0.5	-0.5	**0.1**	**0.2**	**0.0**	-0.3	**0.0**	-0.4	-0.2	**0.1**	-0.3	**1.6**
60%	-0.4	-0.3	**0.1**	**0.1**	**0.0**	-0.1	-0.1	-0.5	-0.9	0.0	0.0	**3.2**
70%	-0.3	-0.4	**0.3**	**0.1**	0.0	0.0	-0.2	-0.5	-0.8	**0.1**	-0.2	**3.7**
80%	-0.6	-0.3	**0.2**	**0.0**	0.0	**0.0**	**0.0**	-0.6	-0.9	**0.2**	-0.1	**3.4**
90%	-0.8	**0.0**	**0.1**	**0.0**	**0.1**	**0.0**	0.0	0.0	-0.6	**0.2**	0.0	**2.7**
Long Term												
Full Simulation Period[a]	-0.5	-0.2	**0.1**	**0.1**	**0.0**	-0.1	0.0	-0.4	-0.5	**0.0**	-0.3	**1.7**
Water Year Types[b,c]												
Wet (32%)	-0.6	-0.6	**0.1**	**0.1**	**0.0**	**0.0**	0.0	-0.2	-0.1	**0.1**	-0.2	**3.5**
Above Normal (16%)	-0.6	-0.8	-0.1	**0.1**	**0.0**	-0.1	**0.0**	-0.4	-0.2	**0.1**	**0.1**	**4.6**
Below Normal (13%)	-0.2	**0.2**	**0.2**	**0.1**	-0.1	-0.2	-0.3	-0.7	-0.7	-0.1	-0.3	-0.7
Dry (24%)	-0.7	**0.1**	**0.3**	**0.1**	**0.0**	0.0	**0.0**	-0.6	-0.8	**0.0**	-0.7	-0.2
Critical (15%)	**0.1**	**0.1**	**0.1**	**0.2**	**0.2**	-0.1	**0.1**	-0.3	-0.8	0.0	-0.2	**0.3**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 12-2. Sacramento River below Hamilton City, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.6	55.9	50.2	48.2	50.3	54.8	60.1	63.2	65.5	65.6	67.3	67.1
20%	60.0	55.1	49.7	47.7	49.6	53.9	59.6	62.7	64.8	65.0	66.2	65.7
30%	59.5	54.7	48.9	47.1	49.1	53.3	59.0	62.2	64.3	64.4	65.6	65.1
40%	58.9	54.2	48.5	46.8	48.6	52.8	58.5	61.4	63.9	63.4	64.8	63.9
50%	58.4	53.8	48.4	46.6	48.3	52.2	57.9	61.0	63.2	62.9	64.2	62.5
60%	58.2	53.4	48.1	46.4	48.0	51.5	57.6	60.6	62.9	62.2	63.7	60.3
70%	57.7	53.2	47.7	46.2	47.6	50.9	56.6	60.1	62.3	61.4	63.2	59.2
80%	57.5	52.7	47.6	46.0	47.0	49.6	55.3	59.7	61.9	60.8	62.8	58.1
90%	57.1	52.1	47.2	45.7	46.4	49.1	53.6	58.4	61.0	60.2	62.2	57.5
Long Term												
Full Simulation Period[a]	58.9	53.9	48.6	46.8	48.4	52.0	57.5	61.0	63.3	63.0	64.5	62.3
Water Year Types[b,c]												
Wet (32%)	57.8	54.3	48.9	46.5	47.4	50.4	55.4	60.2	64.1	63.0	63.7	58.2
Above Normal (16%)	58.0	53.6	48.6	46.7	47.6	51.1	56.8	61.0	62.8	61.0	62.9	59.6
Below Normal (13%)	58.5	53.5	48.5	46.7	48.6	53.1	58.9	60.7	62.0	61.8	63.2	64.2
Dry (24%)	59.1	53.3	48.3	46.9	49.0	52.8	58.5	61.5	62.7	63.1	65.3	65.1
Critical (15%)	62.2	54.8	48.3	47.4	50.0	54.2	59.6	62.1	64.5	65.9	67.9	67.9

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	61.4	56.1	50.6	48.2	50.2	54.8	60.2	62.9	65.1	66.0	67.3	67.1
20%	60.0	55.0	49.5	47.7	49.6	53.8	59.6	62.0	64.5	65.0	65.9	65.6
30%	59.3	54.3	48.7	47.2	49.1	53.4	59.0	61.4	64.0	64.4	65.0	64.9
40%	58.9	53.7	48.6	46.8	48.6	52.7	58.2	60.5	63.5	63.4	64.5	64.3
50%	58.6	53.3	48.3	46.7	48.3	52.0	57.7	60.1	62.5	62.9	63.9	63.8
60%	58.3	53.0	48.1	46.4	48.0	51.6	57.3	59.8	61.5	62.3	63.4	63.4
70%	58.1	52.9	47.8	46.2	47.6	50.9	56.4	59.4	60.9	61.6	63.0	62.7
80%	57.6	52.6	47.6	46.0	47.0	49.7	55.2	58.7	60.5	61.2	62.4	61.7
90%	56.9	52.1	47.2	45.6	46.5	49.1	53.6	58.0	59.3	60.4	61.5	60.5
Long Term												
Full Simulation Period[a]	59.0	53.8	48.5	46.8	48.4	52.0	57.4	60.3	62.4	63.1	64.2	63.9
Water Year Types[b,c]												
Wet (32%)	57.8	53.7	48.9	46.5	47.4	50.4	55.4	59.9	63.4	63.2	63.4	62.1
Above Normal (16%)	58.0	52.9	48.4	46.7	47.6	51.1	56.8	60.4	61.2	61.1	62.6	63.7
Below Normal (13%)	58.7	53.9	48.5	46.8	48.6	52.9	58.5	59.7	60.7	61.8	62.3	63.0
Dry (24%)	59.1	53.5	48.3	47.0	49.0	52.9	58.4	60.4	61.8	63.2	65.5	64.5
Critical (15%)	62.5	55.0	48.3	47.4	50.1	54.0	59.4	61.6	63.9	65.8	67.7	67.8

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.8**	**0.2**	**0.4**	-0.1	0.0	0.0	**0.0**	-0.4	-0.4	**0.4**	0.0	**0.0**
20%	0.0	-0.1	-0.2	**0.0**	0.0	-0.1	**0.0**	-0.7	-0.3	0.0	-0.3	-0.1
30%	-0.2	-0.4	-0.2	**0.1**	**0.0**	**0.0**	**0.0**	-0.8	-0.3	0.0	-0.6	-0.2
40%	0.0	-0.5	**0.1**	0.0	**0.0**	0.0	-0.3	-0.9	-0.5	0.0	-0.4	**0.3**
50%	**0.2**	-0.5	0.0	**0.1**	0.0	-0.2	-0.2	-0.9	-0.7	**0.0**	-0.3	**1.3**
60%	**0.1**	-0.4	0.0	**0.0**	**0.0**	**0.1**	-0.3	-0.8	-1.4	**0.1**	-0.2	**3.0**
70%	**0.3**	-0.3	**0.0**	0.0	-0.1	-0.1	-0.2	-0.7	-1.5	**0.2**	-0.2	**3.5**
80%	**0.1**	-0.1	**0.0**	0.0	**0.0**	**0.1**	0.0	-1.0	-1.5	**0.4**	-0.4	**3.6**
90%	-0.2	**0.1**	-0.1	-0.1	**0.1**	**0.0**	**0.0**	-0.4	-1.7	**0.2**	-0.6	**2.9**
Long Term												
Full Simulation Period[a]	**0.1**	-0.2	0.0	**0.0**	**0.0**	0.0	-0.1	-0.7	-0.9	**0.1**	-0.3	**1.6**
Water Year Types[b,c]												
Wet (32%)	**0.0**	-0.6	0.0	**0.0**	**0.0**	**0.0**	0.0	-0.3	-0.7	**0.2**	-0.3	**3.9**
Above Normal (16%)	0.0	-0.6	-0.2	**0.0**	0.0	**0.0**	**0.0**	-0.5	-1.6	**0.1**	-0.3	**4.1**
Below Normal (13%)	**0.1**	**0.4**	**0.1**	**0.1**	0.0	-0.2	-0.4	-1.1	-1.2	**0.0**	-0.9	-1.2
Dry (24%)	0.0	**0.2**	**0.1**	**0.0**	**0.0**	**0.1**	0.0	-1.1	-0.9	**0.1**	**0.1**	-0.5
Critical (15%)	**0.3**	**0.2**	**0.0**	**0.0**	**0.1**	-0.3	-0.2	-0.5	-0.6	-0.1	-0.2	-0.1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 12-3. Sacramento River below Hamilton City, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.6	55.9	50.2	48.2	50.3	54.8	60.1	63.2	65.5	65.6	67.3	67.1
20%	60.0	55.1	49.7	47.7	49.6	53.9	59.6	62.7	64.8	65.0	66.2	65.7
30%	59.5	54.7	48.9	47.1	49.1	53.3	59.0	62.2	64.3	64.4	65.6	65.1
40%	58.9	54.2	48.5	46.8	48.6	52.8	58.5	61.4	63.9	63.4	64.8	63.9
50%	58.4	53.8	48.4	46.6	48.3	52.2	57.9	61.0	63.2	62.9	64.2	62.5
60%	58.2	53.4	48.1	46.4	48.0	51.5	57.6	60.6	62.9	62.2	63.7	60.3
70%	57.7	53.2	47.7	46.2	47.6	50.9	56.6	60.1	62.3	61.4	63.2	59.2
80%	57.5	52.7	47.6	46.0	47.0	49.6	55.3	59.7	61.9	60.8	62.8	58.1
90%	57.1	52.1	47.2	45.7	46.4	49.1	53.6	58.4	61.0	60.2	62.2	57.5
Long Term												
Full Simulation Period[a]	58.9	53.9	48.6	46.8	48.4	52.0	57.5	61.0	63.3	63.0	64.5	62.3
Water Year Types[b,c]												
Wet (32%)	57.8	54.3	48.9	46.5	47.4	50.4	55.4	60.2	64.1	63.0	63.7	58.2
Above Normal (16%)	58.0	53.6	48.6	46.7	47.6	51.1	56.8	61.0	62.8	61.0	62.9	59.6
Below Normal (13%)	58.5	53.5	48.5	46.7	48.6	53.1	58.9	60.7	62.0	61.8	63.2	64.2
Dry (24%)	59.1	53.3	48.3	46.9	49.0	52.8	58.5	61.5	62.7	63.1	65.3	65.1
Critical (15%)	62.2	54.8	48.3	47.4	50.0	54.2	59.6	62.1	64.5	65.9	67.9	67.9

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	61.2	56.2	50.7	48.2	50.3	54.8	60.2	62.8	65.1	66.0	67.7	67.2
20%	59.8	55.0	49.6	47.7	49.6	53.8	59.4	62.2	64.6	64.9	66.0	65.7
30%	59.2	54.3	48.8	47.2	49.1	53.3	58.8	61.4	64.0	64.3	65.0	64.9
40%	58.8	53.7	48.6	46.8	48.5	52.7	58.1	60.8	63.5	63.4	64.4	64.6
50%	58.4	53.3	48.4	46.6	48.3	52.2	57.7	60.1	62.7	63.0	63.8	63.7
60%	58.1	53.0	48.1	46.4	48.0	51.6	57.3	59.8	61.5	62.2	63.4	63.4
70%	57.9	52.9	47.8	46.2	47.5	50.9	56.4	59.5	61.0	61.6	62.8	62.7
80%	57.6	52.6	47.6	46.0	46.9	49.7	55.3	58.8	60.6	61.2	62.0	61.5
90%	56.9	52.1	47.2	45.6	46.5	49.1	53.6	58.1	59.3	60.4	61.6	60.4
Long Term												
Full Simulation Period[a]	58.9	53.8	48.6	46.8	48.4	52.0	57.3	60.4	62.5	63.1	64.2	64.0
Water Year Types[b,c]												
Wet (32%)	57.8	53.7	48.9	46.5	47.4	50.4	55.3	60.2	63.5	63.1	63.2	62.3
Above Normal (16%)	58.0	53.0	48.5	46.7	47.6	51.1	56.8	60.4	61.3	61.1	62.6	63.5
Below Normal (13%)	58.5	53.9	48.5	46.8	48.6	52.9	58.4	59.7	60.8	61.8	62.4	62.9
Dry (24%)	58.8	53.4	48.4	47.0	49.0	53.0	58.4	60.4	61.8	63.2	65.5	64.5
Critical (15%)	62.6	55.0	48.3	47.4	50.1	54.0	59.4	61.7	64.0	65.9	67.8	68.0

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.7**	**0.3**	**0.5**	0.0	0.0	0.0	**0.0**	-0.4	-0.4	**0.3**	**0.4**	**0.1**
20%	-0.3	-0.1	-0.1	**0.0**	**0.0**	-0.1	-0.2	-0.5	-0.2	-0.1	-0.1	0.0
30%	-0.3	-0.4	-0.1	**0.1**	**0.0**	0.0	-0.2	-0.8	-0.3	-0.1	-0.6	-0.2
40%	-0.1	-0.4	**0.1**	0.0	0.0	0.0	-0.3	-0.5	-0.5	0.0	-0.4	**0.7**
50%	**0.0**	-0.5	**0.0**	**0.0**	0.0	0.0	-0.2	-0.9	-0.5	**0.1**	-0.4	**1.2**
60%	0.0	-0.4	**0.0**	**0.0**	**0.0**	**0.1**	-0.3	-0.8	-1.4	0.0	-0.3	**3.0**
70%	**0.1**	-0.3	**0.0**	0.0	-0.1	-0.1	-0.2	-0.6	-1.3	**0.1**	-0.4	**3.5**
80%	**0.1**	-0.1	**0.0**	0.0	0.0	**0.1**	**0.0**	-0.9	-1.4	**0.4**	-0.8	**3.4**
90%	-0.2	0.0	-0.1	-0.1	**0.1**	0.0	**0.0**	-0.3	-1.7	**0.2**	-0.6	**2.8**
Long Term												
Full Simulation Period[a]	0.0	-0.2	**0.0**	**0.0**	**0.0**	0.0	-0.1	-0.6	-0.9	**0.1**	-0.3	**1.6**
Water Year Types[b,c]												
Wet (32%)	-0.1	-0.6	**0.0**	**0.0**	**0.0**	**0.0**	-0.1	0.0	-0.6	**0.1**	-0.5	**4.1**
Above Normal (16%)	**0.0**	-0.6	-0.1	**0.0**	0.0	**0.0**	**0.0**	-0.6	-1.5	**0.1**	-0.3	**4.0**
Below Normal (13%)	**0.0**	**0.4**	**0.1**	**0.1**	0.0	-0.2	-0.5	-1.1	-1.2	**0.0**	-0.8	-1.2
Dry (24%)	-0.3	**0.2**	**0.1**	**0.0**	**0.0**	**0.2**	0.0	-1.1	-0.9	**0.1**	**0.1**	-0.6
Critical (15%)	**0.4**	**0.2**	**0.0**	**0.1**	**0.1**	-0.3	-0.2	-0.4	-0.5	**0.0**	0.0	**0.1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 12-4. Sacramento River below Hamilton City, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.6	55.9	50.2	48.2	50.3	54.8	60.1	63.2	65.5	65.6	67.3	67.1
20%	60.0	55.1	49.7	47.7	49.6	53.9	59.6	62.7	64.8	65.0	66.2	65.7
30%	59.5	54.7	48.9	47.1	49.1	53.3	59.0	62.2	64.3	64.4	65.6	65.1
40%	58.9	54.2	48.5	46.8	48.6	52.8	58.5	61.4	63.9	63.4	64.8	63.9
50%	58.4	53.8	48.4	46.6	48.3	52.2	57.9	61.0	63.2	62.9	64.2	62.5
60%	58.2	53.4	48.1	46.4	48.0	51.5	57.6	60.6	62.9	62.2	63.7	60.3
70%	57.7	53.2	47.7	46.2	47.6	50.9	56.6	60.1	62.3	61.4	63.2	59.2
80%	57.5	52.7	47.6	46.0	47.0	49.6	55.3	59.7	61.9	60.8	62.8	58.1
90%	57.1	52.1	47.2	45.7	46.4	49.1	53.6	58.4	61.0	60.2	62.2	57.5
Long Term												
Full Simulation Period[a]	58.9	53.9	48.6	46.8	48.4	52.0	57.5	61.0	63.3	63.0	64.5	62.3
Water Year Types[b,c]												
Wet (32%)	57.8	54.3	48.9	46.5	47.4	50.4	55.4	60.2	64.1	63.0	63.7	58.2
Above Normal (16%)	58.0	53.6	48.6	46.7	47.6	51.1	56.8	61.0	62.8	61.0	62.9	59.6
Below Normal (13%)	58.5	53.5	48.5	46.7	48.6	53.1	58.9	60.7	62.0	61.8	63.2	64.2
Dry (24%)	59.1	53.3	48.3	46.9	49.0	52.8	58.5	61.5	62.7	63.1	65.3	65.1
Critical (15%)	62.2	54.8	48.3	47.4	50.0	54.2	59.6	62.1	64.5	65.9	67.9	67.9

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.2	55.8	50.7	48.3	50.3	54.7	60.3	62.9	65.5	66.1	66.7	67.0
20%	59.2	54.8	49.5	47.8	49.6	53.9	59.4	62.0	65.0	65.3	65.6	65.9
30%	58.7	54.3	49.1	47.3	49.0	53.0	58.7	61.7	64.2	64.3	64.9	65.4
40%	58.3	53.5	48.7	46.9	48.5	52.2	58.1	61.2	63.6	63.3	64.5	64.9
50%	58.0	53.3	48.5	46.8	48.3	51.8	57.6	60.9	63.0	62.8	64.2	64.4
60%	57.8	53.1	48.3	46.5	48.0	51.2	57.0	60.5	62.3	62.2	63.6	63.6
70%	57.6	52.7	48.0	46.3	47.5	50.8	55.7	60.3	61.7	61.6	63.1	62.9
80%	57.1	52.4	47.9	46.0	46.9	49.7	54.7	59.9	61.3	60.9	62.8	61.8
90%	56.6	52.1	47.3	45.7	46.5	49.2	53.6	59.3	60.4	60.3	62.1	61.1
Long Term												
Full Simulation Period[a]	58.4	53.6	48.7	46.9	48.4	51.9	57.1	61.0	63.0	63.0	64.3	64.2
Water Year Types[b,c]												
Wet (32%)	57.2	53.7	49.0	46.6	47.4	50.3	54.9	60.1	64.1	63.0	63.6	62.1
Above Normal (16%)	57.5	52.8	48.5	46.8	47.6	50.8	56.3	61.1	63.0	60.8	63.1	63.8
Below Normal (13%)	58.1	53.6	48.7	46.9	48.6	52.7	58.5	60.6	61.6	61.7	63.4	64.5
Dry (24%)	58.5	53.3	48.6	47.0	48.9	52.7	58.3	61.4	61.8	63.1	64.8	65.0
Critical (15%)	61.9	54.8	48.4	47.6	50.2	54.2	59.7	62.1	64.1	66.4	67.4	67.4

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.3	-0.1	**0.5**	**0.0**	**0.0**	-0.1	**0.2**	-0.4	**0.1**	**0.5**	-0.6	-0.1
20%	-0.8	-0.3	-0.1	**0.1**	0.0	**0.0**	-0.2	-0.6	**0.2**	**0.3**	-0.6	**0.2**
30%	-0.8	-0.4	**0.2**	**0.2**	-0.1	-0.3	-0.3	-0.5	-0.1	-0.1	-0.7	**0.3**
40%	-0.6	-0.6	**0.2**	**0.1**	0.0	-0.5	-0.4	-0.1	-0.3	-0.2	-0.4	**0.9**
50%	-0.5	-0.5	**0.1**	**0.2**	0.0	-0.4	-0.4	-0.1	-0.2	-0.1	**0.0**	**1.9**
60%	-0.4	-0.3	**0.2**	**0.1**	0.0	-0.3	-0.6	-0.1	-0.7	**0.0**	-0.1	**3.2**
70%	-0.1	-0.4	**0.3**	**0.0**	-0.1	-0.1	-0.9	**0.3**	-0.7	**0.2**	-0.1	**3.7**
80%	-0.4	-0.3	**0.3**	0.0	0.0	**0.0**	-0.5	**0.2**	-0.7	**0.1**	0.0	**3.7**
90%	-0.5	0.0	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.9**	-0.6	**0.1**	-0.1	**3.6**
Long Term												
Full Simulation Period[a]	-0.5	-0.3	**0.2**	**0.1**	**0.0**	-0.2	-0.3	0.0	-0.3	**0.1**	-0.2	**1.8**
Water Year Types[b,c]												
Wet (32%)	-0.6	-0.6	**0.1**	**0.1**	0.0	-0.1	-0.5	-0.1	**0.0**	**0.0**	-0.1	**3.8**
Above Normal (16%)	-0.5	-0.8	-0.1	**0.1**	**0.0**	-0.3	-0.5	**0.2**	**0.2**	-0.2	**0.2**	**4.2**
Below Normal (13%)	-0.4	**0.1**	**0.2**	**0.2**	-0.1	-0.4	-0.4	-0.1	-0.4	0.0	**0.2**	**0.4**
Dry (24%)	-0.6	**0.1**	**0.4**	**0.1**	0.0	-0.1	-0.2	-0.1	-0.9	**0.0**	-0.6	-0.1
Critical (15%)	-0.3	0.0	**0.1**	**0.2**	**0.2**	0.0	**0.1**	**0.1**	-0.5	**0.5**	-0.4	-0.5

a Based on the 82-year simulation period.

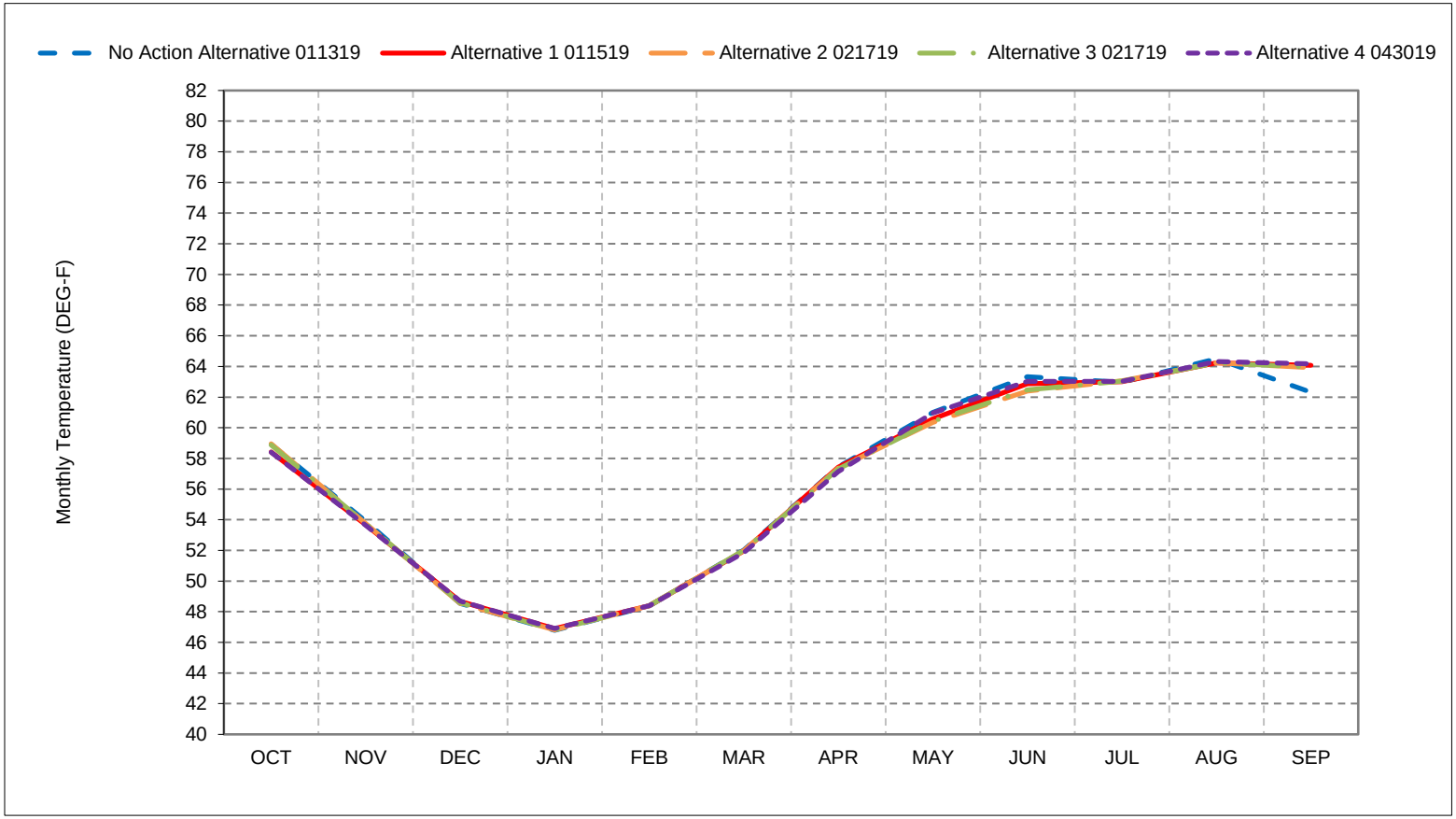
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-1. Sacramento River below Hamilton City, Long-Term Average Temperature



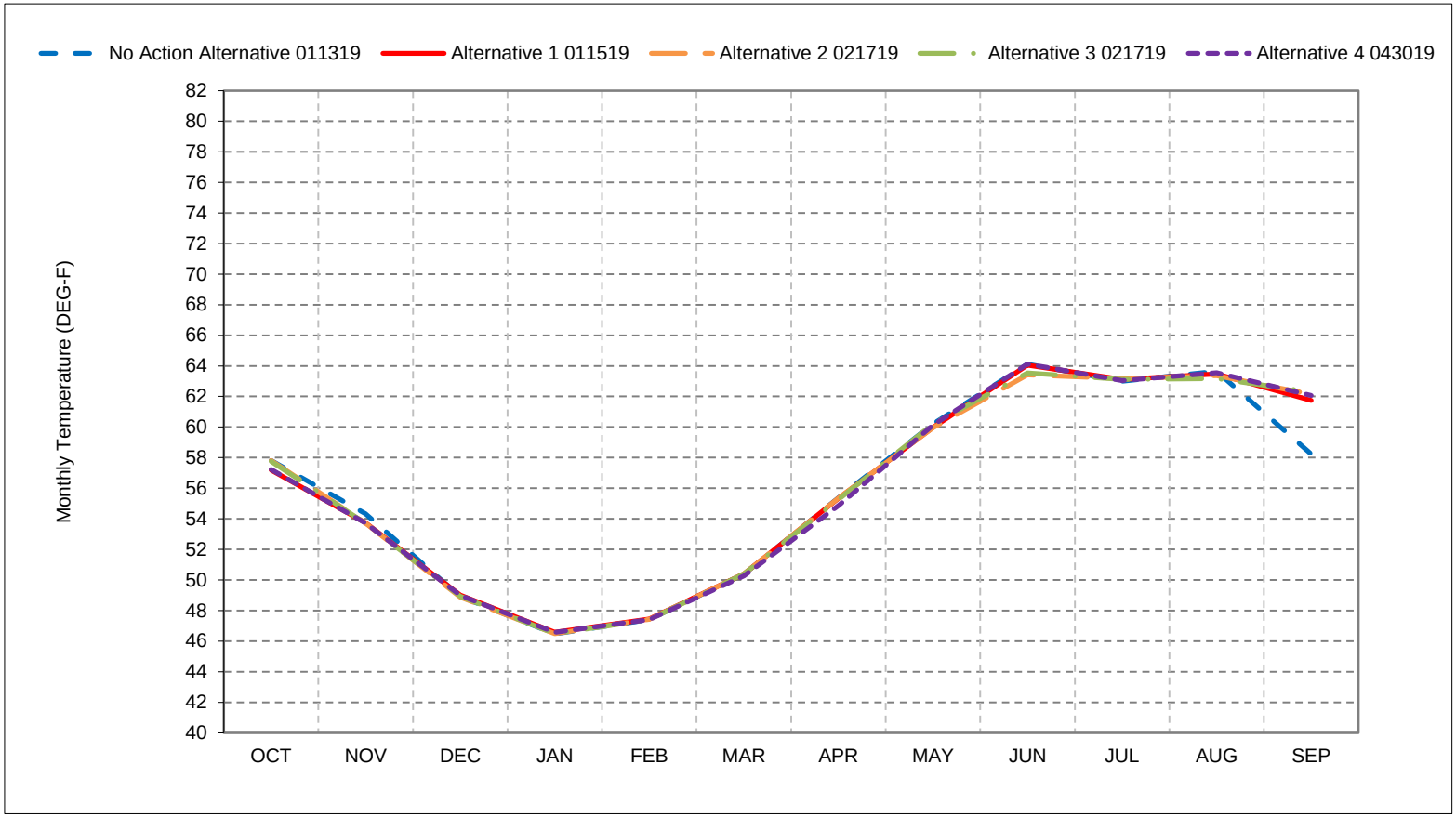
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-2. Sacramento River below Hamilton City, Wet Year Average Temperature



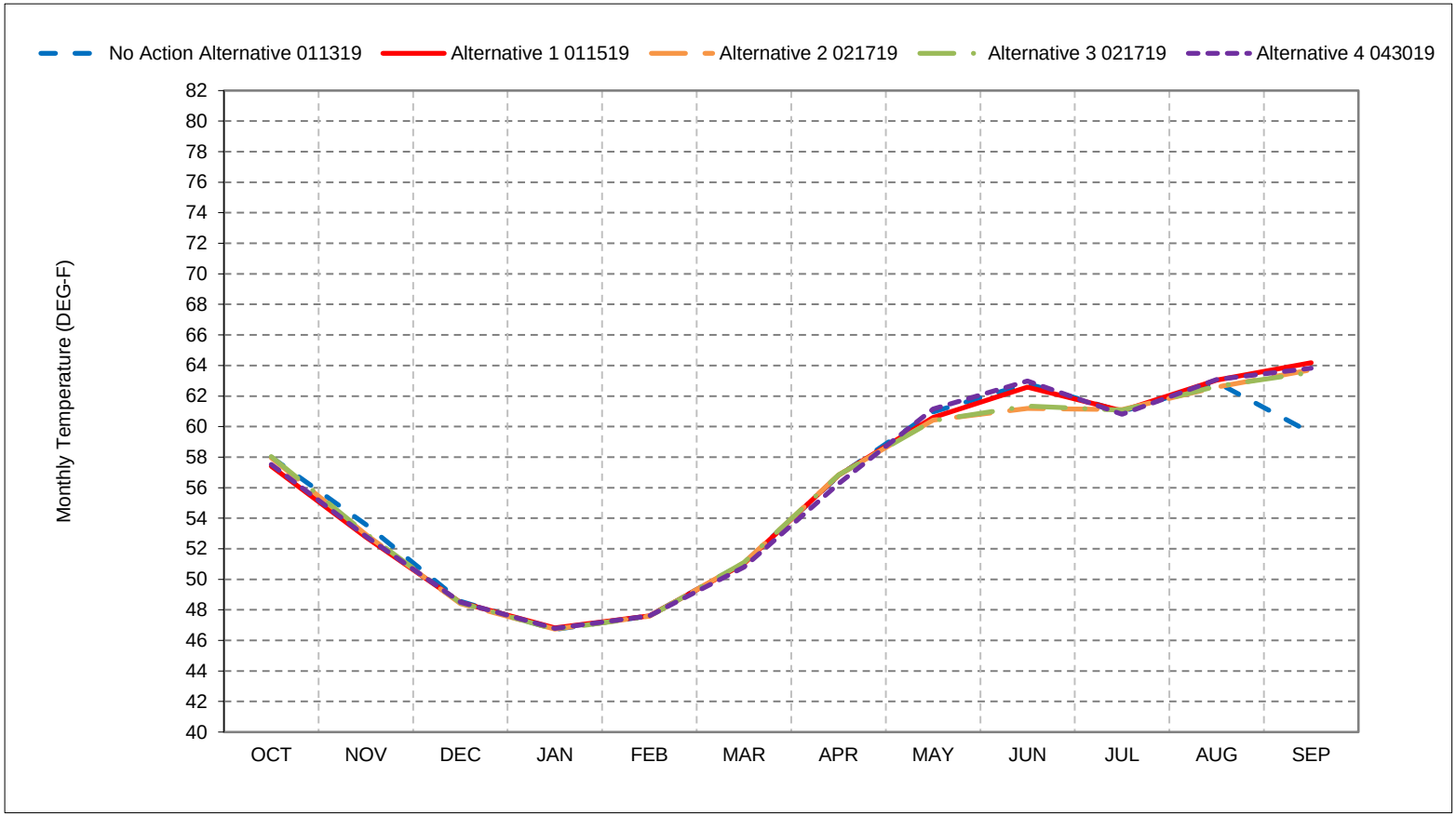
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-3. Sacramento River below Hamilton City, Above Normal Year Average Temperature



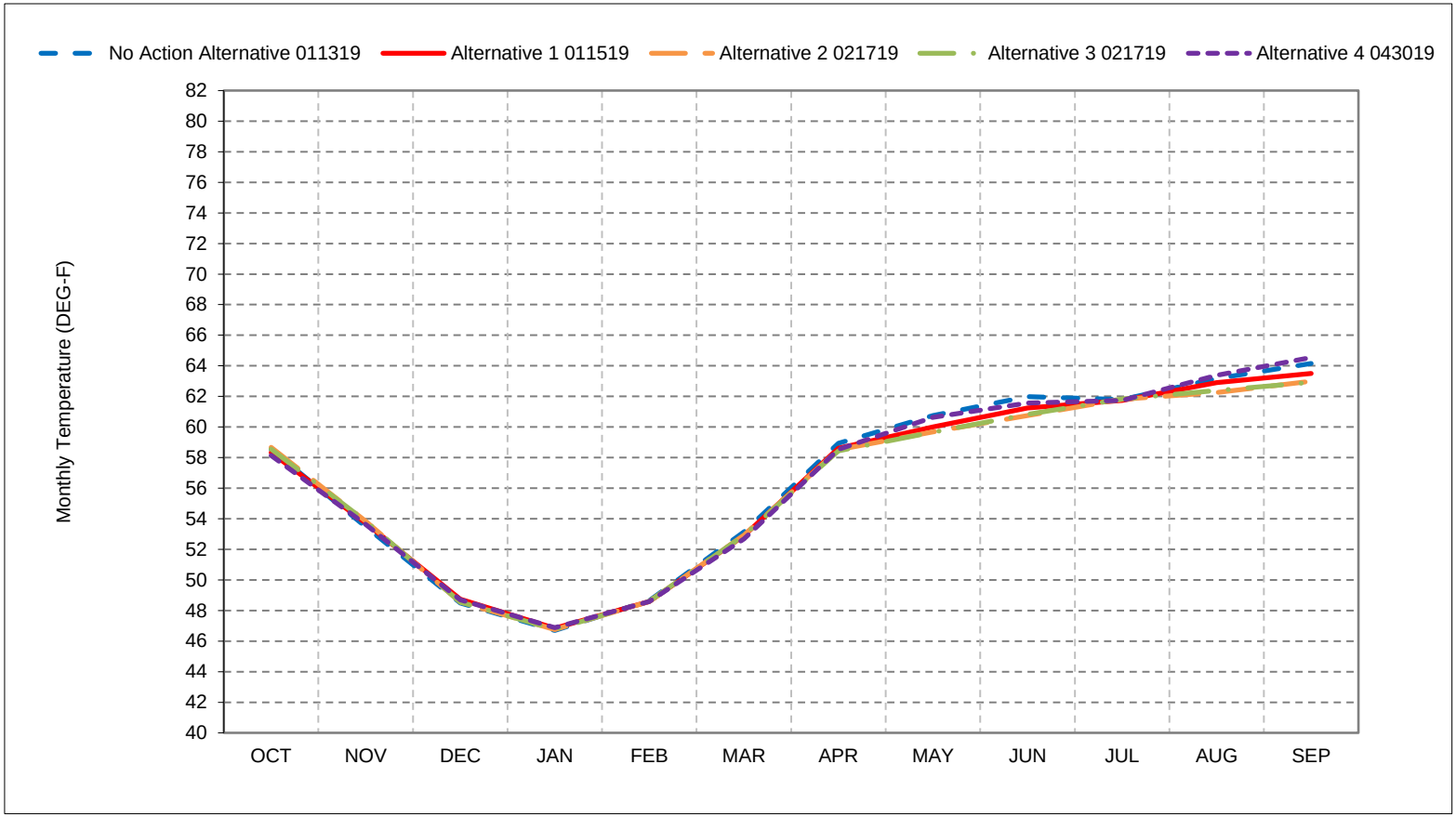
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-4. Sacramento River below Hamilton City, Below Normal Year Average Temperature



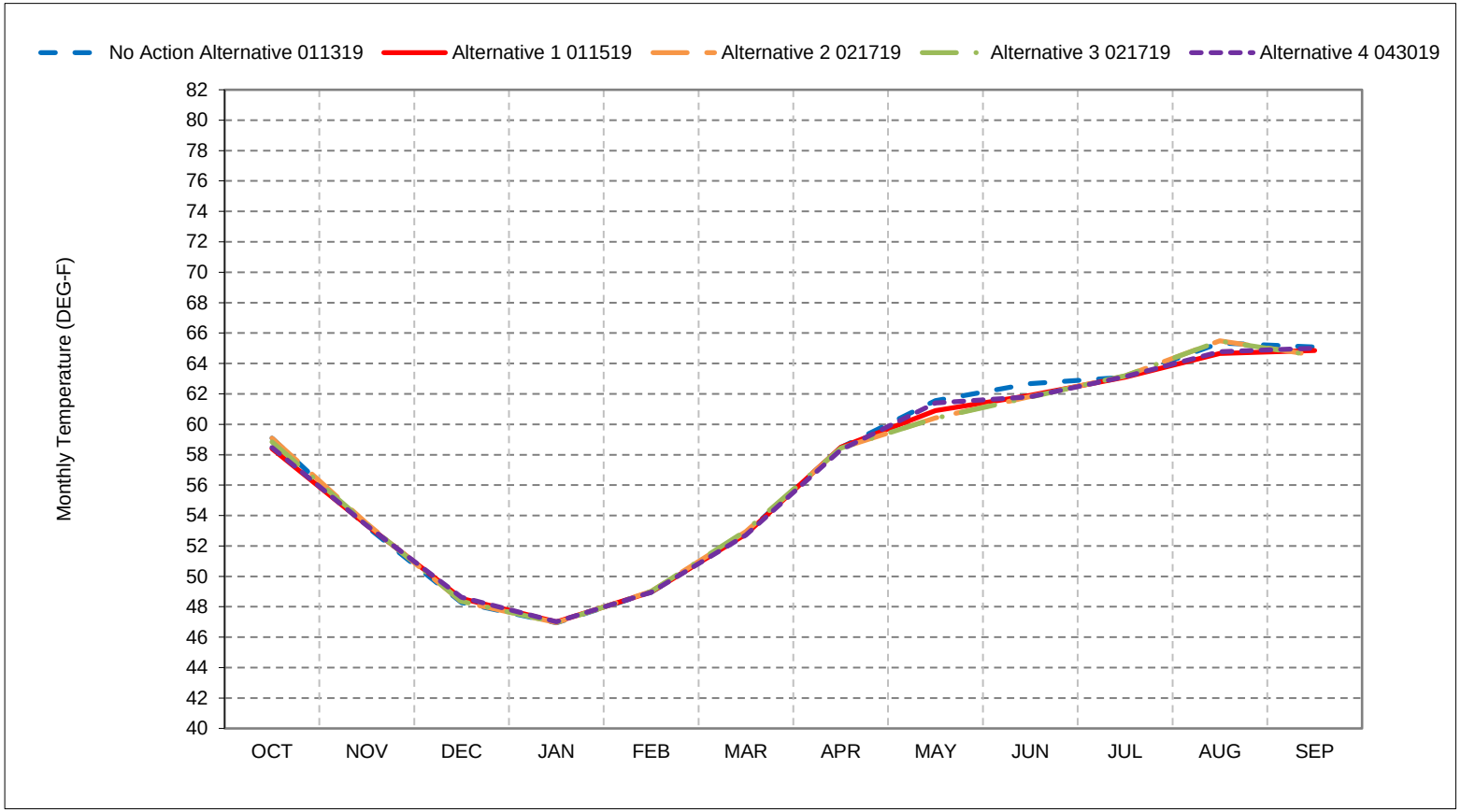
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-5. Sacramento River below Hamilton City, Dry Year Average Temperature



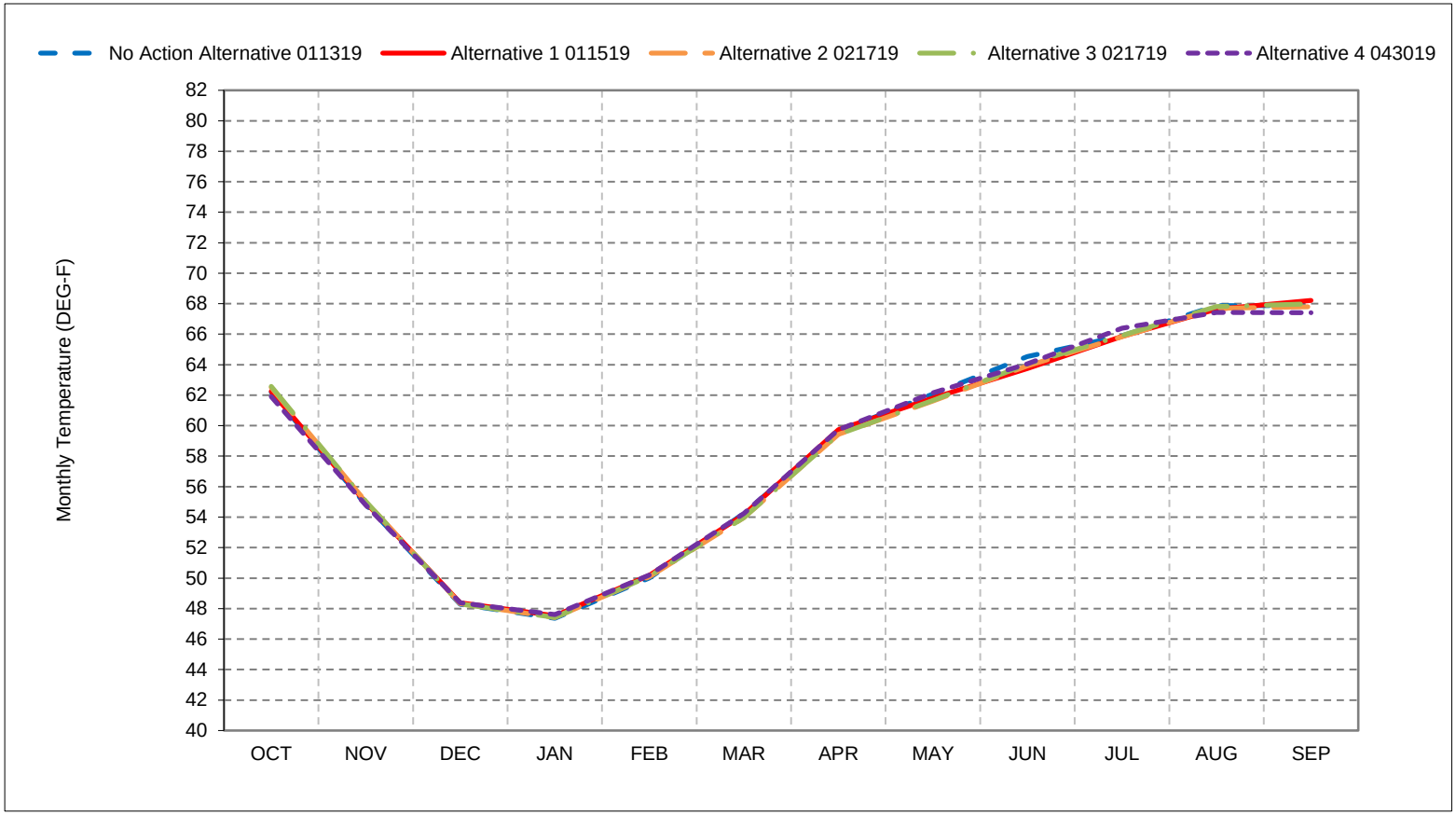
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-6. Sacramento River below Hamilton City, Critical Year Average Temperature



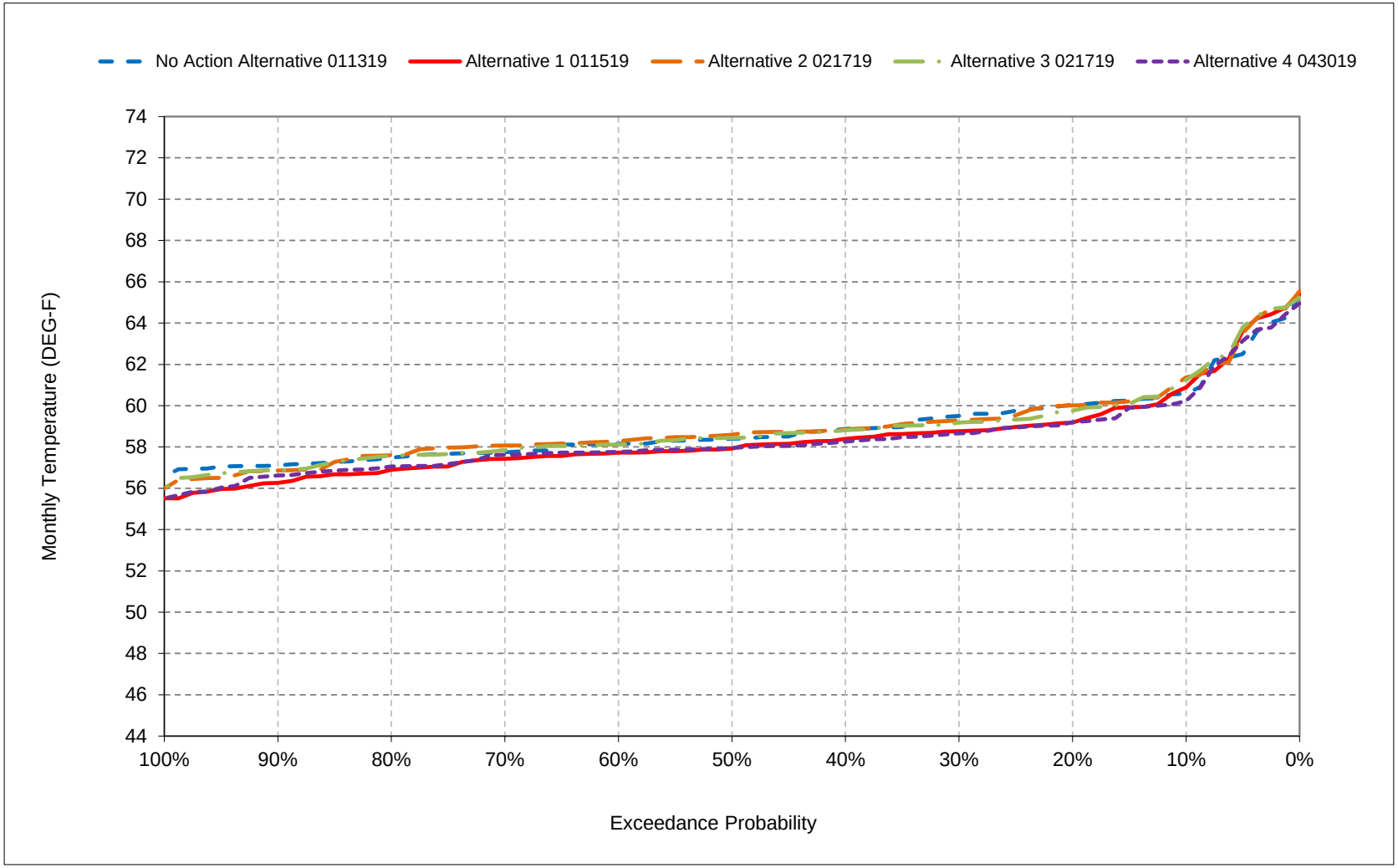
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

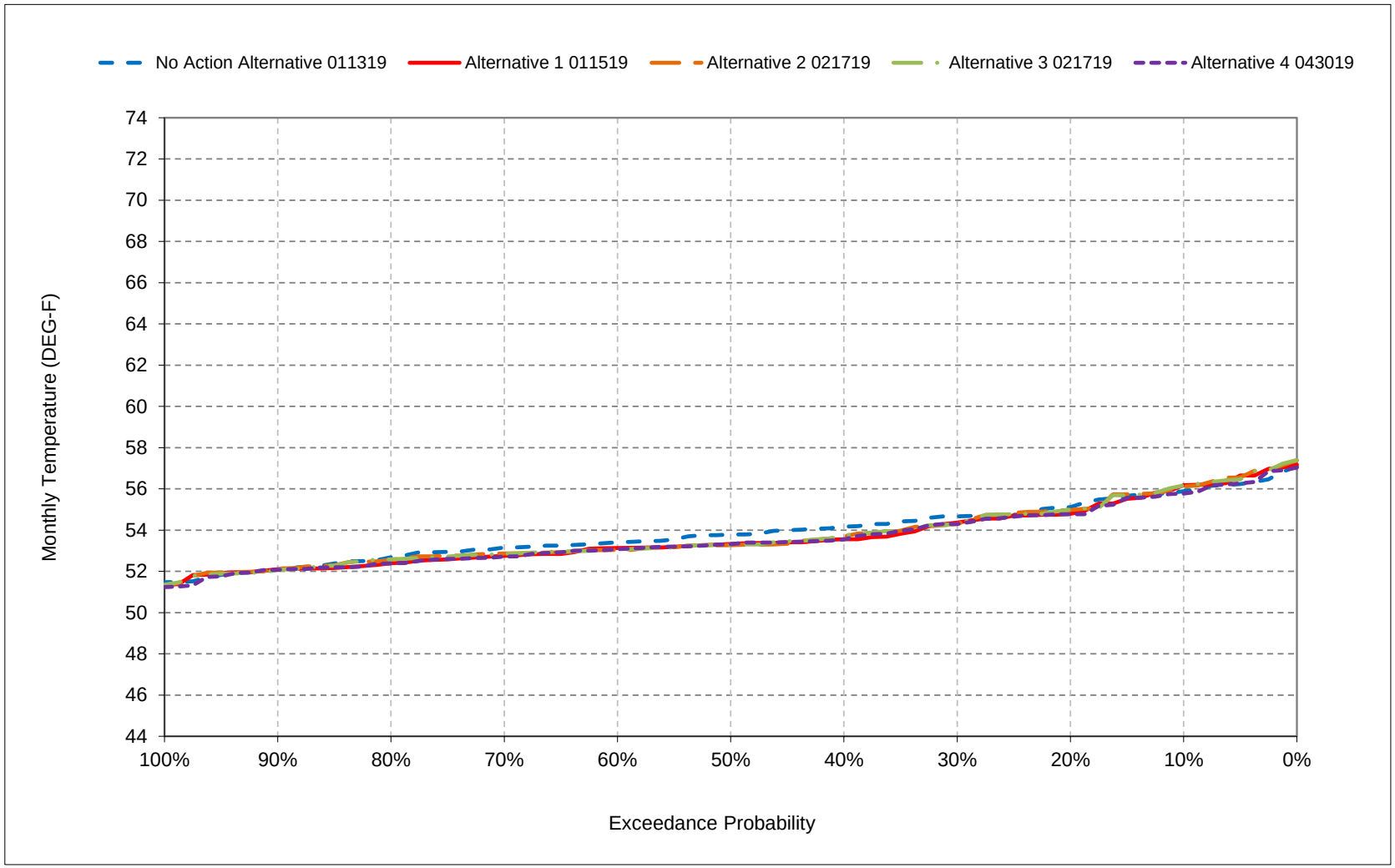
Figure 12-7. Sacramento River below Hamilton City, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

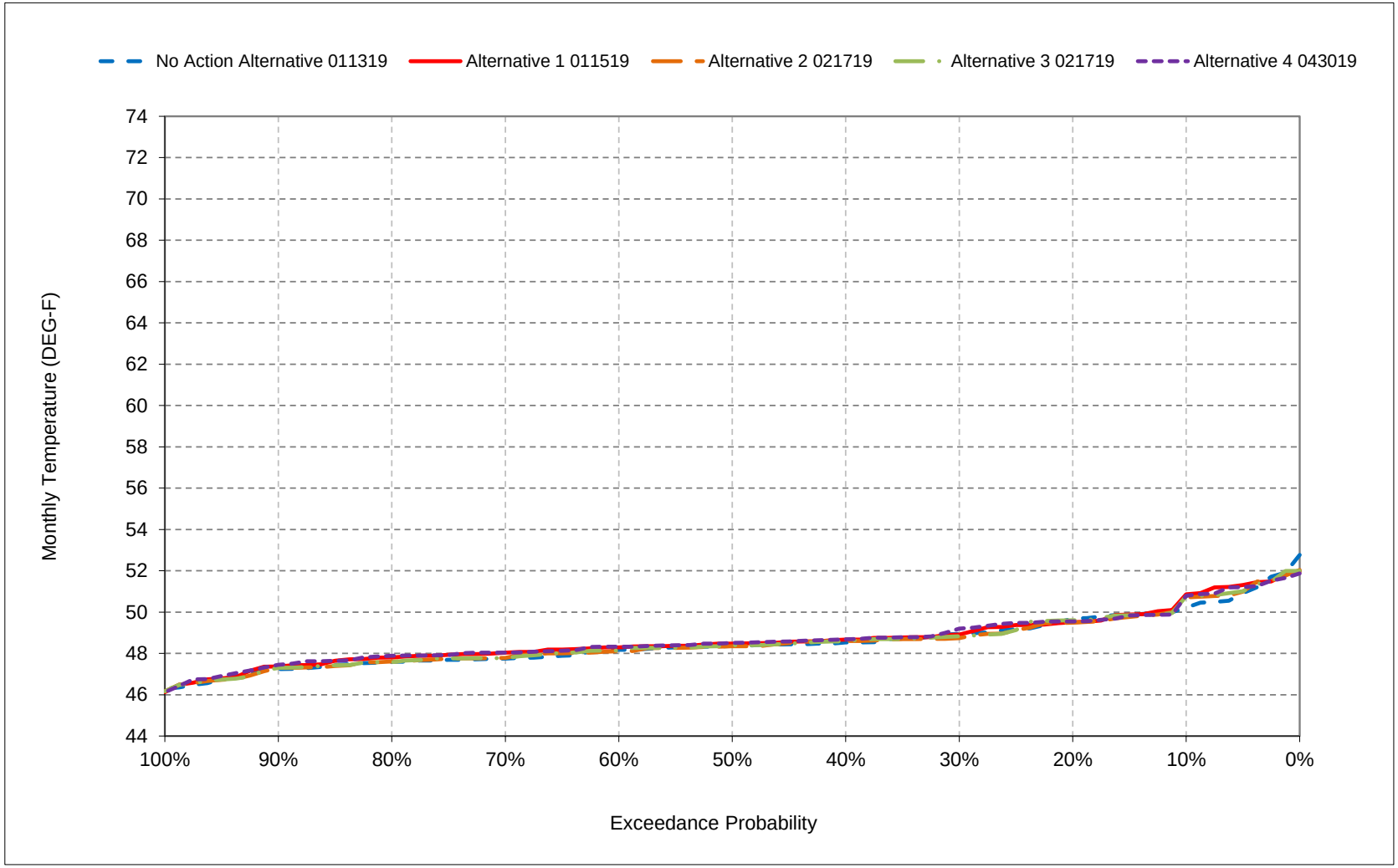
Figure 12-8. Sacramento River below Hamilton City, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

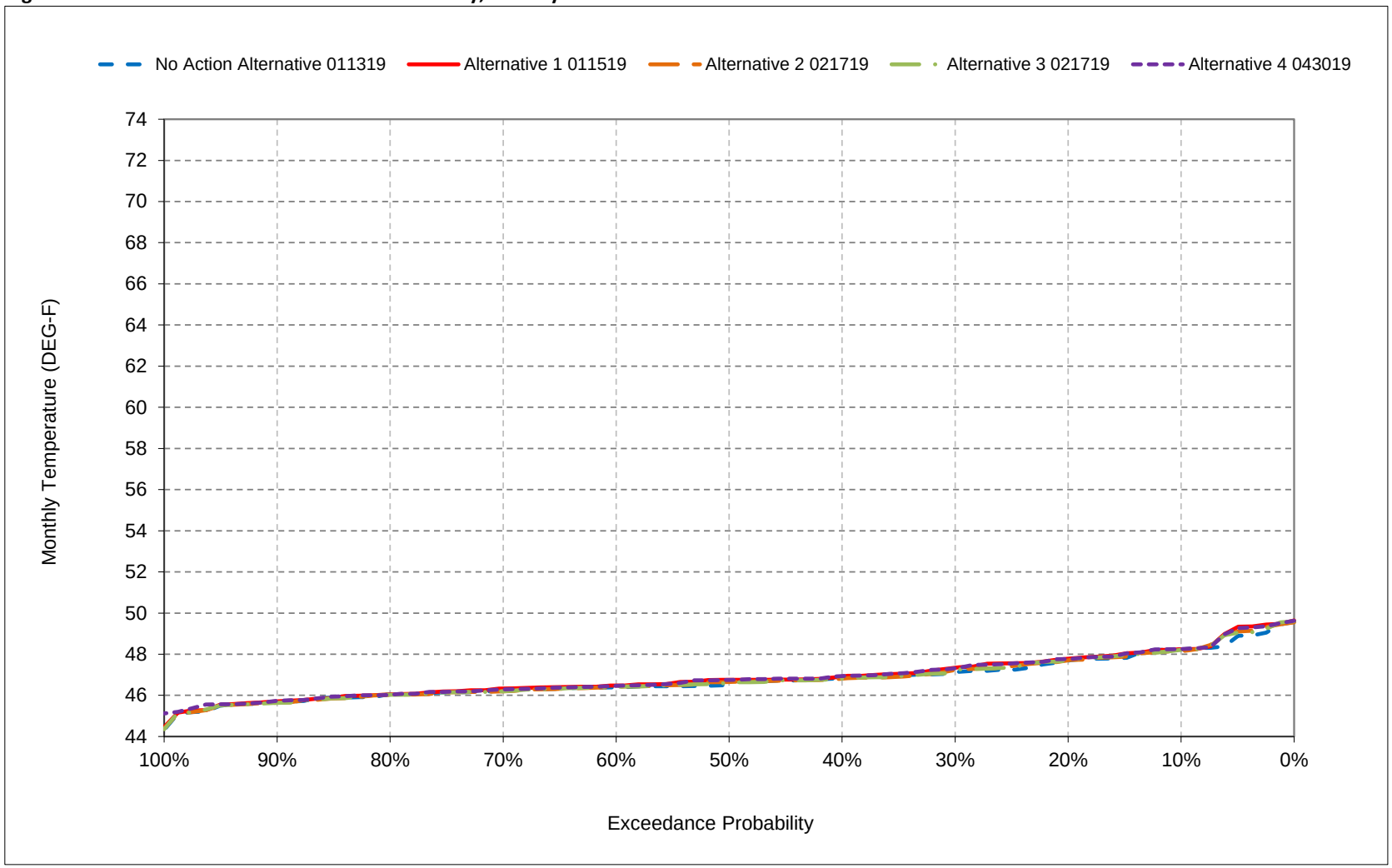
Figure 12-9. Sacramento River below Hamilton City, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

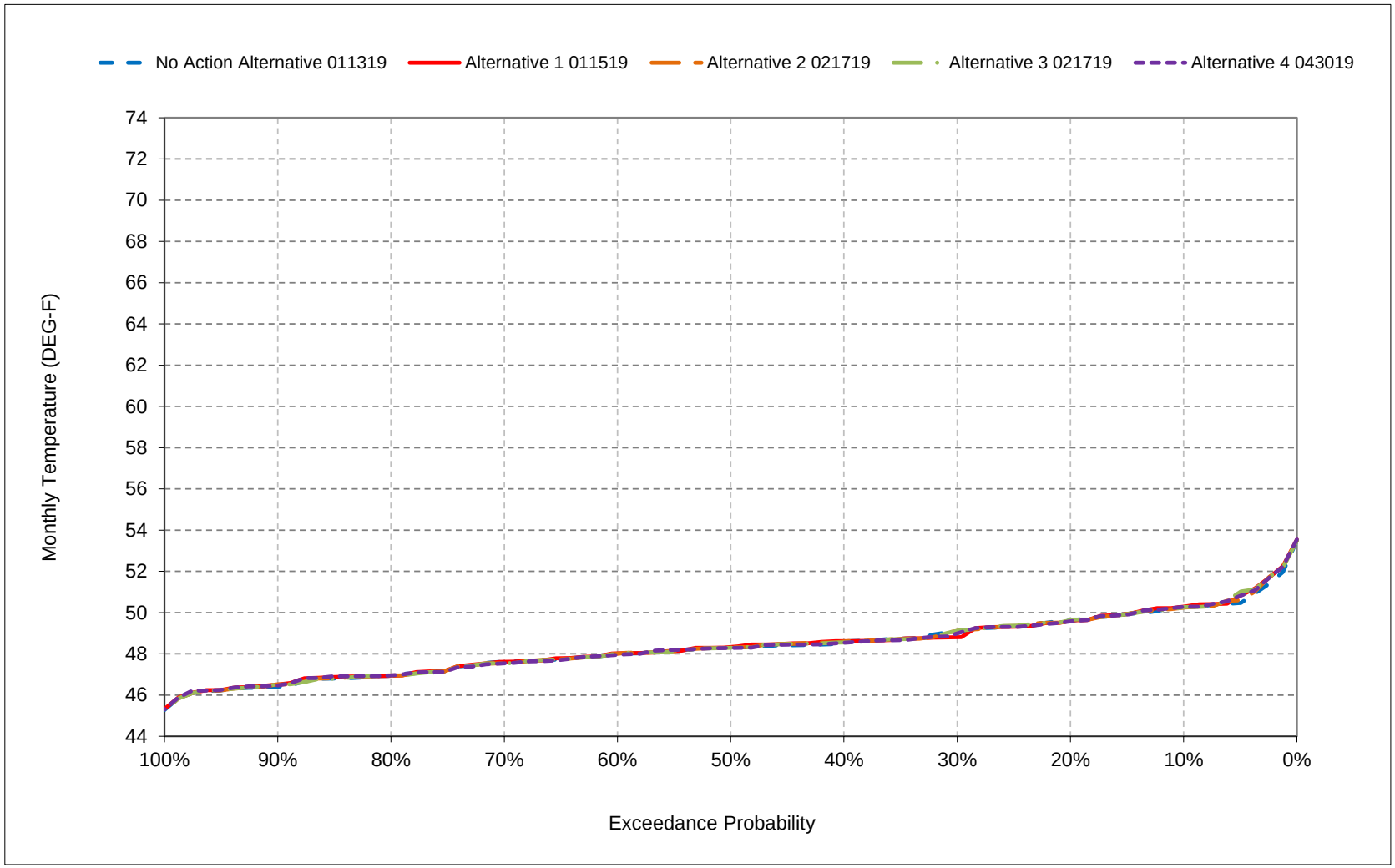
Figure 12-10. Sacramento River below Hamilton City, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

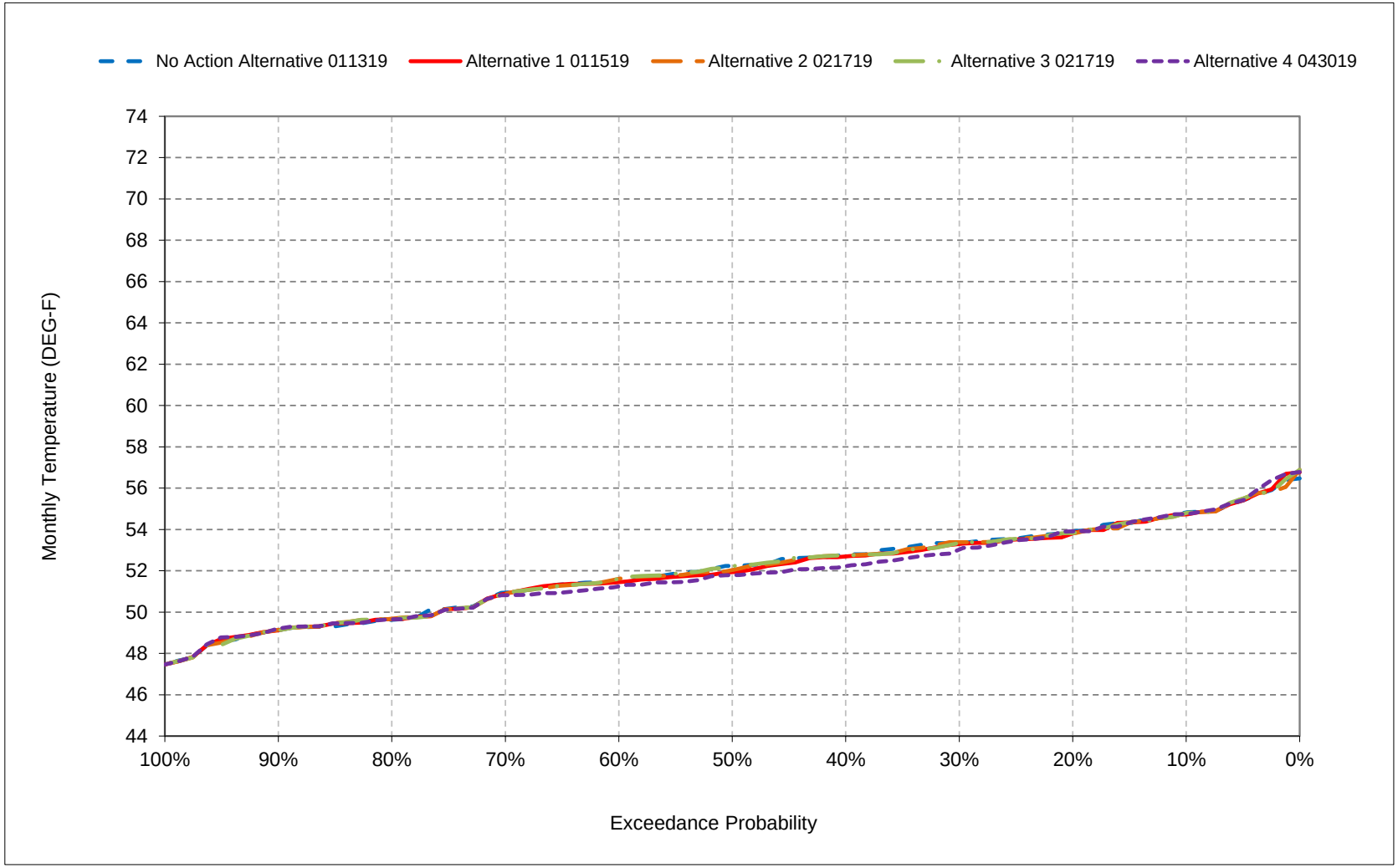
Figure 12-11. Sacramento River below Hamilton City, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

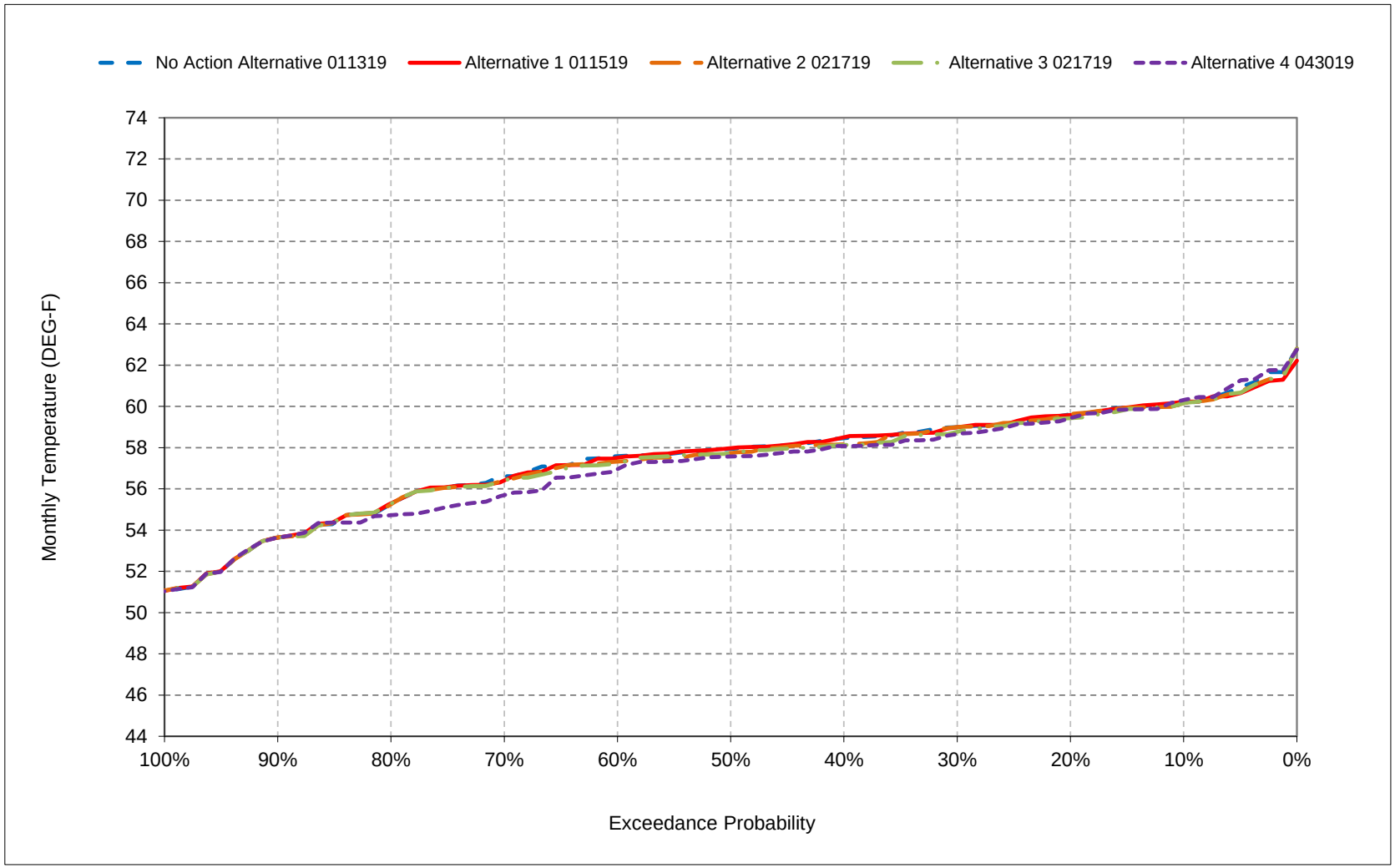
Figure 12-12. Sacramento River below Hamilton City, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

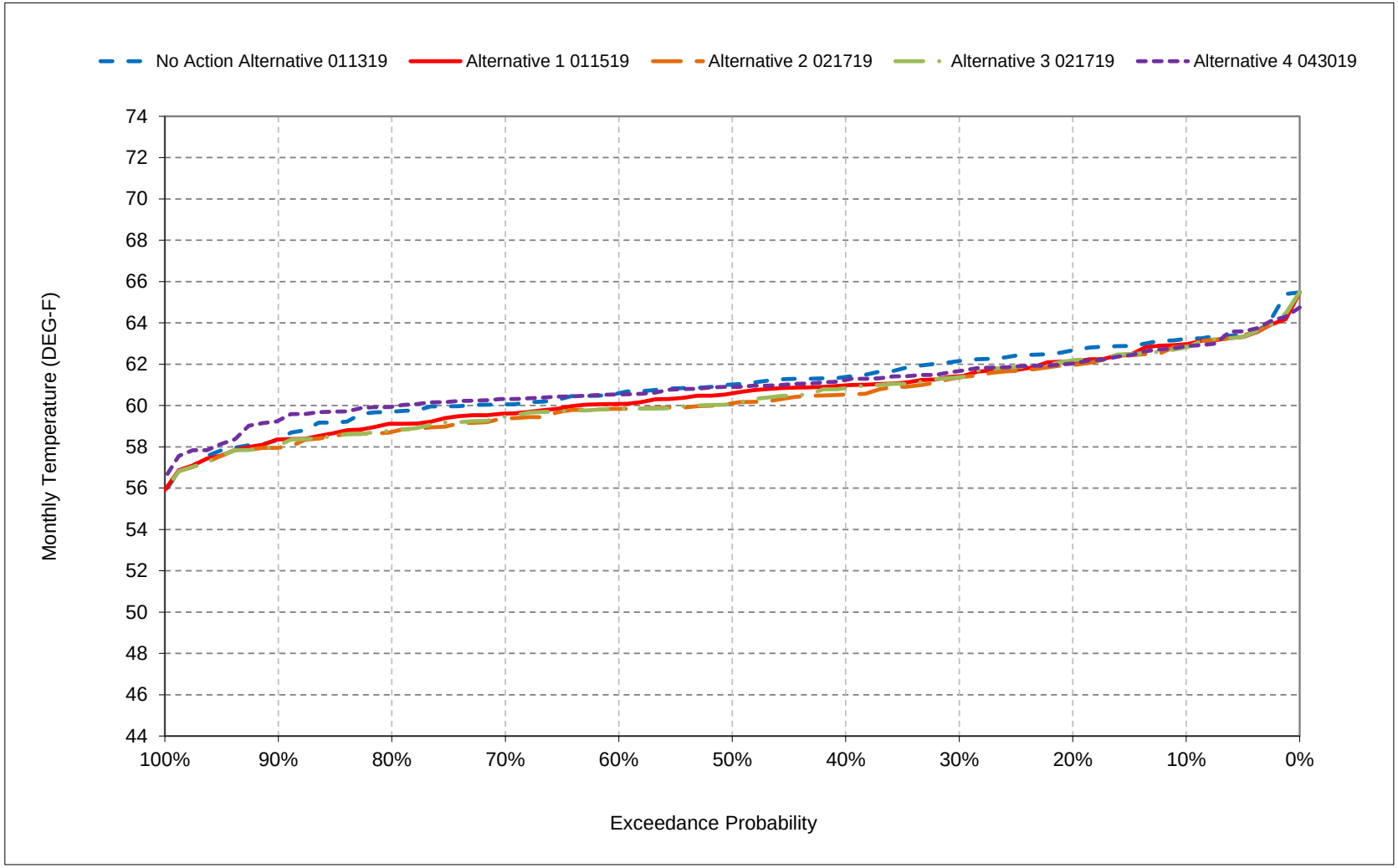
Figure 12-13. Sacramento River below Hamilton City, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

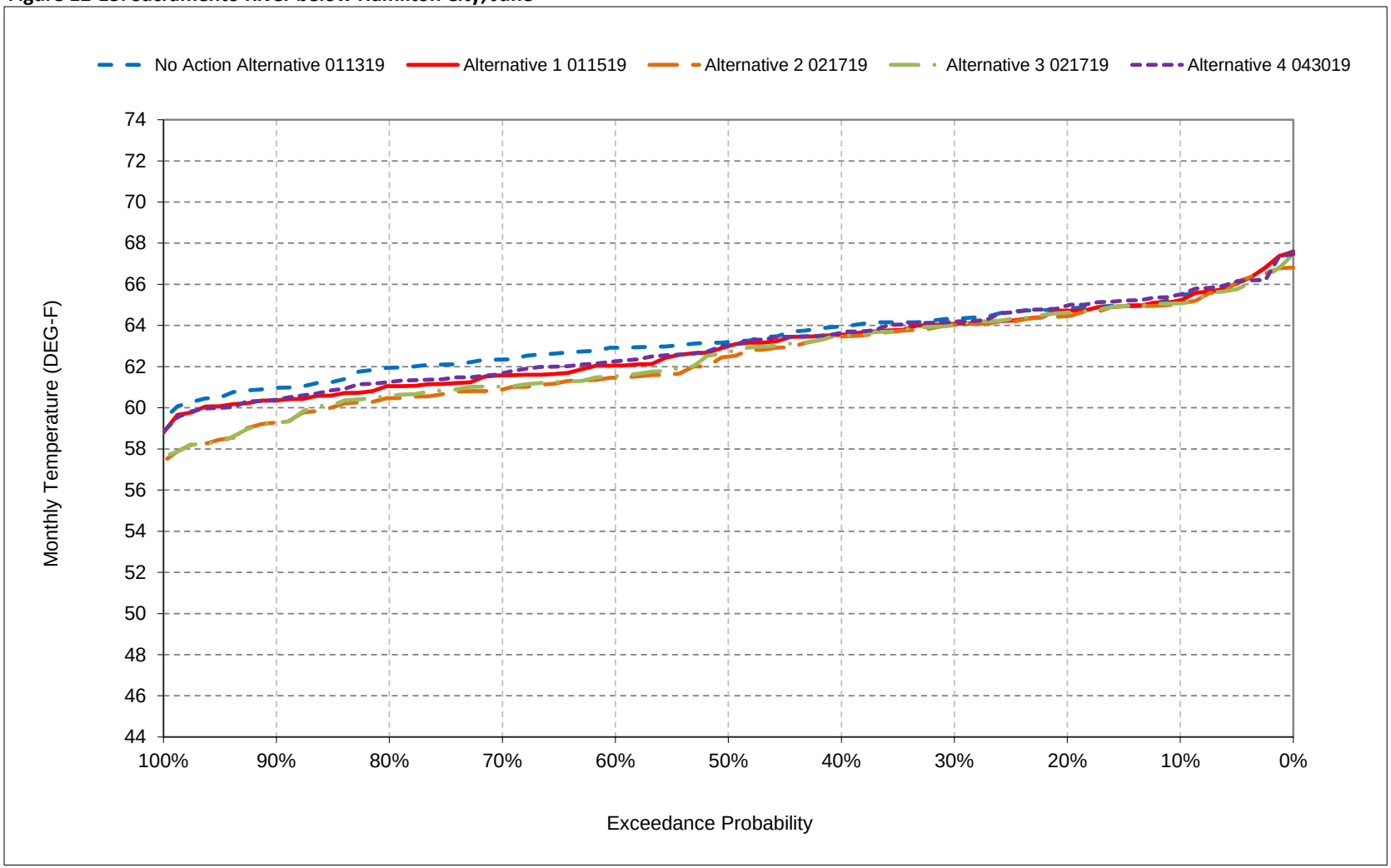
Figure 12-14. Sacramento River below Hamilton City, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

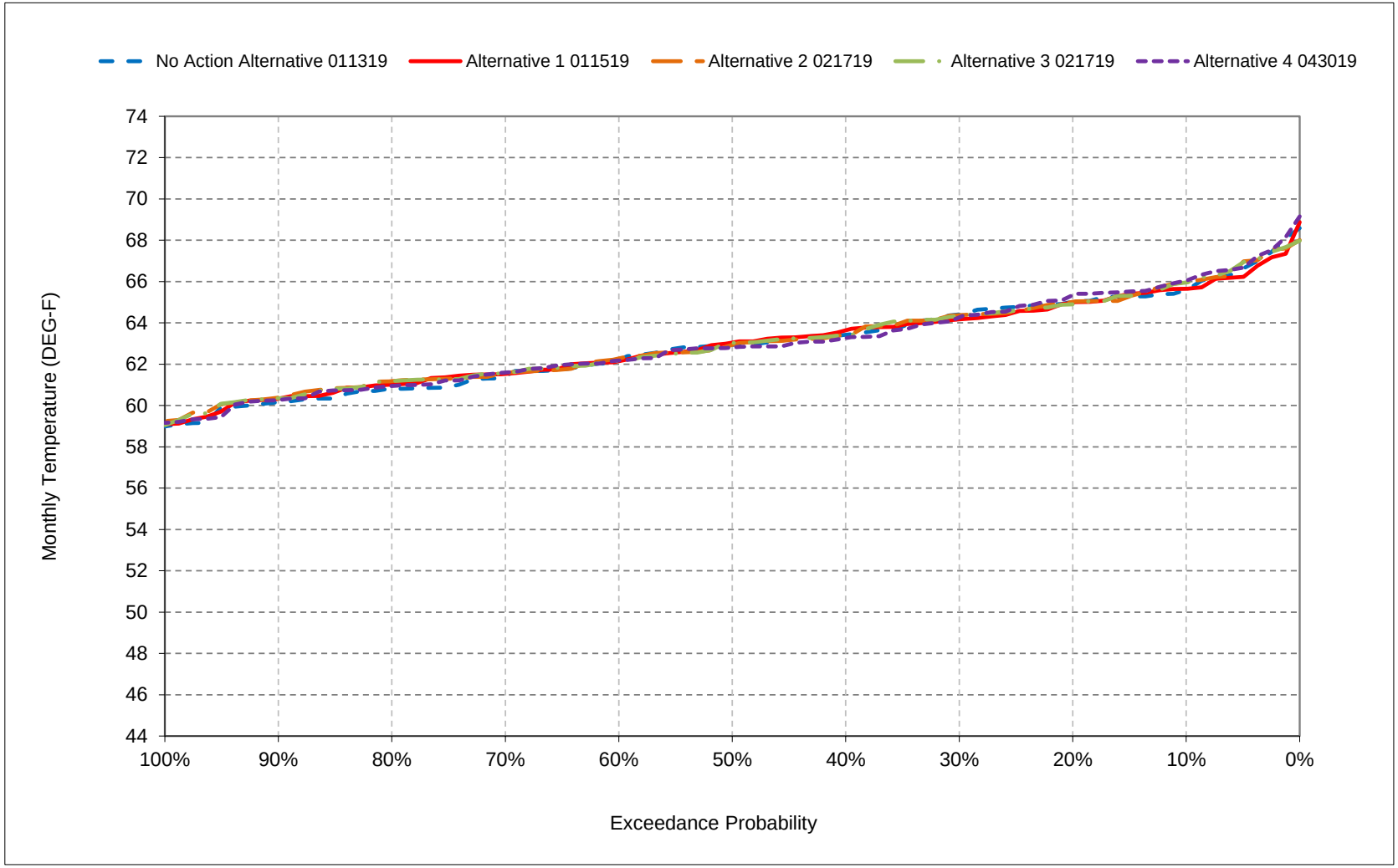
Figure 12-15. Sacramento River below Hamilton City, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

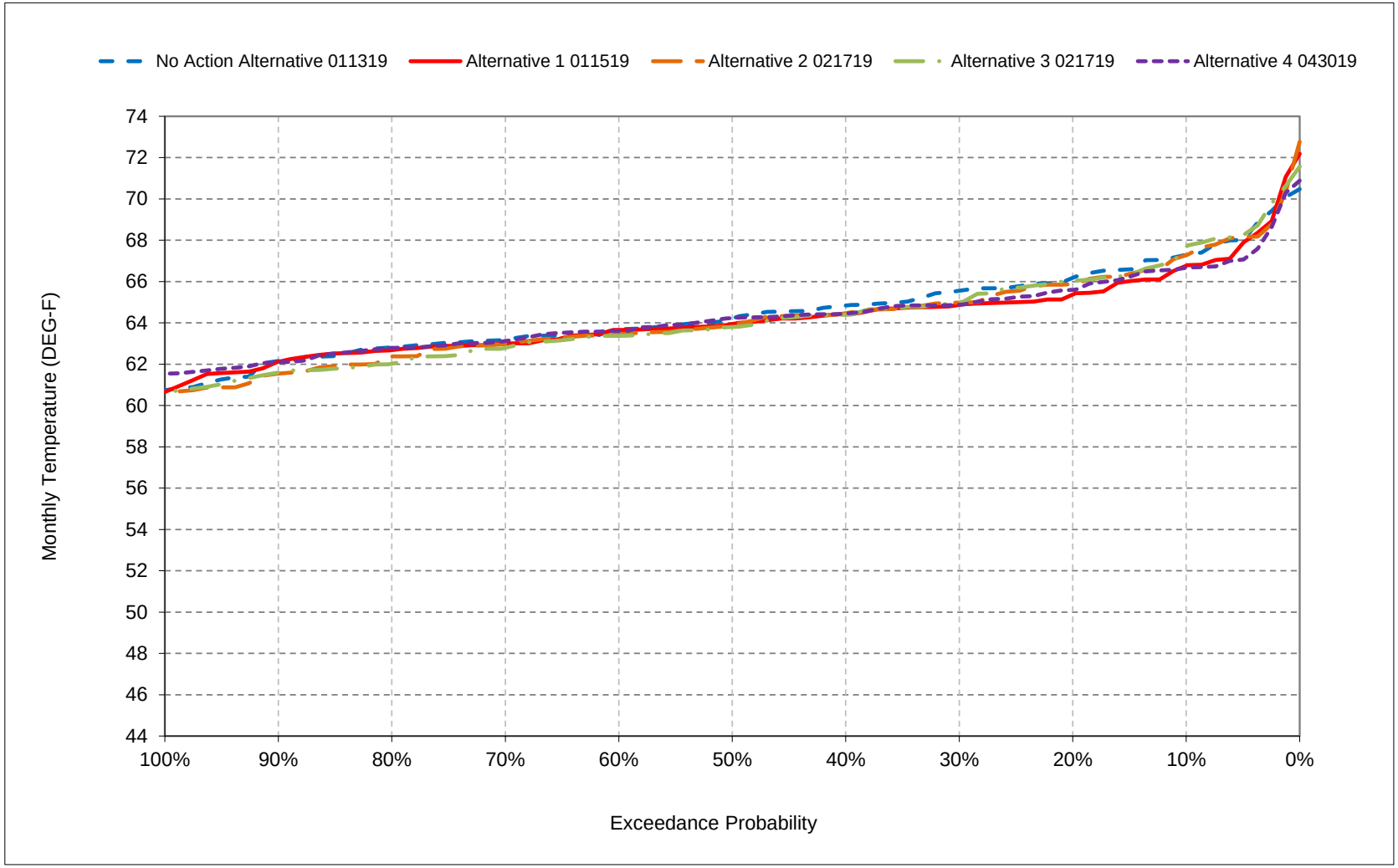
Figure 12-16. Sacramento River below Hamilton City, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

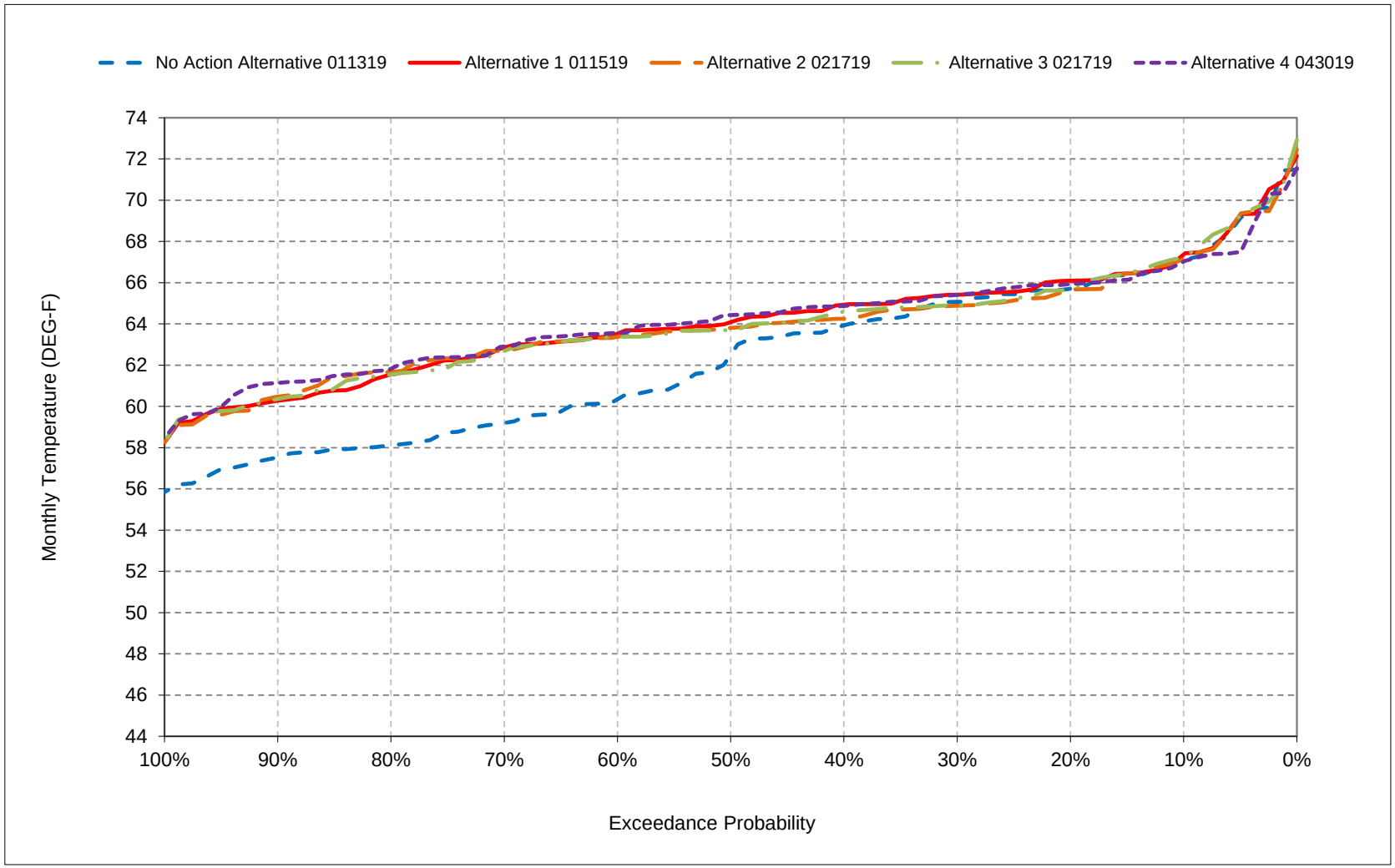
Figure 12-17. Sacramento River below Hamilton City, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-18. Sacramento River below Hamilton City, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 14-1. Sacramento River at Knights Landing, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	65.1	57.4	50.2	48.3	51.1	57.2	63.7	69.5	73.2	74.9	75.2	73.3
20%	64.2	56.7	49.6	47.8	50.4	56.4	62.7	69.0	72.7	74.2	74.6	72.2
30%	63.6	56.0	49.1	47.2	49.8	55.5	61.9	68.2	72.0	73.1	73.8	71.4
40%	62.9	55.3	48.6	47.0	49.2	54.5	61.6	67.9	71.5	72.4	73.6	70.7
50%	62.6	54.9	48.4	46.7	48.7	53.7	60.7	67.3	71.0	71.8	73.0	69.0
60%	61.7	54.6	48.2	46.5	48.5	52.8	60.1	66.7	70.6	70.9	72.4	66.4
70%	61.3	54.3	47.8	46.3	48.0	52.3	58.6	66.2	70.1	69.8	72.0	65.3
80%	60.6	54.1	47.5	46.1	47.6	51.1	56.9	64.6	69.5	69.1	71.2	63.9
90%	60.0	53.5	46.9	45.5	47.2	50.6	55.6	62.8	68.9	68.6	70.1	63.2
Long Term												
Full Simulation Period[a]	62.6	55.2	48.6	46.9	49.1	53.8	60.0	66.8	71.0	71.7	72.9	68.4
Water Year Types[b,c]												
Wet (32%)	61.0	55.1	48.8	46.5	48.0	51.9	57.4	65.0	70.9	71.8	72.4	63.9
Above Normal (16%)	61.6	54.3	48.5	47.0	48.3	52.5	59.1	66.6	70.8	69.7	71.6	65.8
Below Normal (13%)	62.7	55.1	48.4	46.9	49.2	55.1	62.0	67.1	69.9	70.5	71.4	70.5
Dry (24%)	63.2	54.9	48.4	46.9	49.7	54.5	61.1	68.0	71.3	71.9	73.6	71.7
Critical (15%)	65.9	56.9	48.5	47.5	51.1	56.5	63.2	68.6	72.4	74.3	75.5	73.3

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.7	57.3	50.4	48.4	51.2	57.1	63.6	69.2	72.9	74.8	75.2	73.0
20%	64.0	56.7	49.6	47.9	50.4	55.8	62.8	68.4	72.4	74.1	74.0	72.2
30%	63.4	55.8	49.1	47.4	49.8	55.1	61.8	67.7	71.5	73.1	73.7	71.8
40%	63.0	55.2	48.7	47.0	49.3	54.4	61.5	67.3	70.8	72.6	73.3	71.1
50%	62.4	54.6	48.5	46.8	48.8	53.6	60.7	66.7	70.3	71.9	72.8	70.6
60%	61.9	54.4	48.1	46.6	48.5	52.8	60.1	66.2	69.9	70.8	72.3	70.3
70%	61.5	54.1	47.9	46.3	48.0	52.3	58.6	65.4	69.1	70.0	71.8	69.6
80%	61.0	53.9	47.6	46.1	47.7	51.1	57.0	64.5	68.6	69.4	71.2	68.4
90%	60.1	53.3	47.0	45.6	47.3	50.6	55.6	62.8	68.4	68.6	70.1	66.9
Long Term												
Full Simulation Period[a]	62.6	55.1	48.6	46.9	49.1	53.7	60.0	66.4	70.4	71.8	72.8	70.4
Water Year Types[b,c]												
Wet (32%)	61.2	55.0	48.8	46.6	48.0	51.9	57.4	64.7	70.8	71.9	72.2	68.2
Above Normal (16%)	61.8	54.1	48.4	47.0	48.3	52.5	59.1	66.2	70.4	69.7	71.7	70.4
Below Normal (13%)	62.5	55.1	48.6	47.0	49.2	54.8	61.7	66.4	68.8	70.5	71.3	69.9
Dry (24%)	62.8	54.9	48.6	47.0	49.8	54.5	61.1	67.4	70.2	72.0	73.3	71.6
Critical (15%)	66.0	56.8	48.6	47.6	51.2	56.4	63.3	68.4	71.6	74.6	75.5	73.4

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.3	-0.2	**0.2**	**0.1**	**0.1**	-0.1	-0.1	-0.3	-0.3	0.0	**0.0**	-0.3
20%	-0.2	**0.0**	-0.1	**0.1**	**0.0**	-0.5	**0.0**	-0.6	-0.3	0.0	-0.6	**0.0**
30%	-0.2	-0.1	0.0	**0.2**	-0.1	-0.4	-0.1	-0.6	-0.5	**0.1**	-0.1	**0.4**
40%	**0.1**	-0.1	**0.1**	**0.0**	**0.1**	-0.1	-0.1	-0.6	-0.7	**0.2**	-0.3	**0.4**
50%	-0.3	-0.3	**0.1**	**0.1**	**0.1**	-0.1	0.0	-0.6	-0.7	**0.1**	-0.2	**1.6**
60%	**0.2**	-0.2	-0.1	**0.1**	0.0	**0.0**	**0.0**	-0.5	-0.7	-0.1	-0.2	**3.9**
70%	**0.1**	-0.2	**0.1**	**0.0**	-0.1	**0.0**	**0.0**	-0.8	-1.0	**0.2**	-0.2	**4.3**
80%	**0.4**	-0.3	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	-0.1	-0.9	**0.3**	0.0	**4.5**
90%	**0.0**	-0.3	**0.1**	**0.1**	**0.1**	0.0	0.0	**0.0**	-0.5	0.0	**0.0**	**3.7**
Long Term												
Full Simulation Period[a]	0.0	-0.1	**0.1**	**0.1**	**0.0**	-0.1	0.0	-0.4	-0.6	**0.1**	-0.1	**2.0**
Water Year Types[b,c]												
Wet (32%)	**0.2**	-0.1	**0.0**	**0.1**	**0.0**	**0.0**	0.0	-0.2	-0.1	**0.1**	-0.1	**4.3**
Above Normal (16%)	**0.3**	-0.2	-0.1	**0.0**	0.0	-0.1	**0.0**	-0.4	-0.3	**0.0**	**0.1**	**4.6**
Below Normal (13%)	-0.2	**0.1**	**0.2**	**0.1**	-0.1	-0.3	-0.3	-0.7	-1.1	0.0	-0.1	-0.6
Dry (24%)	-0.4	-0.1	**0.2**	**0.0**	**0.0**	0.0	**0.0**	-0.7	-1.0	**0.1**	-0.3	-0.1
Critical (15%)	**0.1**	0.0	**0.1**	**0.1**	**0.1**	-0.1	**0.1**	-0.2	-0.8	**0.2**	0.0	**0.0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 14-2. Sacramento River at Knights Landing, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	65.1	57.4	50.2	48.3	51.1	57.2	63.7	69.5	73.2	74.9	75.2	73.3
20%	64.2	56.7	49.6	47.8	50.4	56.4	62.7	69.0	72.7	74.2	74.6	72.2
30%	63.6	56.0	49.1	47.2	49.8	55.5	61.9	68.2	72.0	73.1	73.8	71.4
40%	62.9	55.3	48.6	47.0	49.2	54.5	61.6	67.9	71.5	72.4	73.6	70.7
50%	62.6	54.9	48.4	46.7	48.7	53.7	60.7	67.3	71.0	71.8	73.0	69.0
60%	61.7	54.6	48.2	46.5	48.5	52.8	60.1	66.7	70.6	70.9	72.4	66.4
70%	61.3	54.3	47.8	46.3	48.0	52.3	58.6	66.2	70.1	69.8	72.0	65.3
80%	60.6	54.1	47.5	46.1	47.6	51.1	56.9	64.6	69.5	69.1	71.2	63.9
90%	60.0	53.5	46.9	45.5	47.2	50.6	55.6	62.8	68.9	68.6	70.1	63.2
Long Term												
Full Simulation Period[a]	62.6	55.2	48.6	46.9	49.1	53.8	60.0	66.8	71.0	71.7	72.9	68.4
Water Year Types[b,c]												
Wet (32%)	61.0	55.1	48.8	46.5	48.0	51.9	57.4	65.0	70.9	71.8	72.4	63.9
Above Normal (16%)	61.6	54.3	48.5	47.0	48.3	52.5	59.1	66.6	70.8	69.7	71.6	65.8
Below Normal (13%)	62.7	55.1	48.4	46.9	49.2	55.1	62.0	67.1	69.9	70.5	71.4	70.5
Dry (24%)	63.2	54.9	48.4	46.9	49.7	54.5	61.1	68.0	71.3	71.9	73.6	71.7
Critical (15%)	65.9	56.9	48.5	47.5	51.1	56.5	63.2	68.6	72.4	74.3	75.5	73.3

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.9	57.6	50.3	48.3	51.1	57.0	63.6	69.3	72.9	74.7	75.1	72.7
20%	64.1	57.0	49.4	47.8	50.4	56.1	62.6	68.2	71.9	74.2	74.5	71.9
30%	63.6	56.0	49.0	47.3	49.7	55.3	61.8	67.4	71.0	73.1	73.8	71.2
40%	63.2	55.4	48.6	46.9	49.3	54.4	61.2	66.7	70.2	72.3	73.1	71.0
50%	62.5	54.7	48.4	46.7	48.7	53.7	60.7	66.3	69.7	71.3	72.6	70.5
60%	62.2	54.5	48.0	46.5	48.5	52.7	60.1	66.0	69.2	70.7	72.1	70.0
70%	61.6	54.3	47.8	46.3	47.9	52.3	58.6	65.2	68.6	70.1	71.3	69.2
80%	61.3	53.9	47.5	46.1	47.7	51.1	56.9	64.5	68.0	69.3	70.6	68.1
90%	60.2	53.5	46.9	45.6	47.2	50.6	55.6	62.8	67.0	68.6	69.5	67.0
Long Term												
Full Simulation Period[a]	62.8	55.3	48.5	46.9	49.1	53.7	60.0	66.1	69.8	71.7	72.5	70.1
Water Year Types[b,c]												
Wet (32%)	61.6	55.1	48.7	46.5	48.0	51.9	57.4	64.7	70.1	71.9	72.0	68.5
Above Normal (16%)	61.8	54.4	48.3	47.0	48.3	52.5	59.1	66.0	68.7	69.7	71.1	69.8
Below Normal (13%)	62.5	55.3	48.5	46.9	49.2	54.8	61.7	66.0	68.2	70.4	70.3	69.2
Dry (24%)	63.1	55.0	48.4	46.9	49.8	54.6	61.1	66.9	70.1	72.0	73.8	71.3
Critical (15%)	66.0	57.0	48.5	47.5	51.1	56.3	63.0	68.1	71.4	74.1	75.2	73.0

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.2	**0.2**	**0.1**	0.0	**0.1**	-0.2	-0.1	-0.2	-0.3	-0.1	-0.1	-0.6
20%	-0.1	**0.3**	-0.2	0.0	**0.0**	-0.3	-0.1	-0.7	-0.7	**0.0**	-0.1	-0.3
30%	-0.1	**0.0**	-0.1	**0.1**	-0.1	-0.3	-0.1	-0.8	-1.0	**0.0**	**0.0**	-0.2
40%	**0.3**	**0.1**	**0.0**	0.0	**0.1**	-0.1	-0.4	-1.2	-1.3	-0.2	-0.4	**0.3**
50%	-0.1	-0.1	0.0	**0.0**	**0.0**	**0.0**	0.0	-1.0	-1.2	-0.5	-0.4	**1.5**
60%	**0.5**	0.0	-0.1	**0.0**	**0.0**	0.0	**0.0**	-0.7	-1.4	-0.3	-0.4	**3.6**
70%	**0.3**	**0.0**	**0.0**	0.0	-0.1	**0.0**	**0.0**	-1.0	-1.6	**0.3**	-0.7	**4.0**
80%	**0.6**	-0.2	**0.0**	0.0	**0.0**	**0.0**	0.0	0.0	-1.5	**0.2**	-0.6	**4.3**
90%	**0.2**	-0.1	0.0	**0.0**	**0.0**	**0.0**	0.0	0.0	-1.9	**0.0**	-0.5	**3.8**
Long Term												
Full Simulation Period[a]	**0.2**	**0.1**	0.0	**0.0**	**0.0**	0.0	-0.1	-0.7	-1.2	0.0	-0.3	**1.8**
Water Year Types[b,c]												
Wet (32%)	**0.6**	0.0	-0.1	**0.0**	**0.0**	**0.0**	0.0	-0.3	-0.8	**0.1**	-0.3	**4.6**
Above Normal (16%)	**0.2**	**0.1**	-0.2	0.0	0.0	0.0	**0.0**	-0.5	-2.1	-0.1	-0.5	**4.0**
Below Normal (13%)	-0.2	**0.2**	**0.1**	**0.0**	0.0	-0.3	-0.4	-1.1	-1.8	-0.1	-1.1	-1.3
Dry (24%)	-0.1	**0.1**	**0.0**	**0.0**	**0.0**	**0.1**	0.0	-1.2	-1.1	**0.0**	**0.2**	-0.4
Critical (15%)	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	-0.2	-0.2	-0.5	-0.9	-0.3	-0.3	-0.3

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 14-3. Sacramento River at Knights Landing, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	65.1	57.4	50.2	48.3	51.1	57.2	63.7	69.5	73.2	74.9	75.2	73.3
20%	64.2	56.7	49.6	47.8	50.4	56.4	62.7	69.0	72.7	74.2	74.6	72.2
30%	63.6	56.0	49.1	47.2	49.8	55.5	61.9	68.2	72.0	73.1	73.8	71.4
40%	62.9	55.3	48.6	47.0	49.2	54.5	61.6	67.9	71.5	72.4	73.6	70.7
50%	62.6	54.9	48.4	46.7	48.7	53.7	60.7	67.3	71.0	71.8	73.0	69.0
60%	61.7	54.6	48.2	46.5	48.5	52.8	60.1	66.7	70.6	70.9	72.4	66.4
70%	61.3	54.3	47.8	46.3	48.0	52.3	58.6	66.2	70.1	69.8	72.0	65.3
80%	60.6	54.1	47.5	46.1	47.6	51.1	56.9	64.6	69.5	69.1	71.2	63.9
90%	60.0	53.5	46.9	45.5	47.2	50.6	55.6	62.8	68.9	68.6	70.1	63.2
Long Term												
Full Simulation Period[a]	62.6	55.2	48.6	46.9	49.1	53.8	60.0	66.8	71.0	71.7	72.9	68.4
Water Year Types[b,c]												
Wet (32%)	61.0	55.1	48.8	46.5	48.0	51.9	57.4	65.0	70.9	71.8	72.4	63.9
Above Normal (16%)	61.6	54.3	48.5	47.0	48.3	52.5	59.1	66.6	70.8	69.7	71.6	65.8
Below Normal (13%)	62.7	55.1	48.4	46.9	49.2	55.1	62.0	67.1	69.9	70.5	71.4	70.5
Dry (24%)	63.2	54.9	48.4	46.9	49.7	54.5	61.1	68.0	71.3	71.9	73.6	71.7
Critical (15%)	65.9	56.9	48.5	47.5	51.1	56.5	63.2	68.6	72.4	74.3	75.5	73.3

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.9	57.6	50.3	48.4	51.1	57.0	63.6	69.4	72.9	75.0	75.1	72.8
20%	63.9	57.0	49.5	47.8	50.4	56.0	62.5	68.5	72.0	74.2	74.6	71.9
30%	63.3	56.0	49.1	47.3	49.7	55.4	61.8	67.5	71.2	73.1	73.8	71.2
40%	62.8	55.4	48.6	46.9	49.3	54.5	61.1	66.8	70.4	72.2	73.4	71.1
50%	62.3	54.7	48.4	46.7	48.7	53.7	60.6	66.3	69.8	71.5	72.6	70.5
60%	61.9	54.5	48.0	46.5	48.5	52.7	60.1	66.0	69.1	70.7	71.9	69.8
70%	61.5	54.3	47.8	46.3	47.9	52.3	58.6	65.2	68.7	70.0	71.2	69.2
80%	61.2	53.9	47.5	46.1	47.6	51.1	57.0	64.5	68.2	69.3	70.2	68.1
90%	60.3	53.5	46.9	45.6	47.2	50.6	55.6	62.8	67.0	68.7	69.4	66.7
Long Term												
Full Simulation Period[a]	62.6	55.3	48.6	46.9	49.1	53.7	59.9	66.2	69.9	71.7	72.5	70.2
Water Year Types[b,c]												
Wet (32%)	61.5	55.1	48.8	46.5	48.0	51.9	57.3	64.9	70.2	71.9	71.8	68.7
Above Normal (16%)	61.9	54.4	48.4	47.0	48.3	52.5	59.1	66.0	69.0	69.6	71.2	69.6
Below Normal (13%)	62.3	55.3	48.5	46.9	49.2	54.8	61.6	66.0	68.3	70.4	70.5	69.1
Dry (24%)	62.7	55.0	48.5	46.9	49.8	54.7	61.1	66.9	70.1	72.0	73.8	71.2
Critical (15%)	66.0	57.0	48.5	47.5	51.1	56.3	63.0	68.1	71.6	74.2	75.3	73.1

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.1	**0.1**	**0.1**	**0.0**	**0.0**	-0.2	-0.1	-0.1	-0.3	**0.1**	-0.1	-0.5
20%	-0.3	**0.3**	-0.1	**0.0**	**0.0**	-0.4	-0.2	-0.5	-0.7	**0.0**	0.0	-0.3
30%	-0.3	**0.0**	0.0	**0.1**	-0.1	-0.1	-0.1	-0.7	-0.8	**0.0**	0.0	-0.2
40%	-0.1	**0.1**	**0.0**	0.0	**0.1**	-0.1	-0.5	-1.0	-1.1	-0.3	-0.2	**0.4**
50%	-0.3	-0.1	0.0	**0.0**	**0.0**	**0.0**	-0.1	-1.0	-1.2	-0.3	-0.4	**1.5**
60%	**0.2**	-0.1	-0.2	0.0	**0.0**	0.0	**0.0**	-0.7	-1.4	-0.2	-0.6	**3.4**
70%	**0.2**	-0.1	**0.0**	**0.0**	-0.1	**0.0**	**0.0**	-1.0	-1.4	**0.2**	-0.7	**3.9**
80%	**0.5**	-0.2	**0.1**	0.0	**0.0**	0.0	**0.0**	0.0	-1.4	**0.3**	-1.0	**4.2**
90%	**0.2**	-0.1	0.0	**0.0**	**0.0**	0.0	0.0	**0.0**	-1.9	**0.1**	-0.6	**3.5**
Long Term												
Full Simulation Period[a]	**0.1**	**0.1**	0.0	**0.0**	**0.0**	0.0	-0.1	-0.6	-1.1	0.0	-0.3	**1.8**
Water Year Types[b,c]												
Wet (32%)	**0.5**	-0.1	0.0	**0.0**	**0.0**	**0.0**	-0.1	0.0	-0.7	**0.1**	-0.6	**4.7**
Above Normal (16%)	**0.3**	**0.1**	-0.2	0.0	0.0	**0.0**	**0.0**	-0.6	-1.8	-0.1	-0.3	**3.9**
Below Normal (13%)	-0.4	**0.2**	**0.1**	**0.1**	0.0	-0.3	-0.4	-1.1	-1.7	-0.1	-0.9	-1.4
Dry (24%)	-0.5	**0.1**	**0.1**	**0.0**	**0.0**	**0.1**	0.0	-1.2	-1.2	**0.0**	**0.1**	-0.5
Critical (15%)	**0.1**	**0.1**	**0.0**	**0.0**	**0.1**	-0.2	-0.2	-0.5	-0.7	-0.1	-0.2	-0.2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 14-4. Sacramento River at Knights Landing, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	65.1	57.4	50.2	48.3	51.1	57.2	63.7	69.5	73.2	74.9	75.2	73.3
20%	64.2	56.7	49.6	47.8	50.4	56.4	62.7	69.0	72.7	74.2	74.6	72.2
30%	63.6	56.0	49.1	47.2	49.8	55.5	61.9	68.2	72.0	73.1	73.8	71.4
40%	62.9	55.3	48.6	47.0	49.2	54.5	61.6	67.9	71.5	72.4	73.6	70.7
50%	62.6	54.9	48.4	46.7	48.7	53.7	60.7	67.3	71.0	71.8	73.0	69.0
60%	61.7	54.6	48.2	46.5	48.5	52.8	60.1	66.7	70.6	70.9	72.4	66.4
70%	61.3	54.3	47.8	46.3	48.0	52.3	58.6	66.2	70.1	69.8	72.0	65.3
80%	60.6	54.1	47.5	46.1	47.6	51.1	56.9	64.6	69.5	69.1	71.2	63.9
90%	60.0	53.5	46.9	45.5	47.2	50.6	55.6	62.8	68.9	68.6	70.1	63.2
Long Term												
Full Simulation Period[a]	62.6	55.2	48.6	46.9	49.1	53.8	60.0	66.8	71.0	71.7	72.9	68.4
Water Year Types[b,c]												
Wet (32%)	61.0	55.1	48.8	46.5	48.0	51.9	57.4	65.0	70.9	71.8	72.4	63.9
Above Normal (16%)	61.6	54.3	48.5	47.0	48.3	52.5	59.1	66.6	70.8	69.7	71.6	65.8
Below Normal (13%)	62.7	55.1	48.4	46.9	49.2	55.1	62.0	67.1	69.9	70.5	71.4	70.5
Dry (24%)	63.2	54.9	48.4	46.9	49.7	54.5	61.1	68.0	71.3	71.9	73.6	71.7
Critical (15%)	65.9	56.9	48.5	47.5	51.1	56.5	63.2	68.6	72.4	74.3	75.5	73.3

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.9	57.2	50.4	48.4	51.2	57.1	63.6	69.2	73.1	75.3	75.5	73.1
20%	63.8	56.6	49.6	47.9	50.4	56.2	63.0	68.8	72.3	74.5	74.8	72.2
30%	63.1	56.0	49.1	47.4	49.8	55.0	61.6	68.3	71.8	73.2	73.9	71.7
40%	62.7	55.4	48.7	47.0	49.3	54.2	61.0	67.6	71.1	72.3	73.3	71.3
50%	62.3	54.7	48.5	46.8	48.8	53.3	60.5	66.9	70.5	71.4	72.7	71.0
60%	62.1	54.4	48.1	46.6	48.5	52.6	59.8	66.6	69.9	70.7	72.3	70.4
70%	61.7	54.2	47.9	46.3	48.0	52.1	57.6	66.0	69.4	70.1	71.8	69.7
80%	61.2	53.8	47.6	46.1	47.7	51.1	56.5	64.9	69.2	69.5	71.3	68.6
90%	60.4	53.4	47.0	45.6	47.3	50.7	55.6	62.7	68.4	68.7	70.6	67.6
Long Term												
Full Simulation Period[a]	62.6	55.1	48.6	47.0	49.1	53.6	59.8	66.8	70.6	71.8	72.9	70.6
Water Year Types[b,c]												
Wet (32%)	61.2	55.1	48.8	46.6	48.0	51.8	57.0	64.9	70.8	71.8	72.3	68.6
Above Normal (16%)	61.9	54.2	48.4	47.0	48.3	52.3	58.7	66.6	70.9	69.4	71.7	70.1
Below Normal (13%)	62.7	55.0	48.6	47.0	49.2	54.6	61.6	67.0	69.3	70.4	72.0	70.9
Dry (24%)	62.9	54.8	48.6	47.0	49.7	54.4	61.0	68.0	70.1	72.0	73.5	71.7
Critical (15%)	65.7	56.8	48.6	47.6	51.2	56.5	63.3	68.6	71.8	75.2	75.6	73.0

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.2	-0.2	**0.2**	**0.1**	**0.1**	-0.1	-0.1	-0.3	-0.1	**0.4**	**0.3**	-0.2
20%	-0.4	0.0	0.0	**0.1**	**0.0**	-0.2	**0.3**	-0.1	-0.4	**0.4**	**0.2**	**0.0**
30%	-0.5	**0.0**	0.0	**0.2**	-0.1	-0.5	-0.3	**0.0**	-0.2	**0.2**	**0.1**	**0.3**
40%	-0.2	**0.1**	**0.1**	**0.1**	**0.0**	-0.4	-0.6	-0.3	-0.4	-0.1	-0.3	**0.6**
50%	-0.3	-0.2	**0.1**	**0.1**	**0.1**	-0.4	-0.2	-0.3	-0.5	-0.4	-0.3	**2.0**
60%	**0.4**	-0.2	0.0	**0.2**	-0.1	-0.2	-0.3	-0.1	-0.7	-0.2	-0.1	**4.0**
70%	**0.4**	-0.1	**0.1**	**0.0**	0.0	-0.1	-0.9	-0.2	-0.7	**0.3**	-0.2	**4.4**
80%	**0.5**	-0.3	**0.1**	**0.1**	**0.0**	**0.0**	-0.4	**0.3**	-0.4	**0.5**	**0.1**	**4.7**
90%	**0.3**	-0.2	**0.1**	**0.1**	**0.1**	**0.0**	0.0	0.0	-0.5	**0.1**	**0.6**	**4.4**
Long Term												
Full Simulation Period[a]	**0.0**	-0.1	**0.1**	**0.1**	**0.0**	-0.1	-0.2	0.0	-0.4	**0.1**	**0.1**	**2.2**
Water Year Types[b,c]												
Wet (32%)	**0.2**	-0.1	0.0	**0.1**	**0.0**	-0.1	-0.4	0.0	0.0	**0.0**	-0.1	**4.6**
Above Normal (16%)	**0.4**	-0.1	-0.1	**0.0**	0.0	-0.2	-0.4	**0.1**	**0.1**	-0.4	**0.1**	**4.4**
Below Normal (13%)	-0.1	0.0	**0.2**	**0.1**	-0.1	-0.4	-0.4	-0.1	-0.6	-0.1	**0.6**	**0.4**
Dry (24%)	-0.3	-0.1	**0.2**	**0.1**	0.0	-0.1	-0.1	-0.1	-1.1	**0.0**	-0.1	**0.0**
Critical (15%)	-0.2	-0.1	**0.0**	**0.2**	**0.1**	0.0	**0.0**	**0.0**	-0.6	**0.9**	**0.1**	-0.3

a Based on the 82-year simulation period.

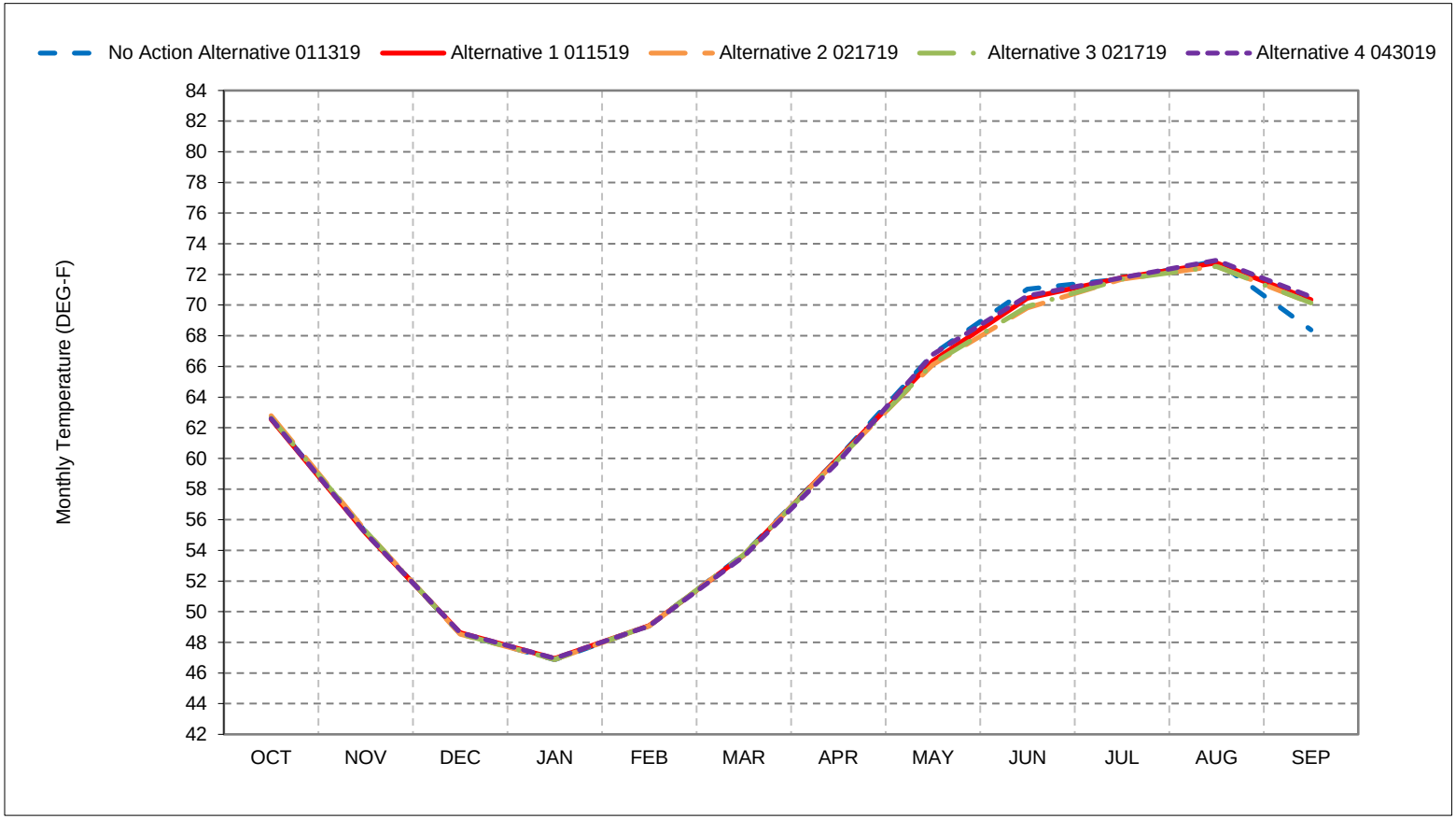
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-1. Sacramento River at Knights Landing, Long-Term Average Temperature



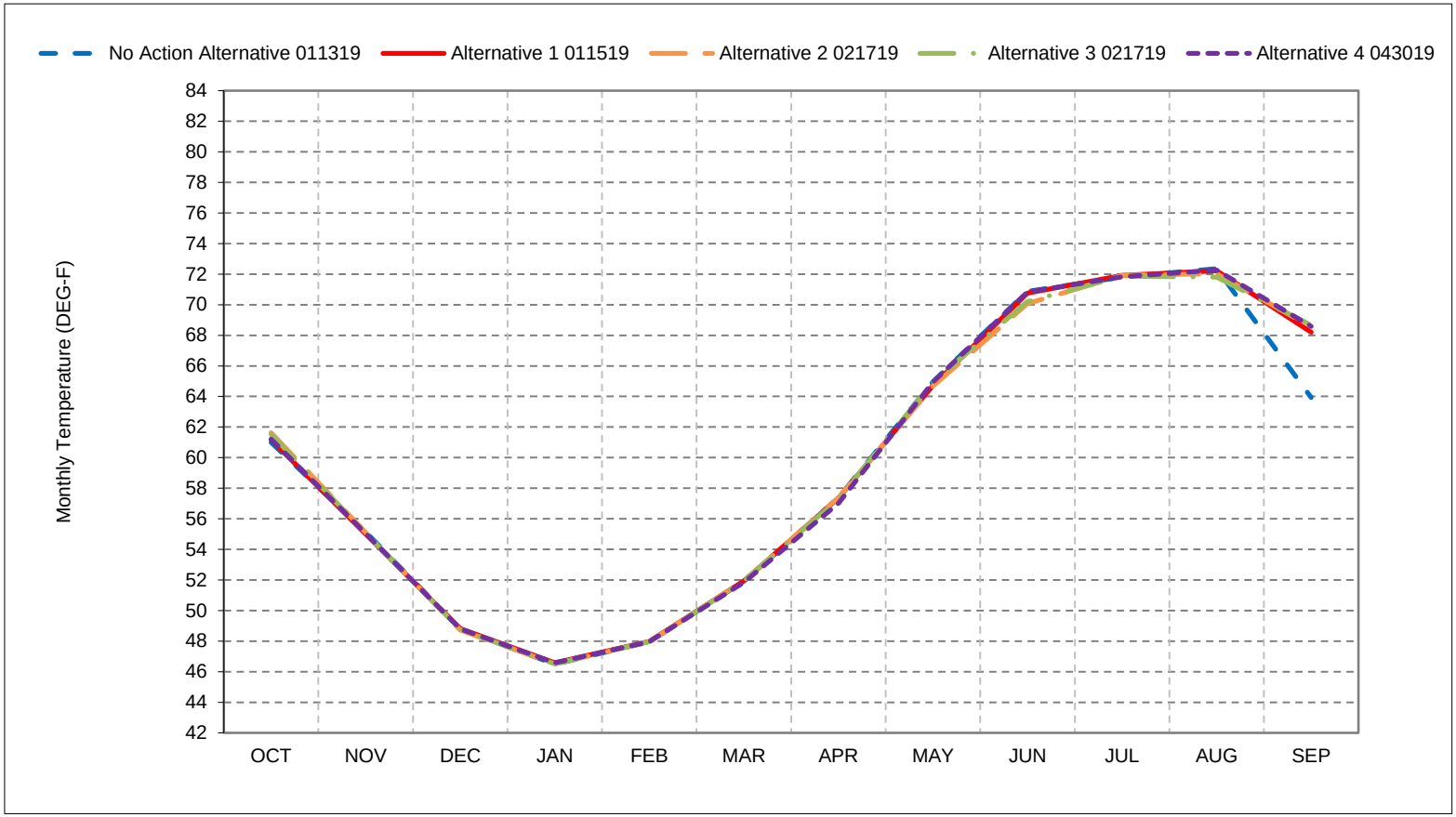
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

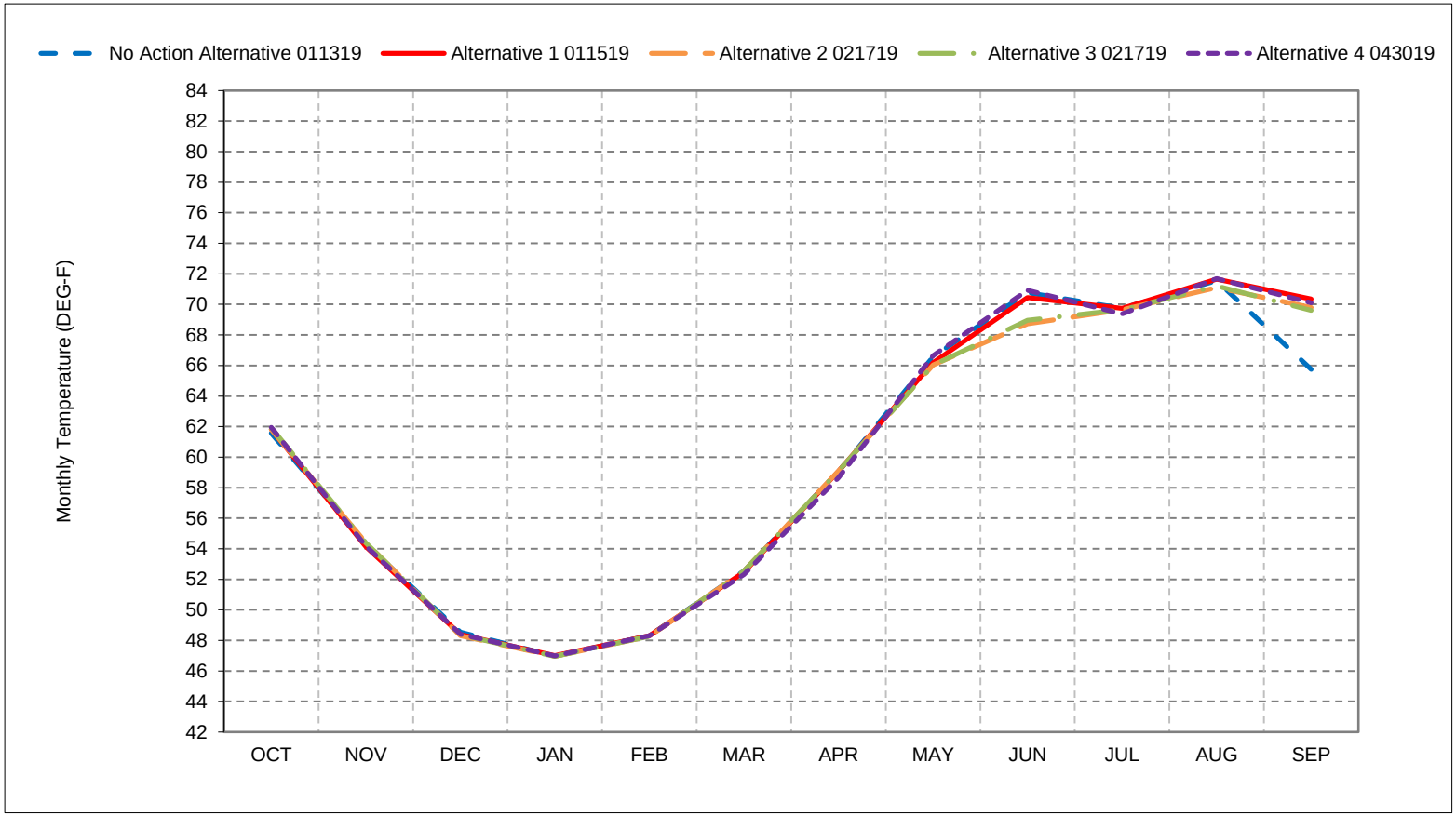
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-2. Sacramento River at Knights Landing, Wet Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-3. Sacramento River at Knights Landing, Above Normal Year Average Temperature



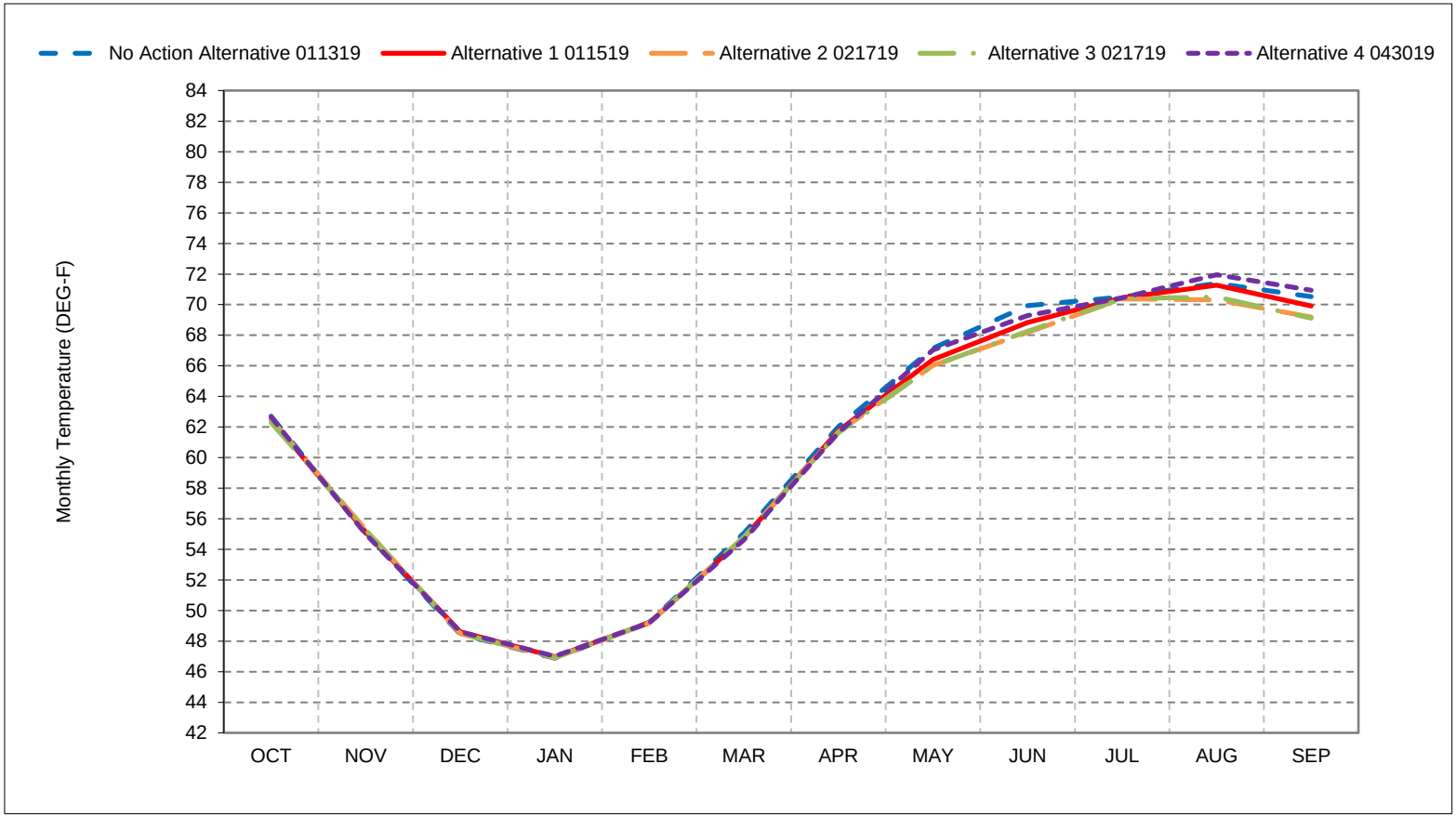
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-4. Sacramento River at Knights Landing, Below Normal Year Average Temperature



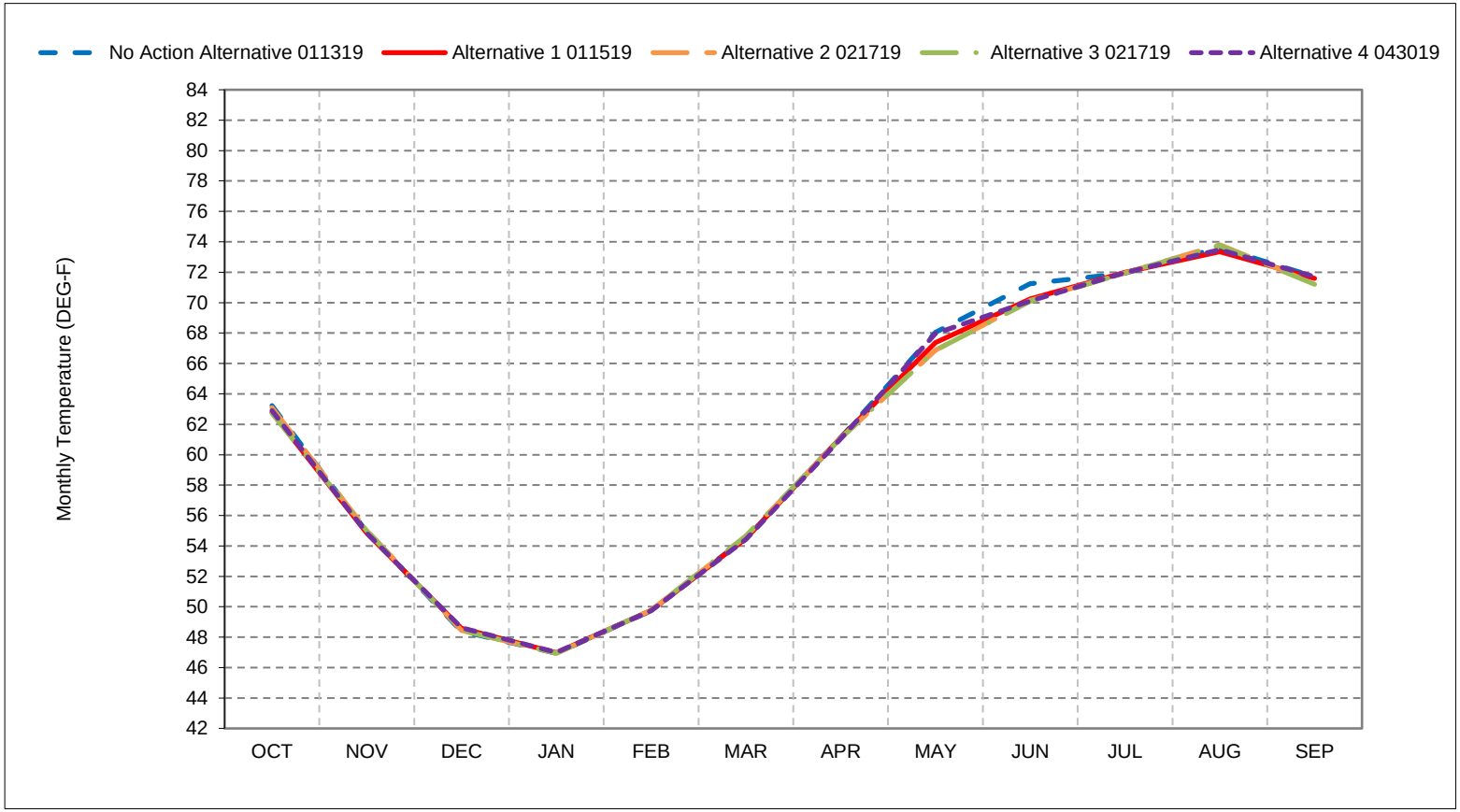
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-5. Sacramento River at Knights Landing, Dry Year Average Temperature



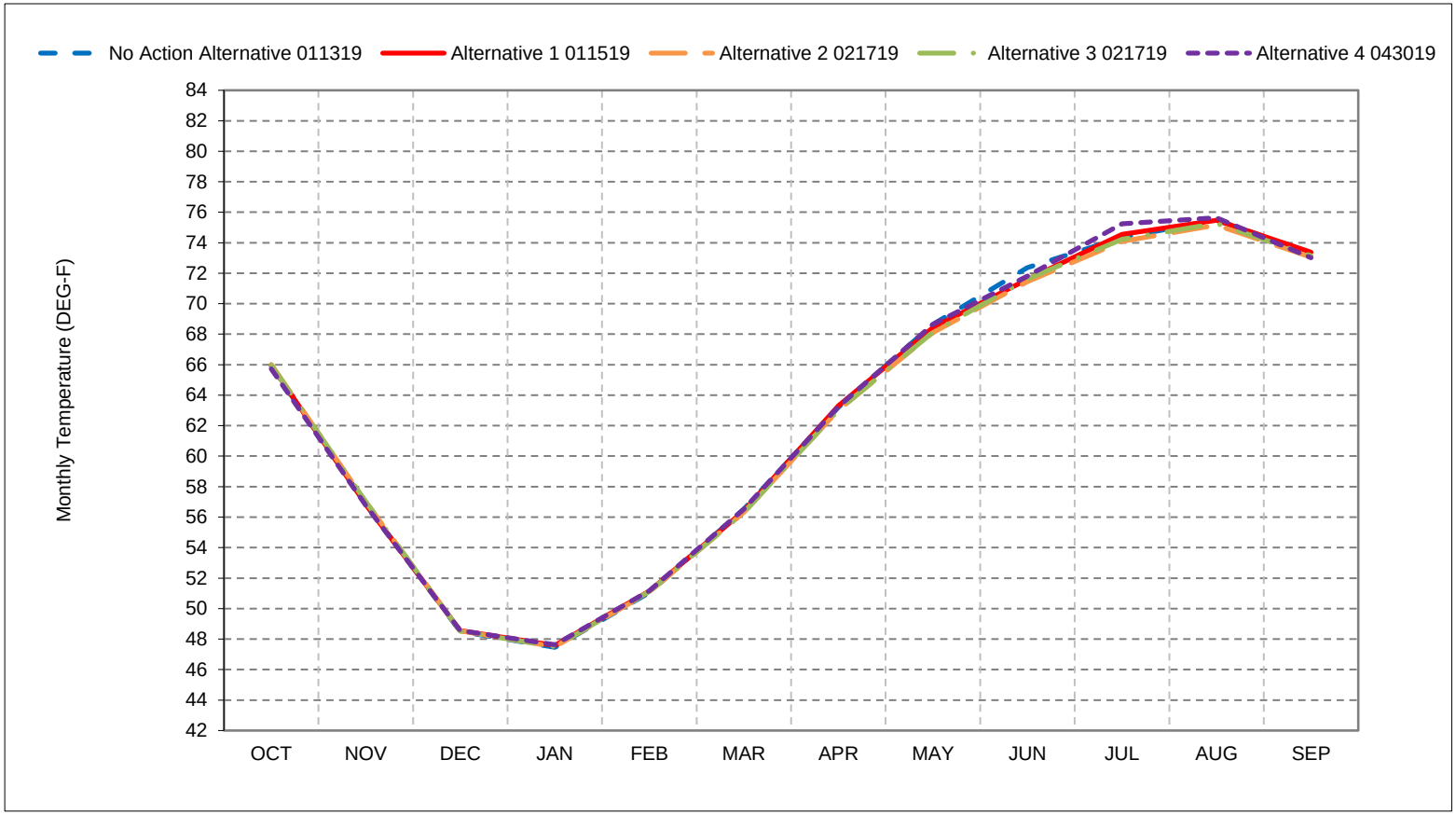
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

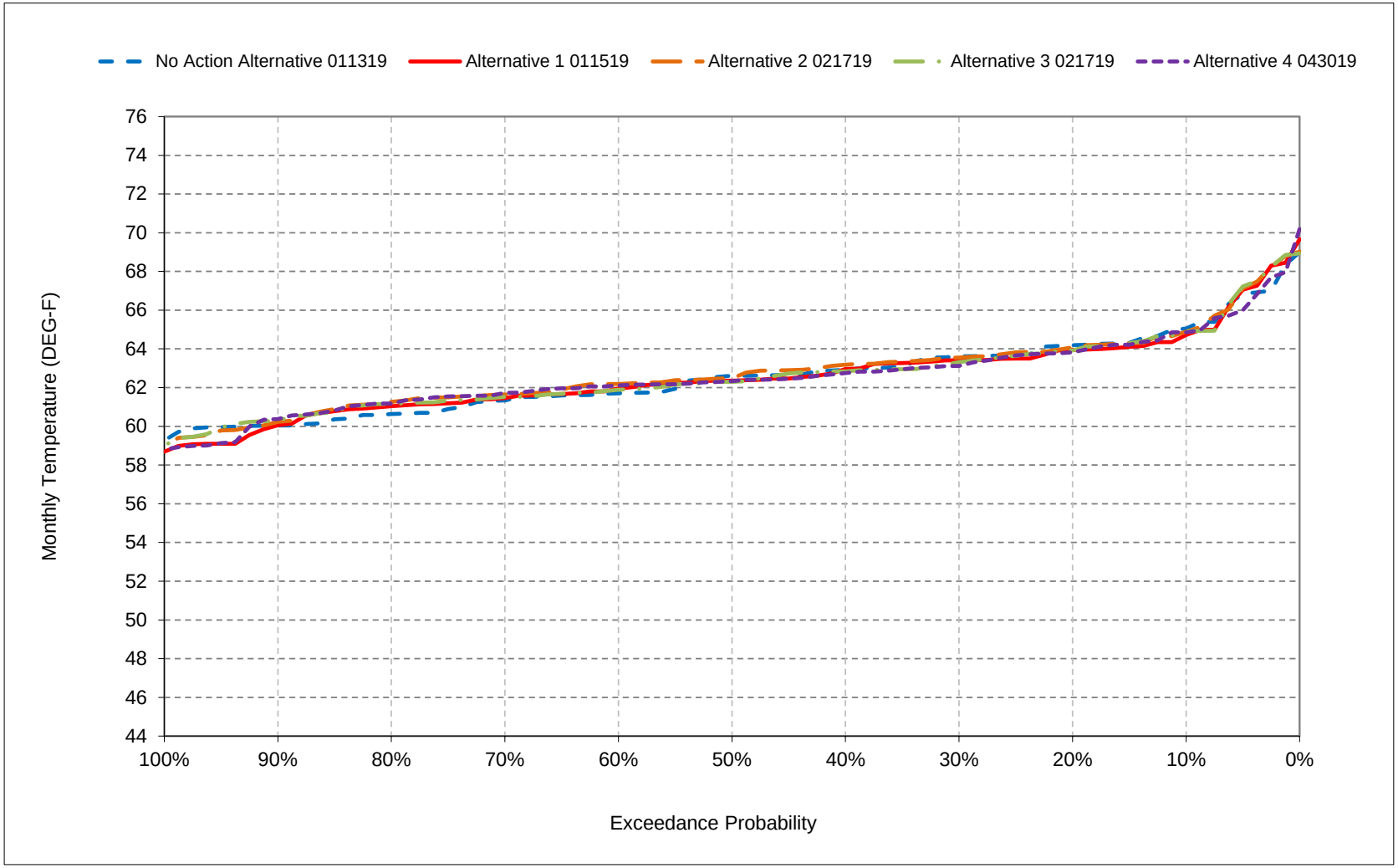
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-6. Sacramento River at Knights Landing, Critical Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

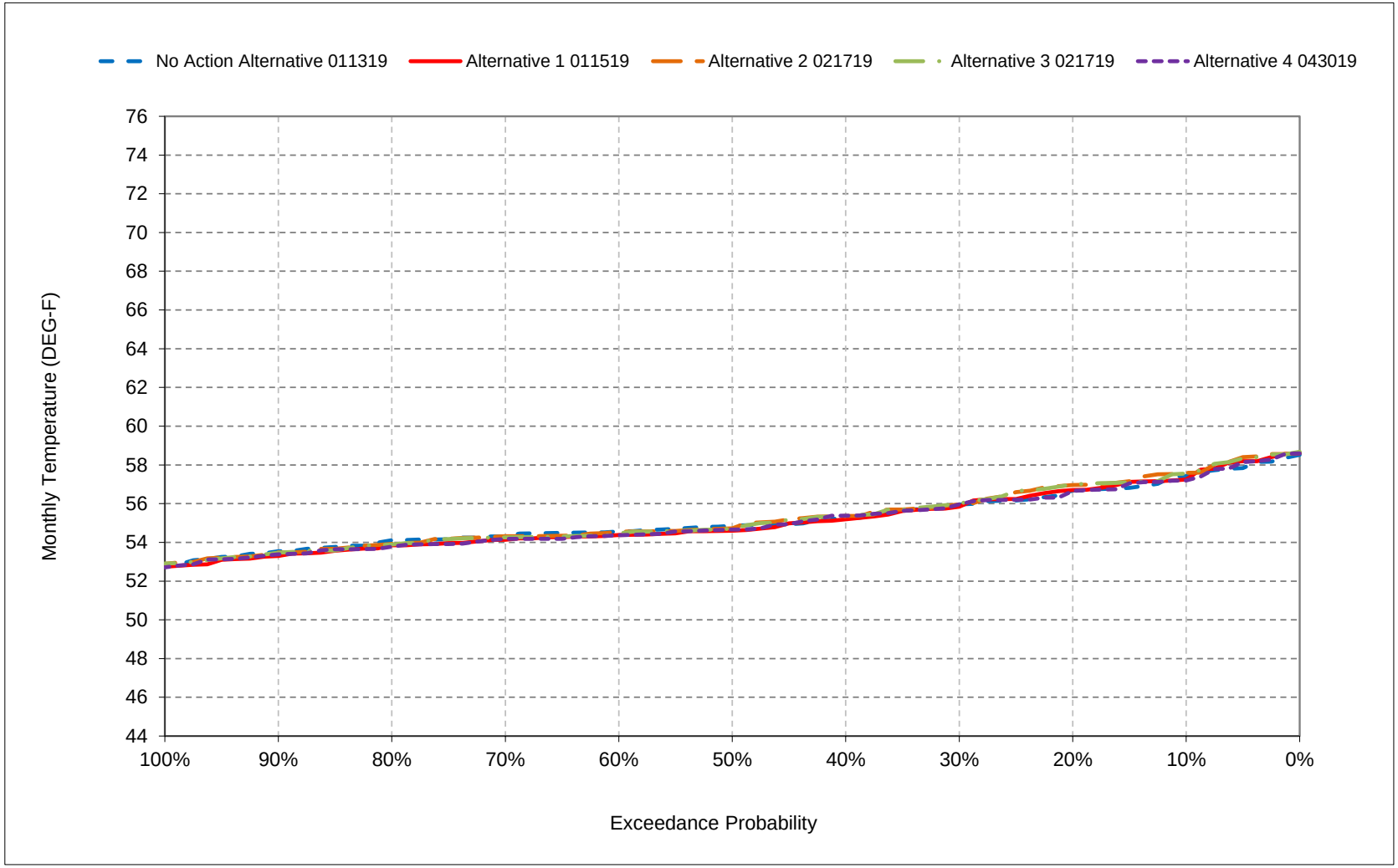
Figure 14-7. Sacramento River at Knights Landing, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

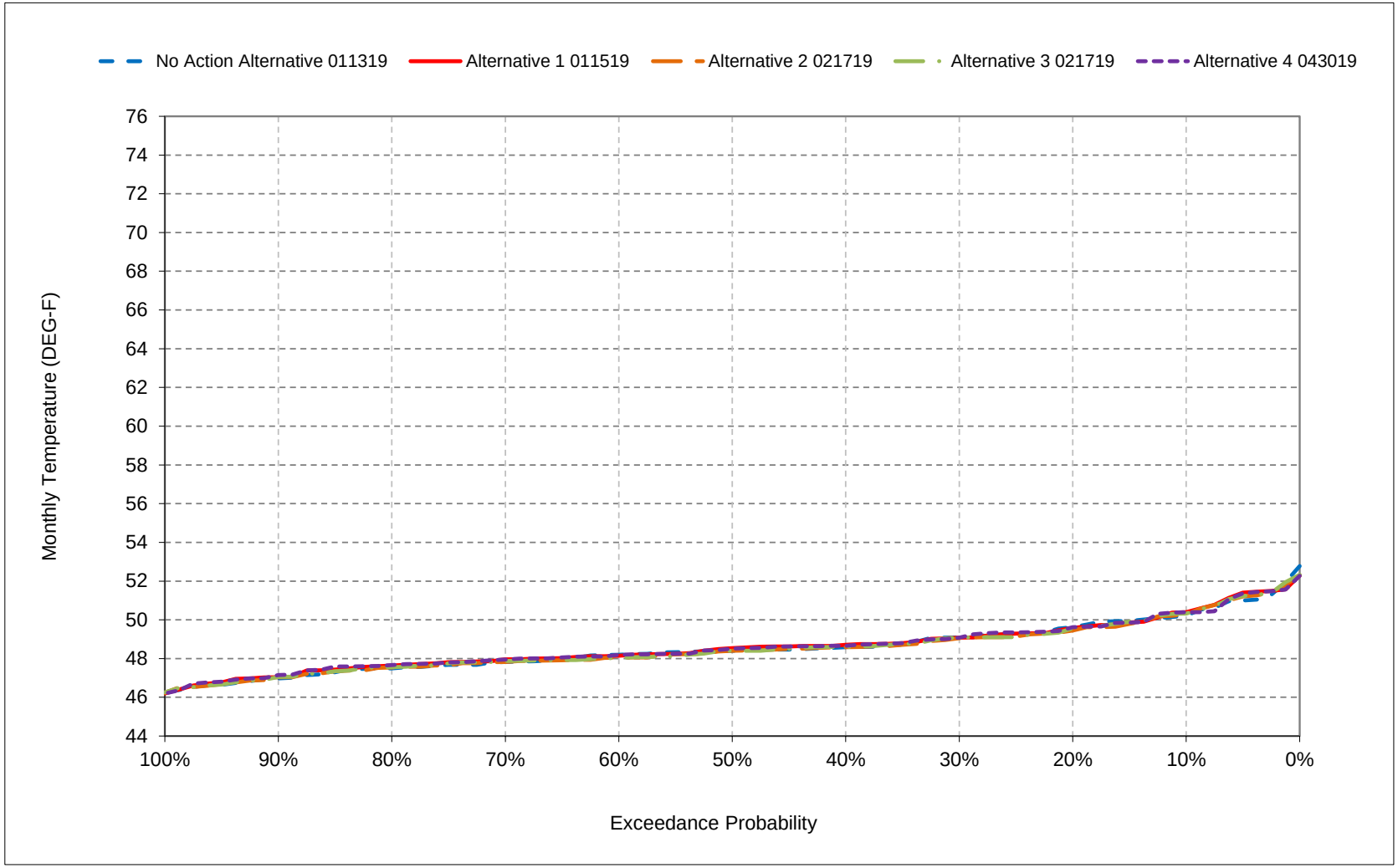
Figure 14-8. Sacramento River at Knights Landing, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

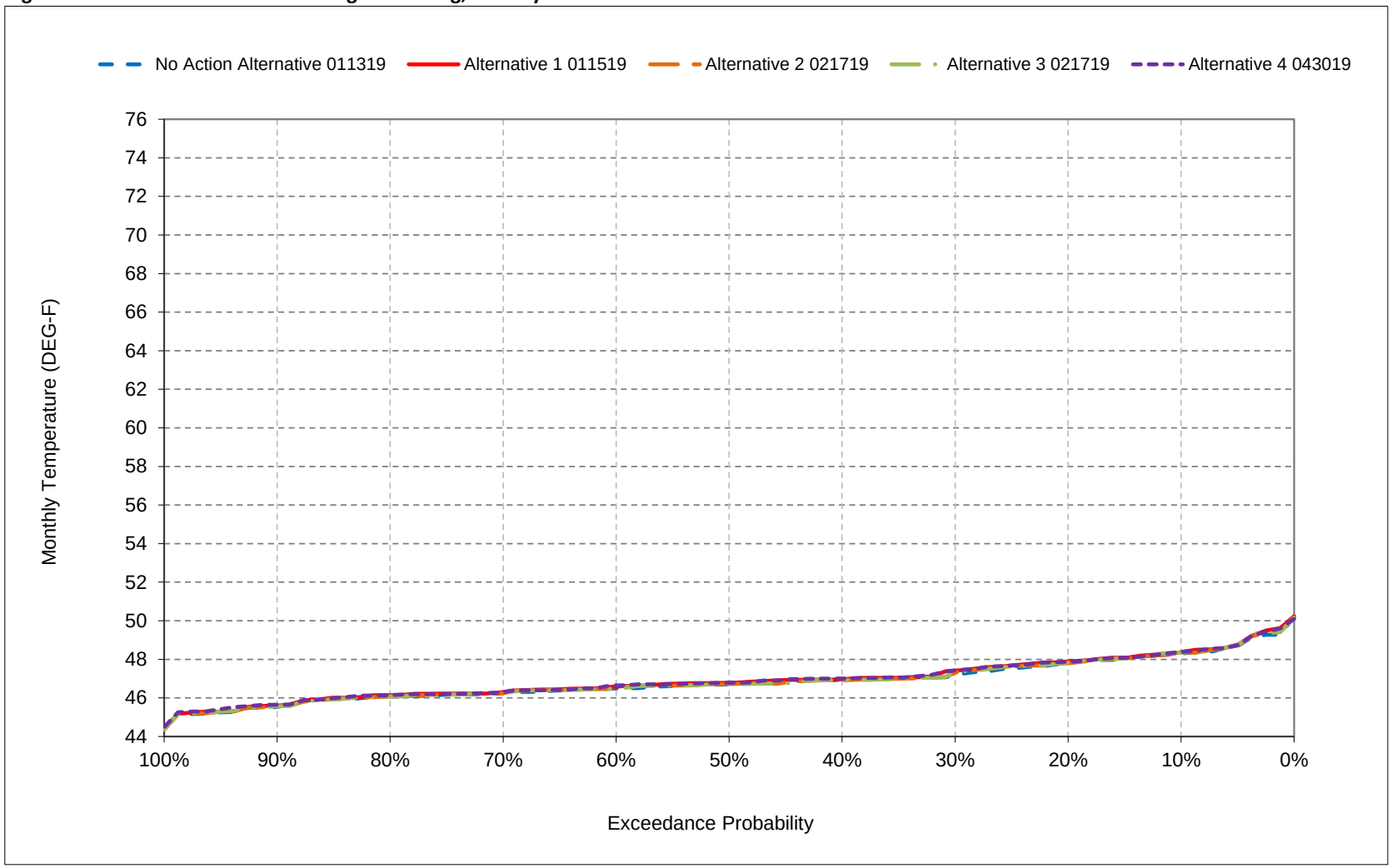
Figure 14-9. Sacramento River at Knights Landing, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

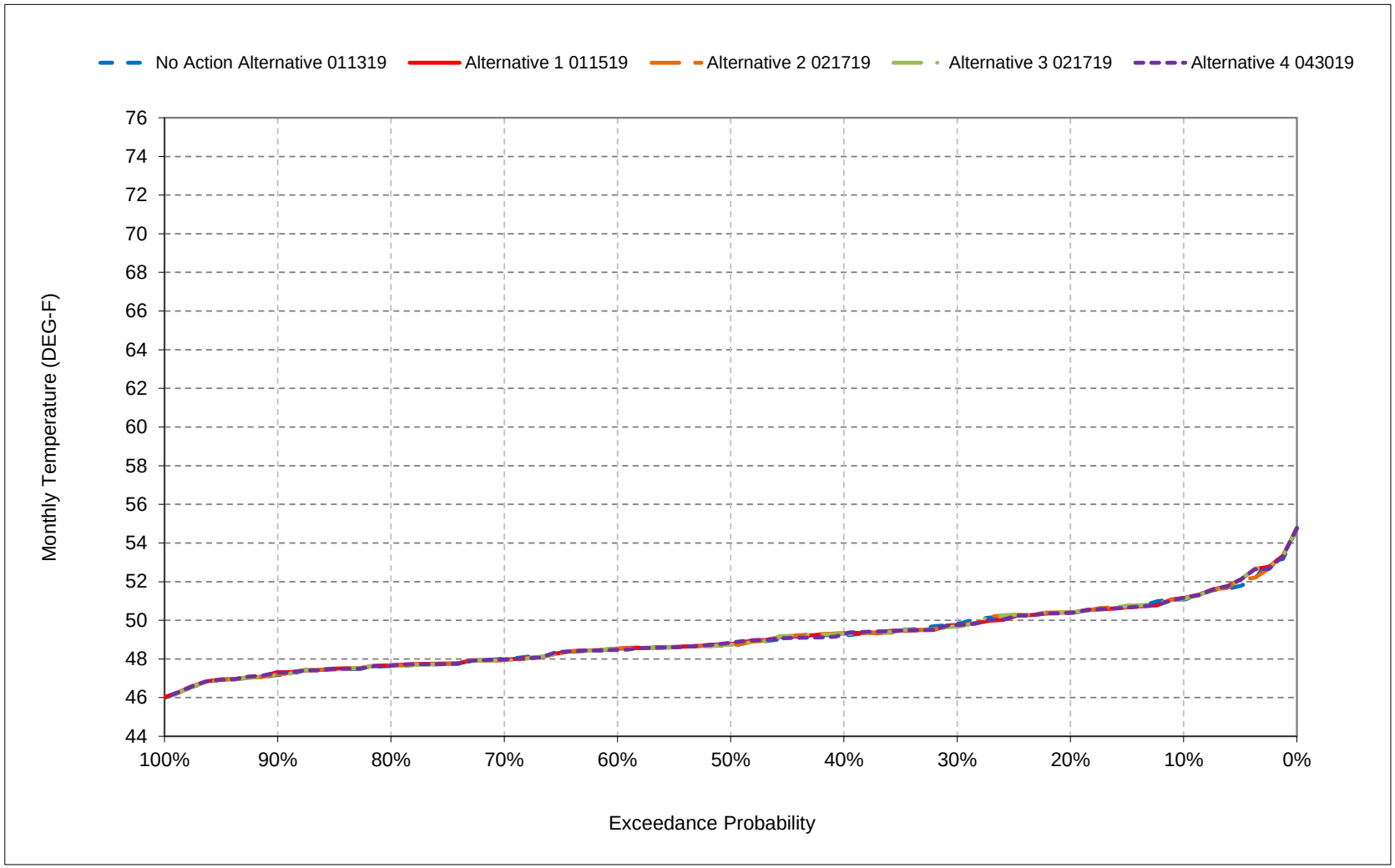
Figure 14-10. Sacramento River at Knights Landing, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

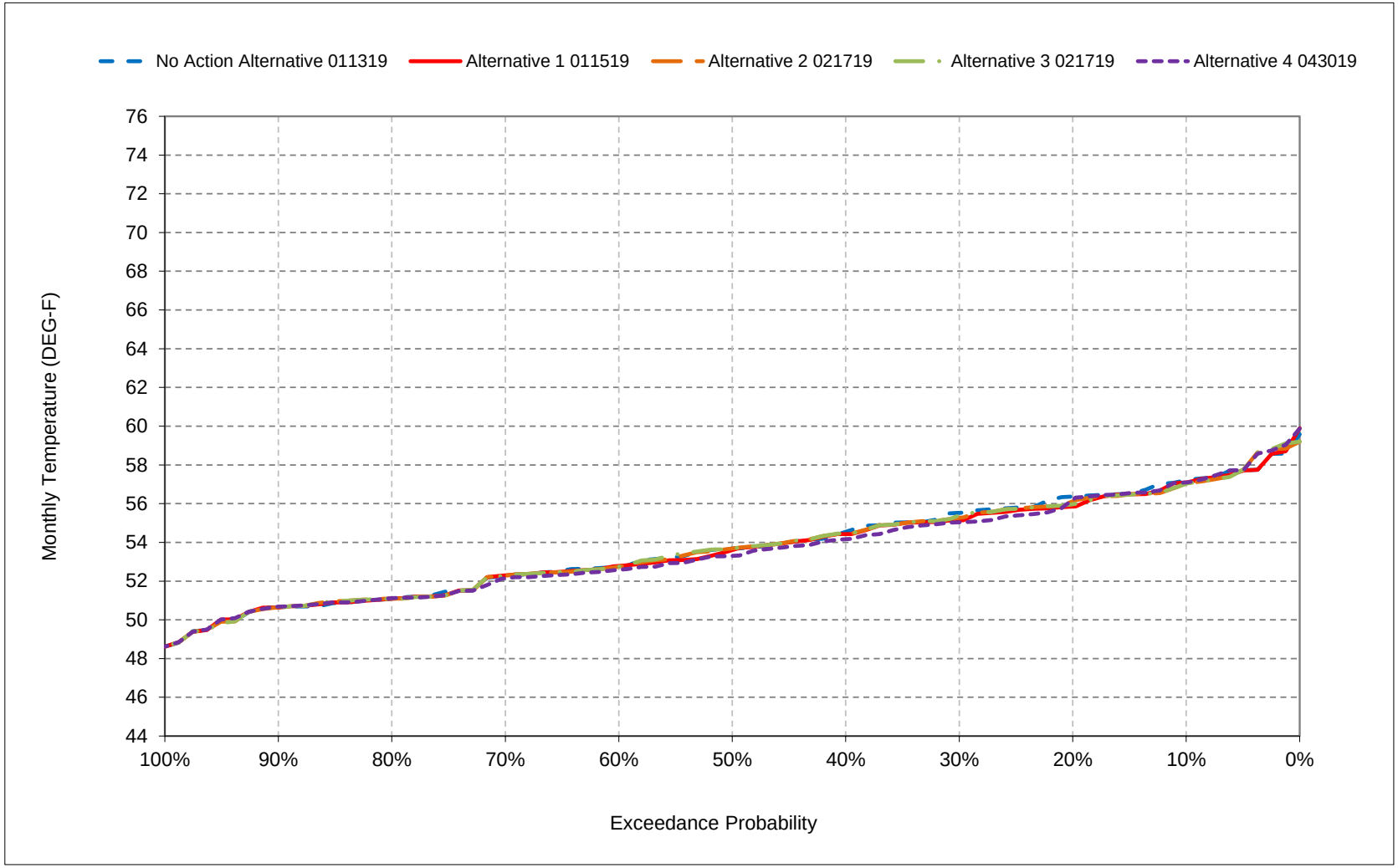
Figure 14-11. Sacramento River at Knights Landing, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

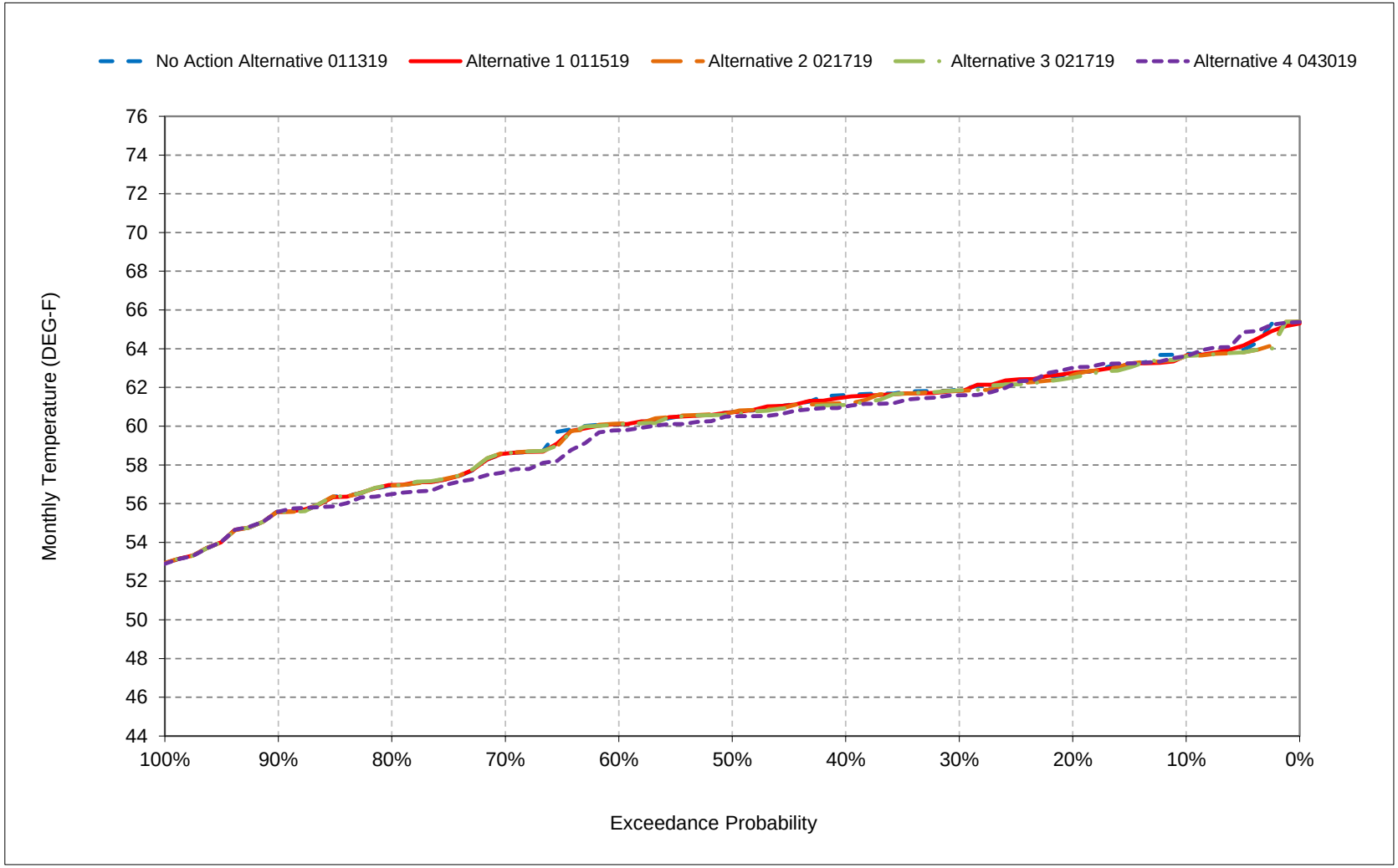
Figure 14-12. Sacramento River at Knights Landing, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

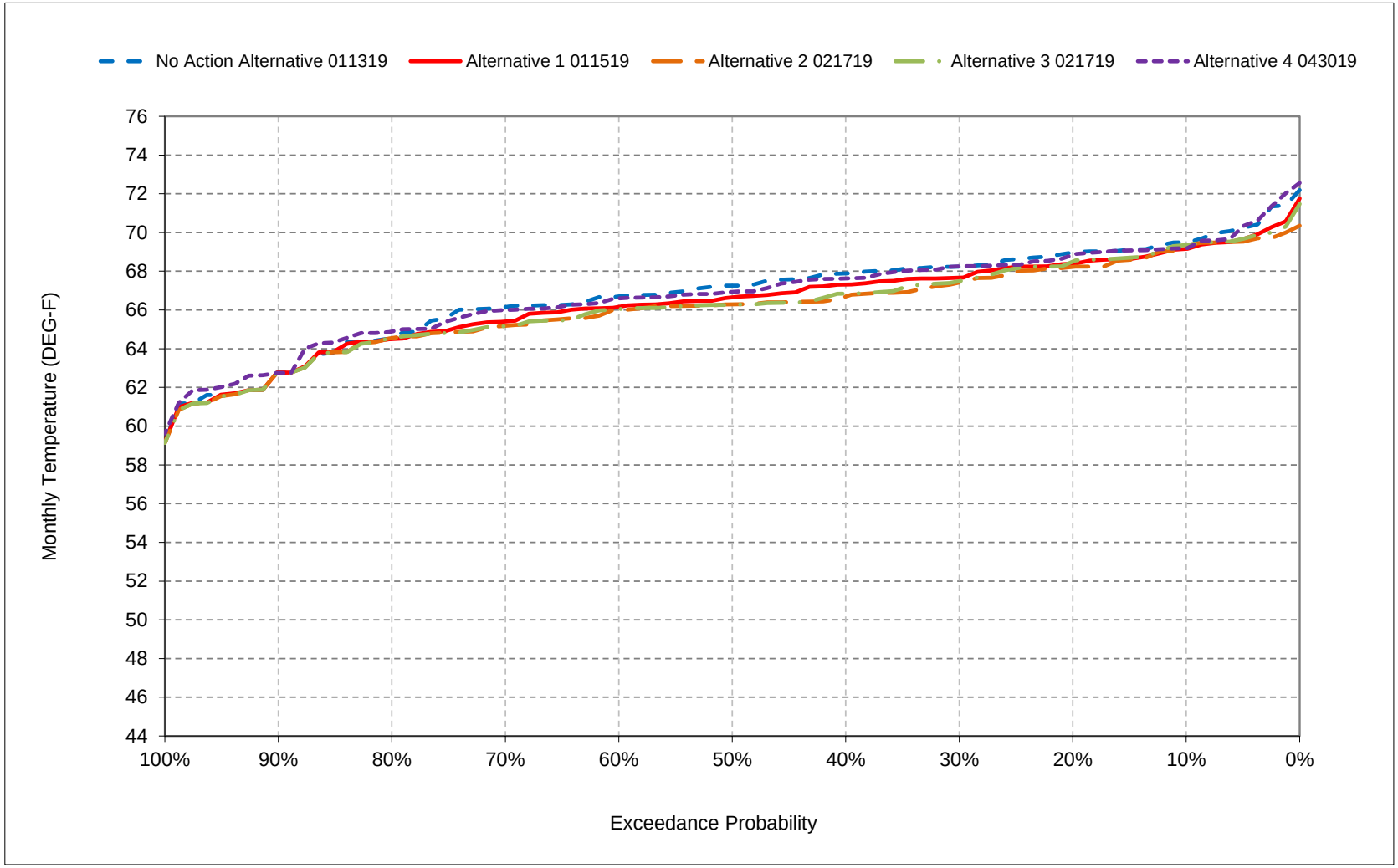
Figure 14-13. Sacramento River at Knights Landing, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

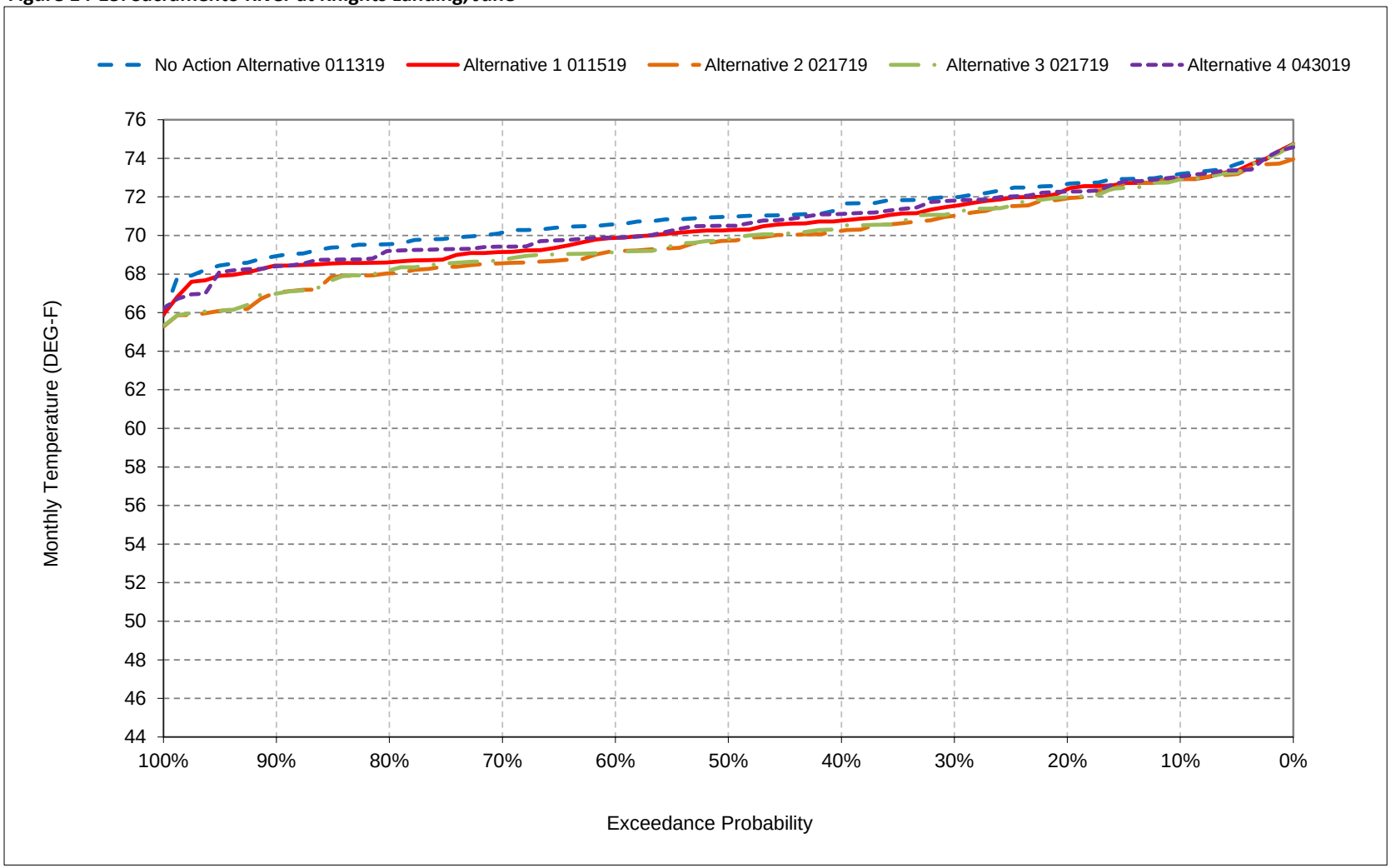
Figure 14-14. Sacramento River at Knights Landing, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

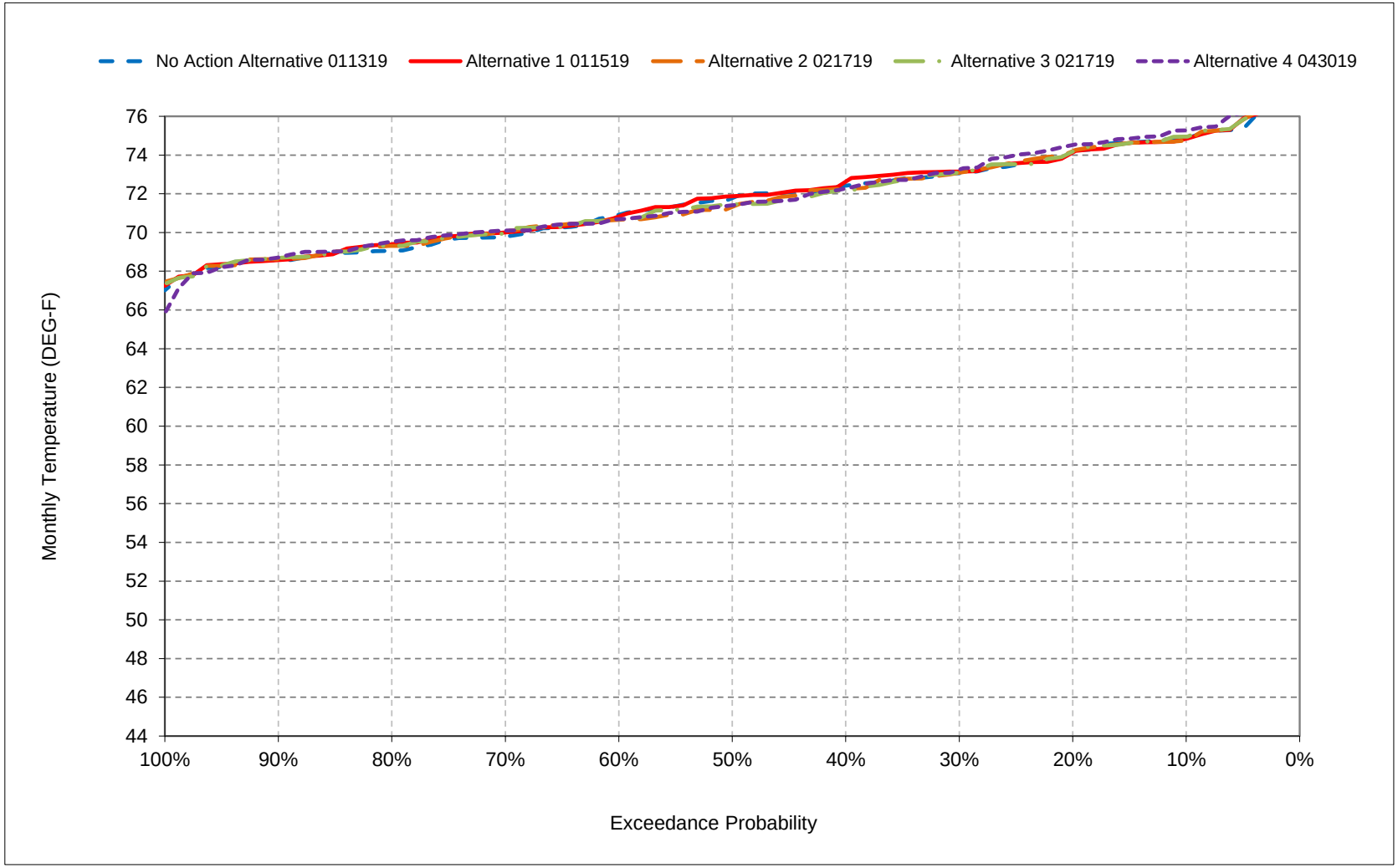
Figure 14-15. Sacramento River at Knights Landing, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

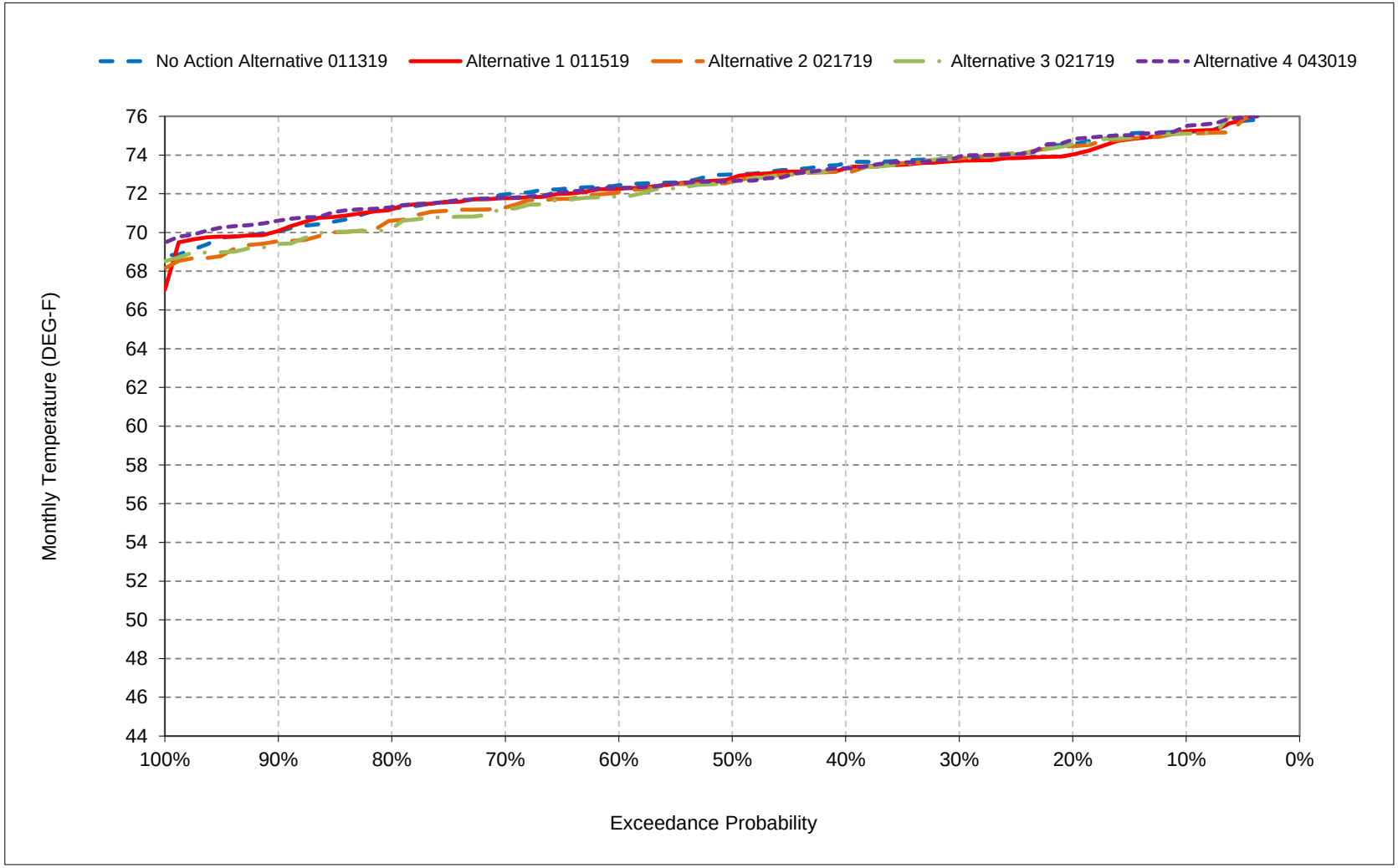
Figure 14-16. Sacramento River at Knights Landing, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

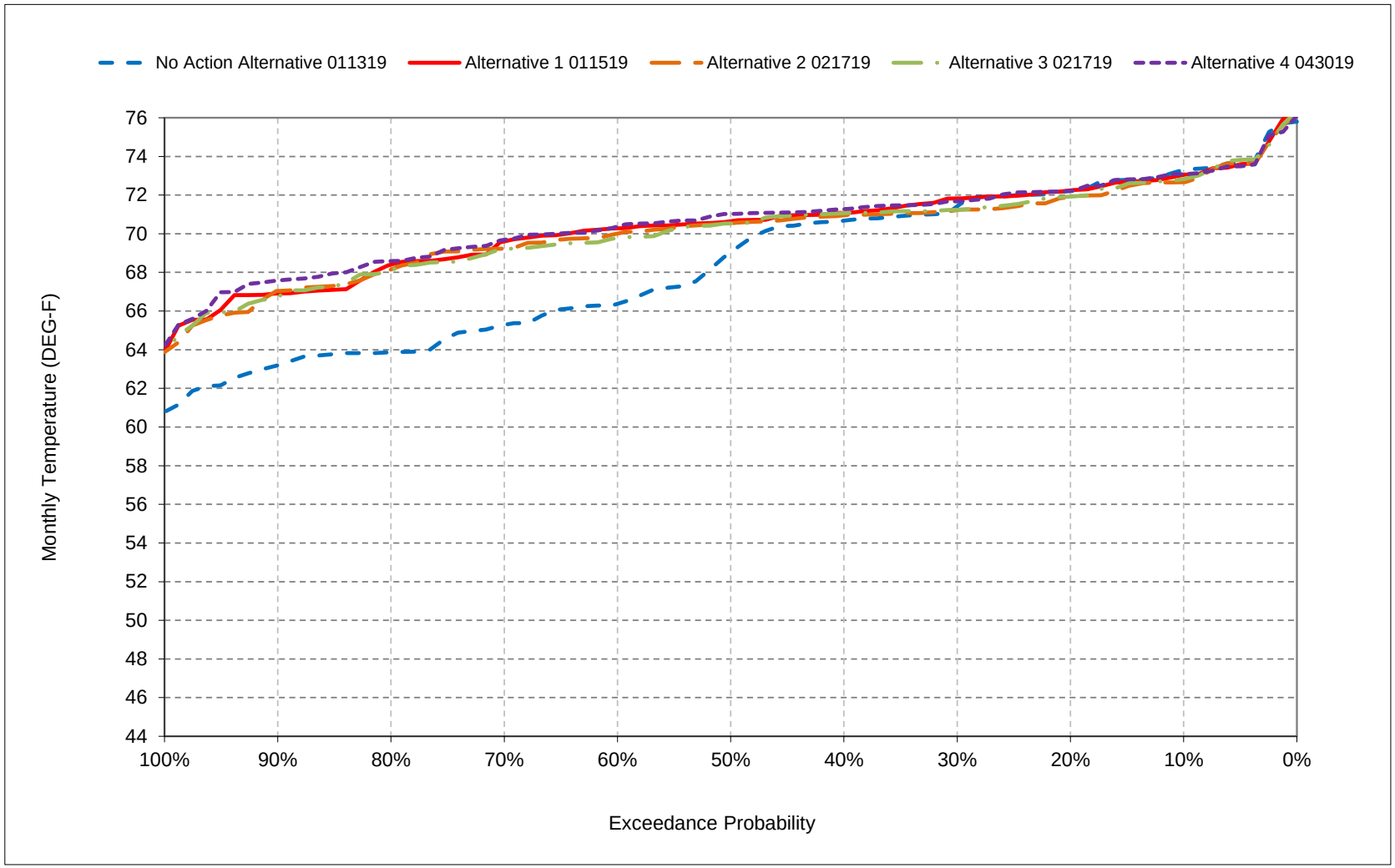
Figure 14-17. Sacramento River at Knights Landing, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-18. Sacramento River at Knights Landing, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 15-1. American River below Nimbus Dam, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66.6	58.4	53.0	47.8	48.5	52.1	58.0	63.1	68.1	69.6	67.3	68.1
20%	65.6	57.9	51.7	47.2	47.7	51.6	57.0	62.0	65.9	67.6	66.9	67.6
30%	64.7	57.7	51.2	46.9	47.3	50.7	56.0	60.6	64.8	65.7	65.5	66.4
40%	63.6	57.5	50.7	46.8	46.9	49.9	55.2	59.5	63.1	65.1	65.0	65.8
50%	63.3	57.2	50.2	46.3	46.7	49.4	54.6	58.5	61.8	64.7	64.5	65.3
60%	63.1	56.9	49.3	45.7	46.3	49.0	54.0	57.8	60.6	64.5	63.8	64.8
70%	62.8	56.6	48.7	45.4	46.0	48.6	53.4	57.0	59.7	64.2	63.3	64.2
80%	62.6	56.2	48.2	45.0	45.8	48.3	52.4	56.5	59.3	63.5	62.8	64.0
90%	59.2	55.6	46.9	44.6	45.4	48.0	51.9	54.9	59.0	63.1	62.5	63.2
Long Term												
Full Simulation Period[a]	63.6	57.1	50.1	46.2	46.8	49.9	54.8	59.0	62.6	65.6	64.7	65.5
Water Year Types[b,c]												
Wet (32%)	61.7	57.0	50.6	45.6	46.0	48.6	52.8	56.6	59.9	63.8	62.8	63.7
Above Normal (16%)	63.2	56.7	49.9	46.3	46.5	49.0	54.2	58.3	61.9	64.3	64.3	65.0
Below Normal (13%)	64.1	57.3	50.2	46.6	46.7	50.0	56.1	60.3	63.8	65.1	65.3	65.8
Dry (24%)	64.7	57.1	49.6	46.5	47.3	50.7	55.6	60.2	64.2	66.1	65.4	66.4
Critical (15%)	65.6	57.7	49.6	46.7	48.0	52.1	57.3	61.8	65.8	70.4	67.2	67.9

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66.3	58.8	53.0	48.3	48.6	52.1	57.0	63.5	67.0	69.6	67.6	67.9
20%	65.3	58.0	52.0	47.7	47.9	51.2	56.6	61.7	65.7	66.8	65.9	67.1
30%	64.7	57.8	51.7	47.2	47.6	50.5	55.9	60.3	65.0	65.3	65.5	66.3
40%	63.4	57.6	51.0	46.9	47.1	49.9	55.2	59.4	63.2	65.0	64.8	65.7
50%	63.1	57.3	50.6	46.4	46.8	49.4	54.6	58.5	62.3	64.6	64.4	65.3
60%	63.0	57.0	49.8	46.1	46.3	49.0	54.1	57.8	61.0	64.3	64.0	64.8
70%	62.7	56.7	49.2	45.7	46.1	48.7	53.4	57.0	59.8	64.1	63.3	64.4
80%	62.4	56.4	48.6	45.1	45.8	48.3	52.4	56.5	59.5	63.7	63.0	64.0
90%	59.2	55.7	47.3	44.6	45.5	48.0	51.9	54.9	59.0	63.2	62.5	63.5
Long Term												
Full Simulation Period[a]	63.4	57.2	50.4	46.5	46.9	49.8	54.6	59.0	62.5	65.4	64.6	65.5
Water Year Types[b,c]												
Wet (32%)	61.6	57.1	51.3	45.7	46.1	48.6	52.8	56.6	59.9	63.8	62.8	63.9
Above Normal (16%)	63.2	56.8	50.2	46.6	46.7	49.0	54.2	58.2	62.0	64.2	64.2	65.0
Below Normal (13%)	63.9	57.0	50.1	47.1	46.9	49.9	55.7	60.3	63.4	65.3	64.6	65.9
Dry (24%)	64.4	57.2	49.9	46.6	47.3	50.6	55.3	60.5	63.9	65.9	65.5	66.3
Critical (15%)	65.2	57.6	49.9	47.2	48.3	51.9	56.7	61.1	65.7	69.2	67.3	67.5

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.3	**0.4**	**0.0**	**0.4**	**0.1**	0.0	-1.0	**0.4**	-1.1	**0.0**	**0.3**	-0.1
20%	-0.3	**0.1**	**0.3**	**0.5**	**0.2**	-0.3	-0.4	-0.3	-0.1	-0.8	-1.0	-0.4
30%	**0.0**	**0.0**	**0.5**	**0.3**	**0.2**	-0.2	-0.1	-0.3	**0.2**	-0.4	**0.0**	-0.2
40%	-0.2	**0.1**	**0.3**	**0.1**	**0.2**	**0.1**	**0.0**	-0.1	**0.1**	-0.1	-0.2	-0.1
50%	-0.1	**0.1**	**0.4**	**0.1**	**0.1**	**0.1**	**0.0**	**0.1**	**0.5**	-0.1	-0.1	0.0
60%	-0.1	**0.1**	**0.5**	**0.3**	**0.1**	**0.0**	**0.1**	0.0	**0.4**	-0.1	**0.2**	**0.1**
70%	-0.1	**0.1**	**0.5**	**0.3**	**0.1**	**0.1**	0.0	**0.0**	**0.1**	-0.1	**0.0**	**0.2**
80%	-0.2	**0.1**	**0.4**	**0.2**	**0.1**	0.0	**0.0**	0.0	**0.2**	**0.2**	**0.2**	**0.0**
90%	**0.0**	**0.0**	**0.3**	0.0	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.1**	-0.1	**0.4**
Long Term												
Full Simulation Period[a]	-0.2	**0.1**	**0.3**	**0.3**	**0.1**	-0.1	-0.2	-0.1	-0.1	-0.2	-0.1	0.0
Water Year Types[b,c]												
Wet (32%)	-0.1	**0.2**	**0.6**	**0.2**	**0.0**	**0.0**	**0.0**	0.0	**0.1**	0.0	**0.0**	**0.2**
Above Normal (16%)	**0.0**	**0.1**	**0.3**	**0.3**	**0.1**	**0.0**	**0.0**	0.0	**0.1**	-0.1	-0.1	**0.0**
Below Normal (13%)	-0.3	-0.2	-0.1	**0.5**	**0.2**	-0.1	-0.4	**0.0**	-0.4	**0.3**	-0.7	**0.0**
Dry (24%)	-0.3	**0.1**	**0.3**	**0.1**	**0.1**	-0.1	-0.2	**0.3**	-0.3	-0.2	**0.0**	-0.1
Critical (15%)	-0.4	-0.1	**0.3**	**0.6**	**0.3**	-0.2	-0.7	-0.7	-0.1	-1.1	**0.1**	-0.4

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 15-2. American River below Nimbus Dam, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66.6	58.4	53.0	47.8	48.5	52.1	58.0	63.1	68.1	69.6	67.3	68.1
20%	65.6	57.9	51.7	47.2	47.7	51.6	57.0	62.0	65.9	67.6	66.9	67.6
30%	64.7	57.7	51.2	46.9	47.3	50.7	56.0	60.6	64.8	65.7	65.5	66.4
40%	63.6	57.5	50.7	46.8	46.9	49.9	55.2	59.5	63.1	65.1	65.0	65.8
50%	63.3	57.2	50.2	46.3	46.7	49.4	54.6	58.5	61.8	64.7	64.5	65.3
60%	63.1	56.9	49.3	45.7	46.3	49.0	54.0	57.8	60.6	64.5	63.8	64.8
70%	62.8	56.6	48.7	45.4	46.0	48.6	53.4	57.0	59.7	64.2	63.3	64.2
80%	62.6	56.2	48.2	45.0	45.8	48.3	52.4	56.5	59.3	63.5	62.8	64.0
90%	59.2	55.6	46.9	44.6	45.4	48.0	51.9	54.9	59.0	63.1	62.5	63.2
Long Term												
Full Simulation Period[a]	63.6	57.1	50.1	46.2	46.8	49.9	54.8	59.0	62.6	65.6	64.7	65.5
Water Year Types[b,c]												
Wet (32%)	61.7	57.0	50.6	45.6	46.0	48.6	52.8	56.6	59.9	63.8	62.8	63.7
Above Normal (16%)	63.2	56.7	49.9	46.3	46.5	49.0	54.2	58.3	61.9	64.3	64.3	65.0
Below Normal (13%)	64.1	57.3	50.2	46.6	46.7	50.0	56.1	60.3	63.8	65.1	65.3	65.8
Dry (24%)	64.7	57.1	49.6	46.5	47.3	50.7	55.6	60.2	64.2	66.1	65.4	66.4
Critical (15%)	65.6	57.7	49.6	46.7	48.0	52.1	57.3	61.8	65.8	70.4	67.2	67.9

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66.5	58.4	53.0	48.2	48.6	52.1	58.0	63.1	65.7	69.9	67.9	68.3
20%	65.1	57.9	51.8	47.4	47.8	51.4	57.0	62.0	64.9	67.3	66.7	67.3
30%	64.4	57.6	51.3	47.0	47.5	50.7	56.0	60.6	64.0	66.2	65.8	66.5
40%	63.6	57.4	50.7	46.8	47.0	49.9	55.2	59.3	62.9	65.3	65.4	65.8
50%	63.2	57.0	50.3	46.3	46.7	49.5	54.6	58.4	62.5	64.6	64.5	65.4
60%	63.0	56.8	49.4	45.7	46.3	49.0	54.1	57.6	60.9	64.3	64.0	64.9
70%	62.7	56.4	48.8	45.4	46.0	48.7	53.4	57.0	60.2	64.2	63.1	64.6
80%	62.5	56.1	48.0	45.1	45.8	48.3	52.4	56.5	59.6	63.6	62.7	64.1
90%	59.1	55.4	46.8	44.5	45.5	48.0	51.9	54.9	59.0	63.1	62.1	63.5
Long Term												
Full Simulation Period[a]	63.4	56.9	50.1	46.3	46.8	49.9	54.8	59.0	62.4	65.6	64.8	65.6
Water Year Types[b,c]												
Wet (32%)	61.7	57.1	51.2	45.6	46.1	48.6	52.8	56.6	60.1	63.9	62.7	64.0
Above Normal (16%)	63.1	56.4	49.8	46.5	46.6	49.0	54.2	58.3	62.1	64.1	64.6	65.1
Below Normal (13%)	63.5	56.4	49.7	47.0	46.9	50.0	56.0	60.1	62.4	65.2	65.0	65.4
Dry (24%)	64.6	57.0	49.5	46.5	47.3	50.6	55.5	60.3	63.4	66.4	65.7	66.5
Critical (15%)	65.4	57.5	49.4	46.6	48.0	52.2	57.2	61.5	66.0	70.1	68.0	68.0

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.1	0.0	**0.0**	**0.4**	**0.0**	0.0	**0.0**	**0.0**	-2.4	**0.3**	**0.6**	**0.2**
20%	-0.5	0.0	**0.2**	**0.1**	**0.0**	-0.2	-0.1	**0.1**	-1.0	-0.3	-0.2	-0.3
30%	-0.3	-0.1	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	0.0	-0.7	**0.5**	**0.3**	**0.0**
40%	0.0	-0.1	0.0	0.0	**0.1**	**0.0**	0.0	-0.1	-0.2	**0.2**	**0.4**	0.0
50%	-0.1	-0.2	**0.1**	**0.0**	**0.0**	**0.1**	**0.0**	-0.1	**0.7**	-0.1	**0.0**	**0.0**
60%	-0.1	-0.1	**0.1**	0.0	**0.0**	**0.0**	**0.1**	-0.2	**0.2**	-0.1	**0.2**	**0.1**
70%	-0.1	-0.2	**0.1**	**0.1**	0.0	**0.0**	0.0	**0.0**	**0.4**	**0.0**	-0.2	**0.4**
80%	-0.1	-0.2	-0.2	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.4**	**0.1**	-0.1	**0.1**
90%	-0.2	-0.2	-0.1	-0.1	**0.1**	**0.0**	**0.0**	**0.0**	0.0	0.0	-0.4	**0.3**
Long Term												
Full Simulation Period[a]	-0.2	-0.2	**0.0**	**0.1**	**0.0**	0.0	0.0	-0.1	-0.3	**0.0**	**0.2**	**0.1**
Water Year Types[b,c]												
Wet (32%)	0.0	**0.2**	**0.6**	**0.1**	**0.0**	**0.0**	**0.0**	0.0	**0.2**	**0.0**	-0.1	**0.3**
Above Normal (16%)	-0.1	-0.3	-0.2	**0.2**	**0.1**	**0.0**	**0.0**	0.0	**0.1**	-0.2	**0.3**	**0.2**
Below Normal (13%)	-0.7	-0.8	-0.5	**0.4**	**0.2**	0.0	0.0	-0.2	-1.4	**0.1**	-0.3	-0.5
Dry (24%)	-0.1	-0.1	-0.1	0.0	**0.0**	-0.1	-0.1	**0.1**	-0.7	**0.3**	**0.3**	**0.0**
Critical (15%)	-0.2	-0.1	-0.2	0.0	**0.0**	**0.1**	-0.1	-0.3	**0.2**	-0.3	**0.9**	**0.1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 15-3. American River below Nimbus Dam, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66.6	58.4	53.0	47.8	48.5	52.1	58.0	63.1	68.1	69.6	67.3	68.1
20%	65.6	57.9	51.7	47.2	47.7	51.6	57.0	62.0	65.9	67.6	66.9	67.6
30%	64.7	57.7	51.2	46.9	47.3	50.7	56.0	60.6	64.8	65.7	65.5	66.4
40%	63.6	57.5	50.7	46.8	46.9	49.9	55.2	59.5	63.1	65.1	65.0	65.8
50%	63.3	57.2	50.2	46.3	46.7	49.4	54.6	58.5	61.8	64.7	64.5	65.3
60%	63.1	56.9	49.3	45.7	46.3	49.0	54.0	57.8	60.6	64.5	63.8	64.8
70%	62.8	56.6	48.7	45.4	46.0	48.6	53.4	57.0	59.7	64.2	63.3	64.2
80%	62.6	56.2	48.2	45.0	45.8	48.3	52.4	56.5	59.3	63.5	62.8	64.0
90%	59.2	55.6	46.9	44.6	45.4	48.0	51.9	54.9	59.0	63.1	62.5	63.2
Long Term												
Full Simulation Period[a]	63.6	57.1	50.1	46.2	46.8	49.9	54.8	59.0	62.6	65.6	64.7	65.5
Water Year Types[b,c]												
Wet (32%)	61.7	57.0	50.6	45.6	46.0	48.6	52.8	56.6	59.9	63.8	62.8	63.7
Above Normal (16%)	63.2	56.7	49.9	46.3	46.5	49.0	54.2	58.3	61.9	64.3	64.3	65.0
Below Normal (13%)	64.1	57.3	50.2	46.6	46.7	50.0	56.1	60.3	63.8	65.1	65.3	65.8
Dry (24%)	64.7	57.1	49.6	46.5	47.3	50.7	55.6	60.2	64.2	66.1	65.4	66.4
Critical (15%)	65.6	57.7	49.6	46.7	48.0	52.1	57.3	61.8	65.8	70.4	67.2	67.9

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66.5	58.4	53.0	48.2	48.6	52.2	58.0	63.2	66.1	69.9	68.1	68.5
20%	65.3	57.9	51.9	47.3	47.7	51.4	56.9	61.9	65.0	67.2	66.6	67.5
30%	64.4	57.7	51.1	47.0	47.5	50.6	56.0	60.6	63.9	65.8	65.7	66.6
40%	63.8	57.4	50.6	46.7	47.0	49.9	55.1	59.4	63.2	65.2	65.3	65.8
50%	63.4	57.1	50.3	46.2	46.7	49.4	54.6	58.4	62.6	64.6	64.5	65.4
60%	63.1	56.8	49.4	45.7	46.3	49.0	53.9	57.8	60.9	64.4	64.0	64.9
70%	62.7	56.3	48.9	45.5	46.0	48.7	53.4	57.0	60.1	64.1	63.2	64.6
80%	62.5	55.9	48.1	45.1	45.8	48.3	52.4	56.5	59.5	63.7	62.7	64.1
90%	59.1	55.4	46.7	44.5	45.5	48.0	51.9	54.9	59.0	63.1	62.2	63.5
Long Term												
Full Simulation Period[a]	63.4	57.0	50.1	46.3	46.8	49.9	54.7	59.0	62.4	65.6	64.8	65.6
Water Year Types[b,c]												
Wet (32%)	61.7	57.1	51.3	45.7	46.1	48.6	52.8	56.6	60.0	63.9	62.9	64.1
Above Normal (16%)	63.2	56.4	49.7	46.5	46.6	49.0	54.2	58.3	62.1	64.1	64.3	65.1
Below Normal (13%)	63.6	56.6	49.6	47.0	46.9	50.0	56.0	60.1	62.5	65.2	65.0	65.6
Dry (24%)	64.6	57.0	49.5	46.5	47.3	50.6	55.4	60.4	63.5	66.3	65.8	66.6
Critical (15%)	65.5	57.6	49.5	46.6	48.0	52.3	57.2	61.4	66.1	70.1	67.8	68.0

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.1	0.0	0.0	**0.4**	**0.0**	**0.1**	**0.0**	**0.1**	-2.1	**0.3**	**0.8**	**0.5**
20%	-0.3	0.0	**0.2**	**0.1**	0.0	-0.2	-0.1	-0.1	-0.9	-0.4	-0.4	-0.1
30%	-0.3	-0.1	0.0	**0.1**	**0.1**	-0.1	0.0	0.0	-0.9	**0.1**	**0.2**	**0.1**
40%	**0.2**	0.0	-0.2	-0.1	**0.1**	**0.0**	-0.1	0.0	**0.1**	**0.1**	**0.3**	0.0
50%	**0.1**	-0.1	**0.1**	0.0	**0.0**	**0.1**	**0.0**	0.0	**0.7**	-0.1	**0.0**	**0.1**
60%	0.0	-0.1	**0.1**	0.0	**0.0**	**0.0**	-0.1	0.0	**0.3**	-0.1	**0.1**	**0.1**
70%	-0.1	-0.3	**0.1**	**0.1**	0.0	**0.0**	**0.0**	**0.0**	**0.4**	-0.1	0.0	**0.3**
80%	-0.1	-0.3	-0.1	**0.1**	**0.0**	**0.0**	0.0	**0.0**	**0.2**	**0.1**	0.0	**0.1**
90%	-0.2	-0.2	-0.2	-0.1	**0.1**	**0.0**	0.0	0.0	**0.0**	0.0	-0.3	**0.3**
Long Term												
Full Simulation Period[a]	-0.1	-0.1	**0.0**	**0.1**	**0.0**	**0.0**	-0.1	-0.1	-0.2	**0.0**	**0.1**	**0.2**
Water Year Types[b,c]												
Wet (32%)	**0.0**	**0.1**	**0.6**	**0.1**	**0.0**	**0.0**	0.0	**0.0**	**0.1**	**0.0**	**0.1**	**0.4**
Above Normal (16%)	0.0	-0.4	-0.2	**0.2**	**0.1**	**0.0**	**0.0**	0.0	**0.1**	-0.2	0.0	**0.1**
Below Normal (13%)	-0.5	-0.7	-0.6	**0.4**	**0.2**	0.0	-0.1	-0.2	-1.3	**0.1**	-0.3	-0.2
Dry (24%)	-0.1	-0.1	-0.1	0.0	0.0	-0.1	-0.1	**0.1**	-0.7	**0.2**	**0.3**	**0.1**
Critical (15%)	0.0	-0.1	-0.1	-0.1	0.0	**0.2**	-0.1	-0.4	**0.3**	-0.3	**0.6**	**0.1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 15-4. American River below Nimbus Dam, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66.6	58.4	53.0	47.8	48.5	52.1	58.0	63.1	68.1	69.6	67.3	68.1
20%	65.6	57.9	51.7	47.2	47.7	51.6	57.0	62.0	65.9	67.6	66.9	67.6
30%	64.7	57.7	51.2	46.9	47.3	50.7	56.0	60.6	64.8	65.7	65.5	66.4
40%	63.6	57.5	50.7	46.8	46.9	49.9	55.2	59.5	63.1	65.1	65.0	65.8
50%	63.3	57.2	50.2	46.3	46.7	49.4	54.6	58.5	61.8	64.7	64.5	65.3
60%	63.1	56.9	49.3	45.7	46.3	49.0	54.0	57.8	60.6	64.5	63.8	64.8
70%	62.8	56.6	48.7	45.4	46.0	48.6	53.4	57.0	59.7	64.2	63.3	64.2
80%	62.6	56.2	48.2	45.0	45.8	48.3	52.4	56.5	59.3	63.5	62.8	64.0
90%	59.2	55.6	46.9	44.6	45.4	48.0	51.9	54.9	59.0	63.1	62.5	63.2
Long Term												
Full Simulation Period[a]	63.6	57.1	50.1	46.2	46.8	49.9	54.8	59.0	62.6	65.6	64.7	65.5
Water Year Types[b,c]												
Wet (32%)	61.7	57.0	50.6	45.6	46.0	48.6	52.8	56.6	59.9	63.8	62.8	63.7
Above Normal (16%)	63.2	56.7	49.9	46.3	46.5	49.0	54.2	58.3	61.9	64.3	64.3	65.0
Below Normal (13%)	64.1	57.3	50.2	46.6	46.7	50.0	56.1	60.3	63.8	65.1	65.3	65.8
Dry (24%)	64.7	57.1	49.6	46.5	47.3	50.7	55.6	60.2	64.2	66.1	65.4	66.4
Critical (15%)	65.6	57.7	49.6	46.7	48.0	52.1	57.3	61.8	65.8	70.4	67.2	67.9

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66.1	58.3	53.1	48.2	48.7	52.3	57.3	63.1	67.2	69.6	67.3	68.0
20%	65.4	57.9	52.0	47.5	47.9	51.3	56.7	61.7	66.3	66.7	66.2	67.1
30%	64.6	57.8	51.5	47.1	47.5	50.6	55.9	60.4	65.2	66.1	65.5	66.6
40%	63.6	57.5	51.0	46.8	47.0	50.0	55.1	59.5	63.9	65.8	64.9	65.9
50%	63.2	57.1	50.4	46.4	46.7	49.5	54.6	58.5	63.1	65.1	64.5	65.4
60%	63.0	56.9	49.7	46.0	46.4	49.0	54.1	57.8	62.2	64.5	64.1	65.0
70%	62.7	56.6	49.2	45.7	46.1	48.7	53.3	57.1	61.4	64.3	63.8	64.7
80%	62.5	56.3	48.7	45.3	45.8	48.3	52.4	56.8	60.0	64.0	63.4	64.4
90%	59.2	55.7	47.5	44.7	45.5	48.0	51.7	54.9	59.0	63.0	62.5	63.6
Long Term												
Full Simulation Period[a]	63.4	57.1	50.4	46.5	46.9	49.8	54.6	59.0	63.1	65.6	64.7	65.6
Water Year Types[b,c]												
Wet (32%)	61.6	57.1	51.2	45.7	46.1	48.6	52.8	56.6	60.7	64.2	63.0	64.0
Above Normal (16%)	63.3	56.7	50.1	46.7	46.7	49.0	54.2	58.3	62.6	64.3	64.4	65.2
Below Normal (13%)	63.9	57.2	50.3	47.1	46.9	49.9	55.6	60.9	63.6	65.5	64.8	66.0
Dry (24%)	64.3	57.0	49.8	46.6	47.3	50.7	55.3	60.4	64.8	66.3	65.3	66.5
Critical (15%)	65.4	57.4	49.8	47.1	48.3	52.0	56.5	61.0	65.8	69.3	67.5	67.4

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.6	-0.1	**0.1**	**0.4**	**0.2**	**0.2**	-0.7	**0.0**	-0.9	**0.0**	0.0	-0.1
20%	-0.2	**0.0**	**0.3**	**0.3**	**0.2**	-0.3	-0.4	-0.3	**0.4**	-0.9	-0.8	-0.5
30%	0.0	**0.0**	**0.4**	**0.2**	**0.2**	-0.2	-0.1	-0.2	**0.4**	**0.4**	0.0	**0.1**
40%	0.0	**0.0**	**0.3**	**0.0**	**0.1**	**0.1**	-0.2	**0.0**	**0.8**	**0.7**	-0.1	**0.0**
50%	-0.1	0.0	**0.2**	**0.1**	**0.0**	**0.1**	**0.0**	**0.1**	**1.2**	**0.4**	**0.0**	**0.1**
60%	-0.1	**0.0**	**0.4**	**0.2**	**0.1**	**0.0**	**0.0**	0.0	**1.6**	**0.0**	**0.2**	**0.3**
70%	-0.1	0.0	**0.4**	**0.3**	**0.1**	**0.1**	-0.1	**0.2**	**1.6**	**0.0**	**0.6**	**0.5**
80%	-0.1	**0.1**	**0.5**	**0.3**	**0.1**	**0.0**	**0.0**	**0.3**	**0.8**	**0.4**	**0.6**	**0.4**
90%	0.0	**0.1**	**0.6**	**0.1**	**0.1**	**0.0**	-0.2	**0.0**	**0.0**	-0.1	-0.1	**0.4**
Long Term												
Full Simulation Period[a]	-0.2	0.0	**0.3**	**0.2**	**0.1**	0.0	-0.2	0.0	**0.5**	**0.0**	**0.0**	**0.1**
Water Year Types[b,c]												
Wet (32%)	-0.1	**0.1**	**0.6**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.8**	**0.3**	**0.2**	**0.3**
Above Normal (16%)	**0.1**	**0.0**	**0.2**	**0.4**	**0.1**	**0.0**	**0.0**	**0.0**	**0.7**	0.0	**0.1**	**0.2**
Below Normal (13%)	-0.2	-0.1	**0.1**	**0.5**	**0.2**	-0.1	-0.4	**0.6**	-0.1	**0.4**	-0.5	**0.2**
Dry (24%)	-0.3	-0.1	**0.2**	**0.0**	**0.1**	0.0	-0.3	**0.1**	**0.6**	**0.2**	-0.1	**0.1**
Critical (15%)	-0.1	-0.2	**0.3**	**0.4**	**0.3**	-0.1	-0.8	-0.8	**0.0**	-1.1	**0.3**	-0.5

a Based on the 82-year simulation period.

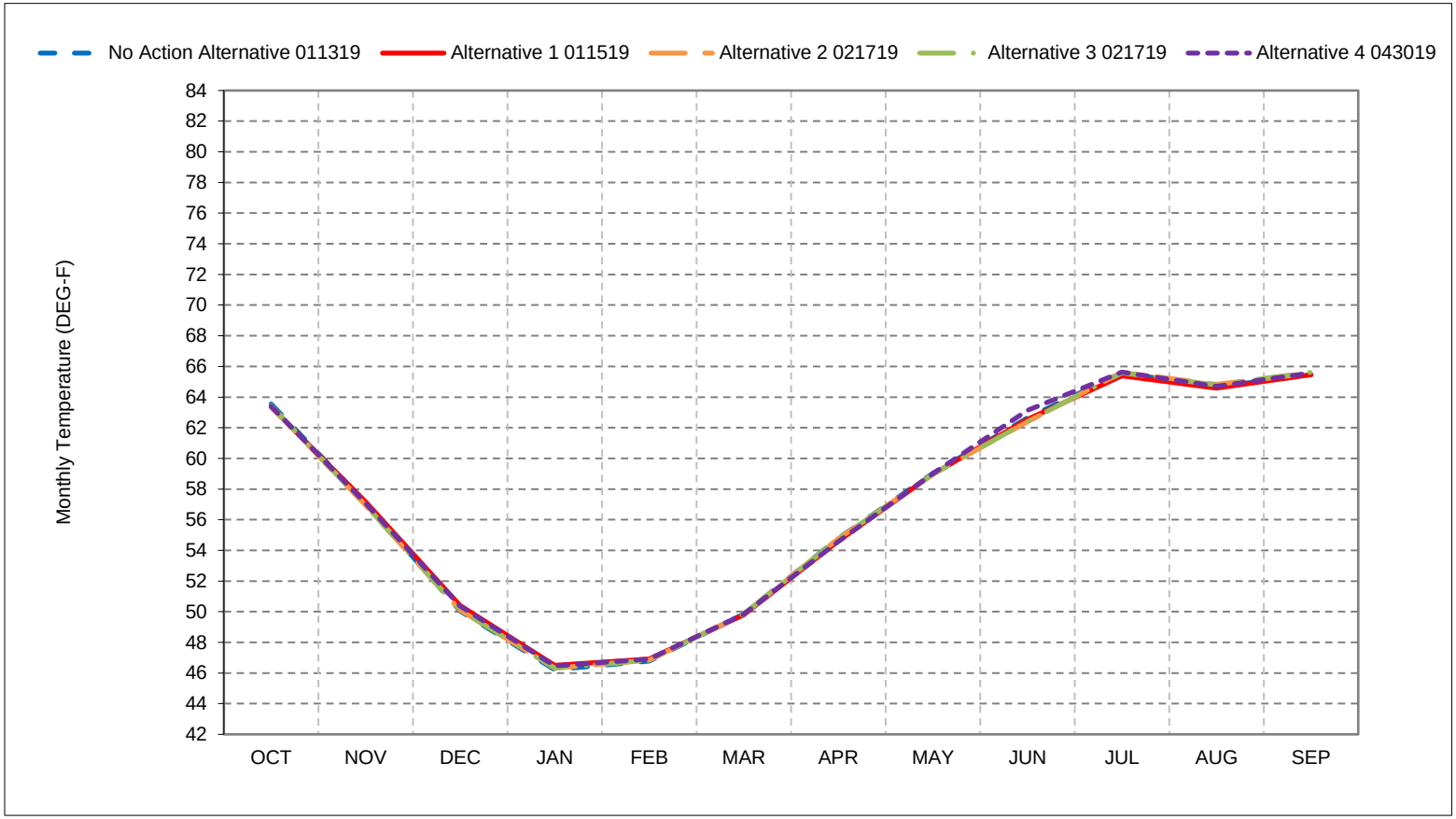
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

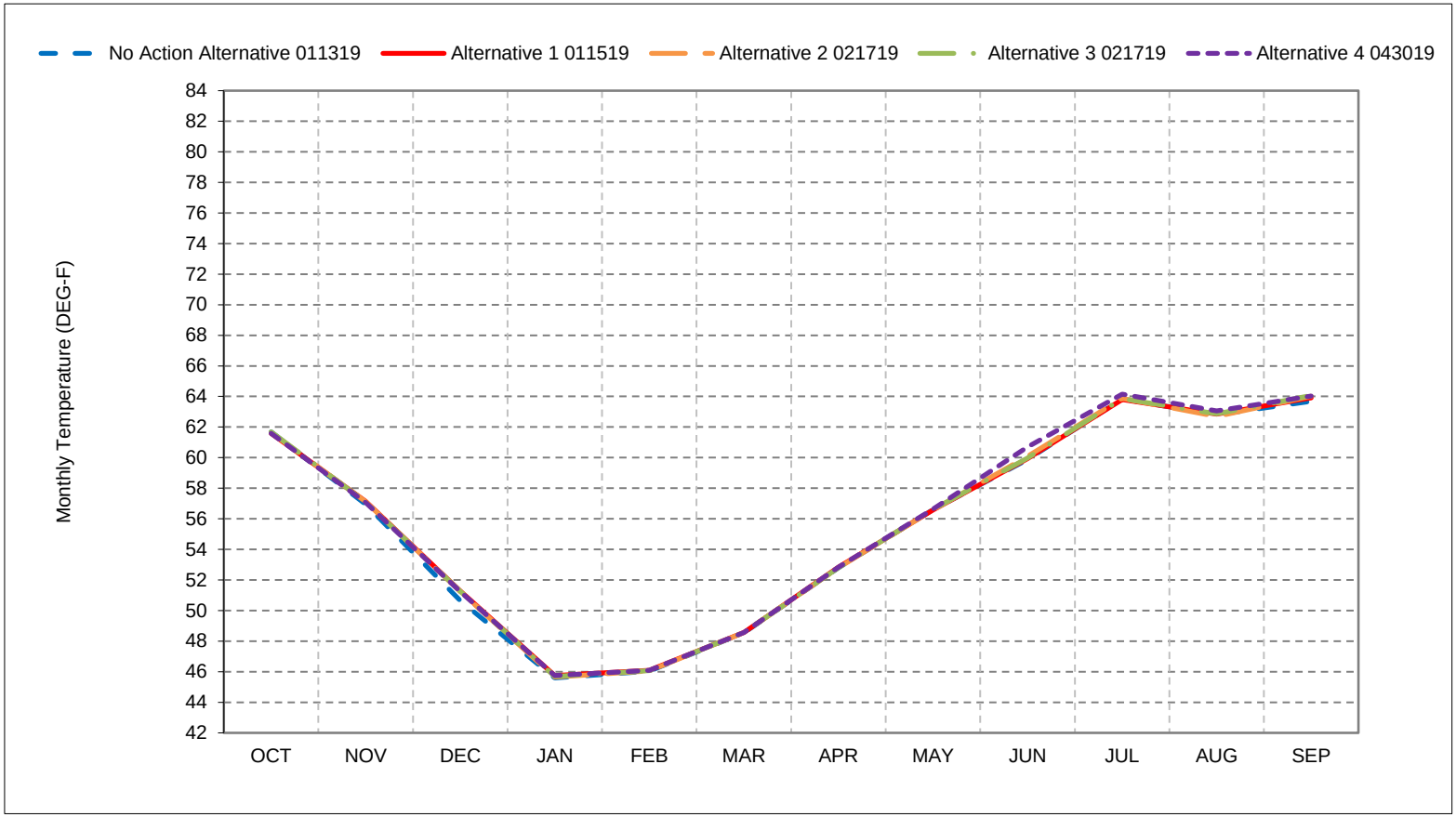
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-1. American River below Nimbus Dam, Long-Term Average Temperature



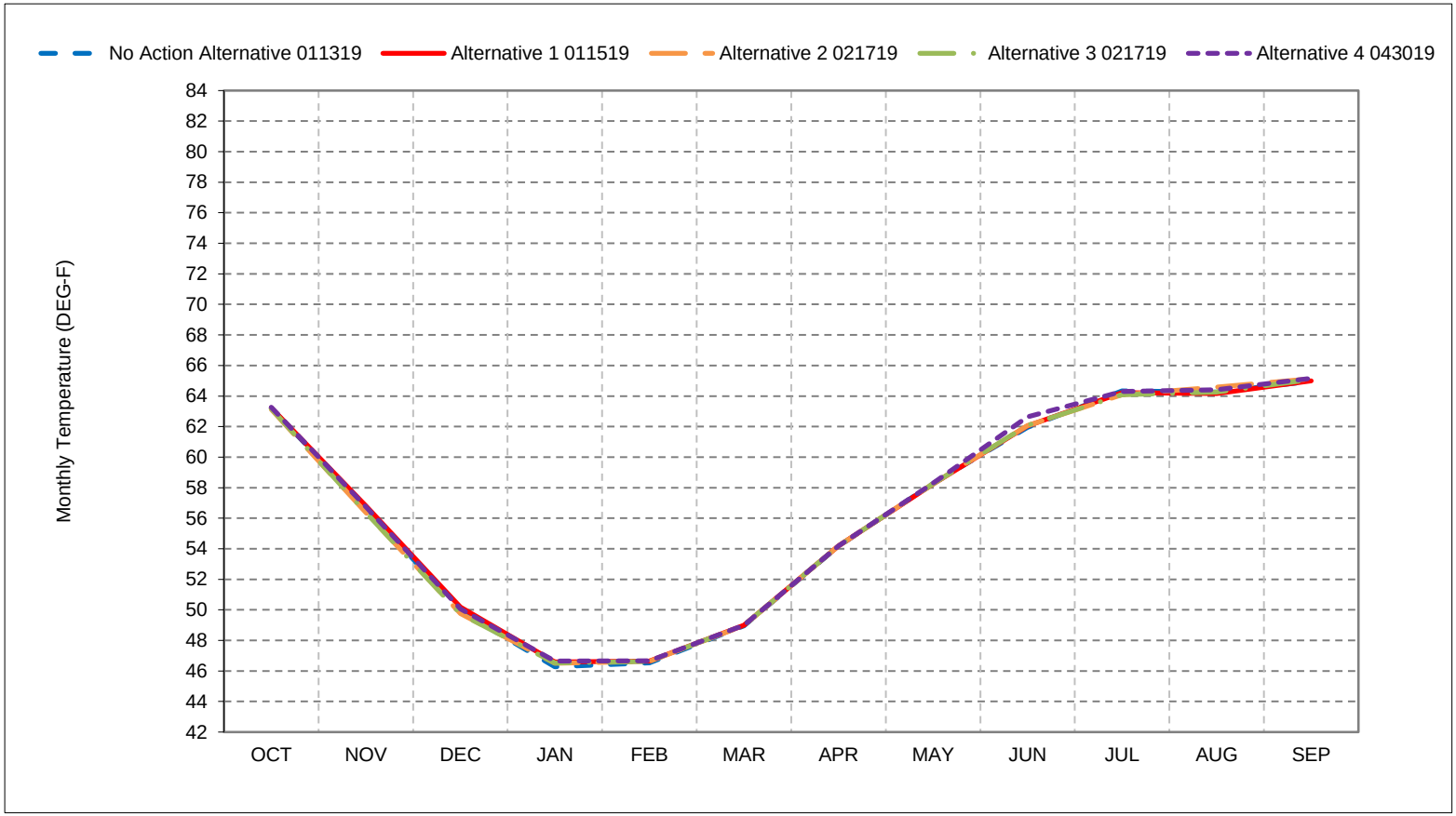
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-2. American River below Nimbus Dam, Wet Year Average Temperature



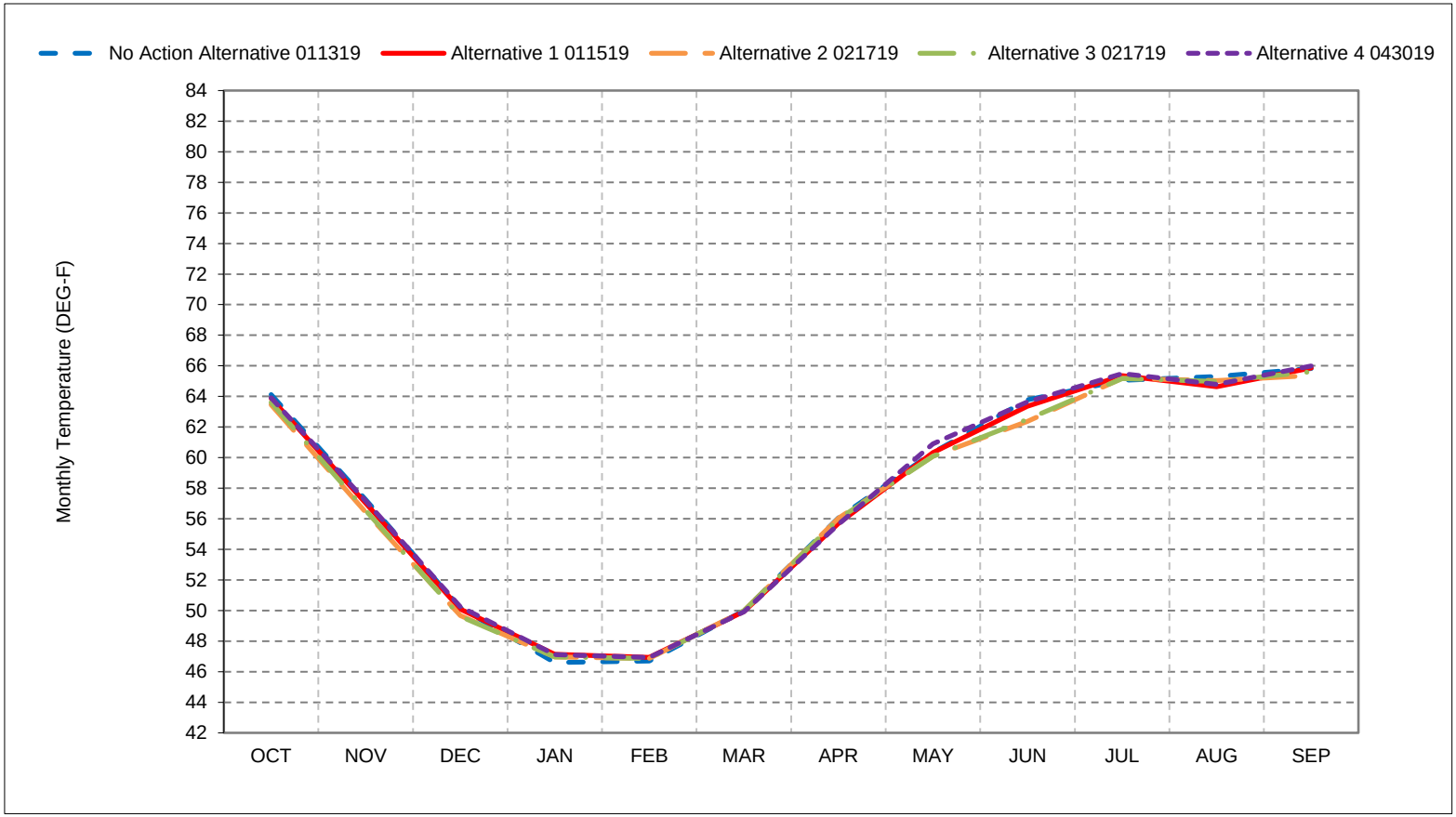
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-3. American River below Nimbus Dam, Above Normal Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-4. American River below Nimbus Dam, Below Normal Year Average Temperature



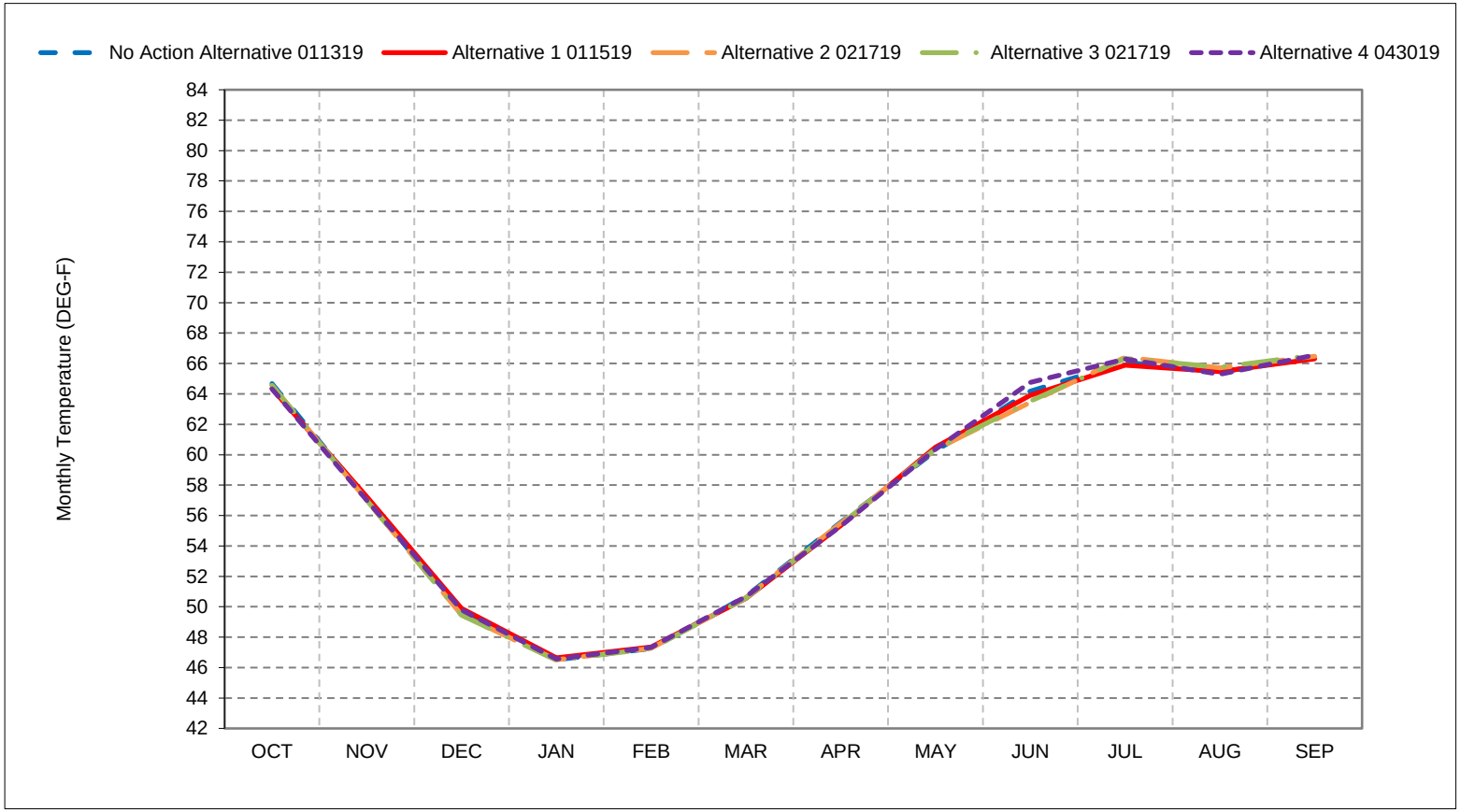
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

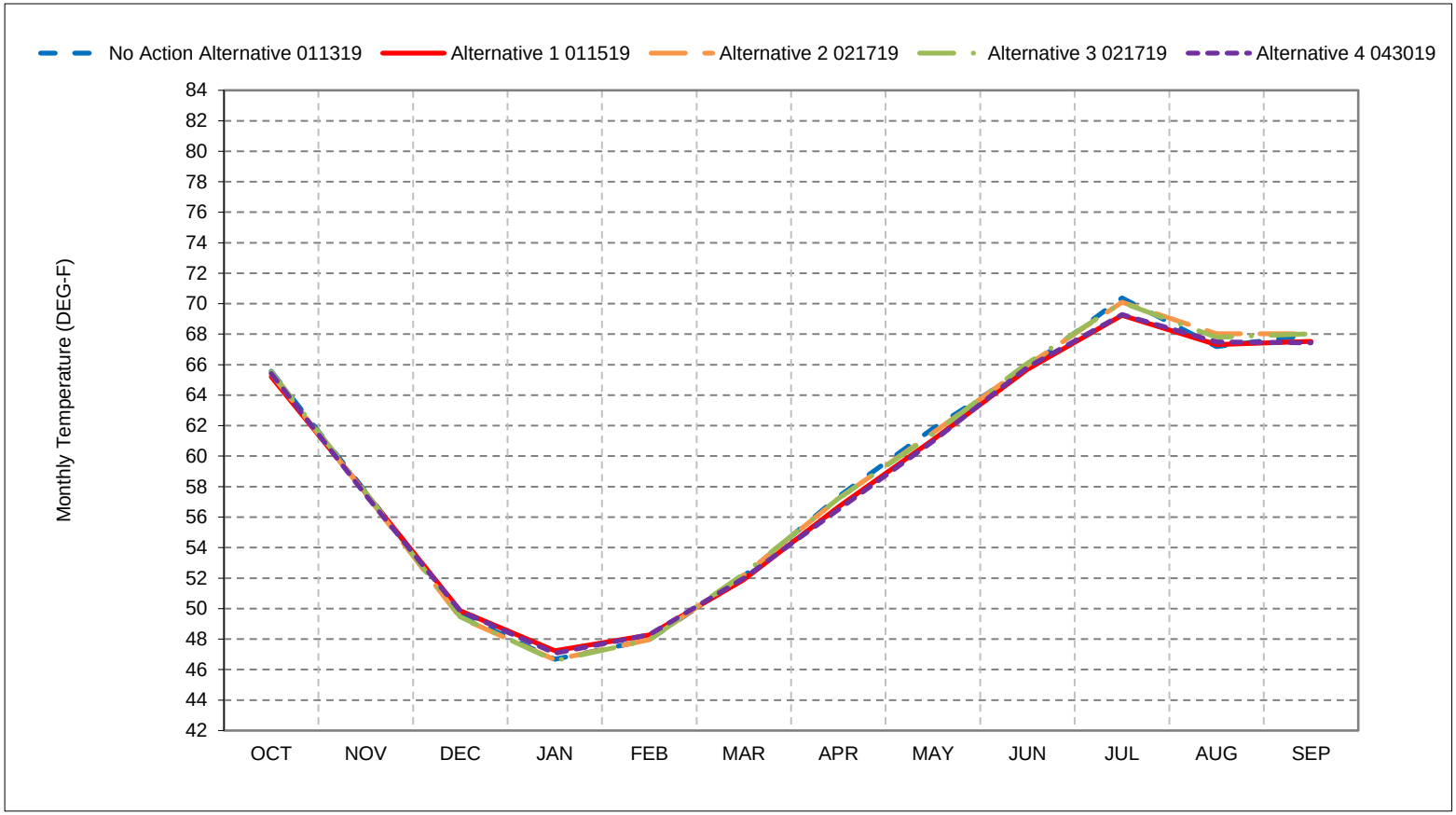
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-5. American River below Nimbus Dam, Dry Year Average Temperature



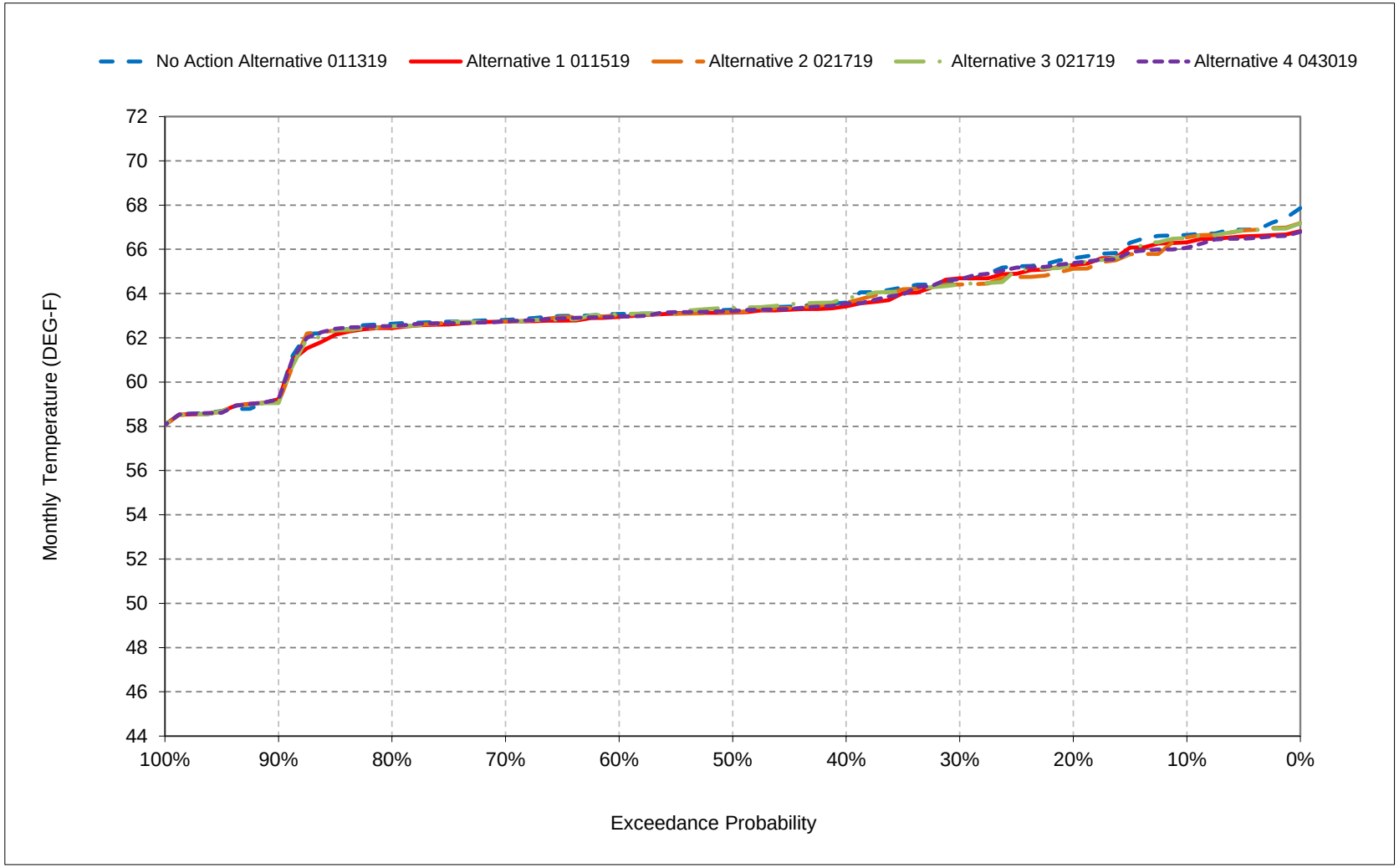
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-6. American River below Nimbus Dam, Critical Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

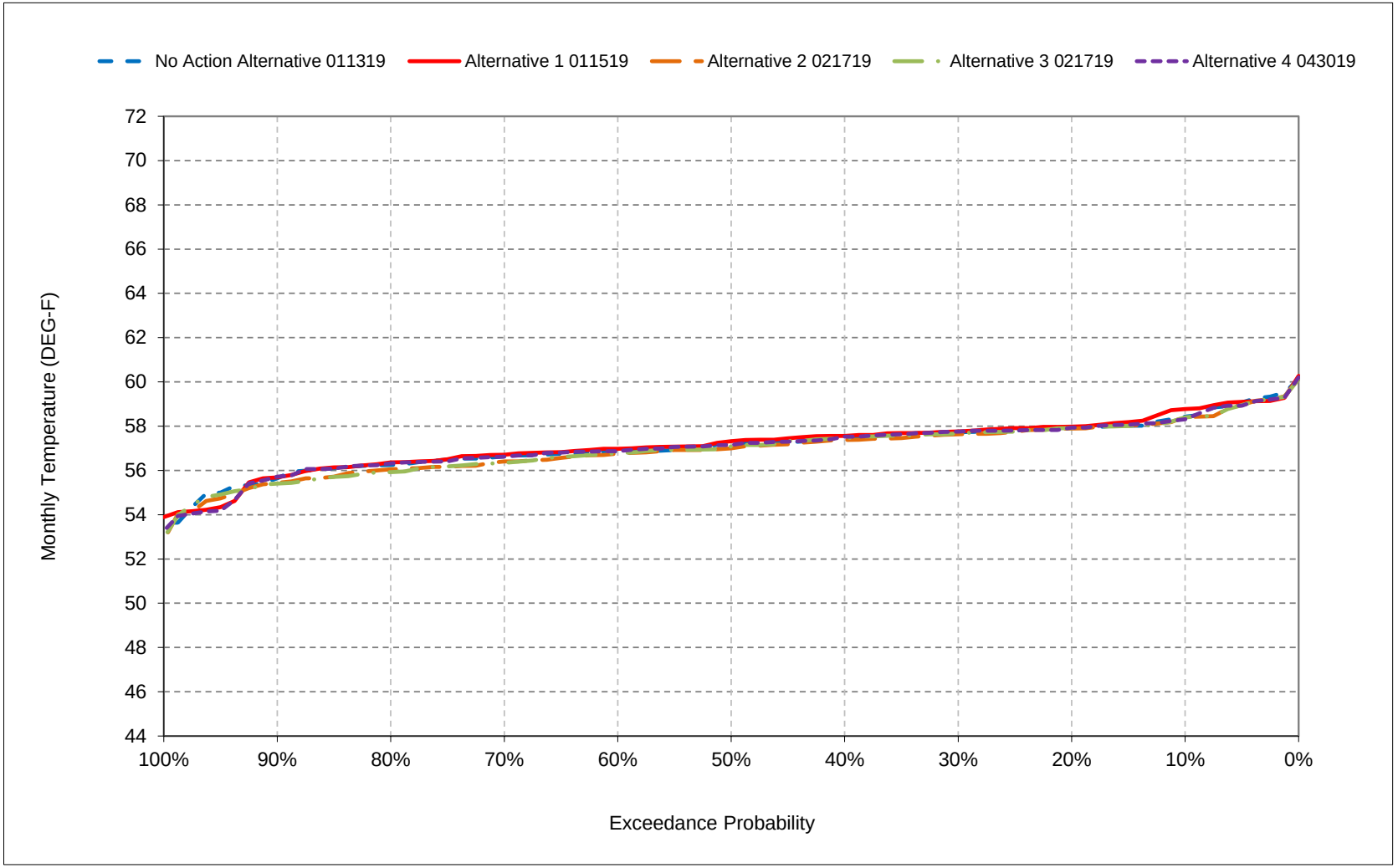
Figure 15-7. American River below Nimbus Dam, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

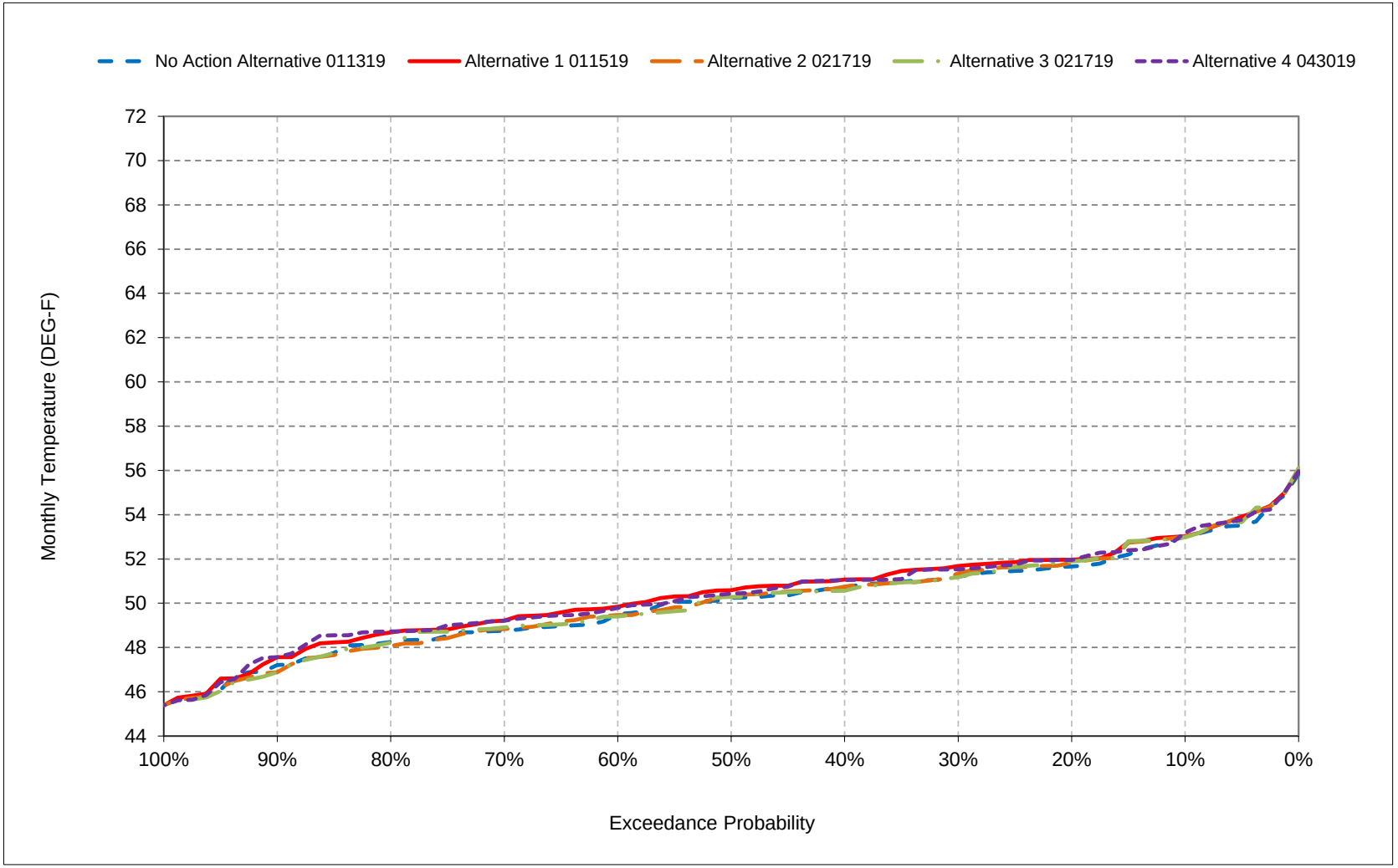
Figure 15-8. American River below Nimbus Dam, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

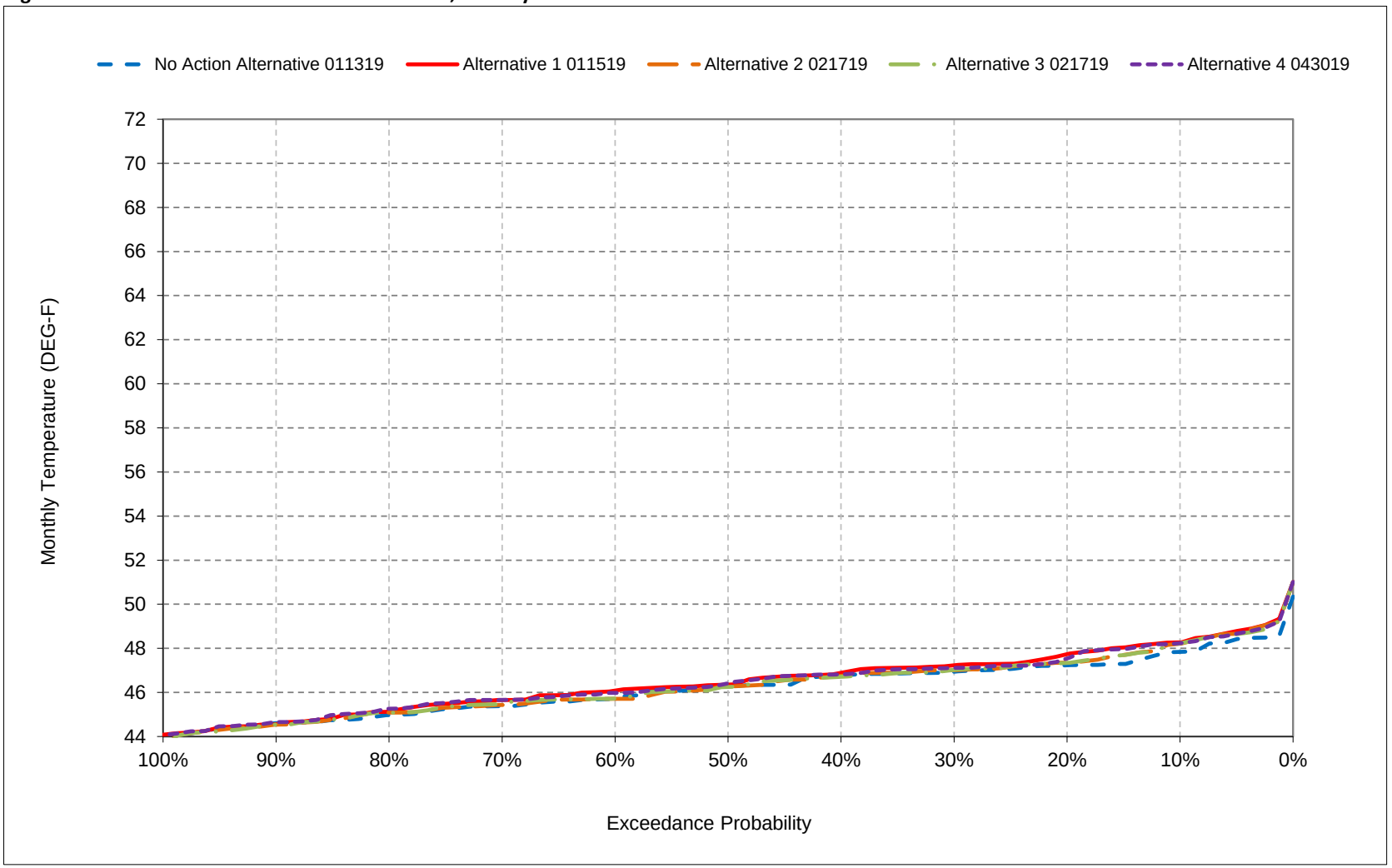
Figure 15-9. American River below Nimbus Dam, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

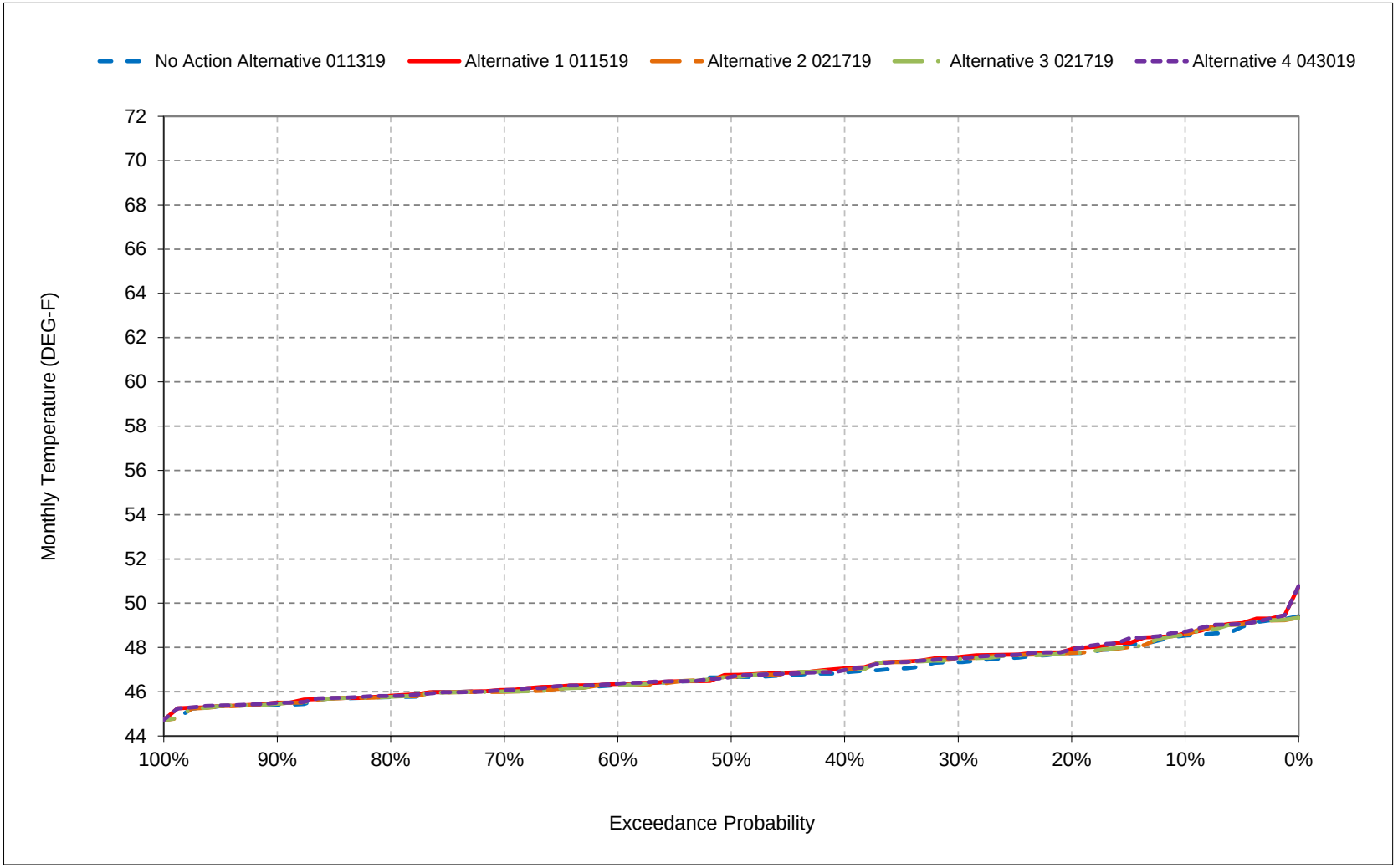
Figure 15-10. American River below Nimbus Dam, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

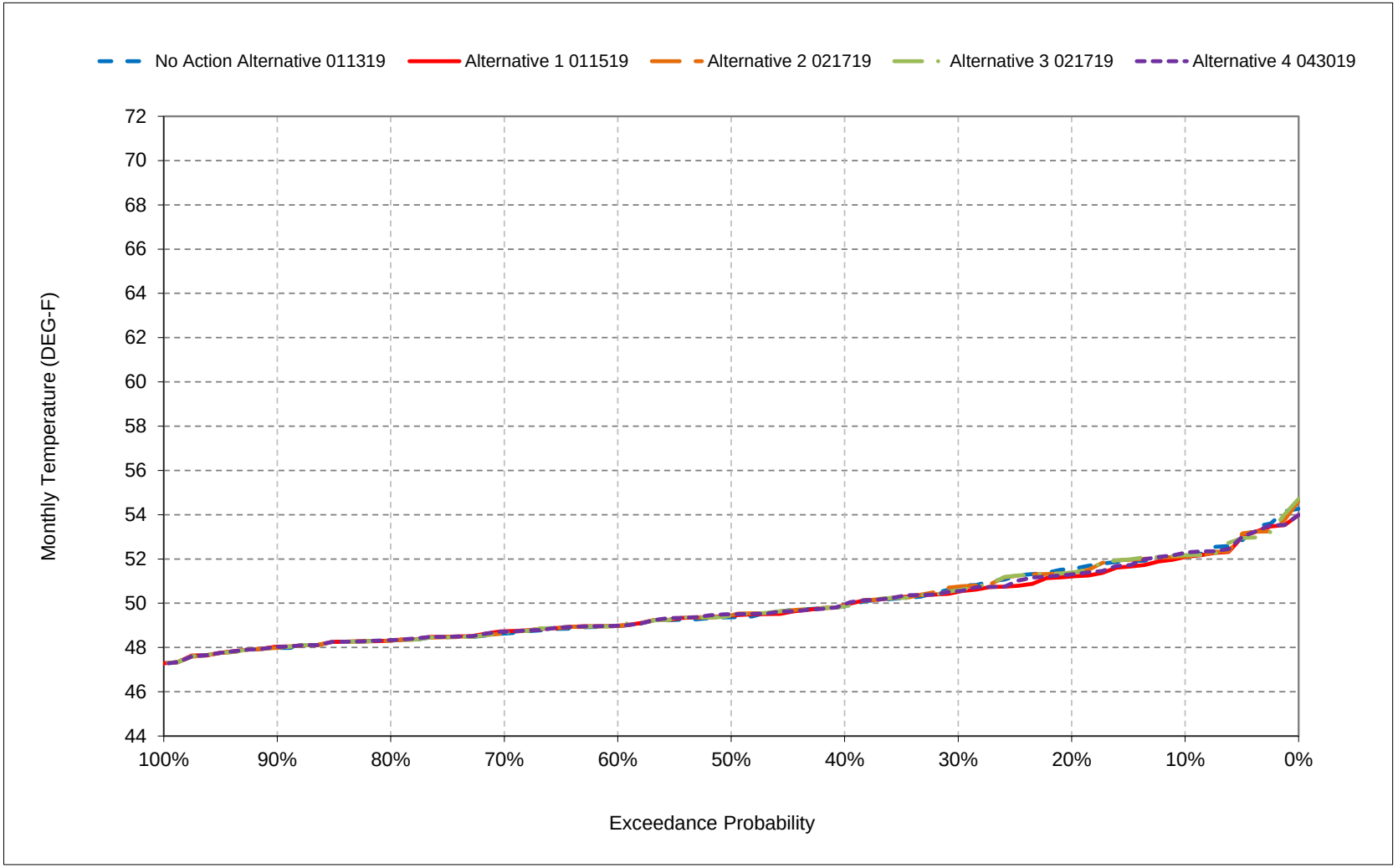
Figure 15-11. American River below Nimbus Dam, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

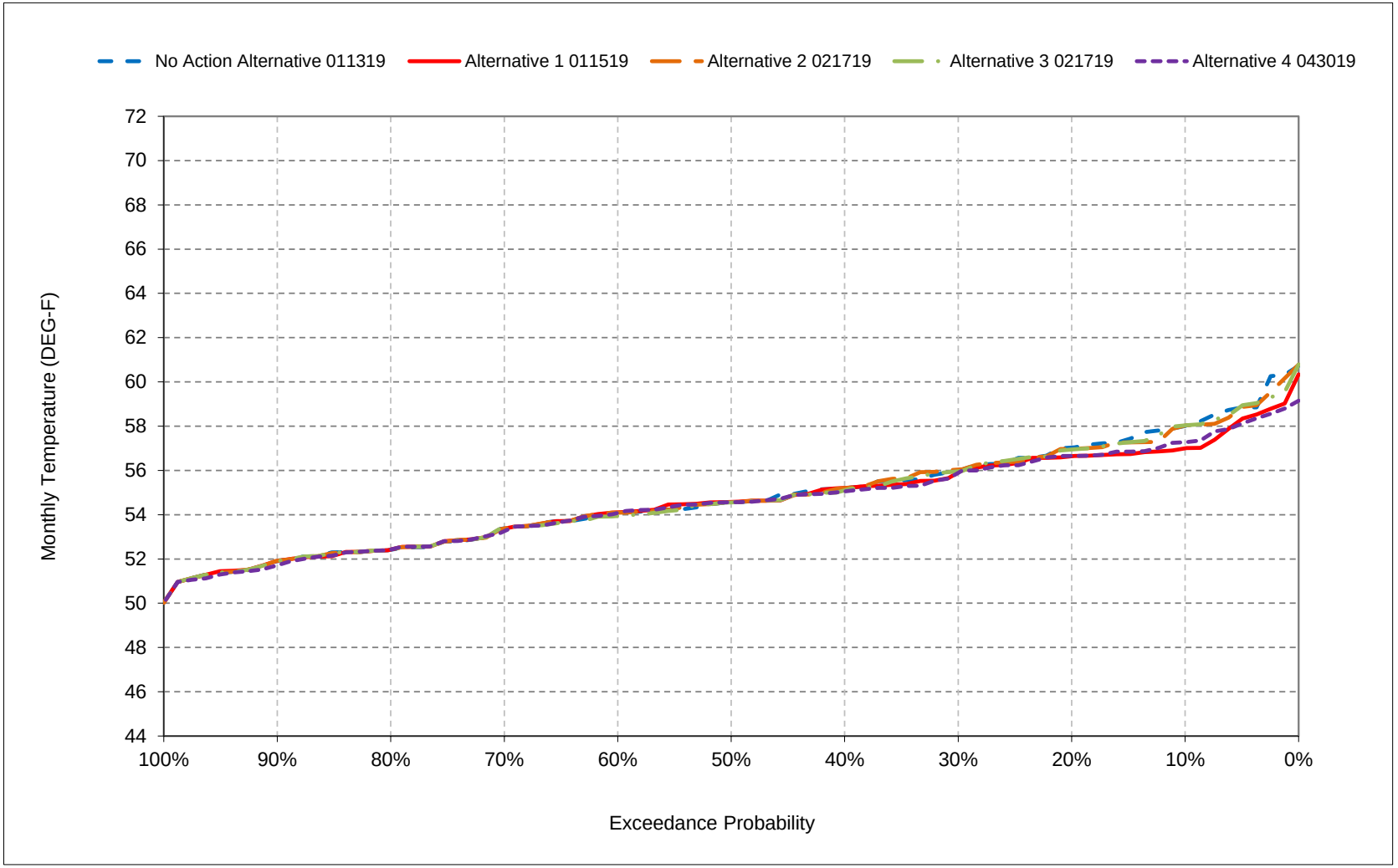
Figure 15-12. American River below Nimbus Dam, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

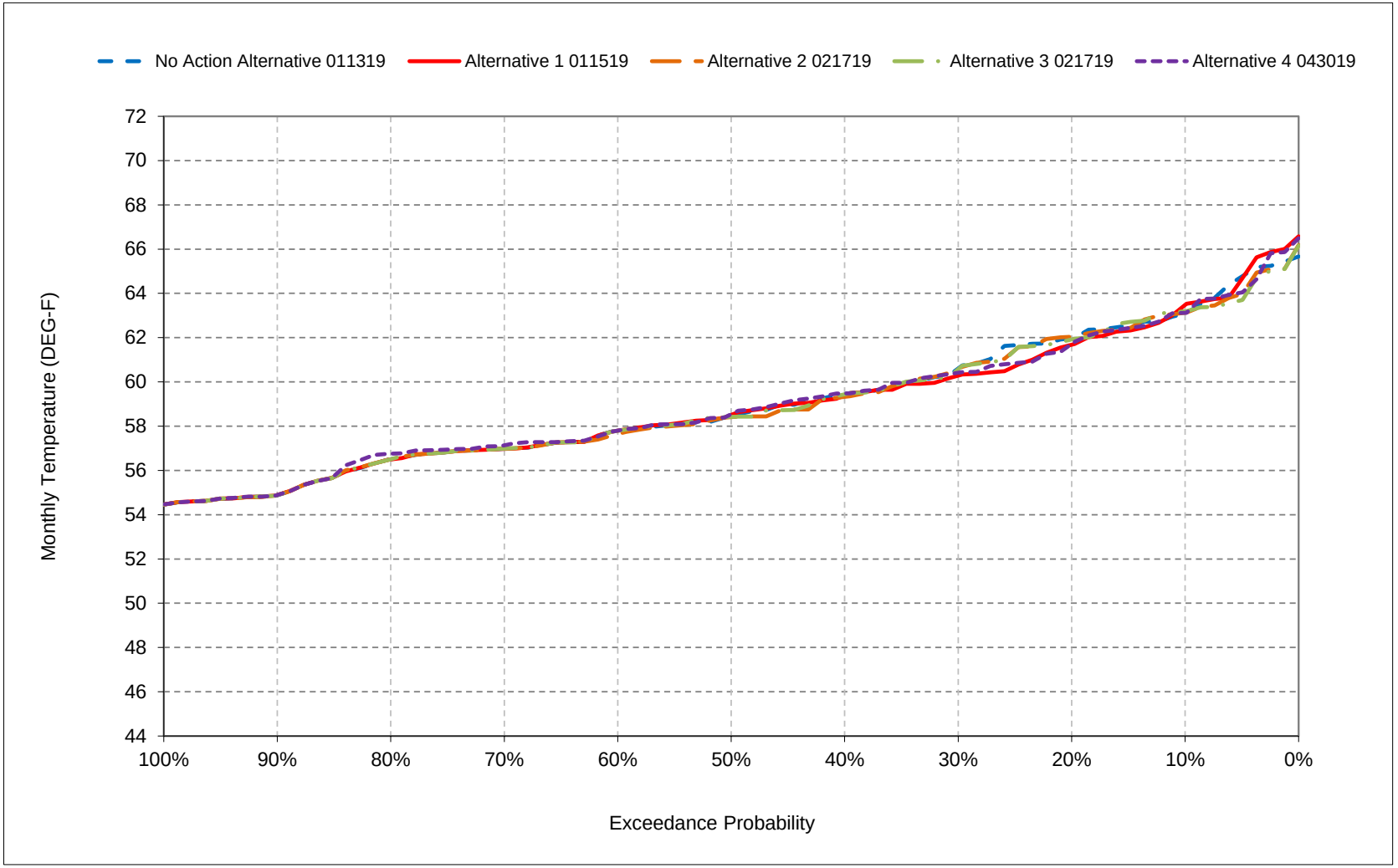
Figure 15-13. American River below Nimbus Dam, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

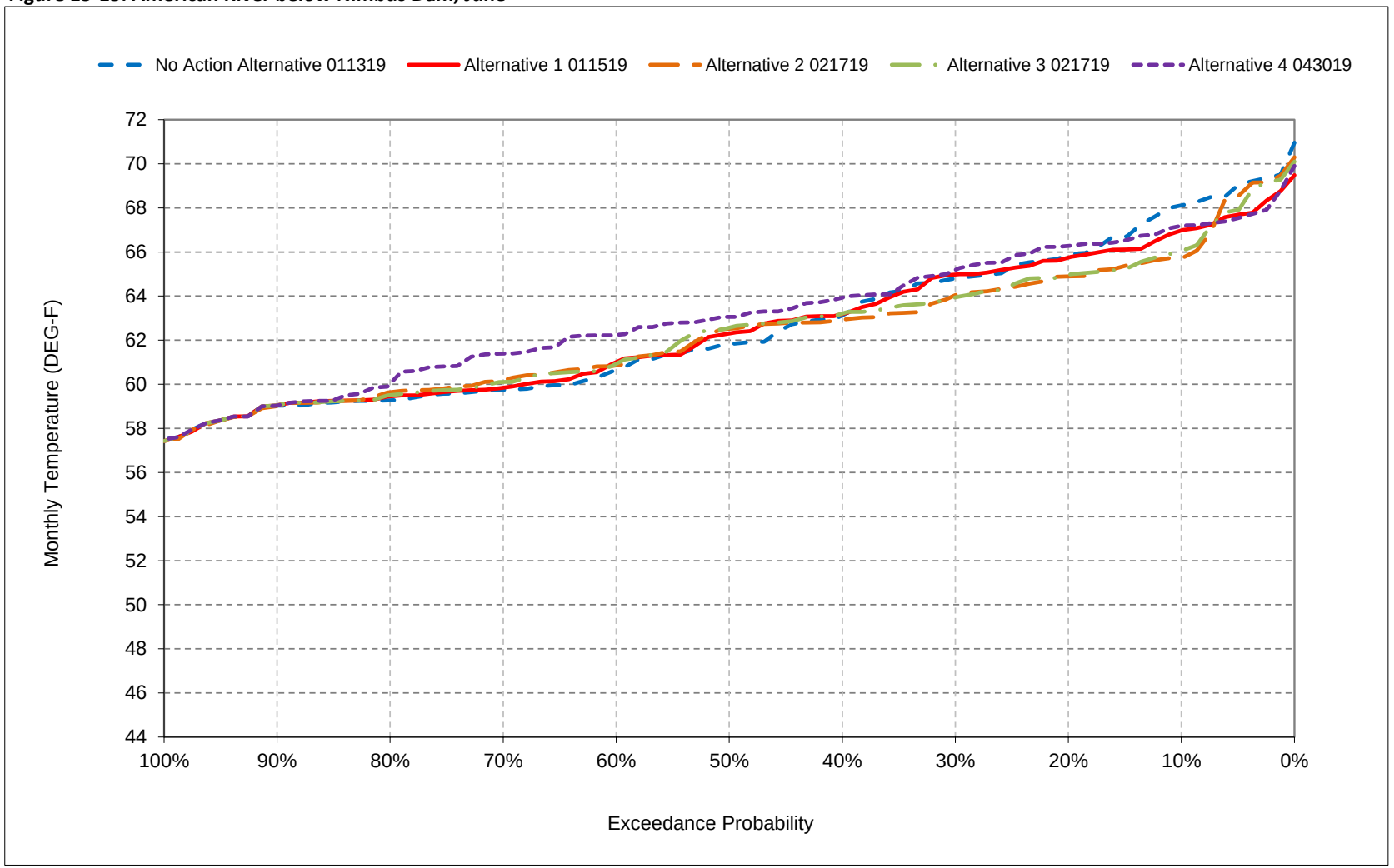
Figure 15-14. American River below Nimbus Dam, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

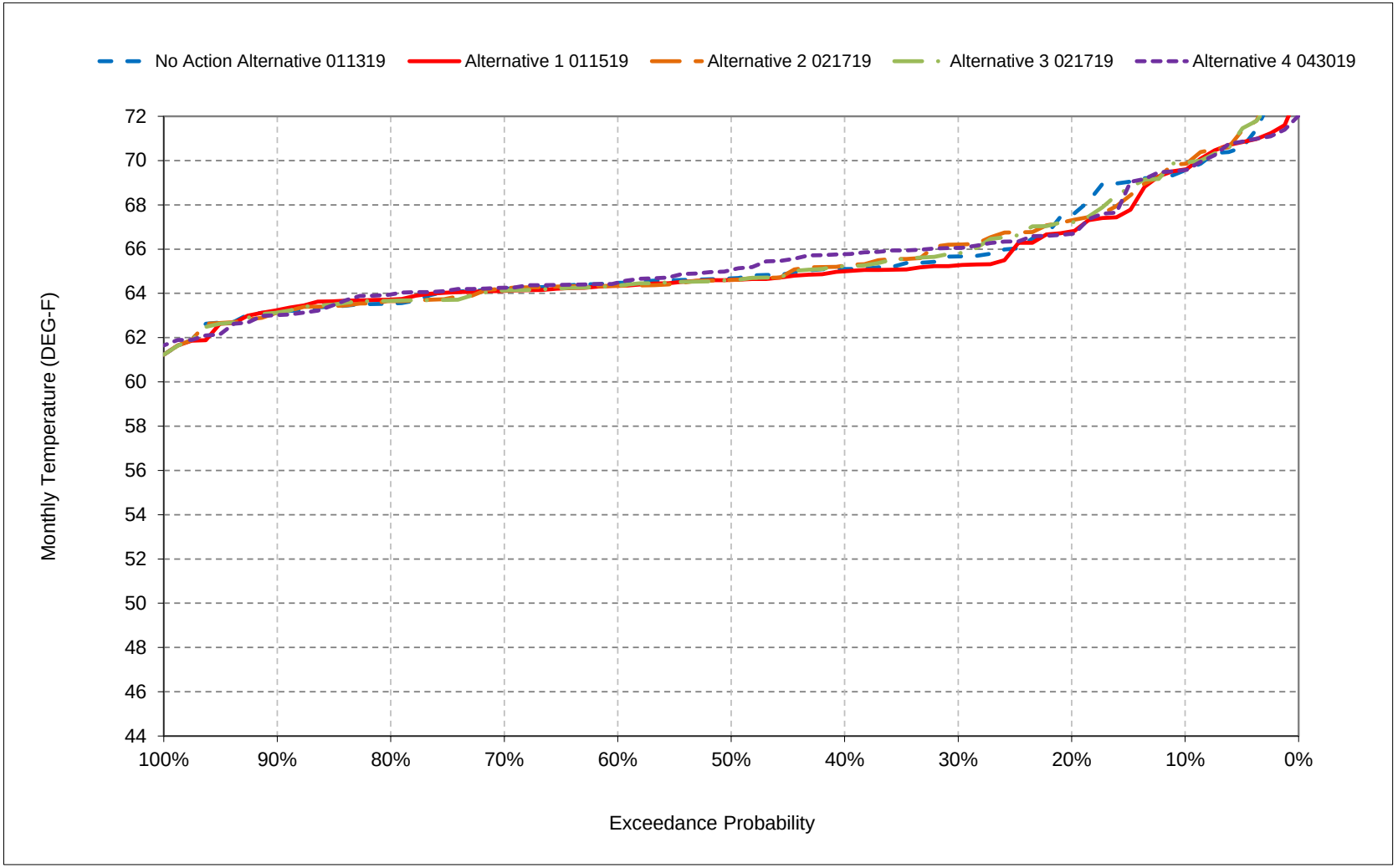
Figure 15-15. American River below Nimbus Dam, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

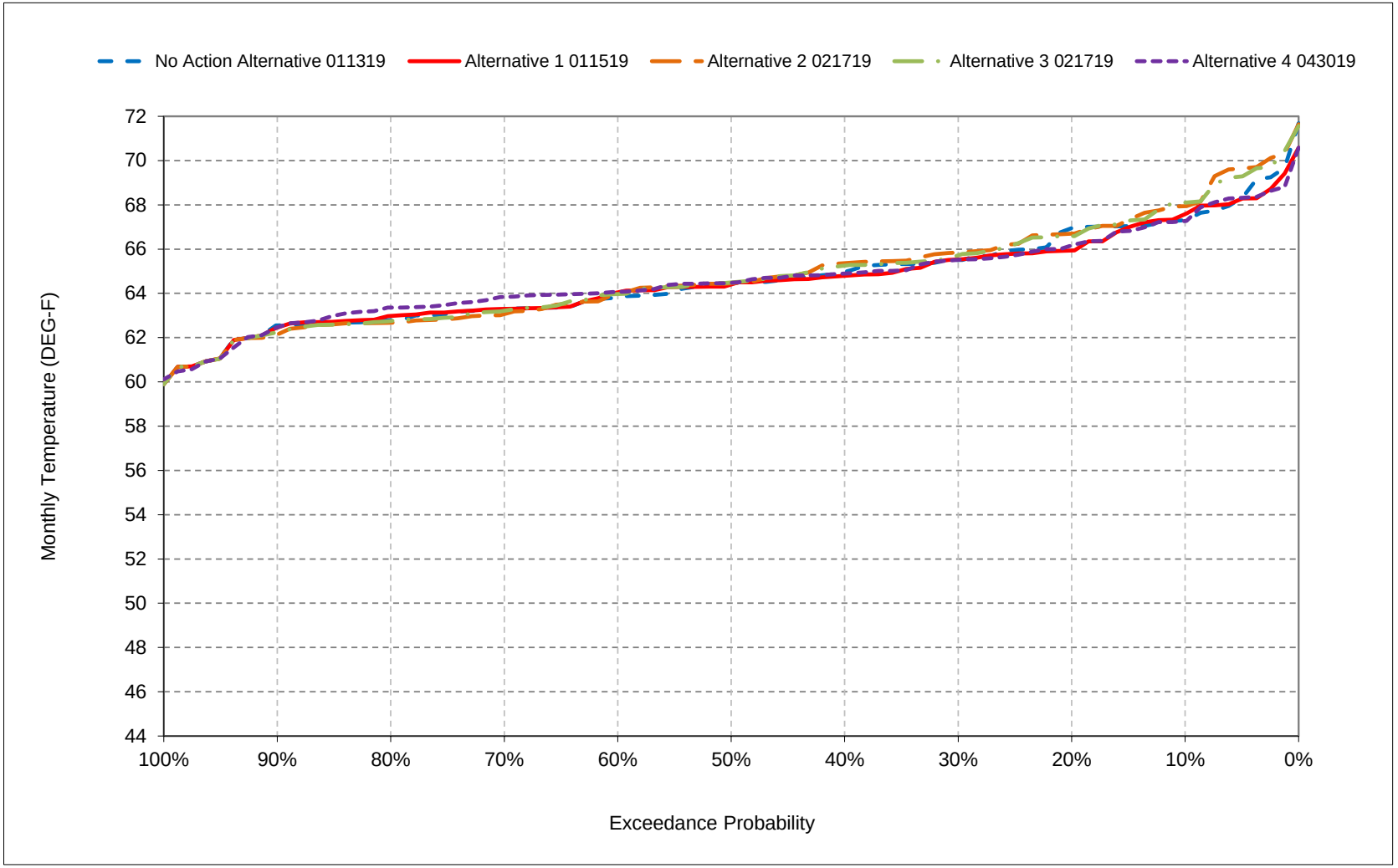
Figure 15-16. American River below Nimbus Dam, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

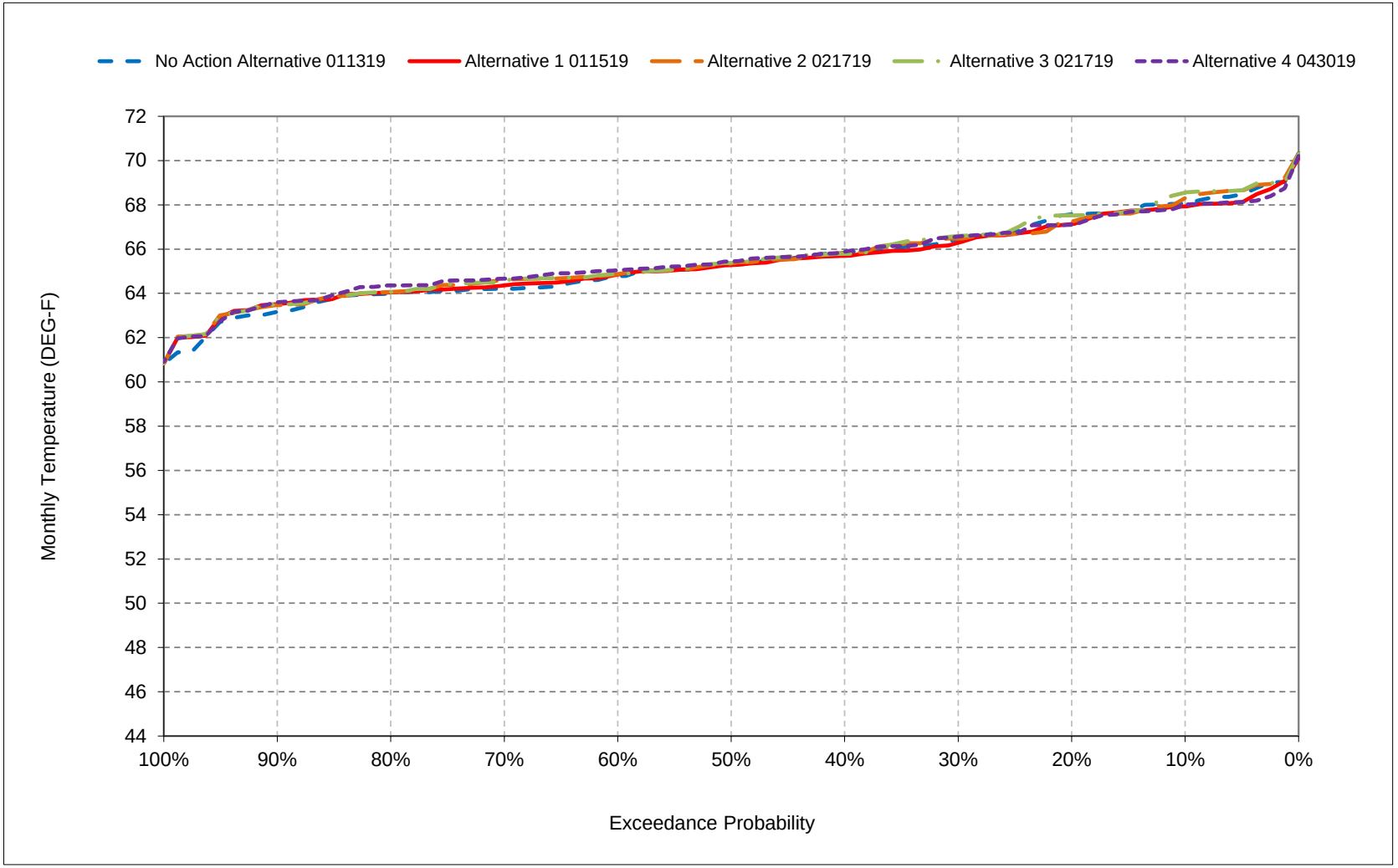
Figure 15-17. American River below Nimbus Dam, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-18. American River below Nimbus Dam, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 16-1. American River at Watt Avenue, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.3	58.4	52.2	48.3	49.9	56.2	62.7	68.0	73.9	74.8	73.2	71.4
20%	65.9	58.0	51.5	47.8	49.5	55.0	60.6	66.8	70.6	71.0	72.0	70.2
30%	65.0	57.7	50.8	47.3	48.6	53.5	59.1	65.3	68.9	69.5	69.7	69.0
40%	64.5	57.3	50.4	47.1	48.2	51.9	57.8	63.9	67.1	68.6	69.2	68.3
50%	64.1	57.1	50.1	46.8	47.7	51.3	57.0	62.4	66.1	68.2	68.7	67.8
60%	63.7	56.8	49.2	46.4	47.2	50.4	56.5	61.1	64.6	67.7	67.9	66.7
70%	63.3	56.5	48.6	45.8	46.9	50.0	55.0	59.8	63.7	67.5	67.3	66.3
80%	63.0	56.2	48.0	45.4	46.5	49.7	54.2	59.1	63.1	67.0	66.8	66.0
90%	61.1	55.8	47.3	44.9	46.1	49.2	53.4	57.1	61.9	66.4	65.9	65.6
Long Term												
Full Simulation Period[a]	64.2	57.1	49.9	46.7	48.0	52.0	57.5	62.7	66.8	69.5	69.1	68.0
Water Year Types[b,c]												
Wet (32%)	62.5	57.0	50.4	45.9	46.7	49.9	54.7	59.3	63.3	67.5	66.8	65.8
Above Normal (16%)	63.9	56.6	49.7	46.7	47.5	50.4	56.4	62.0	66.0	67.2	68.4	67.3
Below Normal (13%)	64.6	57.2	49.9	47.0	47.8	52.6	59.2	64.0	68.2	68.2	70.0	68.7
Dry (24%)	65.2	57.0	49.4	47.1	48.7	53.1	58.7	64.4	68.5	70.2	69.9	69.2
Critical (15%)	66.2	57.7	49.5	47.3	50.5	55.7	61.4	66.7	71.0	76.4	72.7	71.0

Alternative 1 011519

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.2	58.4	52.4	48.7	50.4	55.2	61.3	67.6	72.8	74.6	73.2	71.1
20%	65.8	58.1	51.8	48.0	49.4	53.9	60.1	66.3	71.2	70.5	70.2	69.4
30%	64.9	57.7	51.3	47.6	48.7	53.1	59.2	65.2	68.7	69.5	69.6	68.7
40%	64.5	57.4	50.6	47.3	48.1	51.9	58.2	64.2	67.1	68.7	69.0	68.2
50%	63.9	57.2	50.3	46.7	47.7	51.2	57.2	62.5	66.1	68.3	68.5	67.6
60%	63.6	56.9	49.6	46.5	47.2	50.5	56.5	61.0	64.7	67.9	67.8	67.3
70%	63.3	56.8	49.1	46.2	46.9	50.0	55.1	59.8	63.9	67.6	67.2	66.9
80%	62.8	56.1	48.5	45.6	46.4	49.7	54.1	59.1	62.9	67.2	66.6	66.5
90%	61.1	55.7	47.3	45.0	46.2	49.2	53.4	57.1	62.0	66.5	65.9	66.0
Long Term												
Full Simulation Period[a]	64.1	57.1	50.1	46.9	48.0	51.7	57.3	62.6	66.6	69.4	68.9	68.1
Water Year Types[b,c]												
Wet (32%)	62.5	57.2	51.0	46.0	46.8	49.9	54.7	59.4	63.2	67.6	66.8	66.6
Above Normal (16%)	63.9	56.7	50.0	47.0	47.5	50.4	56.4	62.0	65.9	67.2	68.2	67.4
Below Normal (13%)	64.5	57.0	49.8	47.4	47.9	52.2	58.8	63.8	67.6	68.5	68.7	68.3
Dry (24%)	65.0	57.1	49.6	47.2	48.7	52.8	58.5	64.6	68.5	70.3	69.8	68.8
Critical (15%)	66.0	57.6	49.6	47.8	50.2	54.9	60.4	65.9	70.8	74.9	72.9	70.5

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.2	0.0	**0.2**	**0.3**	**0.5**	-1.0	-1.4	-0.5	-1.1	-0.2	0.0	-0.4
20%	-0.1	**0.1**	**0.3**	**0.2**	-0.1	-1.0	-0.5	-0.5	**0.7**	-0.5	-1.8	-0.8
30%	-0.1	**0.0**	**0.5**	**0.3**	**0.1**	-0.4	**0.1**	-0.1	-0.2	0.0	-0.1	-0.3
40%	**0.1**	**0.1**	**0.2**	**0.2**	-0.1	**0.0**	**0.4**	**0.4**	**0.0**	**0.0**	-0.1	-0.1
50%	-0.2	**0.0**	**0.2**	0.0	0.0	-0.1	**0.1**	**0.0**	**0.0**	**0.0**	-0.2	-0.2
60%	-0.1	**0.1**	**0.4**	**0.1**	**0.0**	**0.1**	**0.0**	-0.1	**0.1**	**0.2**	0.0	**0.6**
70%	0.0	**0.3**	**0.4**	**0.4**	0.0	**0.0**	**0.1**	**0.0**	**0.2**	**0.1**	0.0	**0.5**
80%	-0.2	-0.1	**0.4**	**0.2**	0.0	**0.0**	0.0	0.0	-0.2	**0.2**	-0.2	**0.5**
90%	0.0	-0.1	**0.0**	**0.1**	**0.0**	0.0	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.4**
Long Term												
Full Simulation Period[a]	-0.1	**0.0**	**0.3**	**0.2**	0.0	-0.2	-0.2	-0.1	-0.2	-0.1	-0.2	**0.1**
Water Year Types[b,c]												
Wet (32%)	**0.0**	**0.1**	**0.6**	**0.1**	**0.0**	**0.0**	**0.1**	**0.0**	-0.1	**0.1**	**0.0**	**0.8**
Above Normal (16%)	**0.0**	**0.1**	**0.2**	**0.3**	**0.0**	0.0	**0.1**	**0.0**	-0.1	**0.1**	-0.1	**0.1**
Below Normal (13%)	-0.1	-0.2	-0.1	**0.5**	**0.0**	-0.3	-0.4	-0.2	-0.6	**0.3**	-1.3	-0.4
Dry (24%)	-0.2	**0.1**	**0.2**	**0.1**	**0.0**	-0.3	-0.2	**0.2**	-0.1	**0.2**	-0.1	-0.4
Critical (15%)	-0.2	-0.1	**0.1**	**0.4**	-0.3	-0.8	-1.0	-0.8	-0.1	-1.5	**0.2**	-0.5

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 16-2. American River at Watt Avenue, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.3	58.4	52.2	48.3	49.9	56.2	62.7	68.0	73.9	74.8	73.2	71.4
20%	65.9	58.0	51.5	47.8	49.5	55.0	60.6	66.8	70.6	71.0	72.0	70.2
30%	65.0	57.7	50.8	47.3	48.6	53.5	59.1	65.3	68.9	69.5	69.7	69.0
40%	64.5	57.3	50.4	47.1	48.2	51.9	57.8	63.9	67.1	68.6	69.2	68.3
50%	64.1	57.1	50.1	46.8	47.7	51.3	57.0	62.4	66.1	68.2	68.7	67.8
60%	63.7	56.8	49.2	46.4	47.2	50.4	56.5	61.1	64.6	67.7	67.9	66.7
70%	63.3	56.5	48.6	45.8	46.9	50.0	55.0	59.8	63.7	67.5	67.3	66.3
80%	63.0	56.2	48.0	45.4	46.5	49.7	54.2	59.1	63.1	67.0	66.8	66.0
90%	61.1	55.8	47.3	44.9	46.1	49.2	53.4	57.1	61.9	66.4	65.9	65.6
Long Term												
Full Simulation Period[a]	64.2	57.1	49.9	46.7	48.0	52.0	57.5	62.7	66.8	69.5	69.1	68.0
Water Year Types[b,c]												
Wet (32%)	62.5	57.0	50.4	45.9	46.7	49.9	54.7	59.3	63.3	67.5	66.8	65.8
Above Normal (16%)	63.9	56.6	49.7	46.7	47.5	50.4	56.4	62.0	66.0	67.2	68.4	67.3
Below Normal (13%)	64.6	57.2	49.9	47.0	47.8	52.6	59.2	64.0	68.2	68.2	70.0	68.7
Dry (24%)	65.2	57.0	49.4	47.1	48.7	53.1	58.7	64.4	68.5	70.2	69.9	69.2
Critical (15%)	66.2	57.7	49.5	47.3	50.5	55.7	61.4	66.7	71.0	76.4	72.7	71.0

Alternative 2 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.2	58.3	52.3	48.7	50.1	56.1	62.3	67.7	71.5	75.8	74.4	71.4
20%	65.6	58.0	51.7	47.8	49.5	54.7	60.1	66.3	68.8	70.9	72.2	70.1
30%	65.0	57.6	51.0	47.5	48.8	53.6	59.0	64.8	67.8	69.6	70.4	69.3
40%	64.5	57.3	50.4	47.2	48.2	51.9	58.0	63.2	66.3	68.7	69.4	68.7
50%	64.1	57.0	50.0	46.6	47.7	51.3	57.0	62.1	65.8	68.4	68.9	68.0
60%	63.7	56.6	49.4	46.3	47.2	50.5	56.5	61.0	64.6	67.7	68.1	67.6
70%	63.4	56.4	48.6	45.9	46.8	50.0	55.1	59.8	63.8	67.4	66.7	67.2
80%	63.0	56.0	47.9	45.4	46.5	49.7	54.2	59.1	63.0	66.9	66.4	66.7
90%	60.6	55.5	47.1	44.9	46.2	49.2	53.4	57.1	62.0	66.5	65.7	66.0
Long Term												
Full Simulation Period[a]	64.1	57.0	49.9	46.7	48.1	52.0	57.5	62.5	66.2	69.5	69.4	68.4
Water Year Types[b,c]												
Wet (32%)	62.6	57.1	50.9	45.9	46.7	49.9	54.7	59.3	63.2	67.7	66.5	66.8
Above Normal (16%)	63.9	56.3	49.6	46.9	47.5	50.4	56.4	61.9	65.4	67.0	68.8	67.9
Below Normal (13%)	64.3	56.6	49.4	47.3	47.9	52.5	59.2	63.5	66.0	68.2	69.7	68.4
Dry (24%)	65.1	57.0	49.3	47.1	48.8	53.1	58.6	64.2	67.9	70.5	70.4	69.2
Critical (15%)	66.1	57.6	49.3	47.3	50.5	55.8	61.2	66.4	71.3	76.0	74.1	71.1

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.1	-0.1	**0.2**	**0.3**	**0.2**	-0.1	-0.4	-0.4	-2.4	**1.0**	**1.1**	-0.1
20%	-0.3	**0.0**	**0.2**	**0.0**	**0.1**	-0.2	-0.4	-0.5	-1.8	-0.1	**0.1**	0.0
30%	0.0	-0.1	**0.2**	**0.2**	**0.2**	**0.1**	-0.1	-0.5	-1.1	**0.1**	**0.8**	**0.4**
40%	**0.1**	0.0	0.0	**0.1**	0.0	0.0	**0.2**	-0.7	-0.7	**0.0**	**0.3**	**0.4**
50%	**0.0**	-0.2	-0.1	-0.1	**0.0**	**0.0**	**0.0**	-0.3	-0.2	**0.1**	**0.2**	**0.2**
60%	**0.1**	-0.2	**0.2**	-0.1	**0.0**	**0.0**	**0.0**	-0.1	**0.1**	**0.0**	**0.3**	**0.8**
70%	**0.1**	-0.1	-0.1	**0.1**	0.0	**0.0**	**0.1**	**0.0**	**0.1**	-0.1	-0.5	**0.9**
80%	-0.1	-0.1	-0.1	0.0	0.0	**0.0**	**0.0**	0.0	-0.1	-0.1	-0.3	**0.8**
90%	-0.5	-0.4	-0.2	0.0	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	-0.2	**0.4**
Long Term												
Full Simulation Period[a]	-0.1	-0.1	**0.0**	**0.1**	**0.0**	**0.0**	0.0	-0.2	-0.5	**0.0**	**0.3**	**0.4**
Water Year Types[b,c]												
Wet (32%)	**0.1**	**0.1**	**0.5**	**0.1**	**0.0**	**0.0**	**0.0**	-0.1	-0.1	**0.2**	-0.3	**1.1**
Above Normal (16%)	0.0	-0.3	-0.2	**0.2**	0.0	0.0	**0.0**	-0.1	-0.7	-0.2	**0.5**	**0.6**
Below Normal (13%)	-0.3	-0.7	-0.5	**0.3**	**0.0**	-0.1	-0.1	-0.6	-2.2	**0.0**	-0.2	-0.3
Dry (24%)	-0.1	-0.1	-0.1	**0.0**	**0.0**	**0.0**	-0.1	-0.2	-0.7	**0.3**	**0.5**	**0.0**
Critical (15%)	-0.1	-0.1	-0.2	0.0	**0.0**	**0.1**	-0.2	-0.3	**0.3**	-0.4	**1.4**	**0.1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 16-3. American River at Watt Avenue, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.3	58.4	52.2	48.3	49.9	56.2	62.7	68.0	73.9	74.8	73.2	71.4
20%	65.9	58.0	51.5	47.8	49.5	55.0	60.6	66.8	70.6	71.0	72.0	70.2
30%	65.0	57.7	50.8	47.3	48.6	53.5	59.1	65.3	68.9	69.5	69.7	69.0
40%	64.5	57.3	50.4	47.1	48.2	51.9	57.8	63.9	67.1	68.6	69.2	68.3
50%	64.1	57.1	50.1	46.8	47.7	51.3	57.0	62.4	66.1	68.2	68.7	67.8
60%	63.7	56.8	49.2	46.4	47.2	50.4	56.5	61.1	64.6	67.7	67.9	66.7
70%	63.3	56.5	48.6	45.8	46.9	50.0	55.0	59.8	63.7	67.5	67.3	66.3
80%	63.0	56.2	48.0	45.4	46.5	49.7	54.2	59.1	63.1	67.0	66.8	66.0
90%	61.1	55.8	47.3	44.9	46.1	49.2	53.4	57.1	61.9	66.4	65.9	65.6
Long Term												
Full Simulation Period[a]	64.2	57.1	49.9	46.7	48.0	52.0	57.5	62.7	66.8	69.5	69.1	68.0
Water Year Types[b,c]												
Wet (32%)	62.5	57.0	50.4	45.9	46.7	49.9	54.7	59.3	63.3	67.5	66.8	65.8
Above Normal (16%)	63.9	56.6	49.7	46.7	47.5	50.4	56.4	62.0	66.0	67.2	68.4	67.3
Below Normal (13%)	64.6	57.2	49.9	47.0	47.8	52.6	59.2	64.0	68.2	68.2	70.0	68.7
Dry (24%)	65.2	57.0	49.4	47.1	48.7	53.1	58.7	64.4	68.5	70.2	69.9	69.2
Critical (15%)	66.2	57.7	49.5	47.3	50.5	55.7	61.4	66.7	71.0	76.4	72.7	71.0

Alternative 3 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.3	58.3	52.3	48.6	50.2	56.2	62.6	67.7	71.6	75.8	74.2	71.8
20%	65.7	58.0	51.7	47.7	49.6	54.8	60.0	66.3	68.9	70.8	72.2	70.4
30%	65.0	57.6	50.8	47.5	48.7	53.6	59.0	64.5	67.7	69.6	70.4	69.4
40%	64.6	57.4	50.3	47.3	48.3	51.9	57.8	63.2	66.6	68.7	69.4	68.7
50%	64.2	57.0	50.0	46.7	47.8	51.3	57.0	62.3	65.8	68.3	68.8	67.9
60%	63.7	56.8	49.4	46.3	47.2	50.5	56.5	61.0	64.6	67.7	68.1	67.6
70%	63.4	56.4	48.7	45.9	46.9	50.0	55.1	59.8	63.8	67.5	66.8	67.3
80%	63.0	56.1	48.0	45.3	46.5	49.7	54.2	59.1	62.9	66.8	66.4	66.7
90%	60.6	55.4	47.0	44.9	46.2	49.2	53.4	57.1	62.0	66.3	65.6	66.0
Long Term												
Full Simulation Period[a]	64.2	57.0	49.9	46.7	48.1	52.0	57.4	62.5	66.3	69.5	69.3	68.5
Water Year Types[b,c]												
Wet (32%)	62.6	57.1	51.0	46.0	46.8	49.9	54.7	59.3	63.1	67.6	66.8	67.0
Above Normal (16%)	63.9	56.3	49.6	46.9	47.5	50.4	56.4	61.9	65.4	66.9	68.2	67.7
Below Normal (13%)	64.3	56.7	49.4	47.3	47.9	52.5	59.0	63.4	66.1	68.3	69.7	68.6
Dry (24%)	65.1	57.0	49.3	47.0	48.8	53.1	58.5	64.2	67.9	70.4	70.5	69.3
Critical (15%)	66.2	57.6	49.4	47.2	50.6	55.9	61.3	66.3	71.4	76.2	73.7	71.1

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.0**	-0.1	**0.1**	**0.3**	**0.2**	0.0	-0.1	-0.3	-2.3	**1.0**	**1.0**	**0.4**
20%	-0.2	**0.0**	**0.2**	0.0	**0.1**	-0.2	-0.5	-0.5	-1.7	-0.2	**0.2**	**0.3**
30%	0.0	0.0	**0.0**	**0.2**	**0.2**	**0.1**	-0.1	-0.7	-1.2	**0.0**	**0.7**	**0.5**
40%	**0.1**	**0.1**	-0.1	**0.1**	**0.0**	**0.0**	**0.0**	-0.7	-0.4	**0.0**	**0.2**	**0.4**
50%	**0.1**	-0.2	0.0	-0.1	**0.1**	**0.0**	-0.1	-0.2	-0.3	**0.1**	**0.1**	**0.1**
60%	**0.1**	0.0	**0.1**	-0.1	0.0	**0.0**	**0.0**	-0.1	**0.1**	**0.0**	**0.2**	**0.8**
70%	**0.0**	-0.1	**0.0**	**0.1**	0.0	**0.0**	**0.1**	**0.0**	**0.1**	0.0	-0.4	**0.9**
80%	0.0	-0.1	**0.0**	-0.1	0.0	**0.0**	**0.0**	0.0	-0.2	-0.2	-0.4	**0.7**
90%	-0.5	-0.4	-0.3	0.0	**0.1**	**0.0**	0.0	0.0	**0.0**	0.0	-0.2	**0.5**
Long Term												
Full Simulation Period[a]	0.0	-0.1	**0.0**	**0.1**	**0.0**	**0.0**	-0.1	-0.2	-0.5	**0.0**	**0.2**	**0.5**
Water Year Types[b,c]												
Wet (32%)	**0.1**	**0.1**	**0.6**	**0.1**	**0.0**	**0.0**	0.0	**0.0**	-0.2	**0.1**	**0.0**	**1.2**
Above Normal (16%)	**0.0**	-0.3	-0.2	**0.2**	0.0	**0.0**	**0.0**	-0.1	-0.6	-0.2	-0.1	**0.4**
Below Normal (13%)	-0.3	-0.6	-0.5	**0.3**	**0.0**	-0.1	-0.2	-0.6	-2.1	**0.1**	-0.2	-0.2
Dry (24%)	-0.1	-0.1	-0.1	0.0	**0.1**	0.0	-0.2	-0.2	-0.6	**0.3**	**0.6**	**0.1**
Critical (15%)	**0.0**	0.0	-0.1	-0.1	**0.1**	**0.2**	-0.1	-0.4	**0.4**	-0.2	**1.0**	**0.1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 16-4. American River at Watt Avenue, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.3	58.4	52.2	48.3	49.9	56.2	62.7	68.0	73.9	74.8	73.2	71.4
20%	65.9	58.0	51.5	47.8	49.5	55.0	60.6	66.8	70.6	71.0	72.0	70.2
30%	65.0	57.7	50.8	47.3	48.6	53.5	59.1	65.3	68.9	69.5	69.7	69.0
40%	64.5	57.3	50.4	47.1	48.2	51.9	57.8	63.9	67.1	68.6	69.2	68.3
50%	64.1	57.1	50.1	46.8	47.7	51.3	57.0	62.4	66.1	68.2	68.7	67.8
60%	63.7	56.8	49.2	46.4	47.2	50.4	56.5	61.1	64.6	67.7	67.9	66.7
70%	63.3	56.5	48.6	45.8	46.9	50.0	55.0	59.8	63.7	67.5	67.3	66.3
80%	63.0	56.2	48.0	45.4	46.5	49.7	54.2	59.1	63.1	67.0	66.8	66.0
90%	61.1	55.8	47.3	44.9	46.1	49.2	53.4	57.1	61.9	66.4	65.9	65.6
Long Term												
Full Simulation Period[a]	64.2	57.1	49.9	46.7	48.0	52.0	57.5	62.7	66.8	69.5	69.1	68.0
Water Year Types[b,c]												
Wet (32%)	62.5	57.0	50.4	45.9	46.7	49.9	54.7	59.3	63.3	67.5	66.8	65.8
Above Normal (16%)	63.9	56.6	49.7	46.7	47.5	50.4	56.4	62.0	66.0	67.2	68.4	67.3
Below Normal (13%)	64.6	57.2	49.9	47.0	47.8	52.6	59.2	64.0	68.2	68.2	70.0	68.7
Dry (24%)	65.2	57.0	49.4	47.1	48.7	53.1	58.7	64.4	68.5	70.2	69.9	69.2
Critical (15%)	66.2	57.7	49.5	47.3	50.5	55.7	61.4	66.7	71.0	76.4	72.7	71.0

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.1	58.3	52.7	48.6	50.4	55.5	61.3	68.1	73.1	74.8	72.9	71.1
20%	65.9	58.0	51.7	48.0	49.4	54.2	60.1	66.4	71.3	70.9	70.6	69.3
30%	65.0	57.7	51.1	47.6	48.7	53.1	59.2	65.3	69.4	70.0	69.5	68.8
40%	64.5	57.3	50.6	47.3	48.2	52.0	58.3	63.7	67.9	69.3	69.2	68.4
50%	64.1	57.0	50.1	46.8	47.7	51.2	57.0	62.3	66.8	68.6	68.7	67.6
60%	63.7	56.9	49.6	46.4	47.2	50.5	56.1	60.7	65.9	68.1	68.2	67.5
70%	63.3	56.5	49.1	46.0	46.9	50.0	54.9	59.5	65.3	67.7	67.8	67.2
80%	63.0	56.1	48.5	45.6	46.5	49.7	54.1	59.0	64.2	67.2	67.3	66.8
90%	61.0	55.6	47.6	45.0	46.2	49.2	53.0	57.1	62.0	66.8	65.9	66.1
Long Term												
Full Simulation Period[a]	64.2	57.0	50.1	46.9	48.0	51.8	57.2	62.5	67.3	69.6	69.0	68.2
Water Year Types[b,c]												
Wet (32%)	62.5	57.1	50.9	46.0	46.8	49.9	54.6	59.2	63.9	67.9	67.0	66.7
Above Normal (16%)	63.9	56.6	49.9	47.0	47.5	50.4	56.4	61.7	66.8	67.5	68.3	67.6
Below Normal (13%)	64.5	57.1	49.9	47.4	47.9	52.2	58.7	64.2	68.2	68.9	68.8	68.4
Dry (24%)	65.0	56.9	49.5	47.1	48.7	52.9	58.5	64.5	69.3	70.6	69.8	69.0
Critical (15%)	66.2	57.5	49.6	47.6	50.2	55.1	60.4	65.9	71.0	74.6	73.0	70.6

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.2	-0.1	**0.6**	**0.3**	**0.4**	-0.7	-1.4	**0.1**	-0.8	0.0	-0.3	-0.4
20%	-0.1	**0.0**	**0.2**	**0.3**	-0.1	-0.8	-0.5	-0.5	**0.7**	-0.1	-1.4	-0.8
30%	**0.0**	**0.0**	**0.3**	**0.2**	**0.1**	-0.4	**0.1**	**0.0**	**0.5**	**0.5**	-0.2	-0.1
40%	**0.0**	0.0	**0.2**	**0.1**	-0.1	**0.0**	**0.5**	-0.2	**0.8**	**0.6**	**0.0**	**0.1**
50%	0.0	-0.1	**0.0**	**0.1**	0.0	-0.1	**0.0**	-0.2	**0.7**	**0.4**	0.0	-0.1
60%	**0.0**	**0.1**	**0.3**	**0.0**	0.0	**0.1**	-0.4	-0.4	**1.3**	**0.4**	**0.3**	**0.7**
70%	0.0	**0.0**	**0.5**	**0.2**	**0.0**	**0.0**	-0.1	-0.3	**1.6**	**0.2**	**0.6**	**0.9**
80%	0.0	-0.1	**0.5**	**0.2**	0.0	**0.0**	-0.1	-0.1	**1.0**	**0.2**	**0.5**	**0.8**
90%	-0.1	-0.2	**0.3**	**0.1**	**0.0**	**0.0**	-0.4	**0.0**	**0.0**	**0.5**	**0.1**	**0.5**
Long Term												
Full Simulation Period[a]	0.0	0.0	**0.2**	**0.2**	0.0	-0.2	-0.3	-0.2	**0.5**	**0.1**	-0.1	**0.2**
Water Year Types[b,c]												
Wet (32%)	**0.0**	**0.1**	**0.5**	**0.1**	**0.0**	**0.0**	0.0	-0.1	**0.7**	**0.4**	**0.2**	**0.9**
Above Normal (16%)	**0.1**	**0.0**	**0.1**	**0.3**	**0.0**	0.0	**0.0**	-0.3	**0.7**	**0.3**	0.0	**0.3**
Below Normal (13%)	-0.1	-0.1	**0.0**	**0.4**	**0.0**	-0.4	-0.6	**0.2**	0.0	**0.7**	-1.2	-0.3
Dry (24%)	-0.2	-0.1	**0.1**	**0.0**	0.0	-0.1	-0.2	**0.1**	**0.8**	**0.4**	-0.1	-0.2
Critical (15%)	0.0	-0.2	**0.1**	**0.3**	-0.3	-0.6	-0.9	-0.8	0.0	-1.8	**0.3**	-0.4

a Based on the 82-year simulation period.

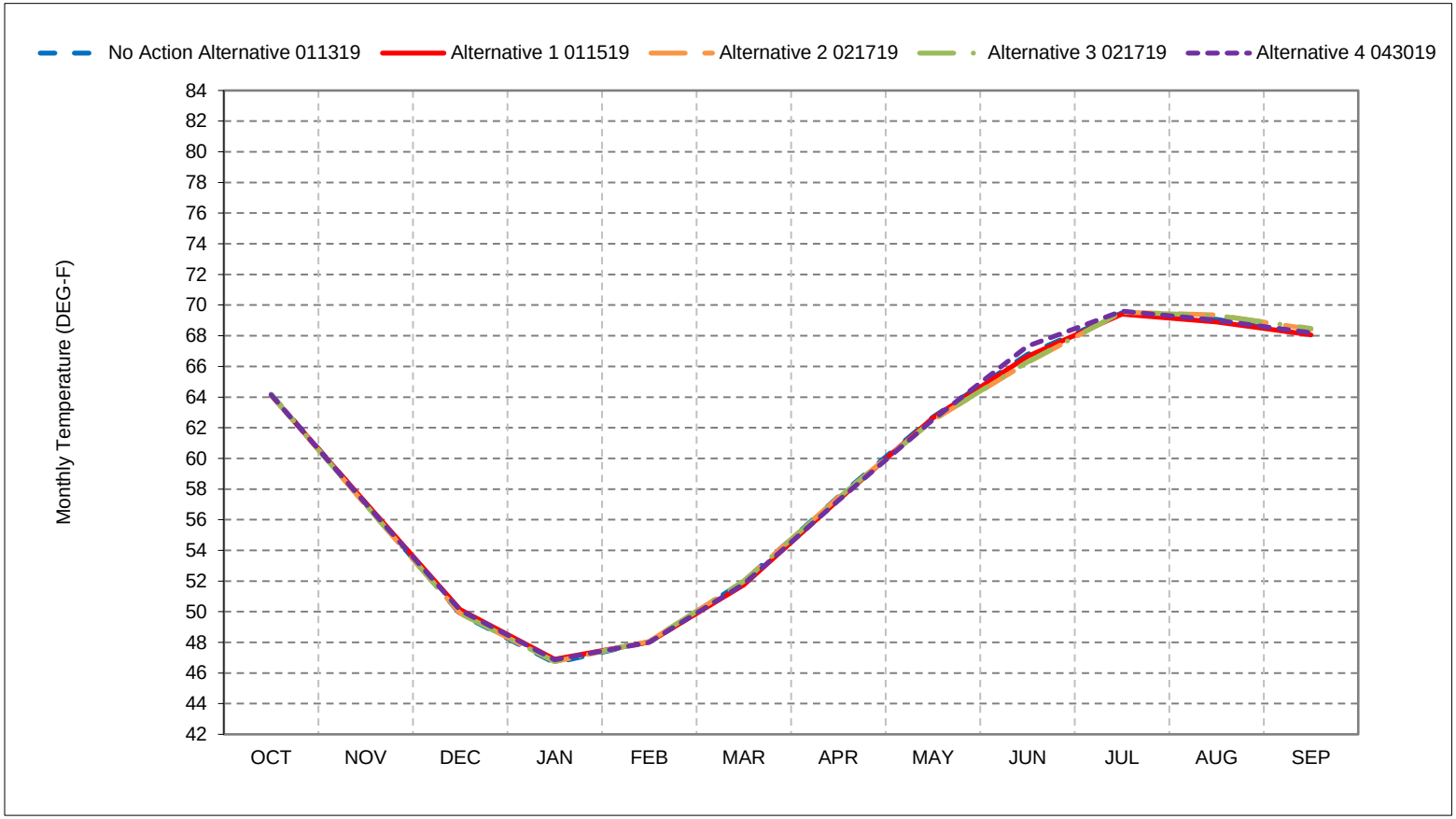
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

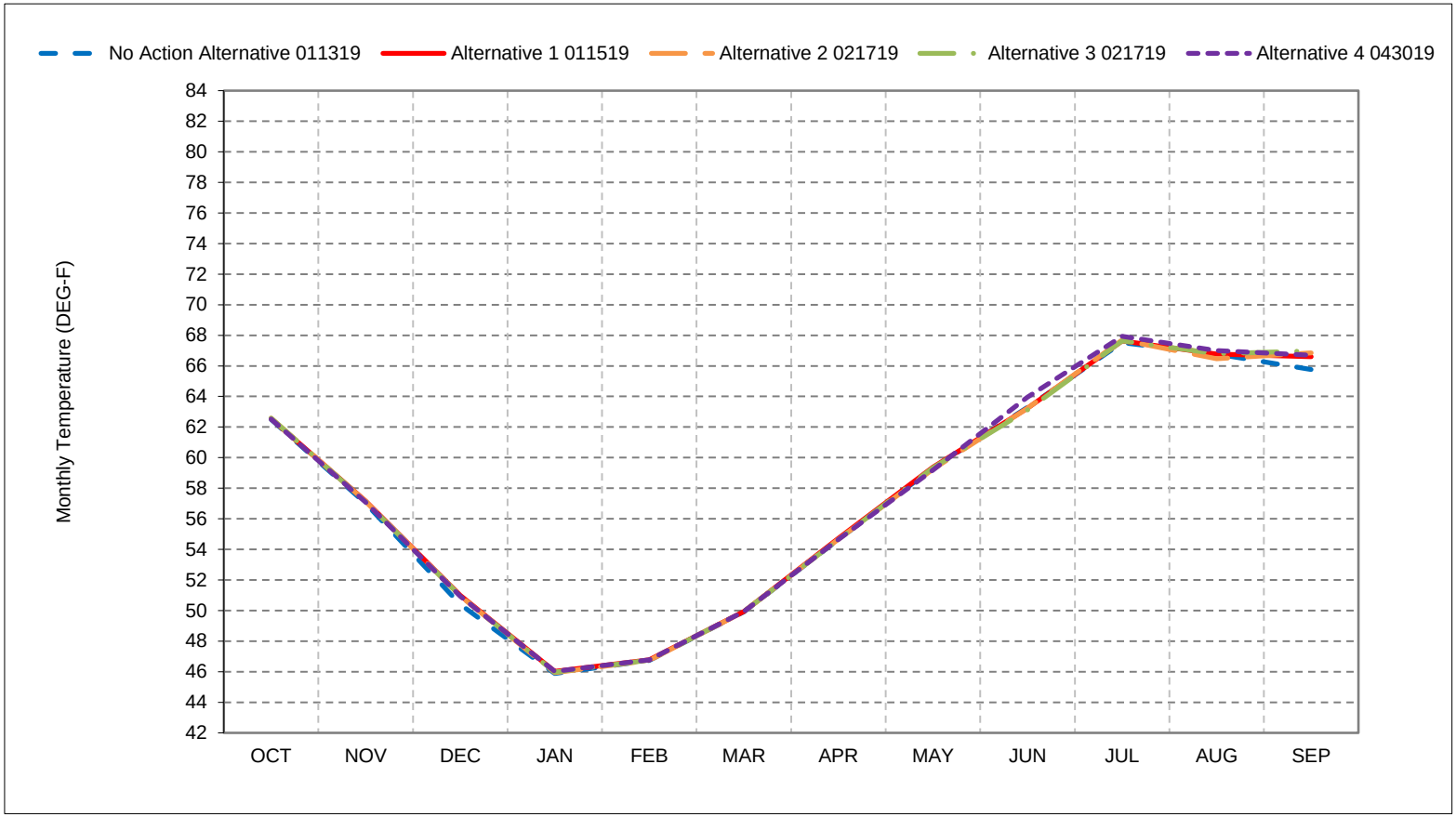
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-1. American River at Watt Avenue, Long-Term Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-2. American River at Watt Avenue, Wet Year Average Temperature



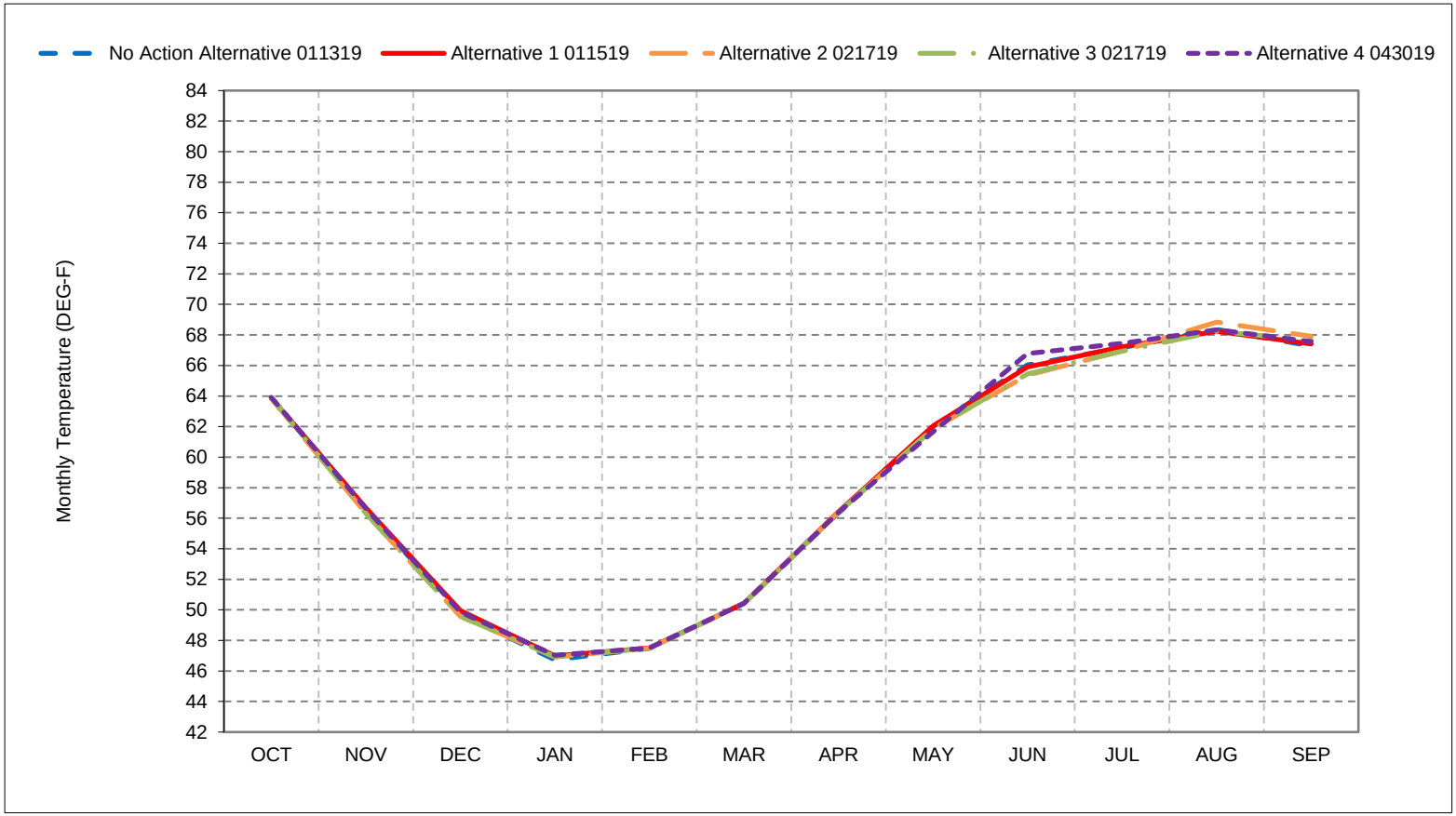
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

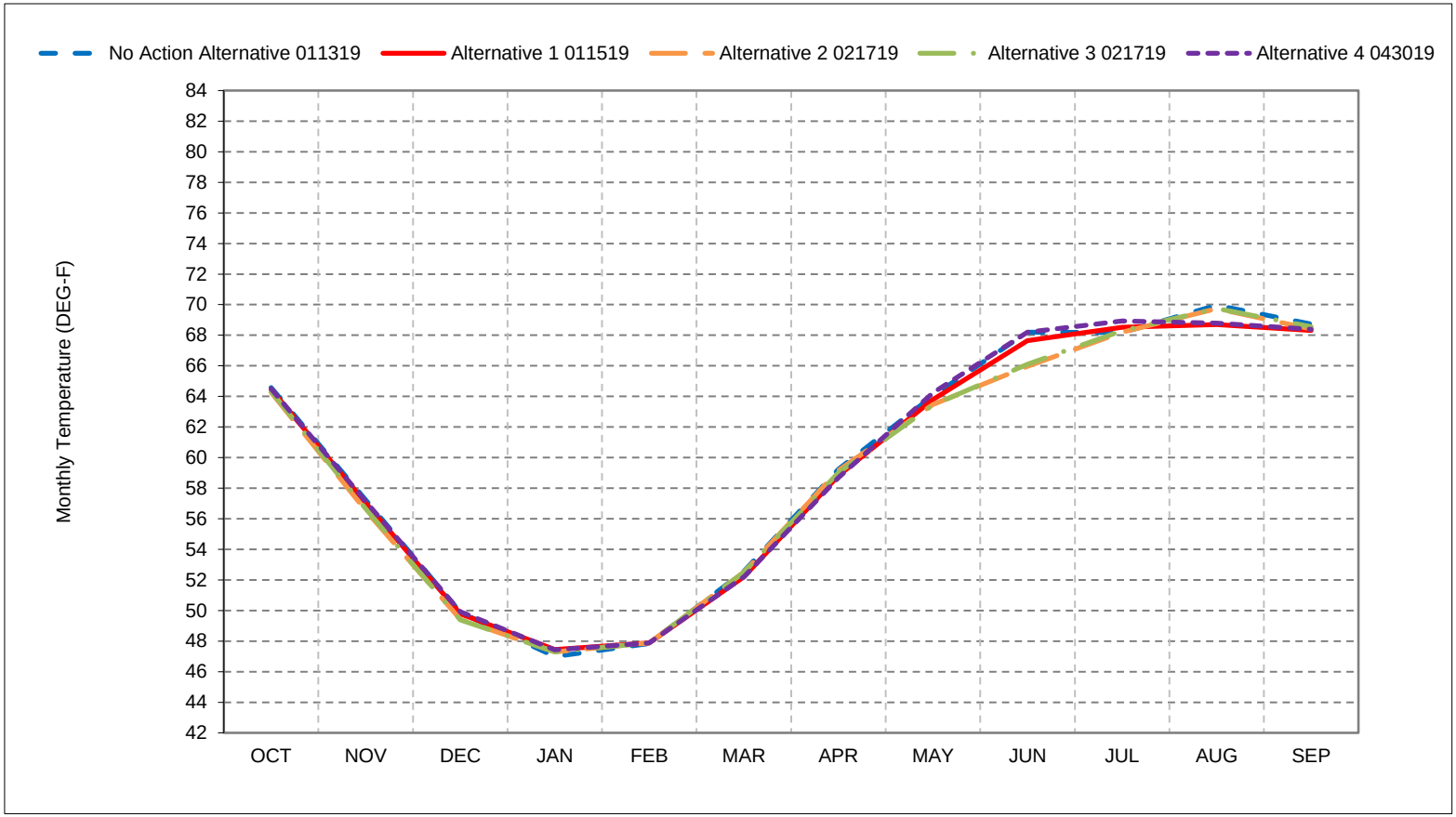
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-3. American River at Watt Avenue, Above Normal Year Average Temperature



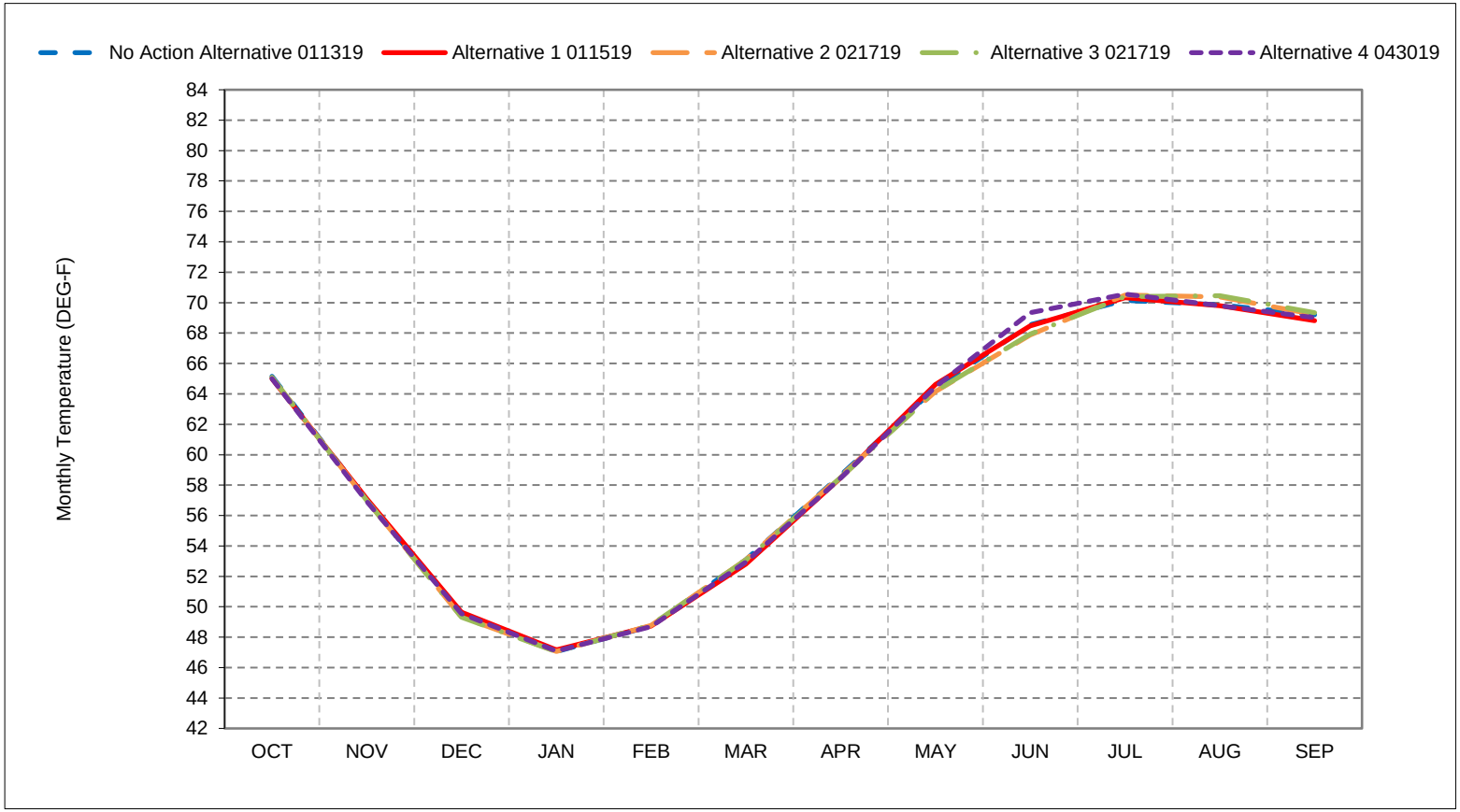
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-4. American River at Watt Avenue, Below Normal Year Average Temperature



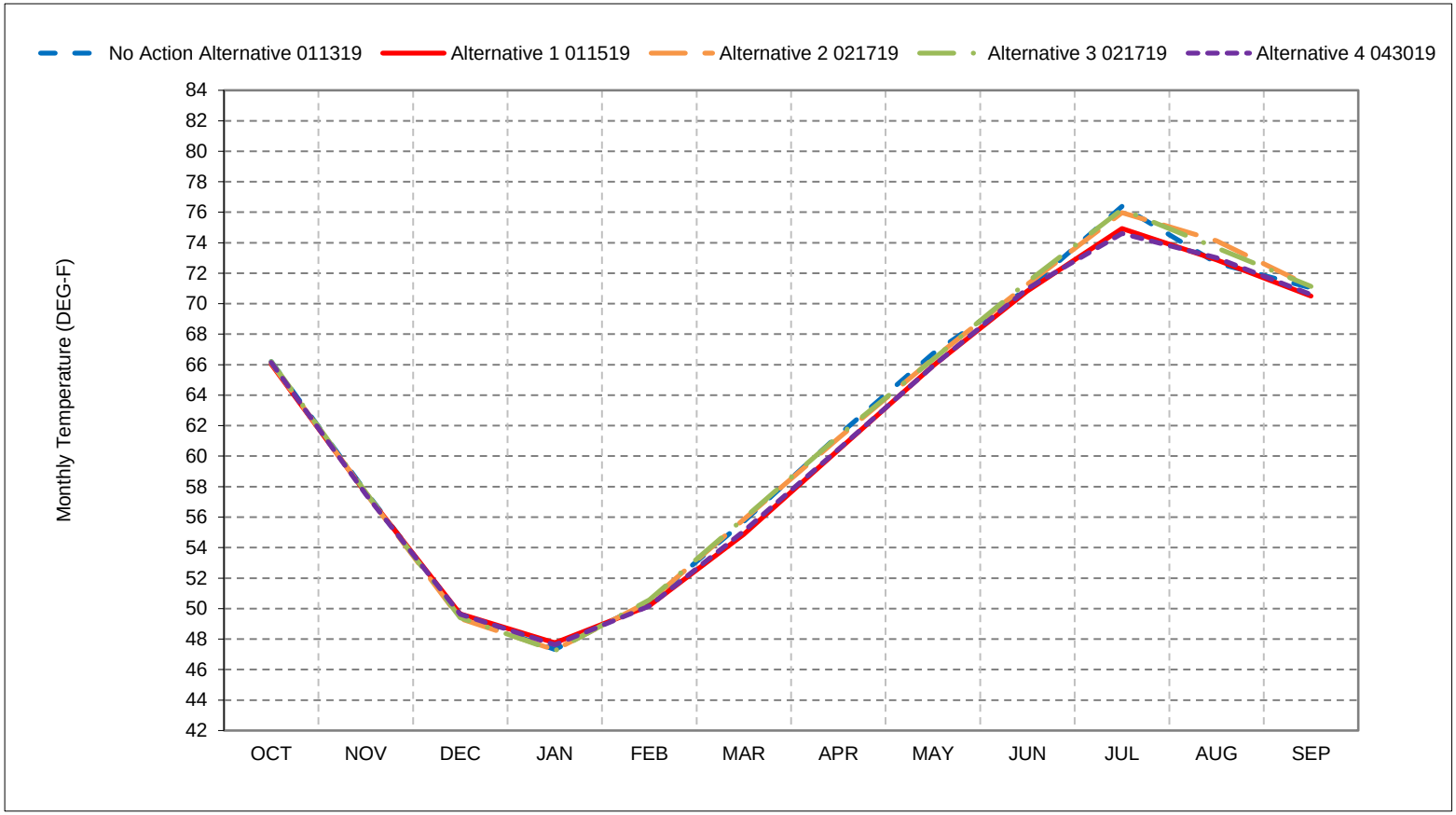
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-5. American River at Watt Avenue, Dry Year Average Temperature



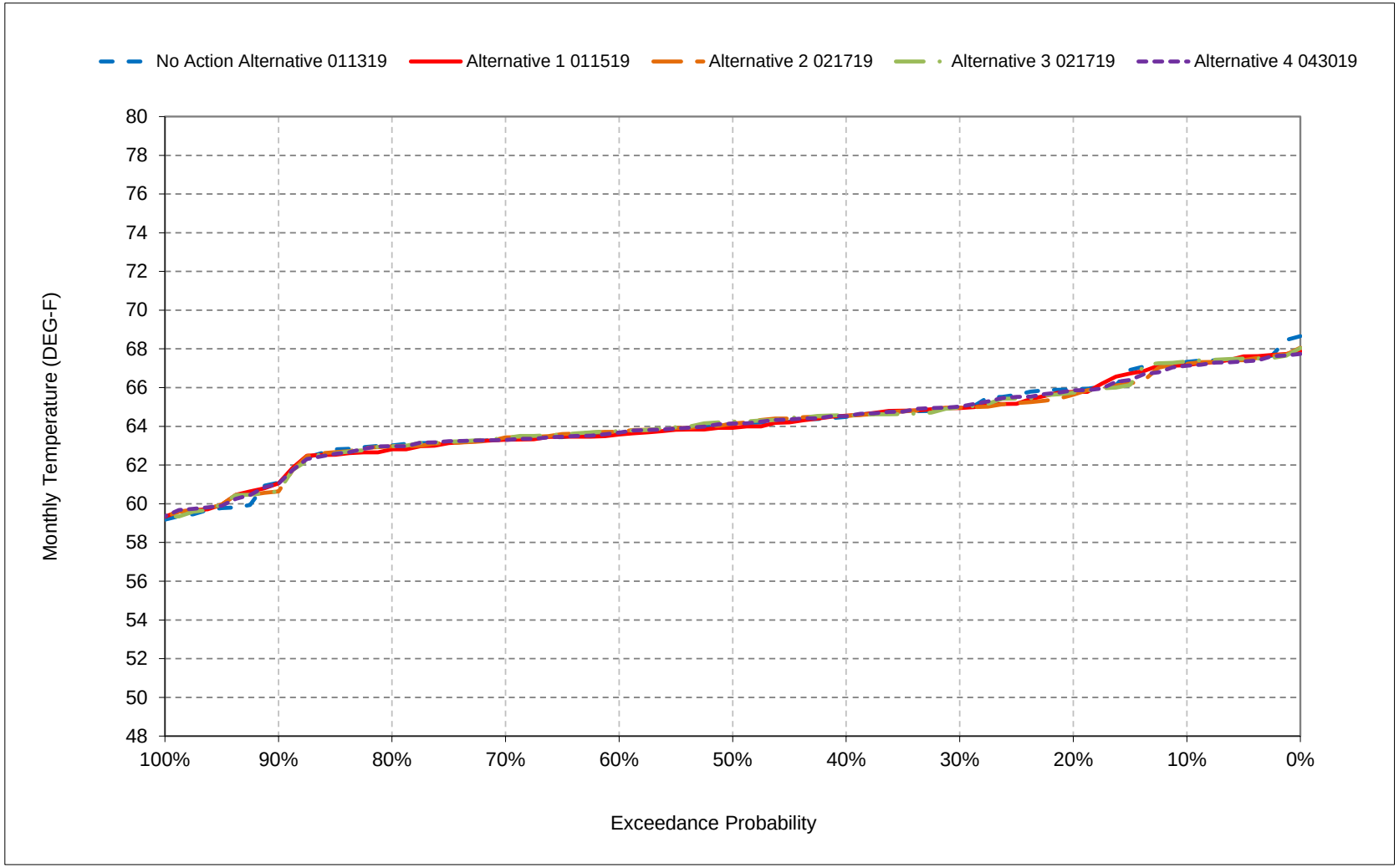
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-6. American River at Watt Avenue, Critical Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

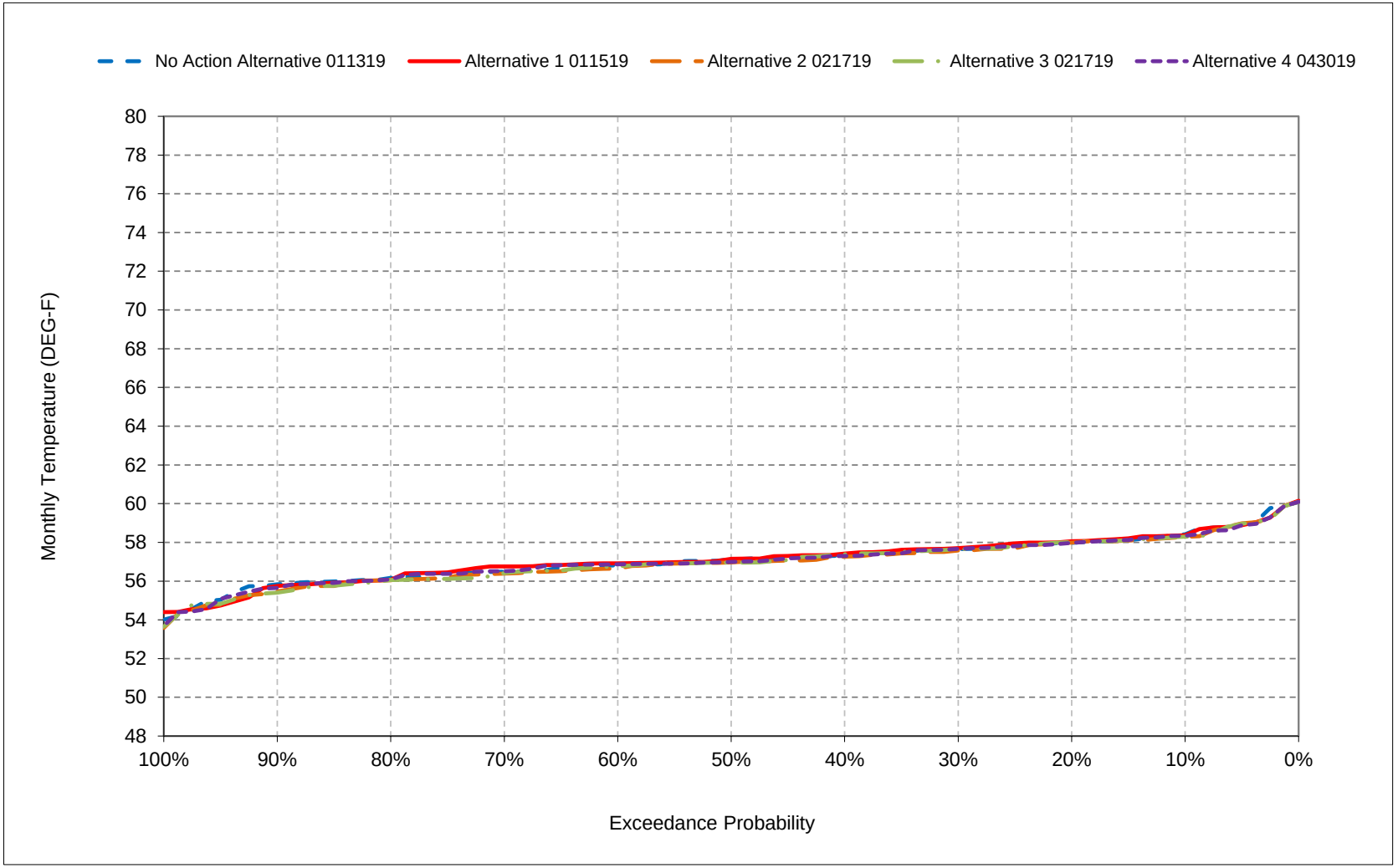
Figure 16-7. American River at Watt Avenue, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

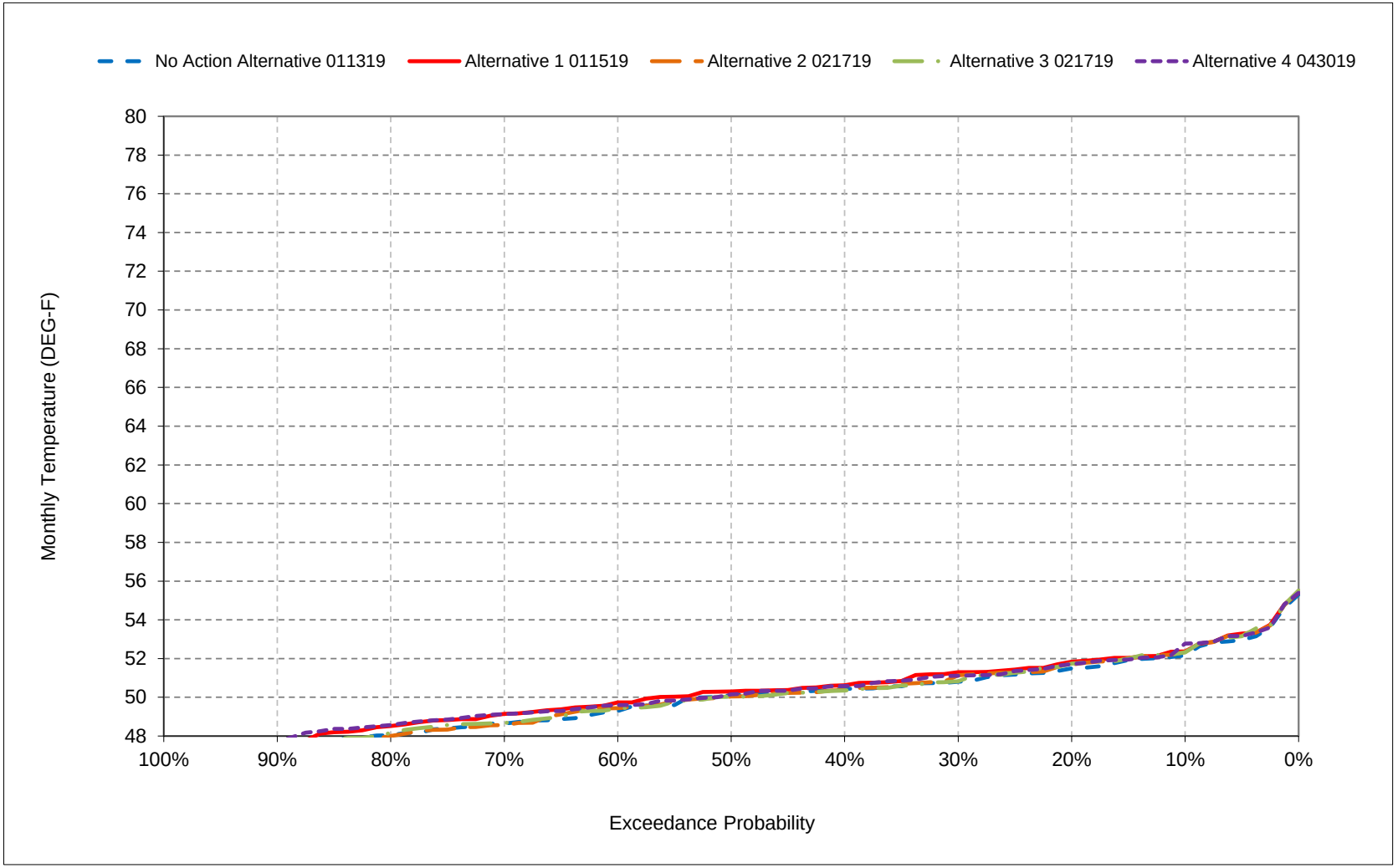
Figure 16-8. American River at Watt Avenue, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

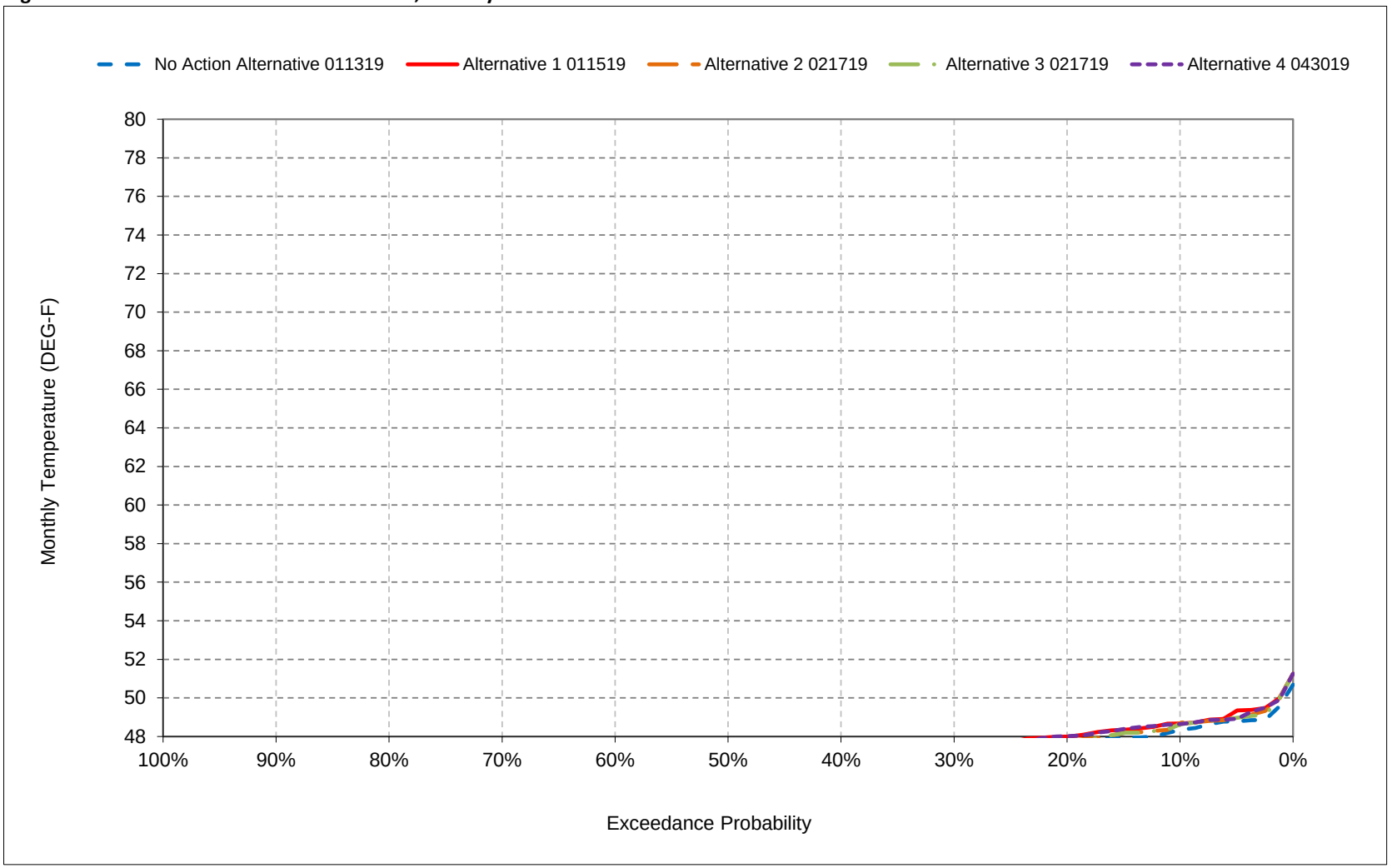
Figure 16-9. American River at Watt Avenue, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

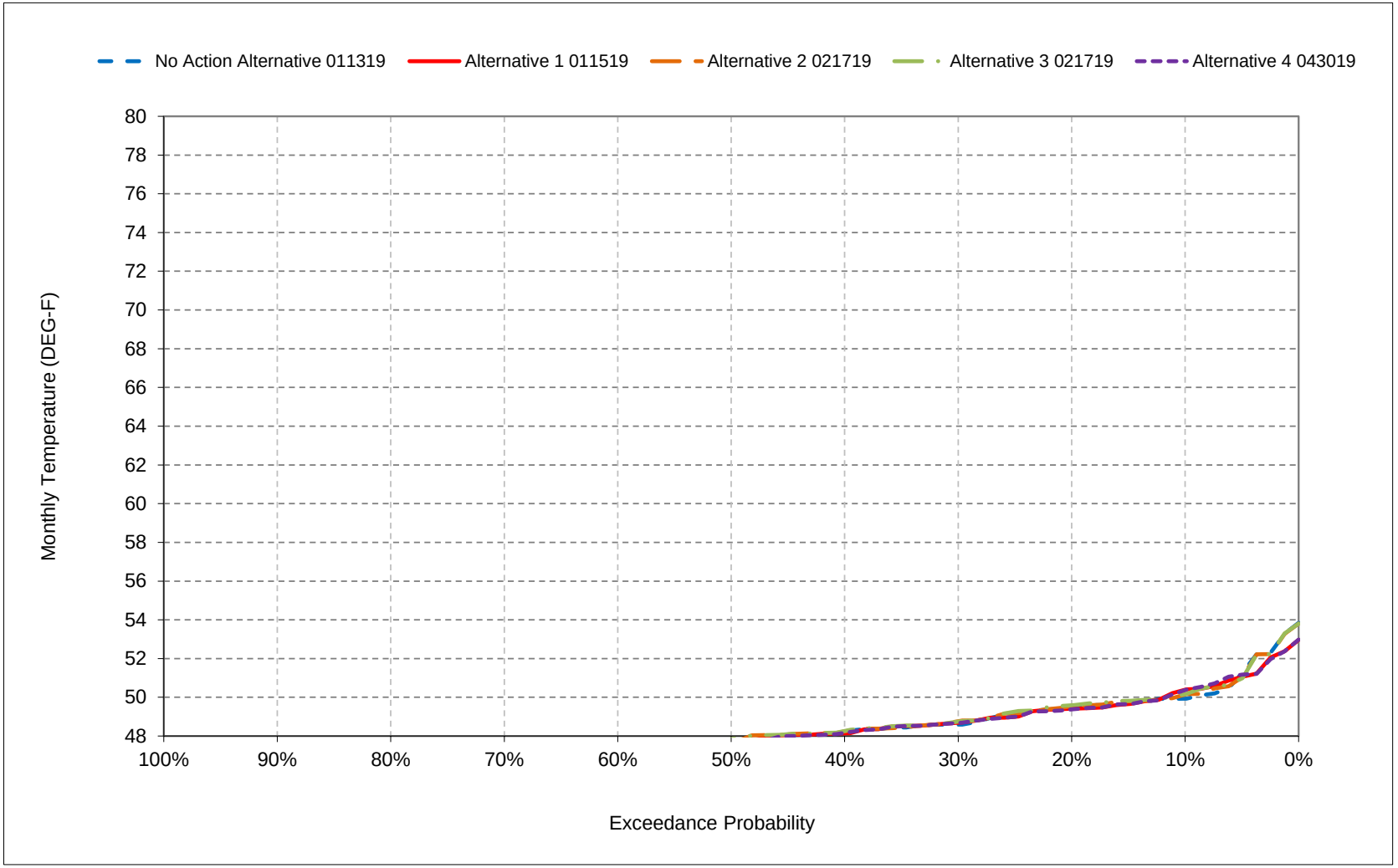
Figure 16-10. American River at Watt Avenue, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

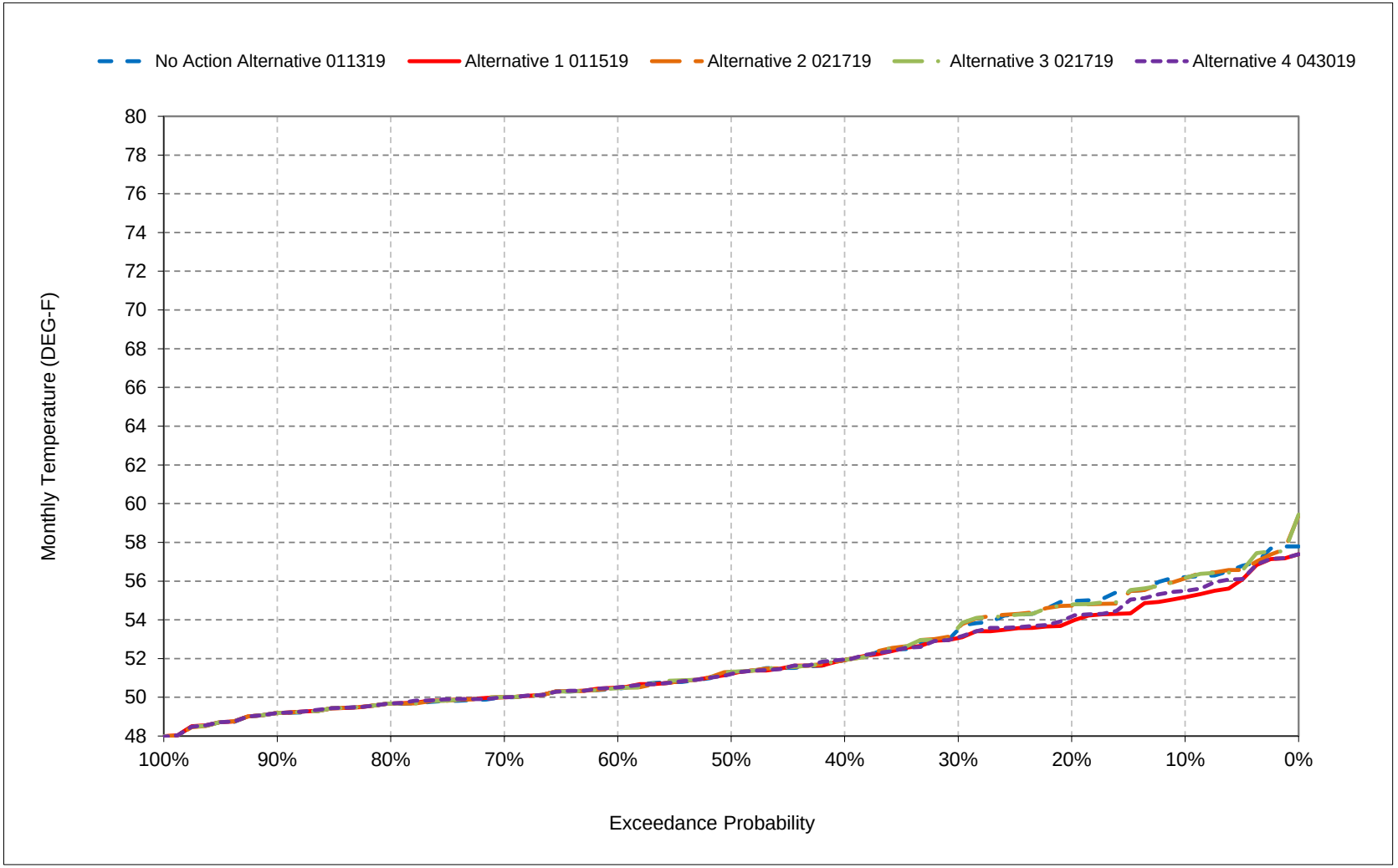
Figure 16-11. American River at Watt Avenue, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

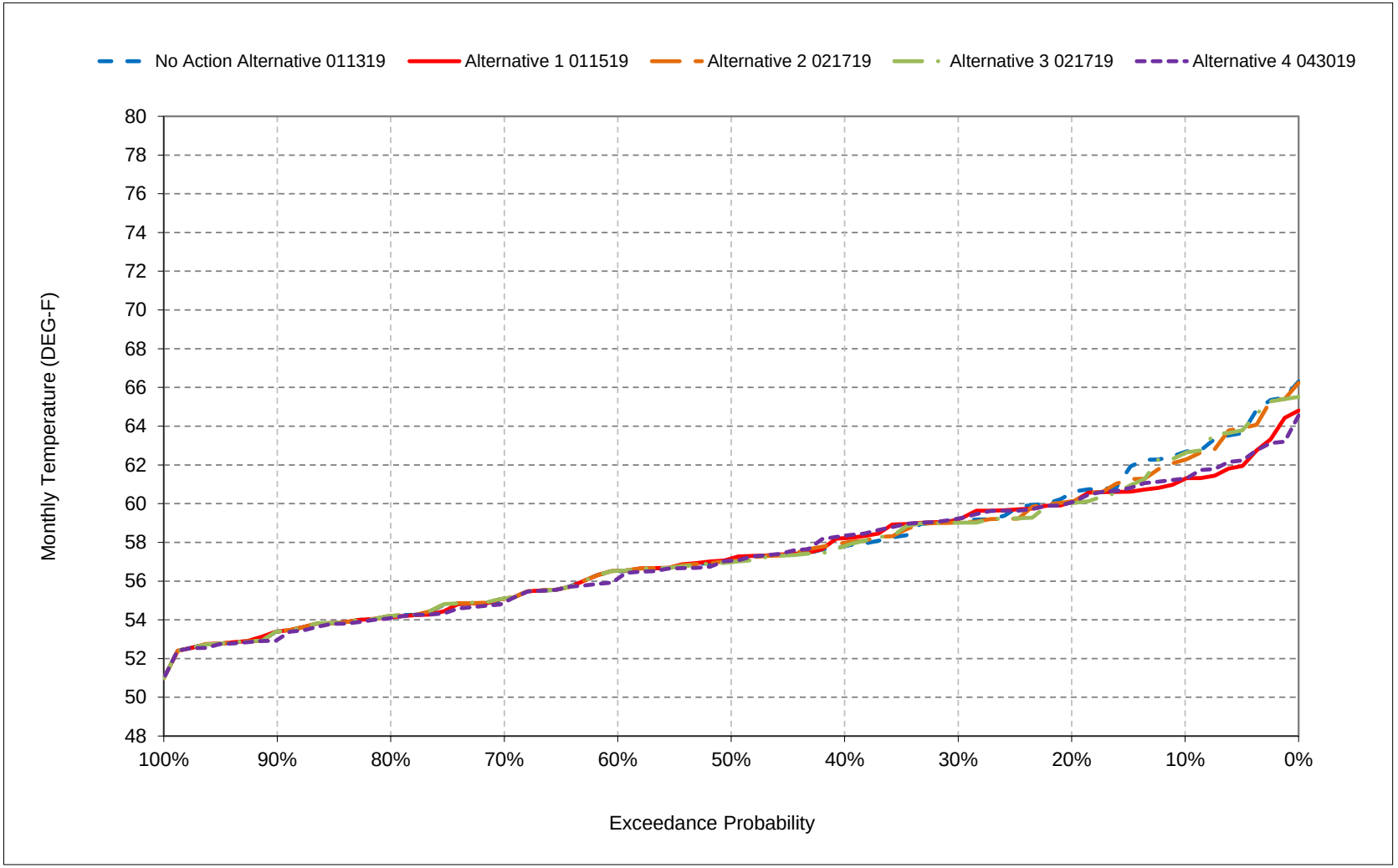
Figure 16-12. American River at Watt Avenue, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

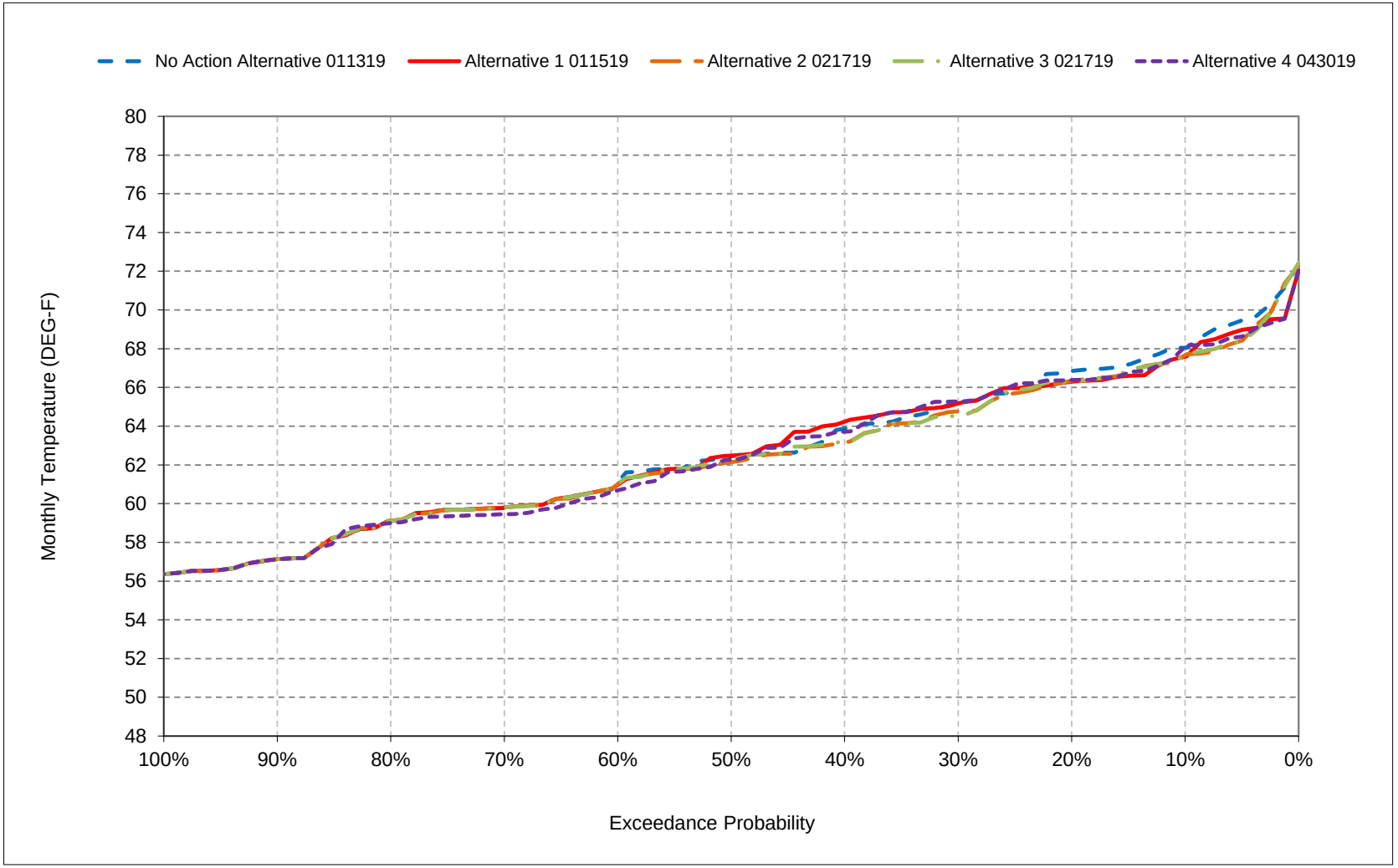
Figure 16-13. American River at Watt Avenue, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

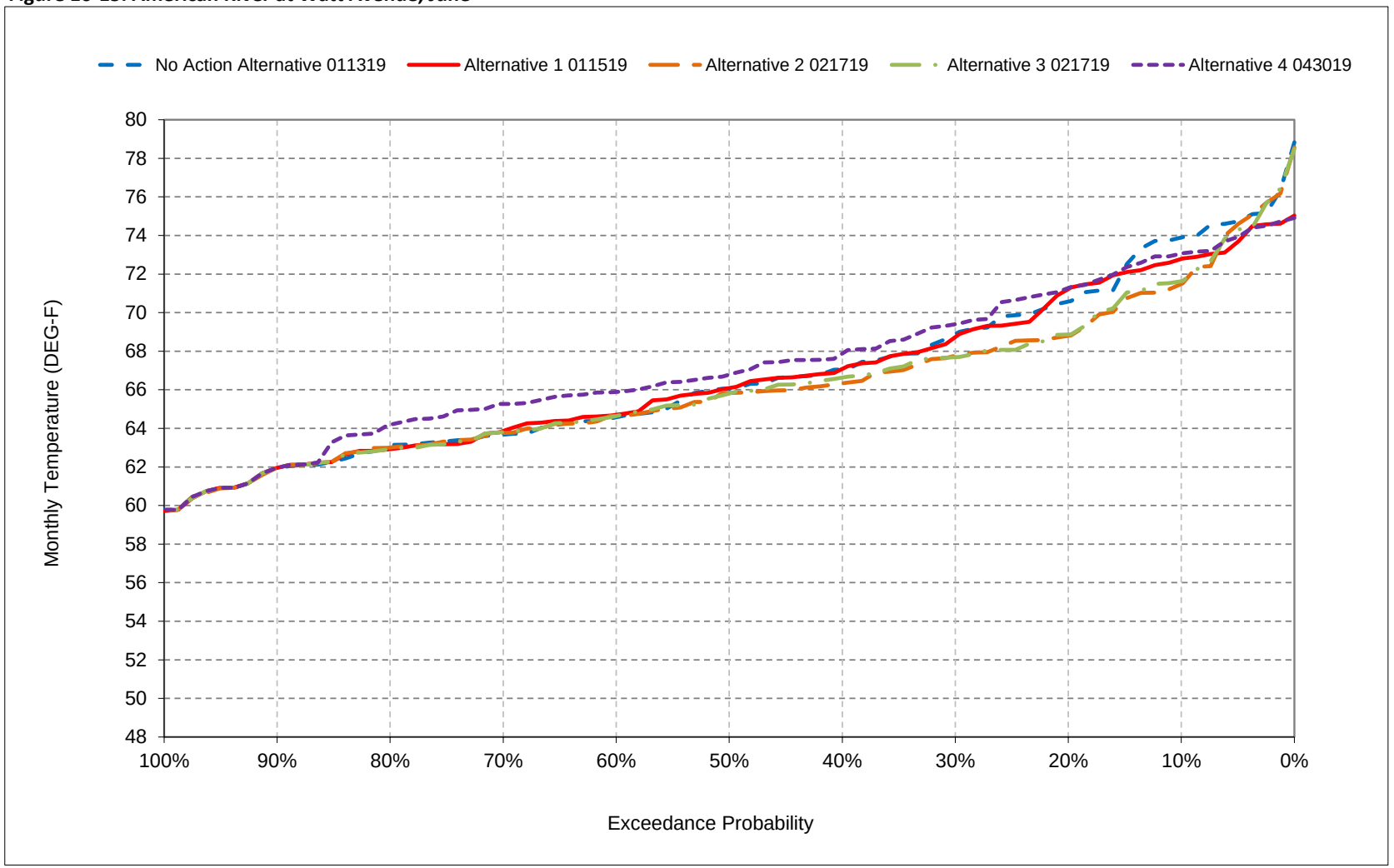
Figure 16-14. American River at Watt Avenue, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

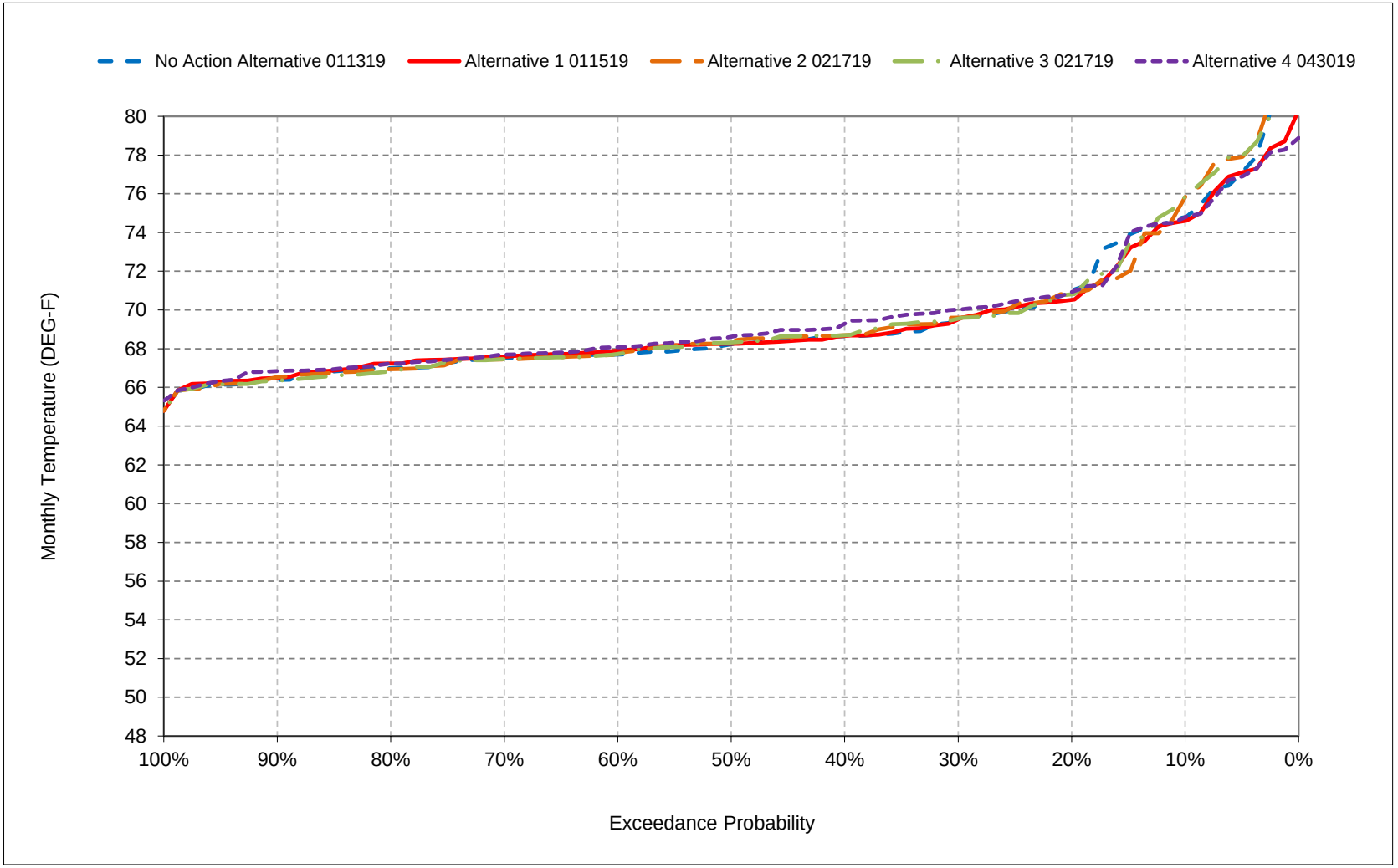
Figure 16-15. American River at Watt Avenue, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

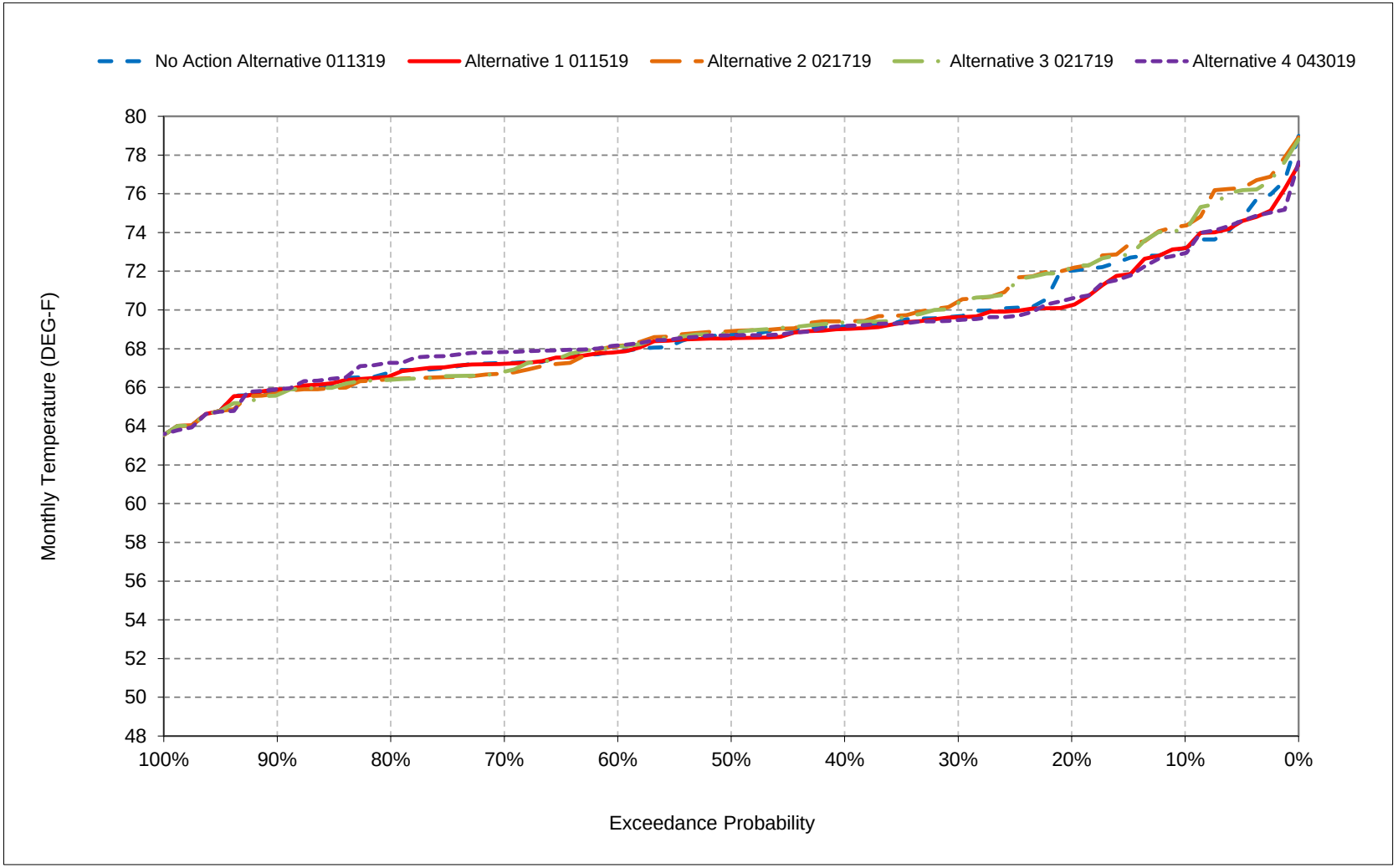
Figure 16-16. American River at Watt Avenue, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

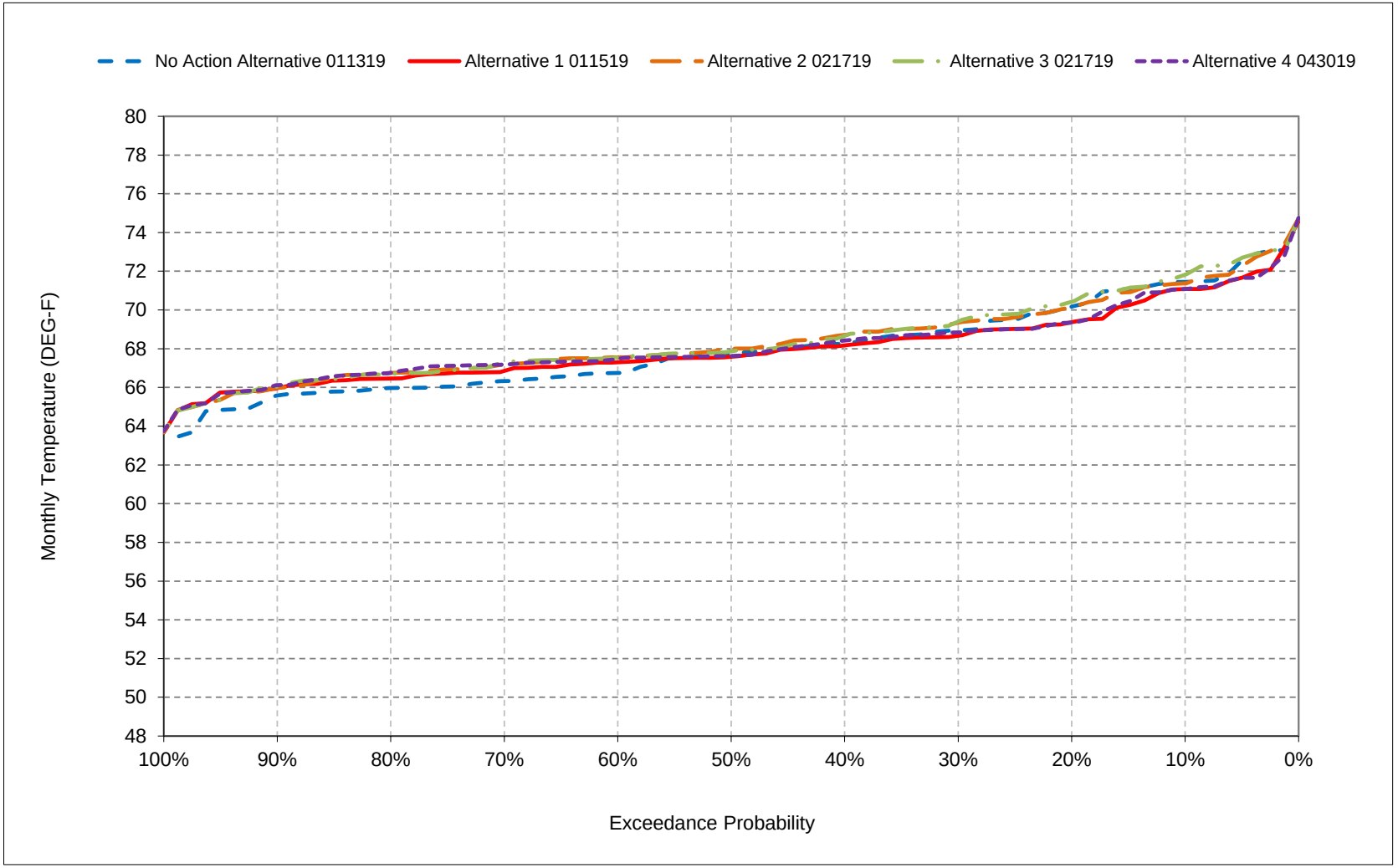
Figure 16-17. American River at Watt Avenue, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-18. American River at Watt Avenue, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 17-1. American River at the Mouth, Monthly Temperature (above the confluence with the Sacramento River)

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.9	58.6	52.1	48.7	51.4	58.9	66.0	71.8	77.9	78.6	77.4	74.2
20%	66.4	58.1	51.2	48.1	50.6	57.3	62.7	70.2	73.8	73.8	75.7	72.5
30%	65.7	57.7	50.7	47.6	49.8	55.3	61.0	68.0	71.7	72.4	72.8	71.1
40%	65.1	57.4	50.3	47.4	49.2	53.3	60.0	66.9	70.0	71.6	72.2	70.1
50%	64.6	57.1	49.9	47.1	48.4	52.6	58.7	65.0	68.6	71.0	71.8	69.6
60%	64.2	56.8	49.0	46.6	48.0	51.5	58.1	63.4	67.5	70.5	70.9	68.7
70%	63.8	56.5	48.6	46.0	47.3	50.9	56.5	61.8	66.4	69.7	70.2	68.0
80%	63.3	56.2	48.0	45.6	46.9	50.4	55.2	60.8	65.5	69.1	69.6	67.5
90%	62.4	55.9	47.3	45.0	46.5	49.8	54.2	58.4	64.0	68.5	68.5	66.9
Long Term												
Full Simulation Period[a]	64.8	57.1	49.7	47.0	48.9	53.4	59.4	65.2	69.6	72.2	72.3	70.0
Water Year Types[b,c]												
Wet (32%)	63.2	57.1	50.2	46.1	47.2	50.8	55.9	61.1	65.6	70.2	69.7	67.4
Above Normal (16%)	64.4	56.6	49.6	47.0	48.1	51.4	57.9	64.6	68.9	69.1	71.4	69.1
Below Normal (13%)	65.0	57.3	49.7	47.3	48.6	54.4	61.6	66.7	71.3	70.5	73.3	71.1
Dry (24%)	65.6	57.1	49.3	47.4	49.8	54.8	60.9	67.3	71.6	73.1	73.1	71.4
Critical (15%)	66.9	57.8	49.4	47.8	52.2	58.2	64.2	69.8	74.1	80.0	76.4	73.5

Alternative 1 011519

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	68.1	58.7	52.2	49.0	51.6	57.5	64.2	71.0	77.2	77.7	77.3	73.5
20%	66.3	58.1	51.4	48.4	50.5	55.9	62.9	69.5	74.1	73.8	73.6	71.2
30%	65.6	57.7	50.9	47.8	49.7	54.9	61.6	68.5	71.7	72.7	72.6	70.7
40%	65.1	57.4	50.4	47.6	49.0	53.4	60.4	67.3	69.9	71.7	72.1	70.0
50%	64.6	57.2	50.0	47.3	48.4	52.5	58.7	65.3	68.4	71.3	71.5	69.5
60%	64.1	56.9	49.5	46.7	47.8	51.3	58.2	63.1	67.8	70.9	70.9	69.3
70%	63.9	56.6	49.0	46.4	47.3	50.9	56.4	61.8	66.6	70.0	70.1	68.8
80%	63.3	56.1	48.3	45.9	46.9	50.4	55.2	60.8	65.2	69.4	69.5	68.6
90%	62.5	55.8	47.4	45.1	46.5	49.8	54.2	58.4	64.0	68.6	68.5	67.8
Long Term												
Full Simulation Period[a]	64.8	57.2	49.9	47.2	48.8	53.1	59.2	65.2	69.5	72.3	72.0	70.1
Water Year Types[b,c]												
Wet (32%)	63.3	57.2	50.8	46.2	47.2	50.8	56.0	61.2	65.5	70.4	69.7	68.7
Above Normal (16%)	64.5	56.6	49.8	47.3	48.1	51.4	58.0	64.7	68.6	69.4	71.2	69.3
Below Normal (13%)	65.0	57.1	49.6	47.7	48.5	53.9	61.1	66.3	70.6	70.9	71.7	70.2
Dry (24%)	65.6	57.1	49.4	47.5	49.7	54.4	60.7	67.5	71.6	73.5	72.9	70.8
Critical (15%)	66.9	57.8	49.5	48.1	51.5	57.0	63.1	69.2	74.2	78.7	76.8	72.9

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.2**	**0.1**	**0.1**	**0.2**	**0.2**	-1.4	-1.8	-0.8	-0.7	-0.9	0.0	-0.7
20%	-0.1	**0.0**	**0.2**	**0.3**	-0.2	-1.4	**0.2**	-0.7	**0.2**	**0.0**	-2.1	-1.4
30%	-0.2	**0.1**	**0.2**	**0.2**	-0.1	-0.4	**0.6**	**0.5**	**0.0**	**0.3**	-0.2	-0.4
40%	**0.0**	**0.0**	**0.2**	**0.3**	-0.3	**0.1**	**0.4**	**0.5**	-0.1	**0.1**	-0.1	-0.1
50%	**0.0**	**0.1**	**0.1**	**0.1**	0.0	-0.1	**0.0**	**0.3**	-0.2	**0.3**	-0.2	-0.1
60%	-0.1	**0.1**	**0.4**	**0.1**	-0.2	-0.2	**0.1**	-0.2	**0.3**	**0.4**	0.0	**0.6**
70%	**0.0**	**0.1**	**0.4**	**0.4**	**0.0**	0.0	-0.1	**0.0**	**0.3**	**0.2**	-0.1	**0.8**
80%	**0.0**	0.0	**0.2**	**0.3**	**0.1**	**0.0**	**0.0**	0.0	-0.2	**0.4**	-0.1	**1.1**
90%	**0.1**	-0.1	**0.1**	**0.1**	0.0	0.0	**0.1**	**0.0**	**0.0**	**0.1**	**0.0**	**1.0**
Long Term												
Full Simulation Period[a]	**0.1**	**0.0**	**0.2**	**0.2**	-0.1	-0.3	-0.2	-0.1	-0.2	**0.1**	-0.2	**0.1**
Water Year Types[b,c]												
Wet (32%)	**0.2**	**0.1**	**0.5**	**0.1**	**0.0**	**0.0**	**0.1**	**0.1**	-0.1	**0.3**	0.0	**1.3**
Above Normal (16%)	**0.0**	**0.1**	**0.2**	**0.2**	-0.1	0.0	**0.1**	**0.1**	-0.3	**0.2**	-0.2	**0.2**
Below Normal (13%)	0.0	-0.2	-0.1	**0.4**	-0.1	-0.6	-0.5	-0.4	-0.7	**0.4**	-1.6	-0.8
Dry (24%)	0.0	**0.0**	**0.2**	**0.1**	-0.1	-0.4	-0.2	**0.2**	**0.0**	**0.4**	-0.1	-0.6
Critical (15%)	0.0	-0.1	**0.0**	**0.3**	-0.6	-1.2	-1.1	-0.6	**0.1**	-1.4	**0.3**	-0.6

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 17-2. American River at the Mouth, Monthly Temperature (above the confluence with the Sacramento River)

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.9	58.6	52.1	48.7	51.4	58.9	66.0	71.8	77.9	78.6	77.4	74.2
20%	66.4	58.1	51.2	48.1	50.6	57.3	62.7	70.2	73.8	73.8	75.7	72.5
30%	65.7	57.7	50.7	47.6	49.8	55.3	61.0	68.0	71.7	72.4	72.8	71.1
40%	65.1	57.4	50.3	47.4	49.2	53.3	60.0	66.9	70.0	71.6	72.2	70.1
50%	64.6	57.1	49.9	47.1	48.4	52.6	58.7	65.0	68.6	71.0	71.8	69.6
60%	64.2	56.8	49.0	46.6	48.0	51.5	58.1	63.4	67.5	70.5	70.9	68.7
70%	63.8	56.5	48.6	46.0	47.3	50.9	56.5	61.8	66.4	69.7	70.2	68.0
80%	63.3	56.2	48.0	45.6	46.9	50.4	55.2	60.8	65.5	69.1	69.6	67.5
90%	62.4	55.9	47.3	45.0	46.5	49.8	54.2	58.4	64.0	68.5	68.5	66.9
Long Term												
Full Simulation Period[a]	64.8	57.1	49.7	47.0	48.9	53.4	59.4	65.2	69.6	72.2	72.3	70.0
Water Year Types[b,c]												
Wet (32%)	63.2	57.1	50.2	46.1	47.2	50.8	55.9	61.1	65.6	70.2	69.7	67.4
Above Normal (16%)	64.4	56.6	49.6	47.0	48.1	51.4	57.9	64.6	68.9	69.1	71.4	69.1
Below Normal (13%)	65.0	57.3	49.7	47.3	48.6	54.4	61.6	66.7	71.3	70.5	73.3	71.1
Dry (24%)	65.6	57.1	49.3	47.4	49.8	54.8	60.9	67.3	71.6	73.1	73.1	71.4
Critical (15%)	66.9	57.8	49.4	47.8	52.2	58.2	64.2	69.8	74.1	80.0	76.4	73.5

Alternative 2 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.9	58.6	52.2	48.9	51.6	59.0	65.3	70.9	76.1	79.5	79.5	74.3
20%	66.3	58.1	51.3	48.3	50.7	57.1	62.3	69.0	71.8	73.8	76.0	72.6
30%	65.7	57.6	50.8	47.7	49.7	55.5	61.0	67.4	70.4	72.2	73.7	71.6
40%	65.2	57.3	50.2	47.5	49.1	53.3	60.2	66.3	68.9	71.7	72.4	70.7
50%	64.9	57.0	49.7	47.1	48.5	52.6	58.7	64.7	68.0	71.2	72.0	70.0
60%	64.3	56.8	49.4	46.5	47.9	51.3	58.2	63.2	67.0	70.3	71.4	69.6
70%	63.9	56.5	48.5	46.1	47.3	50.9	56.6	61.8	66.3	69.8	69.6	69.3
80%	63.3	56.0	47.9	45.6	46.9	50.4	55.2	60.8	65.3	69.3	69.1	68.8
90%	61.9	55.6	47.2	45.1	46.5	49.8	54.2	58.4	64.0	68.5	68.4	67.8
Long Term												
Full Simulation Period[a]	64.8	57.1	49.8	47.0	48.9	53.5	59.3	64.9	68.9	72.3	72.6	70.7
Water Year Types[b,c]												
Wet (32%)	63.4	57.2	50.7	46.1	47.2	50.8	55.9	61.0	65.4	70.5	69.3	69.0
Above Normal (16%)	64.5	56.3	49.4	47.2	48.0	51.4	57.9	64.4	67.7	69.0	72.0	70.0
Below Normal (13%)	65.0	56.8	49.3	47.5	48.6	54.3	61.5	65.9	68.5	70.4	73.2	70.8
Dry (24%)	65.6	57.0	49.2	47.4	49.8	54.9	60.8	66.9	71.0	73.5	73.8	71.4
Critical (15%)	66.9	57.7	49.3	47.8	52.2	58.4	63.9	69.5	74.5	79.6	78.1	73.6

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.0**	0.0	**0.1**	**0.2**	**0.1**	**0.0**	-0.7	-1.0	-1.9	**0.9**	**2.1**	**0.1**
20%	-0.1	0.0	**0.1**	**0.2**	**0.0**	-0.3	-0.3	-1.2	-2.0	-0.1	**0.3**	**0.0**
30%	0.0	-0.1	**0.2**	**0.1**	-0.1	**0.2**	-0.1	-0.6	-1.3	-0.2	**0.9**	**0.4**
40%	**0.1**	-0.1	0.0	**0.2**	-0.1	**0.1**	**0.1**	-0.6	-1.1	**0.1**	**0.2**	**0.6**
50%	**0.2**	-0.1	-0.2	**0.0**	**0.0**	**0.0**	**0.0**	-0.3	-0.6	**0.2**	**0.2**	**0.4**
60%	**0.1**	0.0	**0.4**	-0.1	-0.1	-0.2	**0.1**	-0.2	-0.5	-0.2	**0.4**	**0.9**
70%	**0.1**	**0.1**	-0.2	**0.1**	**0.0**	0.0	**0.1**	**0.0**	-0.1	**0.1**	-0.6	**1.2**
80%	**0.0**	-0.1	-0.2	0.0	0.0	0.0	0.0	**0.0**	-0.2	**0.2**	-0.5	**1.3**
90%	-0.5	-0.3	-0.1	**0.1**	0.0	0.0	**0.0**	0.0	0.0	**0.0**	-0.1	**0.9**
Long Term												
Full Simulation Period[a]	**0.0**	-0.1	**0.0**	**0.1**	0.0	**0.0**	-0.1	-0.3	-0.8	**0.1**	**0.4**	**0.6**
Water Year Types[b,c]												
Wet (32%)	**0.2**	**0.1**	**0.5**	**0.1**	0.0	**0.0**	**0.0**	-0.1	-0.2	**0.3**	-0.4	**1.6**
Above Normal (16%)	**0.1**	-0.2	-0.1	**0.2**	-0.1	0.0	**0.0**	-0.2	-1.2	-0.2	**0.6**	**0.9**
Below Normal (13%)	**0.0**	-0.5	-0.4	**0.3**	-0.1	-0.1	-0.1	-0.8	-2.8	-0.1	-0.2	-0.2
Dry (24%)	-0.1	0.0	-0.1	**0.0**	**0.1**	**0.1**	-0.1	-0.4	-0.6	**0.4**	**0.7**	**0.0**
Critical (15%)	0.0	-0.1	-0.1	0.0	**0.0**	**0.1**	-0.3	-0.4	**0.3**	-0.5	**1.7**	**0.1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 17-3. American River at the Mouth, Monthly Temperature (above the confluence with the Sacramento River)

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.9	58.6	52.1	48.7	51.4	58.9	66.0	71.8	77.9	78.6	77.4	74.2
20%	66.4	58.1	51.2	48.1	50.6	57.3	62.7	70.2	73.8	73.8	75.7	72.5
30%	65.7	57.7	50.7	47.6	49.8	55.3	61.0	68.0	71.7	72.4	72.8	71.1
40%	65.1	57.4	50.3	47.4	49.2	53.3	60.0	66.9	70.0	71.6	72.2	70.1
50%	64.6	57.1	49.9	47.1	48.4	52.6	58.7	65.0	68.6	71.0	71.8	69.6
60%	64.2	56.8	49.0	46.6	48.0	51.5	58.1	63.4	67.5	70.5	70.9	68.7
70%	63.8	56.5	48.6	46.0	47.3	50.9	56.5	61.8	66.4	69.7	70.2	68.0
80%	63.3	56.2	48.0	45.6	46.9	50.4	55.2	60.8	65.5	69.1	69.6	67.5
90%	62.4	55.9	47.3	45.0	46.5	49.8	54.2	58.4	64.0	68.5	68.5	66.9
Long Term												
Full Simulation Period[a]	64.8	57.1	49.7	47.0	48.9	53.4	59.4	65.2	69.6	72.2	72.3	70.0
Water Year Types[b,c]												
Wet (32%)	63.2	57.1	50.2	46.1	47.2	50.8	55.9	61.1	65.6	70.2	69.7	67.4
Above Normal (16%)	64.4	56.6	49.6	47.0	48.1	51.4	57.9	64.6	68.9	69.1	71.4	69.1
Below Normal (13%)	65.0	57.3	49.7	47.3	48.6	54.4	61.6	66.7	71.3	70.5	73.3	71.1
Dry (24%)	65.6	57.1	49.3	47.4	49.8	54.8	60.9	67.3	71.6	73.1	73.1	71.4
Critical (15%)	66.9	57.8	49.4	47.8	52.2	58.2	64.2	69.8	74.1	80.0	76.4	73.5

Alternative 3 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.9	58.6	52.2	48.9	51.6	59.0	65.4	70.7	76.1	79.6	79.8	75.3
20%	66.3	58.1	51.3	48.2	50.8	57.0	62.3	69.0	71.5	73.7	76.1	72.8
30%	65.8	57.7	50.8	47.8	49.7	55.6	60.9	67.3	70.3	72.3	73.7	71.5
40%	65.1	57.4	50.2	47.6	49.1	53.3	60.1	66.2	68.8	71.7	72.4	70.7
50%	64.8	57.0	49.8	47.2	48.5	52.6	58.7	64.9	68.3	71.2	71.9	69.8
60%	64.4	56.8	49.4	46.5	47.9	51.3	58.2	63.2	67.2	70.7	71.2	69.6
70%	64.0	56.5	48.6	46.2	47.3	50.9	56.6	61.8	66.3	69.7	69.6	69.3
80%	63.3	56.1	48.1	45.6	46.9	50.4	55.2	60.7	65.4	69.3	69.1	68.8
90%	61.9	55.3	47.1	45.1	46.5	49.8	54.2	58.4	64.0	68.4	68.4	68.1
Long Term												
Full Simulation Period[a]	64.8	57.1	49.8	47.0	48.9	53.5	59.3	64.9	68.9	72.3	72.6	70.7
Water Year Types[b,c]												
Wet (32%)	63.3	57.2	50.7	46.1	47.2	50.8	55.9	61.1	65.3	70.4	69.7	69.2
Above Normal (16%)	64.6	56.3	49.4	47.2	48.0	51.4	57.9	64.4	67.8	68.9	71.2	69.6
Below Normal (13%)	65.0	56.8	49.2	47.5	48.6	54.3	61.2	65.8	68.7	70.6	73.2	70.9
Dry (24%)	65.6	57.0	49.2	47.4	49.9	54.9	60.7	66.9	71.0	73.4	73.8	71.6
Critical (15%)	67.0	57.8	49.4	47.7	52.3	58.4	64.1	69.5	74.6	79.9	77.6	73.6

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	0.0	0.0	**0.1**	**0.2**	**0.2**	**0.0**	-0.6	-1.1	-1.8	**1.0**	**2.4**	**1.1**
20%	-0.1	0.0	**0.0**	**0.1**	**0.2**	-0.3	-0.3	-1.2	-2.3	-0.1	**0.4**	**0.2**
30%	**0.0**	**0.0**	**0.1**	**0.1**	-0.1	**0.3**	-0.2	-0.7	-1.4	-0.1	**0.9**	**0.4**
40%	**0.1**	0.0	-0.1	**0.2**	-0.1	**0.1**	**0.0**	-0.6	-1.2	**0.2**	**0.2**	**0.6**
50%	**0.2**	-0.1	-0.1	**0.1**	**0.0**	**0.0**	**0.0**	0.0	-0.3	**0.2**	**0.1**	**0.3**
60%	**0.2**	0.0	**0.4**	-0.1	0.0	-0.2	**0.1**	-0.2	-0.3	**0.2**	**0.2**	**0.8**
70%	**0.2**	**0.0**	-0.1	**0.2**	**0.0**	0.0	**0.1**	**0.0**	0.0	0.0	-0.6	**1.3**
80%	0.0	-0.1	**0.0**	0.0	0.0	**0.0**	0.0	0.0	-0.1	**0.2**	-0.5	**1.2**
90%	-0.5	-0.6	-0.1	**0.1**	0.0	**0.0**	**0.0**	**0.0**	**0.0**	-0.2	-0.1	**1.2**
Long Term												
Full Simulation Period[a]	**0.1**	-0.1	**0.0**	**0.1**	**0.0**	**0.0**	-0.1	-0.3	-0.7	**0.1**	**0.3**	**0.7**
Water Year Types[b,c]												
Wet (32%)	**0.2**	**0.1**	**0.5**	**0.1**	**0.0**	**0.0**	**0.0**	0.0	-0.3	**0.2**	0.0	**1.8**
Above Normal (16%)	**0.1**	-0.3	-0.1	**0.2**	-0.1	0.0	**0.0**	-0.2	-1.1	-0.2	-0.2	**0.5**
Below Normal (13%)	0.0	-0.5	-0.4	**0.3**	-0.1	-0.1	-0.4	-0.9	-2.6	**0.1**	-0.1	-0.2
Dry (24%)	-0.1	0.0	-0.1	**0.0**	**0.1**	**0.1**	-0.2	-0.4	-0.6	**0.3**	**0.7**	**0.2**
Critical (15%)	**0.1**	0.0	-0.1	-0.1	**0.2**	**0.2**	-0.1	-0.4	**0.5**	-0.1	**1.2**	**0.1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 17-4. American River at the Mouth, Monthly Temperature (above the confluence with the Sacramento River)

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	67.9	58.6	52.1	48.7	51.4	58.9	66.0	71.8	77.9	78.6	77.4	74.2
20%	66.4	58.1	51.2	48.1	50.6	57.3	62.7	70.2	73.8	73.8	75.7	72.5
30%	65.7	57.7	50.7	47.6	49.8	55.3	61.0	68.0	71.7	72.4	72.8	71.1
40%	65.1	57.4	50.3	47.4	49.2	53.3	60.0	66.9	70.0	71.6	72.2	70.1
50%	64.6	57.1	49.9	47.1	48.4	52.6	58.7	65.0	68.6	71.0	71.8	69.6
60%	64.2	56.8	49.0	46.6	48.0	51.5	58.1	63.4	67.5	70.5	70.9	68.7
70%	63.8	56.5	48.6	46.0	47.3	50.9	56.5	61.8	66.4	69.7	70.2	68.0
80%	63.3	56.2	48.0	45.6	46.9	50.4	55.2	60.8	65.5	69.1	69.6	67.5
90%	62.4	55.9	47.3	45.0	46.5	49.8	54.2	58.4	64.0	68.5	68.5	66.9
Long Term												
Full Simulation Period[a]	64.8	57.1	49.7	47.0	48.9	53.4	59.4	65.2	69.6	72.2	72.3	70.0
Water Year Types[b,c]												
Wet (32%)	63.2	57.1	50.2	46.1	47.2	50.8	55.9	61.1	65.6	70.2	69.7	67.4
Above Normal (16%)	64.4	56.6	49.6	47.0	48.1	51.4	57.9	64.6	68.9	69.1	71.4	69.1
Below Normal (13%)	65.0	57.3	49.7	47.3	48.6	54.4	61.6	66.7	71.3	70.5	73.3	71.1
Dry (24%)	65.6	57.1	49.3	47.4	49.8	54.8	60.9	67.3	71.6	73.1	73.1	71.4
Critical (15%)	66.9	57.8	49.4	47.8	52.2	58.2	64.2	69.8	74.1	80.0	76.4	73.5

Alternative 4 043019

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	68.0	58.6	52.2	49.0	51.6	57.7	64.5	71.0	77.6	78.0	76.9	73.6
20%	66.3	58.1	51.4	48.4	50.5	56.2	62.8	69.5	74.8	74.1	73.9	71.3
30%	65.7	57.8	50.8	47.9	49.7	54.9	61.7	68.9	72.5	73.0	72.5	70.7
40%	65.4	57.4	50.4	47.6	48.9	53.5	60.5	66.5	70.9	72.2	72.2	70.2
50%	64.9	57.0	49.7	47.2	48.4	52.5	58.7	64.7	69.4	71.4	71.7	69.5
60%	64.2	56.7	49.4	46.7	47.8	51.4	57.6	62.7	68.5	71.0	71.2	69.3
70%	63.9	56.6	49.1	46.2	47.3	50.9	56.1	61.2	67.8	70.4	70.7	69.1
80%	63.4	56.1	48.3	45.8	46.9	50.5	55.2	60.4	66.5	69.4	70.1	68.8
90%	62.3	55.8	47.7	45.1	46.5	49.8	53.9	58.4	64.0	68.9	68.8	68.0
Long Term												
Full Simulation Period[a]	64.8	57.1	49.9	47.1	48.7	53.2	59.1	64.9	70.2	72.5	72.2	70.2
Water Year Types[b,c]												
Wet (32%)	63.3	57.1	50.7	46.2	47.2	50.8	55.9	60.9	66.2	70.8	69.9	68.7
Above Normal (16%)	64.5	56.6	49.7	47.3	48.1	51.4	57.9	64.0	69.7	69.7	71.2	69.4
Below Normal (13%)	65.1	57.2	49.7	47.6	48.5	53.8	60.9	66.6	71.4	71.5	71.7	70.2
Dry (24%)	65.7	57.0	49.4	47.4	49.7	54.6	60.7	67.3	72.5	73.7	73.1	71.0
Critical (15%)	66.9	57.7	49.5	48.0	51.5	57.3	63.3	69.2	74.4	78.2	76.9	73.1

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**0.1**	**0.0**	**0.1**	**0.2**	**0.2**	-1.2	-1.5	-0.8	-0.3	-0.6	-0.5	-0.6
20%	-0.1	**0.0**	**0.2**	**0.2**	-0.2	-1.1	**0.1**	-0.7	**1.0**	**0.3**	-1.9	-1.2
30%	0.0	**0.1**	**0.1**	**0.3**	-0.1	-0.4	**0.7**	**0.8**	**0.8**	**0.6**	-0.3	-0.4
40%	**0.4**	0.0	**0.1**	**0.2**	-0.3	**0.2**	**0.5**	-0.4	**0.9**	**0.6**	**0.0**	**0.1**
50%	**0.3**	-0.1	-0.2	**0.1**	0.0	-0.1	0.0	-0.3	**0.8**	**0.5**	-0.1	0.0
60%	0.0	-0.1	**0.3**	**0.1**	-0.2	-0.2	-0.6	-0.7	**1.0**	**0.6**	**0.3**	**0.5**
70%	**0.1**	**0.1**	**0.4**	**0.2**	**0.0**	**0.0**	-0.4	-0.6	**1.5**	**0.7**	**0.6**	**1.0**
80%	**0.1**	0.0	**0.2**	**0.2**	**0.0**	**0.0**	0.0	-0.3	**1.0**	**0.4**	**0.5**	**1.2**
90%	-0.1	-0.1	**0.4**	**0.1**	0.0	**0.0**	-0.3	**0.0**	**0.0**	**0.3**	**0.3**	**1.2**
Long Term												
Full Simulation Period[a]	**0.1**	0.0	**0.2**	**0.2**	-0.1	-0.3	-0.3	-0.3	**0.6**	**0.3**	-0.1	**0.2**
Water Year Types[b,c]												
Wet (32%)	**0.1**	**0.0**	**0.5**	**0.1**	**0.0**	**0.0**	0.0	-0.3	**0.5**	**0.6**	**0.2**	**1.3**
Above Normal (16%)	**0.1**	**0.0**	**0.1**	**0.2**	-0.1	0.0	**0.0**	-0.6	**0.8**	**0.6**	-0.2	**0.3**
Below Normal (13%)	**0.0**	-0.1	0.0	**0.4**	-0.1	-0.6	-0.7	-0.1	**0.0**	**1.0**	-1.6	-0.8
Dry (24%)	**0.0**	-0.1	**0.1**	**0.0**	-0.1	-0.2	-0.2	**0.0**	**0.9**	**0.6**	0.0	-0.4
Critical (15%)	**0.0**	-0.1	**0.0**	**0.2**	-0.6	-0.9	-0.9	-0.6	**0.2**	-1.8	**0.4**	-0.4

a Based on the 82-year simulation period.

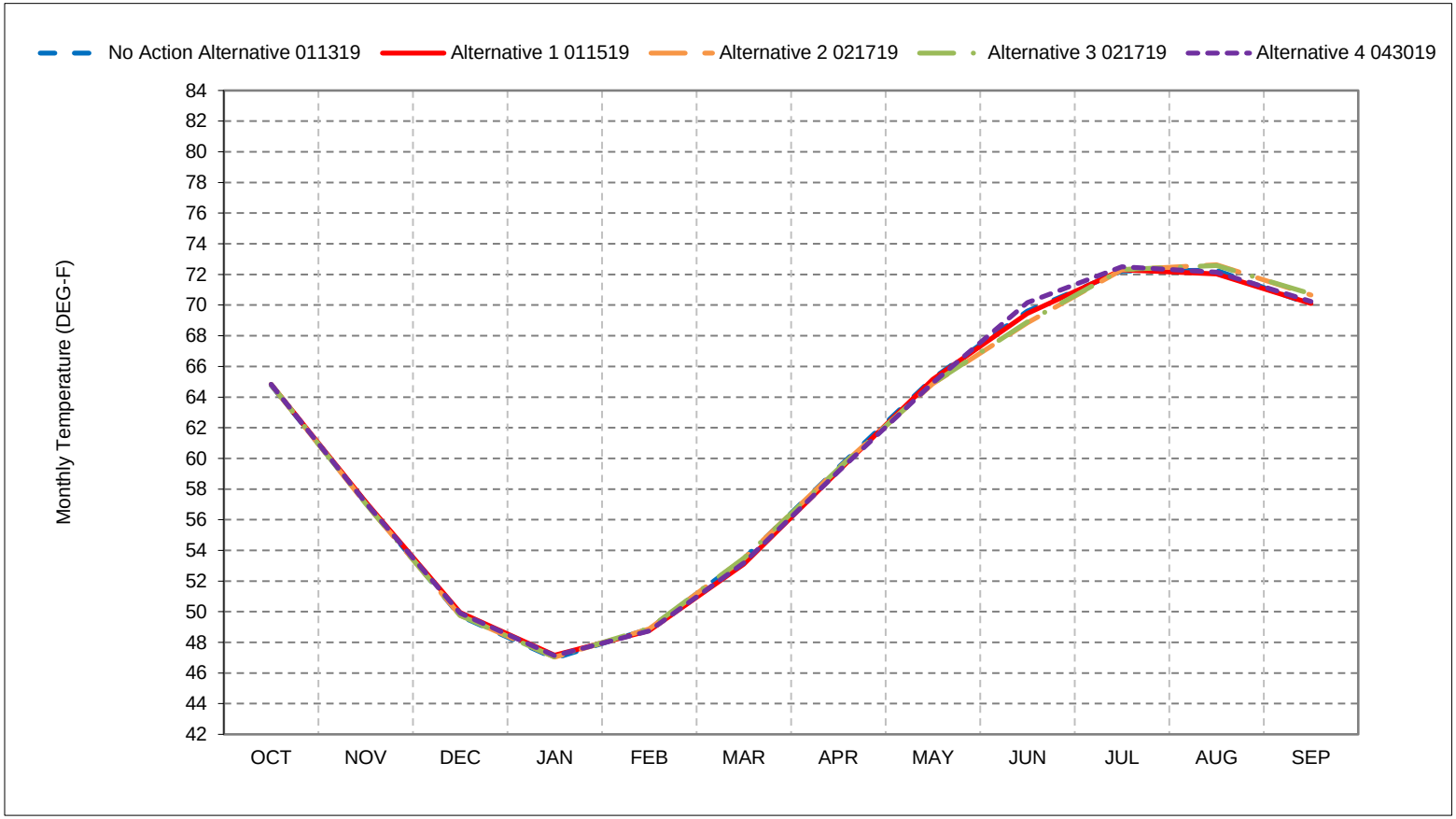
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-1. American River at the Mouth, Long-Term Average Temperature



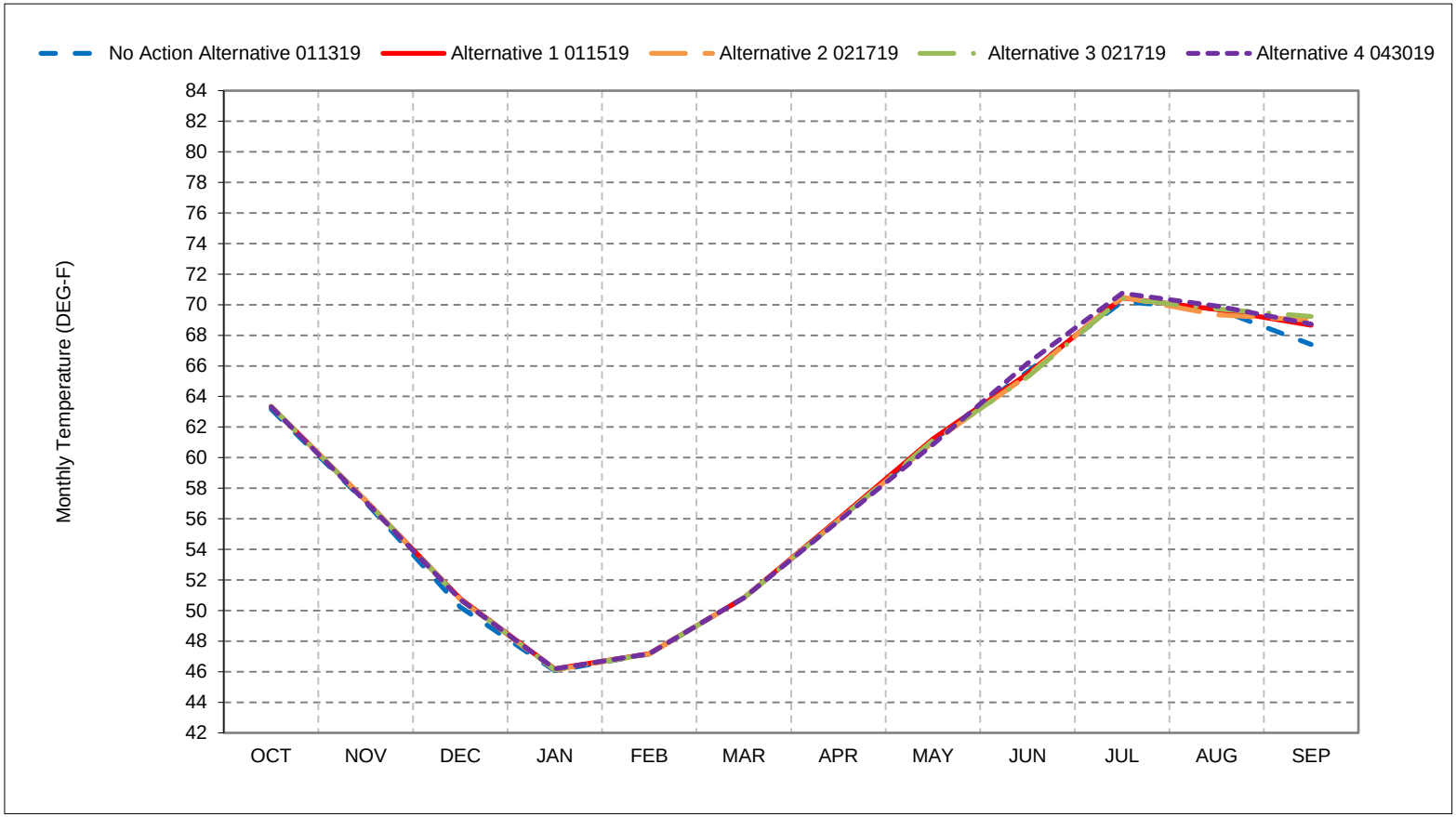
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-2. American River at the Mouth, Wet Year Average Temperature



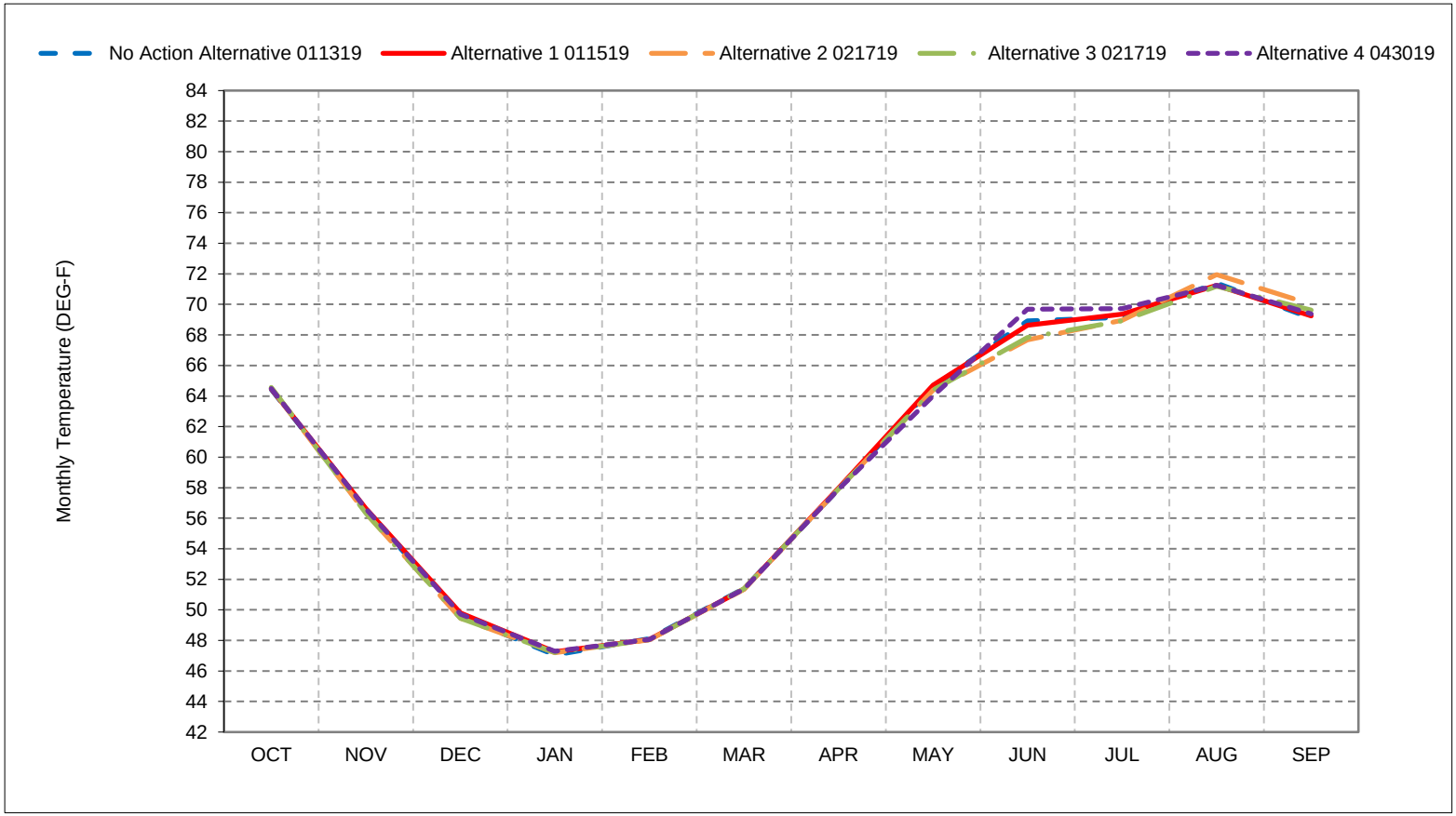
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

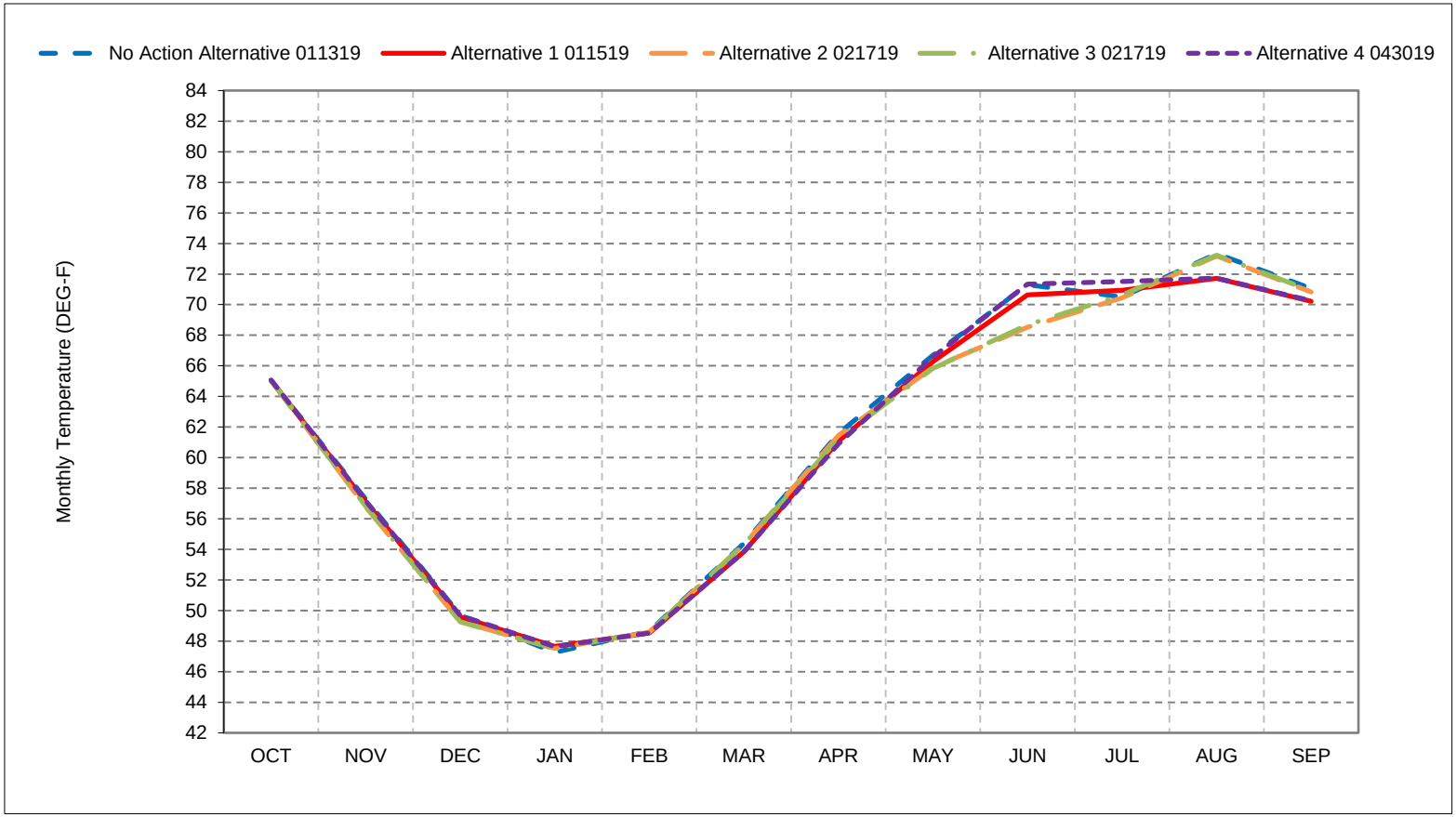
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-3. American River at the Mouth, Above Normal Year Average Temperature



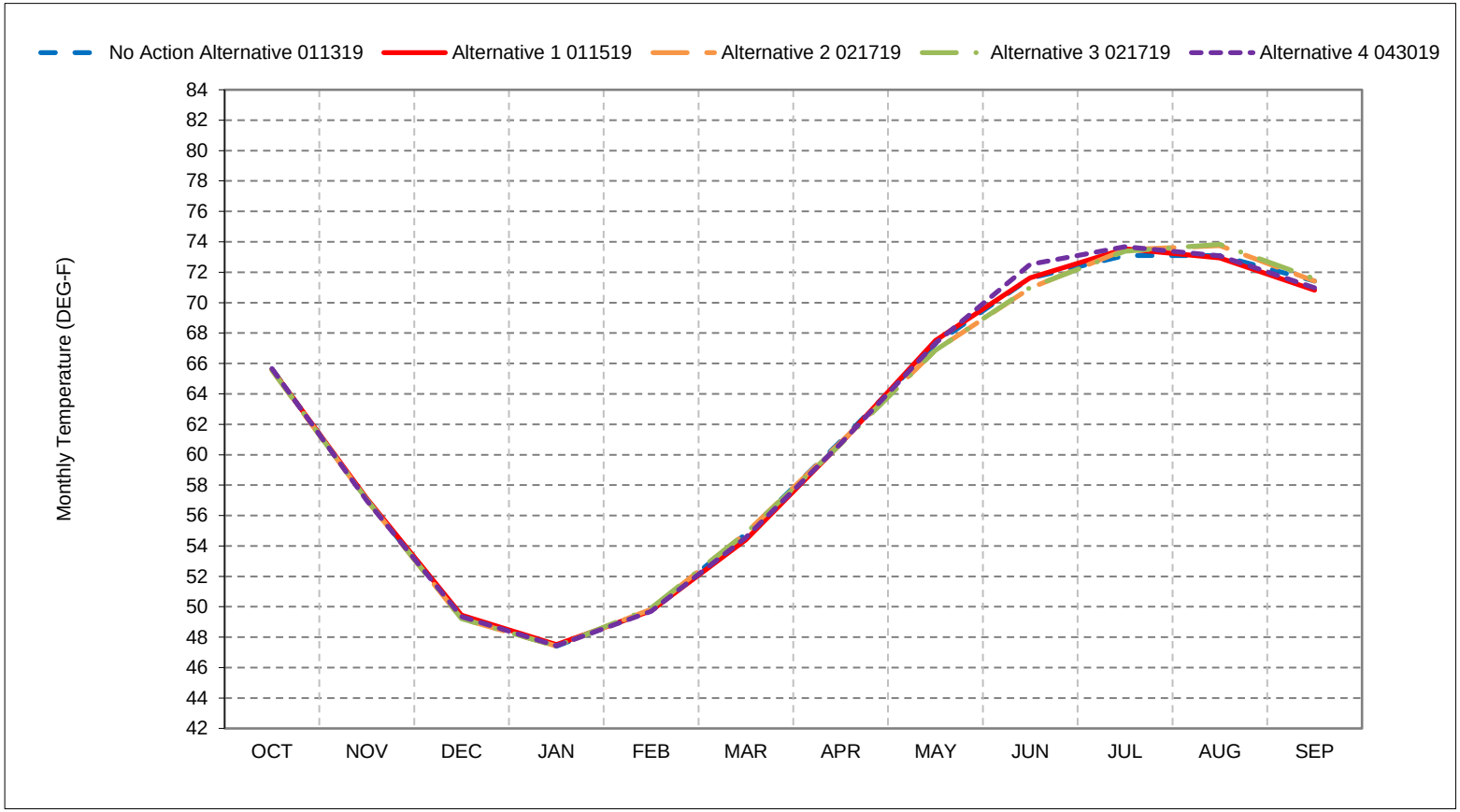
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-4. American River at the Mouth, Below Normal Year Average Temperature



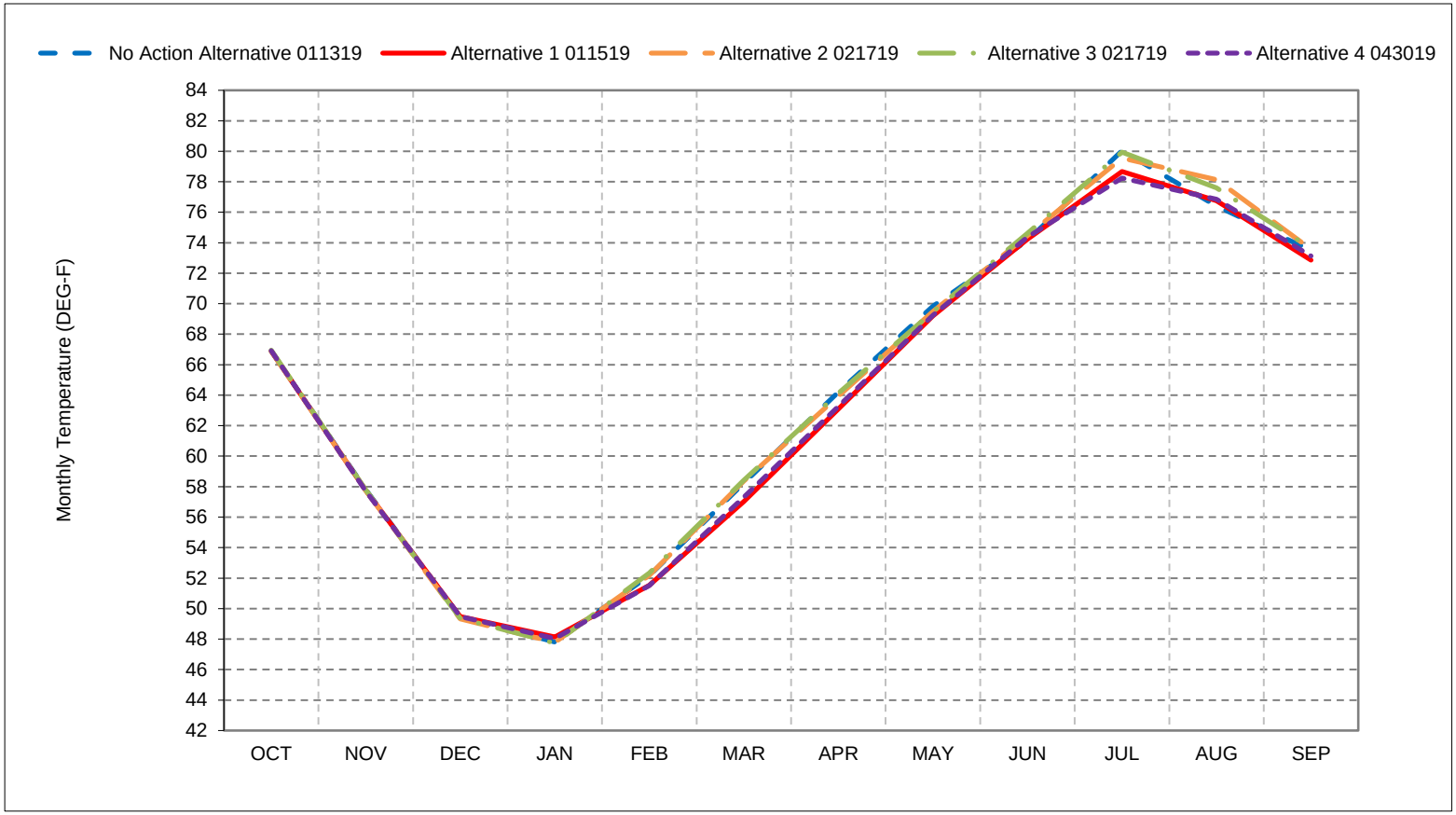
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-5. American River at the Mouth, Dry Year Average Temperature



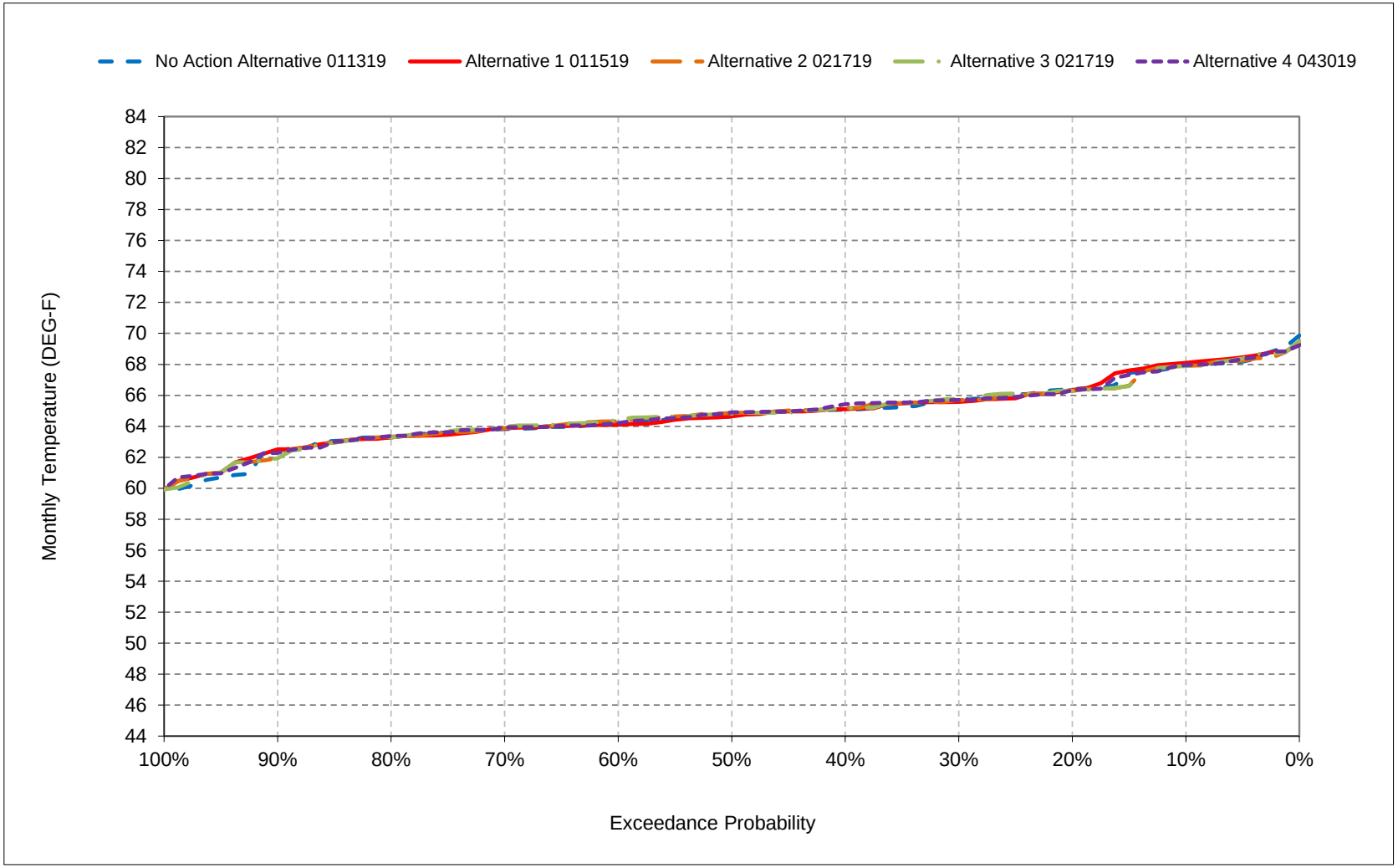
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-6. American River at the Mouth, Critical Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

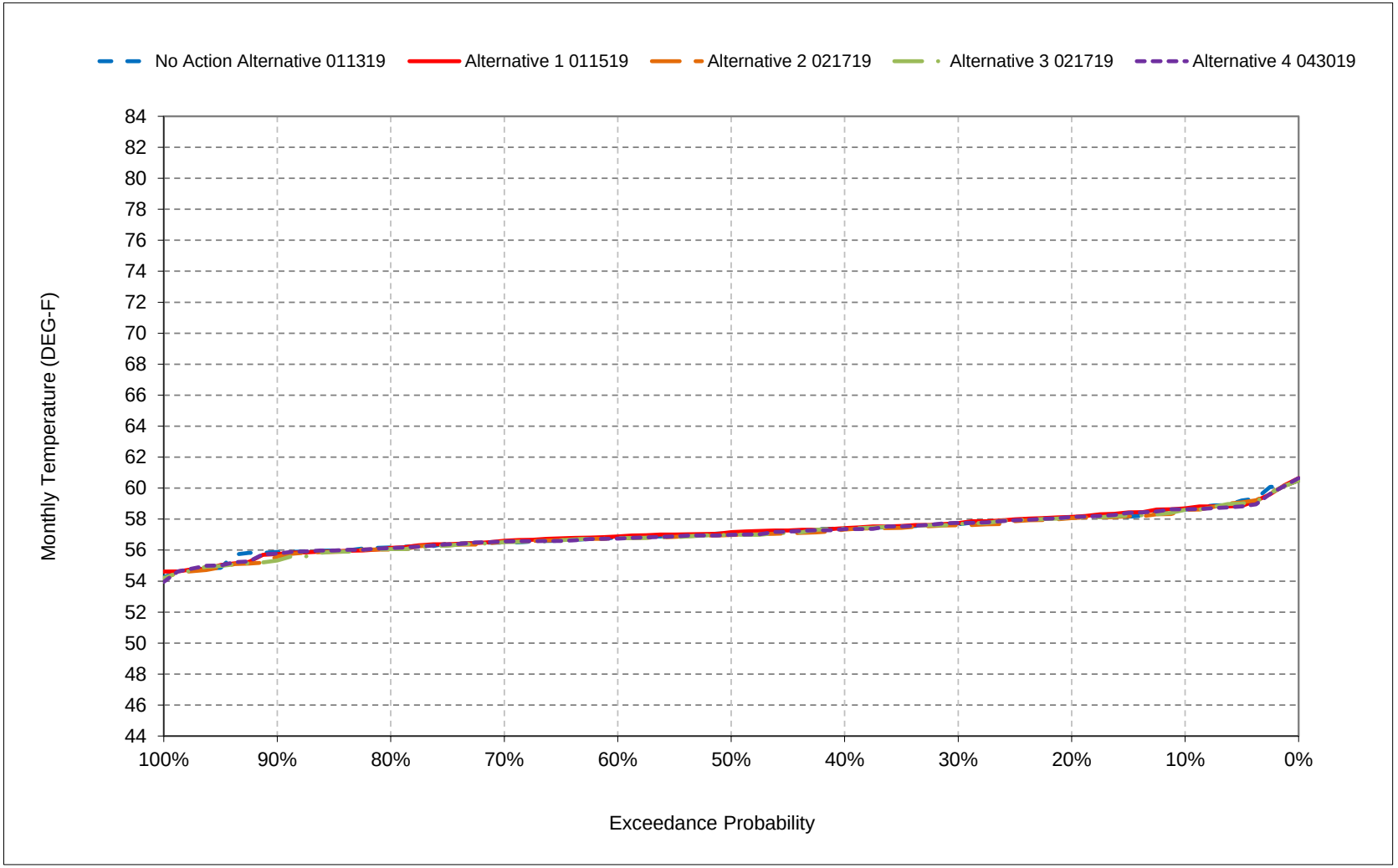
Figure 17-7. American River at the Mouth, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

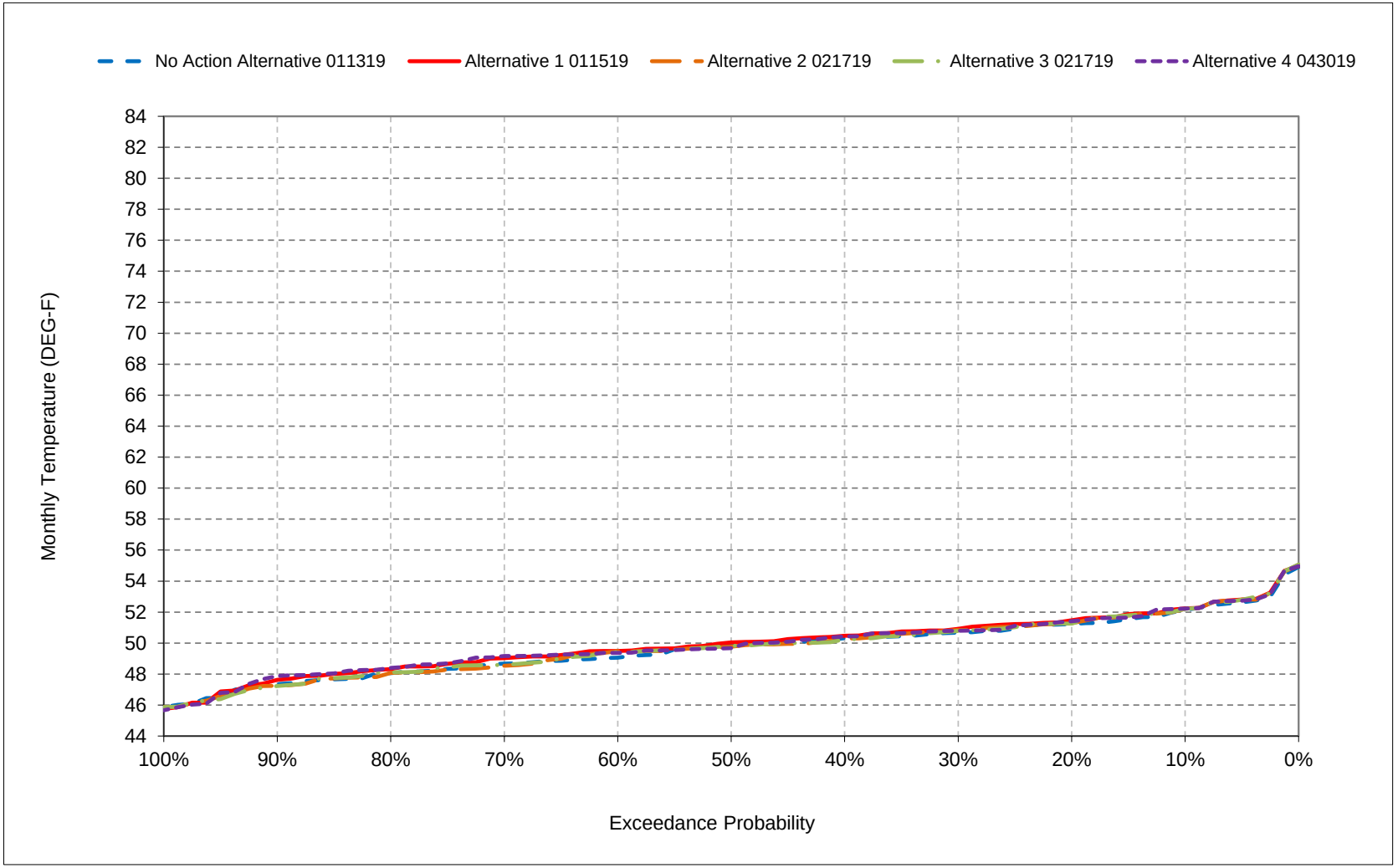
Figure 17-8. American River at the Mouth, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

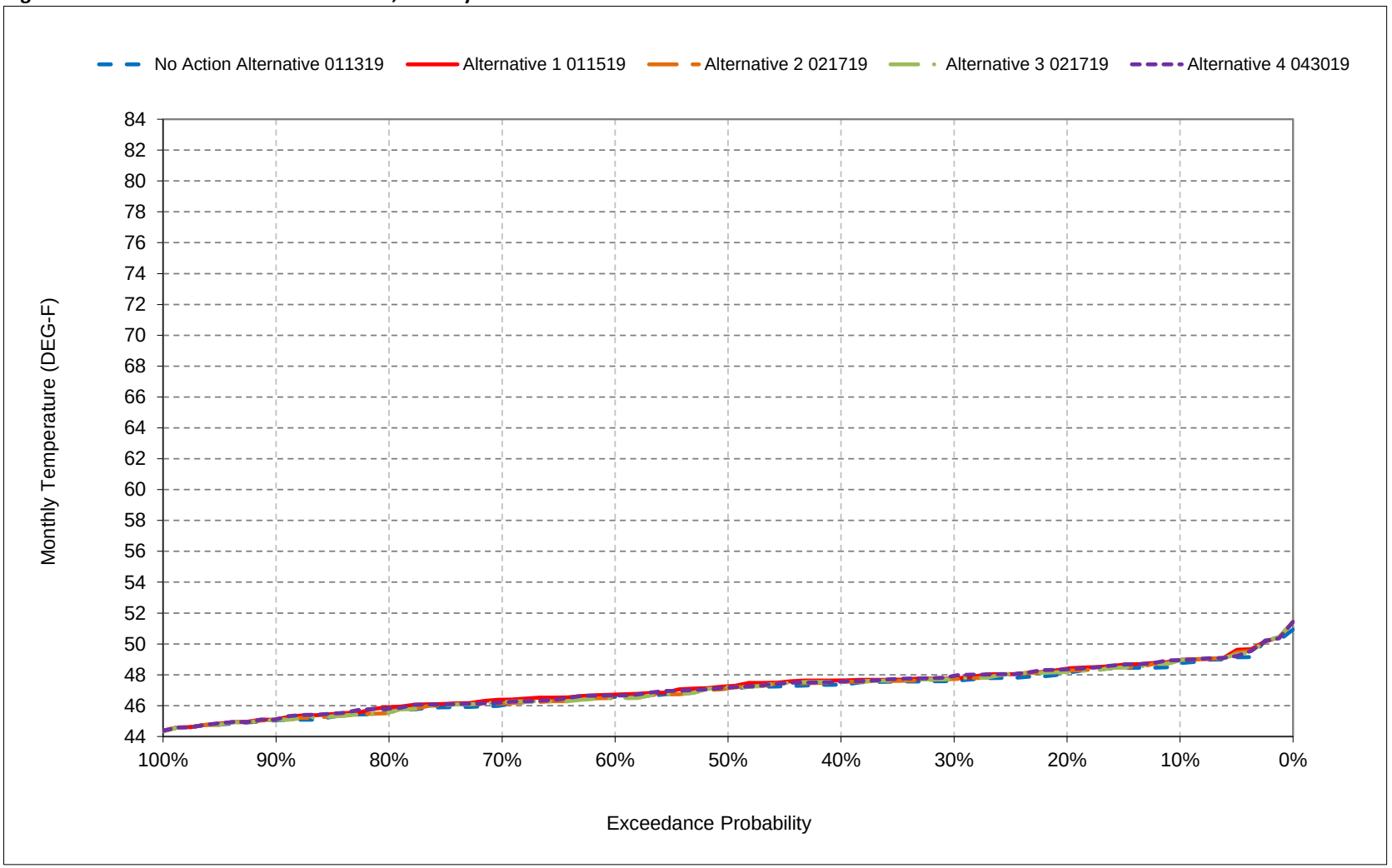
Figure 17-9. American River at the Mouth, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

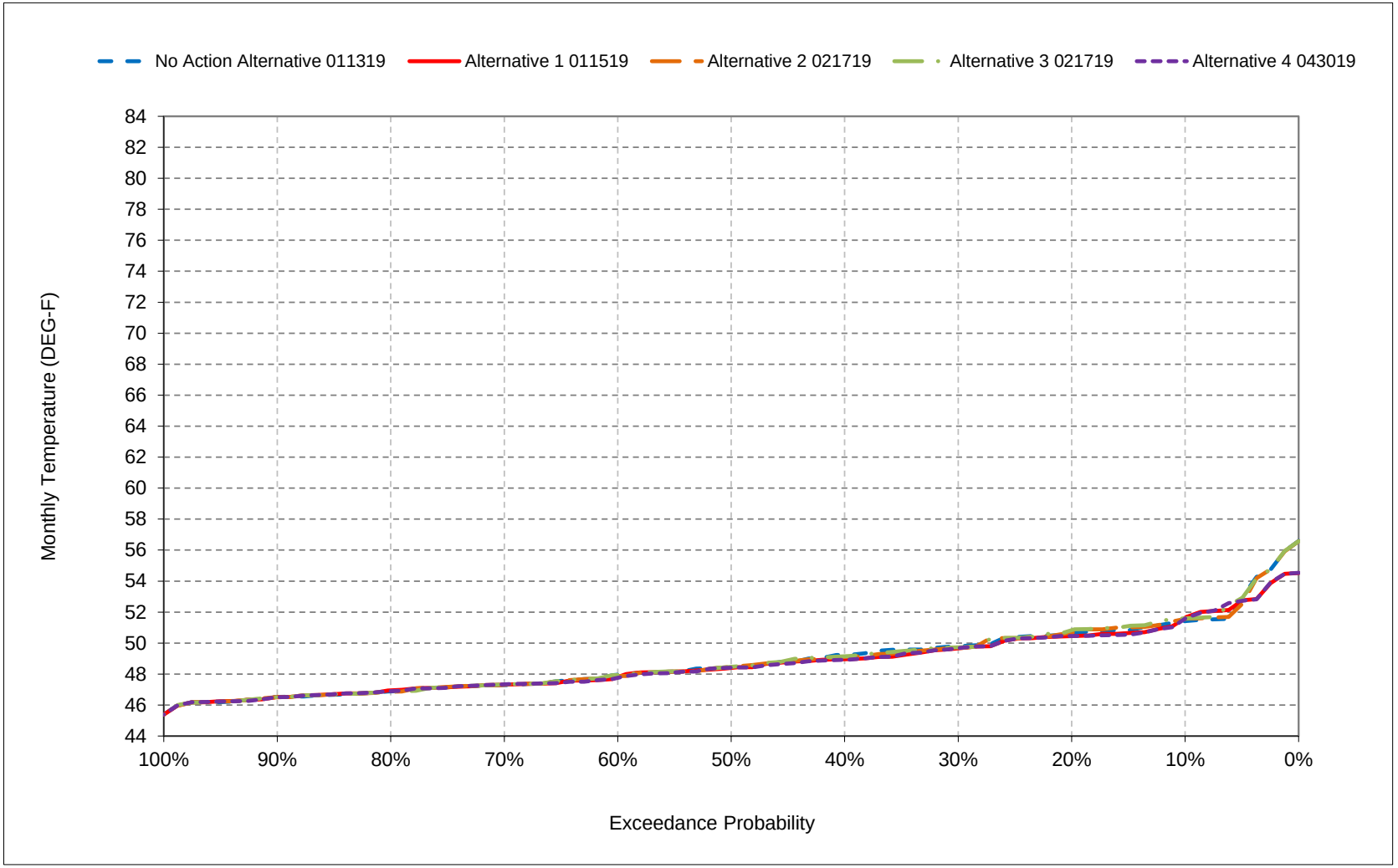
Figure 17-10. American River at the Mouth, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

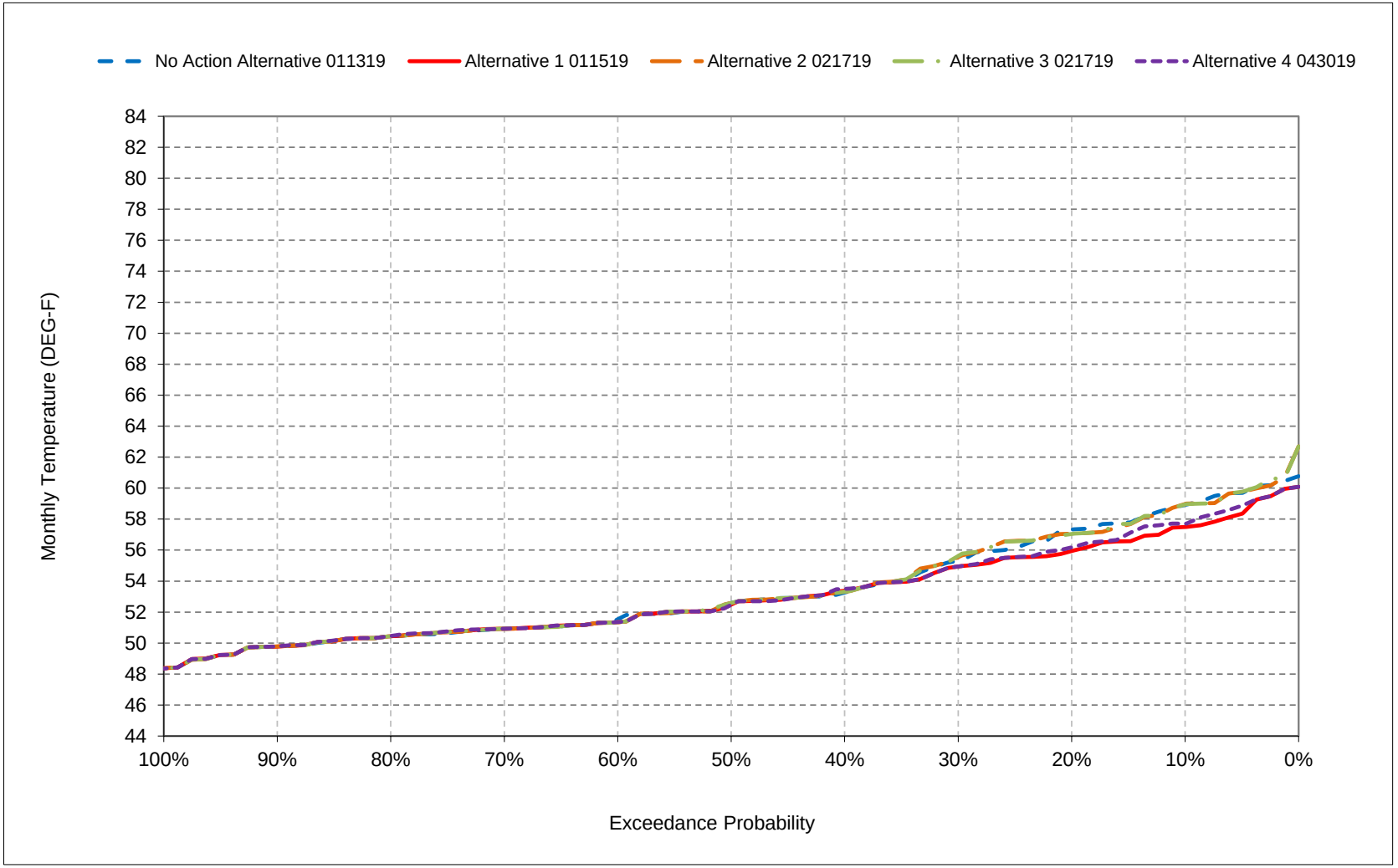
Figure 17-11. American River at the Mouth, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

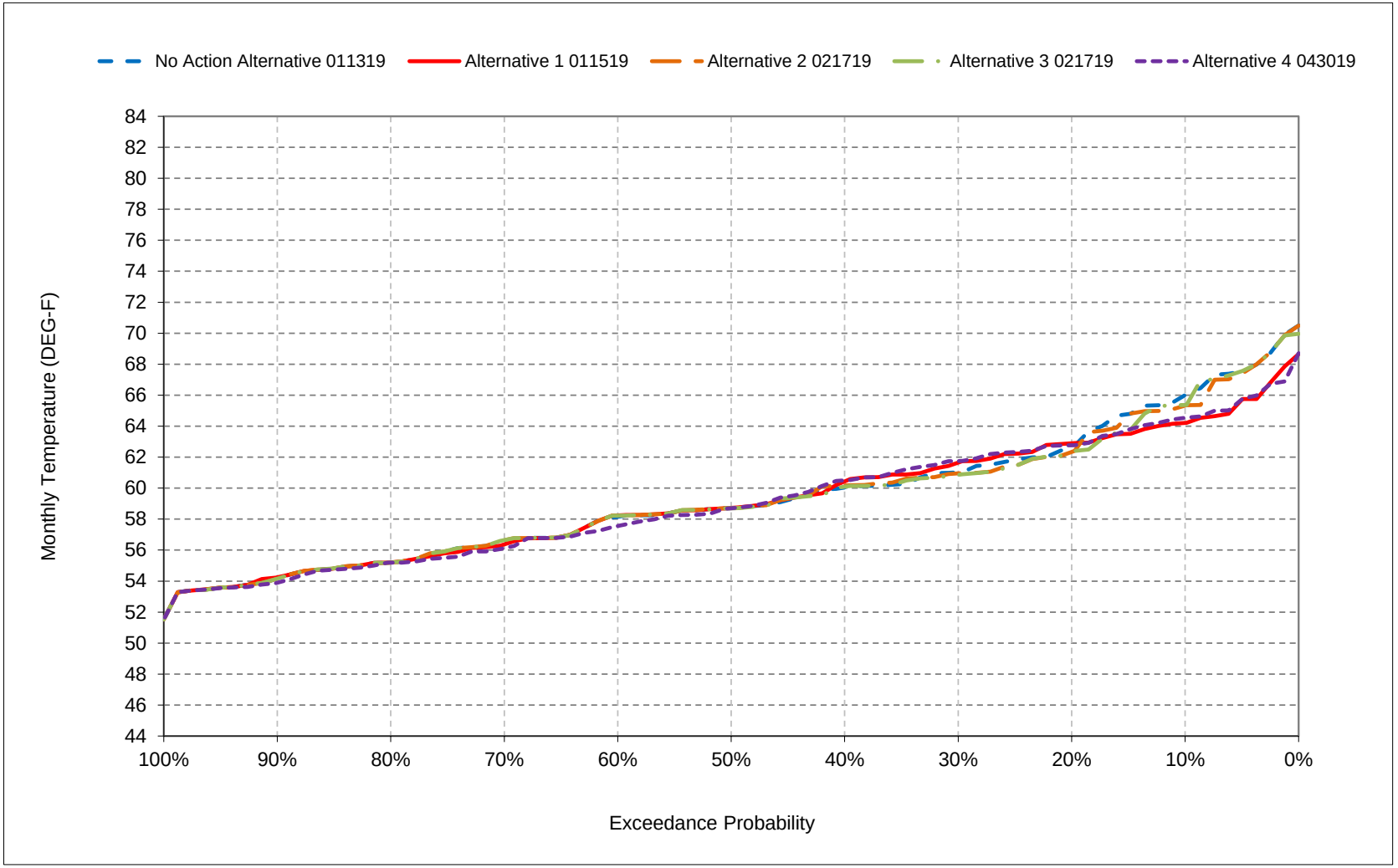
Figure 17-12. American River at the Mouth, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

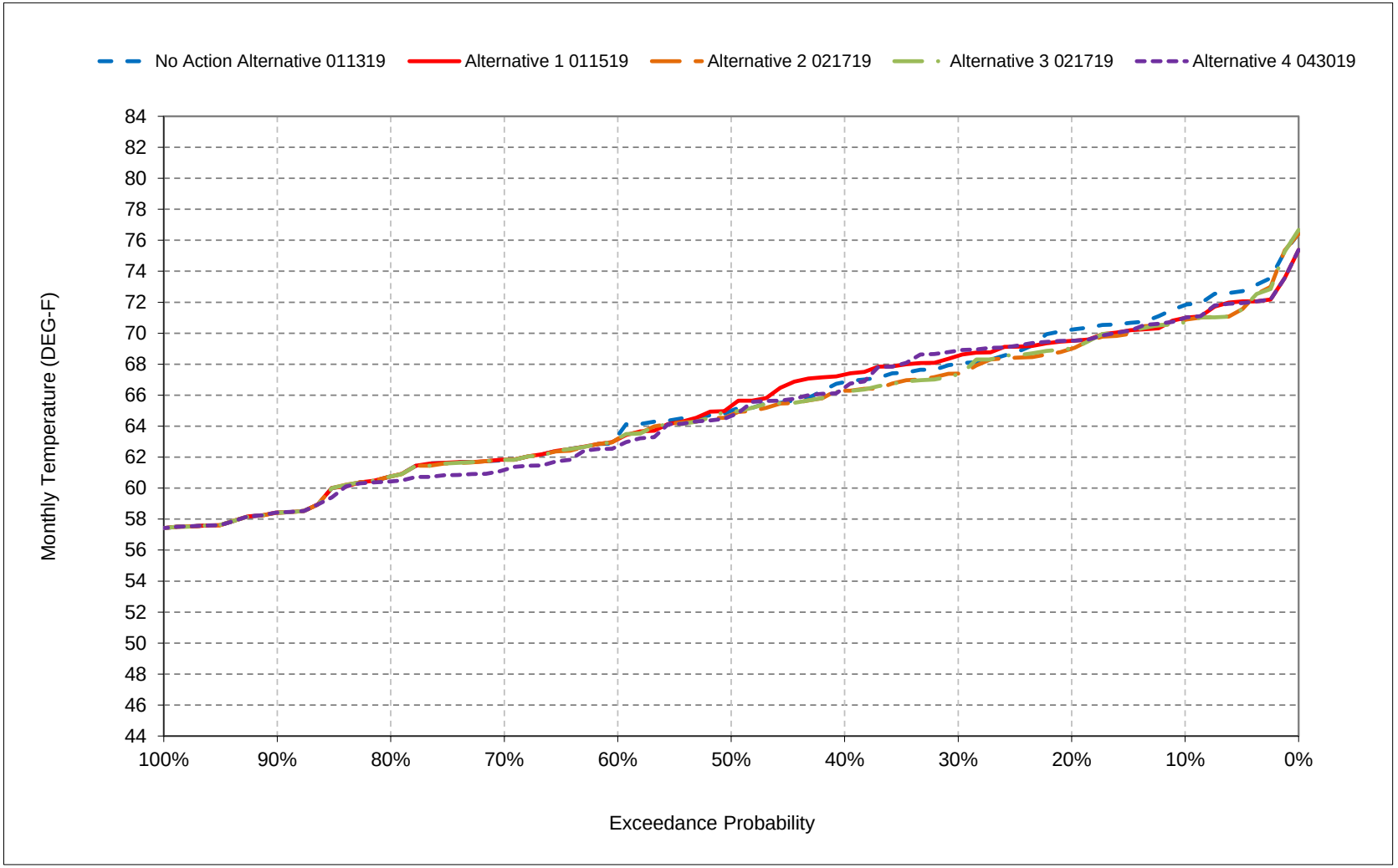
Figure 17-13. American River at the Mouth, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

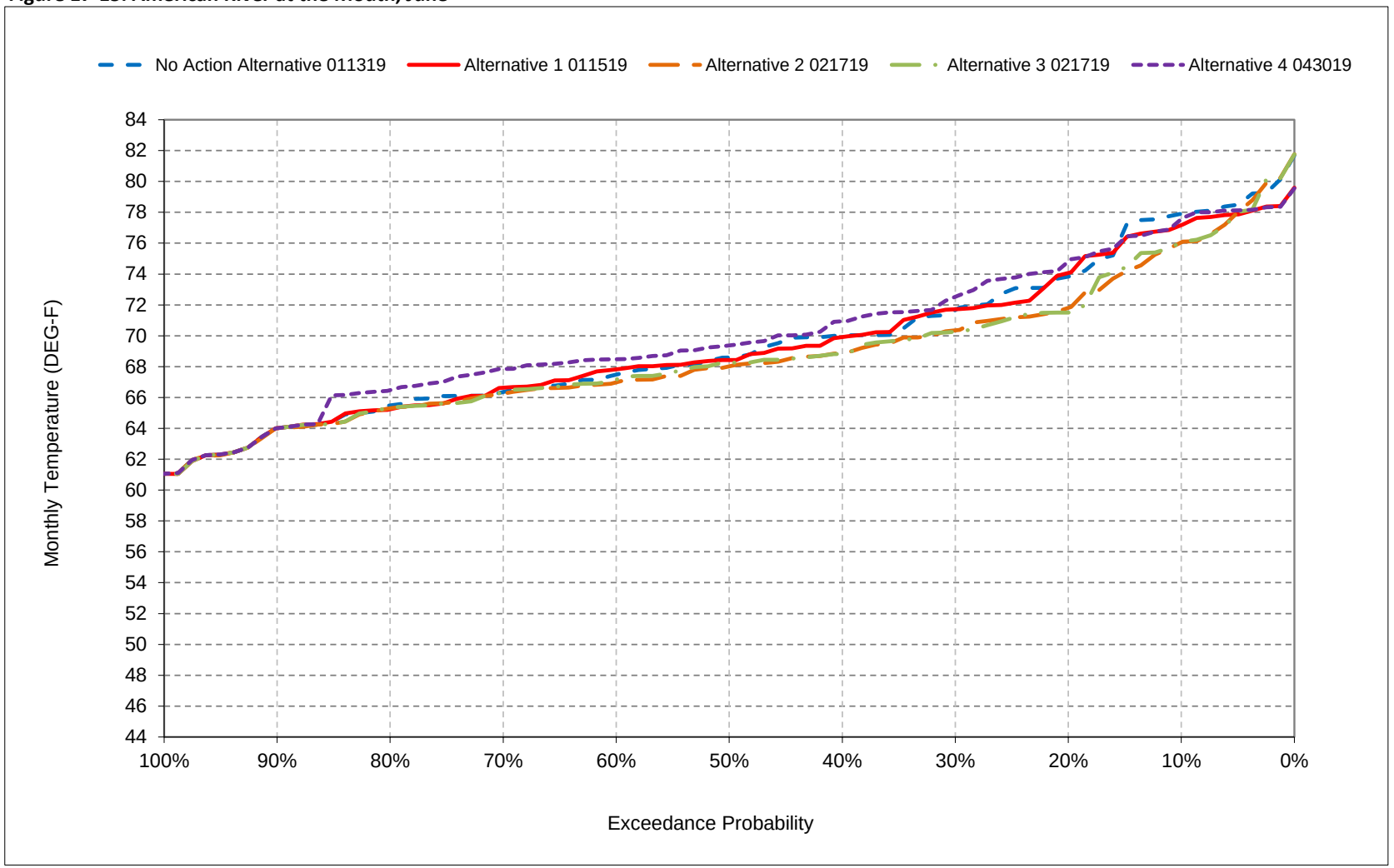
Figure 17-14. American River at the Mouth, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

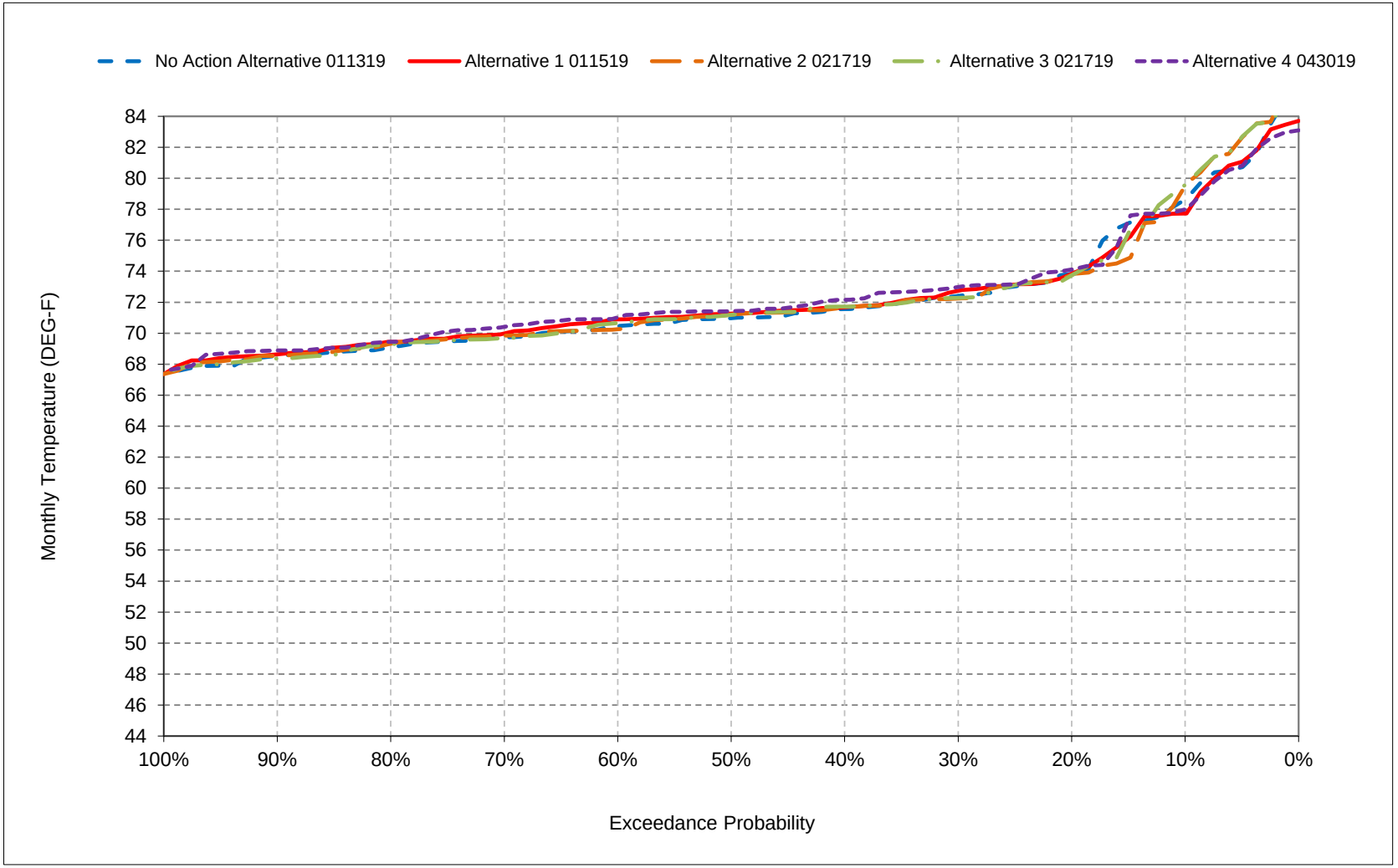
Figure 17-15. American River at the Mouth, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

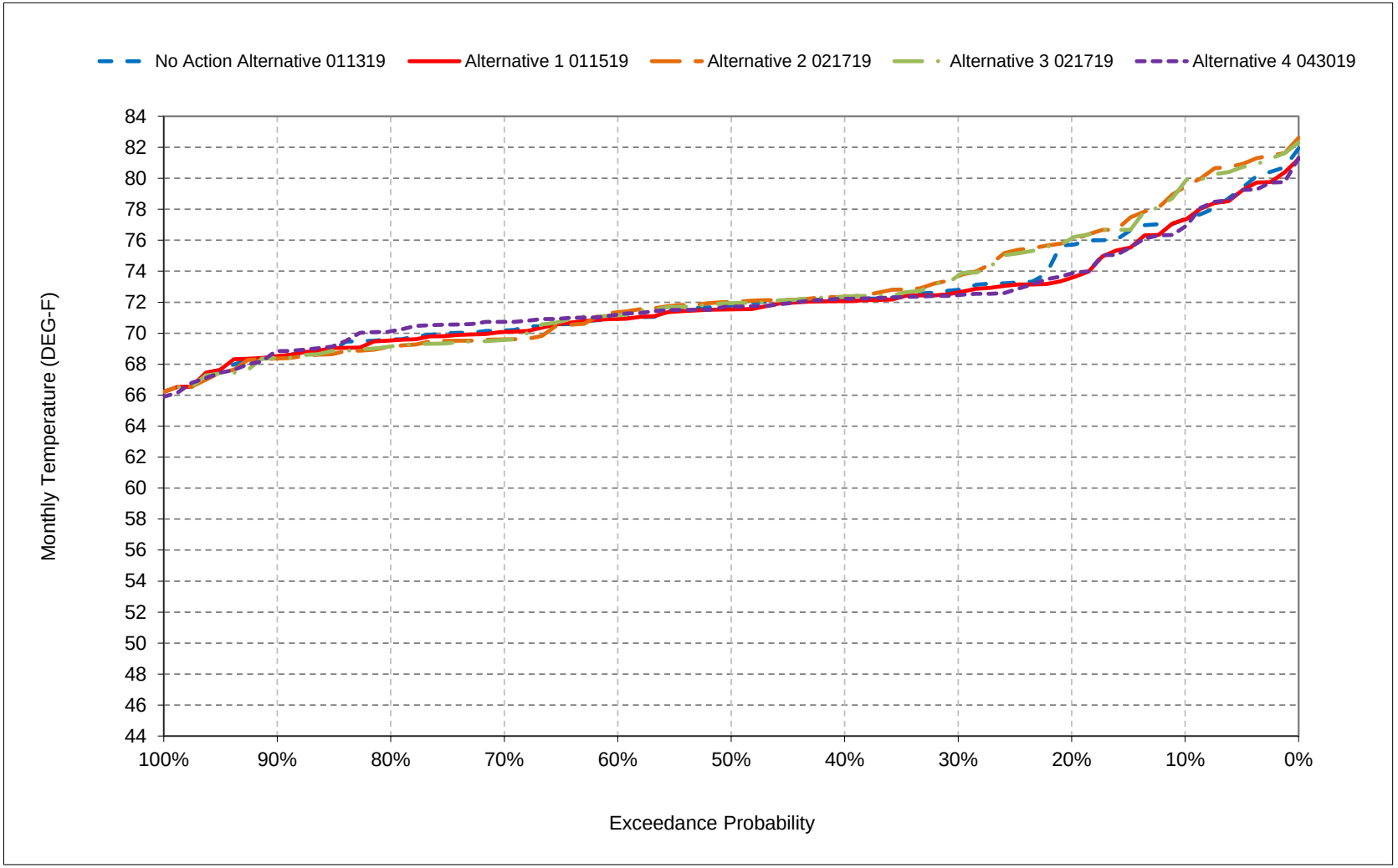
Figure 17-16. American River at the Mouth, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

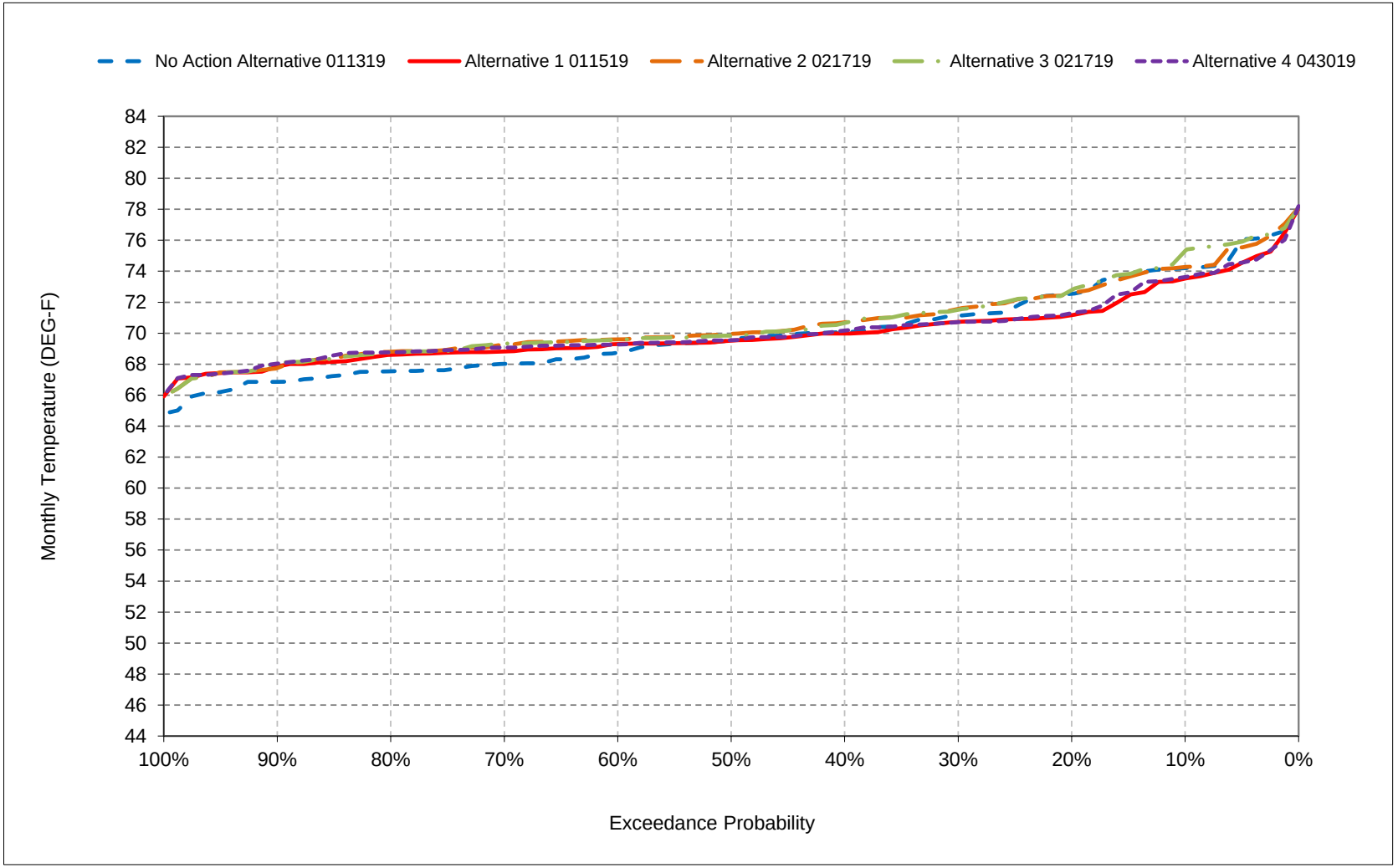
Figure 17-17. American River at the Mouth, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-18. American River at the Mouth, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 20-1. Stanislaus River below New Melones Reservoir, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.9	56.0	53.6	52.1	51.1	50.7	51.0	51.6	52.6	53.7	55.2	57.5
20%	55.6	54.6	52.7	51.5	50.4	49.9	50.2	51.1	51.8	52.5	53.0	54.4
30%	53.4	53.3	52.3	50.9	49.7	49.5	49.9	50.5	51.1	51.8	52.5	53.0
40%	52.9	52.8	51.8	50.6	49.4	49.2	49.7	50.3	50.8	51.4	51.9	52.5
50%	52.4	52.5	51.5	50.2	49.2	49.0	49.3	49.7	50.3	51.1	51.6	52.0
60%	52.0	52.1	51.3	49.9	48.9	48.7	48.9	49.3	49.7	50.4	50.9	51.4
70%	51.4	51.6	51.0	49.6	48.7	48.1	48.4	49.0	49.3	50.0	50.5	51.0
80%	51.1	51.2	50.2	49.2	48.0	47.5	48.0	48.4	48.9	49.6	50.1	50.7
90%	49.9	50.0	49.7	48.3	47.0	46.8	46.9	47.2	47.5	48.5	48.9	49.3
Long Term												
Full Simulation Period[a]	53.4	52.8	51.7	50.2	49.1	48.8	49.2	49.9	50.6	51.3	52.2	53.1
Water Year Types[b,c]												
Wet (23%)	50.4	50.6	50.6	49.4	48.1	47.8	47.8	48.1	48.5	49.0	49.5	49.9
Above Normal (24%)	52.7	52.6	51.6	49.6	48.2	48.0	48.4	48.9	49.6	50.4	51.4	52.2
Below Normal (10%)	52.5	52.5	51.8	50.3	49.2	48.8	49.1	49.6	50.2	50.9	51.5	52.1
Dry (16%)	54.3	53.6	52.0	50.7	49.8	49.4	49.7	50.3	51.0	51.9	53.0	53.8
Critical (27%)	56.3	54.5	52.4	51.2	50.4	50.0	50.8	52.1	53.1	53.8	55.0	56.8

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.9	55.4	53.1	52.0	51.1	50.8	51.0	51.5	52.2	52.6	54.2	55.7
20%	53.2	53.1	52.5	51.3	50.4	50.1	50.4	51.0	51.4	52.0	52.6	52.9
30%	52.5	52.5	52.0	50.9	50.0	49.6	50.0	50.3	50.9	51.6	52.1	52.3
40%	52.1	52.2	51.7	50.7	49.6	49.3	49.6	50.1	50.6	51.1	51.6	51.9
50%	51.8	52.0	51.4	50.5	49.3	49.1	49.3	49.7	50.1	50.7	51.2	51.6
60%	51.5	51.6	51.2	50.2	49.1	48.8	49.1	49.5	49.9	50.5	50.9	51.2
70%	51.2	51.3	51.0	49.6	48.7	48.6	48.8	49.1	49.6	50.1	50.5	50.9
80%	50.8	51.0	50.4	49.3	48.0	47.7	47.9	48.6	49.1	49.5	50.0	50.6
90%	50.0	50.1	49.6	48.3	47.4	47.1	47.4	47.6	48.1	48.5	49.3	49.7
Long Term												
Full Simulation Period[a]	52.5	52.3	51.5	50.3	49.3	48.9	49.2	49.8	50.4	51.1	51.9	52.4
Water Year Types[b,c]												
Wet (23%)	50.5	50.8	50.7	49.3	48.1	47.8	47.9	48.2	48.7	49.1	49.7	50.1
Above Normal (24%)	52.8	52.2	51.4	49.7	48.5	48.1	48.4	49.1	49.8	50.7	51.7	52.6
Below Normal (10%)	52.0	52.1	51.7	50.3	49.4	49.1	49.3	49.8	50.3	50.8	51.3	51.6
Dry (16%)	52.8	52.6	51.7	50.5	49.8	49.6	49.8	50.2	50.7	51.3	51.9	52.5
Critical (27%)	54.0	53.7	52.1	51.4	50.7	50.2	50.6	51.4	52.2	53.3	54.3	54.4

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-3.0	-0.7	-0.5	-0.1	**0.0**	**0.1**	-0.1	-0.2	-0.4	-1.1	-1.0	-1.8
20%	-2.4	-1.4	-0.3	-0.1	**0.0**	**0.2**	**0.2**	-0.1	-0.4	-0.5	-0.3	-1.5
30%	-0.9	-0.8	-0.3	0.0	**0.3**	**0.2**	**0.1**	-0.2	-0.2	-0.3	-0.4	-0.7
40%	-0.8	-0.6	-0.1	**0.1**	**0.2**	**0.2**	-0.1	-0.2	-0.2	-0.3	-0.4	-0.6
50%	-0.5	-0.5	-0.2	**0.3**	**0.1**	**0.0**	0.0	0.0	-0.2	-0.4	-0.3	-0.4
60%	-0.5	-0.5	-0.1	**0.3**	**0.1**	**0.1**	**0.2**	**0.1**	**0.2**	**0.1**	**0.0**	-0.2
70%	-0.2	-0.2	0.0	**0.0**	**0.1**	**0.4**	**0.4**	**0.2**	**0.2**	**0.1**	**0.0**	-0.1
80%	-0.3	-0.2	**0.1**	**0.1**	-0.1	**0.2**	0.0	**0.2**	**0.2**	-0.1	-0.1	-0.2
90%	**0.0**	**0.1**	-0.1	0.0	**0.4**	**0.2**	**0.4**	**0.4**	**0.5**	**0.0**	**0.4**	**0.5**
Long Term												
Full Simulation Period[a]	-0.9	-0.5	-0.2	**0.1**	**0.2**	**0.1**	**0.0**	-0.1	-0.2	-0.2	-0.2	-0.7
Water Year Types[b,c]												
Wet (23%)	**0.2**	**0.1**	**0.1**	-0.1	**0.0**	-0.1	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**
Above Normal (24%)	**0.1**	-0.4	-0.2	**0.2**	**0.3**	**0.0**	**0.1**	**0.2**	**0.2**	**0.2**	**0.3**	**0.4**
Below Normal (10%)	-0.5	-0.4	-0.1	**0.1**	**0.2**	**0.3**	**0.3**	**0.2**	**0.0**	-0.1	-0.3	-0.4
Dry (16%)	-1.5	-1.0	-0.2	-0.1	**0.1**	**0.2**	**0.1**	-0.1	-0.3	-0.6	-1.0	-1.3
Critical (27%)	-2.4	-0.9	-0.4	**0.2**	**0.2**	**0.3**	-0.2	-0.7	-0.9	-0.6	-0.6	-2.4

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 20-2. Stanislaus River below New Melones Reservoir, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.9	56.0	53.6	52.1	51.1	50.7	51.0	51.6	52.6	53.7	55.2	57.5
20%	55.6	54.6	52.7	51.5	50.4	49.9	50.2	51.1	51.8	52.5	53.0	54.4
30%	53.4	53.3	52.3	50.9	49.7	49.5	49.9	50.5	51.1	51.8	52.5	53.0
40%	52.9	52.8	51.8	50.6	49.4	49.2	49.7	50.3	50.8	51.4	51.9	52.5
50%	52.4	52.5	51.5	50.2	49.2	49.0	49.3	49.7	50.3	51.1	51.6	52.0
60%	52.0	52.1	51.3	49.9	48.9	48.7	48.9	49.3	49.7	50.4	50.9	51.4
70%	51.4	51.6	51.0	49.6	48.7	48.1	48.4	49.0	49.3	50.0	50.5	51.0
80%	51.1	51.2	50.2	49.2	48.0	47.5	48.0	48.4	48.9	49.6	50.1	50.7
90%	49.9	50.0	49.7	48.3	47.0	46.8	46.9	47.2	47.5	48.5	48.9	49.3
Long Term												
Full Simulation Period[a]	53.4	52.8	51.7	50.2	49.1	48.8	49.2	49.9	50.6	51.3	52.2	53.1
Water Year Types[b,c]												
Wet (23%)	50.4	50.6	50.6	49.4	48.1	47.8	47.8	48.1	48.5	49.0	49.5	49.9
Above Normal (24%)	52.7	52.6	51.6	49.6	48.2	48.0	48.4	48.9	49.6	50.4	51.4	52.2
Below Normal (10%)	52.5	52.5	51.8	50.3	49.2	48.8	49.1	49.6	50.2	50.9	51.5	52.1
Dry (16%)	54.3	53.6	52.0	50.7	49.8	49.4	49.7	50.3	51.0	51.9	53.0	53.8
Critical (27%)	56.3	54.5	52.4	51.2	50.4	50.0	50.8	52.1	53.1	53.8	55.0	56.8

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54.4	54.4	53.3	52.2	51.0	50.8	51.0	51.5	52.1	52.8	53.2	54.1
20%	53.2	53.4	52.4	51.4	50.4	50.1	50.3	50.9	51.4	51.9	52.4	53.0
30%	52.3	52.4	52.1	51.0	50.0	49.7	49.9	50.3	50.8	51.3	51.9	52.2
40%	52.0	52.1	51.6	50.8	49.7	49.4	49.7	50.0	50.4	50.9	51.5	51.8
50%	51.4	51.6	51.3	50.4	49.5	49.3	49.4	49.6	50.0	50.5	51.0	51.3
60%	51.2	51.4	51.0	50.2	49.2	48.9	48.9	49.3	49.8	50.2	50.7	51.0
70%	50.9	51.1	50.9	49.7	49.0	48.6	48.8	49.0	49.4	49.8	50.3	50.7
80%	50.5	50.7	50.5	49.5	48.7	48.4	48.0	48.5	49.1	49.5	49.9	50.3
90%	49.6	50.0	49.8	48.9	47.7	47.4	47.4	47.7	48.1	48.6	49.2	49.5
Long Term												
Full Simulation Period[a]	52.1	52.1	51.5	50.4	49.5	49.1	49.3	49.7	50.2	50.8	51.3	51.9
Water Year Types[b,c]												
Wet (23%)	50.3	50.5	50.5	49.5	48.4	48.2	48.1	48.4	48.7	49.1	49.6	50.0
Above Normal (24%)	51.3	51.4	51.1	50.0	48.8	48.4	48.5	48.8	49.3	49.9	50.5	51.0
Below Normal (10%)	51.4	51.5	51.3	50.3	49.4	49.0	49.2	49.5	49.9	50.4	50.8	51.2
Dry (16%)	52.2	52.3	51.7	50.5	49.9	49.7	49.8	50.2	50.7	51.2	51.7	52.1
Critical (27%)	54.7	54.3	52.7	51.4	50.7	50.3	50.6	51.2	52.0	53.1	53.4	54.5

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-4.5	-1.7	-0.4	**0.1**	-0.1	**0.1**	-0.1	-0.2	-0.5	-0.9	-2.0	-3.3
20%	-2.4	-1.2	-0.3	-0.1	**0.0**	**0.2**	**0.1**	-0.2	-0.4	-0.6	-0.5	-1.4
30%	-1.0	-0.9	-0.3	**0.0**	**0.3**	**0.2**	**0.0**	-0.2	-0.3	-0.6	-0.6	-0.8
40%	-1.0	-0.8	-0.2	**0.2**	**0.3**	**0.2**	0.0	-0.2	-0.4	-0.5	-0.5	-0.7
50%	-1.0	-0.9	-0.3	**0.2**	**0.3**	**0.2**	**0.0**	-0.1	-0.4	-0.6	-0.5	-0.8
60%	-0.8	-0.8	-0.3	**0.2**	**0.2**	**0.2**	**0.0**	0.0	**0.0**	-0.1	-0.2	-0.4
70%	-0.4	-0.4	-0.1	**0.1**	**0.4**	**0.5**	**0.4**	**0.1**	**0.0**	-0.2	-0.2	-0.3
80%	-0.6	-0.5	**0.3**	**0.3**	**0.6**	**0.8**	0.0	**0.1**	**0.2**	-0.1	-0.2	-0.4
90%	-0.3	**0.0**	**0.1**	**0.6**	**0.8**	**0.6**	**0.5**	**0.5**	**0.6**	**0.1**	**0.3**	**0.2**
Long Term												
Full Simulation Period[a]	-1.2	-0.6	-0.2	**0.2**	**0.4**	**0.3**	**0.1**	-0.2	-0.4	-0.5	-0.9	-1.2
Water Year Types[b,c]												
Wet (23%)	-0.1	-0.1	0.0	**0.0**	**0.3**	**0.4**	**0.3**	**0.3**	**0.2**	**0.2**	**0.1**	**0.1**
Above Normal (24%)	-1.4	-1.1	-0.5	**0.5**	**0.7**	**0.3**	**0.2**	0.0	-0.2	-0.5	-0.9	-1.1
Below Normal (10%)	-1.1	-0.9	-0.5	**0.1**	**0.2**	**0.3**	**0.2**	-0.1	-0.3	-0.5	-0.7	-0.9
Dry (16%)	-2.1	-1.3	-0.3	-0.1	**0.1**	**0.2**	**0.1**	-0.1	-0.3	-0.7	-1.3	-1.7
Critical (27%)	-1.6	-0.2	**0.3**	**0.2**	**0.3**	**0.3**	-0.2	-0.9	-1.2	-0.8	-1.6	-2.2

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 20-3. Stanislaus River below New Melones Reservoir, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.9	56.0	53.6	52.1	51.1	50.7	51.0	51.6	52.6	53.7	55.2	57.5
20%	55.6	54.6	52.7	51.5	50.4	49.9	50.2	51.1	51.8	52.5	53.0	54.4
30%	53.4	53.3	52.3	50.9	49.7	49.5	49.9	50.5	51.1	51.8	52.5	53.0
40%	52.9	52.8	51.8	50.6	49.4	49.2	49.7	50.3	50.8	51.4	51.9	52.5
50%	52.4	52.5	51.5	50.2	49.2	49.0	49.3	49.7	50.3	51.1	51.6	52.0
60%	52.0	52.1	51.3	49.9	48.9	48.7	48.9	49.3	49.7	50.4	50.9	51.4
70%	51.4	51.6	51.0	49.6	48.7	48.1	48.4	49.0	49.3	50.0	50.5	51.0
80%	51.1	51.2	50.2	49.2	48.0	47.5	48.0	48.4	48.9	49.6	50.1	50.7
90%	49.9	50.0	49.7	48.3	47.0	46.8	46.9	47.2	47.5	48.5	48.9	49.3
Long Term												
Full Simulation Period[a]	53.4	52.8	51.7	50.2	49.1	48.8	49.2	49.9	50.6	51.3	52.2	53.1
Water Year Types[b,c]												
Wet (23%)	50.4	50.6	50.6	49.4	48.1	47.8	47.8	48.1	48.5	49.0	49.5	49.9
Above Normal (24%)	52.7	52.6	51.6	49.6	48.2	48.0	48.4	48.9	49.6	50.4	51.4	52.2
Below Normal (10%)	52.5	52.5	51.8	50.3	49.2	48.8	49.1	49.6	50.2	50.9	51.5	52.1
Dry (16%)	54.3	53.6	52.0	50.7	49.8	49.4	49.7	50.3	51.0	51.9	53.0	53.8
Critical (27%)	56.3	54.5	52.4	51.2	50.4	50.0	50.8	52.1	53.1	53.8	55.0	56.8

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	54.4	54.4	53.3	52.2	51.0	50.8	51.0	51.5	52.1	52.8	53.2	54.1
20%	53.2	53.4	52.4	51.4	50.4	50.1	50.3	50.9	51.4	51.9	52.4	53.0
30%	52.4	52.4	52.1	51.0	50.0	49.7	49.9	50.3	50.8	51.3	51.9	52.2
40%	52.0	52.1	51.6	50.8	49.7	49.4	49.7	50.0	50.4	50.9	51.5	51.8
50%	51.4	51.6	51.3	50.4	49.5	49.3	49.4	49.6	50.0	50.5	51.0	51.3
60%	51.2	51.4	51.0	50.2	49.2	48.9	48.9	49.3	49.8	50.2	50.7	51.0
70%	50.9	51.1	50.9	49.7	49.0	48.6	48.8	49.0	49.4	49.8	50.3	50.7
80%	50.5	50.7	50.5	49.5	48.7	48.4	48.0	48.5	49.1	49.5	49.9	50.3
90%	49.6	50.0	49.8	48.9	47.7	47.4	47.4	47.7	48.1	48.6	49.2	49.5
Long Term												
Full Simulation Period[a]	52.1	52.1	51.5	50.4	49.5	49.1	49.3	49.7	50.2	50.8	51.3	51.9
Water Year Types[b,c]												
Wet (23%)	50.3	50.5	50.5	49.5	48.4	48.2	48.1	48.4	48.7	49.1	49.6	50.0
Above Normal (24%)	51.3	51.4	51.1	50.0	48.8	48.4	48.5	48.8	49.3	49.9	50.5	51.0
Below Normal (10%)	51.4	51.5	51.3	50.3	49.4	49.0	49.2	49.5	49.9	50.4	50.8	51.2
Dry (16%)	52.2	52.3	51.7	50.5	49.9	49.7	49.8	50.2	50.7	51.2	51.7	52.1
Critical (27%)	54.7	54.3	52.7	51.4	50.7	50.3	50.6	51.2	52.0	53.1	53.4	54.5

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-4.5	-1.7	-0.4	**0.1**	-0.1	**0.1**	-0.1	-0.2	-0.5	-0.9	-2.0	-3.3
20%	-2.4	-1.2	-0.3	-0.1	**0.0**	**0.2**	**0.1**	-0.2	-0.4	-0.6	-0.5	-1.4
30%	-1.0	-0.9	-0.3	**0.0**	**0.3**	**0.2**	**0.0**	-0.2	-0.3	-0.6	-0.6	-0.8
40%	-1.0	-0.8	-0.2	**0.2**	**0.3**	**0.2**	0.0	-0.2	-0.4	-0.5	-0.5	-0.7
50%	-1.0	-0.9	-0.3	**0.2**	**0.3**	**0.2**	**0.0**	-0.1	-0.4	-0.6	-0.5	-0.8
60%	-0.8	-0.8	-0.3	**0.2**	**0.2**	**0.2**	**0.0**	0.0	**0.0**	-0.1	-0.2	-0.4
70%	-0.4	-0.4	-0.1	**0.1**	**0.4**	**0.5**	**0.4**	**0.1**	**0.0**	-0.2	-0.2	-0.3
80%	-0.6	-0.5	**0.3**	**0.3**	**0.6**	**0.8**	0.0	**0.1**	**0.2**	-0.1	-0.2	-0.4
90%	-0.3	**0.0**	**0.1**	**0.6**	**0.8**	**0.6**	**0.5**	**0.5**	**0.6**	**0.1**	**0.3**	**0.2**
Long Term												
Full Simulation Period[a]	-1.2	-0.6	-0.2	**0.2**	**0.4**	**0.3**	**0.1**	-0.2	-0.4	-0.5	-0.9	-1.2
Water Year Types[b,c]												
Wet (23%)	-0.1	-0.1	0.0	**0.0**	**0.3**	**0.4**	**0.4**	**0.3**	**0.2**	**0.2**	**0.1**	**0.1**
Above Normal (24%)	-1.4	-1.1	-0.5	**0.5**	**0.7**	**0.3**	**0.2**	0.0	-0.2	-0.5	-0.9	-1.1
Below Normal (10%)	-1.1	-0.9	-0.5	**0.1**	**0.2**	**0.3**	**0.2**	-0.1	-0.3	-0.5	-0.7	-0.9
Dry (16%)	-2.1	-1.3	-0.3	-0.1	**0.1**	**0.2**	**0.1**	-0.1	-0.3	-0.7	-1.3	-1.7
Critical (27%)	-1.6	-0.2	**0.3**	**0.2**	**0.3**	**0.3**	-0.2	-0.9	-1.2	-0.8	-1.6	-2.2

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 20-4. Stanislaus River below New Melones Reservoir, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.9	56.0	53.6	52.1	51.1	50.7	51.0	51.6	52.6	53.7	55.2	57.5
20%	55.6	54.6	52.7	51.5	50.4	49.9	50.2	51.1	51.8	52.5	53.0	54.4
30%	53.4	53.3	52.3	50.9	49.7	49.5	49.9	50.5	51.1	51.8	52.5	53.0
40%	52.9	52.8	51.8	50.6	49.4	49.2	49.7	50.3	50.8	51.4	51.9	52.5
50%	52.4	52.5	51.5	50.2	49.2	49.0	49.3	49.7	50.3	51.1	51.6	52.0
60%	52.0	52.1	51.3	49.9	48.9	48.7	48.9	49.3	49.7	50.4	50.9	51.4
70%	51.4	51.6	51.0	49.6	48.7	48.1	48.4	49.0	49.3	50.0	50.5	51.0
80%	51.1	51.2	50.2	49.2	48.0	47.5	48.0	48.4	48.9	49.6	50.1	50.7
90%	49.9	50.0	49.7	48.3	47.0	46.8	46.9	47.2	47.5	48.5	48.9	49.3
Long Term												
Full Simulation Period[a]	53.4	52.8	51.7	50.2	49.1	48.8	49.2	49.9	50.6	51.3	52.2	53.1
Water Year Types[b,c]												
Wet (23%)	50.4	50.6	50.6	49.4	48.1	47.8	47.8	48.1	48.5	49.0	49.5	49.9
Above Normal (24%)	52.7	52.6	51.6	49.6	48.2	48.0	48.4	48.9	49.6	50.4	51.4	52.2
Below Normal (10%)	52.5	52.5	51.8	50.3	49.2	48.8	49.1	49.6	50.2	50.9	51.5	52.1
Dry (16%)	54.3	53.6	52.0	50.7	49.8	49.4	49.7	50.3	51.0	51.9	53.0	53.8
Critical (27%)	56.3	54.5	52.4	51.2	50.4	50.0	50.8	52.1	53.1	53.8	55.0	56.8

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	55.9	55.4	53.1	52.0	51.1	50.8	51.0	51.5	52.2	52.6	54.2	55.7
20%	53.2	53.1	52.5	51.3	50.4	50.1	50.4	51.0	51.4	52.0	52.6	52.9
30%	52.5	52.5	52.0	50.9	50.0	49.6	50.0	50.3	50.9	51.6	52.1	52.3
40%	52.1	52.2	51.7	50.7	49.6	49.3	49.6	50.1	50.6	51.1	51.6	51.9
50%	51.8	52.0	51.4	50.5	49.3	49.1	49.3	49.7	50.1	50.7	51.2	51.6
60%	51.5	51.6	51.2	50.2	49.1	48.8	49.1	49.5	49.9	50.5	50.9	51.2
70%	51.2	51.3	51.0	49.6	48.7	48.6	48.8	49.1	49.6	50.1	50.5	50.9
80%	50.8	51.0	50.4	49.3	48.0	47.7	47.9	48.6	49.1	49.5	50.0	50.6
90%	50.0	50.1	49.6	48.3	47.4	47.1	47.4	47.6	48.1	48.5	49.3	49.7
Long Term												
Full Simulation Period[a]	52.5	52.3	51.5	50.3	49.3	48.9	49.2	49.8	50.4	51.1	51.9	52.4
Water Year Types[b,c]												
Wet (23%)	50.5	50.8	50.7	49.3	48.1	47.8	47.9	48.2	48.7	49.1	49.7	50.1
Above Normal (24%)	52.8	52.2	51.4	49.7	48.5	48.1	48.4	49.1	49.8	50.7	51.7	52.6
Below Normal (10%)	52.0	52.1	51.7	50.3	49.4	49.1	49.3	49.8	50.3	50.8	51.3	51.6
Dry (16%)	52.8	52.6	51.7	50.5	49.8	49.6	49.8	50.2	50.7	51.3	51.9	52.5
Critical (27%)	54.0	53.7	52.1	51.4	50.7	50.2	50.6	51.4	52.2	53.3	54.3	54.4

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-3.0	-0.7	-0.5	-0.1	**0.0**	**0.1**	-0.1	-0.2	-0.4	-1.1	-1.0	-1.8
20%	-2.4	-1.4	-0.3	-0.1	**0.0**	**0.2**	**0.2**	-0.1	-0.4	-0.5	-0.3	-1.5
30%	-0.9	-0.8	-0.3	0.0	**0.3**	**0.2**	**0.1**	-0.2	-0.2	-0.3	-0.4	-0.7
40%	-0.8	-0.6	-0.1	**0.1**	**0.2**	**0.2**	-0.1	-0.2	-0.2	-0.3	-0.4	-0.6
50%	-0.5	-0.5	-0.2	**0.3**	**0.1**	**0.0**	0.0	0.0	-0.2	-0.4	-0.3	-0.4
60%	-0.5	-0.5	-0.1	**0.3**	**0.1**	**0.1**	**0.2**	**0.1**	**0.2**	**0.1**	**0.0**	-0.2
70%	-0.2	-0.2	0.0	**0.0**	**0.1**	**0.4**	**0.4**	**0.2**	**0.2**	**0.1**	**0.0**	-0.1
80%	-0.3	-0.2	**0.1**	**0.1**	-0.1	**0.2**	0.0	**0.2**	**0.2**	-0.1	-0.1	-0.2
90%	**0.0**	**0.1**	-0.1	0.0	**0.4**	**0.2**	**0.4**	**0.4**	**0.5**	**0.0**	**0.4**	**0.5**
Long Term												
Full Simulation Period[a]	-0.9	-0.5	-0.2	**0.1**	**0.2**	**0.1**	**0.0**	-0.1	-0.2	-0.2	-0.2	-0.7
Water Year Types[b,c]												
Wet (23%)	**0.2**	**0.1**	**0.1**	-0.1	**0.0**	-0.1	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**
Above Normal (24%)	**0.1**	-0.4	-0.2	**0.2**	**0.3**	**0.0**	**0.1**	**0.2**	**0.2**	**0.2**	**0.3**	**0.4**
Below Normal (10%)	-0.5	-0.4	-0.1	**0.1**	**0.2**	**0.3**	**0.3**	**0.2**	**0.0**	-0.1	-0.3	-0.4
Dry (16%)	-1.5	-1.0	-0.2	-0.1	**0.1**	**0.2**	**0.1**	-0.1	-0.3	-0.6	-1.0	-1.3
Critical (27%)	-2.4	-0.9	-0.4	**0.2**	**0.2**	**0.3**	-0.2	-0.7	-0.9	-0.6	-0.6	-2.4

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

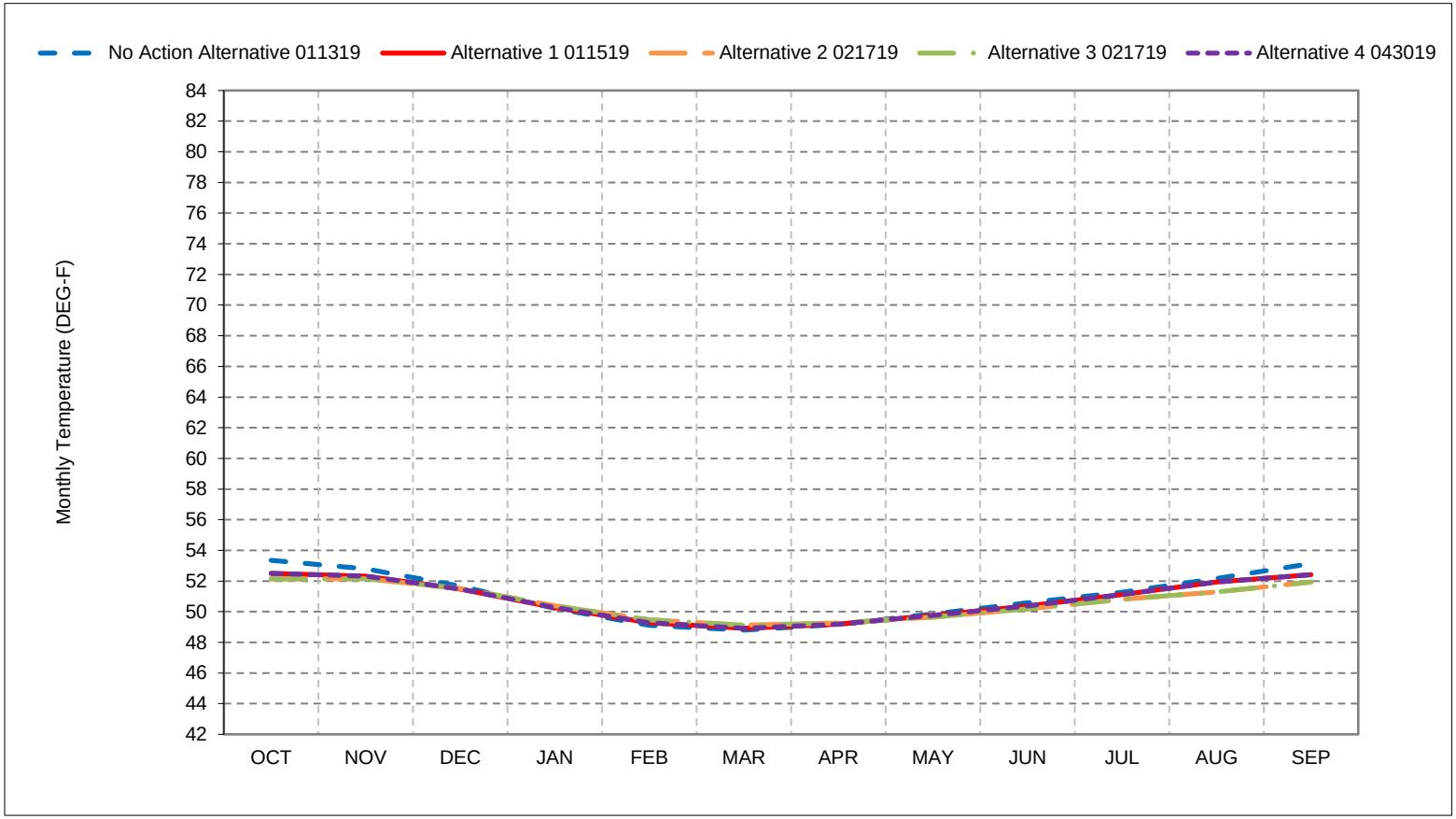
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

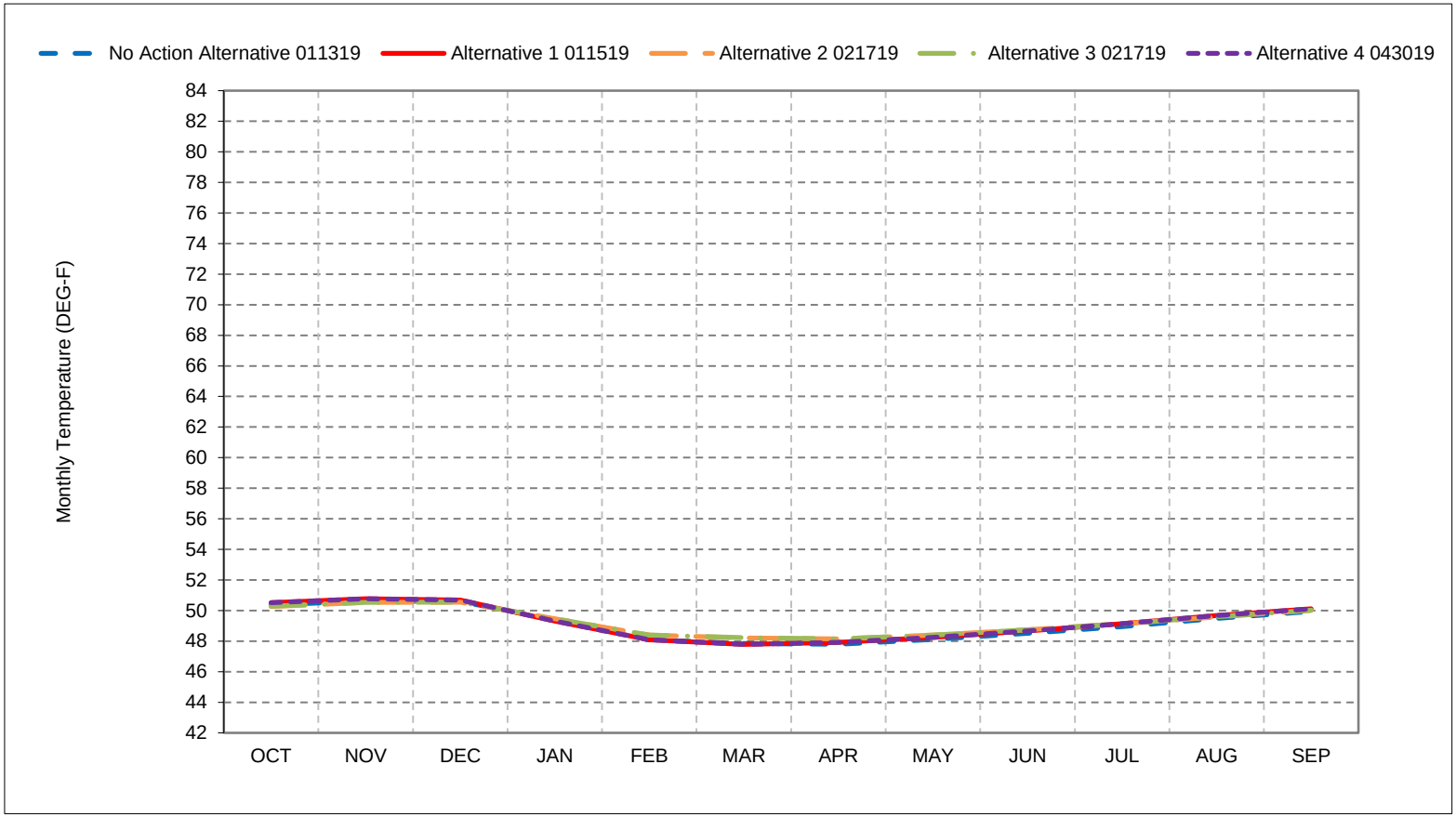
f New Melones forecasts are used as the basis of water operations.

Figure 20-1. Stanislaus River below New Melones Reservoir, Long-Term Average Temperature



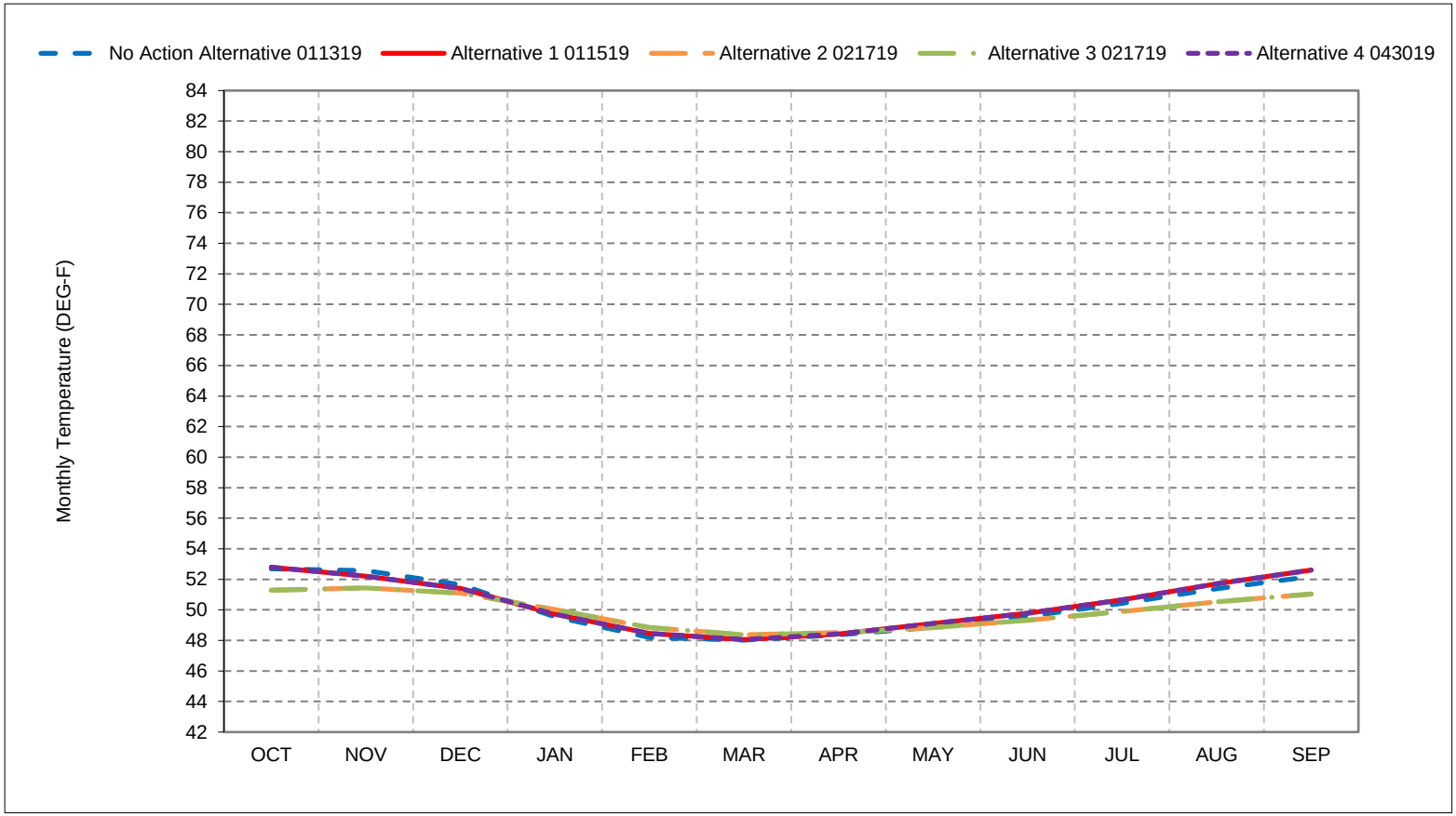
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 20-2. Stanislaus River below New Melones Reservoir, Wet Year Average Temperature



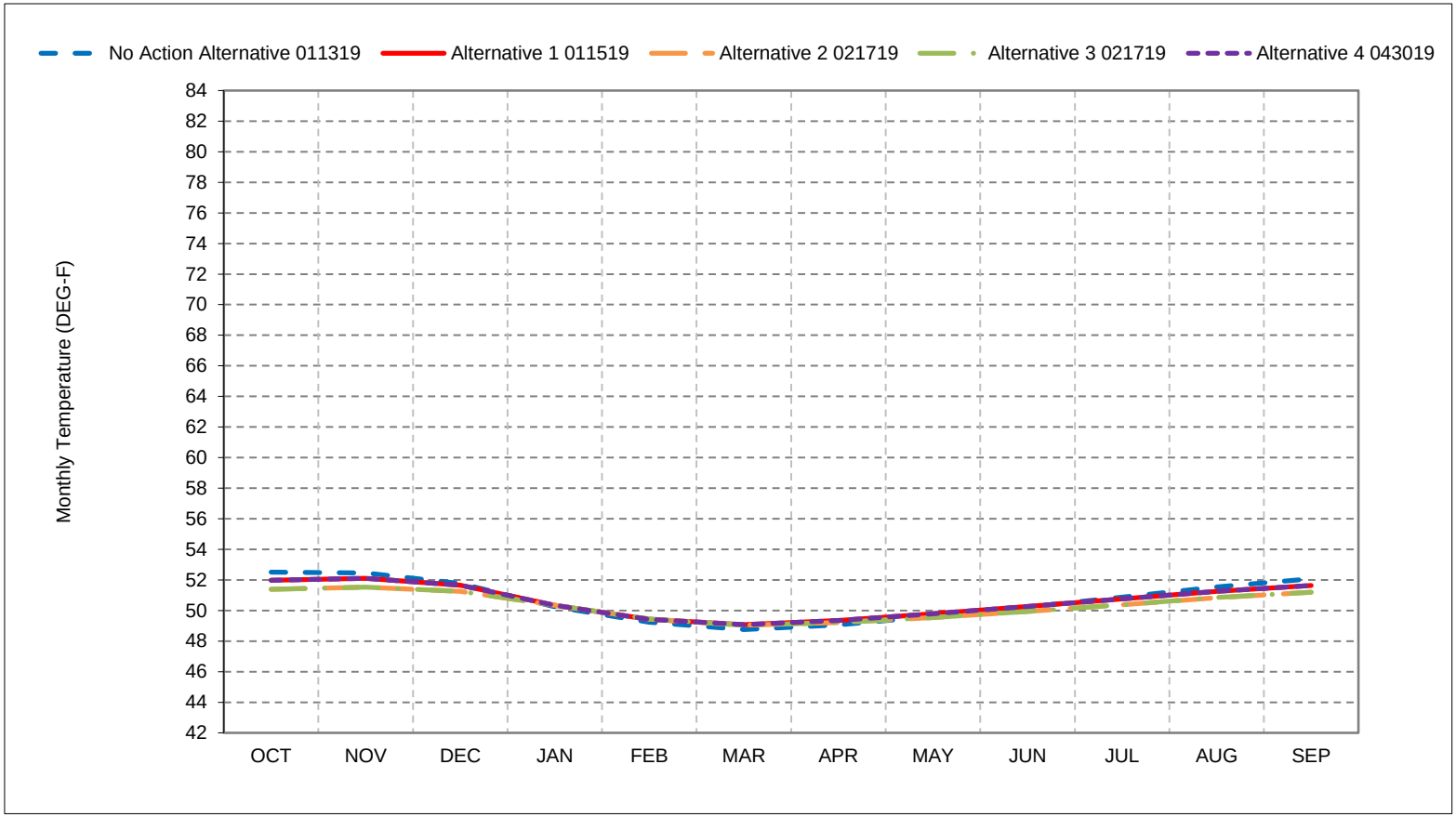
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 20-3. Stanislaus River below New Melones Reservoir, Above Normal Year Average Temper



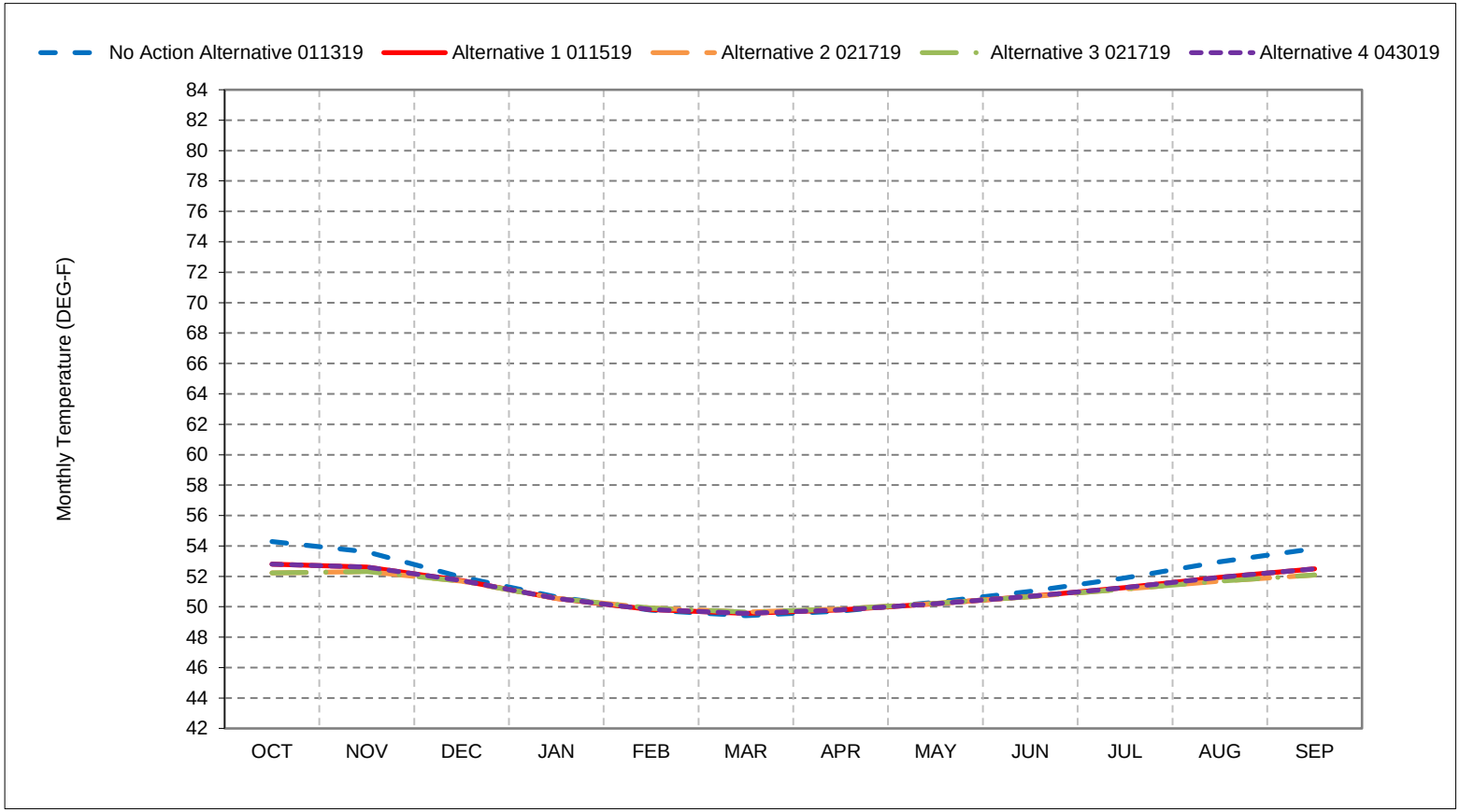
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 20-4. Stanislaus River below New Melones Reservoir, Below Normal Year Average Tempera



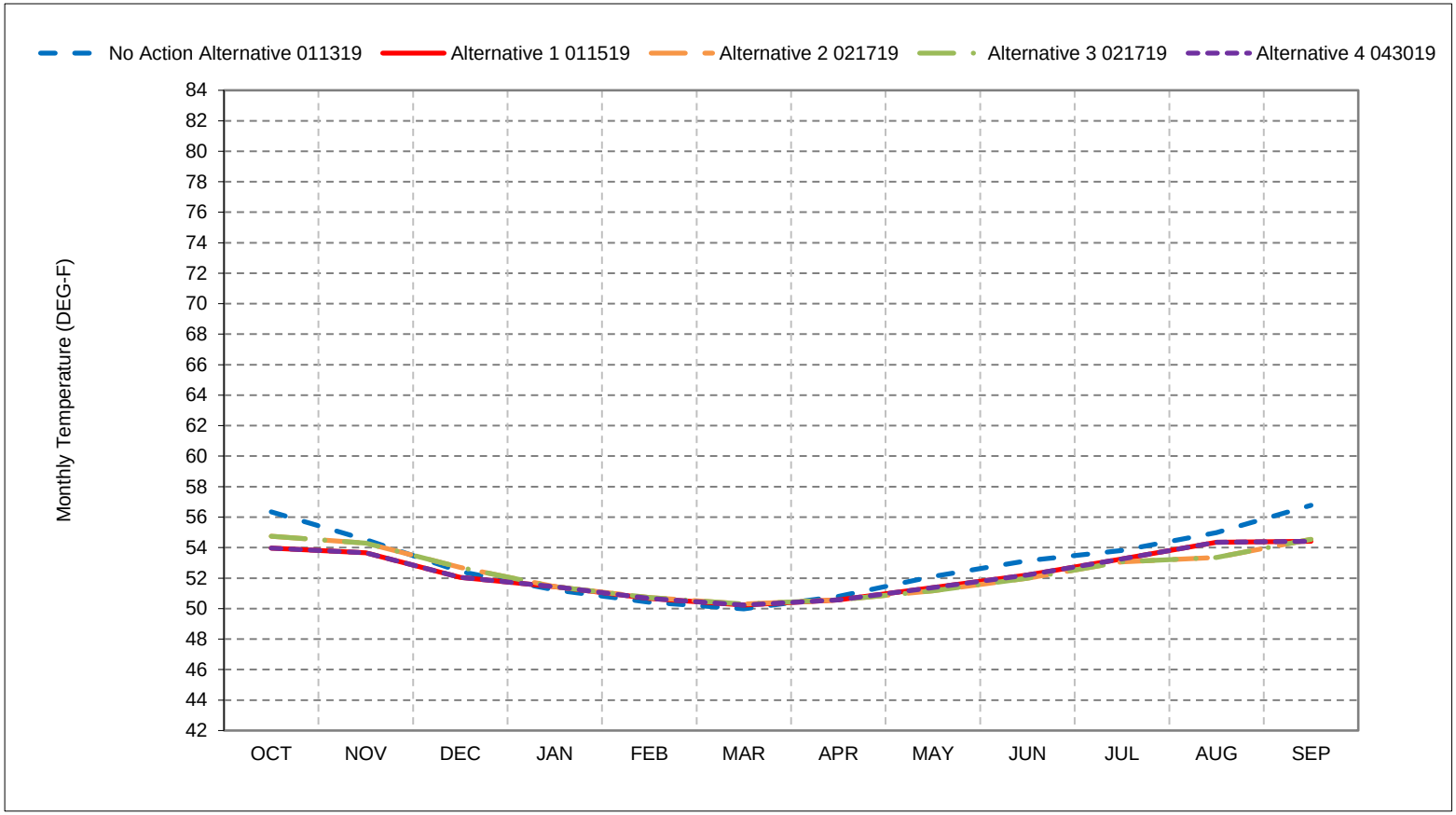
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 20-5. Stanislaus River below New Melones Reservoir, Dry Year Average Temperature



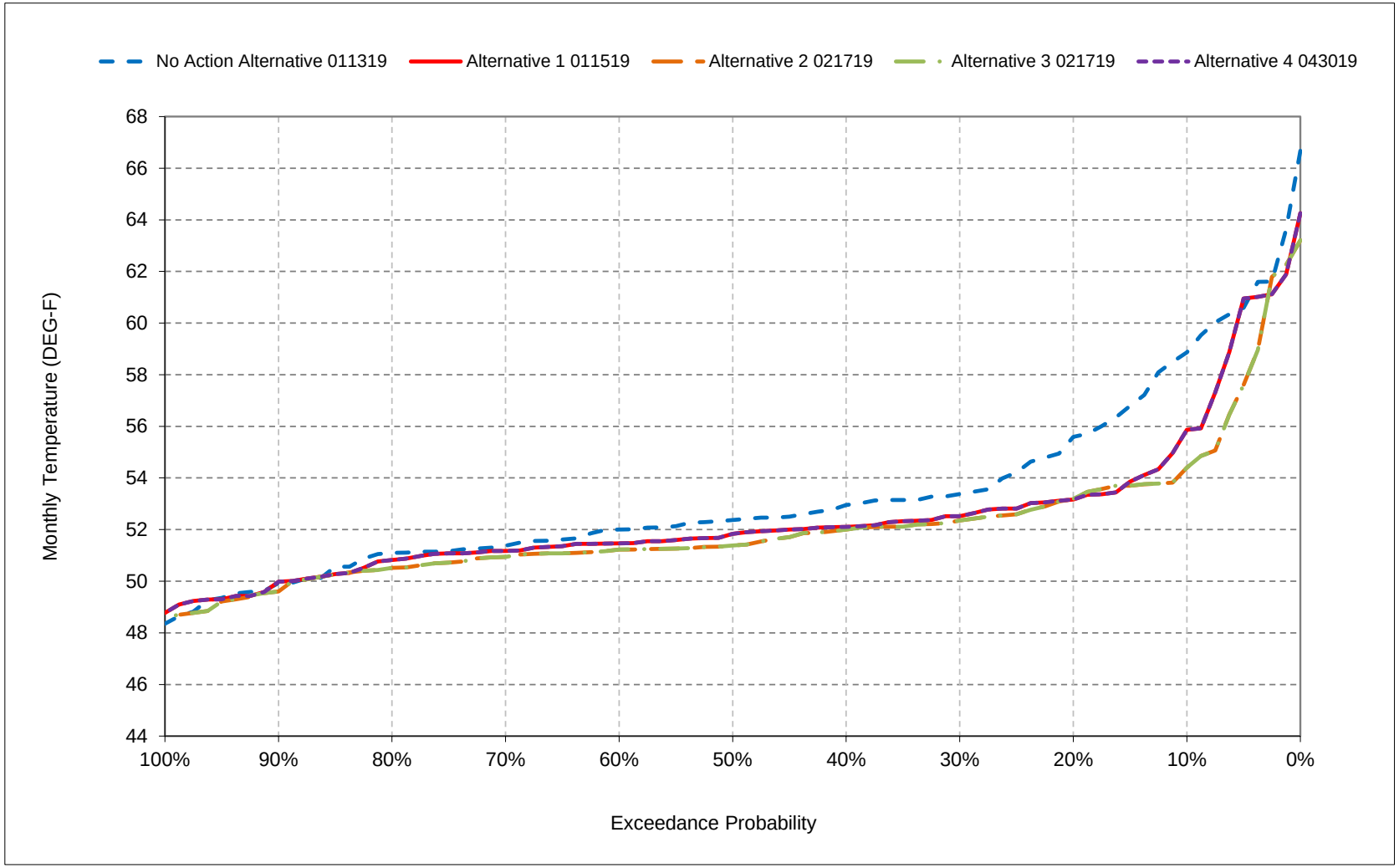
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 20-6. Stanislaus River below New Melones Reservoir, Critical Year Average Temperature



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 20-7. Stanislaus River below New Melones Reservoir, October

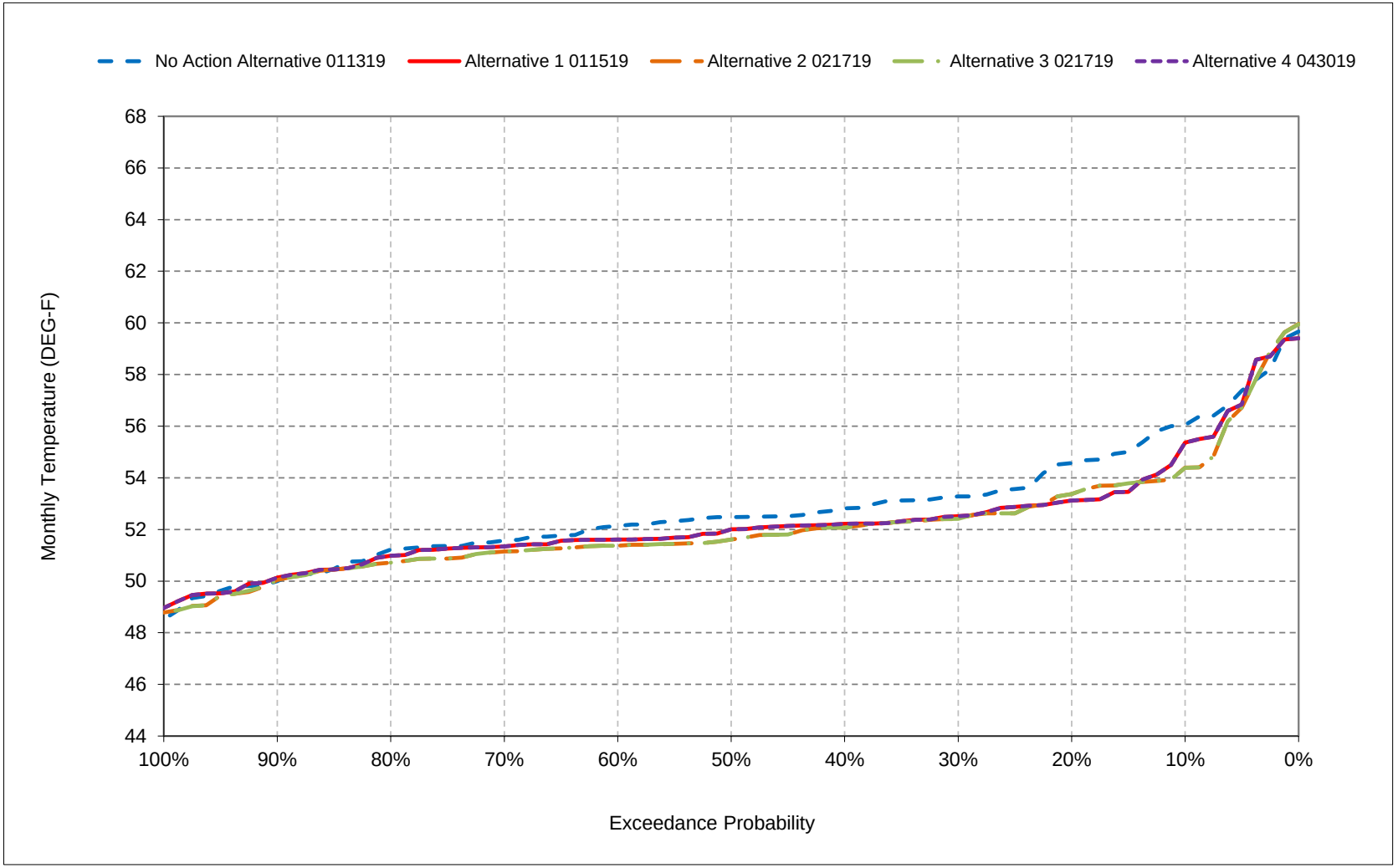


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-8. Stanislaus River below New Melones Reservoir, November

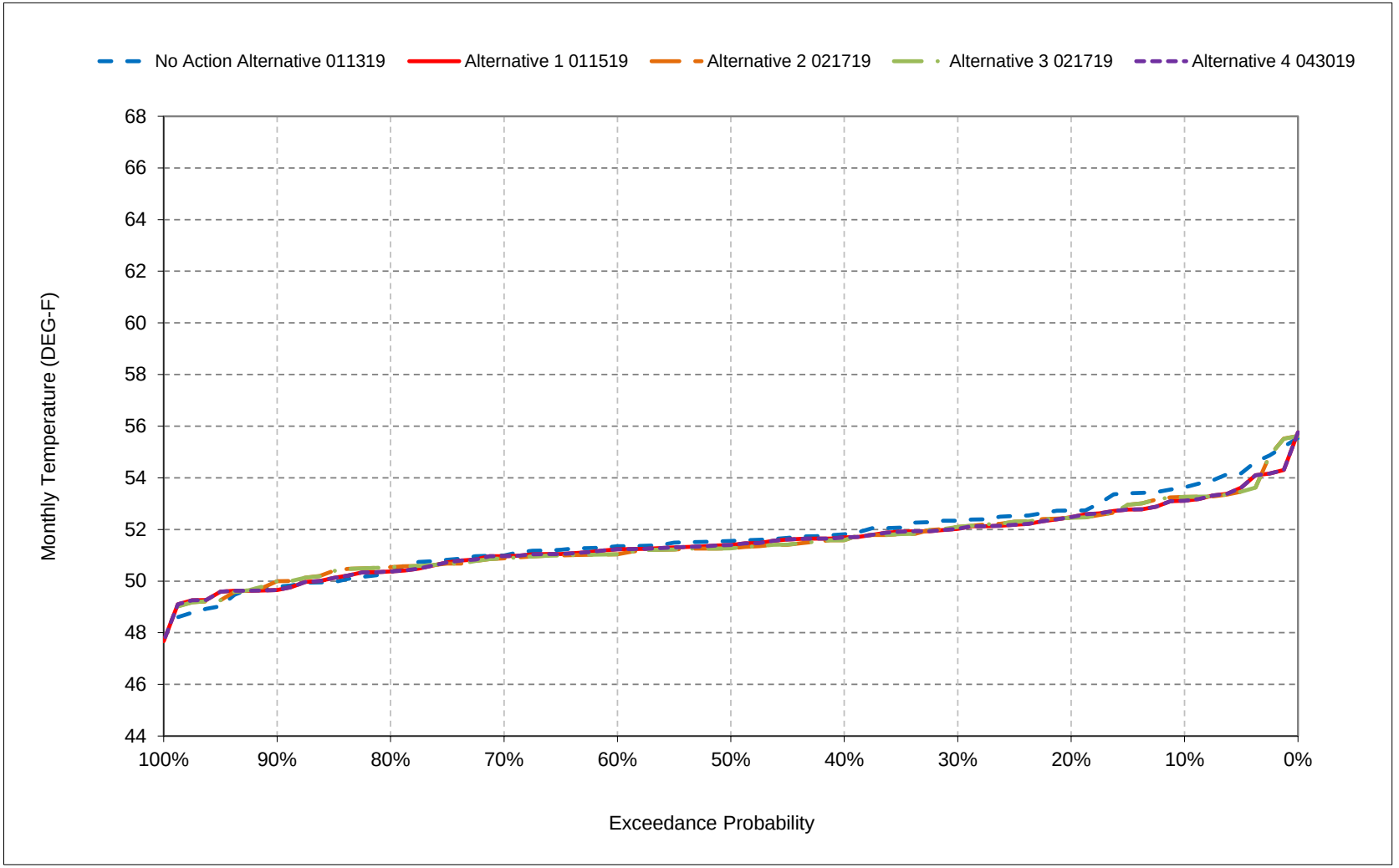


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-9. Stanislaus River below New Melones Reservoir, December

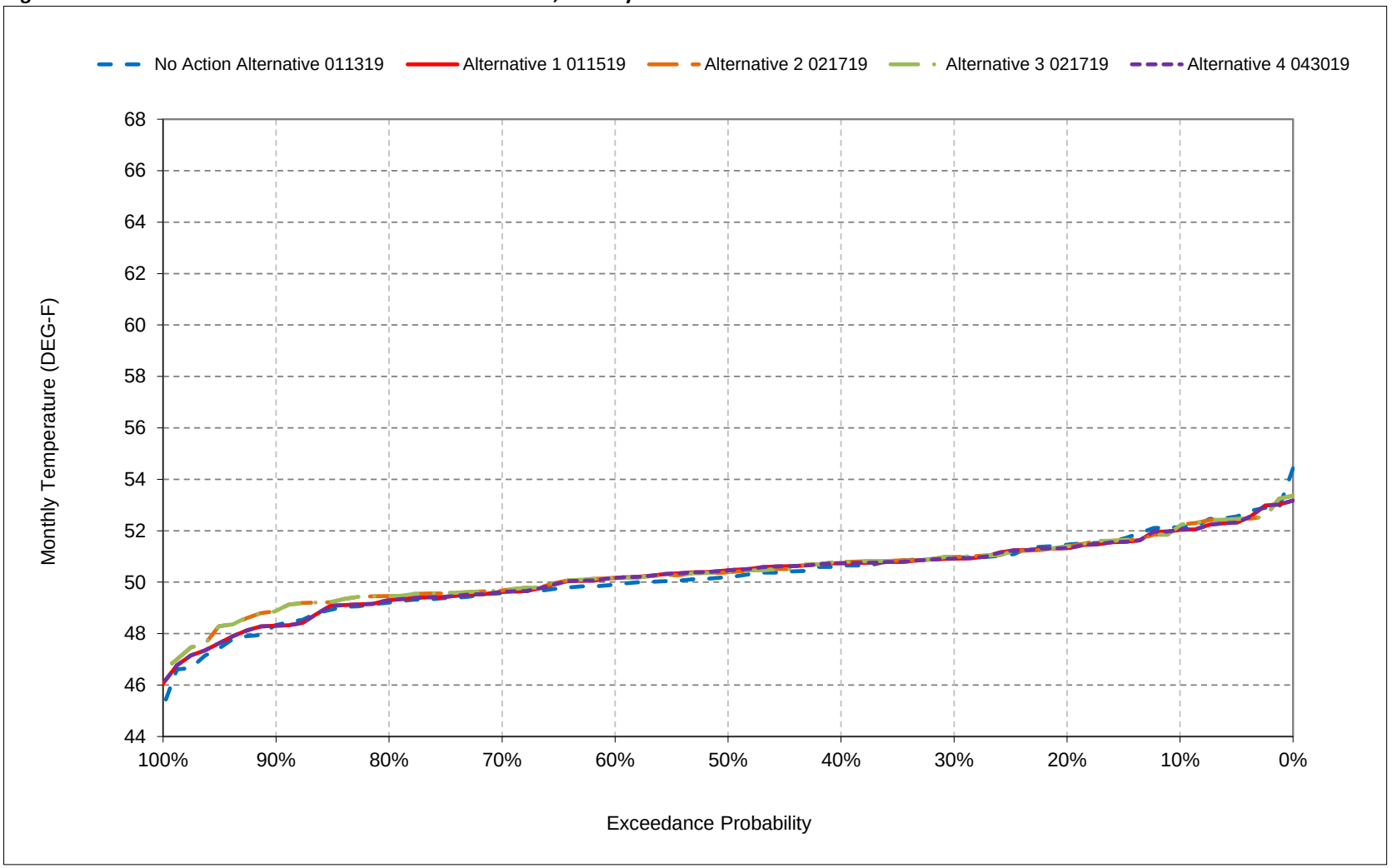


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-10. Stanislaus River below New Melones Reservoir, January

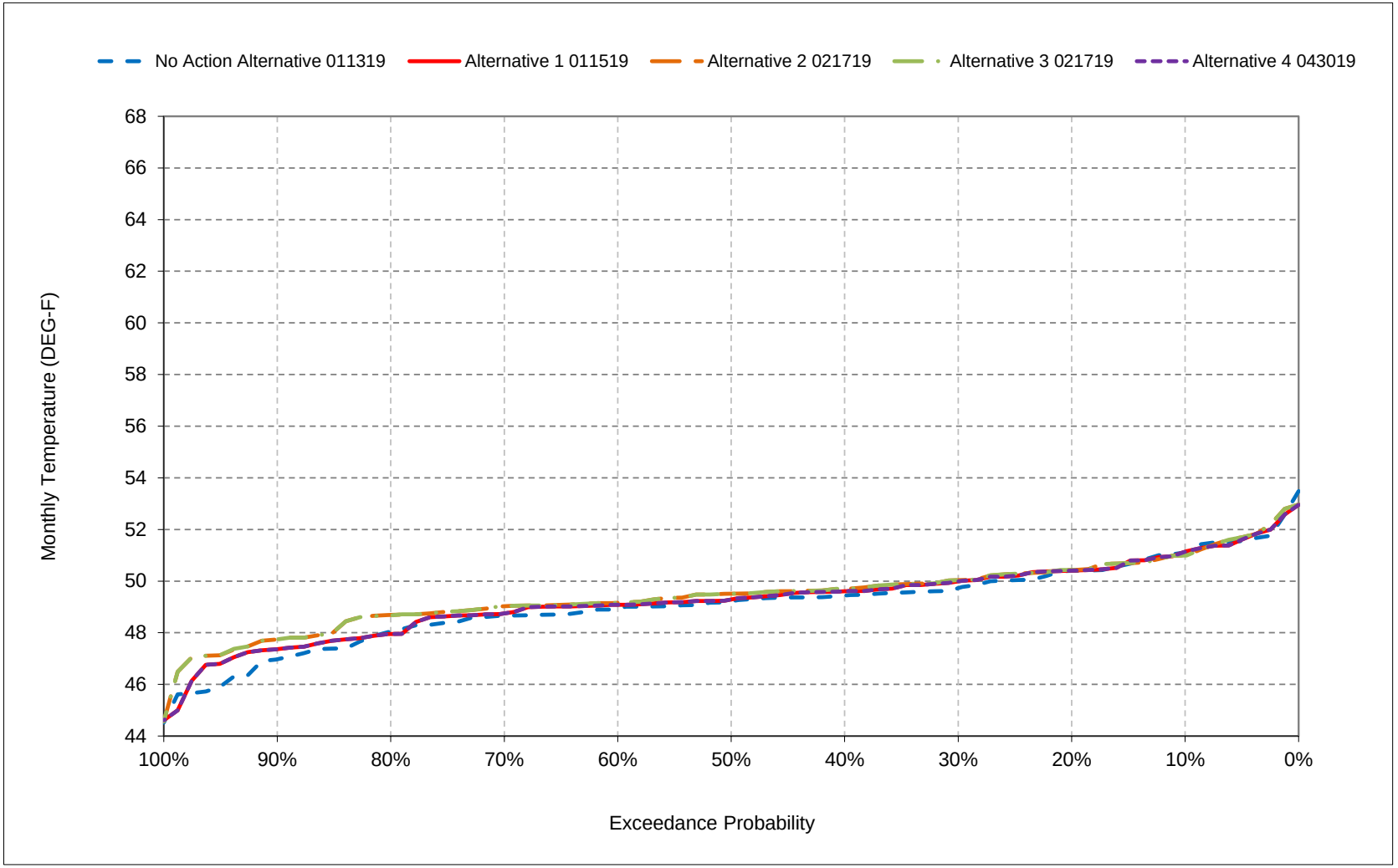


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-11. Stanislaus River below New Melones Reservoir, February

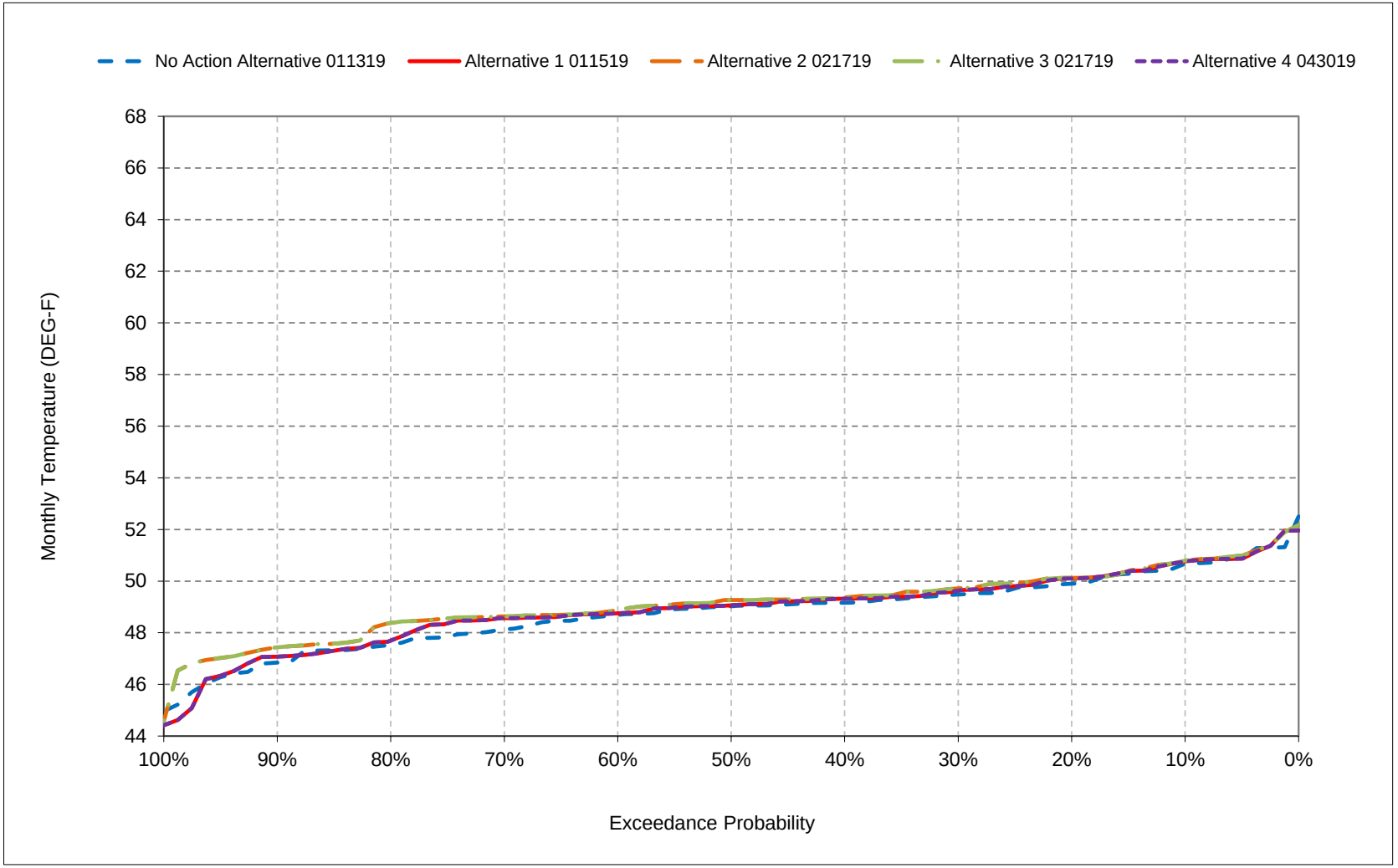


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-12. Stanislaus River below New Melones Reservoir, March

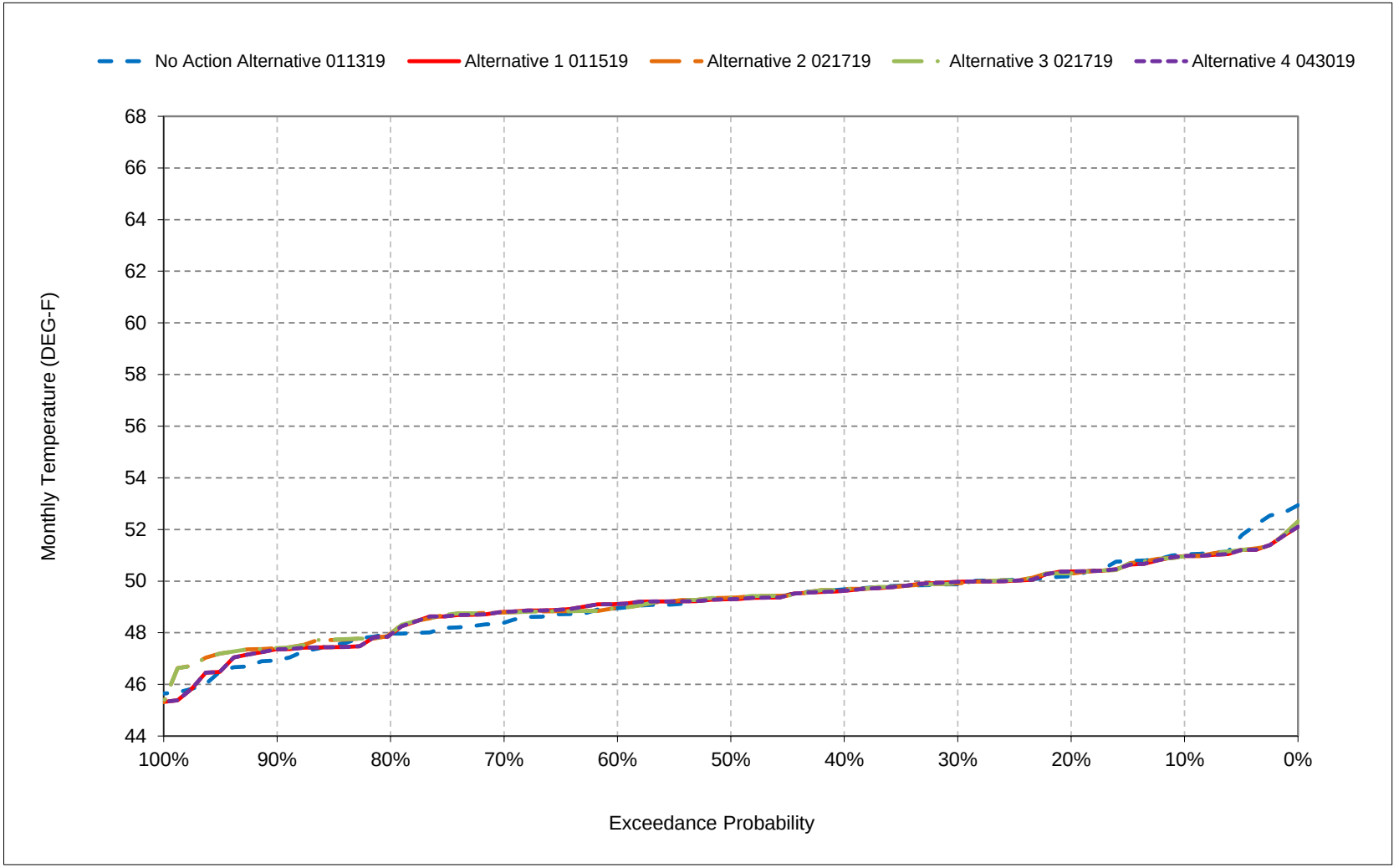


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-13. Stanislaus River below New Melones Reservoir, April

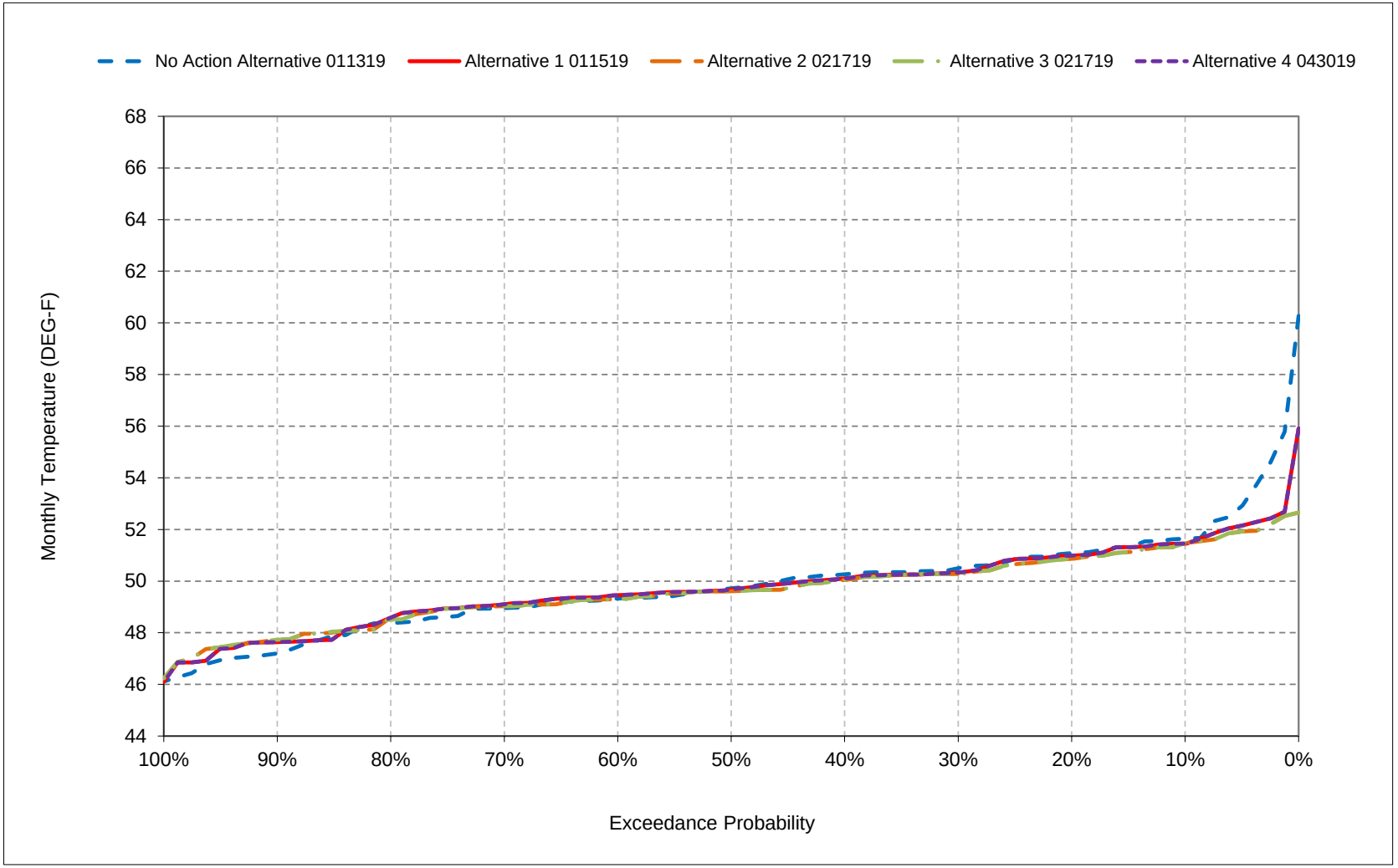


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-14. Stanislaus River below New Melones Reservoir, May

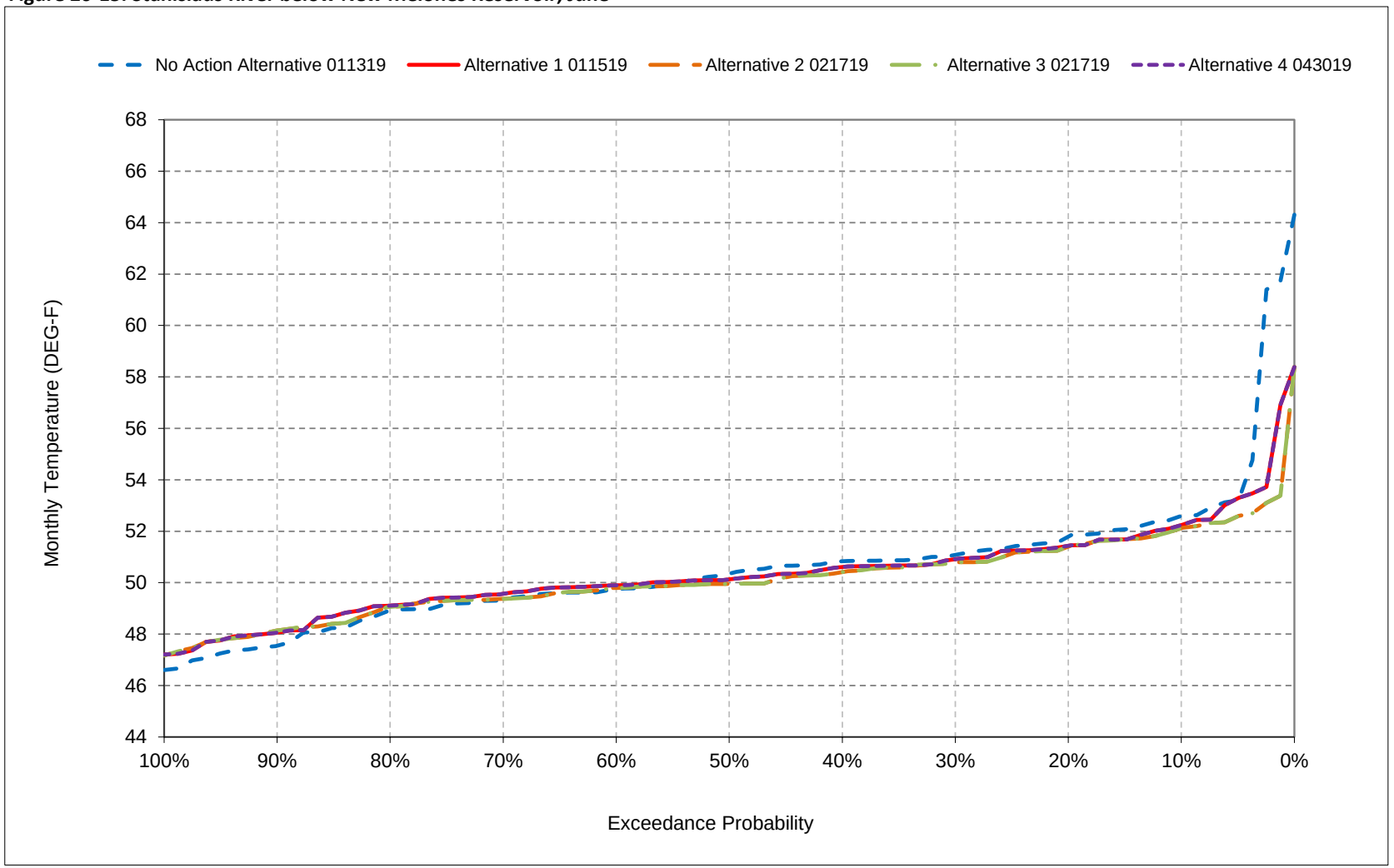


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-15. Stanislaus River below New Melones Reservoir, June

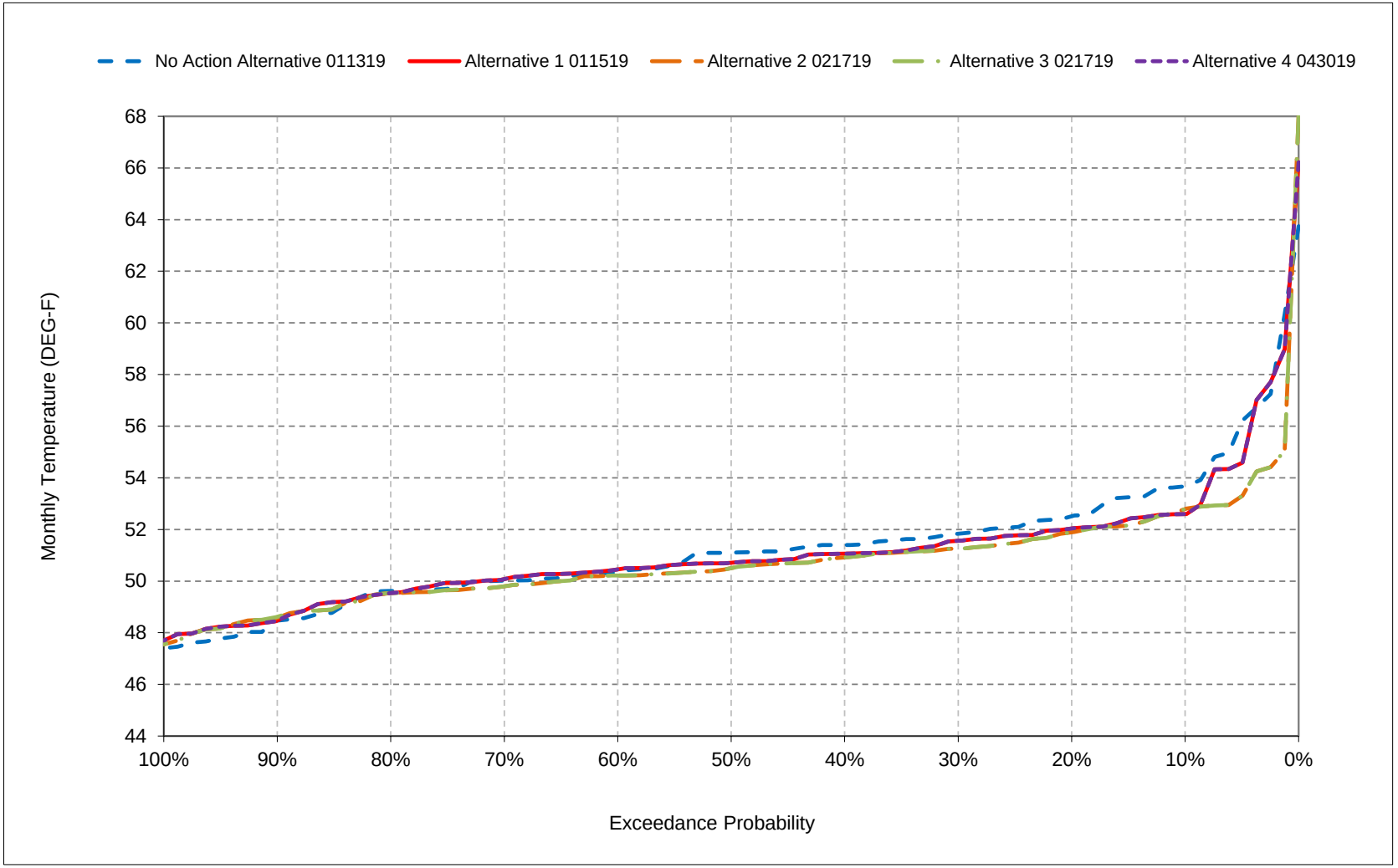


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-16. Stanislaus River below New Melones Reservoir, July

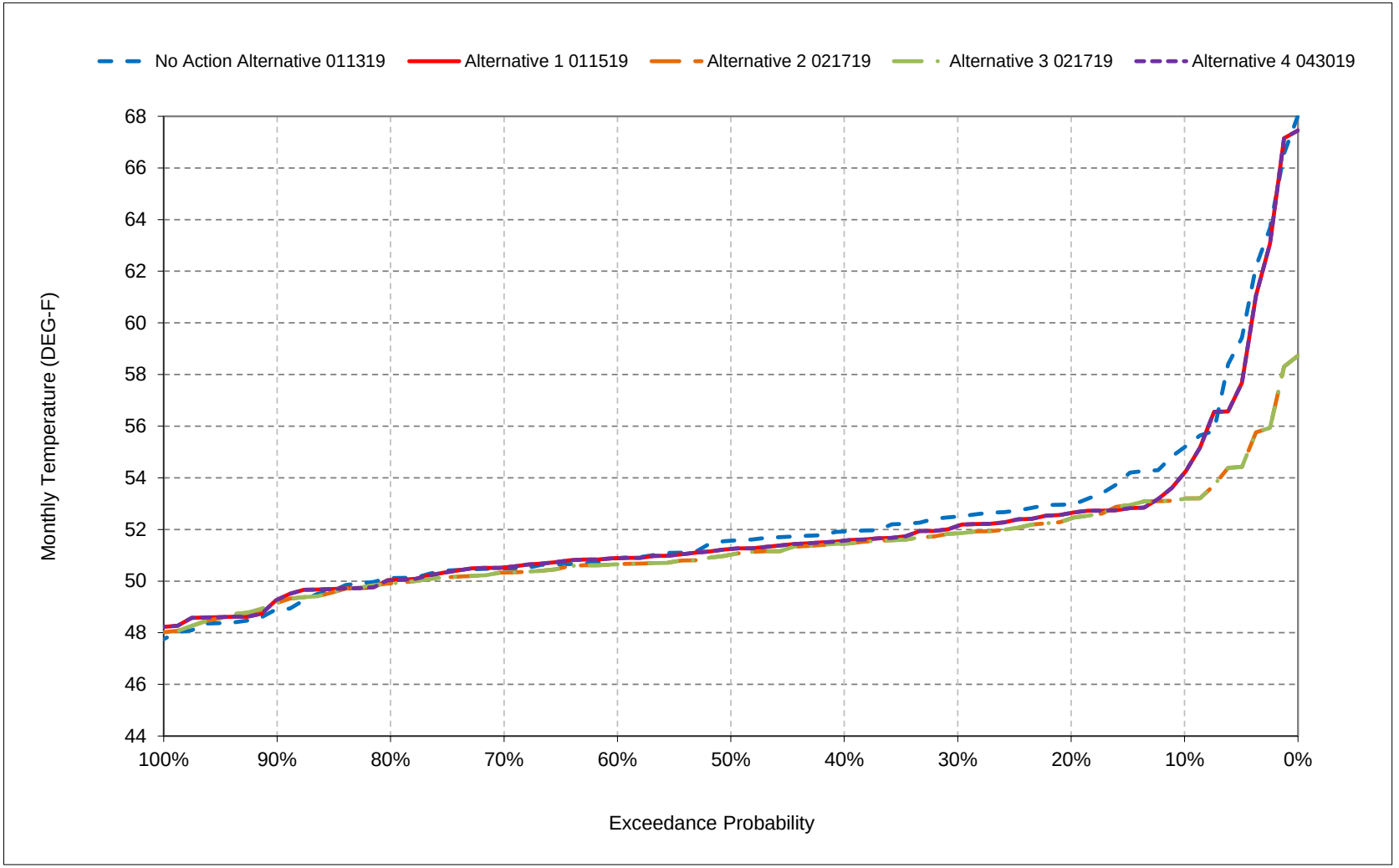


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-17. Stanislaus River below New Melones Reservoir, August

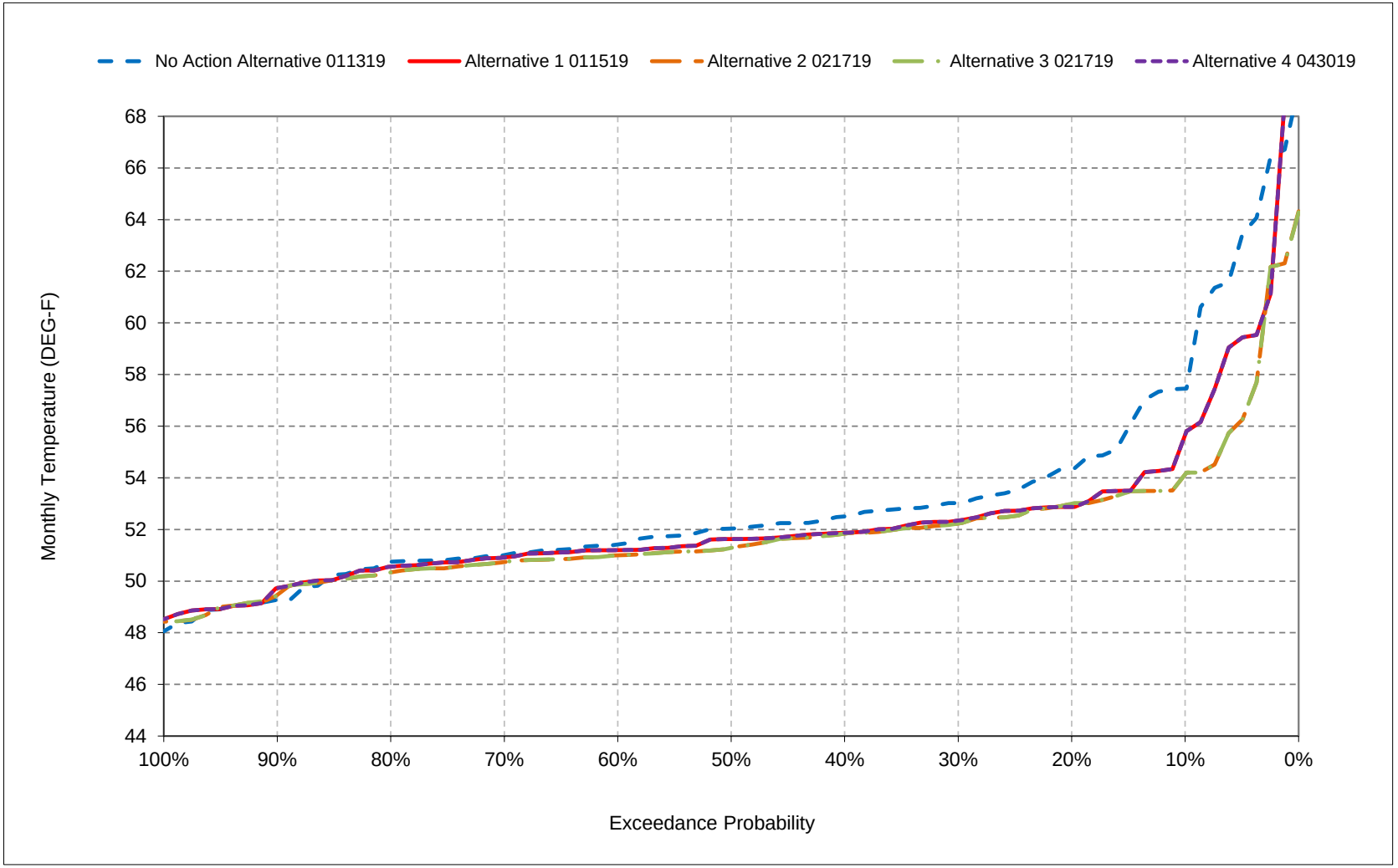


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 20-18. Stanislaus River below New Melones Reservoir, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Table 21-1. Stanislaus River below Tulloch Reservoir, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.5	59.0	54.7	50.7	50.2	51.2	52.6	53.6	54.7	56.5	57.4	59.2
20%	57.4	56.5	53.3	50.3	49.5	50.6	52.1	53.0	54.1	55.0	55.7	56.7
30%	55.6	55.1	52.7	49.5	48.9	50.2	51.7	52.6	53.4	54.3	55.0	55.6
40%	55.1	54.6	51.9	49.0	48.5	49.8	51.3	52.4	52.9	53.9	54.5	54.9
50%	54.5	54.0	51.6	48.7	48.0	49.6	51.0	52.1	52.6	53.7	54.1	54.5
60%	54.1	53.9	51.3	48.3	47.8	49.3	50.6	51.7	52.2	52.7	53.5	54.0
70%	53.6	53.2	50.9	47.8	47.5	48.9	50.1	51.3	51.8	52.4	53.1	53.5
80%	53.1	52.6	50.3	47.1	46.7	48.4	49.7	51.0	51.4	51.8	52.8	53.1
90%	52.0	51.8	49.6	46.3	45.8	47.5	48.8	50.2	50.2	50.8	51.5	51.8
Long Term												
Full Simulation Period[a]	55.6	54.7	51.9	48.6	48.1	49.5	50.9	52.1	52.8	53.7	54.6	55.4
Water Year Types[b,c]												
Wet (23%)	52.5	52.1	50.6	47.5	47.1	48.8	49.6	50.9	51.0	51.5	52.2	52.4
Above Normal (24%)	54.8	54.3	51.8	48.1	47.4	48.7	50.2	51.4	51.9	52.7	53.7	54.5
Below Normal (10%)	54.5	54.0	51.6	48.3	48.1	49.4	51.0	51.7	52.2	53.3	54.0	54.4
Dry (16%)	56.3	55.4	52.3	49.0	48.6	50.0	51.6	52.3	53.2	54.3	55.3	56.0
Critical (27%)	59.0	57.1	53.0	49.6	49.2	50.7	52.3	53.7	55.1	56.4	57.3	58.8

Alternative 1 011519

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.6	57.0	53.7	50.6	50.1	51.3	52.6	53.6	54.6	55.8	56.5	57.5
20%	56.0	55.4	53.1	50.0	49.4	50.6	52.1	53.0	53.8	54.7	55.4	55.8
30%	55.2	54.5	52.6	49.4	48.9	50.2	51.6	52.6	53.2	54.3	54.9	55.2
40%	54.5	54.1	51.9	49.0	48.6	49.9	51.3	52.3	52.8	53.7	54.2	54.5
50%	54.2	53.7	51.5	48.7	48.1	49.6	51.1	52.1	52.5	53.4	53.9	54.2
60%	53.8	53.4	51.2	48.3	47.8	49.5	50.9	51.8	52.1	53.0	53.5	53.8
70%	53.6	53.0	50.8	47.9	47.5	49.0	50.5	51.5	51.7	52.6	53.1	53.5
80%	53.0	52.5	50.4	47.2	46.8	48.5	49.8	51.0	51.3	52.1	52.6	53.0
90%	51.9	51.8	49.4	46.6	46.4	47.8	49.0	50.4	50.5	51.3	52.0	51.9
Long Term												
Full Simulation Period[a]	54.9	54.2	51.7	48.5	48.1	49.6	50.9	52.0	52.6	53.6	54.4	54.9
Water Year Types[b,c]												
Wet (23%)	52.6	52.3	50.7	47.5	47.4	48.8	49.6	51.0	51.2	51.7	52.3	52.5
Above Normal (24%)	55.0	54.1	51.6	48.3	47.6	48.9	50.3	51.5	51.8	53.1	54.0	54.8
Below Normal (10%)	54.0	53.6	51.4	48.3	48.2	49.5	51.3	51.8	52.2	53.3	53.8	54.1
Dry (16%)	55.1	54.4	52.0	48.8	48.5	50.0	51.5	52.3	53.1	53.9	54.5	55.0
Critical (27%)	56.9	56.1	52.8	49.5	49.2	50.8	52.2	53.3	54.6	55.7	56.9	57.2

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.8	-2.0	-1.0	-0.1	-0.2	**0.1**	0.0	**0.0**	-0.1	-0.7	-0.9	-1.7
20%	-1.4	-1.1	-0.2	-0.3	-0.1	**0.1**	**0.0**	**0.0**	-0.3	-0.3	-0.3	-0.9
30%	-0.5	-0.6	-0.1	-0.2	**0.1**	0.0	-0.1	**0.0**	-0.1	**0.0**	-0.2	-0.4
40%	-0.6	-0.5	0.0	-0.1	**0.1**	**0.1**	**0.0**	-0.1	-0.1	-0.2	-0.3	-0.4
50%	-0.3	-0.3	-0.1	**0.0**	**0.1**	**0.0**	**0.1**	0.0	-0.1	-0.3	-0.2	-0.3
60%	-0.2	-0.4	-0.1	0.0	**0.0**	**0.1**	**0.2**	**0.1**	-0.1	**0.2**	**0.0**	-0.1
70%	-0.1	-0.2	0.0	**0.1**	0.0	**0.0**	**0.4**	**0.2**	-0.1	**0.2**	0.0	0.0
80%	-0.1	0.0	**0.1**	**0.2**	**0.1**	**0.1**	**0.1**	0.0	-0.1	**0.3**	-0.1	-0.1
90%	-0.1	-0.1	-0.2	**0.4**	**0.5**	**0.2**	**0.2**	**0.2**	**0.3**	**0.5**	**0.5**	**0.1**
Long Term												
Full Simulation Period[a]	-0.7	-0.5	-0.2	0.0	**0.1**	**0.1**	**0.0**	0.0	-0.2	-0.1	-0.1	-0.5
Water Year Types[b,c]												
Wet (23%)	**0.2**	**0.2**	**0.0**	0.0	**0.3**	0.0	**0.0**	**0.1**	**0.2**	**0.2**	**0.1**	**0.2**
Above Normal (24%)	**0.2**	-0.2	-0.2	**0.1**	**0.2**	**0.2**	**0.1**	**0.1**	-0.2	**0.4**	**0.3**	**0.4**
Below Normal (10%)	-0.5	-0.4	-0.2	**0.1**	**0.1**	**0.1**	**0.3**	**0.2**	**0.0**	-0.1	-0.2	-0.4
Dry (16%)	-1.2	-0.9	-0.3	-0.2	-0.1	0.0	-0.1	0.0	-0.1	-0.4	-0.7	-1.0
Critical (27%)	-2.1	-1.0	-0.3	-0.1	-0.1	**0.0**	-0.1	-0.4	-0.6	-0.7	-0.4	-1.5

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 21-2. Stanislaus River below Tulloch Reservoir, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.5	59.0	54.7	50.7	50.2	51.2	52.6	53.6	54.7	56.5	57.4	59.2
20%	57.4	56.5	53.3	50.3	49.5	50.6	52.1	53.0	54.1	55.0	55.7	56.7
30%	55.6	55.1	52.7	49.5	48.9	50.2	51.7	52.6	53.4	54.3	55.0	55.6
40%	55.1	54.6	51.9	49.0	48.5	49.8	51.3	52.4	52.9	53.9	54.5	54.9
50%	54.5	54.0	51.6	48.7	48.0	49.6	51.0	52.1	52.6	53.7	54.1	54.5
60%	54.1	53.9	51.3	48.3	47.8	49.3	50.6	51.7	52.2	52.7	53.5	54.0
70%	53.6	53.2	50.9	47.8	47.5	48.9	50.1	51.3	51.8	52.4	53.1	53.5
80%	53.1	52.6	50.3	47.1	46.7	48.4	49.7	51.0	51.4	51.8	52.8	53.1
90%	52.0	51.8	49.6	46.3	45.8	47.5	48.8	50.2	50.2	50.8	51.5	51.8
Long Term												
Full Simulation Period[a]	55.6	54.7	51.9	48.6	48.1	49.5	50.9	52.1	52.8	53.7	54.6	55.4
Water Year Types[b,c]												
Wet (23%)	52.5	52.1	50.6	47.5	47.1	48.8	49.6	50.9	51.0	51.5	52.2	52.4
Above Normal (24%)	54.8	54.3	51.8	48.1	47.4	48.7	50.2	51.4	51.9	52.7	53.7	54.5
Below Normal (10%)	54.5	54.0	51.6	48.3	48.1	49.4	51.0	51.7	52.2	53.3	54.0	54.4
Dry (16%)	56.3	55.4	52.3	49.0	48.6	50.0	51.6	52.3	53.2	54.3	55.3	56.0
Critical (27%)	59.0	57.1	53.0	49.6	49.2	50.7	52.3	53.7	55.1	56.4	57.3	58.8

Alternative 2 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.1	56.8	54.1	50.7	50.2	51.4	52.7	53.5	54.3	55.5	56.1	56.5
20%	55.7	55.4	53.2	49.9	49.7	50.8	52.0	52.9	53.9	54.7	55.0	55.4
30%	55.1	54.6	52.7	49.5	49.2	50.2	51.6	52.6	53.2	53.8	54.4	54.8
40%	54.4	54.0	51.7	49.0	48.9	49.9	51.4	52.2	52.9	53.5	53.9	54.3
50%	53.9	53.6	51.5	48.7	48.4	49.8	51.1	51.9	52.6	53.1	53.7	53.9
60%	53.7	53.3	51.3	48.5	48.0	49.5	50.8	51.7	52.2	52.8	53.3	53.5
70%	53.3	52.9	50.9	48.1	47.6	49.2	50.5	51.4	52.1	52.5	52.9	53.1
80%	52.9	52.7	50.6	47.7	47.3	48.5	50.0	51.1	51.4	52.0	52.7	52.7
90%	52.0	51.8	49.5	46.9	46.4	48.0	49.3	50.3	50.6	51.4	51.9	51.9
Long Term												
Full Simulation Period[a]	54.6	54.2	51.8	48.7	48.4	49.7	51.0	51.9	52.6	53.4	53.9	54.3
Water Year Types[b,c]												
Wet (23%)	52.5	52.2	50.7	47.7	47.9	48.8	49.9	51.0	51.4	51.9	52.3	52.3
Above Normal (24%)	53.9	53.6	51.4	48.6	47.8	49.1	50.3	51.3	52.0	52.3	53.1	53.6
Below Normal (10%)	53.9	53.6	51.4	48.4	48.2	49.5	50.9	51.6	52.3	53.0	53.5	53.7
Dry (16%)	54.7	54.3	51.9	48.9	48.6	50.1	51.6	52.3	53.1	53.8	54.2	54.6
Critical (27%)	57.2	56.6	53.3	49.5	49.1	50.8	52.2	53.2	54.2	55.5	55.9	56.8

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-3.3	-2.3	-0.6	0.0	0.0	**0.2**	**0.1**	-0.1	-0.4	-1.0	-1.3	-2.7
20%	-1.6	-1.1	-0.1	-0.4	**0.2**	**0.2**	-0.1	-0.1	-0.2	-0.4	-0.6	-1.3
30%	-0.5	-0.6	**0.0**	-0.1	**0.4**	**0.0**	-0.1	**0.0**	-0.2	-0.4	-0.6	-0.8
40%	-0.7	-0.6	-0.2	0.0	**0.5**	**0.1**	**0.1**	-0.2	0.0	-0.4	-0.6	-0.6
50%	-0.6	-0.5	-0.1	**0.0**	**0.4**	**0.2**	**0.1**	-0.2	0.0	-0.6	-0.5	-0.6
60%	-0.4	-0.6	0.0	**0.3**	**0.2**	**0.1**	**0.1**	**0.0**	**0.0**	**0.1**	-0.2	-0.4
70%	-0.3	-0.3	**0.0**	**0.3**	**0.1**	**0.2**	**0.4**	**0.1**	**0.3**	**0.1**	-0.2	-0.4
80%	-0.3	**0.1**	**0.2**	**0.6**	**0.5**	**0.1**	**0.3**	**0.0**	**0.1**	**0.2**	-0.1	-0.3
90%	**0.0**	0.0	-0.1	**0.6**	**0.5**	**0.4**	**0.5**	**0.1**	**0.4**	**0.6**	**0.4**	**0.1**
Long Term												
Full Simulation Period[a]	-1.0	-0.5	-0.1	**0.1**	**0.3**	**0.1**	**0.1**	-0.1	-0.2	-0.4	-0.7	-1.1
Water Year Types[b,c]												
Wet (23%)	**0.0**	**0.1**	**0.1**	**0.1**	**0.9**	**0.1**	**0.3**	**0.1**	**0.3**	**0.4**	**0.2**	-0.1
Above Normal (24%)	-0.9	-0.7	-0.3	**0.5**	**0.4**	**0.4**	**0.2**	-0.1	**0.0**	-0.4	-0.6	-0.9
Below Normal (10%)	-0.6	-0.4	-0.2	**0.1**	**0.1**	**0.1**	-0.1	0.0	**0.1**	-0.3	-0.6	-0.7
Dry (16%)	-1.6	-1.1	-0.4	-0.1	0.0	**0.1**	0.0	**0.0**	-0.1	-0.5	-1.0	-1.4
Critical (27%)	-1.8	-0.5	**0.2**	-0.1	-0.1	**0.1**	-0.1	-0.6	-0.9	-0.9	-1.3	-2.0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 21-3. Stanislaus River below Tulloch Reservoir, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.5	59.0	54.7	50.7	50.2	51.2	52.6	53.6	54.7	56.5	57.4	59.2
20%	57.4	56.5	53.3	50.3	49.5	50.6	52.1	53.0	54.1	55.0	55.7	56.7
30%	55.6	55.1	52.7	49.5	48.9	50.2	51.7	52.6	53.4	54.3	55.0	55.6
40%	55.1	54.6	51.9	49.0	48.5	49.8	51.3	52.4	52.9	53.9	54.5	54.9
50%	54.5	54.0	51.6	48.7	48.0	49.6	51.0	52.1	52.6	53.7	54.1	54.5
60%	54.1	53.9	51.3	48.3	47.8	49.3	50.6	51.7	52.2	52.7	53.5	54.0
70%	53.6	53.2	50.9	47.8	47.5	48.9	50.1	51.3	51.8	52.4	53.1	53.5
80%	53.1	52.6	50.3	47.1	46.7	48.4	49.7	51.0	51.4	51.8	52.8	53.1
90%	52.0	51.8	49.6	46.3	45.8	47.5	48.8	50.2	50.2	50.8	51.5	51.8
Long Term												
Full Simulation Period[a]	55.6	54.7	51.9	48.6	48.1	49.5	50.9	52.1	52.8	53.7	54.6	55.4
Water Year Types[b,c]												
Wet (23%)	52.5	52.1	50.6	47.5	47.1	48.8	49.6	50.9	51.0	51.5	52.2	52.4
Above Normal (24%)	54.8	54.3	51.8	48.1	47.4	48.7	50.2	51.4	51.9	52.7	53.7	54.5
Below Normal (10%)	54.5	54.0	51.6	48.3	48.1	49.4	51.0	51.7	52.2	53.3	54.0	54.4
Dry (16%)	56.3	55.4	52.3	49.0	48.6	50.0	51.6	52.3	53.2	54.3	55.3	56.0
Critical (27%)	59.0	57.1	53.0	49.6	49.2	50.7	52.3	53.7	55.1	56.4	57.3	58.8

Alternative 3 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.1	56.8	54.1	50.7	50.2	51.4	52.7	53.5	54.3	55.5	56.1	56.5
20%	55.7	55.4	53.2	49.9	49.7	50.8	52.0	52.9	53.9	54.7	55.0	55.3
30%	55.1	54.6	52.7	49.5	49.2	50.2	51.6	52.6	53.2	53.8	54.4	54.8
40%	54.4	54.0	51.7	49.0	48.9	49.9	51.4	52.2	52.9	53.5	53.9	54.3
50%	53.9	53.6	51.5	48.7	48.4	49.8	51.1	51.9	52.6	53.1	53.7	53.9
60%	53.7	53.3	51.3	48.5	48.0	49.5	50.8	51.7	52.2	52.8	53.3	53.5
70%	53.3	52.9	51.0	48.1	47.6	49.2	50.5	51.4	52.1	52.5	52.9	53.1
80%	52.9	52.7	50.6	47.7	47.3	48.5	50.0	51.1	51.4	52.0	52.6	52.7
90%	52.0	51.8	49.5	46.9	46.4	48.0	49.3	50.3	50.6	51.4	51.9	51.9
Long Term												
Full Simulation Period[a]	54.6	54.2	51.8	48.7	48.4	49.7	51.0	51.9	52.6	53.4	53.9	54.3
Water Year Types[b,c]												
Wet (23%)	52.5	52.2	50.7	47.7	47.9	48.9	49.9	51.0	51.4	51.9	52.3	52.3
Above Normal (24%)	53.9	53.6	51.4	48.6	47.8	49.1	50.3	51.3	52.0	52.3	53.1	53.6
Below Normal (10%)	53.9	53.6	51.4	48.4	48.3	49.5	50.9	51.6	52.3	53.0	53.5	53.7
Dry (16%)	54.7	54.3	51.9	48.9	48.6	50.1	51.6	52.3	53.1	53.8	54.2	54.6
Critical (27%)	57.2	56.6	53.3	49.5	49.1	50.8	52.2	53.2	54.2	55.5	55.9	56.8

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-3.3	-2.3	-0.6	0.0	0.0	**0.2**	**0.1**	-0.1	-0.4	-1.0	-1.3	-2.7
20%	-1.6	-1.1	-0.1	-0.4	**0.2**	**0.2**	-0.1	-0.1	-0.2	-0.4	-0.6	-1.3
30%	-0.6	-0.6	**0.0**	-0.1	**0.4**	**0.0**	-0.1	**0.0**	-0.2	-0.4	-0.6	-0.8
40%	-0.7	-0.6	-0.2	0.0	**0.5**	**0.1**	**0.1**	-0.2	0.0	-0.4	-0.6	-0.6
50%	-0.6	-0.5	-0.1	**0.0**	**0.4**	**0.2**	**0.1**	-0.2	0.0	-0.6	-0.5	-0.6
60%	-0.4	-0.6	0.0	**0.3**	**0.2**	**0.1**	**0.1**	**0.0**	**0.0**	**0.1**	-0.2	-0.4
70%	-0.3	-0.3	**0.1**	**0.3**	**0.1**	**0.2**	**0.4**	**0.1**	**0.3**	**0.1**	-0.2	-0.4
80%	-0.3	**0.1**	**0.2**	**0.6**	**0.5**	**0.1**	**0.3**	**0.0**	**0.1**	**0.2**	-0.1	-0.3
90%	**0.0**	0.0	-0.1	**0.6**	**0.5**	**0.4**	**0.5**	**0.1**	**0.4**	**0.6**	**0.4**	**0.1**
Long Term												
Full Simulation Period[a]	-1.0	-0.5	-0.1	**0.1**	**0.3**	**0.1**	**0.1**	-0.1	-0.2	-0.4	-0.7	-1.1
Water Year Types[b,c]												
Wet (23%)	**0.0**	**0.1**	**0.1**	**0.1**	**0.9**	**0.1**	**0.3**	**0.1**	**0.3**	**0.4**	**0.2**	-0.1
Above Normal (24%)	-0.9	-0.7	-0.3	**0.5**	**0.4**	**0.4**	**0.2**	-0.1	**0.0**	-0.4	-0.6	-0.9
Below Normal (10%)	-0.6	-0.4	-0.2	**0.1**	**0.1**	**0.1**	-0.1	0.0	**0.1**	-0.3	-0.5	-0.7
Dry (16%)	-1.6	-1.1	-0.4	-0.1	0.0	**0.1**	0.0	**0.0**	-0.1	-0.5	-1.0	-1.4
Critical (27%)	-1.8	-0.5	**0.2**	-0.1	-0.1	**0.1**	-0.1	-0.6	-0.9	-1.0	-1.3	-2.0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 21-4. Stanislaus River below Tulloch Reservoir, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.5	59.0	54.7	50.7	50.2	51.2	52.6	53.6	54.7	56.5	57.4	59.2
20%	57.4	56.5	53.3	50.3	49.5	50.6	52.1	53.0	54.1	55.0	55.7	56.7
30%	55.6	55.1	52.7	49.5	48.9	50.2	51.7	52.6	53.4	54.3	55.0	55.6
40%	55.1	54.6	51.9	49.0	48.5	49.8	51.3	52.4	52.9	53.9	54.5	54.9
50%	54.5	54.0	51.6	48.7	48.0	49.6	51.0	52.1	52.6	53.7	54.1	54.5
60%	54.1	53.9	51.3	48.3	47.8	49.3	50.6	51.7	52.2	52.7	53.5	54.0
70%	53.6	53.2	50.9	47.8	47.5	48.9	50.1	51.3	51.8	52.4	53.1	53.5
80%	53.1	52.6	50.3	47.1	46.7	48.4	49.7	51.0	51.4	51.8	52.8	53.1
90%	52.0	51.8	49.6	46.3	45.8	47.5	48.8	50.2	50.2	50.8	51.5	51.8
Long Term												
Full Simulation Period[a]	55.6	54.7	51.9	48.6	48.1	49.5	50.9	52.1	52.8	53.7	54.6	55.4
Water Year Types[b,c]												
Wet (23%)	52.5	52.1	50.6	47.5	47.1	48.8	49.6	50.9	51.0	51.5	52.2	52.4
Above Normal (24%)	54.8	54.3	51.8	48.1	47.4	48.7	50.2	51.4	51.9	52.7	53.7	54.5
Below Normal (10%)	54.5	54.0	51.6	48.3	48.1	49.4	51.0	51.7	52.2	53.3	54.0	54.4
Dry (16%)	56.3	55.4	52.3	49.0	48.6	50.0	51.6	52.3	53.2	54.3	55.3	56.0
Critical (27%)	59.0	57.1	53.0	49.6	49.2	50.7	52.3	53.7	55.1	56.4	57.3	58.8

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.6	57.0	53.7	50.6	50.1	51.3	52.6	53.6	54.6	55.8	56.5	57.5
20%	56.0	55.4	53.1	50.0	49.4	50.6	52.1	53.0	53.8	54.7	55.4	55.8
30%	55.2	54.5	52.6	49.4	48.9	50.2	51.6	52.6	53.2	54.3	54.9	55.2
40%	54.5	54.1	51.9	49.0	48.6	49.9	51.3	52.3	52.8	53.7	54.2	54.5
50%	54.2	53.7	51.5	48.7	48.1	49.6	51.1	52.1	52.5	53.4	53.9	54.2
60%	53.8	53.4	51.2	48.3	47.8	49.5	50.9	51.8	52.1	53.0	53.5	53.8
70%	53.6	53.0	50.8	47.9	47.5	49.0	50.5	51.5	51.7	52.6	53.1	53.5
80%	53.0	52.5	50.4	47.2	46.8	48.5	49.8	51.0	51.3	52.1	52.6	53.0
90%	51.9	51.8	49.4	46.6	46.4	47.8	49.0	50.4	50.5	51.3	52.0	51.9
Long Term												
Full Simulation Period[a]	54.9	54.2	51.7	48.5	48.1	49.6	50.9	52.0	52.6	53.6	54.4	54.9
Water Year Types[b,c]												
Wet (23%)	52.6	52.3	50.7	47.5	47.4	48.8	49.6	51.0	51.2	51.7	52.3	52.5
Above Normal (24%)	55.0	54.1	51.6	48.3	47.6	48.9	50.3	51.5	51.8	53.1	54.0	54.8
Below Normal (10%)	54.0	53.6	51.4	48.3	48.2	49.5	51.3	51.8	52.2	53.3	53.8	54.1
Dry (16%)	55.1	54.4	52.0	48.8	48.5	50.0	51.5	52.3	53.1	53.9	54.5	55.0
Critical (27%)	56.9	56.1	52.8	49.5	49.2	50.8	52.2	53.3	54.6	55.7	56.9	57.2

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.8	-2.0	-1.0	-0.1	-0.2	**0.1**	0.0	**0.0**	-0.1	-0.7	-0.9	-1.7
20%	-1.4	-1.1	-0.2	-0.3	-0.1	**0.1**	**0.0**	**0.0**	-0.3	-0.3	-0.3	-0.9
30%	-0.5	-0.6	-0.1	-0.2	**0.1**	0.0	-0.1	**0.0**	-0.1	**0.0**	-0.2	-0.4
40%	-0.6	-0.5	0.0	-0.1	**0.1**	**0.1**	**0.0**	-0.1	-0.1	-0.2	-0.3	-0.4
50%	-0.3	-0.3	-0.1	**0.0**	**0.1**	**0.0**	**0.1**	0.0	-0.1	-0.3	-0.2	-0.3
60%	-0.2	-0.4	-0.1	0.0	**0.0**	**0.1**	**0.2**	**0.1**	-0.1	**0.2**	**0.0**	-0.1
70%	-0.1	-0.2	0.0	**0.1**	0.0	**0.0**	**0.4**	**0.2**	-0.1	**0.2**	0.0	0.0
80%	-0.1	0.0	**0.1**	**0.2**	**0.1**	**0.1**	**0.1**	0.0	-0.1	**0.3**	-0.1	-0.1
90%	-0.1	-0.1	-0.2	**0.4**	**0.5**	**0.2**	**0.2**	**0.2**	**0.3**	**0.5**	**0.5**	**0.1**
Long Term												
Full Simulation Period[a]	-0.7	-0.5	-0.2	0.0	**0.1**	**0.1**	**0.0**	0.0	-0.2	-0.1	-0.1	-0.5
Water Year Types[b,c]												
Wet (23%)	**0.2**	**0.2**	**0.0**	0.0	**0.3**	0.0	**0.0**	**0.1**	**0.2**	**0.2**	**0.1**	**0.2**
Above Normal (24%)	**0.2**	-0.2	-0.2	**0.1**	**0.2**	**0.2**	**0.1**	**0.1**	-0.2	**0.4**	**0.3**	**0.4**
Below Normal (10%)	-0.5	-0.4	-0.2	**0.1**	**0.1**	**0.1**	**0.3**	**0.2**	**0.0**	-0.1	-0.2	-0.4
Dry (16%)	-1.2	-0.9	-0.3	-0.2	-0.1	0.0	-0.1	0.0	-0.1	-0.4	-0.7	-1.0
Critical (27%)	-2.1	-1.0	-0.3	-0.1	-0.1	**0.0**	-0.1	-0.4	-0.6	-0.7	-0.4	-1.5

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

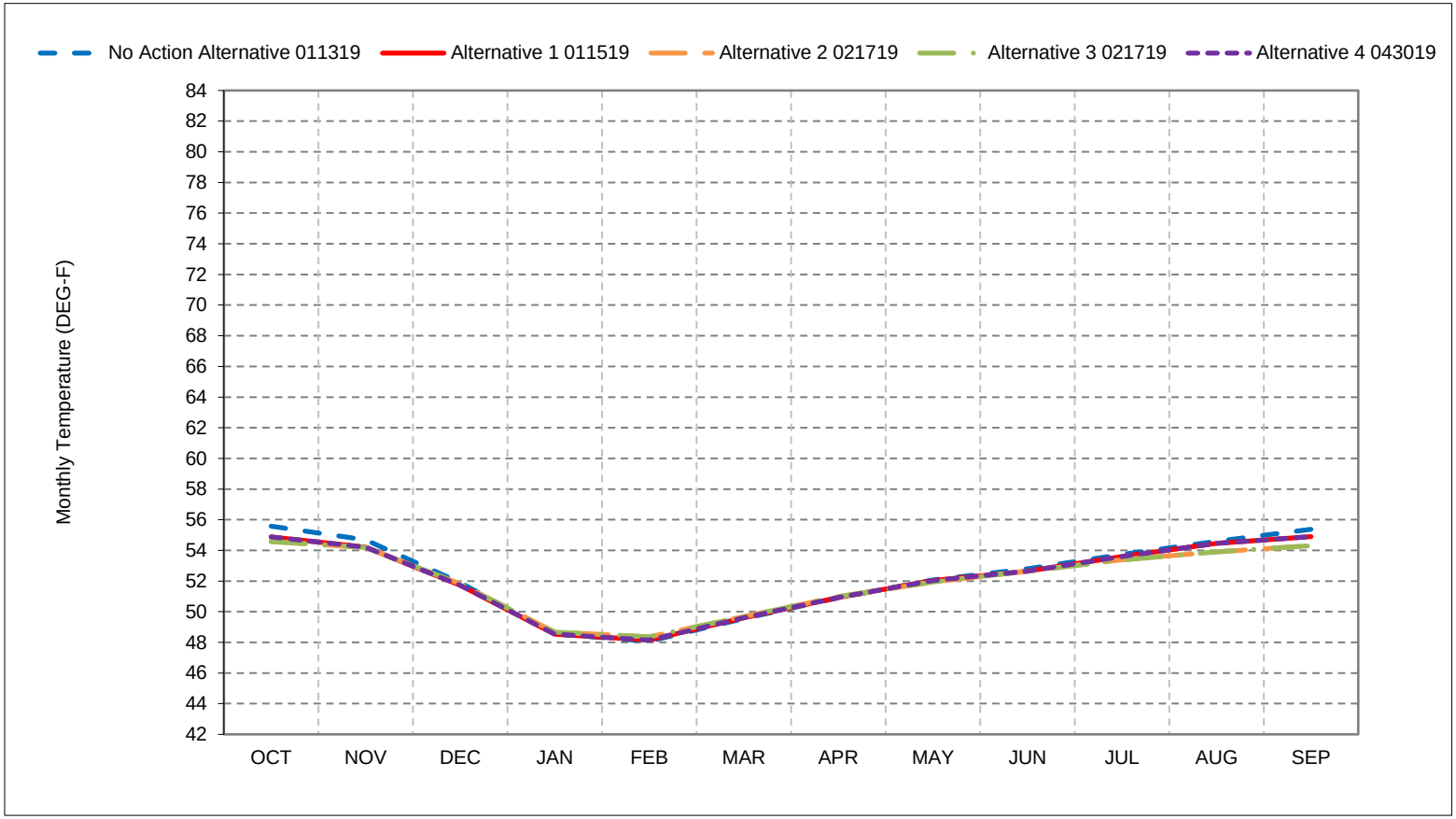
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

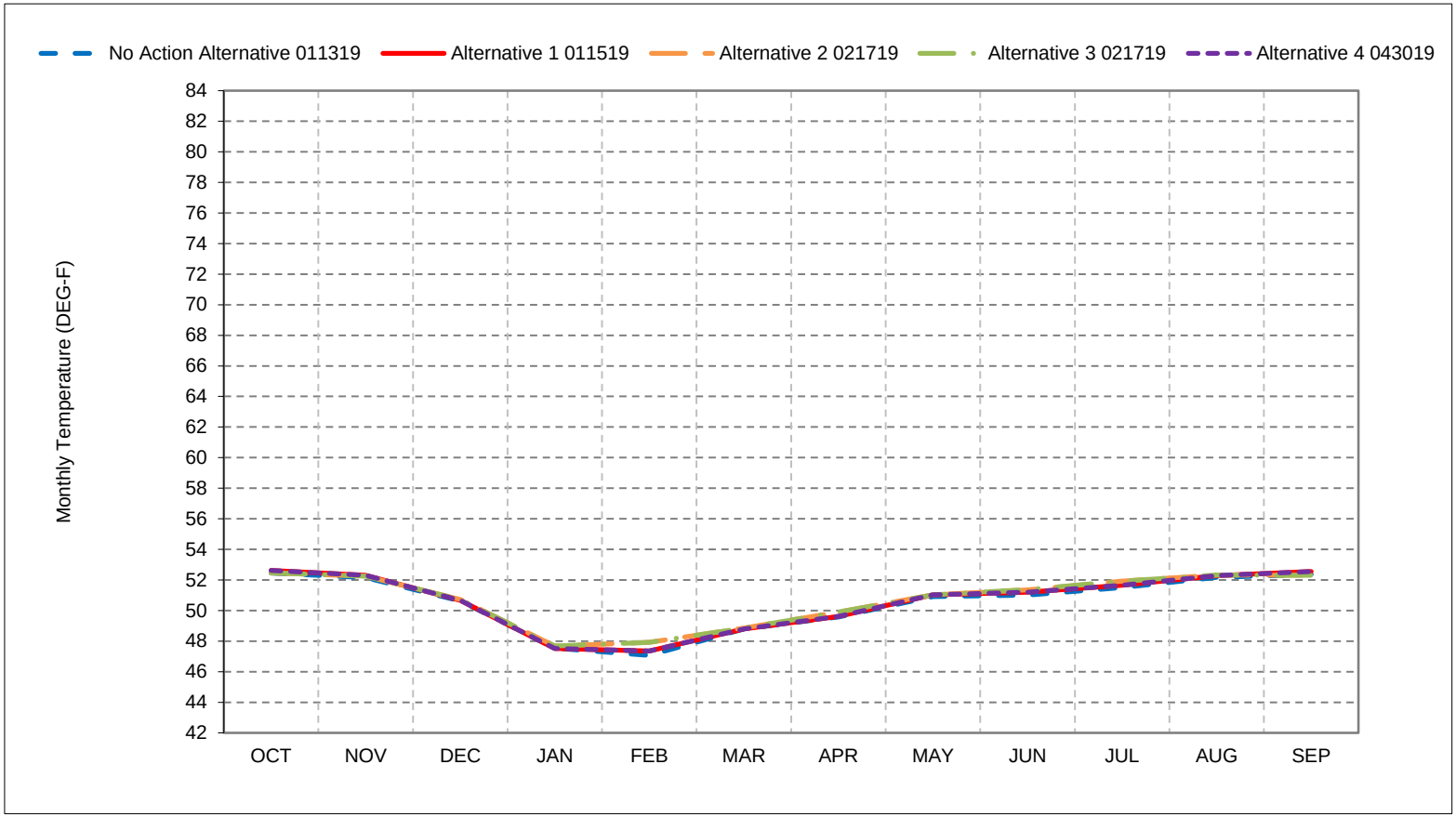
f New Melones forecasts are used as the basis of water operations.

Figure 21-1. Stanislaus River below Tulloch Reservoir, Long-Term Average Temperature



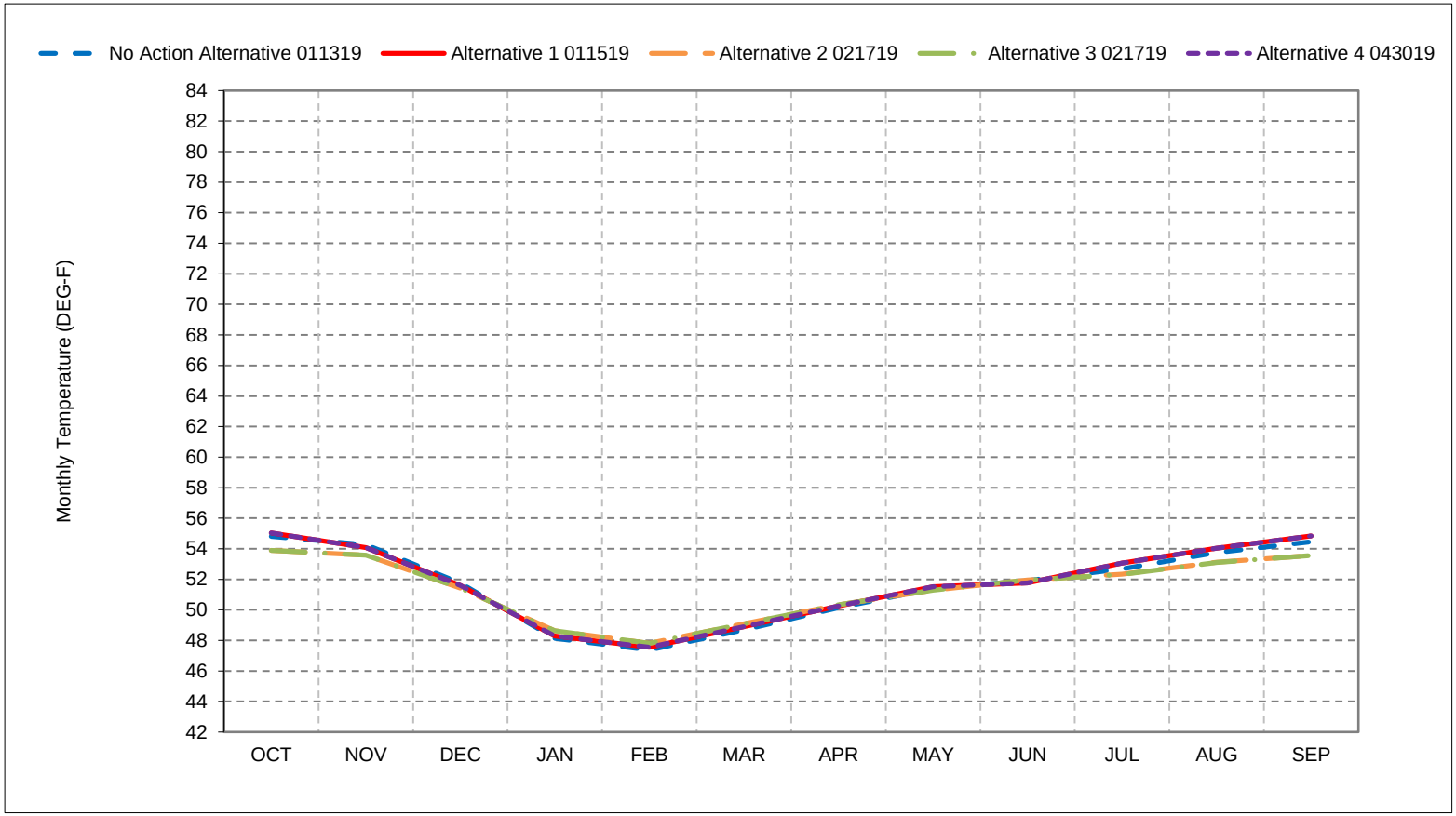
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 21-2. Stanislaus River below Tulloch Reservoir, Wet Year Average Temperature



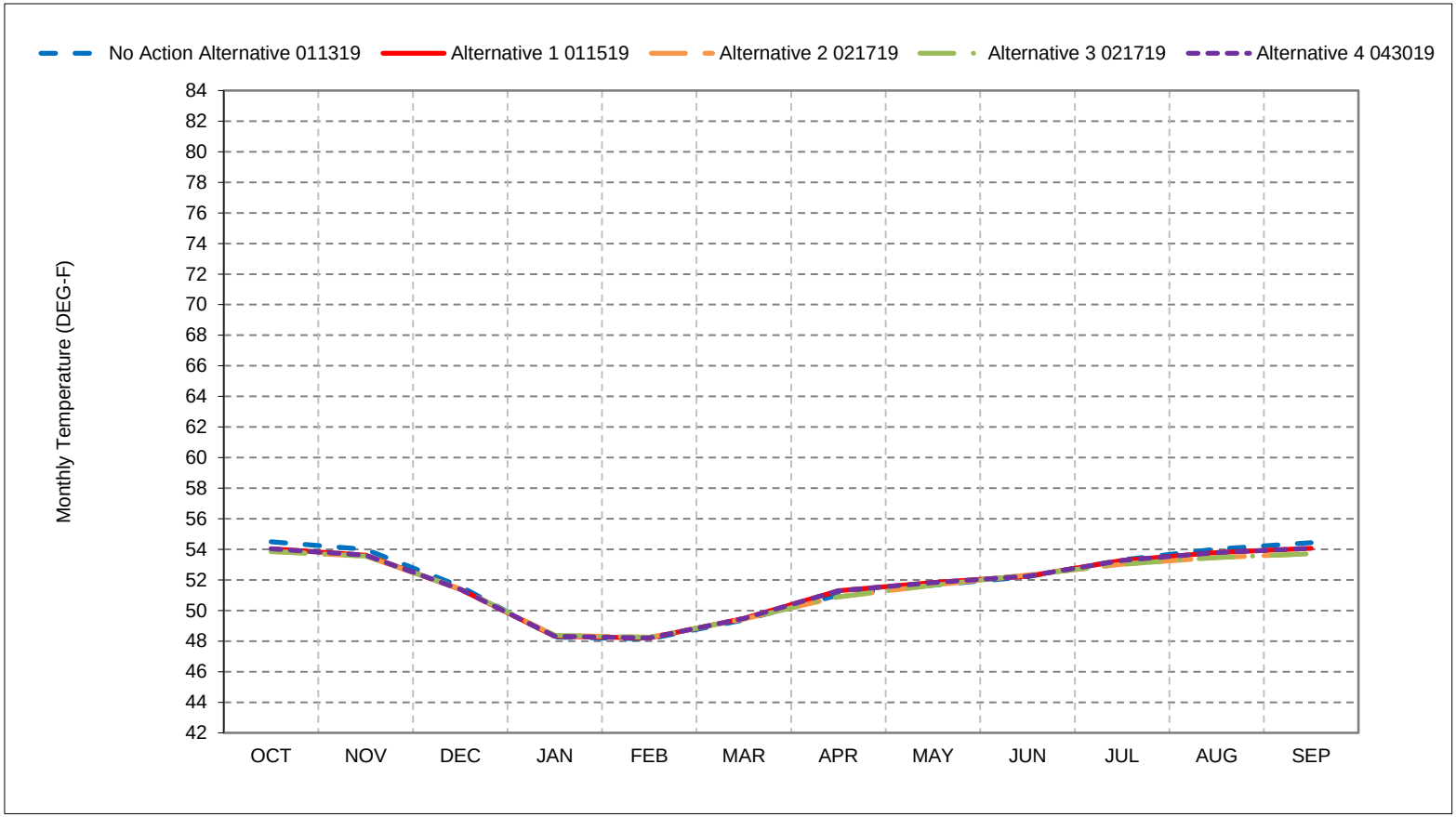
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 21-3. Stanislaus River below Tulloch Reservoir, Above Normal Year Average Temperature



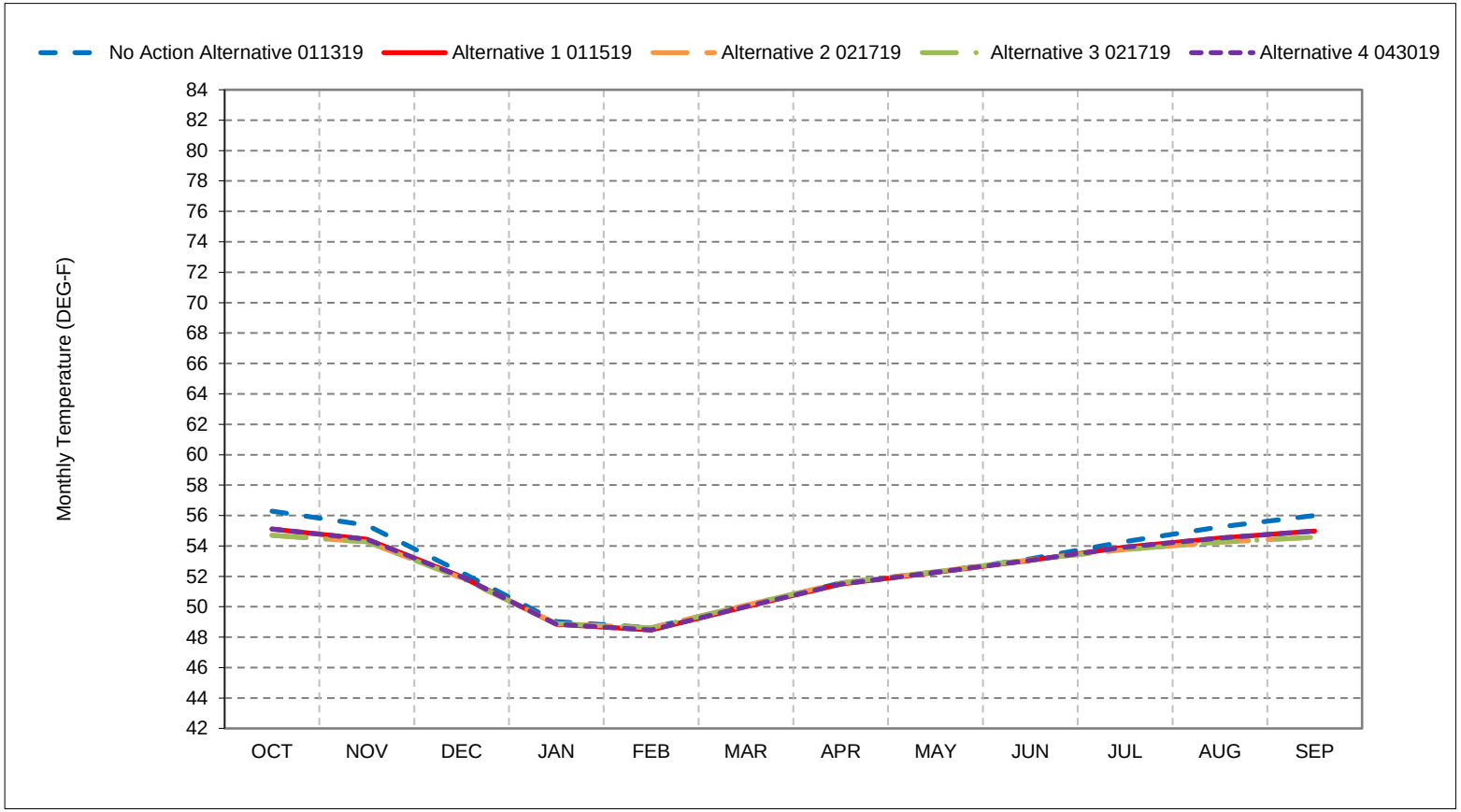
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 21-4. Stanislaus River below Tulloch Reservoir, Below Normal Year Average Temperature



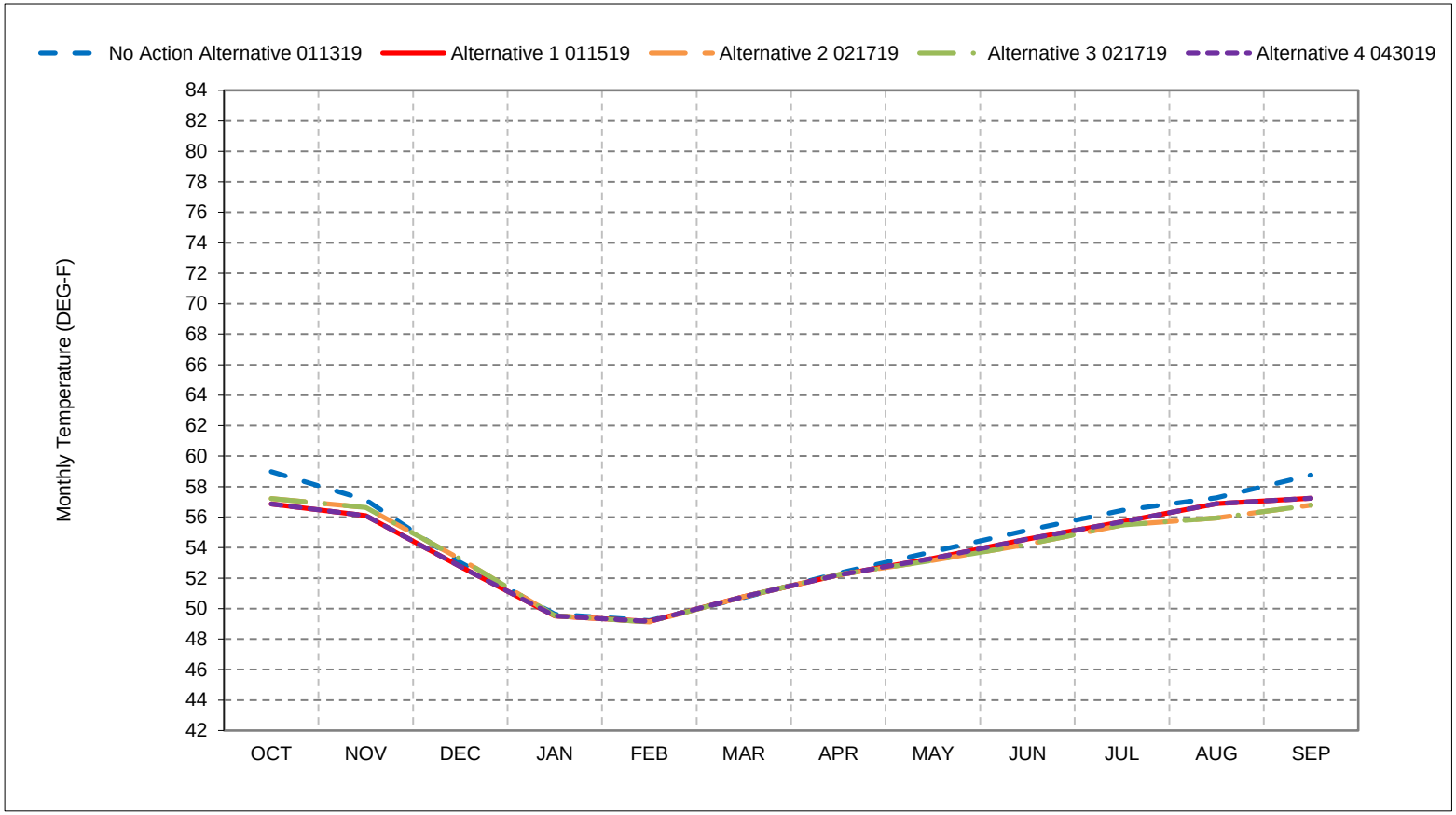
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 21-5. Stanislaus River below Tulloch Reservoir, Dry Year Average Temperature



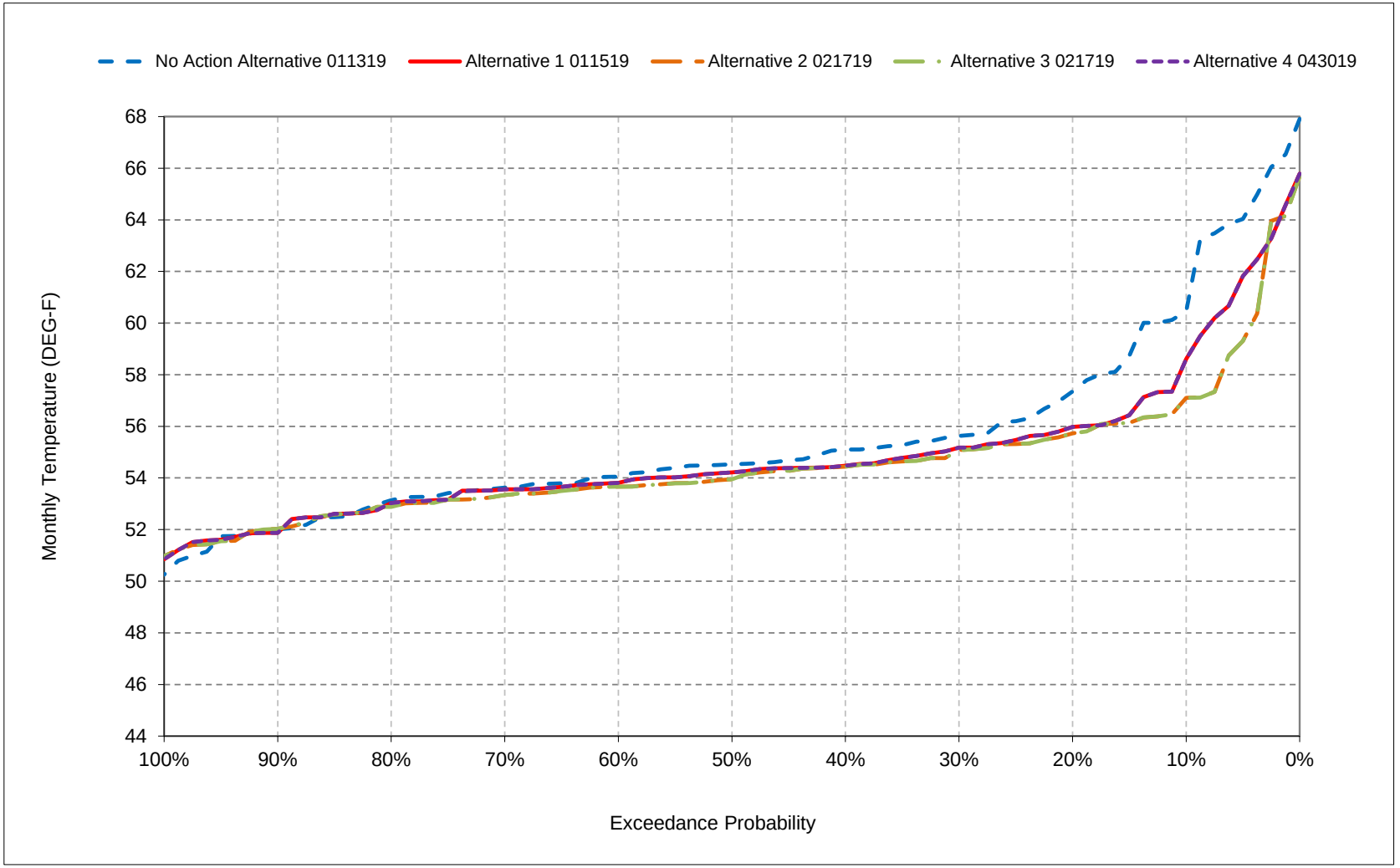
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 21-6. Stanislaus River below Tulloch Reservoir, Critical Year Average Temperature



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 21-7. Stanislaus River below Tulloch Reservoir, October

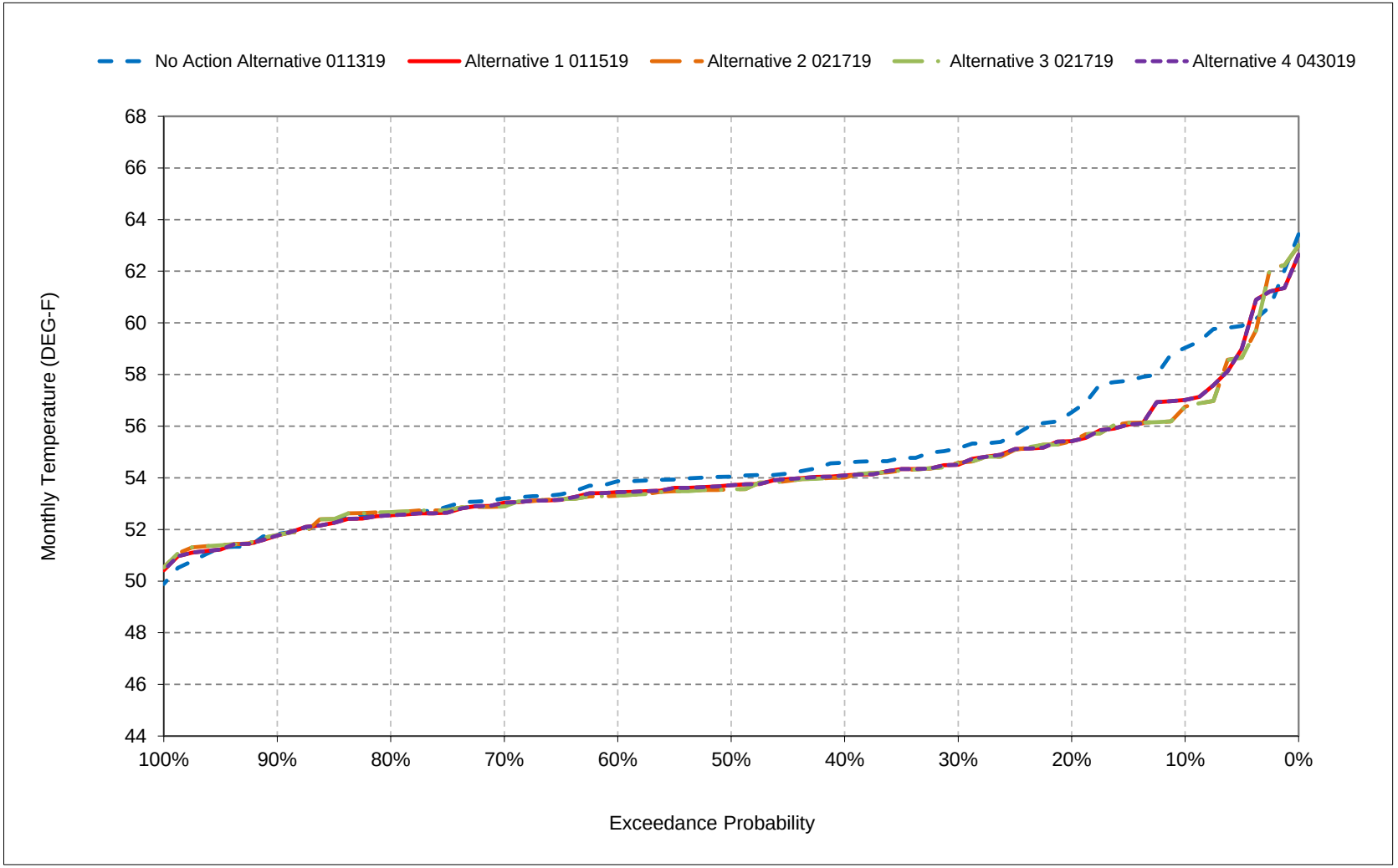


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-8. Stanislaus River below Tulloch Reservoir, November

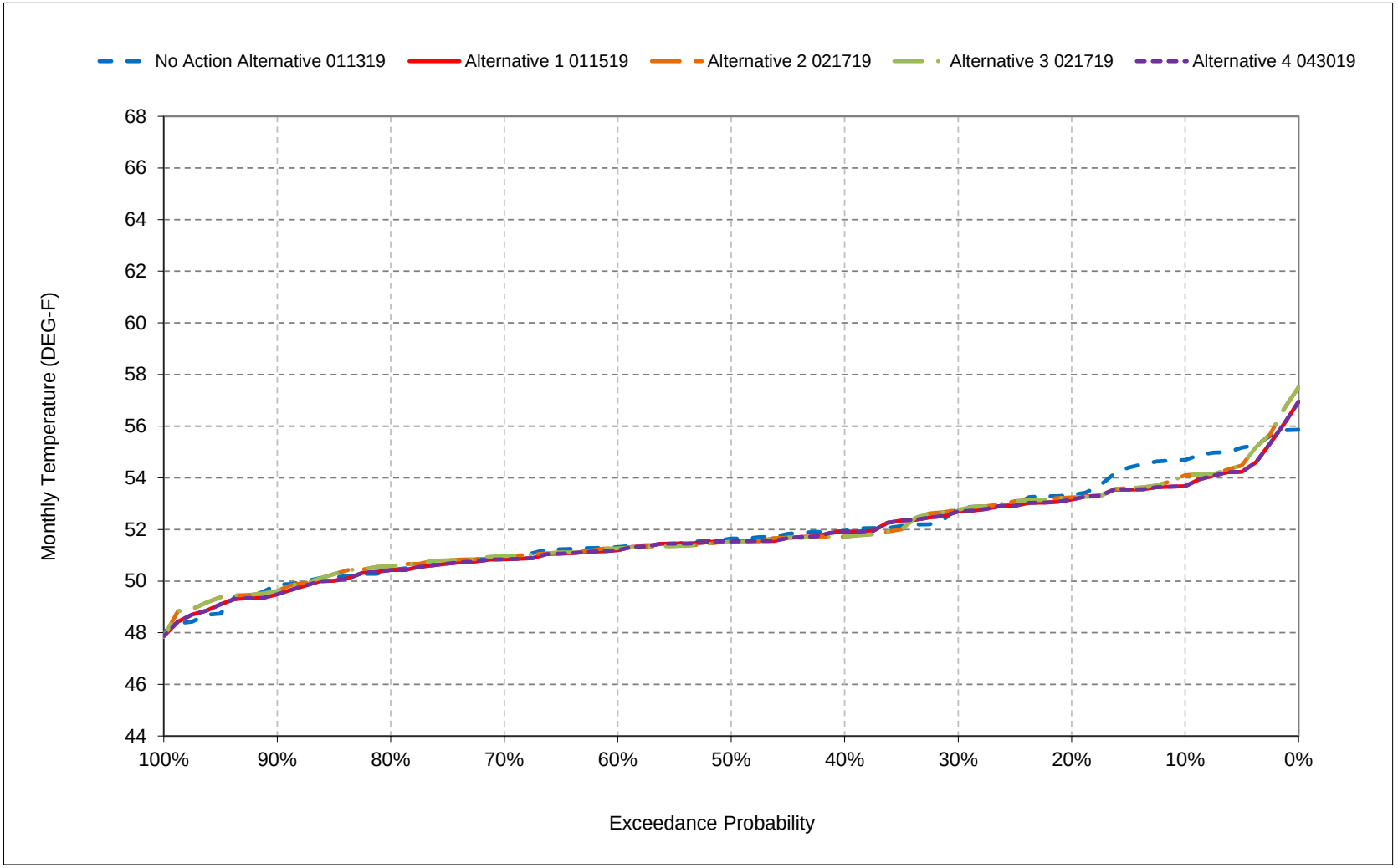


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-9. Stanislaus River below Tulloch Reservoir, December

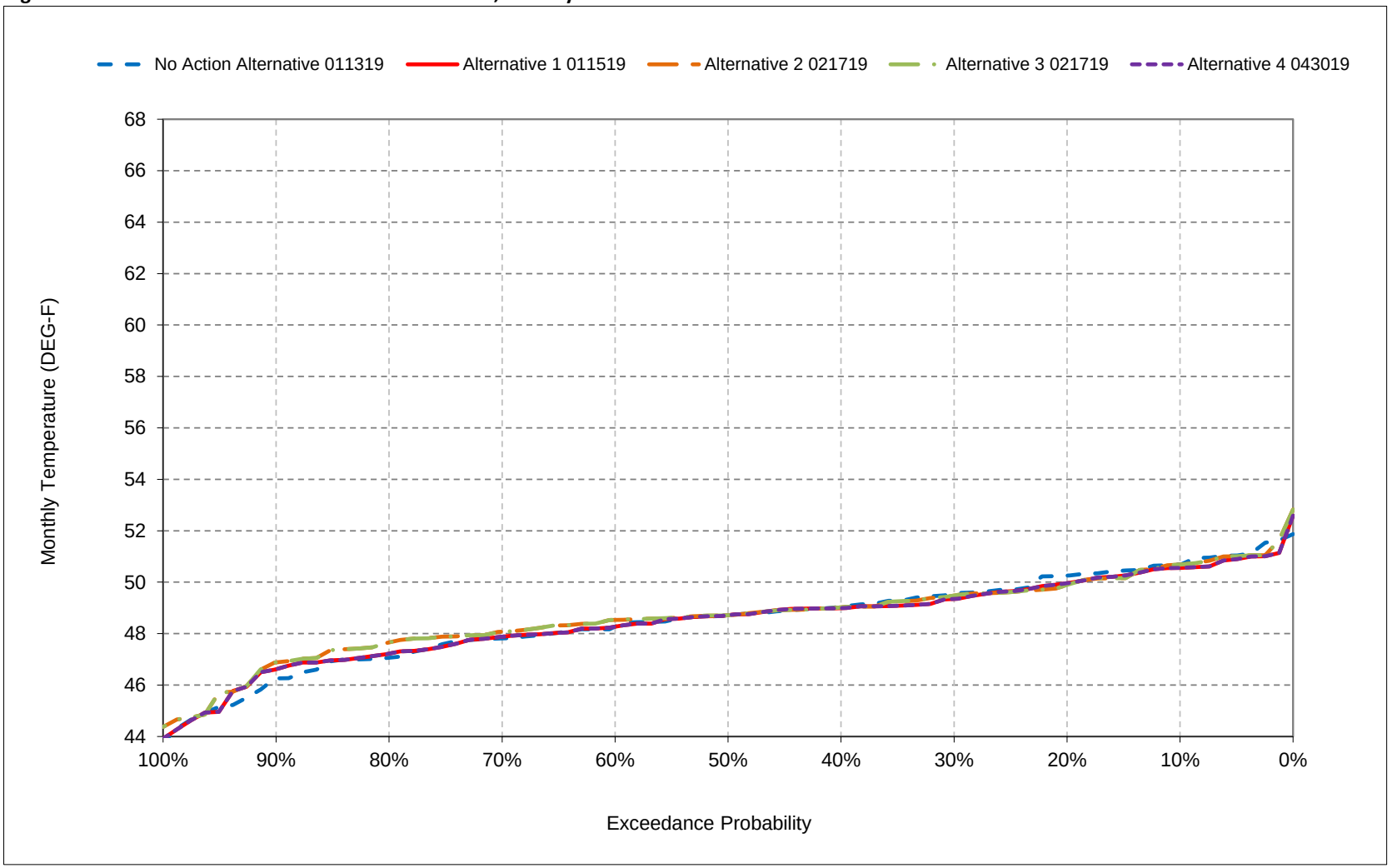


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-10. Stanislaus River below Tulloch Reservoir, January

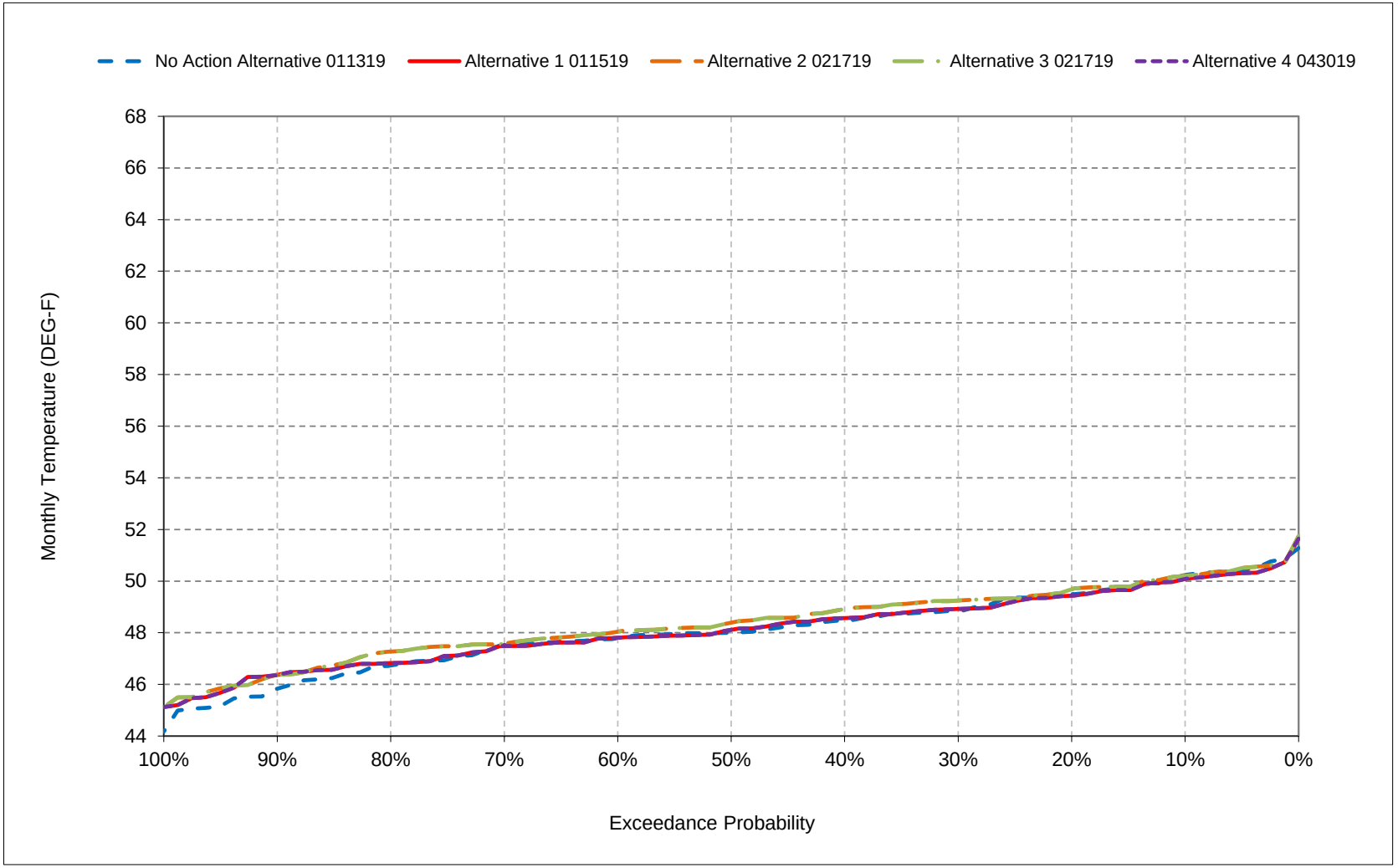


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-11. Stanislaus River below Tulloch Reservoir, February

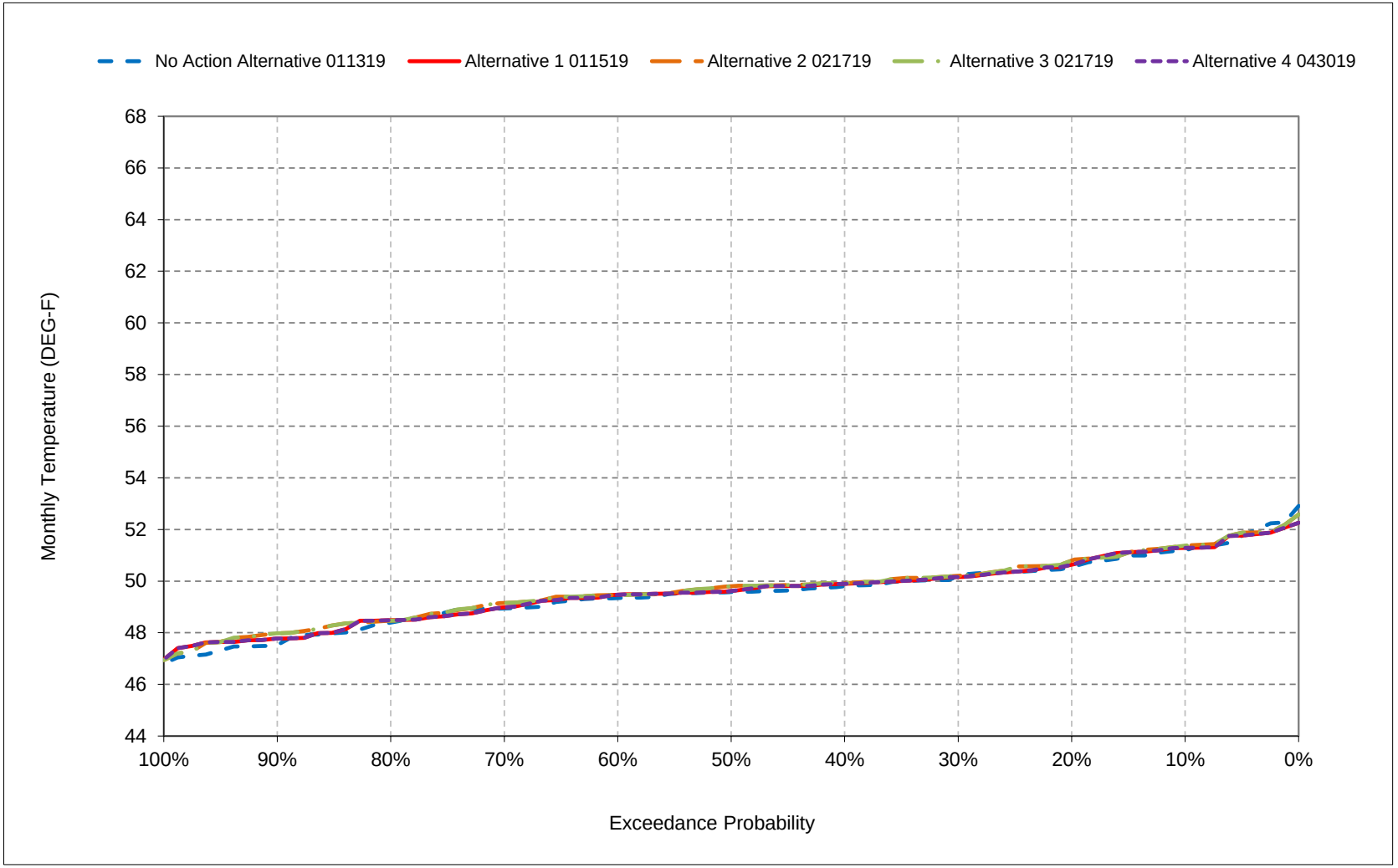


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-12. Stanislaus River below Tulloch Reservoir, March

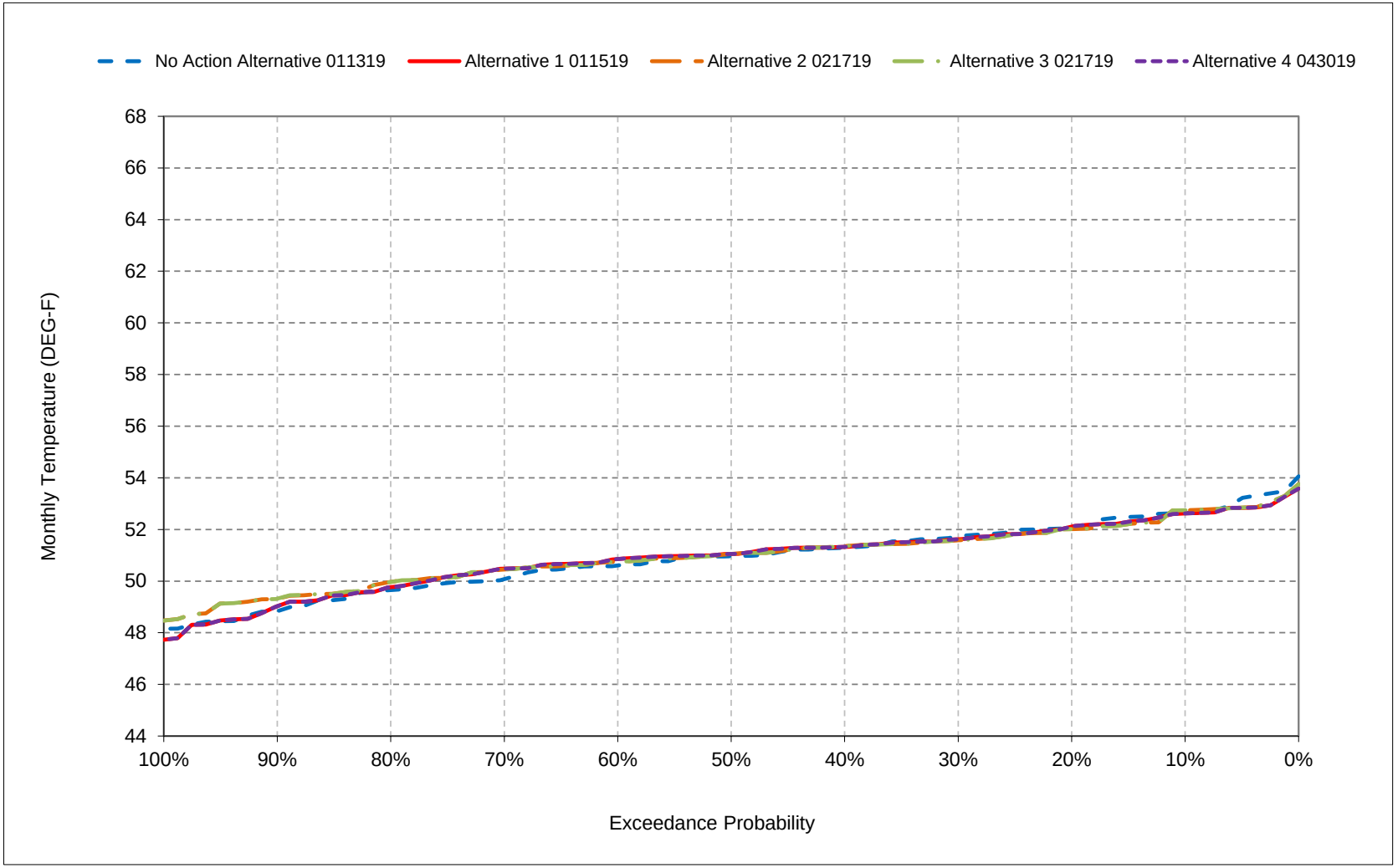


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-13. Stanislaus River below Tulloch Reservoir, April

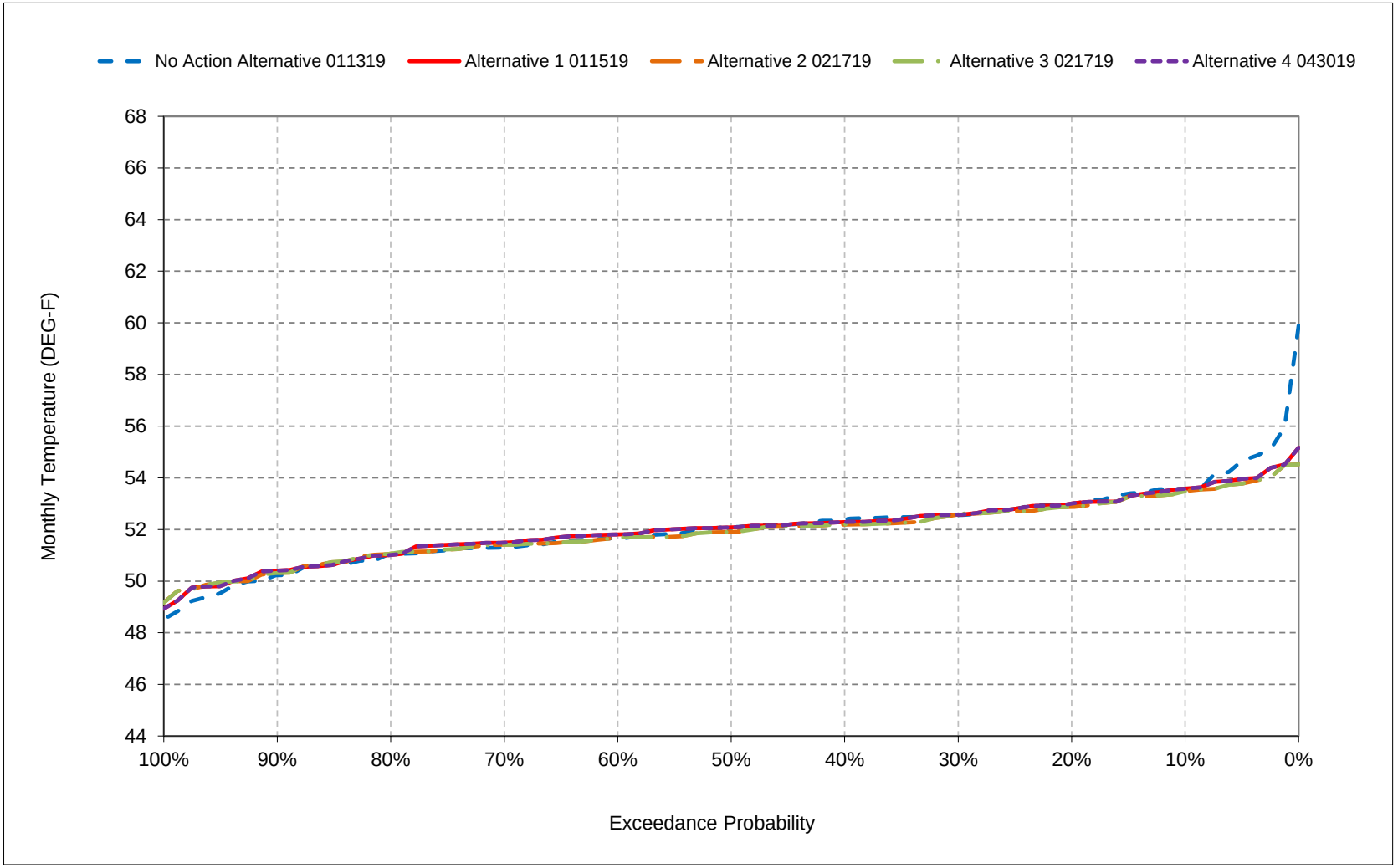


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-14. Stanislaus River below Tulloch Reservoir, May

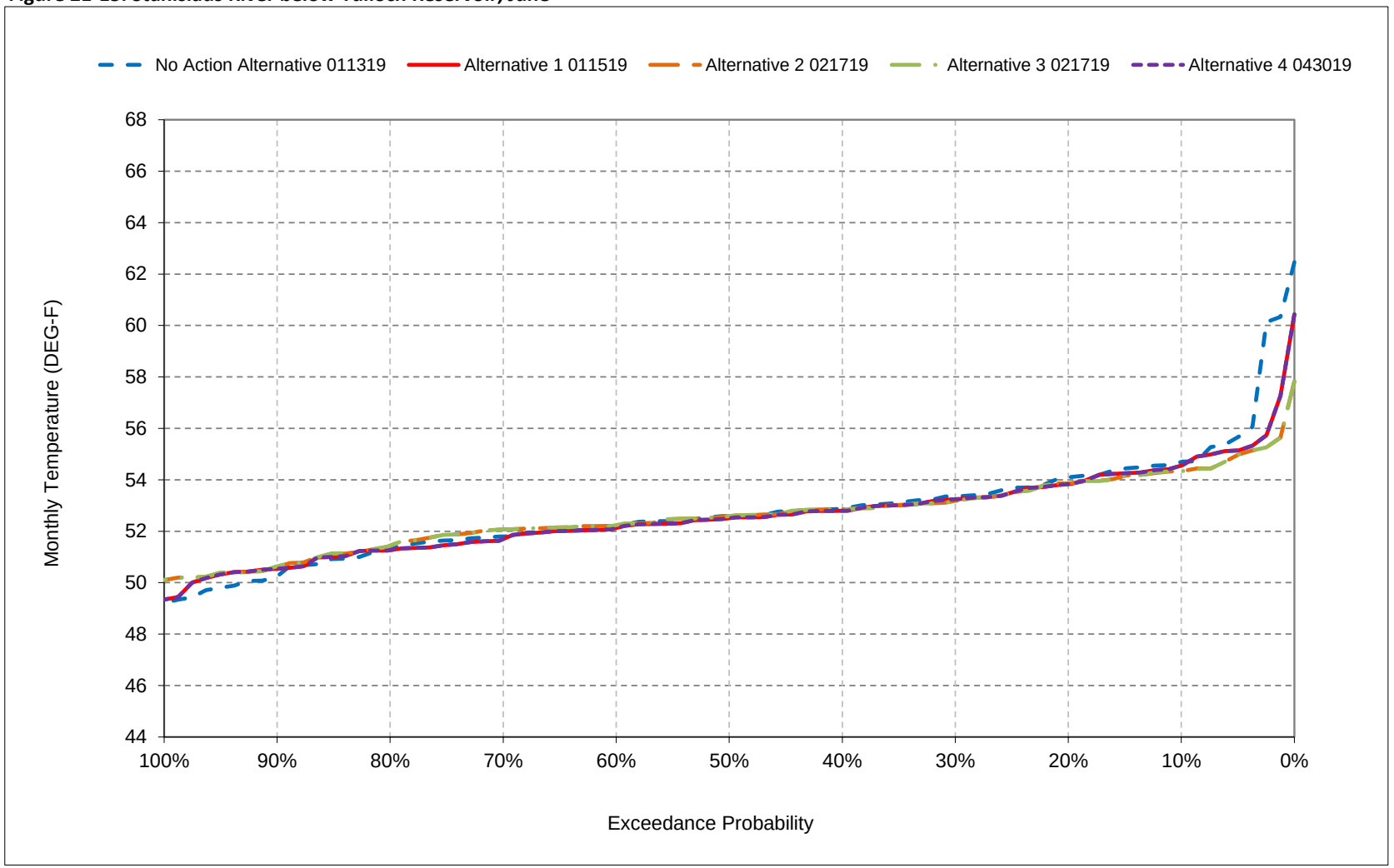


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-15. Stanislaus River below Tulloch Reservoir, June

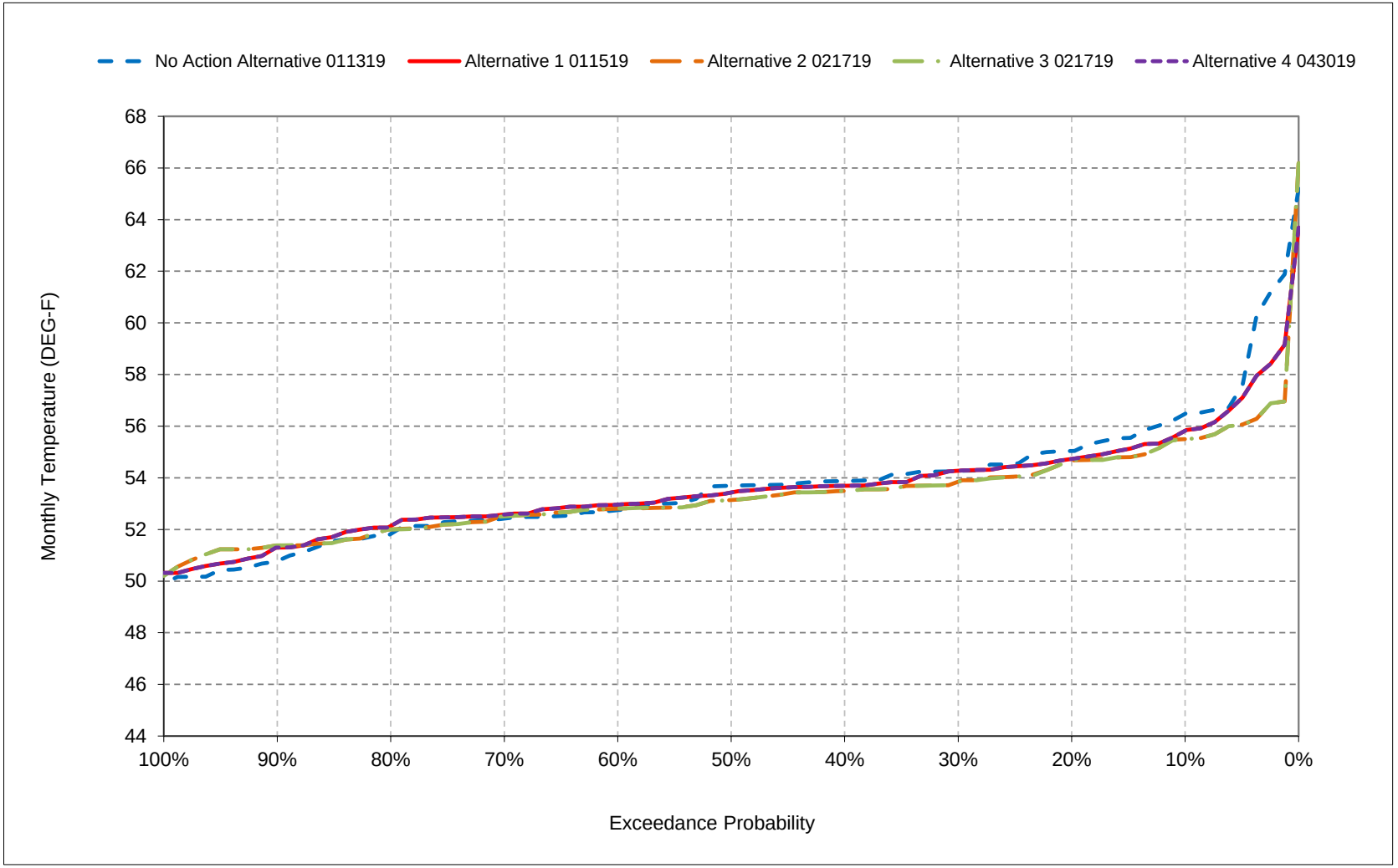


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-16. Stanislaus River below Tulloch Reservoir, July

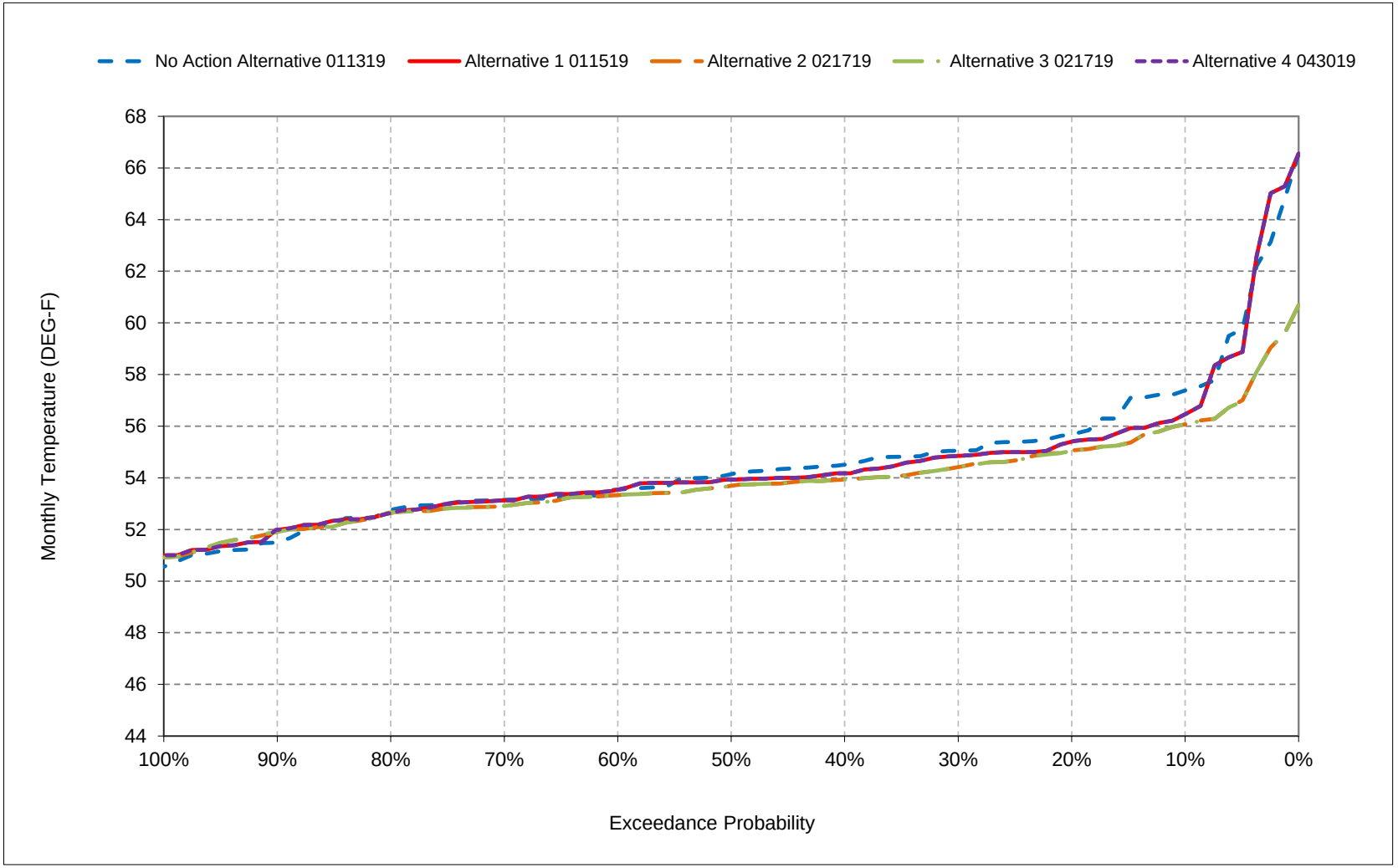


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-17. Stanislaus River below Tulloch Reservoir, August

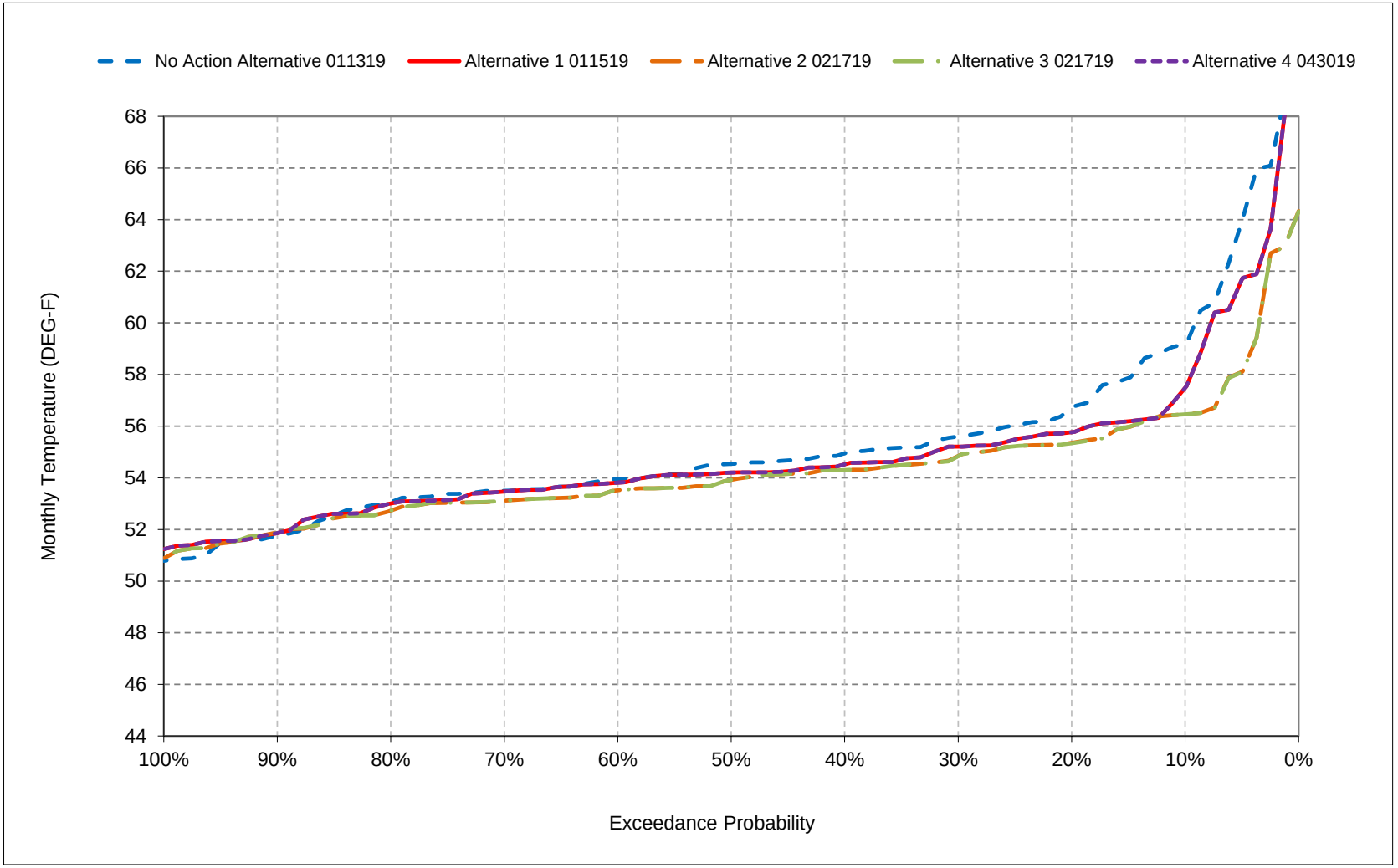


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 21-18. Stanislaus River below Tulloch Reservoir, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Table 22-1. Stanislaus River below Goodwin Dam, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.7	59.2	54.6	51.1	50.8	51.9	53.1	54.1	55.6	57.6	58.3	60.1
20%	58.0	56.5	53.3	50.3	50.2	51.4	52.4	53.6	54.8	55.9	56.5	57.4
30%	56.1	55.5	52.5	49.7	49.5	50.8	52.1	53.0	54.0	55.2	55.8	56.4
40%	55.5	54.8	51.9	49.3	48.9	50.6	51.7	52.8	53.7	54.6	55.2	55.7
50%	55.0	54.2	51.6	48.9	48.8	50.3	51.4	52.6	53.3	54.4	54.8	55.3
60%	54.5	54.0	51.2	48.4	48.4	50.0	51.0	52.1	52.7	53.5	54.2	54.6
70%	54.0	53.5	51.0	48.0	47.9	49.8	50.6	51.8	52.5	53.2	53.9	54.2
80%	53.5	52.9	50.4	47.3	47.4	49.0	50.1	51.5	52.0	52.6	53.3	53.7
90%	52.4	52.1	49.8	46.4	46.7	48.3	49.2	50.6	50.8	51.5	52.2	52.5
Long Term												
Full Simulation Period[a]	56.0	54.9	51.8	48.7	48.7	50.2	51.3	52.5	53.5	54.6	55.3	56.1
Water Year Types[b,c]												
Wet (23%)	52.9	52.4	50.6	47.9	47.7	49.2	50.0	51.3	51.6	52.2	52.8	53.0
Above Normal (24%)	55.2	54.5	51.7	48.4	48.0	49.6	50.6	51.9	52.5	53.5	54.5	55.2
Below Normal (10%)	54.9	54.2	51.5	48.4	48.7	50.0	51.3	52.1	52.9	54.1	54.7	55.1
Dry (16%)	56.7	55.6	52.2	49.2	49.2	50.9	51.9	52.8	53.9	55.1	56.0	56.7
Critical (27%)	59.4	57.3	52.9	49.7	49.9	51.5	52.7	54.3	56.0	57.5	58.2	59.5

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.8	57.1	53.7	50.7	50.6	52.0	53.0	54.3	55.6	57.0	57.5	58.1
20%	56.4	55.7	53.1	50.2	50.1	51.4	52.5	53.5	54.8	55.7	56.3	56.7
30%	55.6	54.7	52.5	49.5	49.4	50.9	52.1	53.1	54.1	55.1	55.5	56.1
40%	55.0	54.3	51.8	49.1	49.1	50.6	51.8	52.9	53.7	54.7	55.0	55.3
50%	54.7	53.9	51.4	48.9	48.8	50.3	51.4	52.6	53.2	54.2	54.7	55.0
60%	54.3	53.7	51.2	48.4	48.4	50.0	51.2	52.2	52.7	53.7	54.3	54.6
70%	53.9	53.3	50.8	48.0	47.9	49.8	50.8	52.0	52.4	53.3	53.8	54.2
80%	53.4	52.8	50.3	47.4	47.5	49.0	50.1	51.5	51.9	53.0	53.3	53.7
90%	52.3	52.2	49.5	46.9	47.0	48.5	49.4	50.8	51.1	51.8	52.5	52.5
Long Term												
Full Simulation Period[a]	55.3	54.4	51.7	48.7	48.8	50.3	51.3	52.5	53.4	54.4	55.2	55.6
Water Year Types[b,c]												
Wet (23%)	53.0	52.6	50.7	47.9	47.9	49.1	50.0	51.4	51.7	52.4	53.0	53.2
Above Normal (24%)	55.4	54.3	51.6	48.5	48.2	49.7	50.6	51.9	52.5	53.8	54.7	55.5
Below Normal (10%)	54.4	53.8	51.3	48.5	48.7	50.1	51.6	52.2	52.9	54.0	54.5	54.7
Dry (16%)	55.6	54.7	51.9	49.0	49.1	50.9	51.9	52.8	53.9	54.8	55.3	55.8
Critical (27%)	57.4	56.3	52.7	49.6	49.8	51.6	52.7	54.0	55.6	56.7	57.8	58.1

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.9	-2.0	-0.9	-0.4	-0.2	**0.1**	-0.1	**0.2**	**0.0**	-0.6	-0.8	-2.0
20%	-1.6	-0.8	-0.2	0.0	-0.1	**0.0**	**0.1**	-0.1	-0.1	-0.1	-0.2	-0.7
30%	-0.5	-0.8	**0.0**	-0.1	-0.1	**0.1**	0.0	**0.0**	**0.1**	0.0	-0.3	-0.3
40%	-0.5	-0.4	-0.1	-0.2	**0.1**	**0.0**	**0.1**	**0.1**	**0.1**	**0.0**	-0.3	-0.4
50%	-0.3	-0.3	-0.1	**0.1**	-0.1	**0.0**	**0.0**	**0.0**	-0.1	-0.2	-0.1	-0.3
60%	-0.2	-0.3	-0.1	**0.0**	0.0	0.0	**0.2**	**0.2**	0.0	**0.2**	**0.0**	0.0
70%	-0.1	-0.1	-0.2	**0.0**	-0.1	**0.0**	**0.2**	**0.1**	-0.1	**0.1**	0.0	0.0
80%	-0.1	-0.1	0.0	**0.1**	**0.1**	-0.1	-0.1	0.0	-0.1	**0.4**	-0.1	0.0
90%	-0.1	**0.1**	-0.2	**0.4**	**0.4**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**	0.0
Long Term												
Full Simulation Period[a]	-0.7	-0.5	-0.2	0.0	**0.1**	**0.0**	**0.0**	0.0	-0.1	-0.1	-0.1	-0.4
Water Year Types[b,c]												
Wet (23%)	**0.2**	**0.2**	**0.1**	0.0	**0.2**	-0.1	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.2**
Above Normal (24%)	**0.2**	-0.2	-0.1	**0.1**	**0.2**	**0.1**	**0.0**	**0.1**	0.0	**0.4**	**0.3**	**0.3**
Below Normal (10%)	-0.4	-0.4	-0.2	**0.0**	0.0	**0.1**	**0.3**	**0.1**	**0.0**	-0.1	-0.2	-0.4
Dry (16%)	-1.1	-0.9	-0.3	-0.2	-0.1	**0.0**	0.0	**0.0**	0.0	-0.3	-0.7	-0.9
Critical (27%)	-2.0	-1.0	-0.3	-0.1	0.0	**0.1**	0.0	-0.3	-0.5	-0.7	-0.4	-1.4

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 22-2. Stanislaus River below Goodwin Dam, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.7	59.2	54.6	51.1	50.8	51.9	53.1	54.1	55.6	57.6	58.3	60.1
20%	58.0	56.5	53.3	50.3	50.2	51.4	52.4	53.6	54.8	55.9	56.5	57.4
30%	56.1	55.5	52.5	49.7	49.5	50.8	52.1	53.0	54.0	55.2	55.8	56.4
40%	55.5	54.8	51.9	49.3	48.9	50.6	51.7	52.8	53.7	54.6	55.2	55.7
50%	55.0	54.2	51.6	48.9	48.8	50.3	51.4	52.6	53.3	54.4	54.8	55.3
60%	54.5	54.0	51.2	48.4	48.4	50.0	51.0	52.1	52.7	53.5	54.2	54.6
70%	54.0	53.5	51.0	48.0	47.9	49.8	50.6	51.8	52.5	53.2	53.9	54.2
80%	53.5	52.9	50.4	47.3	47.4	49.0	50.1	51.5	52.0	52.6	53.3	53.7
90%	52.4	52.1	49.8	46.4	46.7	48.3	49.2	50.6	50.8	51.5	52.2	52.5
Long Term												
Full Simulation Period[a]	56.0	54.9	51.8	48.7	48.7	50.2	51.3	52.5	53.5	54.6	55.3	56.1
Water Year Types[b,c]												
Wet (23%)	52.9	52.4	50.6	47.9	47.7	49.2	50.0	51.3	51.6	52.2	52.8	53.0
Above Normal (24%)	55.2	54.5	51.7	48.4	48.0	49.6	50.6	51.9	52.5	53.5	54.5	55.2
Below Normal (10%)	54.9	54.2	51.5	48.4	48.7	50.0	51.3	52.1	52.9	54.1	54.7	55.1
Dry (16%)	56.7	55.6	52.2	49.2	49.2	50.9	51.9	52.8	53.9	55.1	56.0	56.7
Critical (27%)	59.4	57.3	52.9	49.7	49.9	51.5	52.7	54.3	56.0	57.5	58.2	59.5

Alternative 2 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.0	56.7	53.8	50.9	50.7	52.2	53.2	54.0	55.2	56.4	57.0	57.3
20%	56.7	55.7	53.2	50.0	50.2	51.5	52.5	53.4	54.6	55.4	55.8	56.1
30%	56.0	54.7	52.6	49.7	49.5	51.0	52.1	53.1	53.9	54.6	55.1	55.6
40%	55.3	54.2	51.7	49.1	49.2	50.7	51.8	52.7	53.6	54.2	54.6	54.9
50%	54.9	53.8	51.4	49.0	49.0	50.5	51.5	52.5	53.2	53.8	54.4	54.7
60%	54.6	53.6	51.2	48.6	48.6	50.2	51.3	52.1	52.9	53.6	54.0	54.2
70%	54.1	53.1	50.9	48.2	48.2	50.0	50.9	51.9	52.7	53.2	53.6	53.8
80%	53.5	52.8	50.5	47.9	47.8	49.2	50.5	51.6	52.1	52.8	53.2	53.4
90%	52.5	52.0	49.7	46.9	47.1	48.7	49.8	50.8	51.3	52.0	52.6	52.4
Long Term												
Full Simulation Period[a]	55.4	54.4	51.8	48.8	48.9	50.5	51.5	52.5	53.3	54.1	54.6	55.0
Water Year Types[b,c]												
Wet (23%)	53.1	52.5	50.8	48.0	48.3	49.4	50.3	51.5	51.9	52.6	52.9	52.9
Above Normal (24%)	54.8	53.8	51.4	48.8	48.5	50.0	50.9	51.8	52.6	53.1	53.8	54.3
Below Normal (10%)	54.7	53.8	51.4	48.5	48.7	50.2	51.4	52.2	53.0	53.8	54.2	54.4
Dry (16%)	55.5	54.5	51.8	49.0	49.2	51.0	52.0	52.8	53.8	54.5	54.9	55.3
Critical (27%)	58.0	56.8	53.2	49.6	49.9	51.6	52.7	53.8	55.1	56.4	56.7	57.5

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-2.7	-2.5	-0.8	-0.2	-0.1	**0.2**	**0.1**	-0.1	-0.4	-1.1	-1.4	-2.9
20%	-1.3	-0.8	-0.1	-0.3	**0.0**	**0.1**	**0.1**	-0.2	-0.2	-0.5	-0.7	-1.3
30%	-0.1	-0.8	**0.1**	**0.0**	**0.1**	**0.1**	0.0	**0.1**	-0.1	-0.5	-0.7	-0.8
40%	-0.2	-0.6	-0.2	-0.2	**0.3**	**0.1**	**0.1**	-0.1	-0.1	-0.4	-0.6	-0.8
50%	-0.1	-0.4	-0.1	**0.1**	**0.2**	**0.2**	**0.1**	0.0	0.0	-0.6	-0.4	-0.6
60%	**0.1**	-0.4	**0.0**	**0.2**	**0.2**	**0.2**	**0.3**	**0.0**	**0.1**	**0.1**	-0.2	-0.4
70%	**0.0**	-0.4	-0.1	**0.2**	**0.3**	**0.2**	**0.4**	**0.1**	**0.2**	**0.0**	-0.2	-0.4
80%	0.0	0.0	**0.2**	**0.5**	**0.4**	**0.2**	**0.4**	**0.1**	**0.1**	**0.2**	-0.1	-0.3
90%	**0.1**	-0.1	-0.1	**0.5**	**0.4**	**0.3**	**0.6**	**0.2**	**0.5**	**0.5**	**0.4**	-0.1
Long Term												
Full Simulation Period[a]	-0.6	-0.5	-0.1	**0.1**	**0.2**	**0.2**	**0.2**	-0.1	-0.2	-0.4	-0.7	-1.1
Water Year Types[b,c]												
Wet (23%)	**0.2**	**0.1**	**0.1**	**0.1**	**0.6**	**0.2**	**0.4**	**0.2**	**0.3**	**0.3**	**0.1**	-0.1
Above Normal (24%)	-0.4	-0.7	-0.3	**0.5**	**0.4**	**0.4**	**0.3**	0.0	**0.0**	-0.3	-0.6	-0.9
Below Normal (10%)	-0.2	-0.4	-0.2	**0.1**	**0.0**	**0.1**	**0.0**	**0.1**	**0.2**	-0.3	-0.5	-0.7
Dry (16%)	-1.2	-1.1	-0.4	-0.1	-0.1	**0.1**	**0.1**	**0.1**	-0.1	-0.6	-1.0	-1.4
Critical (27%)	-1.4	-0.5	**0.2**	-0.1	**0.0**	**0.1**	0.0	-0.5	-1.0	-1.1	-1.5	-2.0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 22-3. Stanislaus River below Goodwin Dam, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.7	59.2	54.6	51.1	50.8	51.9	53.1	54.1	55.6	57.6	58.3	60.1
20%	58.0	56.5	53.3	50.3	50.2	51.4	52.4	53.6	54.8	55.9	56.5	57.4
30%	56.1	55.5	52.5	49.7	49.5	50.8	52.1	53.0	54.0	55.2	55.8	56.4
40%	55.5	54.8	51.9	49.3	48.9	50.6	51.7	52.8	53.7	54.6	55.2	55.7
50%	55.0	54.2	51.6	48.9	48.8	50.3	51.4	52.6	53.3	54.4	54.8	55.3
60%	54.5	54.0	51.2	48.4	48.4	50.0	51.0	52.1	52.7	53.5	54.2	54.6
70%	54.0	53.5	51.0	48.0	47.9	49.8	50.6	51.8	52.5	53.2	53.9	54.2
80%	53.5	52.9	50.4	47.3	47.4	49.0	50.1	51.5	52.0	52.6	53.3	53.7
90%	52.4	52.1	49.8	46.4	46.7	48.3	49.2	50.6	50.8	51.5	52.2	52.5
Long Term												
Full Simulation Period[a]	56.0	54.9	51.8	48.7	48.7	50.2	51.3	52.5	53.5	54.6	55.3	56.1
Water Year Types[b,c]												
Wet (23%)	52.9	52.4	50.6	47.9	47.7	49.2	50.0	51.3	51.6	52.2	52.8	53.0
Above Normal (24%)	55.2	54.5	51.7	48.4	48.0	49.6	50.6	51.9	52.5	53.5	54.5	55.2
Below Normal (10%)	54.9	54.2	51.5	48.4	48.7	50.0	51.3	52.1	52.9	54.1	54.7	55.1
Dry (16%)	56.7	55.6	52.2	49.2	49.2	50.9	51.9	52.8	53.9	55.1	56.0	56.7
Critical (27%)	59.4	57.3	52.9	49.7	49.9	51.5	52.7	54.3	56.0	57.5	58.2	59.5

Alternative 3 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.0	56.7	53.8	50.9	50.7	52.2	53.2	54.0	55.2	56.4	56.9	57.3
20%	56.7	55.7	53.2	50.0	50.2	51.5	52.5	53.4	54.6	55.4	55.8	56.1
30%	56.0	54.7	52.6	49.7	49.5	51.0	52.1	53.1	53.9	54.6	55.1	55.6
40%	55.3	54.2	51.7	49.1	49.2	50.7	51.8	52.7	53.6	54.2	54.6	54.9
50%	54.9	53.8	51.4	49.0	49.0	50.5	51.5	52.5	53.2	53.8	54.4	54.7
60%	54.6	53.6	51.2	48.6	48.6	50.2	51.3	52.1	52.9	53.6	54.0	54.2
70%	54.1	53.1	50.9	48.2	48.2	49.9	50.9	51.9	52.7	53.2	53.6	53.8
80%	53.5	52.9	50.5	47.9	47.8	49.2	50.5	51.6	52.1	52.8	53.2	53.4
90%	52.5	52.0	49.7	46.9	47.1	48.7	49.8	50.8	51.3	52.0	52.6	52.4
Long Term												
Full Simulation Period[a]	55.4	54.4	51.8	48.8	48.9	50.5	51.5	52.5	53.3	54.1	54.6	55.0
Water Year Types[b,c]												
Wet (23%)	53.1	52.5	50.8	48.0	48.3	49.4	50.4	51.5	51.9	52.6	52.9	52.9
Above Normal (24%)	54.8	53.8	51.4	48.8	48.5	50.0	50.9	51.8	52.6	53.1	53.8	54.3
Below Normal (10%)	54.7	53.8	51.4	48.5	48.7	50.2	51.4	52.2	53.0	53.8	54.2	54.4
Dry (16%)	55.5	54.5	51.8	49.0	49.2	51.0	52.0	52.8	53.8	54.5	54.9	55.3
Critical (27%)	58.0	56.8	53.2	49.6	49.9	51.6	52.7	53.8	55.1	56.4	56.7	57.5

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-2.7	-2.5	-0.8	-0.2	-0.1	**0.2**	**0.1**	-0.1	-0.4	-1.1	-1.4	-2.9
20%	-1.3	-0.8	-0.1	-0.3	**0.0**	**0.1**	**0.1**	-0.2	-0.2	-0.5	-0.7	-1.3
30%	-0.1	-0.8	**0.1**	**0.0**	**0.1**	**0.1**	0.0	**0.1**	-0.1	-0.5	-0.7	-0.8
40%	-0.2	-0.6	-0.2	-0.2	**0.3**	**0.1**	**0.1**	-0.1	-0.1	-0.4	-0.6	-0.8
50%	-0.1	-0.4	-0.1	**0.1**	**0.2**	**0.2**	**0.1**	0.0	-0.1	-0.6	-0.4	-0.6
60%	**0.1**	-0.4	**0.0**	**0.2**	**0.2**	**0.2**	**0.3**	**0.0**	**0.1**	**0.1**	-0.2	-0.4
70%	**0.1**	-0.4	-0.1	**0.2**	**0.3**	**0.2**	**0.4**	**0.1**	**0.2**	**0.0**	-0.2	-0.4
80%	0.0	0.0	**0.2**	**0.5**	**0.4**	**0.2**	**0.4**	**0.1**	**0.1**	**0.2**	-0.1	-0.3
90%	**0.1**	-0.1	-0.1	**0.5**	**0.4**	**0.3**	**0.6**	**0.2**	**0.5**	**0.5**	**0.4**	-0.1
Long Term												
Full Simulation Period[a]	-0.6	-0.5	-0.1	**0.1**	**0.2**	**0.2**	**0.2**	-0.1	-0.2	-0.4	-0.7	-1.1
Water Year Types[b,c]												
Wet (23%)	**0.2**	**0.1**	**0.1**	**0.1**	**0.6**	**0.2**	**0.4**	**0.2**	**0.4**	**0.3**	**0.1**	-0.1
Above Normal (24%)	-0.4	-0.7	-0.3	**0.5**	**0.4**	**0.4**	**0.3**	0.0	**0.0**	-0.4	-0.6	-0.9
Below Normal (10%)	-0.2	-0.4	-0.2	**0.1**	**0.0**	**0.1**	**0.0**	**0.1**	**0.2**	-0.3	-0.5	-0.7
Dry (16%)	-1.2	-1.1	-0.4	-0.1	-0.1	**0.1**	**0.1**	**0.1**	-0.1	-0.6	-1.0	-1.4
Critical (27%)	-1.4	-0.5	**0.2**	-0.1	**0.0**	**0.1**	0.0	-0.5	-1.0	-1.1	-1.5	-2.0

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 22-4. Stanislaus River below Goodwin Dam, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.7	59.2	54.6	51.1	50.8	51.9	53.1	54.1	55.6	57.6	58.3	60.1
20%	58.0	56.5	53.3	50.3	50.2	51.4	52.4	53.6	54.8	55.9	56.5	57.4
30%	56.1	55.5	52.5	49.7	49.5	50.8	52.1	53.0	54.0	55.2	55.8	56.4
40%	55.5	54.8	51.9	49.3	48.9	50.6	51.7	52.8	53.7	54.6	55.2	55.7
50%	55.0	54.2	51.6	48.9	48.8	50.3	51.4	52.6	53.3	54.4	54.8	55.3
60%	54.5	54.0	51.2	48.4	48.4	50.0	51.0	52.1	52.7	53.5	54.2	54.6
70%	54.0	53.5	51.0	48.0	47.9	49.8	50.6	51.8	52.5	53.2	53.9	54.2
80%	53.5	52.9	50.4	47.3	47.4	49.0	50.1	51.5	52.0	52.6	53.3	53.7
90%	52.4	52.1	49.8	46.4	46.7	48.3	49.2	50.6	50.8	51.5	52.2	52.5
Long Term												
Full Simulation Period[a]	56.0	54.9	51.8	48.7	48.7	50.2	51.3	52.5	53.5	54.6	55.3	56.1
Water Year Types[b,c]												
Wet (23%)	52.9	52.4	50.6	47.9	47.7	49.2	50.0	51.3	51.6	52.2	52.8	53.0
Above Normal (24%)	55.2	54.5	51.7	48.4	48.0	49.6	50.6	51.9	52.5	53.5	54.5	55.2
Below Normal (10%)	54.9	54.2	51.5	48.4	48.7	50.0	51.3	52.1	52.9	54.1	54.7	55.1
Dry (16%)	56.7	55.6	52.2	49.2	49.2	50.9	51.9	52.8	53.9	55.1	56.0	56.7
Critical (27%)	59.4	57.3	52.9	49.7	49.9	51.5	52.7	54.3	56.0	57.5	58.2	59.5

Alternative 4 043019

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.8	57.1	53.7	50.7	50.6	52.0	53.0	54.3	55.6	57.0	57.5	58.1
20%	56.4	55.7	53.1	50.2	50.1	51.4	52.5	53.5	54.8	55.7	56.3	56.7
30%	55.6	54.7	52.5	49.5	49.4	50.9	52.1	53.1	54.1	55.1	55.5	56.1
40%	55.0	54.3	51.8	49.1	49.1	50.6	51.8	52.9	53.7	54.7	55.0	55.3
50%	54.7	53.9	51.4	48.9	48.8	50.3	51.4	52.6	53.2	54.2	54.7	55.0
60%	54.3	53.7	51.2	48.4	48.4	50.0	51.2	52.2	52.7	53.7	54.3	54.6
70%	53.9	53.3	50.8	48.0	47.9	49.8	50.8	52.0	52.4	53.3	53.8	54.2
80%	53.4	52.8	50.3	47.4	47.5	49.0	50.1	51.5	51.9	53.0	53.3	53.7
90%	52.3	52.2	49.5	46.9	47.0	48.5	49.4	50.8	51.1	51.8	52.5	52.5
Long Term												
Full Simulation Period[a]	55.3	54.4	51.7	48.7	48.8	50.3	51.3	52.5	53.4	54.4	55.2	55.6
Water Year Types[b,c]												
Wet (23%)	53.0	52.6	50.7	47.9	47.9	49.1	50.0	51.4	51.7	52.4	53.0	53.2
Above Normal (24%)	55.4	54.3	51.6	48.5	48.2	49.7	50.6	51.9	52.5	53.8	54.7	55.5
Below Normal (10%)	54.4	53.8	51.3	48.5	48.7	50.1	51.6	52.2	52.9	54.0	54.5	54.7
Dry (16%)	55.6	54.7	51.9	49.0	49.1	50.9	51.9	52.8	53.9	54.8	55.3	55.8
Critical (27%)	57.4	56.3	52.7	49.6	49.8	51.6	52.7	54.0	55.6	56.7	57.8	58.1

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.9	-2.0	-0.9	-0.4	-0.2	**0.1**	-0.1	**0.2**	**0.0**	-0.6	-0.8	-2.0
20%	-1.6	-0.8	-0.2	0.0	-0.1	**0.0**	**0.1**	-0.1	-0.1	-0.1	-0.2	-0.7
30%	-0.5	-0.8	**0.0**	-0.1	-0.1	**0.1**	0.0	**0.0**	**0.1**	0.0	-0.3	-0.3
40%	-0.5	-0.4	-0.1	-0.2	**0.1**	**0.0**	**0.1**	**0.1**	**0.1**	**0.0**	-0.3	-0.4
50%	-0.3	-0.3	-0.1	**0.1**	-0.1	**0.0**	**0.0**	**0.0**	-0.1	-0.2	-0.1	-0.3
60%	-0.2	-0.3	-0.1	**0.0**	0.0	0.0	**0.2**	**0.2**	0.0	**0.2**	**0.0**	0.0
70%	-0.1	-0.1	-0.2	**0.0**	-0.1	**0.0**	**0.2**	**0.1**	-0.1	**0.1**	0.0	0.0
80%	-0.1	-0.1	0.0	**0.1**	**0.1**	-0.1	-0.1	0.0	-0.1	**0.4**	-0.1	0.0
90%	-0.1	**0.1**	-0.2	**0.4**	**0.4**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**	0.0
Long Term												
Full Simulation Period[a]	-0.7	-0.5	-0.2	0.0	**0.1**	**0.0**	**0.0**	0.0	-0.1	-0.1	-0.1	-0.4
Water Year Types[b,c]												
Wet (23%)	**0.2**	**0.2**	**0.1**	0.0	**0.2**	-0.1	**0.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.2**
Above Normal (24%)	**0.2**	-0.2	-0.1	**0.1**	**0.2**	**0.1**	**0.0**	**0.1**	0.0	**0.4**	**0.3**	**0.3**
Below Normal (10%)	-0.4	-0.4	-0.2	**0.0**	0.0	**0.1**	**0.3**	**0.1**	**0.0**	-0.1	-0.2	-0.4
Dry (16%)	-1.1	-0.9	-0.3	-0.2	-0.1	**0.0**	0.0	**0.0**	0.0	-0.3	-0.7	-0.9
Critical (27%)	-2.0	-1.0	-0.3	-0.1	0.0	**0.1**	0.0	-0.3	-0.5	-0.7	-0.4	-1.4

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

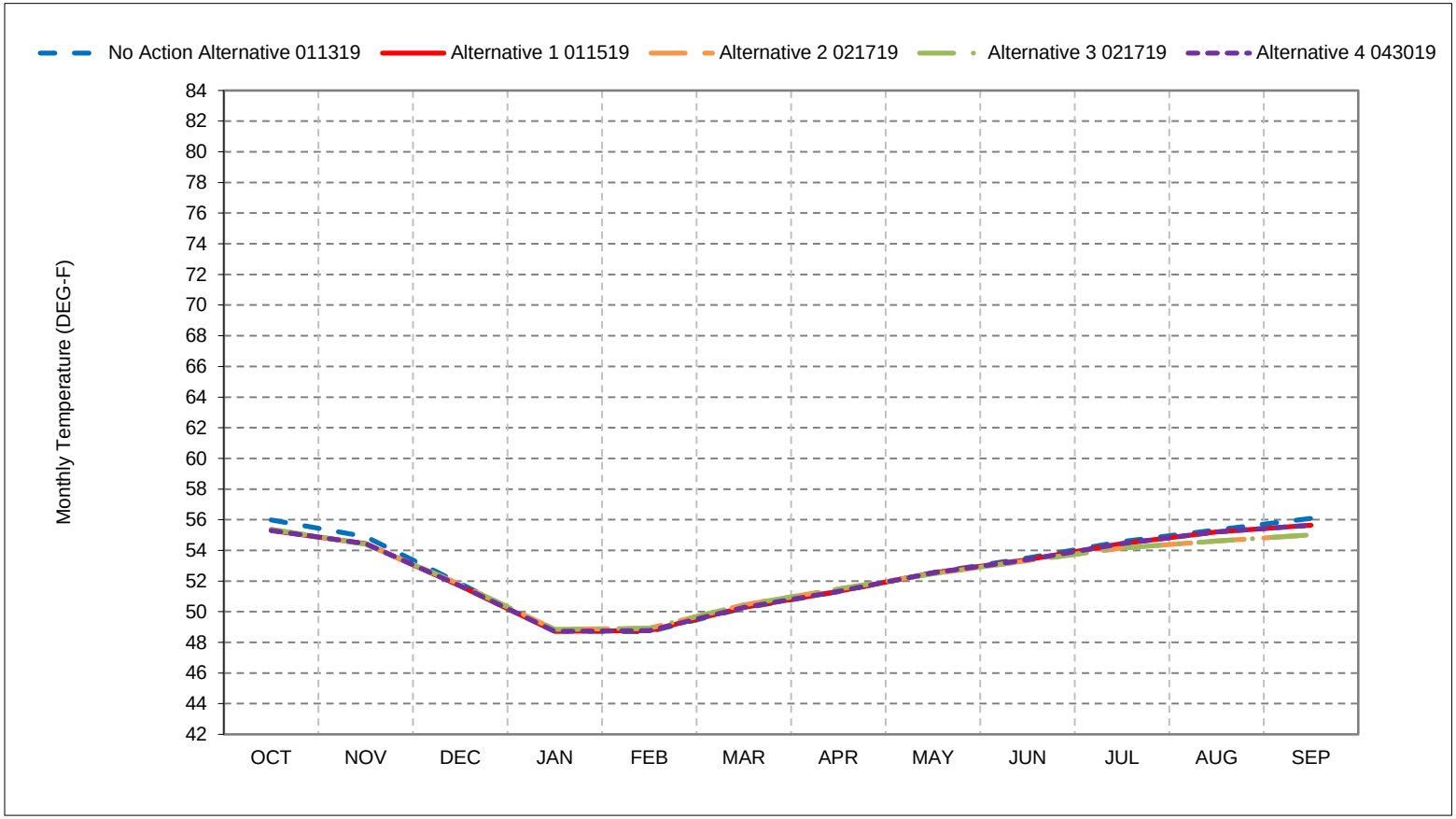
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

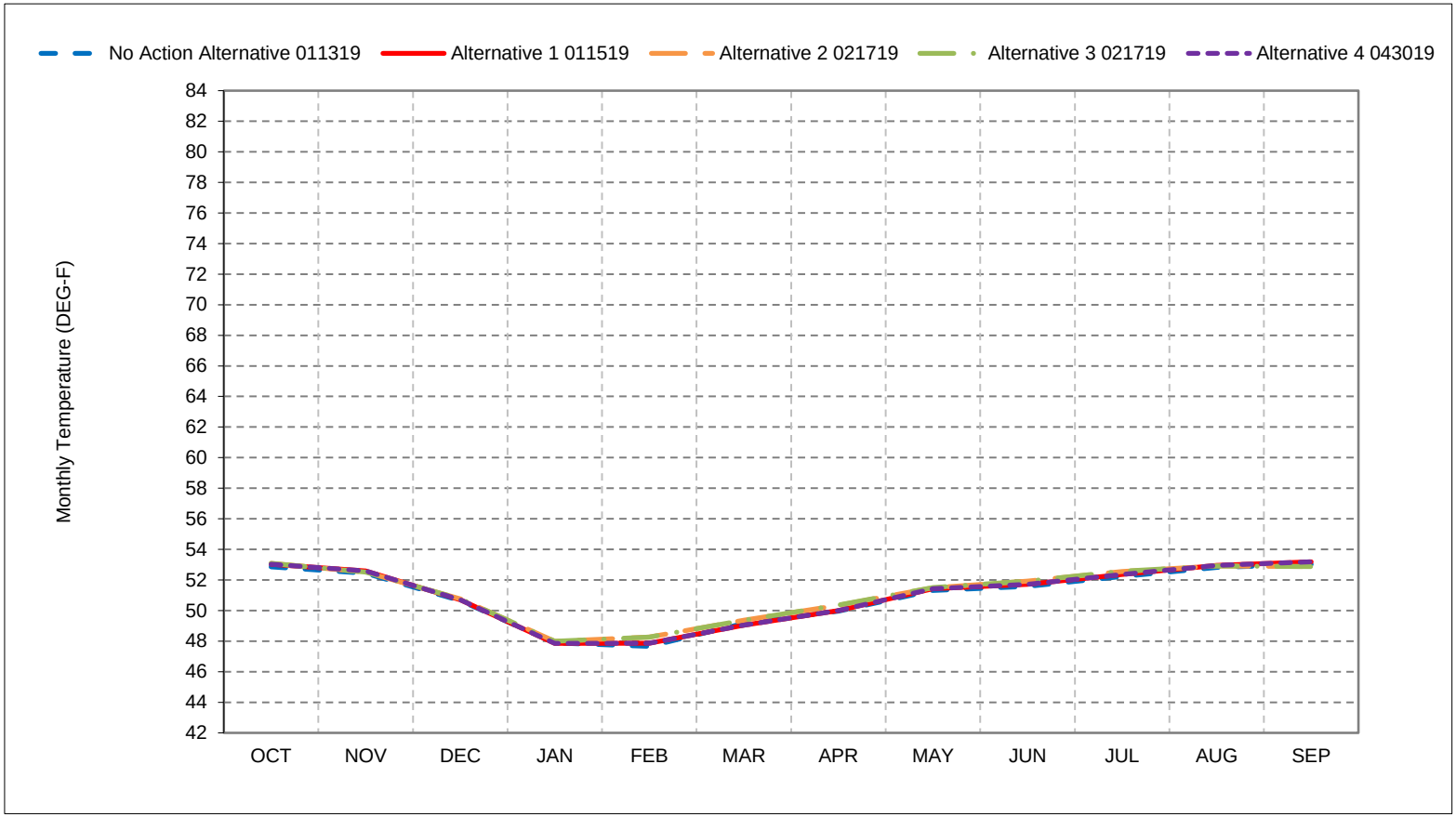
f New Melones forecasts are used as the basis of water operations.

Figure 22-1. Stanislaus River below Goodwin Dam, Long-Term Average Temperature



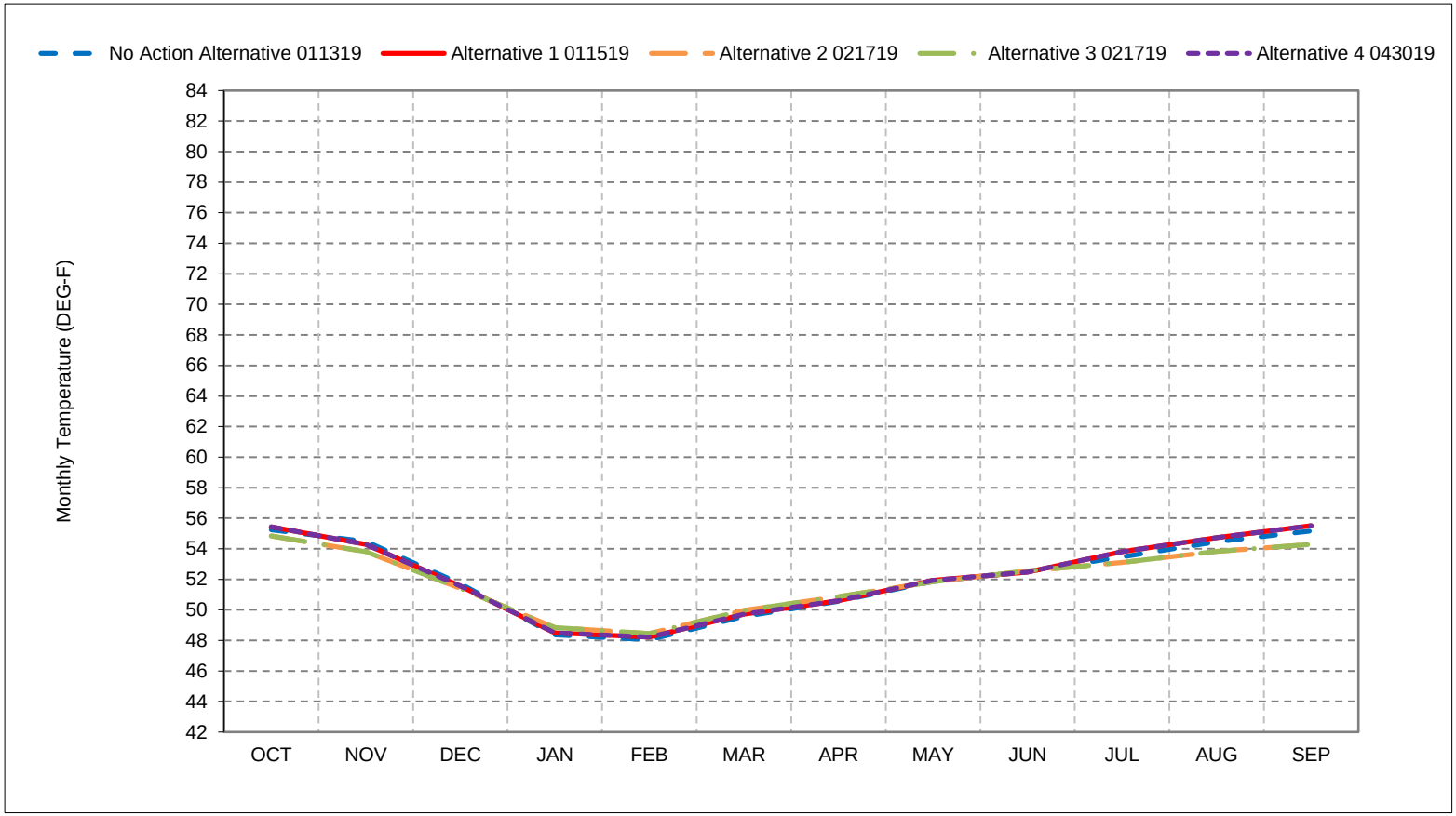
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 22-2. Stanislaus River below Goodwin Dam, Wet Year Average Temperature



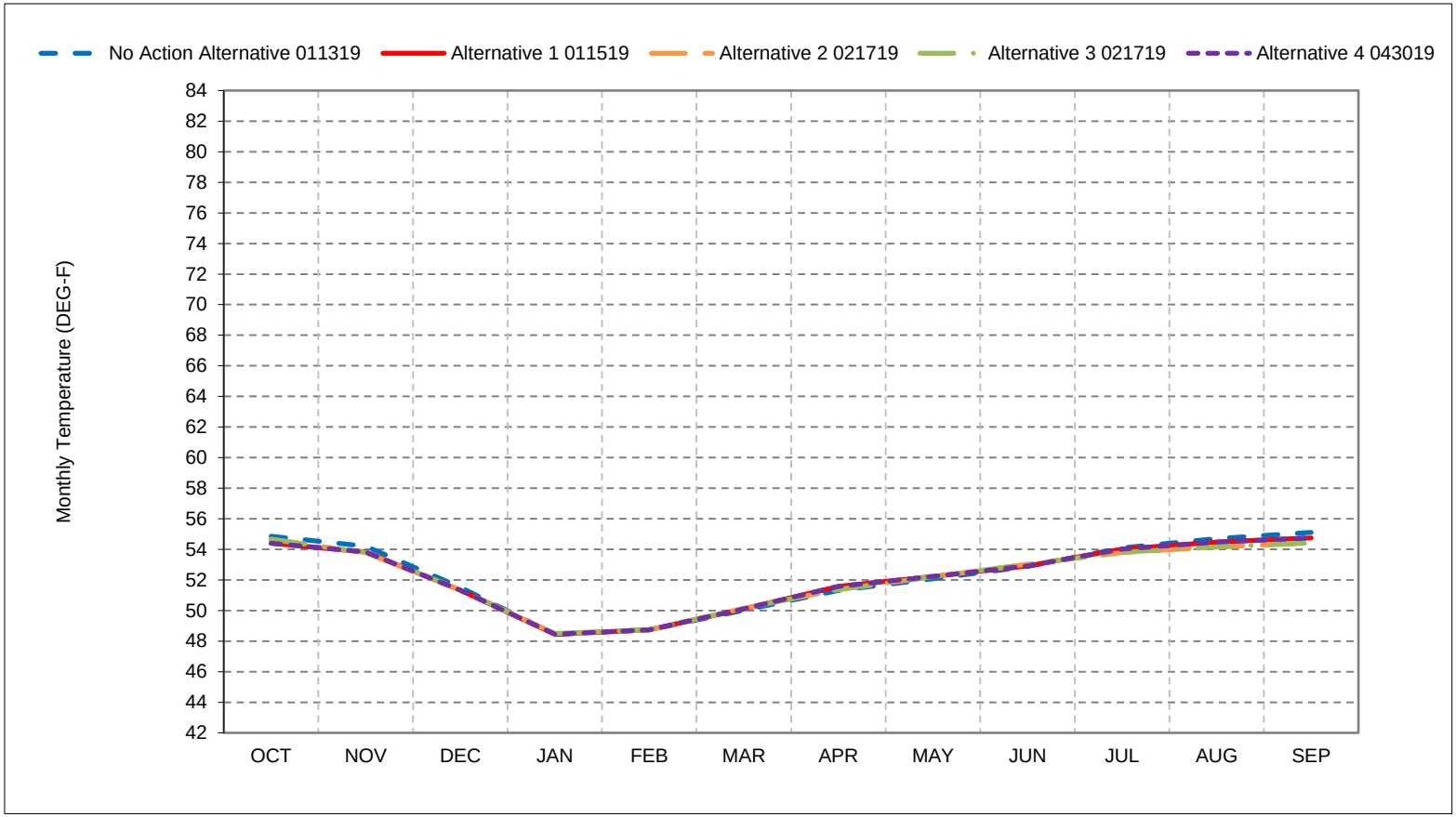
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 22-3. Stanislaus River below Goodwin Dam, Above Normal Year Average Temperature



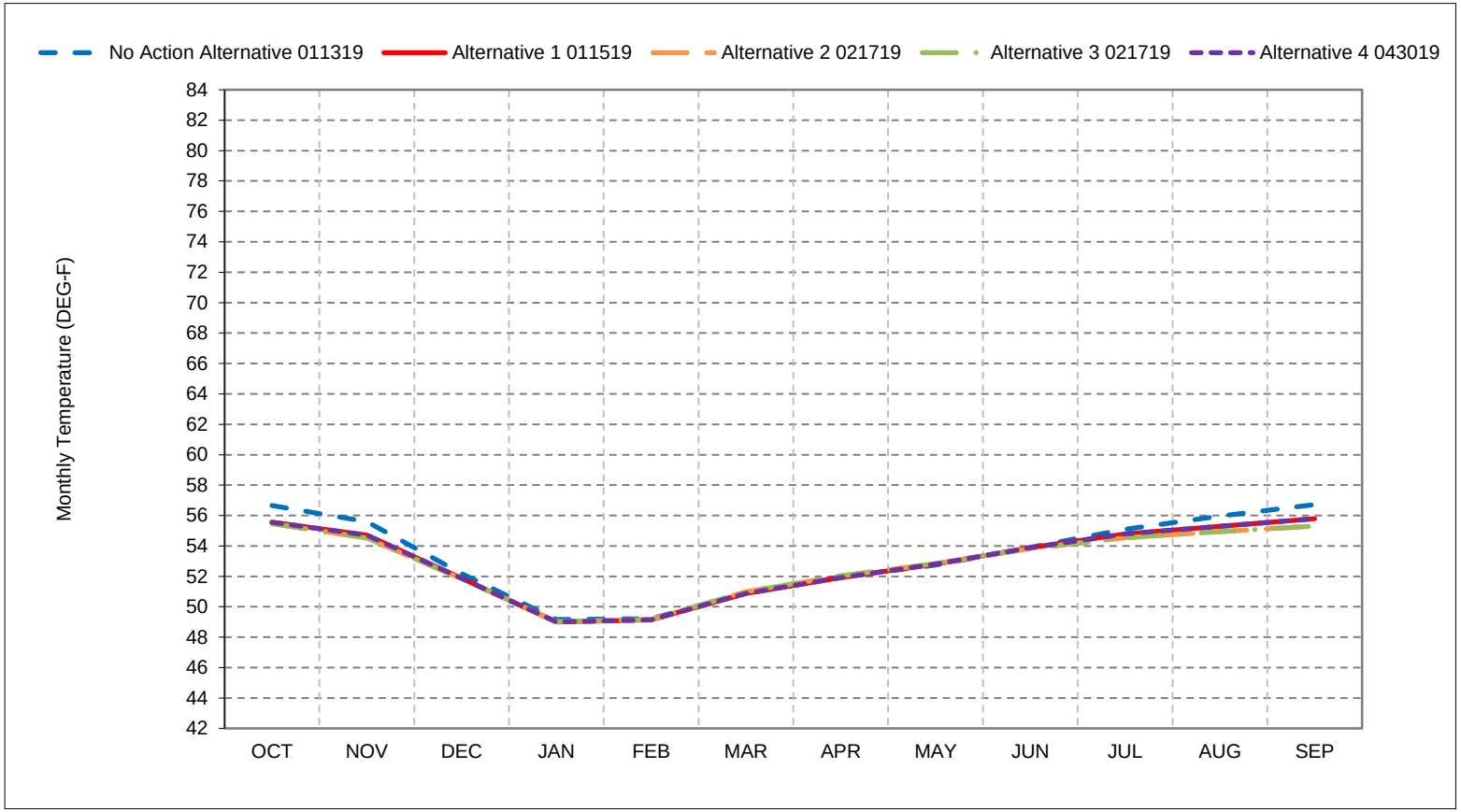
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 22-4. Stanislaus River below Goodwin Dam, Below Normal Year Average Temperature



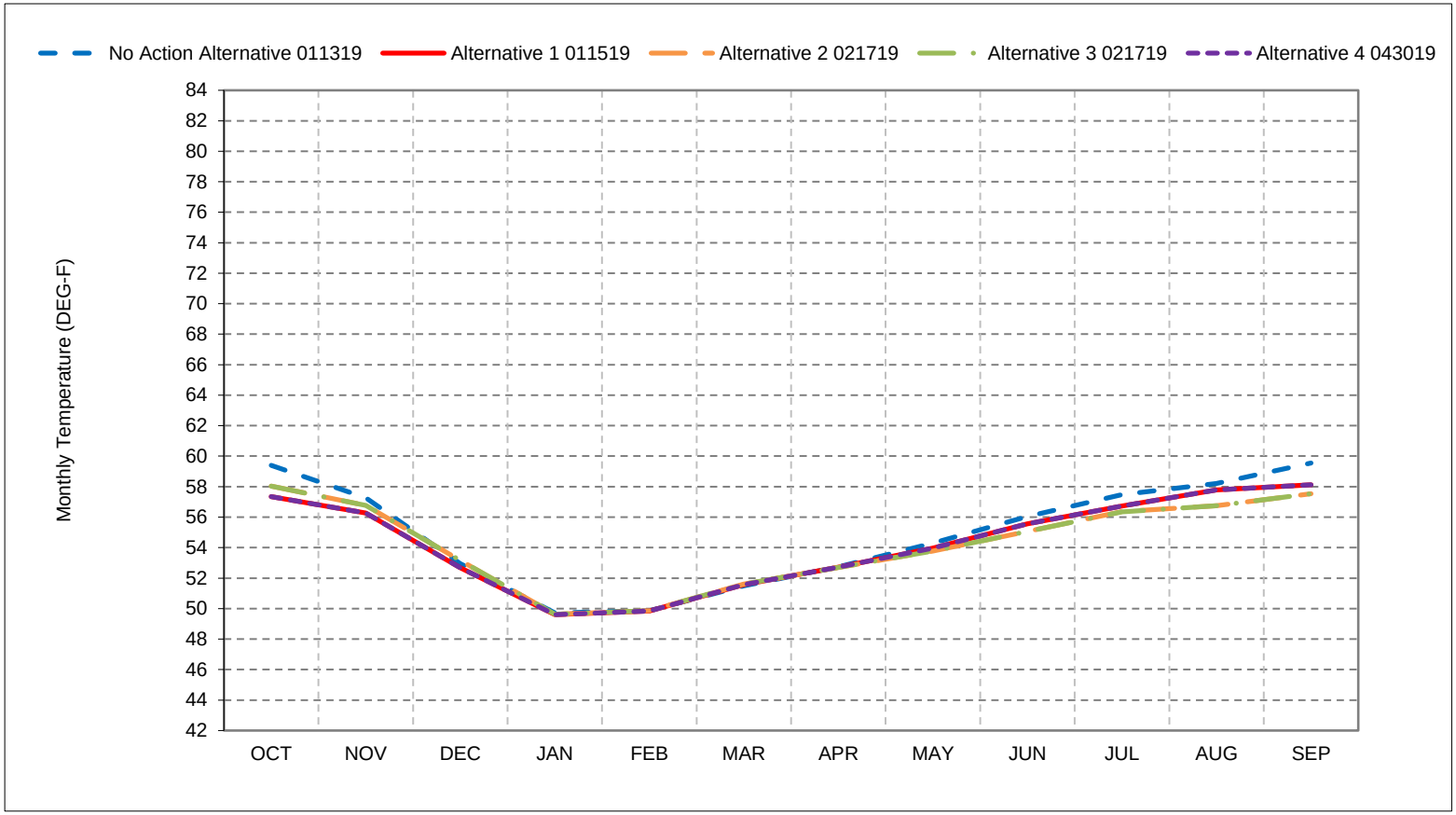
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 22-5. Stanislaus River below Goodwin Dam, Dry Year Average Temperature



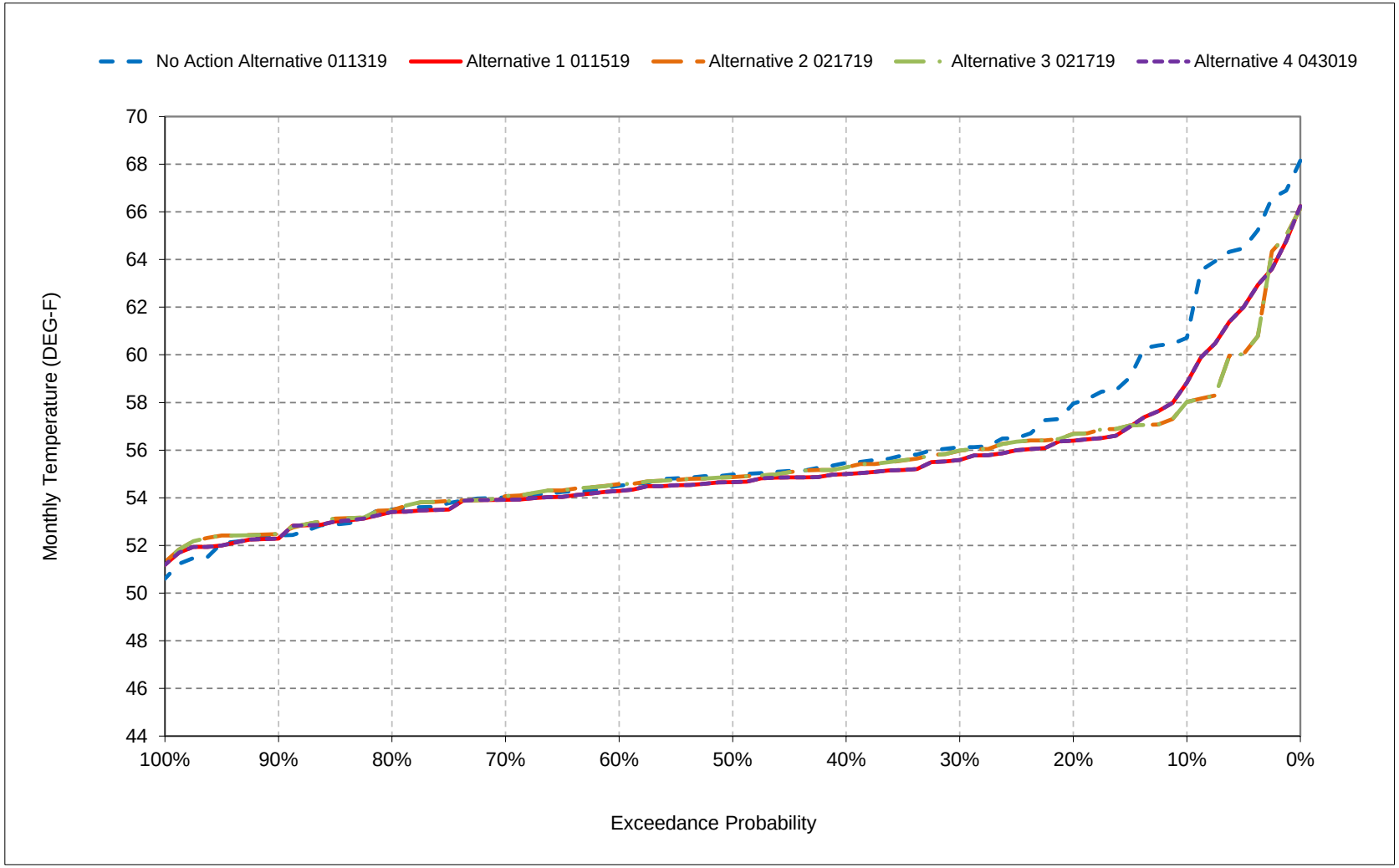
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 22-6. Stanislaus River below Goodwin Dam, Critical Year Average Temperature



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 22-7. Stanislaus River below Goodwin Dam, October

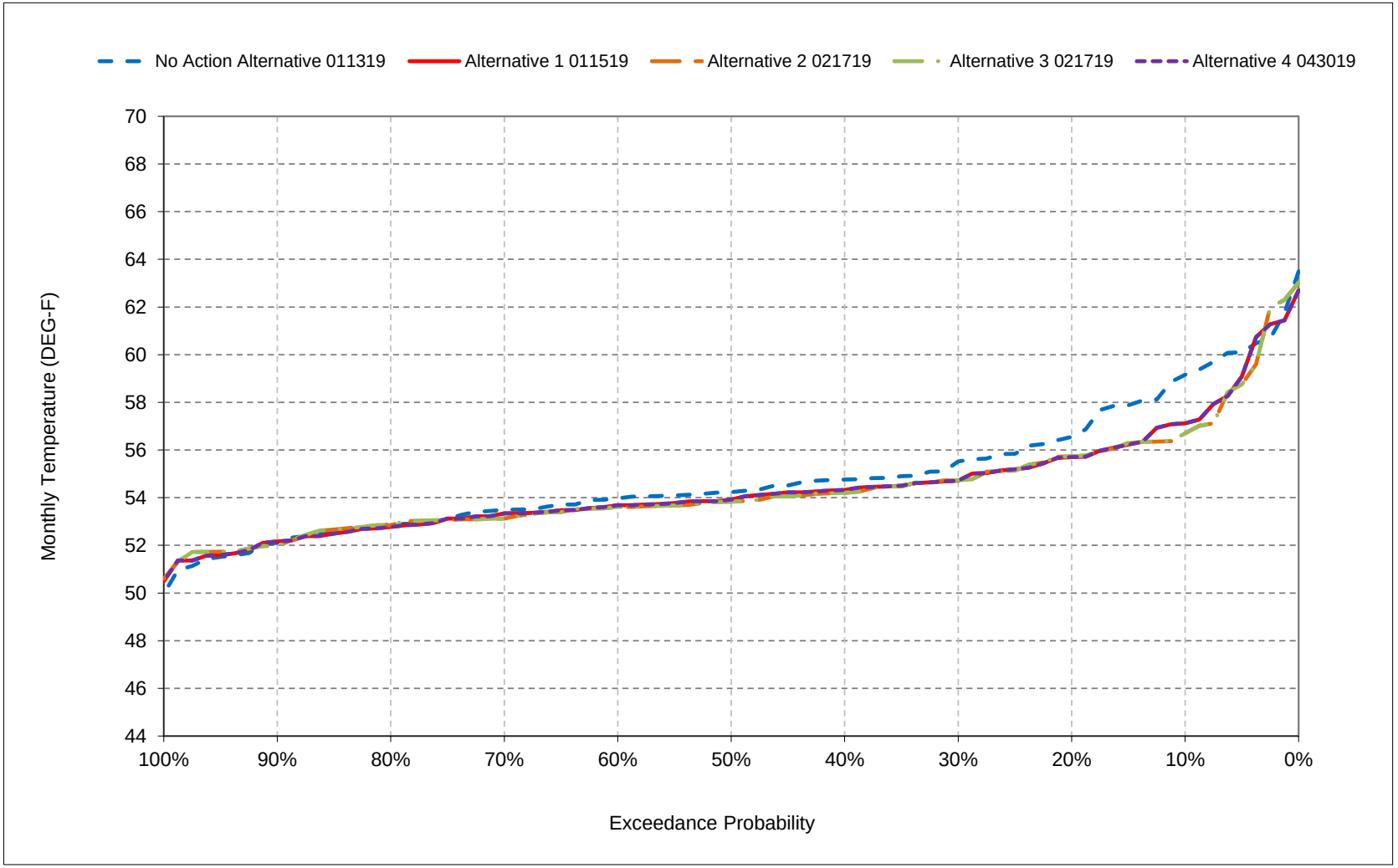


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-8. Stanislaus River below Goodwin Dam, November

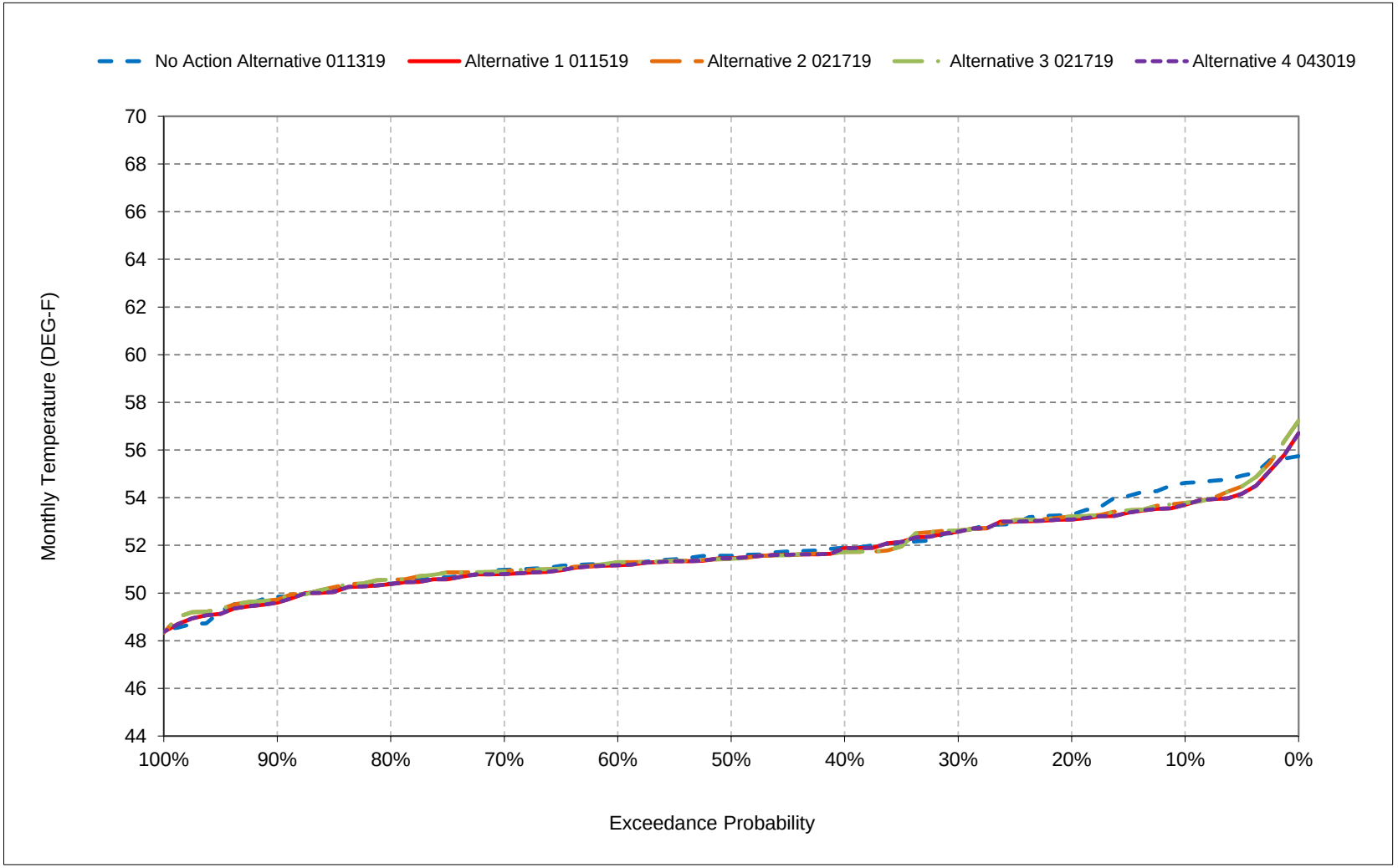


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-9. Stanislaus River below Goodwin Dam, December

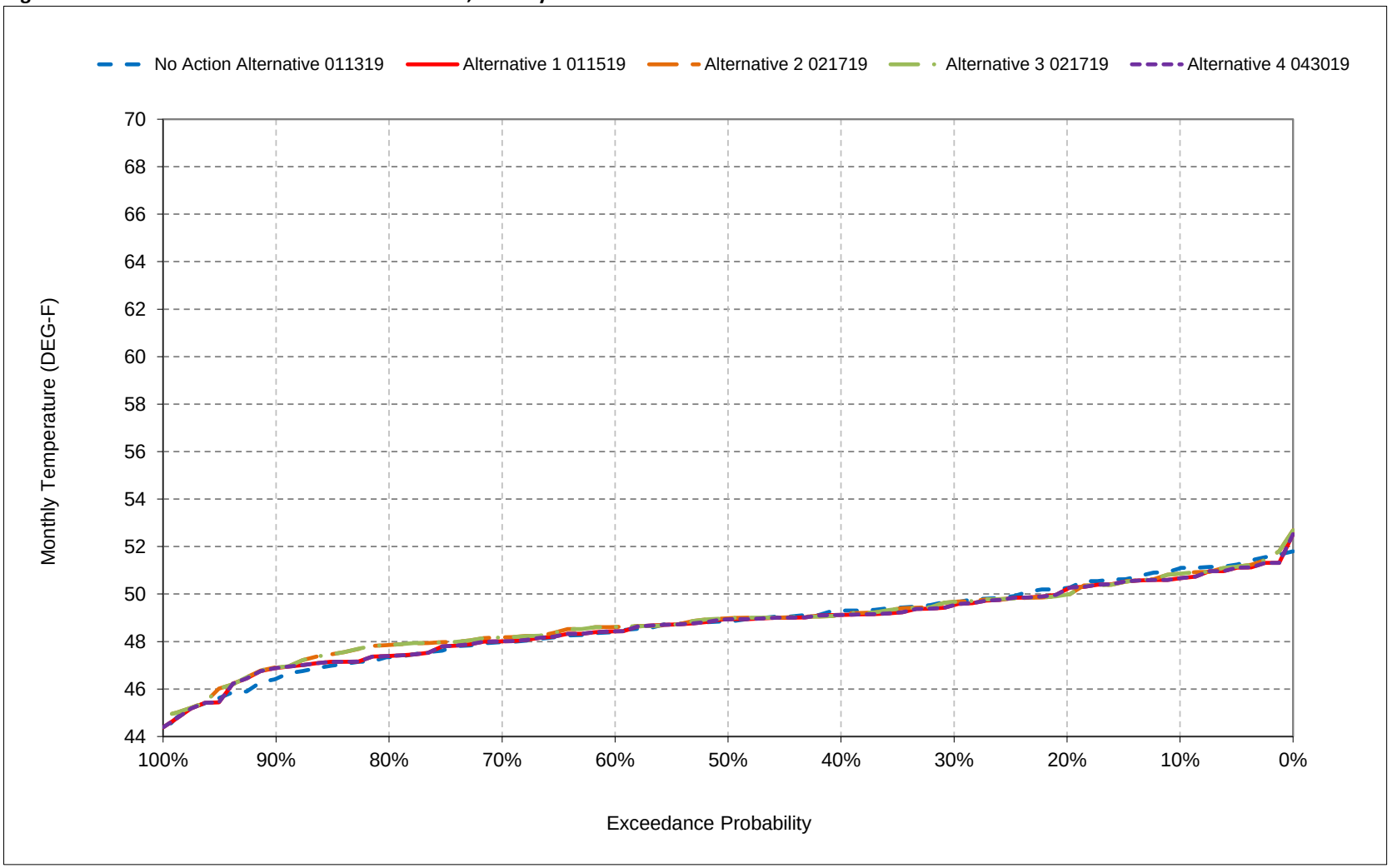


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-10. Stanislaus River below Goodwin Dam, January

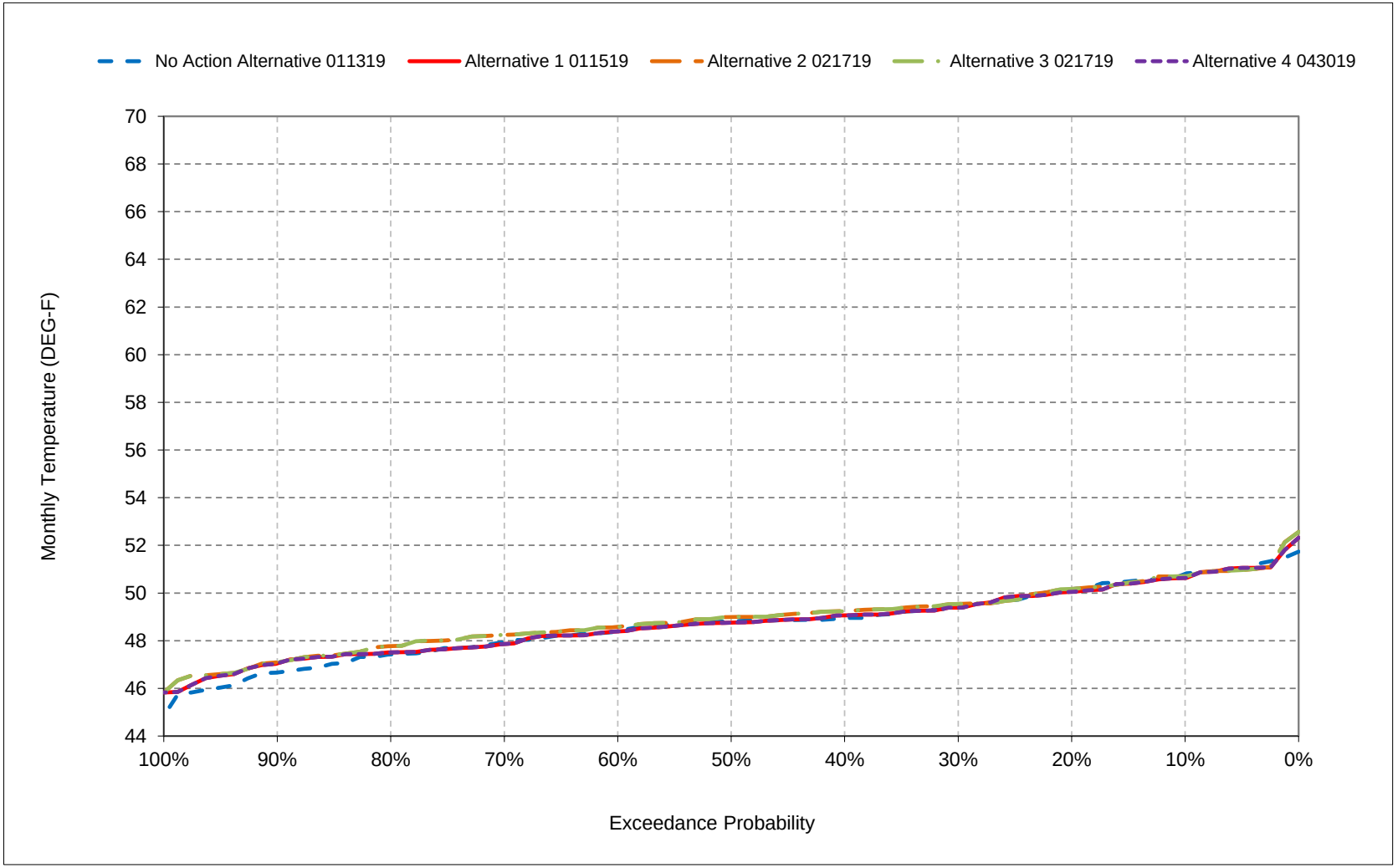


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-11. Stanislaus River below Goodwin Dam, February

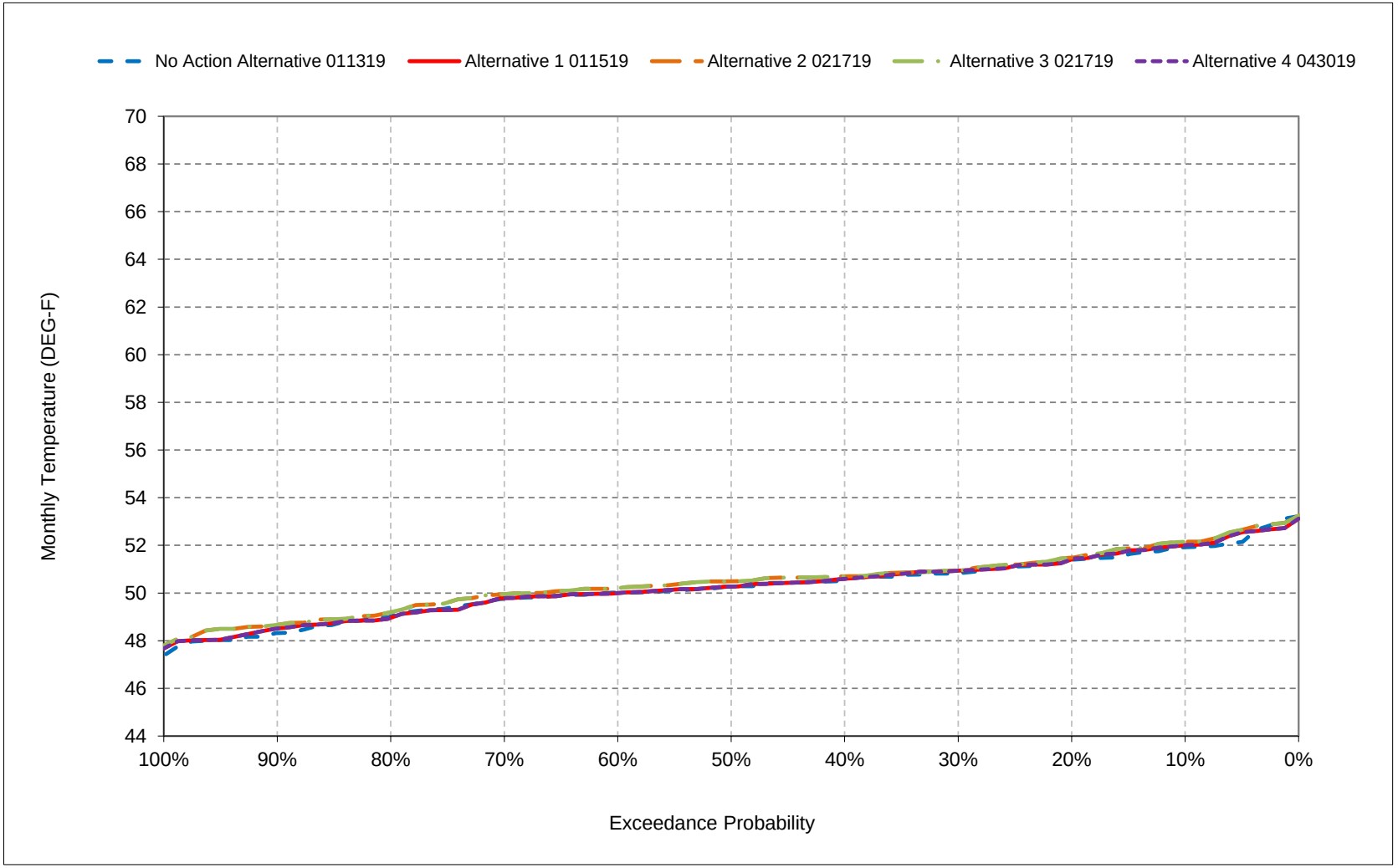


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-12. Stanislaus River below Goodwin Dam, March

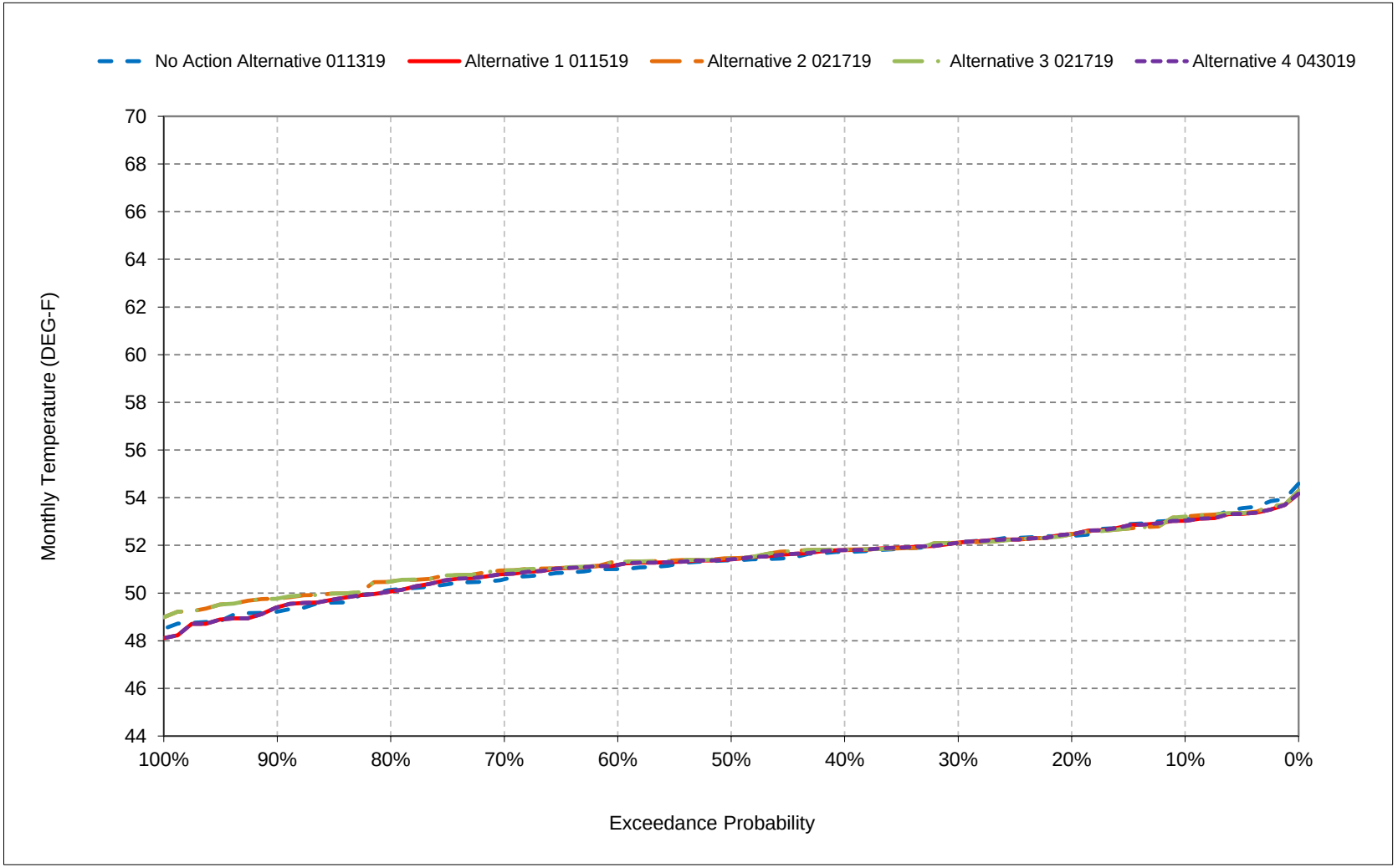


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-13. Stanislaus River below Goodwin Dam, April

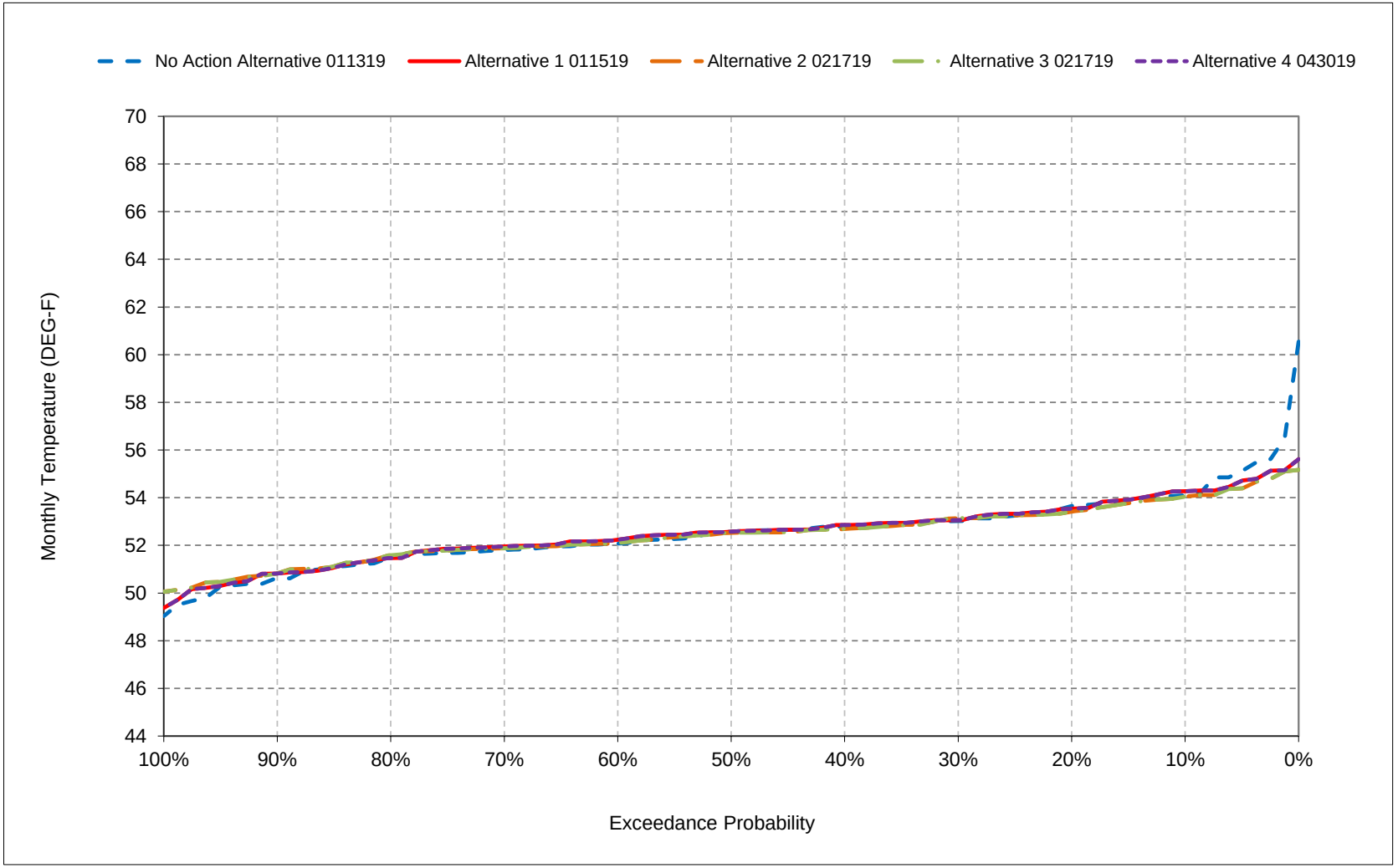


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-14. Stanislaus River below Goodwin Dam, May

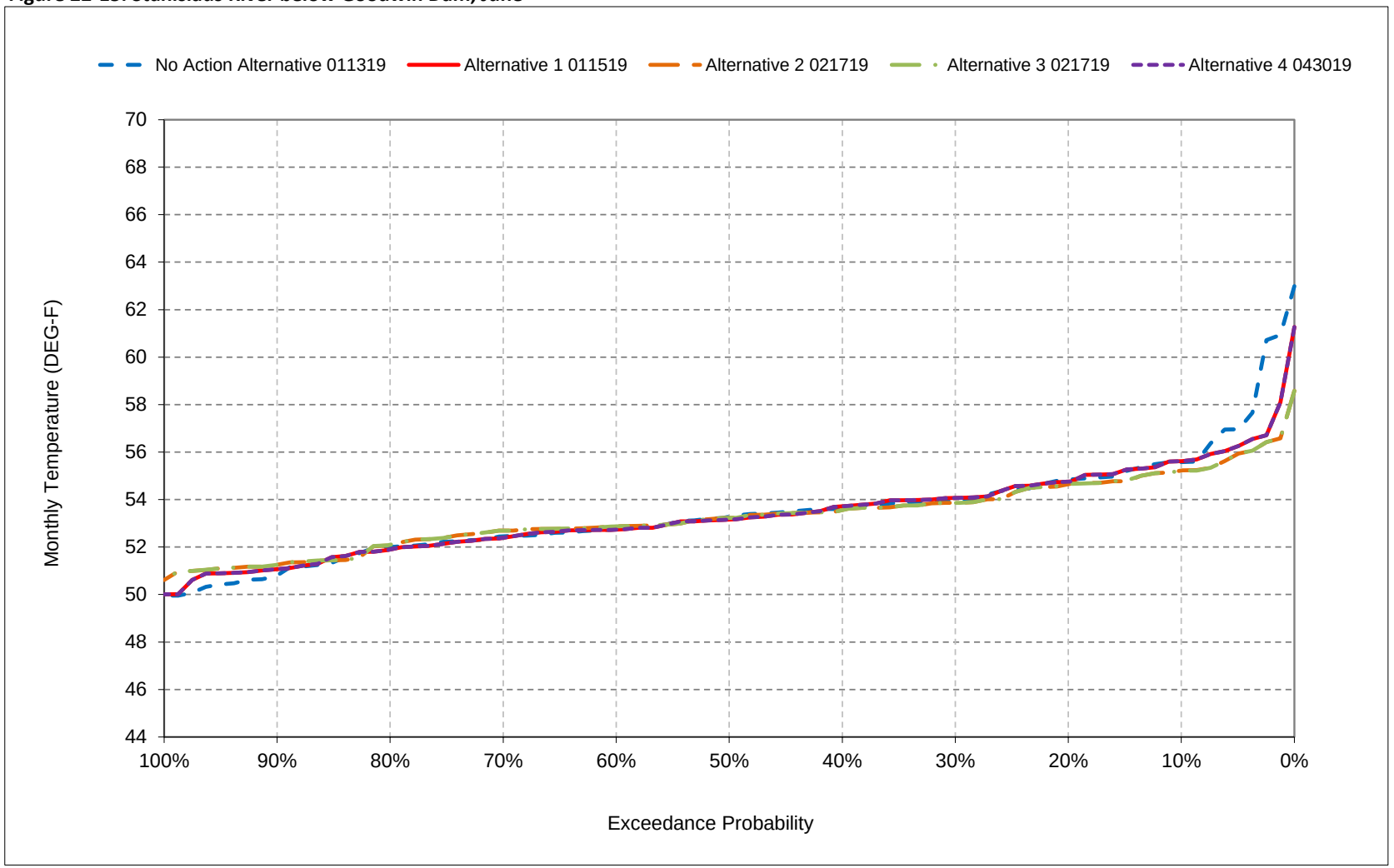


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-15. Stanislaus River below Goodwin Dam, June

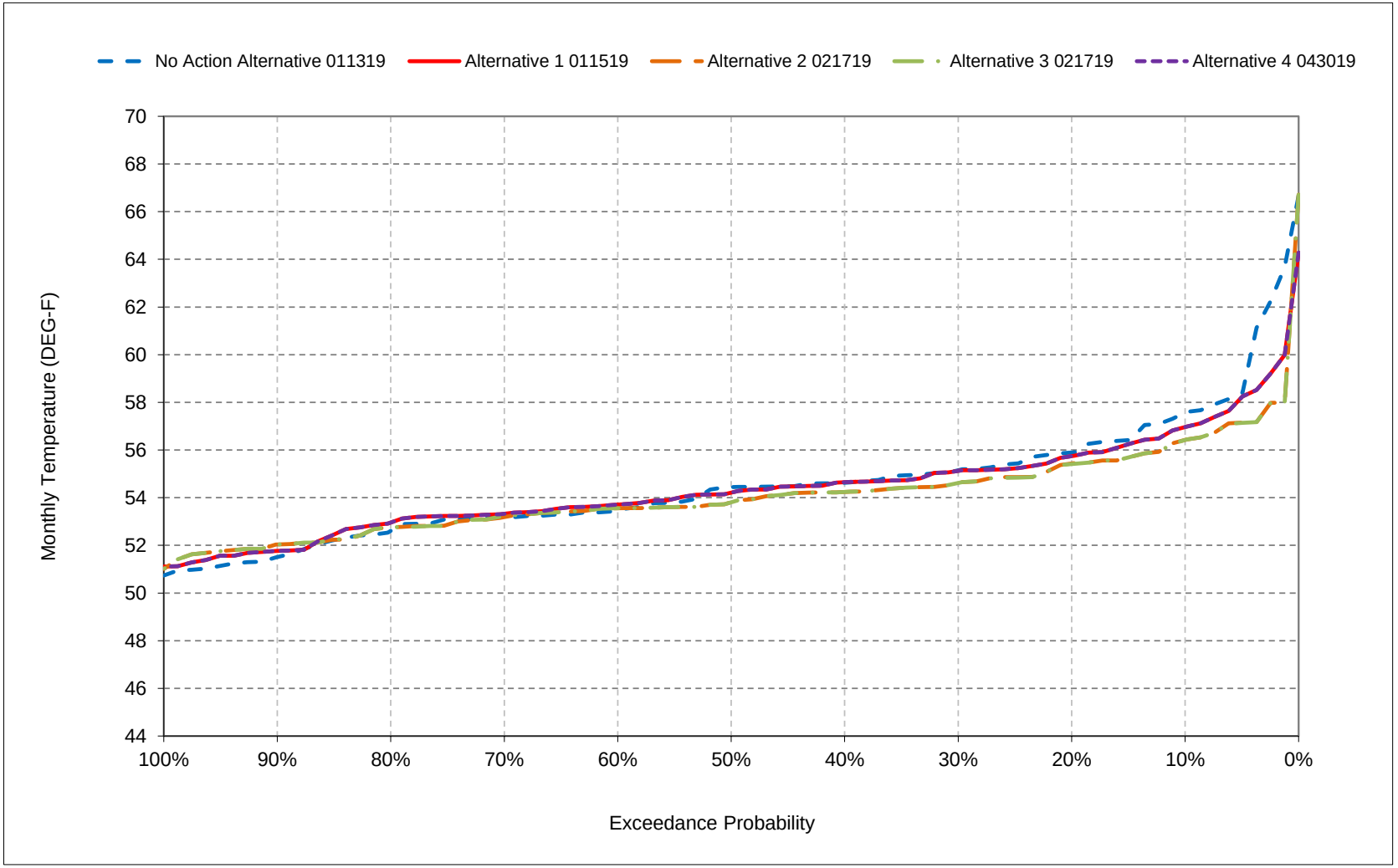


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-16. Stanislaus River below Goodwin Dam, July

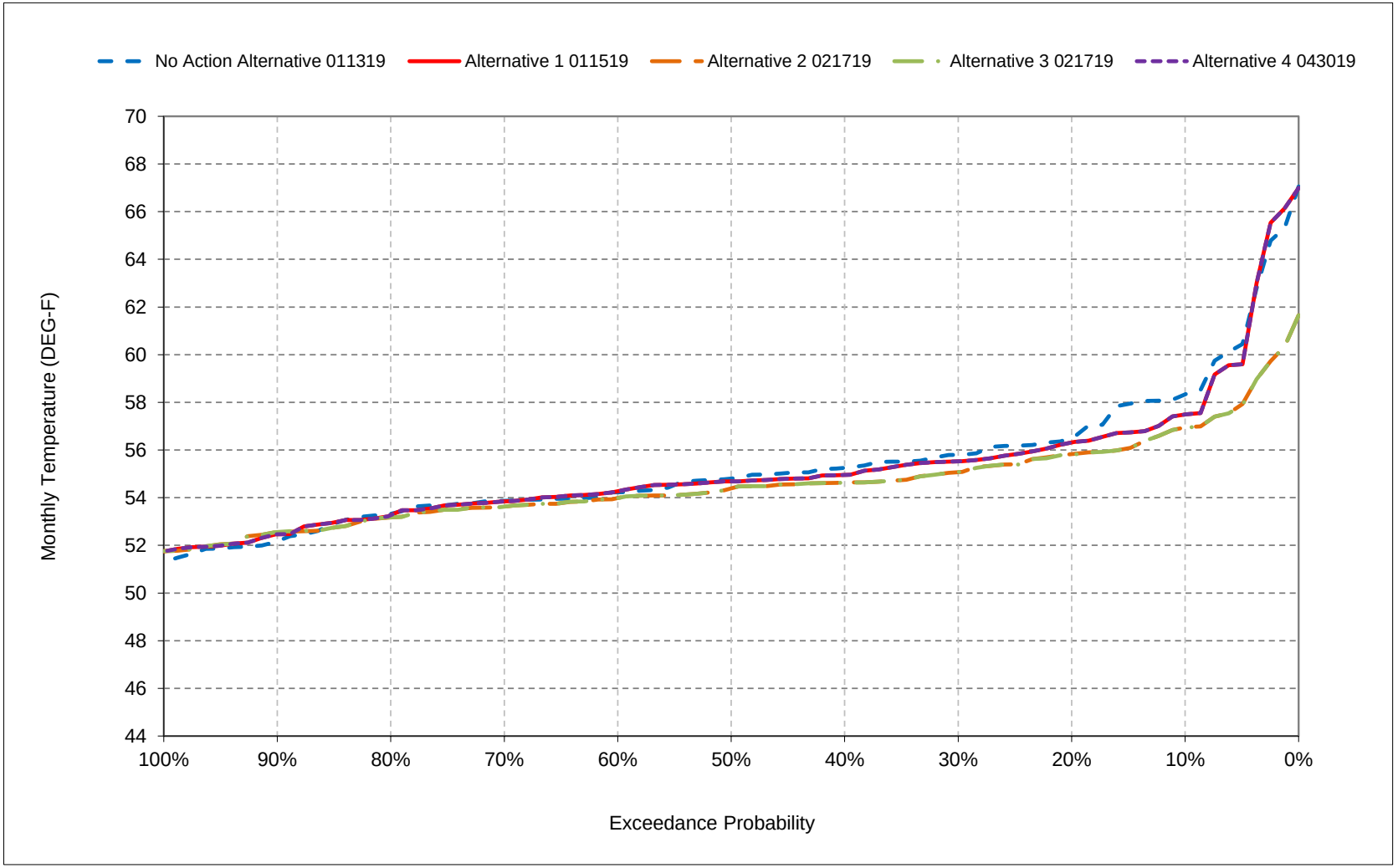


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-17. Stanislaus River below Goodwin Dam, August

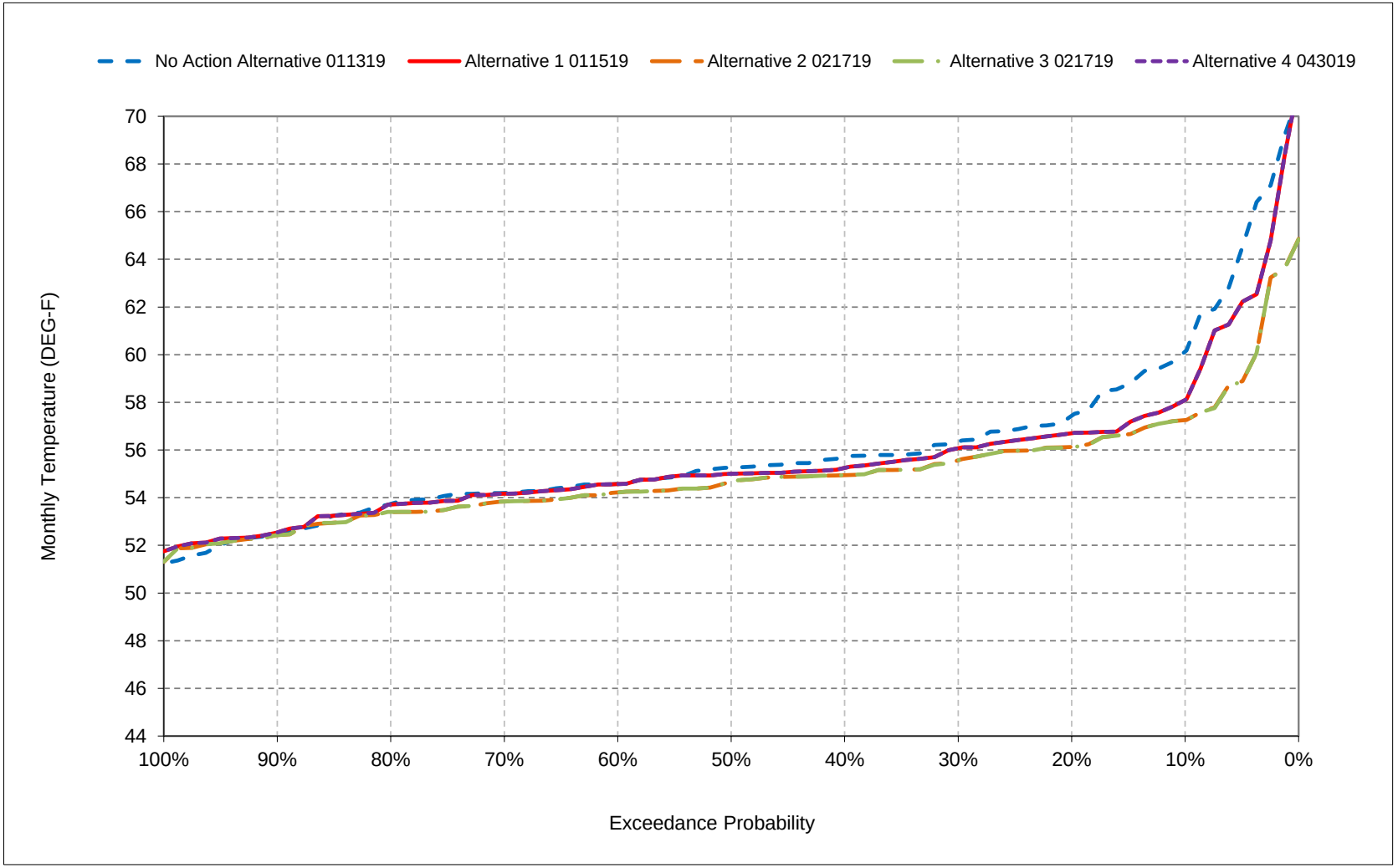


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 22-18. Stanislaus River below Goodwin Dam, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Table 23-1. Stanislaus River at Orange Blossom Bridge, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	61.6	58.7	53.4	51.3	52.5	55.8	55.2	57.7	63.7	65.5	65.4	64.5
20%	59.3	56.9	52.6	50.8	51.7	55.1	54.8	56.8	62.4	64.6	64.2	63.3
30%	57.5	56.2	52.2	50.1	51.2	54.6	54.1	55.9	61.6	64.1	63.4	62.0
40%	56.8	55.0	51.5	49.6	50.7	54.0	53.7	55.3	60.6	63.7	62.9	61.7
50%	56.4	54.9	51.0	49.1	50.4	53.8	53.1	55.0	59.3	63.2	62.5	61.2
60%	55.8	54.5	50.7	48.8	50.1	53.2	52.7	54.4	56.6	62.6	62.2	60.7
70%	55.2	54.1	50.5	48.3	49.6	52.1	52.2	53.9	55.9	62.1	61.9	60.4
80%	54.9	53.7	50.1	47.9	49.2	51.0	51.9	53.6	55.3	61.5	61.5	59.9
90%	54.0	52.7	49.7	47.1	48.4	49.6	50.8	52.6	54.4	58.6	59.8	58.1
Long Term												
Full Simulation Period[a]	57.2	55.3	51.4	49.2	50.4	53.2	53.2	55.1	59.0	62.9	62.7	61.5
Water Year Types[b,c]												
Wet (23%)	54.3	53.4	50.5	48.7	49.3	50.2	51.3	53.2	55.2	59.5	59.4	57.8
Above Normal (24%)	56.6	54.9	51.2	49.0	49.9	52.7	52.4	54.6	56.3	61.9	62.2	61.1
Below Normal (10%)	56.0	54.7	51.0	48.9	50.3	53.4	52.9	54.2	58.8	63.3	62.4	61.0
Dry (16%)	57.8	56.0	51.6	49.5	50.9	54.5	54.0	55.4	61.2	64.1	63.5	62.4
Critical (27%)	60.5	57.2	52.2	49.8	51.6	55.2	55.2	57.4	63.4	65.9	65.5	64.6

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.7	57.0	52.7	51.1	52.6	55.7	56.3	58.6	65.2	67.8	67.2	64.5
20%	58.0	56.1	52.5	50.5	51.9	55.1	55.6	58.1	64.6	66.5	65.6	63.2
30%	57.2	55.5	52.0	50.0	51.3	54.7	54.6	56.7	63.3	65.4	64.7	62.6
40%	56.6	54.9	51.5	49.5	50.9	54.3	53.8	55.8	61.9	64.1	63.1	62.0
50%	56.2	54.6	51.0	49.1	50.5	53.7	52.9	54.8	60.0	63.5	62.7	61.2
60%	55.8	54.4	50.6	48.9	50.1	53.1	52.5	54.3	59.3	63.2	62.1	60.8
70%	55.1	53.9	50.4	48.4	49.5	51.9	52.0	54.0	58.7	62.8	61.9	60.2
80%	54.7	53.5	50.0	47.9	49.3	50.6	51.4	53.4	56.2	61.9	61.6	60.0
90%	53.9	53.2	49.7	47.4	48.5	49.4	50.7	52.8	54.7	60.9	60.4	58.3
Long Term												
Full Simulation Period[a]	56.7	55.0	51.2	49.2	50.5	53.2	53.3	55.4	60.3	63.8	63.2	61.5
Water Year Types[b,c]												
Wet (23%)	54.5	53.6	50.6	48.7	49.3	49.9	51.4	53.3	54.7	59.7	59.7	58.0
Above Normal (24%)	56.7	54.8	51.1	49.1	50.0	52.9	51.9	54.1	59.3	63.2	62.6	61.5
Below Normal (10%)	55.6	54.4	50.9	48.8	50.2	53.5	52.8	54.2	59.4	63.4	62.3	60.9
Dry (16%)	57.0	55.3	51.3	49.4	51.1	54.5	54.3	56.3	62.6	64.6	63.3	61.9
Critical (27%)	58.8	56.4	52.0	49.7	51.8	55.4	55.9	58.5	65.0	67.4	66.9	64.5

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.9	-1.7	-0.7	-0.2	**0.1**	-0.1	**1.0**	**0.9**	**1.5**	**2.4**	**1.8**	-0.1
20%	-1.3	-0.9	-0.1	-0.3	**0.2**	**0.1**	**0.8**	**1.3**	**2.2**	**1.9**	**1.4**	-0.1
30%	-0.3	-0.6	-0.2	-0.1	**0.1**	**0.1**	**0.5**	**0.7**	**1.7**	**1.3**	**1.2**	**0.6**
40%	-0.3	-0.1	0.0	-0.1	**0.1**	**0.3**	**0.1**	**0.5**	**1.3**	**0.4**	**0.2**	**0.4**
50%	-0.2	-0.2	-0.1	**0.0**	**0.1**	0.0	-0.2	-0.1	**0.8**	**0.3**	**0.1**	**0.0**
60%	-0.1	-0.2	-0.1	**0.1**	**0.0**	-0.1	-0.2	-0.1	**2.7**	**0.6**	-0.1	**0.1**
70%	-0.2	-0.2	0.0	**0.0**	-0.1	-0.2	-0.2	**0.0**	**2.8**	**0.7**	**0.1**	-0.3
80%	-0.1	-0.1	-0.1	**0.0**	**0.1**	-0.4	-0.5	-0.2	**0.9**	**0.3**	**0.1**	**0.1**
90%	-0.1	**0.5**	-0.1	**0.3**	**0.1**	-0.2	-0.1	**0.2**	**0.2**	**2.3**	**0.6**	**0.1**
Long Term												
Full Simulation Period[a]	-0.6	-0.3	-0.1	0.0	**0.1**	**0.0**	**0.1**	**0.3**	**1.3**	**0.9**	**0.5**	**0.0**
Water Year Types[b,c]												
Wet (23%)	**0.1**	**0.2**	**0.1**	0.0	0.0	-0.4	**0.0**	**0.1**	-0.5	**0.2**	**0.3**	**0.2**
Above Normal (24%)	**0.1**	-0.1	-0.1	**0.1**	**0.2**	**0.2**	-0.5	-0.5	**3.0**	**1.4**	**0.4**	**0.4**
Below Normal (10%)	-0.4	-0.3	-0.1	-0.1	-0.1	**0.1**	-0.1	0.0	**0.6**	**0.1**	-0.1	-0.1
Dry (16%)	-0.9	-0.7	-0.3	-0.1	**0.2**	**0.0**	**0.3**	**0.9**	**1.4**	**0.5**	-0.2	-0.5
Critical (27%)	-1.7	-0.8	-0.2	-0.1	**0.1**	**0.1**	**0.7**	**1.1**	**1.6**	**1.5**	**1.4**	-0.1

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 23-2. Stanislaus River at Orange Blossom Bridge, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	61.6	58.7	53.4	51.3	52.5	55.8	55.2	57.7	63.7	65.5	65.4	64.5
20%	59.3	56.9	52.6	50.8	51.7	55.1	54.8	56.8	62.4	64.6	64.2	63.3
30%	57.5	56.2	52.2	50.1	51.2	54.6	54.1	55.9	61.6	64.1	63.4	62.0
40%	56.8	55.0	51.5	49.6	50.7	54.0	53.7	55.3	60.6	63.7	62.9	61.7
50%	56.4	54.9	51.0	49.1	50.4	53.8	53.1	55.0	59.3	63.2	62.5	61.2
60%	55.8	54.5	50.7	48.8	50.1	53.2	52.7	54.4	56.6	62.6	62.2	60.7
70%	55.2	54.1	50.5	48.3	49.6	52.1	52.2	53.9	55.9	62.1	61.9	60.4
80%	54.9	53.7	50.1	47.9	49.2	51.0	51.9	53.6	55.3	61.5	61.5	59.9
90%	54.0	52.7	49.7	47.1	48.4	49.6	50.8	52.6	54.4	58.6	59.8	58.1
Long Term												
Full Simulation Period[a]	57.2	55.3	51.4	49.2	50.4	53.2	53.2	55.1	59.0	62.9	62.7	61.5
Water Year Types[b,c]												
Wet (23%)	54.3	53.4	50.5	48.7	49.3	50.2	51.3	53.2	55.2	59.5	59.4	57.8
Above Normal (24%)	56.6	54.9	51.2	49.0	49.9	52.7	52.4	54.6	56.3	61.9	62.2	61.1
Below Normal (10%)	56.0	54.7	51.0	48.9	50.3	53.4	52.9	54.2	58.8	63.3	62.4	61.0
Dry (16%)	57.8	56.0	51.6	49.5	50.9	54.5	54.0	55.4	61.2	64.1	63.5	62.4
Critical (27%)	60.5	57.2	52.2	49.8	51.6	55.2	55.2	57.4	63.4	65.9	65.5	64.6

Alternative 2 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	62.8	57.3	52.9	51.0	52.5	57.1	56.7	58.3	63.5	65.2	64.6	63.2
20%	62.0	56.2	52.6	50.5	52.0	56.3	56.2	58.1	62.6	64.1	63.3	62.3
30%	61.0	55.8	52.0	50.0	51.5	55.8	55.7	57.6	62.2	63.9	62.9	61.8
40%	60.6	55.0	51.4	49.6	51.1	55.3	55.3	57.1	61.4	63.4	62.6	61.2
50%	60.1	54.7	51.0	49.1	50.5	54.8	54.8	56.6	60.9	63.1	62.3	61.0
60%	59.4	54.3	50.7	48.9	50.1	54.1	54.1	55.7	60.1	62.9	62.0	60.6
70%	58.7	54.1	50.4	48.5	49.7	53.0	53.5	54.9	57.6	62.5	61.8	60.3
80%	57.1	53.7	50.1	48.1	49.4	51.6	52.7	54.3	56.1	62.0	61.2	59.9
90%	55.9	53.3	49.8	47.3	48.3	50.5	51.6	53.5	55.1	56.4	56.3	54.9
Long Term												
Full Simulation Period[a]	59.7	55.0	51.3	49.3	50.6	54.2	54.5	56.2	59.8	62.5	61.9	60.6
Water Year Types[b,c]												
Wet (23%)	56.3	53.4	50.6	48.8	49.2	51.1	52.1	54.0	57.4	58.8	58.1	56.8
Above Normal (24%)	59.4	54.5	51.0	49.4	50.4	53.5	53.7	55.6	57.0	62.0	62.0	60.8
Below Normal (10%)	59.5	54.6	50.9	48.8	50.2	54.4	54.7	56.7	60.5	63.3	62.1	60.7
Dry (16%)	60.7	55.4	51.3	49.4	50.9	55.8	55.9	57.1	61.8	63.8	62.8	61.4
Critical (27%)	62.5	56.9	52.3	49.8	52.1	56.5	56.2	58.0	63.0	65.0	64.3	63.1

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**1.2**	-1.4	-0.5	-0.2	0.0	**1.3**	**1.5**	**0.7**	-0.2	-0.2	-0.9	-1.4
20%	**2.6**	-0.7	-0.1	-0.2	**0.3**	**1.3**	**1.4**	**1.3**	**0.2**	-0.5	-0.9	-1.0
30%	**3.5**	-0.4	-0.1	-0.1	**0.3**	**1.2**	**1.6**	**1.7**	**0.6**	-0.3	-0.5	-0.2
40%	**3.7**	0.0	0.0	**0.1**	**0.4**	**1.3**	**1.7**	**1.8**	**0.8**	-0.3	-0.3	-0.4
50%	**3.7**	-0.1	-0.1	**0.0**	**0.2**	**1.0**	**1.7**	**1.6**	**1.7**	0.0	-0.3	-0.2
60%	**3.6**	-0.3	0.0	**0.1**	**0.0**	**0.8**	**1.4**	**1.3**	**3.5**	**0.3**	-0.3	-0.1
70%	**3.4**	**0.0**	0.0	**0.2**	**0.1**	**0.9**	**1.3**	**1.0**	**1.7**	**0.4**	-0.1	-0.1
80%	**2.2**	**0.0**	0.0	**0.2**	**0.1**	**0.6**	**0.8**	**0.7**	**0.8**	**0.4**	-0.2	-0.1
90%	**1.9**	**0.6**	**0.0**	**0.2**	0.0	**0.9**	**0.9**	**0.9**	**0.7**	-2.2	-3.6	-3.2
Long Term												
Full Simulation Period[a]	**2.5**	-0.3	-0.1	**0.1**	**0.2**	**1.0**	**1.3**	**1.1**	**0.8**	-0.4	-0.8	-0.9
Water Year Types[b,c]												
Wet (23%)	**2.0**	0.0	**0.1**	**0.1**	-0.1	**0.9**	**0.8**	**0.8**	**2.2**	-0.7	-1.2	-1.1
Above Normal (24%)	**2.9**	-0.4	-0.2	**0.4**	**0.5**	**0.8**	**1.4**	**1.1**	**0.6**	**0.2**	-0.2	-0.3
Below Normal (10%)	**3.5**	-0.1	-0.1	0.0	-0.1	**1.0**	**1.8**	**2.5**	**1.8**	**0.0**	-0.3	-0.3
Dry (16%)	**2.8**	-0.6	-0.3	-0.1	0.0	**1.3**	**2.0**	**1.7**	**0.6**	-0.3	-0.7	-0.9
Critical (27%)	**2.0**	-0.3	**0.1**	0.0	**0.4**	**1.2**	**1.0**	**0.6**	-0.3	-0.9	-1.2	-1.5

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 23-3. Stanislaus River at Orange Blossom Bridge, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	61.6	58.7	53.4	51.3	52.5	55.8	55.2	57.7	63.7	65.5	65.4	64.5
20%	59.3	56.9	52.6	50.8	51.7	55.1	54.8	56.8	62.4	64.6	64.2	63.3
30%	57.5	56.2	52.2	50.1	51.2	54.6	54.1	55.9	61.6	64.1	63.4	62.0
40%	56.8	55.0	51.5	49.6	50.7	54.0	53.7	55.3	60.6	63.7	62.9	61.7
50%	56.4	54.9	51.0	49.1	50.4	53.8	53.1	55.0	59.3	63.2	62.5	61.2
60%	55.8	54.5	50.7	48.8	50.1	53.2	52.7	54.4	56.6	62.6	62.2	60.7
70%	55.2	54.1	50.5	48.3	49.6	52.1	52.2	53.9	55.9	62.1	61.9	60.4
80%	54.9	53.7	50.1	47.9	49.2	51.0	51.9	53.6	55.3	61.5	61.5	59.9
90%	54.0	52.7	49.7	47.1	48.4	49.6	50.8	52.6	54.4	58.6	59.8	58.1
Long Term												
Full Simulation Period[a]	57.2	55.3	51.4	49.2	50.4	53.2	53.2	55.1	59.0	62.9	62.7	61.5
Water Year Types[b,c]												
Wet (23%)	54.3	53.4	50.5	48.7	49.3	50.2	51.3	53.2	55.2	59.5	59.4	57.8
Above Normal (24%)	56.6	54.9	51.2	49.0	49.9	52.7	52.4	54.6	56.3	61.9	62.2	61.1
Below Normal (10%)	56.0	54.7	51.0	48.9	50.3	53.4	52.9	54.2	58.8	63.3	62.4	61.0
Dry (16%)	57.8	56.0	51.6	49.5	50.9	54.5	54.0	55.4	61.2	64.1	63.5	62.4
Critical (27%)	60.5	57.2	52.2	49.8	51.6	55.2	55.2	57.4	63.4	65.9	65.5	64.6

Alternative 3 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	62.8	57.3	52.9	51.0	52.5	57.1	56.7	58.3	63.5	65.2	64.5	63.1
20%	62.0	56.2	52.6	50.5	52.0	56.3	56.2	58.1	62.6	64.1	63.3	62.3
30%	61.0	55.8	52.1	50.0	51.5	55.8	55.7	57.6	62.2	63.9	62.9	61.8
40%	60.6	55.0	51.4	49.6	51.1	55.3	55.3	57.1	61.4	63.4	62.6	61.2
50%	60.1	54.7	51.0	49.1	50.5	54.8	54.8	56.6	60.9	63.1	62.3	61.0
60%	59.4	54.3	50.7	48.9	50.1	54.1	54.1	55.7	60.1	62.9	62.0	60.6
70%	58.7	54.1	50.4	48.5	49.7	53.0	53.5	54.9	57.6	62.5	61.8	60.3
80%	57.1	53.7	50.1	48.1	49.4	51.6	52.7	54.3	56.1	62.0	61.2	59.9
90%	55.9	53.3	49.8	47.3	48.3	50.5	51.6	53.5	55.1	56.4	56.3	54.9
Long Term												
Full Simulation Period[a]	59.7	55.0	51.3	49.3	50.6	54.2	54.5	56.2	59.8	62.5	61.9	60.6
Water Year Types[b,c]												
Wet (23%)	56.3	53.4	50.6	48.8	49.2	51.1	52.1	54.0	57.4	58.8	58.1	56.8
Above Normal (24%)	59.4	54.5	51.0	49.4	50.4	53.5	53.7	55.6	57.0	62.0	62.0	60.8
Below Normal (10%)	59.5	54.6	50.9	48.9	50.2	54.4	54.7	56.7	60.5	63.3	62.1	60.7
Dry (16%)	60.7	55.4	51.3	49.4	50.9	55.8	55.9	57.1	61.8	63.8	62.8	61.4
Critical (27%)	62.5	56.9	52.3	49.8	52.1	56.5	56.2	58.0	63.0	65.0	64.3	63.1

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**1.2**	-1.4	-0.5	-0.2	0.0	**1.3**	**1.5**	**0.7**	-0.2	-0.3	-0.9	-1.4
20%	**2.6**	-0.7	-0.1	-0.2	**0.3**	**1.3**	**1.4**	**1.3**	**0.2**	-0.5	-0.9	-1.0
30%	**3.5**	-0.4	-0.1	-0.1	**0.3**	**1.2**	**1.6**	**1.7**	**0.6**	-0.3	-0.5	-0.2
40%	**3.7**	0.0	0.0	**0.1**	**0.4**	**1.3**	**1.7**	**1.8**	**0.8**	-0.3	-0.3	-0.4
50%	**3.7**	-0.1	-0.1	**0.0**	**0.2**	**1.0**	**1.7**	**1.6**	**1.7**	0.0	-0.3	-0.2
60%	**3.6**	-0.3	0.0	**0.1**	**0.0**	**0.8**	**1.4**	**1.3**	**3.5**	**0.3**	-0.3	-0.1
70%	**3.4**	**0.0**	0.0	**0.2**	**0.1**	**0.9**	**1.3**	**1.0**	**1.7**	**0.4**	-0.1	-0.1
80%	**2.2**	**0.0**	0.0	**0.2**	**0.1**	**0.6**	**0.8**	**0.7**	**0.8**	**0.4**	-0.2	-0.1
90%	**1.9**	**0.6**	**0.0**	**0.2**	0.0	**0.9**	**0.9**	**0.9**	**0.7**	-2.2	-3.6	-3.2
Long Term												
Full Simulation Period[a]	**2.5**	-0.3	-0.1	**0.1**	**0.2**	**1.0**	**1.3**	**1.1**	**0.8**	-0.4	-0.8	-0.9
Water Year Types[b,c]												
Wet (23%)	**2.0**	0.0	**0.1**	**0.1**	-0.1	**0.9**	**0.8**	**0.8**	**2.2**	-0.7	-1.2	-1.1
Above Normal (24%)	**2.9**	-0.4	-0.2	**0.4**	**0.5**	**0.8**	**1.4**	**1.1**	**0.6**	**0.2**	-0.2	-0.3
Below Normal (10%)	**3.5**	-0.1	-0.1	0.0	-0.1	**1.0**	**1.8**	**2.5**	**1.8**	**0.0**	-0.3	-0.3
Dry (16%)	**2.8**	-0.6	-0.3	-0.1	0.0	**1.3**	**2.0**	**1.7**	**0.6**	-0.3	-0.7	-0.9
Critical (27%)	**2.0**	-0.3	**0.1**	0.0	**0.4**	**1.2**	**1.0**	**0.6**	-0.3	-0.9	-1.2	-1.5

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 23-4. Stanislaus River at Orange Blossom Bridge, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	61.6	58.7	53.4	51.3	52.5	55.8	55.2	57.7	63.7	65.5	65.4	64.5
20%	59.3	56.9	52.6	50.8	51.7	55.1	54.8	56.8	62.4	64.6	64.2	63.3
30%	57.5	56.2	52.2	50.1	51.2	54.6	54.1	55.9	61.6	64.1	63.4	62.0
40%	56.8	55.0	51.5	49.6	50.7	54.0	53.7	55.3	60.6	63.7	62.9	61.7
50%	56.4	54.9	51.0	49.1	50.4	53.8	53.1	55.0	59.3	63.2	62.5	61.2
60%	55.8	54.5	50.7	48.8	50.1	53.2	52.7	54.4	56.6	62.6	62.2	60.7
70%	55.2	54.1	50.5	48.3	49.6	52.1	52.2	53.9	55.9	62.1	61.9	60.4
80%	54.9	53.7	50.1	47.9	49.2	51.0	51.9	53.6	55.3	61.5	61.5	59.9
90%	54.0	52.7	49.7	47.1	48.4	49.6	50.8	52.6	54.4	58.6	59.8	58.1
Long Term												
Full Simulation Period[a]	57.2	55.3	51.4	49.2	50.4	53.2	53.2	55.1	59.0	62.9	62.7	61.5
Water Year Types[b,c]												
Wet (23%)	54.3	53.4	50.5	48.7	49.3	50.2	51.3	53.2	55.2	59.5	59.4	57.8
Above Normal (24%)	56.6	54.9	51.2	49.0	49.9	52.7	52.4	54.6	56.3	61.9	62.2	61.1
Below Normal (10%)	56.0	54.7	51.0	48.9	50.3	53.4	52.9	54.2	58.8	63.3	62.4	61.0
Dry (16%)	57.8	56.0	51.6	49.5	50.9	54.5	54.0	55.4	61.2	64.1	63.5	62.4
Critical (27%)	60.5	57.2	52.2	49.8	51.6	55.2	55.2	57.4	63.4	65.9	65.5	64.6

Alternative 4 043019

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.7	57.0	52.7	51.1	52.6	55.7	56.3	58.6	65.2	67.8	67.2	64.5
20%	58.0	56.1	52.5	50.5	51.9	55.1	55.6	58.1	64.6	66.5	65.6	63.2
30%	57.2	55.5	52.0	50.0	51.3	54.7	54.6	56.7	63.3	65.4	64.7	62.6
40%	56.6	54.9	51.5	49.5	50.9	54.3	53.8	55.8	61.9	64.1	63.1	62.0
50%	56.2	54.6	51.0	49.1	50.5	53.7	52.9	54.8	60.0	63.5	62.7	61.2
60%	55.8	54.4	50.6	48.9	50.1	53.1	52.5	54.3	59.3	63.2	62.1	60.8
70%	55.1	53.9	50.4	48.4	49.5	51.9	52.0	54.0	58.7	62.8	61.9	60.2
80%	54.7	53.5	50.0	47.9	49.3	50.6	51.4	53.4	56.2	61.9	61.6	60.0
90%	53.9	53.2	49.7	47.4	48.5	49.4	50.7	52.8	54.7	60.9	60.4	58.3
Long Term												
Full Simulation Period[a]	56.7	55.0	51.2	49.2	50.5	53.2	53.3	55.4	60.3	63.8	63.2	61.5
Water Year Types[b,c]												
Wet (23%)	54.5	53.6	50.6	48.7	49.3	49.9	51.4	53.3	54.7	59.7	59.7	58.0
Above Normal (24%)	56.7	54.8	51.1	49.1	50.0	52.9	51.9	54.1	59.3	63.2	62.6	61.5
Below Normal (10%)	55.6	54.4	50.9	48.8	50.2	53.5	52.8	54.2	59.4	63.4	62.3	60.9
Dry (16%)	57.0	55.3	51.3	49.4	51.1	54.5	54.3	56.3	62.6	64.6	63.3	61.9
Critical (27%)	58.8	56.4	52.0	49.7	51.8	55.4	55.9	58.5	65.0	67.4	66.9	64.5

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.9	-1.7	-0.7	-0.2	**0.1**	-0.1	**1.0**	**0.9**	**1.5**	**2.4**	**1.8**	-0.1
20%	-1.3	-0.9	-0.1	-0.3	**0.2**	**0.1**	**0.8**	**1.3**	**2.2**	**1.9**	**1.4**	-0.1
30%	-0.3	-0.6	-0.2	-0.1	**0.1**	**0.1**	**0.5**	**0.7**	**1.7**	**1.3**	**1.2**	**0.6**
40%	-0.3	-0.1	0.0	-0.1	**0.1**	**0.3**	**0.1**	**0.5**	**1.3**	**0.4**	**0.2**	**0.4**
50%	-0.2	-0.2	-0.1	**0.0**	**0.1**	0.0	-0.2	-0.1	**0.8**	**0.3**	**0.1**	**0.0**
60%	-0.1	-0.2	-0.1	**0.1**	**0.0**	-0.1	-0.2	-0.1	**2.7**	**0.6**	-0.1	**0.1**
70%	-0.2	-0.2	0.0	**0.0**	-0.1	-0.2	-0.2	**0.0**	**2.8**	**0.7**	**0.1**	-0.3
80%	-0.1	-0.1	-0.1	**0.0**	**0.1**	-0.4	-0.5	-0.2	**0.9**	**0.3**	**0.1**	**0.1**
90%	-0.1	**0.5**	-0.1	**0.3**	**0.1**	-0.2	-0.1	**0.2**	**0.2**	**2.3**	**0.6**	**0.1**
Long Term												
Full Simulation Period[a]	-0.6	-0.3	-0.1	0.0	**0.1**	**0.0**	**0.1**	**0.3**	**1.3**	**0.9**	**0.5**	**0.0**
Water Year Types[b,c]												
Wet (23%)	**0.1**	**0.2**	**0.1**	0.0	0.0	-0.4	**0.0**	**0.1**	-0.5	**0.2**	**0.3**	**0.2**
Above Normal (24%)	**0.1**	-0.1	-0.1	**0.1**	**0.2**	**0.2**	-0.5	-0.5	**3.0**	**1.4**	**0.4**	**0.4**
Below Normal (10%)	-0.4	-0.3	-0.1	-0.1	-0.1	**0.1**	-0.1	0.0	**0.6**	**0.1**	-0.1	-0.1
Dry (16%)	-0.9	-0.7	-0.3	-0.1	**0.2**	**0.0**	**0.3**	**0.9**	**1.4**	**0.5**	-0.2	-0.5
Critical (27%)	-1.7	-0.8	-0.2	-0.1	**0.1**	**0.1**	**0.7**	**1.1**	**1.6**	**1.5**	**1.4**	-0.1

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

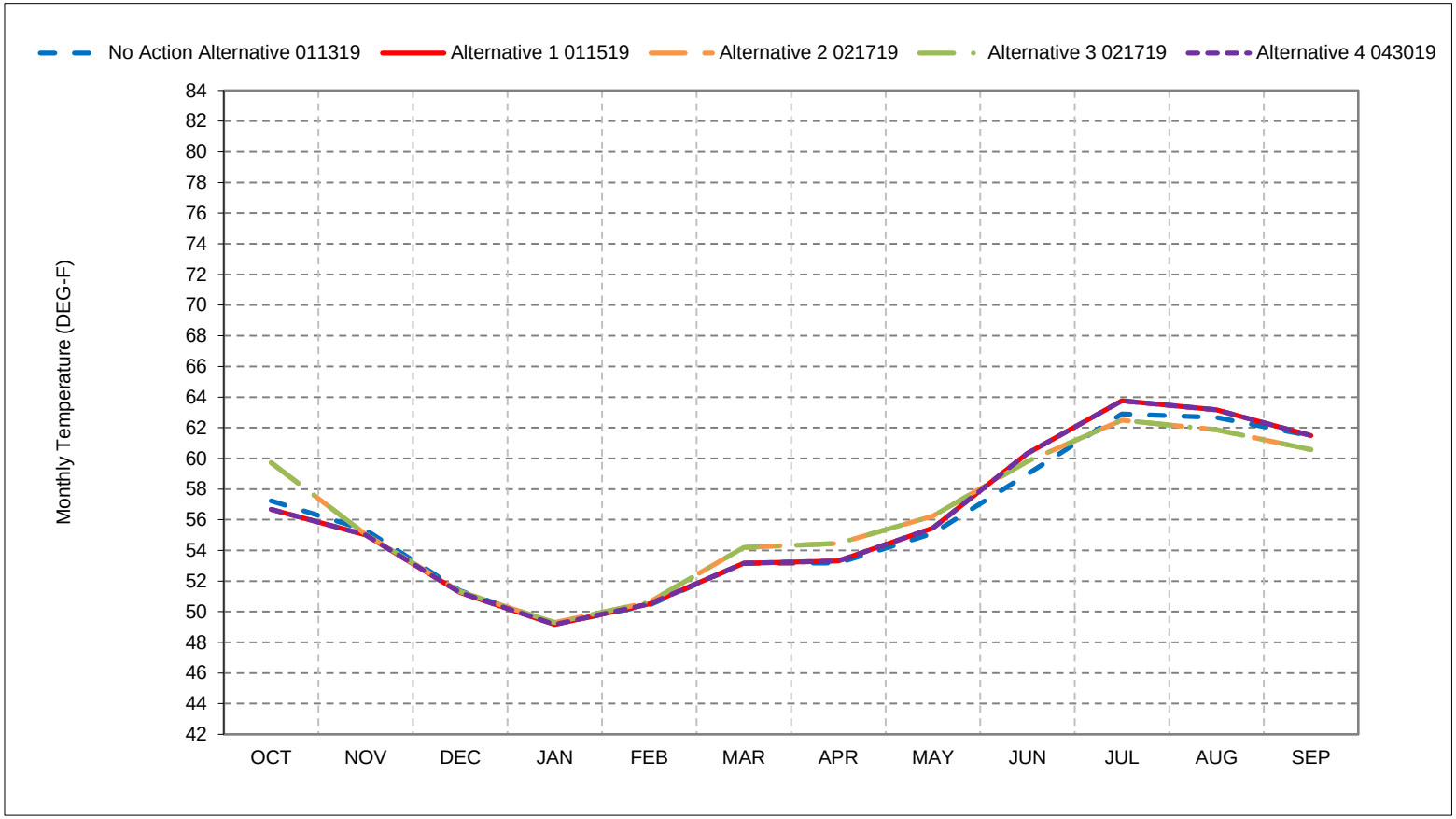
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

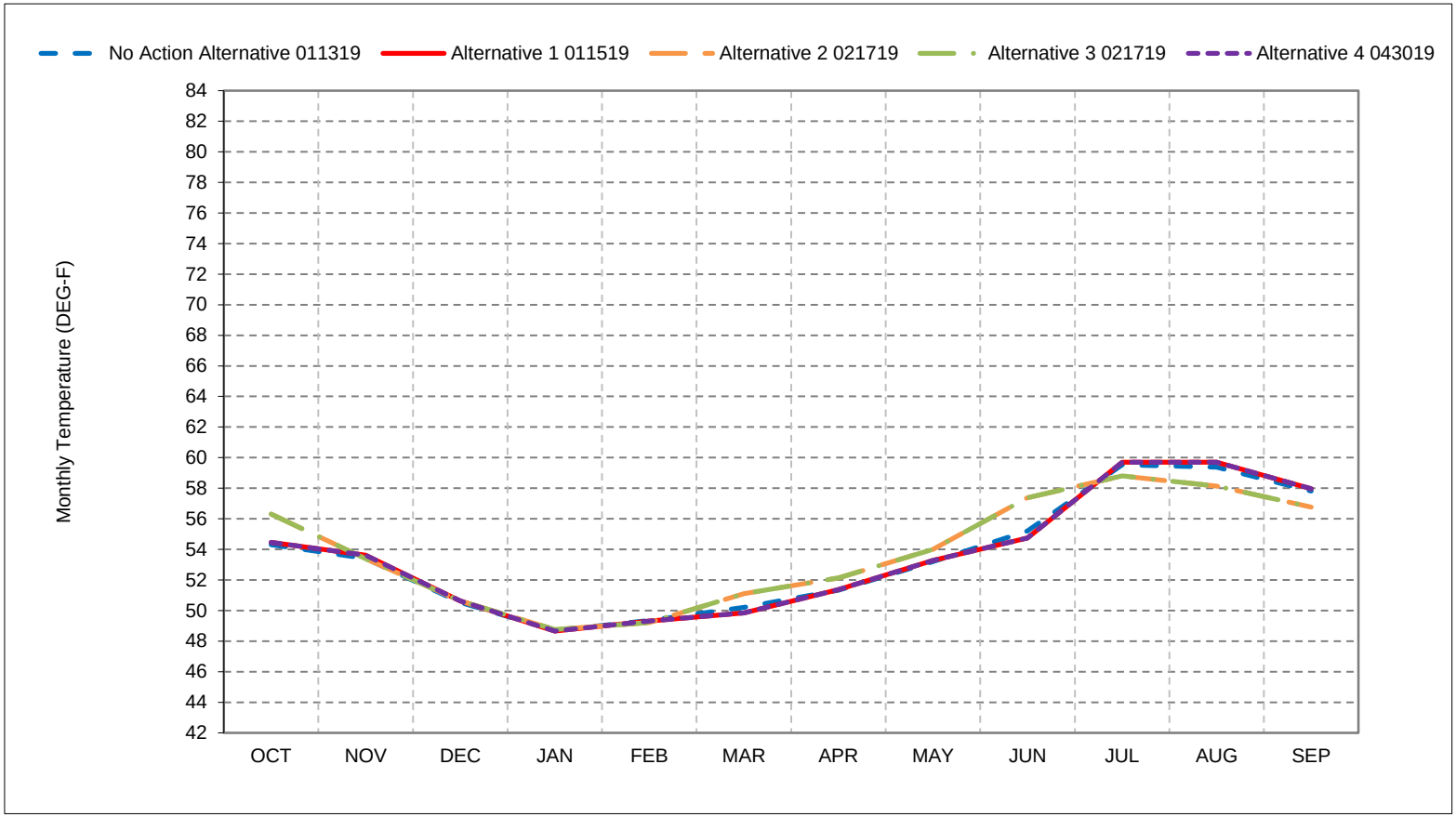
f New Melones forecasts are used as the basis of water operations.

Figure 23-1. Stanislaus River at Orange Blossom Bridge, Long-Term Average Temperature



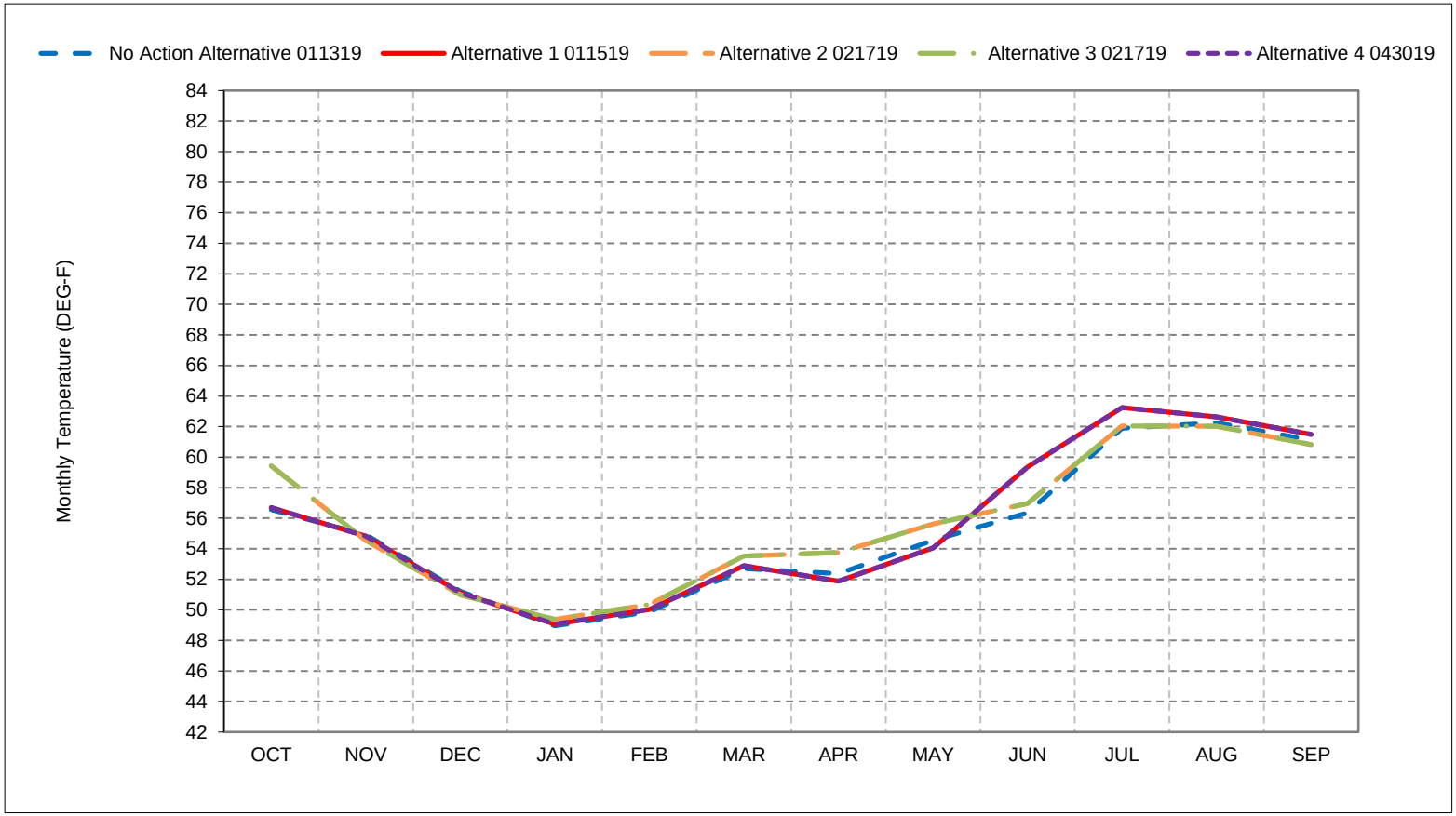
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 23-2. Stanislaus River at Orange Blossom Bridge, Wet Year Average Temperature



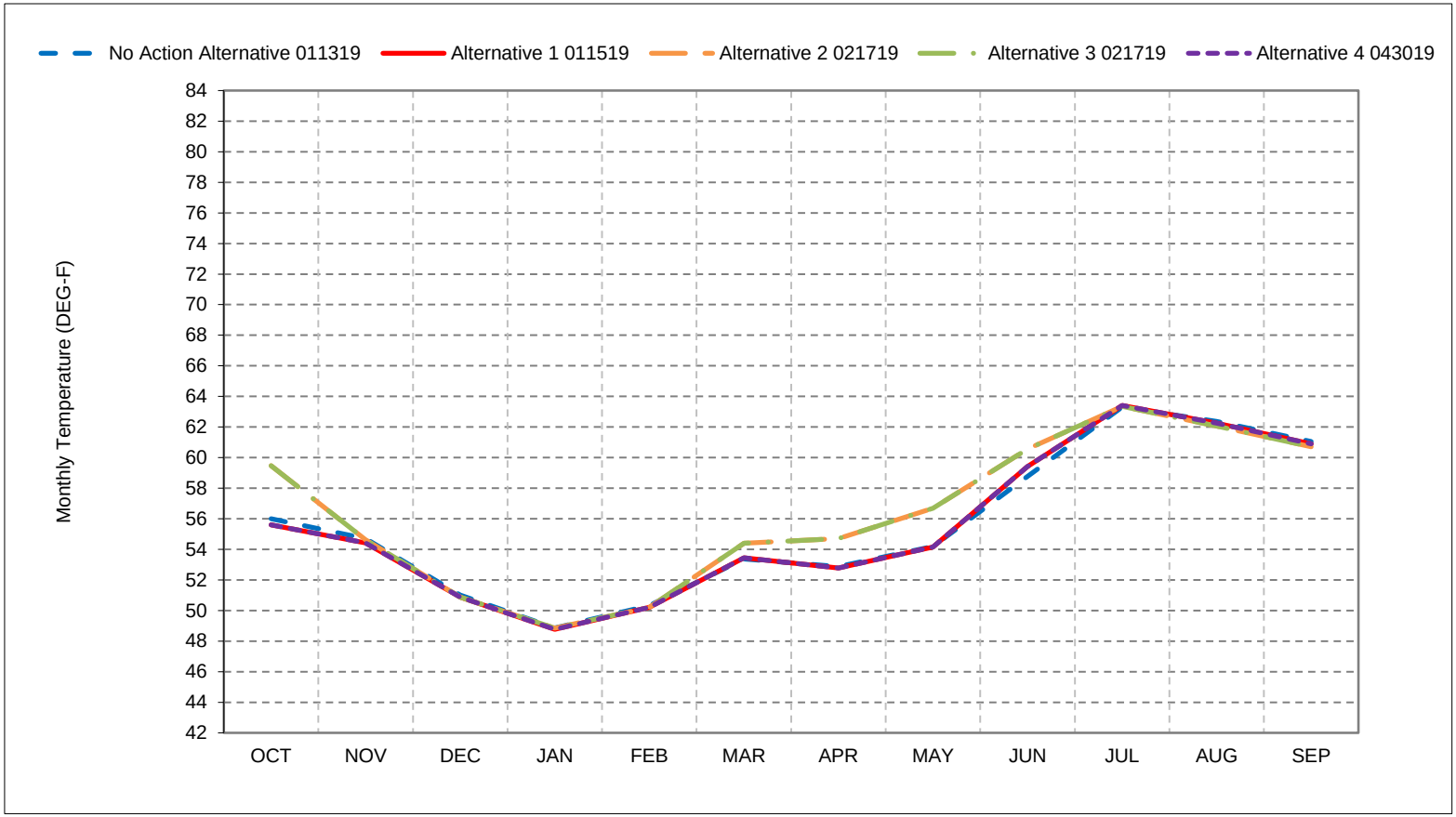
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 23-3. Stanislaus River at Orange Blossom Bridge, Above Normal Year Average Temperature



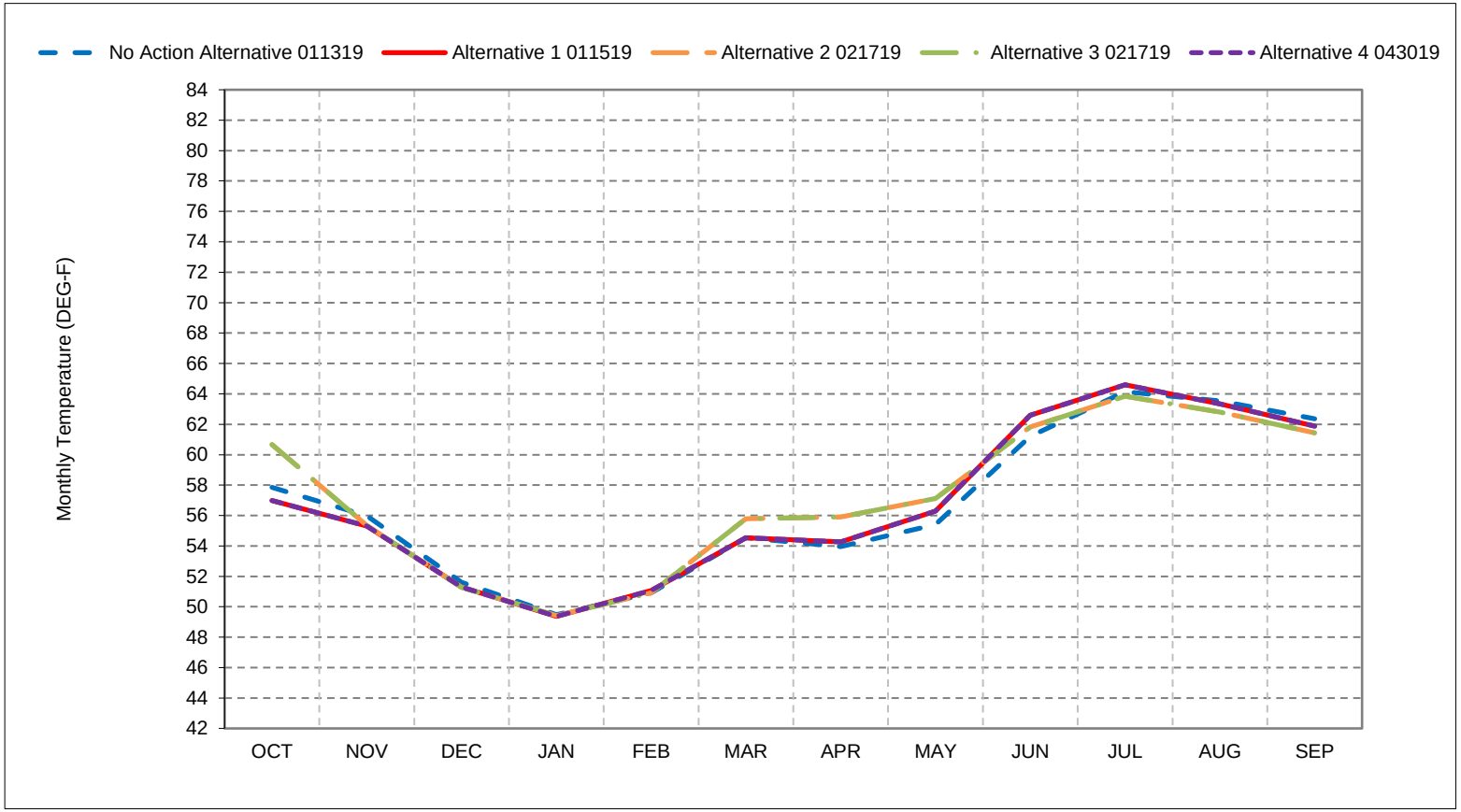
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 23-4. Stanislaus River at Orange Blossom Bridge, Below Normal Year Average Temperature



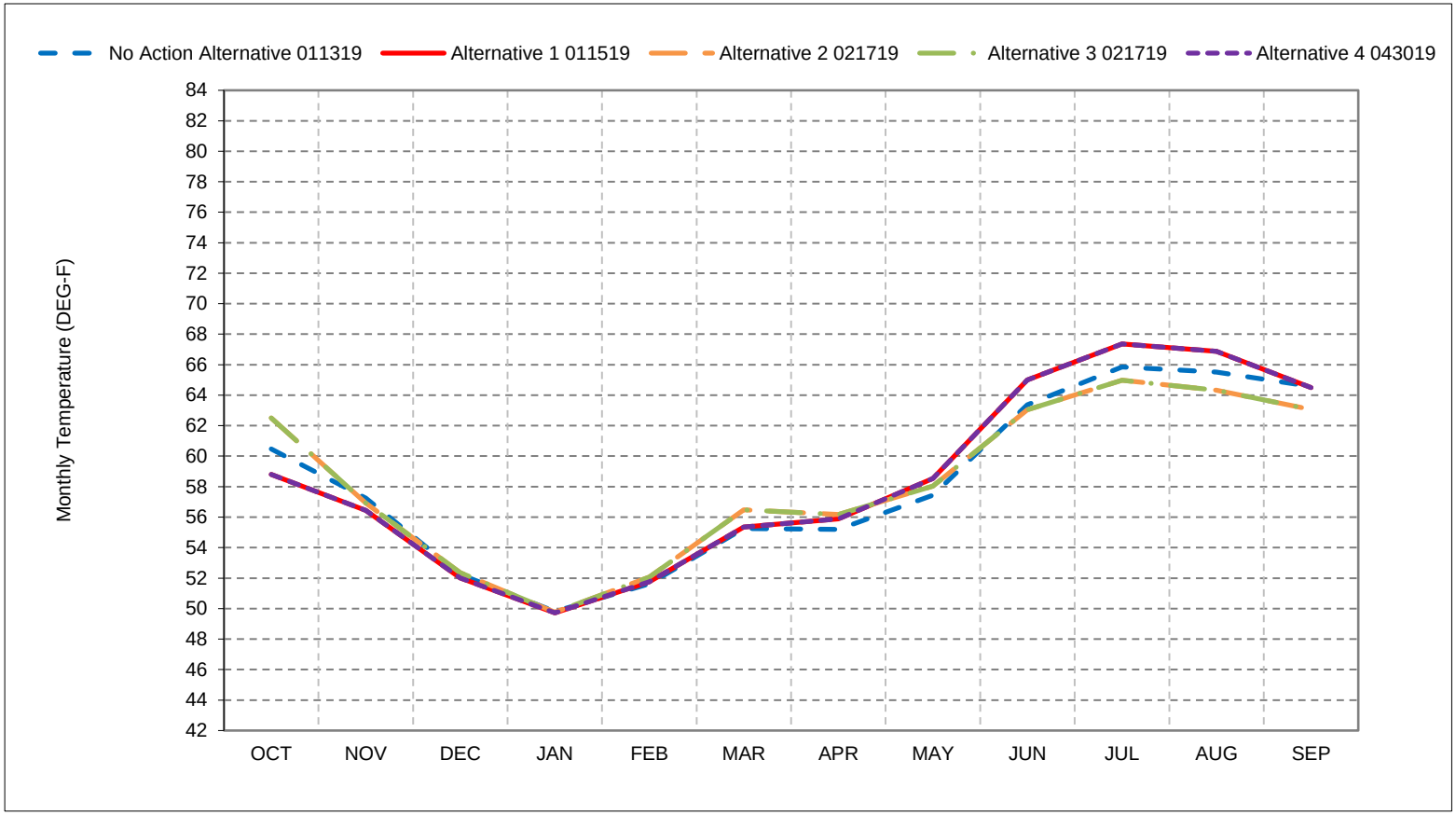
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 23-5. Stanislaus River at Orange Blossom Bridge, Dry Year Average Temperature



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 23-6. Stanislaus River at Orange Blossom Bridge, Critical Year Average Temperature



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 23-7. Stanislaus River at Orange Blossom Bridge, October

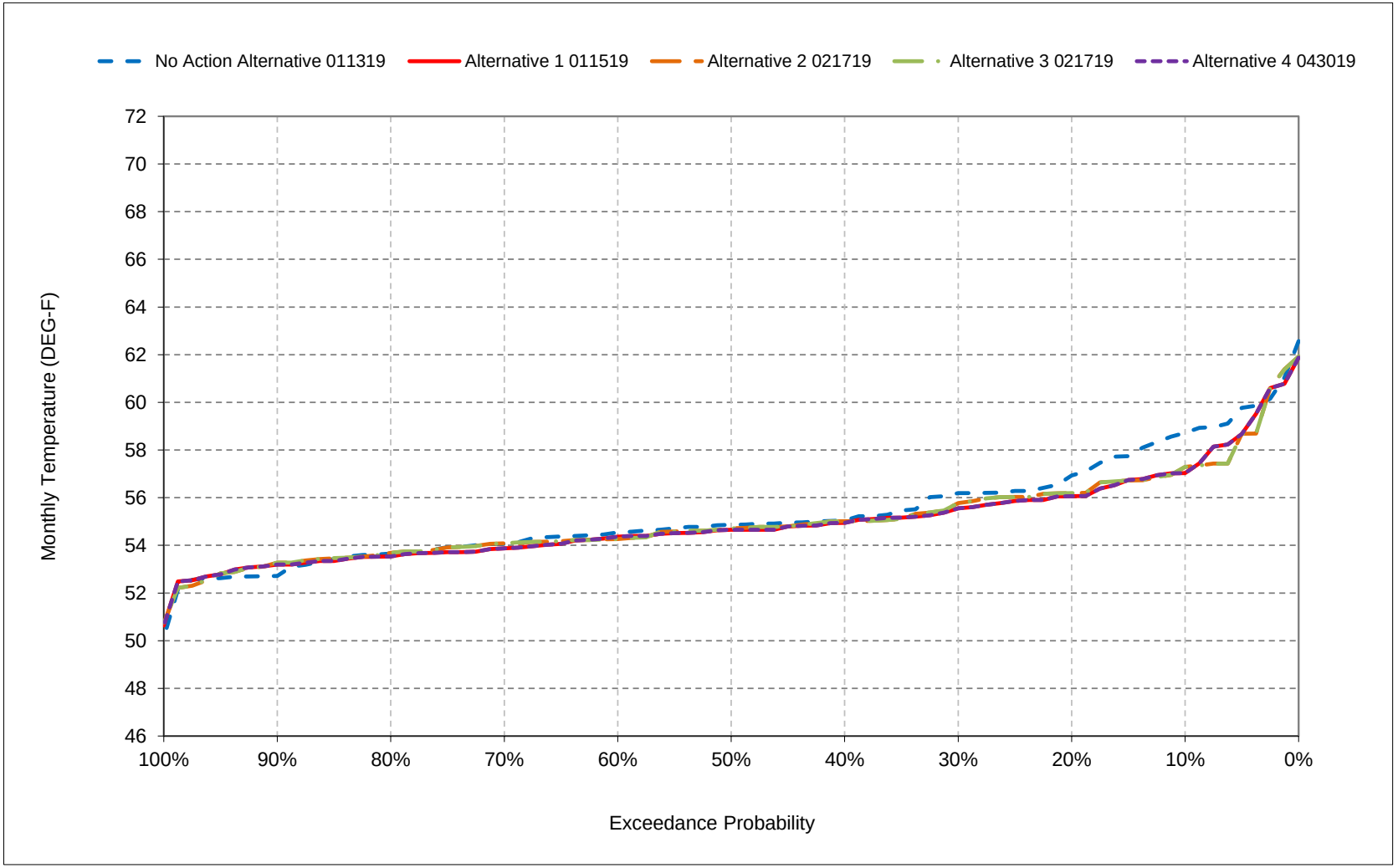


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-8. Stanislaus River at Orange Blossom Bridge, November

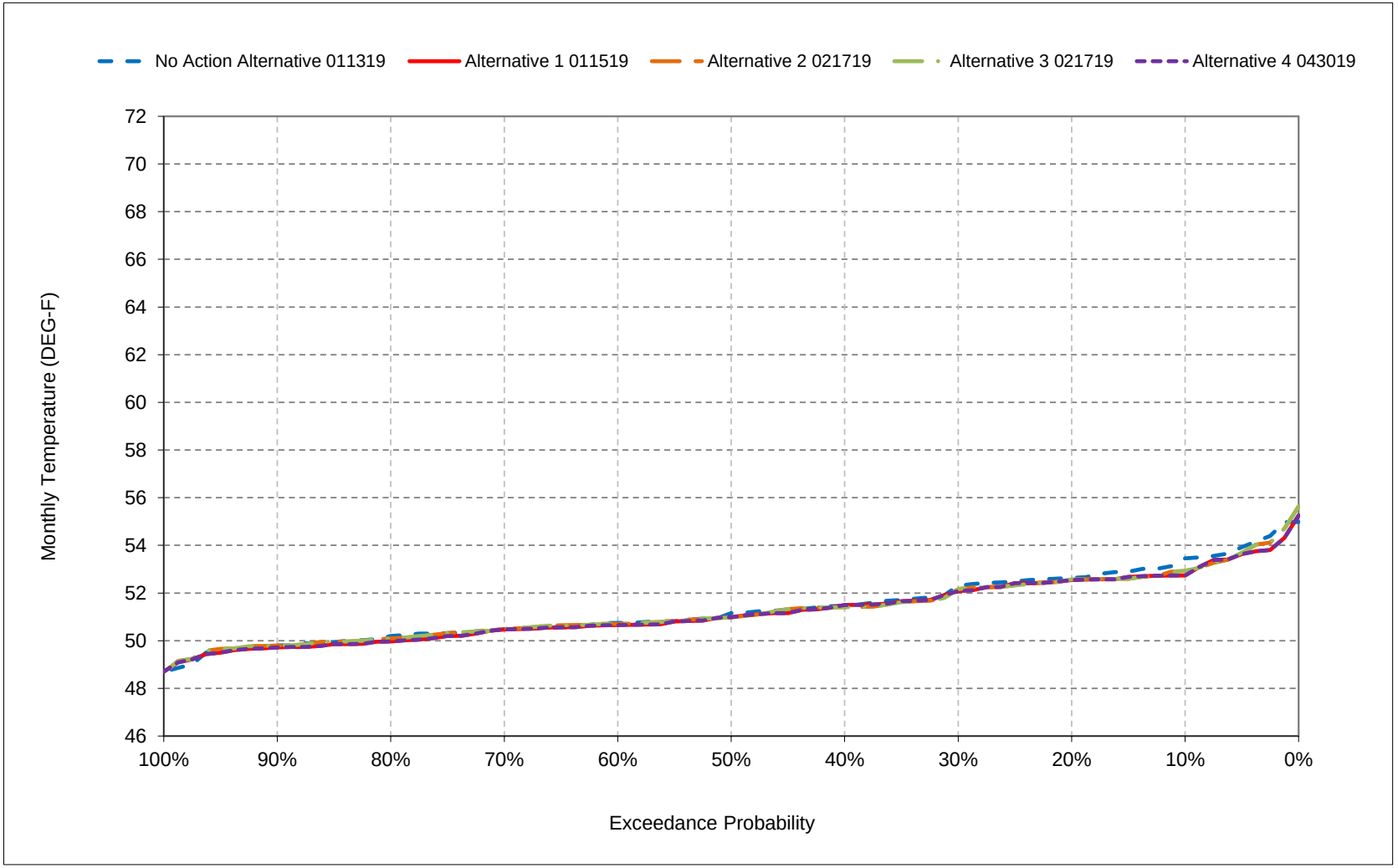


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-9. Stanislaus River at Orange Blossom Bridge, December

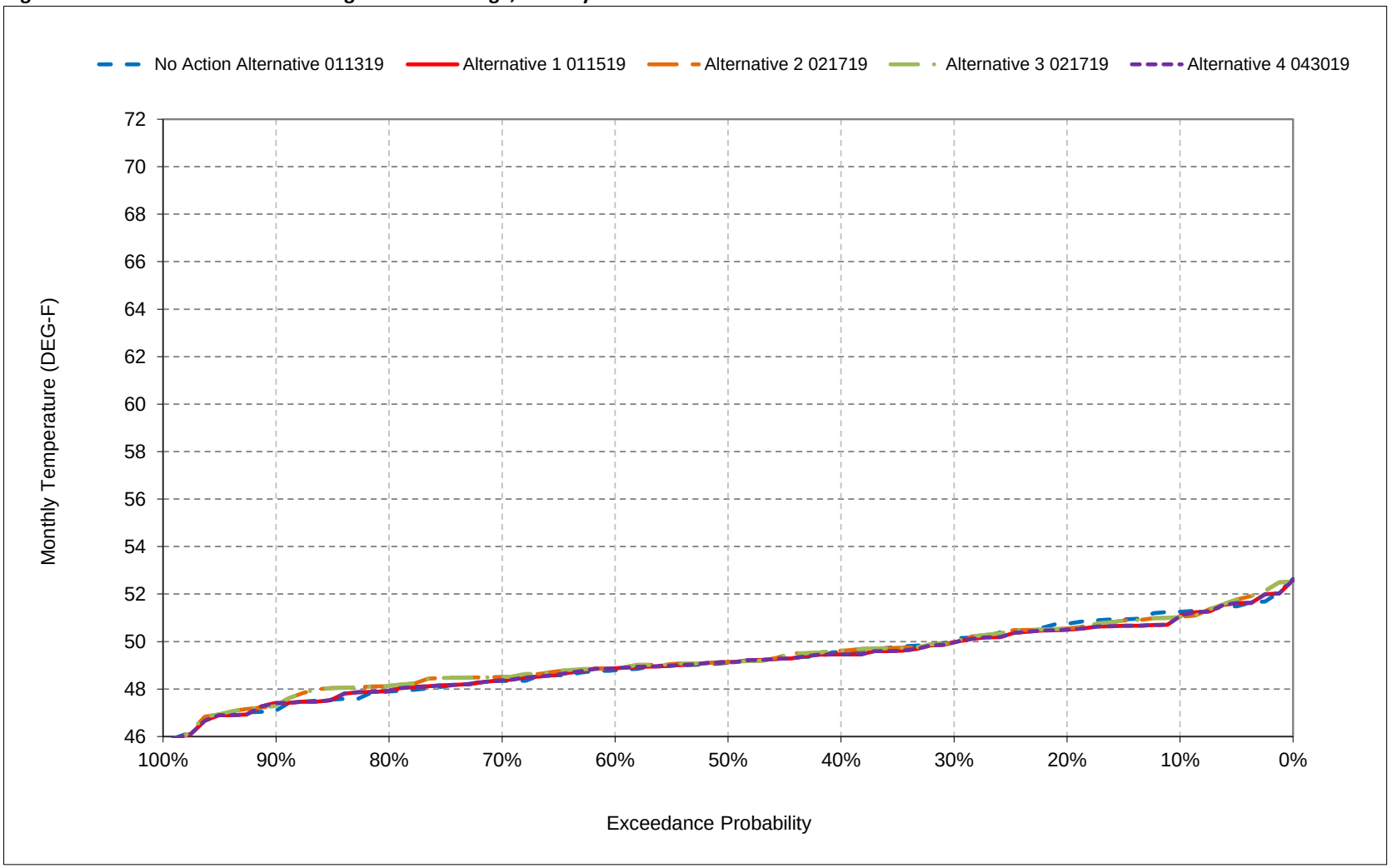


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-10. Stanislaus River at Orange Blossom Bridge, January

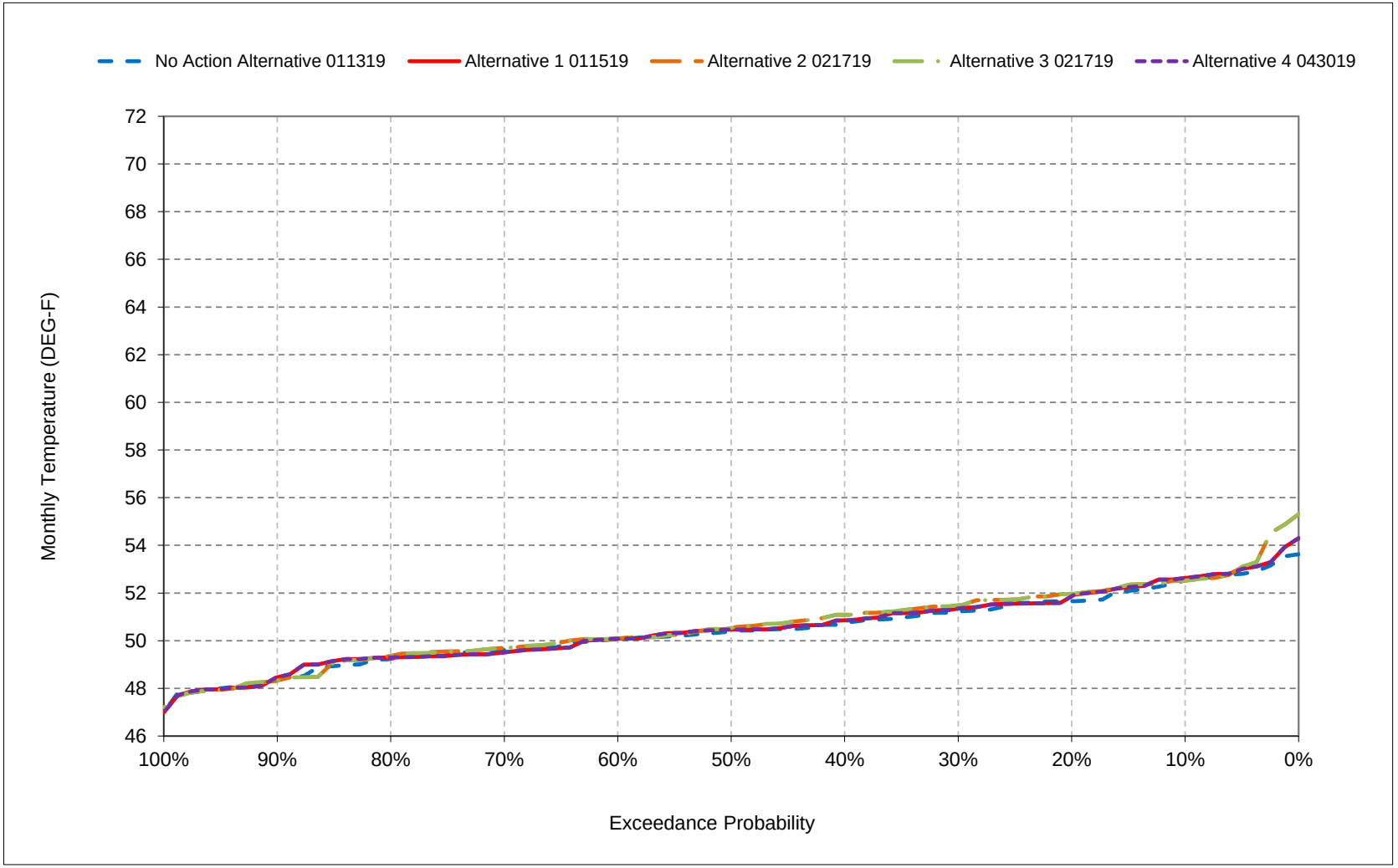


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-11. Stanislaus River at Orange Blossom Bridge, February

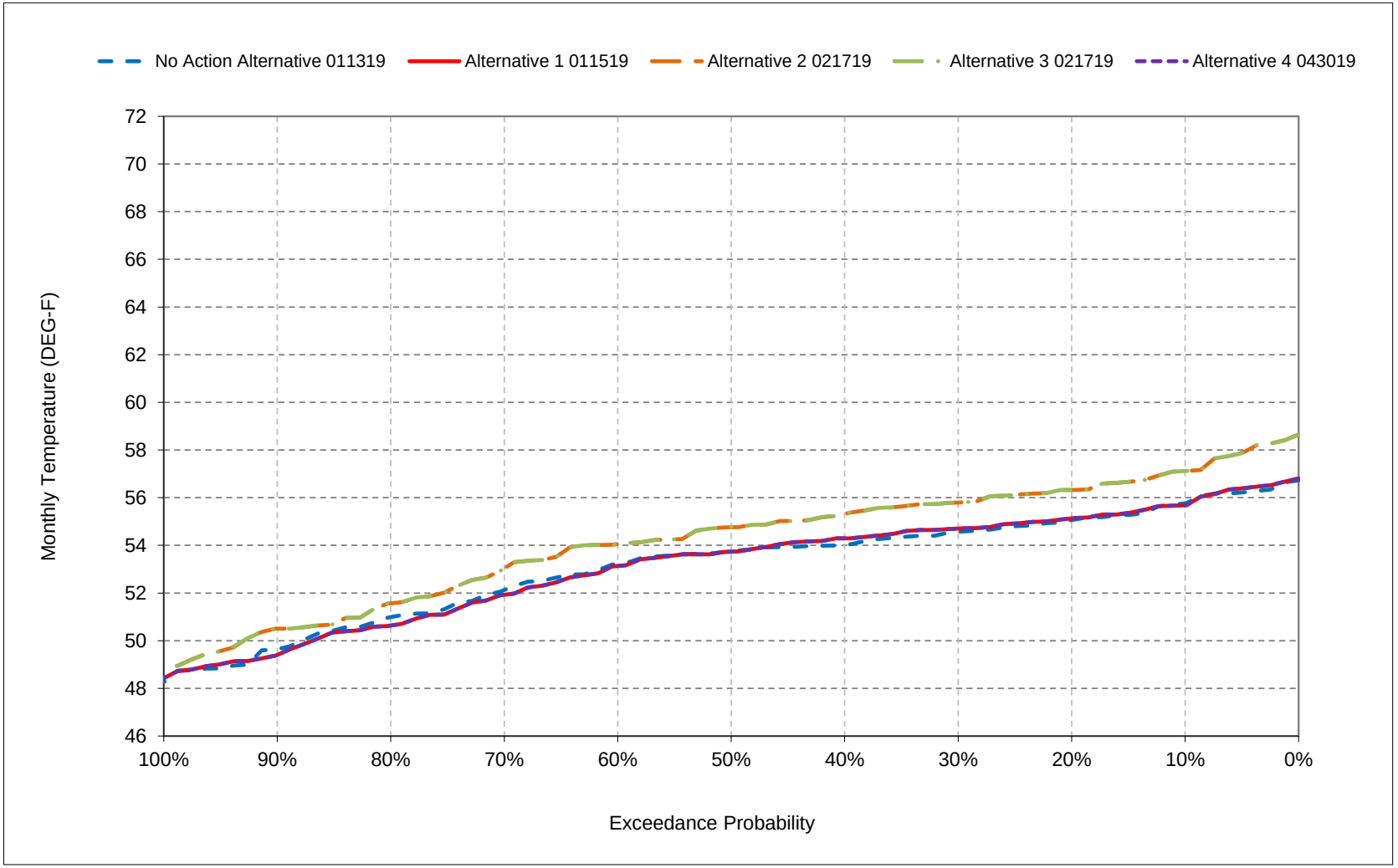


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-12. Stanislaus River at Orange Blossom Bridge, March

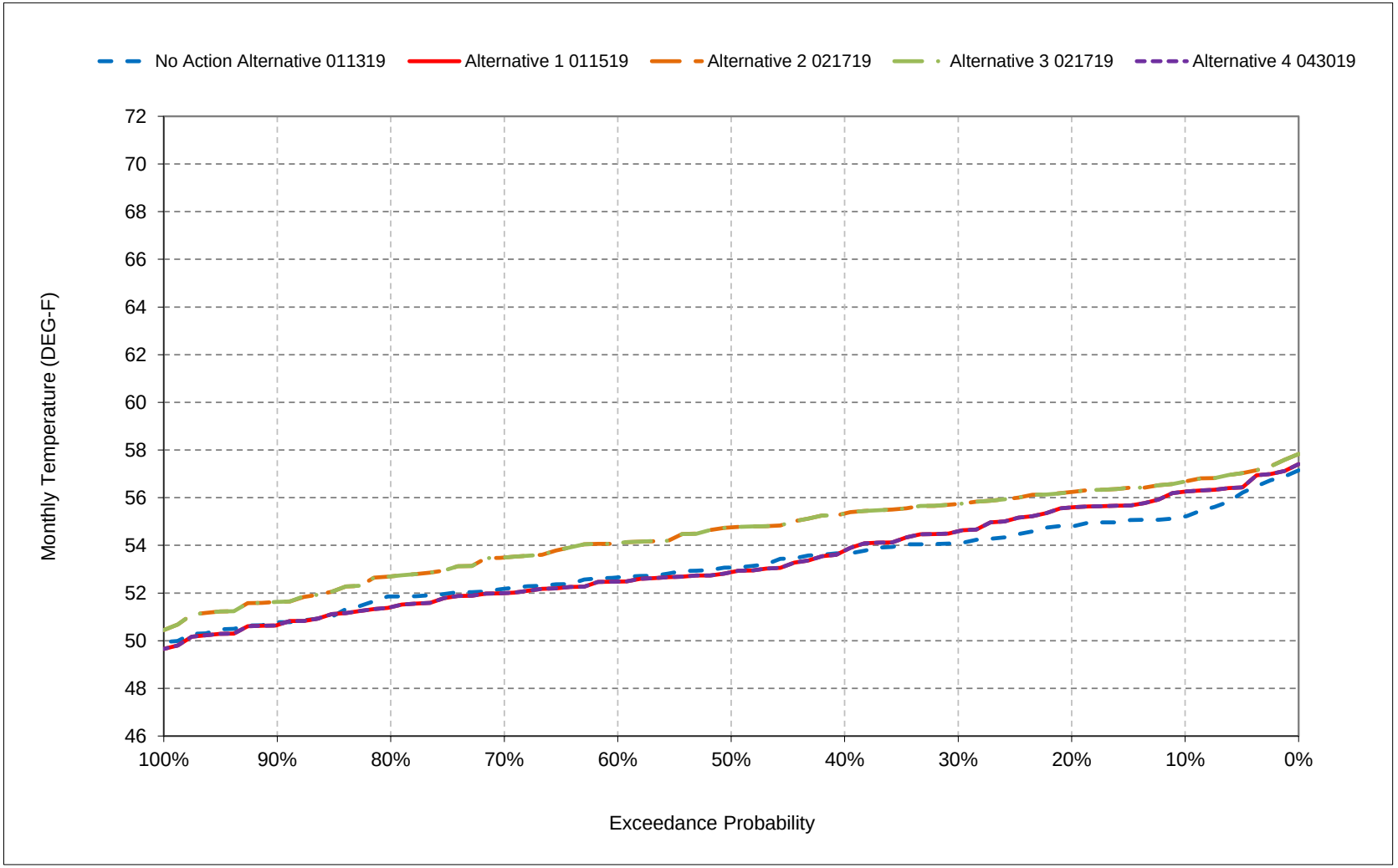


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-13. Stanislaus River at Orange Blossom Bridge, April

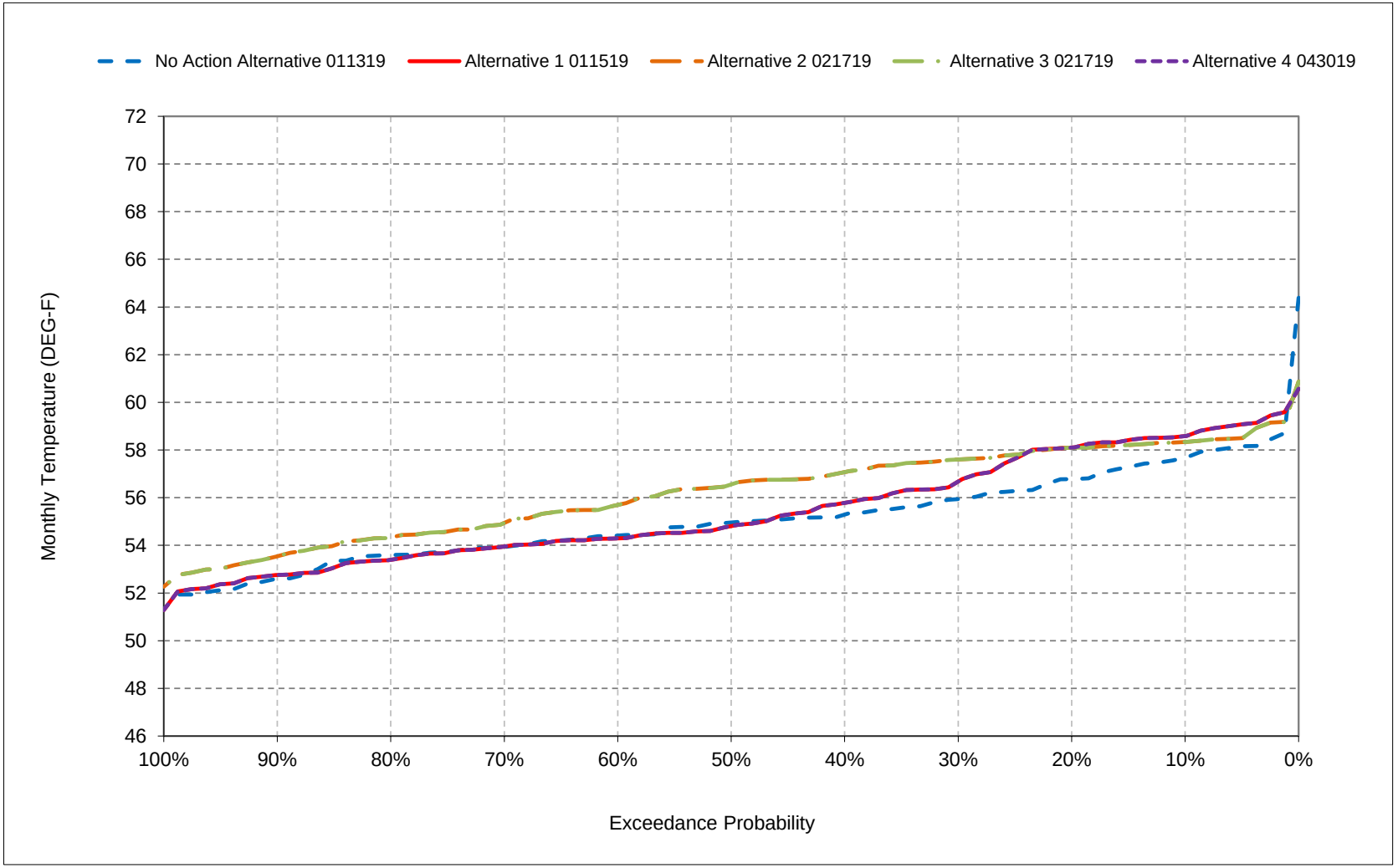


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-14. Stanislaus River at Orange Blossom Bridge, May

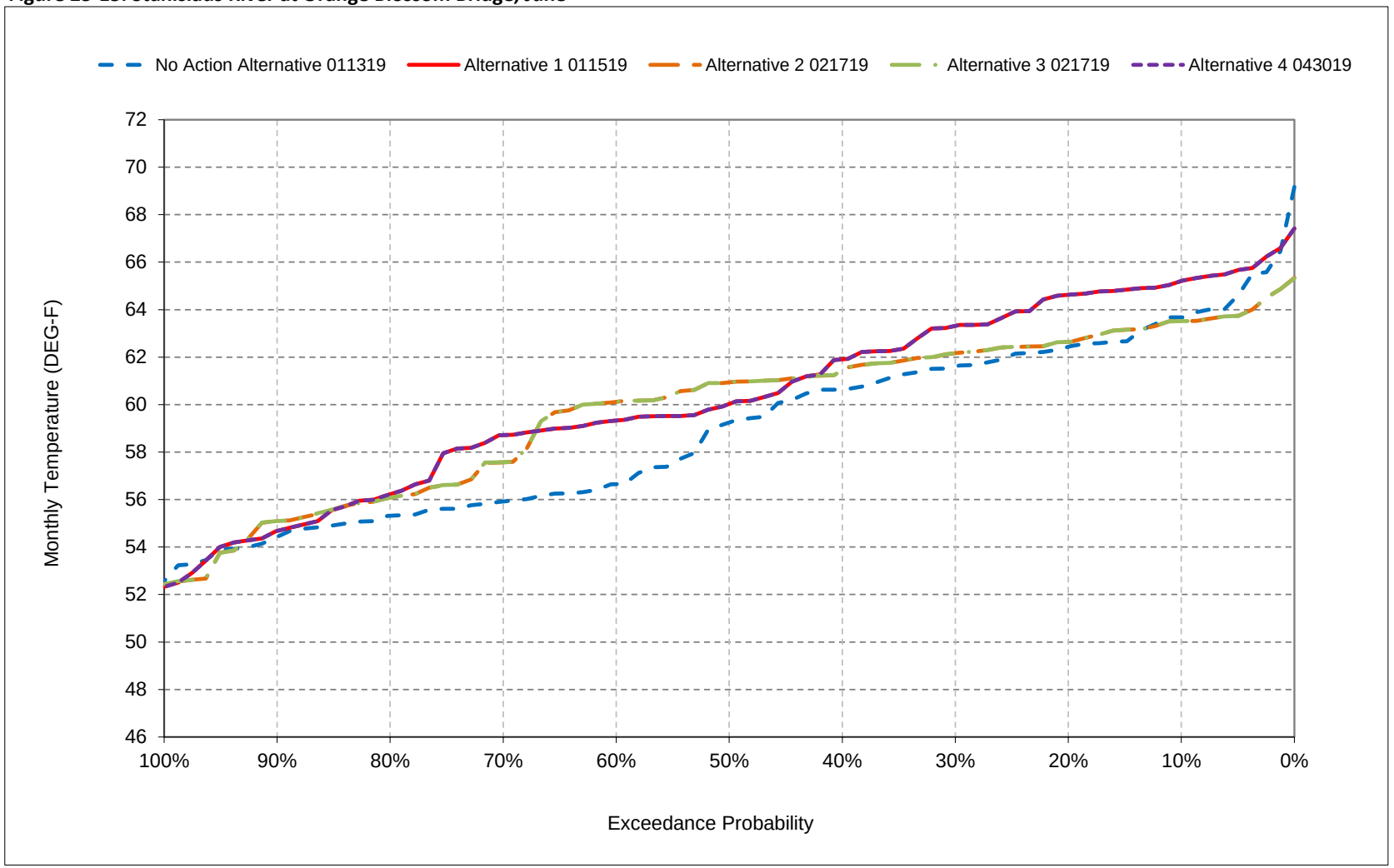


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-15. Stanislaus River at Orange Blossom Bridge, June

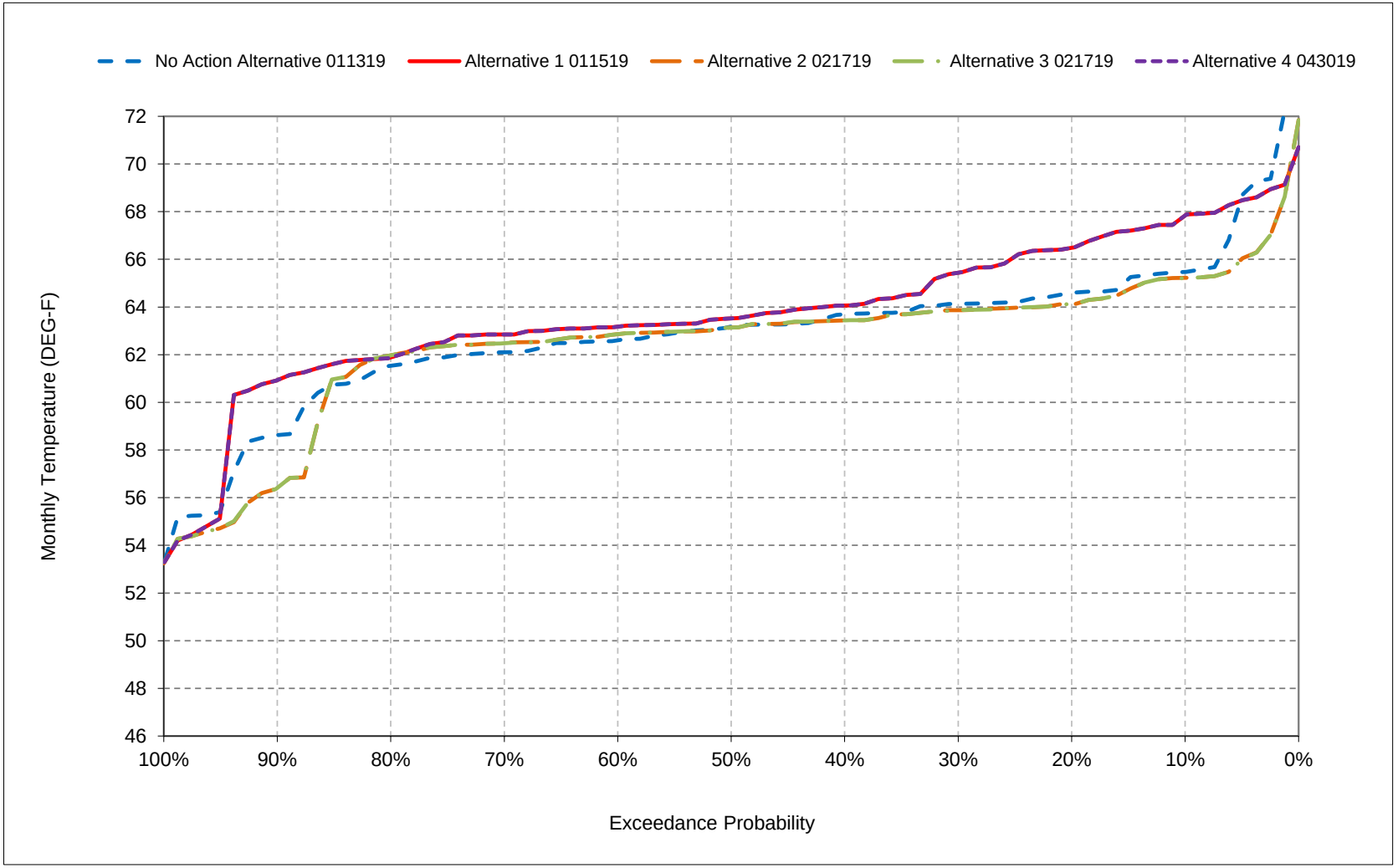


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-16. Stanislaus River at Orange Blossom Bridge, July

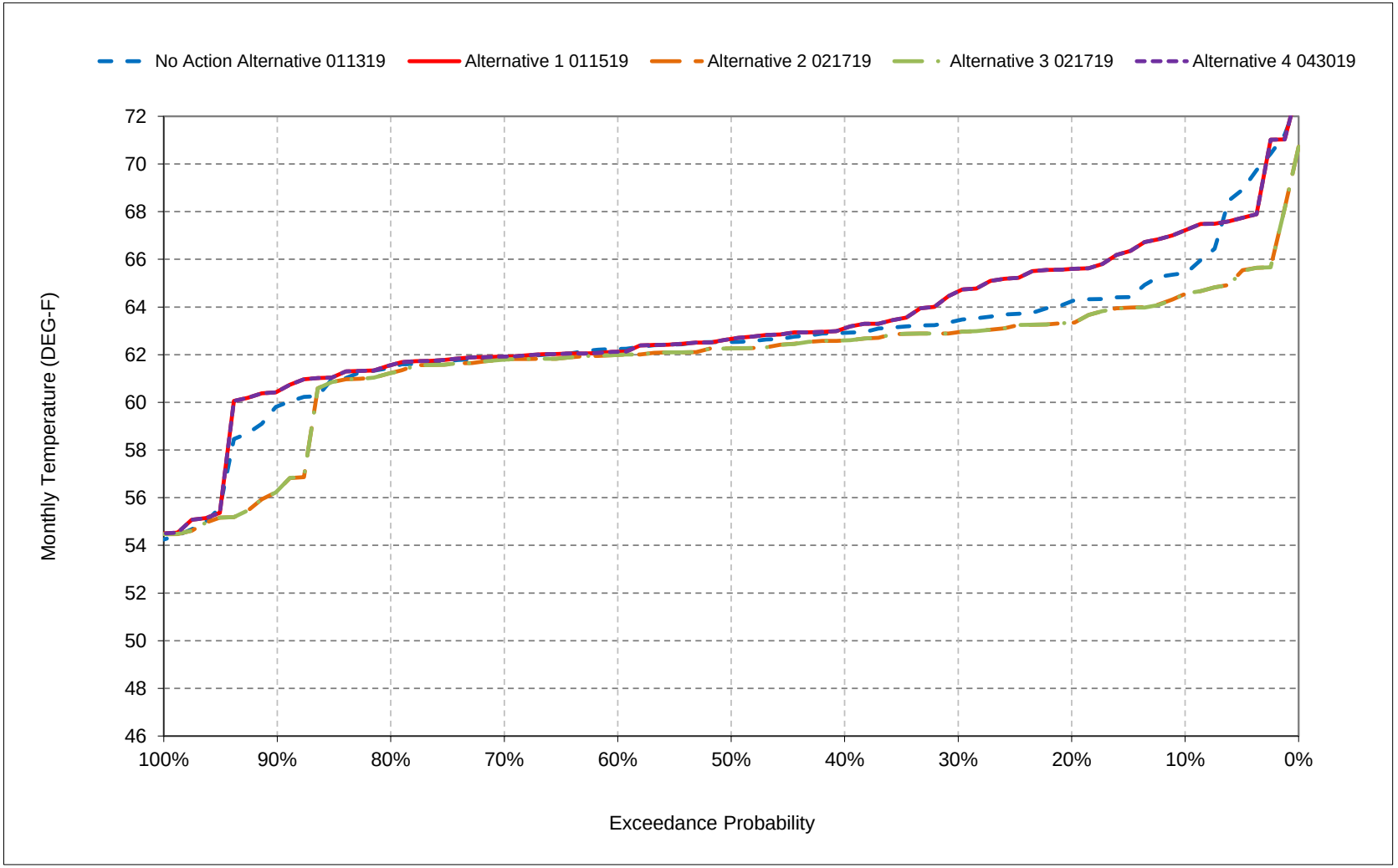


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-17. Stanislaus River at Orange Blossom Bridge, August

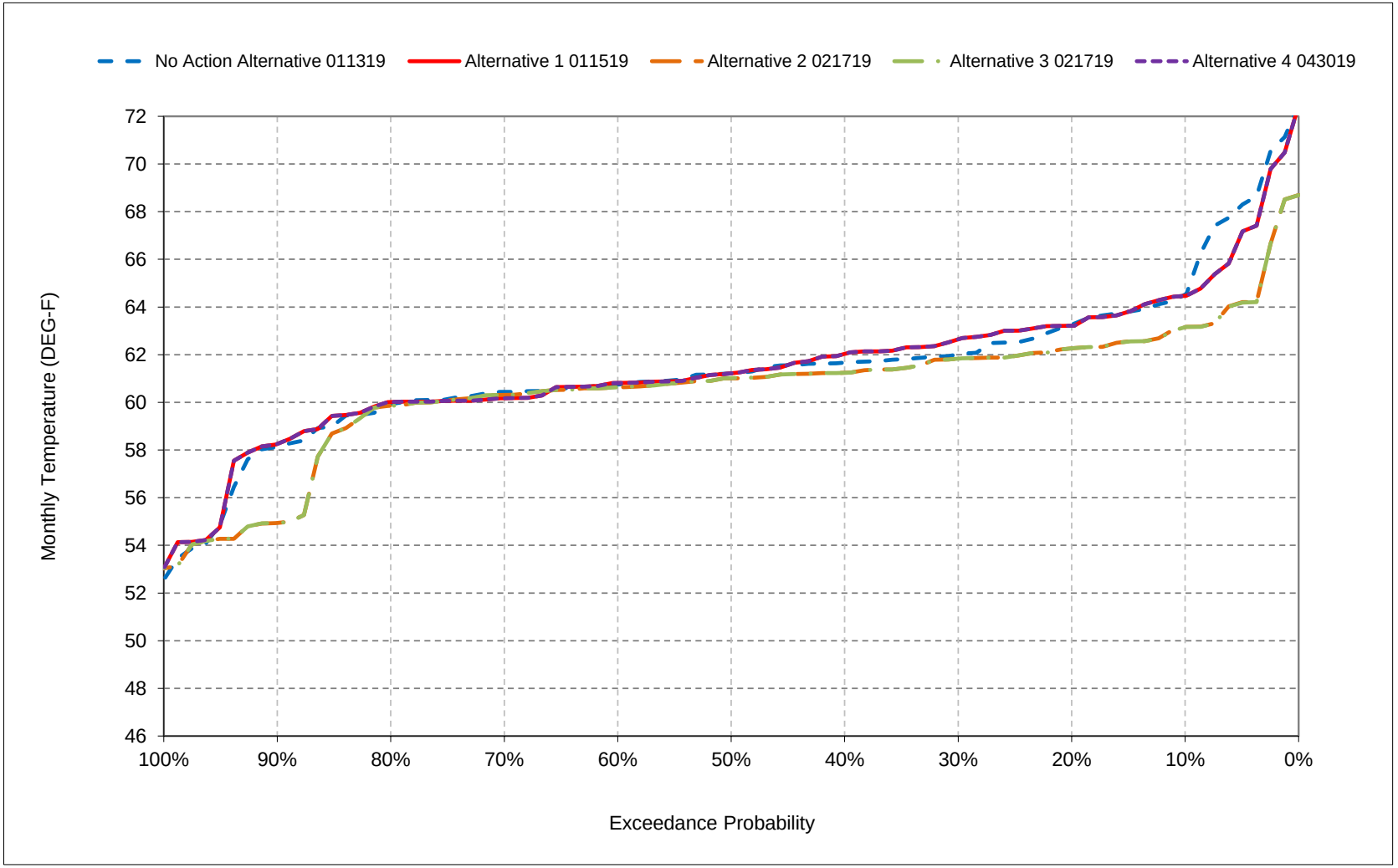


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 23-18. Stanislaus River at Orange Blossom Bridge, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Table 24-1. Stanislaus River at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.3	58.6	51.9	51.4	55.1	60.5	62.1	65.5	72.3	76.5	75.2	71.8
20%	63.0	57.4	51.6	50.8	54.4	59.7	61.1	64.6	71.7	75.4	74.4	70.7
30%	61.7	56.8	51.0	50.2	53.9	59.1	60.3	63.6	70.8	74.8	73.8	70.4
40%	60.6	56.5	50.7	49.7	53.2	58.7	58.8	62.1	70.2	74.3	73.4	69.8
50%	60.1	55.7	50.3	49.4	52.9	58.0	57.9	61.0	67.8	73.8	73.0	69.5
60%	59.6	55.2	49.9	49.0	52.6	57.0	57.1	60.7	65.3	73.1	72.6	69.0
70%	59.0	55.0	49.7	48.8	52.1	55.7	56.2	59.8	63.8	72.9	72.4	68.6
80%	58.6	54.7	49.3	48.5	51.5	53.6	55.7	58.7	62.7	71.7	71.9	68.1
90%	58.2	54.2	48.9	47.9	50.6	52.1	54.8	58.0	61.7	69.3	70.7	66.9
Long Term												
Full Simulation Period[a]	60.8	56.0	50.4	49.6	52.9	57.1	58.3	61.6	67.3	73.1	72.6	69.0
Water Year Types[b,c]												
Wet (23%)	58.4	55.0	50.3	49.6	51.8	53.0	55.4	58.9	63.1	69.6	69.6	65.7
Above Normal (24%)	60.3	55.7	50.1	49.5	52.5	56.8	57.2	61.3	64.3	72.1	72.6	69.2
Below Normal (10%)	59.3	55.6	50.0	49.3	52.5	57.3	57.4	59.9	67.6	73.9	72.6	69.0
Dry (16%)	61.2	56.5	50.5	49.7	53.3	58.6	59.6	62.1	70.3	75.0	73.4	70.0
Critical (27%)	63.4	57.2	50.8	49.6	54.2	59.9	61.3	64.7	72.0	75.7	74.6	71.1

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	63.5	57.9	52.2	51.4	55.4	60.7	63.0	67.3	73.5	77.2	76.0	72.1
20%	62.1	57.2	51.4	50.7	54.5	59.7	62.2	66.2	73.1	76.6	75.2	71.2
30%	61.2	56.8	51.0	50.1	54.0	59.2	60.8	64.2	72.0	75.7	74.4	70.7
40%	60.7	56.3	50.6	49.7	53.3	58.7	58.9	62.8	71.1	75.1	73.8	70.0
50%	60.3	55.5	50.2	49.3	52.8	58.1	57.2	60.8	69.4	74.3	73.4	69.6
60%	59.5	55.2	49.9	49.0	52.5	56.9	56.4	60.3	68.1	73.9	72.8	69.3
70%	58.9	55.0	49.6	48.7	52.1	54.9	56.0	59.8	67.2	73.5	72.4	68.8
80%	58.6	54.6	49.3	48.5	51.4	53.5	55.5	59.0	64.3	72.9	72.1	68.2
90%	58.2	54.1	48.9	47.9	50.5	52.2	54.9	58.7	62.6	71.6	71.4	67.1
Long Term												
Full Simulation Period[a]	60.5	55.9	50.4	49.5	52.9	57.1	58.5	62.2	68.8	73.9	73.0	69.2
Water Year Types[b,c]												
Wet (23%)	58.5	55.1	50.4	49.6	51.5	52.5	55.4	58.9	62.3	69.4	69.8	65.8
Above Normal (24%)	60.4	55.6	50.1	49.6	52.6	57.0	56.0	60.2	68.6	74.0	73.0	69.4
Below Normal (10%)	59.1	55.4	50.0	49.1	52.2	57.5	56.8	59.6	68.4	74.1	72.6	69.0
Dry (16%)	60.9	56.2	50.3	49.6	53.6	58.7	60.5	63.8	71.7	75.5	73.4	69.9
Critical (27%)	62.7	56.8	50.7	49.5	54.3	60.0	62.7	66.9	73.2	76.8	75.7	71.7

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.8	-0.7	**0.3**	**0.0**	**0.4**	**0.3**	**0.9**	**1.8**	**1.2**	**0.7**	**0.8**	**0.3**
20%	-0.8	-0.2	-0.1	-0.1	**0.1**	**0.0**	**1.1**	**1.6**	**1.4**	**1.2**	**0.8**	**0.5**
30%	-0.5	0.0	0.0	0.0	**0.1**	**0.1**	**0.6**	**0.7**	**1.2**	**1.0**	**0.6**	**0.3**
40%	**0.1**	-0.2	0.0	0.0	**0.1**	**0.0**	**0.1**	**0.7**	**0.9**	**0.8**	**0.4**	**0.2**
50%	**0.2**	-0.2	-0.1	0.0	-0.1	**0.1**	-0.7	-0.1	**1.6**	**0.5**	**0.4**	**0.1**
60%	-0.1	0.0	**0.1**	0.0	-0.1	-0.1	-0.7	-0.4	**2.8**	**0.7**	**0.2**	**0.2**
70%	-0.1	-0.1	-0.1	-0.1	0.0	-0.8	-0.3	0.0	**3.3**	**0.6**	**0.1**	**0.1**
80%	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	**0.3**	**1.6**	**1.2**	**0.1**	**0.1**
90%	**0.0**	-0.1	0.0	**0.0**	0.0	**0.2**	**0.1**	**0.7**	**0.8**	**2.2**	**0.8**	**0.2**
Long Term												
Full Simulation Period[a]	-0.2	-0.1	0.0	0.0	0.0	0.0	**0.2**	**0.6**	**1.5**	**0.8**	**0.5**	**0.2**
Water Year Types[b,c]												
Wet (23%)	**0.1**	**0.2**	**0.1**	0.0	-0.3	-0.6	**0.0**	0.0	-0.8	-0.3	**0.3**	**0.1**
Above Normal (24%)	**0.0**	0.0	0.0	**0.1**	**0.1**	**0.2**	-1.2	-1.1	**4.3**	**1.8**	**0.4**	**0.2**
Below Normal (10%)	-0.3	-0.1	-0.1	-0.1	-0.3	**0.2**	-0.6	-0.3	**0.8**	**0.2**	**0.0**	**0.0**
Dry (16%)	-0.3	-0.3	-0.2	0.0	**0.3**	**0.1**	**0.8**	**1.7**	**1.4**	**0.5**	**0.1**	-0.1
Critical (27%)	-0.7	-0.4	-0.1	0.0	**0.2**	**0.1**	**1.4**	**2.2**	**1.2**	**1.1**	**1.1**	**0.6**

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 24-2. Stanislaus River at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.3	58.6	51.9	51.4	55.1	60.5	62.1	65.5	72.3	76.5	75.2	71.8
20%	63.0	57.4	51.6	50.8	54.4	59.7	61.1	64.6	71.7	75.4	74.4	70.7
30%	61.7	56.8	51.0	50.2	53.9	59.1	60.3	63.6	70.8	74.8	73.8	70.4
40%	60.6	56.5	50.7	49.7	53.2	58.7	58.8	62.1	70.2	74.3	73.4	69.8
50%	60.1	55.7	50.3	49.4	52.9	58.0	57.9	61.0	67.8	73.8	73.0	69.5
60%	59.6	55.2	49.9	49.0	52.6	57.0	57.1	60.7	65.3	73.1	72.6	69.0
70%	59.0	55.0	49.7	48.8	52.1	55.7	56.2	59.8	63.8	72.9	72.4	68.6
80%	58.6	54.7	49.3	48.5	51.5	53.6	55.7	58.7	62.7	71.7	71.9	68.1
90%	58.2	54.2	48.9	47.9	50.6	52.1	54.8	58.0	61.7	69.3	70.7	66.9
Long Term												
Full Simulation Period[a]	60.8	56.0	50.4	49.6	52.9	57.1	58.3	61.6	67.3	73.1	72.6	69.0
Water Year Types[b,c]												
Wet (23%)	58.4	55.0	50.3	49.6	51.8	53.0	55.4	58.9	63.1	69.6	69.6	65.7
Above Normal (24%)	60.3	55.7	50.1	49.5	52.5	56.8	57.2	61.3	64.3	72.1	72.6	69.2
Below Normal (10%)	59.3	55.6	50.0	49.3	52.5	57.3	57.4	59.9	67.6	73.9	72.6	69.0
Dry (16%)	61.2	56.5	50.5	49.7	53.3	58.6	59.6	62.1	70.3	75.0	73.4	70.0
Critical (27%)	63.4	57.2	50.8	49.6	54.2	59.9	61.3	64.7	72.0	75.7	74.6	71.1

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66.9	58.4	51.9	51.4	55.1	61.0	64.2	67.1	72.9	76.3	75.0	71.6
20%	66.1	57.9	51.4	50.7	54.5	60.3	63.3	66.7	72.4	75.4	74.1	70.5
30%	65.1	57.4	50.9	50.2	54.0	59.6	62.9	66.3	71.6	75.0	73.5	70.1
40%	64.8	56.8	50.7	49.7	53.3	59.2	62.2	65.7	71.0	74.6	73.2	69.8
50%	64.2	56.4	50.2	49.2	52.9	58.4	61.2	64.7	70.2	74.2	72.9	69.4
60%	63.6	55.7	49.9	49.1	52.2	57.5	60.2	63.7	68.4	73.6	72.5	69.0
70%	63.1	55.4	49.6	48.8	51.5	56.7	58.8	62.2	67.3	73.2	72.3	68.6
80%	62.2	55.0	49.3	48.5	50.6	54.8	57.1	60.6	64.3	72.3	71.9	68.1
90%	60.9	54.6	48.8	47.9	50.2	53.3	56.3	59.8	61.8	65.5	63.7	60.1
Long Term												
Full Simulation Period[a]	63.9	56.4	50.4	49.5	52.6	57.7	60.6	64.0	68.4	72.9	71.9	68.4
Water Year Types[b,c]												
Wet (23%)	61.0	55.2	50.3	49.5	50.7	54.3	56.9	60.5	64.8	68.1	67.2	63.6
Above Normal (24%)	64.0	56.1	50.1	49.6	52.4	57.1	59.5	63.6	65.2	72.5	72.7	69.3
Below Normal (10%)	63.3	56.3	50.0	49.2	52.1	57.9	61.4	64.5	69.6	74.2	72.5	69.0
Dry (16%)	64.7	56.9	50.3	49.6	53.1	59.1	63.3	65.3	71.1	75.0	73.2	69.7
Critical (27%)	65.9	57.5	50.8	49.5	54.4	60.5	63.1	66.4	72.3	75.6	74.2	70.6

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**2.6**	-0.2	**0.0**	**0.0**	**0.0**	**0.5**	**2.1**	**1.6**	**0.6**	-0.2	-0.2	-0.3
20%	**3.2**	**0.5**	-0.1	-0.1	**0.1**	**0.6**	**2.2**	**2.1**	**0.6**	**0.0**	-0.3	-0.2
30%	**3.4**	**0.6**	-0.1	**0.0**	**0.1**	**0.5**	**2.6**	**2.7**	**0.8**	**0.2**	-0.3	-0.3
40%	**4.2**	**0.3**	**0.1**	0.0	**0.1**	**0.5**	**3.5**	**3.5**	**0.8**	**0.3**	-0.2	**0.0**
50%	**4.1**	**0.7**	-0.1	-0.2	-0.1	**0.4**	**3.3**	**3.7**	**2.4**	**0.4**	-0.1	-0.1
60%	**4.0**	**0.5**	**0.1**	**0.0**	-0.4	**0.5**	**3.1**	**3.0**	**3.0**	**0.5**	-0.1	-0.1
70%	**4.0**	**0.4**	-0.1	0.0	-0.6	**1.0**	**2.5**	**2.4**	**3.5**	**0.3**	0.0	0.0
80%	**3.6**	**0.4**	**0.0**	**0.0**	-0.9	**1.2**	**1.4**	**1.9**	**1.6**	**0.6**	**0.0**	0.0
90%	**2.7**	**0.4**	-0.1	**0.0**	-0.3	**1.2**	**1.5**	**1.8**	**0.1**	-3.9	-7.0	-6.8
Long Term												
Full Simulation Period[a]	**3.1**	**0.4**	0.0	0.0	-0.3	**0.7**	**2.4**	**2.4**	**1.0**	-0.3	-0.6	-0.6
Water Year Types[b,c]												
Wet (23%)	**2.6**	**0.2**	**0.1**	-0.1	-1.1	**1.3**	**1.4**	**1.6**	**1.7**	-1.5	-2.3	-2.1
Above Normal (24%)	**3.7**	**0.4**	-0.1	**0.1**	-0.1	**0.3**	**2.3**	**2.4**	**0.9**	**0.4**	**0.1**	**0.1**
Below Normal (10%)	**3.9**	**0.7**	-0.1	-0.1	-0.4	**0.6**	**4.0**	**4.6**	**2.1**	**0.3**	0.0	0.0
Dry (16%)	**3.4**	**0.4**	-0.2	-0.1	-0.2	**0.5**	**3.6**	**3.2**	**0.9**	**0.0**	-0.2	-0.3
Critical (27%)	**2.5**	**0.3**	**0.0**	-0.1	**0.3**	**0.6**	**1.8**	**1.7**	**0.3**	-0.1	-0.3	-0.5

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 24-3. Stanislaus River at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.3	58.6	51.9	51.4	55.1	60.5	62.1	65.5	72.3	76.5	75.2	71.8
20%	63.0	57.4	51.6	50.8	54.4	59.7	61.1	64.6	71.7	75.4	74.4	70.7
30%	61.7	56.8	51.0	50.2	53.9	59.1	60.3	63.6	70.8	74.8	73.8	70.4
40%	60.6	56.5	50.7	49.7	53.2	58.7	58.8	62.1	70.2	74.3	73.4	69.8
50%	60.1	55.7	50.3	49.4	52.9	58.0	57.9	61.0	67.8	73.8	73.0	69.5
60%	59.6	55.2	49.9	49.0	52.6	57.0	57.1	60.7	65.3	73.1	72.6	69.0
70%	59.0	55.0	49.7	48.8	52.1	55.7	56.2	59.8	63.8	72.9	72.4	68.6
80%	58.6	54.7	49.3	48.5	51.5	53.6	55.7	58.7	62.7	71.7	71.9	68.1
90%	58.2	54.2	48.9	47.9	50.6	52.1	54.8	58.0	61.7	69.3	70.7	66.9
Long Term												
Full Simulation Period[a]	60.8	56.0	50.4	49.6	52.9	57.1	58.3	61.6	67.3	73.1	72.6	69.0
Water Year Types[b,c]												
Wet (23%)	58.4	55.0	50.3	49.6	51.8	53.0	55.4	58.9	63.1	69.6	69.6	65.7
Above Normal (24%)	60.3	55.7	50.1	49.5	52.5	56.8	57.2	61.3	64.3	72.1	72.6	69.2
Below Normal (10%)	59.3	55.6	50.0	49.3	52.5	57.3	57.4	59.9	67.6	73.9	72.6	69.0
Dry (16%)	61.2	56.5	50.5	49.7	53.3	58.6	59.6	62.1	70.3	75.0	73.4	70.0
Critical (27%)	63.4	57.2	50.8	49.6	54.2	59.9	61.3	64.7	72.0	75.7	74.6	71.1

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	66.9	58.4	51.9	51.4	55.1	61.0	64.2	67.1	72.9	76.3	75.0	71.6
20%	66.1	57.9	51.4	50.7	54.5	60.3	63.3	66.7	72.4	75.4	74.1	70.5
30%	65.1	57.4	50.9	50.2	54.0	59.6	62.9	66.3	71.6	75.0	73.5	70.1
40%	64.8	56.8	50.7	49.7	53.3	59.2	62.2	65.7	71.0	74.6	73.2	69.8
50%	64.2	56.4	50.2	49.2	52.9	58.4	61.2	64.7	70.2	74.2	72.9	69.4
60%	63.6	55.7	49.9	49.1	52.2	57.5	60.2	63.7	68.4	73.6	72.5	69.0
70%	63.1	55.4	49.6	48.8	51.5	56.7	58.8	62.2	67.3	73.2	72.3	68.6
80%	62.2	55.0	49.3	48.5	50.6	54.8	57.1	60.6	64.3	72.3	71.9	68.1
90%	60.9	54.6	48.8	47.9	50.2	53.3	56.3	59.8	61.8	65.5	63.7	60.1
Long Term												
Full Simulation Period[a]	63.9	56.4	50.4	49.5	52.6	57.7	60.6	64.0	68.4	72.9	71.9	68.4
Water Year Types[b,c]												
Wet (23%)	61.0	55.2	50.3	49.5	50.7	54.3	56.9	60.5	64.8	68.1	67.2	63.6
Above Normal (24%)	64.0	56.1	50.1	49.6	52.4	57.1	59.5	63.6	65.2	72.5	72.7	69.3
Below Normal (10%)	63.3	56.3	50.0	49.2	52.1	57.9	61.4	64.5	69.6	74.2	72.5	69.0
Dry (16%)	64.7	56.9	50.3	49.6	53.1	59.1	63.3	65.3	71.1	75.0	73.2	69.7
Critical (27%)	65.9	57.5	50.8	49.5	54.4	60.5	63.1	66.4	72.3	75.6	74.2	70.6

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	**2.6**	-0.2	**0.0**	**0.0**	**0.0**	**0.5**	**2.1**	**1.6**	**0.6**	-0.2	-0.2	-0.3
20%	**3.2**	**0.5**	-0.1	-0.1	**0.1**	**0.6**	**2.2**	**2.1**	**0.6**	**0.0**	-0.3	-0.2
30%	**3.4**	**0.6**	-0.1	**0.0**	**0.1**	**0.5**	**2.6**	**2.7**	**0.8**	**0.2**	-0.3	-0.3
40%	**4.2**	**0.3**	**0.1**	0.0	**0.1**	**0.5**	**3.5**	**3.5**	**0.8**	**0.3**	-0.2	**0.0**
50%	**4.1**	**0.7**	-0.1	-0.2	-0.1	**0.4**	**3.3**	**3.7**	**2.4**	**0.4**	-0.1	-0.1
60%	**4.0**	**0.5**	**0.1**	**0.0**	-0.4	**0.5**	**3.1**	**3.0**	**3.0**	**0.5**	-0.1	-0.1
70%	**4.0**	**0.4**	-0.1	0.0	-0.6	**1.0**	**2.5**	**2.4**	**3.5**	**0.3**	0.0	0.0
80%	**3.6**	**0.4**	**0.0**	**0.0**	-0.9	**1.2**	**1.4**	**1.9**	**1.6**	**0.6**	**0.0**	-0.1
90%	**2.7**	**0.4**	-0.1	**0.0**	-0.3	**1.2**	**1.5**	**1.8**	**0.1**	-3.9	-7.0	-6.8
Long Term												
Full Simulation Period[a]	**3.1**	**0.4**	0.0	0.0	-0.3	**0.7**	**2.4**	**2.4**	**1.0**	-0.3	-0.6	-0.6
Water Year Types[b,c]												
Wet (23%)	**2.6**	**0.2**	**0.1**	-0.1	-1.1	**1.3**	**1.4**	**1.6**	**1.7**	-1.5	-2.3	-2.1
Above Normal (24%)	**3.7**	**0.4**	-0.1	**0.1**	-0.1	**0.3**	**2.3**	**2.4**	**0.9**	**0.4**	**0.1**	**0.1**
Below Normal (10%)	**3.9**	**0.7**	-0.1	-0.1	-0.4	**0.6**	**4.0**	**4.6**	**2.1**	**0.3**	0.0	0.0
Dry (16%)	**3.4**	**0.4**	-0.2	-0.1	-0.2	**0.5**	**3.6**	**3.2**	**0.9**	**0.0**	-0.2	-0.3
Critical (27%)	**2.5**	**0.3**	**0.0**	-0.1	**0.3**	**0.6**	**1.8**	**1.7**	**0.3**	-0.1	-0.3	-0.5

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f New Melones forecasts are used as the basis of water operations.

Table 24-4. Stanislaus River at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.3	58.6	51.9	51.4	55.1	60.5	62.1	65.5	72.3	76.5	75.2	71.8
20%	63.0	57.4	51.6	50.8	54.4	59.7	61.1	64.6	71.7	75.4	74.4	70.7
30%	61.7	56.8	51.0	50.2	53.9	59.1	60.3	63.6	70.8	74.8	73.8	70.4
40%	60.6	56.5	50.7	49.7	53.2	58.7	58.8	62.1	70.2	74.3	73.4	69.8
50%	60.1	55.7	50.3	49.4	52.9	58.0	57.9	61.0	67.8	73.8	73.0	69.5
60%	59.6	55.2	49.9	49.0	52.6	57.0	57.1	60.7	65.3	73.1	72.6	69.0
70%	59.0	55.0	49.7	48.8	52.1	55.7	56.2	59.8	63.8	72.9	72.4	68.6
80%	58.6	54.7	49.3	48.5	51.5	53.6	55.7	58.7	62.7	71.7	71.9	68.1
90%	58.2	54.2	48.9	47.9	50.6	52.1	54.8	58.0	61.7	69.3	70.7	66.9
Long Term												
Full Simulation Period[a]	60.8	56.0	50.4	49.6	52.9	57.1	58.3	61.6	67.3	73.1	72.6	69.0
Water Year Types[b,c]												
Wet (23%)	58.4	55.0	50.3	49.6	51.8	53.0	55.4	58.9	63.1	69.6	69.6	65.7
Above Normal (24%)	60.3	55.7	50.1	49.5	52.5	56.8	57.2	61.3	64.3	72.1	72.6	69.2
Below Normal (10%)	59.3	55.6	50.0	49.3	52.5	57.3	57.4	59.9	67.6	73.9	72.6	69.0
Dry (16%)	61.2	56.5	50.5	49.7	53.3	58.6	59.6	62.1	70.3	75.0	73.4	70.0
Critical (27%)	63.4	57.2	50.8	49.6	54.2	59.9	61.3	64.7	72.0	75.7	74.6	71.1

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	63.5	57.9	52.2	51.4	55.4	60.7	63.0	67.3	73.5	77.2	76.0	72.1
20%	62.1	57.2	51.4	50.7	54.5	59.7	62.2	66.2	73.1	76.6	75.2	71.2
30%	61.2	56.8	51.0	50.1	54.0	59.2	60.8	64.2	72.0	75.7	74.4	70.7
40%	60.7	56.3	50.6	49.7	53.3	58.7	58.9	62.8	71.1	75.1	73.8	70.0
50%	60.3	55.5	50.2	49.3	52.8	58.1	57.2	60.8	69.4	74.3	73.4	69.6
60%	59.5	55.2	49.9	49.0	52.5	56.9	56.4	60.3	68.1	73.9	72.8	69.3
70%	58.9	55.0	49.6	48.7	52.1	54.9	56.0	59.8	67.2	73.5	72.4	68.8
80%	58.6	54.6	49.3	48.5	51.4	53.5	55.5	59.0	64.3	72.9	72.1	68.2
90%	58.2	54.1	48.9	47.9	50.5	52.2	54.9	58.7	62.6	71.6	71.4	67.1
Long Term												
Full Simulation Period[a]	60.5	55.9	50.4	49.5	52.9	57.1	58.5	62.2	68.8	73.9	73.0	69.2
Water Year Types[b,c]												
Wet (23%)	58.5	55.1	50.4	49.6	51.5	52.5	55.4	58.9	62.3	69.4	69.8	65.8
Above Normal (24%)	60.4	55.6	50.1	49.6	52.6	57.0	56.0	60.2	68.6	74.0	73.0	69.4
Below Normal (10%)	59.1	55.4	50.0	49.1	52.2	57.5	56.8	59.6	68.4	74.1	72.6	69.0
Dry (16%)	60.9	56.2	50.3	49.6	53.6	58.7	60.5	63.8	71.7	75.5	73.4	69.9
Critical (27%)	62.7	56.8	50.7	49.5	54.3	60.0	62.7	66.9	73.2	76.8	75.7	71.7

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.8	-0.7	**0.3**	**0.0**	**0.4**	**0.3**	**0.9**	**1.8**	**1.2**	**0.7**	**0.8**	**0.3**
20%	-0.8	-0.2	-0.1	-0.1	**0.1**	**0.0**	**1.1**	**1.6**	**1.4**	**1.2**	**0.8**	**0.5**
30%	-0.5	0.0	0.0	0.0	**0.1**	**0.1**	**0.6**	**0.7**	**1.2**	**1.0**	**0.6**	**0.3**
40%	**0.1**	-0.2	0.0	0.0	**0.1**	**0.0**	**0.1**	**0.7**	**0.9**	**0.8**	**0.4**	**0.2**
50%	**0.2**	-0.2	-0.1	0.0	-0.1	**0.1**	-0.7	-0.1	**1.6**	**0.5**	**0.4**	**0.1**
60%	-0.1	0.0	**0.1**	0.0	-0.1	-0.1	-0.7	-0.4	**2.8**	**0.7**	**0.2**	**0.2**
70%	-0.1	-0.1	-0.1	-0.1	0.0	-0.8	-0.3	0.0	**3.3**	**0.6**	**0.1**	**0.1**
80%	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	**0.3**	**1.6**	**1.2**	**0.1**	**0.1**
90%	**0.0**	-0.1	0.0	**0.0**	0.0	**0.2**	**0.1**	**0.7**	**0.8**	**2.2**	**0.8**	**0.2**
Long Term												
Full Simulation Period[a]	-0.2	-0.1	0.0	0.0	0.0	0.0	**0.2**	**0.6**	**1.5**	**0.8**	**0.5**	**0.2**
Water Year Types[b,c]												
Wet (23%)	**0.1**	**0.2**	**0.1**	0.0	-0.3	-0.6	**0.0**	0.0	-0.8	-0.3	**0.3**	**0.1**
Above Normal (24%)	**0.0**	0.0	0.0	**0.1**	**0.1**	**0.2**	-1.2	-1.1	**4.3**	**1.8**	**0.4**	**0.2**
Below Normal (10%)	-0.3	-0.1	-0.1	-0.1	-0.3	**0.2**	-0.6	-0.3	**0.8**	**0.2**	**0.0**	**0.0**
Dry (16%)	-0.3	-0.3	-0.2	0.0	**0.3**	**0.1**	**0.8**	**1.7**	**1.4**	**0.5**	**0.1**	-0.1
Critical (27%)	-0.7	-0.4	-0.1	0.0	**0.2**	**0.1**	**1.4**	**2.2**	**1.2**	**1.1**	**1.1**	**0.6**

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

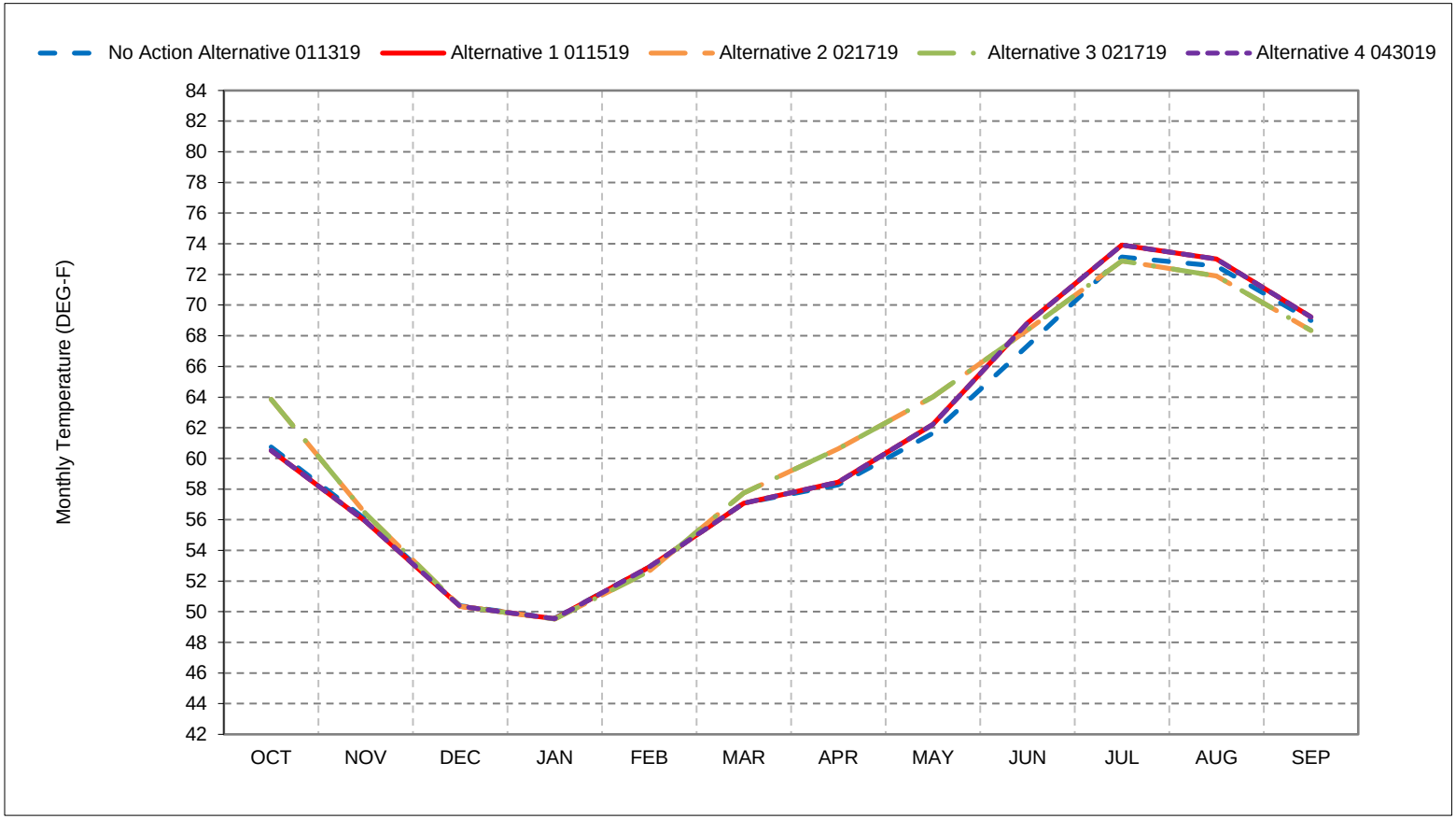
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

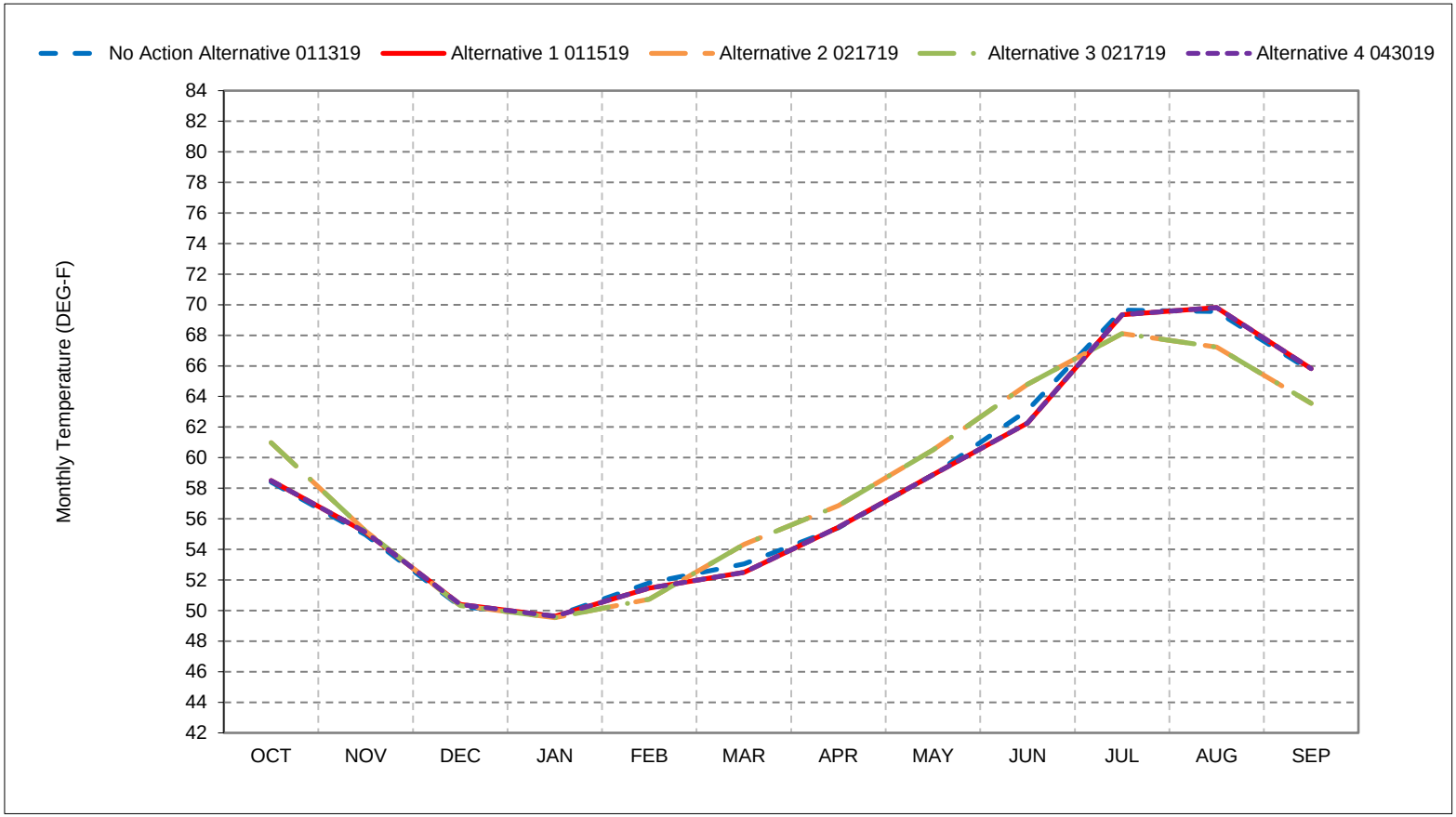
f New Melones forecasts are used as the basis of water operations.

Figure 24-1. Stanislaus River at Mouth, Long-Term Average Temperature



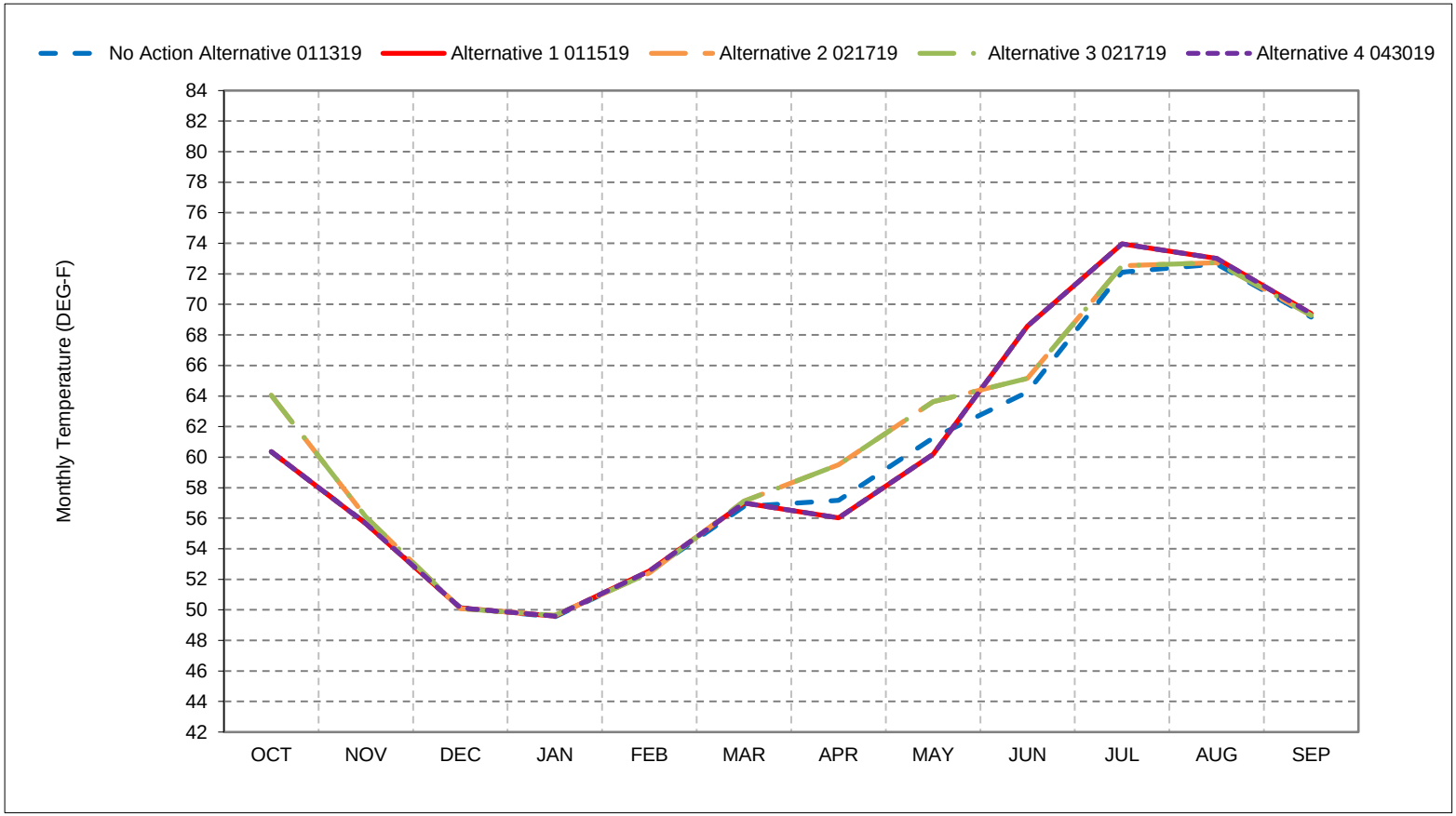
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 24-2. Stanislaus River at Mouth, Wet Year Average Temperature



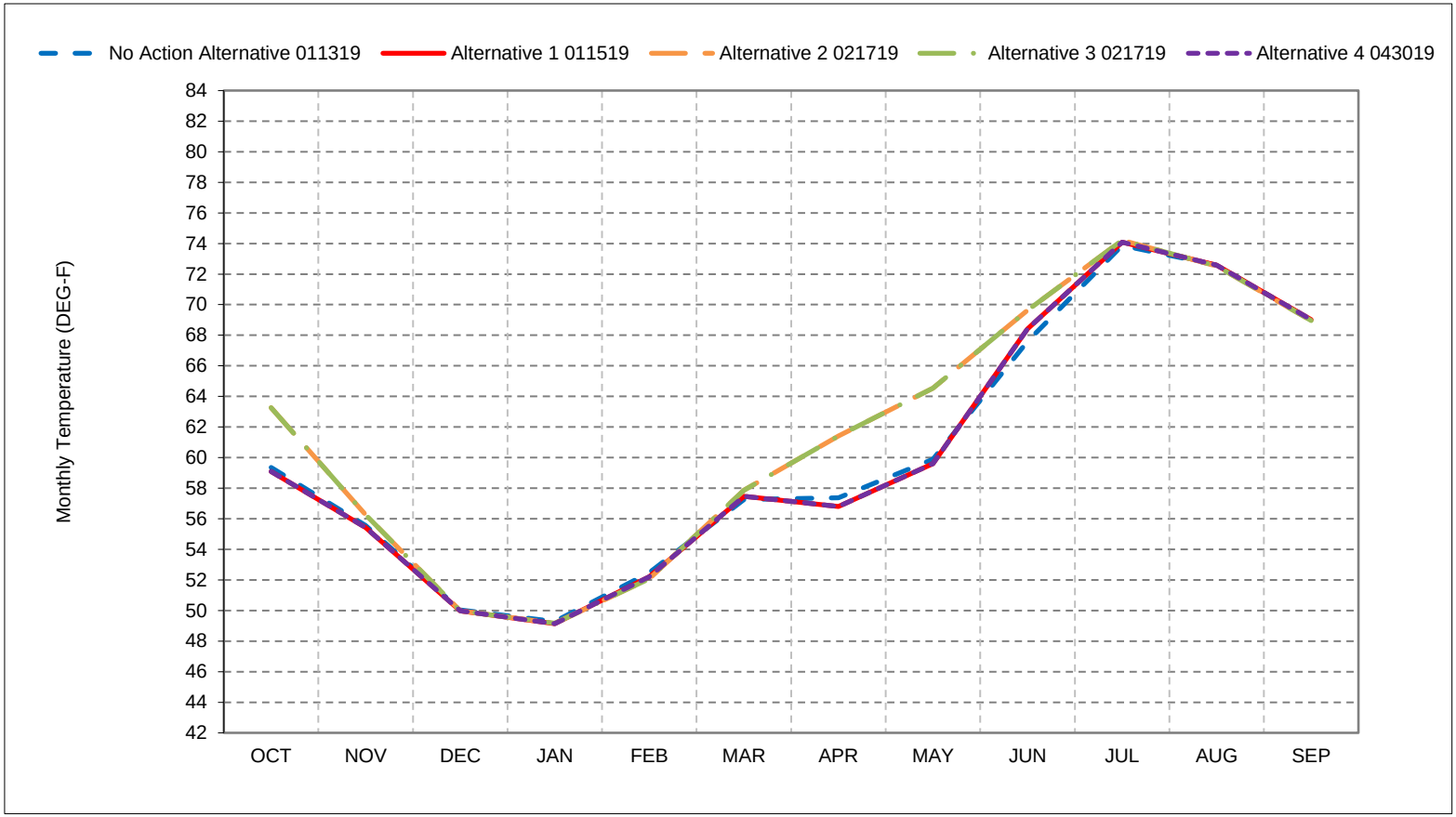
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 24-3. Stanislaus River at Mouth, Above Normal Year Average Temperature



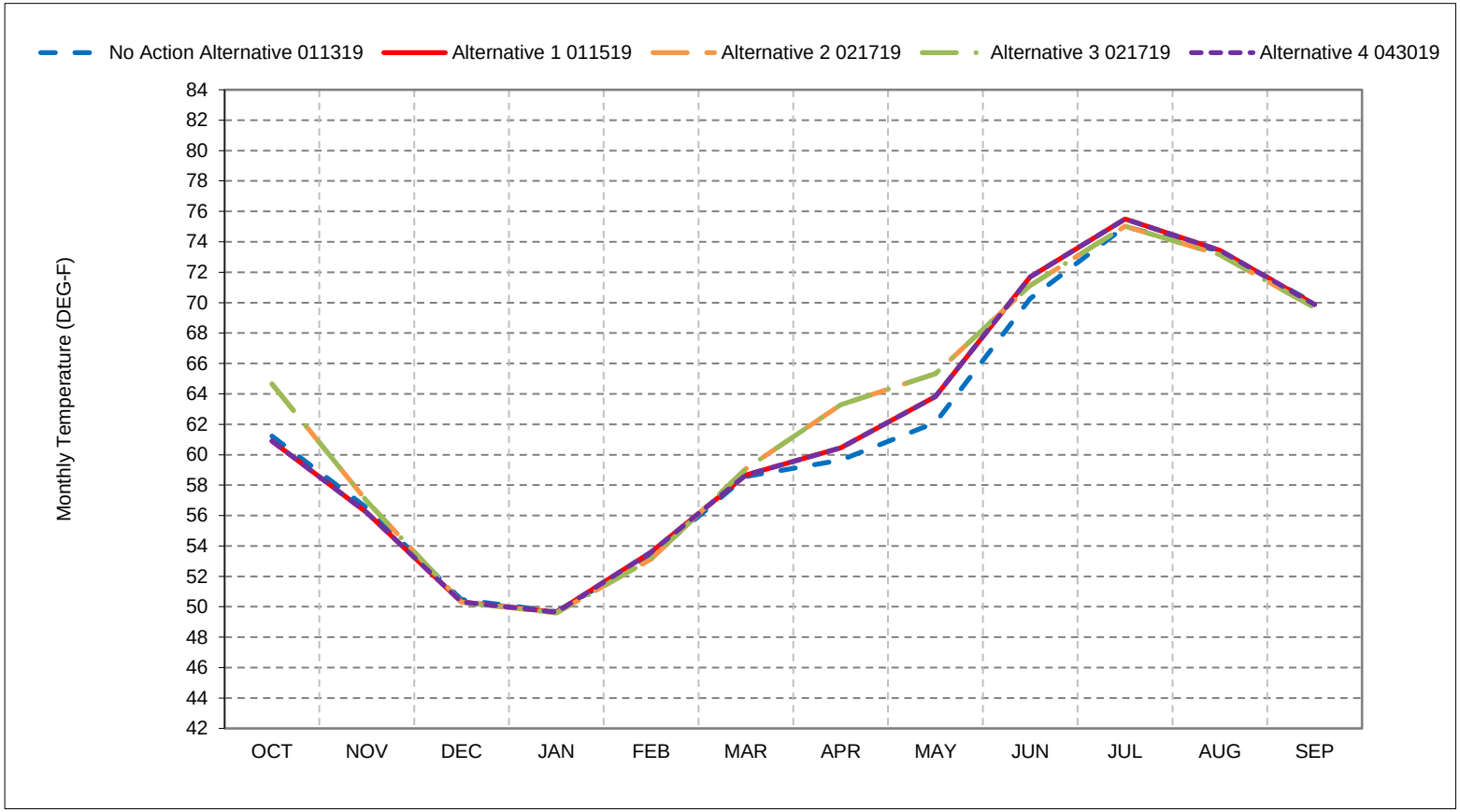
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 24-4. Stanislaus River at Mouth, Below Normal Year Average Temperature



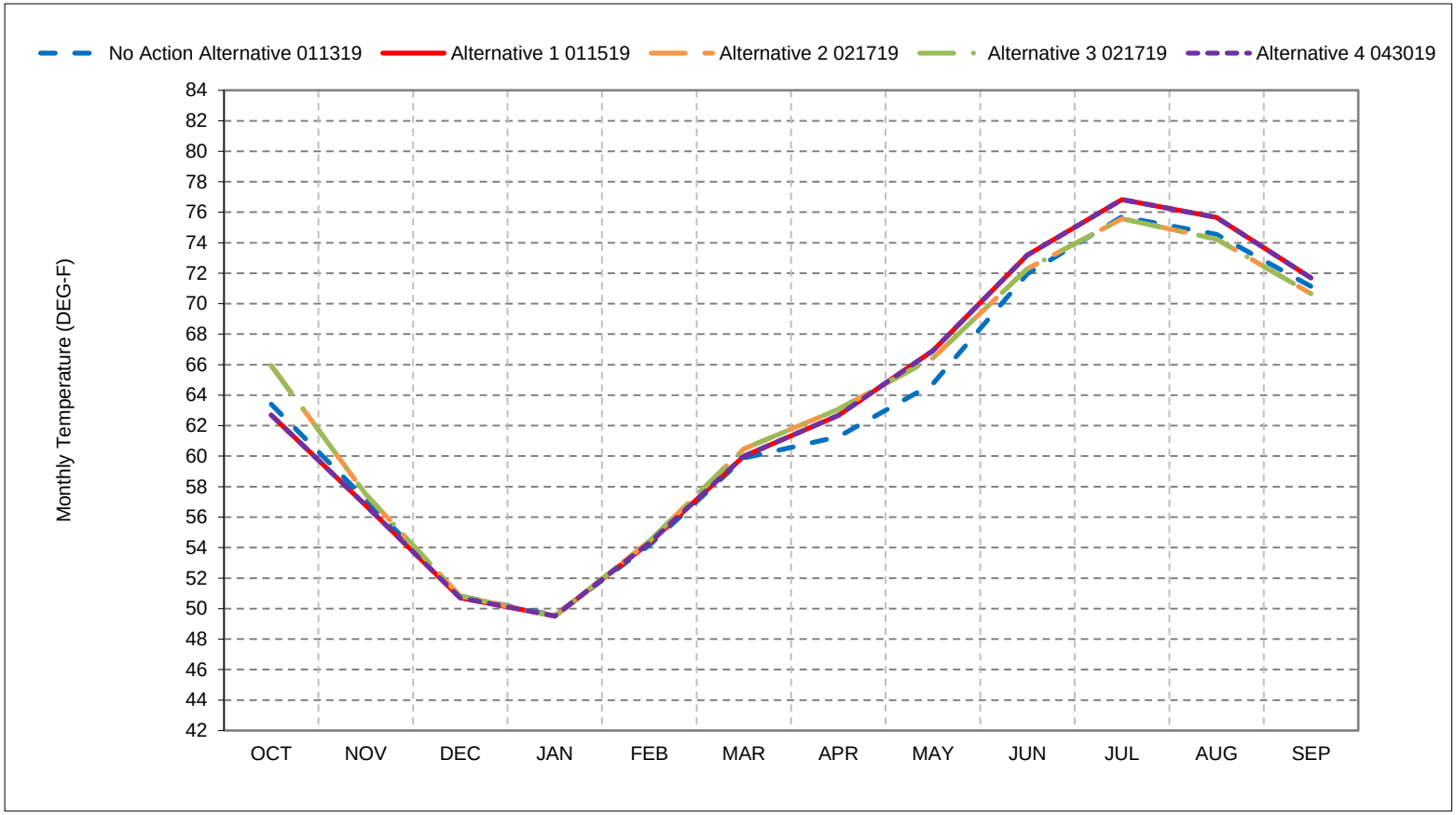
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 24-5. Stanislaus River at Mouth, Dry Year Average Temperature



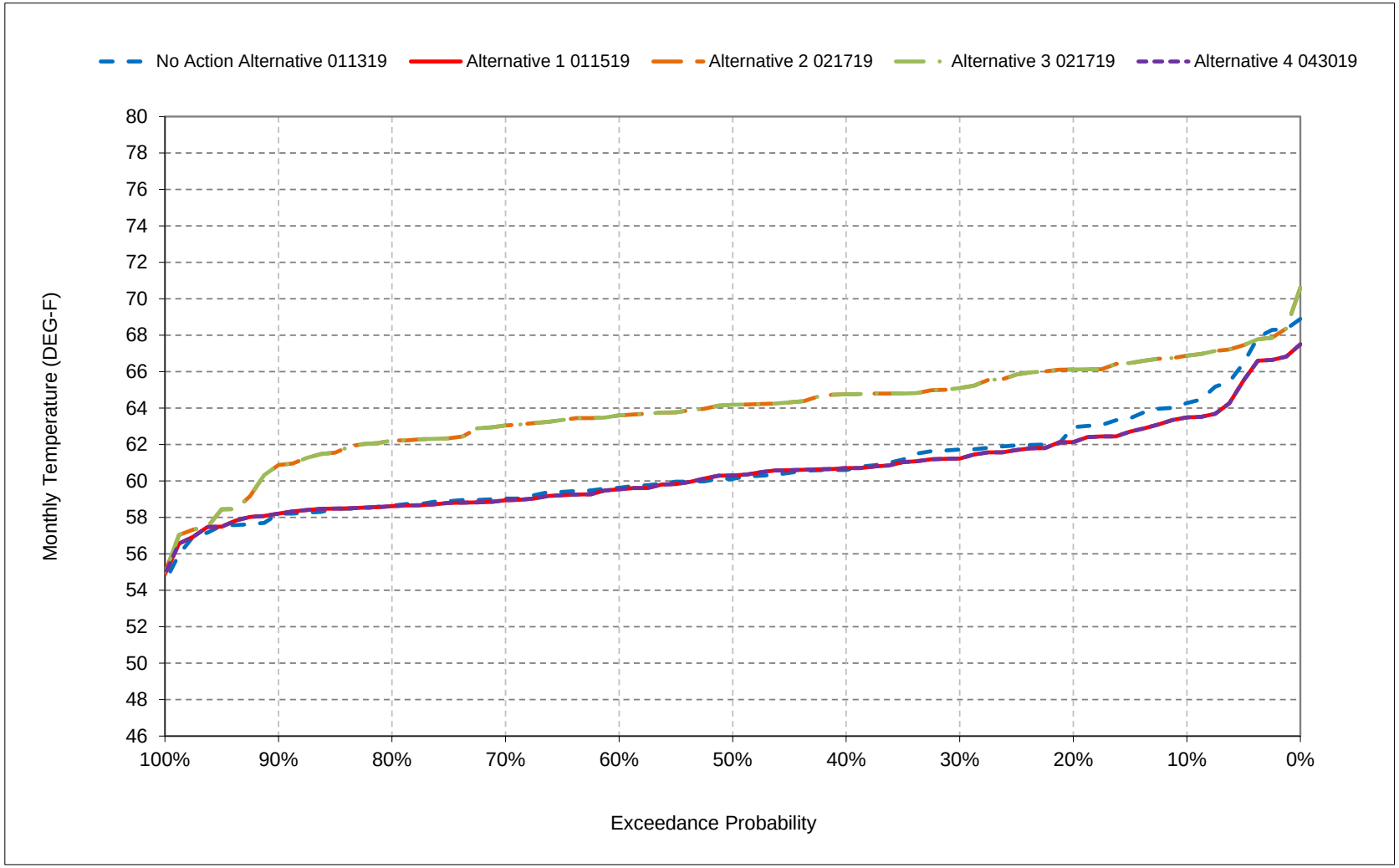
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 24-6. Stanislaus River at Mouth, Critical Year Average Temperature



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
*New Melones forecasts are used as the basis of water operations.

Figure 24-7. Stanislaus River at Mouth, October

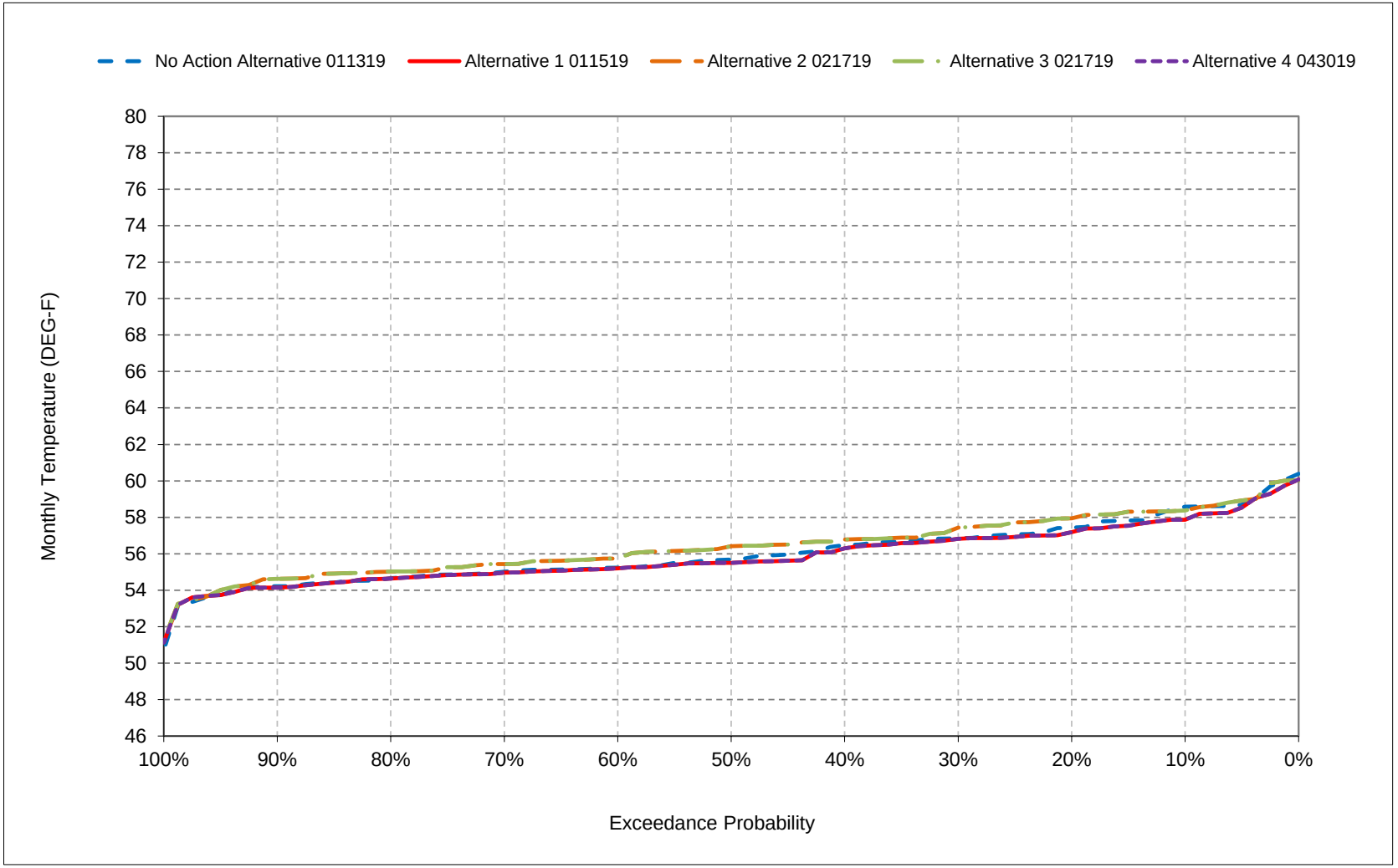


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-8. Stanislaus River at Mouth, November

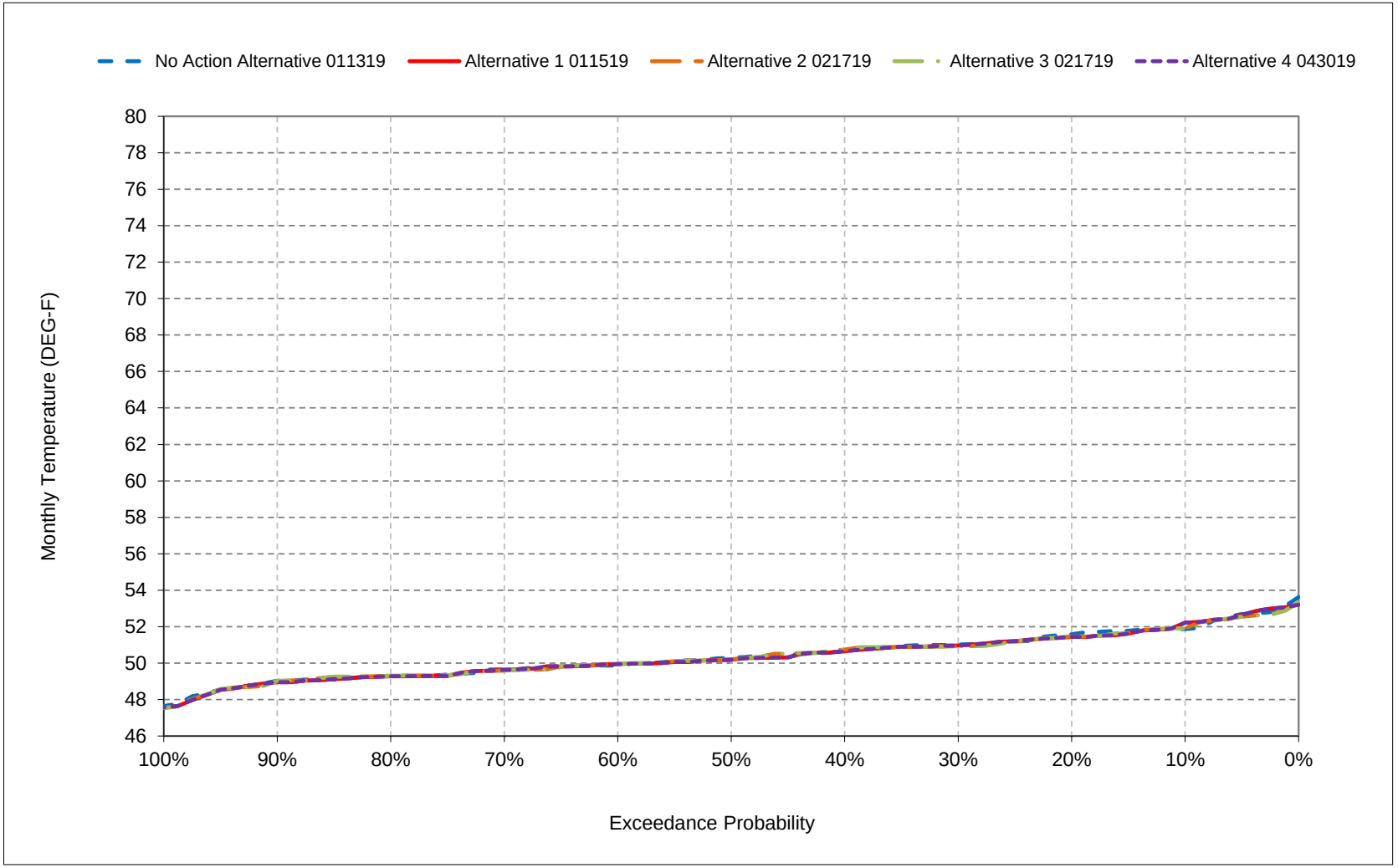


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-9. Stanislaus River at Mouth, December

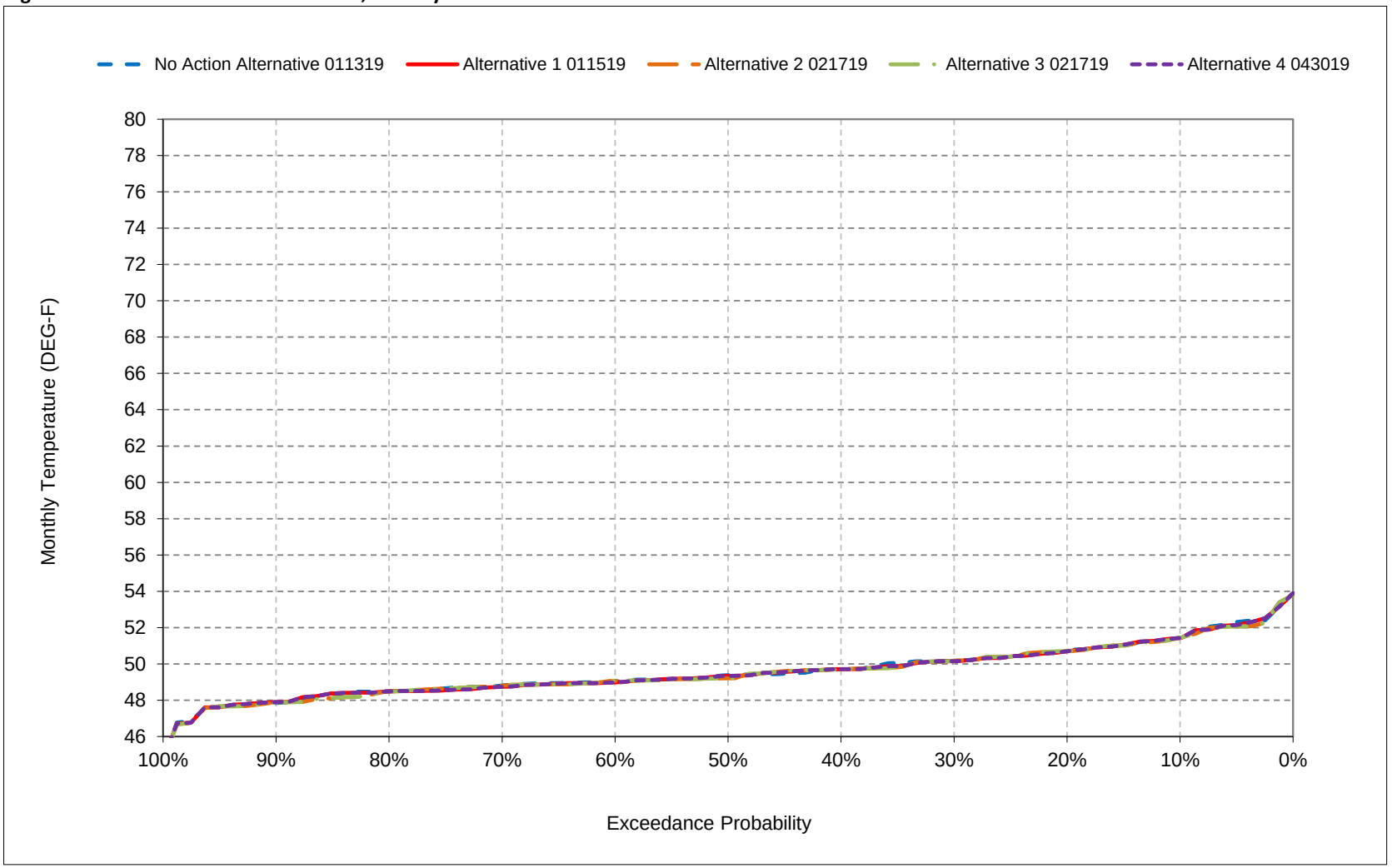


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-10. Stanislaus River at Mouth, January

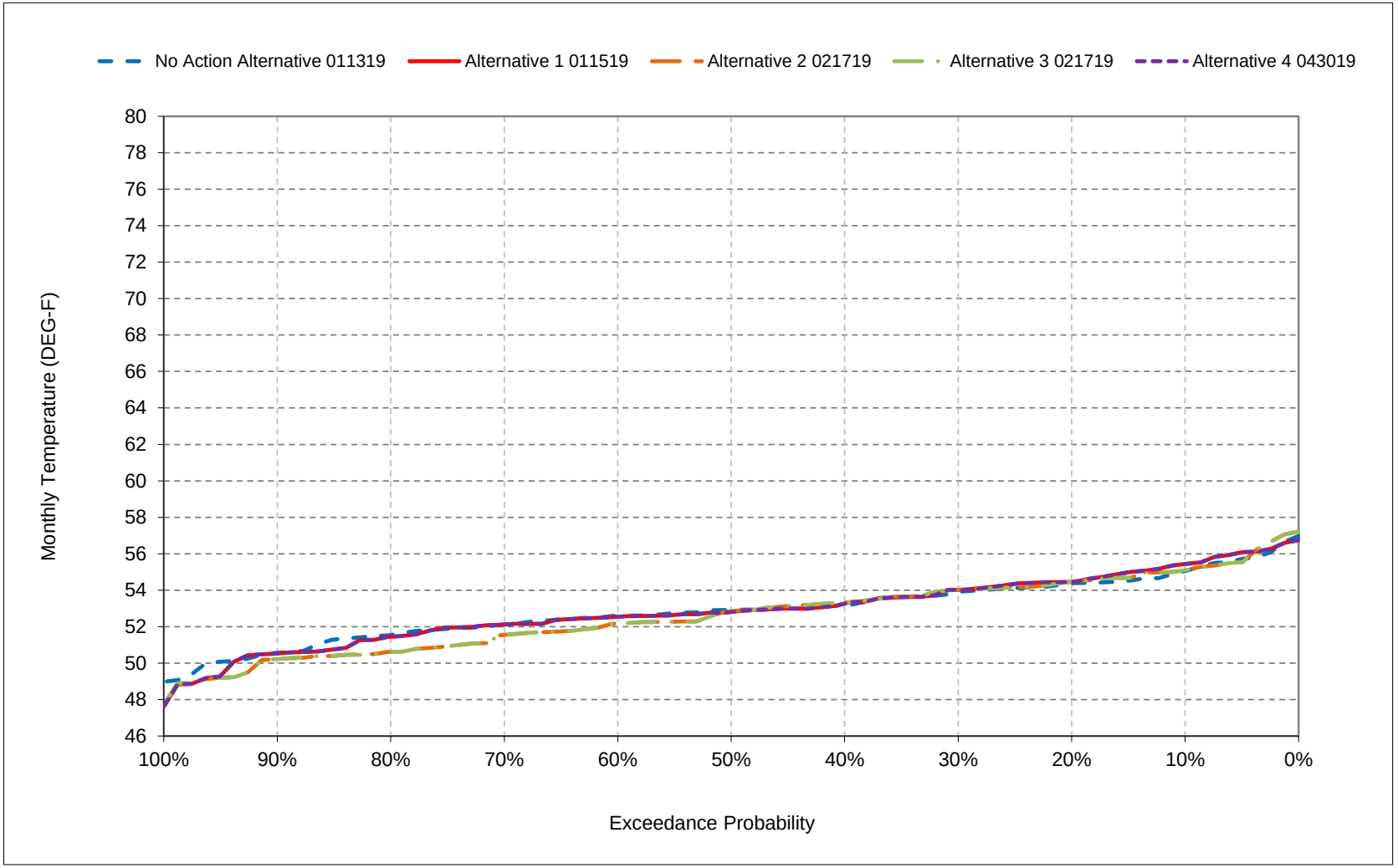


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-11. Stanislaus River at Mouth, February

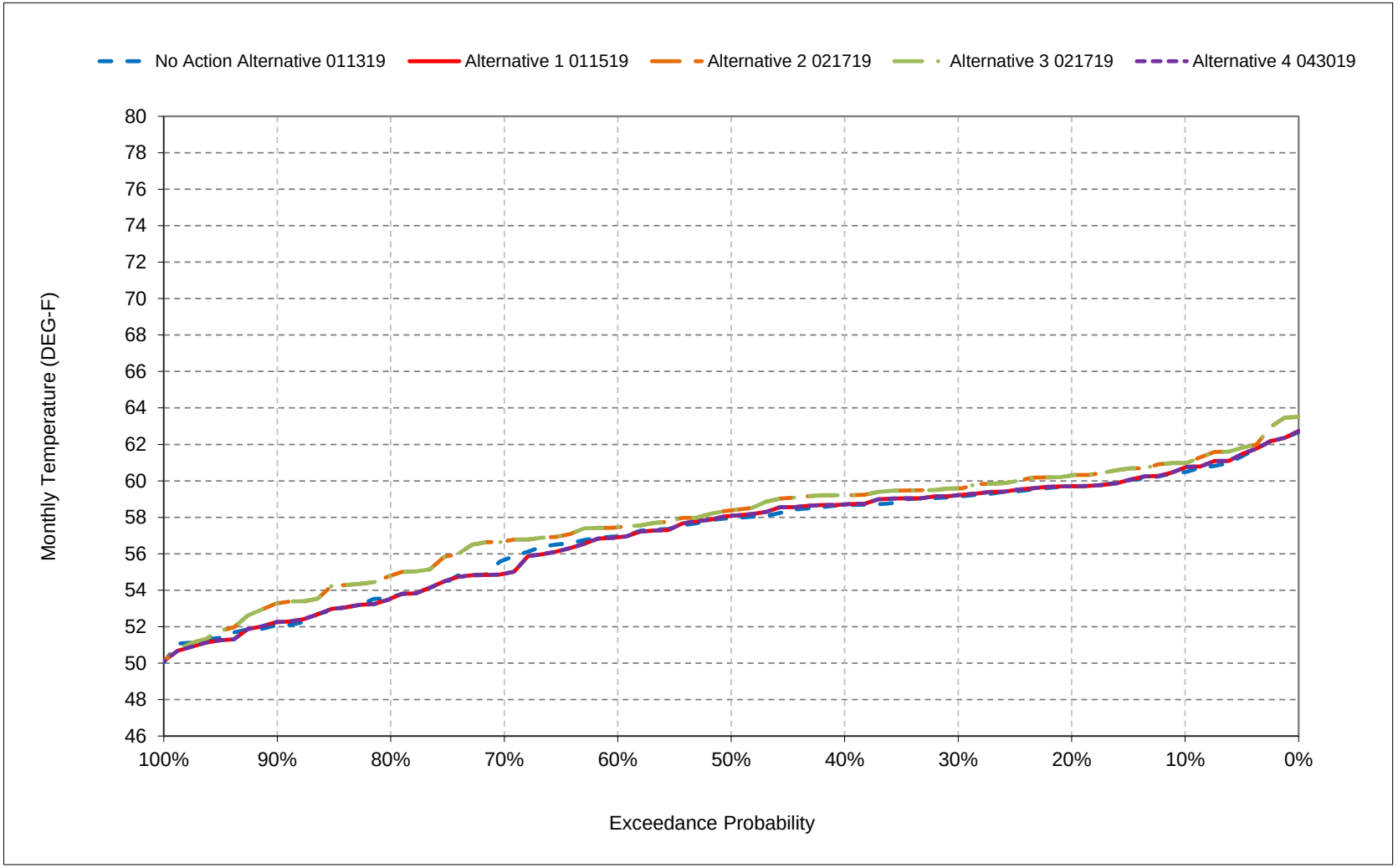


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-12. Stanislaus River at Mouth, March

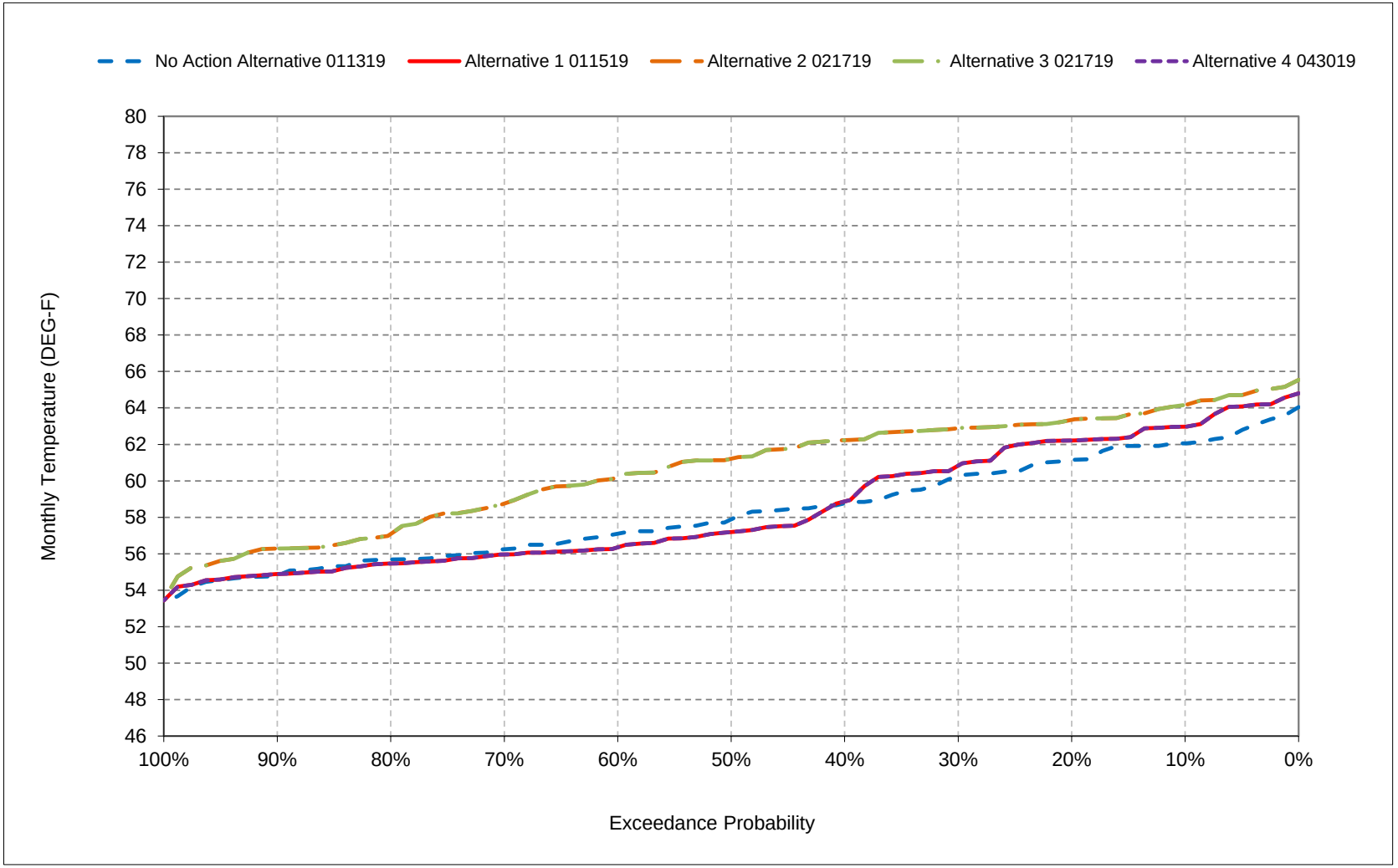


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-13. Stanislaus River at Mouth, April

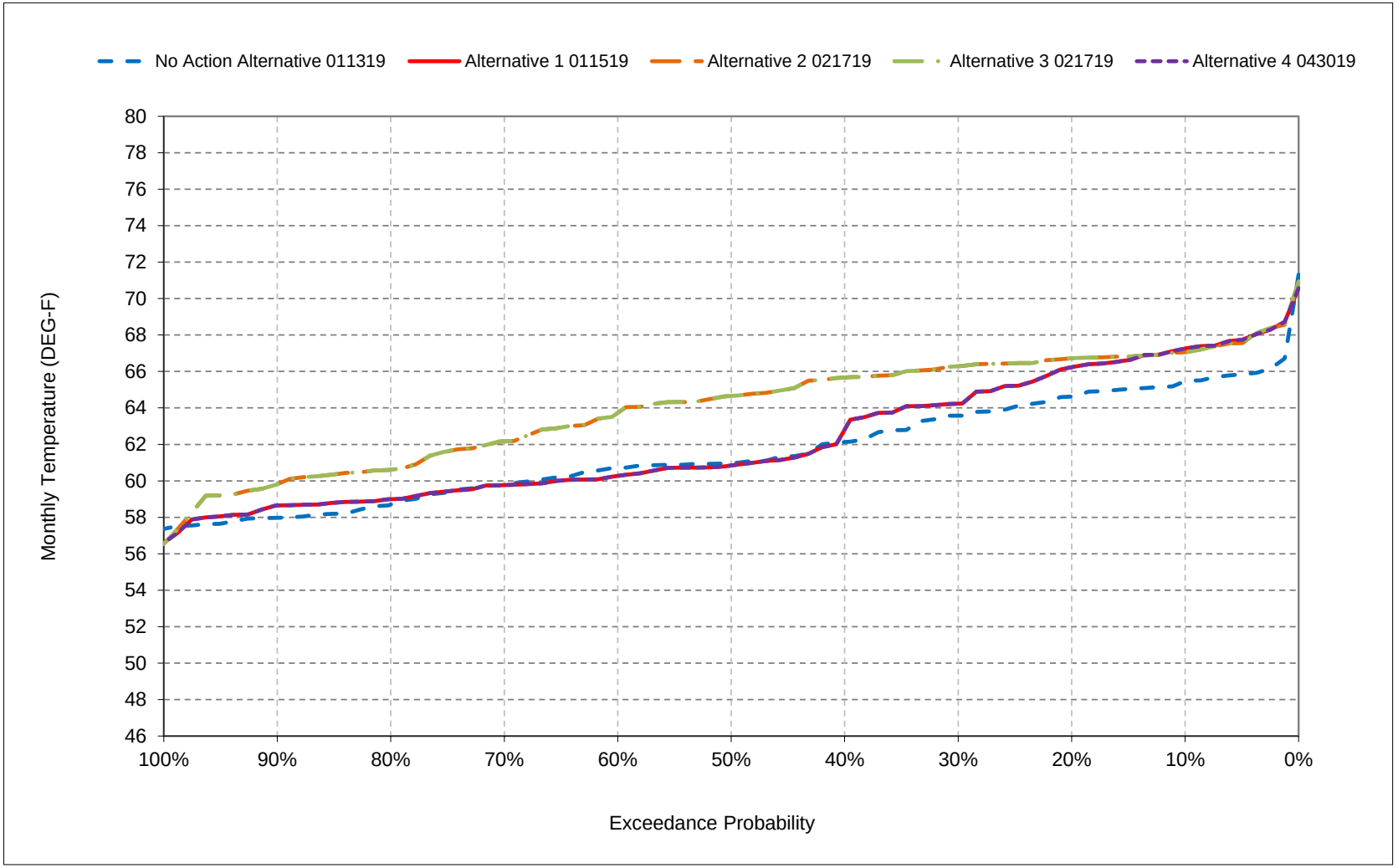


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-14. Stanislaus River at Mouth, May

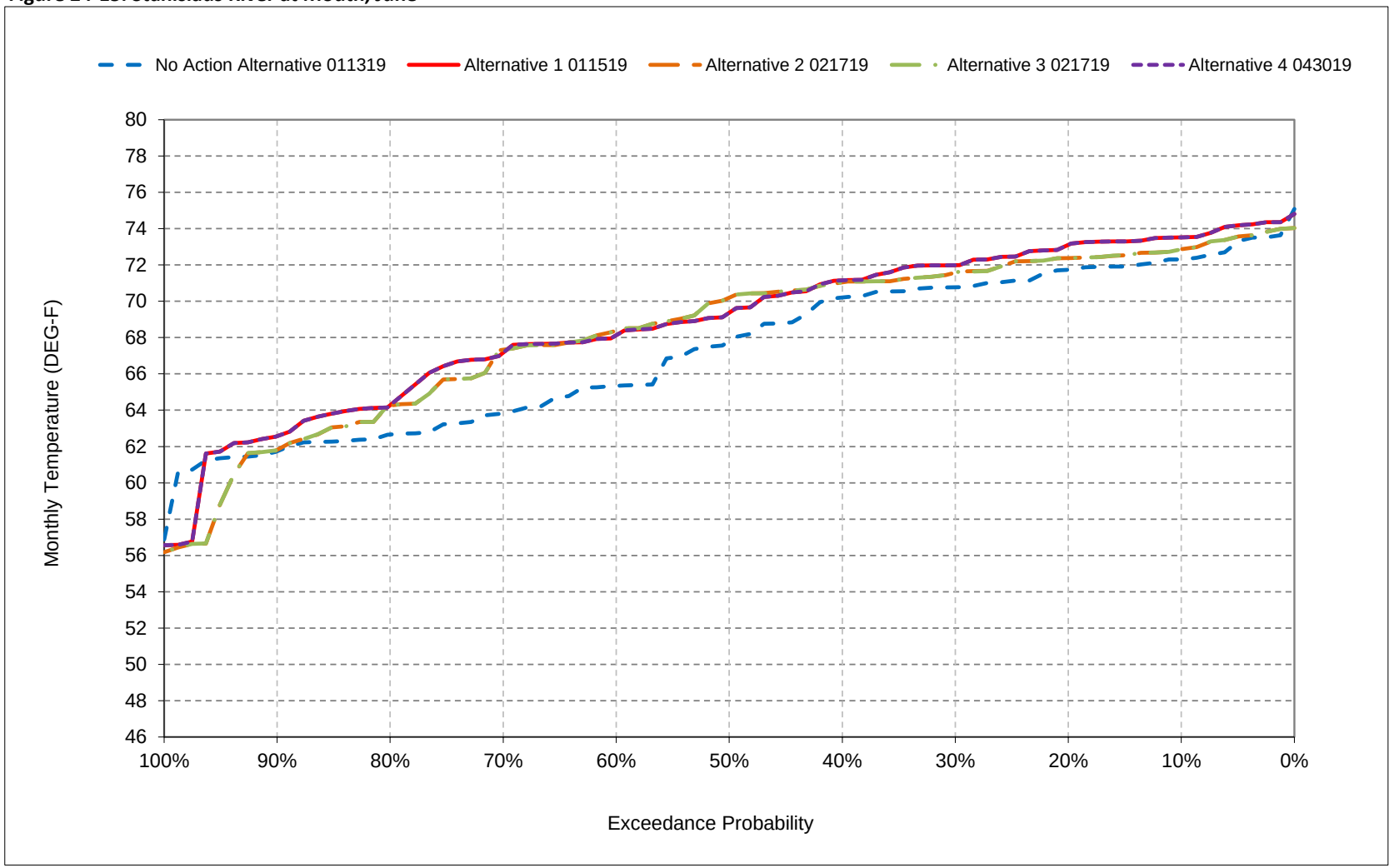


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-15. Stanislaus River at Mouth, June

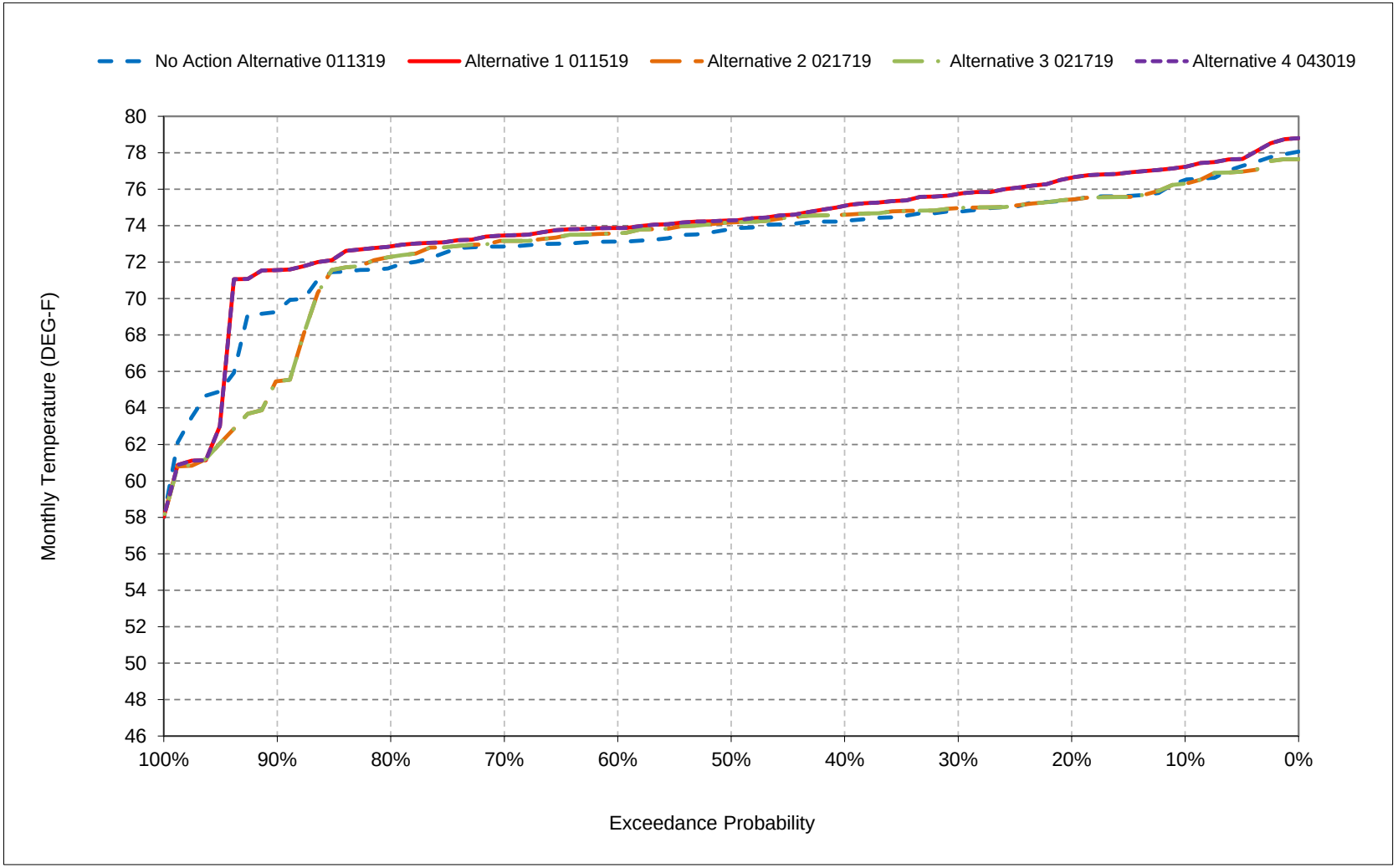


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-16. Stanislaus River at Mouth, July

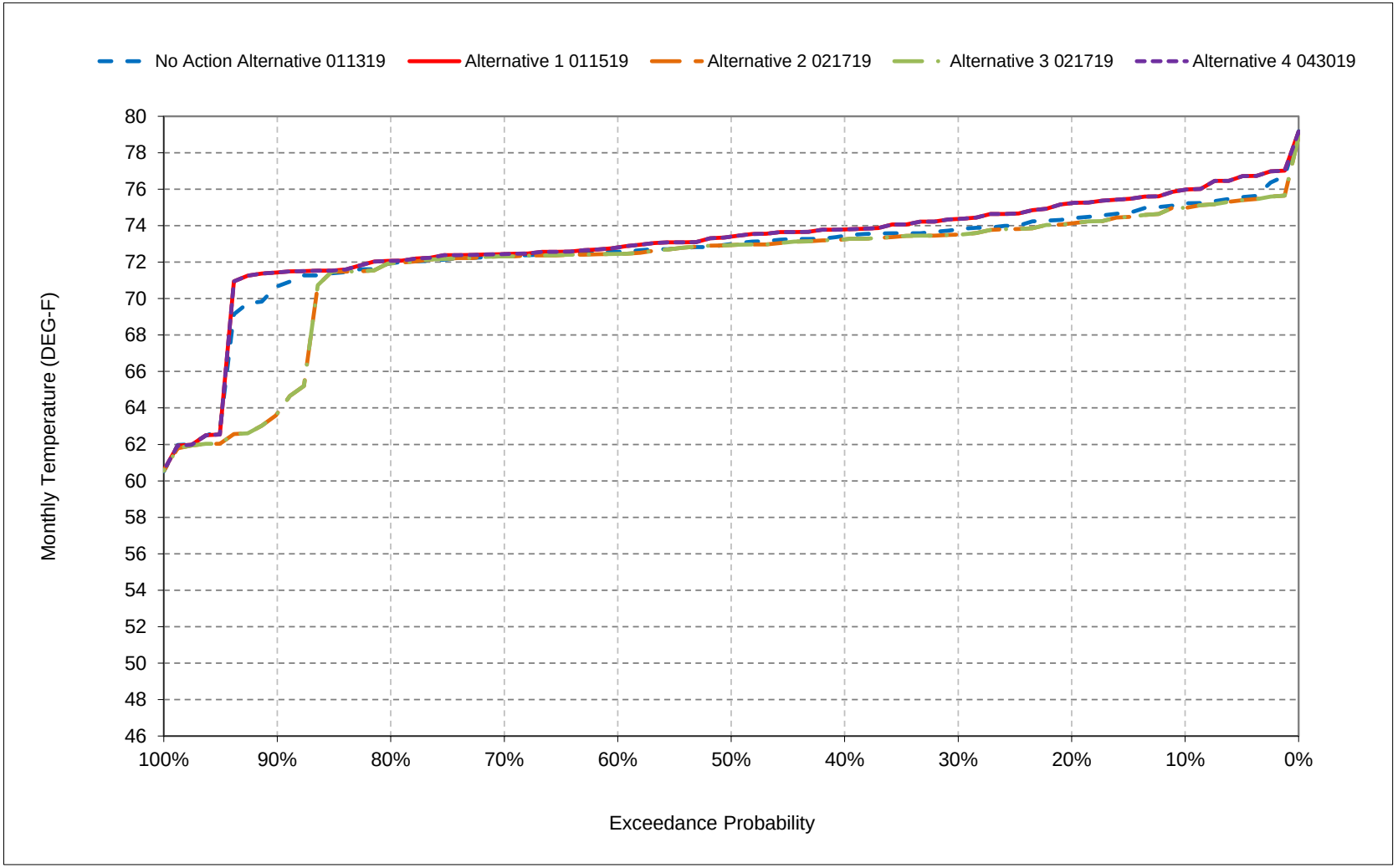


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-17. Stanislaus River at Mouth, August

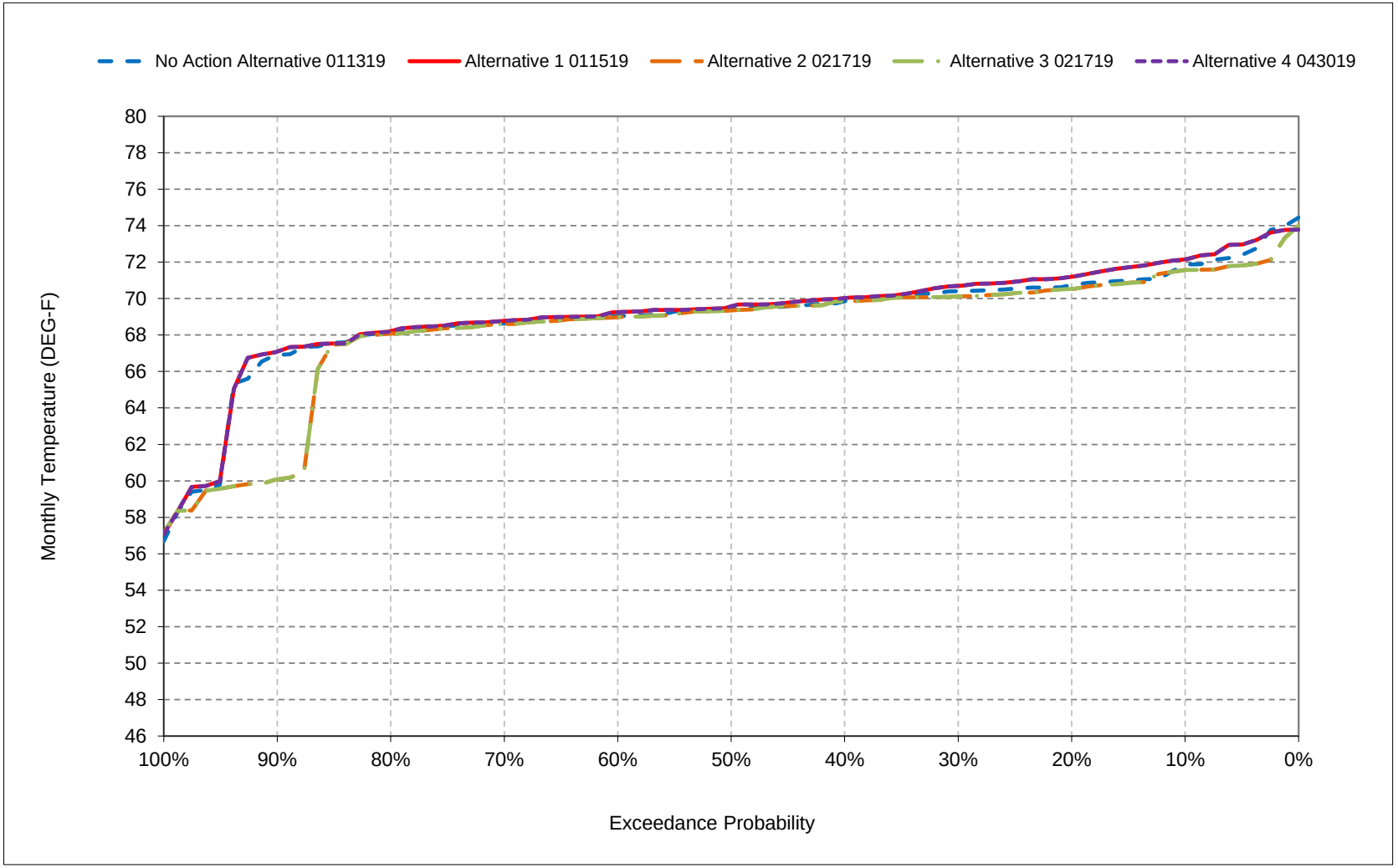


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Figure 24-18. Stanislaus River at Mouth, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*New Melones forecasts are used as the basis of water operations.

Attachment 3-5 Temperature Results (Reclamation Temperature Model)

The following results of the Reclamation Temperature model are included for river temperature conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Feather River Low Flow Channel	FISH_DAM	to 1-4	1-1 to 1-18
Feather River at Robinson Riffle	ABV_THERMALITO_AB	to 2-4	2-1 to 2-18
Feather River at Gridley Bridge	GRIDLEY	3-1 to 3-4	3-1 to 3-18
Feather River at Mouth	FEATHER_AT_SACRIV	4-1 to 4-4	4-1 to 4-18

1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Appendix F – Modeling

Attachment 3-5 – Temperature Results (Reclamation Temperature Model)

The following results of the Reclamation Temperature model are included for river temperature conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Feather River Low Flow Channel	FISH_DAM	1-1 to 1-4	1-1 to 1-18
Feather River at Robinson Riffle	ABV_THERMALITO_AB	2-1 to 2-4	2-1 to 2-18
Feather River at Gridley Bridge	GRIDLEY	3-1 to 3-4	3-1 to 3-18
Feather River at Mouth	FEATHER_AT_SACRIV	4-1 to 4-4	4-1 to 4-18

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Table 1-1. Feather River Low Flow Channel, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.3	58.2	54.4	51.4	51.8	53.6	53.5	56.9	58.8	62.3	62.5	58.3
20%	54.9	56.2	53.6	50.5	51.0	52.5	53.0	56.6	58.5	62.0	62.0	57.0
30%	54.3	55.5	52.8	49.9	50.5	51.9	52.5	56.2	58.4	61.4	61.4	56.7
40%	53.9	54.9	52.4	49.5	49.9	51.3	52.2	56.0	58.2	61.3	61.1	56.2
50%	53.6	54.3	51.9	49.1	49.5	50.8	52.0	55.9	58.0	61.2	60.6	55.3
60%	53.4	53.4	51.4	48.8	49.2	50.1	51.8	55.5	57.9	61.1	60.3	54.8
70%	53.3	52.9	51.1	48.1	49.0	49.8	51.4	55.2	57.6	61.0	60.1	54.7
80%	53.1	52.5	50.5	47.5	48.3	49.3	50.6	54.8	57.5	60.9	59.9	54.5
90%	52.9	52.1	49.1	47.0	47.3	48.4	50.2	54.5	57.2	60.8	59.8	54.3
Long Term												
Full Simulation Period[a]	54.9	54.6	52.0	49.2	49.6	50.9	52.0	55.8	58.0	61.4	61.1	56.5
Water Year Types[b,c]												
Wet (32%)	53.3	54.2	52.9	48.9	48.9	49.5	51.0	55.1	57.8	61.4	60.5	54.6
Above Normal (16%)	53.3	53.2	51.4	49.3	49.5	50.1	51.9	56.3	58.4	61.0	59.9	54.5
Below Normal (15%)	54.1	54.1	51.8	49.9	50.3	51.6	52.7	55.8	58.2	61.1	60.5	56.4
Dry (24%)	54.6	54.7	52.0	49.0	49.9	52.1	52.7	56.0	57.8	61.4	61.7	56.8
Critical (15%)	61.1	57.5	50.9	49.2	50.4	52.4	52.3	56.2	58.1	62.3	63.4	62.3

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.3	57.4	53.5	51.6	51.7	53.6	53.5	56.8	58.5	62.3	62.4	59.0
20%	55.0	55.9	52.7	50.5	51.2	52.9	53.0	56.4	58.3	62.0	61.9	57.5
30%	54.2	54.6	52.2	50.1	50.6	51.9	52.5	56.0	58.1	61.6	61.4	57.1
40%	53.8	53.7	51.8	49.6	50.0	51.3	52.4	55.9	57.9	61.3	61.1	56.8
50%	53.6	52.9	51.4	49.1	49.6	50.7	52.0	55.6	57.8	61.1	60.5	56.3
60%	53.4	52.6	51.0	48.7	49.3	50.2	51.8	55.3	57.6	61.1	60.3	55.6
70%	53.4	52.4	50.6	48.2	48.8	49.7	51.4	55.1	57.4	61.0	60.1	55.3
80%	53.2	52.2	49.8	47.4	48.1	49.3	50.6	54.7	57.3	60.9	59.9	55.1
90%	53.0	52.1	48.7	47.0	47.0	48.5	50.3	54.5	57.1	60.8	59.8	54.8
Long Term												
Full Simulation Period[a]	54.8	54.0	51.4	49.1	49.7	51.0	52.0	55.6	57.8	61.4	61.1	57.1
Water Year Types[b,c]												
Wet (32%)	53.3	52.5	51.1	48.9	49.0	49.6	51.0	55.0	57.7	61.4	60.5	56.1
Above Normal (16%)	53.3	53.0	51.0	49.3	49.5	50.2	52.0	56.1	58.2	60.9	59.9	54.8
Below Normal (15%)	54.0	53.8	51.7	49.8	50.1	51.6	52.7	55.7	57.9	61.0	60.2	56.4
Dry (24%)	54.5	54.7	52.0	49.0	49.9	52.0	52.7	55.8	57.5	61.5	61.6	56.9
Critical (15%)	60.9	57.5	50.7	49.1	50.4	52.4	52.4	56.1	58.0	62.2	63.5	62.7

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-2.0	-0.8	-0.9	**0.2**	-0.1	0.0	**0.0**	-0.1	-0.3	0.0	-0.1	**0.7**
20%	**0.1**	-0.3	-0.9	0.0	**0.2**	**0.4**	0.0	-0.2	-0.2	0.0	-0.1	**0.5**
30%	-0.1	-0.9	-0.6	**0.2**	**0.1**	**0.0**	0.0	-0.2	-0.3	**0.2**	0.0	**0.4**
40%	-0.1	-1.2	-0.6	**0.1**	**0.1**	**0.0**	**0.2**	-0.1	-0.3	0.0	0.0	**0.6**
50%	0.0	-1.4	-0.5	0.0	**0.1**	0.0	0.0	-0.2	-0.2	-0.1	-0.1	**1.0**
60%	0.0	-0.8	-0.4	-0.1	**0.1**	**0.1**	0.0	-0.2	-0.3	0.0	**0.0**	**0.8**
70%	**0.1**	-0.5	-0.5	**0.0**	-0.2	-0.1	-0.1	-0.1	-0.2	0.0	0.0	**0.6**
80%	**0.1**	-0.3	-0.7	-0.1	-0.2	0.0	0.0	-0.1	-0.2	0.0	0.0	**0.6**
90%	**0.1**	0.0	-0.4	0.0	-0.3	**0.1**	**0.1**	0.0	-0.1	0.0	0.0	**0.5**
Long Term												
Full Simulation Period[a]	-0.1	-0.6	-0.7	0.0	**0.0**	**0.0**	**0.0**	-0.1	-0.2	0.0	0.0	**0.6**
Water Year Types[b,c]												
Wet (32%)	0.0	-1.7	-1.8	**0.1**	**0.1**	**0.1**	**0.0**	-0.1	-0.1	**0.0**	**0.1**	**1.5**
Above Normal (16%)	0.0	-0.2	-0.4	**0.0**	0.0	**0.1**	**0.1**	-0.1	-0.2	0.0	0.0	**0.3**
Below Normal (15%)	-0.1	-0.3	-0.1	-0.1	-0.1	**0.0**	**0.0**	-0.1	-0.3	-0.1	-0.3	**0.0**
Dry (24%)	-0.1	0.0	**0.0**	0.0	**0.0**	0.0	**0.1**	-0.1	-0.3	**0.1**	-0.1	**0.0**
Critical (15%)	-0.2	**0.1**	-0.1	-0.1	**0.0**	**0.0**	**0.0**	-0.1	-0.1	-0.1	**0.1**	**0.4**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-2. Feather River Low Flow Channel, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.3	58.2	54.4	51.4	51.8	53.6	53.5	56.9	58.8	62.3	62.5	58.3
20%	54.9	56.2	53.6	50.5	51.0	52.5	53.0	56.6	58.5	62.0	62.0	57.0
30%	54.3	55.5	52.8	49.9	50.5	51.9	52.5	56.2	58.4	61.4	61.4	56.7
40%	53.9	54.9	52.4	49.5	49.9	51.3	52.2	56.0	58.2	61.3	61.1	56.2
50%	53.6	54.3	51.9	49.1	49.5	50.8	52.0	55.9	58.0	61.2	60.6	55.3
60%	53.4	53.4	51.4	48.8	49.2	50.1	51.8	55.5	57.9	61.1	60.3	54.8
70%	53.3	52.9	51.1	48.1	49.0	49.8	51.4	55.2	57.6	61.0	60.1	54.7
80%	53.1	52.5	50.5	47.5	48.3	49.3	50.6	54.8	57.5	60.9	59.9	54.5
90%	52.9	52.1	49.1	47.0	47.3	48.4	50.2	54.5	57.2	60.8	59.8	54.3
Long Term												
Full Simulation Period[a]	54.9	54.6	52.0	49.2	49.6	50.9	52.0	55.8	58.0	61.4	61.1	56.5
Water Year Types[b,c]												
Wet (32%)	53.3	54.2	52.9	48.9	48.9	49.5	51.0	55.1	57.8	61.4	60.5	54.6
Above Normal (16%)	53.3	53.2	51.4	49.3	49.5	50.1	51.9	56.3	58.4	61.0	59.9	54.5
Below Normal (15%)	54.1	54.1	51.8	49.9	50.3	51.6	52.7	55.8	58.2	61.1	60.5	56.4
Dry (24%)	54.6	54.7	52.0	49.0	49.9	52.1	52.7	56.0	57.8	61.4	61.7	56.8
Critical (15%)	61.1	57.5	50.9	49.2	50.4	52.4	52.3	56.2	58.1	62.3	63.4	62.3

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.0	57.8	53.5	51.7	51.7	53.3	53.5	56.7	58.2	62.3	62.5	58.3
20%	55.1	56.0	52.9	50.7	51.2	52.6	53.0	56.4	57.9	61.9	62.3	57.5
30%	54.2	54.9	52.2	50.1	50.6	51.9	52.5	56.0	57.9	61.7	61.4	57.0
40%	53.8	53.5	52.0	49.6	50.1	51.3	52.3	55.8	57.7	61.5	61.3	56.8
50%	53.6	53.0	51.6	49.1	49.6	50.7	52.0	55.5	57.5	61.4	61.0	56.3
60%	53.4	52.6	51.1	48.8	49.3	50.2	51.8	55.3	57.3	61.2	60.7	56.0
70%	53.3	52.5	50.6	48.2	48.8	49.8	51.4	55.1	57.2	61.1	60.3	55.5
80%	53.1	52.2	49.5	47.5	48.1	49.4	50.6	54.7	57.0	61.0	60.0	55.2
90%	53.0	52.1	49.0	47.0	47.1	48.4	50.4	54.5	56.9	60.8	59.9	54.8
Long Term												
Full Simulation Period[a]	54.8	54.1	51.4	49.2	49.7	51.0	52.0	55.6	57.6	61.5	61.3	57.1
Water Year Types[b,c]												
Wet (32%)	53.2	52.5	51.3	48.9	49.0	49.6	51.1	55.0	57.5	61.4	60.9	56.1
Above Normal (16%)	53.3	53.0	51.0	49.4	49.5	50.2	52.0	56.1	57.7	61.0	60.1	55.0
Below Normal (15%)	54.1	54.0	52.0	49.8	50.1	51.6	52.7	55.5	57.3	61.2	61.0	56.6
Dry (24%)	54.7	55.0	52.1	49.0	50.0	52.0	52.7	55.8	57.4	61.7	61.7	56.8
Critical (15%)	60.7	57.2	50.8	49.2	50.5	52.4	52.4	56.0	58.0	62.2	63.2	62.1

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.3	-0.4	-0.9	**0.3**	-0.1	-0.3	**0.0**	-0.2	-0.6	0.0	**0.0**	0.0
20%	**0.2**	-0.2	-0.7	**0.2**	**0.2**	**0.1**	0.0	-0.2	-0.6	-0.1	**0.3**	**0.5**
30%	-0.1	-0.6	-0.6	**0.2**	**0.1**	**0.0**	0.0	-0.2	-0.5	**0.3**	0.0	**0.3**
40%	-0.1	-1.4	-0.4	**0.1**	**0.2**	**0.0**	**0.1**	-0.2	-0.5	**0.2**	**0.2**	**0.6**
50%	0.0	-1.3	-0.3	-0.1	**0.1**	0.0	0.0	-0.4	-0.5	**0.1**	**0.4**	**1.0**
60%	0.0	-0.8	-0.3	0.0	**0.1**	**0.1**	0.0	-0.2	-0.6	**0.1**	**0.4**	**1.2**
70%	0.0	-0.4	-0.5	**0.1**	-0.2	0.0	0.0	-0.1	-0.4	**0.1**	**0.2**	**0.8**
80%	0.0	-0.3	-1.0	0.0	-0.2	**0.1**	0.0	-0.1	-0.5	**0.1**	**0.1**	**0.7**
90%	**0.1**	0.0	-0.1	0.0	-0.2	0.0	**0.2**	0.0	-0.3	0.0	**0.1**	**0.5**
Long Term												
Full Simulation Period[a]	-0.1	-0.5	-0.6	**0.0**	**0.0**	**0.0**	**0.1**	-0.2	-0.4	**0.1**	**0.2**	**0.5**
Water Year Types[b,c]												
Wet (32%)	-0.1	-1.7	-1.6	**0.1**	**0.1**	**0.1**	**0.1**	-0.1	-0.3	**0.1**	**0.4**	**1.6**
Above Normal (16%)	0.0	-0.2	-0.5	**0.1**	**0.0**	**0.1**	**0.1**	-0.2	-0.7	0.0	**0.2**	**0.4**
Below Normal (15%)	0.0	0.0	**0.2**	0.0	-0.2	0.0	**0.0**	-0.3	-0.9	**0.1**	**0.5**	**0.2**
Dry (24%)	**0.0**	**0.3**	**0.0**	**0.0**	**0.1**	-0.1	**0.1**	-0.2	-0.4	**0.2**	-0.1	-0.1
Critical (15%)	-0.3	-0.2	-0.1	**0.0**	**0.1**	0.0	**0.1**	-0.2	-0.1	-0.1	-0.2	-0.2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-3. Feather River Low Flow Channel, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.3	58.2	54.4	51.4	51.8	53.6	53.5	56.9	58.8	62.3	62.5	58.3
20%	54.9	56.2	53.6	50.5	51.0	52.5	53.0	56.6	58.5	62.0	62.0	57.0
30%	54.3	55.5	52.8	49.9	50.5	51.9	52.5	56.2	58.4	61.4	61.4	56.7
40%	53.9	54.9	52.4	49.5	49.9	51.3	52.2	56.0	58.2	61.3	61.1	56.2
50%	53.6	54.3	51.9	49.1	49.5	50.8	52.0	55.9	58.0	61.2	60.6	55.3
60%	53.4	53.4	51.4	48.8	49.2	50.1	51.8	55.5	57.9	61.1	60.3	54.8
70%	53.3	52.9	51.1	48.1	49.0	49.8	51.4	55.2	57.6	61.0	60.1	54.7
80%	53.1	52.5	50.5	47.5	48.3	49.3	50.6	54.8	57.5	60.9	59.9	54.5
90%	52.9	52.1	49.1	47.0	47.3	48.4	50.2	54.5	57.2	60.8	59.8	54.3
Long Term												
Full Simulation Period[a]	54.9	54.6	52.0	49.2	49.6	50.9	52.0	55.8	58.0	61.4	61.1	56.5
Water Year Types[b,c]												
Wet (32%)	53.3	54.2	52.9	48.9	48.9	49.5	51.0	55.1	57.8	61.4	60.5	54.6
Above Normal (16%)	53.3	53.2	51.4	49.3	49.5	50.1	51.9	56.3	58.4	61.0	59.9	54.5
Below Normal (15%)	54.1	54.1	51.8	49.9	50.3	51.6	52.7	55.8	58.2	61.1	60.5	56.4
Dry (24%)	54.6	54.7	52.0	49.0	49.9	52.1	52.7	56.0	57.8	61.4	61.7	56.8
Critical (15%)	61.1	57.5	50.9	49.2	50.4	52.4	52.3	56.2	58.1	62.3	63.4	62.3

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	57.9	57.6	53.8	51.6	51.8	53.2	53.6	56.8	58.4	62.3	62.5	58.2
20%	55.3	56.1	52.8	50.7	51.2	52.7	53.0	56.4	58.0	62.0	62.2	57.5
30%	54.1	54.9	52.1	50.1	50.6	51.9	52.5	56.0	57.9	61.7	61.6	57.0
40%	53.8	53.4	51.9	49.7	50.1	51.3	52.3	55.8	57.6	61.5	61.3	56.8
50%	53.6	52.9	51.6	49.1	49.6	50.7	52.0	55.5	57.5	61.4	61.1	56.3
60%	53.4	52.7	51.0	48.8	49.3	50.2	51.8	55.3	57.4	61.2	60.7	56.0
70%	53.3	52.5	50.6	48.2	48.8	49.8	51.5	55.1	57.3	61.1	60.4	55.5
80%	53.1	52.2	49.7	47.5	48.1	49.4	50.6	54.7	57.1	61.0	60.1	55.3
90%	53.0	52.1	48.9	47.0	47.2	48.4	50.4	54.5	56.9	60.8	59.9	54.8
Long Term												
Full Simulation Period[a]	54.8	54.1	51.4	49.2	49.7	51.0	52.0	55.6	57.6	61.5	61.3	57.1
Water Year Types[b,c]												
Wet (32%)	53.2	52.5	51.2	48.9	49.0	49.6	51.1	55.1	57.5	61.4	61.0	56.1
Above Normal (16%)	53.2	53.0	51.1	49.4	49.5	50.2	52.1	56.1	57.8	61.0	60.1	55.1
Below Normal (15%)	54.0	54.1	51.9	49.9	50.1	51.6	52.7	55.5	57.3	61.2	61.0	56.7
Dry (24%)	54.7	55.0	52.1	49.0	49.9	52.0	52.7	55.7	57.4	61.7	61.7	56.8
Critical (15%)	60.6	57.1	50.8	49.3	50.5	52.4	52.4	56.0	58.0	62.2	63.1	62.1

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-2.4	-0.6	-0.6	**0.2**	0.0	-0.4	**0.1**	-0.1	-0.4	0.0	**0.0**	-0.1
20%	**0.4**	-0.1	-0.8	**0.2**	**0.2**	**0.2**	**0.0**	-0.2	-0.5	0.0	**0.2**	**0.5**
30%	-0.2	-0.6	-0.7	**0.2**	**0.1**	0.0	0.0	-0.2	-0.5	**0.3**	**0.2**	**0.3**
40%	-0.1	-1.5	-0.5	**0.2**	**0.2**	**0.0**	**0.1**	-0.2	-0.6	**0.2**	**0.2**	**0.6**
50%	0.0	-1.4	-0.3	0.0	**0.1**	0.0	0.0	-0.3	-0.5	**0.2**	**0.4**	**1.0**
60%	0.0	-0.7	-0.5	0.0	**0.1**	**0.2**	0.0	-0.2	-0.5	**0.1**	**0.4**	**1.2**
70%	0.0	-0.4	-0.4	**0.0**	-0.2	0.0	**0.1**	-0.1	-0.3	**0.1**	**0.3**	**0.8**
80%	0.0	-0.3	-0.8	0.0	-0.2	**0.1**	0.0	-0.1	-0.4	**0.1**	**0.2**	**0.8**
90%	**0.1**	0.0	-0.2	0.0	-0.1	0.0	**0.2**	0.0	-0.3	0.0	**0.1**	**0.5**
Long Term												
Full Simulation Period[a]	-0.1	-0.6	-0.6	**0.0**	**0.1**	**0.0**	**0.1**	-0.2	-0.4	**0.1**	**0.2**	**0.6**
Water Year Types[b,c]												
Wet (32%)	-0.1	-1.7	-1.7	**0.1**	**0.1**	**0.1**	**0.1**	0.0	-0.3	**0.1**	**0.5**	**1.5**
Above Normal (16%)	-0.1	-0.2	-0.4	**0.1**	**0.0**	**0.1**	**0.1**	-0.2	-0.6	**0.0**	**0.2**	**0.5**
Below Normal (15%)	-0.1	0.0	**0.1**	0.0	-0.1	**0.0**	**0.0**	-0.3	-0.9	**0.1**	**0.5**	**0.3**
Dry (24%)	**0.1**	**0.3**	**0.0**	0.0	**0.0**	-0.1	**0.1**	-0.3	-0.4	**0.3**	-0.1	0.0
Critical (15%)	-0.4	-0.4	-0.1	**0.1**	**0.1**	**0.0**	**0.1**	-0.2	-0.1	-0.1	-0.3	-0.2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-4. Feather River Low Flow Channel, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.3	58.2	54.4	51.4	51.8	53.6	53.5	56.9	58.8	62.3	62.5	58.3
20%	54.9	56.2	53.6	50.5	51.0	52.5	53.0	56.6	58.5	62.0	62.0	57.0
30%	54.3	55.5	52.8	49.9	50.5	51.9	52.5	56.2	58.4	61.4	61.4	56.7
40%	53.9	54.9	52.4	49.5	49.9	51.3	52.2	56.0	58.2	61.3	61.1	56.2
50%	53.6	54.3	51.9	49.1	49.5	50.8	52.0	55.9	58.0	61.2	60.6	55.3
60%	53.4	53.4	51.4	48.8	49.2	50.1	51.8	55.5	57.9	61.1	60.3	54.8
70%	53.3	52.9	51.1	48.1	49.0	49.8	51.4	55.2	57.6	61.0	60.1	54.7
80%	53.1	52.5	50.5	47.5	48.3	49.3	50.6	54.8	57.5	60.9	59.9	54.5
90%	52.9	52.1	49.1	47.0	47.3	48.4	50.2	54.5	57.2	60.8	59.8	54.3
Long Term												
Full Simulation Period[a]	54.9	54.6	52.0	49.2	49.6	50.9	52.0	55.8	58.0	61.4	61.1	56.5
Water Year Types[b,c]												
Wet (32%)	53.3	54.2	52.9	48.9	48.9	49.5	51.0	55.1	57.8	61.4	60.5	54.6
Above Normal (16%)	53.3	53.2	51.4	49.3	49.5	50.1	51.9	56.3	58.4	61.0	59.9	54.5
Below Normal (15%)	54.1	54.1	51.8	49.9	50.3	51.6	52.7	55.8	58.2	61.1	60.5	56.4
Dry (24%)	54.6	54.7	52.0	49.0	49.9	52.1	52.7	56.0	57.8	61.4	61.7	56.8
Critical (15%)	61.1	57.5	50.9	49.2	50.4	52.4	52.3	56.2	58.1	62.3	63.4	62.3

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	58.7	58.9	53.8	51.6	51.9	53.5	53.3	56.5	58.5	62.3	62.5	58.4
20%	55.4	56.8	53.3	50.7	51.2	52.7	52.6	56.1	58.4	61.9	62.1	57.6
30%	54.7	55.7	52.7	50.0	50.7	51.8	52.1	55.8	58.1	61.7	61.7	57.2
40%	54.2	54.4	52.0	49.5	49.8	50.9	51.8	55.7	58.0	61.4	61.5	56.9
50%	53.8	53.4	51.8	49.3	49.6	50.3	51.4	55.5	57.9	61.3	61.0	56.7
60%	53.6	52.8	51.3	48.8	49.3	49.9	51.0	55.2	57.7	61.2	60.5	56.1
70%	53.4	52.5	50.9	48.2	48.9	49.6	50.7	54.9	57.6	61.1	60.2	55.8
80%	53.2	52.4	50.1	47.6	48.3	49.2	50.4	54.7	57.4	61.0	60.0	55.4
90%	53.0	52.1	49.2	47.0	47.1	48.4	50.1	54.4	57.2	60.8	59.7	54.9
Long Term												
Full Simulation Period[a]	55.0	54.6	51.7	49.2	49.7	50.8	51.6	55.5	57.9	61.5	61.3	57.2
Water Year Types[b,c]												
Wet (32%)	53.3	52.6	51.4	48.9	49.0	49.5	50.7	54.8	57.8	61.4	60.6	56.1
Above Normal (16%)	53.5	53.3	51.7	49.4	49.6	50.0	51.1	55.4	58.2	61.0	59.9	55.0
Below Normal (15%)	54.4	55.4	52.6	50.1	50.1	50.8	51.9	55.6	57.9	61.1	61.4	57.1
Dry (24%)	54.9	55.4	52.2	49.1	49.9	51.8	52.5	55.9	57.7	61.6	61.8	57.0
Critical (15%)	61.0	57.9	50.9	49.3	50.5	52.4	52.4	56.2	58.0	62.2	63.5	62.3

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.6	**0.7**	-0.6	**0.2**	**0.1**	-0.1	-0.2	-0.4	-0.3	0.0	**0.0**	**0.1**
20%	**0.5**	**0.6**	-0.3	**0.2**	**0.2**	**0.2**	-0.4	-0.5	-0.1	-0.1	**0.1**	**0.6**
30%	**0.4**	**0.2**	-0.1	**0.1**	**0.2**	-0.1	-0.4	-0.4	-0.3	**0.3**	**0.3**	**0.5**
40%	**0.3**	-0.5	-0.4	0.0	-0.1	-0.4	-0.4	-0.3	-0.2	**0.1**	**0.4**	**0.7**
50%	**0.2**	-0.9	-0.1	**0.1**	**0.1**	-0.5	-0.6	-0.4	-0.1	**0.0**	**0.4**	**1.4**
60%	**0.2**	-0.6	-0.1	0.0	**0.1**	-0.2	-0.8	-0.3	-0.2	**0.1**	**0.2**	**1.3**
70%	**0.1**	-0.4	-0.1	**0.0**	-0.1	-0.2	-0.7	-0.3	0.0	**0.1**	**0.1**	**1.1**
80%	**0.1**	-0.1	-0.4	**0.1**	0.0	-0.1	-0.2	-0.1	-0.1	**0.1**	**0.1**	**0.9**
90%	**0.1**	0.0	**0.1**	**0.0**	-0.3	0.0	-0.1	-0.1	0.0	**0.0**	-0.1	**0.6**
Long Term												
Full Simulation Period[a]	**0.1**	-0.1	-0.3	**0.1**	**0.1**	-0.2	-0.4	-0.3	-0.1	**0.0**	**0.2**	**0.7**
Water Year Types[b,c]												
Wet (32%)	**0.0**	-1.6	-1.5	**0.0**	**0.2**	**0.0**	-0.3	-0.3	**0.0**	0.0	**0.1**	**1.5**
Above Normal (16%)	**0.2**	**0.1**	**0.3**	**0.1**	**0.1**	-0.1	-0.8	-0.9	-0.2	**0.1**	**0.0**	**0.5**
Below Normal (15%)	**0.3**	**1.3**	**0.7**	**0.2**	-0.1	-0.8	-0.8	-0.3	-0.3	**0.0**	**0.9**	**0.8**
Dry (24%)	**0.3**	**0.8**	**0.1**	**0.1**	0.0	-0.2	-0.2	-0.1	-0.1	**0.2**	**0.0**	**0.2**
Critical (15%)	-0.1	**0.4**	**0.1**	**0.1**	**0.1**	0.0	**0.1**	0.0	-0.1	-0.1	**0.1**	**0.0**

a Based on the 82-year simulation period.

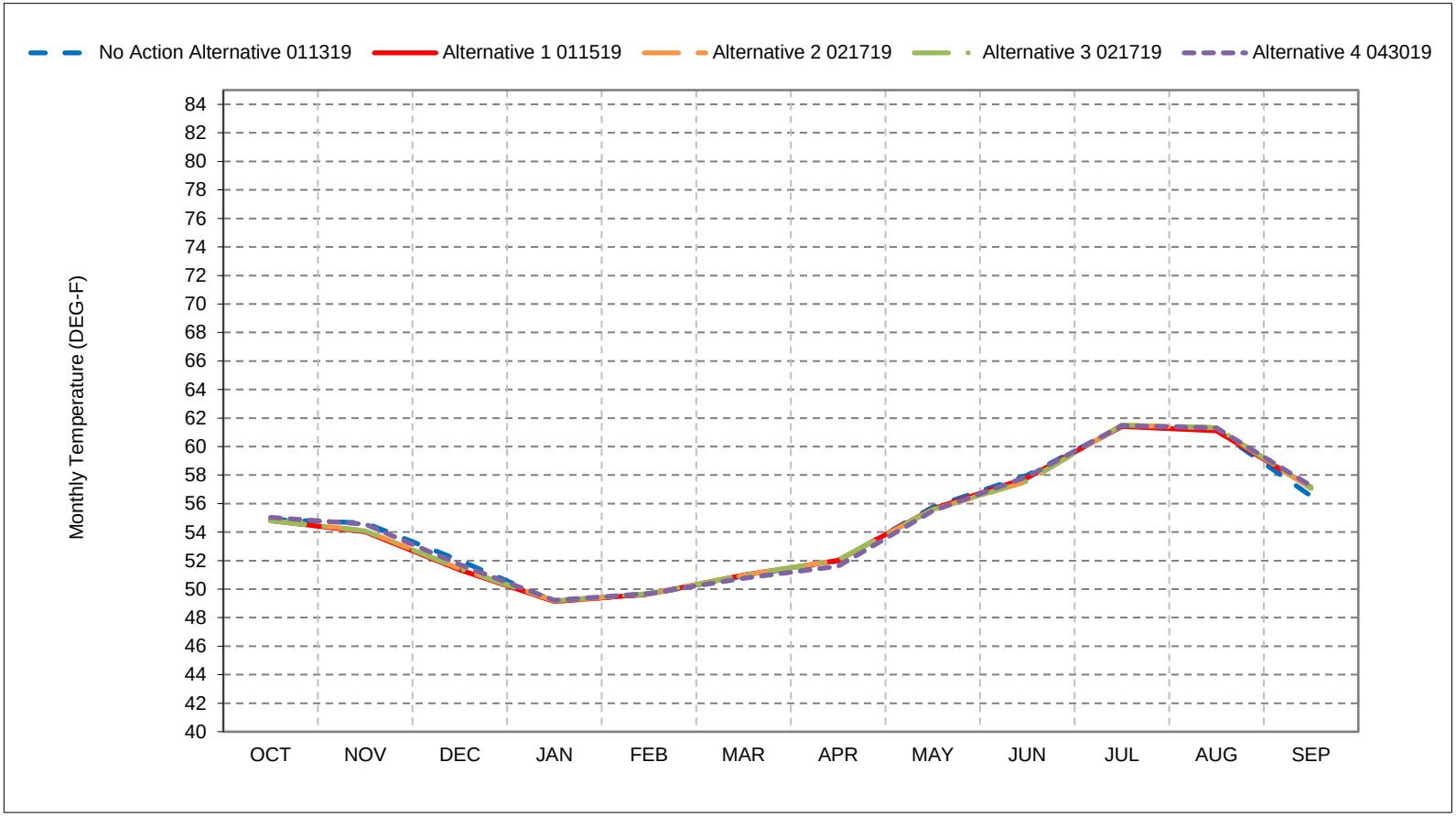
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-1. Feather River Low Flow Channel, Long-Term Average Temperature



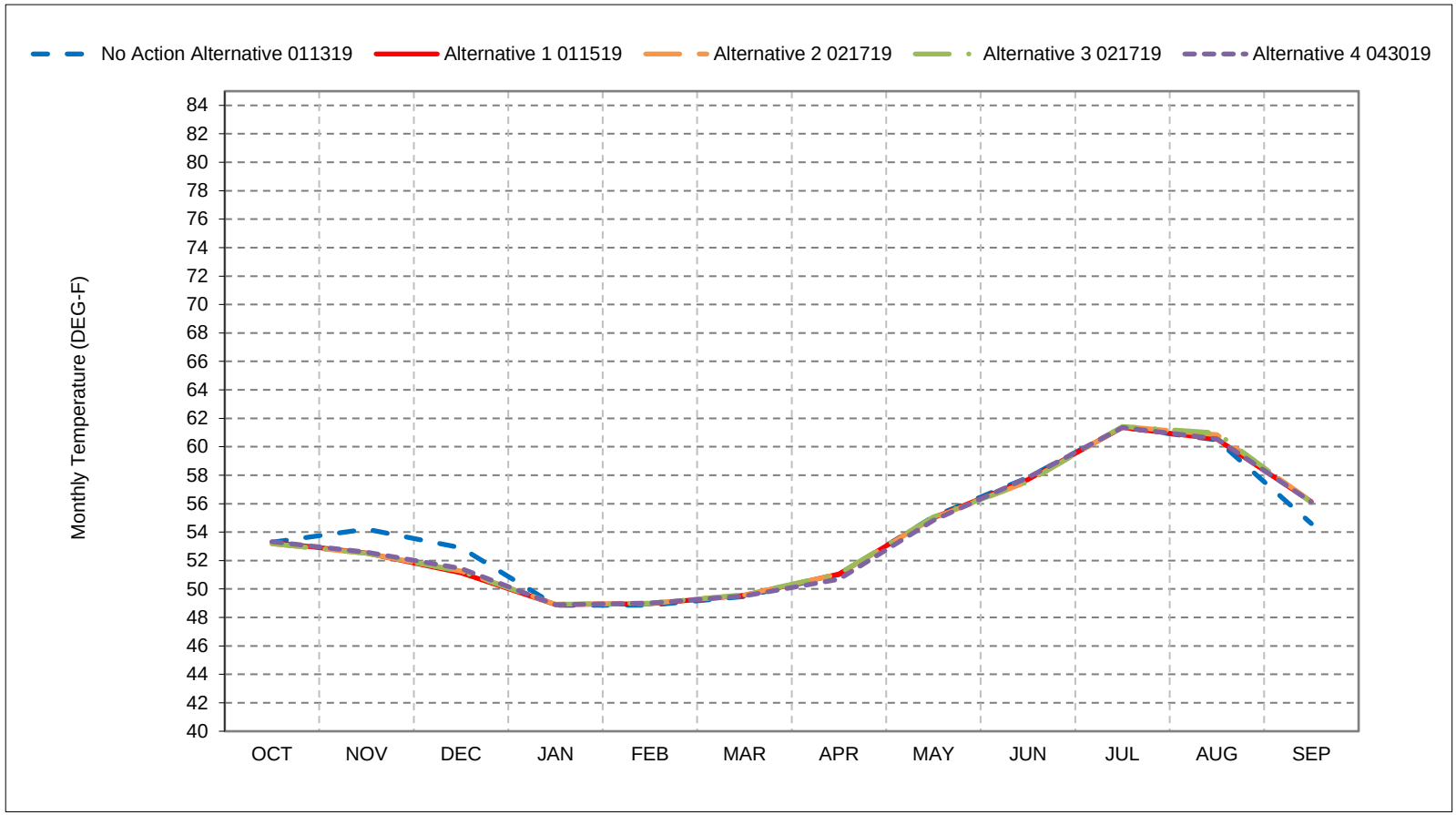
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-2. Feather River Low Flow Channel, Wet Year Average Temperature



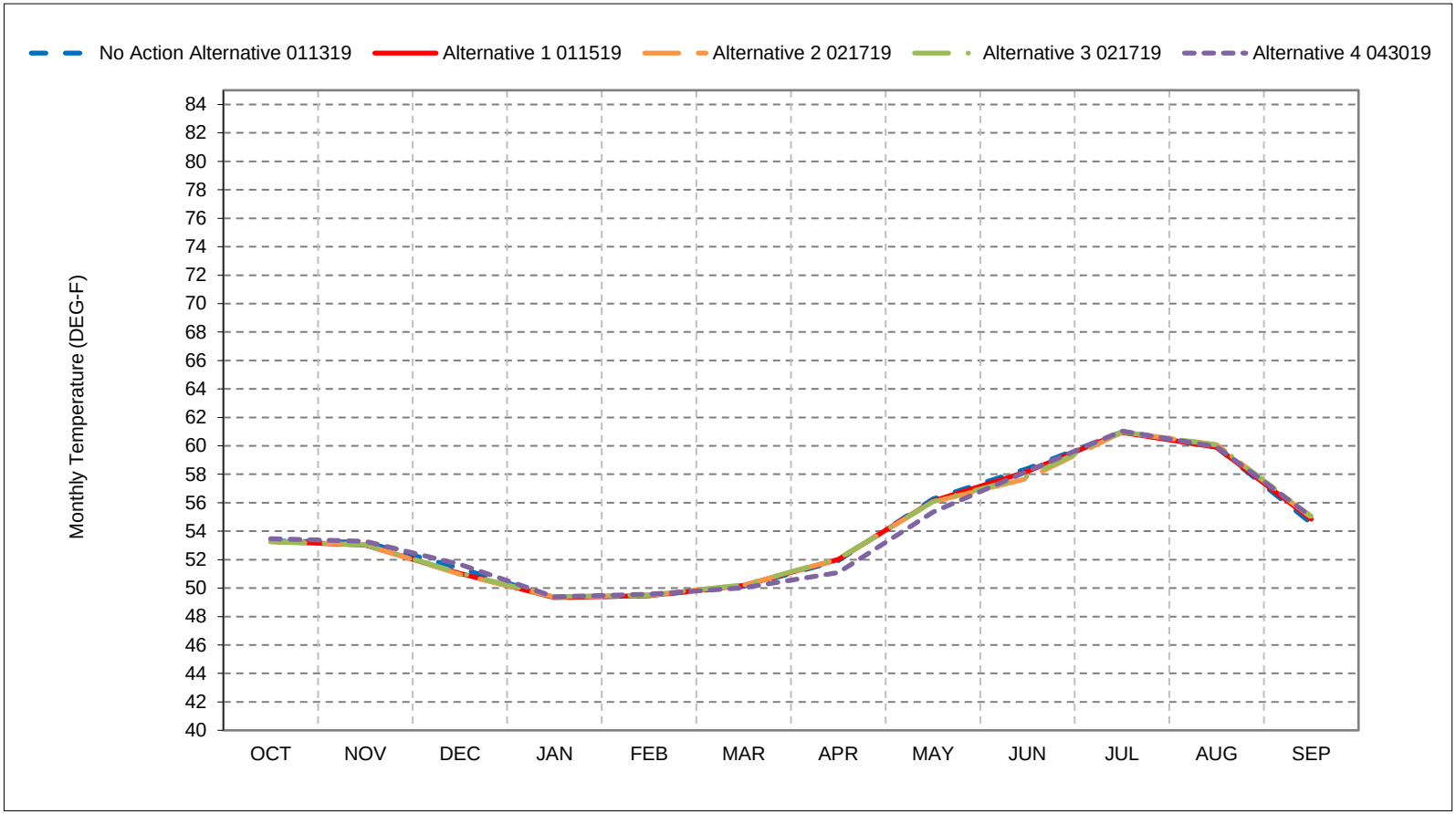
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-3. Feather River Low Flow Channel, Above Normal Year Average Temperature



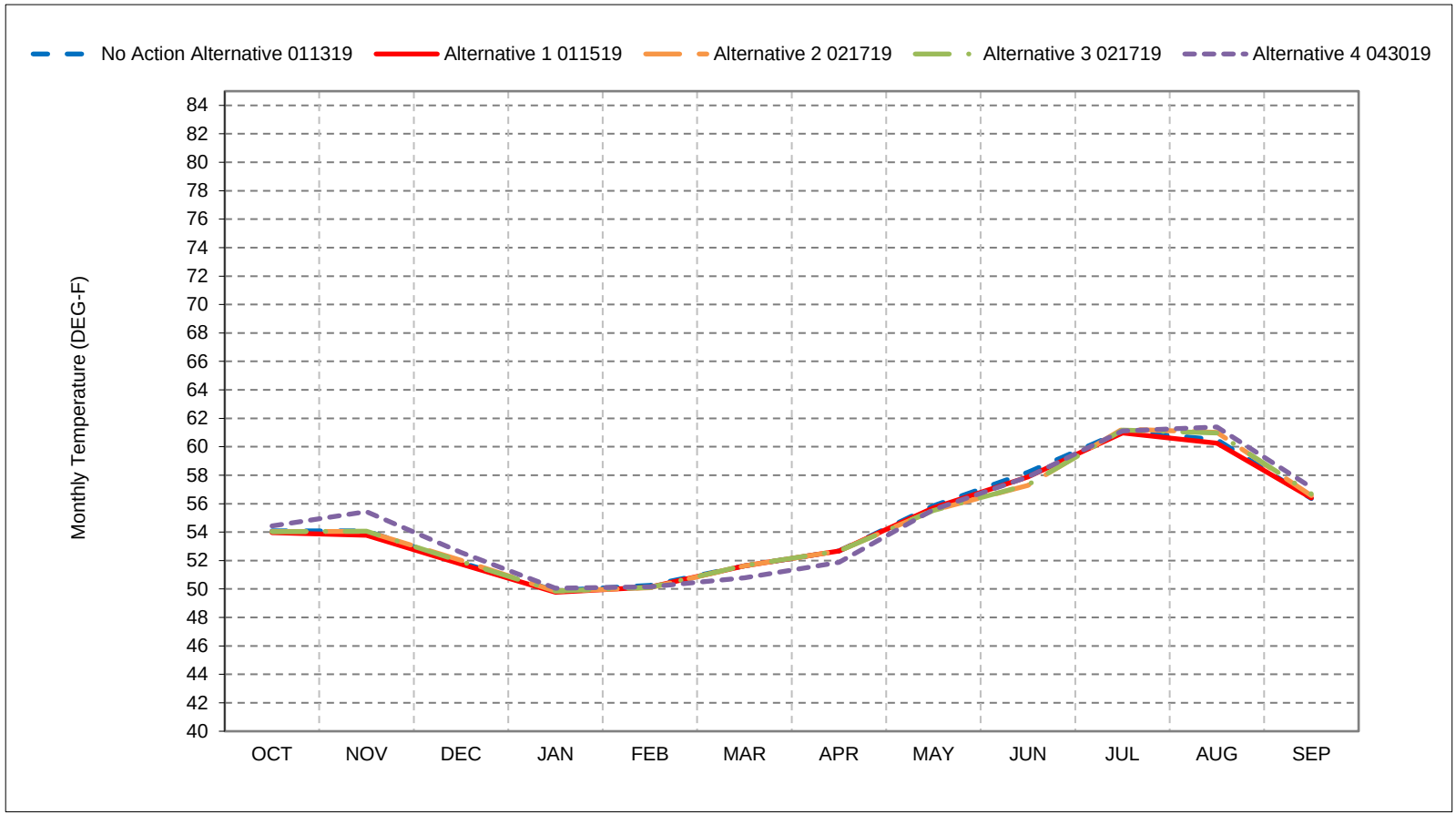
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-4. Feather River Low Flow Channel, Below Normal Year Average Temperature



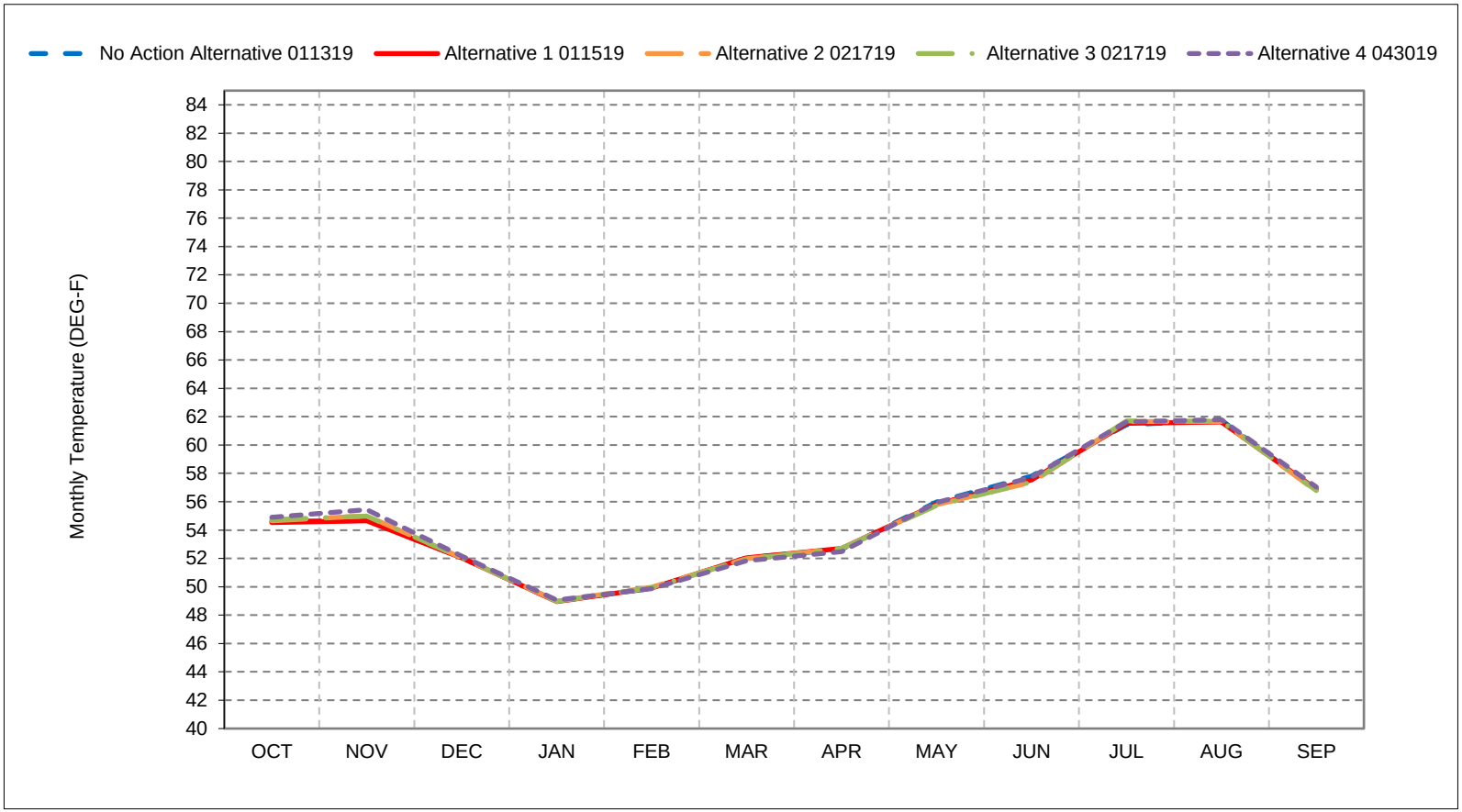
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

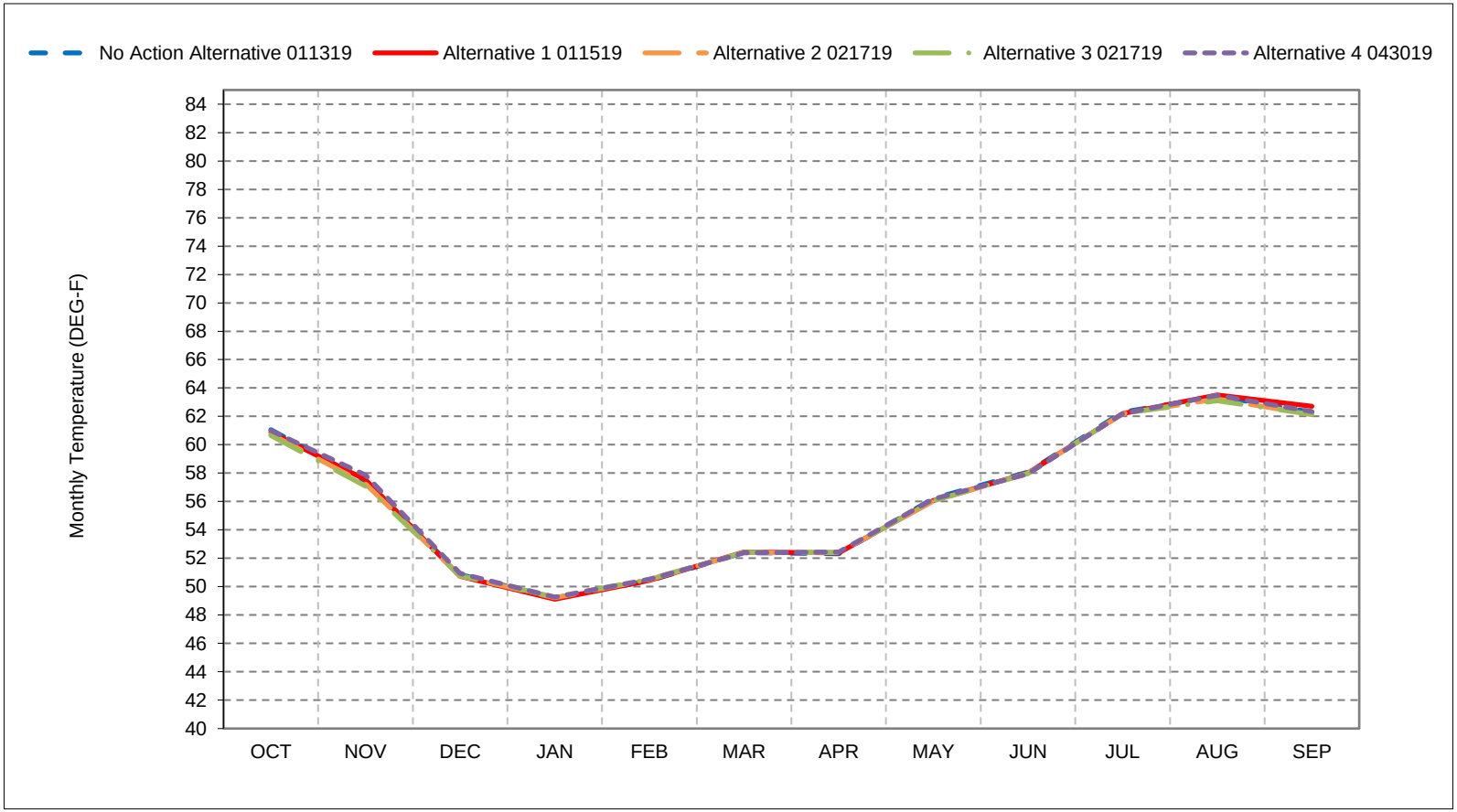
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-5. Feather River Low Flow Channel, Dry Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-6. Feather River Low Flow Channel, Critical Year Average Temperature



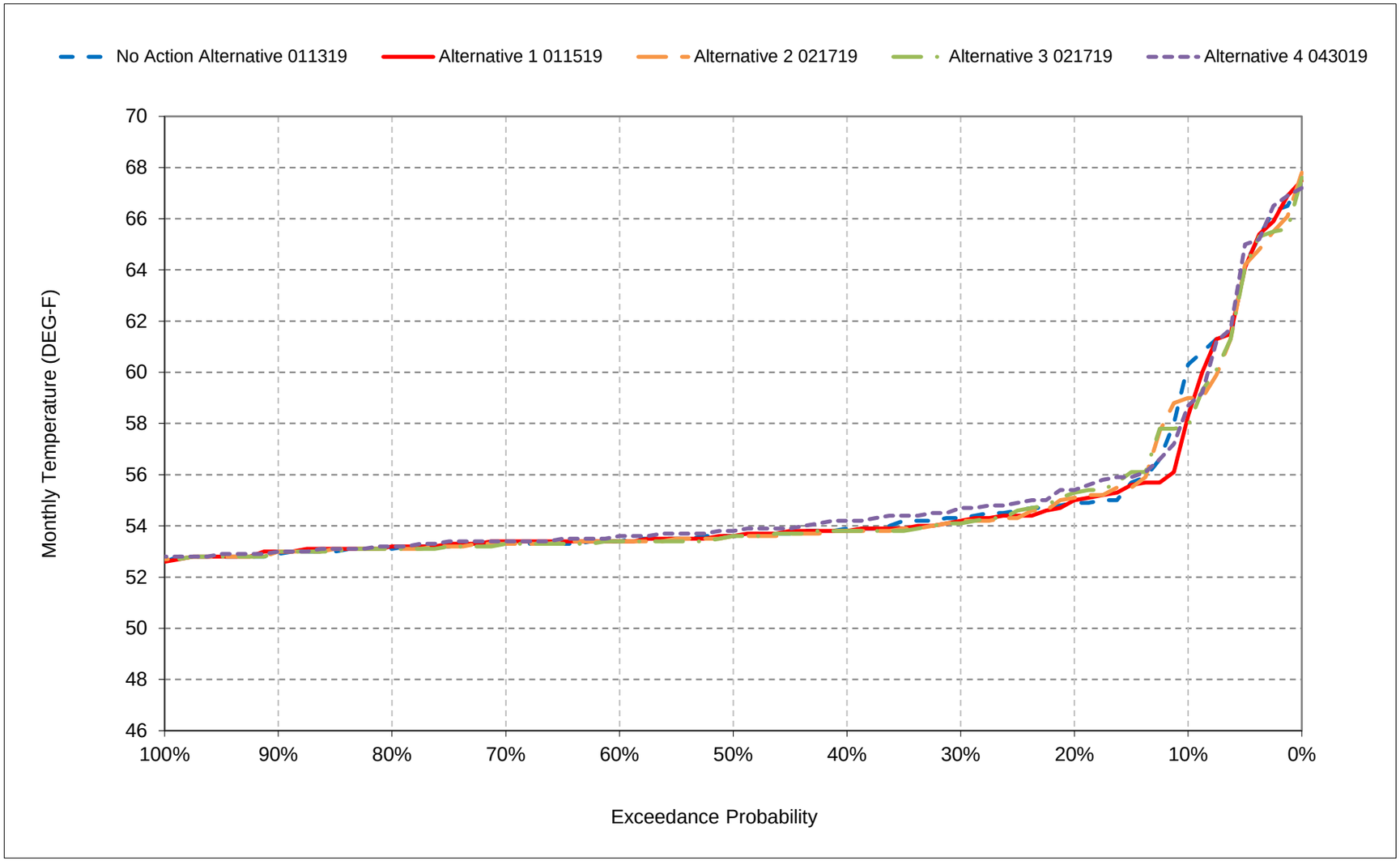
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

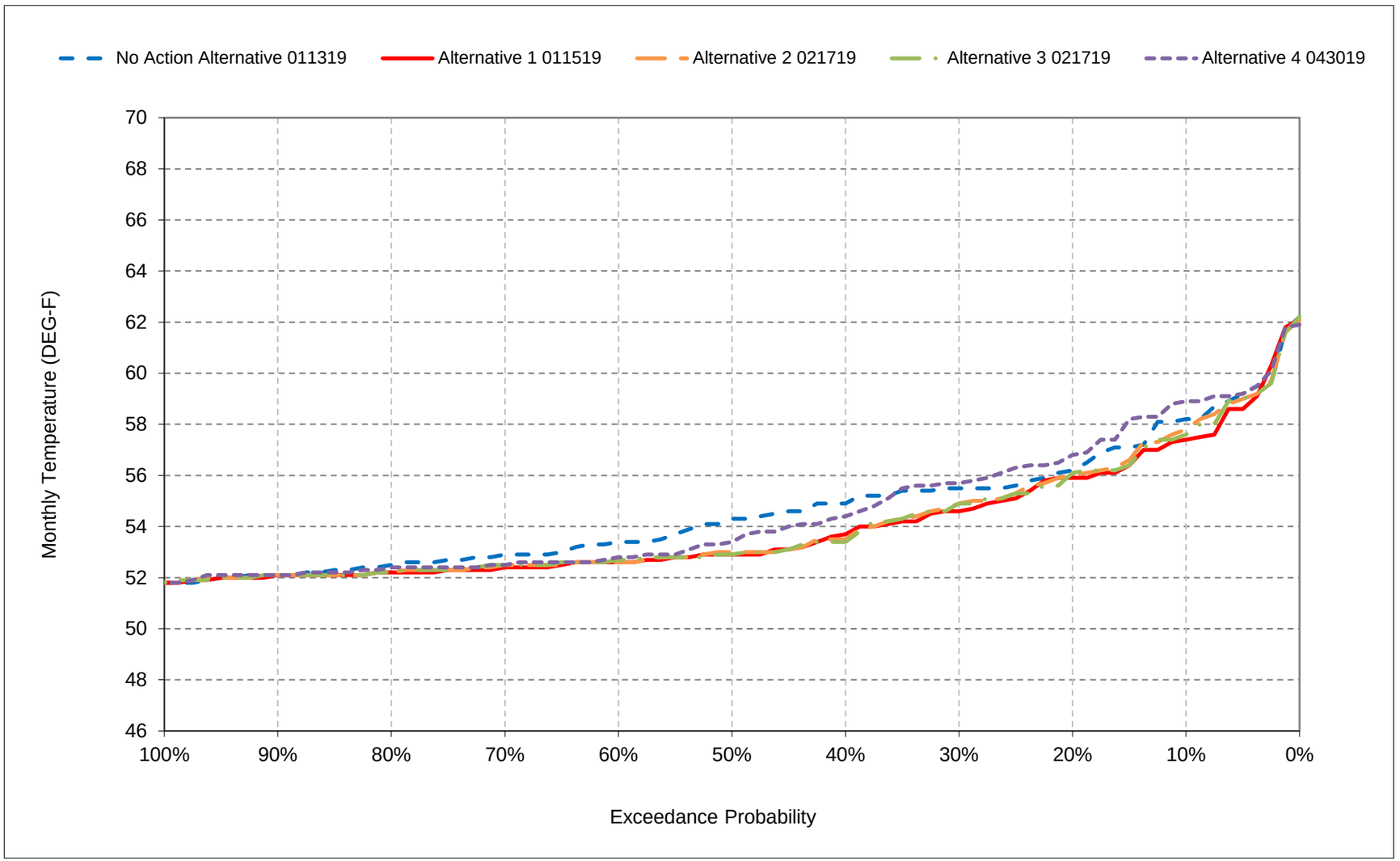
Figure 1-7. Feather River Low Flow Channel, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

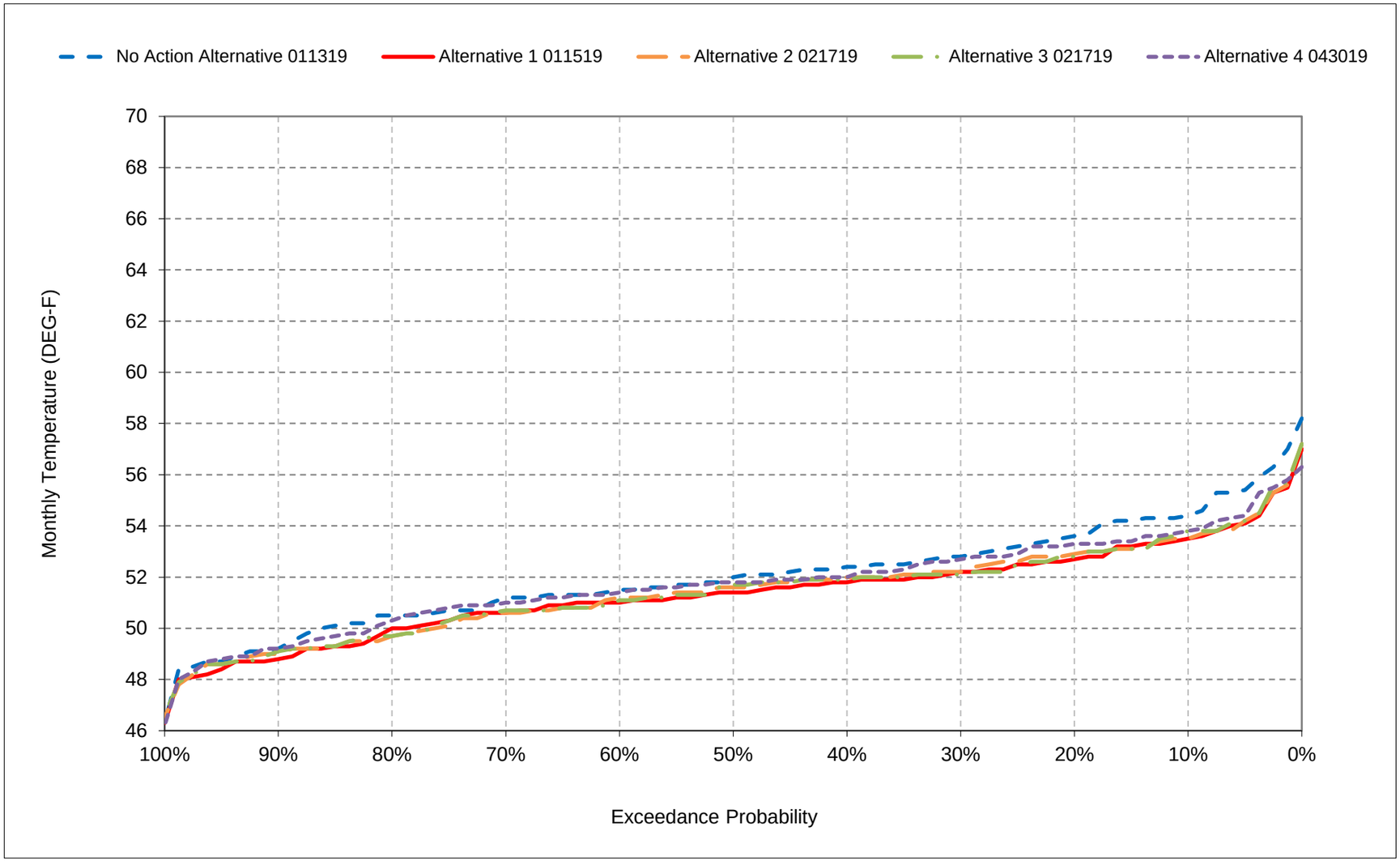
Figure 1-8. Feather River Low Flow Channel, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

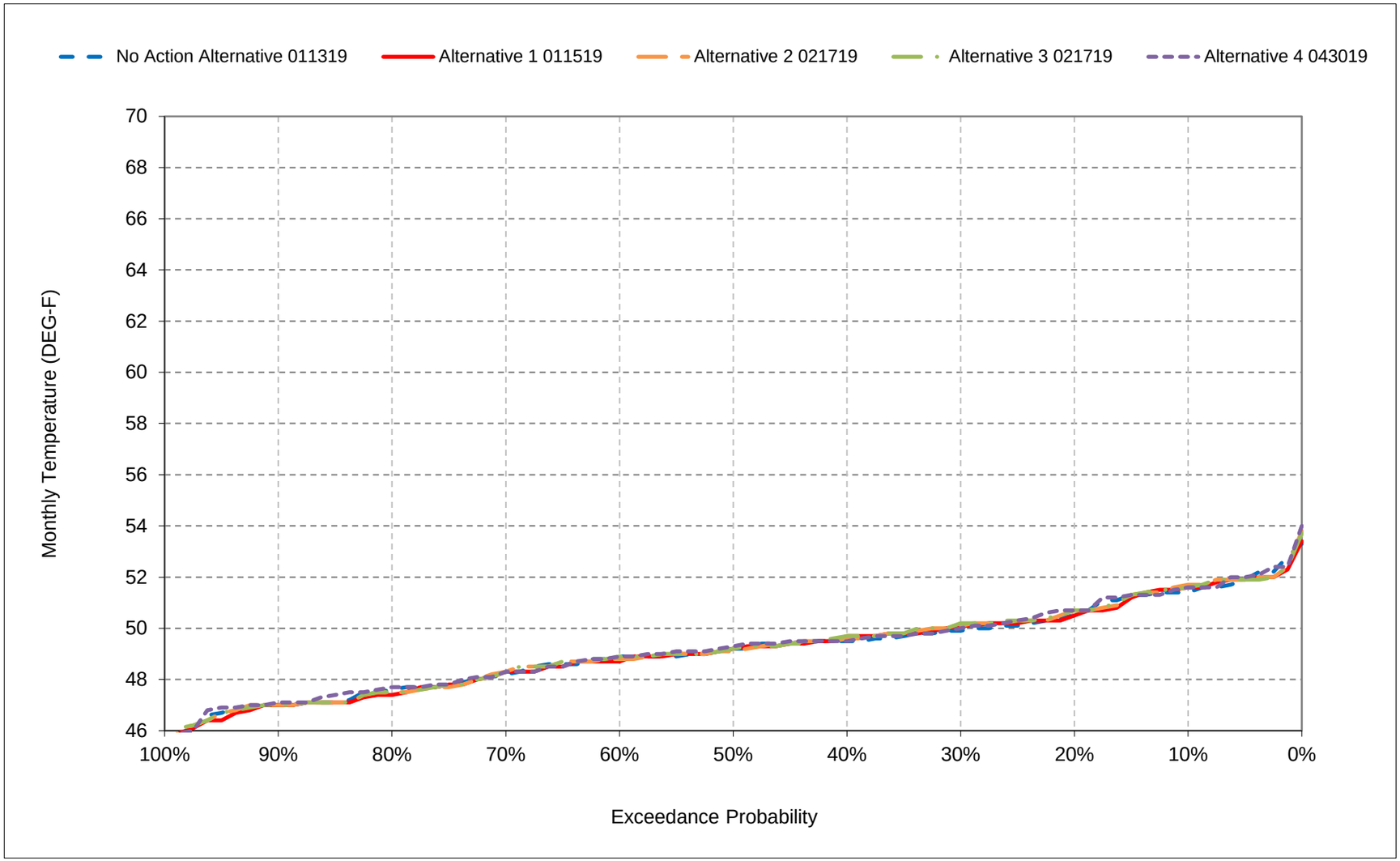
Figure 1-9. Feather River Low Flow Channel, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

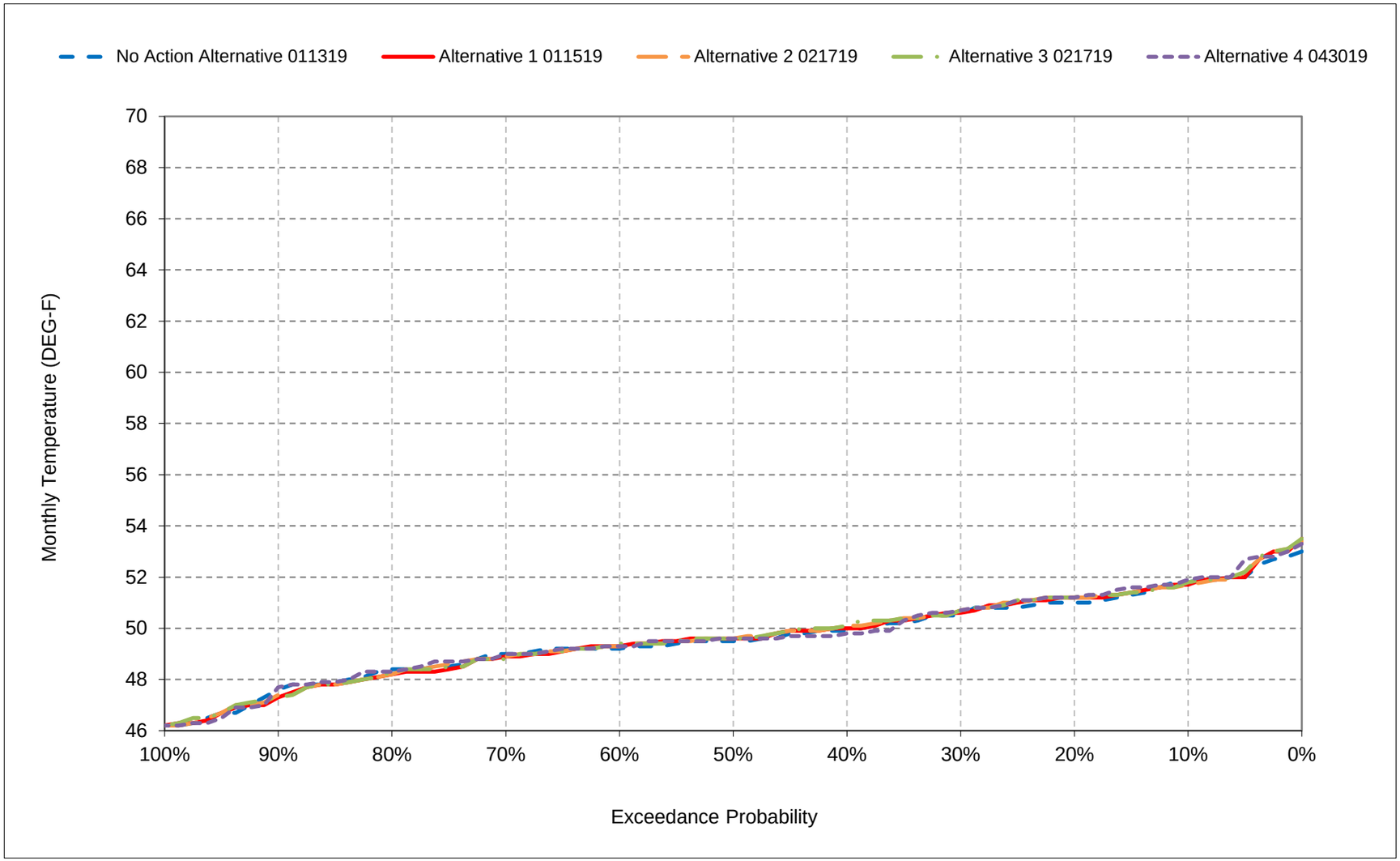
Figure 1-10. Feather River Low Flow Channel, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

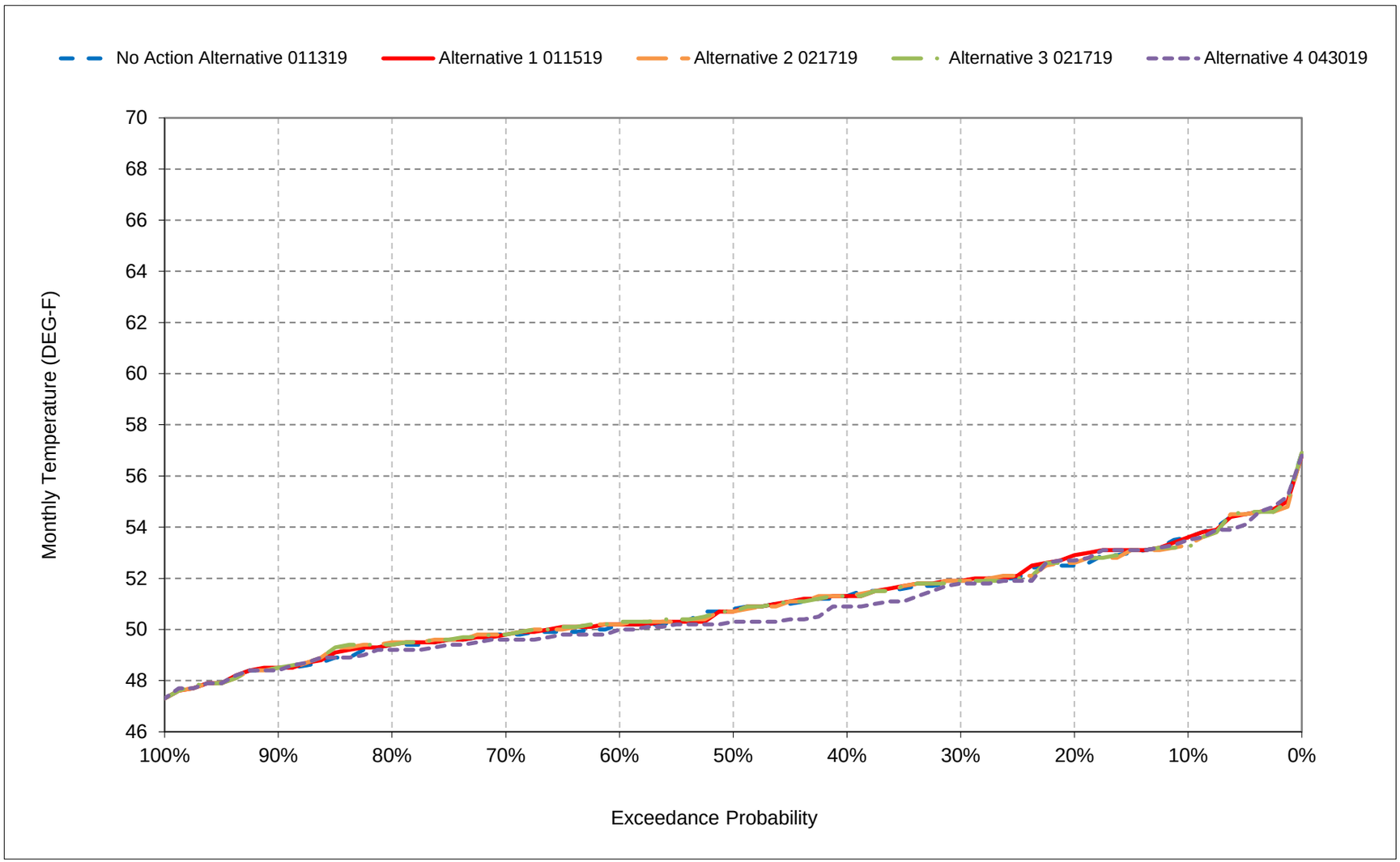
Figure 1-11. Feather River Low Flow Channel, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

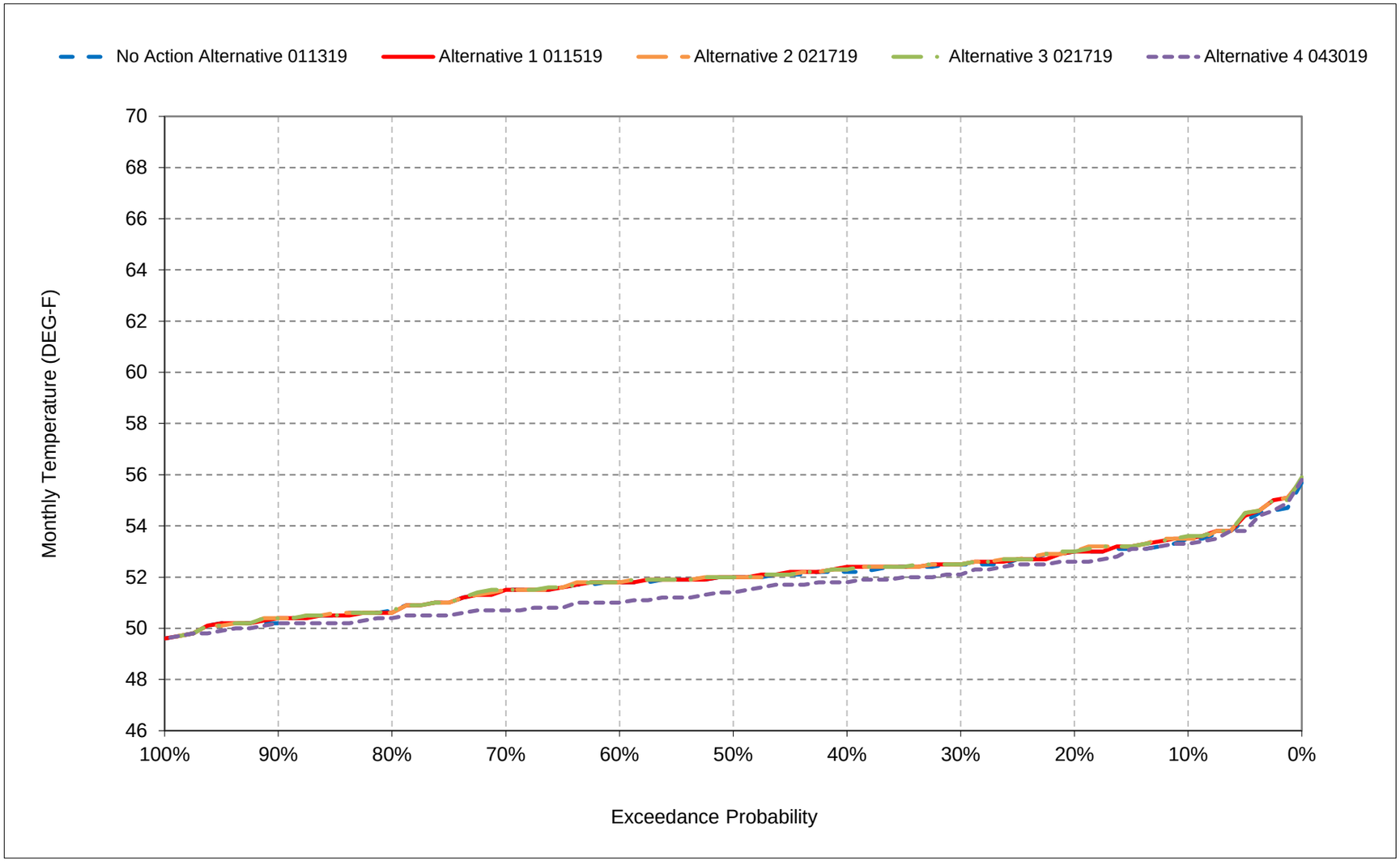
Figure 1-12. Feather River Low Flow Channel, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

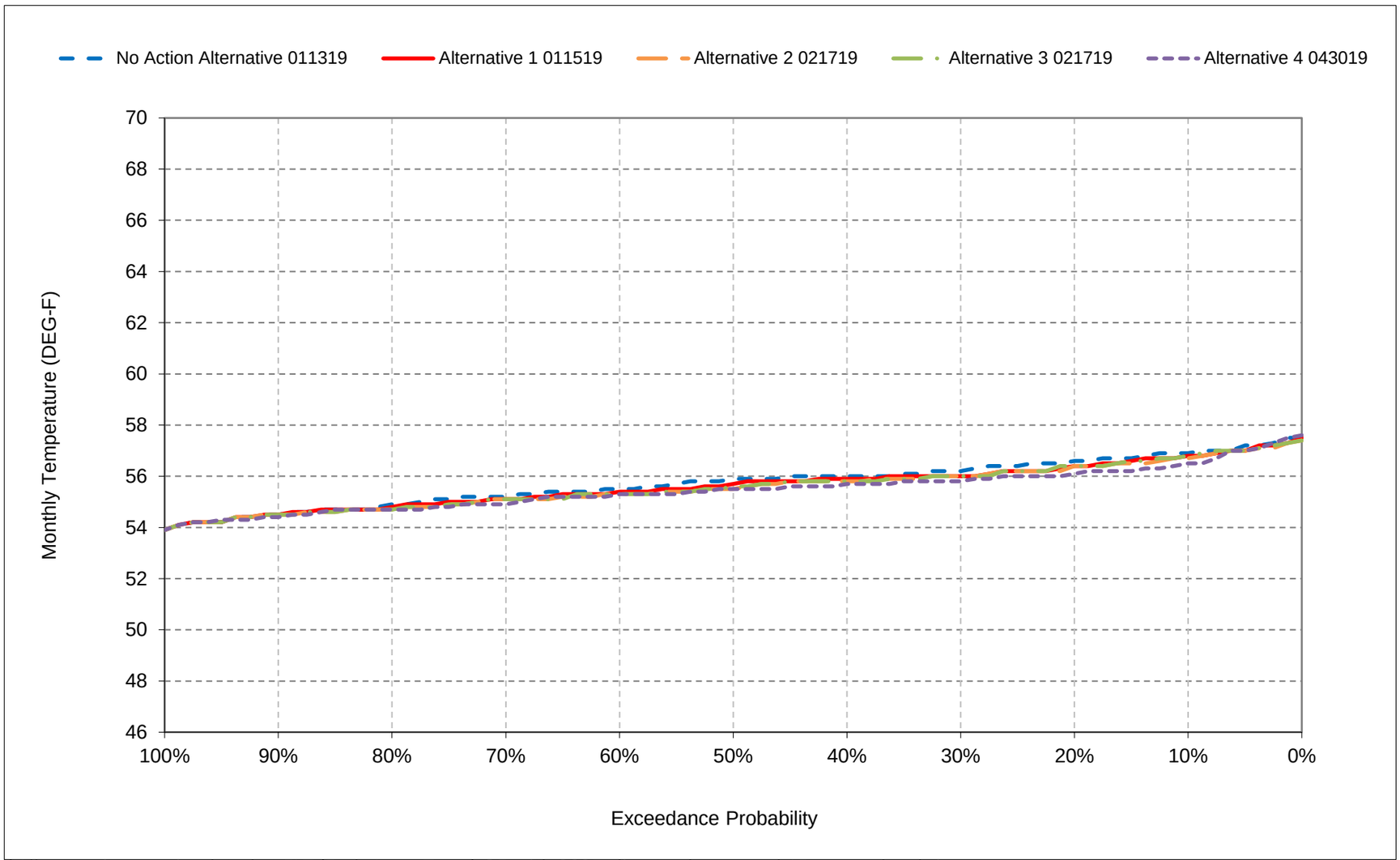
Figure 1-13. Feather River Low Flow Channel, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

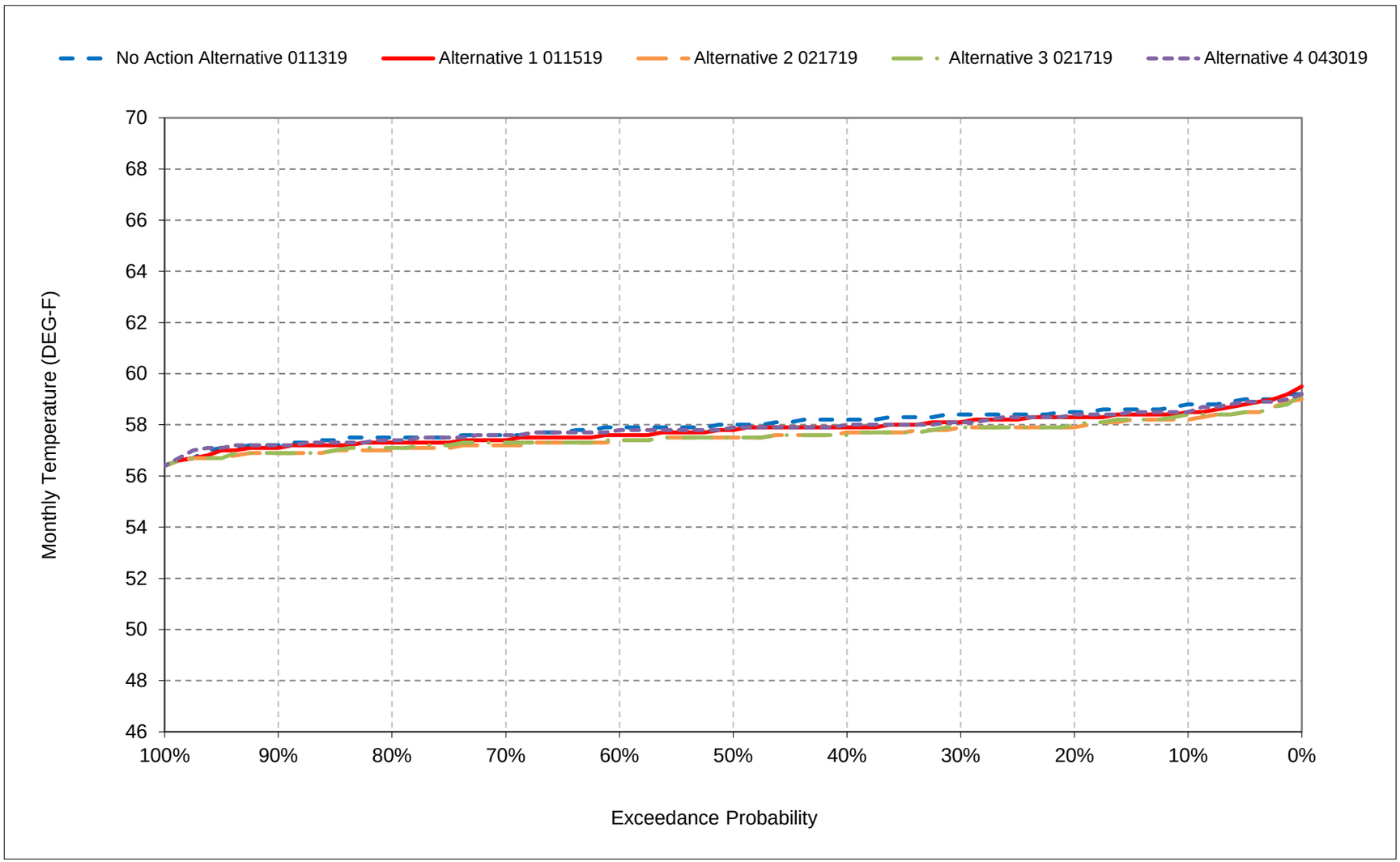
Figure 1-14. Feather River Low Flow Channel, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

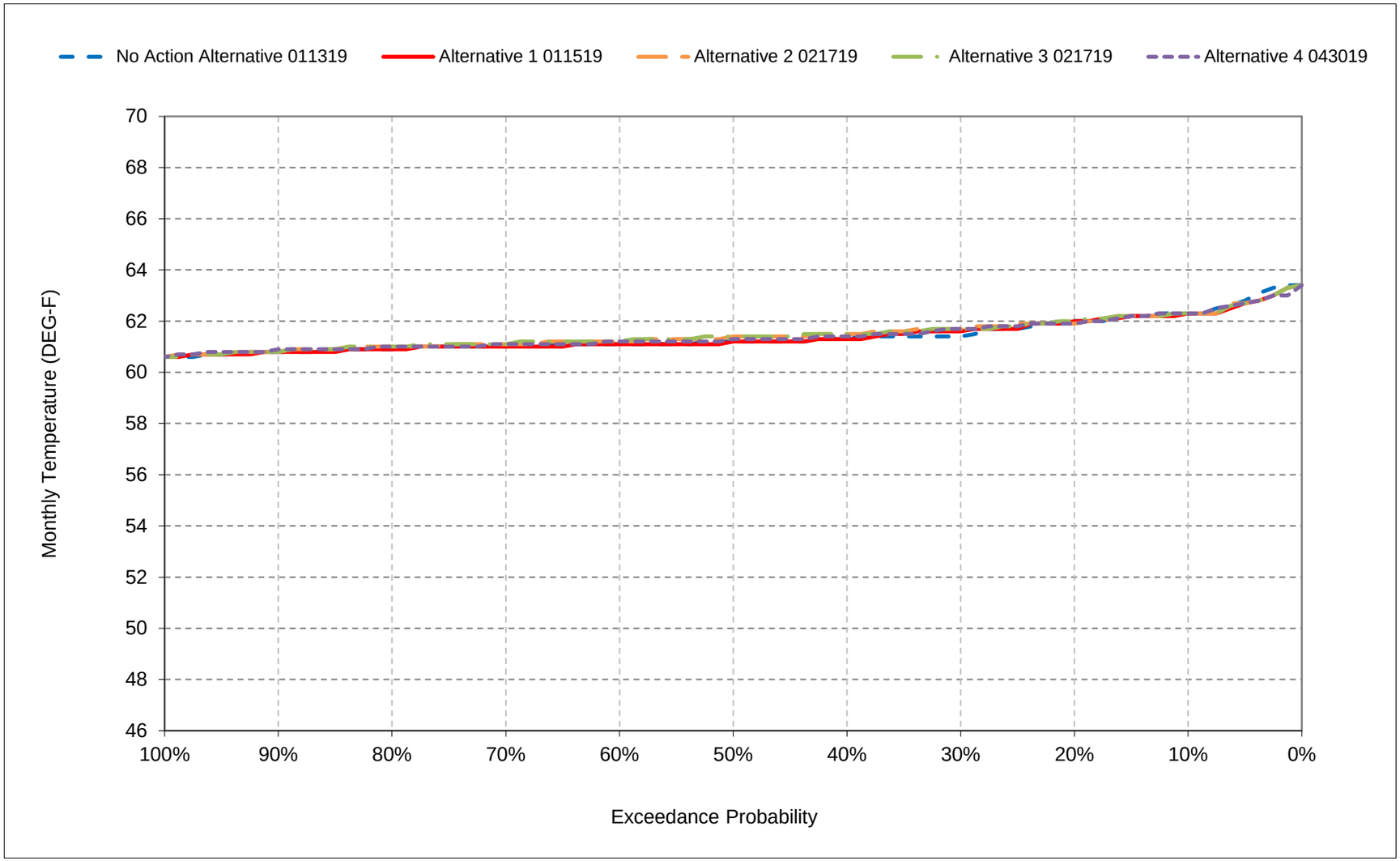
Figure 1-15. Feather River Low Flow Channel, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

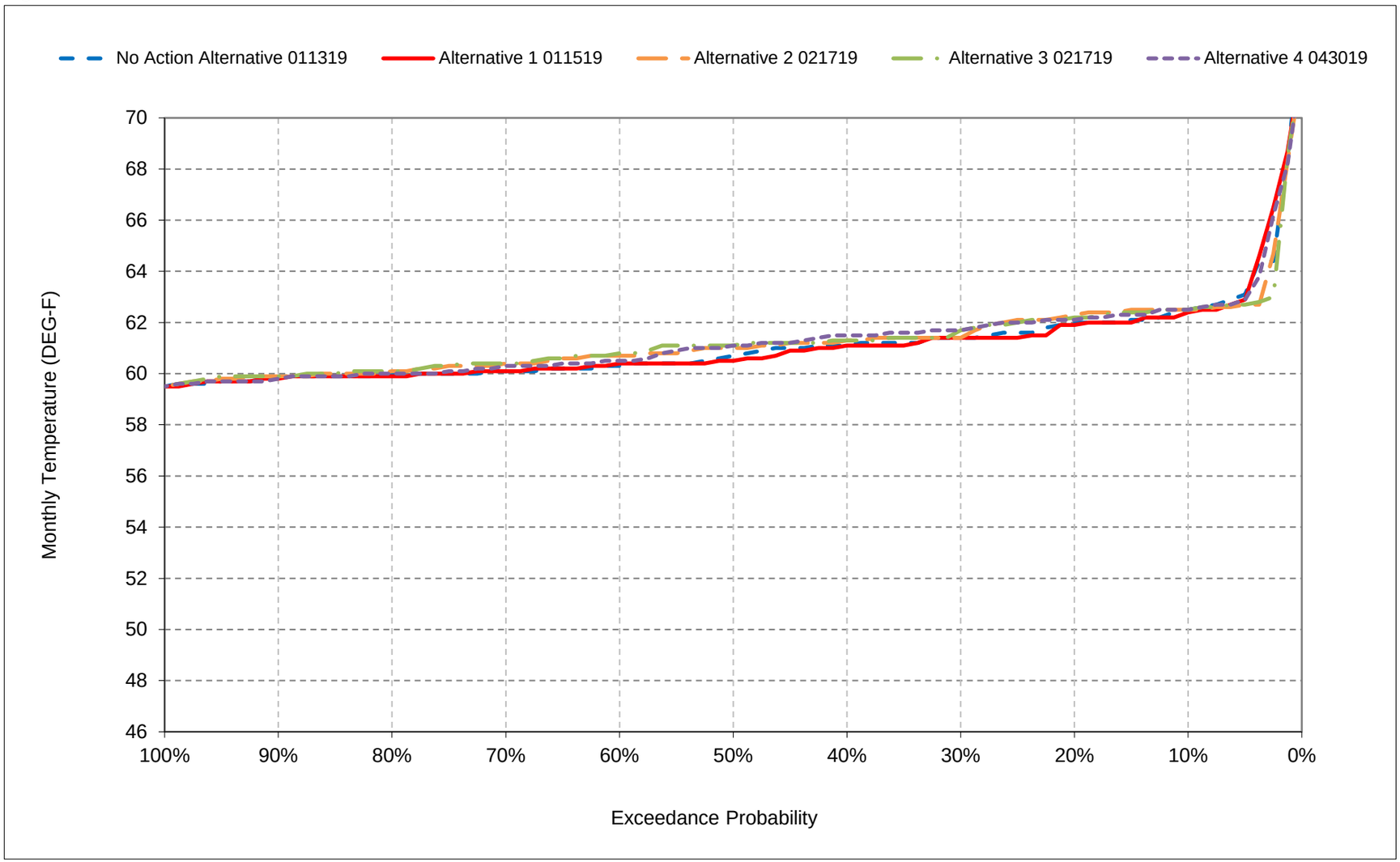
Figure 1-16. Feather River Low Flow Channel, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

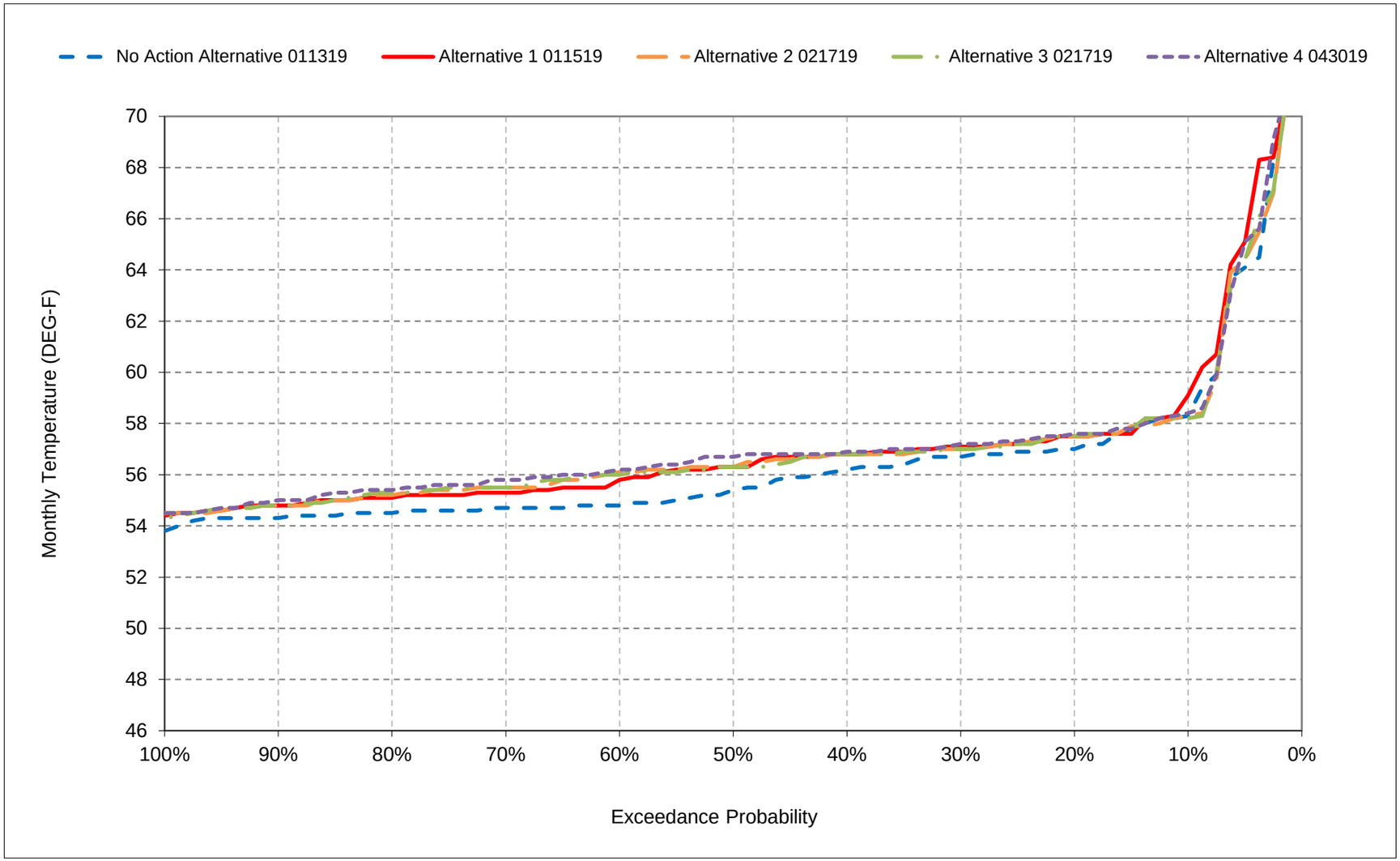
Figure 1-17. Feather River Low Flow Channel, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-18. Feather River Low Flow Channel, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 2-1. Feather River at Robinson Riffle, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.8	57.7	53.2	50.6	52.5	55.0	57.4	62.1	66.1	69.5	68.7	62.7
20%	57.2	56.1	52.6	50.0	51.5	54.0	56.5	61.6	65.8	69.1	68.1	61.7
30%	56.6	55.3	51.9	49.7	51.0	53.5	55.9	61.2	65.3	68.8	67.6	61.3
40%	56.4	55.0	51.4	49.1	50.6	52.9	55.5	60.8	65.0	68.5	67.1	60.9
50%	56.2	54.2	51.0	48.8	50.3	52.3	55.0	60.6	64.6	68.3	66.5	60.4
60%	55.8	53.7	50.6	48.4	50.0	51.8	54.7	60.2	64.0	68.1	66.3	60.1
70%	55.6	53.4	50.3	47.8	49.7	51.3	54.4	59.9	63.7	67.7	66.1	59.7
80%	55.1	53.0	49.5	47.0	48.9	50.9	53.9	59.8	63.4	67.3	65.9	59.4
90%	54.8	52.3	48.8	46.4	48.2	50.1	53.3	59.0	62.7	66.9	65.3	58.9
Long Term												
Full Simulation Period[a]	56.9	54.6	51.1	48.7	50.3	52.5	55.3	60.7	64.5	68.3	67.0	61.0
Water Year Types[b,c]												
Wet (32%)	55.5	54.3	51.9	48.6	49.7	51.3	54.1	60.2	64.0	68.4	66.7	59.8
Above Normal (16%)	55.5	53.2	50.5	49.0	50.3	52.0	55.4	61.2	65.0	67.9	66.0	59.4
Below Normal (15%)	56.3	54.3	50.8	49.3	50.7	53.0	56.2	60.5	65.0	68.3	66.7	61.0
Dry (24%)	56.7	54.8	51.3	48.3	50.4	53.4	55.9	60.9	64.8	68.1	67.3	61.1
Critical (15%)	62.0	57.0	49.9	48.6	51.1	53.8	55.8	60.8	64.3	69.0	68.5	65.1

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.7	57.3	52.4	50.8	52.4	55.1	57.5	61.9	66.0	69.6	68.6	63.4
20%	57.3	55.5	51.7	50.0	51.7	54.1	56.4	61.6	65.5	69.1	68.0	62.3
30%	56.7	54.5	51.3	49.7	51.1	53.6	56.0	61.1	65.2	68.8	67.5	61.8
40%	56.3	53.8	50.9	49.1	50.7	52.9	55.5	60.8	64.9	68.5	67.1	61.3
50%	56.0	53.6	50.6	48.7	50.4	52.3	55.1	60.6	64.5	68.3	66.6	60.9
60%	55.7	53.1	50.3	48.4	49.9	51.8	54.8	60.2	63.9	68.1	66.3	60.5
70%	55.4	52.8	49.9	47.8	49.6	51.4	54.4	59.9	63.6	67.7	66.1	60.0
80%	55.2	52.6	49.3	47.0	48.9	50.9	53.9	59.7	63.3	67.3	65.7	59.6
90%	54.8	52.2	48.4	46.2	48.1	50.1	53.2	59.0	62.6	67.0	65.3	59.3
Long Term												
Full Simulation Period[a]	56.8	54.1	50.5	48.7	50.3	52.6	55.3	60.6	64.4	68.3	67.0	61.5
Water Year Types[b,c]												
Wet (32%)	55.5	52.9	50.4	48.6	49.8	51.3	54.1	60.1	63.9	68.4	66.8	60.9
Above Normal (16%)	55.5	53.1	50.2	49.0	50.2	52.0	55.5	61.1	64.9	67.9	66.0	59.6
Below Normal (15%)	56.2	54.0	50.7	49.2	50.6	53.1	56.3	60.4	64.8	68.2	66.6	61.1
Dry (24%)	56.7	54.7	51.3	48.3	50.5	53.4	56.0	60.8	64.6	68.2	67.2	61.2
Critical (15%)	61.8	57.0	49.8	48.6	51.1	53.9	55.8	60.7	64.2	68.9	68.6	65.4

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.1	-0.4	-0.8	**0.2**	-0.1	**0.1**	**0.1**	-0.2	-0.1	**0.1**	-0.1	**0.7**
20%	**0.1**	-0.6	-0.9	0.0	**0.2**	**0.1**	-0.1	0.0	-0.3	0.0	-0.1	**0.6**
30%	**0.1**	-0.8	-0.6	0.0	**0.1**	**0.1**	**0.1**	-0.1	-0.1	0.0	-0.1	**0.5**
40%	-0.1	-1.2	-0.5	0.0	**0.1**	0.0	0.0	0.0	-0.1	0.0	0.0	**0.4**
50%	-0.2	-0.6	-0.4	-0.1	**0.1**	0.0	**0.1**	0.0	-0.1	0.0	**0.0**	**0.5**
60%	-0.1	-0.6	-0.3	0.0	-0.1	**0.0**	**0.1**	0.0	-0.1	0.0	0.0	**0.4**
70%	-0.2	-0.6	-0.4	0.0	-0.1	**0.1**	0.0	0.0	-0.1	0.0	0.0	**0.3**
80%	**0.1**	-0.4	-0.2	0.0	0.0	0.0	0.0	-0.1	-0.1	**0.0**	-0.2	**0.2**
90%	0.0	-0.1	-0.4	-0.2	-0.1	**0.0**	-0.1	0.0	-0.1	**0.1**	0.0	**0.4**
Long Term												
Full Simulation Period[a]	-0.1	-0.5	-0.6	0.0	**0.0**	**0.0**	**0.0**	-0.1	-0.1	0.0	0.0	**0.4**
Water Year Types[b,c]												
Wet (32%)	0.0	-1.4	-1.5	**0.0**	**0.1**	**0.1**	**0.0**	-0.1	-0.1	**0.0**	**0.0**	**1.1**
Above Normal (16%)	0.0	-0.2	-0.3	0.0	0.0	**0.0**	**0.1**	-0.1	-0.2	0.0	**0.0**	**0.2**
Below Normal (15%)	-0.1	-0.3	-0.1	-0.1	-0.1	**0.0**	**0.0**	-0.1	-0.2	-0.1	-0.2	**0.0**
Dry (24%)	-0.1	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	-0.1	-0.2	**0.1**	-0.1	**0.0**
Critical (15%)	-0.2	**0.1**	-0.1	-0.1	0.0	**0.0**	**0.0**	-0.1	-0.1	0.0	**0.0**	**0.3**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 2-2. Feather River at Robinson Riffle, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.8	57.7	53.2	50.6	52.5	55.0	57.4	62.1	66.1	69.5	68.7	62.7
20%	57.2	56.1	52.6	50.0	51.5	54.0	56.5	61.6	65.8	69.1	68.1	61.7
30%	56.6	55.3	51.9	49.7	51.0	53.5	55.9	61.2	65.3	68.8	67.6	61.3
40%	56.4	55.0	51.4	49.1	50.6	52.9	55.5	60.8	65.0	68.5	67.1	60.9
50%	56.2	54.2	51.0	48.8	50.3	52.3	55.0	60.6	64.6	68.3	66.5	60.4
60%	55.8	53.7	50.6	48.4	50.0	51.8	54.7	60.2	64.0	68.1	66.3	60.1
70%	55.6	53.4	50.3	47.8	49.7	51.3	54.4	59.9	63.7	67.7	66.1	59.7
80%	55.1	53.0	49.5	47.0	48.9	50.9	53.9	59.8	63.4	67.3	65.9	59.4
90%	54.8	52.3	48.8	46.4	48.2	50.1	53.3	59.0	62.7	66.9	65.3	58.9
Long Term												
Full Simulation Period[a]	56.9	54.6	51.1	48.7	50.3	52.5	55.3	60.7	64.5	68.3	67.0	61.0
Water Year Types[b,c]												
Wet (32%)	55.5	54.3	51.9	48.6	49.7	51.3	54.1	60.2	64.0	68.4	66.7	59.8
Above Normal (16%)	55.5	53.2	50.5	49.0	50.3	52.0	55.4	61.2	65.0	67.9	66.0	59.4
Below Normal (15%)	56.3	54.3	50.8	49.3	50.7	53.0	56.2	60.5	65.0	68.3	66.7	61.0
Dry (24%)	56.7	54.8	51.3	48.3	50.4	53.4	55.9	60.9	64.8	68.1	67.3	61.1
Critical (15%)	62.0	57.0	49.9	48.6	51.1	53.8	55.8	60.8	64.3	69.0	68.5	65.1

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.1	57.8	52.6	50.8	52.4	54.8	57.5	62.0	65.7	69.7	68.8	63.3
20%	57.6	55.8	51.8	50.0	51.7	54.1	56.4	61.5	65.3	69.1	68.2	62.3
30%	56.6	54.6	51.5	49.8	51.2	53.5	56.0	61.0	65.0	68.9	67.7	61.7
40%	56.3	53.9	51.1	49.0	50.8	52.8	55.5	60.7	64.7	68.6	67.2	61.4
50%	56.0	53.6	50.6	48.8	50.4	52.3	55.1	60.5	64.3	68.3	66.6	61.0
60%	55.8	53.2	50.4	48.4	50.0	51.8	54.8	60.2	63.9	68.1	66.5	60.4
70%	55.4	52.8	49.7	47.8	49.6	51.4	54.4	59.9	63.5	67.7	66.2	60.0
80%	55.1	52.6	49.2	47.0	48.9	50.9	53.9	59.7	63.3	67.4	66.0	59.6
90%	54.7	52.2	48.4	46.4	48.1	50.1	53.2	58.9	62.4	67.0	65.6	59.3
Long Term												
Full Simulation Period[a]	56.8	54.2	50.6	48.7	50.3	52.5	55.3	60.5	64.2	68.4	67.1	61.4
Water Year Types[b,c]												
Wet (32%)	55.4	52.9	50.6	48.6	49.8	51.3	54.1	60.1	63.8	68.5	67.0	60.9
Above Normal (16%)	55.5	53.1	50.1	49.1	50.3	52.0	55.5	61.0	64.6	67.9	66.1	59.7
Below Normal (15%)	56.3	54.2	50.9	49.3	50.6	53.0	56.3	60.3	64.4	68.4	67.1	61.2
Dry (24%)	56.8	55.0	51.3	48.3	50.5	53.4	56.0	60.8	64.5	68.3	67.2	61.1
Critical (15%)	61.7	56.8	49.8	48.6	51.1	53.8	55.8	60.7	64.2	68.9	68.4	65.0

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.7	**0.1**	-0.6	**0.2**	-0.1	-0.2	**0.1**	-0.1	-0.4	**0.2**	**0.1**	**0.7**
20%	**0.4**	-0.3	-0.8	**0.0**	**0.2**	**0.1**	-0.1	-0.1	-0.5	0.0	**0.1**	**0.6**
30%	0.0	-0.7	-0.4	**0.1**	**0.2**	0.0	**0.1**	-0.2	-0.3	**0.1**	**0.1**	**0.4**
40%	-0.1	-1.1	-0.3	-0.1	**0.2**	-0.1	0.0	-0.1	-0.3	**0.1**	**0.1**	**0.5**
50%	-0.2	-0.6	-0.3	0.0	**0.2**	0.0	**0.1**	-0.1	-0.3	0.0	**0.1**	**0.6**
60%	0.0	-0.5	-0.2	**0.0**	0.0	**0.0**	**0.1**	0.0	-0.1	0.0	**0.2**	**0.3**
70%	-0.2	-0.6	-0.6	0.0	-0.1	**0.1**	0.0	0.0	-0.2	0.0	**0.1**	**0.3**
80%	0.0	-0.4	-0.4	0.0	0.0	0.0	0.0	-0.1	-0.1	**0.1**	**0.1**	**0.2**
90%	-0.1	-0.1	-0.4	0.0	-0.1	**0.0**	-0.1	-0.1	-0.3	**0.1**	**0.3**	**0.4**
Long Term												
Full Simulation Period[a]	-0.1	-0.4	-0.5	**0.0**	**0.0**	**0.0**	**0.0**	-0.1	-0.3	**0.1**	**0.1**	**0.4**
Water Year Types[b,c]												
Wet (32%)	-0.1	-1.4	-1.4	**0.1**	**0.1**	**0.1**	**0.0**	-0.1	-0.2	**0.1**	**0.3**	**1.1**
Above Normal (16%)	0.0	-0.2	-0.4	**0.0**	**0.0**	**0.1**	**0.1**	-0.1	-0.5	**0.0**	**0.1**	**0.3**
Below Normal (15%)	0.0	0.0	**0.2**	0.0	-0.1	**0.0**	**0.0**	-0.2	-0.6	**0.1**	**0.3**	**0.2**
Dry (24%)	**0.0**	**0.3**	**0.0**	**0.0**	**0.1**	-0.1	**0.0**	-0.1	-0.3	**0.1**	-0.1	-0.1
Critical (15%)	-0.3	-0.2	-0.1	**0.0**	**0.0**	0.0	**0.0**	-0.1	0.0	-0.1	-0.1	-0.1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 2-3. Feather River at Robinson Riffle, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.8	57.7	53.2	50.6	52.5	55.0	57.4	62.1	66.1	69.5	68.7	62.7
20%	57.2	56.1	52.6	50.0	51.5	54.0	56.5	61.6	65.8	69.1	68.1	61.7
30%	56.6	55.3	51.9	49.7	51.0	53.5	55.9	61.2	65.3	68.8	67.6	61.3
40%	56.4	55.0	51.4	49.1	50.6	52.9	55.5	60.8	65.0	68.5	67.1	60.9
50%	56.2	54.2	51.0	48.8	50.3	52.3	55.0	60.6	64.6	68.3	66.5	60.4
60%	55.8	53.7	50.6	48.4	50.0	51.8	54.7	60.2	64.0	68.1	66.3	60.1
70%	55.6	53.4	50.3	47.8	49.7	51.3	54.4	59.9	63.7	67.7	66.1	59.7
80%	55.1	53.0	49.5	47.0	48.9	50.9	53.9	59.8	63.4	67.3	65.9	59.4
90%	54.8	52.3	48.8	46.4	48.2	50.1	53.3	59.0	62.7	66.9	65.3	58.9
Long Term												
Full Simulation Period[a]	56.9	54.6	51.1	48.7	50.3	52.5	55.3	60.7	64.5	68.3	67.0	61.0
Water Year Types[b,c]												
Wet (32%)	55.5	54.3	51.9	48.6	49.7	51.3	54.1	60.2	64.0	68.4	66.7	59.8
Above Normal (16%)	55.5	53.2	50.5	49.0	50.3	52.0	55.4	61.2	65.0	67.9	66.0	59.4
Below Normal (15%)	56.3	54.3	50.8	49.3	50.7	53.0	56.2	60.5	65.0	68.3	66.7	61.0
Dry (24%)	56.7	54.8	51.3	48.3	50.4	53.4	55.9	60.9	64.8	68.1	67.3	61.1
Critical (15%)	62.0	57.0	49.9	48.6	51.1	53.8	55.8	60.8	64.3	69.0	68.5	65.1

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.5	57.6	52.7	50.8	52.4	54.9	57.5	61.9	65.8	69.7	68.6	63.3
20%	57.6	55.5	51.8	50.0	51.7	54.1	56.4	61.5	65.2	69.1	68.1	62.3
30%	56.7	54.7	51.3	49.8	51.2	53.5	56.0	61.0	65.0	68.8	67.7	61.6
40%	56.3	53.9	51.1	49.1	50.8	52.9	55.5	60.7	64.7	68.6	67.2	61.4
50%	56.1	53.6	50.7	48.8	50.4	52.4	55.1	60.5	64.2	68.3	66.8	61.1
60%	55.8	53.1	50.3	48.4	49.9	51.9	54.8	60.2	63.8	68.1	66.5	60.4
70%	55.4	52.8	49.7	47.8	49.5	51.4	54.4	59.9	63.6	67.8	66.3	60.1
80%	55.1	52.6	49.2	46.9	48.9	50.9	53.9	59.7	63.3	67.4	66.1	59.7
90%	54.7	52.2	48.4	46.6	48.2	50.1	53.2	59.0	62.4	67.0	65.6	59.4
Long Term												
Full Simulation Period[a]	56.8	54.2	50.6	48.7	50.4	52.6	55.3	60.5	64.3	68.4	67.2	61.4
Water Year Types[b,c]												
Wet (32%)	55.4	52.9	50.5	48.6	49.8	51.4	54.1	60.2	63.8	68.5	67.1	60.9
Above Normal (16%)	55.5	53.1	50.2	49.1	50.3	52.0	55.5	61.0	64.7	67.9	66.1	59.8
Below Normal (15%)	56.3	54.2	50.8	49.3	50.6	53.1	56.2	60.3	64.4	68.4	67.0	61.3
Dry (24%)	56.9	55.0	51.3	48.3	50.5	53.4	55.9	60.8	64.5	68.3	67.2	61.1
Critical (15%)	61.6	56.7	49.8	48.7	51.1	53.9	55.9	60.7	64.2	69.0	68.3	65.0

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.3	-0.1	-0.5	**0.2**	-0.1	-0.1	**0.1**	-0.2	-0.3	**0.2**	-0.1	**0.7**
20%	**0.4**	-0.6	-0.8	**0.0**	**0.2**	**0.1**	-0.1	-0.1	-0.6	0.0	0.0	**0.6**
30%	**0.1**	-0.6	-0.6	**0.1**	**0.2**	0.0	**0.1**	-0.2	-0.3	0.0	**0.1**	**0.3**
40%	-0.1	-1.1	-0.3	**0.1**	**0.2**	0.0	0.0	-0.1	-0.3	**0.1**	**0.1**	**0.5**
50%	-0.1	-0.6	-0.3	0.0	**0.1**	**0.1**	**0.0**	-0.1	-0.4	0.0	**0.2**	**0.7**
60%	0.0	-0.6	-0.3	**0.0**	-0.1	**0.1**	**0.1**	0.0	-0.2	0.0	**0.2**	**0.3**
70%	-0.2	-0.6	-0.6	0.0	-0.2	**0.1**	0.0	0.0	-0.1	**0.1**	**0.2**	**0.4**
80%	0.0	-0.4	-0.4	-0.1	0.0	0.0	0.0	-0.1	-0.1	**0.1**	**0.2**	**0.3**
90%	-0.1	-0.1	-0.4	**0.2**	0.0	**0.0**	-0.1	0.0	-0.3	**0.1**	**0.3**	**0.5**
Long Term												
Full Simulation Period[a]	-0.1	-0.5	-0.5	**0.0**	**0.1**	**0.0**	**0.0**	-0.1	-0.3	**0.1**	**0.1**	**0.4**
Water Year Types[b,c]												
Wet (32%)	-0.1	-1.4	-1.4	**0.1**	**0.1**	**0.1**	**0.0**	0.0	-0.2	**0.1**	**0.3**	**1.1**
Above Normal (16%)	0.0	-0.2	-0.3	**0.0**	**0.0**	**0.1**	**0.1**	-0.1	-0.4	**0.0**	**0.1**	**0.4**
Below Normal (15%)	-0.1	0.0	**0.1**	0.0	-0.1	**0.0**	**0.0**	-0.2	-0.5	**0.0**	**0.3**	**0.2**
Dry (24%)	**0.1**	**0.3**	**0.0**	**0.0**	**0.0**	-0.1	**0.0**	-0.2	-0.3	**0.2**	-0.1	0.0
Critical (15%)	-0.4	-0.3	-0.1	**0.1**	**0.1**	**0.0**	**0.1**	-0.1	-0.1	0.0	-0.2	-0.2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 2-4. Feather River at Robinson Riffle, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	60.8	57.7	53.2	50.6	52.5	55.0	57.4	62.1	66.1	69.5	68.7	62.7
20%	57.2	56.1	52.6	50.0	51.5	54.0	56.5	61.6	65.8	69.1	68.1	61.7
30%	56.6	55.3	51.9	49.7	51.0	53.5	55.9	61.2	65.3	68.8	67.6	61.3
40%	56.4	55.0	51.4	49.1	50.6	52.9	55.5	60.8	65.0	68.5	67.1	60.9
50%	56.2	54.2	51.0	48.8	50.3	52.3	55.0	60.6	64.6	68.3	66.5	60.4
60%	55.8	53.7	50.6	48.4	50.0	51.8	54.7	60.2	64.0	68.1	66.3	60.1
70%	55.6	53.4	50.3	47.8	49.7	51.3	54.4	59.9	63.7	67.7	66.1	59.7
80%	55.1	53.0	49.5	47.0	48.9	50.9	53.9	59.8	63.4	67.3	65.9	59.4
90%	54.8	52.3	48.8	46.4	48.2	50.1	53.3	59.0	62.7	66.9	65.3	58.9
Long Term												
Full Simulation Period[a]	56.9	54.6	51.1	48.7	50.3	52.5	55.3	60.7	64.5	68.3	67.0	61.0
Water Year Types[b,c]												
Wet (32%)	55.5	54.3	51.9	48.6	49.7	51.3	54.1	60.2	64.0	68.4	66.7	59.8
Above Normal (16%)	55.5	53.2	50.5	49.0	50.3	52.0	55.4	61.2	65.0	67.9	66.0	59.4
Below Normal (15%)	56.3	54.3	50.8	49.3	50.7	53.0	56.2	60.5	65.0	68.3	66.7	61.0
Dry (24%)	56.7	54.8	51.3	48.3	50.4	53.4	55.9	60.9	64.8	68.1	67.3	61.1
Critical (15%)	62.0	57.0	49.9	48.6	51.1	53.8	55.8	60.8	64.3	69.0	68.5	65.1

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	59.4	58.3	52.7	50.8	52.8	54.8	57.1	62.0	66.1	69.7	69.3	63.3
20%	57.6	56.6	52.3	50.2	51.6	54.1	56.3	61.3	65.6	69.1	68.1	62.3
30%	56.8	55.5	51.7	49.7	51.1	53.1	55.7	60.8	65.2	68.8	67.6	61.8
40%	56.6	54.4	51.3	49.1	50.5	52.6	55.2	60.7	64.9	68.5	67.3	61.4
50%	56.3	53.8	51.0	48.8	50.2	52.1	54.8	60.5	64.5	68.3	66.8	61.1
60%	55.9	53.3	50.5	48.4	50.0	51.7	54.4	60.0	64.0	68.1	66.4	60.7
70%	55.6	53.0	50.2	47.9	49.6	51.3	54.1	59.8	63.6	67.7	66.2	60.3
80%	55.2	52.5	49.5	47.2	49.1	50.9	53.7	59.7	63.4	67.3	65.9	59.8
90%	54.7	52.3	48.7	46.6	48.2	50.1	53.0	58.8	62.6	67.0	65.4	59.4
Long Term												
Full Simulation Period[a]	57.0	54.6	50.8	48.7	50.3	52.4	55.0	60.5	64.4	68.4	67.1	61.5
Water Year Types[b,c]												
Wet (32%)	55.6	52.9	50.7	48.6	49.8	51.3	53.8	60.0	64.0	68.4	66.8	60.9
Above Normal (16%)	55.7	53.3	50.7	49.1	50.3	51.9	54.8	60.6	64.9	67.9	66.1	59.8
Below Normal (15%)	56.6	55.4	51.4	49.5	50.6	52.4	55.7	60.3	64.8	68.3	67.3	61.6
Dry (24%)	57.0	55.4	51.4	48.3	50.4	53.2	55.8	60.9	64.7	68.3	67.3	61.3
Critical (15%)	61.9	57.3	50.0	48.7	51.1	53.8	55.9	60.8	64.2	68.9	68.6	65.1

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-1.4	**0.6**	-0.5	**0.2**	**0.3**	-0.2	-0.3	-0.1	0.0	**0.2**	**0.6**	**0.7**
20%	**0.4**	**0.5**	-0.3	**0.2**	**0.1**	**0.1**	-0.2	-0.3	-0.2	0.0	0.0	**0.6**
30%	**0.2**	**0.2**	-0.2	**0.0**	**0.1**	-0.4	-0.2	-0.4	-0.1	0.0	**0.0**	**0.5**
40%	**0.2**	-0.6	-0.1	0.0	-0.1	-0.3	-0.3	-0.1	-0.1	0.0	**0.2**	**0.5**
50%	**0.1**	-0.4	0.0	0.0	0.0	-0.2	-0.3	-0.1	0.0	0.0	**0.2**	**0.7**
60%	**0.1**	-0.4	-0.1	0.0	0.0	-0.1	-0.3	-0.2	0.0	0.0	**0.1**	**0.6**
70%	0.0	-0.4	-0.1	**0.1**	-0.1	0.0	-0.3	-0.1	-0.1	0.0	**0.1**	**0.6**
80%	**0.1**	-0.5	0.0	**0.1**	**0.2**	0.0	-0.2	-0.1	0.0	**0.0**	**0.0**	**0.4**
90%	-0.1	0.0	-0.1	**0.2**	0.0	0.0	-0.3	-0.2	-0.1	**0.1**	**0.1**	**0.5**
Long Term												
Full Simulation Period[a]	**0.1**	-0.1	-0.2	**0.1**	**0.0**	-0.1	-0.3	-0.2	-0.1	**0.0**	**0.1**	**0.5**
Water Year Types[b,c]												
Wet (32%)	**0.0**	-1.3	-1.2	**0.0**	**0.1**	**0.0**	-0.2	-0.2	**0.0**	**0.0**	**0.1**	**1.1**
Above Normal (16%)	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	-0.1	-0.6	-0.6	-0.1	**0.0**	**0.0**	**0.4**
Below Normal (15%)	**0.2**	**1.1**	**0.6**	**0.2**	-0.1	-0.6	-0.6	-0.2	-0.2	0.0	**0.6**	**0.6**
Dry (24%)	**0.2**	**0.6**	**0.1**	**0.1**	0.0	-0.2	-0.1	0.0	-0.1	**0.1**	**0.0**	**0.1**
Critical (15%)	-0.1	**0.3**	**0.1**	**0.1**	**0.1**	0.0	**0.1**	0.0	-0.1	-0.1	**0.0**	**0.0**

a Based on the 82-year simulation period.

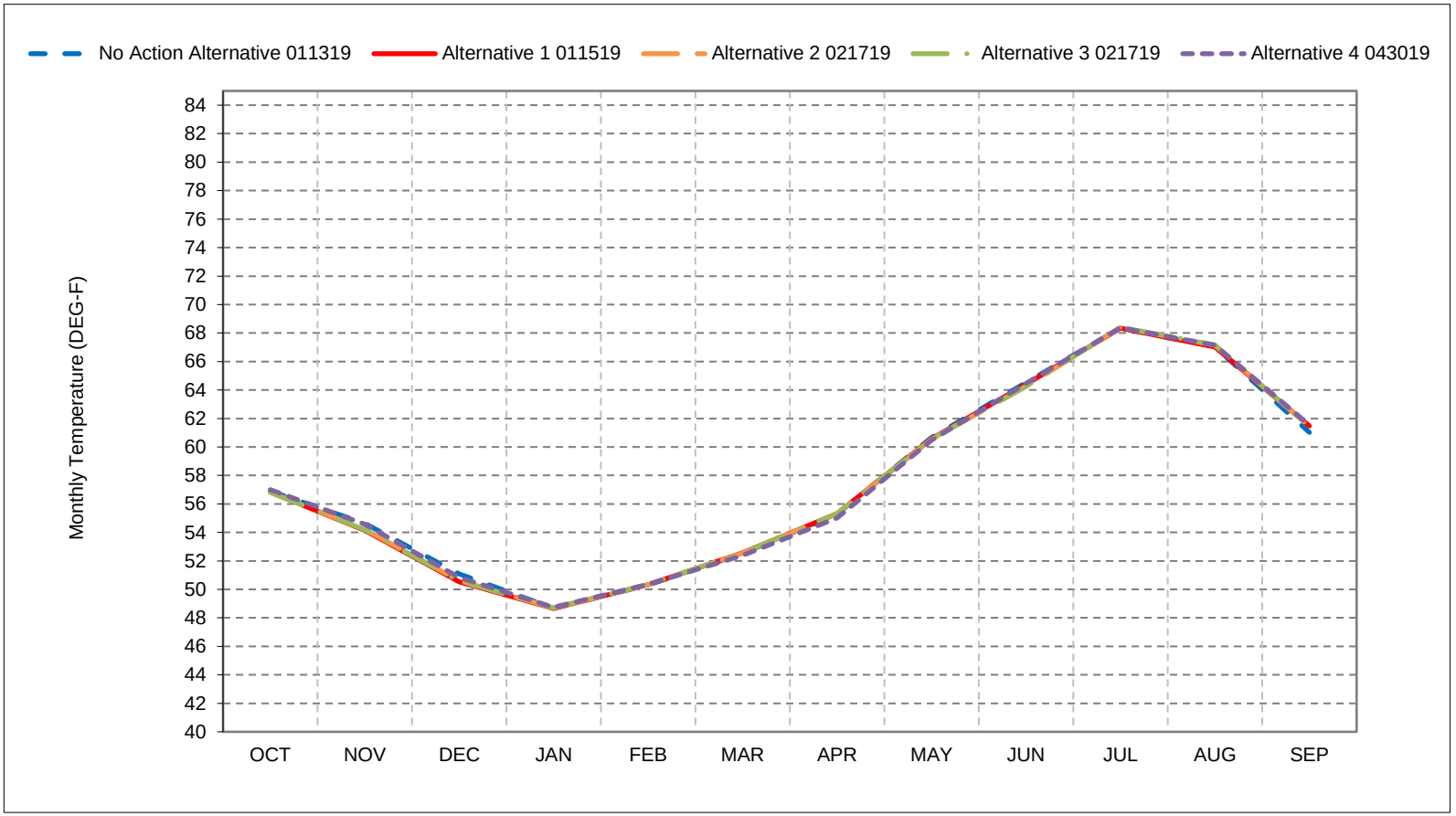
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-1. Feather River at Robinson Riffle, Long-Term Average Temperature



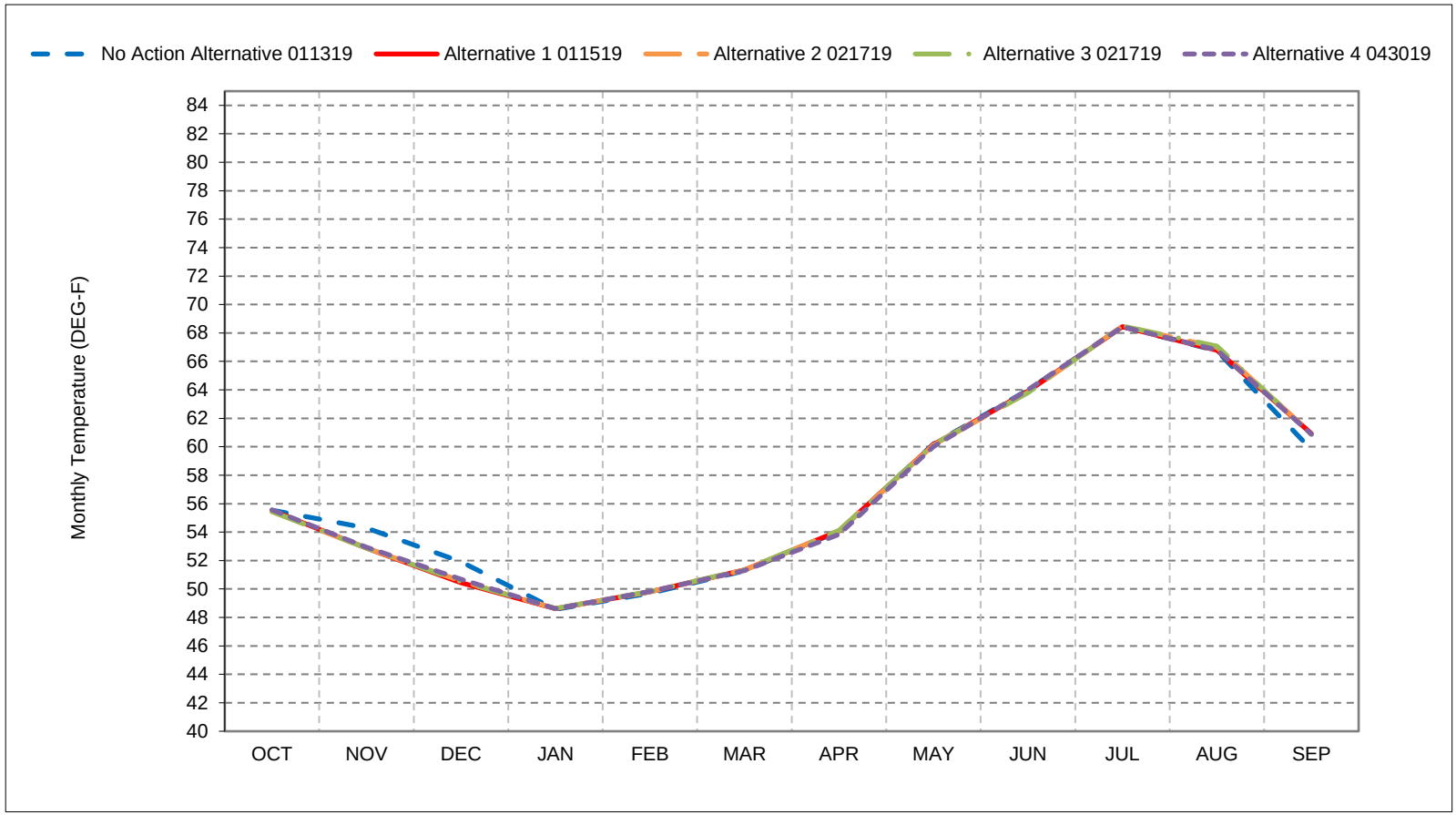
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-2. Feather River at Robinson Riffle, Wet Year Average Temperature



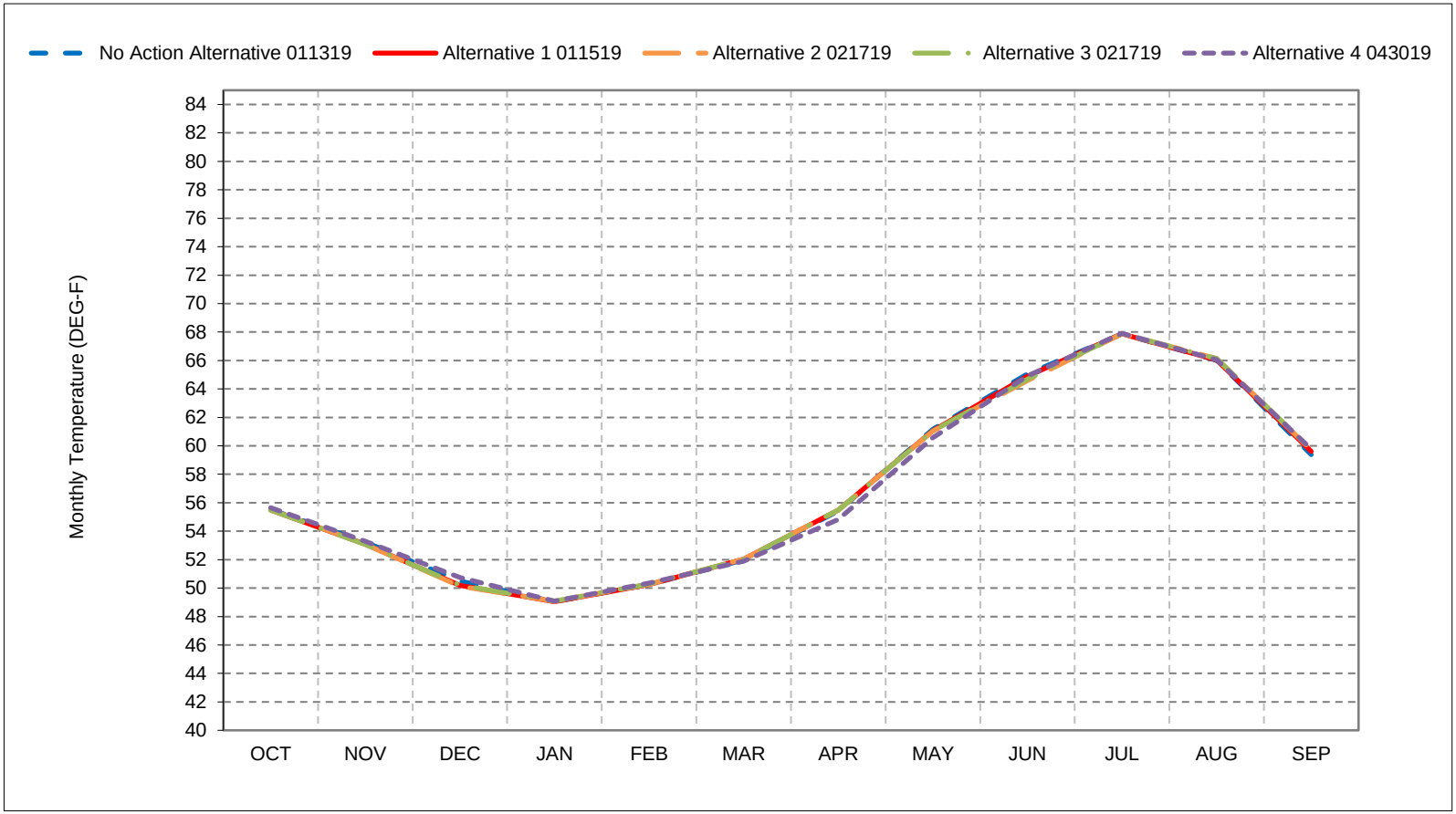
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-3. Feather River at Robinson Riffle, Above Normal Year Average Temperature



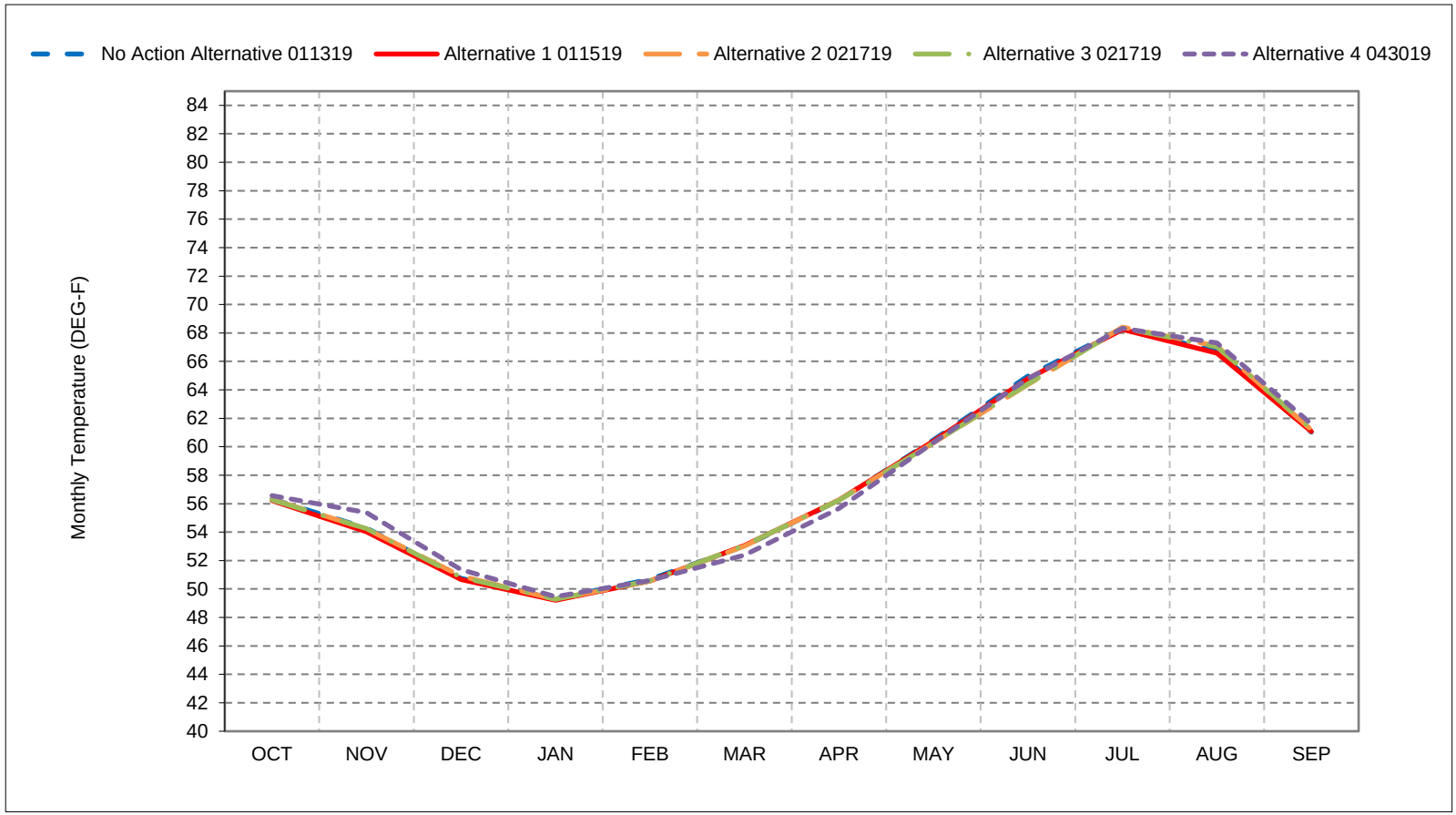
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-4. Feather River at Robinson Riffle, Below Normal Year Average Temperature



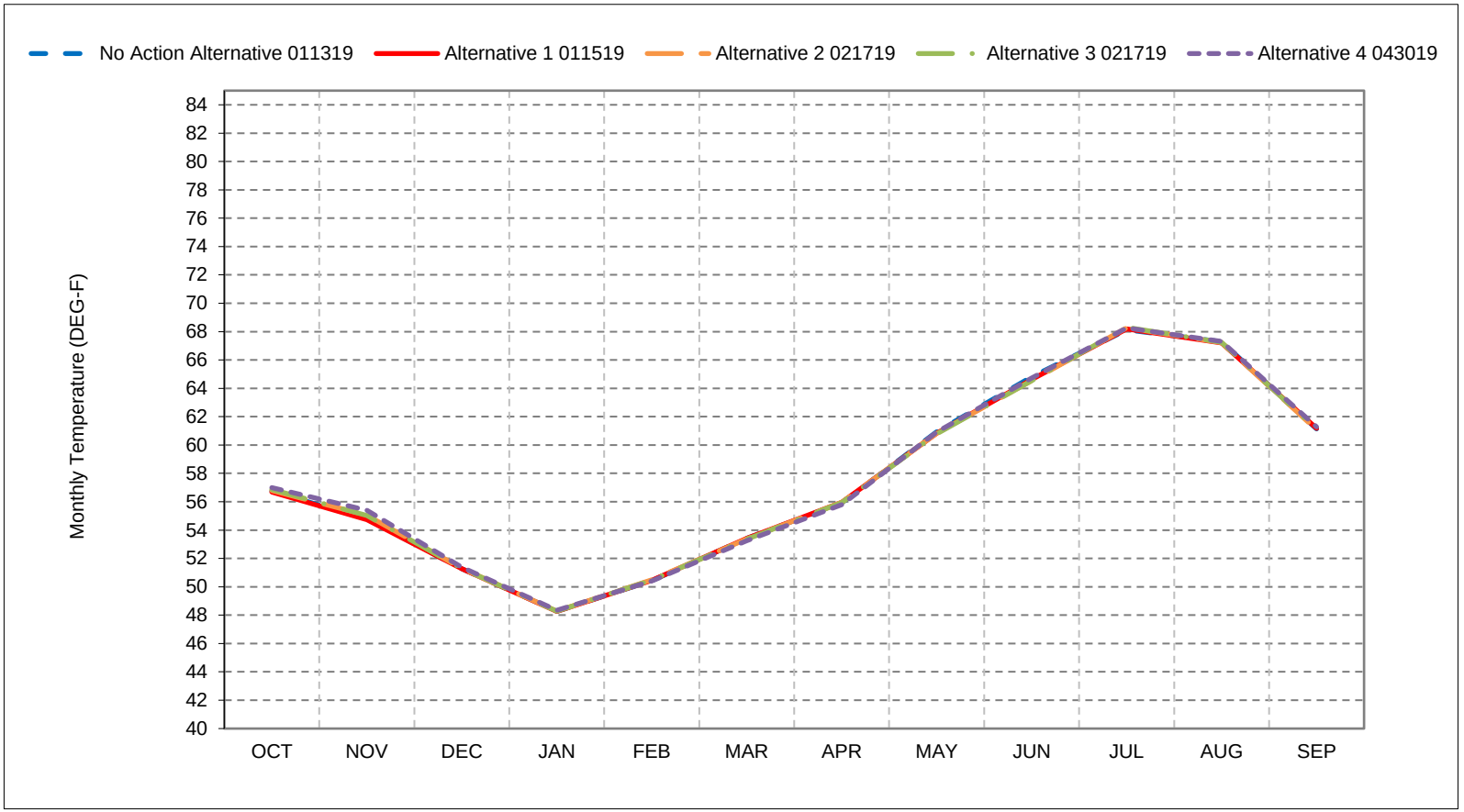
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

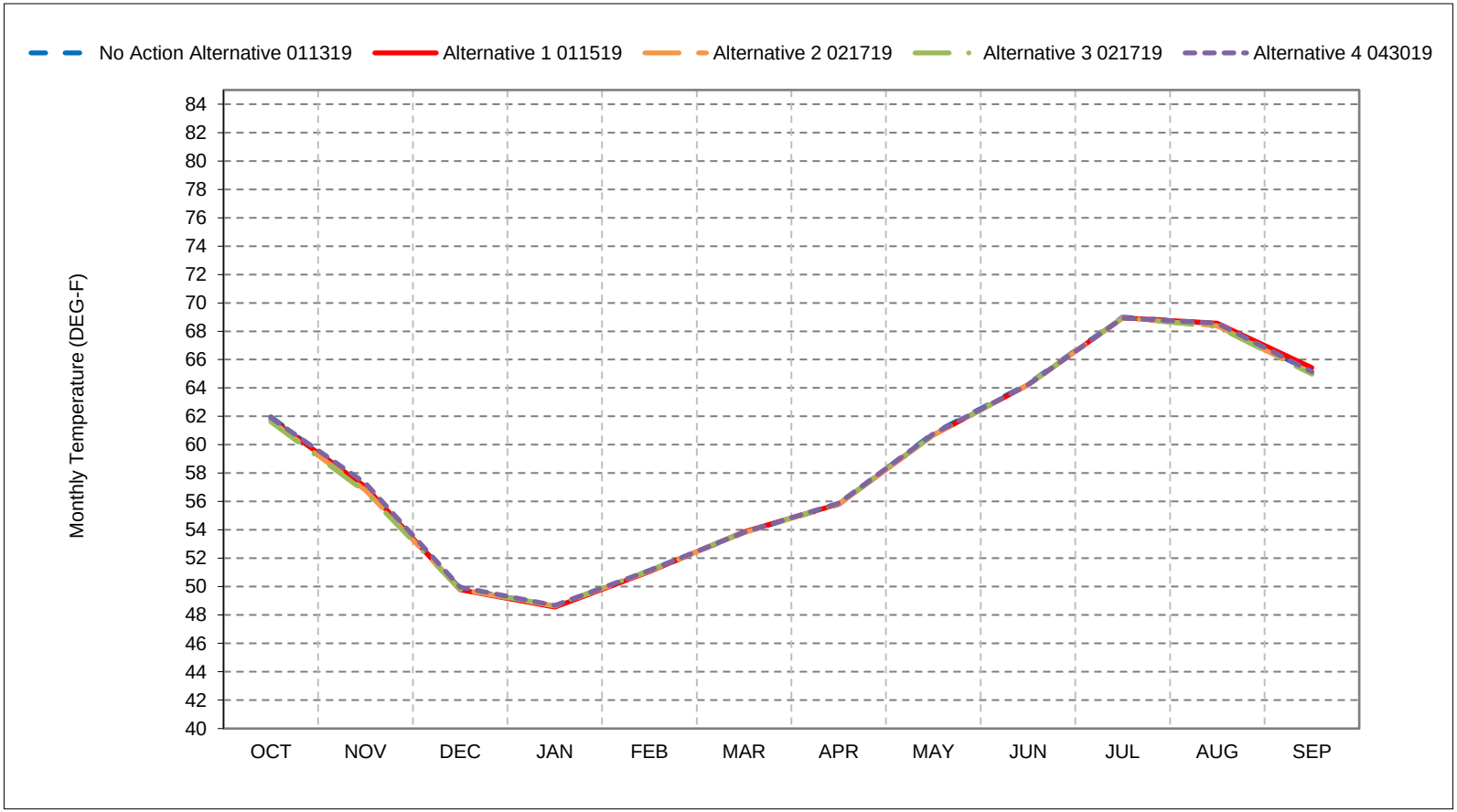
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-5. Feather River at Robinson Riffle, Dry Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-6. Feather River at Robinson Riffle, Critical Year Average Temperature



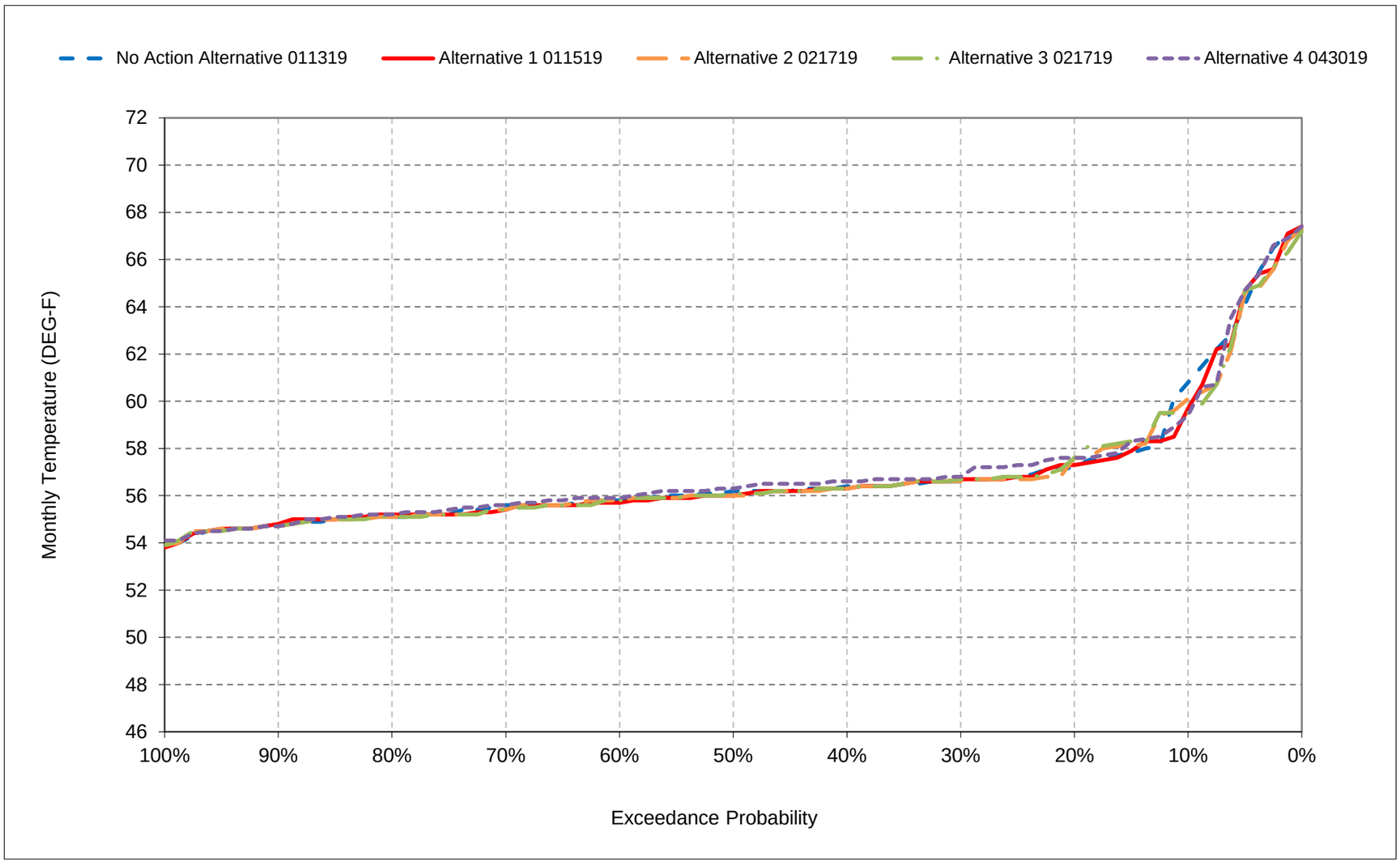
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

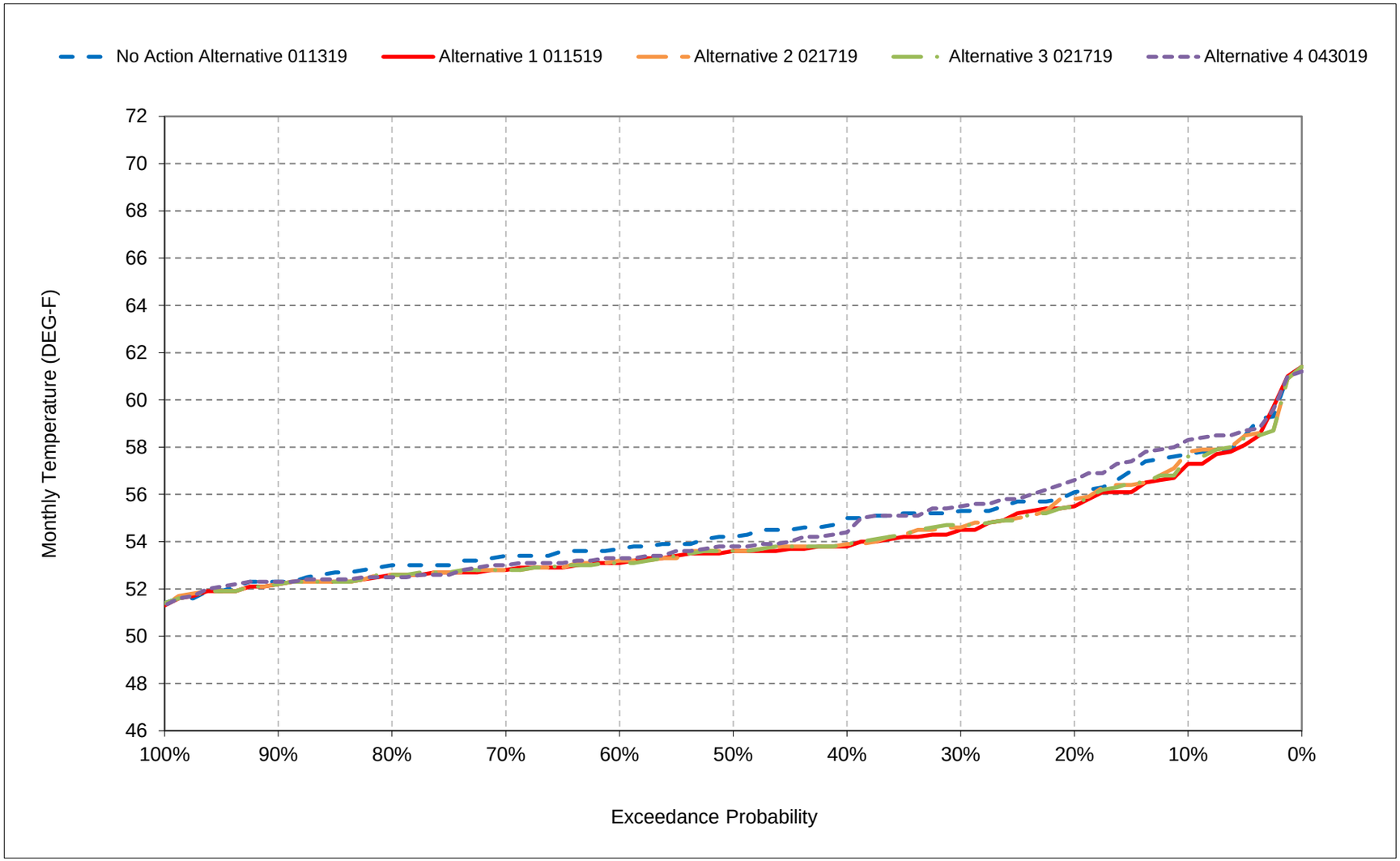
Figure 2-7. Feather River at Robinson Riffle, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

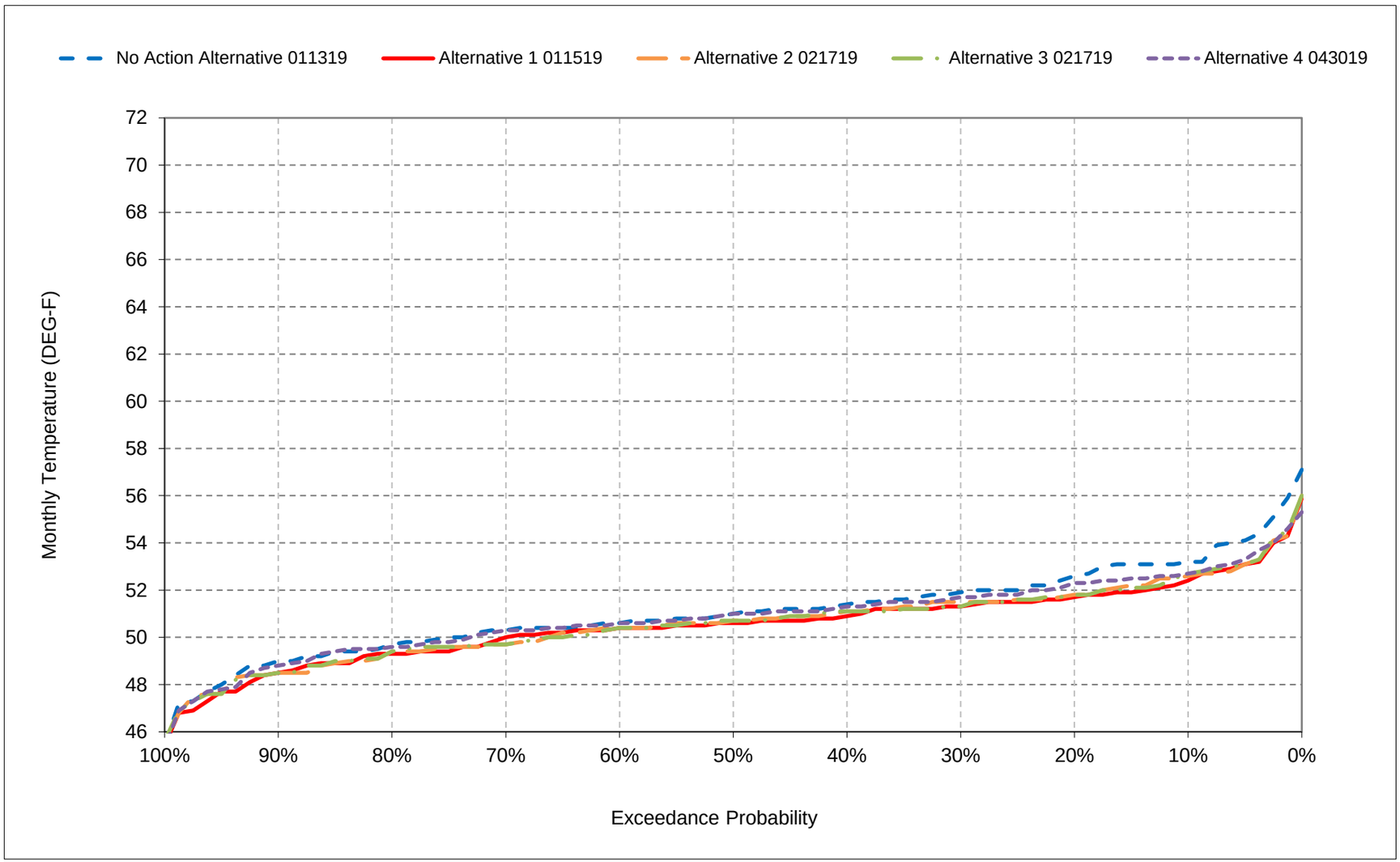
Figure 2-8. Feather River at Robinson Riffle, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

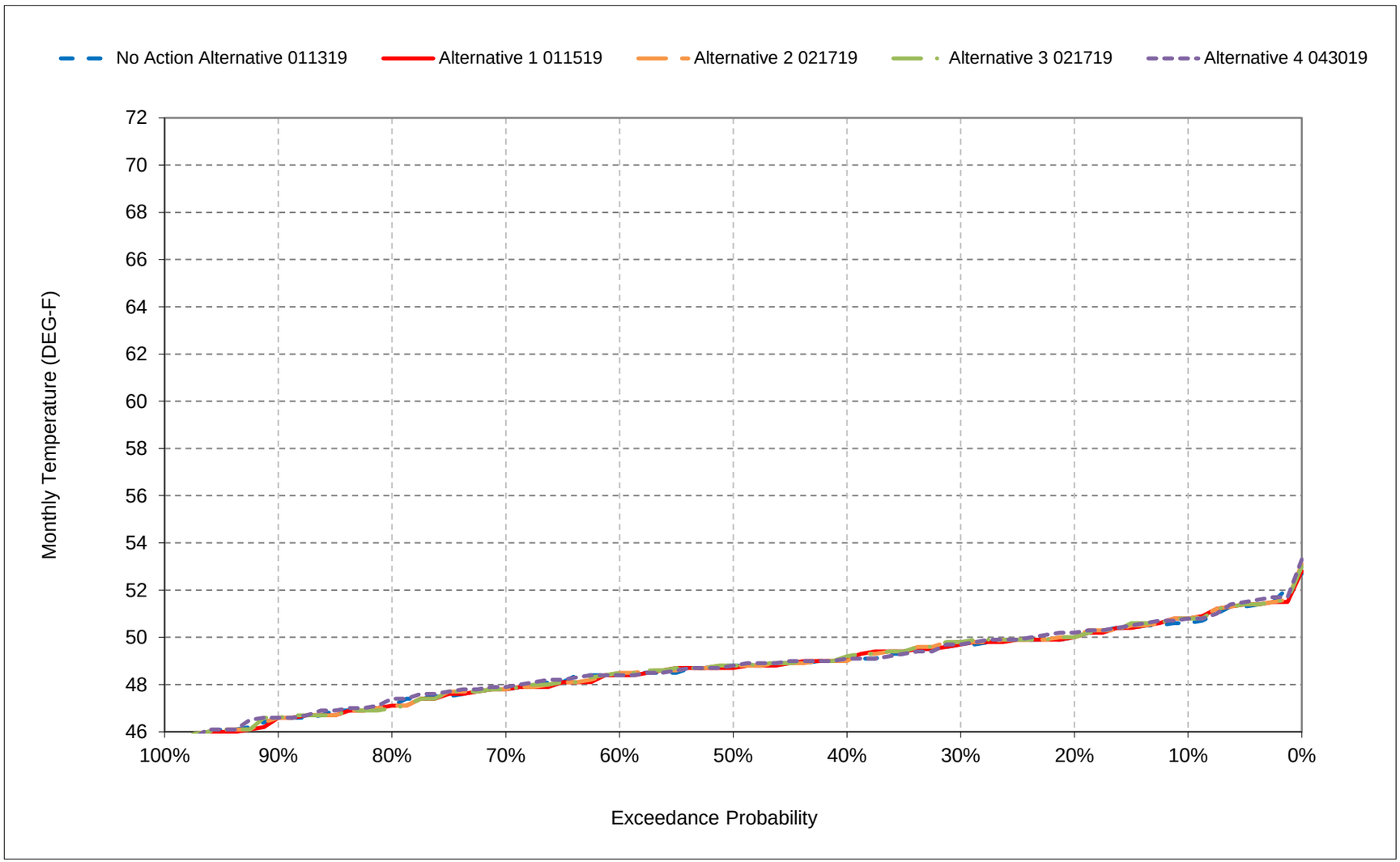
Figure 2-9. Feather River at Robinson Riffle, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

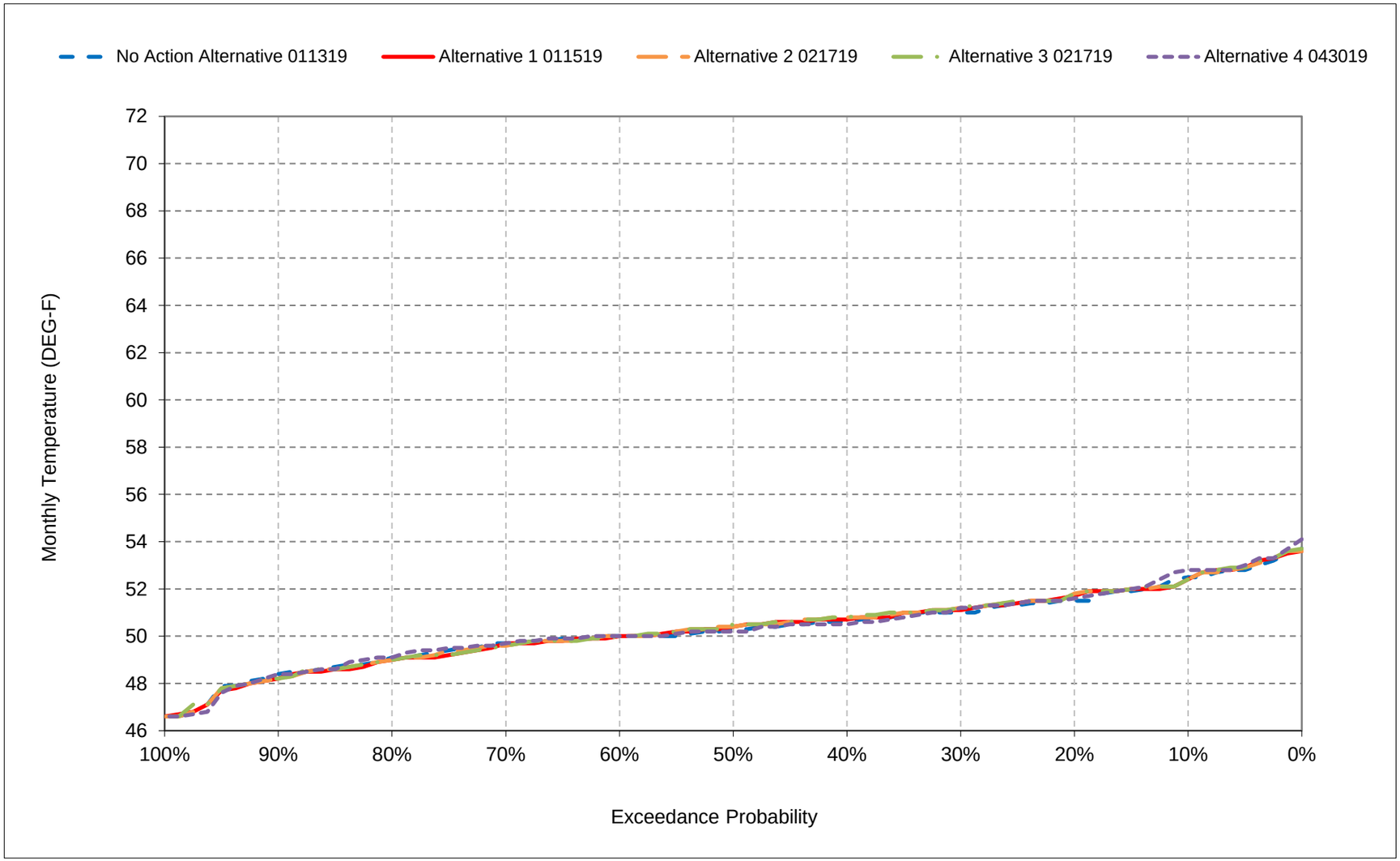
Figure 2-10. Feather River at Robinson Riffle, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

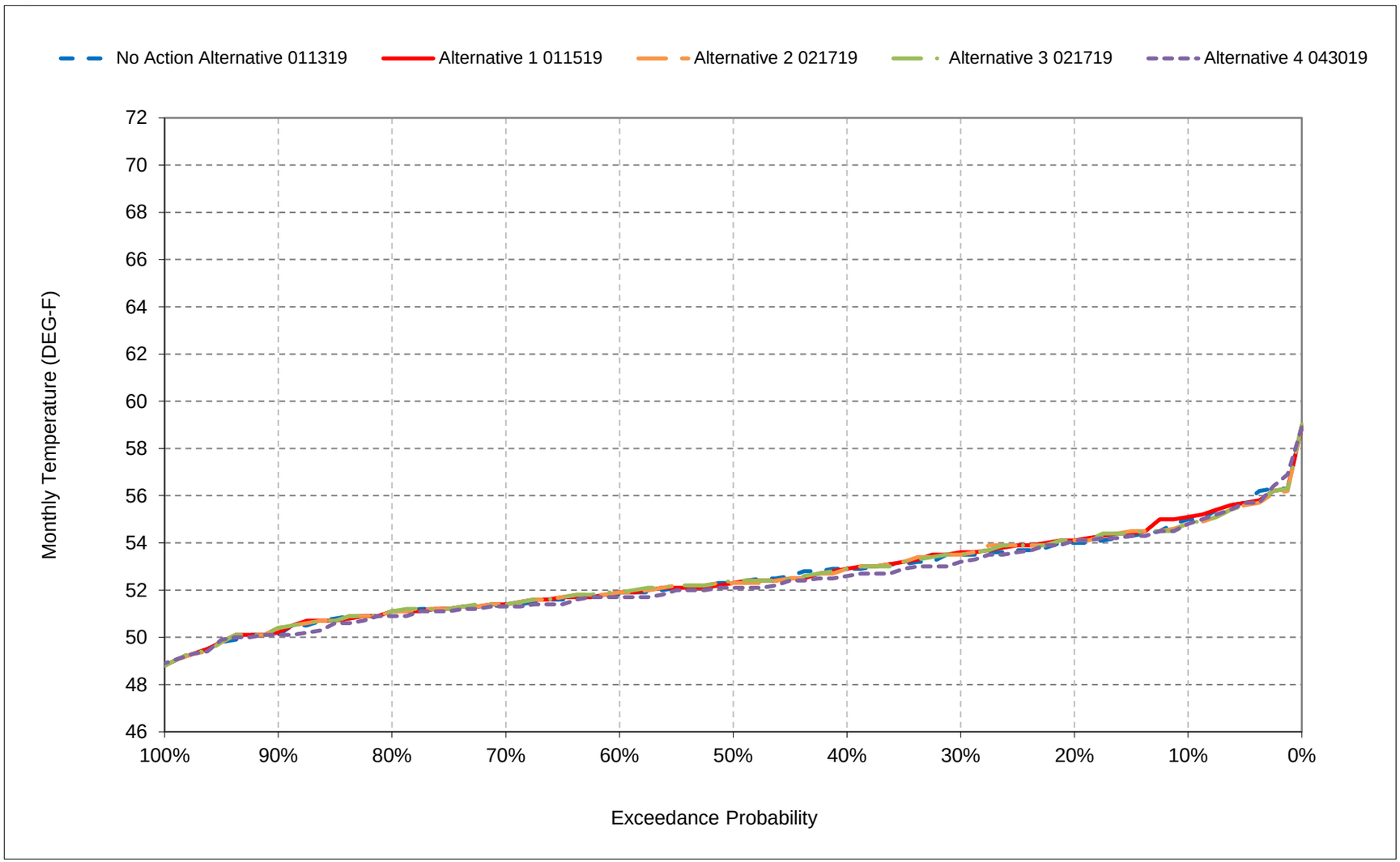
Figure 2-11. Feather River at Robinson Riffle, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

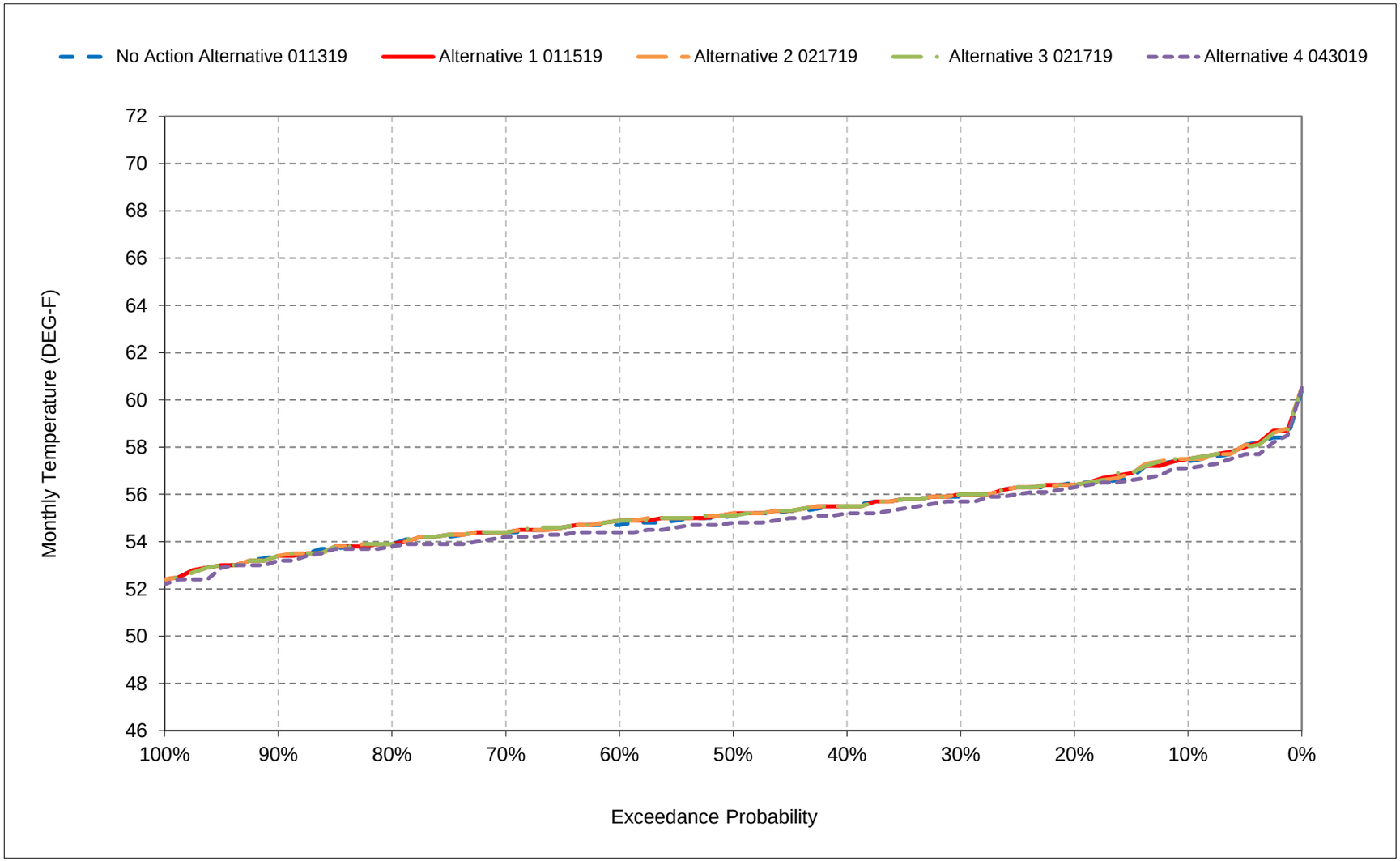
Figure 2-12. Feather River at Robinson Riffle, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

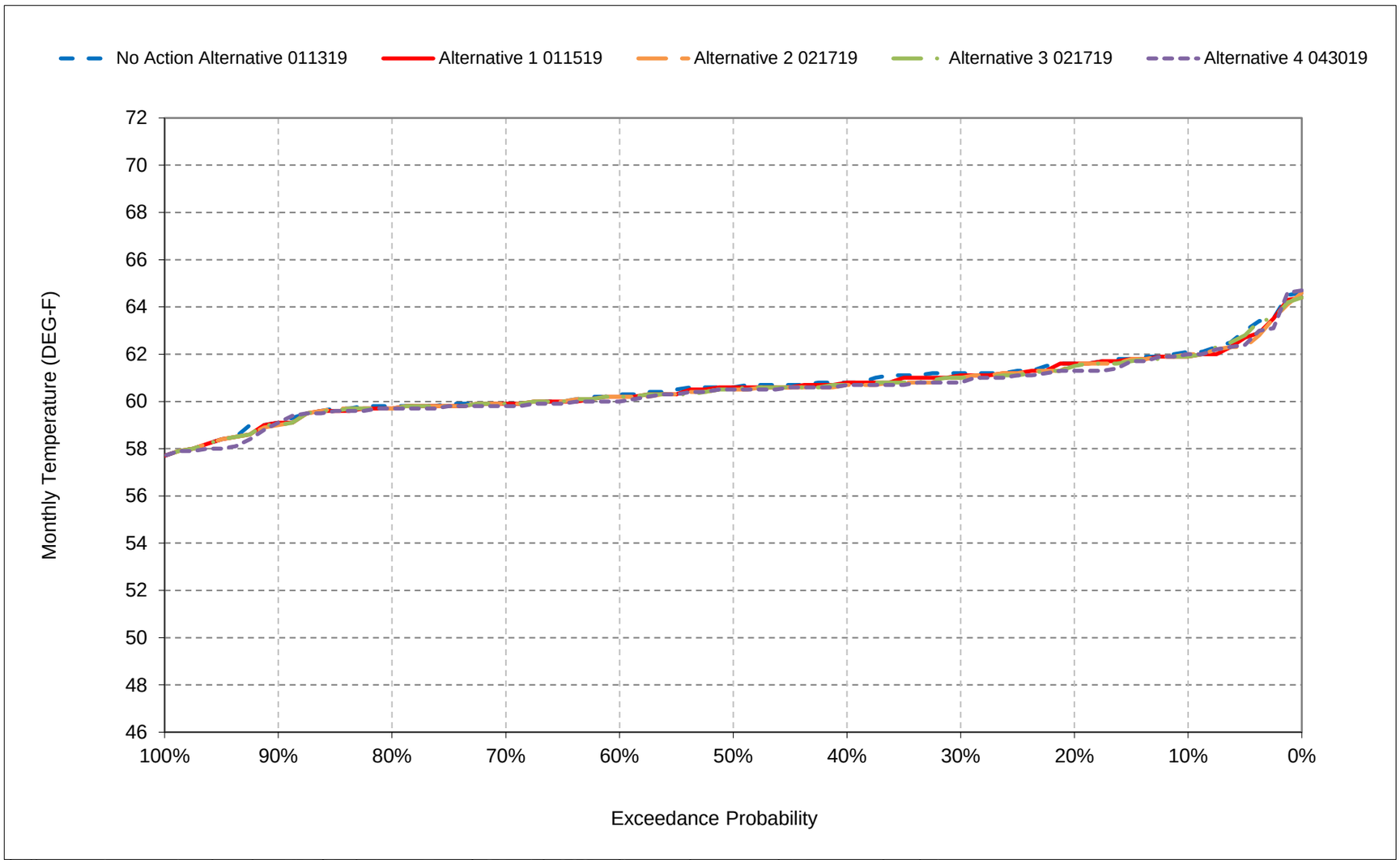
Figure 2-13. Feather River at Robinson Riffle, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

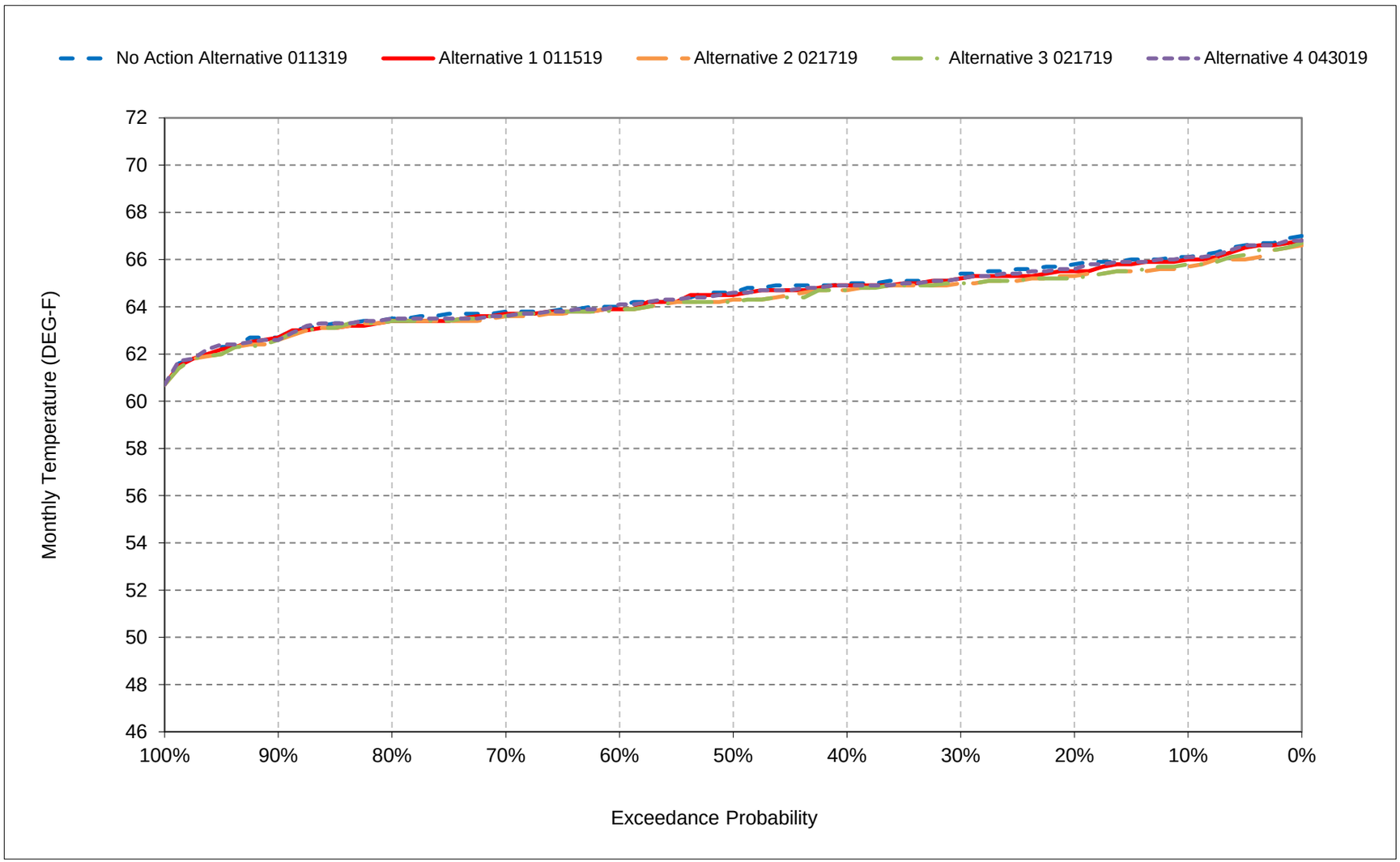
Figure 2-14. Feather River at Robinson Riffle, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

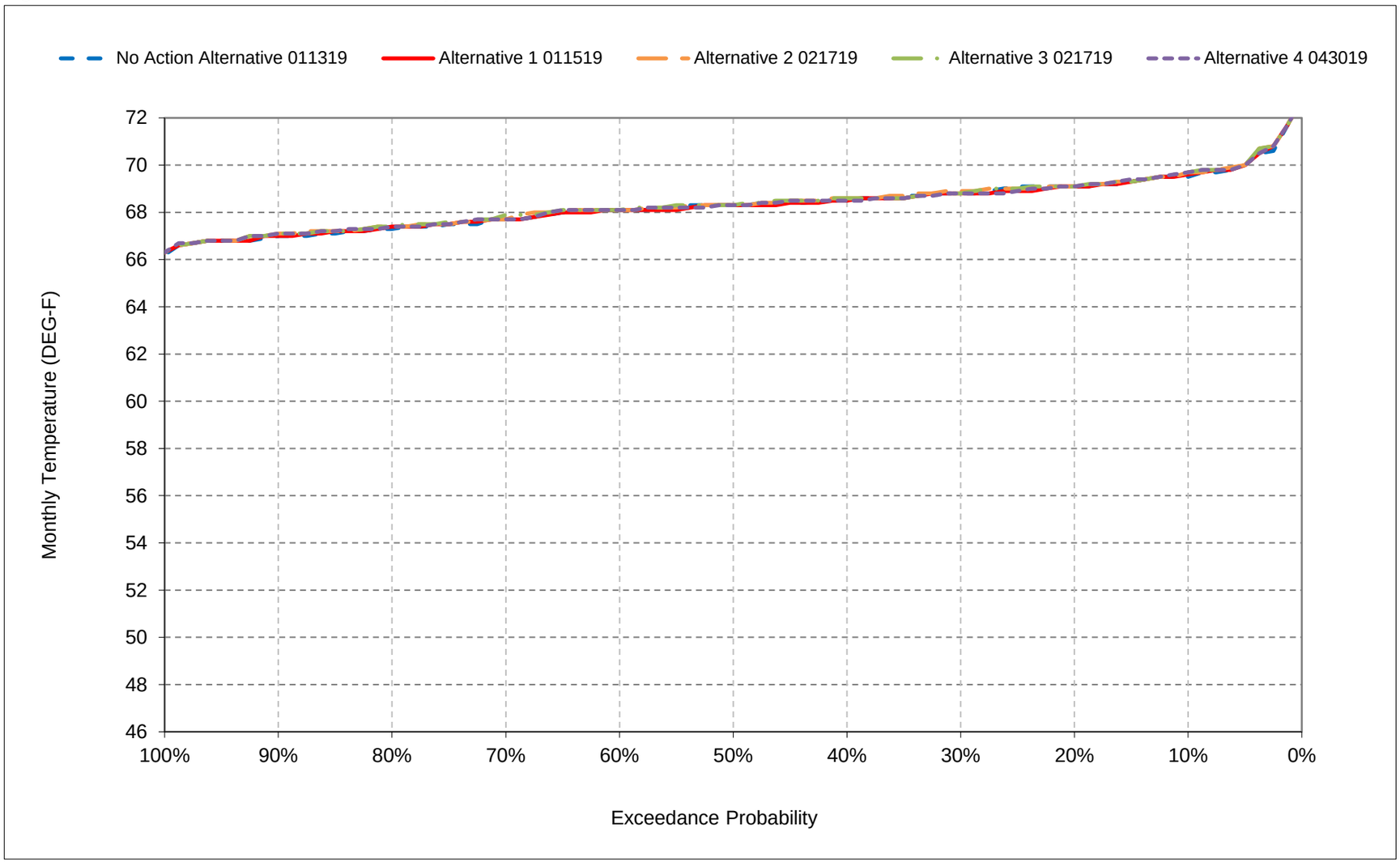
Figure 2-15. Feather River at Robinson Riffle, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

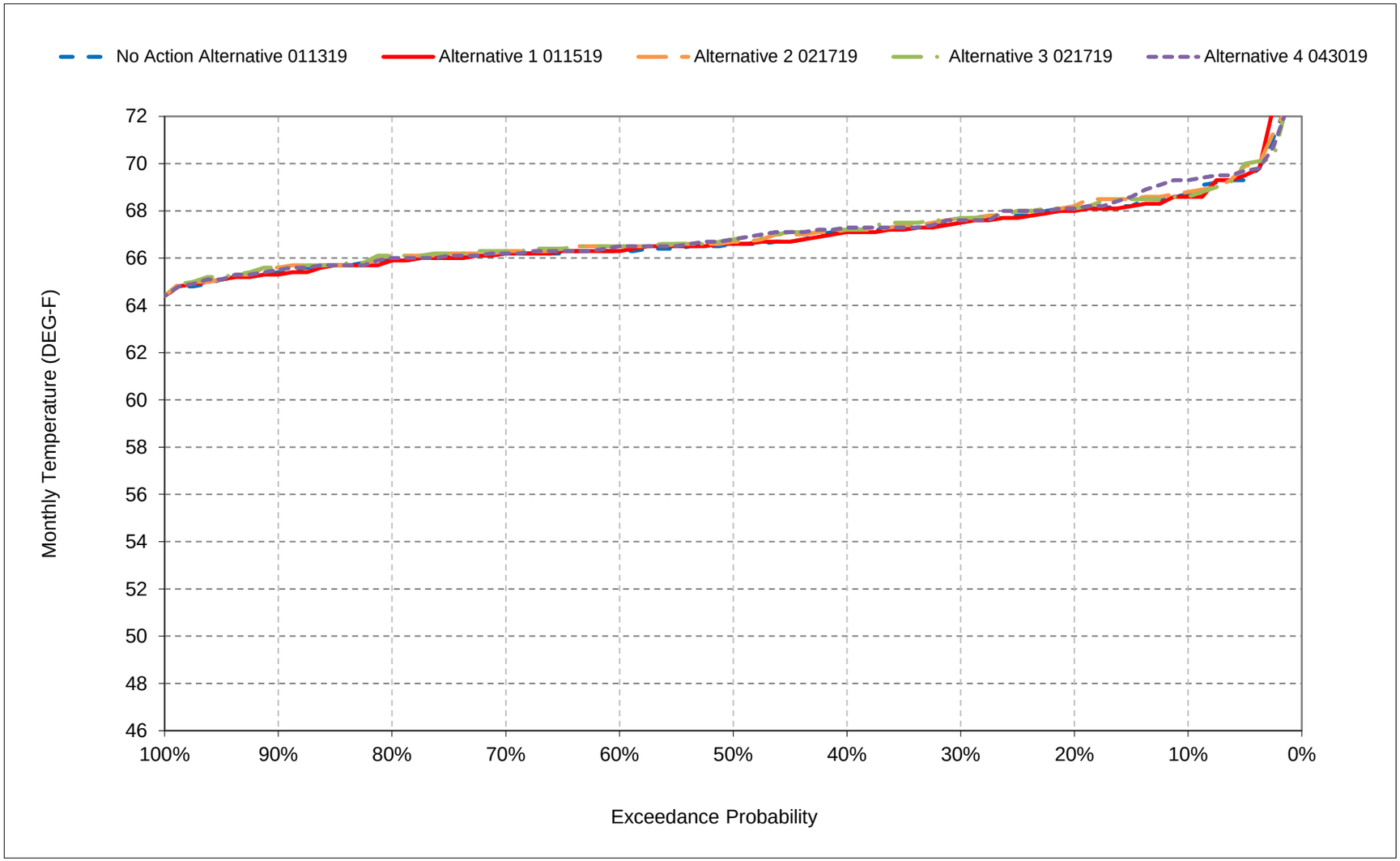
Figure 2-16. Feather River at Robinson Riffle, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

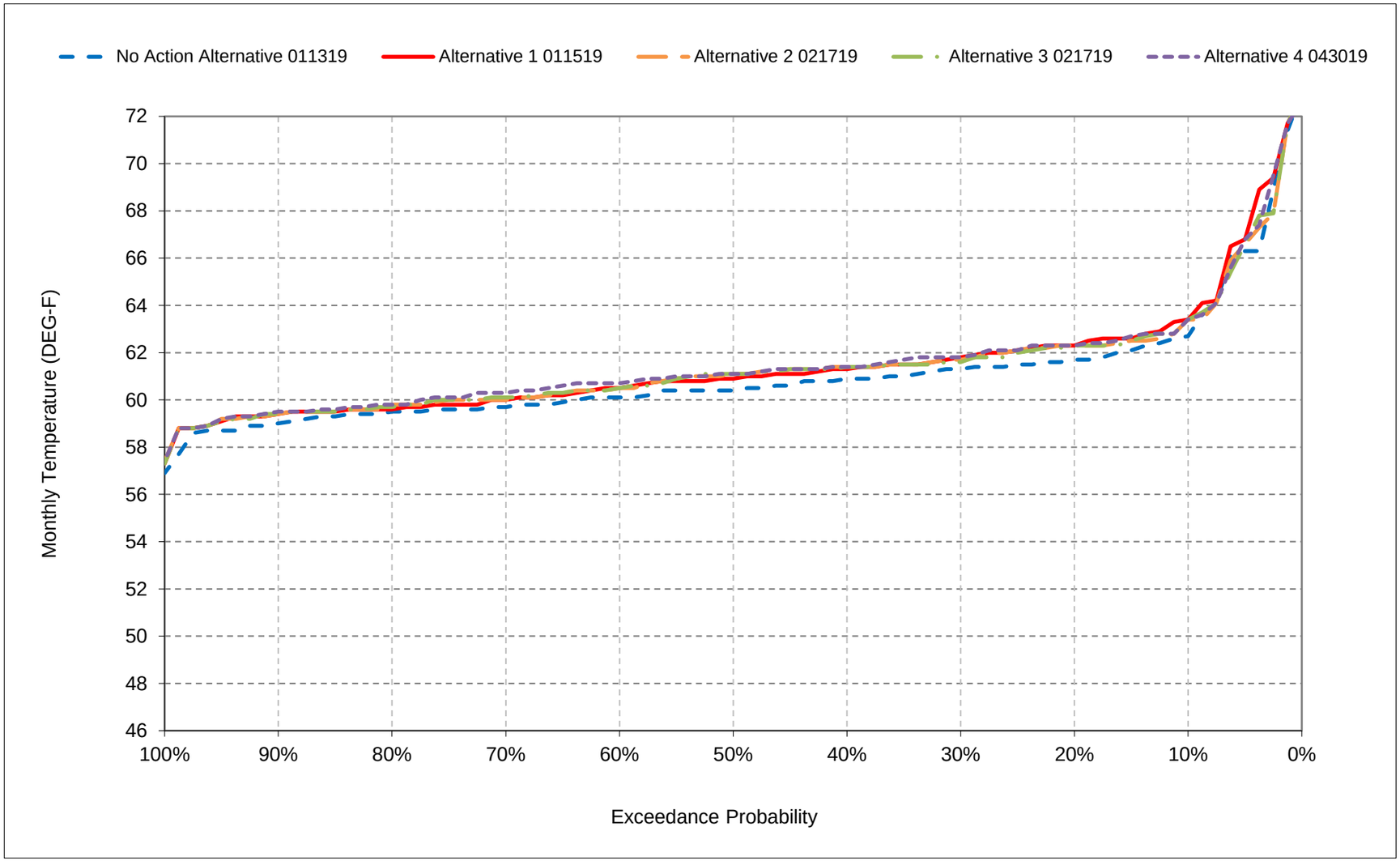
Figure 2-17. Feather River at Robinson Riffle, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 2-18. Feather River at Robinson Riffle, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 3-1. Feather River at Gridley Bridge, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	62.9	56.6	51.5	50.0	53.4	57.1	61.3	67.6	72.5	75.5	74.9	68.2
20%	60.6	56.2	50.8	49.5	52.7	56.3	60.2	66.3	71.9	73.8	73.6	67.0
30%	60.3	55.6	50.5	48.9	52.2	55.8	59.1	65.8	70.9	71.9	72.9	65.8
40%	59.8	55.1	50.2	48.4	51.6	55.2	58.9	65.2	70.4	71.3	71.6	65.4
50%	59.4	54.5	49.6	48.1	51.0	54.4	58.4	64.6	69.7	70.8	71.0	63.9
60%	58.9	53.8	49.2	47.4	50.4	53.7	58.1	64.4	69.0	70.4	70.4	62.9
70%	58.5	53.5	48.4	47.0	49.9	52.6	57.3	63.5	68.7	70.1	69.6	62.6
80%	57.8	53.2	48.1	46.0	49.6	51.8	56.4	62.1	68.0	69.4	68.8	62.0
90%	57.1	52.5	46.6	45.2	48.9	50.5	55.0	61.1	66.5	68.5	67.8	61.0
Long Term												
Full Simulation Period[a]	59.7	54.6	49.4	47.8	51.1	54.3	58.3	64.6	69.7	71.5	71.3	64.5
Water Year Types[b,c]												
Wet (32%)	58.5	54.4	50.2	48.1	50.1	52.3	56.2	62.6	68.5	71.1	70.5	62.2
Above Normal (16%)	58.8	53.2	48.6	48.5	51.4	54.1	59.0	65.5	70.6	69.7	68.5	62.4
Below Normal (15%)	59.9	54.5	48.6	48.0	51.7	55.5	59.8	65.0	70.8	70.3	70.6	66.2
Dry (24%)	59.8	54.8	50.1	46.9	51.4	55.3	59.3	65.7	69.9	71.7	72.9	65.6
Critical (15%)	62.9	56.3	48.3	47.6	52.1	55.8	59.2	65.5	70.2	75.0	74.1	68.3

Alternative 1 011519

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	62.0	56.7	51.1	49.9	53.0	56.8	61.4	67.2	72.0	74.9	74.8	68.2
20%	61.1	55.8	50.5	49.5	52.8	56.4	60.1	66.3	71.1	73.6	73.3	67.8
30%	60.3	55.2	50.2	49.0	52.2	55.4	59.1	65.8	70.5	72.4	72.7	67.0
40%	59.9	54.5	49.9	48.5	51.5	55.2	59.0	65.1	69.9	71.3	71.7	66.4
50%	59.4	53.9	49.4	48.1	50.9	54.4	58.4	64.6	69.4	70.7	71.1	65.9
60%	59.1	53.3	48.7	47.4	50.4	53.5	58.1	64.3	68.5	70.3	70.7	65.6
70%	58.6	53.2	48.3	47.0	49.9	52.4	57.4	63.4	68.0	70.0	69.6	64.8
80%	58.0	52.8	47.6	45.9	49.5	51.8	56.4	62.1	67.4	69.4	68.5	63.9
90%	57.2	52.3	46.4	45.2	48.9	50.5	55.0	61.1	66.4	68.5	67.8	62.7
Long Term												
Full Simulation Period[a]	59.8	54.3	49.1	47.8	51.1	54.2	58.4	64.5	69.2	71.5	71.3	66.0
Water Year Types[b,c]												
Wet (32%)	58.8	53.5	49.3	48.1	50.1	52.3	56.3	62.7	68.4	71.0	70.6	65.9
Above Normal (16%)	58.8	53.1	48.5	48.5	51.2	53.7	59.0	65.5	70.4	69.5	68.5	64.0
Below Normal (15%)	59.9	54.4	48.5	48.0	51.4	55.5	59.8	64.7	70.0	69.8	69.9	66.4
Dry (24%)	59.8	54.8	50.1	46.9	51.4	55.4	59.3	65.6	68.9	72.1	72.9	65.5
Critical (15%)	62.8	56.4	48.3	47.6	52.1	55.8	59.3	65.5	69.7	75.0	74.2	68.5

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.9	**0.1**	-0.4	-0.1	-0.4	-0.3	**0.1**	-0.5	-0.5	-0.6	-0.1	**0.0**
20%	**0.5**	-0.4	-0.3	**0.0**	**0.1**	**0.1**	0.0	0.0	-0.8	-0.2	-0.3	**0.8**
30%	0.0	-0.4	-0.3	**0.1**	0.0	-0.4	0.0	-0.1	-0.4	**0.5**	-0.2	**1.2**
40%	**0.1**	-0.6	-0.3	**0.1**	0.0	0.0	**0.1**	-0.1	-0.5	0.0	**0.1**	**1.0**
50%	0.0	-0.6	-0.2	-0.1	-0.1	0.0	**0.1**	0.0	-0.3	-0.1	**0.1**	**2.0**
60%	**0.2**	-0.5	-0.5	0.0	-0.1	-0.2	0.0	-0.1	-0.5	-0.1	**0.3**	**2.7**
70%	**0.1**	-0.3	-0.1	0.0	**0.0**	-0.2	**0.1**	-0.1	-0.7	-0.1	0.0	**2.2**
80%	**0.2**	-0.4	-0.5	0.0	-0.1	**0.0**	**0.0**	**0.0**	-0.6	0.0	-0.3	**1.9**
90%	**0.1**	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	**1.7**
Long Term												
Full Simulation Period[a]	**0.1**	-0.3	-0.3	**0.0**	-0.1	0.0	**0.0**	-0.1	-0.5	0.0	0.0	**1.5**
Water Year Types[b,c]												
Wet (32%)	**0.3**	-0.9	-0.9	**0.1**	**0.0**	0.0	**0.0**	**0.0**	-0.1	0.0	**0.2**	**3.7**
Above Normal (16%)	-0.1	-0.1	-0.1	**0.0**	-0.2	-0.4	0.0	0.0	-0.2	-0.2	**0.0**	**1.6**
Below Normal (15%)	**0.0**	-0.2	-0.1	0.0	-0.2	0.0	0.0	-0.3	-0.8	-0.5	-0.6	**0.2**
Dry (24%)	0.0	0.0	0.0	**0.0**	0.0	**0.0**	**0.0**	-0.1	-1.0	**0.3**	**0.0**	-0.1
Critical (15%)	-0.1	**0.1**	-0.1	-0.1	0.0	**0.0**	**0.0**	-0.1	-0.5	**0.0**	**0.1**	**0.2**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3-2. Feather River at Gridley Bridge, Monthly Temperature

No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	62.9	56.6	51.5	50.0	53.4	57.1	61.3	67.6	72.5	75.5	74.9	68.2
20%	60.6	56.2	50.8	49.5	52.7	56.3	60.2	66.3	71.9	73.8	73.6	67.0
30%	60.3	55.6	50.5	48.9	52.2	55.8	59.1	65.8	70.9	71.9	72.9	65.8
40%	59.8	55.1	50.2	48.4	51.6	55.2	58.9	65.2	70.4	71.3	71.6	65.4
50%	59.4	54.5	49.6	48.1	51.0	54.4	58.4	64.6	69.7	70.8	71.0	63.9
60%	58.9	53.8	49.2	47.4	50.4	53.7	58.1	64.4	69.0	70.4	70.4	62.9
70%	58.5	53.5	48.4	47.0	49.9	52.6	57.3	63.5	68.7	70.1	69.6	62.6
80%	57.8	53.2	48.1	46.0	49.6	51.8	56.4	62.1	68.0	69.4	68.8	62.0
90%	57.1	52.5	46.6	45.2	48.9	50.5	55.0	61.1	66.5	68.5	67.8	61.0
Long Term												
Full Simulation Period[a]	59.7	54.6	49.4	47.8	51.1	54.3	58.3	64.6	69.7	71.5	71.3	64.5
Water Year Types[b,c]												
Wet (32%)	58.5	54.4	50.2	48.1	50.1	52.3	56.2	62.6	68.5	71.1	70.5	62.2
Above Normal (16%)	58.8	53.2	48.6	48.5	51.4	54.1	59.0	65.5	70.6	69.7	68.5	62.4
Below Normal (15%)	59.9	54.5	48.6	48.0	51.7	55.5	59.8	65.0	70.8	70.3	70.6	66.2
Dry (24%)	59.8	54.8	50.1	46.9	51.4	55.3	59.3	65.7	69.9	71.7	72.9	65.6
Critical (15%)	62.9	56.3	48.3	47.6	52.1	55.8	59.2	65.5	70.2	75.0	74.1	68.3

Alternative 2 021719

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	62.1	57.3	51.2	49.9	53.0	56.8	61.3	67.0	71.0	75.2	75.5	68.5
20%	61.0	55.7	50.4	49.5	52.9	56.3	60.1	66.0	70.1	73.9	74.0	67.7
30%	60.4	55.3	50.2	49.1	52.2	55.4	59.1	65.6	69.4	72.9	73.1	67.1
40%	60.1	54.6	49.9	48.5	51.6	55.2	59.0	65.1	68.8	72.2	72.1	66.5
50%	59.4	54.0	49.5	48.1	51.1	54.2	58.4	64.6	68.4	71.6	71.8	65.8
60%	59.1	53.6	48.8	47.5	50.3	53.6	58.1	64.0	67.6	70.9	71.2	65.7
70%	58.6	53.2	48.3	47.0	50.0	52.5	57.4	63.1	67.0	70.5	70.5	64.7
80%	57.9	52.8	47.6	45.9	49.5	51.8	56.4	62.1	66.5	70.0	69.7	63.8
90%	57.1	52.3	46.6	45.2	48.9	50.6	55.0	61.1	65.3	68.9	68.4	62.9
Long Term												
Full Simulation Period[a]	59.7	54.4	49.2	47.8	51.1	54.2	58.4	64.4	68.3	72.0	71.9	66.0
Water Year Types[b,c]												
Wet (32%)	58.6	53.5	49.4	48.2	50.2	52.3	56.3	62.7	67.9	71.3	71.4	65.9
Above Normal (16%)	58.9	53.1	48.4	48.5	51.2	53.7	59.0	65.4	69.0	69.7	69.2	64.4
Below Normal (15%)	59.8	54.5	48.8	48.0	51.4	55.4	59.8	64.4	67.0	71.1	71.8	66.7
Dry (24%)	59.9	55.0	50.1	46.9	51.5	55.4	59.3	65.5	68.1	72.8	72.8	65.5
Critical (15%)	62.8	56.2	48.3	47.7	52.2	55.8	59.3	65.3	69.6	75.0	74.1	68.2

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Temperature (DEG-F)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.8	**0.7**	-0.3	-0.1	-0.4	-0.3	**0.0**	-0.6	-1.5	-0.3	**0.6**	**0.3**
20%	**0.4**	-0.5	-0.4	**0.0**	**0.2**	0.0	0.0	-0.3	-1.8	**0.1**	**0.5**	**0.7**
30%	**0.1**	-0.3	-0.3	**0.2**	0.0	-0.3	0.0	-0.2	-1.4	**1.0**	**0.3**	**1.3**
40%	**0.3**	-0.5	-0.3	**0.1**	0.0	0.0	**0.1**	-0.1	-1.6	**0.9**	**0.5**	**1.1**
50%	0.0	-0.5	-0.1	0.0	**0.1**	-0.1	**0.1**	0.0	-1.3	**0.8**	**0.8**	**1.9**
60%	**0.2**	-0.2	-0.4	**0.1**	-0.1	-0.1	0.0	-0.4	-1.4	**0.5**	**0.8**	**2.8**
70%	**0.1**	-0.3	-0.1	0.0	**0.1**	-0.1	**0.1**	-0.4	-1.7	**0.4**	**0.8**	**2.1**
80%	**0.1**	-0.4	-0.5	0.0	-0.1	**0.0**	0.0	0.0	-1.5	**0.6**	**0.9**	**1.8**
90%	0.0	-0.2	**0.0**	0.0	0.0	**0.1**	0.0	0.0	-1.2	**0.4**	**0.6**	**1.9**
Long Term												
Full Simulation Period[a]	**0.0**	-0.3	-0.3	**0.0**	0.0	0.0	**0.0**	-0.2	-1.4	**0.4**	**0.5**	**1.5**
Water Year Types[b,c]												
Wet (32%)	**0.1**	-0.9	-0.8	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	-0.6	**0.3**	**0.9**	**3.7**
Above Normal (16%)	**0.0**	-0.1	-0.2	**0.0**	-0.1	-0.4	0.0	-0.1	-1.7	0.0	**0.7**	**2.1**
Below Normal (15%)	0.0	0.0	**0.1**	0.0	-0.3	0.0	0.0	-0.6	-3.8	**0.8**	**1.3**	**0.5**
Dry (24%)	**0.1**	**0.2**	0.0	**0.0**	**0.0**	**0.1**	**0.0**	-0.2	-1.7	**1.0**	-0.1	-0.2
Critical (15%)	-0.1	-0.1	-0.1	**0.0**	**0.0**	**0.0**	**0.1**	-0.2	-0.5	0.0	0.0	-0.1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3-3. Feather River at Gridley Bridge, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	62.9	56.6	51.5	50.0	53.4	57.1	61.3	67.6	72.5	75.5	74.9	68.2
20%	60.6	56.2	50.8	49.5	52.7	56.3	60.2	66.3	71.9	73.8	73.6	67.0
30%	60.3	55.6	50.5	48.9	52.2	55.8	59.1	65.8	70.9	71.9	72.9	65.8
40%	59.8	55.1	50.2	48.4	51.6	55.2	58.9	65.2	70.4	71.3	71.6	65.4
50%	59.4	54.5	49.6	48.1	51.0	54.4	58.4	64.6	69.7	70.8	71.0	63.9
60%	58.9	53.8	49.2	47.4	50.4	53.7	58.1	64.4	69.0	70.4	70.4	62.9
70%	58.5	53.5	48.4	47.0	49.9	52.6	57.3	63.5	68.7	70.1	69.6	62.6
80%	57.8	53.2	48.1	46.0	49.6	51.8	56.4	62.1	68.0	69.4	68.8	62.0
90%	57.1	52.5	46.6	45.2	48.9	50.5	55.0	61.1	66.5	68.5	67.8	61.0
Long Term												
Full Simulation Period[a]	59.7	54.6	49.4	47.8	51.1	54.3	58.3	64.6	69.7	71.5	71.3	64.5
Water Year Types[b,c]												
Wet (32%)	58.5	54.4	50.2	48.1	50.1	52.3	56.2	62.6	68.5	71.1	70.5	62.2
Above Normal (16%)	58.8	53.2	48.6	48.5	51.4	54.1	59.0	65.5	70.6	69.7	68.5	62.4
Below Normal (15%)	59.9	54.5	48.6	48.0	51.7	55.5	59.8	65.0	70.8	70.3	70.6	66.2
Dry (24%)	59.8	54.8	50.1	46.9	51.4	55.3	59.3	65.7	69.9	71.7	72.9	65.6
Critical (15%)	62.9	56.3	48.3	47.6	52.1	55.8	59.2	65.5	70.2	75.0	74.1	68.3

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	62.0	57.2	51.3	49.9	53.0	56.8	61.3	67.1	71.0	75.2	75.4	68.3
20%	61.0	55.7	50.4	49.6	52.9	56.3	60.1	66.0	70.0	74.0	74.1	67.7
30%	60.3	55.2	50.3	49.1	52.2	55.4	59.2	65.7	69.3	72.7	73.2	67.1
40%	59.9	54.5	49.9	48.5	51.6	55.2	59.0	65.1	68.7	72.3	72.4	66.6
50%	59.3	54.0	49.5	48.2	50.9	54.2	58.4	64.6	68.4	71.7	71.9	66.0
60%	59.1	53.6	48.7	47.5	50.3	53.6	58.1	64.0	67.7	71.2	71.3	65.7
70%	58.4	53.2	48.3	47.0	50.0	52.5	57.4	63.2	67.4	70.6	70.8	64.8
80%	58.0	52.8	47.8	46.0	49.5	51.8	56.4	62.1	66.9	70.0	69.6	63.9
90%	57.2	52.3	46.6	45.2	49.0	50.6	55.0	61.1	65.5	68.8	68.5	62.7
Long Term												
Full Simulation Period[a]	59.7	54.3	49.2	47.8	51.1	54.2	58.4	64.4	68.3	72.0	72.0	66.0
Water Year Types[b,c]												
Wet (32%)	58.6	53.5	49.4	48.2	50.2	52.3	56.3	62.7	67.8	71.3	71.8	65.9
Above Normal (16%)	58.8	53.1	48.5	48.5	51.2	53.7	59.0	65.4	69.4	69.6	69.2	64.5
Below Normal (15%)	59.8	54.5	48.6	48.0	51.4	55.4	59.8	64.5	67.2	70.9	71.8	66.6
Dry (24%)	60.0	55.0	50.1	46.9	51.4	55.4	59.3	65.4	68.2	72.9	72.8	65.6
Critical (15%)	62.7	56.1	48.2	47.7	52.1	55.8	59.4	65.4	69.8	75.0	74.1	68.2

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.9	**0.6**	-0.2	-0.1	-0.4	-0.3	**0.0**	-0.5	-1.5	-0.3	**0.5**	**0.1**
20%	**0.4**	-0.5	-0.4	**0.1**	**0.2**	0.0	0.0	-0.3	-1.9	**0.2**	**0.6**	**0.7**
30%	0.0	-0.4	-0.2	**0.2**	0.0	-0.3	**0.1**	-0.1	-1.6	**0.8**	**0.3**	**1.3**
40%	**0.1**	-0.6	-0.3	**0.1**	0.0	0.0	**0.1**	-0.1	-1.7	**1.0**	**0.8**	**1.2**
50%	-0.1	-0.5	-0.1	**0.1**	-0.1	-0.1	**0.1**	0.0	-1.3	**0.9**	**0.9**	**2.1**
60%	**0.2**	-0.2	-0.5	**0.1**	-0.1	-0.1	**0.0**	-0.4	-1.3	**0.8**	**1.0**	**2.8**
70%	-0.1	-0.3	-0.1	0.0	**0.1**	-0.1	**0.1**	-0.3	-1.3	**0.5**	**1.2**	**2.2**
80%	**0.2**	-0.4	-0.3	**0.0**	-0.1	**0.0**	0.0	0.0	-1.1	**0.6**	**0.8**	**1.9**
90%	**0.1**	-0.2	**0.0**	0.0	**0.1**	**0.1**	0.0	0.0	-1.0	**0.3**	**0.7**	**1.7**
Long Term												
Full Simulation Period[a]	**0.0**	-0.3	-0.3	**0.0**	0.0	0.0	**0.0**	-0.2	-1.4	**0.5**	**0.7**	**1.5**
Water Year Types[b,c]												
Wet (32%)	**0.0**	-0.9	-0.8	**0.1**	**0.1**	0.0	**0.0**	**0.0**	-0.7	**0.3**	**1.3**	**3.7**
Above Normal (16%)	-0.1	-0.1	-0.1	**0.0**	-0.2	-0.4	0.0	-0.1	-1.2	0.0	**0.7**	**2.1**
Below Normal (15%)	-0.1	0.0	0.0	0.0	-0.3	0.0	0.0	-0.5	-3.5	**0.6**	**1.3**	**0.4**
Dry (24%)	**0.2**	**0.2**	0.0	**0.0**	**0.0**	**0.1**	**0.0**	-0.3	-1.7	**1.2**	0.0	-0.1
Critical (15%)	-0.2	-0.3	-0.1	**0.0**	**0.0**	**0.0**	**0.1**	-0.2	-0.4	0.0	0.0	-0.1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 3-4. Feather River at Gridley Bridge, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	62.9	56.6	51.5	50.0	53.4	57.1	61.3	67.6	72.5	75.5	74.9	68.2
20%	60.6	56.2	50.8	49.5	52.7	56.3	60.2	66.3	71.9	73.8	73.6	67.0
30%	60.3	55.6	50.5	48.9	52.2	55.8	59.1	65.8	70.9	71.9	72.9	65.8
40%	59.8	55.1	50.2	48.4	51.6	55.2	58.9	65.2	70.4	71.3	71.6	65.4
50%	59.4	54.5	49.6	48.1	51.0	54.4	58.4	64.6	69.7	70.8	71.0	63.9
60%	58.9	53.8	49.2	47.4	50.4	53.7	58.1	64.4	69.0	70.4	70.4	62.9
70%	58.5	53.5	48.4	47.0	49.9	52.6	57.3	63.5	68.7	70.1	69.6	62.6
80%	57.8	53.2	48.1	46.0	49.6	51.8	56.4	62.1	68.0	69.4	68.8	62.0
90%	57.1	52.5	46.6	45.2	48.9	50.5	55.0	61.1	66.5	68.5	67.8	61.0
Long Term												
Full Simulation Period[a]	59.7	54.6	49.4	47.8	51.1	54.3	58.3	64.6	69.7	71.5	71.3	64.5
Water Year Types[b,c]												
Wet (32%)	58.5	54.4	50.2	48.1	50.1	52.3	56.2	62.6	68.5	71.1	70.5	62.2
Above Normal (16%)	58.8	53.2	48.6	48.5	51.4	54.1	59.0	65.5	70.6	69.7	68.5	62.4
Below Normal (15%)	59.9	54.5	48.6	48.0	51.7	55.5	59.8	65.0	70.8	70.3	70.6	66.2
Dry (24%)	59.8	54.8	50.1	46.9	51.4	55.3	59.3	65.7	69.9	71.7	72.9	65.6
Critical (15%)	62.9	56.3	48.3	47.6	52.1	55.8	59.2	65.5	70.2	75.0	74.1	68.3

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	62.0	57.5	51.2	49.9	53.6	56.8	60.8	67.6	72.2	75.6	75.1	68.3
20%	61.0	56.4	50.6	49.5	52.7	56.3	59.5	66.5	71.2	73.6	74.3	67.7
30%	60.4	55.6	50.4	48.9	52.2	55.4	59.0	65.7	70.7	72.5	73.2	67.2
40%	60.3	55.1	50.2	48.4	51.5	55.2	58.5	65.1	70.1	71.8	72.7	66.7
50%	59.8	54.2	49.7	48.1	51.0	54.4	58.0	64.7	69.8	71.3	71.3	66.0
60%	59.3	53.6	49.0	47.5	50.4	53.6	57.1	63.9	68.9	70.8	70.6	65.7
70%	58.7	53.2	48.6	47.0	50.0	52.6	56.5	62.9	68.3	70.5	70.3	65.2
80%	58.1	52.8	48.1	46.1	49.5	52.0	55.7	62.0	68.0	69.8	68.9	64.4
90%	57.2	52.3	46.4	45.2	48.9	50.8	54.2	60.7	66.8	68.9	67.8	63.0
Long Term												
Full Simulation Period[a]	59.9	54.6	49.3	47.8	51.1	54.2	57.8	64.5	69.6	71.8	71.7	66.1
Water Year Types[b,c]												
Wet (32%)	59.0	53.5	49.4	48.1	50.3	52.3	55.5	62.5	68.7	71.2	70.6	66.2
Above Normal (16%)	59.2	53.2	48.8	48.5	51.4	54.1	57.8	65.2	70.6	70.0	68.7	64.7
Below Normal (15%)	59.8	55.3	49.0	48.1	51.4	54.9	59.1	65.1	70.1	70.4	72.7	66.2
Dry (24%)	60.0	55.3	50.1	46.9	51.4	55.3	59.1	65.7	69.6	72.5	72.8	65.6
Critical (15%)	62.8	56.6	48.4	47.6	52.1	55.7	59.2	65.5	69.8	75.0	74.2	68.3

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.9	**0.9**	-0.3	-0.1	**0.1**	-0.3	-0.5	-0.1	-0.3	**0.1**	**0.2**	**0.1**
20%	**0.4**	**0.2**	-0.2	**0.0**	0.0	0.0	-0.7	**0.2**	-0.7	-0.2	**0.7**	**0.7**
30%	**0.1**	0.0	-0.1	0.0	0.0	-0.3	-0.1	-0.1	-0.2	**0.6**	**0.3**	**1.4**
40%	**0.5**	0.0	**0.0**	0.0	-0.1	0.0	-0.4	-0.1	-0.3	**0.5**	**1.1**	**1.3**
50%	**0.4**	-0.3	**0.1**	-0.1	0.0	**0.1**	-0.4	**0.0**	**0.1**	**0.5**	**0.3**	**2.1**
60%	**0.4**	-0.2	-0.2	**0.1**	0.0	-0.1	-1.0	-0.5	-0.1	**0.4**	**0.3**	**2.8**
70%	**0.2**	-0.3	**0.2**	0.0	**0.1**	0.0	-0.9	-0.6	-0.4	**0.4**	**0.7**	**2.6**
80%	**0.3**	-0.4	**0.0**	**0.2**	-0.1	**0.2**	-0.7	-0.1	0.0	**0.4**	**0.1**	**2.4**
90%	**0.1**	-0.2	-0.1	0.0	0.0	**0.3**	-0.8	-0.4	**0.3**	**0.4**	0.0	**2.0**
Long Term												
Full Simulation Period[a]	**0.2**	0.0	-0.2	**0.0**	**0.0**	-0.1	-0.6	-0.1	-0.1	**0.3**	**0.4**	**1.6**
Water Year Types[b,c]												
Wet (32%)	**0.4**	-0.9	-0.8	**0.1**	**0.1**	0.0	-0.7	-0.2	**0.2**	**0.2**	**0.2**	**4.0**
Above Normal (16%)	**0.4**	**0.0**	**0.2**	0.0	**0.1**	**0.0**	-1.2	-0.3	0.0	**0.3**	**0.2**	**2.3**
Below Normal (15%)	0.0	**0.7**	**0.4**	**0.1**	-0.2	-0.6	-0.8	**0.1**	-0.7	**0.1**	**2.2**	0.0
Dry (24%)	**0.2**	**0.4**	**0.0**	**0.0**	0.0	0.0	-0.2	**0.0**	-0.3	**0.8**	-0.1	0.0
Critical (15%)	-0.1	**0.2**	**0.0**	-0.1	0.0	0.0	**0.0**	0.0	-0.4	**0.0**	**0.0**	**0.0**

a Based on the 82-year simulation period.

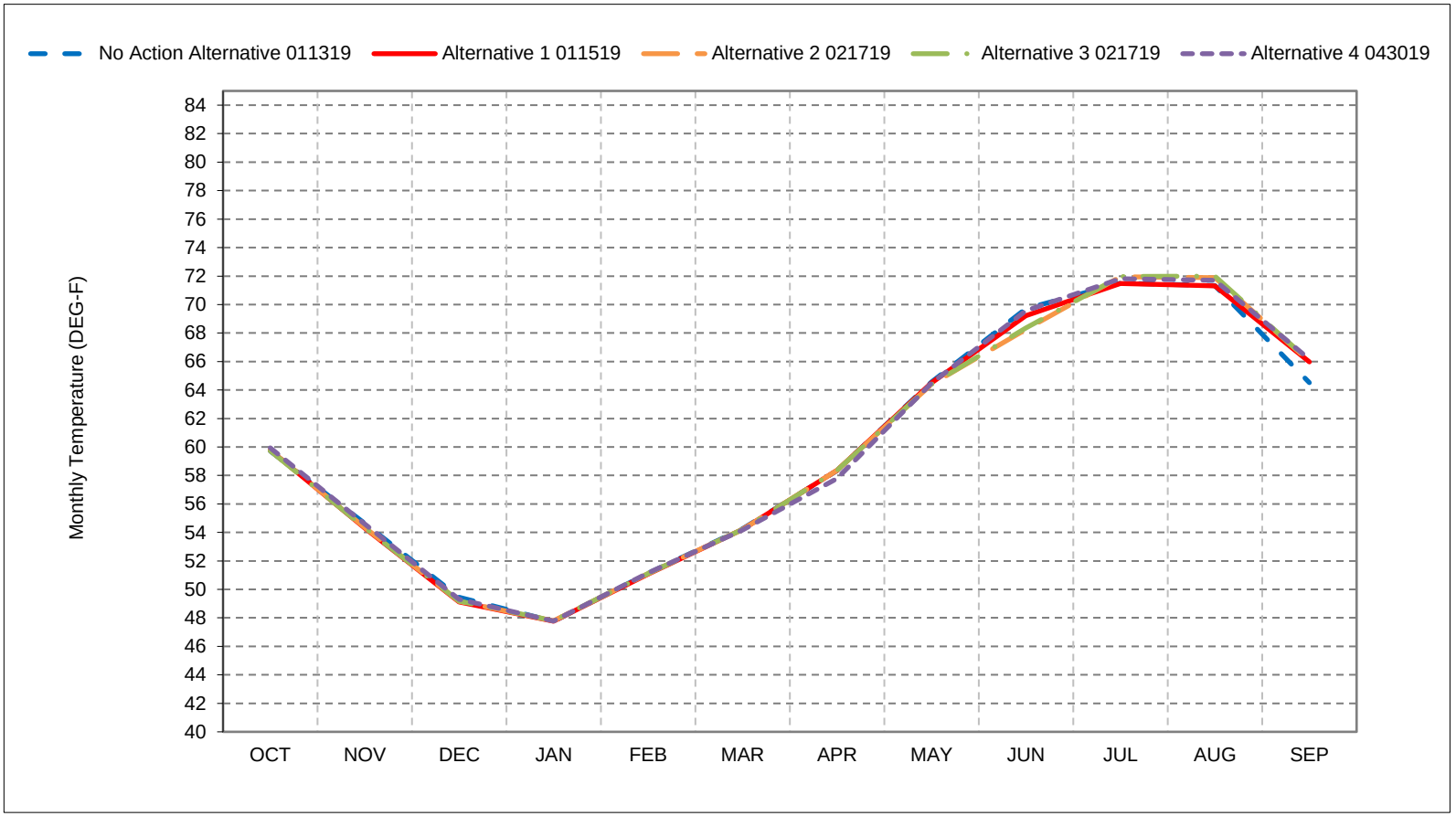
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-1. Feather River at Gridley Bridge, Long-Term Average Temperature



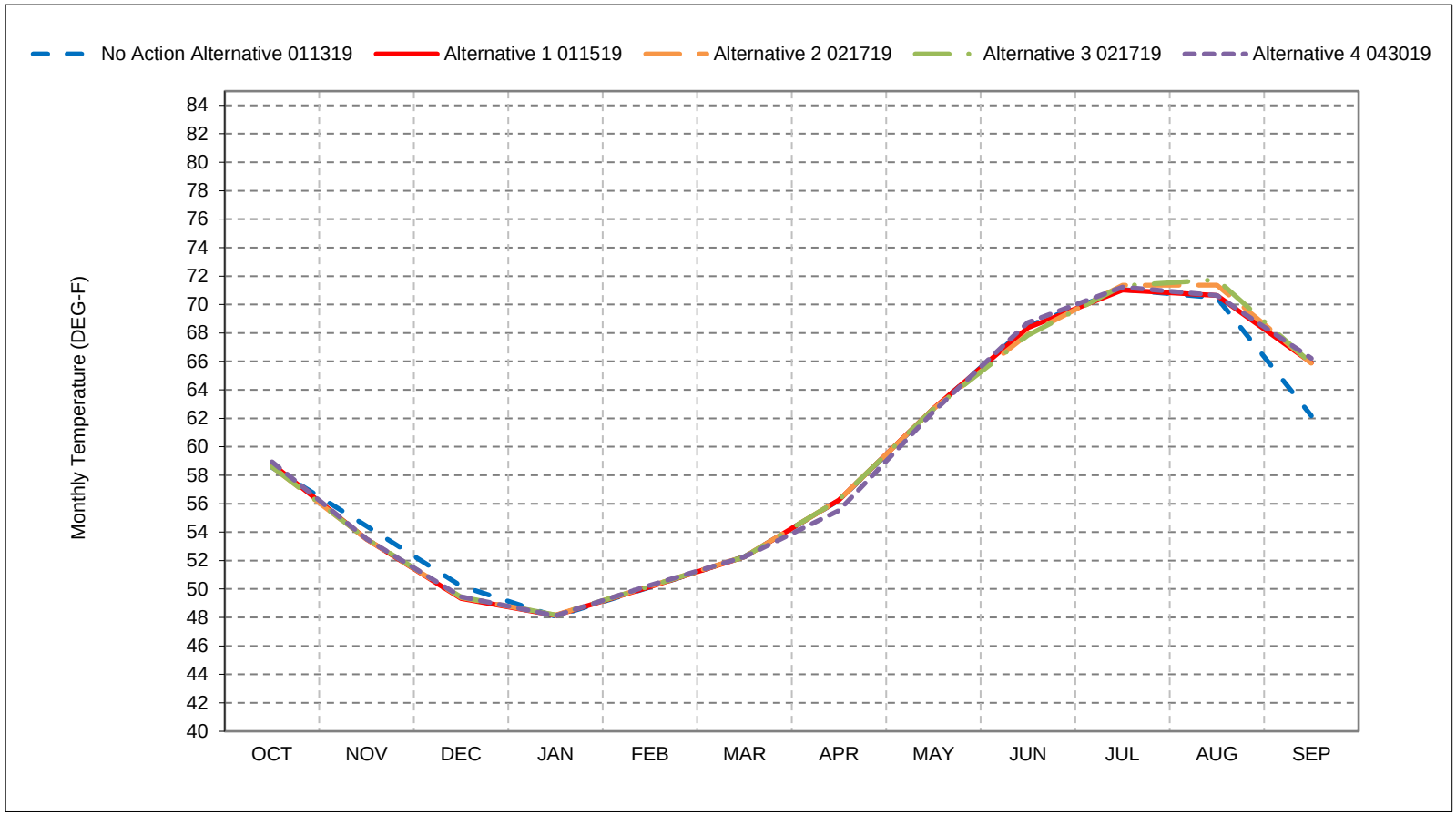
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-2. Feather River at Gridley Bridge, Wet Year Average Temperature



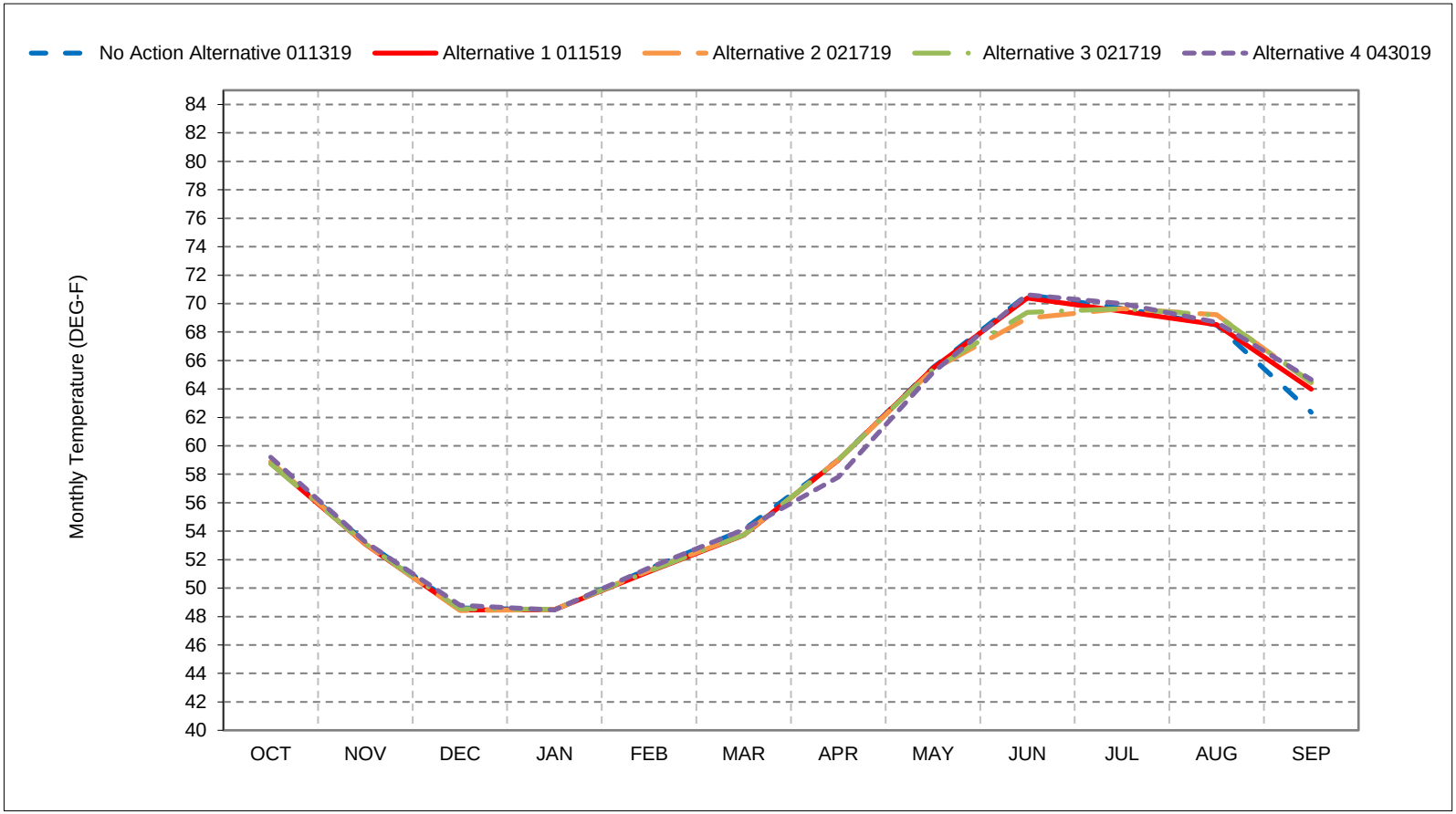
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-3. Feather River at Gridley Bridge, Above Normal Year Average Temperature



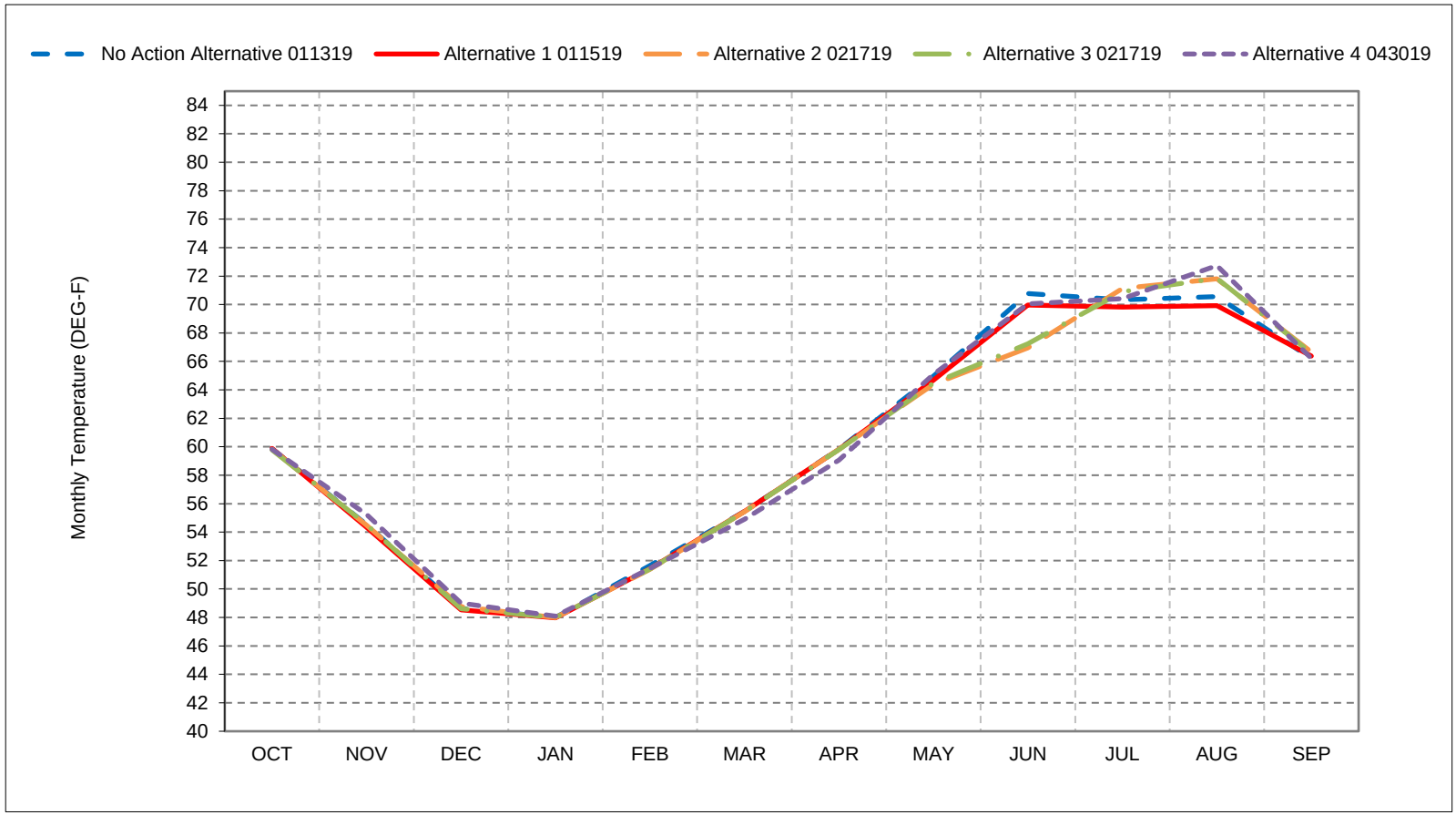
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-4. Feather River at Gridley Bridge, Below Normal Year Average Temperature



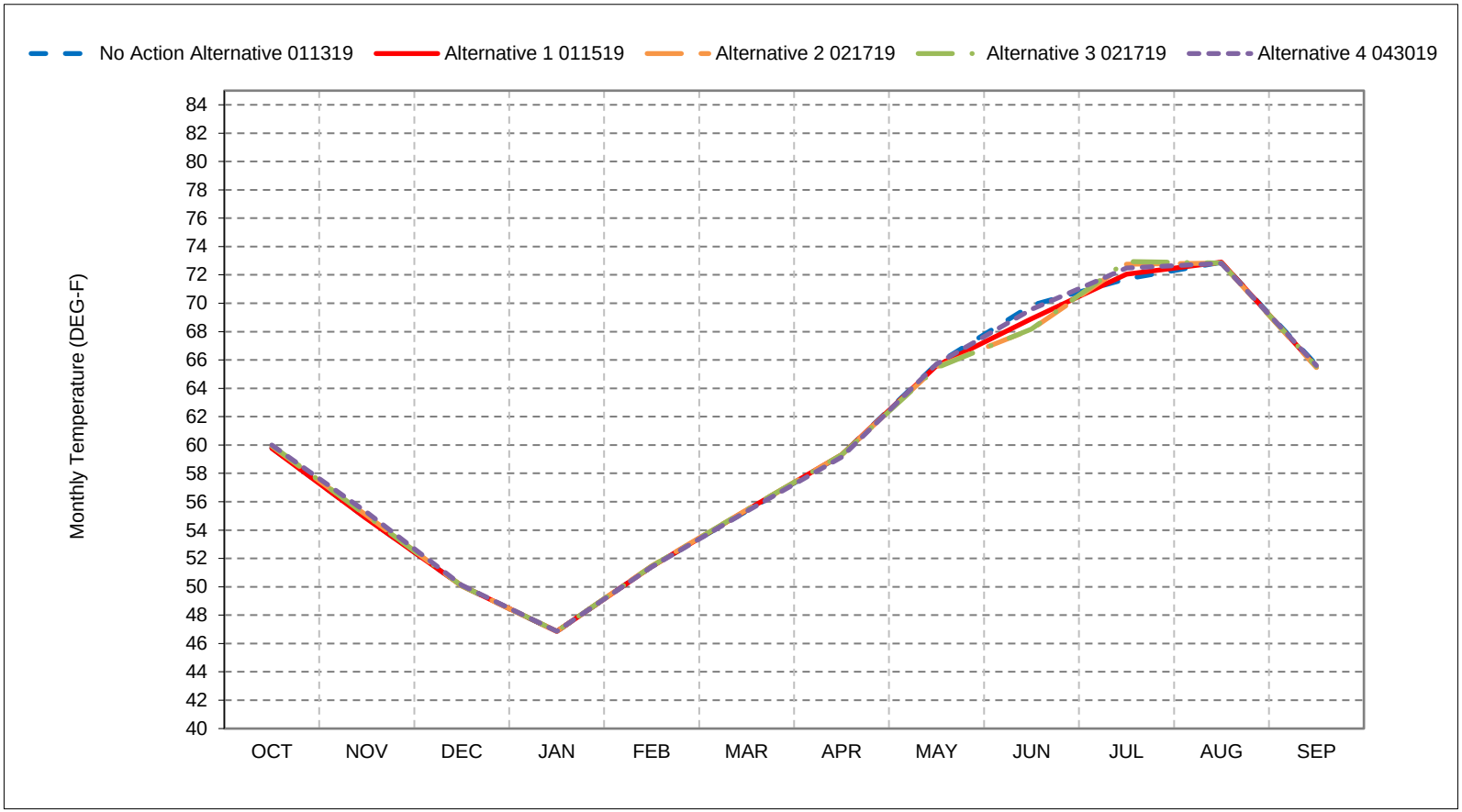
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

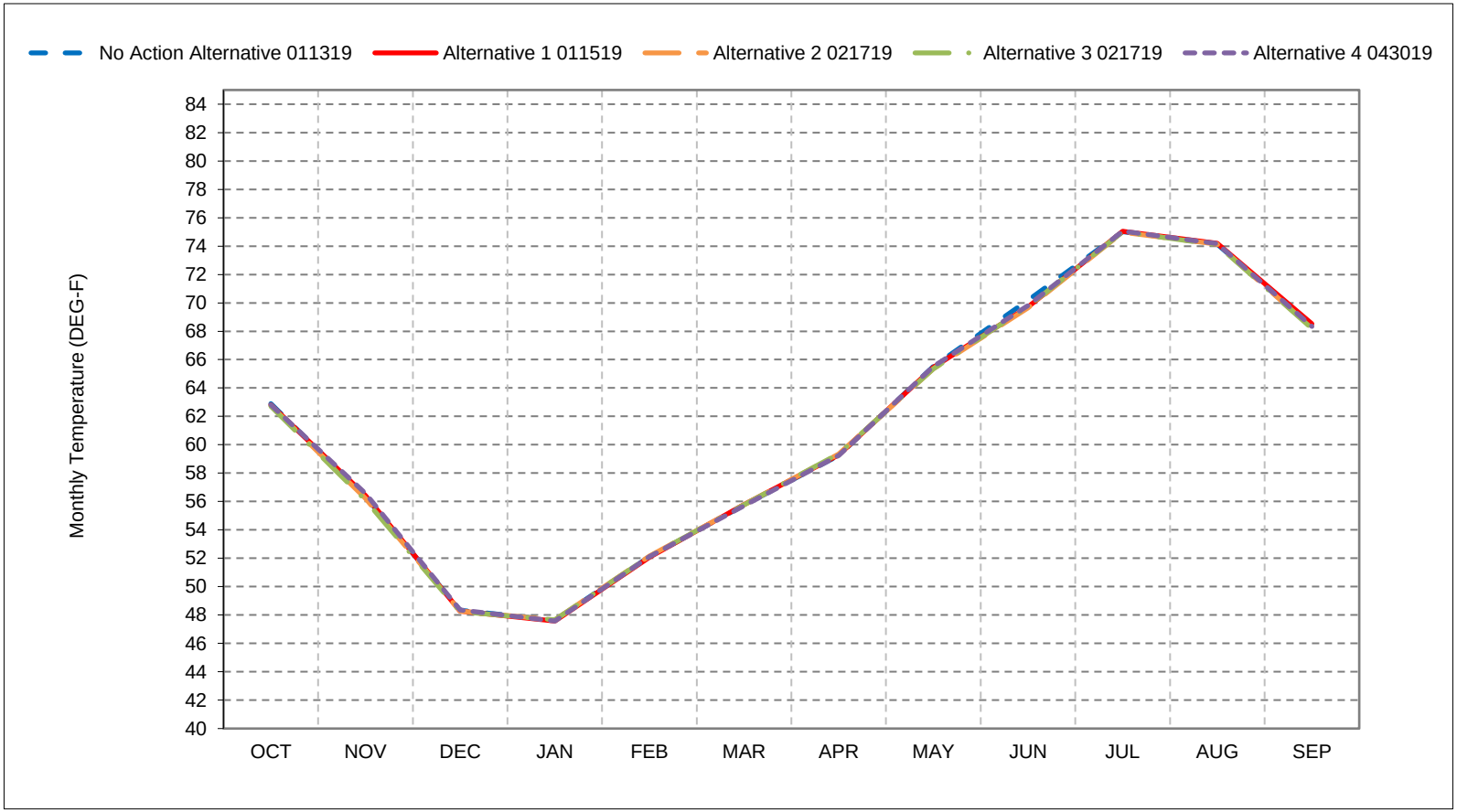
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-5. Feather River at Gridley Bridge, Dry Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-6. Feather River at Gridley Bridge, Critical Year Average Temperature



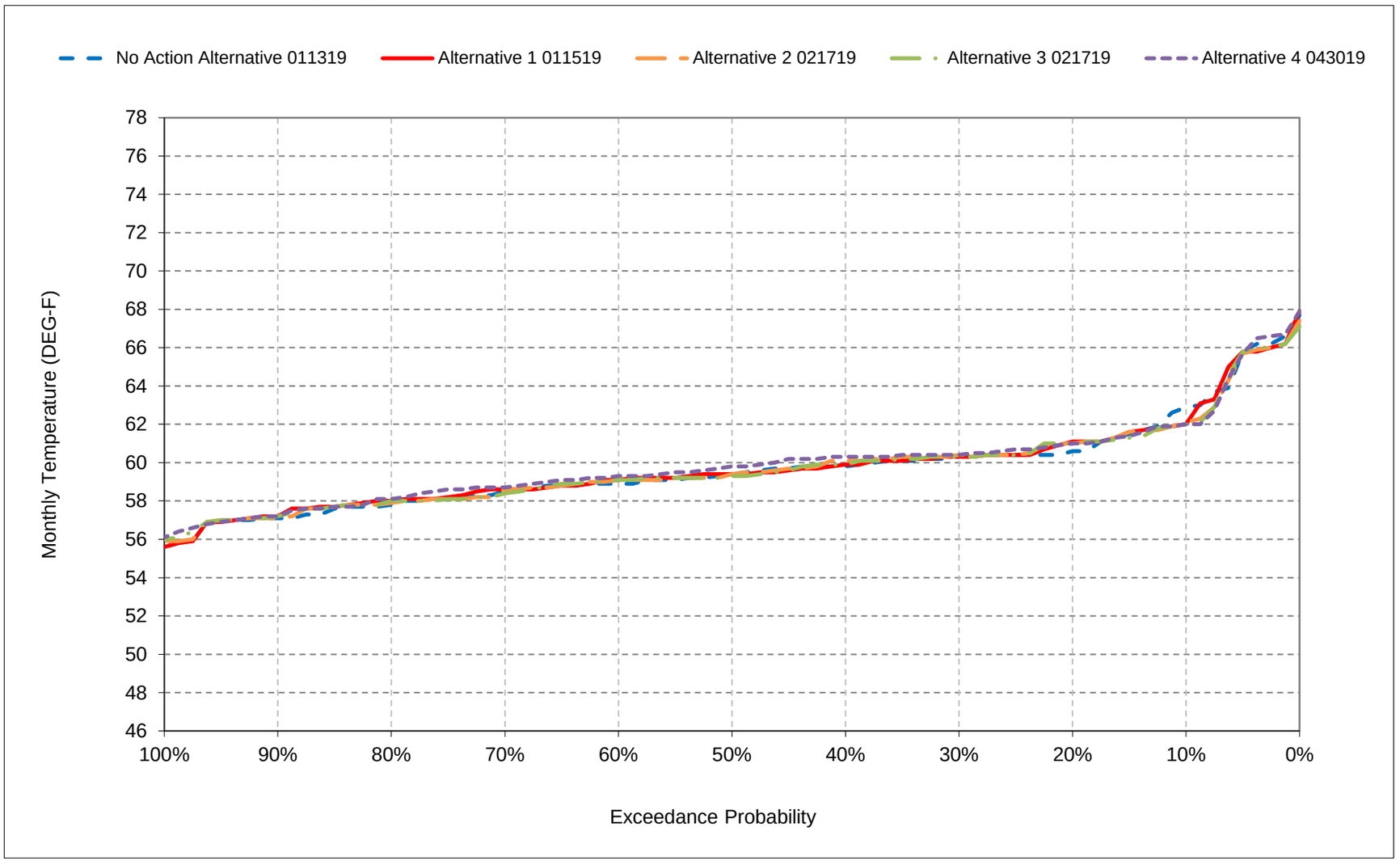
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

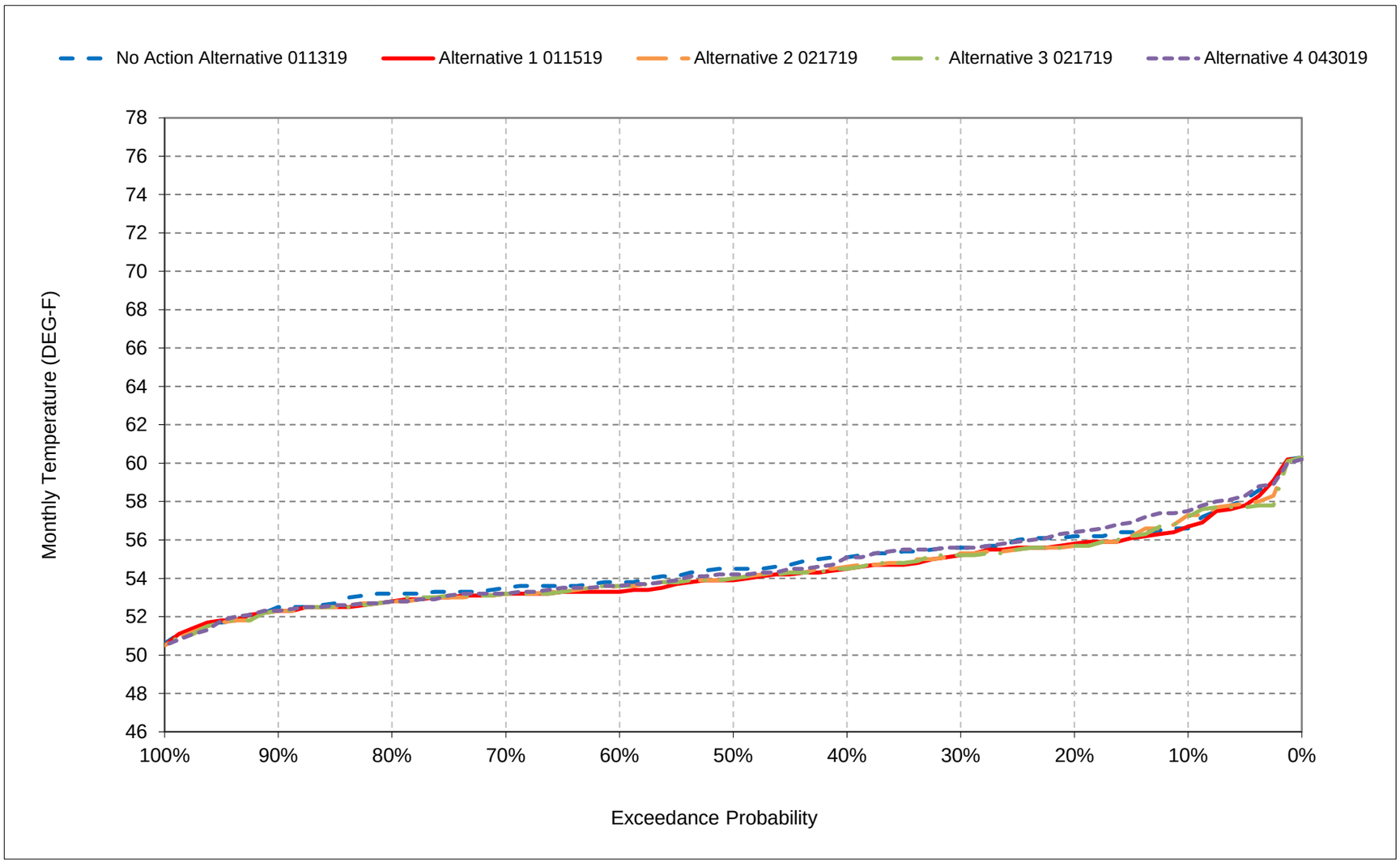
Figure 3-7. Feather River at Gridley Bridge, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

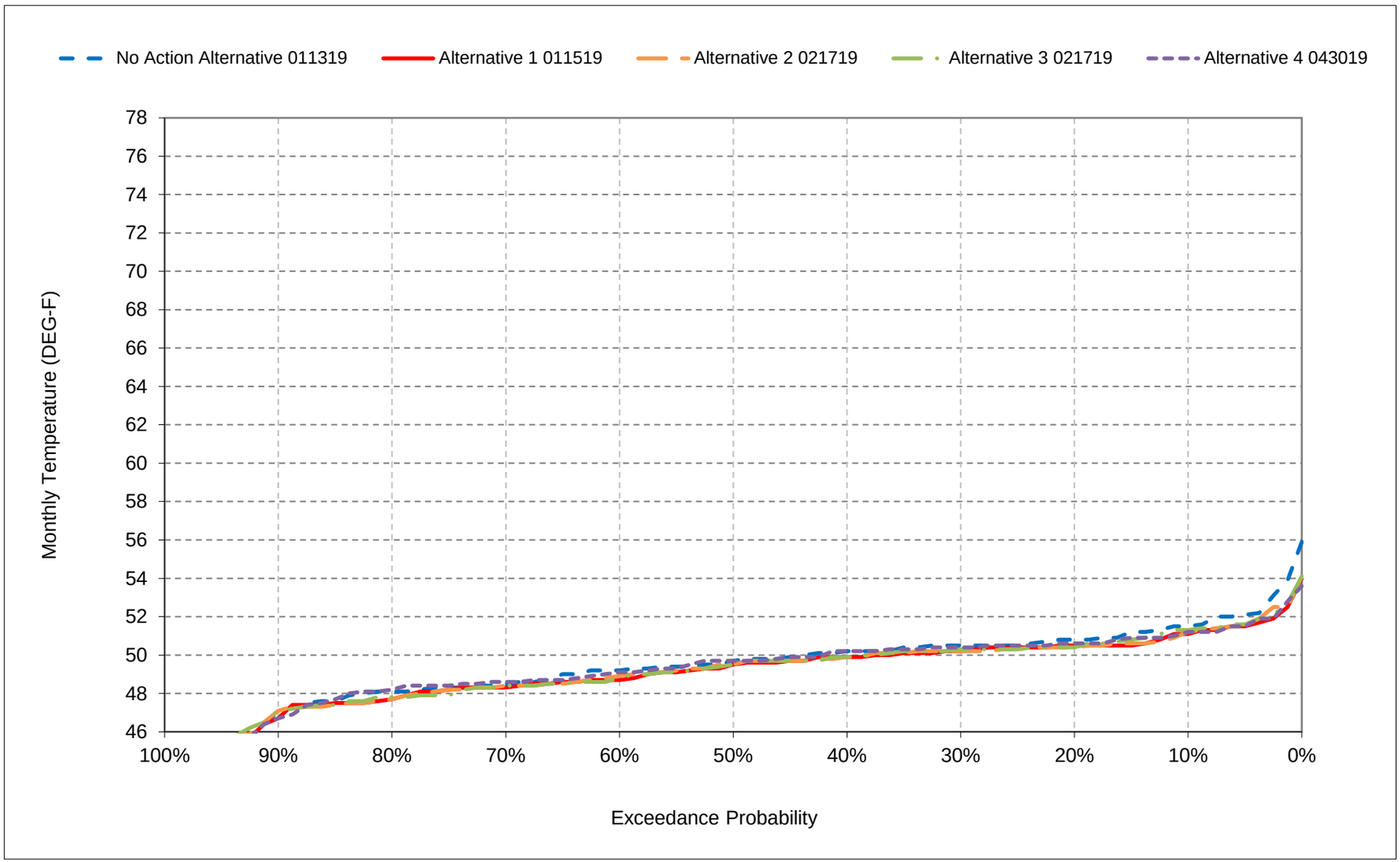
Figure 3-8. Feather River at Gridley Bridge, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

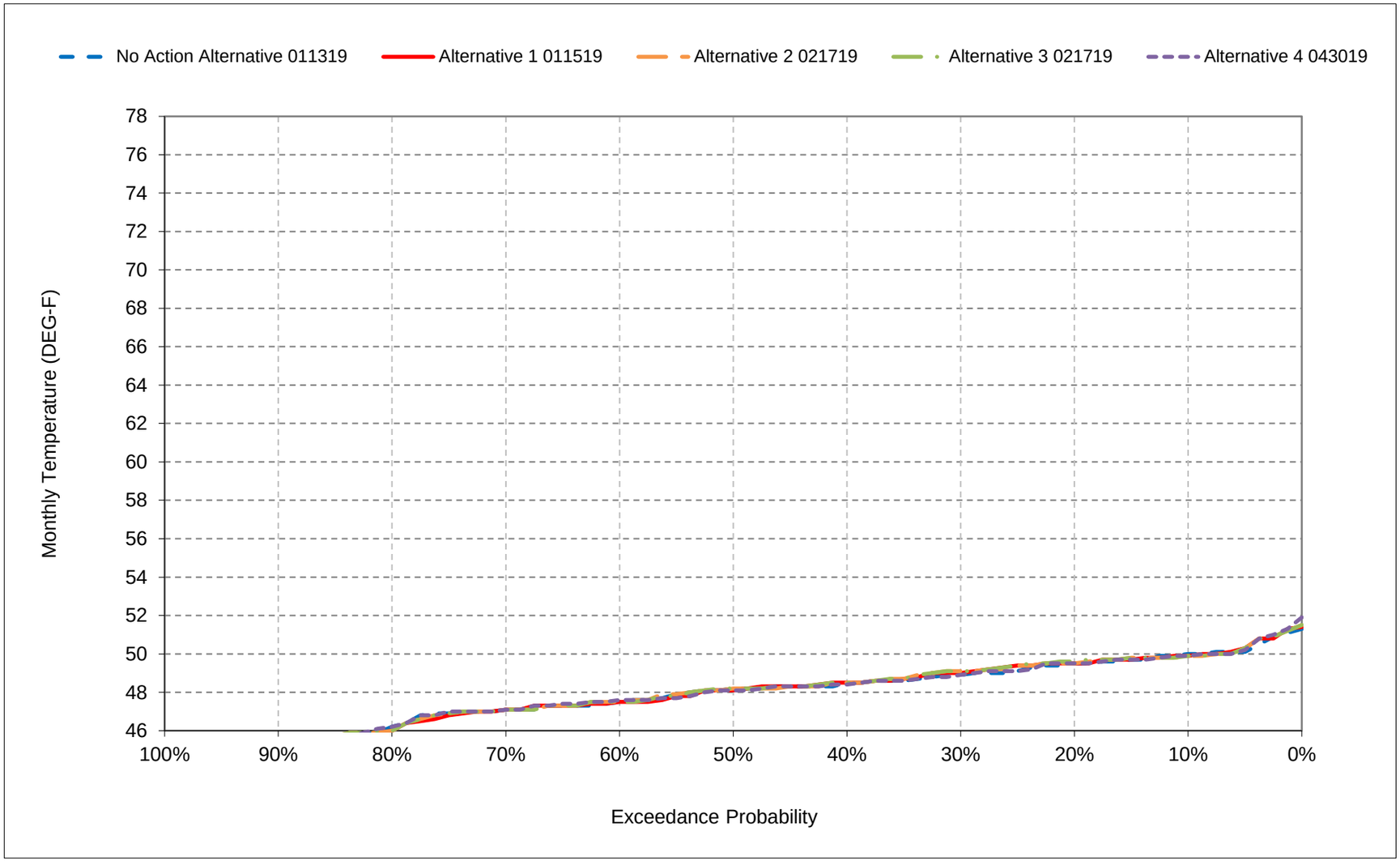
Figure 3-9. Feather River at Gridley Bridge, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

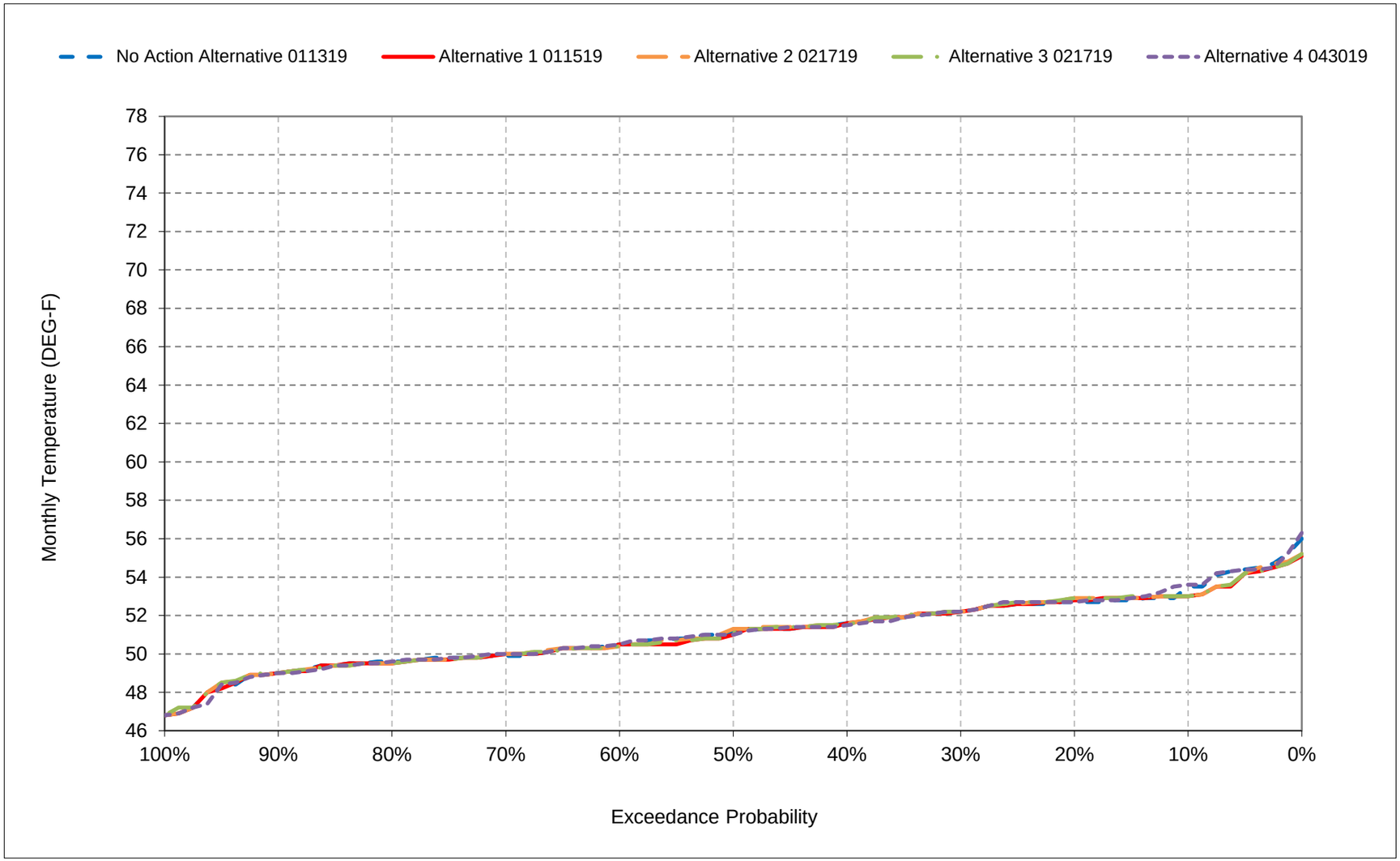
Figure 3-10. Feather River at Gridley Bridge, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

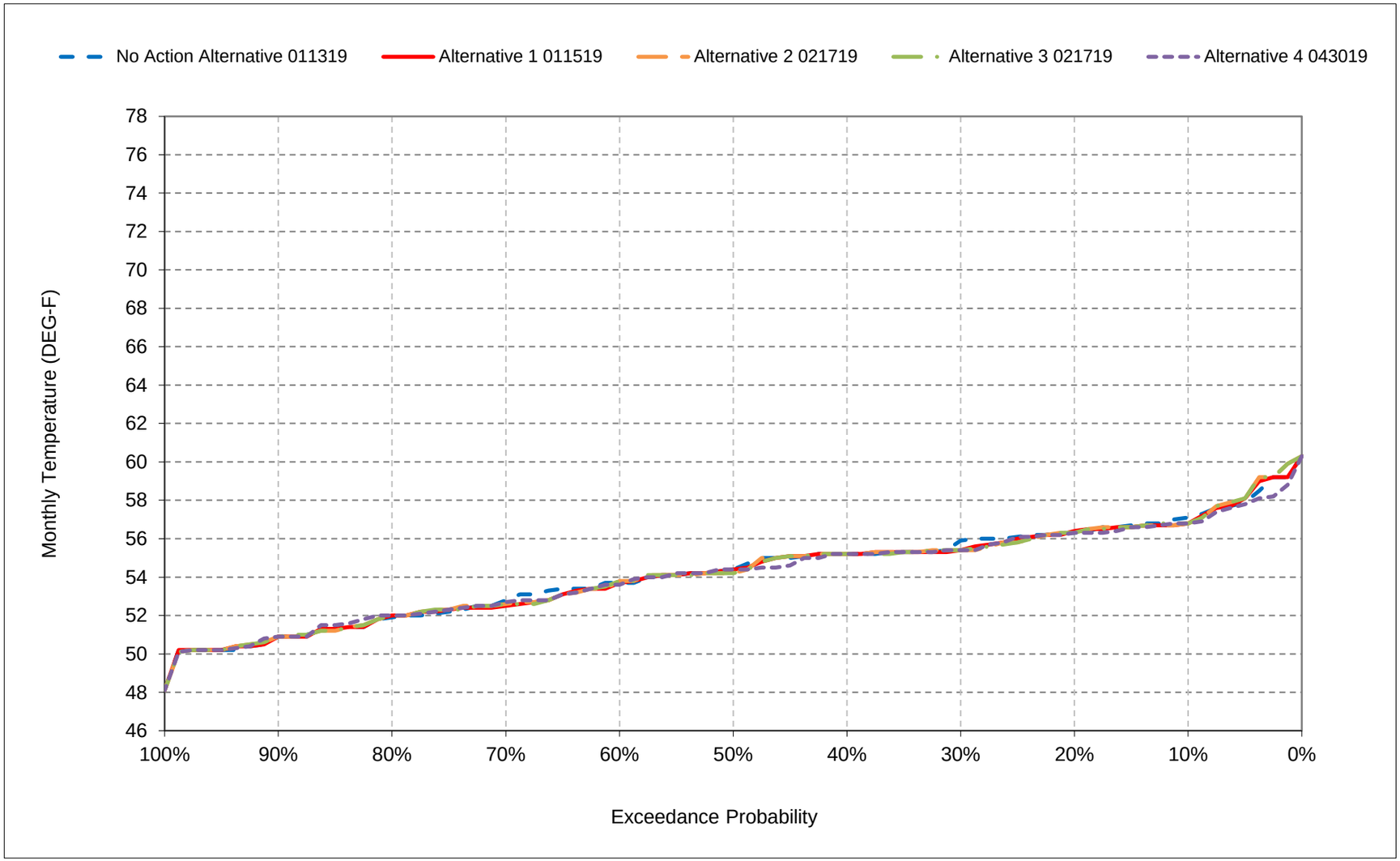
Figure 3-11. Feather River at Gridley Bridge, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

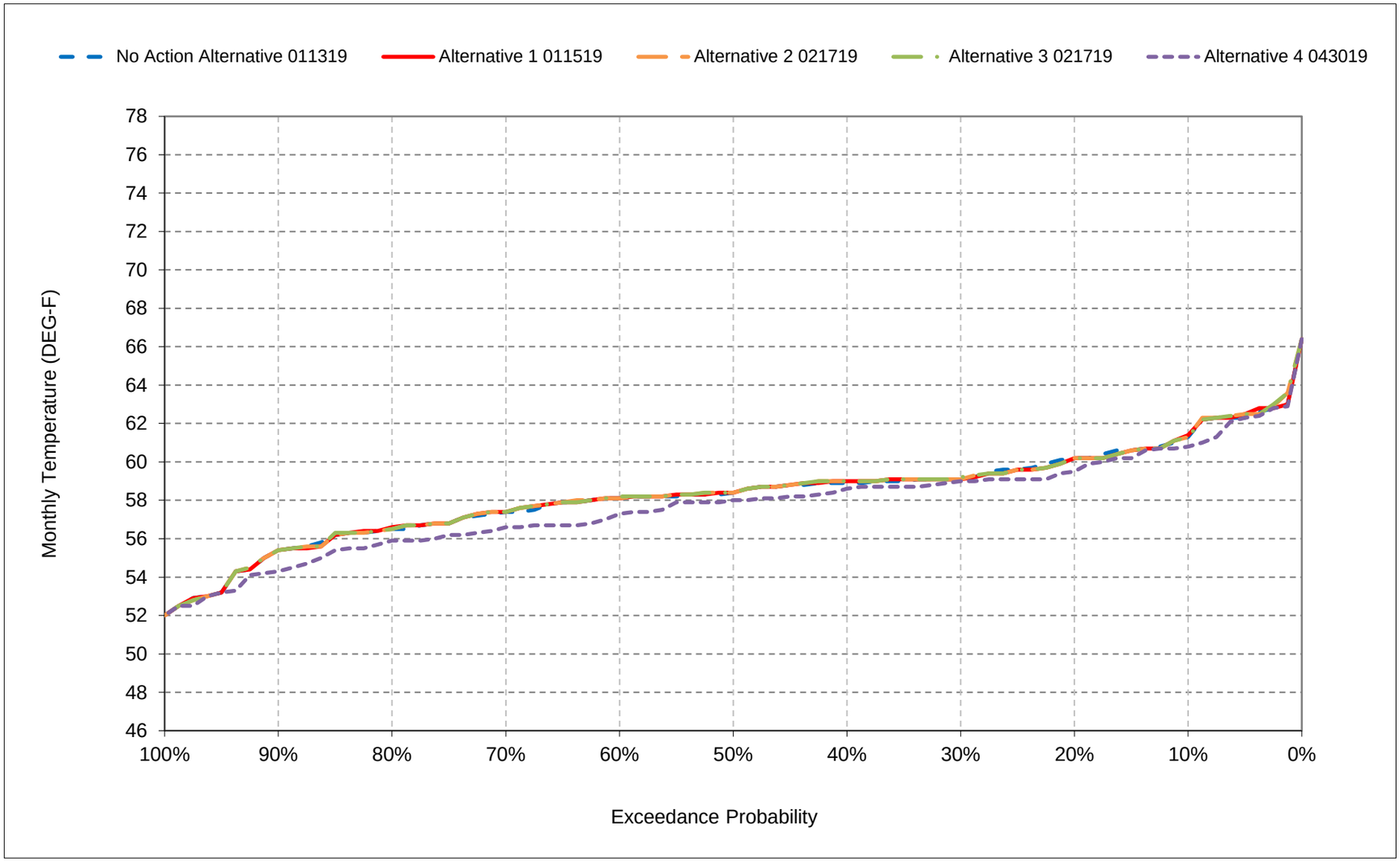
Figure 3-12. Feather River at Gridley Bridge, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

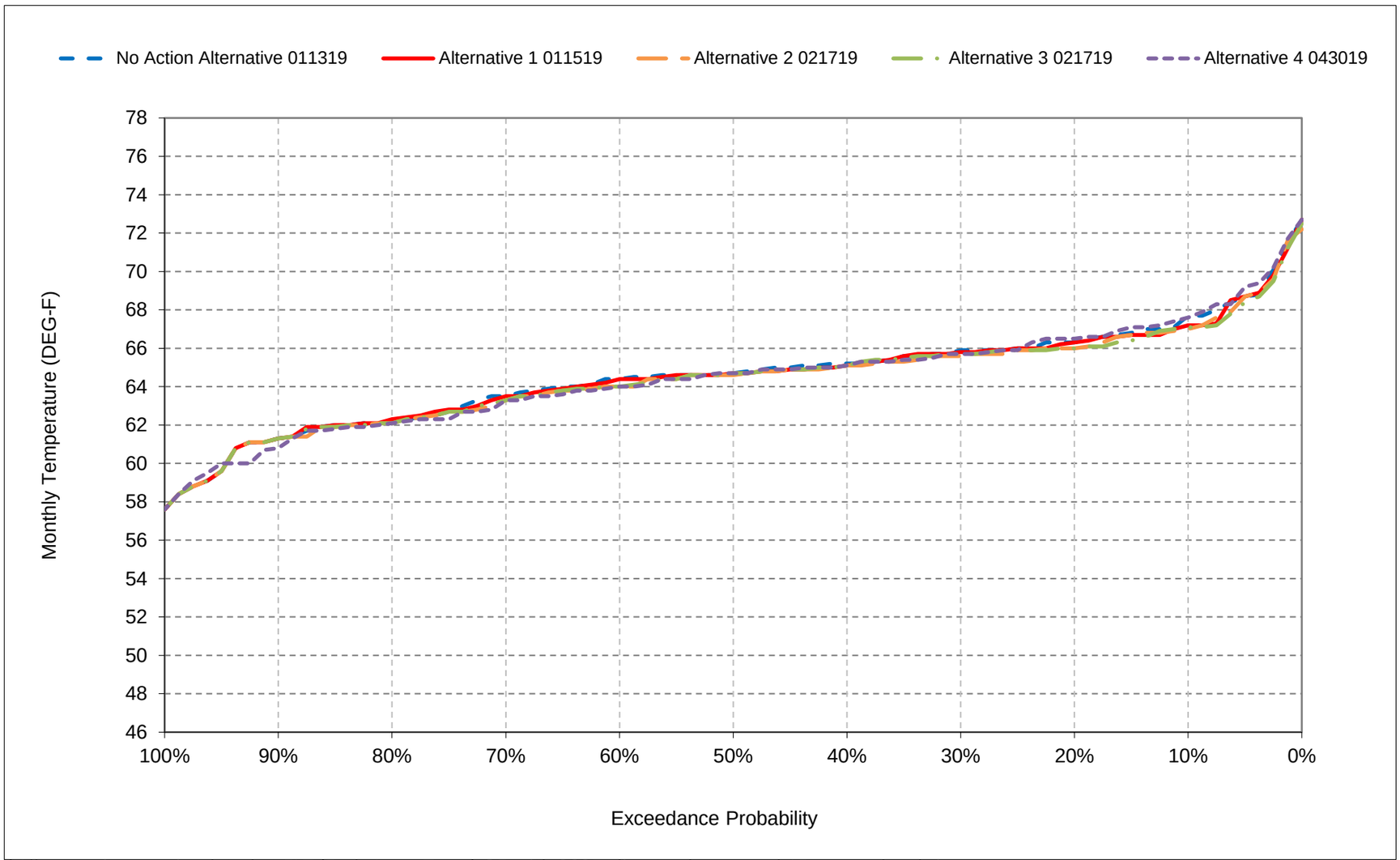
Figure 3-13. Feather River at Gridley Bridge, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

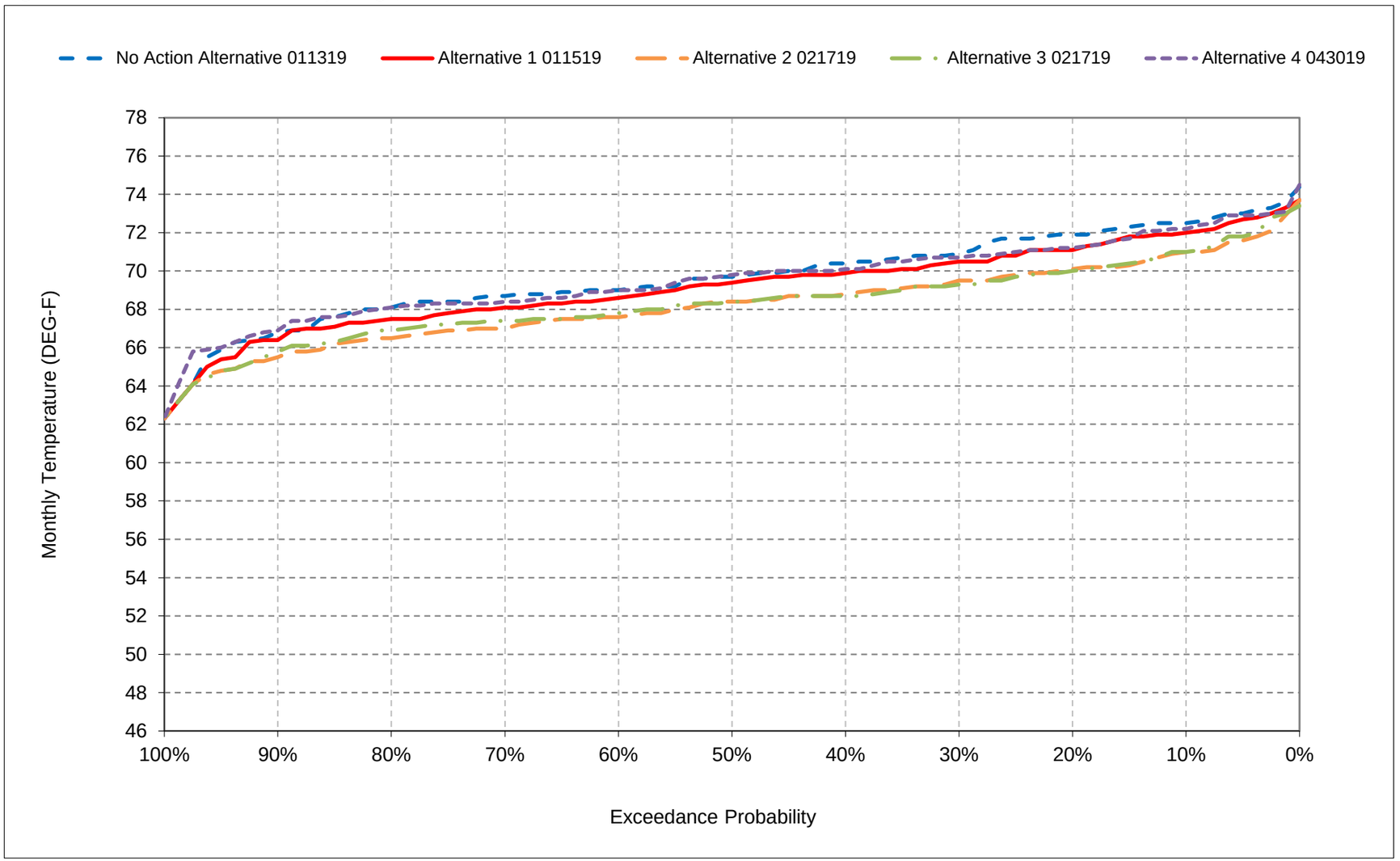
Figure 3-14. Feather River at Gridley Bridge, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

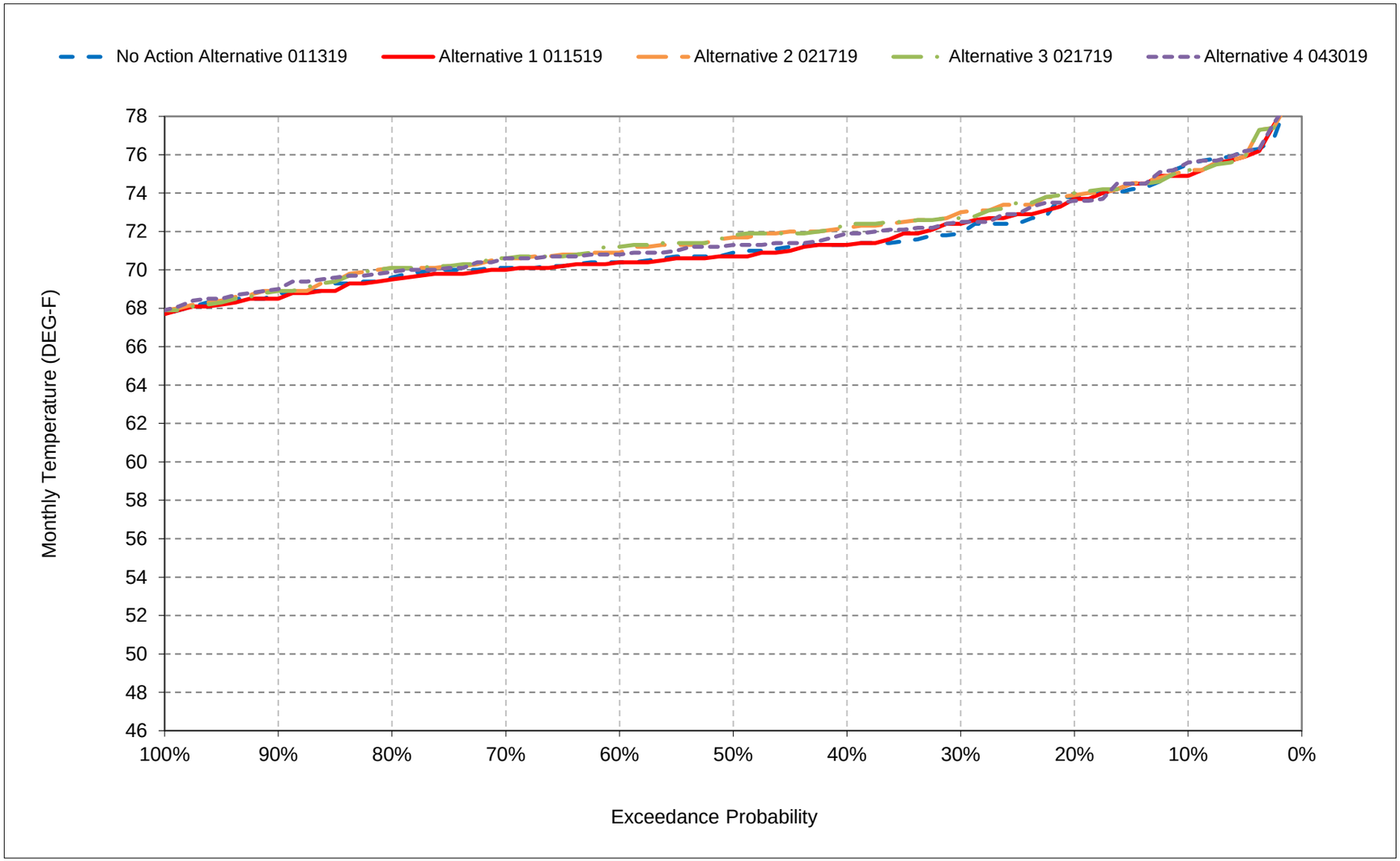
Figure 3-15. Feather River at Gridley Bridge, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

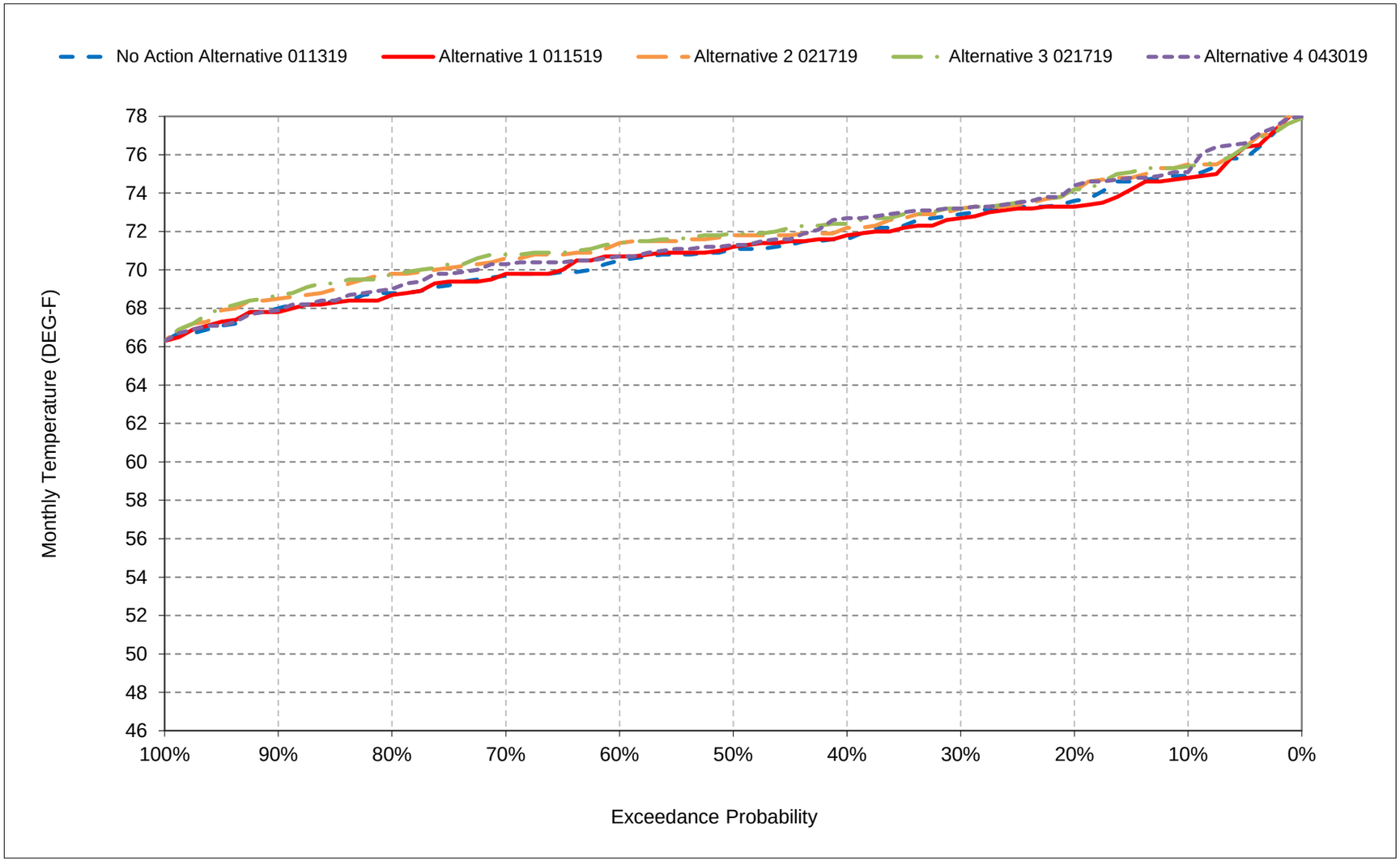
Figure 3-16. Feather River at Gridley Bridge, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

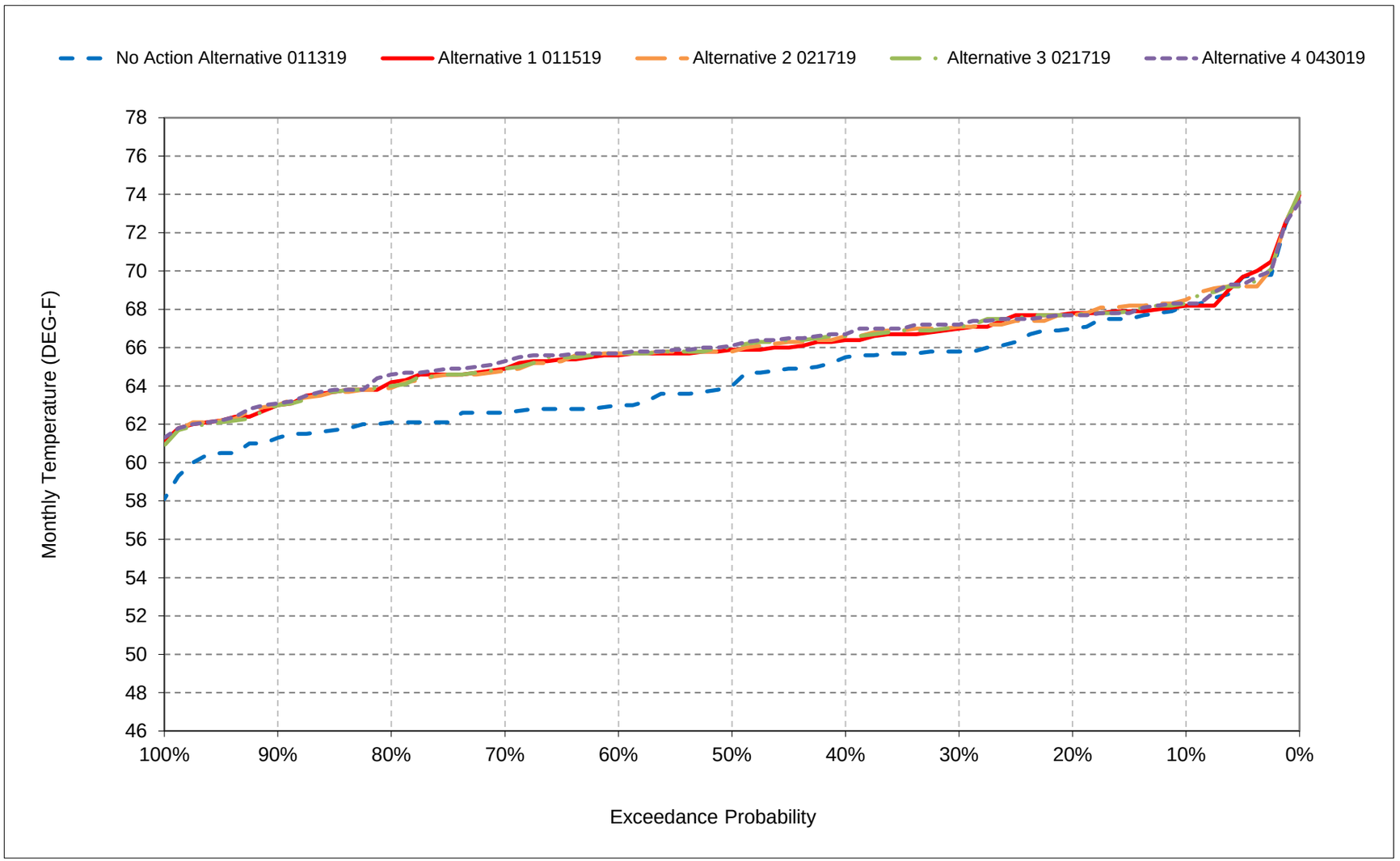
Figure 3-17. Feather River at Gridley Bridge, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 3-18. Feather River at Gridley Bridge, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Table 4-1. Feather River at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.7	55.7	49.5	48.7	53.1	57.7	65.6	71.1	76.6	78.2	78.1	73.6
20%	63.7	55.0	48.9	48.1	52.3	56.9	63.4	69.7	75.7	77.2	77.3	72.9
30%	63.1	54.4	48.5	48.0	51.8	56.2	62.8	69.1	74.6	76.3	76.0	71.7
40%	62.6	54.1	48.1	47.5	51.3	55.6	61.9	68.6	74.2	75.7	75.5	70.7
50%	62.1	53.5	47.5	46.7	51.0	55.3	61.4	67.9	73.5	75.3	74.4	69.9
60%	61.7	53.1	47.1	46.4	50.6	54.7	60.8	67.5	72.6	74.9	73.8	68.8
70%	61.3	52.9	46.7	45.9	50.2	54.2	59.7	66.1	71.9	74.0	72.9	67.9
80%	60.2	52.3	46.3	45.1	49.9	53.6	58.4	65.1	71.1	73.7	72.1	67.2
90%	59.8	51.6	44.5	44.3	49.0	52.5	57.5	64.1	69.8	72.9	71.2	66.7
Long Term												
Full Simulation Period[a]	62.3	53.6	47.5	46.7	51.1	55.2	61.4	67.8	73.3	75.6	74.7	70.0
Water Year Types[b,c]												
Wet (32%)	61.2	53.8	48.2	47.2	50.8	53.9	59.3	65.8	71.7	75.3	74.1	67.9
Above Normal (16%)	61.1	52.5	46.9	47.3	51.1	55.1	61.3	68.0	73.7	73.9	72.0	67.4
Below Normal (15%)	62.7	53.4	46.5	46.7	50.7	55.6	62.5	68.1	74.3	74.7	73.8	71.2
Dry (24%)	62.9	53.8	47.9	45.7	51.1	56.0	62.2	69.3	74.3	75.7	76.0	72.1
Critical (15%)	64.3	53.9	46.6	46.2	51.9	56.6	64.0	69.2	73.9	78.6	77.2	72.5

Alternative 1 011519

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.7	55.4	49.4	48.7	53.1	57.7	65.6	70.8	76.0	78.0	78.1	74.4
20%	63.9	54.9	48.8	48.2	52.3	56.9	63.4	69.5	75.1	77.4	77.5	73.5
30%	63.4	54.1	48.3	48.0	51.8	56.1	62.8	68.8	74.2	76.4	76.3	72.8
40%	62.7	53.8	48.1	47.5	51.3	55.6	61.9	68.3	73.5	75.7	75.4	72.2
50%	62.1	53.3	47.4	46.7	51.0	55.3	61.4	67.9	72.9	75.1	74.4	71.3
60%	61.5	53.0	47.0	46.4	50.6	54.7	60.8	67.1	72.3	74.7	73.9	70.7
70%	61.3	52.8	46.6	45.9	50.2	54.2	59.7	66.0	71.8	74.2	72.9	70.1
80%	61.0	52.1	46.3	45.1	49.9	53.5	58.4	65.1	71.0	73.5	72.1	69.3
90%	60.0	51.6	44.7	44.3	49.0	52.5	57.5	64.1	69.6	72.7	71.6	68.6
Long Term												
Full Simulation Period[a]	62.4	53.4	47.4	46.7	51.1	55.2	61.4	67.7	72.9	75.5	74.7	71.5
Water Year Types[b,c]												
Wet (32%)	61.6	53.4	47.9	47.3	50.8	53.9	59.3	65.8	71.5	75.2	74.3	72.0
Above Normal (16%)	61.1	52.5	46.8	47.3	51.0	55.1	61.2	67.9	73.5	73.7	72.1	68.7
Below Normal (15%)	62.7	53.4	46.5	46.7	50.8	55.5	62.6	67.8	73.7	74.3	73.4	71.2
Dry (24%)	62.9	53.8	47.9	45.7	51.1	56.0	62.2	69.1	73.6	75.9	76.1	72.0
Critical (15%)	64.3	53.9	46.5	46.2	51.8	56.6	64.0	69.2	73.5	78.6	77.3	72.5

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	0.0	-0.3	-0.1	0.0	0.0	**0.0**	0.0	-0.3	-0.6	-0.2	**0.0**	**0.8**
20%	**0.2**	-0.1	-0.1	**0.1**	**0.0**	0.0	0.0	-0.2	-0.6	**0.2**	**0.2**	**0.6**
30%	**0.3**	-0.3	-0.2	0.0	0.0	-0.1	0.0	-0.2	-0.4	**0.1**	**0.3**	**1.1**
40%	**0.1**	-0.3	**0.0**	0.0	0.0	0.0	0.0	-0.3	-0.7	0.0	-0.1	**1.5**
50%	0.0	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	-0.6	-0.1	0.0	**1.3**
60%	-0.2	-0.1	-0.1	**0.0**	0.0	0.0	**0.0**	-0.4	-0.3	-0.1	**0.1**	**1.9**
70%	0.0	-0.1	-0.1	**0.0**	0.0	0.0	0.0	-0.1	-0.1	**0.2**	0.0	**2.2**
80%	**0.8**	-0.2	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.2	0.0	**2.1**
90%	**0.2**	0.0	**0.1**	0.0	0.0	0.0	0.0	0.0	-0.2	-0.2	**0.4**	**1.9**
Long Term												
Full Simulation Period[a]	**0.1**	-0.1	-0.1	**0.0**	**0.0**	0.0	0.0	-0.1	-0.4	0.0	**0.0**	**1.5**
Water Year Types[b,c]												
Wet (32%)	**0.4**	-0.4	-0.3	**0.1**	**0.0**	0.0	**0.0**	0.0	-0.1	0.0	**0.1**	**4.1**
Above Normal (16%)	0.0	-0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.2	-0.2	**0.0**	**1.4**
Below Normal (15%)	**0.0**	-0.1	0.0	0.0	**0.1**	0.0	**0.0**	-0.3	-0.5	-0.4	-0.4	**0.0**
Dry (24%)	0.0	0.0	0.0	**0.0**	**0.0**	0.0	0.0	-0.2	-0.7	**0.3**	**0.1**	0.0
Critical (15%)	**0.0**	0.0	0.0	**0.0**	0.0	0.0	0.0	-0.1	-0.4	**0.0**	**0.1**	**0.0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4-2. Feather River at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.7	55.7	49.5	48.7	53.1	57.7	65.6	71.1	76.6	78.2	78.1	73.6
20%	63.7	55.0	48.9	48.1	52.3	56.9	63.4	69.7	75.7	77.2	77.3	72.9
30%	63.1	54.4	48.5	48.0	51.8	56.2	62.8	69.1	74.6	76.3	76.0	71.7
40%	62.6	54.1	48.1	47.5	51.3	55.6	61.9	68.6	74.2	75.7	75.5	70.7
50%	62.1	53.5	47.5	46.7	51.0	55.3	61.4	67.9	73.5	75.3	74.4	69.9
60%	61.7	53.1	47.1	46.4	50.6	54.7	60.8	67.5	72.6	74.9	73.8	68.8
70%	61.3	52.9	46.7	45.9	50.2	54.2	59.7	66.1	71.9	74.0	72.9	67.9
80%	60.2	52.3	46.3	45.1	49.9	53.6	58.4	65.1	71.1	73.7	72.1	67.2
90%	59.8	51.6	44.5	44.3	49.0	52.5	57.5	64.1	69.8	72.9	71.2	66.7
Long Term												
Full Simulation Period[a]	62.3	53.6	47.5	46.7	51.1	55.2	61.4	67.8	73.3	75.6	74.7	70.0
Water Year Types[b,c]												
Wet (32%)	61.2	53.8	48.2	47.2	50.8	53.9	59.3	65.8	71.7	75.3	74.1	67.9
Above Normal (16%)	61.1	52.5	46.9	47.3	51.1	55.1	61.3	68.0	73.7	73.9	72.0	67.4
Below Normal (15%)	62.7	53.4	46.5	46.7	50.7	55.6	62.5	68.1	74.3	74.7	73.8	71.2
Dry (24%)	62.9	53.8	47.9	45.7	51.1	56.0	62.2	69.3	74.3	75.7	76.0	72.1
Critical (15%)	64.3	53.9	46.6	46.2	51.9	56.6	64.0	69.2	73.9	78.6	77.2	72.5

Alternative 2 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.7	55.5	49.4	48.7	53.1	57.7	65.6	70.5	75.1	78.6	78.1	73.8
20%	63.8	55.0	48.7	48.2	52.3	56.9	63.4	69.5	74.4	77.7	77.5	73.5
30%	63.1	54.1	48.3	48.0	51.9	56.2	62.8	68.7	73.3	76.7	76.5	73.0
40%	62.7	53.8	48.0	47.5	51.4	55.6	61.9	68.1	72.5	76.2	75.9	72.4
50%	62.1	53.4	47.5	46.7	51.0	55.3	61.4	67.8	72.3	75.8	74.9	72.0
60%	61.5	53.0	47.1	46.4	50.6	54.8	60.8	66.9	71.7	75.3	74.0	70.7
70%	61.2	52.8	46.6	46.0	50.2	54.2	59.7	66.0	71.2	74.6	73.6	70.1
80%	60.6	52.2	46.2	45.1	49.9	53.5	58.4	65.1	70.6	73.7	72.8	69.3
90%	60.0	51.6	44.9	44.3	49.0	52.5	57.5	64.1	69.4	72.8	72.0	68.7
Long Term												
Full Simulation Period[a]	62.3	53.5	47.4	46.7	51.1	55.2	61.4	67.6	72.2	75.9	75.0	71.6
Water Year Types[b,c]												
Wet (32%)	61.3	53.4	47.9	47.3	50.8	53.9	59.3	65.7	71.3	75.4	74.6	72.0
Above Normal (16%)	61.2	52.5	46.8	47.3	51.1	55.1	61.2	67.9	72.6	73.9	72.5	69.1
Below Normal (15%)	62.6	53.4	46.5	46.7	50.8	55.6	62.5	67.5	71.4	75.3	74.7	71.5
Dry (24%)	62.9	53.9	47.9	45.7	51.1	56.0	62.2	69.1	73.0	76.5	75.9	72.0
Critical (15%)	64.3	53.9	46.5	46.2	51.9	56.7	64.0	69.1	73.4	78.5	77.1	72.4

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	0.0	-0.2	-0.1	0.0	0.0	**0.0**	0.0	-0.6	-1.5	**0.4**	0.0	**0.2**
20%	**0.1**	0.0	-0.2	**0.1**	**0.0**	0.0	0.0	-0.2	-1.4	**0.5**	**0.2**	**0.6**
30%	0.0	-0.3	-0.2	0.0	**0.1**	0.0	0.0	-0.3	-1.3	**0.4**	**0.5**	**1.3**
40%	**0.1**	-0.3	-0.1	0.0	**0.1**	0.0	0.0	-0.5	-1.7	**0.5**	**0.4**	**1.7**
50%	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.2	-1.1	**0.6**	**0.5**	**2.0**
60%	-0.2	-0.1	0.0	0.0	0.0	**0.1**	**0.0**	-0.6	-0.9	**0.5**	**0.3**	**1.9**
70%	-0.1	-0.1	-0.1	**0.1**	0.0	0.0	0.0	-0.1	-0.7	**0.6**	**0.7**	**2.2**
80%	**0.4**	-0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.5	0.0	**0.7**	**2.0**
90%	**0.2**	0.0	**0.4**	0.0	0.0	0.0	0.0	0.0	-0.4	-0.1	**0.8**	**2.0**
Long Term												
Full Simulation Period[a]	**0.0**	-0.1	-0.1	**0.0**	**0.0**	0.0	0.0	-0.2	-1.1	**0.3**	**0.3**	**1.6**
Water Year Types[b,c]												
Wet (32%)	**0.1**	-0.4	-0.3	**0.1**	**0.0**	0.0	**0.0**	-0.1	-0.4	**0.2**	**0.5**	**4.2**
Above Normal (16%)	**0.1**	0.0	-0.1	**0.0**	**0.0**	-0.1	0.0	-0.1	-1.1	0.0	**0.5**	**1.7**
Below Normal (15%)	-0.1	**0.0**	0.0	**0.0**	**0.1**	0.0	0.0	-0.6	-2.8	**0.6**	**0.9**	**0.3**
Dry (24%)	0.0	**0.0**	0.0	0.0	**0.0**	**0.0**	0.0	-0.2	-1.3	**0.8**	-0.1	-0.1
Critical (15%)	0.0	**0.0**	0.0	**0.0**	**0.0**	**0.0**	**0.0**	-0.1	-0.5	-0.1	-0.1	-0.1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4-3. Feather River at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.7	55.7	49.5	48.7	53.1	57.7	65.6	71.1	76.6	78.2	78.1	73.6
20%	63.7	55.0	48.9	48.1	52.3	56.9	63.4	69.7	75.7	77.2	77.3	72.9
30%	63.1	54.4	48.5	48.0	51.8	56.2	62.8	69.1	74.6	76.3	76.0	71.7
40%	62.6	54.1	48.1	47.5	51.3	55.6	61.9	68.6	74.2	75.7	75.5	70.7
50%	62.1	53.5	47.5	46.7	51.0	55.3	61.4	67.9	73.5	75.3	74.4	69.9
60%	61.7	53.1	47.1	46.4	50.6	54.7	60.8	67.5	72.6	74.9	73.8	68.8
70%	61.3	52.9	46.7	45.9	50.2	54.2	59.7	66.1	71.9	74.0	72.9	67.9
80%	60.2	52.3	46.3	45.1	49.9	53.6	58.4	65.1	71.1	73.7	72.1	67.2
90%	59.8	51.6	44.5	44.3	49.0	52.5	57.5	64.1	69.8	72.9	71.2	66.7
Long Term												
Full Simulation Period[a]	62.3	53.6	47.5	46.7	51.1	55.2	61.4	67.8	73.3	75.6	74.7	70.0
Water Year Types[b,c]												
Wet (32%)	61.2	53.8	48.2	47.2	50.8	53.9	59.3	65.8	71.7	75.3	74.1	67.9
Above Normal (16%)	61.1	52.5	46.9	47.3	51.1	55.1	61.3	68.0	73.7	73.9	72.0	67.4
Below Normal (15%)	62.7	53.4	46.5	46.7	50.7	55.6	62.5	68.1	74.3	74.7	73.8	71.2
Dry (24%)	62.9	53.8	47.9	45.7	51.1	56.0	62.2	69.3	74.3	75.7	76.0	72.1
Critical (15%)	64.3	53.9	46.6	46.2	51.9	56.6	64.0	69.2	73.9	78.6	77.2	72.5

Alternative 3 021719

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.7	55.5	49.5	48.7	53.1	57.7	65.6	70.5	75.1	78.3	78.1	73.8
20%	63.8	55.0	48.7	48.2	52.3	56.9	63.4	69.5	73.9	77.4	77.5	73.5
30%	63.0	54.1	48.3	48.0	51.9	56.2	62.8	68.8	73.3	77.0	76.8	73.0
40%	62.6	53.8	48.0	47.5	51.4	55.6	61.9	68.2	72.7	76.3	76.0	72.4
50%	62.1	53.4	47.5	46.7	51.0	55.3	61.4	67.8	72.3	75.8	75.2	71.9
60%	61.5	53.0	47.1	46.4	50.6	54.7	60.7	67.2	71.8	75.4	74.2	70.7
70%	61.0	52.8	46.7	45.9	50.2	54.2	59.7	66.0	71.3	74.7	73.6	70.1
80%	60.5	52.2	46.2	45.1	49.9	53.4	58.4	65.1	70.8	73.8	72.8	69.5
90%	60.0	51.6	45.1	44.4	49.0	52.5	57.5	64.1	69.5	72.9	72.0	68.7
Long Term												
Full Simulation Period[a]	62.3	53.5	47.4	46.7	51.1	55.2	61.4	67.6	72.3	75.9	75.1	71.6
Water Year Types[b,c]												
Wet (32%)	61.3	53.4	48.0	47.3	50.8	53.9	59.3	65.8	71.2	75.4	74.9	72.0
Above Normal (16%)	61.0	52.5	46.9	47.3	51.1	55.1	61.2	67.9	72.8	73.8	72.5	69.1
Below Normal (15%)	62.5	53.4	46.5	46.7	50.8	55.6	62.5	67.6	71.7	75.2	74.7	71.6
Dry (24%)	62.9	53.9	47.9	45.7	51.1	56.0	62.2	69.0	73.0	76.6	75.9	72.0
Critical (15%)	64.3	53.9	46.5	46.3	51.9	56.7	64.0	69.1	73.6	78.6	77.1	72.4

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	0.0	-0.2	**0.0**	0.0	0.0	**0.0**	0.0	-0.6	-1.5	**0.1**	0.0	**0.2**
20%	**0.1**	0.0	-0.2	**0.1**	**0.0**	0.0	0.0	-0.2	-1.8	**0.2**	**0.2**	**0.6**
30%	-0.1	-0.3	-0.2	0.0	**0.1**	**0.1**	0.0	-0.2	-1.3	**0.7**	**0.8**	**1.3**
40%	0.0	-0.3	-0.1	0.0	**0.1**	0.0	0.0	-0.4	-1.5	**0.6**	**0.5**	**1.7**
50%	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.2	-1.1	**0.6**	**0.8**	**2.0**
60%	-0.2	-0.1	0.0	0.0	0.0	0.0	-0.1	-0.3	-0.8	**0.5**	**0.4**	**1.9**
70%	-0.3	-0.1	0.0	**0.1**	0.0	0.0	0.0	-0.1	-0.6	**0.7**	**0.8**	**2.2**
80%	**0.3**	-0.1	-0.1	0.0	0.0	-0.2	0.0	0.0	-0.3	**0.1**	**0.7**	**2.3**
90%	**0.2**	0.0	**0.6**	**0.1**	0.0	0.0	0.0	0.0	-0.3	0.0	**0.8**	**2.0**
Long Term												
Full Simulation Period[a]	0.0	-0.1	-0.1	**0.0**	**0.0**	0.0	0.0	-0.2	-1.0	**0.3**	**0.4**	**1.6**
Water Year Types[b,c]												
Wet (32%)	**0.1**	-0.4	-0.2	**0.1**	**0.0**	0.0	**0.0**	0.0	-0.5	**0.2**	**0.8**	**4.1**
Above Normal (16%)	-0.1	-0.1	0.0	**0.0**	**0.0**	-0.1	0.0	-0.1	-0.9	-0.1	**0.4**	**1.8**
Below Normal (15%)	-0.2	**0.0**	0.0	**0.0**	**0.1**	0.0	0.0	-0.5	-2.6	**0.5**	**0.9**	**0.4**
Dry (24%)	0.0	**0.0**	0.0	**0.0**	**0.0**	**0.0**	0.0	-0.3	-1.2	**0.9**	-0.1	-0.1
Critical (15%)	0.0	0.0	0.0	**0.0**	0.0	**0.0**	**0.0**	-0.1	-0.3	-0.1	-0.1	-0.2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 4-4. Feather River at Mouth, Monthly Temperature

No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.7	55.7	49.5	48.7	53.1	57.7	65.6	71.1	76.6	78.2	78.1	73.6
20%	63.7	55.0	48.9	48.1	52.3	56.9	63.4	69.7	75.7	77.2	77.3	72.9
30%	63.1	54.4	48.5	48.0	51.8	56.2	62.8	69.1	74.6	76.3	76.0	71.7
40%	62.6	54.1	48.1	47.5	51.3	55.6	61.9	68.6	74.2	75.7	75.5	70.7
50%	62.1	53.5	47.5	46.7	51.0	55.3	61.4	67.9	73.5	75.3	74.4	69.9
60%	61.7	53.1	47.1	46.4	50.6	54.7	60.8	67.5	72.6	74.9	73.8	68.8
70%	61.3	52.9	46.7	45.9	50.2	54.2	59.7	66.1	71.9	74.0	72.9	67.9
80%	60.2	52.3	46.3	45.1	49.9	53.6	58.4	65.1	71.1	73.7	72.1	67.2
90%	59.8	51.6	44.5	44.3	49.0	52.5	57.5	64.1	69.8	72.9	71.2	66.7
Long Term												
Full Simulation Period[a]	62.3	53.6	47.5	46.7	51.1	55.2	61.4	67.8	73.3	75.6	74.7	70.0
Water Year Types[b,c]												
Wet (32%)	61.2	53.8	48.2	47.2	50.8	53.9	59.3	65.8	71.7	75.3	74.1	67.9
Above Normal (16%)	61.1	52.5	46.9	47.3	51.1	55.1	61.3	68.0	73.7	73.9	72.0	67.4
Below Normal (15%)	62.7	53.4	46.5	46.7	50.7	55.6	62.5	68.1	74.3	74.7	73.8	71.2
Dry (24%)	62.9	53.8	47.9	45.7	51.1	56.0	62.2	69.3	74.3	75.7	76.0	72.1
Critical (15%)	64.3	53.9	46.6	46.2	51.9	56.6	64.0	69.2	73.9	78.6	77.2	72.5

Alternative 4 043019

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	64.6	55.4	49.3	48.8	53.1	57.5	65.6	71.1	76.8	78.7	78.5	74.3
20%	63.8	55.1	48.7	48.1	52.3	56.9	63.2	69.7	75.5	77.6	78.0	73.8
30%	63.3	54.4	48.3	48.0	51.9	56.2	62.3	68.9	74.4	76.6	77.4	73.3
40%	62.9	53.9	48.1	47.4	51.3	55.5	61.6	68.3	73.8	76.2	76.2	72.5
50%	62.5	53.6	47.5	46.8	51.1	55.1	61.0	67.7	73.0	75.5	75.3	71.9
60%	61.9	53.0	47.1	46.5	50.6	54.6	60.3	67.1	72.5	75.1	74.4	71.3
70%	61.4	52.8	46.7	46.1	50.2	54.2	59.4	66.0	72.0	74.9	73.8	70.5
80%	61.0	52.1	46.3	45.2	49.9	53.4	58.2	64.9	71.0	74.1	72.4	69.8
90%	60.0	51.6	44.5	44.4	49.0	52.5	57.4	63.8	69.9	73.1	71.4	68.9
Long Term												
Full Simulation Period[a]	62.5	53.5	47.4	46.7	51.1	55.2	61.1	67.7	73.2	76.0	75.3	71.8
Water Year Types[b,c]												
Wet (32%)	61.7	53.5	47.9	47.3	50.8	53.9	58.8	65.6	71.8	75.4	74.6	72.1
Above Normal (16%)	61.6	52.5	46.9	47.3	51.1	55.1	60.6	67.6	73.9	74.2	72.3	69.2
Below Normal (15%)	62.6	53.6	46.7	46.9	50.8	55.4	62.1	68.0	73.8	74.9	75.4	72.0
Dry (24%)	62.9	54.0	47.9	45.8	51.2	55.9	62.1	69.3	74.1	76.5	76.7	72.4
Critical (15%)	64.3	53.9	46.5	46.2	51.8	56.5	64.0	69.2	73.6	78.8	77.6	72.7

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly Temperature (DEG-F)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance[a]												
10%	-0.1	-0.3	-0.2	**0.1**	0.0	-0.2	0.0	0.0	**0.2**	**0.5**	**0.4**	**0.7**
20%	**0.1**	**0.1**	-0.2	0.0	**0.0**	0.0	-0.2	0.0	-0.2	**0.4**	**0.7**	**0.9**
30%	**0.2**	0.0	-0.2	**0.0**	**0.1**	0.0	-0.5	-0.2	-0.2	**0.3**	**1.4**	**1.6**
40%	**0.3**	-0.2	0.0	-0.1	0.0	-0.1	-0.3	-0.3	-0.4	**0.5**	**0.7**	**1.8**
50%	**0.4**	**0.1**	**0.0**	**0.1**	**0.1**	-0.2	-0.5	-0.2	-0.5	**0.2**	**0.9**	**2.0**
60%	**0.2**	-0.1	0.0	**0.1**	**0.0**	-0.1	-0.5	-0.4	-0.1	**0.3**	**0.7**	**2.4**
70%	**0.1**	-0.1	0.0	**0.2**	0.0	**0.0**	-0.3	-0.1	**0.1**	**0.9**	**1.0**	**2.6**
80%	**0.8**	-0.2	0.0	**0.1**	0.0	-0.2	-0.2	-0.2	0.0	**0.4**	**0.3**	**2.6**
90%	**0.2**	0.0	0.0	**0.1**	**0.0**	0.0	-0.1	-0.3	**0.1**	**0.2**	**0.1**	**2.2**
Long Term												
Full Simulation Period[a]	**0.2**	0.0	-0.1	**0.1**	**0.0**	-0.1	-0.3	-0.1	-0.1	**0.4**	**0.6**	**1.9**
Water Year Types[b,c]												
Wet (32%)	**0.5**	-0.3	-0.3	**0.1**	**0.0**	**0.0**	-0.4	-0.2	**0.1**	**0.2**	**0.5**	**4.2**
Above Normal (16%)	**0.4**	0.0	**0.0**	0.0	**0.0**	0.0	-0.7	-0.4	**0.2**	**0.3**	**0.3**	**1.9**
Below Normal (15%)	-0.1	**0.2**	**0.1**	**0.2**	**0.1**	-0.1	-0.4	-0.1	-0.5	**0.2**	**1.6**	**0.8**
Dry (24%)	**0.0**	**0.1**	0.0	**0.0**	**0.0**	-0.1	-0.1	**0.0**	-0.2	**0.8**	**0.7**	**0.4**
Critical (15%)	0.0	**0.0**	0.0	**0.0**	-0.1	-0.1	**0.0**	**0.0**	-0.3	**0.2**	**0.3**	**0.1**

a Based on the 82-year simulation period.

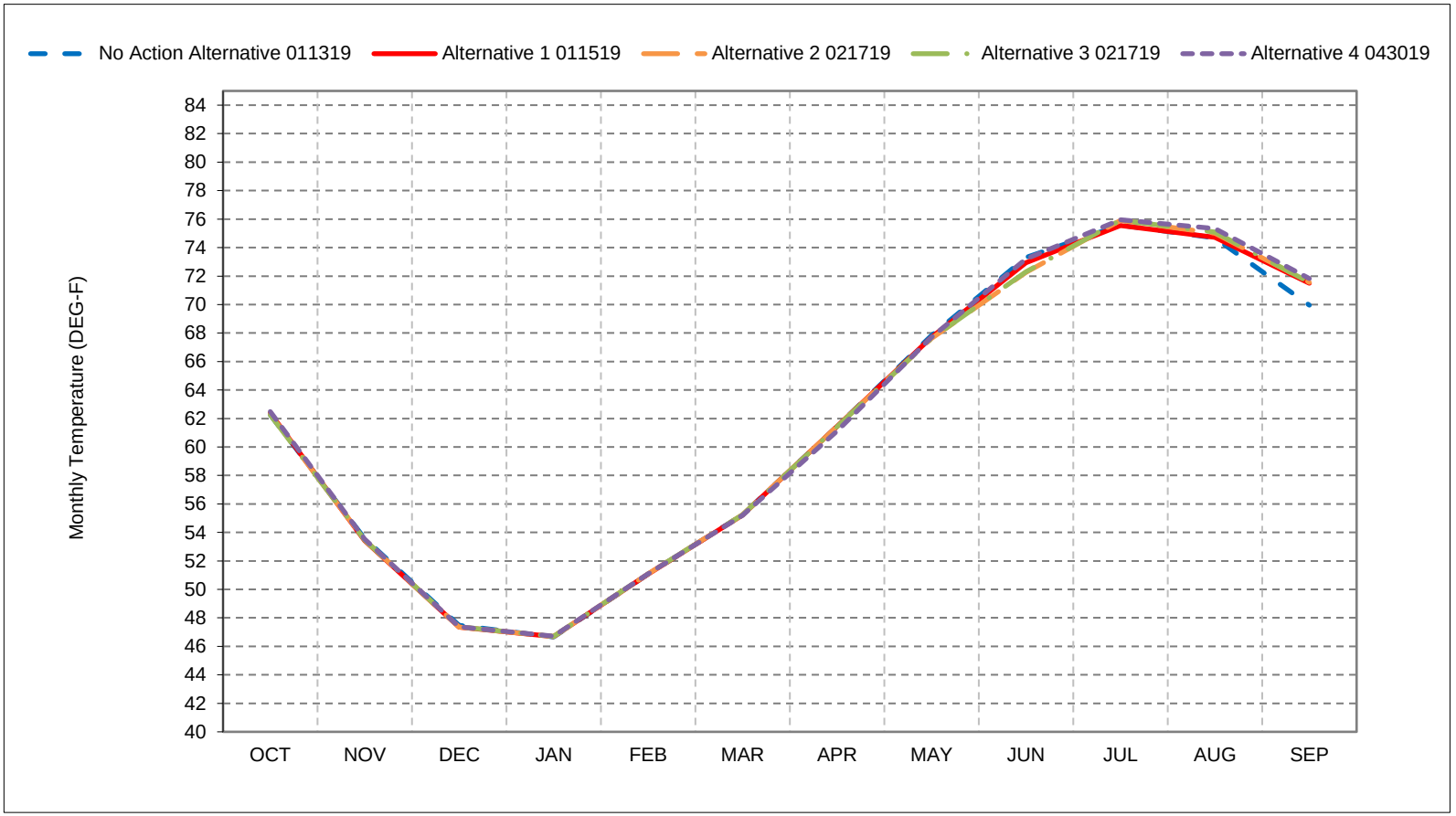
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

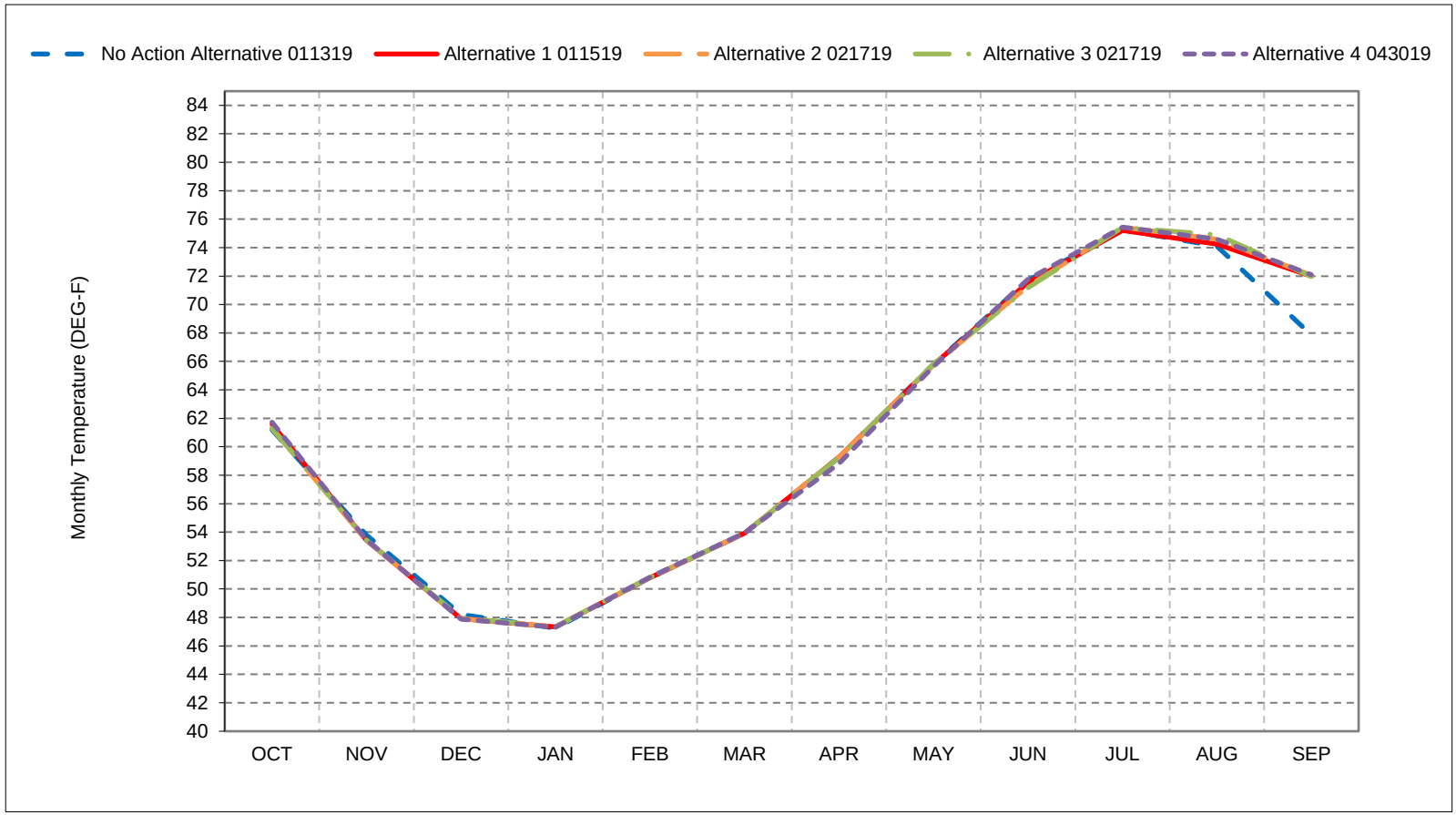
e These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-1. Feather River at Mouth, Long-Term Average Temperature



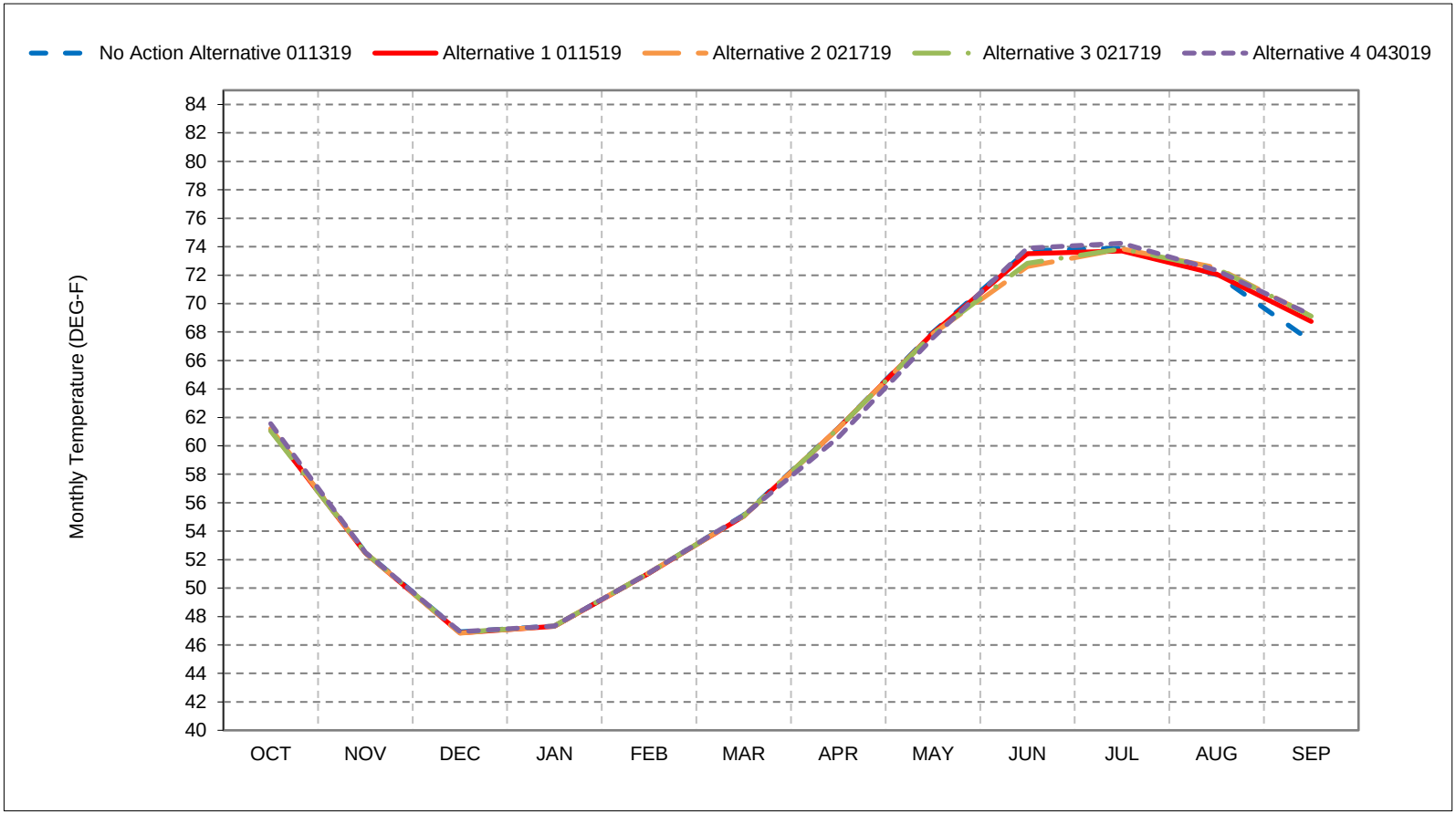
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-2. Feather River at Mouth, Wet Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-3. Feather River at Mouth, Above Normal Year Average Temperature



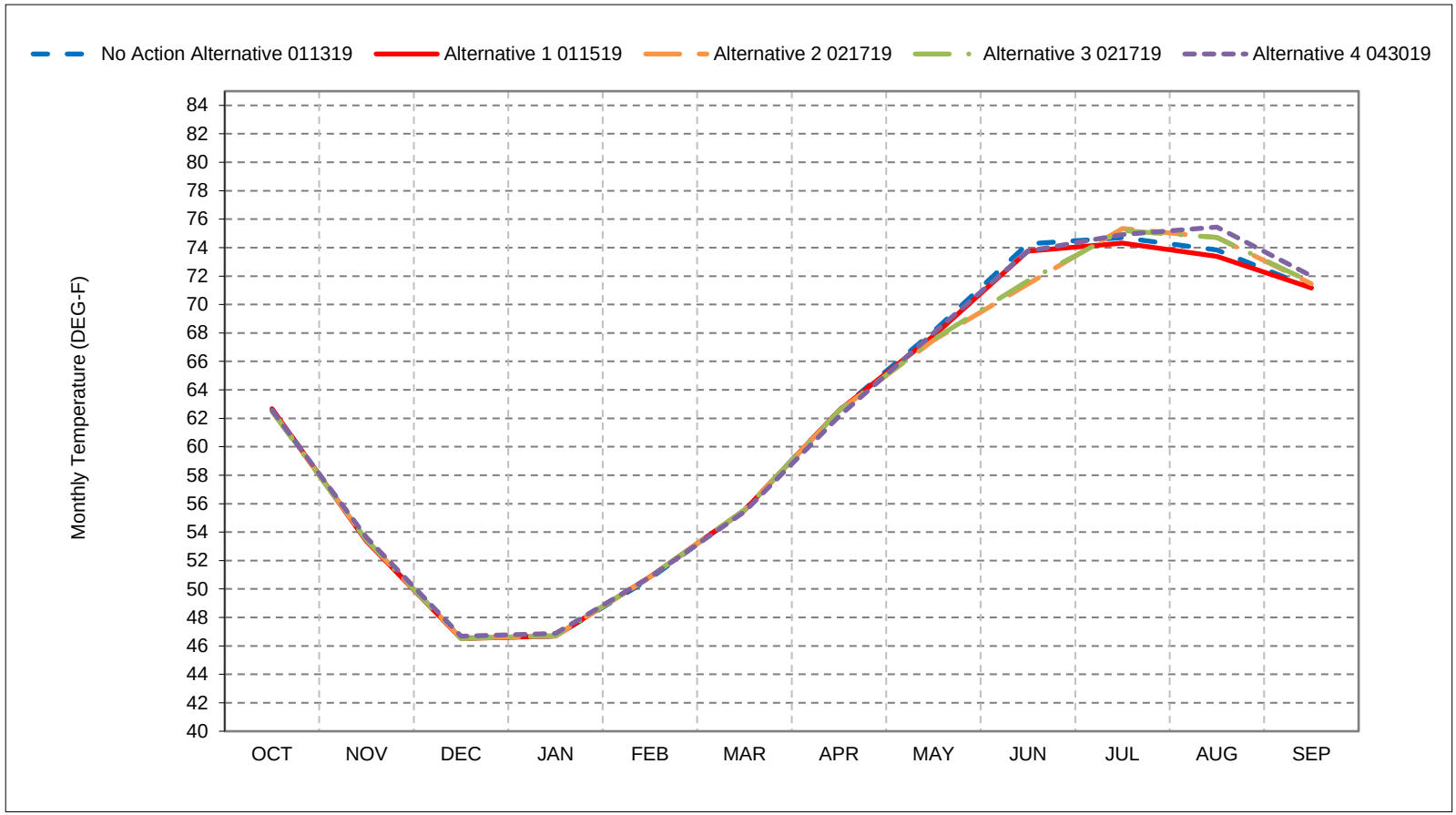
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-4. Feather River at Mouth, Below Normal Year Average Temperature



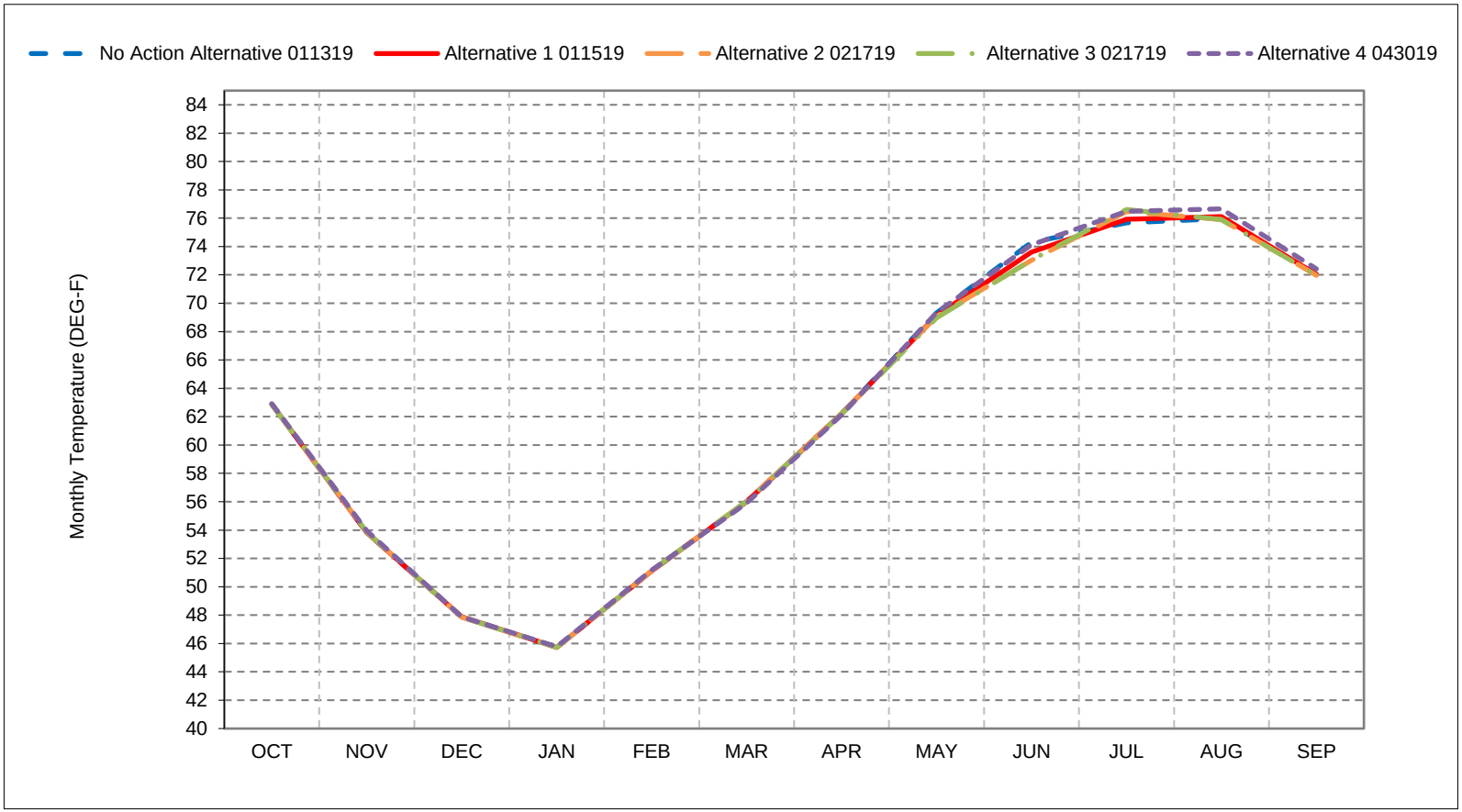
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

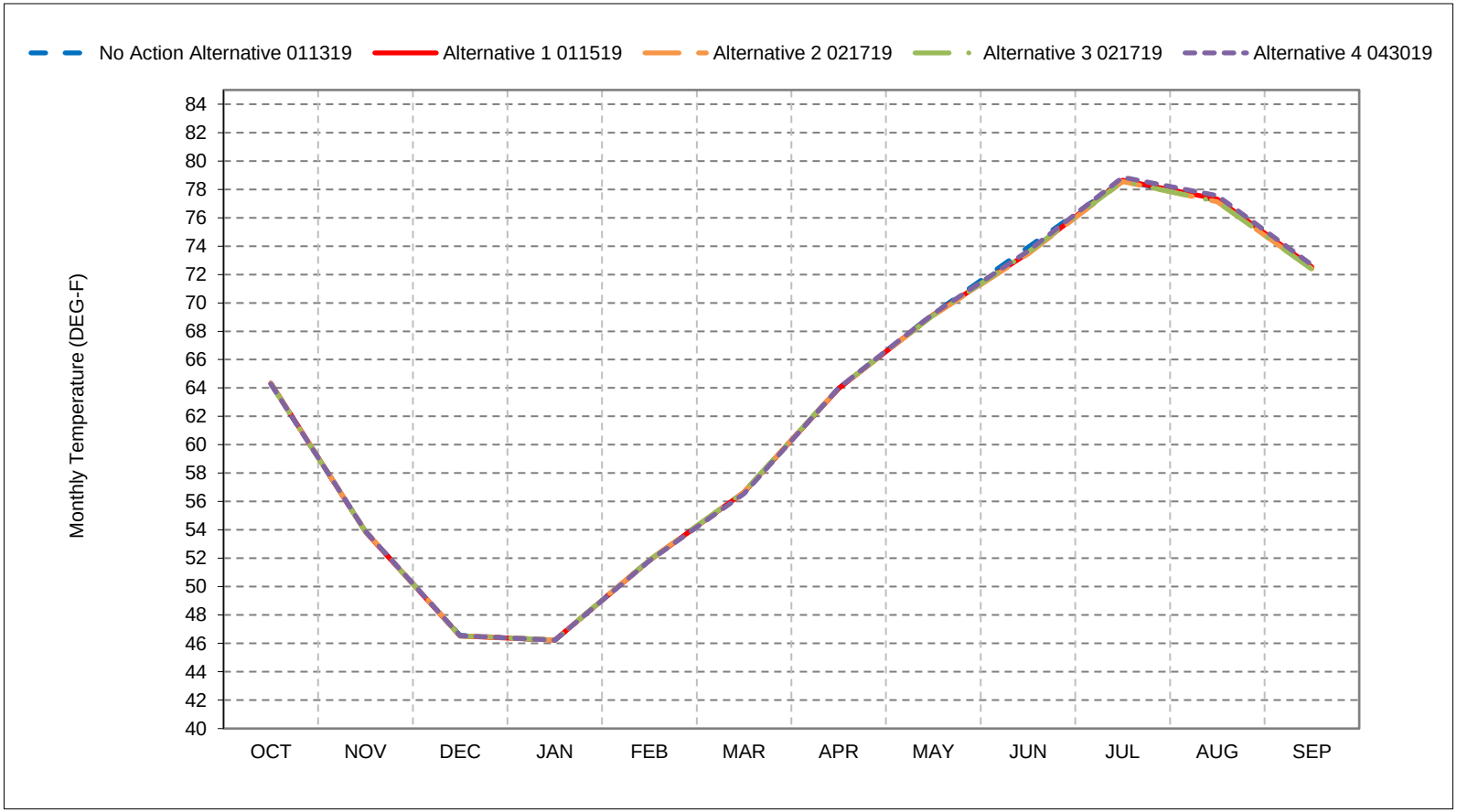
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-5. Feather River at Mouth, Dry Year Average Temperature



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-6. Feather River at Mouth, Critical Year Average Temperature



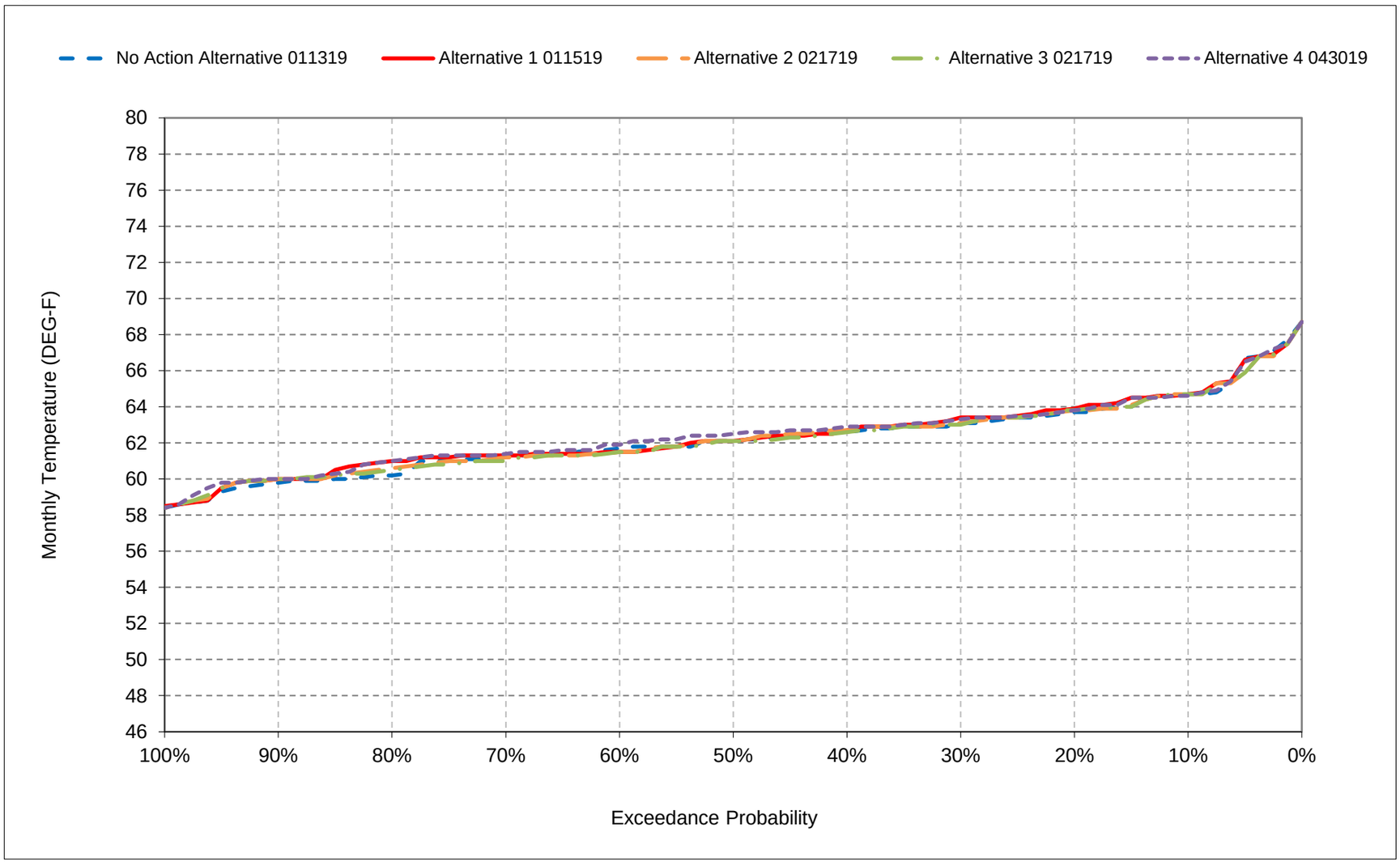
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

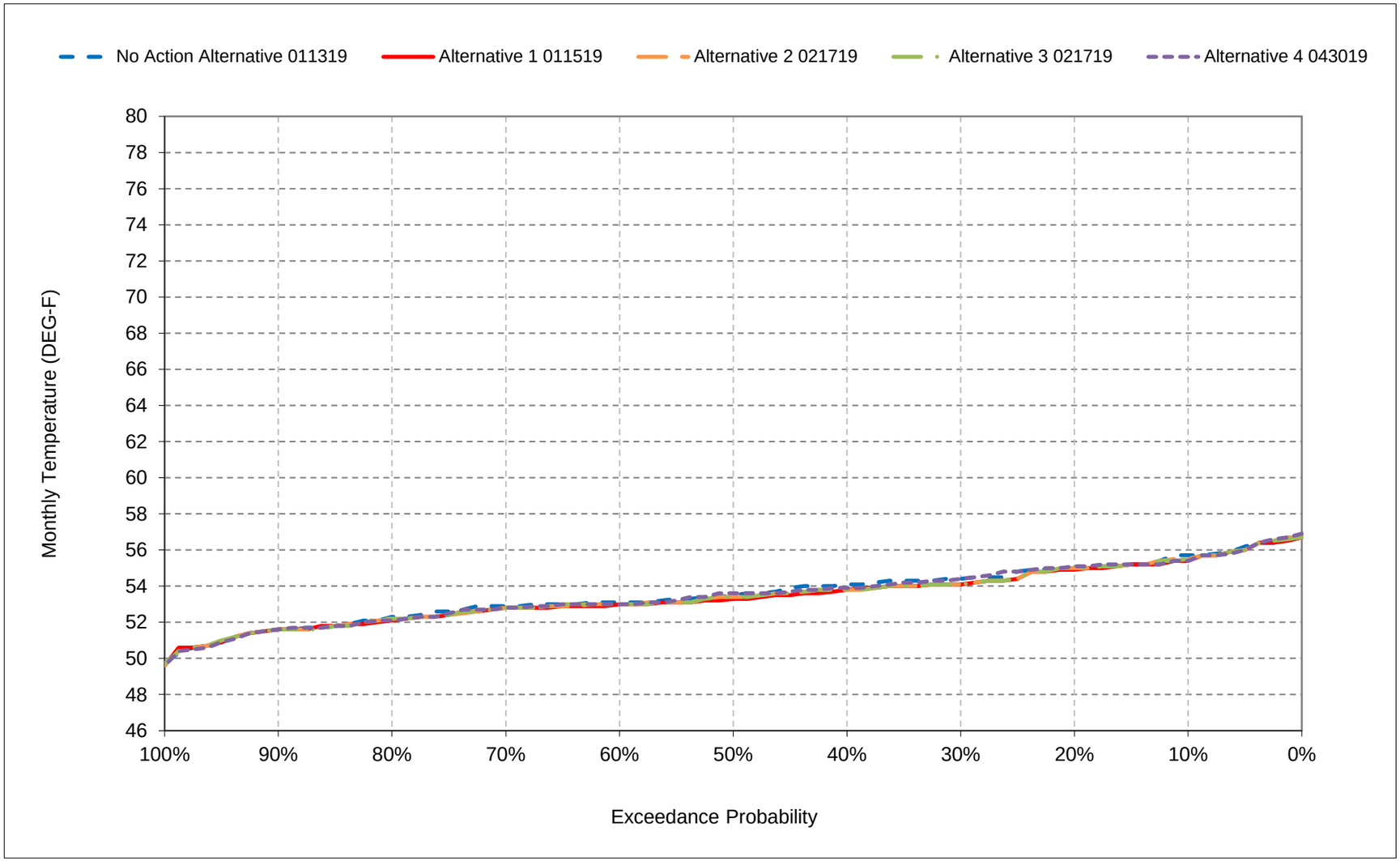
Figure 4-7. Feather River at Mouth, October



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

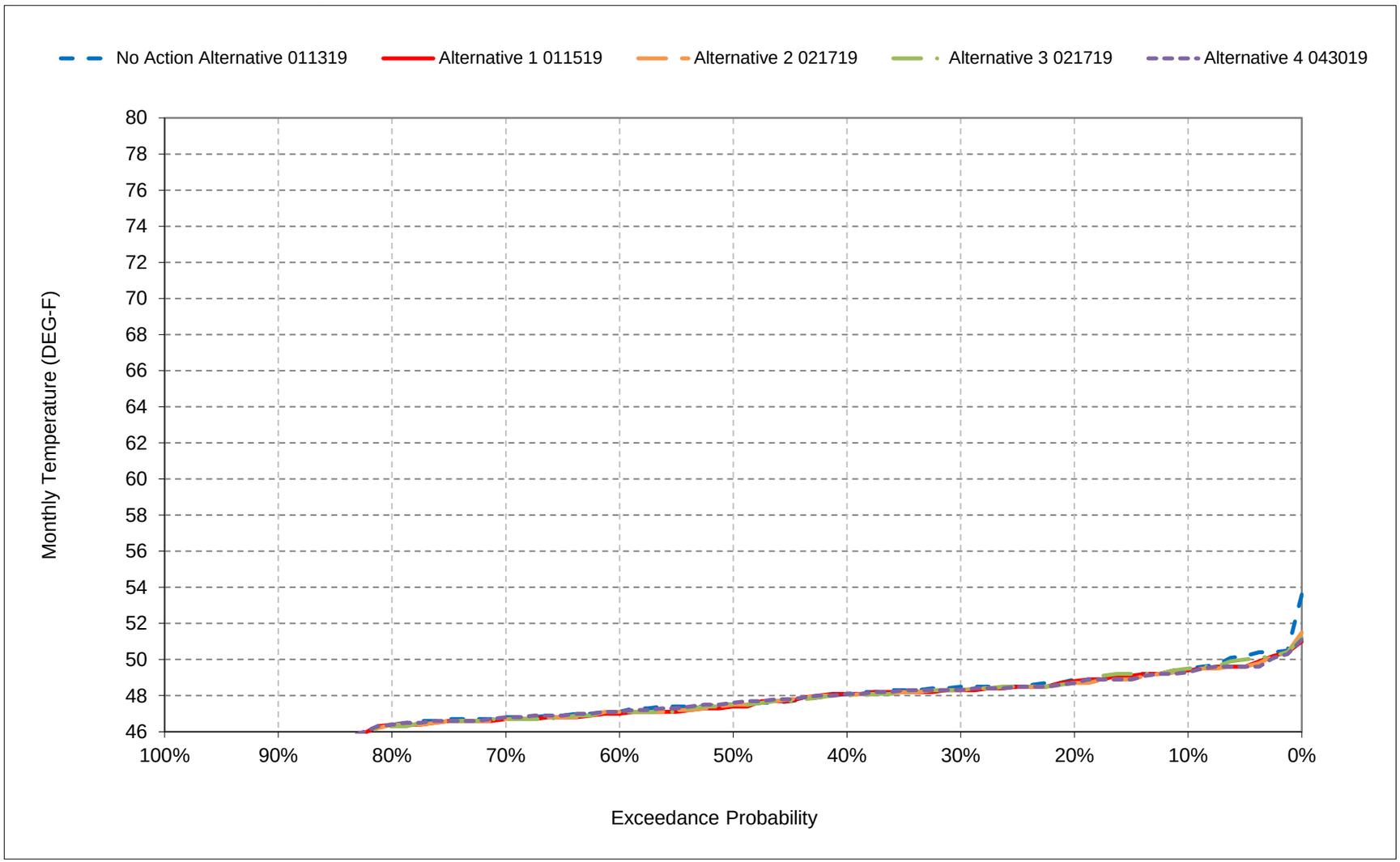
Figure 4-8. Feather River at Mouth, November



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

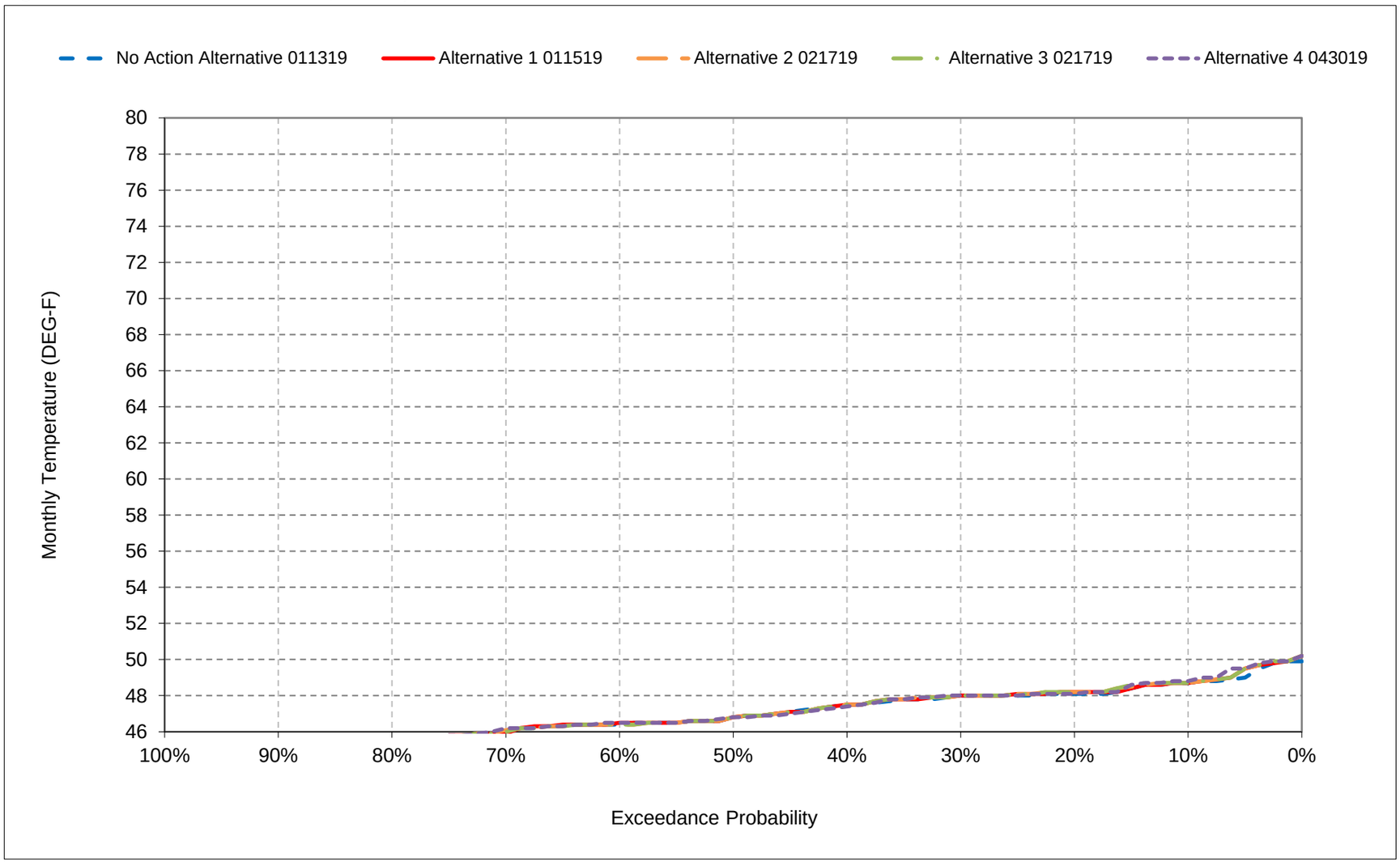
Figure 4-9. Feather River at Mouth, December



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

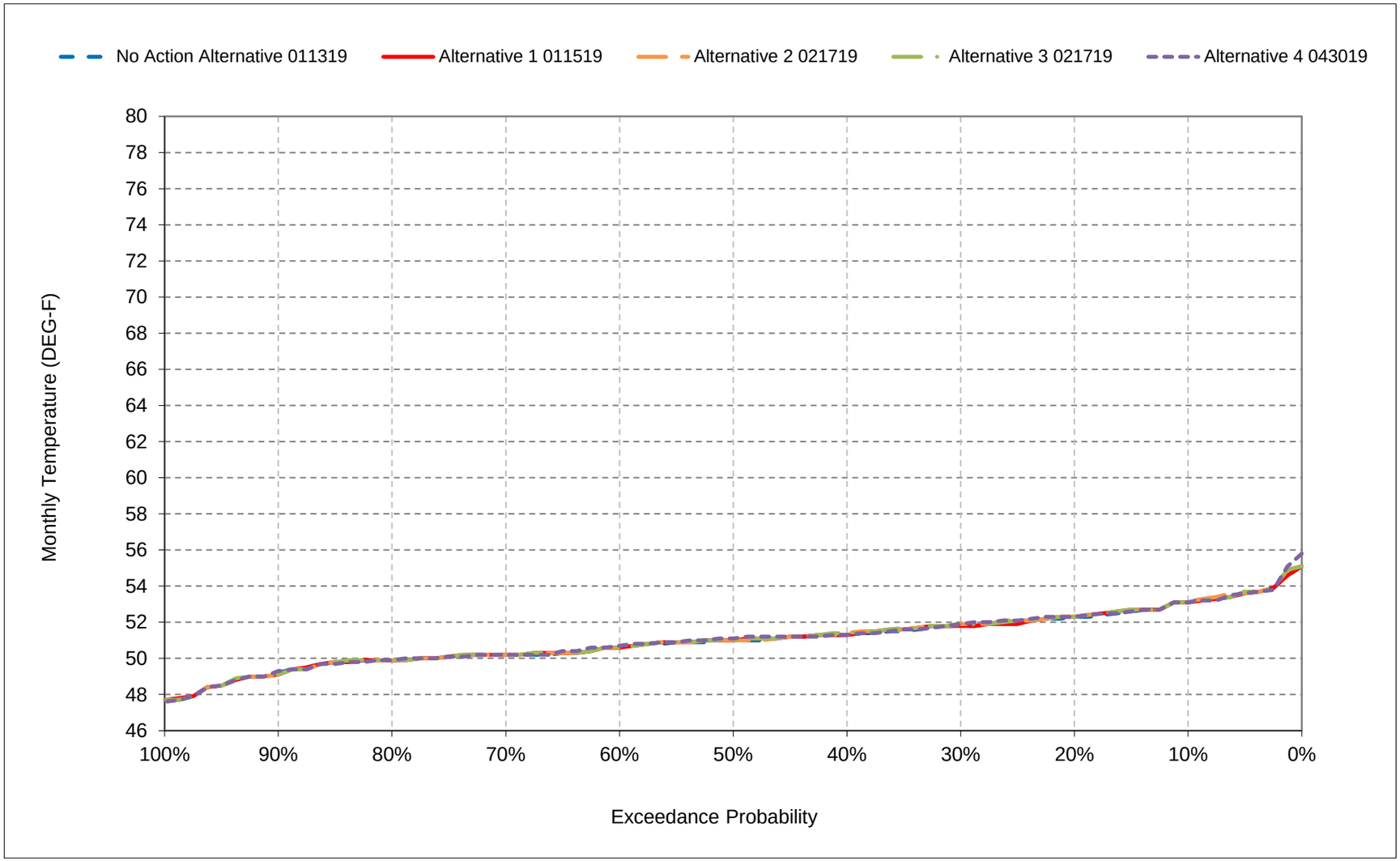
Figure 4-10. Feather River at Mouth, January



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

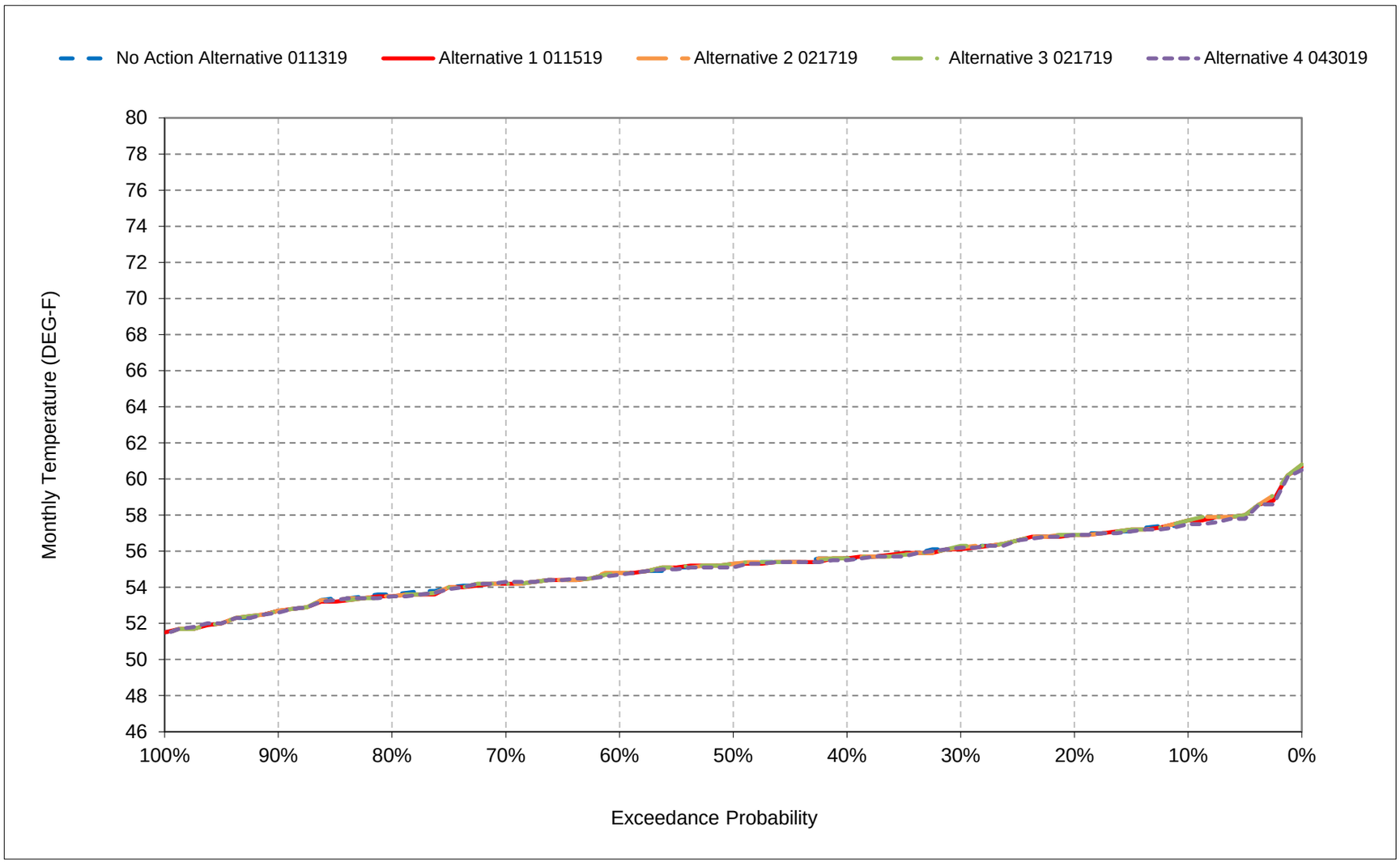
Figure 4-11. Feather River at Mouth, February



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

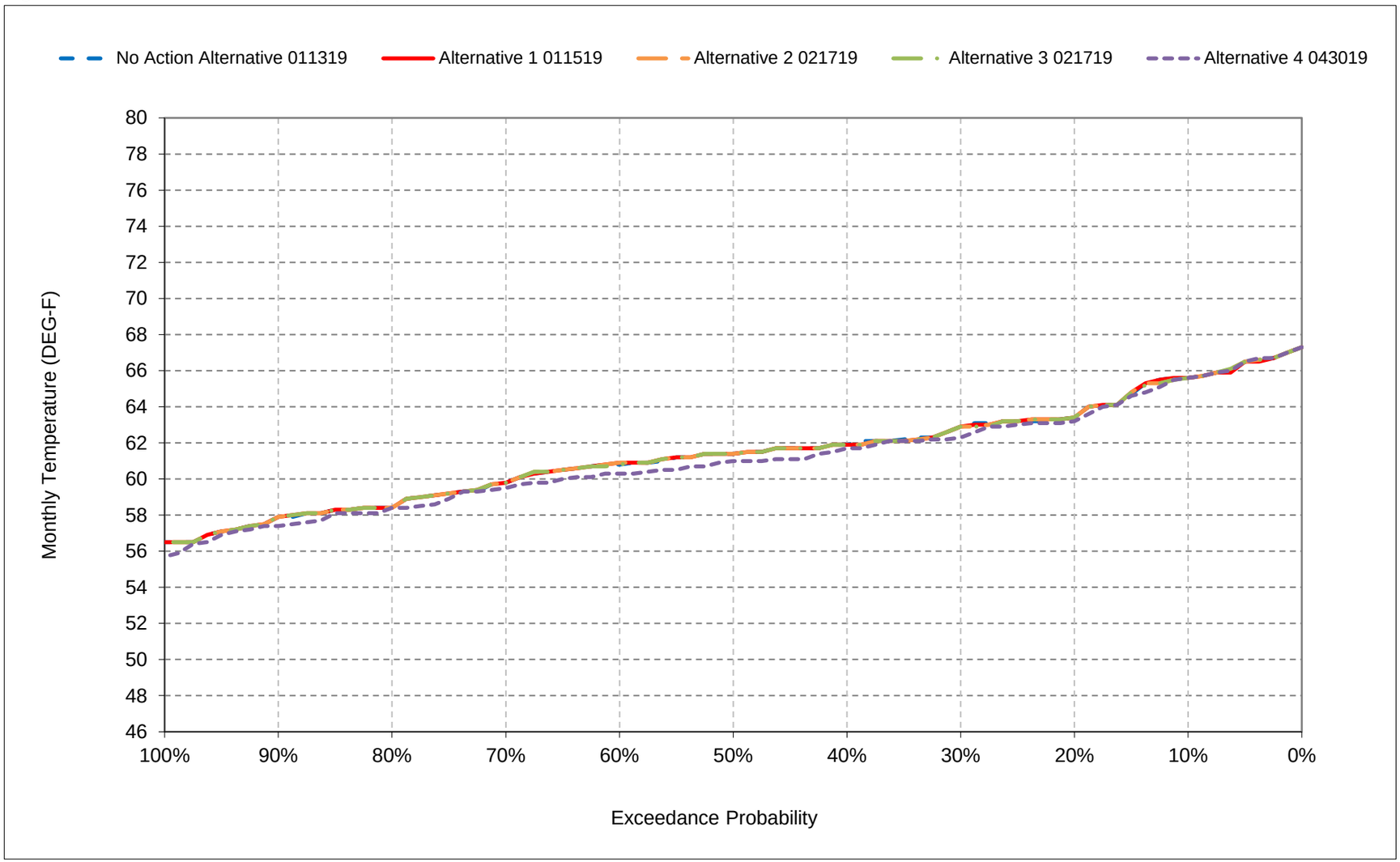
Figure 4-12. Feather River at Mouth, March



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

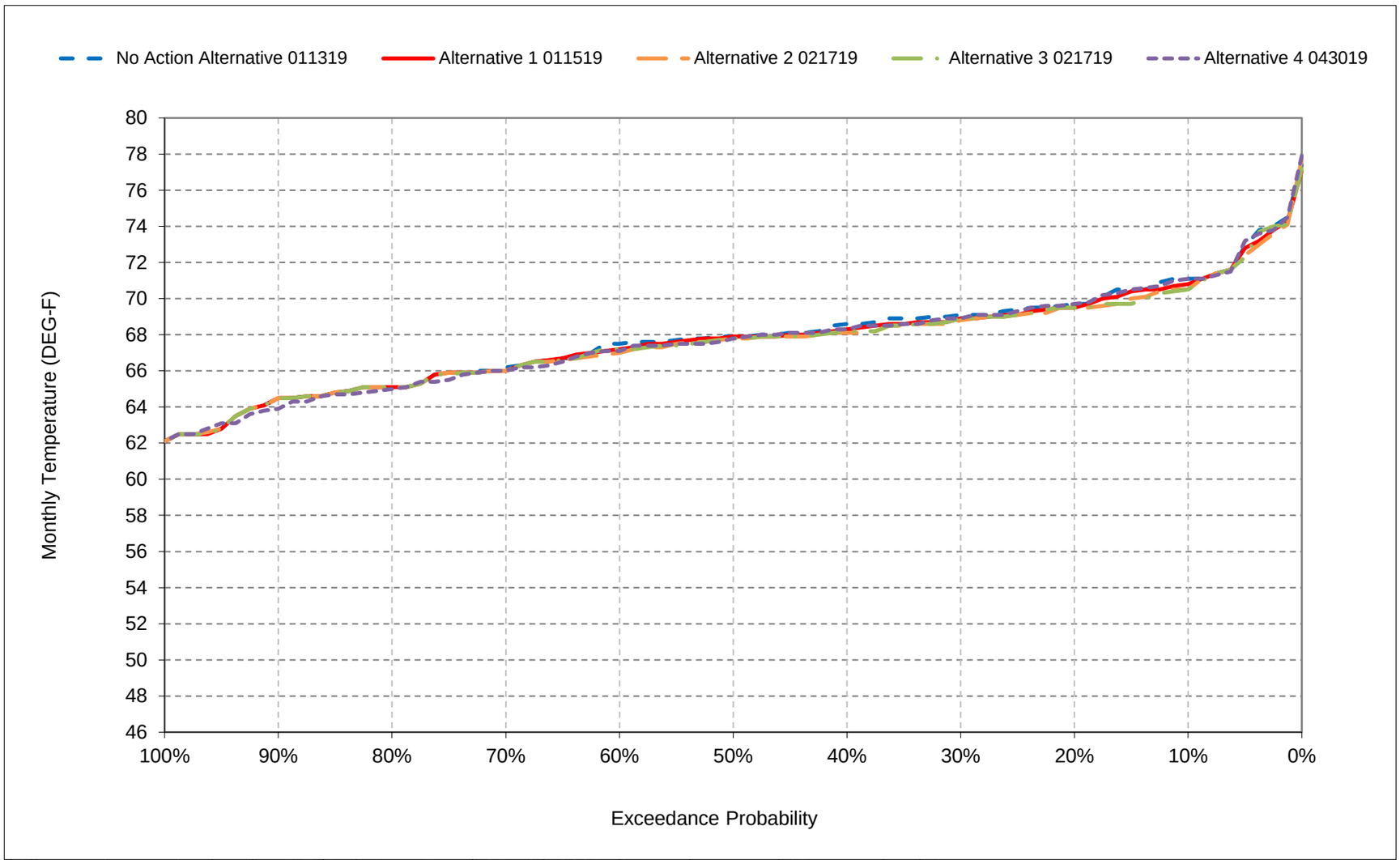
Figure 4-13. Feather River at Mouth, April



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

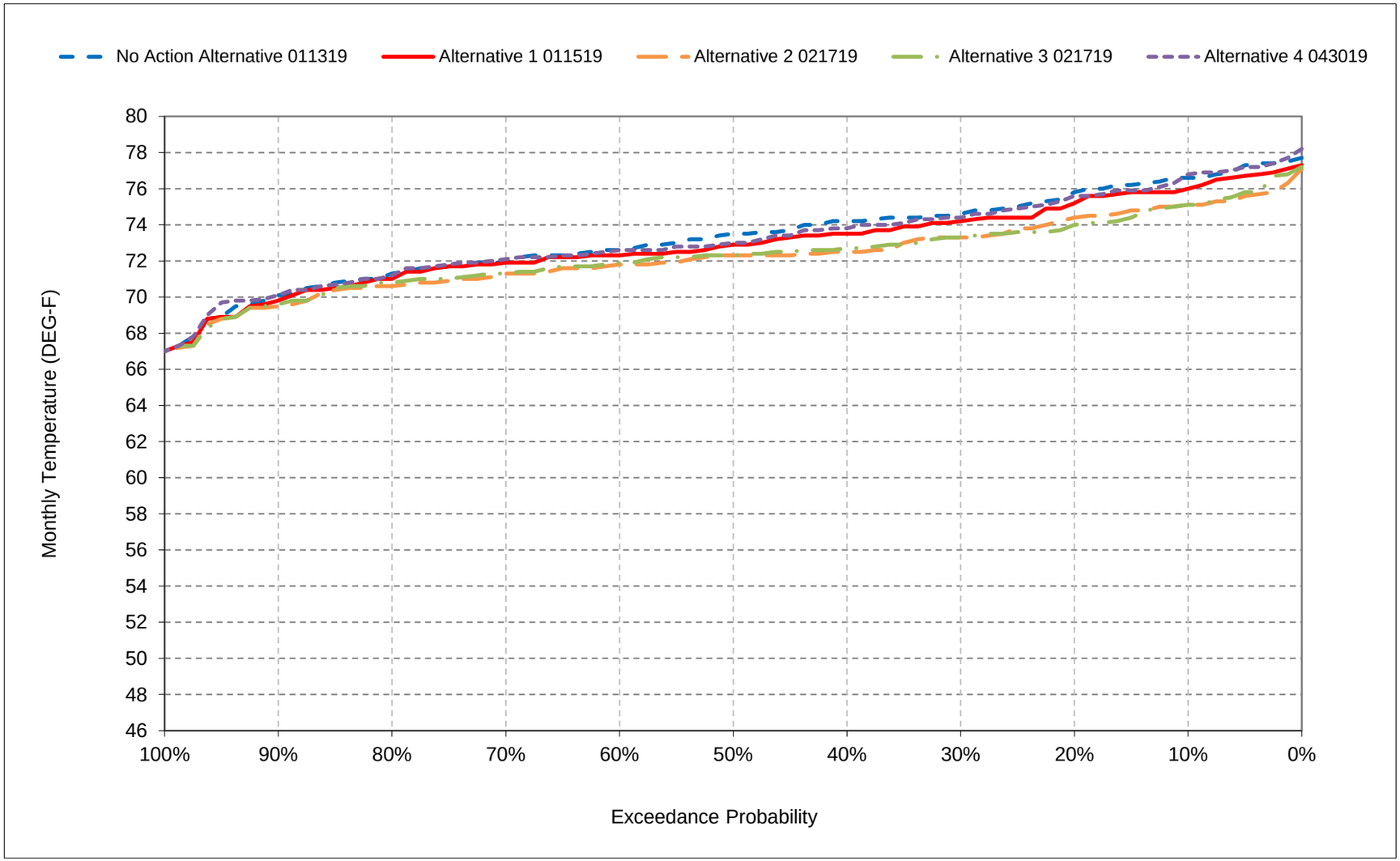
Figure 4-14. Feather River at Mouth, May



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

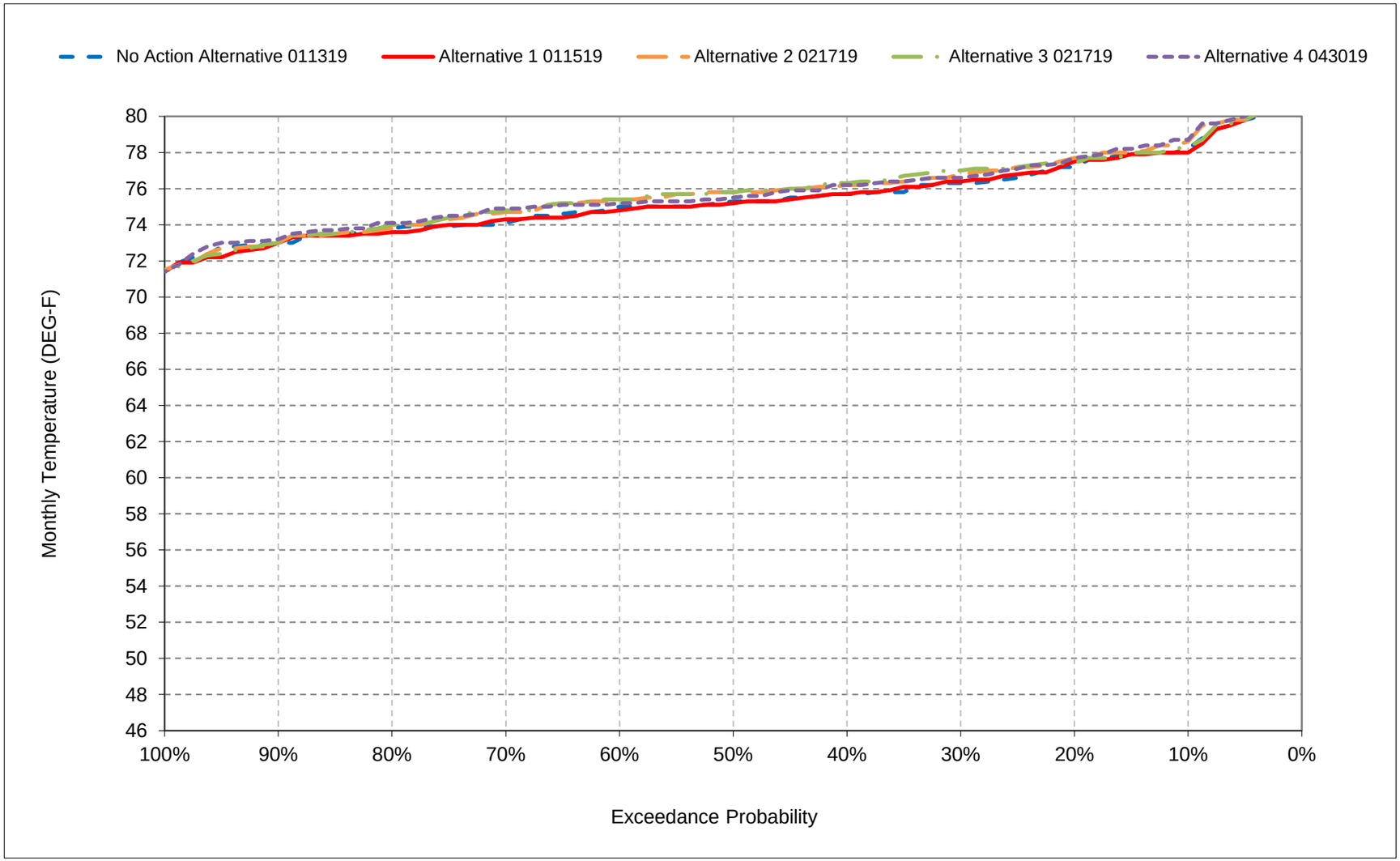
Figure 4-15. Feather River at Mouth, June



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

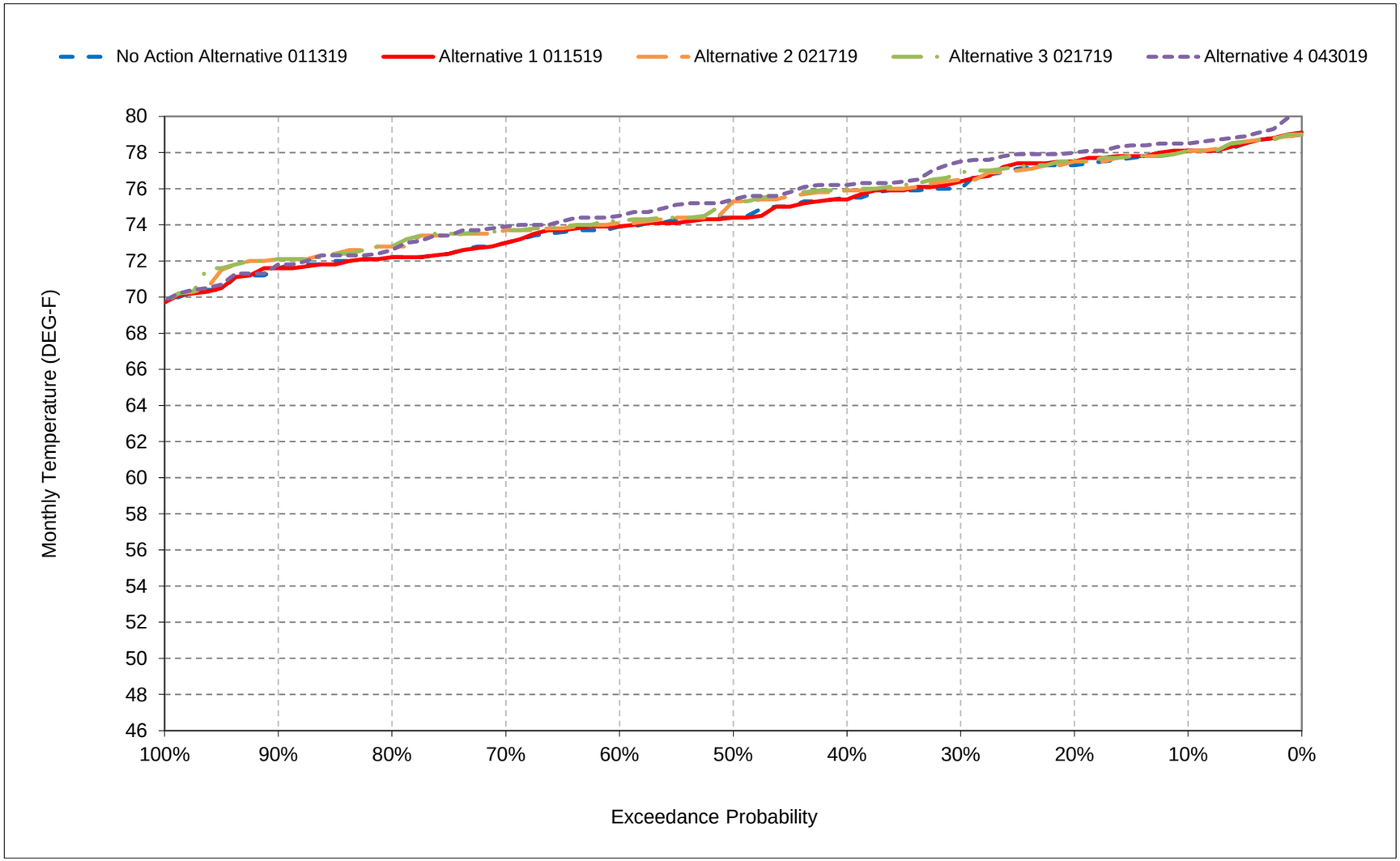
Figure 4-16. Feather River at Mouth, July



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

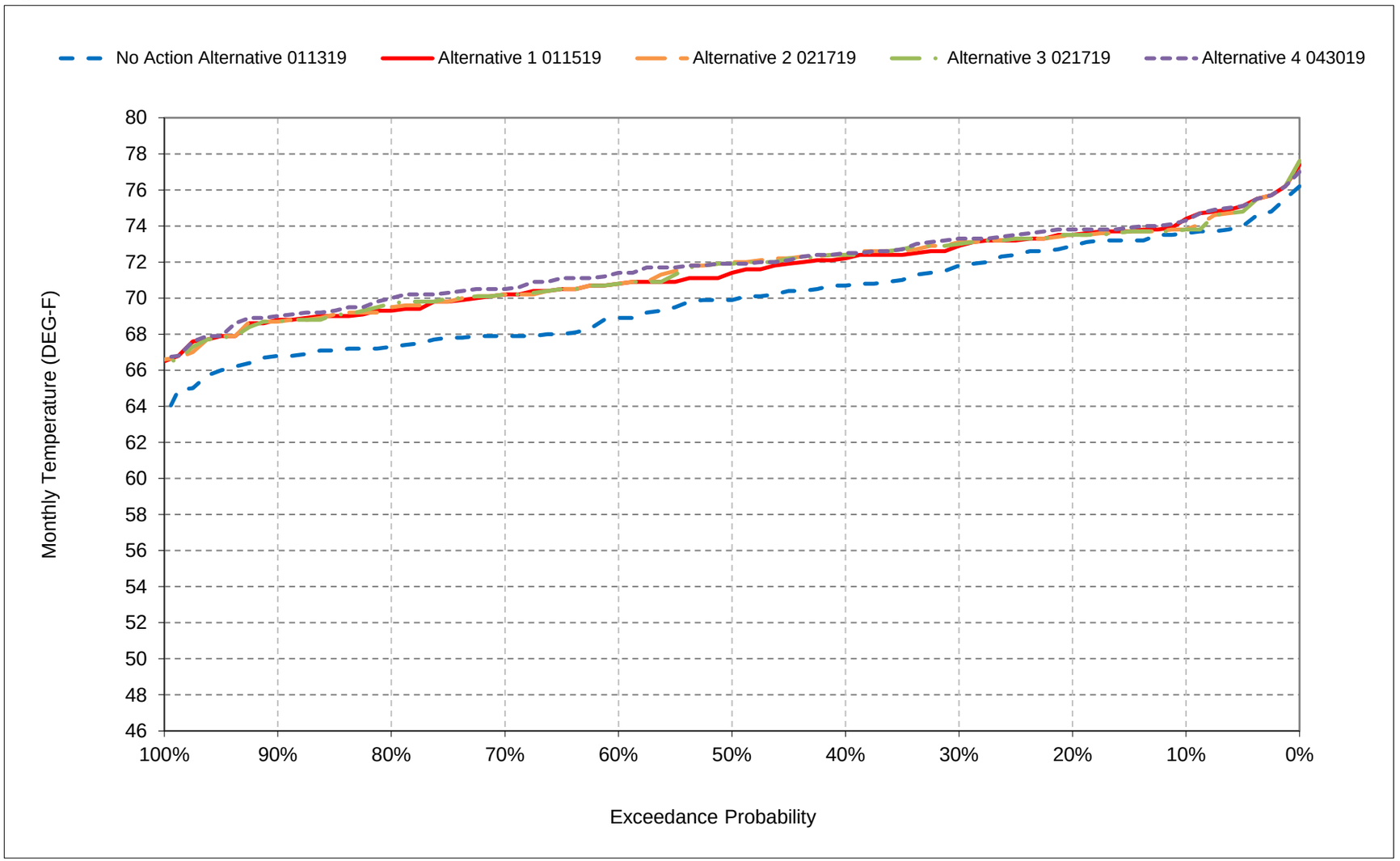
Figure 4-17. Feather River at Mouth, August



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-18. Feather River at Mouth, September



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Attachment 3-6 Salinity Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta salinity conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Sacramento River downstream of Steamboat Slough Salinity	SAC_DS_STMBTSL	1-1 to 1-4	None
Cache Slough at Ryer Island Salinity	CACHE_RYER	2-1 to 2-4	None
Sacramento River downstream of Georgiana Slough Salinity	RSAC123	3-1 to 3-4	None
Sacramento River at Emmaton Salinity	RSAC092	4-1 to 4-4	4-1 to 4-18
Sacramento River at Rio Vista Salinity	RSAC101	5-1 to 5-4	5-1 to 5-18
San Joaquin River at Vernalis Salinity (40-30-30)	RSAN112	6-1 to 6-4	6-1 to 6-18
San Joaquin River at Vernalis Salinity (60-20-20)	RSAN112	6b-1 to 6b-4	6b-1 to 6b-18
San Joaquin River at Jersey Point Salinity	RSAN018	7-1 to 7-4	7-1 to 7-18
Old River at Rock Slough Salinity	ROLD024	8-1 to 8-4	8-1 to 8-18
San Joaquin River at Antioch Salinity	RSAN007	9-1 to 9-4	9-1 to 9-18
Sacramento River at Mallard Slough Salinity	RSAC075	10-1 to 10-4	10-1 to 10-18
Sacramento River at Collinsville Salinity	RSAC081	11-1 to 11-4	11-1 to 11-18
Chipps Island North Channel Salinity	CHIPS_N_437	12-1 to 12-4	12-1 to 12-18
Chipps Island South Channel Salinity	CHIPS_S_442	13-1 to 13-4	13-1 to 13-18
Sacramento River at Port Chicago Salinity	RSAC064	14-1 to 14-4	14-1 to 14-18

Title	Model Parameter	Table Numbers	Figure Numbers
Jones Pumping Plant South Delta Exports Salinity	CHDMC006	15-1 to 15-4	15-1 to 15-18
Banks Pumping Plant South Delta Exports Salinity	CLIFTON_COURT	16-1 to 16-4	16-1 to 16-18
Old River at Highway 4	ROLD034	17-1 to 17-4	17-1 to 17-18
Victoria Canal	CHVCT000	18-1 to 18-4	18-1 to 18-18

1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Appendix F – Modeling

Attachment 3-6 – Salinity Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta salinity conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Sacramento River downstream of Steamboat Slough Salinity	SAC_DS_STMBTSL	1-1 to 1-4	None
Cache Slough at Ryer Island Salinity	CACHE_RYER	2-1 to 2-4	None
Sacramento River downstream of Georgiana Slough Salinity	RSAC123	3-1 to 3-4	None
Sacramento River at Emmaton Salinity	RSAC092	4-1 to 4-4	4-1 to 4-18
Sacramento River at Rio Vista Salinity	RSAC101	5-1 to 5-4	5-1 to 5-18
San Joaquin River at Vernalis Salinity (40-30-30)	RSAN112	6-1 to 6-4	6-1 to 6-18
San Joaquin River at Vernalis Salinity (60-20-20)	RSAN112	6b-1 to 6b-4	6b-1 to 6b-18
San Joaquin River at Jersey Point Salinity	RSAN018	7-1 to 7-4	7-1 to 7-18
Old River at Rock Slough Salinity	ROLD024	8-1 to 8-4	8-1 to 8-18
San Joaquin River at Antioch Salinity	RSAN007	9-1 to 9-4	9-1 to 9-18
Sacramento River at Mallard Slough Salinity	RSAC075	10-1 to 10-4	10-1 to 10-18
Sacramento River at Collinsville Salinity	RSAC081	11-1 to 11-4	11-1 to 11-18
Chipps Island North Channel Salinity	CHIPS_N_437	12-1 to 12-4	12-1 to 12-18
Chipps Island South Channel Salinity	CHIPS_S_442	13-1 to 13-4	13-1 to 13-18
Sacramento River at Port Chicago Salinity	RSAC064	14-1 to 14-4	14-1 to 14-18
Jones Pumping Plant South Delta Exports Salinity	CHDMC006	15-1 to 15-4	15-1 to 15-18
Banks Pumping Plant South Delta Exports Salinity	CLIFTON_COURT	16-1 to 16-4	16-1 to 16-18
Old River at Highway 4	ROLD034	17-1 to 17-4	17-1 to 17-18
Victoria Canal	CHVCT000	18-1 to 18-4	18-1 to 18-18

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Table 1-1. Sacramento River downstream of Steamboat Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	178	177	176	176	176	176	175	176	176
50%	176	176	176	178	177	176	176	176	176	175	176	176
60%	176	176	176	178	176	176	176	176	176	175	176	175
70%	175	175	176	177	176	176	175	176	176	175	176	175
80%	175	175	176	177	176	176	175	175	176	175	176	175
90%	175	175	175	177	176	175	175	175	175	175	175	175
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	176	176	175	175	176	175	176	175
Above Normal (16%)	175	176	177	178	177	176	176	176	176	175	175	175
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	176	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	176	178	177	176	176	176	176	175	176	176
50%	176	176	176	178	177	176	176	176	176	175	176	176
60%	176	176	176	178	176	176	176	176	176	175	176	176
70%	176	176	176	177	176	176	175	176	176	175	176	176
80%	175	175	176	177	176	176	175	175	176	175	175	176
90%	175	175	175	177	176	175	175	175	175	175	175	175
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	176	176	175	175	176	175	176	176
Above Normal (16%)	175	176	177	178	177	176	176	176	176	175	175	176
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**0**	**0**	0	**0**	0	0	0	0	0	**0**	0	**0**
20%	0	**0**	0	0	0	0	**0**	0	0	**0**	0	0
30%	0	**0**	0	**0**	0	0	**0**	0	0	**0**	0	**0**
40%	0	**0**	0	0	0	0	**0**	0	0	**0**	**0**	0
50%	**0**	**0**	0	0	0	0	**0**	0	0	**0**	0	**0**
60%	**0**	**0**	0	0	0	0	0	0	0	**0**	0	**0**
70%	**0**	**0**	0	0	0	0	**0**	0	0	**0**	0	**0**
80%	**0**	**0**	**0**	0	**0**	0	0	**0**	0	**0**	0	**0**
90%	**0**	**0**	0	0	0	0	**0**	0	**0**	**0**	0	**0**
Long Term												
Full Simulation Period[a]	**0**	**0**	0	0	0	0	0	0	0	**0**	0	**0**
Water Year Types[b]												
Wet (32%)	**0**	**0**	0	0	0	0	**0**	0	0	**0**	0	**0**
Above Normal (16%)	0	**0**	0	0	0	0	**0**	0	0	0	**0**	**0**
Below Normal (13%)	0	**0**	**0**	0	0	0	0	0	0	0	0	0
Dry (24%)	0	**0**	0	**0**	0	0	0	0	0	**0**	0	0
Critical (15%)	**0**	0	**0**	**0**	0	0	0	0	0	**0**	**0**	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 1-2. Sacramento River downstream of Steamboat Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	178	177	176	176	176	176	175	176	176
50%	176	176	176	178	177	176	176	176	176	175	176	176
60%	176	176	176	178	176	176	176	176	176	175	176	175
70%	175	175	176	177	176	176	175	176	176	175	176	175
80%	175	175	176	177	176	176	175	175	176	175	176	175
90%	175	175	175	177	176	175	175	175	175	175	175	175
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	176	176	175	175	176	175	176	175
Above Normal (16%)	175	176	177	178	177	176	176	176	176	175	175	175
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	176	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	176	178	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	175	176	176
60%	176	176	176	178	176	176	176	176	176	175	176	176
70%	175	176	176	177	176	176	175	175	176	175	176	176
80%	175	175	176	177	176	176	175	175	175	175	176	176
90%	175	175	175	177	176	175	175	175	175	175	175	175
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	176	176	175	175	176	175	176	176
Above Normal (16%)	175	176	177	178	177	176	176	176	176	175	176	176
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	**0**	0	**0**	0	**0**	0	0	0	0	0	0
20%	0	**0**	0	**0**	0	0	0	0	0	**0**	**0**	0
30%	0	**0**	**0**	**0**	0	**0**	0	0	0	**0**	0	0
40%	0	**0**	0	0	0	0	**0**	0	0	**0**	**0**	0
50%	**0**	**0**	0	0	0	0	**0**	0	0	**0**	**0**	**0**
60%	0	**0**	0	**0**	**0**	**0**	**0**	0	0	**0**	**0**	**0**
70%	**0**	**0**	**0**	0	0	**0**	**0**	0	0	**0**	**0**	**0**
80%	**0**	**0**	0	0	**0**	**0**	**0**	**0**	0	**0**	**0**	**0**
90%	**0**	**0**	**0**	0	**0**	0	**0**	0	0	**0**	0	**0**
Long Term												
Full Simulation Period[a]	0	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
Water Year Types[b]												
Wet (32%)	**0**	**0**	0	0	0	0	**0**	0	0	**0**	**0**	**0**
Above Normal (16%)	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**
Below Normal (13%)	0	**0**	**0**	0	0	0	0	0	0	**0**	**0**	0
Dry (24%)	0	0	**0**	**0**	**0**	**0**	0	0	0	**0**	**0**	0
Critical (15%)	0	**0**	0	**0**	**0**	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 1-3. Sacramento River downstream of Steamboat Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	178	177	176	176	176	176	175	176	176
50%	176	176	176	178	177	176	176	176	176	175	176	176
60%	176	176	176	178	176	176	176	176	176	175	176	175
70%	175	175	176	177	176	176	175	176	176	175	176	175
80%	175	175	176	177	176	176	175	175	176	175	176	175
90%	175	175	175	177	176	175	175	175	175	175	175	175
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	176	176	175	175	176	175	176	175
Above Normal (16%)	175	176	177	178	177	176	176	176	176	175	175	175
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	176	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	176	178	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	175	176	176
60%	176	176	176	178	177	176	176	176	176	175	176	176
70%	175	175	176	177	176	176	175	175	176	175	176	176
80%	175	175	176	177	176	176	175	175	175	175	176	176
90%	175	175	175	177	176	175	175	175	175	175	175	175
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	176	176	175	175	176	175	176	176
Above Normal (16%)	175	176	177	178	177	176	176	176	176	175	176	176
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	**0**	0	**0**	0	**0**	0	0	0	0	0	0
20%	0	**0**	0	**0**	0	0	0	0	0	**0**	0	0
30%	0	**0**	**0**	**0**	0	0	0	0	0	**0**	0	0
40%	0	**0**	0	0	0	**0**	**0**	0	0	**0**	**0**	0
50%	0	**0**	0	**0**	0	**0**	0	0	0	**0**	**0**	**0**
60%	0	**0**	0	**0**	**0**	**0**	**0**	0	0	**0**	**0**	**0**
70%	0	**0**	0	0	0	**0**	**0**	0	0	**0**	**0**	**0**
80%	0	**0**	0	0	**0**	**0**	**0**	**0**	0	**0**	**0**	**0**
90%	**0**	**0**	0	0	**0**	0	**0**	0	0	**0**	0	**0**
Long Term												
Full Simulation Period[a]	0	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
Water Year Types[b]												
Wet (32%)	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
Above Normal (16%)	0	**0**	0	0	0	0	**0**	0	0	0	**0**	**0**
Below Normal (13%)	0	**0**	**0**	0	0	0	0	0	0	**0**	**0**	0
Dry (24%)	0	**0**	**0**	**0**	**0**	**0**	0	0	0	**0**	0	0
Critical (15%)	0	0	**0**	0	**0**	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 1-4. Sacramento River downstream of Steamboat Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	178	177	176	176	176	176	175	176	176
50%	176	176	176	178	177	176	176	176	176	175	176	176
60%	176	176	176	178	176	176	176	176	176	175	176	175
70%	175	175	176	177	176	176	175	176	176	175	176	175
80%	175	175	176	177	176	176	175	175	176	175	176	175
90%	175	175	175	177	176	175	175	175	175	175	175	175
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	176	176	175	175	176	175	176	175
Above Normal (16%)	175	176	177	178	177	176	176	176	176	175	175	175
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	178	177	176	176	176	176	176	176
20%	176	176	177	179	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	176	178	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	175	176	176
60%	176	176	176	178	176	176	176	176	176	175	176	176
70%	176	176	176	177	176	176	175	175	176	175	176	176
80%	175	175	176	177	176	176	175	175	176	175	176	176
90%	175	175	175	177	176	175	175	175	175	175	175	176
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	176	176	175	175	176	175	176	176
Above Normal (16%)	176	176	177	178	177	176	175	175	176	175	176	176
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	177	177	176	176	176	176	176	176

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**0**	**0**	0	0	0	0	**0**	**0**	0	**0**	**0**	**0**
20%	0	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
30%	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
40%	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
50%	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
60%	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
70%	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
80%	**0**	**0**	**0**	0	0	0	0	0	0	**0**	**0**	**0**
90%	**0**	**0**	**0**	0	0	0	0	**0**	**0**	**0**	**0**	**0**
Long Term												
Full Simulation Period[a]	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
Water Year Types[b]												
Wet (32%)	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
Above Normal (16%)	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
Below Normal (13%)	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
Dry (24%)	0	**0**	0	0	0	0	**0**	**0**	0	**0**	**0**	**0**
Critical (15%)	**0**	**0**	**0**	0	0	0	0	0	0	**0**	**0**	**0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 2-1. Cache Slough at Ryer Island Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	197	200	191	201	199	194	187	184	185	185	190	190
20%	187	187	188	196	195	191	186	183	184	182	186	185
30%	186	185	187	193	191	189	185	183	183	181	184	183
40%	185	184	186	191	189	186	184	182	183	181	181	182
50%	181	181	183	190	187	185	183	182	182	180	180	180
60%	180	180	182	188	186	184	183	182	182	180	180	179
70%	180	180	181	187	185	183	182	181	182	180	180	178
80%	179	179	180	186	183	182	181	180	181	179	179	178
90%	179	179	179	182	180	181	180	178	179	179	179	178
Long Term												
Full Simulation Period[a]	184	185	185	191	189	186	184	182	183	181	183	182
Water Year Types[b]												
Wet (32%)	179	180	183	189	184	183	182	180	181	180	180	178
Above Normal (16%)	180	180	183	190	188	184	182	181	182	180	179	179
Below Normal (13%)	184	185	185	191	189	188	185	182	182	180	180	181
Dry (24%)	186	184	185	193	193	188	184	182	183	181	185	184
Critical (15%)	198	203	192	193	195	192	186	184	189	189	191	191

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	197	200	192	201	199	193	187	184	184	185	190	188
20%	187	188	189	196	196	191	186	183	182	182	186	185
30%	185	186	187	193	191	189	185	182	182	181	184	183
40%	184	185	186	191	188	186	184	182	182	181	181	182
50%	182	183	184	189	187	185	183	182	182	180	180	180
60%	181	183	183	188	185	184	183	181	181	180	180	180
70%	181	182	182	187	184	182	182	180	181	180	180	180
80%	180	181	180	185	183	181	181	180	181	179	179	180
90%	180	180	179	182	180	180	180	179	179	179	179	180
Long Term												
Full Simulation Period[a]	185	186	185	191	189	186	184	181	182	182	183	183
Water Year Types[b]												
Wet (32%)	181	182	183	189	184	183	182	180	180	180	180	180
Above Normal (16%)	181	182	184	190	187	183	182	181	181	180	179	180
Below Normal (13%)	184	185	185	190	188	188	184	181	181	180	180	181
Dry (24%)	186	184	185	193	193	188	185	182	182	181	185	184
Critical (15%)	199	203	193	193	195	191	186	184	187	189	192	191

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**0**	**0**	**1**	**0**	0	0	0	**0**	-1	**0**	**0**	-2
20%	**0**	**0**	**1**	**0**	**1**	**0**	0	0	-1	**1**	**0**	**0**
30%	0	**1**	0	**0**	0	0	**0**	0	-1	**0**	**0**	0
40%	0	**1**	0	0	-1	0	**0**	0	-1	**0**	0	0
50%	**1**	**2**	**1**	-1	0	0	**0**	0	0	0	0	**1**
60%	**1**	**3**	**1**	0	0	**0**	**0**	0	-1	0	0	**1**
70%	**1**	**2**	**1**	0	0	0	0	0	-1	0	0	**2**
80%	**1**	**1**	**0**	-1	**0**	0	0	**0**	0	0	**0**	**2**
90%	**1**	**1**	0	**0**	0	0	**0**	**0**	**0**	**0**	**0**	**2**
Long Term												
Full Simulation Period[a]	**0**	**1**	**0**	0	0	0	0	0	-1	**0**	**0**	**1**
Water Year Types[b]												
Wet (32%)	**1**	**2**	**0**	-1	0	0	**0**	0	0	**0**	**0**	**2**
Above Normal (16%)	**1**	**2**	**1**	0	-1	0	**0**	0	0	0	0	**1**
Below Normal (13%)	0	**1**	**0**	0	-1	-1	0	0	-1	0	0	0
Dry (24%)	0	**0**	0	**0**	0	0	**0**	0	-1	**0**	0	**0**
Critical (15%)	**0**	**0**	**0**	**0**	**0**	0	0	0	-2	**0**	**1**	**0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 2-2. Cache Slough at Ryer Island Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	197	200	191	201	199	194	187	184	185	185	190	190
20%	187	187	188	196	195	191	186	183	184	182	186	185
30%	186	185	187	193	191	189	185	183	183	181	184	183
40%	185	184	186	191	189	186	184	182	183	181	181	182
50%	181	181	183	190	187	185	183	182	182	180	180	180
60%	180	180	182	188	186	184	183	182	182	180	180	179
70%	180	180	181	187	185	183	182	181	182	180	180	178
80%	179	179	180	186	183	182	181	180	181	179	179	178
90%	179	179	179	182	180	181	180	178	179	179	179	178
Long Term												
Full Simulation Period[a]	184	185	185	191	189	186	184	182	183	181	183	182
Water Year Types[b]												
Wet (32%)	179	180	183	189	184	183	182	180	181	180	180	178
Above Normal (16%)	180	180	183	190	188	184	182	181	182	180	179	179
Below Normal (13%)	184	185	185	191	189	188	185	182	182	180	180	181
Dry (24%)	186	184	185	193	193	188	184	182	183	181	185	184
Critical (15%)	198	203	192	193	195	192	186	184	189	189	191	191

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	193	197	193	203	200	193	187	184	183	185	189	187
20%	186	188	190	197	196	191	186	183	182	183	187	184
30%	185	186	188	194	191	189	185	182	181	181	184	183
40%	184	185	186	193	188	186	184	182	181	181	182	182
50%	182	184	185	190	187	185	183	181	181	180	181	181
60%	182	183	184	189	186	184	183	181	180	180	180	180
70%	181	182	182	187	184	182	182	180	180	180	180	180
80%	181	181	181	186	183	181	181	179	180	179	180	180
90%	180	180	180	182	180	180	180	179	179	179	179	180
Long Term												
Full Simulation Period[a]	185	186	186	192	189	186	184	181	181	181	183	182
Water Year Types[b]												
Wet (32%)	181	182	183	189	184	183	182	180	180	180	180	180
Above Normal (16%)	181	183	185	190	187	184	182	181	181	179	180	180
Below Normal (13%)	184	185	186	191	189	188	184	181	180	180	181	181
Dry (24%)	185	184	185	194	193	188	185	182	181	182	185	184
Critical (15%)	196	202	194	195	195	191	186	184	187	188	190	189

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-4	-3	**2**	**2**	**0**	0	0	**0**	-2	0	-1	-3
20%	-1	**0**	**2**	**1**	**1**	**0**	**0**	-1	-1	**1**	**1**	-1
30%	-1	**1**	**1**	**1**	**0**	0	**0**	-1	-2	**0**	0	0
40%	-1	**1**	0	**2**	-1	0	0	-1	-2	0	**1**	0
50%	**1**	**2**	**1**	**1**	0	0	0	0	-1	0	**0**	**1**
60%	**1**	**3**	**2**	**1**	0	**0**	**0**	-1	-1	0	**0**	**2**
70%	**1**	**2**	**2**	**0**	-1	0	**0**	0	-1	0	**0**	**2**
80%	**1**	**2**	**1**	0	0	0	0	0	-1	0	**0**	**2**
90%	**1**	**2**	**0**	0	0	0	**0**	**0**	**0**	**0**	**0**	**2**
Long Term												
Full Simulation Period[a]	**0**	**1**	**1**	**1**	0	0	0	0	-1	0	**0**	**1**
Water Year Types[b]												
Wet (32%)	**1**	**2**	**1**	0	0	0	**0**	0	-1	**0**	**0**	**2**
Above Normal (16%)	**1**	**4**	**2**	0	-1	0	**0**	0	-1	0	**0**	**1**
Below Normal (13%)	0	**1**	**1**	**1**	0	0	0	-1	-2	0	**1**	0
Dry (24%)	-1	0	**0**	**1**	**0**	**0**	**0**	0	-1	**0**	**0**	0
Critical (15%)	-2	-1	**2**	**2**	**0**	0	0	-1	-2	-1	0	-1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 2-3. Cache Slough at Ryer Island Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	197	200	191	201	199	194	187	184	185	185	190	190
20%	187	187	188	196	195	191	186	183	184	182	186	185
30%	186	185	187	193	191	189	185	183	183	181	184	183
40%	185	184	186	191	189	186	184	182	183	181	181	182
50%	181	181	183	190	187	185	183	182	182	180	180	180
60%	180	180	182	188	186	184	183	182	182	180	180	179
70%	180	180	181	187	185	183	182	181	182	180	180	178
80%	179	179	180	186	183	182	181	180	181	179	179	178
90%	179	179	179	182	180	181	180	178	179	179	179	178
Long Term												
Full Simulation Period[a]	184	185	185	191	189	186	184	182	183	181	183	182
Water Year Types[b]												
Wet (32%)	179	180	183	189	184	183	182	180	181	180	180	178
Above Normal (16%)	180	180	183	190	188	184	182	181	182	180	179	179
Below Normal (13%)	184	185	185	191	189	188	185	182	182	180	180	181
Dry (24%)	186	184	185	193	193	188	184	182	183	181	185	184
Critical (15%)	198	203	192	193	195	192	186	184	189	189	191	191

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	191	196	198	203	200	194	188	186	185	187	190	188
20%	186	189	192	197	197	192	187	184	183	183	187	184
30%	184	186	189	195	192	190	186	183	182	182	183	183
40%	183	185	187	193	189	187	185	183	182	181	182	182
50%	182	184	186	191	188	186	184	182	181	180	181	181
60%	181	183	184	189	186	184	183	182	181	180	180	181
70%	181	182	183	187	185	183	182	181	180	180	180	180
80%	181	182	181	185	183	182	181	180	180	179	180	180
90%	180	180	180	182	181	180	180	179	180	179	180	180
Long Term												
Full Simulation Period[a]	184	187	187	192	189	187	184	182	182	182	183	183
Water Year Types[b]												
Wet (32%)	181	183	184	189	184	183	182	180	180	180	180	181
Above Normal (16%)	181	183	185	190	187	184	182	181	181	180	180	180
Below Normal (13%)	183	186	187	191	189	189	185	182	181	180	181	181
Dry (24%)	184	185	187	195	194	189	186	183	182	182	185	184
Critical (15%)	194	202	197	196	196	192	188	186	189	190	191	189

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-6	-4	**7**	**1**	**1**	0	**1**	**2**	0	**2**	**0**	-2
20%	-1	**1**	**4**	**1**	**1**	**1**	**1**	**1**	-1	**1**	**1**	-1
30%	-2	**1**	**2**	**2**	**1**	**1**	**1**	**1**	-1	**1**	-1	-1
40%	-1	**1**	**1**	**2**	**0**	**1**	**0**	**1**	-1	**0**	**1**	**0**
50%	**1**	**3**	**2**	**1**	**0**	**1**	**1**	**1**	-1	**0**	**0**	**1**
60%	**1**	**3**	**2**	**1**	**0**	**1**	**1**	**0**	-1	**0**	**0**	**2**
70%	**1**	**3**	**2**	**0**	0	**0**	**0**	**0**	-1	**0**	**0**	**2**
80%	**2**	**2**	**1**	0	0	0	**0**	**0**	-1	0	**0**	**2**
90%	**1**	**2**	**0**	0	**0**	0	**0**	**0**	**1**	**0**	**0**	**2**
Long Term												
Full Simulation Period[a]	0	**2**	**2**	**1**	**0**	**0**	**1**	**1**	-1	**0**	**0**	**1**
Water Year Types[b]												
Wet (32%)	**2**	**3**	**1**	0	0	**0**	**0**	**0**	-1	**0**	**0**	**3**
Above Normal (16%)	**1**	**4**	**2**	0	-1	0	**0**	**0**	-1	0	**0**	**2**
Below Normal (13%)	-1	**1**	**2**	**1**	**0**	**0**	**1**	**0**	-2	**0**	**1**	0
Dry (24%)	-1	**1**	**2**	**2**	**1**	**1**	**1**	**1**	-1	**1**	**0**	0
Critical (15%)	-4	-1	**5**	**3**	**1**	**1**	**2**	**2**	**0**	**1**	**0**	-2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 2-4. Cache Slough at Ryer Island Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	197	200	191	201	199	194	187	184	185	185	190	190
20%	187	187	188	196	195	191	186	183	184	182	186	185
30%	186	185	187	193	191	189	185	183	183	181	184	183
40%	185	184	186	191	189	186	184	182	183	181	181	182
50%	181	181	183	190	187	185	183	182	182	180	180	180
60%	180	180	182	188	186	184	183	182	182	180	180	179
70%	180	180	181	187	185	183	182	181	182	180	180	178
80%	179	179	180	186	183	182	181	180	181	179	179	178
90%	179	179	179	182	180	181	180	178	179	179	179	178
Long Term												
Full Simulation Period[a]	184	185	185	191	189	186	184	182	183	181	183	182
Water Year Types[b]												
Wet (32%)	179	180	183	189	184	183	182	180	181	180	180	178
Above Normal (16%)	180	180	183	190	188	184	182	181	182	180	179	179
Below Normal (13%)	184	185	185	191	189	188	185	182	182	180	180	181
Dry (24%)	186	184	185	193	193	188	184	182	183	181	185	184
Critical (15%)	198	203	192	193	195	192	186	184	189	189	191	191

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	197	200	193	200	198	193	187	184	184	187	192	190
20%	187	189	189	196	195	191	186	183	183	183	187	185
30%	186	186	186	193	191	188	185	182	182	181	185	184
40%	184	185	185	191	188	186	184	182	182	181	183	183
50%	183	184	185	189	186	184	183	181	182	180	181	181
60%	182	183	183	188	185	183	182	181	181	180	180	180
70%	181	182	182	186	185	182	181	180	181	180	180	180
80%	180	181	180	185	183	181	180	179	181	180	180	180
90%	180	180	179	182	180	180	179	179	180	179	179	180
Long Term												
Full Simulation Period[a]	185	186	185	190	188	186	183	181	182	182	183	183
Water Year Types[b]												
Wet (32%)	181	183	183	188	184	183	181	180	181	180	180	180
Above Normal (16%)	182	182	184	190	187	183	181	180	182	180	180	180
Below Normal (13%)	184	185	185	189	188	187	183	181	182	180	182	183
Dry (24%)	185	184	185	193	192	188	184	182	182	182	186	184
Critical (15%)	199	204	193	193	194	191	186	184	187	190	193	192

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**0**	**0**	**2**	-1	-2	-1	0	**0**	-1	**2**	**2**	**0**
20%	0	**1**	**1**	0	0	0	0	0	-1	**1**	**1**	**0**
30%	**0**	**1**	-1	0	**0**	-1	0	0	-1	**0**	**1**	**1**
40%	0	**1**	-1	-1	-1	0	-1	0	-1	0	**2**	**1**
50%	**2**	**3**	**1**	-1	-1	0	0	0	0	0	**1**	**2**
60%	**2**	**3**	**1**	0	0	0	-1	-1	0	**0**	**0**	**2**
70%	**1**	**2**	**1**	-1	0	0	-1	-1	0	**0**	**0**	**2**
80%	**1**	**1**	**0**	-1	0	-1	-1	0	0	**0**	**0**	**2**
90%	**1**	**1**	0	0	0	0	0	**0**	**0**	**0**	**0**	**2**
Long Term												
Full Simulation Period[a]	**1**	**1**	**0**	-1	-1	0	0	0	-1	**0**	**1**	**1**
Water Year Types[b]												
Wet (32%)	**1**	**2**	**1**	-1	0	0	0	0	0	**0**	**0**	**2**
Above Normal (16%)	**2**	**3**	**1**	-1	-1	-1	-1	-1	0	**0**	**0**	**1**
Below Normal (13%)	**0**	**0**	0	-1	-1	-1	-1	0	-1	0	**2**	**1**
Dry (24%)	0	**0**	0	0	-1	0	0	0	-1	**0**	**1**	**0**
Critical (15%)	**0**	**0**	**1**	0	0	-1	0	0	-2	**1**	**2**	**1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 3-1. Sacramento River downstream of Georgiana Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	179	181	179	177	176	176	176	176	176	176
20%	176	176	178	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	179	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	176	176	176
60%	176	176	176	178	177	176	176	176	176	175	176	175
70%	176	175	176	178	176	176	176	176	176	175	176	175
80%	175	175	176	177	176	176	175	175	176	175	176	175
90%	175	175	175	177	176	175	175	175	175	175	176	175
Long Term												
Full Simulation Period[a]	176	176	177	179	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	177	176	176	175	176	175	176	175
Above Normal (16%)	176	176	177	178	177	176	176	176	176	175	176	175
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	178	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	176	176	176
60%	176	176	176	178	177	176	176	176	176	175	176	176
70%	176	176	176	178	176	176	176	176	176	175	176	176
80%	175	176	176	177	176	176	175	175	176	175	176	176
90%	175	175	175	177	176	175	175	175	175	175	176	176
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	176	176	176	178	177	176	176	175	176	176	176	176
Above Normal (16%)	176	176	177	178	177	176	176	176	176	175	176	176
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	**0**	0	0	0	0	0	0	0	**0**	**0**	0
20%	0	**0**	0	0	0	0	0	0	0	**0**	0	0
30%	0	**0**	0	**0**	0	0	**0**	0	0	**0**	0	**0**
40%	**0**	**0**	0	0	0	0	**0**	0	0	**0**	**0**	0
50%	**0**	**0**	0	0	0	0	**0**	0	0	**0**	0	**0**
60%	**0**	**0**	0	0	0	0	0	0	0	**0**	0	**0**
70%	**0**	**0**	0	0	0	0	**0**	0	0	**0**	0	**0**
80%	**0**	**0**	**0**	0	0	0	0	**0**	0	**0**	0	**0**
90%	**0**	**0**	0	0	0	0	0	0	**0**	**0**	0	**0**
Long Term												
Full Simulation Period[a]	**0**	**0**	0	0	0	0	0	0	0	**0**	0	**0**
Water Year Types[b]												
Wet (32%)	**0**	**0**	0	0	0	0	**0**	0	0	**0**	0	**0**
Above Normal (16%)	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**
Below Normal (13%)	0	**0**	**0**	0	0	0	0	0	0	0	0	0
Dry (24%)	0	**0**	0	**0**	0	0	0	0	0	**0**	0	0
Critical (15%)	**0**	0	**0**	**0**	0	0	0	0	0	**0**	**0**	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 3-2. Sacramento River downstream of Georgiana Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	179	181	179	177	176	176	176	176	176	176
20%	176	176	178	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	179	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	176	176	176
60%	176	176	176	178	177	176	176	176	176	175	176	175
70%	176	175	176	178	176	176	176	176	176	175	176	175
80%	175	175	176	177	176	176	175	175	176	175	176	175
90%	175	175	175	177	176	175	175	175	175	175	176	175
Long Term												
Full Simulation Period[a]	176	176	177	179	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	177	176	176	175	176	175	176	175
Above Normal (16%)	176	176	177	178	177	176	176	176	176	175	176	175
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	179	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	176	176	176
60%	176	176	176	178	177	176	176	176	176	176	176	176
70%	176	176	176	178	176	176	176	176	176	175	176	176
80%	175	176	176	177	176	176	175	175	176	175	176	176
90%	175	175	175	177	176	175	175	175	175	175	176	176
Long Term												
Full Simulation Period[a]	176	176	177	179	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	176	176	176	178	177	176	176	175	176	176	176	176
Above Normal (16%)	176	176	177	178	177	176	176	176	176	175	176	176
Below Normal (13%)	176	176	177	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	**0**	0	**0**	0	0	0	0	**0**	0
20%	0	**0**	0	**0**	0	0	0	0	0	**0**	**0**	0
30%	0	**0**	**0**	**0**	0	0	0	0	0	**0**	0	0
40%	0	**0**	0	0	0	0	**0**	0	0	**0**	**0**	0
50%	0	**0**	0	0	0	0	**0**	0	0	**0**	**0**	**0**
60%	0	**0**	0	**0**	**0**	0	**0**	0	0	**0**	**0**	**0**
70%	**0**	**0**	0	0	0	0	**0**	0	0	**0**	**0**	**0**
80%	**0**	**0**	0	0	0	**0**	0	**0**	0	**0**	**0**	**0**
90%	**0**	**0**	**0**	0	0	0	0	0	0	**0**	0	**0**
Long Term												
Full Simulation Period[a]	0	**0**	0	0	0	0	0	0	0	**0**	**0**	**0**
Water Year Types[b]												
Wet (32%)	**0**	**0**	0	0	0	0	**0**	0	0	**0**	**0**	**0**
Above Normal (16%)	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**
Below Normal (13%)	0	**0**	**0**	0	0	0	0	0	0	**0**	**0**	0
Dry (24%)	0	0	**0**	**0**	**0**	**0**	0	0	0	**0**	**0**	0
Critical (15%)	0	**0**	0	**0**	**0**	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 3-3. Sacramento River downstream of Georgiana Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	179	181	179	177	176	176	176	176	176	176
20%	176	176	178	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	179	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	176	176	176
60%	176	176	176	178	177	176	176	176	176	175	176	175
70%	176	175	176	178	176	176	176	176	176	175	176	175
80%	175	175	176	177	176	176	175	175	176	175	176	175
90%	175	175	175	177	176	175	175	175	175	175	176	175
Long Term												
Full Simulation Period[a]	176	176	177	179	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	177	176	176	175	176	175	176	175
Above Normal (16%)	176	176	177	178	177	176	176	176	176	175	176	175
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	179	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	176	176	176
60%	176	176	176	178	177	176	176	176	176	175	176	176
70%	176	176	176	178	176	176	176	176	176	175	176	176
80%	175	176	176	177	176	176	175	175	176	175	176	176
90%	175	175	175	177	176	175	175	175	175	175	176	176
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	176	176	176	178	177	176	176	175	176	176	176	176
Above Normal (16%)	176	176	177	178	177	176	176	176	176	175	176	176
Below Normal (13%)	176	176	177	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	**0**	0	**0**	0	**0**	0	0	0	0	0	0
20%	0	**0**	0	0	0	0	0	0	0	**0**	0	0
30%	0	**0**	**0**	**0**	**0**	0	**0**	0	0	**0**	0	0
40%	0	**0**	0	0	0	**0**	**0**	0	0	**0**	**0**	0
50%	0	**0**	0	0	**0**	0	0	0	0	**0**	**0**	**0**
60%	0	0	0	**0**	**0**	0	**0**	0	0	**0**	**0**	**0**
70%	0	**0**	0	0	0	0	**0**	0	0	**0**	**0**	**0**
80%	0	**0**	0	0	0	**0**	**0**	**0**	0	**0**	0	**0**
90%	**0**	**0**	0	0	0	0	**0**	0	0	**0**	0	**0**
Long Term												
Full Simulation Period[a]	0	**0**	0	0	0	0	0	0	0	**0**	0	**0**
Water Year Types[b]												
Wet (32%)	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
Above Normal (16%)	0	**0**	0	0	0	0	**0**	0	0	0	**0**	**0**
Below Normal (13%)	0	**0**	**0**	0	0	0	0	0	0	**0**	**0**	0
Dry (24%)	0	0	0	**0**	**0**	**0**	0	0	0	**0**	0	0
Critical (15%)	0	0	0	0	**0**	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 3-4. Sacramento River downstream of Georgiana Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	179	181	179	177	176	176	176	176	176	176
20%	176	176	178	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	179	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	176	176	176
60%	176	176	176	178	177	176	176	176	176	175	176	175
70%	176	175	176	178	176	176	176	176	176	175	176	175
80%	175	175	176	177	176	176	175	175	176	175	176	175
90%	175	175	175	177	176	175	175	175	175	175	176	175
Long Term												
Full Simulation Period[a]	176	176	177	179	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	175	176	176	178	177	176	176	175	176	175	176	175
Above Normal (16%)	176	176	177	178	177	176	176	176	176	175	176	175
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	176	177	178	181	179	177	176	176	176	176	176	176
20%	176	176	177	180	178	177	176	176	176	176	176	176
30%	176	176	177	179	177	176	176	176	176	176	176	176
40%	176	176	177	178	177	176	176	176	176	176	176	176
50%	176	176	176	178	177	176	176	176	176	176	176	176
60%	176	176	176	178	177	176	176	176	176	175	176	176
70%	176	176	176	178	176	176	175	175	176	175	176	176
80%	176	176	176	177	176	176	175	175	176	175	176	176
90%	175	175	175	177	176	175	175	175	176	175	176	176
Long Term												
Full Simulation Period[a]	176	176	177	178	177	176	176	176	176	176	176	176
Water Year Types[b]												
Wet (32%)	176	176	176	178	177	176	175	175	176	176	176	176
Above Normal (16%)	176	176	177	178	177	176	176	176	176	175	176	176
Below Normal (13%)	176	176	176	178	177	176	176	176	176	175	176	176
Dry (24%)	176	176	176	179	177	176	176	176	176	176	176	176
Critical (15%)	176	176	178	179	178	177	176	176	176	176	176	176

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (16%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (13%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (24%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	0	0	0	0	0	0	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 4-1. Sacramento River at Emmaton Salinity, Monthly EC

No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,263	4,349	2,795	1,037	329	309	364	585	884	1,642	2,755	3,560
20%	3,477	2,922	1,767	770	258	233	245	429	703	1,046	2,289	3,013
30%	3,295	2,748	996	542	229	199	219	363	652	901	2,153	2,931
40%	3,153	1,983	792	387	206	194	204	245	559	631	1,326	2,531
50%	1,697	520	582	309	196	190	197	215	465	480	1,051	1,863
60%	654	459	503	222	190	188	190	207	376	363	984	541
70%	310	257	268	195	185	183	188	196	301	334	905	347
80%	282	239	208	188	183	181	184	185	235	313	797	328
90%	270	227	182	182	182	181	181	180	188	283	736	310
Long Term												
Full Simulation Period[a]	1,993	1,566	992	492	257	223	241	341	596	772	1,502	1,731
Water Year Types[b]												
Wet (32%)	279	235	397	216	184	183	186	192	278	305	841	315
Above Normal (16%)	621	470	633	285	195	184	191	208	397	353	841	545
Below Normal (13%)	2,766	2,052	1,347	497	249	224	238	292	546	522	1,122	2,270
Dry (24%)	3,252	2,165	1,255	647	297	224	235	336	611	996	2,125	2,905
Critical (15%)	4,387	4,192	1,909	1,053	421	346	426	857	1,522	2,093	2,962	3,636

Alternative 1 011519

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,290	4,353	2,806	1,158	369	325	411	600	846	1,602	2,886	3,580
20%	3,508	3,092	2,410	820	261	240	282	443	669	1,123	2,330	3,062
30%	3,295	2,815	1,635	557	232	199	229	369	630	1,039	2,146	2,962
40%	3,101	2,589	1,093	355	206	193	206	266	517	582	1,203	2,520
50%	2,595	2,349	897	298	195	189	195	240	444	485	1,028	1,856
60%	2,365	2,045	663	222	188	186	188	214	372	368	954	1,711
70%	2,063	1,243	301	193	184	183	185	194	290	345	900	1,618
80%	1,720	901	236	187	183	181	182	181	235	306	822	1,562
90%	915	443	185	182	182	181	180	179	187	283	737	1,340
Long Term												
Full Simulation Period[a]	2,603	2,179	1,196	512	263	228	249	358	579	791	1,507	2,232
Water Year Types[b]												
Wet (32%)	1,474	1,327	804	206	184	183	186	198	271	308	822	1,381
Above Normal (16%)	2,070	1,924	1,096	307	193	184	191	212	372	353	851	1,623
Below Normal (13%)	2,661	2,143	1,336	540	262	234	245	323	537	515	1,056	2,135
Dry (24%)	3,307	2,249	1,262	706	307	227	247	350	584	1,025	2,151	2,933
Critical (15%)	4,400	4,219	1,913	1,048	440	371	456	909	1,504	2,176	3,038	3,660

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**26**	**4**	**12**	**121**	**40**	**16**	**48**	**15**	-38	-41	**132**	**20**
20%	**30**	**171**	**643**	**50**	**3**	**7**	**37**	**14**	-34	**76**	**41**	**49**
30%	**0**	**67**	**639**	**15**	**3**	-1	**10**	**6**	-23	**138**	-7	**31**
40%	-52	**605**	**301**	-32	**0**	-1	**2**	**21**	-42	-49	-124	-10
50%	**898**	**1,829**	**315**	-12	-1	-1	-2	**25**	-21	**5**	-23	-7
60%	**1,710**	**1,586**	**159**	-1	-2	-2	-3	**7**	-4	**5**	-30	**1,170**
70%	**1,753**	**986**	**33**	-1	0	0	-3	-2	-11	**11**	-5	**1,271**
80%	**1,438**	**662**	**28**	-1	0	0	-2	-4	**0**	-6	**25**	**1,234**
90%	**645**	**216**	**3**	0	**0**	0	-1	-1	-1	0	**1**	**1,030**
Long Term												
Full Simulation Period[a]	**610**	**613**	**203**	**20**	**7**	**6**	**8**	**18**	-17	**19**	**4**	**501**
Water Year Types[b]												
Wet (32%)	**1,195**	**1,092**	**407**	-9	-1	0	0	**6**	-7	**3**	-19	**1,065**
Above Normal (16%)	**1,449**	**1,454**	**463**	**22**	-2	0	-1	**4**	-25	-1	**9**	**1,078**
Below Normal (13%)	-105	**91**	-11	**43**	**14**	**10**	**7**	**31**	-8	-7	-66	-134
Dry (24%)	**55**	**84**	**7**	**59**	**10**	**3**	**12**	**14**	-28	**29**	**26**	**28**
Critical (15%)	**13**	**27**	**4**	-5	**19**	**25**	**30**	**52**	-17	**82**	**76**	**23**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 4-2. Sacramento River at Emmaton Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,263	4,349	2,795	1,037	329	309	364	585	884	1,642	2,755	3,560
20%	3,477	2,922	1,767	770	258	233	245	429	703	1,046	2,289	3,013
30%	3,295	2,748	996	542	229	199	219	363	652	901	2,153	2,931
40%	3,153	1,983	792	387	206	194	204	245	559	631	1,326	2,531
50%	1,697	520	582	309	196	190	197	215	465	480	1,051	1,863
60%	654	459	503	222	190	188	190	207	376	363	984	541
70%	310	257	268	195	185	183	188	196	301	334	905	347
80%	282	239	208	188	183	181	184	185	235	313	797	328
90%	270	227	182	182	182	181	181	180	188	283	736	310
Long Term												
Full Simulation Period[a]	1,993	1,566	992	492	257	223	241	341	596	772	1,502	1,731
Water Year Types[b]												
Wet (32%)	279	235	397	216	184	183	186	192	278	305	841	315
Above Normal (16%)	621	470	633	285	195	184	191	208	397	353	841	545
Below Normal (13%)	2,766	2,052	1,347	497	249	224	238	292	546	522	1,122	2,270
Dry (24%)	3,252	2,165	1,255	647	297	224	235	336	611	996	2,125	2,905
Critical (15%)	4,387	4,192	1,909	1,053	421	346	426	857	1,522	2,093	2,962	3,636

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,061	4,139	2,760	1,457	525	400	412	584	833	1,575	2,771	3,483
20%	3,293	2,900	2,482	1,266	334	254	286	413	586	1,173	2,287	2,970
30%	3,042	2,656	2,137	866	265	204	241	347	464	930	2,112	2,822
40%	2,760	2,546	1,783	519	219	199	212	284	359	612	1,599	2,522
50%	2,602	2,310	1,286	416	199	190	196	238	309	489	1,125	1,919
60%	2,375	2,055	740	260	189	188	188	221	281	387	1,009	1,776
70%	2,140	1,935	387	202	185	183	184	195	263	344	948	1,680
80%	1,896	1,518	270	188	183	181	181	180	240	312	888	1,621
90%	1,625	505	191	182	182	181	180	178	187	281	797	1,450
Long Term												
Full Simulation Period[a]	2,600	2,278	1,418	676	288	235	251	351	501	776	1,542	2,229
Water Year Types[b]												
Wet (32%)	1,765	1,636	1,011	243	184	183	186	198	242	319	867	1,465
Above Normal (16%)	2,243	2,342	1,376	374	201	184	192	221	276	344	911	1,707
Below Normal (13%)	2,619	2,222	1,468	873	323	236	250	301	320	529	1,259	2,133
Dry (24%)	3,001	2,025	1,327	923	327	238	252	329	520	1,034	2,154	2,824
Critical (15%)	4,106	4,073	2,451	1,350	513	397	458	905	1,438	2,032	2,926	3,549

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-202	-209	-35	**420**	**196**	**92**	**49**	-1	-51	-68	**17**	-77
20%	-184	-22	**715**	**495**	**76**	**21**	**41**	-15	-116	**127**	-3	-43
30%	-254	-92	**1,141**	**324**	**36**	**5**	**22**	-15	-188	**29**	-41	-109
40%	-394	**563**	**991**	**133**	**13**	**5**	**8**	**39**	-199	-19	**272**	-9
50%	**906**	**1,791**	**704**	**107**	**4**	**0**	-1	**22**	-156	**9**	**74**	**56**
60%	**1,721**	**1,596**	**236**	**38**	-1	0	-2	**14**	-95	**24**	**24**	**1,234**
70%	**1,830**	**1,678**	**120**	**7**	**0**	0	-3	-1	-38	**10**	**43**	**1,333**
80%	**1,614**	**1,279**	**62**	**0**	0	0	-3	-4	**5**	-1	**91**	**1,293**
90%	**1,355**	**278**	**9**	**0**	**0**	0	-1	-1	-1	-2	**61**	**1,140**
Long Term												
Full Simulation Period[a]	**607**	**712**	**426**	**184**	**32**	**12**	**10**	**10**	-96	**4**	**39**	**498**
Water Year Types[b]												
Wet (32%)	**1,486**	**1,401**	**614**	**27**	0	0	0	**5**	-36	**14**	**26**	**1,150**
Above Normal (16%)	**1,623**	**1,872**	**744**	**90**	**7**	**0**	**0**	**12**	-121	-10	**70**	**1,162**
Below Normal (13%)	-146	**170**	**121**	**376**	**75**	**12**	**12**	**9**	-226	**7**	**137**	-137
Dry (24%)	-251	-140	**73**	**276**	**30**	**14**	**16**	-7	-92	**38**	**29**	-81
Critical (15%)	-281	-119	**542**	**297**	**92**	**51**	**32**	**48**	-83	-62	-36	-88

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 4-3. Sacramento River at Emmaton Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,263	4,349	2,795	1,037	329	309	364	585	884	1,642	2,755	3,560
20%	3,477	2,922	1,767	770	258	233	245	429	703	1,046	2,289	3,013
30%	3,295	2,748	996	542	229	199	219	363	652	901	2,153	2,931
40%	3,153	1,983	792	387	206	194	204	245	559	631	1,326	2,531
50%	1,697	520	582	309	196	190	197	215	465	480	1,051	1,863
60%	654	459	503	222	190	188	190	207	376	363	984	541
70%	310	257	268	195	185	183	188	196	301	334	905	347
80%	282	239	208	188	183	181	184	185	235	313	797	328
90%	270	227	182	182	182	181	181	180	188	283	736	310
Long Term												
Full Simulation Period[a]	1,993	1,566	992	492	257	223	241	341	596	772	1,502	1,731
Water Year Types[b]												
Wet (32%)	279	235	397	216	184	183	186	192	278	305	841	315
Above Normal (16%)	621	470	633	285	195	184	191	208	397	353	841	545
Below Normal (13%)	2,766	2,052	1,347	497	249	224	238	292	546	522	1,122	2,270
Dry (24%)	3,252	2,165	1,255	647	297	224	235	336	611	996	2,125	2,905
Critical (15%)	4,387	4,192	1,909	1,053	421	346	426	857	1,522	2,093	2,962	3,636

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3,241	3,235	2,628	1,375	486	361	381	598	831	1,569	2,669	3,228
20%	2,815	2,482	2,275	1,136	310	252	282	420	576	1,111	2,077	2,669
30%	2,429	2,368	1,756	795	259	203	237	355	445	888	1,889	2,471
40%	2,236	2,000	1,484	518	215	196	209	294	371	557	1,400	2,250
50%	1,998	1,935	1,203	367	196	190	195	251	328	446	1,011	1,796
60%	1,816	1,801	662	243	188	188	189	218	300	362	904	1,581
70%	1,567	1,660	378	197	184	183	185	195	276	323	853	1,435
80%	1,455	1,107	259	187	183	181	181	181	236	298	818	1,356
90%	1,175	490	189	181	181	180	180	179	187	277	710	1,112
Long Term												
Full Simulation Period[a]	2,104	1,936	1,280	623	281	232	248	353	506	752	1,408	1,982
Water Year Types[b]												
Wet (32%)	1,432	1,402	857	235	184	183	184	210	247	304	796	1,282
Above Normal (16%)	1,784	1,917	1,201	334	196	184	191	221	295	320	783	1,389
Below Normal (13%)	2,088	1,860	1,348	823	303	230	243	299	328	490	1,127	1,915
Dry (24%)	2,347	1,776	1,251	856	318	233	248	321	502	990	1,956	2,538
Critical (15%)	3,518	3,448	2,266	1,207	504	390	452	906	1,469	2,035	2,754	3,272

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,022	-1,114	-167	**338**	**157**	**52**	**18**	**13**	-53	-73	-86	-332
20%	-663	-439	**508**	**366**	**52**	**19**	**37**	-8	-126	**64**	-213	-344
30%	-867	-380	**760**	**253**	**30**	**3**	**19**	-7	-207	-13	-264	-460
40%	-918	**17**	**692**	**132**	**10**	**2**	**4**	**49**	-188	-74	**74**	-281
50%	**301**	**1,416**	**621**	**58**	**0**	0	-2	**35**	-137	-34	-40	-67
60%	**1,162**	**1,342**	**159**	**21**	-2	0	-2	**11**	-76	-2	-80	**1,040**
70%	**1,257**	**1,403**	**110**	**2**	-1	0	-3	-2	-25	-11	-52	**1,088**
80%	**1,173**	**868**	**51**	-1	-1	0	-3	-4	**1**	-15	**21**	**1,028**
90%	**904**	**263**	**7**	0	0	0	-1	-1	-1	-6	-26	**802**
Long Term												
Full Simulation Period[a]	**111**	**370**	**287**	**131**	**24**	**9**	**7**	**12**	-90	-20	-94	**250**
Water Year Types[b]												
Wet (32%)	**1,153**	**1,166**	**460**	**19**	-1	0	-2	**18**	-31	-1	-44	**967**
Above Normal (16%)	**1,164**	**1,447**	**568**	**49**	**1**	0	**0**	**12**	-102	-33	-58	**844**
Below Normal (13%)	-677	-192	**1**	**326**	**54**	**6**	**5**	**7**	-218	-32	**5**	-354
Dry (24%)	-905	-390	-4	**209**	**21**	**9**	**12**	-16	-110	-6	-169	-367
Critical (15%)	-869	-744	**357**	**155**	**83**	**44**	**26**	**49**	-53	-59	-209	-364

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 4-4. Sacramento River at Emmaton Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,263	4,349	2,795	1,037	329	309	364	585	884	1,642	2,755	3,560
20%	3,477	2,922	1,767	770	258	233	245	429	703	1,046	2,289	3,013
30%	3,295	2,748	996	542	229	199	219	363	652	901	2,153	2,931
40%	3,153	1,983	792	387	206	194	204	245	559	631	1,326	2,531
50%	1,697	520	582	309	196	190	197	215	465	480	1,051	1,863
60%	654	459	503	222	190	188	190	207	376	363	984	541
70%	310	257	268	195	185	183	188	196	301	334	905	347
80%	282	239	208	188	183	181	184	185	235	313	797	328
90%	270	227	182	182	182	181	181	180	188	283	736	310
Long Term												
Full Simulation Period[a]	1,993	1,566	992	492	257	223	241	341	596	772	1,502	1,731
Water Year Types[b]												
Wet (32%)	279	235	397	216	184	183	186	192	278	305	841	315
Above Normal (16%)	621	470	633	285	195	184	191	208	397	353	841	545
Below Normal (13%)	2,766	2,052	1,347	497	249	224	238	292	546	522	1,122	2,270
Dry (24%)	3,252	2,165	1,255	647	297	224	235	336	611	996	2,125	2,905
Critical (15%)	4,387	4,192	1,909	1,053	421	346	426	857	1,522	2,093	2,962	3,636

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4,232	4,332	2,798	1,139	331	263	344	592	838	1,645	2,956	3,573
20%	3,492	3,012	2,448	783	245	216	247	446	691	1,202	2,383	3,070
30%	3,236	2,790	1,667	507	221	198	221	312	598	988	2,260	3,018
40%	3,185	2,603	1,197	337	203	194	201	239	552	650	1,624	2,813
50%	2,915	2,466	903	294	193	190	196	208	474	514	1,227	2,248
60%	2,471	2,182	658	216	188	188	189	198	361	375	997	1,825
70%	2,189	1,407	283	192	184	184	186	190	281	357	916	1,713
80%	1,790	788	214	187	183	182	184	184	221	328	835	1,621
90%	1,247	486	185	182	182	181	181	179	187	294	760	1,485
Long Term												
Full Simulation Period[a]	2,720	2,231	1,214	493	256	218	235	335	568	815	1,581	2,358
Water Year Types[b]												
Wet (32%)	1,641	1,518	883	205	184	184	185	188	269	317	845	1,481
Above Normal (16%)	2,277	1,999	1,083	303	192	185	190	197	392	365	858	1,676
Below Normal (13%)	2,851	2,019	1,347	489	251	211	225	279	517	556	1,350	2,531
Dry (24%)	3,339	2,226	1,246	687	294	209	234	346	581	1,067	2,250	3,052
Critical (15%)	4,389	4,228	1,898	1,006	421	346	401	837	1,431	2,196	3,052	3,679

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-31	-17	**3**	**103**	**2**	-45	-20	**7**	-46	**3**	**202**	**13**
20%	**14**	**91**	**681**	**12**	-13	-17	**2**	**17**	-12	**156**	**93**	**57**
30%	-59	**42**	**671**	-35	-8	-2	**3**	-51	-54	**87**	**107**	**86**
40%	**32**	**619**	**405**	-49	-3	**0**	-3	-7	-7	**19**	**298**	**282**
50%	**1,218**	**1,946**	**321**	-15	-3	**0**	-2	-7	**9**	**34**	**175**	**385**
60%	**1,816**	**1,724**	**155**	-7	-2	0	-1	-9	-15	**12**	**13**	**1,284**
70%	**1,879**	**1,150**	**15**	-3	0	**1**	-2	-6	-20	**24**	**11**	**1,366**
80%	**1,508**	**550**	**6**	-1	0	**1**	**0**	-1	-14	**15**	**38**	**1,293**
90%	**977**	**258**	**3**	0	**0**	**0**	**0**	0	-1	**11**	**24**	**1,175**
Long Term												
Full Simulation Period[a]	**727**	**665**	**222**	**1**	-1	-5	-6	-5	-28	**43**	**78**	**626**
Water Year Types[b]												
Wet (32%)	**1,362**	**1,283**	**486**	-11	-1	**1**	-1	-4	-10	**12**	**5**	**1,166**
Above Normal (16%)	**1,656**	**1,529**	**450**	**18**	-3	**1**	-1	-11	-5	**12**	**17**	**1,131**
Below Normal (13%)	**85**	-33	**0**	-8	**2**	-13	-13	-13	-28	**34**	**227**	**261**
Dry (24%)	**87**	**61**	-8	**40**	-3	-15	-2	**9**	-31	**71**	**125**	**148**
Critical (15%)	**2**	**36**	-11	-46	**0**	0	-25	-20	-91	**103**	**90**	**43**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

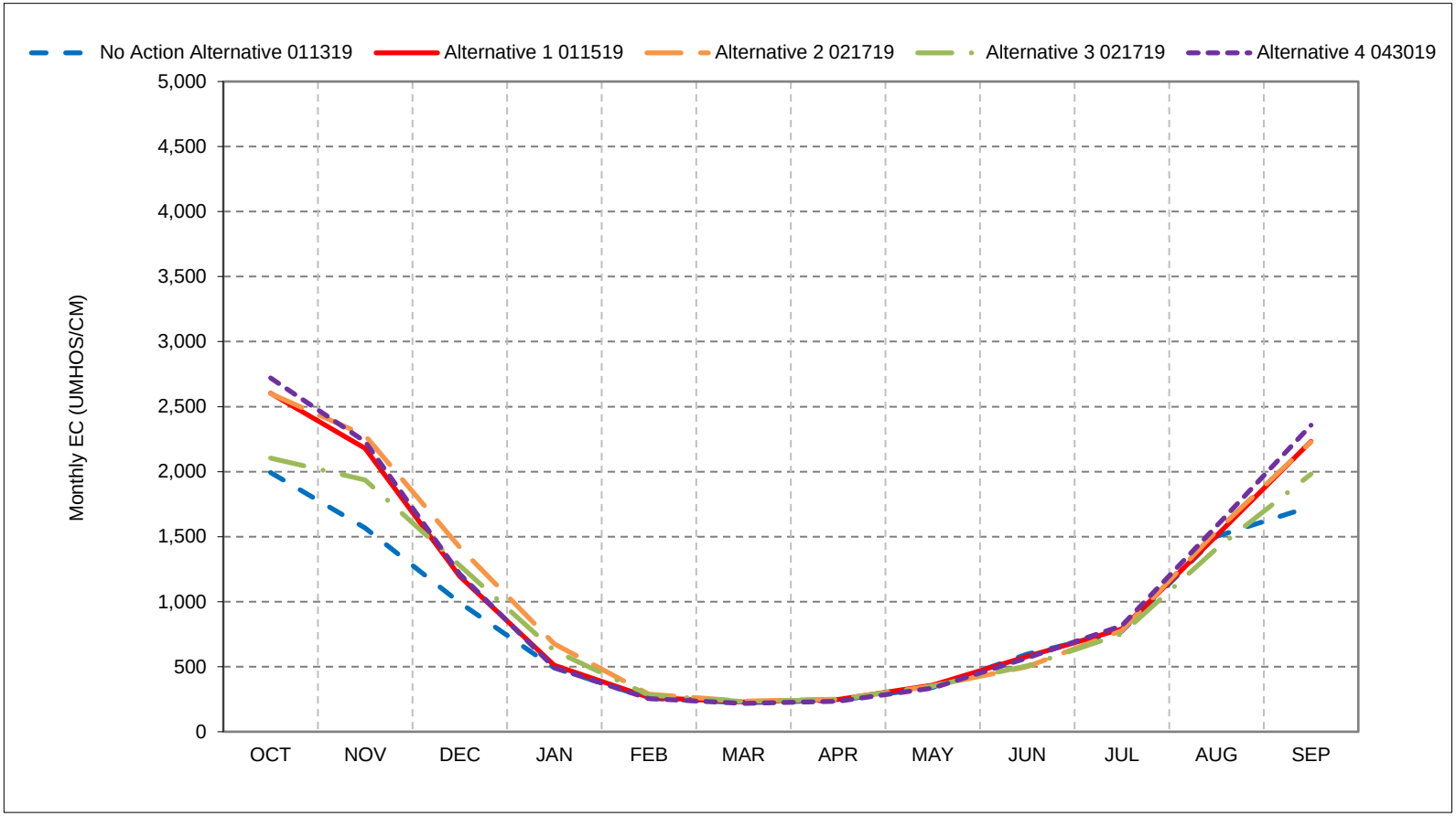
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-1. Sacramento River at Emmaton Salinity, Long-Term Average EC



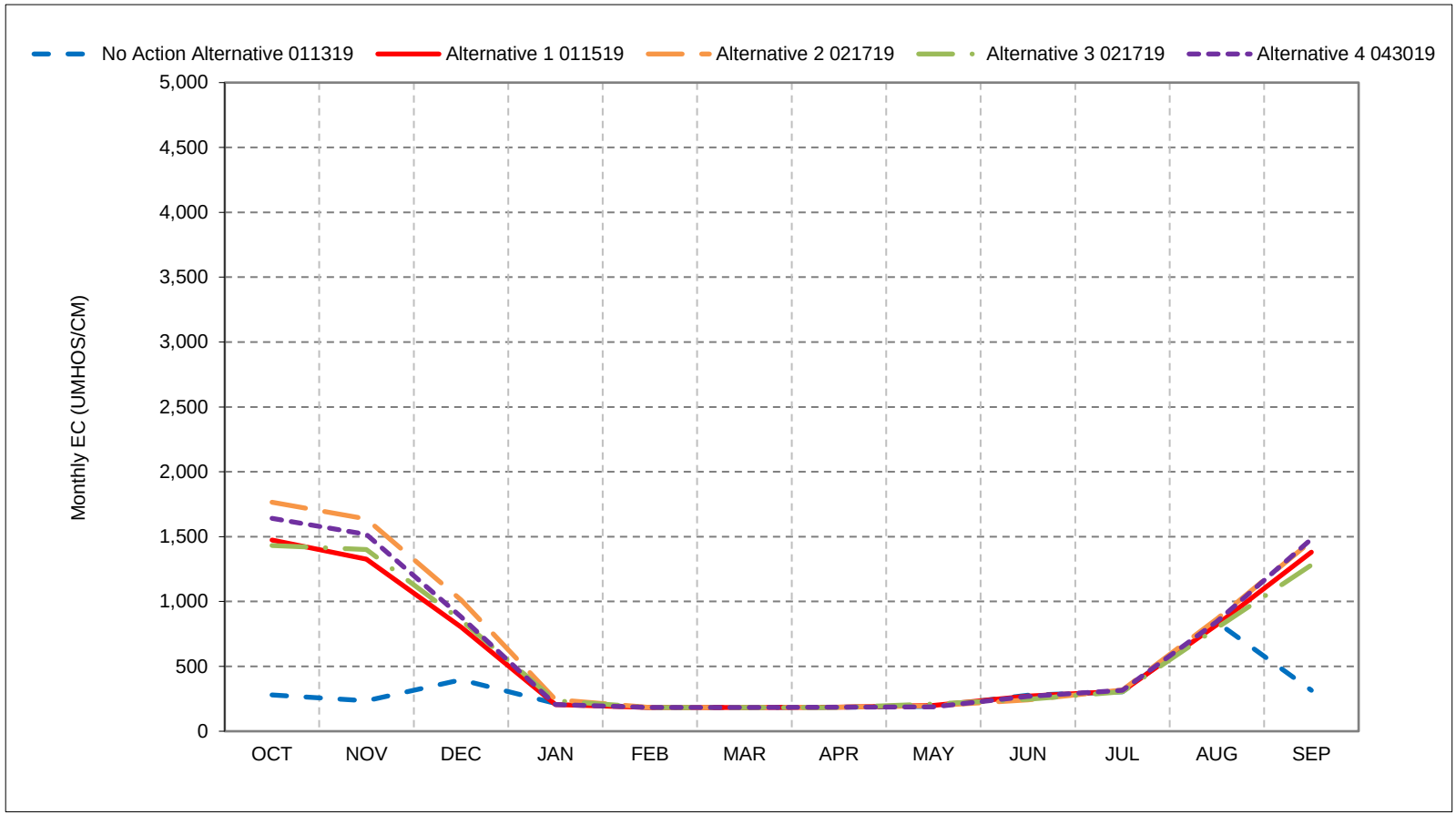
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-2. Sacramento River at Emmaton Salinity, Wet Year Average EC



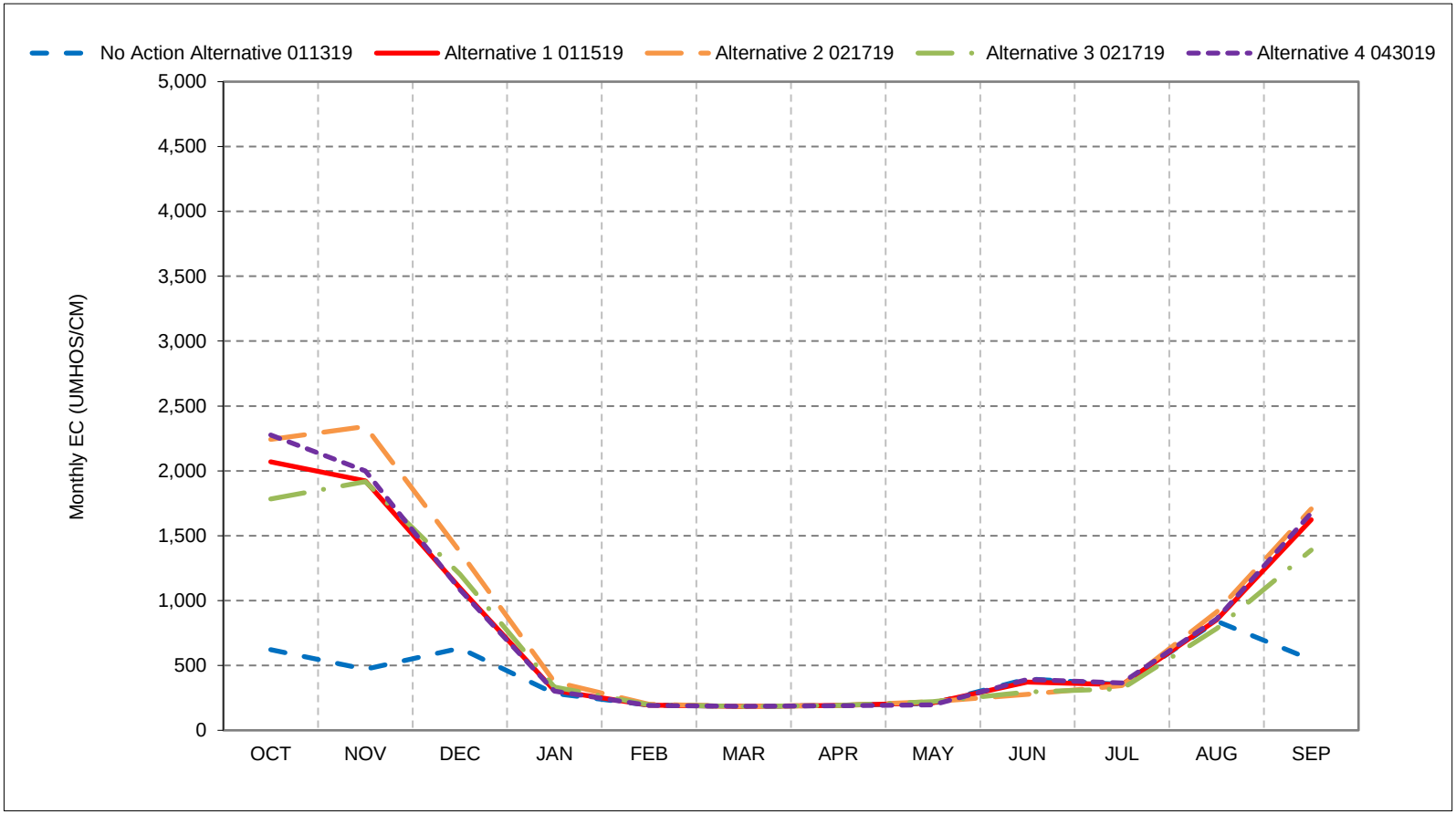
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-3. Sacramento River at Emmaton Salinity, Above Normal Year Average EC



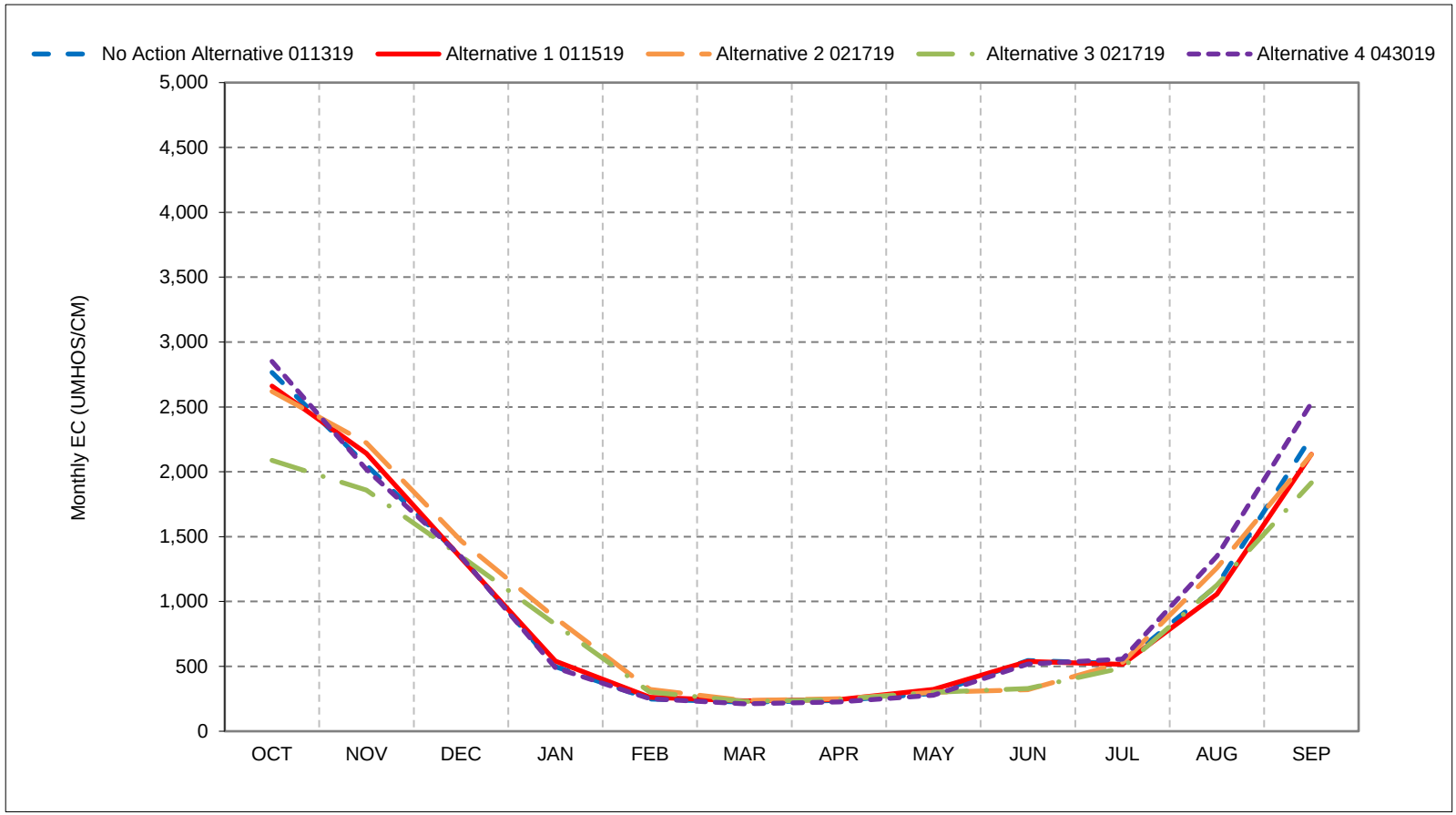
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-4. Sacramento River at Emmaton Salinity, Below Normal Year Average EC



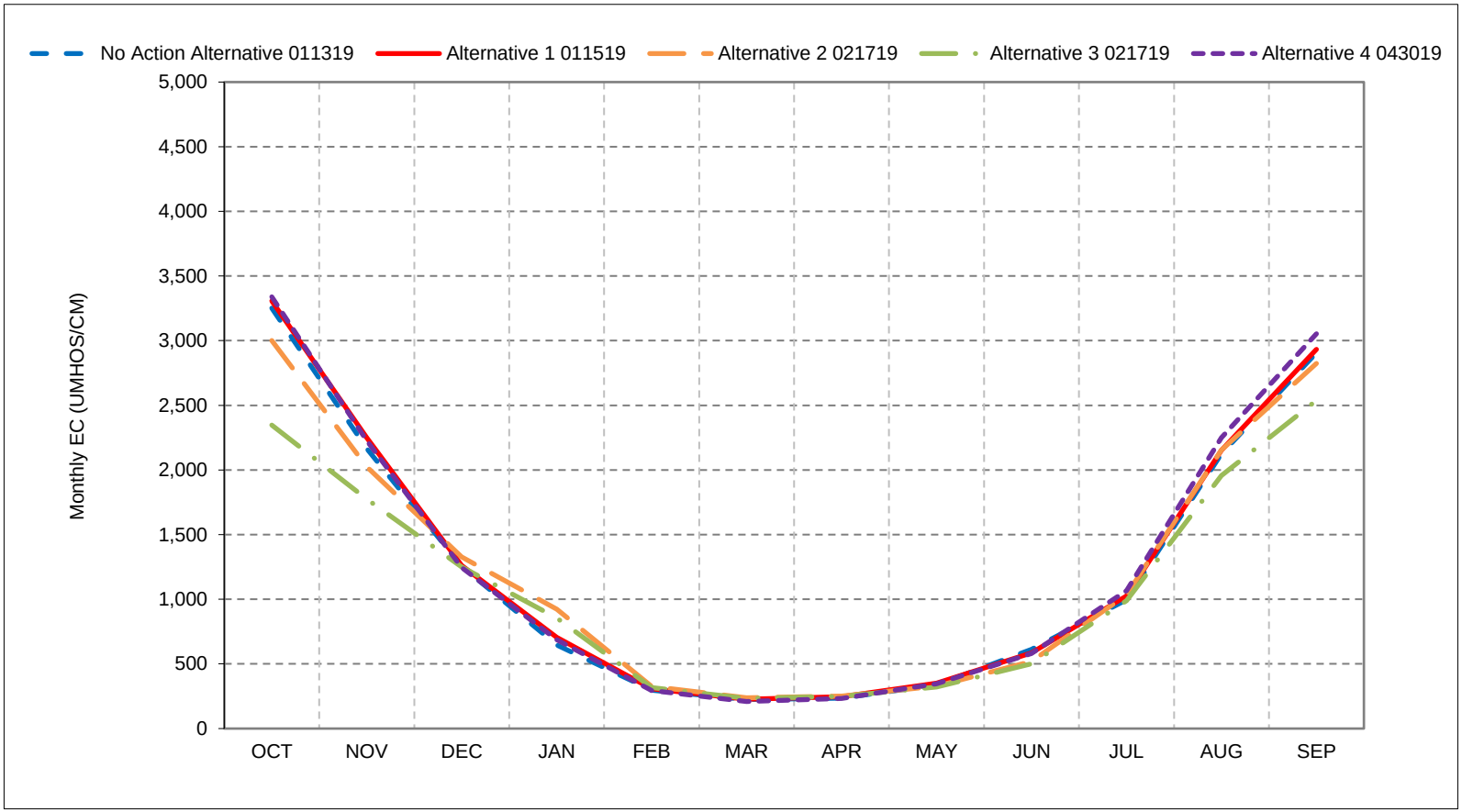
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-5. Sacramento River at Emmaton Salinity, Dry Year Average EC



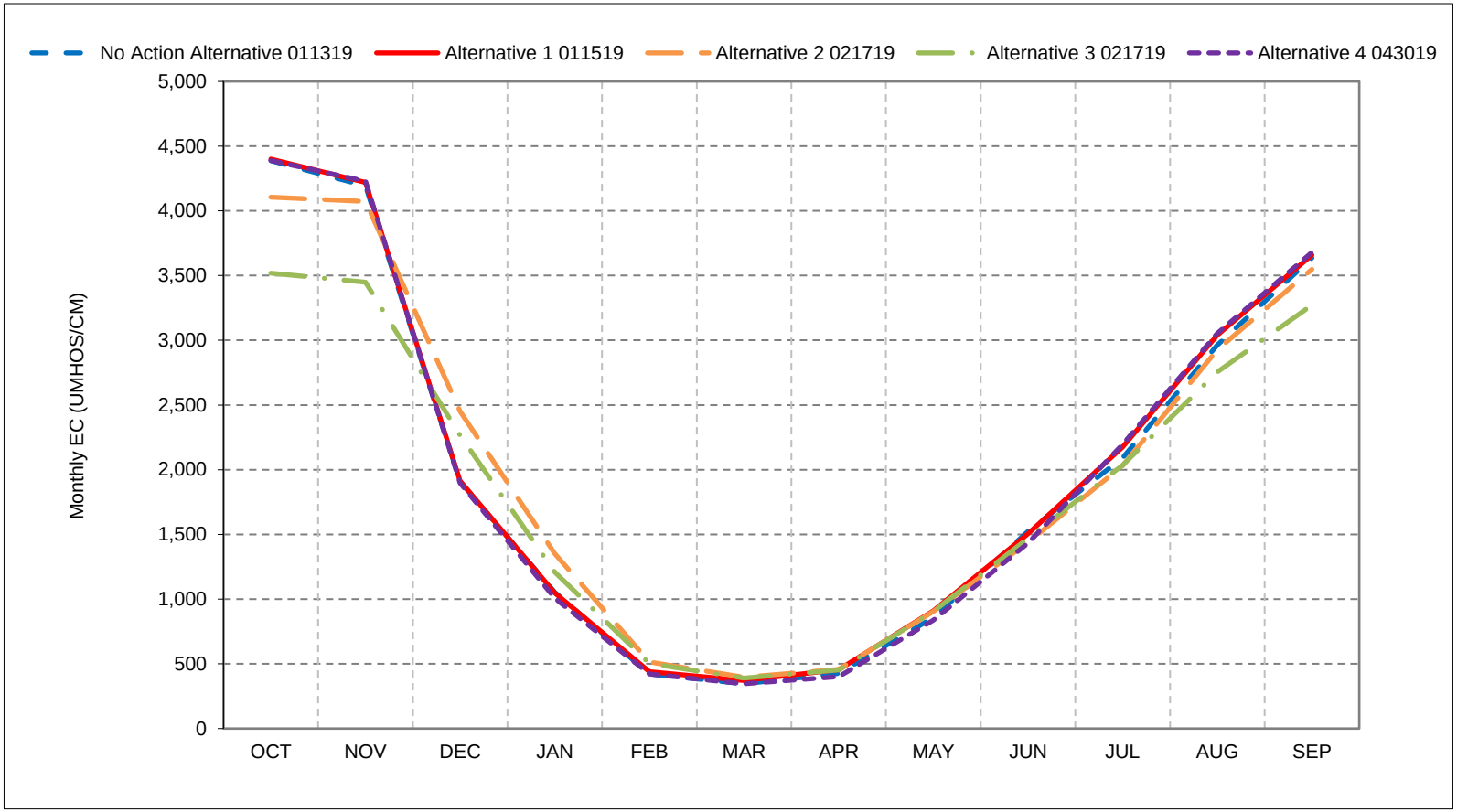
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-6. Sacramento River at Emmaton Salinity, Critical Year Average EC



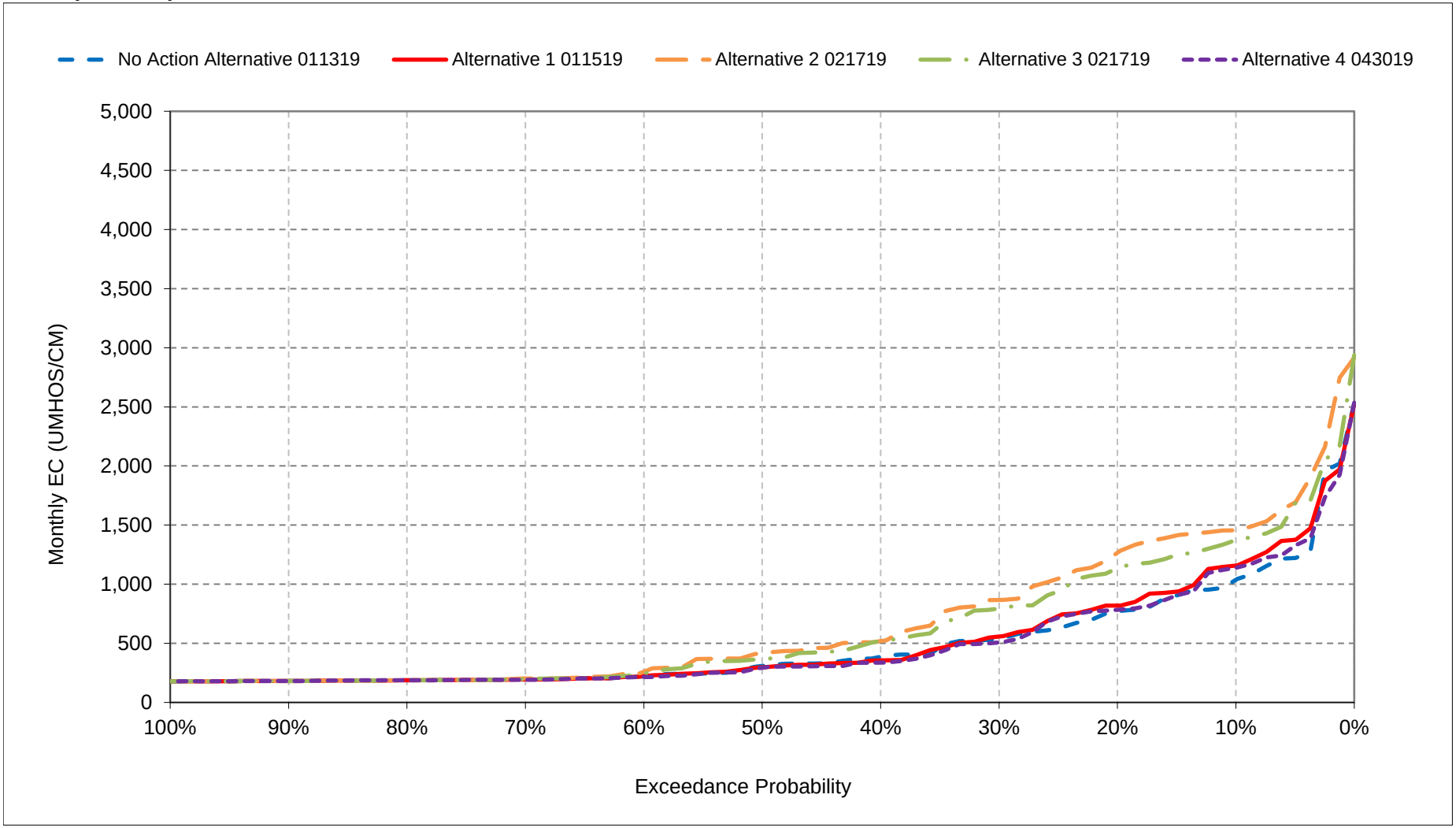
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

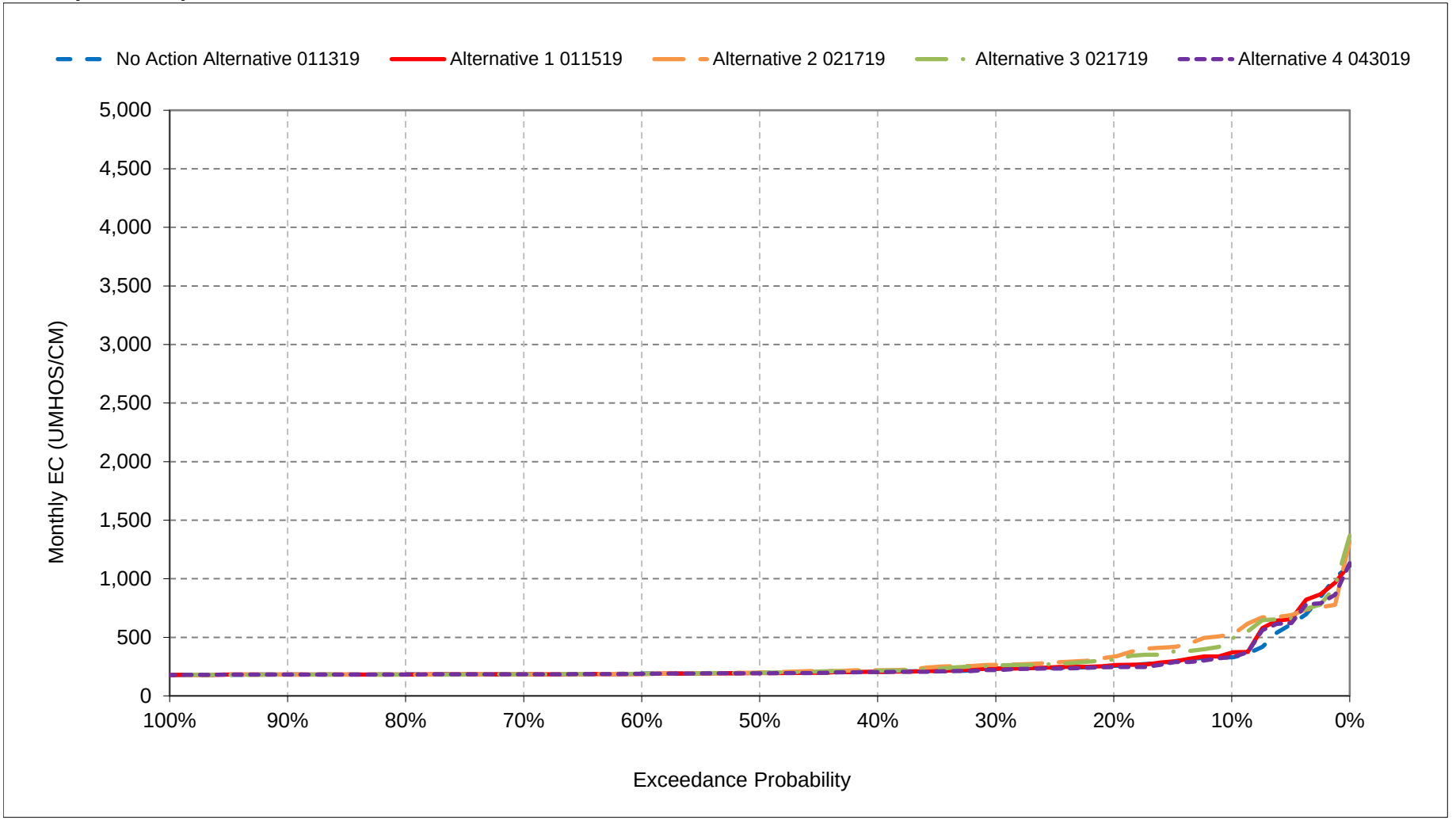
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-7. Sacramento River at Emmaton
Salinity, January EC



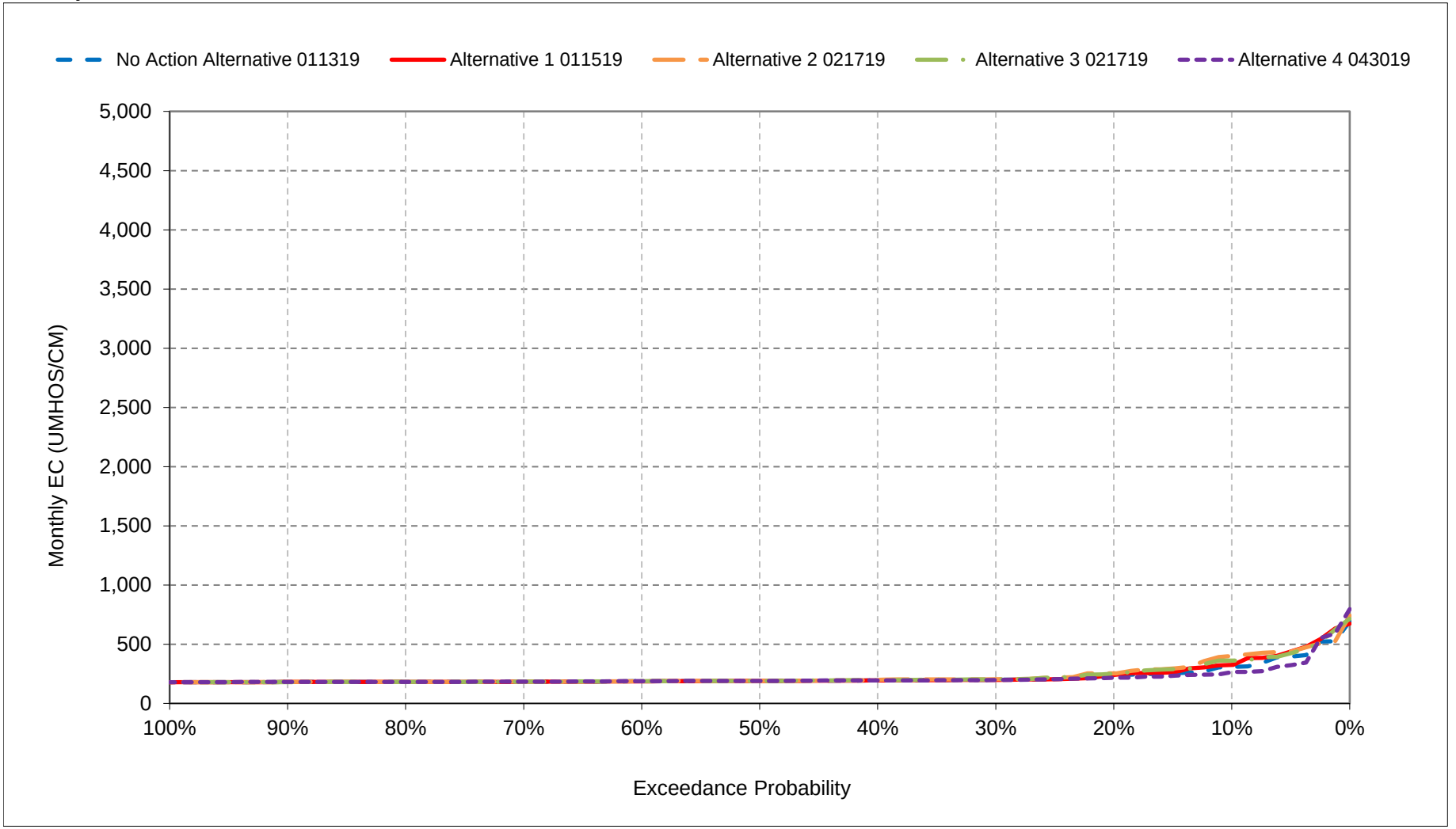
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-8. Sacramento River at Emmaton
Salinity, February EC



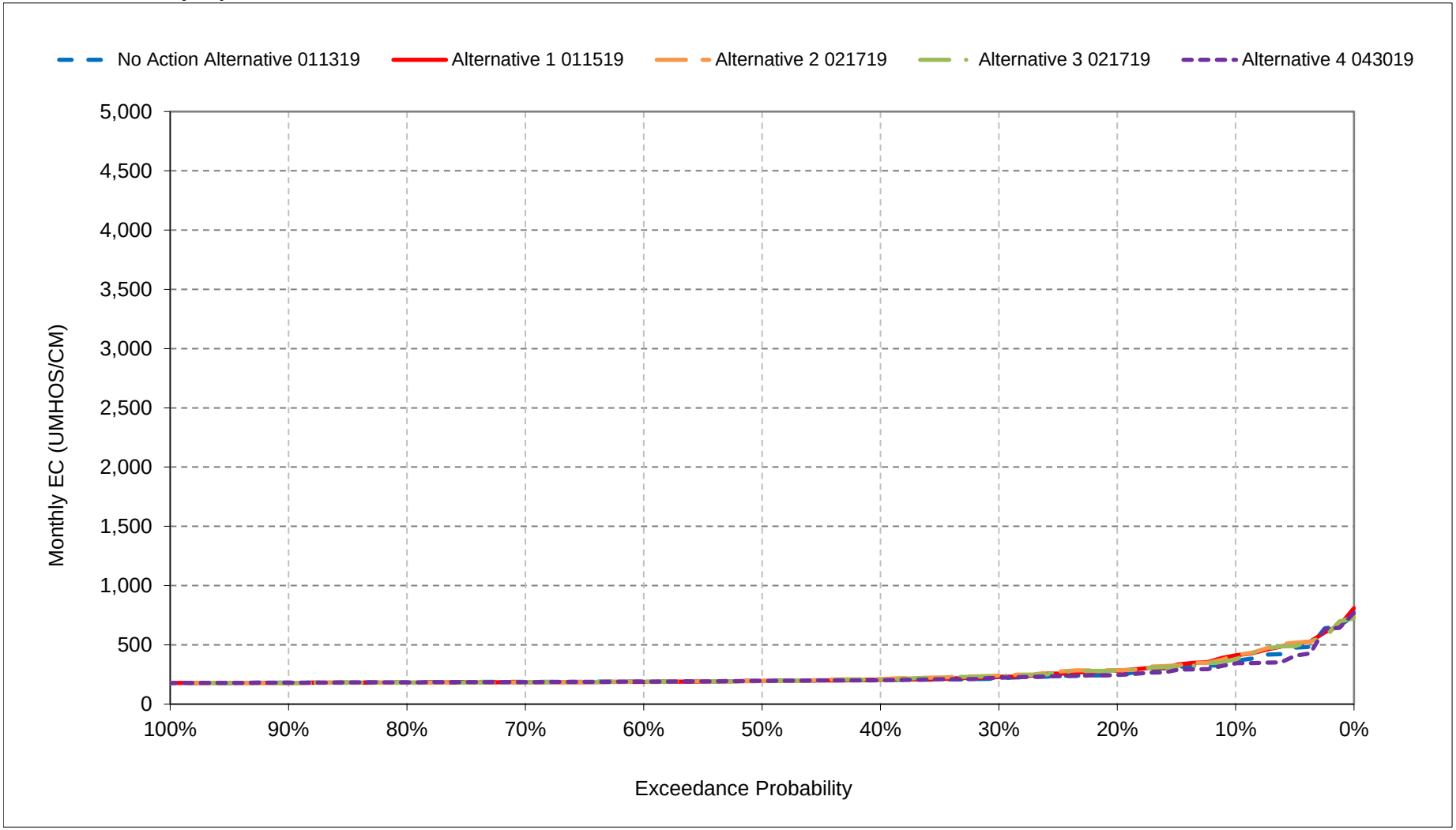
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-9. Sacramento River at Emmaton
Salinity, March EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

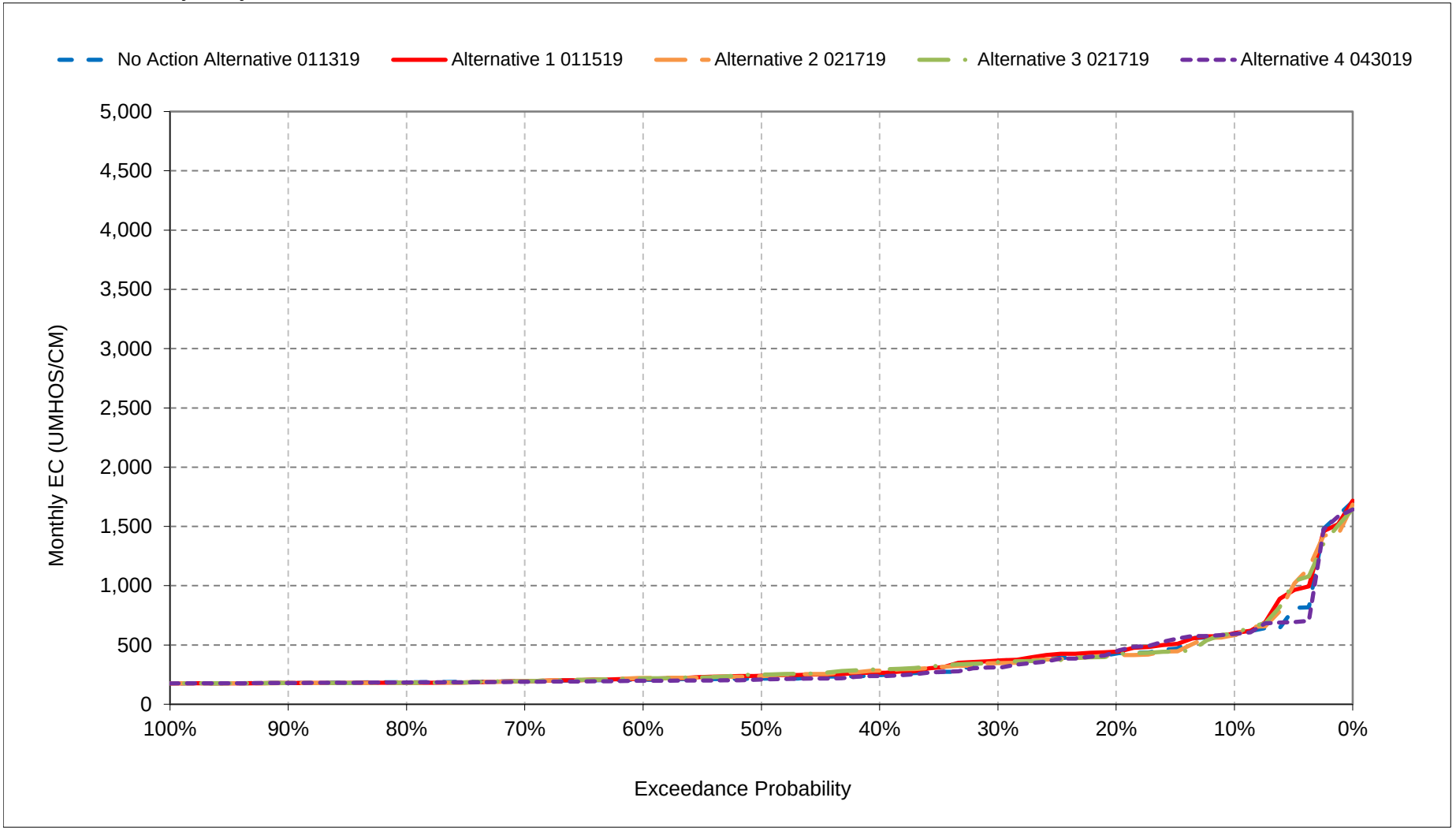
Figure 4-10. Sacramento River at Emmaton Salinity, April EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

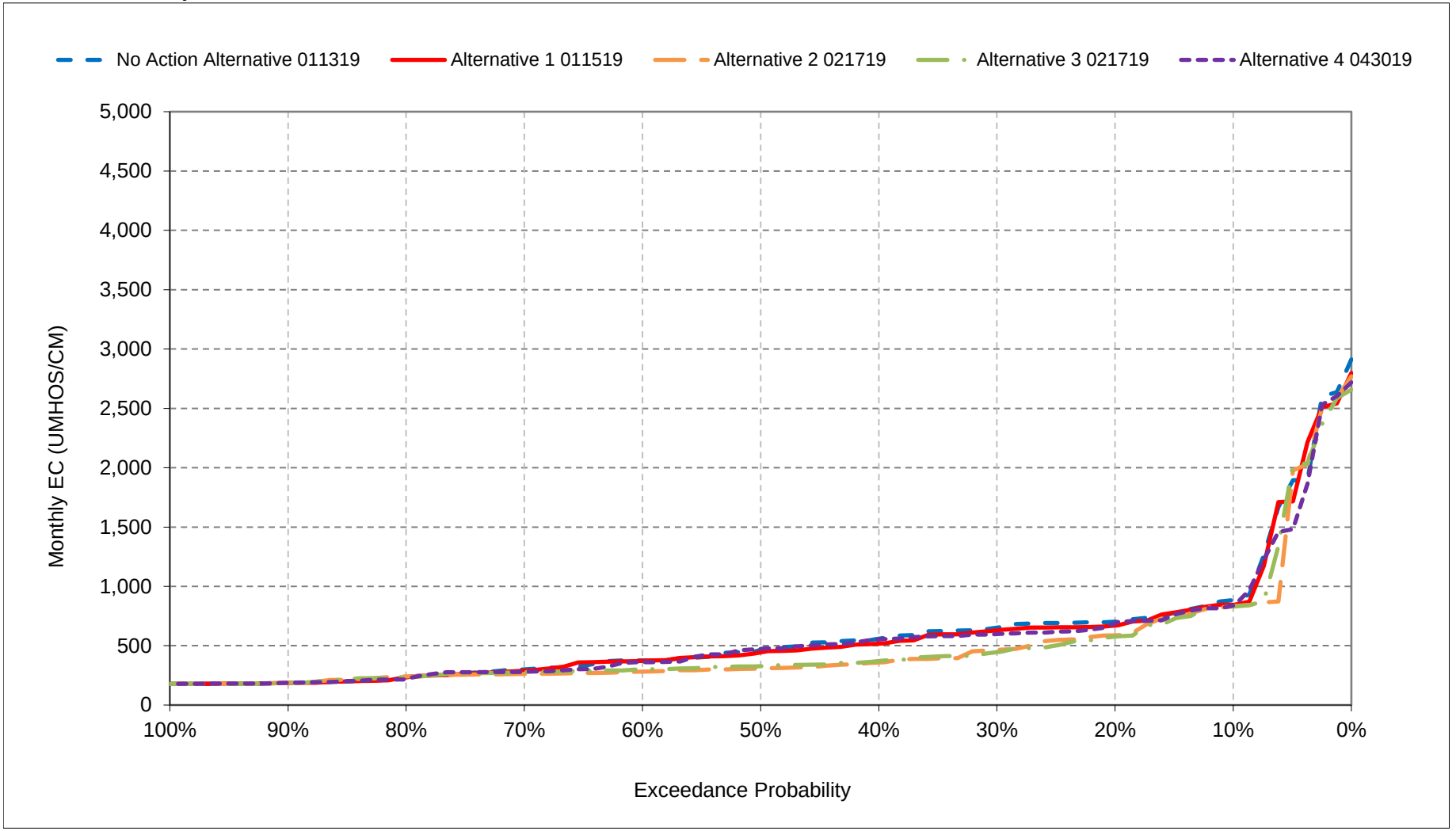
Figure 4-11. Sacramento River at Emmaton Salinity, May EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

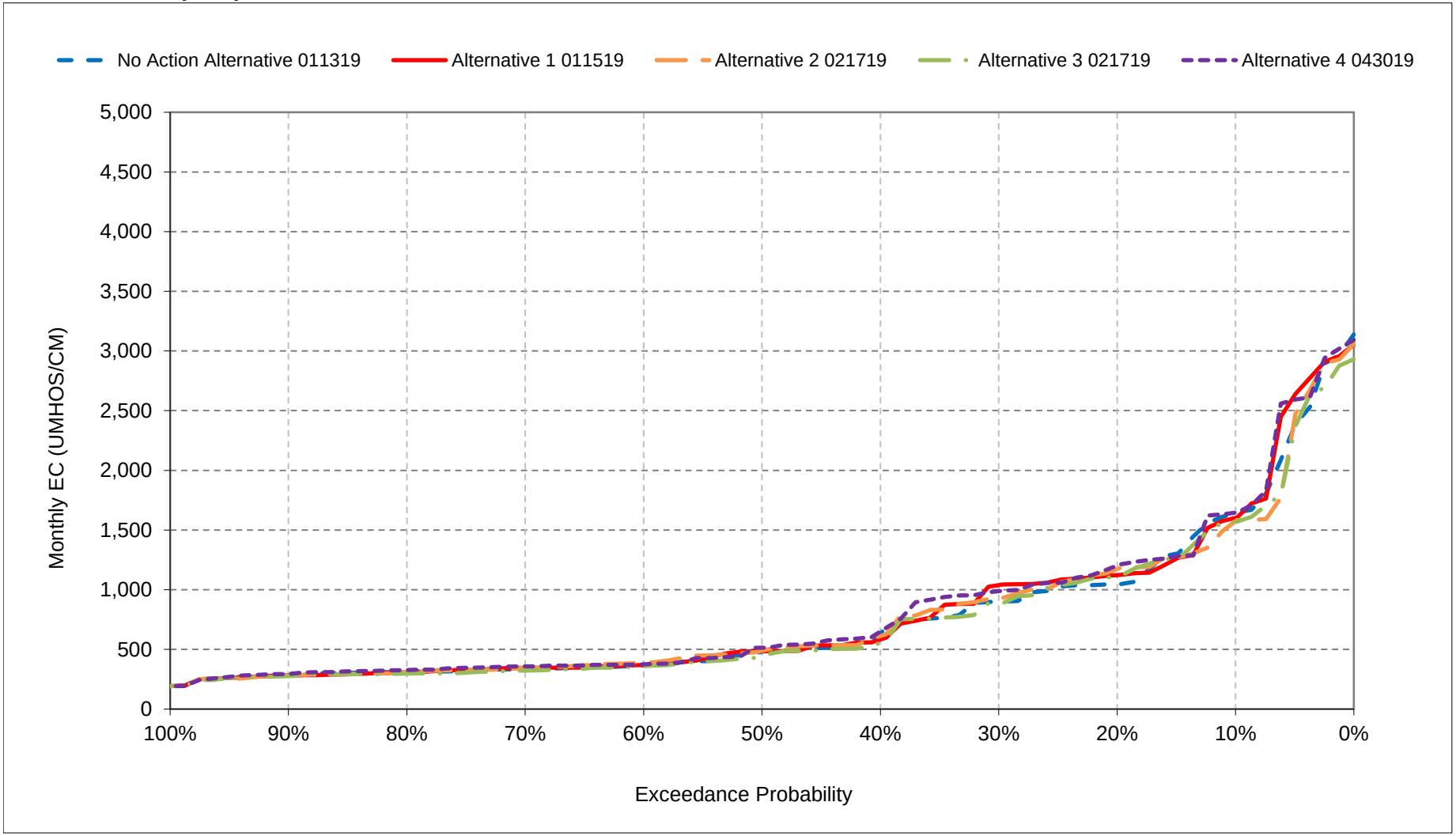
Figure 4-12. Sacramento River at Emmaton Salinity, June EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

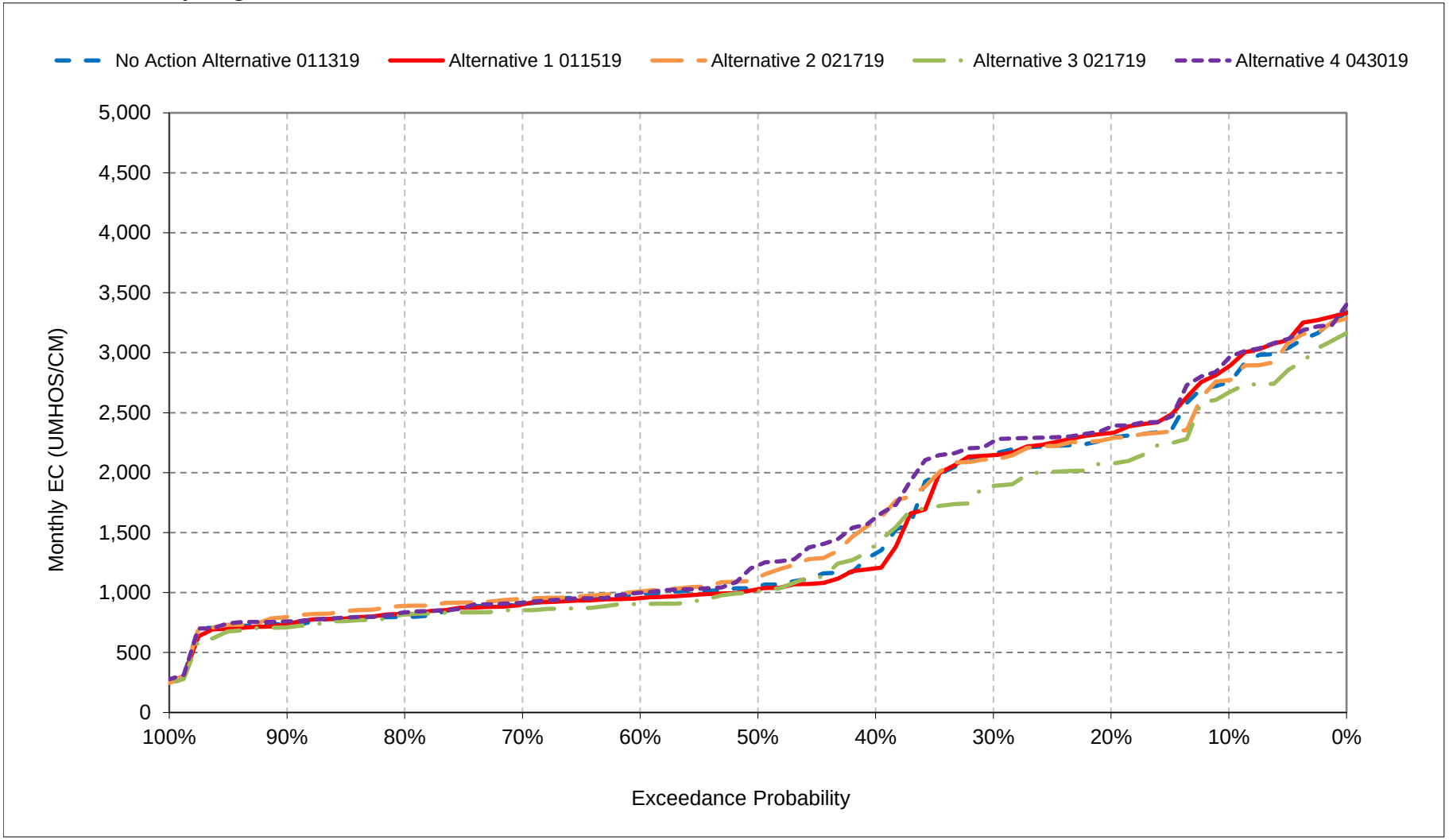
Figure 4-13. Sacramento River at Emmaton Salinity, July EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

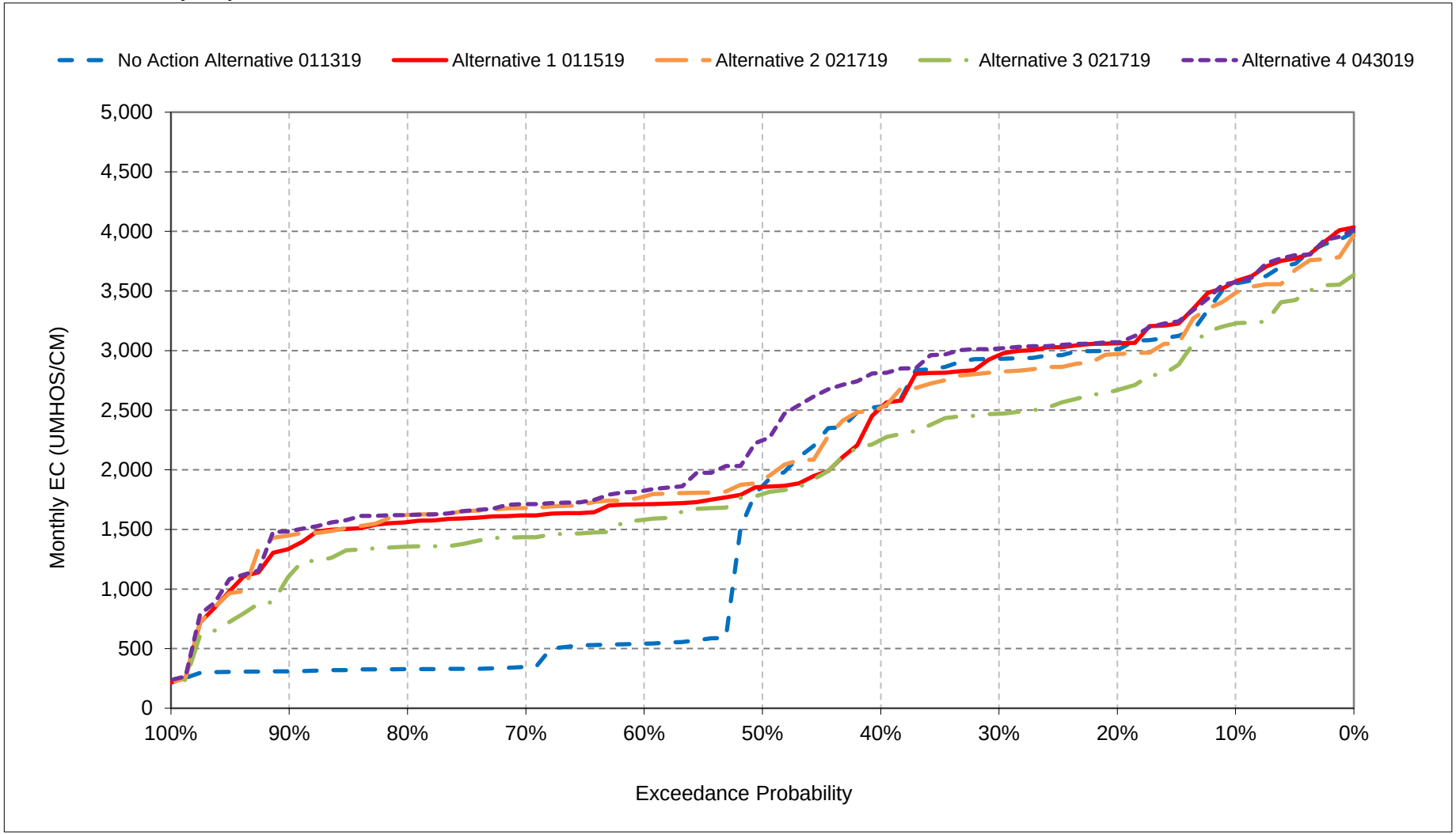
Figure 4-14. Sacramento River at Emmaton Salinity, August EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

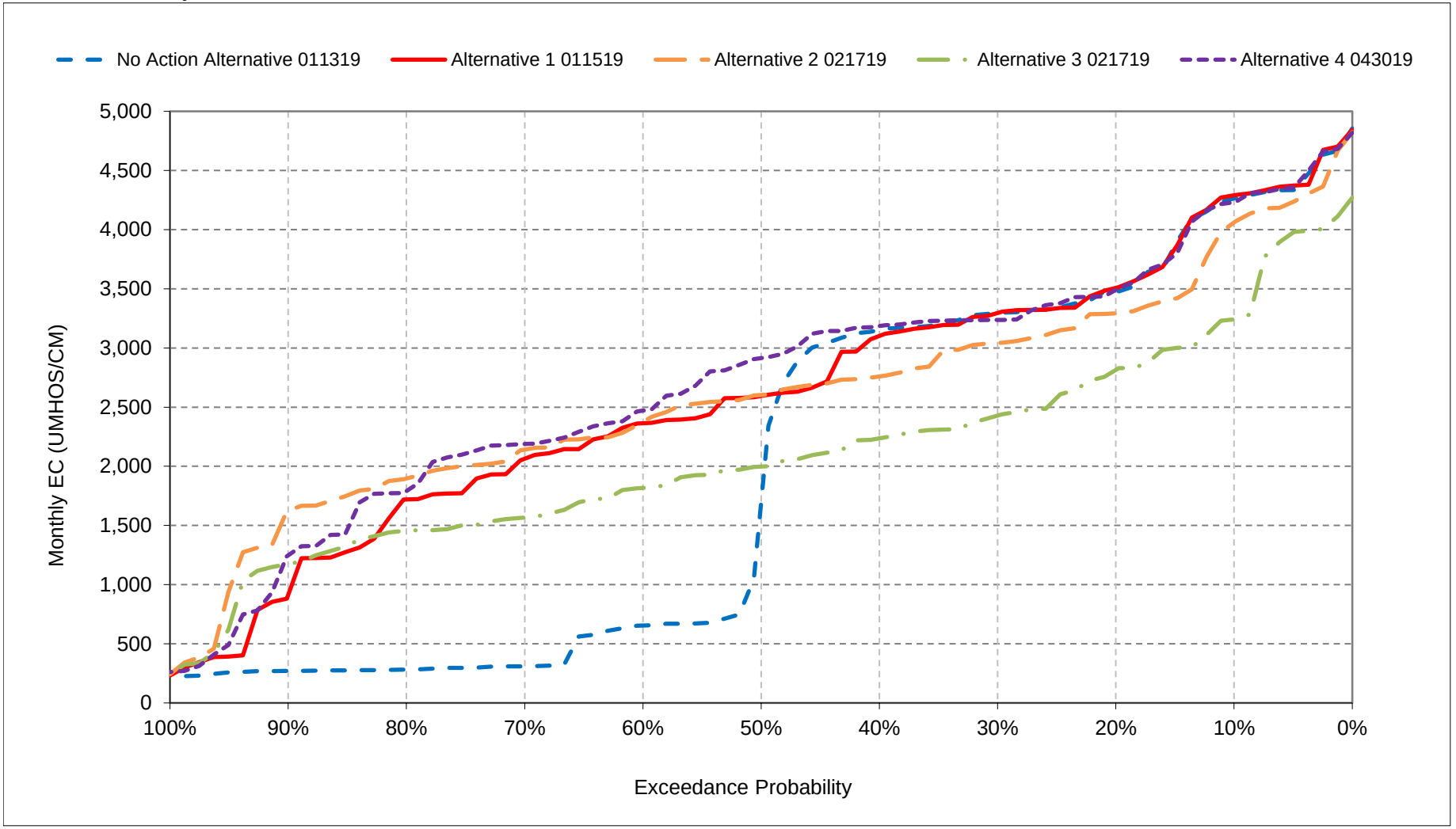
Figure 4-15. Sacramento River at Emmaton Salinity, September EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

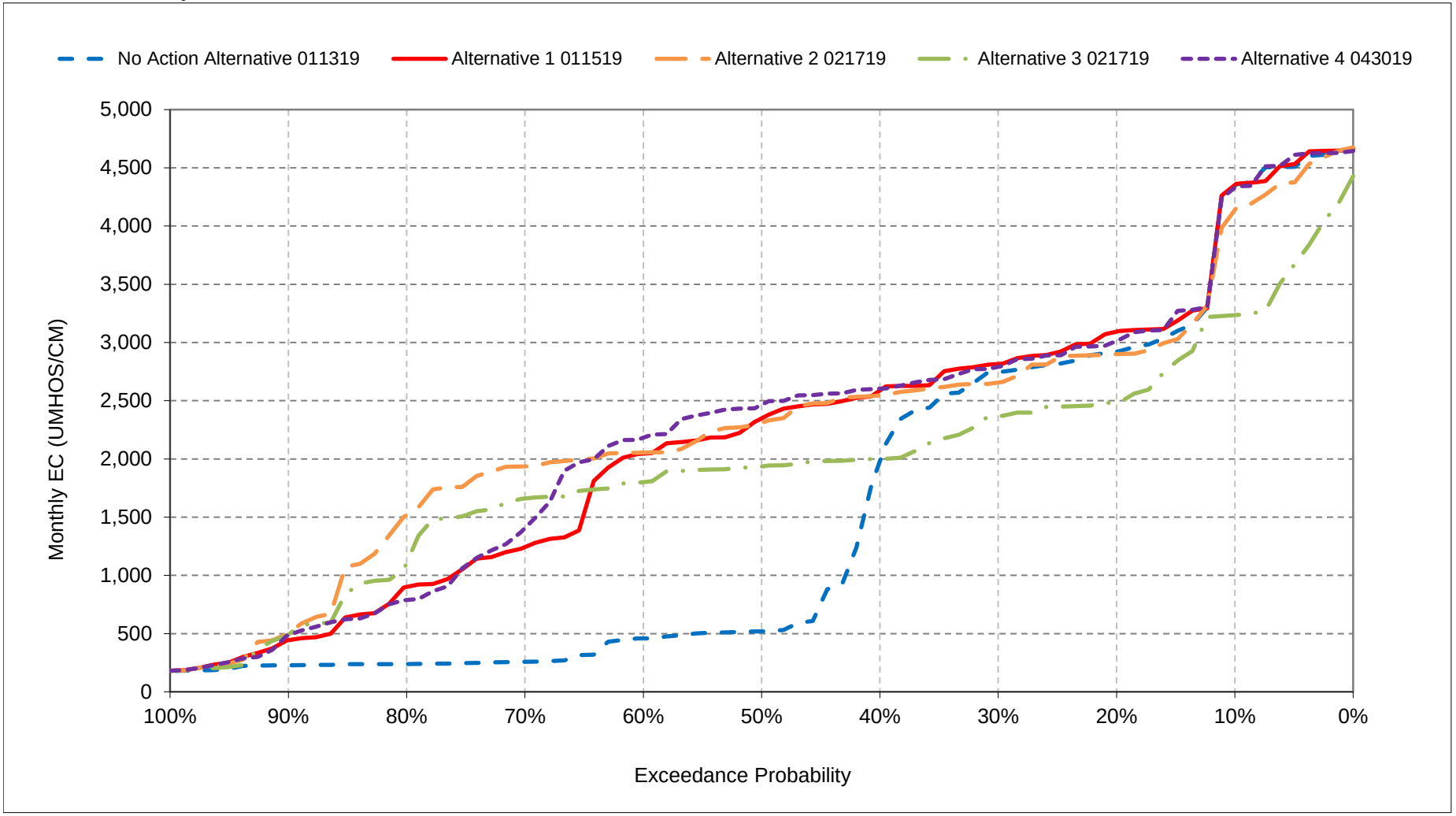
Figure 4-16. Sacramento River at Emmaton Salinity, October EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

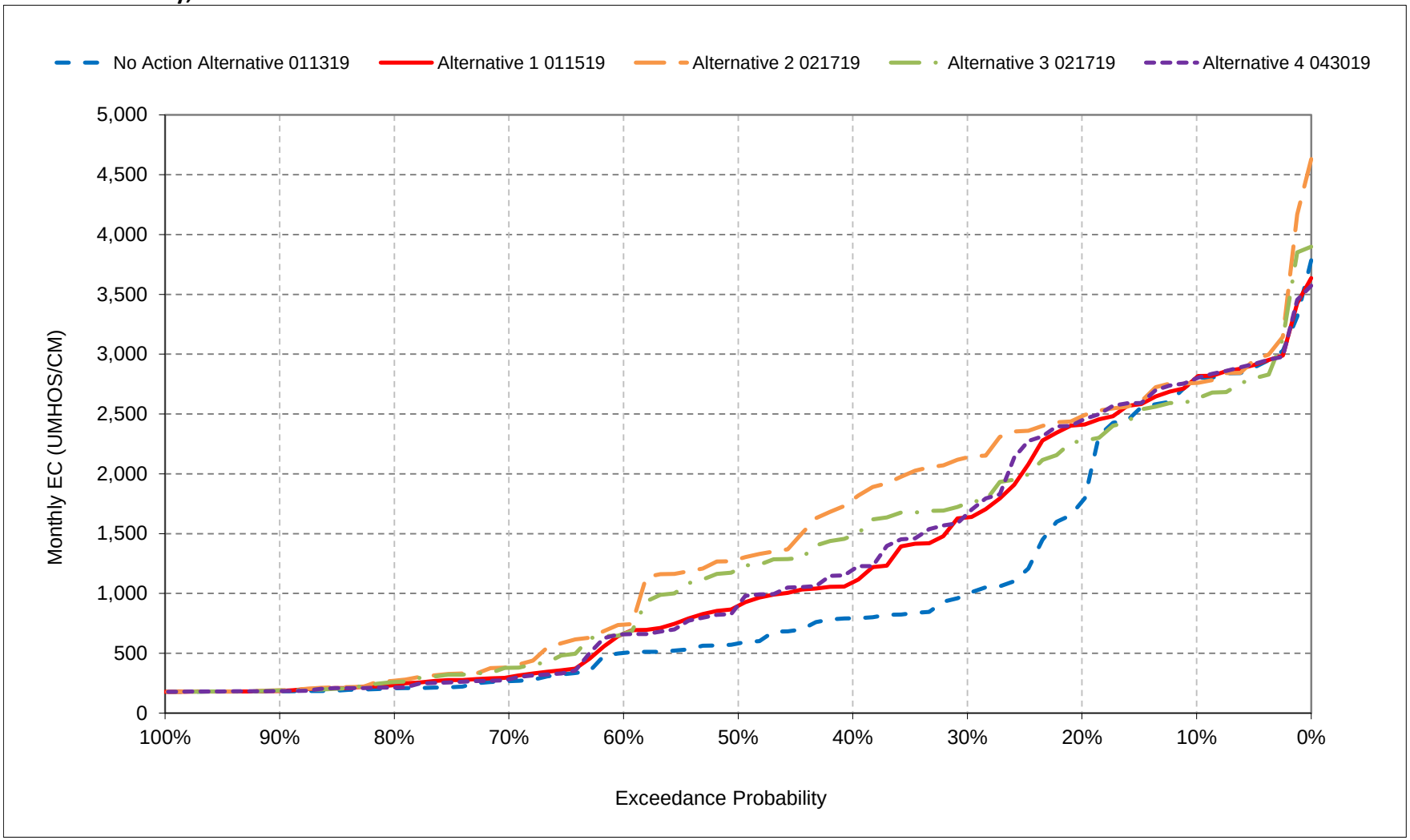
Figure 4-17. Sacramento River at Emmaton Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 4-18. Sacramento River at Emmaton Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 5-1. Sacramento River at Rio Vista Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	640	663	426	249	201	195	192	203	224	293	438	509
20%	500	419	318	228	196	189	189	192	209	239	370	433
30%	464	384	240	215	193	187	187	189	204	220	347	411
40%	434	315	223	203	190	184	186	188	200	203	265	382
50%	297	199	205	198	186	183	184	186	194	194	238	317
60%	200	191	198	196	184	182	182	184	190	187	232	200
70%	187	182	188	189	183	180	180	182	187	185	226	187
80%	185	181	183	185	181	180	179	179	183	184	219	182
90%	184	180	179	180	180	179	178	177	180	183	215	181
Long Term												
Full Simulation Period[a]	354	310	253	210	190	185	185	190	210	223	290	318
Water Year Types[b]												
Wet (32%)	184	181	194	188	182	181	180	180	185	184	220	182
Above Normal (16%)	199	193	213	194	185	181	182	183	192	186	222	200
Below Normal (13%)	407	330	283	209	190	188	187	188	199	197	245	357
Dry (24%)	458	346	282	223	195	186	186	189	203	232	350	417
Critical (15%)	665	641	347	256	206	197	196	226	306	354	458	536

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	643	645	422	264	201	195	192	201	218	292	459	510
20%	499	427	387	233	196	189	189	192	204	244	379	440
30%	456	407	301	220	193	187	186	188	201	231	345	417
40%	437	387	259	203	189	184	185	184	195	202	254	385
50%	382	352	237	198	185	183	183	183	191	197	236	313
60%	351	336	219	192	183	182	181	182	187	187	230	297
70%	326	256	189	188	183	180	180	180	185	186	224	291
80%	291	222	184	184	181	180	179	178	182	185	220	286
90%	225	192	179	180	180	179	178	177	179	183	216	262
Long Term												
Full Simulation Period[a]	405	365	272	212	190	185	185	190	206	225	291	360
Water Year Types[b]												
Wet (32%)	278	273	233	188	182	181	180	179	183	185	219	269
Above Normal (16%)	331	322	260	195	185	181	181	181	188	186	223	294
Below Normal (13%)	397	344	280	212	190	187	185	186	196	198	241	347
Dry (24%)	464	357	281	229	196	186	185	188	199	234	350	423
Critical (15%)	669	645	349	256	206	197	197	228	295	366	470	540

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**3**	-18	-4	**15**	0	**0**	**0**	-1	-6	-1	**21**	**1**
20%	-1	**8**	**69**	**6**	**0**	**0**	0	-1	-6	**5**	**9**	**7**
30%	-8	**23**	**61**	**5**	**0**	**0**	-1	-1	-4	**11**	-2	**6**
40%	**3**	**72**	**35**	-1	-1	**0**	-1	-3	-6	-2	-11	**3**
50%	**85**	**153**	**32**	-1	0	0	0	-3	-3	**3**	-2	-4
60%	**151**	**146**	**21**	-3	0	**0**	-1	-2	-3	0	-2	**96**
70%	**140**	**74**	**2**	-1	0	0	**0**	-2	-2	**1**	-2	**104**
80%	**106**	**42**	**1**	-1	**0**	0	0	0	-1	**1**	**1**	**104**
90%	**41**	**12**	0	**0**	0	0	**0**	**0**	0	0	**2**	**82**
Long Term												
Full Simulation Period[a]	**51**	**55**	**20**	**2**	**0**	0	0	-1	-4	**2**	**1**	**43**
Water Year Types[b]												
Wet (32%)	**93**	**92**	**40**	-1	0	0	0	-1	-2	**0**	-1	**87**
Above Normal (16%)	**132**	**129**	**47**	**1**	-1	0	-1	-2	-4	0	**1**	**94**
Below Normal (13%)	-10	**13**	-3	**4**	**0**	0	-2	-2	-3	**1**	-4	-10
Dry (24%)	**6**	**11**	-1	**6**	**0**	**0**	0	-1	-4	**2**	0	**6**
Critical (15%)	**4**	**4**	**2**	-1	0	**0**	**1**	**2**	-11	**12**	**12**	**3**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 5-2. Sacramento River at Rio Vista Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	640	663	426	249	201	195	192	203	224	293	438	509
20%	500	419	318	228	196	189	189	192	209	239	370	433
30%	464	384	240	215	193	187	187	189	204	220	347	411
40%	434	315	223	203	190	184	186	188	200	203	265	382
50%	297	199	205	198	186	183	184	186	194	194	238	317
60%	200	191	198	196	184	182	182	184	190	187	232	200
70%	187	182	188	189	183	180	180	182	187	185	226	187
80%	185	181	183	185	181	180	179	179	183	184	219	182
90%	184	180	179	180	180	179	178	177	180	183	215	181
Long Term												
Full Simulation Period[a]	354	310	253	210	190	185	185	190	210	223	290	318
Water Year Types[b]												
Wet (32%)	184	181	194	188	182	181	180	180	185	184	220	182
Above Normal (16%)	199	193	213	194	185	181	182	183	192	186	222	200
Below Normal (13%)	407	330	283	209	190	188	187	188	199	197	245	357
Dry (24%)	458	346	282	223	195	186	186	189	203	232	350	417
Critical (15%)	665	641	347	256	206	197	196	226	306	354	458	536

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	587	607	428	292	211	198	193	200	218	284	435	499
20%	455	421	387	276	201	192	188	190	199	247	365	420
30%	436	395	358	240	195	188	186	187	192	228	343	398
40%	398	374	307	218	191	185	184	184	187	203	291	387
50%	382	352	269	206	186	183	183	183	185	198	245	321
60%	357	330	232	197	184	182	181	181	183	188	233	304
70%	336	311	197	189	183	180	180	180	182	186	228	294
80%	314	264	186	184	181	180	179	178	181	185	223	290
90%	283	199	179	180	180	179	178	177	179	184	218	266
Long Term												
Full Simulation Period[a]	398	368	294	228	192	186	185	189	201	223	292	356
Water Year Types[b]												
Wet (32%)	302	295	253	191	182	181	180	179	181	185	221	275
Above Normal (16%)	349	364	284	200	185	181	181	181	183	186	228	302
Below Normal (13%)	391	347	296	244	196	188	185	185	184	199	259	342
Dry (24%)	428	326	284	248	197	187	185	186	195	235	348	406
Critical (15%)	619	622	408	292	212	200	197	228	291	348	454	519

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-52	-56	**2**	**42**	**10**	**3**	**1**	-3	-6	-9	-4	-10
20%	-45	**2**	**69**	**48**	**6**	**3**	-1	-2	-10	**8**	-5	-13
30%	-28	**11**	**118**	**25**	**2**	**1**	0	-2	-12	**8**	-4	-12
40%	-36	**59**	**83**	**15**	**1**	**1**	-1	-3	-14	0	**26**	**5**
50%	**85**	**153**	**64**	**8**	**0**	**0**	0	-3	-9	**4**	**7**	**5**
60%	**156**	**139**	**34**	**1**	0	0	-1	-2	-7	**1**	**1**	**104**
70%	**149**	**129**	**9**	-1	0	**0**	0	-2	-5	**1**	**3**	**107**
80%	**129**	**84**	**3**	-1	0	0	0	-1	-2	**1**	**4**	**108**
90%	**100**	**19**	-1	**0**	0	**0**	**0**	**0**	0	**0**	**4**	**86**
Long Term												
Full Simulation Period[a]	**45**	**58**	**41**	**18**	**2**	**1**	0	-1	-9	**0**	**2**	**38**
Water Year Types[b]												
Wet (32%)	**117**	**114**	**59**	**2**	0	0	0	-1	-4	**1**	**2**	**93**
Above Normal (16%)	**150**	**171**	**70**	**6**	0	0	-1	-2	-9	**0**	**6**	**102**
Below Normal (13%)	-16	**16**	**12**	**35**	**7**	**1**	-2	-3	-15	**2**	**14**	-15
Dry (24%)	-30	-20	**2**	**25**	**1**	**1**	0	-3	-8	**3**	-2	-11
Critical (15%)	-46	-19	**61**	**35**	**6**	**3**	**1**	**2**	-15	-6	-4	-18

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 5-3. Sacramento River at Rio Vista Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	640	663	426	249	201	195	192	203	224	293	438	509
20%	500	419	318	228	196	189	189	192	209	239	370	433
30%	464	384	240	215	193	187	187	189	204	220	347	411
40%	434	315	223	203	190	184	186	188	200	203	265	382
50%	297	199	205	198	186	183	184	186	194	194	238	317
60%	200	191	198	196	184	182	182	184	190	187	232	200
70%	187	182	188	189	183	180	180	182	187	185	226	187
80%	185	181	183	185	181	180	179	179	183	184	219	182
90%	184	180	179	180	180	179	178	177	180	183	215	181
Long Term												
Full Simulation Period[a]	354	310	253	210	190	185	185	190	210	223	290	318
Water Year Types[b]												
Wet (32%)	184	181	194	188	182	181	180	180	185	184	220	182
Above Normal (16%)	199	193	213	194	185	181	182	183	192	186	222	200
Below Normal (13%)	407	330	283	209	190	188	187	188	199	197	245	357
Dry (24%)	458	346	282	223	195	186	186	189	203	232	350	417
Critical (15%)	665	641	347	256	206	197	196	226	306	354	458	536

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	501	507	416	272	206	196	194	204	221	295	429	466
20%	406	383	362	253	198	192	189	190	198	238	342	387
30%	367	360	298	228	195	188	186	188	191	221	308	363
40%	343	322	275	208	192	186	185	186	187	196	265	336
50%	315	310	249	202	186	184	183	183	185	190	227	294
60%	292	295	216	197	184	182	181	182	184	185	218	272
70%	276	278	192	188	183	181	181	180	182	184	214	259
80%	261	238	186	184	182	180	179	179	182	183	211	255
90%	237	196	179	181	180	179	178	177	180	182	205	232
Long Term												
Full Simulation Period[a]	344	331	274	220	191	186	185	190	203	221	277	324
Water Year Types[b]												
Wet (32%)	264	267	231	189	182	181	180	180	182	183	211	251
Above Normal (16%)	293	314	258	195	185	181	181	181	183	183	211	259
Below Normal (13%)	334	312	279	232	194	188	185	185	184	193	240	309
Dry (24%)	363	308	273	236	196	188	186	186	195	229	328	372
Critical (15%)	548	546	381	274	209	199	198	232	299	352	443	488

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-139	-157	-10	**23**	**5**	**1**	**2**	**1**	-2	**2**	-9	-43
20%	-94	-35	**44**	**26**	**2**	**3**	**0**	-2	-12	-1	-27	-46
30%	-97	-24	**58**	**13**	**1**	**1**	0	-1	-13	**1**	-39	-48
40%	-91	**7**	**52**	**5**	**2**	**1**	-1	-2	-14	-8	0	-46
50%	**18**	**111**	**45**	**4**	**0**	**1**	0	-2	-9	-3	-11	-23
60%	**92**	**104**	**19**	**1**	**0**	**0**	-1	-2	-6	-2	-13	**72**
70%	**89**	**96**	**4**	-1	**0**	**1**	**0**	-2	-4	-1	-12	**71**
80%	**76**	**57**	**3**	0	**1**	**0**	**0**	0	-2	-1	-8	**73**
90%	**53**	**16**	0	**1**	**0**	**0**	**1**	**0**	0	-1	-9	**51**
Long Term												
Full Simulation Period[a]	-10	**21**	**21**	**9**	**1**	**1**	0	0	-7	-2	-13	**7**
Water Year Types[b]												
Wet (32%)	**80**	**86**	**37**	**1**	**0**	**0**	0	**0**	-4	-1	-8	**69**
Above Normal (16%)	**94**	**121**	**44**	**1**	0	**0**	-1	-2	-8	-3	-12	**59**
Below Normal (13%)	-73	-19	-4	**23**	**4**	**1**	-1	-3	-15	-5	-5	-48
Dry (24%)	-94	-37	-9	**13**	**0**	**1**	**0**	-3	-8	-3	-21	-45
Critical (15%)	-117	-94	**34**	**18**	**3**	**2**	**2**	**6**	-7	-1	-15	-48

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 5-4. Sacramento River at Rio Vista Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	640	663	426	249	201	195	192	203	224	293	438	509
20%	500	419	318	228	196	189	189	192	209	239	370	433
30%	464	384	240	215	193	187	187	189	204	220	347	411
40%	434	315	223	203	190	184	186	188	200	203	265	382
50%	297	199	205	198	186	183	184	186	194	194	238	317
60%	200	191	198	196	184	182	182	184	190	187	232	200
70%	187	182	188	189	183	180	180	182	187	185	226	187
80%	185	181	183	185	181	180	179	179	183	184	219	182
90%	184	180	179	180	180	179	178	177	180	183	215	181
Long Term												
Full Simulation Period[a]	354	310	253	210	190	185	185	190	210	223	290	318
Water Year Types[b]												
Wet (32%)	184	181	194	188	182	181	180	180	185	184	220	182
Above Normal (16%)	199	193	213	194	185	181	182	183	192	186	222	200
Below Normal (13%)	407	330	283	209	190	188	187	188	199	197	245	357
Dry (24%)	458	346	282	223	195	186	186	189	203	232	350	417
Critical (15%)	665	641	347	256	206	197	196	226	306	354	458	536

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	640	661	428	263	199	194	194	204	219	301	456	514
20%	500	426	383	229	194	189	191	193	206	248	387	438
30%	455	405	313	217	192	187	188	189	200	233	358	421
40%	435	384	262	201	188	184	185	186	198	206	284	399
50%	420	365	238	196	185	183	183	184	194	197	246	344
60%	366	346	216	192	183	181	181	182	189	188	232	309
70%	339	267	186	187	183	180	179	180	186	186	225	296
80%	300	220	183	184	181	179	179	178	184	185	219	292
90%	252	195	179	180	180	179	178	177	180	184	216	279
Long Term												
Full Simulation Period[a]	414	369	274	210	190	185	185	190	206	227	298	371
Water Year Types[b]												
Wet (32%)	292	292	240	187	182	181	180	179	184	185	220	277
Above Normal (16%)	353	326	257	195	184	181	181	181	191	187	223	297
Below Normal (13%)	412	328	284	206	189	186	187	187	196	200	264	377
Dry (24%)	463	353	279	227	195	186	187	191	200	237	362	433
Critical (15%)	665	646	348	252	205	197	196	225	288	372	475	544

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**1**	-3	**2**	**13**	-2	-1	**2**	**1**	-5	**8**	**18**	**5**
20%	0	**7**	**65**	**2**	-2	**0**	**1**	**1**	-4	**9**	**17**	**5**
30%	-9	**21**	**73**	**2**	-2	**0**	**1**	0	-4	**13**	**11**	**10**
40%	**1**	**69**	**39**	-2	-2	-1	-1	-2	-3	**2**	**19**	**17**
50%	**123**	**166**	**33**	-2	-1	0	0	-2	0	**3**	**8**	**27**
60%	**166**	**155**	**18**	-4	-1	0	-1	-1	-1	**1**	0	**109**
70%	**152**	**85**	-1	-3	0	0	-1	-2	-1	**1**	-1	**109**
80%	**115**	**39**	**0**	0	0	0	-1	0	**1**	**1**	**0**	**110**
90%	**68**	**15**	0	0	0	0	0	**0**	0	**1**	**1**	**98**
Long Term												
Full Simulation Period[a]	**61**	**59**	**21**	0	-1	0	0	0	-4	**5**	**8**	**53**
Water Year Types[b]												
Wet (32%)	**108**	**111**	**46**	-1	0	**0**	-1	-1	-1	**1**	0	**95**
Above Normal (16%)	**154**	**133**	**44**	**1**	-1	0	-1	-2	0	**1**	**0**	**97**
Below Normal (13%)	**5**	-3	**0**	-2	-1	-1	0	-1	-3	**3**	**19**	**20**
Dry (24%)	**5**	**8**	-3	**4**	-1	-1	**1**	**2**	-3	**5**	**12**	**16**
Critical (15%)	0	**6**	**1**	-4	-1	**0**	**0**	-1	-18	**19**	**18**	**8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

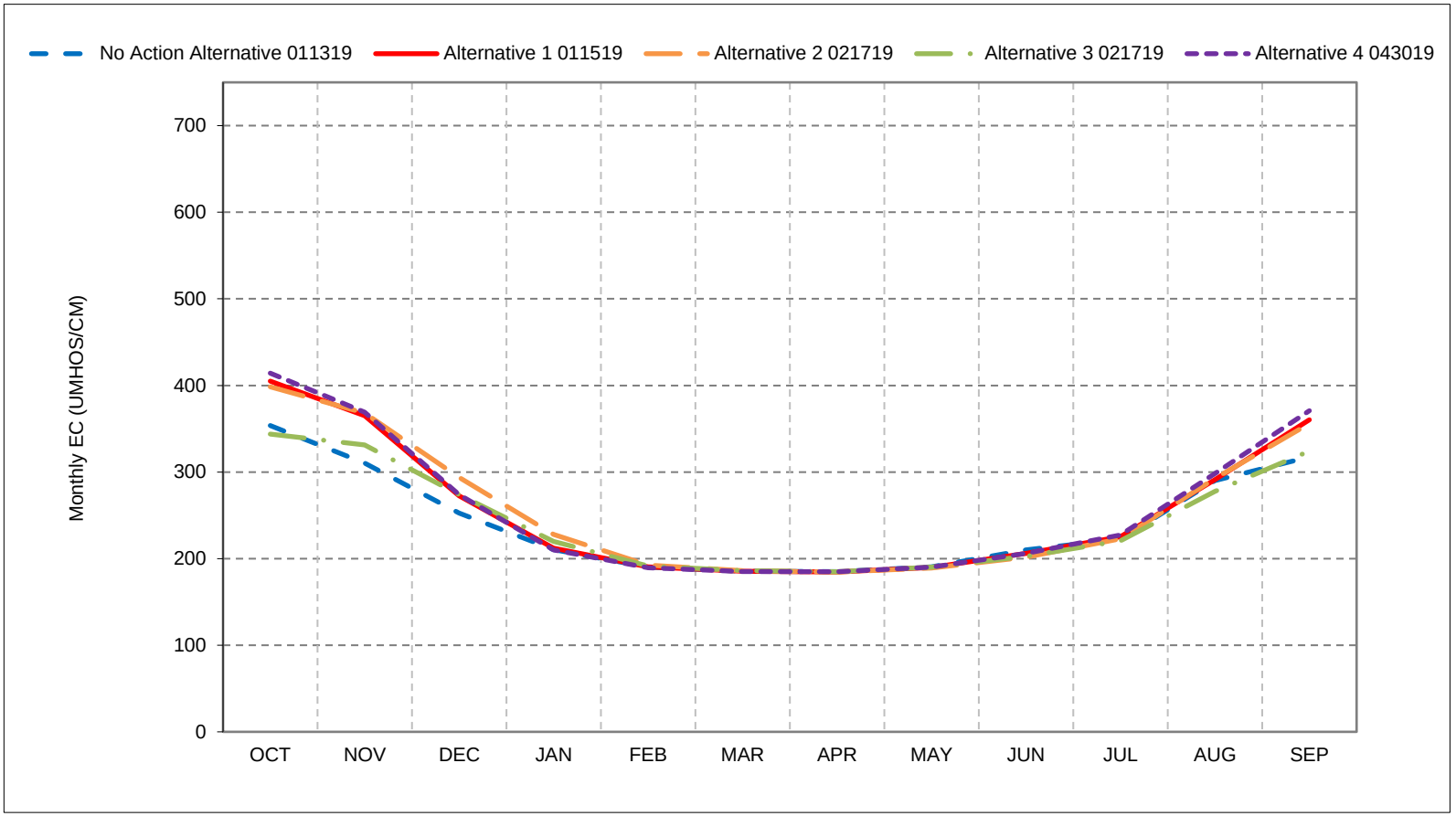
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-1. Sacramento River at Rio Vista Salinity, Long-Term Average EC



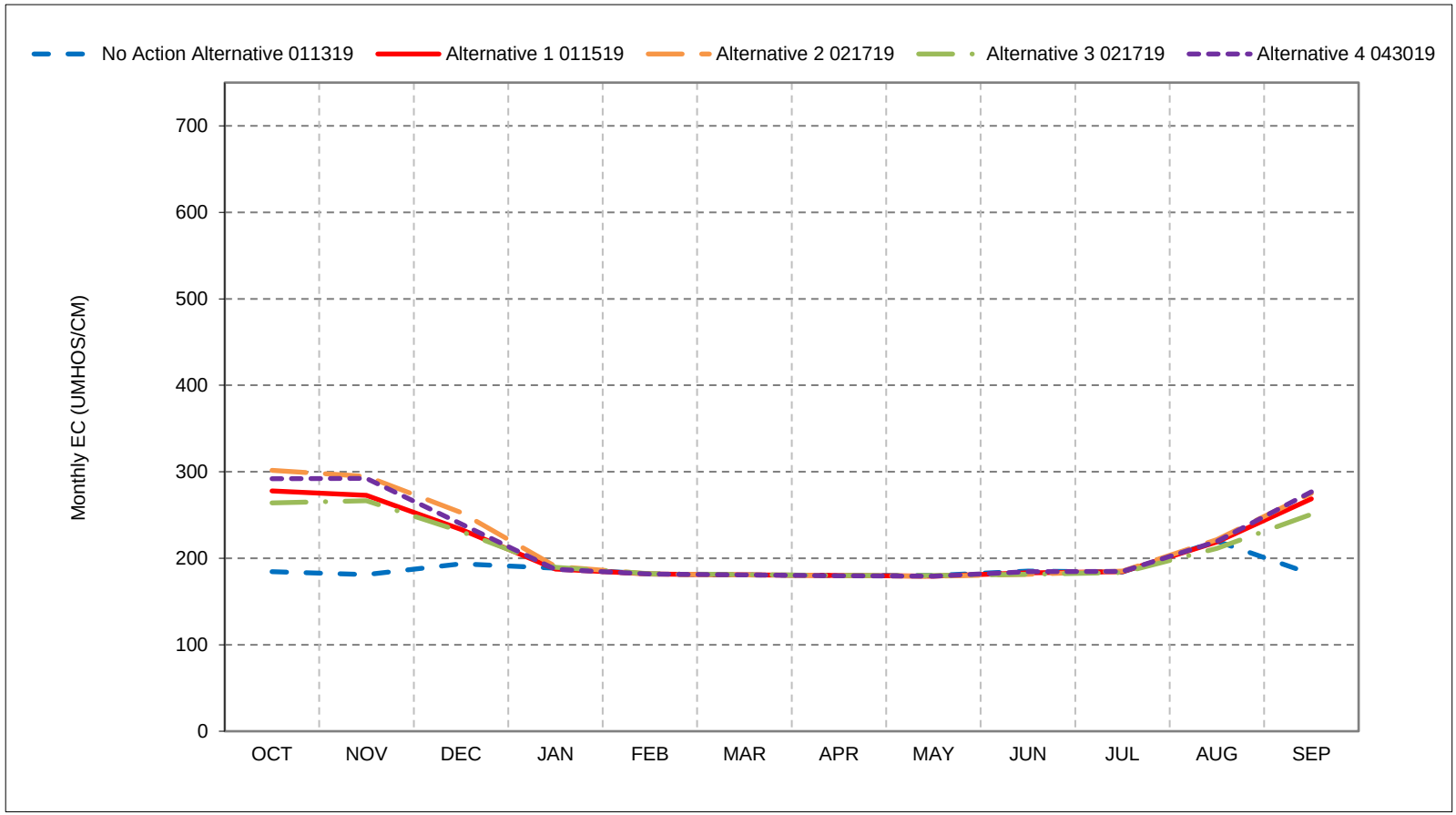
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-2. Sacramento River at Rio Vista Salinity, Wet Year Average EC



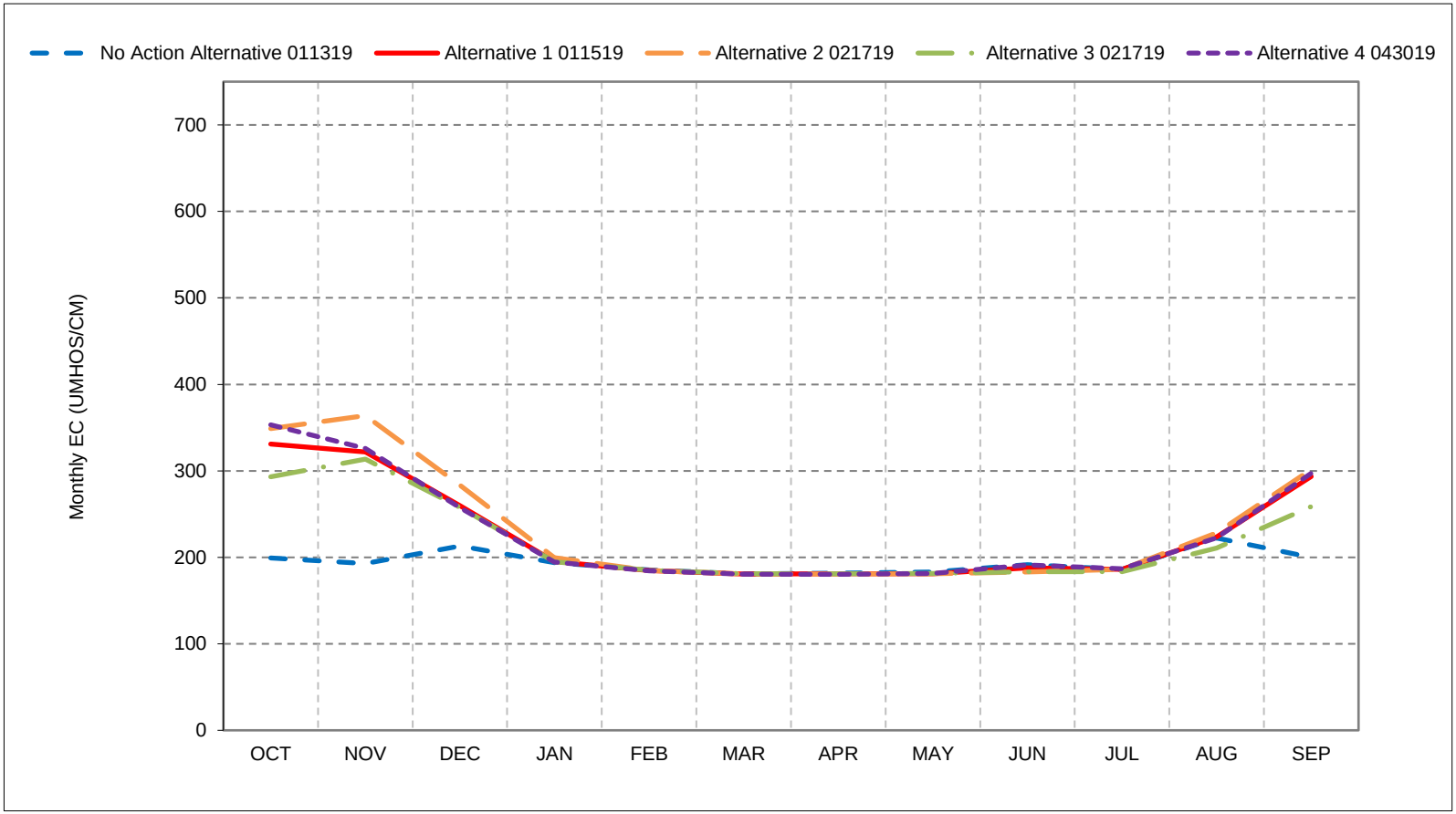
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

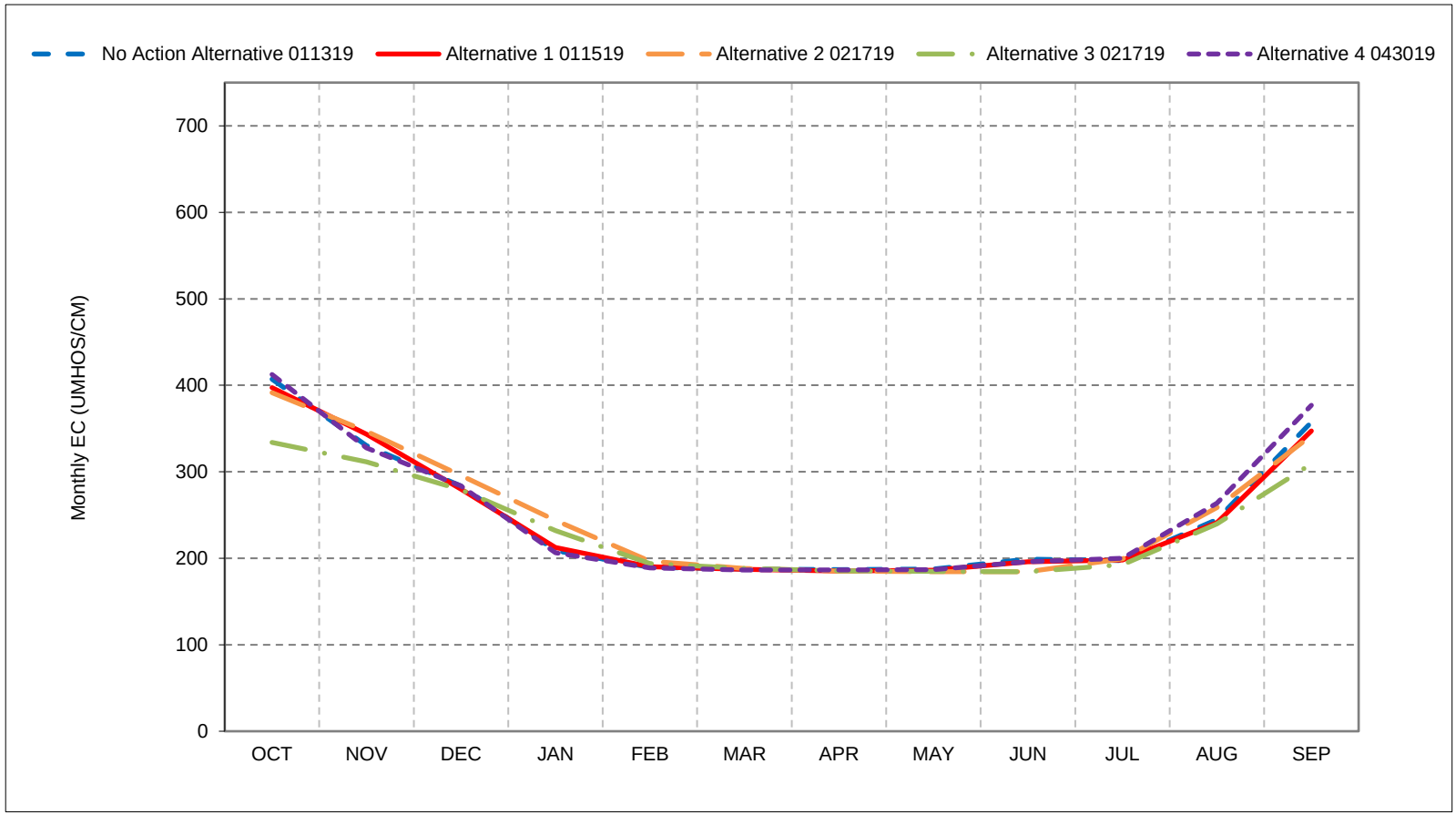
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-3. Sacramento River at Rio Vista Salinity, Above Normal Year Average EC



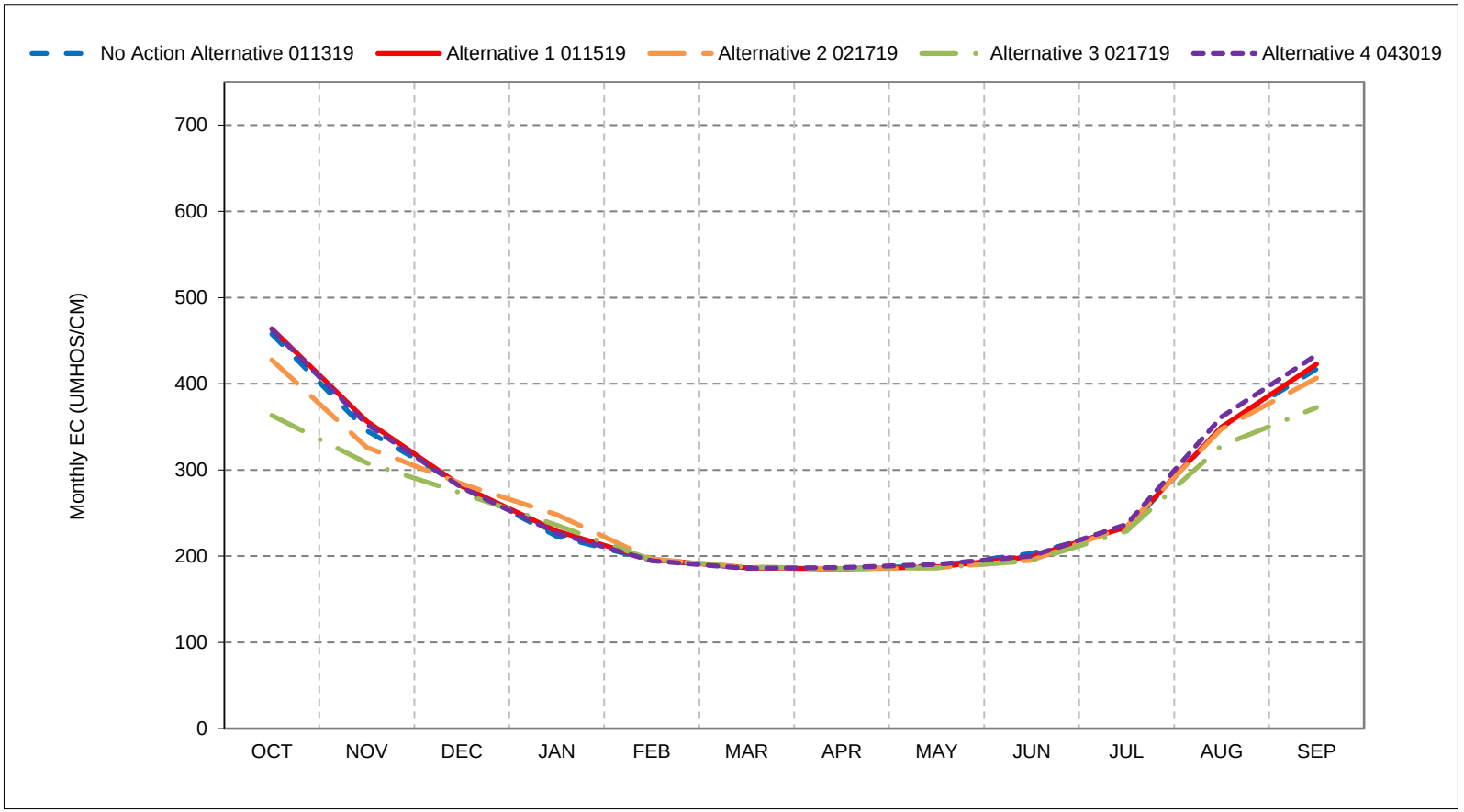
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-4. Sacramento River at Rio Vista Salinity, Below Normal Year Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-5. Sacramento River at Rio Vista Salinity, Dry Year Average EC



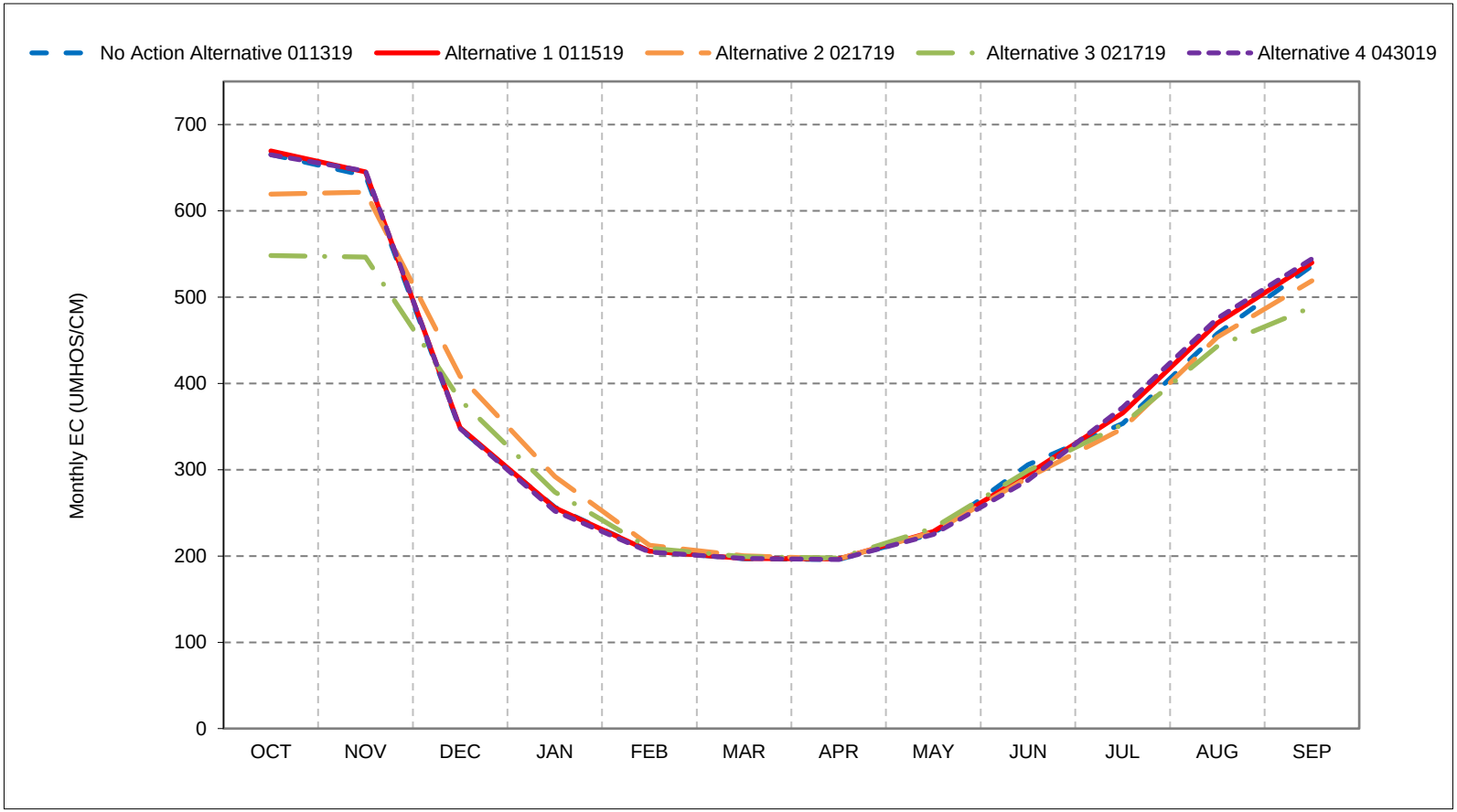
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-6. Sacramento River at Rio Vista Salinity, Critical Year Average EC



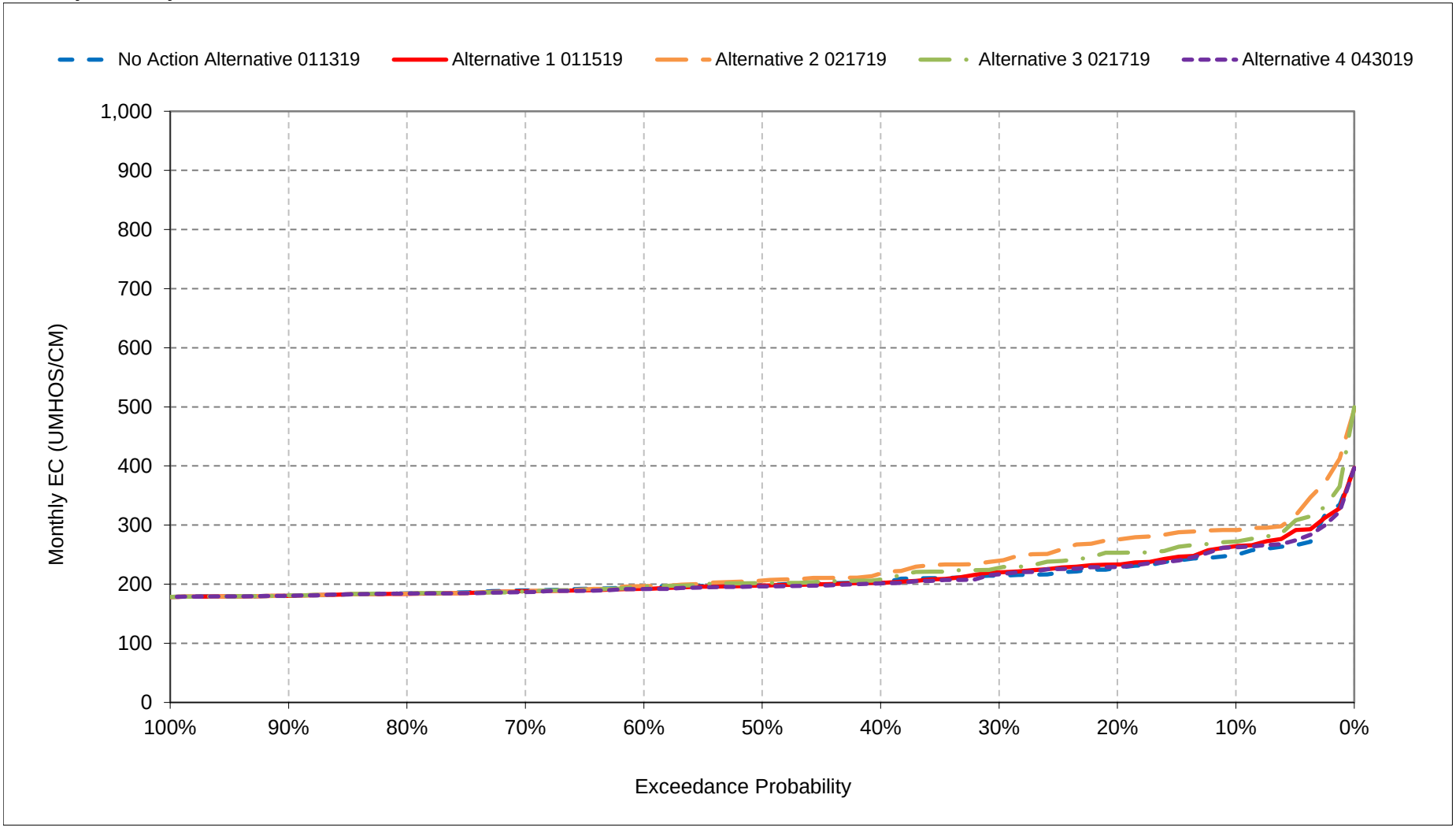
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

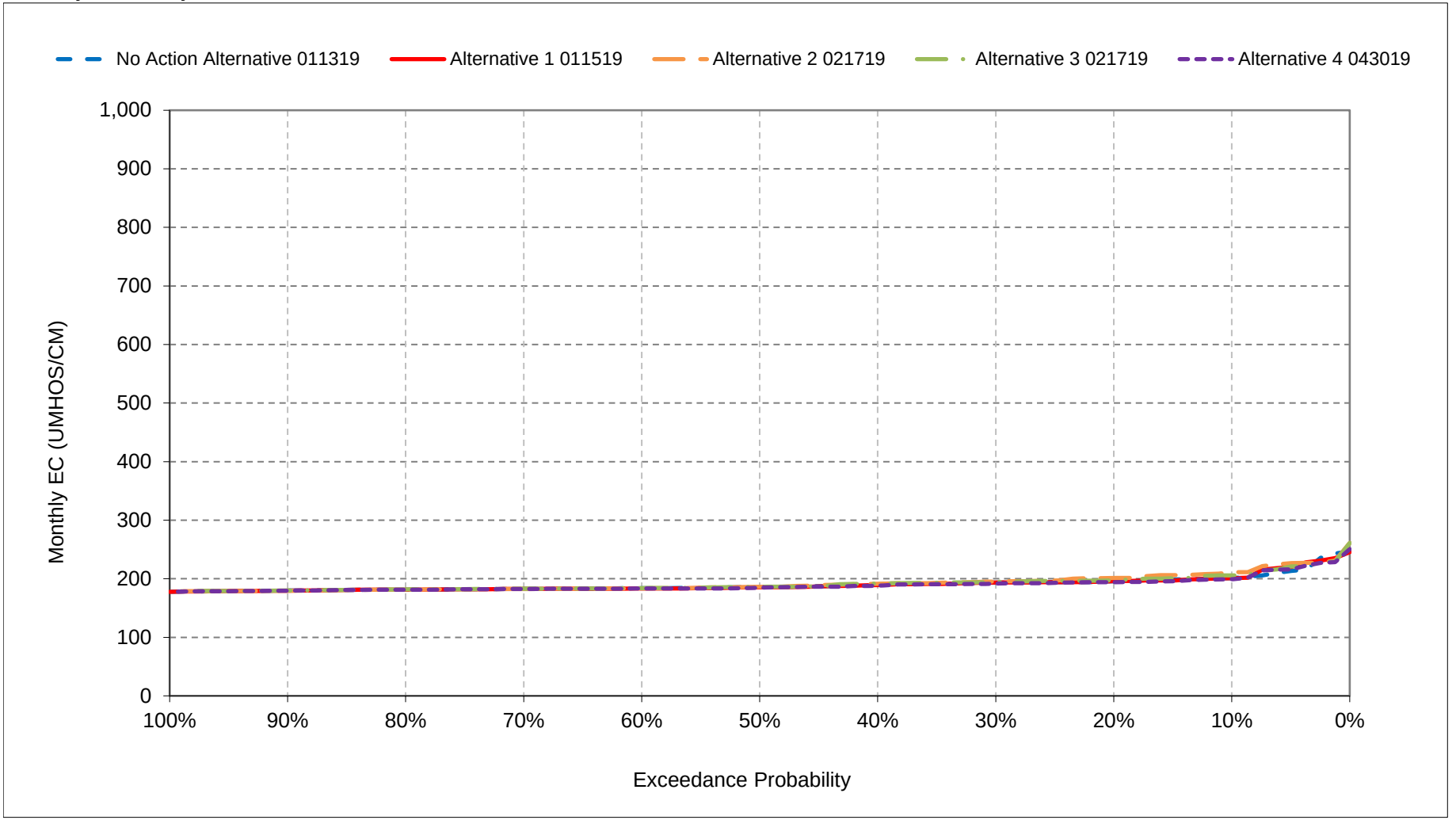
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-7. Sacramento River at Rio Vista
Salinity, January EC



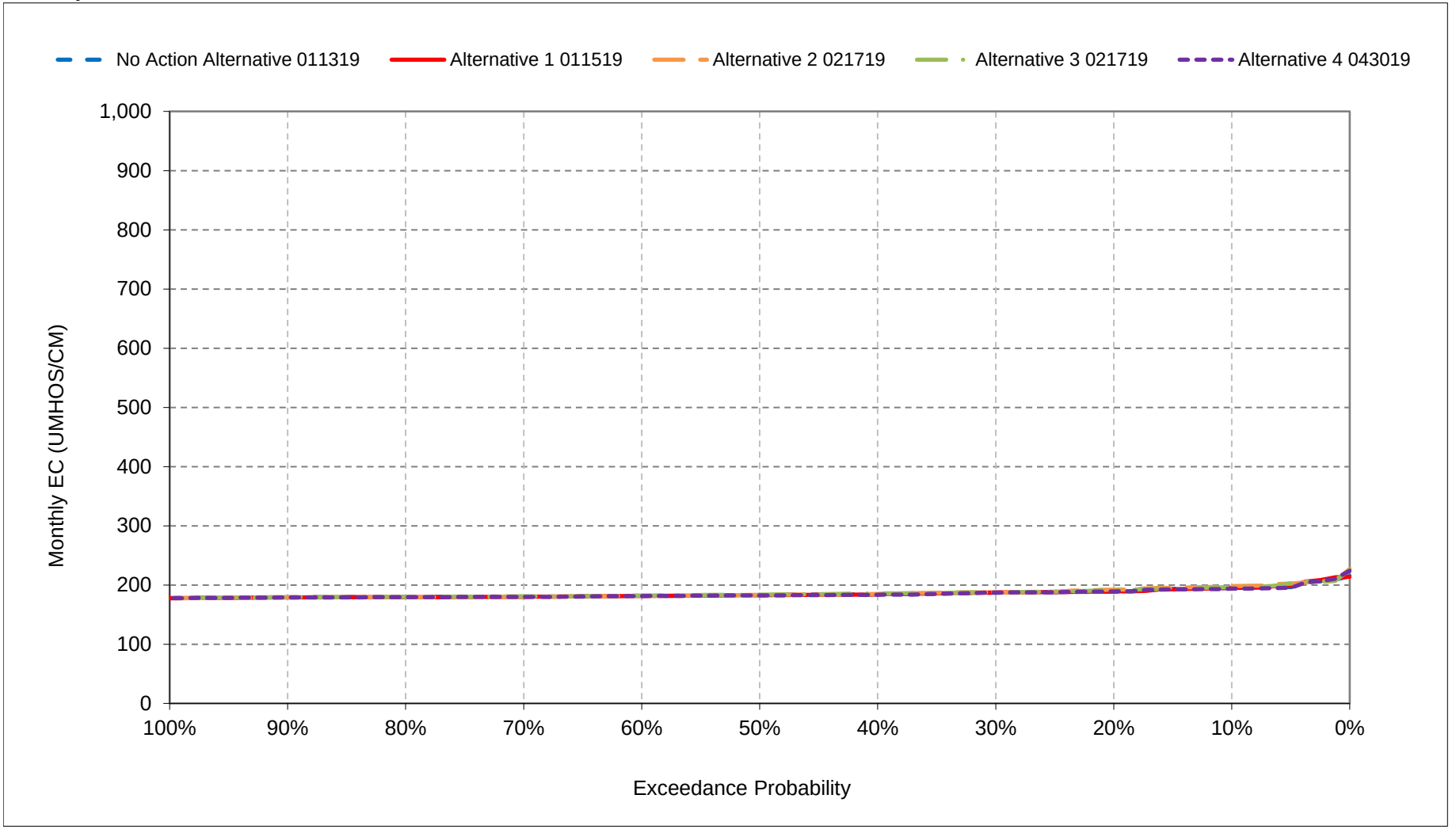
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-8. Sacramento River at Rio Vista
Salinity, February EC



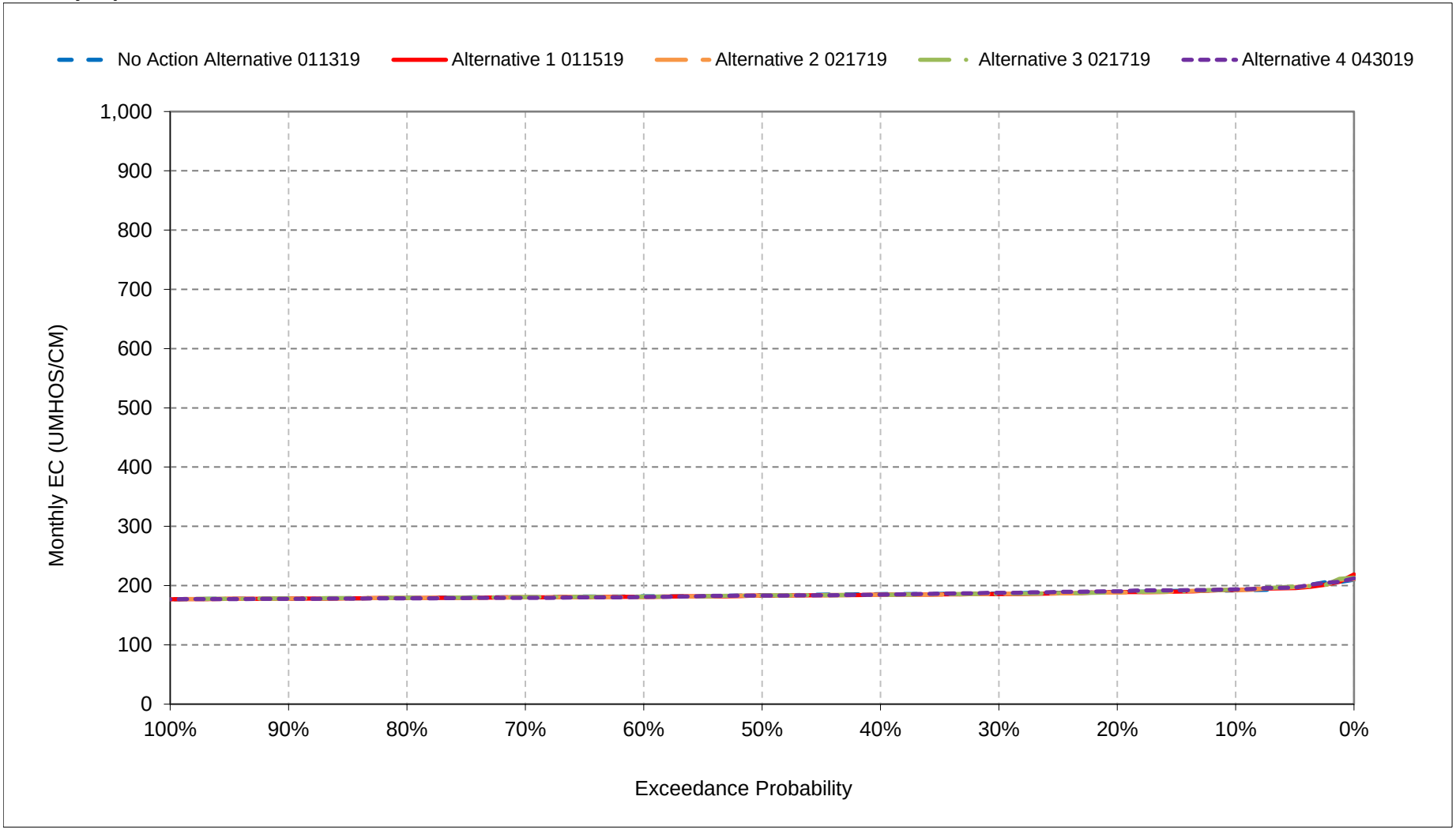
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-9. Sacramento River at Rio Vista
Salinity, March EC



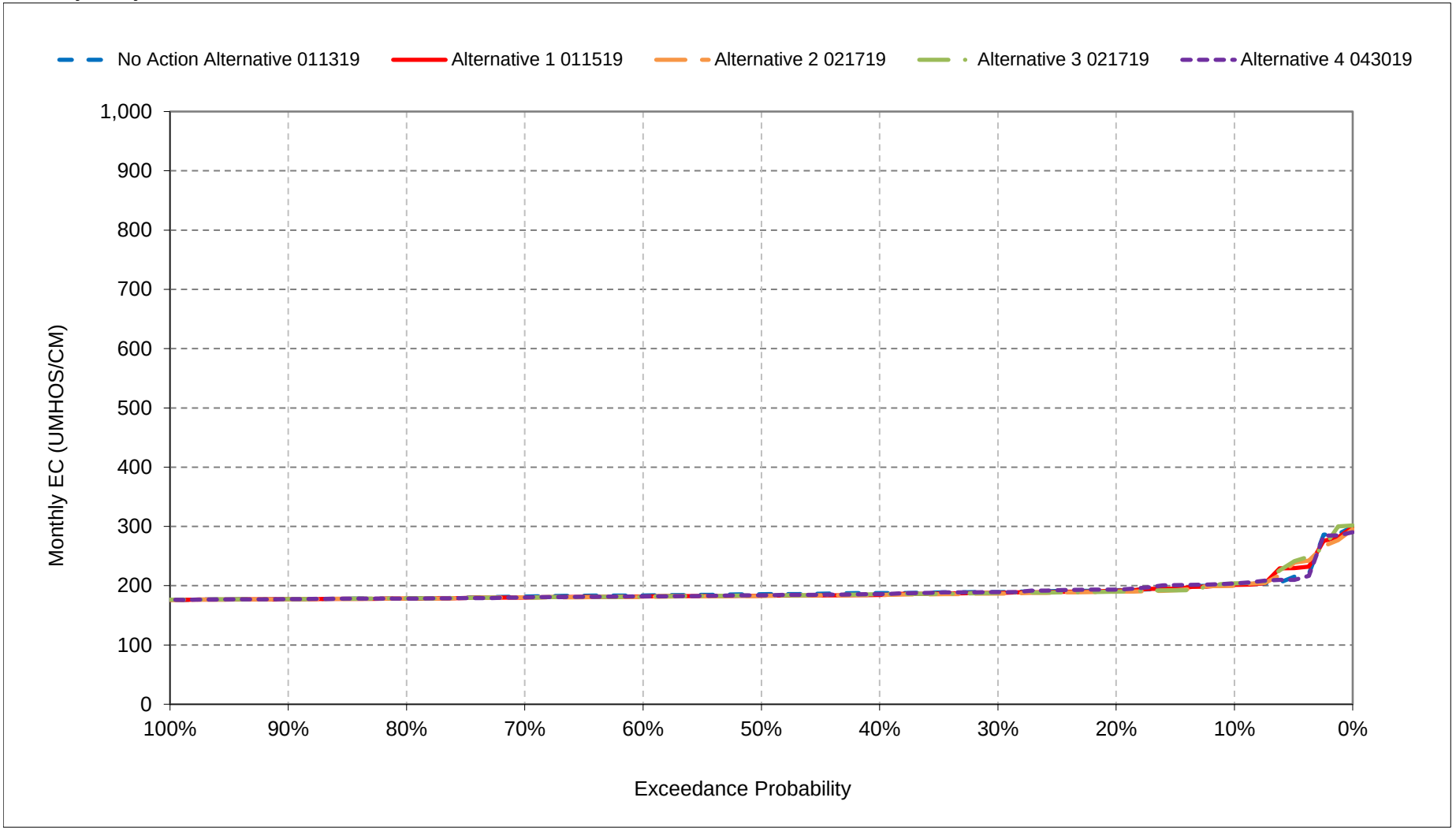
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-10. Sacramento River at Rio Vista
Salinity, April EC



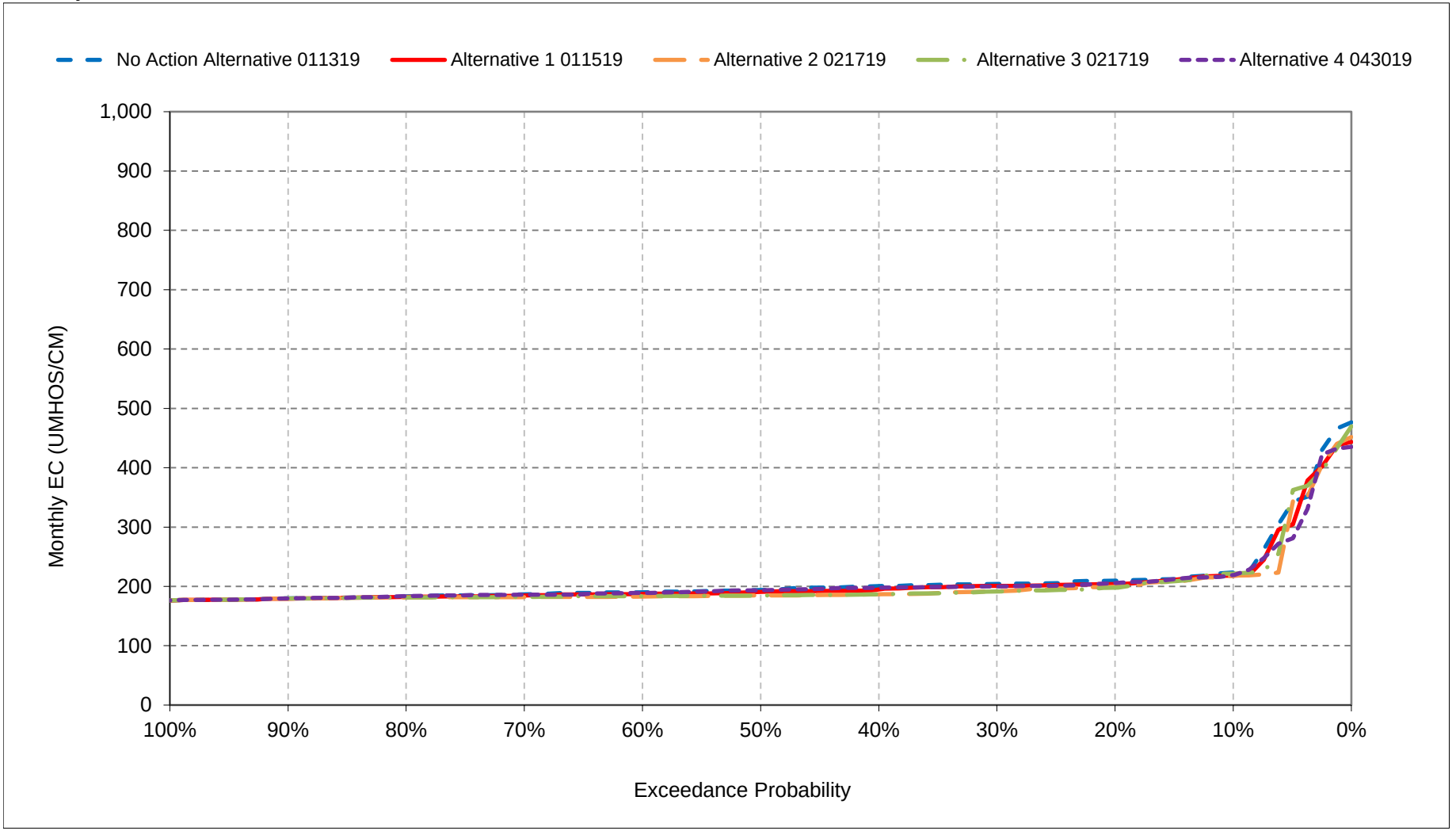
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-11. Sacramento River at Rio Vista
Salinity, May EC



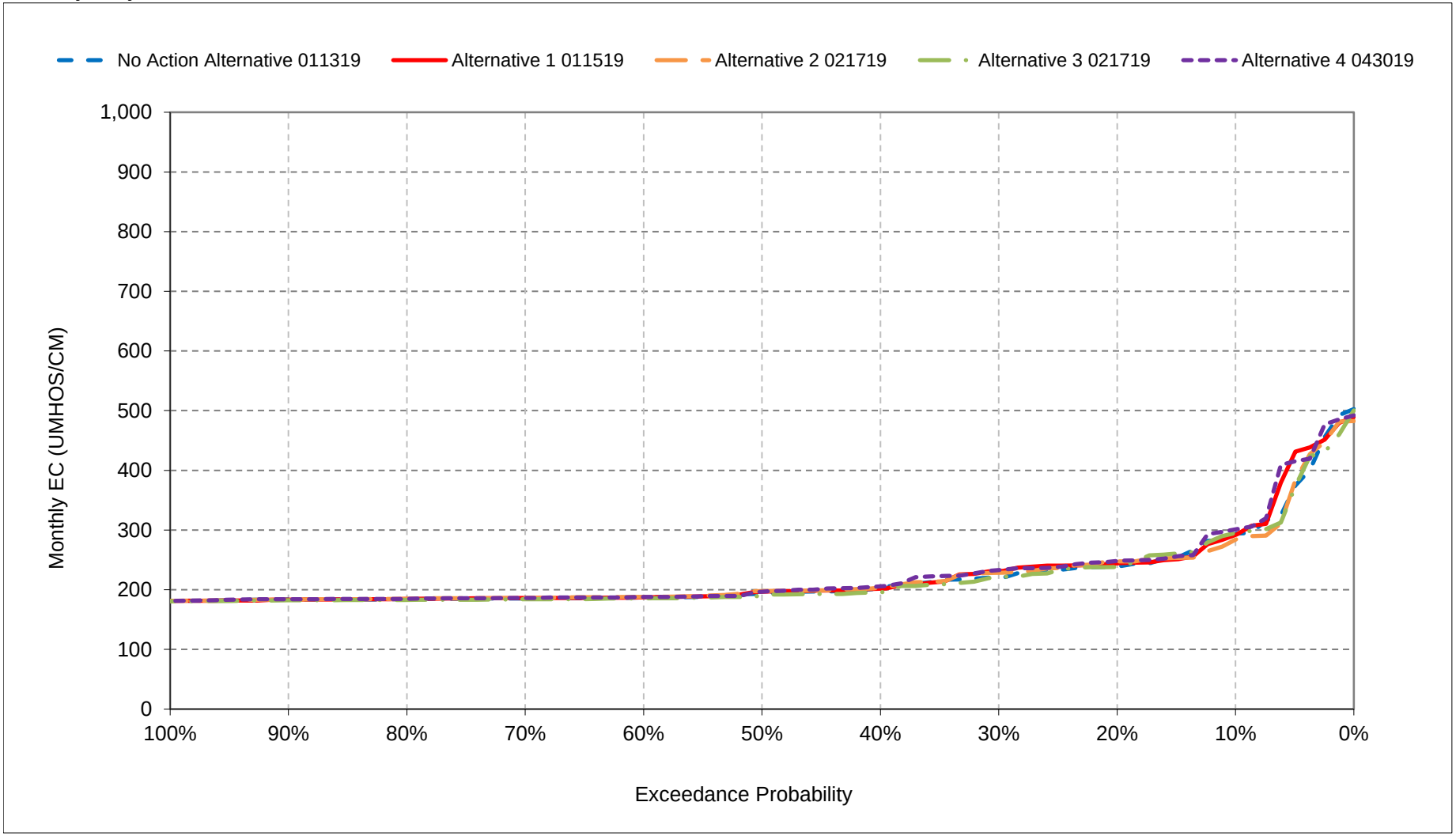
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-12. Sacramento River at Rio Vista
Salinity, June EC



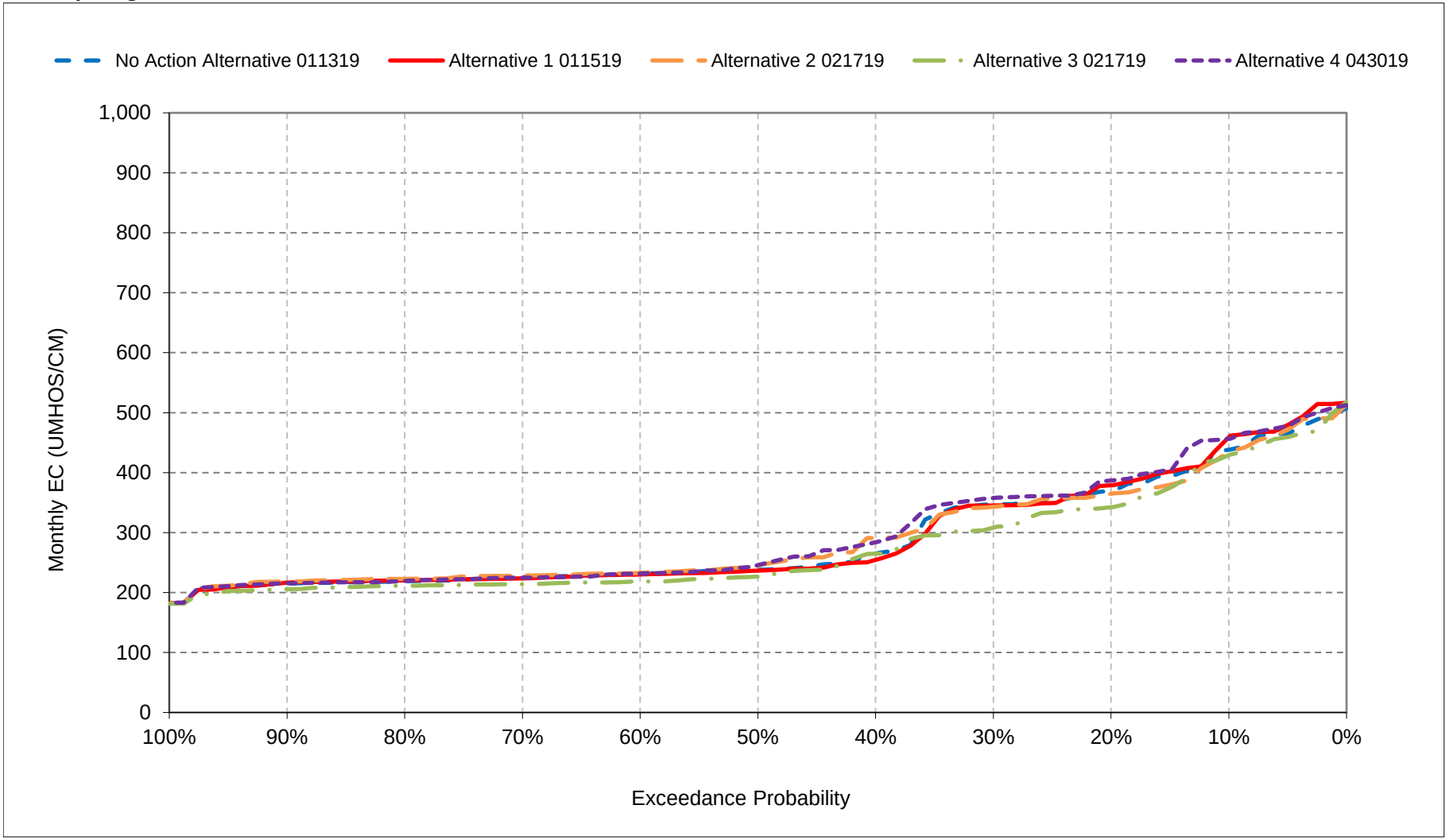
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-13. Sacramento River at Rio Vista
Salinity, July EC



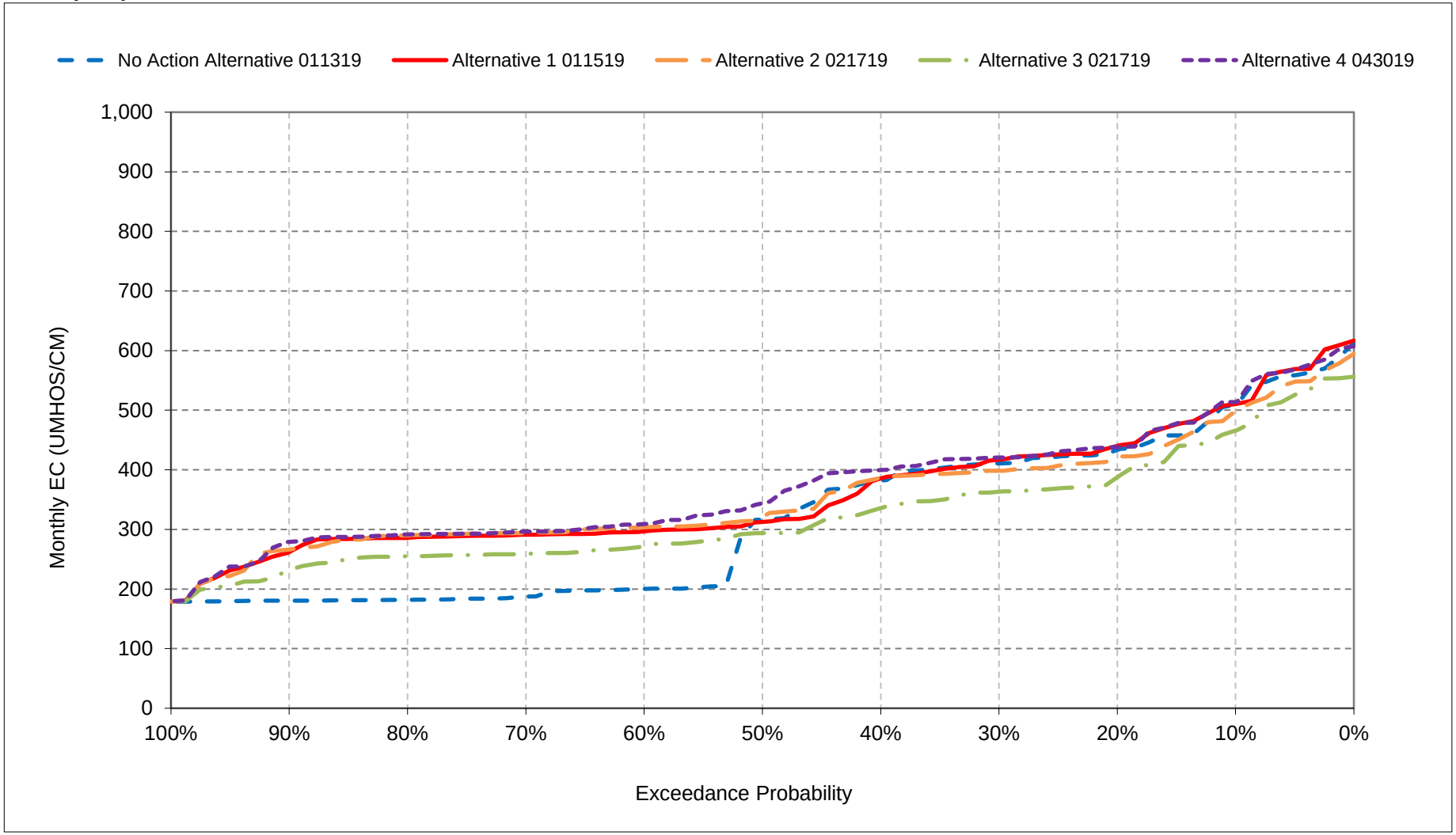
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-14. Sacramento River at Rio Vista
Salinity, August EC



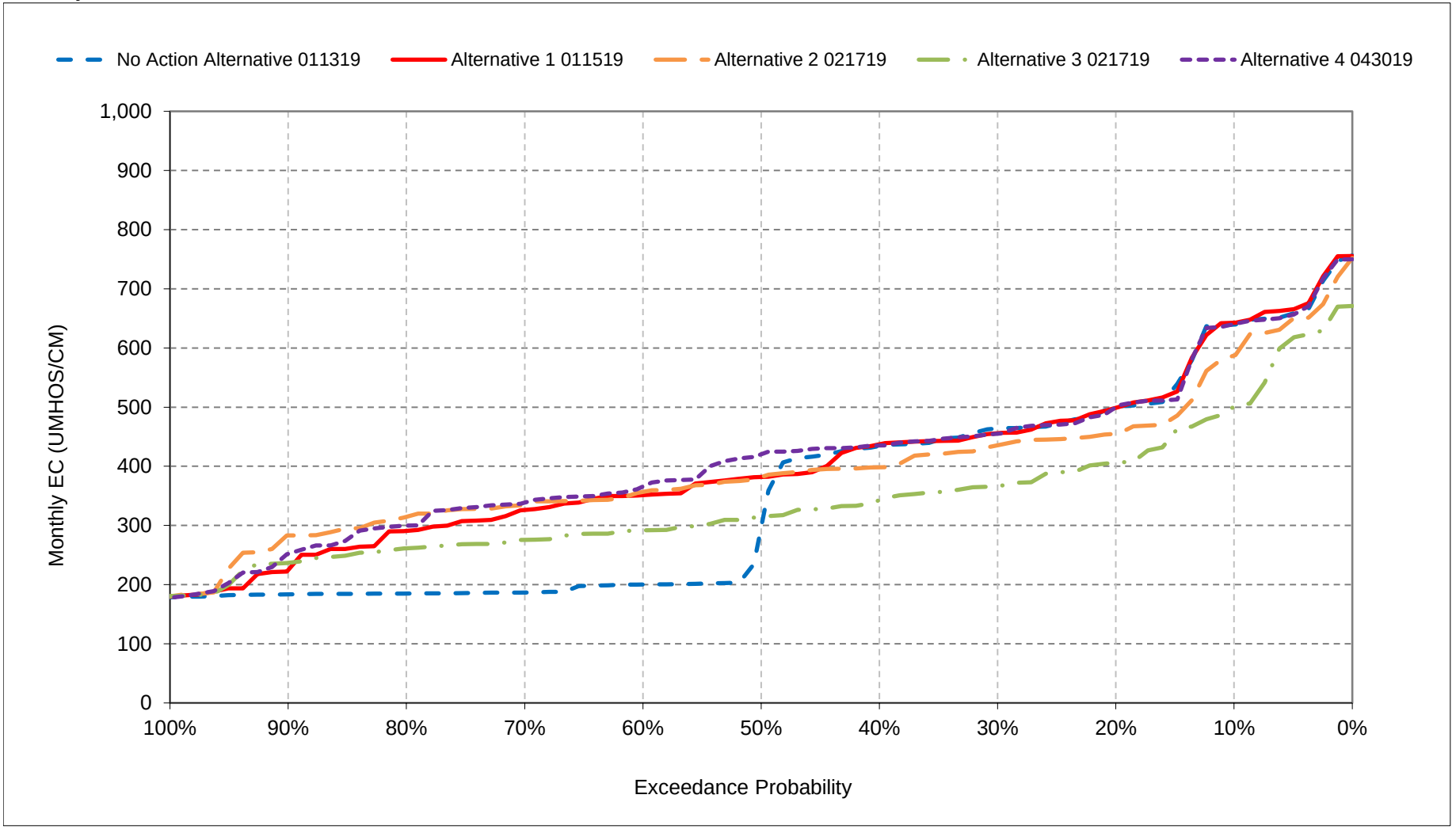
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-15. Sacramento River at Rio Vista
Salinity, September EC



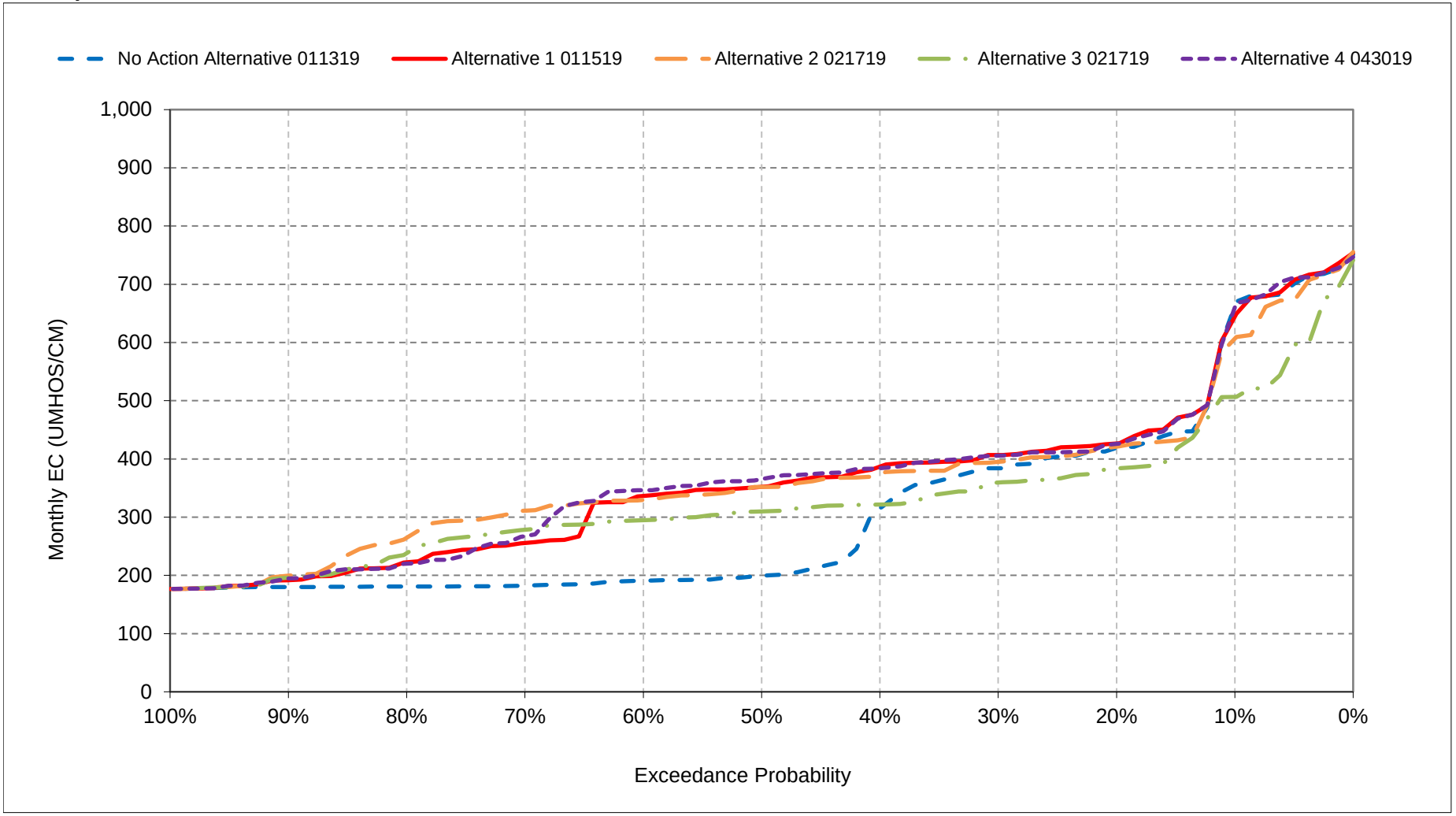
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-16. Sacramento River at Rio Vista
Salinity, October EC



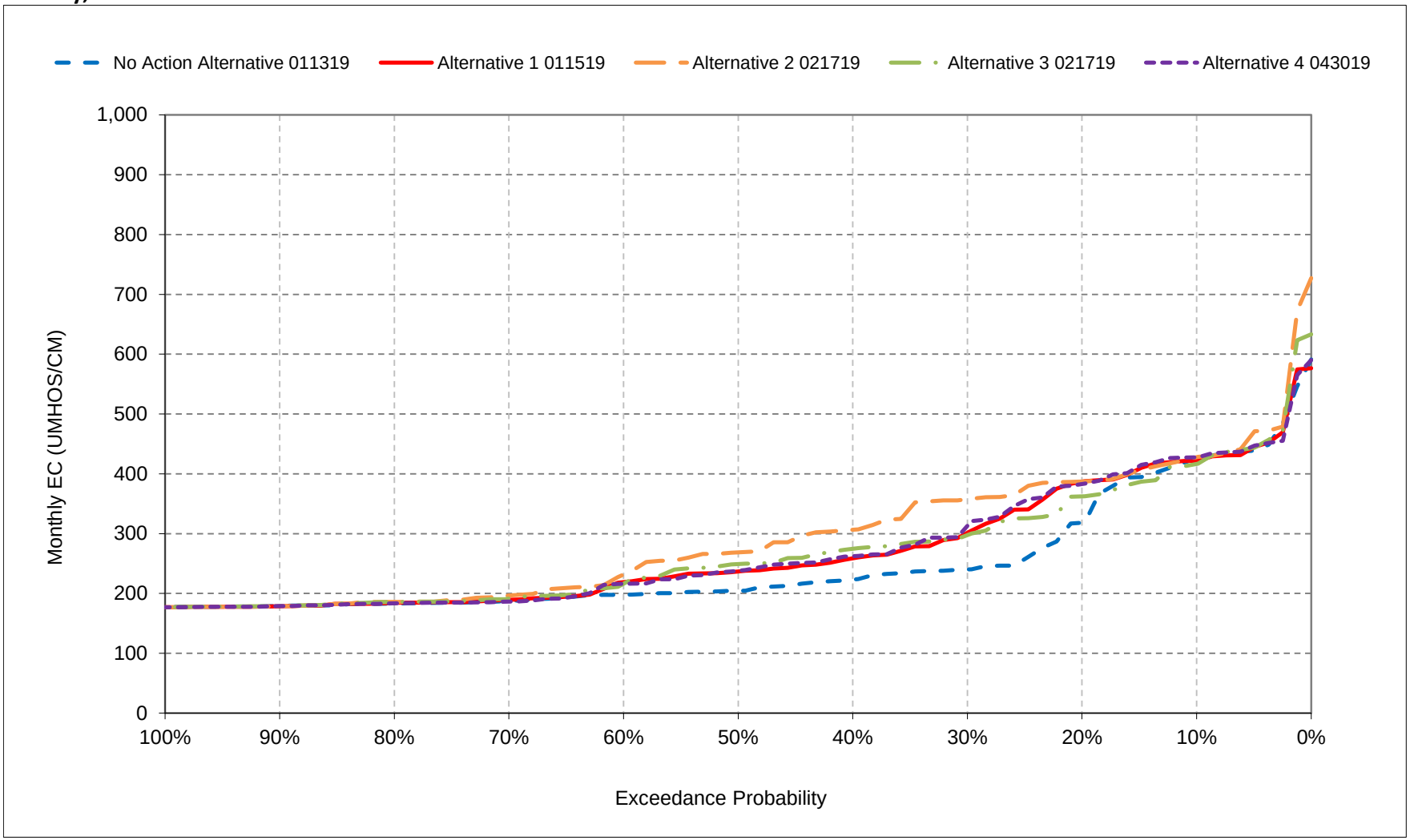
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-17. Sacramento River at Rio Vista
Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 5-18. Sacramento River at Rio Vista
Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 6-1. San Joaquin River at Vernalis Salinity (40-30-30), Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	575	639	800	774	941	847	561	571	646	648	644	608
20%	560	608	784	758	898	803	499	548	639	648	610	586
30%	540	587	772	746	855	737	408	489	616	646	581	568
40%	519	579	766	737	802	696	368	435	588	637	573	552
50%	503	565	761	726	697	623	323	378	555	625	558	538
60%	488	552	755	709	635	460	298	360	499	614	544	521
70%	474	538	736	651	475	333	284	342	454	602	524	489
80%	456	509	710	585	329	296	261	293	419	581	455	476
90%	430	481	629	392	285	263	205	190	361	491	431	441
Long Term												
Full Simulation Period[a]	503	554	721	660	647	564	360	402	521	599	540	526
Water Year Types[b]												
Wet (32%)	439	483	664	536	397	333	241	270	407	520	444	447
Above Normal (16%)	493	541	735	656	610	502	312	356	514	621	539	520
Below Normal (13%)	507	572	741	709	700	595	349	418	557	622	554	534
Dry (24%)	544	592	731	727	814	716	433	482	591	633	586	569
Critical (15%)	578	641	797	776	901	853	556	587	628	669	656	626

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	584	639	800	776	945	847	612	662	685	707	671	620
20%	571	608	784	760	899	804	525	619	665	698	646	599
30%	551	588	772	748	856	737	445	543	632	675	593	569
40%	520	579	766	738	802	697	366	452	610	640	574	553
50%	502	565	761	728	697	623	309	372	563	629	560	540
60%	486	553	755	712	636	464	293	356	501	616	548	525
70%	472	544	741	648	475	339	284	344	460	603	532	491
80%	457	508	710	585	321	297	261	293	420	583	455	479
90%	434	480	609	391	277	253	205	191	361	497	441	440
Long Term												
Full Simulation Period[a]	504	555	721	660	650	569	373	427	537	617	550	530
Water Year Types[b]												
Wet (32%)	440	486	663	532	392	335	240	273	414	525	447	449
Above Normal (16%)	488	541	735	654	607	497	302	350	510	643	540	520
Below Normal (13%)	515	573	741	712	703	603	375	465	578	630	558	537
Dry (24%)	549	592	731	731	820	716	461	527	613	662	608	579
Critical (15%)	577	641	797	776	926	879	590	644	669	704	677	631

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**9**	**0**	0	**2**	**5**	**0**	**51**	**91**	**39**	**59**	**27**	**12**
20%	**11**	-1	0	**2**	**1**	**0**	**26**	**72**	**25**	**50**	**36**	**12**
30%	**11**	**1**	**0**	**1**	**2**	**0**	**37**	**54**	**16**	**29**	**12**	**0**
40%	**1**	**0**	**0**	**1**	**0**	**1**	-1	**17**	**21**	**3**	**1**	**1**
50%	-1	**0**	0	**2**	**1**	**0**	-15	-6	**8**	**4**	**2**	**2**
60%	-3	**1**	0	**3**	**1**	**4**	-5	-4	**2**	**2**	**3**	**4**
70%	-1	**7**	**4**	-3	**0**	**6**	**0**	**2**	**6**	**1**	**8**	**2**
80%	**1**	0	**0**	-1	-8	**1**	**0**	**0**	**1**	**2**	**0**	**3**
90%	**4**	-1	-20	-1	-9	-10	**0**	**1**	**0**	**6**	**9**	0
Long Term												
Full Simulation Period[a]	**2**	**1**	0	0	**4**	**5**	**13**	**26**	**16**	**18**	**10**	**4**
Water Year Types[b]												
Wet (32%)	**1**	**3**	-1	-4	-5	**3**	-1	**4**	**7**	**5**	**3**	**2**
Above Normal (16%)	-5	0	**0**	-2	-3	-5	-10	-6	-3	**22**	**1**	**0**
Below Normal (13%)	**9**	**0**	0	**3**	**3**	**8**	**26**	**47**	**22**	**8**	**4**	**3**
Dry (24%)	**5**	**0**	0	**4**	**6**	**0**	**28**	**45**	**22**	**29**	**22**	**9**
Critical (15%)	-1	0	**0**	**0**	**25**	**26**	**34**	**57**	**41**	**35**	**22**	**5**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 6-2. San Joaquin River at Vernalis Salinity (40-30-30), Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	575	639	800	774	941	847	561	571	646	648	644	608
20%	560	608	784	758	898	803	499	548	639	648	610	586
30%	540	587	772	746	855	737	408	489	616	646	581	568
40%	519	579	766	737	802	696	368	435	588	637	573	552
50%	503	565	761	726	697	623	323	378	555	625	558	538
60%	488	552	755	709	635	460	298	360	499	614	544	521
70%	474	538	736	651	475	333	284	342	454	602	524	489
80%	456	509	710	585	329	296	261	293	419	581	455	476
90%	430	481	629	392	285	263	205	190	361	491	431	441
Long Term												
Full Simulation Period[a]	503	554	721	660	647	564	360	402	521	599	540	526
Water Year Types[b]												
Wet (32%)	439	483	664	536	397	333	241	270	407	520	444	447
Above Normal (16%)	493	541	735	656	610	502	312	356	514	621	539	520
Below Normal (13%)	507	572	741	709	700	595	349	418	557	622	554	534
Dry (24%)	544	592	731	727	814	716	433	482	591	633	586	569
Critical (15%)	578	641	797	776	901	853	556	587	628	669	656	626

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	742	646	800	811	943	872	602	601	646	649	632	603
20%	714	613	778	792	933	824	538	580	643	648	610	584
30%	686	593	770	774	855	751	479	564	637	648	583	568
40%	655	583	763	753	787	710	399	513	611	638	574	552
50%	627	566	756	726	689	633	347	425	577	629	559	540
60%	595	549	744	701	638	502	317	388	511	619	548	522
70%	566	535	728	629	456	356	305	370	476	605	534	495
80%	536	508	703	545	321	306	270	303	426	585	455	477
90%	480	473	543	389	250	253	207	193	361	466	357	357
Long Term												
Full Simulation Period[a]	620	555	714	666	641	578	390	436	533	599	533	519
Water Year Types[b]												
Wet (32%)	507	477	643	524	381	344	251	288	419	514	428	427
Above Normal (16%)	600	542	730	660	594	507	337	390	523	630	541	520
Below Normal (13%)	636	576	739	712	663	612	408	491	582	625	556	536
Dry (24%)	691	597	731	743	827	733	476	520	597	633	587	570
Critical (15%)	754	647	797	810	924	874	586	614	642	666	643	615

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**166**	**7**	**0**	**37**	**2**	**25**	**41**	**30**	**0**	**0**	-12	-5
20%	**154**	**5**	-6	**34**	**35**	**21**	**39**	**32**	**3**	**0**	0	-2
30%	**147**	**6**	-2	**28**	0	**14**	**71**	**75**	**21**	**1**	**2**	**0**
40%	**135**	**4**	-3	**15**	-15	**13**	**31**	**78**	**23**	**1**	**1**	**0**
50%	**124**	**1**	-6	0	-7	**10**	**24**	**47**	**22**	**4**	**1**	**2**
60%	**107**	-3	-12	-9	**3**	**43**	**19**	**28**	**12**	**6**	**4**	**1**
70%	**93**	-3	-9	-22	-18	**23**	**22**	**28**	**22**	**3**	**10**	**6**
80%	**80**	-1	-7	-40	-8	**10**	**9**	**10**	**7**	**4**	**1**	**1**
90%	**50**	-8	-86	-2	-36	-10	**3**	**3**	0	-25	-74	-84
Long Term												
Full Simulation Period[a]	**117**	**1**	-8	**6**	-6	**14**	**30**	**34**	**12**	-1	-6	-7
Water Year Types[b]												
Wet (32%)	**68**	-6	-21	-12	-16	**11**	**10**	**18**	**12**	-6	-16	-20
Above Normal (16%)	**107**	**0**	-5	**4**	-16	**5**	**25**	**34**	**9**	**9**	**2**	**0**
Below Normal (13%)	**129**	**3**	-3	**3**	-37	**17**	**58**	**74**	**25**	**3**	**2**	**1**
Dry (24%)	**147**	**5**	**0**	**16**	**13**	**17**	**43**	**38**	**6**	**1**	**1**	**0**
Critical (15%)	**175**	**6**	**0**	**34**	**23**	**21**	**30**	**27**	**13**	-3	-13	-11

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 6-3. San Joaquin River at Vernalis Salinity (40-30-30), Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	575	639	800	774	941	847	561	571	646	648	644	608
20%	560	608	784	758	898	803	499	548	639	648	610	586
30%	540	587	772	746	855	737	408	489	616	646	581	568
40%	519	579	766	737	802	696	368	435	588	637	573	552
50%	503	565	761	726	697	623	323	378	555	625	558	538
60%	488	552	755	709	635	460	298	360	499	614	544	521
70%	474	538	736	651	475	333	284	342	454	602	524	489
80%	456	509	710	585	329	296	261	293	419	581	455	476
90%	430	481	629	392	285	263	205	190	361	491	431	441
Long Term												
Full Simulation Period[a]	503	554	721	660	647	564	360	402	521	599	540	526
Water Year Types[b]												
Wet (32%)	439	483	664	536	397	333	241	270	407	520	444	447
Above Normal (16%)	493	541	735	656	610	502	312	356	514	621	539	520
Below Normal (13%)	507	572	741	709	700	595	349	418	557	622	554	534
Dry (24%)	544	592	731	727	814	716	433	482	591	633	586	569
Critical (15%)	578	641	797	776	901	853	556	587	628	669	656	626

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	742	646	800	811	943	871	602	601	646	649	632	603
20%	714	613	778	792	933	824	538	580	643	648	610	584
30%	686	593	770	774	855	751	479	564	637	648	583	568
40%	655	583	763	753	787	710	398	513	610	638	574	552
50%	627	566	756	726	689	633	347	425	577	629	560	540
60%	595	549	744	701	638	502	317	388	511	619	548	522
70%	566	535	728	629	456	356	305	370	476	605	534	495
80%	536	508	703	545	321	306	270	303	426	585	455	477
90%	480	473	543	389	250	253	207	193	361	466	357	357
Long Term												
Full Simulation Period[a]	620	555	714	666	641	578	390	436	533	599	533	519
Water Year Types[b]												
Wet (32%)	507	477	643	524	381	344	251	288	419	514	428	427
Above Normal (16%)	600	542	730	660	594	507	337	390	523	630	541	520
Below Normal (13%)	636	576	739	712	663	612	408	491	582	625	555	536
Dry (24%)	691	597	731	743	827	733	476	519	597	633	587	570
Critical (15%)	754	647	797	810	924	873	586	614	642	666	643	615

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**166**	**7**	**0**	**37**	**2**	**24**	**41**	**30**	**0**	**0**	-12	-5
20%	**154**	**5**	-6	**34**	**35**	**21**	**39**	**32**	**3**	**0**	0	-2
30%	**147**	**6**	-2	**28**	0	**14**	**71**	**75**	**21**	**1**	**2**	**0**
40%	**135**	**4**	-3	**15**	-15	**13**	**31**	**78**	**22**	**1**	**1**	**0**
50%	**124**	**1**	-6	0	-7	**10**	**24**	**47**	**22**	**4**	**1**	**2**
60%	**107**	-3	-12	-9	**3**	**43**	**19**	**28**	**12**	**5**	**4**	**1**
70%	**93**	-3	-9	-22	-18	**23**	**22**	**28**	**22**	**3**	**10**	**6**
80%	**80**	-1	-7	-40	-8	**10**	**9**	**10**	**7**	**4**	**1**	**1**
90%	**50**	-8	-86	-2	-36	-10	**3**	**3**	0	-25	-74	-84
Long Term												
Full Simulation Period[a]	**117**	**1**	-8	**6**	-6	**14**	**30**	**34**	**12**	-1	-6	-7
Water Year Types[b]												
Wet (32%)	**68**	-6	-21	-12	-16	**11**	**10**	**18**	**12**	-6	-16	-20
Above Normal (16%)	**107**	**0**	-5	**4**	-16	**5**	**25**	**34**	**9**	**9**	**2**	**0**
Below Normal (13%)	**129**	**3**	-3	**3**	-37	**17**	**58**	**74**	**25**	**3**	**2**	**1**
Dry (24%)	**147**	**5**	**0**	**16**	**13**	**17**	**43**	**38**	**6**	**1**	**1**	**0**
Critical (15%)	**175**	**6**	**0**	**34**	**23**	**21**	**30**	**27**	**13**	-3	-13	-11

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 6-4. San Joaquin River at Vernalis Salinity (40-30-30), Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	575	639	800	774	941	847	561	571	646	648	644	608
20%	560	608	784	758	898	803	499	548	639	648	610	586
30%	540	587	772	746	855	737	408	489	616	646	581	568
40%	519	579	766	737	802	696	368	435	588	637	573	552
50%	503	565	761	726	697	623	323	378	555	625	558	538
60%	488	552	755	709	635	460	298	360	499	614	544	521
70%	474	538	736	651	475	333	284	342	454	602	524	489
80%	456	509	710	585	329	296	261	293	419	581	455	476
90%	430	481	629	392	285	263	205	190	361	491	431	441
Long Term												
Full Simulation Period[a]	503	554	721	660	647	564	360	402	521	599	540	526
Water Year Types[b]												
Wet (32%)	439	483	664	536	397	333	241	270	407	520	444	447
Above Normal (16%)	493	541	735	656	610	502	312	356	514	621	539	520
Below Normal (13%)	507	572	741	709	700	595	349	418	557	622	554	534
Dry (24%)	544	592	731	727	814	716	433	482	591	633	586	569
Critical (15%)	578	641	797	776	901	853	556	587	628	669	656	626

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	583	639	799	776	945	847	605	659	685	707	661	620
20%	571	608	784	760	899	803	524	616	664	691	641	598
30%	551	588	772	748	856	737	445	542	630	675	593	568
40%	520	579	766	738	802	697	366	450	609	640	574	552
50%	502	565	761	728	697	623	309	372	562	628	557	540
60%	486	553	755	712	636	464	293	356	500	613	547	524
70%	472	544	741	648	475	339	283	343	460	603	532	490
80%	457	508	710	584	321	297	261	293	418	582	455	479
90%	434	480	609	391	277	253	205	191	361	497	440	440
Long Term												
Full Simulation Period[a]	504	555	721	660	650	569	372	426	536	616	548	529
Water Year Types[b]												
Wet (32%)	440	486	663	532	392	335	240	273	414	525	447	449
Above Normal (16%)	488	541	735	654	607	497	302	350	510	643	540	520
Below Normal (13%)	515	573	741	712	703	603	375	463	575	628	556	536
Dry (24%)	549	592	731	731	820	716	461	527	613	661	608	579
Critical (15%)	577	641	797	776	926	878	585	639	663	697	668	627

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**8**	**0**	0	**2**	**5**	**0**	**44**	**88**	**39**	**58**	**17**	**12**
20%	**10**	-1	**0**	**2**	**1**	0	**25**	**68**	**25**	**43**	**31**	**11**
30%	**11**	**1**	**0**	**1**	**2**	**0**	**37**	**53**	**14**	**29**	**12**	**0**
40%	**0**	**0**	**0**	**1**	**0**	**0**	-2	**15**	**21**	**3**	**0**	**1**
50%	-1	**0**	0	**2**	**0**	**0**	-15	-6	**7**	**4**	-1	**2**
60%	-3	**1**	**0**	**3**	**0**	**4**	-5	-4	**1**	-1	**3**	**3**
70%	-1	**7**	**4**	-3	0	**6**	0	**1**	**6**	**1**	**8**	**1**
80%	**1**	-1	**0**	-1	-8	**1**	**0**	**0**	-1	**1**	**0**	**3**
90%	**4**	-1	-20	-1	-9	-10	**0**	**1**	**0**	**6**	**9**	0
Long Term												
Full Simulation Period[a]	**2**	**1**	0	0	**3**	**5**	**12**	**25**	**14**	**17**	**9**	**3**
Water Year Types[b]												
Wet (32%)	**1**	**3**	-1	-4	-5	**3**	-1	**3**	**6**	**5**	**3**	**2**
Above Normal (16%)	-5	0	**0**	-2	-3	-5	-11	-7	-4	**21**	**1**	**0**
Below Normal (13%)	**8**	**0**	0	**3**	**3**	**8**	**25**	**46**	**19**	**6**	**3**	**2**
Dry (24%)	**5**	**0**	0	**4**	**6**	**0**	**28**	**45**	**22**	**28**	**22**	**9**
Critical (15%)	-2	0	0	**0**	**25**	**25**	**28**	**52**	**34**	**28**	**13**	**1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

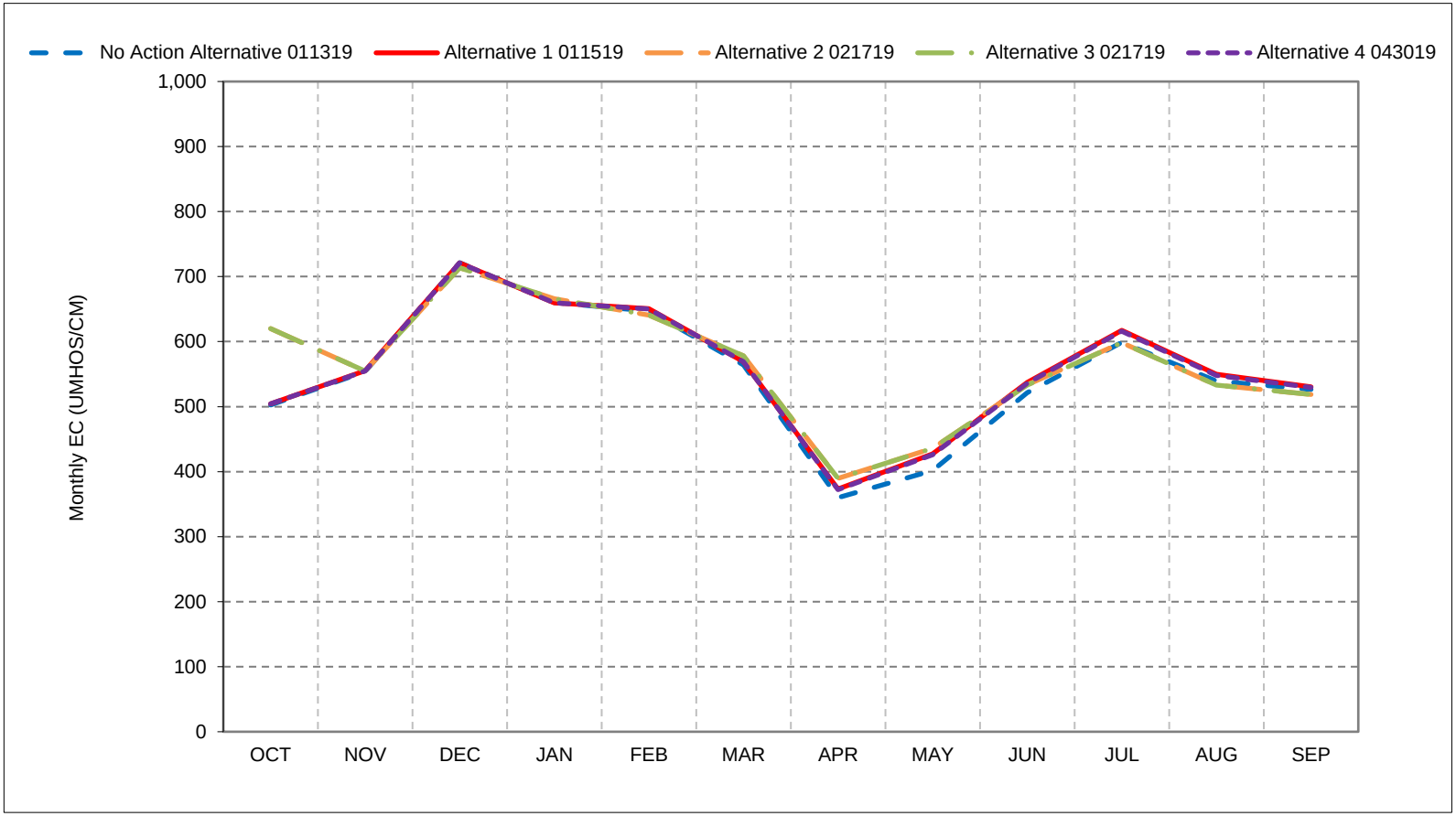
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

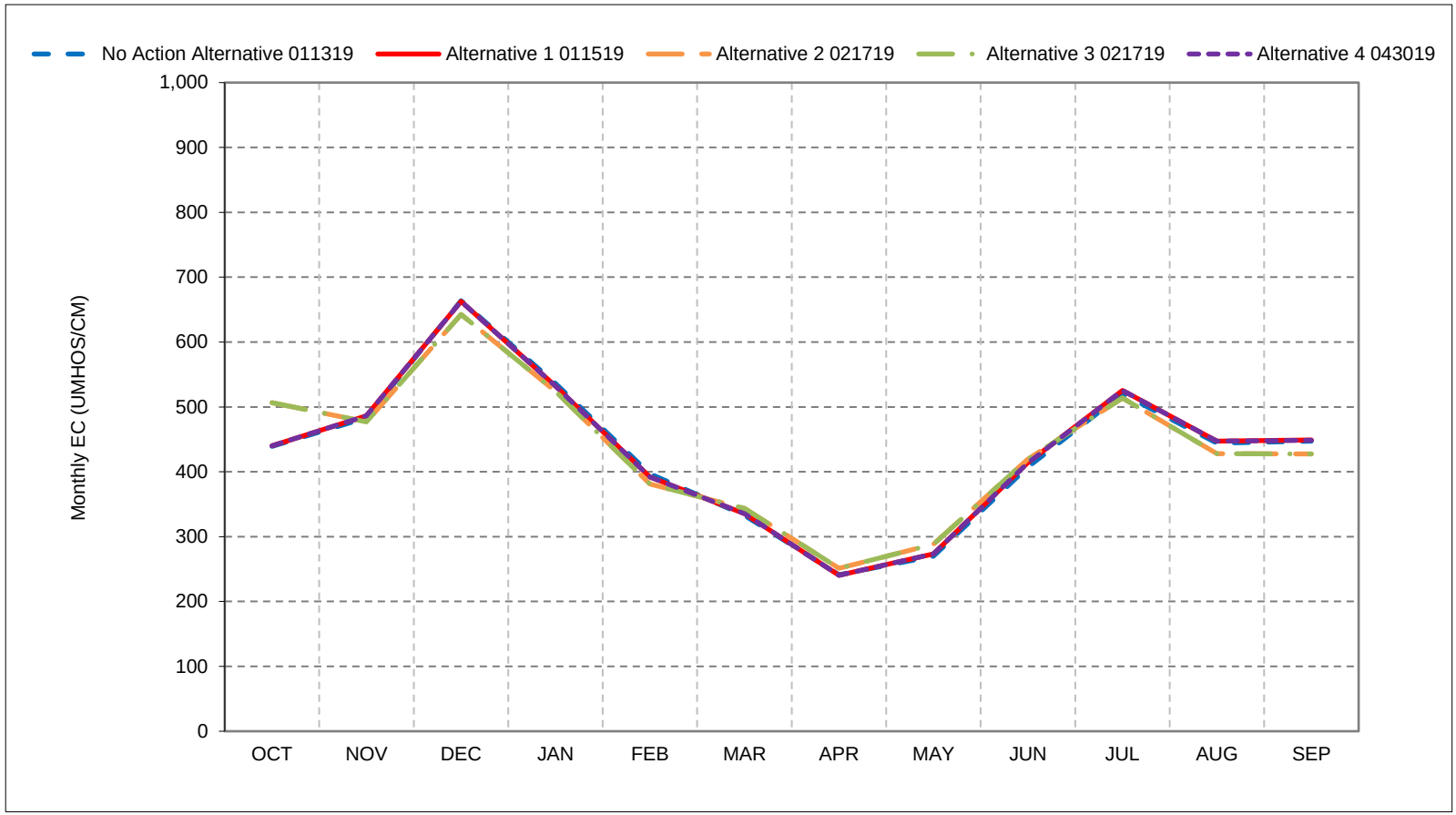
f These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-1. San Joaquin River at Vernalis Salinity (40-30-30), Long-Term Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-2. San Joaquin River at Vernalis Salinity (40-30-30), Wet Year Average EC



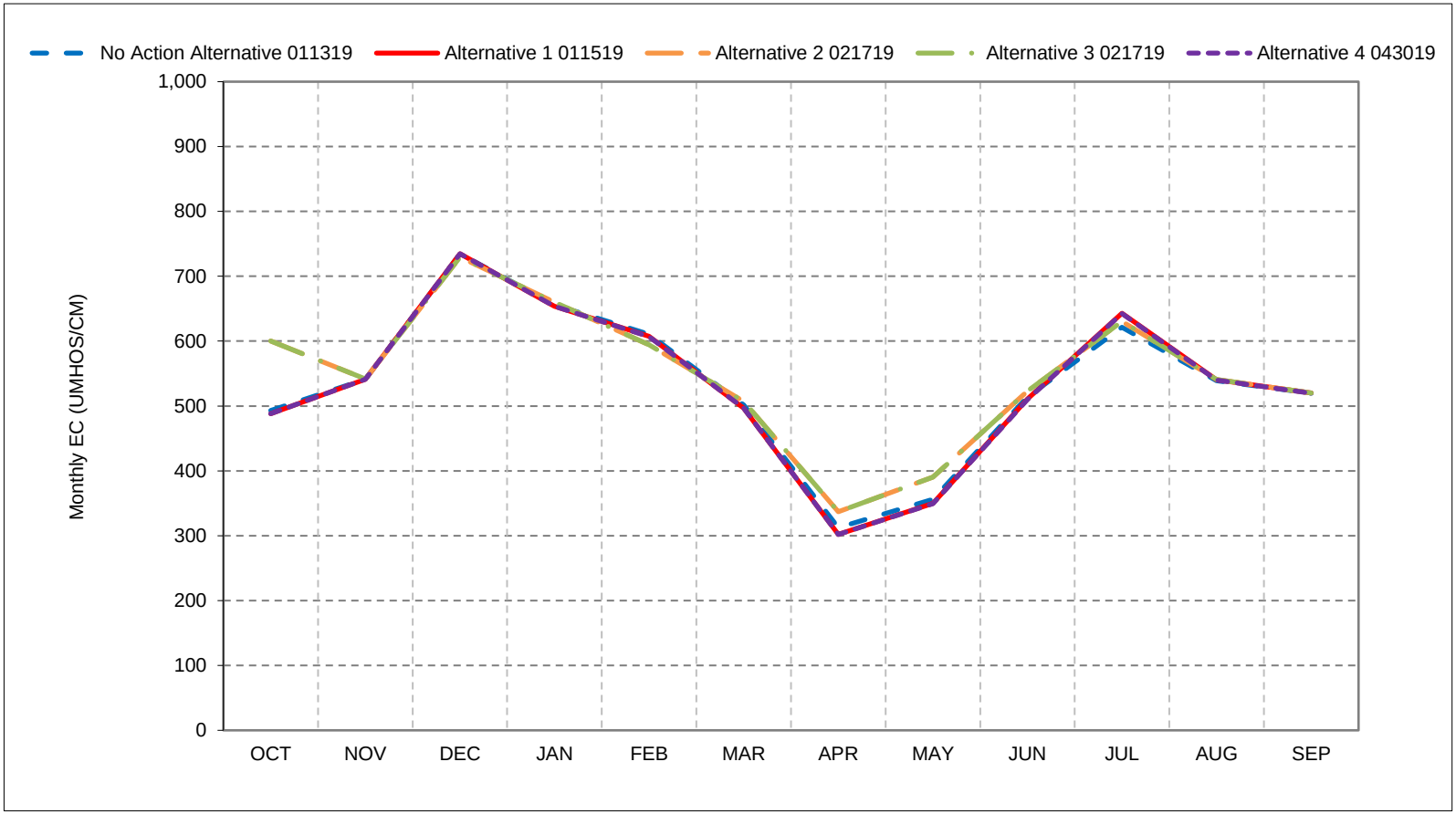
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

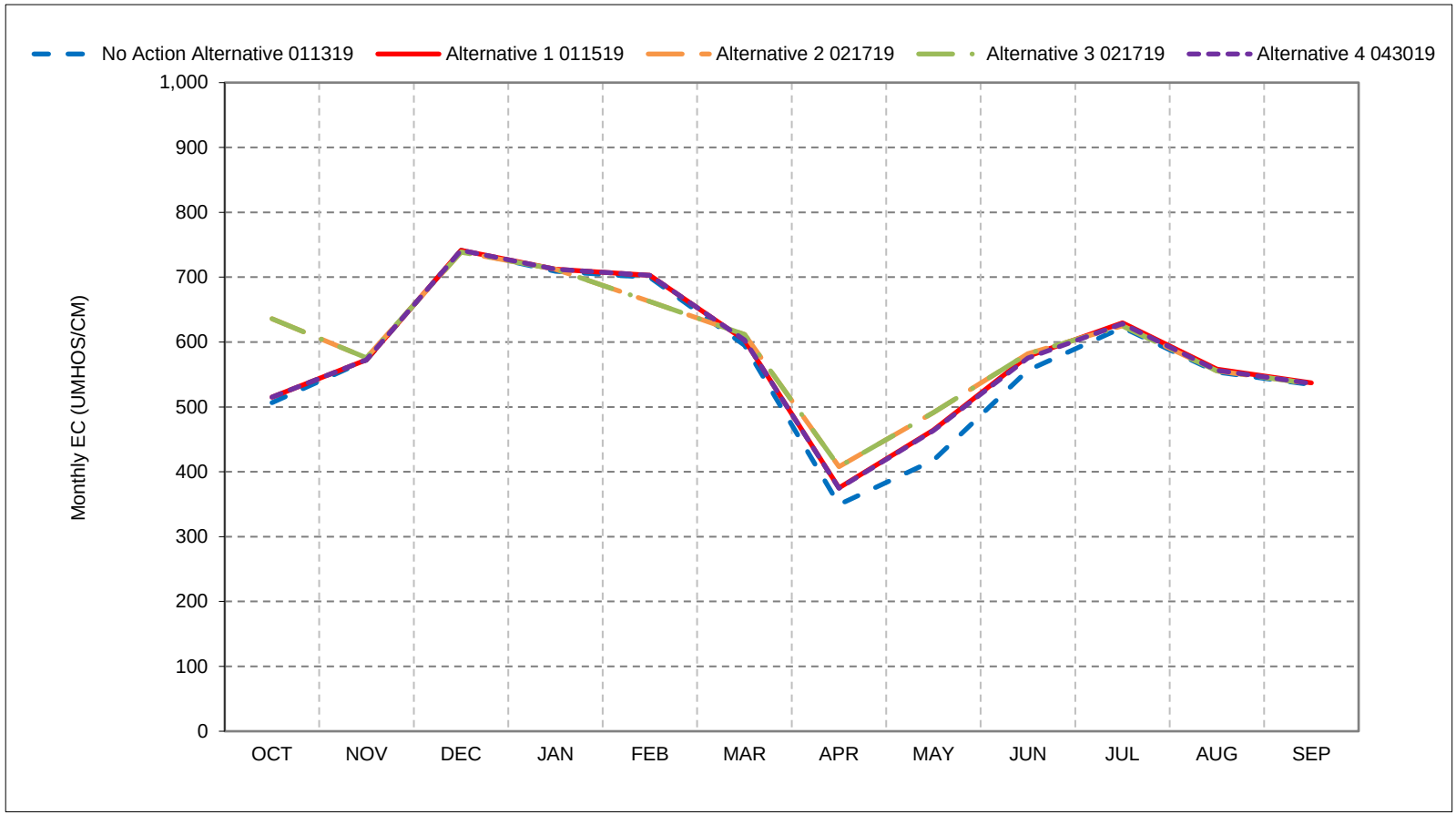
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-3. San Joaquin River at Vernalis Salinity (40-30-30), Above Normal Year Average EC



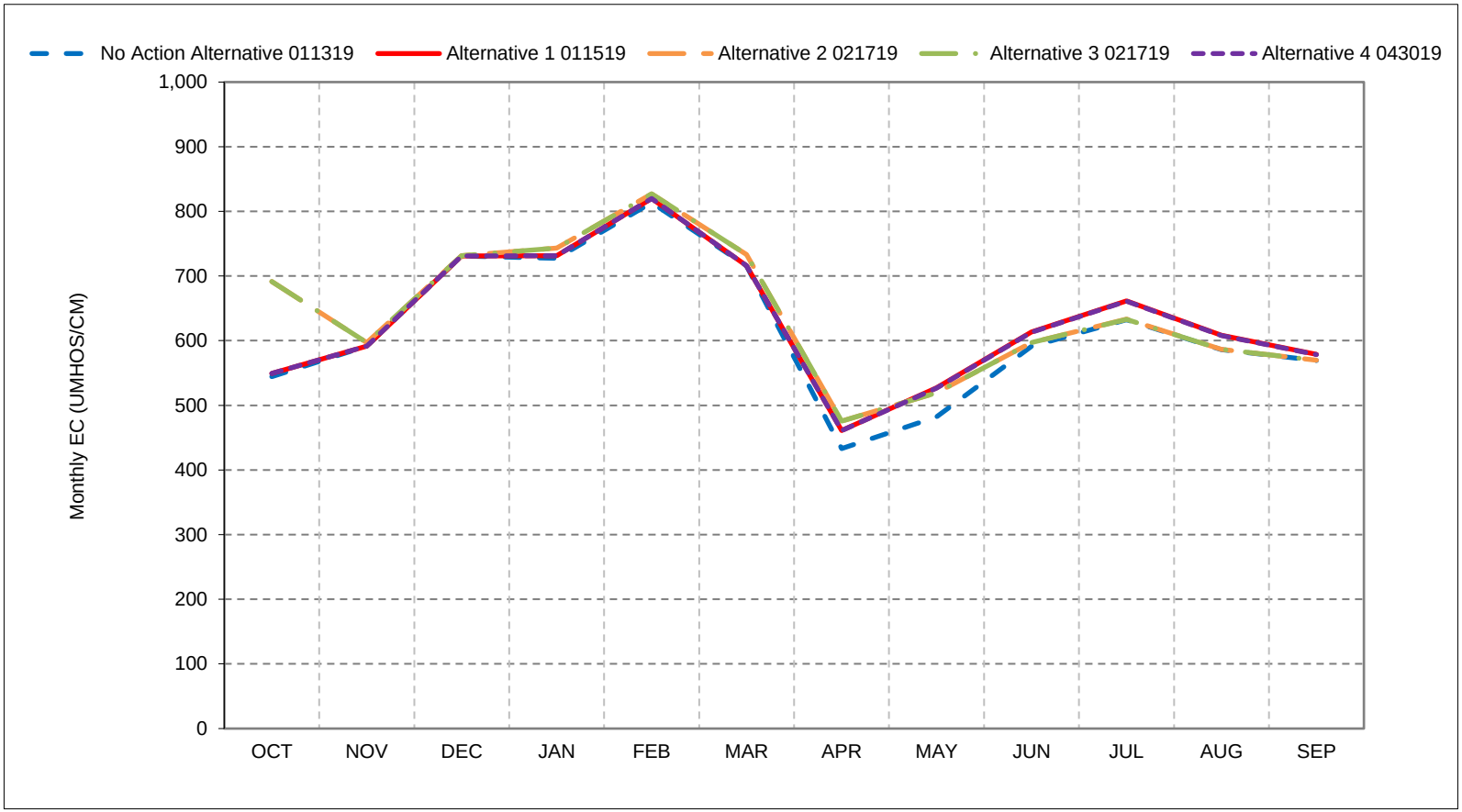
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-4. San Joaquin River at Vernalis Salinity (40-30-30), Below Normal Year Average EC



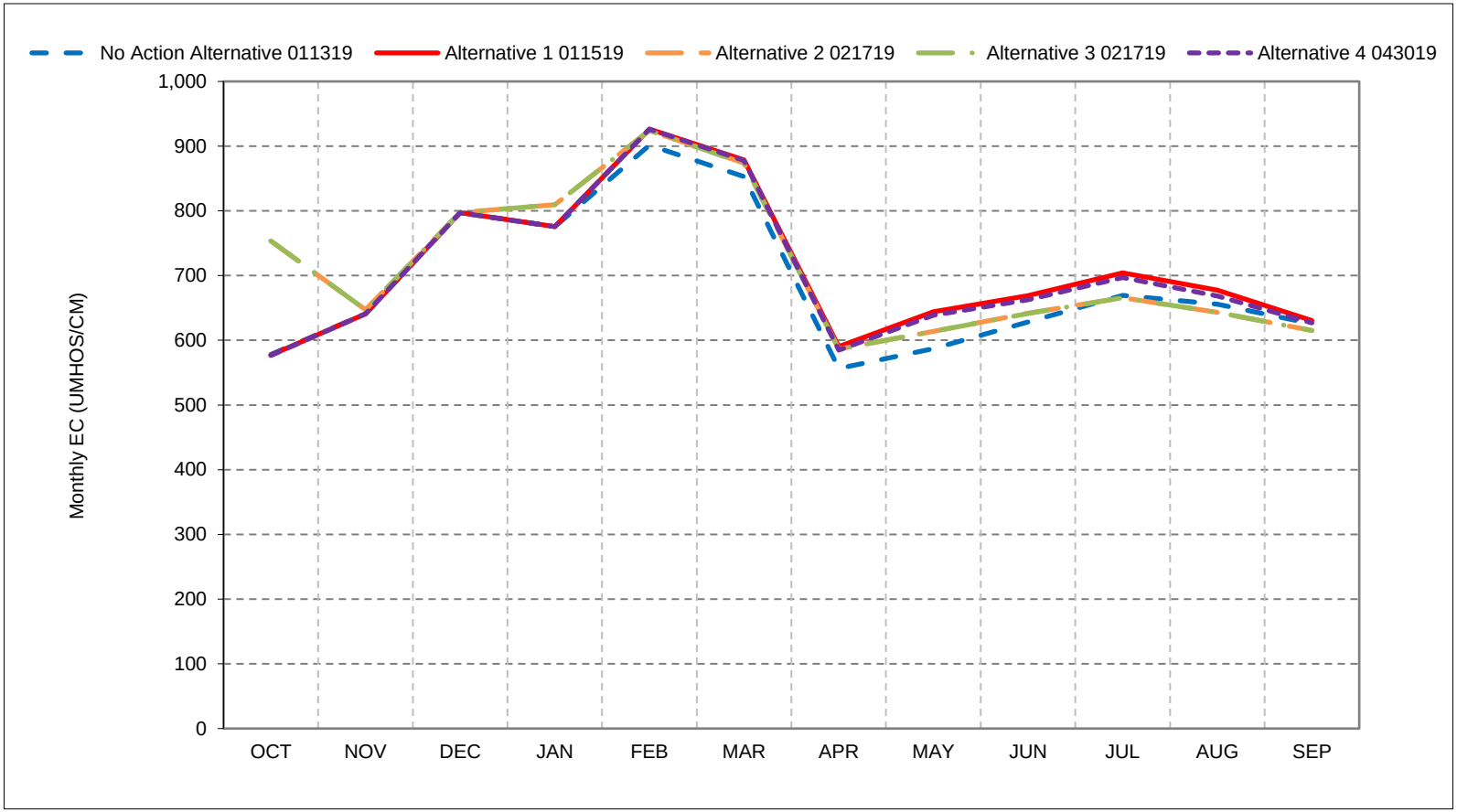
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-5. San Joaquin River at Vernalis Salinity (40-30-30), Dry Year Average EC



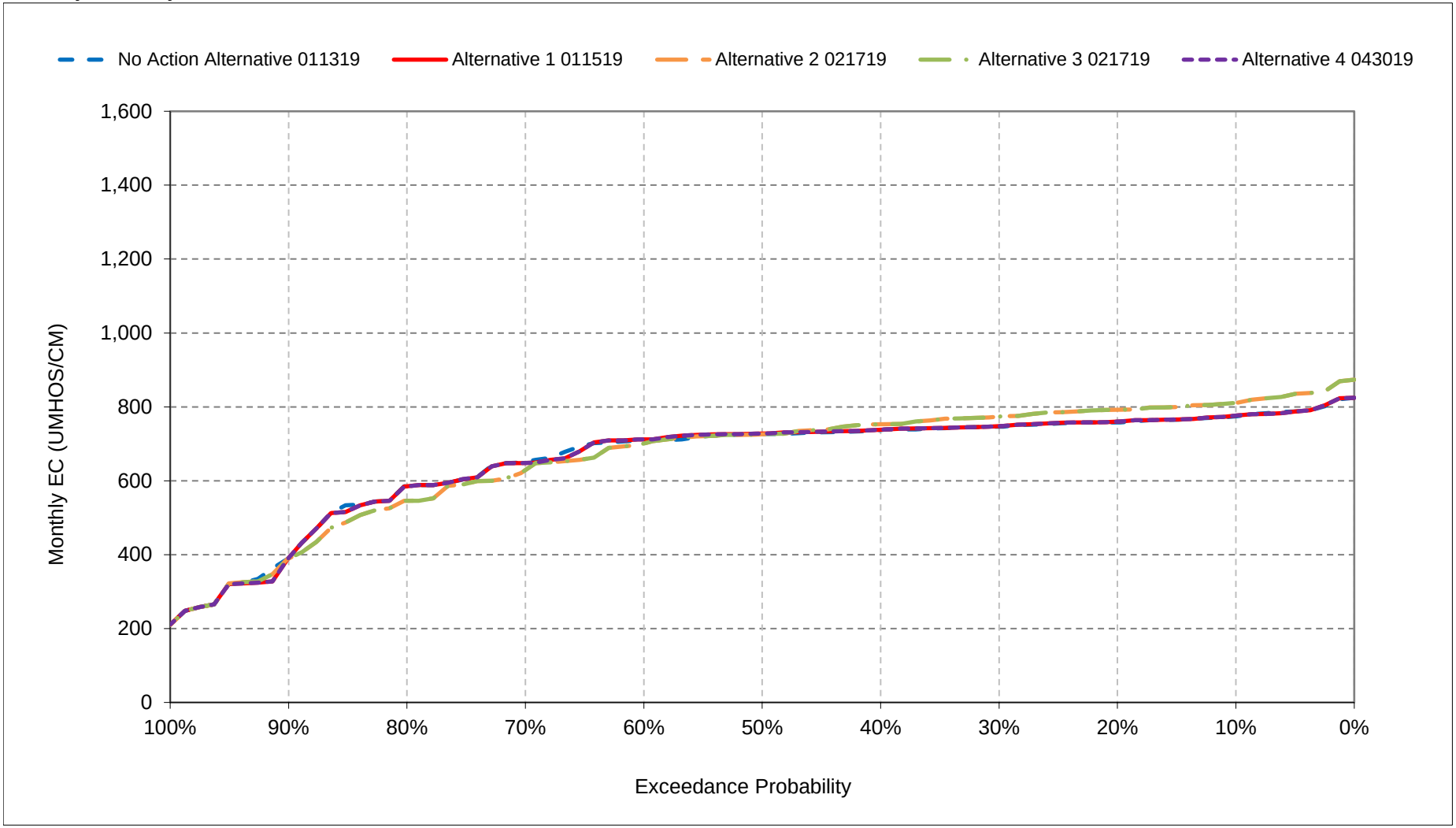
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-6. San Joaquin River at Vernalis Salinity (40-30-30), Critical Year Average EC



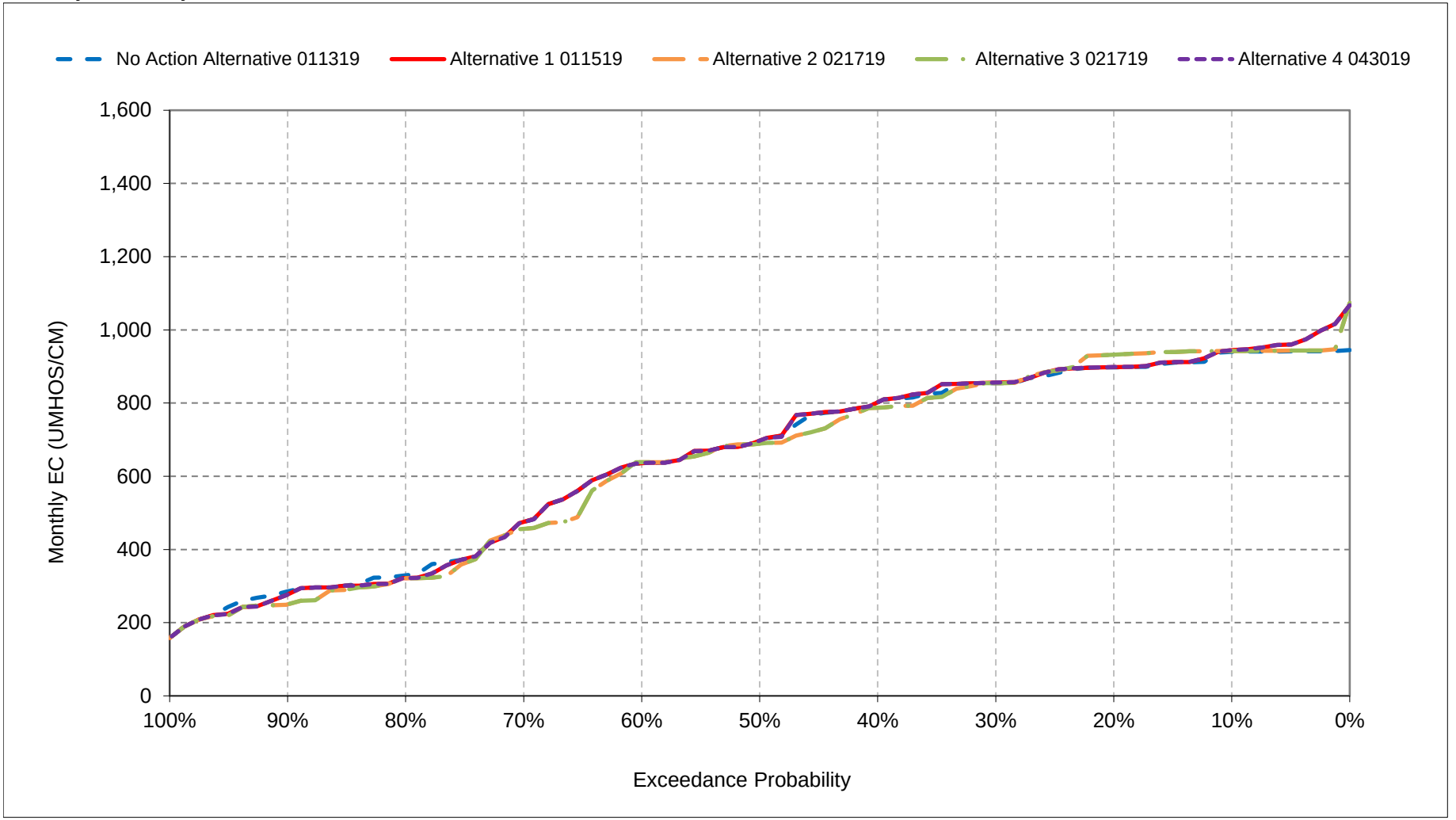
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-7. San Joaquin River at Vernalis
Salinity, January EC



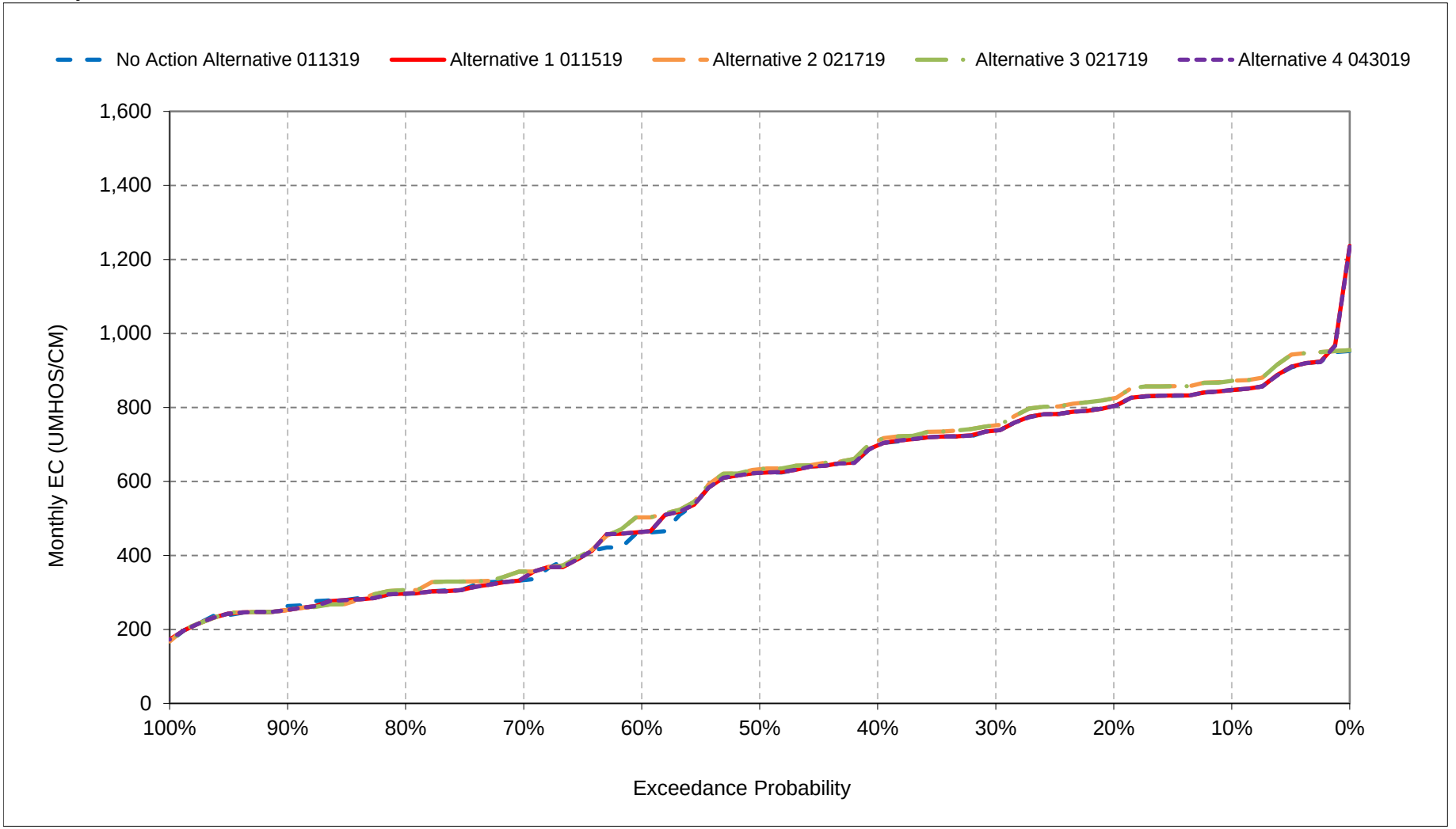
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-8. San Joaquin River at Vernalis
Salinity, February EC



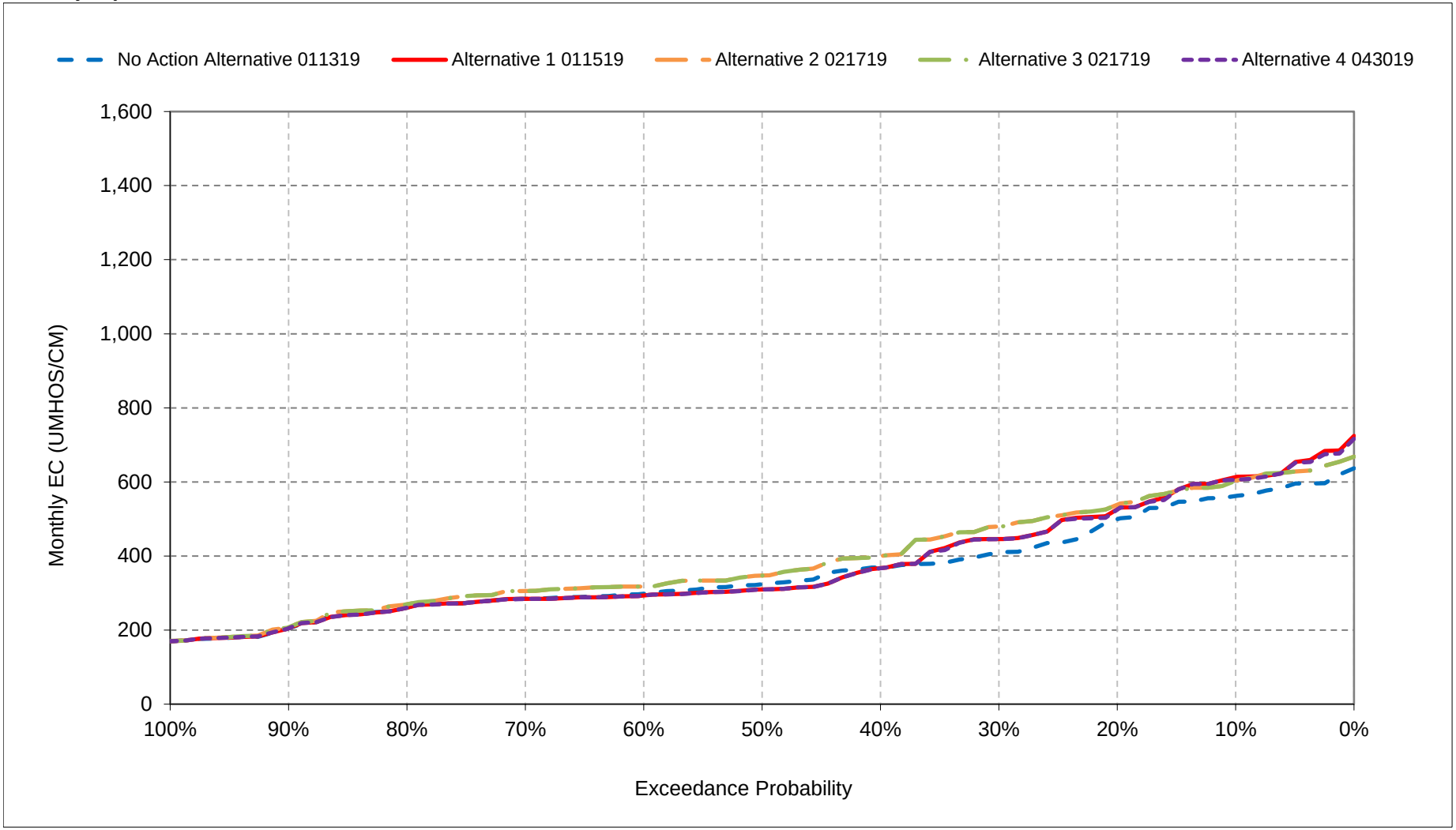
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-9. San Joaquin River at Vernalis
Salinity, March EC



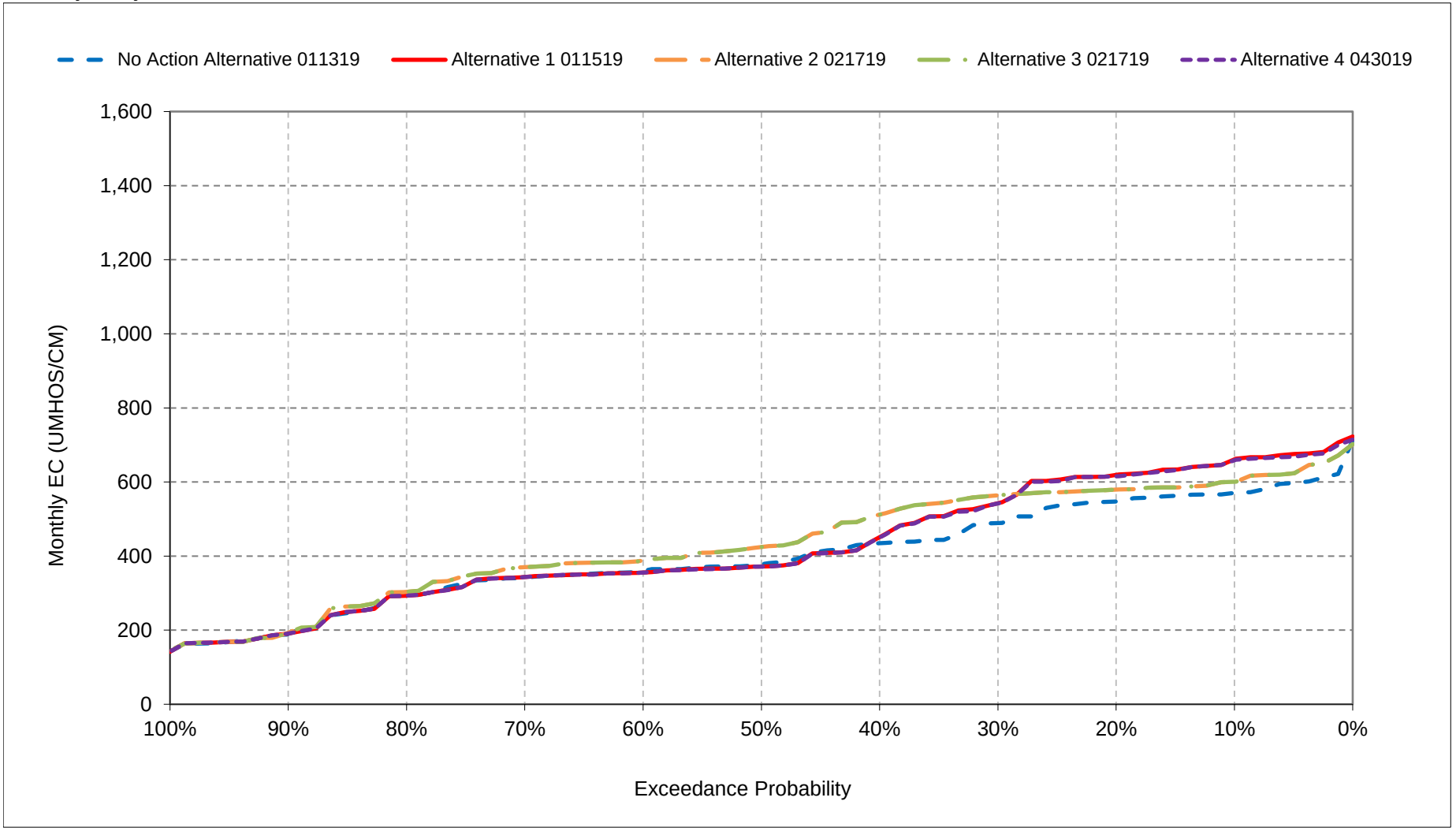
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-10. San Joaquin River at Vernalis
Salinity, April EC



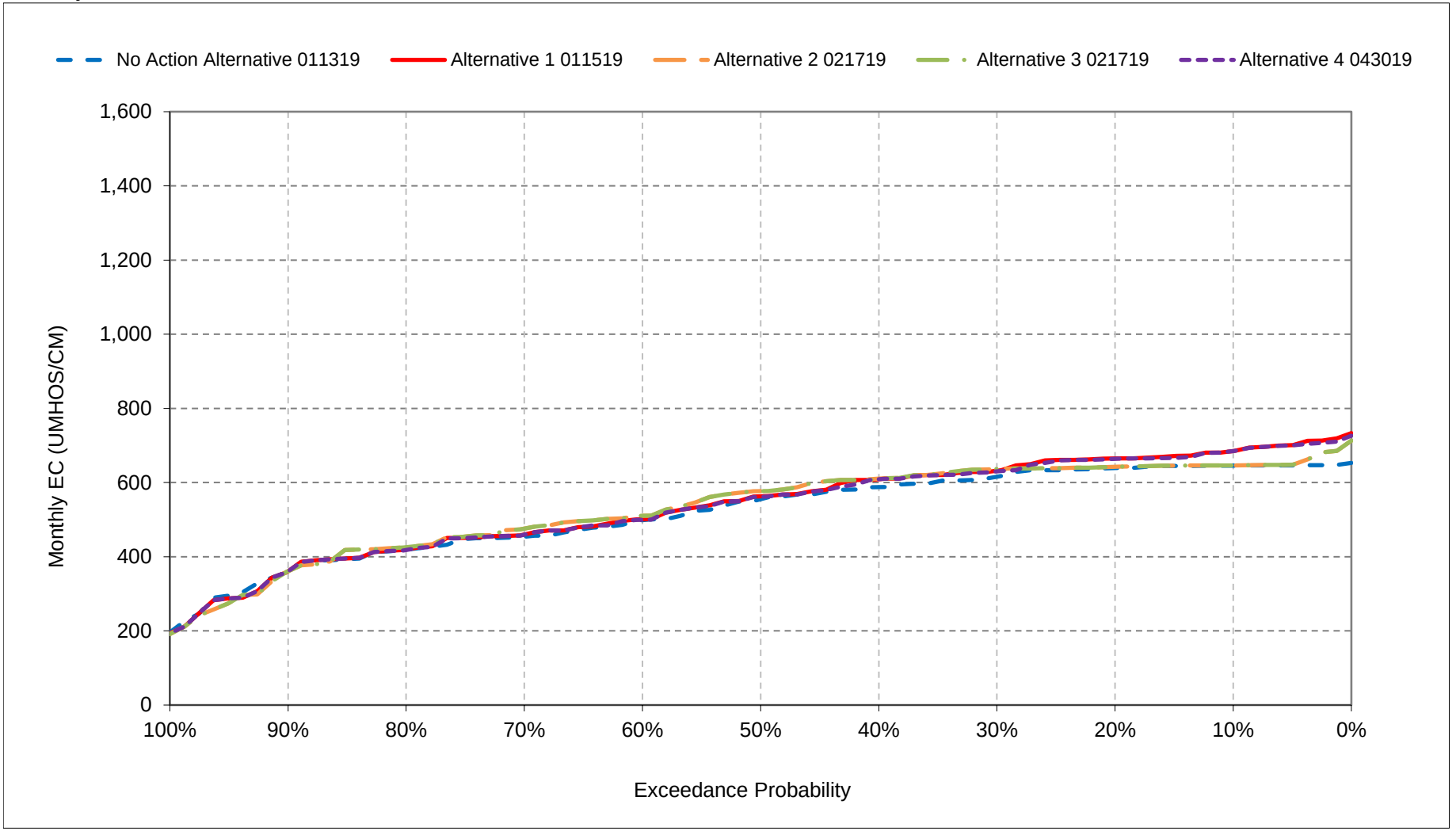
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-11. San Joaquin River at Vernalis
Salinity, May EC



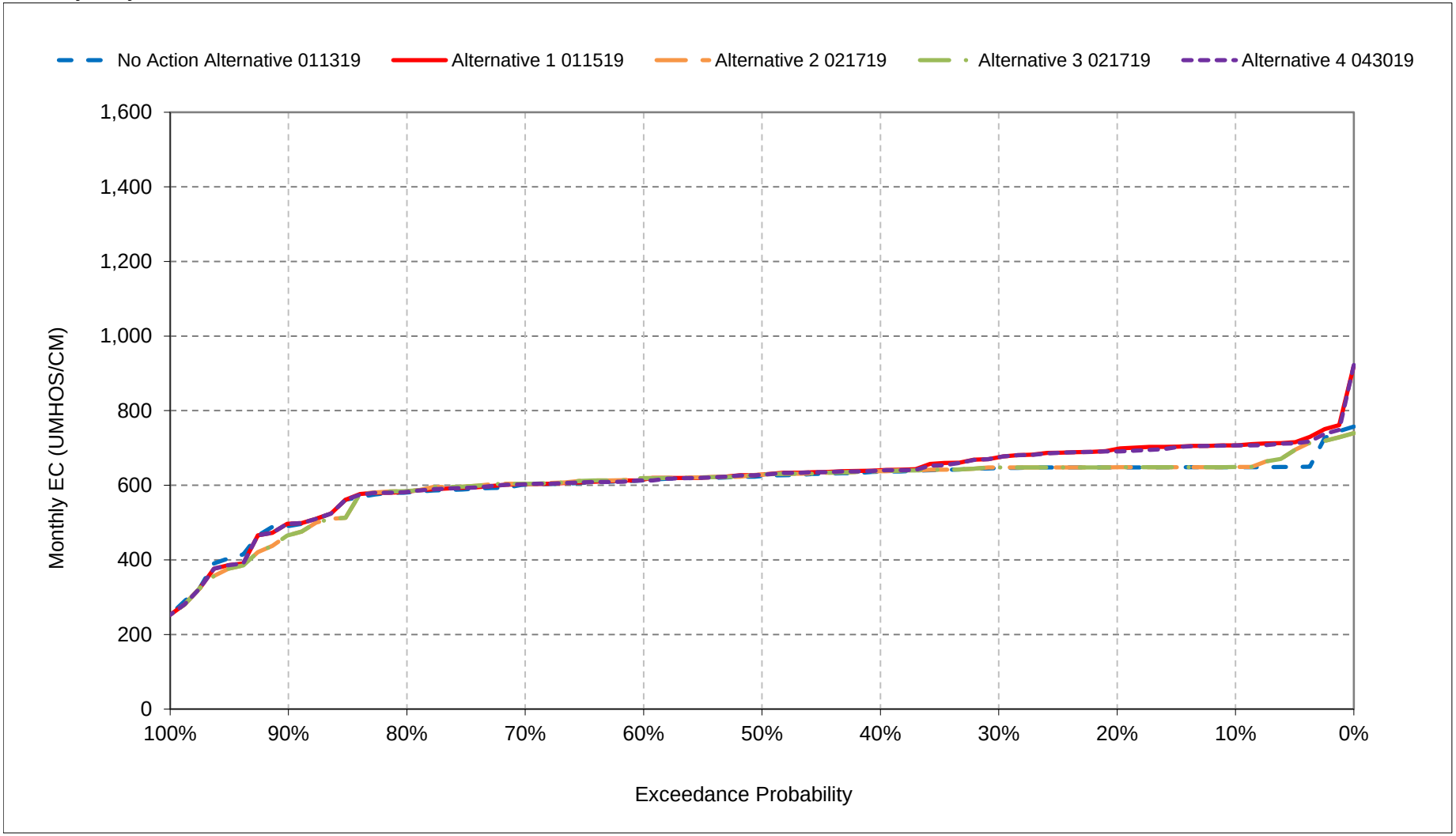
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-12. San Joaquin River at Vernalis
Salinity, June EC



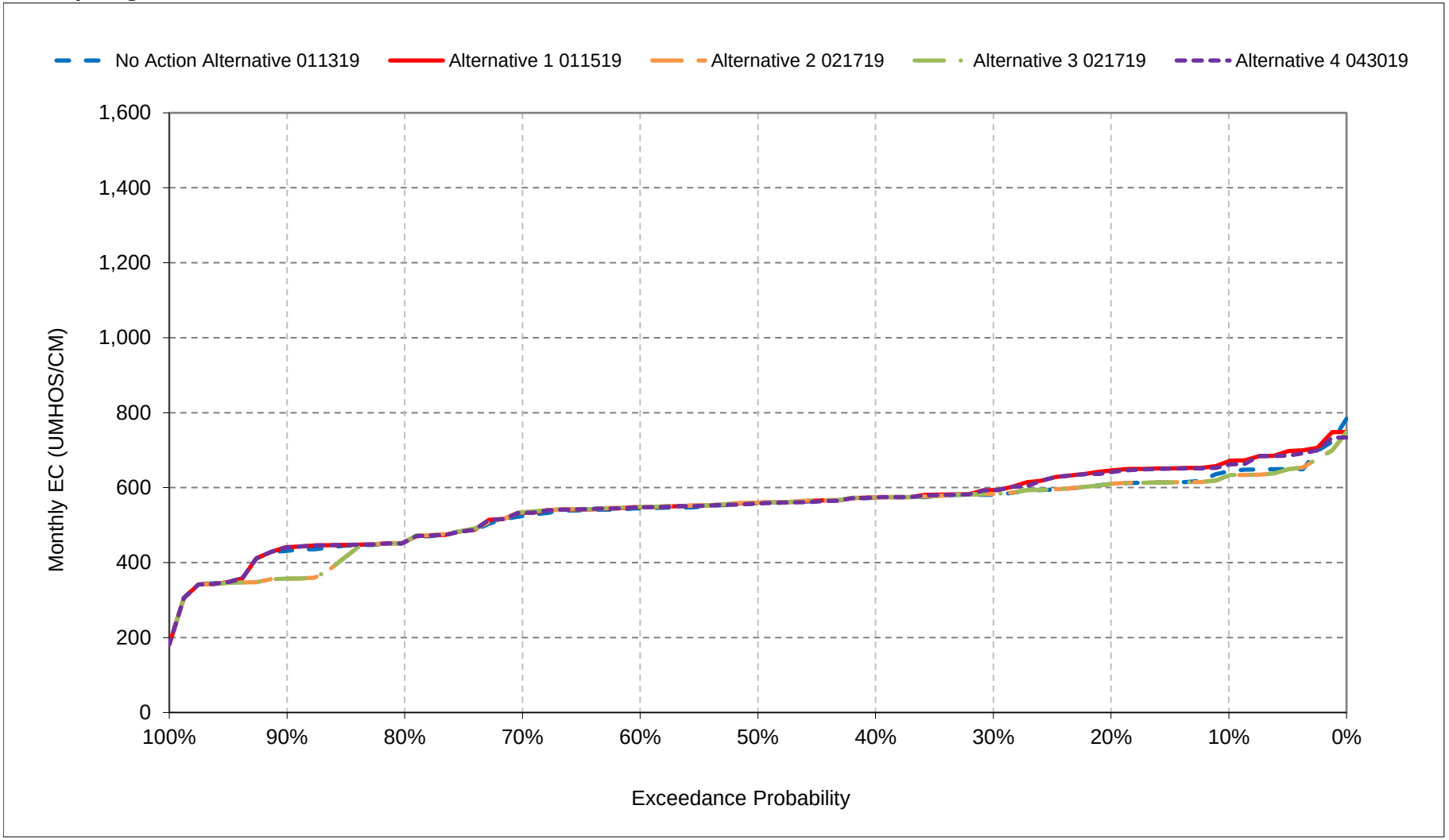
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-13. San Joaquin River at Vernalis
Salinity, July EC



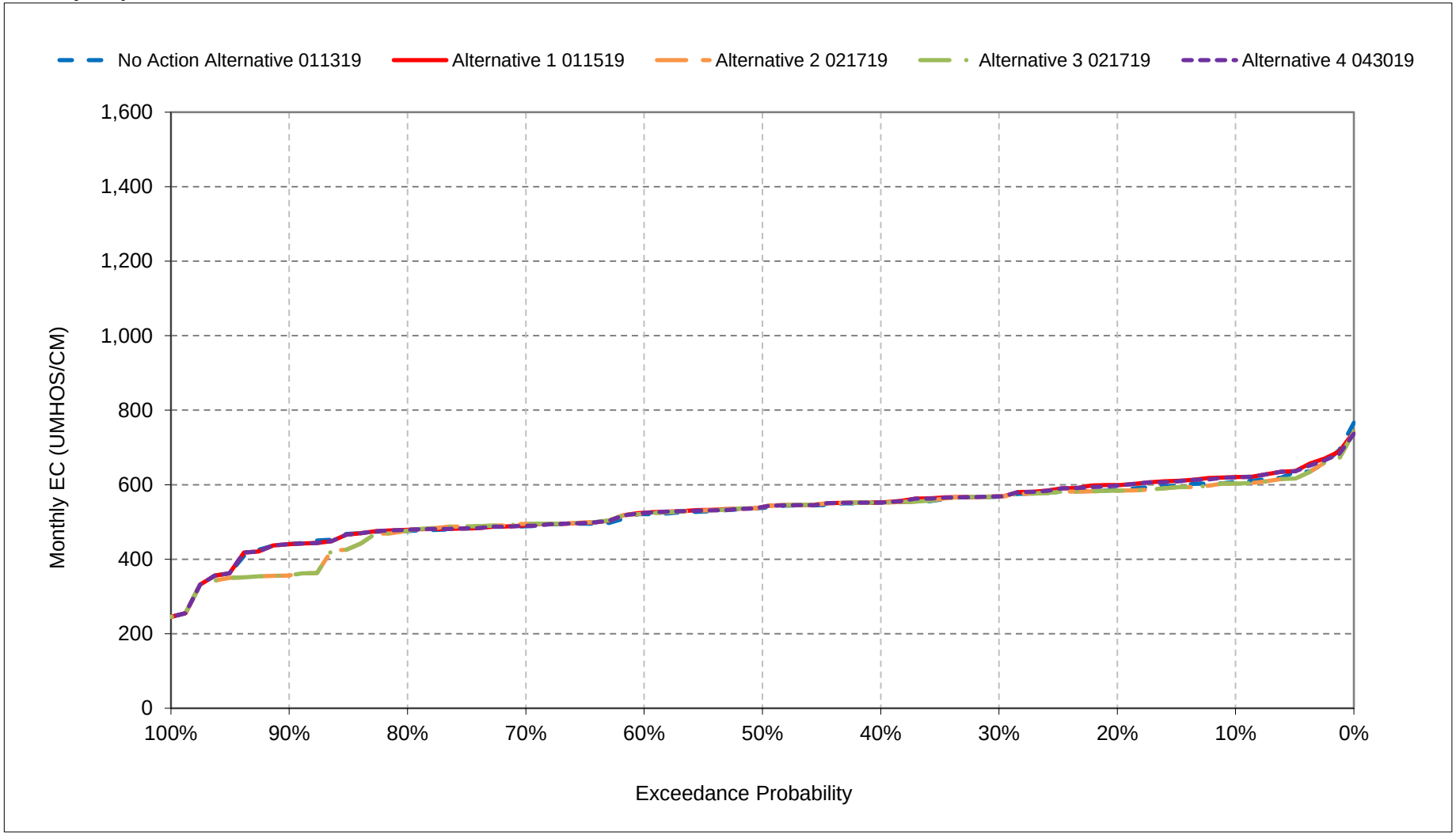
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-14. San Joaquin River at Vernalis
Salinity, August EC



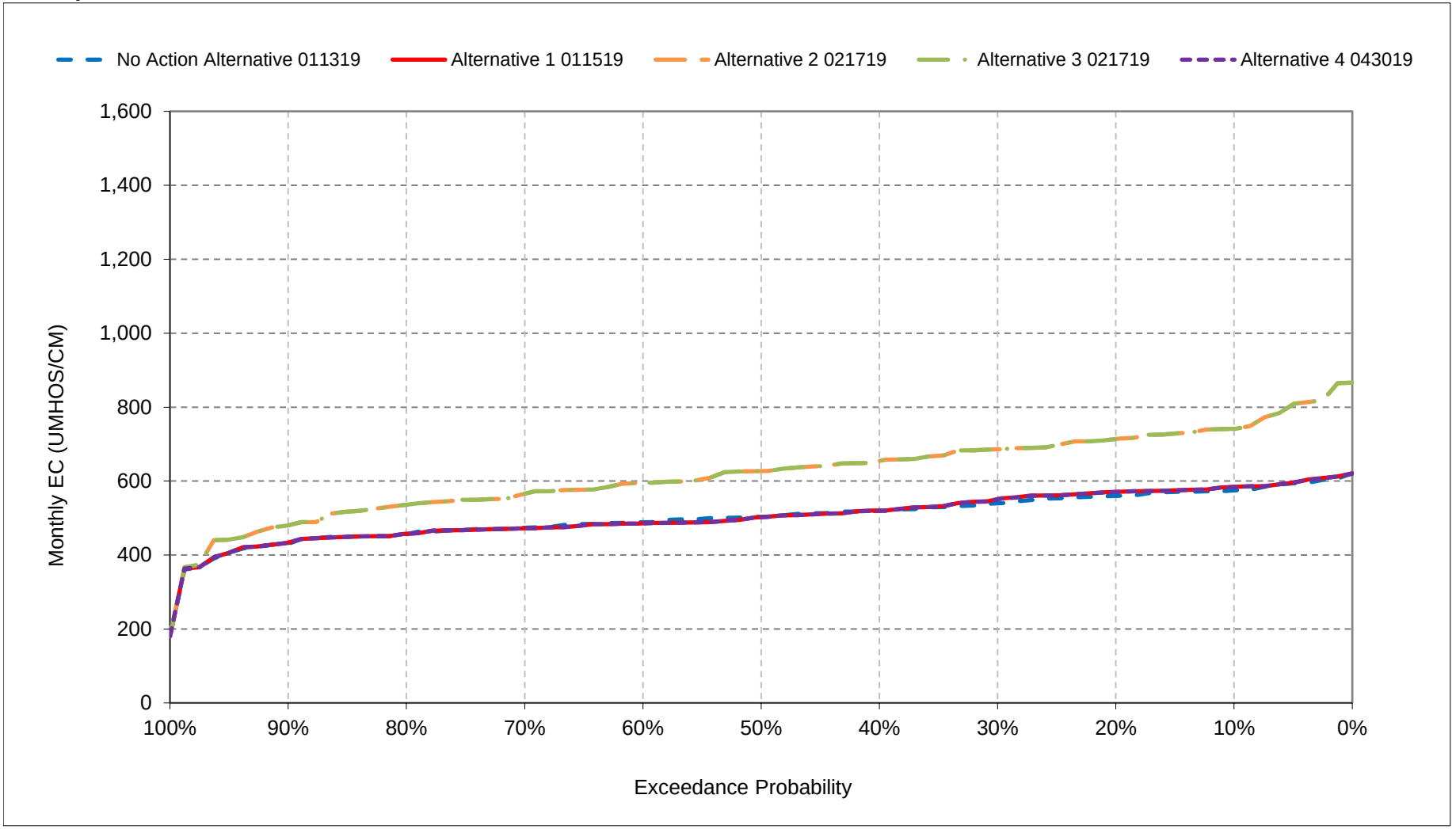
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-15. San Joaquin River at Vernalis
Salinity, September EC



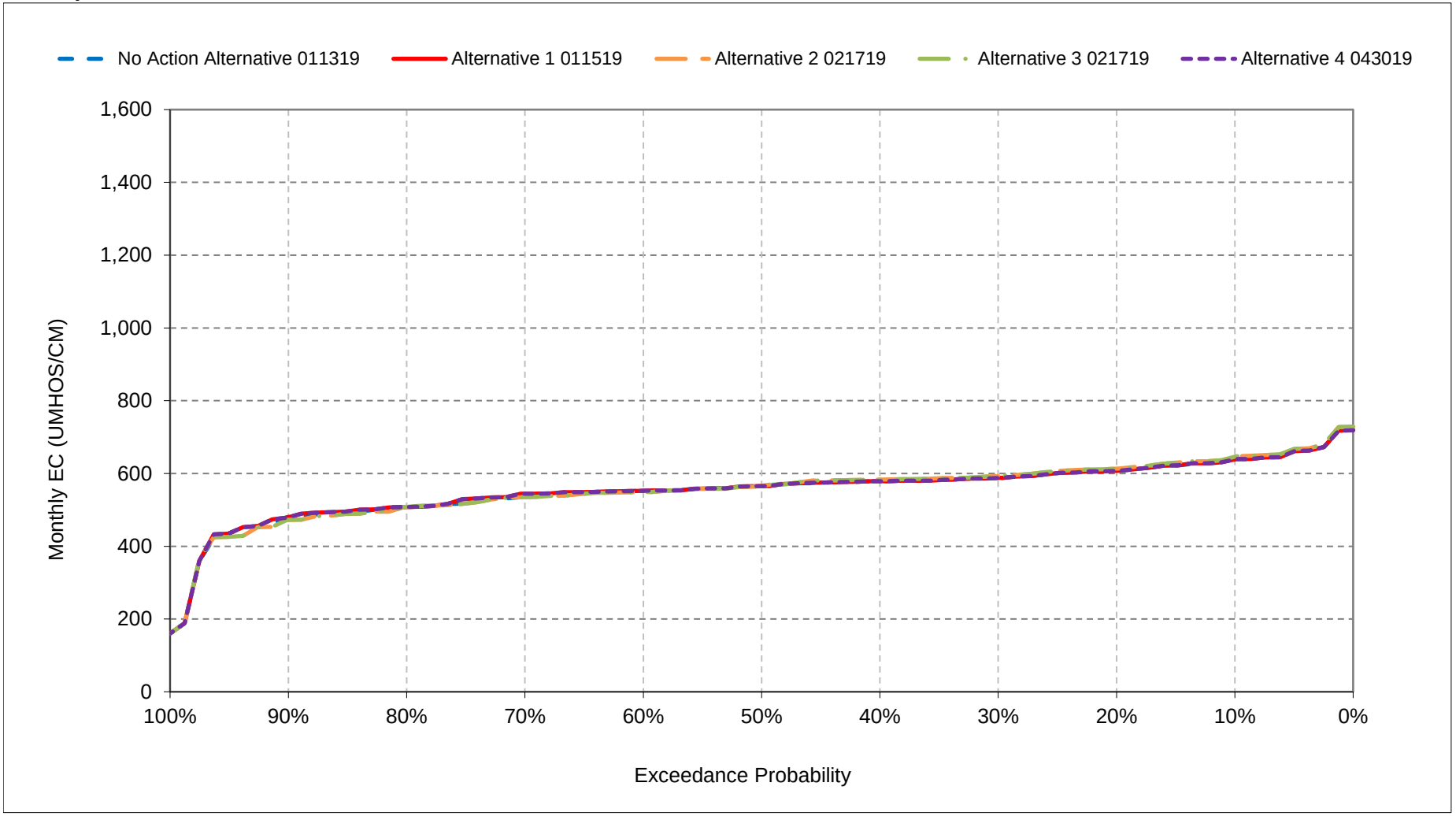
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-16. San Joaquin River at Vernalis
Salinity, October EC



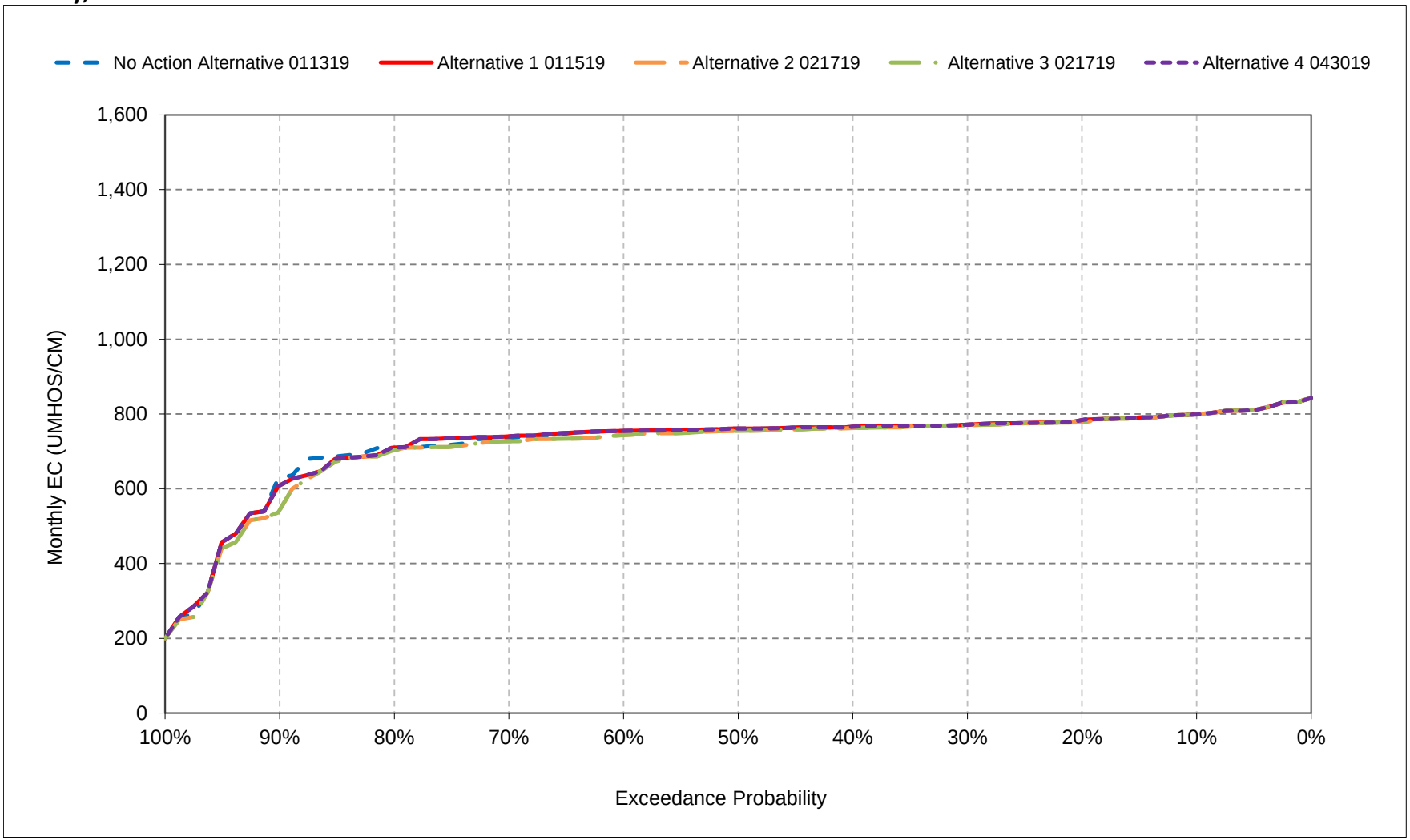
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-17. San Joaquin River at Vernalis
Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6-18. San Joaquin River at Vernalis
Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 6b-1. San Joaquin River at Vernalis Salinity (60-20-20), Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	575	639	800	774	941	847	561	571	646	648	644	608
20%	560	608	784	758	898	803	499	548	639	648	610	586
30%	540	587	772	746	855	737	408	489	616	646	581	568
40%	519	579	766	737	802	696	368	435	588	637	573	552
50%	503	565	761	726	697	623	323	378	555	625	558	538
60%	488	552	755	709	635	460	298	360	499	614	544	521
70%	474	538	736	651	475	333	284	342	454	602	524	489
80%	456	509	710	585	329	296	261	293	419	581	455	476
90%	430	481	629	392	285	263	205	190	361	491	431	441
Long Term												
Full Simulation Period[a]	503	554	721	660	647	564	360	402	521	599	540	526
Water Year Types[b]												
Wet (23%)	427	465	633	527	369	296	222	227	371	490	416	420
Above Normal (24%)	479	530	716	626	490	416	300	360	493	613	517	507
Below Normal (10%)	509	583	764	679	702	606	308	362	537	608	563	552
Dry (16%)	533	585	726	727	829	697	394	468	581	632	583	561
Critical (27%)	571	627	784	758	902	836	531	565	636	658	632	606

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	584	639	800	776	945	847	612	662	685	707	671	620
20%	571	608	784	760	899	804	525	619	665	698	646	599
30%	551	588	772	748	856	737	445	543	632	675	593	569
40%	520	579	766	738	802	697	366	452	610	640	574	553
50%	502	565	761	728	697	623	309	372	563	629	560	540
60%	486	553	755	712	636	464	293	356	501	616	548	525
70%	472	544	741	648	475	339	284	344	460	603	532	491
80%	457	508	710	585	321	297	261	293	420	583	455	479
90%	434	480	609	391	277	253	205	191	361	497	441	440
Long Term												
Full Simulation Period[a]	504	555	721	660	650	569	373	427	537	617	550	530
Water Year Types[b]												
Wet (23%)	427	468	634	528	364	293	223	228	367	488	418	420
Above Normal (24%)	473	530	714	622	487	420	289	353	502	636	520	509
Below Normal (10%)	506	583	764	677	701	616	302	358	546	610	564	554
Dry (16%)	543	585	726	730	833	698	413	510	596	644	587	562
Critical (27%)	580	627	784	760	919	851	583	643	679	700	664	618

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**9**	**0**	0	**2**	**5**	**0**	**51**	**91**	**39**	**59**	**27**	**12**
20%	**11**	-1	0	**2**	**1**	**0**	**26**	**72**	**25**	**50**	**36**	**12**
30%	**11**	**1**	**0**	**1**	**2**	**0**	**37**	**54**	**16**	**29**	**12**	**0**
40%	**1**	**0**	**0**	**1**	**0**	**1**	-1	**17**	**21**	**3**	**1**	**1**
50%	-1	**0**	0	**2**	**1**	**0**	-15	-6	**8**	**4**	**2**	**2**
60%	-3	**1**	0	**3**	**1**	**4**	-5	-4	**2**	**2**	**3**	**4**
70%	-1	**7**	**4**	-3	**0**	**6**	**0**	**2**	**6**	**1**	**8**	**2**
80%	**1**	0	**0**	-1	-8	**1**	**0**	**0**	**1**	**2**	**0**	**3**
90%	**4**	-1	-20	-1	-9	-10	**0**	**1**	**0**	**6**	**9**	0
Long Term												
Full Simulation Period[a]	**2**	**1**	0	0	**4**	**5**	**13**	**26**	**16**	**18**	**10**	**4**
Water Year Types[b]												
Wet (23%)	0	**3**	**1**	**0**	-5	-4	**0**	**1**	-5	-2	**2**	**0**
Above Normal (24%)	-6	**0**	-2	-4	-2	**4**	-12	-7	**9**	**23**	**4**	**2**
Below Normal (10%)	-4	0	**0**	-3	-1	**10**	-6	-4	**10**	**2**	**1**	**2**
Dry (16%)	**10**	**0**	0	**3**	**4**	**0**	**18**	**42**	**16**	**11**	**4**	**2**
Critical (27%)	**9**	**0**	**0**	**2**	**17**	**14**	**51**	**79**	**42**	**42**	**31**	**11**

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 6b-2. San Joaquin River at Vernalis Salinity (60-20-20), Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	575	639	800	774	941	847	561	571	646	648	644	608
20%	560	608	784	758	898	803	499	548	639	648	610	586
30%	540	587	772	746	855	737	408	489	616	646	581	568
40%	519	579	766	737	802	696	368	435	588	637	573	552
50%	503	565	761	726	697	623	323	378	555	625	558	538
60%	488	552	755	709	635	460	298	360	499	614	544	521
70%	474	538	736	651	475	333	284	342	454	602	524	489
80%	456	509	710	585	329	296	261	293	419	581	455	476
90%	430	481	629	392	285	263	205	190	361	491	431	441
Long Term												
Full Simulation Period[a]	503	554	721	660	647	564	360	402	521	599	540	526
Water Year Types[b]												
Wet (23%)	427	465	633	527	369	296	222	227	371	490	416	420
Above Normal (24%)	479	530	716	626	490	416	300	360	493	613	517	507
Below Normal (10%)	509	583	764	679	702	606	308	362	537	608	563	552
Dry (16%)	533	585	726	727	829	697	394	468	581	632	583	561
Critical (27%)	571	627	784	758	902	836	531	565	636	658	632	606

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	742	646	800	811	943	872	602	601	646	649	632	603
20%	714	613	778	792	933	824	538	580	643	648	610	584
30%	686	593	770	774	855	751	479	564	637	648	583	568
40%	655	583	763	753	787	710	399	513	611	638	574	552
50%	627	566	756	726	689	633	347	425	577	629	559	540
60%	595	549	744	701	638	502	317	388	511	619	548	522
70%	566	535	728	629	456	356	305	370	476	605	534	495
80%	536	508	703	545	321	306	270	303	426	585	455	477
90%	480	473	543	389	250	253	207	193	361	466	357	357
Long Term												
Full Simulation Period[a]	620	555	714	666	641	578	390	436	533	599	533	519
Water Year Types[b]												
Wet (23%)	482	457	610	522	354	306	228	236	375	477	392	389
Above Normal (24%)	570	529	707	621	478	422	314	383	504	622	520	510
Below Normal (10%)	647	587	762	687	686	625	349	431	569	611	565	555
Dry (16%)	676	590	726	729	804	711	449	526	593	634	582	560
Critical (27%)	746	633	785	786	924	859	578	604	648	657	627	602

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**166**	**7**	**0**	**37**	**2**	**25**	**41**	**30**	**0**	**0**	-12	-5
20%	**154**	**5**	-6	**34**	**35**	**21**	**39**	**32**	**3**	**0**	0	-2
30%	**147**	**6**	-2	**28**	0	**14**	**71**	**75**	**21**	**1**	**2**	**0**
40%	**135**	**4**	-3	**15**	-15	**13**	**31**	**78**	**23**	**1**	**1**	**0**
50%	**124**	**1**	-6	0	-7	**10**	**24**	**47**	**22**	**4**	**1**	**2**
60%	**107**	-3	-12	-9	**3**	**43**	**19**	**28**	**12**	**6**	**4**	**1**
70%	**93**	-3	-9	-22	-18	**23**	**22**	**28**	**22**	**3**	**10**	**6**
80%	**80**	-1	-7	-40	-8	**10**	**9**	**10**	**7**	**4**	**1**	**1**
90%	**50**	-8	-86	-2	-36	-10	**3**	**3**	0	-25	-74	-84
Long Term												
Full Simulation Period[a]	**117**	**1**	-8	**6**	-6	**14**	**30**	**34**	**12**	-1	-6	-7
Water Year Types[b]												
Wet (23%)	**55**	-8	-23	-6	-15	**10**	**5**	**9**	**4**	-13	-24	-31
Above Normal (24%)	**91**	-1	-10	-5	-12	**6**	**14**	**23**	**12**	**9**	**3**	**3**
Below Normal (10%)	**138**	**4**	-1	**8**	-16	**19**	**41**	**69**	**32**	**4**	**2**	**2**
Dry (16%)	**143**	**5**	**0**	**2**	-25	**14**	**55**	**58**	**12**	**1**	-2	-1
Critical (27%)	**175**	**6**	**0**	**28**	**22**	**22**	**46**	**40**	**12**	-1	-5	-5

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 6b-3. San Joaquin River at Vernalis Salinity (60-20-20), Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	575	639	800	774	941	847	561	571	646	648	644	608
20%	560	608	784	758	898	803	499	548	639	648	610	586
30%	540	587	772	746	855	737	408	489	616	646	581	568
40%	519	579	766	737	802	696	368	435	588	637	573	552
50%	503	565	761	726	697	623	323	378	555	625	558	538
60%	488	552	755	709	635	460	298	360	499	614	544	521
70%	474	538	736	651	475	333	284	342	454	602	524	489
80%	456	509	710	585	329	296	261	293	419	581	455	476
90%	430	481	629	392	285	263	205	190	361	491	431	441
Long Term												
Full Simulation Period[a]	503	554	721	660	647	564	360	402	521	599	540	526
Water Year Types[b]												
Wet (23%)	427	465	633	527	369	296	222	227	371	490	416	420
Above Normal (24%)	479	530	716	626	490	416	300	360	493	613	517	507
Below Normal (10%)	509	583	764	679	702	606	308	362	537	608	563	552
Dry (16%)	533	585	726	727	829	697	394	468	581	632	583	561
Critical (27%)	571	627	784	758	902	836	531	565	636	658	632	606

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	742	646	800	811	943	871	602	601	646	649	632	603
20%	714	613	778	792	933	824	538	580	643	648	610	584
30%	686	593	770	774	855	751	479	564	637	648	583	568
40%	655	583	763	753	787	710	398	513	610	638	574	552
50%	627	566	756	726	689	633	347	425	577	629	560	540
60%	595	549	744	701	638	502	317	388	511	619	548	522
70%	566	535	728	629	456	356	305	370	476	605	534	495
80%	536	508	703	545	321	306	270	303	426	585	455	477
90%	480	473	543	389	250	253	207	193	361	466	357	357
Long Term												
Full Simulation Period[a]	620	555	714	666	641	578	390	436	533	599	533	519
Water Year Types[b]												
Wet (23%)	482	457	610	522	354	306	228	236	375	477	392	389
Above Normal (24%)	570	529	707	621	478	422	314	383	504	622	520	510
Below Normal (10%)	647	587	762	687	686	625	349	431	568	611	565	555
Dry (16%)	676	590	726	729	804	711	449	526	593	634	582	560
Critical (27%)	746	633	785	786	924	859	578	604	648	657	627	602

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**166**	**7**	**0**	**37**	**2**	**24**	**41**	**30**	**0**	**0**	-12	-5
20%	**154**	**5**	-6	**34**	**35**	**21**	**39**	**32**	**3**	**0**	0	-2
30%	**147**	**6**	-2	**28**	0	**14**	**71**	**75**	**21**	**1**	**2**	**0**
40%	**135**	**4**	-3	**15**	-15	**13**	**31**	**78**	**22**	**1**	**1**	**0**
50%	**124**	**1**	-6	0	-7	**10**	**24**	**47**	**22**	**4**	**1**	**2**
60%	**107**	-3	-12	-9	**3**	**43**	**19**	**28**	**12**	**5**	**4**	**1**
70%	**93**	-3	-9	-22	-18	**23**	**22**	**28**	**22**	**3**	**10**	**6**
80%	**80**	-1	-7	-40	-8	**10**	**9**	**10**	**7**	**4**	**1**	**1**
90%	**50**	-8	-86	-2	-36	-10	**3**	**3**	0	-25	-74	-84
Long Term												
Full Simulation Period[a]	**117**	**1**	-8	**6**	-6	**14**	**30**	**34**	**12**	-1	-6	-7
Water Year Types[b]												
Wet (23%)	**55**	-8	-23	-6	-15	**10**	**5**	**9**	**4**	-13	-24	-31
Above Normal (24%)	**91**	-1	-10	-5	-12	**6**	**14**	**23**	**12**	**9**	**3**	**3**
Below Normal (10%)	**138**	**4**	-1	**8**	-16	**19**	**41**	**69**	**32**	**4**	**2**	**2**
Dry (16%)	**143**	**5**	**0**	**2**	-25	**14**	**54**	**58**	**12**	**1**	-2	-1
Critical (27%)	**175**	**6**	**0**	**28**	**22**	**22**	**46**	**39**	**12**	-2	-5	-5

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 6b-4. San Joaquin River at Vernalis Salinity (60-20-20), Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	575	639	800	774	941	847	561	571	646	648	644	608
20%	560	608	784	758	898	803	499	548	639	648	610	586
30%	540	587	772	746	855	737	408	489	616	646	581	568
40%	519	579	766	737	802	696	368	435	588	637	573	552
50%	503	565	761	726	697	623	323	378	555	625	558	538
60%	488	552	755	709	635	460	298	360	499	614	544	521
70%	474	538	736	651	475	333	284	342	454	602	524	489
80%	456	509	710	585	329	296	261	293	419	581	455	476
90%	430	481	629	392	285	263	205	190	361	491	431	441
Long Term												
Full Simulation Period[a]	503	554	721	660	647	564	360	402	521	599	540	526
Water Year Types[b]												
Wet (23%)	427	465	633	527	369	296	222	227	371	490	416	420
Above Normal (24%)	479	530	716	626	490	416	300	360	493	613	517	507
Below Normal (10%)	509	583	764	679	702	606	308	362	537	608	563	552
Dry (16%)	533	585	726	727	829	697	394	468	581	632	583	561
Critical (27%)	571	627	784	758	902	836	531	565	636	658	632	606

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	583	639	799	776	945	847	605	659	685	707	661	620
20%	571	608	784	760	899	803	524	616	664	691	641	598
30%	551	588	772	748	856	737	445	542	630	675	593	568
40%	520	579	766	738	802	697	366	450	609	640	574	552
50%	502	565	761	728	697	623	309	372	562	628	557	540
60%	486	553	755	712	636	464	293	356	500	613	547	524
70%	472	544	741	648	475	339	283	343	460	603	532	490
80%	457	508	710	584	321	297	261	293	418	582	455	479
90%	434	480	609	391	277	253	205	191	361	497	440	440
Long Term												
Full Simulation Period[a]	504	555	721	660	650	569	372	426	536	616	548	529
Water Year Types[b]												
Wet (23%)	427	468	634	527	364	293	223	228	367	488	418	420
Above Normal (24%)	473	530	714	622	487	420	289	353	501	635	520	508
Below Normal (10%)	505	583	764	677	701	616	302	358	545	609	563	554
Dry (16%)	543	585	726	730	833	697	412	508	593	641	584	561
Critical (27%)	580	627	784	760	919	850	580	641	675	696	659	616

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**8**	**0**	0	**2**	**5**	**0**	**44**	**88**	**39**	**58**	**17**	**12**
20%	**10**	-1	**0**	**2**	**1**	0	**25**	**68**	**25**	**43**	**31**	**11**
30%	**11**	**1**	**0**	**1**	**2**	**0**	**37**	**53**	**14**	**29**	**12**	**0**
40%	**0**	**0**	**0**	**1**	**0**	**0**	-2	**15**	**21**	**3**	**0**	**1**
50%	-1	**0**	0	**2**	**0**	**0**	-15	-6	**7**	**4**	-1	**2**
60%	-3	**1**	**0**	**3**	**0**	**4**	-5	-4	**1**	-1	**3**	**3**
70%	-1	**7**	**4**	-3	0	**6**	0	**1**	**6**	**1**	**8**	**1**
80%	**1**	-1	**0**	-1	-8	**1**	**0**	**0**	-1	**1**	**0**	**3**
90%	**4**	-1	-20	-1	-9	-10	**0**	**1**	**0**	**6**	**9**	0
Long Term												
Full Simulation Period[a]	**2**	**1**	0	0	**3**	**5**	**12**	**25**	**14**	**17**	**9**	**3**
Water Year Types[b]												
Wet (23%)	0	**3**	**1**	**0**	-5	-4	**0**	**1**	-5	-2	**2**	**0**
Above Normal (24%)	-6	**0**	-2	-4	-2	**4**	-12	-7	**9**	**23**	**3**	**2**
Below Normal (10%)	-4	0	0	-3	-1	**10**	-6	-5	**9**	**1**	**1**	**1**
Dry (16%)	**10**	**0**	0	**3**	**4**	**0**	**17**	**40**	**13**	**9**	**1**	**1**
Critical (27%)	**8**	**0**	0	**2**	**17**	**14**	**48**	**76**	**39**	**38**	**27**	**9**

a Based on the 82-year simulation period.

b As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

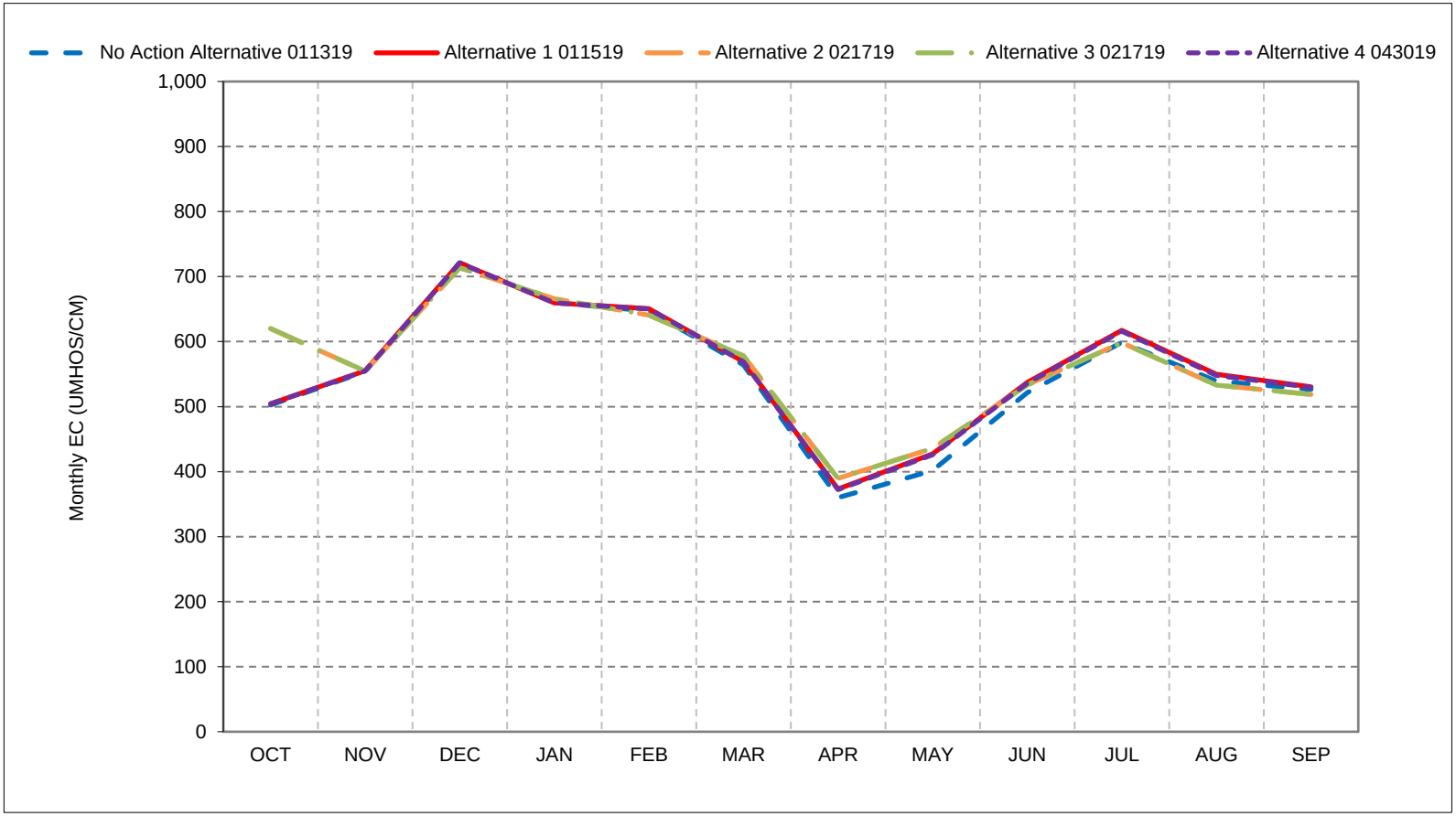
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-1. San Joaquin River at Vernalis Salinity (60-20-20), Long-Term Average EC



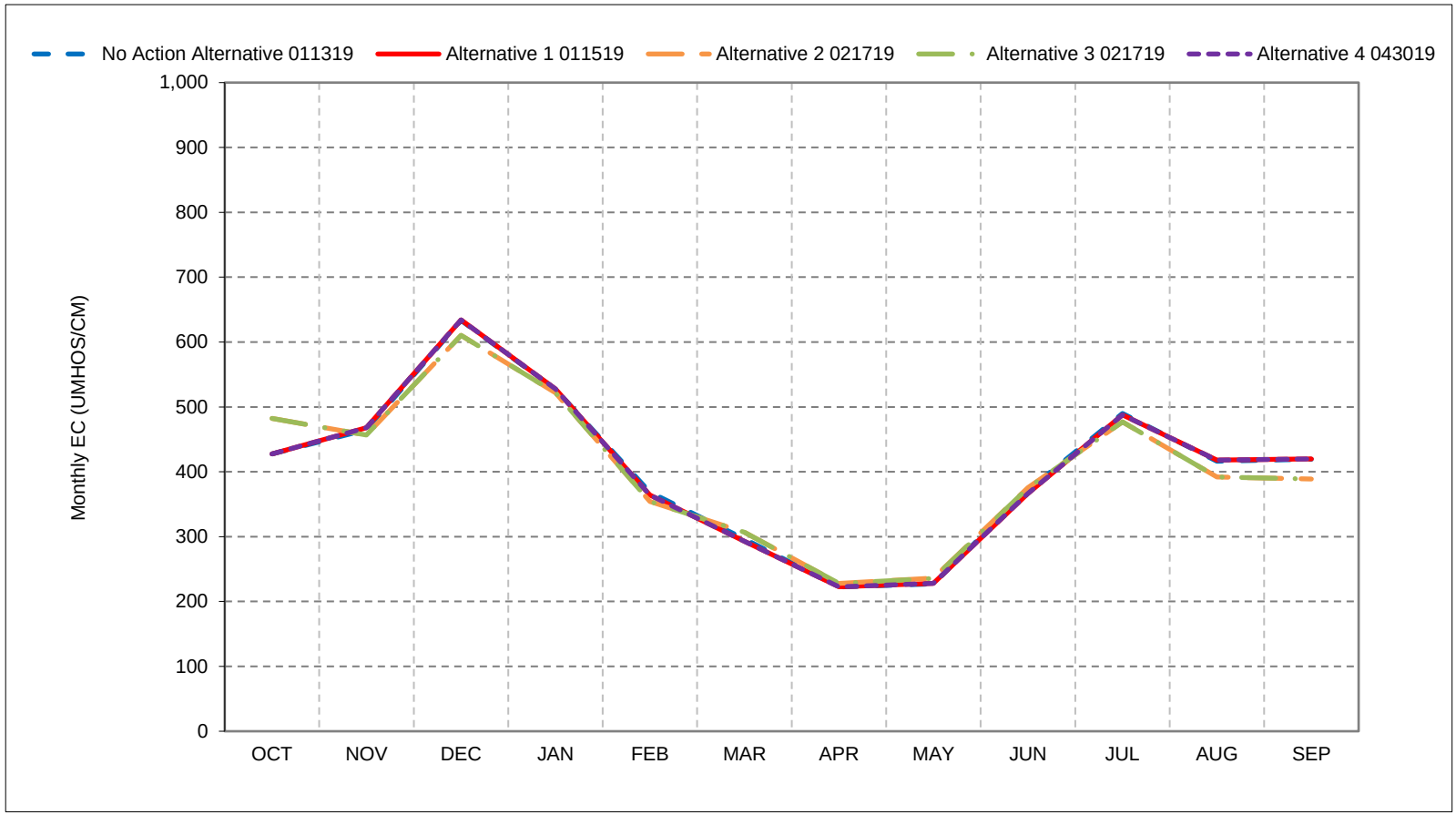
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-2. San Joaquin River at Vernalis Salinity (60-20-20), Wet Year Average EC



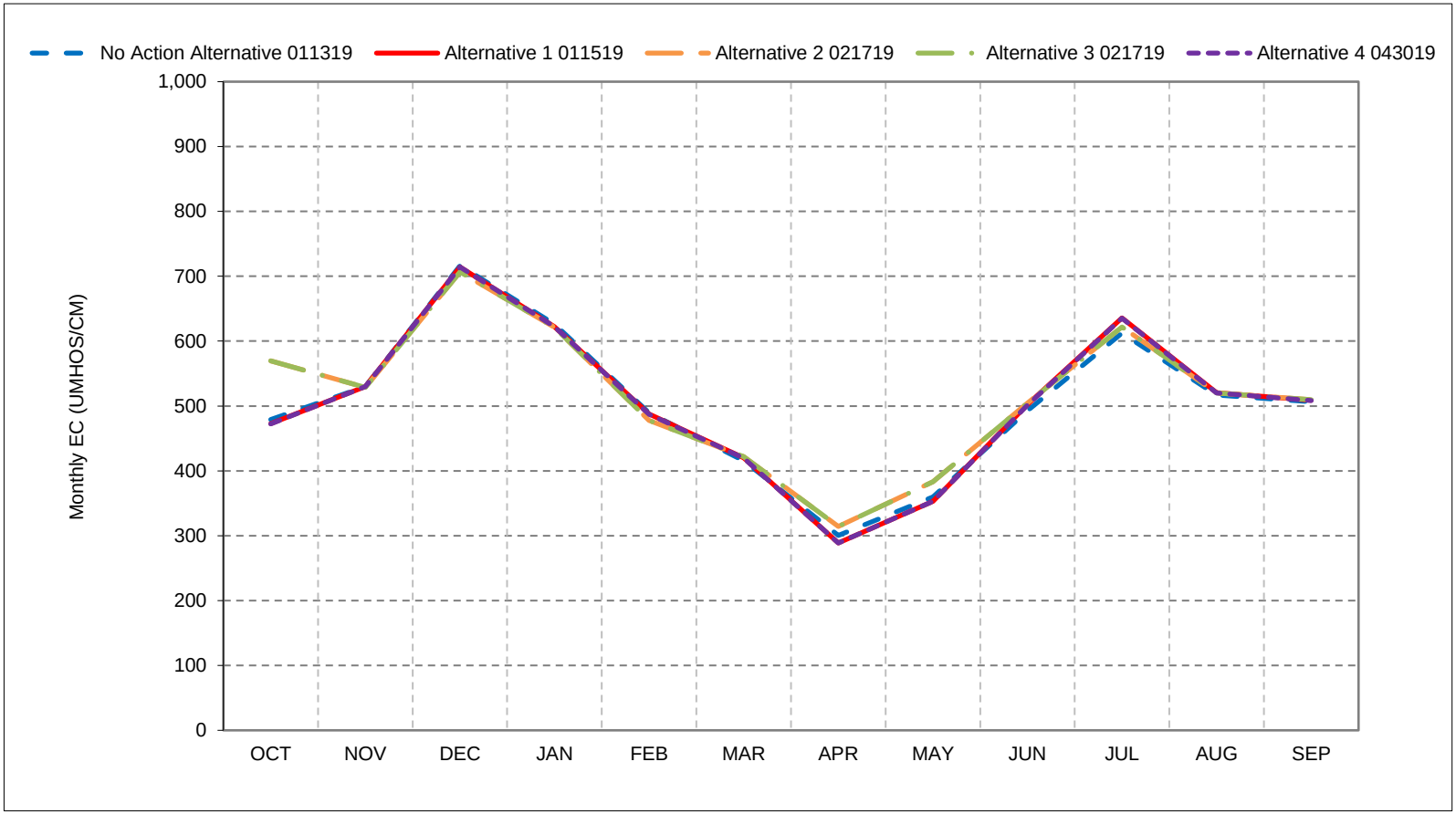
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-3. San Joaquin River at Vernalis Salinity (60-20-20), Above Normal Year Average EC



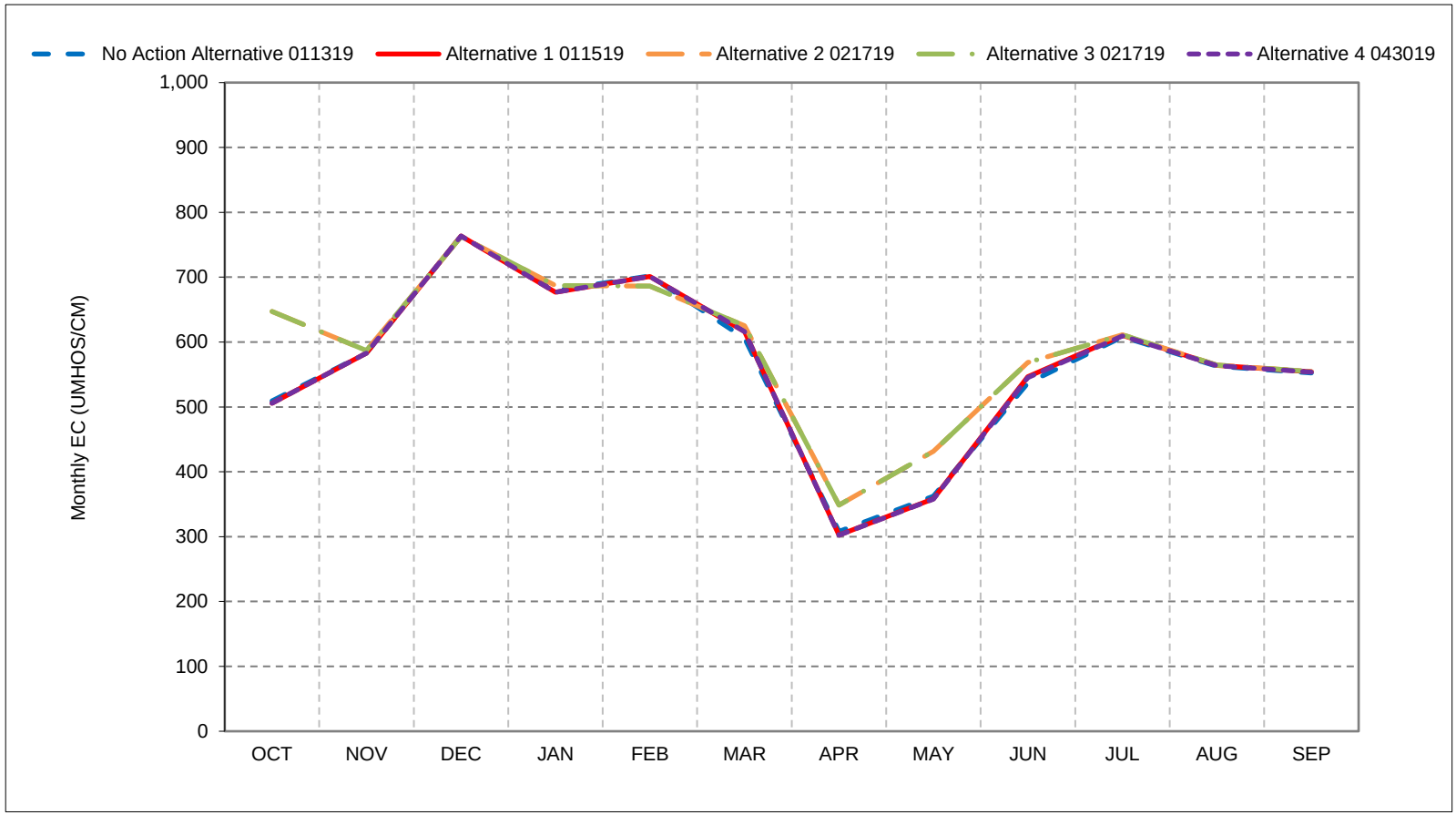
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

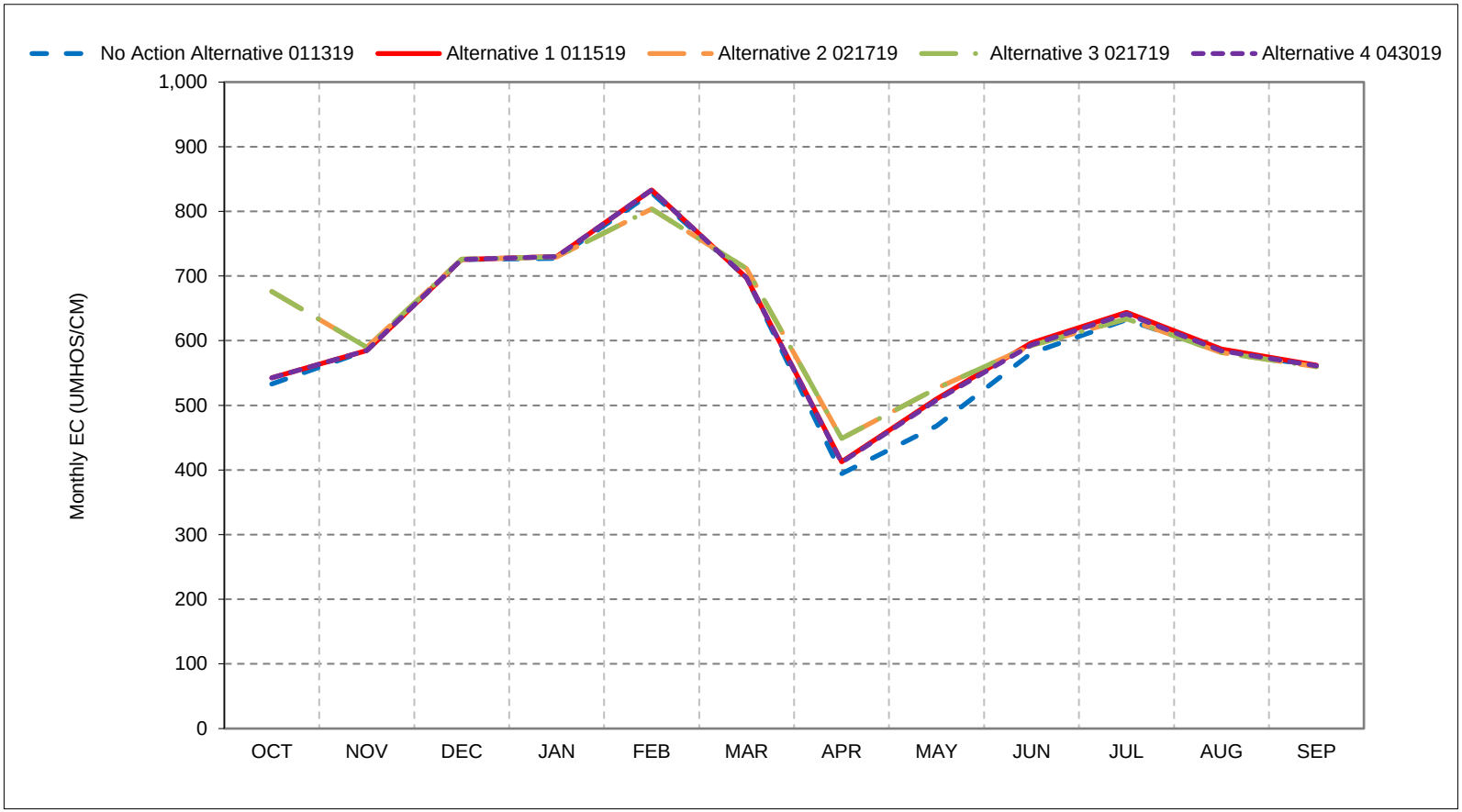
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-4. San Joaquin River at Vernalis Salinity (60-20-20), Below Normal Year Average EC



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-5. San Joaquin River at Vernalis Salinity (60-20-20), Dry Year Average EC



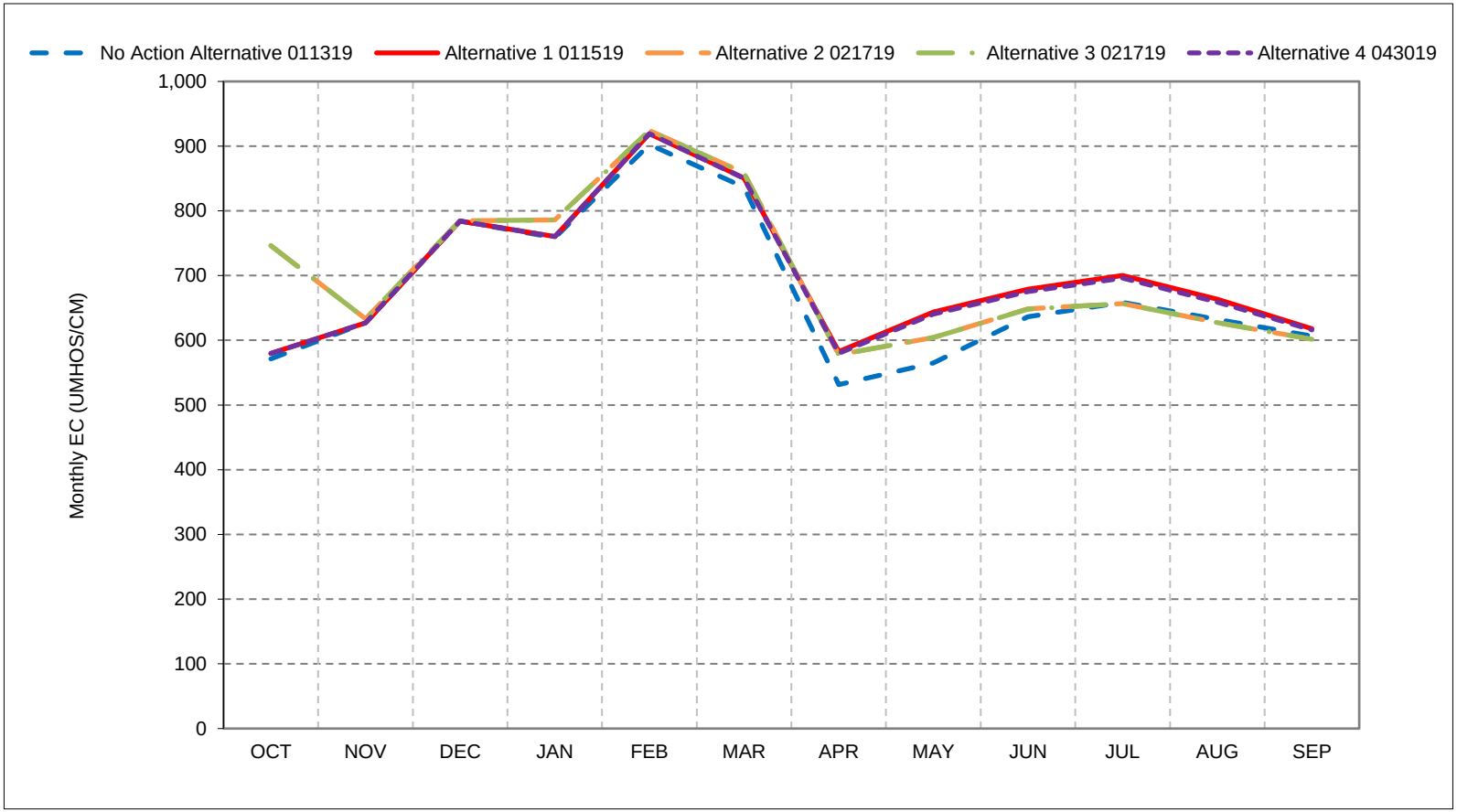
*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 6b-6. San Joaquin River at Vernalis Salinity (60-20-20), Critical Year Average EC



*As defined by the San Joaquin Valley 60-20-20 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 7-1. San Joaquin River at Jersey Point Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,783	3,051	2,489	1,380	547	303	295	424	518	1,397	1,786	2,642
20%	2,589	2,678	2,235	1,127	383	277	261	324	471	1,094	1,660	2,487
30%	2,458	2,474	1,606	898	308	252	251	284	428	909	1,504	2,428
40%	2,353	2,130	1,313	703	290	241	239	249	374	829	1,377	2,296
50%	1,702	1,054	845	536	274	229	231	242	320	647	1,336	2,143
60%	522	597	744	346	251	223	228	237	290	476	1,282	1,081
70%	348	343	508	257	235	218	225	227	252	411	1,148	1,055
80%	301	289	264	233	218	209	219	224	219	367	1,087	1,007
90%	278	252	215	219	212	201	213	198	204	292	979	954
Long Term												
Full Simulation Period[a]	1,495	1,445	1,162	695	339	248	249	291	398	759	1,352	1,740
Water Year Types[b]												
Wet (32%)	292	282	519	287	236	219	221	213	239	346	1,073	905
Above Normal (16%)	530	679	909	463	254	218	231	237	308	445	1,144	1,057
Below Normal (13%)	2,304	2,043	1,544	723	334	246	247	271	369	774	1,355	2,403
Dry (24%)	2,403	2,168	1,397	987	408	262	243	287	406	1,100	1,553	2,445
Critical (15%)	2,894	3,041	2,090	1,321	546	324	343	545	857	1,413	1,848	2,505

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,846	3,091	2,581	1,651	642	345	361	466	590	1,477	1,844	2,640
20%	2,772	2,887	2,351	1,197	410	277	251	395	554	1,003	1,705	2,574
30%	2,619	2,760	2,189	1,013	329	249	234	331	501	910	1,555	2,483
40%	2,585	2,534	1,809	775	284	237	220	257	408	851	1,466	2,413
50%	2,508	2,386	1,617	471	271	230	219	230	322	585	1,370	2,321
60%	2,430	2,217	1,208	344	254	220	211	218	276	493	1,253	2,252
70%	2,350	1,775	803	258	234	216	209	209	240	436	1,140	2,230
80%	2,125	1,436	563	238	219	209	208	198	209	374	1,073	2,201
90%	1,278	994	295	220	213	204	201	192	197	289	1,026	1,925
Long Term												
Full Simulation Period[a]	2,330	2,189	1,493	748	367	262	247	308	440	759	1,373	2,265
Water Year Types[b]												
Wet (32%)	1,857	1,777	1,271	283	233	220	210	203	232	348	1,045	1,866
Above Normal (16%)	2,403	2,212	1,499	557	263	218	212	216	286	452	1,160	2,279
Below Normal (13%)	2,295	2,104	1,537	848	372	259	241	304	443	814	1,442	2,432
Dry (24%)	2,570	2,221	1,408	1,095	458	272	244	320	480	1,051	1,603	2,516
Critical (15%)	2,911	3,082	2,067	1,292	617	386	373	614	986	1,443	1,868	2,543

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**62**	**40**	**92**	**271**	**95**	**41**	**66**	**42**	**72**	**80**	**58**	-1
20%	**183**	**209**	**115**	**70**	**27**	**0**	-10	**71**	**83**	-91	**44**	**87**
30%	**161**	**286**	**582**	**115**	**20**	-3	-17	**47**	**73**	**1**	**50**	**55**
40%	**232**	**404**	**495**	**72**	-5	-4	-18	**9**	**34**	**23**	**89**	**117**
50%	**806**	**1,332**	**772**	-64	-3	**1**	-13	-12	**2**	-62	**33**	**178**
60%	**1,907**	**1,620**	**464**	-2	**2**	-3	-16	-19	-15	**17**	-29	**1,171**
70%	**2,002**	**1,432**	**296**	**1**	-1	-2	-16	-19	-12	**24**	-8	**1,176**
80%	**1,825**	**1,147**	**299**	**5**	**1**	-1	-11	-25	-10	**7**	-14	**1,194**
90%	**1,000**	**743**	**80**	**1**	**1**	**2**	-12	-6	-6	-3	**46**	**970**
Long Term												
Full Simulation Period[a]	**835**	**744**	**330**	**53**	**28**	**13**	-3	**16**	**41**	0	**20**	**525**
Water Year Types[b]												
Wet (32%)	**1,564**	**1,495**	**752**	-4	-3	**0**	-12	-9	-7	**2**	-28	**960**
Above Normal (16%)	**1,872**	**1,533**	**590**	**94**	**10**	**0**	-20	-20	-22	**7**	**16**	**1,222**
Below Normal (13%)	-9	**61**	-7	**124**	**37**	**13**	-6	**33**	**74**	**40**	**86**	**30**
Dry (24%)	**167**	**53**	**12**	**108**	**49**	**10**	**1**	**33**	**73**	-49	**50**	**71**
Critical (15%)	**17**	**41**	-23	-29	**71**	**62**	**30**	**69**	**129**	**31**	**20**	**38**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 7-2. San Joaquin River at Jersey Point Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,783	3,051	2,489	1,380	547	303	295	424	518	1,397	1,786	2,642
20%	2,589	2,678	2,235	1,127	383	277	261	324	471	1,094	1,660	2,487
30%	2,458	2,474	1,606	898	308	252	251	284	428	909	1,504	2,428
40%	2,353	2,130	1,313	703	290	241	239	249	374	829	1,377	2,296
50%	1,702	1,054	845	536	274	229	231	242	320	647	1,336	2,143
60%	522	597	744	346	251	223	228	237	290	476	1,282	1,081
70%	348	343	508	257	235	218	225	227	252	411	1,148	1,055
80%	301	289	264	233	218	209	219	224	219	367	1,087	1,007
90%	278	252	215	219	212	201	213	198	204	292	979	954
Long Term												
Full Simulation Period[a]	1,495	1,445	1,162	695	339	248	249	291	398	759	1,352	1,740
Water Year Types[b]												
Wet (32%)	292	282	519	287	236	219	221	213	239	346	1,073	905
Above Normal (16%)	530	679	909	463	254	218	231	237	308	445	1,144	1,057
Below Normal (13%)	2,304	2,043	1,544	723	334	246	247	271	369	774	1,355	2,403
Dry (24%)	2,403	2,168	1,397	987	408	262	243	287	406	1,100	1,553	2,445
Critical (15%)	2,894	3,041	2,090	1,321	546	324	343	545	857	1,413	1,848	2,505

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,837	3,095	2,998	1,939	1,057	421	383	530	604	1,302	1,798	2,640
20%	2,740	2,844	2,724	1,619	692	341	271	387	498	1,001	1,662	2,549
30%	2,673	2,649	2,554	1,431	486	273	237	335	441	863	1,498	2,455
40%	2,549	2,605	2,304	1,165	372	246	225	270	355	778	1,392	2,401
50%	2,437	2,451	2,155	883	291	232	218	239	291	634	1,336	2,369
60%	2,376	2,298	1,528	555	265	225	212	219	277	488	1,263	2,308
70%	2,188	2,136	1,030	281	231	215	206	206	250	437	1,161	2,253
80%	2,047	1,800	724	241	218	207	204	194	220	387	1,098	2,128
90%	1,696	939	326	219	208	201	197	188	197	287	1,046	1,822
Long Term												
Full Simulation Period[a]	2,334	2,255	1,811	965	462	279	251	315	413	739	1,364	2,263
Water Year Types[b]												
Wet (32%)	2,105	2,067	1,531	346	236	217	208	203	230	353	1,045	1,849
Above Normal (16%)	2,725	2,515	2,007	761	322	217	207	223	269	459	1,217	2,360
Below Normal (13%)	2,320	2,190	1,693	1,389	554	279	247	308	359	773	1,460	2,382
Dry (24%)	2,184	1,963	1,555	1,332	576	301	252	321	457	987	1,522	2,510
Critical (15%)	2,674	2,926	2,743	1,528	831	444	391	654	943	1,437	1,863	2,533

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**54**	**45**	**509**	**559**	**510**	**118**	**89**	**106**	**86**	-95	**13**	-2
20%	**151**	**166**	**489**	**492**	**309**	**65**	**10**	**63**	**27**	-93	**1**	**62**
30%	**215**	**175**	**947**	**533**	**178**	**22**	-14	**51**	**13**	-45	-7	**26**
40%	**196**	**475**	**991**	**462**	**82**	**5**	-14	**21**	-20	-51	**15**	**105**
50%	**735**	**1,397**	**1,310**	**348**	**17**	**3**	-13	-3	-29	-13	0	**226**
60%	**1,854**	**1,701**	**784**	**208**	**14**	**2**	-15	-18	-13	**12**	-19	**1,227**
70%	**1,840**	**1,793**	**523**	**24**	-4	-3	-19	-21	-2	**25**	**14**	**1,198**
80%	**1,746**	**1,511**	**460**	**8**	0	-3	-15	-30	**1**	**20**	**12**	**1,121**
90%	**1,418**	**688**	**111**	**0**	-4	-1	-16	-10	-7	-4	**66**	**867**
Long Term												
Full Simulation Period[a]	**839**	**810**	**649**	**270**	**123**	**31**	**1**	**24**	**15**	-20	**12**	**523**
Water Year Types[b]												
Wet (32%)	**1,812**	**1,785**	**1,012**	**59**	**0**	-2	-13	-10	-9	**8**	-28	**944**
Above Normal (16%)	**2,195**	**1,836**	**1,098**	**298**	**68**	-1	-25	-14	-39	**14**	**74**	**1,304**
Below Normal (13%)	**16**	**147**	**149**	**665**	**220**	**33**	**0**	**36**	-10	0	**105**	-20
Dry (24%)	-219	-205	**158**	**345**	**168**	**39**	**9**	**34**	**51**	-113	-30	**65**
Critical (15%)	-220	-115	**653**	**207**	**285**	**120**	**48**	**110**	**86**	**24**	**15**	**29**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 7-3. San Joaquin River at Jersey Point Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,783	3,051	2,489	1,380	547	303	295	424	518	1,397	1,786	2,642
20%	2,589	2,678	2,235	1,127	383	277	261	324	471	1,094	1,660	2,487
30%	2,458	2,474	1,606	898	308	252	251	284	428	909	1,504	2,428
40%	2,353	2,130	1,313	703	290	241	239	249	374	829	1,377	2,296
50%	1,702	1,054	845	536	274	229	231	242	320	647	1,336	2,143
60%	522	597	744	346	251	223	228	237	290	476	1,282	1,081
70%	348	343	508	257	235	218	225	227	252	411	1,148	1,055
80%	301	289	264	233	218	209	219	224	219	367	1,087	1,007
90%	278	252	215	219	212	201	213	198	204	292	979	954
Long Term												
Full Simulation Period[a]	1,495	1,445	1,162	695	339	248	249	291	398	759	1,352	1,740
Water Year Types[b]												
Wet (32%)	292	282	519	287	236	219	221	213	239	346	1,073	905
Above Normal (16%)	530	679	909	463	254	218	231	237	308	445	1,144	1,057
Below Normal (13%)	2,304	2,043	1,544	723	334	246	247	271	369	774	1,355	2,403
Dry (24%)	2,403	2,168	1,397	987	408	262	243	287	406	1,100	1,553	2,445
Critical (15%)	2,894	3,041	2,090	1,321	546	324	343	545	857	1,413	1,848	2,505

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,681	2,815	2,701	1,843	867	413	354	470	585	1,261	1,781	2,680
20%	2,622	2,572	2,494	1,558	711	320	274	358	495	952	1,613	2,579
30%	2,525	2,449	2,360	1,307	455	278	241	321	434	844	1,481	2,463
40%	2,402	2,309	2,245	1,133	364	251	232	265	362	733	1,390	2,387
50%	2,223	2,169	1,980	836	281	236	222	234	303	652	1,295	2,313
60%	2,146	2,025	1,334	497	259	225	216	223	278	452	1,199	2,273
70%	1,965	1,829	898	272	237	218	211	207	255	403	1,122	2,212
80%	1,776	1,534	626	237	216	208	208	199	222	378	1,057	2,110
90%	1,482	1,020	309	219	208	203	198	190	198	282	972	1,780
Long Term												
Full Simulation Period[a]	2,148	2,010	1,668	904	434	278	250	300	410	716	1,315	2,242
Water Year Types[b]												
Wet (32%)	1,984	1,923	1,364	333	234	218	210	208	237	351	997	1,832
Above Normal (16%)	2,433	2,297	1,829	669	295	218	211	221	275	418	1,126	2,185
Below Normal (13%)	2,205	1,954	1,567	1,321	510	279	248	290	358	721	1,412	2,421
Dry (24%)	1,990	1,740	1,482	1,266	545	298	253	301	439	940	1,494	2,545
Critical (15%)	2,408	2,390	2,557	1,413	759	435	376	590	934	1,455	1,822	2,521

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-102	-235	**212**	**462**	**320**	**110**	**59**	**45**	**67**	-136	-4	**39**
20%	**33**	-105	**259**	**431**	**328**	**43**	**13**	**34**	**24**	-142	-47	**92**
30%	**67**	-25	**753**	**409**	**147**	**27**	-10	**37**	**6**	-65	-23	**34**
40%	**49**	**178**	**932**	**430**	**74**	**10**	-7	**17**	-13	-96	**13**	**91**
50%	**521**	**1,115**	**1,135**	**300**	**7**	**7**	-9	-8	-17	**5**	-41	**170**
60%	**1,624**	**1,428**	**590**	**150**	**8**	**2**	-12	-14	-12	-24	-83	**1,192**
70%	**1,617**	**1,487**	**390**	**15**	**2**	**1**	-14	-20	**3**	-8	-25	**1,157**
80%	**1,475**	**1,245**	**362**	**4**	-2	-1	-11	-25	**3**	**11**	-30	**1,103**
90%	**1,203**	**769**	**94**	**0**	-4	**2**	-14	-7	-5	-10	-7	**826**
Long Term												
Full Simulation Period[a]	**653**	**565**	**506**	**209**	**94**	**29**	**1**	**9**	**12**	-43	-37	**502**
Water Year Types[b]												
Wet (32%)	**1,692**	**1,641**	**845**	**47**	-2	-1	-11	-5	-2	**5**	-76	**927**
Above Normal (16%)	**1,902**	**1,618**	**920**	**206**	**41**	0	-21	-15	-33	-27	-17	**1,129**
Below Normal (13%)	-99	-89	**22**	**598**	**176**	**34**	**1**	**19**	-10	-53	**57**	**19**
Dry (24%)	-413	-428	**85**	**279**	**137**	**36**	**10**	**13**	**32**	-160	-59	**99**
Critical (15%)	-485	-651	**467**	**92**	**213**	**111**	**33**	**46**	**77**	**43**	-26	**16**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 7-4. San Joaquin River at Jersey Point Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,783	3,051	2,489	1,380	547	303	295	424	518	1,397	1,786	2,642
20%	2,589	2,678	2,235	1,127	383	277	261	324	471	1,094	1,660	2,487
30%	2,458	2,474	1,606	898	308	252	251	284	428	909	1,504	2,428
40%	2,353	2,130	1,313	703	290	241	239	249	374	829	1,377	2,296
50%	1,702	1,054	845	536	274	229	231	242	320	647	1,336	2,143
60%	522	597	744	346	251	223	228	237	290	476	1,282	1,081
70%	348	343	508	257	235	218	225	227	252	411	1,148	1,055
80%	301	289	264	233	218	209	219	224	219	367	1,087	1,007
90%	278	252	215	219	212	201	213	198	204	292	979	954
Long Term												
Full Simulation Period[a]	1,495	1,445	1,162	695	339	248	249	291	398	759	1,352	1,740
Water Year Types[b]												
Wet (32%)	292	282	519	287	236	219	221	213	239	346	1,073	905
Above Normal (16%)	530	679	909	463	254	218	231	237	308	445	1,144	1,057
Below Normal (13%)	2,304	2,043	1,544	723	334	246	247	271	369	774	1,355	2,403
Dry (24%)	2,403	2,168	1,397	987	408	262	243	287	406	1,100	1,553	2,445
Critical (15%)	2,894	3,041	2,090	1,321	546	324	343	545	857	1,413	1,848	2,505

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,856	3,094	2,577	1,649	655	305	294	417	590	1,295	1,712	2,580
20%	2,744	2,838	2,343	1,195	410	266	281	345	508	1,015	1,554	2,487
30%	2,638	2,701	2,114	970	314	257	267	282	480	911	1,484	2,404
40%	2,556	2,510	1,833	710	282	247	263	249	404	851	1,412	2,353
50%	2,510	2,405	1,593	463	267	241	251	237	332	574	1,231	2,320
60%	2,424	2,254	1,201	338	255	238	243	231	291	470	1,140	2,281
70%	2,352	1,869	692	259	234	232	235	224	245	422	1,089	2,223
80%	2,200	1,437	518	237	219	223	228	219	217	374	1,026	2,162
90%	1,935	996	279	219	212	216	214	198	202	292	922	1,931
Long Term												
Full Simulation Period[a]	2,381	2,186	1,470	723	355	258	261	291	423	739	1,290	2,233
Water Year Types[b]												
Wet (32%)	2,037	1,867	1,253	280	233	231	226	209	235	349	1,022	1,921
Above Normal (16%)	2,448	2,228	1,450	537	261	237	245	230	309	445	1,089	2,261
Below Normal (13%)	2,261	1,918	1,519	766	348	256	269	269	418	798	1,162	2,233
Dry (24%)	2,549	2,193	1,393	1,076	440	260	265	299	464	1,036	1,539	2,471
Critical (15%)	2,885	3,064	2,044	1,256	590	334	340	539	891	1,355	1,792	2,481

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**73**	**44**	**88**	**269**	**108**	**1**	-1	-7	**72**	-102	-73	-62
20%	**155**	**160**	**107**	**68**	**27**	-11	**20**	**21**	**36**	-79	-106	0
30%	**181**	**227**	**508**	**72**	**6**	**5**	**16**	-3	**52**	**2**	-21	-24
40%	**203**	**379**	**519**	**7**	-8	**6**	**25**	**0**	**29**	**22**	**35**	**56**
50%	**808**	**1,352**	**748**	-72	-7	**12**	**20**	-5	**12**	-73	-106	**177**
60%	**1,902**	**1,657**	**457**	-8	**4**	**15**	**16**	-6	**1**	-6	-142	**1,200**
70%	**2,004**	**1,526**	**184**	**2**	-1	**14**	**10**	-3	-7	**10**	-59	**1,168**
80%	**1,899**	**1,148**	**254**	**4**	**1**	**14**	**10**	-5	-2	**7**	-61	**1,155**
90%	**1,657**	**744**	**64**	**0**	0	**15**	**1**	**0**	-2	**0**	-58	**976**
Long Term												
Full Simulation Period[a]	**886**	**741**	**308**	**27**	**16**	**9**	**12**	-1	**25**	-20	-62	**493**
Water Year Types[b]												
Wet (32%)	**1,744**	**1,585**	**734**	-7	-3	**12**	**5**	-4	-3	**3**	-51	**1,016**
Above Normal (16%)	**1,918**	**1,548**	**541**	**74**	**7**	**19**	**14**	-6	**1**	**0**	-54	**1,204**
Below Normal (13%)	-43	-125	-26	**43**	**13**	**11**	**23**	-2	**49**	**24**	-193	-169
Dry (24%)	**146**	**25**	-3	**89**	**32**	-3	**22**	**11**	**58**	-64	-13	**25**
Critical (15%)	-9	**22**	-46	-65	**44**	**10**	-3	-5	**34**	-57	-56	-24

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

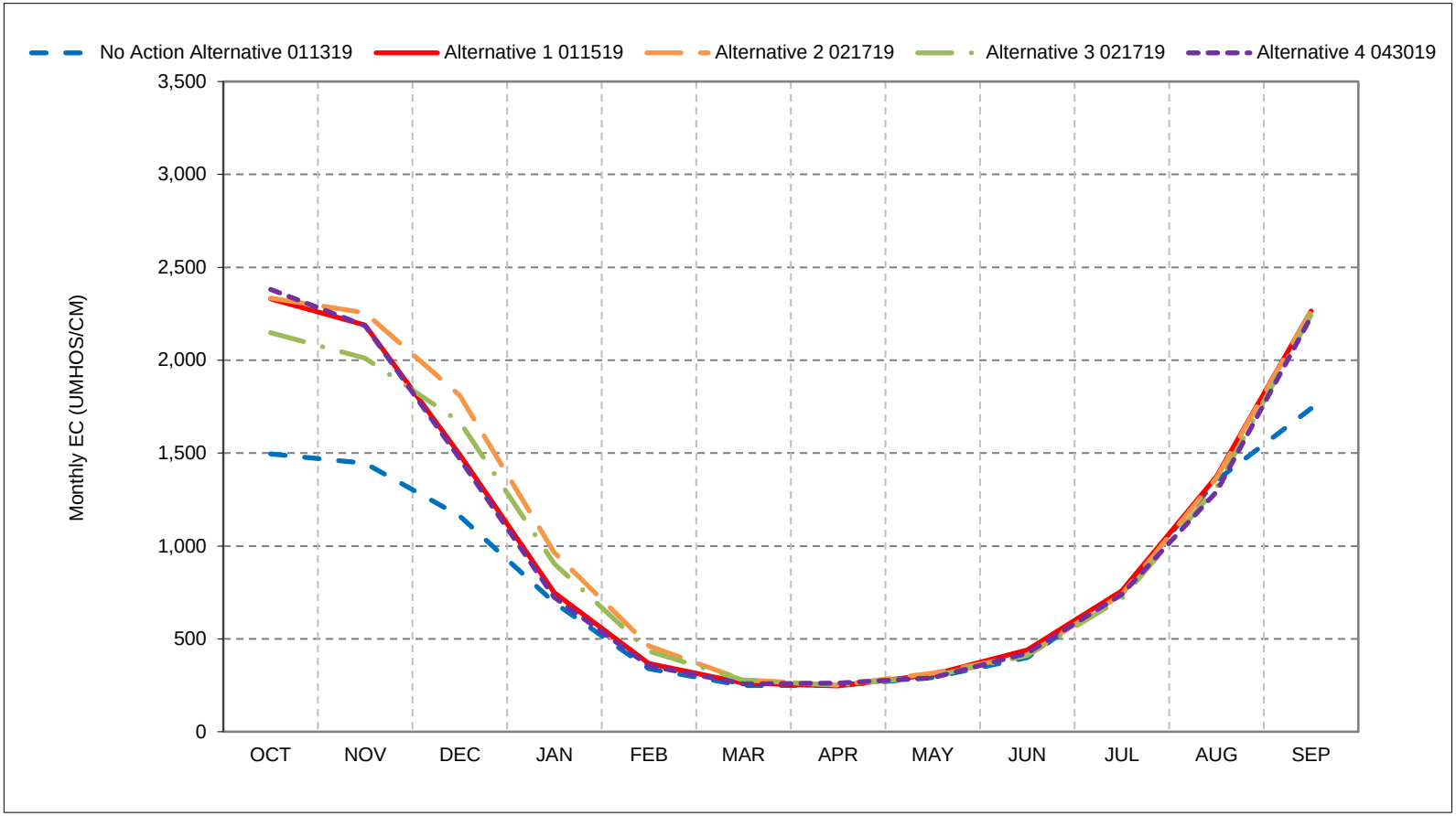
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-1. San Joaquin River at Jersey Point Salinity, Long-Term Average EC



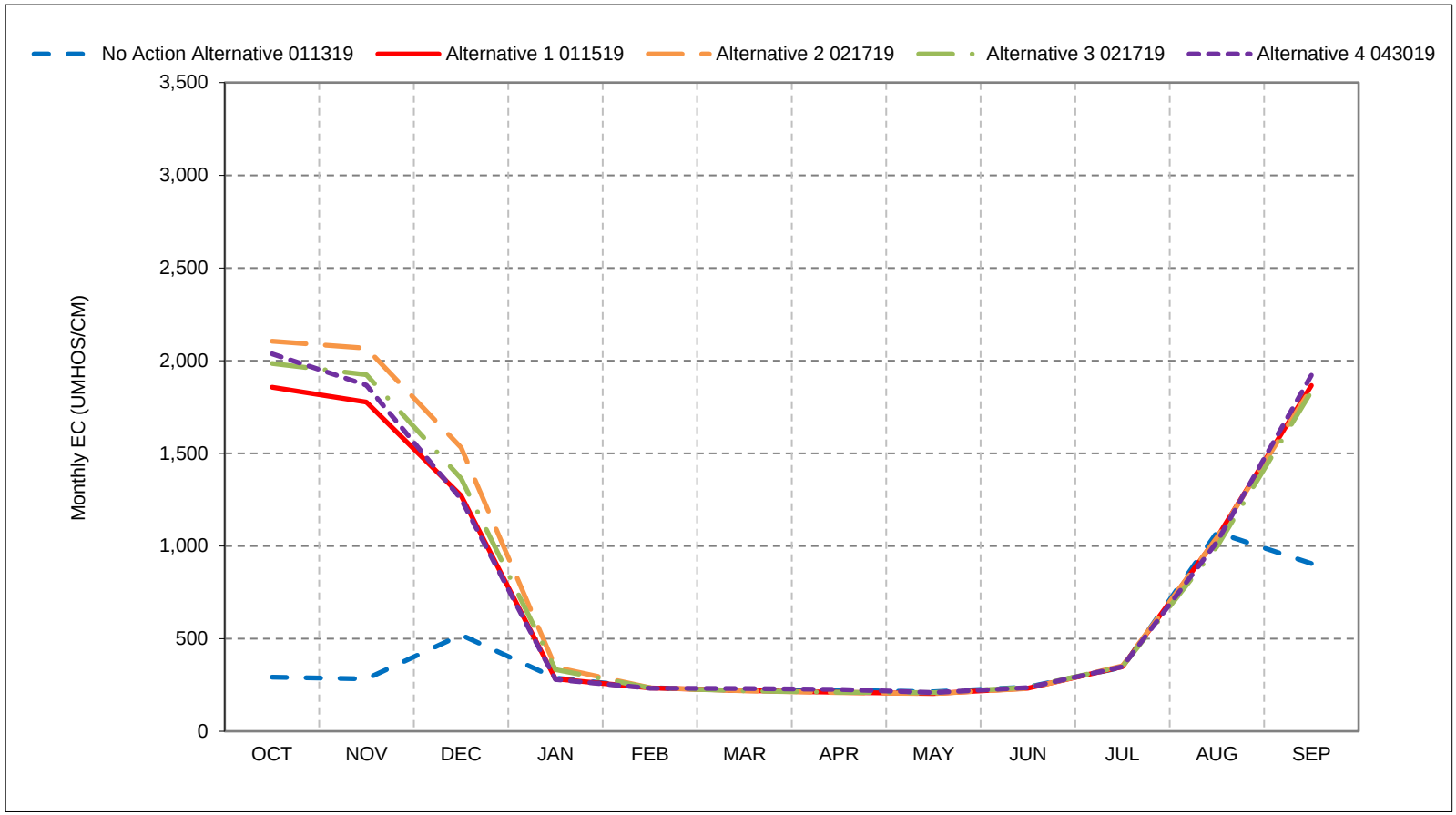
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-2. San Joaquin River at Jersey Point Salinity, Wet Year Average EC



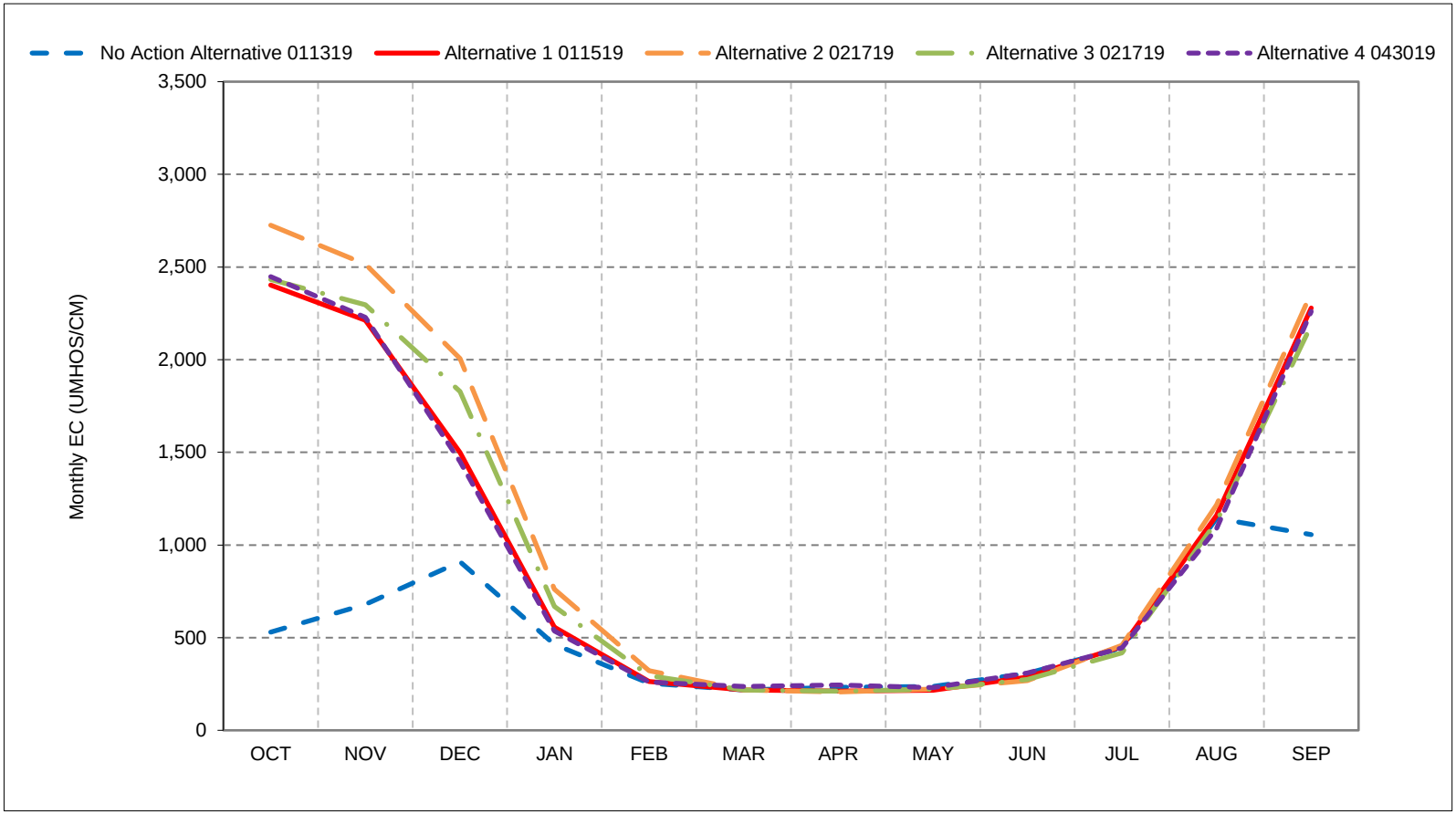
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-3. San Joaquin River at Jersey Point Salinity, Above Normal Year Average EC



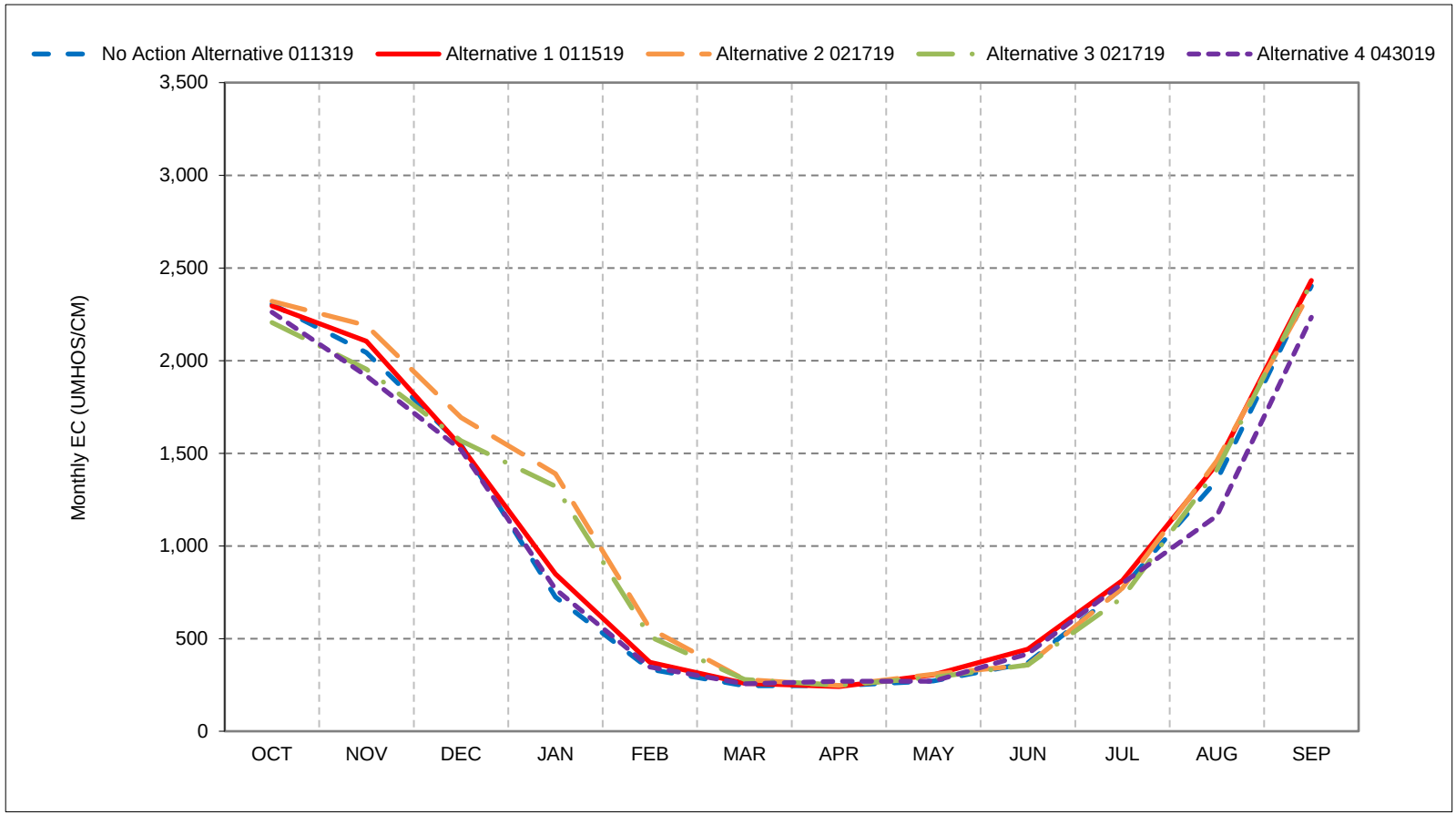
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-4. San Joaquin River at Jersey Point Salinity, Below Normal Year Average EC



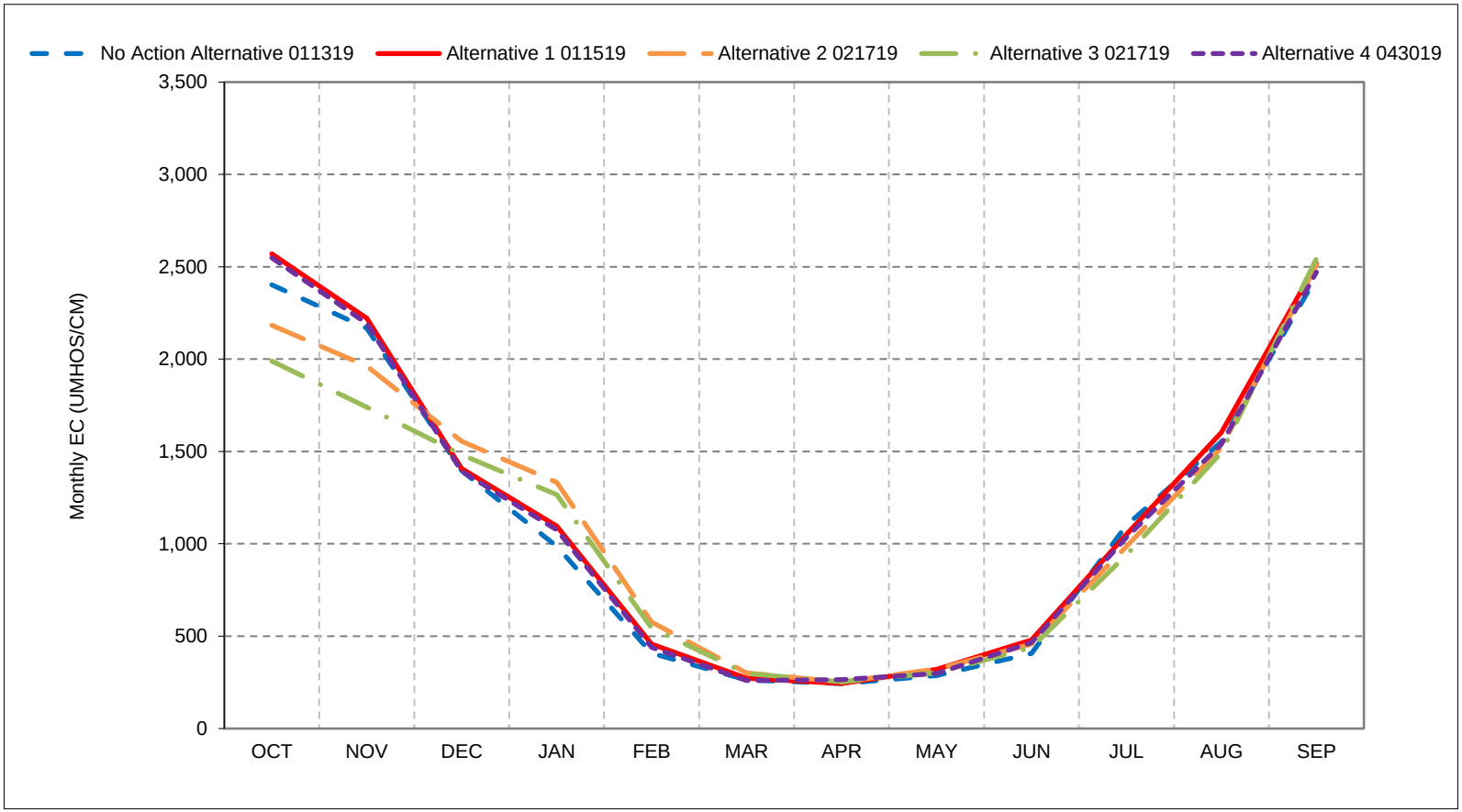
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-5. San Joaquin River at Jersey Point Salinity, Dry Year Average EC



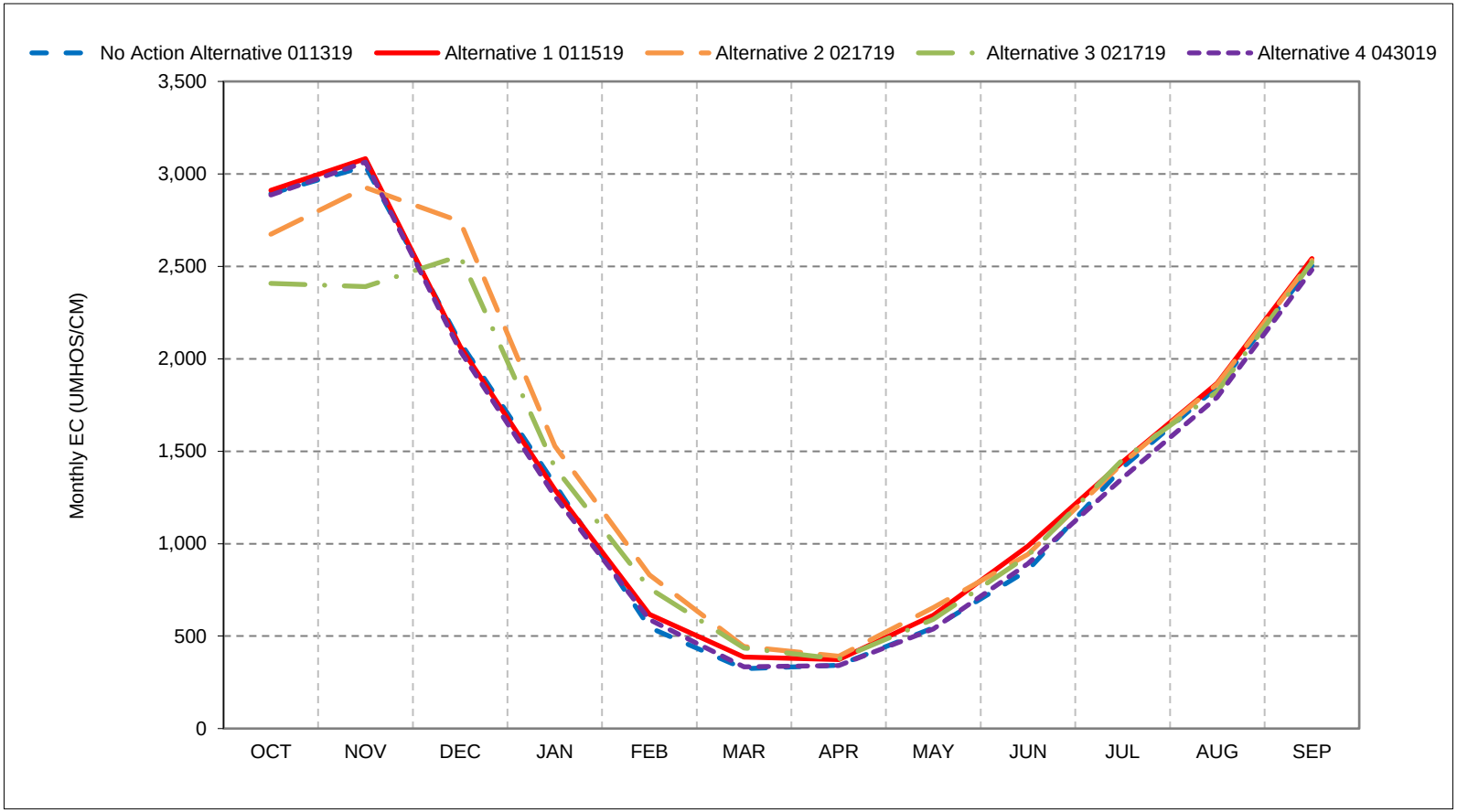
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

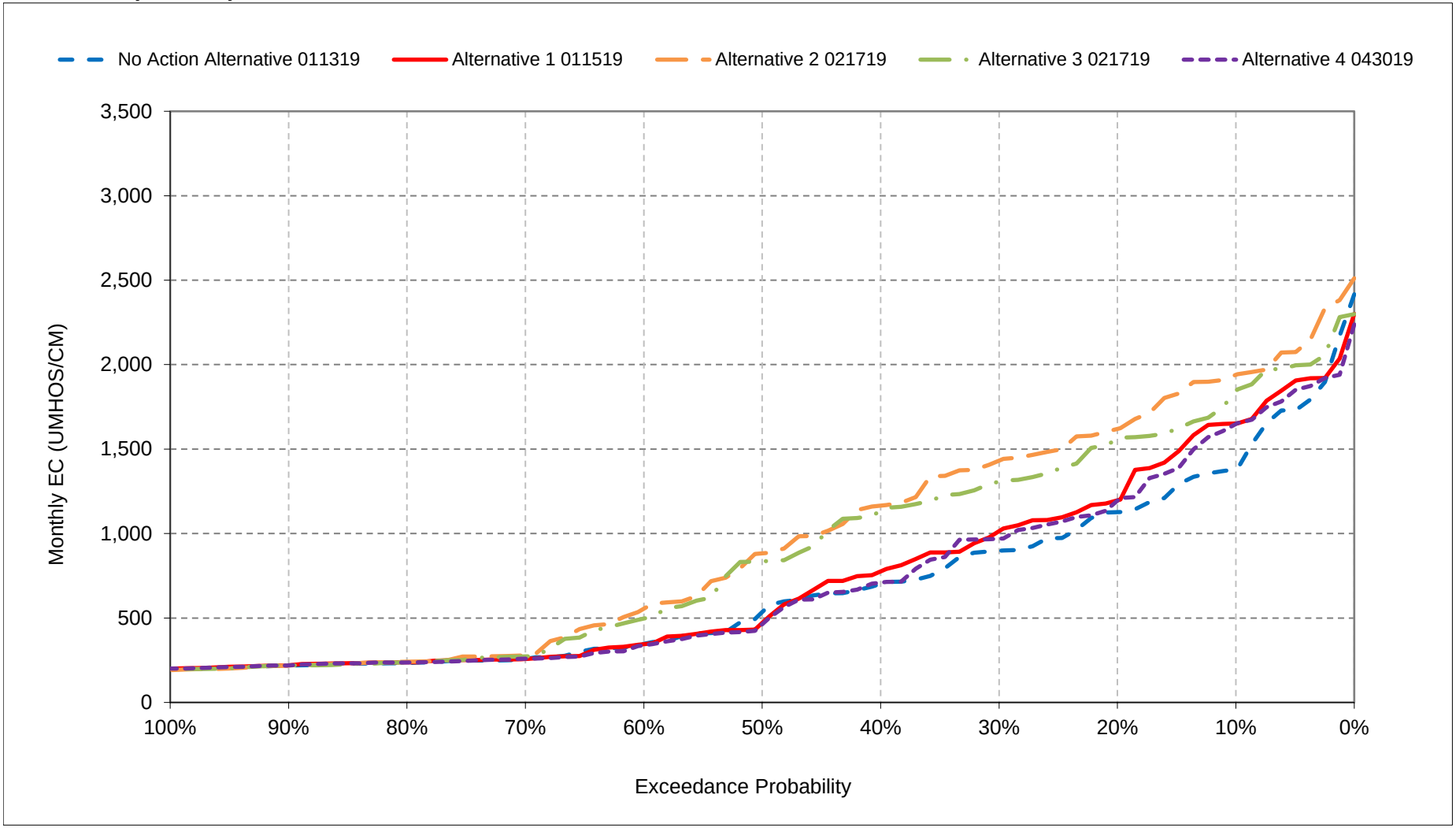
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-6. San Joaquin River at Jersey Point Salinity, Critical Year Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

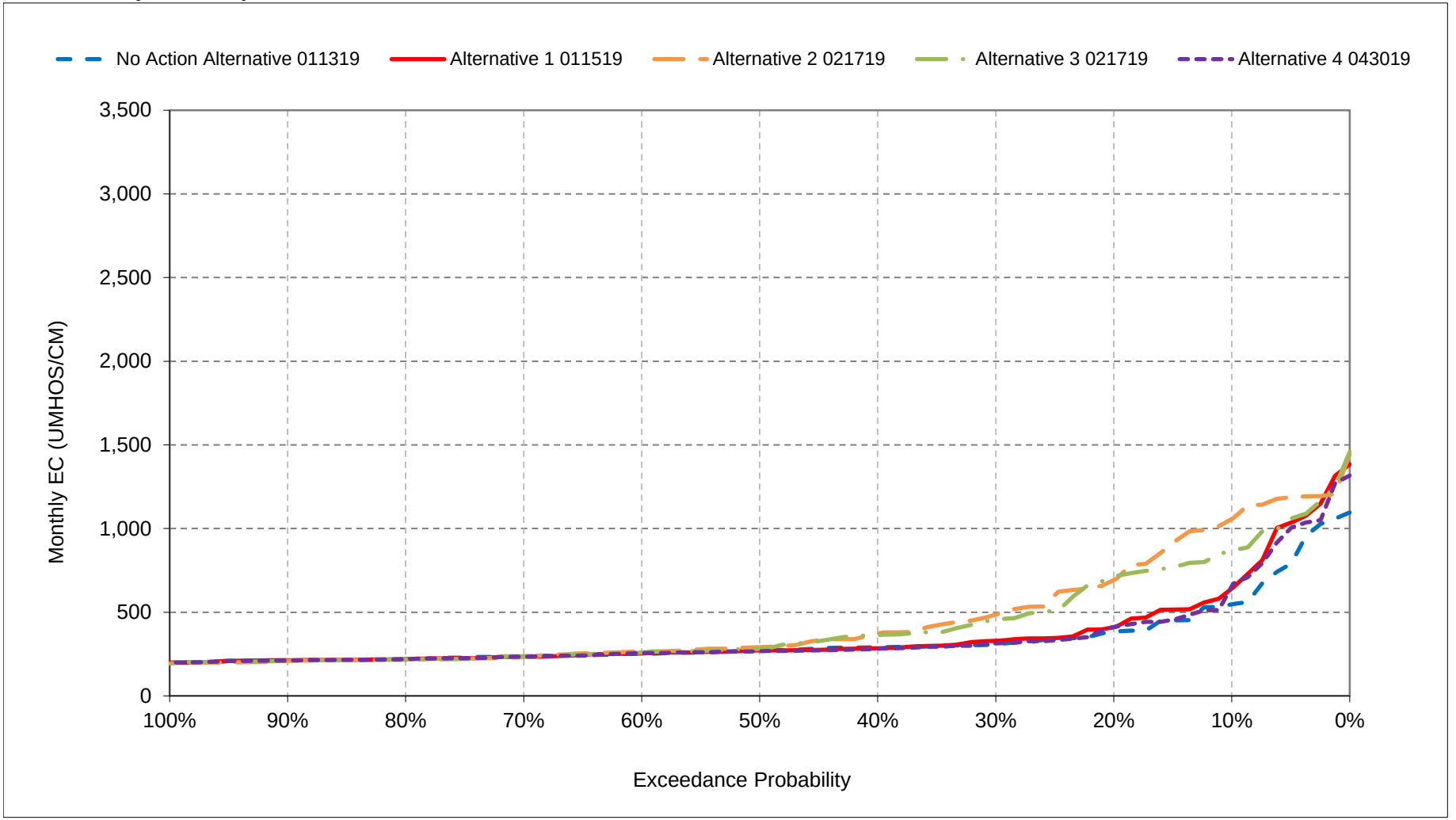
Figure 7-7. San Joaquin River at Jersey Point Salinity, January EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

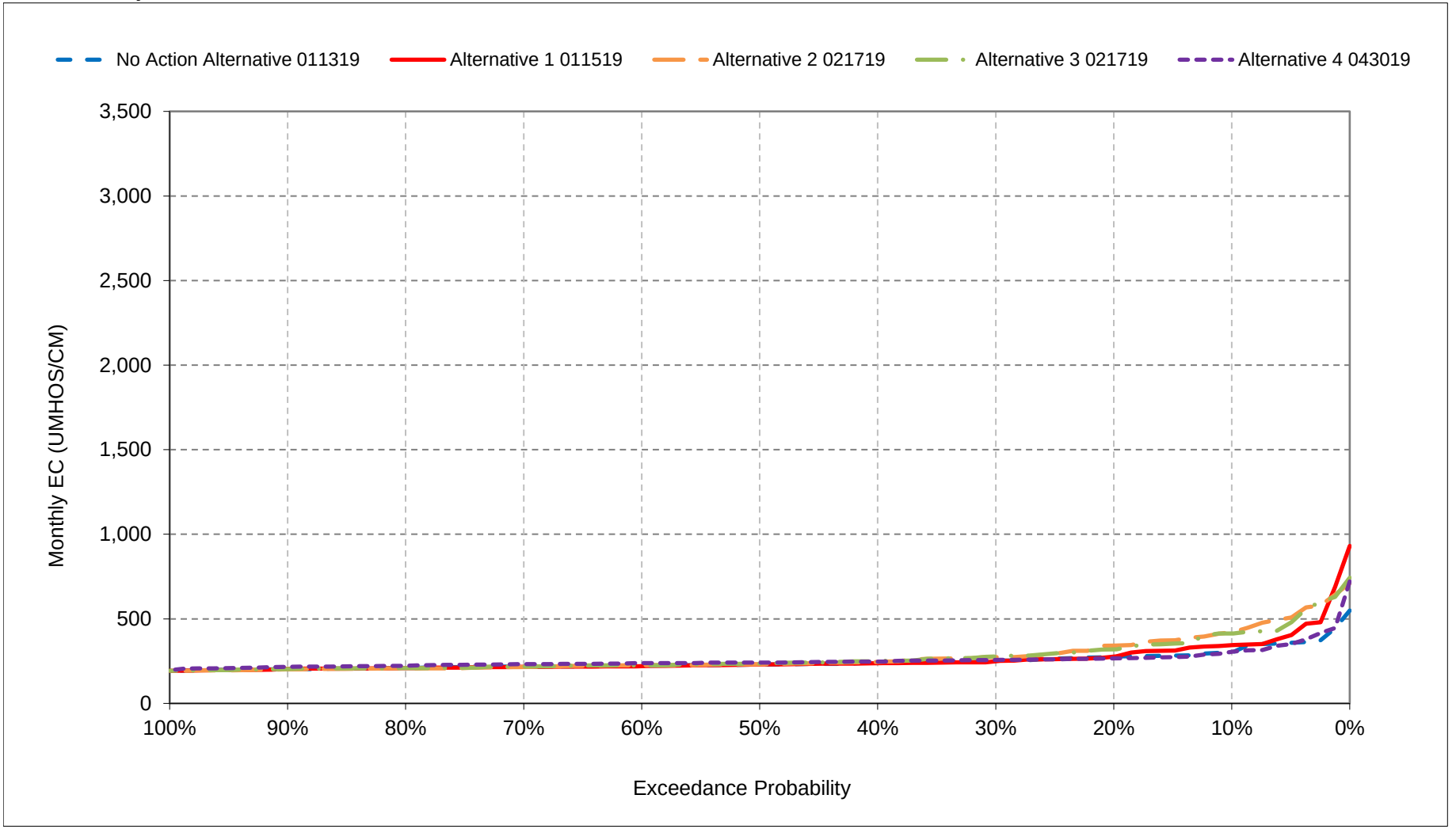
Figure 7-8. San Joaquin River at Jersey Point Salinity, February EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

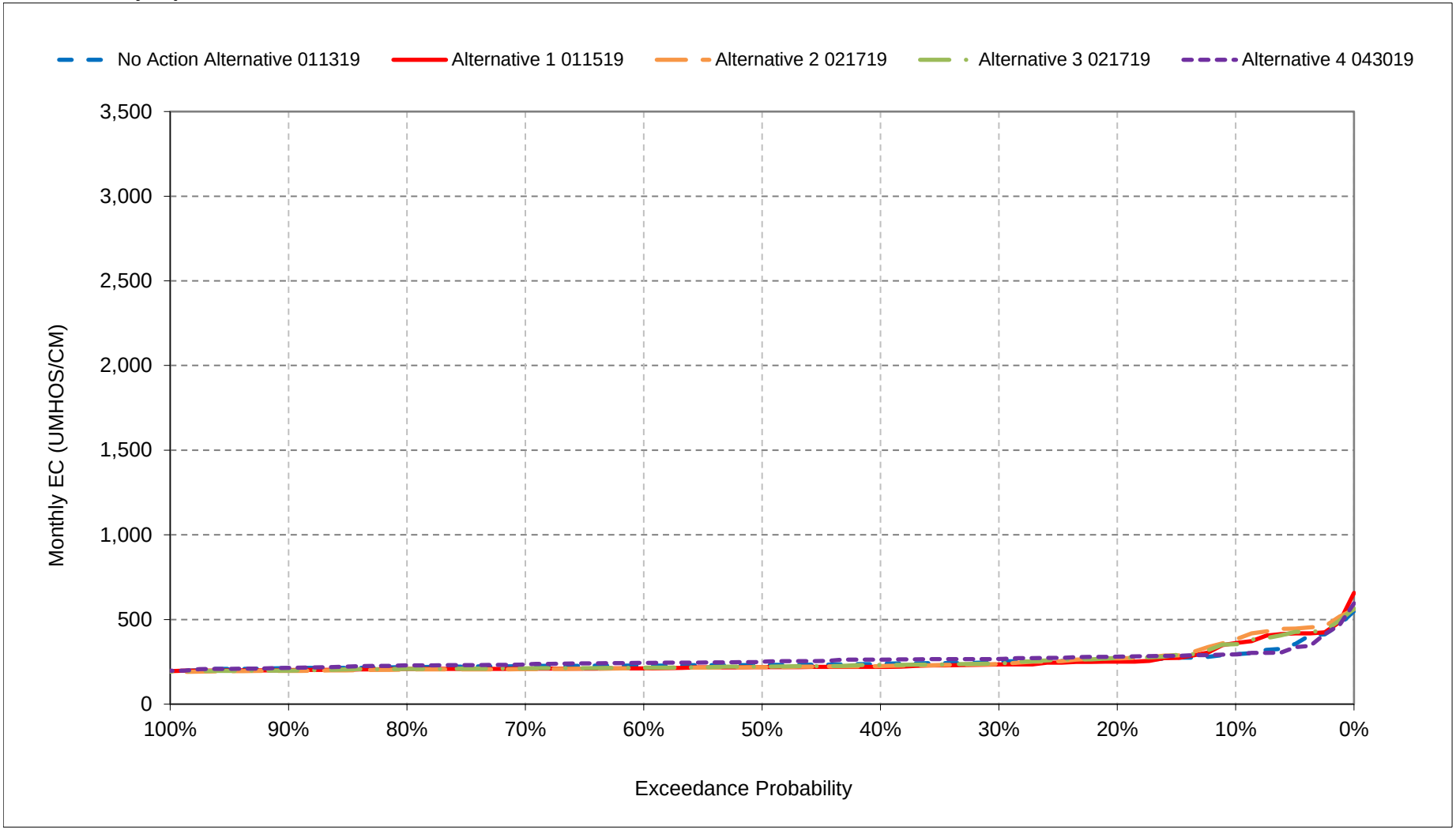
Figure 7-9. San Joaquin River at Jersey Point Salinity, March EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

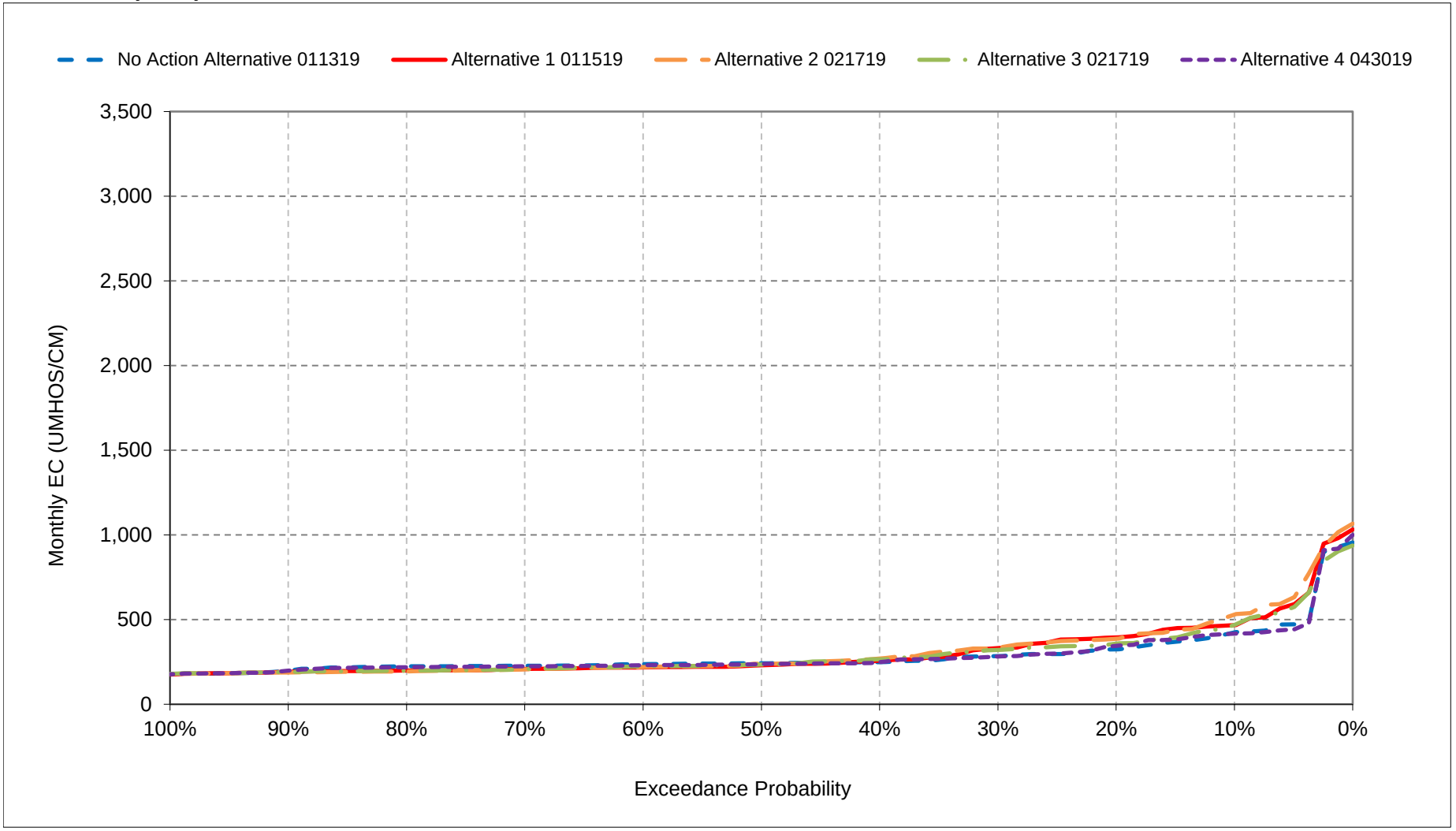
Figure 7-10. San Joaquin River at Jersey Point Salinity, April EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

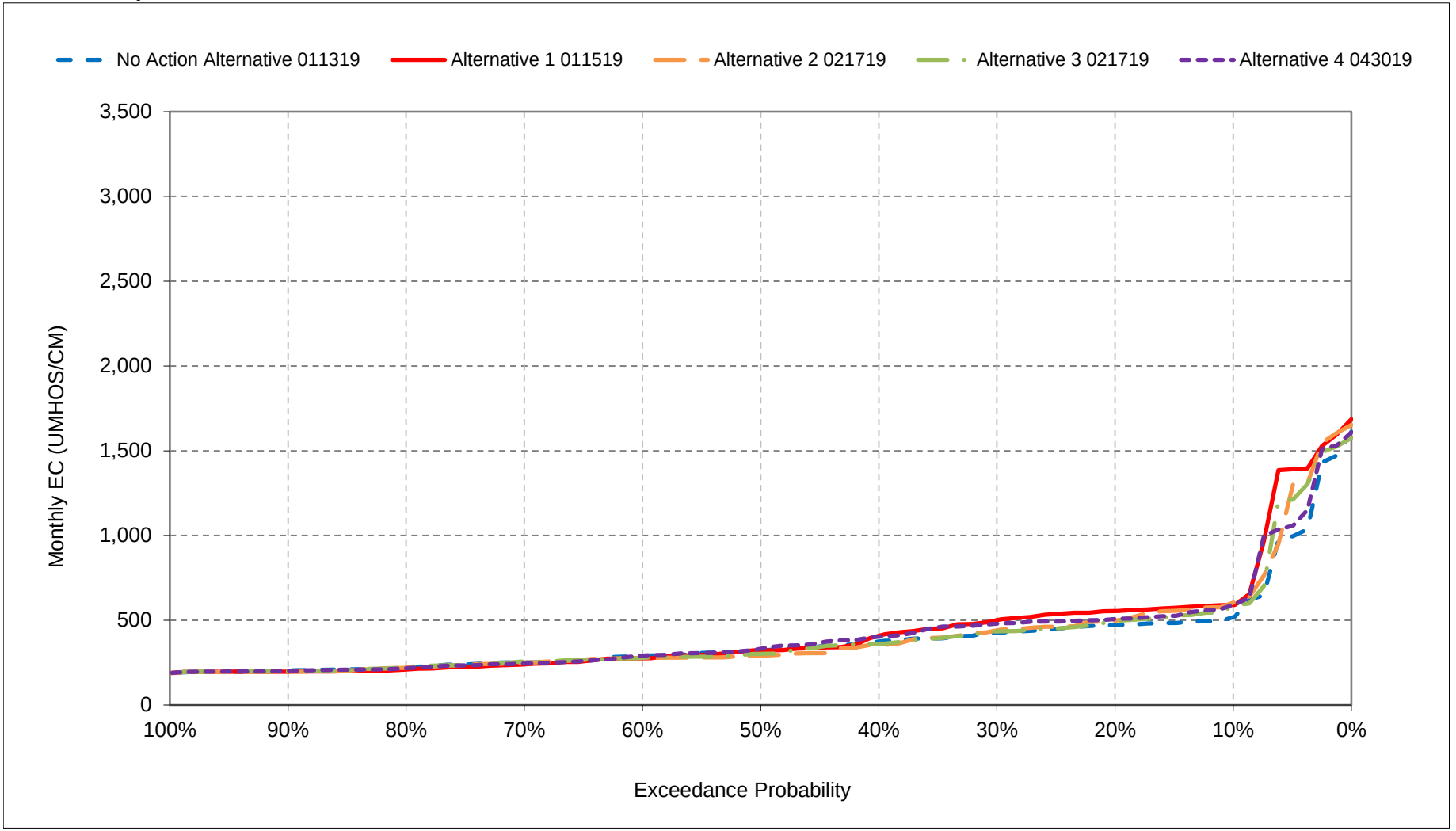
Figure 7-11. San Joaquin River at Jersey Point Salinity, May EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

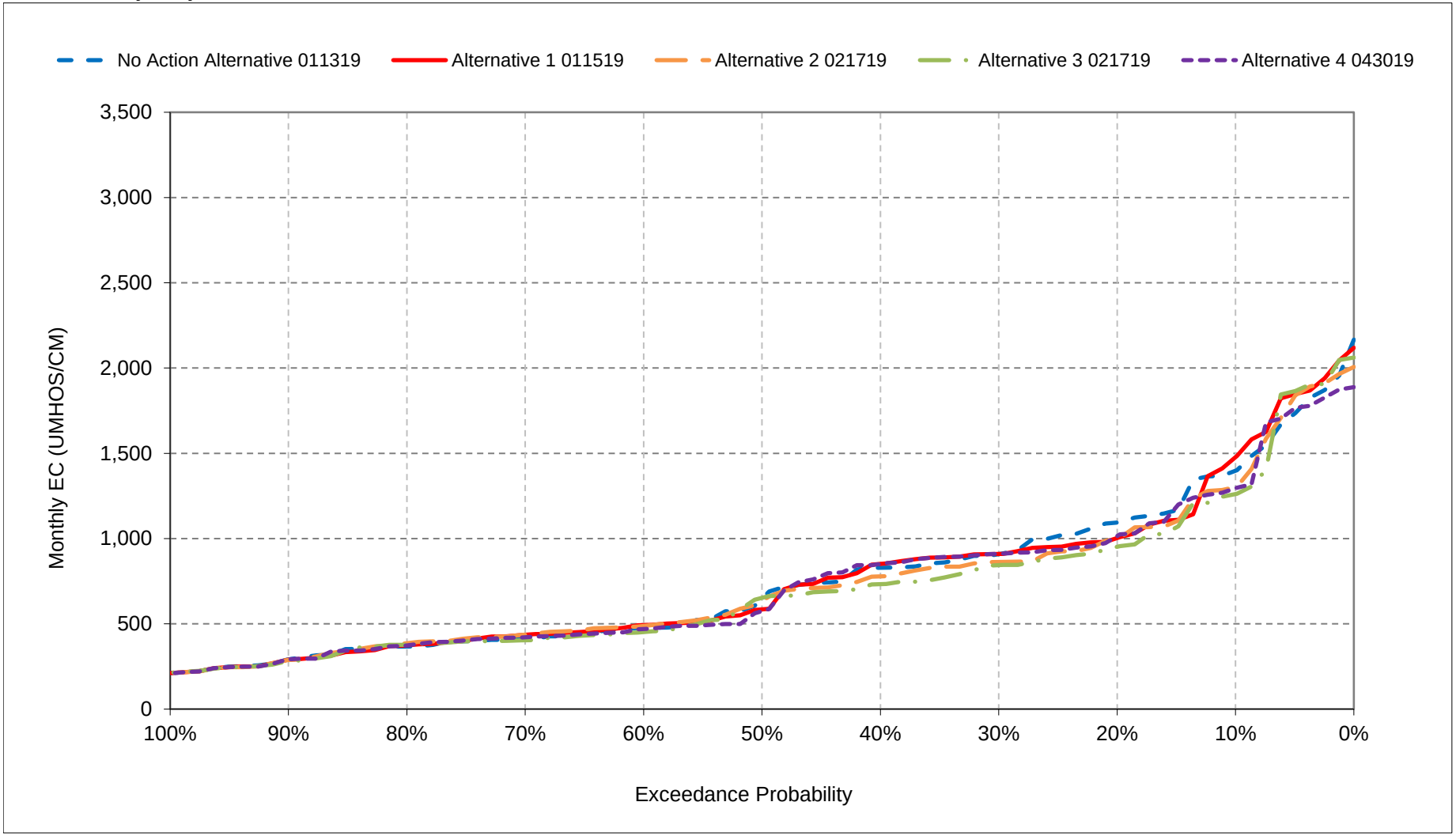
Figure 7-12. San Joaquin River at Jersey Point Salinity, June EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

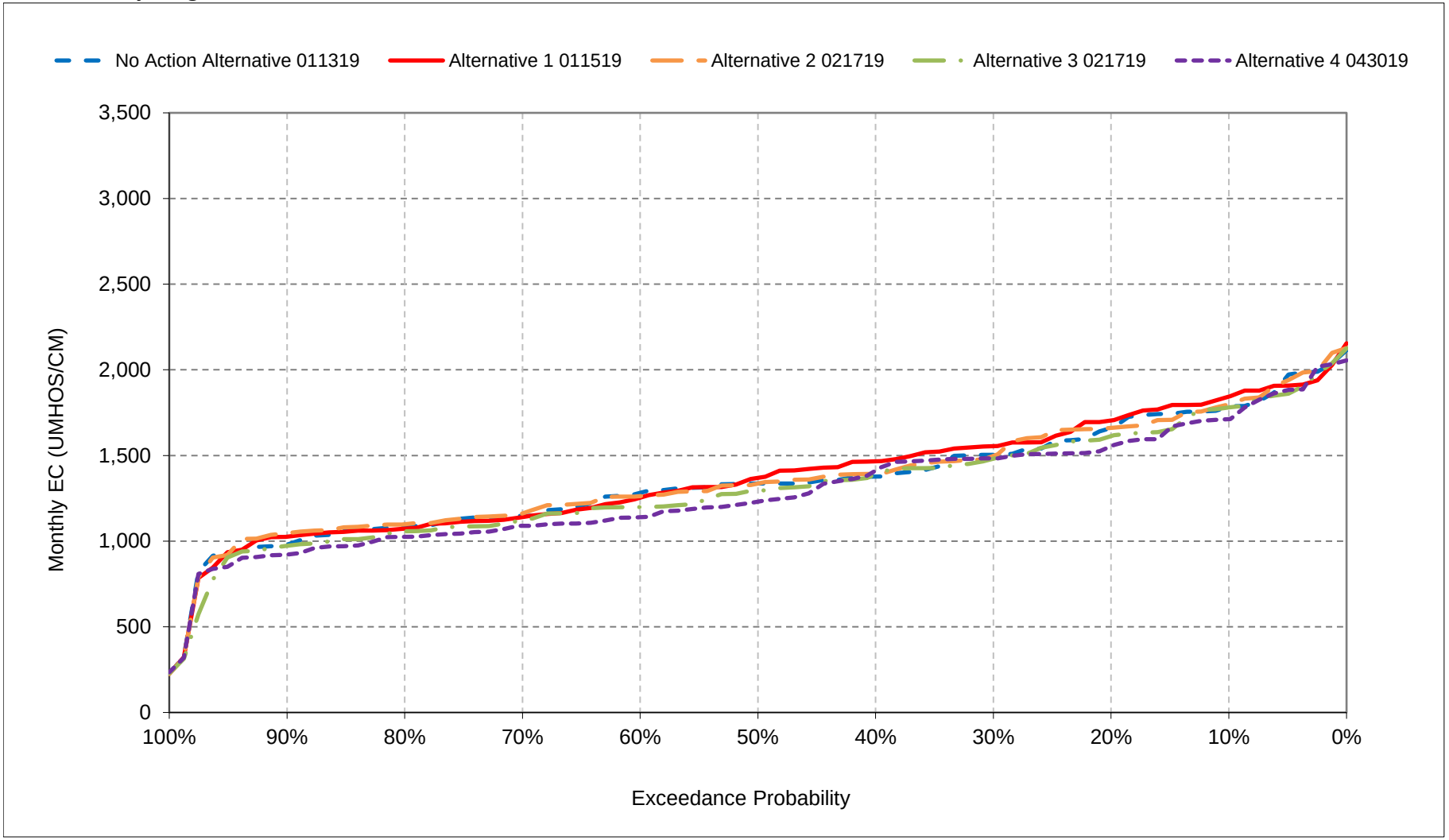
Figure 7-13. San Joaquin River at Jersey Point Salinity, July EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

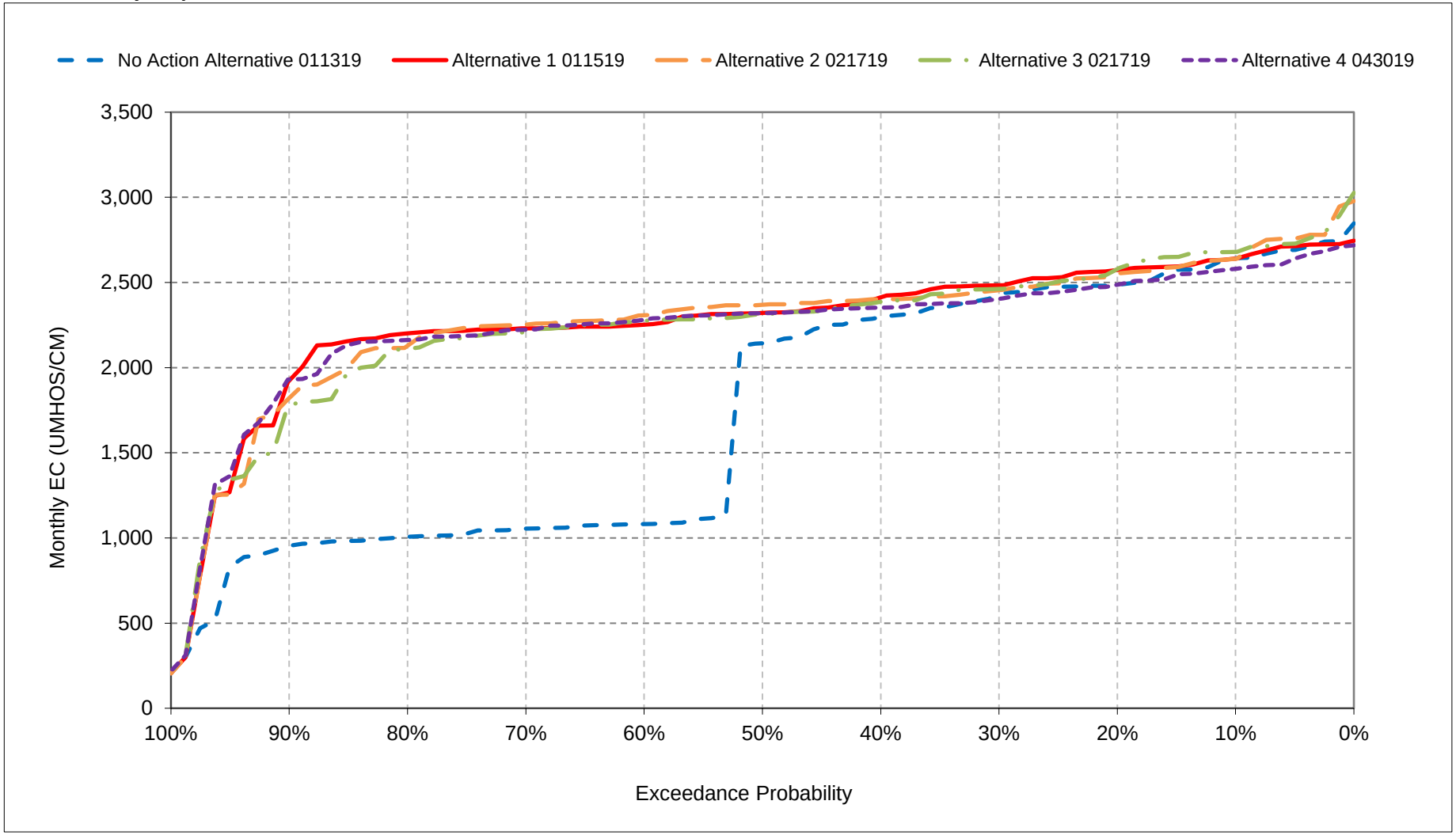
Figure 7-14. San Joaquin River at Jersey Point Salinity, August EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

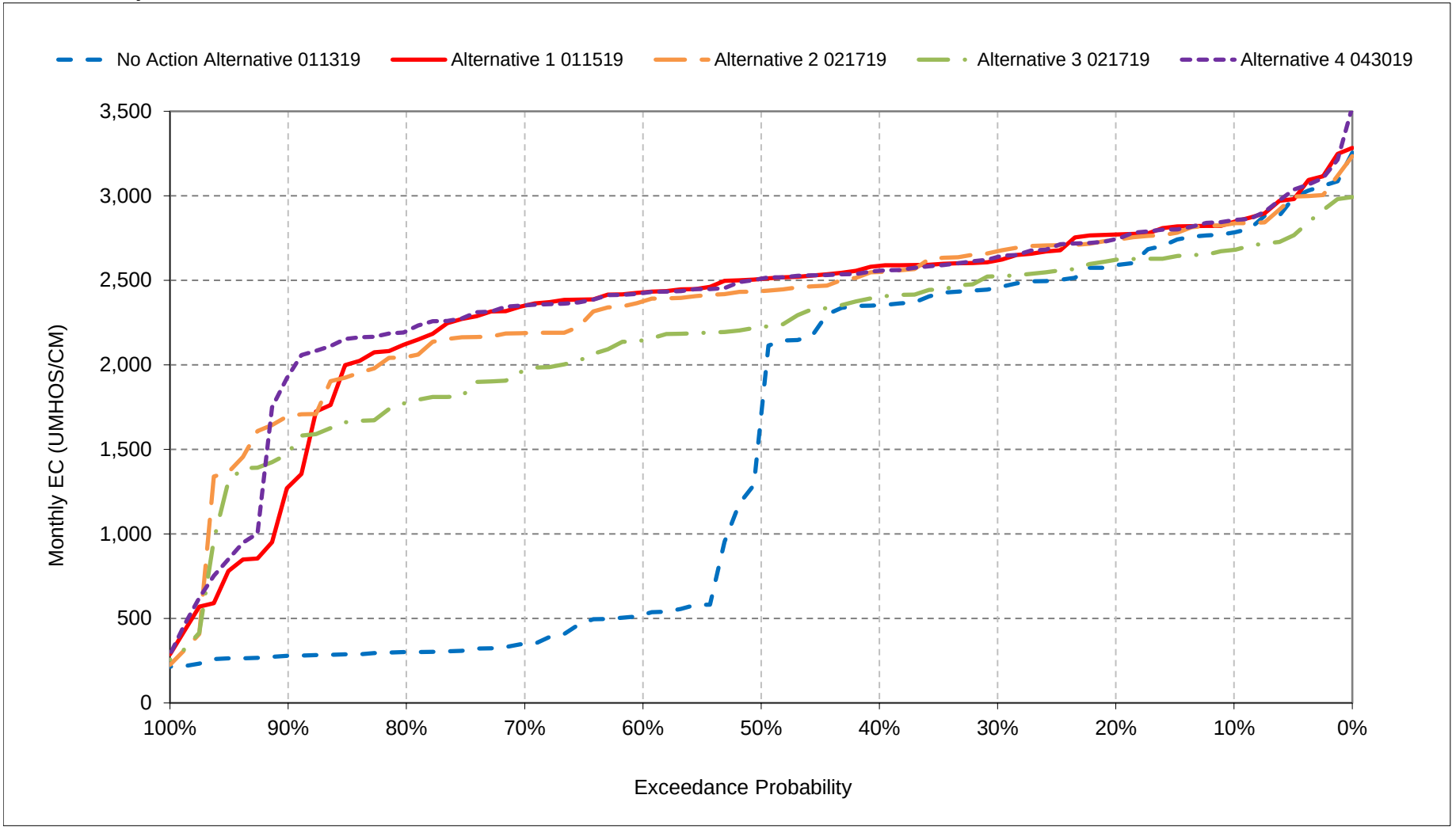
Figure 7-15. San Joaquin River at Jersey Point Salinity, September EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

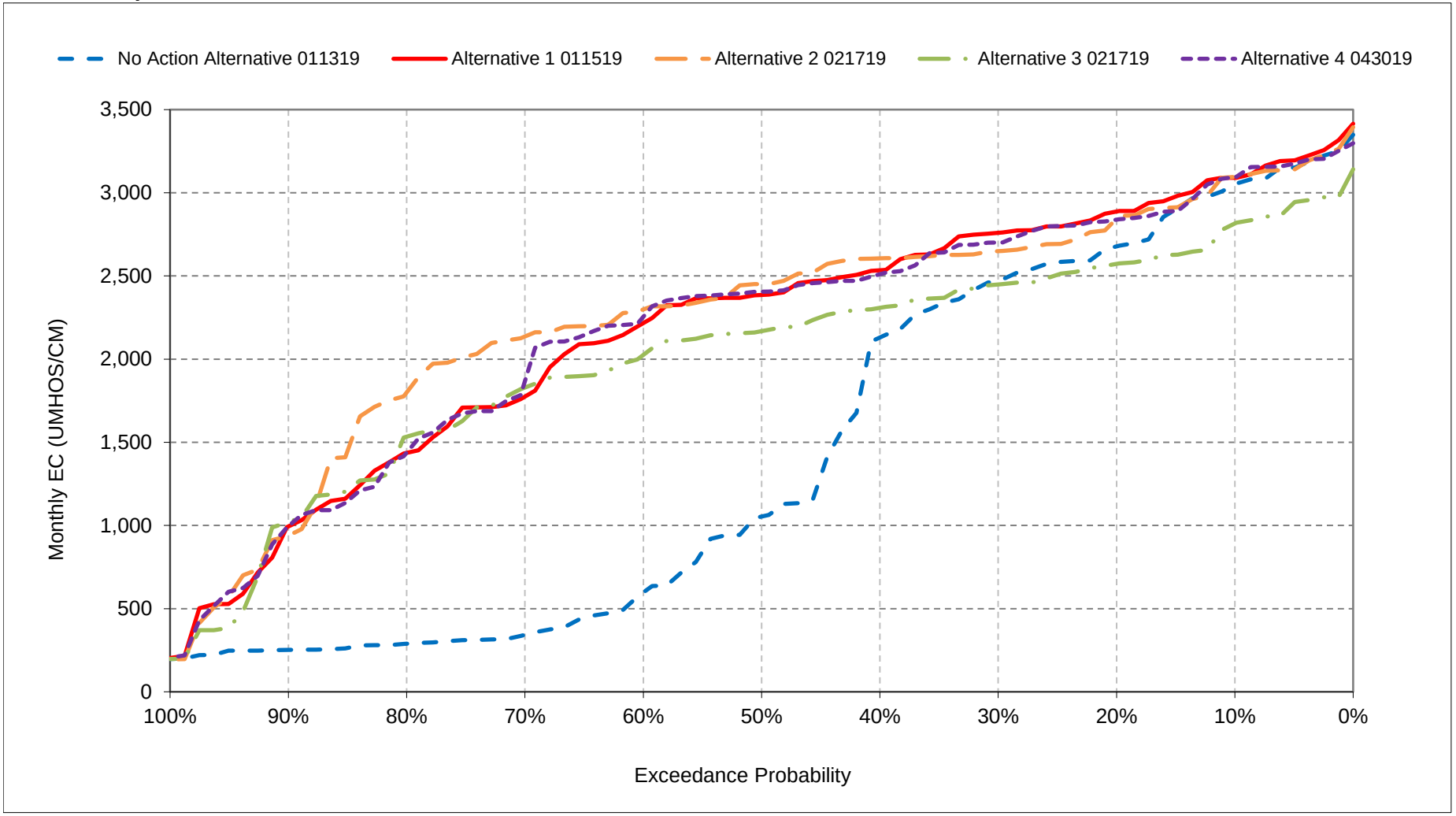
Figure 7-16. San Joaquin River at Jersey Point Salinity, October EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

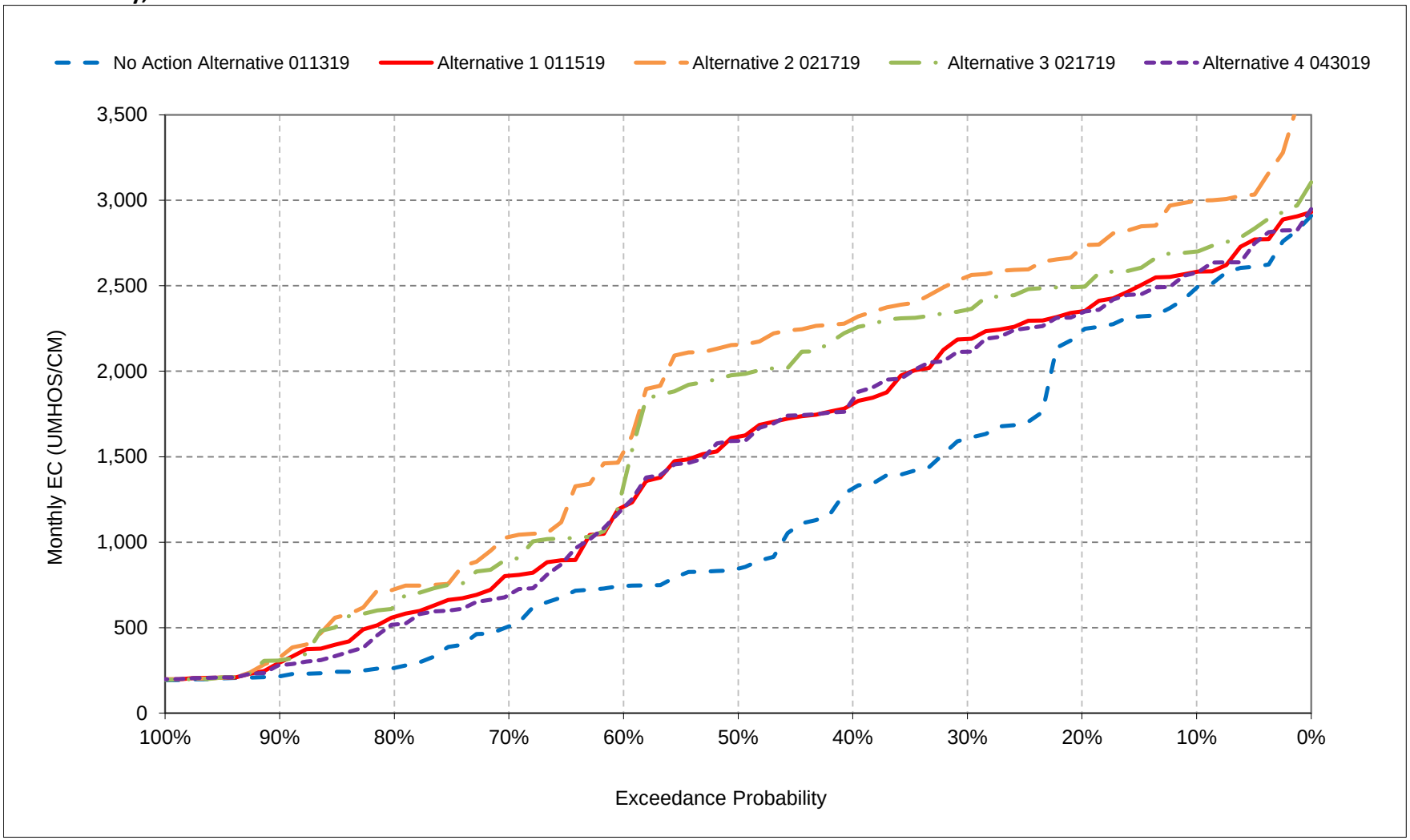
Figure 7-17. San Joaquin River at Jersey Point Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 7-18. San Joaquin River at Jersey Point Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 8-1. Old River at Rock Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,022	1,070	1,061	900	552	383	389	380	310	464	664	842
20%	945	945	986	749	470	330	362	358	286	352	544	811
30%	901	844	897	620	417	313	339	349	272	336	490	772
40%	872	776	648	536	382	299	332	337	267	306	460	727
50%	786	594	410	487	354	288	320	327	260	270	432	649
60%	292	284	333	445	335	278	311	315	254	254	404	611
70%	283	249	299	344	299	262	297	300	247	244	363	569
80%	276	234	274	312	284	244	274	272	240	234	340	510
90%	269	222	240	280	261	231	253	211	232	226	316	472
Long Term												
Full Simulation Period[a]	619	590	583	531	385	298	319	315	274	315	453	655
Water Year Types[b]												
Wet (32%)	268	232	269	353	324	275	280	279	243	236	342	534
Above Normal (16%)	288	322	402	462	354	277	341	348	255	246	365	489
Below Normal (13%)	879	759	743	542	367	286	348	352	269	313	449	776
Dry (24%)	899	813	733	664	409	302	317	306	266	366	552	750
Critical (15%)	1,032	1,129	1,062	757	527	375	357	340	377	477	627	828

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,043	1,137	1,084	972	544	361	332	289	296	479	672	866
20%	986	1,053	1,016	875	442	313	291	264	275	359	547	828
30%	946	986	974	790	401	294	282	259	256	338	494	805
40%	918	933	903	552	382	284	272	248	243	305	472	785
50%	897	878	841	499	348	272	262	243	235	265	445	769
60%	886	837	757	426	314	261	256	238	230	250	398	758
70%	845	798	633	347	296	252	248	233	227	243	366	743
80%	789	713	482	320	279	241	243	229	222	234	347	705
90%	615	394	321	276	265	227	235	222	216	228	320	607
Long Term												
Full Simulation Period[a]	865	853	772	578	377	287	272	250	260	319	454	748
Water Year Types[b]												
Wet (32%)	699	749	669	363	318	284	259	225	227	235	338	641
Above Normal (16%)	875	816	779	536	349	273	266	240	228	243	372	770
Below Normal (13%)	891	799	743	618	371	275	272	252	246	329	481	813
Dry (24%)	949	866	737	757	409	277	269	251	253	362	535	779
Critical (15%)	1,048	1,150	1,073	752	485	332	312	309	391	502	632	843

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**21**	**66**	**23**	**71**	-8	-22	-57	-91	-14	**15**	**7**	**23**
20%	**40**	**108**	**30**	**126**	-28	-17	-71	-94	-11	**7**	**3**	**16**
30%	**45**	**142**	**78**	**170**	-16	-19	-58	-90	-16	**2**	**4**	**33**
40%	**46**	**157**	**256**	**17**	0	-15	-61	-89	-24	-1	**12**	**58**
50%	**110**	**284**	**431**	**12**	-6	-16	-58	-84	-25	-5	**12**	**120**
60%	**595**	**553**	**424**	-19	-21	-17	-54	-78	-24	-4	-5	**147**
70%	**562**	**549**	**335**	**2**	-4	-10	-49	-67	-20	-1	**2**	**175**
80%	**513**	**479**	**207**	**8**	-5	-4	-31	-42	-19	-1	**6**	**196**
90%	**346**	**172**	**81**	-4	**4**	-4	-18	**10**	-15	**2**	**3**	**135**
Long Term												
Full Simulation Period[a]	**246**	**264**	**189**	**47**	-8	-12	-47	-66	-14	**4**	**1**	**93**
Water Year Types[b]												
Wet (32%)	**431**	**517**	**400**	**10**	-6	**9**	-21	-55	-16	-1	-4	**108**
Above Normal (16%)	**587**	**494**	**376**	**74**	-5	-3	-75	-108	-27	-3	**7**	**280**
Below Normal (13%)	**13**	**40**	**0**	**76**	**4**	-11	-76	-100	-24	**16**	**32**	**37**
Dry (24%)	**50**	**53**	**5**	**93**	**0**	-25	-48	-54	-13	-4	-17	**29**
Critical (15%)	**16**	**21**	**11**	-5	-42	-43	-45	-32	**14**	**24**	**5**	**15**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 8-2. Old River at Rock Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,022	1,070	1,061	900	552	383	389	380	310	464	664	842
20%	945	945	986	749	470	330	362	358	286	352	544	811
30%	901	844	897	620	417	313	339	349	272	336	490	772
40%	872	776	648	536	382	299	332	337	267	306	460	727
50%	786	594	410	487	354	288	320	327	260	270	432	649
60%	292	284	333	445	335	278	311	315	254	254	404	611
70%	283	249	299	344	299	262	297	300	247	244	363	569
80%	276	234	274	312	284	244	274	272	240	234	340	510
90%	269	222	240	280	261	231	253	211	232	226	316	472
Long Term												
Full Simulation Period[a]	619	590	583	531	385	298	319	315	274	315	453	655
Water Year Types[b]												
Wet (32%)	268	232	269	353	324	275	280	279	243	236	342	534
Above Normal (16%)	288	322	402	462	354	277	341	348	255	246	365	489
Below Normal (13%)	879	759	743	542	367	286	348	352	269	313	449	776
Dry (24%)	899	813	733	664	409	302	317	306	266	366	552	750
Critical (15%)	1,032	1,129	1,062	757	527	375	357	340	377	477	627	828

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	997	1,097	1,143	1,049	696	401	321	293	308	435	653	875
20%	972	987	1,074	910	543	338	292	266	269	342	532	823
30%	946	906	1,004	834	430	313	270	254	251	320	493	806
40%	913	852	933	758	379	281	257	245	239	292	455	781
50%	893	821	887	669	354	273	247	238	229	264	436	762
60%	874	779	818	472	314	256	242	228	221	250	410	742
70%	851	744	678	340	292	241	234	224	215	243	369	710
80%	796	658	505	309	275	232	227	220	212	235	348	661
90%	651	485	303	262	236	219	221	209	207	226	321	586
Long Term												
Full Simulation Period[a]	856	804	811	626	407	290	262	245	253	310	453	734
Water Year Types[b]												
Wet (32%)	712	740	743	358	298	268	252	220	219	235	336	625
Above Normal (16%)	942	902	882	570	332	252	247	227	216	242	391	789
Below Normal (13%)	888	768	755	769	506	293	258	244	231	306	500	769
Dry (24%)	884	693	696	801	445	284	255	249	250	345	510	761
Critical (15%)	998	1,054	1,126	844	568	383	314	313	394	491	639	833

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-26	**26**	**82**	**149**	**144**	**19**	-68	-86	-2	-29	-11	**32**
20%	**26**	**41**	**88**	**161**	**73**	**8**	-69	-92	-17	-11	-13	**12**
30%	**45**	**62**	**107**	**214**	**13**	**1**	-70	-95	-21	-16	**2**	**33**
40%	**41**	**76**	**285**	**222**	-4	-18	-75	-92	-28	-14	-5	**55**
50%	**107**	**227**	**477**	**182**	-1	-15	-73	-89	-31	-5	**4**	**113**
60%	**582**	**495**	**485**	**27**	-21	-22	-69	-87	-33	-4	**6**	**131**
70%	**568**	**495**	**379**	-4	-7	-21	-63	-75	-32	0	**5**	**141**
80%	**521**	**423**	**230**	-3	-8	-13	-47	-52	-28	**1**	**8**	**151**
90%	**383**	**263**	**64**	-18	-25	-13	-32	-2	-24	0	**5**	**114**
Long Term												
Full Simulation Period[a]	**237**	**215**	**228**	**95**	**22**	-9	-57	-70	-21	-5	**1**	**79**
Water Year Types[b]												
Wet (32%)	**444**	**509**	**474**	**5**	-26	-7	-29	-59	-25	-1	-6	**91**
Above Normal (16%)	**654**	**580**	**479**	**109**	-22	-25	-93	-121	-39	-4	**27**	**300**
Below Normal (13%)	**9**	**9**	**12**	**227**	**139**	**7**	-91	-109	-39	-7	**51**	-7
Dry (24%)	-15	-119	-37	**137**	**36**	-18	-62	-57	-16	-21	-42	**11**
Critical (15%)	-34	-74	**64**	**87**	**41**	**8**	-43	-28	**17**	**14**	**12**	**4**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 8-3. Old River at Rock Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,022	1,070	1,061	900	552	383	389	380	310	464	664	842
20%	945	945	986	749	470	330	362	358	286	352	544	811
30%	901	844	897	620	417	313	339	349	272	336	490	772
40%	872	776	648	536	382	299	332	337	267	306	460	727
50%	786	594	410	487	354	288	320	327	260	270	432	649
60%	292	284	333	445	335	278	311	315	254	254	404	611
70%	283	249	299	344	299	262	297	300	247	244	363	569
80%	276	234	274	312	284	244	274	272	240	234	340	510
90%	269	222	240	280	261	231	253	211	232	226	316	472
Long Term												
Full Simulation Period[a]	619	590	583	531	385	298	319	315	274	315	453	655
Water Year Types[b]												
Wet (32%)	268	232	269	353	324	275	280	279	243	236	342	534
Above Normal (16%)	288	322	402	462	354	277	341	348	255	246	365	489
Below Normal (13%)	879	759	743	542	367	286	348	352	269	313	449	776
Dry (24%)	899	813	733	664	409	302	317	306	266	366	552	750
Critical (15%)	1,032	1,129	1,062	757	527	375	357	340	377	477	627	828

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,005	1,032	1,059	965	598	400	318	290	306	434	648	880
20%	968	970	1,016	880	533	342	292	265	267	337	527	852
30%	940	911	962	795	412	308	273	254	253	315	495	810
40%	916	852	910	753	377	290	263	248	244	299	466	787
50%	897	810	849	615	351	278	255	239	232	268	427	759
60%	877	715	729	458	310	259	246	233	227	249	394	730
70%	840	666	610	323	290	243	239	229	220	241	367	709
80%	817	576	500	299	272	235	230	221	216	236	333	661
90%	661	459	327	256	237	219	222	211	209	228	314	599
Long Term												
Full Simulation Period[a]	857	765	762	602	397	293	267	246	254	310	449	738
Water Year Types[b]												
Wet (32%)	729	739	693	350	299	271	258	223	222	237	333	632
Above Normal (16%)	905	870	840	509	315	254	251	230	220	241	373	765
Below Normal (13%)	912	745	713	747	506	301	263	244	235	302	489	801
Dry (24%)	893	652	670	775	432	290	261	250	250	340	510	773
Critical (15%)	971	916	1,024	831	536	377	317	308	384	501	644	822

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-18	-39	-2	**64**	**46**	**17**	-70	-90	-5	-30	-17	**37**
20%	**22**	**25**	**30**	**131**	**63**	**12**	-70	-93	-19	-15	-17	**41**
30%	**40**	**67**	**65**	**175**	-5	-5	-67	-95	-19	-21	**5**	**38**
40%	**44**	**76**	**262**	**217**	-6	-9	-69	-89	-24	-7	**6**	**60**
50%	**110**	**216**	**439**	**128**	-4	-10	-65	-89	-28	-1	-5	**110**
60%	**585**	**431**	**396**	**13**	-25	-19	-65	-82	-27	-5	-9	**118**
70%	**557**	**417**	**312**	-21	-9	-19	-58	-71	-27	-2	**4**	**141**
80%	**541**	**341**	**226**	-13	-11	-10	-44	-51	-24	**2**	-7	**152**
90%	**393**	**237**	**87**	-24	-24	-12	-31	0	-23	**2**	-2	**127**
Long Term												
Full Simulation Period[a]	**238**	**175**	**179**	**72**	**11**	-6	-52	-69	-20	-5	-4	**83**
Water Year Types[b]												
Wet (32%)	**461**	**507**	**424**	-3	-25	-4	-23	-56	-22	**2**	-9	**98**
Above Normal (16%)	**617**	**548**	**438**	**48**	-39	-23	-90	-118	-35	-6	**8**	**276**
Below Normal (13%)	**33**	-14	-30	**204**	**139**	**15**	-86	-108	-34	-11	**40**	**25**
Dry (24%)	-6	-161	-62	**111**	**23**	-12	-56	-56	-15	-25	-42	**23**
Critical (15%)	-61	-212	-38	**74**	**9**	**2**	-40	-32	**7**	**24**	**17**	-6

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 8-4. Old River at Rock Slough Salinity, Monthly EC

No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,022	1,070	1,061	900	552	383	389	380	310	464	664	842
20%	945	945	986	749	470	330	362	358	286	352	544	811
30%	901	844	897	620	417	313	339	349	272	336	490	772
40%	872	776	648	536	382	299	332	337	267	306	460	727
50%	786	594	410	487	354	288	320	327	260	270	432	649
60%	292	284	333	445	335	278	311	315	254	254	404	611
70%	283	249	299	344	299	262	297	300	247	244	363	569
80%	276	234	274	312	284	244	274	272	240	234	340	510
90%	269	222	240	280	261	231	253	211	232	226	316	472
Long Term												
Full Simulation Period[a]	619	590	583	531	385	298	319	315	274	315	453	655
Water Year Types[b]												
Wet (32%)	268	232	269	353	324	275	280	279	243	236	342	534
Above Normal (16%)	288	322	402	462	354	277	341	348	255	246	365	489
Below Normal (13%)	879	759	743	542	367	286	348	352	269	313	449	776
Dry (24%)	899	813	733	664	409	302	317	306	266	366	552	750
Critical (15%)	1,032	1,129	1,062	757	527	375	357	340	377	477	627	828

Alternative 4 043019

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,046	1,104	1,057	966	541	522	515	414	317	415	599	826
20%	964	1,058	1,012	865	431	456	483	397	279	359	504	796
30%	919	968	970	763	386	421	460	382	268	329	470	765
40%	906	923	915	557	372	411	444	371	263	308	440	751
50%	892	855	852	472	343	384	412	349	257	270	391	742
60%	873	813	726	426	306	375	392	341	249	254	361	732
70%	843	786	640	341	291	354	375	331	245	245	348	712
80%	814	713	416	311	276	321	352	320	240	234	323	668
90%	663	598	305	274	263	304	293	280	235	228	307	566
Long Term												
Full Simulation Period[a]	861	847	755	561	369	397	414	348	271	314	428	715
Water Year Types[b]												
Wet (32%)	734	780	656	361	316	361	352	301	241	237	329	640
Above Normal (16%)	881	821	757	514	339	413	452	374	251	247	347	742
Below Normal (13%)	835	733	708	566	352	413	471	385	258	323	405	671
Dry (24%)	927	846	726	746	401	409	444	367	269	356	515	755
Critical (15%)	1,027	1,131	1,060	732	476	423	402	357	376	471	606	821

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**24**	**33**	-4	**66**	-11	**140**	**126**	**34**	**6**	-50	-65	-16
20%	**18**	**113**	**26**	**116**	-39	**126**	**122**	**39**	-7	**6**	-40	-15
30%	**18**	**124**	**73**	**143**	-31	**108**	**120**	**33**	-4	-6	-20	-7
40%	**34**	**148**	**267**	**22**	-10	**112**	**112**	**34**	-4	**2**	-19	**24**
50%	**105**	**261**	**442**	-15	-12	**96**	**92**	**22**	-3	**1**	-41	**92**
60%	**581**	**529**	**393**	-19	-29	**97**	**82**	**26**	-6	0	-42	**120**
70%	**561**	**537**	**342**	-4	-8	**92**	**78**	**31**	-2	**2**	-15	**143**
80%	**539**	**479**	**142**	-1	-7	**76**	**79**	**49**	0	0	-18	**158**
90%	**394**	**376**	**66**	-6	**1**	**73**	**40**	**69**	**3**	**2**	-9	**94**
Long Term												
Full Simulation Period[a]	**242**	**258**	**172**	**31**	-16	**98**	**95**	**33**	-2	-1	-25	**60**
Water Year Types[b]												
Wet (32%)	**466**	**548**	**387**	**8**	-8	**85**	**72**	**22**	-2	**1**	-13	**106**
Above Normal (16%)	**593**	**499**	**355**	**53**	-14	**136**	**111**	**26**	-4	**1**	-18	**252**
Below Normal (13%)	-43	-26	-34	**24**	-15	**127**	**122**	**32**	-11	**10**	-44	-105
Dry (24%)	**28**	**33**	-7	**82**	-8	**106**	**128**	**62**	**3**	-10	-37	**5**
Critical (15%)	-5	**3**	-3	-24	-51	**48**	**45**	**17**	-1	-6	-20	-7

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

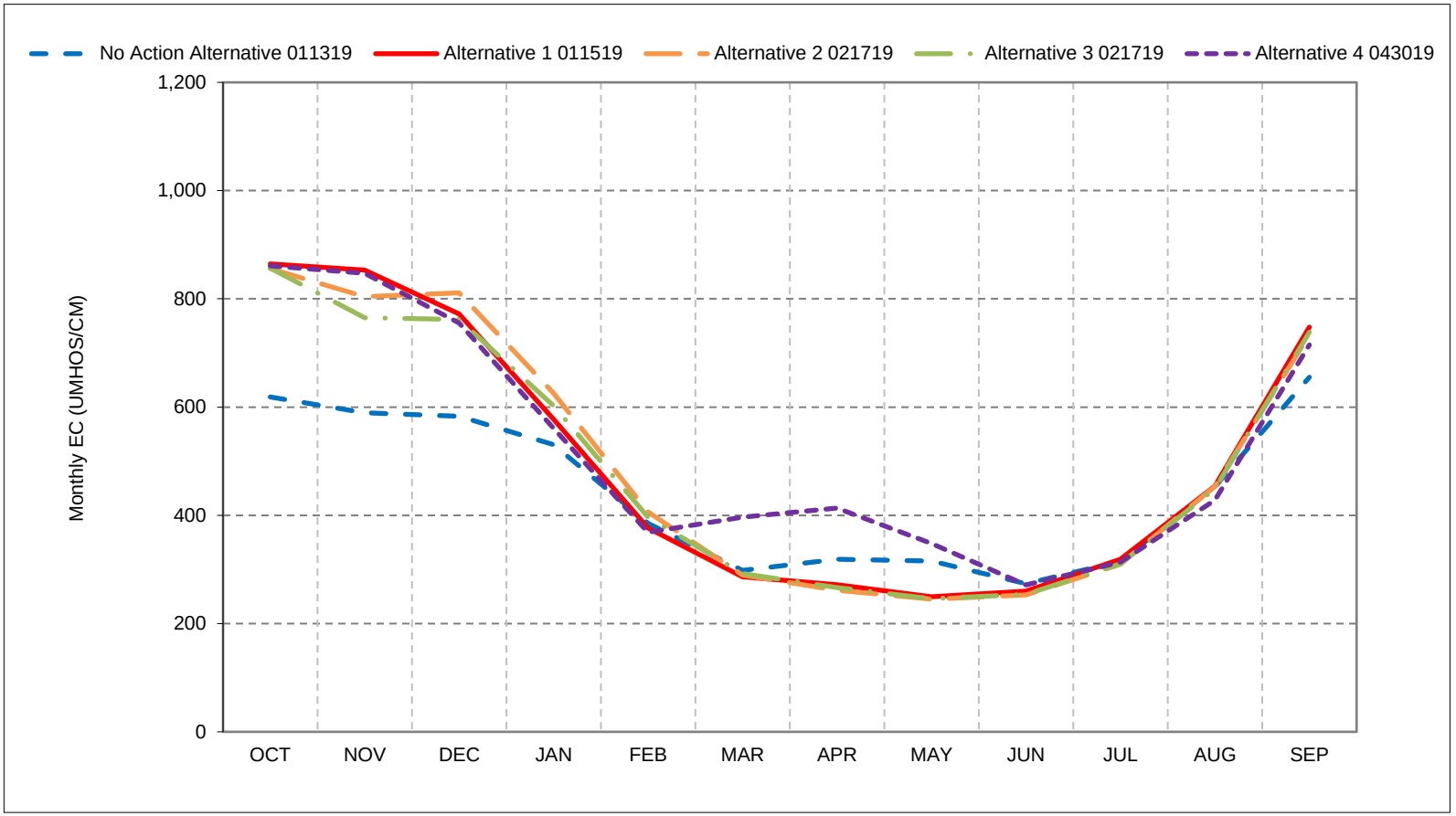
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-1. Old River at Rock Slough Salinity, Long-Term Average EC



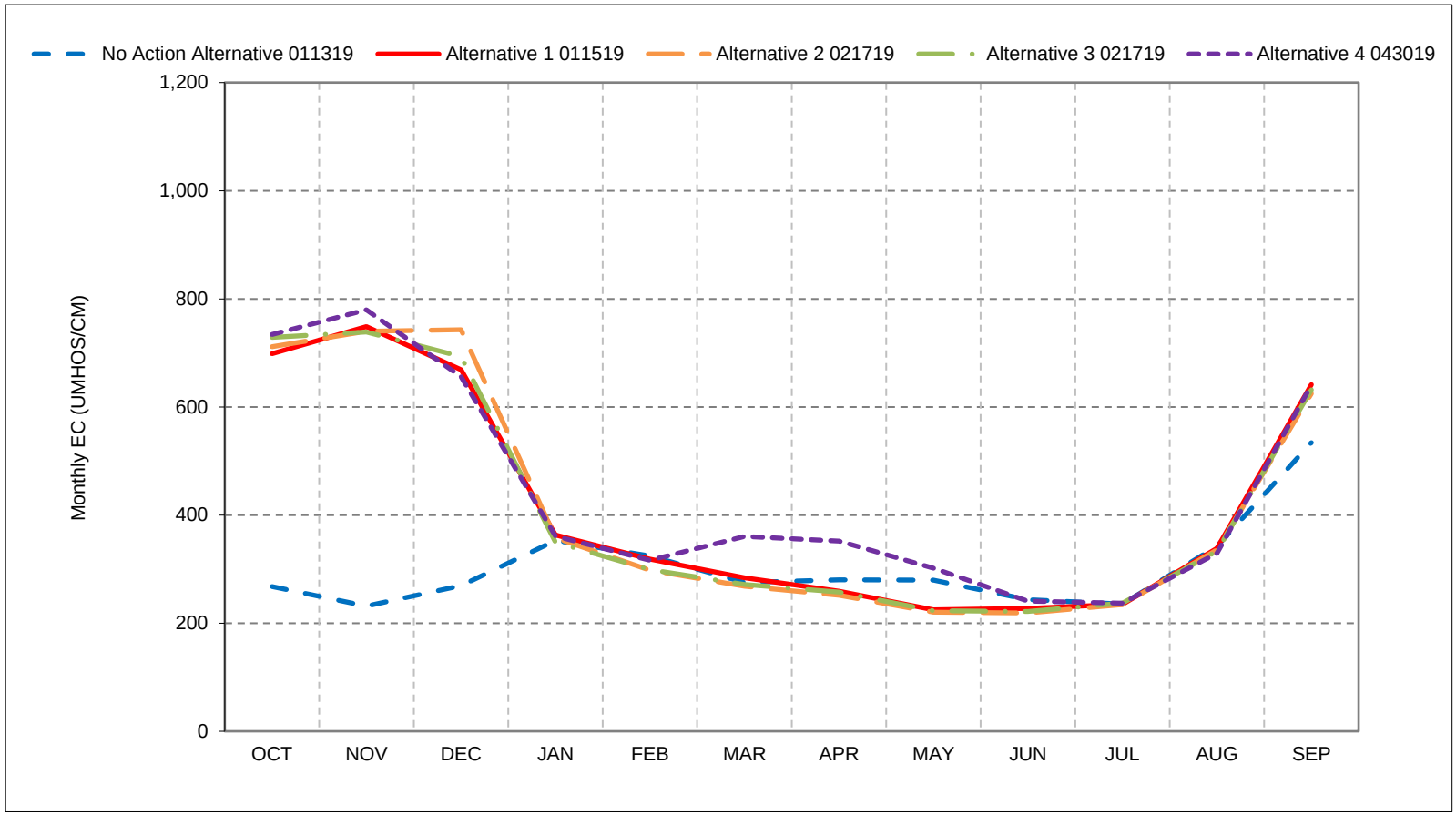
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-2. Old River at Rock Slough Salinity, Wet Year Average EC



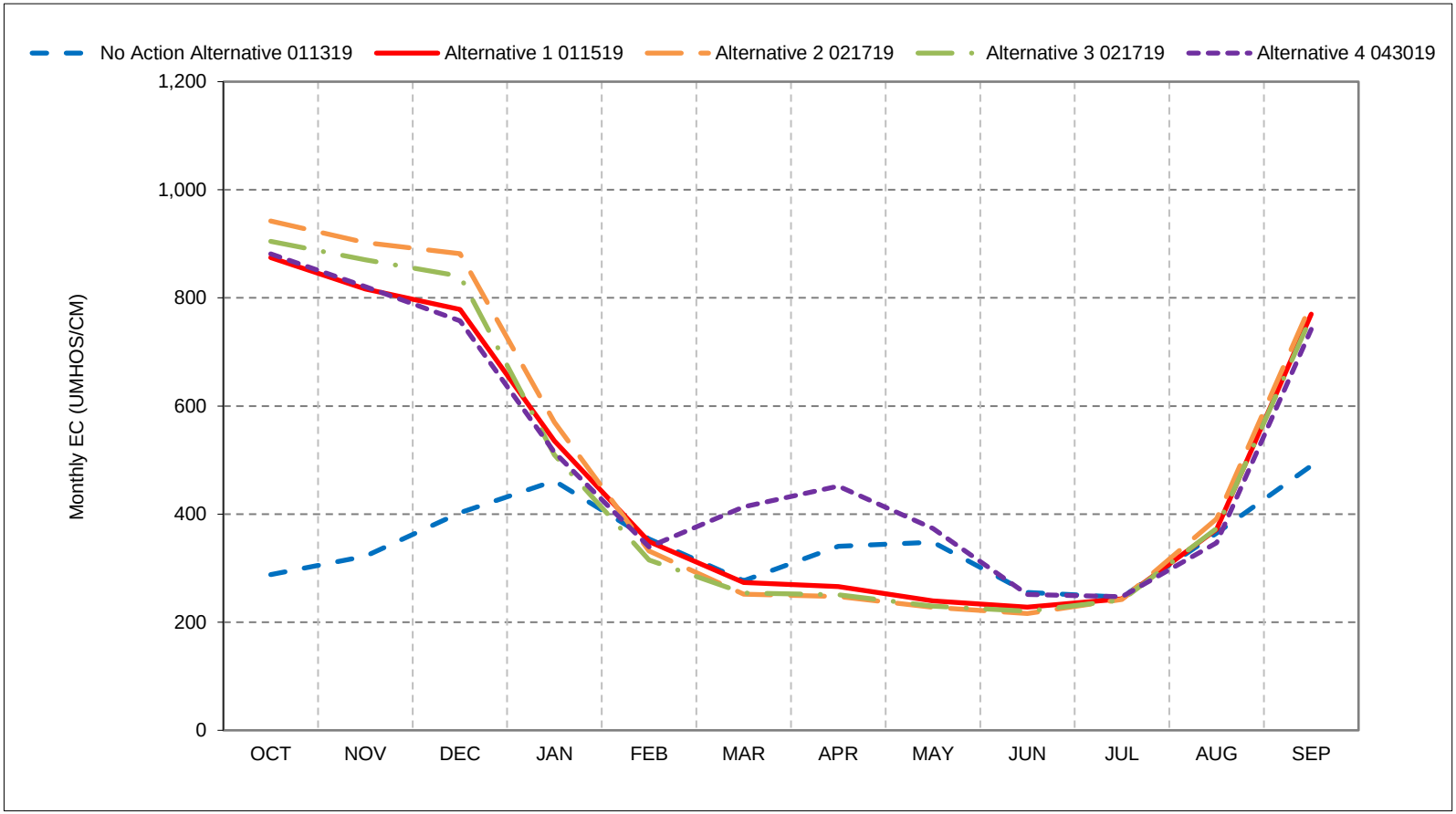
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-3. Old River at Rock Slough Salinity, Above Normal Year Average EC



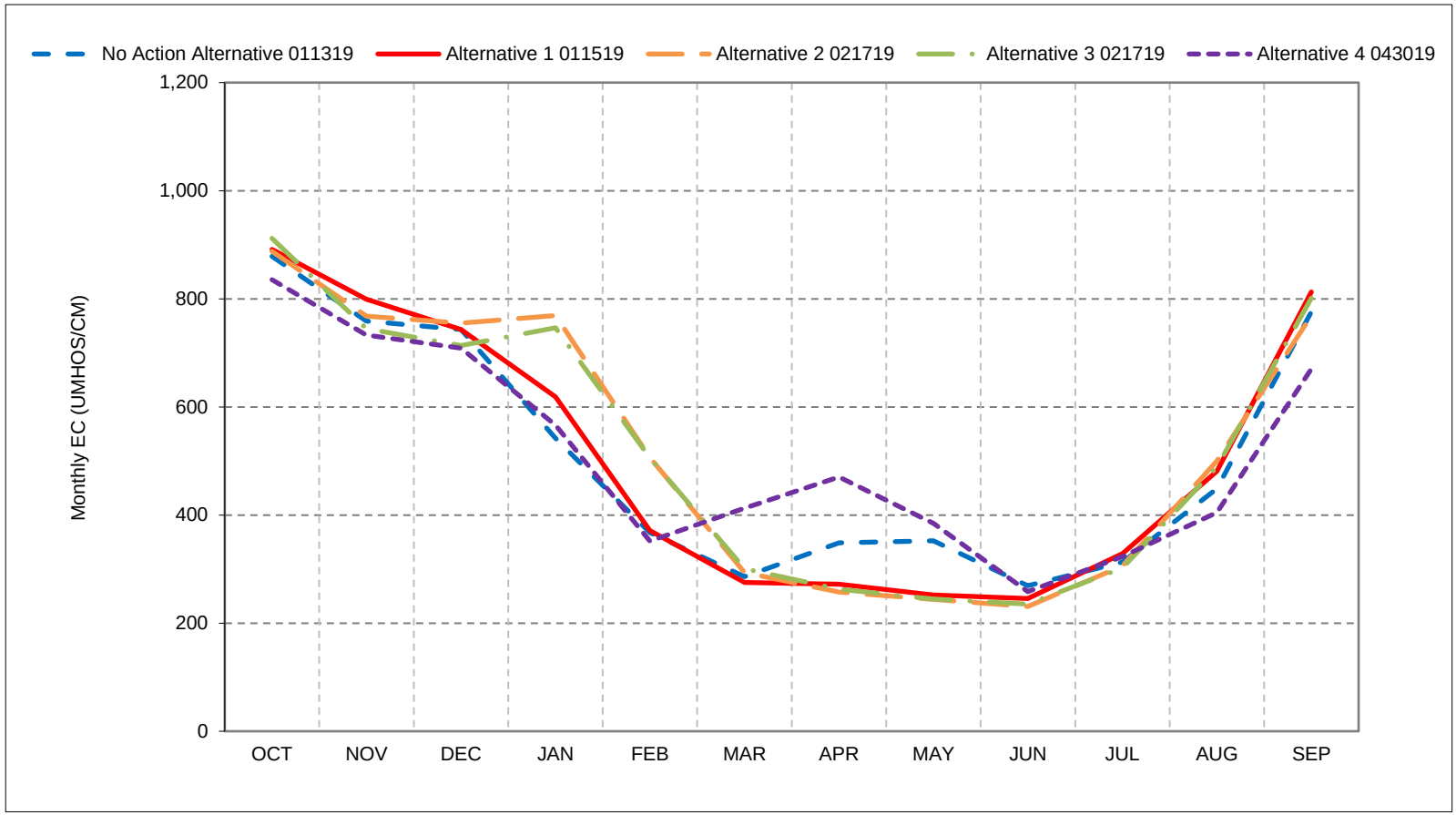
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-4. Old River at Rock Slough Salinity, Below Normal Year Average EC



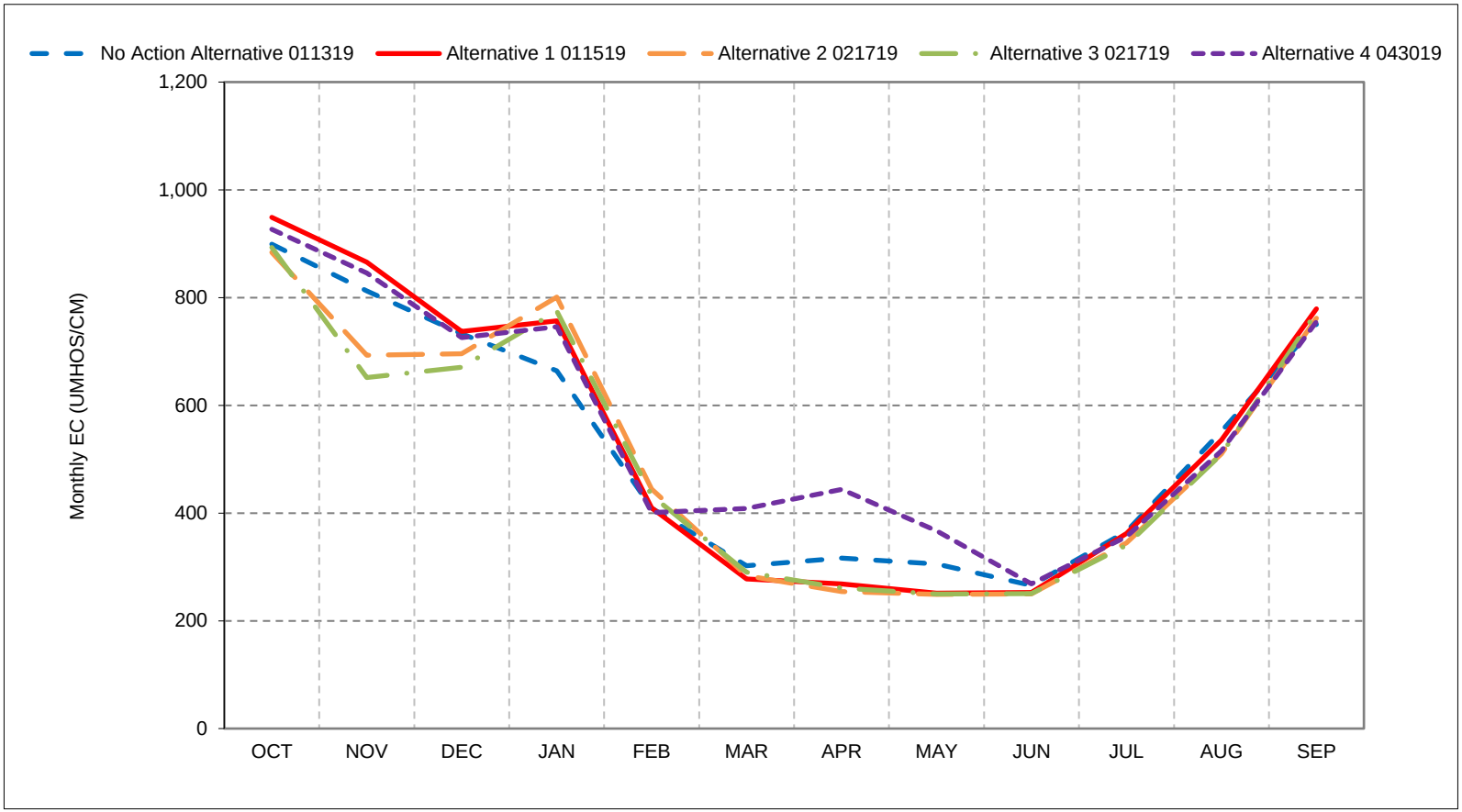
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

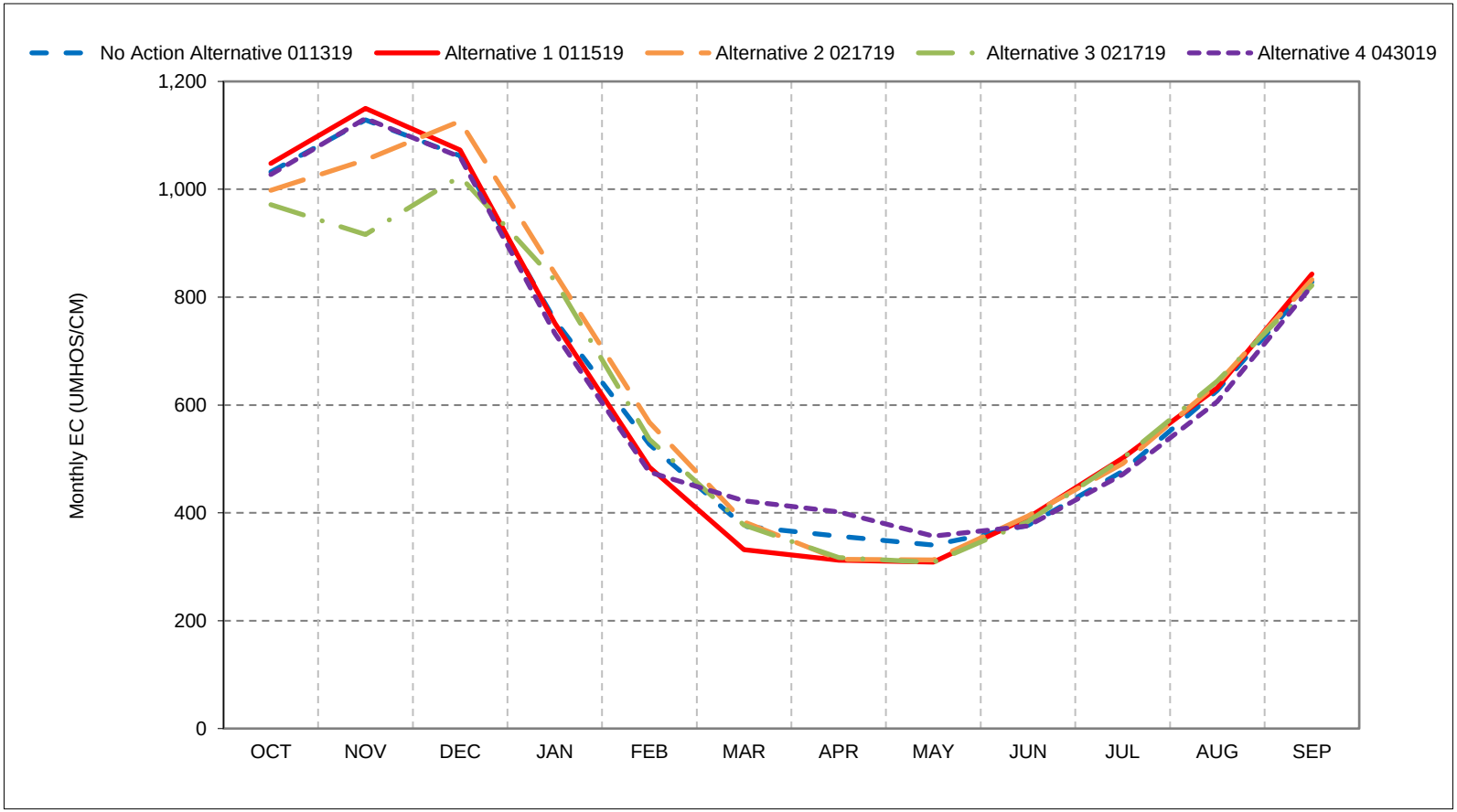
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-5. Old River at Rock Slough Salinity, Dry Year Average EC



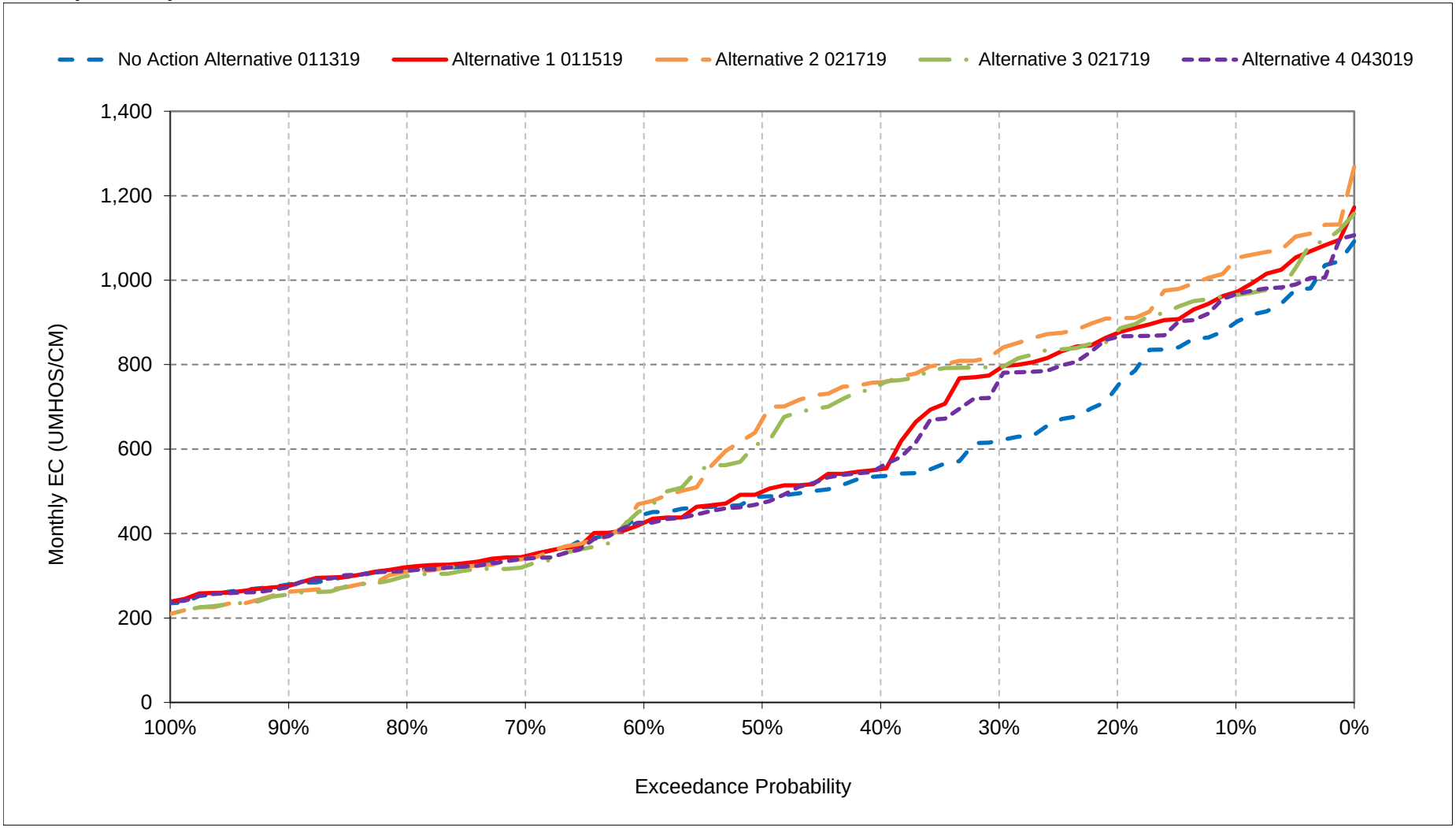
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-6. Old River at Rock Slough Salinity, Critical Year Average EC



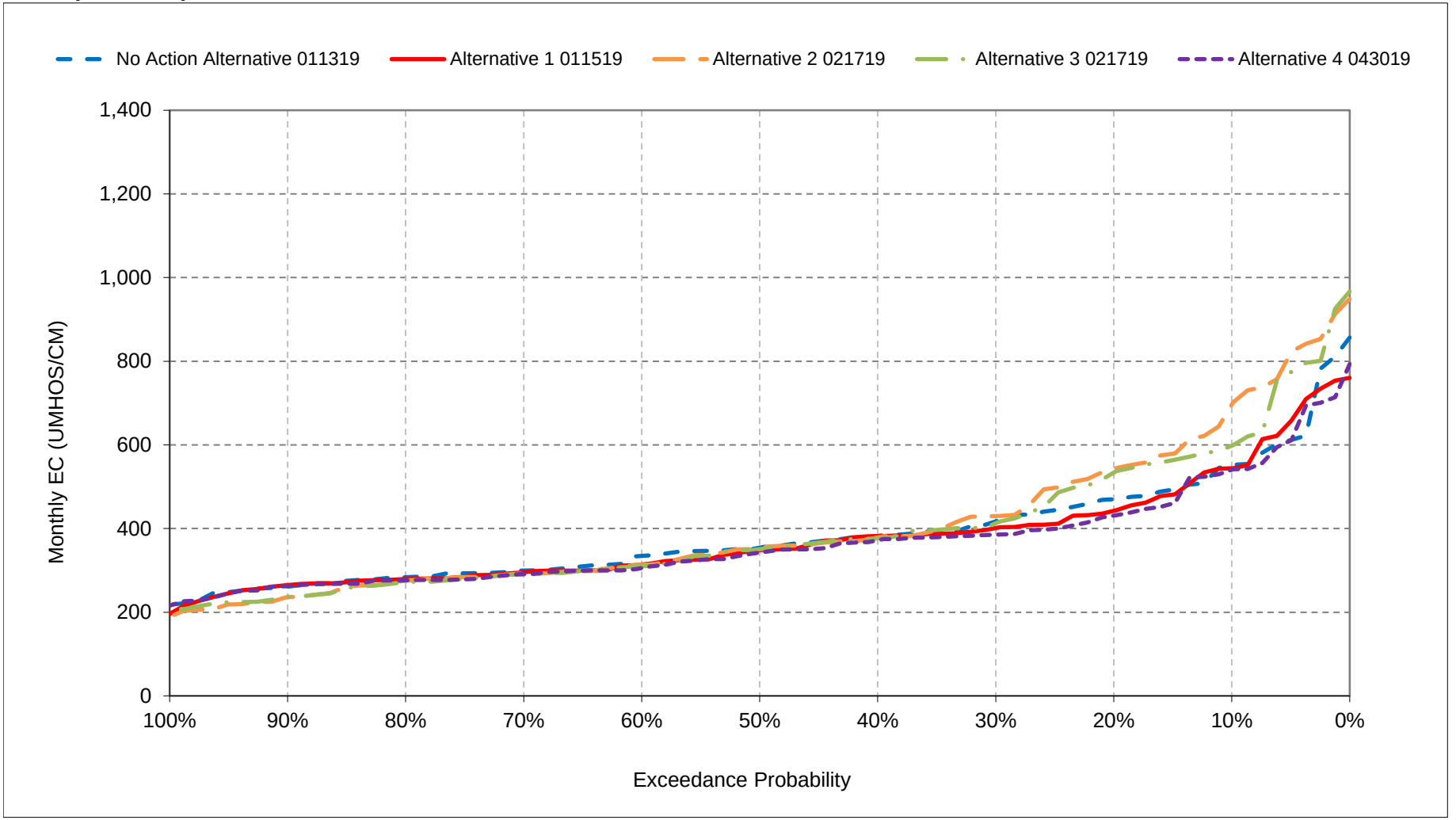
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-7. Old River at Rock Slough
Salinity, January EC



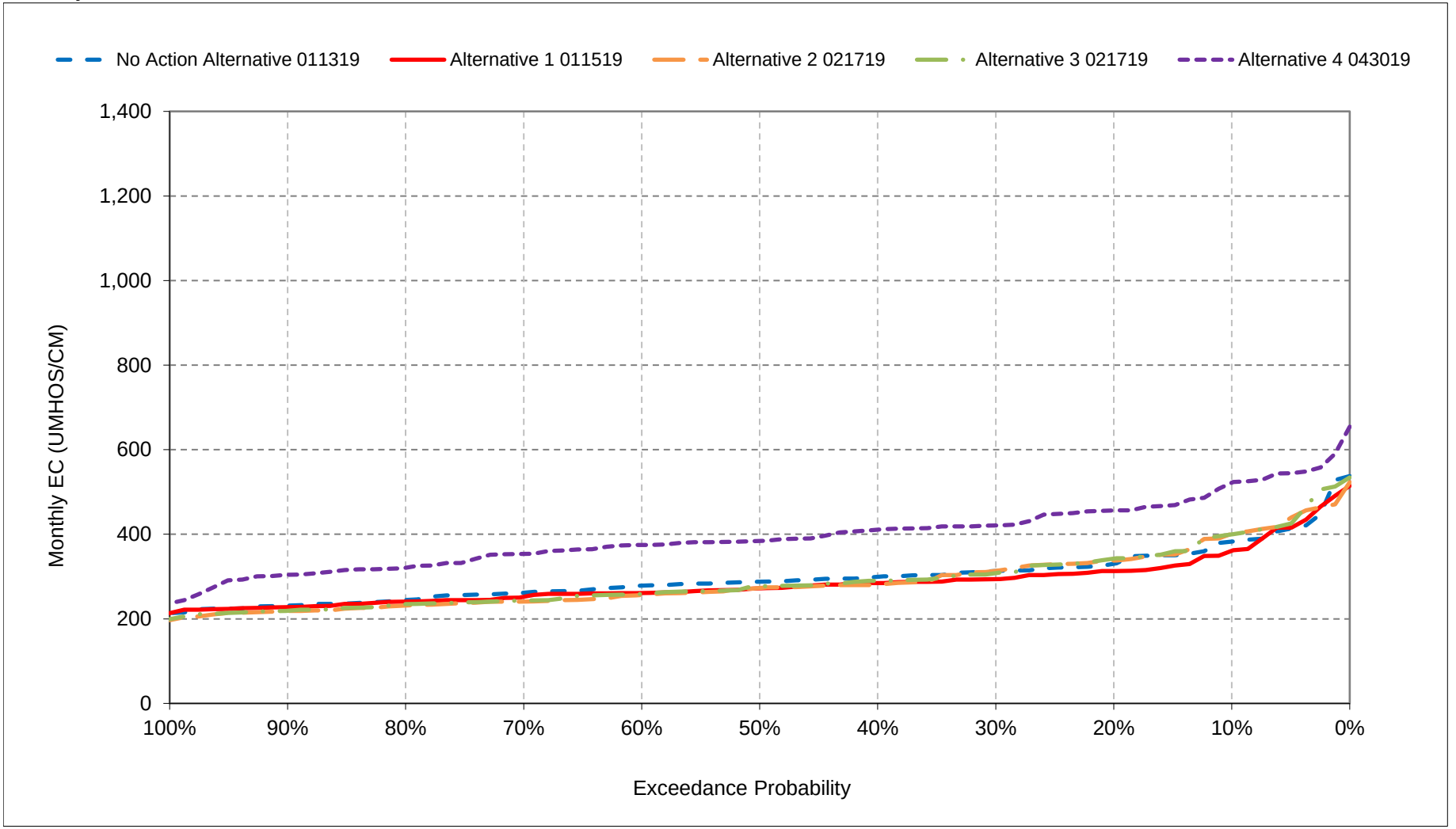
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-8. Old River at Rock Slough
Salinity, February EC



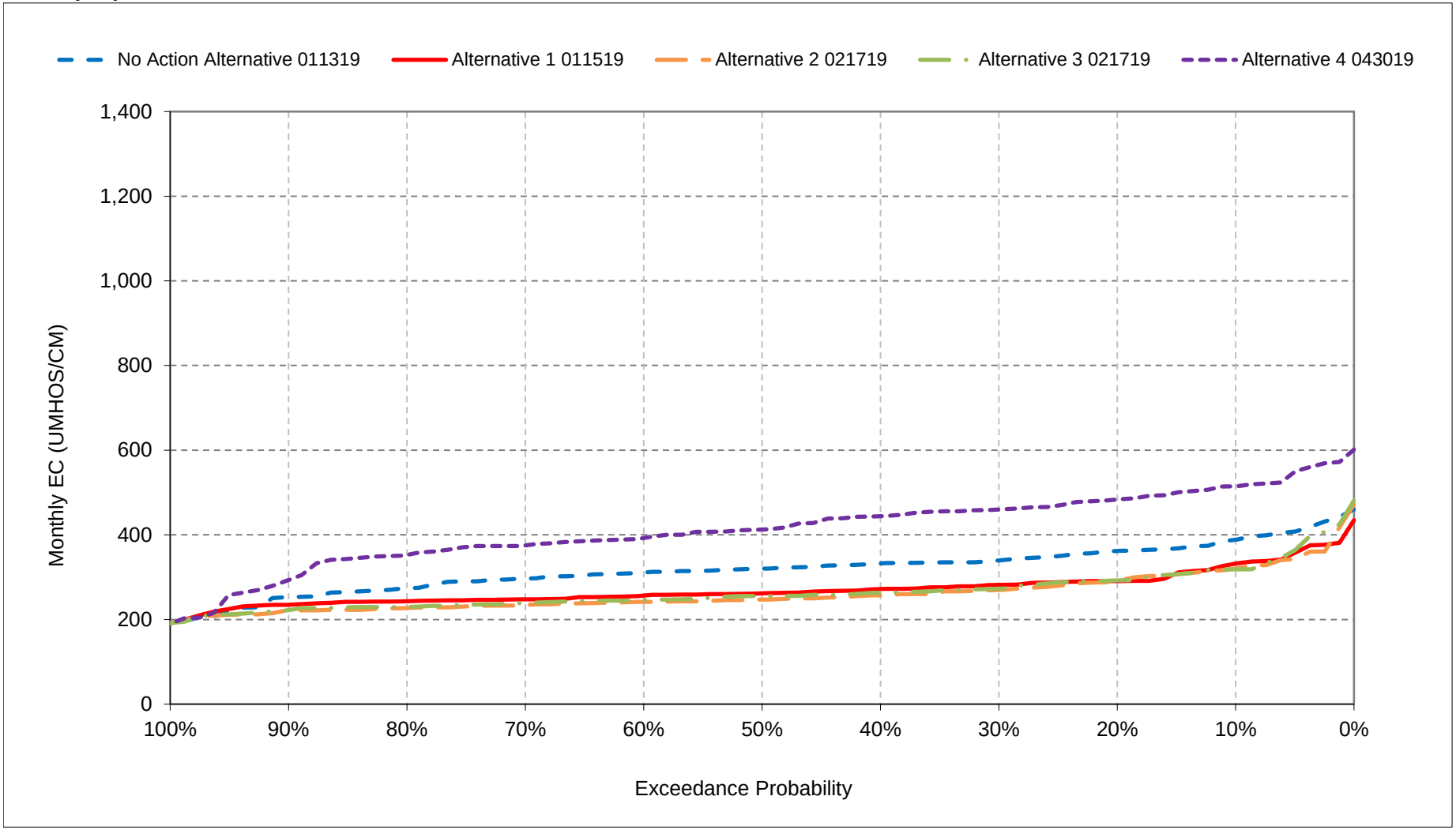
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-9. Old River at Rock Slough
Salinity, March EC



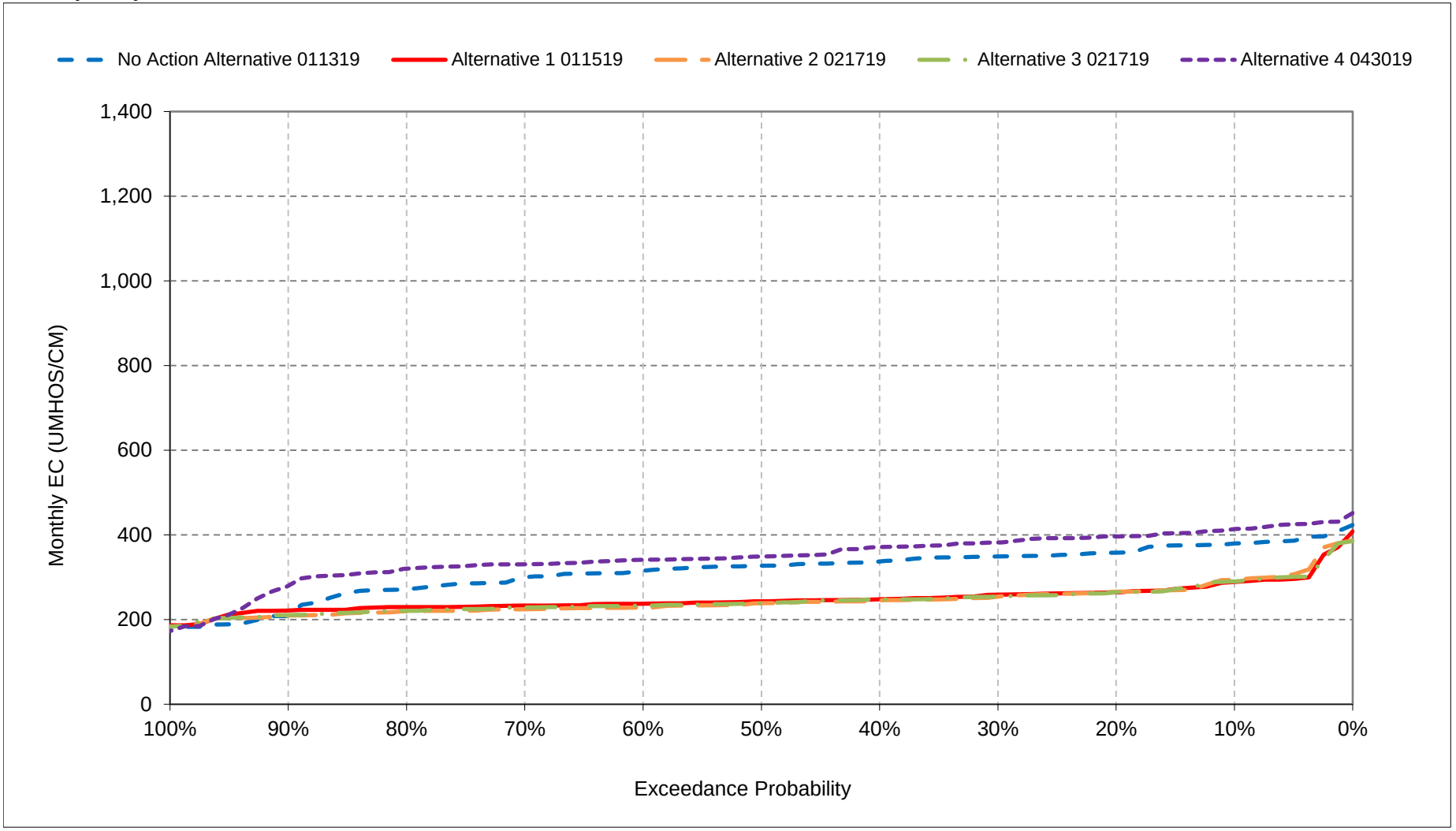
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-10. Old River at Rock Slough
Salinity, April EC



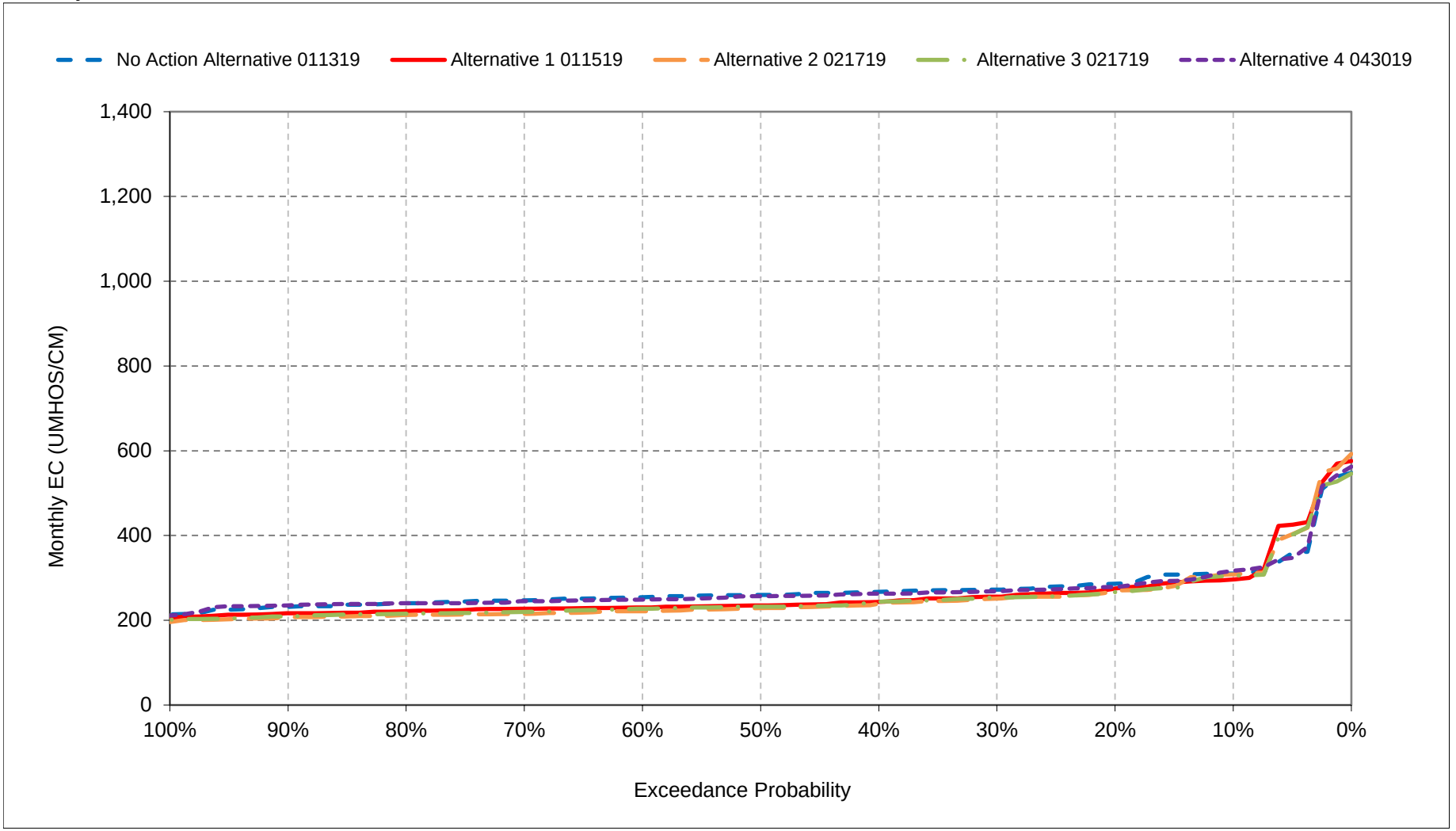
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-11. Old River at Rock Slough
Salinity, May EC



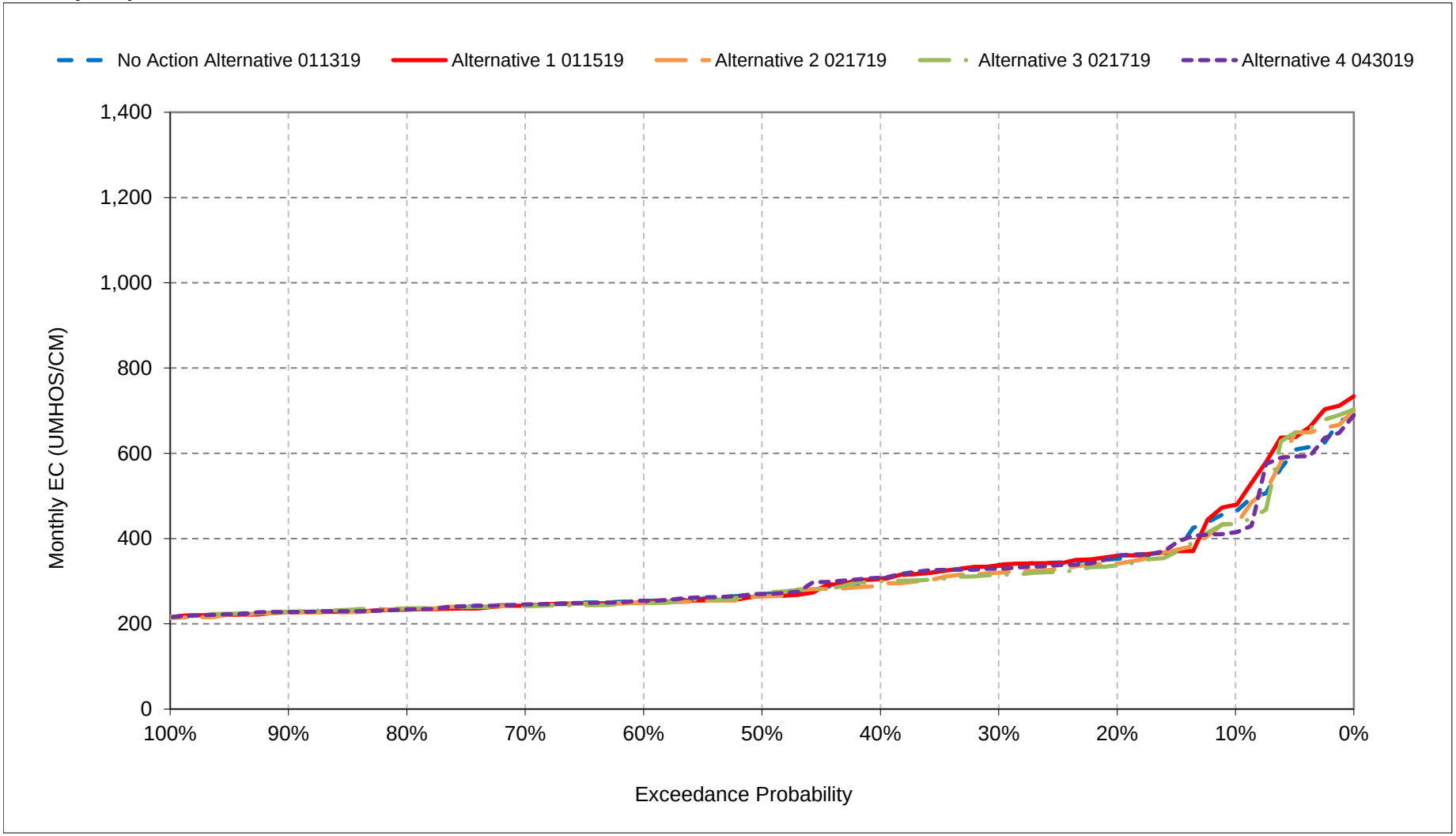
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-12. Old River at Rock Slough
Salinity, June EC



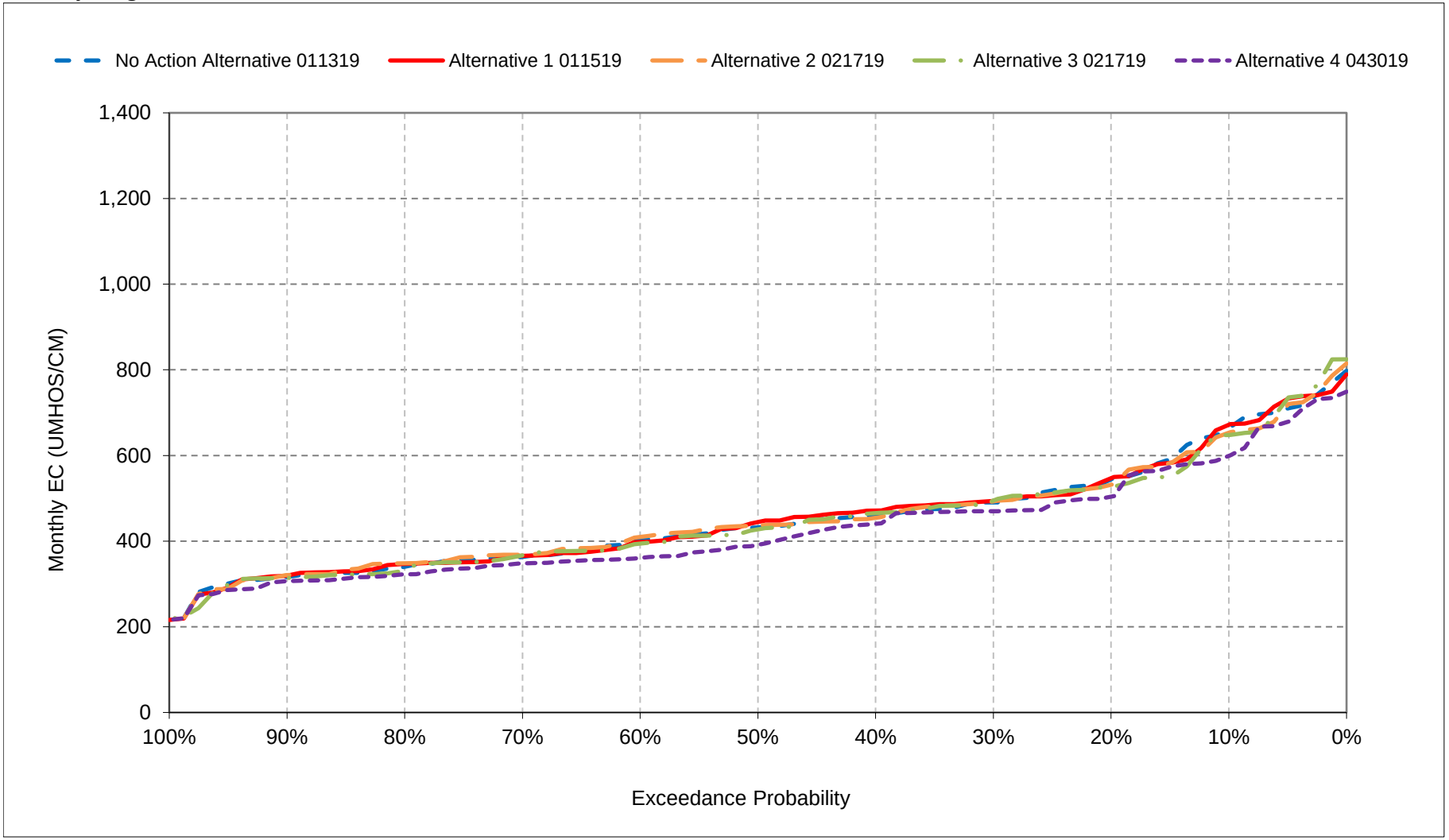
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-13. Old River at Rock Slough
Salinity, July EC



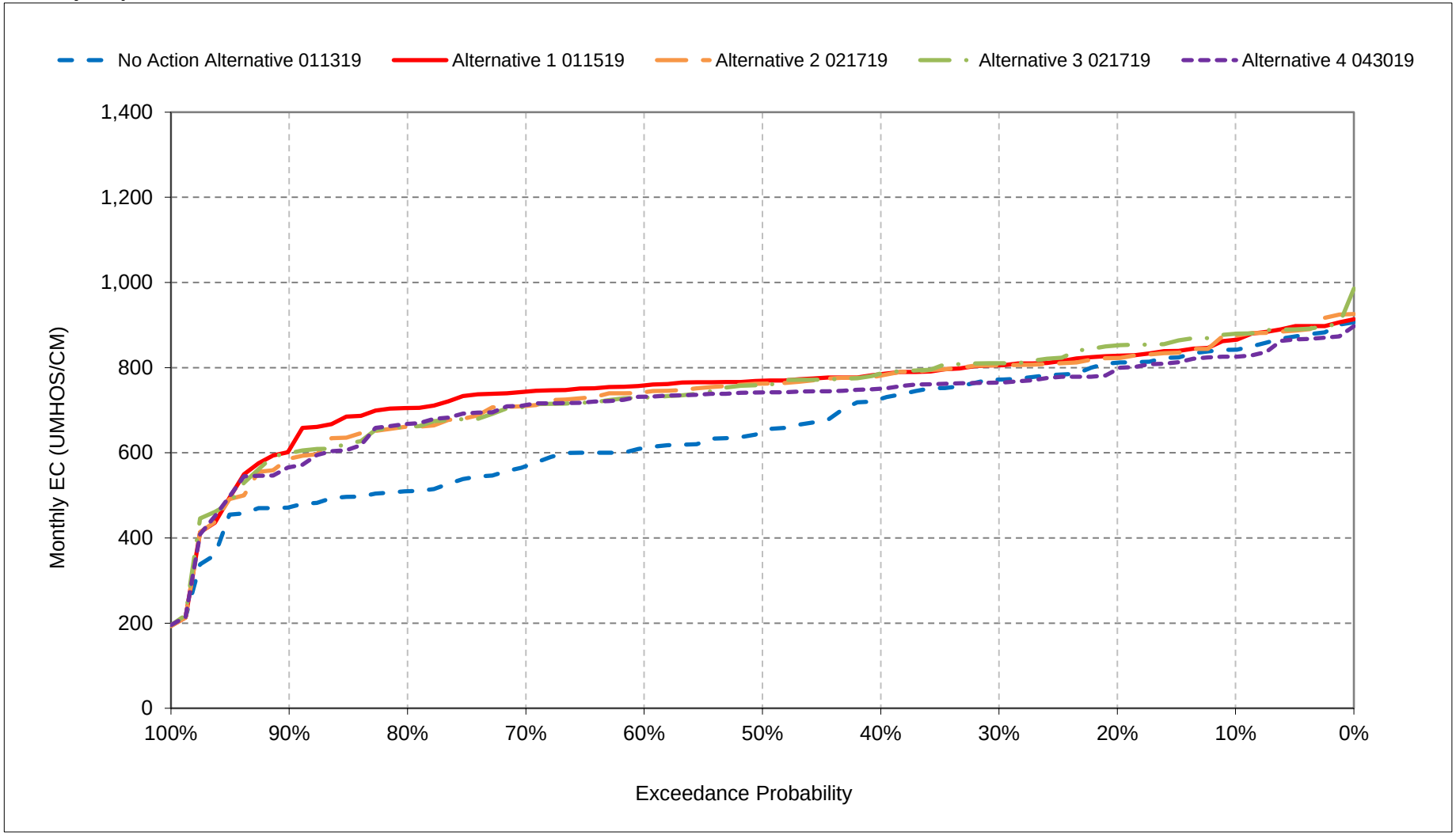
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-14. Old River at Rock Slough
Salinity, August EC



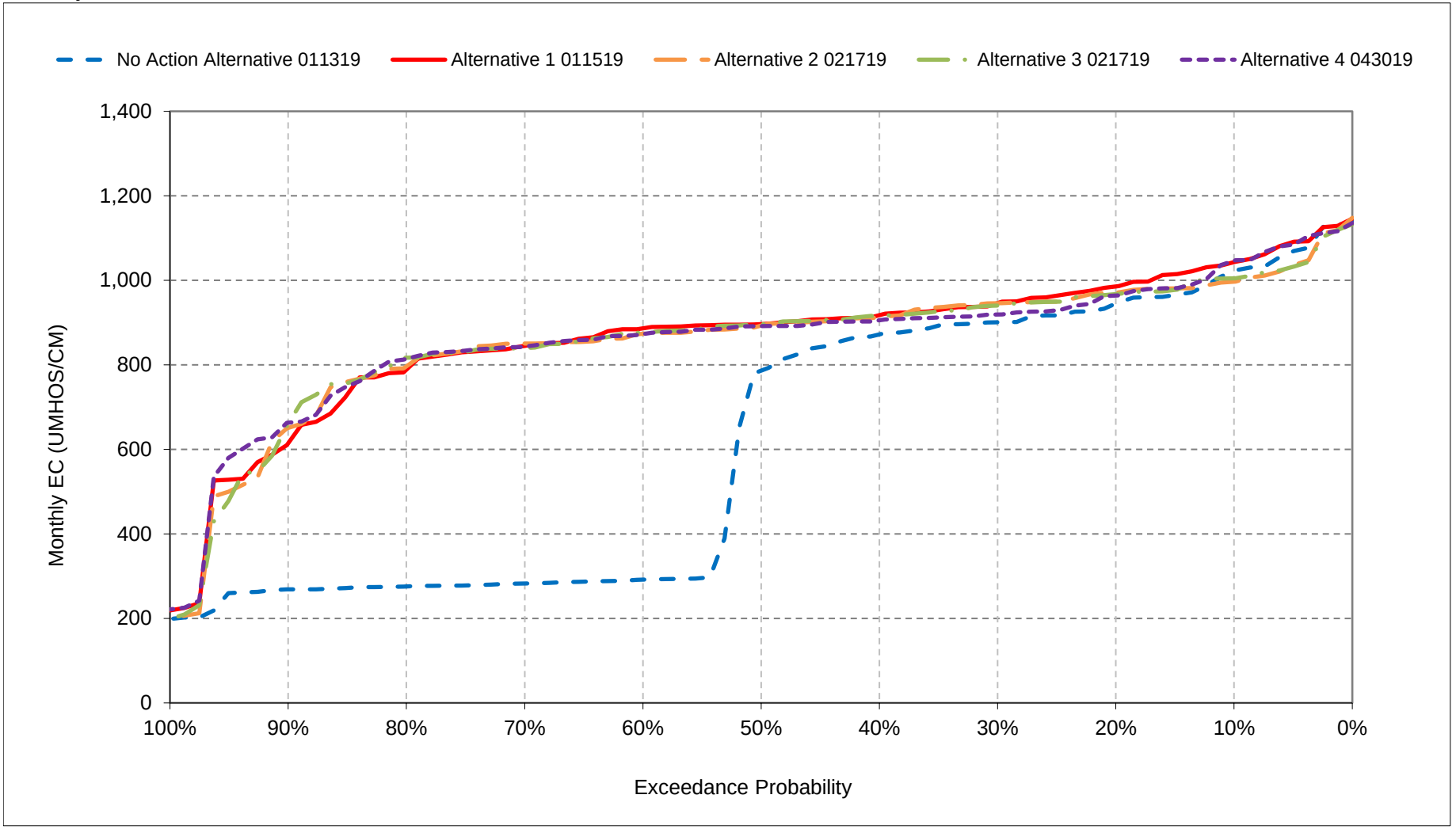
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-15. Old River at Rock Slough
Salinity, September EC



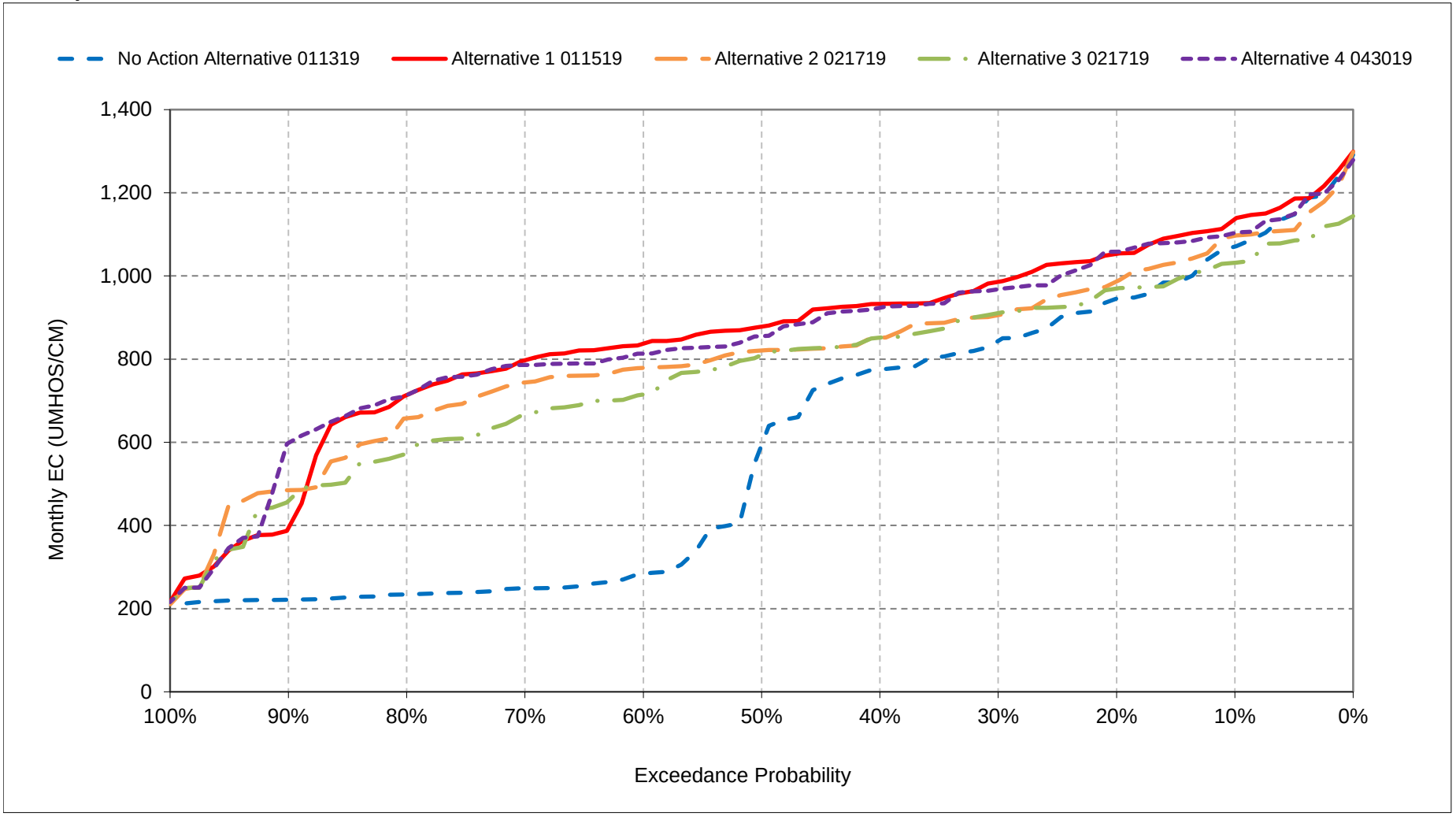
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-16. Old River at Rock Slough
Salinity, October EC



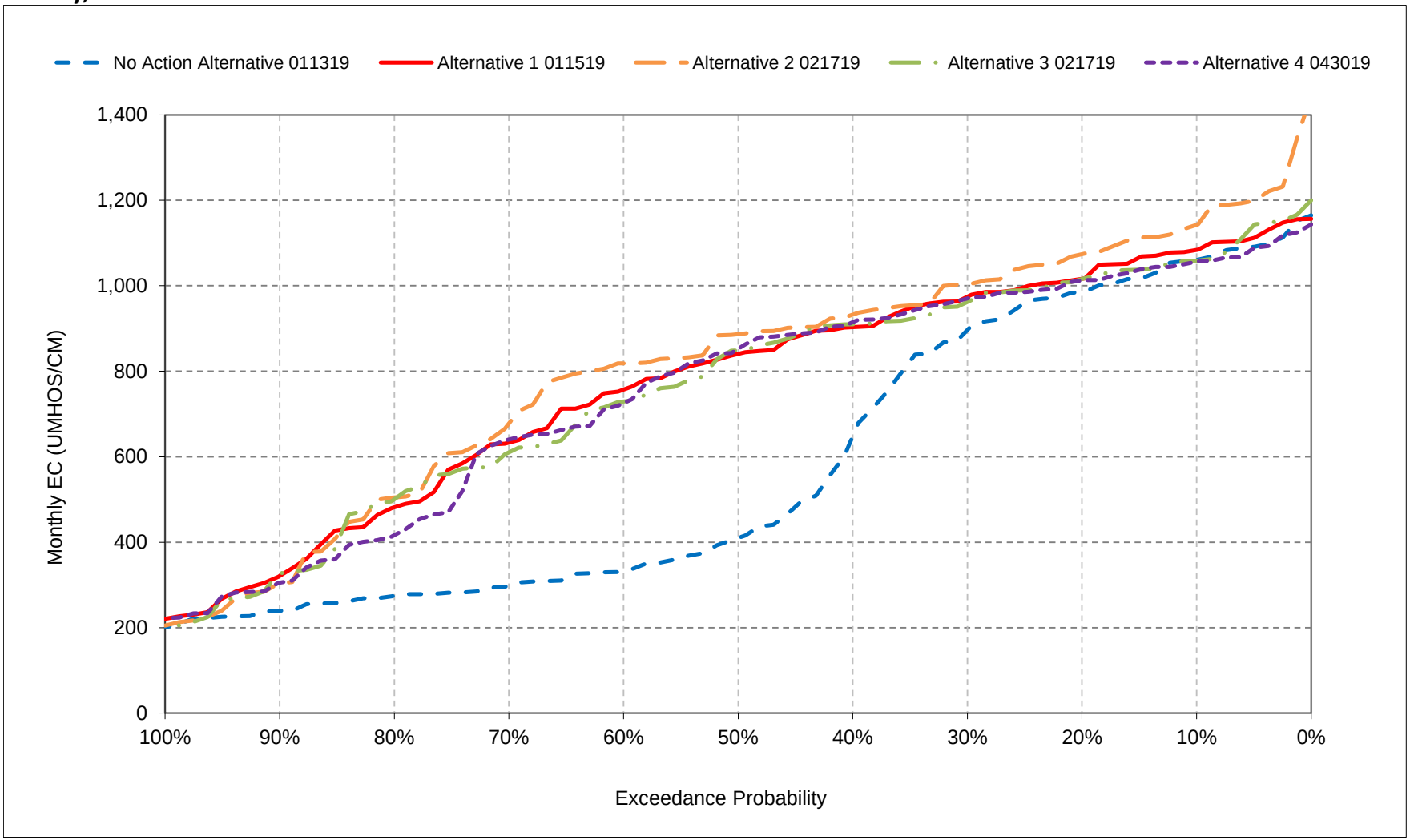
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-17. Old River at Rock Slough
Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 8-18. Old River at Rock Slough
Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 9-1. San Joaquin River at Antioch Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,127	8,487	6,741	3,539	1,136	751	904	1,646	2,184	3,988	5,814	7,103
20%	7,445	7,093	5,483	2,802	737	507	465	1,218	1,976	3,370	5,051	6,809
30%	7,222	6,847	3,321	2,051	452	307	353	894	1,748	3,015	4,873	6,602
40%	6,958	6,130	2,936	1,337	355	267	277	463	1,497	2,204	4,010	6,214
50%	4,638	2,042	2,186	1,077	286	244	246	341	1,188	1,876	3,436	5,390
60%	1,915	1,828	1,811	447	261	235	229	275	974	1,287	3,265	2,242
70%	800	752	839	263	241	222	222	239	678	1,125	3,039	1,417
80%	728	675	382	234	228	214	218	219	416	1,048	2,734	1,317
90%	671	607	230	214	211	199	212	199	207	816	2,549	1,212
Long Term												
Full Simulation Period[a]	4,317	3,821	2,791	1,493	575	383	433	715	1,394	2,210	3,877	4,208
Water Year Types[b]												
Wet (32%)	699	634	1,225	382	242	221	220	241	549	919	2,790	1,231
Above Normal (16%)	1,875	1,787	2,096	769	285	224	231	295	997	1,226	2,852	2,252
Below Normal (13%)	6,360	5,458	3,652	1,662	593	399	416	642	1,429	1,981	3,514	5,822
Dry (24%)	7,087	5,637	3,322	2,244	778	419	437	816	1,616	3,153	4,879	6,638
Critical (15%)	8,308	8,404	5,262	3,276	1,258	830	1,123	2,100	3,253	4,715	6,003	7,244

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,199	8,519	6,809	4,072	1,248	1,026	1,307	1,755	2,341	3,909	5,953	7,194
20%	7,479	7,245	6,395	2,970	808	556	655	1,393	2,087	3,385	5,162	6,938
30%	7,237	6,893	5,224	2,007	523	320	422	1,131	1,933	3,042	4,988	6,687
40%	6,938	6,709	4,116	1,327	366	266	329	693	1,570	2,152	3,906	6,216
50%	6,572	6,473	3,377	978	281	240	265	501	1,248	1,896	3,389	5,340
60%	6,156	5,871	2,375	454	262	233	226	393	1,037	1,322	3,241	5,170
70%	5,914	4,281	1,193	264	240	220	213	267	736	1,205	2,931	4,959
80%	5,511	3,177	816	238	223	215	208	199	421	1,028	2,824	4,875
90%	3,094	1,716	404	219	213	201	203	191	201	837	2,616	4,390
Long Term												
Full Simulation Period[a]	6,170	5,538	3,437	1,565	634	427	487	846	1,477	2,224	3,902	5,617
Water Year Types[b]												
Wet (32%)	4,461	4,053	2,608	350	236	221	224	290	559	929	2,735	4,279
Above Normal (16%)	5,793	5,418	3,360	866	292	227	242	375	977	1,237	2,885	4,988
Below Normal (13%)	6,237	5,574	3,662	1,837	673	457	498	875	1,606	1,986	3,489	5,675
Dry (24%)	7,306	5,775	3,355	2,430	861	449	513	976	1,732	3,130	4,995	6,719
Critical (15%)	8,330	8,460	5,246	3,262	1,452	1,028	1,270	2,321	3,462	4,806	6,086	7,305

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**72**	**32**	**67**	**533**	**113**	**275**	**403**	**109**	**156**	-79	**139**	**91**
20%	**35**	**152**	**912**	**168**	**71**	**49**	**190**	**175**	**111**	**16**	**111**	**129**
30%	**15**	**46**	**1,903**	-44	**71**	**12**	**69**	**237**	**185**	**27**	**116**	**85**
40%	-20	**579**	**1,180**	-10	**11**	-1	**52**	**230**	**73**	-52	-104	**1**
50%	**1,935**	**4,431**	**1,191**	-99	-5	-4	**19**	**160**	**61**	**19**	-46	-50
60%	**4,242**	**4,043**	**564**	**7**	**1**	-2	-3	**118**	**62**	**36**	-24	**2,928**
70%	**5,114**	**3,528**	**354**	**1**	-1	-2	-9	**29**	**58**	**80**	-108	**3,542**
80%	**4,782**	**2,501**	**434**	**4**	-5	**2**	-10	-20	**4**	-20	**90**	**3,558**
90%	**2,423**	**1,110**	**174**	**4**	**2**	**2**	-9	-9	-6	**20**	**67**	**3,178**
Long Term												
Full Simulation Period[a]	**1,854**	**1,717**	**646**	**72**	**59**	**45**	**54**	**131**	**83**	**14**	**25**	**1,409**
Water Year Types[b]												
Wet (32%)	**3,762**	**3,418**	**1,383**	-31	-6	**0**	**4**	**50**	**10**	**10**	-55	**3,048**
Above Normal (16%)	**3,918**	**3,631**	**1,264**	**98**	**7**	**3**	**11**	**80**	-20	**11**	**34**	**2,736**
Below Normal (13%)	-122	**116**	**10**	**175**	**81**	**58**	**82**	**233**	**177**	**6**	-25	-148
Dry (24%)	**219**	**138**	**34**	**186**	**83**	**30**	**76**	**160**	**116**	-22	**116**	**81**
Critical (15%)	**21**	**56**	-15	-13	**194**	**198**	**147**	**221**	**210**	**91**	**83**	**61**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 9-2. San Joaquin River at Antioch Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,127	8,487	6,741	3,539	1,136	751	904	1,646	2,184	3,988	5,814	7,103
20%	7,445	7,093	5,483	2,802	737	507	465	1,218	1,976	3,370	5,051	6,809
30%	7,222	6,847	3,321	2,051	452	307	353	894	1,748	3,015	4,873	6,602
40%	6,958	6,130	2,936	1,337	355	267	277	463	1,497	2,204	4,010	6,214
50%	4,638	2,042	2,186	1,077	286	244	246	341	1,188	1,876	3,436	5,390
60%	1,915	1,828	1,811	447	261	235	229	275	974	1,287	3,265	2,242
70%	800	752	839	263	241	222	222	239	678	1,125	3,039	1,417
80%	728	675	382	234	228	214	218	219	416	1,048	2,734	1,317
90%	671	607	230	214	211	199	212	199	207	816	2,549	1,212
Long Term												
Full Simulation Period[a]	4,317	3,821	2,791	1,493	575	383	433	715	1,394	2,210	3,877	4,208
Water Year Types[b]												
Wet (32%)	699	634	1,225	382	242	221	220	241	549	919	2,790	1,231
Above Normal (16%)	1,875	1,787	2,096	769	285	224	231	295	997	1,226	2,852	2,252
Below Normal (13%)	6,360	5,458	3,652	1,662	593	399	416	642	1,429	1,981	3,514	5,822
Dry (24%)	7,087	5,637	3,322	2,244	778	419	437	816	1,616	3,153	4,879	6,638
Critical (15%)	8,308	8,404	5,262	3,276	1,258	830	1,123	2,100	3,253	4,715	6,003	7,244

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	7,784	8,172	6,885	4,828	2,148	1,220	1,325	1,801	2,285	3,952	5,652	7,142
20%	7,180	7,041	6,663	4,207	1,284	638	735	1,283	1,906	3,232	5,069	6,799
30%	6,869	6,729	6,350	3,308	793	396	524	1,079	1,512	2,988	4,873	6,612
40%	6,592	6,588	5,758	2,233	553	296	393	783	1,101	2,150	4,129	6,277
50%	6,464	6,327	4,663	1,614	361	262	283	559	940	1,824	3,653	5,558
60%	6,254	6,143	2,924	866	269	237	236	434	794	1,380	3,276	5,328
70%	6,063	5,836	1,509	306	243	224	214	292	738	1,167	3,108	5,089
80%	5,760	5,206	1,081	238	221	212	207	199	548	1,028	2,900	4,894
90%	4,871	2,028	487	215	213	198	201	189	205	800	2,699	4,467
Long Term												
Full Simulation Period[a]	6,241	5,838	4,086	2,065	788	461	514	854	1,291	2,185	3,959	5,647
Water Year Types[b]												
Wet (32%)	5,140	4,904	3,172	519	253	223	228	291	510	961	2,817	4,387
Above Normal (16%)	6,330	6,224	4,323	1,227	357	229	254	436	744	1,199	3,038	5,160
Below Normal (13%)	6,229	5,874	4,026	2,884	960	470	549	853	1,029	1,955	3,786	5,677
Dry (24%)	6,634	5,367	3,675	3,069	1,050	520	557	943	1,589	3,063	4,925	6,639
Critical (15%)	7,885	8,195	6,549	3,898	1,823	1,125	1,313	2,381	3,320	4,655	5,981	7,223

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-344	-316	**144**	**1,290**	**1,012**	**469**	**422**	**155**	**100**	-36	-162	**39**
20%	-265	-52	**1,180**	**1,405**	**547**	**131**	**270**	**65**	-70	-138	**19**	-10
30%	-352	-119	**3,029**	**1,257**	**341**	**89**	**171**	**185**	-236	-27	**0**	**9**
40%	-366	**458**	**2,822**	**896**	**198**	**30**	**116**	**320**	-397	-54	**119**	**62**
50%	**1,827**	**4,285**	**2,477**	**537**	**74**	**18**	**37**	**217**	-248	-53	**218**	**167**
60%	**4,339**	**4,315**	**1,112**	**419**	**8**	**2**	**8**	**159**	-180	**93**	**11**	**3,086**
70%	**5,263**	**5,084**	**670**	**43**	**2**	**1**	-7	**53**	**60**	**42**	**69**	**3,671**
80%	**5,032**	**4,531**	**699**	**4**	-7	-2	-11	-20	**131**	-20	**167**	**3,577**
90%	**4,200**	**1,422**	**257**	**0**	**2**	-1	-11	-11	-3	-17	**149**	**3,255**
Long Term												
Full Simulation Period[a]	**1,924**	**2,016**	**1,295**	**572**	**213**	**79**	**81**	**139**	-103	-25	**83**	**1,439**
Water Year Types[b]												
Wet (32%)	**4,440**	**4,269**	**1,947**	**137**	**11**	**1**	**8**	**51**	-39	**42**	**27**	**3,156**
Above Normal (16%)	**4,455**	**4,437**	**2,227**	**458**	**72**	**5**	**23**	**141**	-253	-27	**187**	**2,909**
Below Normal (13%)	-130	**416**	**374**	**1,222**	**367**	**71**	**133**	**211**	-400	-26	**272**	-145
Dry (24%)	-453	-270	**353**	**825**	**272**	**101**	**120**	**127**	-28	-90	**46**	**1**
Critical (15%)	-423	-209	**1,288**	**622**	**565**	**295**	**189**	**281**	**67**	-60	-22	-21

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 9-3. San Joaquin River at Antioch Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,127	8,487	6,741	3,539	1,136	751	904	1,646	2,184	3,988	5,814	7,103
20%	7,445	7,093	5,483	2,802	737	507	465	1,218	1,976	3,370	5,051	6,809
30%	7,222	6,847	3,321	2,051	452	307	353	894	1,748	3,015	4,873	6,602
40%	6,958	6,130	2,936	1,337	355	267	277	463	1,497	2,204	4,010	6,214
50%	4,638	2,042	2,186	1,077	286	244	246	341	1,188	1,876	3,436	5,390
60%	1,915	1,828	1,811	447	261	235	229	275	974	1,287	3,265	2,242
70%	800	752	839	263	241	222	222	239	678	1,125	3,039	1,417
80%	728	675	382	234	228	214	218	219	416	1,048	2,734	1,317
90%	671	607	230	214	211	199	212	199	207	816	2,549	1,212
Long Term												
Full Simulation Period[a]	4,317	3,821	2,791	1,493	575	383	433	715	1,394	2,210	3,877	4,208
Water Year Types[b]												
Wet (32%)	699	634	1,225	382	242	221	220	241	549	919	2,790	1,231
Above Normal (16%)	1,875	1,787	2,096	769	285	224	231	295	997	1,226	2,852	2,252
Below Normal (13%)	6,360	5,458	3,652	1,662	593	399	416	642	1,429	1,981	3,514	5,822
Dry (24%)	7,087	5,637	3,322	2,244	778	419	437	816	1,616	3,153	4,879	6,638
Critical (15%)	8,308	8,404	5,262	3,276	1,258	830	1,123	2,100	3,253	4,715	6,003	7,244

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	7,111	6,966	6,512	4,347	1,878	1,122	1,192	1,662	2,232	3,948	5,667	7,059
20%	6,574	6,335	6,103	3,934	1,209	622	685	1,221	1,787	3,164	4,966	6,605
30%	6,229	6,160	5,784	2,981	741	372	476	1,051	1,425	2,820	4,700	6,474
40%	5,964	5,993	5,188	2,140	548	281	363	762	1,103	2,044	3,999	6,116
50%	5,673	5,692	4,344	1,515	349	261	269	551	996	1,672	3,484	5,408
60%	5,488	5,502	2,584	809	274	243	232	410	816	1,279	3,130	5,167
70%	5,190	5,260	1,441	295	247	227	221	279	737	1,067	2,922	4,776
80%	4,737	4,165	1,077	246	222	216	212	203	508	968	2,754	4,608
90%	4,014	2,065	454	221	216	203	204	192	206	819	2,574	4,085
Long Term												
Full Simulation Period[a]	5,593	5,222	3,804	1,964	772	455	489	815	1,281	2,122	3,819	5,440
Water Year Types[b]												
Wet (32%)	4,635	4,453	2,856	502	253	224	222	320	518	914	2,696	4,192
Above Normal (16%)	5,558	5,550	3,929	1,124	354	231	251	410	778	1,091	2,808	4,676
Below Normal (13%)	5,642	5,198	3,785	2,813	893	439	507	793	1,026	1,836	3,626	5,553
Dry (24%)	5,830	4,817	3,540	2,964	1,044	506	524	861	1,494	2,950	4,785	6,482
Critical (15%)	7,265	7,233	6,176	3,600	1,785	1,125	1,249	2,270	3,360	4,740	5,917	7,131

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,016	-1,521	-229	**808**	**742**	**371**	**289**	**16**	**48**	-40	-147	-44
20%	-871	-758	**620**	**1,132**	**472**	**115**	**220**	**3**	-189	-205	-85	-204
30%	-993	-688	**2,463**	**930**	**289**	**65**	**123**	**156**	-323	-195	-172	-129
40%	-994	-137	**2,251**	**802**	**193**	**14**	**86**	**300**	-394	-160	-11	-98
50%	**1,036**	**3,650**	**2,159**	**438**	**63**	**17**	**23**	**210**	-191	-205	**48**	**18**
60%	**3,573**	**3,674**	**773**	**362**	**13**	**8**	**3**	**135**	-158	-8	-135	**2,925**
70%	**4,390**	**4,507**	**602**	**33**	**6**	**5**	-1	**41**	**59**	-58	-117	**3,359**
80%	**4,009**	**3,490**	**695**	**12**	-6	**2**	-6	-16	**91**	-81	**21**	**3,291**
90%	**3,343**	**1,458**	**224**	**7**	**4**	**4**	-8	-7	-2	**2**	**25**	**2,873**
Long Term												
Full Simulation Period[a]	**1,276**	**1,401**	**1,013**	**472**	**197**	**72**	**55**	**100**	-113	-88	-57	**1,232**
Water Year Types[b]												
Wet (32%)	**3,935**	**3,819**	**1,631**	**120**	**11**	**3**	**1**	**79**	-31	-5	-94	**2,960**
Above Normal (16%)	**3,683**	**3,764**	**1,833**	**356**	**69**	**7**	**21**	**115**	-219	-135	-44	**2,424**
Below Normal (13%)	-718	-261	**134**	**1,151**	**301**	**40**	**91**	**150**	-403	-145	**112**	-269
Dry (24%)	-1,257	-820	**219**	**720**	**265**	**87**	**87**	**45**	-122	-203	-94	-156
Critical (15%)	-1,043	-1,171	**914**	**324**	**527**	**295**	**126**	**170**	**107**	**25**	-86	-113

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 9-4. San Joaquin River at Antioch Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,127	8,487	6,741	3,539	1,136	751	904	1,646	2,184	3,988	5,814	7,103
20%	7,445	7,093	5,483	2,802	737	507	465	1,218	1,976	3,370	5,051	6,809
30%	7,222	6,847	3,321	2,051	452	307	353	894	1,748	3,015	4,873	6,602
40%	6,958	6,130	2,936	1,337	355	267	277	463	1,497	2,204	4,010	6,214
50%	4,638	2,042	2,186	1,077	286	244	246	341	1,188	1,876	3,436	5,390
60%	1,915	1,828	1,811	447	261	235	229	275	974	1,287	3,265	2,242
70%	800	752	839	263	241	222	222	239	678	1,125	3,039	1,417
80%	728	675	382	234	228	214	218	219	416	1,048	2,734	1,317
90%	671	607	230	214	211	199	212	199	207	816	2,549	1,212
Long Term												
Full Simulation Period[a]	4,317	3,821	2,791	1,493	575	383	433	715	1,394	2,210	3,877	4,208
Water Year Types[b]												
Wet (32%)	699	634	1,225	382	242	221	220	241	549	919	2,790	1,231
Above Normal (16%)	1,875	1,787	2,096	769	285	224	231	295	997	1,226	2,852	2,252
Below Normal (13%)	6,360	5,458	3,652	1,662	593	399	416	642	1,429	1,981	3,514	5,822
Dry (24%)	7,087	5,637	3,322	2,244	778	419	437	816	1,616	3,153	4,879	6,638
Critical (15%)	8,308	8,404	5,262	3,276	1,258	830	1,123	2,100	3,253	4,715	6,003	7,244

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8,100	8,472	6,804	3,935	1,136	588	774	1,628	2,208	3,975	5,787	7,151
20%	7,613	7,226	6,499	2,886	670	375	450	1,247	2,004	3,380	5,136	6,926
30%	7,254	6,891	5,184	1,935	488	270	339	750	1,804	3,078	4,969	6,728
40%	7,026	6,732	4,206	1,259	355	252	266	435	1,543	2,248	3,838	6,377
50%	6,839	6,612	3,394	977	278	239	255	298	1,219	2,028	3,491	5,760
60%	6,310	6,183	2,347	398	260	233	237	253	934	1,316	3,259	5,298
70%	6,118	4,703	1,117	258	238	228	228	227	645	1,208	2,941	5,188
80%	5,919	3,012	758	236	223	221	221	214	397	1,115	2,805	4,967
90%	4,263	1,754	299	218	213	208	215	200	206	854	2,608	4,628
Long Term												
Full Simulation Period[a]	6,376	5,619	3,444	1,510	598	349	401	690	1,405	2,245	3,910	5,747
Water Year Types[b]												
Wet (32%)	4,860	4,378	2,730	340	235	228	225	230	524	955	2,760	4,468
Above Normal (16%)	6,058	5,562	3,296	852	283	232	237	259	978	1,266	2,842	5,051
Below Normal (13%)	6,462	5,303	3,630	1,679	613	314	350	592	1,489	2,075	3,589	6,012
Dry (24%)	7,349	5,741	3,316	2,380	811	332	395	810	1,676	3,181	5,024	6,812
Critical (15%)	8,306	8,453	5,196	3,154	1,355	797	1,021	2,045	3,246	4,696	5,997	7,252

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-28	-15	**63**	**396**	**1**	-163	-130	-18	**24**	-12	-27	**47**
20%	**168**	**133**	**1,017**	**84**	-67	-132	-16	**29**	**28**	**10**	**85**	**117**
30%	**32**	**43**	**1,863**	-116	**35**	-38	-14	-144	**56**	**63**	**97**	**126**
40%	**68**	**602**	**1,270**	-79	**0**	-14	-11	-28	**46**	**44**	-172	**162**
50%	**2,201**	**4,570**	**1,209**	-100	-8	-4	**9**	-43	**32**	**152**	**55**	**369**
60%	**4,396**	**4,354**	**536**	-49	-1	-2	**8**	-22	-40	**29**	-6	**3,056**
70%	**5,318**	**3,951**	**278**	-5	-2	**6**	**6**	-12	-33	**83**	-98	**3,771**
80%	**5,191**	**2,336**	**376**	**2**	-5	**7**	**3**	-5	-19	**67**	**72**	**3,650**
90%	**3,591**	**1,147**	**69**	**4**	**2**	**9**	**3**	**1**	-1	**38**	**59**	**3,416**
Long Term												
Full Simulation Period[a]	**2,060**	**1,797**	**653**	**17**	**23**	-34	-32	-25	**10**	**35**	**33**	**1,539**
Water Year Types[b]												
Wet (32%)	**4,161**	**3,743**	**1,505**	-42	-7	**7**	**4**	-11	-25	**36**	-29	**3,237**
Above Normal (16%)	**4,182**	**3,775**	**1,200**	**83**	-1	**8**	**6**	-36	-19	**40**	-10	**2,799**
Below Normal (13%)	**102**	-155	-22	**17**	**21**	-85	-66	-51	**60**	**94**	**75**	**190**
Dry (24%)	**262**	**104**	-6	**136**	**33**	-87	-42	-5	**59**	**29**	**145**	**174**
Critical (15%)	-2	**49**	-66	-122	**97**	-33	-103	-55	-7	-19	-7	**8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

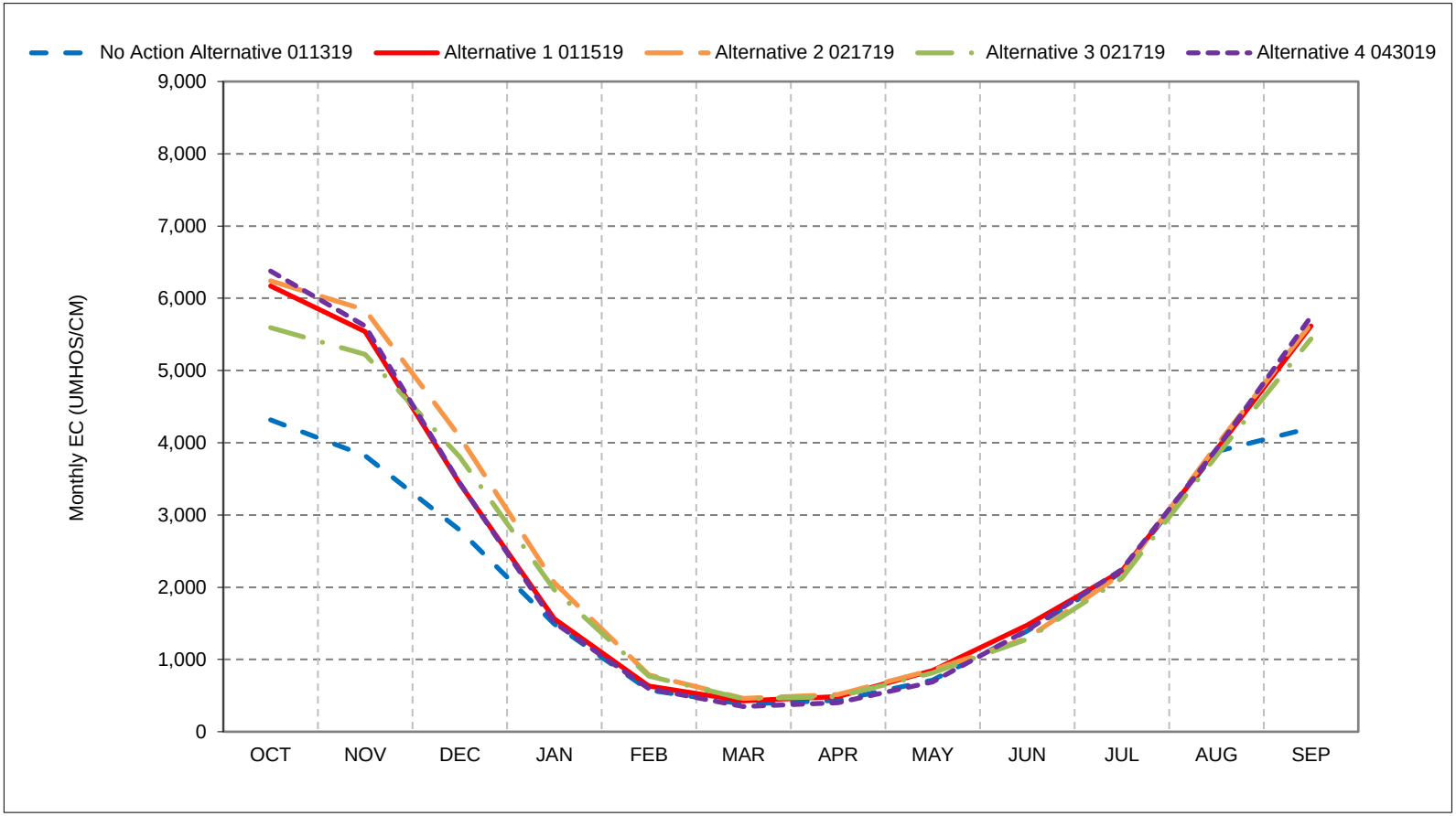
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

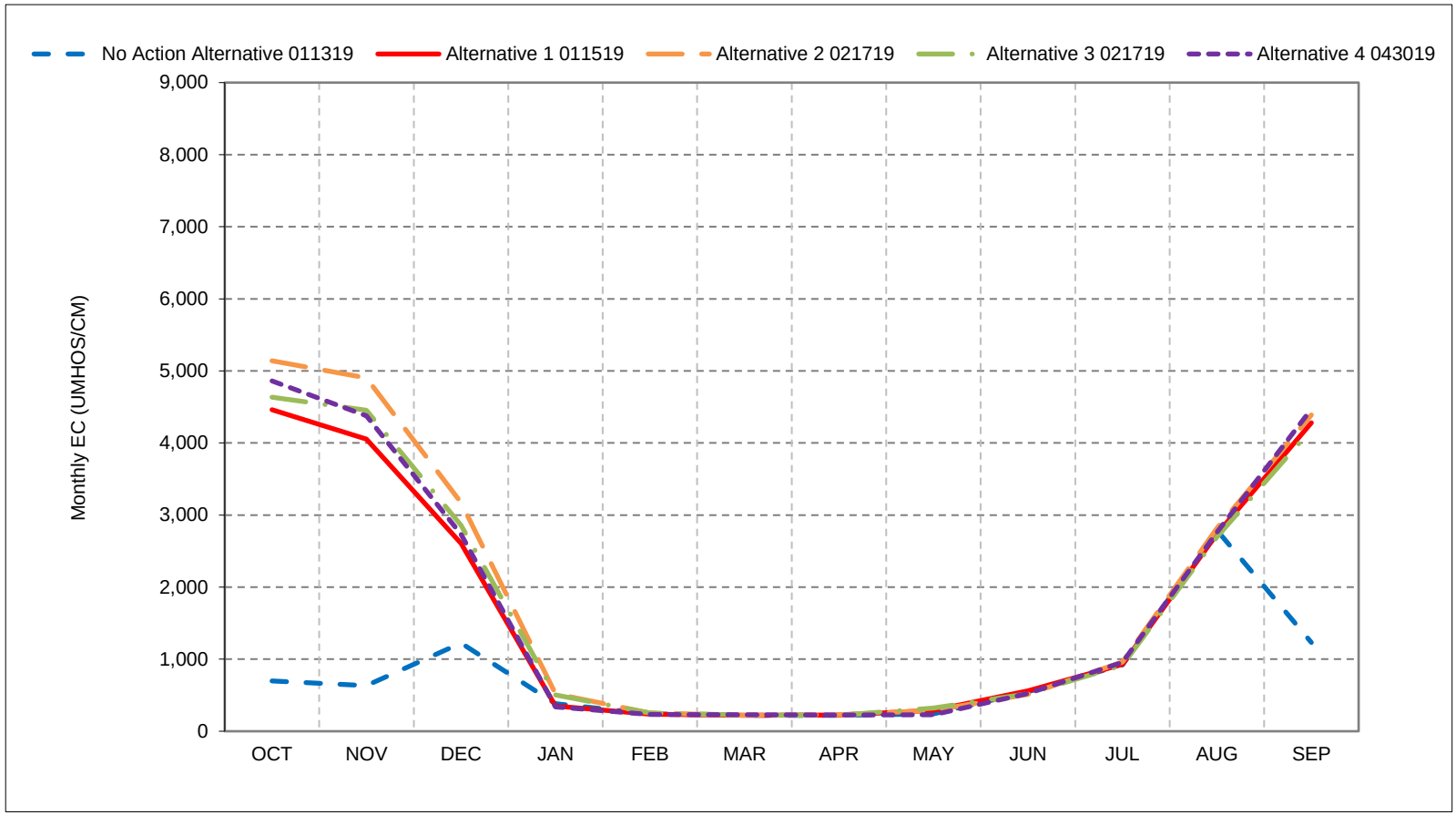
f These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-1. San Joaquin River at Antioch Salinity, Long-Term Average EC



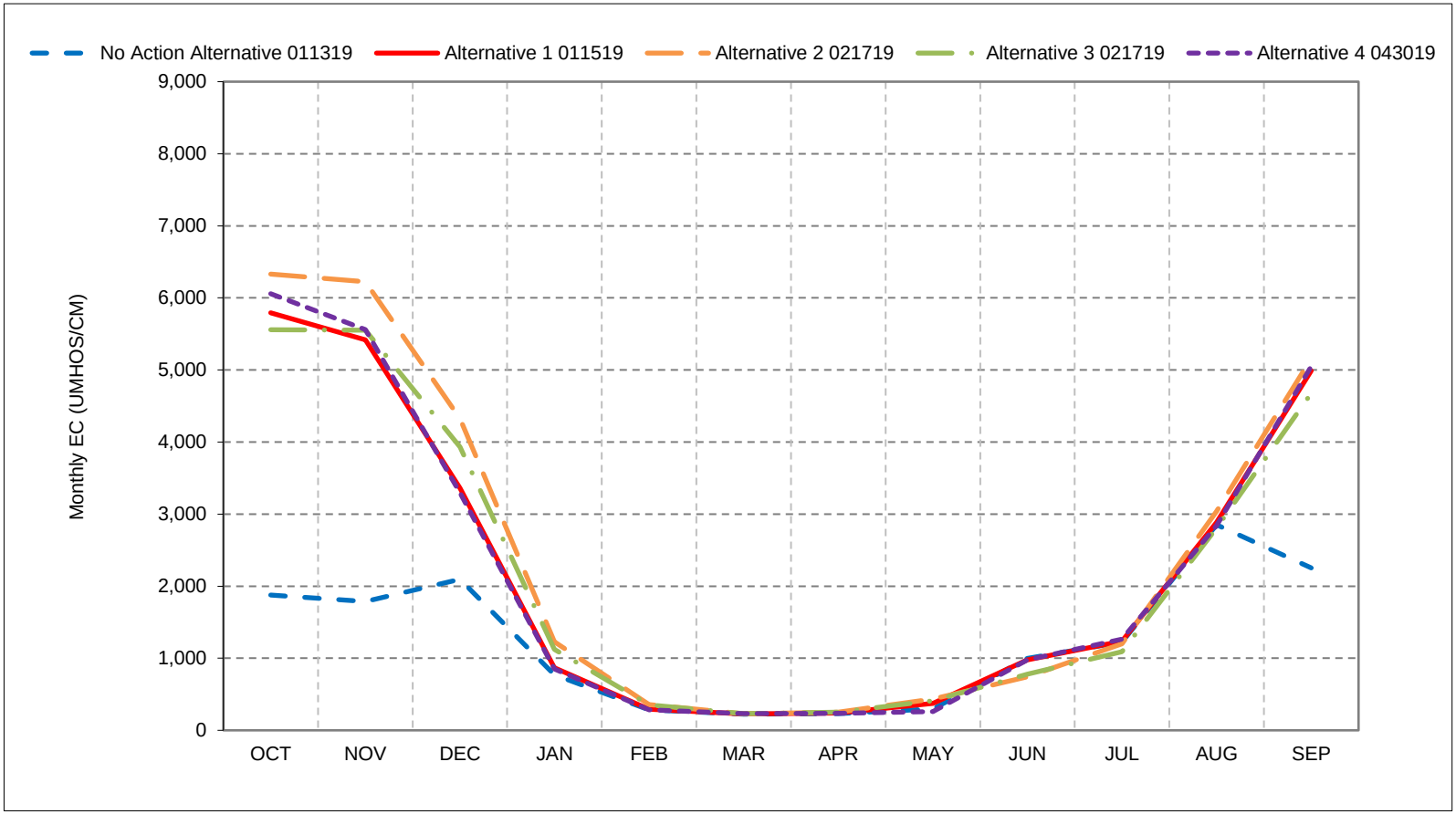
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-2. San Joaquin River at Antioch Salinity, Wet Year Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-3. San Joaquin River at Antioch Salinity, Above Normal Year Average EC



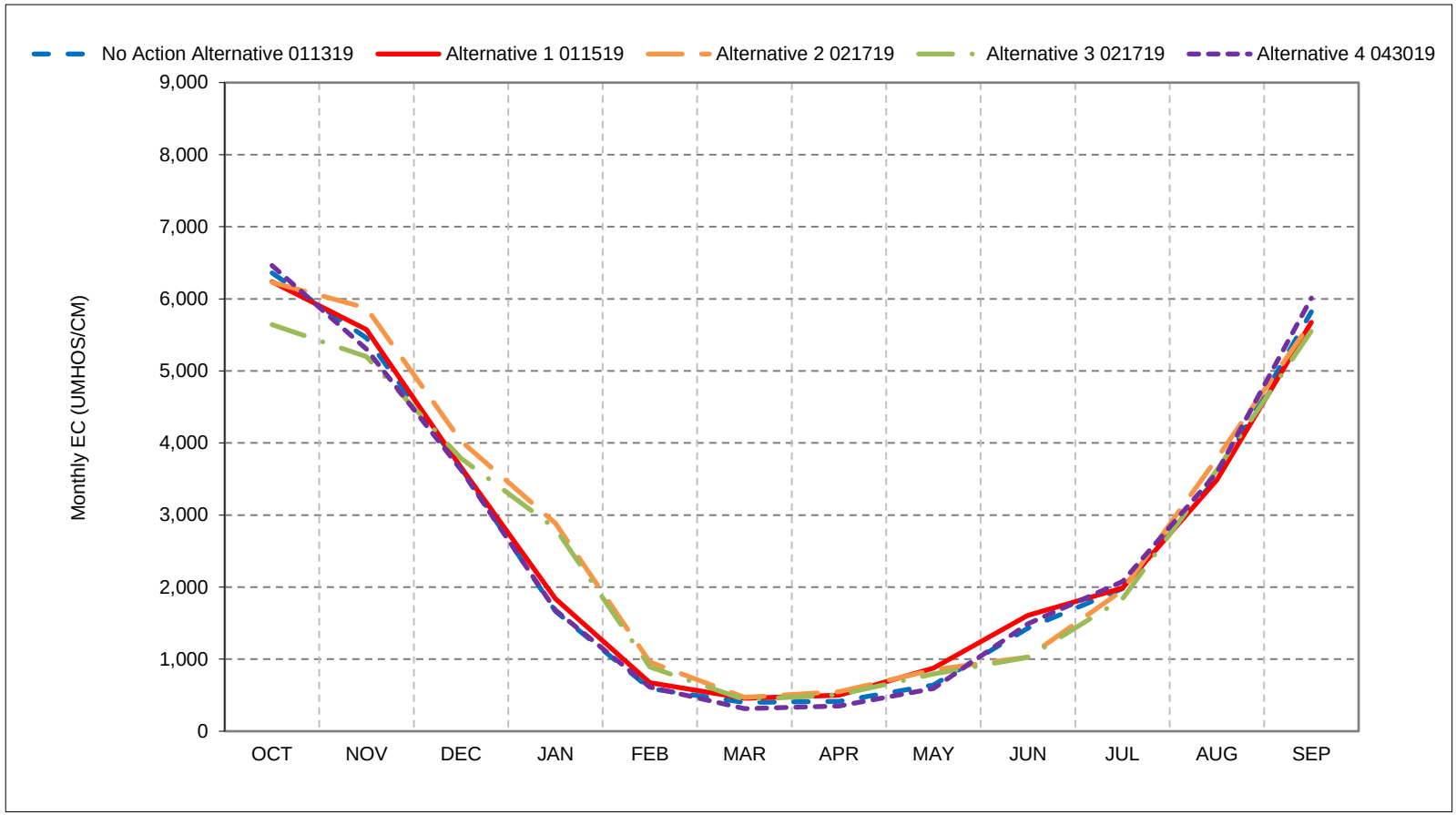
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-4. San Joaquin River at Antioch Salinity, Below Normal Year Average EC



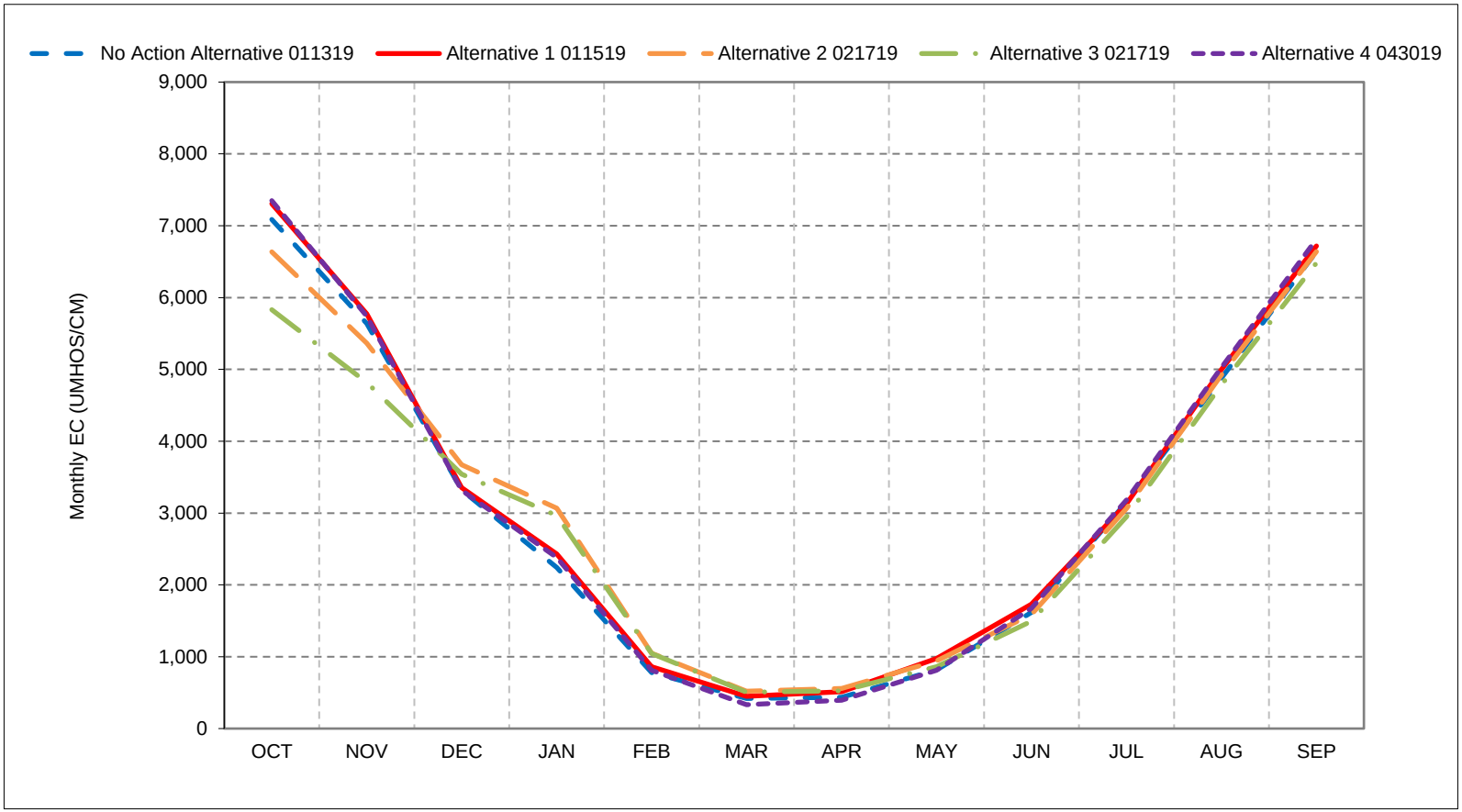
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-5. San Joaquin River at Antioch Salinity, Dry Year Average EC



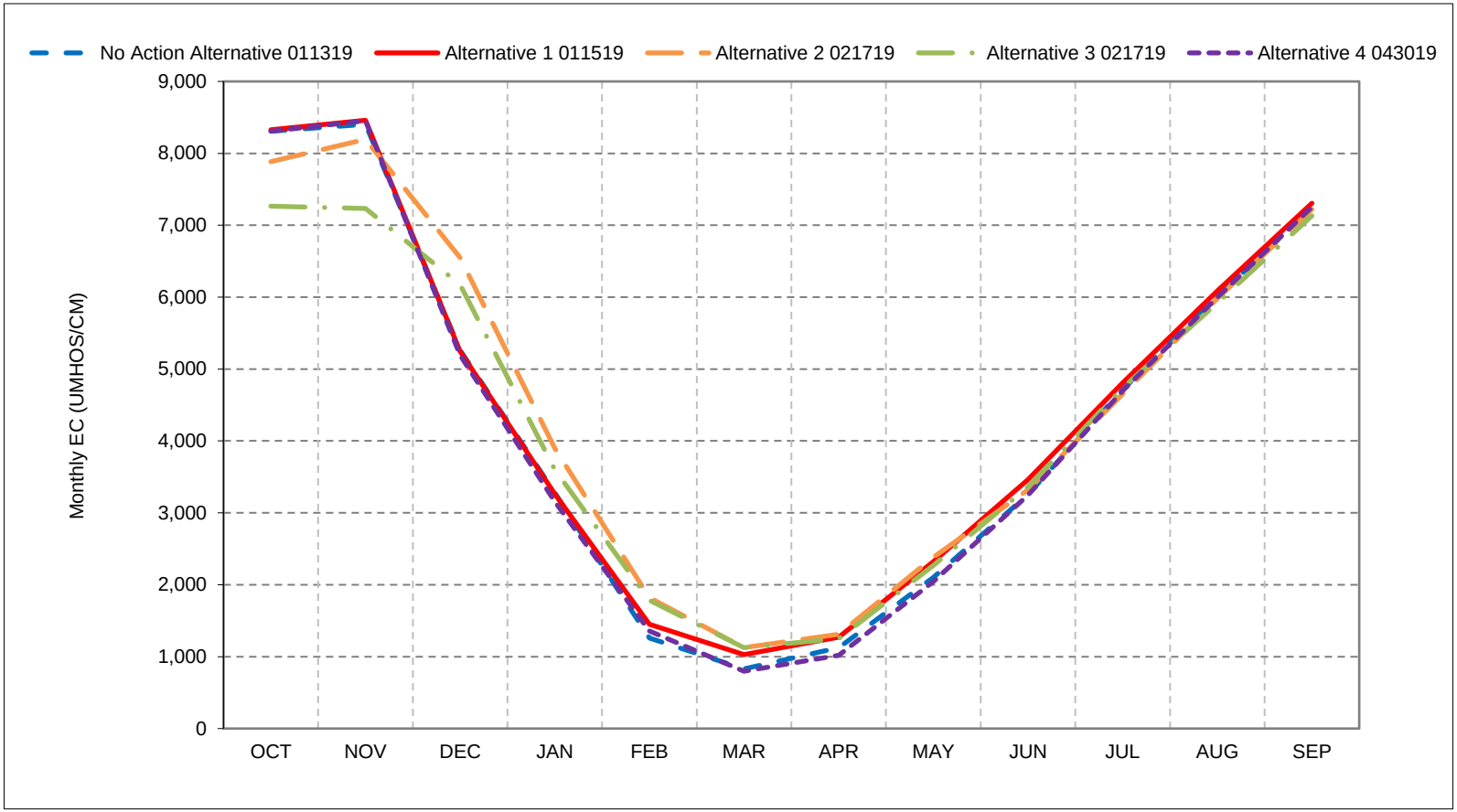
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

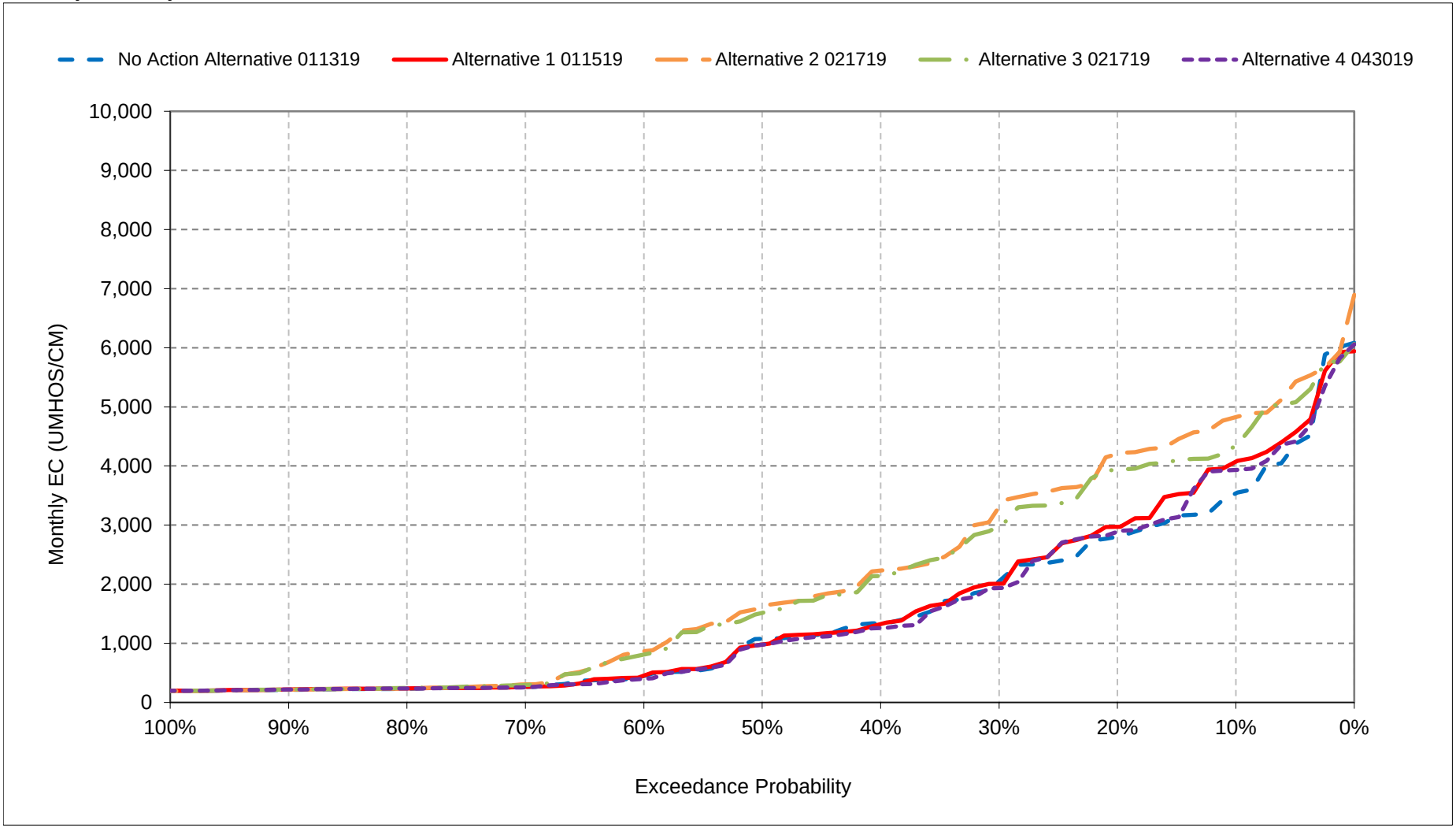
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-6. San Joaquin River at Antioch Salinity, Critical Year Average EC



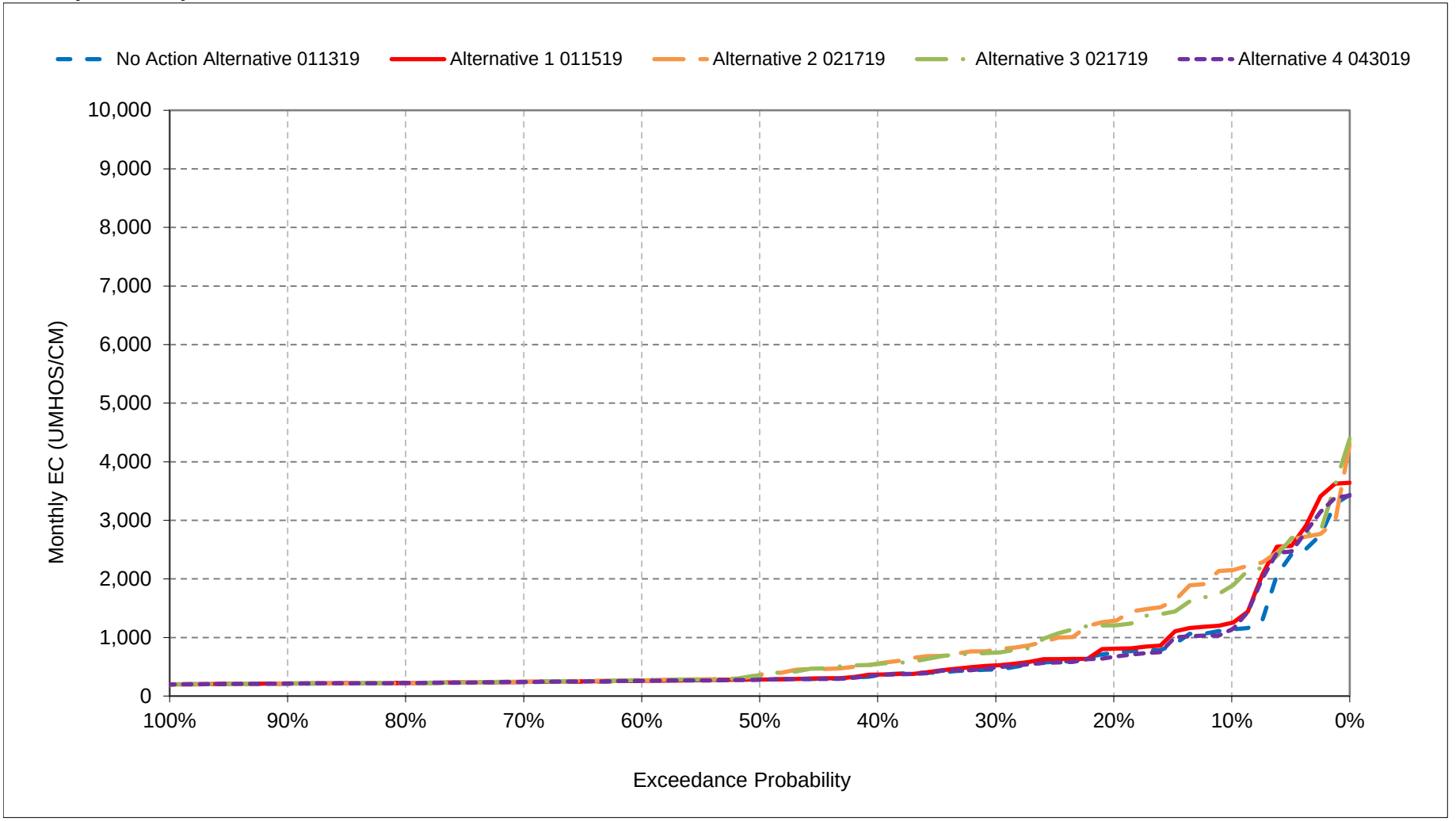
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-7. San Joaquin River at Antioch
Salinity, January EC



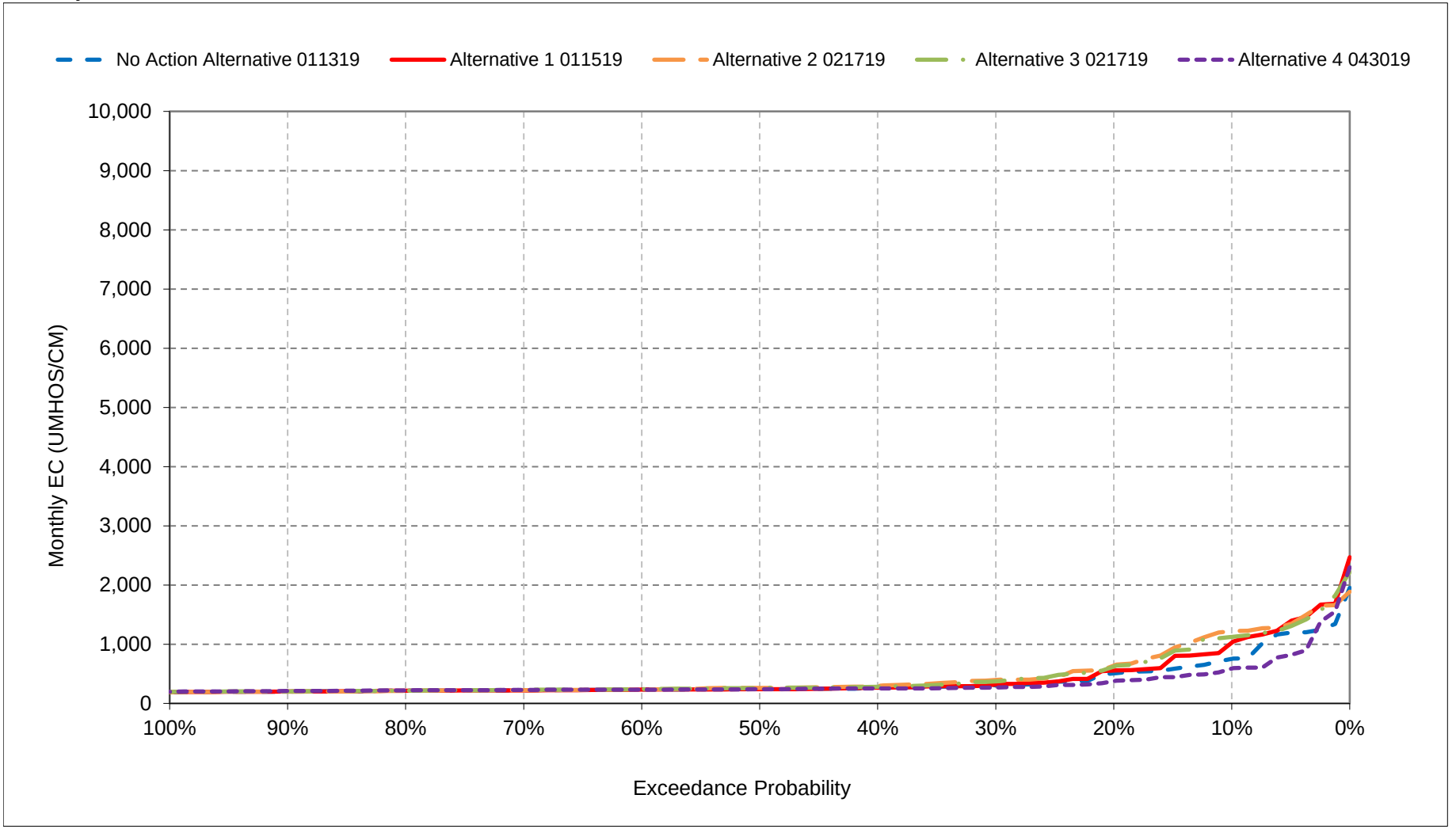
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-8. San Joaquin River at Antioch
Salinity, February EC



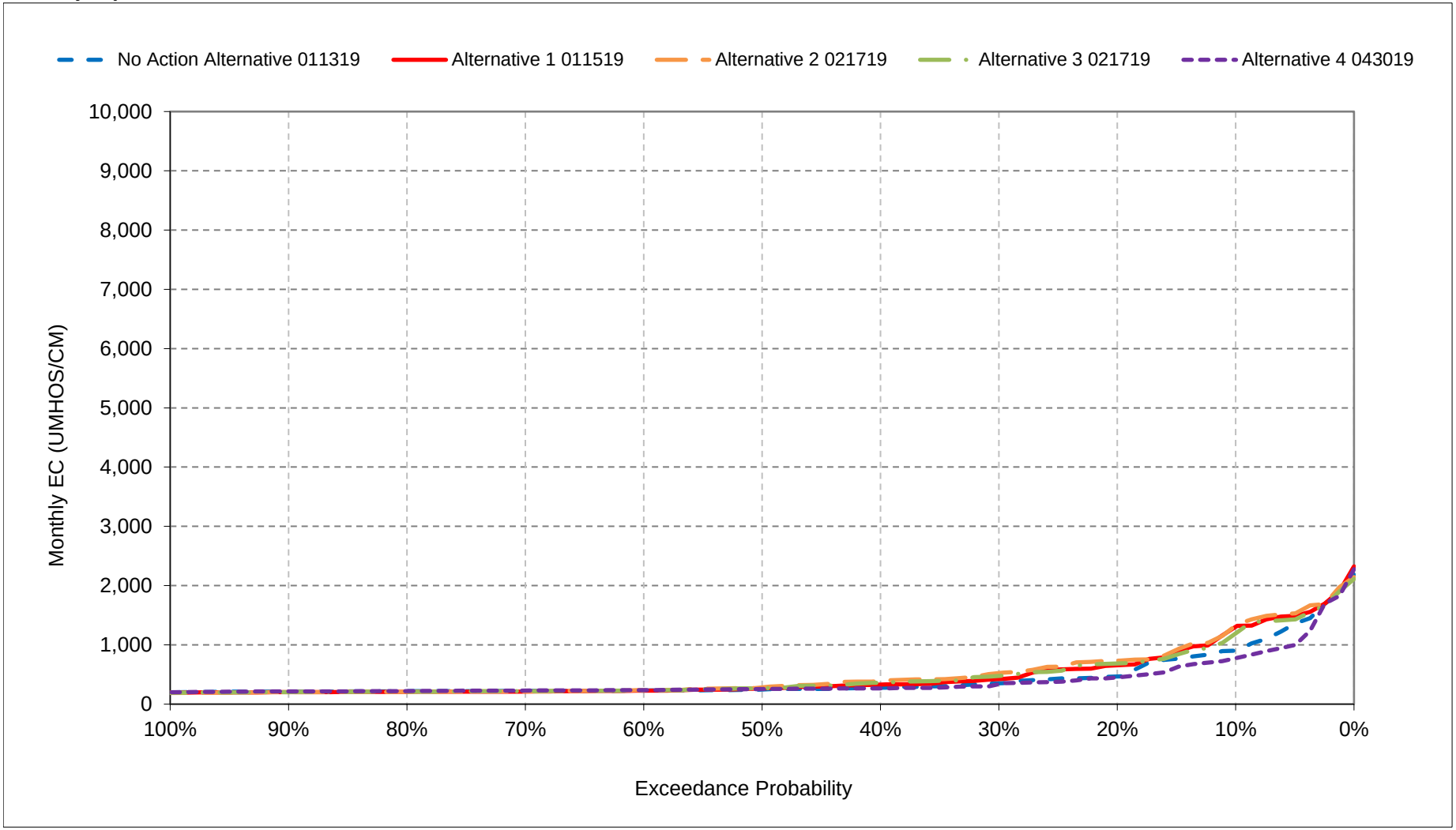
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-9. San Joaquin River at Antioch
Salinity, March EC



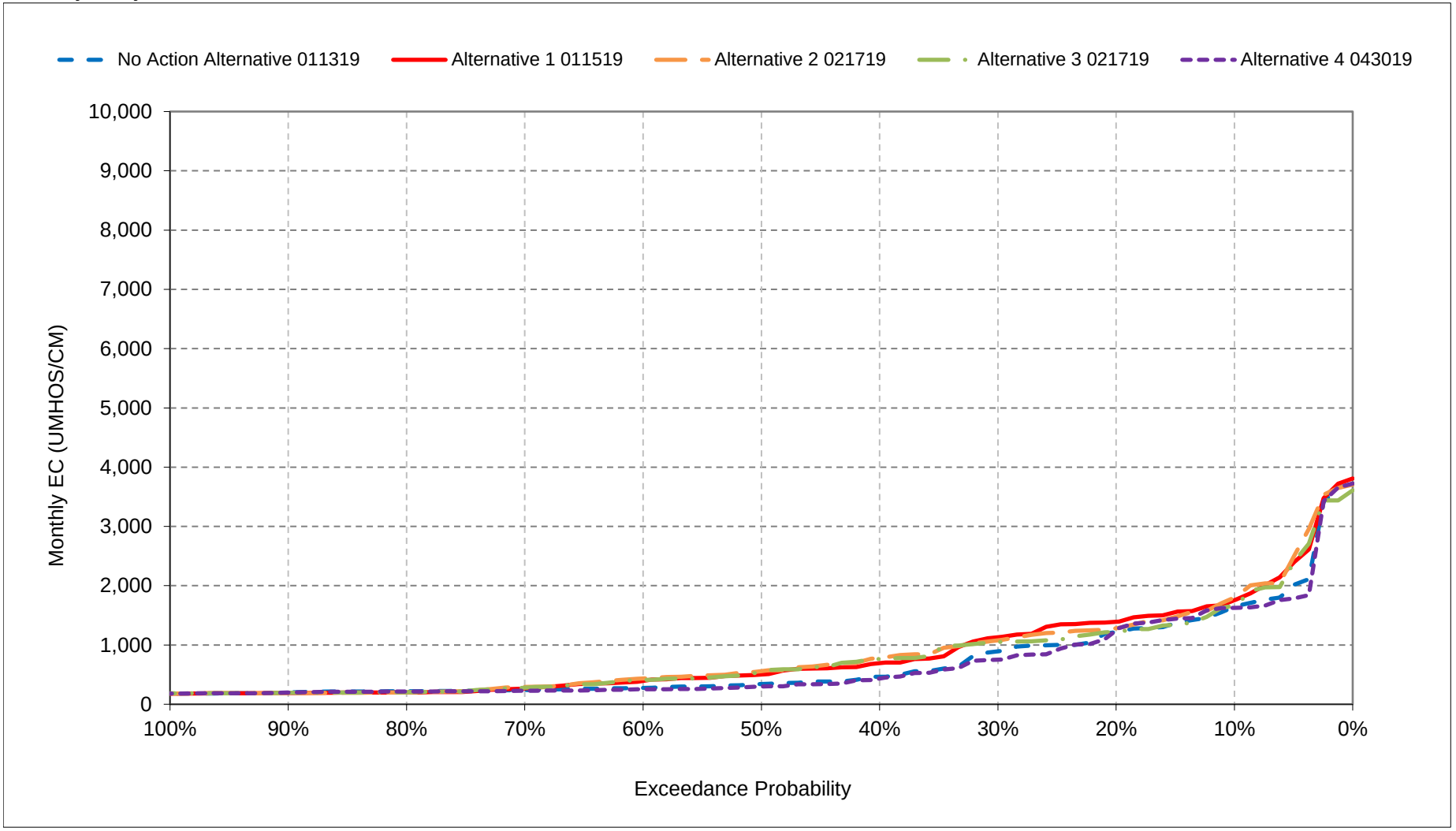
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-10. San Joaquin River at Antioch
Salinity, April EC



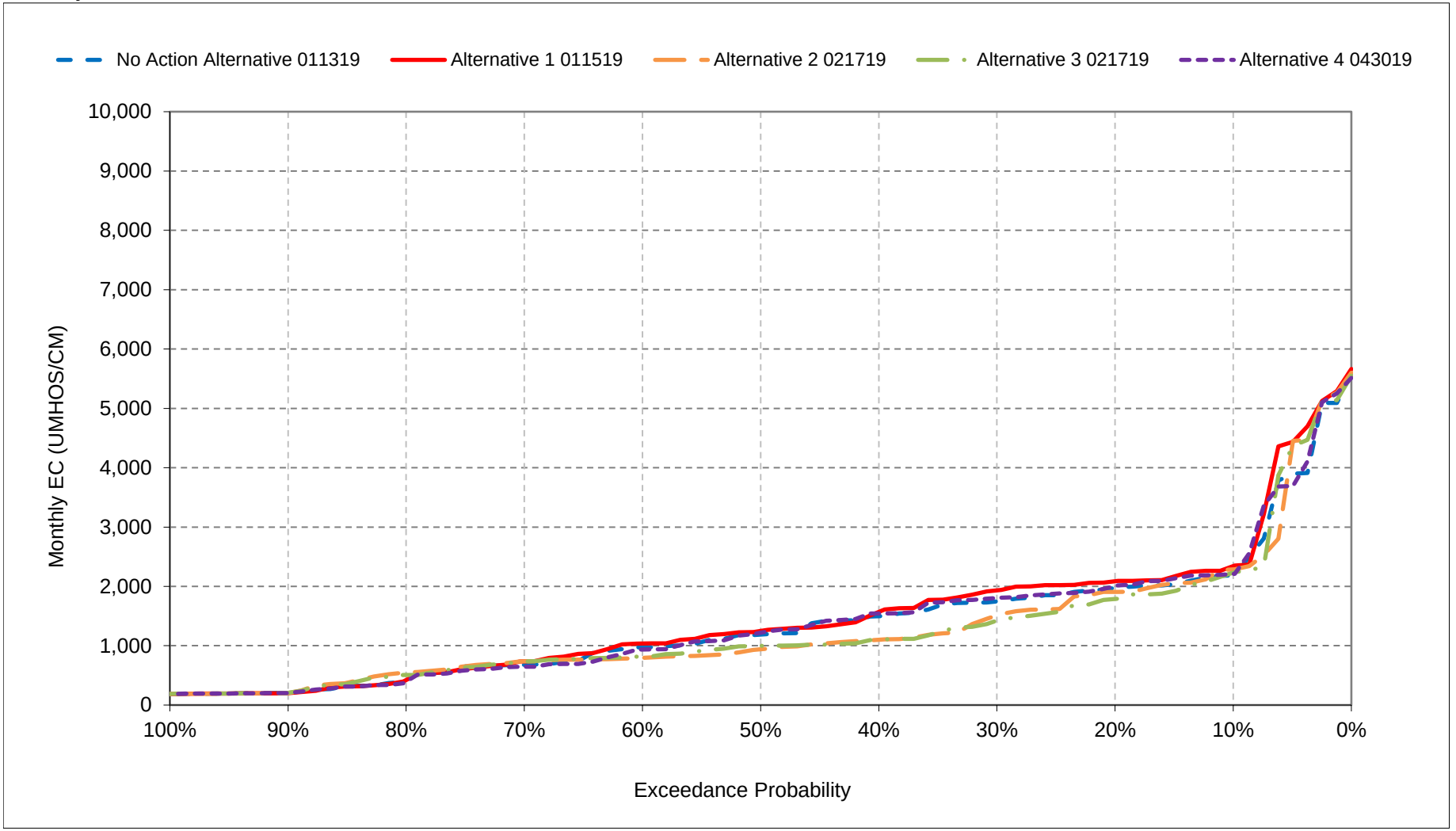
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-11. San Joaquin River at Antioch
Salinity, May EC



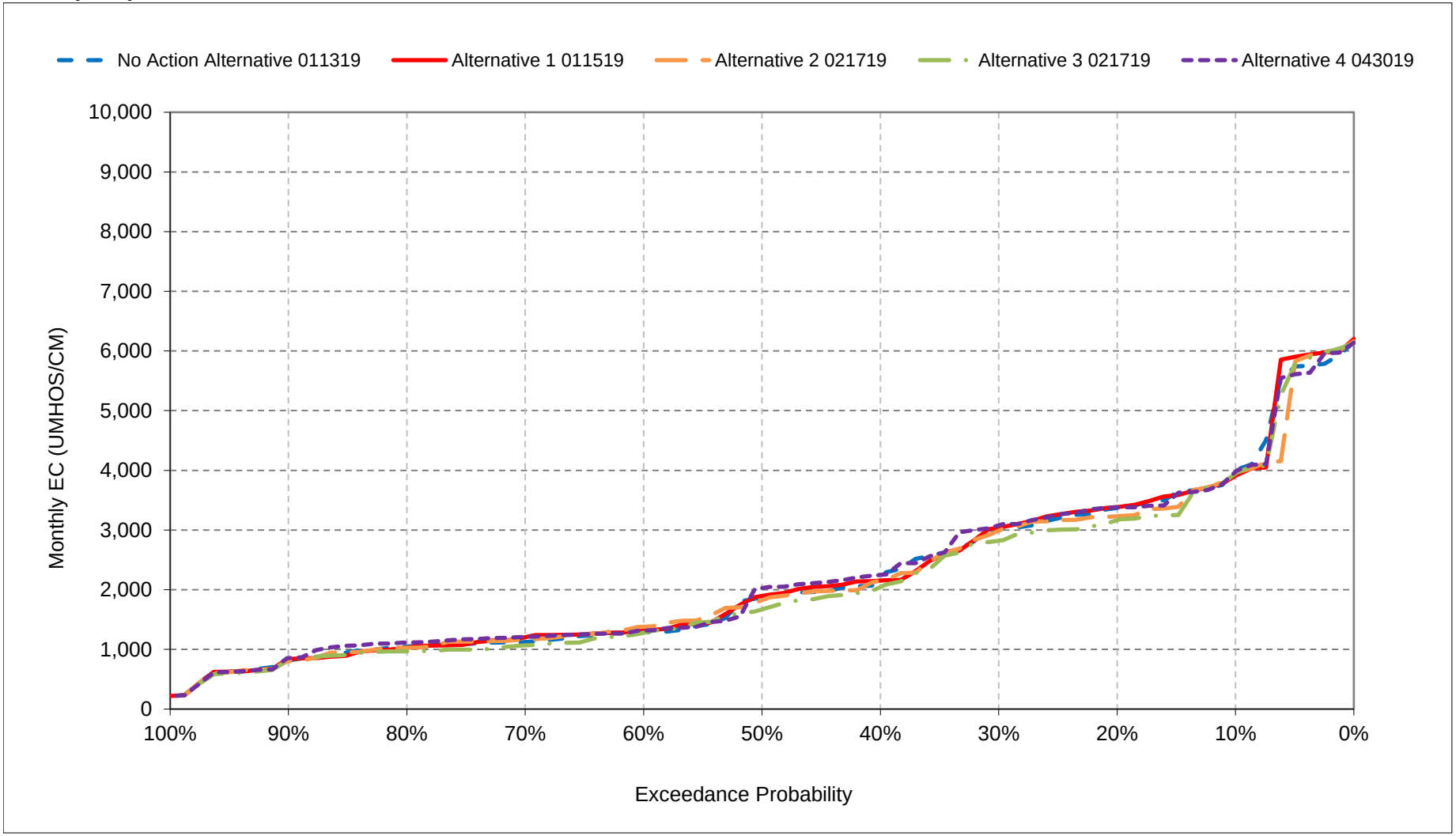
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-12. San Joaquin River at Antioch
Salinity, June EC



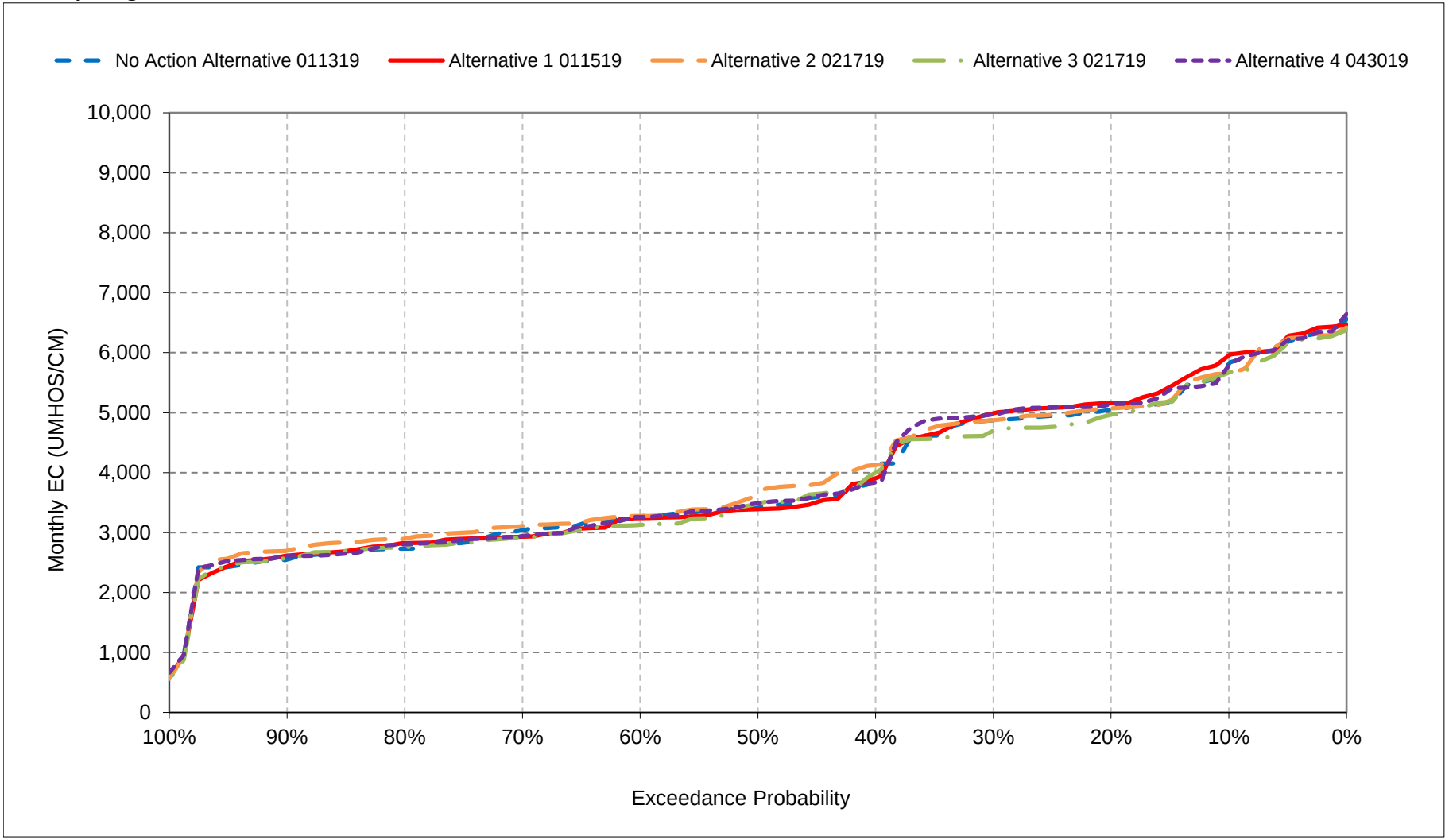
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-13. San Joaquin River at Antioch
Salinity, July EC



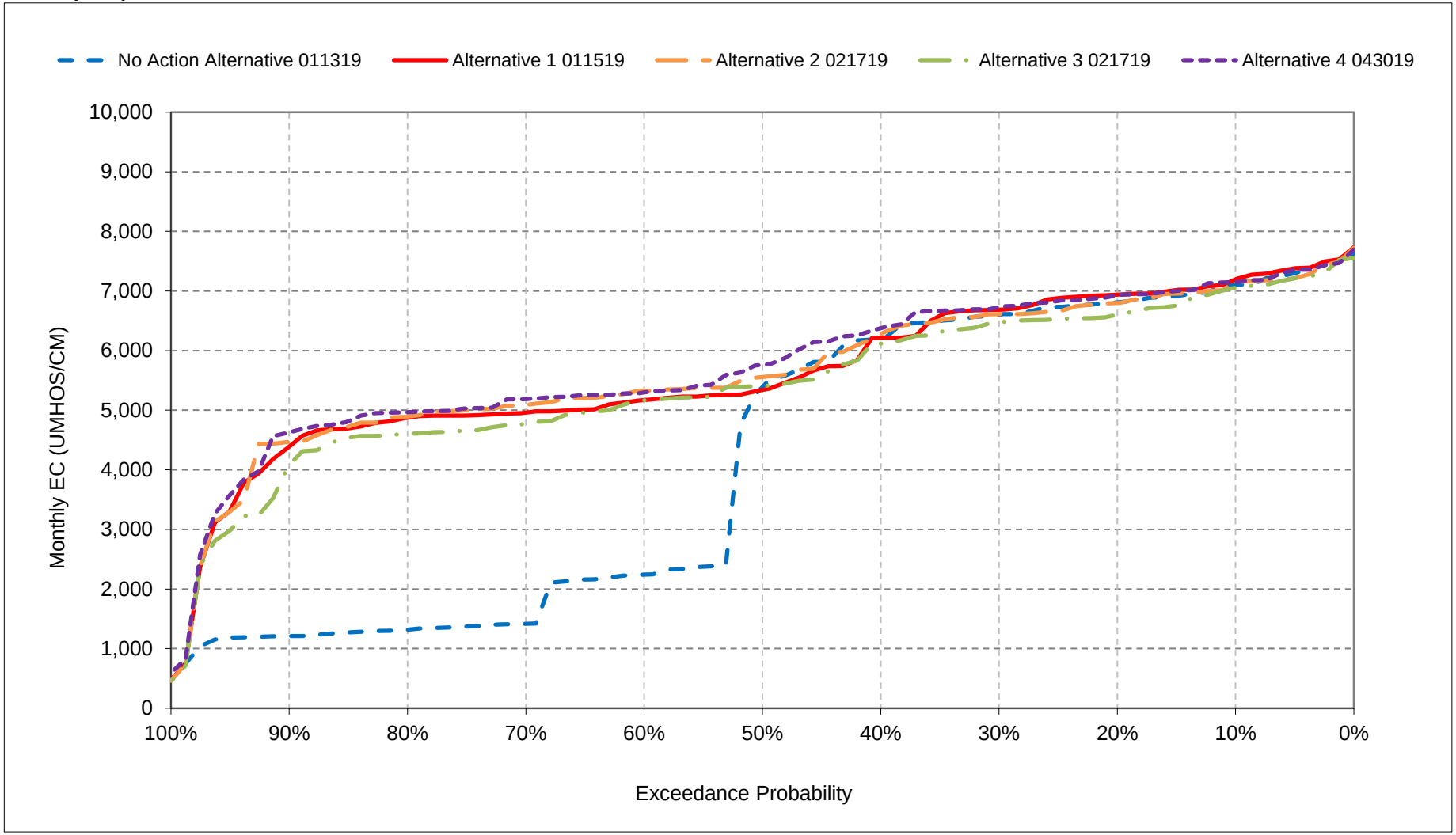
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-14. San Joaquin River at Antioch
Salinity, August EC



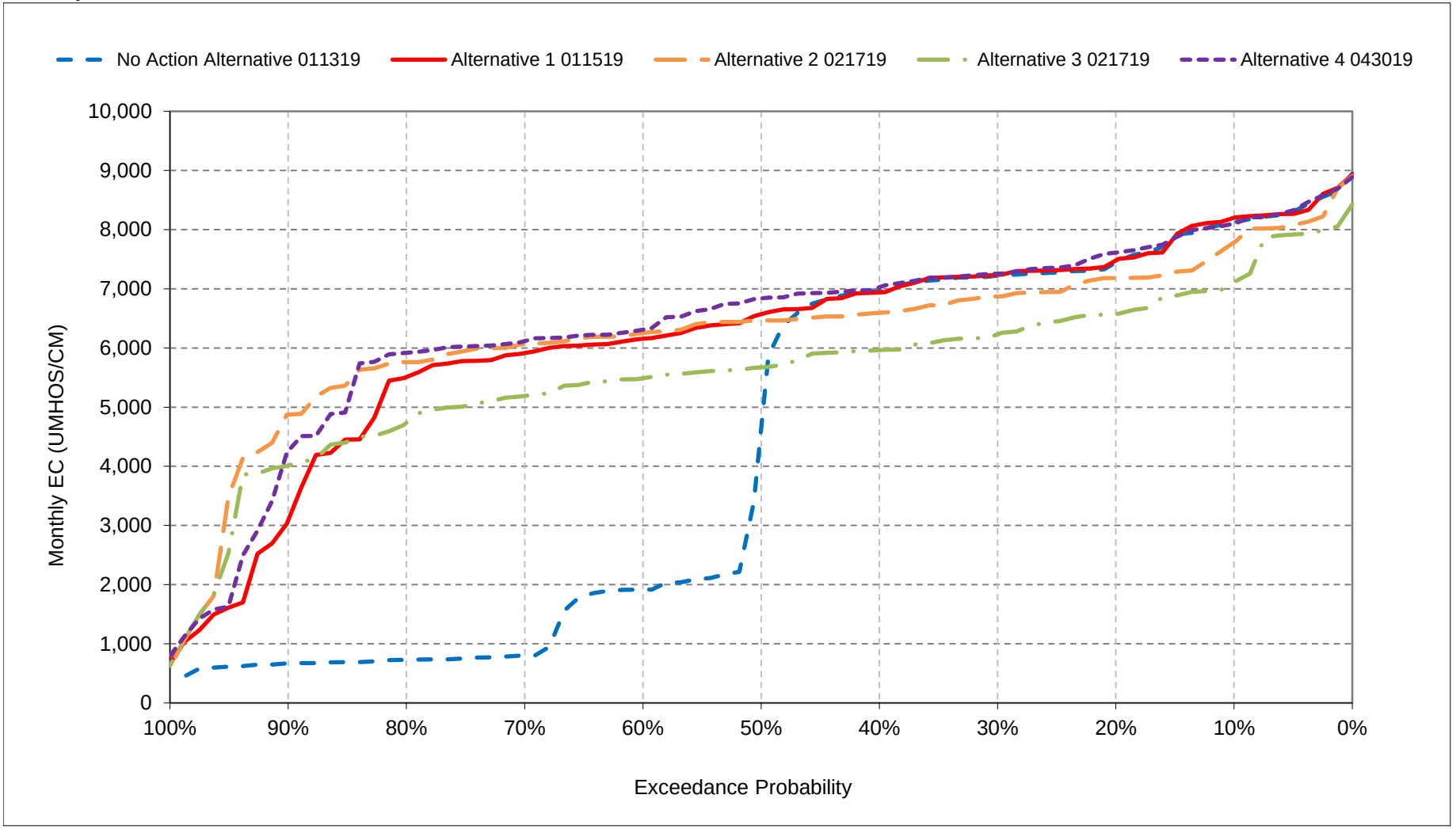
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-15. San Joaquin River at Antioch
Salinity, September EC



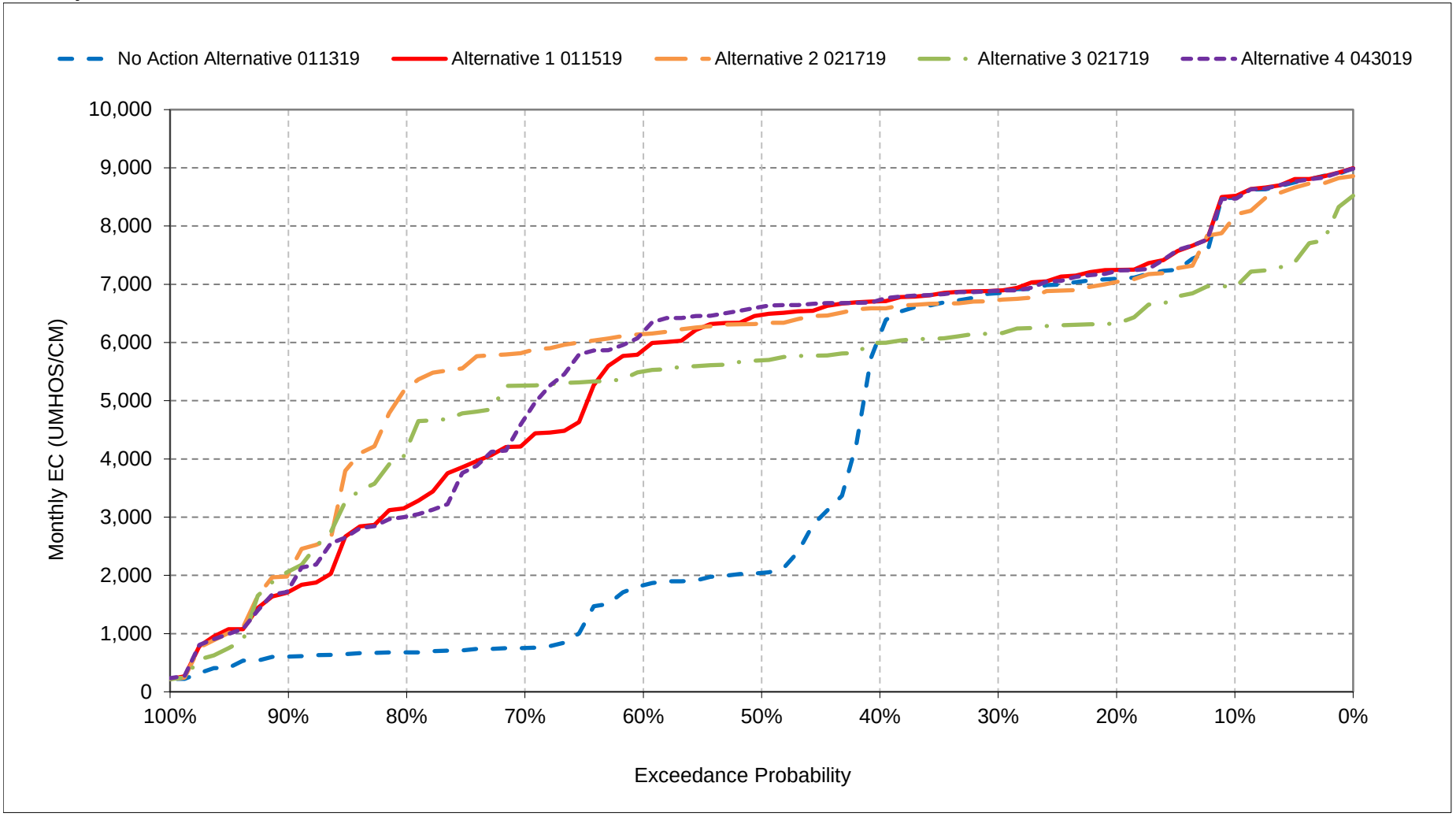
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-16. San Joaquin River at Antioch
Salinity, October EC



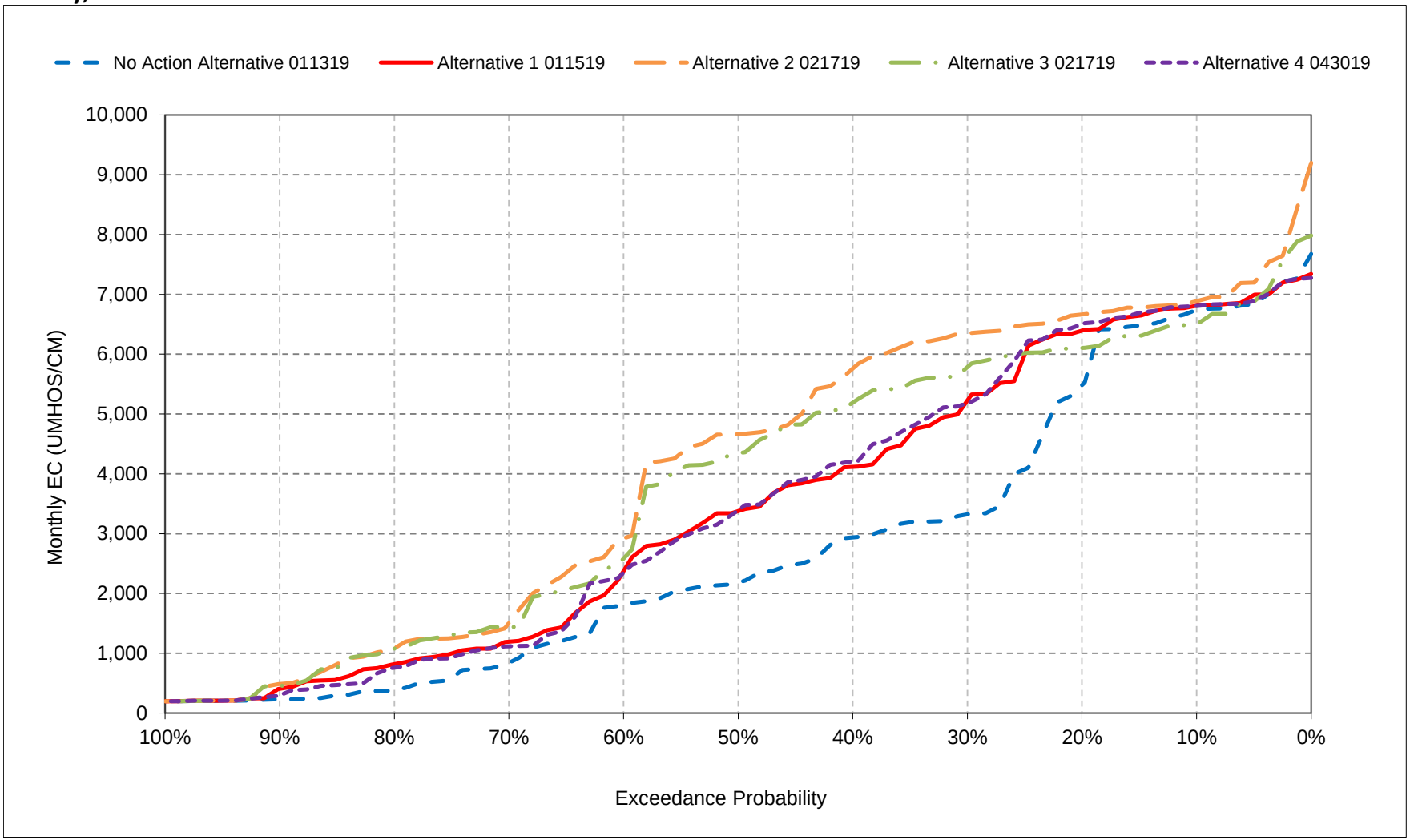
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-17. San Joaquin River at Antioch
Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 9-18. San Joaquin River at Antioch
Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 10-1. Sacramento River at Mallard Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,173	15,607	13,402	8,674	3,845	3,203	4,090	5,729	7,301	9,811	12,233	13,569
20%	14,118	13,796	11,717	7,375	2,503	2,299	2,316	4,804	6,486	8,500	11,031	12,899
30%	13,976	13,602	8,362	5,953	1,301	1,041	1,682	3,949	6,007	7,871	10,812	12,806
40%	13,642	12,455	7,403	3,581	731	820	998	2,263	5,353	6,414	9,291	12,033
50%	10,566	6,114	6,175	2,517	470	475	687	1,670	4,449	5,727	8,256	10,945
60%	6,270	5,817	5,551	1,306	277	295	399	1,057	3,993	4,537	7,973	5,885
70%	3,157	3,125	2,438	323	217	213	288	740	3,079	4,153	7,585	3,228
80%	3,056	2,808	840	216	201	198	212	319	1,900	3,875	7,177	2,999
90%	2,900	2,690	317	194	192	192	195	195	527	3,235	6,787	2,933
Long Term												
Full Simulation Period[a]	9,158	8,217	6,363	3,679	1,491	1,148	1,458	2,470	4,542	6,134	9,004	8,537
Water Year Types[b]												
Wet (32%)	2,982	2,667	3,581	770	244	274	315	590	2,028	3,444	7,118	2,974
Above Normal (16%)	6,039	5,530	5,449	1,722	510	345	450	1,079	3,801	4,349	7,277	5,880
Below Normal (13%)	12,324	11,196	7,654	4,537	1,742	1,536	1,737	2,725	5,084	5,988	8,499	11,498
Dry (24%)	13,795	11,226	6,904	5,807	2,193	1,331	1,749	3,284	5,560	8,128	10,770	12,738
Critical (15%)	15,289	15,405	11,295	7,767	3,854	3,250	4,282	6,459	8,600	10,709	12,480	13,749

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,214	15,650	13,410	9,793	4,500	4,018	4,806	5,816	7,264	9,491	12,378	13,687
20%	14,191	13,902	12,830	7,953	2,542	2,425	3,067	5,084	6,582	8,613	11,208	13,050
30%	13,998	13,644	11,186	5,930	1,549	1,084	2,089	4,500	6,156	8,126	10,909	12,916
40%	13,487	13,107	9,493	3,588	849	834	1,553	3,031	5,463	6,411	9,078	11,901
50%	12,696	12,825	8,320	2,402	437	478	936	2,382	4,846	5,730	8,241	10,892
60%	12,309	11,877	6,188	1,265	239	282	563	1,802	4,310	4,632	7,888	10,477
70%	11,926	10,011	2,757	311	214	208	322	1,086	3,224	4,277	7,516	10,311
80%	11,404	8,156	1,358	212	200	198	209	376	1,987	3,886	7,255	10,145
90%	8,281	4,304	468	196	192	192	191	199	520	3,213	6,987	9,560
Long Term												
Full Simulation Period[a]	12,217	11,079	7,324	3,761	1,599	1,252	1,704	2,916	4,697	6,174	9,030	11,219
Water Year Types[b]												
Wet (32%)	9,728	8,763	5,664	694	234	270	430	888	2,123	3,487	7,058	9,216
Above Normal (16%)	11,573	10,860	7,287	1,725	467	351	645	1,605	3,896	4,405	7,352	10,335
Below Normal (13%)	12,186	11,432	7,619	4,690	1,870	1,628	2,069	3,418	5,394	5,972	8,415	11,281
Dry (24%)	14,029	11,409	6,935	6,106	2,337	1,429	2,065	3,746	5,701	8,127	10,881	12,810
Critical (15%)	15,314	15,457	11,336	7,850	4,303	3,717	4,676	6,884	8,829	10,843	12,598	13,811

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**42**	**43**	**8**	**1,118**	**655**	**815**	**716**	**87**	-37	-321	**145**	**117**
20%	**72**	**107**	**1,114**	**577**	**39**	**126**	**752**	**280**	**96**	**113**	**177**	**151**
30%	**22**	**42**	**2,824**	-23	**248**	**43**	**407**	**551**	**149**	**255**	**98**	**110**
40%	-155	**652**	**2,090**	**8**	**118**	**14**	**554**	**768**	**110**	-3	-214	-132
50%	**2,130**	**6,712**	**2,145**	-116	-32	**2**	**250**	**713**	**397**	**3**	-15	-52
60%	**6,039**	**6,060**	**637**	-40	-37	-13	**164**	**745**	**317**	**95**	-85	**4,592**
70%	**8,769**	**6,886**	**319**	-12	-3	-4	**34**	**345**	**145**	**124**	-69	**7,083**
80%	**8,348**	**5,348**	**518**	-3	0	**0**	-2	**57**	**88**	**11**	**78**	**7,147**
90%	**5,382**	**1,614**	**151**	**2**	**1**	**0**	-4	**4**	-7	-23	**200**	**6,627**
Long Term												
Full Simulation Period[a]	**3,058**	**2,862**	**961**	**82**	**108**	**104**	**247**	**446**	**155**	**40**	**26**	**2,683**
Water Year Types[b]												
Wet (32%)	**6,746**	**6,096**	**2,083**	-76	-10	-4	**114**	**298**	**95**	**43**	-60	**6,242**
Above Normal (16%)	**5,534**	**5,330**	**1,838**	**3**	-43	**6**	**196**	**527**	**96**	**56**	**76**	**4,455**
Below Normal (13%)	-138	**235**	-35	**152**	**128**	**91**	**332**	**693**	**310**	-16	-84	-217
Dry (24%)	**234**	**184**	**31**	**298**	**144**	**98**	**316**	**462**	**141**	0	**111**	**72**
Critical (15%)	**24**	**52**	**41**	**83**	**449**	**467**	**394**	**426**	**229**	**134**	**118**	**62**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 10-2. Sacramento River at Mallard Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,173	15,607	13,402	8,674	3,845	3,203	4,090	5,729	7,301	9,811	12,233	13,569
20%	14,118	13,796	11,717	7,375	2,503	2,299	2,316	4,804	6,486	8,500	11,031	12,899
30%	13,976	13,602	8,362	5,953	1,301	1,041	1,682	3,949	6,007	7,871	10,812	12,806
40%	13,642	12,455	7,403	3,581	731	820	998	2,263	5,353	6,414	9,291	12,033
50%	10,566	6,114	6,175	2,517	470	475	687	1,670	4,449	5,727	8,256	10,945
60%	6,270	5,817	5,551	1,306	277	295	399	1,057	3,993	4,537	7,973	5,885
70%	3,157	3,125	2,438	323	217	213	288	740	3,079	4,153	7,585	3,228
80%	3,056	2,808	840	216	201	198	212	319	1,900	3,875	7,177	2,999
90%	2,900	2,690	317	194	192	192	195	195	527	3,235	6,787	2,933
Long Term												
Full Simulation Period[a]	9,158	8,217	6,363	3,679	1,491	1,148	1,458	2,470	4,542	6,134	9,004	8,537
Water Year Types[b]												
Wet (32%)	2,982	2,667	3,581	770	244	274	315	590	2,028	3,444	7,118	2,974
Above Normal (16%)	6,039	5,530	5,449	1,722	510	345	450	1,079	3,801	4,349	7,277	5,880
Below Normal (13%)	12,324	11,196	7,654	4,537	1,742	1,536	1,737	2,725	5,084	5,988	8,499	11,498
Dry (24%)	13,795	11,226	6,904	5,807	2,193	1,331	1,749	3,284	5,560	8,128	10,770	12,738
Critical (15%)	15,289	15,405	11,295	7,767	3,854	3,250	4,282	6,459	8,600	10,709	12,480	13,749

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,809	15,163	13,438	10,532	5,910	4,501	4,902	5,828	7,102	9,476	12,049	13,558
20%	13,946	13,728	13,119	9,732	3,781	2,597	3,309	4,806	6,124	8,517	11,048	12,886
30%	13,441	13,256	12,535	8,391	2,522	1,425	2,499	4,228	5,249	7,910	10,762	12,711
40%	13,111	13,016	12,027	5,728	1,007	1,132	1,848	3,497	4,372	6,481	9,451	12,160
50%	12,864	12,822	10,291	4,129	722	645	1,087	2,606	3,850	5,667	8,578	11,114
60%	12,496	12,376	7,353	1,841	347	300	686	1,981	3,417	4,747	8,025	10,675
70%	12,180	12,037	4,449	437	218	216	348	1,304	3,182	4,281	7,729	10,490
80%	11,825	11,339	1,813	234	203	199	218	480	2,544	3,879	7,527	10,272
90%	10,767	5,031	540	195	192	191	192	199	589	3,237	7,059	9,791
Long Term												
Full Simulation Period[a]	12,451	11,605	8,344	4,803	1,993	1,393	1,825	2,949	4,267	6,127	9,151	11,266
Water Year Types[b]												
Wet (32%)	10,714	10,045	6,570	1,127	272	300	463	901	2,002	3,590	7,213	9,375
Above Normal (16%)	12,394	12,028	8,782	2,518	660	387	751	1,841	3,224	4,313	7,609	10,562
Below Normal (13%)	12,222	11,946	8,461	6,490	2,404	1,734	2,301	3,385	4,020	5,915	8,908	11,315
Dry (24%)	13,408	11,031	7,584	7,515	2,935	1,725	2,257	3,678	5,410	8,043	10,842	12,705
Critical (15%)	14,896	15,168	12,871	9,180	5,222	3,989	4,784	6,968	8,625	10,592	12,426	13,681

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-363	-444	**35**	**1,858**	**2,064**	**1,298**	**811**	**100**	-200	-335	-184	-12
20%	-172	-67	**1,402**	**2,357**	**1,278**	**298**	**993**	**2**	-362	**17**	**16**	-13
30%	-534	-346	**4,174**	**2,438**	**1,221**	**384**	**817**	**279**	-757	**39**	-49	-94
40%	-531	**561**	**4,624**	**2,148**	**277**	**312**	**850**	**1,234**	-981	**68**	**160**	**128**
50%	**2,298**	**6,709**	**4,116**	**1,611**	**252**	**170**	**400**	**937**	-599	-60	**322**	**169**
60%	**6,226**	**6,559**	**1,802**	**536**	**70**	**5**	**287**	**924**	-576	**210**	**52**	**4,790**
70%	**9,023**	**8,913**	**2,011**	**114**	**1**	**4**	**60**	**563**	**103**	**128**	**145**	**7,262**
80%	**8,769**	**8,531**	**973**	**18**	**2**	**1**	**7**	**161**	**645**	**4**	**350**	**7,273**
90%	**7,867**	**2,341**	**223**	**1**	**1**	-1	-3	**4**	**62**	**2**	**272**	**6,858**
Long Term												
Full Simulation Period[a]	**3,293**	**3,388**	**1,981**	**1,124**	**503**	**245**	**367**	**479**	-275	-7	**147**	**2,729**
Water Year Types[b]												
Wet (32%)	**7,731**	**7,378**	**2,989**	**357**	**28**	**25**	**147**	**311**	-26	**145**	**95**	**6,401**
Above Normal (16%)	**6,355**	**6,498**	**3,333**	**796**	**149**	**42**	**301**	**762**	-576	-36	**332**	**4,682**
Below Normal (13%)	-102	**750**	**807**	**1,952**	**662**	**197**	**565**	**660**	-1,064	-73	**409**	-183
Dry (24%)	-387	-195	**680**	**1,707**	**743**	**393**	**507**	**394**	-150	-84	**72**	-33
Critical (15%)	-393	-237	**1,576**	**1,413**	**1,368**	**739**	**502**	**509**	**25**	-118	-54	-68

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 10-3. Sacramento River at Mallard Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,173	15,607	13,402	8,674	3,845	3,203	4,090	5,729	7,301	9,811	12,233	13,569
20%	14,118	13,796	11,717	7,375	2,503	2,299	2,316	4,804	6,486	8,500	11,031	12,899
30%	13,976	13,602	8,362	5,953	1,301	1,041	1,682	3,949	6,007	7,871	10,812	12,806
40%	13,642	12,455	7,403	3,581	731	820	998	2,263	5,353	6,414	9,291	12,033
50%	10,566	6,114	6,175	2,517	470	475	687	1,670	4,449	5,727	8,256	10,945
60%	6,270	5,817	5,551	1,306	277	295	399	1,057	3,993	4,537	7,973	5,885
70%	3,157	3,125	2,438	323	217	213	288	740	3,079	4,153	7,585	3,228
80%	3,056	2,808	840	216	201	198	212	319	1,900	3,875	7,177	2,999
90%	2,900	2,690	317	194	192	192	195	195	527	3,235	6,787	2,933
Long Term												
Full Simulation Period[a]	9,158	8,217	6,363	3,679	1,491	1,148	1,458	2,470	4,542	6,134	9,004	8,537
Water Year Types[b]												
Wet (32%)	2,982	2,667	3,581	770	244	274	315	590	2,028	3,444	7,118	2,974
Above Normal (16%)	6,039	5,530	5,449	1,722	510	345	450	1,079	3,801	4,349	7,277	5,880
Below Normal (13%)	12,324	11,196	7,654	4,537	1,742	1,536	1,737	2,725	5,084	5,988	8,499	11,498
Dry (24%)	13,795	11,226	6,904	5,807	2,193	1,331	1,749	3,284	5,560	8,128	10,770	12,738
Critical (15%)	15,289	15,405	11,295	7,767	3,854	3,250	4,282	6,459	8,600	10,709	12,480	13,749

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,109	14,099	13,261	10,559	5,973	4,388	4,762	5,911	7,114	9,639	12,087	13,494
20%	13,366	13,074	12,780	9,731	4,078	2,647	3,356	4,842	6,077	8,452	10,935	12,688
30%	12,891	12,793	12,242	8,163	2,564	1,427	2,474	4,355	5,307	7,936	10,607	12,367
40%	12,497	12,567	11,260	5,986	1,065	1,035	1,827	3,516	4,467	6,493	9,387	11,994
50%	12,226	12,087	10,141	4,279	707	673	1,053	2,712	4,128	5,654	8,473	10,948
60%	11,765	11,785	7,158	1,907	361	307	643	2,000	3,813	4,779	7,898	10,616
70%	11,399	11,397	4,780	471	220	219	356	1,378	3,467	4,336	7,640	10,219
80%	10,899	9,962	1,926	238	204	200	222	494	2,558	4,068	7,399	10,062
90%	9,796	5,323	554	197	193	192	194	201	599	3,330	7,123	9,168
Long Term												
Full Simulation Period[a]	11,835	11,094	8,201	4,825	2,064	1,412	1,807	2,991	4,403	6,185	9,059	11,038
Water Year Types[b]												
Wet (32%)	10,314	9,710	6,371	1,140	279	304	416	1,025	2,111	3,640	7,192	9,201
Above Normal (16%)	11,702	11,446	8,482	2,504	664	393	754	1,862	3,505	4,321	7,431	10,020
Below Normal (13%)	11,655	11,341	8,382	6,641	2,308	1,677	2,261	3,411	4,249	5,976	8,852	11,241
Dry (24%)	12,482	10,544	7,601	7,645	3,130	1,748	2,242	3,654	5,403	8,052	10,686	12,496
Critical (15%)	14,359	14,397	12,697	8,961	5,443	4,115	4,820	6,983	8,819	10,799	12,343	13,503

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,063	-1,508	-141	**1,885**	**2,127**	**1,185**	**671**	**182**	-188	-172	-146	-75
20%	-752	-722	**1,064**	**2,356**	**1,575**	**348**	**1,040**	**38**	-409	-48	-96	-212
30%	-1,084	-809	**3,881**	**2,210**	**1,263**	**386**	**792**	**407**	-700	**65**	-205	-439
40%	-1,145	**113**	**3,857**	**2,405**	**334**	**215**	**829**	**1,253**	-886	**79**	**95**	-39
50%	**1,661**	**5,973**	**3,967**	**1,762**	**237**	**197**	**367**	**1,043**	-321	-73	**217**	**3**
60%	**5,495**	**5,968**	**1,607**	**601**	**84**	**12**	**244**	**942**	-180	**242**	-75	**4,731**
70%	**8,242**	**8,272**	**2,343**	**147**	**3**	**6**	**68**	**637**	**388**	**184**	**55**	**6,991**
80%	**7,843**	**7,155**	**1,087**	**22**	**3**	**2**	**10**	**175**	**658**	**193**	**221**	**7,063**
90%	**6,897**	**2,633**	**237**	**3**	**1**	**0**	-1	**6**	**72**	**95**	**336**	**6,235**
Long Term												
Full Simulation Period[a]	**2,676**	**2,877**	**1,838**	**1,146**	**573**	**264**	**350**	**521**	-139	**51**	**55**	**2,501**
Water Year Types[b]												
Wet (32%)	**7,332**	**7,043**	**2,790**	**370**	**35**	**30**	**101**	**435**	**83**	**196**	**74**	**6,227**
Above Normal (16%)	**5,663**	**5,916**	**3,033**	**782**	**153**	**47**	**305**	**784**	-296	-28	**154**	**4,140**
Below Normal (13%)	-669	**145**	**728**	**2,104**	**567**	**141**	**525**	**687**	-835	-12	**353**	-257
Dry (24%)	-1,313	-681	**697**	**1,838**	**938**	**417**	**493**	**370**	-157	-76	-84	-242
Critical (15%)	-930	-1,008	**1,402**	**1,194**	**1,589**	**865**	**538**	**524**	**220**	**90**	-137	-246

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 10-4. Sacramento River at Mallard Slough Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,173	15,607	13,402	8,674	3,845	3,203	4,090	5,729	7,301	9,811	12,233	13,569
20%	14,118	13,796	11,717	7,375	2,503	2,299	2,316	4,804	6,486	8,500	11,031	12,899
30%	13,976	13,602	8,362	5,953	1,301	1,041	1,682	3,949	6,007	7,871	10,812	12,806
40%	13,642	12,455	7,403	3,581	731	820	998	2,263	5,353	6,414	9,291	12,033
50%	10,566	6,114	6,175	2,517	470	475	687	1,670	4,449	5,727	8,256	10,945
60%	6,270	5,817	5,551	1,306	277	295	399	1,057	3,993	4,537	7,973	5,885
70%	3,157	3,125	2,438	323	217	213	288	740	3,079	4,153	7,585	3,228
80%	3,056	2,808	840	216	201	198	212	319	1,900	3,875	7,177	2,999
90%	2,900	2,690	317	194	192	192	195	195	527	3,235	6,787	2,933
Long Term												
Full Simulation Period[a]	9,158	8,217	6,363	3,679	1,491	1,148	1,458	2,470	4,542	6,134	9,004	8,537
Water Year Types[b]												
Wet (32%)	2,982	2,667	3,581	770	244	274	315	590	2,028	3,444	7,118	2,974
Above Normal (16%)	6,039	5,530	5,449	1,722	510	345	450	1,079	3,801	4,349	7,277	5,880
Below Normal (13%)	12,324	11,196	7,654	4,537	1,742	1,536	1,737	2,725	5,084	5,988	8,499	11,498
Dry (24%)	13,795	11,226	6,904	5,807	2,193	1,331	1,749	3,284	5,560	8,128	10,770	12,738
Critical (15%)	15,289	15,405	11,295	7,767	3,854	3,250	4,282	6,459	8,600	10,709	12,480	13,749

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,147	15,589	13,418	9,488	4,137	2,825	3,561	5,744	7,193	9,483	12,288	13,603
20%	14,201	13,849	13,051	7,717	2,436	1,319	2,020	4,824	6,501	8,605	11,205	13,068
30%	14,023	13,586	11,254	5,586	1,423	619	1,329	3,408	5,956	8,124	10,998	12,934
40%	13,753	13,234	9,907	3,349	789	462	741	2,028	5,361	6,695	9,292	12,301
50%	13,330	12,941	8,321	2,315	418	328	460	1,322	4,322	6,012	8,473	11,499
60%	12,536	12,221	6,224	1,129	231	230	291	853	3,823	4,650	7,919	10,777
70%	12,180	10,623	2,629	314	213	207	237	544	2,952	4,315	7,526	10,505
80%	11,838	7,840	1,274	210	201	200	208	263	1,840	4,162	7,296	10,342
90%	9,681	4,943	407	196	192	195	195	196	551	3,282	6,898	9,955
Long Term												
Full Simulation Period[a]	12,525	11,199	7,324	3,634	1,493	907	1,238	2,324	4,464	6,247	9,116	11,435
Water Year Types[b]												
Wet (32%)	10,265	9,181	5,848	646	223	236	292	527	1,943	3,558	7,125	9,493
Above Normal (16%)	12,096	11,136	7,155	1,700	423	254	341	831	3,678	4,475	7,307	10,426
Below Normal (13%)	12,473	11,019	7,601	4,344	1,698	945	1,200	2,486	5,046	6,177	8,816	11,864
Dry (24%)	14,107	11,405	6,843	5,991	2,190	918	1,452	3,165	5,526	8,236	10,988	12,967
Critical (15%)	15,296	15,461	11,257	7,626	4,056	3,017	3,933	6,288	8,476	10,744	12,541	13,786

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-25	-18	**16**	**814**	**291**	-378	-529	**15**	-109	-328	**55**	**34**
20%	**83**	**53**	**1,334**	**342**	-67	-980	-295	**20**	**15**	**105**	**173**	**169**
30%	**48**	-16	**2,892**	-367	**122**	-422	-353	-541	-51	**253**	**186**	**129**
40%	**112**	**780**	**2,504**	-231	**58**	-358	-258	-235	**8**	**281**	**1**	**268**
50%	**2,765**	**6,828**	**2,147**	-202	-52	-148	-227	-347	-127	**286**	**217**	**555**
60%	**6,266**	**6,403**	**673**	-176	-45	-65	-108	-204	-170	**113**	-54	**4,892**
70%	**9,023**	**7,498**	**192**	-10	-4	-5	-50	-196	-127	**162**	-59	**7,276**
80%	**8,782**	**5,032**	**434**	-6	**0**	**1**	-3	-57	-59	**287**	**119**	**7,344**
90%	**6,782**	**2,253**	**90**	**2**	**0**	**3**	**0**	**0**	**24**	**47**	**111**	**7,022**
Long Term												
Full Simulation Period[a]	**3,367**	**2,983**	**962**	-44	**2**	-241	-220	-145	-78	**113**	**112**	**2,898**
Water Year Types[b]												
Wet (32%)	**7,283**	**6,514**	**2,267**	-124	-21	-38	-23	-64	-85	**114**	**7**	**6,519**
Above Normal (16%)	**6,057**	**5,606**	**1,706**	-22	-88	-91	-108	-247	-122	**126**	**31**	**4,546**
Below Normal (13%)	**150**	-177	-53	-193	-44	-592	-537	-238	-39	**189**	**317**	**366**
Dry (24%)	**312**	**180**	-62	**183**	-3	-413	-297	-119	-34	**108**	**218**	**229**
Critical (15%)	**7**	**56**	-38	-141	**202**	-233	-348	-171	-124	**35**	**61**	**36**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

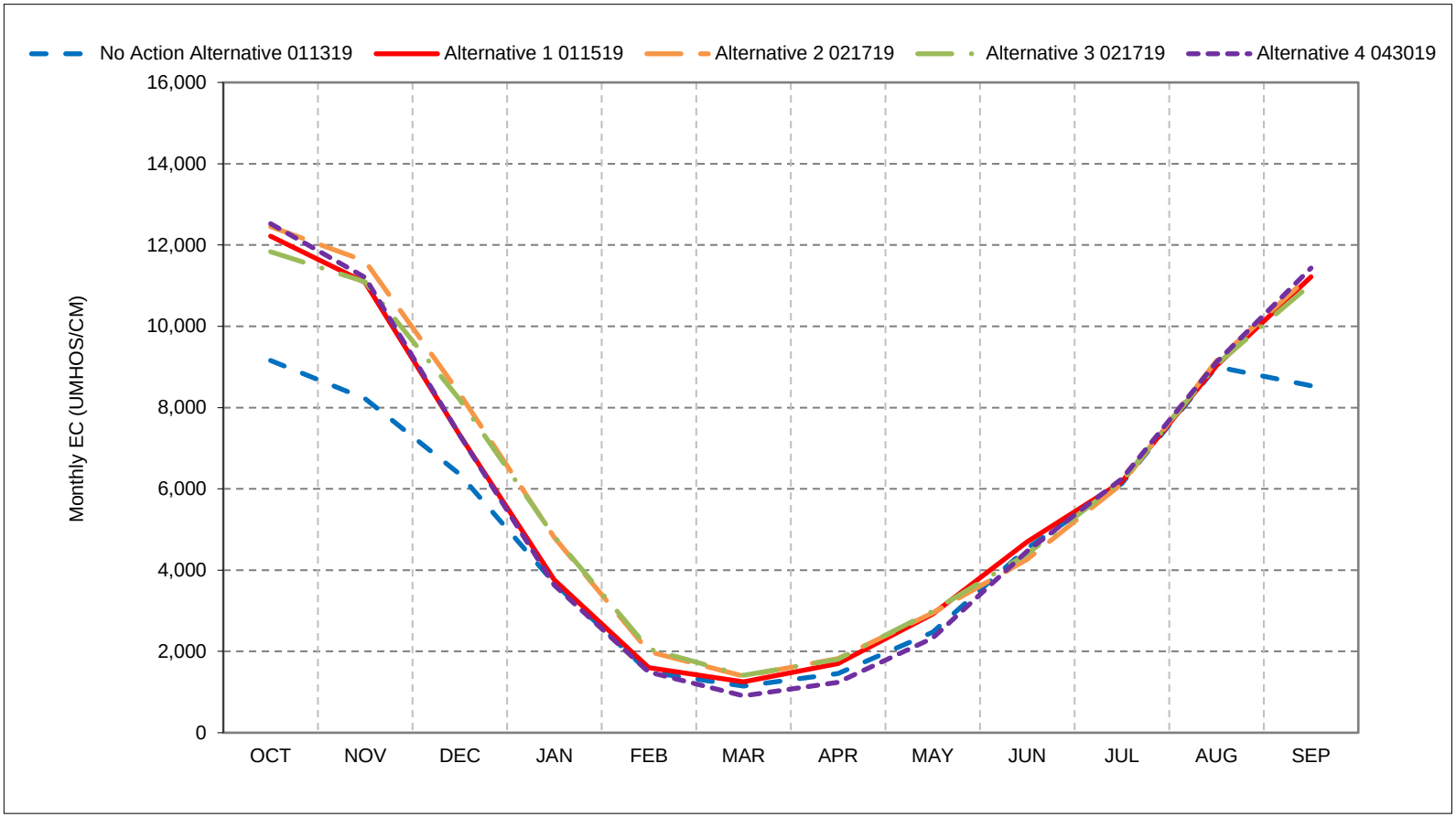
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-1. Sacramento River at Mallard Slough Salinity, Long-Term Average EC



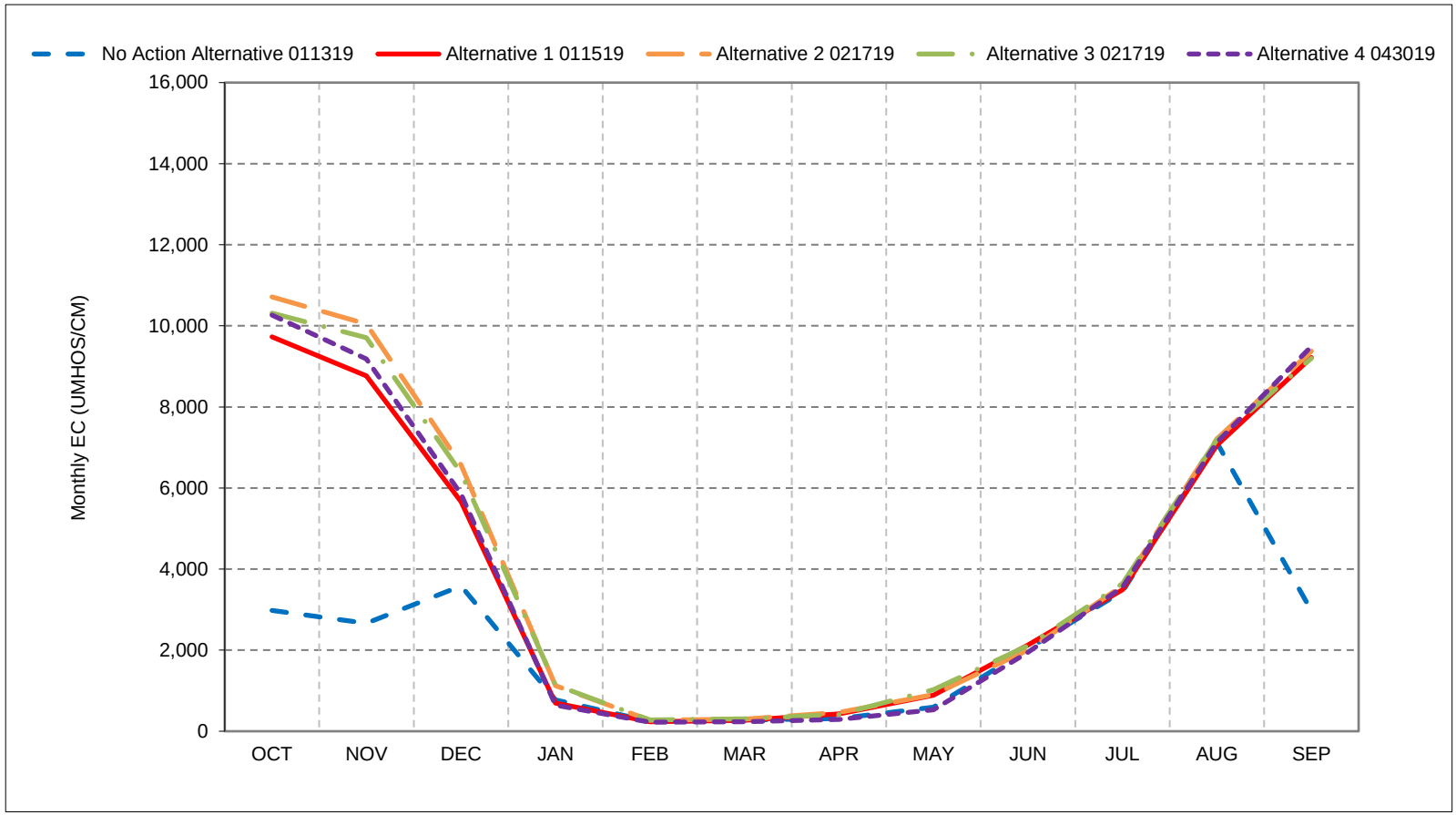
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-2. Sacramento River at Mallard Slough Salinity, Wet Year Average EC



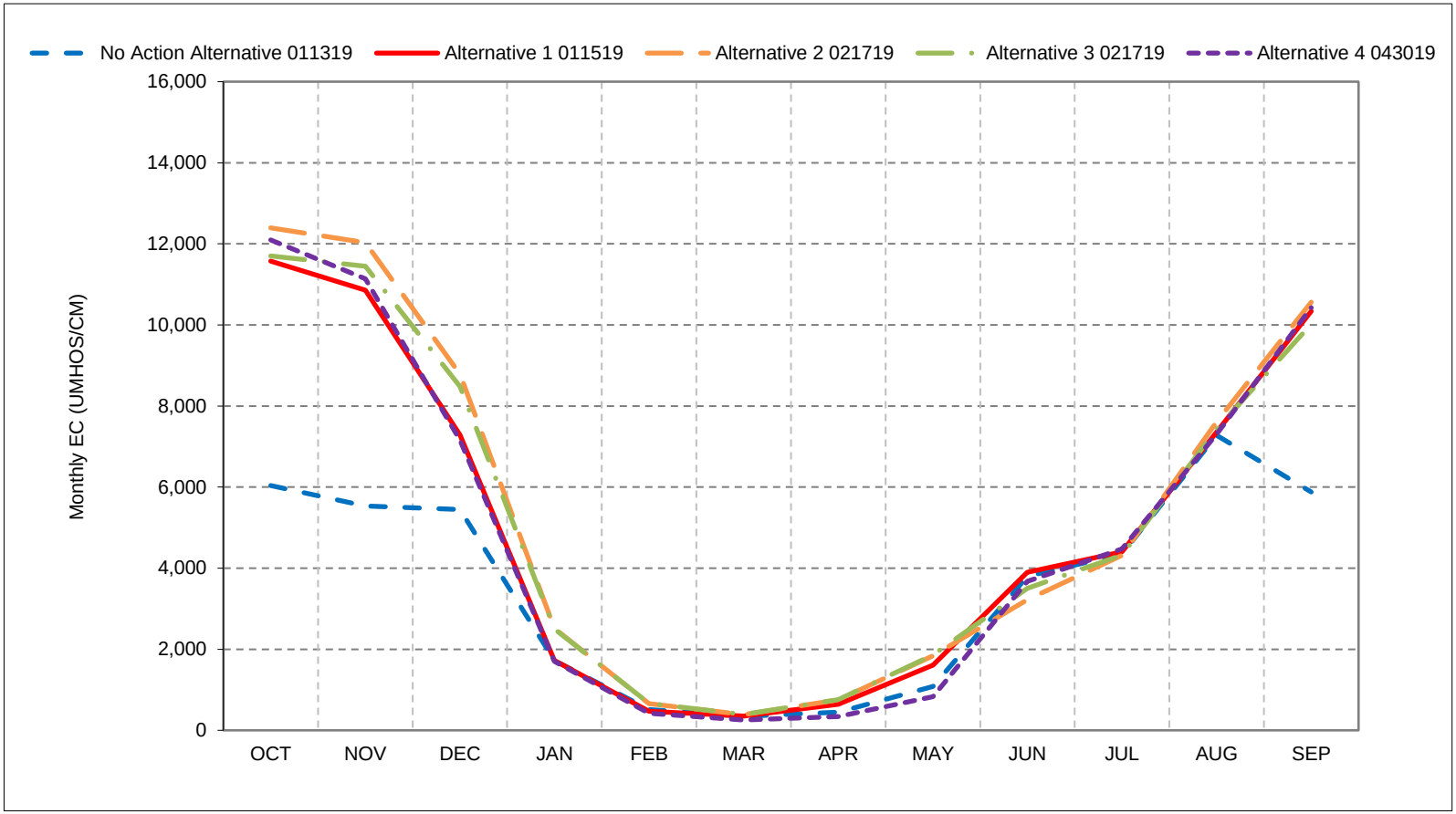
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-3. Sacramento River at Mallard Slough Salinity, Above Normal Year Average EC



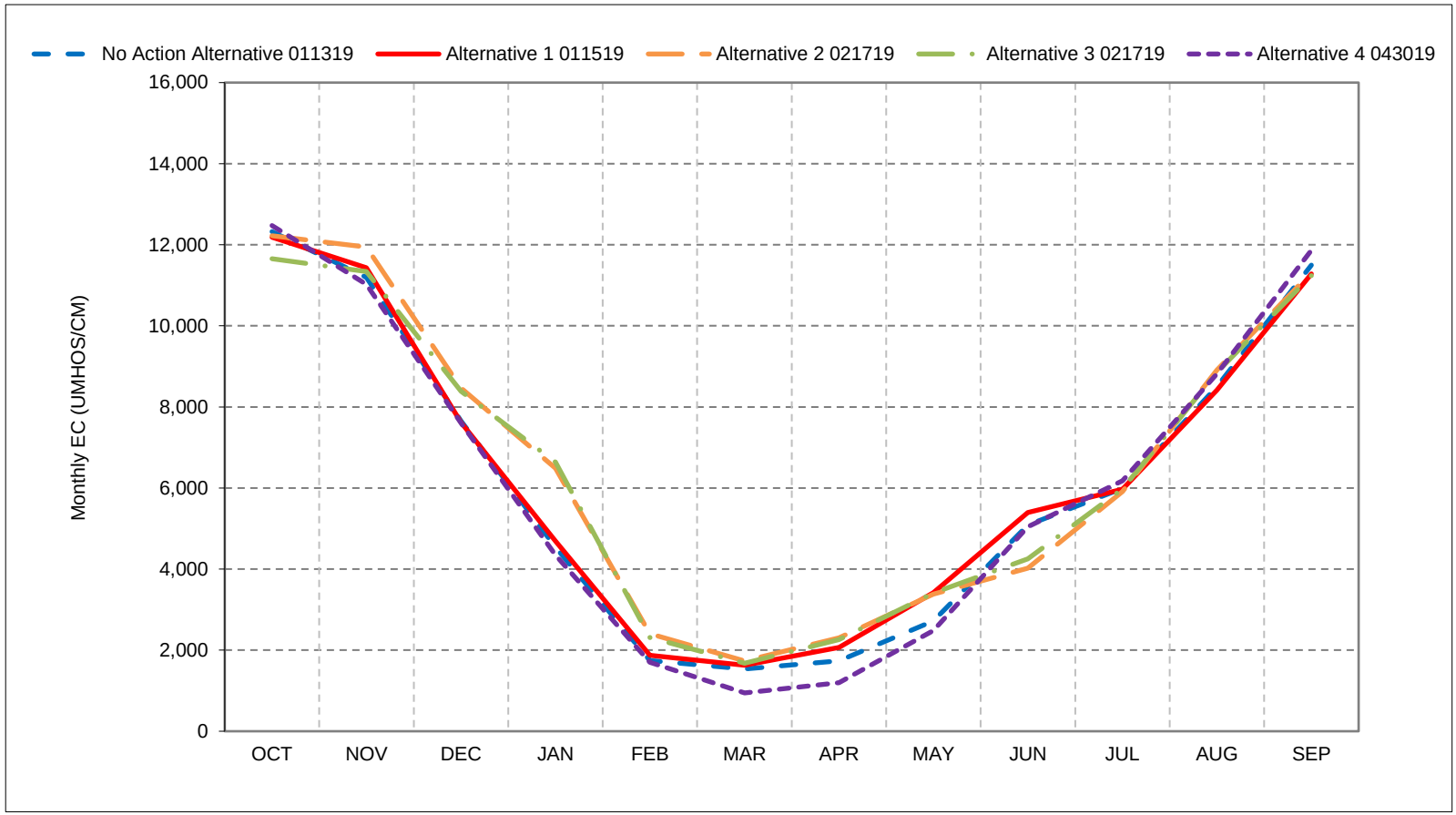
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-4. Sacramento River at Mallard Slough Salinity, Below Normal Year Average EC



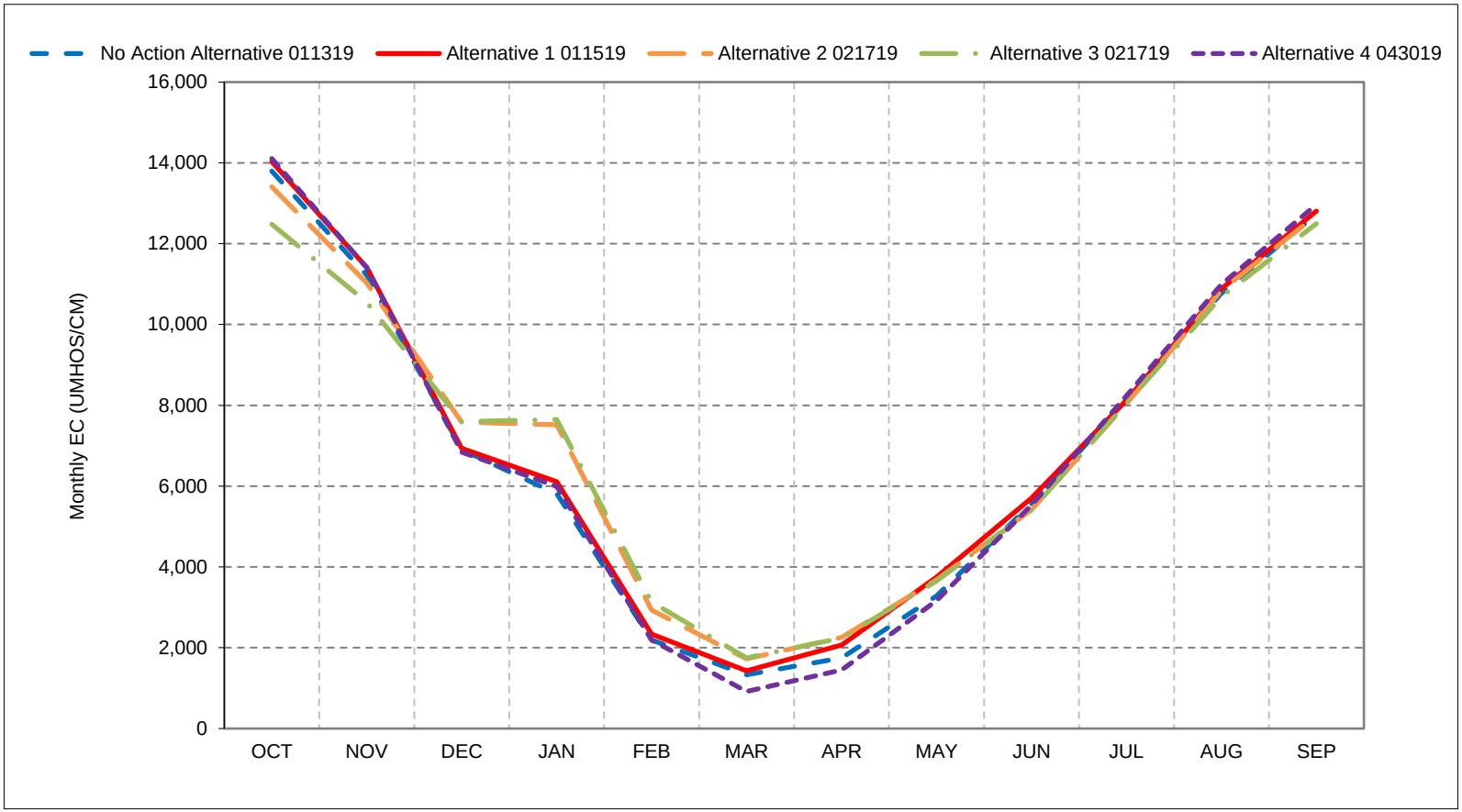
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-5. Sacramento River at Mallard Slough Salinity, Dry Year Average EC



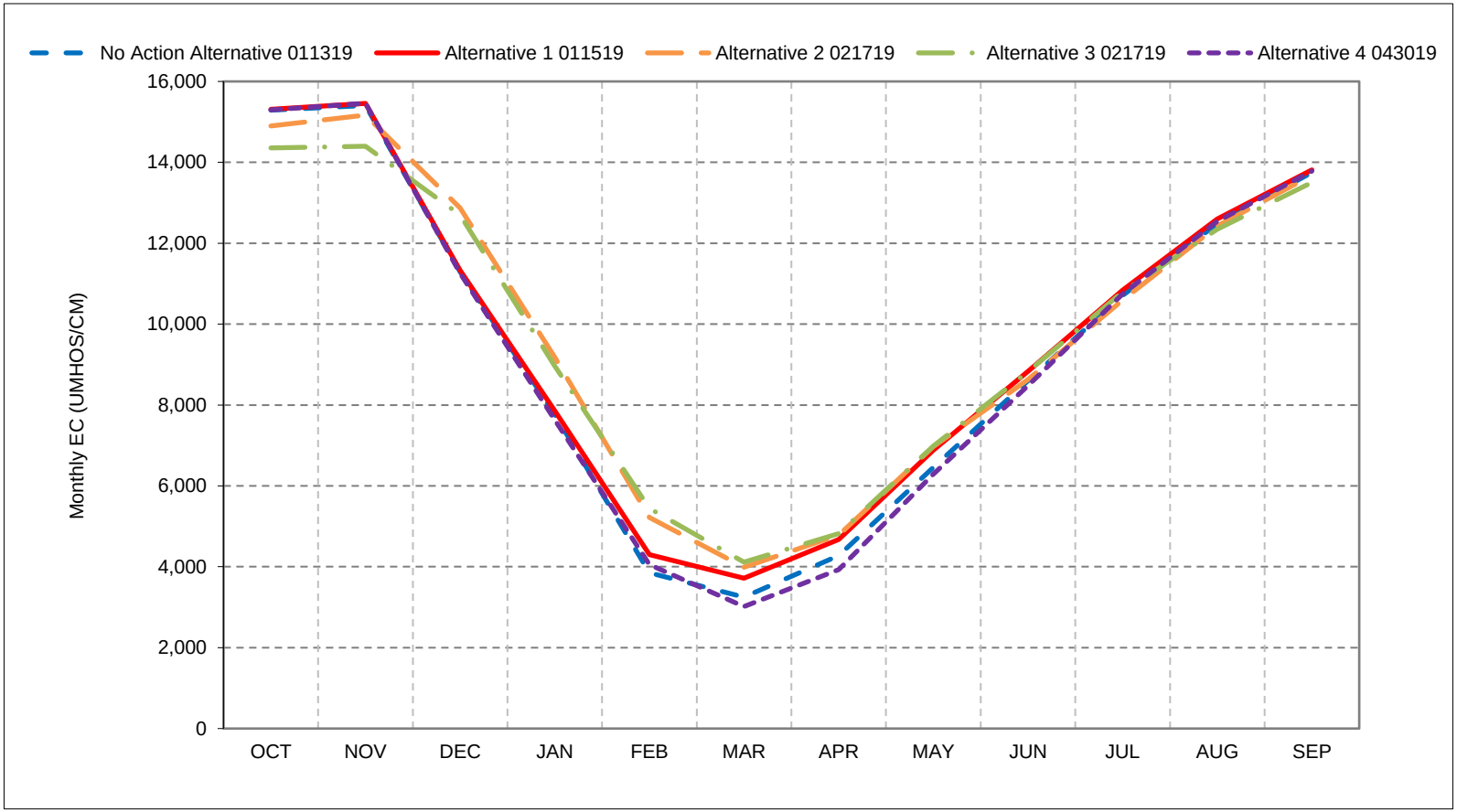
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-6. Sacramento River at Mallard Slough Salinity, Critical Year Average EC



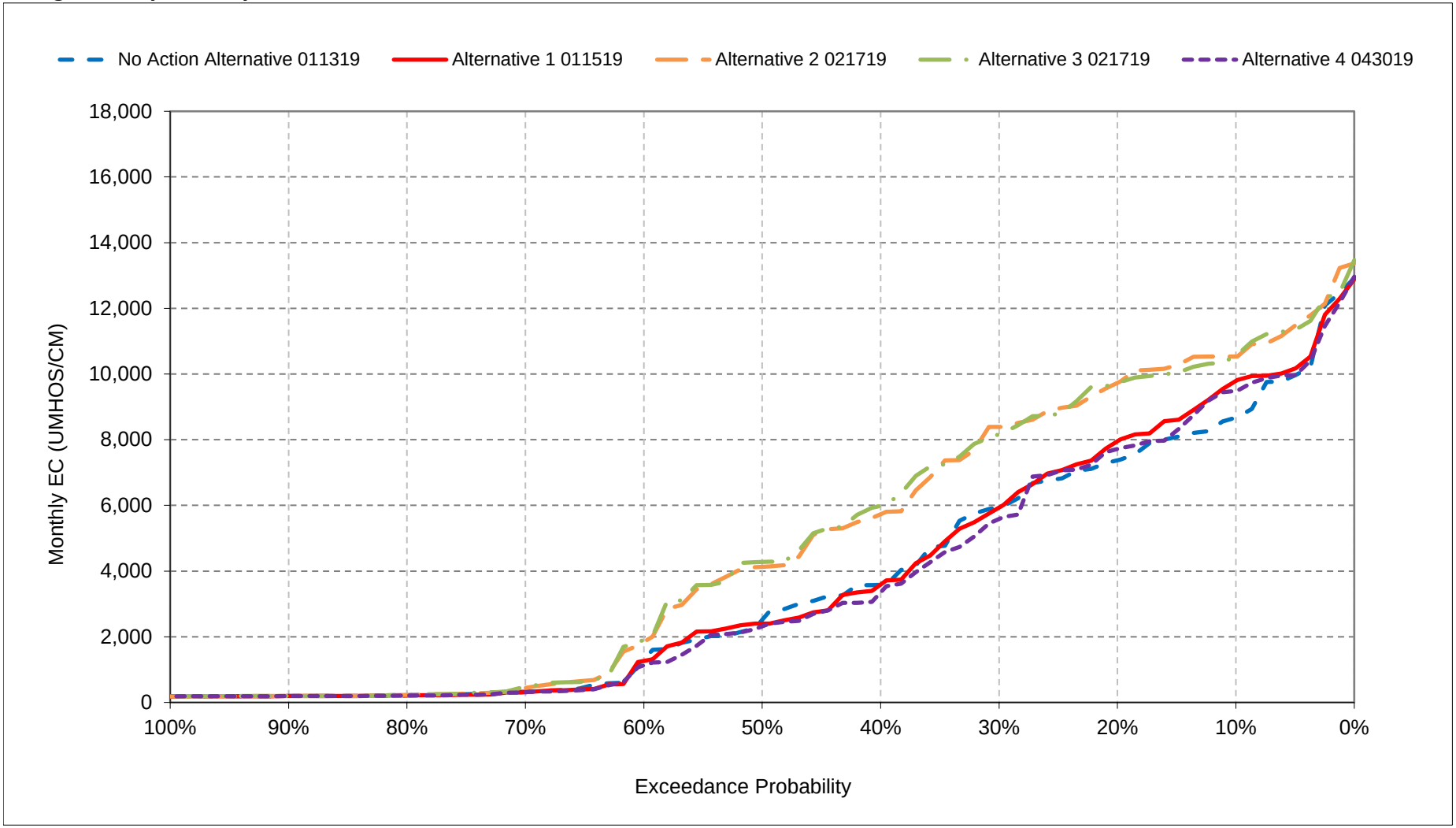
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

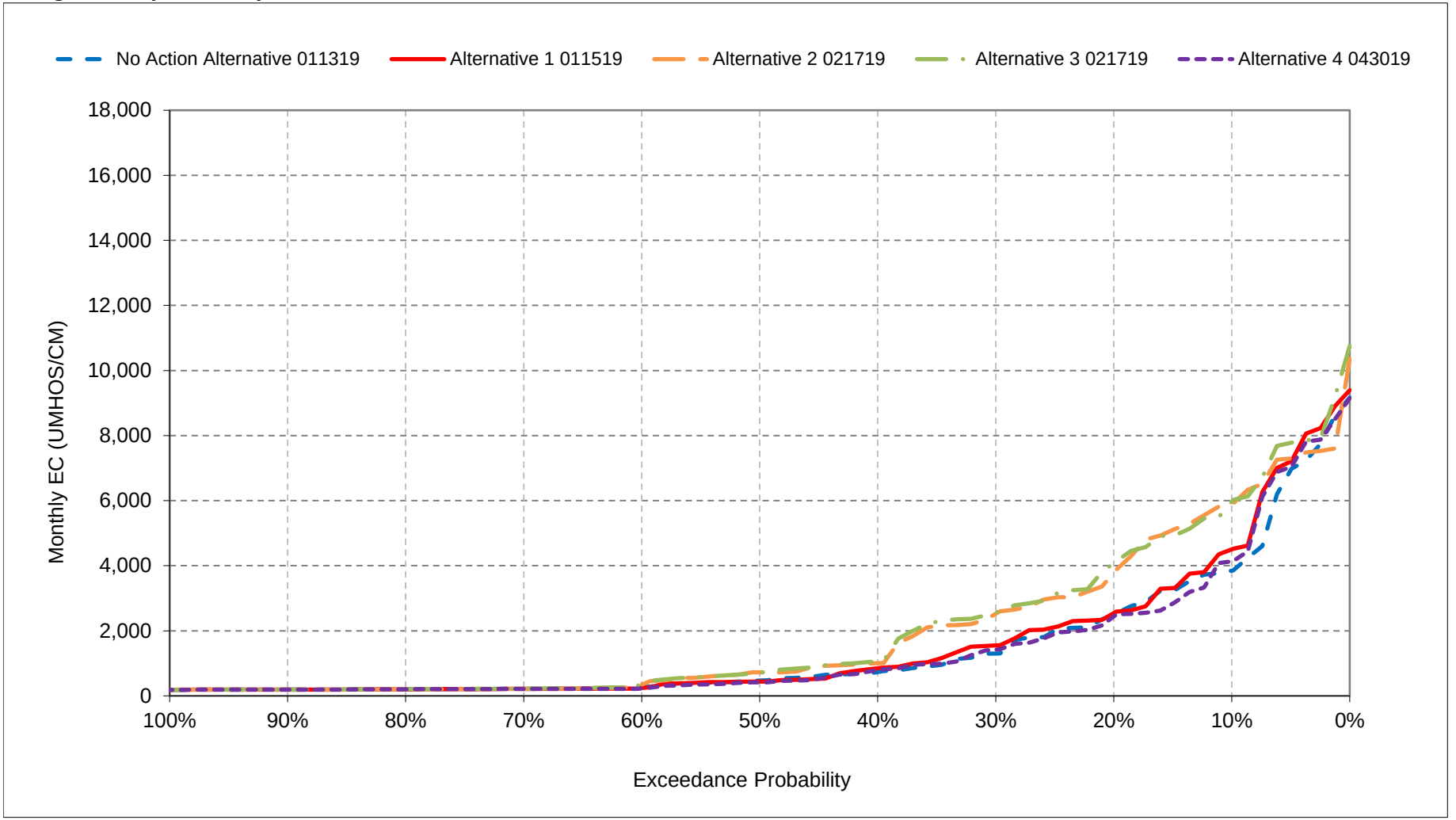
Figure 10-7. Sacramento River at Mallard Slough Salinity, January EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

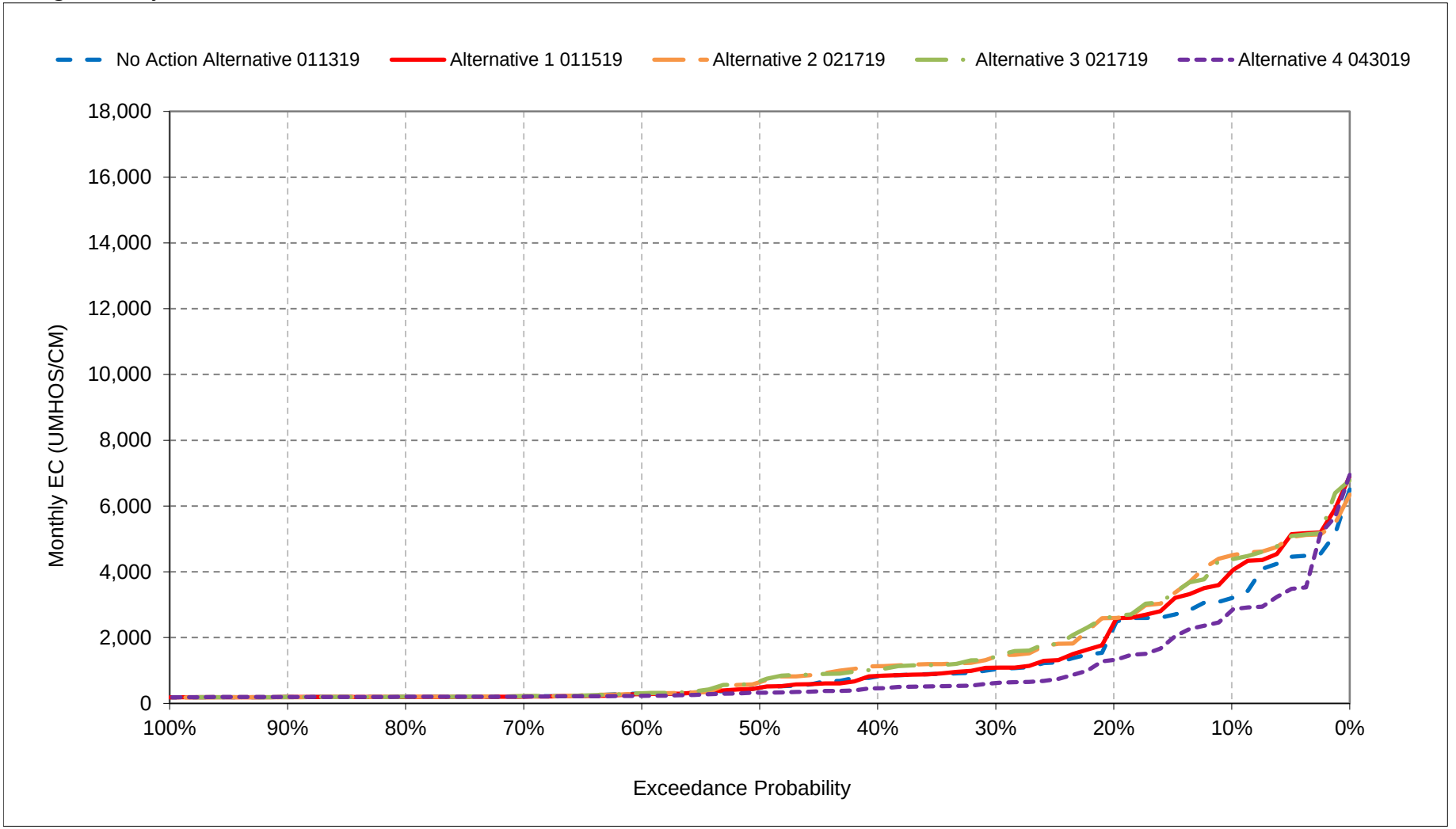
Figure 10-8. Sacramento River at Mallard Slough Salinity, February EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

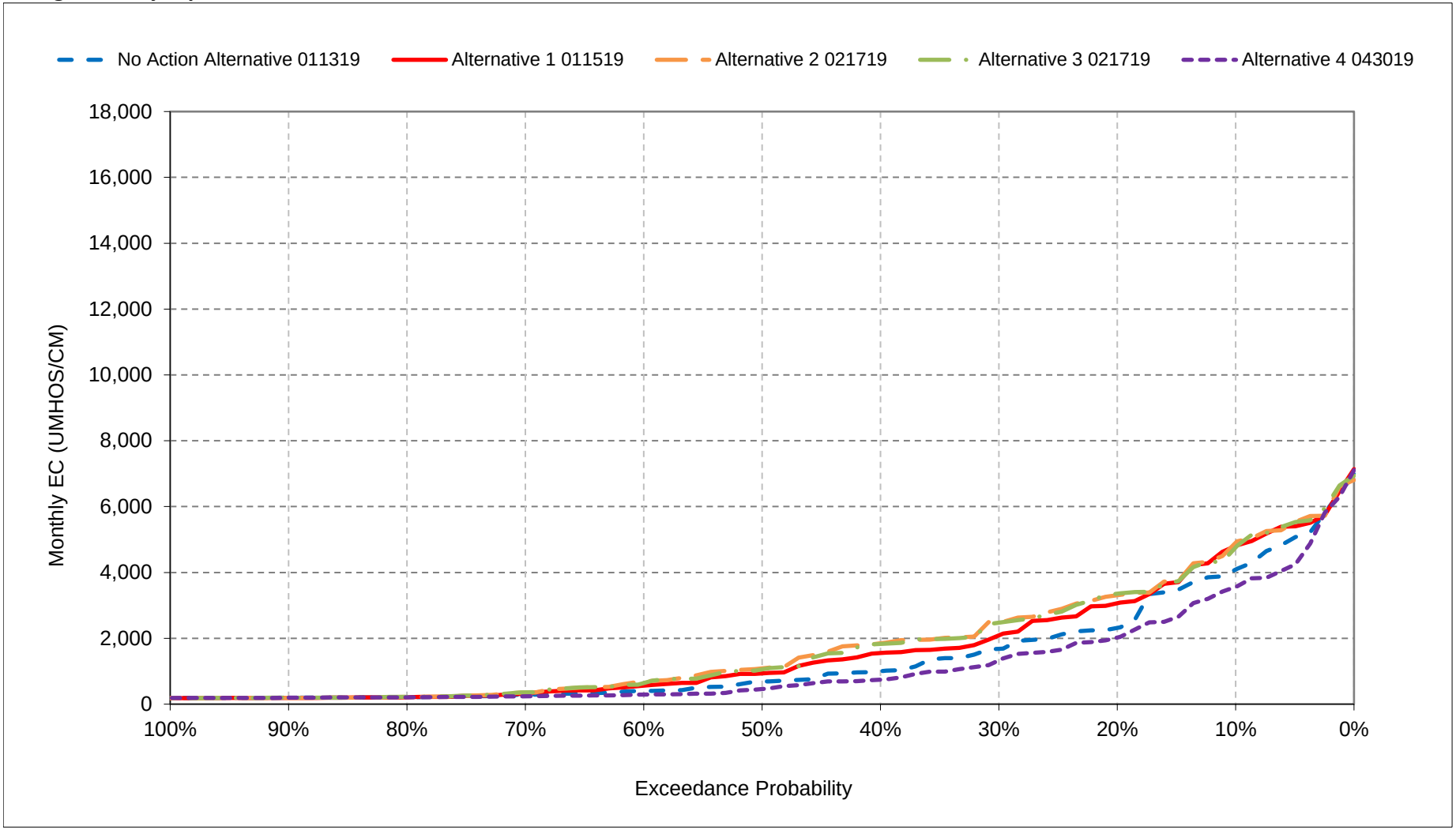
Figure 10-9. Sacramento River at Mallard Slough Salinity, March EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

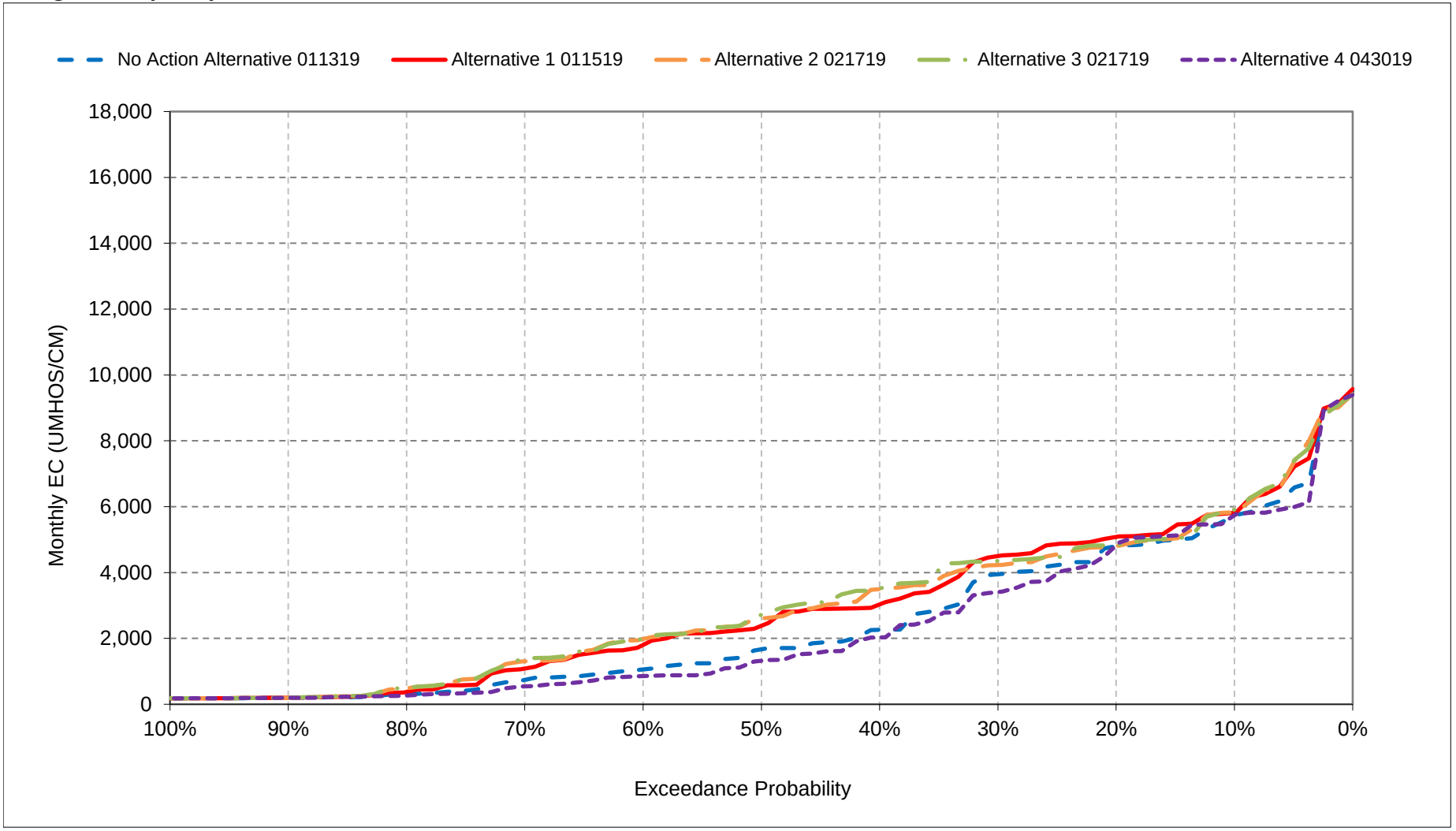
Figure 10-10. Sacramento River at Mallard Slough Salinity, April EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

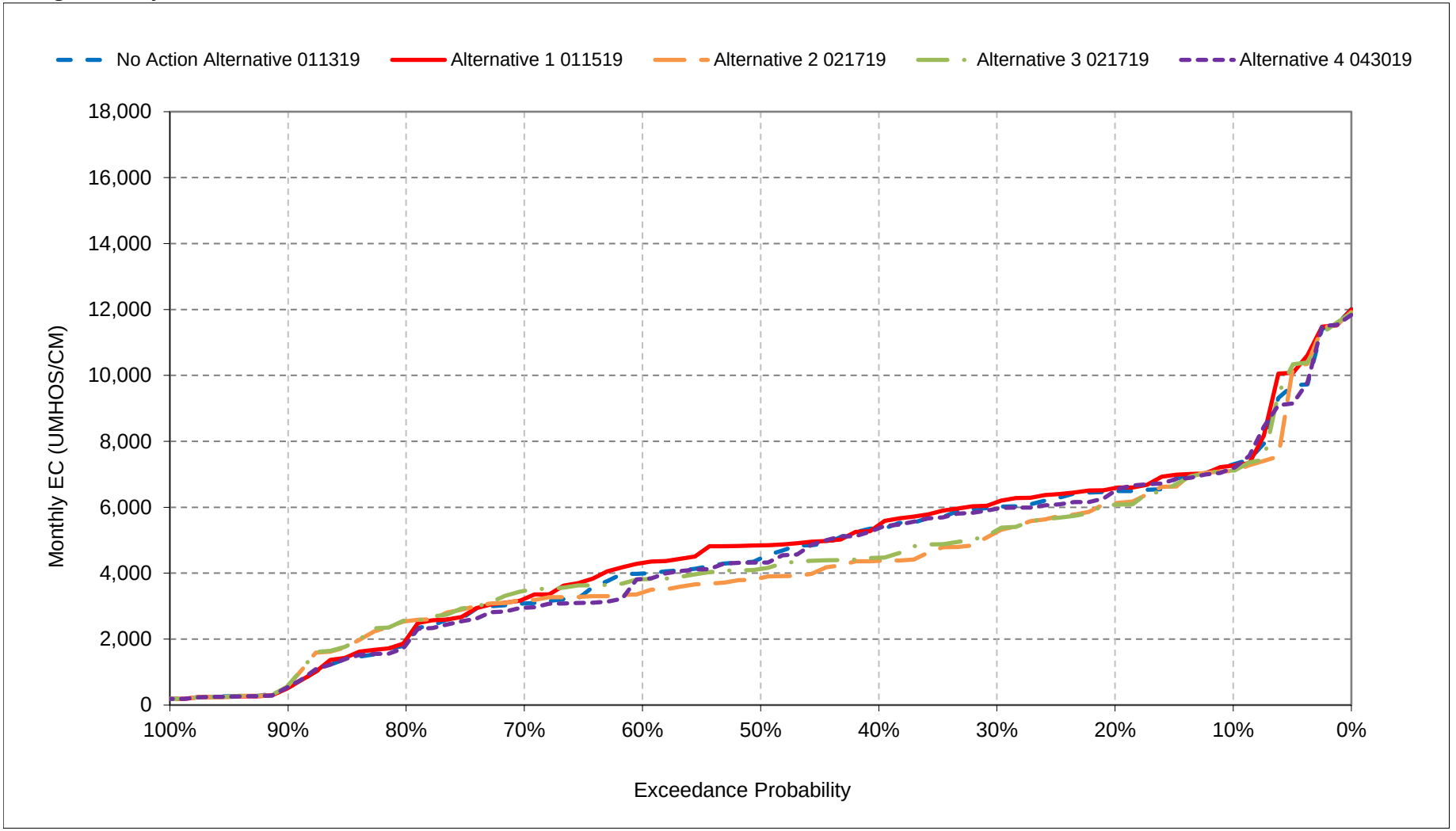
Figure 10-11. Sacramento River at Mallard Slough Salinity, May EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

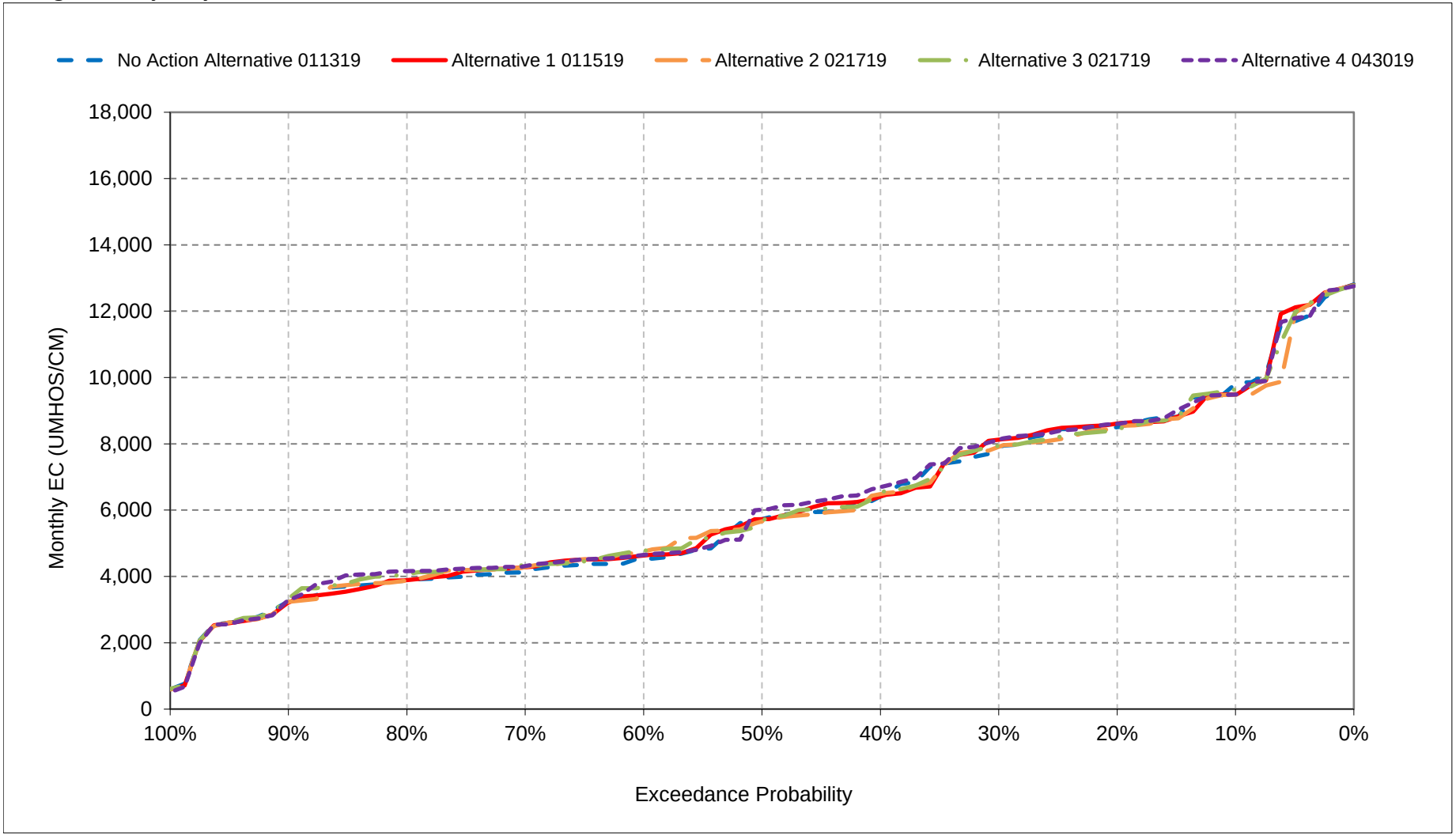
Figure 10-12. Sacramento River at Mallard Slough Salinity, June EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

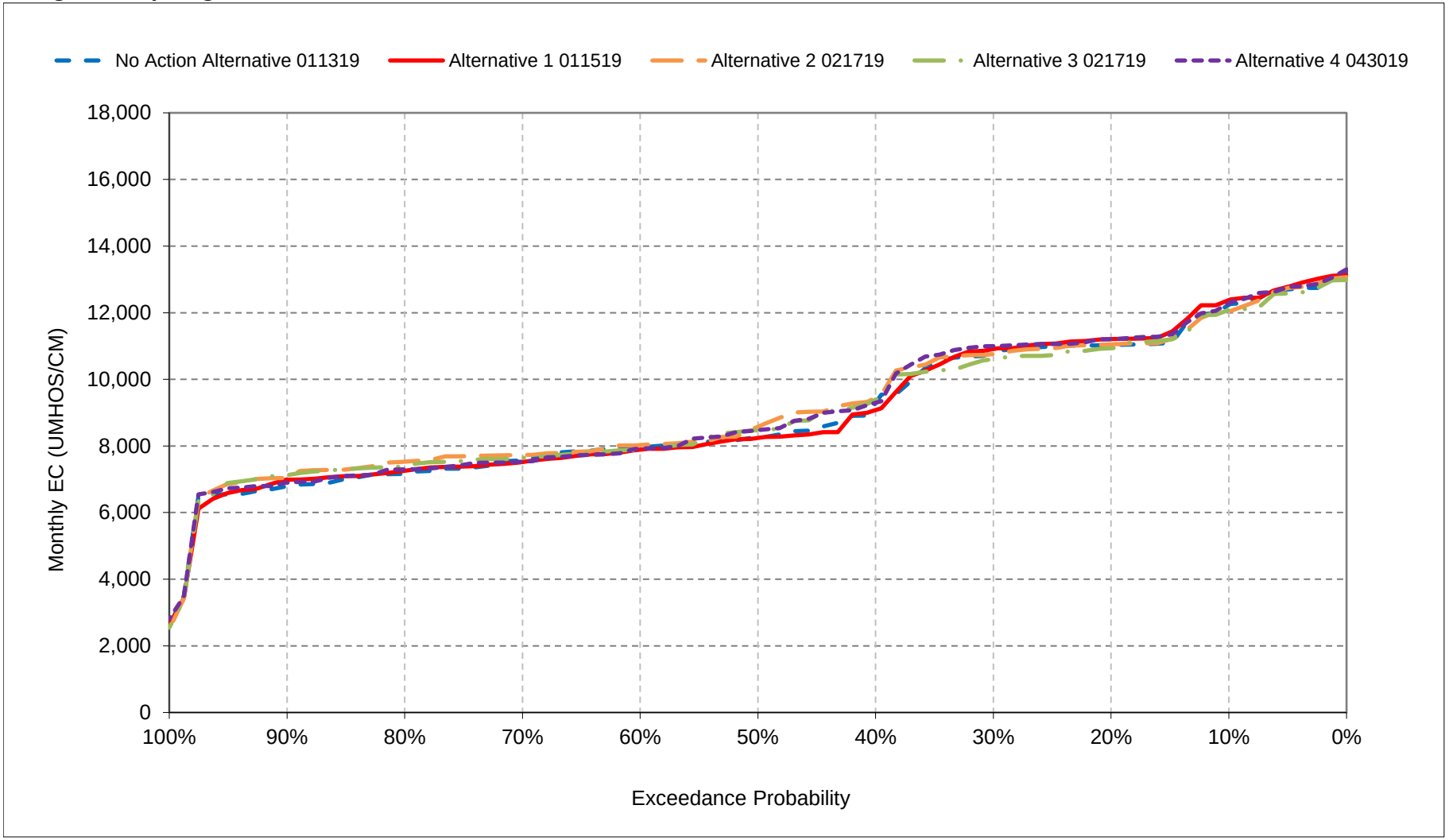
Figure 10-13. Sacramento River at Mallard Slough Salinity, July EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

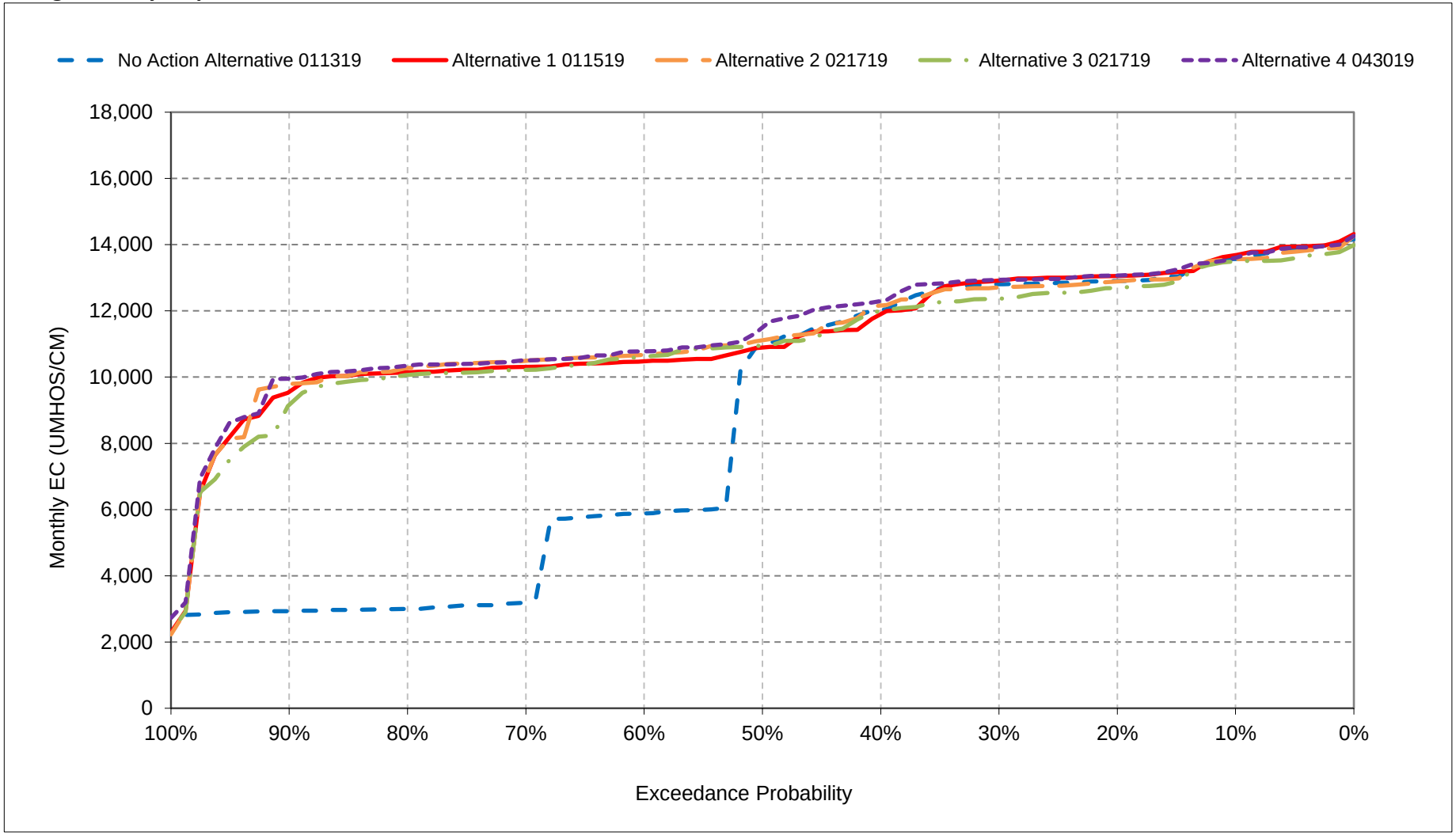
Figure 10-14. Sacramento River at Mallard Slough Salinity, August EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

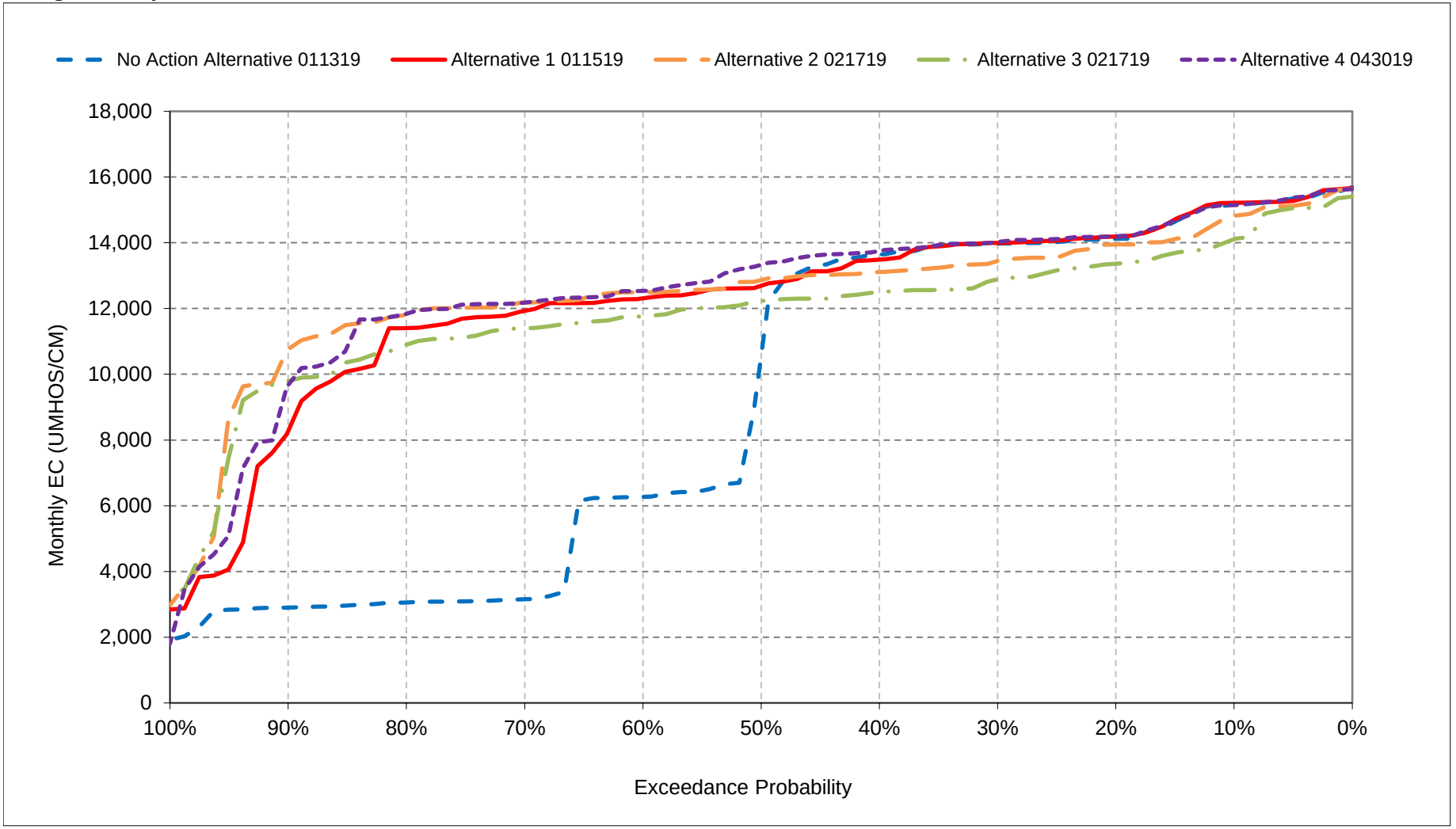
Figure 10-15. Sacramento River at Mallard Slough Salinity, September EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

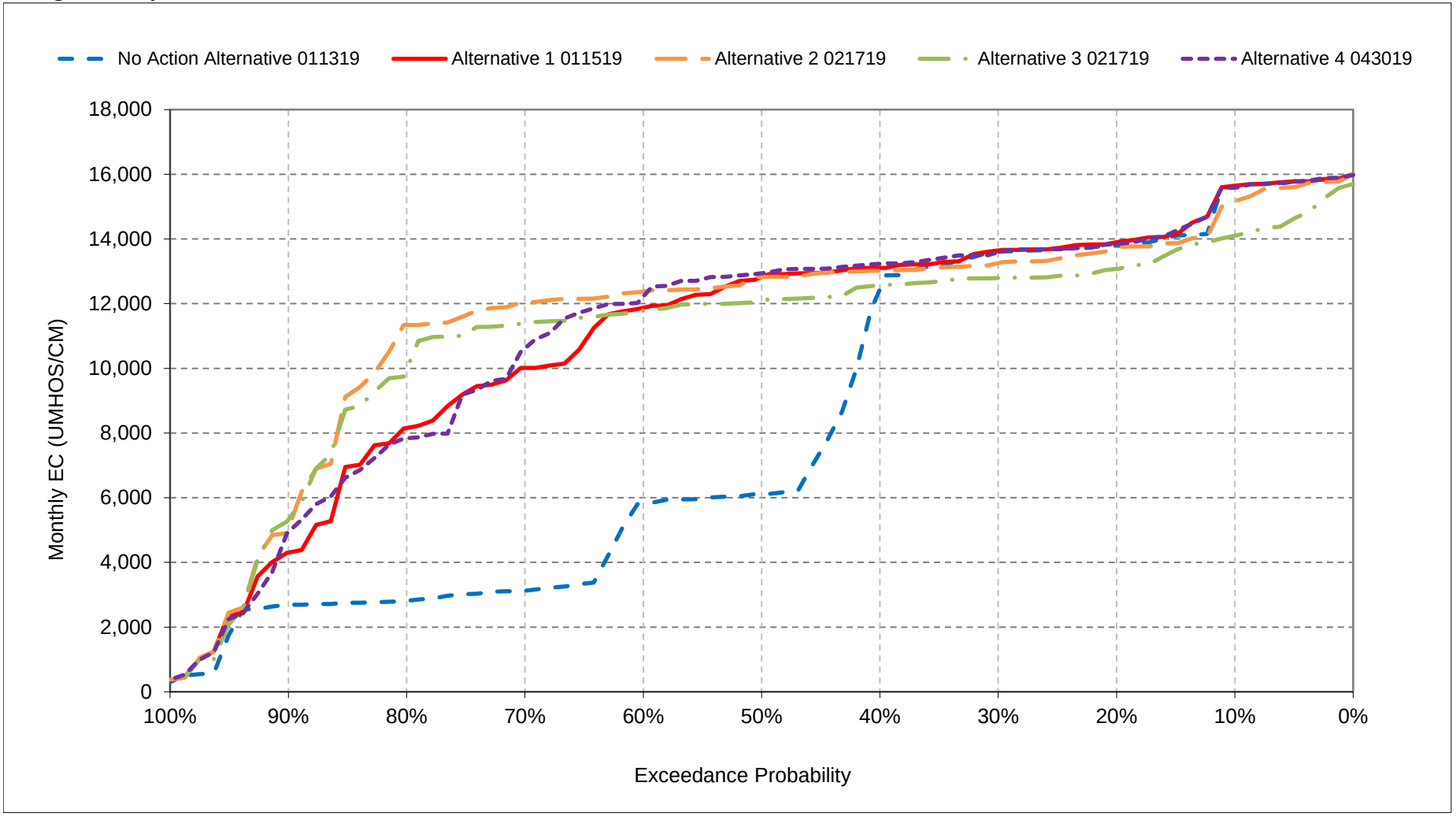
Figure 10-16. Sacramento River at Mallard Slough Salinity, October EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

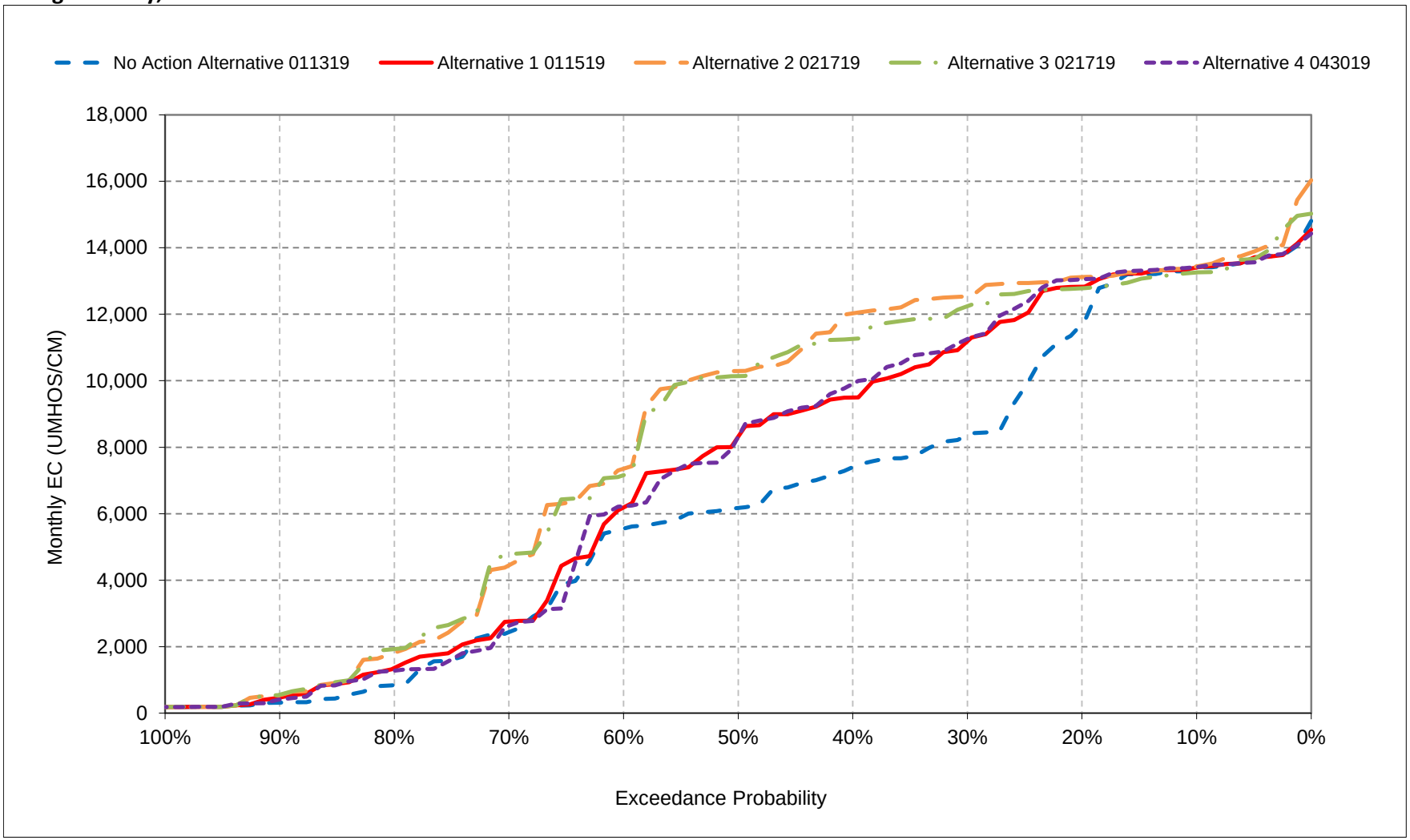
Figure 10-17. Sacramento River at Mallard Slough Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 10-18. Sacramento River at Mallard Slough Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 11-1. Sacramento River at Collinsville Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,503	11,926	9,552	5,279	1,765	1,435	1,927	3,135	4,215	6,367	8,537	9,877
20%	10,414	10,042	7,723	4,178	1,059	939	961	2,417	3,638	5,111	7,507	9,221
30%	10,219	9,690	5,019	3,126	641	425	661	1,909	3,339	4,606	7,315	9,119
40%	9,939	8,433	4,160	1,781	372	350	423	953	2,896	3,531	5,754	8,396
50%	6,904	3,217	3,418	1,284	285	248	297	668	2,351	2,939	4,953	7,270
60%	3,495	2,954	2,995	545	215	210	232	435	1,977	2,180	4,770	3,060
70%	1,468	1,391	1,107	225	199	194	211	326	1,415	1,972	4,476	1,559
80%	1,393	1,208	458	202	191	189	197	210	849	1,800	4,152	1,387
90%	1,292	1,110	222	188	186	187	189	188	251	1,451	3,878	1,315
Long Term												
Full Simulation Period[a]	6,298	5,462	4,004	2,107	786	573	723	1,289	2,546	3,507	5,744	5,653
Water Year Types[b]												
Wet (32%)	1,351	1,135	1,951	449	203	206	219	318	1,023	1,629	4,169	1,360
Above Normal (16%)	3,332	2,894	3,155	940	298	227	255	475	1,939	2,086	4,245	3,064
Below Normal (13%)	8,853	7,678	5,064	2,453	854	678	775	1,280	2,741	3,133	5,164	7,857
Dry (24%)	10,051	7,803	4,573	3,254	1,116	625	789	1,603	3,049	4,853	7,235	9,058
Critical (15%)	11,632	11,684	7,452	4,733	1,963	1,558	2,162	3,761	5,488	7,214	8,826	10,067

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,514	11,954	9,610	5,997	2,115	1,860	2,367	3,154	4,190	6,101	8,659	10,004
20%	10,491	10,111	8,974	4,632	1,070	992	1,369	2,581	3,660	5,193	7,653	9,387
30%	10,203	9,752	7,210	3,115	721	449	875	2,193	3,412	4,839	7,326	9,232
40%	9,784	9,269	5,741	1,613	361	346	627	1,371	2,931	3,458	5,566	8,296
50%	8,999	8,922	4,808	1,120	267	240	391	1,026	2,504	2,922	4,936	7,167
60%	8,587	8,113	3,436	549	213	206	258	735	2,106	2,254	4,689	6,875
70%	8,134	6,214	1,189	222	196	194	213	443	1,519	2,064	4,436	6,670
80%	7,543	4,843	745	198	190	188	194	212	884	1,761	4,208	6,532
90%	4,820	2,182	299	188	187	187	185	184	247	1,506	4,018	5,942
Long Term												
Full Simulation Period[a]	8,623	7,683	4,736	2,173	847	631	838	1,515	2,615	3,541	5,762	7,638
Water Year Types[b]												
Wet (32%)	6,290	5,636	3,502	396	198	205	256	445	1,056	1,656	4,112	5,830
Above Normal (16%)	7,923	7,437	4,614	979	279	232	324	696	1,946	2,111	4,292	6,691
Below Normal (13%)	8,687	7,869	5,045	2,597	939	751	930	1,653	2,903	3,110	5,058	7,624
Dry (24%)	10,256	7,969	4,606	3,471	1,191	665	943	1,842	3,103	4,876	7,340	9,120
Critical (15%)	11,653	11,736	7,473	4,764	2,211	1,821	2,394	4,048	5,637	7,343	8,946	10,124

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**11**	**28**	**58**	**719**	**350**	**425**	**440**	**19**	-25	-266	**122**	**127**
20%	**76**	**69**	**1,251**	**454**	**10**	**53**	**408**	**164**	**23**	**81**	**146**	**166**
30%	-16	**61**	**2,191**	-11	**81**	**24**	**214**	**284**	**74**	**233**	**11**	**113**
40%	-155	**836**	**1,581**	-167	-11	-5	**205**	**418**	**35**	-73	-188	-100
50%	**2,095**	**5,705**	**1,390**	-165	-18	-8	**94**	**359**	**152**	-16	-16	-103
60%	**5,092**	**5,159**	**441**	**4**	-3	-4	**26**	**299**	**129**	**74**	-81	**3,815**
70%	**6,666**	**4,823**	**82**	-4	-3	0	**1**	**116**	**104**	**92**	-39	**5,111**
80%	**6,150**	**3,635**	**287**	-4	-1	0	-3	**2**	**35**	-39	**57**	**5,145**
90%	**3,528**	**1,072**	**78**	0	**1**	0	-4	-4	-4	**56**	**140**	**4,626**
Long Term												
Full Simulation Period[a]	**2,325**	**2,221**	**732**	**66**	**62**	**59**	**115**	**226**	**68**	**34**	**18**	**1,985**
Water Year Types[b]												
Wet (32%)	**4,939**	**4,501**	**1,551**	-53	-5	-1	**37**	**127**	**33**	**27**	-57	**4,470**
Above Normal (16%)	**4,591**	**4,542**	**1,460**	**39**	-18	**5**	**68**	**221**	**7**	**26**	**47**	**3,627**
Below Normal (13%)	-166	**191**	-19	**144**	**86**	**73**	**156**	**373**	**163**	-23	-106	-232
Dry (24%)	**205**	**165**	**33**	**217**	**75**	**41**	**154**	**239**	**54**	**23**	**104**	**62**
Critical (15%)	**21**	**52**	**21**	**32**	**248**	**263**	**232**	**287**	**150**	**129**	**120**	**57**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 11-2. Sacramento River at Collinsville Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,503	11,926	9,552	5,279	1,765	1,435	1,927	3,135	4,215	6,367	8,537	9,877
20%	10,414	10,042	7,723	4,178	1,059	939	961	2,417	3,638	5,111	7,507	9,221
30%	10,219	9,690	5,019	3,126	641	425	661	1,909	3,339	4,606	7,315	9,119
40%	9,939	8,433	4,160	1,781	372	350	423	953	2,896	3,531	5,754	8,396
50%	6,904	3,217	3,418	1,284	285	248	297	668	2,351	2,939	4,953	7,270
60%	3,495	2,954	2,995	545	215	210	232	435	1,977	2,180	4,770	3,060
70%	1,468	1,391	1,107	225	199	194	211	326	1,415	1,972	4,476	1,559
80%	1,393	1,208	458	202	191	189	197	210	849	1,800	4,152	1,387
90%	1,292	1,110	222	188	186	187	189	188	251	1,451	3,878	1,315
Long Term												
Full Simulation Period[a]	6,298	5,462	4,004	2,107	786	573	723	1,289	2,546	3,507	5,744	5,653
Water Year Types[b]												
Wet (32%)	1,351	1,135	1,951	449	203	206	219	318	1,023	1,629	4,169	1,360
Above Normal (16%)	3,332	2,894	3,155	940	298	227	255	475	1,939	2,086	4,245	3,064
Below Normal (13%)	8,853	7,678	5,064	2,453	854	678	775	1,280	2,741	3,133	5,164	7,857
Dry (24%)	10,051	7,803	4,573	3,254	1,116	625	789	1,603	3,049	4,853	7,235	9,058
Critical (15%)	11,632	11,684	7,452	4,733	1,963	1,558	2,162	3,761	5,488	7,214	8,826	10,067

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,104	11,507	9,640	6,823	2,963	2,178	2,435	3,135	4,116	6,081	8,420	9,862
20%	10,181	9,838	9,199	5,960	1,713	1,087	1,476	2,402	3,349	5,198	7,535	9,204
30%	9,664	9,490	8,516	4,789	1,084	555	1,069	2,025	2,732	4,697	7,288	9,001
40%	9,321	9,224	8,027	2,969	583	438	766	1,591	2,111	3,518	6,090	8,524
50%	9,121	8,926	6,434	2,053	367	287	443	1,095	1,776	2,946	5,231	7,414
60%	8,661	8,475	4,026	858	223	208	293	860	1,539	2,356	4,798	7,000
70%	8,406	8,161	2,112	244	197	195	231	518	1,443	2,049	4,597	6,860
80%	7,901	7,354	937	202	190	188	193	233	1,105	1,796	4,435	6,650
90%	7,082	2,727	343	188	187	185	185	184	267	1,386	4,077	6,263
Long Term												
Full Simulation Period[a]	8,776	8,112	5,530	2,877	1,041	687	889	1,515	2,285	3,509	5,864	7,677
Water Year Types[b]												
Wet (32%)	7,155	6,715	4,204	647	211	213	268	446	949	1,720	4,242	5,996
Above Normal (16%)	8,570	8,485	5,756	1,414	356	240	362	809	1,465	2,057	4,492	6,898
Below Normal (13%)	8,672	8,272	5,583	3,929	1,253	777	1,030	1,595	1,893	3,128	5,508	7,648
Dry (24%)	9,623	7,585	5,047	4,431	1,439	783	1,024	1,772	2,871	4,835	7,315	8,998
Critical (15%)	11,200	11,464	8,912	5,736	2,723	1,956	2,448	4,094	5,450	7,095	8,773	9,988

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-398	-419	**87**	**1,544**	**1,198**	**743**	**509**	0	-99	-286	-117	-15
20%	-234	-204	**1,477**	**1,782**	**653**	**149**	**515**	-15	-288	**87**	**29**	-17
30%	-556	-200	**3,497**	**1,663**	**443**	**130**	**408**	**116**	-607	**92**	-26	-118
40%	-618	**791**	**3,867**	**1,188**	**211**	**88**	**344**	**637**	-785	-13	**336**	**128**
50%	**2,217**	**5,710**	**3,016**	**769**	**82**	**40**	**146**	**427**	-575	**7**	**278**	**144**
60%	**5,167**	**5,521**	**1,031**	**314**	**8**	-3	**61**	**424**	-437	**176**	**28**	**3,939**
70%	**6,938**	**6,771**	**1,005**	**18**	-2	**1**	**20**	**192**	**28**	**77**	**121**	**5,301**
80%	**6,508**	**6,146**	**479**	0	-1	0	-3	**23**	**256**	-4	**283**	**5,263**
90%	**5,790**	**1,617**	**121**	-1	**1**	-1	-4	-3	**16**	-65	**199**	**4,948**
Long Term												
Full Simulation Period[a]	**2,478**	**2,650**	**1,526**	**770**	**255**	**115**	**166**	**226**	-261	**2**	**120**	**2,024**
Water Year Types[b]												
Wet (32%)	**5,803**	**5,580**	**2,253**	**198**	**8**	**7**	**49**	**128**	-74	**91**	**73**	**4,636**
Above Normal (16%)	**5,238**	**5,591**	**2,601**	**474**	**58**	**13**	**107**	**334**	-474	-28	**247**	**3,834**
Below Normal (13%)	-181	**594**	**519**	**1,476**	**399**	**99**	**255**	**315**	-848	-5	**344**	-209
Dry (24%)	-428	-219	**474**	**1,177**	**324**	**159**	**236**	**169**	-178	-19	**80**	-60
Critical (15%)	-433	-220	**1,459**	**1,003**	**759**	**398**	**286**	**333**	-38	-119	-53	-79

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 11-3. Sacramento River at Collinsville Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,503	11,926	9,552	5,279	1,765	1,435	1,927	3,135	4,215	6,367	8,537	9,877
20%	10,414	10,042	7,723	4,178	1,059	939	961	2,417	3,638	5,111	7,507	9,221
30%	10,219	9,690	5,019	3,126	641	425	661	1,909	3,339	4,606	7,315	9,119
40%	9,939	8,433	4,160	1,781	372	350	423	953	2,896	3,531	5,754	8,396
50%	6,904	3,217	3,418	1,284	285	248	297	668	2,351	2,939	4,953	7,270
60%	3,495	2,954	2,995	545	215	210	232	435	1,977	2,180	4,770	3,060
70%	1,468	1,391	1,107	225	199	194	211	326	1,415	1,972	4,476	1,559
80%	1,393	1,208	458	202	191	189	197	210	849	1,800	4,152	1,387
90%	1,292	1,110	222	188	186	187	189	188	251	1,451	3,878	1,315
Long Term												
Full Simulation Period[a]	6,298	5,462	4,004	2,107	786	573	723	1,289	2,546	3,507	5,744	5,653
Water Year Types[b]												
Wet (32%)	1,351	1,135	1,951	449	203	206	219	318	1,023	1,629	4,169	1,360
Above Normal (16%)	3,332	2,894	3,155	940	298	227	255	475	1,939	2,086	4,245	3,064
Below Normal (13%)	8,853	7,678	5,064	2,453	854	678	775	1,280	2,741	3,133	5,164	7,857
Dry (24%)	10,051	7,803	4,573	3,254	1,116	625	789	1,603	3,049	4,853	7,235	9,058
Critical (15%)	11,632	11,684	7,452	4,733	1,963	1,558	2,162	3,761	5,488	7,214	8,826	10,067

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10,278	10,225	9,417	6,527	2,944	2,069	2,342	3,207	4,092	6,230	8,458	9,741
20%	9,468	9,216	8,899	5,994	1,869	1,112	1,518	2,480	3,297	5,180	7,379	8,957
30%	8,971	8,899	7,964	4,570	1,117	570	1,050	2,148	2,742	4,724	7,084	8,599
40%	8,493	8,496	7,258	3,158	599	430	767	1,638	2,211	3,489	5,937	8,309
50%	8,268	8,172	6,272	2,076	355	296	435	1,214	1,945	2,928	5,092	7,255
60%	7,821	7,889	3,969	860	225	211	288	863	1,801	2,330	4,666	6,911
70%	7,376	7,597	2,298	246	197	195	233	533	1,553	2,058	4,546	6,548
80%	6,995	6,068	1,056	202	190	189	194	238	1,128	1,865	4,377	6,376
90%	6,009	2,827	337	189	188	186	188	186	270	1,587	4,052	5,584
Long Term												
Full Simulation Period[a]	8,034	7,545	5,340	2,839	1,070	695	881	1,548	2,377	3,540	5,754	7,411
Water Year Types[b]												
Wet (32%)	6,646	6,330	3,960	648	212	214	247	528	1,013	1,737	4,205	5,781
Above Normal (16%)	7,796	7,822	5,442	1,362	353	242	363	823	1,642	2,039	4,326	6,367
Below Normal (13%)	7,941	7,616	5,445	3,982	1,186	747	1,006	1,616	2,035	3,144	5,420	7,507
Dry (24%)	8,565	7,092	5,010	4,441	1,526	789	1,017	1,762	2,864	4,837	7,136	8,739
Critical (15%)	10,499	10,567	8,675	5,469	2,838	2,027	2,475	4,122	5,625	7,271	8,659	9,770

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,225	-1,701	-135	**1,249**	**1,178**	**633**	**415**	**73**	-123	-138	-79	-136
20%	-947	-826	**1,176**	**1,816**	**809**	**174**	**557**	**62**	-341	**69**	-128	-265
30%	-1,248	-791	**2,946**	**1,444**	**476**	**146**	**389**	**238**	-596	**118**	-231	-520
40%	-1,447	**63**	**3,098**	**1,377**	**227**	**80**	**345**	**684**	-685	-41	**182**	-87
50%	**1,364**	**4,956**	**2,854**	**791**	**70**	**48**	**139**	**547**	-406	-10	**139**	-14
60%	**4,327**	**4,935**	**974**	**316**	**10**	**0**	**56**	**427**	-176	**150**	-103	**3,851**
70%	**5,908**	**6,206**	**1,191**	**20**	-1	**1**	**22**	**207**	**139**	**87**	**70**	**4,989**
80%	**5,602**	**4,861**	**598**	**0**	-1	**0**	-2	**28**	**279**	**65**	**226**	**4,990**
90%	**4,717**	**1,717**	**116**	**1**	**1**	0	-1	-2	**19**	**136**	**174**	**4,268**
Long Term												
Full Simulation Period[a]	**1,736**	**2,083**	**1,336**	**732**	**284**	**123**	**159**	**259**	-170	**33**	**10**	**1,757**
Water Year Types[b]												
Wet (32%)	**5,294**	**5,195**	**2,009**	**199**	**9**	**8**	**28**	**210**	-10	**107**	**36**	**4,421**
Above Normal (16%)	**4,464**	**4,928**	**2,287**	**422**	**55**	**15**	**108**	**348**	-297	-46	**81**	**3,303**
Below Normal (13%)	-912	-61	**381**	**1,529**	**332**	**70**	**231**	**336**	-706	**11**	**256**	-349
Dry (24%)	-1,486	-711	**437**	**1,187**	**411**	**164**	**228**	**159**	-185	-16	-99	-319
Critical (15%)	-1,133	-1,117	**1,222**	**736**	**874**	**469**	**313**	**361**	**138**	**58**	-167	-298

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 11-4. Sacramento River at Collinsville Salinity, Monthly EC

No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,503	11,926	9,552	5,279	1,765	1,435	1,927	3,135	4,215	6,367	8,537	9,877
20%	10,414	10,042	7,723	4,178	1,059	939	961	2,417	3,638	5,111	7,507	9,221
30%	10,219	9,690	5,019	3,126	641	425	661	1,909	3,339	4,606	7,315	9,119
40%	9,939	8,433	4,160	1,781	372	350	423	953	2,896	3,531	5,754	8,396
50%	6,904	3,217	3,418	1,284	285	248	297	668	2,351	2,939	4,953	7,270
60%	3,495	2,954	2,995	545	215	210	232	435	1,977	2,180	4,770	3,060
70%	1,468	1,391	1,107	225	199	194	211	326	1,415	1,972	4,476	1,559
80%	1,393	1,208	458	202	191	189	197	210	849	1,800	4,152	1,387
90%	1,292	1,110	222	188	186	187	189	188	251	1,451	3,878	1,315
Long Term												
Full Simulation Period[a]	6,298	5,462	4,004	2,107	786	573	723	1,289	2,546	3,507	5,744	5,653
Water Year Types[b]												
Wet (32%)	1,351	1,135	1,951	449	203	206	219	318	1,023	1,629	4,169	1,360
Above Normal (16%)	3,332	2,894	3,155	940	298	227	255	475	1,939	2,086	4,245	3,064
Below Normal (13%)	8,853	7,678	5,064	2,453	854	678	775	1,280	2,741	3,133	5,164	7,857
Dry (24%)	10,051	7,803	4,573	3,254	1,116	625	789	1,603	3,049	4,853	7,235	9,058
Critical (15%)	11,632	11,684	7,452	4,733	1,963	1,558	2,162	3,761	5,488	7,214	8,826	10,067

Alternative 4 043019

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	11,501	11,899	9,650	5,801	1,867	1,212	1,631	3,113	4,114	6,114	8,676	9,892
20%	10,483	10,046	9,163	4,392	1,026	564	876	2,498	3,634	5,330	7,658	9,408
30%	10,253	9,750	7,210	2,891	611	303	577	1,567	3,260	4,798	7,469	9,268
40%	9,962	9,387	6,082	1,565	350	248	335	867	2,867	3,733	5,959	8,740
50%	9,614	9,106	4,794	1,156	253	219	259	525	2,295	3,129	5,257	7,864
60%	8,786	8,436	3,483	462	206	205	210	360	1,888	2,273	4,711	7,106
70%	8,463	6,738	1,148	221	196	196	204	259	1,371	2,080	4,445	6,883
80%	7,891	4,475	633	198	190	190	197	202	791	1,959	4,256	6,692
90%	6,103	2,607	232	187	187	189	191	187	257	1,575	3,966	6,358
Long Term												
Full Simulation Period[a]	8,903	7,798	4,758	2,091	791	477	629	1,225	2,494	3,603	5,862	7,859
Water Year Types[b]												
Wet (32%)	6,765	6,053	3,687	374	196	198	215	290	973	1,705	4,172	6,080
Above Normal (16%)	8,360	7,650	4,532	968	262	204	228	370	1,881	2,168	4,274	6,793
Below Normal (13%)	9,020	7,527	5,051	2,369	849	445	556	1,161	2,713	3,279	5,507	8,257
Dry (24%)	10,331	7,943	4,543	3,395	1,114	445	669	1,571	3,020	4,976	7,462	9,294
Critical (15%)	11,637	11,744	7,410	4,600	2,067	1,458	1,962	3,658	5,376	7,282	8,905	10,109

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-2	-26	**97**	**522**	**102**	-223	-295	-21	-101	-254	**139**	**15**
20%	**69**	**5**	**1,440**	**214**	-33	-374	-85	**81**	-3	**218**	**151**	**187**
30%	**34**	**60**	**2,191**	-235	-29	-121	-84	-342	-78	**192**	**154**	**149**
40%	**23**	**954**	**1,922**	-216	-23	-103	-88	-86	-29	**202**	**205**	**344**
50%	**2,710**	**5,889**	**1,377**	-128	-32	-29	-38	-142	-56	**191**	**304**	**594**
60%	**5,292**	**5,482**	**488**	-83	-9	-5	-22	-76	-89	**93**	-59	**4,046**
70%	**6,995**	**5,347**	**41**	-4	-3	**2**	-7	-67	-44	**108**	-31	**5,324**
80%	**6,499**	**3,267**	**175**	-4	-1	**2**	**1**	-8	-58	**159**	**104**	**5,306**
90%	**4,811**	**1,497**	**11**	-1	**1**	**2**	**2**	0	**6**	**125**	**88**	**5,043**
Long Term												
Full Simulation Period[a]	**2,605**	**2,336**	**753**	-16	**6**	-96	-93	-64	-53	**96**	**118**	**2,205**
Water Year Types[b]												
Wet (32%)	**5,414**	**4,918**	**1,736**	-75	-8	-8	-4	-28	-51	**75**	**2**	**4,720**
Above Normal (16%)	**5,028**	**4,756**	**1,377**	**28**	-36	-23	-27	-104	-58	**82**	**29**	**3,729**
Below Normal (13%)	**168**	-150	-12	-84	-5	-233	-219	-119	-28	**146**	**344**	**401**
Dry (24%)	**280**	**140**	-30	**140**	-2	-180	-120	-32	-29	**122**	**226**	**237**
Critical (15%)	**5**	**60**	-43	-133	**103**	-101	-200	-103	-112	**68**	**79**	**42**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

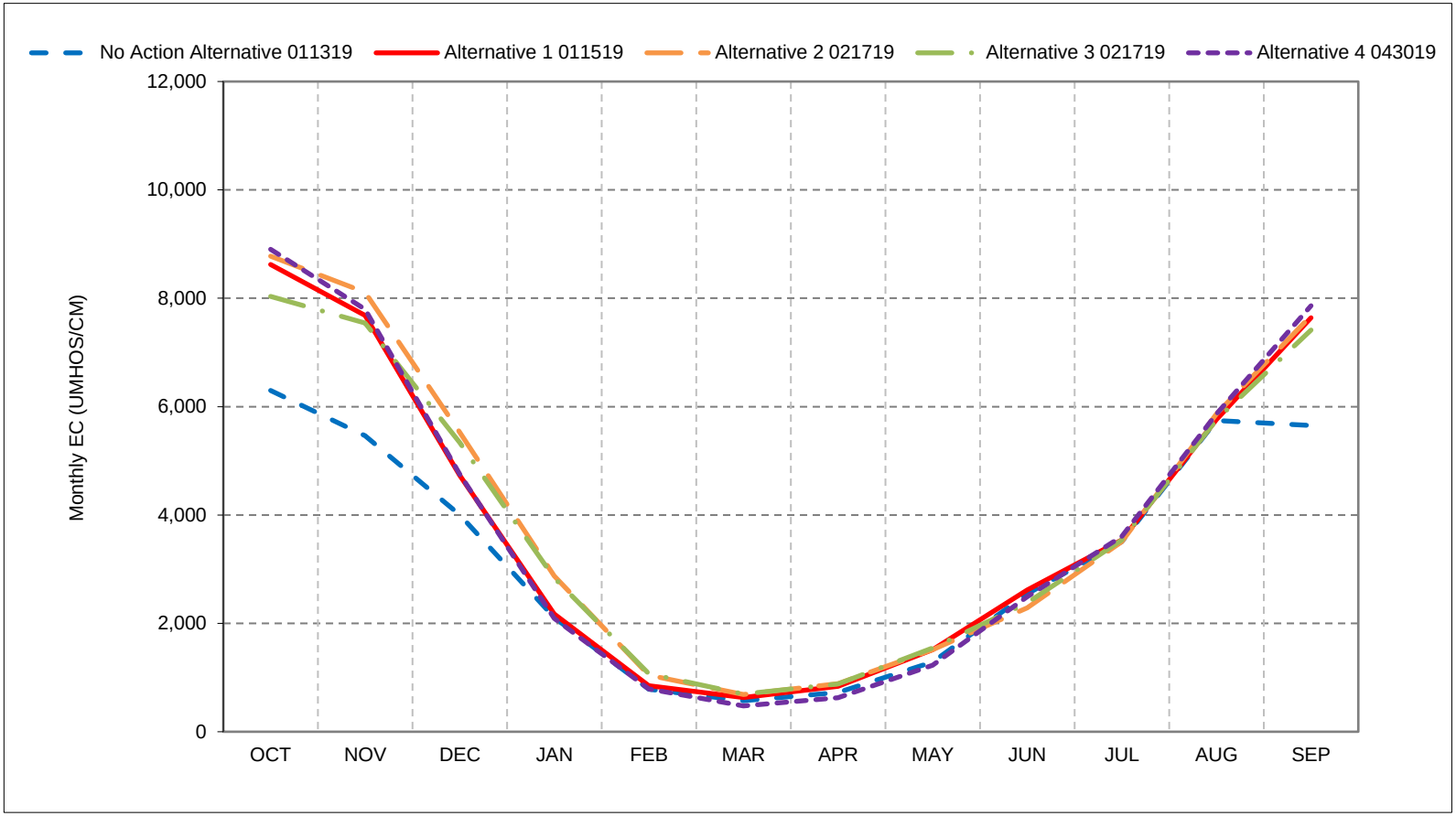
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 11-1. Sacramento River at Collinsville Salinity, Long-Term Average EC



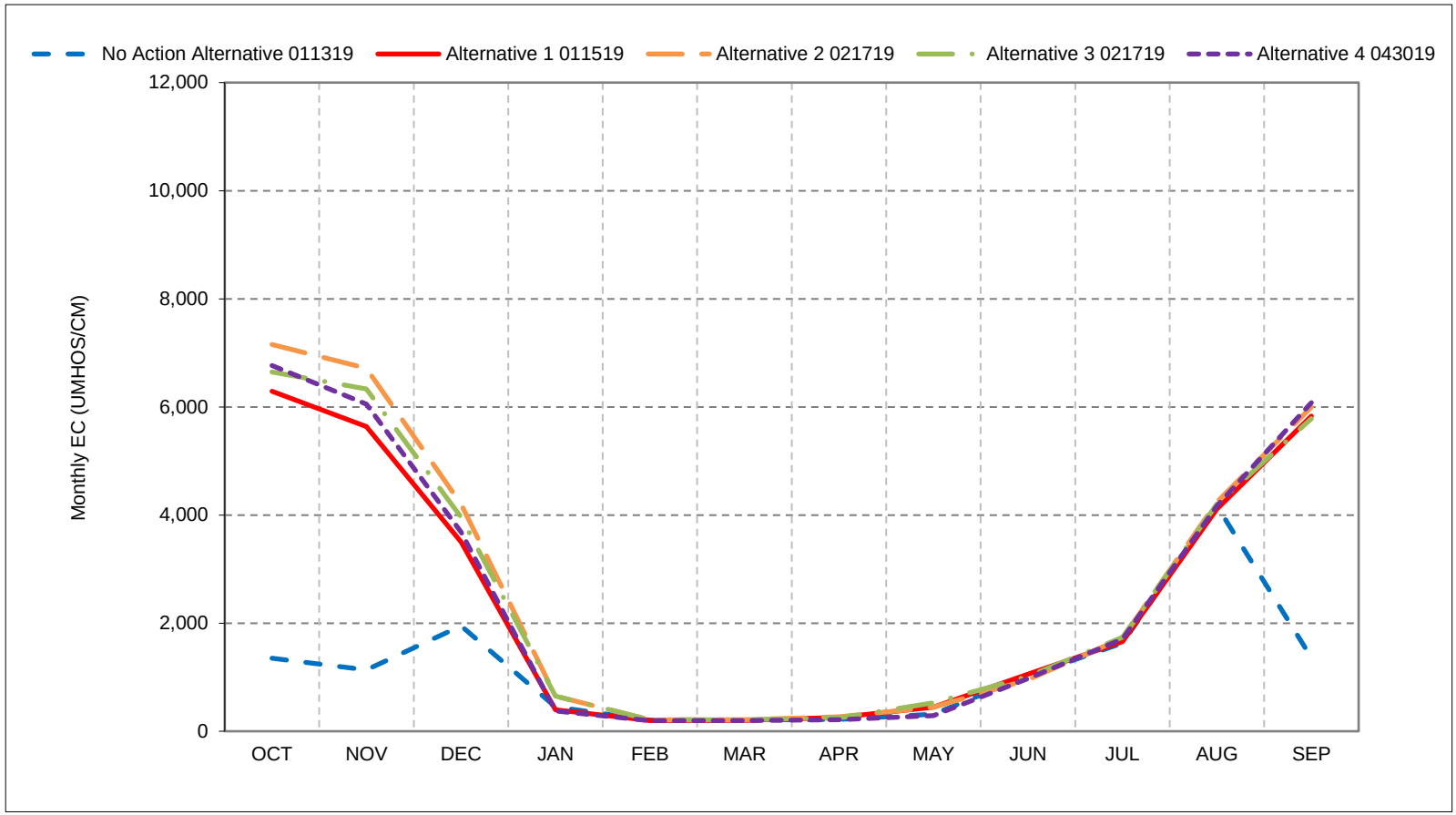
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 11-2. Sacramento River at Collinsville Salinity, Wet Year Average EC



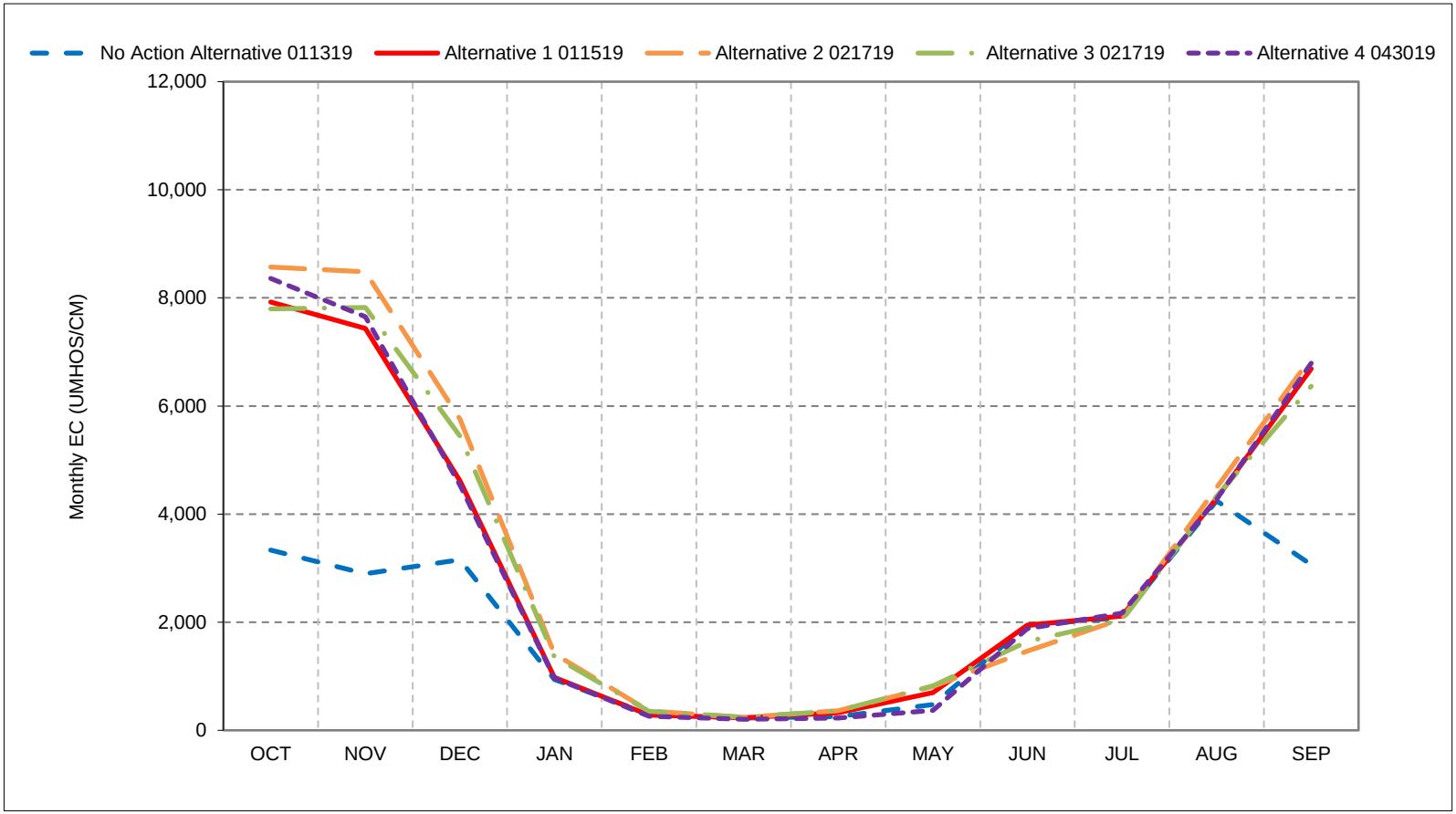
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 11-3. Sacramento River at Collinsville Salinity, Above Normal Year Average EC



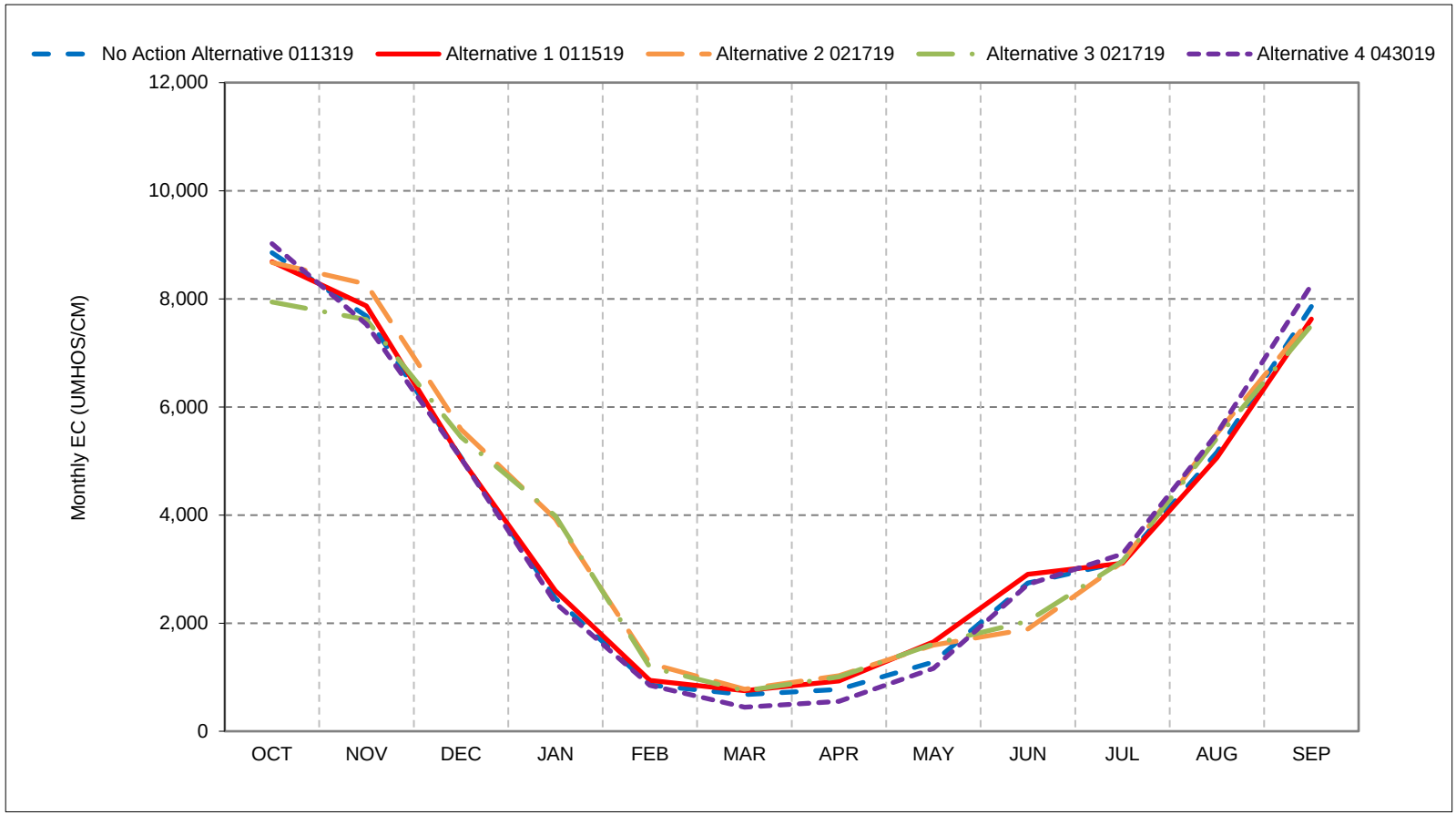
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 11-4. Sacramento River at Collinsville Salinity, Below Normal Year Average EC



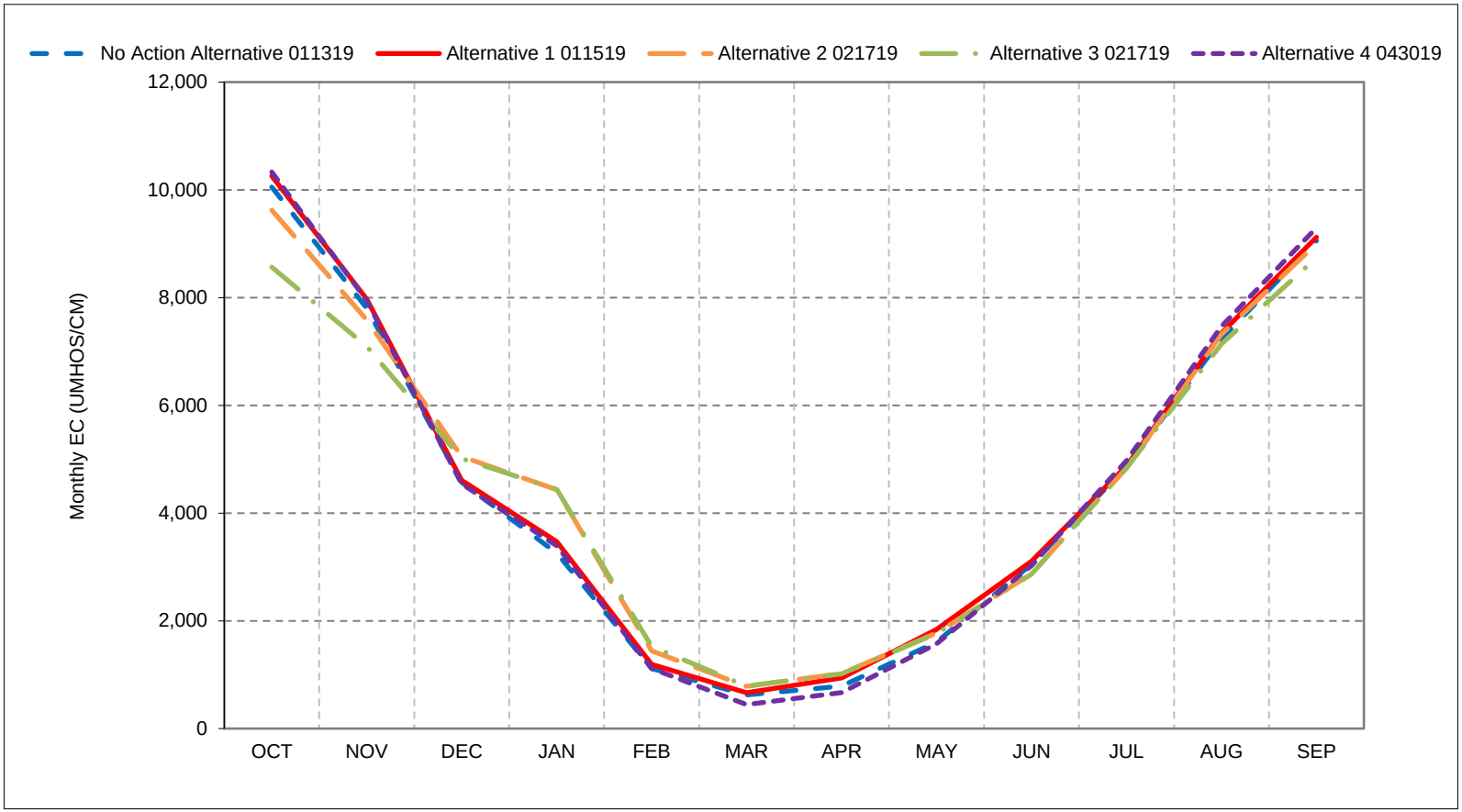
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

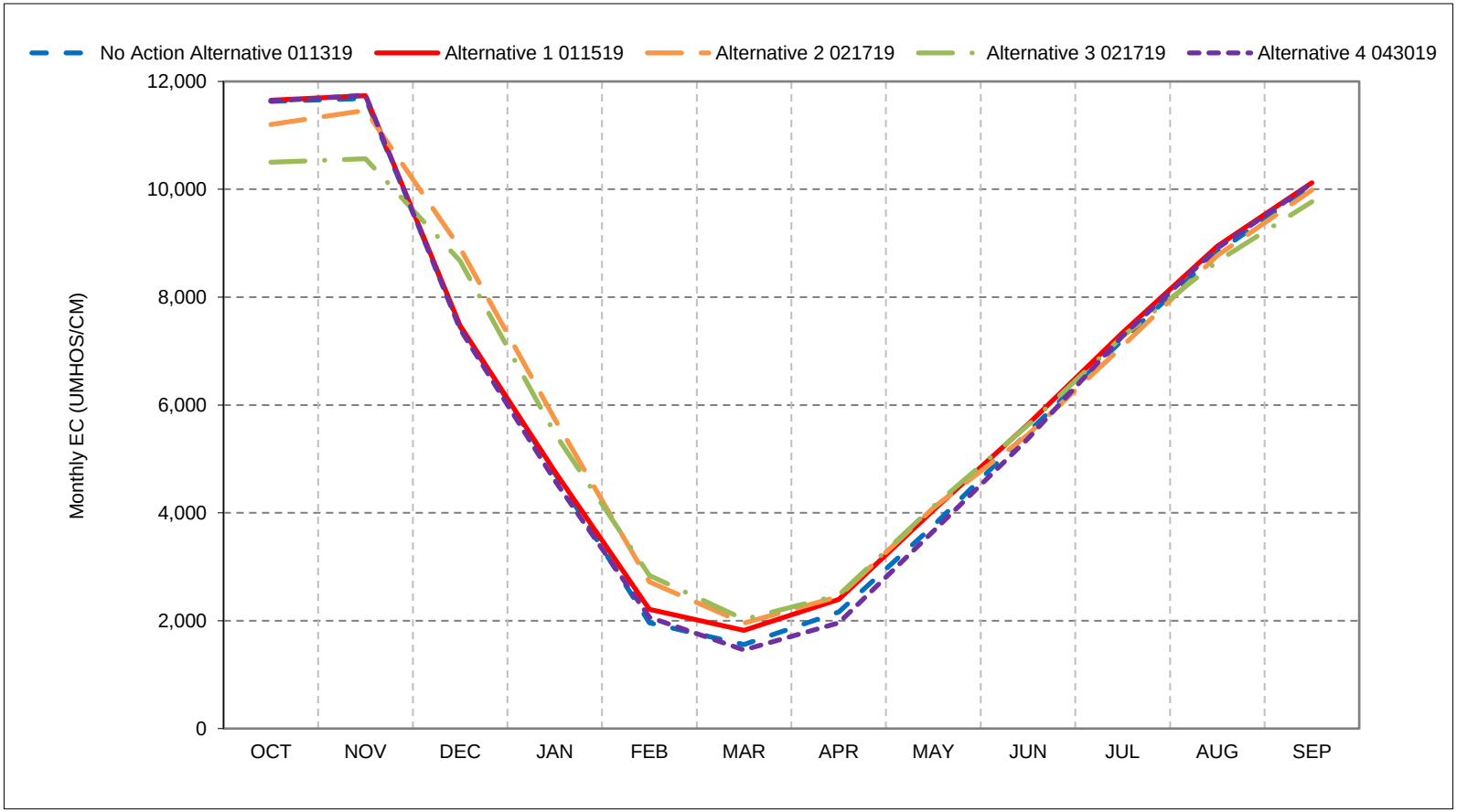
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 11-5. Sacramento River at Collinsville Salinity, Dry Year Average EC



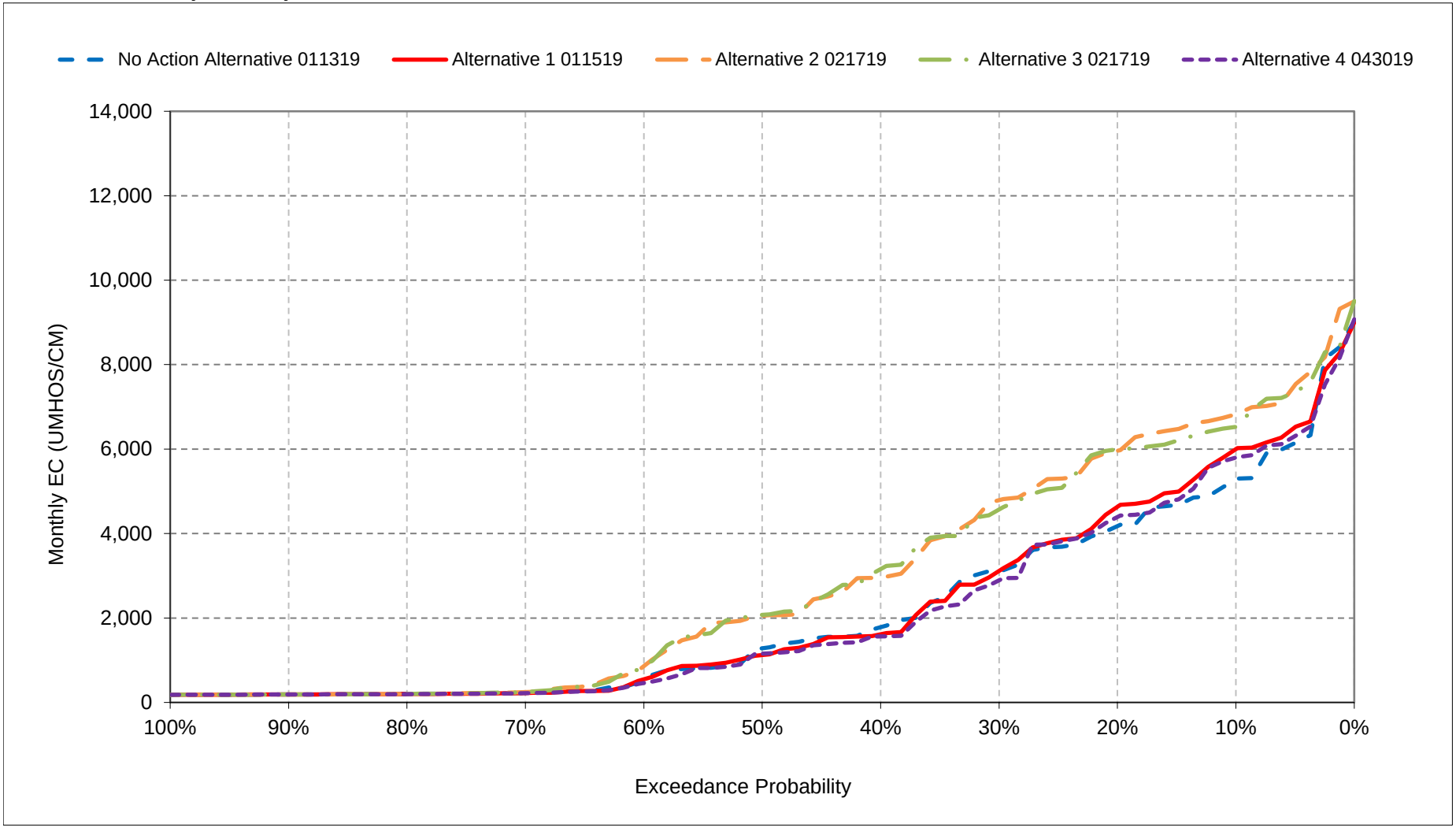
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 11-6. Sacramento River at Collinsville Salinity, Critical Year Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

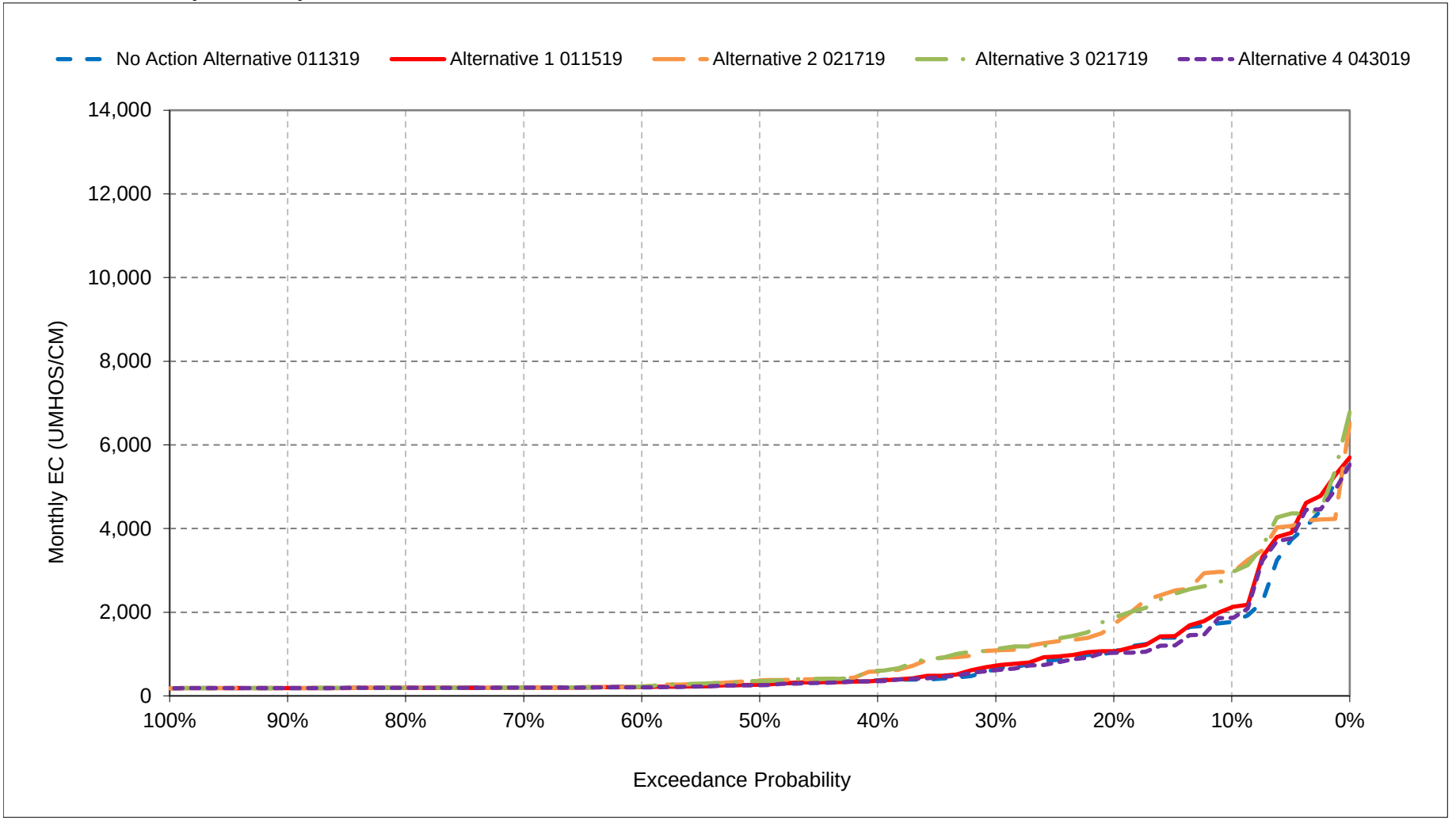
Figure 11-7. Sacramento River at Collinsville Salinity, January EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

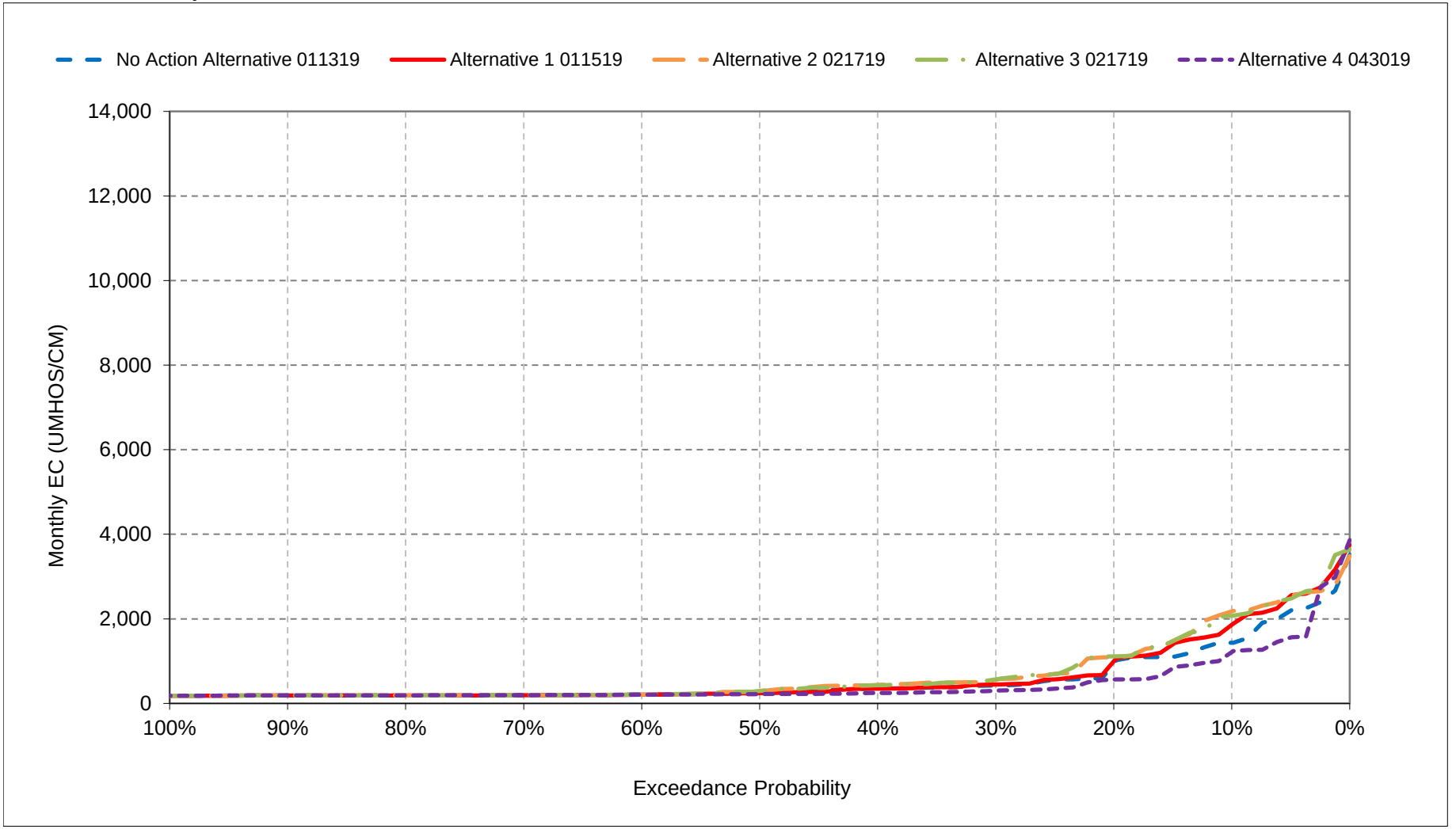
Figure 11-8. Sacramento River at Collinsville Salinity, February EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

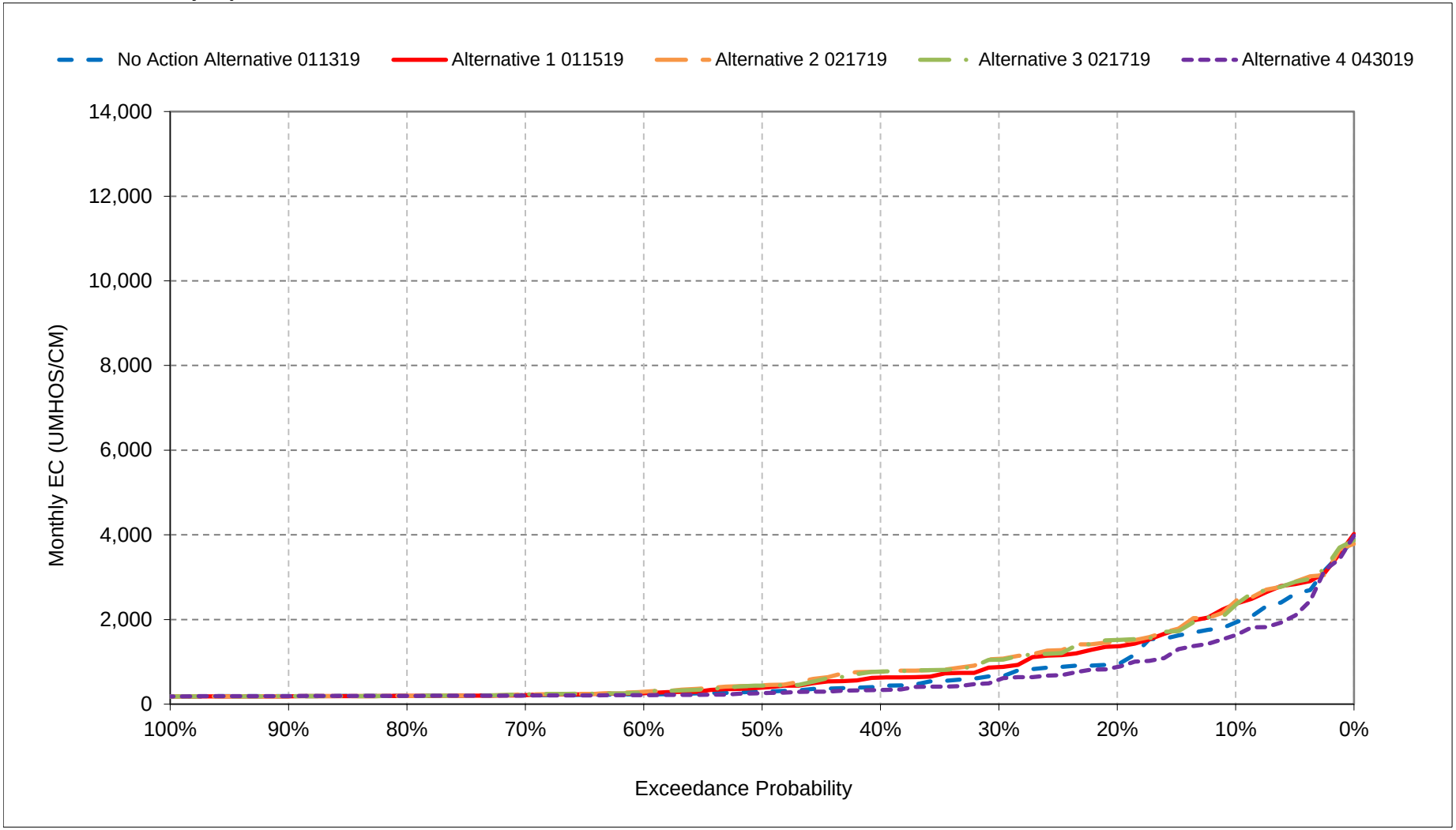
Figure 11-9. Sacramento River at Collinsville Salinity, March EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

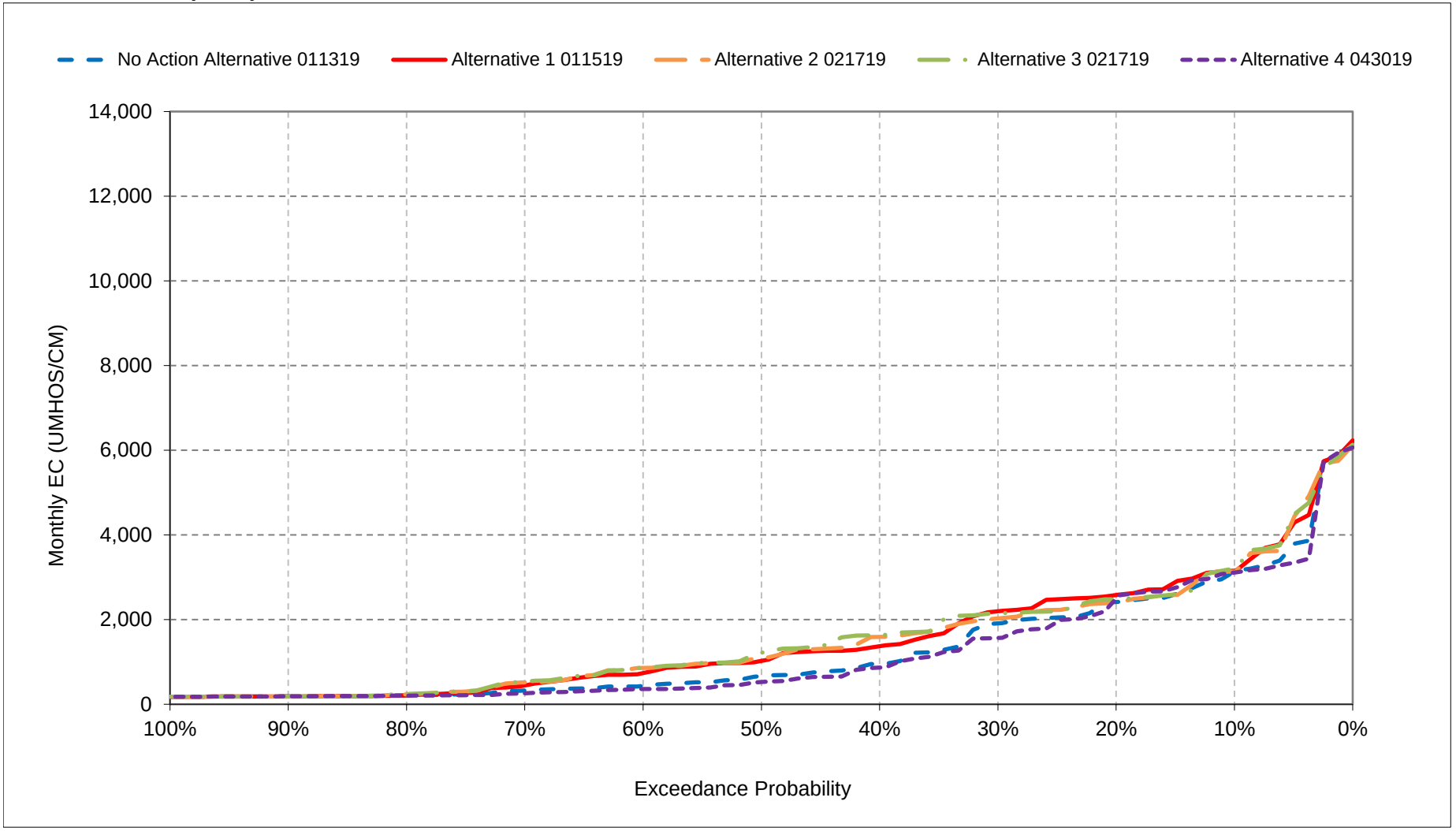
Figure 11-10. Sacramento River at Collinsville Salinity, April EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

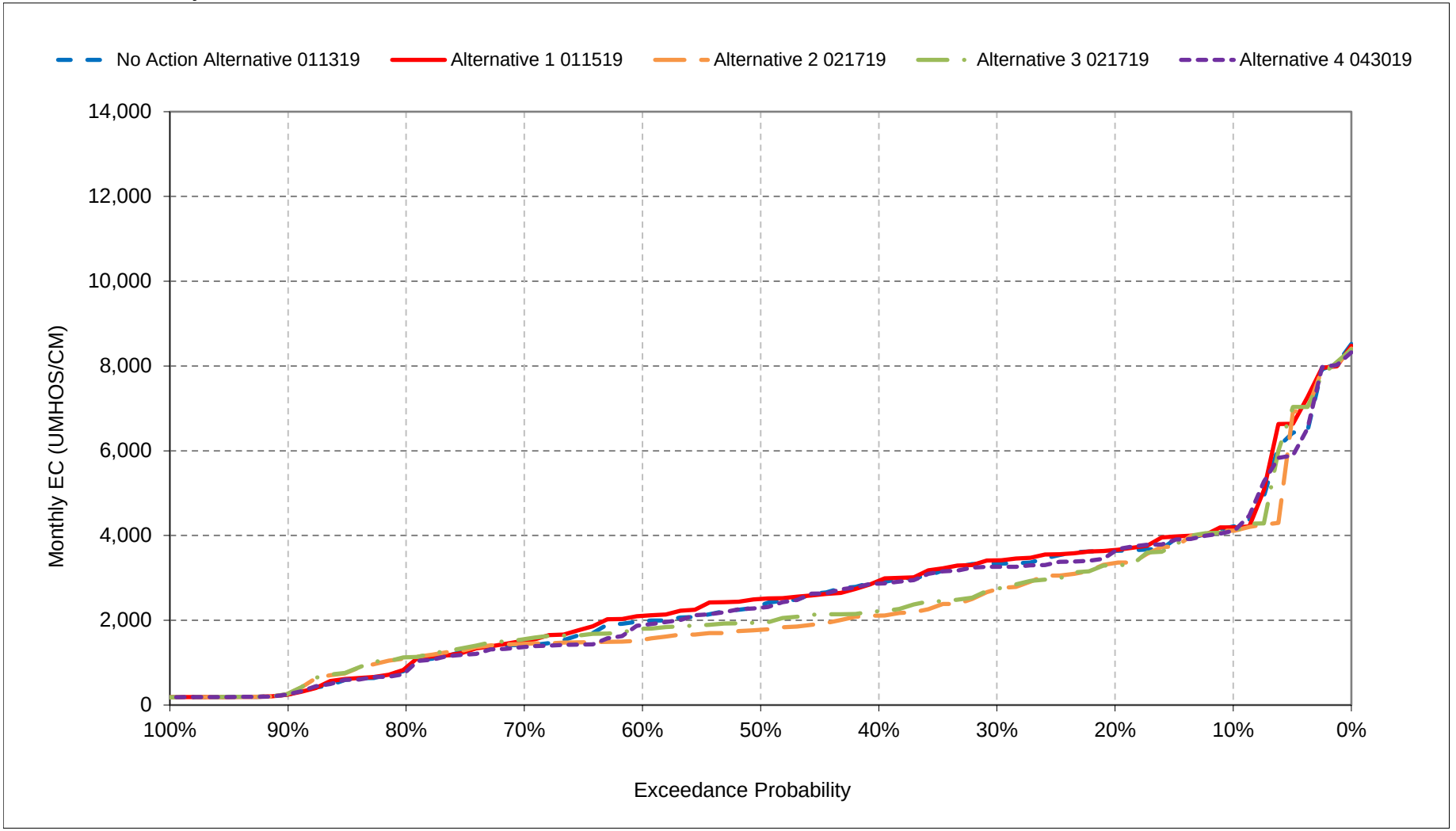
Figure 11-11. Sacramento River at Collinsville Salinity, May EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

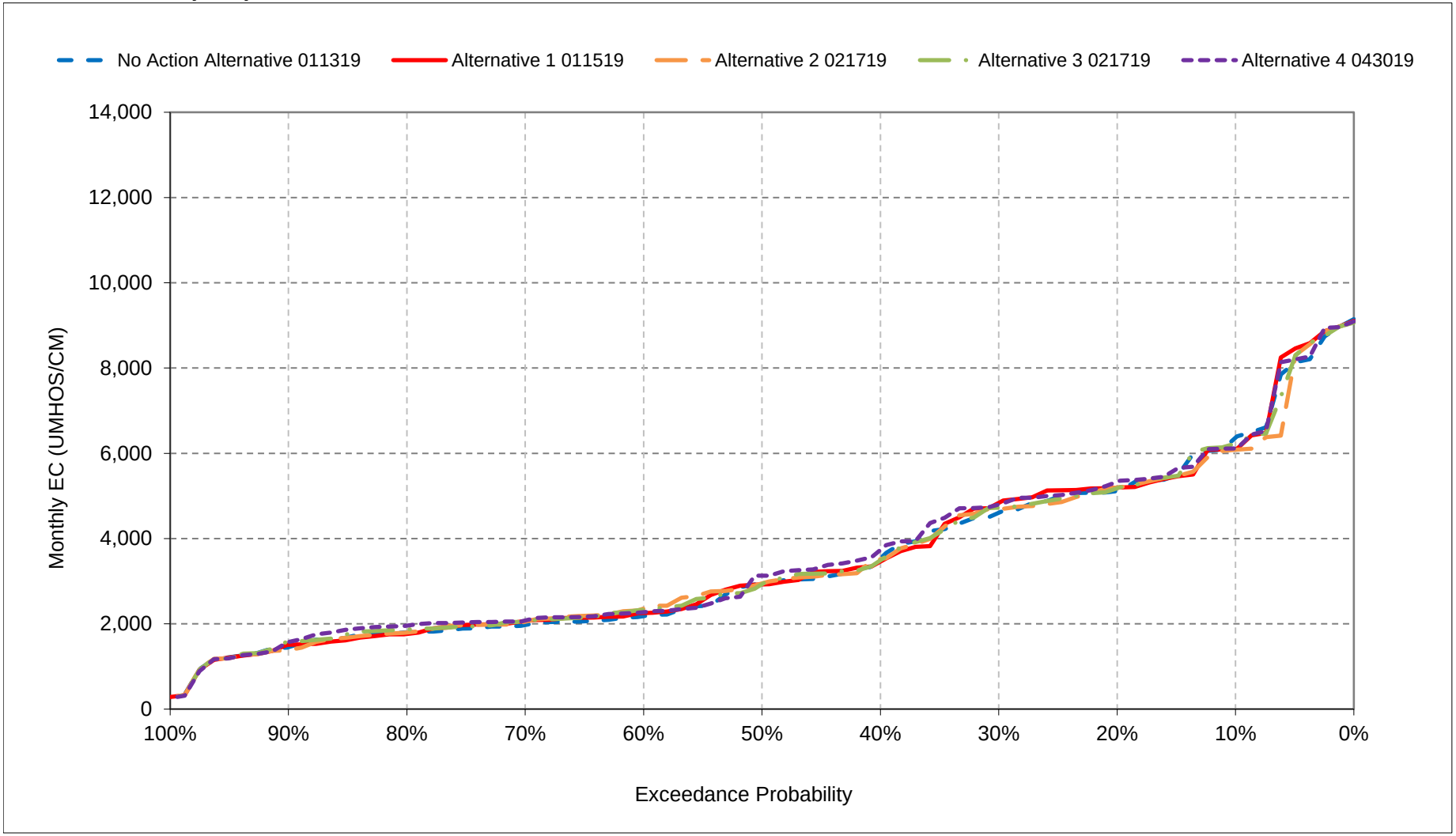
Figure 11-12. Sacramento River at Collinsville Salinity, June EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

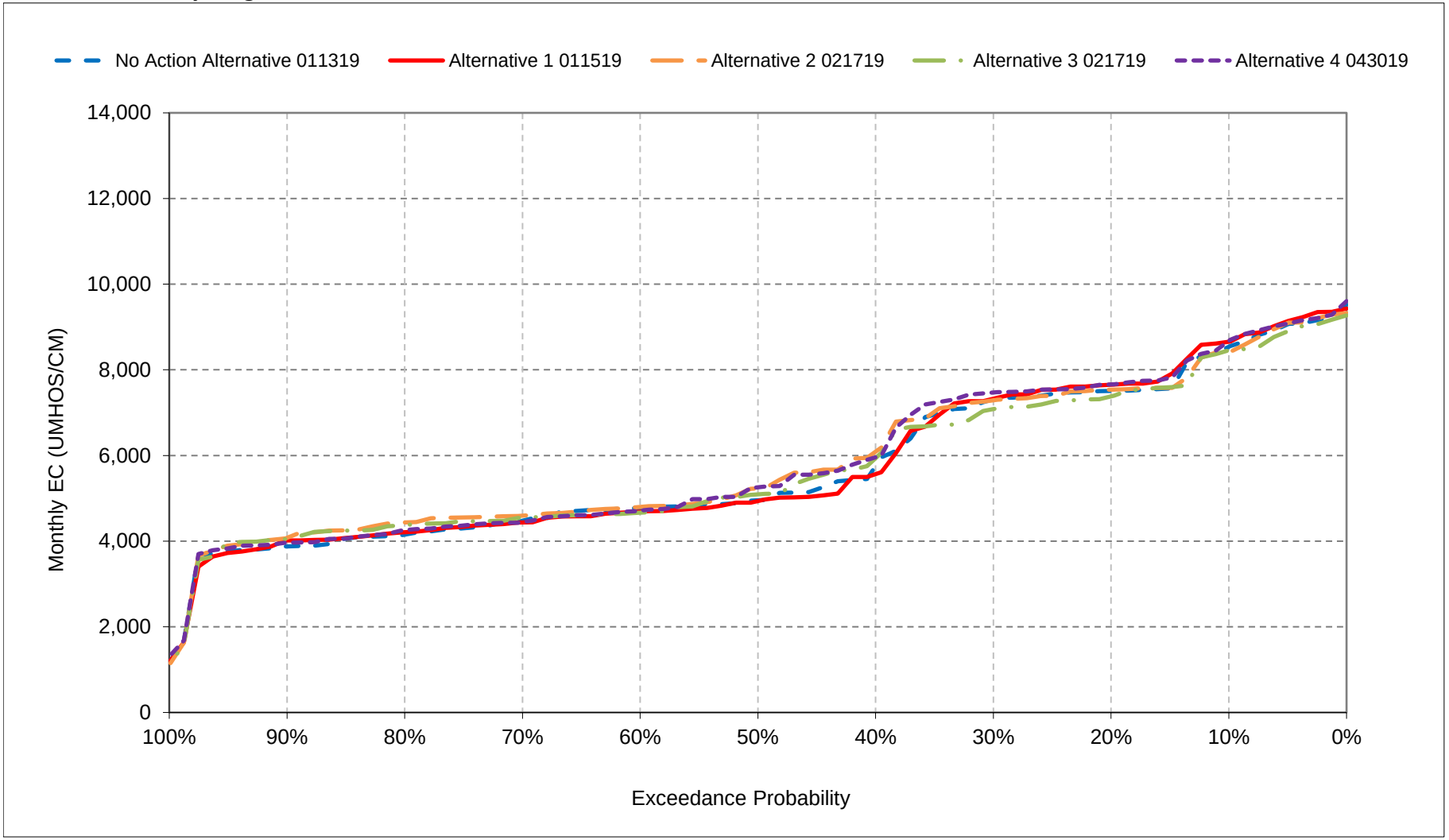
Figure 11-13. Sacramento River at Collinsville Salinity, July EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

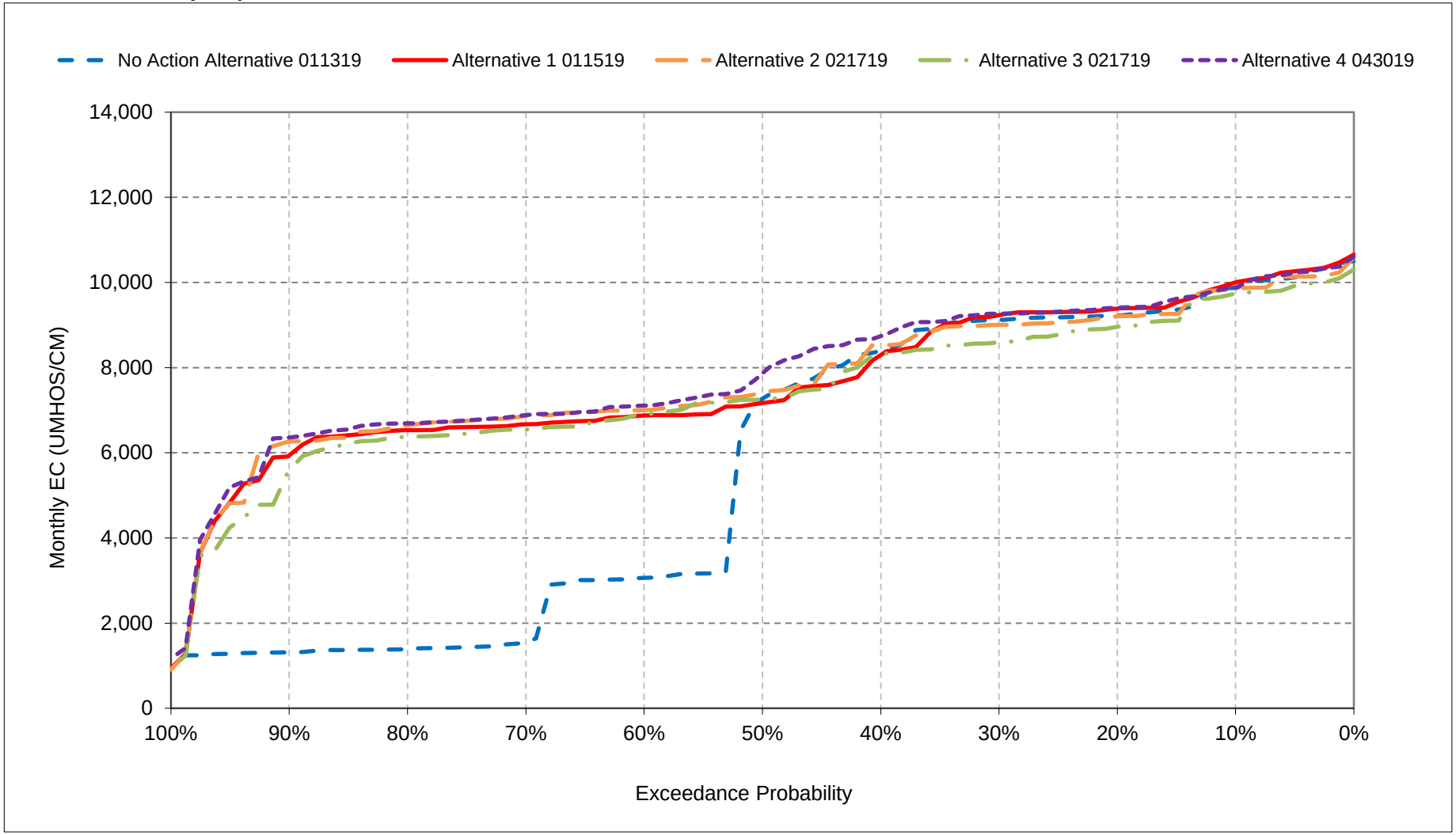
Figure 11-14. Sacramento River at Collinsville Salinity, August EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

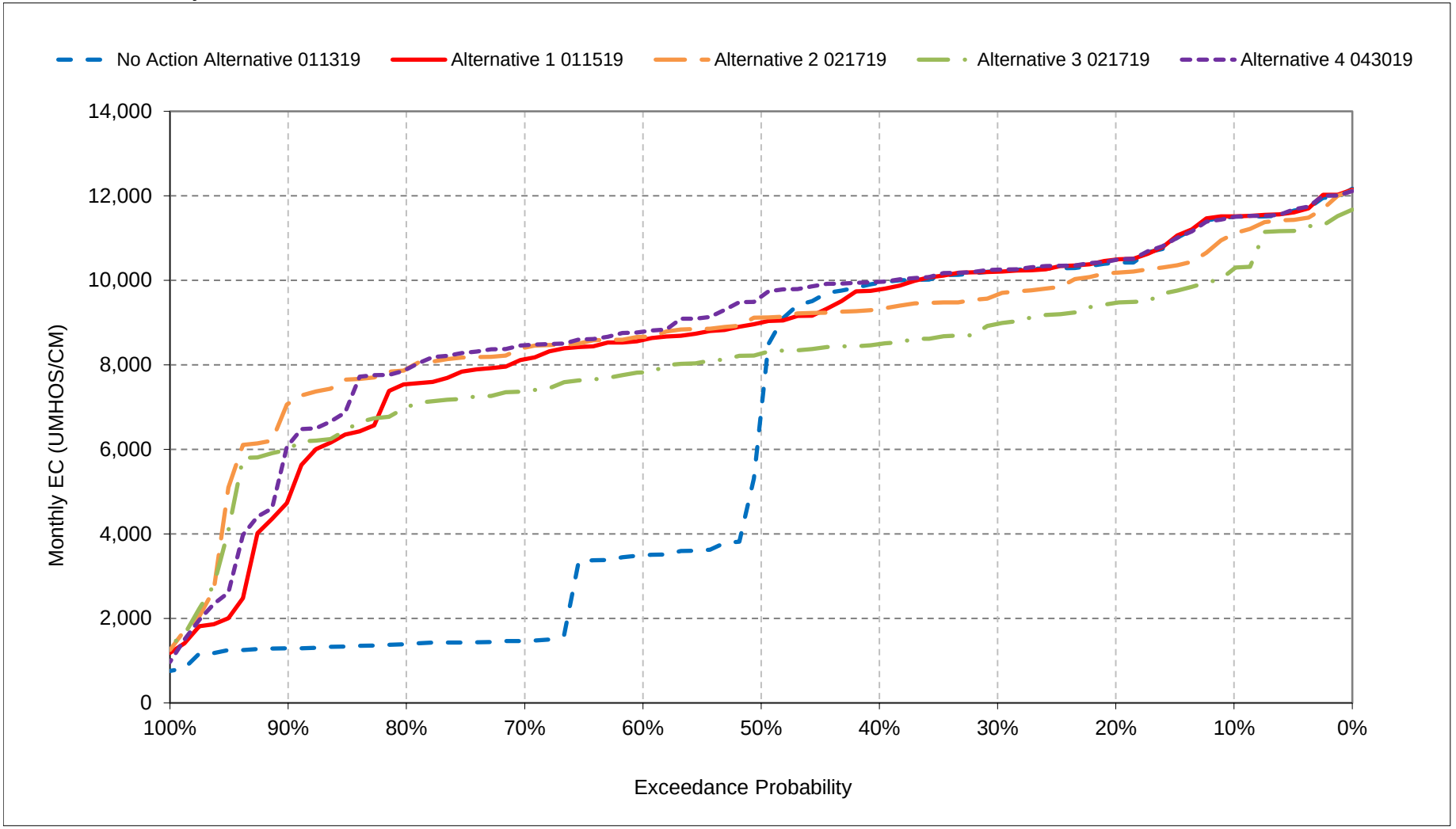
Figure 11-15. Sacramento River at Collinsville Salinity, September EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

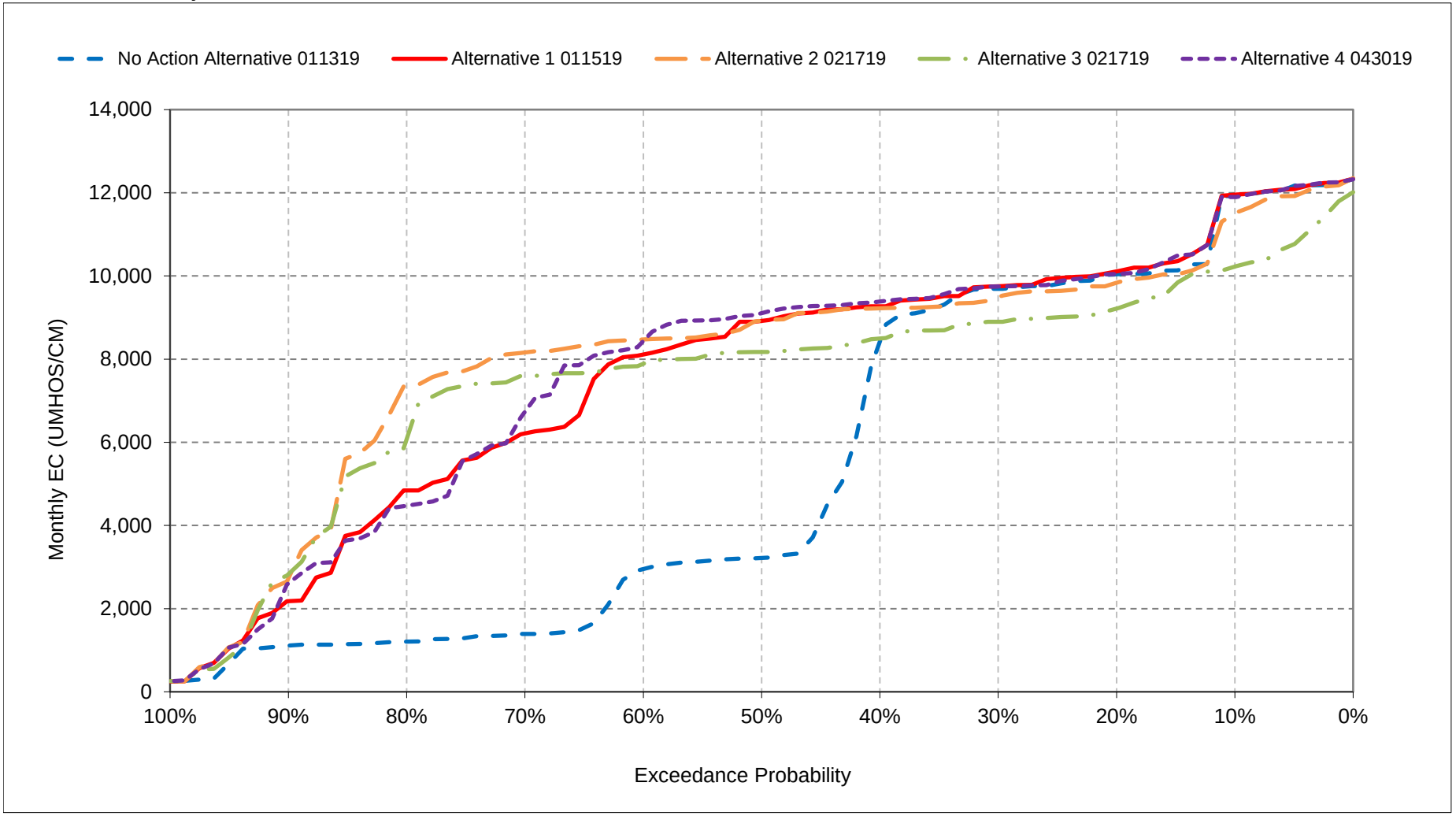
Figure 11-16. Sacramento River at Collinsville Salinity, October EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

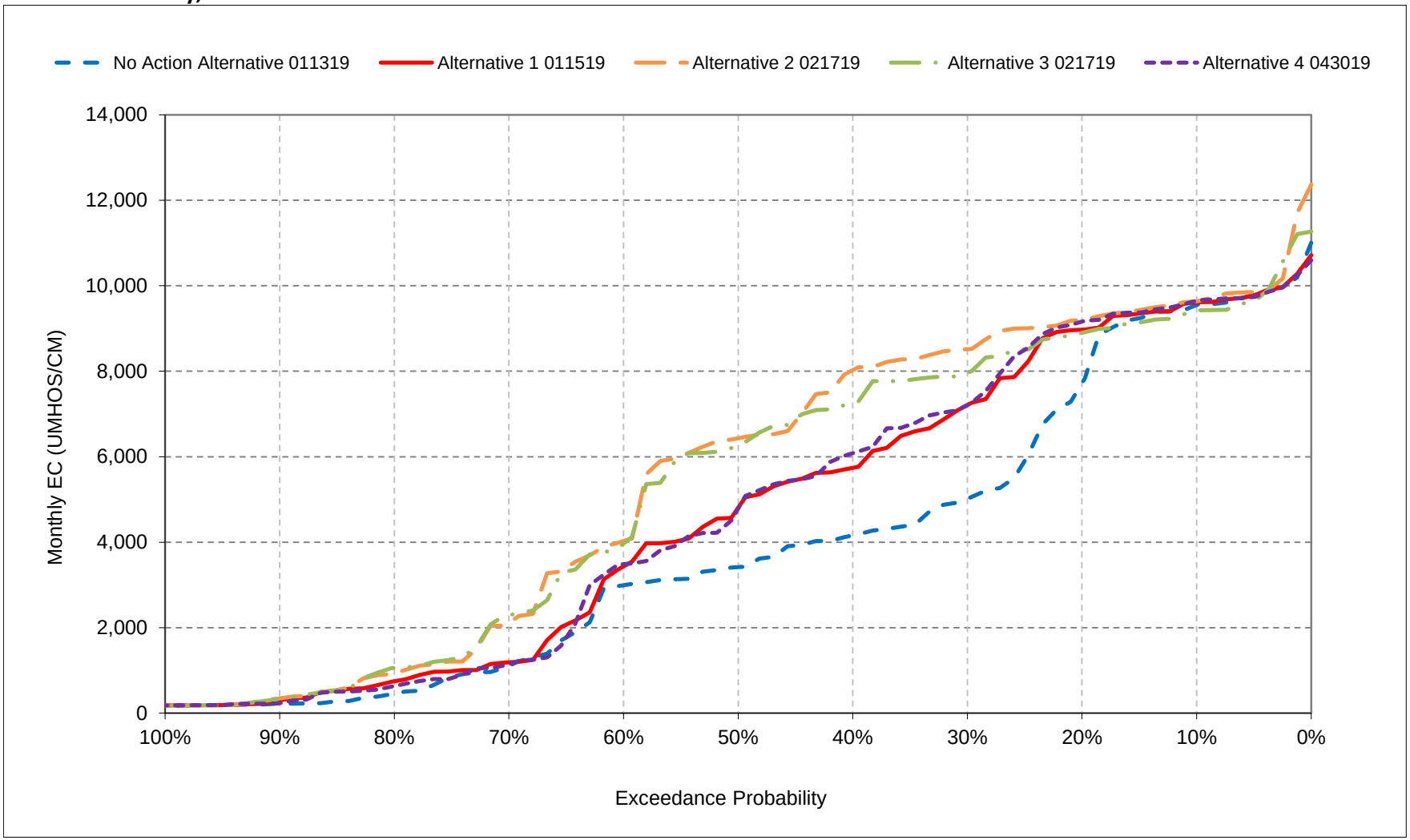
Figure 11-17. Sacramento River at Collinsville Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 11-18. Sacramento River at Collinsville Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 12-1. Chipps Island North Channel Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16,047	16,468	14,342	9,586	4,567	3,838	4,822	6,482	8,206	10,723	13,180	14,552
20%	15,023	14,703	12,712	8,291	3,037	2,816	2,827	5,524	7,337	9,436	11,971	13,854
30%	14,888	14,526	9,201	6,815	1,618	1,297	2,090	4,639	6,817	8,804	11,754	13,756
40%	14,555	13,409	8,375	4,265	910	1,049	1,249	2,717	6,076	7,268	10,253	12,989
50%	11,551	6,975	6,958	2,925	555	592	862	2,066	5,113	6,602	9,204	11,927
60%	7,097	6,680	6,292	1,601	317	345	494	1,329	4,660	5,296	8,863	6,797
70%	3,730	3,736	2,963	389	218	222	331	932	3,654	4,872	8,480	3,843
80%	3,615	3,398	1,015	223	204	200	225	387	2,272	4,606	8,044	3,611
90%	3,461	3,214	368	196	192	192	195	200	660	3,804	7,616	3,551
Long Term												
Full Simulation Period[a]	9,932	8,973	7,014	4,159	1,740	1,368	1,728	2,867	5,156	6,921	9,906	9,375
Water Year Types[b]												
Wet (32%)	3,545	3,212	4,067	883	262	307	363	704	2,367	4,049	7,960	3,582
Above Normal (16%)	6,840	6,321	6,095	1,990	599	402	543	1,326	4,396	5,095	8,140	6,786
Below Normal (13%)	13,193	12,087	8,351	5,194	2,061	1,875	2,110	3,228	5,805	6,858	9,432	12,461
Dry (24%)	14,717	12,092	7,534	6,579	2,575	1,612	2,114	3,848	6,326	9,046	11,723	13,696
Critical (15%)	16,158	16,276	12,300	8,625	4,490	3,840	4,977	7,259	9,478	11,642	13,438	14,700

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16,081	16,512	14,339	10,827	5,309	4,770	5,597	6,628	8,174	10,422	13,360	14,654
20%	15,103	14,804	13,776	8,858	3,064	2,969	3,655	5,823	7,441	9,550	12,154	14,002
30%	14,921	14,569	12,236	6,770	1,939	1,348	2,537	5,242	6,978	9,046	11,850	13,875
40%	14,393	14,072	10,516	4,275	1,084	1,065	1,918	3,620	6,241	7,261	10,047	12,838
50%	13,624	13,734	9,305	2,901	548	596	1,195	2,868	5,583	6,591	9,173	11,867
60%	13,234	12,793	7,013	1,573	262	332	723	2,218	5,009	5,401	8,783	11,457
70%	12,876	11,004	3,346	370	217	213	384	1,364	3,783	5,019	8,403	11,304
80%	12,402	9,065	1,576	217	203	200	225	466	2,378	4,597	8,125	11,131
90%	9,282	5,012	527	197	192	192	193	212	655	3,769	7,841	10,561
Long Term												
Full Simulation Period[a]	13,122	11,935	8,022	4,243	1,859	1,484	2,016	3,376	5,337	6,962	9,933	12,177
Water Year Types[b]												
Wet (32%)	10,642	9,590	6,261	803	251	302	506	1,058	2,485	4,094	7,903	10,159
Above Normal (16%)	12,495	11,714	8,013	1,980	549	406	782	1,948	4,526	5,155	8,224	11,318
Below Normal (13%)	13,066	12,327	8,315	5,340	2,195	1,963	2,495	4,005	6,156	6,844	9,353	12,252
Dry (24%)	14,949	12,277	7,561	6,896	2,741	1,729	2,477	4,370	6,492	9,041	11,830	13,769
Critical (15%)	16,183	16,327	12,346	8,723	4,986	4,362	5,414	7,715	9,724	11,776	13,554	14,761

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**33**	**44**	-3	**1,241**	**742**	**933**	**774**	**146**	-33	-301	**180**	**101**
20%	**80**	**101**	**1,063**	**567**	**27**	**154**	**828**	**299**	**104**	**114**	**183**	**147**
30%	**33**	**43**	**3,035**	-45	**322**	**50**	**447**	**603**	**161**	**242**	**96**	**119**
40%	-162	**663**	**2,141**	**10**	**173**	**16**	**669**	**903**	**166**	-8	-206	-150
50%	**2,072**	**6,760**	**2,348**	-24	-6	**5**	**333**	**802**	**470**	-12	-31	-61
60%	**6,137**	**6,113**	**722**	-27	-56	-13	**229**	**889**	**349**	**105**	-81	**4,660**
70%	**9,146**	**7,267**	**384**	-19	-1	-9	**53**	**432**	**129**	**148**	-77	**7,462**
80%	**8,787**	**5,667**	**561**	-6	-1	0	-1	**79**	**106**	-9	**80**	**7,520**
90%	**5,821**	**1,798**	**159**	**1**	**0**	**0**	-2	**12**	-6	-35	**225**	**7,010**
Long Term												
Full Simulation Period[a]	**3,190**	**2,962**	**1,008**	**84**	**119**	**116**	**287**	**509**	**182**	**41**	**27**	**2,803**
Water Year Types[b]												
Wet (32%)	**7,097**	**6,377**	**2,194**	-80	-11	-5	**142**	**354**	**118**	**45**	-58	**6,576**
Above Normal (16%)	**5,655**	**5,393**	**1,917**	-11	-50	**4**	**239**	**622**	**130**	**61**	**84**	**4,532**
Below Normal (13%)	-127	**241**	-37	**146**	**134**	**88**	**386**	**778**	**351**	-13	-79	-209
Dry (24%)	**232**	**185**	**28**	**317**	**166**	**117**	**364**	**521**	**166**	-4	**107**	**73**
Critical (15%)	**25**	**51**	**46**	**98**	**496**	**522**	**436**	**456**	**245**	**134**	**115**	**62**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 12-2. Chipps Island North Channel Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16,047	16,468	14,342	9,586	4,567	3,838	4,822	6,482	8,206	10,723	13,180	14,552
20%	15,023	14,703	12,712	8,291	3,037	2,816	2,827	5,524	7,337	9,436	11,971	13,854
30%	14,888	14,526	9,201	6,815	1,618	1,297	2,090	4,639	6,817	8,804	11,754	13,756
40%	14,555	13,409	8,375	4,265	910	1,049	1,249	2,717	6,076	7,268	10,253	12,989
50%	11,551	6,975	6,958	2,925	555	592	862	2,066	5,113	6,602	9,204	11,927
60%	7,097	6,680	6,292	1,601	317	345	494	1,329	4,660	5,296	8,863	6,797
70%	3,730	3,736	2,963	389	218	222	331	932	3,654	4,872	8,480	3,843
80%	3,615	3,398	1,015	223	204	200	225	387	2,272	4,606	8,044	3,611
90%	3,461	3,214	368	196	192	192	195	200	660	3,804	7,616	3,551
Long Term												
Full Simulation Period[a]	9,932	8,973	7,014	4,159	1,740	1,368	1,728	2,867	5,156	6,921	9,906	9,375
Water Year Types[b]												
Wet (32%)	3,545	3,212	4,067	883	262	307	363	704	2,367	4,049	7,960	3,582
Above Normal (16%)	6,840	6,321	6,095	1,990	599	402	543	1,326	4,396	5,095	8,140	6,786
Below Normal (13%)	13,193	12,087	8,351	5,194	2,061	1,875	2,110	3,228	5,805	6,858	9,432	12,461
Dry (24%)	14,717	12,092	7,534	6,579	2,575	1,612	2,114	3,848	6,326	9,046	11,723	13,696
Critical (15%)	16,158	16,276	12,300	8,625	4,490	3,840	4,977	7,259	9,478	11,642	13,438	14,700

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,695	16,011	14,357	11,562	6,820	5,288	5,715	6,643	7,963	10,408	13,017	14,515
20%	14,865	14,642	14,043	10,704	4,492	3,169	3,952	5,596	6,954	9,435	11,986	13,845
30%	14,349	14,150	13,545	9,431	3,069	1,790	3,020	4,955	6,017	8,808	11,709	13,670
40%	14,052	13,919	12,992	6,584	1,208	1,422	2,277	4,151	5,104	7,358	10,366	13,115
50%	13,818	13,743	11,311	4,823	862	827	1,379	3,163	4,531	6,482	9,511	12,099
60%	13,445	13,293	8,351	2,246	407	359	881	2,402	4,044	5,511	8,923	11,649
70%	13,111	12,974	5,211	545	220	230	414	1,612	3,773	5,007	8,618	11,464
80%	12,819	12,286	2,106	251	205	201	239	604	3,003	4,576	8,411	11,257
90%	11,717	5,828	662	198	193	191	193	212	741	3,844	7,921	10,758
Long Term												
Full Simulation Period[a]	13,372	12,471	9,078	5,362	2,316	1,656	2,159	3,422	4,894	6,907	10,058	12,224
Water Year Types[b]												
Wet (32%)	11,631	10,892	7,207	1,282	299	340	546	1,077	2,366	4,204	8,062	10,313
Above Normal (16%)	13,337	12,887	9,565	2,875	781	455	912	2,220	3,824	5,046	8,491	11,545
Below Normal (13%)	13,116	12,855	9,231	7,224	2,794	2,101	2,770	3,987	4,722	6,750	9,852	12,289
Dry (24%)	14,350	11,903	8,246	8,400	3,456	2,089	2,705	4,309	6,193	8,947	11,789	13,668
Critical (15%)	15,784	16,036	13,848	10,126	6,014	4,681	5,537	7,808	9,524	11,527	13,385	14,634

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-352	-456	**16**	**1,976**	**2,253**	**1,451**	**893**	**162**	-243	-315	-164	-37
20%	-158	-60	**1,330**	**2,413**	**1,455**	**353**	**1,125**	**72**	-383	-1	**14**	-9
30%	-538	-376	**4,344**	**2,617**	**1,452**	**493**	**930**	**316**	-800	**3**	-45	-86
40%	-503	**510**	**4,617**	**2,319**	**297**	**373**	**1,028**	**1,434**	-971	**90**	**114**	**126**
50%	**2,266**	**6,768**	**4,353**	**1,898**	**307**	**236**	**517**	**1,096**	-581	-120	**307**	**171**
60%	**6,347**	**6,613**	**2,059**	**646**	**90**	**14**	**386**	**1,073**	-616	**215**	**59**	**4,852**
70%	**9,382**	**9,238**	**2,248**	**155**	**2**	**8**	**83**	**680**	**119**	**136**	**138**	**7,622**
80%	**9,204**	**8,887**	**1,091**	**27**	**1**	**1**	**14**	**217**	**730**	-30	**366**	**7,645**
90%	**8,256**	**2,614**	**294**	**2**	**1**	-1	-2	**12**	**81**	**40**	**305**	**7,207**
Long Term												
Full Simulation Period[a]	**3,439**	**3,497**	**2,064**	**1,203**	**577**	**289**	**431**	**555**	-262	-14	**153**	**2,849**
Water Year Types[b]												
Wet (32%)	**8,086**	**7,679**	**3,140**	**399**	**37**	**33**	**183**	**373**	-1	**156**	**102**	**6,731**
Above Normal (16%)	**6,497**	**6,566**	**3,469**	**885**	**182**	**53**	**369**	**894**	-572	-49	**351**	**4,759**
Below Normal (13%)	-76	**768**	**880**	**2,030**	**733**	**227**	**660**	**760**	-1,083	-108	**420**	-172
Dry (24%)	-367	-190	**712**	**1,821**	**882**	**478**	**591**	**461**	-133	-99	**66**	-28
Critical (15%)	-374	-240	**1,548**	**1,501**	**1,523**	**841**	**560**	**549**	**45**	-115	-53	-65

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 12-3. Chipps Island North Channel Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16,047	16,468	14,342	9,586	4,567	3,838	4,822	6,482	8,206	10,723	13,180	14,552
20%	15,023	14,703	12,712	8,291	3,037	2,816	2,827	5,524	7,337	9,436	11,971	13,854
30%	14,888	14,526	9,201	6,815	1,618	1,297	2,090	4,639	6,817	8,804	11,754	13,756
40%	14,555	13,409	8,375	4,265	910	1,049	1,249	2,717	6,076	7,268	10,253	12,989
50%	11,551	6,975	6,958	2,925	555	592	862	2,066	5,113	6,602	9,204	11,927
60%	7,097	6,680	6,292	1,601	317	345	494	1,329	4,660	5,296	8,863	6,797
70%	3,730	3,736	2,963	389	218	222	331	932	3,654	4,872	8,480	3,843
80%	3,615	3,398	1,015	223	204	200	225	387	2,272	4,606	8,044	3,611
90%	3,461	3,214	368	196	192	192	195	200	660	3,804	7,616	3,551
Long Term												
Full Simulation Period[a]	9,932	8,973	7,014	4,159	1,740	1,368	1,728	2,867	5,156	6,921	9,906	9,375
Water Year Types[b]												
Wet (32%)	3,545	3,212	4,067	883	262	307	363	704	2,367	4,049	7,960	3,582
Above Normal (16%)	6,840	6,321	6,095	1,990	599	402	543	1,326	4,396	5,095	8,140	6,786
Below Normal (13%)	13,193	12,087	8,351	5,194	2,061	1,875	2,110	3,228	5,805	6,858	9,432	12,461
Dry (24%)	14,717	12,092	7,534	6,579	2,575	1,612	2,114	3,848	6,326	9,046	11,723	13,696
Critical (15%)	16,158	16,276	12,300	8,625	4,490	3,840	4,977	7,259	9,478	11,642	13,438	14,700

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15,015	14,973	14,183	11,605	6,890	5,167	5,552	6,723	8,008	10,555	13,028	14,432
20%	14,310	14,001	13,698	10,659	4,804	3,214	3,994	5,597	6,887	9,353	11,872	13,632
30%	13,821	13,711	13,212	9,181	3,137	1,787	2,984	5,090	6,074	8,829	11,546	13,314
40%	13,462	13,534	12,237	6,823	1,260	1,316	2,239	4,156	5,187	7,314	10,303	12,914
50%	13,174	13,025	11,184	5,023	881	862	1,321	3,228	4,858	6,457	9,415	11,920
60%	12,732	12,719	8,159	2,317	438	371	817	2,415	4,438	5,544	8,802	11,572
70%	12,378	12,311	5,553	589	223	234	425	1,690	4,114	5,026	8,494	11,209
80%	11,855	10,982	2,279	258	206	202	243	632	3,015	4,787	8,243	11,022
90%	10,801	6,156	672	199	193	192	195	214	755	3,897	7,975	10,142
Long Term												
Full Simulation Period[a]	12,770	11,964	8,934	5,389	2,392	1,675	2,136	3,463	5,033	6,960	9,950	11,982
Water Year Types[b]												
Wet (32%)	11,236	10,557	7,009	1,293	309	346	492	1,207	2,484	4,254	8,028	10,127
Above Normal (16%)	12,646	12,313	9,262	2,867	786	461	917	2,241	4,116	5,055	8,287	10,982
Below Normal (13%)	12,575	12,255	9,152	7,380	2,688	2,033	2,723	4,010	4,962	6,813	9,779	12,203
Dry (24%)	13,454	11,410	8,260	8,543	3,671	2,115	2,686	4,277	6,175	8,941	11,621	13,446
Critical (15%)	15,270	15,289	13,674	9,912	6,240	4,812	5,566	7,816	9,709	11,722	13,289	14,442

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,032	-1,495	-159	**2,019**	**2,323**	**1,329**	**730**	**241**	-199	-168	-152	-120
20%	-713	-701	**986**	**2,368**	**1,766**	**398**	**1,167**	**73**	-450	-83	-99	-222
30%	-1,066	-815	**4,011**	**2,366**	**1,519**	**490**	**894**	**451**	-743	**24**	-207	-443
40%	-1,093	**125**	**3,862**	**2,558**	**349**	**267**	**990**	**1,439**	-889	**45**	**50**	-74
50%	**1,623**	**6,051**	**4,226**	**2,098**	**326**	**270**	**459**	**1,161**	-254	-145	**211**	-8
60%	**5,634**	**6,039**	**1,867**	**717**	**121**	**25**	**323**	**1,087**	-222	**248**	-61	**4,775**
70%	**8,648**	**8,575**	**2,590**	**200**	**5**	**12**	**94**	**759**	**460**	**155**	**15**	**7,366**
80%	**8,240**	**7,584**	**1,264**	**34**	**2**	**2**	**18**	**245**	**743**	**181**	**199**	**7,410**
90%	**7,340**	**2,942**	**304**	**3**	**1**	**0**	**0**	**14**	**94**	**93**	**359**	**6,591**
Long Term												
Full Simulation Period[a]	**2,838**	**2,990**	**1,920**	**1,230**	**652**	**307**	**408**	**595**	-123	**39**	**45**	**2,607**
Water Year Types[b]												
Wet (32%)	**7,691**	**7,345**	**2,942**	**411**	**47**	**38**	**128**	**503**	**117**	**206**	**68**	**6,545**
Above Normal (16%)	**5,806**	**5,992**	**3,166**	**876**	**187**	**58**	**374**	**915**	-280	-40	**147**	**4,196**
Below Normal (13%)	-618	**168**	**801**	**2,186**	**627**	**158**	**614**	**782**	-842	-45	**347**	-258
Dry (24%)	-1,263	-682	**727**	**1,964**	**1,096**	**503**	**572**	**428**	-150	-105	-102	-250
Critical (15%)	-888	-987	**1,373**	**1,287**	**1,750**	**972**	**588**	**557**	**231**	**81**	-150	-258

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 12-4. Chipps Island North Channel Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16,047	16,468	14,342	9,586	4,567	3,838	4,822	6,482	8,206	10,723	13,180	14,552
20%	15,023	14,703	12,712	8,291	3,037	2,816	2,827	5,524	7,337	9,436	11,971	13,854
30%	14,888	14,526	9,201	6,815	1,618	1,297	2,090	4,639	6,817	8,804	11,754	13,756
40%	14,555	13,409	8,375	4,265	910	1,049	1,249	2,717	6,076	7,268	10,253	12,989
50%	11,551	6,975	6,958	2,925	555	592	862	2,066	5,113	6,602	9,204	11,927
60%	7,097	6,680	6,292	1,601	317	345	494	1,329	4,660	5,296	8,863	6,797
70%	3,730	3,736	2,963	389	218	222	331	932	3,654	4,872	8,480	3,843
80%	3,615	3,398	1,015	223	204	200	225	387	2,272	4,606	8,044	3,611
90%	3,461	3,214	368	196	192	192	195	200	660	3,804	7,616	3,551
Long Term												
Full Simulation Period[a]	9,932	8,973	7,014	4,159	1,740	1,368	1,728	2,867	5,156	6,921	9,906	9,375
Water Year Types[b]												
Wet (32%)	3,545	3,212	4,067	883	262	307	363	704	2,367	4,049	7,960	3,582
Above Normal (16%)	6,840	6,321	6,095	1,990	599	402	543	1,326	4,396	5,095	8,140	6,786
Below Normal (13%)	13,193	12,087	8,351	5,194	2,061	1,875	2,110	3,228	5,805	6,858	9,432	12,461
Dry (24%)	14,717	12,092	7,534	6,579	2,575	1,612	2,114	3,848	6,326	9,046	11,723	13,696
Critical (15%)	16,158	16,276	12,300	8,625	4,490	3,840	4,977	7,259	9,478	11,642	13,438	14,700

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16,029	16,450	14,378	10,483	4,919	3,415	4,229	6,527	8,097	10,402	13,232	14,586
20%	15,122	14,759	14,011	8,658	2,971	1,629	2,450	5,541	7,353	9,526	12,157	14,021
30%	14,931	14,508	12,323	6,412	1,776	750	1,622	4,043	6,752	9,055	11,947	13,881
40%	14,669	14,158	10,870	4,006	996	575	940	2,459	6,119	7,549	10,211	13,240
50%	14,244	13,877	9,335	2,803	518	397	566	1,650	4,975	6,897	9,382	12,468
60%	13,479	13,156	6,993	1,410	249	246	343	1,076	4,455	5,412	8,813	11,759
70%	13,107	11,665	3,206	362	215	215	262	690	3,476	5,059	8,416	11,468
80%	12,835	8,772	1,526	215	205	201	216	306	2,224	4,870	8,160	11,330
90%	10,621	5,696	504	196	193	196	196	202	692	3,848	7,746	10,945
Long Term												
Full Simulation Period[a]	13,431	12,057	8,016	4,106	1,738	1,077	1,463	2,695	5,069	7,036	10,015	12,387
Water Year Types[b]												
Wet (32%)	11,181	10,000	6,441	747	235	255	330	628	2,273	4,169	7,970	10,436
Above Normal (16%)	13,031	12,005	7,871	1,950	494	282	400	1,031	4,252	5,229	8,173	11,404
Below Normal (13%)	13,332	11,910	8,281	4,967	1,999	1,159	1,460	2,950	5,759	7,052	9,740	12,812
Dry (24%)	15,027	12,280	7,462	6,772	2,571	1,120	1,755	3,698	6,285	9,150	11,934	13,919
Critical (15%)	16,166	16,330	12,267	8,489	4,715	3,571	4,588	7,070	9,351	11,669	13,495	14,735

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-19	-17	**36**	**897**	**352**	-422	-594	**45**	-110	-321	**51**	**34**
20%	**99**	**57**	**1,299**	**367**	-66	-1,187	-378	**17**	**16**	**90**	**186**	**167**
30%	**44**	-18	**3,122**	-402	**159**	-547	-468	-596	-65	**251**	**193**	**124**
40%	**114**	**749**	**2,495**	-259	**86**	-474	-309	-258	**44**	**280**	-41	**251**
50%	**2,693**	**6,902**	**2,378**	-122	-37	-195	-296	-417	-137	**295**	**178**	**541**
60%	**6,382**	**6,476**	**701**	-190	-68	-99	-151	-253	-205	**116**	-50	**4,962**
70%	**9,378**	**7,929**	**243**	-27	-3	-7	-69	-242	-177	**187**	-64	**7,625**
80%	**9,220**	**5,374**	**510**	-9	**1**	**2**	-9	-81	-49	**264**	**116**	**7,719**
90%	**7,159**	**2,482**	**135**	**0**	**1**	**4**	**1**	**2**	**31**	**44**	**130**	**7,394**
Long Term												
Full Simulation Period[a]	**3,498**	**3,083**	**1,003**	-53	-2	-291	-265	-172	-87	**115**	**109**	**3,012**
Water Year Types[b]												
Wet (32%)	**7,636**	**6,788**	**2,374**	-135	-27	-53	-33	-76	-94	**120**	**10**	**6,854**
Above Normal (16%)	**6,191**	**5,684**	**1,776**	-40	-104	-121	-143	-295	-144	**134**	**33**	**4,619**
Below Normal (13%)	**139**	-177	-70	-228	-62	-716	-650	-278	-46	**194**	**308**	**352**
Dry (24%)	**310**	**188**	-72	**193**	-4	-492	-359	-150	-40	**104**	**211**	**223**
Critical (15%)	**7**	**54**	-33	-137	**224**	-269	-389	-189	-128	**27**	**56**	**35**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

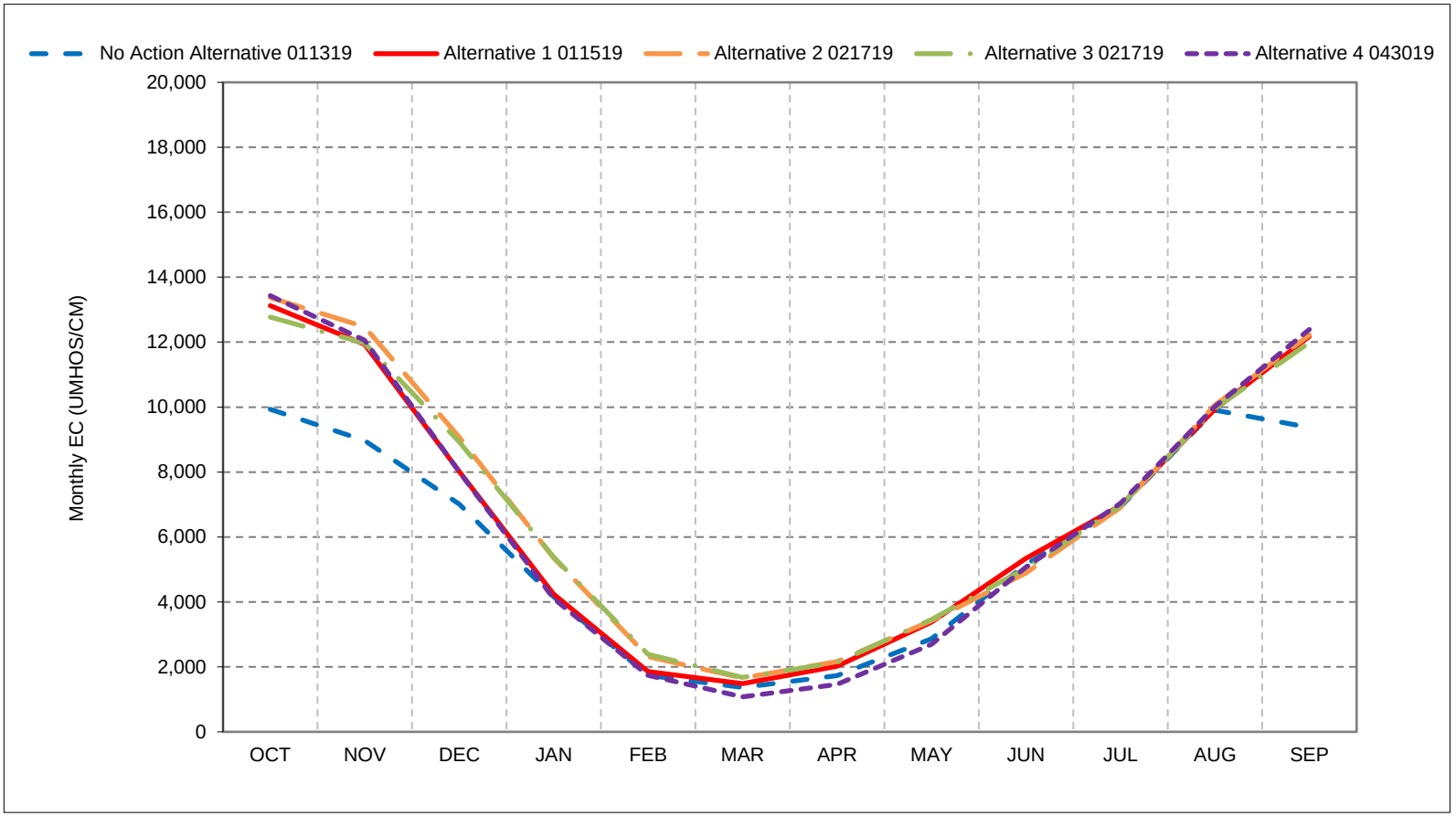
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-1. Chipps Island North Channel Salinity, Long-Term Average EC



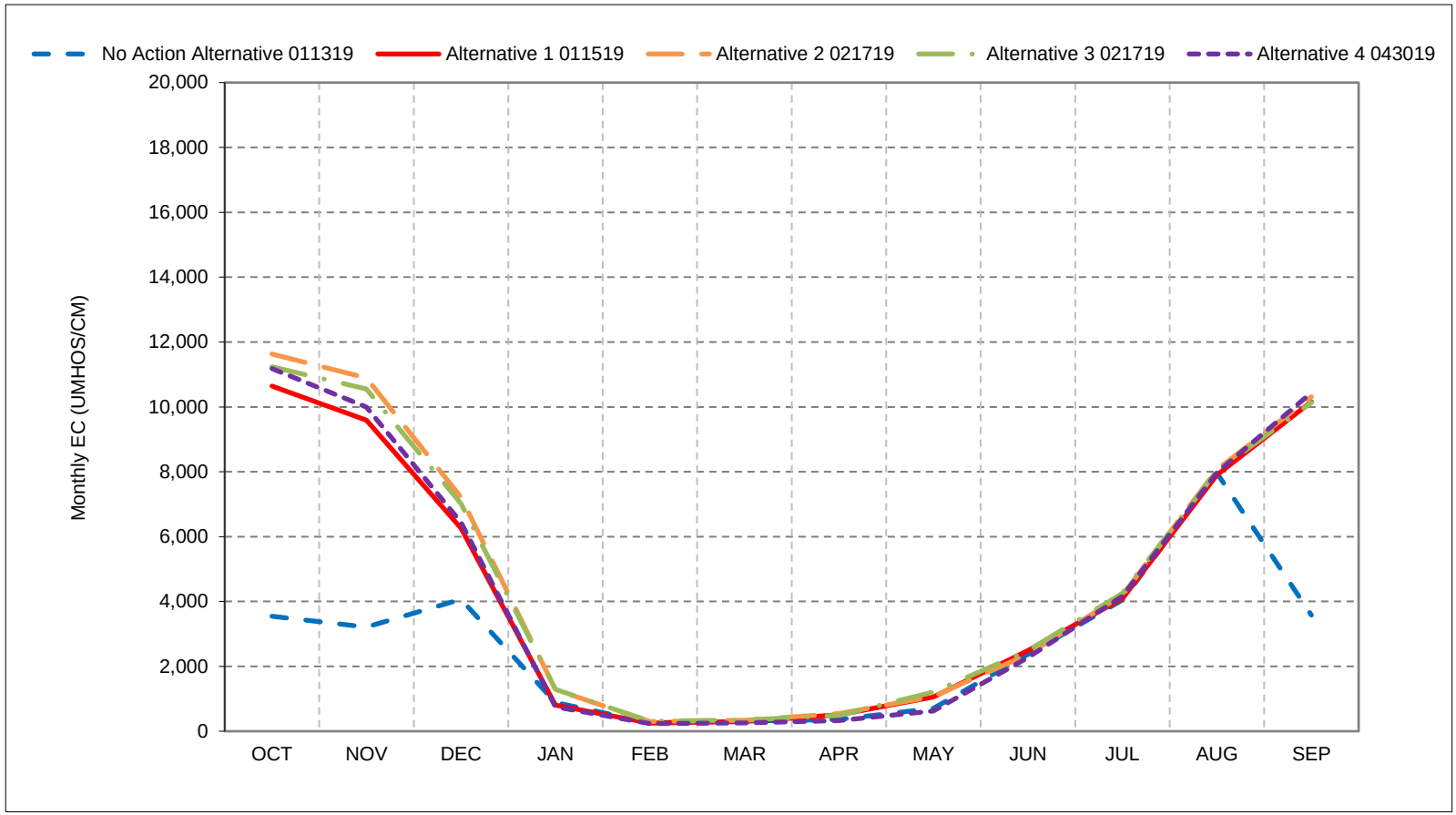
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-2. Chipps Island North Channel Salinity, Wet Year Average EC



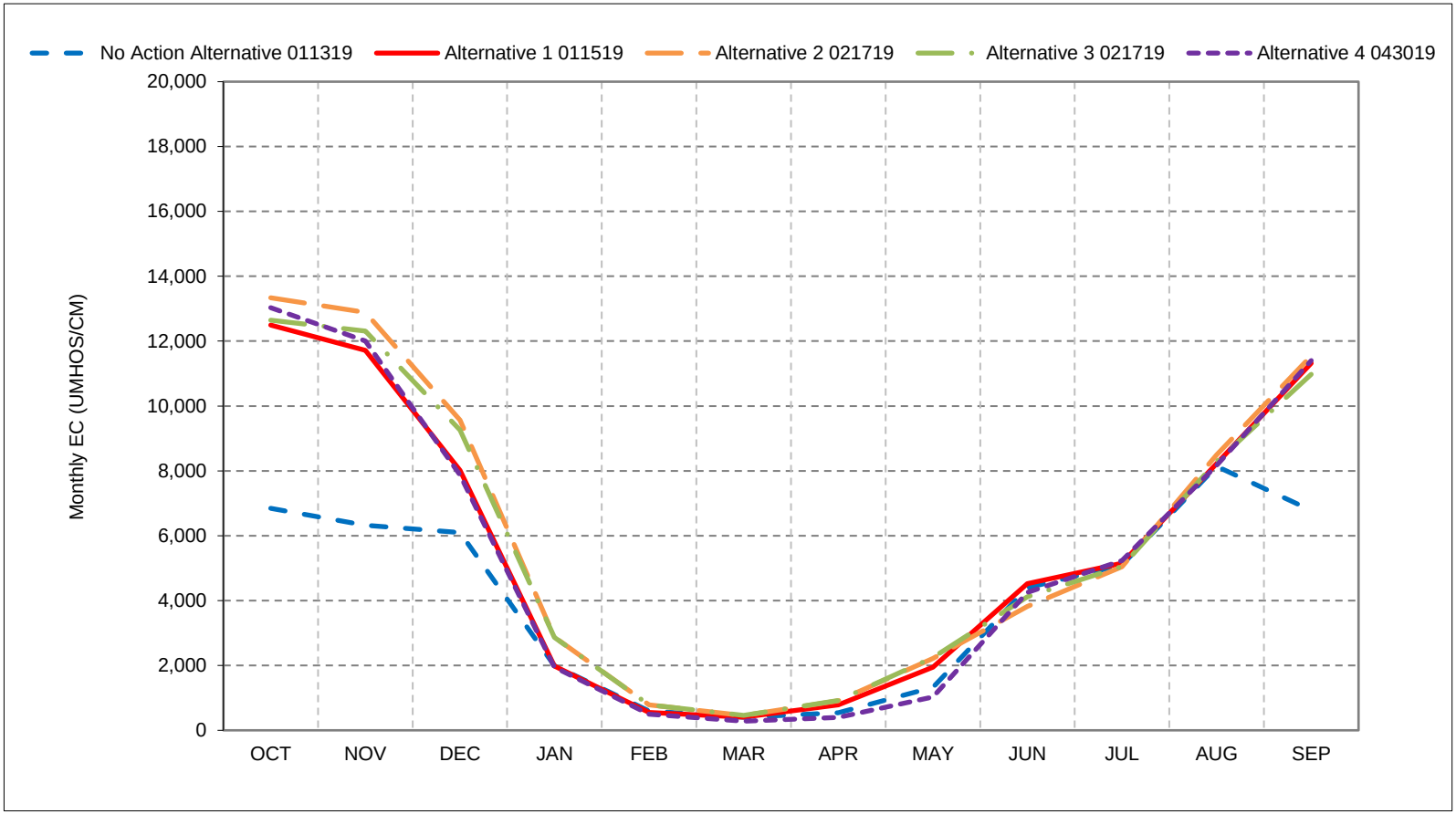
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-3. Chipps Island North Channel Salinity, Above Normal Year Average EC



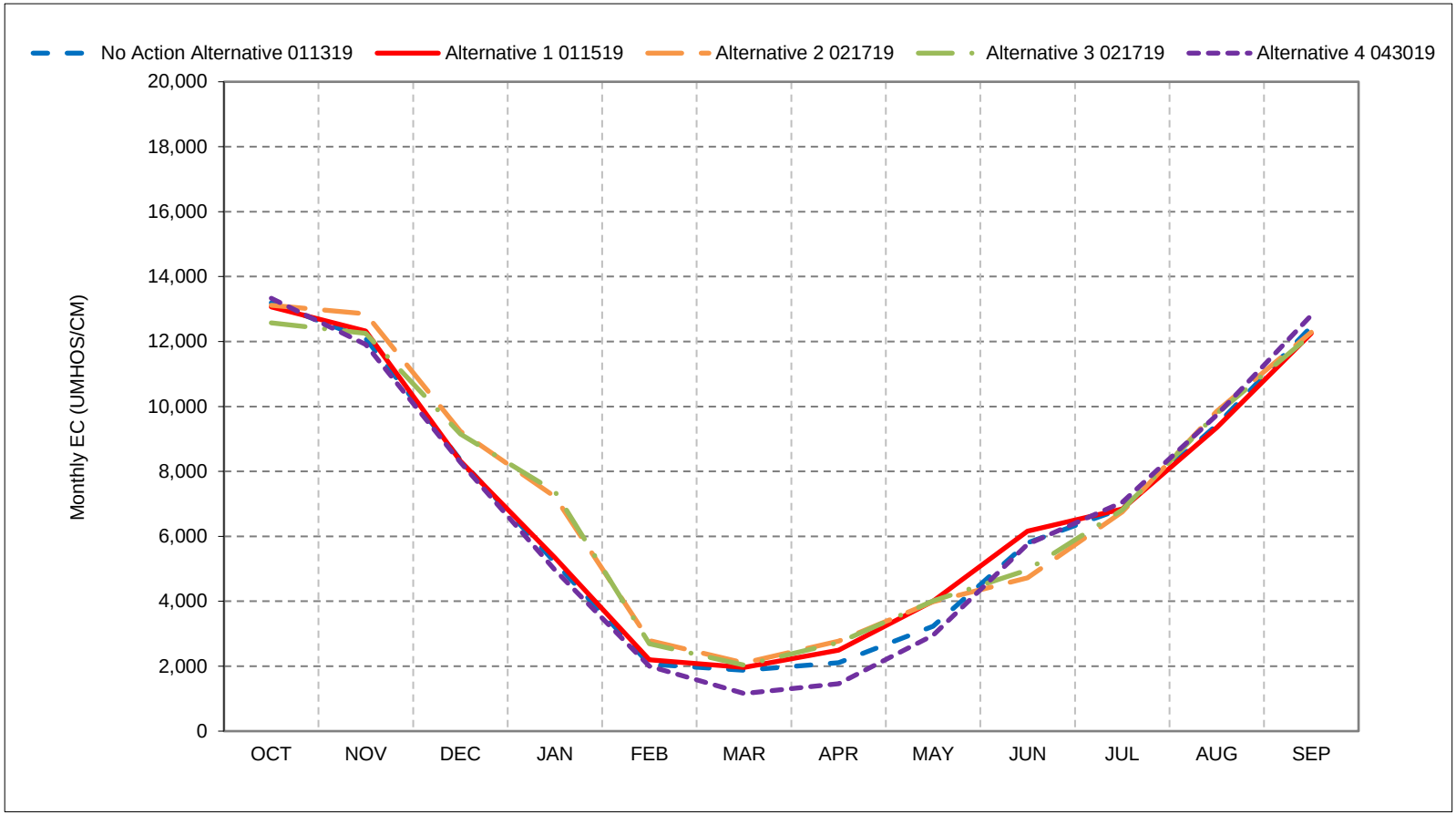
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-4. Chipps Island North Channel Salinity, Below Normal Year Average EC



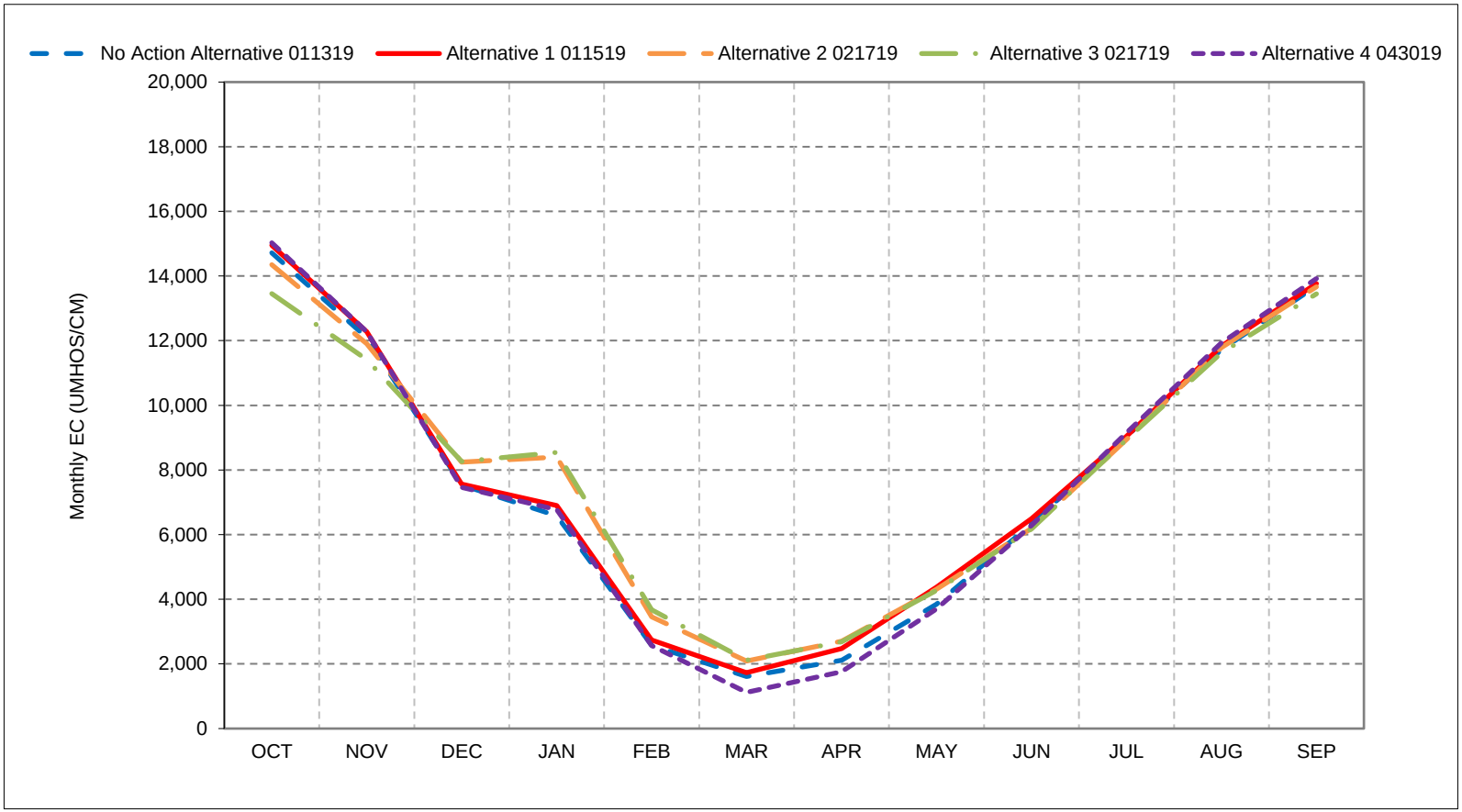
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-5. Chipps Island North Channel Salinity, Dry Year Average EC



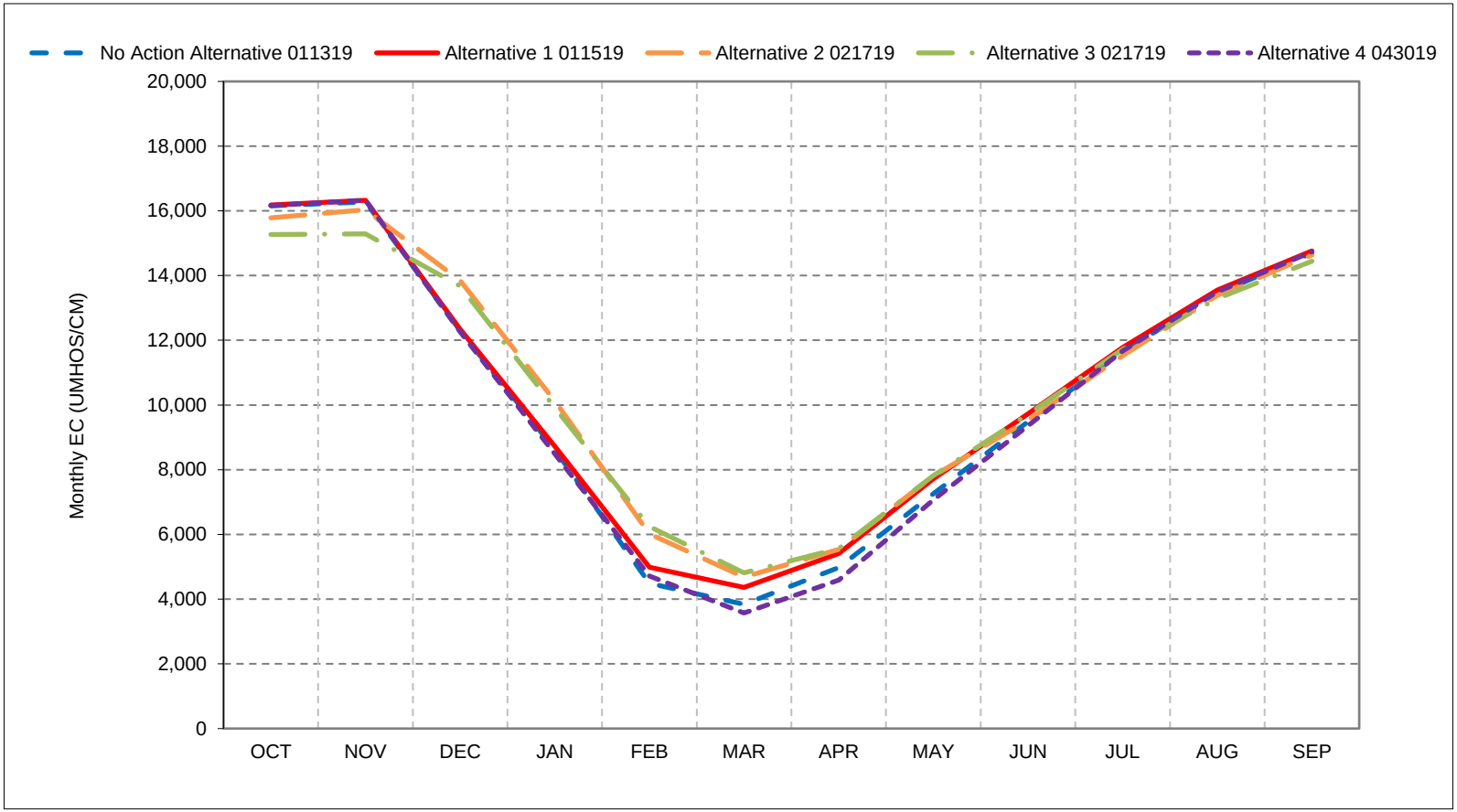
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-6. Chipps Island North Channel Salinity, Critical Year Average EC



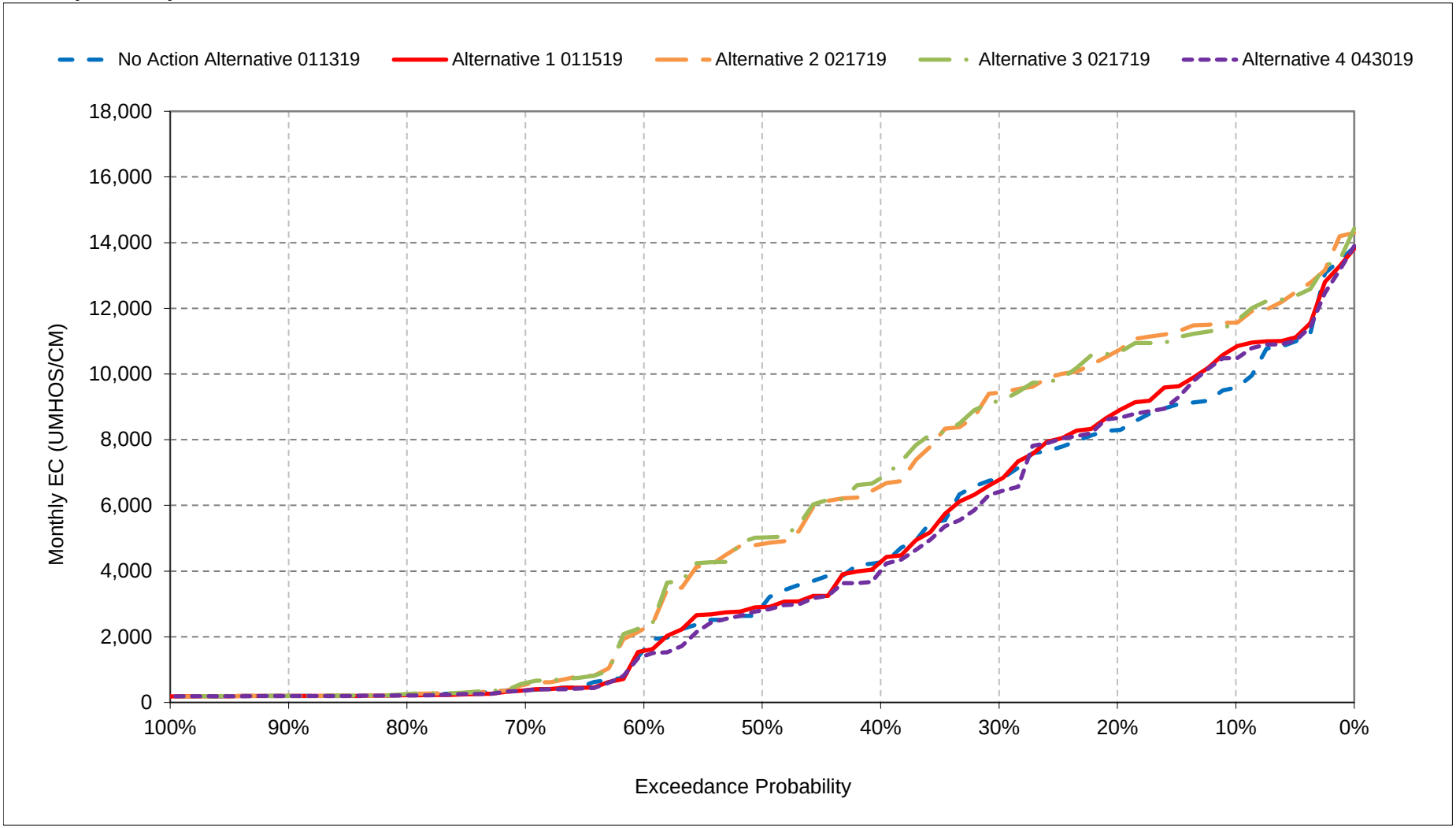
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

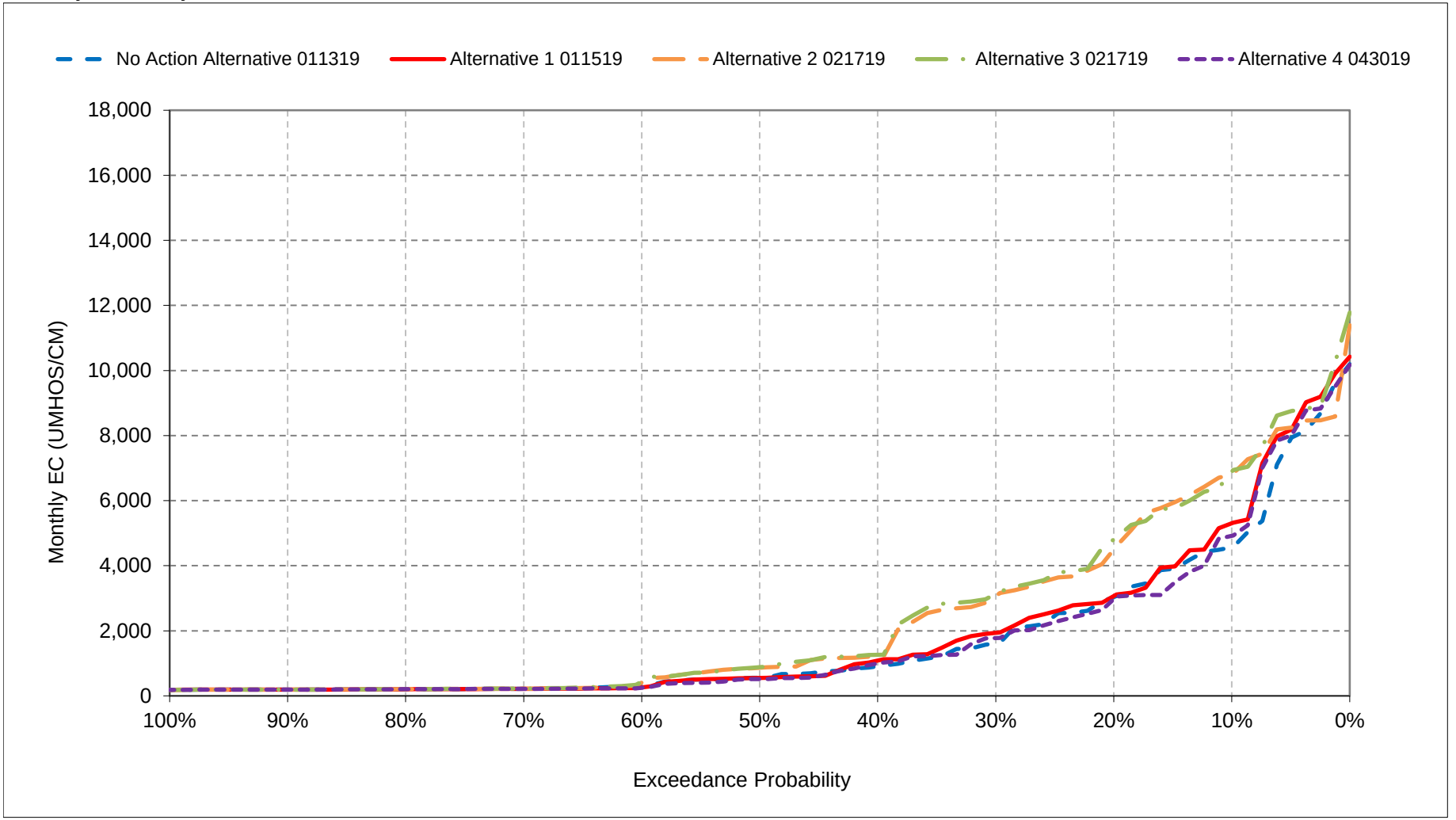
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-7. Chipps Island North Channel
Salinity, January EC



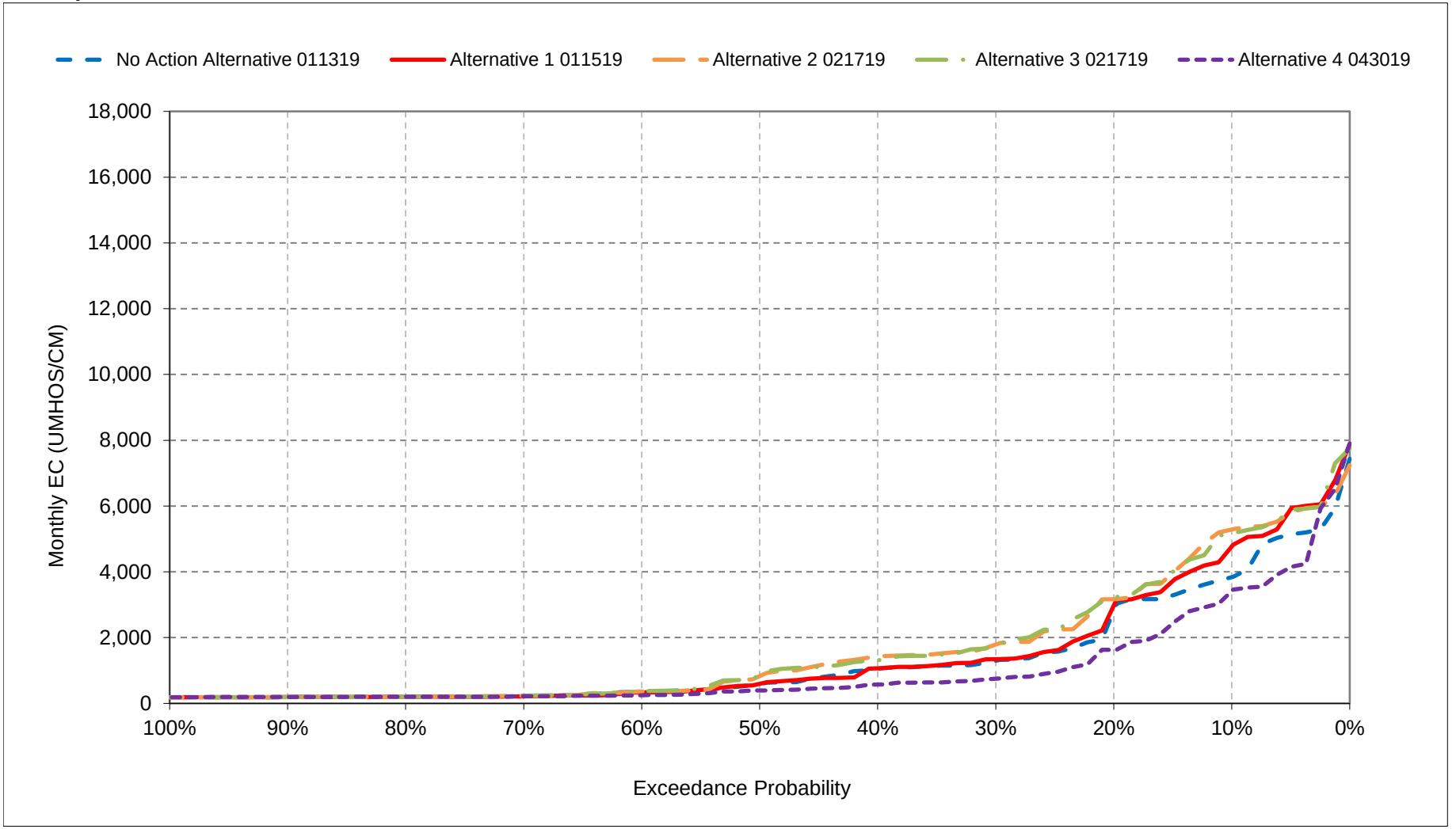
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-8. Chipps Island North Channel
Salinity, February EC



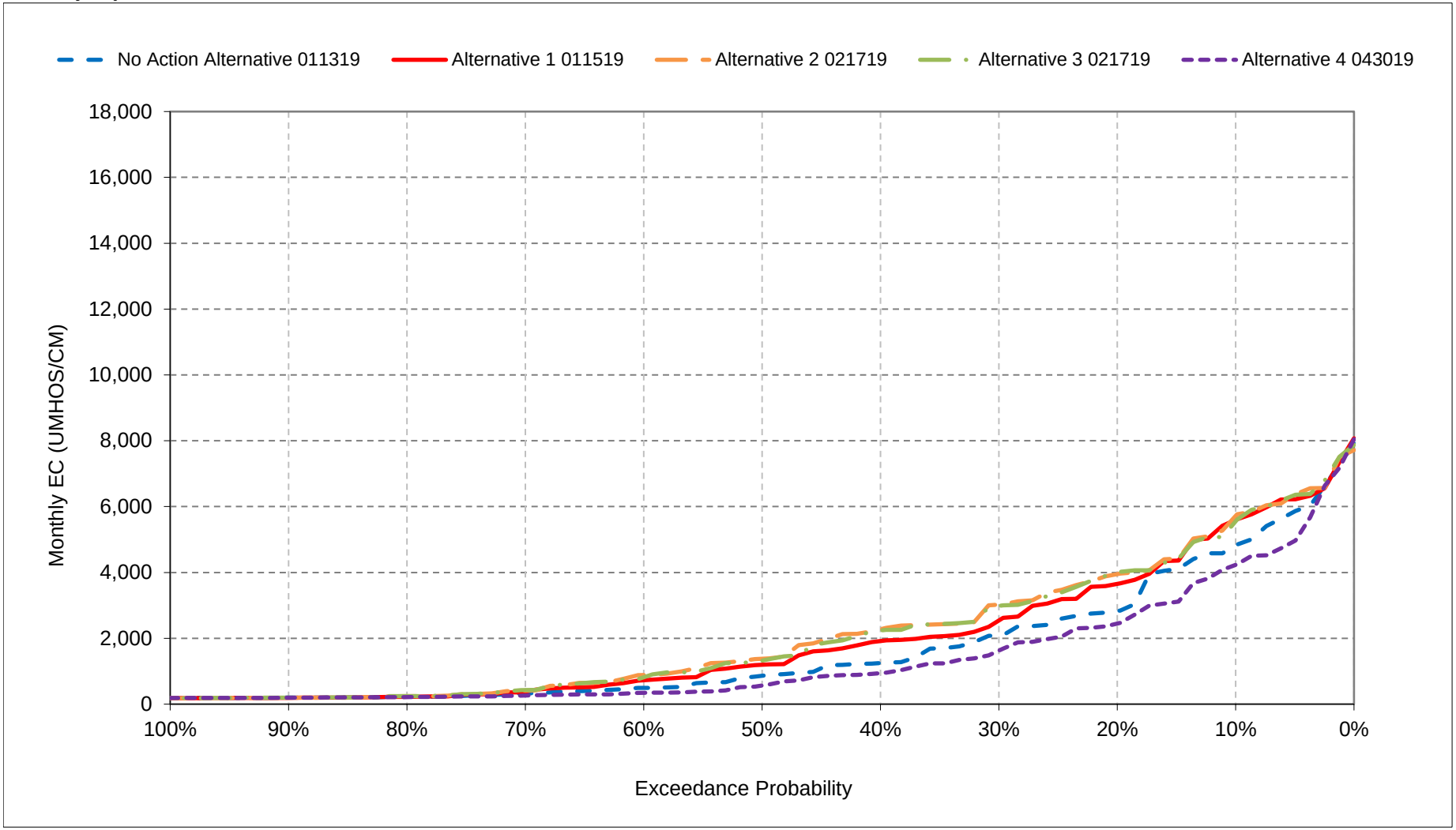
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-9. Chipps Island North Channel
Salinity, March EC



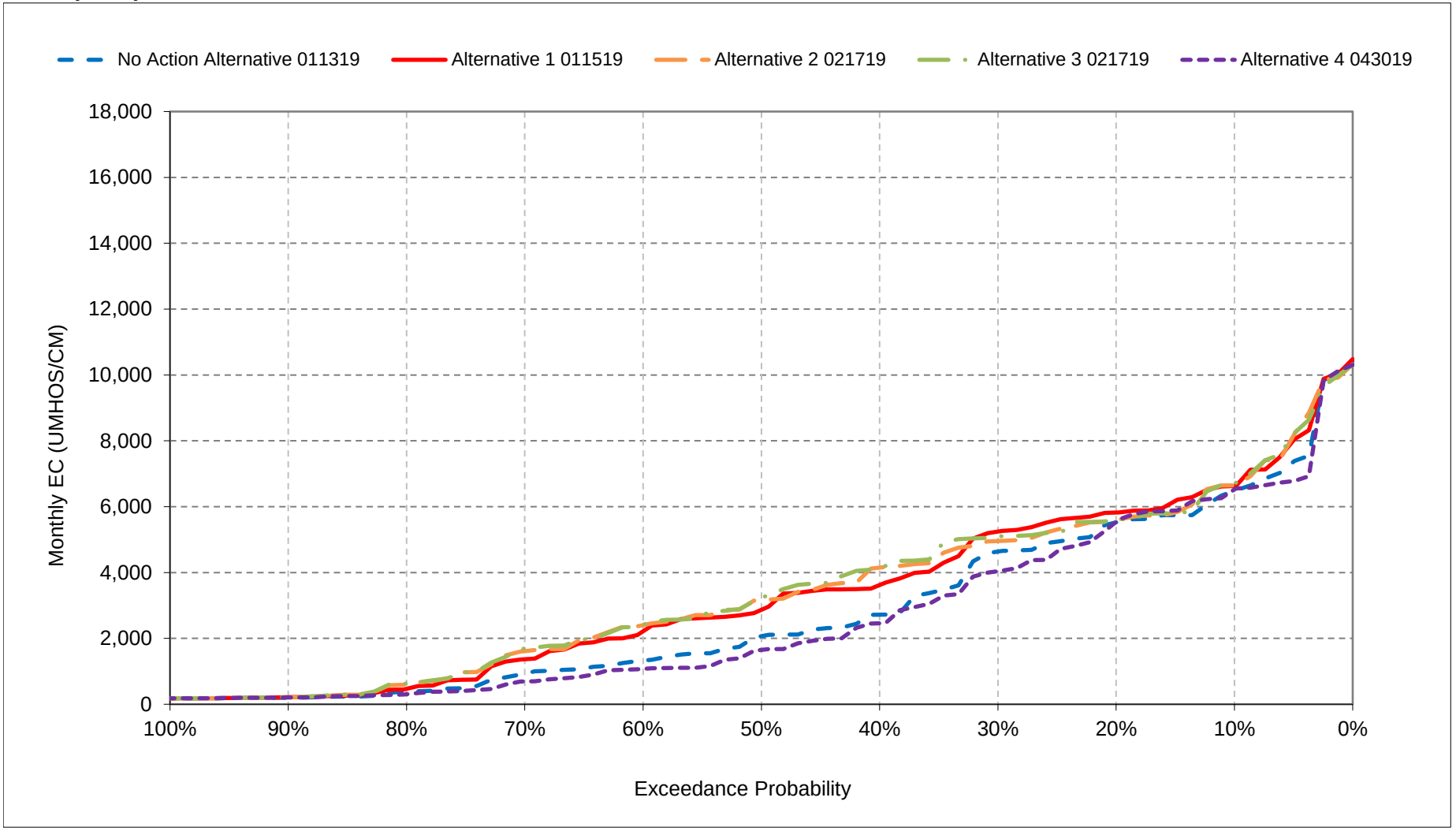
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-10. Chipps Island North Channel
Salinity, April EC



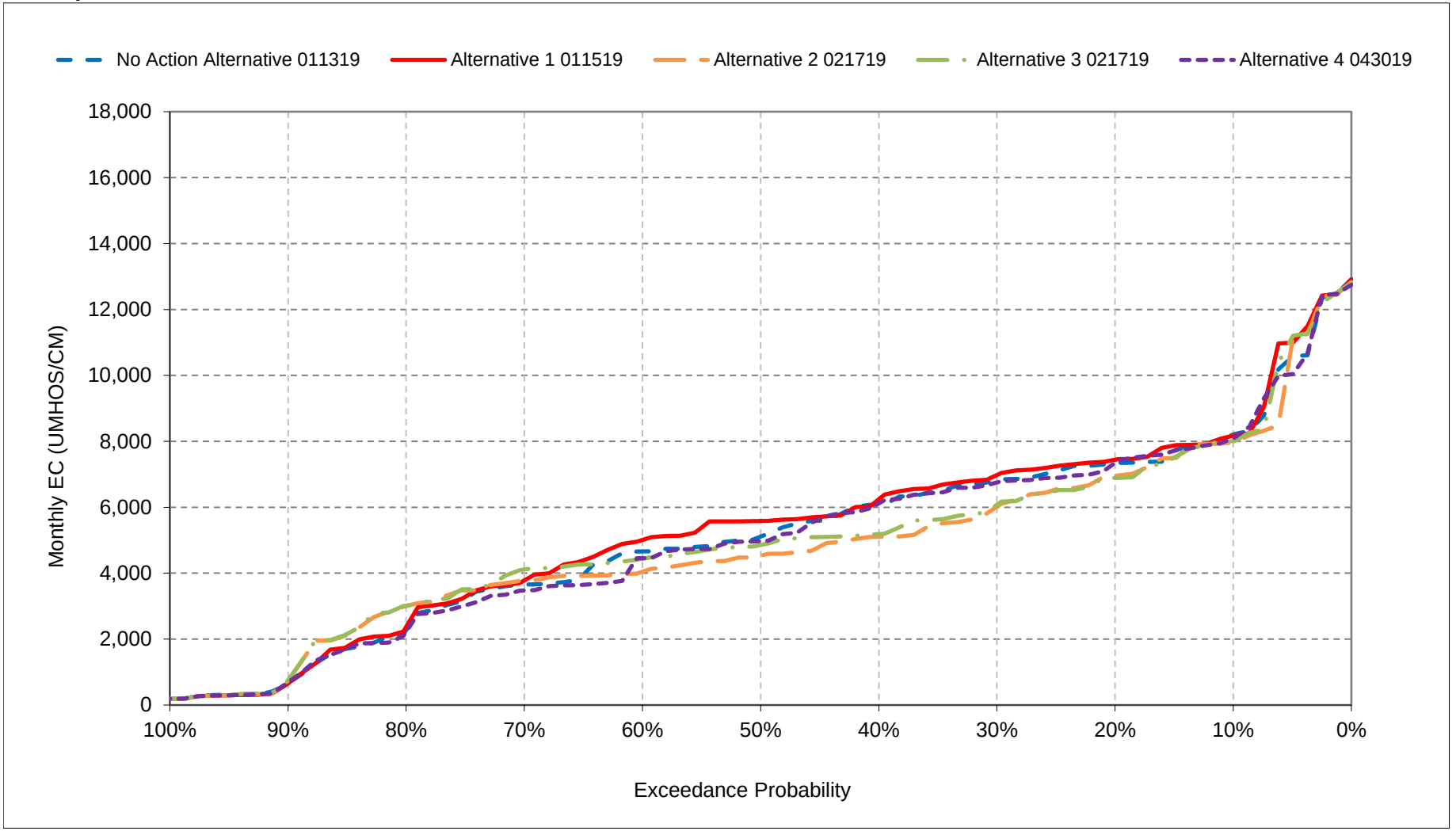
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-11. Chipps Island North Channel
Salinity, May EC



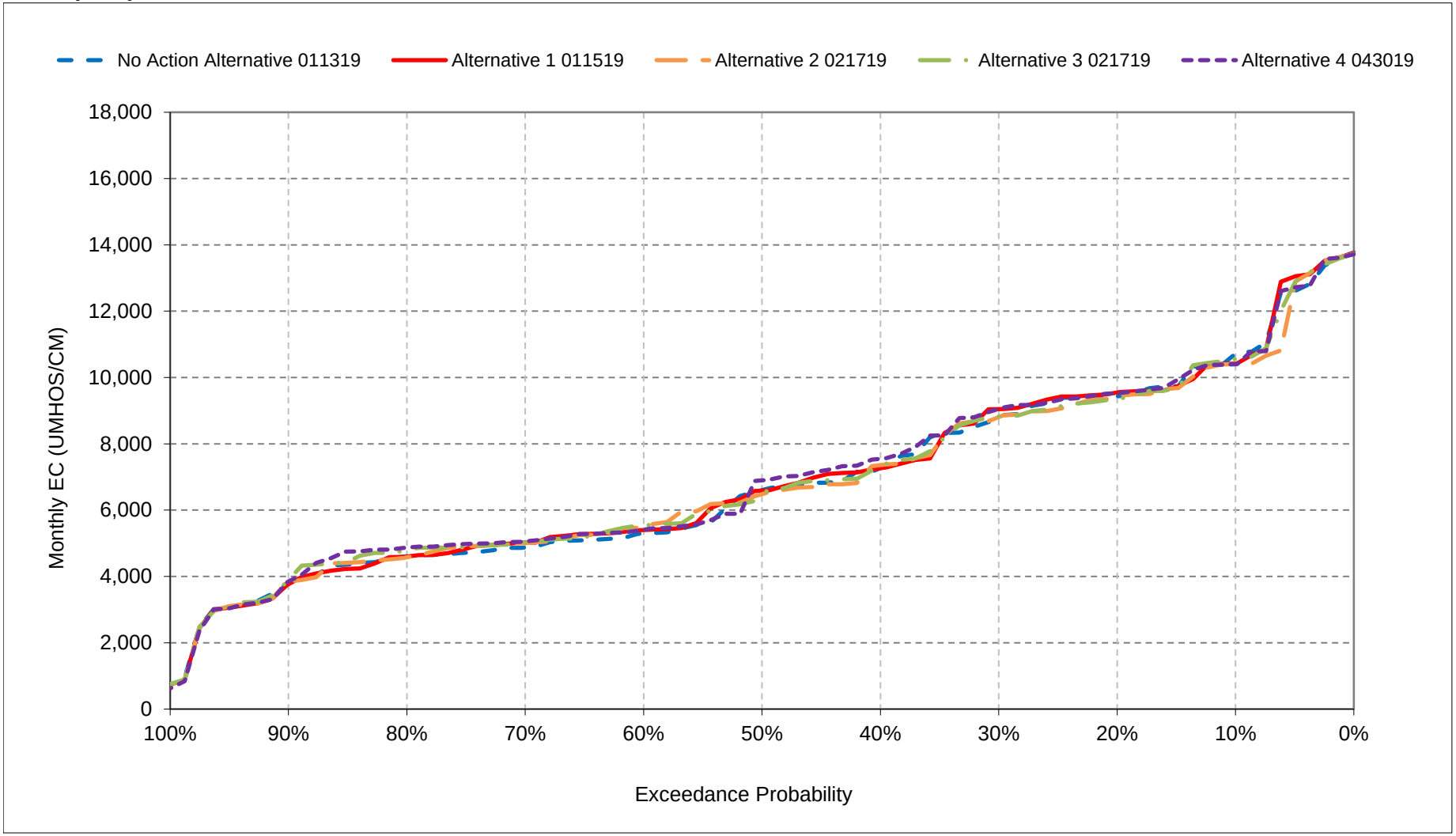
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-12. Chipps Island North Channel
Salinity, June EC



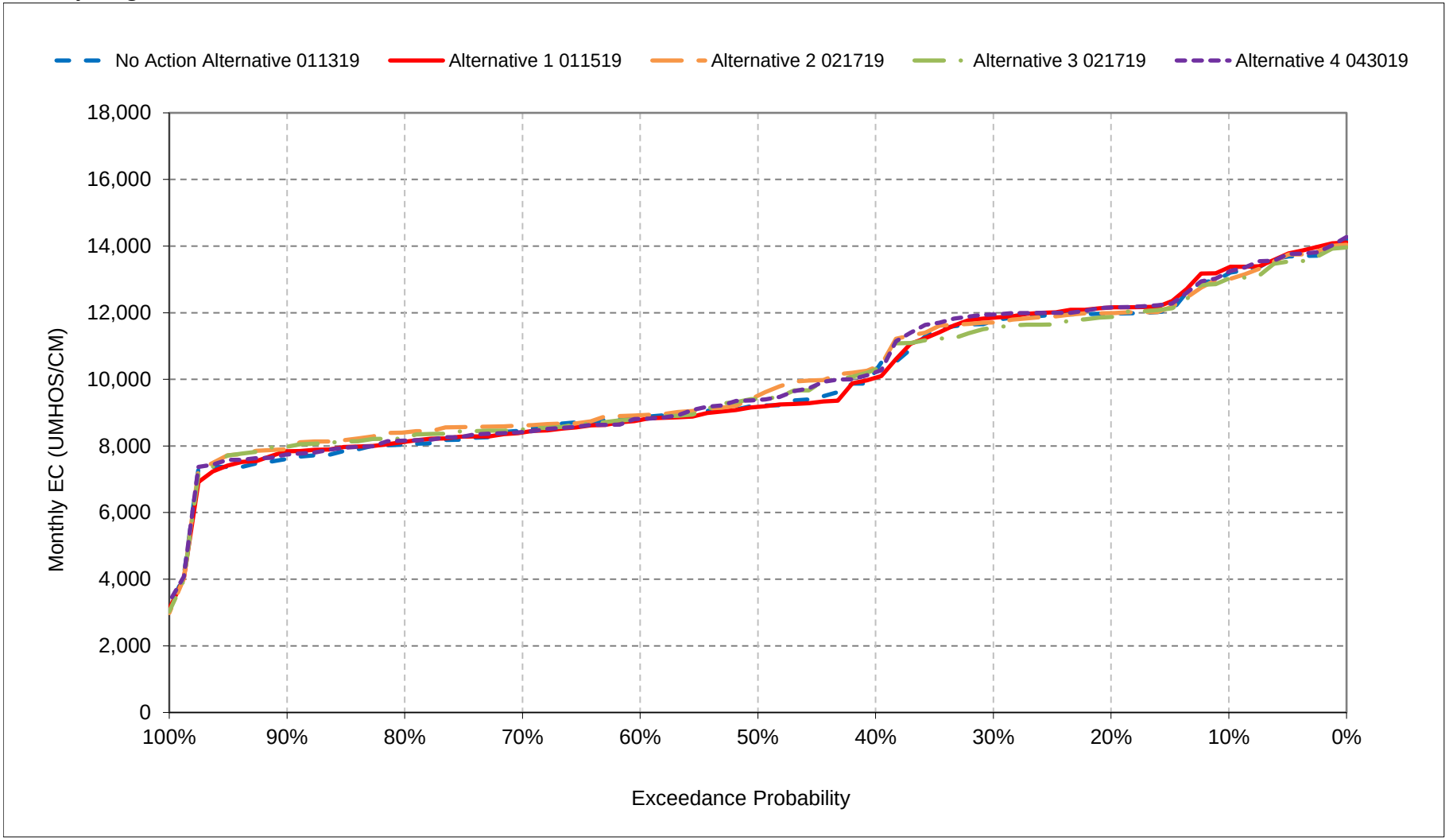
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-13. Chipps Island North Channel
Salinity, July EC



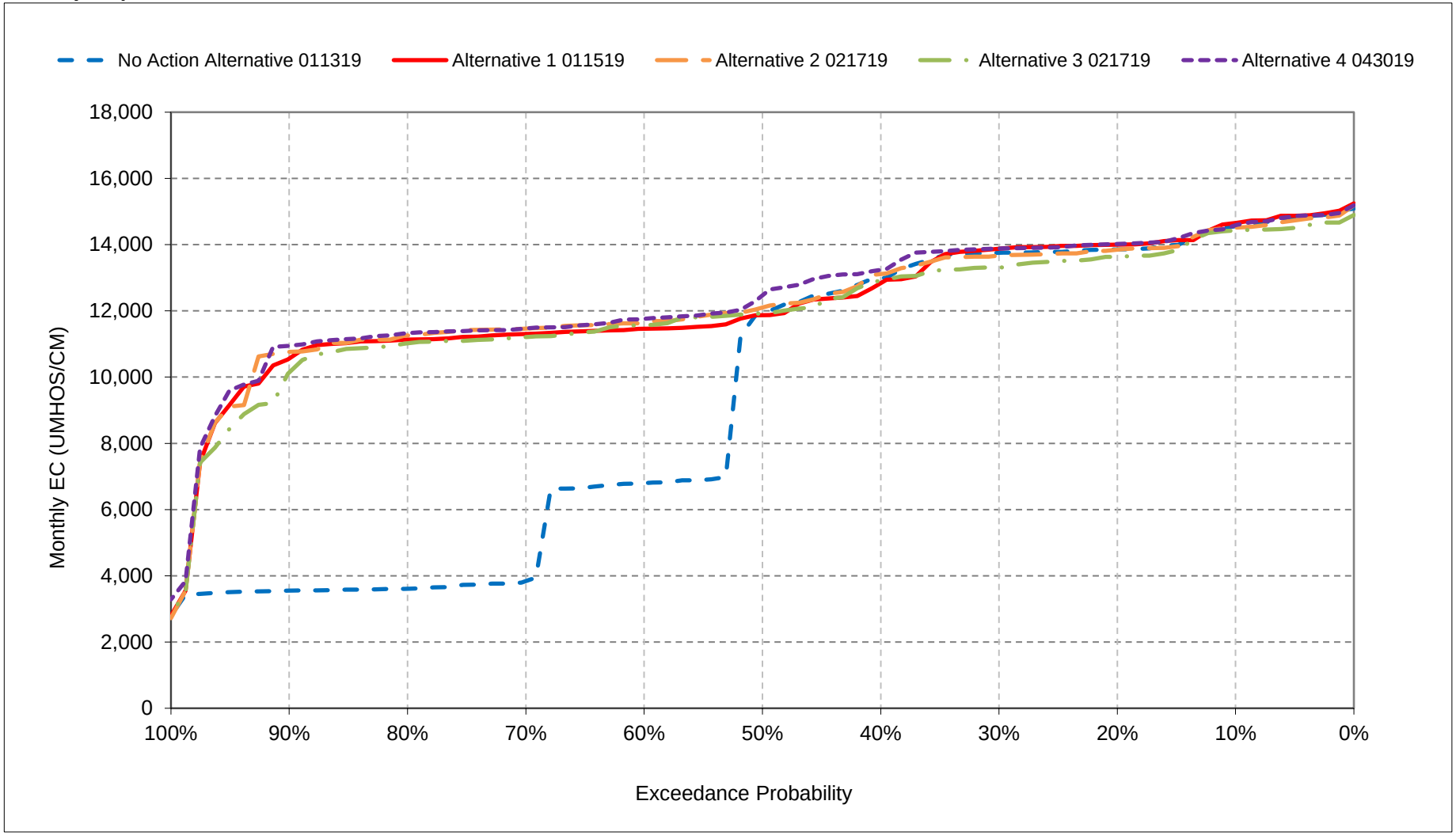
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-14. Chipps Island North Channel
Salinity, August EC



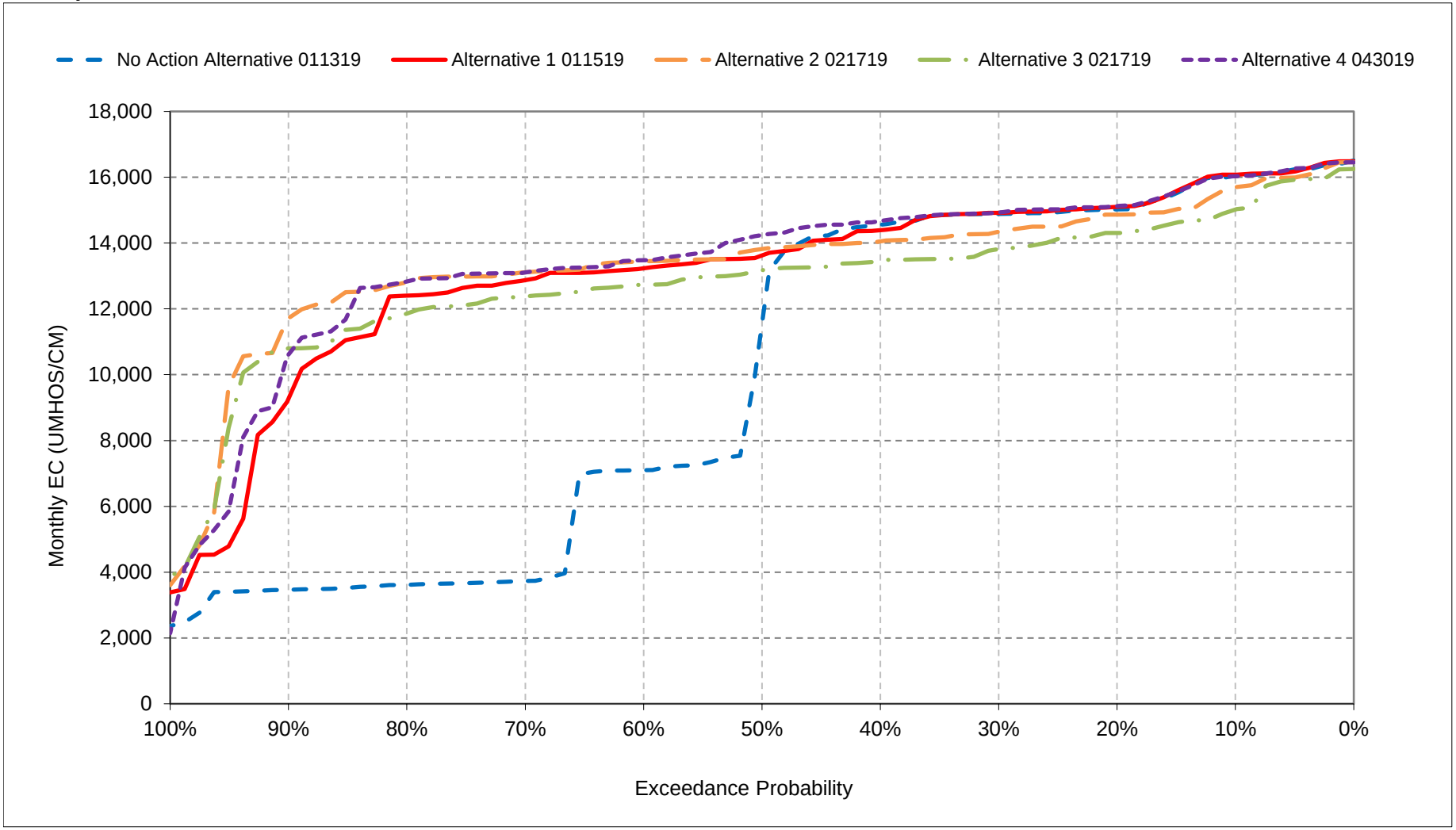
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-15. Chipps Island North Channel
Salinity, September EC



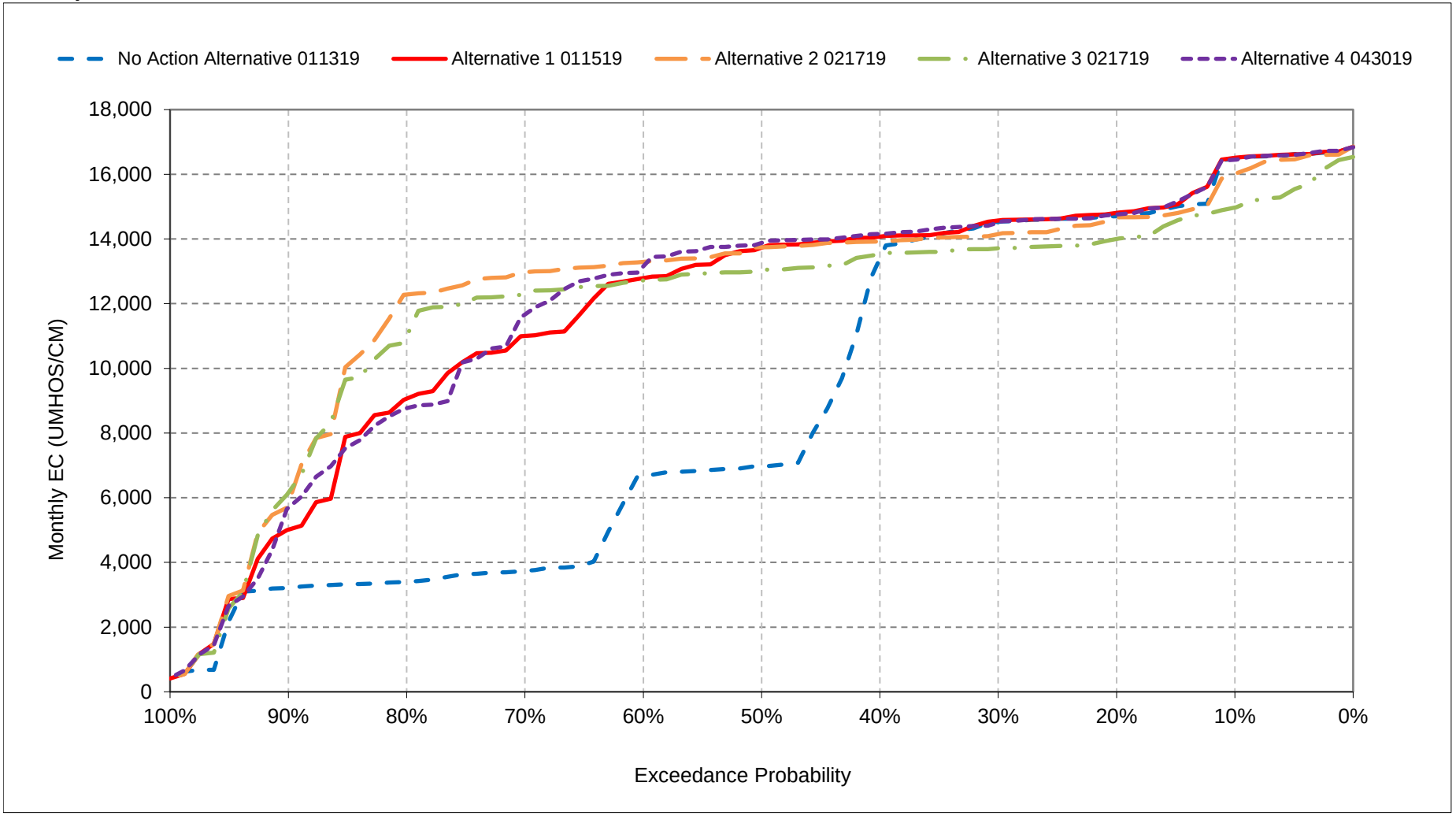
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-16. Chipps Island North Channel
Salinity, October EC



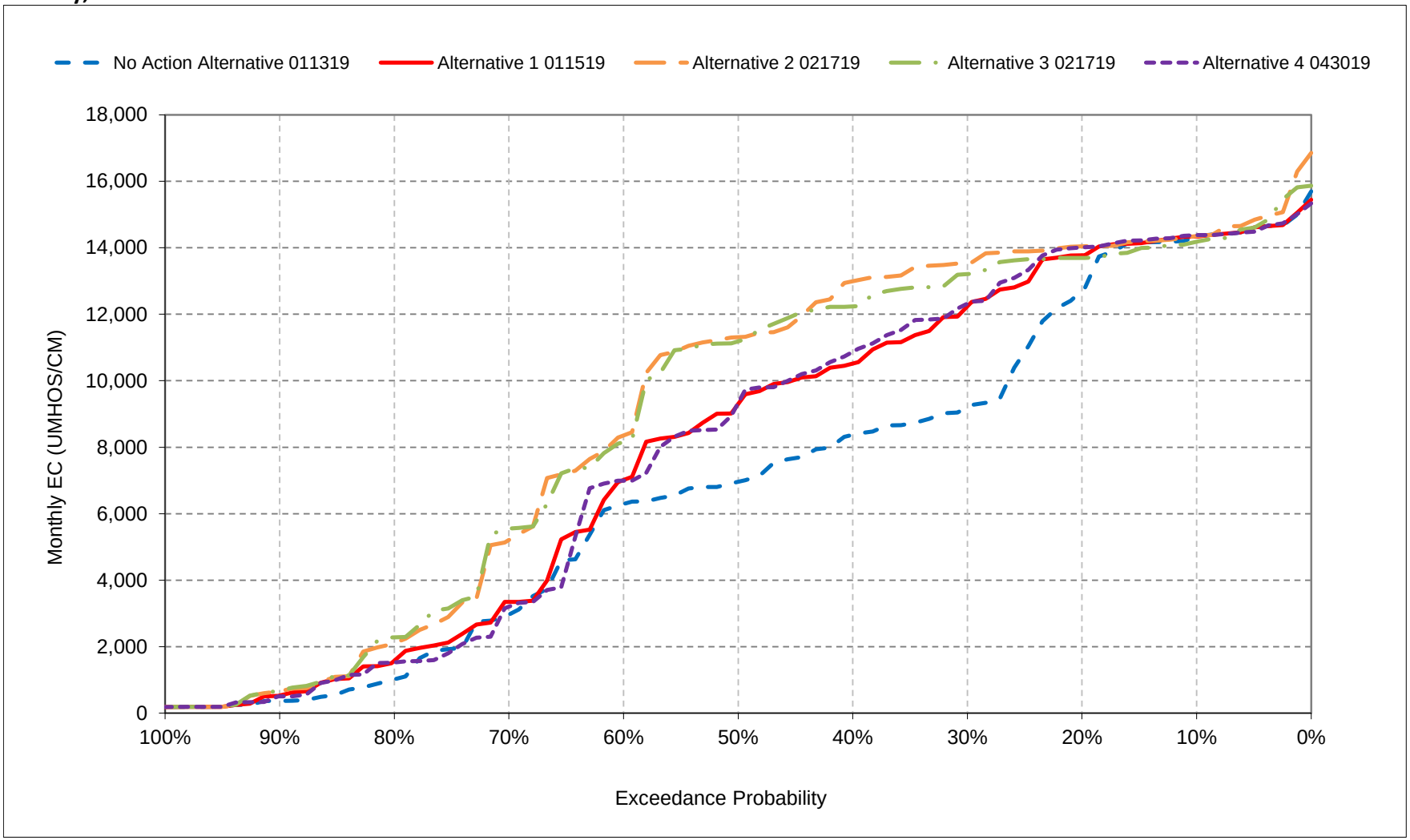
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-17. Chipps Island North Channel
Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 12-18. Chipps Island North Channel
Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 13-1. Chipps Island South Channel Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,889	15,271	12,984	8,269	3,571	2,867	3,727	5,175	6,614	9,157	11,760	13,232
20%	13,807	13,473	11,277	7,040	2,205	1,997	1,956	4,283	5,936	7,945	10,553	12,539
30%	13,670	13,223	7,780	5,608	1,363	875	1,405	3,463	5,408	7,336	10,348	12,394
40%	13,360	12,043	7,003	3,438	749	699	820	1,863	4,772	5,859	8,757	11,609
50%	10,186	5,748	5,610	2,555	501	392	564	1,326	3,896	5,248	7,726	10,525
60%	5,882	5,390	5,002	1,083	295	258	334	842	3,442	4,033	7,483	5,614
70%	2,775	2,818	2,324	302	217	203	262	576	2,629	3,772	7,089	3,180
80%	2,716	2,496	888	213	199	197	206	266	1,565	3,529	6,598	2,889
90%	2,553	2,404	347	193	191	191	194	191	410	2,809	6,245	2,821
Long Term												
Full Simulation Period[a]	8,826	7,913	6,056	3,502	1,403	1,029	1,290	2,175	4,081	5,642	8,508	8,255
Water Year Types[b]												
Wet (32%)	2,630	2,374	3,241	726	247	252	279	496	1,739	3,038	6,607	2,854
Above Normal (16%)	5,633	5,178	5,093	1,674	469	311	382	878	3,301	3,900	6,755	5,601
Below Normal (13%)	12,043	10,865	7,377	4,276	1,635	1,347	1,515	2,358	4,553	5,463	7,964	11,091
Dry (24%)	13,500	10,962	6,686	5,519	2,055	1,189	1,522	2,868	5,009	7,551	10,297	12,364
Critical (15%)	14,973	15,093	10,936	7,425	3,618	2,932	3,872	5,892	8,025	10,151	12,040	13,383

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,900	15,314	13,031	9,416	4,203	3,627	4,435	5,226	6,642	8,863	11,953	13,393
20%	13,896	13,573	12,480	7,509	2,224	2,076	2,694	4,521	5,963	7,984	10,709	12,696
30%	13,726	13,250	10,871	5,523	1,491	904	1,727	3,968	5,633	7,585	10,431	12,538
40%	13,188	12,771	9,192	3,283	729	687	1,256	2,633	4,846	5,873	8,571	11,500
50%	12,389	12,474	7,948	2,292	467	393	805	2,004	4,285	5,215	7,691	10,520
60%	12,000	11,449	5,810	1,115	273	247	472	1,514	3,750	4,160	7,388	10,081
70%	11,532	9,713	2,451	287	212	203	280	840	2,742	3,897	7,008	9,933
80%	11,038	7,690	1,464	211	198	196	204	302	1,642	3,396	6,767	9,761
90%	8,046	4,136	607	195	192	191	191	192	405	2,781	6,405	9,245
Long Term												
Full Simulation Period[a]	11,903	10,776	7,079	3,589	1,503	1,130	1,508	2,580	4,237	5,678	8,535	10,845
Water Year Types[b]												
Wet (32%)	9,394	8,442	5,443	646	234	249	370	752	1,834	3,072	6,545	8,854
Above Normal (16%)	11,256	10,553	7,056	1,699	430	317	544	1,340	3,399	3,942	6,832	9,942
Below Normal (13%)	11,894	11,089	7,357	4,441	1,759	1,445	1,809	3,003	4,863	5,445	7,882	10,873
Dry (24%)	13,733	11,162	6,728	5,827	2,190	1,278	1,807	3,296	5,151	7,557	10,414	12,443
Critical (15%)	14,998	15,144	10,977	7,500	4,035	3,383	4,242	6,306	8,257	10,286	12,162	13,447

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**11**	**44**	**47**	**1,146**	**633**	**760**	**707**	**51**	**28**	-294	**193**	**162**
20%	**89**	**100**	**1,203**	**469**	**18**	**79**	**738**	**237**	**27**	**39**	**156**	**157**
30%	**56**	**27**	**3,091**	-85	**127**	**29**	**322**	**504**	**225**	**249**	**83**	**145**
40%	-172	**728**	**2,189**	-155	-20	-12	**435**	**771**	**74**	**15**	-186	-109
50%	**2,204**	**6,726**	**2,338**	-263	-34	**1**	**241**	**678**	**389**	-32	-35	-5
60%	**6,118**	**6,059**	**808**	**32**	-22	-12	**137**	**672**	**308**	**128**	-95	**4,468**
70%	**8,757**	**6,895**	**127**	-15	-5	**1**	**18**	**264**	**113**	**125**	-81	**6,752**
80%	**8,321**	**5,194**	**576**	-2	-1	0	-2	**36**	**77**	-132	**170**	**6,872**
90%	**5,493**	**1,732**	**260**	**2**	**1**	0	-2	**0**	-5	-29	**161**	**6,424**
Long Term												
Full Simulation Period[a]	**3,077**	**2,862**	**1,023**	**87**	**101**	**101**	**218**	**405**	**156**	**36**	**28**	**2,590**
Water Year Types[b]												
Wet (32%)	**6,764**	**6,068**	**2,203**	-80	-13	-3	**91**	**255**	**95**	**34**	-62	**6,001**
Above Normal (16%)	**5,624**	**5,374**	**1,963**	**25**	-38	**6**	**162**	**462**	**97**	**42**	**77**	**4,341**
Below Normal (13%)	-149	**224**	-20	**165**	**125**	**98**	**295**	**644**	**311**	-18	-82	-218
Dry (24%)	**233**	**200**	**42**	**308**	**135**	**89**	**285**	**428**	**142**	**5**	**117**	**79**
Critical (15%)	**25**	**52**	**41**	**75**	**417**	**451**	**371**	**413**	**231**	**135**	**122**	**64**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 13-2. Chipps Island South Channel Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,889	15,271	12,984	8,269	3,571	2,867	3,727	5,175	6,614	9,157	11,760	13,232
20%	13,807	13,473	11,277	7,040	2,205	1,997	1,956	4,283	5,936	7,945	10,553	12,539
30%	13,670	13,223	7,780	5,608	1,363	875	1,405	3,463	5,408	7,336	10,348	12,394
40%	13,360	12,043	7,003	3,438	749	699	820	1,863	4,772	5,859	8,757	11,609
50%	10,186	5,748	5,610	2,555	501	392	564	1,326	3,896	5,248	7,726	10,525
60%	5,882	5,390	5,002	1,083	295	258	334	842	3,442	4,033	7,483	5,614
70%	2,775	2,818	2,324	302	217	203	262	576	2,629	3,772	7,089	3,180
80%	2,716	2,496	888	213	199	197	206	266	1,565	3,529	6,598	2,889
90%	2,553	2,404	347	193	191	191	194	191	410	2,809	6,245	2,821
Long Term												
Full Simulation Period[a]	8,826	7,913	6,056	3,502	1,403	1,029	1,290	2,175	4,081	5,642	8,508	8,255
Water Year Types[b]												
Wet (32%)	2,630	2,374	3,241	726	247	252	279	496	1,739	3,038	6,607	2,854
Above Normal (16%)	5,633	5,178	5,093	1,674	469	311	382	878	3,301	3,900	6,755	5,601
Below Normal (13%)	12,043	10,865	7,377	4,276	1,635	1,347	1,515	2,358	4,553	5,463	7,964	11,091
Dry (24%)	13,500	10,962	6,686	5,519	2,055	1,189	1,522	2,868	5,009	7,551	10,297	12,364
Critical (15%)	14,973	15,093	10,936	7,425	3,618	2,932	3,872	5,892	8,025	10,151	12,040	13,383

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,525	14,884	13,111	10,245	5,578	4,135	4,505	5,220	6,542	8,862	11,540	13,182
20%	13,663	13,319	12,737	9,331	3,487	2,279	2,911	4,308	5,532	7,935	10,574	12,480
30%	13,147	12,906	12,238	8,062	2,322	1,213	2,118	3,736	4,682	7,320	10,330	12,342
40%	12,767	12,682	11,561	5,513	1,194	916	1,559	3,001	3,899	5,944	8,969	11,744
50%	12,523	12,408	9,938	3,851	739	547	926	2,241	3,379	5,112	8,101	10,738
60%	12,203	11,984	7,018	1,789	308	264	568	1,632	2,935	4,312	7,514	10,342
70%	11,798	11,624	4,086	396	217	206	292	1,016	2,701	3,788	7,228	10,081
80%	11,455	10,996	1,882	227	198	198	209	376	2,127	3,424	7,019	9,904
90%	10,390	4,858	715	193	192	190	192	192	458	2,834	6,521	9,405
Long Term												
Full Simulation Period[a]	12,135	11,301	8,086	4,606	1,888	1,257	1,615	2,609	3,819	5,614	8,662	10,893
Water Year Types[b]												
Wet (32%)	10,371	9,749	6,353	1,068	278	273	399	762	1,711	3,164	6,703	9,017
Above Normal (16%)	12,064	11,734	8,541	2,454	612	347	634	1,555	2,764	3,823	7,092	10,163
Below Normal (13%)	11,922	11,594	8,162	6,216	2,321	1,533	2,015	2,971	3,534	5,343	8,397	10,911
Dry (24%)	13,126	10,754	7,349	7,198	2,752	1,541	1,979	3,229	4,859	7,465	10,380	12,344
Critical (15%)	14,580	14,840	12,506	8,809	4,919	3,648	4,337	6,386	8,054	10,025	11,986	13,313

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-364	-386	**127**	**1,976**	**2,007**	**1,268**	**778**	**45**	-72	-295	-220	-50
20%	-144	-154	**1,461**	**2,291**	**1,282**	**282**	**954**	**24**	-404	-10	**22**	-59
30%	-524	-317	**4,457**	**2,454**	**959**	**338**	**713**	**273**	-727	-16	-18	-52
40%	-594	**639**	**4,557**	**2,075**	**444**	**217**	**738**	**1,138**	-874	**85**	**213**	**135**
50%	**2,337**	**6,660**	**4,329**	**1,296**	**238**	**155**	**362**	**915**	-517	-136	**376**	**213**
60%	**6,321**	**6,594**	**2,016**	**706**	**13**	**6**	**233**	**790**	-506	**279**	**31**	**4,728**
70%	**9,024**	**8,806**	**1,762**	**94**	**1**	**4**	**30**	**440**	**72**	**16**	**139**	**6,900**
80%	**8,739**	**8,500**	**993**	**14**	-1	**1**	**3**	**109**	**563**	-104	**422**	**7,015**
90%	**7,837**	**2,454**	**368**	0	**1**	-1	-1	**0**	**47**	**24**	**276**	**6,583**
Long Term												
Full Simulation Period[a]	**3,309**	**3,388**	**2,030**	**1,105**	**485**	**228**	**324**	**434**	-263	-28	**154**	**2,638**
Water Year Types[b]												
Wet (32%)	**7,741**	**7,376**	**3,113**	**342**	**31**	**21**	**119**	**265**	-28	**126**	**96**	**6,164**
Above Normal (16%)	**6,432**	**6,556**	**3,448**	**780**	**143**	**36**	**252**	**677**	-537	-76	**338**	**4,562**
Below Normal (13%)	-121	**729**	**785**	**1,941**	**687**	**186**	**501**	**613**	-1,018	-120	**433**	-180
Dry (24%)	-374	-208	**663**	**1,679**	**697**	**351**	**457**	**361**	-150	-86	**83**	-20
Critical (15%)	-393	-253	**1,570**	**1,384**	**1,301**	**717**	**465**	**494**	**29**	-126	-54	-70

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 13-3. Chipps Island South Channel Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,889	15,271	12,984	8,269	3,571	2,867	3,727	5,175	6,614	9,157	11,760	13,232
20%	13,807	13,473	11,277	7,040	2,205	1,997	1,956	4,283	5,936	7,945	10,553	12,539
30%	13,670	13,223	7,780	5,608	1,363	875	1,405	3,463	5,408	7,336	10,348	12,394
40%	13,360	12,043	7,003	3,438	749	699	820	1,863	4,772	5,859	8,757	11,609
50%	10,186	5,748	5,610	2,555	501	392	564	1,326	3,896	5,248	7,726	10,525
60%	5,882	5,390	5,002	1,083	295	258	334	842	3,442	4,033	7,483	5,614
70%	2,775	2,818	2,324	302	217	203	262	576	2,629	3,772	7,089	3,180
80%	2,716	2,496	888	213	199	197	206	266	1,565	3,529	6,598	2,889
90%	2,553	2,404	347	193	191	191	194	191	410	2,809	6,245	2,821
Long Term												
Full Simulation Period[a]	8,826	7,913	6,056	3,502	1,403	1,029	1,290	2,175	4,081	5,642	8,508	8,255
Water Year Types[b]												
Wet (32%)	2,630	2,374	3,241	726	247	252	279	496	1,739	3,038	6,607	2,854
Above Normal (16%)	5,633	5,178	5,093	1,674	469	311	382	878	3,301	3,900	6,755	5,601
Below Normal (13%)	12,043	10,865	7,377	4,276	1,635	1,347	1,515	2,358	4,553	5,463	7,964	11,091
Dry (24%)	13,500	10,962	6,686	5,519	2,055	1,189	1,522	2,868	5,009	7,551	10,297	12,364
Critical (15%)	14,973	15,093	10,936	7,425	3,618	2,932	3,872	5,892	8,025	10,151	12,040	13,383

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	13,807	13,779	12,961	10,314	5,688	4,030	4,393	5,255	6,489	9,000	11,572	13,093
20%	13,076	12,748	12,424	9,378	3,796	2,364	2,966	4,337	5,494	7,923	10,470	12,330
30%	12,541	12,397	11,867	7,899	2,530	1,236	2,097	3,862	4,737	7,290	10,199	12,048
40%	12,187	12,187	10,939	5,656	1,281	918	1,502	3,039	3,961	5,925	8,859	11,608
50%	11,894	11,718	9,742	4,063	738	565	902	2,300	3,681	5,063	7,985	10,575
60%	11,486	11,501	6,831	1,896	328	261	539	1,650	3,261	4,307	7,405	10,267
70%	11,068	11,073	4,385	421	220	210	295	1,089	3,005	3,834	7,101	9,827
80%	10,618	9,682	2,121	232	198	198	210	388	2,106	3,571	6,887	9,612
90%	9,452	5,144	815	196	193	191	194	194	462	2,903	6,549	8,846
Long Term												
Full Simulation Period[a]	11,530	10,788	7,965	4,653	1,967	1,277	1,597	2,642	3,949	5,673	8,563	10,659
Water Year Types[b]												
Wet (32%)	9,977	9,412	6,174	1,089	285	277	358	871	1,814	3,207	6,672	8,836
Above Normal (16%)	11,370	11,155	8,272	2,454	620	351	632	1,564	3,024	3,837	6,903	9,619
Below Normal (13%)	11,374	10,995	8,104	6,393	2,251	1,474	1,974	2,988	3,749	5,411	8,336	10,839
Dry (24%)	12,218	10,253	7,386	7,371	2,958	1,564	1,964	3,204	4,854	7,474	10,214	12,118
Critical (15%)	14,066	14,072	12,349	8,634	5,158	3,788	4,372	6,389	8,251	10,243	11,912	13,138

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,082	-1,491	-23	**2,044**	**2,118**	**1,163**	**665**	**79**	-125	-157	-188	-139
20%	-731	-725	**1,147**	**2,337**	**1,591**	**367**	**1,010**	**54**	-442	-21	-82	-209
30%	-1,129	-826	**4,087**	**2,290**	**1,167**	**361**	**692**	**398**	-672	-46	-149	-345
40%	-1,173	**144**	**3,935**	**2,218**	**531**	**219**	**682**	**1,176**	-812	**67**	**102**	-1
50%	**1,708**	**5,969**	**4,132**	**1,508**	**238**	**173**	**338**	**974**	-215	-185	**259**	**50**
60%	**5,604**	**6,111**	**1,829**	**813**	**33**	**3**	**205**	**809**	-181	**274**	-78	**4,654**
70%	**8,294**	**8,255**	**2,061**	**119**	**4**	**8**	**33**	**513**	**376**	**61**	**13**	**6,647**
80%	**7,902**	**7,186**	**1,233**	**18**	-1	**1**	**4**	**121**	**542**	**42**	**290**	**6,722**
90%	**6,899**	**2,740**	**468**	**2**	**2**	**0**	**0**	**3**	**52**	**94**	**305**	**6,025**
Long Term												
Full Simulation Period[a]	**2,704**	**2,874**	**1,909**	**1,151**	**564**	**248**	**307**	**467**	-133	**31**	**55**	**2,405**
Water Year Types[b]												
Wet (32%)	**7,347**	**7,039**	**2,934**	**362**	**38**	**25**	**79**	**375**	**75**	**169**	**65**	**5,983**
Above Normal (16%)	**5,738**	**5,977**	**3,180**	**780**	**151**	**40**	**250**	**685**	-278	-63	**148**	**4,019**
Below Normal (13%)	-669	**130**	**727**	**2,117**	**616**	**127**	**460**	**630**	-804	-52	**372**	-252
Dry (24%)	-1,283	-709	**700**	**1,852**	**903**	**374**	**441**	**335**	-155	-78	-83	-246
Critical (15%)	-907	-1,021	**1,413**	**1,209**	**1,540**	**856**	**500**	**497**	**226**	**92**	-128	-245

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 13-4. Chipps Island South Channel Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,889	15,271	12,984	8,269	3,571	2,867	3,727	5,175	6,614	9,157	11,760	13,232
20%	13,807	13,473	11,277	7,040	2,205	1,997	1,956	4,283	5,936	7,945	10,553	12,539
30%	13,670	13,223	7,780	5,608	1,363	875	1,405	3,463	5,408	7,336	10,348	12,394
40%	13,360	12,043	7,003	3,438	749	699	820	1,863	4,772	5,859	8,757	11,609
50%	10,186	5,748	5,610	2,555	501	392	564	1,326	3,896	5,248	7,726	10,525
60%	5,882	5,390	5,002	1,083	295	258	334	842	3,442	4,033	7,483	5,614
70%	2,775	2,818	2,324	302	217	203	262	576	2,629	3,772	7,089	3,180
80%	2,716	2,496	888	213	199	197	206	266	1,565	3,529	6,598	2,889
90%	2,553	2,404	347	193	191	191	194	191	410	2,809	6,245	2,821
Long Term												
Full Simulation Period[a]	8,826	7,913	6,056	3,502	1,403	1,029	1,290	2,175	4,081	5,642	8,508	8,255
Water Year Types[b]												
Wet (32%)	2,630	2,374	3,241	726	247	252	279	496	1,739	3,038	6,607	2,854
Above Normal (16%)	5,633	5,178	5,093	1,674	469	311	382	878	3,301	3,900	6,755	5,601
Below Normal (13%)	12,043	10,865	7,377	4,276	1,635	1,347	1,515	2,358	4,553	5,463	7,964	11,091
Dry (24%)	13,500	10,962	6,686	5,519	2,055	1,189	1,522	2,868	5,009	7,551	10,297	12,364
Critical (15%)	14,973	15,093	10,936	7,425	3,618	2,932	3,872	5,892	8,025	10,151	12,040	13,383

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14,836	15,252	13,035	9,079	3,697	2,459	3,188	5,121	6,499	8,875	11,820	13,282
20%	13,899	13,578	12,673	7,280	2,157	1,122	1,719	4,311	5,925	8,034	10,732	12,676
30%	13,726	13,214	10,946	5,214	1,355	553	1,077	2,942	5,313	7,545	10,504	12,568
40%	13,453	12,883	9,449	3,067	694	385	632	1,698	4,747	6,124	8,779	11,939
50%	13,001	12,613	7,988	2,317	426	279	403	1,048	3,821	5,550	7,961	11,098
60%	12,255	11,849	5,671	915	242	217	255	673	3,244	4,176	7,452	10,379
70%	11,852	10,338	2,329	282	210	204	225	421	2,481	3,957	7,030	10,162
80%	11,534	7,429	1,336	209	198	199	206	232	1,512	3,709	6,737	9,928
90%	9,274	4,742	388	196	192	194	195	191	428	2,860	6,343	9,517
Long Term												
Full Simulation Period[a]	12,218	10,906	7,087	3,471	1,403	824	1,089	2,048	4,004	5,752	8,622	11,062
Water Year Types[b]												
Wet (32%)	9,940	8,879	5,642	604	224	223	263	443	1,659	3,146	6,617	9,134
Above Normal (16%)	11,775	10,844	6,930	1,683	392	239	297	666	3,179	4,018	6,786	10,030
Below Normal (13%)	12,215	10,694	7,340	4,112	1,593	838	1,028	2,140	4,514	5,647	8,287	11,466
Dry (24%)	13,813	11,155	6,639	5,721	2,054	832	1,251	2,773	4,971	7,666	10,518	12,600
Critical (15%)	14,980	15,148	10,900	7,280	3,797	2,739	3,527	5,730	7,901	10,185	12,105	13,422

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-53	-18	**51**	**809**	**126**	-408	-540	-54	-114	-283	**60**	**50**
20%	**92**	**105**	**1,396**	**239**	-49	-875	-237	**28**	-11	**89**	**179**	**137**
30%	**55**	-9	**3,166**	-395	-9	-323	-328	-521	-95	**208**	**156**	**175**
40%	**93**	**840**	**2,446**	-371	-56	-314	-189	-165	-25	**265**	**22**	**331**
50%	**2,815**	**6,865**	**2,378**	-238	-75	-114	-161	-277	-76	**303**	**235**	**573**
60%	**6,373**	**6,459**	**670**	-167	-53	-42	-80	-169	-197	**143**	-31	**4,765**
70%	**9,077**	**7,520**	**5**	-20	-6	**1**	-37	-154	-148	**185**	-59	**6,982**
80%	**8,818**	**4,932**	**448**	-4	-1	**2**	**0**	-34	-52	**181**	**139**	**7,039**
90%	**6,722**	**2,339**	**42**	**2**	**1**	**3**	**1**	-1	**18**	**51**	**99**	**6,696**
Long Term												
Full Simulation Period[a]	**3,392**	**2,993**	**1,031**	-31	**1**	-204	-201	-127	-77	**111**	**115**	**2,807**
Water Year Types[b]												
Wet (32%)	**7,310**	**6,505**	**2,401**	-122	-23	-29	-16	-53	-80	**108**	**10**	**6,280**
Above Normal (16%)	**6,143**	**5,666**	**1,837**	**9**	-77	-72	-85	-213	-122	**118**	**31**	**4,429**
Below Normal (13%)	**173**	-171	-37	-163	-42	-509	-487	-219	-39	**184**	**324**	**375**
Dry (24%)	**313**	**193**	-47	**202**	-1	-358	-272	-95	-38	**114**	**221**	**236**
Critical (15%)	**7**	**56**	-36	-145	**180**	-193	-345	-162	-125	**34**	**65**	**39**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

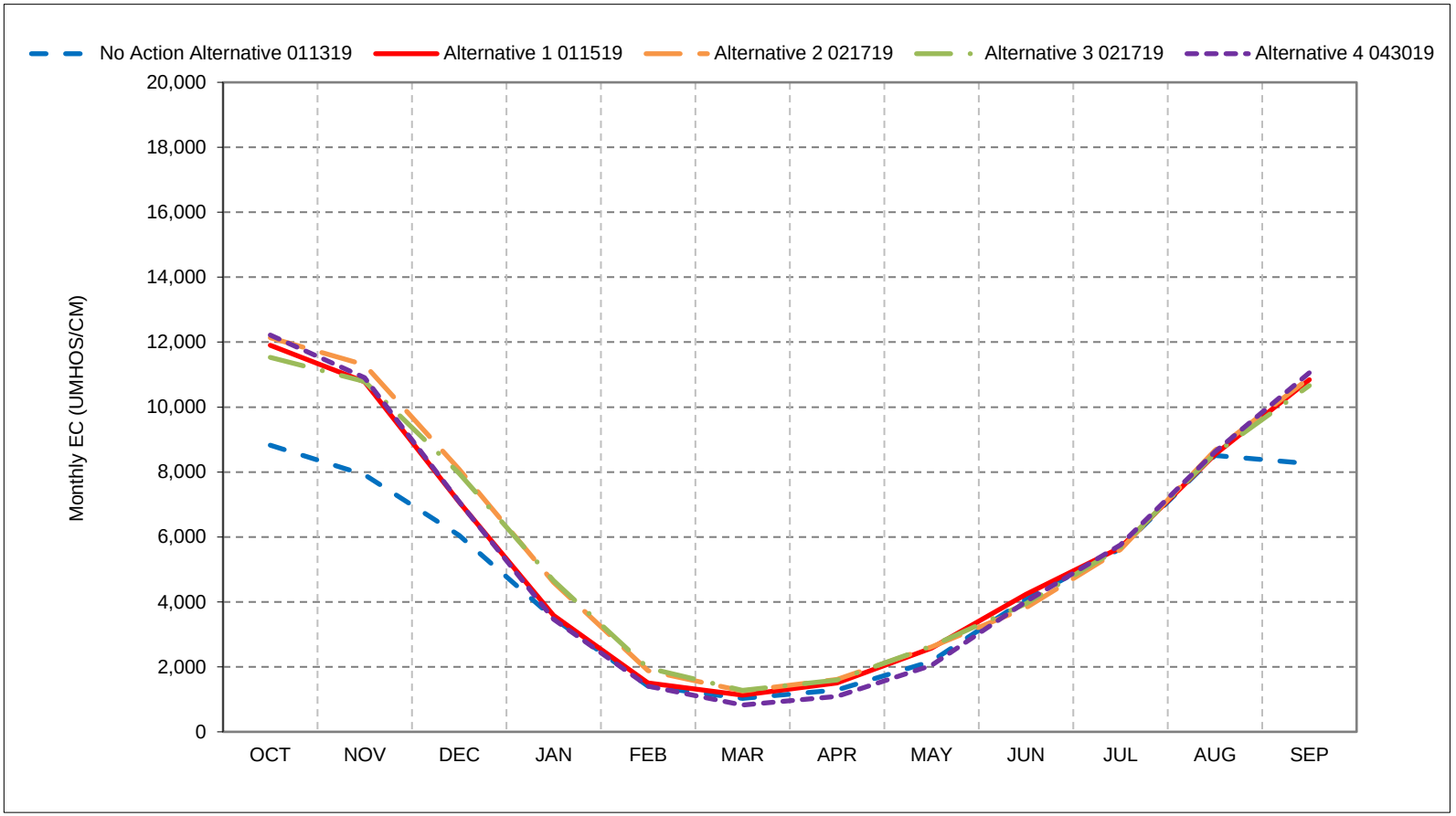
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-1. Chipps Island South Channel Salinity, Long-Term Average EC



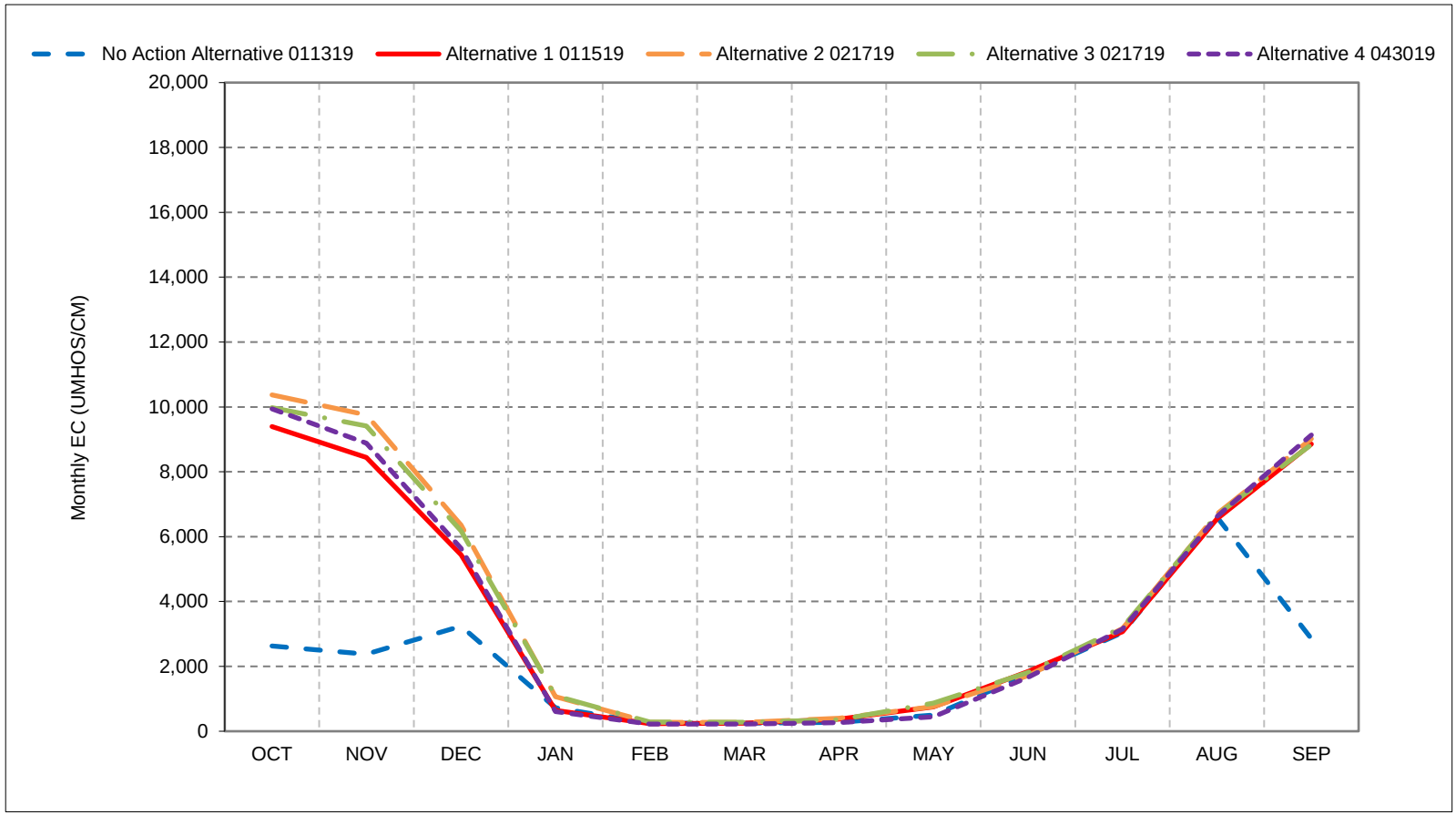
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-2. Chipps Island South Channel Salinity, Wet Year Average EC



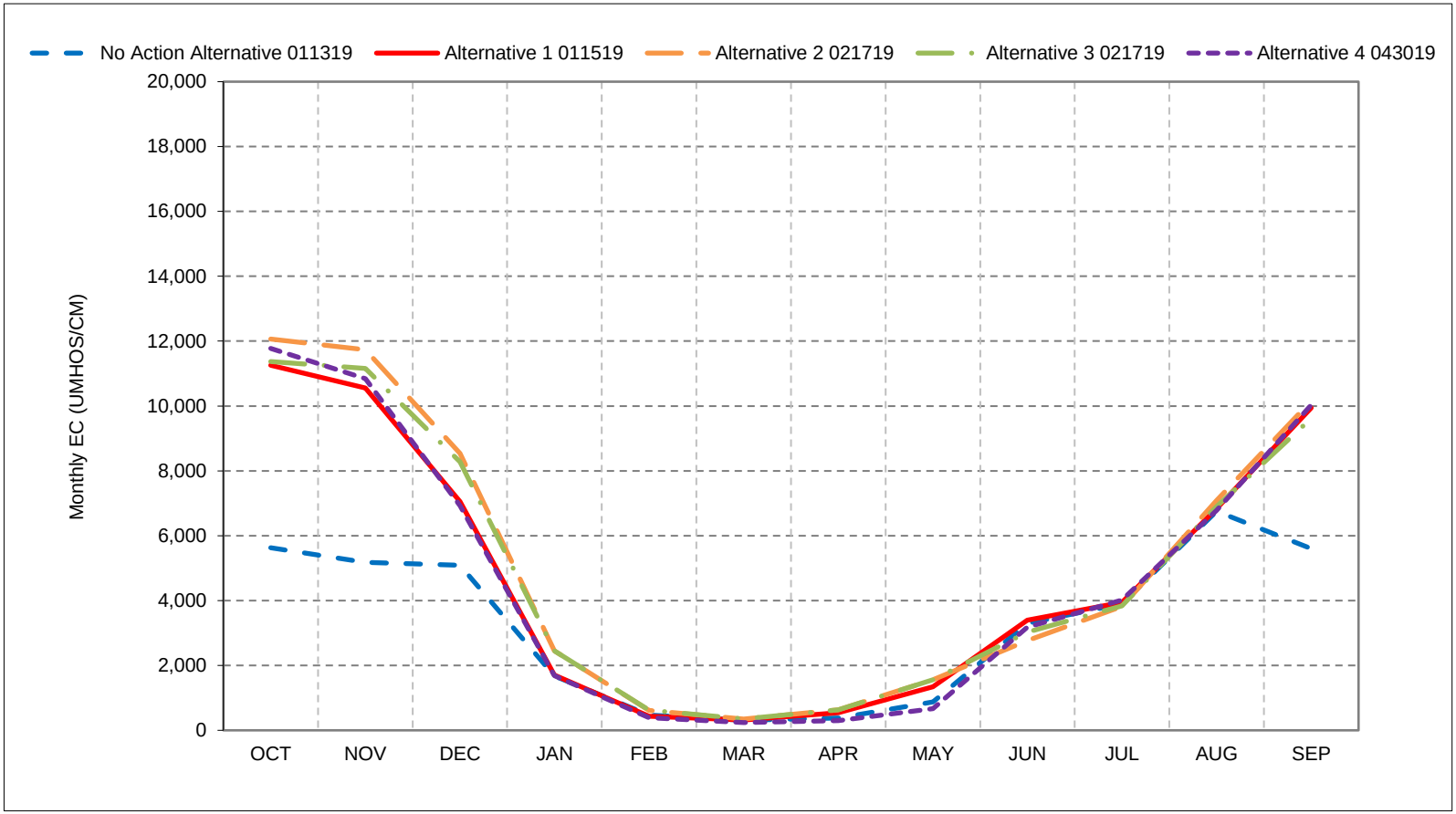
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-3. Chipps Island South Channel Salinity, Above Normal Year Average EC



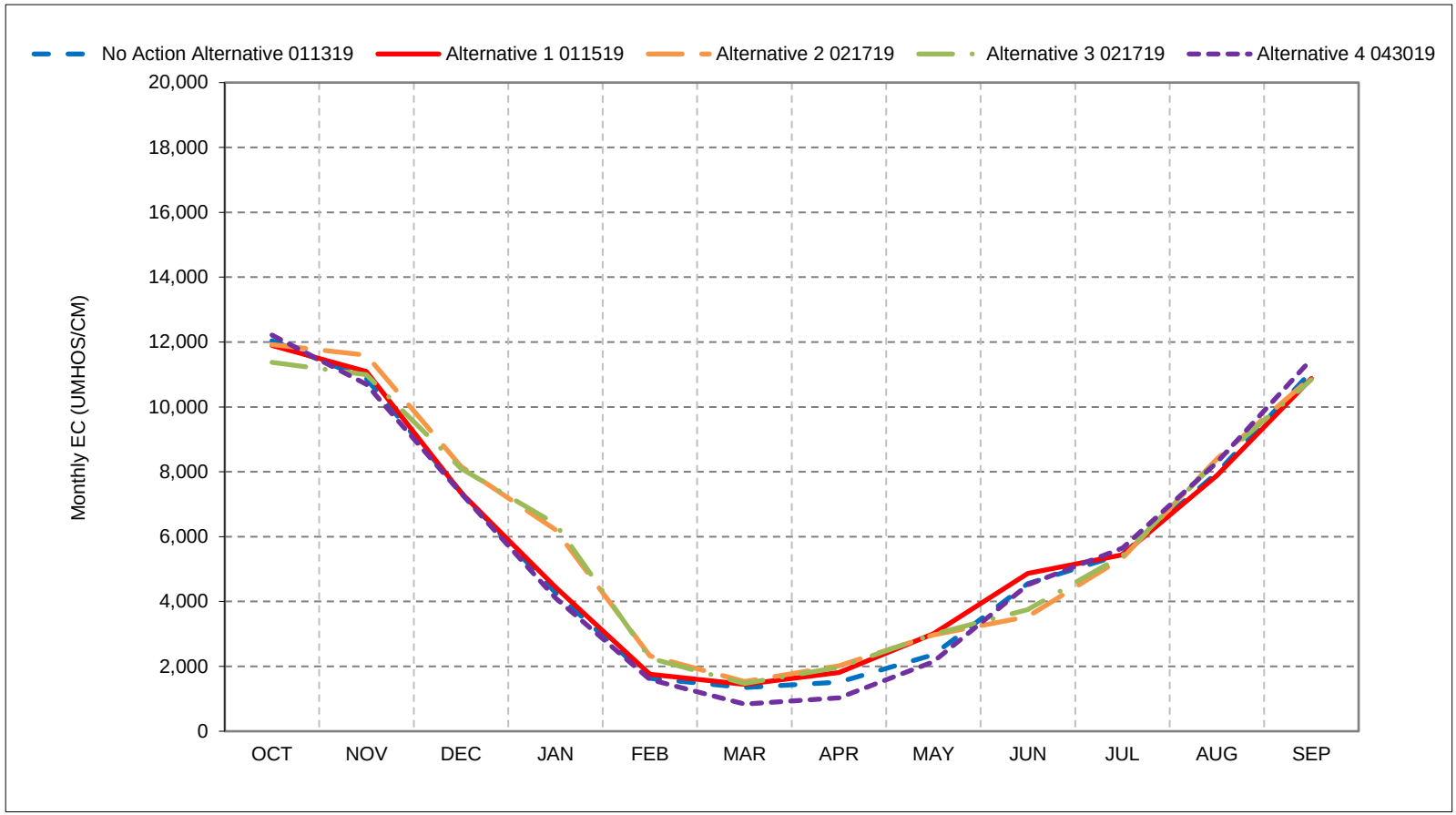
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-4. Chipps Island South Channel Salinity, Below Normal Year Average EC



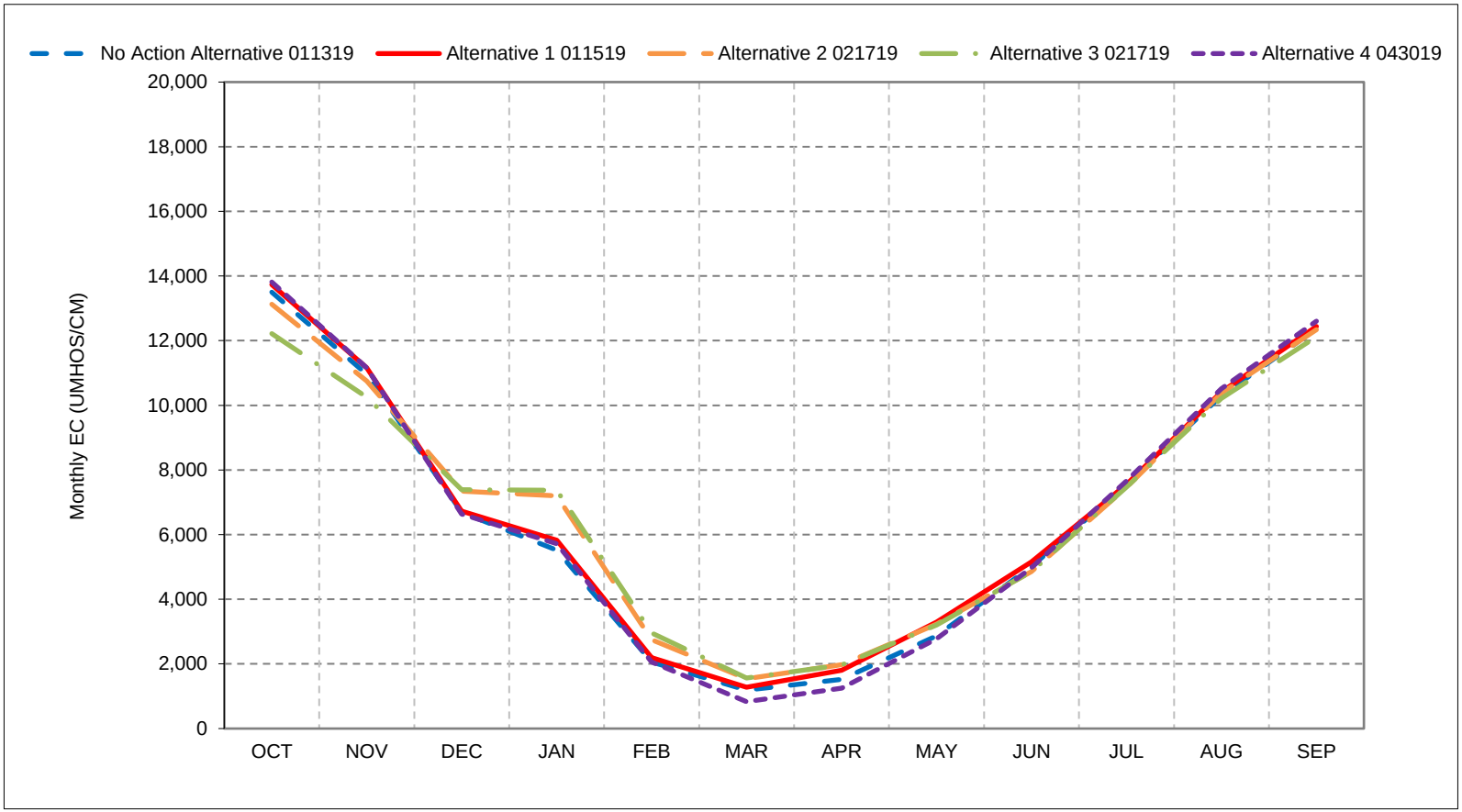
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-5. Chipps Island South Channel Salinity, Dry Year Average EC



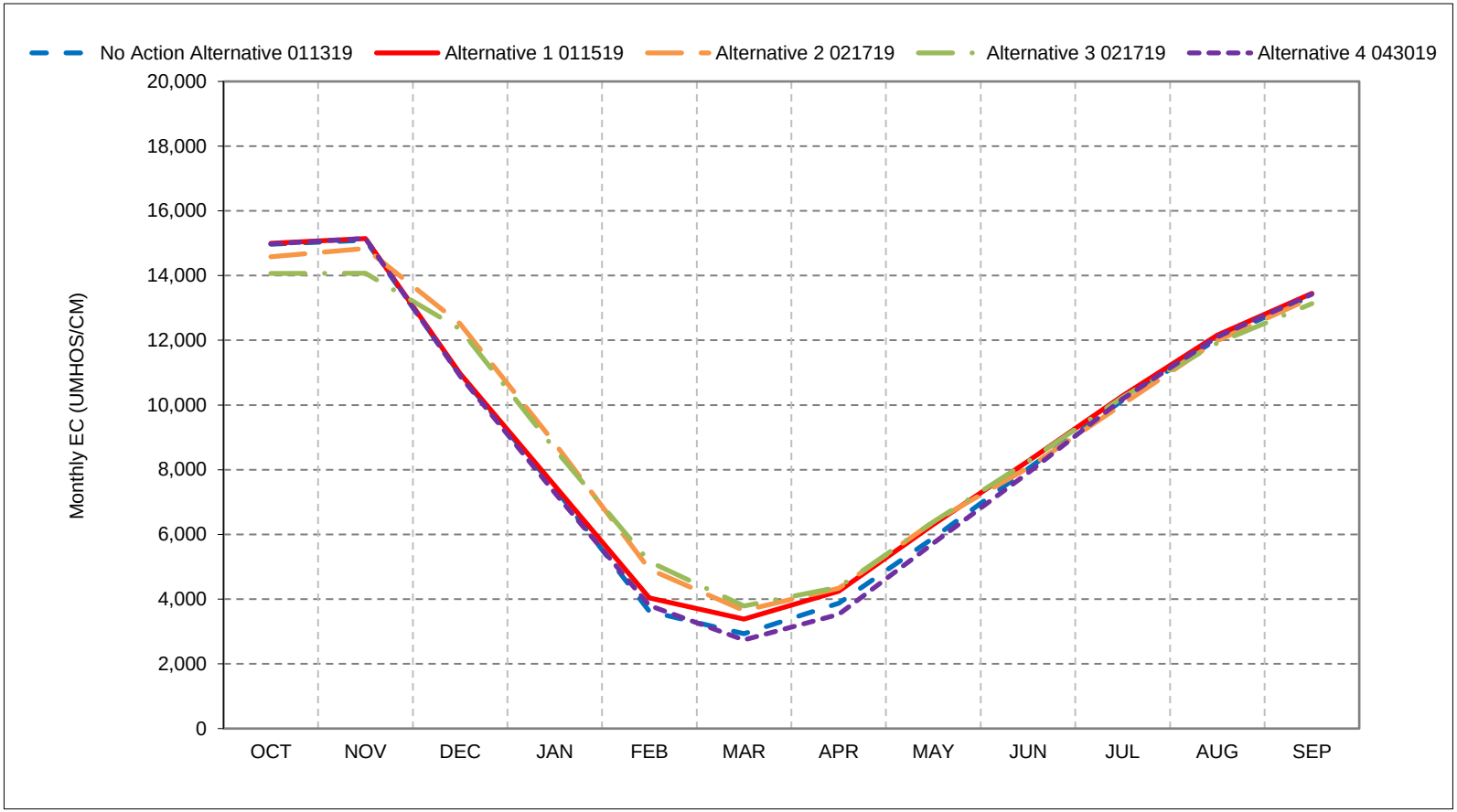
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-6. Chipps Island South Channel Salinity, Critical Year Average EC



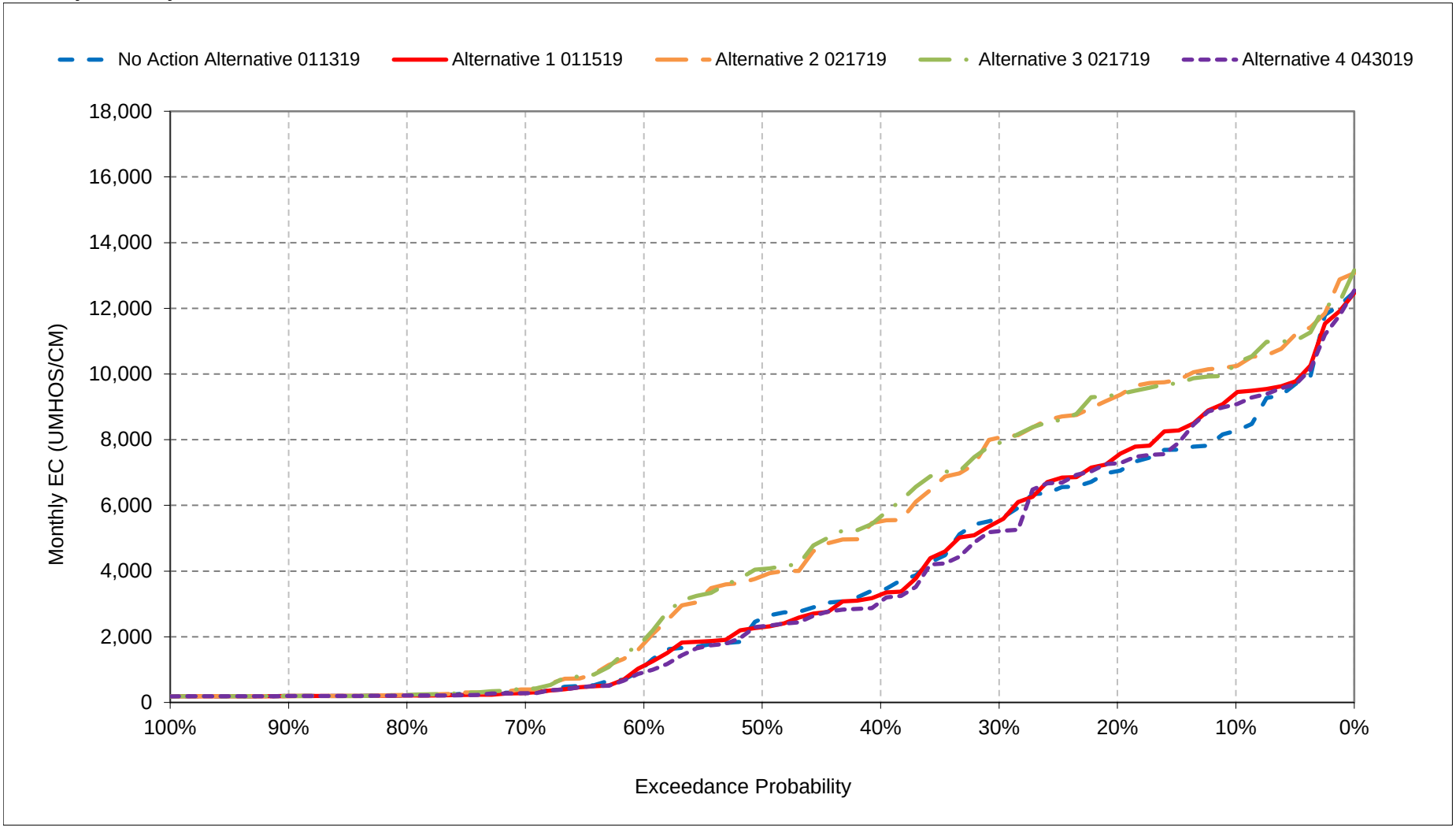
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

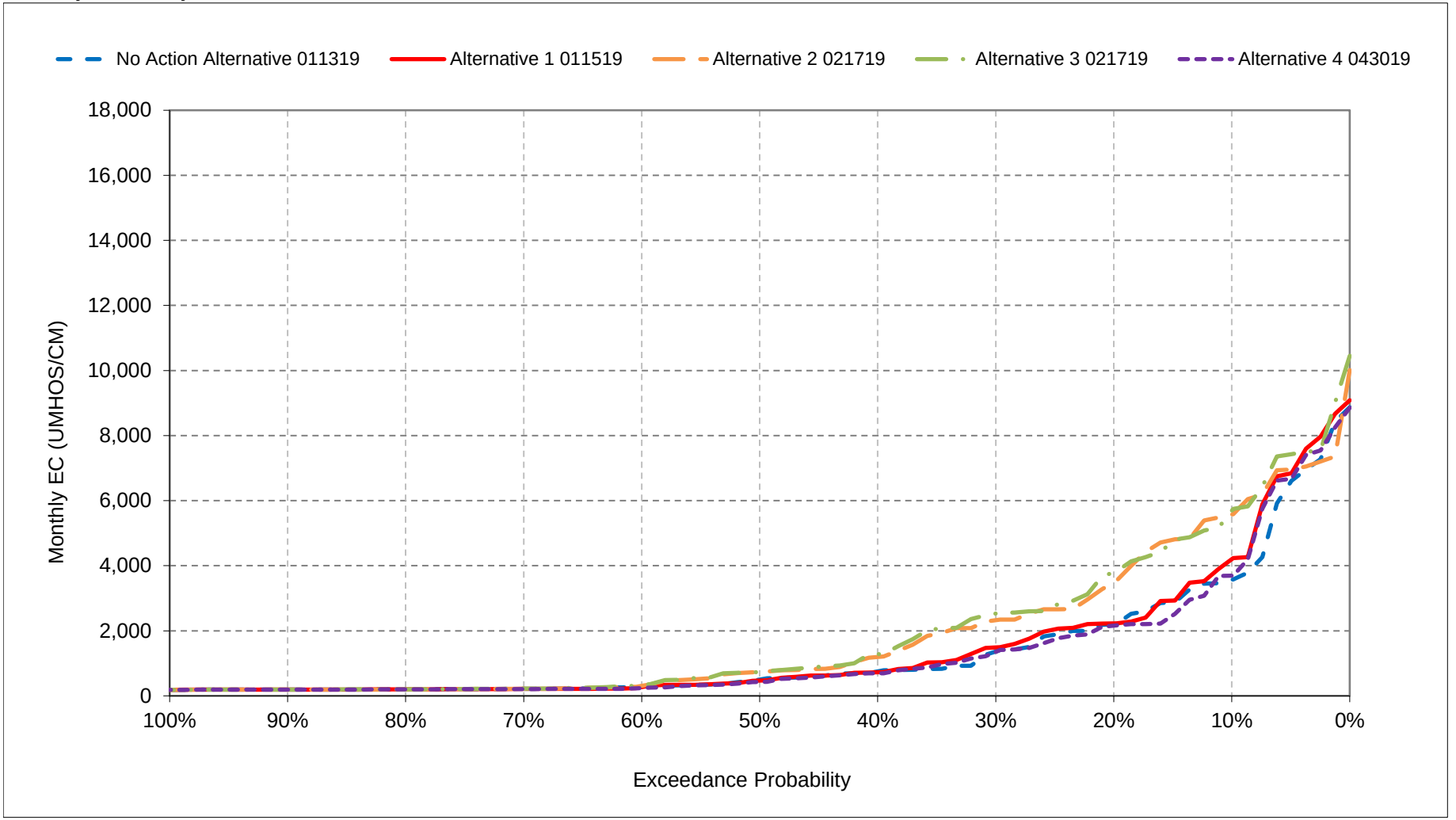
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-7. Chipps Island South Channel
Salinity, January EC



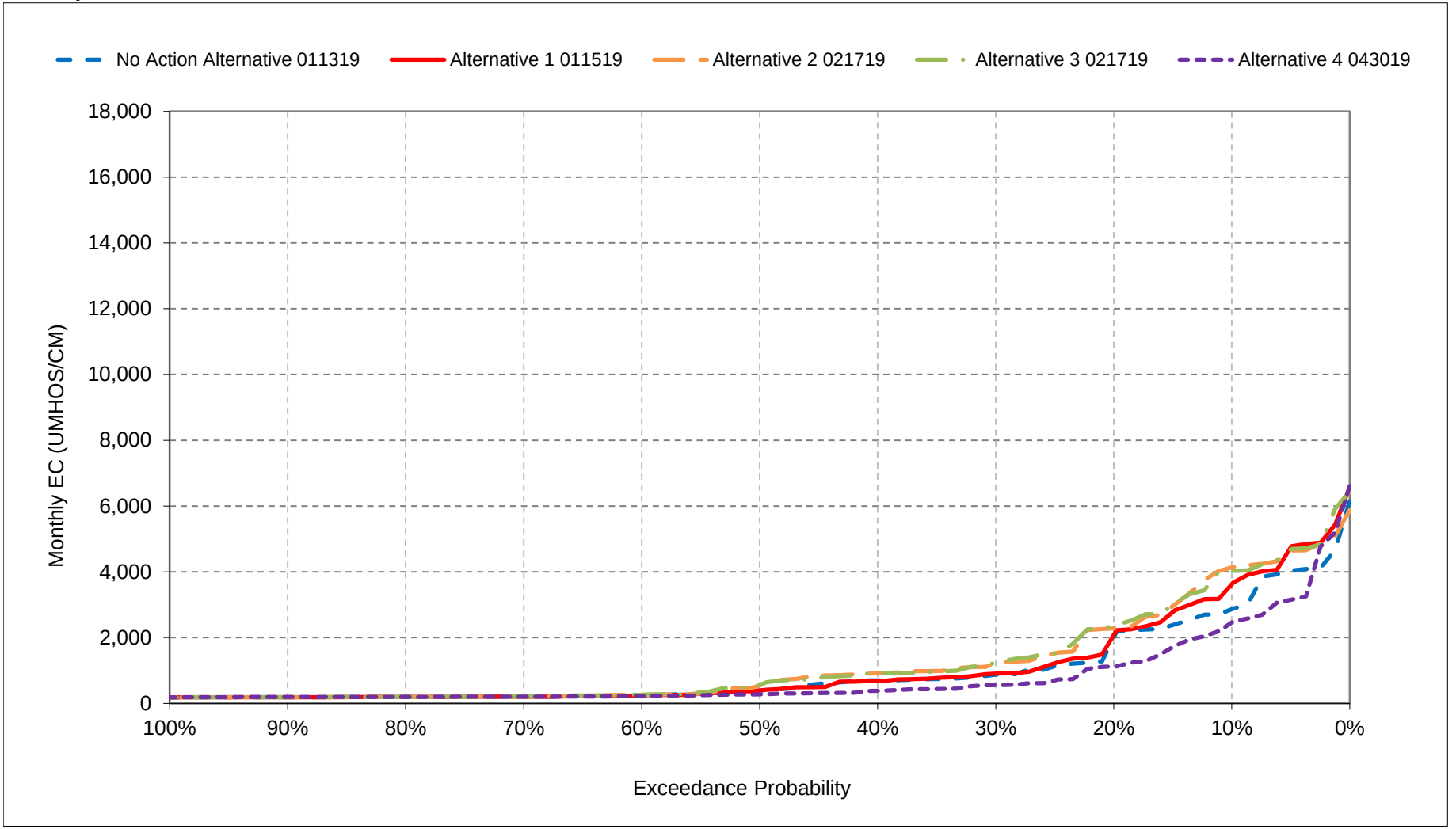
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-8. Chipps Island South Channel
Salinity, February EC



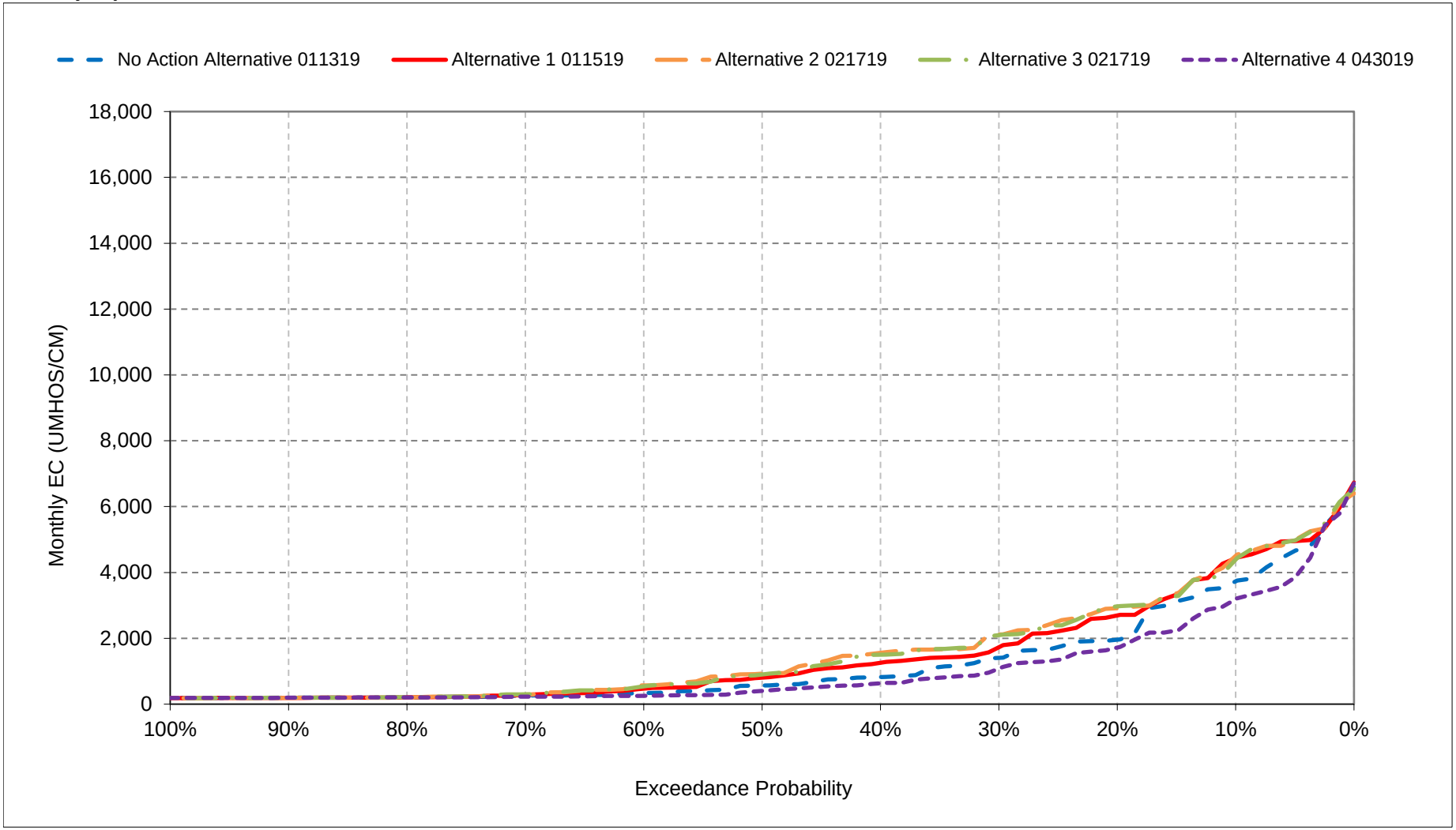
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-9. Chipps Island South Channel
Salinity, March EC



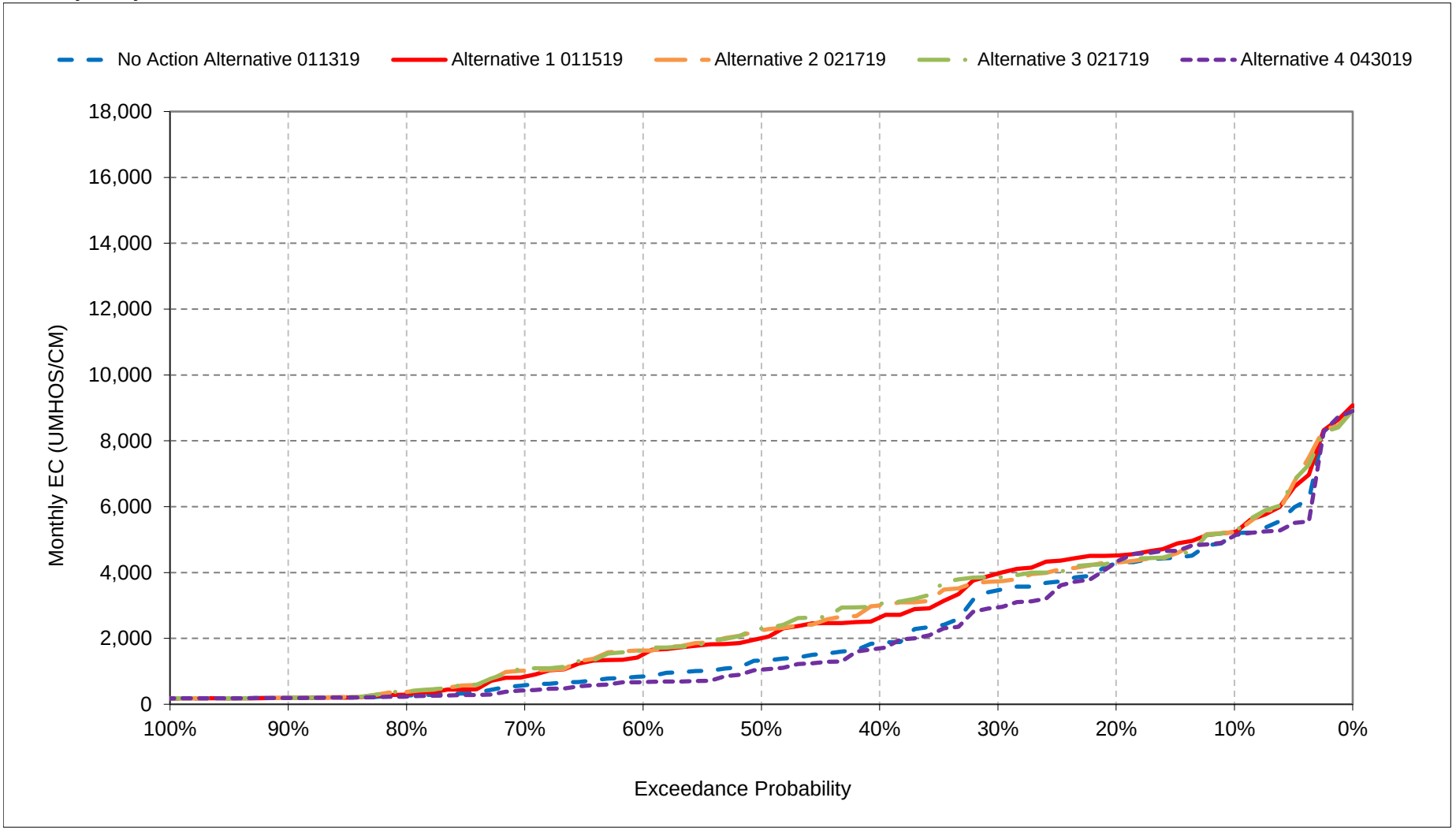
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-10. Chipps Island South Channel
Salinity, April EC



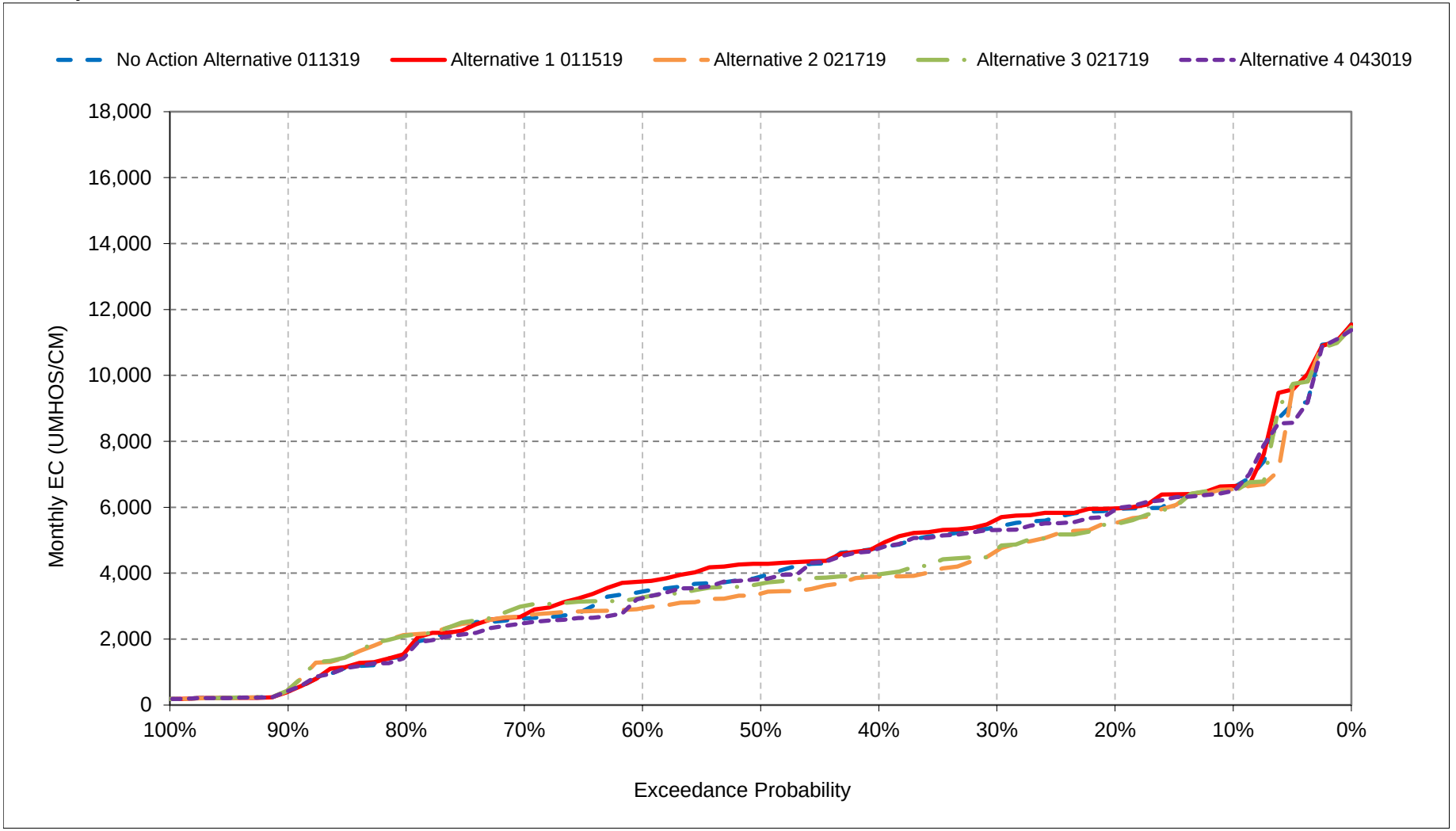
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-11. Chipps Island South Channel
Salinity, May EC



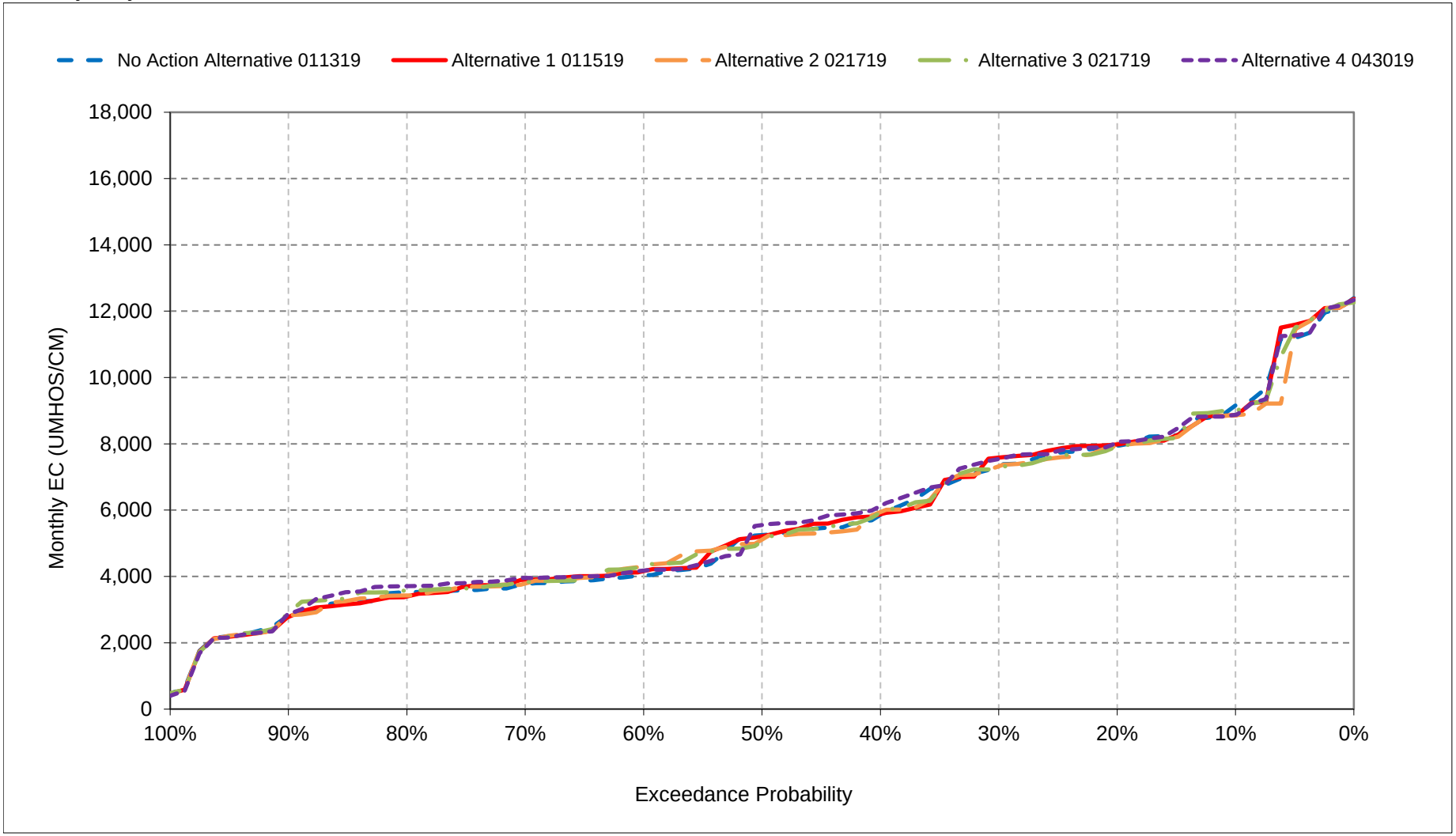
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-12. Chipps Island South Channel
Salinity, June EC



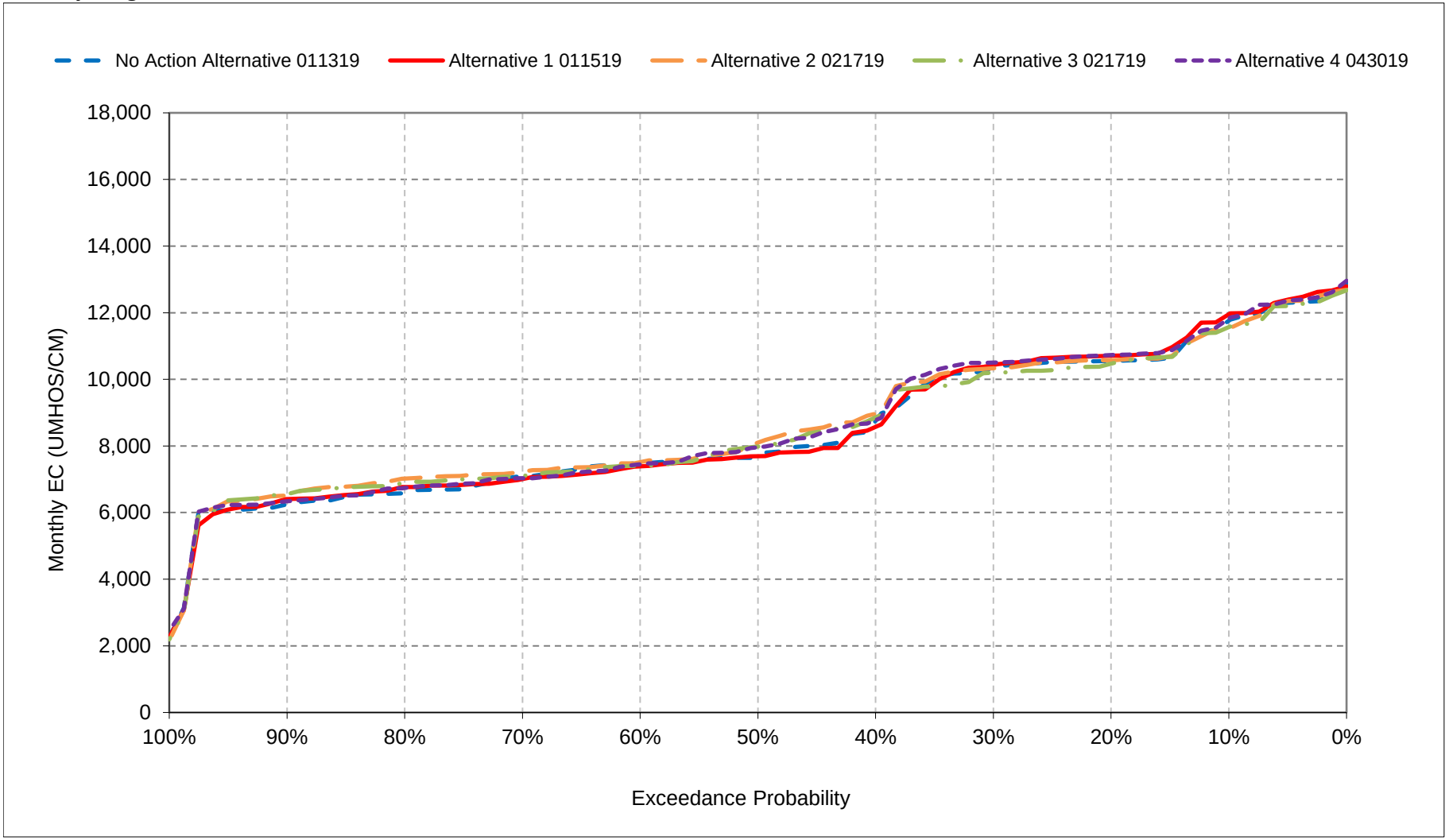
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-13. Chipps Island South Channel
Salinity, July EC



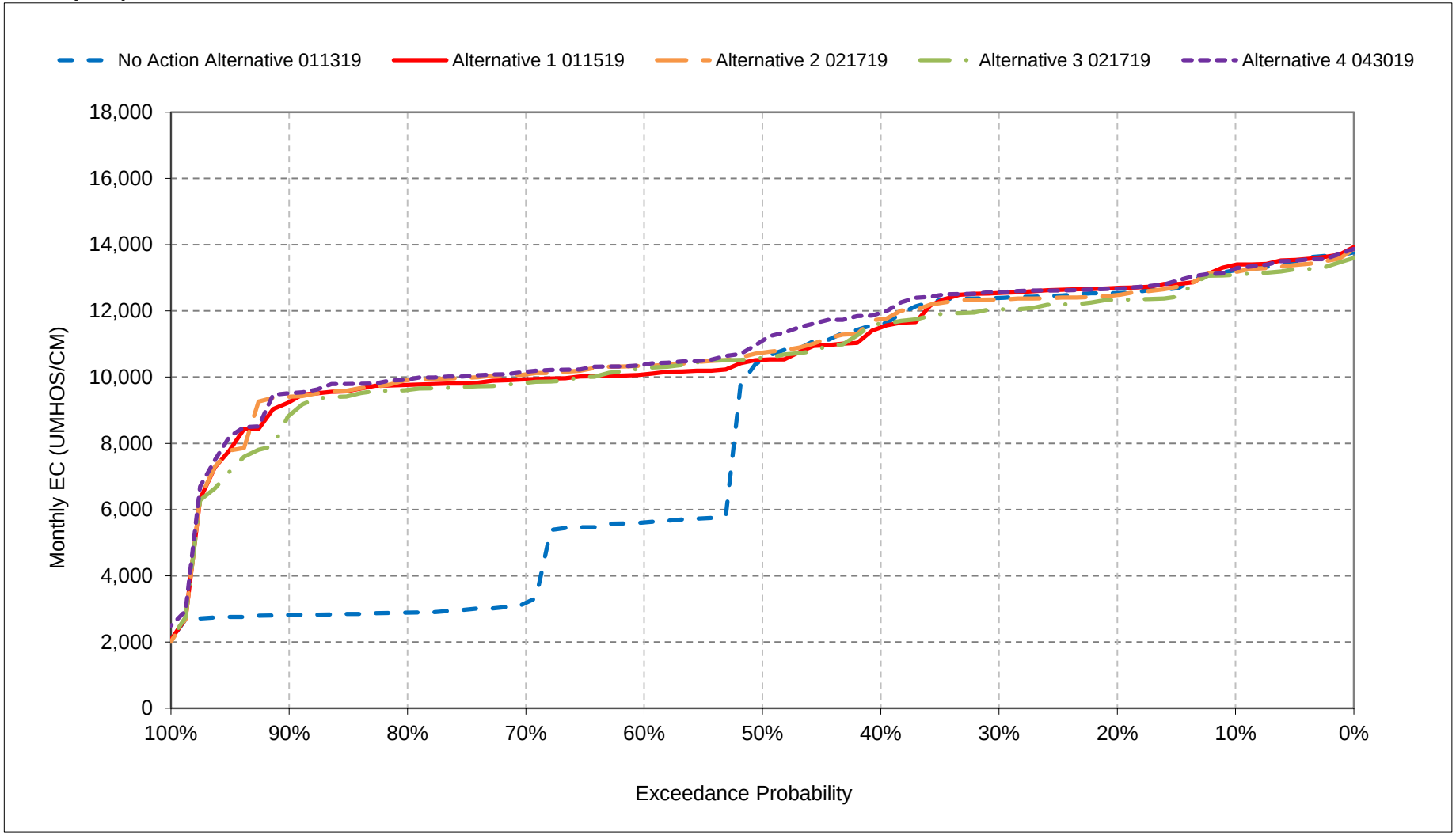
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-14. Chipps Island South Channel
Salinity, August EC



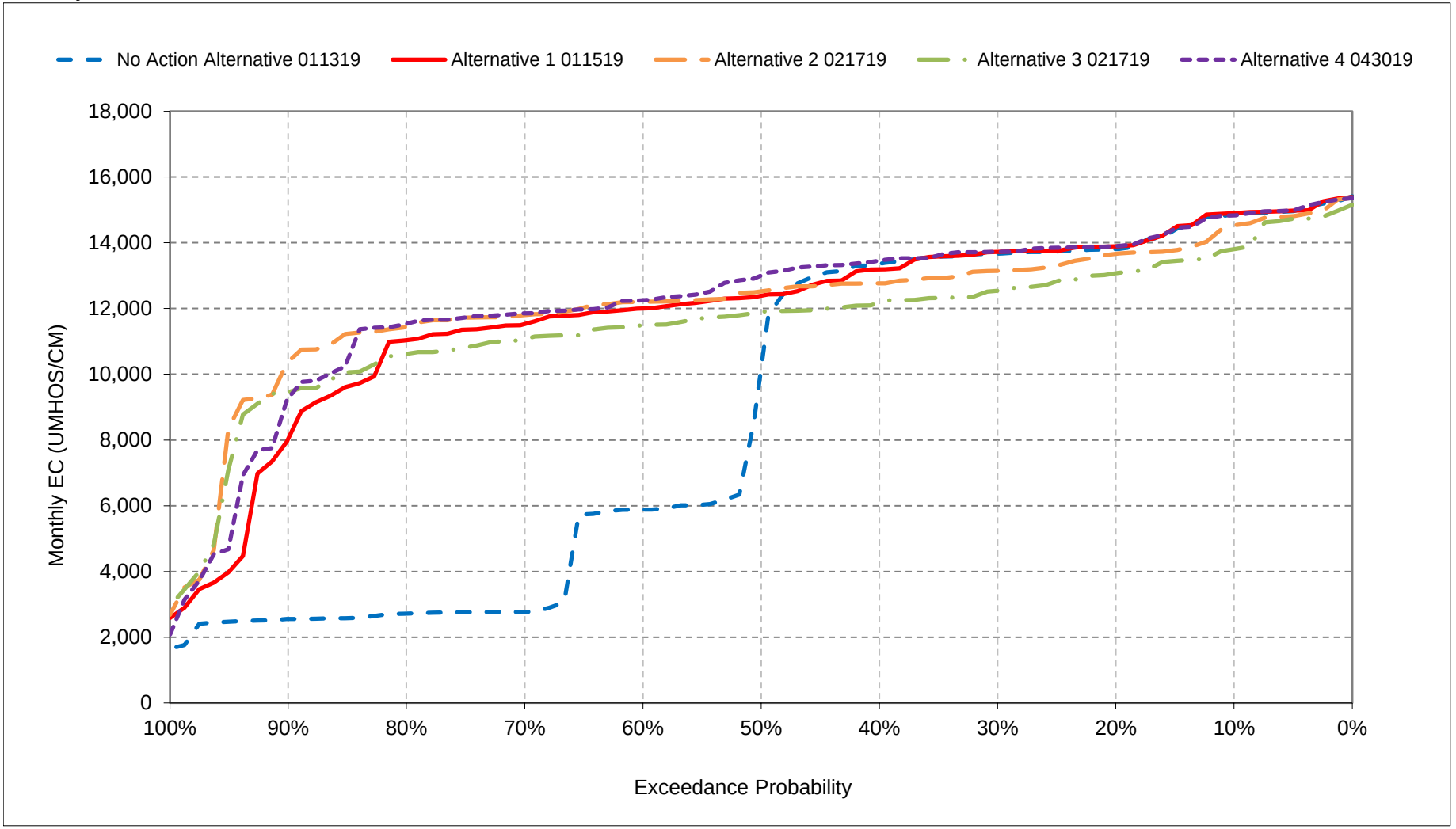
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-15. Chipps Island South Channel
Salinity, September EC



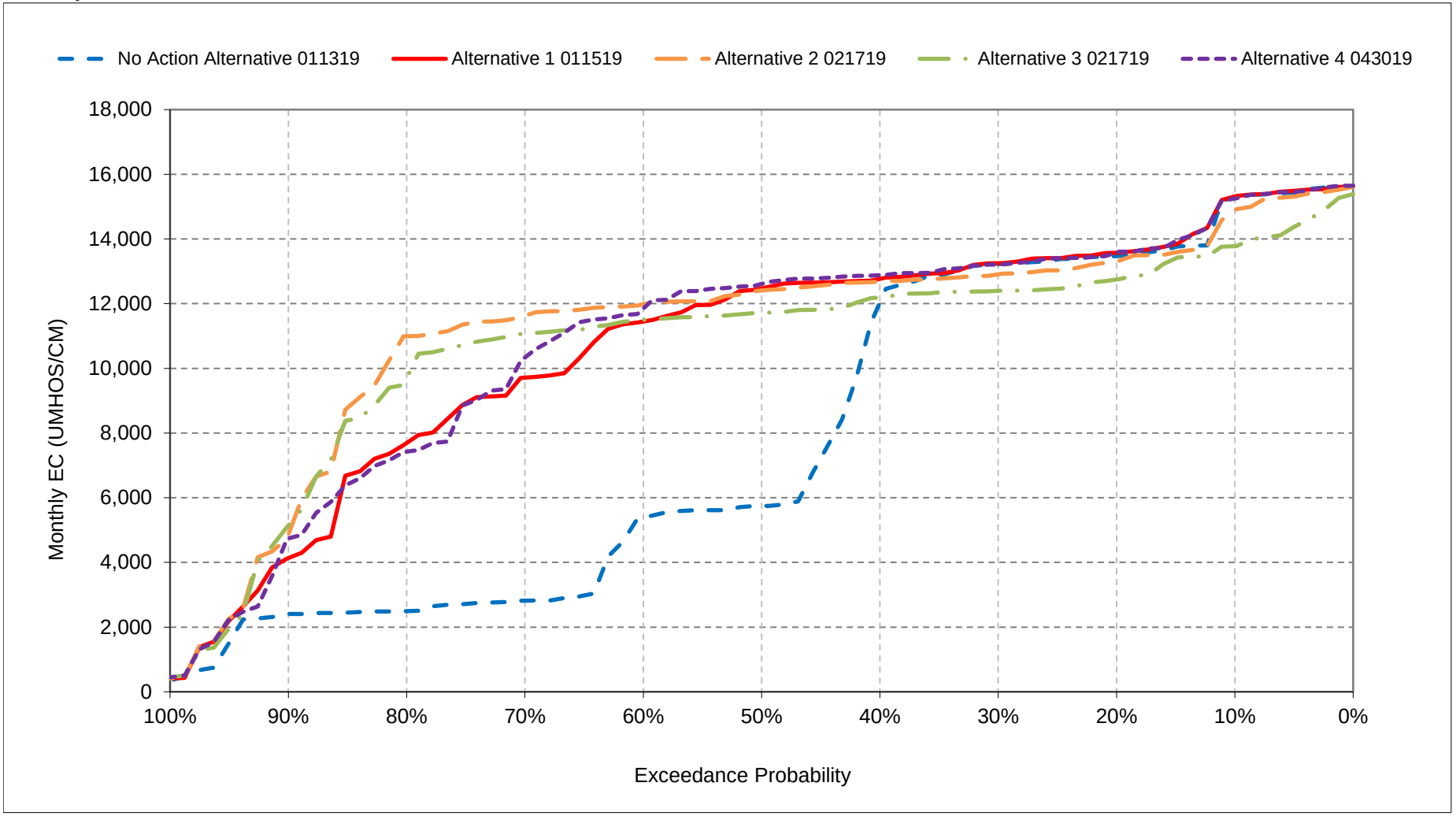
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-16. Chipps Island South Channel
Salinity, October EC



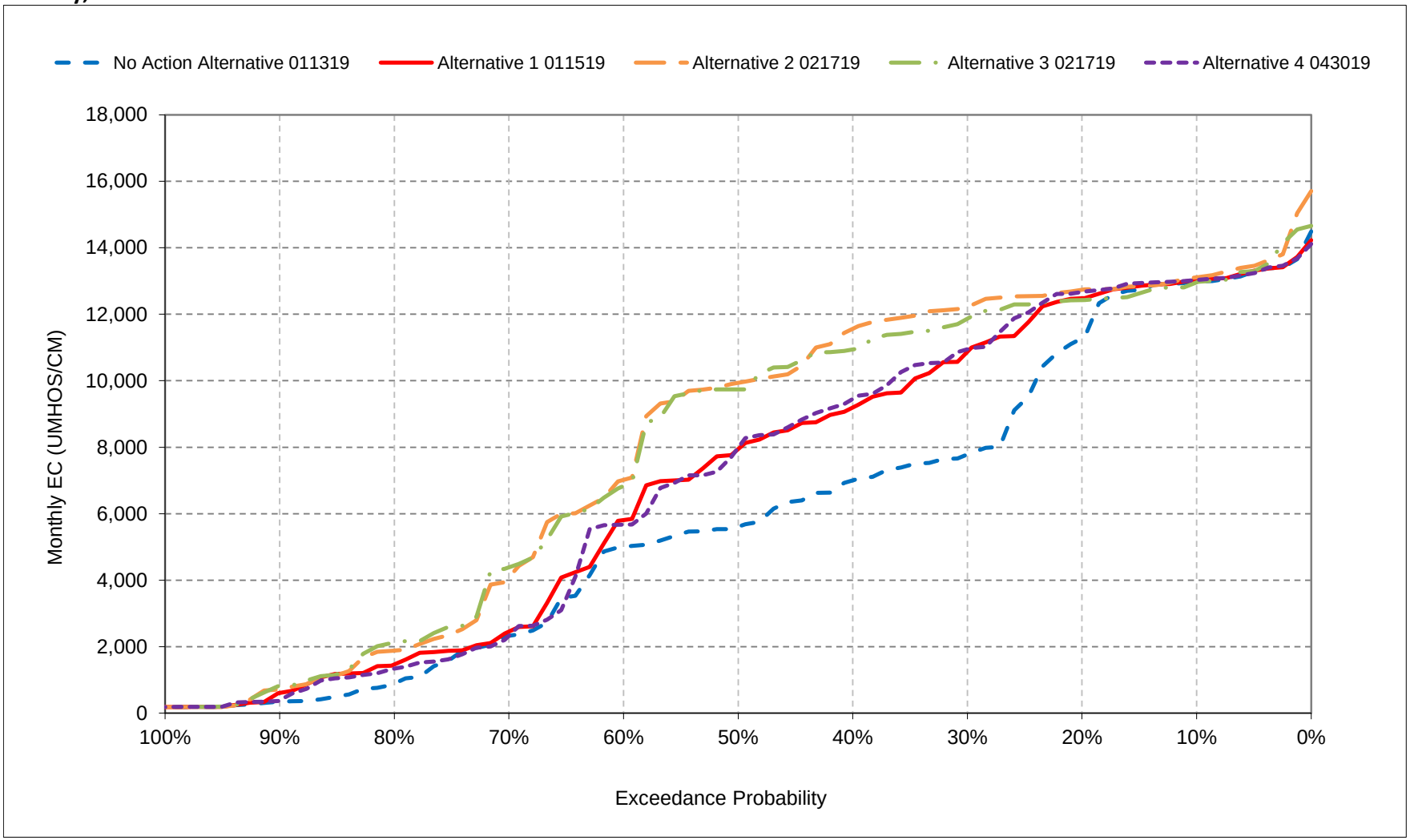
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-17. Chipps Island South Channel
Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 13-18. Chipps Island South Channel
Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 14-1. Sacramento River at Port Chicago Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,721	20,087	18,443	14,099	9,142	8,191	9,388	11,113	13,136	15,401	17,559	18,778
20%	18,931	18,683	17,240	13,238	6,908	6,716	6,664	10,006	12,043	14,401	16,567	18,140
30%	18,823	18,475	13,724	11,521	4,387	3,756	5,530	8,915	11,428	13,786	16,389	18,072
40%	18,521	17,643	13,221	8,703	3,053	3,370	3,880	6,281	10,697	12,245	15,091	17,394
50%	16,128	11,663	11,389	6,403	1,655	1,922	2,996	5,402	9,491	11,597	14,052	16,578
60%	11,769	11,372	10,698	4,099	974	1,320	1,902	4,014	9,020	10,054	13,685	11,760
70%	7,853	7,805	6,844	1,055	372	558	1,211	3,138	7,654	9,574	13,258	8,038
80%	7,551	7,420	2,783	459	241	288	543	1,504	5,455	9,215	12,846	7,772
90%	7,416	7,096	925	257	214	234	266	506	2,470	7,859	12,424	7,645
Long Term												
Full Simulation Period[a]	13,938	12,910	10,512	6,917	3,516	3,188	3,895	5,735	9,056	11,518	14,605	13,745
Water Year Types[b]												
Wet (32%)	7,512	6,972	7,194	1,756	541	795	1,043	1,917	5,064	8,189	12,689	7,704
Above Normal (16%)	11,382	10,668	9,754	3,785	1,459	1,124	1,762	3,710	8,470	9,795	12,929	11,758
Below Normal (13%)	17,100	16,236	11,954	9,071	4,311	4,663	5,128	6,837	10,256	11,843	14,333	16,965
Dry (24%)	18,668	16,053	10,711	10,792	5,300	4,041	5,057	7,738	10,925	13,935	16,366	18,027
Critical (15%)	19,849	19,916	16,867	13,058	8,487	7,834	9,317	11,848	14,128	16,267	17,887	18,899

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,798	20,097	18,465	15,515	10,008	9,412	10,221	11,460	13,085	15,248	17,726	18,846
20%	19,009	18,727	17,915	13,505	6,749	7,017	7,767	10,494	12,269	14,427	16,711	18,286
30%	18,852	18,512	16,926	11,464	4,992	3,892	6,127	9,805	11,710	13,948	16,496	18,172
40%	18,389	18,115	15,251	8,623	3,447	3,508	5,031	7,671	10,978	12,194	14,976	17,206
50%	17,782	17,786	14,143	6,551	1,593	1,981	3,778	6,560	10,204	11,636	14,064	16,505
60%	17,442	16,979	11,640	4,284	702	1,286	2,616	5,564	9,526	10,132	13,623	16,087
70%	17,221	15,527	7,162	920	370	534	1,496	4,056	8,005	9,772	13,200	16,017
80%	16,795	13,642	3,601	422	239	287	612	1,894	5,764	9,210	12,906	15,810
90%	14,054	9,389	1,099	252	212	232	286	635	2,483	7,789	12,573	15,388
Long Term												
Full Simulation Period[a]	17,221	15,902	11,528	6,996	3,674	3,332	4,404	6,542	9,321	11,558	14,633	16,677
Water Year Types[b]												
Wet (32%)	15,044	13,657	9,453	1,654	518	775	1,394	2,616	5,261	8,235	12,646	14,820
Above Normal (16%)	16,732	15,659	11,635	3,718	1,373	1,071	2,283	4,826	8,726	9,876	13,028	16,002
Below Normal (13%)	17,048	16,482	11,920	9,142	4,389	4,668	5,783	7,941	10,713	11,844	14,281	16,806
Dry (24%)	18,871	16,227	10,707	11,162	5,593	4,273	5,651	8,491	11,170	13,916	16,449	18,093
Critical (15%)	19,873	19,957	16,918	13,210	9,154	8,528	9,879	12,374	14,407	16,387	17,976	18,952

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**77**	**11**	**21**	**1,415**	**866**	**1,221**	**833**	**348**	-52	-152	**167**	**67**
20%	**78**	**43**	**675**	**266**	-159	**301**	**1,103**	**488**	**226**	**26**	**143**	**147**
30%	**29**	**38**	**3,203**	-58	**604**	**136**	**597**	**890**	**282**	**162**	**107**	**101**
40%	-132	**472**	**2,030**	-80	**394**	**138**	**1,151**	**1,390**	**280**	-50	-115	-188
50%	**1,653**	**6,122**	**2,754**	**147**	-62	**59**	**782**	**1,158**	**713**	**39**	**13**	-73
60%	**5,673**	**5,607**	**942**	**184**	-271	-34	**714**	**1,551**	**506**	**79**	-61	**4,328**
70%	**9,368**	**7,722**	**319**	-135	-3	-24	**285**	**918**	**350**	**198**	-58	**7,978**
80%	**9,243**	**6,222**	**818**	-37	-2	-2	**69**	**390**	**309**	-5	**59**	**8,037**
90%	**6,638**	**2,294**	**174**	-5	-2	-2	**20**	**129**	**13**	-70	**149**	**7,743**
Long Term												
Full Simulation Period[a]	**3,282**	**2,992**	**1,016**	**79**	**159**	**144**	**509**	**807**	**265**	**40**	**28**	**2,931**
Water Year Types[b]												
Wet (32%)	**7,532**	**6,685**	**2,258**	-102	-23	-20	**350**	**698**	**197**	**46**	-43	**7,116**
Above Normal (16%)	**5,350**	**4,991**	**1,881**	-68	-86	-54	**521**	**1,116**	**256**	**81**	**100**	**4,243**
Below Normal (13%)	-53	**246**	-34	**71**	**78**	**6**	**656**	**1,105**	**458**	**1**	-52	-159
Dry (24%)	**203**	**174**	-4	**370**	**293**	**232**	**595**	**753**	**245**	-19	**83**	**66**
Critical (15%)	**25**	**41**	**51**	**152**	**667**	**694**	**562**	**525**	**279**	**120**	**89**	**53**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 14-2. Sacramento River at Port Chicago Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,721	20,087	18,443	14,099	9,142	8,191	9,388	11,113	13,136	15,401	17,559	18,778
20%	18,931	18,683	17,240	13,238	6,908	6,716	6,664	10,006	12,043	14,401	16,567	18,140
30%	18,823	18,475	13,724	11,521	4,387	3,756	5,530	8,915	11,428	13,786	16,389	18,072
40%	18,521	17,643	13,221	8,703	3,053	3,370	3,880	6,281	10,697	12,245	15,091	17,394
50%	16,128	11,663	11,389	6,403	1,655	1,922	2,996	5,402	9,491	11,597	14,052	16,578
60%	11,769	11,372	10,698	4,099	974	1,320	1,902	4,014	9,020	10,054	13,685	11,760
70%	7,853	7,805	6,844	1,055	372	558	1,211	3,138	7,654	9,574	13,258	8,038
80%	7,551	7,420	2,783	459	241	288	543	1,504	5,455	9,215	12,846	7,772
90%	7,416	7,096	925	257	214	234	266	506	2,470	7,859	12,424	7,645
Long Term												
Full Simulation Period[a]	13,938	12,910	10,512	6,917	3,516	3,188	3,895	5,735	9,056	11,518	14,605	13,745
Water Year Types[b]												
Wet (32%)	7,512	6,972	7,194	1,756	541	795	1,043	1,917	5,064	8,189	12,689	7,704
Above Normal (16%)	11,382	10,668	9,754	3,785	1,459	1,124	1,762	3,710	8,470	9,795	12,929	11,758
Below Normal (13%)	17,100	16,236	11,954	9,071	4,311	4,663	5,128	6,837	10,256	11,843	14,333	16,965
Dry (24%)	18,668	16,053	10,711	10,792	5,300	4,041	5,057	7,738	10,925	13,935	16,366	18,027
Critical (15%)	19,849	19,916	16,867	13,058	8,487	7,834	9,317	11,848	14,128	16,267	17,887	18,899

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,426	19,629	18,395	16,345	11,834	9,935	10,421	11,468	12,876	15,193	17,583	18,761
20%	18,762	18,486	18,159	15,386	8,884	7,345	8,153	10,246	11,752	14,279	16,571	18,166
30%	18,416	18,147	17,916	14,339	6,947	4,873	6,790	9,439	10,671	13,689	16,358	18,013
40%	18,113	17,976	17,265	11,468	3,786	4,108	5,672	8,485	9,751	12,205	15,089	17,481
50%	17,970	17,858	15,978	9,198	2,402	2,620	4,134	7,002	8,969	11,299	14,329	16,705
60%	17,580	17,450	13,317	5,301	1,056	1,423	2,986	5,837	8,444	10,247	13,823	16,248
70%	17,364	17,169	9,818	1,242	422	657	1,572	4,479	7,981	9,701	13,431	16,120
80%	17,162	16,533	4,565	554	256	288	675	2,292	6,560	9,137	13,194	15,936
90%	16,266	10,304	1,307	259	213	231	289	632	2,697	7,936	12,805	15,497
Long Term												
Full Simulation Period[a]	17,490	16,405	12,640	8,342	4,416	3,698	4,671	6,655	8,889	11,489	14,750	16,719
Water Year Types[b]												
Wet (32%)	15,941	14,854	10,468	2,320	650	880	1,482	2,686	5,195	8,366	12,800	14,940
Above Normal (16%)	17,557	16,716	13,294	5,080	1,829	1,244	2,579	5,272	7,994	9,721	13,293	16,198
Below Normal (13%)	17,162	16,988	13,110	11,209	5,252	5,024	6,274	8,009	9,230	11,643	14,712	16,848
Dry (24%)	18,396	15,920	11,490	12,876	6,869	5,010	6,060	8,471	10,878	13,801	16,400	18,021
Critical (15%)	19,565	19,701	18,125	14,742	10,524	9,060	10,065	12,487	14,238	16,177	17,838	18,850

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-294	-458	-48	**2,246**	**2,692**	**1,744**	**1,033**	**356**	-261	-208	**24**	-17
20%	-169	-198	**919**	**2,148**	**1,976**	**629**	**1,489**	**240**	-291	-122	**3**	**26**
30%	-407	-327	**4,193**	**2,818**	**2,559**	**1,118**	**1,260**	**524**	-757	-98	-31	-58
40%	-408	**333**	**4,043**	**2,765**	**733**	**738**	**1,792**	**2,204**	-946	-40	-2	**86**
50%	**1,842**	**6,195**	**4,589**	**2,794**	**747**	**698**	**1,138**	**1,600**	-522	-298	**277**	**127**
60%	**5,811**	**6,077**	**2,619**	**1,202**	**83**	**102**	**1,084**	**1,823**	-576	**193**	**139**	**4,488**
70%	**9,510**	**9,364**	**2,975**	**187**	**50**	**99**	**361**	**1,341**	**326**	**127**	**173**	**8,082**
80%	**9,611**	**9,113**	**1,782**	**95**	**15**	-1	**132**	**788**	**1,105**	-79	**348**	**8,163**
90%	**8,849**	**3,209**	**382**	**2**	-1	-3	**23**	**125**	**227**	**77**	**381**	**7,852**
Long Term												
Full Simulation Period[a]	**3,552**	**3,495**	**2,128**	**1,426**	**900**	**510**	**777**	**921**	-167	-28	**145**	**2,974**
Water Year Types[b]												
Wet (32%)	**8,429**	**7,882**	**3,274**	**564**	**109**	**85**	**439**	**768**	**131**	**177**	**111**	**7,236**
Above Normal (16%)	**6,174**	**6,048**	**3,540**	**1,295**	**370**	**120**	**817**	**1,562**	-476	-74	**364**	**4,440**
Below Normal (13%)	**61**	**752**	**1,157**	**2,137**	**941**	**361**	**1,146**	**1,173**	-1,026	-201	**379**	-117
Dry (24%)	-272	-133	**779**	**2,084**	**1,570**	**968**	**1,004**	**733**	-47	-134	**34**	-6
Critical (15%)	-284	-215	**1,258**	**1,684**	**2,037**	**1,226**	**749**	**639**	**109**	-90	-49	-49

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 14-3. Sacramento River at Port Chicago Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,721	20,087	18,443	14,099	9,142	8,191	9,388	11,113	13,136	15,401	17,559	18,778
20%	18,931	18,683	17,240	13,238	6,908	6,716	6,664	10,006	12,043	14,401	16,567	18,140
30%	18,823	18,475	13,724	11,521	4,387	3,756	5,530	8,915	11,428	13,786	16,389	18,072
40%	18,521	17,643	13,221	8,703	3,053	3,370	3,880	6,281	10,697	12,245	15,091	17,394
50%	16,128	11,663	11,389	6,403	1,655	1,922	2,996	5,402	9,491	11,597	14,052	16,578
60%	11,769	11,372	10,698	4,099	974	1,320	1,902	4,014	9,020	10,054	13,685	11,760
70%	7,853	7,805	6,844	1,055	372	558	1,211	3,138	7,654	9,574	13,258	8,038
80%	7,551	7,420	2,783	459	241	288	543	1,504	5,455	9,215	12,846	7,772
90%	7,416	7,096	925	257	214	234	266	506	2,470	7,859	12,424	7,645
Long Term												
Full Simulation Period[a]	13,938	12,910	10,512	6,917	3,516	3,188	3,895	5,735	9,056	11,518	14,605	13,745
Water Year Types[b]												
Wet (32%)	7,512	6,972	7,194	1,756	541	795	1,043	1,917	5,064	8,189	12,689	7,704
Above Normal (16%)	11,382	10,668	9,754	3,785	1,459	1,124	1,762	3,710	8,470	9,795	12,929	11,758
Below Normal (13%)	17,100	16,236	11,954	9,071	4,311	4,663	5,128	6,837	10,256	11,843	14,333	16,965
Dry (24%)	18,668	16,053	10,711	10,792	5,300	4,041	5,057	7,738	10,925	13,935	16,366	18,027
Critical (15%)	19,849	19,916	16,867	13,058	8,487	7,834	9,317	11,848	14,128	16,267	17,887	18,899

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	18,878	18,700	18,132	16,169	11,616	9,792	10,261	11,503	12,902	15,238	17,451	18,644
20%	18,374	17,918	17,871	15,021	9,055	7,338	8,222	10,209	11,632	14,200	16,496	17,966
30%	17,807	17,748	17,481	14,028	6,832	4,833	6,638	9,549	10,720	13,650	16,131	17,715
40%	17,631	17,598	16,611	11,504	3,708	4,011	5,508	8,443	9,761	12,097	15,021	17,303
50%	17,363	17,184	15,902	9,312	2,483	2,634	3,929	7,086	9,389	11,224	14,293	16,494
60%	17,006	16,840	13,030	5,336	1,059	1,431	2,893	5,817	8,817	10,176	13,587	16,240
70%	16,720	16,482	9,993	1,212	415	628	1,539	4,604	8,385	9,650	13,230	15,898
80%	16,224	15,598	4,683	539	254	265	651	2,278	6,480	9,333	13,016	15,727
90%	15,223	10,606	1,404	246	211	222	271	601	2,666	7,906	12,754	14,859
Long Term												
Full Simulation Period[a]	16,947	15,906	12,423	8,288	4,418	3,670	4,599	6,670	9,006	11,484	14,607	16,491
Water Year Types[b]												
Wet (32%)	15,541	14,489	10,227	2,290	651	868	1,357	2,803	5,303	8,364	12,708	14,746
Above Normal (16%)	16,910	16,181	12,905	5,019	1,790	1,220	2,542	5,256	8,294	9,678	13,036	15,679
Below Normal (13%)	16,690	16,414	12,940	11,266	5,033	4,852	6,182	7,992	9,446	11,640	14,593	16,755
Dry (24%)	17,637	15,395	11,418	12,895	6,997	4,978	5,997	8,401	10,819	13,734	16,227	17,830
Critical (15%)	19,123	19,062	17,862	14,419	10,567	9,132	10,070	12,480	14,377	16,304	17,736	18,678

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-843	-1,387	-311	**2,069**	**2,474**	**1,601**	**874**	**390**	-235	-163	-108	-134
20%	-557	-765	**631**	**1,782**	**2,147**	**622**	**1,558**	**203**	-411	-201	-72	-174
30%	-1,016	-727	**3,757**	**2,507**	**2,445**	**1,078**	**1,108**	**634**	-708	-136	-258	-356
40%	-890	-44	**3,390**	**2,801**	**654**	**641**	**1,628**	**2,162**	-936	-147	-70	-92
50%	**1,235**	**5,520**	**4,513**	**2,909**	**828**	**712**	**933**	**1,683**	-102	-373	**242**	-84
60%	**5,237**	**5,468**	**2,332**	**1,236**	**85**	**111**	**991**	**1,804**	-203	**122**	-98	**4,480**
70%	**8,867**	**8,677**	**3,149**	**157**	**43**	**70**	**328**	**1,466**	**731**	**76**	-28	**7,859**
80%	**8,673**	**8,177**	**1,901**	**80**	**13**	-23	**108**	**774**	**1,025**	**118**	**169**	**7,954**
90%	**7,807**	**3,511**	**479**	-10	-3	-12	**5**	**95**	**196**	**47**	**330**	**7,214**
Long Term												
Full Simulation Period[a]	**3,009**	**2,996**	**1,912**	**1,372**	**902**	**482**	**704**	**935**	-50	-34	**2**	**2,746**
Water Year Types[b]												
Wet (32%)	**8,029**	**7,516**	**3,033**	**533**	**110**	**73**	**314**	**886**	**239**	**175**	**19**	**7,042**
Above Normal (16%)	**5,527**	**5,513**	**3,151**	**1,234**	**331**	**95**	**780**	**1,546**	-175	-117	**107**	**3,920**
Below Normal (13%)	-410	**178**	**987**	**2,195**	**722**	**189**	**1,054**	**1,156**	-809	-204	**260**	-210
Dry (24%)	-1,031	-658	**706**	**2,104**	**1,697**	**937**	**941**	**663**	-106	-201	-139	-197
Critical (15%)	-726	-854	**996**	**1,361**	**2,080**	**1,298**	**753**	**632**	**248**	**37**	-151	-221

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 14-4. Sacramento River at Port Chicago Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,721	20,087	18,443	14,099	9,142	8,191	9,388	11,113	13,136	15,401	17,559	18,778
20%	18,931	18,683	17,240	13,238	6,908	6,716	6,664	10,006	12,043	14,401	16,567	18,140
30%	18,823	18,475	13,724	11,521	4,387	3,756	5,530	8,915	11,428	13,786	16,389	18,072
40%	18,521	17,643	13,221	8,703	3,053	3,370	3,880	6,281	10,697	12,245	15,091	17,394
50%	16,128	11,663	11,389	6,403	1,655	1,922	2,996	5,402	9,491	11,597	14,052	16,578
60%	11,769	11,372	10,698	4,099	974	1,320	1,902	4,014	9,020	10,054	13,685	11,760
70%	7,853	7,805	6,844	1,055	372	558	1,211	3,138	7,654	9,574	13,258	8,038
80%	7,551	7,420	2,783	459	241	288	543	1,504	5,455	9,215	12,846	7,772
90%	7,416	7,096	925	257	214	234	266	506	2,470	7,859	12,424	7,645
Long Term												
Full Simulation Period[a]	13,938	12,910	10,512	6,917	3,516	3,188	3,895	5,735	9,056	11,518	14,605	13,745
Water Year Types[b]												
Wet (32%)	7,512	6,972	7,194	1,756	541	795	1,043	1,917	5,064	8,189	12,689	7,704
Above Normal (16%)	11,382	10,668	9,754	3,785	1,459	1,124	1,762	3,710	8,470	9,795	12,929	11,758
Below Normal (13%)	17,100	16,236	11,954	9,071	4,311	4,663	5,128	6,837	10,256	11,843	14,333	16,965
Dry (24%)	18,668	16,053	10,711	10,792	5,300	4,041	5,057	7,738	10,925	13,935	16,366	18,027
Critical (15%)	19,849	19,916	16,867	13,058	8,487	7,834	9,317	11,848	14,128	16,267	17,887	18,899

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,759	20,076	18,447	15,287	9,706	7,580	8,622	11,048	13,045	15,174	17,660	18,839
20%	19,039	18,712	18,133	13,483	6,645	4,761	5,902	9,974	12,172	14,396	16,714	18,327
30%	18,868	18,452	16,888	11,132	4,799	2,585	4,411	8,186	11,433	13,997	16,540	18,149
40%	18,646	18,176	15,448	8,261	3,167	2,044	3,196	5,927	10,743	12,378	14,994	17,506
50%	18,215	17,852	14,121	6,457	1,465	1,488	2,137	4,632	9,333	11,857	14,269	16,962
60%	17,572	17,338	11,722	3,757	672	801	1,323	3,454	8,782	10,217	13,588	16,340
70%	17,365	16,309	7,132	888	375	438	882	2,581	7,215	9,727	13,227	16,124
80%	17,157	13,424	3,106	397	241	270	480	1,201	5,469	9,528	12,954	15,956
90%	15,103	10,164	907	252	213	229	271	536	2,562	7,913	12,519	15,735
Long Term												
Full Simulation Period[a]	17,486	16,012	11,486	6,821	3,481	2,560	3,361	5,422	8,937	11,627	14,694	16,847
Water Year Types[b]												
Wet (32%)	15,533	14,002	9,580	1,566	467	605	902	1,778	4,935	8,314	12,712	15,074
Above Normal (16%)	17,260	15,968	11,479	3,663	1,270	744	1,325	3,152	8,252	9,948	12,967	16,064
Below Normal (13%)	17,145	16,080	11,779	8,660	4,114	3,161	3,829	6,367	10,176	12,036	14,574	17,227
Dry (24%)	18,936	16,248	10,591	11,009	5,295	3,061	4,361	7,408	10,866	14,014	16,526	18,207
Critical (15%)	19,857	19,958	16,847	12,962	8,804	7,375	8,798	11,599	13,998	16,266	17,917	18,925

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**38**	-11	**4**	**1,188**	**564**	-611	-766	-65	-92	-227	**101**	**61**
20%	**109**	**29**	**893**	**245**	-262	-1,955	-762	-32	**129**	-5	**146**	**187**
30%	**45**	-23	**3,164**	-389	**411**	-1,171	-1,119	-729	**6**	**211**	**151**	**78**
40%	**125**	**534**	**2,227**	-442	**113**	-1,326	-685	-354	**45**	**134**	-97	**112**
50%	**2,087**	**6,189**	**2,732**	**54**	-190	-434	-859	-770	-159	**260**	**218**	**385**
60%	**5,803**	**5,965**	**1,024**	-342	-302	-520	-579	-559	-239	**164**	-97	**4,581**
70%	**9,511**	**8,504**	**288**	-167	**3**	-120	-329	-557	-440	**153**	-31	**8,085**
80%	**9,606**	**6,004**	**323**	-62	0	-18	-63	-303	**14**	**312**	**108**	**8,184**
90%	**7,687**	**3,068**	-19	-5	-1	-5	**5**	**30**	**92**	**54**	**95**	**8,090**
Long Term												
Full Simulation Period[a]	**3,548**	**3,102**	**974**	-96	-35	-628	-534	-313	-120	**109**	**89**	**3,102**
Water Year Types[b]												
Wet (32%)	**8,021**	**7,030**	**2,386**	-190	-73	-190	-141	-140	-129	**126**	**23**	**7,370**
Above Normal (16%)	**5,878**	**5,300**	**1,725**	-122	-189	-380	-437	-558	-218	**153**	**38**	**4,306**
Below Normal (13%)	**45**	-156	-174	-411	-197	-1,501	-1,299	-470	-80	**193**	**241**	**262**
Dry (24%)	**268**	**195**	-121	**218**	-5	-980	-696	-331	-59	**79**	**160**	**179**
Critical (15%)	**8**	**42**	-20	-96	**317**	-459	-519	-250	-130	-1	**30**	**25**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

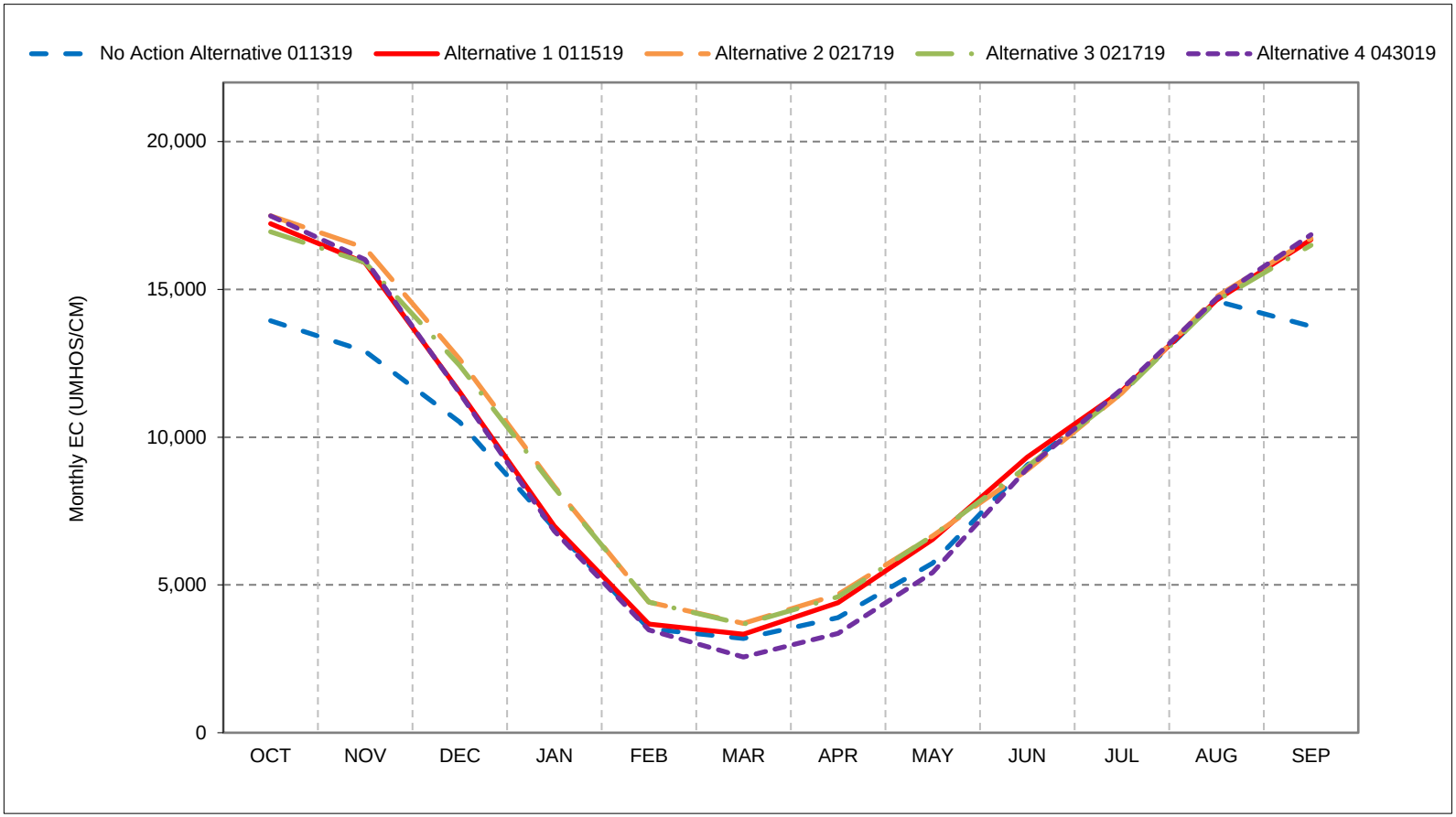
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

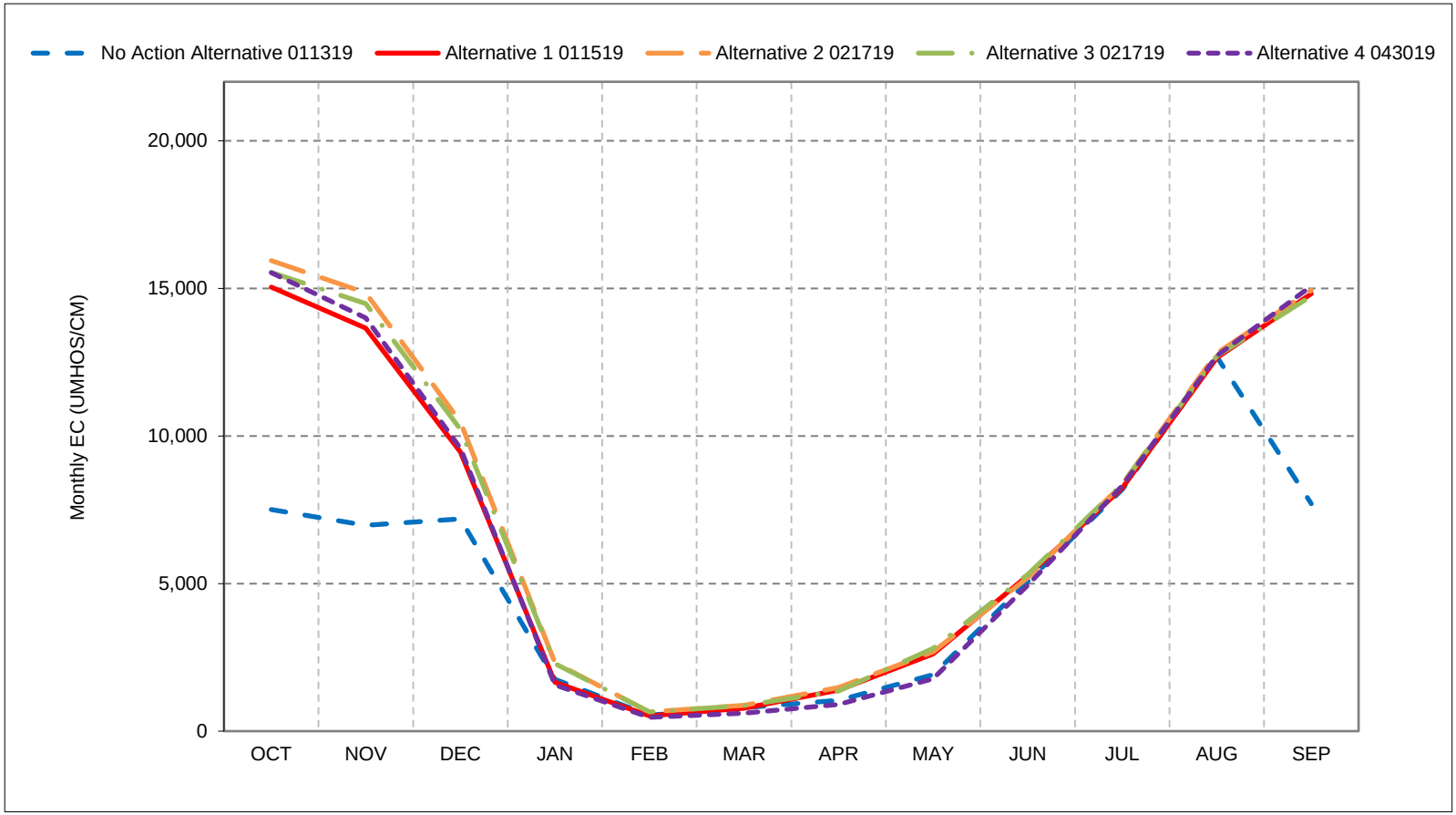
f These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-1. Sacramento River at Port Chicago Salinity, Long-Term Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-2. Sacramento River at Port Chicago Salinity, Wet Year Average EC



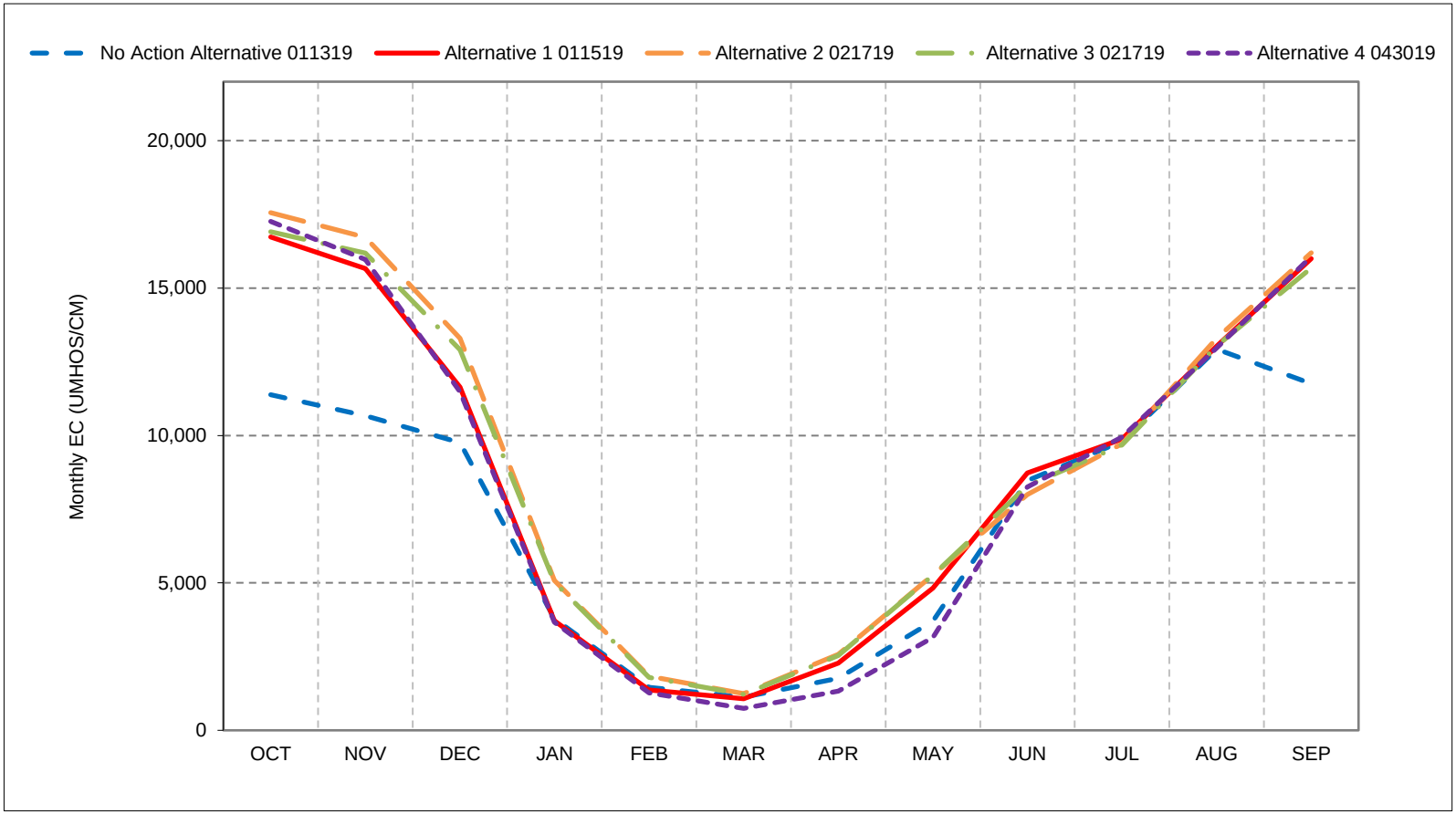
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-3. Sacramento River at Port Chicago Salinity, Above Normal Year Average EC



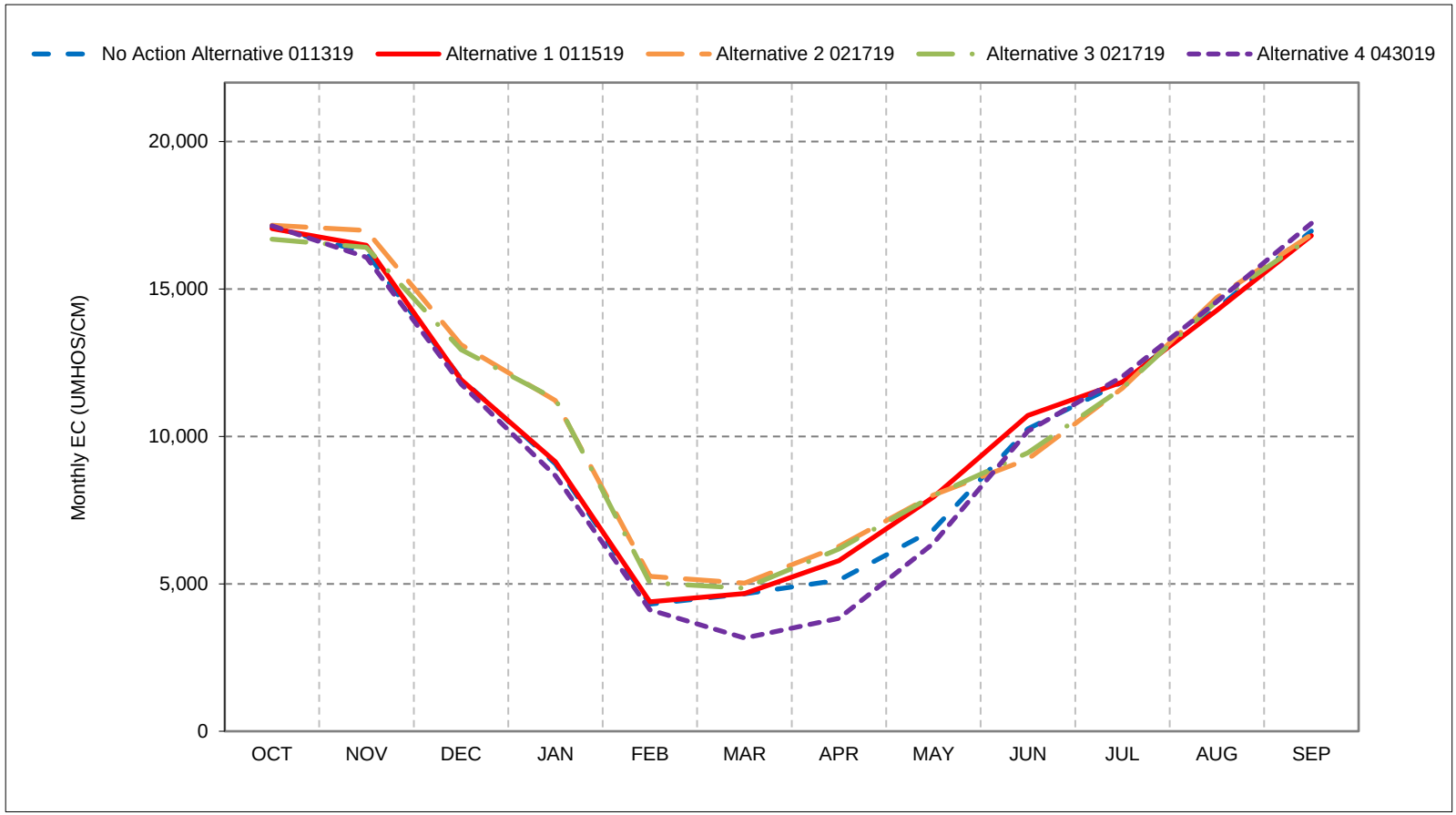
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

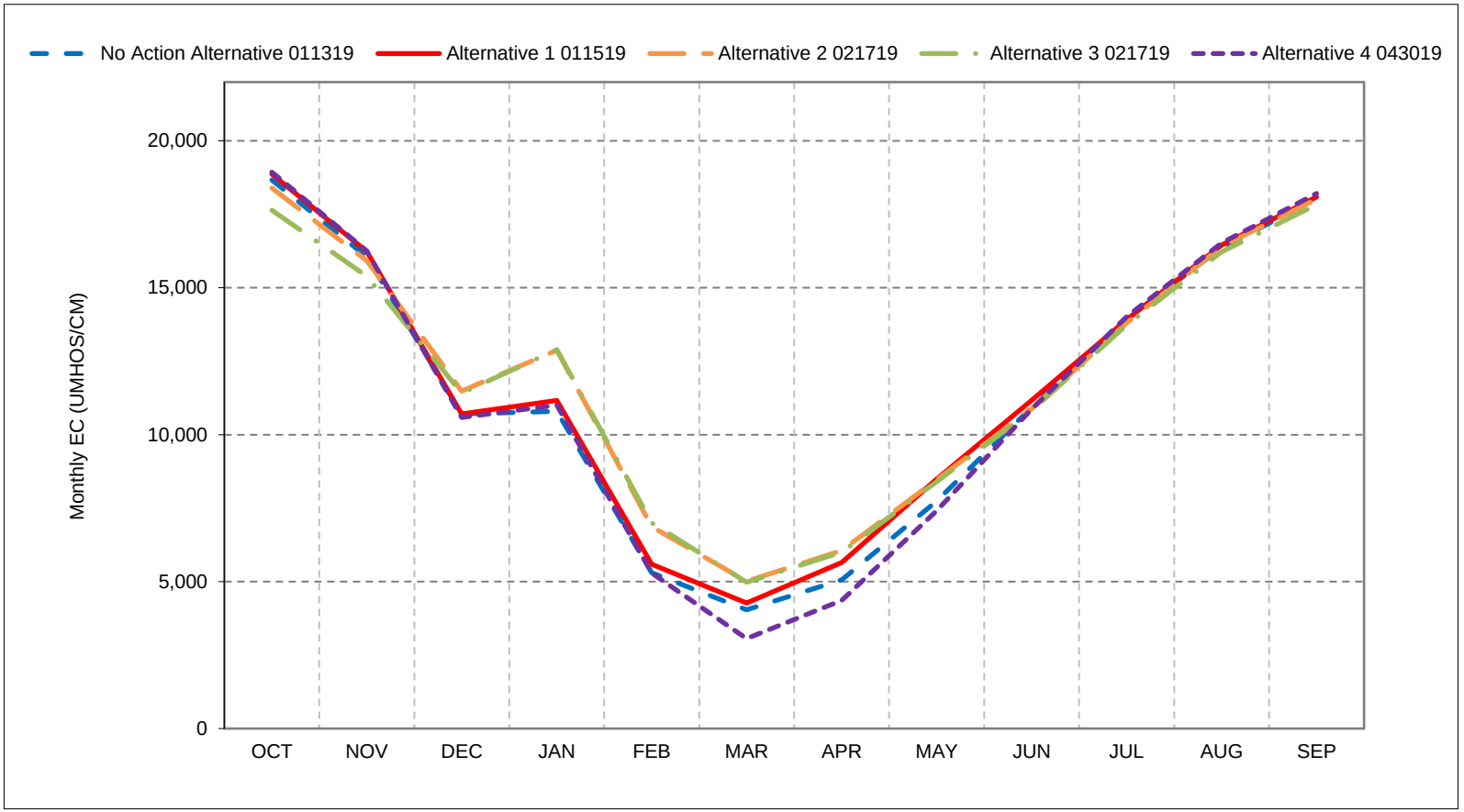
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-4. Sacramento River at Port Chicago Salinity, Below Normal Year Average EC



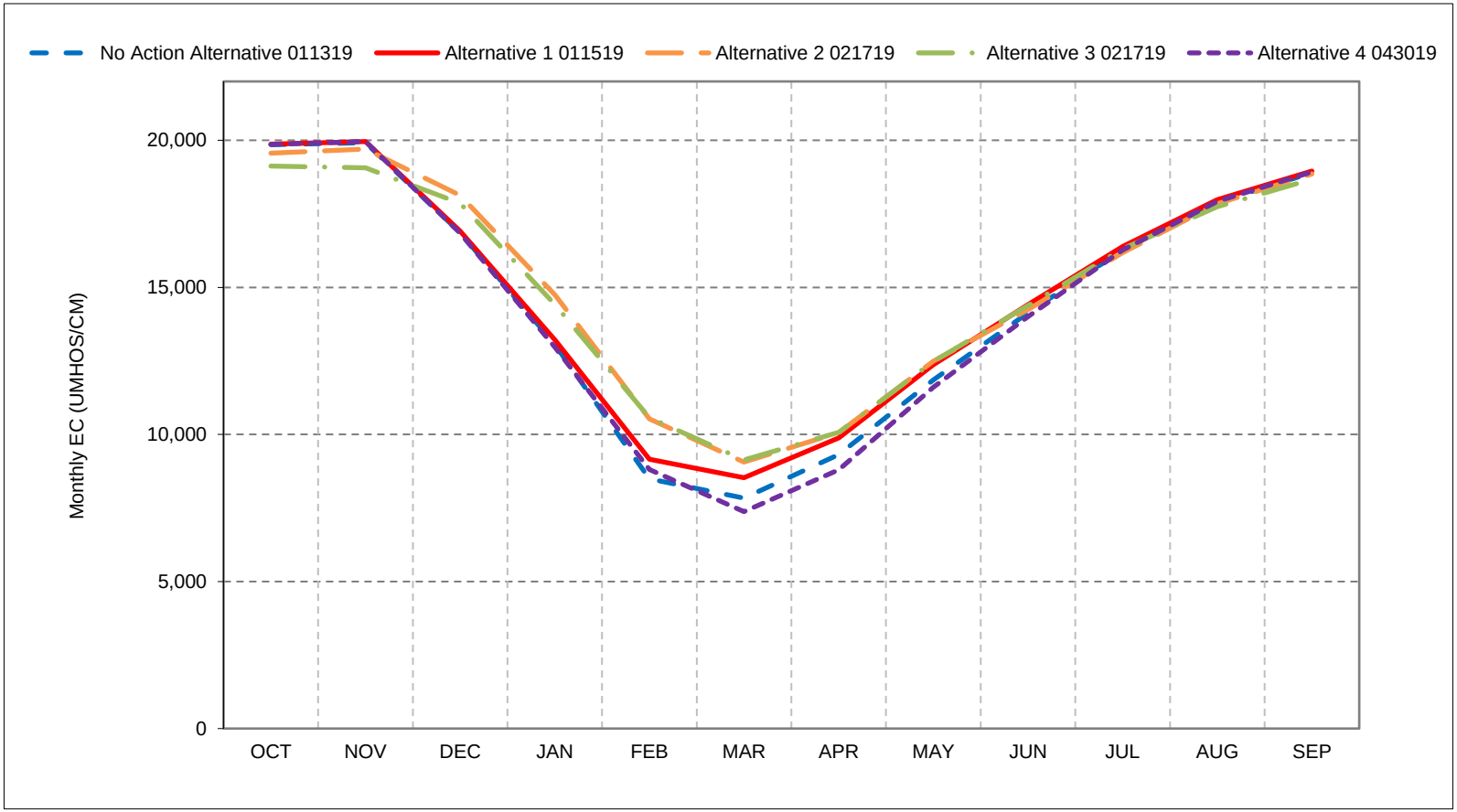
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-5. Sacramento River at Port Chicago Salinity, Dry Year Average EC



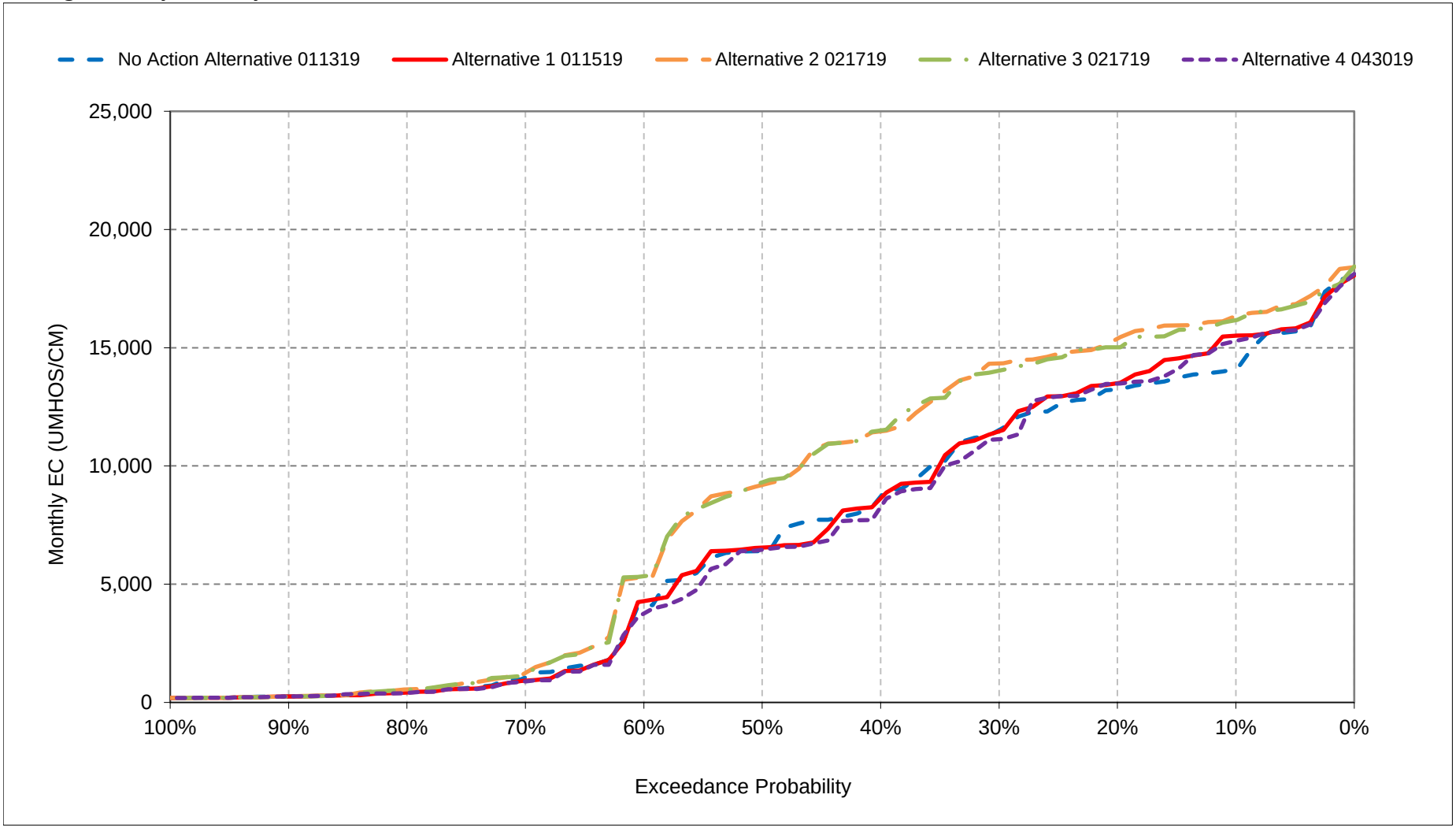
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-6. Sacramento River at Port Chicago Salinity, Critical Year Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

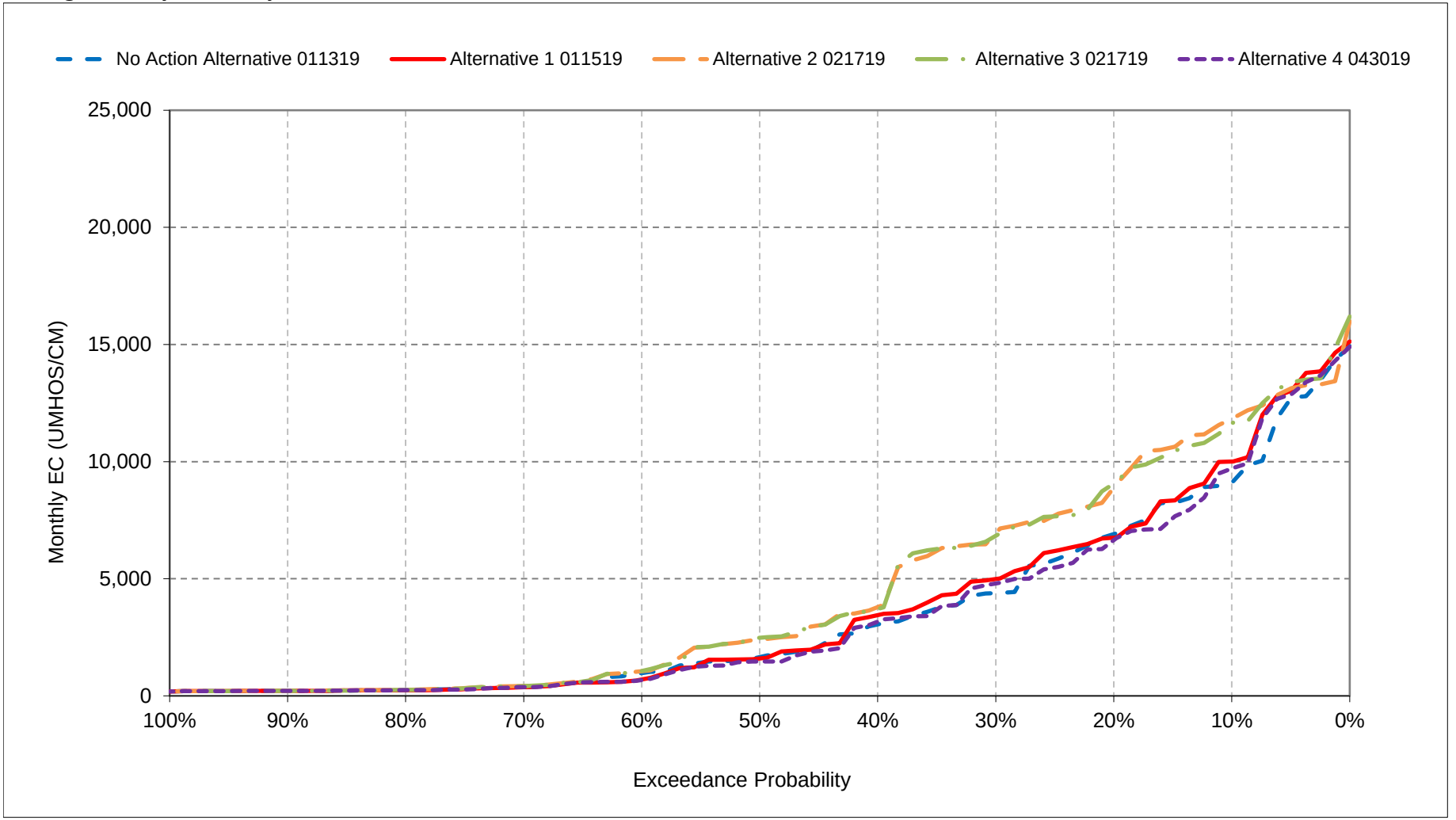
Figure 14-7. Sacramento River at Port Chicago Salinity, January EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

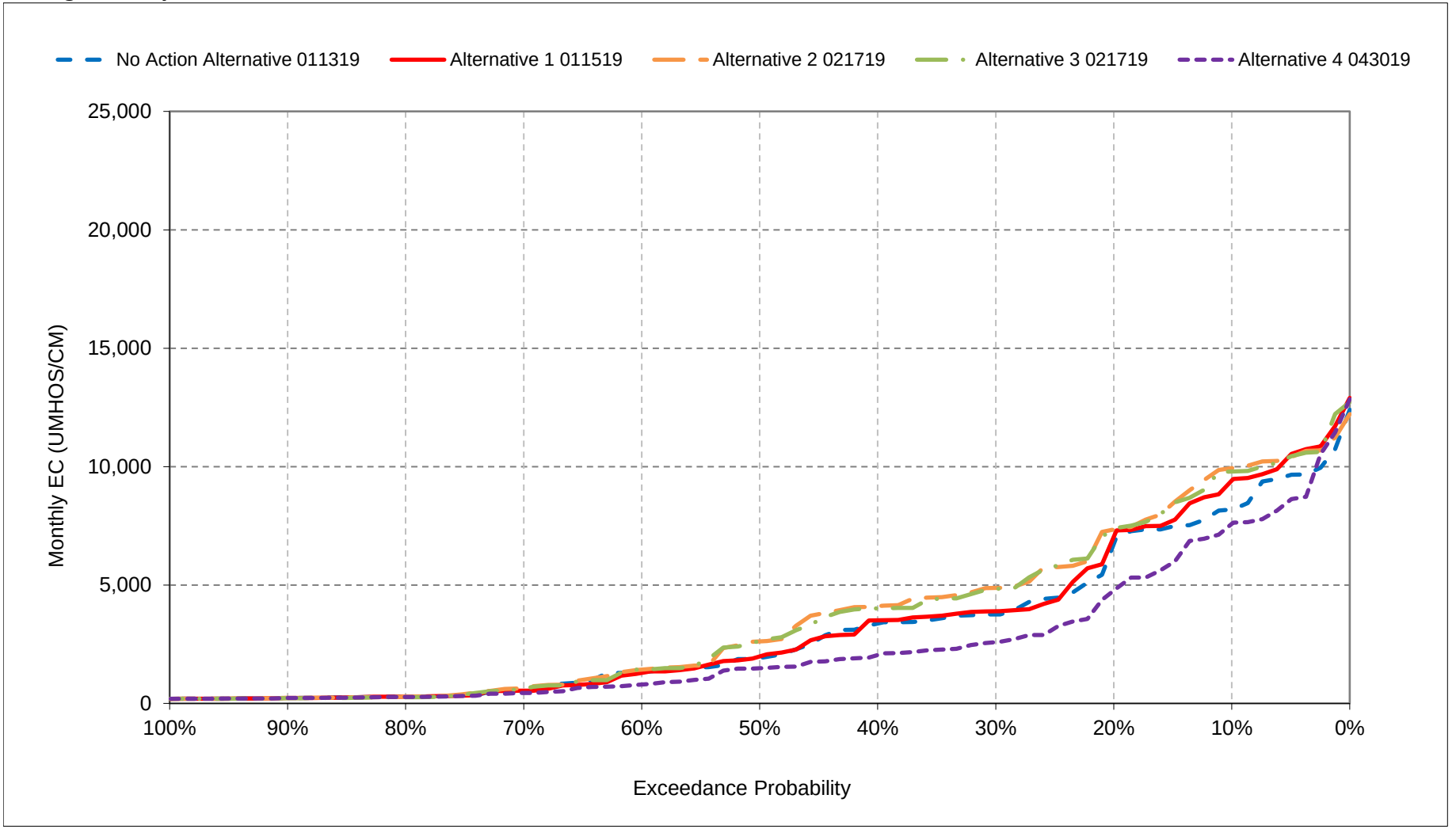
Figure 14-8. Sacramento River at Port Chicago Salinity, February EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

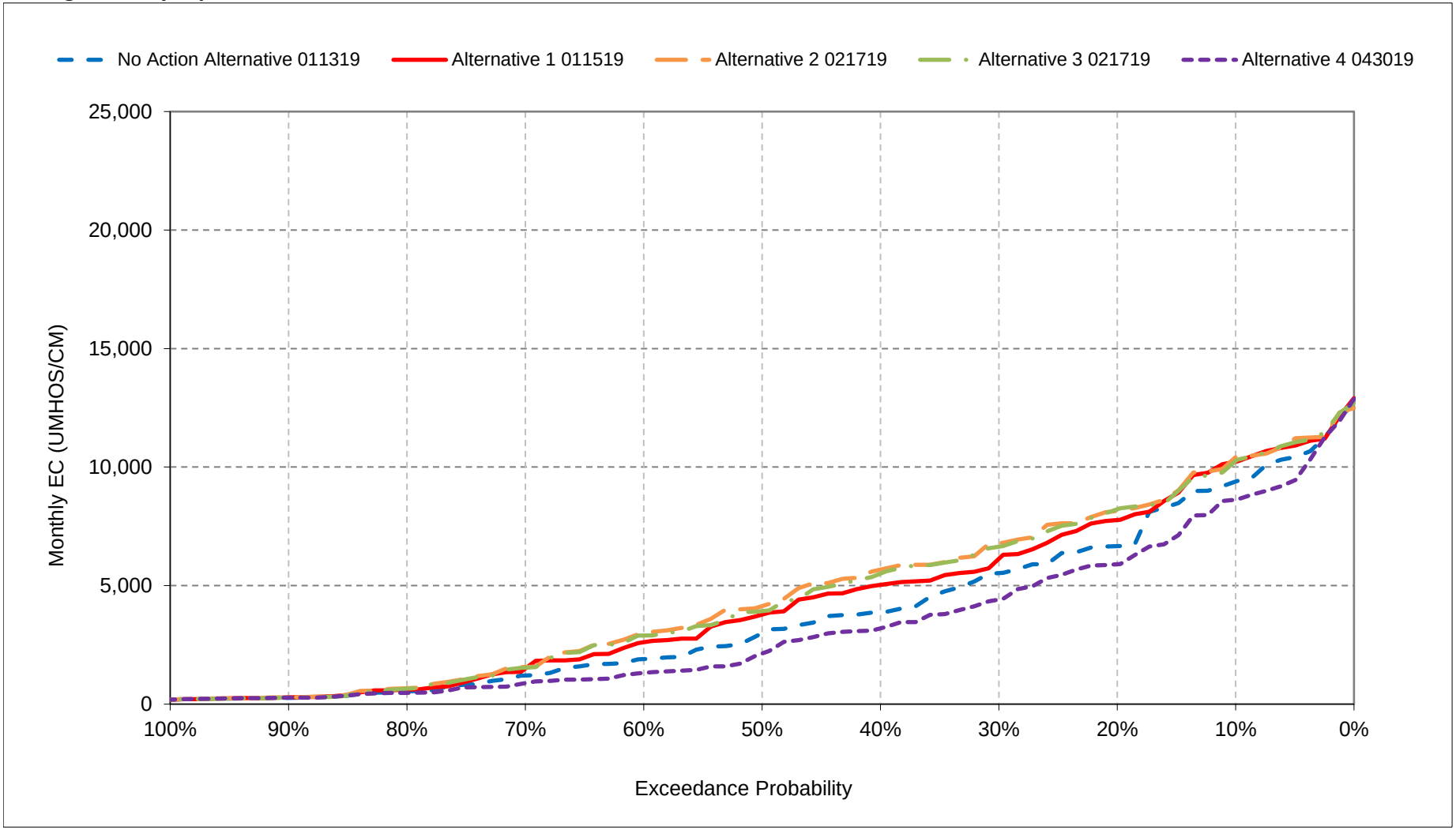
Figure 14-9. Sacramento River at Port Chicago Salinity, March EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

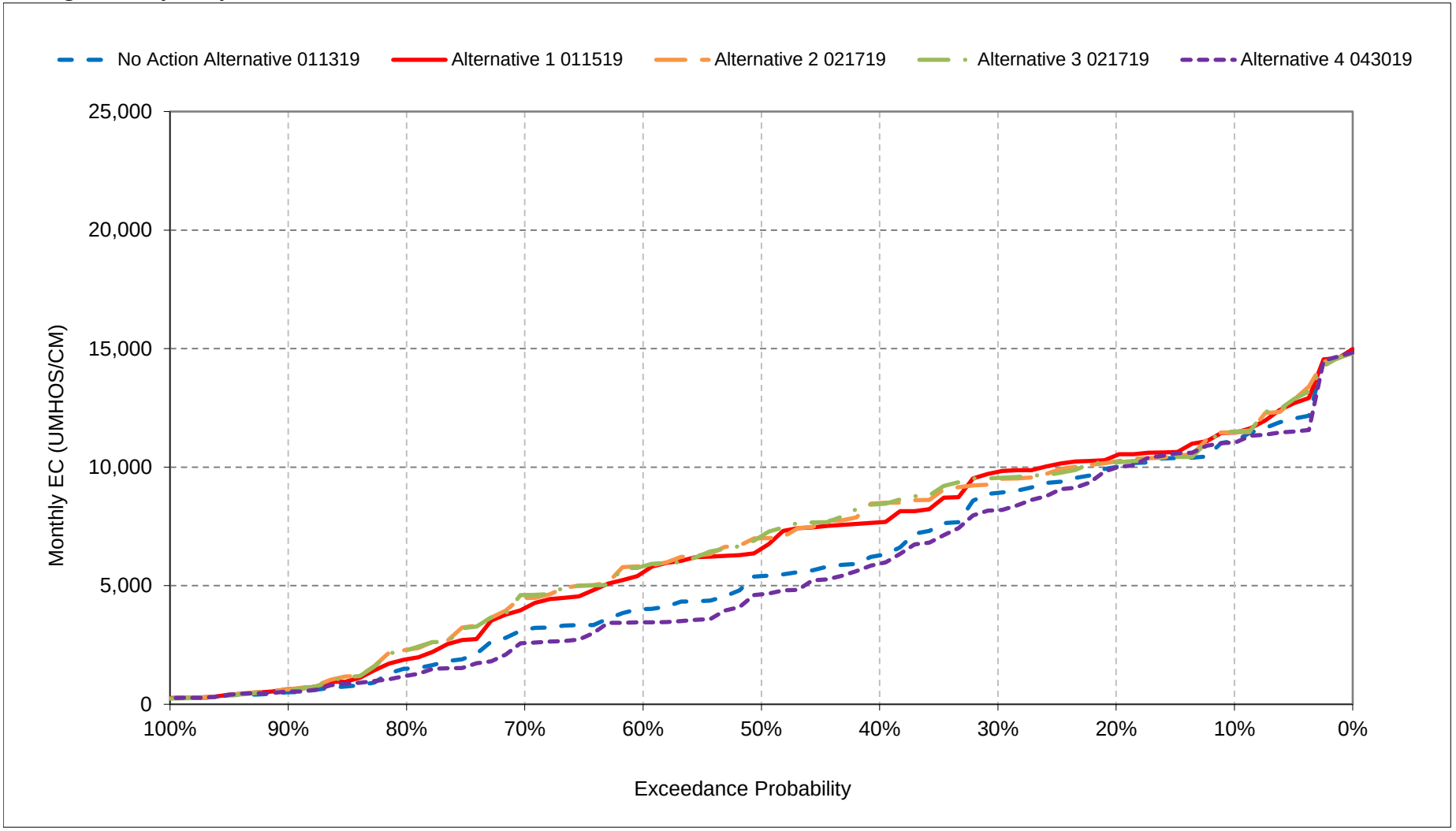
Figure 14-10. Sacramento River at Port Chicago Salinity, April EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

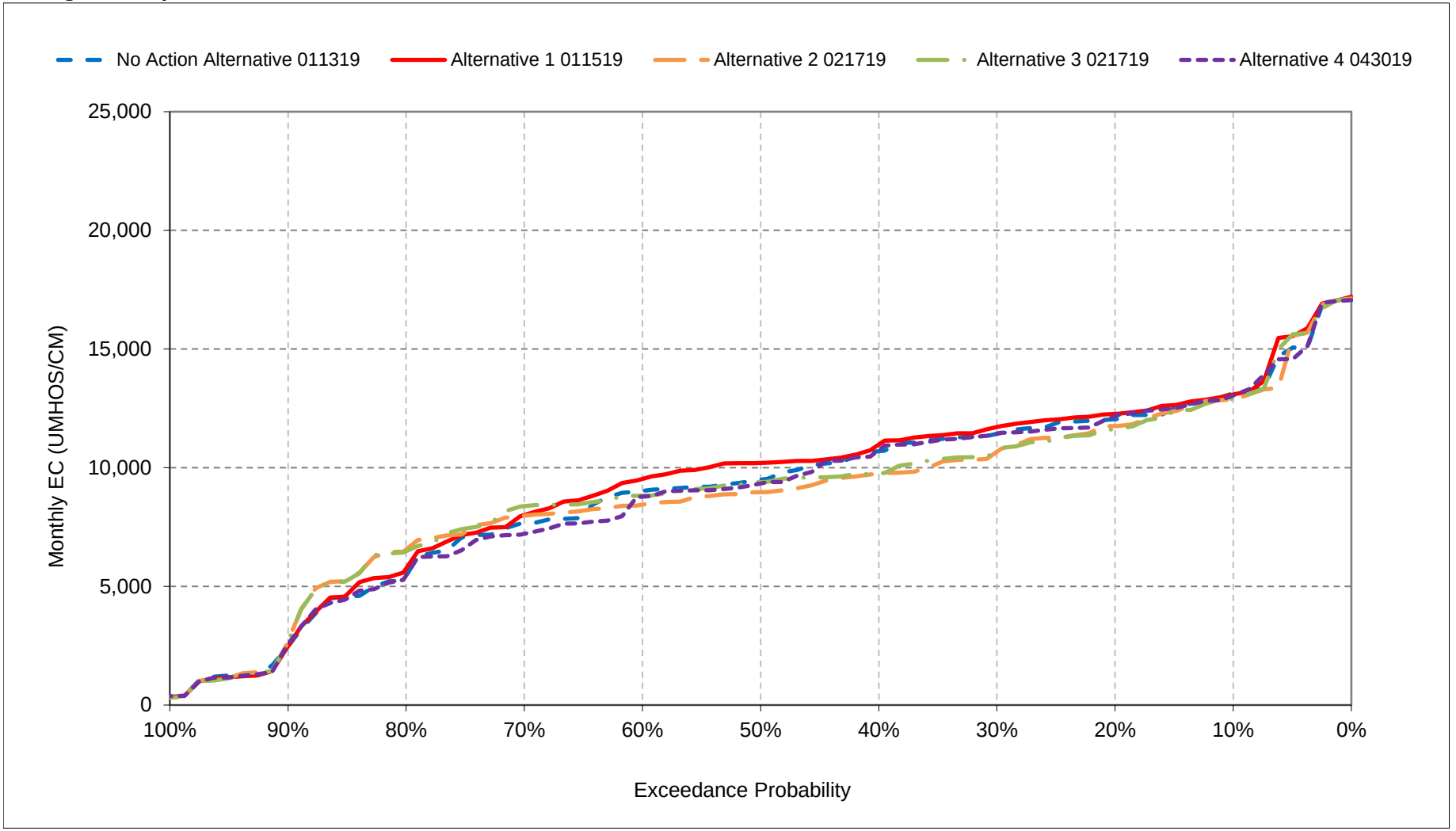
Figure 14-11. Sacramento River at Port Chicago Salinity, May EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

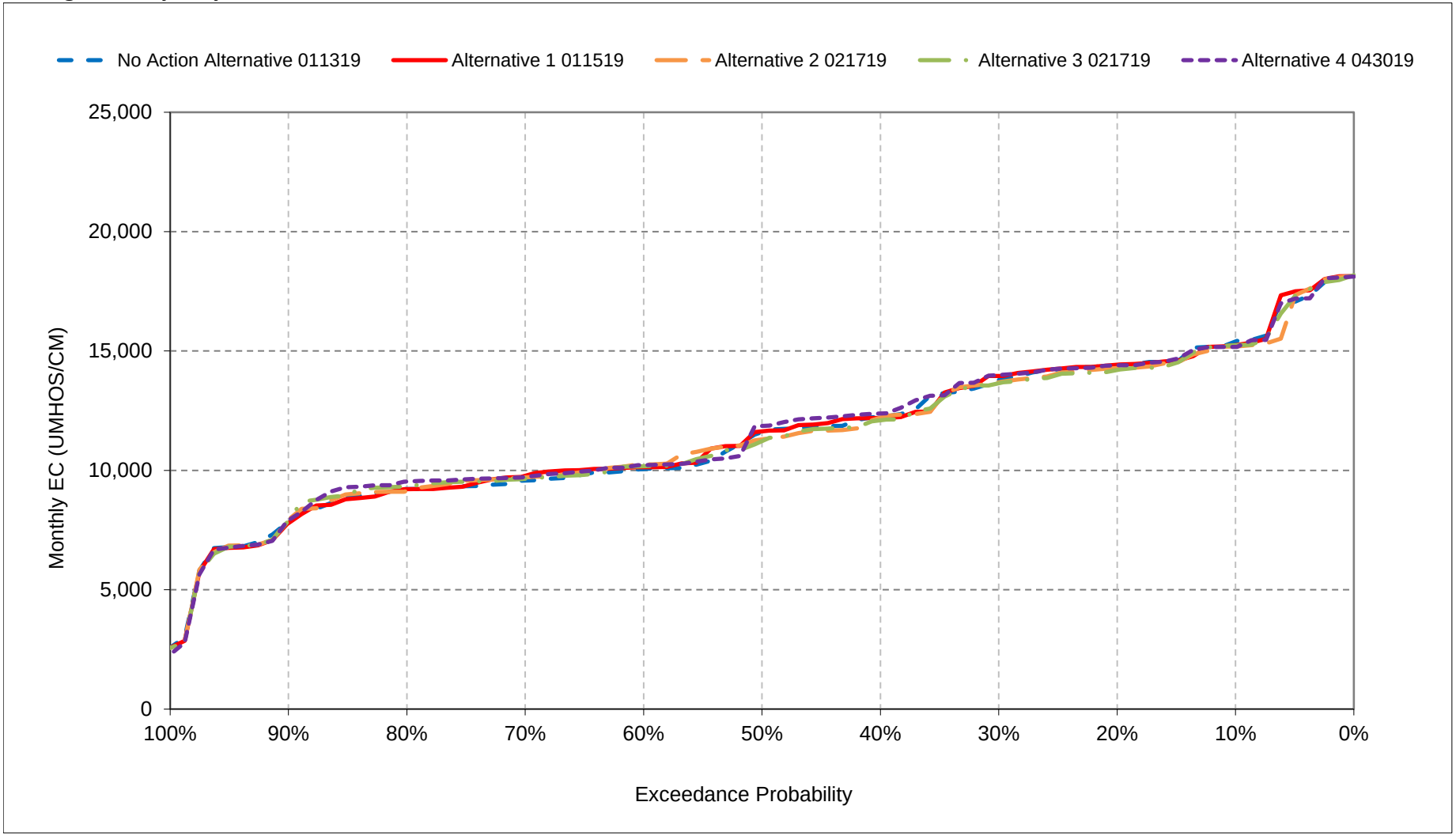
Figure 14-12. Sacramento River at Port Chicago Salinity, June EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

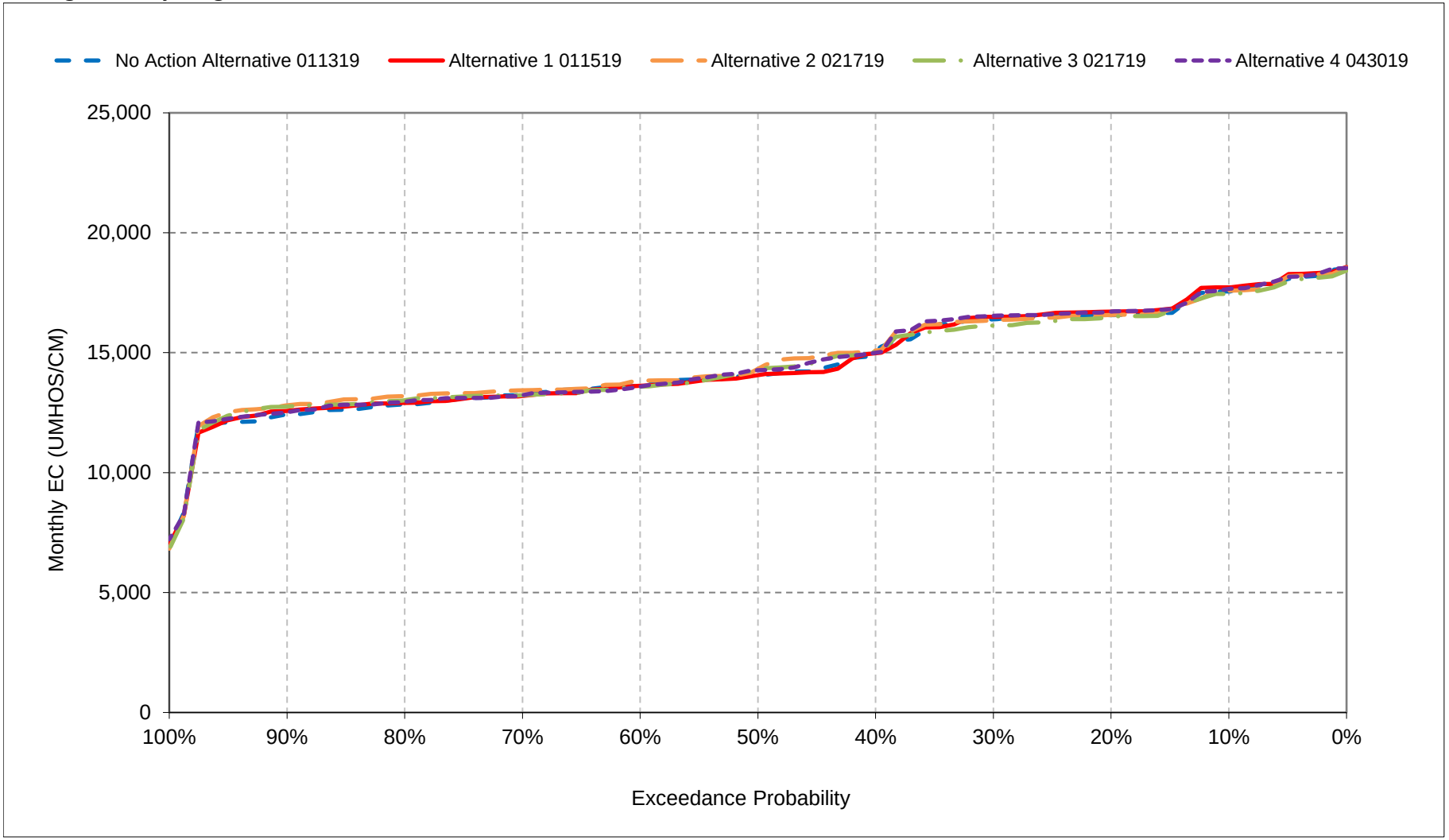
Figure 14-13. Sacramento River at Port Chicago Salinity, July EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

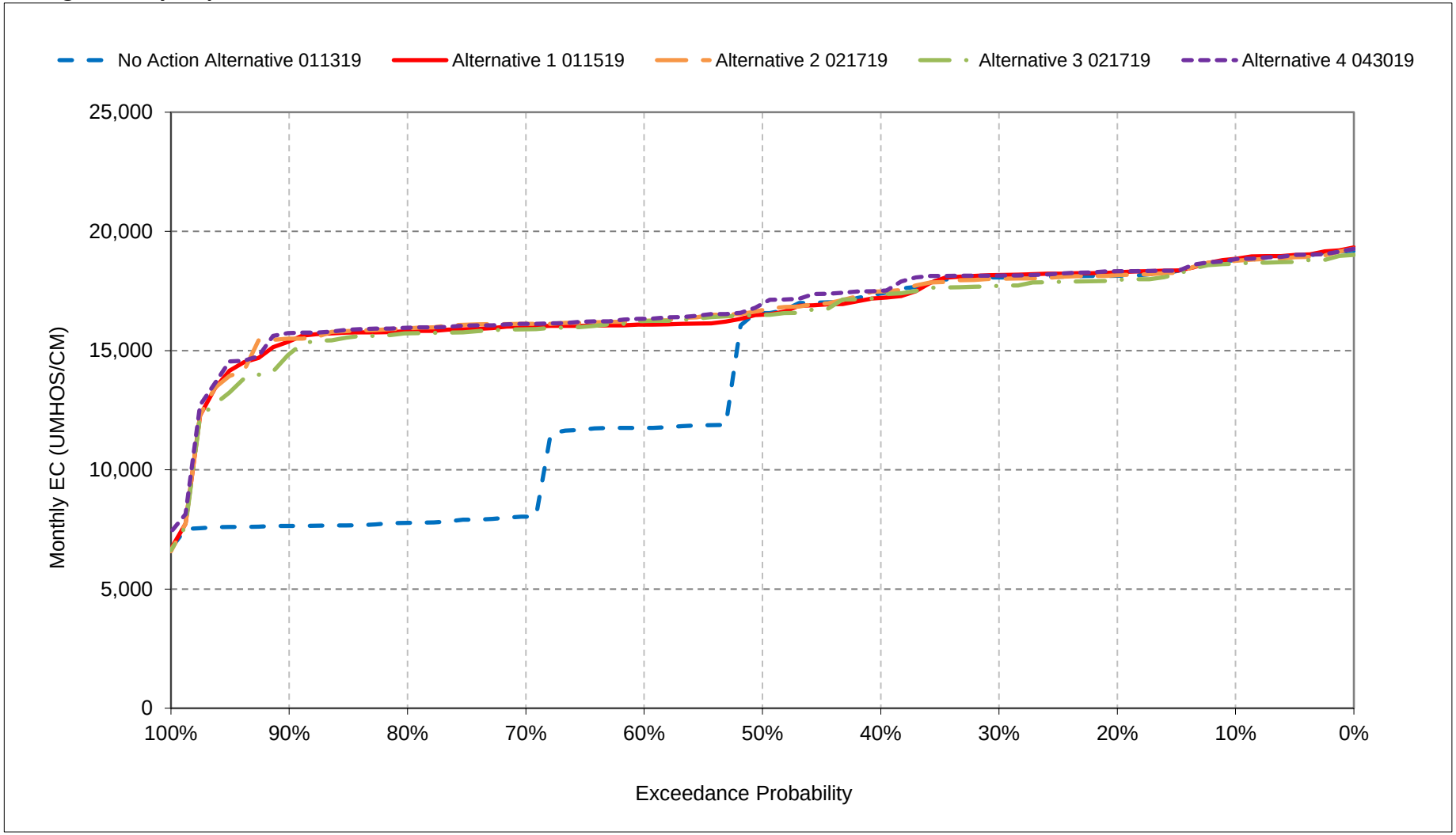
Figure 14-14. Sacramento River at Port Chicago Salinity, August EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

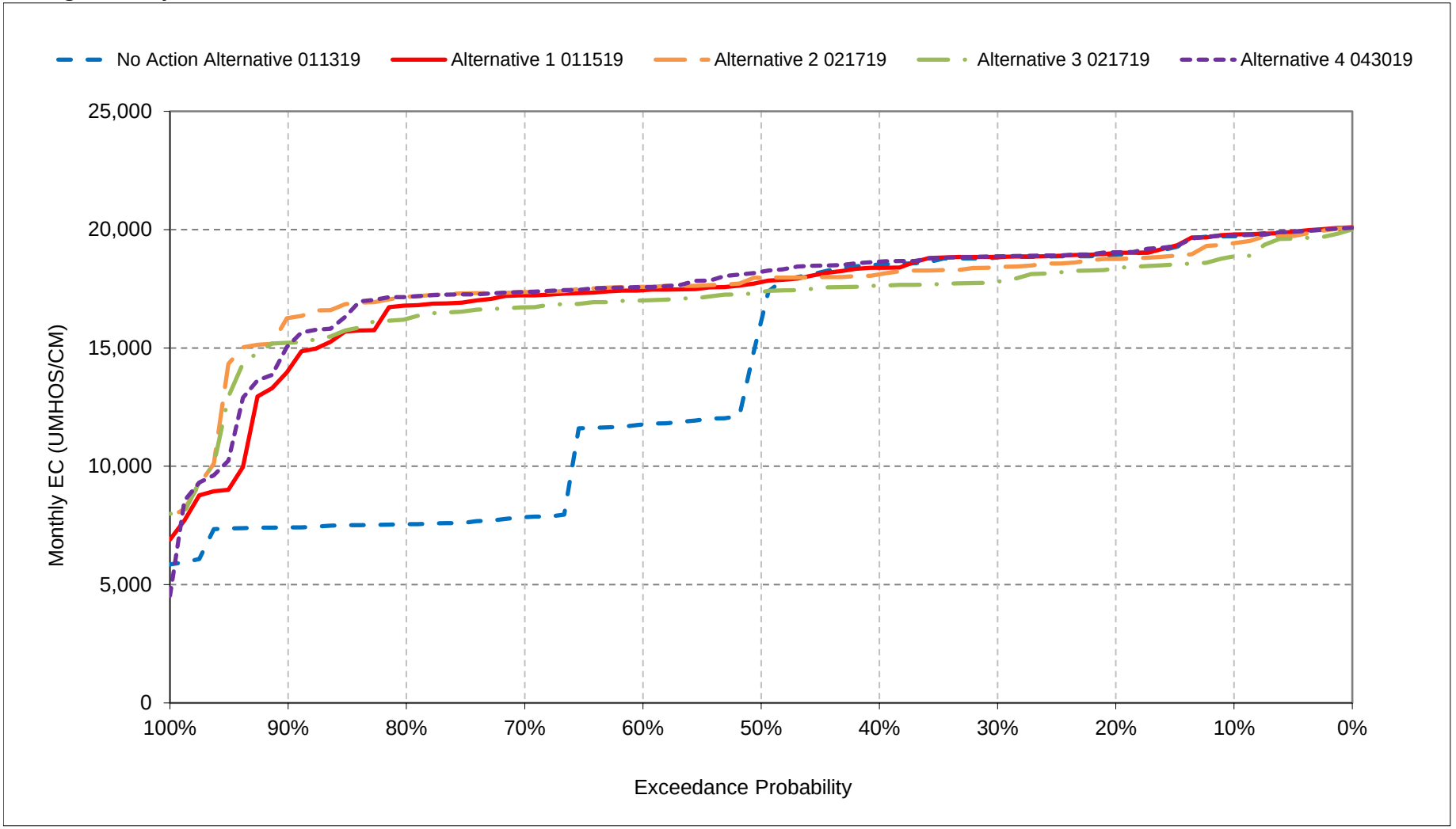
Figure 14-15. Sacramento River at Port Chicago Salinity, September EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

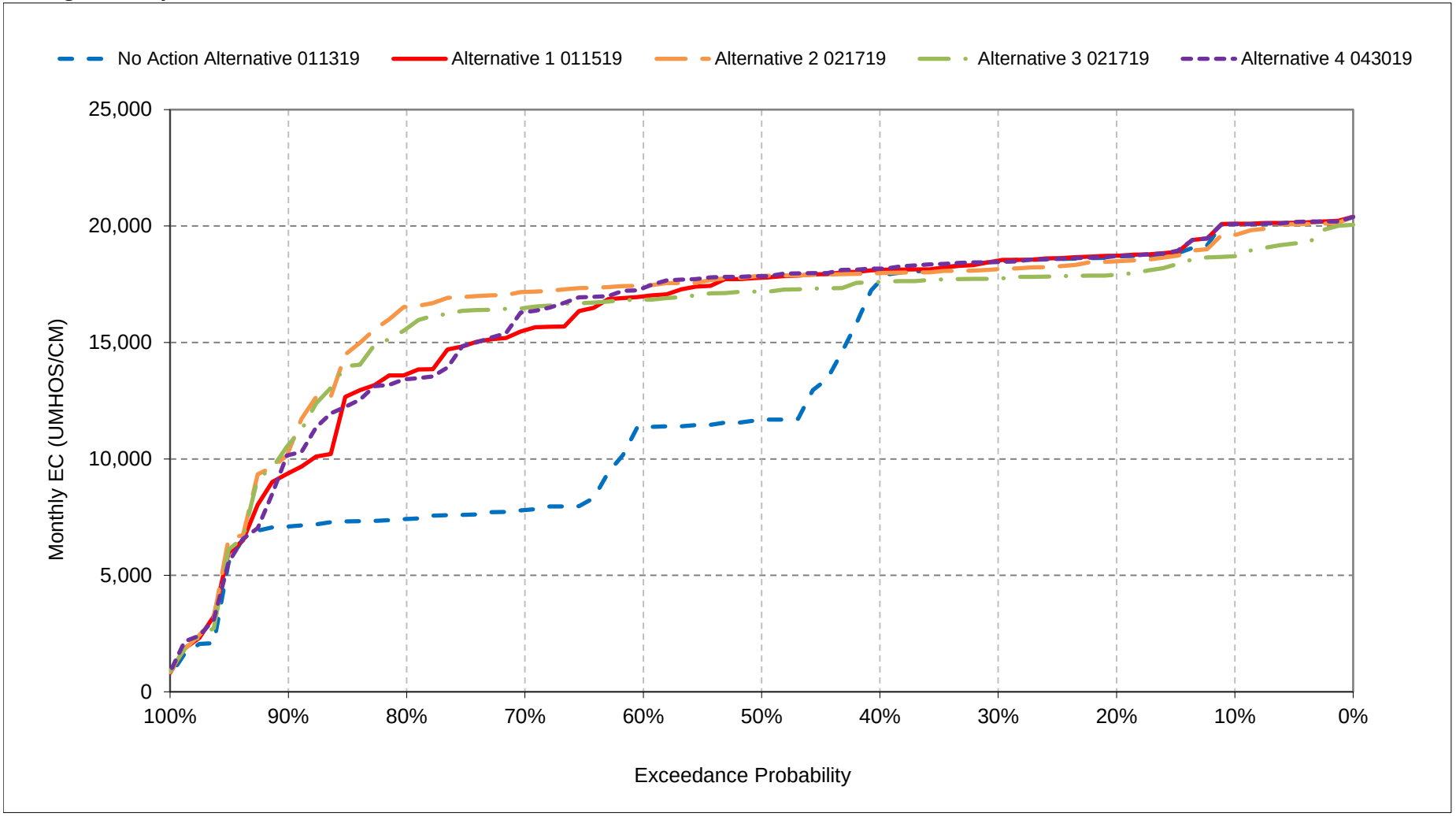
Figure 14-16. Sacramento River at Port Chicago Salinity, October EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

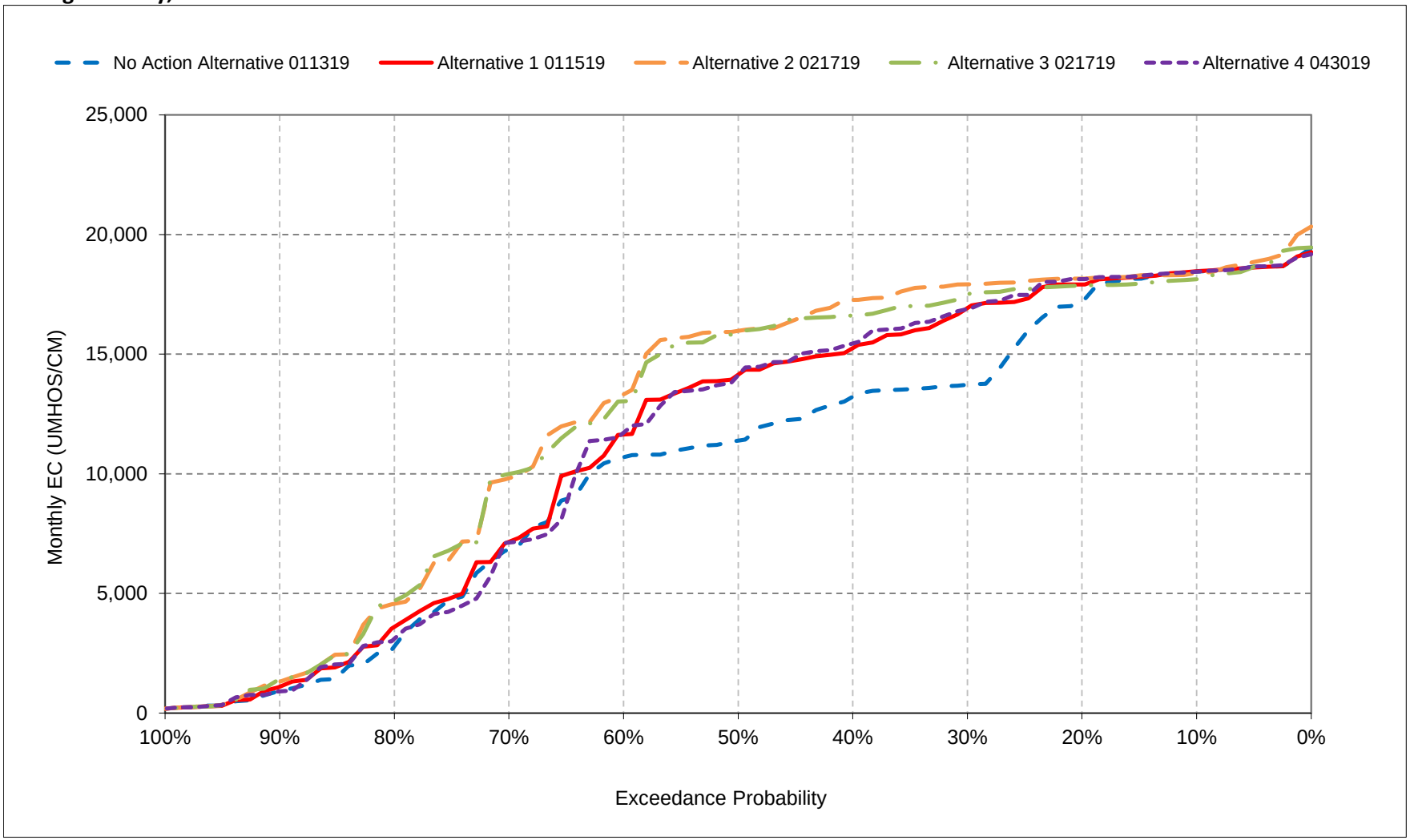
Figure 14-17. Sacramento River at Port Chicago Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 14-18. Sacramento River at Port Chicago Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 15-1. Jones Pumping Plant South Delta Exports Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	702	739	810	799	790	763	612	542	470	430	553	618
20%	675	691	763	765	702	644	538	524	429	398	452	597
30%	662	645	724	679	673	588	466	494	401	387	431	574
40%	634	611	690	651	643	553	435	445	388	376	414	548
50%	581	519	515	629	598	525	368	397	380	360	399	529
60%	394	396	485	596	537	436	329	375	377	350	370	509
70%	380	358	447	564	486	363	310	361	364	339	349	481
80%	368	344	429	514	406	316	282	314	354	333	339	452
90%	357	330	419	450	317	287	229	202	337	311	324	431
Long Term												
Full Simulation Period[a]	524	516	584	621	574	504	400	403	387	370	408	520
Water Year Types[b]												
Wet (32%)	363	337	413	512	405	337	263	286	347	349	339	461
Above Normal (16%)	370	385	502	610	563	448	351	373	379	349	350	443
Below Normal (13%)	639	597	670	625	607	521	403	431	399	348	406	568
Dry (24%)	654	632	669	691	665	590	477	470	394	373	471	566
Critical (15%)	718	777	824	749	767	765	617	549	464	457	514	612

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	701	760	820	807	736	634	585	506	416	447	540	632
20%	678	714	780	788	679	582	528	465	390	402	449	607
30%	662	679	753	767	641	544	476	438	367	388	428	582
40%	644	656	733	715	607	533	404	395	349	369	417	576
50%	626	635	707	654	570	517	347	351	344	356	401	565
60%	606	621	685	611	532	461	322	337	339	350	369	554
70%	588	602	622	570	475	360	303	329	334	336	351	547
80%	556	563	553	517	399	315	270	301	315	329	343	522
90%	486	430	476	451	311	284	227	200	300	305	328	475
Long Term												
Full Simulation Period[a]	606	620	671	644	548	474	389	370	353	372	408	553
Water Year Types[b]												
Wet (32%)	511	552	590	515	401	338	258	268	333	351	338	484
Above Normal (16%)	607	600	678	647	546	442	330	335	349	345	355	563
Below Normal (13%)	628	606	676	668	586	501	412	400	337	351	420	589
Dry (24%)	658	646	674	731	627	537	465	421	343	371	458	577
Critical (15%)	703	761	829	751	703	676	591	517	428	466	520	620

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	**21**	**9**	**7**	-54	-129	-27	-36	-54	**18**	-13	**15**
20%	**3**	**23**	**17**	**23**	-23	-61	-10	-59	-38	**4**	-3	**10**
30%	0	**34**	**29**	**88**	-32	-44	**10**	-56	-34	**1**	-3	**8**
40%	**10**	**45**	**43**	**64**	-36	-20	-31	-51	-38	-7	**3**	**28**
50%	**45**	**116**	**192**	**25**	-28	-8	-21	-46	-36	-3	**2**	**36**
60%	**212**	**225**	**200**	**15**	-5	**25**	-7	-38	-38	0	-1	**45**
70%	**208**	**244**	**174**	**6**	-10	-4	-7	-32	-30	-3	**2**	**66**
80%	**188**	**219**	**124**	**2**	-7	-1	-12	-13	-38	-4	**4**	**70**
90%	**129**	**101**	**58**	**2**	-6	-3	-2	-2	-37	-5	**3**	**44**
Long Term												
Full Simulation Period[a]	**82**	**105**	**87**	**23**	-25	-30	-10	-33	-35	**1**	**0**	**33**
Water Year Types[b]												
Wet (32%)	**148**	**215**	**177**	**3**	-4	**1**	-5	-18	-13	**2**	-1	**23**
Above Normal (16%)	**237**	**215**	**176**	**37**	-17	-6	-20	-39	-31	-4	**5**	**120**
Below Normal (13%)	-11	**9**	**6**	**43**	-21	-21	**10**	-31	-61	**4**	**14**	**21**
Dry (24%)	**4**	**14**	**5**	**40**	-38	-53	-12	-49	-51	-2	-14	**11**
Critical (15%)	-15	-16	**4**	**3**	-64	-90	-26	-32	-35	**9**	**6**	**7**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 15-2. Jones Pumping Plant South Delta Exports Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	702	739	810	799	790	763	612	542	470	430	553	618
20%	675	691	763	765	702	644	538	524	429	398	452	597
30%	662	645	724	679	673	588	466	494	401	387	431	574
40%	634	611	690	651	643	553	435	445	388	376	414	548
50%	581	519	515	629	598	525	368	397	380	360	399	529
60%	394	396	485	596	537	436	329	375	377	350	370	509
70%	380	358	447	564	486	363	310	361	364	339	349	481
80%	368	344	429	514	406	316	282	314	354	333	339	452
90%	357	330	419	450	317	287	229	202	337	311	324	431
Long Term												
Full Simulation Period[a]	524	516	584	621	574	504	400	403	387	370	408	520
Water Year Types[b]												
Wet (32%)	363	337	413	512	405	337	263	286	347	349	339	461
Above Normal (16%)	370	385	502	610	563	448	351	373	379	349	350	443
Below Normal (13%)	639	597	670	625	607	521	403	431	399	348	406	568
Dry (24%)	654	632	669	691	665	590	477	470	394	373	471	566
Critical (15%)	718	777	824	749	767	765	617	549	464	457	514	612

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	728	765	821	862	754	661	540	444	407	446	525	635
20%	710	722	786	785	694	577	489	412	385	396	449	602
30%	691	673	769	748	620	528	439	398	368	372	429	589
40%	682	636	722	727	575	494	382	368	354	357	419	577
50%	668	623	706	684	538	466	359	348	337	348	400	562
60%	657	601	693	584	486	426	334	337	325	335	378	550
70%	639	575	647	514	447	367	316	318	313	322	355	539
80%	609	548	528	456	379	313	276	304	300	310	342	511
90%	486	491	440	428	298	288	233	203	279	293	326	431
Long Term												
Full Simulation Period[a]	641	618	670	639	533	468	379	349	346	360	407	546
Water Year Types[b]												
Wet (32%)	539	551	608	485	368	332	265	267	320	341	335	472
Above Normal (16%)	683	660	706	624	500	409	333	327	328	322	365	578
Below Normal (13%)	672	612	659	709	606	502	412	377	323	329	429	570
Dry (24%)	678	592	633	733	613	523	434	388	350	365	446	568
Critical (15%)	729	769	835	767	729	701	551	460	438	460	525	615

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**26**	**26**	**10**	**62**	-36	-102	-72	-98	-63	**16**	-28	**17**
20%	**35**	**31**	**23**	**20**	-8	-67	-48	-112	-44	-2	-3	**5**
30%	**29**	**28**	**45**	**69**	-53	-60	-28	-96	-33	-15	-2	**15**
40%	**48**	**24**	**33**	**76**	-67	-58	-53	-78	-33	-19	**5**	**29**
50%	**87**	**104**	**191**	**55**	-60	-59	-9	-49	-43	-12	**2**	**33**
60%	**263**	**206**	**208**	-12	-50	-10	**5**	-39	-52	-15	**9**	**41**
70%	**259**	**217**	**200**	-50	-38	**4**	**7**	-43	-51	-16	**6**	**58**
80%	**241**	**204**	**100**	-59	-27	-3	-5	-10	-54	-23	**3**	**60**
90%	**129**	**162**	**21**	-21	-20	**0**	**4**	**1**	-58	-18	**1**	-1
Long Term												
Full Simulation Period[a]	**117**	**103**	**85**	**18**	-40	-36	-21	-54	-41	-11	0	**26**
Water Year Types[b]												
Wet (32%)	**176**	**214**	**195**	-27	-37	-5	**2**	-20	-27	-7	-4	**10**
Above Normal (16%)	**313**	**274**	**204**	**14**	-63	-38	-18	-46	-52	-27	**15**	**135**
Below Normal (13%)	**33**	**15**	-11	**84**	-2	-20	**10**	-54	-76	-19	**24**	**2**
Dry (24%)	**24**	-40	-36	**41**	-52	-67	-43	-82	-44	-8	-25	**2**
Critical (15%)	**10**	-8	**11**	**18**	-38	-64	-66	-90	-26	**3**	**10**	**3**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 15-3. Jones Pumping Plant South Delta Exports Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	702	739	810	799	790	763	612	542	470	430	553	618
20%	675	691	763	765	702	644	538	524	429	398	452	597
30%	662	645	724	679	673	588	466	494	401	387	431	574
40%	634	611	690	651	643	553	435	445	388	376	414	548
50%	581	519	515	629	598	525	368	397	380	360	399	529
60%	394	396	485	596	537	436	329	375	377	350	370	509
70%	380	358	447	564	486	363	310	361	364	339	349	481
80%	368	344	429	514	406	316	282	314	354	333	339	452
90%	357	330	419	450	317	287	229	202	337	311	324	431
Long Term												
Full Simulation Period[a]	524	516	584	621	574	504	400	403	387	370	408	520
Water Year Types[b]												
Wet (32%)	363	337	413	512	405	337	263	286	347	349	339	461
Above Normal (16%)	370	385	502	610	563	448	351	373	379	349	350	443
Below Normal (13%)	639	597	670	625	607	521	403	431	399	348	406	568
Dry (24%)	654	632	669	691	665	590	477	470	394	373	471	566
Critical (15%)	718	777	824	749	767	765	617	549	464	457	514	612

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	755	763	797	850	722	650	544	447	409	434	519	639
20%	723	716	785	760	676	594	493	414	386	393	453	629
30%	706	675	747	741	613	536	443	400	368	377	436	611
40%	696	649	712	723	574	497	386	370	354	359	420	582
50%	682	619	689	674	540	468	358	351	342	346	399	566
60%	672	602	669	601	489	430	334	340	329	338	369	552
70%	657	573	609	510	451	373	317	324	318	326	355	532
80%	620	534	528	458	379	314	282	306	303	310	336	505
90%	522	471	461	429	297	288	233	203	281	292	327	438
Long Term												
Full Simulation Period[a]	656	613	654	632	530	471	382	352	348	362	408	555
Water Year Types[b]												
Wet (32%)	561	561	593	483	369	333	267	269	323	341	336	478
Above Normal (16%)	683	658	696	597	494	412	334	330	331	327	357	575
Below Normal (13%)	699	615	648	704	609	507	415	380	327	329	426	593
Dry (24%)	695	584	628	731	609	537	440	391	350	364	450	580
Critical (15%)	729	725	794	763	712	691	557	466	438	470	535	621

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**53**	**24**	-13	**50**	-68	-114	-68	-95	-61	**4**	-34	**21**
20%	**48**	**26**	**22**	-5	-26	-49	-45	-109	-43	-5	**1**	**32**
30%	**44**	**30**	**23**	**62**	-60	-52	-23	-94	-34	-10	**5**	**37**
40%	**62**	**37**	**22**	**72**	-69	-56	-49	-76	-34	-17	**6**	**34**
50%	**101**	**100**	**174**	**44**	-57	-57	-10	-46	-38	-13	0	**37**
60%	**278**	**207**	**184**	**5**	-47	-6	**5**	-36	-48	-12	-1	**43**
70%	**277**	**215**	**161**	-54	-35	**10**	**8**	-37	-46	-13	**6**	**52**
80%	**252**	**190**	**99**	-56	-27	-2	**0**	-8	-51	-23	-3	**53**
90%	**165**	**141**	**42**	-21	-21	**1**	**4**	**1**	-56	-19	**3**	**6**
Long Term												
Full Simulation Period[a]	**132**	**98**	**70**	**11**	-44	-33	-17	-51	-39	-9	**1**	**34**
Water Year Types[b]												
Wet (32%)	**198**	**225**	**179**	-29	-36	-4	**4**	-17	-24	-7	-3	**17**
Above Normal (16%)	**313**	**273**	**193**	-13	-69	-35	-16	-44	-48	-22	**7**	**132**
Below Normal (13%)	**60**	**18**	-22	**80**	**1**	-15	**12**	-51	-71	-18	**20**	**25**
Dry (24%)	**42**	-48	-41	**40**	-56	-53	-36	-79	-44	-9	-21	**14**
Critical (15%)	**11**	-51	-30	**15**	-55	-75	-60	-83	-25	**12**	**21**	**8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 15-4. Jones Pumping Plant South Delta Exports Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	702	739	810	799	790	763	612	542	470	430	553	618
20%	675	691	763	765	702	644	538	524	429	398	452	597
30%	662	645	724	679	673	588	466	494	401	387	431	574
40%	634	611	690	651	643	553	435	445	388	376	414	548
50%	581	519	515	629	598	525	368	397	380	360	399	529
60%	394	396	485	596	537	436	329	375	377	350	370	509
70%	380	358	447	564	486	363	310	361	364	339	349	481
80%	368	344	429	514	406	316	282	314	354	333	339	452
90%	357	330	419	450	317	287	229	202	337	311	324	431
Long Term												
Full Simulation Period[a]	524	516	584	621	574	504	400	403	387	370	408	520
Water Year Types[b]												
Wet (32%)	363	337	413	512	405	337	263	286	347	349	339	461
Above Normal (16%)	370	385	502	610	563	448	351	373	379	349	350	443
Below Normal (13%)	639	597	670	625	607	521	403	431	399	348	406	568
Dry (24%)	654	632	669	691	665	590	477	470	394	373	471	566
Critical (15%)	718	777	824	749	767	765	617	549	464	457	514	612

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	720	763	818	805	734	834	664	608	443	454	496	616
20%	679	727	765	784	693	807	594	595	406	398	440	586
30%	667	699	745	739	649	772	519	549	389	385	417	567
40%	653	670	725	699	623	723	428	465	382	369	411	556
50%	639	642	708	650	572	653	347	389	376	357	388	551
60%	625	628	688	608	530	506	320	371	367	350	362	541
70%	615	599	593	569	476	369	309	358	355	342	347	530
80%	570	573	540	518	399	313	276	308	346	329	337	500
90%	518	541	471	451	325	277	227	200	320	308	324	457
Long Term												
Full Simulation Period[a]	622	633	665	636	552	579	413	424	376	371	397	536
Water Year Types[b]												
Wet (32%)	540	582	589	514	405	360	259	286	344	353	336	485
Above Normal (16%)	637	619	672	634	552	523	336	364	373	350	347	550
Below Normal (13%)	612	587	655	646	575	622	431	470	374	355	395	511
Dry (24%)	667	651	669	727	632	727	520	519	377	366	445	565
Critical (15%)	715	776	824	740	715	832	633	585	451	453	508	608

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**18**	**24**	**8**	**6**	-56	**70**	**53**	**66**	-27	**25**	-57	-2
20%	**4**	**37**	**2**	**19**	-9	**164**	**56**	**71**	-22	0	-12	-11
30%	**4**	**54**	**21**	**60**	-24	**185**	**53**	**55**	-12	-2	-14	-6
40%	**19**	**58**	**35**	**48**	-20	**170**	-7	**20**	-6	-7	-3	**8**
50%	**58**	**123**	**193**	**21**	-26	**128**	-21	-8	-4	-2	-11	**22**
60%	**230**	**232**	**203**	**13**	-7	**70**	-10	-4	-10	**0**	-8	**32**
70%	**234**	**240**	**146**	**5**	-10	**6**	-1	-3	-9	**3**	-2	**49**
80%	**202**	**229**	**112**	**4**	-6	-3	-6	-6	-7	-4	-2	**48**
90%	**162**	**211**	**52**	**2**	**7**	-10	-3	-2	-17	-2	-1	**26**
Long Term												
Full Simulation Period[a]	**97**	**118**	**81**	**15**	-22	**76**	**13**	**21**	-11	**0**	-10	**16**
Water Year Types[b]												
Wet (32%)	**177**	**245**	**176**	**2**	**0**	**23**	-4	0	-3	**4**	-3	**24**
Above Normal (16%)	**267**	**233**	**170**	**25**	-11	**75**	-15	-9	-6	**1**	-4	**107**
Below Normal (13%)	-27	-10	-15	**22**	-32	**101**	**29**	**39**	-25	**7**	-10	-57
Dry (24%)	**13**	**19**	0	**36**	-32	**137**	**43**	**48**	-17	-7	-26	-1
Critical (15%)	-4	-1	0	-9	-52	**66**	**17**	**36**	-13	-4	-7	-5

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

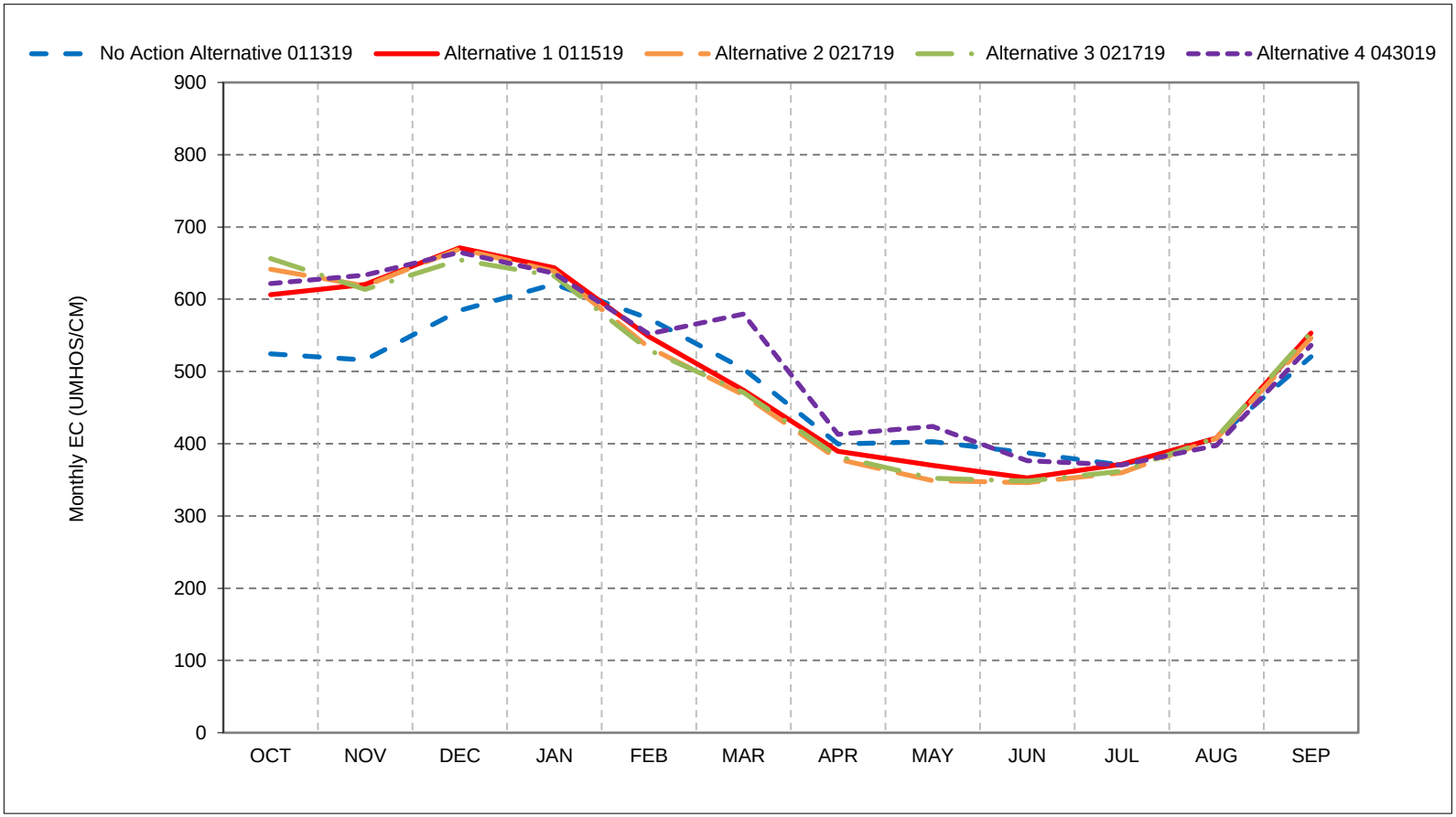
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

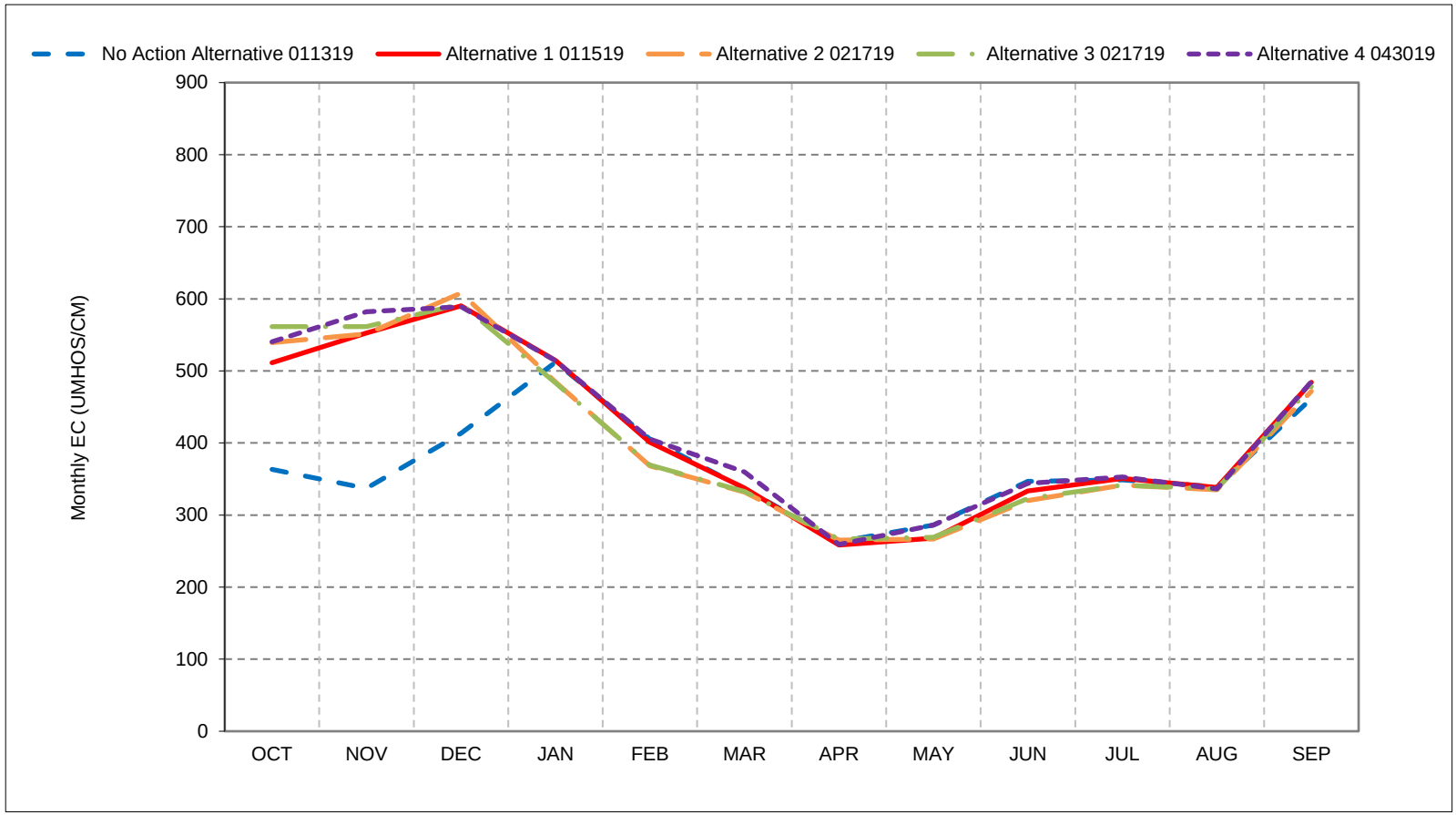
f These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-1. Jones Pumping Plant South Delta Exports Salinity, Long-Term Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-2. Jones Pumping Plant South Delta Exports Salinity, Wet Year Average EC



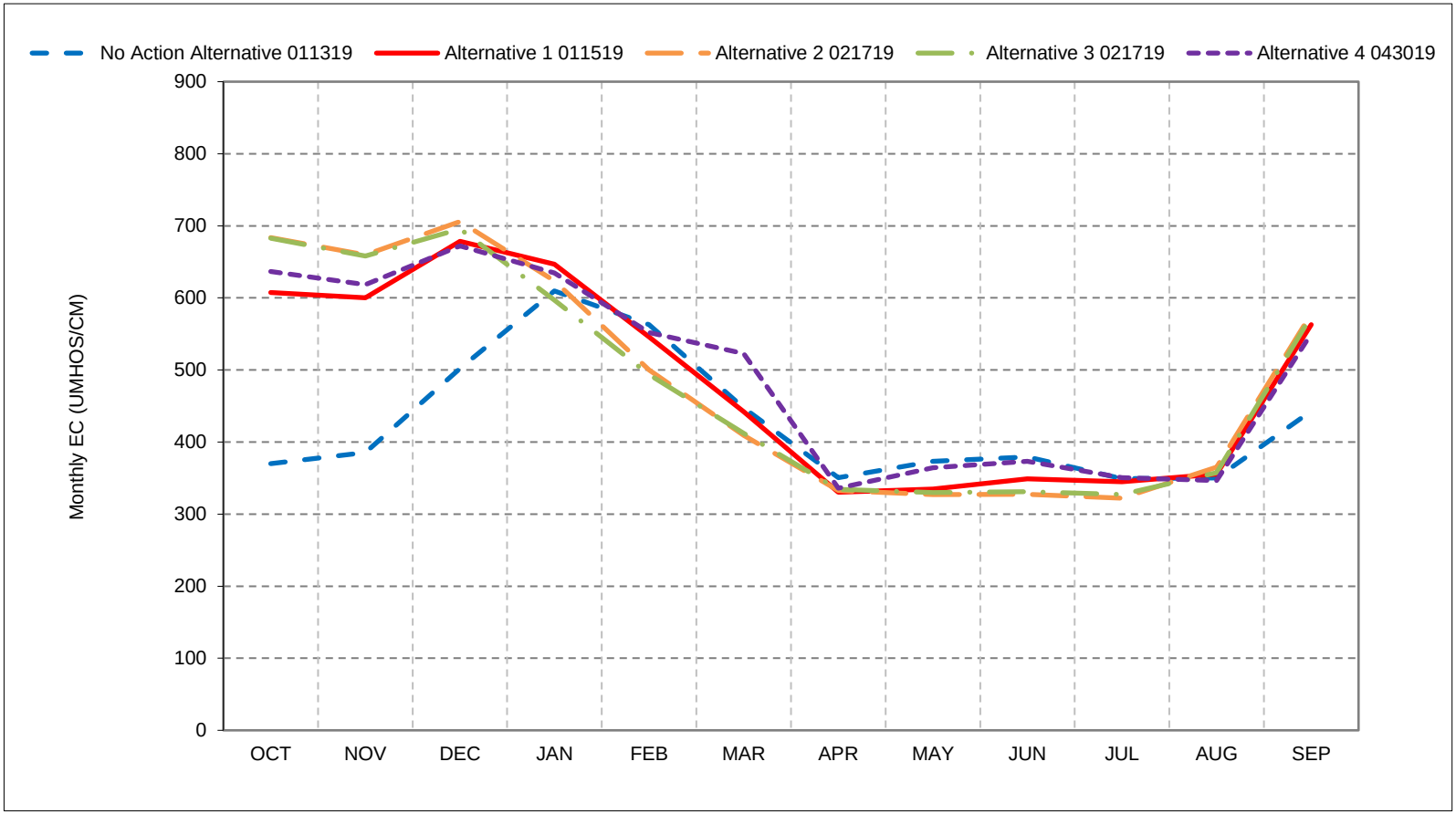
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-3. Jones Pumping Plant South Delta Exports Salinity, Above Normal Year Average EC



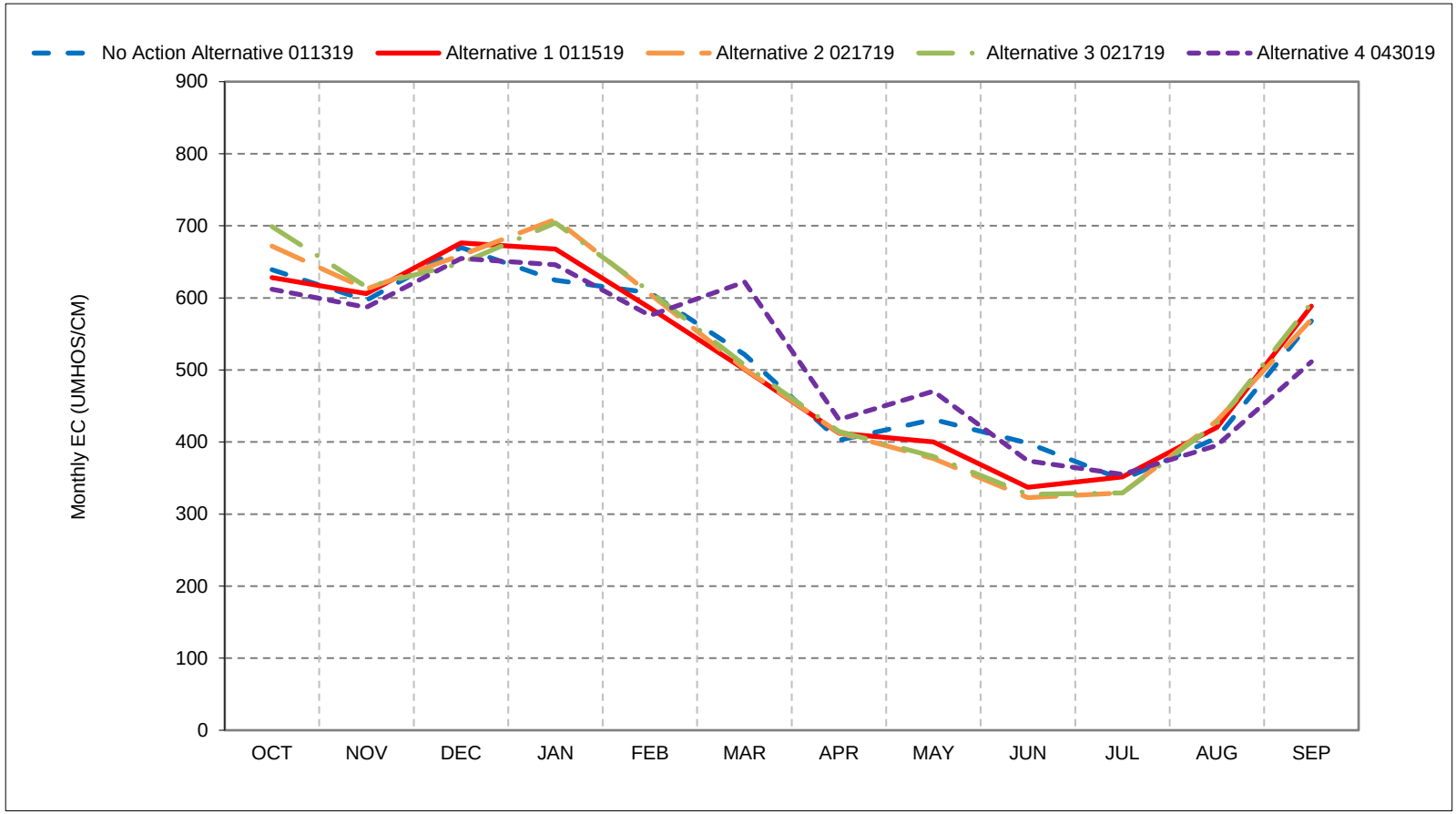
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-4. Jones Pumping Plant South Delta Exports Salinity, Below Normal Year Average EC



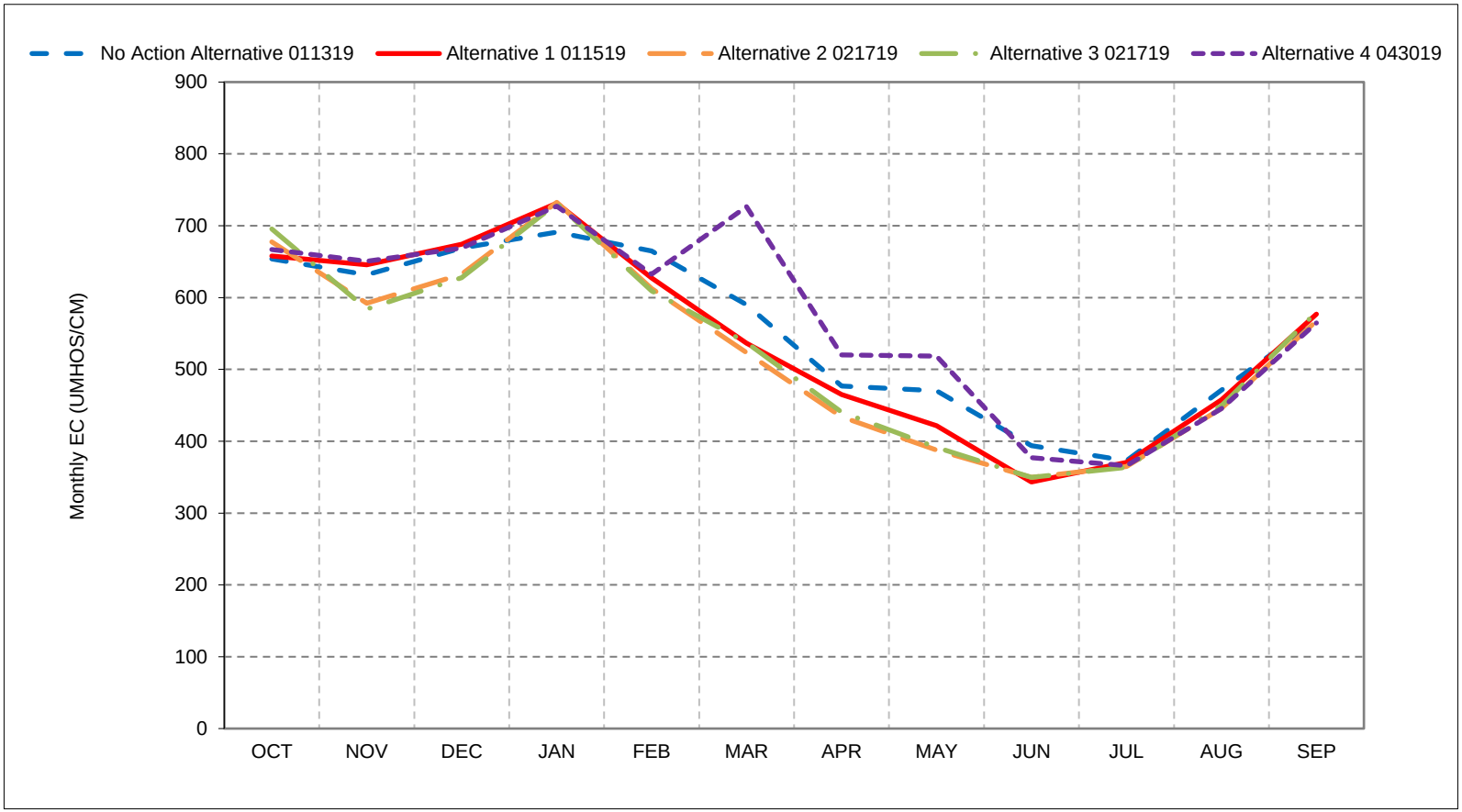
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-5. Jones Pumping Plant South Delta Exports Salinity, Dry Year Average EC



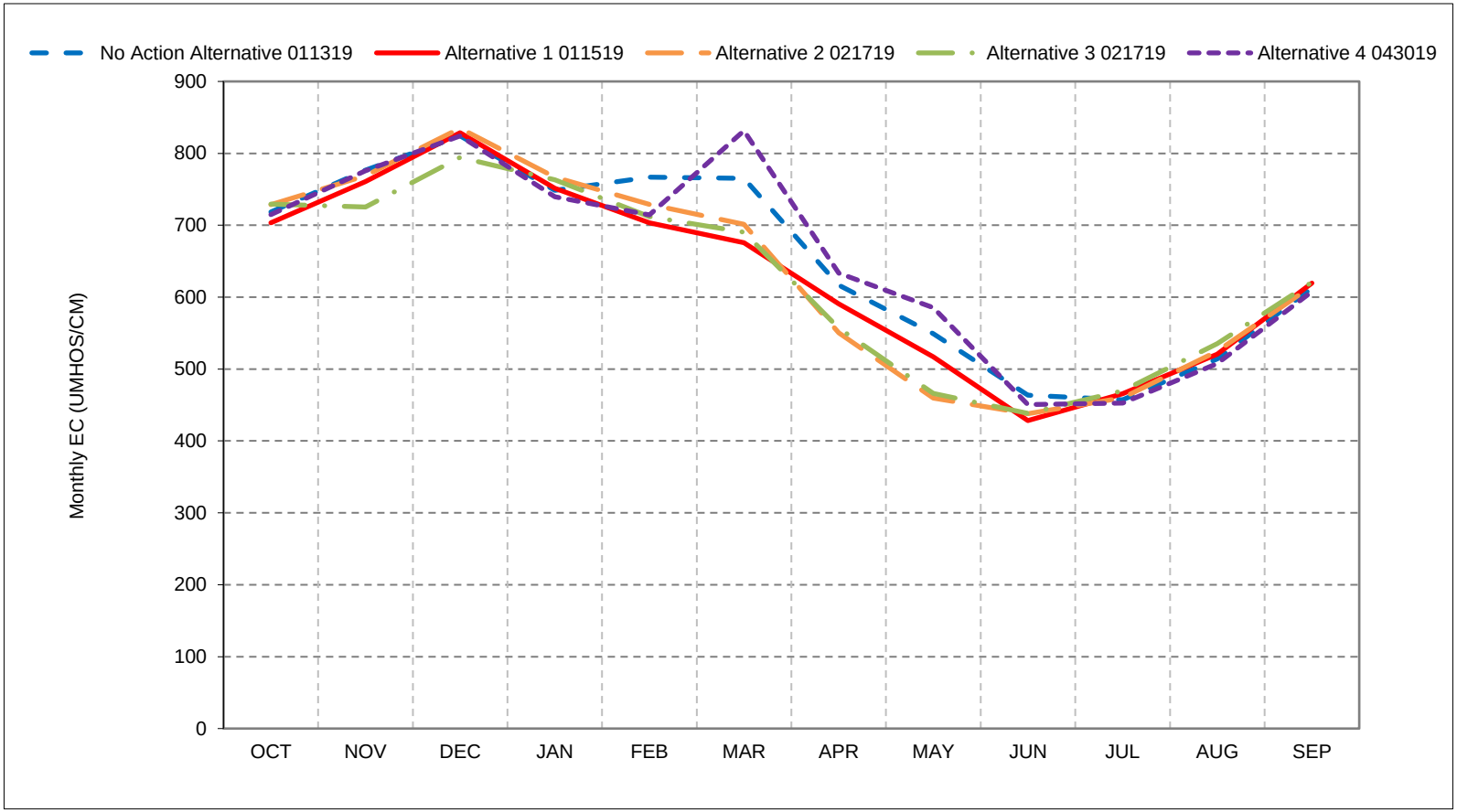
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-6. Jones Pumping Plant South Delta Exports Salinity, Critical Year Average EC



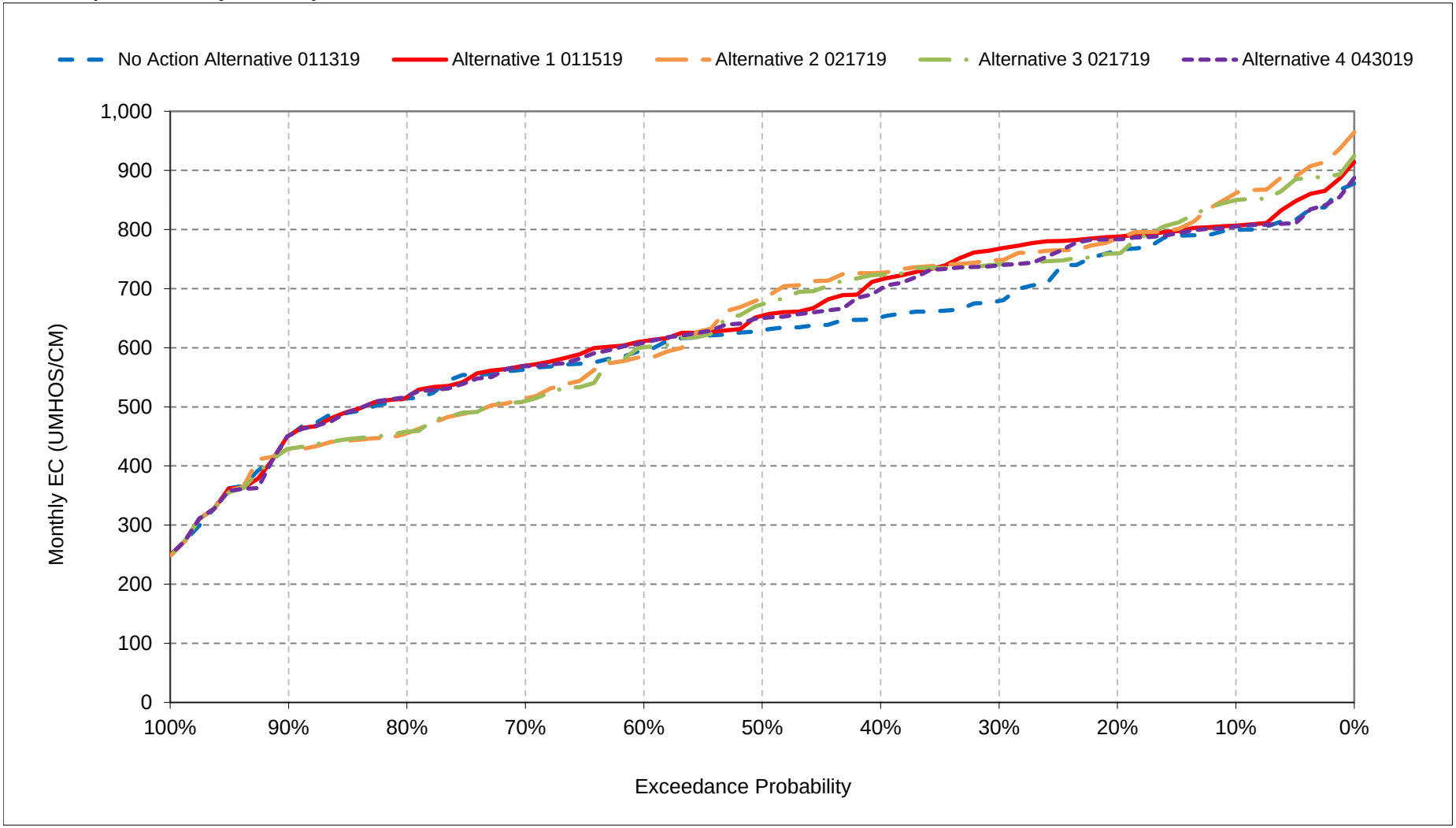
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

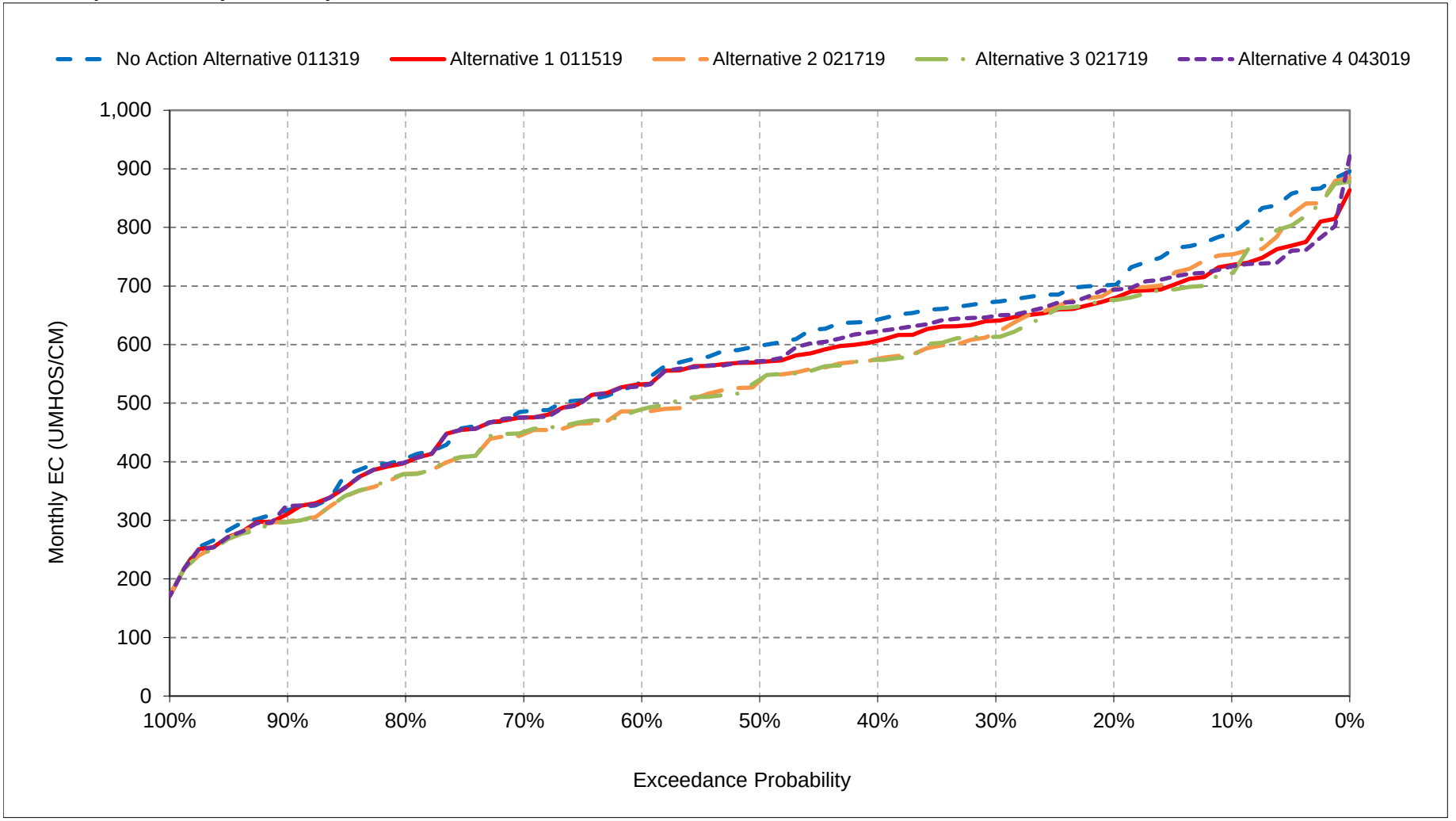
Figure 15-7. Jones Pumping Plant South Delta Exports Salinity, January EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

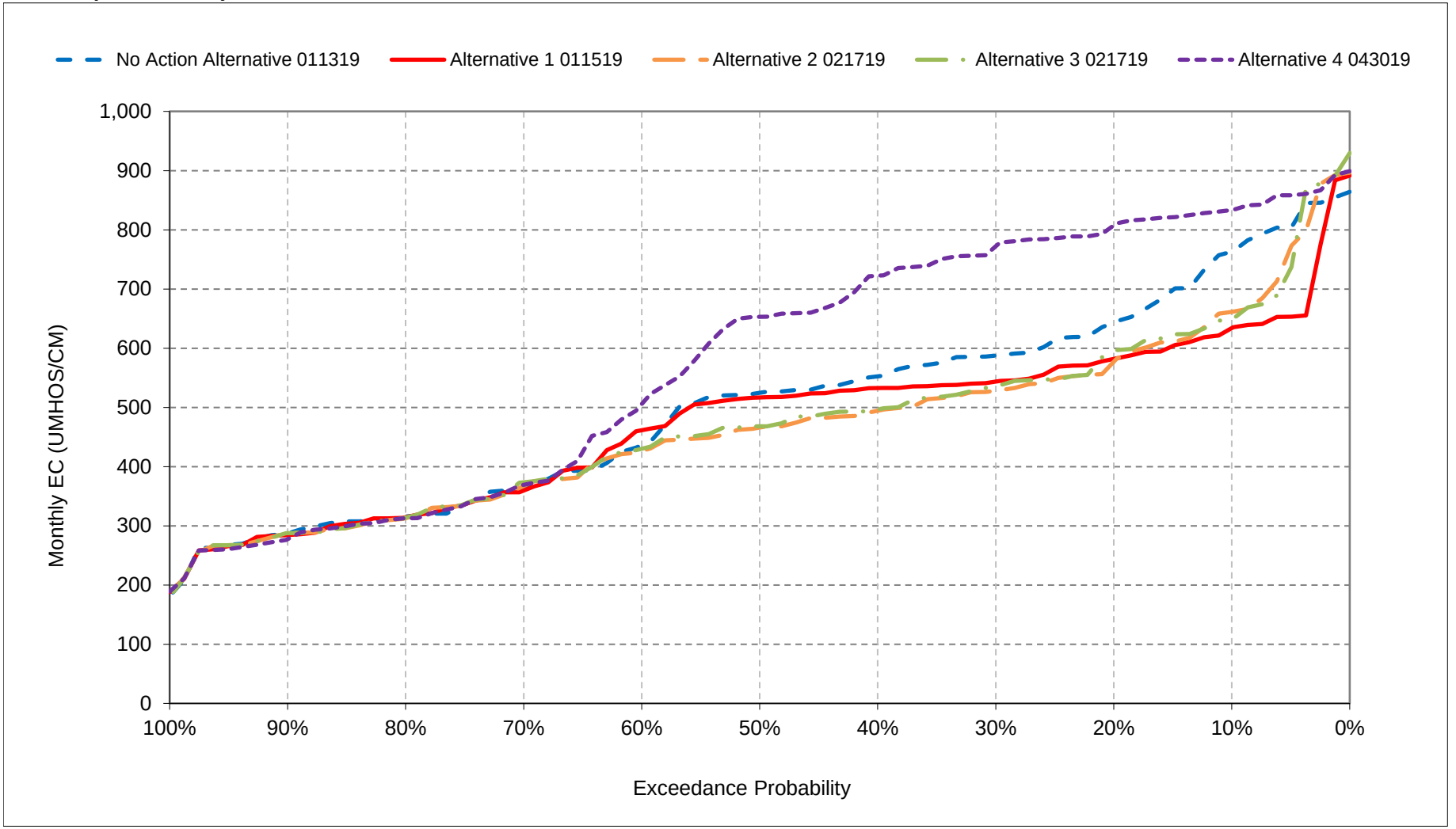
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-8. Jones Pumping Plant South
Delta Exports Salinity, February EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

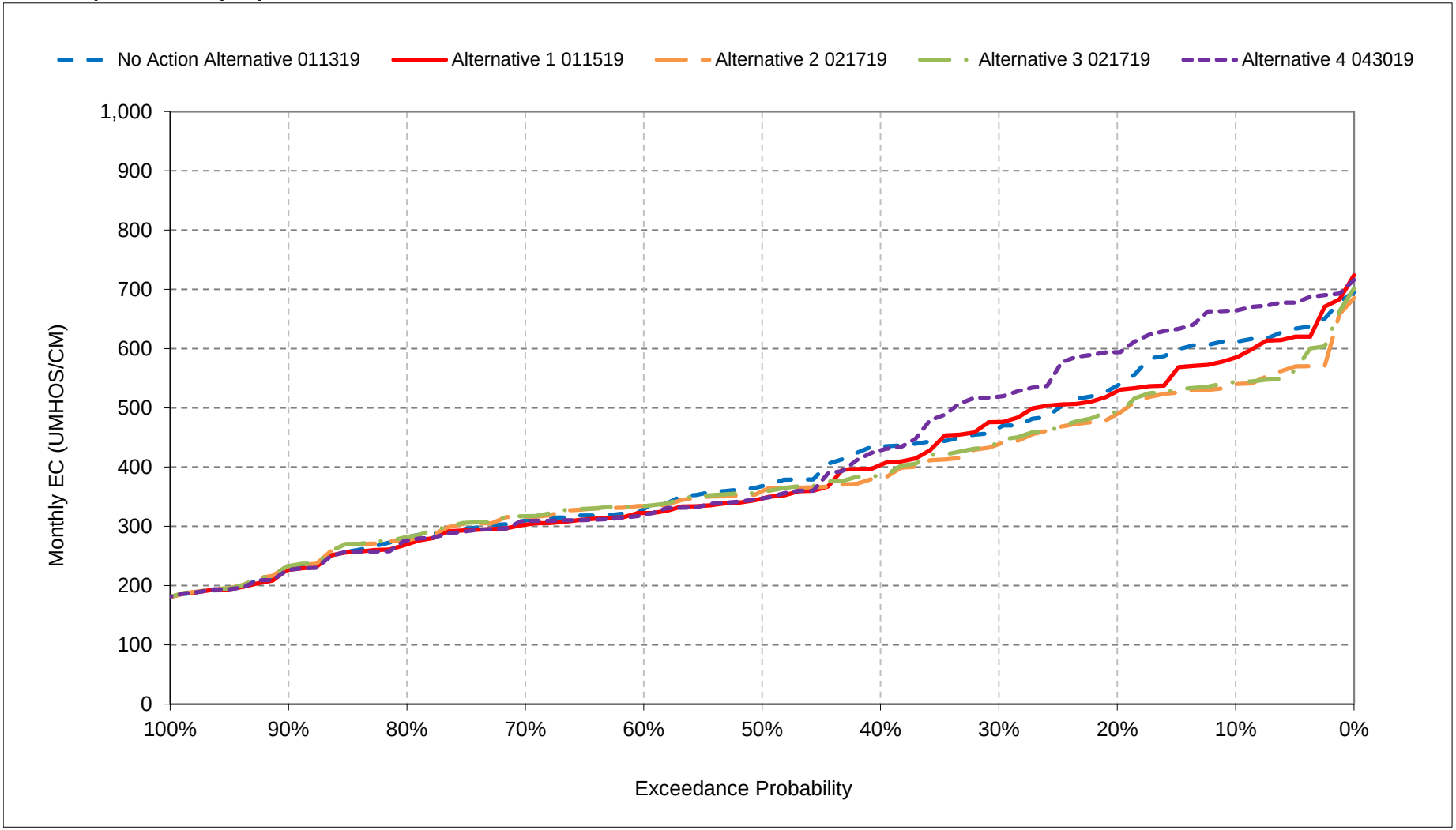
Figure 15-9. Jones Pumping Plant South Delta Exports Salinity, March EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

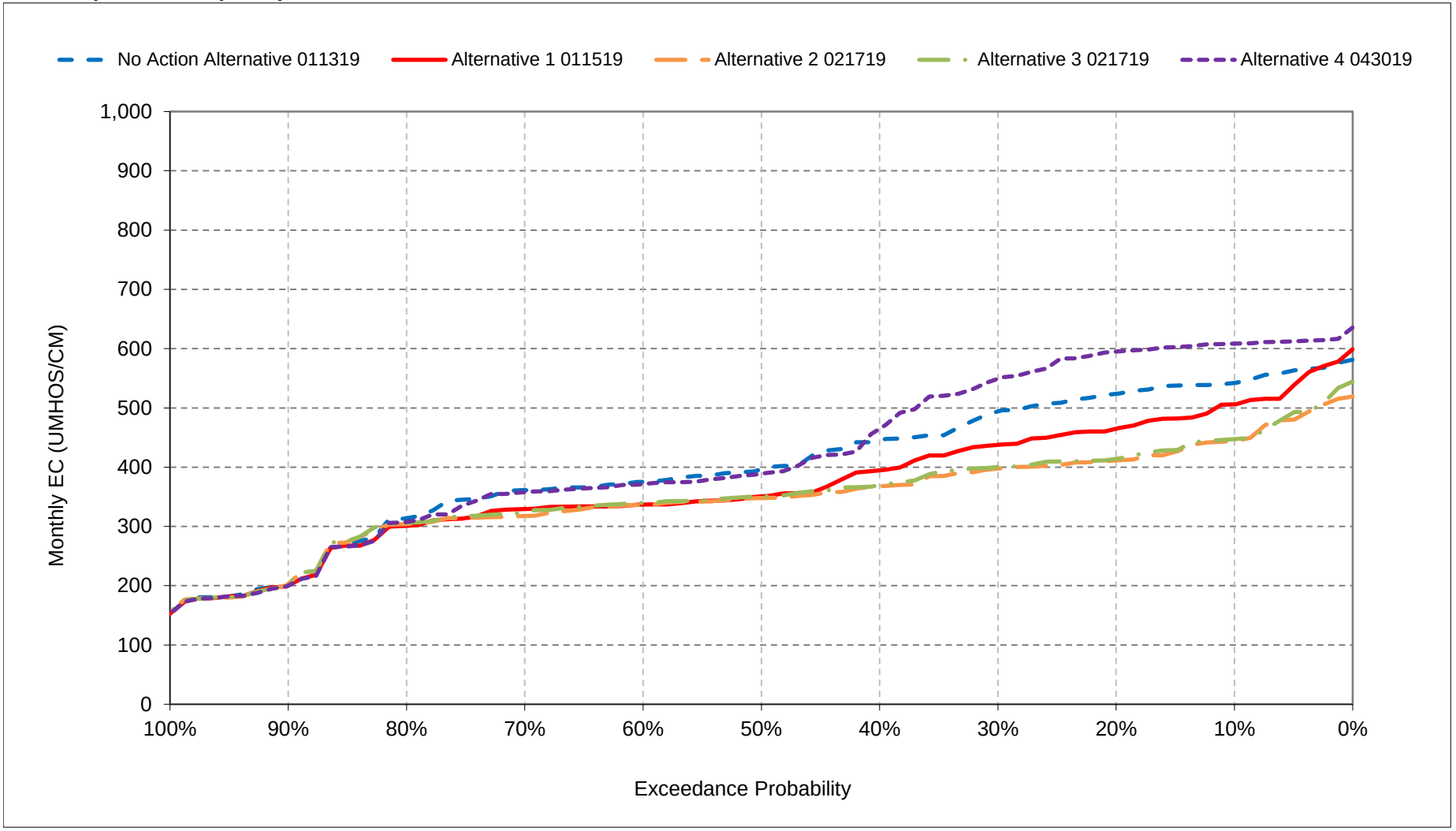
Figure 15-10. Jones Pumping Plant South Delta Exports Salinity, April EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

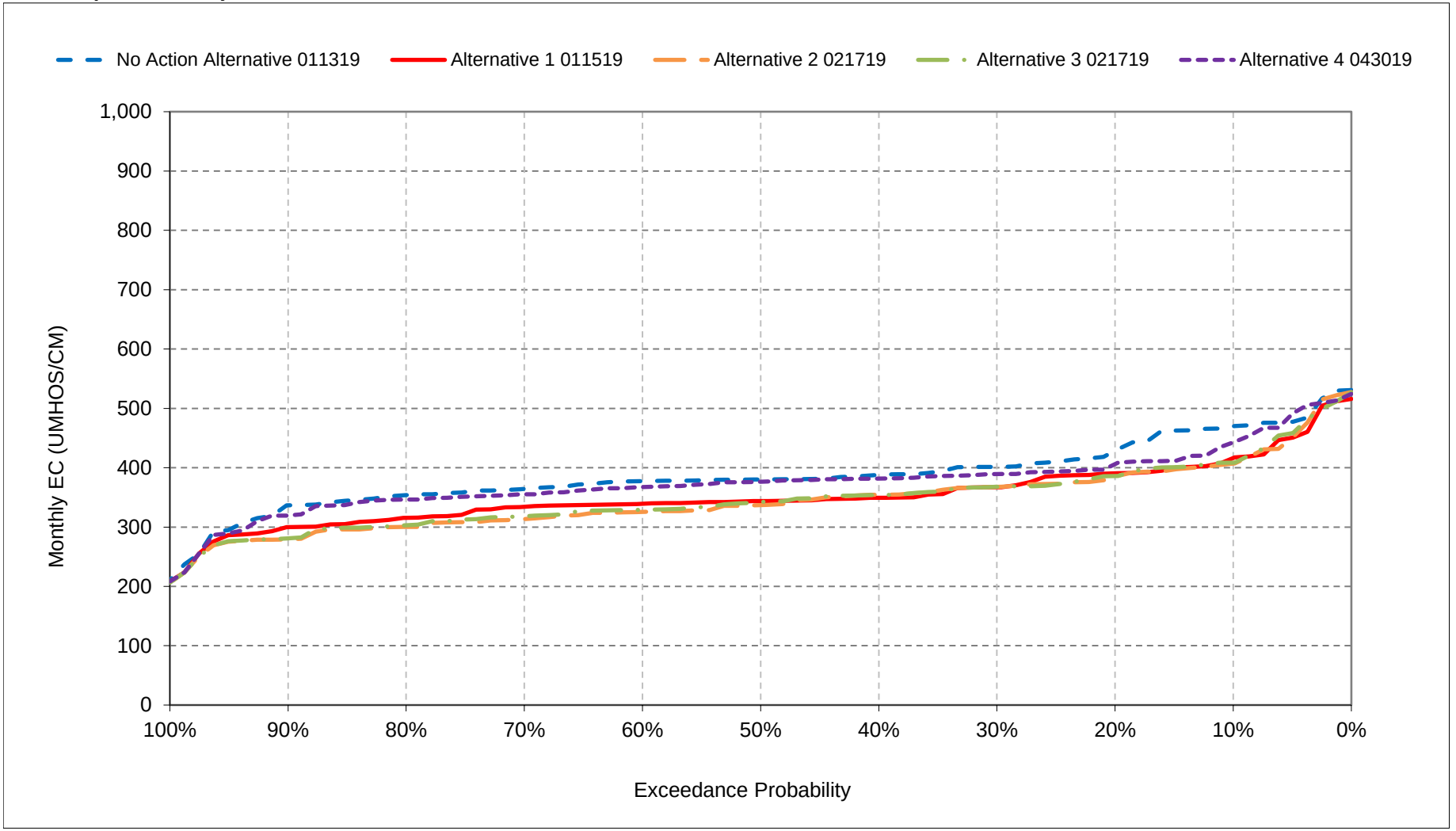
Figure 15-11. Jones Pumping Plant South Delta Exports Salinity, May EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

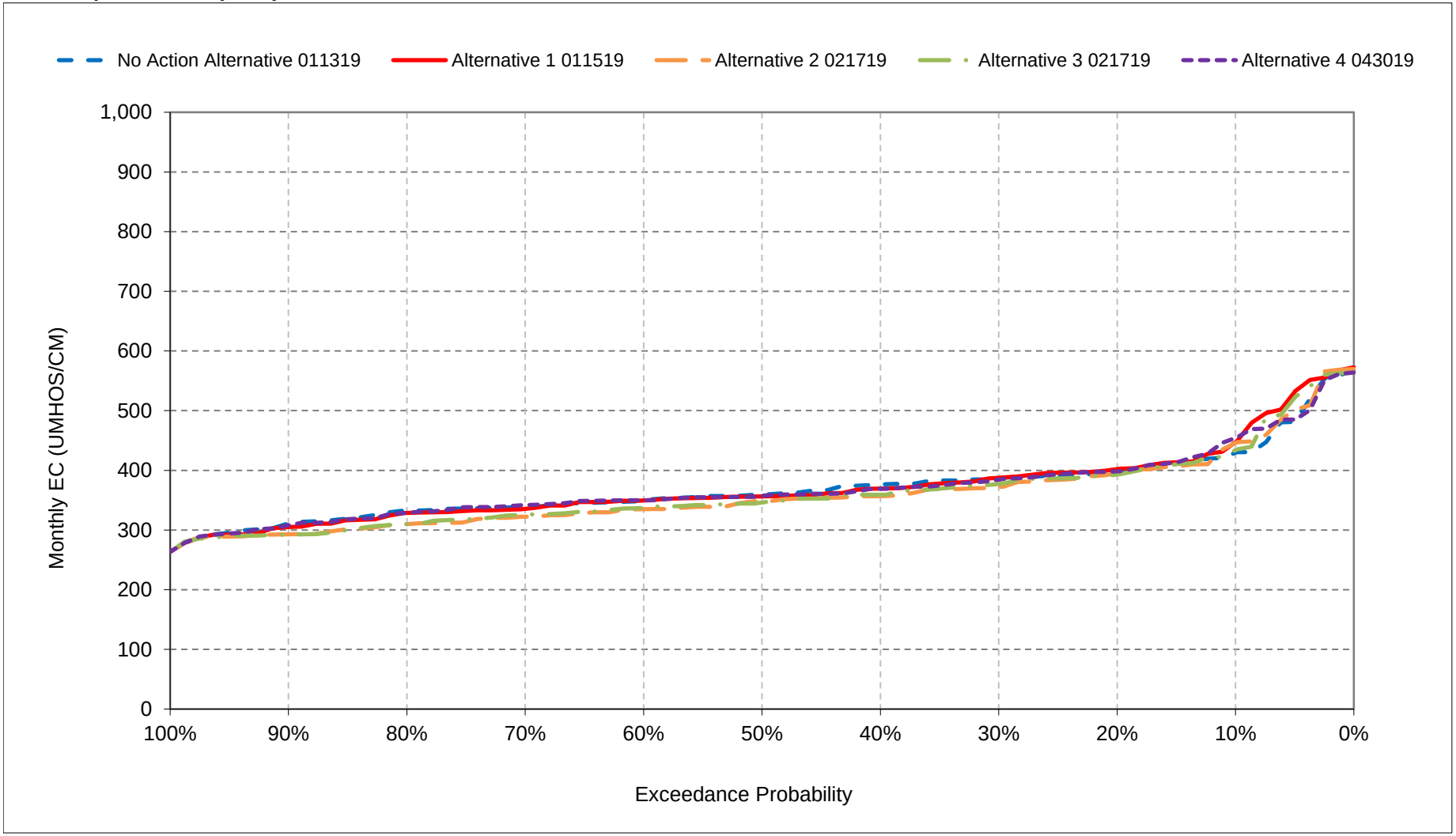
Figure 15-12. Jones Pumping Plant South Delta Exports Salinity, June EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

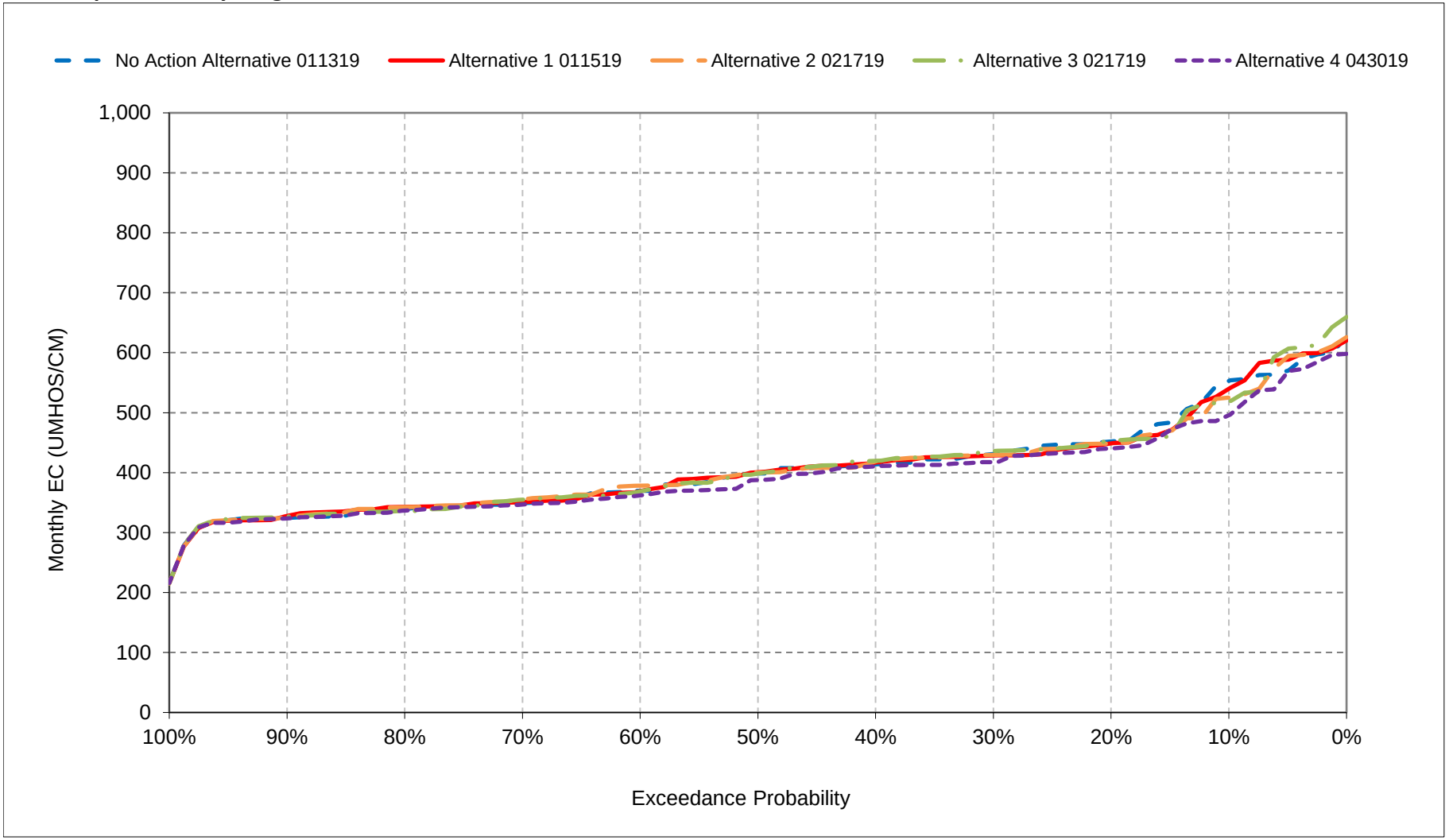
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-13. Jones Pumping Plant South
Delta Exports Salinity, July EC



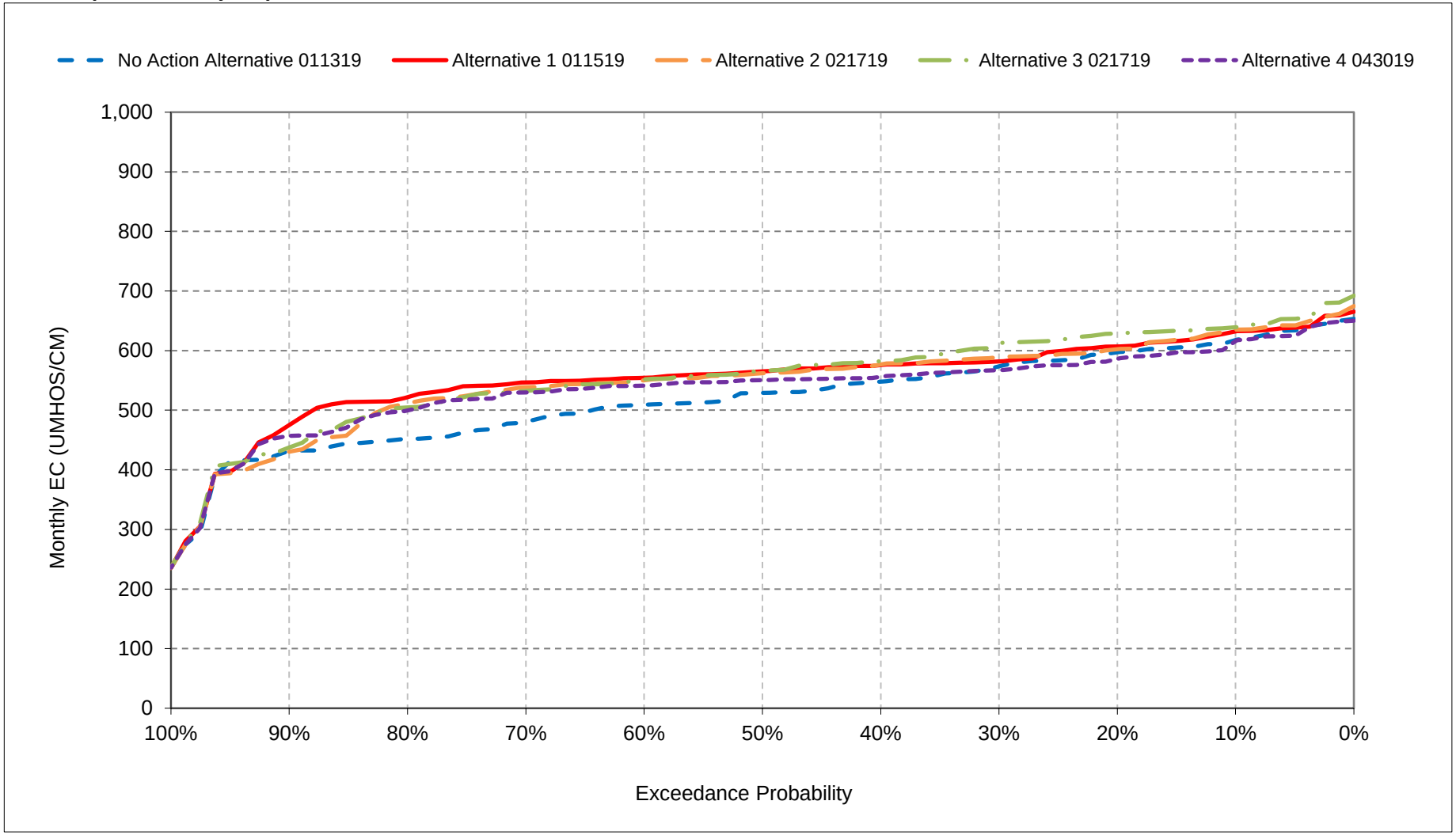
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-14. Jones Pumping Plant South
Delta Exports Salinity, August EC



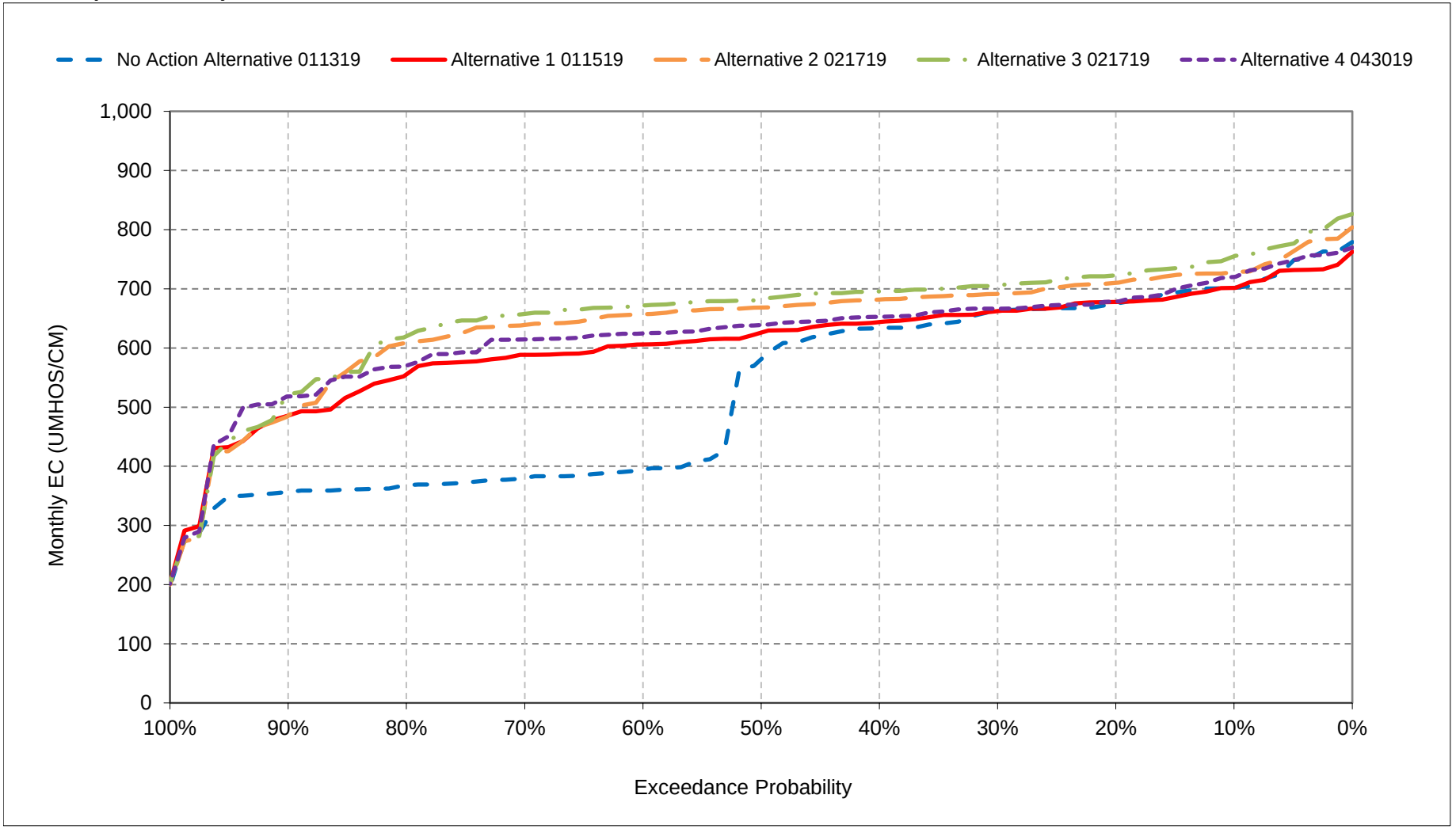
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-15. Jones Pumping Plant South
Delta Exports Salinity, September EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

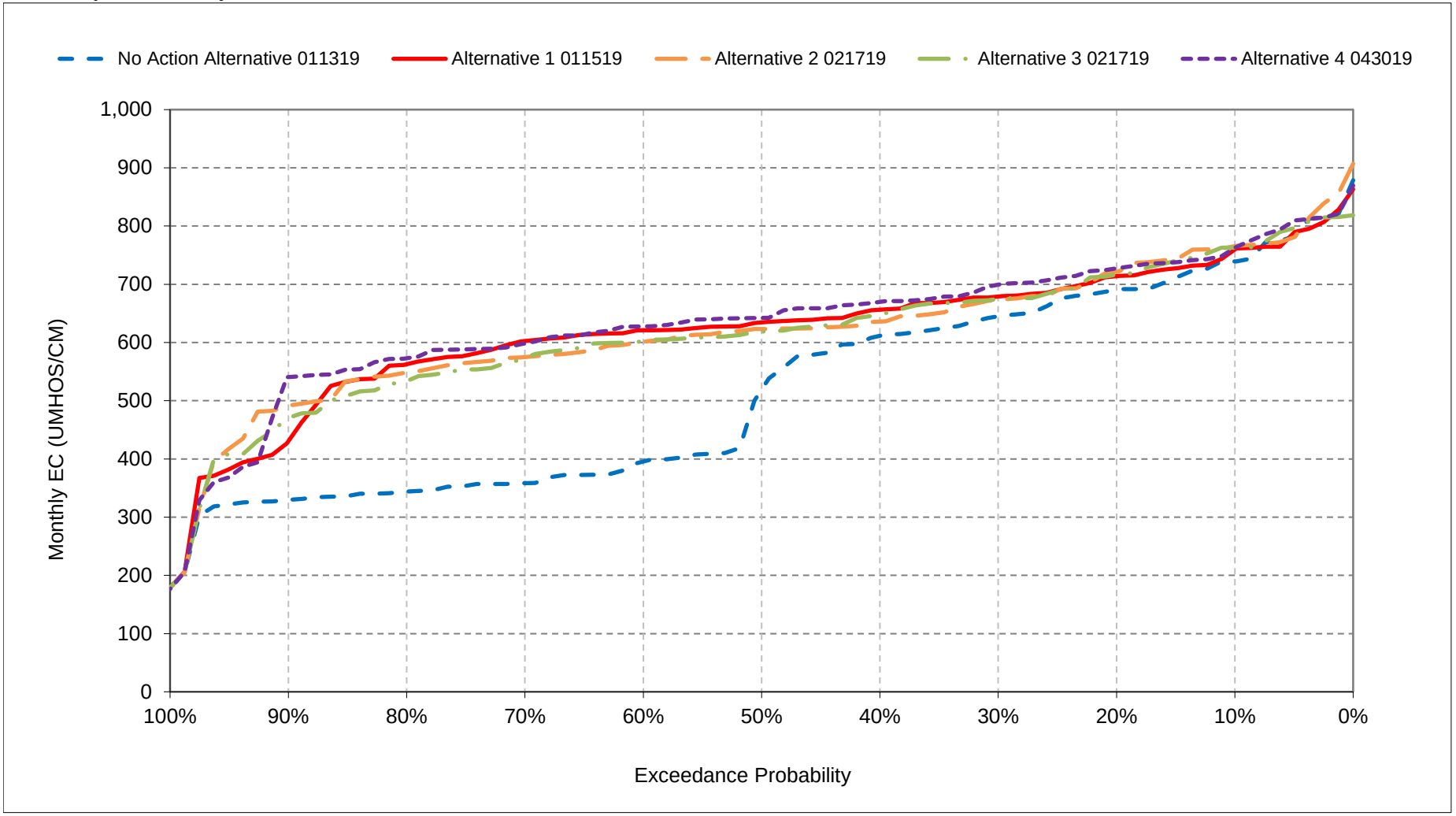
Figure 15-16. Jones Pumping Plant South Delta Exports Salinity, October EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

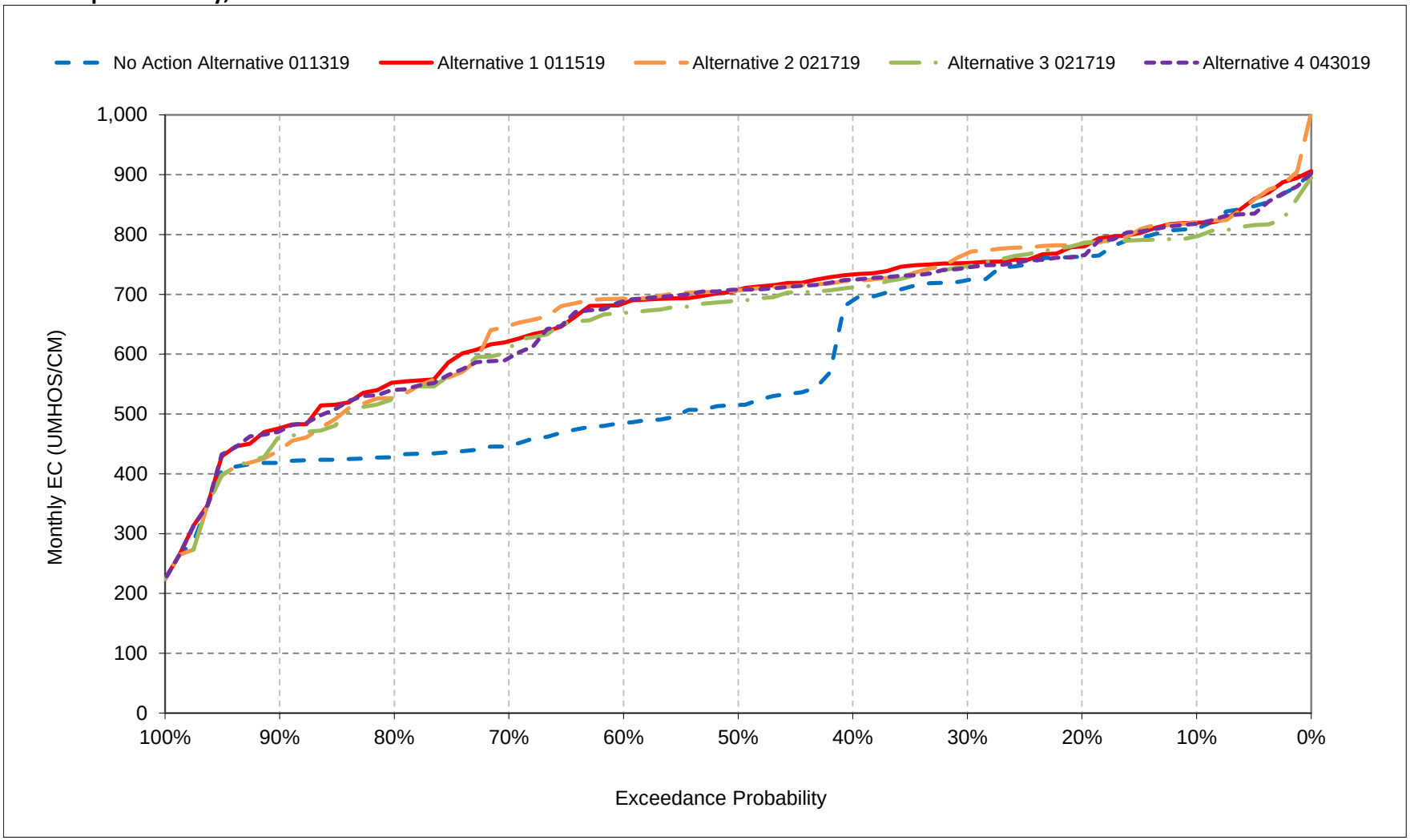
Figure 15-17. Jones Pumping Plant South Delta Exports Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 15-18. Jones Pumping Plant South Delta Exports Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 16-1. Banks Pumping Plant South Delta Exports Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	727	768	860	816	682	594	559	530	487	425	528	598
20%	698	706	771	762	600	531	491	471	446	376	412	577
30%	675	653	714	633	556	487	445	449	397	330	391	555
40%	644	624	658	585	534	448	412	421	378	322	366	529
50%	608	521	422	533	495	410	391	377	362	313	360	510
60%	374	336	370	500	477	393	347	351	352	299	332	497
70%	358	322	326	447	431	357	312	330	342	293	312	471
80%	339	306	303	415	370	331	292	307	322	279	297	443
90%	324	299	294	383	343	299	248	201	282	268	278	414
Long Term												
Full Simulation Period[a]	521	507	526	567	504	434	394	384	377	332	370	506
Water Year Types[b]												
Wet (32%)	346	300	300	439	390	328	274	270	308	292	303	462
Above Normal (16%)	332	343	391	539	496	403	358	356	354	285	303	430
Below Normal (13%)	672	612	642	564	517	450	419	422	399	312	364	553
Dry (24%)	675	645	646	657	562	475	448	435	393	339	434	543
Critical (15%)	714	805	858	725	653	611	577	540	505	474	489	576

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	741	799	859	863	676	517	468	421	391	398	519	615
20%	721	761	814	818	611	477	425	393	335	349	401	589
30%	696	725	762	793	541	440	402	377	322	322	388	573
40%	683	695	726	700	518	412	388	354	316	315	367	565
50%	669	662	692	594	486	397	364	321	312	309	353	549
60%	657	650	656	535	437	379	345	312	304	295	333	541
70%	640	640	600	487	426	362	309	302	297	286	309	525
80%	618	593	481	431	371	320	285	292	289	271	298	506
90%	517	400	376	385	323	301	253	222	276	258	285	461
Long Term												
Full Simulation Period[a]	646	655	659	620	492	402	361	335	321	321	368	540
Water Year Types[b]												
Wet (32%)	545	587	567	462	382	325	274	256	285	289	302	484
Above Normal (16%)	663	627	657	624	493	394	345	315	305	275	308	559
Below Normal (13%)	685	630	653	647	516	428	396	357	314	305	381	584
Dry (24%)	698	681	655	738	551	424	394	365	317	327	415	551
Critical (15%)	723	816	871	737	609	515	481	456	432	448	488	579

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**14**	**31**	-1	**47**	-6	-77	-92	-109	-96	-27	-8	**17**
20%	**24**	**55**	**43**	**56**	**11**	-54	-67	-78	-111	-27	-10	**12**
30%	**21**	**72**	**49**	**160**	-15	-48	-43	-72	-75	-8	-3	**18**
40%	**39**	**70**	**68**	**115**	-16	-37	-24	-67	-61	-7	**1**	**37**
50%	**61**	**141**	**270**	**62**	-9	-14	-27	-55	-50	-4	-7	**39**
60%	**283**	**314**	**286**	**35**	-41	-14	-2	-39	-48	-4	**1**	**43**
70%	**282**	**318**	**274**	**40**	-5	**5**	-3	-29	-46	-7	-4	**54**
80%	**279**	**287**	**178**	**16**	**1**	-11	-7	-14	-33	-8	**1**	**64**
90%	**193**	**101**	**82**	**1**	-20	**2**	**5**	**21**	-6	-10	**7**	**48**
Long Term												
Full Simulation Period[a]	**124**	**149**	**132**	**53**	-12	-32	-32	-49	-56	-10	-2	**34**
Water Year Types[b]												
Wet (32%)	**199**	**287**	**267**	**24**	-7	-2	0	-14	-23	-3	-1	**22**
Above Normal (16%)	**331**	**284**	**266**	**84**	-4	-8	-13	-41	-49	-11	**4**	**129**
Below Normal (13%)	**13**	**19**	**11**	**83**	-1	-22	-23	-65	-85	-7	**17**	**31**
Dry (24%)	**23**	**36**	**8**	**81**	-11	-52	-54	-70	-76	-12	-19	**8**
Critical (15%)	**9**	**11**	**13**	**11**	-44	-97	-96	-84	-74	-25	-1	**3**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 16-2. Banks Pumping Plant South Delta Exports Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	727	768	860	816	682	594	559	530	487	425	528	598
20%	698	706	771	762	600	531	491	471	446	376	412	577
30%	675	653	714	633	556	487	445	449	397	330	391	555
40%	644	624	658	585	534	448	412	421	378	322	366	529
50%	608	521	422	533	495	410	391	377	362	313	360	510
60%	374	336	370	500	477	393	347	351	352	299	332	497
70%	358	322	326	447	431	357	312	330	342	293	312	471
80%	339	306	303	415	370	331	292	307	322	279	297	443
90%	324	299	294	383	343	299	248	201	282	268	278	414
Long Term												
Full Simulation Period[a]	521	507	526	567	504	434	394	384	377	332	370	506
Water Year Types[b]												
Wet (32%)	346	300	300	439	390	328	274	270	308	292	303	462
Above Normal (16%)	332	343	391	539	496	403	358	356	354	285	303	430
Below Normal (13%)	672	612	642	564	517	450	419	422	399	312	364	553
Dry (24%)	675	645	646	657	562	475	448	435	393	339	434	543
Critical (15%)	714	805	858	725	653	611	577	540	505	474	489	576

Alternative 2 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	734	780	836	903	695	544	449	397	388	398	502	615
20%	721	748	796	796	593	458	399	381	348	339	404	591
30%	703	684	765	748	512	408	375	367	310	321	389	575
40%	686	658	720	704	475	393	351	328	296	314	368	564
50%	675	635	684	668	440	364	331	314	291	293	351	546
60%	662	605	659	494	406	353	320	310	286	285	335	527
70%	642	591	602	427	371	328	307	296	277	281	314	507
80%	620	545	473	391	332	307	285	283	271	257	304	481
90%	489	490	327	359	311	286	235	221	260	250	293	439
Long Term												
Full Simulation Period[a]	645	630	649	612	473	390	349	327	311	314	369	532
Water Year Types[b]												
Wet (32%)	544	564	593	428	338	311	269	254	273	285	303	471
Above Normal (16%)	697	687	694	591	430	350	314	302	280	265	320	570
Below Normal (13%)	683	622	625	695	579	443	382	343	284	282	395	556
Dry (24%)	684	594	585	735	523	393	370	355	319	322	402	543
Critical (15%)	710	778	852	754	629	547	492	452	442	445	491	584

Alternative 2 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**7**	**12**	-24	**88**	**13**	-50	-110	-132	-99	-27	-25	**17**
20%	**23**	**42**	**25**	**34**	-8	-74	-93	-89	-98	-37	-7	**14**
30%	**28**	**31**	**52**	**114**	-44	-79	-70	-82	-87	-9	-2	**20**
40%	**42**	**34**	**62**	**119**	-59	-55	-61	-93	-82	-8	**2**	**35**
50%	**67**	**114**	**262**	**136**	-54	-46	-60	-63	-71	-21	-9	**36**
60%	**288**	**269**	**289**	-7	-72	-40	-28	-41	-66	-14	**3**	**30**
70%	**284**	**269**	**276**	-20	-60	-29	-5	-34	-65	-12	**1**	**36**
80%	**281**	**239**	**170**	-24	-38	-23	-7	-24	-51	-22	**6**	**39**
90%	**165**	**191**	**33**	-24	-32	-12	-12	**20**	-22	-18	**14**	**25**
Long Term												
Full Simulation Period[a]	**124**	**123**	**123**	**46**	-32	-44	-45	-57	-66	-18	-1	**26**
Water Year Types[b]												
Wet (32%)	**198**	**264**	**293**	-10	-52	-17	-6	-16	-35	-7	-1	**9**
Above Normal (16%)	**365**	**344**	**303**	**51**	-66	-52	-45	-55	-74	-21	**16**	**140**
Below Normal (13%)	**11**	**10**	-17	**131**	**62**	-8	-37	-79	-115	-30	**31**	**3**
Dry (24%)	**9**	-51	-61	**78**	-39	-82	-78	-79	-74	-17	-32	0
Critical (15%)	-3	-27	-6	**28**	-25	-65	-84	-88	-63	-29	**2**	**8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 16-3. Banks Pumping Plant South Delta Exports Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	727	768	860	816	682	594	559	530	487	425	528	598
20%	698	706	771	762	600	531	491	471	446	376	412	577
30%	675	653	714	633	556	487	445	449	397	330	391	555
40%	644	624	658	585	534	448	412	421	378	322	366	529
50%	608	521	422	533	495	410	391	377	362	313	360	510
60%	374	336	370	500	477	393	347	351	352	299	332	497
70%	358	322	326	447	431	357	312	330	342	293	312	471
80%	339	306	303	415	370	331	292	307	322	279	297	443
90%	324	299	294	383	343	299	248	201	282	268	278	414
Long Term												
Full Simulation Period[a]	521	507	526	567	504	434	394	384	377	332	370	506
Water Year Types[b]												
Wet (32%)	346	300	300	439	390	328	274	270	308	292	303	462
Above Normal (16%)	332	343	391	539	496	403	358	356	354	285	303	430
Below Normal (13%)	672	612	642	564	517	450	419	422	399	312	364	553
Dry (24%)	675	645	646	657	562	475	448	435	393	339	434	543
Critical (15%)	714	805	858	725	653	611	577	540	505	474	489	576

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	776	776	808	878	661	495	459	405	408	403	498	632
20%	741	744	784	789	602	461	404	385	346	341	403	610
30%	724	700	744	741	510	417	387	371	311	325	392	592
40%	710	664	712	699	473	393	357	333	304	312	372	569
50%	694	647	660	642	438	369	336	320	297	297	352	550
60%	681	615	615	483	410	355	326	313	290	288	331	525
70%	661	576	571	416	369	330	311	301	282	280	312	509
80%	631	541	466	384	328	310	289	288	277	263	304	488
90%	529	484	347	353	310	288	231	219	261	253	289	450
Long Term												
Full Simulation Period[a]	665	626	626	600	465	391	353	332	316	316	371	541
Water Year Types[b]												
Wet (32%)	571	578	573	424	338	313	269	256	277	286	306	479
Above Normal (16%)	696	682	680	550	416	351	317	306	287	269	312	567
Below Normal (13%)	720	627	607	687	580	451	389	348	290	284	391	581
Dry (24%)	710	585	574	725	513	403	381	361	321	322	404	555
Critical (15%)	713	739	790	745	609	530	494	458	447	452	501	591

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**49**	**8**	-52	**62**	-21	-99	-100	-125	-79	-22	-29	**34**
20%	**43**	**38**	**12**	**27**	**2**	-70	-88	-85	-100	-35	-9	**33**
30%	**49**	**47**	**31**	**107**	-46	-71	-58	-78	-86	-5	**1**	**37**
40%	**66**	**40**	**54**	**114**	-61	-56	-55	-88	-74	-10	**6**	**40**
50%	**86**	**126**	**238**	**109**	-57	-41	-55	-57	-65	-17	-8	**40**
60%	**307**	**280**	**246**	-17	-67	-38	-21	-38	-61	-11	-1	**27**
70%	**303**	**254**	**245**	-31	-62	-27	-1	-29	-60	-13	0	**38**
80%	**292**	**236**	**163**	-31	-42	-21	-4	-19	-45	-16	**7**	**45**
90%	**205**	**185**	**53**	-31	-33	-11	-17	**17**	-21	-15	**11**	**36**
Long Term												
Full Simulation Period[a]	**144**	**120**	**100**	**33**	-39	-42	-41	-52	-61	-15	**0**	**36**
Water Year Types[b]												
Wet (32%)	**225**	**278**	**273**	-15	-52	-15	-5	-13	-31	-6	**3**	**17**
Above Normal (16%)	**364**	**338**	**289**	**11**	-81	-52	-41	-51	-68	-17	**9**	**136**
Below Normal (13%)	**48**	**16**	-36	**123**	**63**	**1**	-30	-74	-109	-28	**27**	**28**
Dry (24%)	**35**	-60	-72	**68**	-49	-72	-67	-74	-72	-16	-29	**12**
Critical (15%)	-1	-66	-68	**20**	-44	-81	-83	-82	-58	-21	**12**	**15**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 16-4. Banks Pumping Plant South Delta Exports Salinity, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	727	768	860	816	682	594	559	530	487	425	528	598
20%	698	706	771	762	600	531	491	471	446	376	412	577
30%	675	653	714	633	556	487	445	449	397	330	391	555
40%	644	624	658	585	534	448	412	421	378	322	366	529
50%	608	521	422	533	495	410	391	377	362	313	360	510
60%	374	336	370	500	477	393	347	351	352	299	332	497
70%	358	322	326	447	431	357	312	330	342	293	312	471
80%	339	306	303	415	370	331	292	307	322	279	297	443
90%	324	299	294	383	343	299	248	201	282	268	278	414
Long Term												
Full Simulation Period[a]	521	507	526	567	504	434	394	384	377	332	370	506
Water Year Types[b]												
Wet (32%)	346	300	300	439	390	328	274	270	308	292	303	462
Above Normal (16%)	332	343	391	539	496	403	358	356	354	285	303	430
Below Normal (13%)	672	612	642	564	517	450	419	422	399	312	364	553
Dry (24%)	675	645	646	657	562	475	448	435	393	339	434	543
Critical (15%)	714	805	858	725	653	611	577	540	505	474	489	576

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	721	790	852	834	658	624	656	598	511	438	456	587
20%	697	761	791	816	609	582	600	575	411	345	427	563
30%	682	730	736	743	543	543	572	538	401	332	380	545
40%	672	701	715	671	519	522	523	475	379	322	357	538
50%	662	657	691	600	492	493	475	371	362	313	333	528
60%	646	646	657	525	436	451	379	360	351	300	323	520
70%	636	618	611	482	422	384	321	339	343	291	303	496
80%	611	590	474	433	369	331	286	316	331	280	294	478
90%	563	563	375	382	324	303	234	199	286	270	277	427
Long Term												
Full Simulation Period[a]	640	656	648	608	488	469	449	417	376	330	358	514
Water Year Types[b]												
Wet (32%)	564	610	564	462	384	344	285	276	310	293	300	478
Above Normal (16%)	666	636	651	603	491	462	405	364	355	285	297	537
Below Normal (13%)	633	599	614	615	497	521	508	471	378	308	351	483
Dry (24%)	686	673	648	729	547	538	562	515	400	336	401	533
Critical (15%)	704	801	861	721	607	585	609	566	499	465	482	566

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-6	**22**	-8	**18**	-23	**30**	**97**	**68**	**24**	**14**	-71	-11
20%	-1	**55**	**20**	**54**	**9**	**51**	**109**	**105**	-34	-32	**15**	-13
30%	**7**	**77**	**23**	**109**	-13	**56**	**126**	**88**	**5**	**2**	-11	-10
40%	**28**	**77**	**57**	**86**	-15	**74**	**111**	**54**	**1**	**1**	-9	**9**
50%	**54**	**136**	**269**	**67**	-3	**83**	**85**	-5	**0**	0	-26	**18**
60%	**272**	**311**	**287**	**24**	-42	**59**	**31**	**10**	-1	**2**	-8	**23**
70%	**278**	**296**	**284**	**35**	-9	**27**	**8**	**9**	**1**	-3	-10	**25**
80%	**273**	**285**	**171**	**18**	-2	**0**	-6	**9**	**9**	**1**	-3	**35**
90%	**239**	**264**	**81**	-2	-19	**5**	-14	-2	**4**	**2**	-1	**13**
Long Term												
Full Simulation Period[a]	**118**	**149**	**122**	**41**	-16	**36**	**55**	**33**	-1	-2	-13	**9**
Water Year Types[b]												
Wet (32%)	**218**	**310**	**264**	**23**	-6	**16**	**11**	**6**	**2**	**1**	-3	**16**
Above Normal (16%)	**334**	**293**	**260**	**63**	-5	**59**	**46**	**7**	**0**	0	-6	**106**
Below Normal (13%)	-39	-13	-28	**51**	-20	**70**	**89**	**48**	-21	-4	-13	-70
Dry (24%)	**11**	**28**	**2**	**72**	-15	**63**	**114**	**80**	**7**	-3	-33	-10
Critical (15%)	-10	-4	**3**	-4	-47	-26	**32**	**25**	-7	-8	-7	-10

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

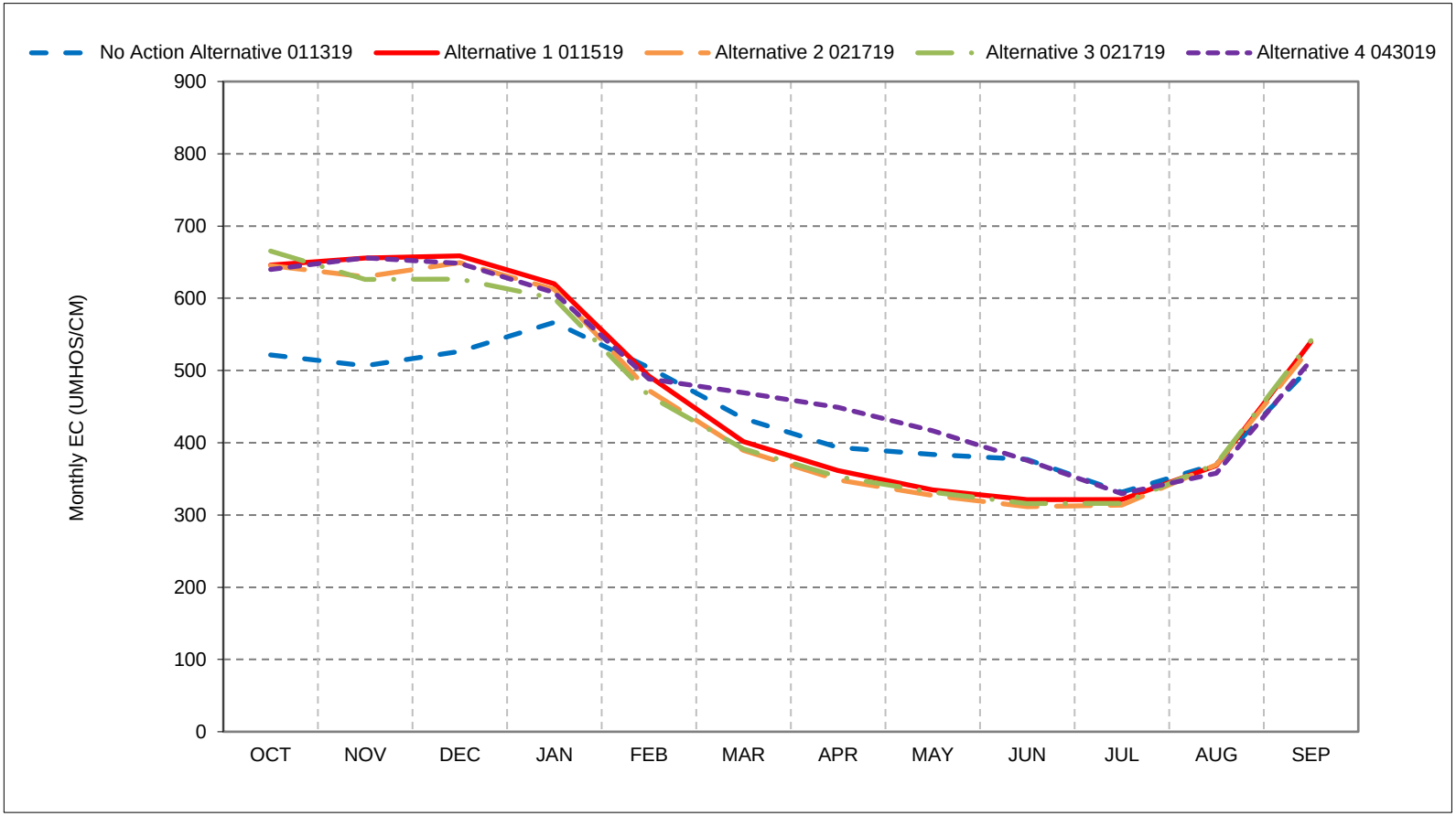
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-1. Banks Pumping Plant South Delta Exports Salinity, Long-Term Average EC



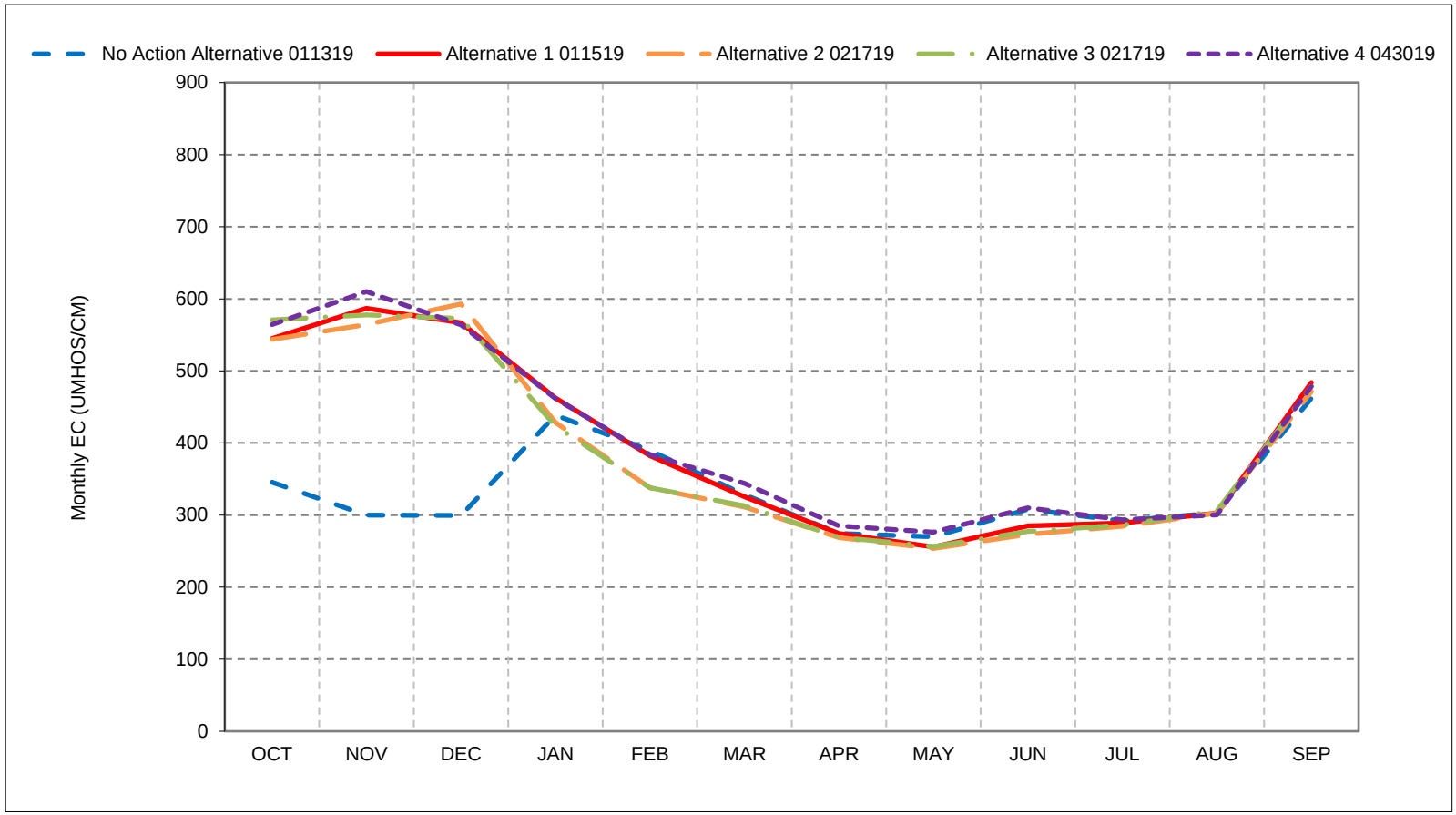
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-2. Banks Pumping Plant South Delta Exports Salinity, Wet Year Average EC



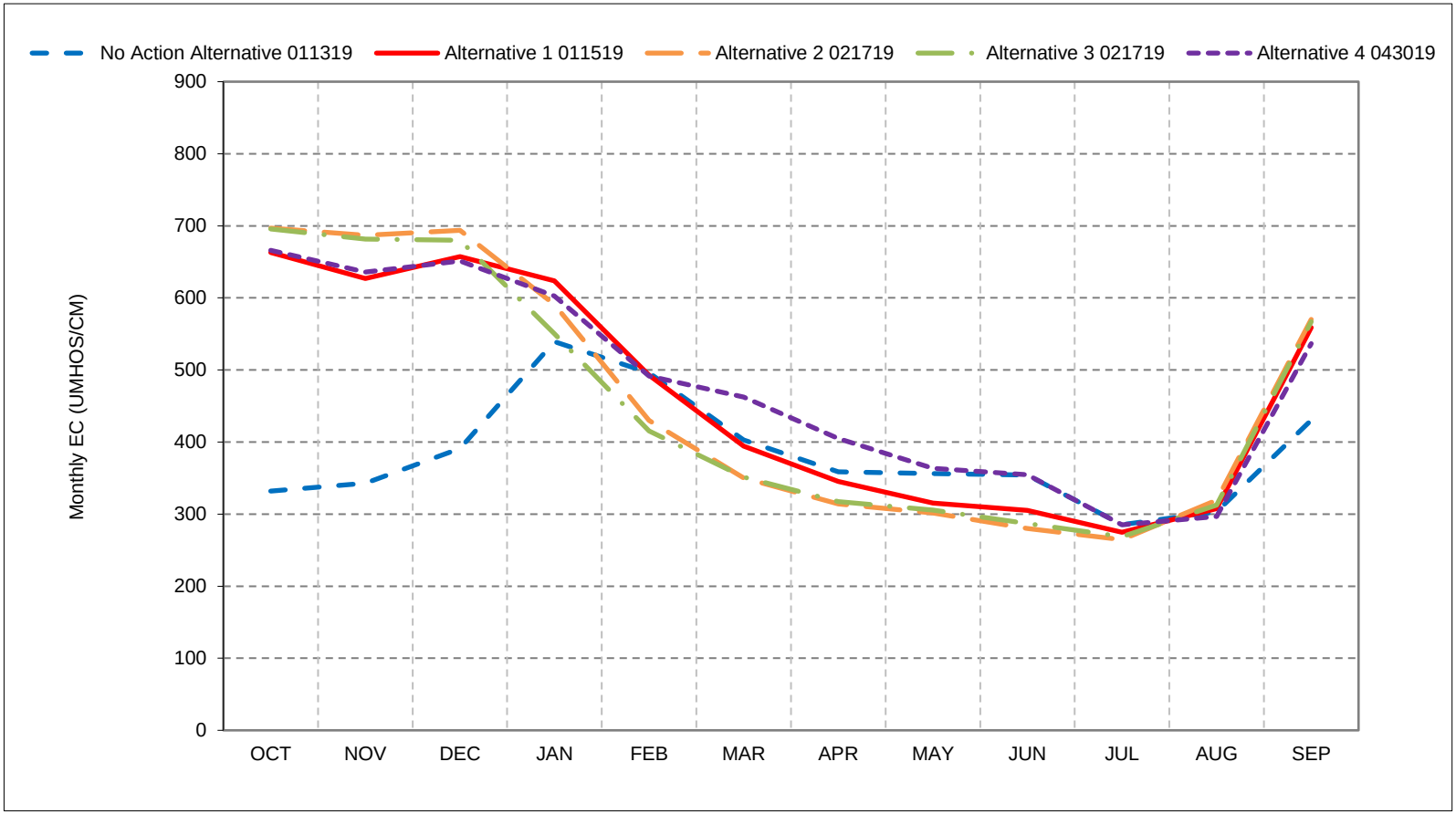
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-3. Banks Pumping Plant South Delta Exports Salinity, Above Normal Year Average EC



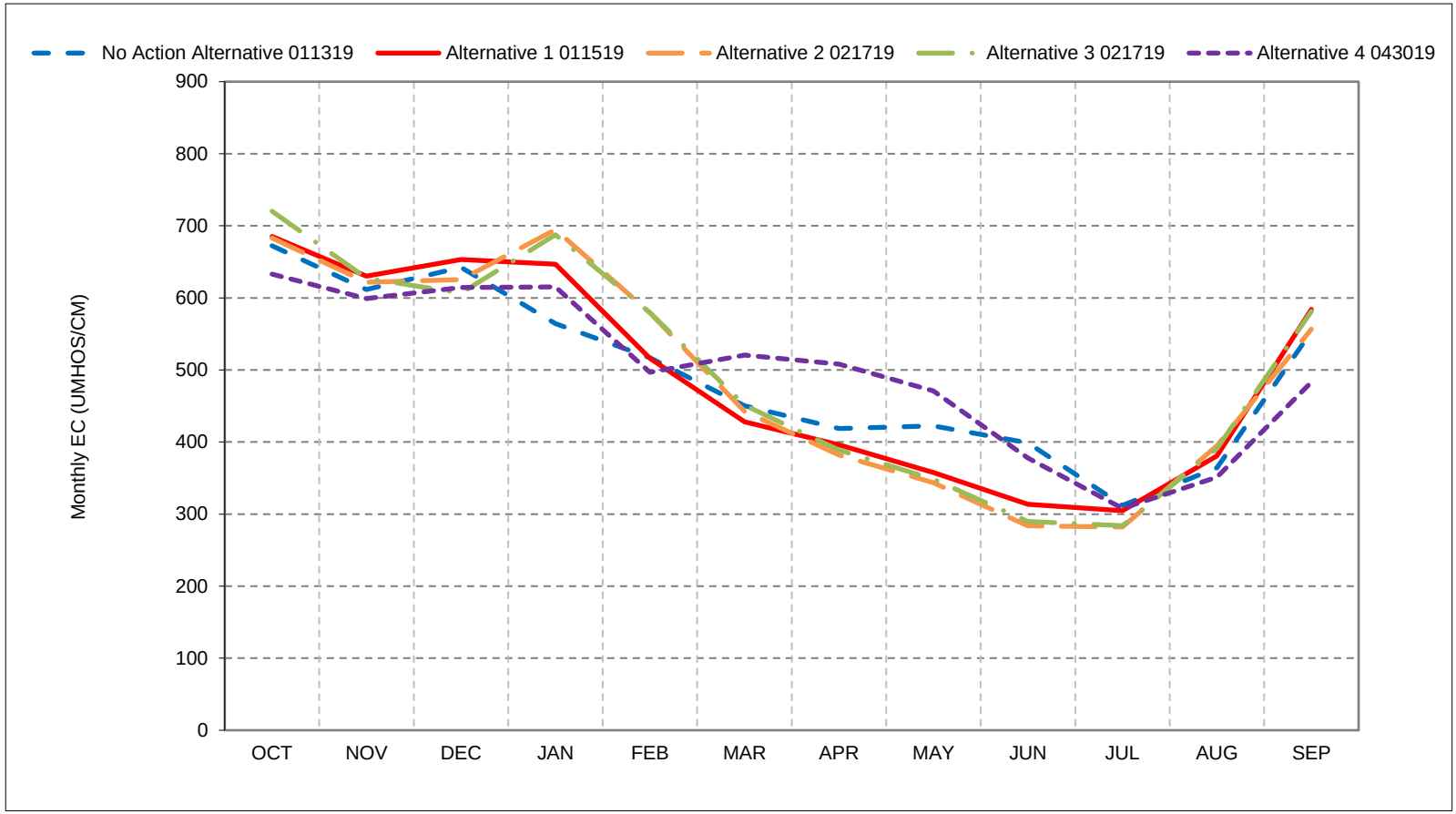
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-4. Banks Pumping Plant South Delta Exports Salinity, Below Normal Year Average EC



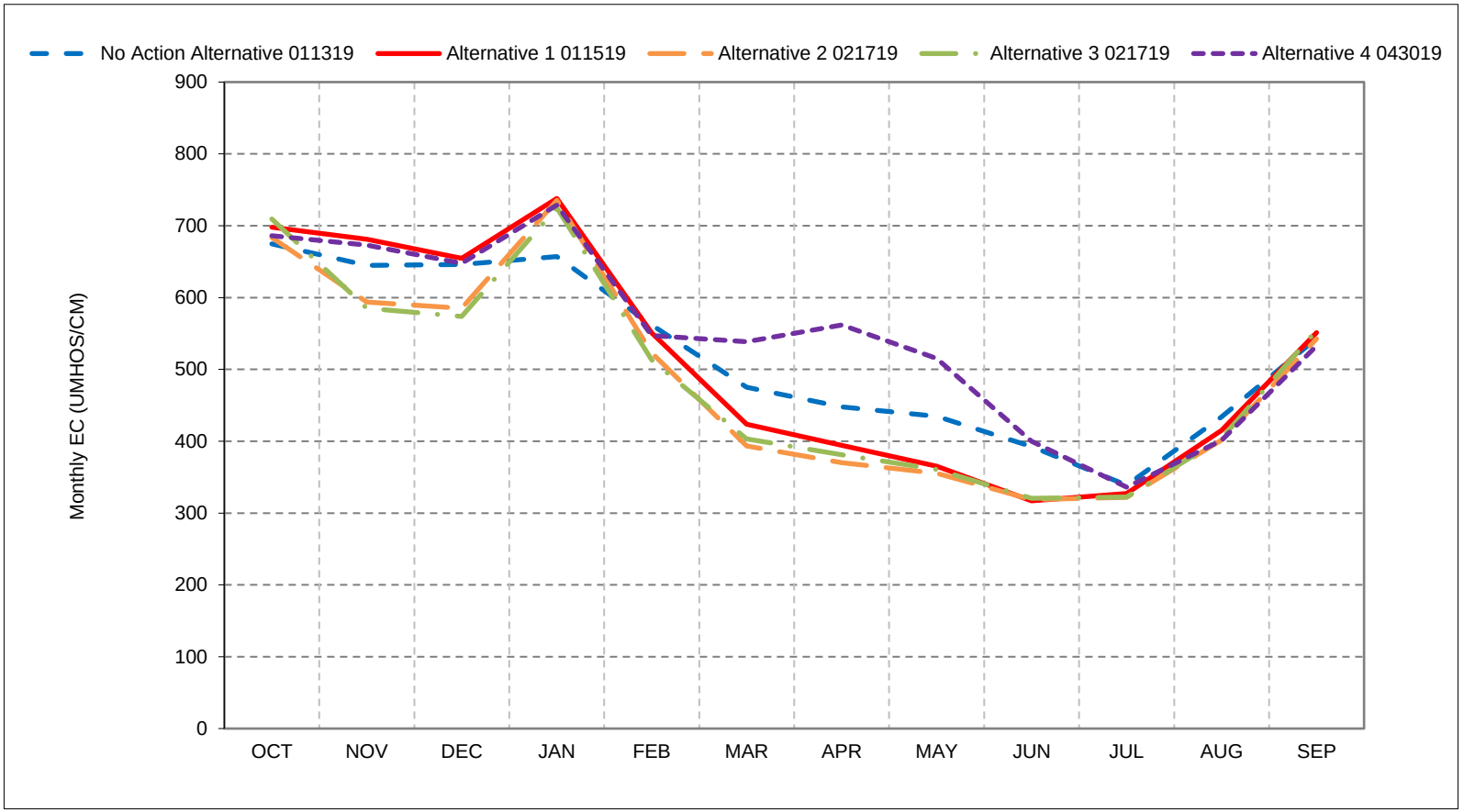
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

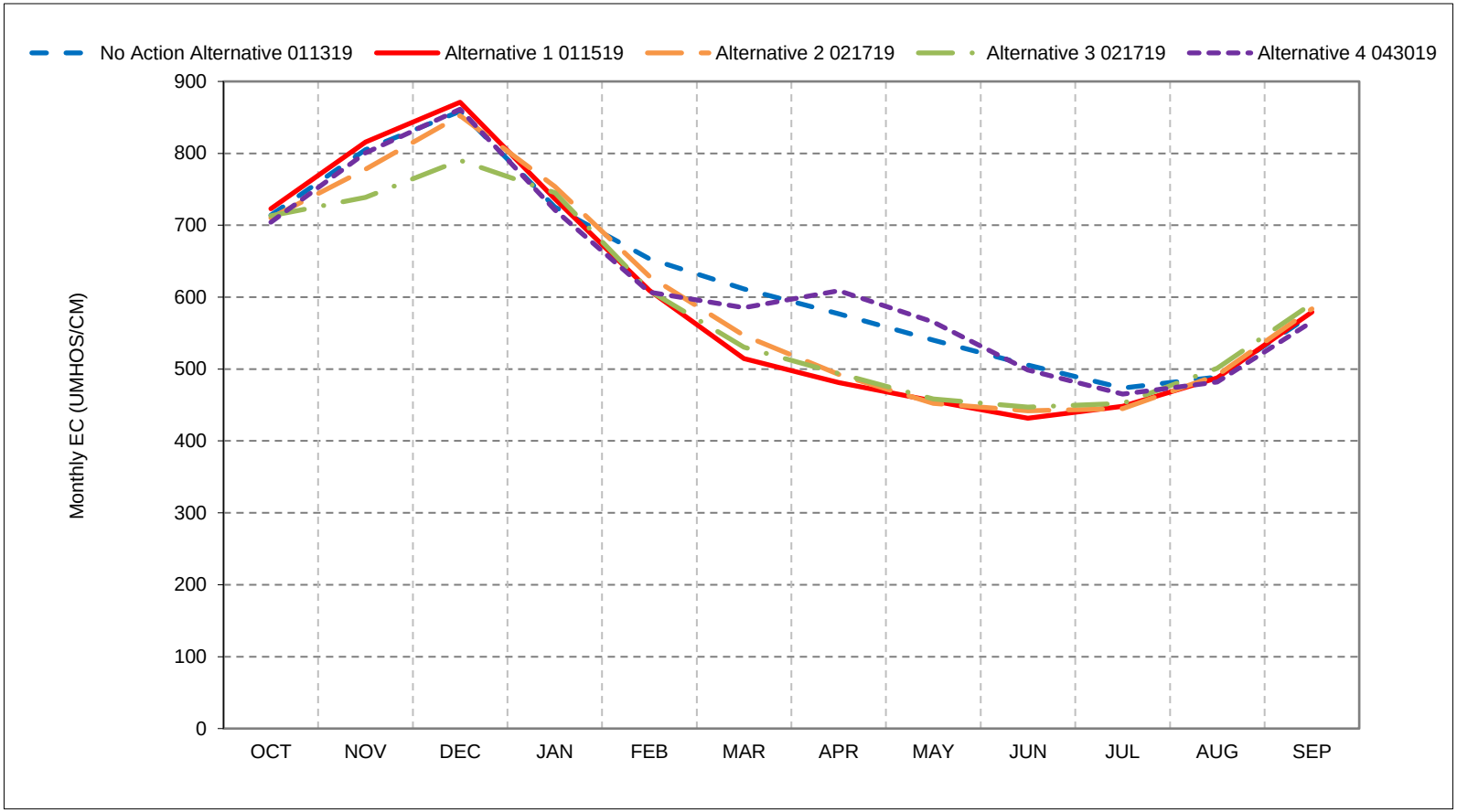
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-5. Banks Pumping Plant South Delta Exports Salinity, Dry Year Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-6. Banks Pumping Plant South Delta Exports Salinity, Critical Year Average EC



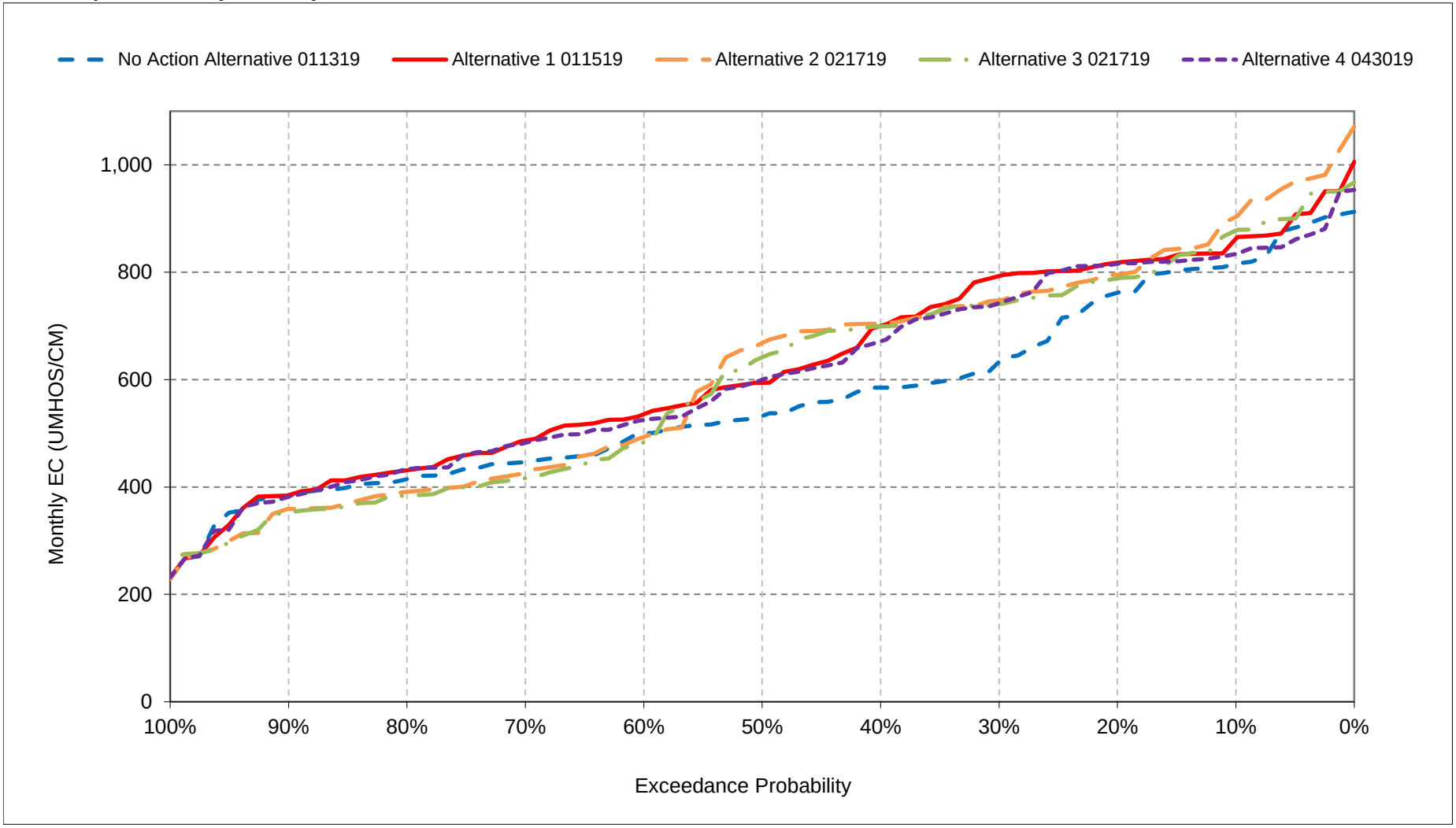
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

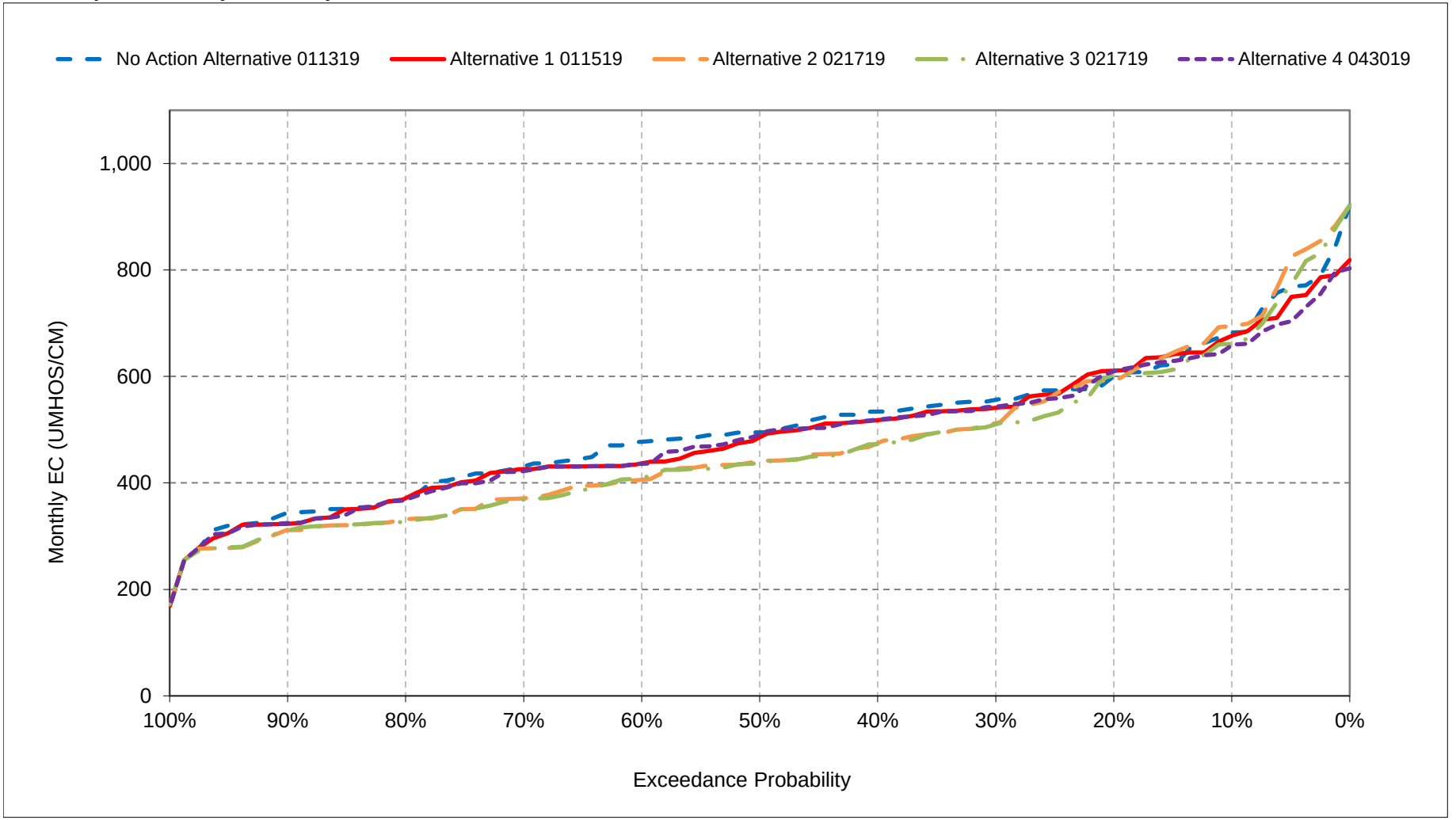
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-7. Banks Pumping Plant South
Delta Exports Salinity, January EC



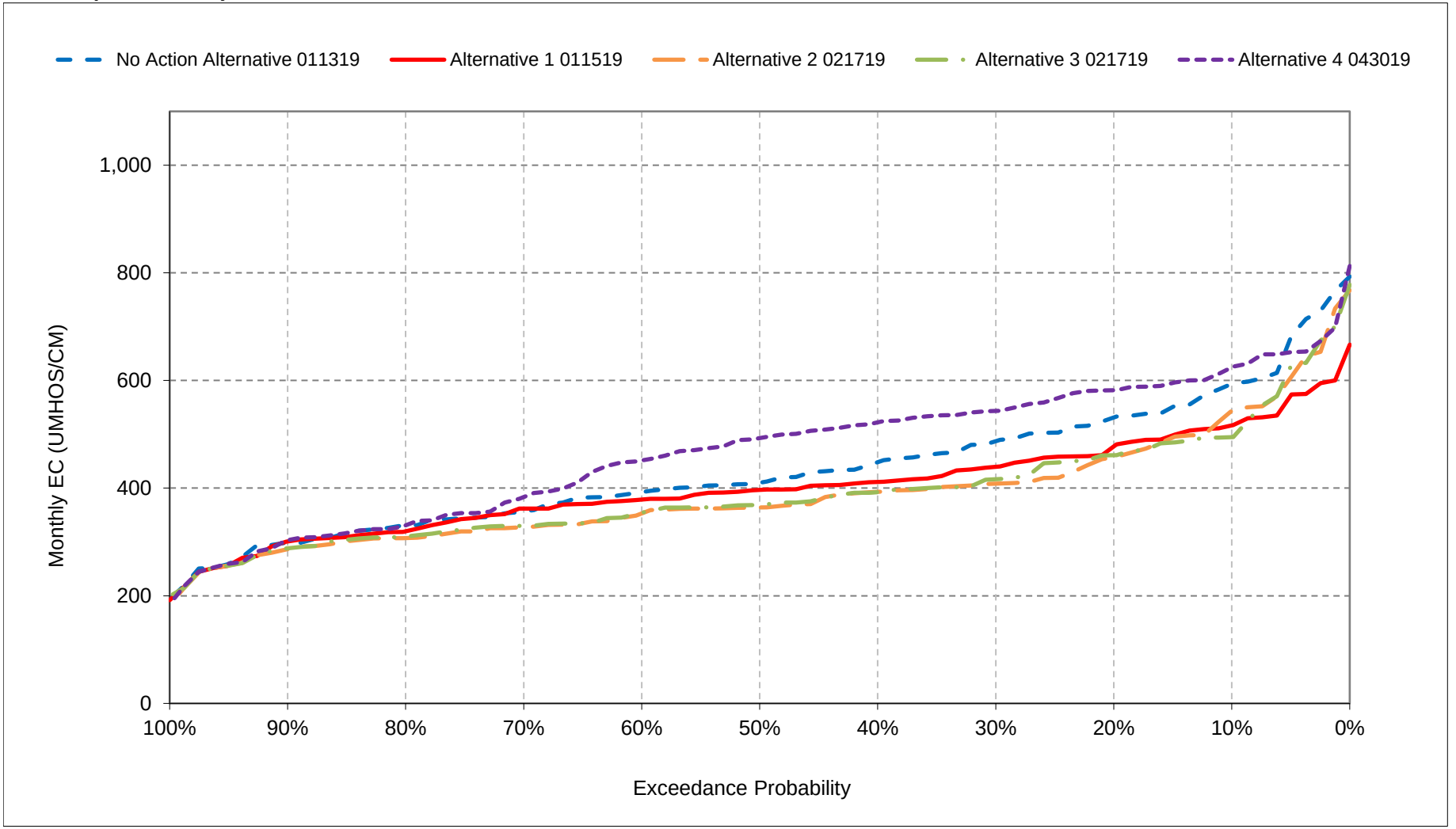
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-8. Banks Pumping Plant South
Delta Exports Salinity, February EC



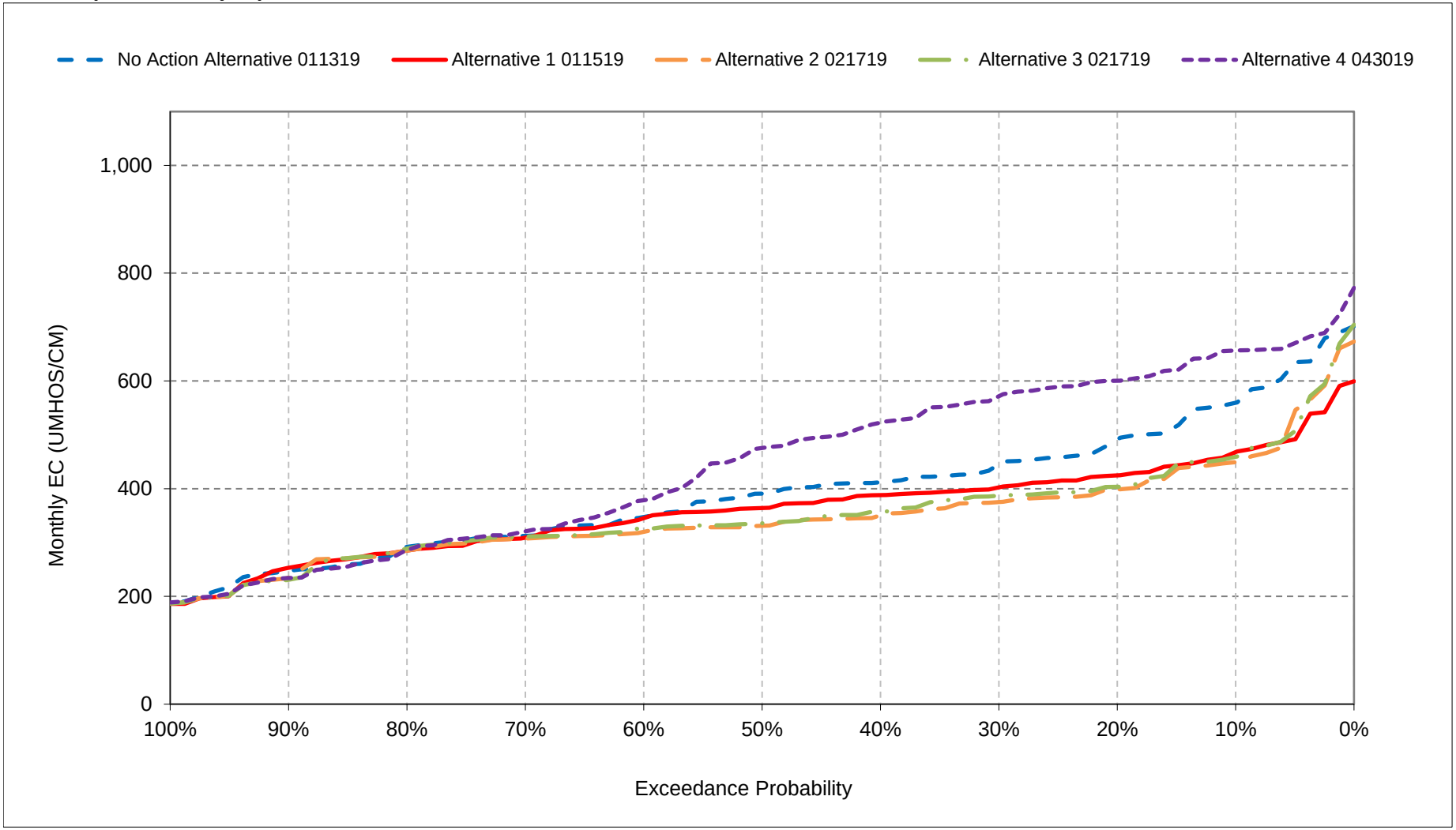
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-9. Banks Pumping Plant South
Delta Exports Salinity, March EC



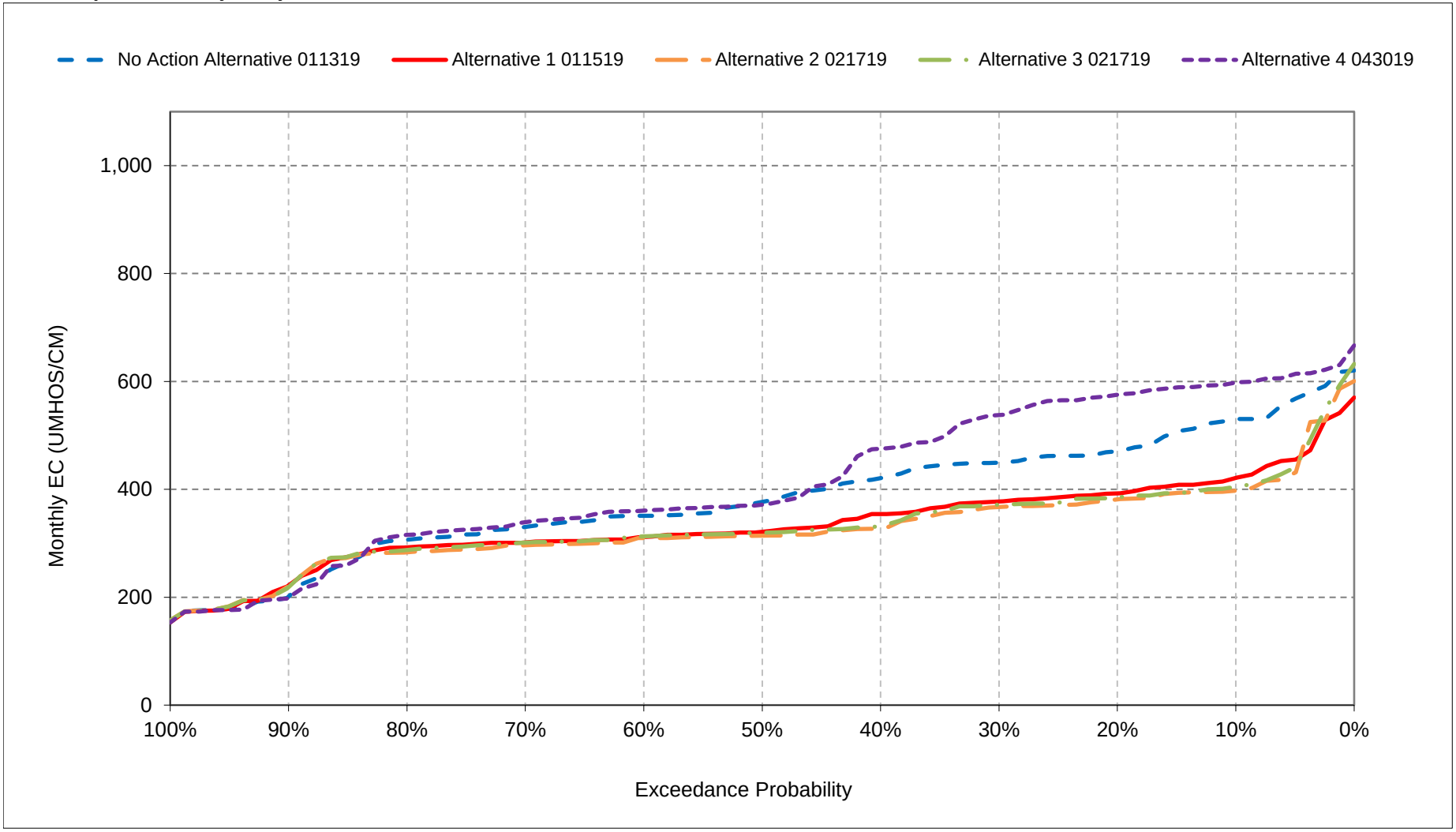
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-10. Banks Pumping Plant South
Delta Exports Salinity, April EC



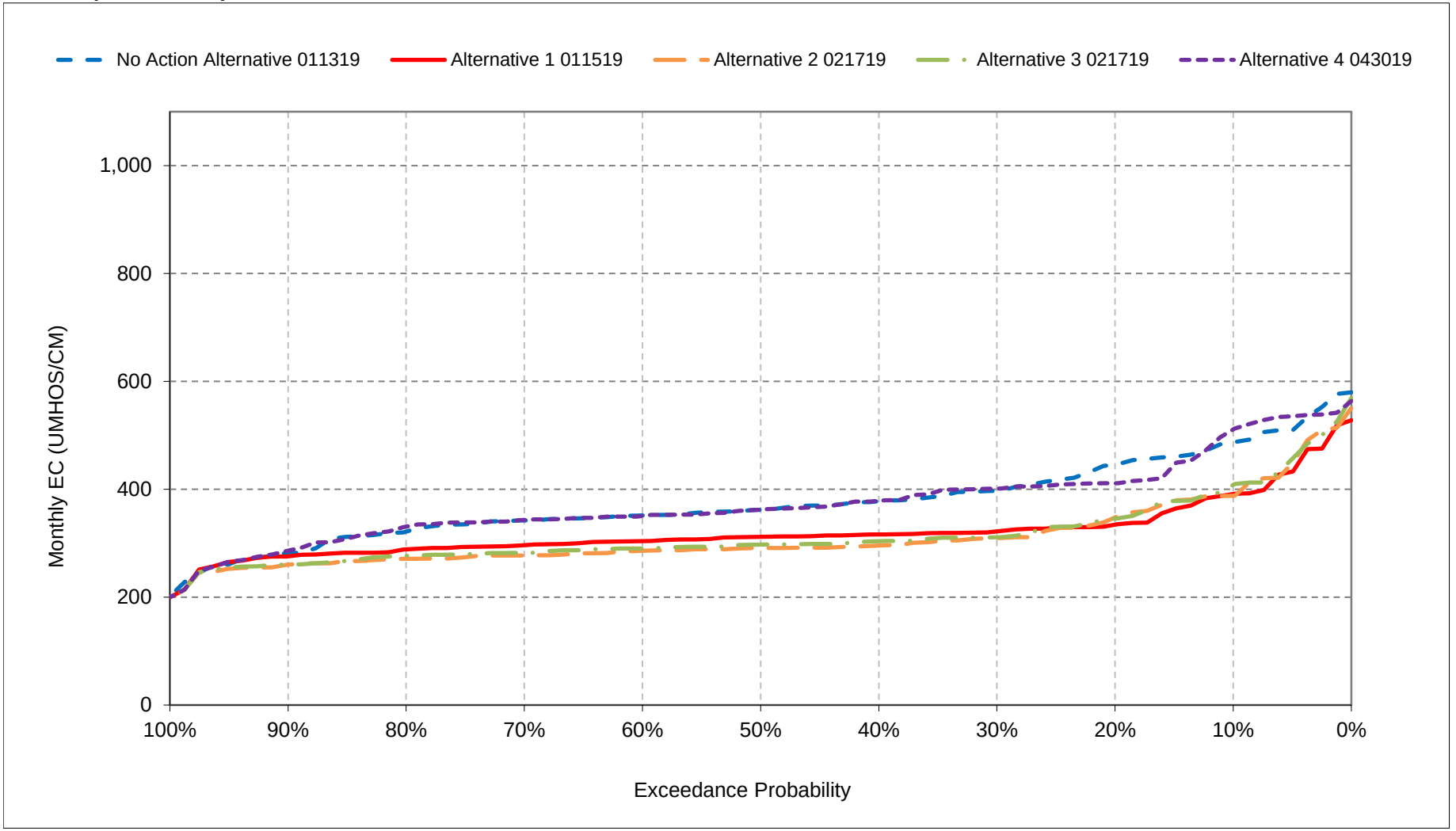
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-11. Banks Pumping Plant South
Delta Exports Salinity, May EC



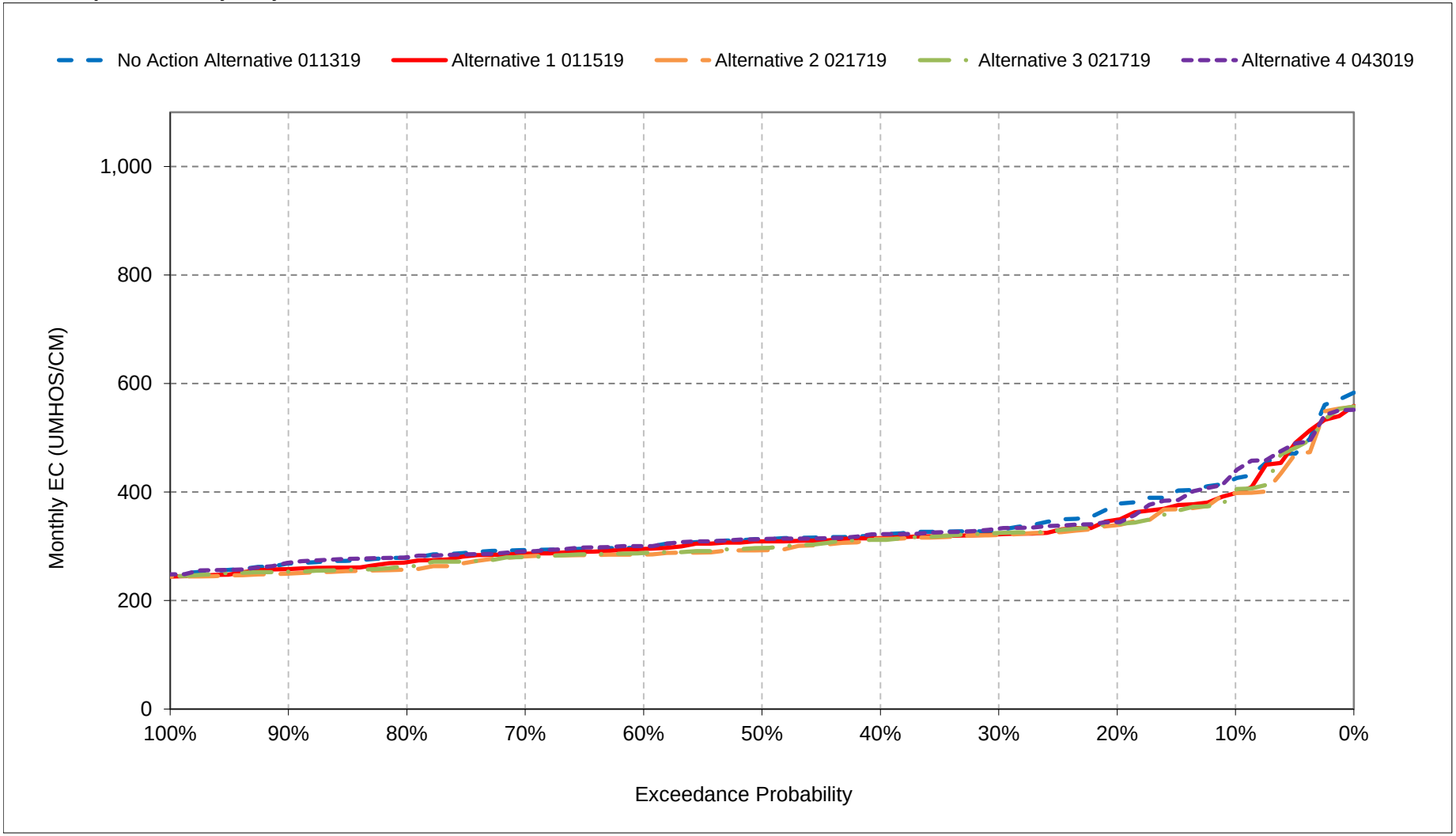
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-12. Banks Pumping Plant South
Delta Exports Salinity, June EC



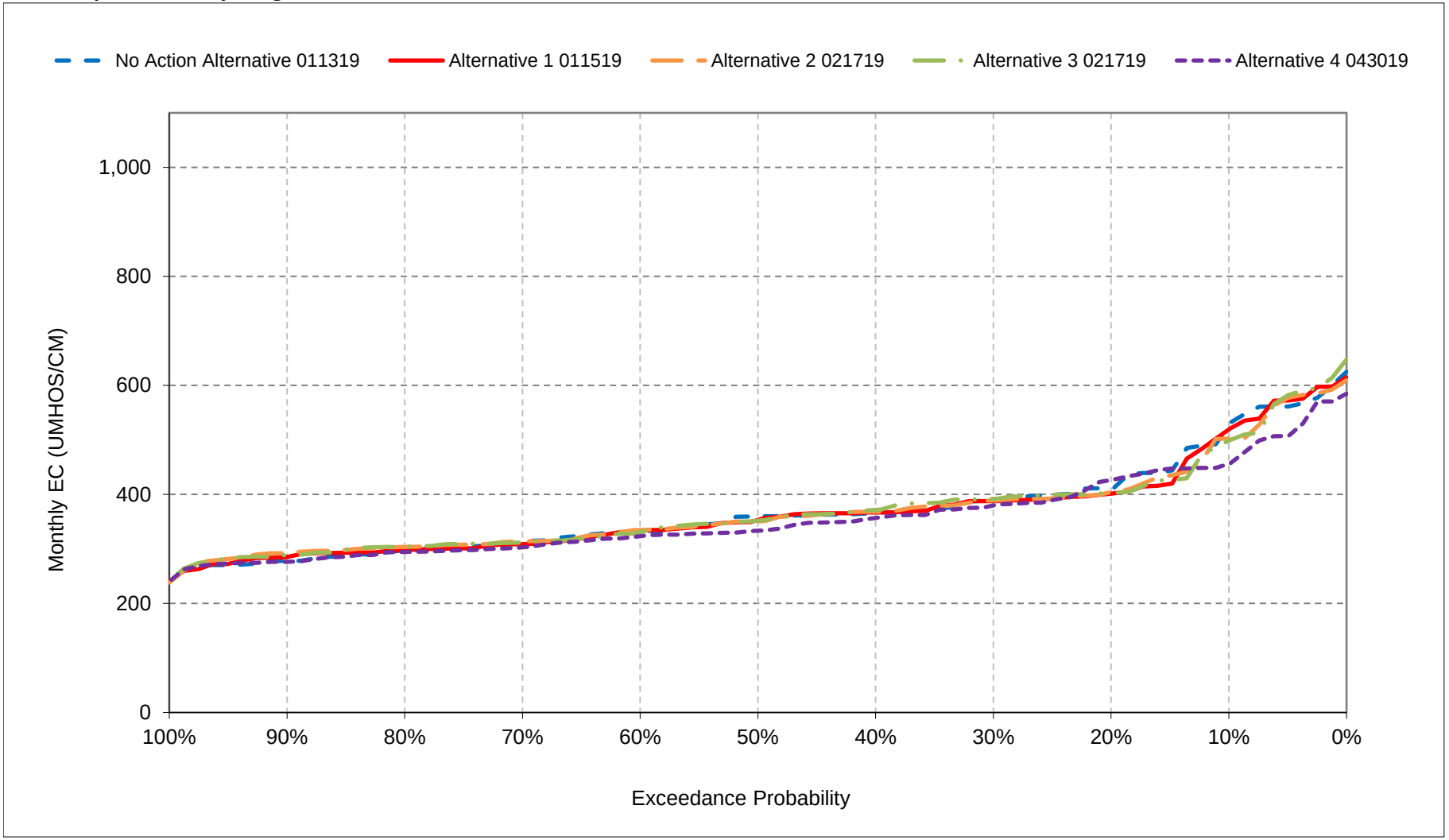
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-13. Banks Pumping Plant South
Delta Exports Salinity, July EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

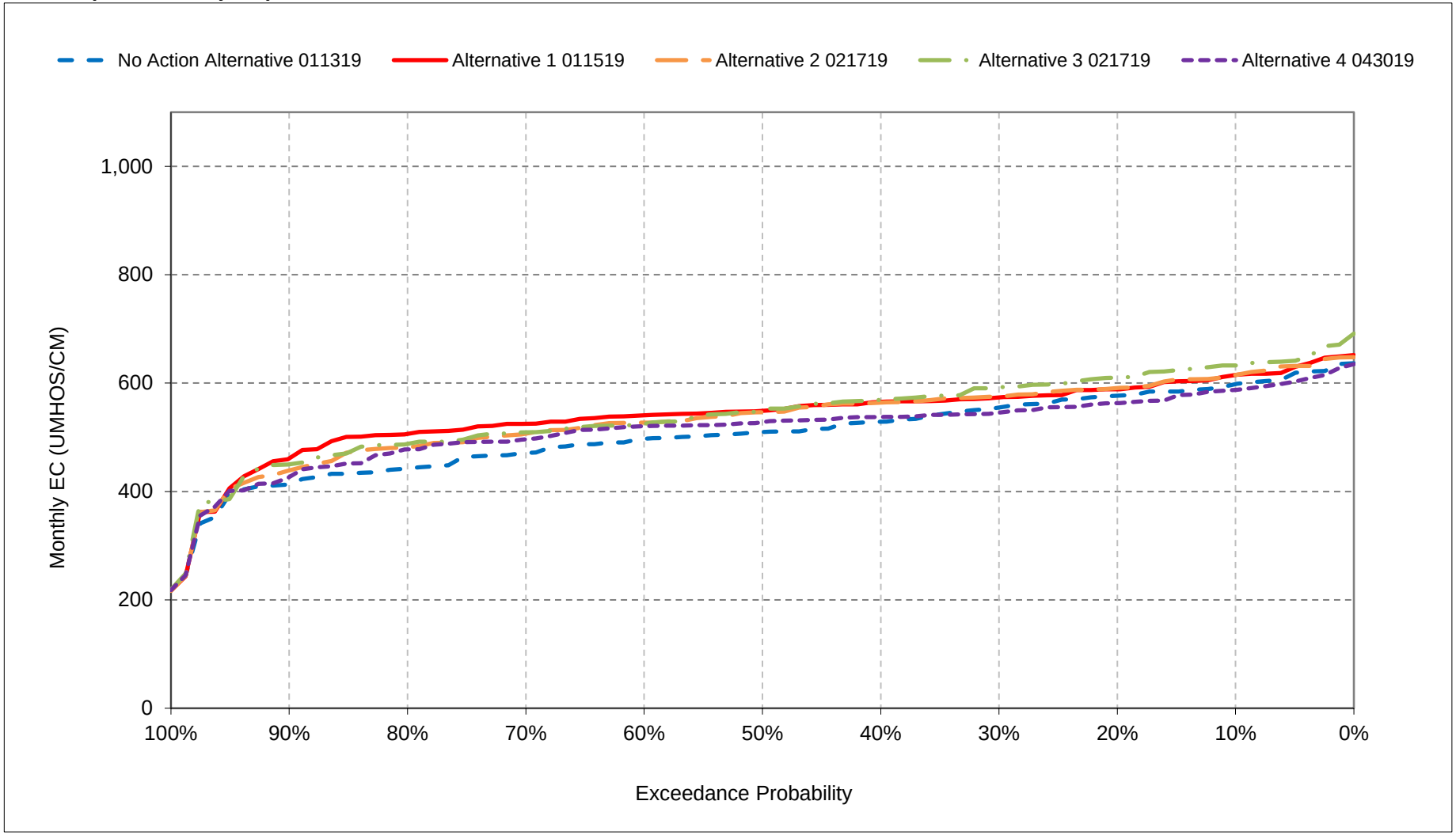
Figure 16-14. Banks Pumping Plant South Delta Exports Salinity, August EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

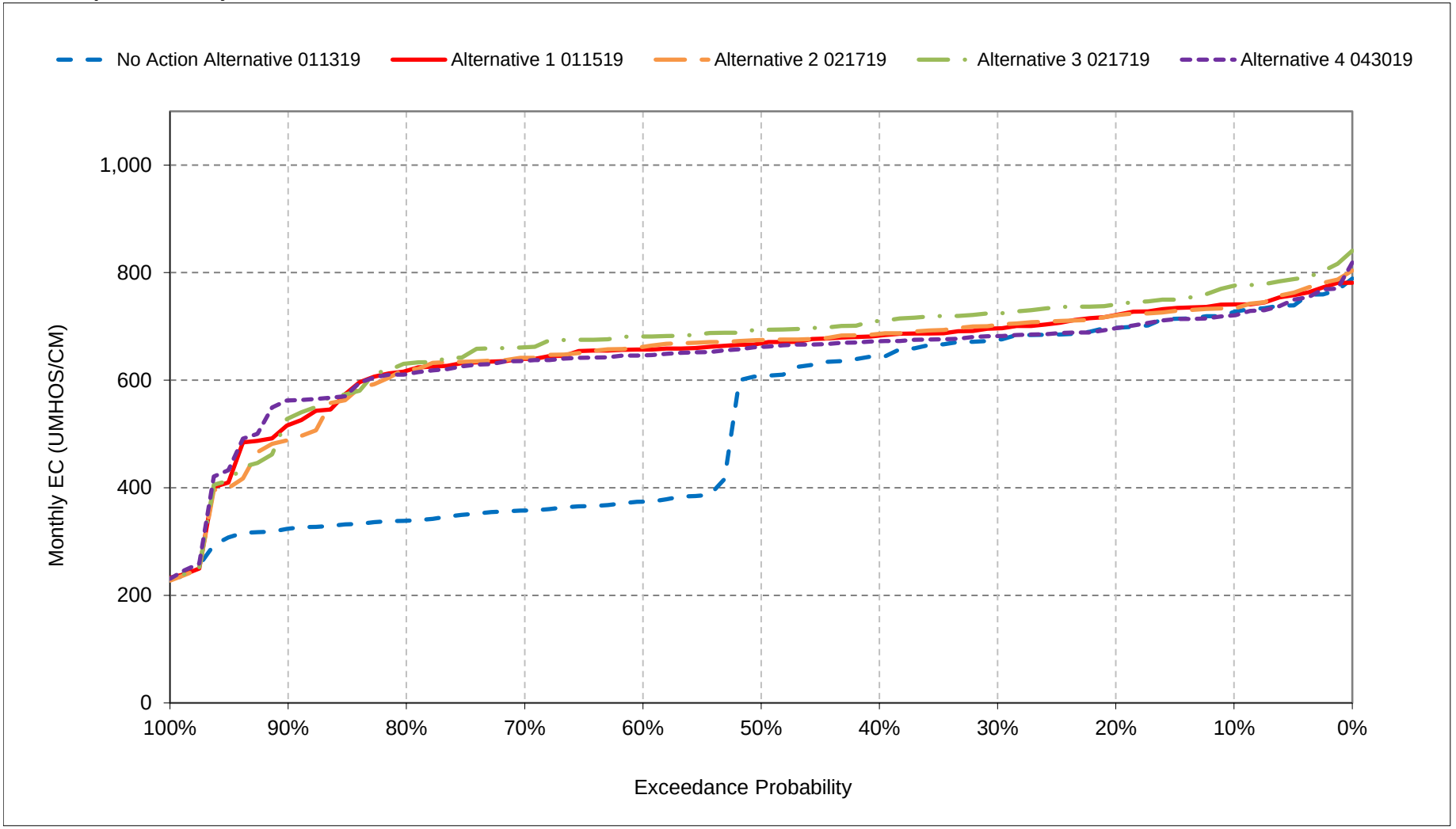
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-15. Banks Pumping Plant South
Delta Exports Salinity, September EC



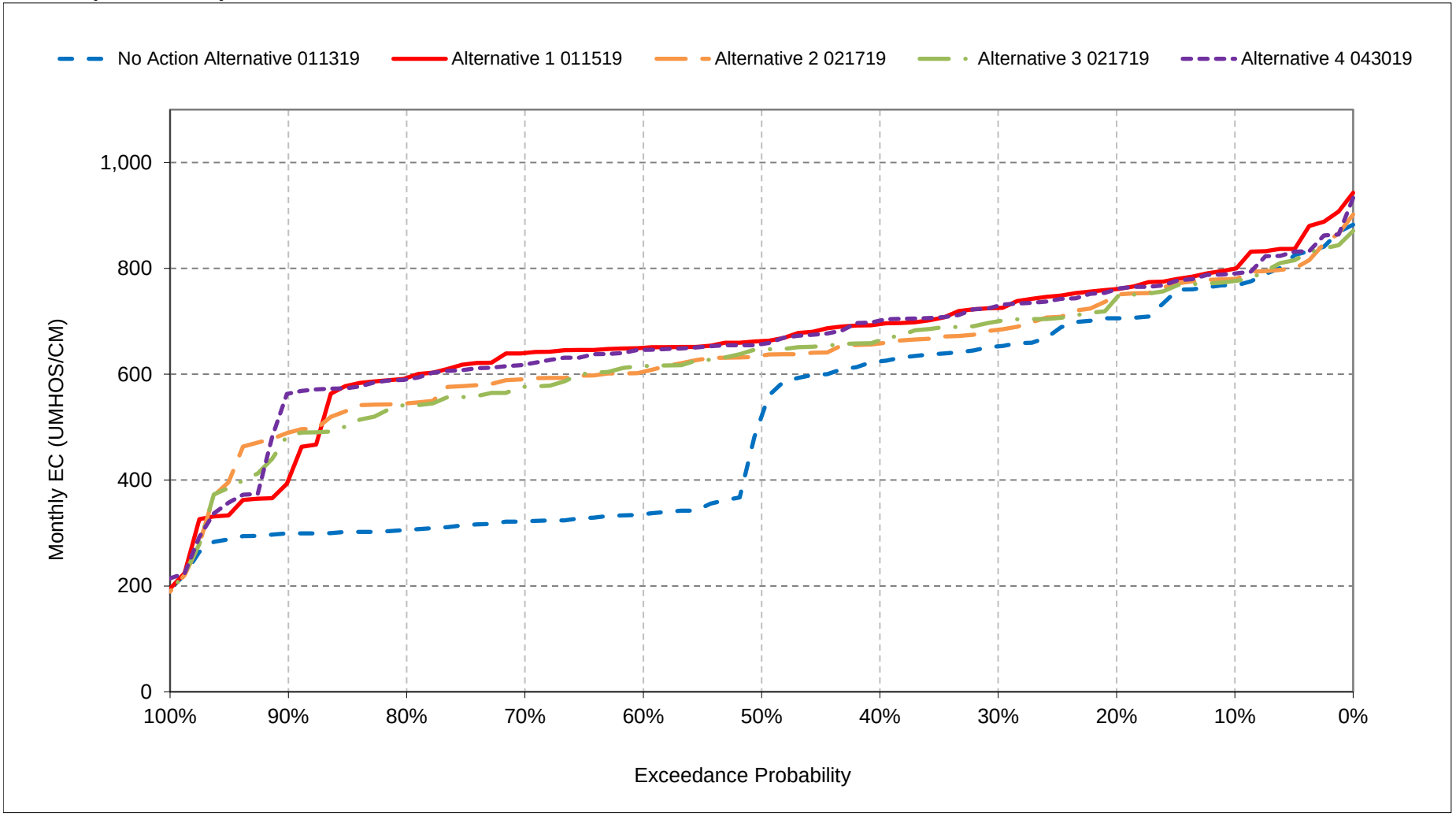
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-16. Banks Pumping Plant South
Delta Exports Salinity, October EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

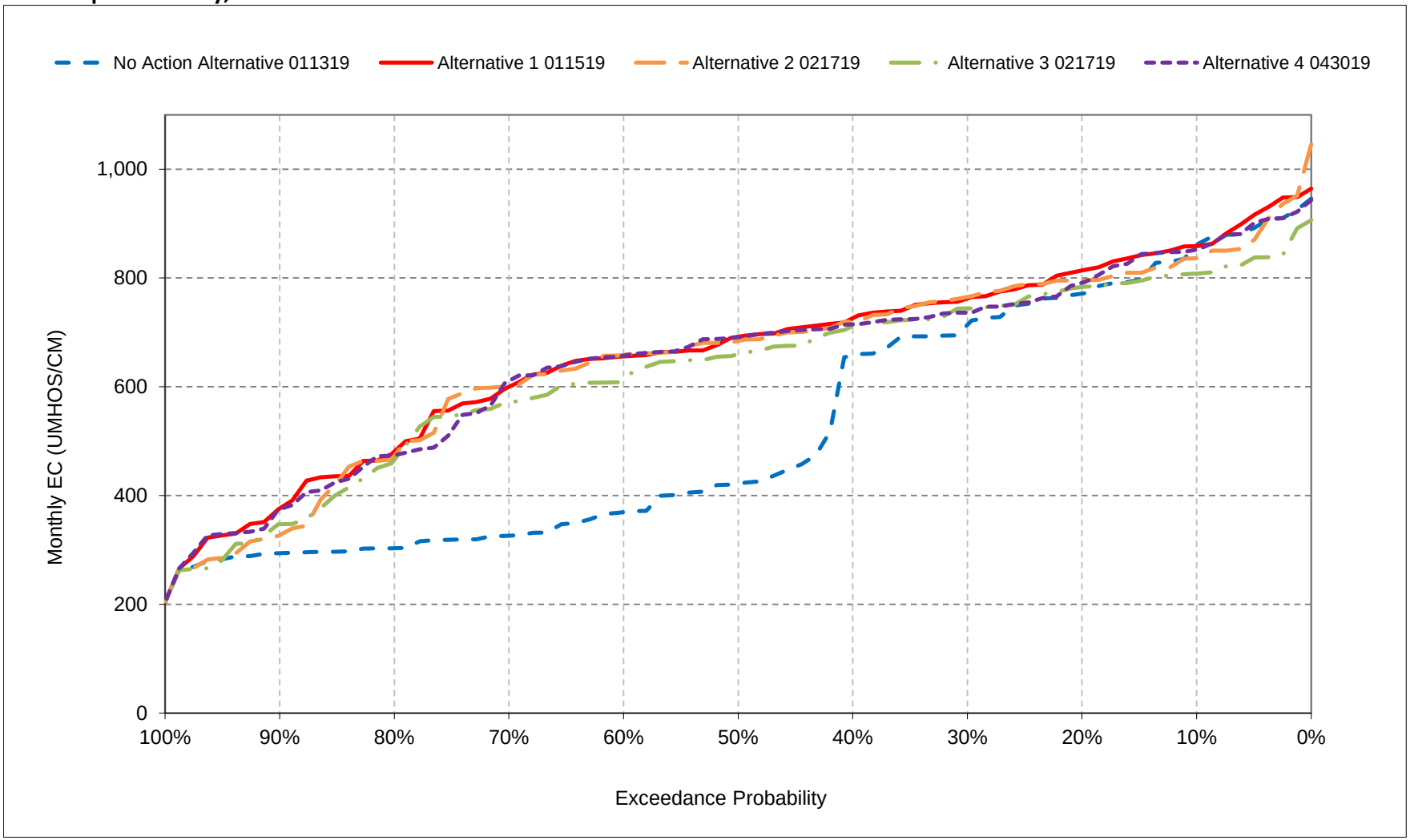
Figure 16-17. Banks Pumping Plant South Delta Exports Salinity, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 16-18. Banks Pumping Plant South
Delta Exports Salinity, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 17-1. Old River at Highway 4, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	849	895	933	864	606	509	509	471	407	411	589	710
20%	801	810	860	778	566	441	445	449	356	344	471	684
30%	776	736	795	634	507	411	422	430	332	329	437	653
40%	744	686	674	570	465	380	400	397	323	319	410	608
50%	689	557	396	537	455	360	361	383	313	291	390	572
60%	342	305	364	487	424	343	324	371	310	278	363	553
70%	322	285	311	426	386	332	309	356	303	270	332	524
80%	312	275	286	391	352	309	278	311	288	263	317	472
90%	299	265	277	348	320	277	226	196	266	256	294	441
Long Term												
Full Simulation Period[a]	564	543	550	566	466	383	364	371	326	319	405	574
Water Year Types[b]												
Wet (32%)	310	272	285	429	375	319	260	283	283	267	320	496
Above Normal (16%)	315	335	394	525	458	348	342	377	309	266	331	458
Below Normal (13%)	764	676	685	561	461	382	409	434	337	308	402	657
Dry (24%)	772	718	684	668	504	407	410	396	328	346	487	639
Critical (15%)	852	938	947	742	612	520	499	453	423	450	538	687

Alternative 1 011519

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	864	941	954	904	618	441	417	358	347	424	588	720
20%	834	885	907	838	535	410	382	335	304	342	464	700
30%	804	847	850	800	483	370	367	322	292	332	432	677
40%	786	802	806	646	462	353	349	308	283	302	419	663
50%	773	756	764	560	422	345	338	293	280	288	393	654
60%	758	734	710	503	391	338	324	283	273	276	365	640
70%	730	706	631	444	367	317	312	278	267	266	329	632
80%	700	645	500	397	356	304	296	272	258	259	317	598
90%	563	385	367	354	328	285	273	262	252	251	303	535
Long Term												
Full Simulation Period[a]	741	742	712	612	447	355	339	301	293	319	405	635
Water Year Types[b]												
Wet (32%)	615	663	622	442	372	324	285	252	264	265	318	556
Above Normal (16%)	760	714	717	597	443	345	330	289	273	260	337	656
Below Normal (13%)	775	704	691	635	452	358	356	311	280	315	426	690
Dry (24%)	805	760	691	751	486	359	356	316	284	342	470	657
Critical (15%)	859	950	958	742	548	427	421	385	402	463	541	697

Alternative 1 011519 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**15**	**45**	**21**	**39**	**12**	-68	-93	-113	-60	**12**	-1	**10**
20%	**33**	**75**	**46**	**61**	-31	-32	-63	-114	-52	-2	-8	**16**
30%	**28**	**111**	**55**	**166**	-23	-41	-55	-108	-40	**4**	-4	**23**
40%	**42**	**116**	**132**	**75**	-3	-28	-51	-89	-40	-17	**9**	**55**
50%	**84**	**199**	**368**	**23**	-33	-15	-23	-90	-34	-2	**3**	**82**
60%	**416**	**429**	**346**	**16**	-32	-5	**1**	-88	-36	-2	**2**	**87**
70%	**409**	**421**	**320**	**19**	-19	-15	**3**	-78	-36	-5	-2	**108**
80%	**388**	**369**	**214**	**6**	**4**	-5	**18**	-39	-30	-4	**0**	**126**
90%	**264**	**120**	**90**	**6**	**9**	**8**	**47**	**66**	-14	-5	**9**	**94**
Long Term												
Full Simulation Period[a]	**178**	**200**	**162**	**46**	-19	-27	-26	-70	-34	**0**	0	**61**
Water Year Types[b]												
Wet (32%)	**305**	**391**	**337**	**13**	-4	**5**	**25**	-31	-20	-2	-2	**59**
Above Normal (16%)	**445**	**379**	**322**	**73**	-15	-3	-12	-88	-37	-7	**6**	**198**
Below Normal (13%)	**11**	**29**	**6**	**75**	-10	-24	-53	-123	-57	**7**	**24**	**33**
Dry (24%)	**33**	**42**	**7**	**83**	-18	-48	-53	-80	-44	-4	-17	**19**
Critical (15%)	**7**	**12**	**11**	**1**	-64	-93	-78	-69	-21	**14**	**4**	**10**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 17-2. Old River at Highway 4, Monthly EC

No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	849	895	933	864	606	509	509	471	407	411	589	710
20%	801	810	860	778	566	441	445	449	356	344	471	684
30%	776	736	795	634	507	411	422	430	332	329	437	653
40%	744	686	674	570	465	380	400	397	323	319	410	608
50%	689	557	396	537	455	360	361	383	313	291	390	572
60%	342	305	364	487	424	343	324	371	310	278	363	553
70%	322	285	311	426	386	332	309	356	303	270	332	524
80%	312	275	286	391	352	309	278	311	288	263	317	472
90%	299	265	277	348	320	277	226	196	266	256	294	441
Long Term												
Full Simulation Period[a]	564	543	550	566	466	383	364	371	326	319	405	574
Water Year Types[b]												
Wet (32%)	310	272	285	429	375	319	260	283	283	267	320	496
Above Normal (16%)	315	335	394	525	458	348	342	377	309	266	331	458
Below Normal (13%)	764	676	685	561	461	382	409	434	337	308	402	657
Dry (24%)	772	718	684	668	504	407	410	396	328	346	487	639
Critical (15%)	852	938	947	742	612	520	499	453	423	450	538	687

Alternative 2 021719

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	856	916	983	980	692	484	399	361	358	388	569	723
20%	822	849	934	849	575	413	365	330	309	345	461	699
30%	806	779	879	803	477	367	330	319	281	313	433	682
40%	783	734	816	738	433	335	318	303	272	295	410	665
50%	768	711	772	685	399	326	305	284	263	285	391	644
60%	756	686	725	496	371	307	290	277	256	271	365	628
70%	737	657	660	400	348	284	280	265	251	264	338	605
80%	708	600	481	346	327	273	267	257	246	253	324	568
90%	563	488	335	307	290	260	254	247	236	247	305	506
Long Term												
Full Simulation Period[a]	738	706	725	624	448	348	315	294	283	311	406	625
Water Year Types[b]												
Wet (32%)	620	646	668	405	336	306	269	248	251	263	317	542
Above Normal (16%)	808	783	784	590	389	305	288	273	252	255	352	671
Below Normal (13%)	775	686	682	732	550	369	328	300	258	294	444	655
Dry (24%)	768	634	635	770	487	345	327	313	283	331	451	645
Critical (15%)	831	892	976	794	598	469	414	379	410	456	549	695

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**7**	**21**	**50**	**116**	**86**	-24	-110	-110	-49	-23	-20	**13**
20%	**21**	**39**	**73**	**71**	**10**	-29	-80	-119	-47	**1**	-11	**15**
30%	**30**	**43**	**84**	**169**	-29	-44	-92	-111	-51	-16	-4	**29**
40%	**39**	**47**	**142**	**167**	-32	-45	-82	-94	-51	-24	0	**57**
50%	**79**	**154**	**376**	**147**	-56	-33	-56	-99	-50	-5	**2**	**72**
60%	**415**	**381**	**361**	**9**	-53	-35	-33	-94	-54	-7	**2**	**75**
70%	**415**	**373**	**349**	-26	-38	-47	-29	-91	-53	-6	**7**	**81**
80%	**397**	**325**	**195**	-45	-25	-36	-11	-54	-42	-10	**7**	**96**
90%	**264**	**223**	**58**	-41	-30	-17	**28**	**51**	-30	-9	**10**	**65**
Long Term												
Full Simulation Period[a]	**174**	**164**	**175**	**58**	-18	-35	-49	-77	-43	-8	**1**	**50**
Water Year Types[b]												
Wet (32%)	**310**	**374**	**383**	-24	-39	-14	**9**	-35	-32	-4	-3	**45**
Above Normal (16%)	**493**	**449**	**389**	**66**	-69	-43	-54	-103	-57	-12	**21**	**213**
Below Normal (13%)	**11**	**10**	-3	**171**	**88**	-13	-81	-134	-79	-15	**42**	-2
Dry (24%)	-4	-84	-49	**102**	-17	-61	-83	-84	-45	-15	-36	**7**
Critical (15%)	-21	-46	**29**	**52**	-14	-51	-85	-74	-13	**7**	**11**	**8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 17-3. Old River at Highway 4, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	849	895	933	864	606	509	509	471	407	411	589	710
20%	801	810	860	778	566	441	445	449	356	344	471	684
30%	776	736	795	634	507	411	422	430	332	329	437	653
40%	744	686	674	570	465	380	400	397	323	319	410	608
50%	689	557	396	537	455	360	361	383	313	291	390	572
60%	342	305	364	487	424	343	324	371	310	278	363	553
70%	322	285	311	426	386	332	309	356	303	270	332	524
80%	312	275	286	391	352	309	278	311	288	263	317	472
90%	299	265	277	348	320	277	226	196	266	256	294	441
Long Term												
Full Simulation Period[a]	564	543	550	566	466	383	364	371	326	319	405	574
Water Year Types[b]												
Wet (32%)	310	272	285	429	375	319	260	283	283	267	320	496
Above Normal (16%)	315	335	394	525	458	348	342	377	309	266	331	458
Below Normal (13%)	764	676	685	561	461	382	409	434	337	308	402	657
Dry (24%)	772	718	684	668	504	407	410	396	328	346	487	639
Critical (15%)	852	938	947	742	612	520	499	453	423	450	538	687

Alternative 3 021719

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	865	886	922	917	625	502	404	359	361	388	561	747
20%	837	832	894	841	566	412	367	332	307	345	461	725
30%	815	779	844	774	476	363	337	321	283	312	441	695
40%	798	754	808	739	433	346	321	300	275	294	419	668
50%	779	705	740	660	400	330	308	286	269	287	389	652
60%	772	662	666	507	365	311	295	280	261	276	357	623
70%	758	621	586	377	349	291	284	272	255	263	335	602
80%	718	547	490	343	317	275	271	261	251	256	315	567
90%	590	478	338	308	291	263	261	248	238	248	304	520
Long Term												
Full Simulation Period[a]	751	687	691	606	440	352	320	297	286	313	406	633
Water Year Types[b]												
Wet (32%)	644	654	634	399	338	308	273	250	254	265	318	550
Above Normal (16%)	792	767	758	537	374	308	292	276	257	256	340	659
Below Normal (13%)	806	678	654	718	548	377	333	302	263	293	438	684
Dry (24%)	789	611	619	751	476	357	334	315	284	330	454	659
Critical (15%)	824	810	898	785	573	460	419	383	408	468	560	695

Alternative 3 021719 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**16**	-10	-11	**53**	**20**	-6	-105	-112	-46	-23	-27	**37**
20%	**36**	**22**	**33**	**63**	**0**	-29	-78	-118	-49	**1**	-10	**42**
30%	**39**	**43**	**49**	**140**	-31	-48	-85	-109	-49	-16	**4**	**42**
40%	**54**	**68**	**134**	**168**	-32	-35	-79	-97	-48	-25	**9**	**60**
50%	**90**	**148**	**344**	**123**	-55	-30	-53	-97	-44	-3	-1	**80**
60%	**430**	**356**	**301**	**20**	-59	-32	-29	-91	-49	-2	-6	**71**
70%	**436**	**336**	**275**	-49	-37	-41	-25	-84	-48	-7	**4**	**78**
80%	**407**	**272**	**203**	-48	-35	-35	-8	-51	-37	-8	-2	**95**
90%	**290**	**213**	**61**	-40	-29	-14	**35**	**52**	-28	-8	**9**	**79**
Long Term												
Full Simulation Period[a]	**187**	**145**	**141**	**40**	-26	-31	-44	-74	-41	-6	**1**	**59**
Water Year Types[b]												
Wet (32%)	**334**	**381**	**348**	-30	-38	-11	**13**	-33	-29	-2	-2	**53**
Above Normal (16%)	**477**	**433**	**364**	**12**	-84	-40	-50	-100	-52	-10	**9**	**201**
Below Normal (13%)	**43**	**2**	-31	**158**	**87**	-4	-76	-132	-74	-15	**35**	**28**
Dry (24%)	**17**	-107	-65	**83**	-27	-50	-75	-81	-44	-17	-33	**20**
Critical (15%)	-28	-128	-50	**44**	-39	-60	-80	-70	-16	**18**	**22**	**8**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 17-4. Old River at Highway 4, Monthly EC

No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	849	895	933	864	606	509	509	471	407	411	589	710
20%	801	810	860	778	566	441	445	449	356	344	471	684
30%	776	736	795	634	507	411	422	430	332	329	437	653
40%	744	686	674	570	465	380	400	397	323	319	410	608
50%	689	557	396	537	455	360	361	383	313	291	390	572
60%	342	305	364	487	424	343	324	371	310	278	363	553
70%	322	285	311	426	386	332	309	356	303	270	332	524
80%	312	275	286	391	352	309	278	311	288	263	317	472
90%	299	265	277	348	320	277	226	196	266	256	294	441
Long Term												
Full Simulation Period[a]	564	543	550	566	466	383	364	371	326	319	405	574
Water Year Types[b]												
Wet (32%)	310	272	285	429	375	319	260	283	283	267	320	496
Above Normal (16%)	315	335	394	525	458	348	342	377	309	266	331	458
Below Normal (13%)	764	676	685	561	461	382	409	434	337	308	402	657
Dry (24%)	772	718	684	668	504	407	410	396	328	346	487	639
Critical (15%)	852	938	947	742	612	520	499	453	423	450	538	687

Alternative 4 043019

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	866	929	946	896	595	626	619	533	372	373	528	699
20%	810	896	881	829	519	596	574	507	338	350	445	665
30%	788	827	843	753	475	555	557	491	324	328	416	648
40%	777	794	807	638	459	530	531	475	316	320	405	636
50%	759	755	751	547	423	510	509	452	311	291	360	630
60%	750	709	694	497	384	483	467	430	304	278	337	618
70%	735	694	628	439	358	445	412	403	299	272	324	604
80%	695	643	442	391	349	408	383	372	292	262	300	563
90%	596	587	350	352	323	335	288	288	273	255	290	494
Long Term												
Full Simulation Period[a]	738	740	699	598	440	500	474	429	319	318	387	607
Water Year Types[b]												
Wet (32%)	640	689	613	441	371	406	349	331	284	269	313	553
Above Normal (16%)	763	720	702	575	435	516	478	430	307	266	320	631
Below Normal (13%)	724	657	655	594	433	539	542	495	311	314	376	571
Dry (24%)	791	746	682	742	478	550	548	488	322	341	454	638
Critical (15%)	848	938	947	726	539	567	559	483	412	444	522	680

Alternative 4 043019 minus No Action Alternative 011319

	Monthly EC (UMHOS/CM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**18**	**34**	**13**	**31**	-10	**117**	**110**	**62**	-35	-38	-60	-11
20%	**9**	**85**	**21**	**51**	-47	**155**	**129**	**57**	-18	**6**	-27	-18
30%	**12**	**91**	**48**	**119**	-32	**144**	**135**	**61**	-8	0	-20	-6
40%	**33**	**107**	**133**	**67**	-6	**149**	**131**	**78**	-7	**1**	-5	**28**
50%	**70**	**198**	**355**	**10**	-31	**150**	**148**	**69**	-2	0	-29	**58**
60%	**409**	**403**	**330**	**10**	-39	**140**	**144**	**59**	-5	**0**	-26	**65**
70%	**414**	**409**	**317**	**13**	-28	**113**	**103**	**47**	-4	**1**	-8	**81**
80%	**383**	**368**	**156**	**0**	-3	**99**	**105**	**61**	**4**	-1	-17	**91**
90%	**296**	**322**	**73**	**4**	**4**	**58**	**62**	**92**	**7**	-1	-4	**53**
Long Term												
Full Simulation Period[a]	**174**	**198**	**148**	**32**	-26	**117**	**110**	**59**	-7	-1	-18	**33**
Water Year Types[b]												
Wet (32%)	**330**	**417**	**328**	**12**	-4	**87**	**89**	**48**	**1**	**1**	-7	**56**
Above Normal (16%)	**448**	**385**	**307**	**51**	-23	**167**	**136**	**53**	-2	0	-11	**173**
Below Normal (13%)	-40	-18	-30	**34**	-28	**157**	**133**	**61**	-26	**6**	-27	-86
Dry (24%)	**19**	**28**	-2	**74**	-25	**143**	**138**	**92**	-7	-5	-33	0
Critical (15%)	-5	**0**	-1	-16	-73	**47**	**60**	**30**	-11	-6	-15	-7

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

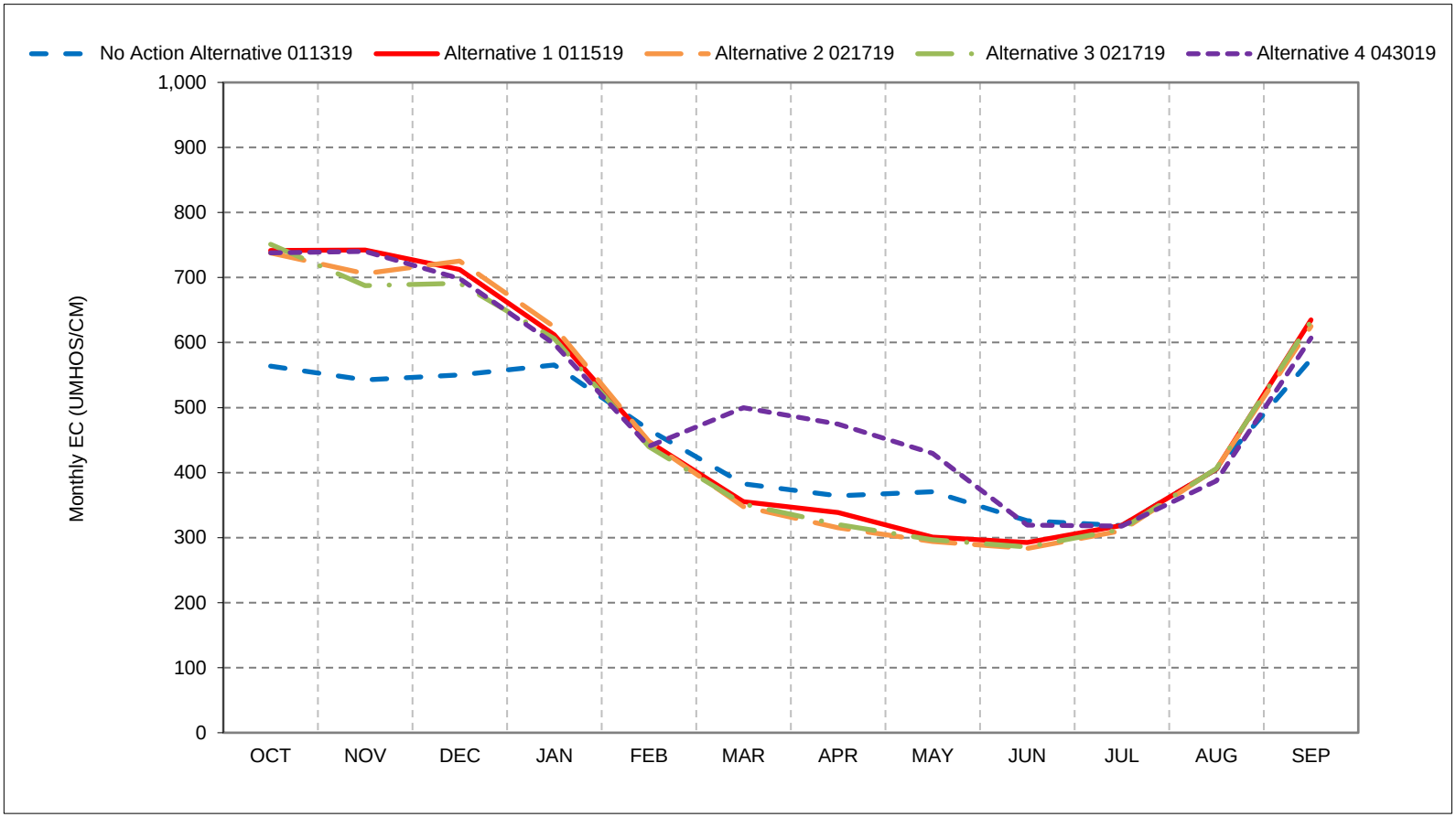
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

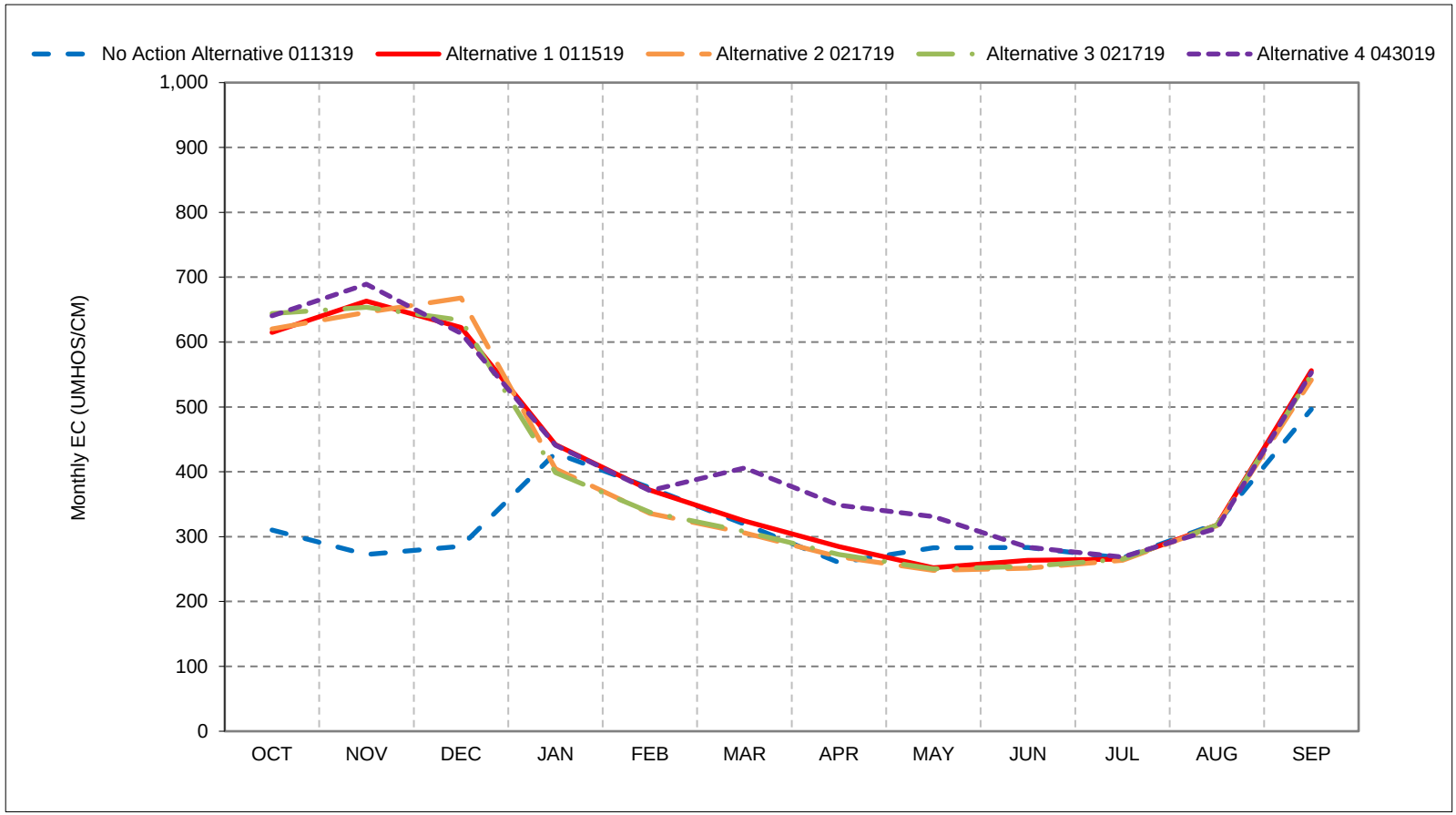
f These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-1. Old River at Highway 4, Long-Term Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-2. Old River at Highway 4, Wet Year Average EC



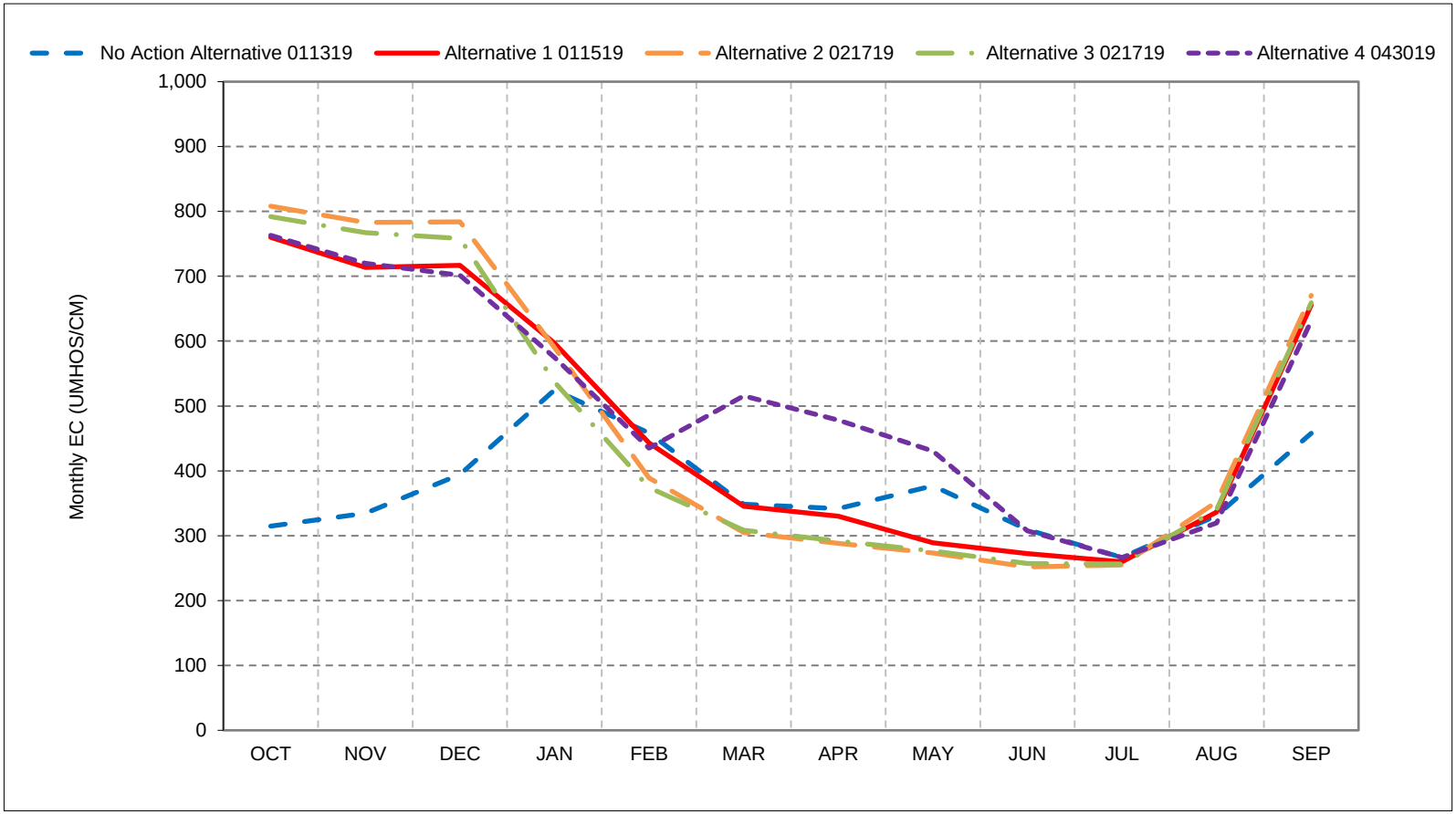
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-3. Old River at Highway 4, Above Normal Year Average EC



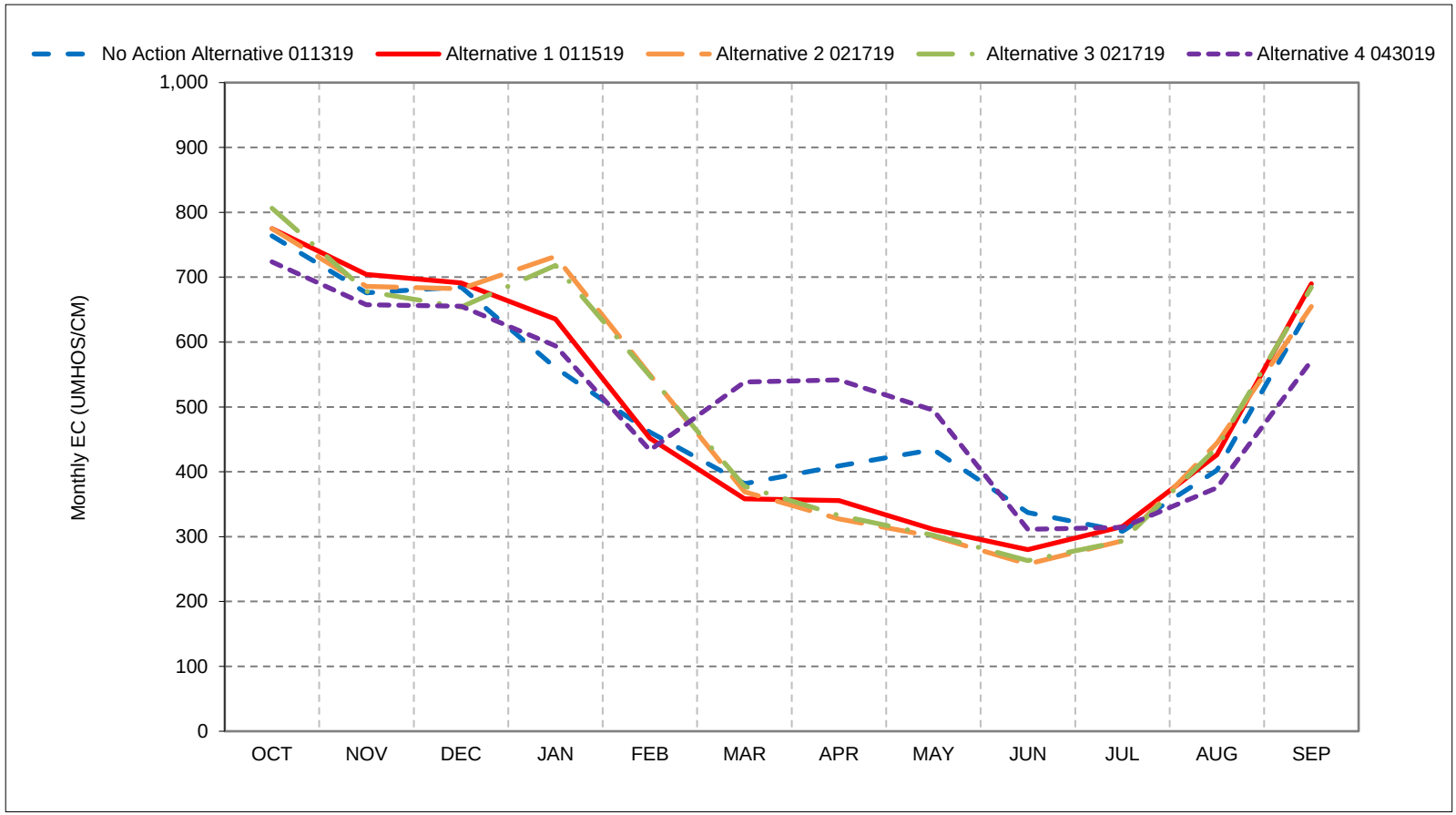
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-4. Old River at Highway 4, Below Normal Year Average EC



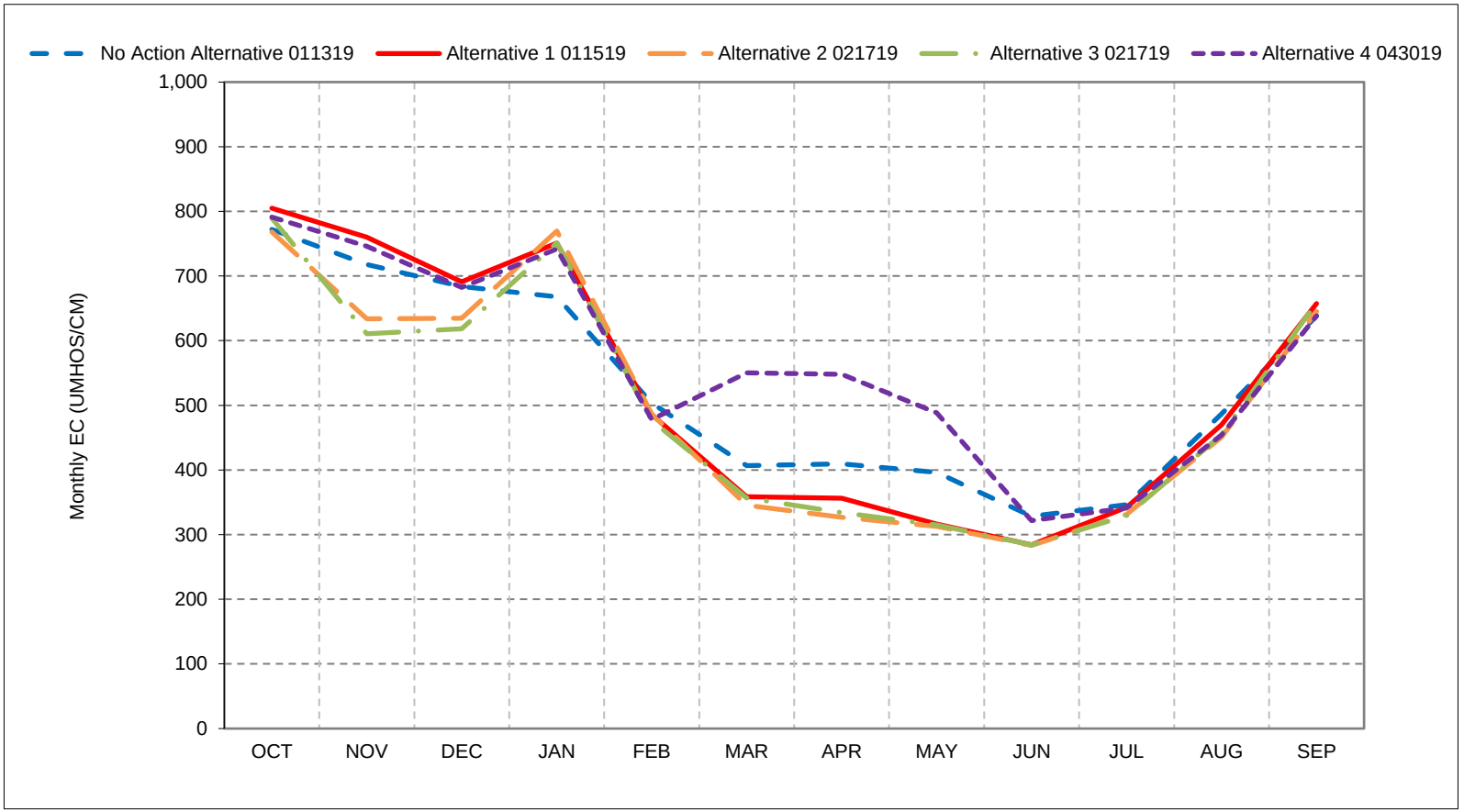
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

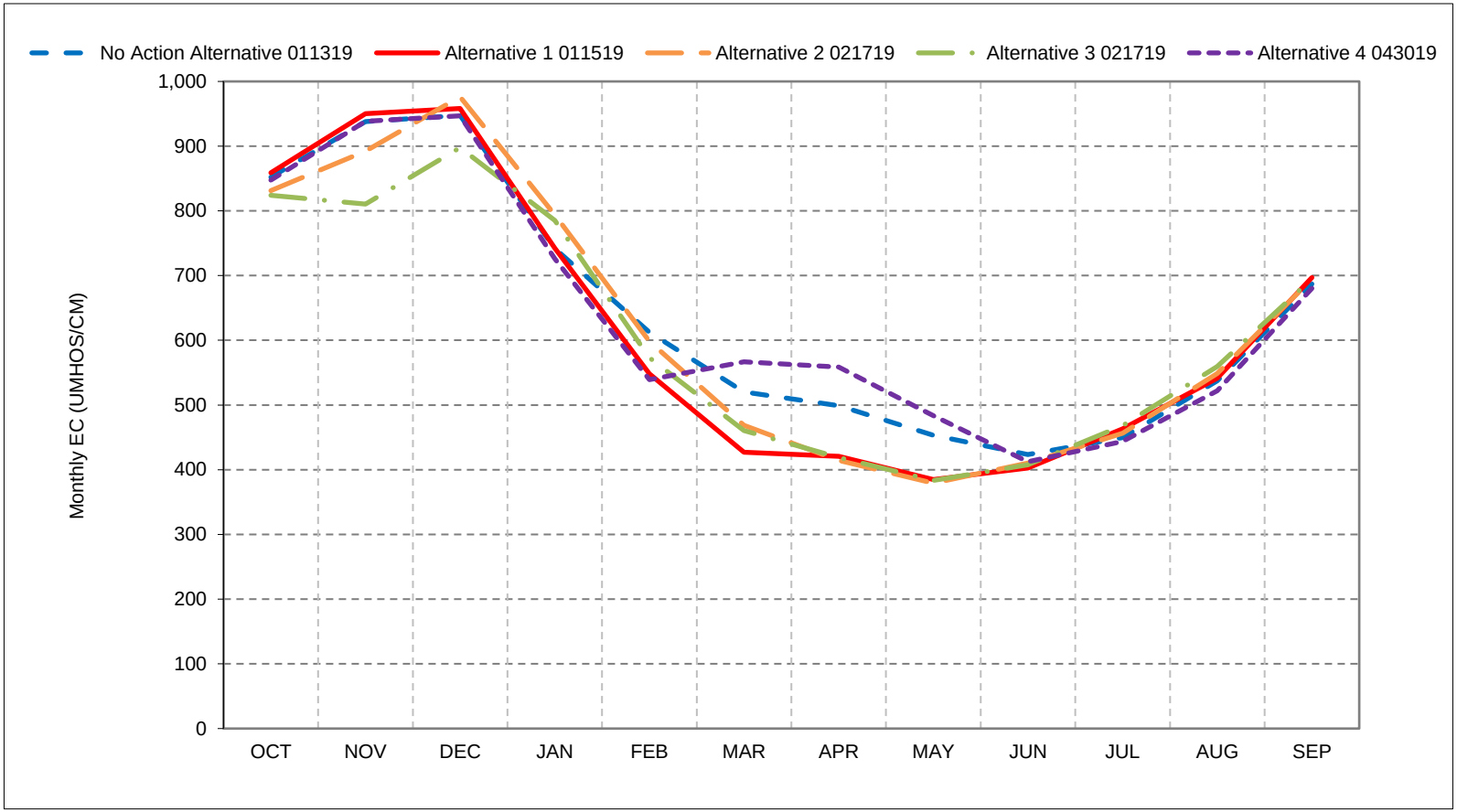
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-5. Old River at Highway 4, Dry Year Average EC



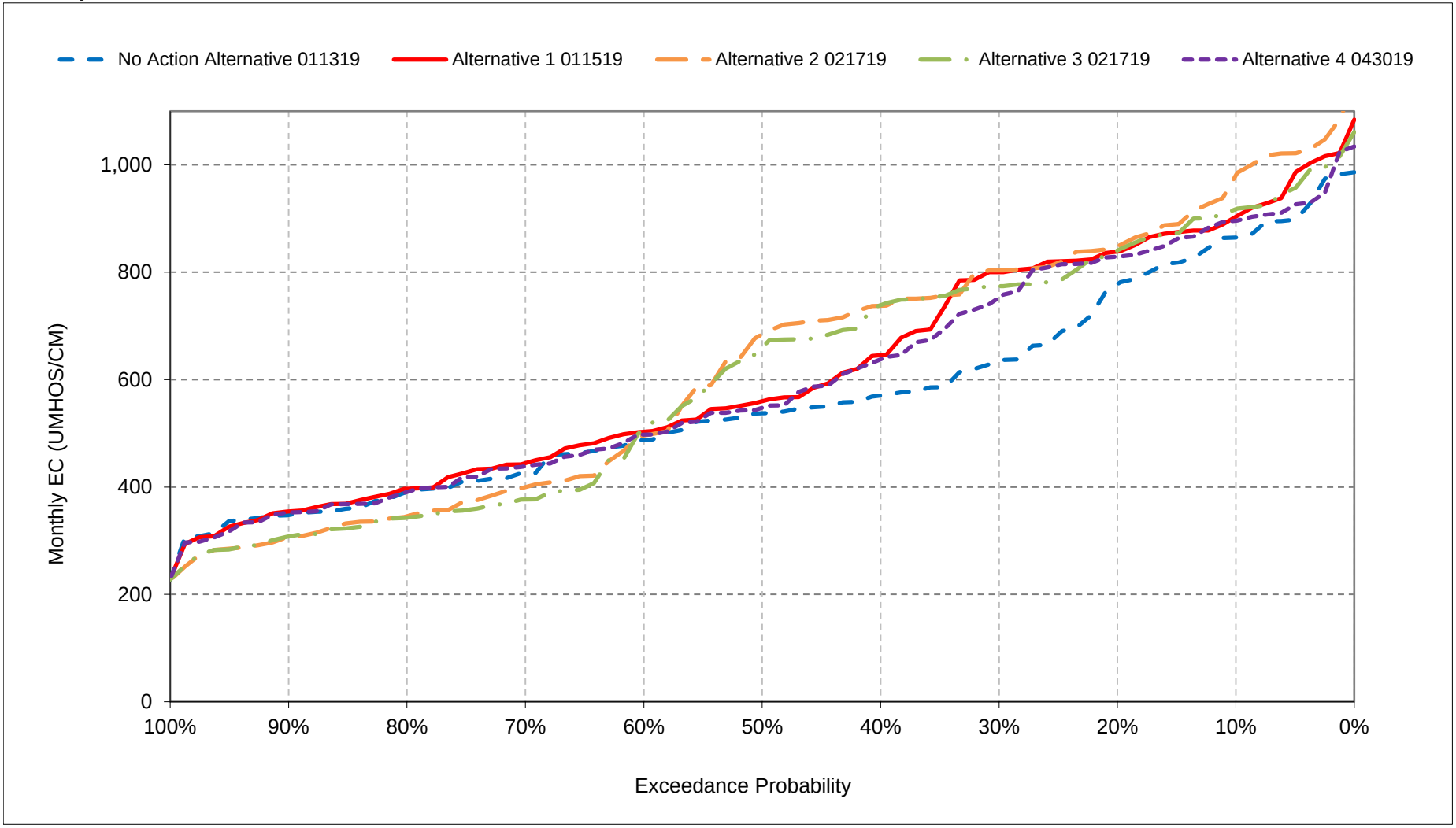
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-6. Old River at Highway 4, Critical Year Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

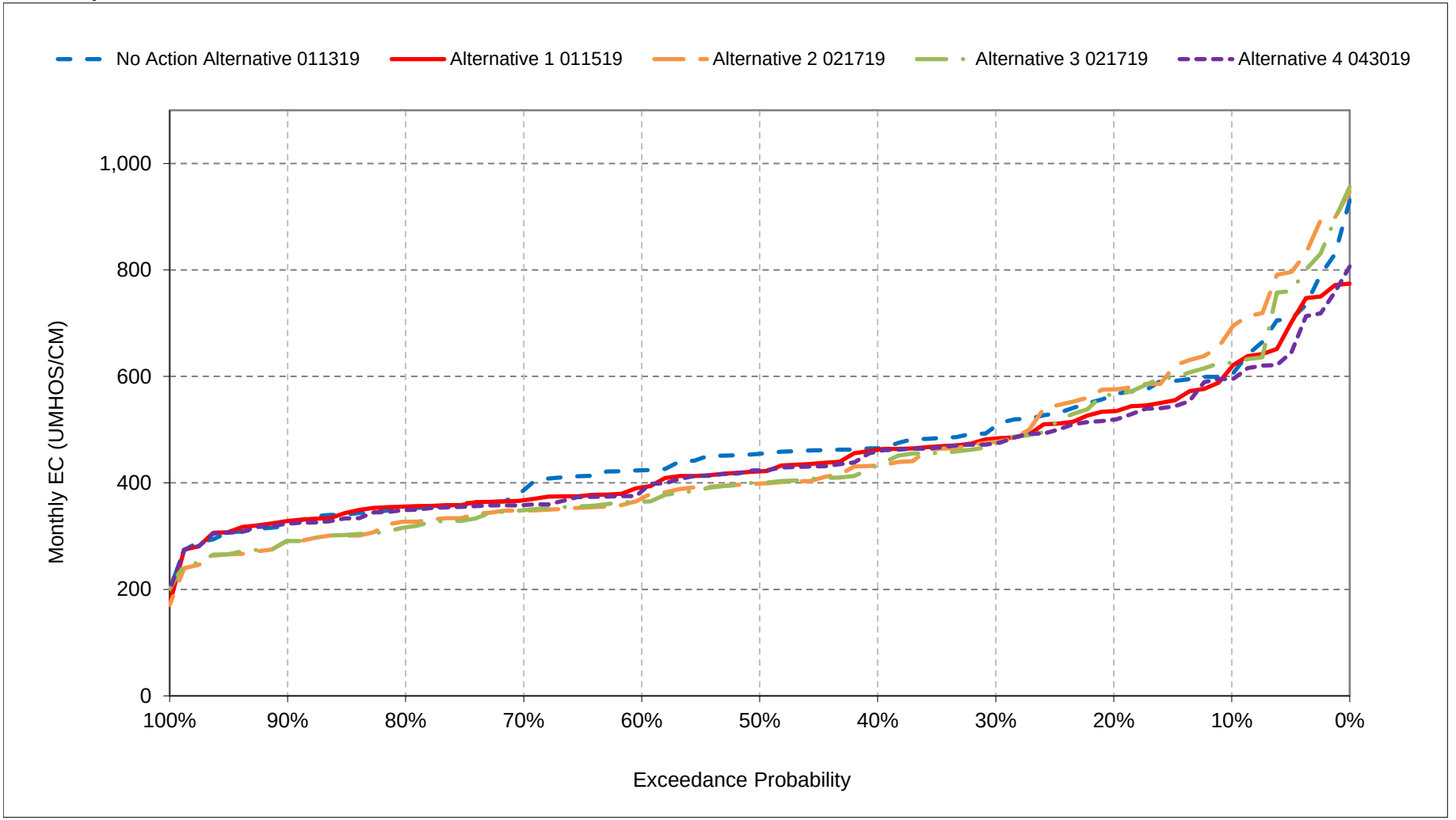
Figure 17-7. Old River at Highway 4, January EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

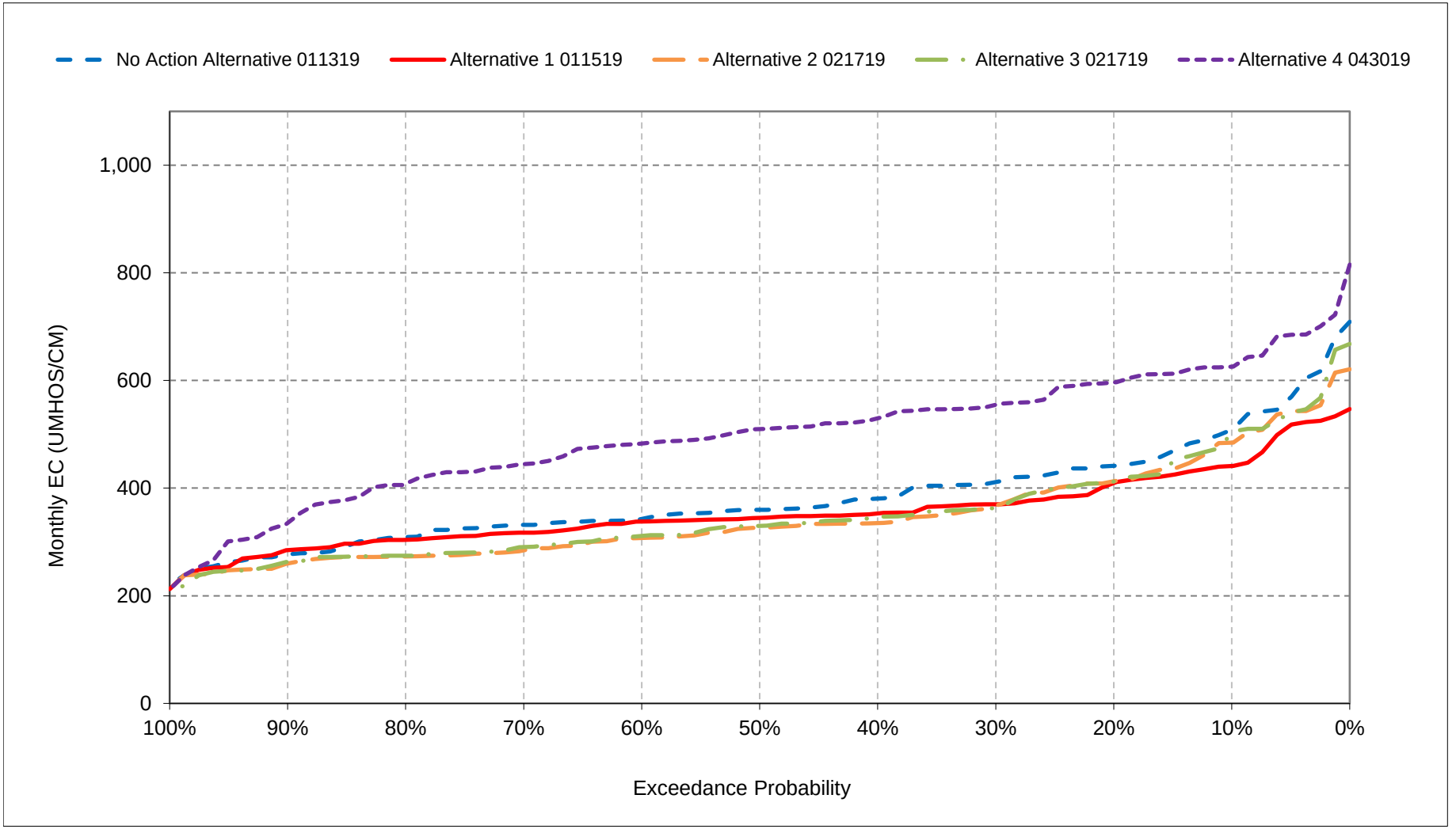
Figure 17-8. Old River at Highway 4, February EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

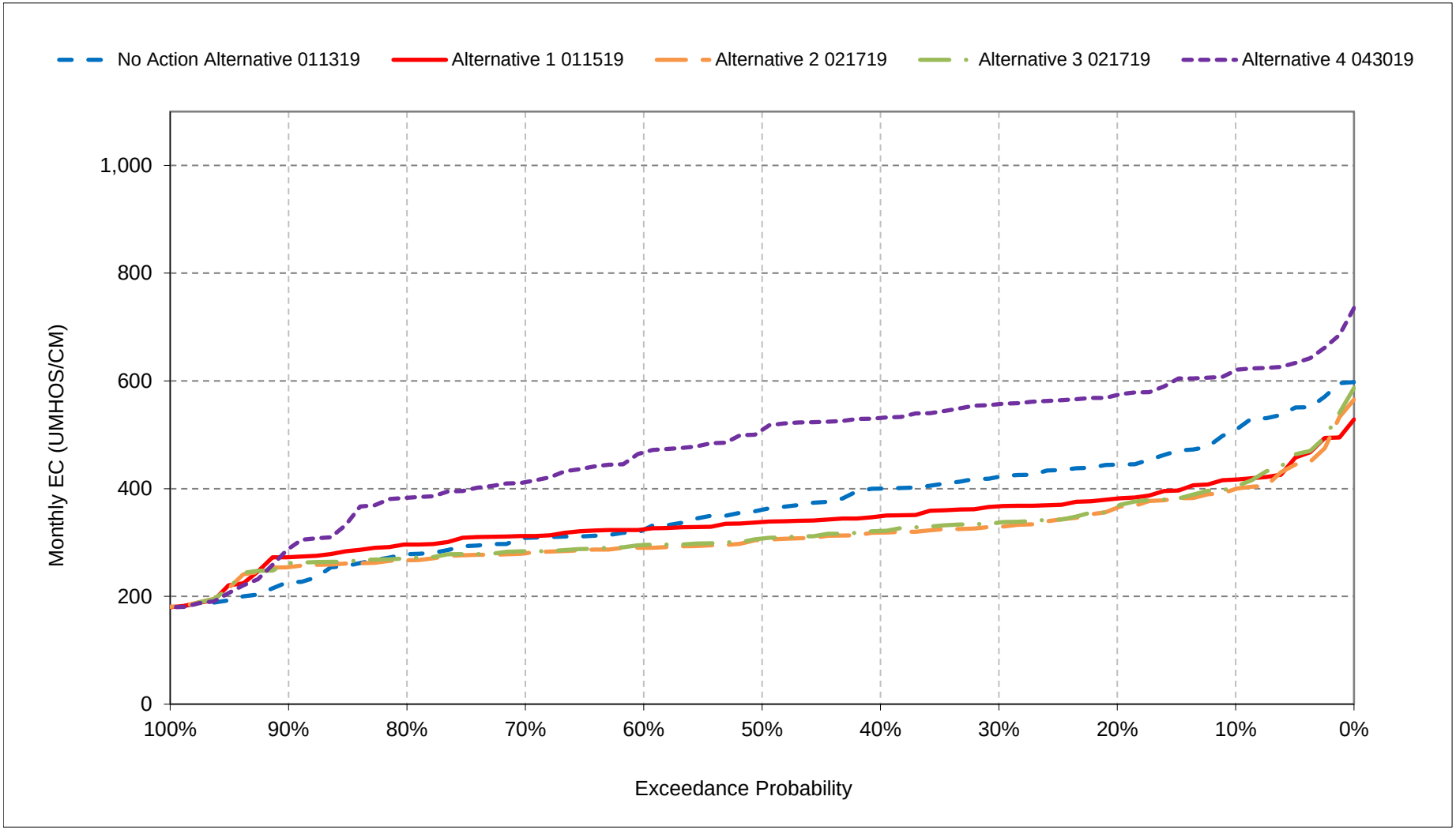
Figure 17-9. Old River at Highway 4, March EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

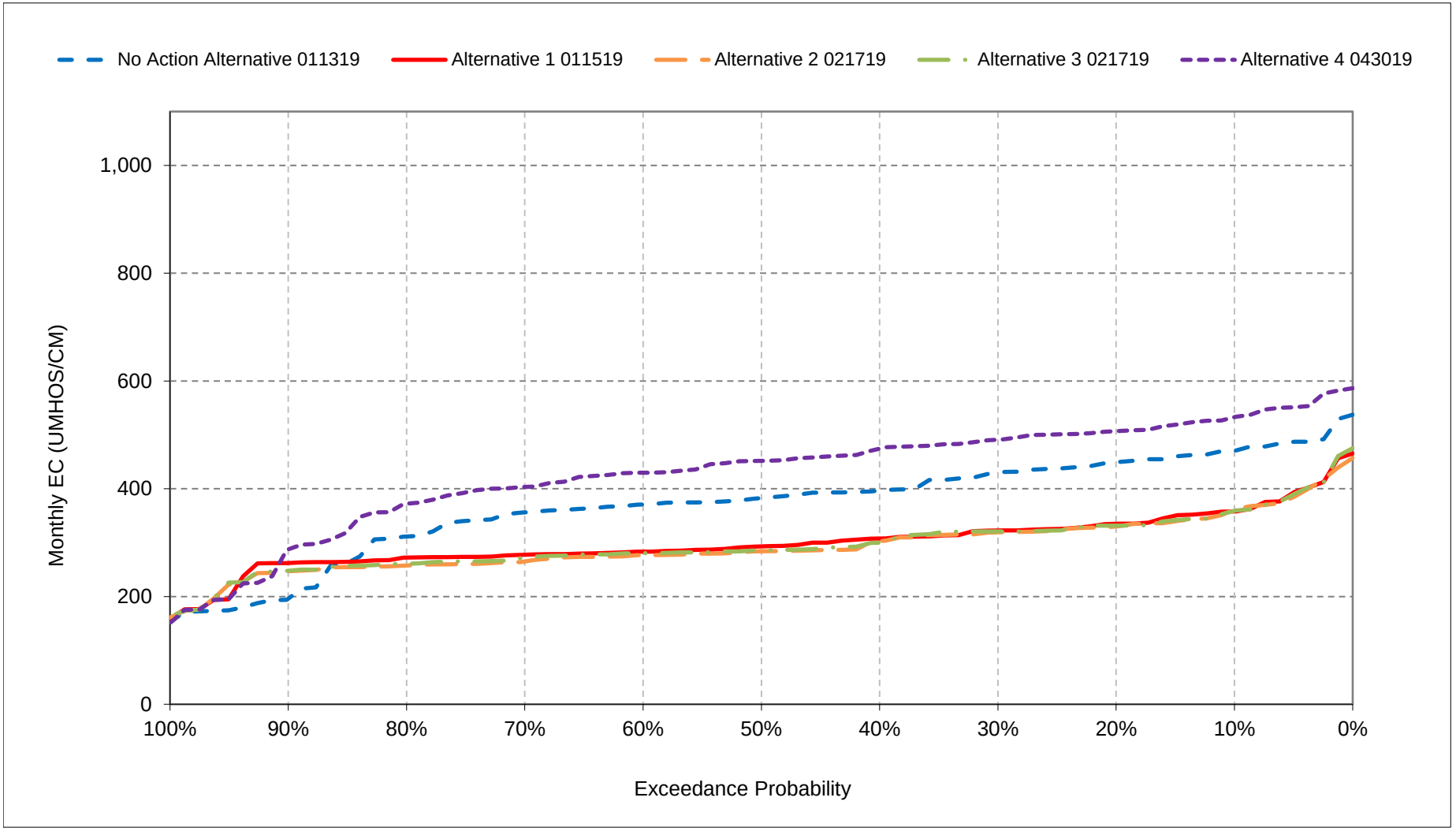
Figure 17-10. Old River at Highway 4, April EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

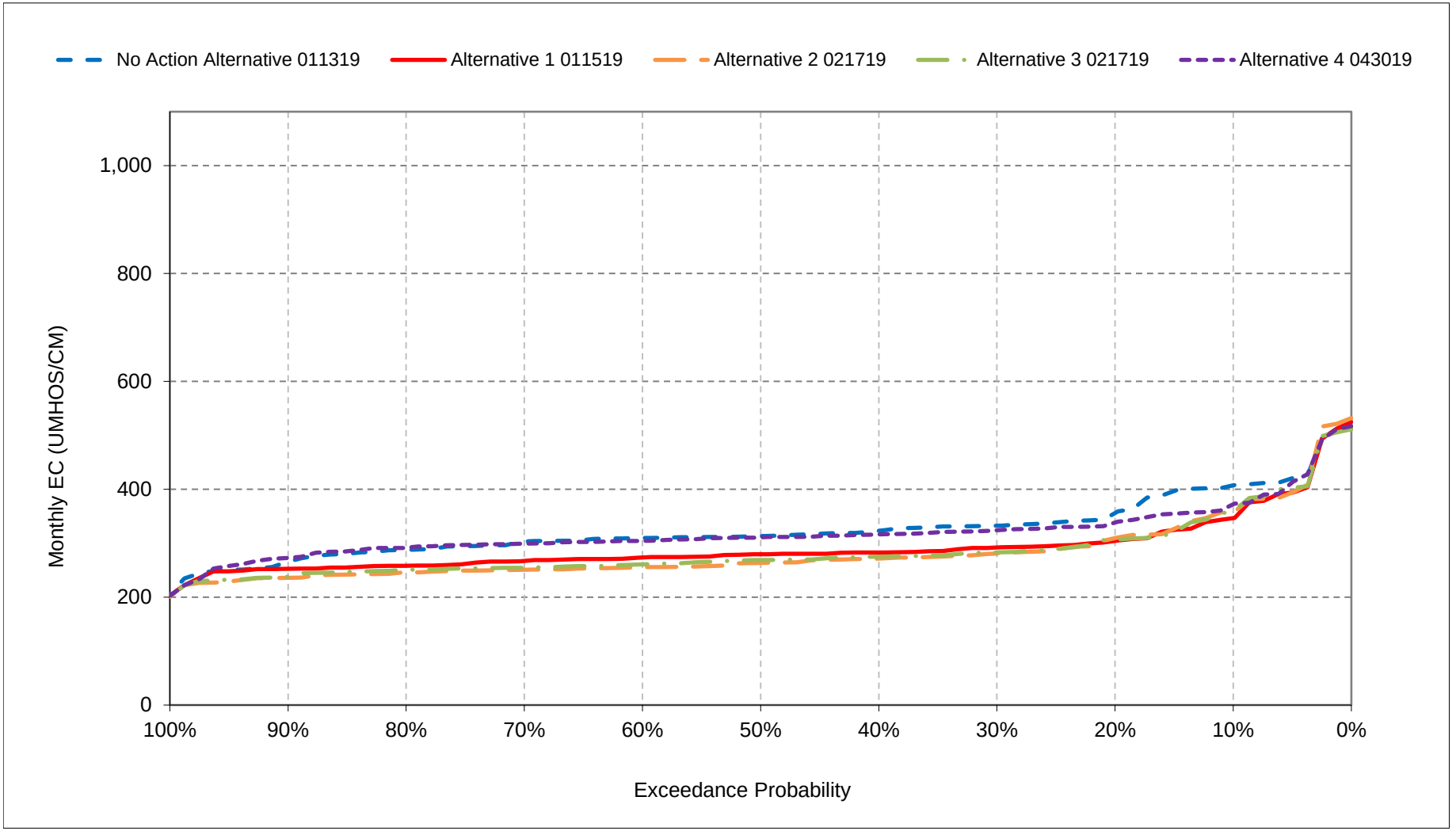
Figure 17-11. Old River at Highway 4, May EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

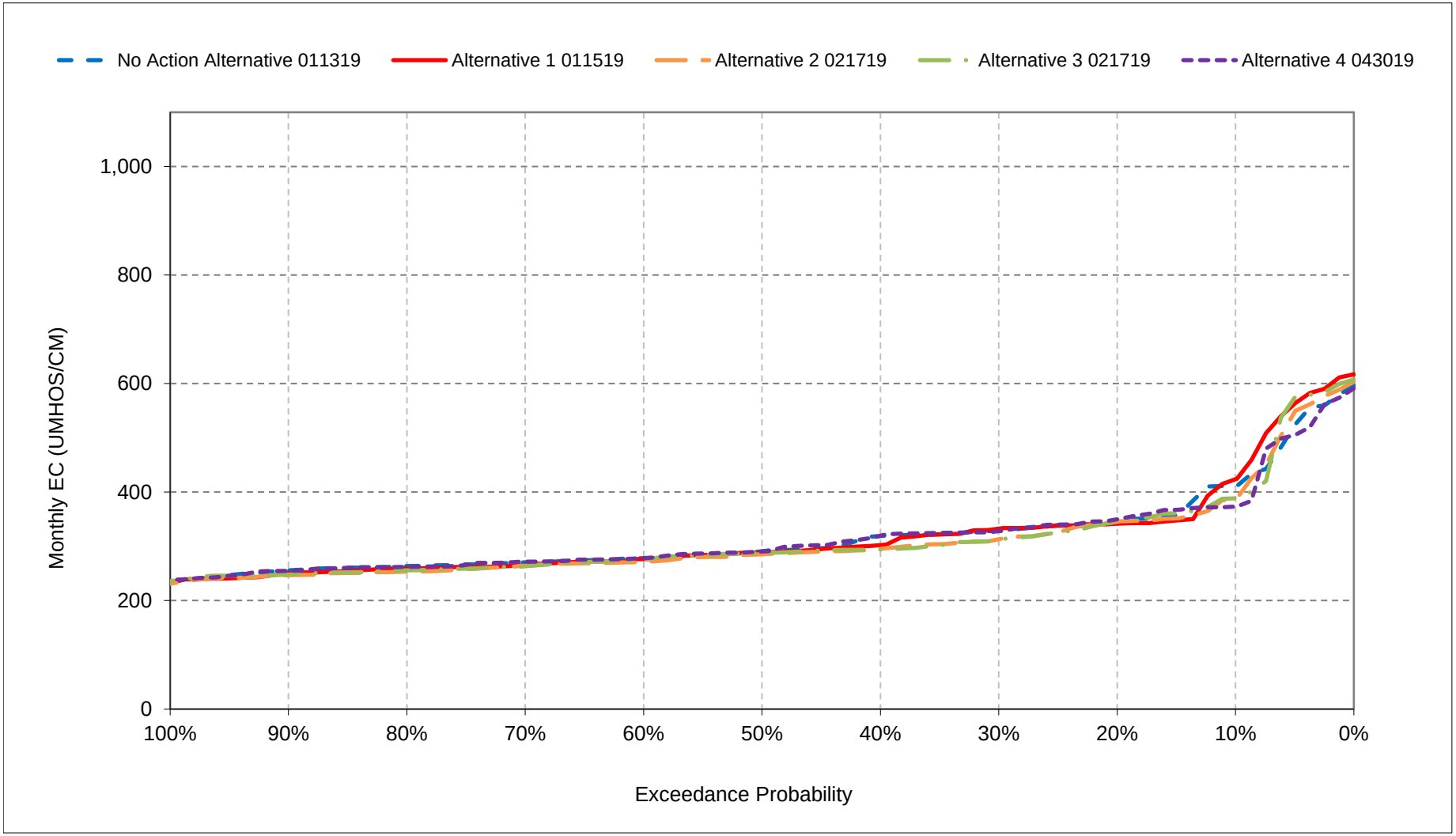
Figure 17-12. Old River at Highway 4, June EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

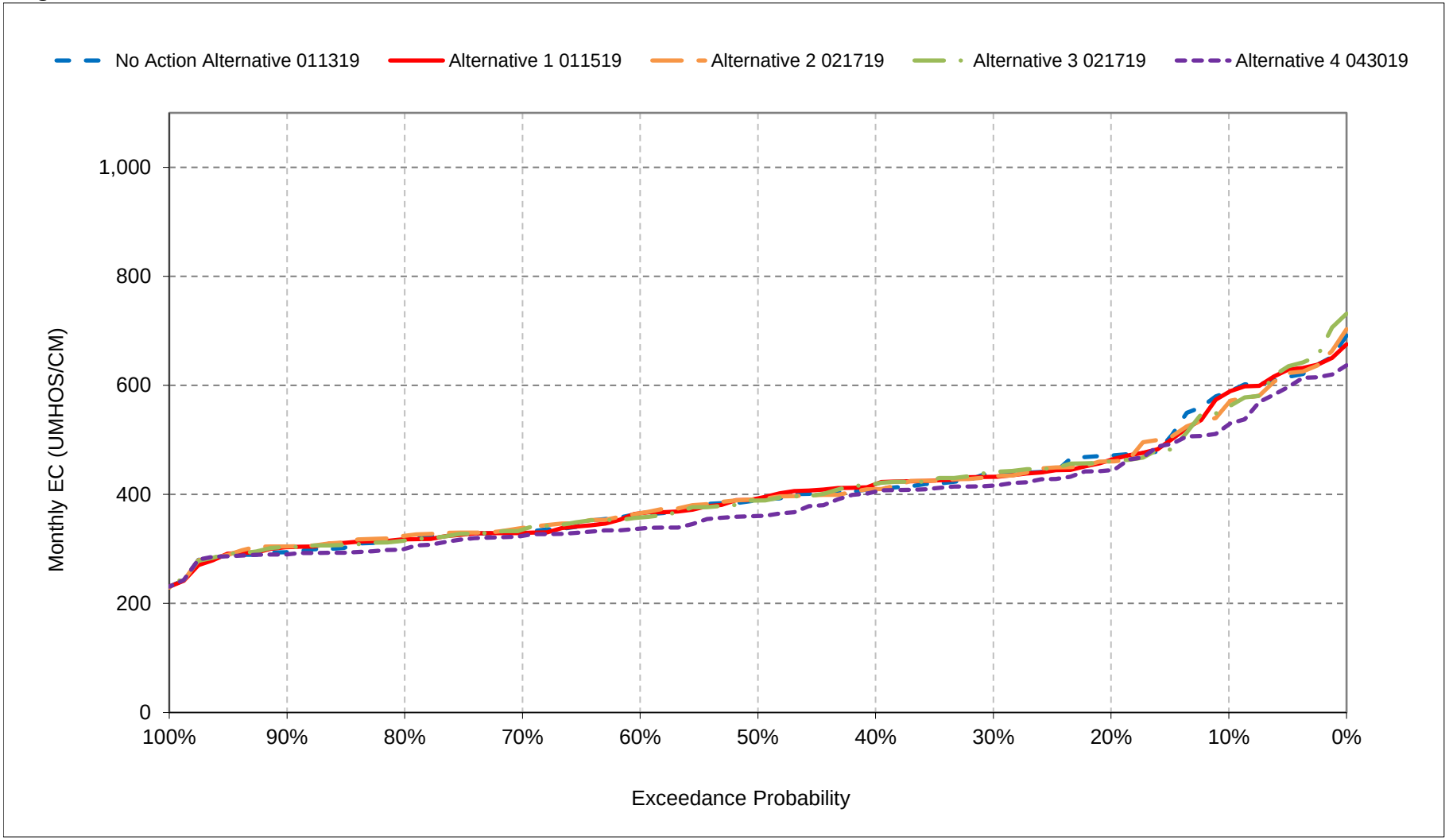
Figure 17-13. Old River at Highway 4, July EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

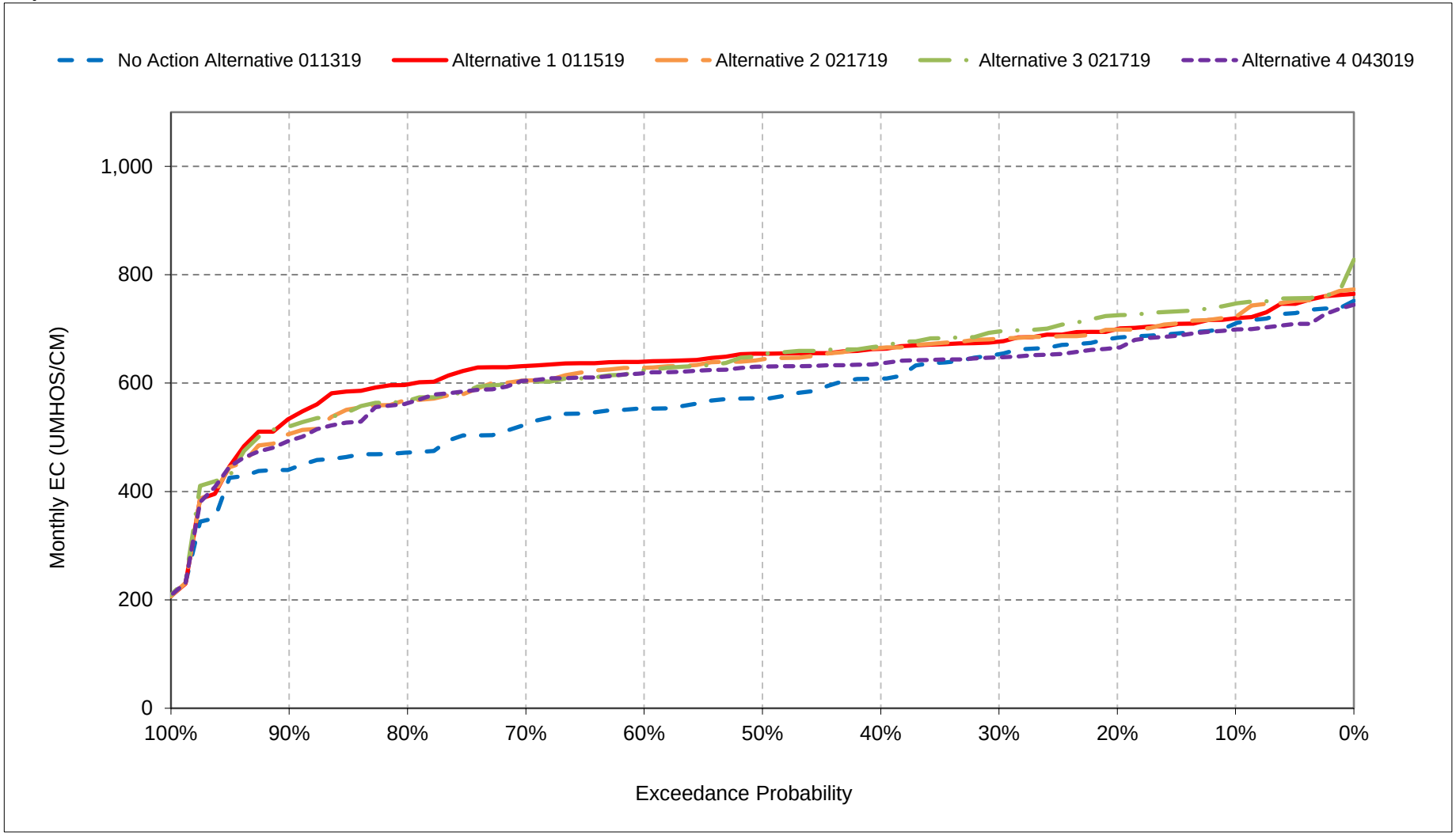
Figure 17-14. Old River at Highway 4, August EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

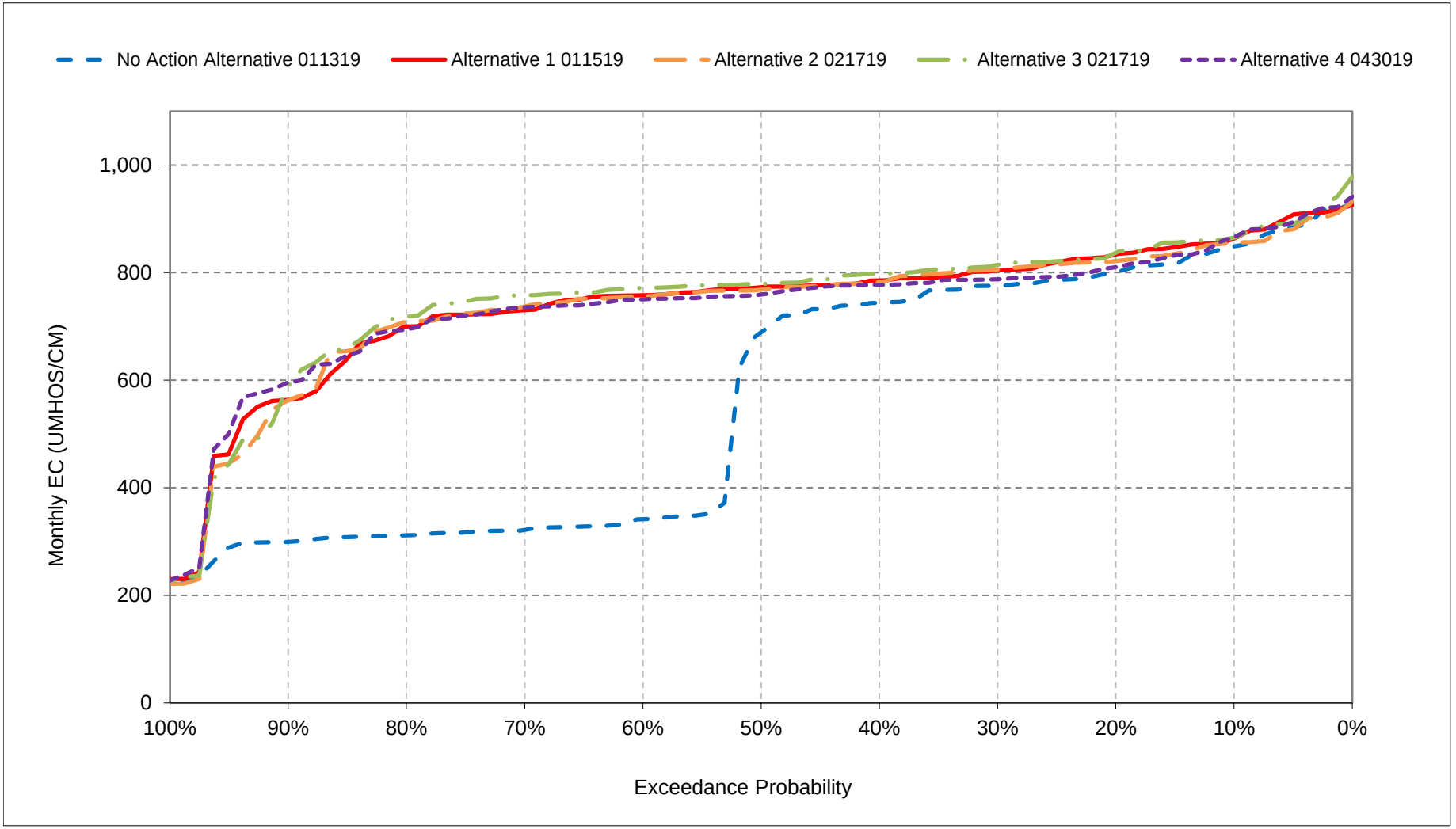
Figure 17-15. Old River at Highway 4, September EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

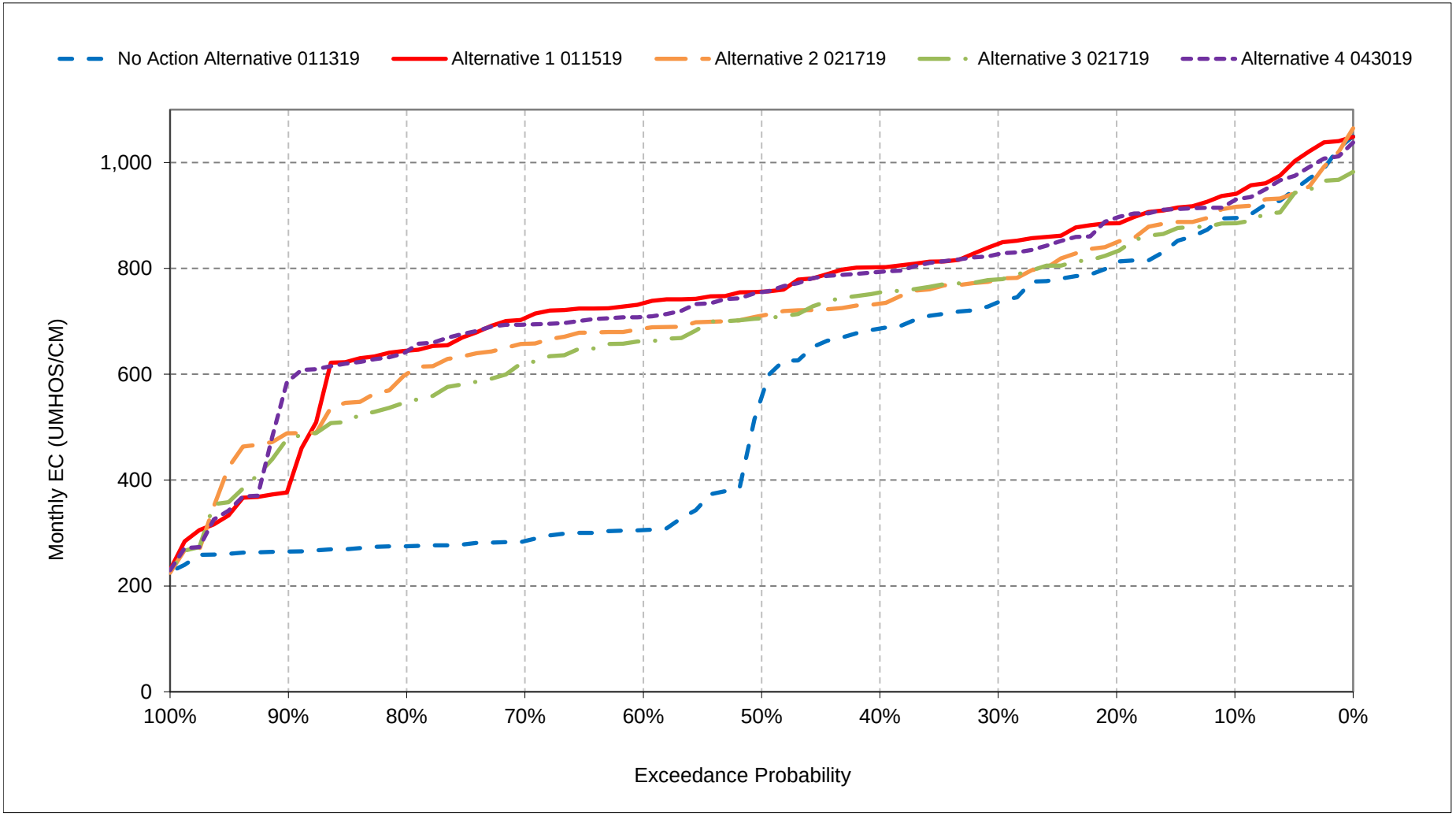
Figure 17-16. Old River at Highway 4, October EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

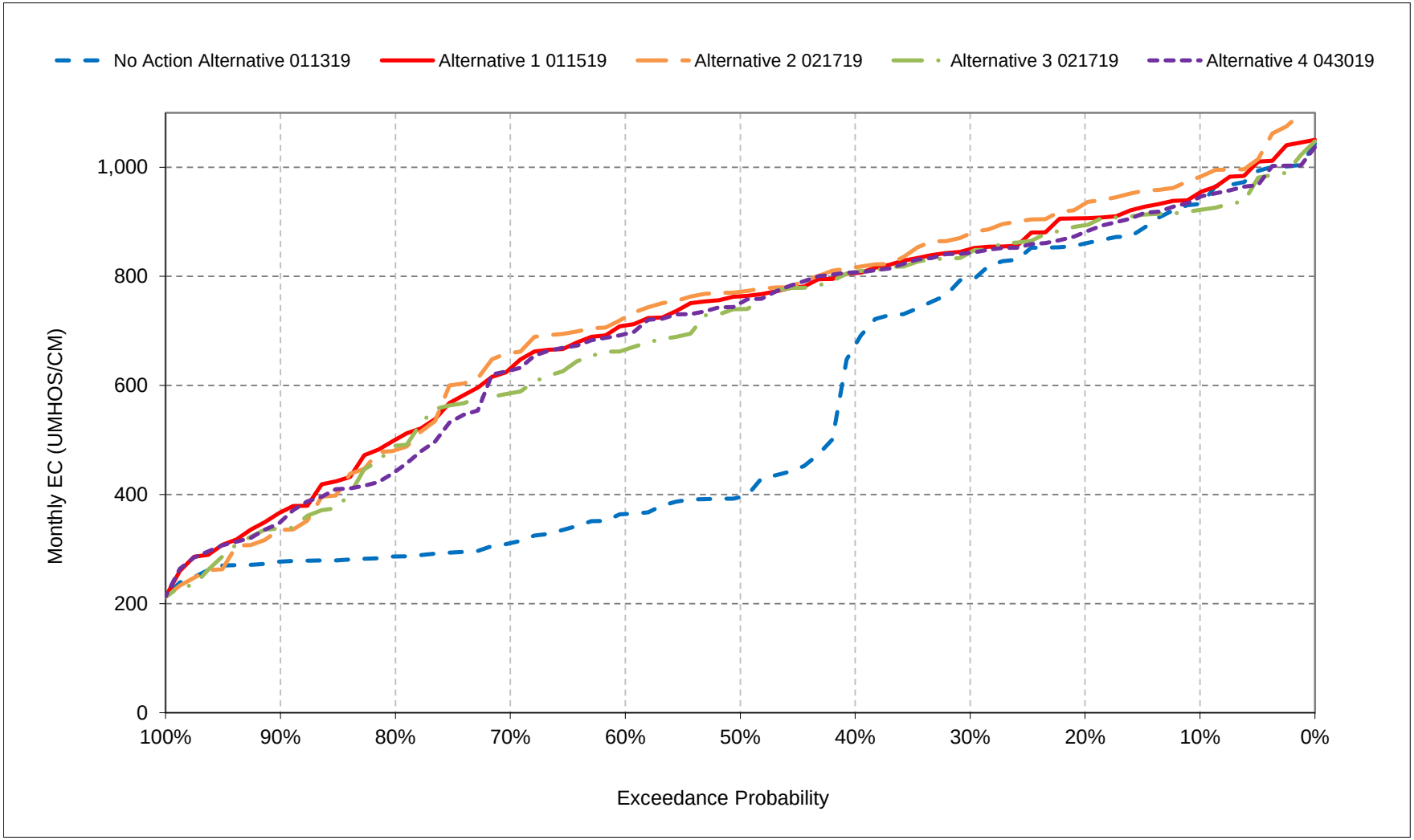
Figure 17-17. Old River at Highway 4, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 17-18. Old River at Highway 4, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 18-1. Victoria Canal, Monthly EC

No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	548	578	693	721	662	582	565	482	423	373	434	467
20%	521	532	621	680	611	556	506	464	393	354	363	449
30%	511	504	578	591	575	527	475	447	373	330	351	439
40%	490	474	517	557	551	500	454	430	365	312	327	423
50%	461	432	405	534	528	471	415	390	360	300	305	419
60%	381	362	363	501	505	434	335	364	355	290	301	409
70%	369	351	344	477	479	397	305	348	347	284	289	395
80%	350	345	318	444	425	346	272	305	337	274	270	359
90%	336	337	292	417	359	308	224	193	311	263	257	341
Long Term												
Full Simulation Period[a]	439	436	461	548	521	459	393	377	362	314	326	409
Water Year Types[b]												
Wet (32%)	357	336	311	477	426	349	260	277	325	312	282	386
Above Normal (16%)	342	357	371	538	526	438	357	370	358	288	270	351
Below Normal (13%)	494	470	530	535	538	497	446	435	375	283	307	418
Dry (24%)	506	498	542	597	565	515	470	422	367	301	371	430
Critical (15%)	561	604	682	642	634	589	541	475	429	399	424	479

Alternative 1 011519

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	563	616	697	734	639	546	484	410	366	370	421	475
20%	541	564	650	695	595	502	455	387	351	353	361	459
30%	527	536	596	684	575	487	438	373	333	324	336	439
40%	514	514	572	648	539	462	418	354	324	304	323	425
50%	491	499	534	579	510	446	404	330	321	291	310	421
60%	472	482	508	535	481	424	370	320	314	281	301	418
70%	467	469	490	509	458	399	321	310	307	275	291	405
80%	452	445	431	475	429	341	300	303	298	265	270	397
90%	410	372	364	422	361	308	267	232	287	250	260	366
Long Term												
Full Simulation Period[a]	486	497	537	581	507	431	382	333	324	308	325	419
Water Year Types[b]												
Wet (32%)	415	442	461	484	423	348	289	264	306	307	282	369
Above Normal (16%)	480	464	526	594	524	429	371	322	323	276	273	414
Below Normal (13%)	505	487	537	588	529	473	427	358	316	276	314	437
Dry (24%)	520	522	548	654	546	469	430	365	311	295	359	435
Critical (15%)	569	616	695	652	584	513	474	417	390	398	430	485

Alternative 1 011519 minus No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**14**	**38**	**4**	**13**	-23	-36	-81	-72	-57	-3	-13	**8**
20%	**19**	**32**	**29**	**15**	-17	-54	-51	-78	-43	-2	-2	**10**
30%	**16**	**31**	**18**	**93**	-1	-40	-38	-74	-40	-7	-15	**0**
40%	**23**	**40**	**55**	**90**	-12	-39	-36	-76	-41	-7	-4	**2**
50%	**30**	**67**	**129**	**45**	-18	-25	-11	-60	-40	-9	**5**	**2**
60%	**91**	**120**	**145**	**33**	-23	-10	**35**	-44	-41	-9	-1	**9**
70%	**98**	**118**	**146**	**32**	-21	**2**	**16**	-38	-41	-9	**2**	**10**
80%	**103**	**100**	**113**	**31**	**3**	-5	**27**	-2	-39	-9	**0**	**38**
90%	**74**	**35**	**72**	**6**	**2**	**0**	**43**	**40**	-24	-12	**3**	**25**
Long Term												
Full Simulation Period[a]	**47**	**60**	**76**	**33**	-14	-27	-11	-44	-39	-6	-1	**9**
Water Year Types[b]												
Wet (32%)	**58**	**106**	**150**	**7**	-3	-1	**29**	-13	-19	-4	**0**	-17
Above Normal (16%)	**139**	**107**	**155**	**56**	-2	-9	**15**	-48	-35	-12	**2**	**63**
Below Normal (13%)	**12**	**17**	**7**	**53**	-9	-24	-20	-77	-59	-7	**7**	**19**
Dry (24%)	**14**	**23**	**6**	**57**	-18	-46	-40	-57	-56	-6	-13	**5**
Critical (15%)	**8**	**11**	**13**	**9**	-50	-76	-68	-58	-39	-1	**7**	**7**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 18-2. Victoria Canal, Monthly EC

No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	548	578	693	721	662	582	565	482	423	373	434	467
20%	521	532	621	680	611	556	506	464	393	354	363	449
30%	511	504	578	591	575	527	475	447	373	330	351	439
40%	490	474	517	557	551	500	454	430	365	312	327	423
50%	461	432	405	534	528	471	415	390	360	300	305	419
60%	381	362	363	501	505	434	335	364	355	290	301	409
70%	369	351	344	477	479	397	305	348	347	284	289	395
80%	350	345	318	444	425	346	272	305	337	274	270	359
90%	336	337	292	417	359	308	224	193	311	263	257	341
Long Term												
Full Simulation Period[a]	439	436	461	548	521	459	393	377	362	314	326	409
Water Year Types[b]												
Wet (32%)	357	336	311	477	426	349	260	277	325	312	282	386
Above Normal (16%)	342	357	371	538	526	438	357	370	358	288	270	351
Below Normal (13%)	494	470	530	535	538	497	446	435	375	283	307	418
Dry (24%)	506	498	542	597	565	515	470	422	367	301	371	430
Critical (15%)	561	604	682	642	634	589	541	475	429	399	424	479

Alternative 2 021719

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	559	581	626	756	619	534	477	428	374	368	407	470
20%	536	549	602	652	554	473	429	414	350	346	358	450
30%	524	515	579	622	515	438	407	394	333	318	337	433
40%	513	496	549	598	478	423	388	369	321	303	328	424
50%	505	484	535	567	456	402	370	348	307	290	318	419
60%	489	470	517	467	421	386	352	332	299	280	303	410
70%	479	439	484	442	403	355	333	313	290	266	292	399
80%	458	419	410	418	361	321	301	306	282	250	280	388
90%	377	397	332	361	331	300	257	235	268	247	269	335
Long Term												
Full Simulation Period[a]	487	484	512	546	466	407	369	346	318	303	327	411
Water Year Types[b]												
Wet (32%)	410	417	469	433	364	332	286	269	297	303	284	360
Above Normal (16%)	499	498	528	535	441	377	347	331	304	267	280	420
Below Normal (13%)	509	484	503	594	554	466	411	373	291	260	329	421
Dry (24%)	519	482	482	617	499	424	406	387	316	294	353	426
Critical (15%)	564	614	650	638	579	521	475	436	406	392	429	478

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**10**	**3**	-67	**35**	-43	-48	-88	-54	-49	-5	-27	**3**
20%	**15**	**17**	-19	-28	-58	-84	-77	-51	-43	-8	-4	**1**
30%	**13**	**11**	**1**	**31**	-61	-89	-69	-54	-40	-12	-15	-5
40%	**22**	**22**	**32**	**41**	-73	-78	-66	-62	-44	-9	**1**	**1**
50%	**44**	**52**	**130**	**33**	-72	-69	-45	-42	-53	-9	**13**	**0**
60%	**108**	**108**	**154**	-34	-84	-48	**17**	-32	-56	-10	**1**	**2**
70%	**110**	**88**	**141**	-36	-76	-42	**28**	-36	-58	-19	**3**	**4**
80%	**108**	**74**	**93**	-27	-64	-24	**29**	**1**	-56	-25	**10**	**29**
90%	**41**	**60**	**40**	-55	-27	-8	**33**	**43**	-43	-16	**12**	-6
Long Term												
Full Simulation Period[a]	**48**	**47**	**52**	-2	-55	-52	-23	-31	-45	-12	**1**	**2**
Water Year Types[b]												
Wet (32%)	**54**	**81**	**158**	-44	-62	-17	**26**	-7	-28	-8	**2**	-26
Above Normal (16%)	**158**	**141**	**157**	-2	-84	-61	-10	-39	-55	-21	**10**	**70**
Below Normal (13%)	**15**	**15**	-27	**58**	**16**	-32	-35	-62	-85	-23	**22**	**3**
Dry (24%)	**14**	-17	-61	**21**	-66	-91	-64	-35	-51	-7	-19	-4
Critical (15%)	**3**	**10**	-32	-4	-55	-68	-66	-39	-24	-7	**5**	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 18-3. Victoria Canal, Monthly EC

No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	548	578	693	721	662	582	565	482	423	373	434	467
20%	521	532	621	680	611	556	506	464	393	354	363	449
30%	511	504	578	591	575	527	475	447	373	330	351	439
40%	490	474	517	557	551	500	454	430	365	312	327	423
50%	461	432	405	534	528	471	415	390	360	300	305	419
60%	381	362	363	501	505	434	335	364	355	290	301	409
70%	369	351	344	477	479	397	305	348	347	284	289	395
80%	350	345	318	444	425	346	272	305	337	274	270	359
90%	336	337	292	417	359	308	224	193	311	263	257	341
Long Term												
Full Simulation Period[a]	439	436	461	548	521	459	393	377	362	314	326	409
Water Year Types[b]												
Wet (32%)	357	336	311	477	426	349	260	277	325	312	282	386
Above Normal (16%)	342	357	371	538	526	438	357	370	358	288	270	351
Below Normal (13%)	494	470	530	535	538	497	446	435	375	283	307	418
Dry (24%)	506	498	542	597	565	515	470	422	367	301	371	430
Critical (15%)	561	604	682	642	634	589	541	475	429	399	424	479

Alternative 3 021719

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	586	611	617	733	615	523	501	437	381	386	410	491
20%	564	560	601	670	553	482	443	425	357	350	353	475
30%	547	540	569	634	519	454	418	405	337	325	345	460
40%	537	510	547	597	477	423	399	378	325	306	340	444
50%	530	494	529	555	459	406	381	354	317	296	325	433
60%	518	483	505	472	427	392	358	339	309	285	308	423
70%	505	458	479	443	407	360	335	322	296	270	299	408
80%	482	436	411	408	358	329	305	314	287	255	279	390
90%	402	394	335	363	330	302	271	234	273	248	270	348
Long Term												
Full Simulation Period[a]	511	494	506	541	466	413	378	354	324	308	334	428
Water Year Types[b]												
Wet (32%)	437	436	462	432	367	334	290	273	301	306	291	374
Above Normal (16%)	519	511	531	512	437	384	352	337	312	274	281	434
Below Normal (13%)	543	503	499	598	563	479	422	381	299	265	333	449
Dry (24%)	545	491	481	615	497	436	420	397	322	299	360	444
Critical (15%)	574	602	618	635	570	519	489	452	415	404	442	490

Alternative 3 021719 minus No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**38**	**33**	-76	**12**	-47	-59	-63	-45	-42	**13**	-24	**25**
20%	**43**	**29**	-20	-10	-58	-75	-63	-39	-37	-4	-9	**26**
30%	**36**	**35**	-9	**42**	-56	-73	-57	-42	-37	-5	-6	**21**
40%	**47**	**35**	**30**	**39**	-74	-77	-55	-53	-40	-6	**13**	**21**
50%	**68**	**61**	**124**	**21**	-69	-65	-33	-36	-44	-4	**20**	**15**
60%	**136**	**121**	**141**	-29	-78	-42	**22**	-25	-46	-5	**7**	**14**
70%	**136**	**107**	**135**	-34	-72	-37	**31**	-26	-52	-14	**10**	**13**
80%	**133**	**91**	**93**	-37	-67	-17	**33**	**9**	-50	-19	**9**	**31**
90%	**66**	**57**	**43**	-53	-28	-6	**47**	**41**	-38	-15	**14**	**7**
Long Term												
Full Simulation Period[a]	**72**	**58**	**45**	-7	-55	-46	-14	-23	-38	-6	**8**	**19**
Water Year Types[b]												
Wet (32%)	**80**	**99**	**151**	-45	-59	-16	**30**	-4	-24	-5	**8**	-12
Above Normal (16%)	**178**	**153**	**160**	-26	-89	-55	-4	-33	-46	-15	**11**	**84**
Below Normal (13%)	**50**	**33**	-31	**62**	**25**	-18	-24	-54	-76	-19	**26**	**31**
Dry (24%)	**39**	-8	-61	**18**	-68	-79	-50	-24	-45	-2	-11	**14**
Critical (15%)	**13**	-2	-64	-7	-63	-71	-52	-23	-14	**5**	**19**	**12**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 18-4. Victoria Canal, Monthly EC

No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	548	578	693	721	662	582	565	482	423	373	434	467
20%	521	532	621	680	611	556	506	464	393	354	363	449
30%	511	504	578	591	575	527	475	447	373	330	351	439
40%	490	474	517	557	551	500	454	430	365	312	327	423
50%	461	432	405	534	528	471	415	390	360	300	305	419
60%	381	362	363	501	505	434	335	364	355	290	301	409
70%	369	351	344	477	479	397	305	348	347	284	289	395
80%	350	345	318	444	425	346	272	305	337	274	270	359
90%	336	337	292	417	359	308	224	193	311	263	257	341
Long Term												
Full Simulation Period[a]	439	436	461	548	521	459	393	377	362	314	326	409
Water Year Types[b]												
Wet (32%)	357	336	311	477	426	349	260	277	325	312	282	386
Above Normal (16%)	342	357	371	538	526	438	357	370	358	288	270	351
Below Normal (13%)	494	470	530	535	538	497	446	435	375	283	307	418
Dry (24%)	506	498	542	597	565	515	470	422	367	301	371	430
Critical (15%)	561	604	682	642	634	589	541	475	429	399	424	479

Alternative 4 043019

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	554	582	695	721	635	660	628	538	396	384	390	468
20%	526	560	634	691	596	634	583	519	376	357	365	442
30%	509	537	587	675	569	596	560	500	369	327	338	426
40%	496	511	556	628	537	577	541	481	363	303	326	419
50%	487	484	538	569	500	546	493	436	355	292	309	410
60%	467	475	517	535	481	484	412	410	349	285	301	397
70%	457	467	487	508	459	436	353	382	340	282	292	390
80%	447	448	432	464	423	374	317	353	332	275	272	373
90%	414	416	360	421	344	321	260	222	311	265	256	351
Long Term												
Full Simulation Period[a]	479	494	531	573	501	513	457	421	354	312	324	407
Water Year Types[b]												
Wet (32%)	419	448	460	484	421	388	306	307	321	311	284	366
Above Normal (16%)	480	472	521	580	516	517	433	410	351	285	270	401
Below Normal (13%)	475	469	515	566	515	578	532	486	354	281	312	389
Dry (24%)	511	515	544	648	542	588	556	494	359	299	356	428
Critical (15%)	560	604	687	641	579	597	576	497	417	396	426	482

Alternative 4 043019 minus No Action Alternative 011319

Statistic	Monthly EC (UMHOS/CM)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**6**	**5**	**2**	0	-27	**78**	**63**	**56**	-27	**11**	-44	**2**
20%	**5**	**29**	**12**	**11**	-16	**78**	**77**	**54**	-17	**3**	**2**	-7
30%	-2	**33**	**8**	**83**	-7	**69**	**85**	**53**	-5	-3	-13	-13
40%	**5**	**37**	**39**	**70**	-14	**76**	**87**	**51**	-2	-9	-2	-4
50%	**26**	**52**	**134**	**35**	-28	**76**	**78**	**46**	-5	-8	**4**	-9
60%	**86**	**113**	**153**	**34**	-24	**50**	**77**	**46**	-7	-5	-1	-12
70%	**88**	**116**	**143**	**31**	-20	**38**	**48**	**34**	-7	-3	**2**	-5
80%	**98**	**103**	**115**	**20**	-2	**28**	**45**	**48**	-5	**0**	**2**	**14**
90%	**78**	**78**	**68**	**4**	-15	**12**	**36**	**29**	-1	**2**	0	**10**
Long Term												
Full Simulation Period[a]	**40**	**58**	**70**	**25**	-20	**54**	**64**	**44**	-9	-2	-2	-3
Water Year Types[b]												
Wet (32%)	**63**	**112**	**149**	**7**	-5	**39**	**46**	**30**	-4	0	**1**	-21
Above Normal (16%)	**138**	**115**	**150**	**42**	-9	**79**	**76**	**40**	-7	-3	-1	**50**
Below Normal (13%)	-19	-1	-15	**31**	-23	**81**	**86**	**51**	-21	-2	**5**	-29
Dry (24%)	**5**	**17**	**2**	**51**	-23	**73**	**86**	**73**	-8	-2	-15	-2
Critical (15%)	-1	-1	**5**	-1	-55	**8**	**35**	**22**	-12	-3	**3**	**3**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

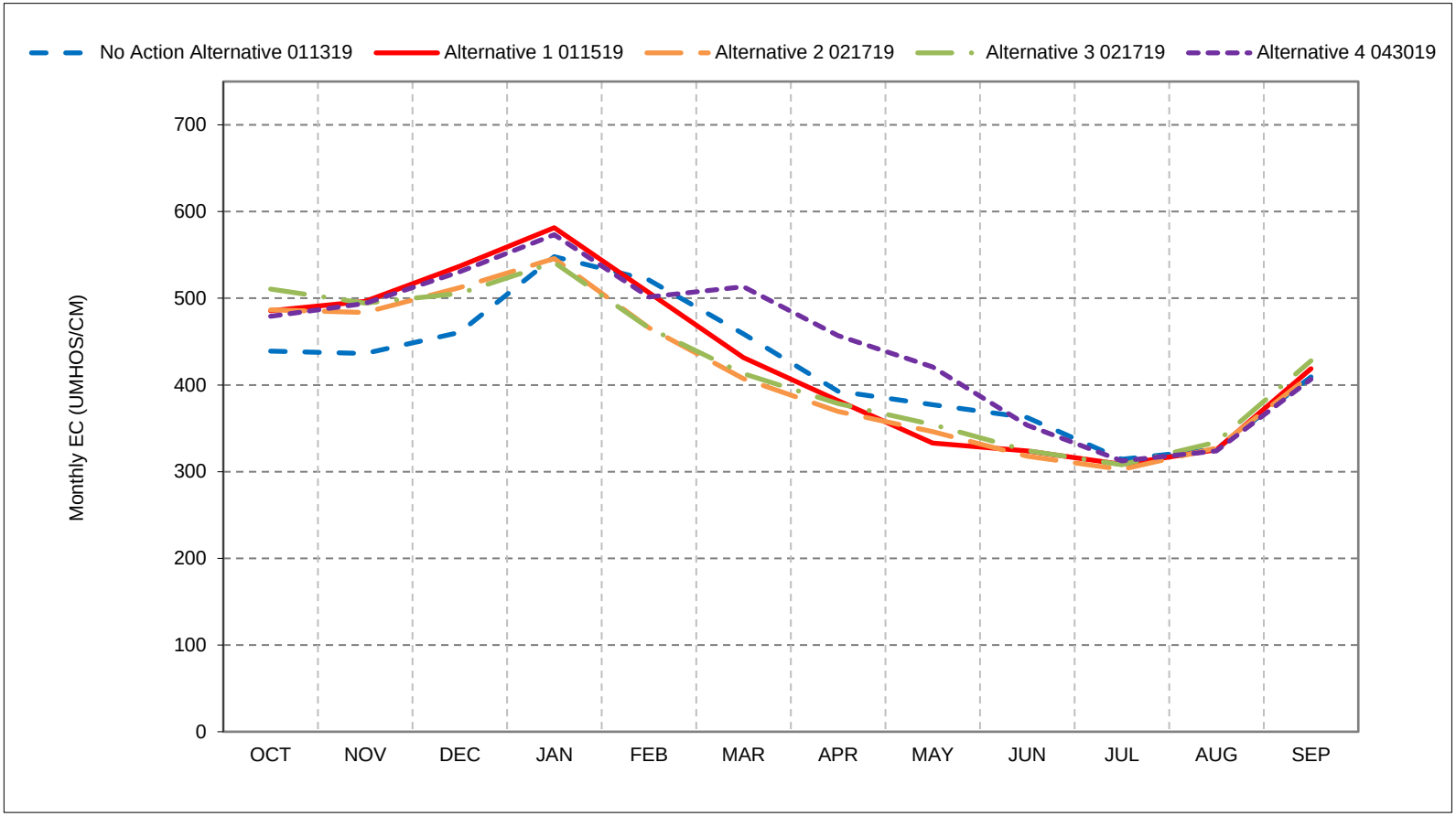
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

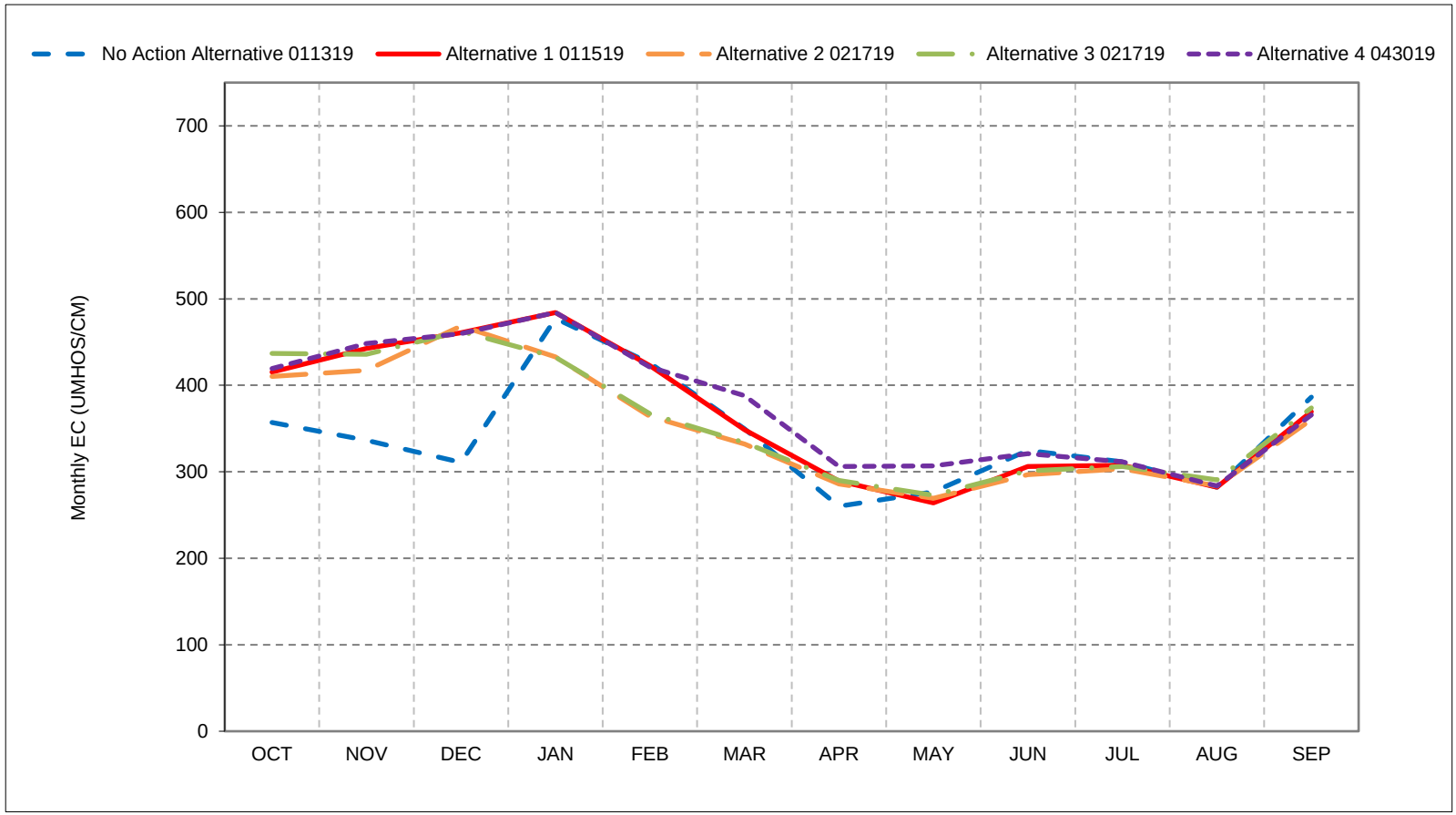
f These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-1. Victoria Canal, Long-Term Average EC



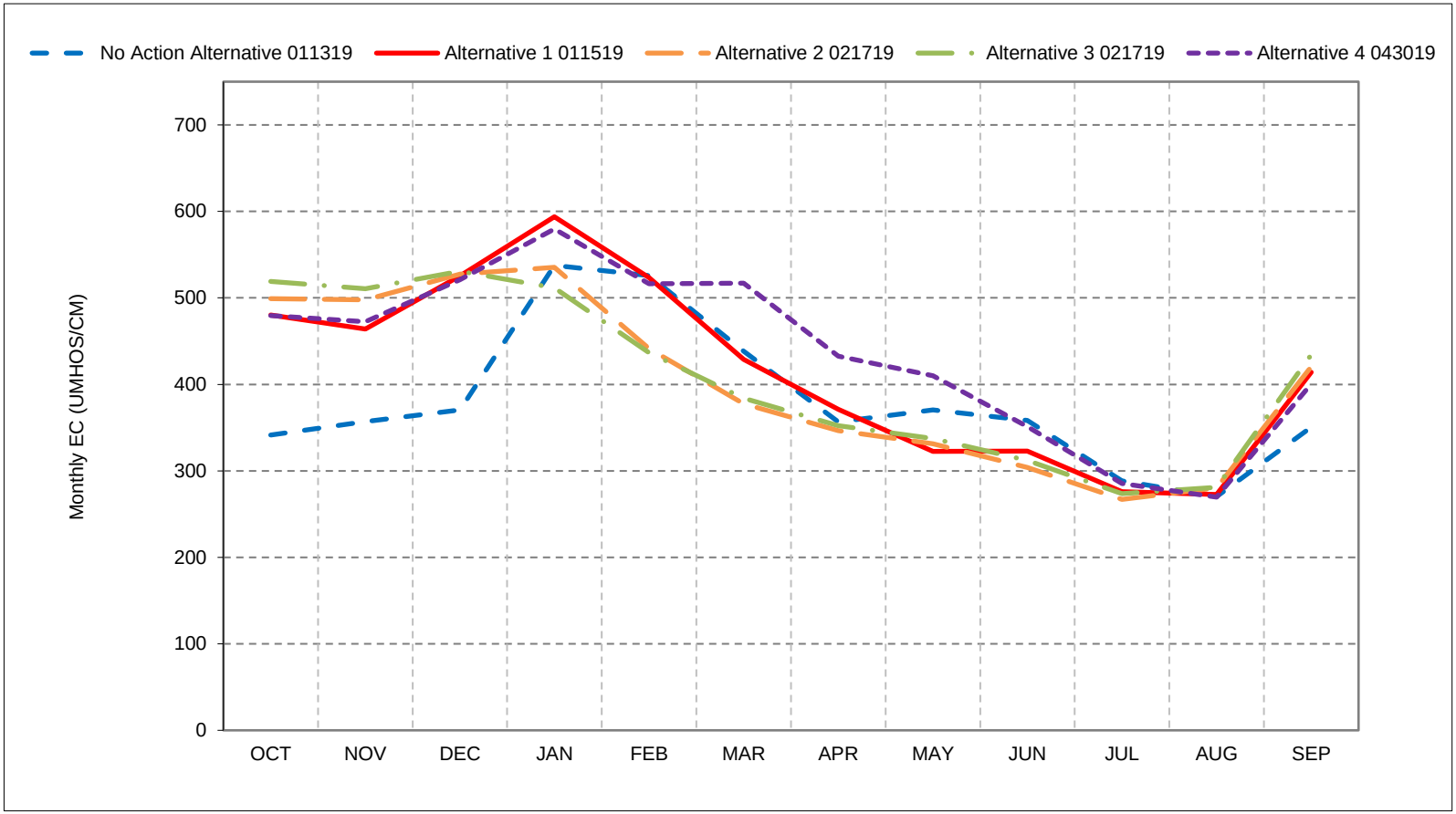
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-2. Victoria Canal, Wet Year Average EC



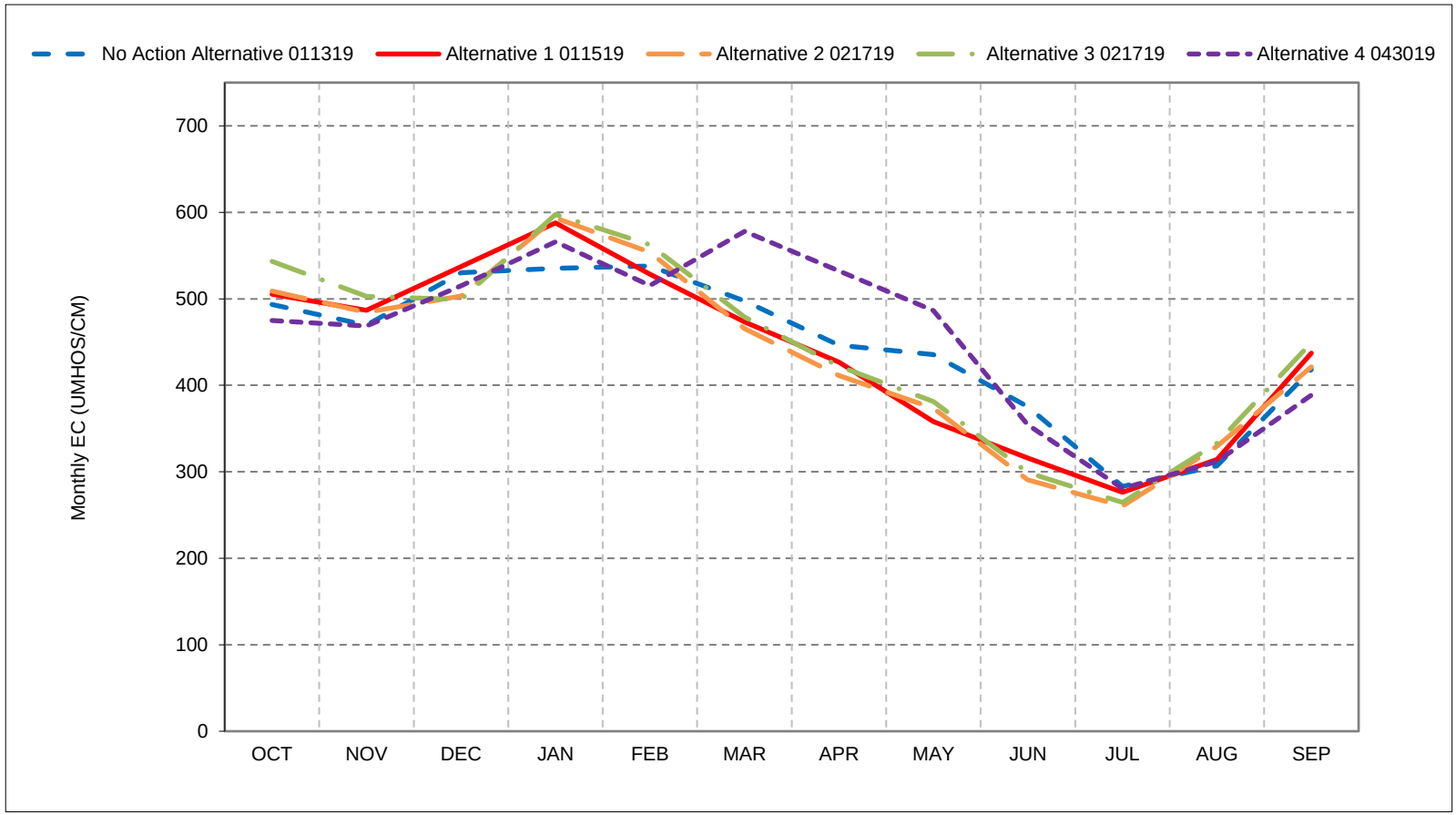
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-3. Victoria Canal, Above Normal Year Average EC



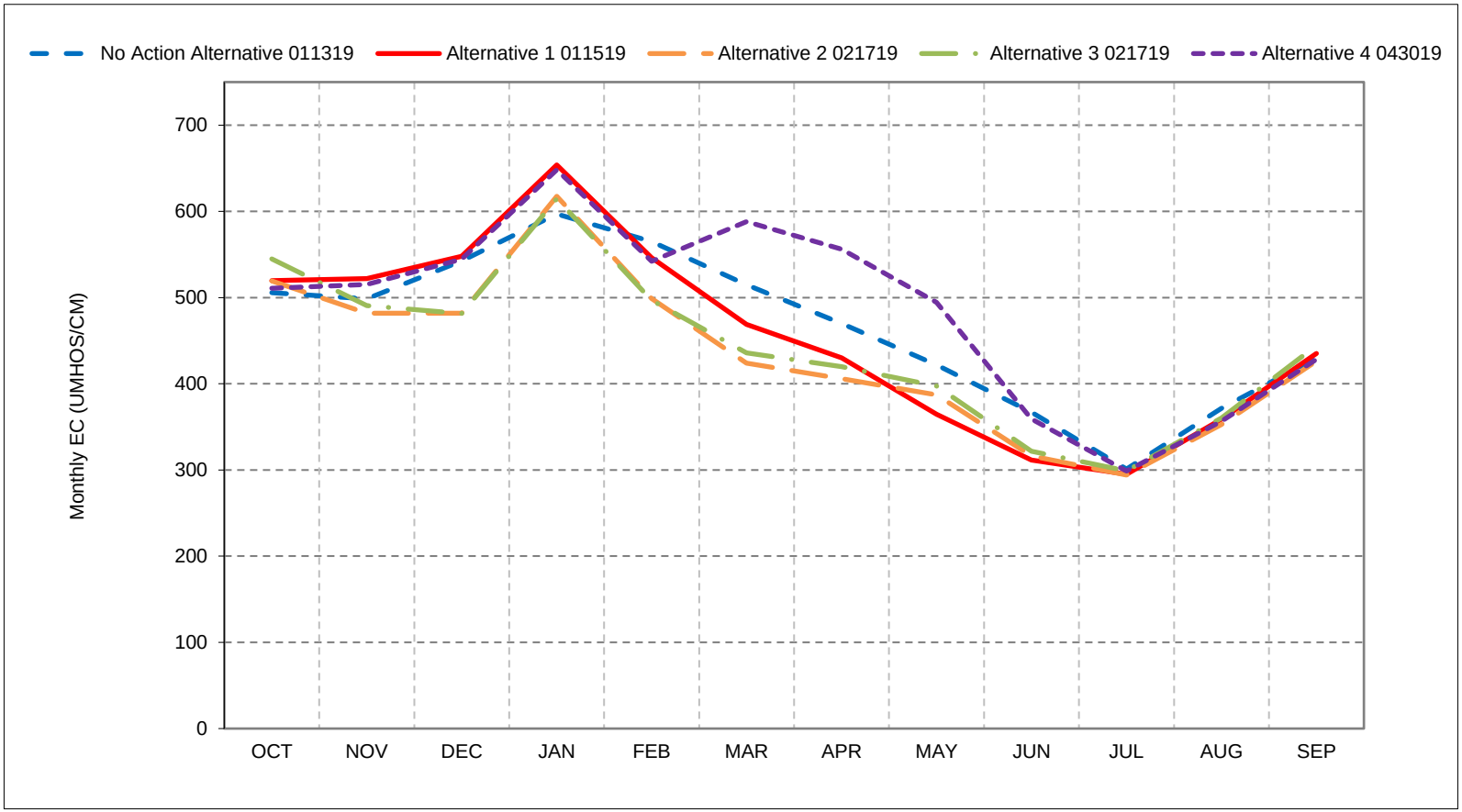
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-4. Victoria Canal, Below Normal Year Average EC



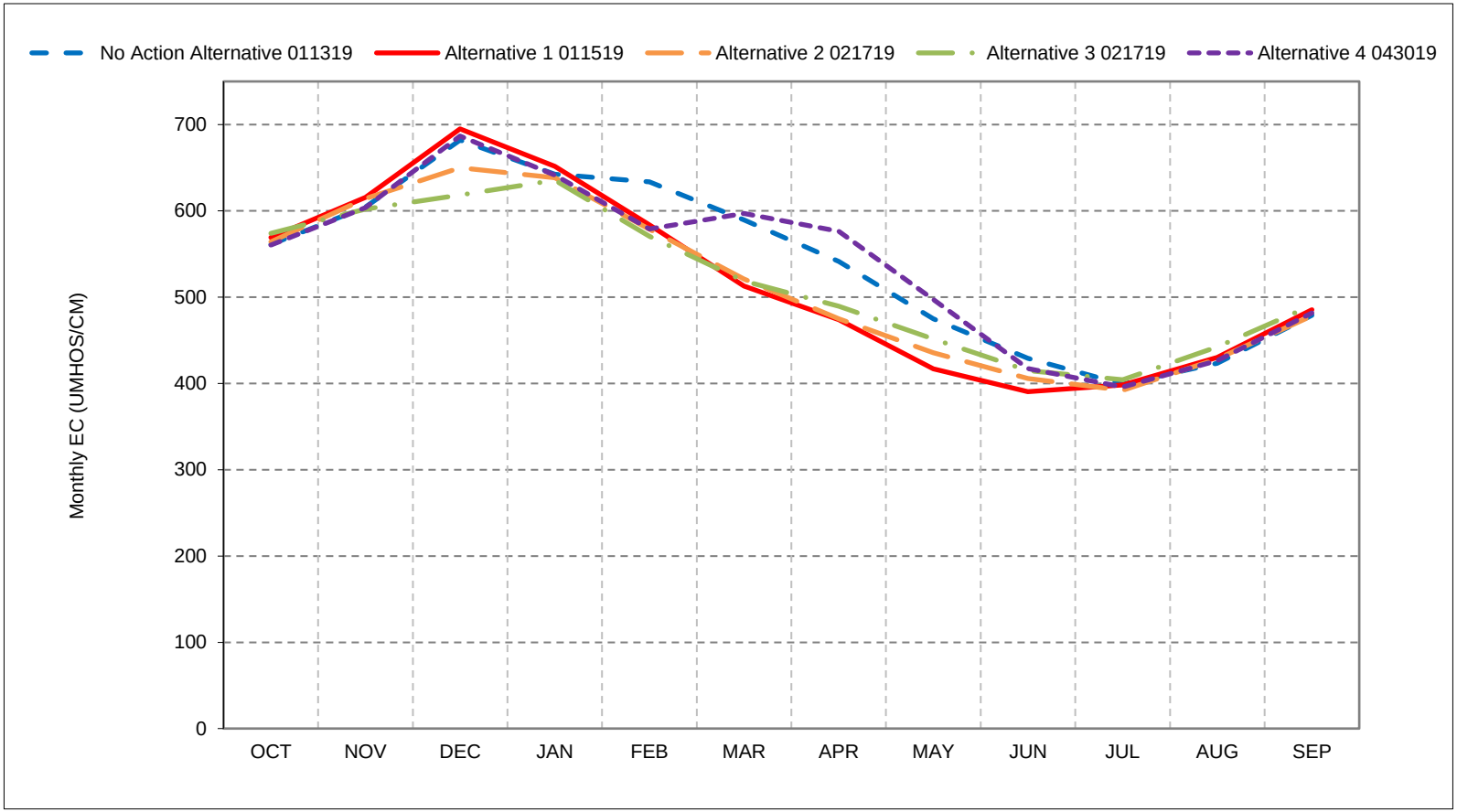
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-5. Victoria Canal, Dry Year Average EC



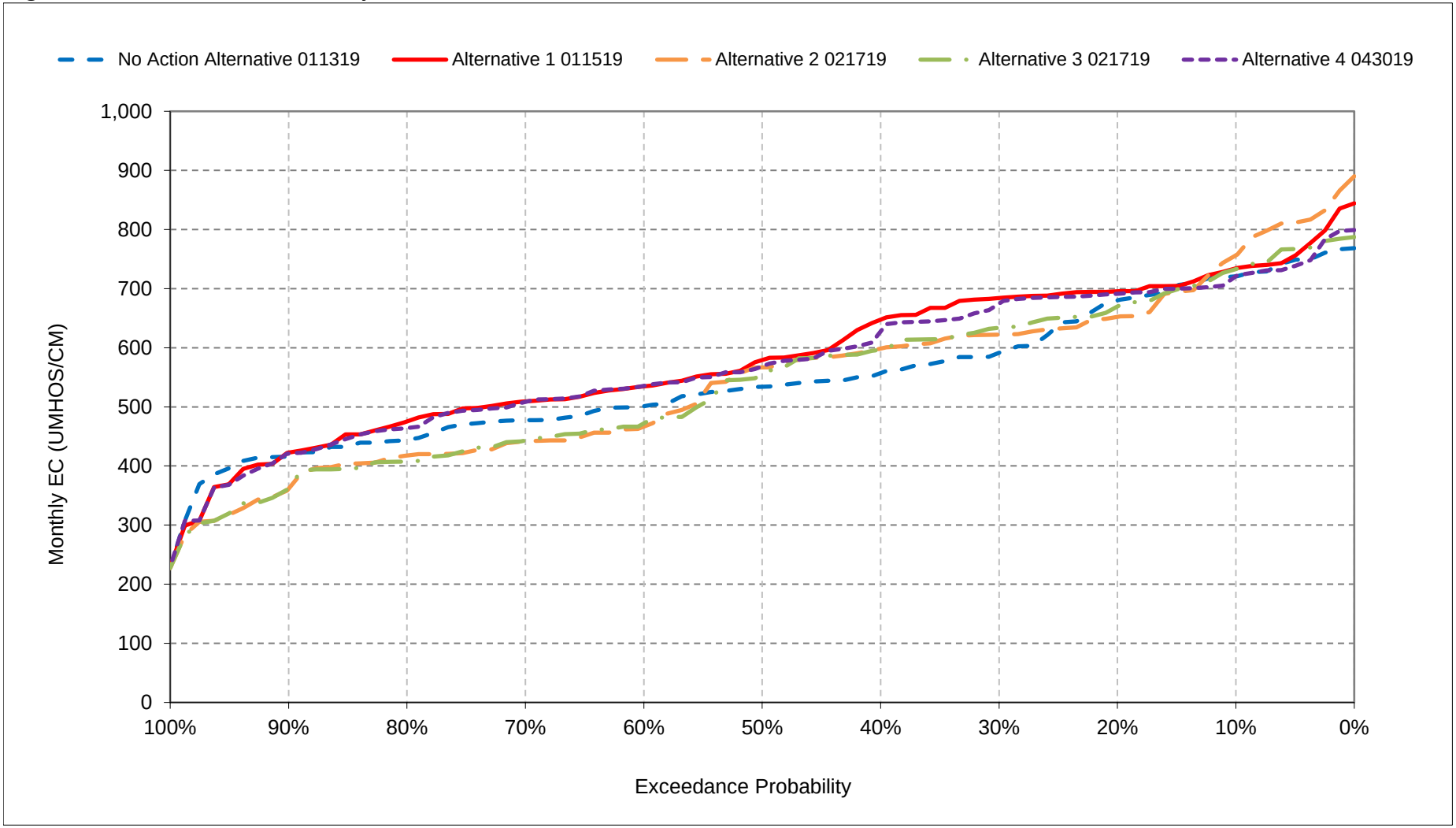
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-6. Victoria Canal, Critical Year Average EC



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

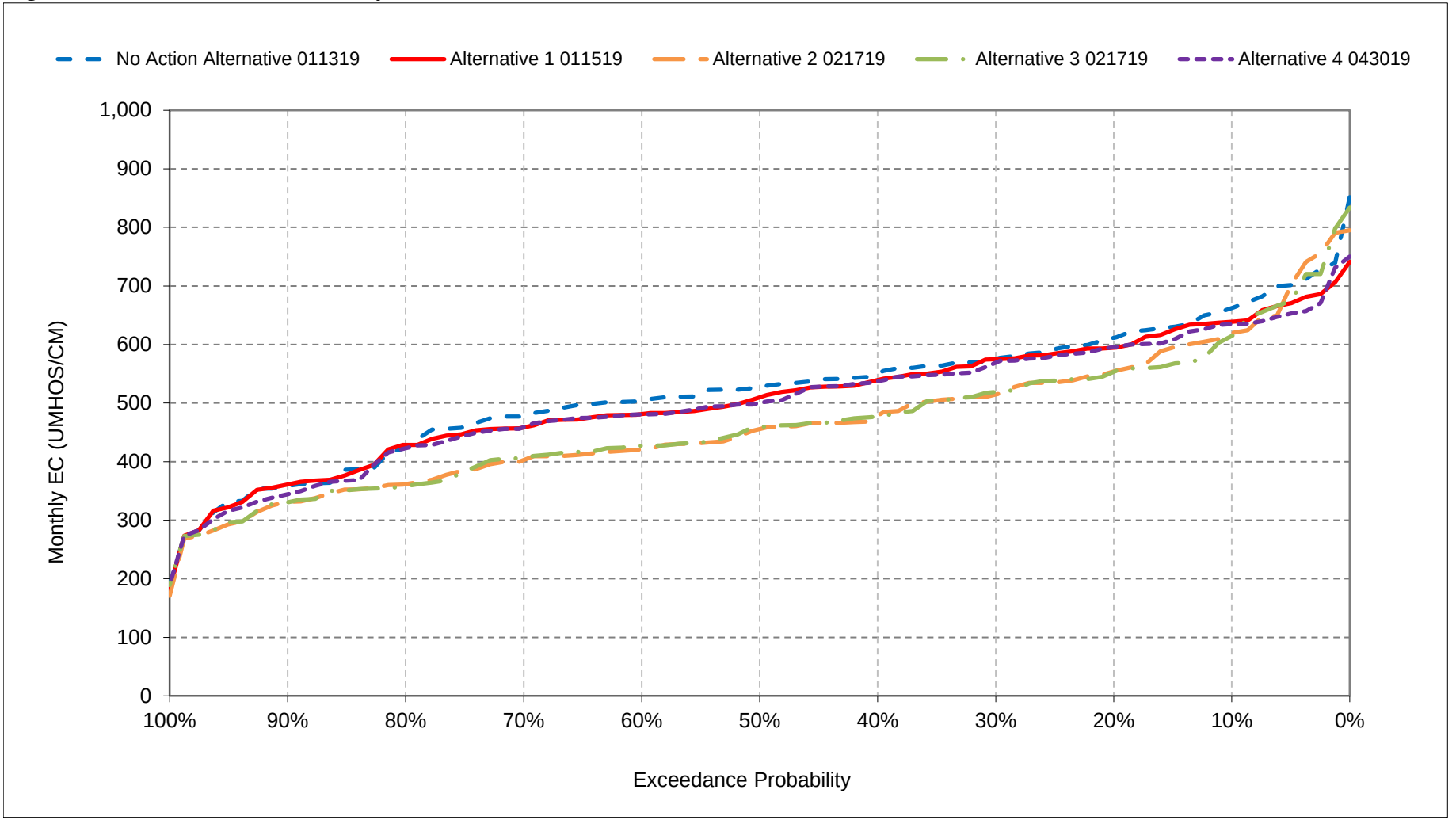
Figure 18-7. Victoria Canal, January EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

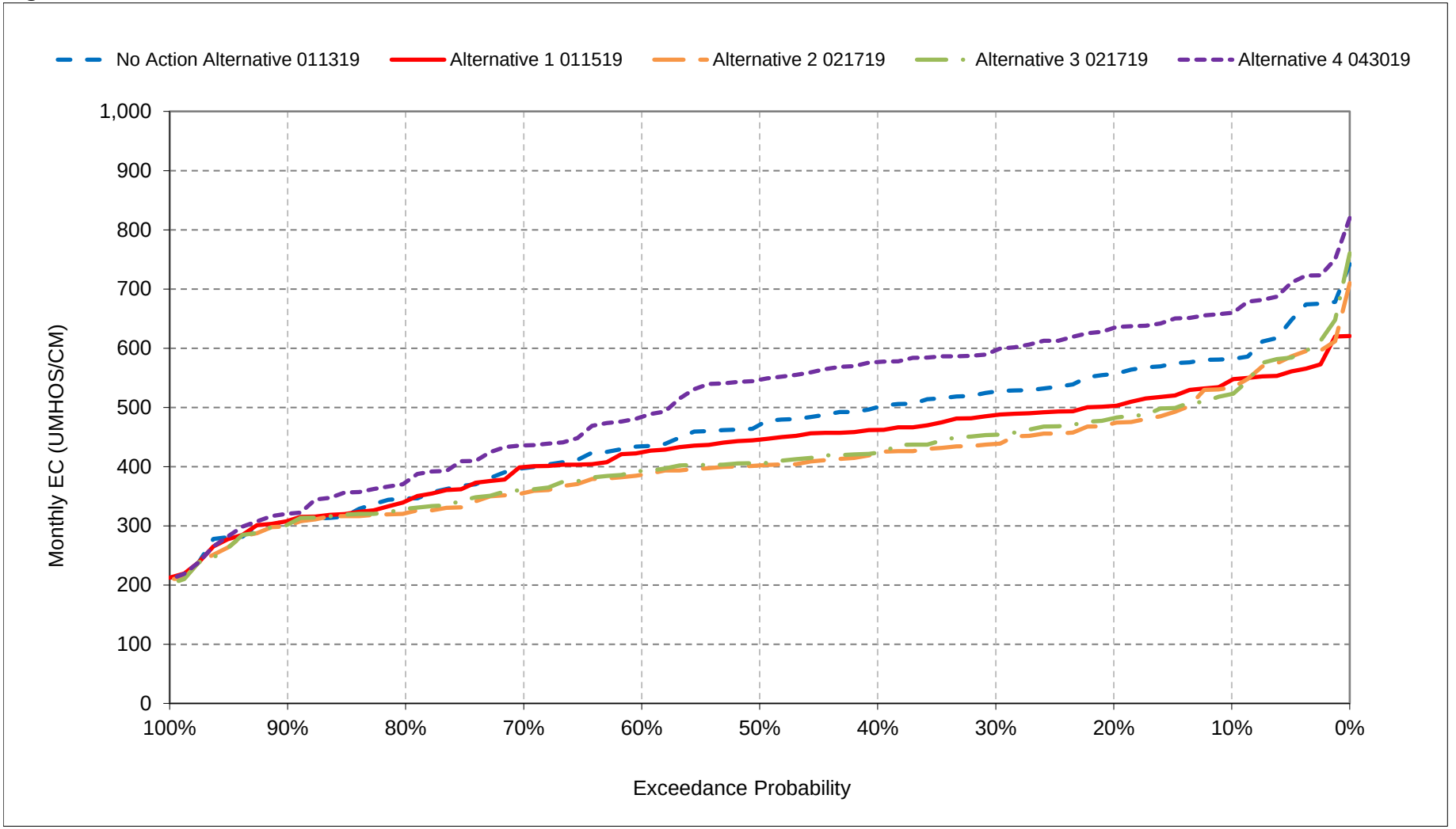
Figure 18-8. Victoria Canal, February EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

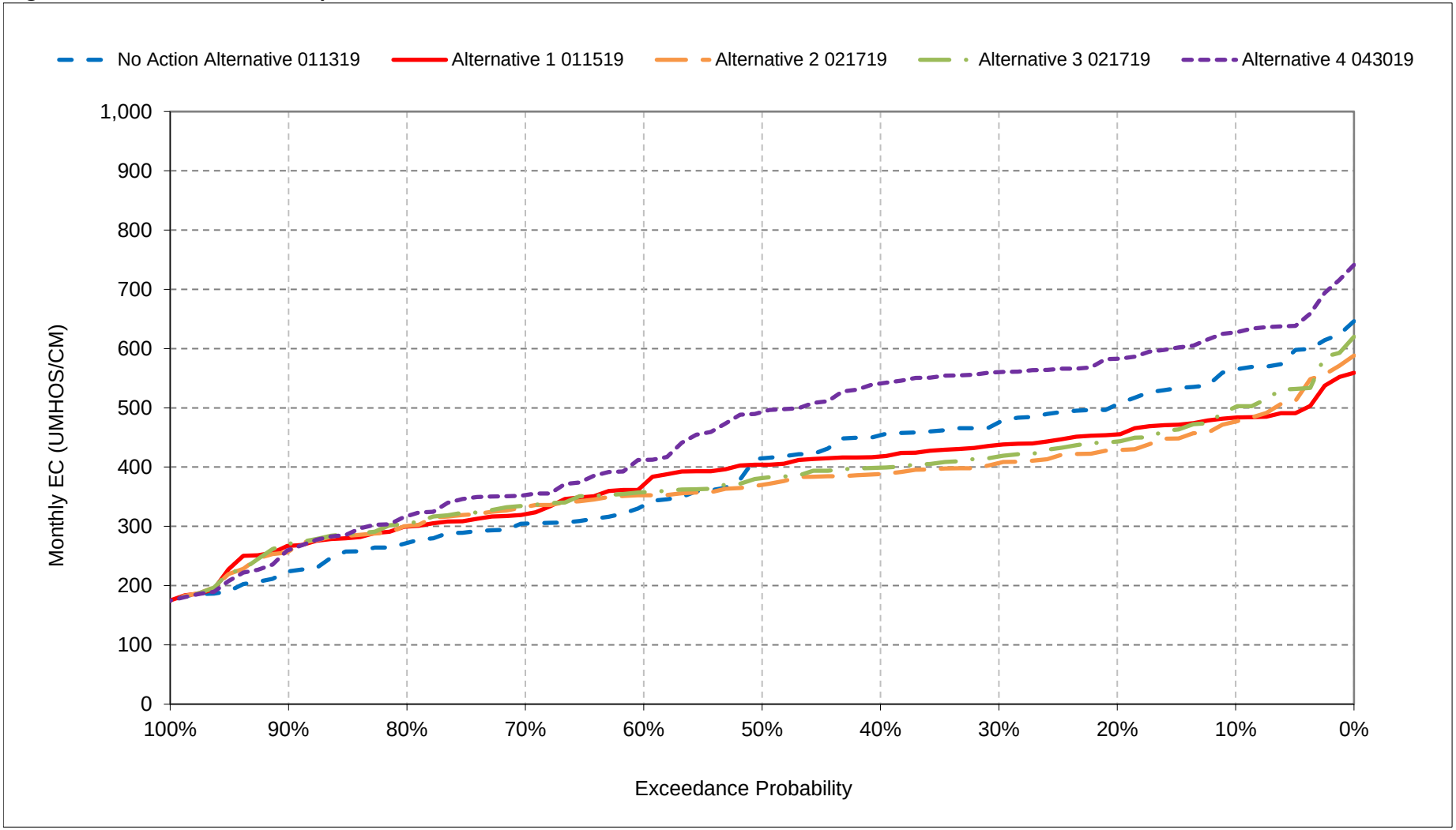
Figure 18-9. Victoria Canal, March EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

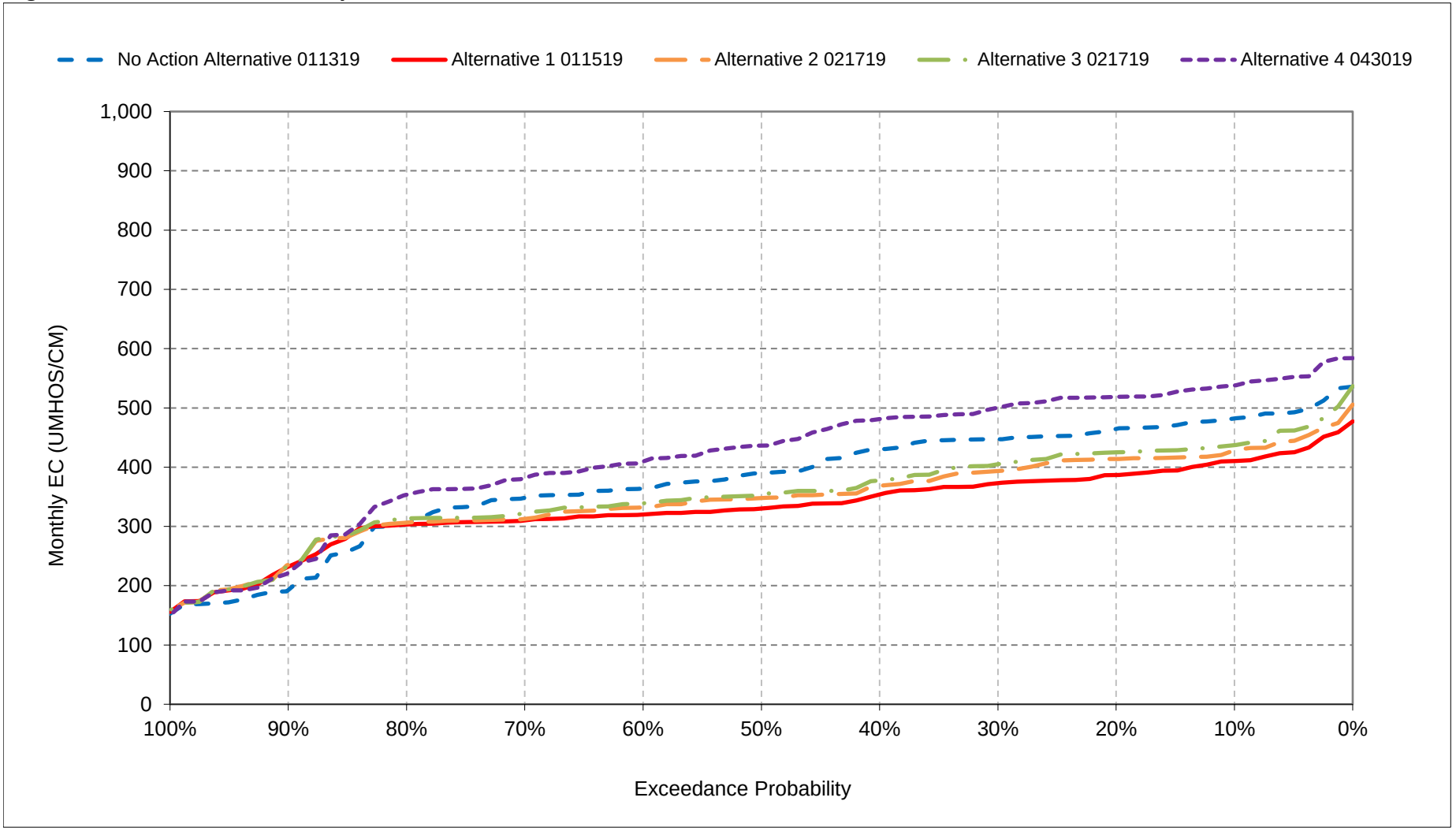
Figure 18-10. Victoria Canal, April EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

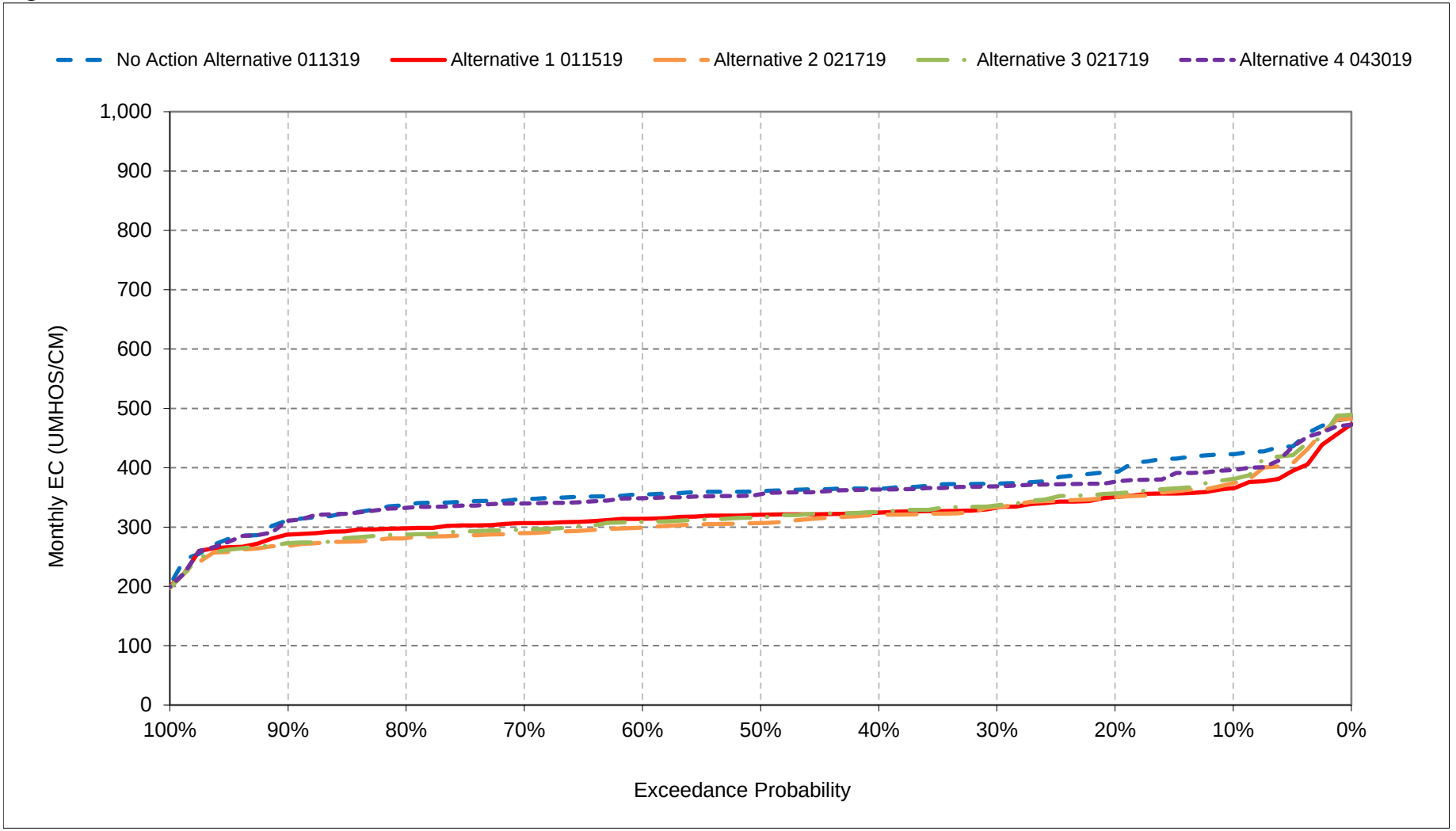
Figure 18-11. Victoria Canal, May EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

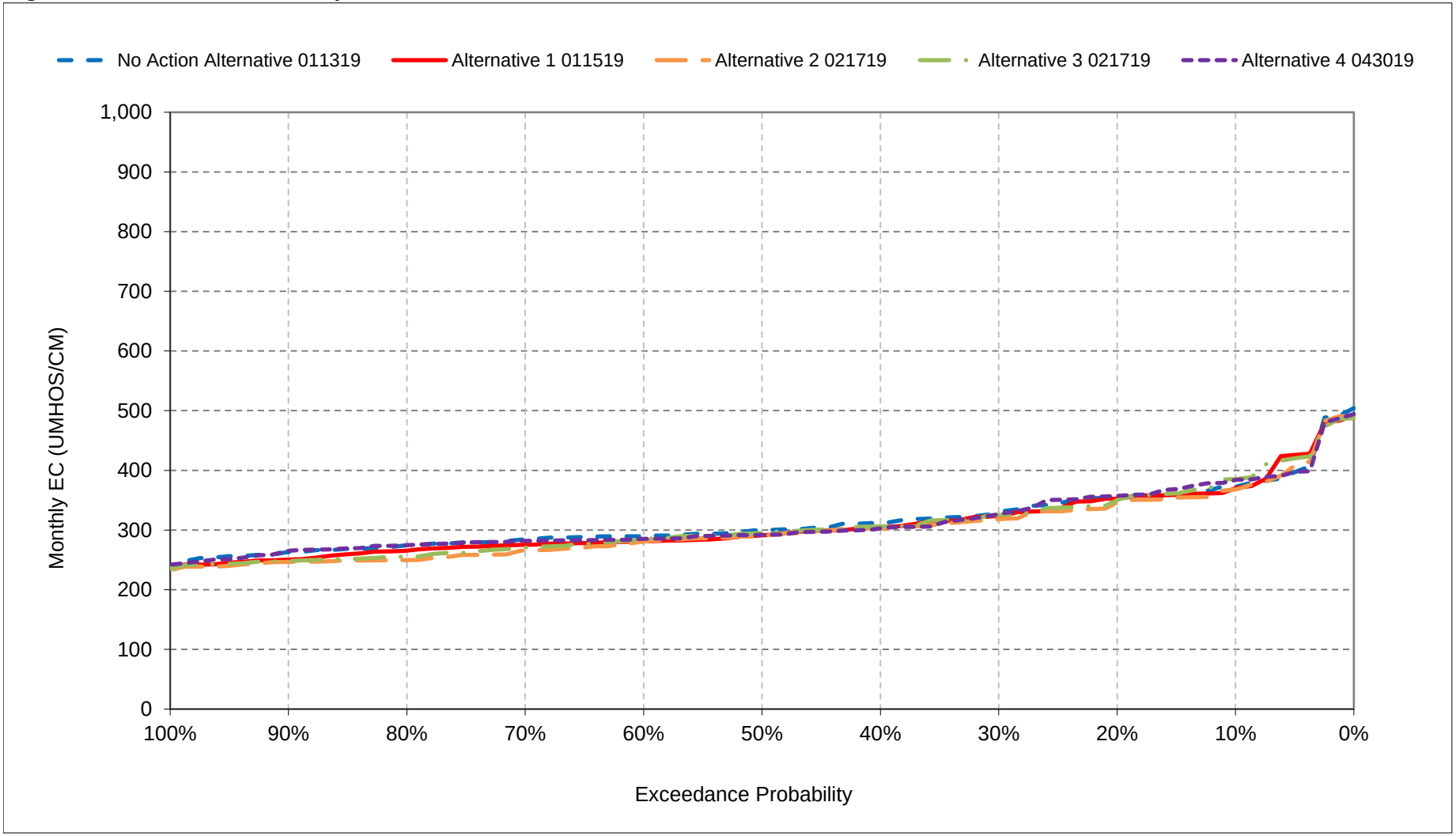
Figure 18-12. Victoria Canal, June EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

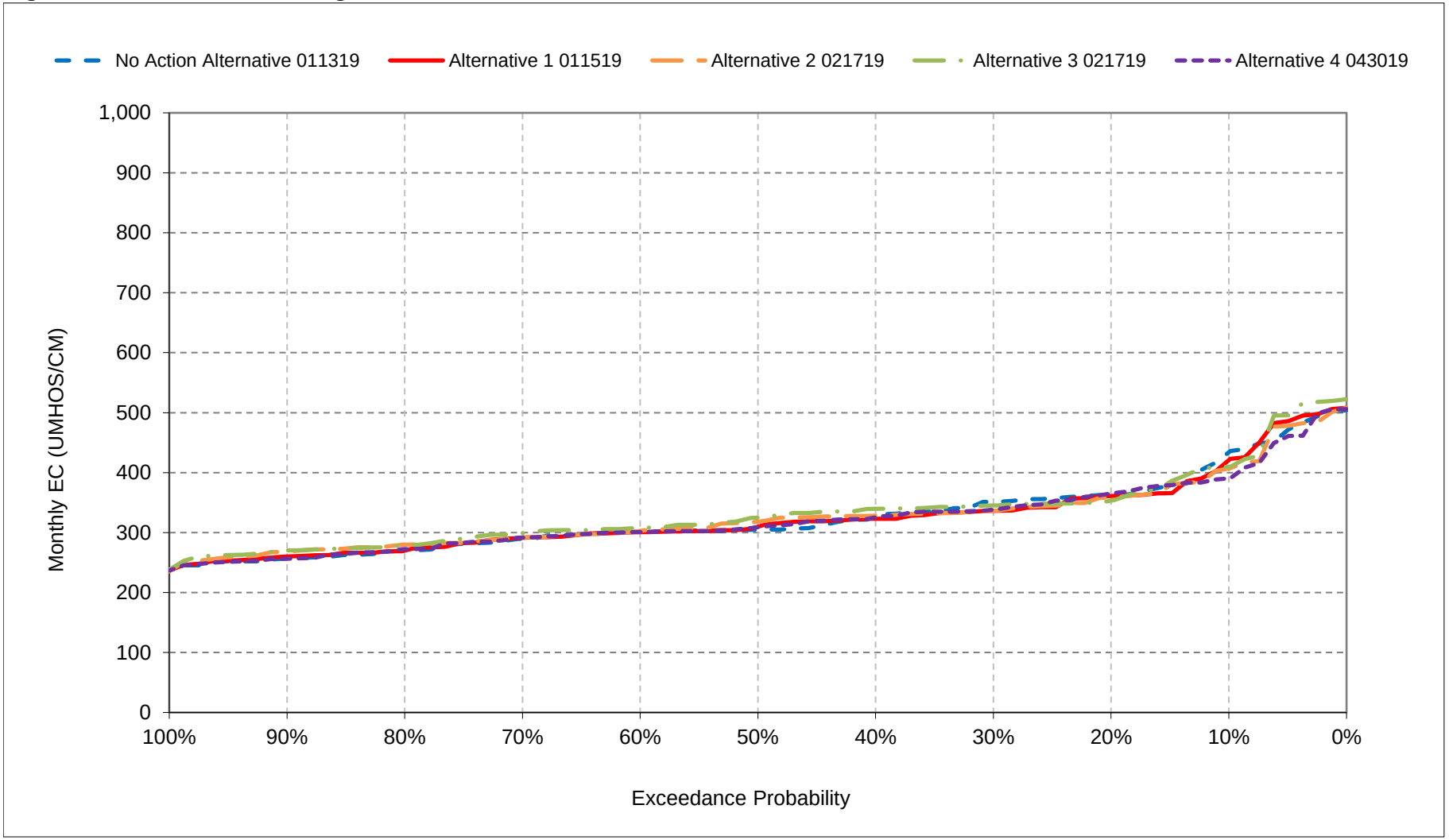
Figure 18-13. Victoria Canal, July EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

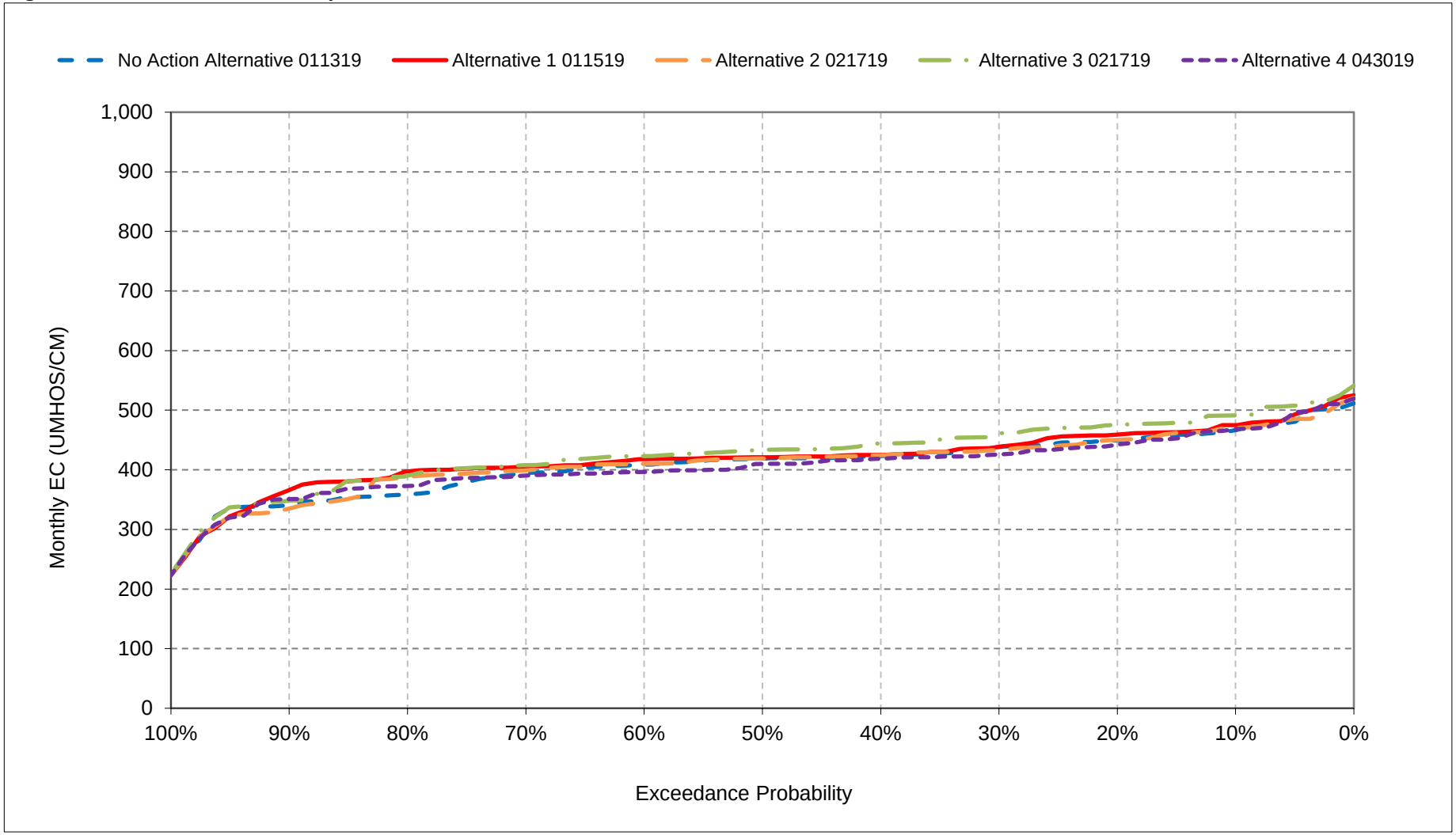
Figure 18-14. Victoria Canal, August EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

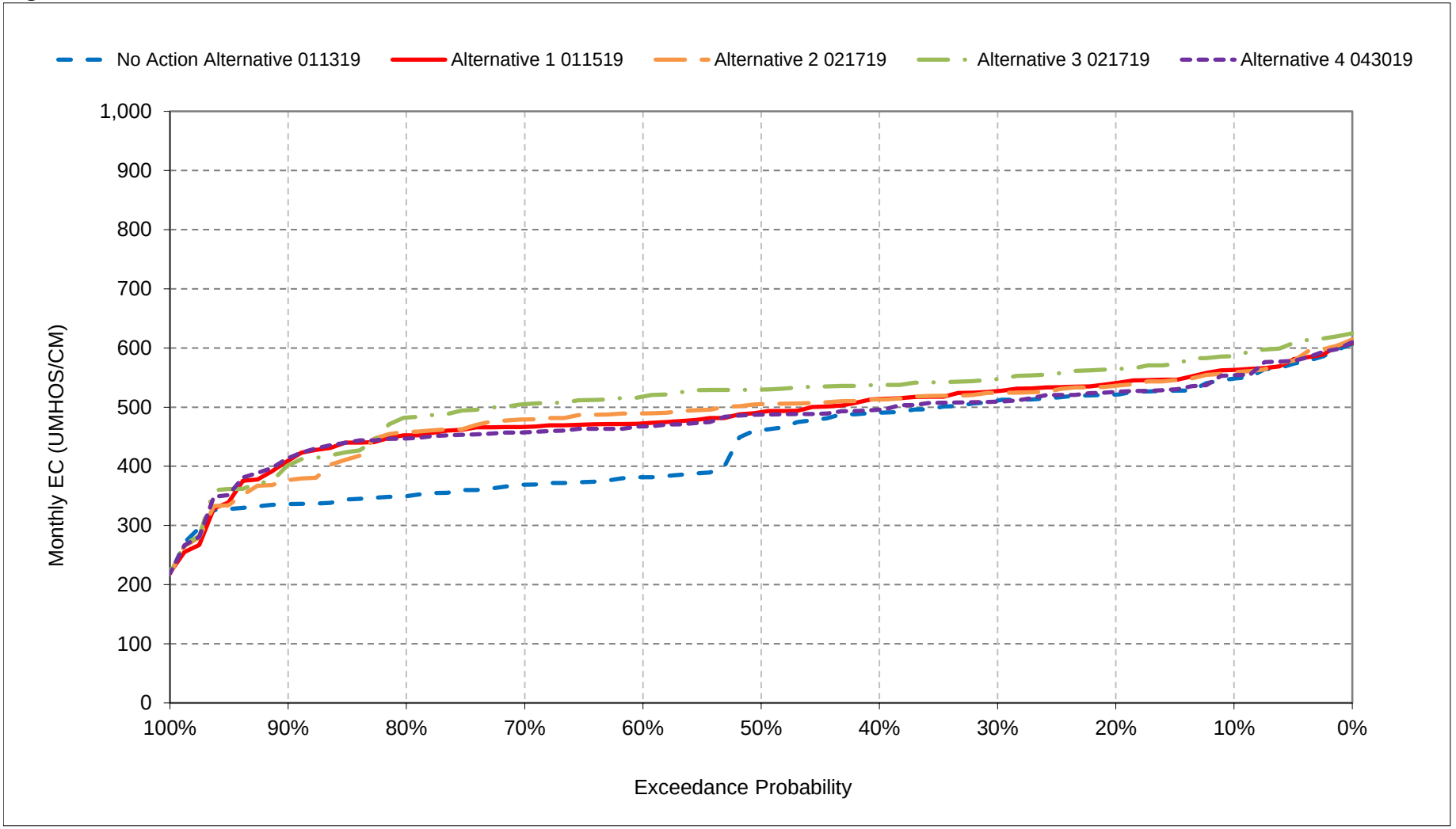
Figure 18-15. Victoria Canal, September EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

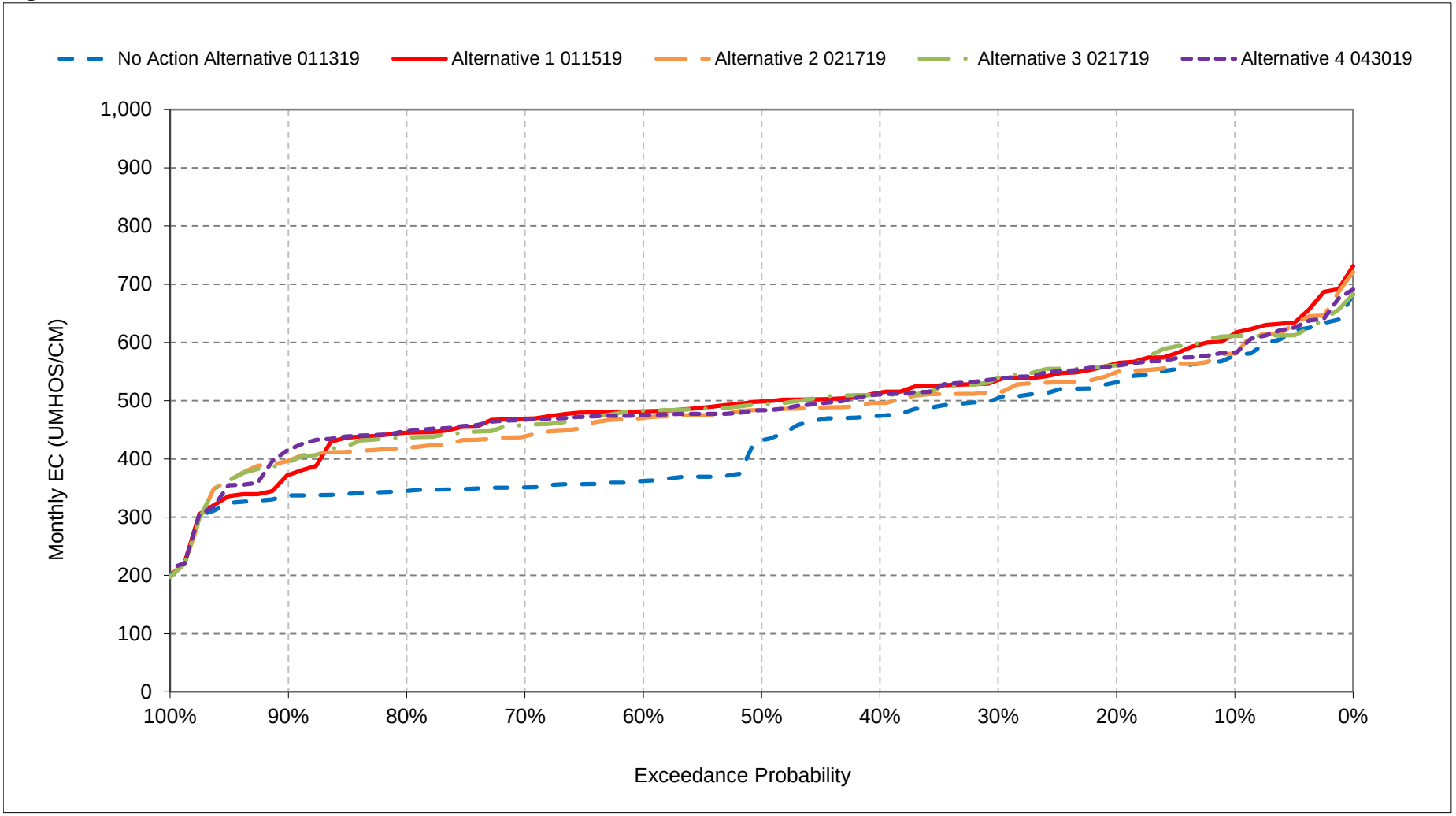
Figure 18-16. Victoria Canal, October EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

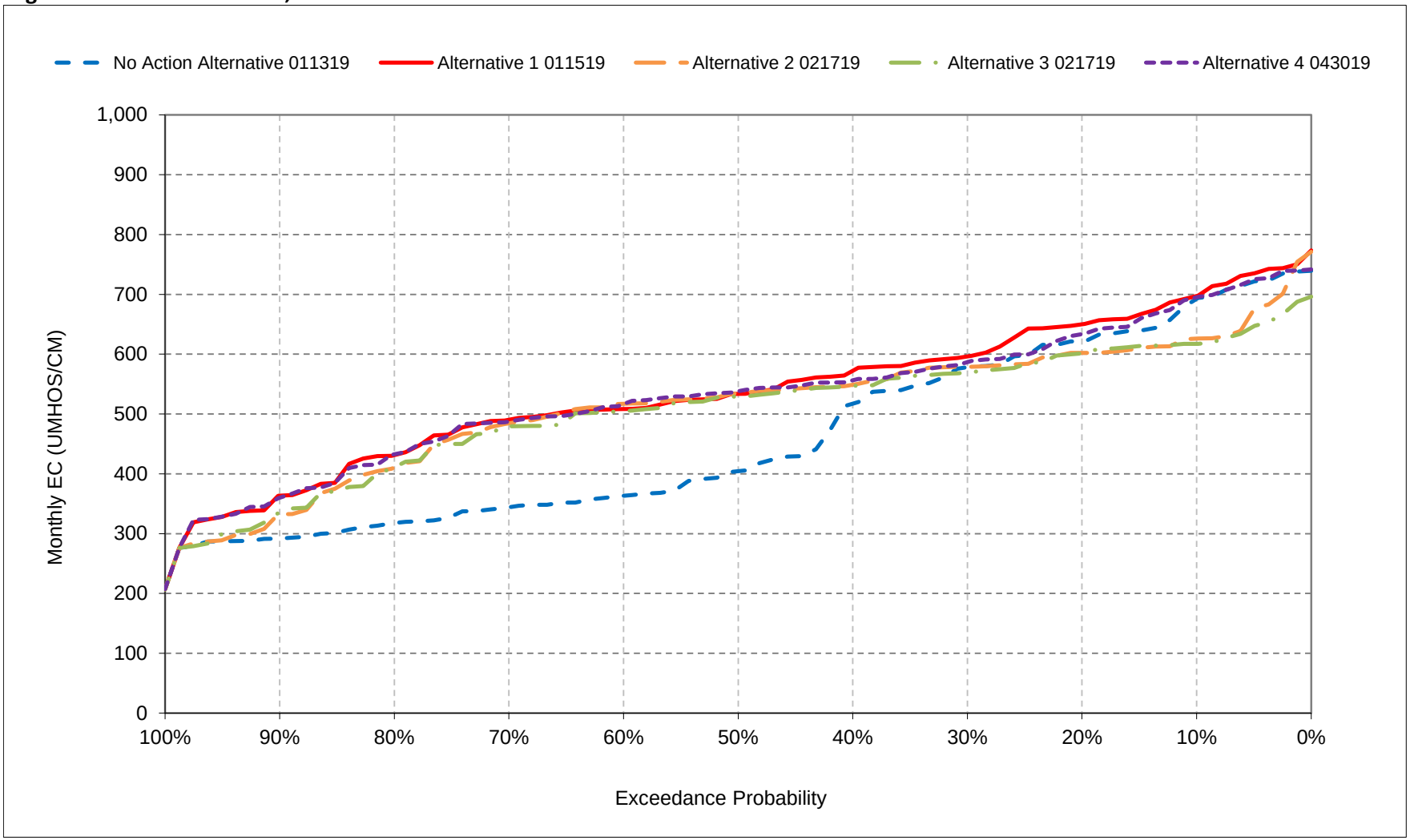
Figure 18-17. Victoria Canal, November EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 18-18. Victoria Canal, December EC



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Attachment 3-7 X2 Position Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta X2 conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
X2	X2_PRV	45-1 to 45-4	45-1 to 45-14

1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Appendix F – Modeling

Attachment 3-7 – X2 Position Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta X2 conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
X2	X2_PRV	45-1 to 45-4	45-1 to 45-14

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Table 45-1. X2, Monthly Position

No Action Alternative 011319

	Monthly Position (0)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	96.1	96.2	93.4	87.3	79.4	77.9	80.2	83.4	86.1	90.3	93.6	95.0
20%	94.7	93.6	90.8	85.1	75.2	74.7	74.8	81.6	84.7	87.7	92.3	94.0
30%	94.4	93.3	87.0	82.9	69.1	67.9	72.0	79.8	84.0	86.8	91.9	93.8
40%	94.2	91.2	85.2	77.9	65.9	66.6	68.2	74.3	82.9	84.3	88.9	92.9
50%	90.0	83.4	83.5	73.6	61.4	62.6	66.0	71.8	80.8	82.9	87.3	91.2
60%	84.3	82.4	82.4	67.2	57.8	60.5	62.7	68.6	79.9	80.9	87.0	83.1
70%	77.6	77.4	75.1	58.1	54.5	56.3	59.8	66.2	77.1	80.1	86.4	76.6
80%	77.1	76.6	64.5	55.0	54.0	54.0	55.5	61.0	72.3	79.4	85.5	75.5
90%	76.8	75.9	56.6	54.0	54.0	54.0	54.0	55.3	64.5	77.2	84.9	75.0
Long Term												
Full Simulation Period[a]	87.0	84.5	79.2	71.4	64.3	64.2	66.3	71.1	78.8	83.1	88.6	86.2
Water Year Types[b,c]												
Wet (32%)	76.9	75.3	74.1	59.0	55.6	56.8	57.9	60.8	70.0	77.5	85.5	75.4
Above Normal (16%)	83.5	81.3	78.8	64.5	58.6	57.9	60.9	67.3	78.6	80.4	85.8	83.1
Below Normal (13%)	91.8	89.9	81.5	78.0	66.9	69.3	70.9	74.8	81.7	83.3	87.8	92.2
Dry (24%)	94.2	88.8	78.3	80.7	70.0	67.7	70.4	76.8	82.9	87.1	91.8	93.8
Critical (15%)	96.3	95.8	89.9	84.4	77.2	76.7	79.7	84.6	88.4	91.4	93.9	95.1

Alternative 1 011519

	Monthly Position (0)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	96.2	96.2	93.5	88.4	80.5	80.0	81.5	83.6	86.0	90.0	93.8	95.0
20%	94.8	94.0	92.6	86.3	75.2	75.1	77.2	82.1	84.7	87.9	92.4	94.1
30%	94.5	93.5	89.9	82.9	70.2	68.1	73.6	81.0	84.1	87.4	91.9	93.9
40%	94.1	93.0	88.0	77.7	66.9	67.0	71.0	77.5	82.9	84.1	88.5	92.9
50%	93.1	92.4	86.2	73.4	61.3	62.6	67.8	75.0	81.8	82.9	87.3	91.1
60%	92.5	91.6	83.3	67.6	56.8	60.2	64.7	72.5	80.7	81.2	86.9	90.7
70%	91.7	88.7	74.9	57.1	54.4	56.0	61.2	68.4	77.7	80.3	86.3	90.3
80%	90.8	86.1	65.5	54.9	54.0	54.0	56.2	62.6	72.5	79.6	85.7	90.2
90%	86.8	77.9	56.7	54.0	54.0	54.0	54.0	56.5	64.6	77.1	85.3	89.3
Long Term												
Full Simulation Period[a]	91.9	89.1	80.3	71.4	64.5	64.4	67.6	73.0	79.1	83.2	88.6	91.5
Water Year Types[b,c]												
Wet (32%)	88.4	85.6	76.7	58.7	55.5	56.7	58.9	62.8	70.3	77.6	85.4	88.5
Above Normal (16%)	91.1	88.7	80.8	64.1	58.3	57.5	62.4	70.2	79.0	80.6	85.9	90.4
Below Normal (13%)	91.8	90.4	81.5	77.8	66.5	69.2	72.5	77.2	82.3	83.2	87.5	91.8
Dry (24%)	94.4	89.1	78.2	81.1	70.7	68.2	71.8	78.3	83.0	87.3	91.9	93.8
Critical (15%)	96.3	95.9	90.0	84.6	78.5	78.0	80.7	85.5	88.6	91.6	94.1	95.2

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Position (0)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**0.0**	0.0	**0.1**	**1.1**	**1.0**	**2.1**	**1.4**	**0.1**	-0.1	-0.3	**0.3**	0.0
20%	**0.0**	**0.3**	**1.9**	**1.1**	0.0	**0.4**	**2.4**	**0.5**	0.0	**0.2**	**0.1**	**0.0**
30%	**0.0**	**0.2**	**2.9**	**0.0**	**1.1**	**0.2**	**1.6**	**1.2**	**0.2**	**0.6**	0.0	**0.1**
40%	-0.1	**1.7**	**2.7**	-0.2	**0.9**	**0.4**	**2.8**	**3.2**	**0.0**	-0.2	-0.3	0.0
50%	**3.1**	**9.0**	**2.7**	-0.2	-0.1	-0.1	**1.9**	**3.2**	**1.0**	0.0	0.0	0.0
60%	**8.2**	**9.3**	**1.0**	**0.5**	-1.0	-0.4	**2.0**	**3.9**	**0.8**	**0.3**	-0.2	**7.5**
70%	**14.1**	**11.3**	-0.2	-1.0	-0.1	-0.4	**1.3**	**2.2**	**0.6**	**0.2**	-0.1	**13.7**
80%	**13.7**	**9.5**	**1.0**	0.0	0.0	0.0	**0.6**	**1.6**	**0.3**	**0.2**	**0.2**	**14.7**
90%	**10.0**	**2.0**	**0.2**	0.0	0.0	0.0	0.0	**1.2**	**0.1**	-0.1	**0.4**	**14.3**
Long Term												
Full Simulation Period[a]	**4.9**	**4.6**	**1.2**	-0.1	**0.2**	**0.2**	**1.3**	**1.9**	**0.3**	**0.1**	0.0	**5.3**
Water Year Types[b,c]												
Wet	**11.5**	**10.3**	**2.7**	-0.3	-0.1	-0.1	**1.0**	**2.0**	**0.3**	**0.1**	-0.1	**13.2**
Above Normal	**7.6**	**7.4**	**2.0**	-0.4	-0.3	-0.4	**1.5**	**2.9**	**0.4**	**0.1**	**0.1**	**7.3**
Below Normal	**0.0**	**0.5**	0.0	-0.2	-0.3	-0.1	**1.6**	**2.3**	**0.5**	-0.1	-0.3	-0.4
Dry	**0.2**	**0.3**	-0.1	**0.4**	**0.6**	**0.5**	**1.4**	**1.6**	**0.2**	**0.2**	**0.1**	**0.0**
Critical	**0.0**	**0.1**	**0.1**	**0.2**	**1.3**	**1.3**	**1.0**	**0.9**	**0.1**	**0.2**	**0.2**	**0.0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Results are monthly averaged from DSM2.

Table 45-2. X2, Monthly Position

No Action Alternative 011319

	Monthly Position (0)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	96.1	96.2	93.4	87.3	79.4	77.9	80.2	83.4	86.1	90.3	93.6	95.0
20%	94.7	93.6	90.8	85.1	75.2	74.7	74.8	81.6	84.7	87.7	92.3	94.0
30%	94.4	93.3	87.0	82.9	69.1	67.9	72.0	79.8	84.0	86.8	91.9	93.8
40%	94.2	91.2	85.2	77.9	65.9	66.6	68.2	74.3	82.9	84.3	88.9	92.9
50%	90.0	83.4	83.5	73.6	61.4	62.6	66.0	71.8	80.8	82.9	87.3	91.2
60%	84.3	82.4	82.4	67.2	57.8	60.5	62.7	68.6	79.9	80.9	87.0	83.1
70%	77.6	77.4	75.1	58.1	54.5	56.3	59.8	66.2	77.1	80.1	86.4	76.6
80%	77.1	76.6	64.5	55.0	54.0	54.0	55.5	61.0	72.3	79.4	85.5	75.5
90%	76.8	75.9	56.6	54.0	54.0	54.0	54.0	55.3	64.5	77.2	84.9	75.0
Long Term												
Full Simulation Period[a]	87.0	84.5	79.2	71.4	64.3	64.2	66.3	71.1	78.8	83.1	88.6	86.2
Water Year Types[b,c]												
Wet (32%)	76.9	75.3	74.1	59.0	55.6	56.8	57.9	60.8	70.0	77.5	85.5	75.4
Above Normal (16%)	83.5	81.3	78.8	64.5	58.6	57.9	60.9	67.3	78.6	80.4	85.8	83.1
Below Normal (13%)	91.8	89.9	81.5	78.0	66.9	69.3	70.9	74.8	81.7	83.3	87.8	92.2
Dry (24%)	94.2	88.8	78.3	80.7	70.0	67.7	70.4	76.8	82.9	87.1	91.8	93.8
Critical (15%)	96.3	95.8	89.9	84.4	77.2	76.7	79.7	84.6	88.4	91.4	93.9	95.1

Alternative 2 021719

	Monthly Position (KM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	95.8	95.8	93.4	89.9	82.6	81.0	81.7	83.4	85.9	89.9	93.6	94.8
20%	94.4	93.7	92.8	88.8	79.2	76.0	78.1	81.5	83.9	88.1	92.3	93.9
30%	94.0	93.2	91.9	86.1	74.6	70.7	75.3	80.4	82.4	86.8	91.8	93.6
40%	93.4	93.0	90.8	82.1	67.8	68.5	72.3	78.7	80.7	84.2	90.0	92.9
50%	93.0	92.3	89.0	79.0	63.8	64.2	68.7	75.8	79.6	82.8	87.9	91.3
60%	92.6	91.7	84.7	70.7	58.3	60.8	65.8	73.2	78.5	81.4	87.1	90.9
70%	92.0	91.4	80.0	58.7	54.9	57.1	61.3	69.5	77.7	80.5	86.7	90.6
80%	91.3	89.9	68.2	55.7	54.1	54.0	56.5	64.0	74.9	79.7	86.3	90.4
90%	90.3	80.9	57.3	54.0	54.0	54.0	54.0	56.5	65.2	77.4	85.4	89.7
Long Term												
Full Simulation Period[a]	92.4	89.9	82.2	73.8	66.1	65.4	68.3	73.3	78.4	83.3	88.9	91.6
Water Year Types[b,c]												
Wet (32%)	89.9	87.2	78.3	60.1	56.0	57.1	59.2	63.1	70.3	77.9	85.7	88.8
Above Normal (16%)	92.2	90.4	83.5	66.8	59.5	58.4	63.4	71.4	77.7	80.5	86.4	90.6
Below Normal (13%)	92.0	91.2	83.8	81.1	68.4	70.1	73.7	77.4	79.8	83.3	88.5	91.8
Dry (24%)	93.8	88.9	79.7	84.1	73.5	70.1	72.8	78.3	82.5	87.3	91.9	93.6
Critical (15%)	95.8	95.7	91.8	87.1	80.8	79.0	81.1	85.6	88.3	91.2	93.8	95.0

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Position (0)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-0.4	-0.4	**0.0**	**2.5**	**3.2**	**3.1**	**1.5**	0.0	-0.2	-0.4	**0.0**	-0.2
20%	-0.3	**0.0**	**2.0**	**3.7**	**4.0**	**1.3**	**3.3**	-0.1	-0.8	**0.5**	0.0	-0.1
30%	-0.4	-0.1	**4.9**	**3.2**	**5.4**	**2.8**	**3.3**	**0.6**	-1.6	0.0	-0.1	-0.2
40%	-0.8	**1.7**	**5.5**	**4.2**	**1.9**	**1.9**	**4.1**	**4.4**	-2.1	-0.1	**1.1**	**0.0**
50%	**3.0**	**9.0**	**5.6**	**5.4**	**2.5**	**1.6**	**2.7**	**4.0**	-1.2	-0.1	**0.7**	**0.1**
60%	**8.3**	**9.3**	**2.3**	**3.5**	**0.5**	**0.3**	**3.1**	**4.6**	-1.3	**0.5**	**0.1**	**7.8**
70%	**14.4**	**14.0**	**4.9**	**0.6**	**0.4**	**0.8**	**1.4**	**3.4**	**0.6**	**0.4**	**0.3**	**14.0**
80%	**14.2**	**13.4**	**3.6**	**0.7**	**0.1**	0.0	**1.0**	**3.0**	**2.7**	**0.3**	**0.8**	**14.9**
90%	**13.6**	**5.0**	**0.7**	0.0	0.0	0.0	0.0	**1.2**	**0.7**	**0.1**	**0.6**	**14.7**
Long Term												
Full Simulation Period[a]	**5.4**	**5.4**	**3.0**	**2.4**	**1.9**	**1.2**	**2.0**	**2.2**	-0.4	**0.1**	**0.3**	**5.3**
Water Year Types[b,c]												
Wet	**12.9**	**11.9**	**4.3**	**1.1**	**0.4**	**0.3**	**1.3**	**2.3**	**0.3**	**0.4**	**0.2**	**13.4**
Above Normal	**8.7**	**9.1**	**4.7**	**2.3**	**0.9**	**0.4**	**2.5**	**4.1**	-0.9	**0.1**	**0.6**	**7.5**
Below Normal	**0.2**	**1.3**	**2.3**	**3.1**	**1.5**	**0.8**	**2.8**	**2.6**	-2.0	0.0	**0.8**	-0.4
Dry	-0.3	**0.1**	**1.4**	**3.4**	**3.5**	**2.4**	**2.4**	**1.5**	-0.3	**0.1**	**0.1**	-0.2
Critical	-0.5	-0.2	**1.9**	**2.8**	**3.6**	**2.3**	**1.4**	**1.0**	-0.2	-0.2	-0.1	-0.2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Results are monthly averaged from DSM2.

Table 45-3. X2, Monthly Position

No Action Alternative 011319

	Monthly Position (0)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	96.1	96.2	93.4	87.3	79.4	77.9	80.2	83.4	86.1	90.3	93.6	95.0
20%	94.7	93.6	90.8	85.1	75.2	74.7	74.8	81.6	84.7	87.7	92.3	94.0
30%	94.4	93.3	87.0	82.9	69.1	67.9	72.0	79.8	84.0	86.8	91.9	93.8
40%	94.2	91.2	85.2	77.9	65.9	66.6	68.2	74.3	82.9	84.3	88.9	92.9
50%	90.0	83.4	83.5	73.6	61.4	62.6	66.0	71.8	80.8	82.9	87.3	91.2
60%	84.3	82.4	82.4	67.2	57.8	60.5	62.7	68.6	79.9	80.9	87.0	83.1
70%	77.6	77.4	75.1	58.1	54.5	56.3	59.8	66.2	77.1	80.1	86.4	76.6
80%	77.1	76.6	64.5	55.0	54.0	54.0	55.5	61.0	72.3	79.4	85.5	75.5
90%	76.8	75.9	56.6	54.0	54.0	54.0	54.0	55.3	64.5	77.2	84.9	75.0
Long Term												
Full Simulation Period[a]	87.0	84.5	79.2	71.4	64.3	64.2	66.3	71.1	78.8	83.1	88.6	86.2
Water Year Types[b,c]												
Wet (32%)	76.9	75.3	74.1	59.0	55.6	56.8	57.9	60.8	70.0	77.5	85.5	75.4
Above Normal (16%)	83.5	81.3	78.8	64.5	58.6	57.9	60.9	67.3	78.6	80.4	85.8	83.1
Below Normal (13%)	91.8	89.9	81.5	78.0	66.9	69.3	70.9	74.8	81.7	83.3	87.8	92.2
Dry (24%)	94.2	88.8	78.3	80.7	70.0	67.7	70.4	76.8	82.9	87.1	91.8	93.8
Critical (15%)	96.3	95.8	89.9	84.4	77.2	76.7	79.7	84.6	88.4	91.4	93.9	95.1

Alternative 3 021719

	Monthly Position (KM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	94.4	94.3	93.0	89.3	82.5	80.6	81.4	83.6	85.8	89.9	93.3	94.4
20%	93.6	92.7	92.1	88.2	79.6	76.0	78.3	81.7	83.7	87.8	91.7	93.3
30%	92.7	92.4	90.8	85.7	74.7	70.6	75.1	80.7	82.3	86.7	91.2	92.8
40%	92.2	91.5	89.8	82.5	67.7	68.3	72.3	78.7	80.9	84.0	89.2	92.2
50%	91.5	91.3	88.4	79.2	63.9	64.3	68.3	75.9	80.1	82.6	87.3	90.9
60%	91.0	90.9	84.5	71.0	58.2	60.8	65.6	73.2	79.3	81.3	86.6	90.3
70%	90.2	90.5	79.9	58.7	55.0	56.9	61.1	69.9	78.6	80.5	86.3	89.8
80%	89.8	88.0	68.2	55.6	54.1	54.0	56.3	63.9	74.9	79.9	85.9	89.5
90%	88.5	81.1	57.4	54.0	54.0	54.0	54.0	56.3	65.1	77.4	85.1	88.2
Long Term												
Full Simulation Period[a]	91.1	89.0	81.8	73.6	66.2	65.3	68.1	73.4	78.6	83.2	88.4	90.8
Water Year Types[b,c]												
Wet (32%)	88.8	86.5	77.9	60.0	56.0	57.0	58.9	63.3	70.5	77.9	85.4	88.1
Above Normal (16%)	90.8	89.3	82.7	66.7	59.4	58.3	63.3	71.4	78.2	80.4	85.7	89.3
Below Normal (13%)	90.7	90.3	83.5	81.1	67.9	69.8	73.6	77.4	80.1	83.2	88.0	91.2
Dry (24%)	92.2	88.1	79.5	83.9	73.8	70.0	72.7	78.2	82.5	87.0	91.3	93.0
Critical (15%)	94.9	94.7	91.4	86.5	81.0	79.1	81.1	85.6	88.5	91.2	93.5	94.5

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Position (0)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1.7	-1.9	-0.4	**2.0**	**3.1**	**2.7**	**1.2**	**0.2**	-0.3	-0.3	-0.3	-0.6
20%	-1.2	-0.9	**1.4**	**3.1**	**4.4**	**1.3**	**3.5**	**0.1**	-1.0	**0.1**	-0.6	-0.7
30%	-1.7	-0.9	**3.8**	**2.8**	**5.6**	**2.7**	**3.1**	**0.9**	-1.6	-0.1	-0.7	-1.0
40%	-2.0	**0.3**	**4.6**	**4.6**	**1.7**	**1.7**	**4.1**	**4.4**	-2.0	-0.3	**0.3**	-0.7
50%	**1.5**	**7.9**	**5.0**	**5.6**	**2.5**	**1.6**	**2.3**	**4.1**	-0.7	-0.2	**0.0**	-0.3
60%	**6.8**	**8.5**	**2.1**	**3.8**	**0.4**	**0.3**	**2.9**	**4.6**	-0.6	**0.4**	-0.4	**7.1**
70%	**12.6**	**13.0**	**4.8**	**0.6**	**0.5**	**0.6**	**1.2**	**3.7**	**1.4**	**0.4**	-0.1	**13.2**
80%	**12.7**	**11.4**	**3.7**	**0.6**	**0.0**	0.0	**0.8**	**3.0**	**2.7**	**0.5**	**0.3**	**14.0**
90%	**11.7**	**5.2**	**0.9**	0.0	0.0	0.0	0.0	**1.0**	**0.6**	**0.2**	**0.2**	**13.2**
Long Term												
Full Simulation Period[a]	**4.1**	**4.5**	**2.6**	**2.2**	**1.9**	**1.1**	**1.8**	**2.3**	-0.2	**0.0**	-0.2	**4.6**
Water Year Types[b,c]												
Wet	**11.9**	**11.2**	**3.8**	**1.0**	**0.4**	**0.2**	**1.0**	**2.5**	**0.5**	**0.4**	-0.1	**12.7**
Above Normal	**7.4**	**7.9**	**3.9**	**2.2**	**0.8**	**0.3**	**2.4**	**4.1**	-0.4	-0.1	-0.1	**6.2**
Below Normal	-1.2	**0.4**	**2.0**	**3.1**	**1.1**	**0.5**	**2.6**	**2.6**	-1.6	-0.1	**0.2**	-1.0
Dry	-2.0	-0.7	**1.2**	**3.2**	**3.8**	**2.3**	**2.3**	**1.4**	-0.4	-0.1	-0.5	-0.8
Critical	-1.4	-1.2	**1.5**	**2.2**	**3.8**	**2.4**	**1.4**	**1.0**	**0.1**	-0.2	-0.4	-0.6

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

f Results are monthly averaged from DSM2.

Table 45-4. X2, Monthly Position

No Action Alternative 011319

	Monthly Position (0)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	96.1	96.2	93.4	87.3	79.4	77.9	80.2	83.4	86.1	90.3	93.6	95.0
20%	94.7	93.6	90.8	85.1	75.2	74.7	74.8	81.6	84.7	87.7	92.3	94.0
30%	94.4	93.3	87.0	82.9	69.1	67.9	72.0	79.8	84.0	86.8	91.9	93.8
40%	94.2	91.2	85.2	77.9	65.9	66.6	68.2	74.3	82.9	84.3	88.9	92.9
50%	90.0	83.4	83.5	73.6	61.4	62.6	66.0	71.8	80.8	82.9	87.3	91.2
60%	84.3	82.4	82.4	67.2	57.8	60.5	62.7	68.6	79.9	80.9	87.0	83.1
70%	77.6	77.4	75.1	58.1	54.5	56.3	59.8	66.2	77.1	80.1	86.4	76.6
80%	77.1	76.6	64.5	55.0	54.0	54.0	55.5	61.0	72.3	79.4	85.5	75.5
90%	76.8	75.9	56.6	54.0	54.0	54.0	54.0	55.3	64.5	77.2	84.9	75.0
Long Term												
Full Simulation Period[a]	87.0	84.5	79.2	71.4	64.3	64.2	66.3	71.1	78.8	83.1	88.6	86.2
Water Year Types[b,c]												
Wet (32%)	76.9	75.3	74.1	59.0	55.6	56.8	57.9	60.8	70.0	77.5	85.5	75.4
Above Normal (16%)	83.5	81.3	78.8	64.5	58.6	57.9	60.9	67.3	78.6	80.4	85.8	83.1
Below Normal (13%)	91.8	89.9	81.5	78.0	66.9	69.3	70.9	74.8	81.7	83.3	87.8	92.2
Dry (24%)	94.2	88.8	78.3	80.7	70.0	67.7	70.4	76.8	82.9	87.1	91.8	93.8
Critical (15%)	96.3	95.8	89.9	84.4	77.2	76.7	79.7	84.6	88.4	91.4	93.9	95.1

Alternative 4 043019

	Monthly Position (KM)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	96.1	96.1	93.4	88.2	80.1	76.8	79.0	83.4	85.8	90.1	93.9	95.0
20%	94.8	93.9	92.7	85.7	75.0	69.8	73.3	81.8	84.7	88.4	92.5	94.1
30%	94.4	93.4	90.1	82.3	69.7	65.0	69.7	78.5	83.7	87.2	92.2	94.0
40%	94.3	93.1	88.4	76.8	66.1	63.4	66.7	73.5	82.7	84.7	89.9	93.6
50%	93.7	92.7	86.1	72.7	60.4	61.0	63.7	70.1	80.5	83.4	88.2	92.3
60%	92.7	92.1	83.1	66.2	56.7	58.1	60.5	67.2	79.1	81.2	87.0	91.0
70%	92.1	89.2	74.2	57.0	54.2	54.8	58.1	64.8	76.3	80.5	86.4	90.7
80%	91.0	85.4	64.2	54.8	54.0	54.0	54.8	60.2	72.2	80.2	85.8	90.4
90%	88.9	79.9	56.4	54.0	54.0	54.0	54.0	55.6	64.8	77.4	85.2	89.9
Long Term												
Full Simulation Period[a]	92.3	89.2	80.2	71.0	64.0	62.4	64.9	70.4	78.4	83.4	88.9	91.9
Water Year Types[b,c]												
Wet (32%)	89.1	86.1	76.8	58.5	55.3	56.1	57.2	60.5	69.7	77.8	85.5	89.0
Above Normal (16%)	92.0	89.1	80.5	63.9	58.1	56.5	59.3	65.9	78.2	80.7	85.9	90.5
Below Normal (13%)	91.7	89.6	81.0	76.8	66.0	65.1	67.6	73.8	81.4	83.6	88.8	92.9
Dry (24%)	94.5	89.1	78.0	80.7	69.9	65.3	68.7	76.1	82.6	87.6	92.2	94.1
Critical (15%)	96.3	95.9	89.9	84.2	77.8	75.5	78.7	84.1	88.0	91.7	94.1	95.2

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Position (0)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0.0	0.0	**0.0**	**0.9**	**0.6**	-1.1	-1.2	0.0	-0.3	-0.1	**0.4**	**0.0**
20%	**0.0**	**0.2**	**1.9**	**0.6**	-0.2	-4.9	-1.5	**0.2**	-0.1	**0.7**	**0.2**	**0.1**
30%	-0.1	**0.1**	**3.1**	-0.6	**0.6**	-2.9	-2.3	-1.3	-0.2	**0.5**	**0.3**	**0.2**
40%	**0.1**	**1.8**	**3.2**	-1.0	**0.2**	-3.2	-1.5	-0.8	-0.2	**0.4**	**1.0**	**0.6**
50%	**3.7**	**9.4**	**2.6**	-0.9	-1.0	-1.7	-2.2	-1.7	-0.2	**0.5**	**1.0**	**1.1**
60%	**8.5**	**9.7**	**0.7**	-0.9	-1.1	-2.4	-2.2	-1.3	-0.8	**0.3**	0.0	**7.9**
70%	**14.5**	**11.7**	-0.9	-1.1	-0.3	-1.5	-1.8	-1.4	-0.8	**0.4**	**0.0**	**14.1**
80%	**13.9**	**8.9**	-0.4	-0.1	0.0	0.0	-0.7	-0.8	0.0	**0.8**	**0.3**	**14.9**
90%	**12.1**	**4.0**	-0.2	0.0	0.0	0.0	0.0	**0.3**	**0.3**	**0.1**	**0.3**	**14.8**
Long Term												
Full Simulation Period[a]	**5.3**	**4.7**	**1.0**	-0.4	-0.2	-1.8	-1.4	-0.7	-0.3	**0.3**	**0.3**	**5.7**
Water Year Types[b,c]												
Wet	**12.2**	**10.8**	**2.8**	-0.5	-0.3	-0.7	-0.6	-0.3	-0.3	**0.2**	**0.1**	**13.7**
Above Normal	**8.6**	**7.8**	**1.7**	-0.6	-0.5	-1.4	-1.5	-1.4	-0.4	**0.3**	**0.1**	**7.4**
Below Normal	-0.1	-0.3	-0.5	-1.2	-0.9	-4.2	-3.3	-1.0	-0.3	**0.3**	**1.0**	**0.7**
Dry	**0.3**	**0.3**	-0.3	**0.0**	-0.1	-2.4	-1.6	-0.7	-0.3	**0.4**	**0.4**	**0.3**
Critical	0.0	**0.1**	0.0	-0.2	**0.6**	-1.2	-1.0	-0.5	-0.4	**0.3**	**0.2**	**0.1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

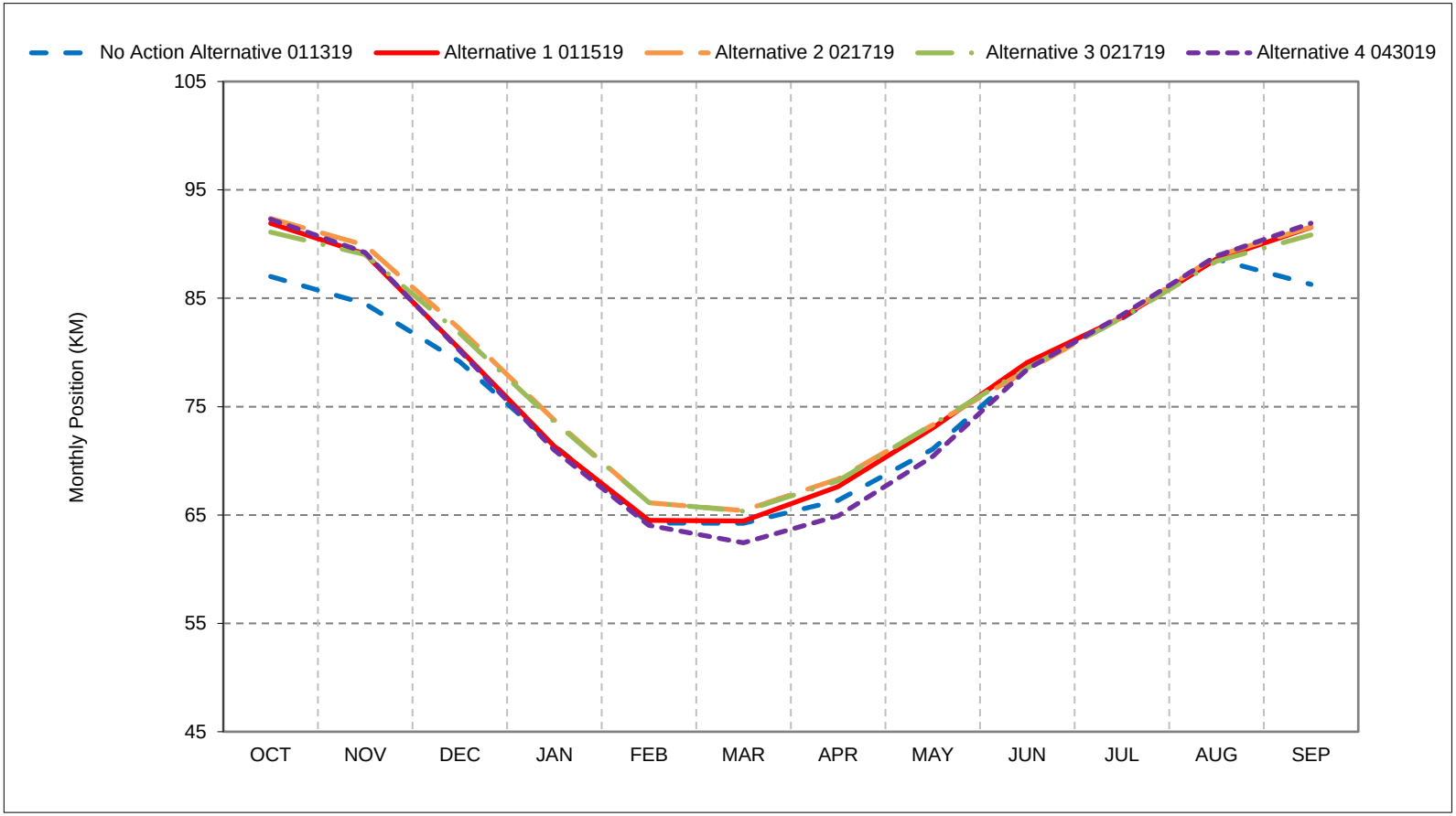
c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

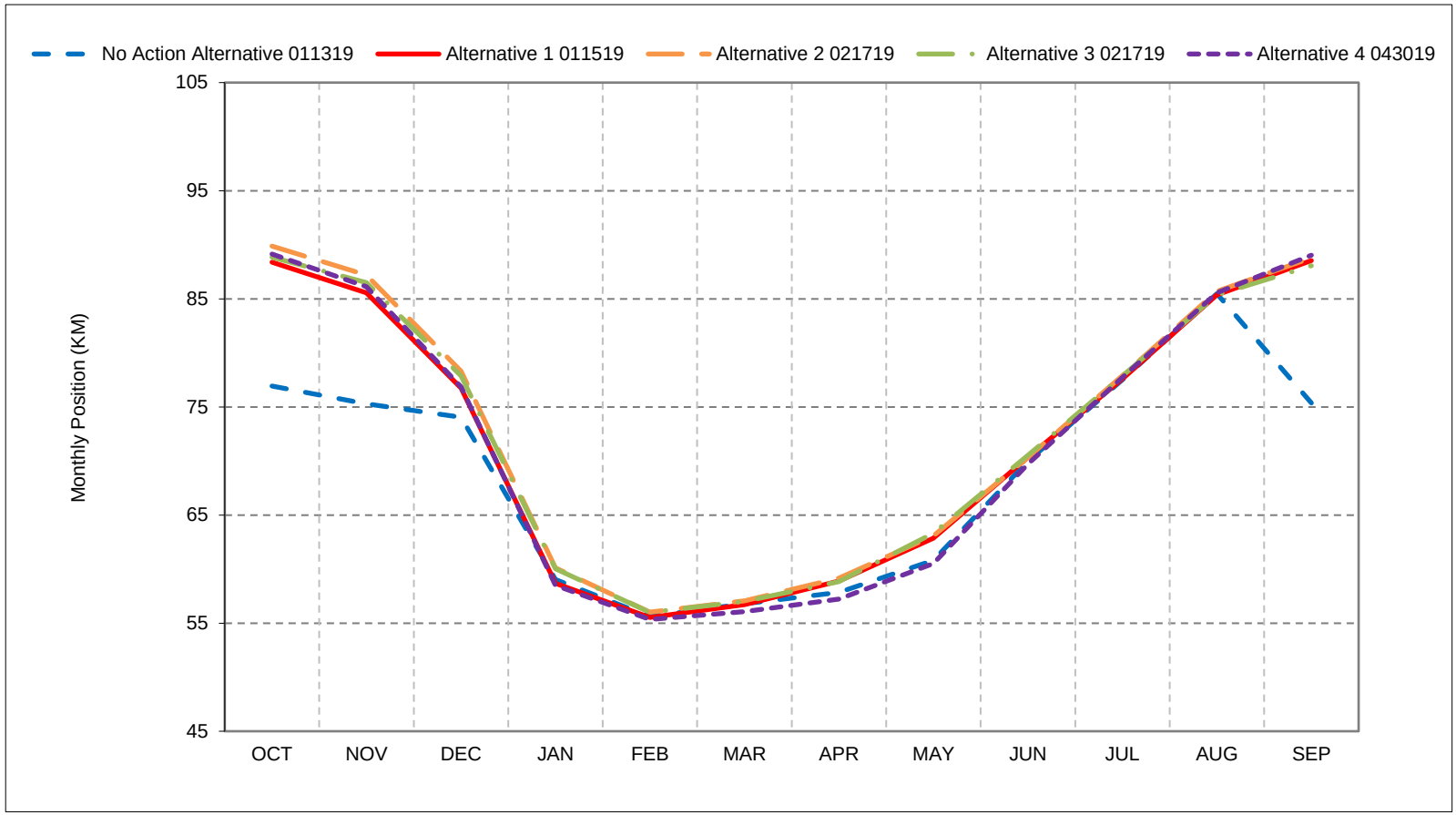
f Results are monthly averaged from DSM2.

Figure 45-1. X2, Long-Term Average Position



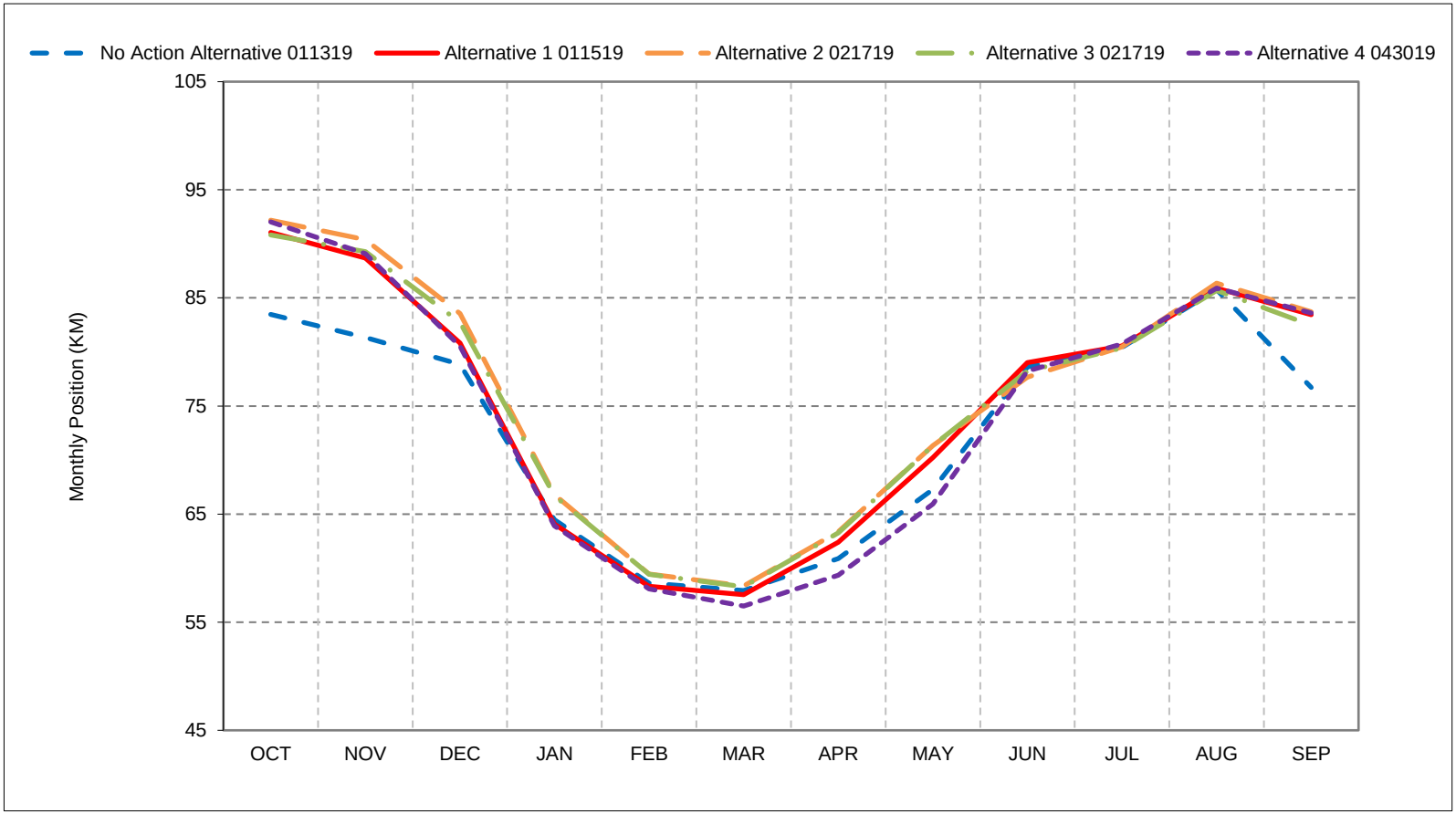
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

Figure 45-2. X2, Wet Year Average Position



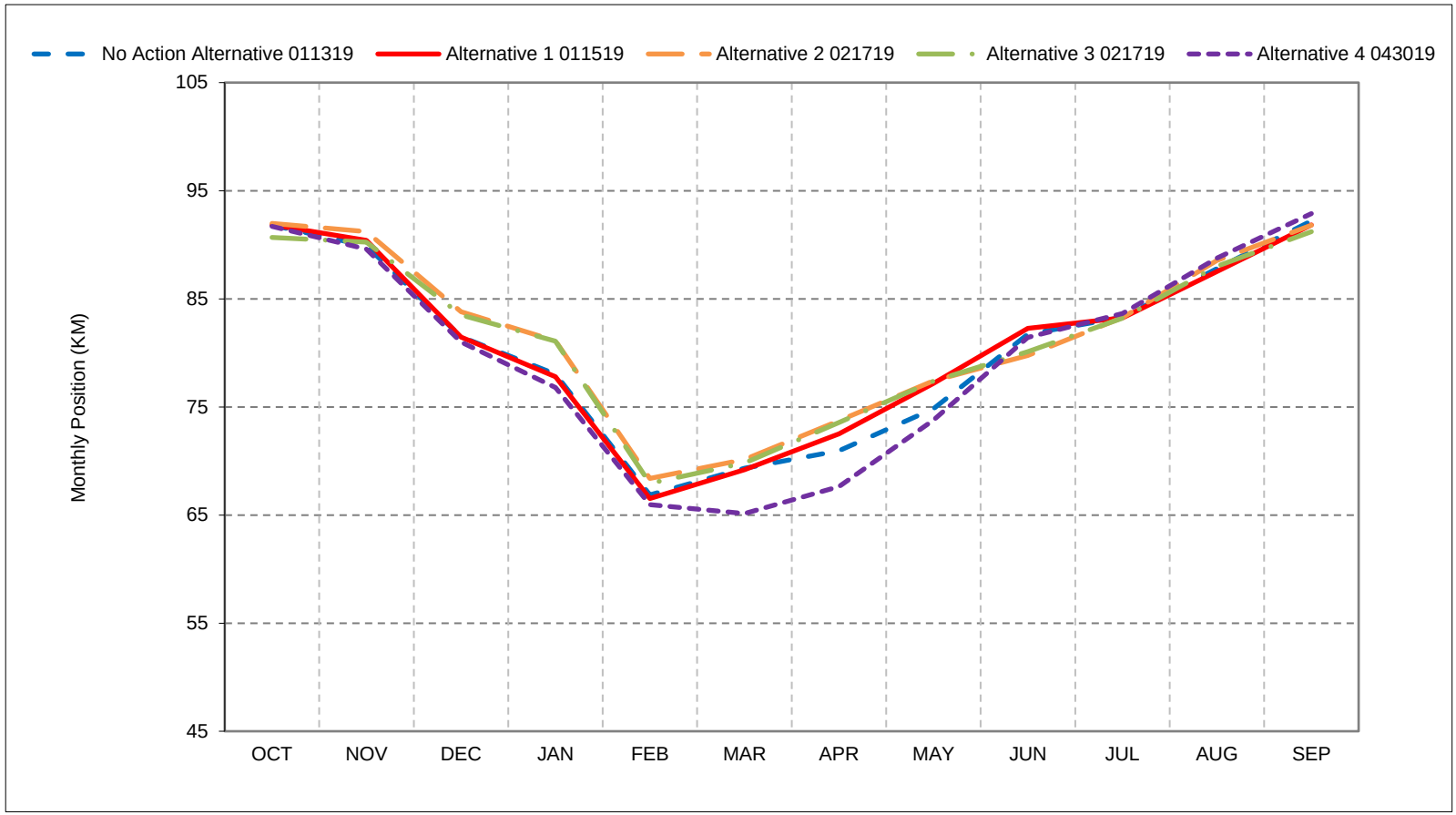
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

Figure 45-3. X2, Above Normal Year Average Position



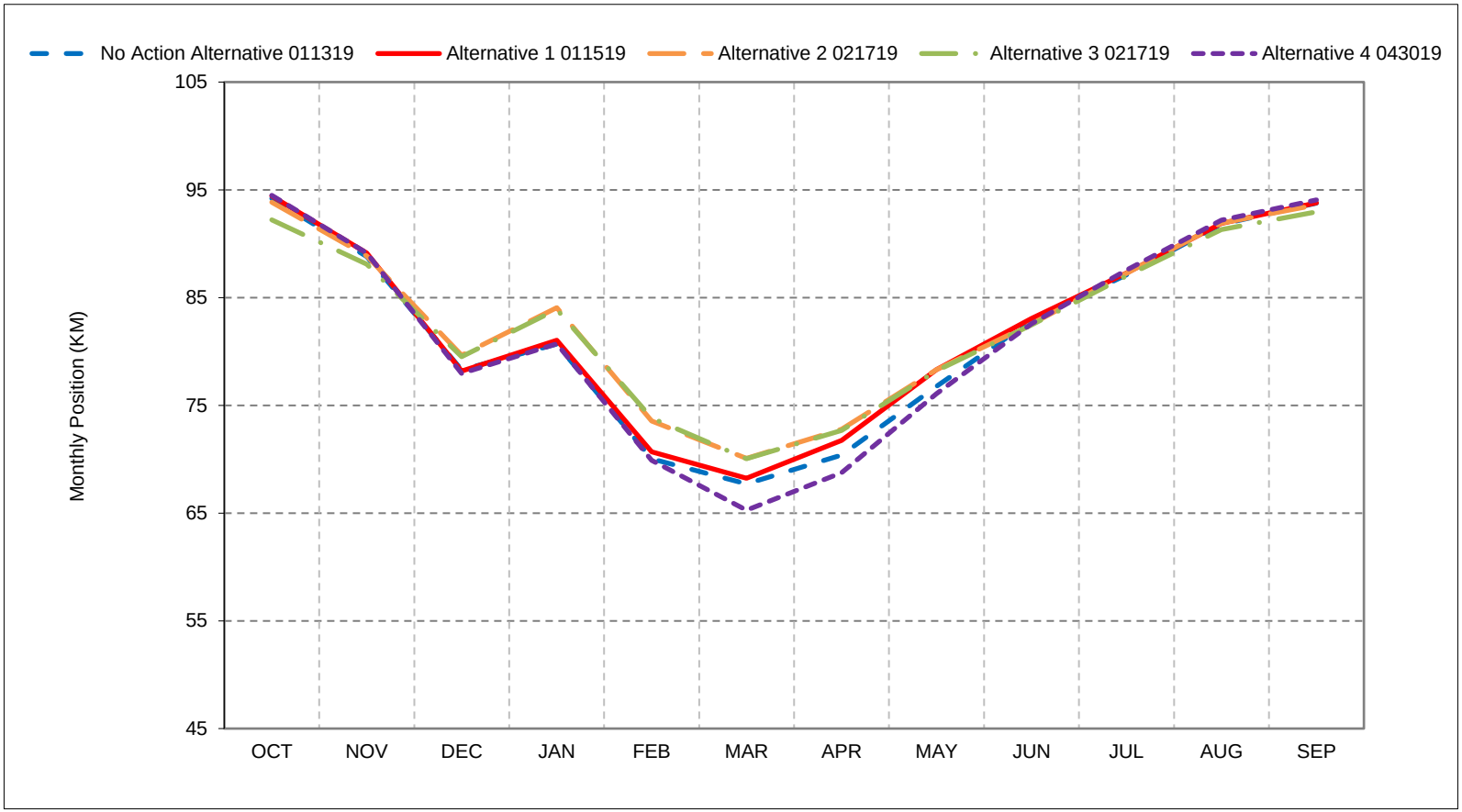
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

Figure 45-4. X2, Below Normal Year Average Position



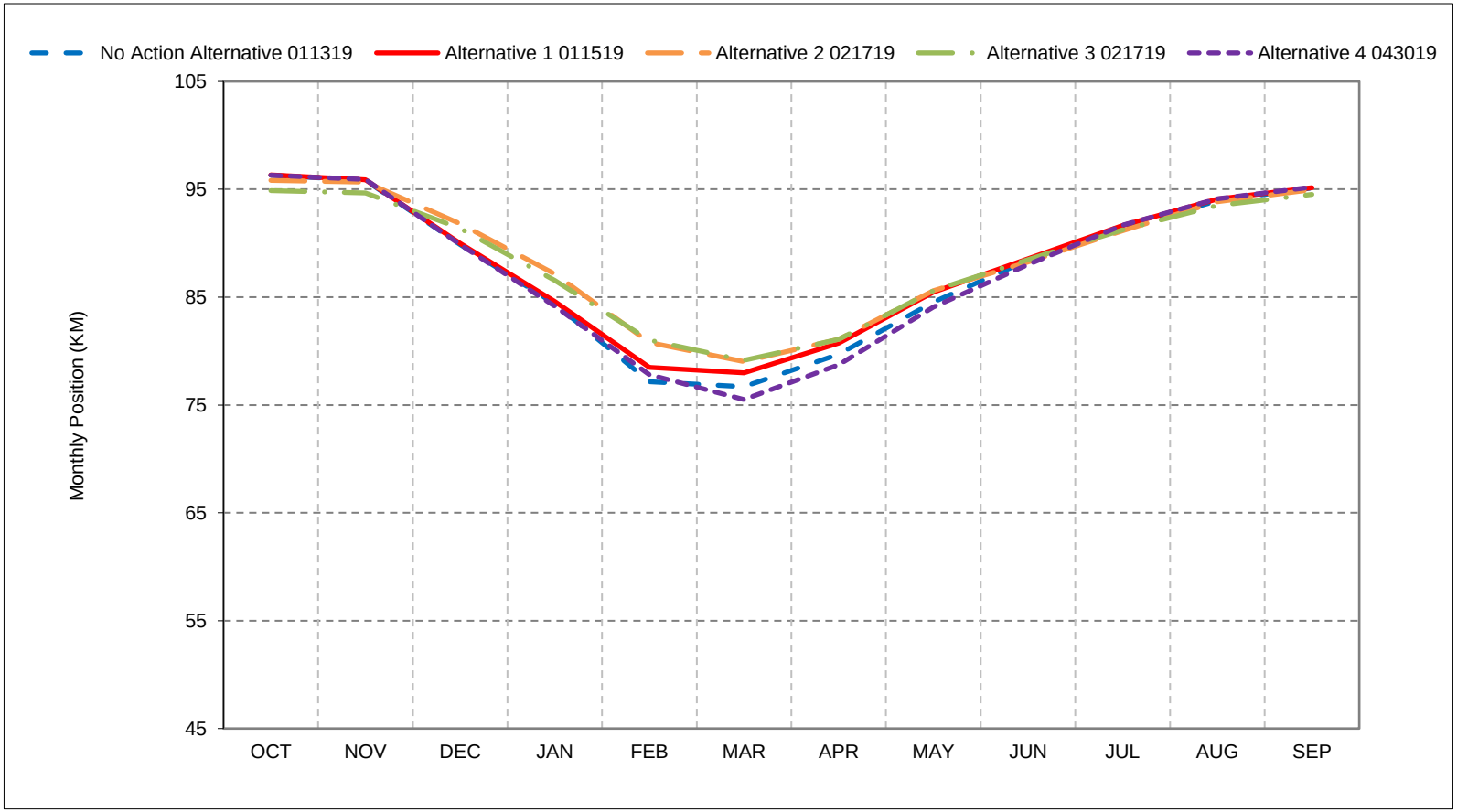
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

Figure 45-5. X2, Dry Year Average Position



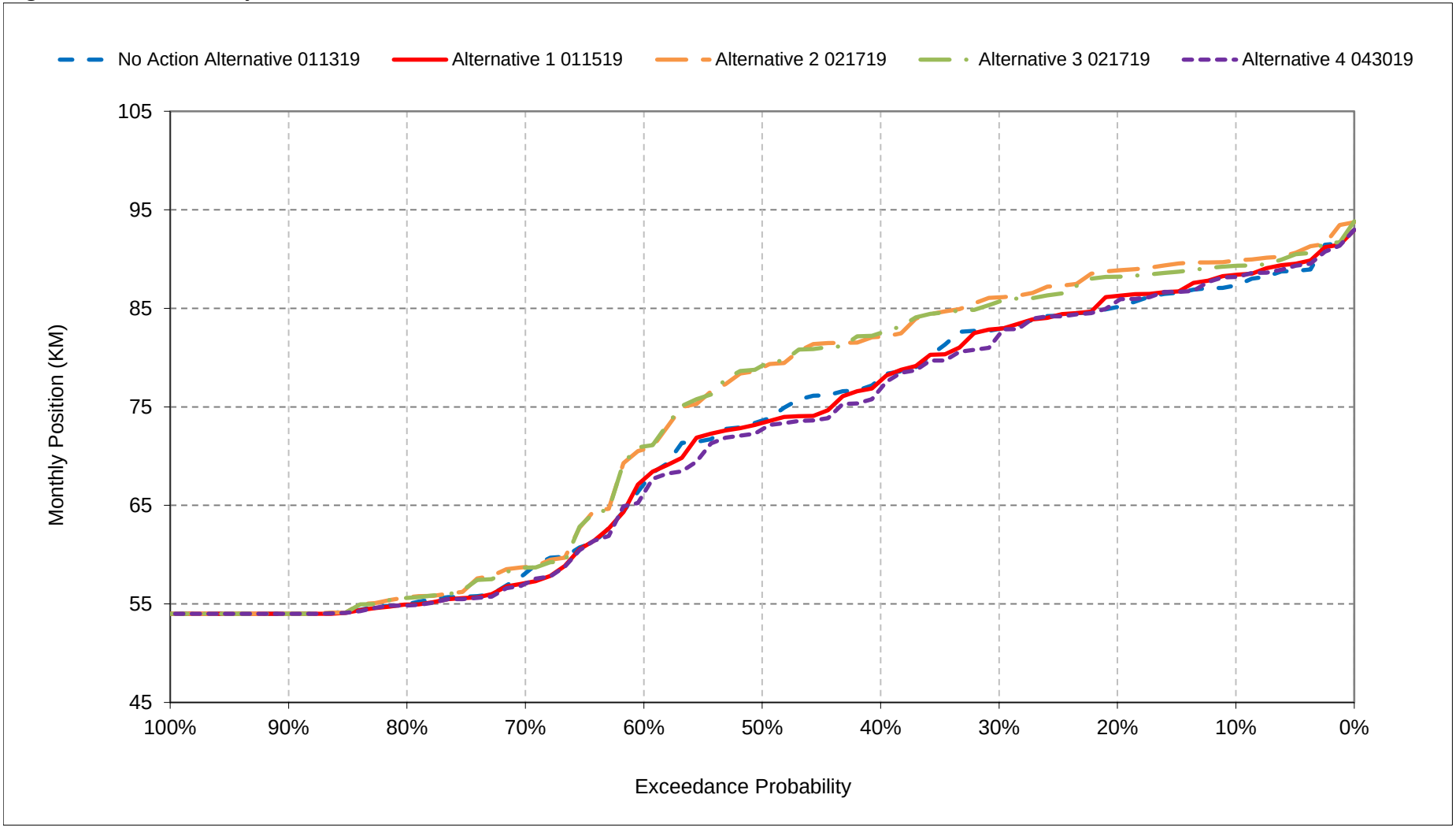
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

Figure 45-6. X2, Critical Year Average Position



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.
* Results are monthly averaged from DSM2.

Figure 45-7. X2, January Position

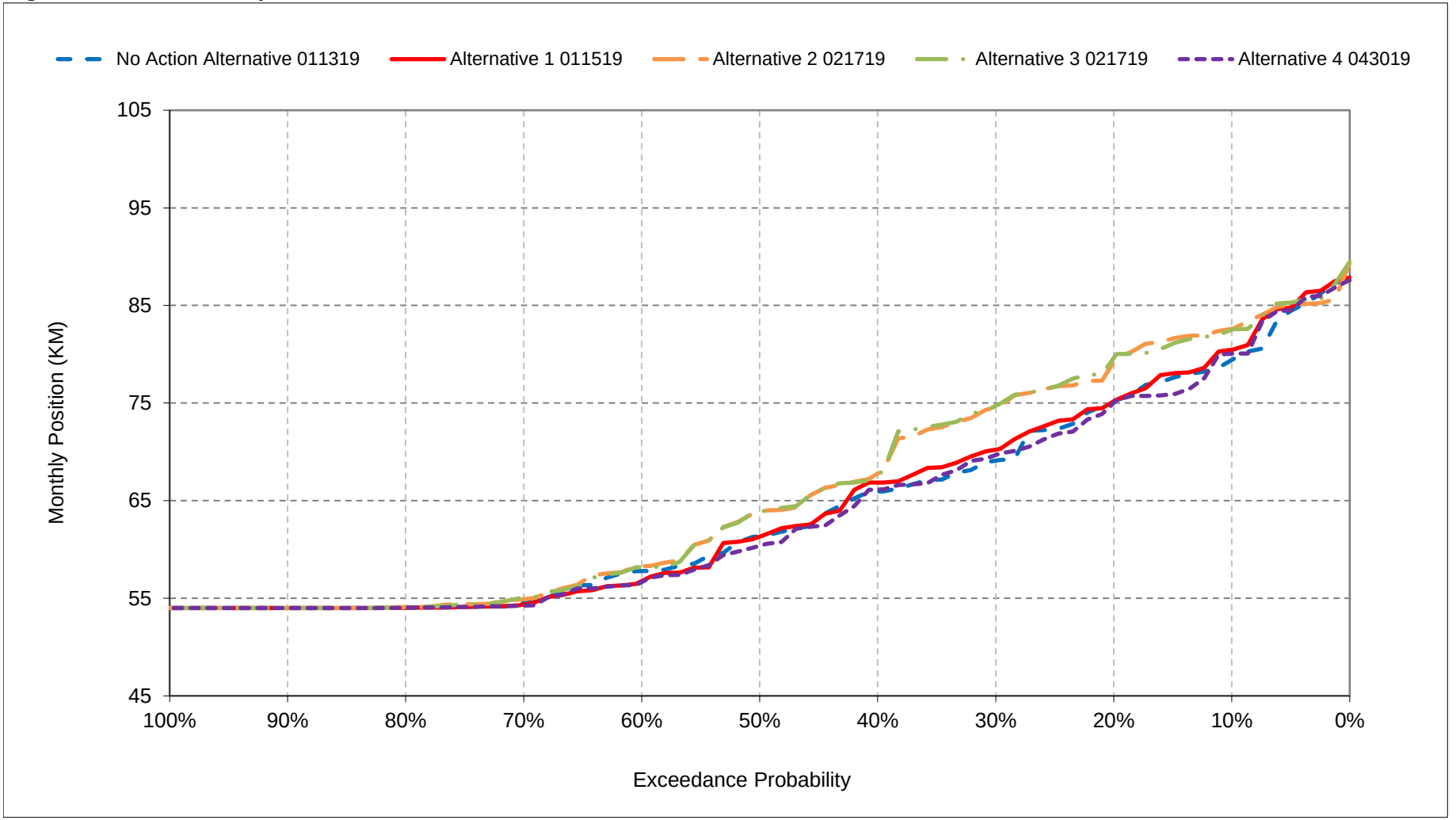


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-8. X2, February Position

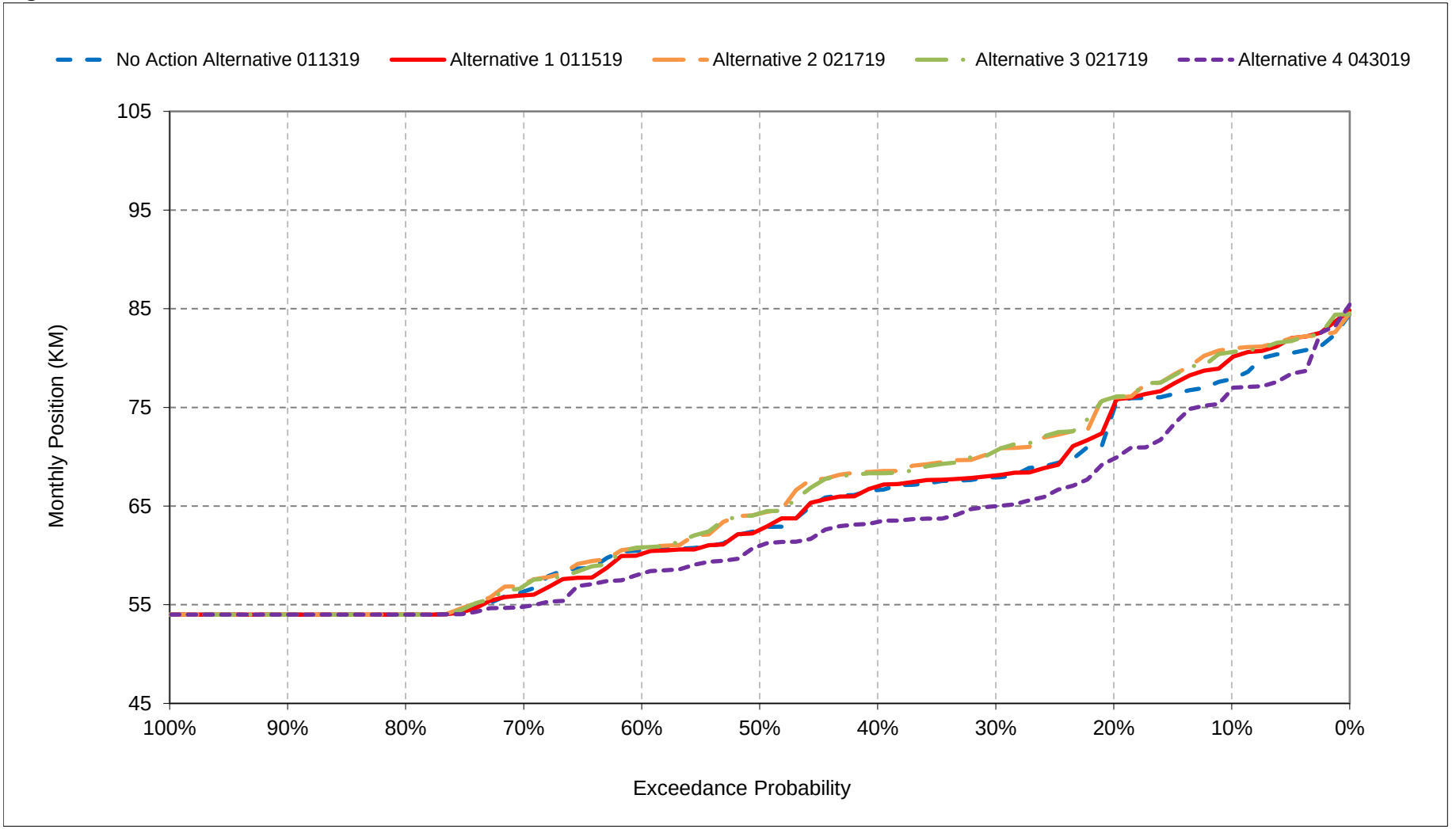


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-9. X2, March Position

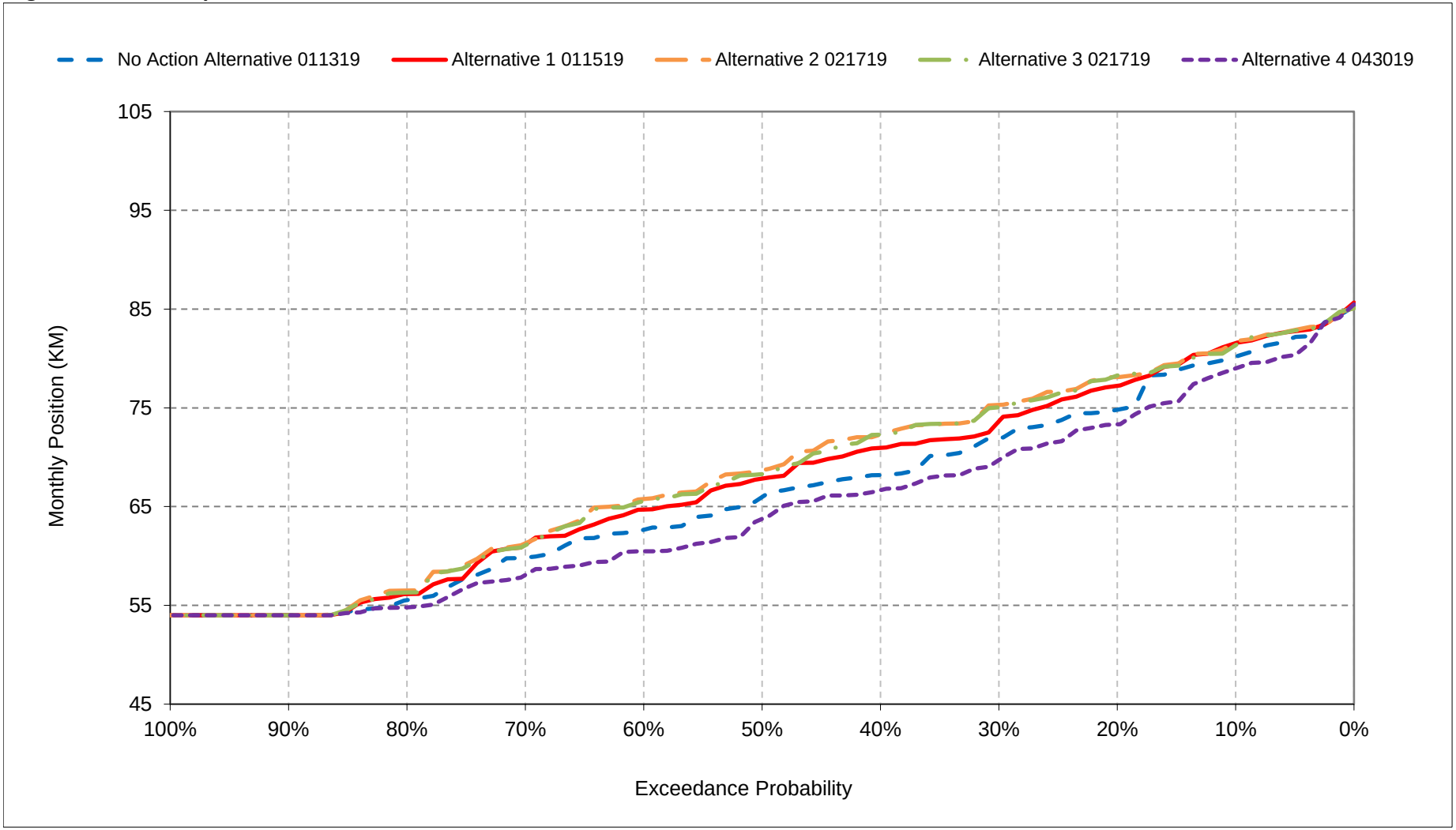


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-10. X2, April Position

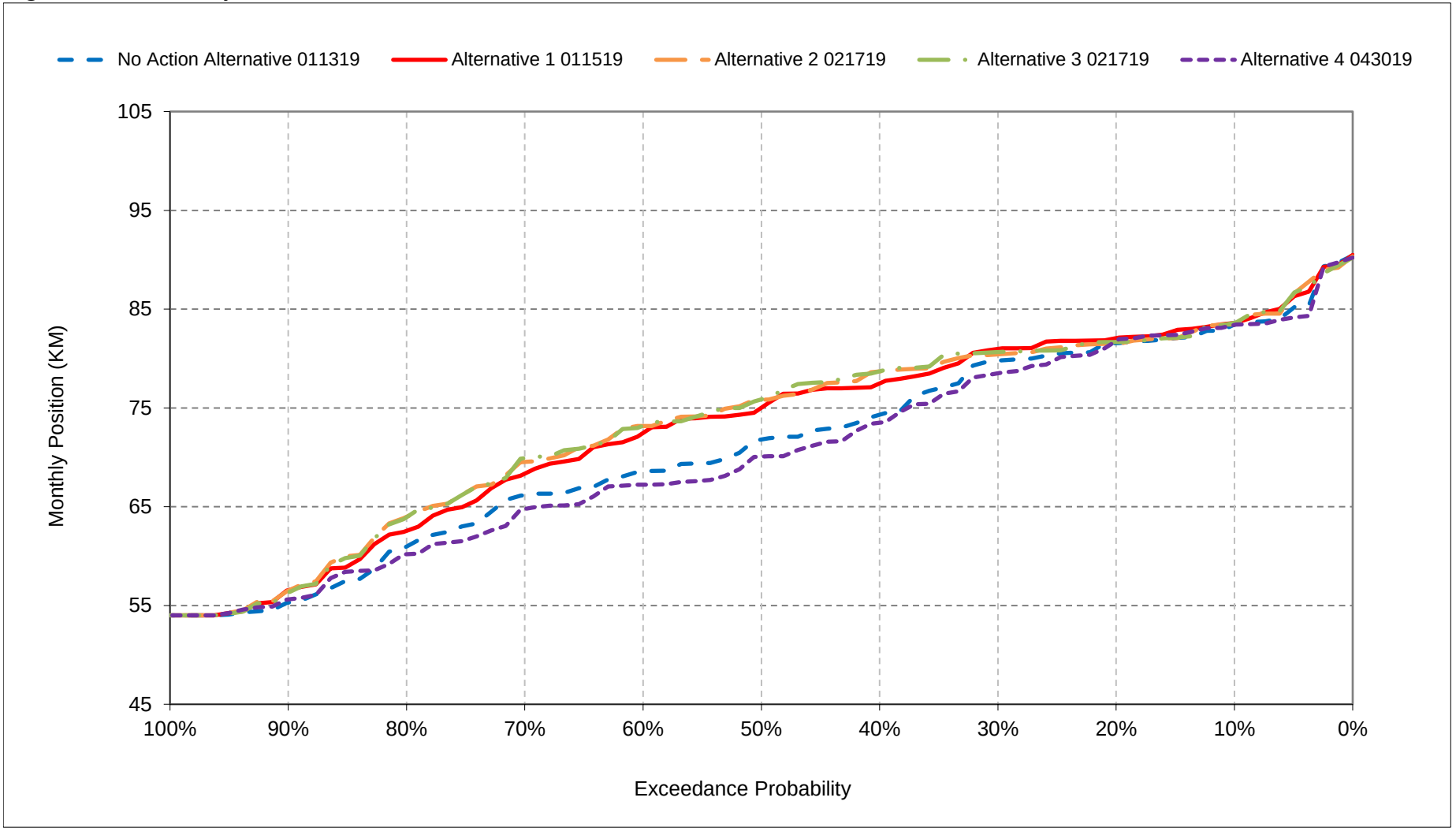


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-11. X2, May Position

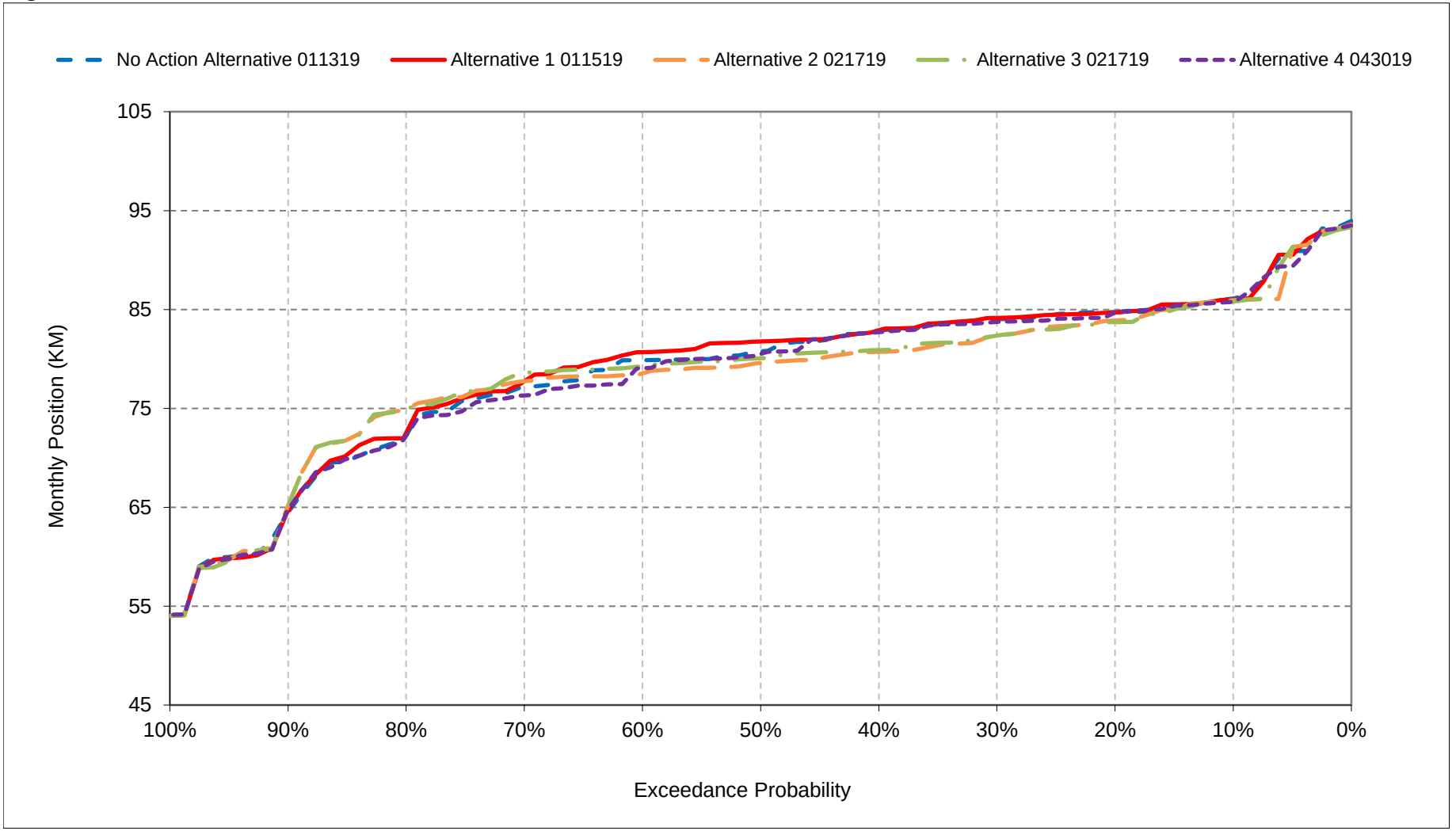


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-12. X2, June Position

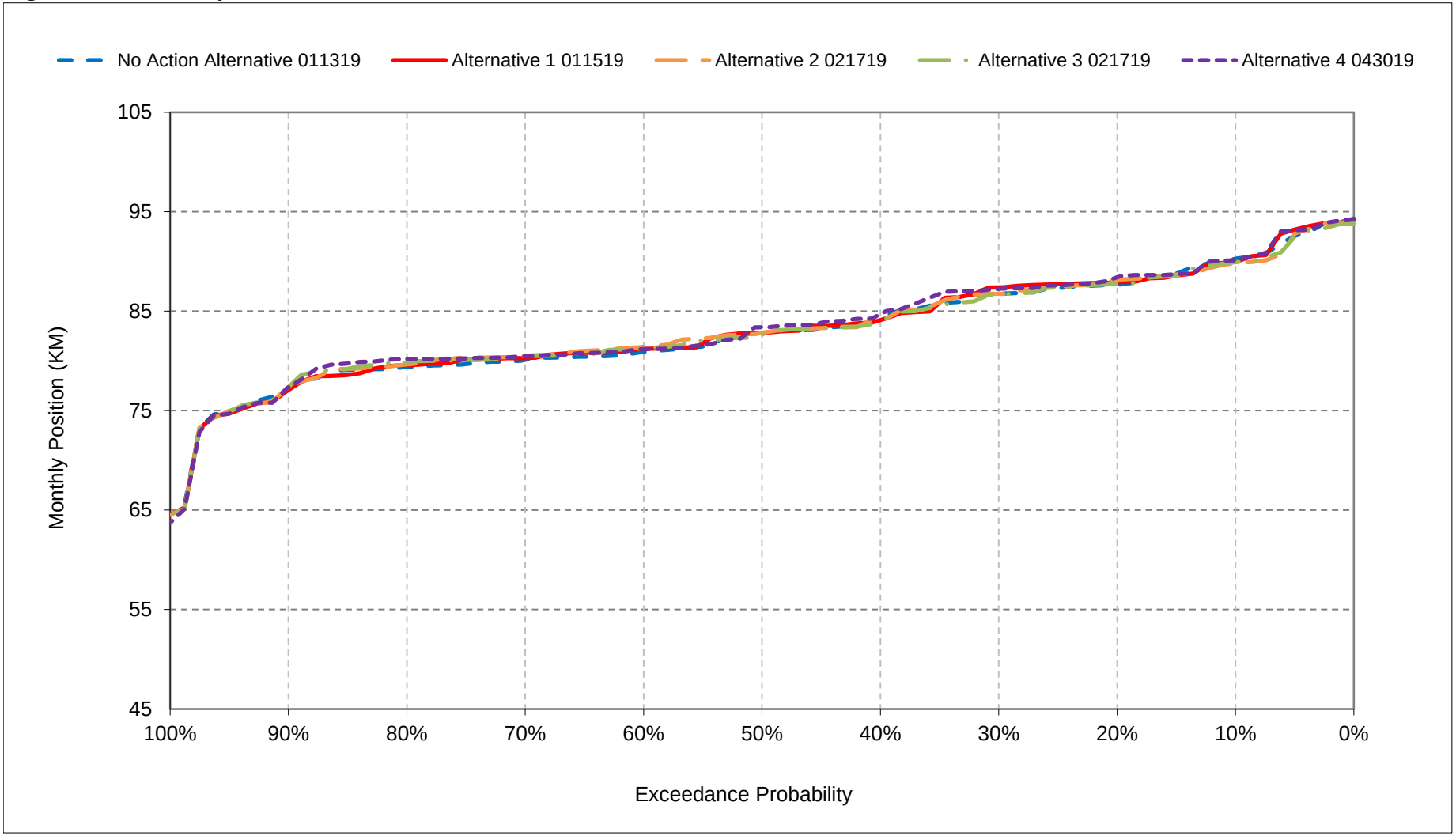


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-13. X2, July Position

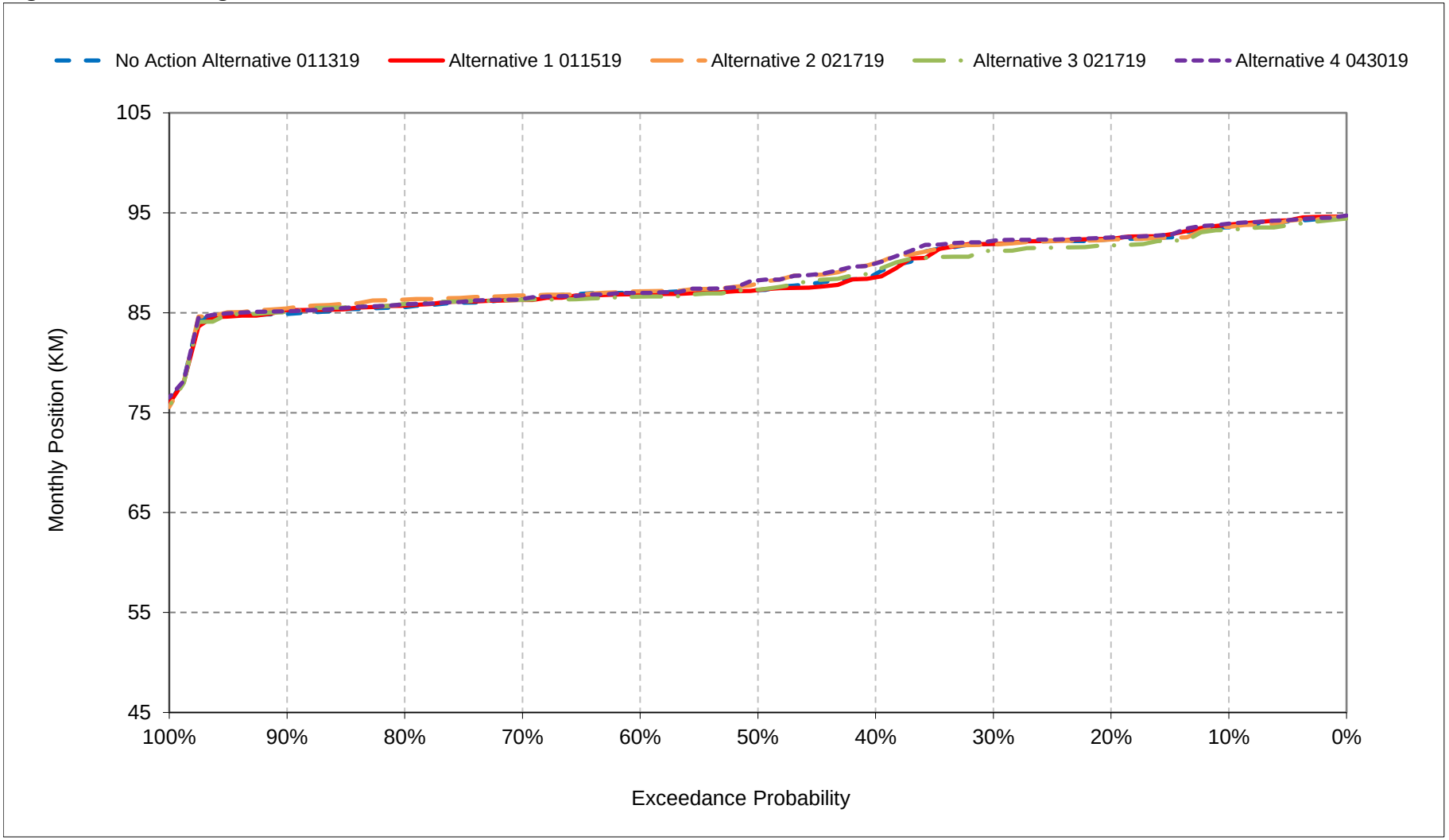


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-14. X2, August Position

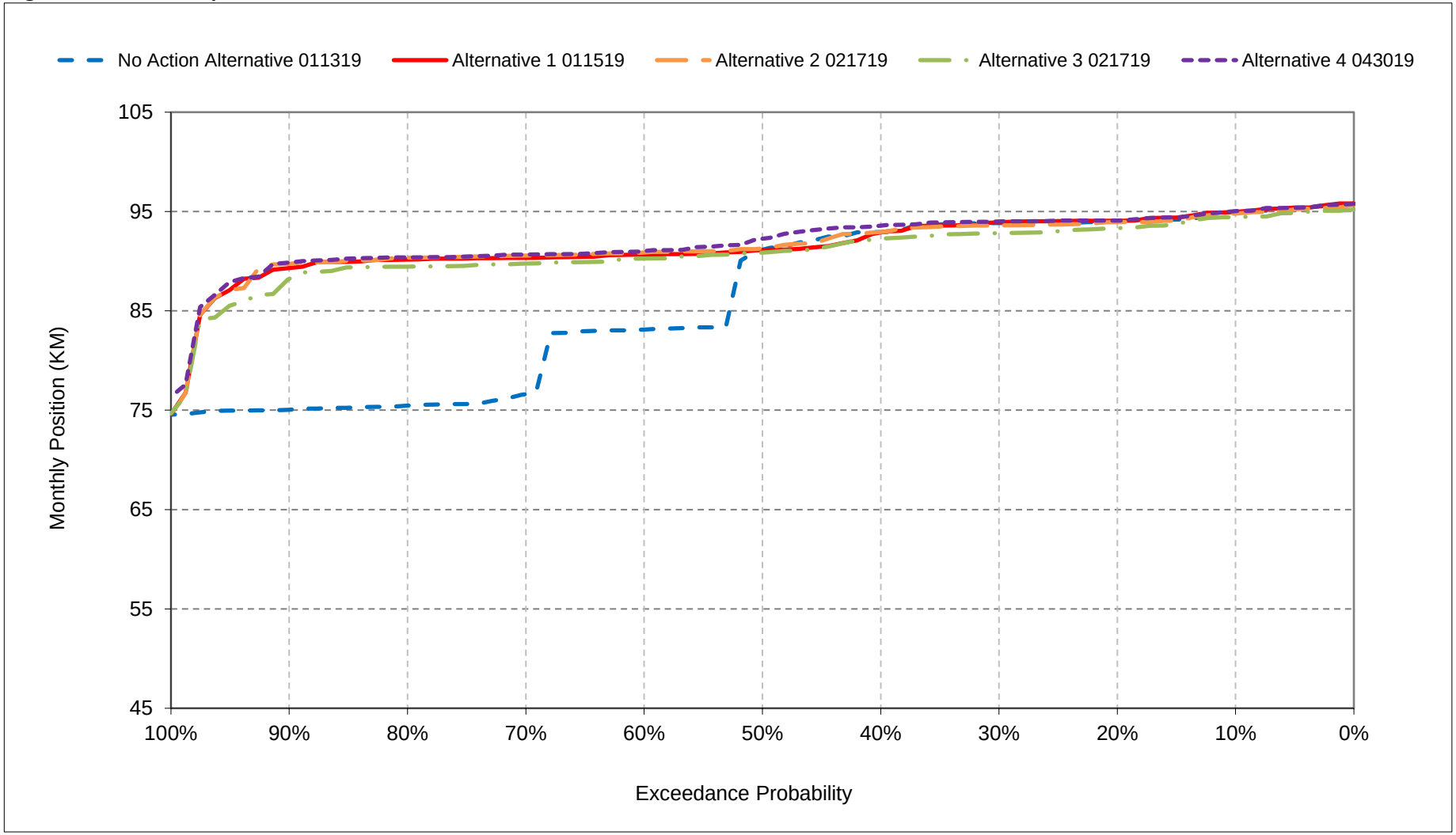


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-15. X2, September Position

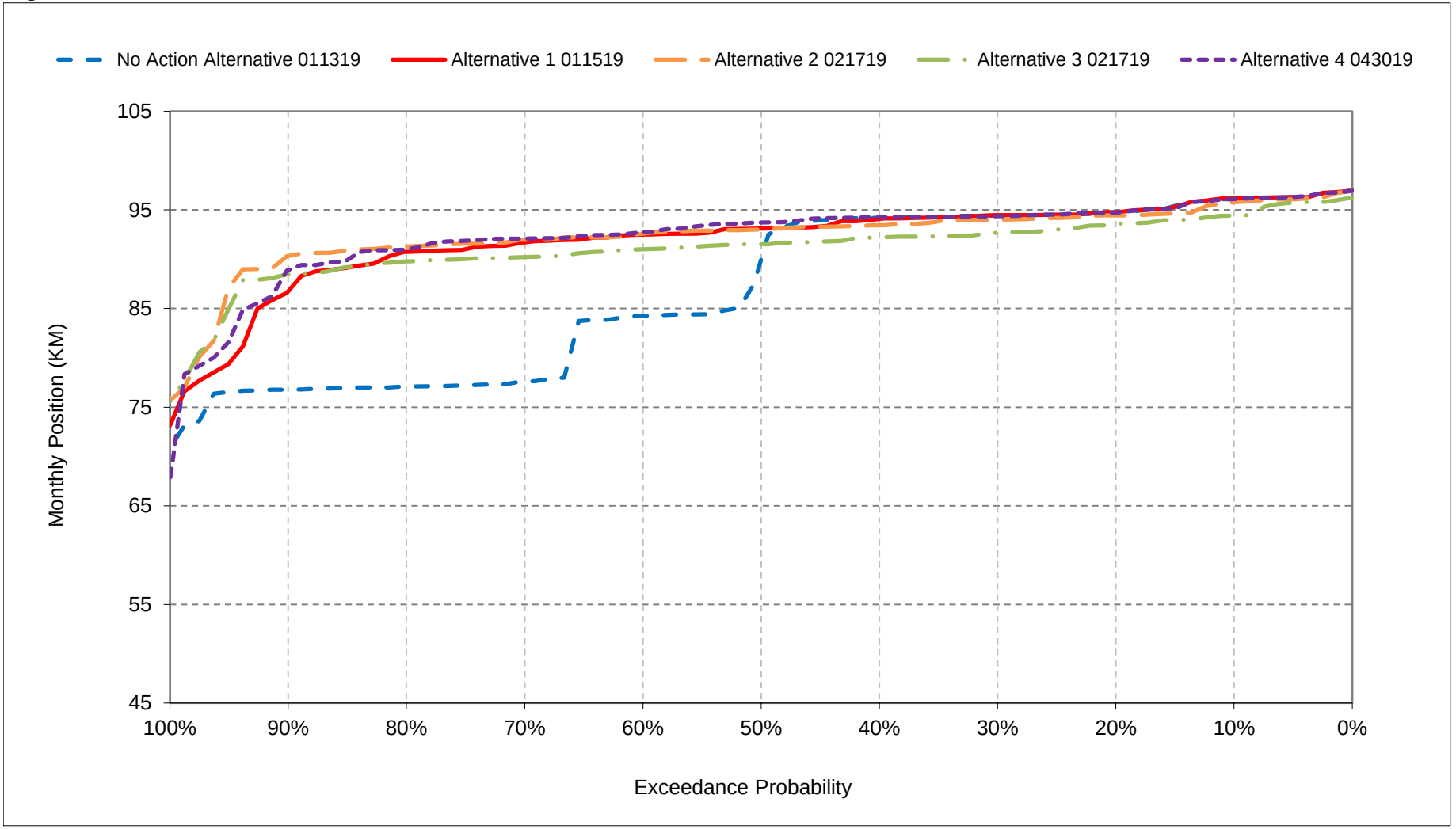


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-16. X2, October Position

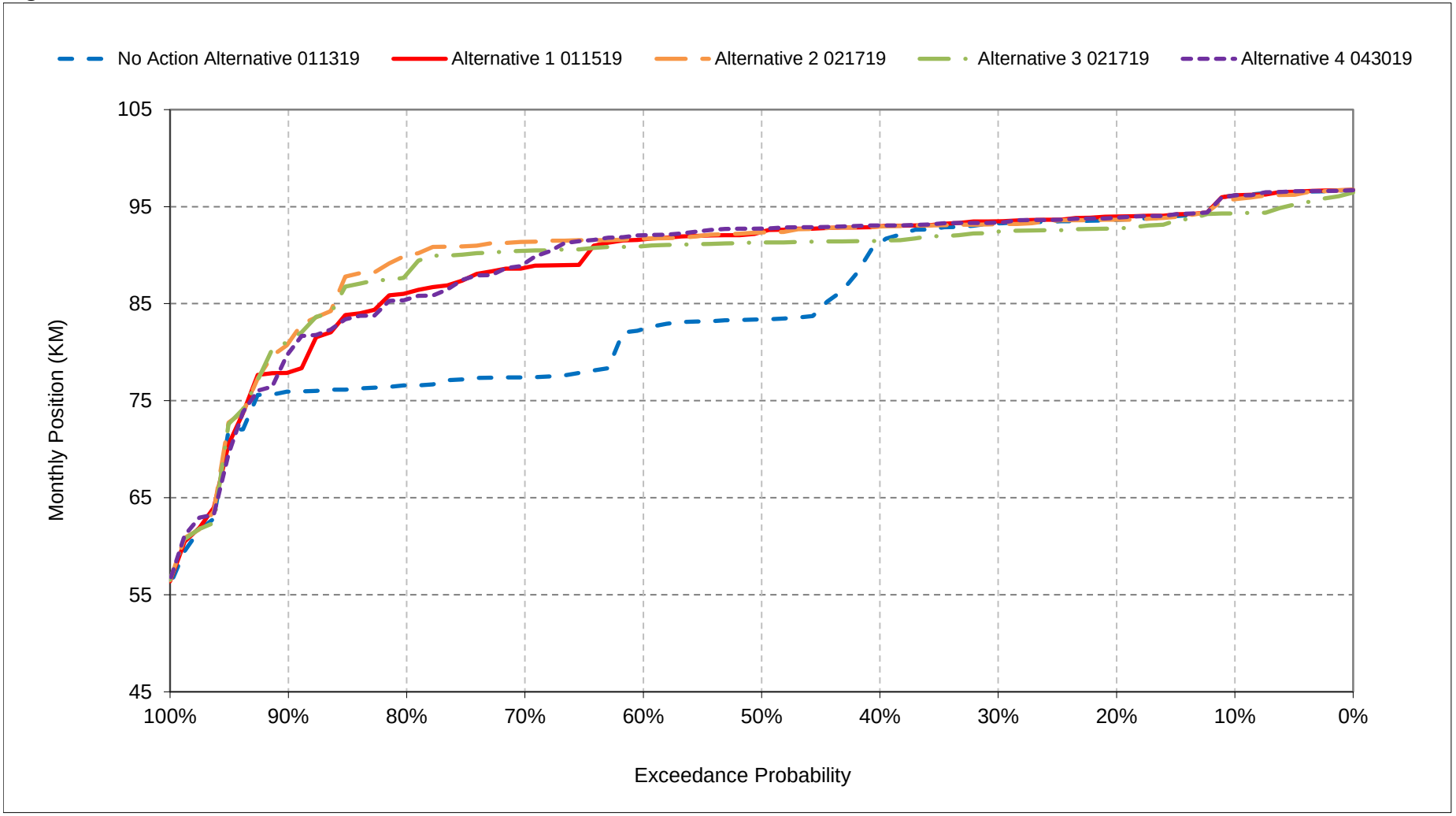


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-17. X2, November Position

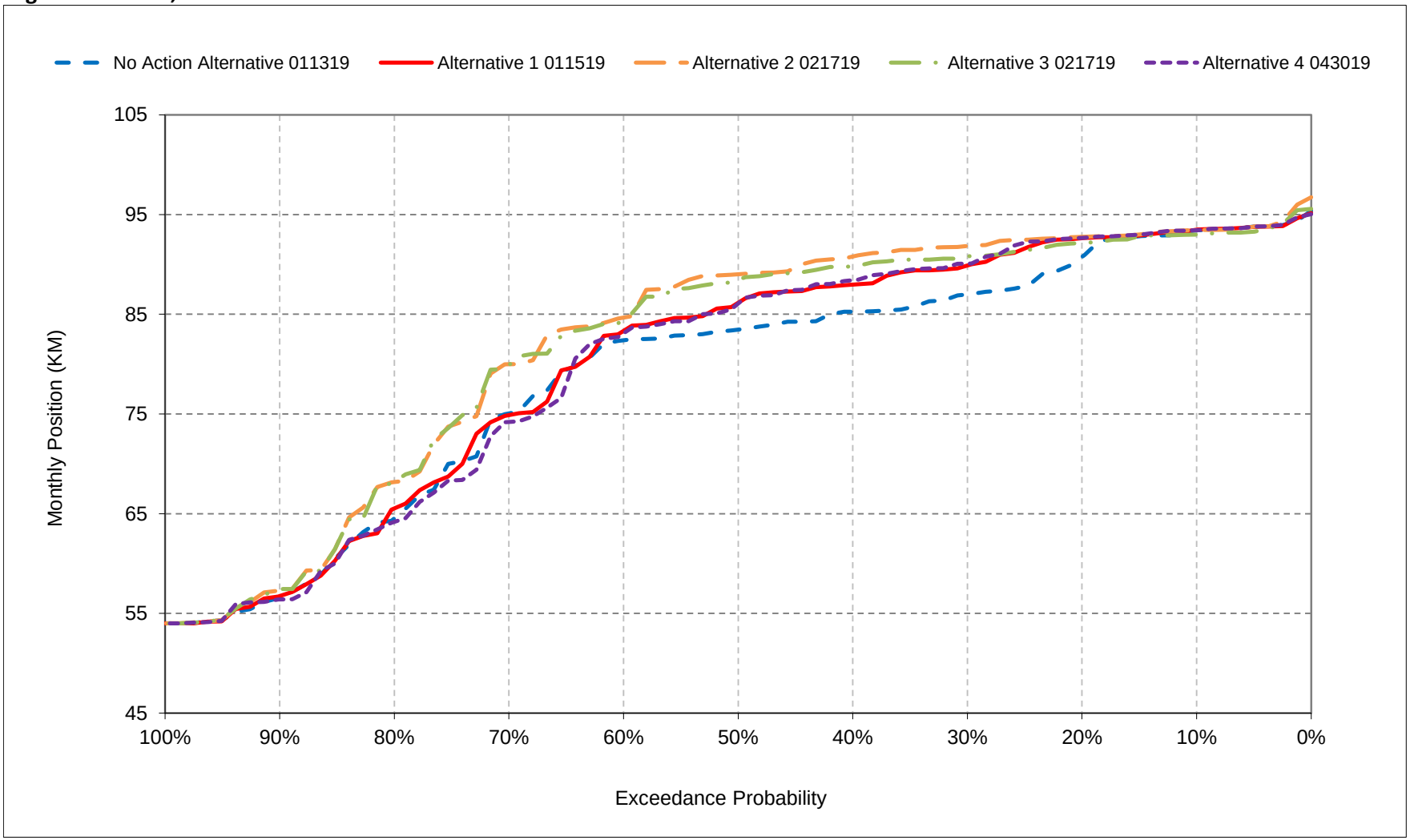


*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Figure 45-18. X2, December Position



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

*Results are monthly averaged from DSM2.

Attachment 3-8 Winter-Run Chinook Temperature Dependent Egg Mortality Results (Martin and Anderson Models)

The following results of the Martin and Anderson Models are included for Winter-Run Chinook Salmon temperature-dependent egg mortality for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Upper Sacramento Winter-Run Chinook Salmon, Martin Model	NA	1-1 to 1-4	1-1 to 1-6
Upper Sacramento Winter-Run Chinook Salmon, Anderson Model	NA	1-1 to 1-4	2-1 to 2-6

1 Report Formats

- Tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Exceedance charts including all scenarios

Appendix F – Modeling

Attachment 3-8 – Winter Run Chinook Temperature Dependent Egg Mortality Results (Martin and Anderson Models)

The following results of the Martin and Anderson models are included for winter run Chinook Salmon temperature-dependent egg mortality for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Upper Sacramento Winter Run Chinook Salmon, Martin Model	NA	1-1 to 1-4	1-1 to 1-6
Upper Sacramento Winter Run Chinook Salmon, Anderson Model	NA	1-1 to 1-4	2-1 to 2-6

Report formats

- Tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Exceedance charts including all scenarios

Table 1-1. Annual Temperature-Dependent Winter-Run Chinook Salmon Mortalities

NAA 011319

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance		
10%	0.67	0.83
20%	0.50	0.63
30%	0.31	0.32
40%	0.08	0.06
50%	0.06	0.03
60%	0.04	0.02
70%	0.04	0.02
80%	0.03	0.01
90%	0.02	0.01
Long Term		
Full Simulation Period[a]	0.23	0.24
Water Year Types[b,c]		
Wet (32%)	0.05	0.03
Above Normal (16%)	0.03	0.01
Below Normal (13%)	0.17	0.18
Dry (24%)	0.28	0.32
Critical (15%)	0.75	0.83

Alternative 1 011519

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance		
10%	0.46	0.46
20%	0.28	0.16
30%	0.11	0.08
40%	0.06	0.06
50%	0.03	0.03
60%	0.02	0.02
70%	0.01	0.01
80%	0.01	0.01
90%	0.01	0.01
Long Term		
Full Simulation Period[a]	0.15	0.13
Water Year Types[b,c]		
Wet (32%)	0.05	0.04
Above Normal (16%)	0.04	0.03
Below Normal (13%)	0.11	0.06
Dry (24%)	0.10	0.09
Critical (15%)	0.61	0.57

Alternative 1 011519 minus NAA 011319

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance[a]		
10%	-0.22	-0.37
20%	-0.23	-0.47
30%	-0.20	-0.24
40%	-0.02	**0.00**
50%	-0.03	**0.00**
60%	-0.02	0.00
70%	-0.02	0.00
80%	-0.02	0.00
90%	-0.02	**0.00**
Long Term		
Full Simulation Period[a]	-0.07	-0.10
Water Year Types[b,c]		
Wet (32%)	0.00	**0.01**
Above Normal (16%)	**0.00**	**0.01**
Below Normal (13%)	-0.06	-0.11
Dry (24%)	-0.18	-0.23
Critical (15%)	-0.15	-0.26

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-2. Annual Temperature-Dependent Winter-Run Chinook Salmon Mortalities

NAA 011319

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance		
10%	0.67	0.83
20%	0.50	0.63
30%	0.31	0.32
40%	0.08	0.06
50%	0.06	0.03
60%	0.04	0.02
70%	0.04	0.02
80%	0.03	0.01
90%	0.02	0.01
Long Term		
Full Simulation Period[a]	0.23	0.24
Water Year Types[b,c]		
Wet (32%)	0.05	0.03
Above Normal (16%)	0.03	0.01
Below Normal (13%)	0.17	0.18
Dry (24%)	0.28	0.32
Critical (15%)	0.75	0.83

Alternative 2 021719

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance		
10%	0.66	0.82
20%	0.43	0.54
30%	0.30	0.26
40%	0.11	0.07
50%	0.06	0.05
60%	0.05	0.03
70%	0.04	0.02
80%	0.03	0.01
90%	0.02	0.01
Long Term		
Full Simulation Period[a]	0.22	0.23
Water Year Types[b,c]		
Wet (32%)	0.06	0.04
Above Normal (16%)	0.06	0.03
Below Normal (13%)	0.11	0.08
Dry (24%)	0.26	0.32
Critical (15%)	0.77	0.85

Alternative 2 021719 minus NAA 011319

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance[a]		
10%	-0.02	-0.01
20%	-0.07	-0.09
30%	0.00	-0.06
40%	**0.03**	**0.01**
50%	**0.00**	**0.02**
60%	**0.01**	**0.01**
70%	**0.00**	**0.00**
80%	0.00	0.00
90%	-0.01	**0.00**
Long Term		
Full Simulation Period[a]	0.00	0.00
Water Year Types[b,c]		
Wet (32%)	**0.01**	**0.01**
Above Normal (16%)	**0.02**	**0.01**
Below Normal (13%)	-0.05	-0.10
Dry (24%)	-0.02	0.00
Critical (15%)	**0.01**	**0.02**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-3. Annual Temperature-Dependent Winter-Run Chinook Salmon Mortalities

NAA 011319

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance		
10%	0.67	0.83
20%	0.50	0.63
30%	0.31	0.32
40%	0.08	0.06
50%	0.06	0.03
60%	0.04	0.02
70%	0.04	0.02
80%	0.03	0.01
90%	0.02	0.01
Long Term		
Full Simulation Period[a]	0.23	0.24
Water Year Types[b,c]		
Wet (32%)	0.05	0.03
Above Normal (16%)	0.03	0.01
Below Normal (13%)	0.17	0.18
Dry (24%)	0.28	0.32
Critical (15%)	0.75	0.83

Alternative 3 021719

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance		
10%	0.68	0.82
20%	0.43	0.54
30%	0.31	0.26
40%	0.13	0.09
50%	0.06	0.05
60%	0.05	0.03
70%	0.04	0.02
80%	0.03	0.01
90%	0.02	0.01
Long Term		
Full Simulation Period[a]	0.23	0.24
Water Year Types[b,c]		
Wet (32%)	0.06	0.04
Above Normal (16%)	0.05	0.03
Below Normal (13%)	0.12	0.09
Dry (24%)	0.27	0.33
Critical (15%)	0.78	0.85

Alternative 3 021719 minus NAA 011319

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance[a]		
10%	**0.01**	-0.01
20%	-0.07	-0.09
30%	0.00	-0.06
40%	**0.05**	**0.04**
50%	**0.00**	**0.02**
60%	**0.01**	**0.00**
70%	0.00	**0.00**
80%	-0.01	0.00
90%	-0.01	**0.00**
Long Term		
Full Simulation Period[a]	**0.00**	**0.00**
Water Year Types[b,c]		
Wet (32%)	**0.01**	**0.01**
Above Normal (16%)	**0.02**	**0.01**
Below Normal (13%)	-0.05	-0.09
Dry (24%)	-0.01	**0.01**
Critical (15%)	**0.02**	**0.03**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Table 1-4. Annual Temperature-Dependent Winter-Run Chinook Salmon Mortalities

NAA 011319

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance		
10%	0.67	0.83
20%	0.50	0.63
30%	0.31	0.32
40%	0.08	0.06
50%	0.06	0.03
60%	0.04	0.02
70%	0.04	0.02
80%	0.03	0.01
90%	0.02	0.01
Long Term		
Full Simulation Period[a]	0.23	0.24
Water Year Types[b,c]		
Wet (32%)	0.05	0.03
Above Normal (16%)	0.03	0.01
Below Normal (13%)	0.17	0.18
Dry (24%)	0.28	0.32
Critical (15%)	0.75	0.83

Alternative 4 043019

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance		
10%	0.37	0.40
20%	0.22	0.13
30%	0.12	0.09
40%	0.08	0.07
50%	0.03	0.03
60%	0.02	0.03
70%	0.02	0.01
80%	0.01	0.01
90%	0.01	0.01
Long Term		
Full Simulation Period[a]	0.14	0.13
Water Year Types[b,c]		
Wet (32%)	0.05	0.04
Above Normal (16%)	0.03	0.02
Below Normal (13%)	0.10	0.07
Dry (24%)	0.11	0.09
Critical (15%)	0.55	0.55

Alternative 4 043019 minus NAA 011319

Statistic	Annual Mortality	
	Martin	Anderson
Probability of Exceedance[a]		
10%	-0.30	-0.43
20%	-0.28	-0.50
30%	-0.19	-0.23
40%	0.00	**0.01**
50%	-0.03	**0.00**
60%	-0.02	**0.00**
70%	-0.02	0.00
80%	-0.02	0.00
90%	-0.02	**0.00**
Long Term		
Full Simulation Period[a]	-0.08	-0.11
Water Year Types[b,c]		
Wet (32%)	0.00	**0.01**
Above Normal (16%)	0.00	**0.01**
Below Normal (13%)	-0.07	-0.11
Dry (24%)	-0.17	-0.23
Critical (15%)	-0.21	-0.28

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

Figure 1-1. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Long-Term Average

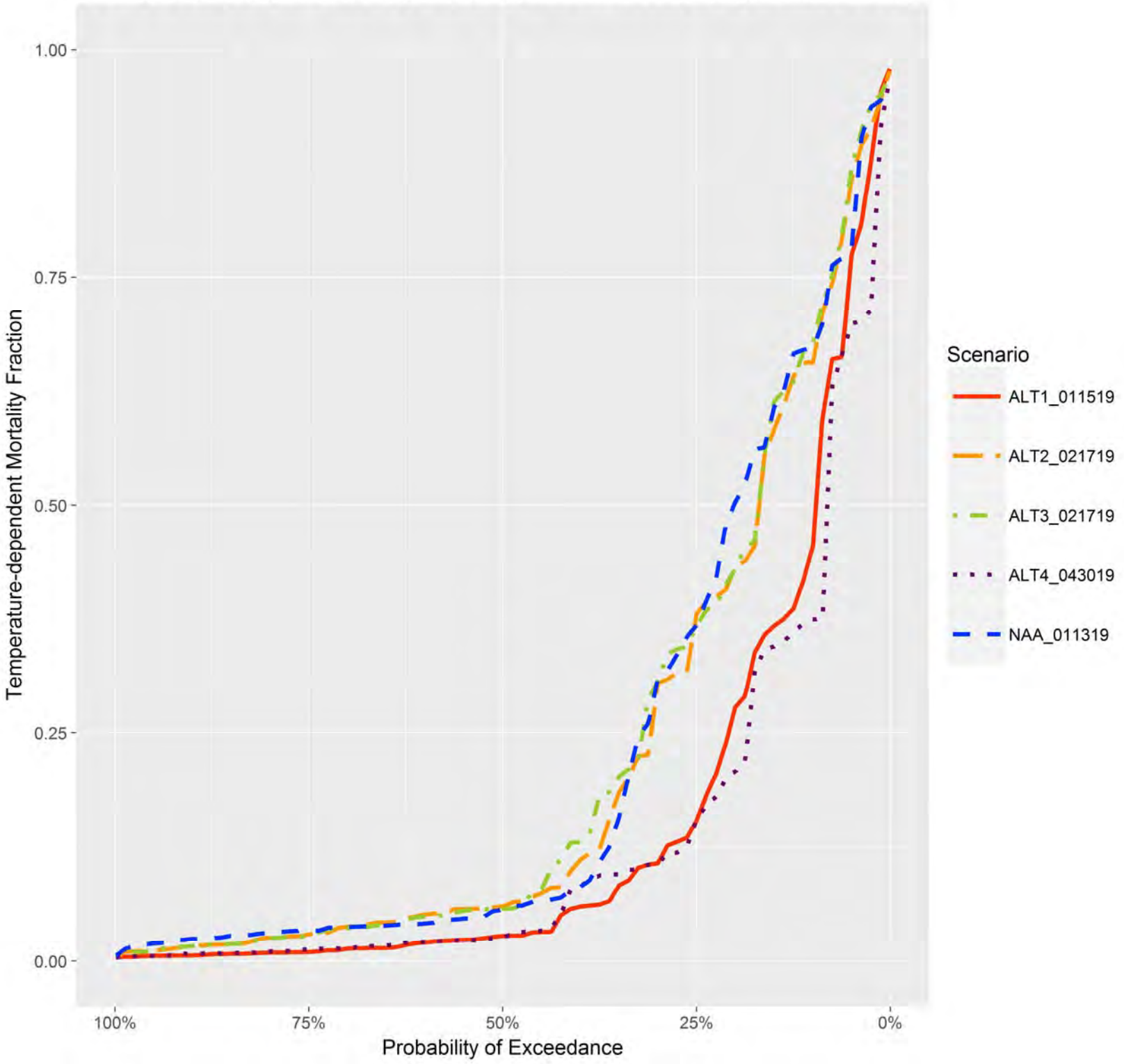


Figure 1-2. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Wet Year Average

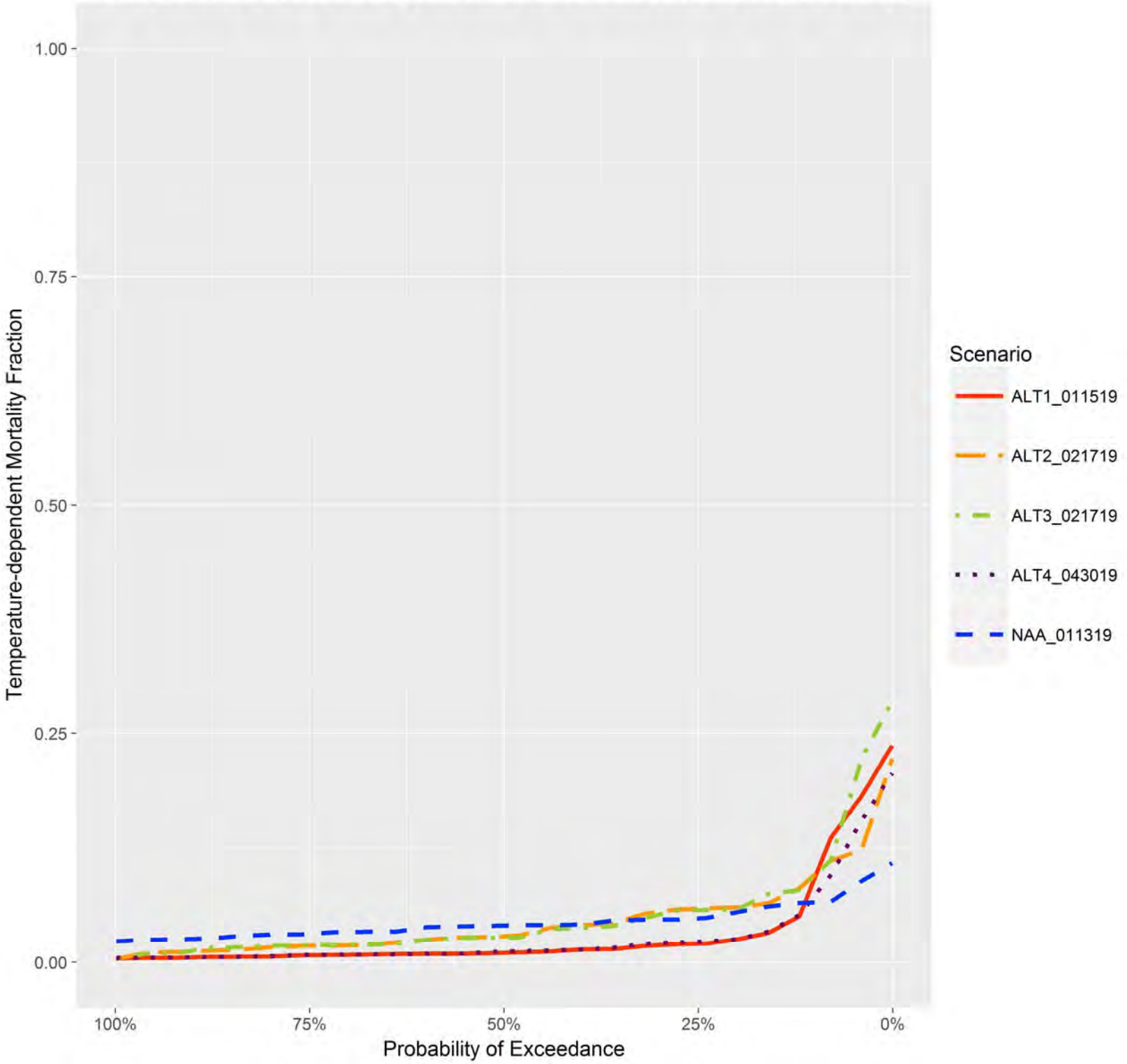


Figure 1-3. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Above Normal Year Average

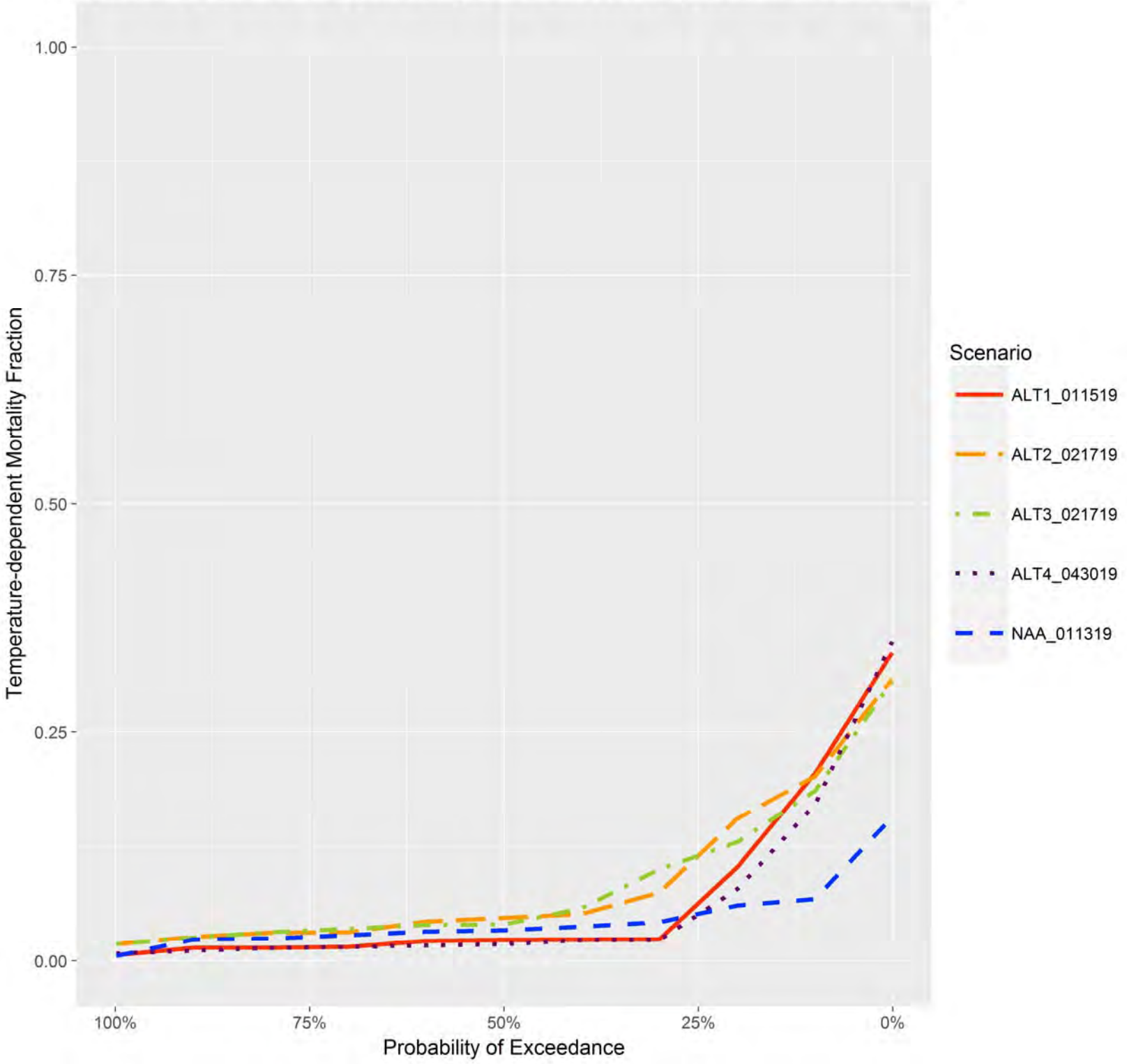


Figure 1-4. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Below Normal Year Average

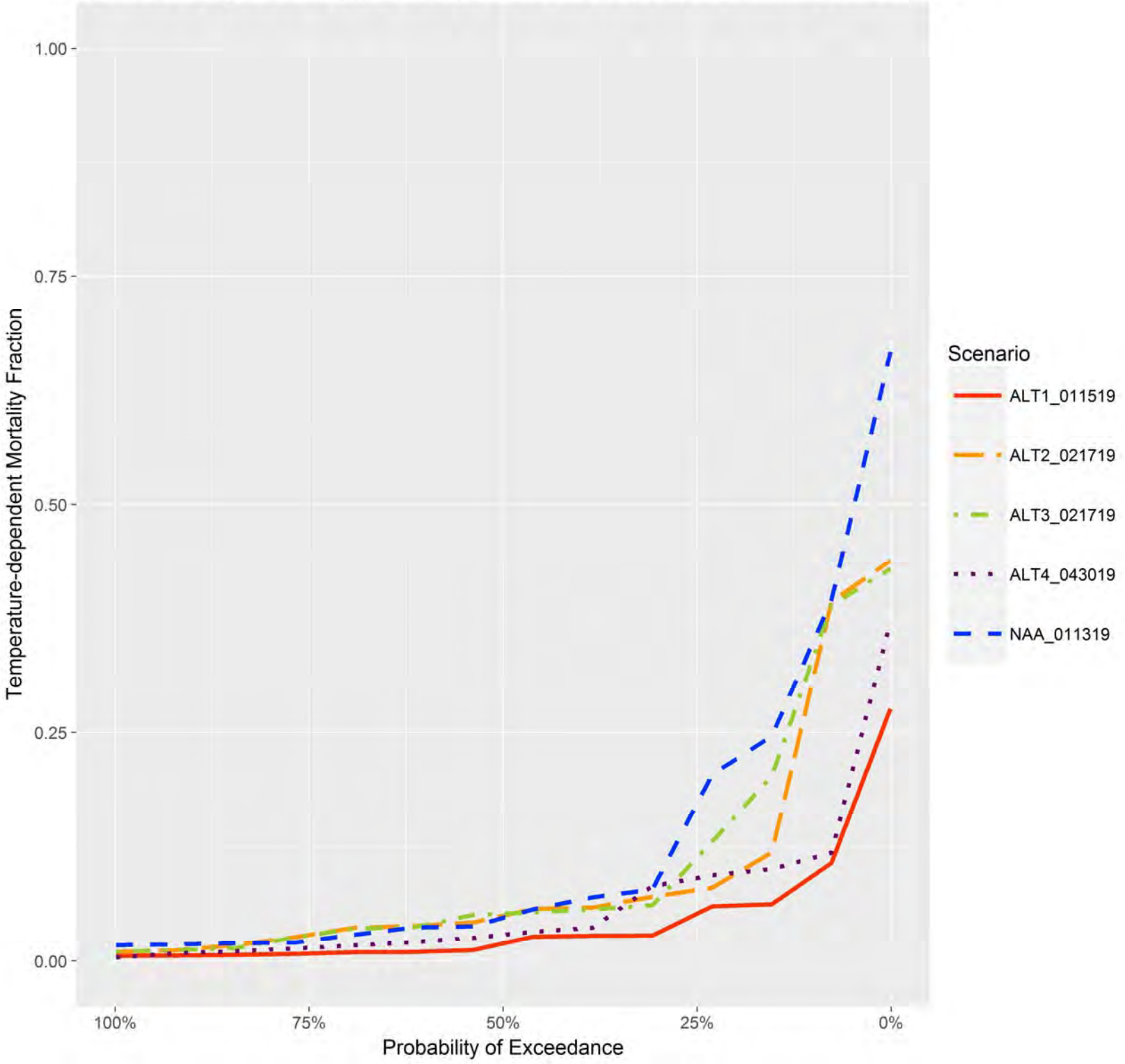


Figure 1-5. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Dry Year Average

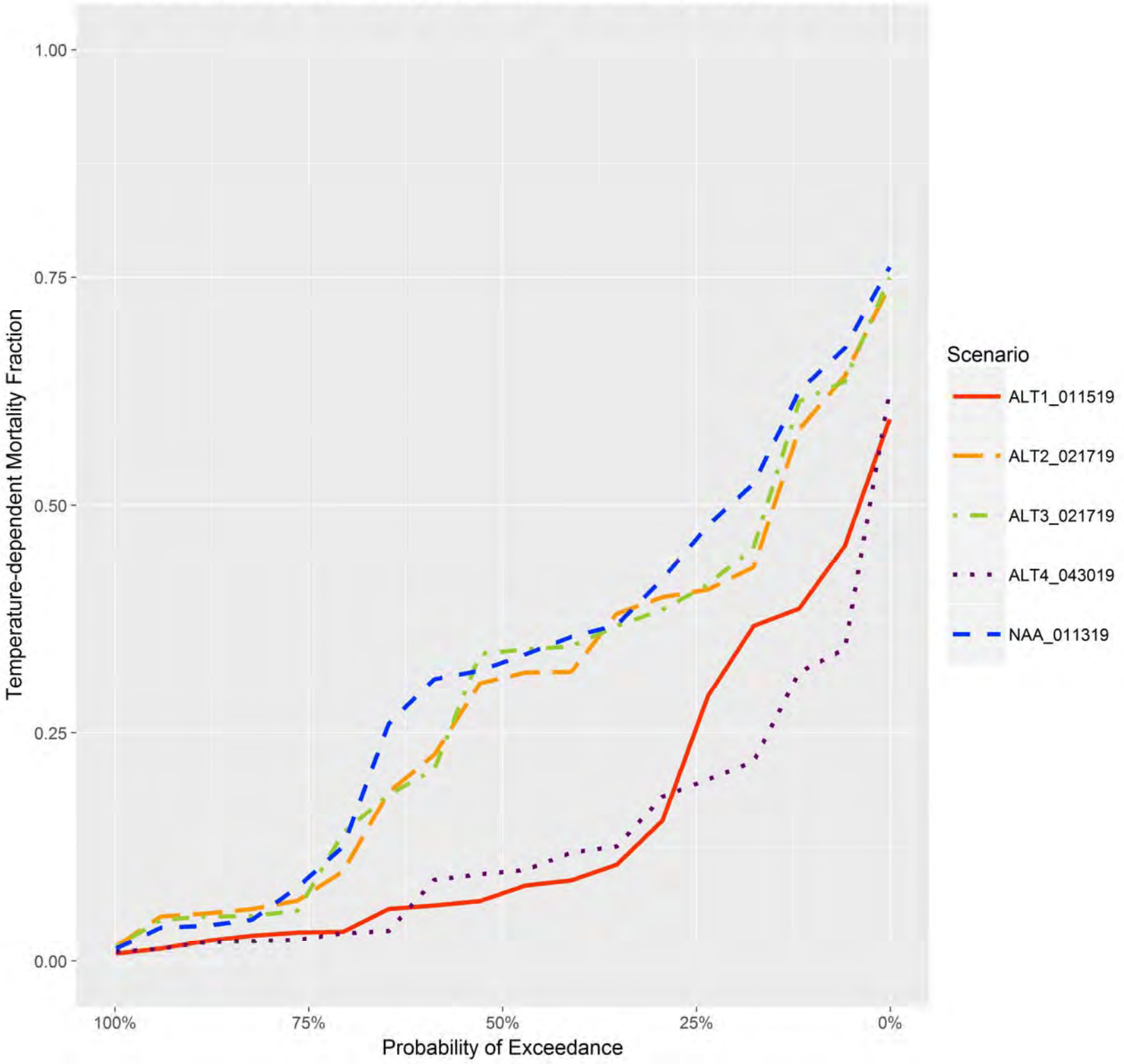


Figure 1-6. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Martin Model, Critical Year Average

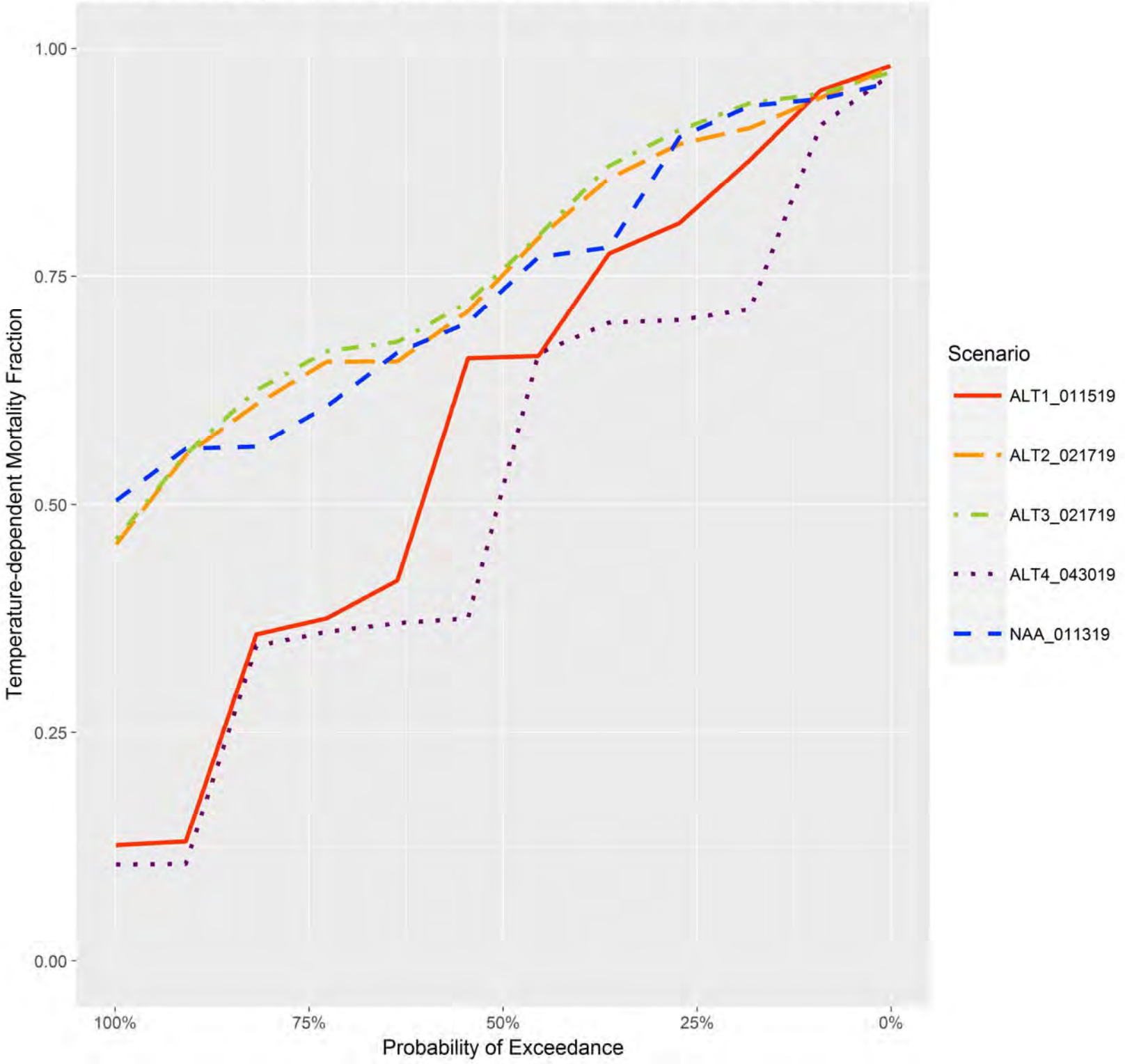


Figure 2-1. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Long-Term Average

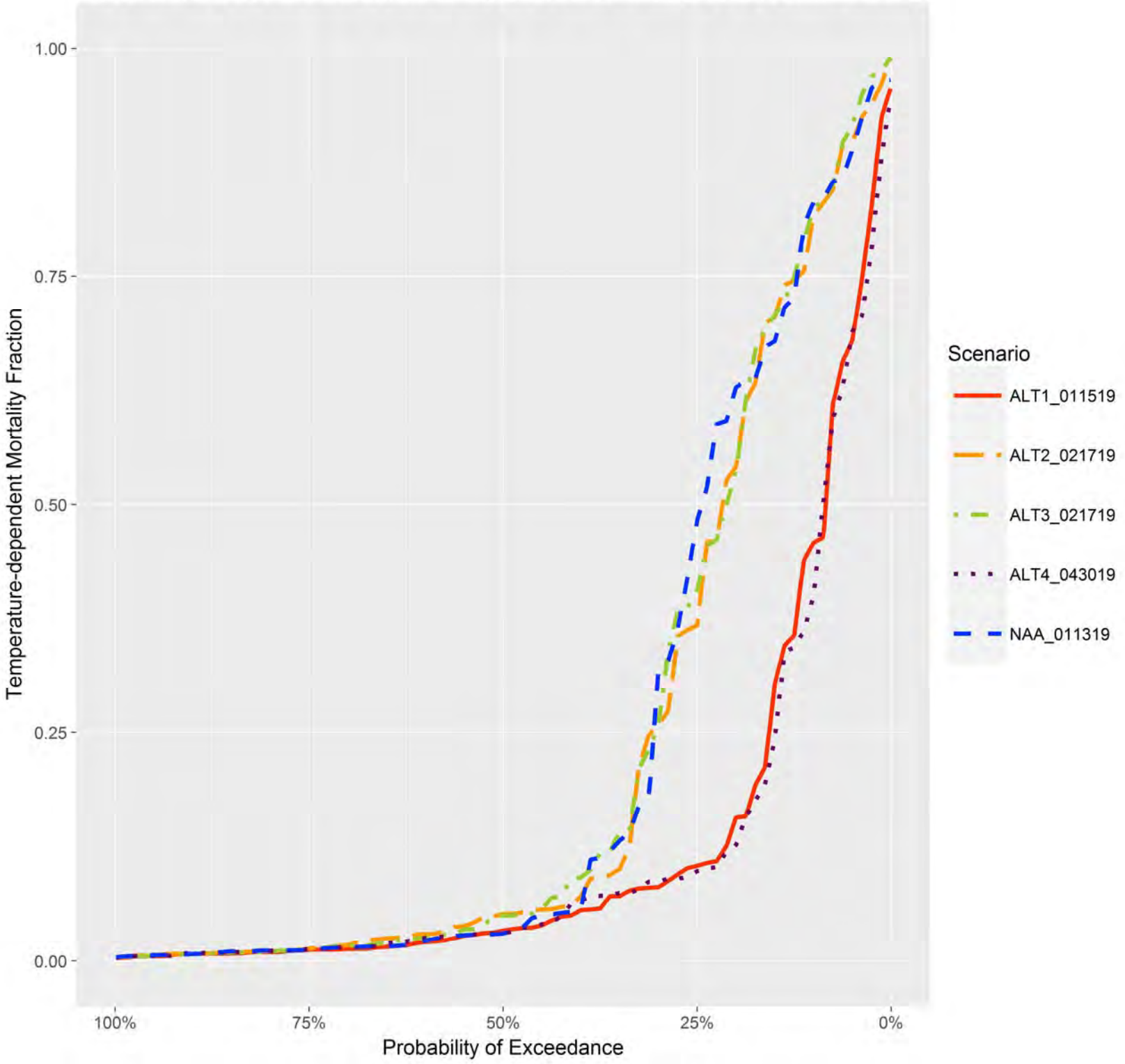


Figure 2-2. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Wet Year Average

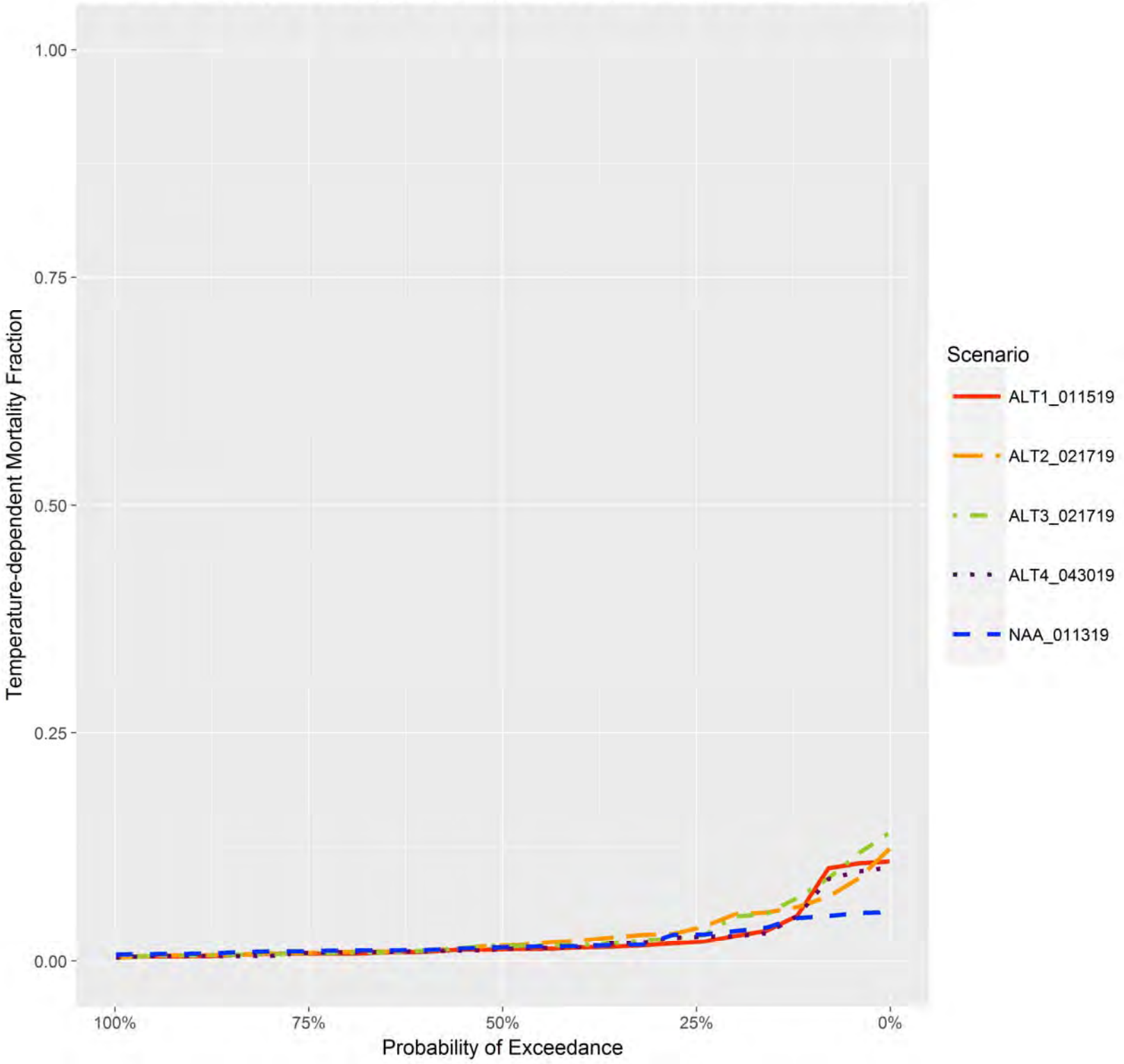


Figure 2-3. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Above Normal Year Average

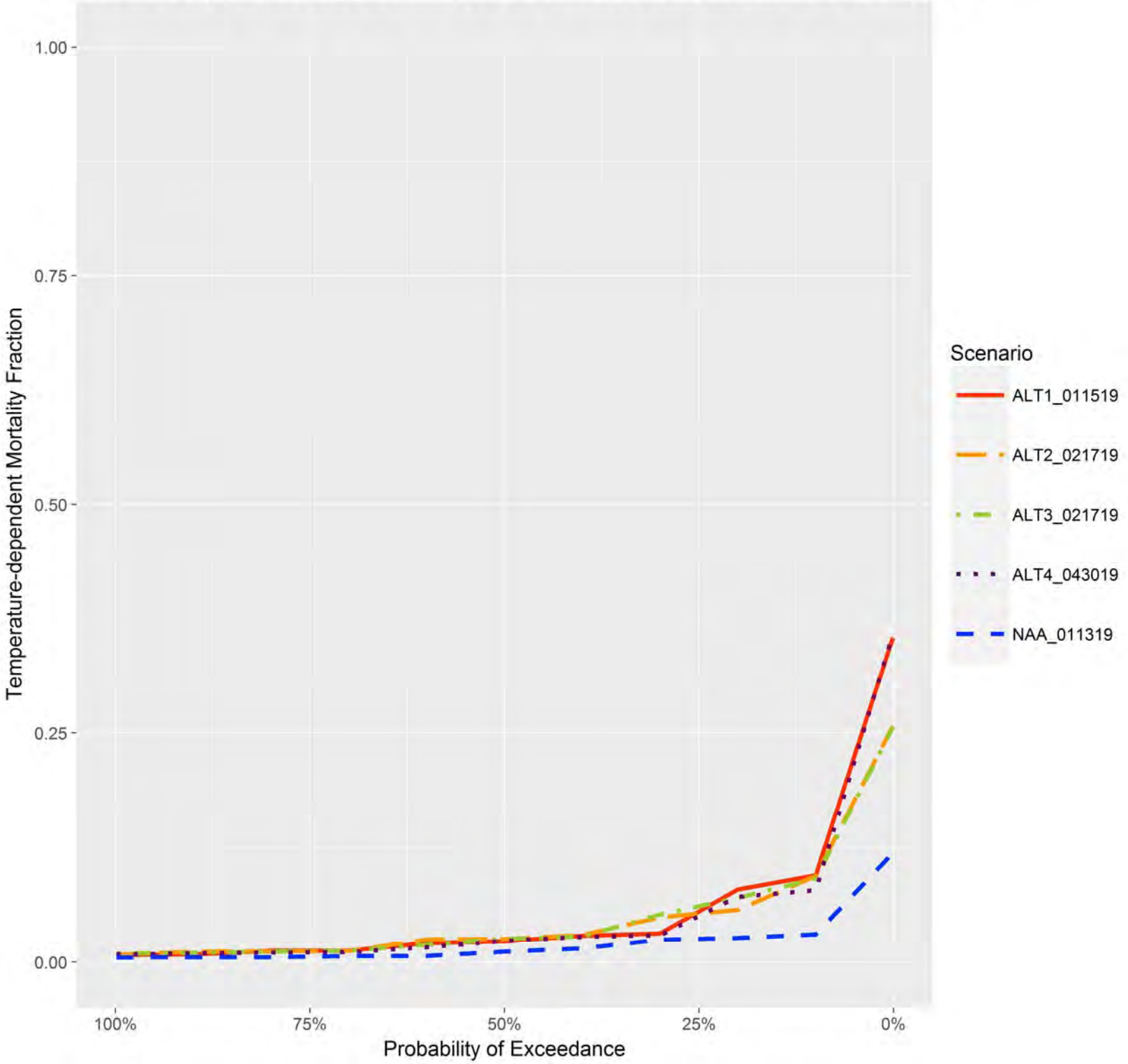


Figure 2-4. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Below Normal Year Average

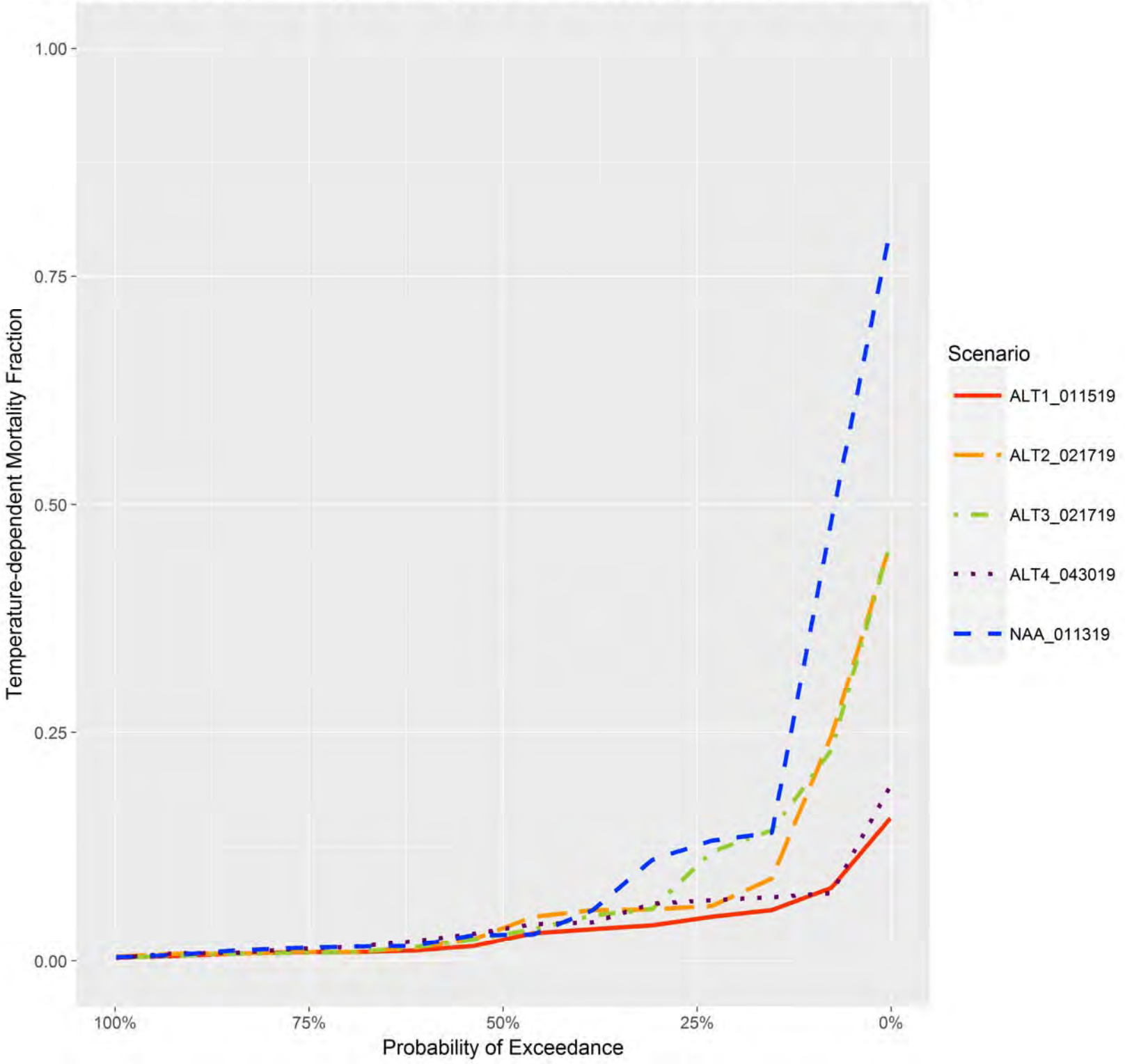


Figure 2-5. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Dry Year Average

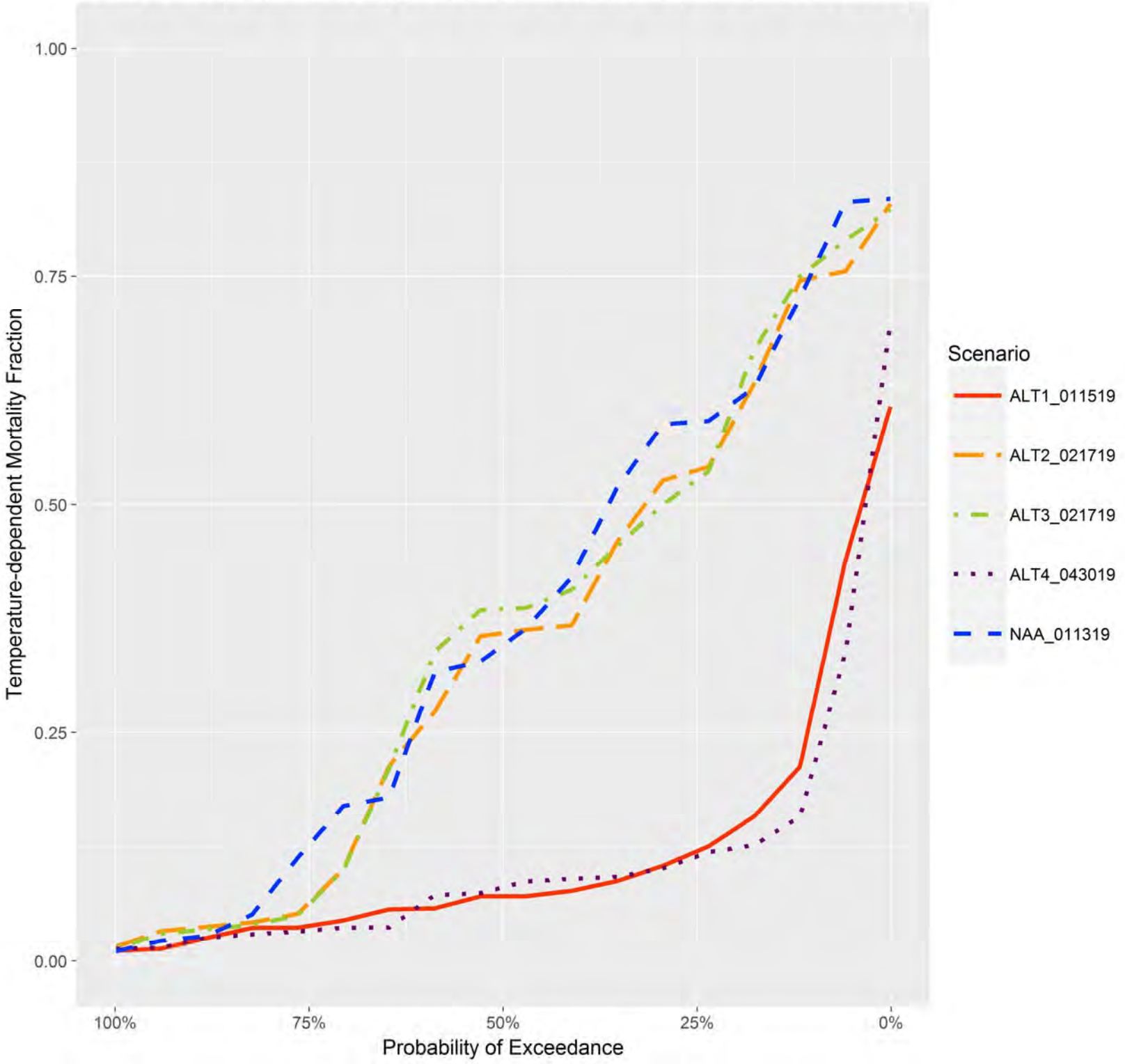
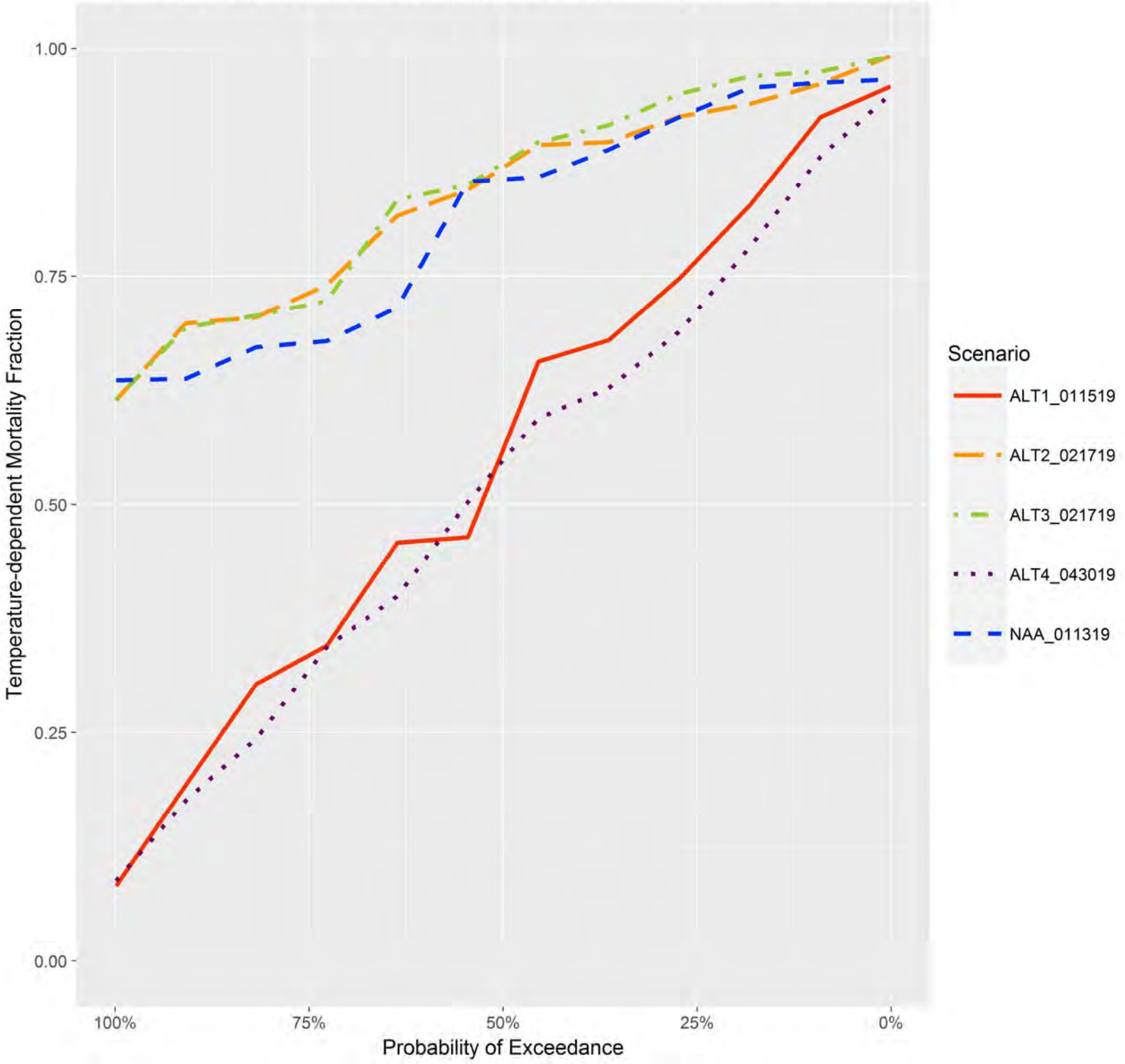


Figure 2-6. Upper Sacramento Winter Run Chinook Salmon
Temperature-dependent Egg Mortality, Anderson Model, Critical Year Average



Attachment 3-9 Water Supply Results (CalSim II)

The following results of the CalSim II model are included for diversions at key project locations for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
CalSim II Water Supply Summary Report	NA	1-1 to 1-8	1-1 to 1-9
Total Delta Exports	TOTAL_EXP		2-1

1 Report Formats

- Tables comparing water supply of two scenarios (water supply by region and type, and water supply by type)
- Annual exceedance charts including all scenarios

Appendix F – Modeling

Attachment 3-9 – Water Supply Results (CalSim II)

The following results of the CalSim II model are included for diversions at key project locations for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	**Model Parameter**	**Table Numbers**	**Figure Numbers**
CalSim II Water Supply Summary Report	NA	1-1 to 1-8	1-1 to 1-9
Total Delta Exports	TOTAL_EXP		2-1

Report formats

- Tables comparing water supply of two scenarios (water supply by region and type, and water supply by type)
- Annual exceedance charts including all scenarios

Table 1-1. CALSIM II Water Summary Report, by Region and Type, Long-Term Average and Dry and Critical Year Averages

				Alternative 1 011519	No Action Alternative 011319	Alternative 1 011519 minus No Action Alternative 011319
Water Supply Reliability						
Sacramento River Hydrologic Region						
CVP Settlement	Contract Delivery (annual average)	(TAF/year)	Long Term	1,599	1,609	-10
			Dry and Critical	1,581	1,590	-10
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	162	157	4
			Dry and Critical	144	143	1
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	223	217	6
			Dry and Critical	193	189	4
CVP Ag	Contract Delivery (annual average - does not include Settlement contractors)	(TAF/year)	Long Term	255	230	24
			Dry and Critical	152	127	26
SWP FRSA	Contract Delivery (annual average)	(TAF/year)	Long Term	937	937	0
			Dry and Critical	874	873	1
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	30	29	1
			Dry and Critical	21	20	1
San Joaquin River Hydrologic Region (not including Friant-Kern and Madera Canal water users)						
CVP Exchange	Contract Delivery (annual average)	(TAF/year)	Long Term	852	852	0
			Dry and Critical	825	825	0
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	259	260	-1
			Dry and Critical	251	250	0
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	17	16	1
			Dry and Critical	15	14	1
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term	387	314	73
			Dry and Critical	213	162	52
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	4	3	1
			Dry and Critical	2	2	0
San Francisco Bay Hydrologic Region						
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	282	275	8
			Dry and Critical	292	285	8
CVP Ag	Contract Delivery (annual average)	(TAF/year)	Long Term	47	38	9
			Dry and Critical	26	20	6
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	223	198	25
			Dry and Critical	132	125	8
Central Coast Hydrologic Region						
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	44	39	4
			Dry and Critical	25	23	2
Tulare Lake Hydrologic Region (not including Friant-Kern Canal water users)						
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	12	12	0
			Dry and Critical	11	11	0
CVP Ag	Contract Delivery (annual average - includes Cross Valley Canal)	(TAF/year)	Long Term	783	644	139
			Dry and Critical	446	339	108
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	85	75	9
			Dry and Critical	48	43	5
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	669	572	97
			Dry and Critical	356	320	36
South Lahontan Hydrologic Region						
SWP M&I	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	280	247	34
			Dry and Critical	163	149	14
South Coast Hydrologic Region						
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	1,405	1,212	192
			Dry and Critical	817	747	70
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	8	7	1
			Dry and Critical	5	4	0
Total For All Regions						
Total Supplies	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term	8,564	7,947	617
			Dry and Critical	6,591	6,259	332

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.

Table 1-2. CALSIM II Water Supply Summary Report, by Type, Long-Term Average and Dry and Critical Year Averages

				Alternative 1 011519	No Action Alternative 011319	Alternative 1 011519 minus No Action Alternative 011319
Water Supply Reliability						
North of Delta						
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term	255	230	24
			Dry and Critical	152	127	26
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	396	390	7
			Dry and Critical	391	385	6
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	0	0	0
			Dry and Critical	0	0	0
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	101	100	1
			Dry and Critical	68	68	0
Total CVP North of Delta						
Total CVP Ag and M&I NOD	Contract Delivery (CVP) (annual average)	(TAF/year)	Long Term	651	620	31
			Dry and Critical	544	512	32
Total SWP North of Delta						
Total SWP Ag and M&I NOD	Contract Delivery (SWP) (annual average)	(TAF/year)	Long Term	101	100	1
			Dry and Critical	68	68	0
Total North of Delta						
Total North of Delta Ag and M&I Deliveries	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term	752	720	32
			Dry and Critical	612	580	32
South of Delta						
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term	1,218	997	221
			Dry and Critical	686	521	166
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	126	119	8
			Dry and Critical	108	102	7
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	680	582	98
			Dry and Critical	362	326	36
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	1,966	1,702	264
			Dry and Critical	1,138	1,039	99
Total CVP South of Delta						
Total CVP Ag and M&I SOD	Contract Delivery (CVP) (annual average)	(TAF/year)	Long Term	1,344	1,115	229
			Dry and Critical	794	622	172
Total SWP South of Delta						
Total SWP Ag and M&I SOD	Contract Delivery (SWP) (annual average)	(TAF/year)	Long Term	2,646	2,284	362
			Dry and Critical	1,500	1,364	135
Total South of Delta						
Total South of Delta Ag and M&I Deliveries	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term	3,990	3,399	591
			Dry and Critical	2,294	1,987	307

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.

Table 1-3. CALSIM II Water Summary Report, by Region and Type, Long-Term Average and Dry and Critical Year Averages

				Alternative 2 021719	No Action Alternative 011319	Alternative 2 021719 minus No Action Alternative 011319
Water Supply Reliability						
Sacramento River Hydrologic Region						
CVP Settlement	Contract Delivery (annual average)	(TAF/year)	Long Term	1,608	1,609	-1
			Dry and Critical	1,589	1,590	-1
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	163	157	5
			Dry and Critical	149	143	6
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	220	217	2
			Dry and Critical	187	189	-2
CVP Ag	Contract Delivery (annual average - does not include Settlement contractors)	(TAF/year)	Long Term	254	230	24
			Dry and Critical	142	127	16
SWP FRSA	Contract Delivery (annual average)	(TAF/year)	Long Term	937	937	0
			Dry and Critical	873	873	-1
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	31	29	2
			Dry and Critical	24	20	4
San Joaquin River Hydrologic Region (not including Friant-Kern and Madera Canal water users)						
CVP Exchange	Contract Delivery (annual average)	(TAF/year)	Long Term	852	852	0
			Dry and Critical	824	825	0
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	260	260	0
			Dry and Critical	249	250	-1
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	18	16	2
			Dry and Critical	15	14	1
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term	437	314	122
			Dry and Critical	241	162	79
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	4	3	1
			Dry and Critical	3	2	1
San Francisco Bay Hydrologic Region						
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	286	275	12
			Dry and Critical	295	285	10
CVP Ag	Contract Delivery (annual average)	(TAF/year)	Long Term	53	38	15
			Dry and Critical	30	20	10
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	243	198	44
			Dry and Critical	154	125	29
Central Coast Hydrologic Region						
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	52	39	12
			Dry and Critical	32	23	9
Tulare Lake Hydrologic Region (not including Friant-Kern Canal water users)						
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	12	12	0
			Dry and Critical	11	11	0
CVP Ag	Contract Delivery (annual average - includes Cross Valley Canal)	(TAF/year)	Long Term	892	644	248
			Dry and Critical	503	339	164
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	99	75	23
			Dry and Critical	60	43	17
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	863	572	291
			Dry and Critical	507	320	187
South Lahontan Hydrologic Region						
SWP M&I	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	308	247	61
			Dry and Critical	204	149	55
South Coast Hydrologic Region						
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	1,621	1,212	408
			Dry and Critical	1,055	747	308
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	11	7	3
			Dry and Critical	6	4	2
Total For All Regions						
Total Supplies	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term	9,223	7,947	1,276
			Dry and Critical	7,153	6,259	894

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

Table 1-4. CALSIM II Water Supply Summary Report, by Type, Long-Term Average and Dry and Critical Year Averages

				Alternative 2 021719	No Action Alternative 011319	Alternative 2 021719 minus No Action Alternative 011319
Water Supply Reliability						
North of Delta						
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term	254	230	24
			Dry and Critical	142	127	16
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	392	390	3
			Dry and Critical	385	385	-1
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	0	0	0
			Dry and Critical	0	0	0
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	102	100	2
			Dry and Critical	71	68	3
Total CVP North of Delta						
Total CVP Ag and M&I NOD	Contract Delivery (CVP) (annual average)	(TAF/year)	Long Term	646	620	26
			Dry and Critical	527	512	15
Total SWP North of Delta						
Total SWP Ag and M&I NOD	Contract Delivery (SWP) (annual average)	(TAF/year)	Long Term	102	100	2
			Dry and Critical	71	68	3
Total North of Delta						
Total North of Delta Ag and M&I Deliveries	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term	749	720	29
			Dry and Critical	598	580	18
South of Delta						
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term	1,382	997	385
			Dry and Critical	774	521	253
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	131	119	13
			Dry and Critical	112	102	11
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	878	582	295
			Dry and Critical	516	326	190
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	2,251	1,702	550
			Dry and Critical	1,457	1,039	418
Total CVP South of Delta						
Total CVP Ag and M&I SOD	Contract Delivery (CVP) (annual average)	(TAF/year)	Long Term	1,514	1,115	398
			Dry and Critical	886	622	264
Total SWP South of Delta						
Total SWP Ag and M&I SOD	Contract Delivery (SWP) (annual average)	(TAF/year)	Long Term	3,129	2,284	845
			Dry and Critical	1,973	1,364	609
Total South of Delta						
Total South of Delta Ag and M&I Deliveries	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term	4,643	3,399	1,243
			Dry and Critical	2,859	1,987	873

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

Table 1-5. CALSIM II Water Summary Report, by Region and Type, Long-Term Average and Dry and Critical Year Averages

				Alternative 3 021719	No Action Alternative 011319	Alternative 3 021719 minus No Action Alternative 011319
Water Supply Reliability						
Sacramento River Hydrologic Region						
CVP Settlement	Contract Delivery (annual average)	(TAF/year)	Long Term	1,608	1,609	-1
			Dry and Critical	1,589	1,590	-2
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	163	157	5
			Dry and Critical	149	143	6
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	219	217	2
			Dry and Critical	186	189	-2
CVP Ag	Contract Delivery (annual average - does not include Settlement contractors)	(TAF/year)	Long Term	252	230	22
			Dry and Critical	140	127	13
SWP FRSA	Contract Delivery (annual average)	(TAF/year)	Long Term	937	937	0
			Dry and Critical	874	873	0
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	31	29	2
			Dry and Critical	24	20	4
San Joaquin River Hydrologic Region (not including Friant-Kern and Madera Canal water users)						
CVP Exchange	Contract Delivery (annual average)	(TAF/year)	Long Term	852	852	0
			Dry and Critical	823	825	-1
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	260	260	0
			Dry and Critical	249	250	-1
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	18	16	2
			Dry and Critical	15	14	1
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term	432	314	118
			Dry and Critical	236	162	74
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	4	3	1
			Dry and Critical	2	2	1
San Francisco Bay Hydrologic Region						
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	285	275	10
			Dry and Critical	292	285	7
CVP Ag	Contract Delivery (annual average)	(TAF/year)	Long Term	52	38	14
			Dry and Critical	29	20	9
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	242	198	43
			Dry and Critical	154	125	29
Central Coast Hydrologic Region						
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	51	39	12
			Dry and Critical	31	23	8
Tulare Lake Hydrologic Region (not including Friant-Kern Canal water users)						
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	12	12	0
			Dry and Critical	11	11	0
CVP Ag	Contract Delivery (annual average - includes Cross Valley Canal)	(TAF/year)	Long Term	886	644	242
			Dry and Critical	492	339	154
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	98	75	23
			Dry and Critical	60	43	16
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	855	572	283
			Dry and Critical	506	320	186
South Lahontan Hydrologic Region						
SWP M&I	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	312	247	65
			Dry and Critical	203	149	53
South Coast Hydrologic Region						
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	1,600	1,212	388
			Dry and Critical	1,039	747	292
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	11	7	3
			Dry and Critical	6	4	2
Total For All Regions						
Total Supplies	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term	9,181	7,947	1,233
			Dry and Critical	7,110	6,259	851

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

Table 1-6. CALSIM II Water Supply Summary Report, by Type, Long-Term Average and Dry and Critical Year Averages

				Alternative 3 021719	No Action Alternative 011319	Alternative 3 021719 minus No Action Alternative 011319
Water Supply Reliability						
North of Delta						
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term	252	230	22
			Dry and Critical	140	127	13
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	391	390	1
			Dry and Critical	382	385	-4
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	0	0	0
			Dry and Critical	0	0	0
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	102	100	3
			Dry and Critical	72	68	4
Total CVP North of Delta						
Total CVP Ag and M&I NOD	Contract Delivery (CVP) (annual average)	(TAF/year)	Long Term	643	620	23
			Dry and Critical	521	512	9
Total SWP North of Delta						
Total SWP Ag and M&I NOD	Contract Delivery (SWP) (annual average)	(TAF/year)	Long Term	102	100	3
			Dry and Critical	72	68	4
Total North of Delta						
Total North of Delta Ag and M&I Deliveries	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term	745	720	25
			Dry and Critical	593	580	13
South of Delta						
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term	1,371	997	375
			Dry and Critical	757	521	237
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	131	119	13
			Dry and Critical	112	102	10
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	870	582	287
			Dry and Critical	515	326	189
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	2,232	1,702	530
			Dry and Critical	1,438	1,039	399
Total CVP South of Delta						
Total CVP Ag and M&I SOD	Contract Delivery (CVP) (annual average)	(TAF/year)	Long Term	1,502	1,115	387
			Dry and Critical	869	622	247
Total SWP South of Delta						
Total SWP Ag and M&I SOD	Contract Delivery (SWP) (annual average)	(TAF/year)	Long Term	3,102	2,284	817
			Dry and Critical	1,953	1,364	588
Total South of Delta						
Total South of Delta Ag and M&I Deliveries	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term	4,604	3,399	1,205
			Dry and Critical	2,822	1,987	835

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

Table 1-7. CALSIM II Water Summary Report, by Region and Type, Long-Term Average and Dry and Critical Year Averages

				Alternative 4 043019	No Action Alternative 011319	Alternative 4 043019 minus No Action Alternative 011319
Water Supply Reliability						
Sacramento River Hydrologic Region						
CVP Settlement	Contract Delivery (annual average)	(TAF/year)	Long Term	1,601	1,609	-9
			Dry and Critical	1,584	1,590	-6
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	158	157	1
			Dry and Critical	140	143	-2
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	210	217	-7
			Dry and Critical	176	189	-12
CVP Ag	Contract Delivery (annual average - does not include Settlement contractors)	(TAF/year)	Long Term	226	230	-4
			Dry and Critical	107	127	-20
SWP FRSA	Contract Delivery (annual average)	(TAF/year)	Long Term	937	937	0
			Dry and Critical	873	873	0
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	28	29	-1
			Dry and Critical	18	20	-2
San Joaquin River Hydrologic Region (not including Friant-Kern and Madera Canal water users)						
CVP Exchange	Contract Delivery (annual average)	(TAF/year)	Long Term	852	852	0
			Dry and Critical	825	825	0
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	260	260	0
			Dry and Critical	252	250	2
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	16	16	0
			Dry and Critical	13	14	-1
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term	307	314	-8
			Dry and Critical	131	162	-31
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	3	3	0
			Dry and Critical	1	2	0
San Francisco Bay Hydrologic Region						
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	266	275	-9
			Dry and Critical	268	285	-17
CVP Ag	Contract Delivery (annual average)	(TAF/year)	Long Term	37	38	-2
			Dry and Critical	16	20	-4
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	190	198	-8
			Dry and Critical	113	125	-12
Central Coast Hydrologic Region						
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	37	39	-3
			Dry and Critical	19	23	-4
Tulare Lake Hydrologic Region (not including Friant-Kern Canal water users)						
CVP Refuge Level 2	Contract Delivery (annual average)	(TAF/year)	Long Term	12	12	0
			Dry and Critical	12	11	0
CVP Ag	Contract Delivery (annual average - includes Cross Valley Canal)	(TAF/year)	Long Term	616	644	-28
			Dry and Critical	275	339	-64
SWP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term	70	75	-5
			Dry and Critical	36	43	-7
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	551	572	-20
			Dry and Critical	285	320	-35
South Lahontan Hydrologic Region						
SWP M&I	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	233	247	-14
			Dry and Critical	128	149	-22
South Coast Hydrologic Region						
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term	1,155	1,212	-57
			Dry and Critical	632	747	-115
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term	7	7	0
			Dry and Critical	4	4	0
Total For All Regions						
Total Supplies	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term	7,772	7,947	-175
			Dry and Critical	5,907	6,259	-352

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

Table 1-8. CALSIM II Water Supply Summary Report, by Type, Long-Term Average and Dry and Critical Year Averages

				Alternative 4 043019	No Action Alternative 011319	Alternative 4 043019 minus No Action Alternative 011319
Water Supply Reliability						
North of Delta						
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term Dry and Critical	226 107	230 127	-4 -20
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term Dry and Critical	377 360	390 385	-13 -26
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term Dry and Critical	0 0	0 0	0 0
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term Dry and Critical	99 66	100 68	-1 -2
Total CVP North of Delta						
Total CVP Ag and M&I NOD	Contract Delivery (CVP) (annual average)	(TAF/year)	Long Term Dry and Critical	603 466	620 512	-17 -46
Total SWP North of Delta						
Total SWP Ag and M&I NOD	Contract Delivery (SWP) (annual average)	(TAF/year)	Long Term Dry and Critical	99 66	100 68	-1 -2
Total North of Delta						
Total North of Delta Ag and M&I Deliveries	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term Dry and Critical	702 532	720 580	-18 -48
South of Delta						
CVP Ag	Contract Delivery (annual average; does not include Exchange contractors)	(TAF/year)	Long Term Dry and Critical	959 422	997 521	-37 -98
CVP M&I	Contract Delivery (annual average)	(TAF/year)	Long Term Dry and Critical	115 98	119 102	-3 -4
SWP Ag	Contract Delivery (including Article 21) (annual average)	(TAF/year)	Long Term Dry and Critical	561 290	582 326	-21 -36
SWP M&I	Contract Delivery (including Article 21, includes transfers to SWP contractors) (annual average)	(TAF/year)	Long Term Dry and Critical	1,614 879	1,702 1,039	-88 -160
Total CVP South of Delta						
Total CVP Ag and M&I SOD	Contract Delivery (CVP) (annual average)	(TAF/year)	Long Term Dry and Critical	1,075 520	1,115 622	-41 -102
Total SWP South of Delta						
Total SWP Ag and M&I SOD	Contract Delivery (SWP) (annual average)	(TAF/year)	Long Term Dry and Critical	2,175 1,169	2,284 1,364	-109 -195
Total South of Delta						
Total South of Delta Ag and M&I Deliveries	Contract Delivery (CVP, SWP and other) (annual average)	(TAF/year)	Long Term Dry and Critical	3,250 1,689	3,399 1,987	-150 -297

Notes:

1. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.
2. Dry and Critical Years Average is the average quantity for the combination of the SWRCB D-1641 40-30-30 Dry and Critical years for the period of Oct 1921 - Sep 2003.
3. All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

Figure 1-1. CVP North of Delta Agricultural Water Service Contract Deliveries, Annual (Mar-Feb)

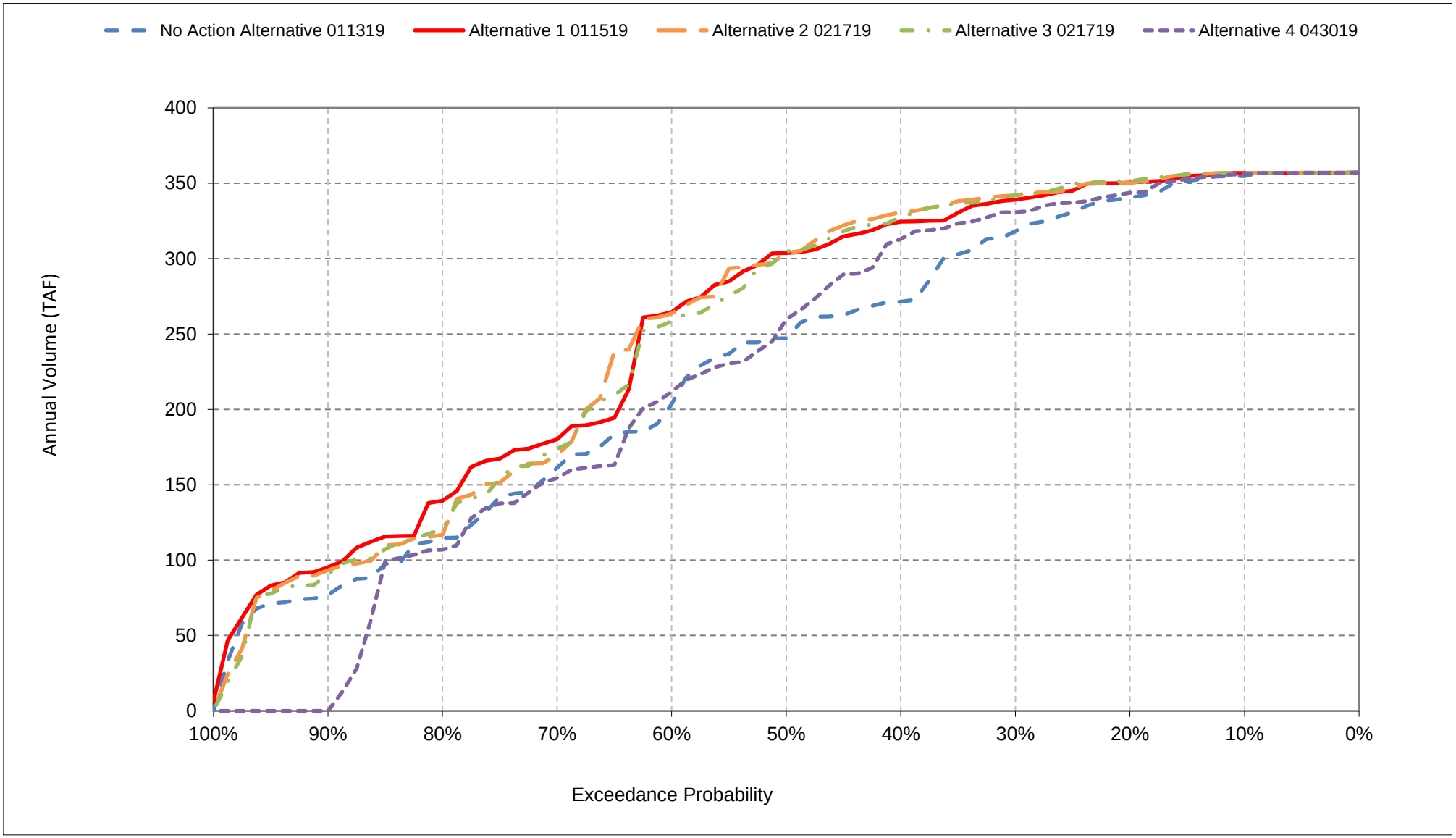


Figure 1-2. CVP South of Delta Agricultural Water Service Contract Deliveries, Annual (Mar-Feb)

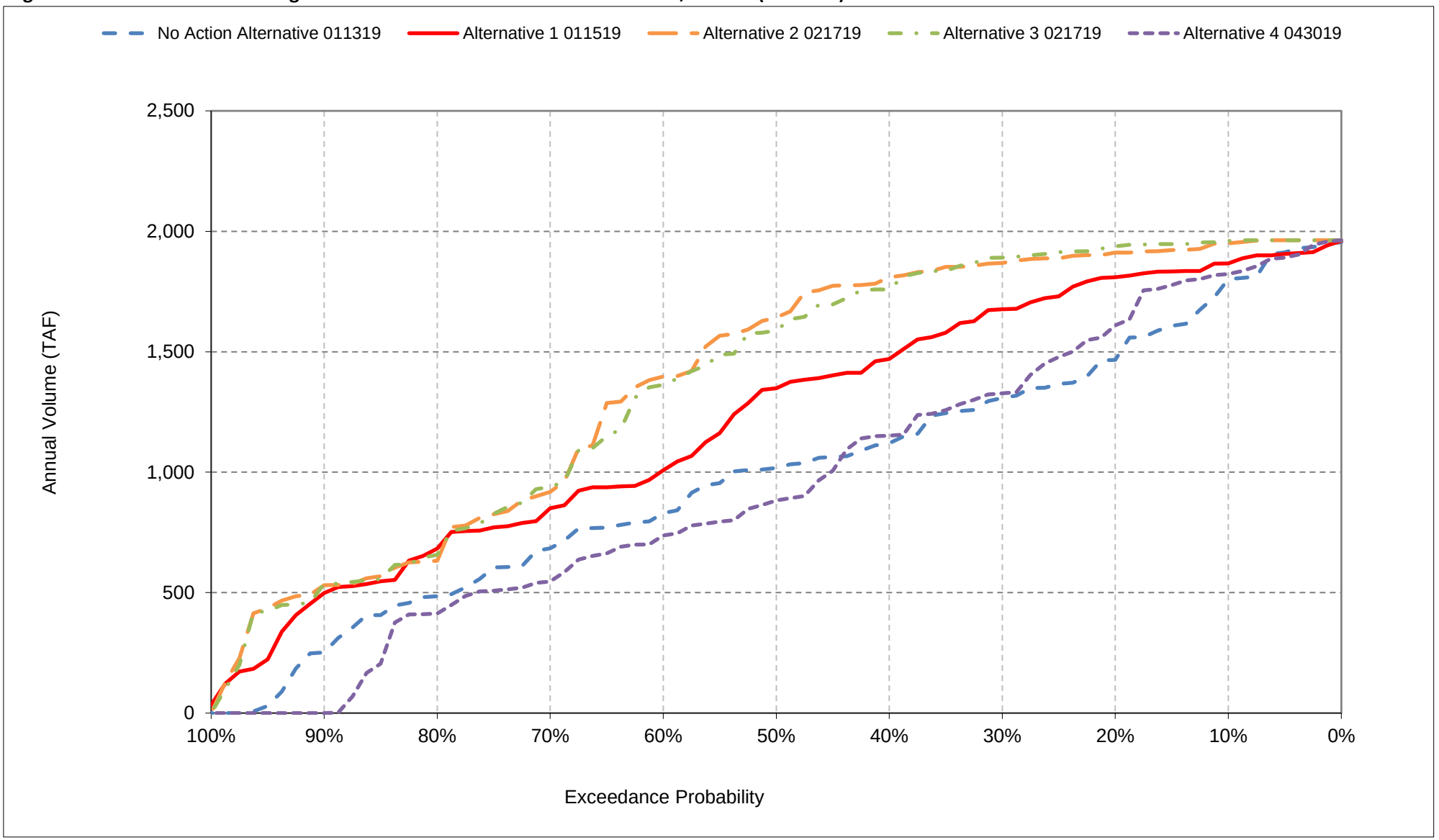


Figure 1-3. CVP North of Delta M&I Water Service Contract Deliveries, Annual (Mar-Feb)

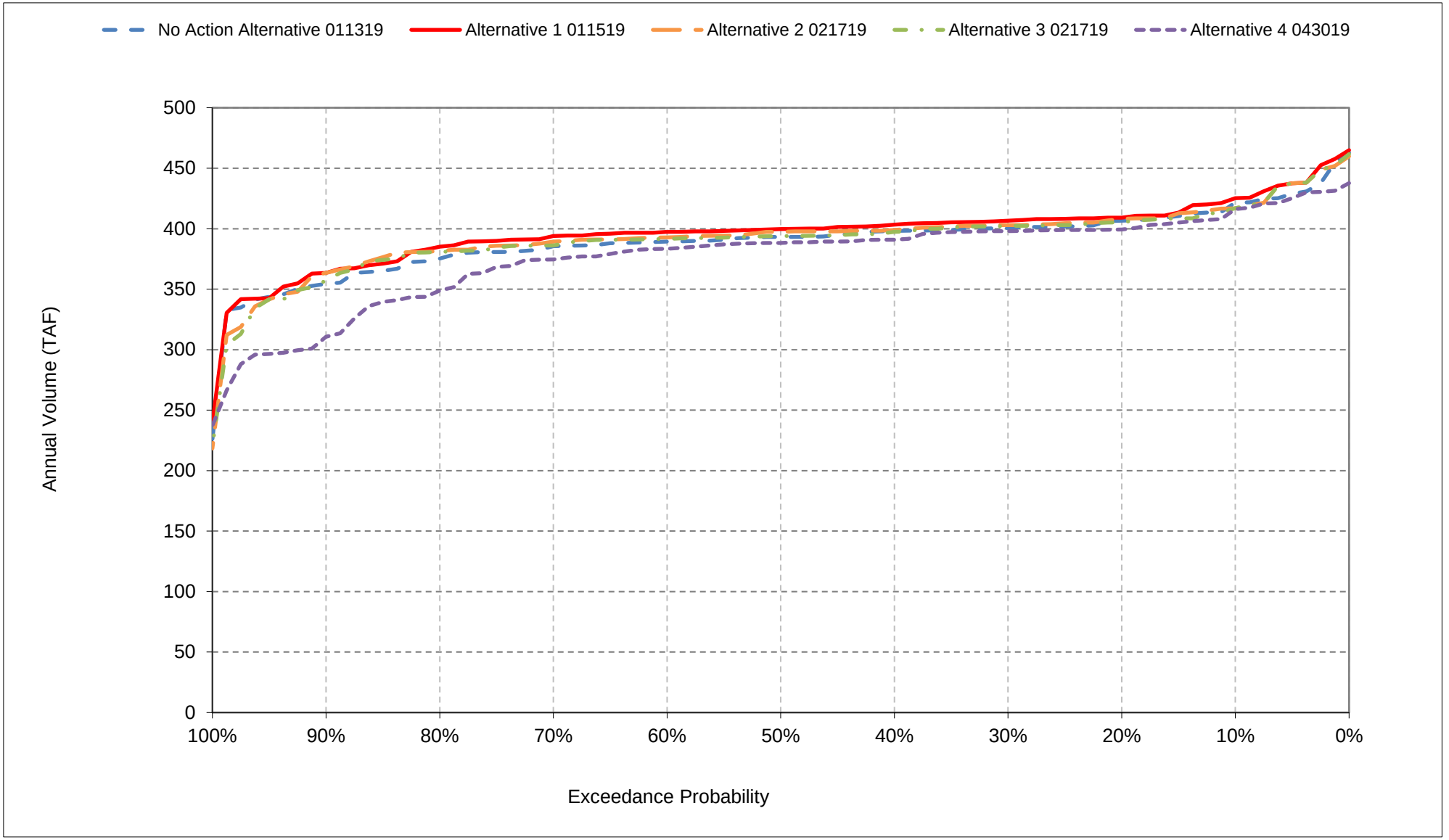


Figure 1-4. CVP South of Delta M&I Water Service Contract Deliveries, Annual (Mar-Feb)

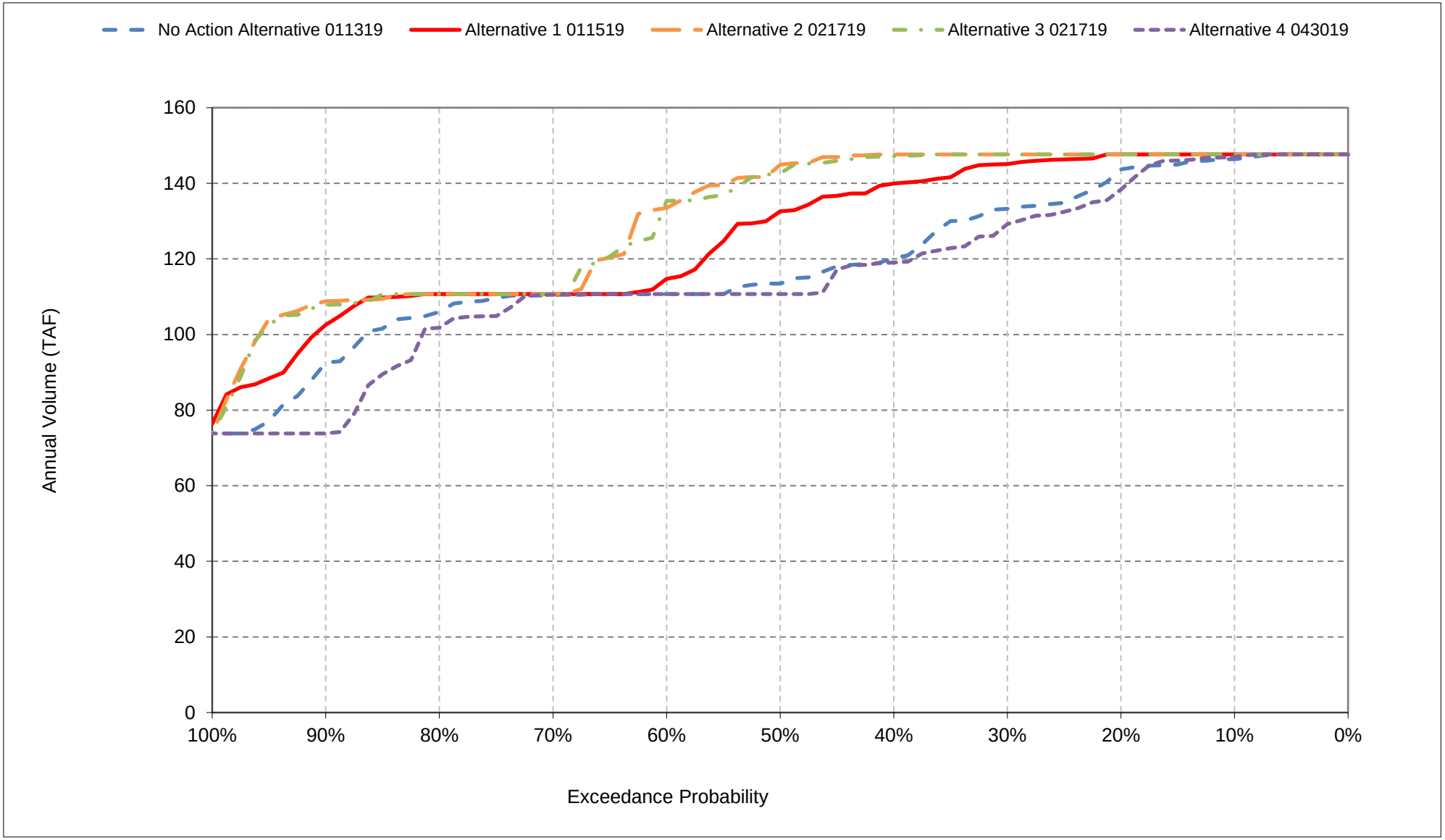


Figure 1-5. Total SWP Deliveries, Annual (Jan-Dec)

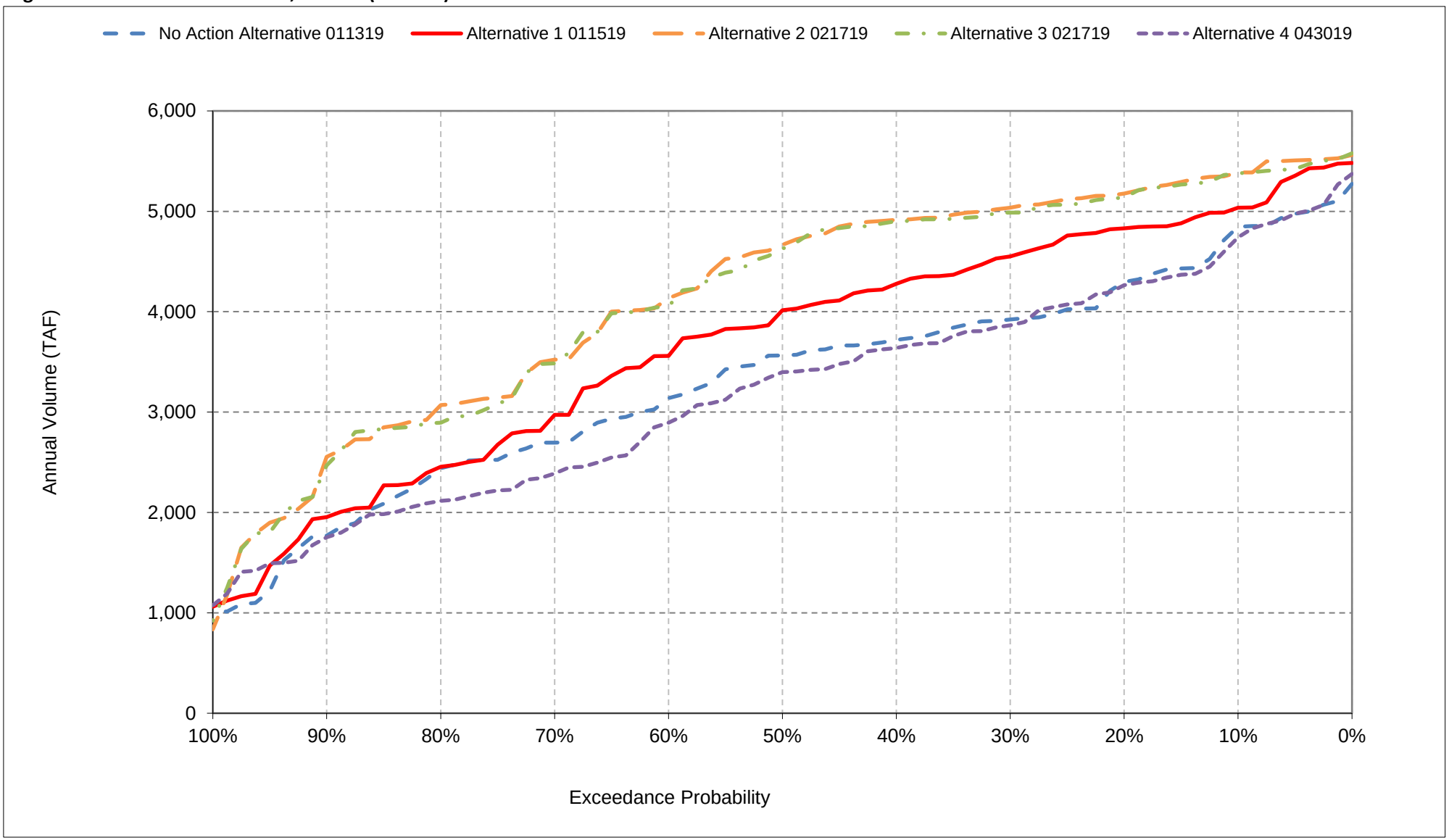


Figure 1-6. Total SWP South of Delta Deliveries including Article 21 and 56, Annual (Jan-Dec)

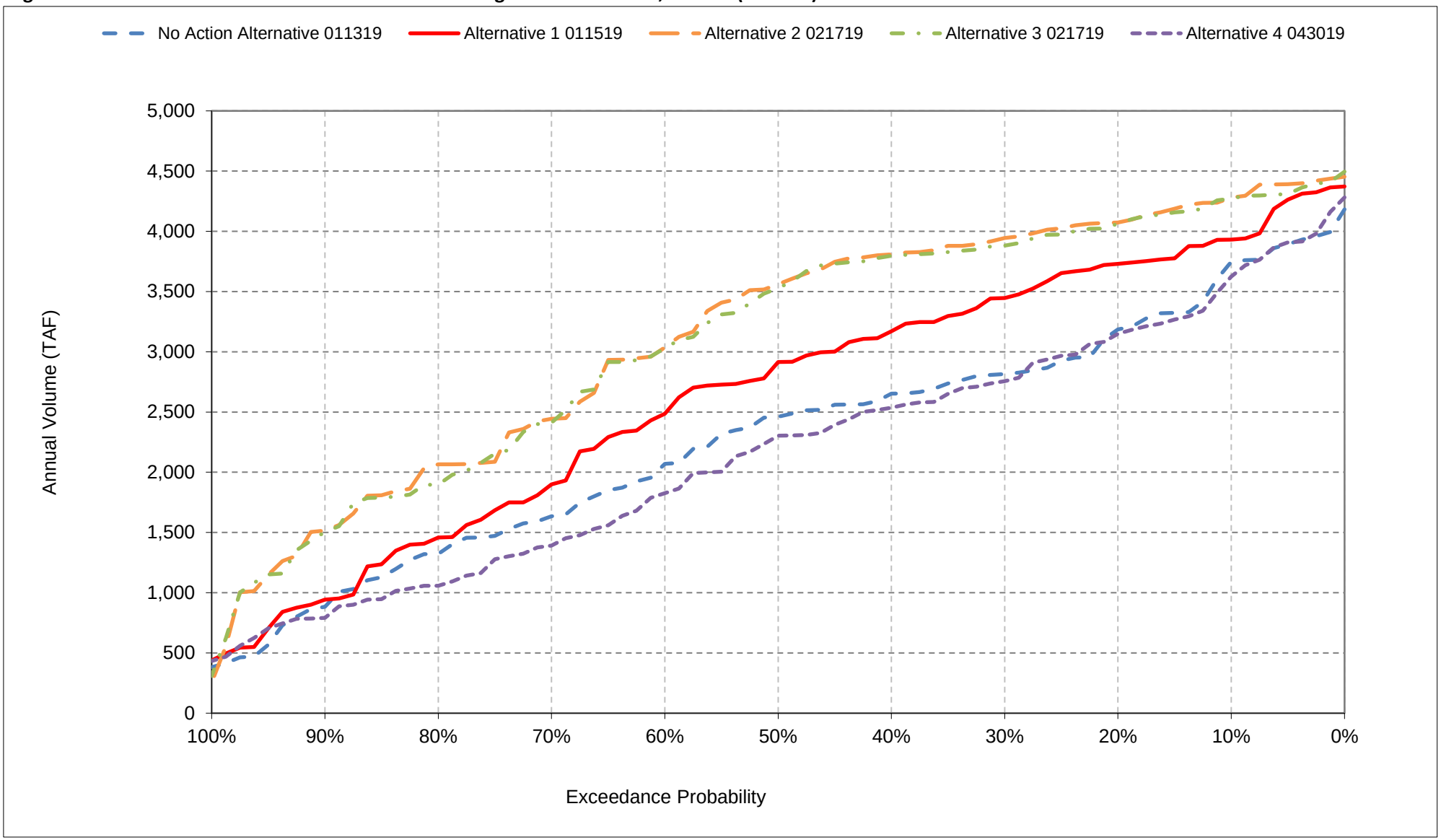


Figure 1-7. SWP Table A Deliveries with Article 56, Annual (Jan-Dec)

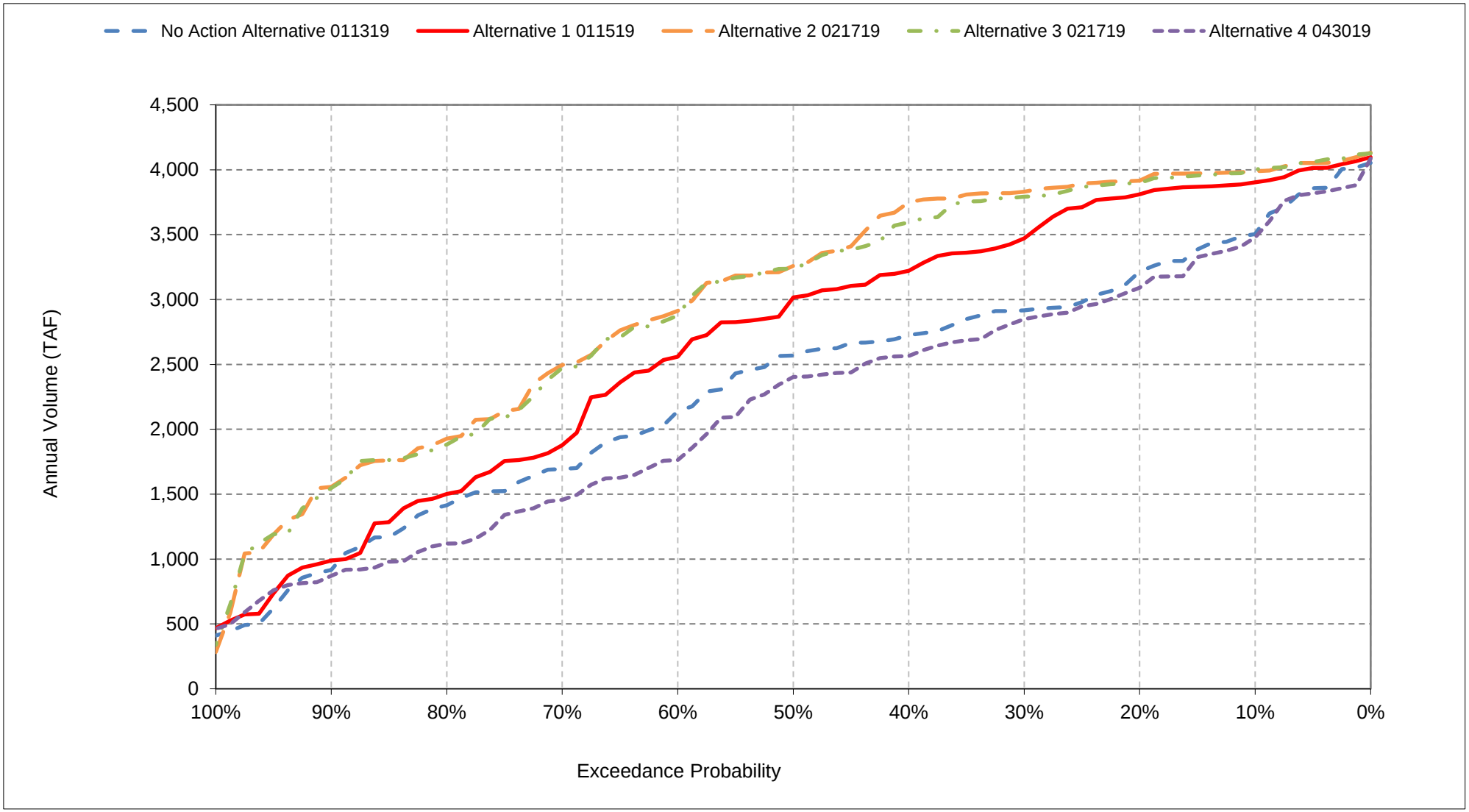


Figure 1-8. SWP South of Delta Table A Deliveries with Article 56, Annual (Jan-Dec)

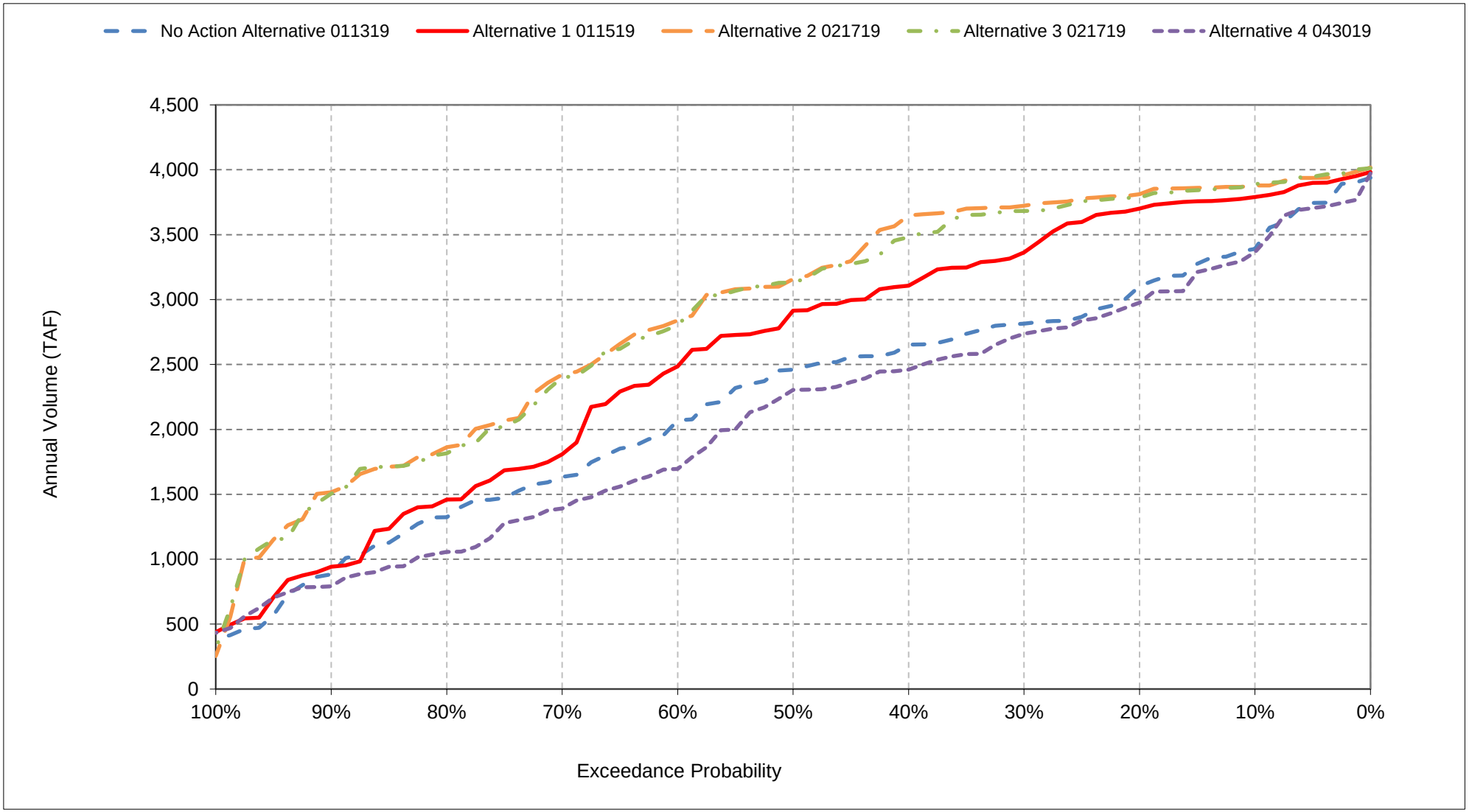


Figure 1-9. SWP Article 21 Deliveries, Annual (Jan-Dec)

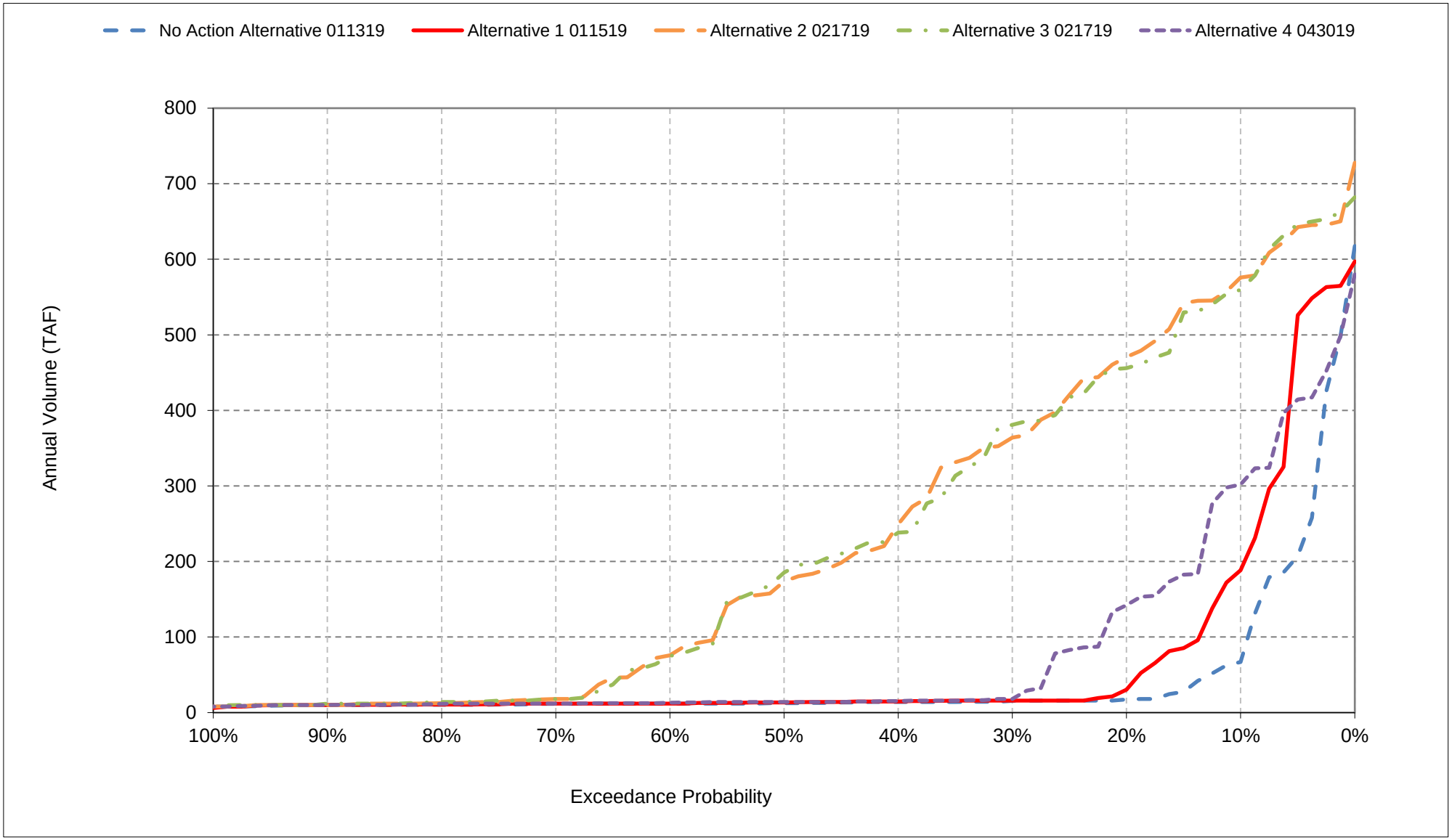
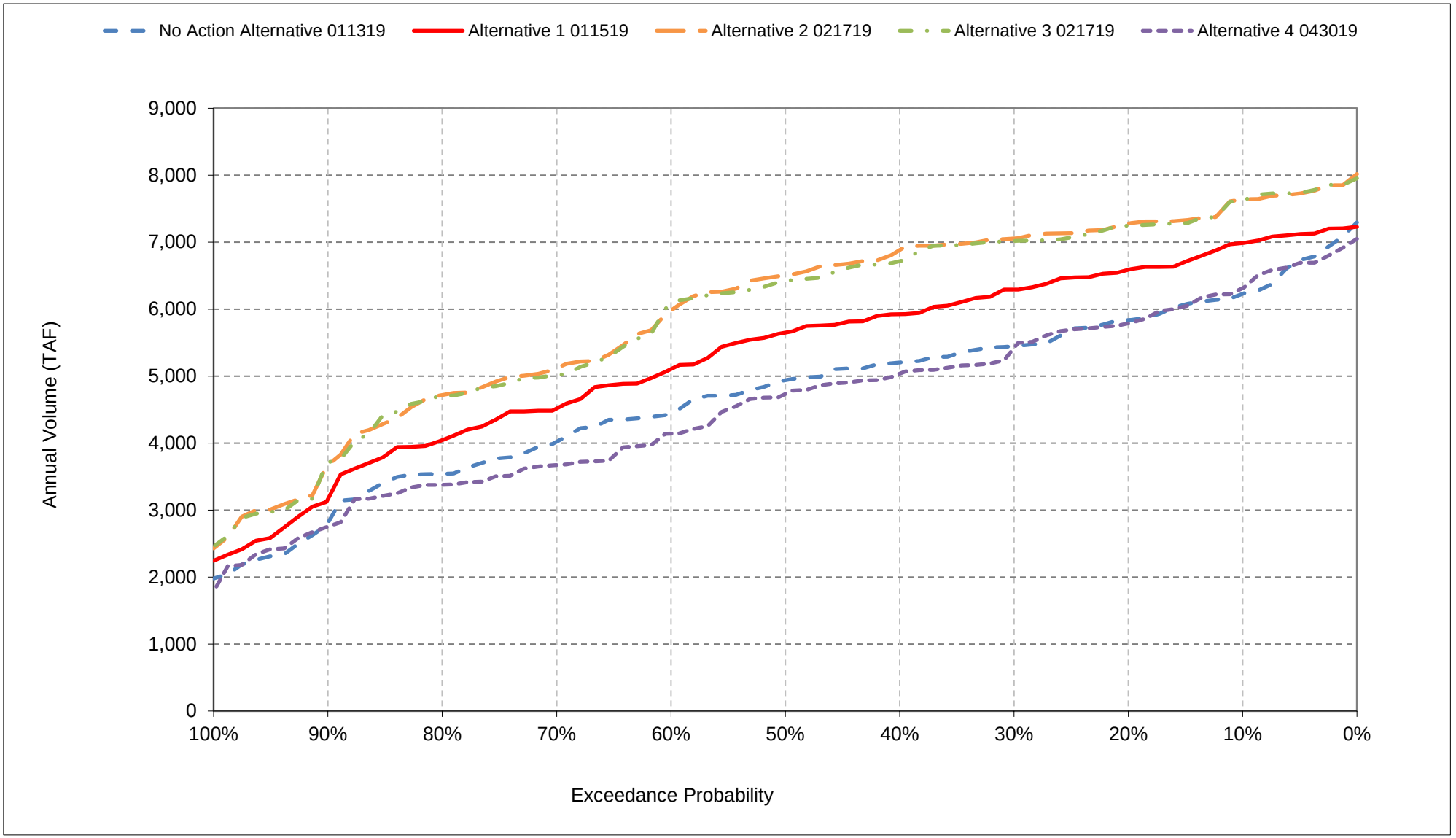


Figure 2-1. Total Delta Exports, Annual (Oct-Sep)



Attachment 3-10 Chloride Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta chloride conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Contra Costa Pumping Plant Chloride	ROLD024	19-1 to 19-4	19-1 to 19-18
San Joaquin River at Antioch Chloride	RSAN007	20-1 to 20-4	20-1 to 20-18
Banks Pumping Plant South Delta Exports Chloride	CLIFTON_COURT	21-1 to 21-4	21-1 to 21-18
Jones Pumping Plant South Delta Exports Chloride	CHDMC006	22-1 to 22-4	22-1 to 22-18
North Bay Aqueduct Chloride	SLBAR002	23-1 to 23-4	23-1 to 23-18

1 Report Formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Appendix F – Modeling

Chloride Results (DSM2-QUAL)

The following results of the DSM2-QUAL model are included for Delta chloride conditions for the following alternatives:

- No Action Alternative 011319
- Alternative 1 011519
- Alternative 2 021719
- Alternative 3 021719
- Alternative 4 043019

Title	Model Parameter	Table Numbers	Figure Numbers
Contra Costa Pumping Plant Chloride	ROLD024	19-1 to 19-4	19-1 to 19-18
San Joaquin River at Antioch Chloride	RSAN007	20-1 to 20-4	20-1 to 20-18
Banks Pumping Plant South Delta Exports Chloride	CLIFTON_COURT	21-1 to 21-4	21-1 to 21-18
Jones Pumping Plant South Delta Exports Chloride	CHDMC006	22-1 to 22-4	22-1 to 22-18
North Bay Aqueduct Chloride	SLBAR002	23-1 to 23-4	23-1 to 23-18

Report formats

- Monthly tables comparing two scenarios (exceedance values, long-term average, and average by water year type)
- Monthly pattern charts (long-term average and average by water year type) including all scenarios
- Monthly exceedance charts (all months) including all scenarios

Table 19-1. Contra Costa Pumping Plant #1 Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	241	255	252	207	107	59	61	58	38	82	139	190
20%	219	219	231	163	84	44	53	52	32	50	105	181
30%	207	190	206	127	69	39	47	50	29	46	90	170
40%	198	171	135	103	59	35	45	46	28	37	81	157
50%	174	119	67	89	51	32	41	43	27	28	73	135
60%	33	31	45	77	45	30	39	40	26	26	65	124
70%	31	25	35	48	35	27	35	35	25	25	54	112
80%	29	23	29	39	31	25	29	29	24	23	47	95
90%	28	21	24	30	27	23	26	20	23	22	40	85
Long Term												
Full Simulation Period[a]	127	121	117	102	60	37	42	42	31	43	79	137
Water Year Types[b]												
Wet (32%)	29	23	30	51	44	31	33	34	25	23	48	103
Above Normal (16%)	33	44	65	82	52	31	47	50	26	25	54	89
Below Normal (13%)	200	166	162	105	55	33	49	51	29	40	78	171
Dry (24%)	206	182	159	139	67	38	41	38	28	54	107	164
Critical (15%)	244	272	253	166	100	57	52	47	57	86	129	186

Alternative 1 011519

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	247	274	259	227	105	53	45	32	34	87	141	197
20%	231	250	240	199	76	39	33	28	29	52	106	186
30%	220	231	228	175	64	34	30	27	26	46	91	180
40%	211	216	207	107	59	31	29	25	25	37	84	174
50%	206	200	190	92	49	29	27	24	23	28	77	169
60%	203	189	166	71	40	27	26	24	23	26	63	166
70%	191	177	130	49	34	26	25	23	22	24	54	162
80%	175	153	87	41	30	24	24	22	21	23	49	151
90%	125	62	41	29	28	22	23	21	20	22	41	123
Long Term												
Full Simulation Period[a]	197	193	170	115	58	34	30	26	29	44	80	163
Water Year Types[b]												
Wet (32%)	150	164	141	54	42	34	28	22	22	23	47	134
Above Normal (16%)	199	183	172	103	51	31	29	24	22	25	56	169
Below Normal (13%)	204	178	162	126	56	31	30	26	25	44	87	182
Dry (24%)	220	197	160	166	67	32	30	26	26	54	103	172
Critical (15%)	249	278	256	164	88	45	39	38	62	93	130	190

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**6**	**19**	**7**	**20**	-2	-6	-16	-26	-4	**4**	**2**	**7**
20%	**11**	**31**	**9**	**36**	-8	-5	-20	-24	-2	**2**	**1**	**5**
30%	**13**	**40**	**22**	**48**	-5	-5	-17	-23	-2	**1**	**1**	**9**
40%	**13**	**45**	**73**	**5**	0	-4	-16	-21	-4	0	**3**	**17**
50%	**31**	**81**	**123**	**3**	-2	-3	-14	-19	-4	-1	**3**	**34**
60%	**169**	**158**	**121**	-6	-6	-3	-12	-16	-4	-1	-2	**42**
70%	**160**	**152**	**95**	**1**	-1	-1	-9	-12	-3	0	**1**	**50**
80%	**146**	**130**	**58**	**2**	-1	-1	-5	-6	-3	0	**2**	**56**
90%	**97**	**41**	**18**	-1	**1**	-1	-3	**2**	-2	**0**	**1**	**38**
Long Term												
Full Simulation Period[a]	**70**	**73**	**53**	**13**	-2	-3	-12	-15	-2	**1**	**0**	**26**
Water Year Types[b]												
Wet (32%)	**121**	**141**	**111**	**3**	-2	**2**	-5	-12	-2	0	-1	**31**
Above Normal (16%)	**167**	**139**	**107**	**21**	-1	-1	-18	-26	-4	0	**2**	**80**
Below Normal (13%)	**4**	**12**	**0**	**22**	**1**	-2	-20	-25	-4	**4**	**9**	**11**
Dry (24%)	**14**	**15**	**1**	**26**	**0**	-6	-11	-12	-2	-1	-5	**8**
Critical (15%)	**4**	**6**	**3**	-1	-12	-12	-12	-9	**4**	**7**	**1**	**4**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 19-2. Contra Costa Pumping Plant #1 Chloride, Monthly Cl

No Action Alternative 011319

Statistic	Monthly Cl (mg/L)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	241	255	252	207	107	59	61	58	38	82	139	190
20%	219	219	231	163	84	44	53	52	32	50	105	181
30%	207	190	206	127	69	39	47	50	29	46	90	170
40%	198	171	135	103	59	35	45	46	28	37	81	157
50%	174	119	67	89	51	32	41	43	27	28	73	135
60%	33	31	45	77	45	30	39	40	26	26	65	124
70%	31	25	35	48	35	27	35	35	25	25	54	112
80%	29	23	29	39	31	25	29	29	24	23	47	95
90%	28	21	24	30	27	23	26	20	23	22	40	85
Long Term												
Full Simulation Period[a]	127	121	117	102	60	37	42	42	31	43	79	137
Water Year Types[b]												
Wet (32%)	29	23	30	51	44	31	33	34	25	23	48	103
Above Normal (16%)	33	44	65	82	52	31	47	50	26	25	54	89
Below Normal (13%)	200	166	162	105	55	33	49	51	29	40	78	171
Dry (24%)	206	182	159	139	67	38	41	38	28	54	107	164
Critical (15%)	244	272	253	166	100	57	52	47	57	86	129	186

Alternative 2 021719

Statistic	Monthly Cl (mg/L)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	234	263	276	249	148	64	41	34	38	74	136	199
20%	227	231	256	209	105	46	33	28	28	47	101	185
30%	220	208	236	188	73	39	28	26	26	41	90	180
40%	210	193	216	166	58	30	27	25	24	33	80	173
50%	205	184	203	141	51	29	25	24	22	28	74	167
60%	199	172	183	85	39	26	24	22	21	25	67	162
70%	192	162	143	47	33	24	23	22	20	25	55	152
80%	177	137	94	38	29	23	22	21	20	23	49	138
90%	136	88	36	27	23	21	21	19	19	22	41	117
Long Term												
Full Simulation Period[a]	194	179	182	129	67	36	29	25	28	41	79	159
Water Year Types[b]												
Wet (32%)	154	162	163	54	38	31	27	21	21	23	46	129
Above Normal (16%)	219	207	202	114	46	27	27	22	20	24	62	175
Below Normal (13%)	203	169	165	169	95	37	27	25	23	37	92	169
Dry (24%)	202	148	149	178	77	33	27	25	26	49	95	167
Critical (15%)	234	250	271	190	112	59	40	40	62	90	132	187

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Cl (mg/L)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-7	**7**	**23**	**42**	**41**	**5**	-19	-25	-1	-8	-3	**9**
20%	**7**	**12**	**25**	**46**	**21**	**2**	-20	-24	-3	-3	-4	**3**
30%	**13**	**18**	**31**	**61**	**4**	**0**	-18	-23	-3	-4	**1**	**10**
40%	**12**	**22**	**81**	**63**	-1	-5	-18	-21	-4	-4	-1	**16**
50%	**30**	**65**	**136**	**52**	0	-3	-16	-19	-5	-1	**1**	**32**
60%	**166**	**141**	**138**	**8**	-6	-3	-14	-18	-5	-1	**2**	**37**
70%	**162**	**137**	**108**	-1	-2	-3	-11	-14	-5	0	**2**	**40**
80%	**148**	**114**	**65**	-1	-1	-2	-7	-8	-4	**0**	**2**	**43**
90%	**107**	**67**	**13**	-3	-4	-2	-5	0	-4	0	**1**	**33**
Long Term												
Full Simulation Period[a]	**67**	**59**	**64**	**28**	**7**	-1	-13	-16	-3	-1	**0**	**22**
Water Year Types[b]												
Wet (32%)	**125**	**139**	**133**	**2**	-6	-1	-6	-13	-4	0	-2	**26**
Above Normal (16%)	**186**	**164**	**137**	**32**	-6	-4	-20	-27	-6	-1	**8**	**85**
Below Normal (13%)	**3**	**3**	**3**	**65**	**40**	**3**	-22	-26	-6	-2	**15**	-2
Dry (24%)	-4	-34	-10	**39**	**10**	-4	-14	-12	-3	-6	-12	**3**
Critical (15%)	-10	-21	**18**	**25**	**12**	**2**	-12	-7	**5**	**4**	**4**	**1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 19-3. Contra Costa Pumping Plant #1 Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	241	255	252	207	107	59	61	58	38	82	139	190
20%	219	219	231	163	84	44	53	52	32	50	105	181
30%	207	190	206	127	69	39	47	50	29	46	90	170
40%	198	171	135	103	59	35	45	46	28	37	81	157
50%	174	119	67	89	51	32	41	43	27	28	73	135
60%	33	31	45	77	45	30	39	40	26	26	65	124
70%	31	25	35	48	35	27	35	35	25	25	54	112
80%	29	23	29	39	31	25	29	29	24	23	47	95
90%	28	21	24	30	27	23	26	20	23	22	40	85
Long Term												
Full Simulation Period[a]	127	121	117	102	60	37	42	42	31	43	79	137
Water Year Types[b]												
Wet (32%)	29	23	30	51	44	31	33	34	25	23	48	103
Above Normal (16%)	33	44	65	82	52	31	47	50	26	25	54	89
Below Normal (13%)	200	166	162	105	55	33	49	51	29	40	78	171
Dry (24%)	206	182	159	139	67	38	41	38	28	54	107	164
Critical (15%)	244	272	253	166	100	57	52	47	57	86	129	186

Alternative 3 021719

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	236	244	252	225	120	64	41	33	37	74	135	201
20%	226	226	240	201	102	48	33	28	28	46	100	193
30%	218	210	224	177	68	38	29	26	26	40	91	181
40%	211	193	209	165	57	33	27	25	25	35	83	174
50%	206	181	192	125	50	30	26	24	23	28	72	166
60%	200	154	158	80	38	27	25	23	22	25	62	158
70%	189	140	124	42	33	24	24	22	21	24	55	152
80%	183	114	93	35	29	23	22	21	20	23	45	138
90%	138	81	43	26	24	21	21	20	19	22	39	121
Long Term												
Full Simulation Period[a]	195	168	168	123	64	36	30	26	28	41	78	161
Water Year Types[b]												
Wet (32%)	159	161	148	52	38	31	28	21	21	24	46	131
Above Normal (16%)	208	198	190	96	42	27	28	23	21	24	56	168
Below Normal (13%)	210	162	153	163	95	38	28	25	23	36	89	178
Dry (24%)	204	136	142	171	74	35	28	26	26	48	95	170
Critical (15%)	227	211	242	187	103	58	41	38	60	93	134	184

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-5	-11	-1	**18**	**13**	**5**	-20	-26	-1	-9	-5	**11**
20%	**6**	**7**	**9**	**37**	**18**	**3**	-20	-24	-4	-4	-5	**12**
30%	**11**	**19**	**19**	**50**	-1	-1	-18	-23	-3	-6	**1**	**11**
40%	**13**	**22**	**75**	**62**	-2	-3	-17	-21	-4	-2	**2**	**17**
50%	**31**	**62**	**125**	**36**	-1	-2	-15	-19	-4	0	-1	**31**
60%	**167**	**123**	**113**	**4**	-7	-3	-14	-17	-4	-1	-3	**34**
70%	**159**	**114**	**89**	-6	-3	-3	-11	-13	-4	0	**1**	**40**
80%	**153**	**91**	**63**	-4	-2	-1	-7	-8	-4	**0**	-2	**43**
90%	**110**	**60**	**19**	-4	-4	-2	-5	0	-3	**0**	-1	**36**
Long Term												
Full Simulation Period[a]	**67**	**48**	**50**	**21**	**4**	-1	-12	-16	-3	-1	-1	**24**
Water Year Types[b]												
Wet (32%)	**130**	**138**	**119**	**0**	-6	0	-5	-13	-3	**0**	-2	**28**
Above Normal (16%)	**175**	**154**	**125**	**14**	-10	-4	-19	-27	-5	-1	**2**	**79**
Below Normal (13%)	**9**	-4	-8	**58**	**40**	**5**	-21	-26	-6	-4	**11**	**7**
Dry (24%)	-2	-46	-17	**32**	**7**	-3	-13	-12	-3	-7	-12	**7**
Critical (15%)	-17	-61	-11	**21**	**3**	**1**	-11	-9	**2**	**7**	**5**	-2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 19-4. Contra Costa Pumping Plant #1 Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	241	255	252	207	107	59	61	58	38	82	139	190
20%	219	219	231	163	84	44	53	52	32	50	105	181
30%	207	190	206	127	69	39	47	50	29	46	90	170
40%	198	171	135	103	59	35	45	46	28	37	81	157
50%	174	119	67	89	51	32	41	43	27	28	73	135
60%	33	31	45	77	45	30	39	40	26	26	65	124
70%	31	25	35	48	35	27	35	35	25	25	54	112
80%	29	23	29	39	31	25	29	29	24	23	47	95
90%	28	21	24	30	27	23	26	20	23	22	40	85
Long Term												
Full Simulation Period[a]	127	121	117	102	60	37	42	42	31	43	79	137
Water Year Types[b]												
Wet (32%)	29	23	30	51	44	31	33	34	25	23	48	103
Above Normal (16%)	33	44	65	82	52	31	47	50	26	25	54	89
Below Normal (13%)	200	166	162	105	55	33	49	51	29	40	78	171
Dry (24%)	206	182	159	139	67	38	41	38	28	54	107	164
Critical (15%)	244	272	253	166	100	57	52	47	57	86	129	186

Alternative 4 043019

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	248	265	251	225	104	99	97	68	40	68	121	185
20%	225	252	239	197	73	80	88	63	30	52	94	177
30%	212	226	227	167	60	70	81	59	28	44	84	168
40%	208	213	211	109	56	67	77	56	27	38	76	164
50%	204	194	193	85	48	59	68	50	27	29	62	161
60%	199	182	157	71	37	57	62	47	25	26	53	159
70%	190	174	132	47	33	51	57	44	25	25	49	153
80%	182	153	69	39	29	41	50	41	24	23	42	140
90%	139	120	37	29	27	37	34	30	23	22	37	111
Long Term												
Full Simulation Period[a]	196	192	166	110	56	63	68	50	31	42	72	154
Water Year Types[b]												
Wet (32%)	160	173	138	54	41	53	52	39	24	24	45	133
Above Normal (16%)	201	184	166	97	48	68	79	56	26	25	49	161
Below Normal (13%)	188	159	152	112	51	68	84	60	27	43	65	141
Dry (24%)	214	191	157	163	65	66	77	55	29	52	97	165
Critical (15%)	243	272	252	159	86	70	65	52	57	84	123	184

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**7**	**10**	-1	**19**	-3	**40**	**36**	**10**	**2**	-14	-19	-5
20%	**5**	**32**	**8**	**33**	-11	**36**	**35**	**11**	-2	**2**	-12	-4
30%	**5**	**35**	**21**	**41**	-9	**31**	**34**	**9**	-1	-2	-6	-2
40%	**10**	**42**	**76**	**6**	-3	**32**	**32**	**10**	-1	**0**	-6	**7**
50%	**30**	**74**	**126**	-4	-3	**27**	**26**	**6**	0	**0**	-12	**26**
60%	**166**	**151**	**112**	-5	-8	**27**	**23**	**7**	-1	0	-12	**34**
70%	**160**	**149**	**97**	-1	-2	**24**	**22**	**9**	0	**0**	-4	**41**
80%	**153**	**130**	**39**	0	-1	**17**	**21**	**13**	0	0	-5	**45**
90%	**111**	**99**	**13**	-1	**0**	**14**	**8**	**11**	**0**	**0**	-3	**27**
Long Term												
Full Simulation Period[a]	**68**	**71**	**48**	**9**	-5	**26**	**26**	**9**	0	0	-7	**17**
Water Year Types[b]												
Wet (32%)	**131**	**150**	**108**	**2**	-2	**22**	**19**	**5**	0	**0**	-4	**30**
Above Normal (16%)	**168**	**140**	**101**	**15**	-4	**37**	**32**	**7**	-1	**0**	-5	**72**
Below Normal (13%)	-12	-7	-10	**7**	-4	**34**	**35**	**9**	-2	**3**	-13	-30
Dry (24%)	**8**	**9**	-2	**23**	-2	**29**	**36**	**17**	**1**	-3	-10	**1**
Critical (15%)	-1	**1**	-1	-7	-14	**14**	**13**	**5**	0	-2	-6	-2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

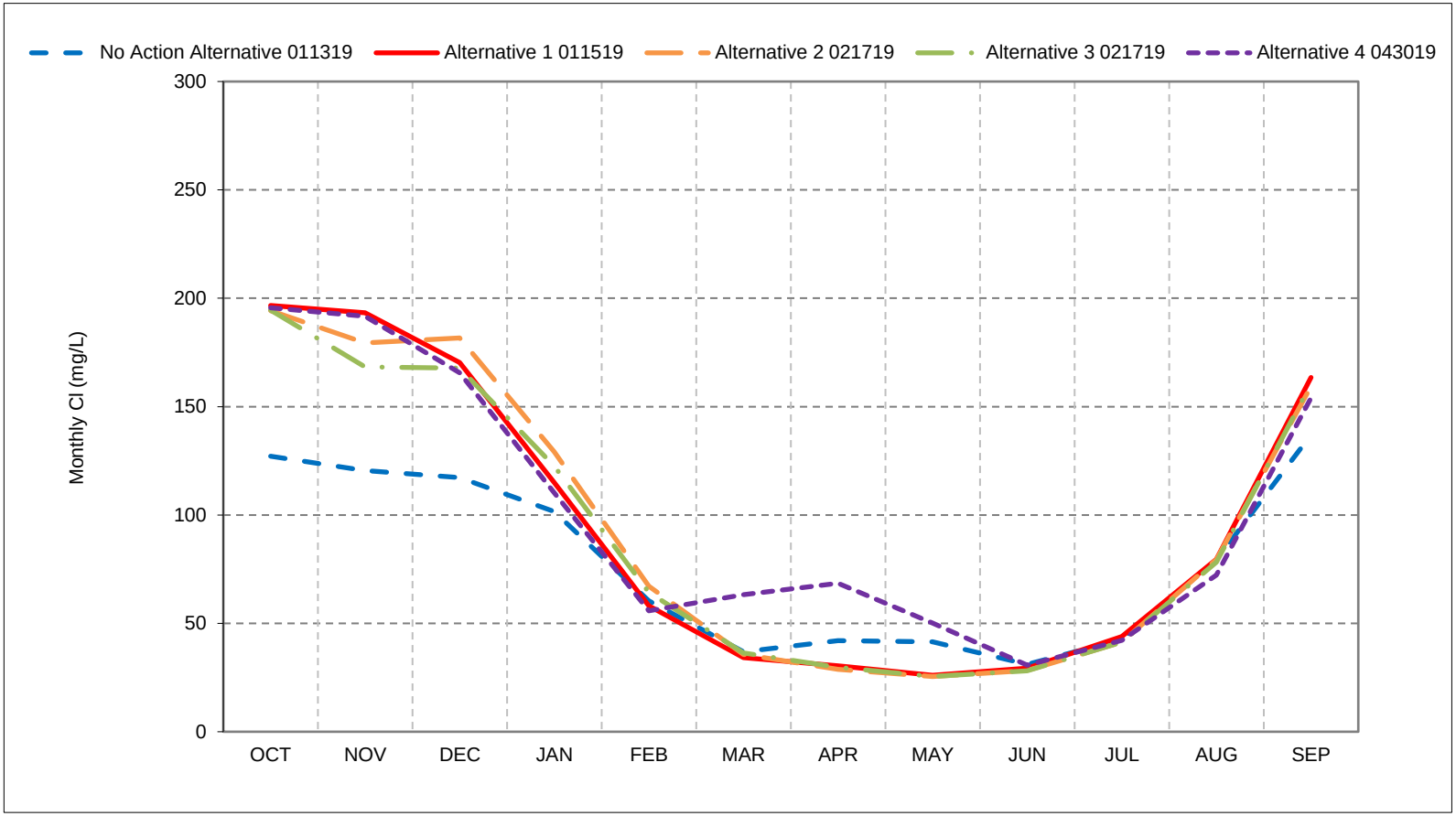
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-1. Contra Costa Pumping Plant #1 Chloride, Long-Term Average Cl



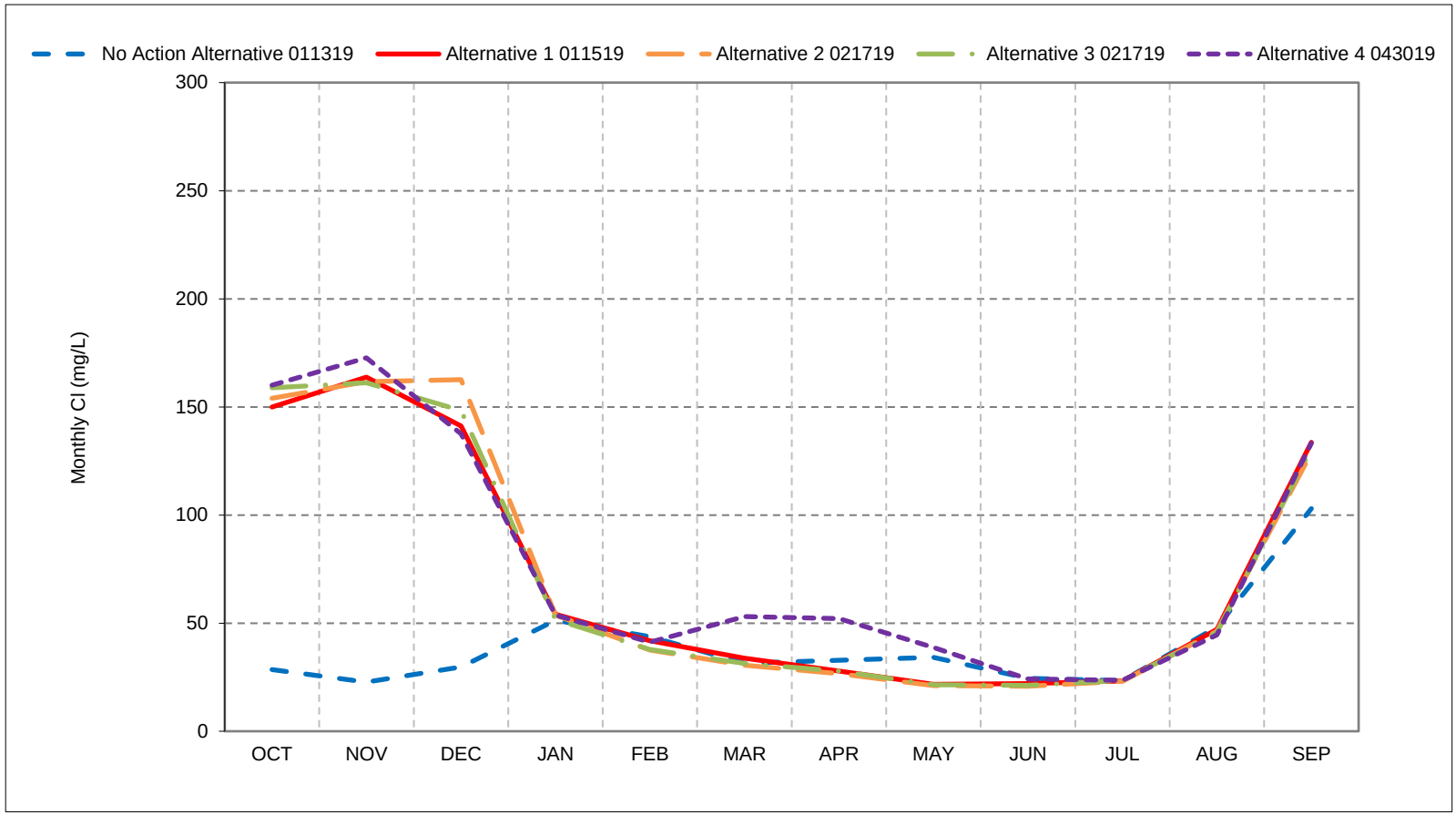
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-2. Contra Costa Pumping Plant #1 Chloride, Wet Year Average Cl



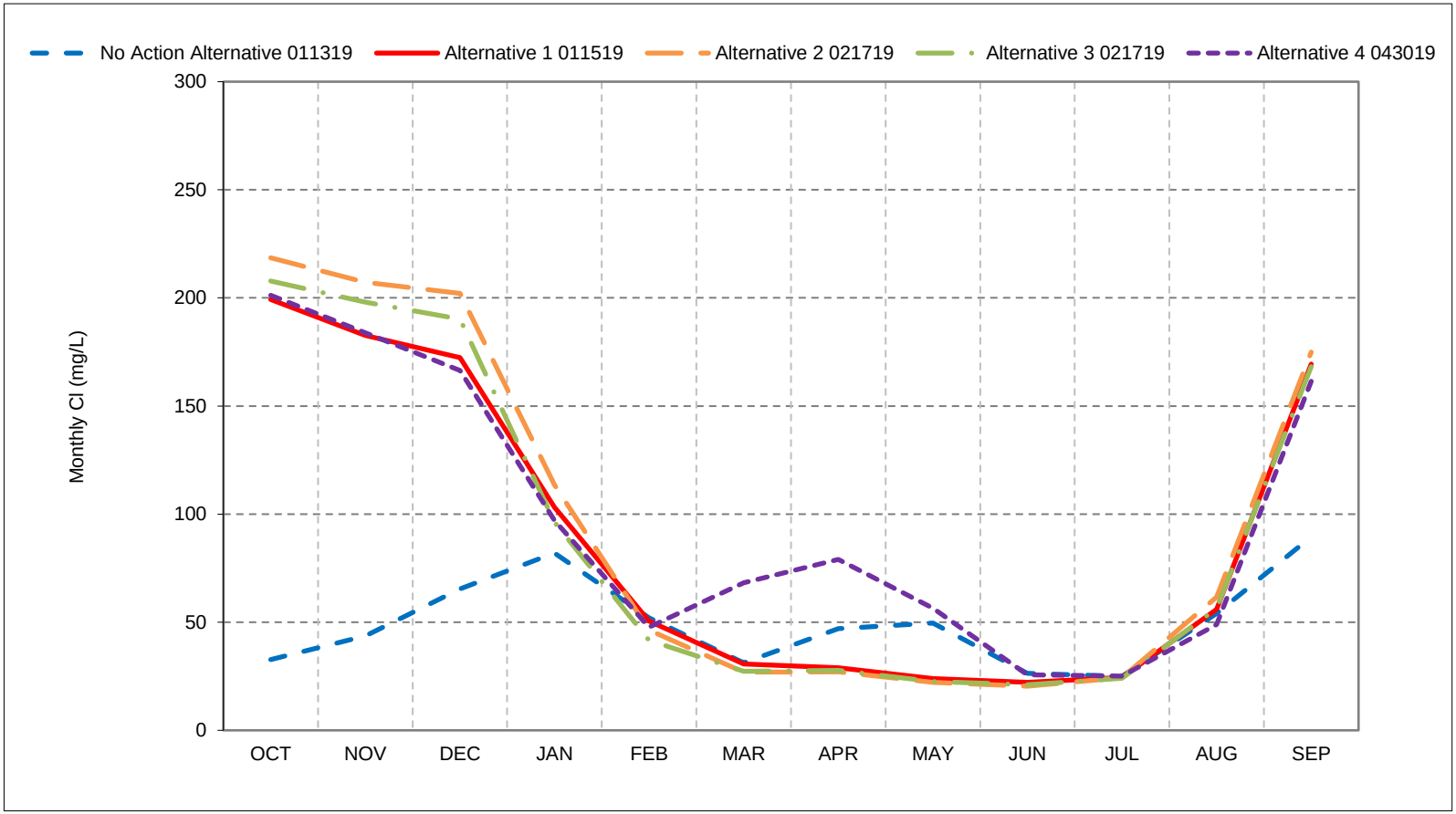
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-3. Contra Costa Pumping Plant #1 Chloride, Above Normal Year Average Cl



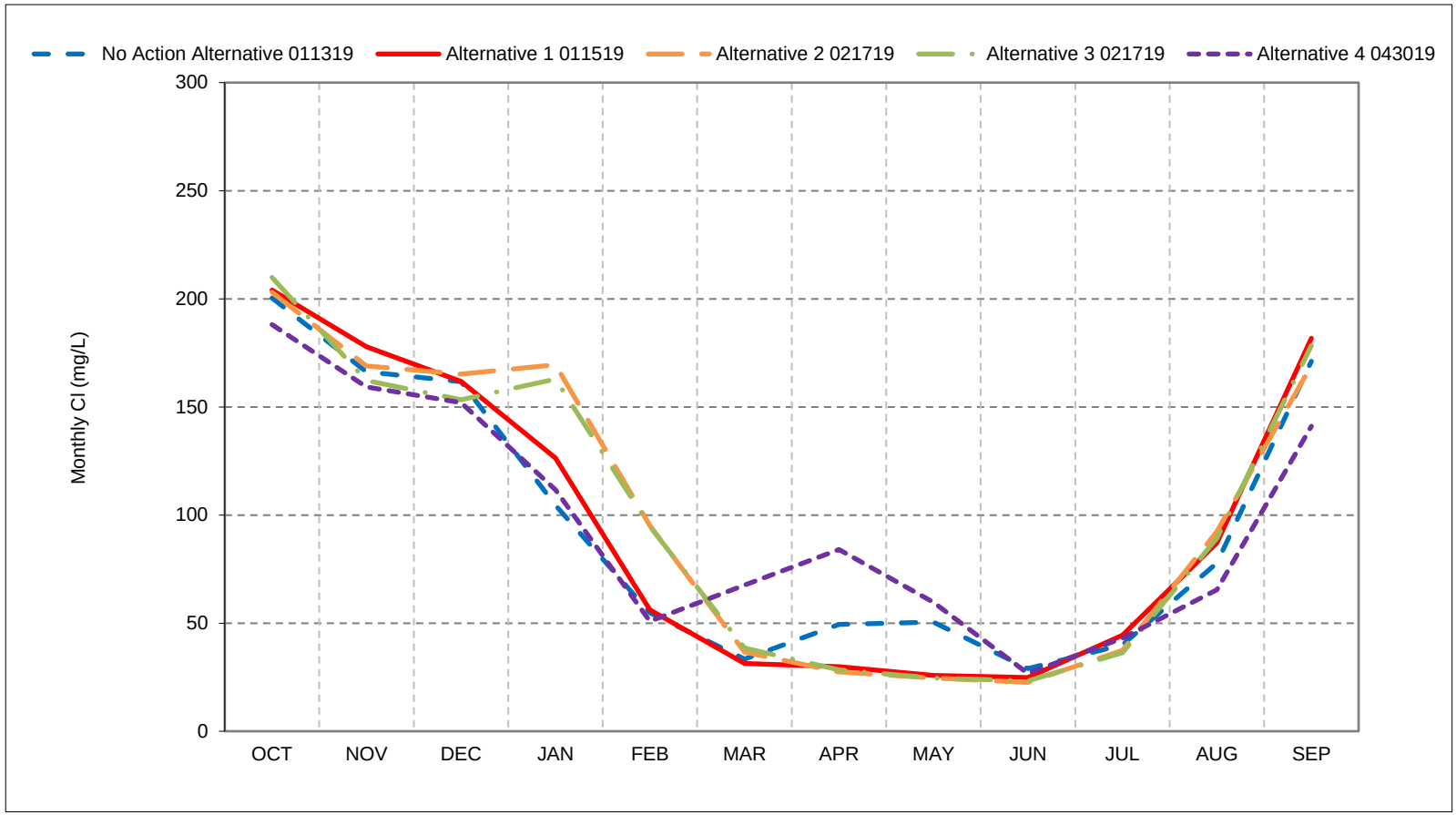
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

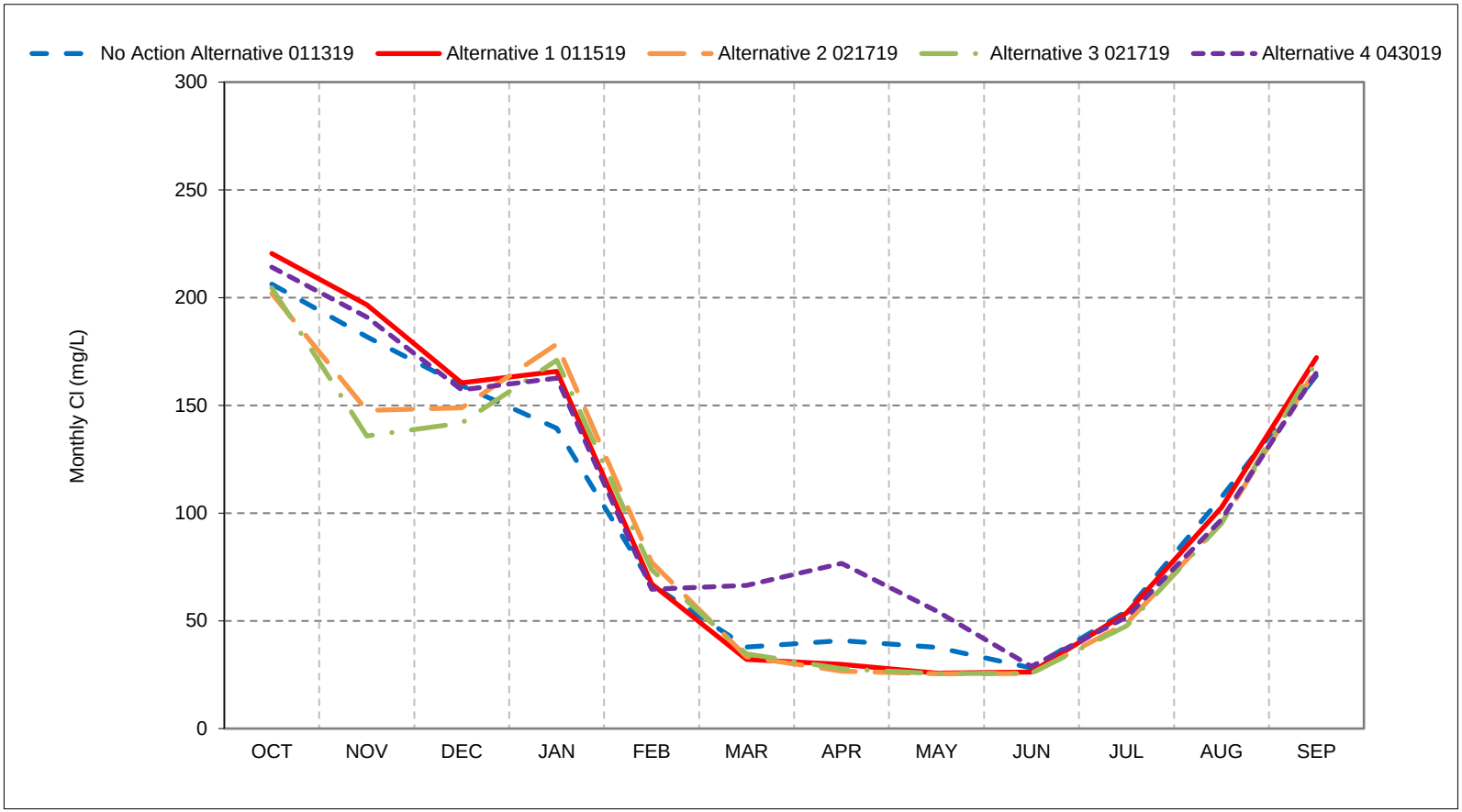
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-4. Contra Costa Pumping Plant #1 Chloride, Below Normal Year Average Cl



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-5. Contra Costa Pumping Plant #1 Chloride, Dry Year Average Cl



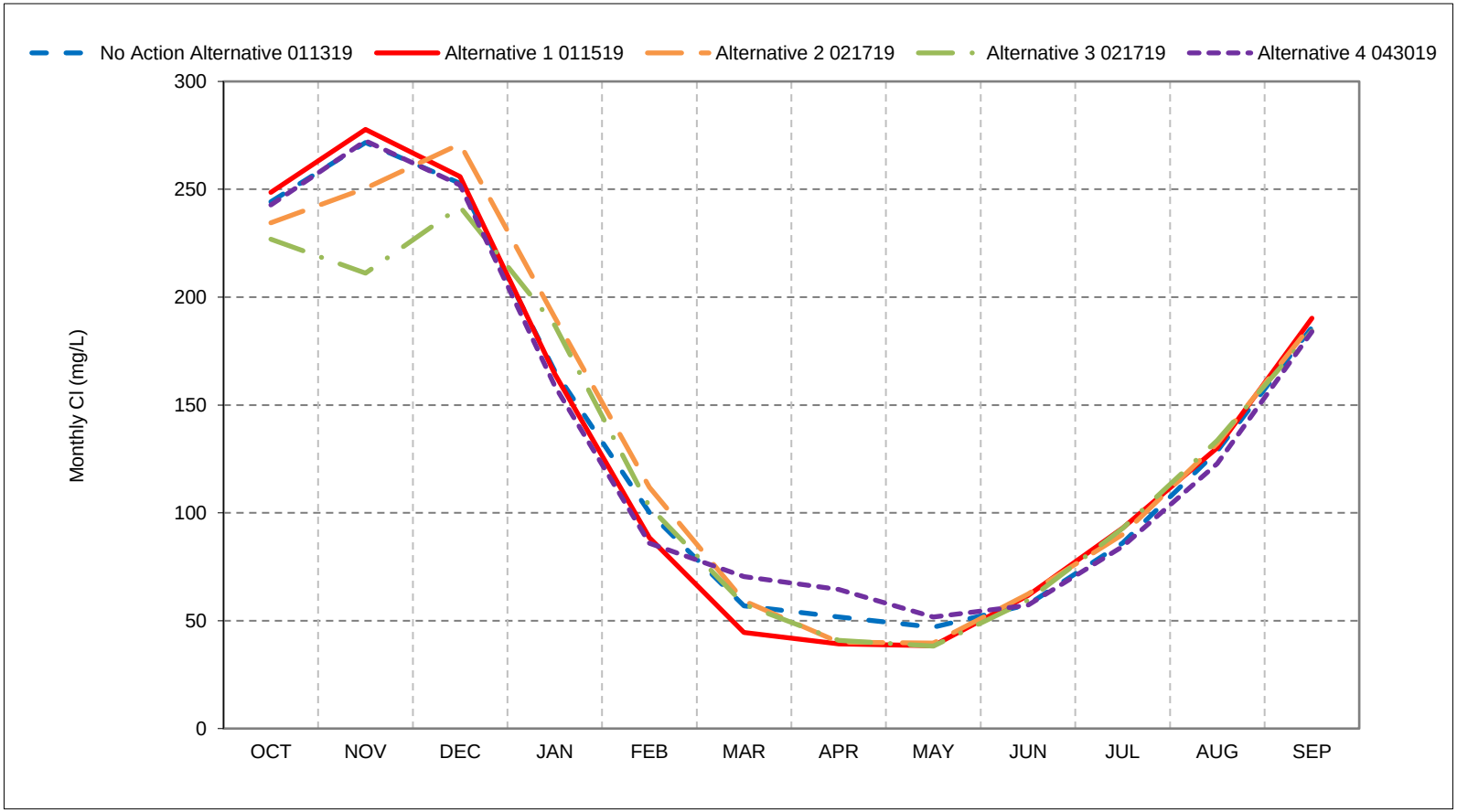
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

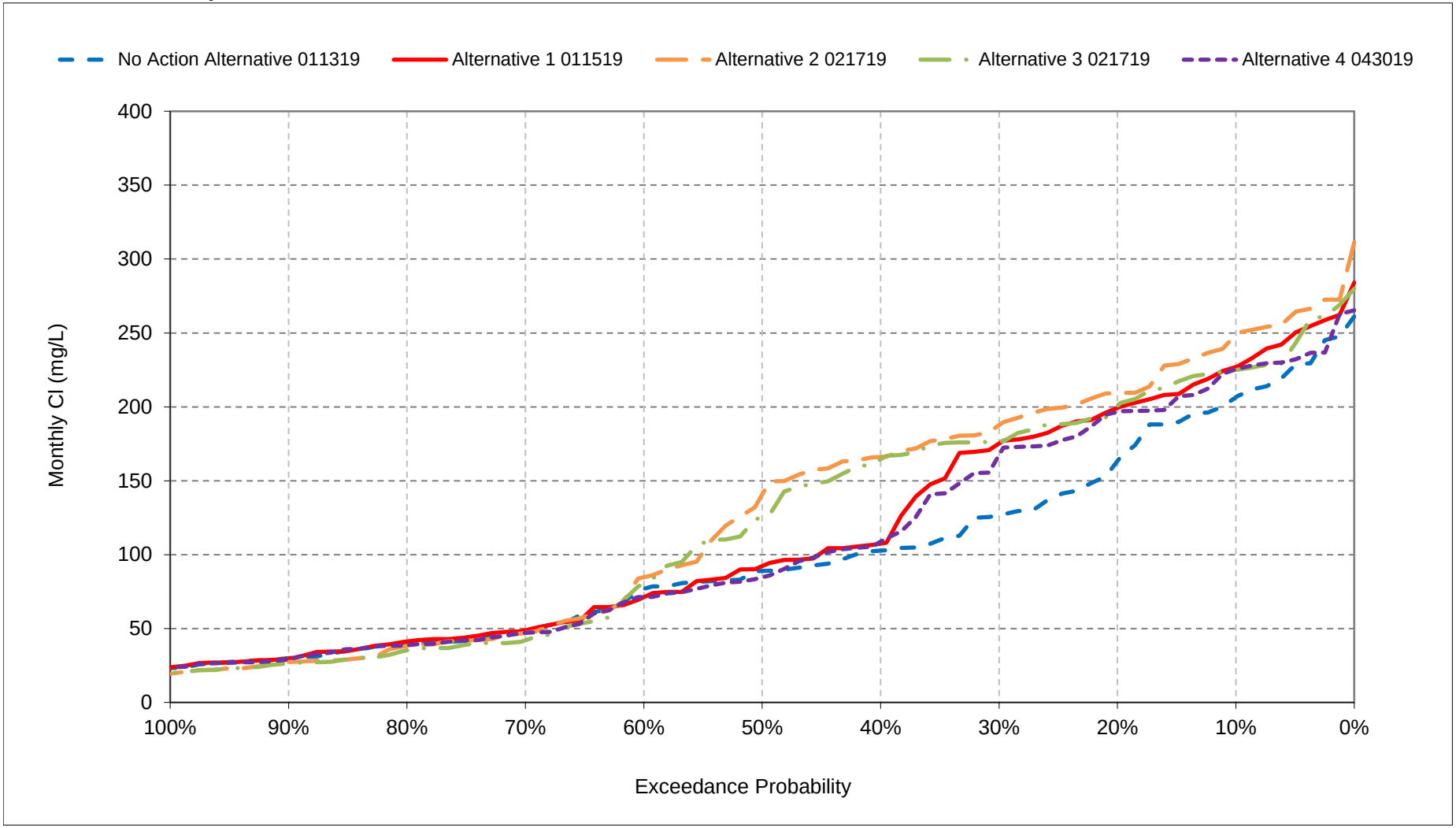
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-6. Contra Costa Pumping Plant #1 Chloride, Critical Year Average Cl



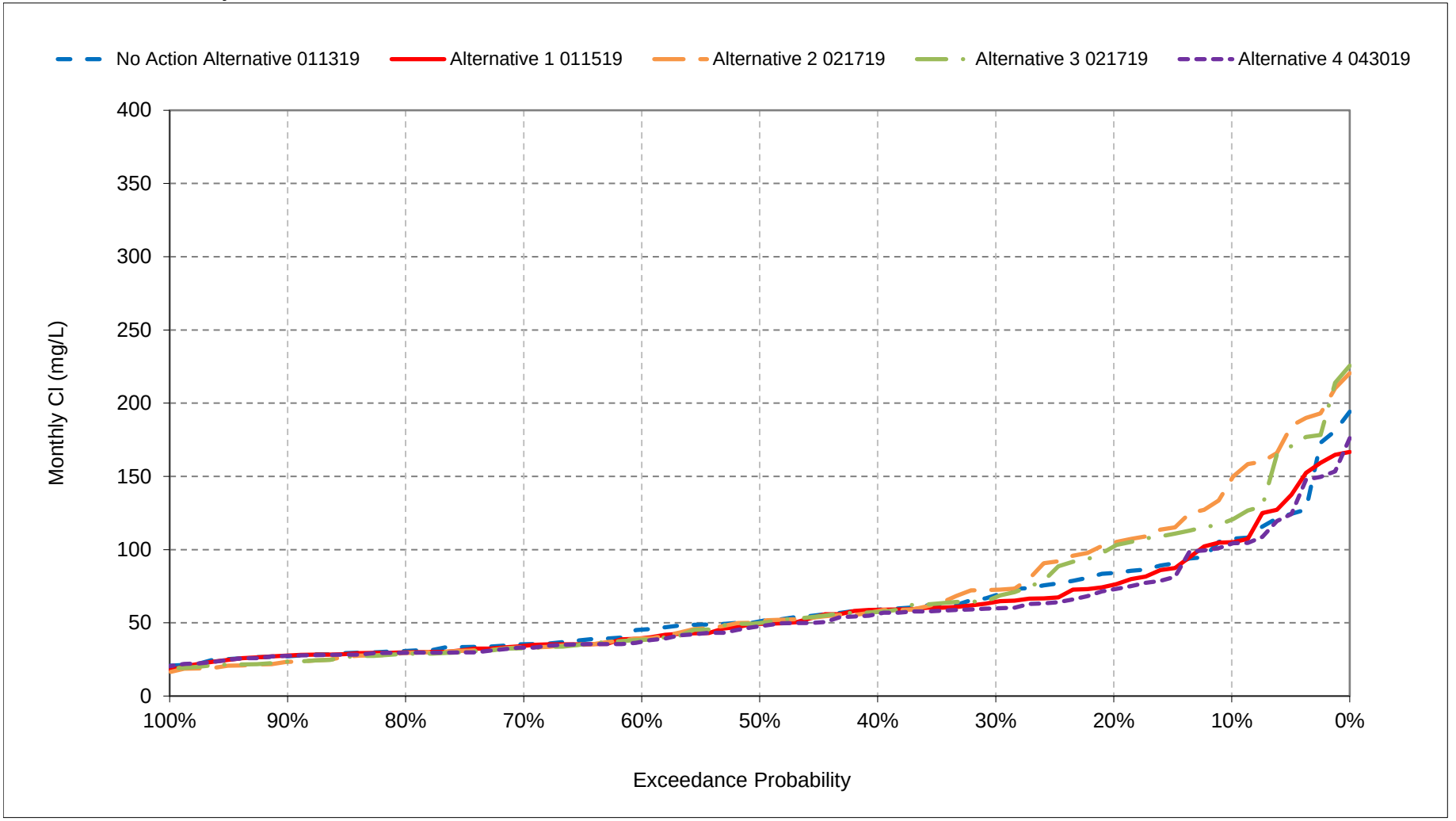
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-7. Contra Costa Pumping Plant
#1 Chloride, January Cl



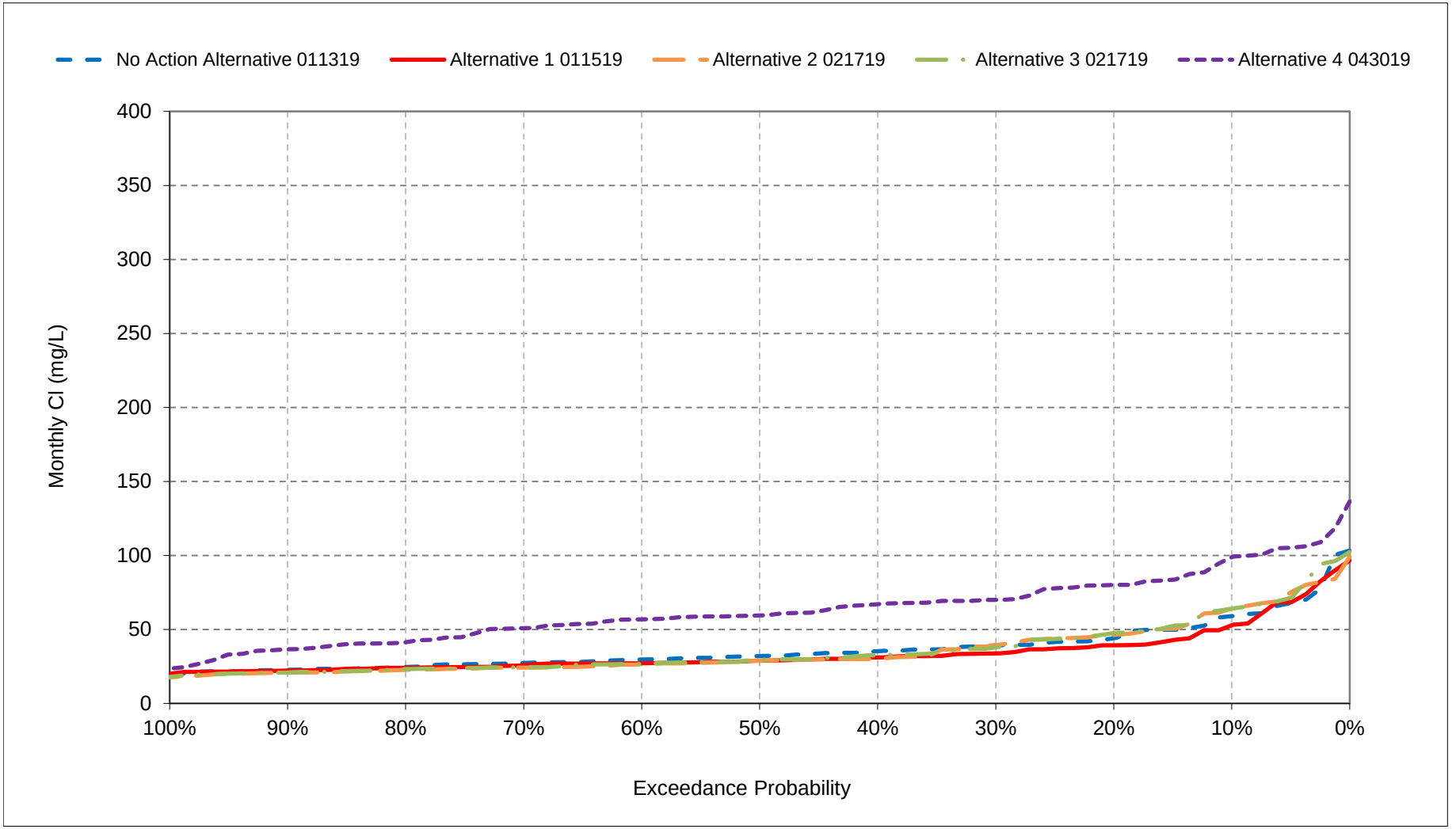
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-8. Contra Costa Pumping Plant
#1 Chloride, February Cl



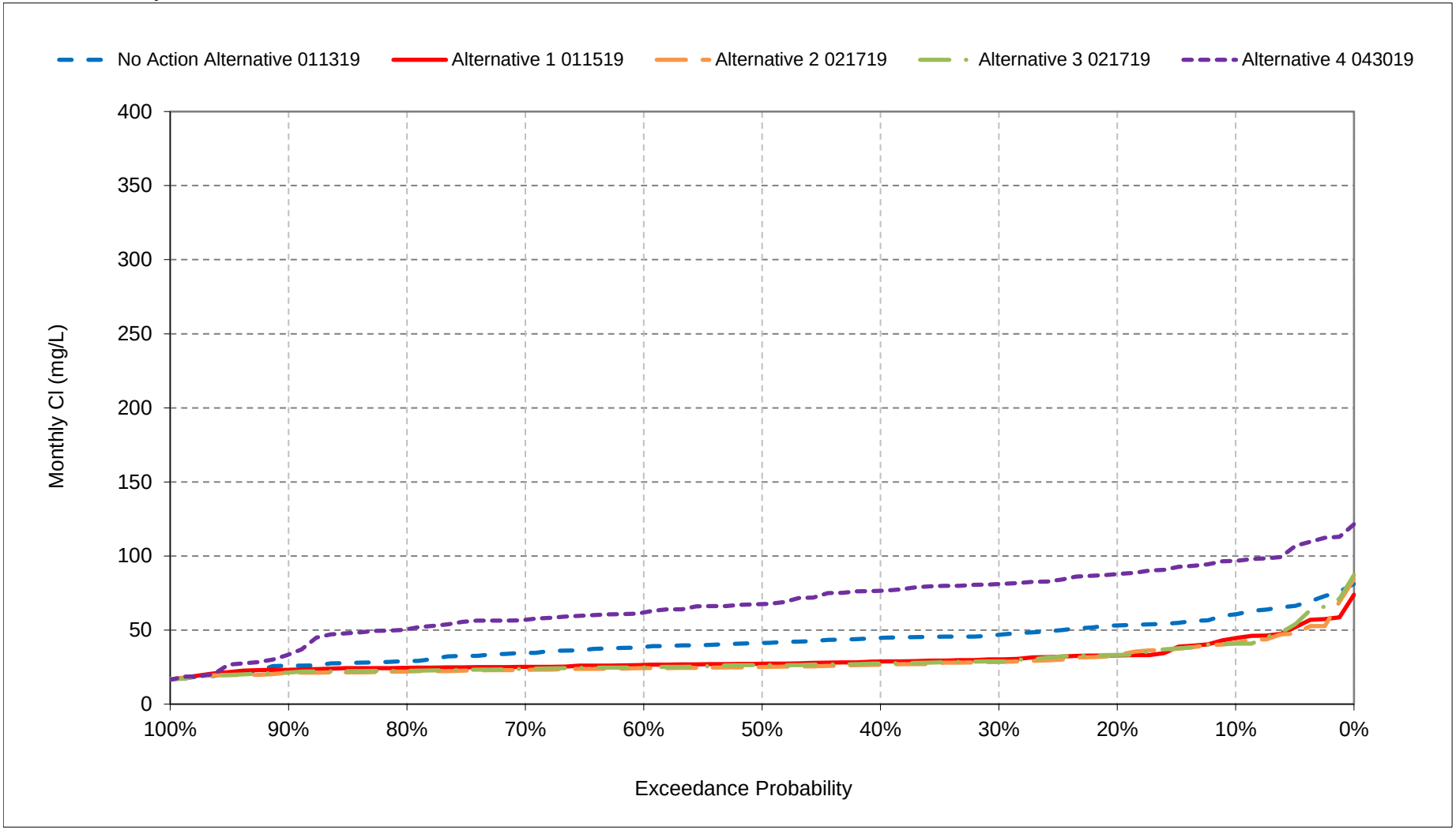
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-9. Contra Costa Pumping Plant
#1 Chloride, March Cl



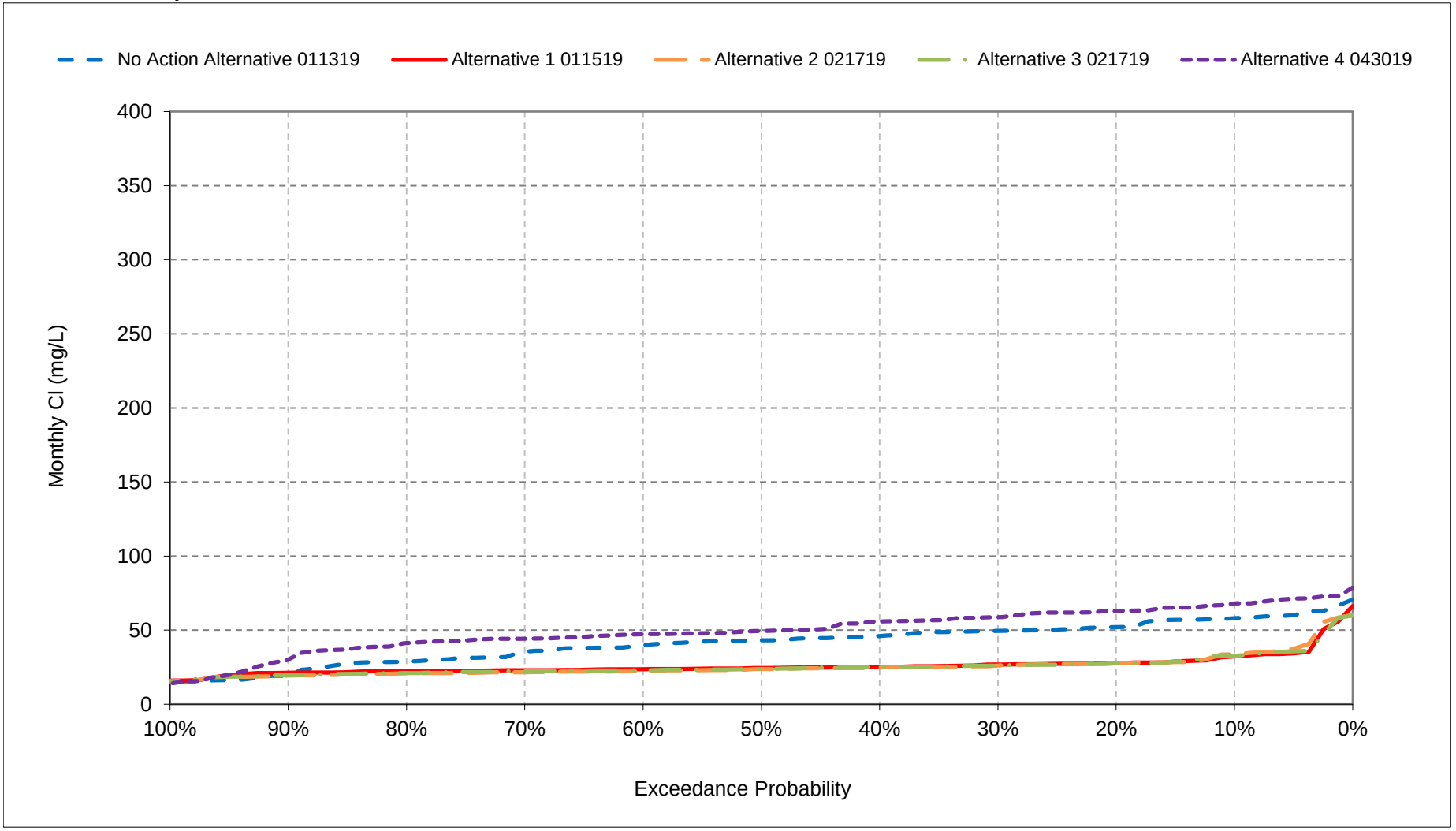
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-10. Contra Costa Pumping Plant
#1 Chloride, April Cl



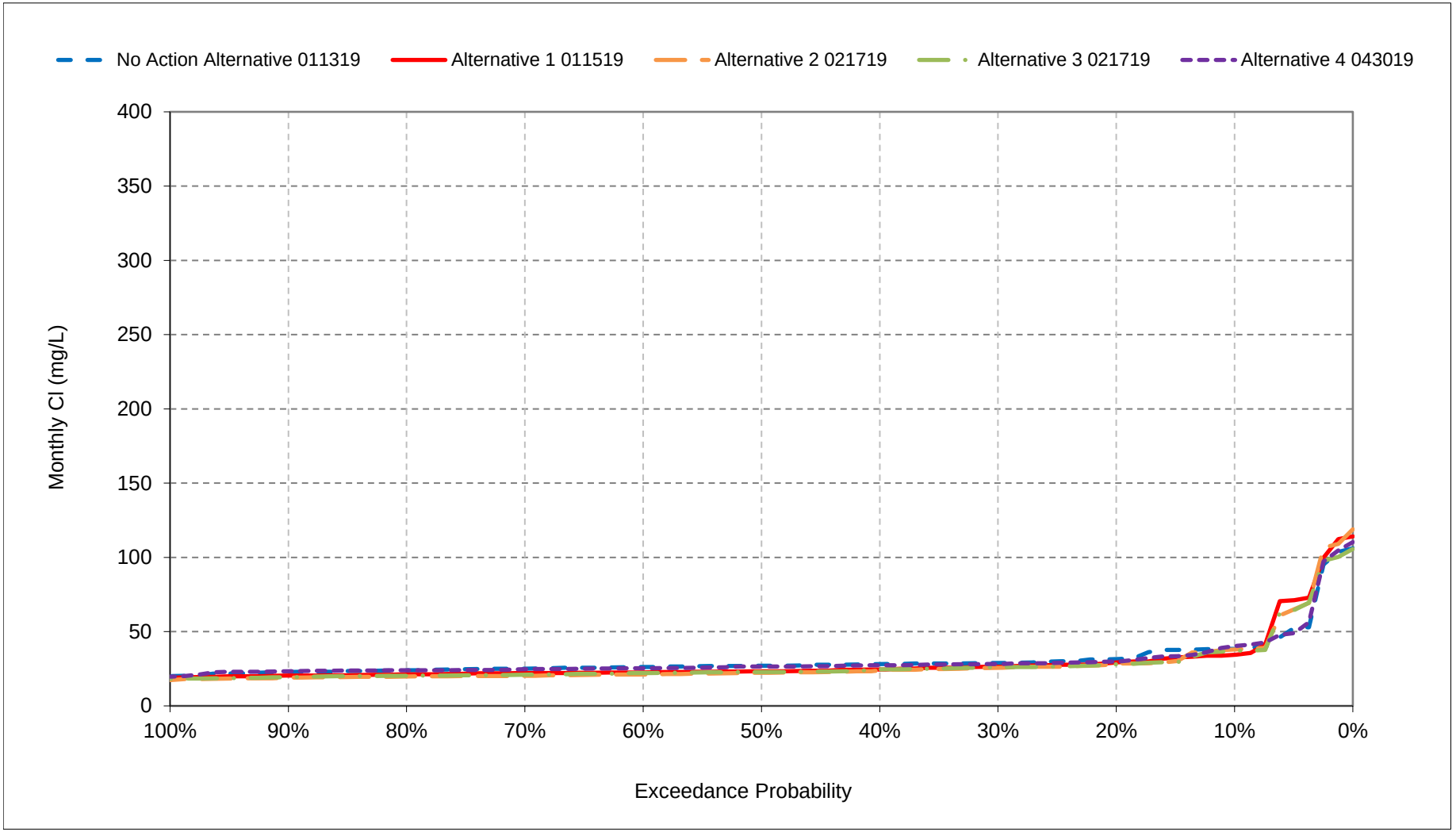
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-11. Contra Costa Pumping Plant
#1 Chloride, May Cl



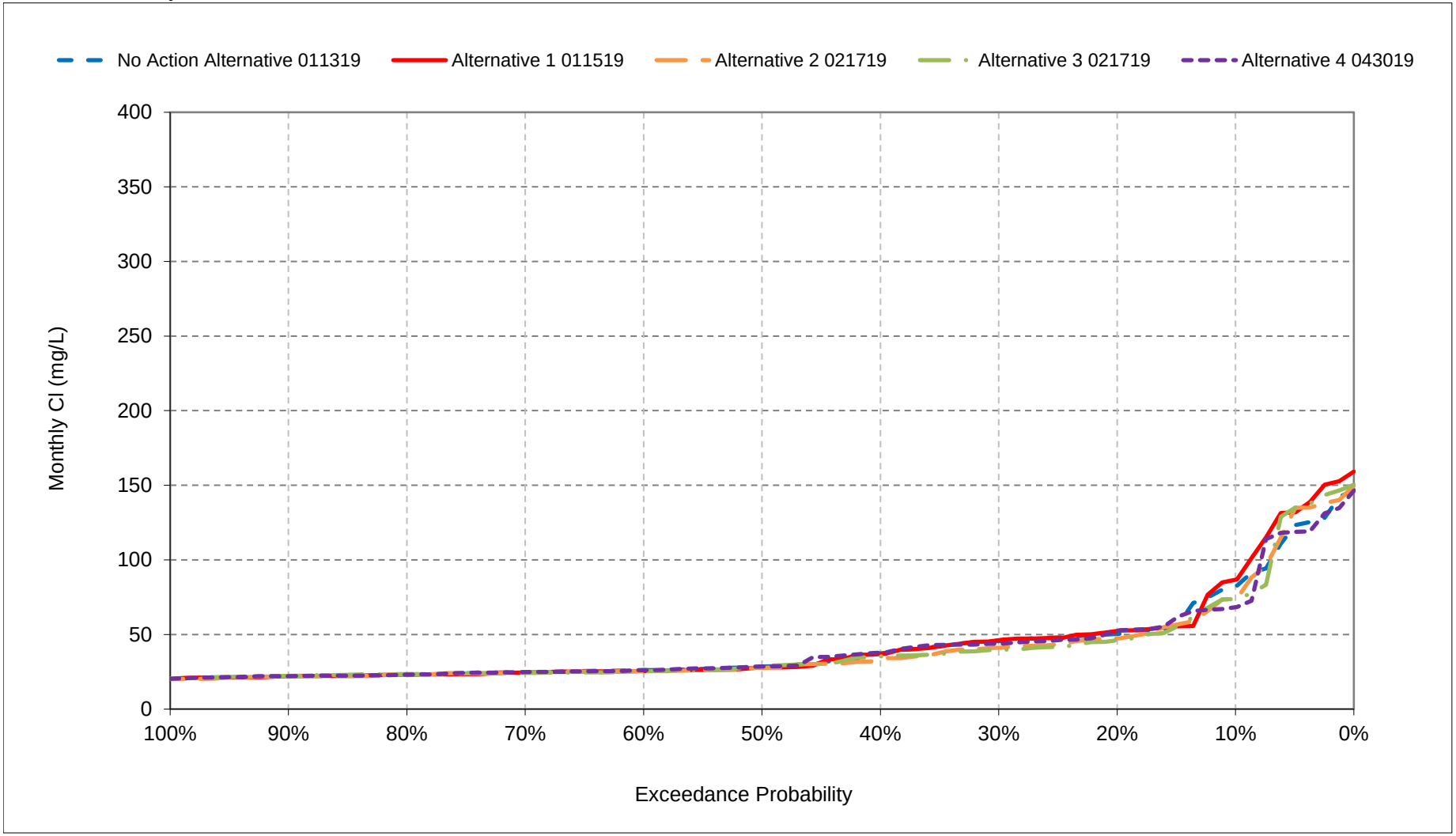
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-12. Contra Costa Pumping Plant
#1 Chloride, June Cl



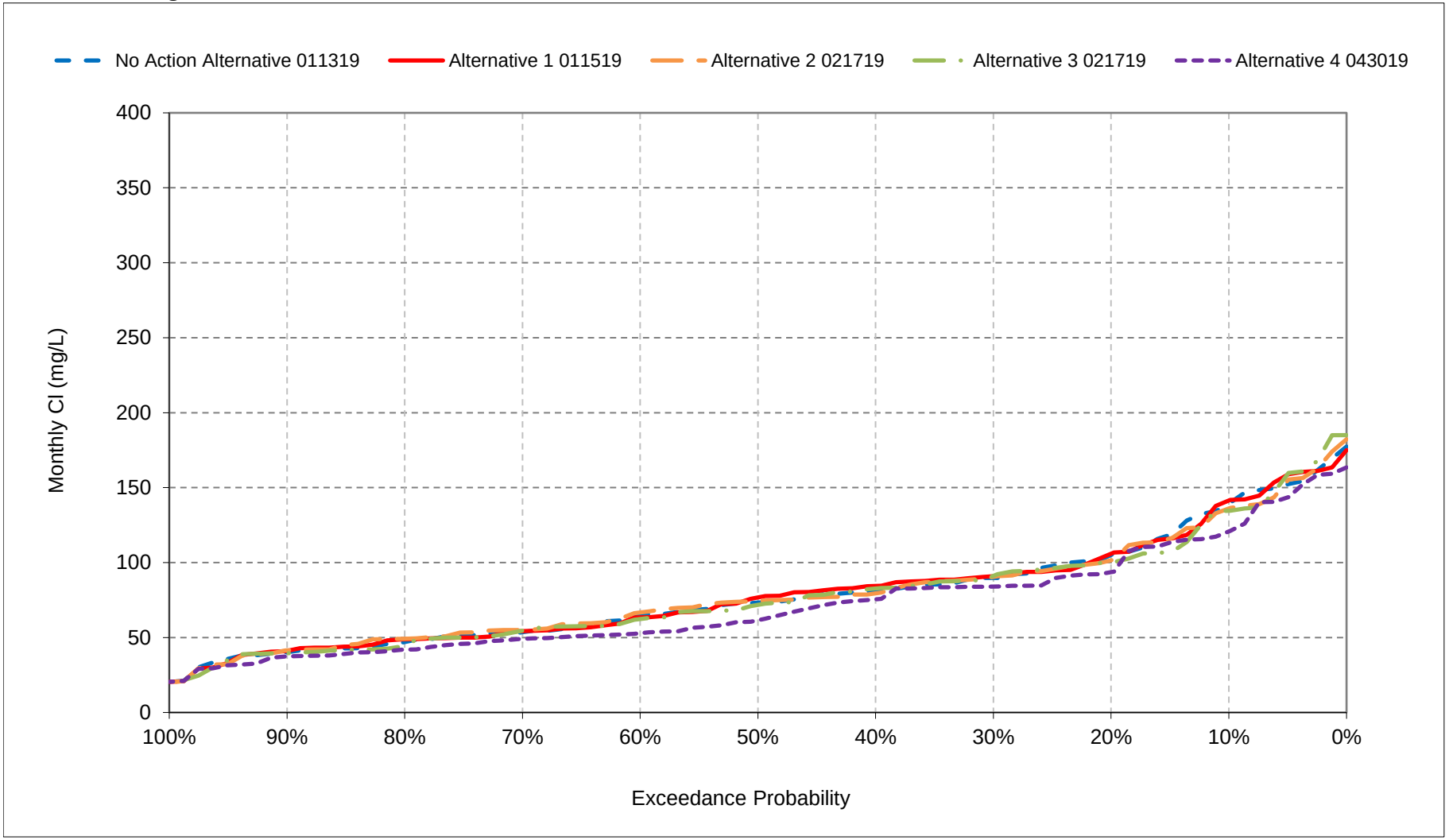
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-13. Contra Costa Pumping Plant
#1 Chloride, July Cl



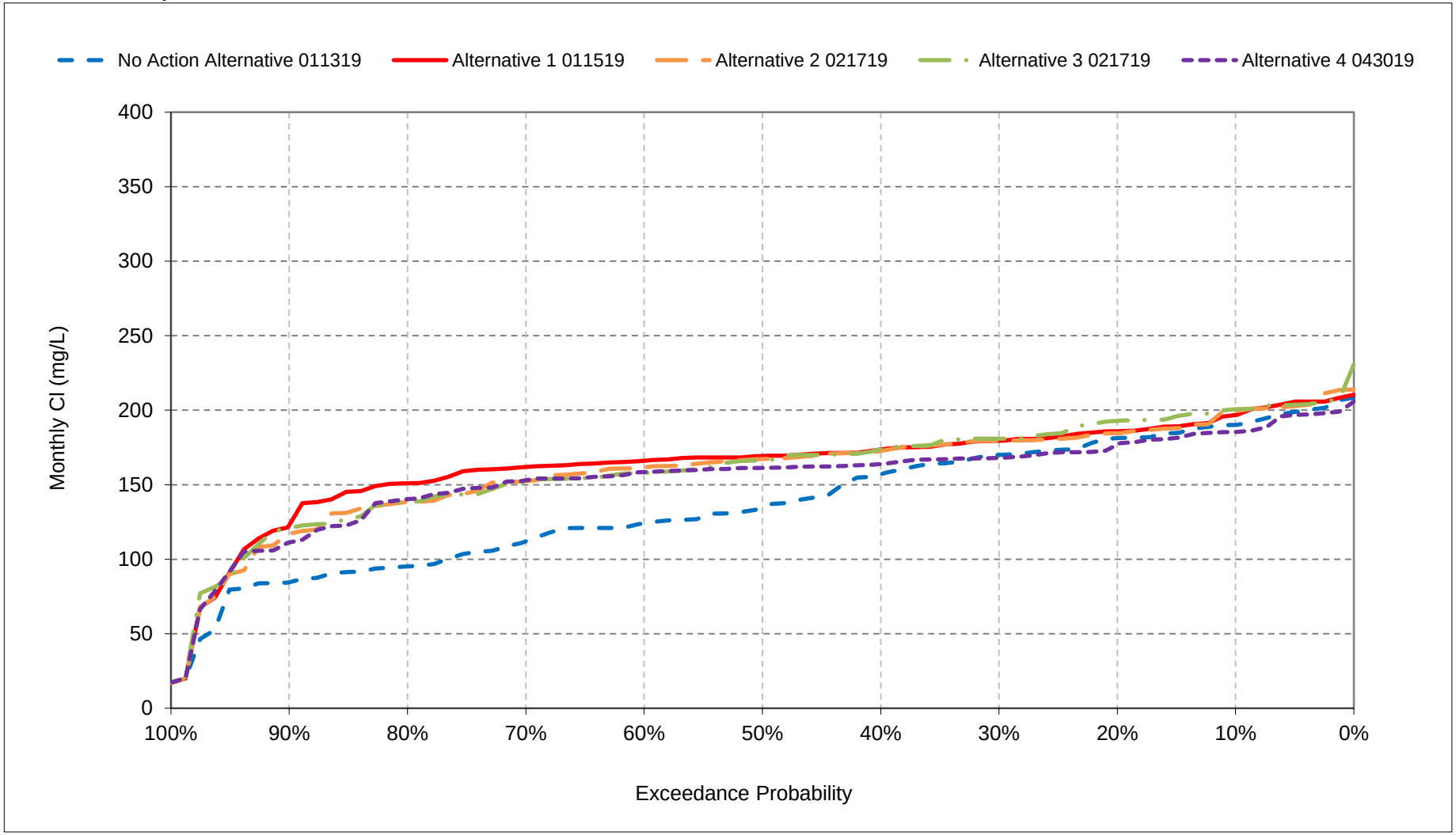
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-14. Contra Costa Pumping Plant
#1 Chloride, August Cl



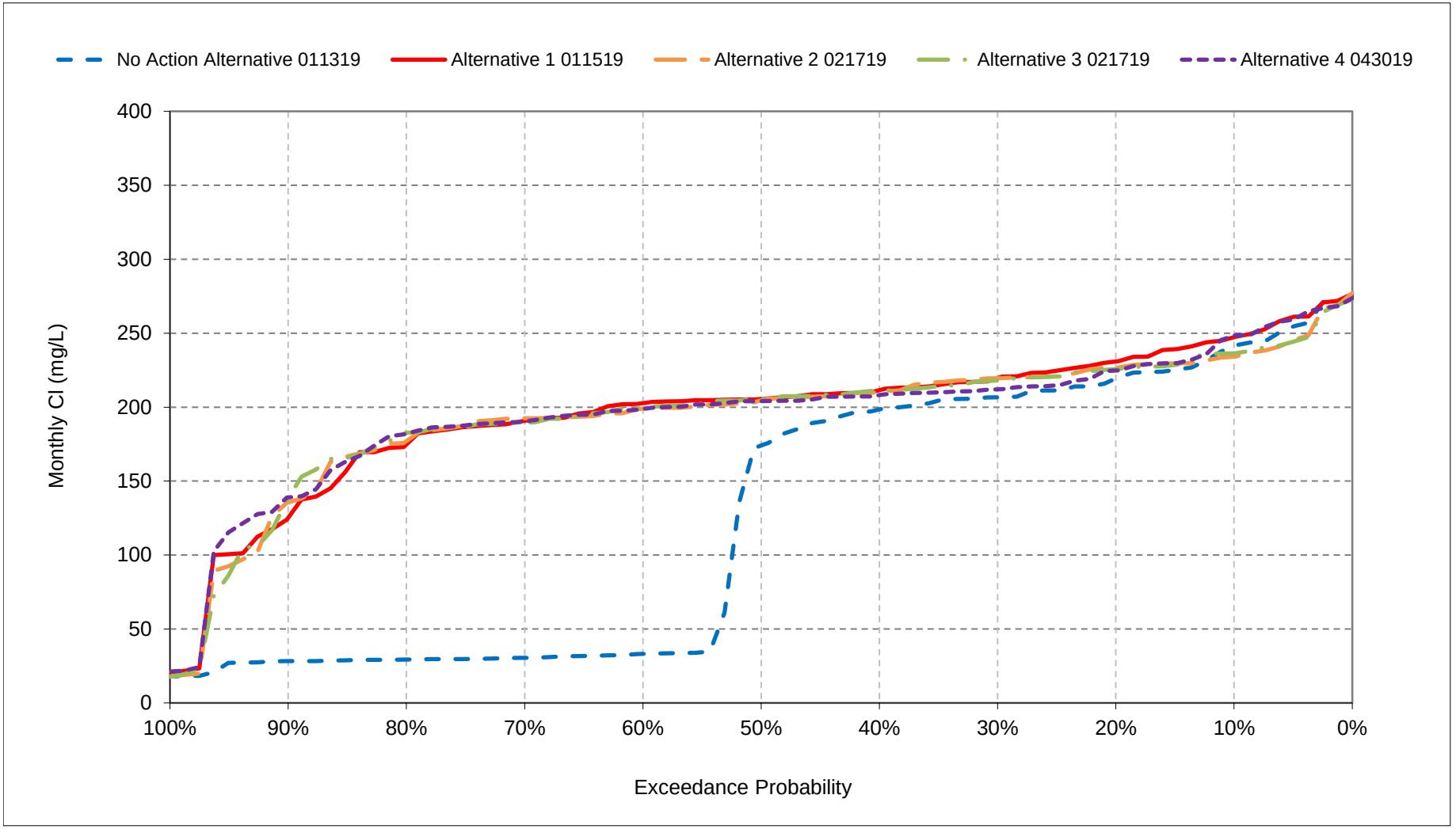
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-15. Contra Costa Pumping Plant
#1 Chloride, September Cl



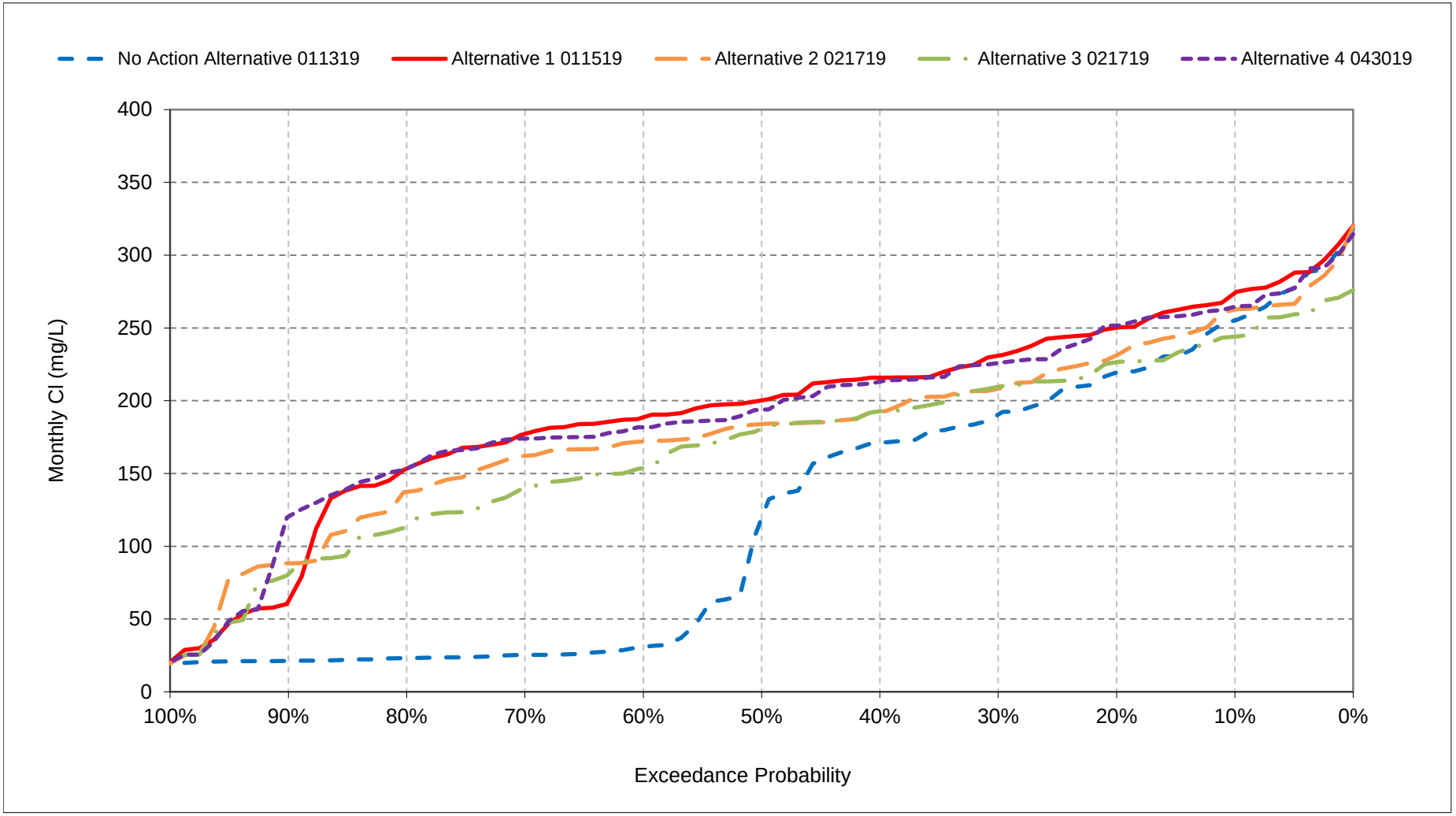
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-16. Contra Costa Pumping Plant
#1 Chloride, October Cl



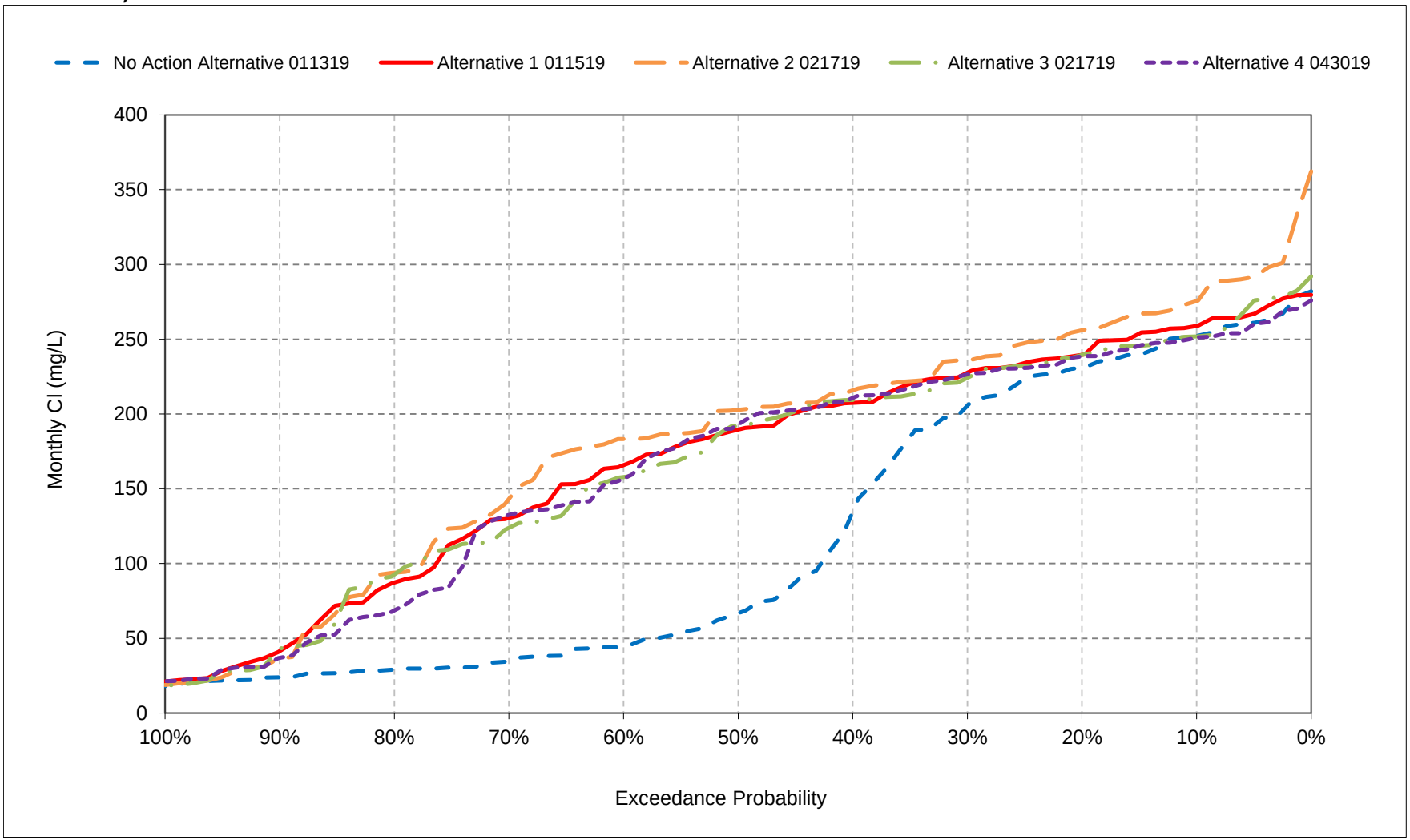
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-17. Contra Costa Pumping Plant
#1 Chloride, November Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 19-18. Contra Costa Pumping Plant
#1 Chloride, December Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 20-1. San Joaquin River at Antioch Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,266	2,369	1,871	958	274	164	208	419	573	1,087	1,607	1,974
20%	2,072	1,971	1,513	748	160	94	83	297	513	910	1,389	1,891
30%	2,008	1,902	897	535	79	38	51	205	448	809	1,339	1,832
40%	1,933	1,697	787	331	51	28	30	82	377	578	1,093	1,721
50%	1,272	532	573	257	32	25	25	47	288	485	929	1,486
60%	496	471	466	77	27	23	22	29	228	317	880	589
70%	178	164	189	27	24	21	21	24	143	271	816	354
80%	158	142	59	23	22	20	21	21	69	249	729	325
90%	141	123	23	20	20	18	20	18	19	183	676	295
Long Term												
Full Simulation Period[a]	1,180	1,039	747	378	117	64	78	157	349	580	1,055	1,149
Water Year Types[b]												
Wet (32%)	149	131	302	64	25	21	21	27	111	212	745	301
Above Normal (16%)	484	459	548	172	36	22	23	37	234	299	763	592
Below Normal (13%)	1,762	1,506	991	424	121	67	71	134	357	515	951	1,609
Dry (24%)	1,970	1,557	898	590	172	72	77	183	411	849	1,341	1,842
Critical (15%)	2,318	2,345	1,450	884	308	187	270	548	877	1,294	1,661	2,014

Alternative 1 011519

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,287	2,378	1,890	1,111	306	242	322	450	617	1,064	1,647	2,000
20%	2,082	2,015	1,773	796	180	108	137	347	545	915	1,421	1,927
30%	2,012	1,915	1,439	522	99	41	70	272	501	817	1,372	1,856
40%	1,927	1,862	1,123	328	54	28	44	147	397	563	1,063	1,721
50%	1,823	1,795	912	229	30	24	28	93	306	490	916	1,472
60%	1,705	1,623	627	79	27	23	22	62	245	327	874	1,423
70%	1,635	1,170	290	28	24	21	20	28	160	293	785	1,363
80%	1,521	855	183	24	21	20	19	18	70	243	755	1,339
90%	832	439	65	21	20	18	19	17	18	188	696	1,201
Long Term												
Full Simulation Period[a]	1,709	1,528	930	398	134	77	93	195	372	584	1,062	1,551
Water Year Types[b]												
Wet (32%)	1,221	1,105	694	55	24	21	22	41	114	215	729	1,170
Above Normal (16%)	1,601	1,494	909	200	38	23	26	60	229	302	772	1,371
Below Normal (13%)	1,728	1,539	994	474	144	84	93	201	408	516	944	1,567
Dry (24%)	2,032	1,596	907	643	196	80	98	228	444	842	1,374	1,865
Critical (15%)	2,324	2,361	1,445	880	364	243	312	611	937	1,320	1,685	2,032

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**20**	**9**	**19**	**152**	**32**	**78**	**115**	**31**	**45**	-23	**40**	**26**
20%	**10**	**43**	**260**	**48**	**20**	**14**	**54**	**50**	**32**	**4**	**32**	**37**
30%	**4**	**13**	**542**	-13	**20**	**4**	**20**	**68**	**53**	**8**	**33**	**24**
40%	-6	**165**	**336**	-3	**3**	0	**14**	**66**	**21**	-15	-30	**0**
50%	**551**	**1,263**	**340**	-28	-1	-1	**3**	**46**	**17**	**5**	-13	-14
60%	**1,209**	**1,152**	**161**	**2**	**0**	0	0	**33**	**18**	**10**	-7	**835**
70%	**1,457**	**1,006**	**101**	**0**	0	0	-1	**4**	**17**	**23**	-31	**1,009**
80%	**1,363**	**713**	**124**	**1**	-1	**0**	-1	-3	**1**	-6	**26**	**1,014**
90%	**690**	**316**	**43**	**1**	**0**	**0**	-1	-1	-1	**6**	**19**	**906**
Long Term												
Full Simulation Period[a]	**528**	**489**	**184**	**20**	**17**	**13**	**15**	**37**	**24**	**4**	**7**	**402**
Water Year Types[b]												
Wet (32%)	**1,072**	**974**	**393**	-9	-2	**0**	**1**	**14**	**3**	**3**	-16	**869**
Above Normal (16%)	**1,117**	**1,035**	**360**	**28**	**2**	**1**	**4**	**23**	-6	**3**	**10**	**780**
Below Normal (13%)	-35	**33**	**3**	**50**	**23**	**18**	**23**	**67**	**50**	**2**	-7	-42
Dry (24%)	**62**	**39**	**10**	**53**	**24**	**8**	**22**	**45**	**33**	-6	**33**	**23**
Critical (15%)	**6**	**16**	-4	-4	**55**	**57**	**42**	**63**	**60**	**26**	**24**	**17**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 20-2. San Joaquin River at Antioch Chloride, Monthly Cl

No Action Alternative 011319

Statistic	Monthly Cl (mg/L)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,266	2,369	1,871	958	274	164	208	419	573	1,087	1,607	1,974
20%	2,072	1,971	1,513	748	160	94	83	297	513	910	1,389	1,891
30%	2,008	1,902	897	535	79	38	51	205	448	809	1,339	1,832
40%	1,933	1,697	787	331	51	28	30	82	377	578	1,093	1,721
50%	1,272	532	573	257	32	25	25	47	288	485	929	1,486
60%	496	471	466	77	27	23	22	29	228	317	880	589
70%	178	164	189	27	24	21	21	24	143	271	816	354
80%	158	142	59	23	22	20	21	21	69	249	729	325
90%	141	123	23	20	20	18	20	18	19	183	676	295
Long Term												
Full Simulation Period[a]	1,180	1,039	747	378	117	64	78	157	349	580	1,055	1,149
Water Year Types[b]												
Wet (32%)	149	131	302	64	25	21	21	27	111	212	745	301
Above Normal (16%)	484	459	548	172	36	22	23	37	234	299	763	592
Below Normal (13%)	1,762	1,506	991	424	121	67	71	134	357	515	951	1,609
Dry (24%)	1,970	1,557	898	590	172	72	77	183	411	849	1,341	1,842
Critical (15%)	2,318	2,345	1,450	884	308	187	270	548	877	1,294	1,661	2,014

Alternative 2 021719

Statistic	Monthly Cl (mg/L)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,168	2,279	1,912	1,326	562	298	328	463	601	1,076	1,561	1,985
20%	1,996	1,957	1,849	1,149	316	132	159	316	493	871	1,395	1,888
30%	1,908	1,868	1,760	893	176	63	99	257	381	802	1,339	1,834
40%	1,829	1,828	1,591	586	108	34	62	173	264	563	1,127	1,739
50%	1,792	1,753	1,279	410	53	27	31	109	218	470	991	1,534
60%	1,732	1,701	783	197	28	23	23	74	176	343	884	1,468
70%	1,678	1,613	380	37	24	22	20	33	160	283	836	1,400
80%	1,592	1,434	258	24	21	20	19	18	106	243	777	1,345
90%	1,338	528	89	20	20	18	18	16	19	178	719	1,223
Long Term												
Full Simulation Period[a]	1,729	1,614	1,115	541	178	86	101	197	319	573	1,078	1,559
Water Year Types[b]												
Wet (32%)	1,415	1,348	855	103	28	21	23	41	100	224	753	1,200
Above Normal (16%)	1,754	1,724	1,183	302	56	23	30	77	162	292	816	1,421
Below Normal (13%)	1,725	1,624	1,097	773	225	87	107	194	243	507	1,029	1,568
Dry (24%)	1,841	1,480	999	825	249	99	111	219	403	823	1,354	1,842
Critical (15%)	2,197	2,285	1,817	1,061	469	271	324	629	896	1,277	1,655	2,008

Alternative 2 021719 minus No Action Alternative 011319

Statistic	Monthly Cl (mg/L)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-98	-90	**41**	**368**	**289**	**134**	**120**	**44**	**29**	-10	-46	**11**
20%	-76	-15	**336**	**400**	**156**	**37**	**77**	**19**	-20	-39	**5**	-3
30%	-100	-34	**863**	**358**	**97**	**25**	**49**	**53**	-67	-8	**0**	**3**
40%	-104	**130**	**804**	**255**	**57**	**6**	**32**	**91**	-113	-15	**34**	**18**
50%	**521**	**1,221**	**706**	**153**	**21**	**3**	**6**	**62**	-71	-15	**62**	**48**
60%	**1,237**	**1,230**	**317**	**119**	**1**	**0**	**1**	**44**	-51	**27**	**3**	**880**
70%	**1,500**	**1,449**	**191**	**10**	**0**	**0**	-1	**9**	**17**	**12**	**20**	**1,046**
80%	**1,434**	**1,291**	**199**	**1**	-1	0	-2	-3	**37**	-6	**48**	**1,019**
90%	**1,197**	**405**	**66**	**0**	**0**	0	-2	-2	0	-5	**43**	**928**
Long Term												
Full Simulation Period[a]	**548**	**575**	**369**	**163**	**61**	**22**	**23**	**39**	-29	-7	**24**	**410**
Water Year Types[b]												
Wet (32%)	**1,266**	**1,217**	**553**	**39**	**3**	**0**	**2**	**14**	-11	**12**	**8**	**899**
Above Normal (16%)	**1,270**	**1,265**	**635**	**130**	**21**	**1**	**7**	**40**	-72	-8	**53**	**829**
Below Normal (13%)	-37	**119**	**107**	**348**	**104**	**20**	**37**	**60**	-114	-7	**78**	-41
Dry (24%)	-129	-77	**101**	**235**	**77**	**27**	**34**	**36**	-8	-26	**13**	**0**
Critical (15%)	-121	-60	**367**	**177**	**161**	**84**	**54**	**80**	**19**	-17	-6	-6

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 20-3. San Joaquin River at Antioch Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,266	2,369	1,871	958	274	164	208	419	573	1,087	1,607	1,974
20%	2,072	1,971	1,513	748	160	94	83	297	513	910	1,389	1,891
30%	2,008	1,902	897	535	79	38	51	205	448	809	1,339	1,832
40%	1,933	1,697	787	331	51	28	30	82	377	578	1,093	1,721
50%	1,272	532	573	257	32	25	25	47	288	485	929	1,486
60%	496	471	466	77	27	23	22	29	228	317	880	589
70%	178	164	189	27	24	21	21	24	143	271	816	354
80%	158	142	59	23	22	20	21	21	69	249	729	325
90%	141	123	23	20	20	18	20	18	19	183	676	295
Long Term												
Full Simulation Period[a]	1,180	1,039	747	378	117	64	78	157	349	580	1,055	1,149
Water Year Types[b]												
Wet (32%)	149	131	302	64	25	21	21	27	111	212	745	301
Above Normal (16%)	484	459	548	172	36	22	23	37	234	299	763	592
Below Normal (13%)	1,762	1,506	991	424	121	67	71	134	357	515	951	1,609
Dry (24%)	1,970	1,557	898	590	172	72	77	183	411	849	1,341	1,842
Critical (15%)	2,318	2,345	1,450	884	308	187	270	548	877	1,294	1,661	2,014

Alternative 3 021719

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,977	1,935	1,806	1,189	485	270	290	424	586	1,075	1,565	1,962
20%	1,824	1,755	1,689	1,071	295	127	145	298	459	852	1,365	1,832
30%	1,725	1,706	1,598	800	161	56	86	249	356	754	1,290	1,795
40%	1,650	1,658	1,429	560	106	30	53	167	264	532	1,090	1,693
50%	1,567	1,572	1,188	382	49	27	28	107	234	426	943	1,491
60%	1,514	1,518	687	181	29	24	23	67	183	314	842	1,423
70%	1,429	1,449	361	34	25	22	21	30	160	254	783	1,311
80%	1,300	1,137	257	25	21	20	20	18	95	226	735	1,263
90%	1,094	538	79	21	20	18	19	17	19	183	683	1,114
Long Term												
Full Simulation Period[a]	1,544	1,439	1,035	512	173	84	94	185	317	555	1,039	1,500
Water Year Types[b]												
Wet (32%)	1,271	1,220	765	98	28	22	21	49	102	211	718	1,145
Above Normal (16%)	1,534	1,532	1,071	273	55	23	28	70	172	261	750	1,283
Below Normal (13%)	1,558	1,431	1,029	752	206	78	95	177	242	473	983	1,533
Dry (24%)	1,612	1,323	960	795	248	95	101	196	376	791	1,314	1,797
Critical (15%)	2,021	2,011	1,710	976	459	271	306	597	908	1,301	1,636	1,982

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-290	-433	-65	**230**	**212**	**106**	**82**	**5**	**14**	-11	-42	-13
20%	-248	-216	**177**	**323**	**134**	**33**	**63**	**1**	-54	-59	-24	-58
30%	-283	-196	**702**	**265**	**82**	**18**	**35**	**45**	-92	-56	-49	-37
40%	-283	-39	**642**	**229**	**55**	**2**	**24**	**85**	-112	-46	-3	-28
50%	**295**	**1,040**	**615**	**125**	**18**	**3**	**3**	**60**	-55	-58	**14**	**5**
60%	**1,018**	**1,047**	**220**	**103**	**2**	**1**	**0**	**38**	-45	-2	-38	**834**
70%	**1,251**	**1,285**	**172**	**7**	**1**	**1**	0	**6**	**17**	-16	-33	**957**
80%	**1,142**	**995**	**198**	**2**	-1	**0**	-1	-2	**26**	-23	**6**	**938**
90%	**953**	**416**	**57**	**1**	**1**	**1**	-1	-1	0	**1**	**7**	**819**
Long Term												
Full Simulation Period[a]	**364**	**399**	**288**	**134**	**56**	**20**	**16**	**28**	-32	-25	-16	**351**
Water Year Types[b]												
Wet (32%)	**1,122**	**1,088**	**463**	**34**	**3**	**0**	**0**	**22**	-9	-1	-27	**844**
Above Normal (16%)	**1,050**	**1,073**	**522**	**101**	**19**	**1**	**6**	**33**	-63	-38	-13	**691**
Below Normal (13%)	-205	-74	**38**	**328**	**85**	**11**	**25**	**43**	-115	-41	**32**	-77
Dry (24%)	-358	-234	**62**	**205**	**75**	**23**	**24**	**13**	-35	-58	-27	-45
Critical (15%)	-297	-334	**261**	**92**	**150**	**84**	**36**	**48**	**31**	**7**	-24	-32

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 20-4. San Joaquin River at Antioch Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,266	2,369	1,871	958	274	164	208	419	573	1,087	1,607	1,974
20%	2,072	1,971	1,513	748	160	94	83	297	513	910	1,389	1,891
30%	2,008	1,902	897	535	79	38	51	205	448	809	1,339	1,832
40%	1,933	1,697	787	331	51	28	30	82	377	578	1,093	1,721
50%	1,272	532	573	257	32	25	25	47	288	485	929	1,486
60%	496	471	466	77	27	23	22	29	228	317	880	589
70%	178	164	189	27	24	21	21	24	143	271	816	354
80%	158	142	59	23	22	20	21	21	69	249	729	325
90%	141	123	23	20	20	18	20	18	19	183	676	295
Long Term												
Full Simulation Period[a]	1,180	1,039	747	378	117	64	78	157	349	580	1,055	1,149
Water Year Types[b]												
Wet (32%)	149	131	302	64	25	21	21	27	111	212	745	301
Above Normal (16%)	484	459	548	172	36	22	23	37	234	299	763	592
Below Normal (13%)	1,762	1,506	991	424	121	67	71	134	357	515	951	1,609
Dry (24%)	1,970	1,557	898	590	172	72	77	183	411	849	1,341	1,842
Critical (15%)	2,318	2,345	1,450	884	308	187	270	548	877	1,294	1,661	2,014

Alternative 4 043019

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,258	2,365	1,889	1,071	274	118	171	414	579	1,083	1,599	1,988
20%	2,120	2,009	1,802	772	141	57	78	305	521	913	1,414	1,924
30%	2,017	1,914	1,427	502	89	28	47	164	464	827	1,366	1,868
40%	1,952	1,869	1,149	309	51	26	28	74	390	591	1,044	1,767
50%	1,899	1,834	917	228	30	24	26	35	297	528	945	1,592
60%	1,748	1,712	619	63	27	23	24	26	216	325	879	1,460
70%	1,694	1,290	268	27	24	22	22	22	134	294	788	1,429
80%	1,637	808	166	23	21	21	21	20	63	268	749	1,366
90%	1,165	450	35	21	20	19	20	18	19	193	693	1,269
Long Term												
Full Simulation Period[a]	1,767	1,551	932	383	124	54	69	151	352	590	1,064	1,588
Water Year Types[b]												
Wet (32%)	1,335	1,198	729	52	23	22	22	24	104	223	737	1,223
Above Normal (16%)	1,676	1,535	890	196	35	23	24	28	229	311	760	1,390
Below Normal (13%)	1,792	1,461	985	429	127	44	52	120	375	541	973	1,663
Dry (24%)	2,044	1,586	896	629	182	48	64	182	428	857	1,382	1,891
Critical (15%)	2,317	2,359	1,431	849	336	177	241	533	875	1,288	1,659	2,017

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-8	-4	**18**	**113**	**0**	-46	-37	-5	**7**	-4	-8	**13**
20%	**48**	**38**	**290**	**24**	-19	-38	-5	**8**	**8**	**3**	**24**	**33**
30%	**9**	**12**	**531**	-33	**10**	-9	-4	-41	**16**	**18**	**28**	**36**
40%	**19**	**171**	**362**	-22	**0**	-2	-2	-8	**13**	**13**	-49	**46**
50%	**627**	**1,302**	**345**	-29	-2	-1	**1**	-12	**9**	**43**	**16**	**105**
60%	**1,253**	**1,241**	**153**	-14	0	0	**1**	-3	-11	**8**	-2	**871**
70%	**1,516**	**1,126**	**79**	-1	0	**1**	**1**	-2	-9	**24**	-28	**1,075**
80%	**1,479**	**666**	**107**	**0**	-1	**1**	**0**	-1	-5	**19**	**20**	**1,040**
90%	**1,023**	**327**	**13**	**1**	**0**	**1**	**0**	**0**	0	**11**	**17**	**974**
Long Term												
Full Simulation Period[a]	**587**	**512**	**186**	**5**	**7**	-10	-9	-7	**3**	**10**	**10**	**439**
Water Year Types[b]												
Wet (32%)	**1,186**	**1,067**	**428**	-12	-2	**1**	**1**	-2	-7	**10**	-8	**922**
Above Normal (16%)	**1,192**	**1,076**	**342**	**24**	0	**1**	**1**	-9	-5	**11**	-3	**798**
Below Normal (13%)	**29**	-44	-6	**5**	**6**	-23	-18	-14	**17**	**27**	**21**	**54**
Dry (24%)	**75**	**30**	-2	**39**	**10**	-23	-12	-1	**17**	**8**	**41**	**50**
Critical (15%)	-1	**14**	-19	-35	**28**	-9	-29	-16	-2	-5	-2	**2**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

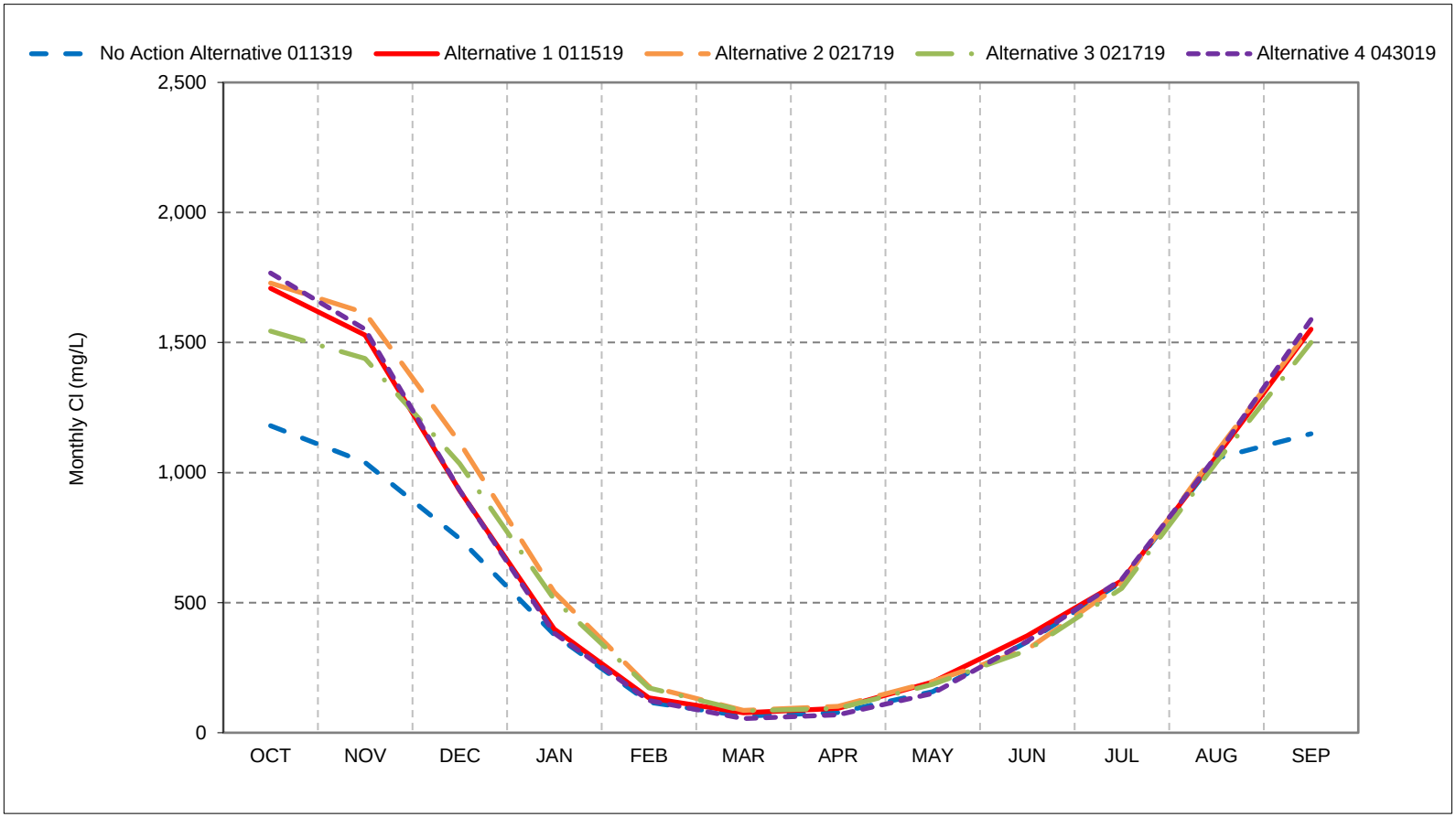
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-1. San Joaquin River at Antioch Chloride, Long-Term Average Cl



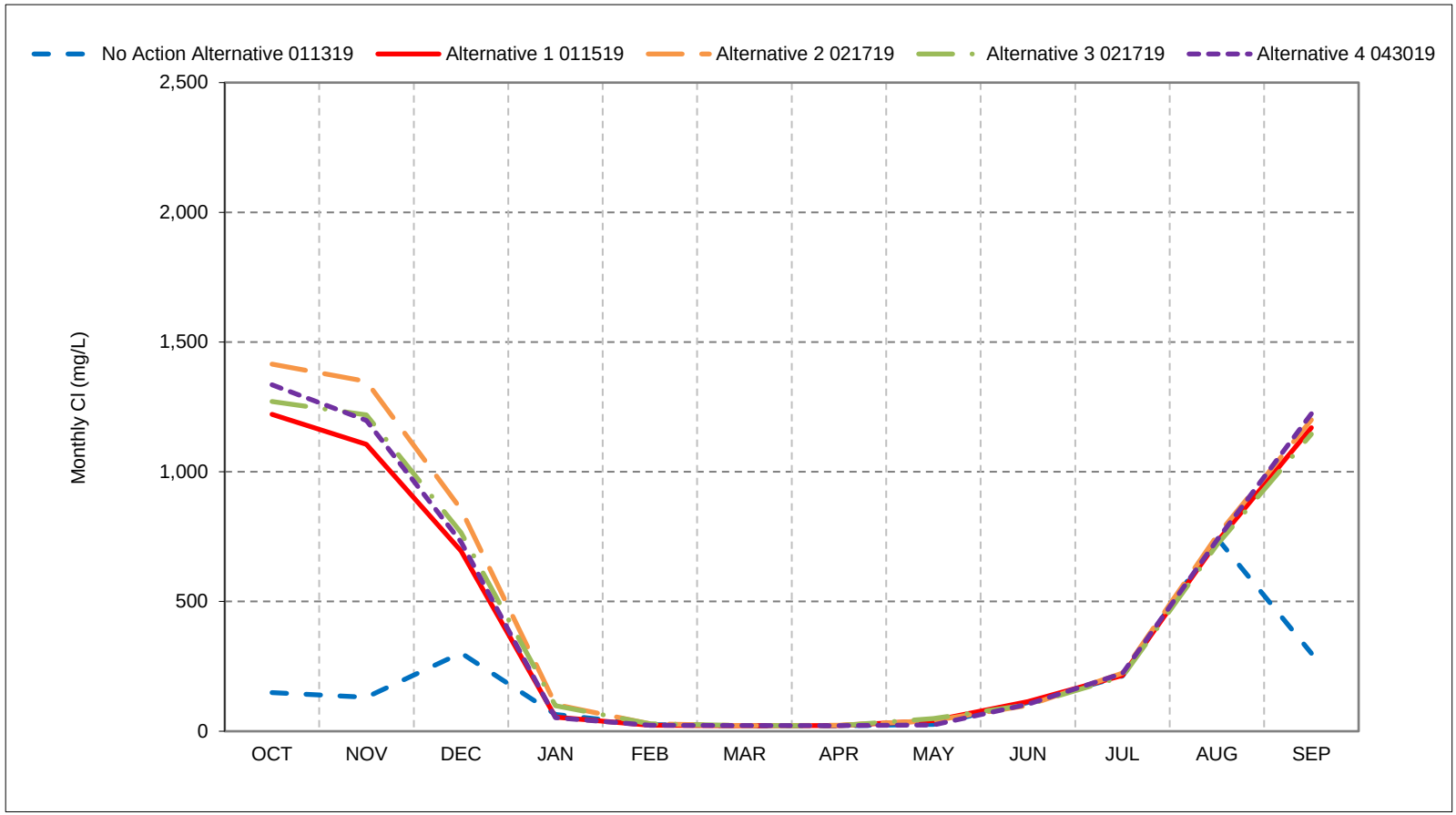
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-2. San Joaquin River at Antioch Chloride, Wet Year Average Cl



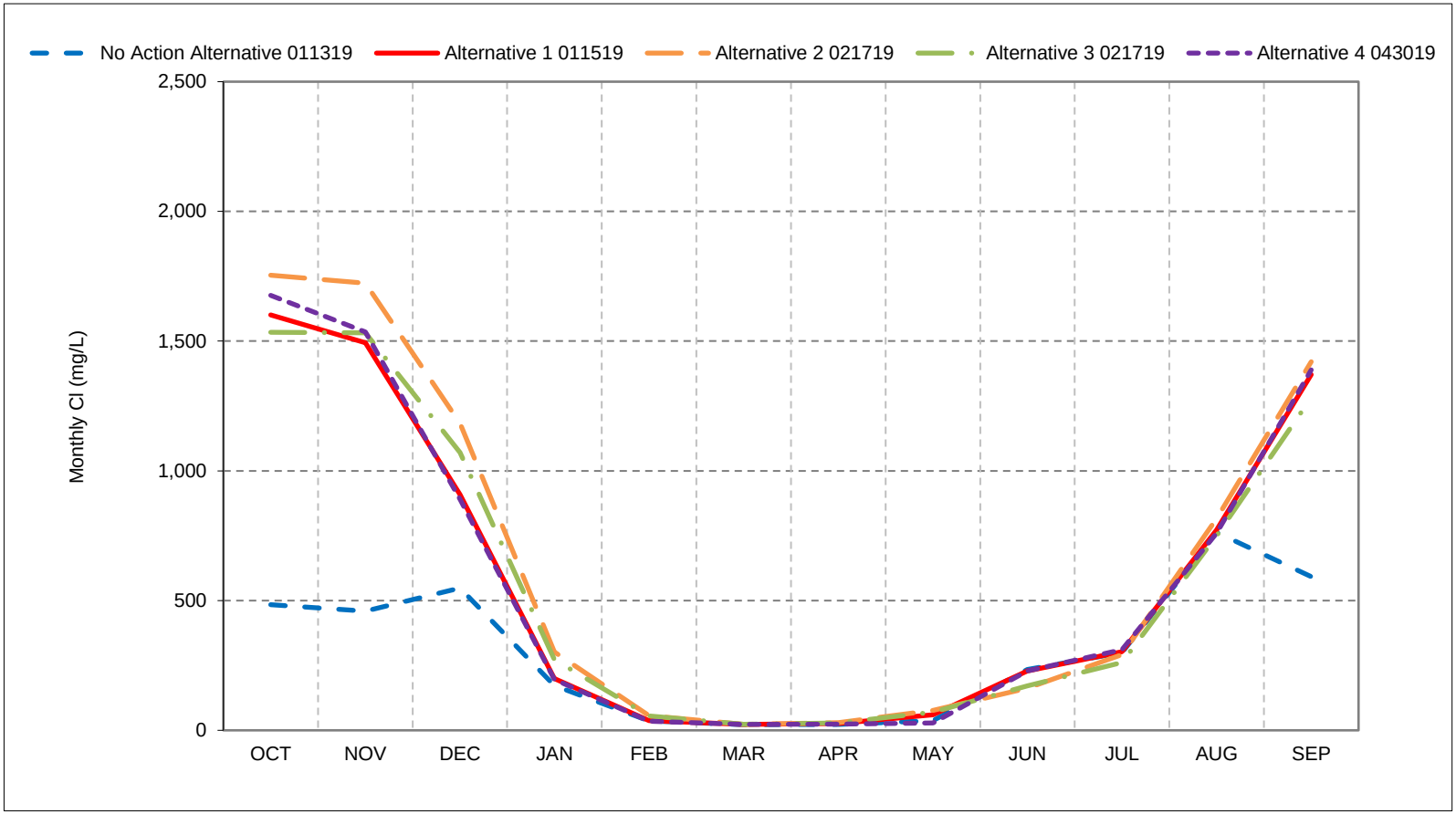
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-3. San Joaquin River at Antioch Chloride, Above Normal Year Average Cl



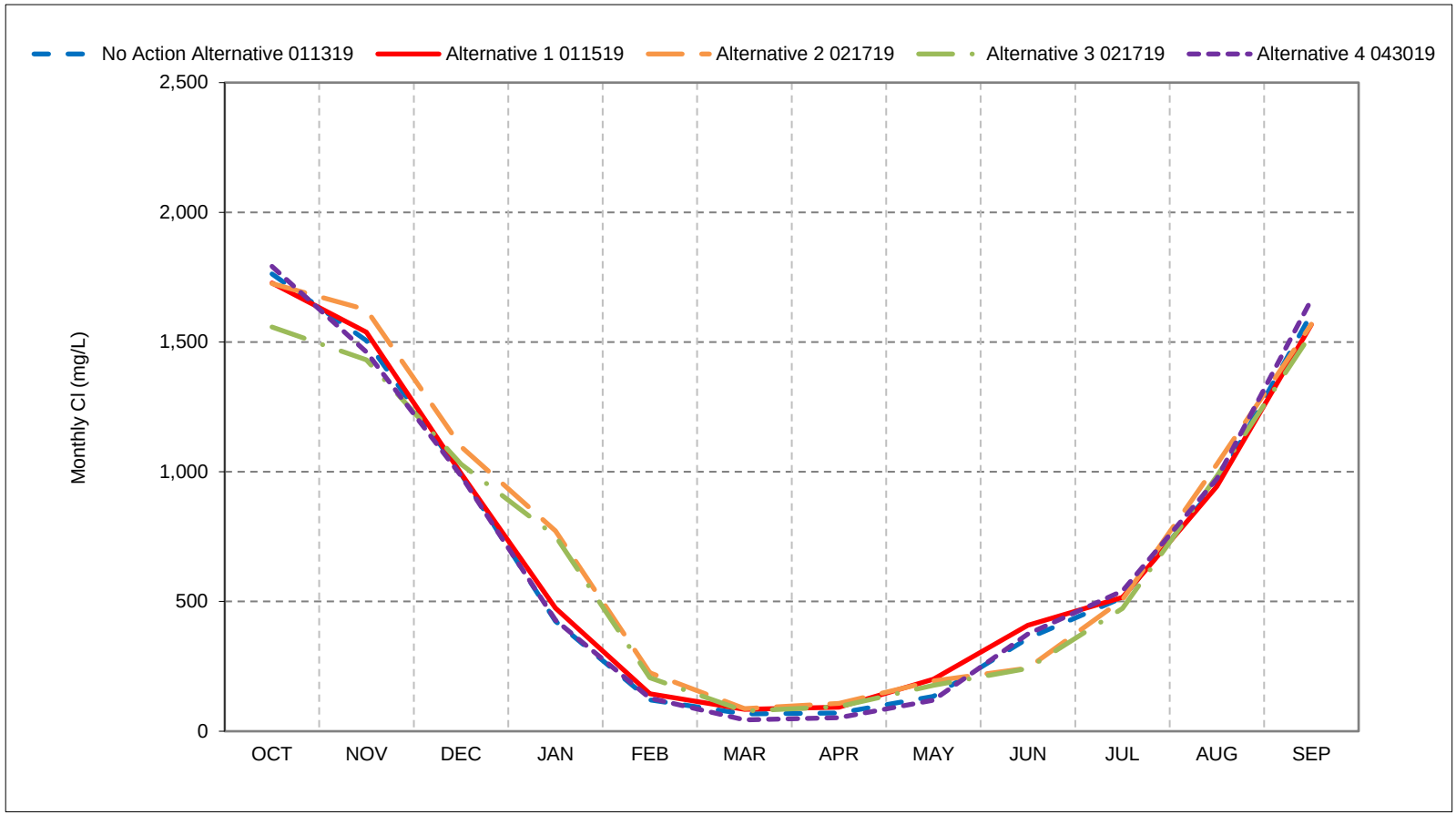
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

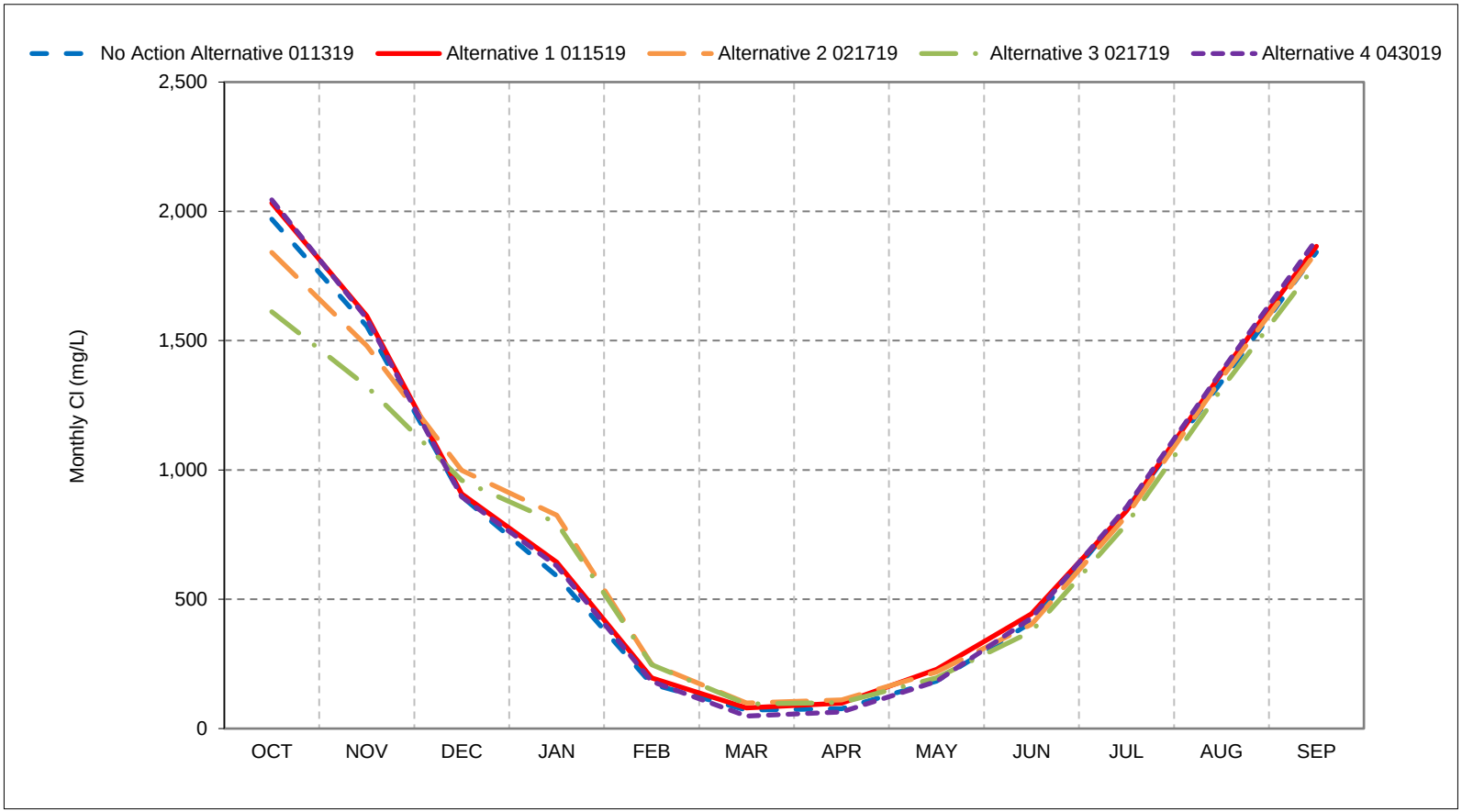
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-4. San Joaquin River at Antioch Chloride, Below Normal Year Average Cl



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-5. San Joaquin River at Antioch Chloride, Dry Year Average Cl



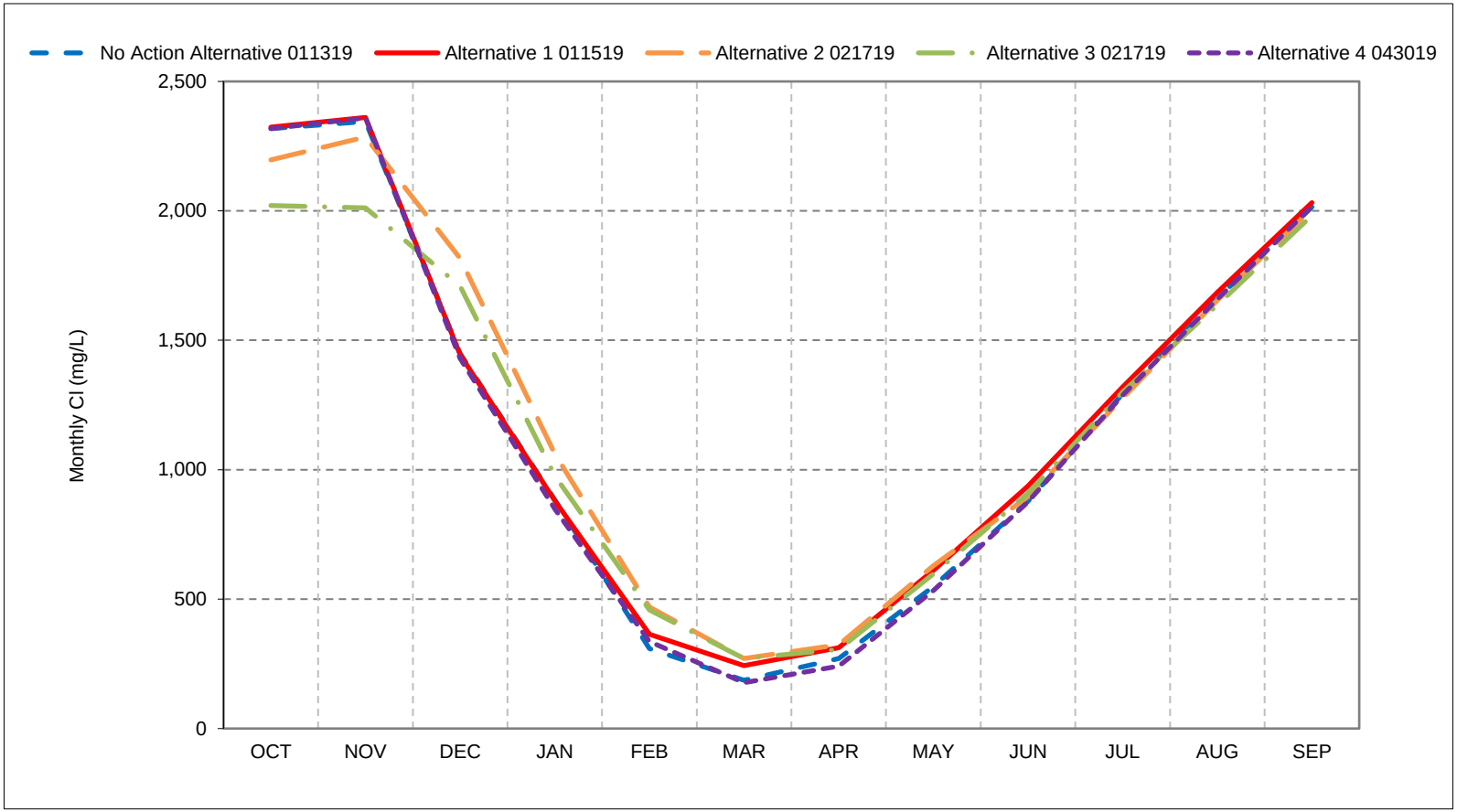
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

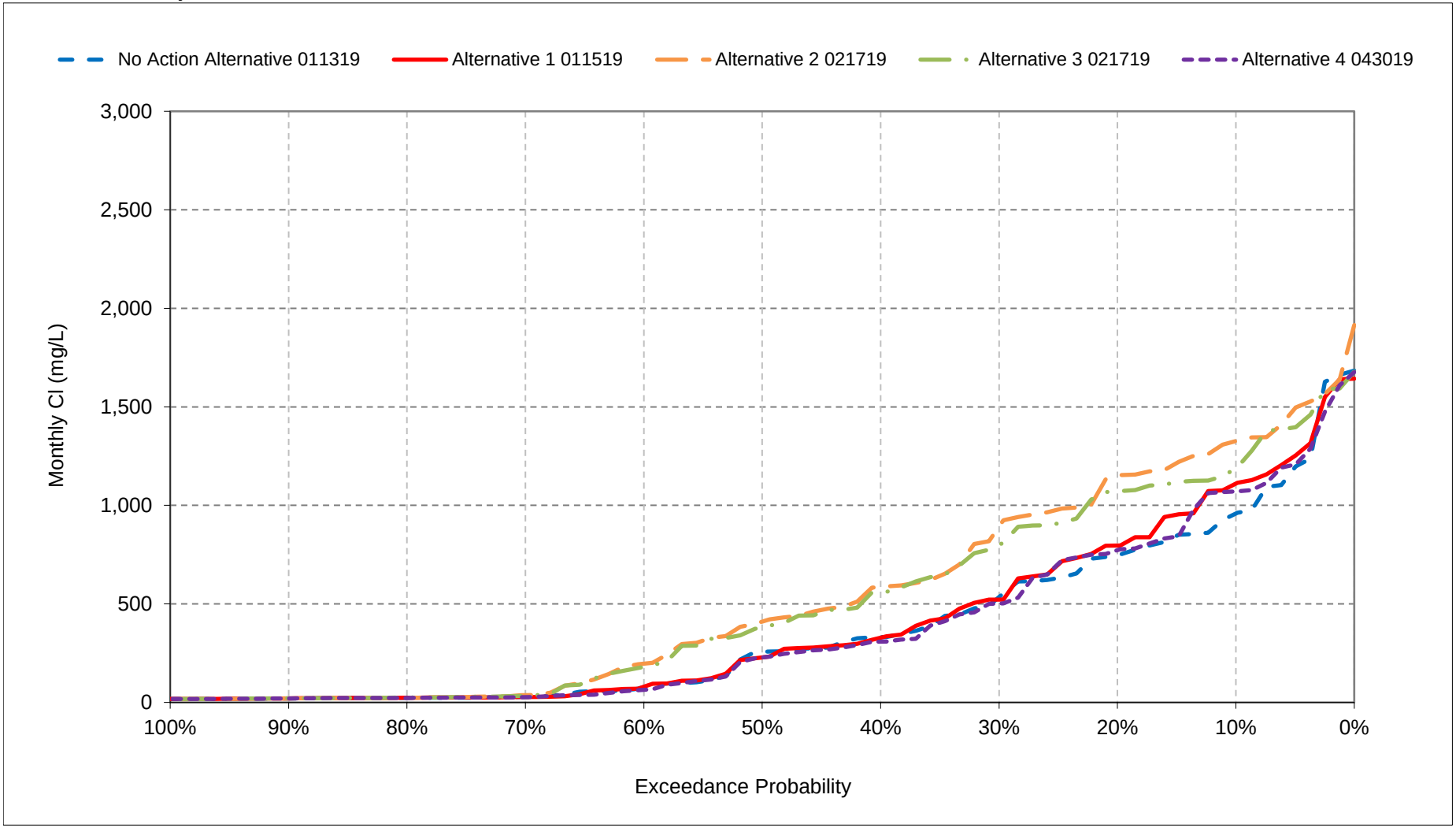
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-6. San Joaquin River at Antioch Chloride, Critical Year Average Cl



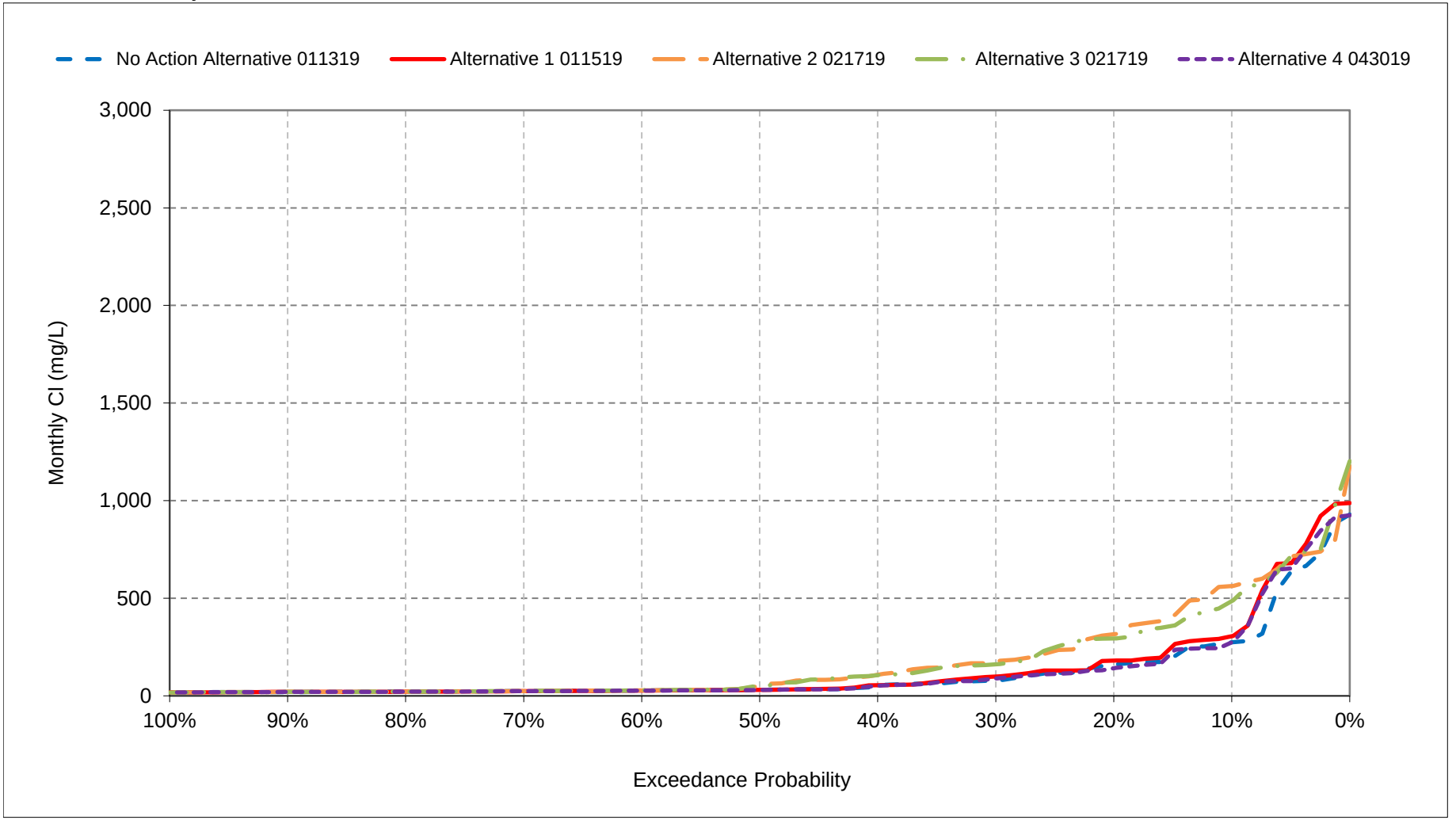
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-7. San Joaquin River at Antioch
Chloride, January Cl



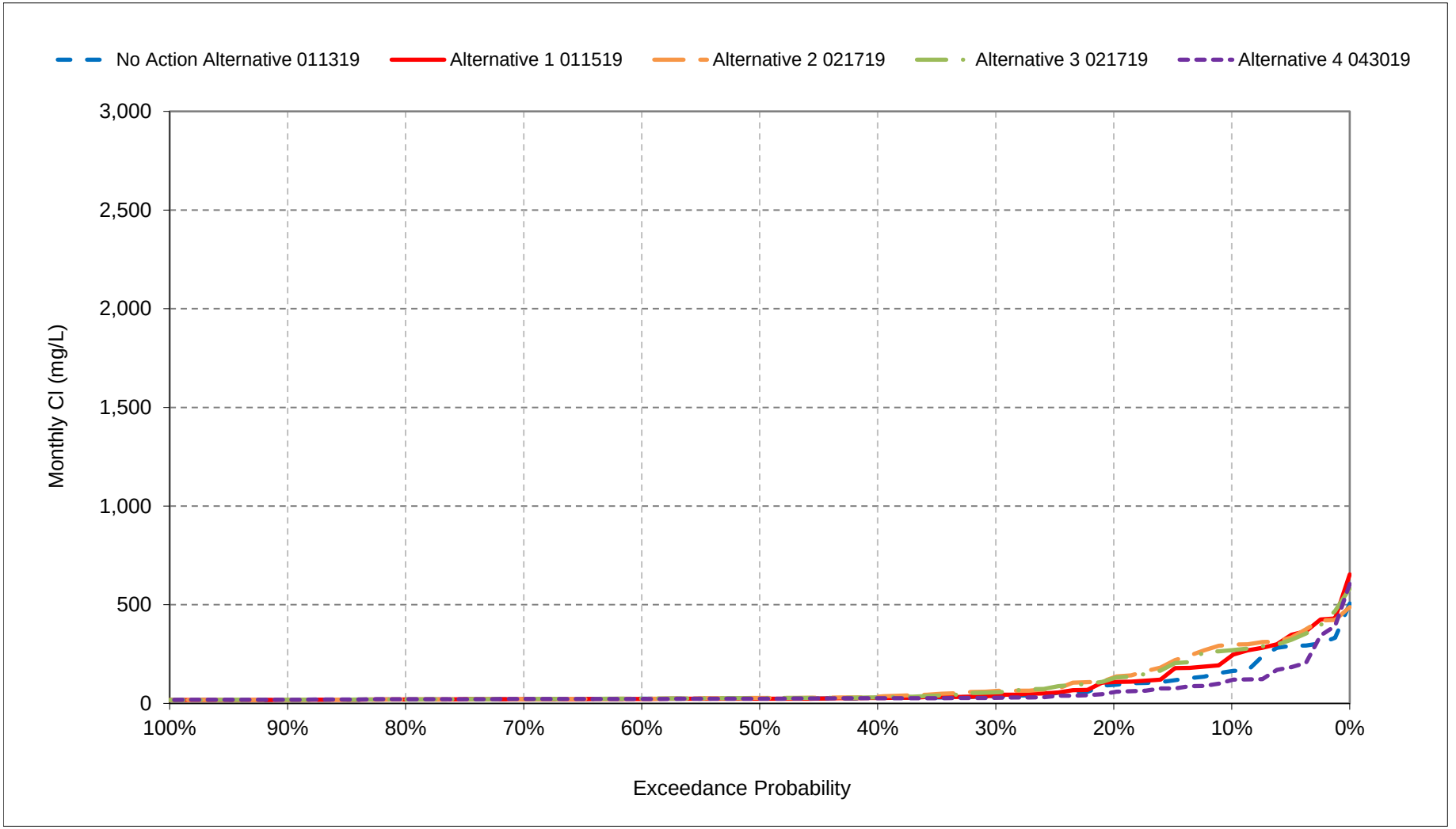
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-8. San Joaquin River at Antioch
Chloride, February Cl



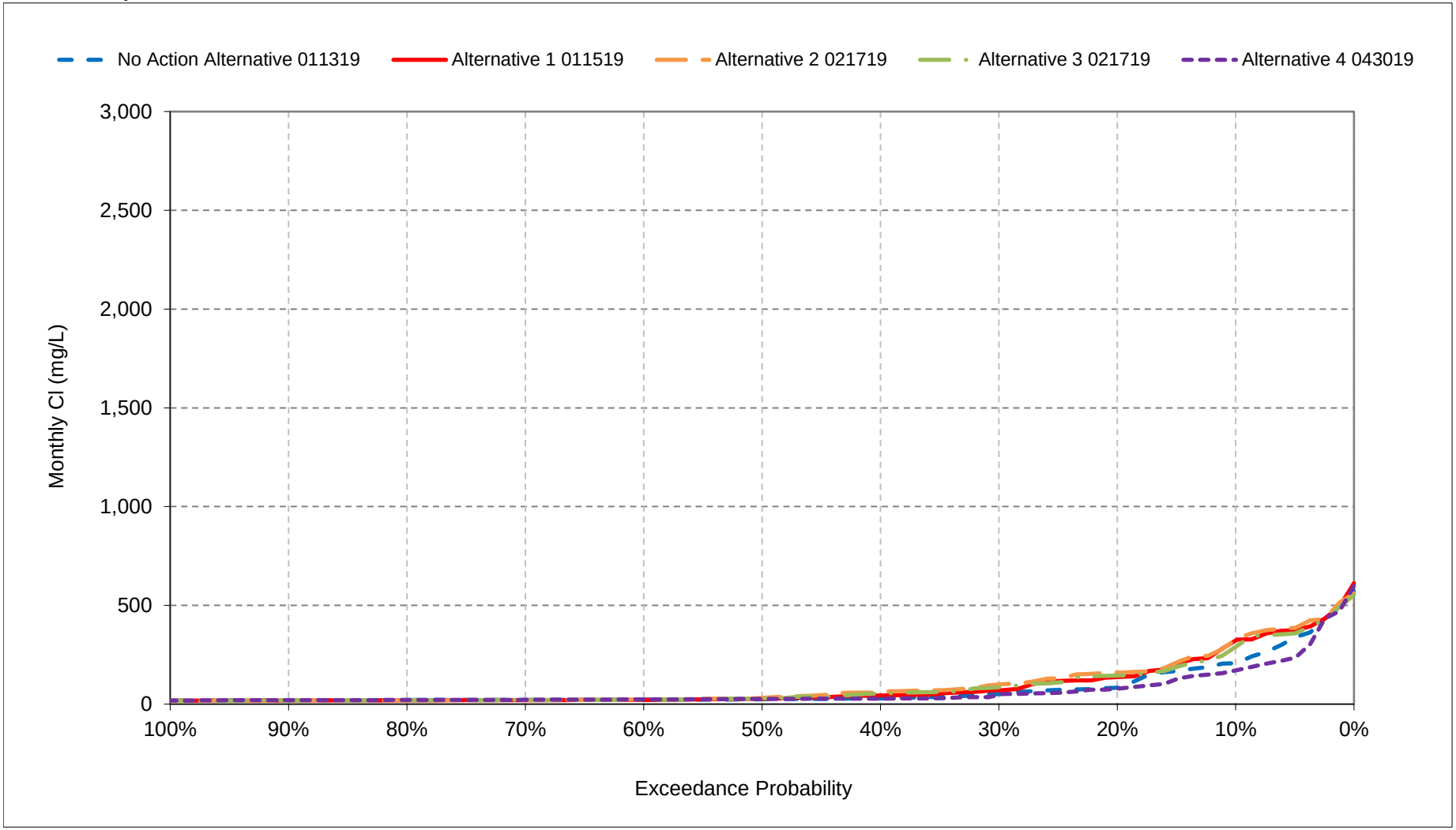
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-9. San Joaquin River at Antioch
Chloride, March Cl



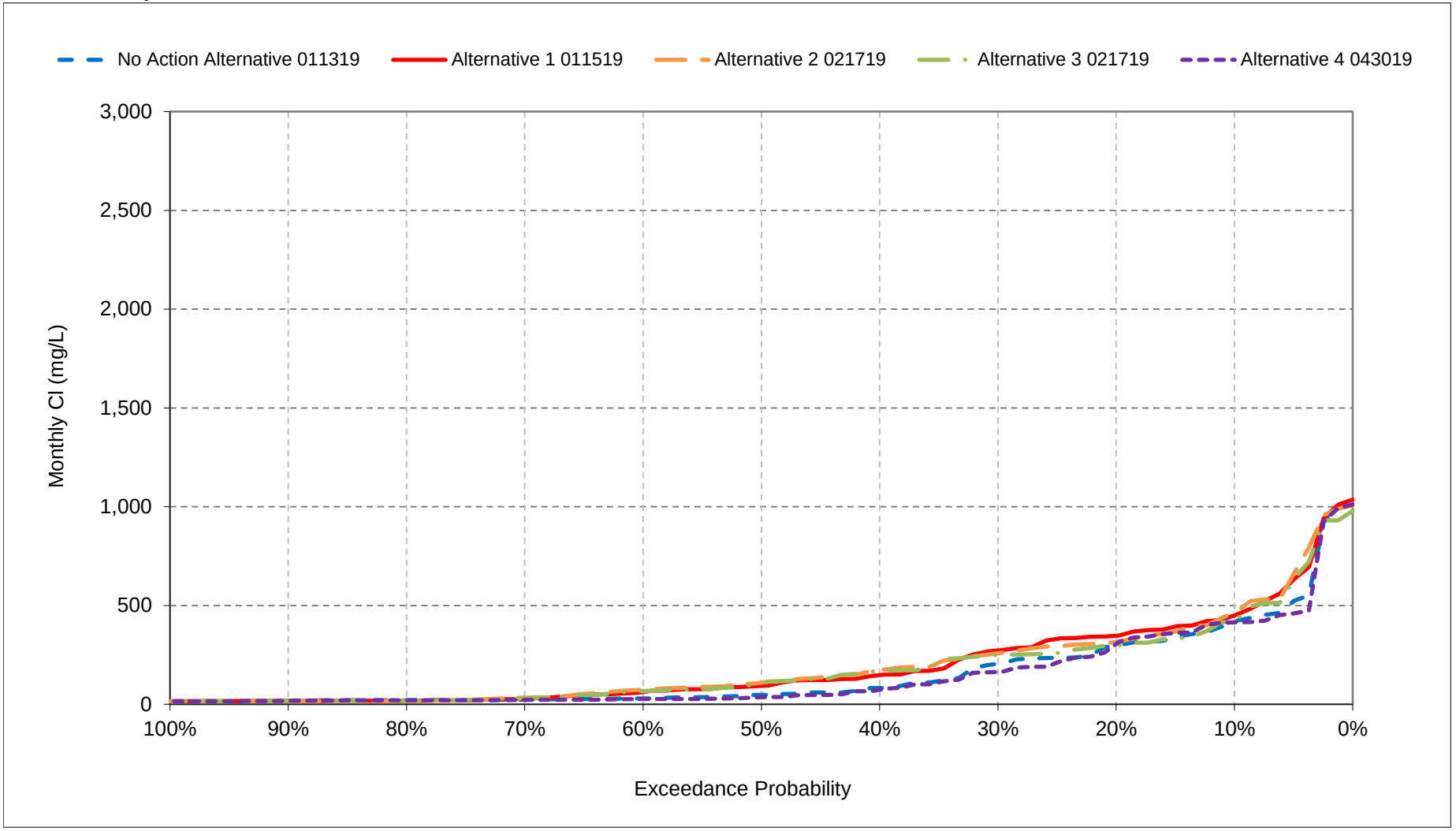
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-10. San Joaquin River at Antioch
Chloride, April Cl



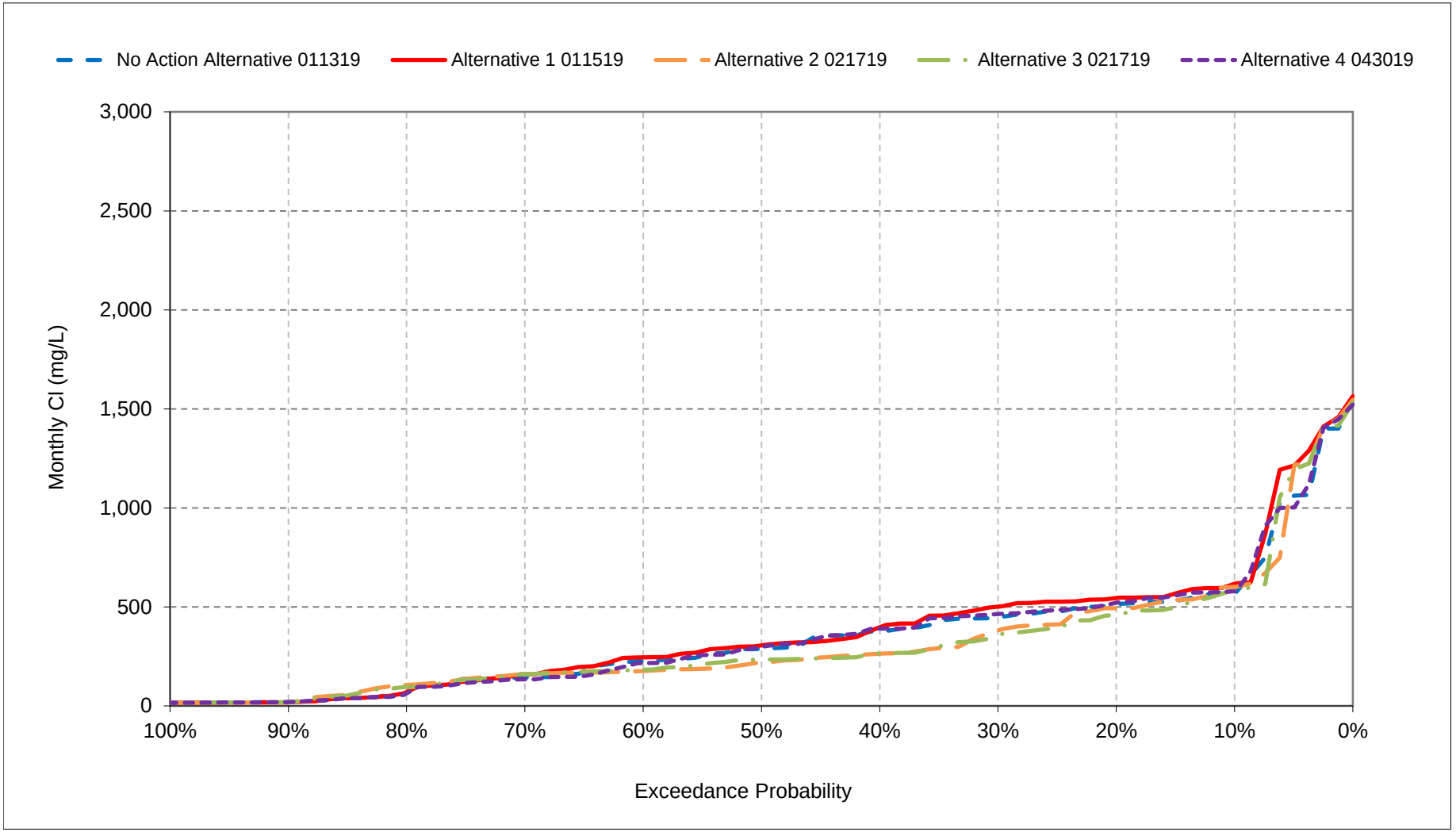
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-11. San Joaquin River at Antioch
Chloride, May Cl



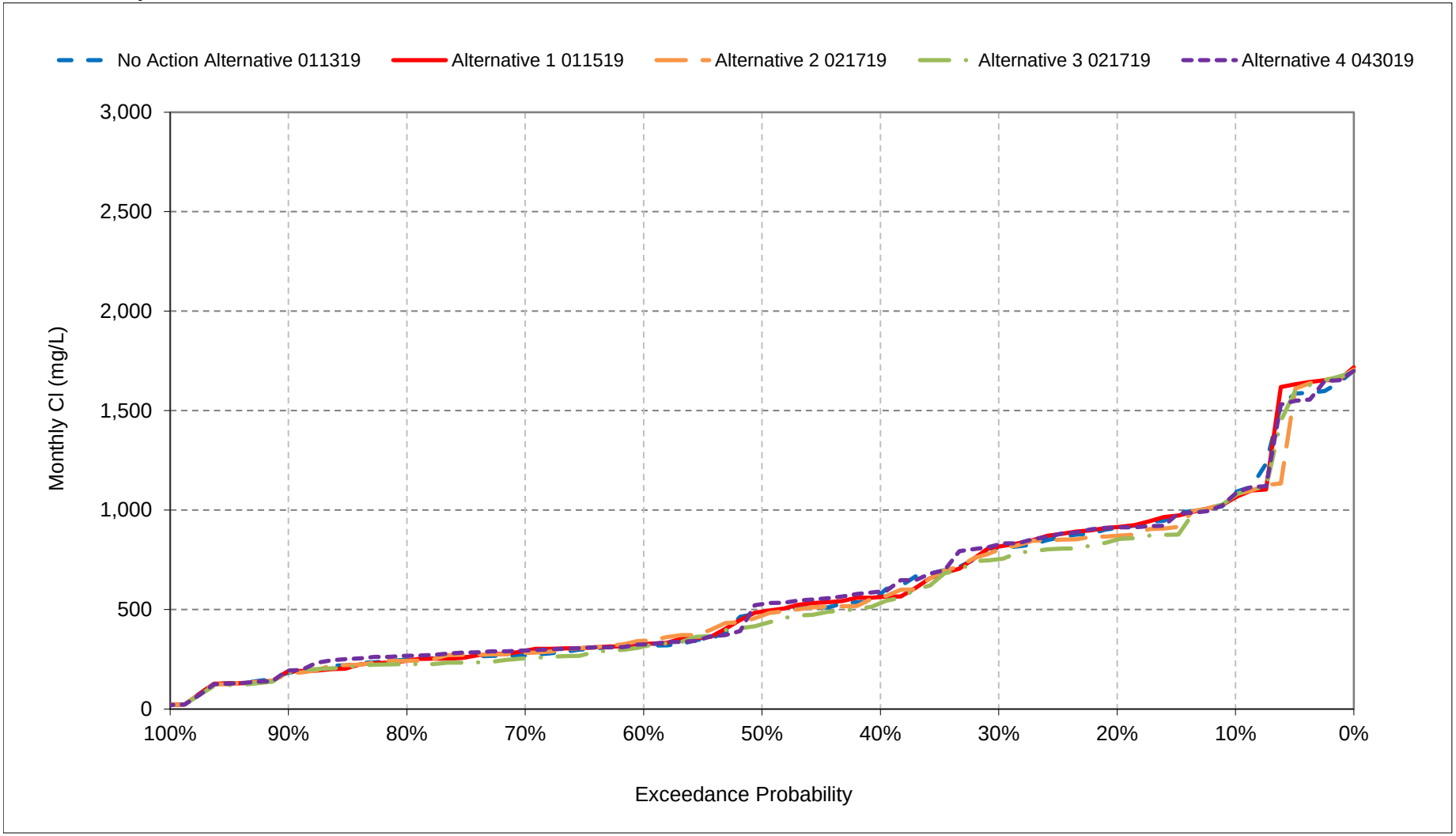
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-12. San Joaquin River at Antioch
Chloride, June Cl



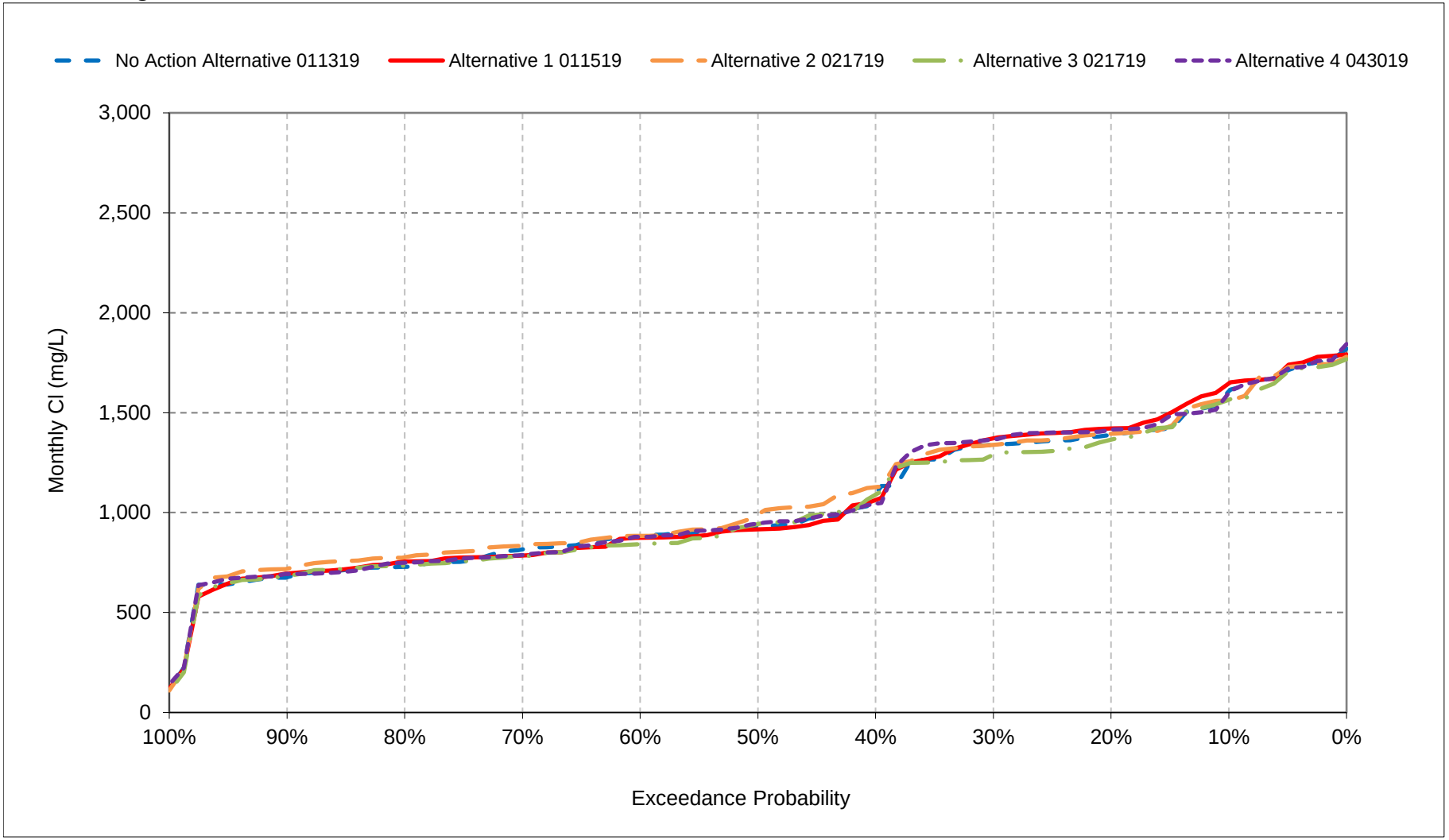
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-13. San Joaquin River at Antioch
Chloride, July Cl



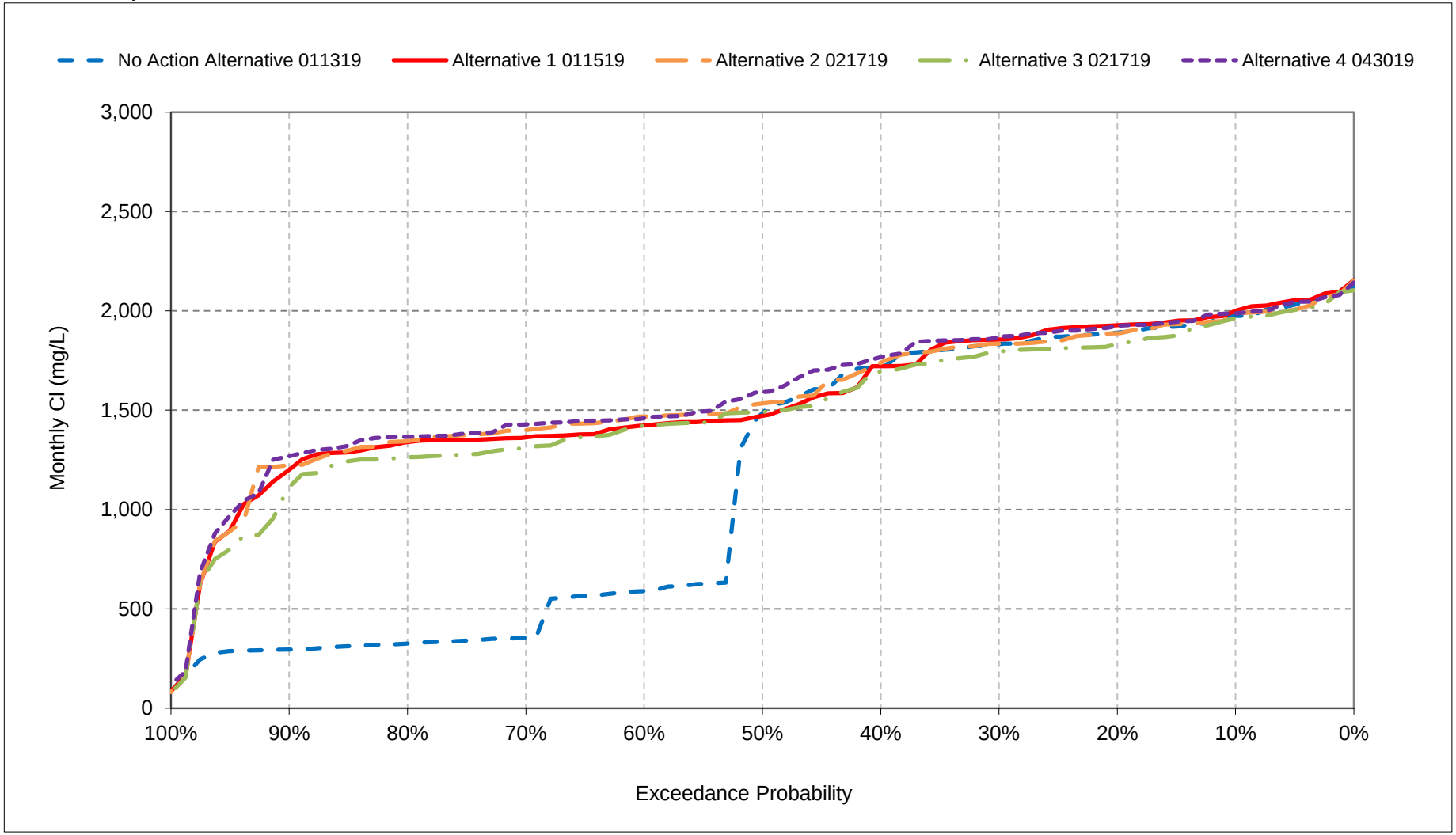
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-14. San Joaquin River at Antioch
Chloride, August Cl



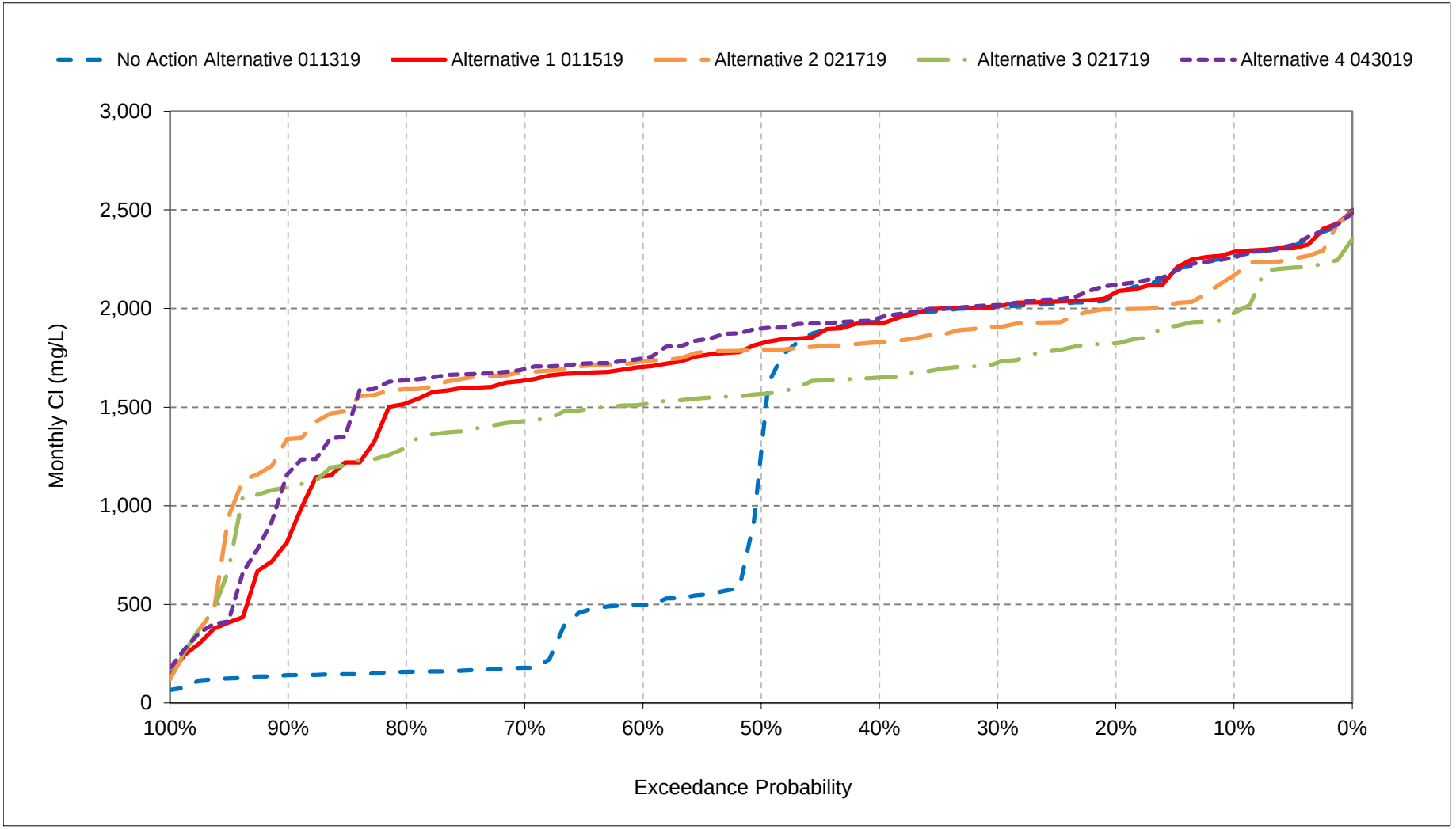
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-15. San Joaquin River at Antioch
Chloride, September Cl



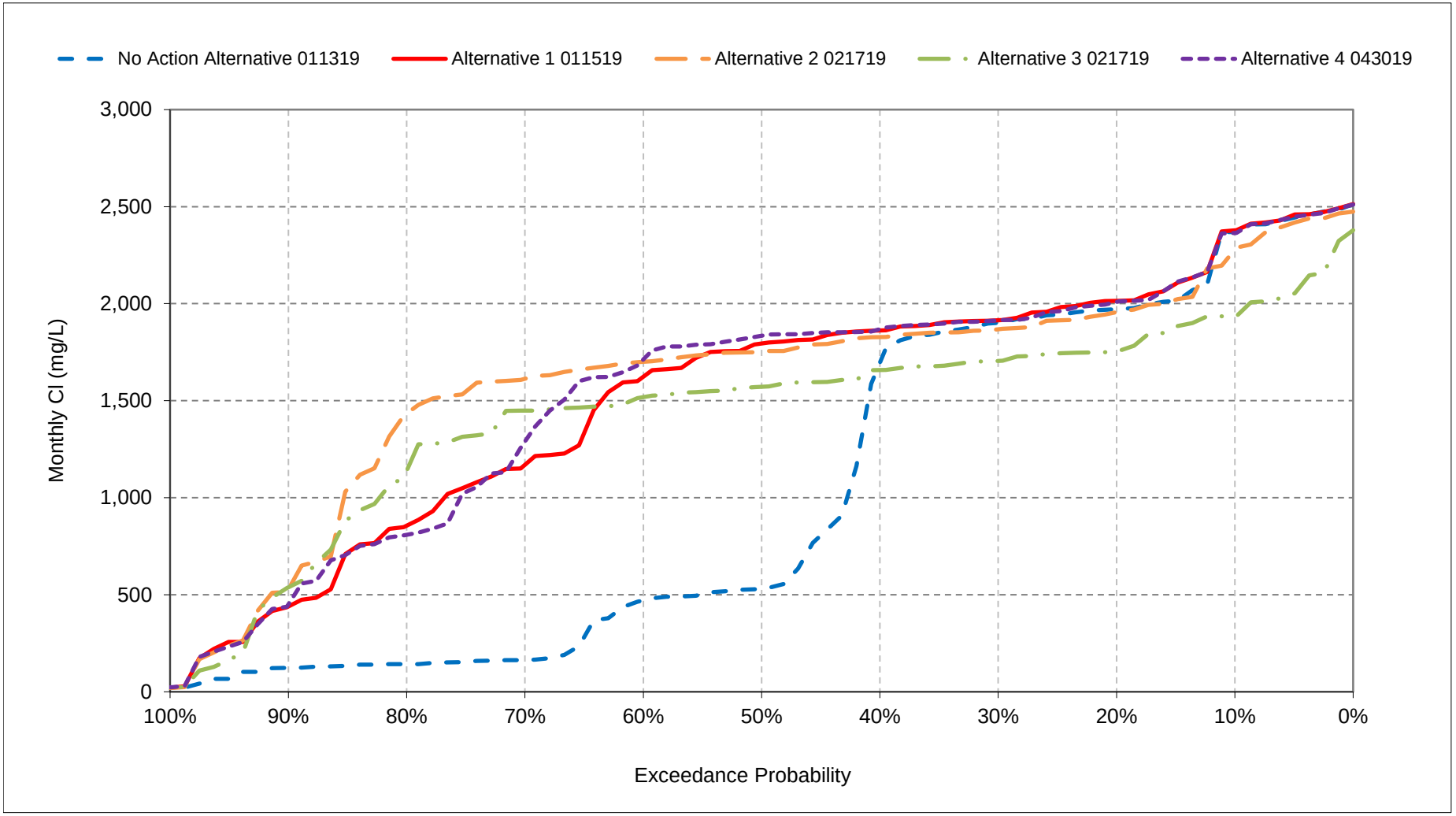
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-16. San Joaquin River at Antioch
Chloride, October Cl



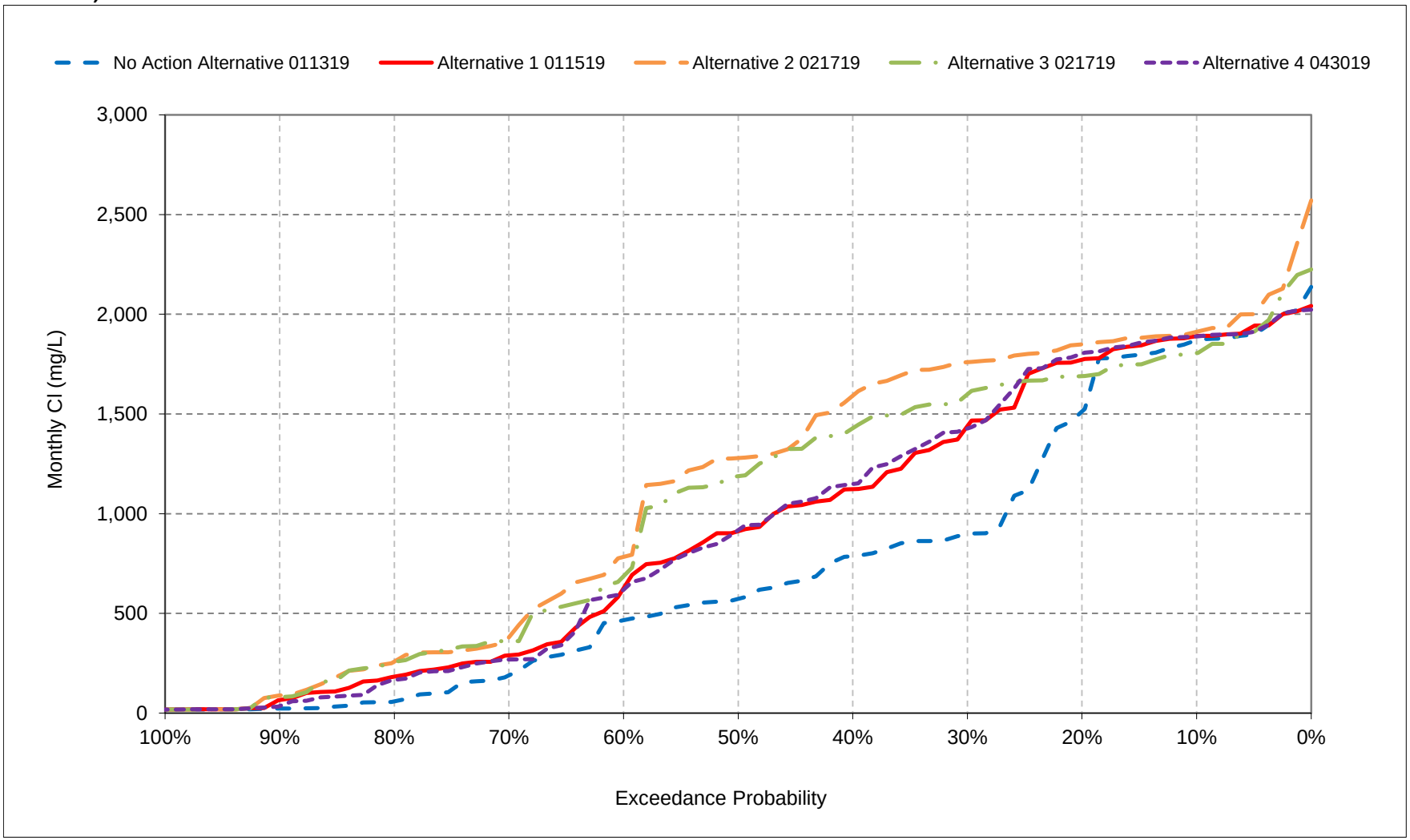
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-17. San Joaquin River at Antioch
Chloride, November Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 20-18. San Joaquin River at Antioch
Chloride, December Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 21-1. Banks Pumping Plant South Delta Exports Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	157	169	195	182	144	119	109	101	89	71	100	121
20%	149	151	170	167	121	101	90	84	77	57	67	114
30%	142	136	153	130	109	89	77	78	63	44	61	108
40%	134	128	137	117	102	78	67	70	58	42	54	101
50%	123	98	70	102	91	67	61	57	53	39	53	95
60%	57	46	55	93	86	62	49	50	50	35	45	92
70%	52	42	43	77	73	52	39	44	48	34	39	84
80%	47	37	36	68	55	44	33	37	42	30	35	76
90%	42	35	34	59	48	35	25	18	30	28	30	68
Long Term												
Full Simulation Period[a]	99	95	100	112	94	74	63	61	58	45	56	94
Water Year Types[b]												
Wet (32%)	49	36	36	75	62	44	32	32	39	34	37	82
Above Normal (16%)	45	48	61	104	91	65	53	52	51	32	37	73
Below Normal (13%)	142	124	133	111	97	78	69	70	64	39	54	108
Dry (24%)	142	134	134	137	110	85	78	74	62	47	74	105
Critical (15%)	153	179	195	157	136	124	114	104	94	85	89	114

Alternative 1 011519

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	161	178	195	196	143	97	83	70	61	63	98	125
20%	156	167	182	183	124	86	71	62	45	49	64	118
30%	148	157	167	176	104	75	65	58	42	42	61	113
40%	145	148	157	149	98	67	61	51	40	40	55	111
50%	141	139	147	119	88	63	54	42	39	38	51	106
60%	137	135	137	103	74	58	48	39	37	34	45	104
70%	132	132	121	89	71	53	38	36	35	32	38	100
80%	126	119	87	73	56	41	31	33	32	29	35	94
90%	97	64	57	60	42	36	26	21	29	27	31	81
Long Term												
Full Simulation Period[a]	134	137	138	127	91	65	54	47	42	42	55	104
Water Year Types[b]												
Wet (32%)	106	118	112	82	60	44	32	28	32	34	37	88
Above Normal (16%)	139	129	137	128	90	63	49	40	37	30	38	109
Below Normal (13%)	145	130	136	134	97	72	63	52	39	37	59	116
Dry (24%)	149	144	137	160	107	71	62	54	40	43	68	107
Critical (15%)	156	182	198	160	124	97	87	80	73	78	89	115

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**4**	**9**	0	**13**	-2	-22	-26	-31	-27	-8	-2	**5**
20%	**7**	**16**	**12**	**16**	**3**	-15	-19	-22	-32	-8	-3	**3**
30%	**6**	**21**	**14**	**46**	-4	-14	-12	-20	-21	-2	-1	**5**
40%	**11**	**20**	**19**	**33**	-5	-10	-7	-19	-18	-2	**0**	**10**
50%	**17**	**40**	**77**	**18**	-3	-4	-8	-16	-14	-1	-2	**11**
60%	**81**	**90**	**82**	**10**	-12	-4	-1	-11	-14	-1	**0**	**12**
70%	**80**	**91**	**78**	**11**	-1	**1**	-1	-8	-13	-2	-1	**15**
80%	**80**	**82**	**51**	**5**	**0**	-3	-2	-4	-9	-1	**0**	**18**
90%	**55**	**29**	**23**	**0**	-6	**1**	**1**	**3**	-1	-1	**2**	**14**
Long Term												
Full Simulation Period[a]	**35**	**42**	**38**	**15**	-3	-9	-9	-14	-16	-3	-1	**10**
Water Year Types[b]												
Wet (32%)	**57**	**82**	**76**	**7**	-2	-1	0	-4	-7	-1	0	**6**
Above Normal (16%)	**94**	**81**	**76**	**24**	-1	-2	-4	-12	-14	-2	**1**	**37**
Below Normal (13%)	**4**	**5**	**3**	**24**	0	-6	-6	-18	-24	-2	**5**	**9**
Dry (24%)	**7**	**10**	**2**	**23**	-3	-15	-15	-20	-22	-3	-5	**2**
Critical (15%)	**3**	**3**	**4**	**3**	-13	-28	-27	-24	-21	-7	0	**1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 21-2. Banks Pumping Plant South Delta Exports Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	157	169	195	182	144	119	109	101	89	71	100	121
20%	149	151	170	167	121	101	90	84	77	57	67	114
30%	142	136	153	130	109	89	77	78	63	44	61	108
40%	134	128	137	117	102	78	67	70	58	42	54	101
50%	123	98	70	102	91	67	61	57	53	39	53	95
60%	57	46	55	93	86	62	49	50	50	35	45	92
70%	52	42	43	77	73	52	39	44	48	34	39	84
80%	47	37	36	68	55	44	33	37	42	30	35	76
90%	42	35	34	59	48	35	25	18	30	28	30	68
Long Term												
Full Simulation Period[a]	99	95	100	112	94	74	63	61	58	45	56	94
Water Year Types[b]												
Wet (32%)	49	36	36	75	62	44	32	32	39	34	37	82
Above Normal (16%)	45	48	61	104	91	65	53	52	51	32	37	73
Below Normal (13%)	142	124	133	111	97	78	69	70	64	39	54	108
Dry (24%)	142	134	134	137	110	85	78	74	62	47	74	105
Critical (15%)	153	179	195	157	136	124	114	104	94	85	89	114

Alternative 2 021719

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	159	172	188	207	148	105	78	63	61	63	93	125
20%	155	163	177	177	119	80	64	59	49	47	65	118
30%	150	145	168	163	96	66	57	55	38	41	61	114
40%	146	138	155	151	85	62	50	43	34	39	55	111
50%	142	131	145	140	76	54	44	39	33	33	50	106
60%	139	122	138	91	66	51	41	38	32	31	45	100
70%	133	118	122	72	56	43	38	34	30	30	39	94
80%	127	105	85	61	45	38	31	31	29	27	37	87
90%	89	90	43	52	39	32	23	21	27	25	33	75
Long Term												
Full Simulation Period[a]	134	130	135	125	85	61	51	45	40	40	55	102
Water Year Types[b]												
Wet (32%)	106	112	120	72	47	40	30	27	30	33	37	85
Above Normal (16%)	149	146	148	118	73	51	40	36	31	29	41	113
Below Normal (13%)	145	127	128	148	115	76	59	48	31	31	63	109
Dry (24%)	145	119	117	160	99	62	55	51	41	42	64	105
Critical (15%)	152	172	193	165	129	106	90	79	76	77	90	116

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**2**	**3**	-7	**25**	**4**	-14	-31	-38	-28	-8	-7	**5**
20%	**7**	**12**	**7**	**10**	-2	-21	-26	-26	-28	-11	-2	**4**
30%	**8**	**9**	**15**	**33**	-13	-22	-20	-23	-25	-3	-1	**6**
40%	**12**	**10**	**18**	**34**	-17	-16	-17	-26	-23	-2	**1**	**10**
50%	**19**	**33**	**75**	**39**	-16	-13	-17	-18	-20	-6	-3	**10**
60%	**82**	**77**	**82**	-2	-20	-11	-8	-12	-19	-4	**1**	**8**
70%	**81**	**77**	**79**	-6	-17	-8	-1	-10	-18	-3	**0**	**10**
80%	**80**	**68**	**48**	-7	-11	-7	-2	-7	-13	-3	**2**	**11**
90%	**47**	**54**	**9**	-7	-9	-3	-2	**3**	-3	-3	**4**	**7**
Long Term												
Full Simulation Period[a]	**35**	**35**	**35**	**13**	-9	-13	-13	-16	-18	-5	0	**8**
Water Year Types[b]												
Wet (32%)	**56**	**75**	**84**	-3	-15	-5	-1	-5	-9	-2	0	**3**
Above Normal (16%)	**104**	**98**	**86**	**15**	-19	-15	-13	-16	-20	-4	**4**	**40**
Below Normal (13%)	**3**	**3**	-5	**37**	**18**	-2	-10	-22	-32	-9	**9**	**1**
Dry (24%)	**3**	-15	-17	**22**	-11	-23	-22	-23	-21	-5	-9	0
Critical (15%)	-1	-8	-2	**8**	-7	-18	-24	-25	-18	-8	**1**	**2**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 21-3. Banks Pumping Plant South Delta Exports Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	157	169	195	182	144	119	109	101	89	71	100	121
20%	149	151	170	167	121	101	90	84	77	57	67	114
30%	142	136	153	130	109	89	77	78	63	44	61	108
40%	134	128	137	117	102	78	67	70	58	42	54	101
50%	123	98	70	102	91	67	61	57	53	39	53	95
60%	57	46	55	93	86	62	49	50	50	35	45	92
70%	52	42	43	77	73	52	39	44	48	34	39	84
80%	47	37	36	68	55	44	33	37	42	30	35	76
90%	42	35	34	59	48	35	25	18	30	28	30	68
Long Term												
Full Simulation Period[a]	99	95	100	112	94	74	63	61	58	45	56	94
Water Year Types[b]												
Wet (32%)	49	36	36	75	62	44	32	32	39	34	37	82
Above Normal (16%)	45	48	61	104	91	65	53	52	51	32	37	73
Below Normal (13%)	142	124	133	111	97	78	69	70	64	39	54	108
Dry (24%)	142	134	134	137	110	85	78	74	62	47	74	105
Critical (15%)	153	179	195	157	136	124	114	104	94	85	89	114

Alternative 3 021719

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	171	171	180	200	138	91	81	65	66	65	92	130
20%	161	162	173	175	122	81	65	60	48	47	65	124
30%	156	150	162	161	95	69	60	56	39	43	62	119
40%	152	139	153	149	85	62	52	45	37	39	56	112
50%	148	134	138	133	75	55	46	41	35	35	50	107
60%	144	125	125	88	67	51	43	39	33	32	44	100
70%	138	114	113	69	55	44	39	36	30	30	39	95
80%	130	104	83	59	43	38	32	32	30	27	37	89
90%	101	88	49	50	38	32	23	21	27	26	32	78
Long Term												
Full Simulation Period[a]	140	129	129	121	83	62	52	46	41	41	56	104
Water Year Types[b]												
Wet (32%)	113	115	114	71	47	40	31	28	31	33	37	87
Above Normal (16%)	148	144	144	107	69	51	41	37	32	29	39	112
Below Normal (13%)	155	129	123	146	115	79	61	49	33	31	61	116
Dry (24%)	152	117	114	157	96	65	59	53	41	42	65	108
Critical (15%)	153	161	175	162	124	101	91	81	77	79	93	118

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**14**	**2**	-15	**18**	-6	-28	-29	-36	-22	-6	-8	**10**
20%	**12**	**11**	**4**	**8**	**1**	-20	-25	-24	-29	-10	-3	**10**
30%	**14**	**13**	**9**	**31**	-13	-20	-17	-22	-25	-2	**0**	**11**
40%	**19**	**11**	**15**	**32**	-17	-16	-16	-25	-21	-3	**2**	**12**
50%	**25**	**36**	**68**	**31**	-16	-12	-16	-16	-18	-5	-2	**11**
60%	**88**	**80**	**70**	-5	-19	-11	-6	-11	-17	-3	0	**8**
70%	**86**	**72**	**70**	-9	-18	-8	0	-8	-17	-4	0	**11**
80%	**83**	**67**	**46**	-9	-12	-6	-1	-5	-12	-2	**2**	**13**
90%	**58**	**53**	**15**	-9	-9	-3	-2	**3**	-3	-2	**3**	**10**
Long Term												
Full Simulation Period[a]	**41**	**34**	**29**	**9**	-11	-12	-12	-15	-17	-4	**0**	**10**
Water Year Types[b]												
Wet (32%)	**64**	**79**	**78**	-4	-15	-4	-1	-4	-8	-1	**1**	**5**
Above Normal (16%)	**104**	**96**	**82**	**3**	-23	-15	-12	-15	-19	-3	**2**	**39**
Below Normal (13%)	**14**	**4**	-10	**35**	**18**	**0**	-9	-21	-31	-8	**8**	**8**
Dry (24%)	**10**	-17	-21	**19**	-14	-21	-19	-21	-20	-5	-8	**3**
Critical (15%)	0	-19	-19	**6**	-13	-23	-24	-23	-17	-6	**4**	**4**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 21-4. Banks Pumping Plant South Delta Exports Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	157	169	195	182	144	119	109	101	89	71	100	121
20%	149	151	170	167	121	101	90	84	77	57	67	114
30%	142	136	153	130	109	89	77	78	63	44	61	108
40%	134	128	137	117	102	78	67	70	58	42	54	101
50%	123	98	70	102	91	67	61	57	53	39	53	95
60%	57	46	55	93	86	62	49	50	50	35	45	92
70%	52	42	43	77	73	52	39	44	48	34	39	84
80%	47	37	36	68	55	44	33	37	42	30	35	76
90%	42	35	34	59	48	35	25	18	30	28	30	68
Long Term												
Full Simulation Period[a]	99	95	100	112	94	74	63	61	58	45	56	94
Water Year Types[b]												
Wet (32%)	49	36	36	75	62	44	32	32	39	34	37	82
Above Normal (16%)	45	48	61	104	91	65	53	52	51	32	37	73
Below Normal (13%)	142	124	133	111	97	78	69	70	64	39	54	108
Dry (24%)	142	134	134	137	110	85	78	74	62	47	74	105
Critical (15%)	153	179	195	157	136	124	114	104	94	85	89	114

Alternative 4 043019

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	155	175	193	188	138	128	137	120	96	75	80	117
20%	149	167	176	182	124	116	121	114	67	48	72	111
30%	144	158	160	162	105	105	113	103	64	45	58	105
40%	142	150	154	141	98	99	99	85	58	42	52	103
50%	139	137	147	121	90	91	85	56	53	39	45	101
60%	134	134	137	100	74	79	58	53	50	36	42	98
70%	131	126	124	87	70	59	41	47	48	33	36	91
80%	124	118	85	73	55	44	31	40	44	30	34	86
90%	110	111	57	59	42	36	23	18	32	28	29	72
Long Term												
Full Simulation Period[a]	132	137	135	123	89	84	79	71	57	44	52	97
Water Year Types[b]												
Wet (32%)	111	125	111	82	60	49	35	34	40	34	36	87
Above Normal (16%)	140	131	136	122	90	82	66	54	51	32	35	103
Below Normal (13%)	130	121	125	125	92	98	95	84	58	38	50	88
Dry (24%)	146	142	135	158	106	103	110	97	64	46	64	102
Critical (15%)	151	178	195	156	123	117	124	111	92	83	87	111

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-2	**6**	-2	**5**	-7	**9**	**28**	**19**	**7**	**4**	-20	-3
20%	0	**16**	**6**	**15**	**3**	**14**	**31**	**30**	-10	-9	**4**	-4
30%	**2**	**22**	**6**	**31**	-4	**16**	**36**	**25**	**1**	**1**	-3	-3
40%	**8**	**22**	**16**	**25**	-4	**21**	**32**	**16**	**0**	**0**	-3	**3**
50%	**15**	**39**	**77**	**19**	-1	**24**	**24**	-1	**0**	0	-8	**5**
60%	**78**	**89**	**82**	**7**	-12	**17**	**9**	**3**	0	**0**	-2	**7**
70%	**79**	**84**	**81**	**10**	-2	**8**	**2**	**2**	**0**	-1	-3	**7**
80%	**78**	**81**	**49**	**5**	0	**0**	-2	**3**	**3**	**0**	-1	**10**
90%	**68**	**75**	**23**	0	-5	**1**	-2	0	**1**	**0**	0	**4**
Long Term												
Full Simulation Period[a]	**34**	**42**	**35**	**12**	-4	**10**	**16**	**9**	0	-1	-4	**2**
Water Year Types[b]												
Wet (32%)	**62**	**88**	**75**	**7**	-2	**5**	**4**	**2**	**1**	**0**	-1	**5**
Above Normal (16%)	**95**	**83**	**74**	**18**	-1	**17**	**13**	**2**	**0**	0	-2	**30**
Below Normal (13%)	-11	-4	-8	**15**	-6	**20**	**25**	**14**	-6	-1	-4	-20
Dry (24%)	**3**	**8**	**0**	**20**	-4	**18**	**33**	**23**	**2**	-1	-9	-3
Critical (15%)	-3	-1	**1**	-1	-13	-7	**9**	**7**	-2	-2	-2	-3

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

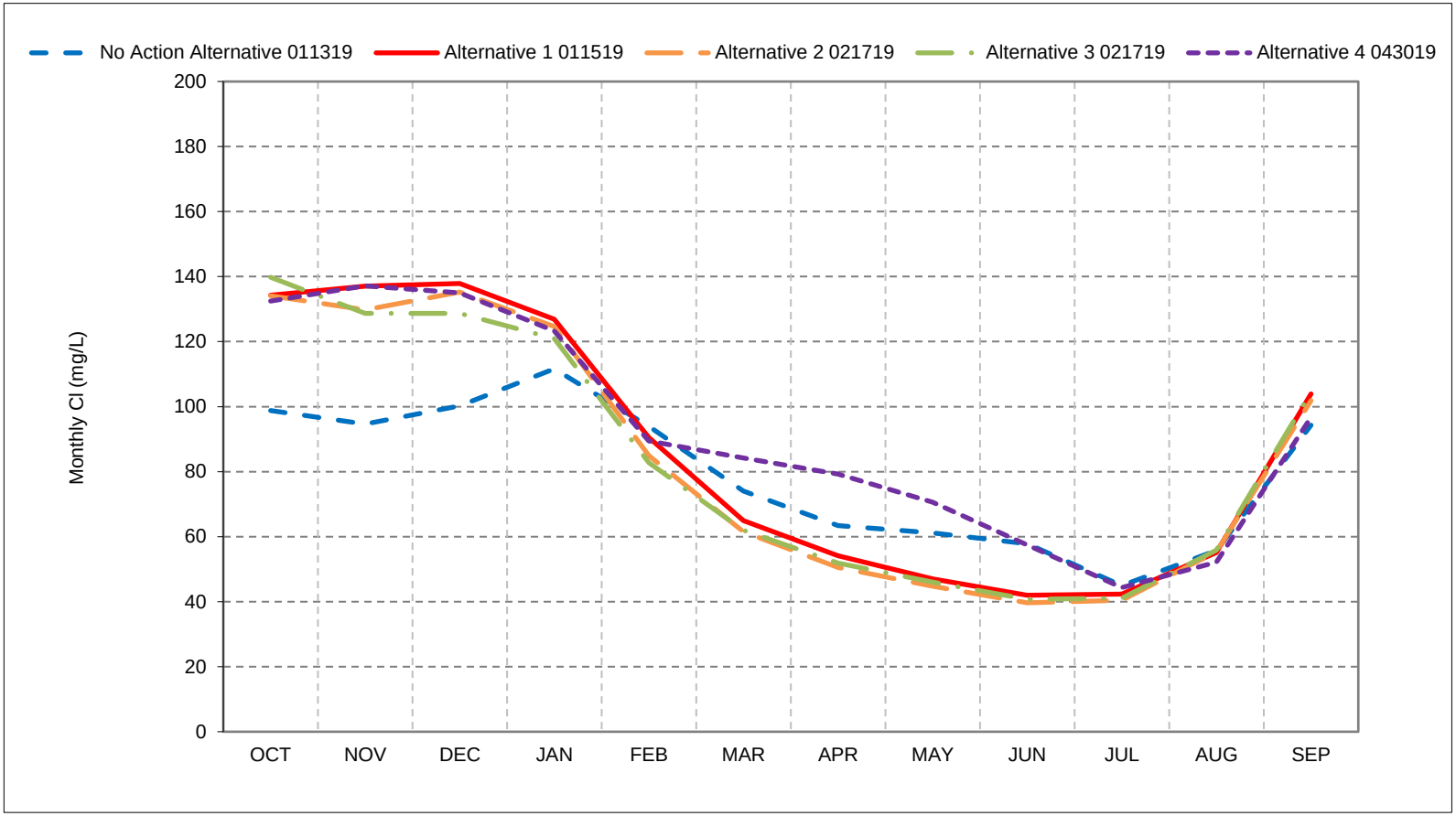
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-1. Banks Pumping Plant South Delta Exports Chloride, Long-Term Average Cl



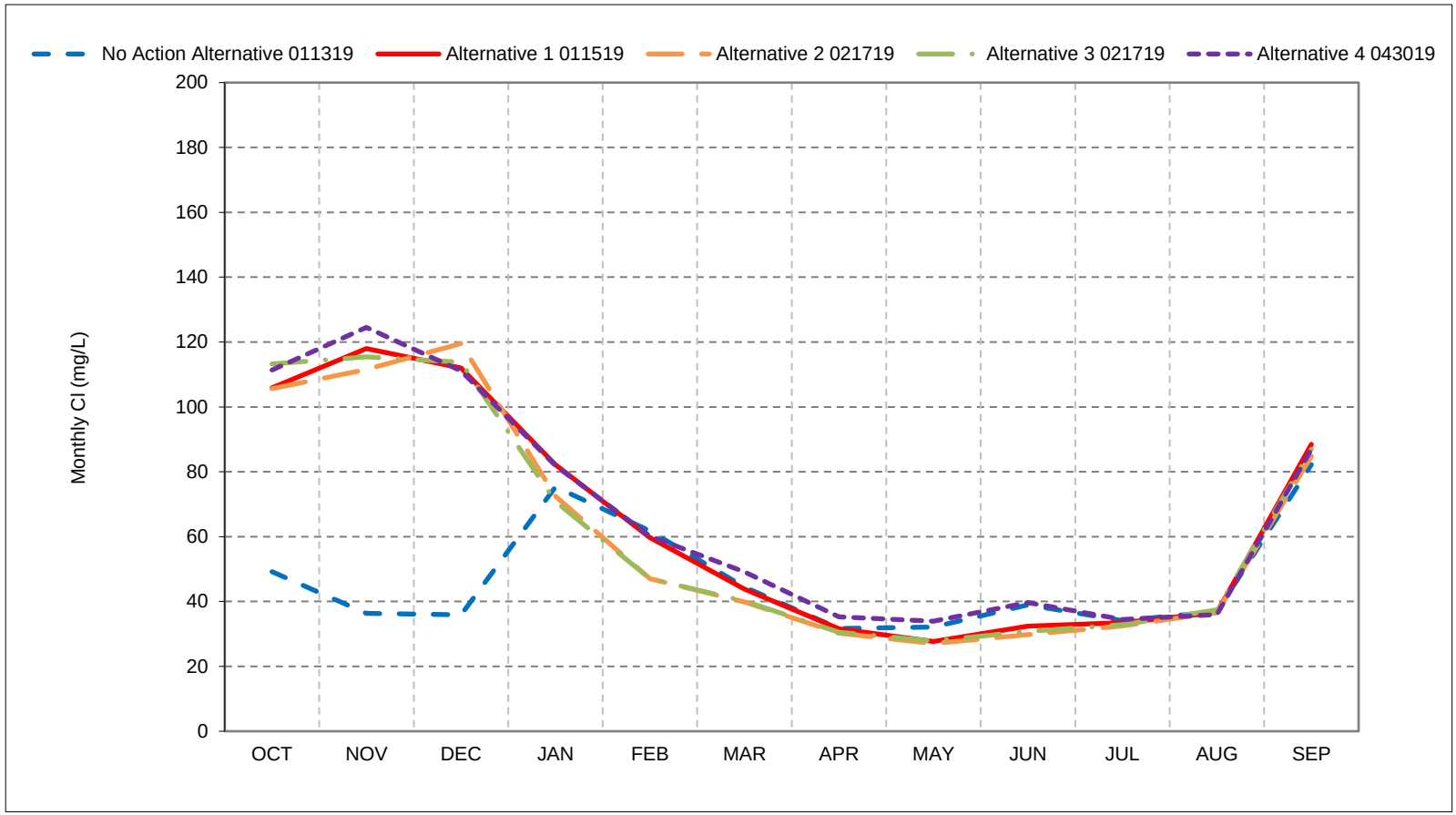
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-2. Banks Pumping Plant South Delta Exports Chloride, Wet Year Average Cl



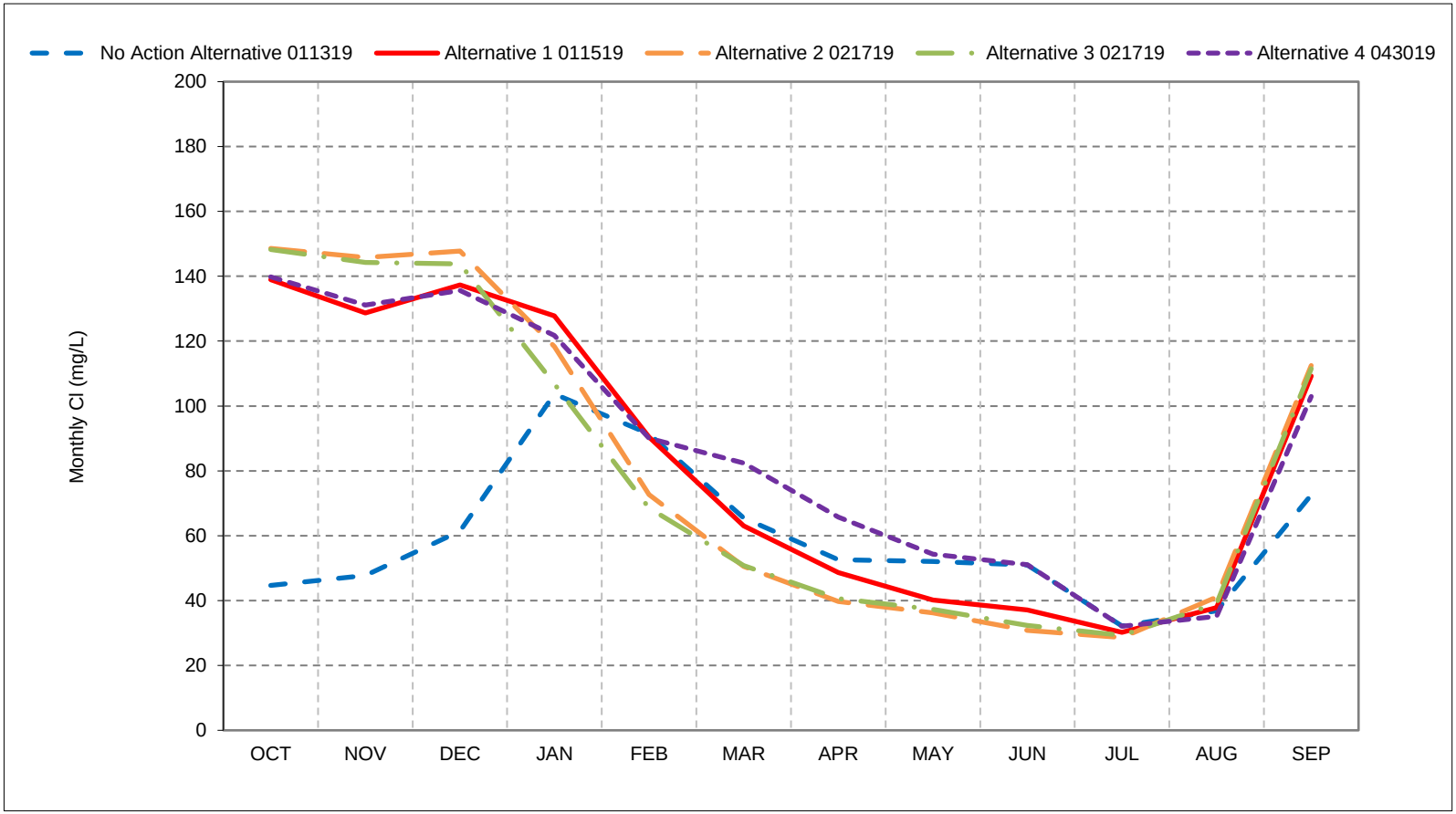
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

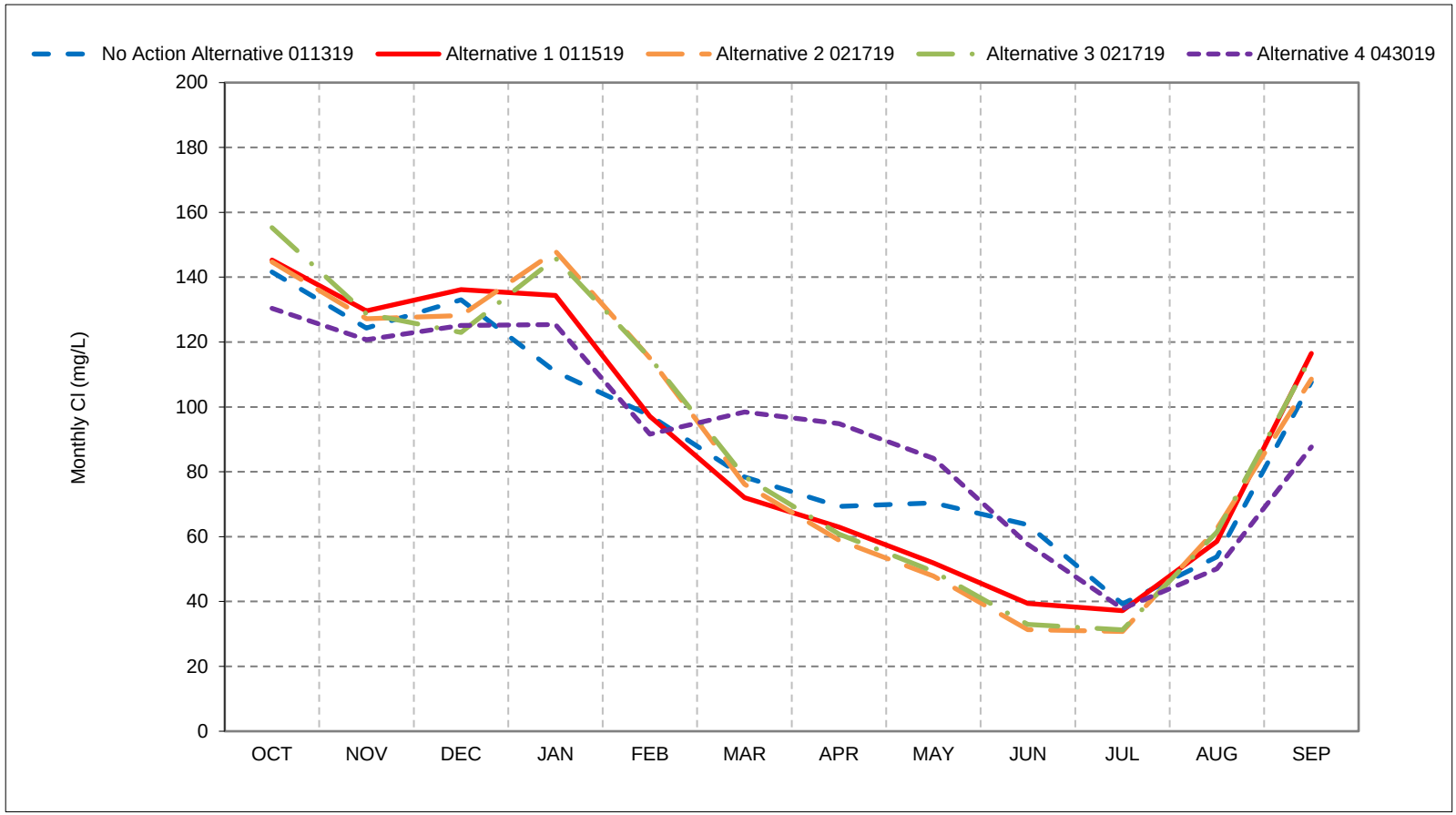
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-3. Banks Pumping Plant South Delta Exports Chloride, Above Normal Year Average Cl



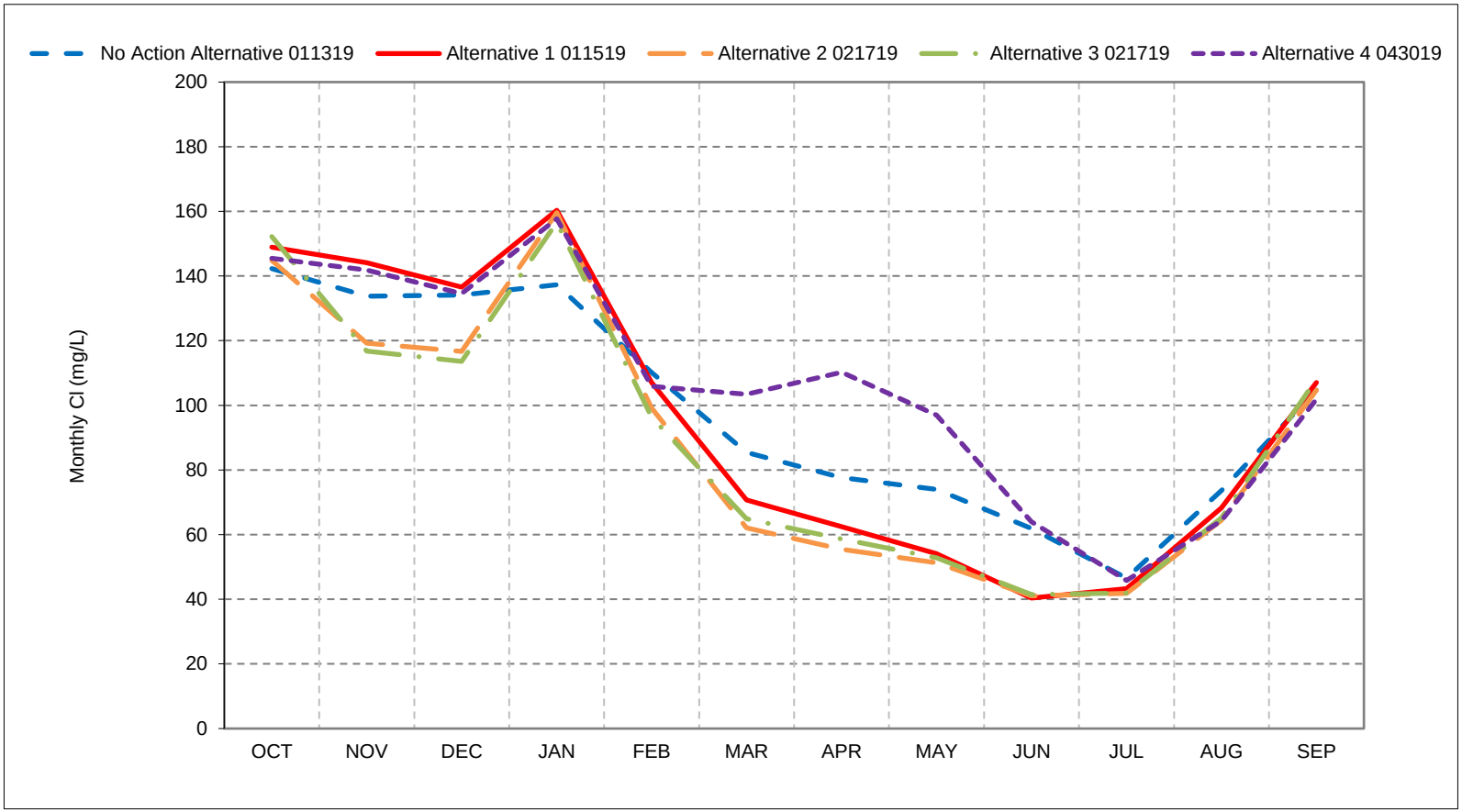
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-4. Banks Pumping Plant South Delta Exports Chloride, Below Normal Year Average Cl



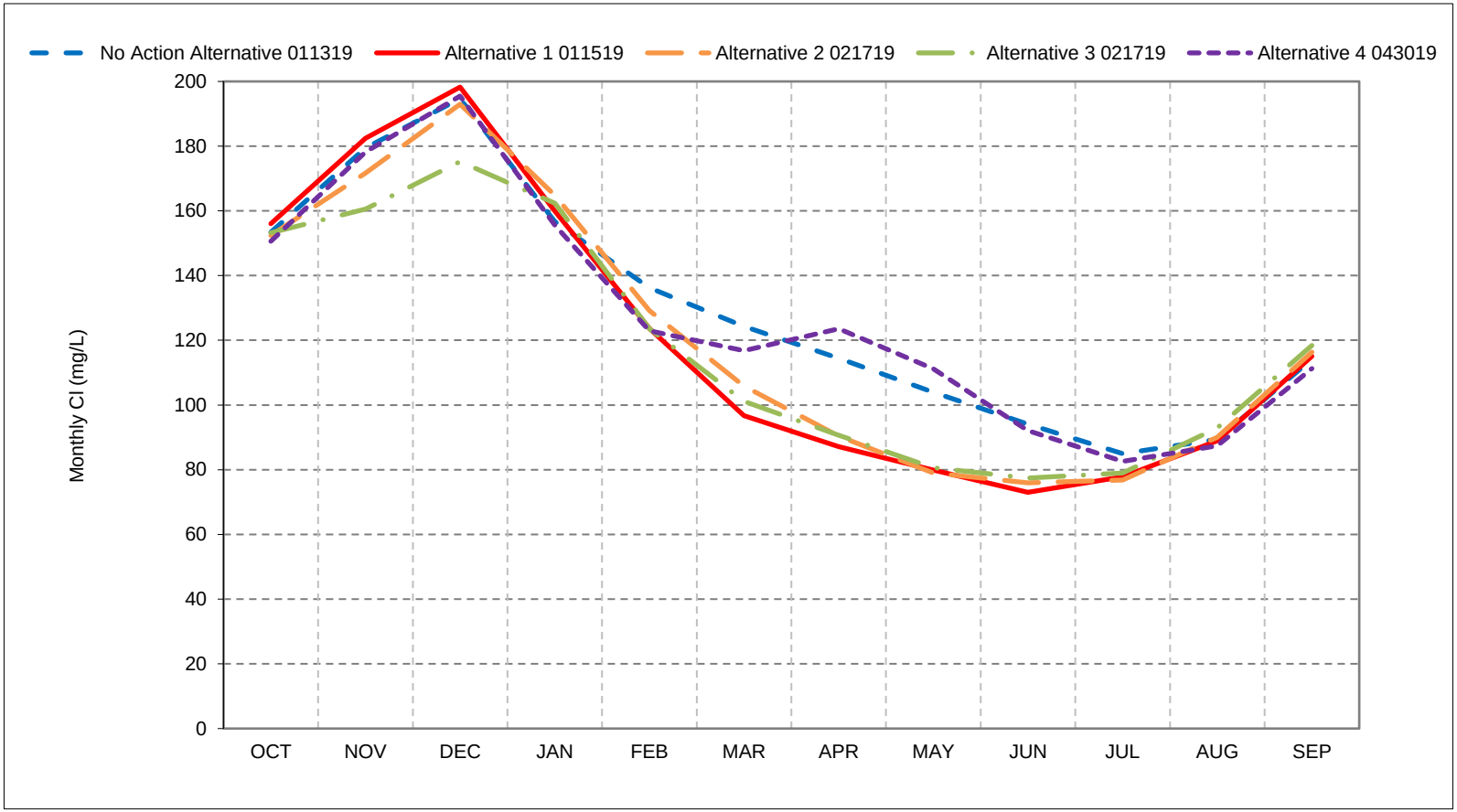
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-5. Banks Pumping Plant South Delta Exports Chloride, Dry Year Average Cl



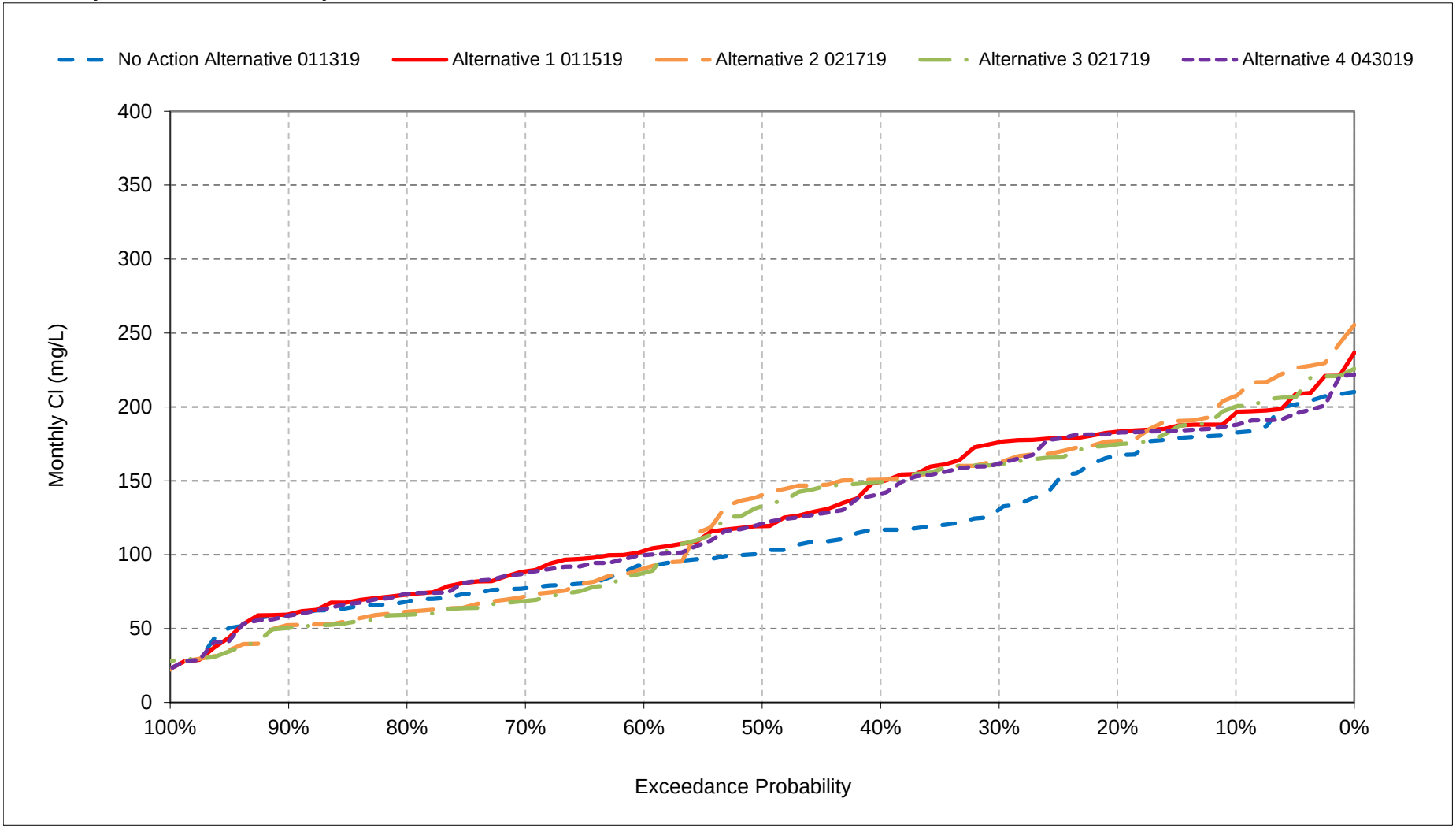
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-6. Banks Pumping Plant South Delta Exports Chloride, Critical Year Average Cl



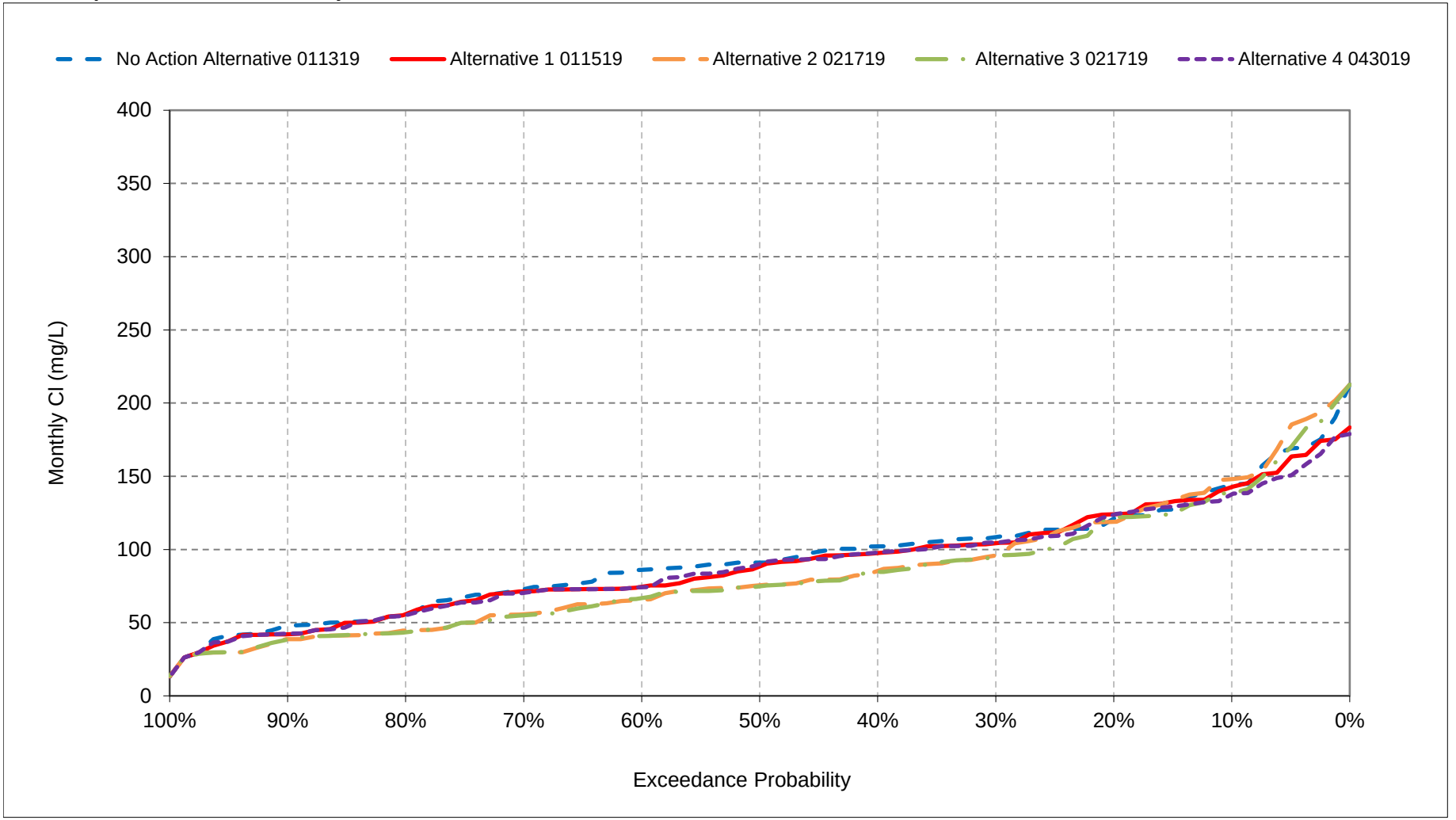
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-7. Banks Pumping Plant South
Delta Exports Chloride, January Cl



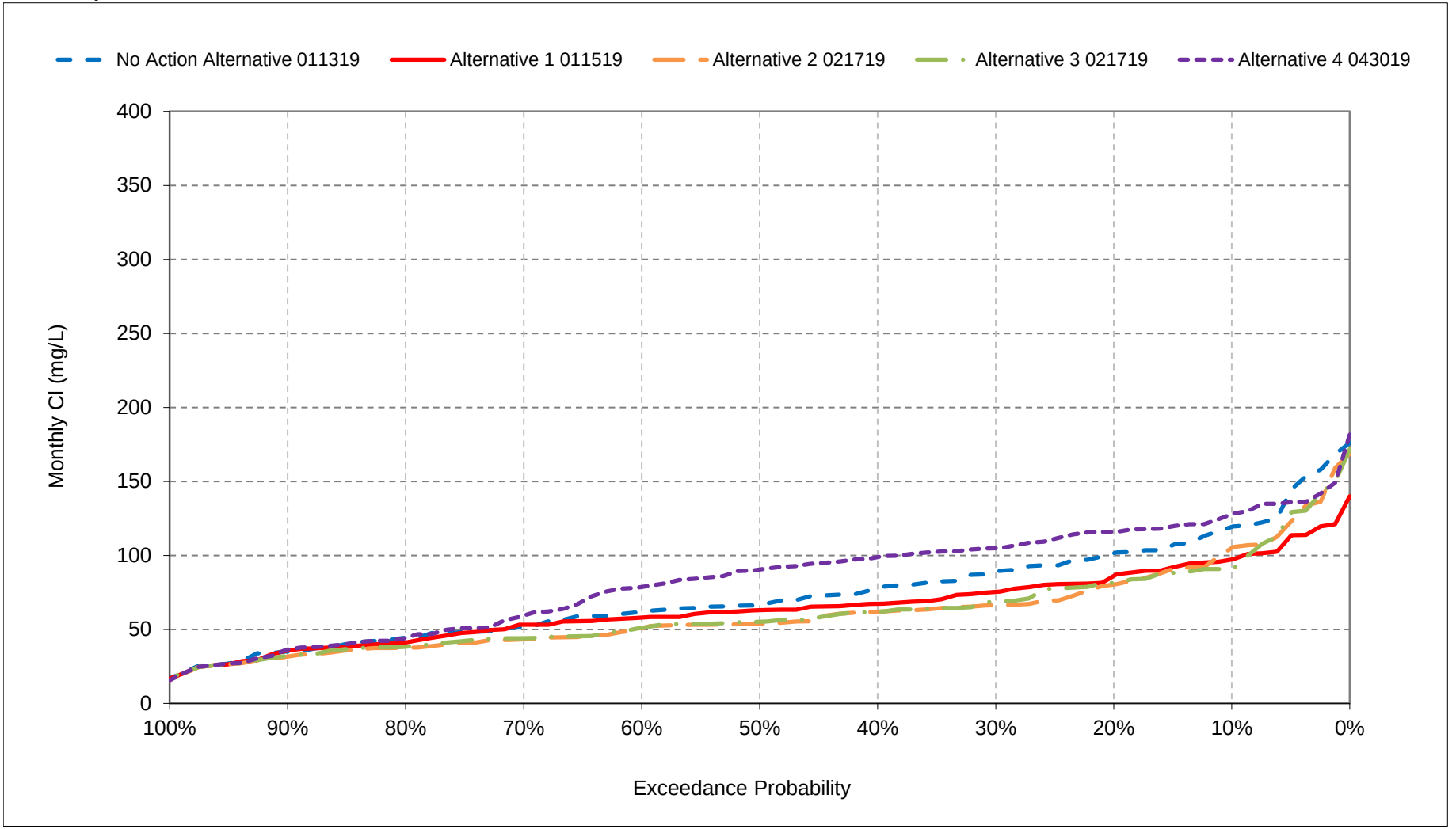
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-8. Banks Pumping Plant South
Delta Exports Chloride, February Cl



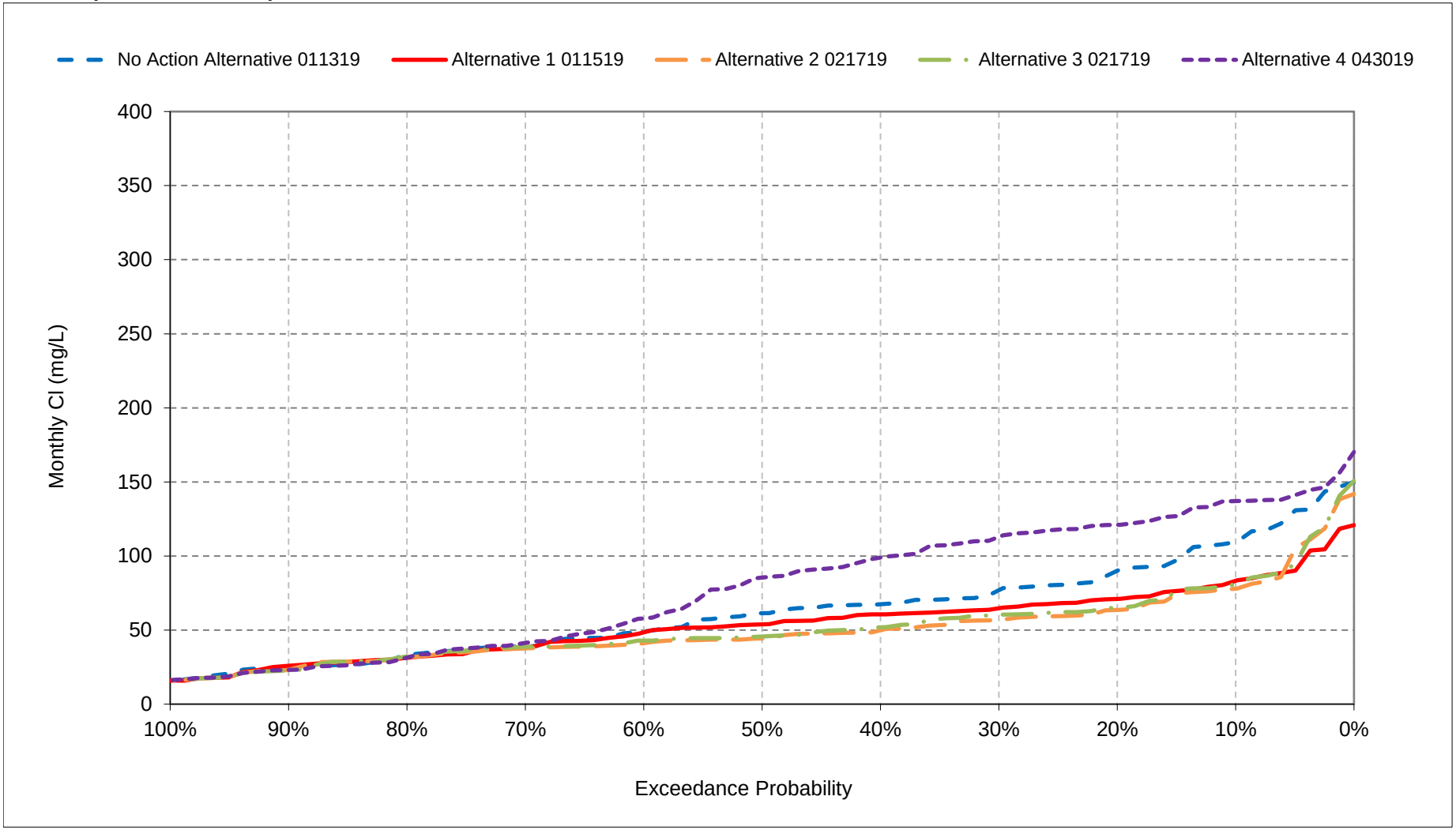
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-9. Banks Pumping Plant South
Delta Exports Chloride, March Cl



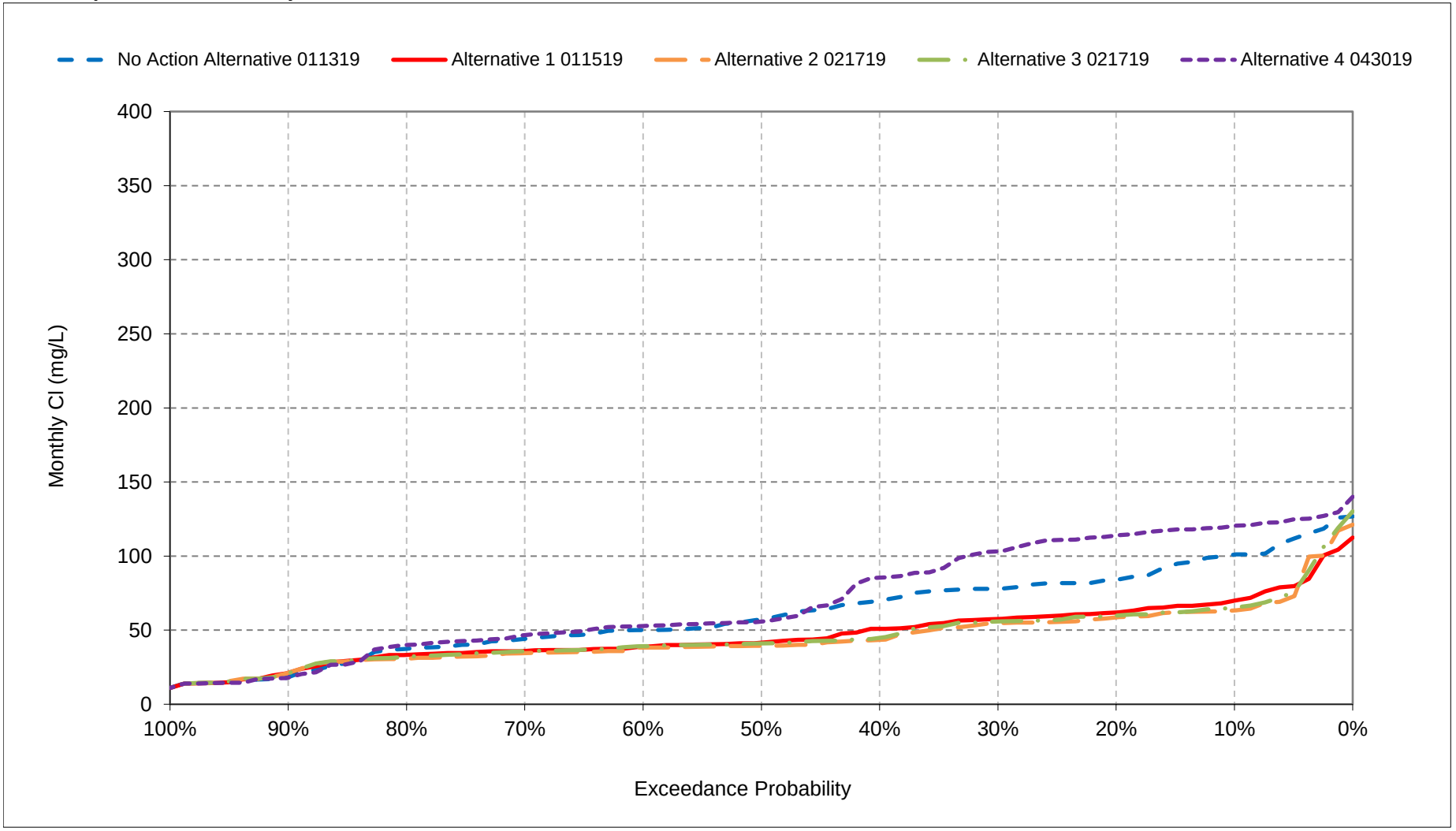
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-10. Banks Pumping Plant South
Delta Exports Chloride, April Cl



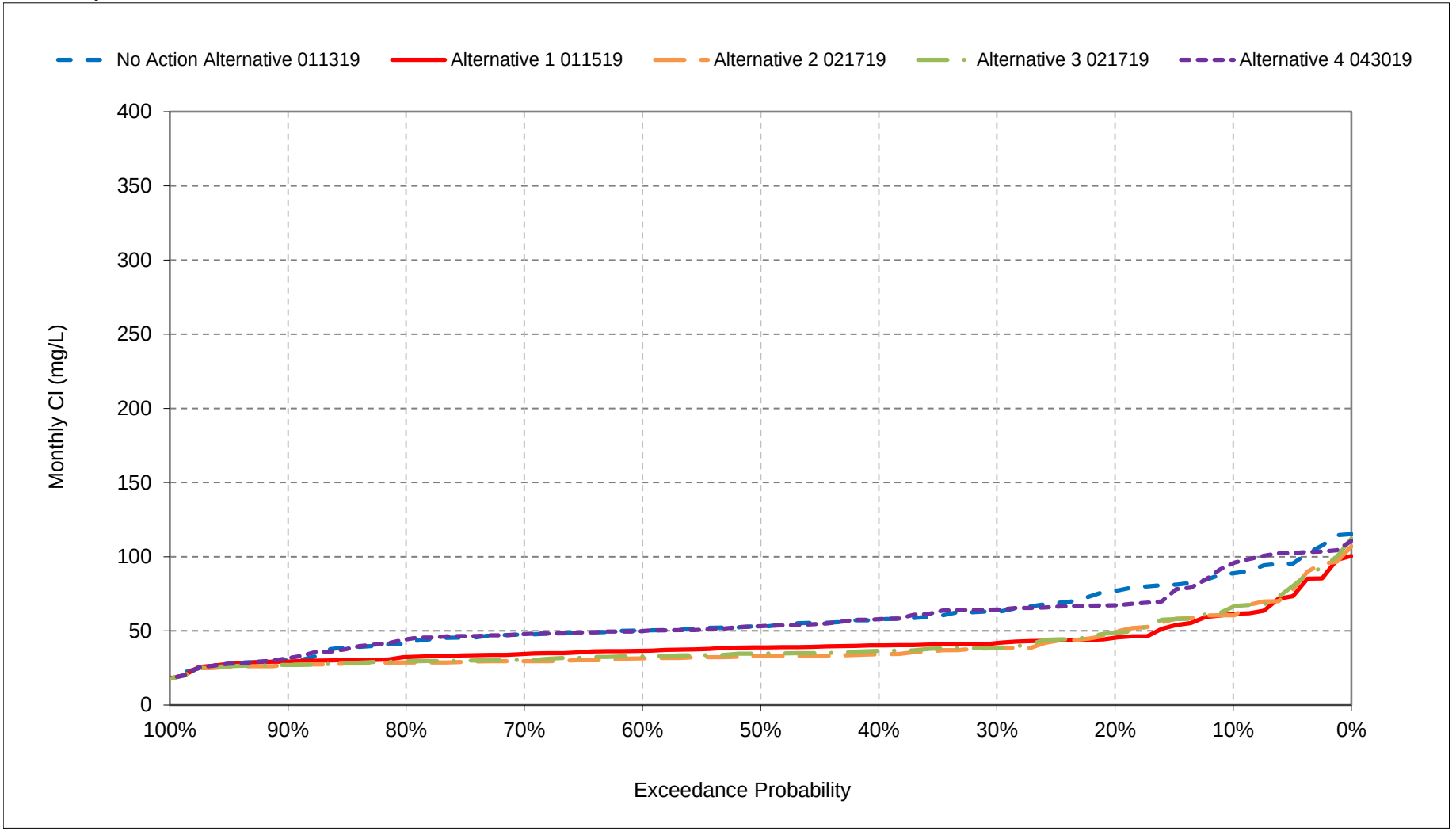
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-11. Banks Pumping Plant South
Delta Exports Chloride, May Cl



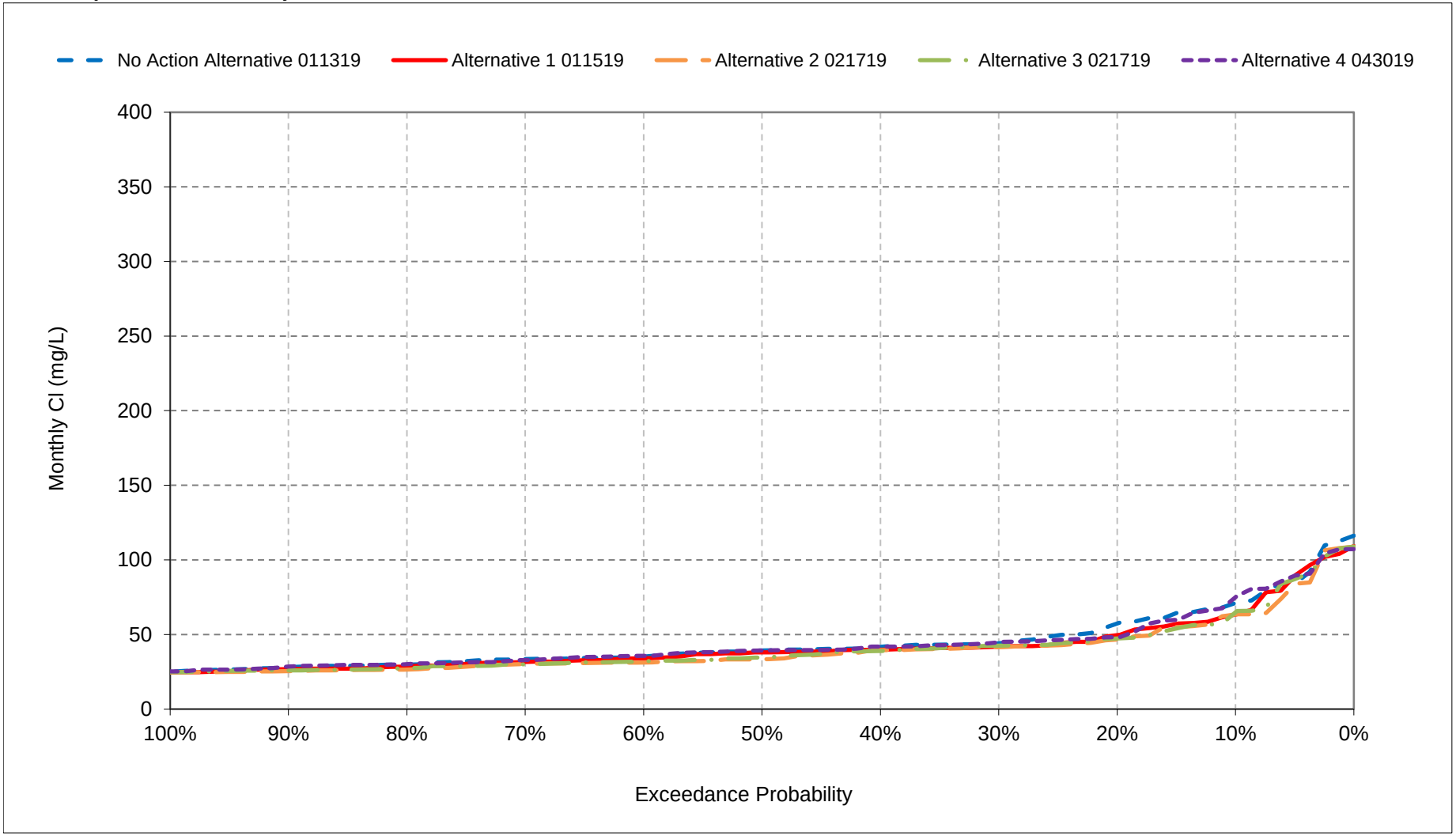
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-12. Banks Pumping Plant South
Delta Exports Chloride, June Cl



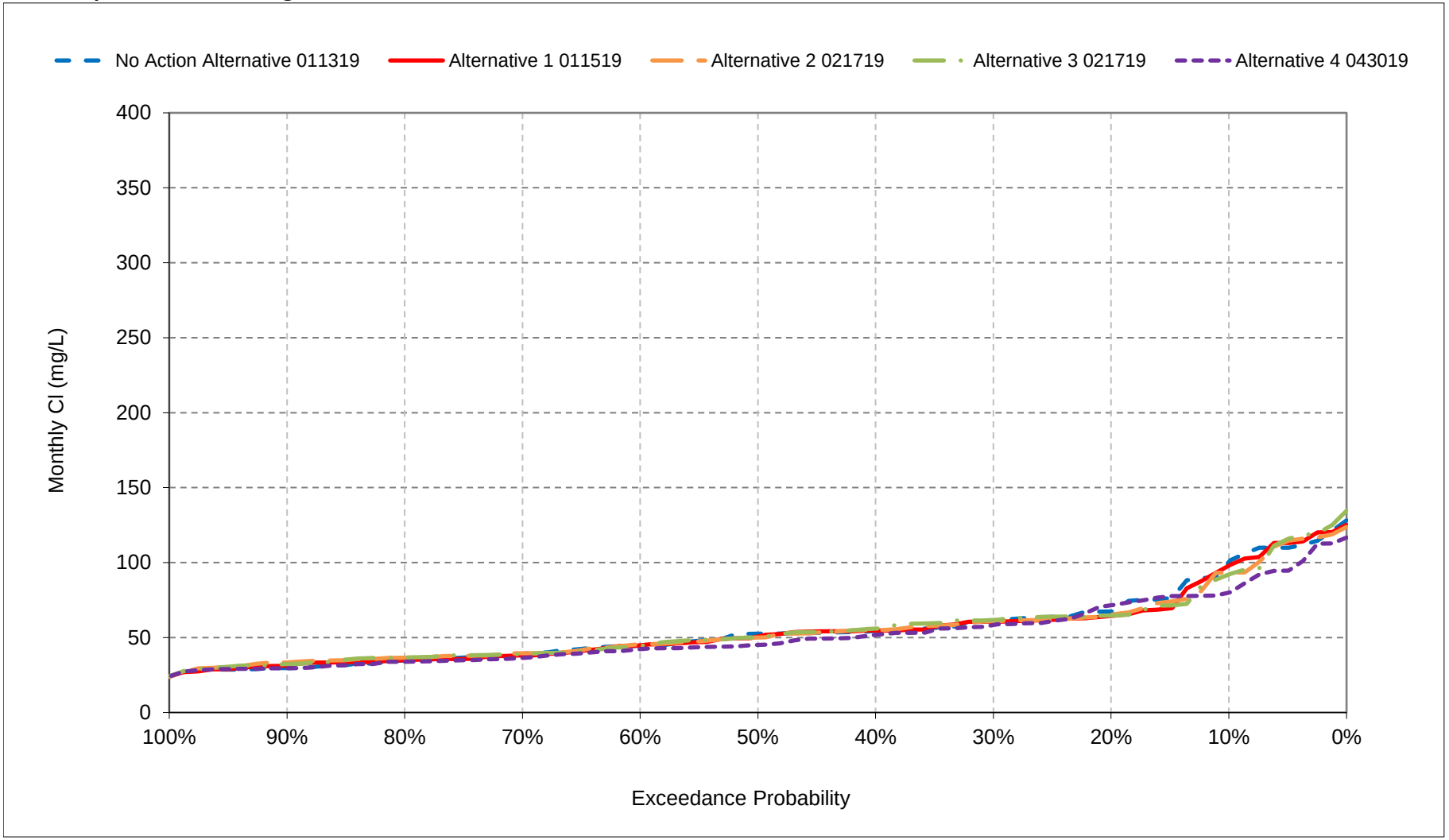
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-13. Banks Pumping Plant South
Delta Exports Chloride, July Cl



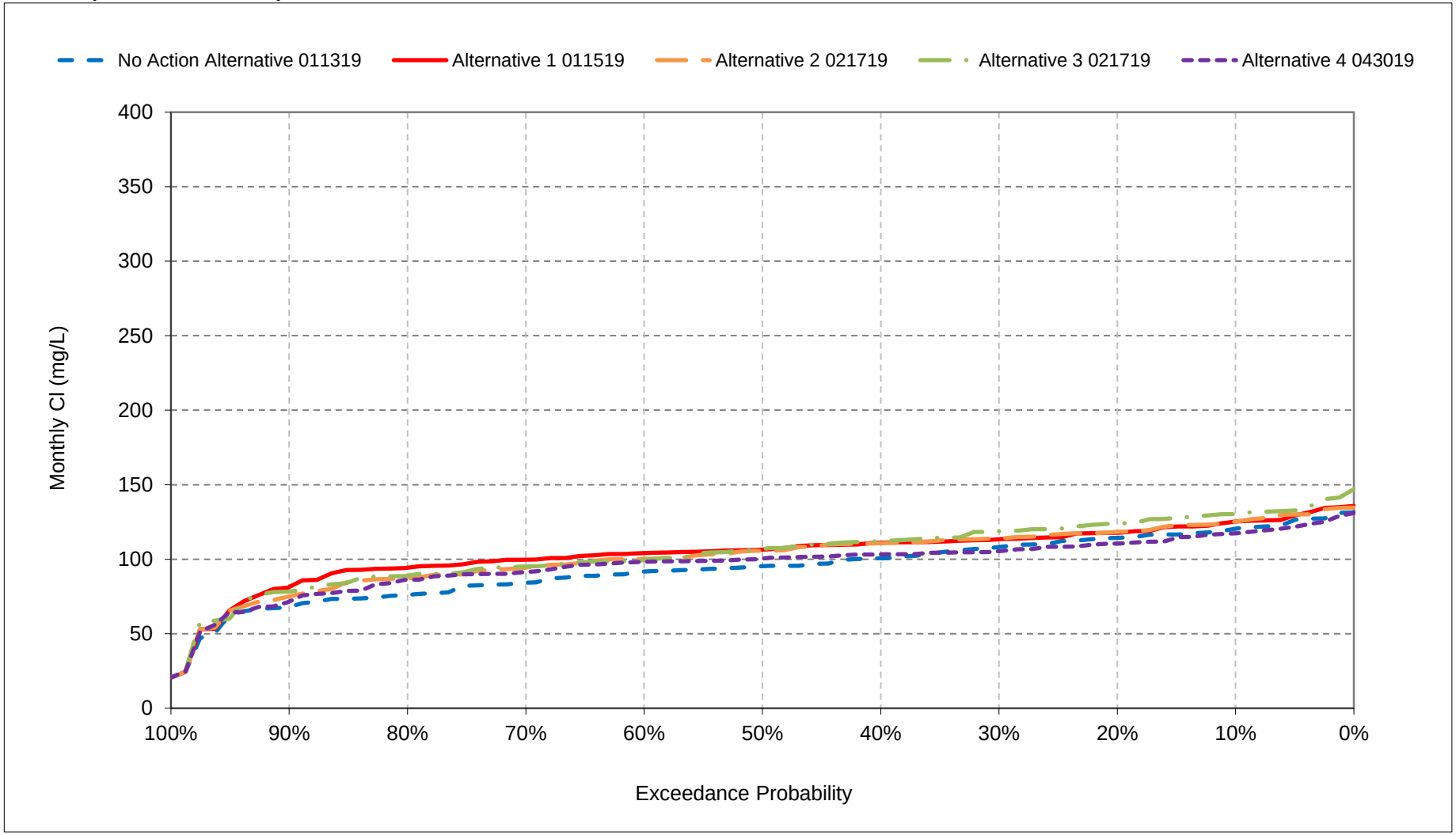
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-14. Banks Pumping Plant South
Delta Exports Chloride, August Cl



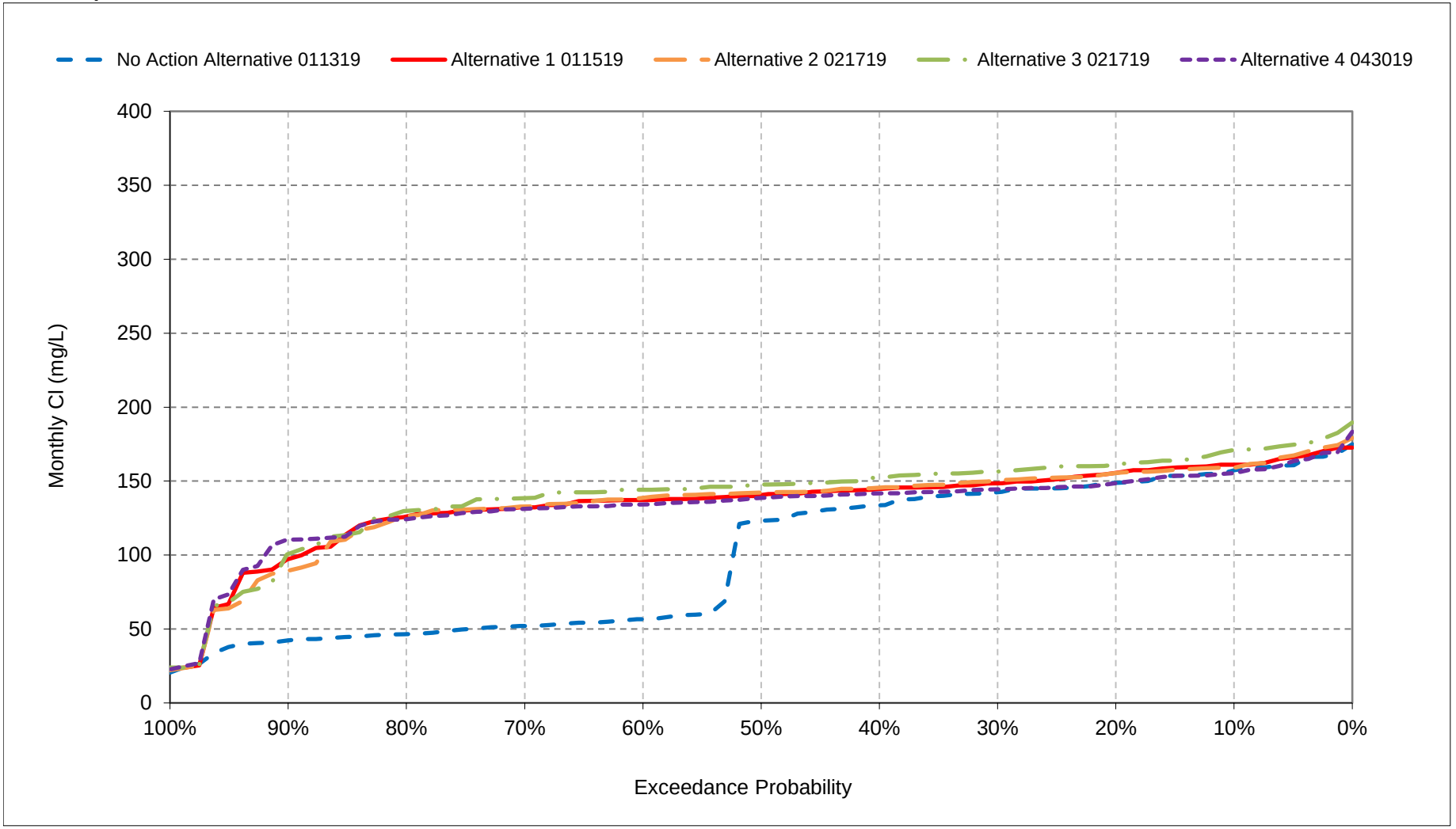
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-15. Banks Pumping Plant South
Delta Exports Chloride, September Cl



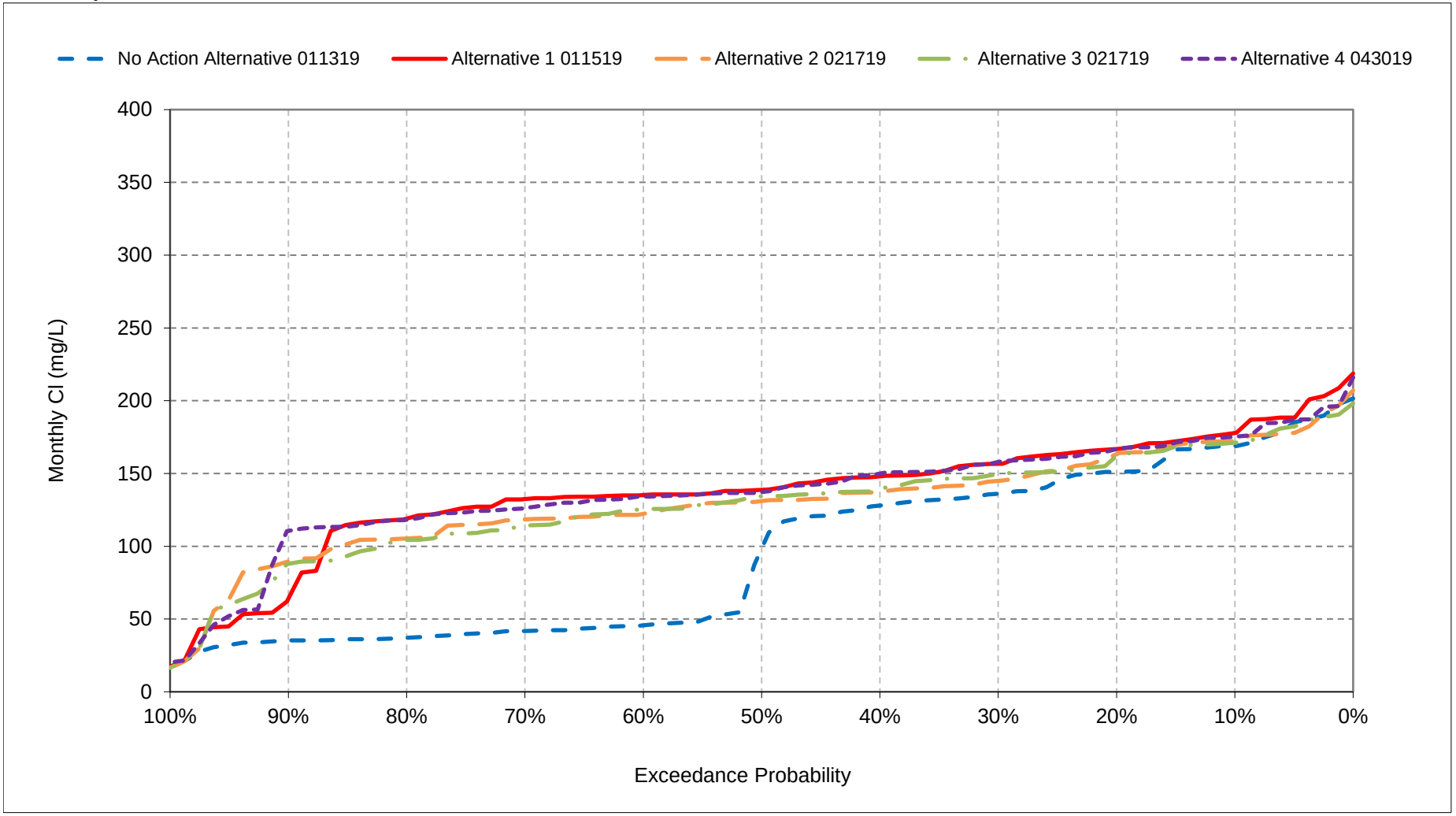
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-16. Banks Pumping Plant South
Delta Exports Chloride, October Cl



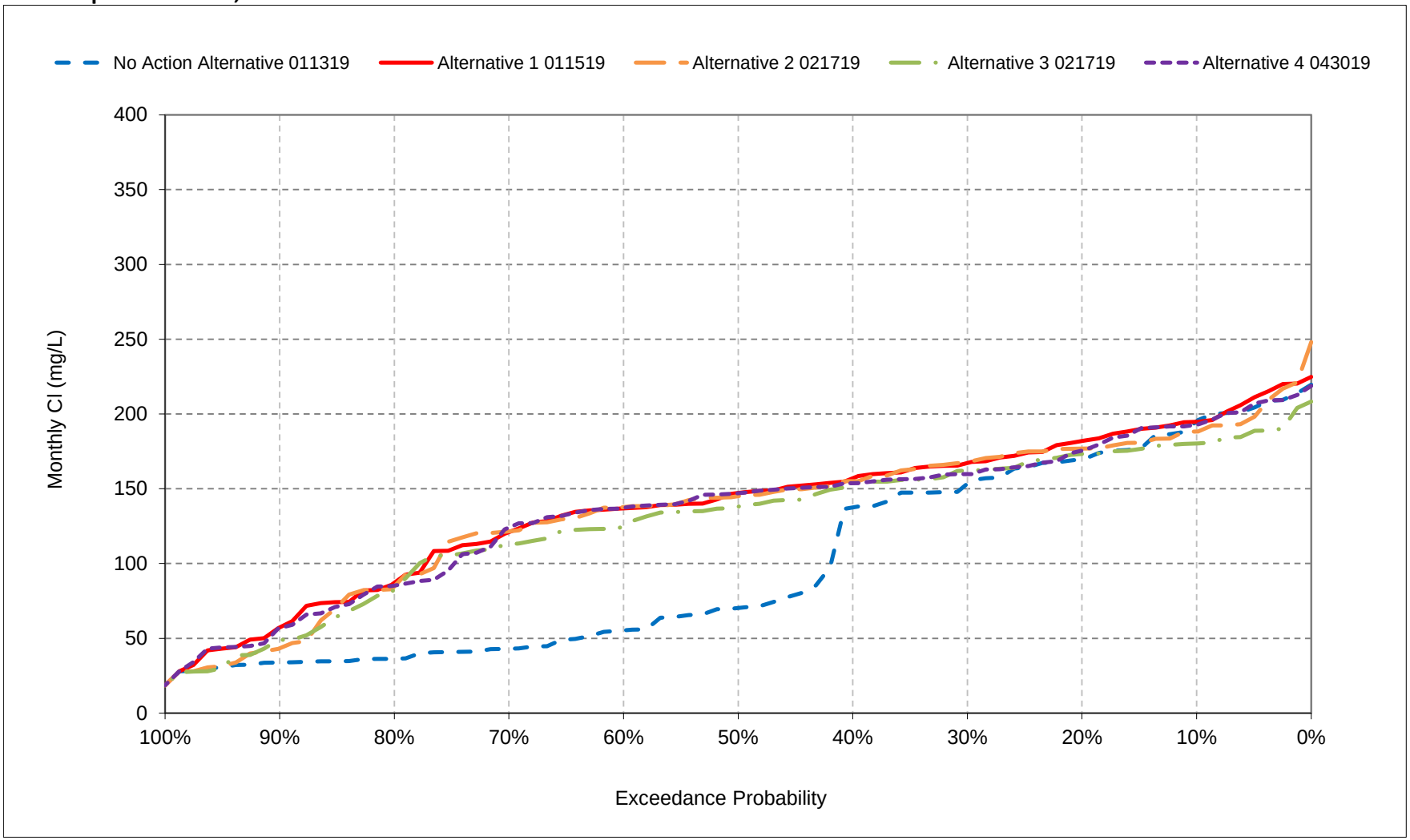
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-17. Banks Pumping Plant South
Delta Exports Chloride, November Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 21-18. Banks Pumping Plant South
Delta Exports Chloride, December Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 22-1. Jones Pumping Plant South Delta Exports Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	150	161	181	178	175	167	124	104	84	72	108	126
20%	142	147	167	168	150	133	103	99	72	64	79	120
30%	139	134	156	144	142	117	83	91	64	60	73	114
40%	131	124	147	136	133	107	74	77	61	57	68	106
50%	116	98	97	129	120	100	55	63	58	52	64	101
60%	62	63	88	120	103	74	44	57	58	50	55	95
70%	58	52	77	111	88	54	38	53	54	47	49	87
80%	55	48	72	97	66	40	30	40	51	45	47	79
90%	52	44	69	78	40	32	22	18	46	39	42	73
Long Term												
Full Simulation Period[a]	100	97	117	127	114	94	65	67	61	56	66	98
Water Year Types[b]												
Wet (32%)	54	47	68	96	67	47	30	37	50	50	47	82
Above Normal (16%)	55	60	93	124	110	78	50	57	58	50	50	76
Below Normal (13%)	132	120	141	128	123	99	65	73	64	49	66	112
Dry (24%)	136	130	141	147	139	118	86	84	62	56	84	111
Critical (15%)	155	171	185	163	169	168	126	107	82	80	97	125

Alternative 1 011519

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	150	167	184	180	160	131	117	94	69	77	104	130
20%	143	153	172	175	144	116	100	83	61	65	78	123
30%	139	144	164	169	133	105	86	75	55	60	72	116
40%	133	137	159	154	123	102	65	62	50	55	69	114
50%	128	131	152	136	113	97	49	50	48	52	64	111
60%	123	127	145	124	102	82	42	46	47	50	55	108
70%	118	122	127	112	85	52	36	44	45	46	50	106
80%	108	110	107	97	64	40	28	36	40	44	48	99
90%	88	73	86	79	39	31	22	18	35	37	43	85
Long Term												
Full Simulation Period[a]	123	127	141	134	107	85	63	57	51	56	66	108
Water Year Types[b]												
Wet (32%)	96	108	119	97	66	47	28	31	46	50	47	88
Above Normal (16%)	123	121	143	134	106	77	45	46	49	48	51	110
Below Normal (13%)	129	123	143	140	117	93	67	64	46	50	70	118
Dry (24%)	138	134	142	158	129	103	83	70	48	56	80	114
Critical (15%)	150	167	186	164	150	143	118	97	72	83	98	127

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	**6**	**3**	**2**	-15	-37	-8	-10	-15	**5**	-4	**4**
20%	**1**	**7**	**5**	**7**	-7	-18	-3	-17	-11	**1**	-1	**3**
30%	0	**10**	**8**	**25**	-9	-13	**3**	-16	-10	**0**	-1	**2**
40%	**3**	**13**	**12**	**18**	-10	-6	-9	-14	-11	-2	**1**	**8**
50%	**13**	**33**	**55**	**7**	-8	-2	-6	-13	-10	-1	**1**	**10**
60%	**60**	**64**	**57**	**4**	-1	**7**	-2	-11	-11	0	0	**13**
70%	**59**	**70**	**50**	**2**	-3	-1	-2	-9	-9	-1	**0**	**19**
80%	**54**	**62**	**35**	**1**	-2	0	-2	-4	-11	-1	**1**	**20**
90%	**37**	**29**	**16**	**0**	-2	-1	0	0	-11	-2	**1**	**13**
Long Term												
Full Simulation Period[a]	**23**	**30**	**25**	**6**	-7	-8	-3	-9	-10	**0**	**0**	**9**
Water Year Types[b]												
Wet (32%)	**42**	**61**	**50**	**1**	-1	**0**	-1	-5	-4	**1**	0	**7**
Above Normal (16%)	**68**	**61**	**50**	**11**	-5	-2	-6	-11	-9	-1	**1**	**34**
Below Normal (13%)	-3	**3**	**2**	**12**	-6	-6	**3**	-9	-18	**1**	**4**	**6**
Dry (24%)	**1**	**4**	**1**	**11**	-11	-15	-3	-14	-14	-1	-4	**3**
Critical (15%)	-4	-4	**1**	**1**	-18	-26	-7	-9	-10	**2**	**2**	**2**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 22-2. Jones Pumping Plant South Delta Exports Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	150	161	181	178	175	167	124	104	84	72	108	126
20%	142	147	167	168	150	133	103	99	72	64	79	120
30%	139	134	156	144	142	117	83	91	64	60	73	114
40%	131	124	147	136	133	107	74	77	61	57	68	106
50%	116	98	97	129	120	100	55	63	58	52	64	101
60%	62	63	88	120	103	74	44	57	58	50	55	95
70%	58	52	77	111	88	54	38	53	54	47	49	87
80%	55	48	72	97	66	40	30	40	51	45	47	79
90%	52	44	69	78	40	32	22	18	46	39	42	73
Long Term												
Full Simulation Period[a]	100	97	117	127	114	94	65	67	61	56	66	98
Water Year Types[b]												
Wet (32%)	54	47	68	96	67	47	30	37	50	50	47	82
Above Normal (16%)	55	60	93	124	110	78	50	57	58	50	50	76
Below Normal (13%)	132	120	141	128	123	99	65	73	64	49	66	112
Dry (24%)	136	130	141	147	139	118	86	84	62	56	84	111
Critical (15%)	155	171	185	163	169	168	126	107	82	80	97	125

Alternative 2 021719

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	158	168	184	196	165	139	104	77	66	77	100	131
20%	152	156	174	174	148	114	89	67	60	63	78	122
30%	147	142	169	163	127	100	75	63	55	56	72	118
40%	144	131	156	157	114	91	59	55	51	52	69	114
50%	140	128	151	145	103	83	52	49	46	49	64	110
60%	137	121	147	116	89	72	45	46	43	45	58	107
70%	132	114	134	97	77	55	40	41	39	42	51	103
80%	123	106	101	80	58	39	29	37	36	38	48	96
90%	88	90	75	72	35	32	23	18	30	33	43	73
Long Term												
Full Simulation Period[a]	133	127	141	132	102	84	59	51	49	53	66	106
Water Year Types[b]												
Wet (32%)	104	108	124	88	56	45	30	31	42	47	46	85
Above Normal (16%)	145	138	151	128	93	67	45	44	43	42	54	115
Below Normal (13%)	141	124	138	152	123	93	68	57	42	44	72	112
Dry (24%)	143	119	130	159	125	99	74	61	50	54	77	112
Critical (15%)	158	169	188	169	158	150	107	81	75	81	100	125

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**8**	**7**	**3**	**18**	-10	-29	-21	-28	-18	**5**	-8	**5**
20%	**10**	**9**	**7**	**6**	-2	-19	-14	-32	-12	-1	-1	**2**
30%	**8**	**8**	**13**	**20**	-15	-17	-8	-27	-10	-4	0	**4**
40%	**14**	**7**	**9**	**22**	-19	-17	-15	-22	-10	-6	**1**	**8**
50%	**25**	**30**	**55**	**16**	-17	-17	-2	-14	-12	-3	**0**	**9**
60%	**75**	**59**	**59**	-3	-14	-3	**1**	-11	-15	-4	**2**	**12**
70%	**74**	**62**	**57**	-14	-11	**1**	**2**	-12	-14	-5	**2**	**17**
80%	**69**	**58**	**28**	-17	-8	-1	-1	-3	-15	-6	**1**	**17**
90%	**37**	**46**	**6**	-6	-6	**0**	**1**	**0**	-16	-5	**0**	0
Long Term												
Full Simulation Period[a]	**33**	**29**	**24**	**5**	-11	-10	-6	-15	-12	-3	0	**7**
Water Year Types[b]												
Wet (32%)	**50**	**61**	**56**	-8	-10	-1	**0**	-6	-7	-2	-1	**3**
Above Normal (16%)	**89**	**78**	**58**	**4**	-18	-11	-5	-13	-15	-8	**4**	**38**
Below Normal (13%)	**9**	**4**	-3	**24**	0	-6	**3**	-15	-22	-5	**7**	**0**
Dry (24%)	**7**	-11	-10	**12**	-15	-19	-12	-23	-13	-2	-7	**1**
Critical (15%)	**3**	-2	**3**	**5**	-11	-18	-19	-26	-7	**1**	**3**	**1**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 22-3. Jones Pumping Plant South Delta Exports Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	150	161	181	178	175	167	124	104	84	72	108	126
20%	142	147	167	168	150	133	103	99	72	64	79	120
30%	139	134	156	144	142	117	83	91	64	60	73	114
40%	131	124	147	136	133	107	74	77	61	57	68	106
50%	116	98	97	129	120	100	55	63	58	52	64	101
60%	62	63	88	120	103	74	44	57	58	50	55	95
70%	58	52	77	111	88	54	38	53	54	47	49	87
80%	55	48	72	97	66	40	30	40	51	45	47	79
90%	52	44	69	78	40	32	22	18	46	39	42	73
Long Term												
Full Simulation Period[a]	100	97	117	127	114	94	65	67	61	56	66	98
Water Year Types[b]												
Wet (32%)	54	47	68	96	67	47	30	37	50	50	47	82
Above Normal (16%)	55	60	93	124	110	78	50	57	58	50	50	76
Below Normal (13%)	132	120	141	128	123	99	65	73	64	49	66	112
Dry (24%)	136	130	141	147	139	118	86	84	62	56	84	111
Critical (15%)	155	171	185	163	169	168	126	107	82	80	97	125

Alternative 3 021719

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	165	167	177	192	156	135	105	78	66	74	98	132
20%	156	154	174	166	143	119	90	68	60	62	79	129
30%	151	142	163	161	125	103	76	64	55	58	74	124
40%	148	135	153	156	114	92	60	55	51	52	70	116
50%	144	126	146	142	104	83	52	50	47	49	64	111
60%	141	122	141	121	89	73	45	47	44	46	55	107
70%	137	113	123	95	78	56	40	42	41	43	51	102
80%	127	102	100	81	58	39	30	37	36	38	46	94
90%	99	84	81	72	35	32	23	18	30	33	43	75
Long Term												
Full Simulation Period[a]	137	125	137	130	101	85	60	52	50	53	66	108
Water Year Types[b]												
Wet (32%)	110	111	119	88	57	46	30	32	43	47	46	87
Above Normal (16%)	145	138	148	120	91	68	45	45	44	43	52	114
Below Normal (13%)	149	125	135	151	124	94	68	58	43	44	71	119
Dry (24%)	148	116	129	158	124	103	76	62	50	54	78	115
Critical (15%)	158	157	176	168	153	147	109	83	75	84	103	127

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**15**	**7**	-4	**14**	-19	-32	-19	-27	-17	**1**	-10	**6**
20%	**14**	**7**	**6**	-1	-7	-14	-13	-31	-12	-1	**0**	**9**
30%	**12**	**8**	**7**	**18**	-17	-15	-7	-27	-10	-3	**1**	**11**
40%	**18**	**11**	**6**	**21**	-20	-16	-14	-22	-10	-5	**2**	**10**
50%	**29**	**28**	**50**	**13**	-16	-16	-3	-13	-11	-4	0	**11**
60%	**79**	**59**	**52**	**1**	-13	-2	**1**	-10	-14	-3	0	**12**
70%	**79**	**61**	**46**	-15	-10	**3**	**2**	-11	-13	-4	**2**	**15**
80%	**72**	**54**	**28**	-16	-8	-1	**0**	-2	-14	-7	-1	**15**
90%	**47**	**40**	**12**	-6	-6	**0**	**1**	**0**	-16	-5	**1**	**2**
Long Term												
Full Simulation Period[a]	**38**	**28**	**20**	**3**	-12	-9	-5	-14	-11	-2	**0**	**10**
Water Year Types[b]												
Wet (32%)	**56**	**64**	**51**	-8	-10	-1	**1**	-5	-7	-2	-1	**5**
Above Normal (16%)	**89**	**78**	**55**	-4	-20	-10	-5	-12	-14	-6	**2**	**38**
Below Normal (13%)	**17**	**5**	-6	**23**	**0**	-4	**3**	-15	-20	-5	**6**	**7**
Dry (24%)	**12**	-14	-12	**11**	-16	-15	-10	-22	-13	-3	-6	**4**
Critical (15%)	**3**	-15	-9	**4**	-16	-21	-17	-24	-7	**4**	**6**	**2**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 22-4. Jones Pumping Plant South Delta Exports Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	150	161	181	178	175	167	124	104	84	72	108	126
20%	142	147	167	168	150	133	103	99	72	64	79	120
30%	139	134	156	144	142	117	83	91	64	60	73	114
40%	131	124	147	136	133	107	74	77	61	57	68	106
50%	116	98	97	129	120	100	55	63	58	52	64	101
60%	62	63	88	120	103	74	44	57	58	50	55	95
70%	58	52	77	111	88	54	38	53	54	47	49	87
80%	55	48	72	97	66	40	30	40	51	45	47	79
90%	52	44	69	78	40	32	22	18	46	39	42	73
Long Term												
Full Simulation Period[a]	100	97	117	127	114	94	65	67	61	56	66	98
Water Year Types[b]												
Wet (32%)	54	47	68	96	67	47	30	37	50	50	47	82
Above Normal (16%)	55	60	93	124	110	78	50	57	58	50	50	76
Below Normal (13%)	132	120	141	128	123	99	65	73	64	49	66	112
Dry (24%)	136	130	141	147	139	118	86	84	62	56	84	111
Critical (15%)	155	171	185	163	169	168	126	107	82	80	97	125

Alternative 4 043019

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	155	167	183	180	159	188	139	123	76	79	91	126
20%	143	157	168	173	148	180	119	120	66	64	75	117
30%	140	149	162	161	135	170	98	107	61	60	69	112
40%	136	141	156	149	127	156	72	83	59	55	67	108
50%	132	133	152	135	113	136	49	61	57	52	61	107
60%	128	129	146	123	101	94	41	56	55	50	53	104
70%	125	121	119	112	86	55	38	52	51	47	49	101
80%	112	113	104	98	64	39	29	38	49	44	46	92
90%	98	104	84	79	43	30	22	18	41	38	42	80
Long Term												
Full Simulation Period[a]	127	131	140	131	108	116	69	73	58	56	63	103
Water Year Types[b]												
Wet (32%)	104	117	118	97	67	53	29	37	49	51	46	89
Above Normal (16%)	131	126	142	131	107	100	46	55	56	50	49	107
Below Normal (13%)	124	117	137	134	114	127	73	84	57	51	63	96
Dry (24%)	140	135	141	157	130	157	98	98	58	54	77	111
Critical (15%)	154	171	185	161	154	187	130	117	78	79	95	123

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**5**	**7**	**2**	**2**	-16	**20**	**15**	**19**	-8	**7**	-16	-1
20%	**1**	**10**	**1**	**5**	-3	**47**	**16**	**20**	-6	0	-3	-3
30%	**1**	**16**	**6**	**17**	-7	**53**	**15**	**16**	-3	-1	-4	-2
40%	**5**	**17**	**10**	**14**	-6	**48**	-2	**6**	-2	-2	-1	**2**
50%	**16**	**35**	**55**	**6**	-7	**37**	-6	-2	-1	-1	-3	**6**
60%	**66**	**66**	**58**	**4**	-2	**20**	-3	-1	-3	**0**	-2	**9**
70%	**67**	**69**	**42**	**1**	-3	**2**	0	-1	-3	**1**	-1	**14**
80%	**58**	**65**	**32**	**1**	-2	-1	-1	-2	-2	-1	-1	**14**
90%	**46**	**60**	**15**	**0**	**2**	-2	0	0	-5	-1	0	**7**
Long Term												
Full Simulation Period[a]	**28**	**34**	**23**	**4**	-6	**22**	**4**	**6**	-3	**0**	-3	**5**
Water Year Types[b]												
Wet (32%)	**50**	**70**	**50**	**1**	**0**	**7**	-1	**0**	-1	**1**	-1	**7**
Above Normal (16%)	**76**	**66**	**48**	**7**	-3	**22**	-4	-2	-2	**0**	-1	**31**
Below Normal (13%)	-8	-3	-4	**6**	-9	**29**	**8**	**11**	-7	**2**	-3	-16
Dry (24%)	**4**	**5**	0	**10**	-9	**39**	**12**	**14**	-5	-2	-7	0
Critical (15%)	-1	0	0	-3	-15	**19**	**5**	**10**	-4	-1	-2	-1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

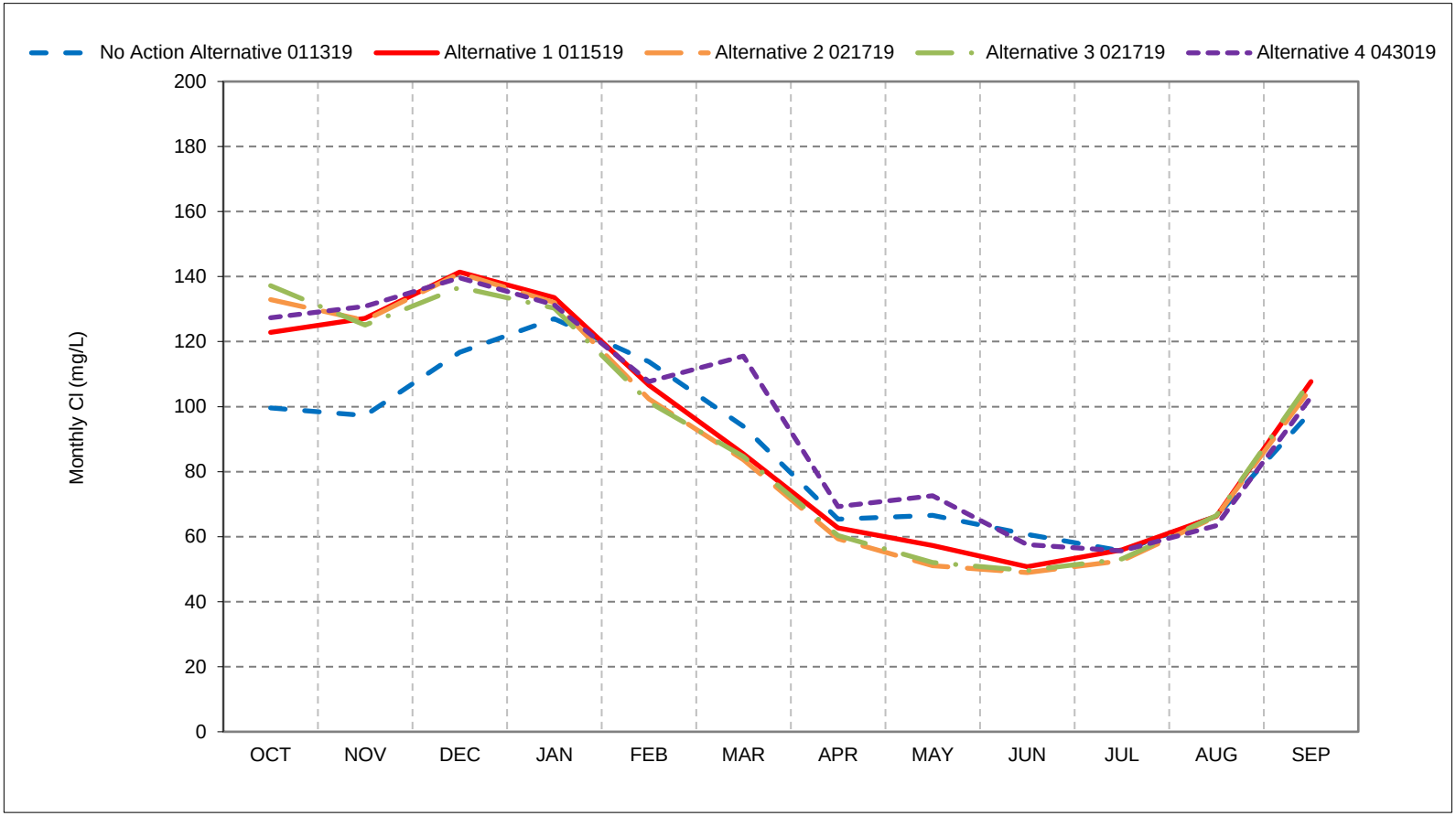
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

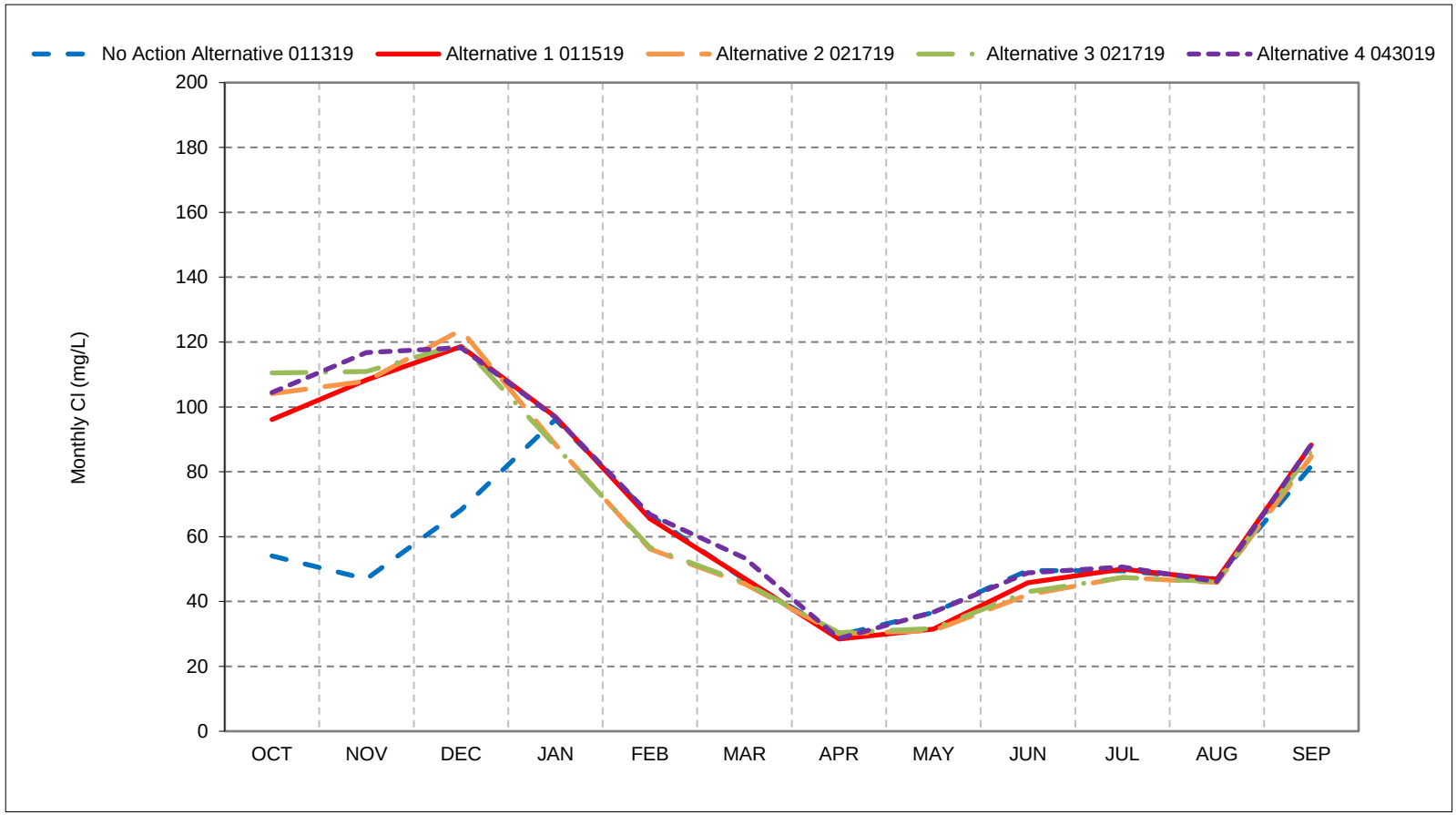
f These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-1. Jones Pumping Plant South Delta Exports Chloride, Long-Term Average Cl



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-2. Jones Pumping Plant South Delta Exports Chloride, Wet Year Average Cl



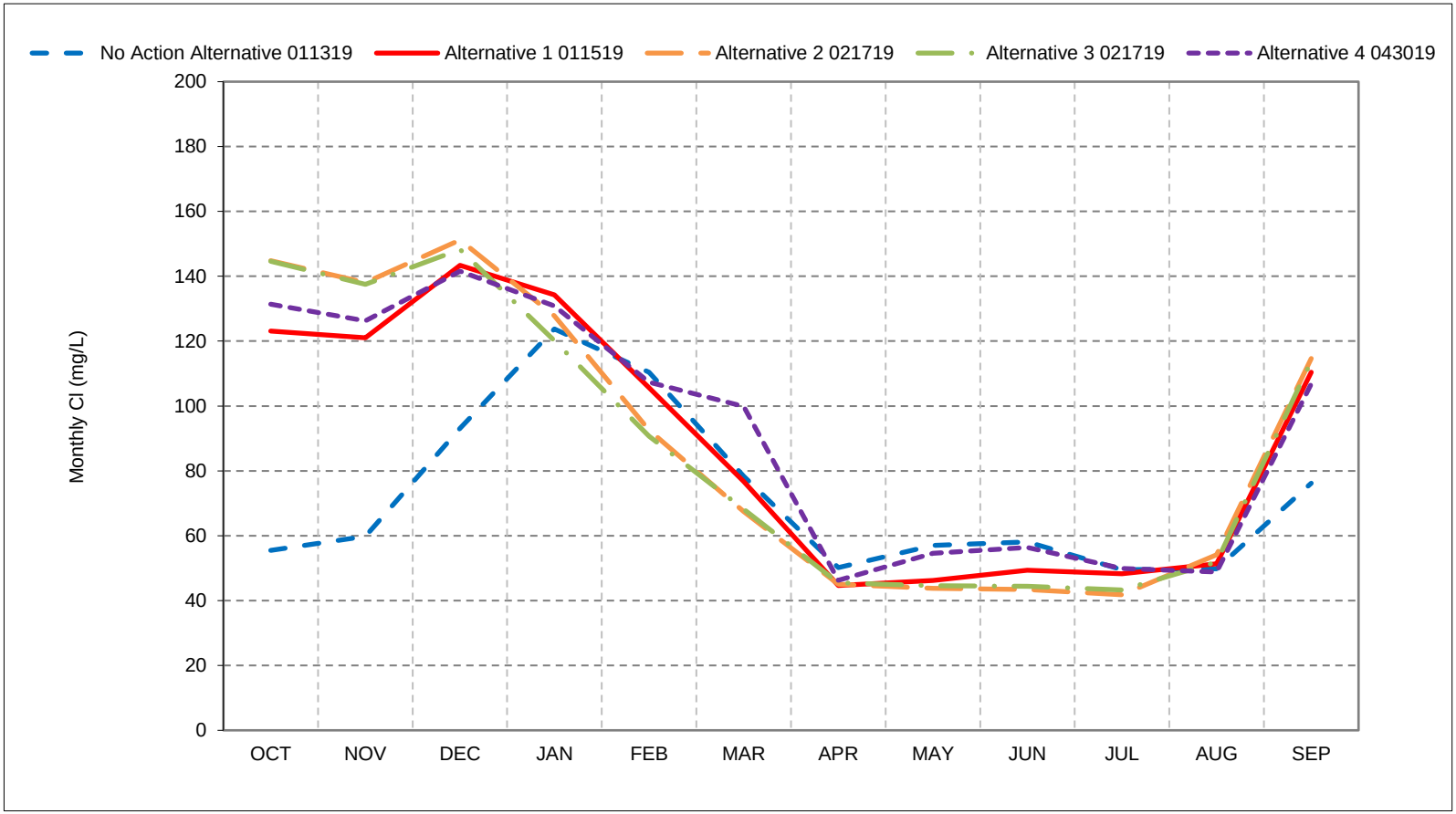
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

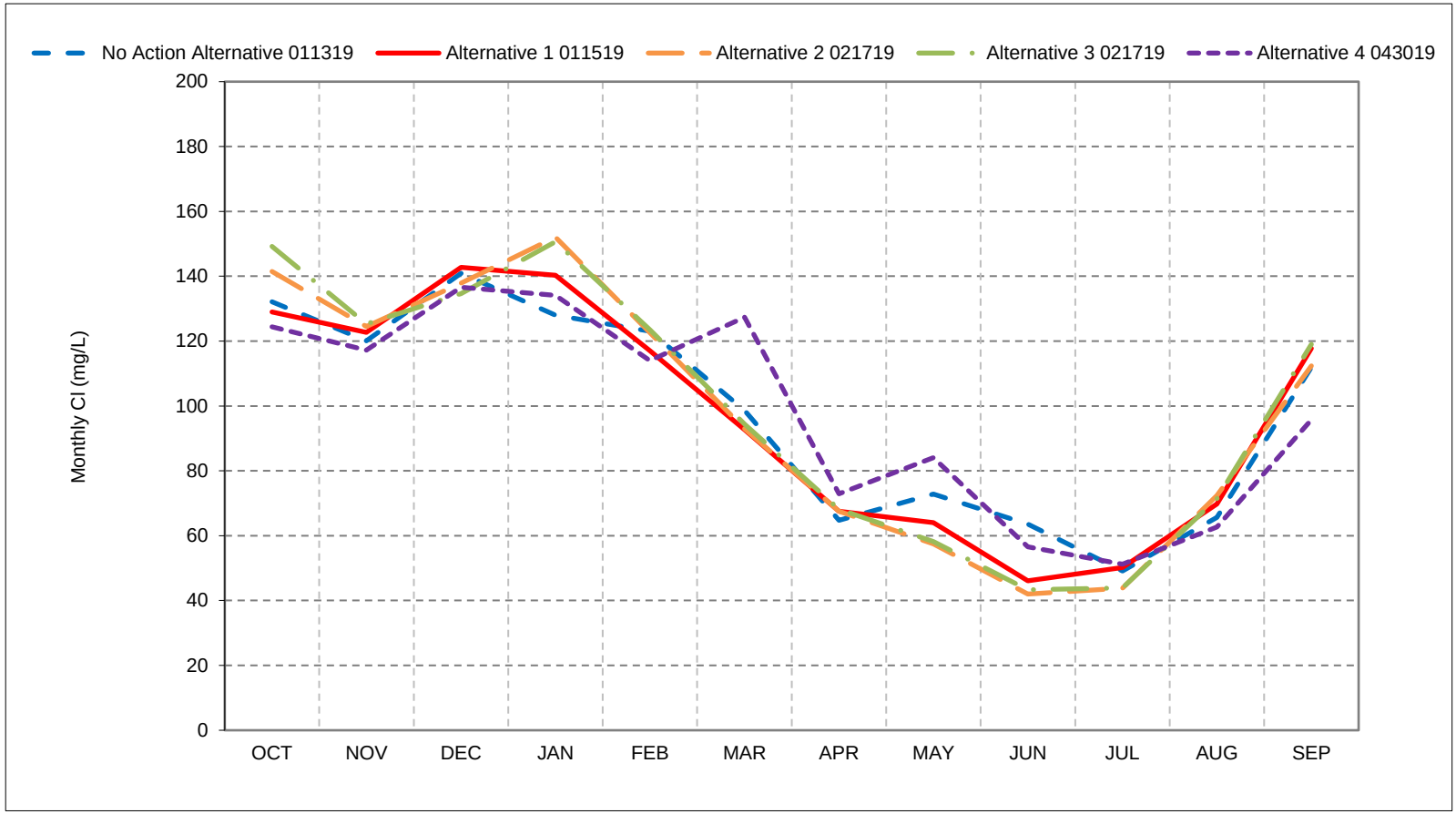
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-3. Jones Pumping Plant South Delta Exports Chloride, Above Normal Year Average Cl



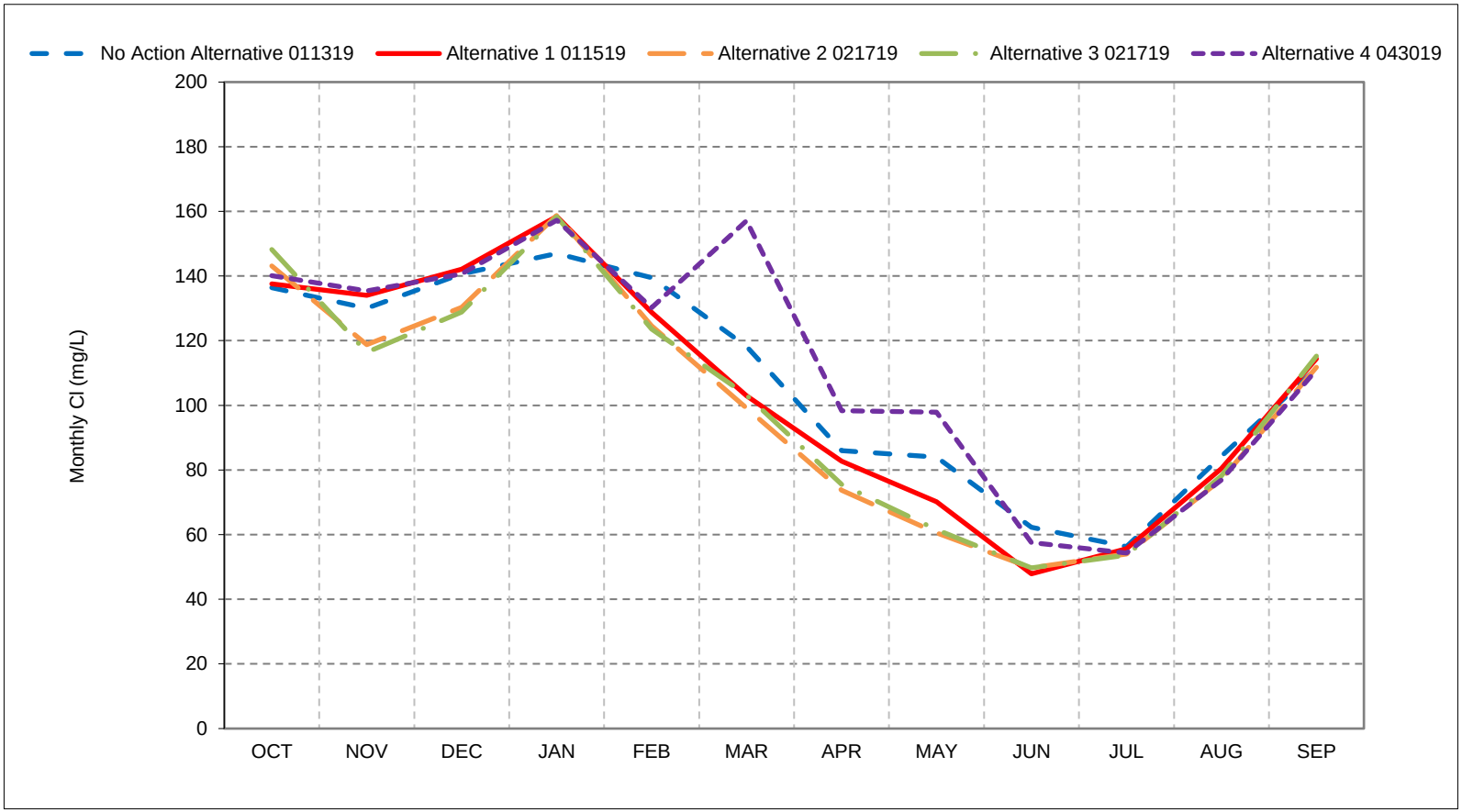
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-4. Jones Pumping Plant South Delta Exports Chloride, Below Normal Year Average Cl



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-5. Jones Pumping Plant South Delta Exports Chloride, Dry Year Average Cl



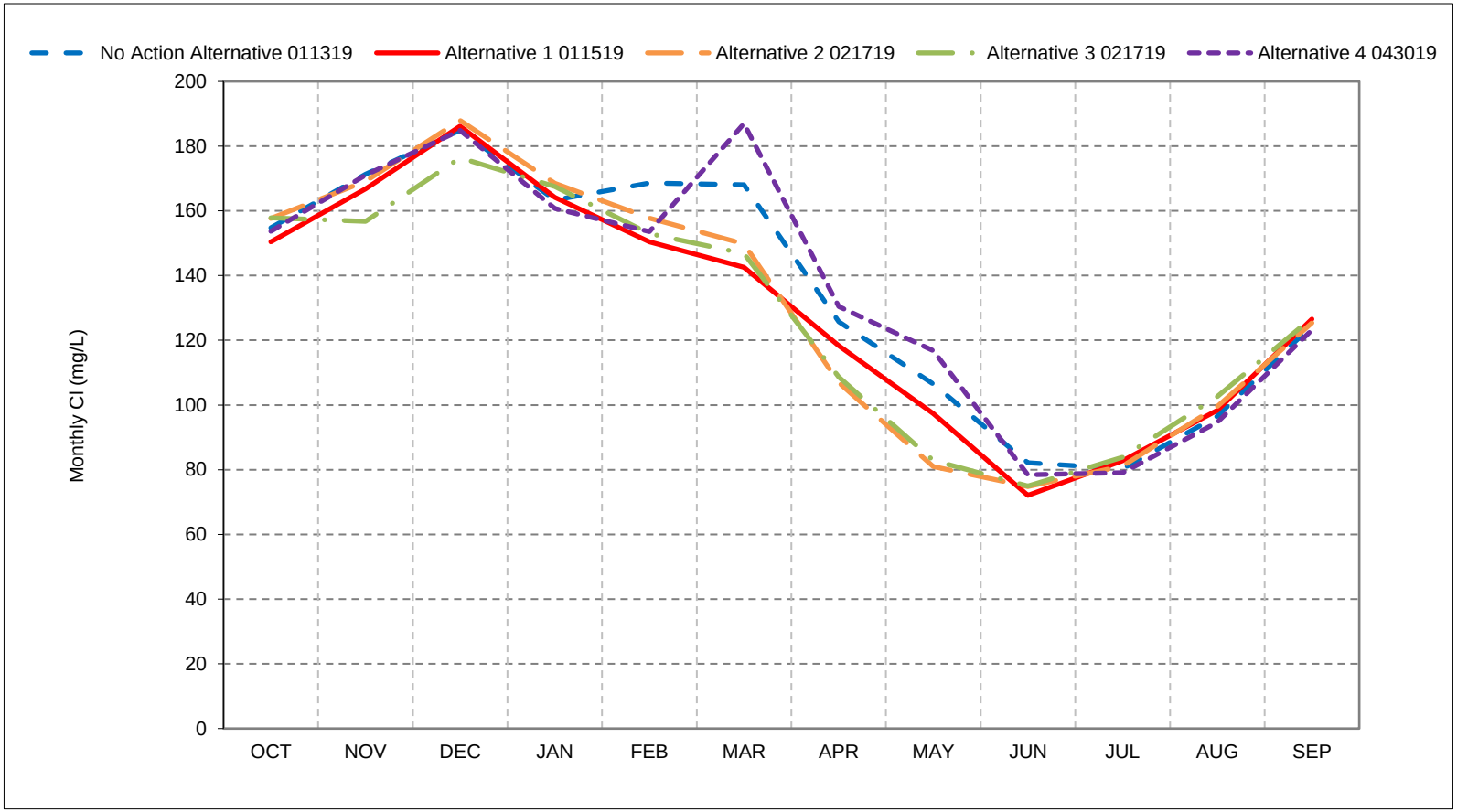
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

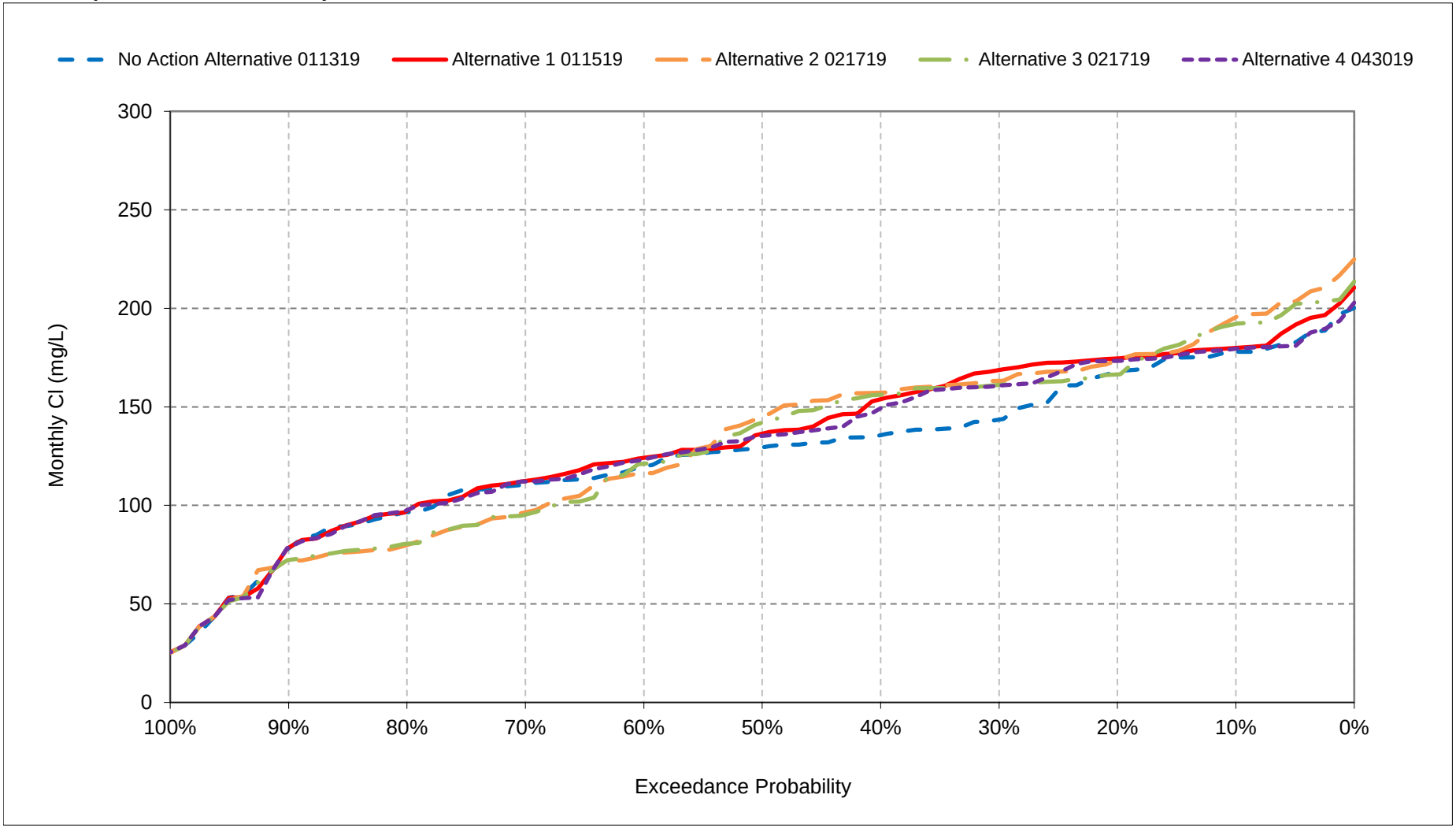
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-6. Jones Pumping Plant South Delta Exports Chloride, Critical Year Average Cl



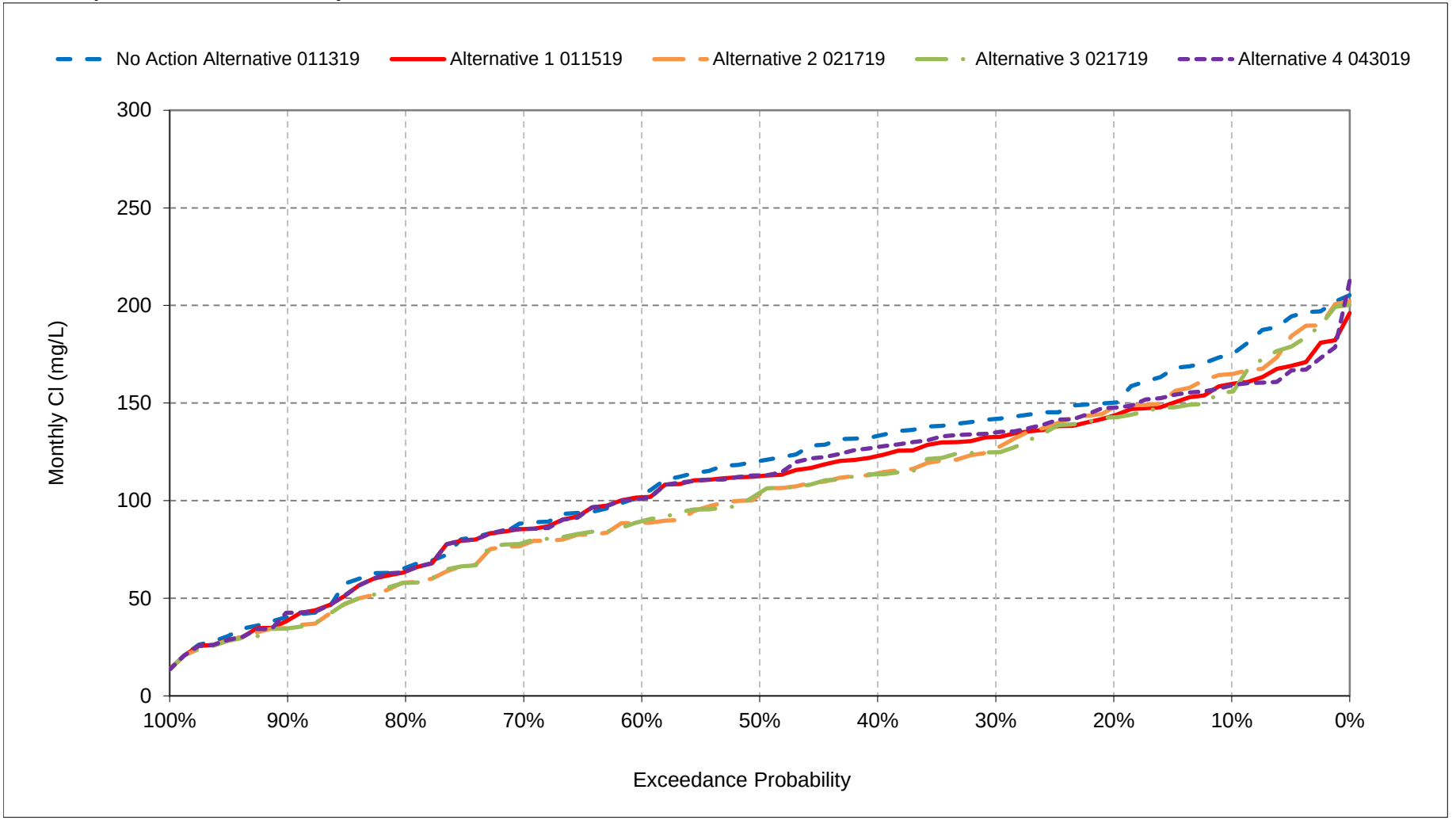
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-7. Jones Pumping Plant South
Delta Exports Chloride, January Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

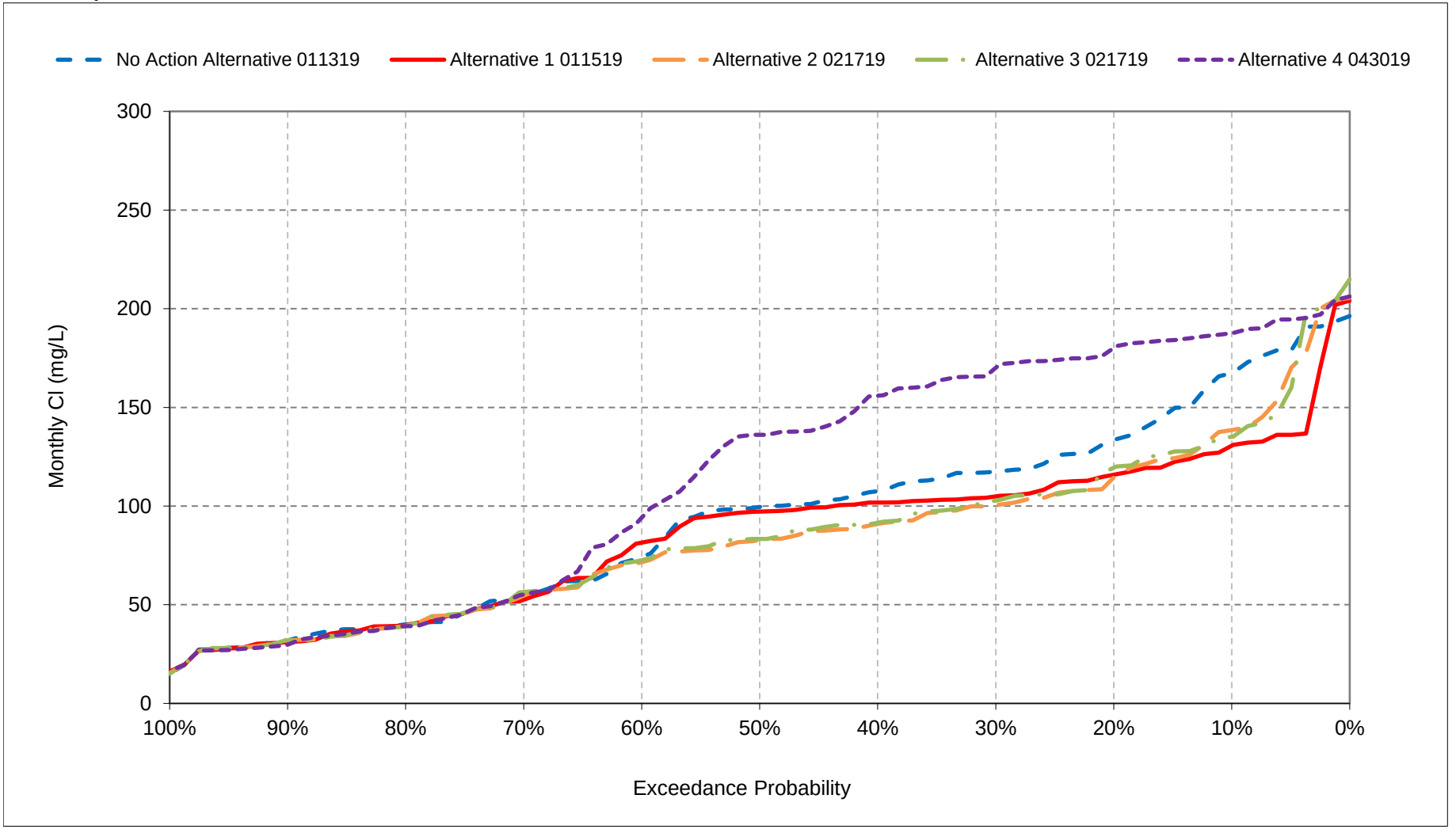
Figure 22-8. Jones Pumping Plant South Delta Exports Chloride, February Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

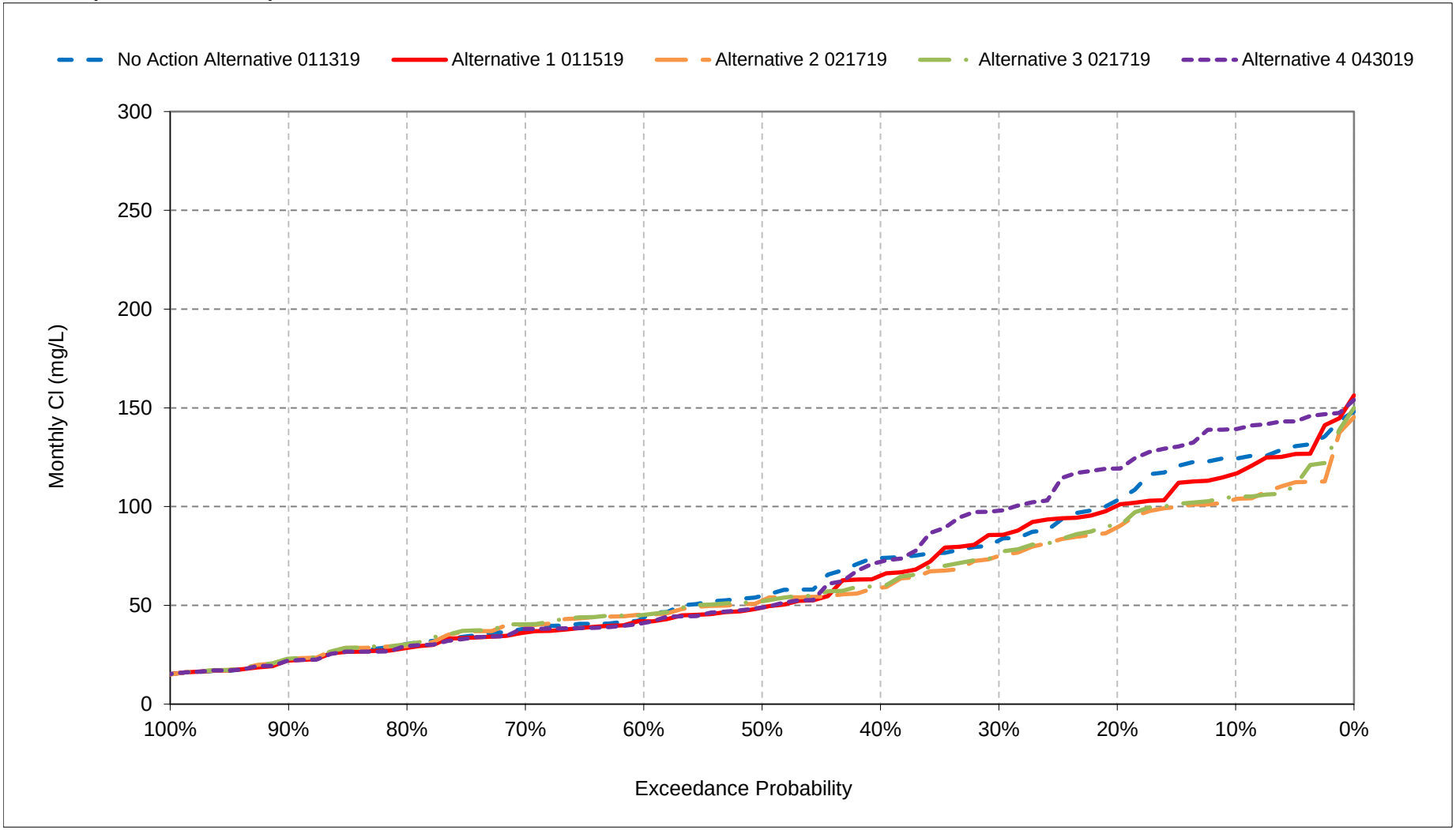
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-9. Jones Pumping Plant South
Delta Exports Chloride, March Cl



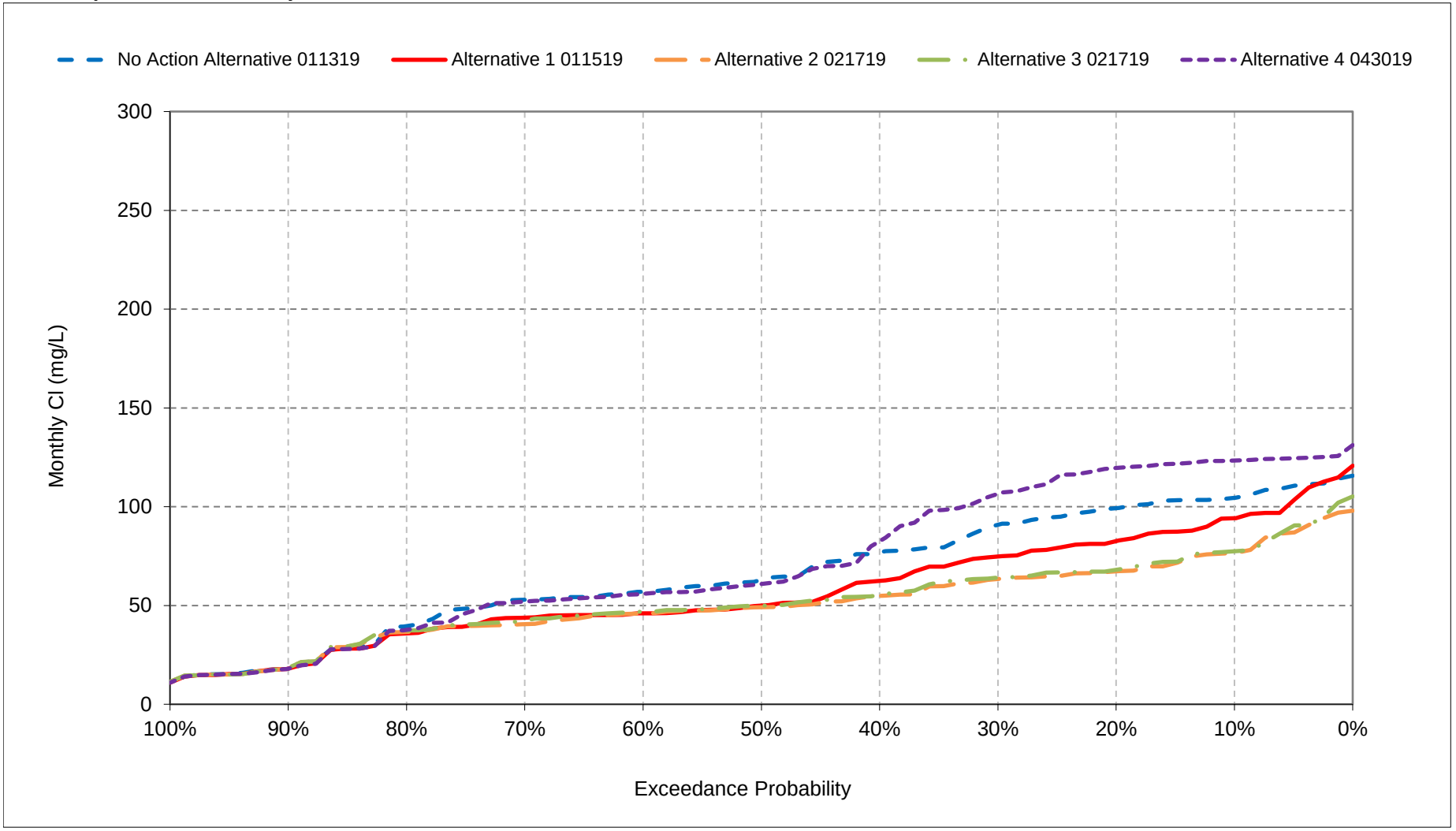
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-10. Jones Pumping Plant South
Delta Exports Chloride, April Cl



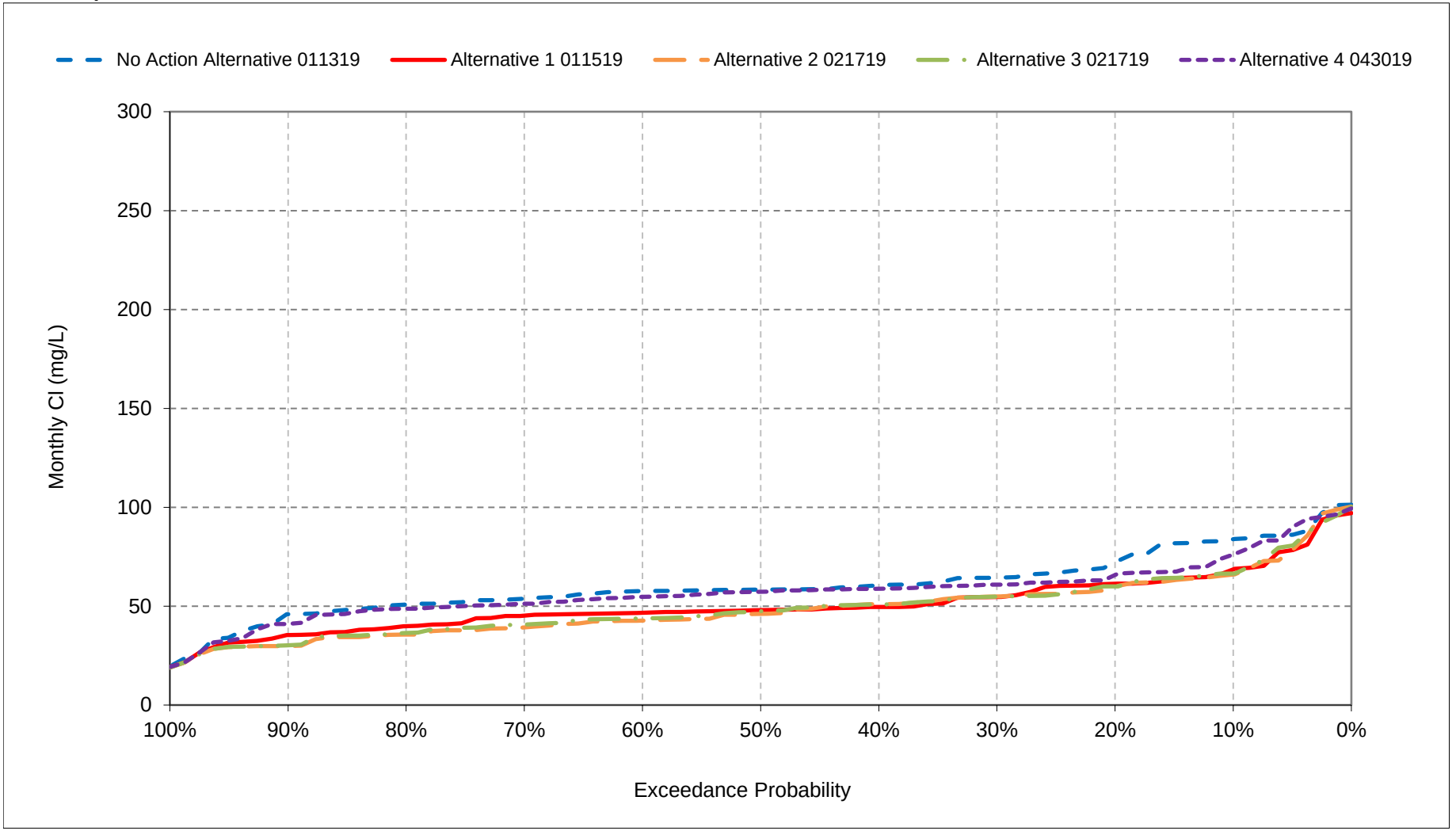
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-11. Jones Pumping Plant South
Delta Exports Chloride, May Cl



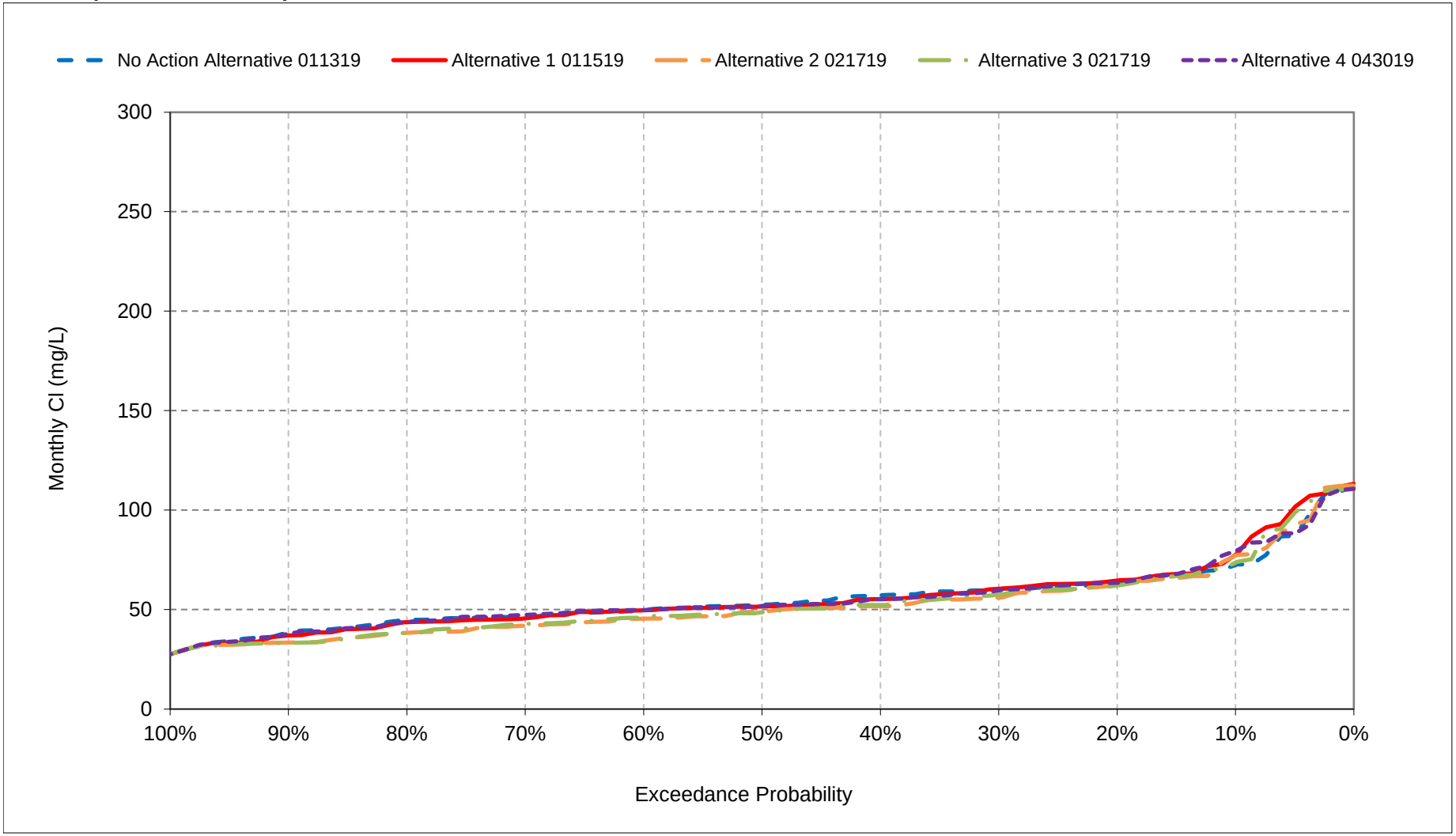
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-12. Jones Pumping Plant South
Delta Exports Chloride, June Cl



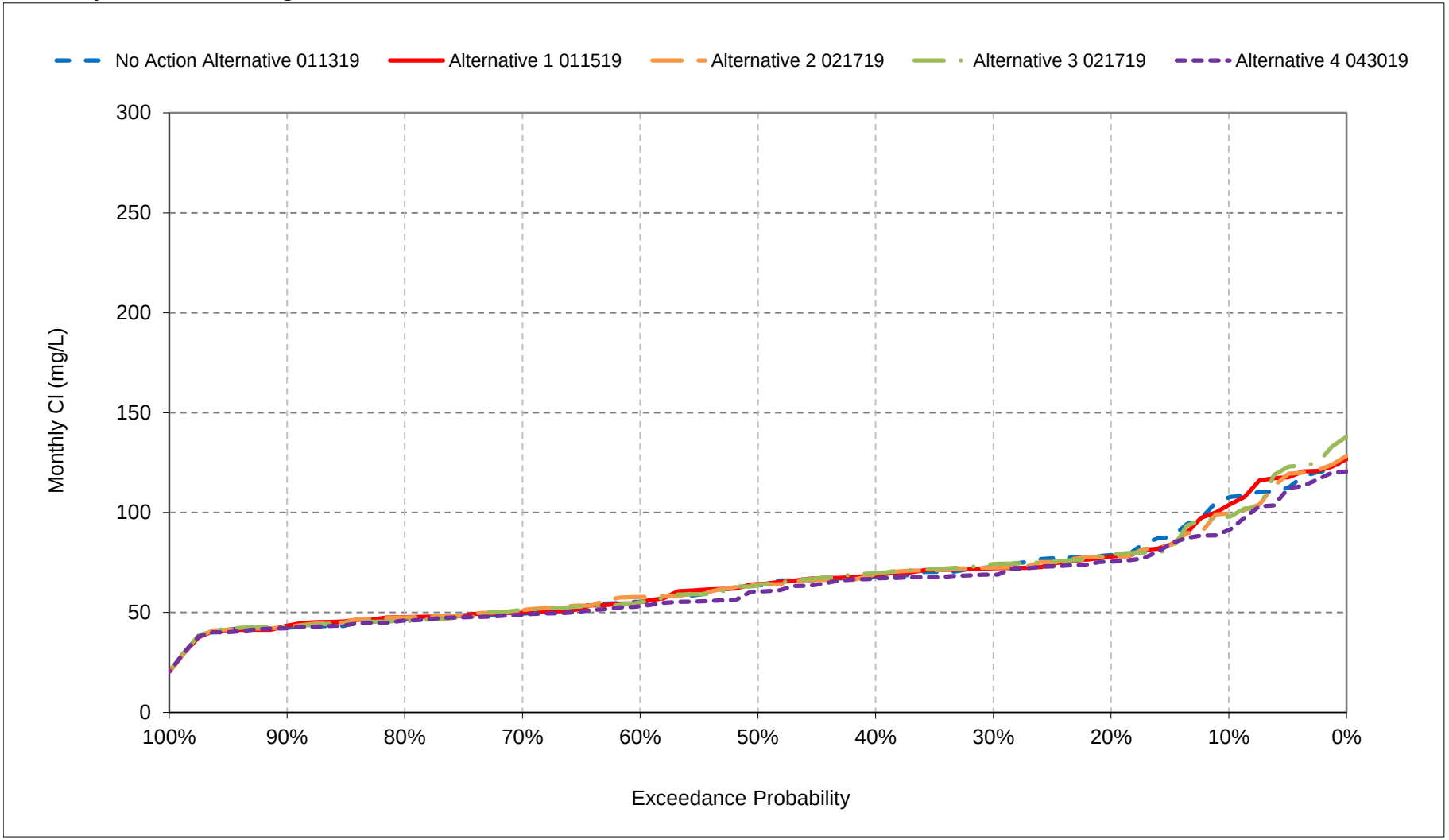
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-13. Jones Pumping Plant South
Delta Exports Chloride, July Cl



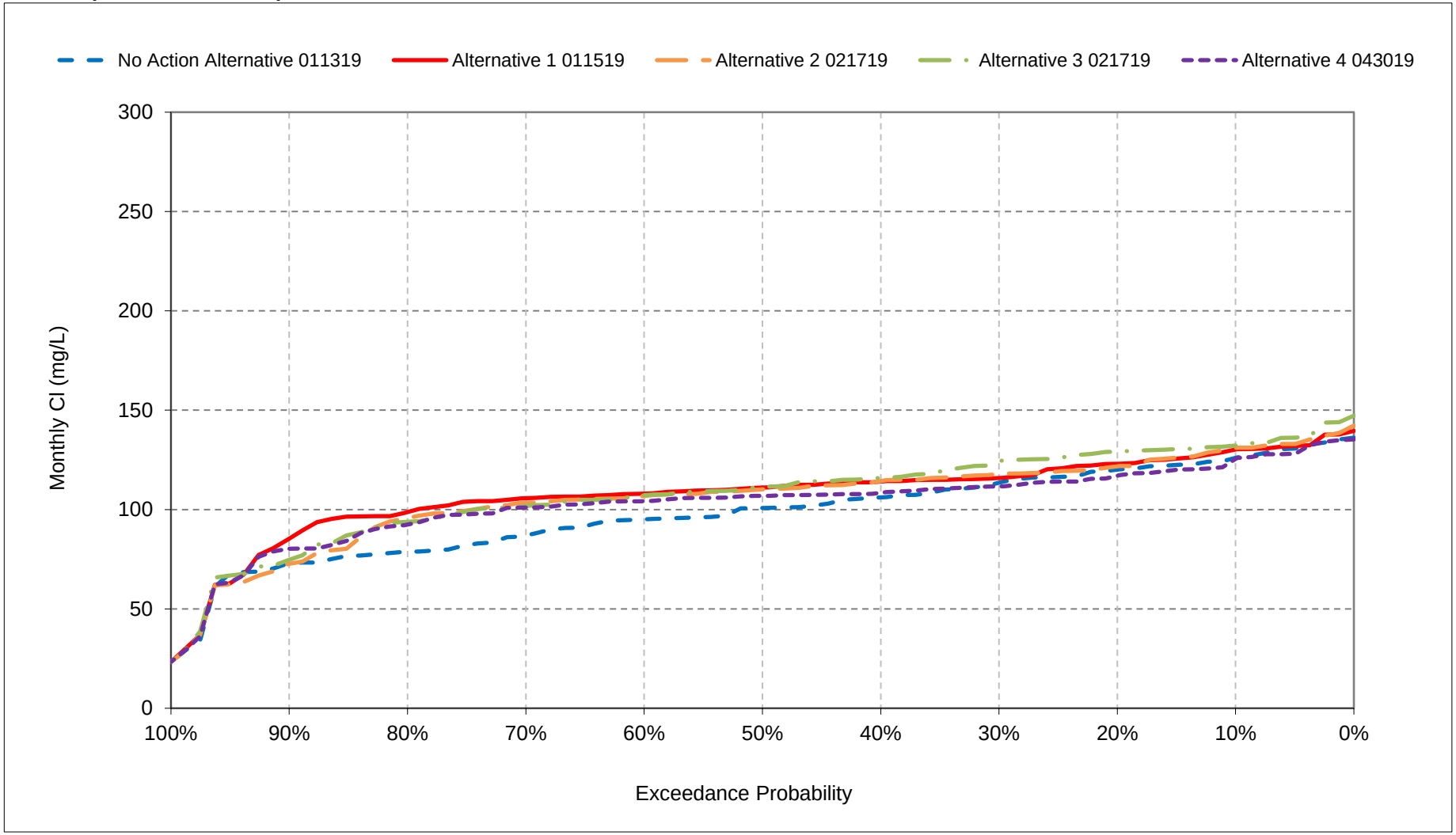
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-14. Jones Pumping Plant South
Delta Exports Chloride, August Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

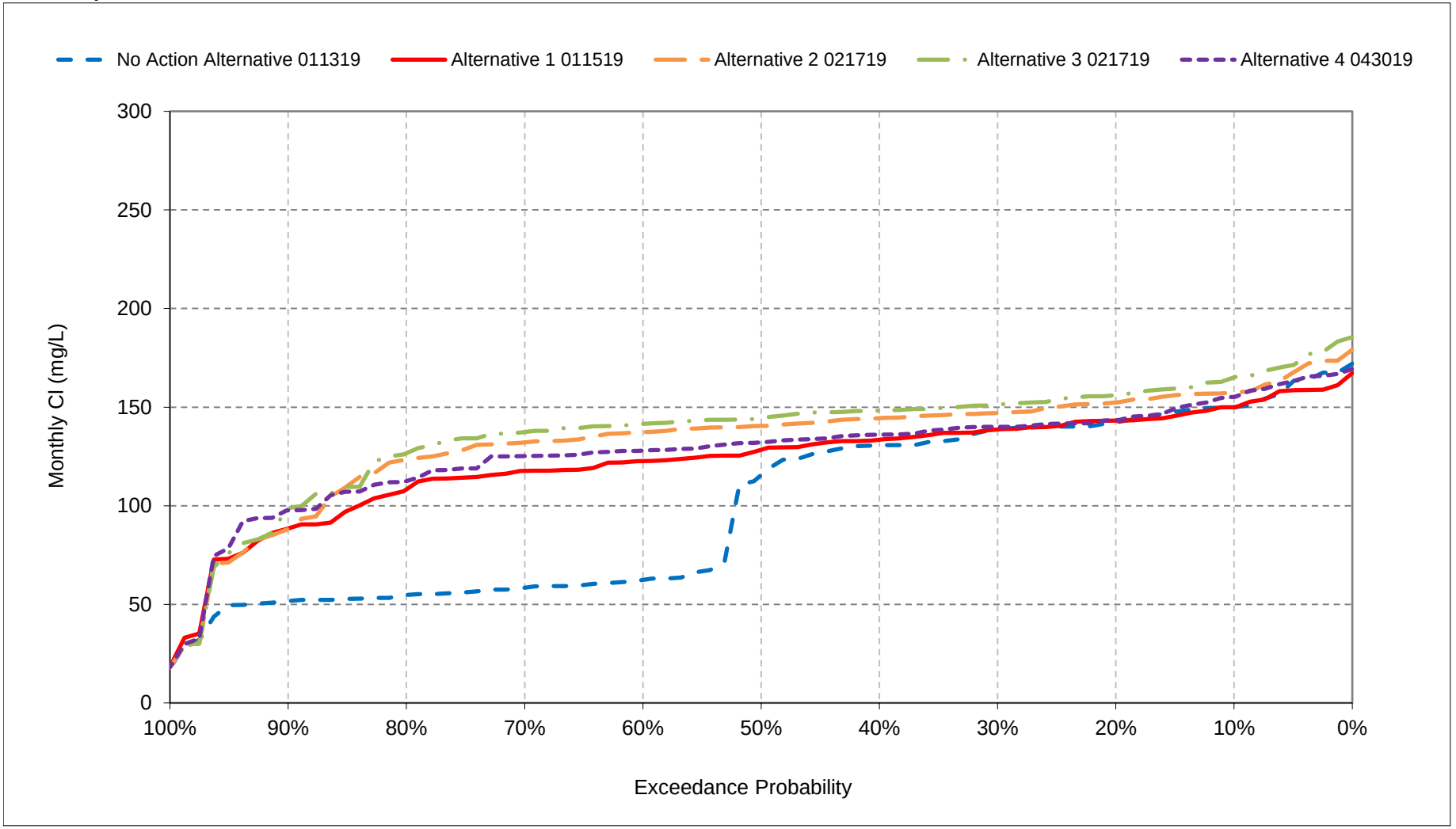
Figure 22-15. Jones Pumping Plant South Delta Exports Chloride, September Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

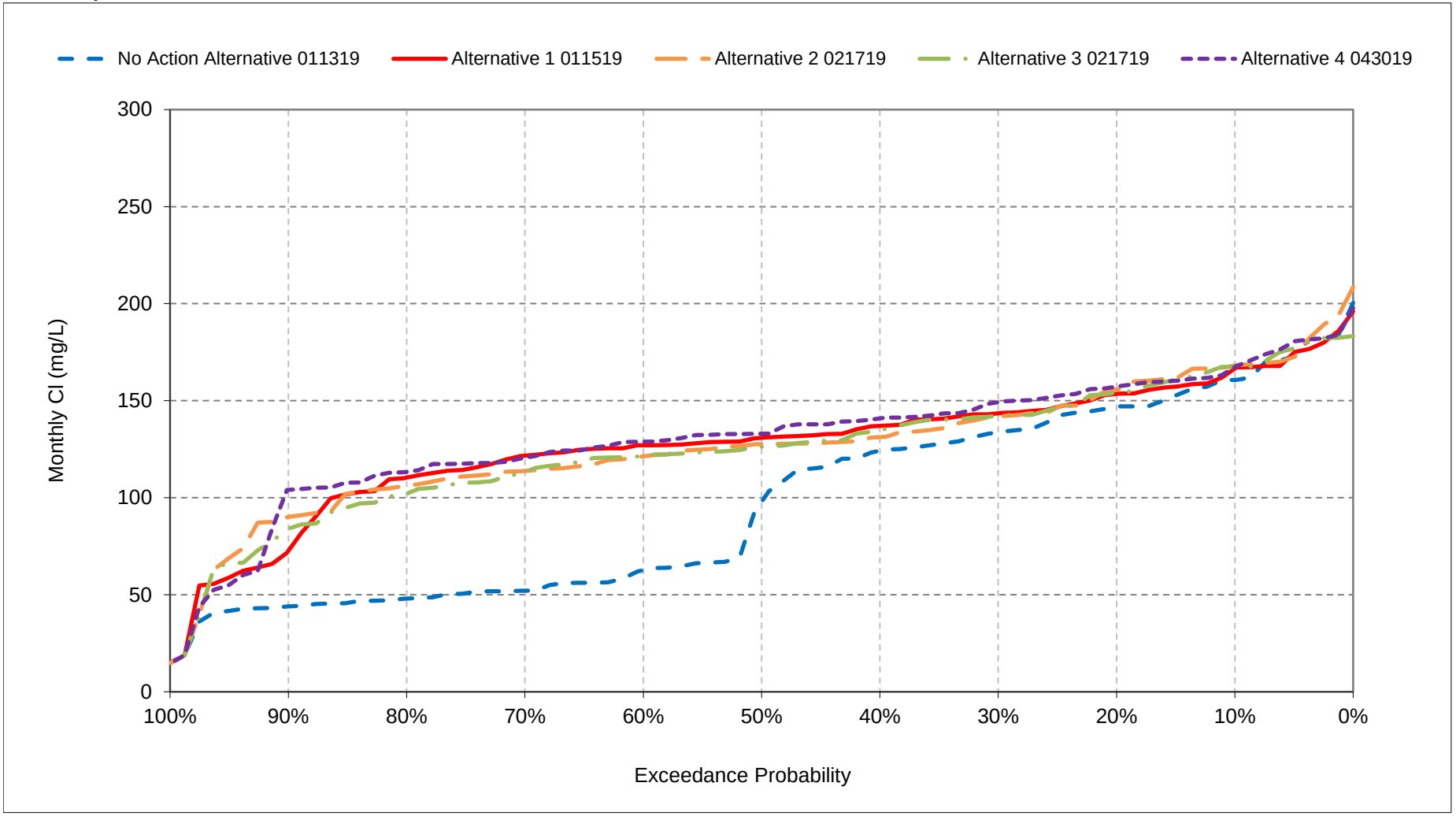
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-16. Jones Pumping Plant South
Delta Exports Chloride, October Cl



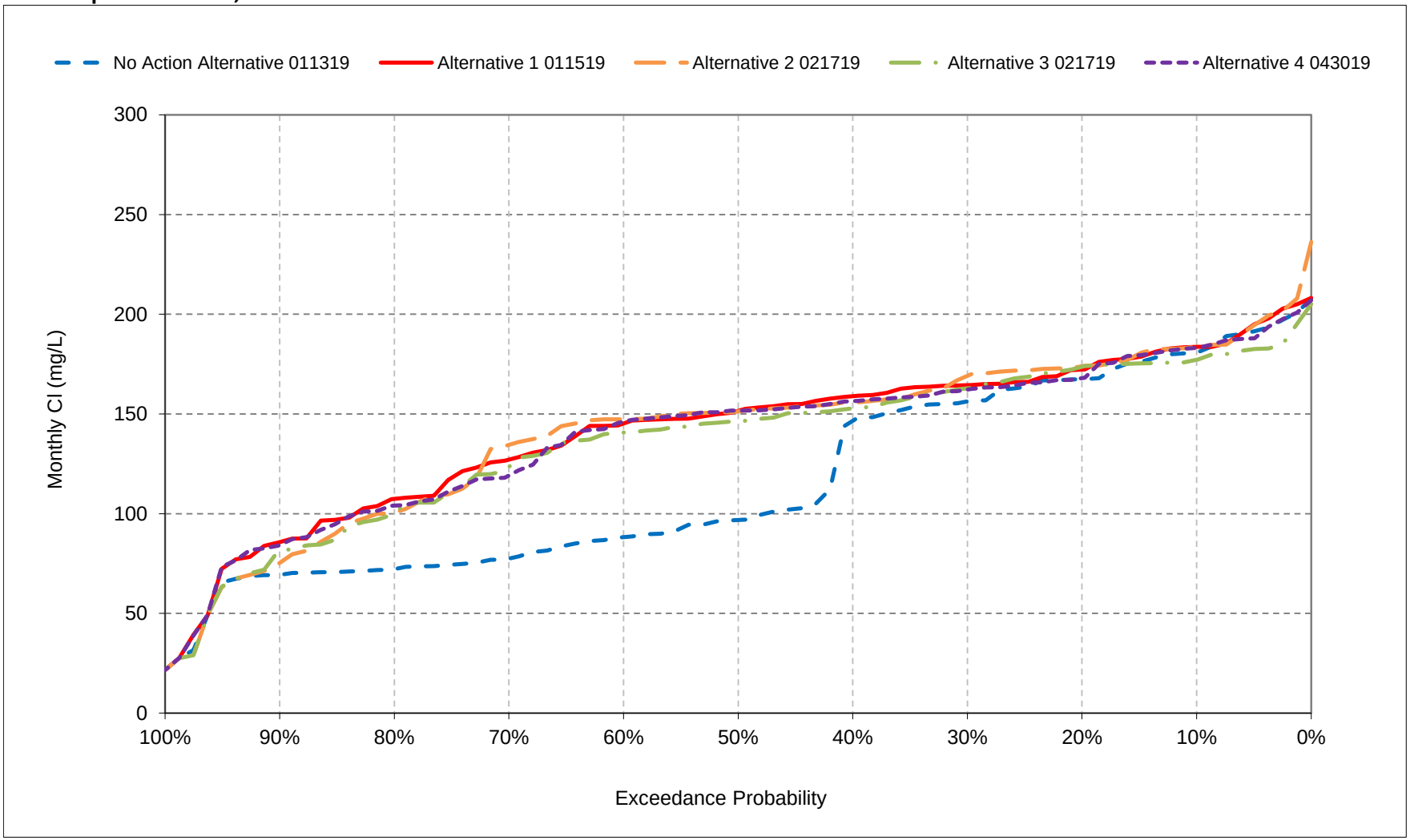
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-17. Jones Pumping Plant South
Delta Exports Chloride, November Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 22-18. Jones Pumping Plant South
Delta Exports Chloride, December Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Table 23-1. Barker Slough at NBA Intake Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	18	18	20	23	25	23	21	19	18	18	18	18
20%	18	18	18	22	24	22	20	18	17	17	17	17
30%	17	18	18	21	23	21	19	18	17	17	16	17
40%	17	17	18	20	22	20	19	18	17	17	16	16
50%	16	17	18	19	21	20	19	17	17	16	16	16
60%	16	17	17	19	20	19	18	17	17	16	16	16
70%	16	16	17	18	20	19	18	17	17	16	16	16
80%	16	16	17	18	19	18	17	17	17	16	16	16
90%	16	16	16	18	19	18	17	17	16	16	16	16
Long Term												
Full Simulation Period[a]	17	17	18	20	22	20	19	18	17	17	17	17
Water Year Types[b]												
Wet (32%)	16	17	17	20	22	20	18	17	17	16	16	16
Above Normal (16%)	16	16	17	21	22	20	18	17	17	16	16	16
Below Normal (13%)	17	17	17	19	21	20	19	17	17	16	16	16
Dry (24%)	17	17	18	20	22	21	20	18	17	17	16	17
Critical (15%)	18	18	19	20	21	21	21	21	20	18	18	18

Alternative 1 011519

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	18	18	19	23	25	23	21	20	18	18	18	18
20%	18	18	18	22	24	22	20	18	17	17	17	17
30%	17	18	18	21	23	21	19	18	17	17	17	17
40%	17	17	18	20	22	20	19	18	17	16	16	17
50%	17	17	18	19	21	20	19	17	17	16	16	16
60%	16	17	17	19	20	19	18	17	17	16	16	16
70%	16	16	17	18	20	19	18	17	17	16	16	16
80%	16	16	16	18	19	18	17	17	16	16	16	16
90%	16	16	16	18	18	18	17	17	16	16	16	16
Long Term												
Full Simulation Period[a]	17	17	18	20	21	20	19	18	17	17	17	17
Water Year Types[b]												
Wet (32%)	16	17	17	20	22	20	18	17	17	16	16	16
Above Normal (16%)	16	16	17	21	22	20	18	17	17	16	16	16
Below Normal (13%)	17	17	17	19	20	20	19	17	17	16	16	16
Dry (24%)	17	17	18	20	22	21	20	18	17	17	16	17
Critical (15%)	18	18	19	20	21	21	21	21	20	18	18	18

Alternative 1 011519 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**0**	**0**	0	0	0	0	**0**	**1**	0	**0**	0	**0**
20%	0	**0**	**0**	0	0	0	**0**	**0**	0	0	**0**	**0**
30%	**0**	**0**	**0**	0	0	0	**0**	**0**	0	0	**0**	**0**
40%	**0**	0	**0**	0	0	**0**	0	0	0	0	**0**	**0**
50%	**0**	0	0	**0**	**0**	**0**	**0**	0	0	0	0	**0**
60%	**0**	0	**0**	0	0	**0**	**0**	0	0	0	**0**	**0**
70%	**0**	**0**	0	0	0	**0**	**0**	**0**	0	0	**0**	**0**
80%	**0**	0	0	0	0	0	0	**0**	0	0	0	**0**
90%	**0**	0	**0**	0	0	0	0	**0**	**0**	0	**0**	**0**
Long Term												
Full Simulation Period[a]	**0**	0	0	0	0	0	**0**	**0**	**0**	0	**0**	**0**
Water Year Types[b]												
Wet (32%)	**0**	0	0	0	0	0	0	0	0	0	**0**	**0**
Above Normal (16%)	**0**	0	0	0	0	0	**0**	**0**	0	0	0	**0**
Below Normal (13%)	0	**0**	**0**	0	0	0	**0**	0	0	0	0	0
Dry (24%)	**0**	0	0	0	0	0	**0**	**0**	0	0	**0**	**0**
Critical (15%)	**0**	**0**	**0**	0	**0**	**0**	**0**	**1**	**1**	**0**	0	**0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 23-2. Barker Slough at NBA Intake Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	18	18	20	23	25	23	21	19	18	18	18	18
20%	18	18	18	22	24	22	20	18	17	17	17	17
30%	17	18	18	21	23	21	19	18	17	17	16	17
40%	17	17	18	20	22	20	19	18	17	17	16	16
50%	16	17	18	19	21	20	19	17	17	16	16	16
60%	16	17	17	19	20	19	18	17	17	16	16	16
70%	16	16	17	18	20	19	18	17	17	16	16	16
80%	16	16	17	18	19	18	17	17	17	16	16	16
90%	16	16	16	18	19	18	17	17	16	16	16	16
Long Term												
Full Simulation Period[a]	17	17	18	20	22	20	19	18	17	17	17	17
Water Year Types[b]												
Wet (32%)	16	17	17	20	22	20	18	17	17	16	16	16
Above Normal (16%)	16	16	17	21	22	20	18	17	17	16	16	16
Below Normal (13%)	17	17	17	19	21	20	19	17	17	16	16	16
Dry (24%)	17	17	18	20	22	21	20	18	17	17	16	17
Critical (15%)	18	18	19	20	21	21	21	21	20	18	18	18

Alternative 2 021719

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	18	18	20	23	25	23	22	21	18	18	18	18
20%	17	18	19	22	24	22	20	19	17	17	17	17
30%	17	17	18	21	23	22	19	18	17	17	17	17
40%	17	17	18	20	22	20	19	18	17	16	16	17
50%	17	17	18	19	21	20	19	17	17	16	16	16
60%	16	17	17	19	20	19	18	17	17	16	16	16
70%	16	16	17	18	20	19	18	17	17	16	16	16
80%	16	16	16	18	19	18	17	17	16	16	16	16
90%	16	16	16	18	18	18	17	17	16	16	16	16
Long Term												
Full Simulation Period[a]	17	17	18	20	22	20	19	18	17	17	17	17
Water Year Types[b]												
Wet (32%)	16	17	17	20	22	20	18	17	16	16	16	16
Above Normal (16%)	16	16	17	21	21	19	18	17	17	16	16	16
Below Normal (13%)	17	17	18	19	21	20	19	17	17	16	16	16
Dry (24%)	17	17	18	20	22	21	20	18	17	17	16	17
Critical (15%)	18	18	19	20	21	22	22	22	21	18	18	18

Alternative 2 021719 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	**0**	0	0	**0**	**1**	**1**	**0**	0	0	0
20%	0	0	**0**	**0**	**0**	**0**	**1**	**0**	**0**	0	0	**0**
30%	0	0	**0**	**0**	0	**0**	**0**	**0**	0	0	**0**	**0**
40%	0	0	**0**	**0**	0	**0**	0	0	0	0	**0**	**0**
50%	**0**	0	0	**0**	**0**	**0**	0	**0**	0	0	**0**	**0**
60%	**0**	**0**	**0**	0	**0**	**0**	**0**	0	0	0	**0**	**0**
70%	**0**	0	**0**	**0**	0	0	0	**0**	0	0	**0**	**0**
80%	**0**	0	0	0	0	0	0	**0**	0	0	**0**	**0**
90%	**0**	0	**0**	**0**	0	0	0	**0**	**0**	0	**0**	**0**
Long Term												
Full Simulation Period[a]	**0**	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	**0**	**0**
Water Year Types[b]												
Wet (32%)	**0**	**0**	0	0	0	0	0	0	0	0	**0**	**0**
Above Normal (16%)	**0**	0	**0**	0	0	0	**0**	**0**	0	0	**0**	**0**
Below Normal (13%)	0	0	**0**	0	0	0	**0**	0	0	0	**0**	**0**
Dry (24%)	0	0	**0**	**0**	**0**	**0**	**0**	**0**	0	0	**0**	**0**
Critical (15%)	0	0	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**0**	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 23-3. Barker Slough at NBA Intake Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	18	18	20	23	25	23	21	19	18	18	18	18
20%	18	18	18	22	24	22	20	18	17	17	17	17
30%	17	18	18	21	23	21	19	18	17	17	16	17
40%	17	17	18	20	22	20	19	18	17	17	16	16
50%	16	17	18	19	21	20	19	17	17	16	16	16
60%	16	17	17	19	20	19	18	17	17	16	16	16
70%	16	16	17	18	20	19	18	17	17	16	16	16
80%	16	16	17	18	19	18	17	17	17	16	16	16
90%	16	16	16	18	19	18	17	17	16	16	16	16
Long Term												
Full Simulation Period[a]	17	17	18	20	22	20	19	18	17	17	17	17
Water Year Types[b]												
Wet (32%)	16	17	17	20	22	20	18	17	17	16	16	16
Above Normal (16%)	16	16	17	21	22	20	18	17	17	16	16	16
Below Normal (13%)	17	17	17	19	21	20	19	17	17	16	16	16
Dry (24%)	17	17	18	20	22	21	20	18	17	17	16	17
Critical (15%)	18	18	19	20	21	21	21	21	20	18	18	18

Alternative 3 021719

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16	16	16	17	18	18	17	17	16	16	16	16
20%	16	16	16	17	18	18	17	16	16	16	16	16
30%	16	16	16	17	17	17	17	16	16	16	15	15
40%	15	16	16	16	17	17	17	16	16	16	15	15
50%	15	15	16	16	17	17	16	16	16	15	15	15
60%	15	15	16	16	16	16	16	16	16	15	15	15
70%	15	15	15	16	16	16	16	16	15	15	15	15
80%	15	15	15	16	16	16	16	16	15	15	15	15
90%	15	15	15	16	16	16	16	15	15	15	15	15
Long Term												
Full Simulation Period[a]	15	16	16	16	17	17	17	16	16	15	15	15
Water Year Types[b]												
Wet (32%)	15	15	16	16	16	16	16	16	15	15	15	15
Above Normal (16%)	15	15	16	16	17	16	16	16	16	15	15	15
Below Normal (13%)	15	16	16	16	17	17	17	16	16	15	15	15
Dry (24%)	16	16	16	16	17	17	17	16	16	16	16	16
Critical (15%)	16	16	16	17	17	18	17	17	16	16	16	16

Alternative 3 021719 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-3	-2	-3	-6	-7	-5	-4	-3	-2	-2	-2	-2
20%	-2	-2	-2	-5	-6	-5	-3	-2	-1	-1	-1	-2
30%	-2	-2	-2	-5	-6	-4	-2	-1	-1	-1	-1	-1
40%	-1	-2	-2	-4	-5	-3	-2	-1	-1	-1	-1	-1
50%	-1	-2	-2	-3	-4	-3	-2	-1	-1	-1	-1	-1
60%	-1	-1	-2	-3	-4	-3	-2	-1	-1	-1	-1	-1
70%	-1	-1	-1	-3	-4	-3	-2	-1	-1	-1	-1	-1
80%	-1	-1	-1	-2	-3	-2	-2	-1	-1	-1	-1	-1
90%	-1	-1	-1	-2	-3	-2	-2	-1	-1	-1	-1	-1
Long Term												
Full Simulation Period[a]	-1	-2	-2	-4	-5	-3	-2	-2	-1	-1	-1	-1
Water Year Types[b]												
Wet (32%)	-1	-1	-2	-4	-5	-3	-2	-1	-1	-1	-1	-1
Above Normal (16%)	-1	-1	-2	-4	-5	-3	-2	-1	-1	-1	-1	-1
Below Normal (13%)	-1	-1	-2	-3	-4	-3	-2	-1	-1	-1	-1	-1
Dry (24%)	-2	-2	-2	-3	-5	-4	-3	-2	-1	-1	-1	-1
Critical (15%)	-3	-2	-3	-3	-4	-4	-4	-4	-3	-2	-2	-2

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Table 23-4. Barker Slough at NBA Intake Chloride, Monthly Cl

No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	18	18	20	23	25	23	21	19	18	18	18	18
20%	18	18	18	22	24	22	20	18	17	17	17	17
30%	17	18	18	21	23	21	19	18	17	17	16	17
40%	17	17	18	20	22	20	19	18	17	17	16	16
50%	16	17	18	19	21	20	19	17	17	16	16	16
60%	16	17	17	19	20	19	18	17	17	16	16	16
70%	16	16	17	18	20	19	18	17	17	16	16	16
80%	16	16	17	18	19	18	17	17	17	16	16	16
90%	16	16	16	18	19	18	17	17	16	16	16	16
Long Term												
Full Simulation Period[a]	17	17	18	20	22	20	19	18	17	17	17	17
Water Year Types[b]												
Wet (32%)	16	17	17	20	22	20	18	17	17	16	16	16
Above Normal (16%)	16	16	17	21	22	20	18	17	17	16	16	16
Below Normal (13%)	17	17	17	19	21	20	19	17	17	16	16	16
Dry (24%)	17	17	18	20	22	21	20	18	17	17	16	17
Critical (15%)	18	18	19	20	21	21	21	21	20	18	18	18

Alternative 4 043019

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	18	18	20	23	25	23	21	19	18	18	18	18
20%	18	18	18	22	24	22	20	18	17	17	17	17
30%	17	18	18	21	23	21	19	18	17	17	16	17
40%	17	17	18	20	22	20	19	17	17	16	16	17
50%	17	17	18	19	21	20	19	17	17	16	16	17
60%	16	17	17	19	20	19	18	17	17	16	16	16
70%	16	16	17	18	20	19	18	17	17	16	16	16
80%	16	16	16	18	19	18	17	17	16	16	16	16
90%	16	16	16	18	18	18	17	16	16	16	16	16
Long Term												
Full Simulation Period[a]	17	17	18	20	21	20	19	18	17	17	17	17
Water Year Types[b]												
Wet (32%)	16	17	17	20	22	20	18	17	17	16	16	16
Above Normal (16%)	16	16	17	21	21	19	18	17	17	16	16	16
Below Normal (13%)	17	17	17	19	20	20	18	17	17	16	16	17
Dry (24%)	17	17	18	20	22	21	19	18	17	17	16	17
Critical (15%)	19	18	19	20	21	21	21	20	20	18	18	18

Alternative 4 043019 minus No Action Alternative 011319

	Monthly Cl (mg/L)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	**0**	**0**	**0**	0	0	**0**	0	0	0	0	**0**	**0**
20%	0	**0**	**0**	**0**	0	0	0	0	0	0	**0**	**0**
30%	0	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**
40%	**0**	0	**0**	0	0	0	0	0	0	0	**0**	**0**
50%	**0**	0	0	0	0	0	0	0	0	0	**0**	**0**
60%	**0**	**0**	0	0	0	**0**	0	0	0	0	**0**	**0**
70%	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**0**
80%	**0**	0	0	0	0	0	0	0	0	**0**	**0**	**0**
90%	**0**	0	**0**	0	0	0	0	0	**0**	**0**	**0**	**0**
Long Term												
Full Simulation Period[a]	**0**	0	0	0	0	0	0	0	0	0	**0**	**0**
Water Year Types[b]												
Wet (32%)	**0**	0	0	0	0	0	0	0	0	**0**	**0**	**0**
Above Normal (16%)	**0**	0	0	0	0	0	0	0	0	**0**	**0**	**0**
Below Normal (13%)	**0**	**0**	**0**	0	0	0	0	0	0	0	**0**	**0**
Dry (24%)	**0**	0	0	0	0	0	0	0	0	0	**0**	**0**
Critical (15%)	**0**	**0**	**0**	0	0	0	0	0	**0**	**0**	**0**	**0**

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

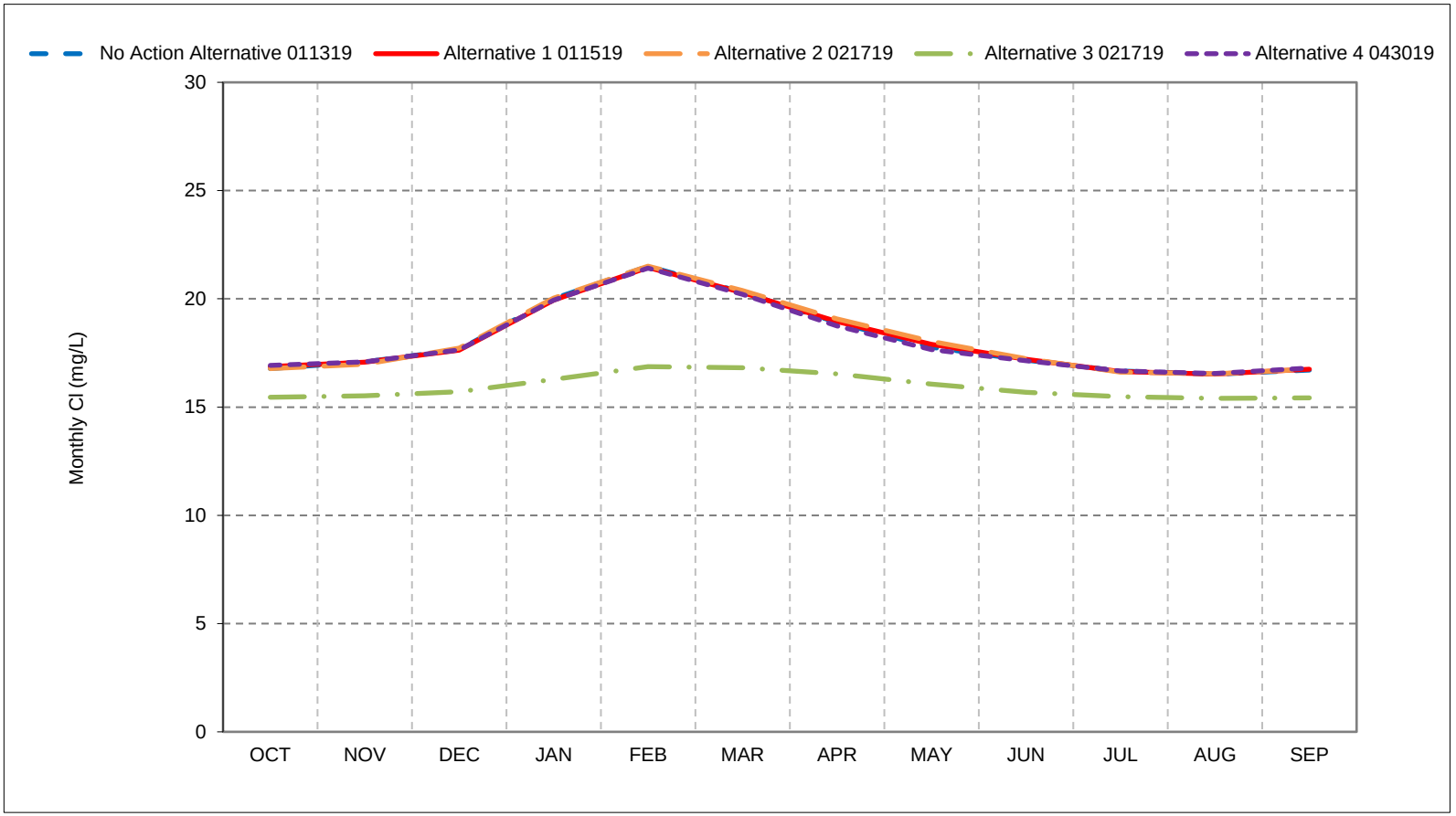
c These results are displayed with calendar year - year type sorting.

d Positive differences are highted in red color which indicate increase in Salinity (EC).

e All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

f These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-1. Barker Slough at NBA Intake Chloride, Long-Term Average Cl



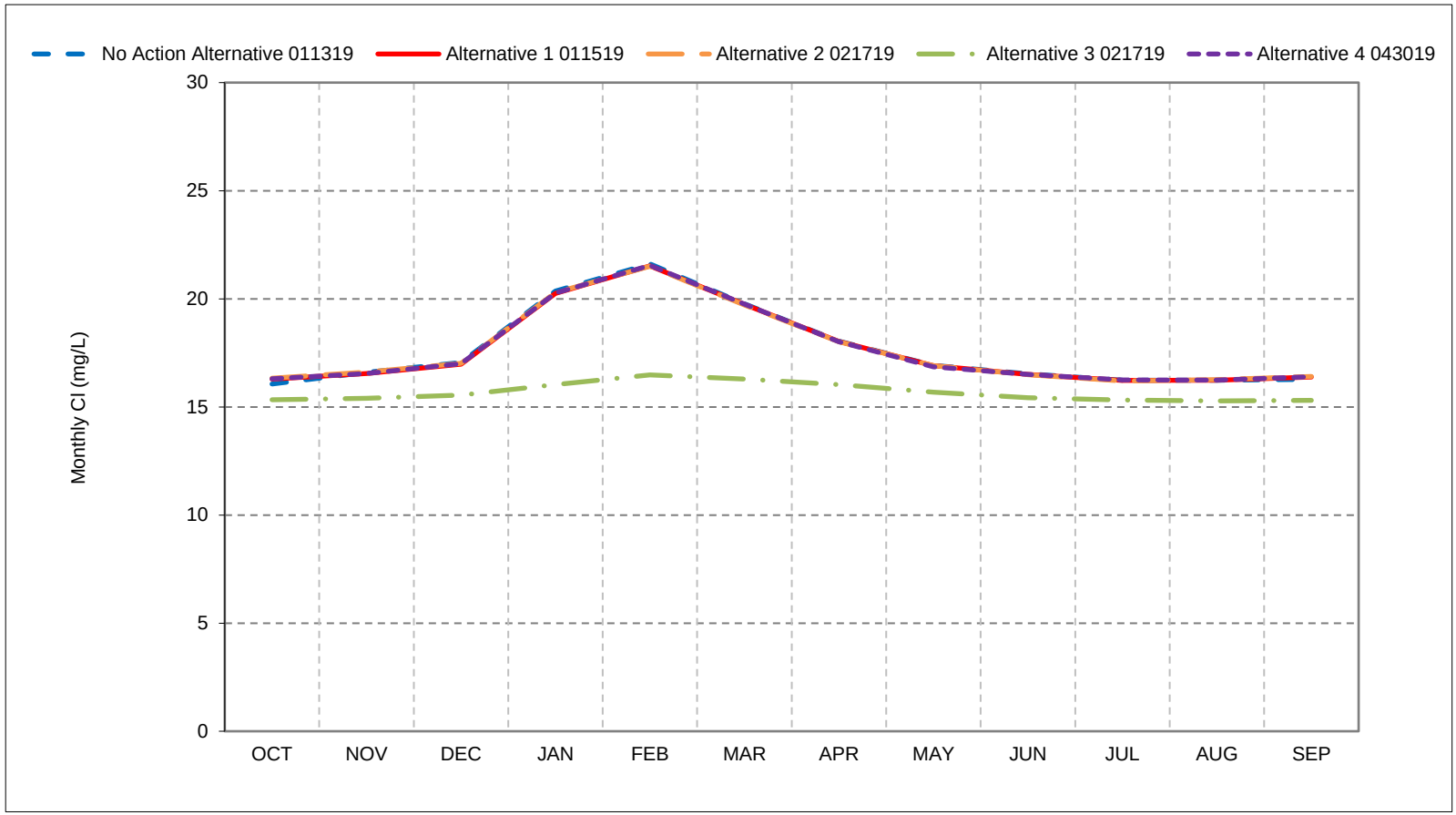
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-2. Barker Slough at NBA Intake Chloride, Wet Year Average Cl



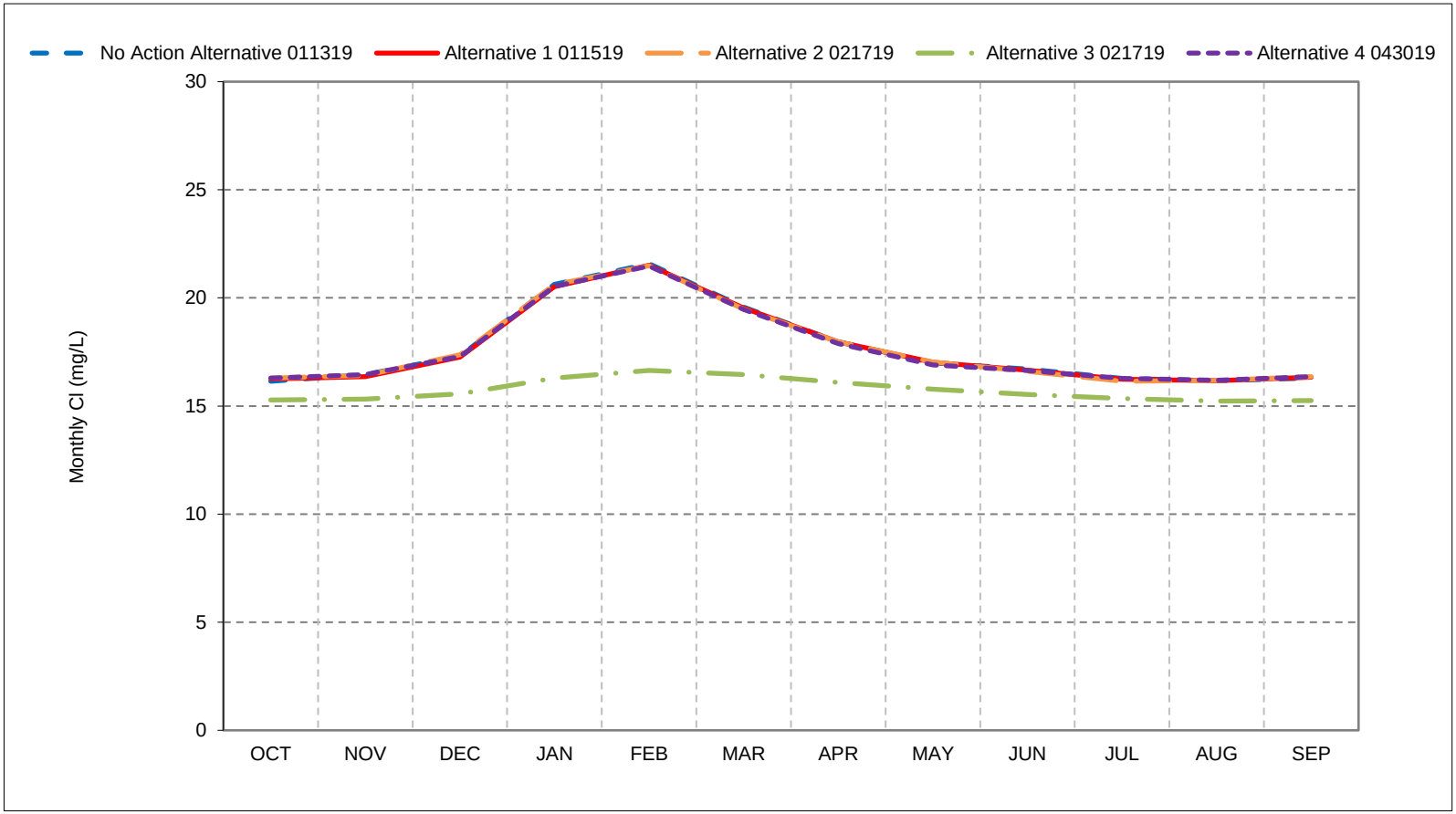
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

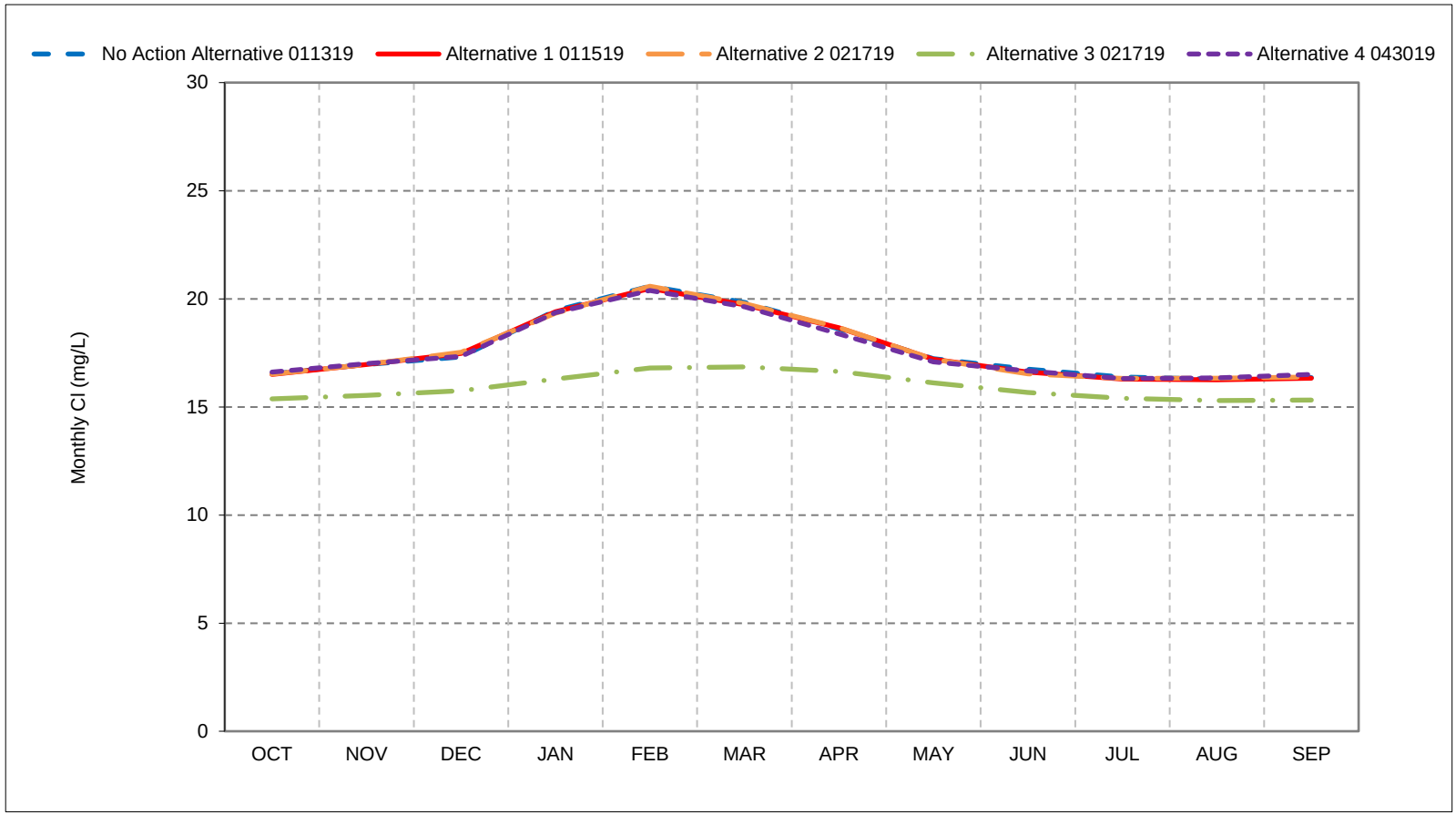
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-3. Barker Slough at NBA Intake Chloride, Above Normal Year Average Cl



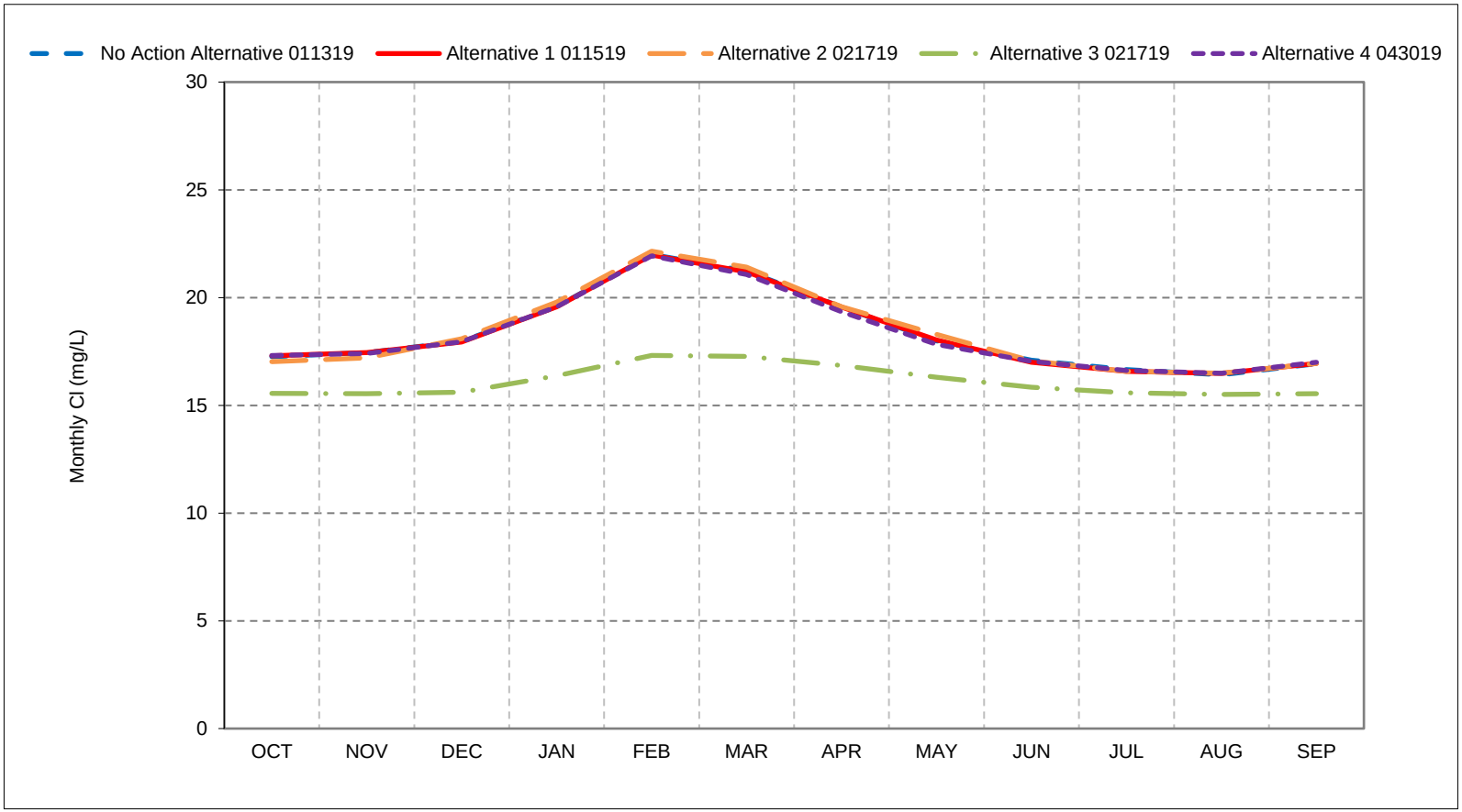
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-4. Barker Slough at NBA Intake Chloride, Below Normal Year Average Cl



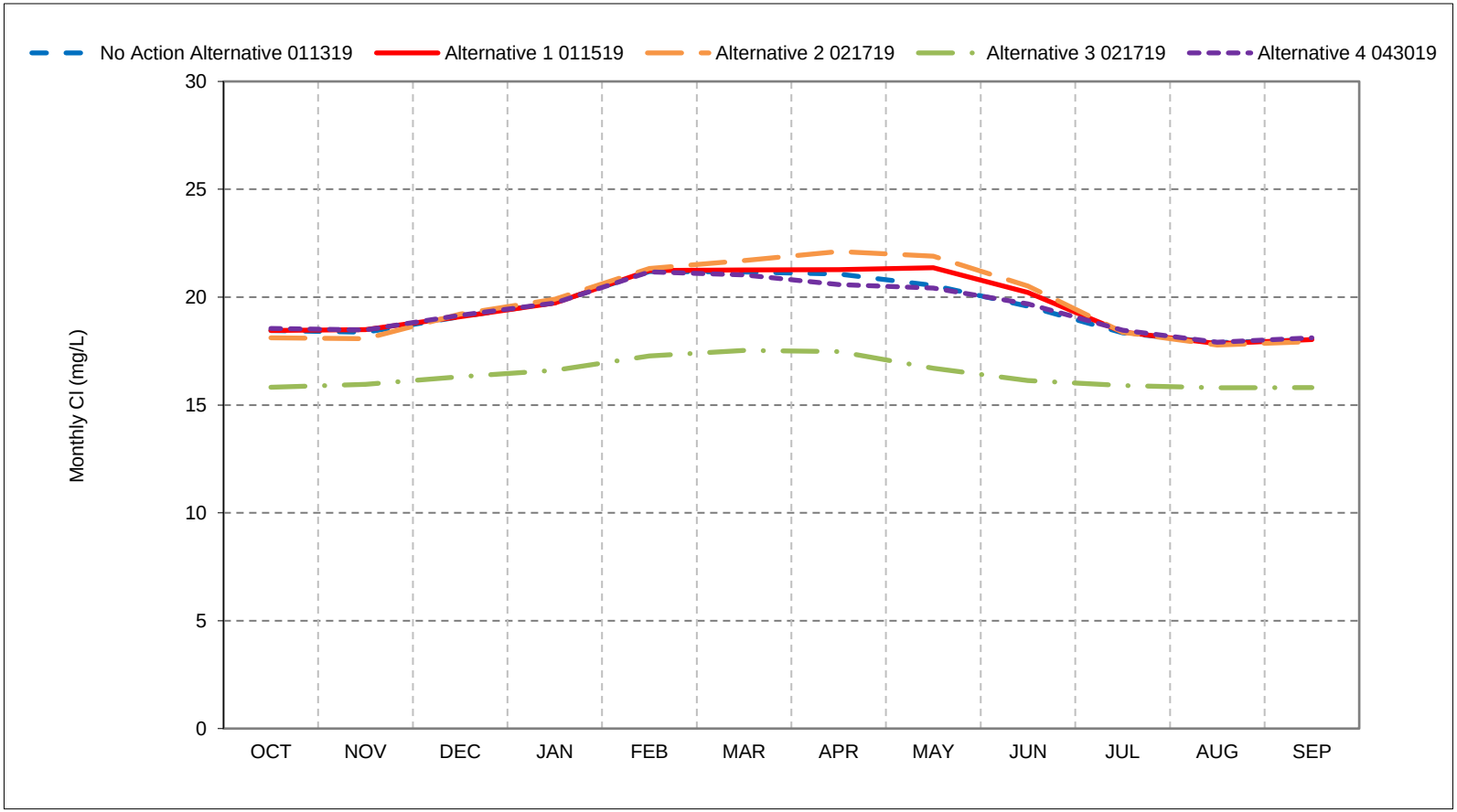
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-5. Barker Slough at NBA Intake Chloride, Dry Year Average Cl



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-6. Barker Slough at NBA Intake Chloride, Critical Year Average Cl



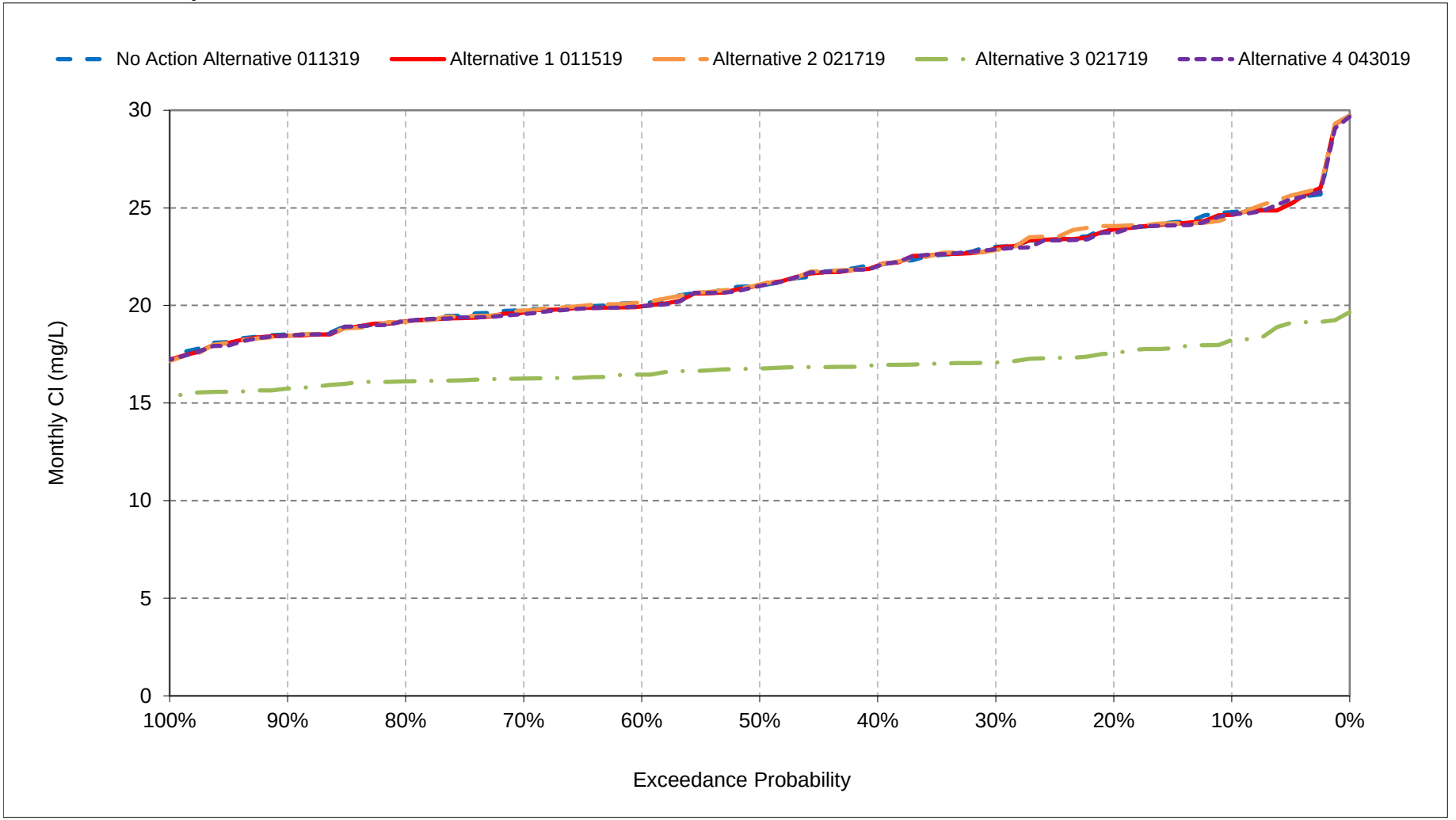
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-7. Barker Slough at NBA Intake
Chloride, January Cl



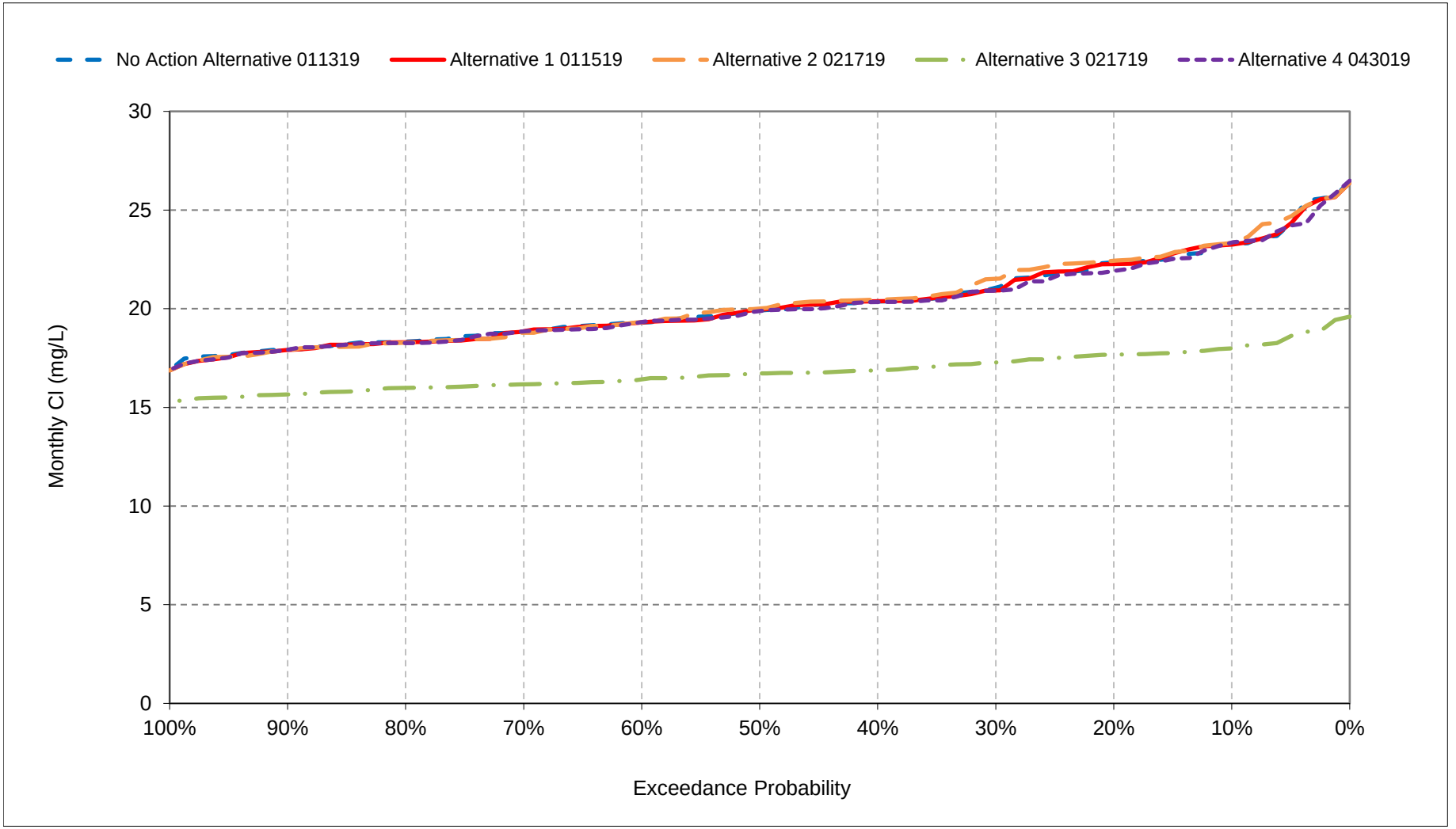
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-8. Barker Slough at NBA Intake
Chloride, February Cl



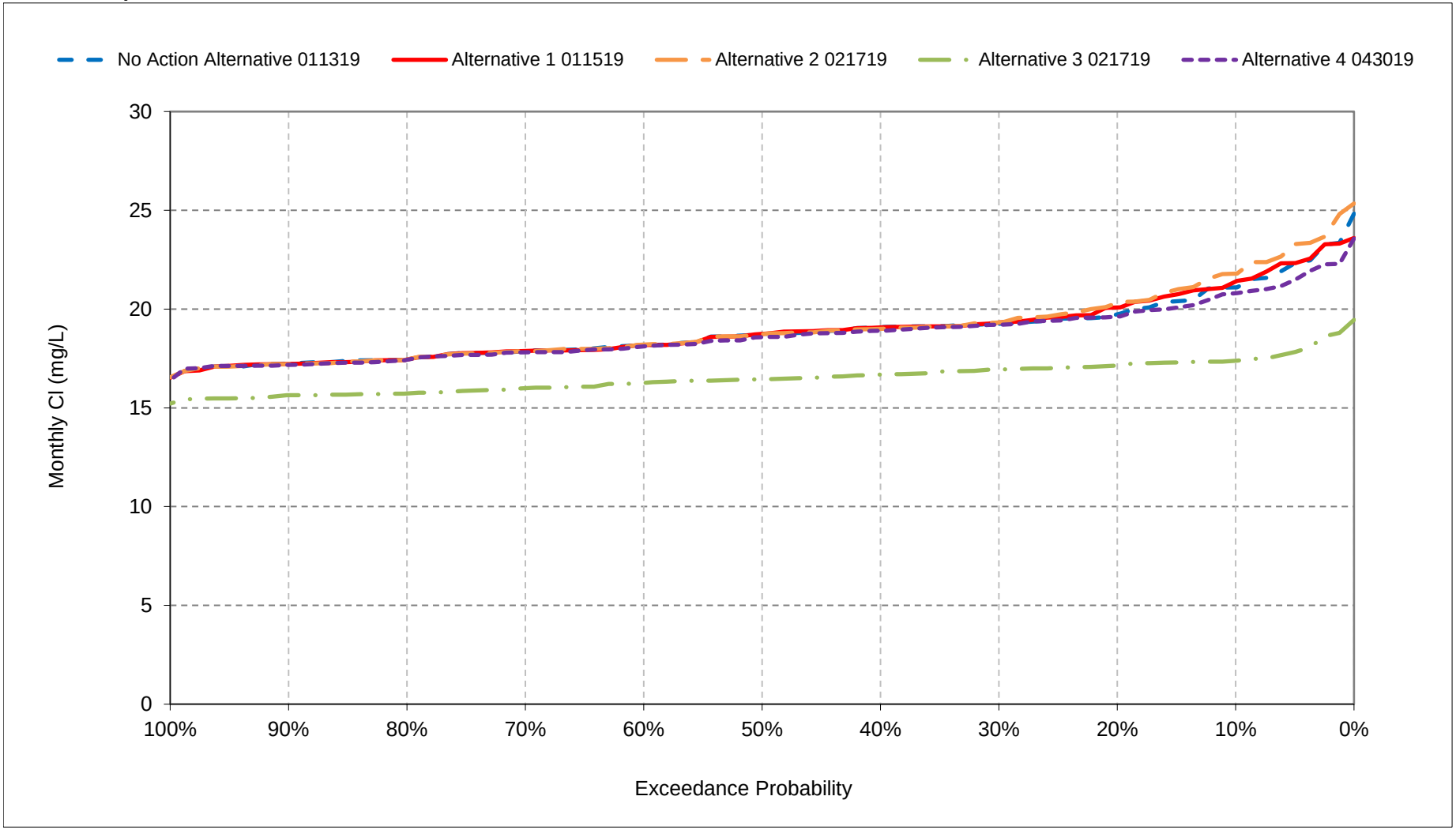
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-9. Barker Slough at NBA Intake
Chloride, March Cl



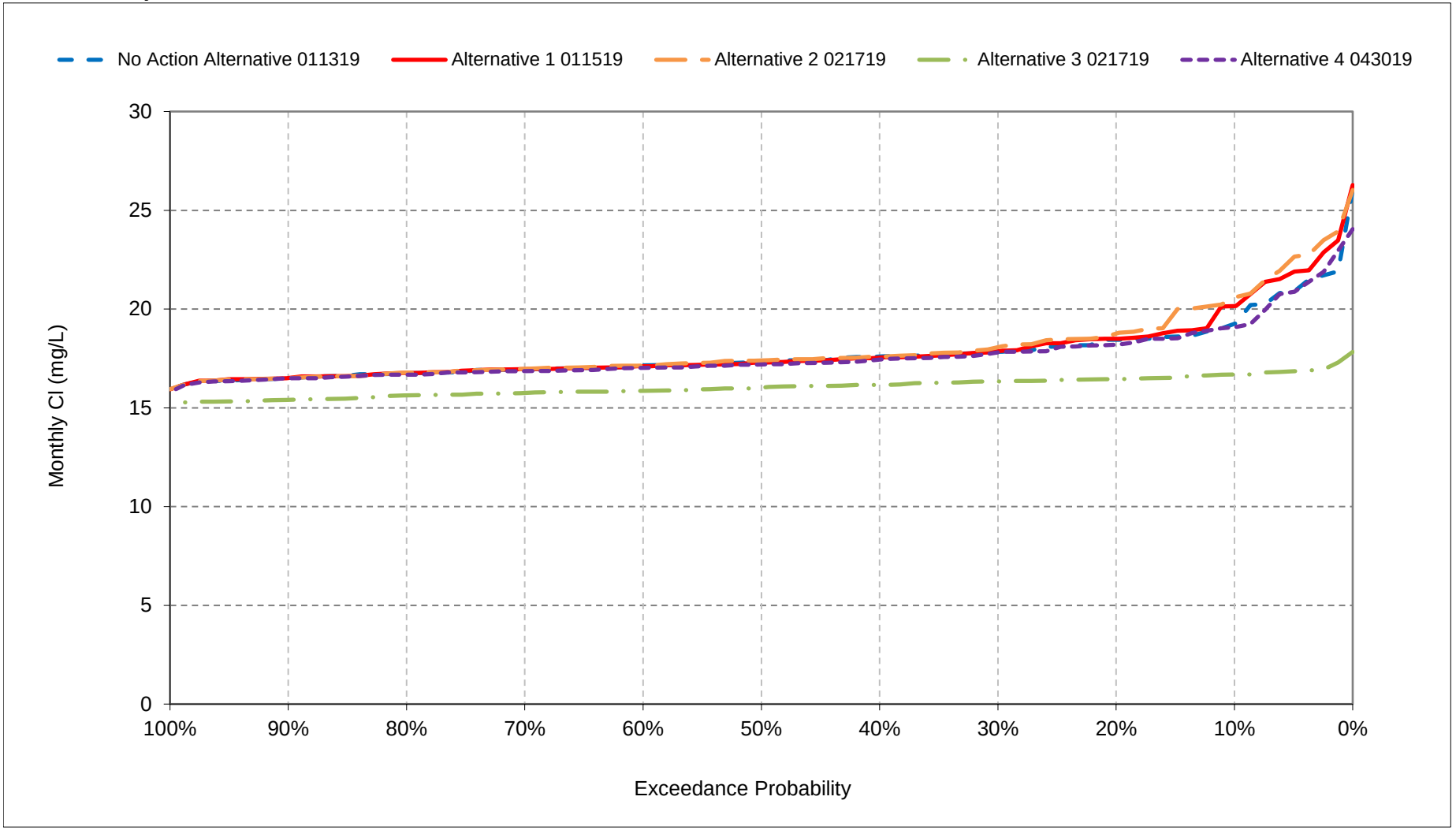
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-10. Barker Slough at NBA Intake
Chloride, April Cl



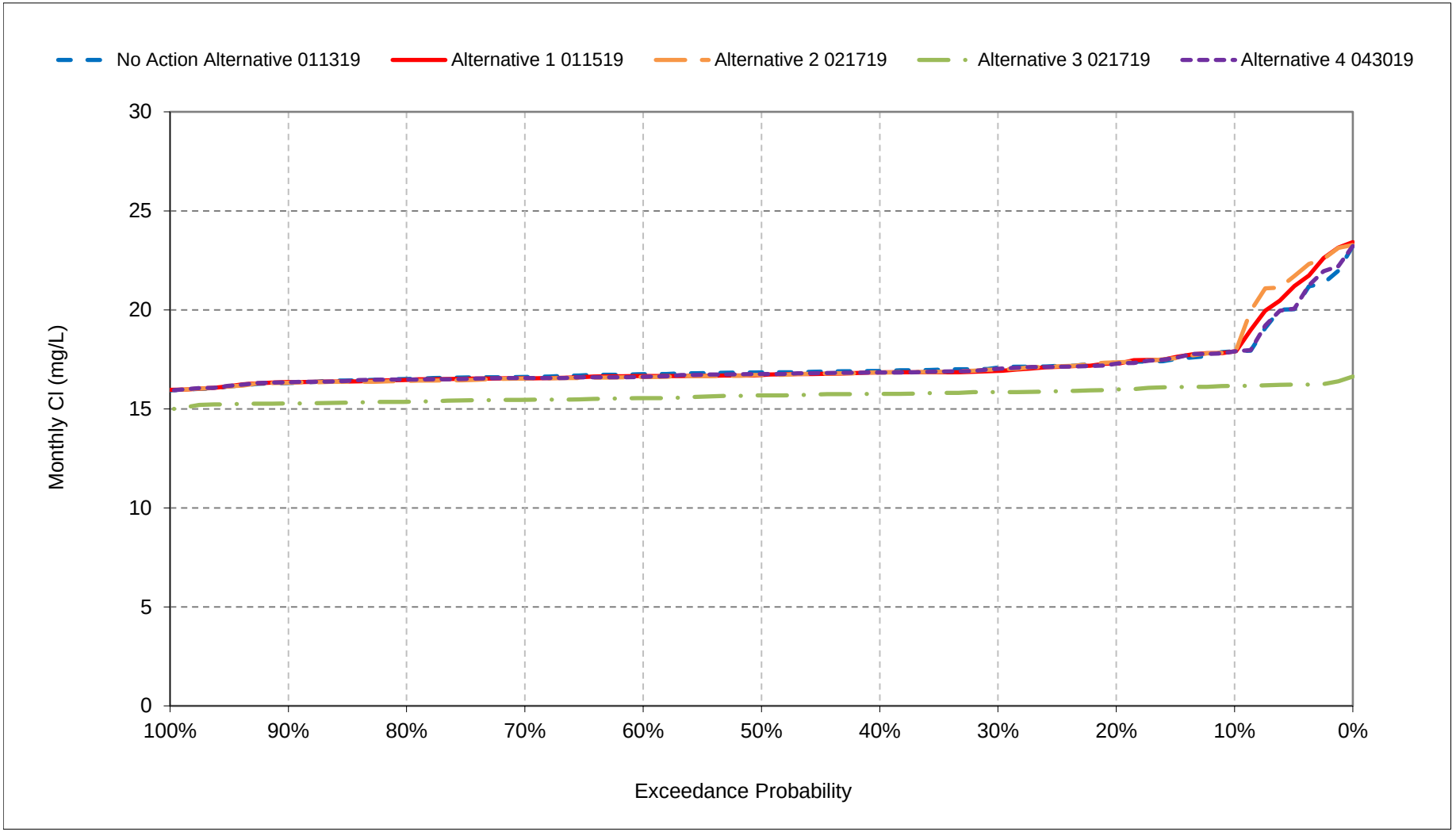
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-11. Barker Slough at NBA Intake
Chloride, May Cl



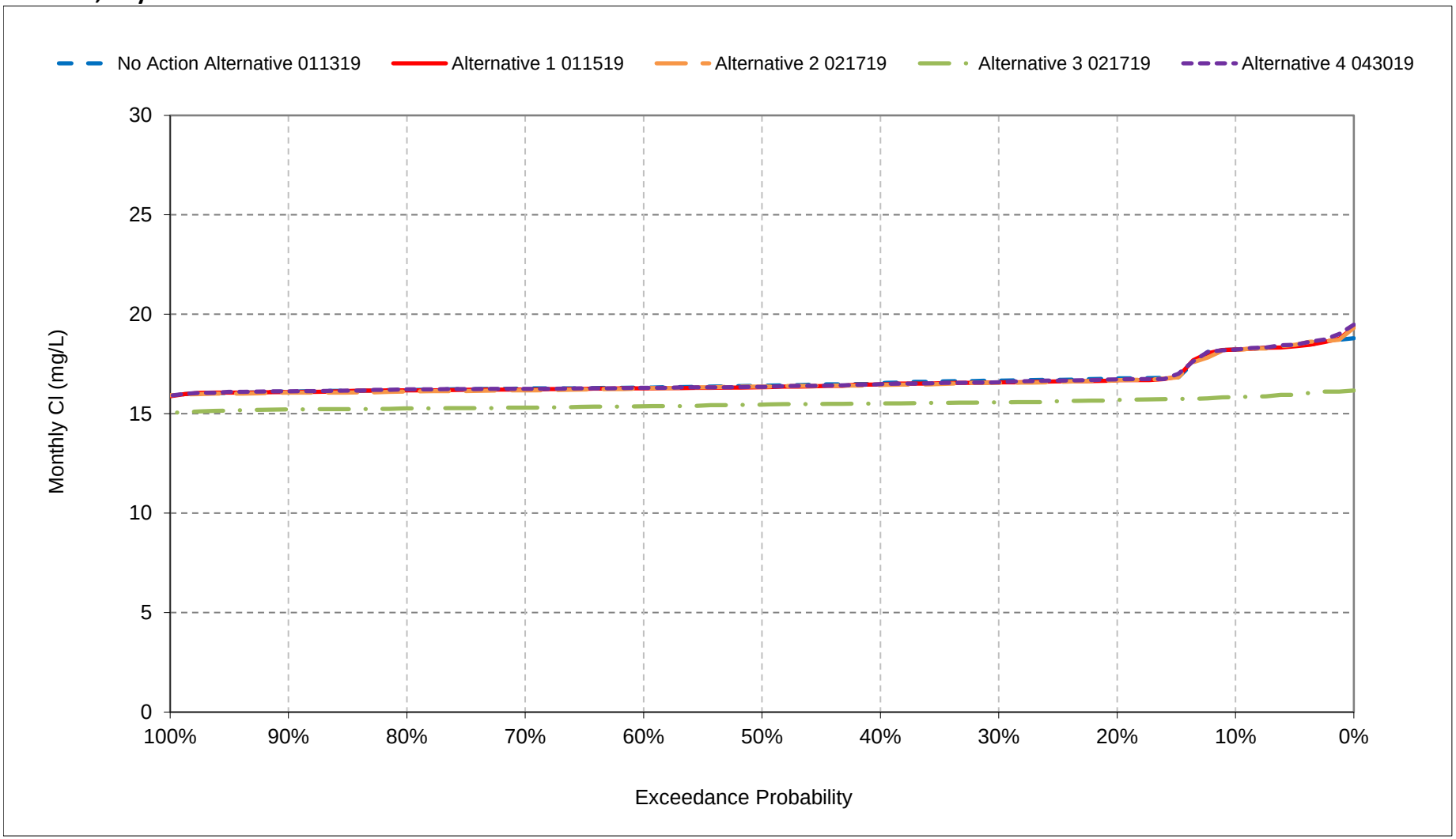
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-12. Barker Slough at NBA Intake
Chloride, June Cl



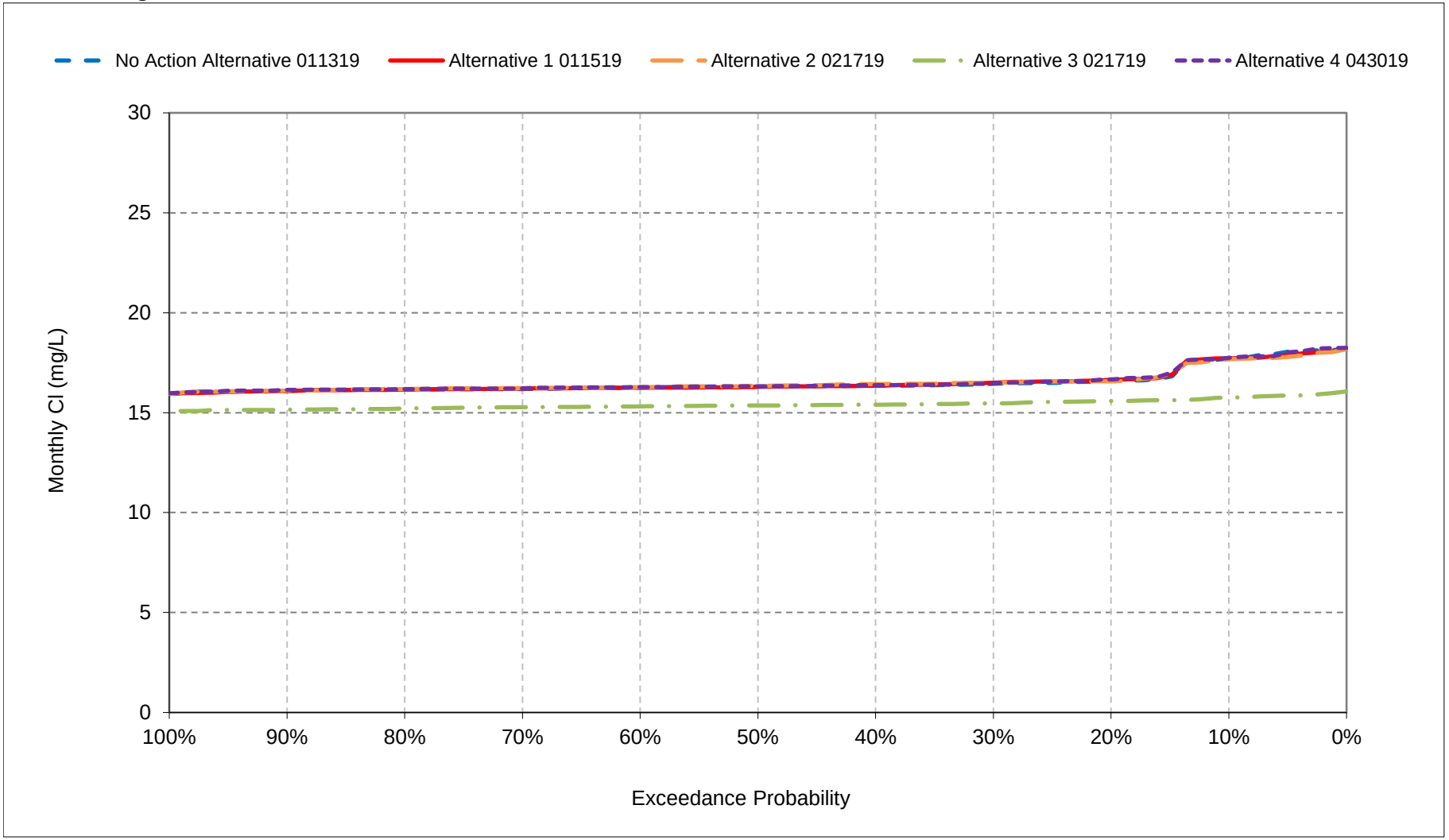
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-13. Barker Slough at NBA Intake
Chloride, July Cl



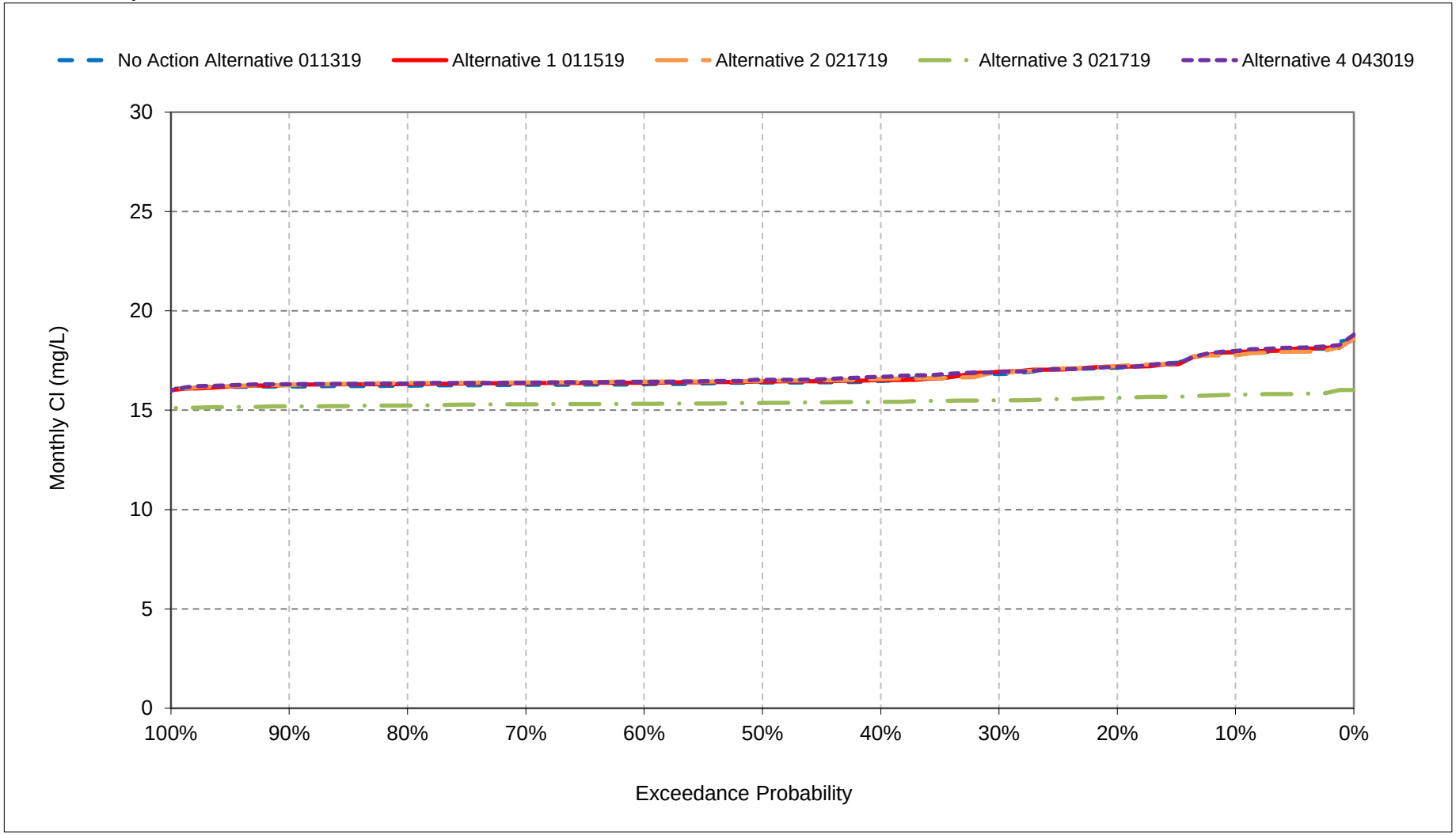
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-14. Barker Slough at NBA Intake
Chloride, August Cl



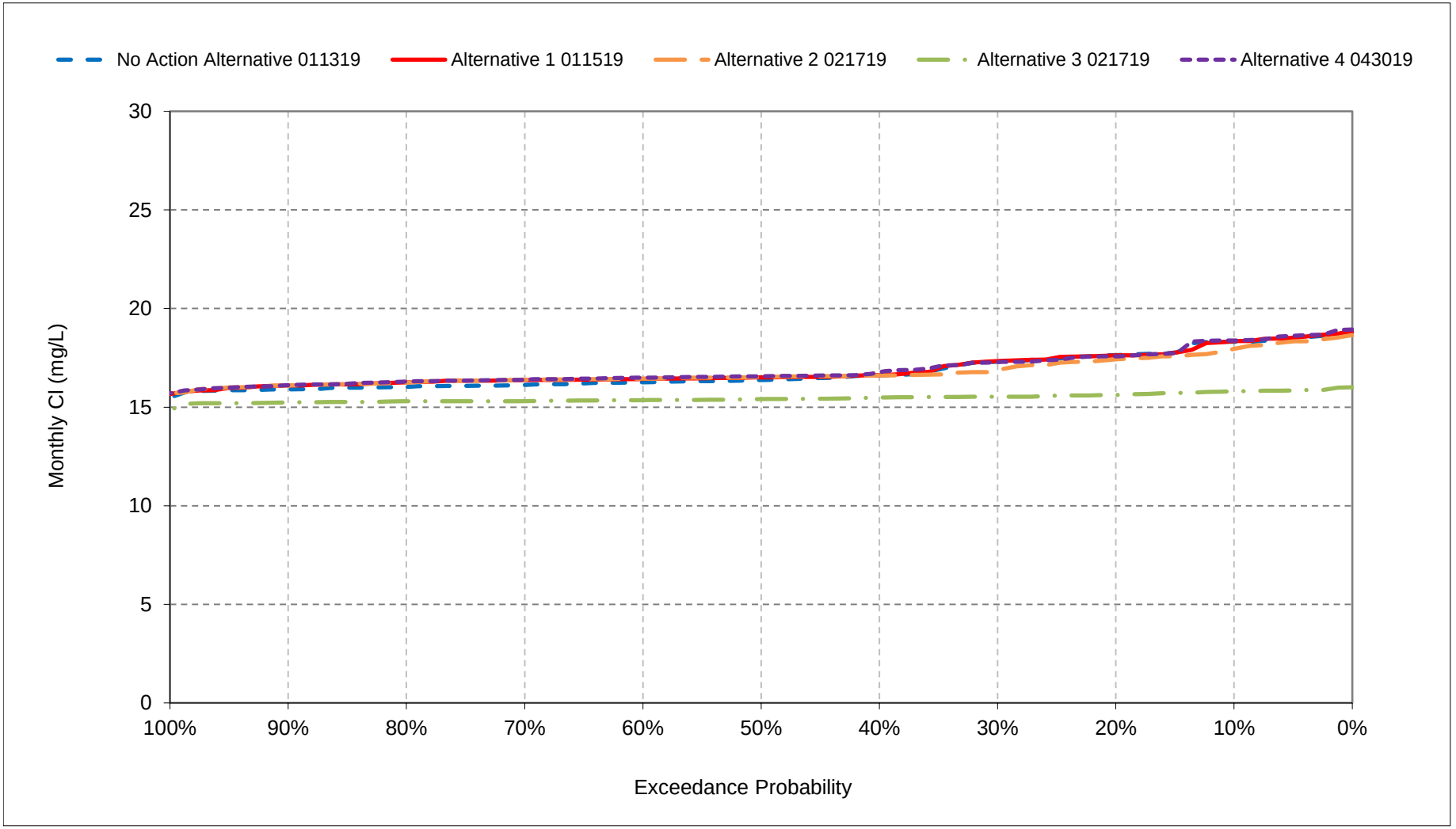
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-15. Barker Slough at NBA Intake
Chloride, September Cl



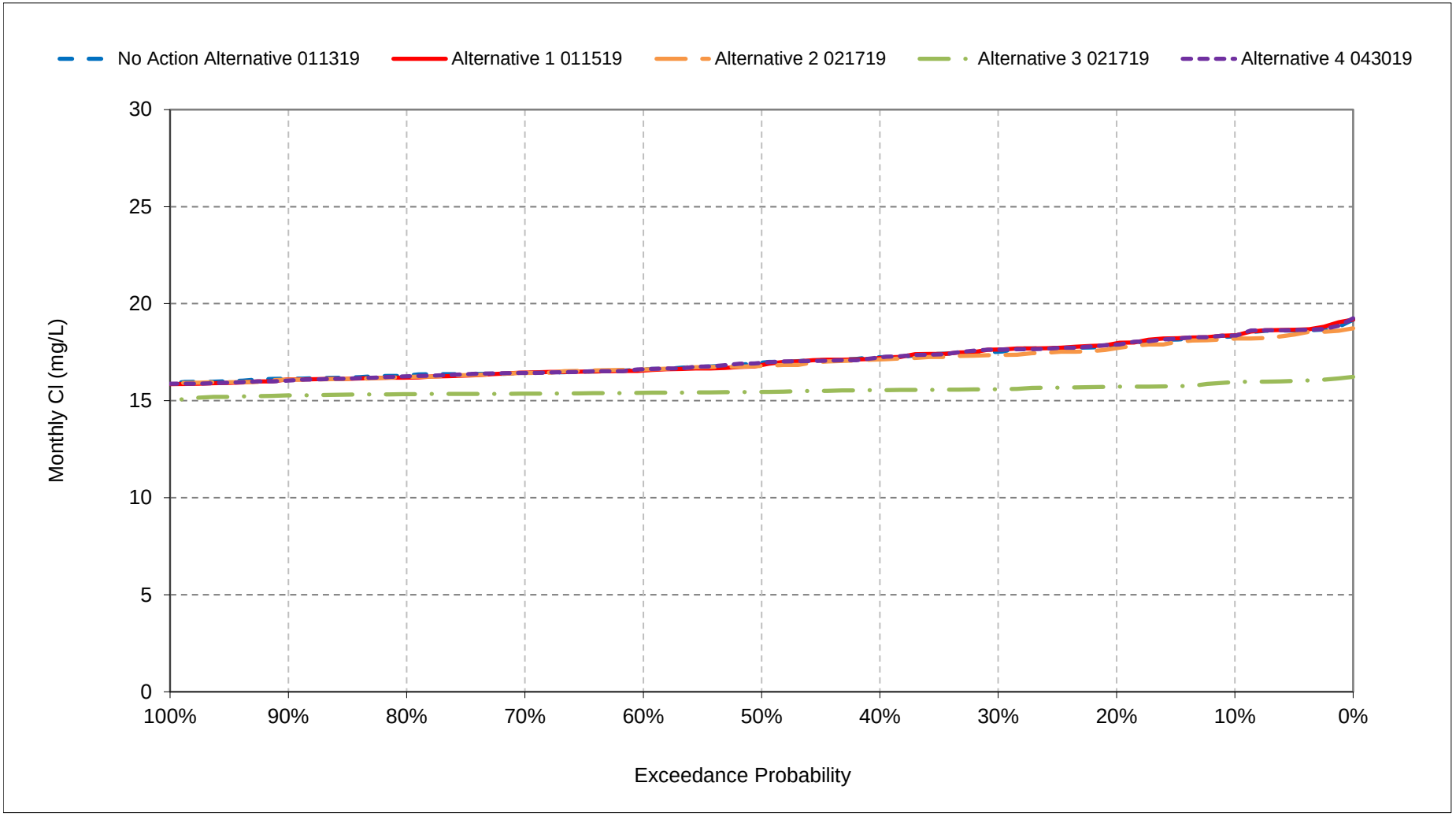
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-16. Barker Slough at NBA Intake
Chloride, October Cl



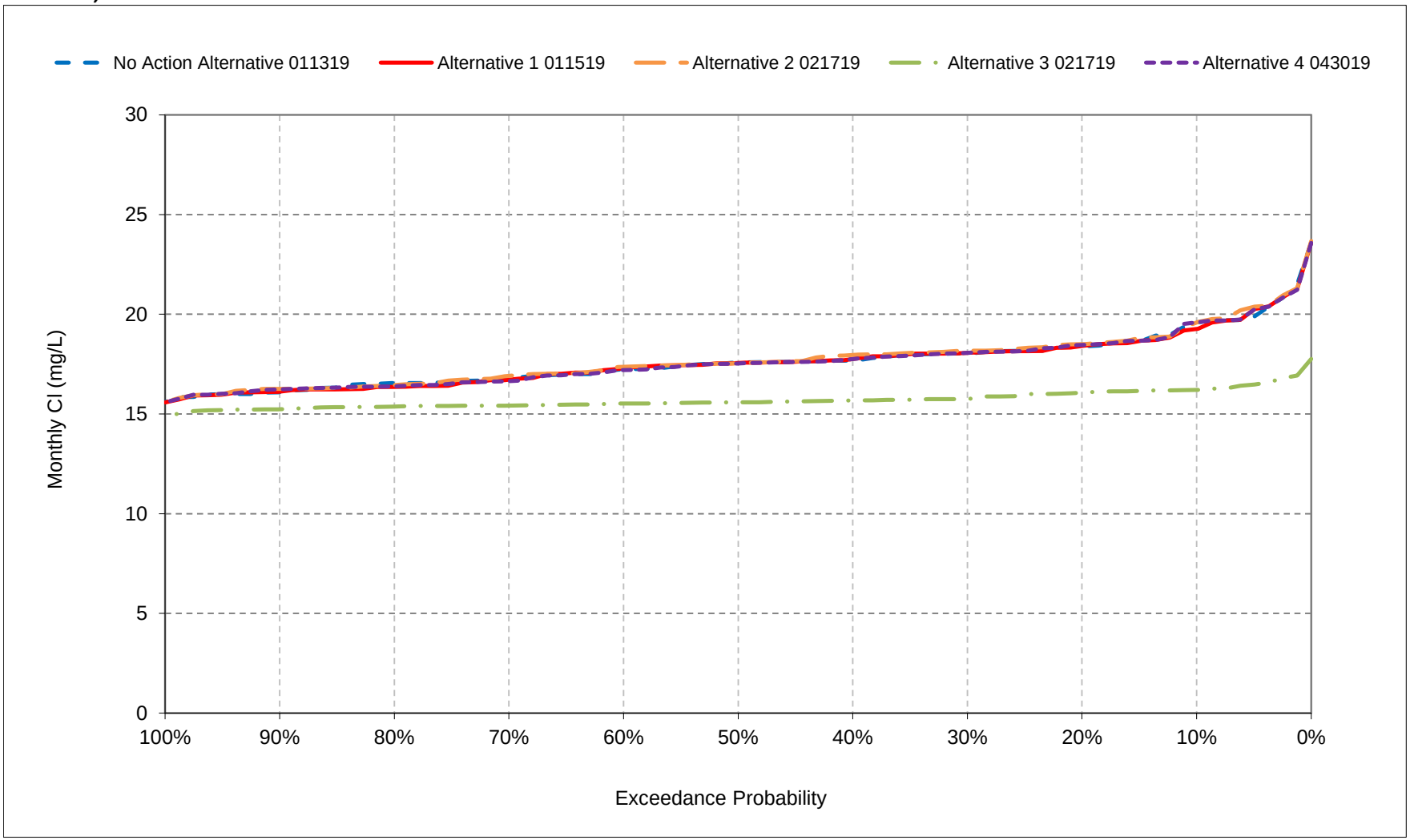
*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-17. Barker Slough at NBA Intake
Chloride, November Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.

Figure 23-18. Barker Slough at NBA Intake
Chloride, December Cl



*All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
*These are draft results meant for qualitative analysis and are subject to revision.