RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Poso Creek Integrated Regional Water Management Plan

25-Year Groundwater Banking, Transfer, and Exchange Program

EA-09-121

U.S. Department of the Interior
Bureau of Reclamation
Mid Pacific Region
South-Central California Area Office
Fresno, California

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Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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List of Acronyms, Abbreviations, and Definitions

AEWSD	Arvin-Edison Water Storage District
AF	acre-foot one acre-foot equals 325,851 gallons (the volume of water one foot deep and an acre in area)
AFY	acre-foot per year
Ag	Agricultural, typically referring to the purpose of use of water
APE	Area of potential effect
Aqueduct	California Aqueduct
Aquifer	An Aquifer is a geologic formation (soil or rock), group of formations, or part of a formation capable of storing, receiving and transmitting water. An aquifer is capable of yielding enough water to support a well or spring
BA	Biological Assessment
Banking	Banking is storing surface water in a specific portion of a groundwater basin for later extraction and use outside of the groundwater banking project boundary – See Groundwater Banking
BO	Biological Opinion
BVWSD	Buena Vista Water Storage District
CAA	Clean Air Act
CDFG	California Department of Fish and Game
CEQA	California Enviornmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH_4	methane
Class 1	Class 1 water is considered as the first 800,000 AF supply of CVP water stored in Millerton Lake, which would be available for delivery from the Friant-Kern Canal and/or Madera Canals as a dependable water supply during each Contract Year.
Class 2	Class 2 water is considered as the next 1,400,000 AF supply of non-storable CVP water which becomes available in addition to the Class 1 supply, and because of its uncertainty as to the availability and time occurrence, would not be dependable in character and would be furnished only if and when available as determined by Reclamation per Contract Year.
CNDDB	California Natural Diversity Database
CNLM	Center for Natural Land Management
CO	Contracting Officer
CO_2	carbon dioxide
Conjunctive Use	Conjunctive use is storing surface water in a specific portion of a groundwater basin for later extraction and use within the district or groundwater banking project boundary; and conjunctive use is the

	planned and coordinated use of surface and groundwater supplies to increase water supply reliability.
Contractor	City, county, water or irrigation district contracted with Federal, State or Local Agencies to obtain water.
Contract Year	A Contract Year typically begins on March 1st and ends February 28/29th of the following year
Corps	U.S. Army Corps of Engineers
CVC	Cross Valley Canal
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVP Contractor	Friant Division or Cross Valley Division Long-Term Contractor
Cawelo	Cawelo Water District
DAC	Disadvantaged Community (a community with financial need)
DEID	Delano-Earlimart Irrigation District
Delta	Sacramento and San Joaquin River Delta
DOI	Department of the Interior
DWR	State of California Department of Water Resources
EA	Environmental Assessment
ESA	Endangered Species Act
Exchange	Exchange is the movement of water between contractors within an 18 month period. Exchanges provide operational flexibility where sources of water are substituted instintaneously or within 18 months.
FKC	Friant-Kern Canal
FONSI	Finding of No Significant Impact
Friant	Friant Division
FWCA	Fish and Wildlife Coordination Act
GEI/B-E	GEI Consultants, Inc./Bookman-Edmonston Division
GHG	Greenhouse gases
Groundwater	Groundwater is the water stored underground in rock crevices or in the pores between geologic materials that make up the Earth's crust
Groundwater Banking	Groundwater Banking is the intentional storage of supplies in subsuface aquifers with the expectation of subsequent retrieval for beneficial use by the depositor for up to a 25-year period.
Groundwater Recharge	Groundwater Recharge is the natural or intentional infiltration of surface water into the zone of saturation
GW	Groundwater
HCP	Habitat Conservation Plan
ID	Irrigation District
In-Lieu Groundwater Banking	In-lieu groundwater banking is the immediate use of surface water instead of percolating it into the ground resulting in the development of a groundwater account the provider of the surface water can obtain at a later date.

ID	Irrigation District
IRWMP	Integrated Regional Water Management Plan
ITA	Indian Trust Assets
JPA	Joint Powers Agreement or Authority
KCWA	Kern County Water Agency
KNWR	Kern National Wildlife Refuge
KTWD	Kern-Tulare Water District
KWB	Kern Water Bank
mg/L	milligram per liter
M&I	Municipal and Industrial, typically referring to the purpose of use of water
MUD	Municipal Utility District
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
North Kern	North Kern Water Storage District
Non-CVP district	Non-Central Valley Project district of thePoso Creek RMG
NRHP	National Register of Historic Places
Percolation	Percolation is the downward movement of water through the openings in and between soil or rock
Poso Creek IRWM Plan	The area within the boundary of the Poso Creek IRWMPlan
POU	Place of Use defined within Reclamation's water rights permits
Recaptured Water	A water management component of the San Joaquin River Settlement, Water Management Goal, to re-circulate water
Reclamation	Bureau of Reclamation
RWA	Recovered Water Account
Recovered Water Account	Paragraph 16 provides for the creation of an account that tracks the water Friant Division long-term contractors provide toward Restoration Flows.
Region	Poso Creek IRWMP study area
RMG	Poso Creek IRWMP Regional Management Group
RRBWSD	Rosedale-Rio Bravo Water Storage District
RRA	Reclamation Reform Act of 1982
Section 215 Water	Section 215 refers to a section in the RRA, which defines temporary water supplies that are unusually large and not storable for project purposes and, among other measures, allows non-storable water to be applied to lands otherwise ineligible to receive federal water
Service	U.S. Fish and Wildlife Service
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
Shafter-Wasco	Shafter Wasco Irrigation District
SWP	State Water Project
SWRCB	State Water Resources Control Board
Semitropic	Semitropic Water Storage District

T&E or T & E Species	Threatened and Endangered species, as defined by the Federal Endangered Species Act
TBD	To be determined.
U.S.	United States
WD	Water District
WSD	Water Storage District

Section 1 Purpose and Need for Action

1.1 Background

The Poso Creek Regional Water Management Group (RWMG) was formed in 2005 to focus on improving water supplies throughout the Poso Creek Region (Region) and includes six agricultural districts, one resource conservation district, and a representative for the 16 disadvantaged communities (DACs) within the Region. In July 2007, the Poso Creek RWMG adopted an Integrated Regional Water Management Plan (IRWMP) which was prepared to emphasize resolving the Region's short-term and long-term water supply challenges (Poso Creek IRWMP 2007). In response to the decreased reliability of water supplies, the Poso Creek RWMG's six agricultural district members have completed a parallel California Environmental Quality Act (CEQA) document, an Initial Study (IS) with subsequent approval of a Negative Declaration, *Groundwater Banking and Exchanges within the Poso Creek Integrated Regional Water Management Plan Area*, on November 8, 2010 (Initial Study and Negative Declaration 2010), so that their applications for water banking and exchanges can be reviewed and approved based on these environmental documents. The IRWMP and IS are hereby incorporated by reference.

The six agricultural districts have water delivery authority whereas the North West Kern Resource Conservation District (NWKRCD) does not have authority to deliver water. The NWKRCD does have responsibilities for maintenance of Poso Creek, which is used from time to time to convey water to some of the districts. The Poso Creek RWMG members include:

- Semitropic Water Storage District (Semitropic) – Lead Agency for the IRWMP
- Shafter-Wasco Irrigation District (Shafter-Wasco)
- Cawelo Water District (Cawelo)
- Delano-Earlimart Irrigation District (DEID)
- Kern-Tulare Water District (KTWD)
- North Kern Water Storage District (North Kern)
- North West Kern Resource Conservation District
- Representative for the 16 DACs

The Region lies at the crossroads of the California Aqueduct (Aqueduct), Friant-Kern Canal (FKC), and the Kern River, which is a strategic location for facilitating surface water exchanges, transfers, and groundwater banking. The agricultural water districts that lie within the Region and have Central Valley Project (CVP) contracts (DEID, KTWD, and Shafter-Wasco) are interested in having a streamlined approval process to deliver CVP water to neighboring water districts (Semitropic, North Kern, and Cawelo who do not have CVP contracts – they can however, get 215 Water when available) for exchange, transfer, and/or banking when they have

water supplies surplus to their immediate in-district needs and to return the previously banked water or the exchange water from these entities by exchange or direct conveyance. Refer to Figure 1-1 for a map depicting the geographic locations of the Poso Creek RMWG, their juxtaposition to important conveyance facilities, and their varied sources of surface water.

Water supply reliability and sustainability within the Region are being impacted by changing dynamics of water supply timing and availability, such as:

- Court-ordered actions;
- Environmental and water quality regulations;
- Increased urbanization resulting in reductions in water available for agriculture; and
- Changes in weather patterns associated with climate change.

Environmental constraints on conveyance facilities also affect the reliability of State Water Project (SWP) and CVP supplies delivered to the Region. Based on the above mentioned impacts, it is projected that delivery of each of the three principal sources of surface water to the region (Kern River, SWP and CVP) has and will continue to be reduced in comparison to historical supplies. The IRWMP was created to respond to these projected reductions in water supply. The six agricultural districts within the Poso Creek RWMG have requested Bureau of Reclamation (Reclamation) approval for a streamlined process to allow groundwater banking, transfers, and exchanges of their contracted and purchased CVP water amongst each other within the Region as part of the IRWMP.

Purpose and Need

As noted in Section 1.1, the RWMG identified the need to offset the projected losses of their available surface water supplies due to court-ordered actions, environmental and water quality regulations, increased urbanization resulting in reductions in water available for agriculture, and changes in weather patterns associated with climate change. Based on studies done for the IRWMP, the projected decrease in average annual surface water supplies for the Region is estimated to be in excess of 100,000 acre-feet (AF) per year (AFY); projected over a 25-year period, the accumulated decrease in surface supplies is estimated to be in excess of 2.5 million AF (Poso Creek IRWMP 2007, Summary of Finding and Conclusions).

The Proposed Action would provide the RWMG members in the Friant Division of the CVP and RWMG members who are Cross Valley CVP contractors a streamlined process for obtaining Reclamation's approval for groundwater banking, transfers, and exchanges between themselves and non-CVP RWMG member districts within the Region. As a result, the RWMG members would be able to more effectively manage the Region's collective water supply and would have the enhanced ability to store surplus surface water supplies (at that time) within the Region which has capacity to absorb the supplies (with a coincident demand) at the time the supply is available. It is expected that a streamlined approval process for banking, transfers, and exchange would provide greater flexibility in matching available supplies to water-deficient areas by helping to balance existing water supplies in the Region, thereby more effectively meeting the RWMG's water management objectives as outlined in their IRWMP.

Scope

In accordance with section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, as amended, this Environmental Assessment (EA) has been prepared to examine the potential direct, indirect, and cumulative impacts on environmental resources as a result of groundwater banking, transfers, and exchange opportunities between the Poso Creek RWMG within the Region. These water management actions, as outlined in the IRWMP, would utilize facilities that have been through environmental review and have received all appropriate approval (e.g. Semitropic's Stored Water Recovery Unit [SWRU] in-lieu facilities have received necessary environmental permitting but not their well field recovery facilities). Similarly, these water management actions would involve varied surface water supplies available to the Poso Creek RWMG which have already undergone appropriate environmental review and have received necessary approval.

The CVP water available to be banked, transferred, and/or exchanged include (see Section 1.6):

- Class 1 and Class 2 water from the Friant Division originating behind Friant Dam;
- Water from the Cross Valley Unit originating from the Sacramento-San Joaquin River Delta (Delta);
- Recovered Water Account (RWA) and Recaptured Friant Water made available from either Friant Dam and/or San Luis Reservoir/Delta;
- Section 215 water originating behind Friant Dam and/or from the Delta; and
- Abandoned floodwater from the San Joaquin River that could be conveyed down the FKC.

The non-CVP sources of water that could be used to effectuate exchanges and/or return of banked water include:

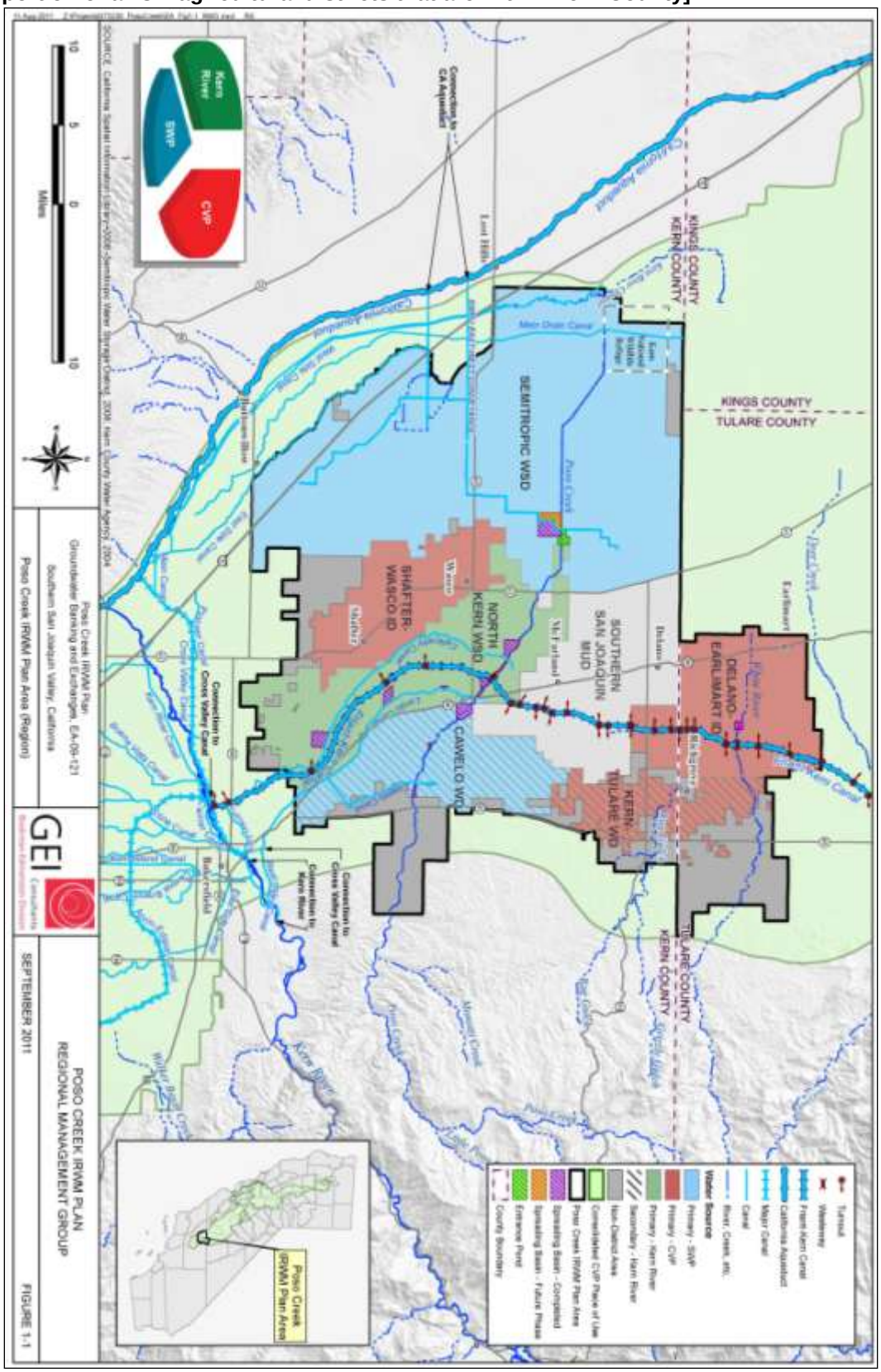
- Abandoned Floodwater from Reclamation District 770 made available from the FKC via a Warren Act Contract (see Section 1.6);
- Previously banked water within the Region available from past banking and exchanges;
- SWP water conveyed down the California Aqueduct originating from the Delta and/or stored in San Luis Reservoir; and
- Other surface water supplies diverted based on water rights including rivers, creeks and streams (Kern River [also available from the FKC via a Warren Act contract], Poso Creek, Rag Gulch, or the White River).

The temporal scope of this EA analysis would cover a 25-year period, providing a streamlined, programmatic approval process for these water management actions. Any extension beyond 25 years, or actions that involve facilities and water sources not covered within the scope of this EA may require additional environmental review(s) and approval(s).

The scope of Reclamation's approval for the Proposed Action is limited to those actions where Reclamation has approval authority, which includes portions of the IRWMP involving CVP water and/or facilities. However, this EA also evaluates the potential impacts resulting from the No Action Alternative. The IRWMP also includes actions that do not involve CVP water or

facilities, which do not require Reclamation approval. These actions would be addressed under the No Action Alternative and/or Cumulative Impacts section(s), respectively and as appropriate. The Poso Creek RWMG and Region associated with the IRWMP are located within Tulare and Kern counties (see Figure 1-1).

Figure 1-1 The Poso Creek RWMG are located in Kern and Tulare Counties [NWKRCD overlays the portion of all six agricultural districts that are within Kern County]



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Applicable Regulatory Requirements and Required Coordination

Several Federal laws, permits, licenses and policy requirements have directed, limited, or guided the NEPA analysis and decision-making process of this EA. All groundwater banking, transfers, and exchanges analyzed in this EA are subject to the following contracting authorities and guidelines as applicable, as amended, updated, and/or superseded.

- Title XXXIV CVPIA October 30, 1992, Section 3405 (a)
- Reclamation Reform Act (RRA), October 12, 1982, as applicable
- 9(d) Repayment Contracts for Friant Division
- Interim Water Service Contracts for Cross Valley contractors
- Reclamation's Interim Guidelines for Implementation of Water Transfers Under Title XXXIV of Public Law 102-575 (Water Transfer) February 25, 1993
- Reclamation and United States Fish and Wildlife Service (Service) Region 1, Final Administrative Proposal on Water Transfers April 16, 1998
- Exchanges of water supplies between Friant Division and Cross Valley contractors, SWP contractors, and local river water districts are authorized pursuant to the Reclamation Project Act of 1939, Section 14

Potential Issues

The potentially affected resources in the project vicinity include: water quality, surface water resources, groundwater resources, land use, biological resources, cultural resources, Indian Trust Assets (ITA), Indian sacred sites, socioeconomic resources, environmental justice, air quality, and global climate.

Related Environmental Documents

The following documents are hereby incorporated by reference.

Friant Division Class 1 and Class 2 CVP Water

In 2001, Reclamation completed an EA, *Friant Division Long-Term Contract Renewal*, to analyze the impacts associated with the 25-year renewal of water service contracts for Friant Division CVP contractors (Friant LT, 2011). Subsequently and pursuant to Public Law 111-11, the Secretary was directed to convert specific Friant Division CVP contractors' long-term water service contracts to 9(d) Repayment Contracts, which would be in perpetuity and would provide for accelerated repayment of CVP facilities and water service. DEID and SWID are Friant Division CVP contractors, which can receive Class 1 and Class 2 supplies from Millerton Lake stored behind Friant Dam. Class 1 water is considered as the first 800,000 AF supply of CVP water stored in Millerton Lake, which would be available for delivery from the FKC and/or Madera Canals as a dependable water supply during each Contract Year.

Class 2 water is considered as the next 1,400,000 AF supply of non-storable CVP water which becomes available in addition to the Class 1 supply, and because of its uncertainty as to the

availability and time occurrence, would not be dependable in character and would be furnished only if and when available as determined by Reclamation per Contract Year.

Class 1 and 2 waters are not inclusive of waters released by Reclamation from Friant Dam for environmental and/or other obligations.

In addition, there are extremely wet years when abandoned floodwaters from the San Joaquin River are conveyed down the FKC and are made available to any contractors whom are capable of diverting this water.

Cross Valley CVP Contractors Article 5 Exchanges

KTWD is a member of the Cross Valley CVP contractors, who are geographically situated amongst Friant Division CVP contractors, but whose contract water originates from the Delta. Due to direct conveyance hurdles, Reclamation envisioned that the Cross Valley contractors would then obtain their CVP supplies via exchanges, as defined in Article 5 of their respective water service contracts. As a result, Cross Valley CVP contractors can exchange their Delta CVP water with other willing CVP and non-CVP contractors. Reclamation recently completed, *EA-10-036 Article 5 Exchanges between Cross Valley Contractors and other Water Districts for Delivery of Central Valley Project Water – 2010 and 2011*, and a FONSI was signed on July 9, 2010 (Article 5, 2010). The current Article 5 exchanges are covered up until February 29, 2012. Reclamation is in the process of analyzing and approving another two-year approval for Article 5 exchanges until a long-term (25-year) action can be approved.

Friant Division and South-of- Delta Accelerated Water Transfer Programs

Reclamation has historically acknowledged water transfers and/or exchanges between CVP contractors geographically situated within the same region, who possess interim or long-term water service contracts, or repayment contracts, and are provided water service through the same CVP facilities under an Accelerated Water Transfer Program (AWTP). The most recent AWTP for the Friant Division and Cross Valley CVP contractors was analyzed in, E*A-10-052 Accelerated Water Transfer Program for Friant Division and Cross Valley Central Valley Project Contractors, 2011-2015,* and a FONSI was signed on February 11, 2011 (Friant AWTP, 2011).

Similar to the Friant Division AWTP, Reclamation recently completed an AWTP involving south-of-delta CVP contractors (which includes Cross Valley Contractors) in, *EA-10-051 Accelerated Water Transfers and Exchanges, Central Valley Project Water, South of Delta Contractors 2011-2015*, and a FONSI was signed on February 14, 2011 (SOD AWTP, 2011). Both AWTPs will expire on February 29, 2016 and are anticipated to be renewed for another five years after appropriate environmental review and approval.

Recaptured Friant CVP Water

In order to reduce or avoid adverse water supply impacts on all of the long-term Friant Division CVP contractors that may result from the Interim and Restoration Flows provided for in the San Joaquin River Restoration Settlement Act, the recaptured water is made available through direct delivery and/or recirculated via transfers and/or exchanges to the Friant Division CVP contractors. Reclamation recently completed an EA, *Recirculation of Recaptured Water Year 2011 San Joaquin River Restoration Program Interim Flows,* and signed a Finding of No

Significant Impact (FONSI) on May 24, 2011 (Recirc/Recaptured EA, 2011). It is anticipated that recaptured water would be available in subsequent years and return of that water to Friant Division contractors and Reclamation would conduct NEPA review and approval, as appropriate.

South-of-Delta and Friant Division Section 215 Water

Section 215 refers to a section in the Reclamation Reform Act of 1982, which defines temporary water supplies that are unusually large and not storable for project purposes and, among other measures, allows non-storable water to be applied to lands otherwise ineligible to receive federal water. Reclamation has historically executed temporary, one-year Section 215 contracts with CVP and non-CVP contractors who can divert the water as it is made available, as determined by Reclamation. Most recently, Reclamation completed Categorical Exclusion Checklists (CECs), *CEC-11-034 Section 215 Contracts for SOD Contractors (Inclusion of Non-CVP Contractors), CEC-10-056 Temporary 215 Contracts – Non-CVP Contractors WY 2011*, and *CEC-10-055 Temporary 215 Contracts – CVP Contractors WY 2011* (Section 215 CECs, 2010 and 2011). It is anticipated that Reclamation would conduct NEPA review and approve execution of Section 215 contracts in subsequent years, as appropriate.

Reclamation District 770 Abandoned Floodwater

Since 1978, Reclamation has periodically entered into Warren Act contracts (both long-term and temporary) with Reclamation District 770 to allow for the introduction and disposition of non-CVP floodwaters from the Kings, St. John's, and Tule rivers into the FKC in order to help alleviate damage to farmlands, property, and crops. Reclamation recently completed, *Supplemental EA-11-025 3 Month Extension of the 2010 Warren Act Contract and License for Delta Lands Reclamation District No. 770*, and signed a FONSI on June 3, 2011 (RD770, 2011). Reclamation is currently in the process of analyzing and approving a long-term Warren Act contract which would allow for these abandoned floodwaters to be introduced into the FKC for the next 25 years. If the long-term action cannot be approved, Reclamation would continue to analyze and execute temporary, one-year Warren Act contracts, as appropriate.

Kern-Tulare Water District Kern River Warren Act Contract

Reclamation has periodically entered into a Warren Act contract with KTWD which allows the district to store and/or convey Kern River and SWP (non-CVP) water in the FKC. Reclamation most recently completed, *EA-08-86 Approval of up to Five-Year Temporary Warren Act Contracts for Participating Friant and Cross Valley Division CVP Contractors, 2009-2013*, and a FONSI was signed February 27, 2009 (KTWD Warren Act Contract 2009). The existing Warren Act contract expires February 28, 2014. Reclamation anticipates approving five-year contracts for this continued action until a long-term (25 years) contract is analyzed under NEPA and approved.

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Section 2 Alternatives Including the Proposed Action

This EA considers two possible actions: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment.

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not approve a streamlined approval process for long-term (25-years) groundwater banking, exchanges, and/or transfers involving CVP water and/or facilities as part of the Poso Creek IRWMP. The RWMG would not be able to respond as quickly and effectively to groundwater banking, transfer, and exchange opportunities during wet-periods and would not be able to increase flexibility in delivery to adapt to the changing timing of deliveries. The RMWG would need to request separate approval from Reclamation as each water management action opportunity becomes available; however, each approval would require individual environmental review and approval, which could potentially render the water management action moot given the short window of opportunity to take advantage of wet-period excess supplies.

Approval of the IS and adoption of a Negative Declaration, which analyzed potential environmental impacts as a result of implementing the Poso Creek IRWMP under CEQA, has allowed some of the RWMG member agencies to proceed with making improvements to their internal distribution system and infrastructure, as well as engage in groundwater banking, transfers, and exchanges that do not involve CVP water and/or facilities. Under the No Action Alternative, the RWMG could still implement actions within the IRWMP that do not require Reclamation approval. Additional information regarding actions not requiring Reclamation approval within the IRWMP can be found in Section 3.

In addition, both KTWD and DEID already have Reclamation-approved long-term banking projects with North Kern (Reclamation 2006 and 2009) which they could continue to implement under the No Action Alternative.

2.2 Proposed Action

Reclamation's approval authority, in regards to the Poso Creek IRWMP, is limited to those actions which involve CVP water and/or facilities. Under the Proposed Action, Reclamation proposes to approve a 25-year groundwater banking, transfer, and exchange program as part of the Poso Creek IRWMP which would allow the RWMG to take advantage of water management opportunities during wet periods and the availability of surplus (at the time) surface water supplies. All CVP water that is banked, exchanged, or transferred would be kept within the Region and within the CVP authorized place-of-use. Reclamation's analysis is programmatic in nature and approvals would be provided as each water management action is proposed and

determined to be consistent with the scope of this EA. The water management actions can be summarized into four groups:

- Groundwater banking, transfers, and exchanges and among RWMG districts who receive or purchase CVP water delivered from the FKC (DEID, Shafter-Wasco, and KTWD) with RWMG districts that have non-CVP water (Semitropic, North Kern, and Cawelo), and CVP Delta water (KTWD);
- Groundwater banking, transfers, and exchanges among RWMG districts who receive re-captured water that is made available in San Luis Reservoir or the Delta for the Friant Division contractors (i.e. DEID, Shafter-Wasco, and KTWD) with RWMG districts that have non-CVP water (Semitropic, North Kern, and Cawelo), and CVP water from the Delta (KTWD);
- Groundwater banking, transfers, and exchanges between KTWD, who receives CVP Delta water, with RWMG districts that have regulated state, local, or CVP water supplies; and
- Groundwater banking, transfers, and exchanges among RWMG districts that have wet year supplies (e.g. uncontrolled season Class 2 water, RWA water, Section 215 water, and wet year non-CVP supplies) and limited available absorptive capacity, with RWMG districts that have direct recharge and/or in-lieu recharge facilities with the capacity to absorb the wet year supply at the time the water is available.

The water banking program for the three CVP contractors, DEID, Shafter-Wasco and KTWD, would allow them to bank CVP water outside of their respective service area boundaries in years when they have CVP water surplus to their (then) current demand and recover their banked water for use within their service area boundaries during times of inadequate supply (Table 2-1). The water banking program would be accomplished through Reclamation approving the banking of CVP water outside of the districts' service area boundaries but still within the CVP place-of-use and approving the return of the previously banked water. Water banking would occur on an up to 2:1 ratio, whereby CVP and/or non-CVP water could be used as the "left behind" portion of the arrangement. Water used for banking could be used for direct irrigation ("in-lieu" banking) and/or for direct groundwater recharge through the use of spreading basins and natural unlined channels. The district(s) receiving the water to be banked would credit the delivering district(s) for the amount of water banked, minus 10% for aquifer recharge/losses, for all CVP water delivered.

Similarly, exchanges could also occur on an up to 2:1 ratio, minus 10% conveyance losses.

Table 2-1 Maximum amounts of CVP water that could put into the bank, transferred, or exchanged

District	Amount of water put into bank, transferred, or exchanged per year (AF)*	Amount of previously banked/exchange water returned per year (AF)	Total quantity of CVP** water in storage at any given time (AF)
DEID	90,000	30,000	180,000
Shafter-Wasco	45,000	15,000	90,000
KTWD	60,000	20,000	120,000
Total	**195,000**	**65,000**	**390,000**

* The quantity of CVP water per district listed for this action is separate from and would recognize the priority of other banking programs previously approved by Reclamation.
** Does not include water left behind

Table 2-2 Environmental Protection Measures

Resource	***Protection Measure***
Biological Resources	No water conveyed in federal facilities and applied to lands in the Region as a part of the Proposed Action would be applied to lands that have never been tilled, or to lands fallowed and left untilled for 3 or more years unless such lands are surveyed for listed species, and if necessary, a section 7 ESA consultation is conducted.

Table 2-3 below depict turnouts for the main conveyance facilities that could be used as part of the Proposed Action.

Table 2-3 Points of Diversion

Turnout		Size	Capacity	District	Flow Direction
Milepost	**Name or Direction**				
State Water Project					
California Aqueduct					
206.99	SWRU East-West Conveyance	120-inch	1000 cfs	Semitropic	E/W
209.78	Intake Canal		580 cfs	Semitropic	E/W
238.04	Cross Valley Canal		1300 cfs	Kern County Water Agency (KCWA) et. al.	E/W
Central Valley Project					
Friant-Kern Canal					S (future N/S)
107.35	Right	2 - 3.5' x 3.5'		Saucelito Irrigation District	W
109.46	Right	2 - 4.5' x 4.5'		DEID	W
109.46	Left	2 - 4.5' x 4.5'		DEID	E
111.56	Right	2 - 4.5' x 4.5'		DEID	W
111.56	Left	4' x 4'		DEID (KTWD-Ave. 40)	E
111.96	Left	4' x 4'		DEID (KTWD-Ave. 36 PP)	E
112.58	Right	Abandoned		DEID	W
113.60	Left	5 - 16" Siphons		KTWD (Ave. 24 PP)	E
113.62	Right	2 - 4.5' x 4.5'		DEID	W
113.62	Left	2 - 4.5' x 4.5'		DEID	E
115.95	Right	2 - 4' x 4'		DEID	W
116.40	Right	2 - 4' x 4'		Styro -Tec, Inc.	W
116.92	Left	2 - 4.5' x 4.5'		DEID (KTWD-Ave. 4)	E
117.96	Left	7 - 12" Siphons		KTWD (Cecil Ave. PP)	E
118.45	Right	3' x 3'		DEID	W
120.06	Left	4' x 4'		into equalizing reservoir	E
121.49	Left	2.5' x 6'		out of equalizing reservoir/KTWD	E

Turnout		Size	Capacity	District	Flow Direction
Milepost	Name or Direction				
129.92	Right Inlet	3 - 36" Pipes		North Kern	E
130.13	Right	2 - 15' x 6.5'	250 cfs	Poso Creek Wasteway	W
133.41	Right Inlet	2 - 15" Pipes		North Kern	E
134.42	Right	3 - 4.5' x 4.5'	200 cfs	Shafter-Wasco	W
136.64	Right Inlet	2 - 15" Pipes		North Kern	E
137.17	Right	3 - 4' x 4'	200 cfs	Shafter-Wasco	W
144.86	Right	1 - 72"	200 cfs	North Kern	W
144.87	Right	2 - 72"	400 cfs	North Kern	W
150.83	Right	3' x 3'		PG&E	W
151.29	Right Inlet/Outlet	2 - 72"	500 cfs	KCWA et. al. New CVC turnout/in	E/W
151.80	Right		1000 cfs	AEWD	W
151.81	Right Inlet	3 - 24" siphons	39 cfs	KTWD	E
151.81	Left Inlet	4 - 24" siphons	60 cfs	KTWD/Cawelo	W
151.81	NA	2- 2' x 12'	2000 cfs	Terminus into Kern River	S
Kern River					
Beardsley Canal			800 cfs	North Kern/Cawelo	N
Calloway Canal			1000 cfs	North Kern	N (future N/S)

Notes: 1. Flow directions are unidirectional unless indicated. For example "N/S" indicates a canal that canal flow both north and south.

Figure 2-1 illustrates how the CVP contractors within the RWMG would deliver CVP water for banking, transfer, or exchange to the other RWMG's facilities and Figure 2-2 depicts the return mechanism of previously banked CVP water.

Figure 2-1 CVP contractors who would deliver CVP water for banking

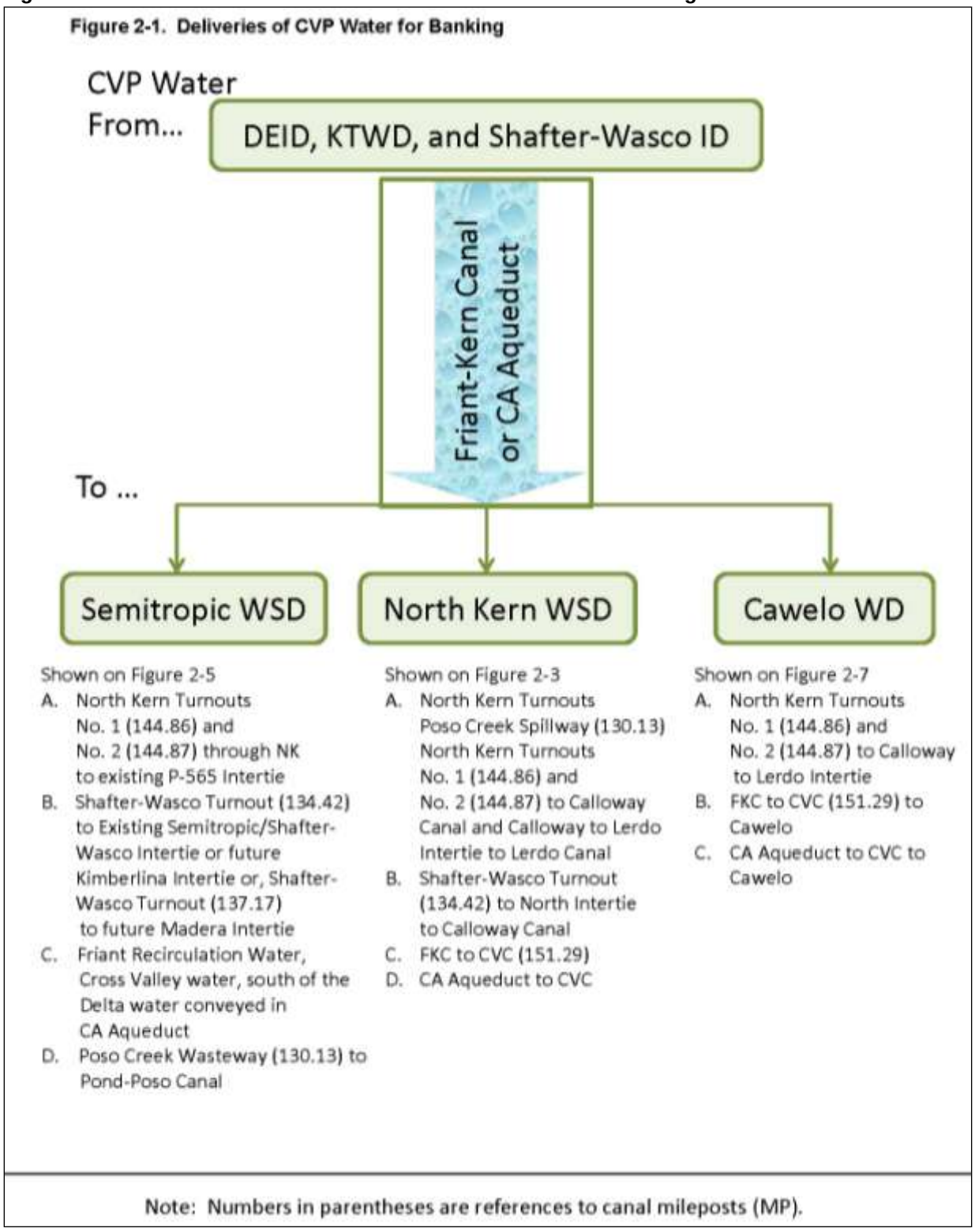
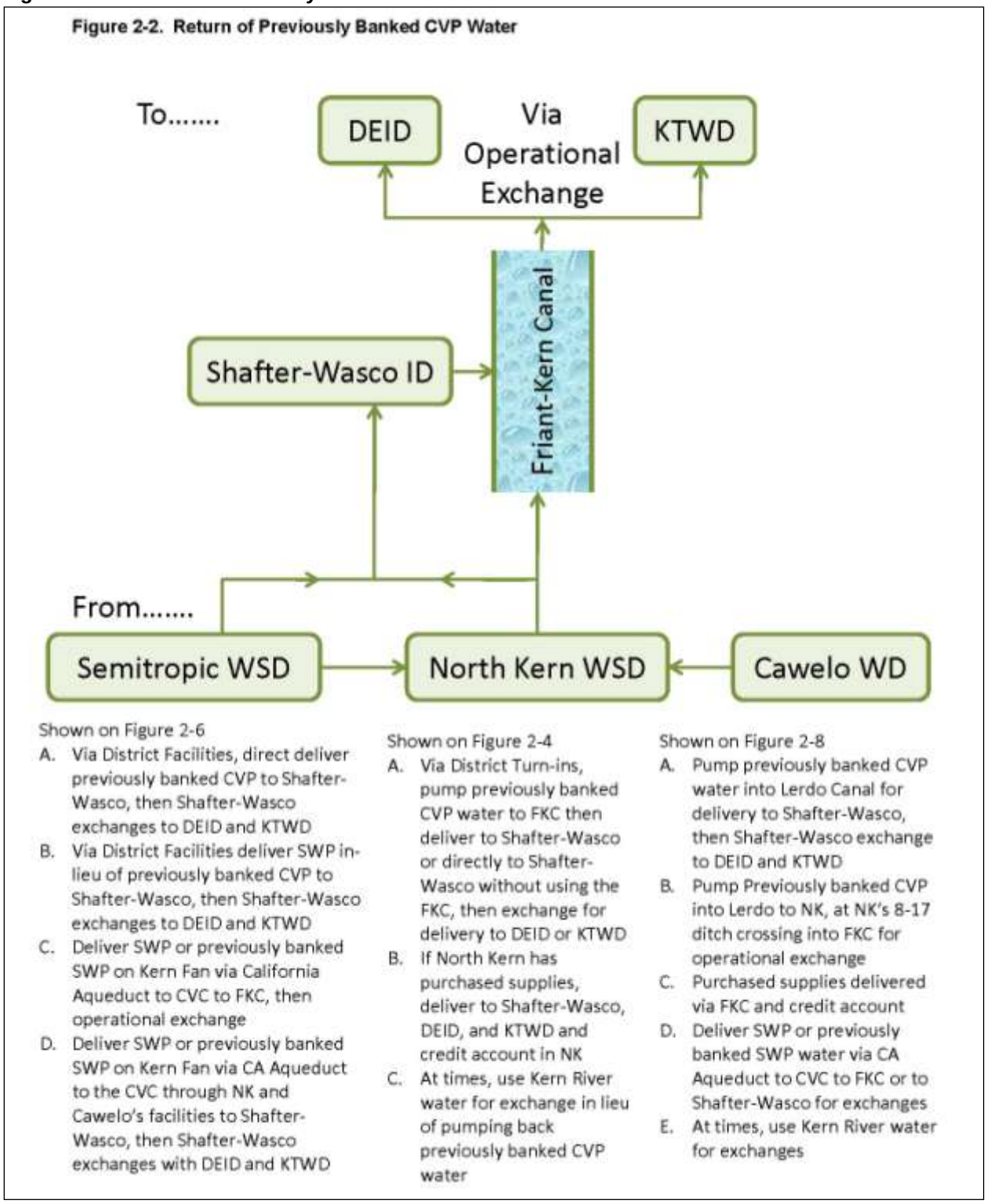


Figure 2-2 Return of Previously Banked CVP Water



The various potential delivery and recovery routes between the Poso Creek RWMG are described in more detail in the following texts and reflected in the related figures.

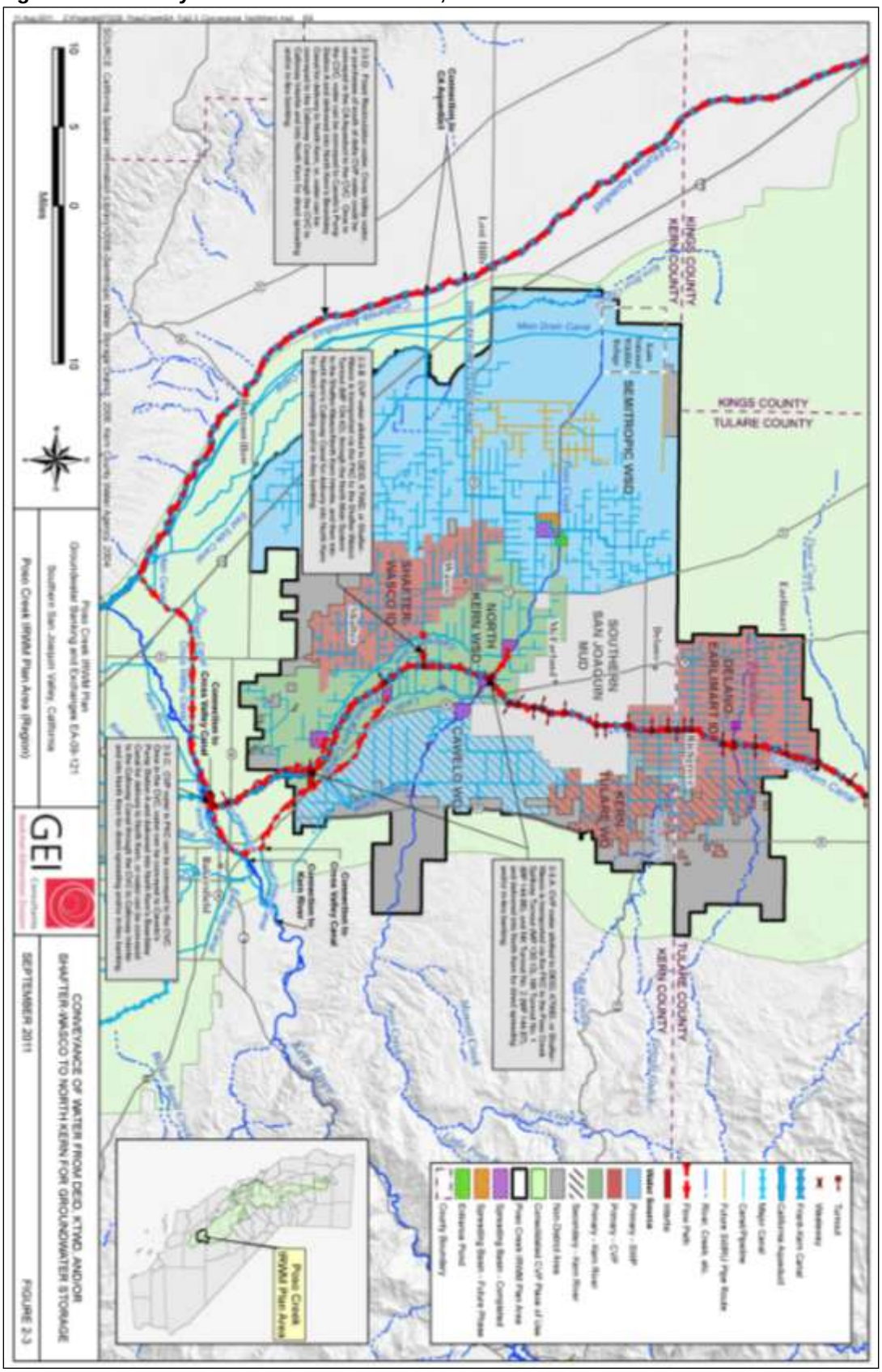
Conveyance to and from North Kern

Conveyance of CVP water from DEID, KTWD and/or Shafter-Wasco to North Kern for banking, transferring, or exchanging could occur using the FKC or CVC as follows.

Conveyance of CVP water from DEID, KTWD, and/or Shafter-Wasco to North Kern for Banking, Transferring, or Exchanging (Figure 2-3 corresponds to this description)

- (2-3.A.) CVP water in the FKC could be directly delivered to North Kern from their existing turnouts on the FKC.
- (2-3.B.) CVP water in the FKC could be delivered from Shafter-Wasco turnouts on the FKC, then through interconnections between Shafter-Wasco and North Kern.
- (2-3.C.) CVP water in the FKC could be delivered to the Cross Valley Canal (CVC). Once in the CVC, water can be conveyed to Cawelo's Pump Station A and delivered into North Kern's Beardsley Canal for delivery to North Kern.
- (2-3.C.) CVP water in the FKC could be delivered to the CVC. Once in the CVC, water can be conveyed through the Calloway Canal and delivered to North Kern.
- (2-3.D.) Friant Recaptured water, Cross Valley water, or purchases of south-of-delta CVP water could be conveyed in the Aqueduct to the CVC. Once in the CVC, water can be conveyed to Cawelo's Pump Station A and delivered into North Kern's Beardsley Canal for delivery to North Kern.
- (2-3.D.) Friant Recaptured water, Cross Valley water, or purchases of south-of-delta CVP water could be conveyed in the Aqueduct to the CVC. Once in the CVC, water can be conveyed through the Calloway Canal and delivered to North Kern.

Figure 2-3 Conveyance of water from DEID, KTWD and/or Shafter-Wasco to North Kern



Return of CVP water to DEID, KTWD and/or Shafter-Wasco from North Kern
(Figure 2-4 corresponds to this description.)

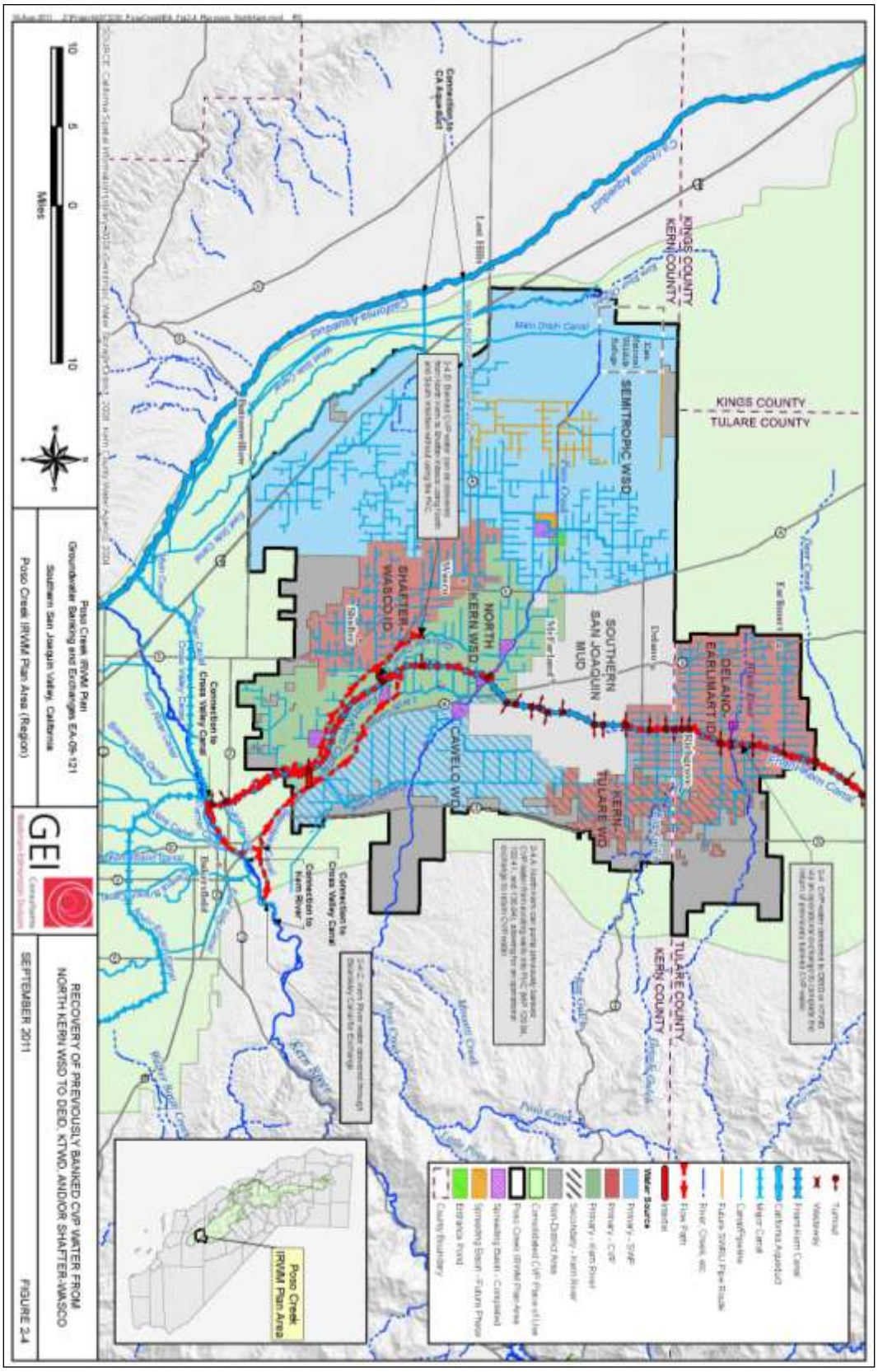
- (2-4.A.) North Kern could pump the previously banked CVP water from existing groundwater wells into three separate pipelines which would convey the water into the FKC. These pipelines are located at mileposts (MP) 129.94, 133.41 and 136.64 on the FKC. In addition, North Kern could pump water into the FKC at other locations approved by Reclamation which may require additional environmental analysis. If the previously banked CVP water is going to DEID or KTWD, water would be delivered in the FKC via an operational exchange through the Friant Water Authority to DEID or KTWD.
- (2-4.A.) North Kern could also pump the previously banked CVP water from existing wells directly to Shafter-Wasco from North Kern without using the FKC. If the previously banked CVP water is going to DEID or KTWD, a like amount of CVP water would then be made available from Shafter-Wasco CVP supplies to be delivered to DEID and/or KTWD.
- (2-4.B.) If North Kern has purchased other supplies of CVP or non-CVP water available from the FKC, DEID, KTWD and/or Shafter-Wasco would take possession of North Kern's CVP or non-CVP water from the FKC and a like amount would be deducted from the water bank account of KTWD, DEID, and/or Shafter-Wasco.

There may be times when North Kern has surface water from the Kern River available for exchange for previously banked water with KTWD, DEID and/or Shafter-Wasco in-lieu of pumping the previously banked CVP water. In this event, the previously banked CVP water would be pumped and delivered to growers in North Kern and a like amount would be deducted from the water bank account of KTWD, DEID, and/or Shafter-Wasco. The operational exchange could take place in several ways:

- (2-4.C.) North Kern's Kern River water could be delivered through the Beardsley Canal conveyed through the Lerdo Canal to the Calloway Canal and delivered through existing interties to Shafter-Wasco. If the returned CVP water is going to DEID or KTWD, a like amount of CVP water would then be made available from Shafter-Wasco CVP supplies to be delivered to DEID and/or KTWD.

North Kern's Kern River water could be delivered to a CVP (DEID, KTWD, and Shafter-Wasco) or non-CVP contractor (Semitropic and Cawelo), and these CVP or non-CVP contractors would make water available in the FKC for KTWD, DEID and/or Shafter-Wasco.

Figure 2-4 Return of previously banked CVP water to DEID, KTWD and/or Shafter-Wasco from North Kern



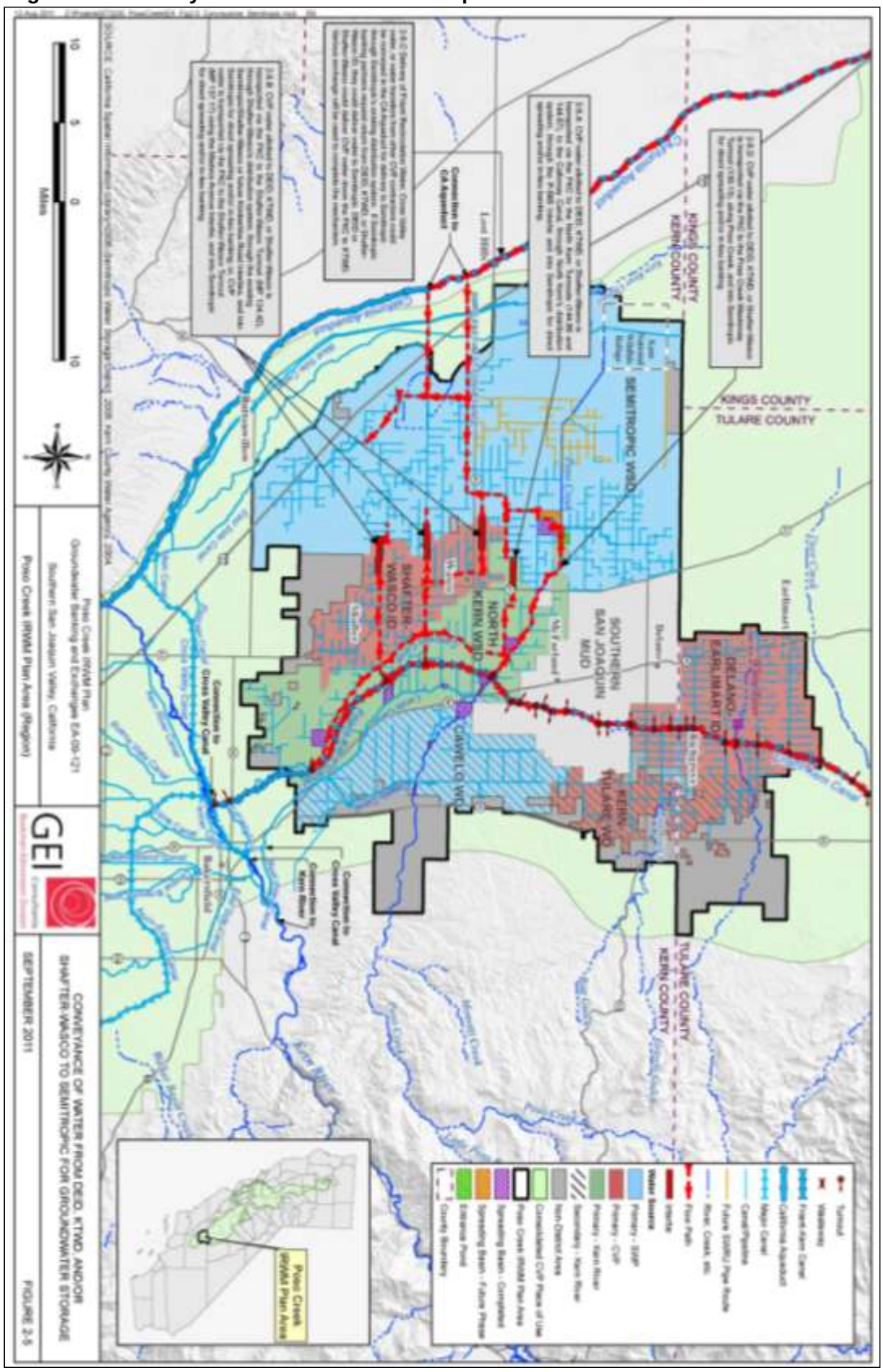
Conveyance to and from Semitropic

Conveyance of CVP water from DEID, KTWD and/or Shafter-Wasco to Semitropic for banking, transferring, or exchange could occur using the FKC or CVC as follows.

Delivering CVP water from DEID, KTWD and/or Shafter-Wasco to Semitropic for banking, transferring, or exchanging (Figure 2-5 corresponds to this description)

- (2-5. A.) CVP water would be delivered down the FKC to North Kern's existing turnouts at MP 144.86 and MP 144.87 to the Calloway Canal, through North Kern's distribution system to interties with Semitropic.
- (2-5.B.) CVP water would be delivered down the FKC to Shafter-Wasco. Shafter-Wasco would deliver the CVP water from their turnout at MP 134.42 on the FKC through their north distribution system to Semitropic via the Semitropic/Shafter-Wasco original intertie or the Kimberlina Road intertie. Additionally, Shafter-Wasco would deliver the CVP water from their turnout at MP 137.17 through their south system to the Madera Avenue intertie.
- (2-5.C.) If other Semitropic banking partners are requesting return from Semitropic and DEID, KTWD, and/or Shafter-Wasco have CVP water available, the banking partner can take delivery of the CVP water and DEID, KTWD, and/or Shafter-Wasco would receive a deposit to their account in Semitropic for a like amount of water.
- (2-5.C.) DEID and/or Shafter-Wasco's CVP water would be delivered down the FKC to KTWD turnouts. A like amount of KTWD Cross Valley water supplies would be delivered to Semitropic from the Aqueduct.
- (2-5.C.) Friant Recaptured water, Cross Valley water, or purchases of south-of-delta CVP water could be conveyed in the Aqueduct for delivery to Semitropic through Semitropic's distribution system.
- (2-5.D.) CVP water would be delivered down the FKC to Poso Creek Wasteway at MP 130.13 and conveyed in Poso Creek to the Pond-Poso Canal. From the Pond-Poso Canal, CVP water would enter the spreading grounds for direct recharge or be delivered for irrigation ("in-lieu" banking).

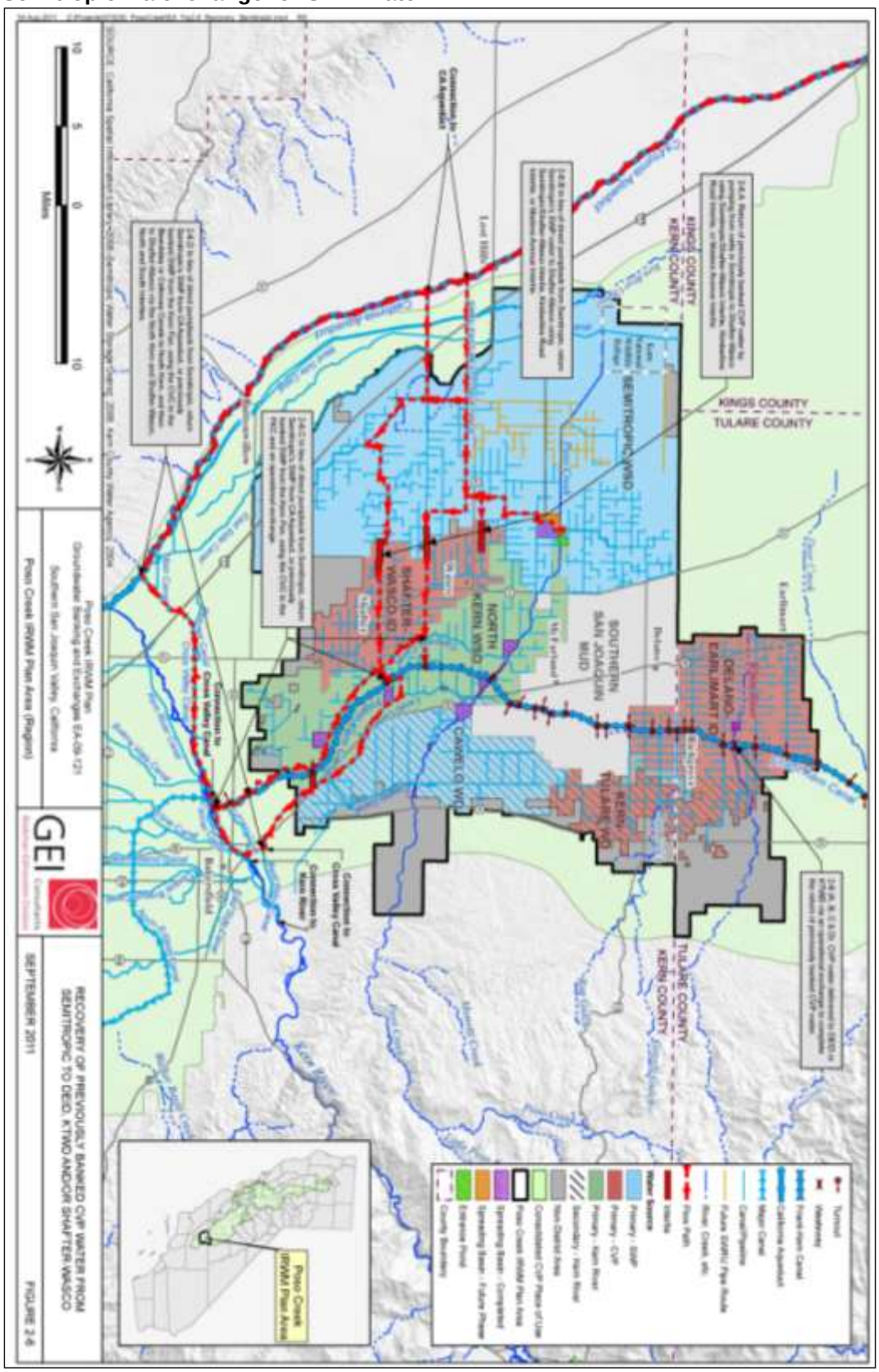
Figure 2-5 Conveyance to and from Semitropic Groundwater Bank



Return of previously banked CVP water from within Semitropic to DEID, KTWD and/or Shafter-Wasco (Figure 2-6 corresponds to this description)

- (2-6.A.) Previously banked CVP water could be pumped from groundwater wells within the district facilities into the Pond-Poso Canal. From the Pond-Poso Canal, the previously banked CVP water could be returned directly to Shafter-Wasco via the Kimberlina Road intertie, Madera Avenue intertie or the original Shafter-Wasco/Semitropic Intertie. For delivery to DEID and/or KTWD, the previously banked CVP water would be delivered to Shafter-Wasco and Shafter-Wasco would make a like amount of CVP water available on the FKC to be delivered to DEID and/or KTWD.
- (2-6.B.) In lieu of direct pump back from Semitropic, Semitropic could assume ownership of the previously banked CVP water and make the requested return amount available using their SWP water for delivery to Shafter-Wasco via the Kimberlina Road intertie, Madera Avenue intertie or the original Shafter-Wasco/Semitropic Intertie. For delivery to DEID and/or KTWD, the previously banked CVP water would be delivered to Shafter-Wasco and Shafter-Wasco would make a like amount of CVP water available on the FKC to be delivered to DEID and/or KTWD.
- (2-6.C.) In lieu of direct pump back from Semitropic, Semitropic could assume ownership of the previously banked CVP water and make the requested return amount available using Semitropic's SWP water from the California Aqueduct, or from previously banked SWP water on the Kern Fan Water Bank and Pioneer Projects. SWP water would be delivered through the CVC to the FKC and delivered via an operational exchange with the Friant Water Authority.
- (2-6.D.) In lieu of direct pump back from Semitropic, Semitropic could assume ownership of the previously banked CVP water and make the requested return amount available using Semitropic's SWP water from the California Aqueduct, or from previously banked SWP water on the Kern Fan Water Bank and Pioneer Projects. SWP water could be returned via the CVC by delivering water from the CVC to the Beardsley or Calloway Canals to North Kern, and then to Shafter-Wasco via the North Kern and Shafter-Wasco, North and South interties. If the return water is going to DEID or KTWD, a like amount of CVP water would be exchanged with Shafter-Wasco for CVP supplies to be delivered to DEID and/or KTWD.

Figure 2-6 Return of previously banked CVP water to DEID, KTWD and/or Shafter-Wasco from Semitropic via exchange for SWP Water



Conveyance to and from Cawelo Water District

Conveyance of CVP water from DEID, KTWD and/or Shafter-Wasco to Cawelo for banking, transferring, or exchanging could occur using the FKC or CVC as follows.

Delivering CVP water from DEID, KTWD and/or Shafter-Wasco to Cawelo for banking, transferring, or exchanging (Figure 2-7 corresponds to this description)

- (2-7.A.) CVP water in the FKC could be delivered to North Kern from turnouts on the FKC, then to Cawelo.
- (2-7.B.) CVP water in the FKC could be delivered to the CVC. Once in the CVC, water can be conveyed to Cawelo's Pump Station A and delivered into North Kern's Beardsley Canal for delivery to Cawelo.
- (2-7.C.) Friant Recaptured water, Cross Valley water, or purchases of south-of-delta CVP water could be conveyed in the Aqueduct to the CVC. Once in the CVC, water can be conveyed to Cawelo's Pump Station A and delivered into North Kern's Beardsley Canal for delivery to Cawelo.
- (2-7.C.) Friant Recaptured water, Cross Valley water, or purchases of south-of-delta CVP water could be conveyed in the Aqueduct to the CVC. Once in the CVC, water can be conveyed through the Calloway Canal to the Lerdo Canal and delivered to Cawelo.

Return of previously banked CVP water from within Cawelo to DEID, KTWD and/or Shafter-Wasco (Figure 2-8 corresponds to this description)

- (2-8.A.) Cawelo could pump previously banked CVP water into North Kern's Lerdo Canal and through existing interties to Shafter-Wasco. For delivery to DEID and/or KTWD, the previously banked CVP water would be delivered to Shafter-Wasco and Shafter-Wasco would make a like amount of CVP water available on the FKC to be delivered to DEID and/or KTWD.
- (2-8.B.) Cawelo could pump previously banked CVP water into North Kern's Lerdo Canal and into the FKC in an existing facility where North Kern's 8-17 ditch crosses the FKC at MP 133.41, and delivered via an operational exchange with Friant Water Authority.
- (2-8.C.) If Cawelo has purchased other supplies of CVP or non-CVP water available from the FKC, DEID, KTWD and/or Shafter-Wasco would take possession of Cawelo's CVP or non-CVP water from the FKC and a like amount would be deducted from the water bank account of KTWD, DEID, and/or Shafter-Wasco.
- (2-8. D.) In lieu of direct pumpback from the Cawelo, Cawelo could assume ownership of the previously banked CVP water and make the requested return amount available using Cawelo's SWP water from the Aqueduct, or from previously banked SWP water in the Kern Water Bank. SWP water could be returned via the CVC by delivering water from the CVC to the Beardsley or Calloway Canals to North Kern, and then to Shafter-Wasco via the North Kern and Shafter-Wasco, North and South interties. If the return water is going to DEID or KTWD, a like amount of CVP water would be exchanged with Shafter-Wasco for CVP supplies to be delivered to DEID and/or KTWD.

There may be times when Cawelo has surface water from the Kern River available for exchange with KTWD, DEID and/or Shafter-Wasco in-lieu of pumping back the previously banked CVP water. In this event, the previously banked CVP water would be pumped and delivered to growers in Cawelo and a like amount would be deducted from the water bank account of KTWD, DEID, and/or Shafter-Wasco. The operational exchange could take place in several ways:

- (2-8.E.) Cawelo's Kern River water could be delivered through the Beardsley Canal conveyed through the Lerdo Canal to the Calloway Canal and delivered through existing interties to Shafter-Wasco. If the returned CVP water is going to DEID or KTWD, a like amount of CVP water would then be made available from Shafter-Wasco CVP supplies to be delivered to DEID and/or KTWD.
- (2-8.E.) Cawelo's Kern River water could be delivered to a CVP (DEID, KTWD, and Shafter-Wasco) or non-CVP contractor (Semitropic or North Kern) and the CVP or non-CVP contractor would make water available in the FKC for KTWD, DEID and/or Shafter-Wasco.

Figure 2-7 - Delivering CVP water from DEID, KTWD and/or Shafter-Wasco to Cawelo for banking, transferring, or exchanging.

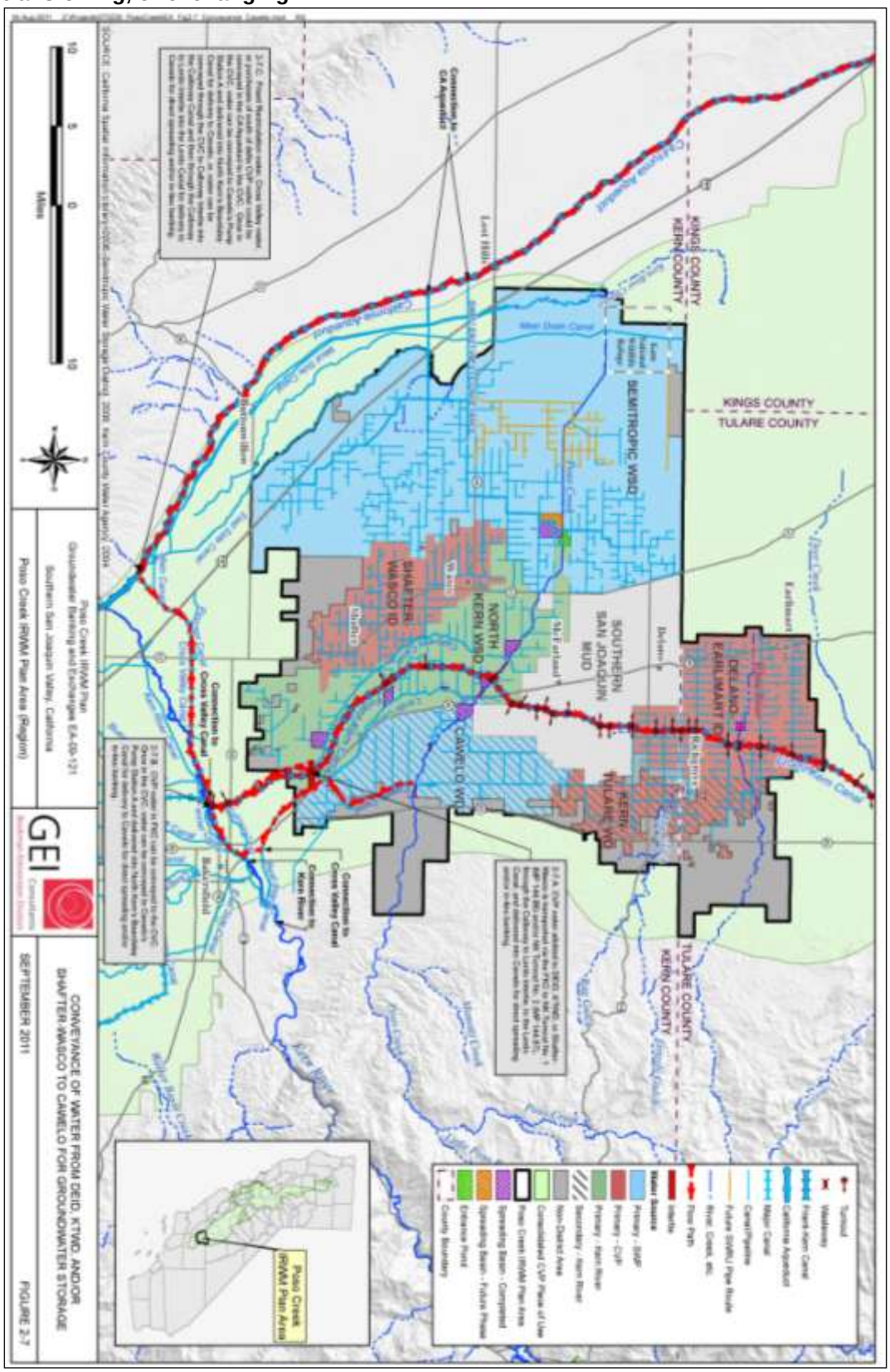
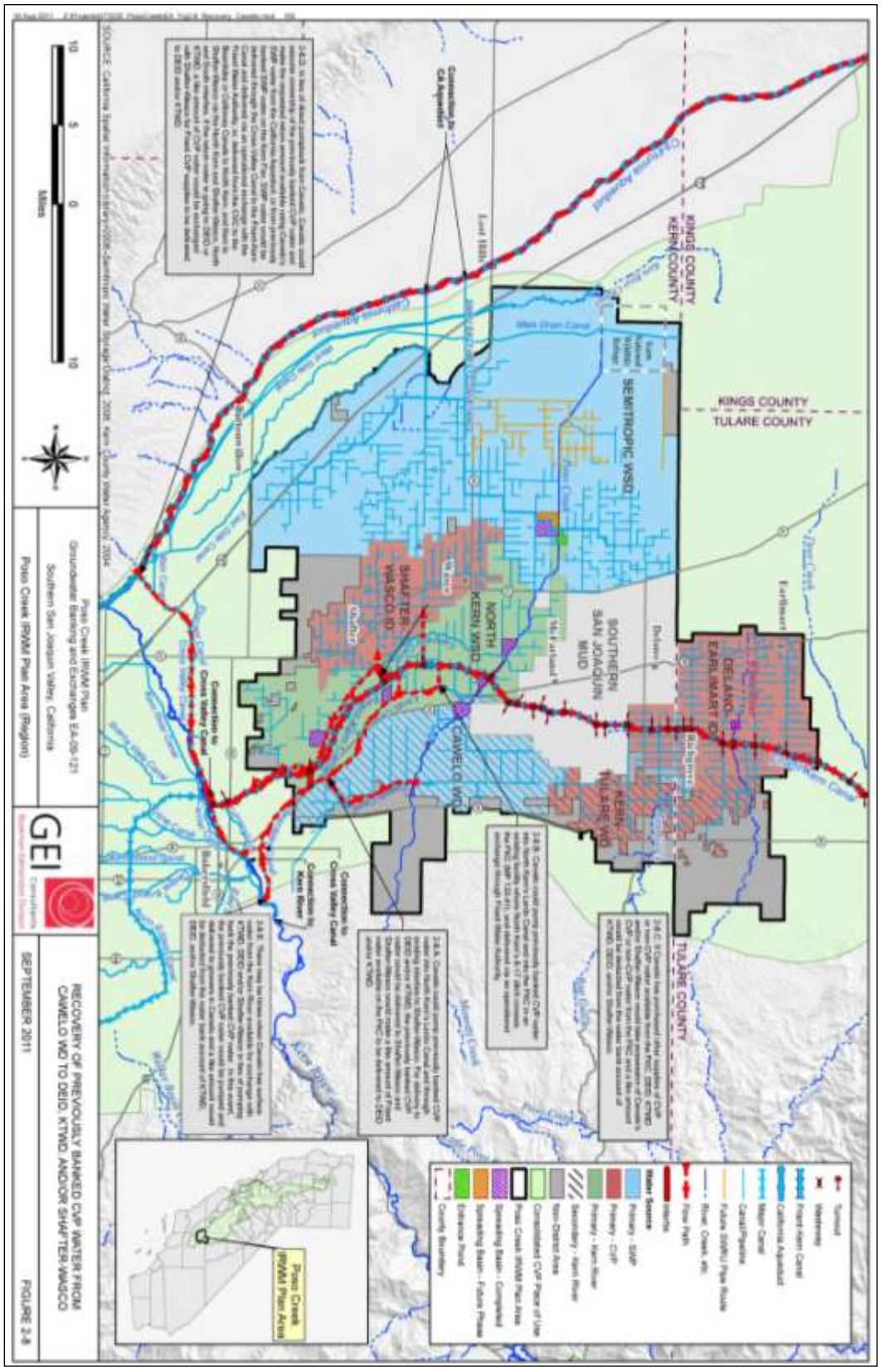


Figure 2-8 - Return of previously banked CVP water to DEID, KTWD and/or Shafter-Wasco from Cawelo Water District



Section 3 Affected Environment and Environmental Consequences

This section identifies the potentially affected environment and the environmental consequences involved with the Proposed Action and the No Action Alternative, in addition to environmental trends and conditions that currently exist.

Cumulative Effects

The scope of Reclamation's approval for the Proposed Action is limited to those actions where Reclamation has approval authority, which includes portions of the IRWMP involving CVP water and/or facilities. However, the IRWMP also includes actions that do not involve CVP water or facilities, which do not require Reclamation approval. The Poso Creek RWMG approved an IS and adopted a subsequent Negative Declaration under CEQA, thereby allowing some of the members to proceed with making facility improvements as well as engage in groundwater banking, transfers, and exchanges that do not involve CVP water and/or facilities.

In addition, both KTWD and DEID already have Reclamation-approved long-term banking projects with North Kern, which they could continue to implement under the No Action Alternative. New Reclamation approval is not required to utilize the existing banking projects between KTWD and DEID and North Kern as part of the IRWMP, if the Proposed Action were to be approved.

The Poso Creek RWMG can bank, transfer, and exchange water utilizing existing facilities, but also plan to continue improving operations by removing bottlenecks in their respective distribution systems as they react to the changing timing of water supplies. As part of that planning process, a list of future facilities that could become part of this program is found in Table 3-1 and Figure 3-1. These future facilities, once fully permitted/approved and constructed, could become available for use by the RWMG under the IRWMP.

The future facilities listed in Table 3-1 that require Reclamation approval because they involve the FKC, would also require appropriate environmental review. However, these facilities are not needed to approve the Proposed Action.

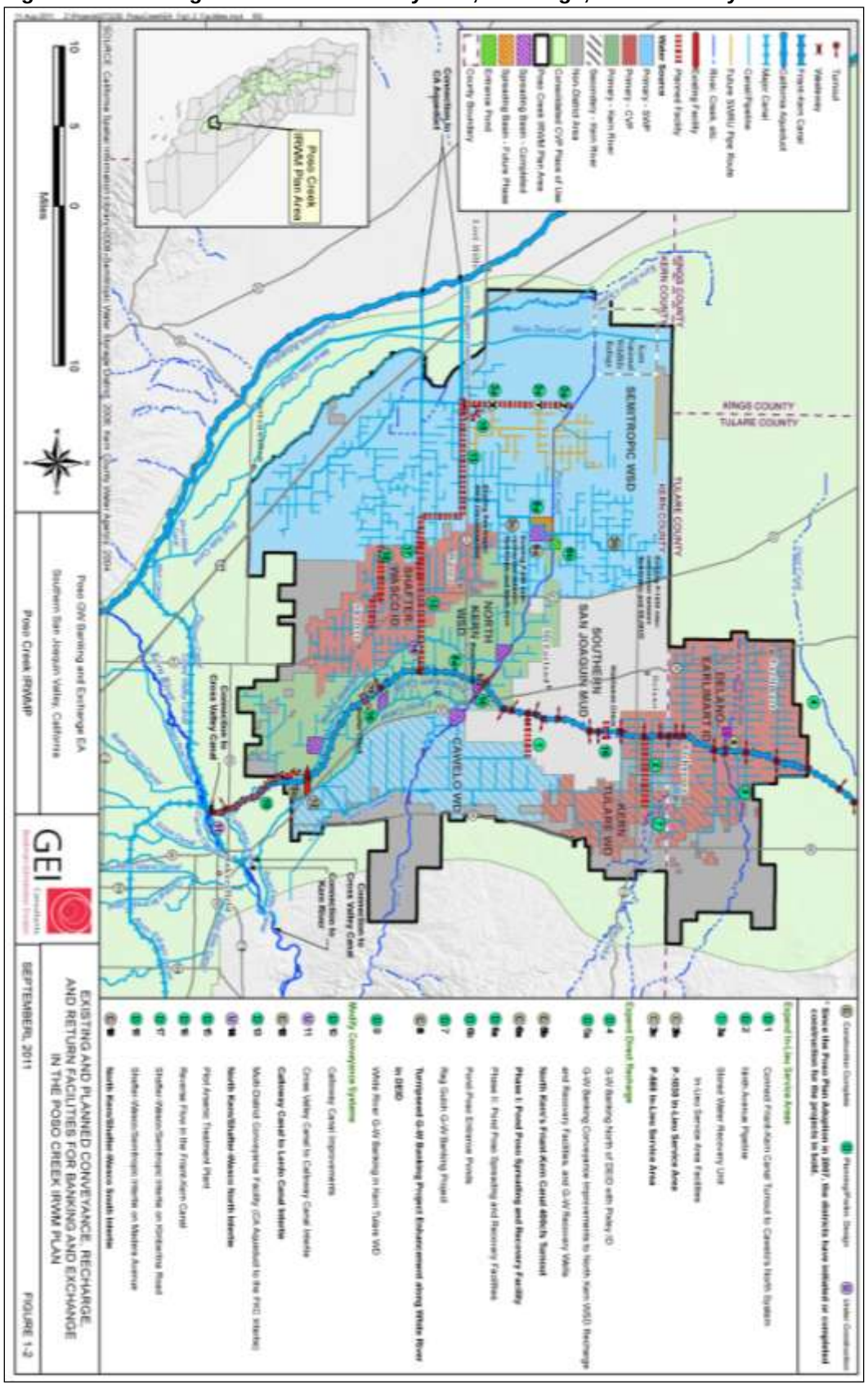
Since these future facilities are not required to approve the Proposed Action, and most can occur under the No Action Alternative, the scope of the cumulative effects would focus on the IRWMP itself since it is a 25-year program and each banking, transfer, and exchange project could contribute to cumulative effects to the Poso Creek Region.

Table 3-1 Planned Conveyance, Recharge, and Recovery Facilities for Poso Creek Region

EXPAND IN-LIEU SERVICES AREAS	
Planning/Preliminary Design	**Ready for Construction**
Connect FKC Turnout to Cawelo's North System	Semitropic Stored Water Recovery Unit
EXPAND DIRECT RECHARGE	
Planning/Preliminary Design	**Ready for Construction**
Groundwater Banking Conveyance Improvements to North Kern Recharge and Recovery Facilities, and Groundwater Recovery Wells	
Pond-Poso Entrance (Retention) Ponds	Pond-Poso Spreading and Recovery Facility (constructed and operational in 2011)
In-district groundwater banking programs	Turnipseed Groundwater Banking Project Enhancement along White River in DEID (constructed and operational in 2011)
MODIFY CONVEYANCE SYSTEMS	
Planning/Preliminary Design	**Ready for Construction**
California Aqueduct to the FKC Intertie (multi-district conveyance facility)	Calloway Canal Improvements
Pilot Arsenic Treatment Plant	CVC to Calloway Canal Intertie (Under Construction in 2012)
Reverse Flow in the FKC	Calloway Canal to Lerdo Canal Intertie (Constructed and operational in 2011)
Shafter-Wasco/Semitropic Intertie on Kimberlina Road	North Kern/Shafter-Wasco North Intertie (Under Construction, would be operational in early 2012)
Shafter-Wasco/Semitropic Intertie on Madera Avenue	North Kern/Shafter-Wasco South Intertie (Constructed and operational in 2011)

*Would not be used until all environmental compliance has been complete.

Figure 3-1 Existing and Planned Conveyance, Recharge, and Recovery Facilities



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Water Quality

2.2.1 Affected Environment

The Region encompasses nearly 500,000 acres in the Southern San Joaquin Valley. Approximately 70 percent of that area is irrigated lands. The average annual surface water diversion into the Proposed Action Region is 775,000 AF from the SWP, the CVP and the Kern River. Average precipitation ranges from 5 inches per year at the subbasin interior to 9 to 13 inches per year at the eastern, southern and western extents. The principal surface water bodies are the Kern River and Poso Creek (DWR 2006).

The Poso Creek Region is located within the Tulare Lake Hydrologic Region of California. It is largely within the Kern County Subbasin of the San Joaquin Valley Groundwater Basin. The Kern County Subbasin is bounded by the Tule Groundwater Subbasin to the north, on the east and southeast by granitic bedrock of the Sierra Nevada foothills and Tehachapi Mountains, and on the southwest and west by the marine sediments of the San Emigdio Mountains and Coast Ranges. The average water level in the subbasin has been generally stable from 1970 through 2000. The estimated total water storage is 40,000,000 AF with 10,000,000 AF of dewatered aquifer storage (DWR 2006).

The shallow zones of the eastern portion of the basin contain calcium bicarbonate waters with sodium concentrations increasing with depth below the ground surface. From the eastern side of the basin to the western side, bicarbonate levels decrease and sulfate concentrations and, to a lesser extent, chloride concentrations increase. The total dissolved solids (TDS) range from 150 to 5,000 milligrams per liter (mg/L) with an average range of 400-450 mg/L. The TDS values also vary vertically due to the interbedded layers and the presence of regional clays. Water below about 1,300 feet in the vicinity of the SWRU well field is considered saline, with TDS values exceeding 2,000 mg/L. Water in the producing zones of water wells used by growers typically range from 150 to 450 mg/L, and the proposed SWRU wells have been projected to range from 150 to 250 mg/L (DEIR-SWRU 1999). However, the SWRU would not be used until all required compliance has been completed.

As with TDS, the arsenic levels vary both vertically and horizontally throughout the Semitropic district. Values from “non-detect” (below 2 parts per billion [ppb], or micro grams per liter) up to 42 ppb have been measured in production and monitoring wells throughout the district. Arsenic concentrations generally increase from southeast to northwest, and increase with depth. They have been correlated to the “reducing” zones --- lake bed deposits associated with thicker clay lenses in the aquifer (Ken Schmidt and Associates 2009).

Groundwater quality within the Poso Creek Region is generally suitable for the overlying agricultural uses and, except for arsenic in some parts of the Region, meets drinking water standards. However, as surface water supplies become scarce, groundwater levels could deepen over time due to groundwater pumping to a point where water quality could degrade.

The water conveyed in the FKC is from the San Joaquin River and is considered to be of good quality because it originates from snow melt from the Sierra Nevada. The water is used for municipal and industrial, and agricultural purposes in Fresno, Tulare, and Kern counties.

2.2.2 Environmental Consequences

2.2.2.1 No Action

Under the No Action Alternative, less water may be conveyed into the Region as compared to the Proposed Action, resulting in a decline in groundwater levels and related potential degradation of water quality in certain portions of the Region.

2.2.2.2 Proposed Action

The Proposed Action would allow existing sources of water supplies including the SWP, the CVP Friant and Delta Divisions, and the Kern River to be applied to the land or recharged within the Region.

Storage of water in certain groundwater projects may result in changing the water quality characteristic of the delivered water. When water is recovered it would retain the water quality characteristic of the water in that portion of the groundwater basin from which it is being recovered. Pumped groundwater can be exchanged with surface water originally destined to the district owing the water or with nearby agricultural districts through existing interconnections.

Depending on the facility and groundwater quality, decreases in concentrations of certain constituents may occur as well as increases in others. To the extent that direct delivery of groundwater to the Aqueduct or FKC is needed, the water quality of constituents known to be of concern would be measured and compared against the background water quality in the surface water conveyance system in accordance with the Reclamation's existing policy for accepting waters in the Friant-Kern and Madera canals (see Appendix B). All waters introduced into the FKC as a result of banking programs under this project would be in accordance with this policy. Calculations of the blended water quality would be made, taking into consideration the groundwater quality and the historic surface water quality. Each agreement between districts would indicate if previously banked CVP water was to be returned to the FKC and if a comparison of the water quality is necessary. Depending on the facility and groundwater quality, decreases in concentrations of certain constituents may occur as well as increases in others.

Due to the benefits of storing better quality CVP water from the FKC both temporarily and permanently, the groundwater basin water quality impacts that may be associated with declining water levels would decrease, resulting in a positive impact to the basin below the district storing the water. In addition, conserving the water for later delivery and use into the district originally owning or acquiring the supply would result in less groundwater pumping in that district. This would help preserve water quality in those districts by preserving shallower groundwater levels. Therefore, there would be no adverse impacts to water quality due to the Proposed Action.

2.2.2.3 Cumulative Impacts

Projects involving members of the RWMG over the past five years consisted of banking, transfers and exchanges, Warren Act contracts, and Article 5 Exchanges. The environmental impacts of these actions were analyzed under NEPA by Reclamation and did not contribute to adverse impacts. The Proposed Action when added to other past, present, and future similar actions would not result in cumulative adverse impacts to water quality.

Surface Water Resources

2.2.3 Affected Environment

In the San Joaquin Valley portion of Kern and Tulare counties, large quantities of water are utilized for commercial agriculture, for industrial purposes (many of which are related to agriculture), and for commercial and domestic purposes normal to any community. Agriculture is the primary land use, for which the soils and climate are well suited. Thus, the economic vitality of the region depends heavily on water, which was historically developed by storing and diverting limited, variable stream flow and pumping groundwater.

The region's agricultural development was initiated with livestock grazing which utilized irrigation water supplies from the Kern River for flooding pasture lands. In the 1920s, more intensive irrigated agriculture developed utilizing river water supplies. In addition, there was increased extraction and extensive use of the groundwater supplies underlying much of the valley. Subsequently, the irrigation interests developed measures to supplement irrigation supplies and enhance the naturally occurring recharge of the stored groundwater with water supplies from the Kern River and other local streams, and eventually with water supplies from imported sources (Poso Creek Plan 2007).

Today, locally occurring water supplies are supplemented with water imported by the State of California through the SWP and by the Federal government through Reclamation's CVP. Accordingly, the managed resources in the Region include water supplies from:

- SWP via the Aqueduct (SWP Contract, Article 21, and other purchased water)
- CVP via the Aqueduct (Cross Valley, Section 215, Recaptured water)
- CVP via the FKC (Class 1 and 2, Cross Valley, Section 215, RWA, Recaptured water)
- Kern River
- Abandoned floodwaters from the San Joaquin River and from Reclamation District 770
- Poso Creek and other minor streams
- Underlying groundwater basin

Numerous public agencies, formed under the laws of the State of California, were established to develop, regulate, and distribute local water supplies and supplies imported from outside the Region by the SWP and the CVP. For decades, water agencies in both Kern and Tulare counties have given much attention, effort, and funding to the effective planning, control, and utilization of their water resources.

Water Delivery System Assets of the Region

The RWMG districts are uniquely positioned with natural and man-made assets that allow for regional solutions to its challenges of balancing surface water and groundwater supplies. Among these assets are:

- The Region is served by the Aqueduct and the FKC. These two canals are linked near Bakersfield by the locally-operated CVC, which allows water to be operationally exchanged between the aqueducts of the SWP and the CVP.

- U.S. Army Corps of Engineer's Isabella Dam and Reservoir provides storage capacity for Kern River water. While used primarily as a flood control reservoir, Isabella Reservoir provides significant conservation benefits through the regulation of stream flows for delivery to irrigation and groundwater recharge basins in North Kern.
- A vast groundwater basin with significant dewatered storage capacity.
- An extensive network of pipelines and canals which deliver water to irrigated lands and to dedicated water spreading areas, thereby providing recharge to the underlying groundwater reservoir.
- An existing institutional structure, consisting of numerous public water entities, the area-wide KCWA, and RWMG districts, which collectively have governance, local water rights, and established contractual relationships necessary for implementation of measures required for an integrated solution to the challenges of the Region's water supply.

The volume of Friant Division CVP water delivered to CVP contractors under existing water service contracts available for banking, transferring, or exchanging varies from year to year and is dependent upon hydrological conditions. This water is categorized as either "Class 1" or "Class 2" water. "Class 1" water is a supplemental supply of water for certain contractors. "Class 2" water is undependable supply. The Class 2 supply of water is that which can be made available subject to the contingencies for delivery from Millerton Lake and the Friant-Kern and Madera Canals in addition to the supply of Class 1 Water. The total "Class 1" water under contract is about 800,000 AF. Class 2 water totals about 1,401,475 AF. In addition to Class 1 and Class 2 supplies, other sources available for delivery for banking, transferring, and exchanging include Section 215, floodwater, RWA water from the San Joaquin River Settlement and recaptured Friant water, Pre-1914 water, and Refuge water.

Water for the Cross Valley contractors typically originates from northern California through the Aqueduct and the CVC. However, under special circumstances, Cross Valley contractors can obtain water from Millerton Reservoir either by direct delivery in wet years after the needs of the Friant Division contractors (and other environmental requirements) have been met or by exchange arrangements with Arvin-Edison Water Storage District. The amount of water surplus to a CVP contractor's irrigation demand each year is unpredictable and varies depending upon hydrologic events.

While several of the RWMG member agencies do not have long-term CVP contracts (non-CVP districts) they have historically entered into temporary contracts for Section 215 Water and have accepted delivery of Friant surplus flows. Contracts executed with non-CVP districts for Section 215 Water supplies are dependent upon water becoming available as defined in Section 215 of the Reclamation Reform Act. Additionally, the non-CVP districts have a lower priority to take delivery of these unstorable surplus flows. The non-CVP districts are offered 215 Water only after the needs of the Friant Division and CV contractors have been met. The primary surface water supplies for each non-CVP district are listed in Table 3-2 below. These surface water supplies are potential supplies for exchanges. The primary uses of the supplies are for agriculture, but may also be used for other purposes consistent with the contracts or water rights.

Table 3-2 Non-CVP districts' Surface Water Supply

Districts	Surface Water Supply	Primary Use
Cawelo	SWP, Poso Creek, and Kern River	Agricultural
North Kern	Kern River, Poso Creek	Agricultural
Semitropic	SWP and Poso Creek	Agricultural

Water Conveyance Facilities

The FKC is a prominent feature in the southern SJV and provides for the transport of water through the southeastern portion of the SJV for delivery to CVP Contractors. The FKC extends 152 miles south from Friant Dam in Fresno County to the Kern River in Kern County four miles west of downtown Bakersfield. The FKC conveys water to areas in the Region through existing turnouts.

The CVC begins at Aqueduct near Tupman and conveys water across the valley to the FKC near Bakersfield and beyond. Water flow in the CVC flows in either direction, conveying water to the east or to the west. The sources of CVC water are from the Delta via SWP or CVP facilities, the FKC, groundwater or Kern River water. In addition to the CVC, recent interties between Shafter-Wasco and Semitropic, Shafter-Wasco and North Kern, and North Kern and Semitropic have created opportunities to expand the capability described for the CVC at locations more proximate to the RWMG.

The State of California constructed the Aqueduct as part of the SWP. Water is conveyed from reservoirs in northern California, through the Delta, near the City of Tracy, and delivered to the Aqueduct south of the Delta. Water contractors in the San Joaquin Valley have constructed extensive water conveyance systems to provide water throughout their districts. Water is distributed through an intricate network of canals and aqueducts to provide water where needed.

2.2.4 Environmental Consequences

2.2.4.1 No Action

Under the No Action Alternative, water banking, transfer, and exchange opportunities would be limited. There would be no impacts to the conveyance facilities as listed above. Overall, beneficial uses of water supplies would not improve, and wet period supplies would not be conserved to supplement supplies during dry periods to extent it would under the Proposed Action.

2.2.4.2 Proposed Action

Under the Proposed Action, increased water banking, transfers, and exchanges during wet periods would occur to off-set decreases in the surface water supplies within the Region. The additional water banking, transfers, and exchanges would add to beneficial uses of water supplies and reduce the amount of water that contributes to flooding and to saline sinks. In any given year, water would be conveyed from areas with excess water to groundwater banks or exchanged or transferred with areas with demand, recharge capacity, and available storage. In the case of exchanges, the agreed portion of the water would be returned to the same contractor or service area that supplied the water. The return would be made at a time when the original district has a demand and insufficient supplies are available from its basic contract supplies. No increases or decreases in allowable diversions from reservoirs or waterways would occur, although the timing

of delivery would change. Therefore, there would be no adverse impacts from the Proposed Action to surface water resources.

2.2.4.3 Cumulative Impacts

The reservoirs, rivers and creeks within the Region associated with the Proposed Action are managed for flood control, municipal and industrial purposes, and agricultural supplies. Diversions of water occur based on the hydrological and environmental conditions. During wet seasons and high water flows, surplus water supplies are released and, if possible, marketed to quickly disperse this water to avoid flooding and damage downstream in the rivers. The Proposed Action would not contribute to or interfere with flood control management and operations. The Proposed Action would not interfere with deliveries, operations or cause adverse changes to the rivers, creeks or conveyance facilities associated with the SWP or CVP. The conveyance facilities and river systems in and around the Region are interconnected and allow for a myriad of transfers, exchanges, contract assignments, banking projects, and conveyances of water via Warren Act contracts, Operational Contracts or Article 55 of the SWP. The conveyance of water under these water service options are subject to available capacity, meeting primary requirements, and environmental reviews. Therefore, the Proposed Action would not result in cumulative adverse impacts to surface water resources.

Groundwater Resources

2.2.5 Affected Environment

The Region overlies the groundwater basin in the Tulare Lake Basin Hydrologic area, located in the northern portion of Kern County and the southern portion of Tulare County. The Kern County Subbasin is bounded by the Tule Groundwater subbasin to the north, by granitic bedrock of the Sierra Nevada foothills and Tehachapi Mountains on the east and southeast, and by the marine sediments of the San Emigdio Mountains and Coast Ranges on the southwest and west. In 1998, the California Water Plan Update (Bulletin 160-98) estimated a groundwater overdraft for California of 1.5 million acre-feet per year, with most of the overdraft being in the Tulare Lake, San Joaquin River and Central Coast Hydrologic Regions. With existing facilities and programs, predicted overdraft for the Tulare Lake Hydrologic Region for the year 2020 (both average and drought year) is 670,000 AF (DWR 1998a). Usable storage capacity for the Tulare Lake Hydrologic Region is estimated to be 28 million AF, and the perennial yield is 4.6 million AFY.

Most of the lands in the Poso Creek Region are underlain by useable groundwater and, as a result, most of the irrigated agriculture was developed with reliance on pumped groundwater. Some lands continue to rely exclusively on pumped groundwater. Accordingly, to the extent that surface water supplies are inadequate to meet irrigation water requirements, groundwater is used to make up the shortfall, provided groundwater levels and quality are adequate to economically sustain crop yields. In 2009, groundwater pumping lifts in the Region averaged 244 feet and vary from 260 to 400 feet.

The groundwater system under the Region consists of interbedded layers of sand, silt, and clay to a depth of about 3,000 feet below ground surface. Water quality samples from agricultural water wells and monitoring wells perforated in specific layers within the aquifer, along with

stratigraphic mapping, show that the primary producing zones lay between 300 and 1,300 feet below ground surface (DEIR-SWRU 1999).

Under water supply conditions over the last 25 years, groundwater levels within the Region have not evidenced an obvious long-term rise or decline; rather, they have gone up during wet periods and down during dry periods as groundwater was used to make up for shortfalls in irrigation water supplies (Poso Creek IRWMP 2007).

It is reasonable to expect that groundwater use in the future would follow the conjunctive management pattern of the past, and be used to satisfy any additional shortages in surface water supplies. Accordingly, any reduction in surface water supplies can be expected to result in a corresponding increase in the use of groundwater, assuming similar conditions of demand. Studies conducted for the Poso Creek IRWMP show that the magnitude of the water supply reduction resulting from regulatory and legal actions could be on the order of 100,000 AFY, on average, over the long term. These studies also show some change is occurring in the use of groundwater supplies from agriculture to urban due to urban growth and a shift to more profitable permanent crop acreage (with a corresponding drop in annual crop acreage), both of which have created a need for water deliveries on an annual demand. In short, the need to supply water more reliably due to increased permanent crops and decreased annual crops. Lands used for annual crops can be fallowed during times of water supply shortage whereas permanent crops cannot and must be watered every year. Given that water levels over the last 25 years have not evidenced an obvious long-term rise or decline within the Region, the expected loss of surface water supplies and the corresponding need to meet the annual demand with the use of groundwater would induce a long-term decline in water levels (Semitropic 2007).

Groundwater quality in the Region is generally suitable for irrigation. However, as groundwater levels drop, water quality is expected to degrade as discussed under Section 3.1. The districts within this Region are adding direct recharge capacity to increase their absorptive capacity and to add flexibility to the absorptive capacity at times during the year when irrigation demands are low; several direct recharge facilities have recently been added or are under construction as described in Table 3-1.

Table 3-3 Recharge, Storage and Return Facilities Capacity

Districts	Recharge Capacity				Return Capacity	
	Spreading Basin(s)	Recharge Rate (AF/day)	Fill Rate (cfs)	Spreading Ground Capacity (AFY)	Instantaneous (cfs)	Annual (AFY)
Semitropic	Pond-Poso (existing and proposed; partially constructed)	250	370	65,000	105 (district wells) 705 (landowner wells)	66,000
Shafter-Wasco	none					
North Kern	5 sites (existing)	720	363	300,000	200 - 300 (estimated)	80,000 (historical) 200,000 (theoretical)
DEID	Turnipseed (existing)	50 - 60	25 – 30	To be determined (TBD)	TBD	TBD
KTWD	none					
Cawelo	1 site (existing)	160	80	65,000	40	29,000

Notes:
1. Data includes capacity for existing and proposed spreading grounds.
2. All spreading grounds were constructed under separate environmental documents, except for North Kern whose spreading grounds predate NEPA and CEQA.
3. Listing of these banking capacities is not intended to imply that the capacity will be solely utilized for the Proposed Action. Each district retains the right to adopt banking and/or exchange agreements with third parties and this document is not intended to include such agreements
and contracts. Participants are responsible for coordinating their own storage space for the Proposed Action and any other such approved projects.

2.2.6 Environmental Consequences

2.2.6.1 No Action

The No Action Alternative would likely result in increases in groundwater pumping as surface water supplies decline, and a resulting decline of the groundwater table and degradation of water quality and increasing the chance for land subsidence. Under the No Action Alternative, less flexibility in the timing of delivery of surface supplies translates to less opportunity for banking, transfer, or exchange of surface water in the Region for groundwater. In essence, limiting or delaying CVP surface water deliveries to neighboring non-CVP districts would effectively decrease opportunities to deliver surface water supply, and in turn affects the groundwater level and supply beneath all district service areas in the Region.

2.2.6.2 Proposed Action

Under the Proposed Action, the banking, transferring, and exchanging of water to areas with insufficient surface water supplies would result in less pumping of groundwater during times of inadequate surface water supply. Groundwater overdraft caused by pumping is considered a threat to the water quality and quantity in the San Joaquin Valley, therefore less groundwater pumping could constitute a beneficial effect.

Recharging surplus water into groundwater stores surface water during wet periods (seasons or years) as groundwater, which would result in shallower groundwater levels and increased reliability,. Return of the agreed upon portion of the previously banked water would result in increased supply reliability and higher groundwater elevations in the district returning the water and the recipient district in comparison to the No Action Alternative because, due to the banking agreement and action, a higher groundwater level would be maintained than occurs without the banking agreement. The possibility of land subsidence would be less by the Proposed Action as compared to the No Action alternative. Therefore, subsidence that could occur as a result of an increased reliance on groundwater due to shortages in surface water supplies may be preventable by the Proposed Action. There would be no adverse impacts to groundwater resources due to the Proposed Action.

2.2.6.3 Cumulative Impacts

Over the long-term, groundwater levels would benefit from the groundwater banking actions and the decrease in the need to pump groundwater. Land subsidence is less likely to get worse as a result of the Proposed Action. Therefore, no adverse cumulative impacts to groundwater resources would occur.

Land Use

2.2.7 Affected Environment

The Region contains some of the most productive agricultural land in the southern San Joaquin Valley, with about 346,540 acres of irrigated cropland in the Region out of a gross area of about 499,770 acres. During the past 25 years, cropping patterns on agricultural land have steadily migrated towards high-value permanent crops with a corresponding reduction in annual crop types. Irrigation methods have also changed, with an increase in the use of low-volume systems for water application. Table 3-3 shows the irrigated land for each district, based on each district's 2005 crop surveys (Semitropic 2005). For the Region, about 67 percent of the irrigated land is planted to permanent crops, with some individual districts having 80 to nearly 100 percent of their irrigated land in permanent crops. By comparison, about 40 percent of the irrigated land in the Region was planted to permanent crops 25 years ago.

Table 3-2 Irrigated Area in the Poso Creek Region for 2005

District	Total Area (acres)	Irrigated Area (acres)	Permanent Crops (acres)
Cawelo	44,970	33,700	32,900
DEID	56,500	47,950	44,820
KTWD	23,050	17,200	17,200
North Kern	61,050	51,280	35,520
Semitropic	222,120	121,390	47,110
Shafter-Wasco	34,140	30,290	16,830
Subtotal*	441,830	301,810	194,380

*Irrigated land acreages are from the 2005 land use crop acreages for each agency, excluding idle acreages and are rounded to the nearest 10 acres.

It is noted that all of the districts in the Region were organized to serve irrigation water; accordingly, most do not directly provide domestic or residential water within their boundaries. However, by virtue of delivering water to areas previously reliant on groundwater and limited surface water supplies, because of their surface water delivery, all of the districts have provided groundwater pumping and quality benefits to the Region and communities that lie within their boundaries. Several districts have management agreements with economically-disadvantaged communities in their vicinity.

2.2.8 Environmental Consequences

2.2.8.1 No Action

Under the No Action alternative, the loss of surface water supplies for irrigation would be made up through an increased use of groundwater. Therefore, there would be no change in land use in the short-term.

2.2.8.2 Proposed Action

The Proposed Action would allow better water management of the Region's varied water resources, which in turn would help maintain the existing agricultural practices and land use within the Region. Current land use would remain the same from implementing the Proposed Action.

2.2.8.3 Cumulative Impacts

Development and urbanization is occurring in the Region. This type of land use causes an increase in water demand. The No Action Alternative would have the potential to result in land use changes over the long-term. Over the long-term, increased reliability in surface water supplies would allow farmers to maintain their existing crops. Therefore, the Proposed Action, when added to other past, present, and future actions, would not contribute to adverse cumulative impacts to land use.

Biological Resources

2.2.9 Affected Environment

Reclamation requested an official species list from U.S. Fish and Wildlife Service (Service) via the Sacramento Field Office's website: http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists-overview.htm on December 14, 2011. The list is for Kern (San Joaquin Valley portion) and Tulare Counties (document number: 111214014439). See Table 3-5 for species information. Reclamation further queried the California Natural Diversity Database (CNDDB) for additional data (CNDDB 2010).

Table 3-3 Threatened and Endangered Species and Critical Habitat from the Service's Species List

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	CRITICAL HABITAT
Bakersfield cactus	*Opuntia treleasei*	Endangered	No
blunt-nosed leopard lizard	*Gambelia silus*	Endangered	No
Buena Vista Lake shrew	*Sorex ornatus relictus*	Endangered	Designated
California condor	*Gymnogyps californianus*	Endangered	Designated
California jewelflower	*Caulanthus californicus*	Endangered	No
California red-legged frog	*Rana draytonii*	Threatened	Designated
California tiger salamander	*Ambystoma californiense*	Threatened	Designated
Conservancy fairy shrimp	*Branchinecta conservatio*	Endangered	Designated
fisher	*Martes pennanti*	Candidate	N/A
Fresno kangaroo rat	*Dipodomys nitratoides exilis*	Endangered	Designated
giant garter snake	*Thamnophis gigas*	Threatened	No
giant kangaroo rat	*Dipodomys ingens*	Endangered	No
Hoover's spurge	*Chamaesyce hooveri*	Threatened	Designated
Keck's checker-mallow	*Sidalcea keckii*	Endangered	Designated
Kern mallow	*Eremalche kernesis*	Endangered	No
Kern primrose sphinx moth	*Euproserpinus euterpe*	Threatened	No
Least Bell's vireo	*Vireo bellii pusillus*	Endangered	Designated
Little Kern golden trout	*Oncorhynchus aquabonita whitei*	Threatened	Designated
longhorn fairy shrimp	*Branchinecta longiantenna*	Endangered	Designated
mountain yellow-legged frog	*Rana muscosa*	Candidate	N/A
palmate-bracted bird's-beak	*Cordylanthus palmatus*	Endangered	No
Ramshaw sand-verbena	*Abronia alpina*	Candidate	N/A
San Joaquin adobe sunburst	*Psuedobahia peirsonii*	Threatened	No
San Joaquin kit fox	*Vulpes macrotis mutica*	Endangered	No
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	Endangered	Designated
San Joaquin woolly-threads	*Monolopia congdonii*	Endangered	No
Sierra Nevada bighorn sheep	*Ovis canadensis californiana*	Endangered	Designated
southwestern willow flycatcher	*Expidonax traillii extimus*	Endangered	No
Springville clarkia	*Clarkia springvillensis*	Threatened	No
Tipton kangaroo rat	*Dipodomys nitratoides nitratoides*	Endangered	No
valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Threatened	Designated
vernal pool fairy shrimp	*Branchinecta lynchi*	Threatened	Designated
vernal pool tadpole shrimp	*Lepidurus packardi*	Endangered	Designated
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate	N/A

Beginning in 1991, Service Biological Opinions (BOs) addressed delivery of CVP water to most of the Friant Division water service contractors, and committed Reclamation to developing and implementing a long-term program to address the needs of listed endangered species in the San Joaquin Valley. The "*Biological Opinion on U.S. Bureau of Reclamation Long Term Contract Renewal of Friant Division and Cross Valley Unit Contractors*", dated January 19, 2001, is the more recent BO issued by the Service for the Friant Division water service contractors.

The San Joaquin Valley has a higher density of federally listed species than any other location within the continental United States, as well as species of concern and state listed species. Non-listed species are also abundant throughout the project area. Threats to wildlife primarily come from loss of habitat related to agricultural and urban development throughout the San Joaquin Valley.

The Region contains suitable habitat for federally listed species, including higher-quality native lands. Other non federally-listed but special-status species such as the Swainson's hawk and western burrowing owl occur in the Proposed Action area as well. It is assumed that this EA covers banking and exchange operations of existing facilities only. Construction of additional projects would require separate environmental review analysis prior to the construction of those facilities.

2.2.10 Environmental Consequences

2.2.10.1 No Action

Under the No Action alternative, it is assumed that the additional planned construction projects would occur and may impact federally listed species. If a federal agency is not the lead on these particular projects, the project proponents would be expected to obtain incidental take permits from the USFWS through the section 10 process, in cases where incidental take would occur. In the case where other special-status species may be impacted, such as the Swainson's hawk and western burrowing owl, the project proponents would also need to comply with the California Endangered Species Act and other relevant Fish and Game Code.

2.2.10.2 Proposed Action

No impacts to biological resources would occur as a result of the Proposed Action Alternative. The contractors would sign binding letters of agreement restricting the use of this water and including the requirements above to avoid environmental impacts. The requirement that no native lands be converted without consultation with the Service, and the stringent requirements for transfers under applicable laws would preclude any impacts to wildlife.

Under the IRWMP, it is assumed that additional planned construction projects would occur and may impact federally listed. If a federal agency is not the lead on these particular projects, the project proponents would be expected to obtain incidental take permits from the Service through the Endangered Species Act (ESA) section 10 process, in cases where incidental take would occur. In the case where other special-status species may be impacted, such as the Swainson's hawk and western burrowing owl, the project proponents would also need to comply with the California Endangered Species Act and other relevant Fish and Game Code.

Farming practices would not change. Reclamation determines annual allocations to CVP contractors based on hydrological conditions and after meeting water quality and fish and wildlife requirements. The amount of water diverted from reservoirs or waterways would not change although the timing may differ. Habitat types would not change from past conditions. Lands that have been fallowed three consecutive years would require biological surveys prior to disking. Approval of the banking and exchange of water would not interfere with the requirements or ability of Reclamation to make water available for fish and wildlife uses mandated by Central Valley Project Improvement Act.

As discussed under the No Action alternative, it is assumed that the construction projects that were disclosed earlier in this document would occur, however, later in time, or they may occur regardless of the Proposed Action. They would not depend on the Proposed Action for their justification. Therefore, their impacts would have to be addressed separately and would occur as explained above.

2.2.10.3 Cumulative Impacts

The Proposed Action Alternative would have no impact on biological resources, and therefore would have no cumulative impact on biological resources.

The No Action Alternative would have the potential to result in land use changes over the long term. Land use changes, if they occur, could be either beneficial or detrimental to wildlife, depending on whether agricultural land is fallowed or converted to urban land uses.

Cultural Resources

2.2.11 Affected Environment

A cultural resource is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation that outlines the Federal Government's responsibility to cultural resources. Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic Places (NRHP). Those resources that are on, or eligible for inclusion in, the NRHP are referred to as historic properties.

The Section 106 process is outlined in the Federal regulations at 36 Code of Federal Regulations (CFR) Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects (APE), determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Office (SHPO), to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties.

The San Joaquin Valley is rich in historical and prehistoric cultural resources. Cultural resources in this area are generally prehistoric in nature and include remnants of native human populations that existed before European settlement. Prior to the 18th Century, many Native American tribes inhabited the Central Valley. It is possible that many cultural resources lie undiscovered across the valley. The San Joaquin Valley supported extensive populations of Native Americans, principally the Northern Valley Yokuts, in the prehistoric period. Cultural studies in the SJV

have been limited. The conversion of land and intensive farming practices over the last century has likely destroyed many Native American cultural sites.

The CVP, one of the Nation's major water conservation developments, extends from the Cascade Range in the north to the semi-arid but fertile plains along the Kern River in the south. The FKC is part of Reclamation's Friant Division of the CVP. Friant Dam is located on the San Joaquin River, 25 miles northeast of Fresno, California. Completed in 1942, the dam is a concrete gravity structure, 319 feet high, with a crest length of 3,488 feet. Construction of the canal began in 1945 and was completed in 1951. The FKC carries water over 151.8 miles in a southerly direction from Millerton Lake to the Kern River, four miles west of Bakersfield. The water is used for supplemental and new irrigation supplies in Fresno, Tulare, and Kern Counties.

Reclamation is in the process of nominating the CVP to the NRHP. As part of the CVP, the FKC has been found eligible for inclusion in the NRHP under Criterion A for its association with irrigation and agricultural development of California.

2.2.12 Environmental Consequences

2.2.12.1 No Action

Under the No Action Alternative, there would be no impacts to cultural resources since there would be no change in operations and no ground disturbance. Conditions related to cultural resources would remain the same as existing conditions.

2.2.12.2 Proposed Action

The Proposed Action is not the type of activity that has potential to affect historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1). There would be no modification of CVP conveyance facilities and no activities that would result in ground disturbance under the Proposed Action. Because there would be no potential to affect historic properties, no cultural resources would be impacted as a result of implementing the Proposed Action.

2.2.12.3 Cumulative Impacts

Because there would be no potential to affect historic properties, the Proposed Action, when added to other past, present, and future actions, would not contribute to cumulative impacts to cultural resources.

Indian Trust Assets

ITA are legal interests in assets that are held in trust by the United States Government for federally recognized Indian tribes or individuals. The trust relationship usually stems from a treaty, executive order, or act of Congress. The Secretary of the interior is the trustee for the United States on behalf of federally recognized Indian tribes. "Assets" are anything owned that holds monetary value. "Legal interests" means there is a property interest for which there is a legal remedy, such a compensation or injunction, if there is improper interference. Assets can be real property, physical assets, or intangible property rights, such as a lease, or right to use something. ITA cannot be sold, leased or otherwise alienated without United States' approval. Trust assets may include lands, minerals, and natural resources, as well as hunting, fishing, and

water rights. Indian reservations, rancherias, and public domain allotments are examples of lands that are often considered trust assets. In some cases, ITA may be located off trust land.

Reclamation shares the Indian trust responsibility with all other agencies of the Executive Branch to protect and maintain ITA reserved by or granted to Indian tribes, or Indian individuals by treaty, statute, or Executive Order.

2.2.13 Affected Environment

The nearest ITA is the Tule River Reservation, which is approximately 16 miles northeast of the Proposed Action location.

2.2.14 Environmental Consequences

2.2.14.1 No Action

There is no ITA in the Proposed Action area; therefore there would be no impacts to ITA resulting from the No Action Alternative.

2.2.14.2 Proposed Action

The Proposed Action involves existing facilities to convey water and would not include modifications or new construction of facilities. Therefore, the Proposed Action does not have the potential to affect ITA.

2.2.14.3 Cumulative Impacts

The Proposed Action, when added to other past, present, and future actions, would not contribute to cumulative impacts to ITA as there are none in the Proposed Action area.

Environmental Justice

Executive Order 12898 (February 11, 1994) mandates Federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.

2.2.15 Affected Environment

The cities of Delano, McFarland, Shafter, and Wasco, along with the unincorporated communities of Earlimart, Lost Hills, and Richgrove, are located within the Region. Each of these communities is considered economically disadvantaged based on a comparison of the statewide median household income (MHI) with household incomes within these urban areas. In particular, the MHI for each is less than 80 percent of the statewide MHI. On a regional basis, the population-weighted average MHI is $27,500 for the Region, or about 58 percent of the statewide MHI, which is significantly lower than the above-stated threshold of 80 percent (Hillshade, California Spatial Information Library 2002; U.S. Census Bureau 2010).

2.2.16 Environmental Consequences

2.2.16.1 No Action

Under the No Action Alternative, groundwater levels could decline, with a corresponding increase in the use of power and energy resources, creating both an environmental and economic

burden. This would have an adverse economic effect on the economically-disadvantaged communities that rely on groundwater in whole or in part. In addition, if farm land goes out of production due to the decreased water supply reliability and availability, jobs would decrease thereby resulting in more poverty in these communities.

Under the No Action Alternative, less flexibility occurs in delivery of SWP, CVP, Kern River, and local creek water to neighboring districts with absorptive capacity, thus, less reduction in flood, although it is very minor in comparison to the uncontrolled flood release of the local Poso Creek and/or White River that gets directed through McFarland and/or Delano.

2.2.16.2 Proposed Action

Most of the disadvantaged communities within the Region rely on groundwater and agriculture-related work. The Proposed Action would benefit economically disadvantaged communities and minority populations within the Region by helping to reduce the declines in groundwater levels and maintaining farm job opportunities.

2.2.16.3 Cumulative Impacts

The Proposed Action, when added to other past, present, and future actions, would not contribute to cumulative adverse impacts to minority and low-income populations. Neither of the alternatives results in changes to total water supplies; however, timing of supply availability would more closely correspond to demands. The Proposed Action would allow available water supplies to be redistributed within the same geographic area. The Proposed Action may maintain some jobs for farm laborers, reduce flow to saline sinks, and improve economic conditions within the Region. SWP, CVP, and Kern River are delivered into the Region and if they have flood related flows, they usually come at slightly different peak times, and thus, flexibility helps reduce the flooding by having more area to deliver the water to.

Socioeconomic Resources

2.2.17 Affected Environment

Kern County ranks among the leading five counties in the United States in the value of its agricultural products. The gross value of all agricultural products from the County in 2009 exceeded $3.6 billion according to the Kern County Crop Report. Since the permanent crop irrigated area of the portion of the Region in Kern County is over 45 percent of the permanent crop irrigated area of Kern County, and because the Region contains at least 67 percent of high-value permanent crops, it is estimated that the Region annually produces at least $2 billion in agricultural commodities (Kern County Crop Report 2009). A small portion of the Region (DEID) is in Tulare County. The demographics of the area in Tulare County is very similar to Kern County, thus it has a similar socioeconomic resource at a smaller area to affect.

According to the 2000 Census, Kern County's population is 661,645, an increase of 21.7 percent over 1990 Census data. The population of Kern County is 49.5 percent white (non-Hispanic), 38.4 percent Hispanic, 6 percent African-American, 3.4 percent Asian and 1.5 percent Native American. Between 2005 and 2025, Kern County is expected to double its existing population; grow by more than 160,000 new homes; and add 400,000 vehicles to its roadways (U.S. Census Bureau 2010).

The largest population center in the southern San Joaquin Valley is the City of Bakersfield, which is located just to the south of and immediately adjacent to the Region. Several smaller population centers in outlying areas support the two primary industries: agriculture and oil. The communities within the Region principally provide support to agriculture, and the RWMG activities provide support to the local communities (including DACs). The small businesses that support agriculture rely on the efficient and cost effective use of water in the surrounding agricultural lands to sustain the agriculturally based economy. The cost, reliability, sustainability and availability of water have historically had an economic impact on the communities of the area. Surface water reliability and its effect on agricultural jobs are directly linked to the Region's economy.

2.2.18 Environmental Consequences

2.2.18.1 No Action

Surface water supplies for agricultural use are expected to decrease in the future. The No Action Alternative would result in increased use of groundwater to make up for the lost surface water availability. This would result in increased pumping lifts with a commensurate increase in production costs to all users, and ultimately, the economic loss, both direct and indirect, associated with the loss of agricultural production. The No Action Alternative would now allow increased flexibility in timing of deliveries and a slight increase in flood water would occur at times. This may result in decreased agriculture in the Region over the long-term and lead to loss of jobs.

2.2.18.2 Proposed Action

The Proposed Action would allow water users to optimize the use of surface water through banking, transfers, and exchanges during wet periods, which may reduce the amount of groundwater used during dry periods. Maintenance of groundwater levels would reduce energy use and pumping costs for local communities and individual homeowners as well as farmers. The Proposed Action would allow increased flexibility in timing of deliveries, which would help maintain existing farming practices and small businesses that depend upon agriculture. As a result, the Proposed Action would not result in adverse affects to socioeconomic resources.

2.2.18.3 Cumulative Impacts

The Proposed Action Alternative is a water management tool that adds flexibility in the timing for delivery of the available water supply that could maintain some crops and jobs for farm laborers and workers in supporting businesses. The cumulative effect of helping to maintain farm jobs and agriculture-dependent small businesses will be within historical conditions. The Proposed Action, when added to other past, present, and future actions, would not contribute to adverse cumulative impacts to socioeconomic resources.

Air Quality

Section 176 (C) of the Clean Air Act [CAA] (42 USC 7506 (C)) requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the Federal Clean Air Act (42 USC 7401 (a)) before the action is otherwise approved. In this context, conformity means that such

federal actions must be consistent with SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements would, in fact conform to the applicable SIP before the action is taken.

On November 30, 1993, the Environmental Protection Agency (EPA) promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by the Proposed Action equal or exceed certain *de minimis* amounts thus requiring the federal agency to make a determination of general conformity.

2.2.19 Affected Environment

The Proposed Action Region lies within the San Joaquin Valley Air Basin (SJVAB), which is the second largest air basin in California, and is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Despite years of improvements, the SJVAB does not meet all State and Federal health-based air quality standards. The SJVAPCD has adopted stringent control measures to reduce emissions and improve overall air quality within the SJVAB. The pollutants of greatest concern in the San Joaquin Valley are carbon monoxide (CO), ozone (O_3), O_3 precursors such as volatile organic compounds (VOC) or reactive organic gases (ROG), and inhalable particulate matter between 2.5 and 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). The SJVAB has reached Federal and State attainment status for CO, nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). Federal attainment status has been reached for PM_{10} but is in non-attainment for O_3, $PM_{2.5}$, and VOC/ROG (see Table 3-5). There are no established standards for nitrogen oxides (NO_x); however, NO_x does contribute to NO_2 standards (SJVAPCD 2010a).

Table 3-4 San Joaquin Valley Attainment Status

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
O_3	8 Hour	0.070 ppm (137 µg/m^3)	**Nonattainment**	0.075 ppm	**Nonattainment**
	1 Hour	0.09 ppm (180 µg/m^3)	**Nonattainment**	--	--
CO	8 Hour	9.0 ppm (10 mg/m^3)	Attainment	9.0 ppm (10 mg/m^3)	Attainment
	1 Hour	20.0 ppm (23 mg/m^3)	Unclassified	35.0 ppm (40 mg/m^3)	Unclassified
NO_2	Annual arithmetic mean	0.030 ppm (56 µg/m^3)	Attainment	0.053 ppm (100 µg/m^3)	Attainment
	1 Hour	0.18 ppm (338 µg/m^3)	Attainment	--	--
SO_2	Annual average	--	--	0.03 ppm (80 µg/m^3)	Attainment
	24 Hour	0.04 ppm (105 µg/m^3)	Attainment	0.14 ppm (365 µg/m^3)	Attainment
	1 Hour	0.25 ppm (655 µg/m^3)	Attainment	--	--
PM_{10}	Annual arithmetic	20 µg/m^3	**Nonattainment**	--	--

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
	mean				
	24 Hour	50 µg/m^3	**Nonattainment**	150 µg/m^3	Attainment
$PM_{2.5}$	Annual Arithmetic mean	12 µg/m^3	**Nonattainment**	15 µg/m^3	**Nonattainment**
	24 Hour	--	--	35 µg/m^3	Attainment
Lead	30 day average	1.5 µg/m^3	Attainment	--	--
	Rolling-3 month average	--	--	0.15 µg/m^3	Unclassified

Source: CARB 2010; SJVAPCD 2010b; 40 CFR 93.153

ppm = parts per million
mg/m^3 = milligram per cubic meter
µg/m^3 = microgram per cubic meter
-- = No standard established

2.2.20 Environmental Consequences

2.2.20.1 No Action

Under the No Action Alternative, there would be no improvement to air quality since conditions would remain the same as the existing conditions; existing conditions are based on the reduction in surface supplies delivered to the Region, which would likely result in increased lifts for groundwater pumping and the associated increase in electricity usage, leading to more fuel consumption and emissions.

2.2.20.2 Proposed Action

The Proposed Action would involve gravity and/or electrical pumps to convey surface water for banking, transfers, and exchanges, which have no direct emissions to impact air quality. As compared to the No Action Alternative, there would be no adverse impacts to air quality since less groundwater would be pumped using gasoline or diesel engines.

2.2.20.3 Cumulative Impacts

Under the Proposed Action, there would be no adverse effects to air quality since less groundwater would be pumped, which mostly utilizes gasoline or diesel engines, and there would be no cumulative adverse impacts to air quality as a result of the Proposed Action when added to other past, present, and reasonably foreseeable future actions.

Global Climate

Climate change refers to significant change in measures of climate (e.g., temperature, precipitation, or wind) lasting for decades or longer. Many environmental changes (changes in sun's intensity, changes in ocean circulation, deforestation, urbanization, burning fossil fuels, etc.) can contribute to climate change (EPA 2009). Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). Some GHG such as carbon dioxide (CO_2) occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHG (e.g., fluorinated gases) are created and emitted solely through human activities. The principal GHG that enter the atmosphere because of human activities are: CO_2, methane (CH_4), nitrogen oxides, and fluorinated gasses (EPA 2009).

During the past century, humans have substantially added to the amount of GHG in the atmosphere by burning fossil fuels such as coal, natural gas, oil, and gasoline to power our cars, factories, utilities, and appliances. The added gases, primarily CO_2 and CH_4, are enhancing the natural greenhouse effect, and likely contributing to an increase in global average temperature and related climate changes. At present, there are uncertainties associated with the science of climate change (EPA 2009).

More than 20 million Californians rely on regulated delivery of water resources such as the SWP and the CVP, as well as established water rights from rivers. Increases in air temperature may lead to changes in precipitation patterns, runoff timing and volume, sea level rise, and changes in the amount of irrigation water needed due to modified evapotranspiration rates. These changes may lead to impacts to the State's water resources and project operations. While there is general consensus in their trend, the magnitudes and onset-timing of impacts are uncertain and are scenario-dependent (Anderson et al. 2008).

2.2.21 Affected Environment

In 2002, with the passage of Assembly Bill 1493 (AB 1493), the State launched an innovative and proactive approach to dealing with GHG emissions and climate change at the state level. AB 1493 requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck GHG emissions; these regulations would apply to automobiles and light trucks beginning with their respective 2009 models (IPCC 1998). The State has adopted Assembly Bill 32 and has identified GHG reduction goals; the effect of increased GHG emissions as they relate to global climate change is inherently an adverse environmental impact. While the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in an impact with respect to global climate change.

More than 20 million Californians rely on the SWP and CVP. Increases in air temperature may lead to changes in precipitation patterns, runoff timing and volume, sea level rise, and changes in the amount of irrigation water needed due to modified evapotranspiration rates. These changes may lead to impacts to California's water resources and project operations.

While there is general consensus in their trend, the magnitudes and onset-timing of impacts are uncertain and are scenario-dependent (Anderson et al. 2008).

2.2.22 Environmental Consequences

2.2.22.1 No Action

Implementation of the No Action Alternative would not decrease the rate of groundwater level decline and would not decrease the rate of change on the composition of the atmosphere and therefore would have not decrease the direct or indirect effects to climate.

2.2.22.2 Proposed Action

Greenhouse gases (GHG) generated are expected to be extremely small compared to sources contributing to potential climate change since the movement of water under the Proposed Action would be conveyed mostly via gravity and little, if any, additional pumping from electric motors would be required. The Proposed Action would not have adverse effects to the global climate.

2.2.22.3 Cumulative Impacts

Implementation of the Proposed Action would decrease GHG emissions as compared with the No Action Alternative. There would be no adverse impacts as a result of the Proposed Action when added to other past, present, and reasonably foreseeable future actions.

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Section 4 Consultation and Coordination

4.1 Fish and Wildlife Coordination Act (16 USC § 661 et seq.)

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (Federal and State) on all water development projects that could affect biological resources. The amendments enacted in 1946 require consultation with the Service and State fish and wildlife agencies where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted or otherwise controlled or modified" by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of "preventing the loss of and damage to wildlife resources."

The Proposed Action is the approval of water management actions, all of which does not require a Federal permit or license; therefore, the FWCA does not apply.

4.2 Endangered Species Act (16 USC § 1531 et seq.)

Section 7 of the ESA requires Federal agencies, in consultation with the Secretary of the Interior and/or Commerce, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

The Proposed Action would support existing uses and conditions. No construction or new facilities would be required to convey this water. Banking and exchanges are typical methods for delivering water to areas with the highest beneficial use, i.e. permanent crops when water supplies are insufficient to meet demands. Reclamation has concluded that the Proposed Action would not affect any listed or proposed for listing threatened or endangered species or any proposed or designated critical habitat. No native lands would be converted or cultivated with CVP water. The water would not be used for land conversion. Lands that have been fallowed for three consecutive years would require biological surveys prior to disking. The construction projects noted in Section 3.1 do not require the Proposed Action for their justification and the project proponent(s) of those various actions must address any incidental take of federally listed species via either section 7 or section 10 of the ESA at such time as those projects are proposed.

4.3 National Historic Preservation Act (16 USC § 470 et seq.)

Section 106 of the National Historic Preservation Act requires federal agencies to evaluate the effects of federal undertakings on historical, archaeological and cultural resources. Due to the nature of the Proposed Action, there would be no effect on any historical, archaeological, or cultural resources and no further compliance actions are required.

4.4 Indian Trust Assets

ITA are legal interests in property held in trust by the United States for federally-recognized Indian tribes or individual Indians. An Indian trust has three components: (1) the trustee, (2) the beneficiary, and (3) the trust asset. ITA can include land, minerals, federally-reserved hunting and fishing rights, federally-reserved water rights, and in-stream flows associated with trust land. Beneficiaries of the Indian trust relationship are federally-recognized Indian tribes with trust land; the United States is the trustee. By definition, ITA cannot be sold, leased, or otherwise encumbered without approval of the United States. The characterization and application of the United States trust relationship have been defined by case law that interprets Congressional acts, executive orders, and historic treaty provisions.

The Proposed Action would not affect ITA because there are none located in the Proposed Project Region. The nearest ITA is the Tule River Reservation, which is approximately 16 miles northeast of the Proposed Action location.

4.5 Executive Order 13007 – Indian Sacred Sites

Sacred sites are defined in Executive Order 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.

Executive Order 13007 requires Federal land managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. It also requires agencies to develop procedures for reasonable notification of proposed actions or land management policies that may restrict access to or ceremonial use of, or adversely affect, sacred sites.

The Proposed Action involves approving use of existing water banking and exchange facilities. The Proposed Action would not impact any known Indian sacred sites and/or prohibit access to and ceremonial use of this resource.

4.6 Migratory Bird Treaty Act (16 USC § 703 et seq.)

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the Act provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the Act, the Secretary of the Interior (Secretary) may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of

any migratory bird, part, nest or egg will be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns. The Proposed Action would conflict with any of the aforementioned unlawful activities and would be in compliance with the MBTA.

4.6 Executive Order 11988 – Floodplain Management and Executive Order 11990 – Protection of Wetlands

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for actions located within or affecting flood plains, and similarly, Executive Order 11990 places similar requirements for actions in wetlands. The Proposed Action would not affect either concern.

4.7 Clean Air Act (42 USC § 7506 (C))

Section 176 of the CAA requires that any entity of the Federal government that engages in, supports, or in any way provided financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable SIP required under Section 110 (a) of the CAA (42 USC § 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact conform to the applicable SIP before the action is taken. The Proposed Action involves the storage and conveyance of non-CVP water through existing federal facilities. Movement of water would be done via gravity or electrical pumps. There are no new emissions associated with the movement of this water; therefore a conformity analysis is not required and there are no adverse impacts to air quality associated with the Proposed Action.

4.8 Clean Water Act (16 USC § 703 et seq.)

Section 401

Section 401 of the Clean Water Act (CWA) (33 USC § 1311) prohibits the discharge of any pollutants into navigable waters, except as allowed by permit issued under sections 402 and 404 of the CWA (33 USC § 1342 and 1344). If new structures (e.g., treatment plants) are proposed, that would discharge effluent into navigable waters, relevant permits under the CWA would be required for the project applicant(s). Section 401 requires any applicant for an individual U. S. Army Corps of Engineers dredge and fill discharge permit to first obtain certification from the state that the activity associated with dredging or filling will comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling.

No pollutants would be discharged into any navigable waters under the Proposed Action so no permits under Section 401 of the CWA are required.

Section 404

Section 404 of the CWA authorizes the U. S. Army Corps of Engineers to issue permits to regulate the discharge of "dredged or fill materials into waters of the United States" (33 USC § 1344). No activities such as dredging or filling of wetlands or surface waters would be required for implementation of the Proposed Action, therefore no CWA section 404 permits are required.

Section 5 List of Preparers and Reviewers

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Michael Inthavong, Natural Resources Specialist, SCCAO
Patti Clinton, Natural Resource Specialist, SCCAO
Shauna McDonald, Wildlife Biologist, SCCAO
Amy Barnes, Archaeologist, MP-153
Patricia Rivera, Native American Affairs, MP-400
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Section 6 References

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Appendix A – Reclamation Determinations

From: Barnes, Amy J
Sent: Thursday, February 04, 2010 2:27 PM
To: Clinton, Patricia L; Bruce, Brandee E; Goodsell, Joanne E; Leigh, Anastasia T; Nickels, Adam M; Overly, Stephen A; Ramsey, Dawn
Subject: EA-09-121 Poso Creek Integrated Water Management Plan (10-SCAO-128)

Tracking #10-SCAO-128

Project: EA-09-121 Poso Creek Integrated Water Management Plan

The proposed activities associated with Reclamation approving and issuing agreements with six agricultural water districts within the Poso Creek Integrated Regional Water Management Plan (Plan) Regional Management Group (RMG) for up to 300,000 AFY water supplies available to the Region during a period of 25 years, or the life of the CVP contracts, for water banking and exchanging will have no potential to affect historic properties. The six water districts include Semitropic Water Storage District, Shafter-Wasco Irrigation District, Cawelo Water District, Delano-Earlimart Irrigation District, Kern-Tulare Water District, and North Kern Water Storage District, and North West Kern Resource Conservation District. The Plan RMG are interested in having an expedited approval process to deliver Central Valley Project (CVP) water to neighboring water districts when they have water supplies surplus to their immediate in-district needs, and the ability to receive returned stored water from these entities during times of shortage. This will allow CVP contractors to deliver their own contract supplies, transferred-in water, Section '215' water, and/or flood releases to non-CVP members of the Plan Area for ground water banking during wet periods. This banked water would be withdrawn later, up to 18 months afterwards. Water will be conveyed and banked using existing facilities. There will be no modification of water conveyance facilities and no activities that will result in ground disturbance.

As the proposed action has no potential to affect historic properties pursuant to 36 CFR Part 800.3(a)(1), no additional consideration under Section 106 of the National Historic Preservation Act is required.

Thank you for the opportunity to review the proposed action. Please place a copy of this concurrence with the CEC administrative record. Please also include the following text into the "Cultural Resources" and "Consultation and Coordination" Sections of the EA.

Cultural Resources
A cultural resource is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation that outlines the Federal Government's responsibility to cultural resources. Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the

National Register of Historic Places (NRHP). Those resources that are on, or eligible for inclusion in, the NRHP are referred to as historic properties.

The Section 106 process is outlined in the Federal regulations at 36 Code of Federal Regulations (CFR) Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking will have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects (APE), determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Office (SHPO), to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties.

The San Joaquin Valley is rich in historical and prehistoric cultural resources. Cultural resources in this area are generally prehistoric in nature and include remnants of native human populations that existed before European settlement. Prior to the 18th Century, many Native American tribes inhabited the Central Valley. It is possible that many cultural resources lie undiscovered across the valley. The San Joaquin Valley supported extensive populations of Native Americans, principally the Northern Valley Yokuts, in the prehistoric period. Cultural studies in the San Joaquin Valley have been limited. The conversion of land and intensive farming practices over the last century has likely destroyed many Native American cultural sites.

The Central Valley Project, one of the Nation`s major water conservation developments, extends from the Cascade Range in the north to the semi-arid but fertile plains along the Kern River in the south. The Friant-Kern Canal (FKC) is part of Reclamation's Friant Division of the Central Valley Project (CVP). Friant Dam is located on the San Joaquin River, 25 miles northeast of Fresno, California. Completed in 1942, the dam is a concrete gravity structure, 319 feet high, with a crest length of 3,488 feet. Construction of the canal began in 1945 and was completed in 1951. The FKC carries water over 151.8 miles in a southerly direction from Millerton Lake to the Kern River, four miles west of Bakersfield. The water is used for supplemental and new irrigation supplies in Fresno, Tulare, and Kern Counties.

Reclamation is in the process of nominating the CVP to the National Register of Historic Places (NRHP). As part of the CVP, the FKC has been found eligible for inclusion in the NRHP under Criterion A for its association with irrigation and agricultural development of California.

No Action

Under the No Action Alternative, there are no impacts to cultural resources since there would be no change in operations and no ground disturbance. Conditions related to cultural resources would remain the same as existing conditions.

Proposed Action
The proposed action is administrative in nature and is the type of activity that has no potential to affect historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1). There will be no modification of water conveyance facilities and no activities that will result in ground disturbance. Because there is no potential to affect historic properties, no cultural resources will be impacted as a result of implementing proposed action.

National Historic Preservation Act (16 USC § 470 et seq.)
Section 106 of the National Historic Preservation Act requires federal agencies to evaluate the effects of federal undertakings on historical, archaeological and cultural resources. Due to the nature of the proposed project, there will be no effect on any historical, archaeological, or cultural resources and no further compliance actions are required.

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Rivera, Patricia L Sent: Mon 6/7/2010 11:47 AM
RE: EA-09-121 - Poso Creek Integrated Regional Water Management Plan ITA Review

I reviewed the proposed action to approve a water banking program for three CVP contractors, Delano-Earlimart ID, Shafter-Wasco ID and Kern-Tulare WD, through February 28, 2036 in which they would bank CVP water outside of their service area boundaries in years when they had CVP water surplus to their demand and recover the CVP water for use within their service area boundaries during times of short supply. The water banking program would be accomplished through Reclamation approving the banking of CVP water outside of the district's service area boundaries, approving exchange agreements for the return of the CVP water, and executing Warren Act contracts, if needed, to facilitate the return of the banked water via the exchange of CVP water for non-CVP water delivered in federal facilities. The CVP water to be banked could include the districts' CVP allocation and purchases of other CVP contractor's allocations of Class 1 water, Class 2 water, abandoned flood water, Recovered Water Account water (San Joaquin River settlement), Re-circulated Friant Water (San Joaquin River settlement), Section 215 water, and Cross Valley water. There are three participating non-CVP districts that could potentially be used to bank the CVP water: Semitropic WSD (Semitropic), North Kern WSD (NKWSD), and Cawelo WD (CWD). The quantity of CVP water per district is listed below.

District	**Amt banked per year (AF)**	**Amt returned per year (AF)**	**Total quantity in storage at one time (AF) (2 x amount banked per year) and (6 x amount returned per year)**
DEID	90,000	30,000	180,000
SWID	45,000	15,000	90,000
KTWD	60,000	20,000	120,000
Total	**195,000**	**65,000**	**390,000**

The quantity of CVP water per district listed for this action is separate from and will recognize the priority of other banking programs previously approved by Reclamation.

The proposed action does not have a potential to affect Indian Trust Assets. The nearest ITA is Tule River Reservation, which is approximately 16 miles NE of the project location.

Patricia

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Appendix B – Water Quality Requirements

2011 Policy to Accept Non-Project Water
Friant Division
Water Quality Monitoring Program

Table 3. Water Quality Constituents

CONSTITUENT OR PARAMETER	Units	California DHS Maximum Contaminant Level (1)	Note	Irrigation Suitability Standards (2)	Detection Limit for Reporting	Note	CAS Registry Number
Primary Constituents (CCR § 64431)							
Aluminum	µg/L	1,000	1		50	2	7429-90-5
Antimony	µg/L	6	1		6	2	7440-36-0
Arsenic	µg/L	50	16		2	2	7440-38-2
Asbestos	MFL > 10µm	7	1, 18		0.2	2	1332-21-4
Barium	µg/L	1,000	1		100	2	7440-39-3
Beryllium	µg/L	4	1		1	2	7440-41-7
Cadmium	µg/L	5	1		1	2	7440-43-9
Chromium (total)	µg/L	50	1		10	2	7440-47-3
Cyanide	µg/L	150	1		100	2	57-12-5
Fluoride	µg/L	2,000	1, 19		100	2	16984-48-8
Mercury (inorganic)	µg/L	2	1		1	2	7439-97-6
Nickel	µg/L	100	1		10	2	7440-02-0
Nitrate (as NO3)	mg/L	45	1, 20		2	2	7727-37-9
Total Nitrate + Nitrite (as Nitrogen)	mg/L	10	1				
Nitrite (as Nitrogen)	mg/L	1	1		0.4	2	14797-65-0
Selenium	µg/L	50	1		5	2	7782-49-2
Thallium	µg/L	2	1		1	2	7440-28-0
Secondary Constituents (CCR § 64449)							
Aluminum	µg/L	200	6		50	2	7429-90-5
Chloride	mg/L	250	7, 21	107			16887-00-6
Color	units	15	6				
Copper	µg/L	1,000	6				7440-50-8
Foaming agents (MBAS)	µg/L	500	6				
Iron	µg/L	300	6				7439-89-6
Manganese	µg/L	50	6				7439-96-5
Methyl-tert-butyl ether (MtBE)	µg/L	5	6				1634-04-4
Odor - Threshold	threshold units	3	6				
Silver	µg/L	100	6				7440-22-4
Specific conductance (EC)	µS/cm	900	7, 23	700			
Sulfate	mg/L	250	7, 21				14808-79-8
Thiobencarb	µg/L	1	6				28249-77-6
Total dissolved solids (TDS)	mg/L	500	7, 24	450			
Turbidity	NTU	5	6				
Zinc	µg/L	5,000	6				7440-66-6
Other required analyses (CCR § 64449 (b)(2); CCR § 64670)							
Bicarbonate	mg/L		8	92			
Boron	mg/L			1			
Calcium	mg/L		8,12				7440-70-2
Carbonate	mg/L		8				
Copper	mg/L	1.3	14, 22		0.05	12	7440-50-8
Hardness	mg/L		8				
Hydroxide alkalinity	mg/L		8,12				
Lead	µg/L	15	14, 22		5	12	7439-92-1
Magnesium	mg/L		8				7439-95-4
Orthophosphate	mg/L		12				
pH	units		8, 12, 25	6.5 - 8.4			

Table 3. Water Quality Constituents

CONSTITUENT OR PARAMETER	Units	California DHS Maximum Contaminant Level (1)	Note	Irrigation Suitability Standards (2)	Detection Limit for Reporting	Note	CAS Registry Number
Silica	mg/L		12				
Sodium	mg/L		8	69			7440-23-5
Sodium Adsorption Ratio				3			
Temperature	degrees C		12				
Radiochemistry (CCR § 64442)							
Radioactivity, Gross Alpha	pCi/L	15	3		3	3	
Microbiology							
Cryptosporidium	org/liter	No MCL, measure for presence (surface water only)					
Fecal Coliform	MPN/100ml	No MCL, measure for presence (surface water only)					
Giardia	org/liter	No MCL, measure for presence (surface water only)					
Total Coliform bacteria	MPN/100ml	No MCL, measure for presence (surface water only)					
Organic Constituents (CCR § 64444)							
EPA 504.1 method							
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	0.2	4		0.01	5	96-12-8
Ethylene dibromide (EDB)	µg/L	0.05	4		0.02	5	206-93-4
EPA 505							
Chlordane	µg/L	0.1	4		0.1	5	57-74-9
Endrin	µg/L	2	4		0.1	5	72-20-8
Heptachlor	µg/L	0.01	4		0.01	5	76-44-8
Heptachlor epoxide	µg/L	0.01	4		0.01	5	1024-57-3
Hexachlorobenzene	µg/L	1	4		0.5	5	118-74-1
Hexachlorocyclopentadiene	µg/L	50	4		1	5	77-47-4
Lindane (gamma-BHC)	µg/L	0.2	4		0.2	5	58-89-9
Methoxychlor	µg/L	30	4		10	5	72-43-5
Polychlorinated biphenyls	µg/L	0.5	4		0.5	5	1336-36-3
Toxaphene	µg/L	3	4		1	5	8001-35-2
EPA 508 Method							
Alachlor	µg/L	2	4		1	5	15972-60-8
Atrazine	µg/L	1	4		0.5	5	1912-24-9
Simazine	µg/L	4	4		1	5	122-34-9
EPA 515.3 Method							
Bentazon	µg/L	18	4		2	5	25057-89-0
2,4-D	µg/L	70	4		10	5	94-75-7
Dalapon	µg/L	200	4		10	5	75-99-0
Dinoseb	µg/L	7	4		2	5	88-85-7
Pentachlorophenol	µg/L	1	4		0.2	5	87-86-5
Picloram	µg/L	500	4		1	5	1918-02-1
2,4,5-TP (Silvex)	µg/L	50	4		1	5	93-72-1
EPA 524.2 Method (Volatile Organic Chemicals)							
Benzene	µg/L	1	4		0.5	5	71-43-2
Carbon tetrachloride	µg/L	0.5	4		0.5	5	56-23-5
1,2-Dibromoethane	µg/L	0.05			0.5	5	106-93-4
1,2-Dichlorobenzene	µg/L	600	4		0.5	5	95-50-1
1,4-Dichlorobenzene	µg/L	5	4		0.5	5	106-46-7
1,1-Dichloroethane	µg/L	5	4		0.5	5	75-34-3
1,2-Dichloroethane	µg/L	0.5	4		0.5	5	107-06-2
1,1-Dichloroethylene	µg/L	6	4		0.5	5	75-35-4
cis-1,2-Dichloroethylene	µg/L	6	4		0.5	5	156-59-2
trans-1,2-Dichloroethylene	µg/L	10	4		0.5	5	156-60-5
Dichloromethane	µg/L	5	4		0.5	5	75-09-2

Table 3. Water Quality Constituents

CONSTITUENT OR PARAMETER	Units	California DHS Maximum Contaminant Level (1)	Note	Irrigation Suitability Standards (2)	Detection Limit for Reporting	Note	CAS Registry Number
1,2-Dichloropropane	µg/L	5	4		0.5	5	78-87-5
1,3-Dichloropropene	µg/L	0.5	4		0.5	5	542-75-6
Ethylbenzene	µg/L	300	4		0.5	5	100-41-4
Methyl-tert-butyl ether (MtBE)	µg/L	13	4		3	5	1634-04-4
Monochlorobenzene	µg/L	70	4		0.5	5	108-90-7
Styrene	µg/L	100	4		0.5	5	100-42-5
1,1,2,2-Tetrachloroethane	µg/L	1	4		0.5	5	79-34-5
Tetrachloroethylene (PCE)	µg/L	5	4		0.5	5	127-18-4
Toluene	µg/L	150	4		0.5	5	108-88-3
1,2,4-Trichlorobenzene	µg/L	5	4		0.5	5	120-82-1
1,1,1-Trichloroethane	µg/L	200	4		0.5	5	71-55-6
1,1,2-Trichloroethane	µg/L	5	4		0.5	5	79-00-5
Trichloroethylene (TCE)	µg/L	5	4		0.5	5	79-01-6
Trichlorofluoromethane	µg/L	150	4		5	5	75-69-4
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	1,200	4		10	5	76-13-1
Total Trihalomethanes	ug/L	80	10				
Vinyl chloride	µg/L	0.5	4		0.5	5	75-01-4
Xylene(s)	µg/L	1,750	4		0.5	5	1330-20-7
EPA 525.2 Method							
Benzo(a)pyrene	µg/L	0.2	4		0.1	5	50-32-8
Di(2-ethylhexyl)adipate	µg/L	400	4		5	5	103-23-1
Di(2-ethylhexyl)phthalate	µg/L	4	4		3	5	117-81-7
Molinate	µg/L	20	4		2	5	2212-67-1
Thiobencarb	µg/L	70	4		1	5	28249-77-6
EPA 531.1 Method							
Carbofuran	µg/L	18	4		5	5	1563-66-2
Oxamyl	µg/L	50	4		20	5	23135-22-0
EPA 547 Method							
Glyphosate	µg/L	700	4		25	5	1071-83-6
EPA 548.1 Method							
Endothal	µg/L	100	4		45	5	145-73-3
EPA 549.2 Method							
Diquat	µg/L	20	4		4	5	85-00-7
EPA 613 Method							
2,3,7,8-TCDD (Dioxin)	µg/L	0.00003	4		0.000005	5	1746-01-6

Source Data:

Adapted from Marshack, Jon B. August 2003. A Compilation of Water Quality Goals. Prepared for the California Environmental Protection Agency, Regional Water Quality Control Board. Tables revised August 2007.

References:

(1) State of California, Code of Regulations, Title 22, Division 4, Environmental Health, Chapter 15, Domestic Water Quality, and Monitoring Regulations (Sections 64401 et seq.), as amended.

(2) Ayers, R. S. and D. W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).

Notes for Table 3

State of California. Code of Regulations. Title 22. Division 4. Environmental Health. Chapter 15. Domestic Water Quality, and Monitoring Regulations (Sections 64401 et seq.), as amended.

[1] Table 64431-A. Maximum Contaminant Levels. Inorganic Chemicals
[2] Table 64432-A. Detection Limits for Purpose of Reporting (DLRs) for Regulated Inorganic Chemicals
[3] Table 644442. Radionuclide Maximum contaminant Levels (MCLs) and Detection Levels for Reporting (DLRs) Picocuries per liter: including Radium-226 but excluding Radon and Uranium.
[4] Table 64444-A. Maximum Contaminant Levels Organic Chemicals
[5] Table 64445.1-A. Detection Limits for Reporting (DLRs) for Regulated Organic Chemicals
[6] Table 64449-A. Secondary Maximum Contaminant Levels "Consumer Acceptance Levels"
[7] Table 64449-B. Secondary Maximum Contaminant Levels "Consumer Acceptance Levels"
[8] § 64449(b)(2)
[9] Table 64450. Unregulated Chemicals
[10] Appendix 64481-A. Typical Origins of Contaminants with Primary MCLs
[11] Table 64533-A. Maximum Contaminant Levels and Detection Limits for Reporting Disinfection Byproducts
[12] § 64670.(c)
[13] Table 64678-A. DLRs for Lead and Copper
[14] § 64678 (d)
[15] § 64678 (e)
[16] New Federal standard as of 1/23/2006 in 10 ppb
[17] Dept Health Services Drinking Water Notification Levels (June 2006)
[18] MFL = million fibers per liter: limited to fibers longer than 10 um.
[19] Optimal fluoride level and (range) vary with annual average of maximum daily air temperature: 50.0 to 53.7 degrees F - 1.2 (1.1 to 1.7) mg/L; 53.8 to 58.3 degrees F - 1.1 (1.0 to 1.7) mg/L; 58.4 to 63.8 degrees F - 1.0 (0.9 to 1.5) mg/L; 63.9 to 70.6 degrees F - 0.9 (0.8 to 1.4) mg/L; 70.7 to 79.2 degrees F - 0.8 (0.7 to 1.3) mg/L; 79.3 to 90.5 degrees F - 0.7 (0.6 to 1.2) mg/L.
[20] As NO3: in addition, MCL for total nitrate plus nitrite = 10,000 ug/L (as N).
As nitrogen (N): in addition, limit for total nitrate + nitrite = 10,000 ug/L (as N).
[21] Recommended level: Upper level = 500 mg/L; Short-term level = 600 mg/L.
[22] MCL includes this "Action level" to be exceeded in no more than 10% of samples at the tap.
[23] Recommended level: Upper level = 1600 umhos/cm; Short-term level = 2200 umhos/cm.
[24] Recommended level: Upper level = 1000 mg/L; Short-term level = 1500 mg/L.
[25] This limit has a range of values between the first and second numbers shown.
[26] Agricultural water quality limit
[27] Carcinogen; limit based on cancer risk.
[28] First number is the Notification Level, above which local government notification is required and customer notification is recommended. Second number is the Response Level, at which the drinking water source is recommended to be taken out of service.
[29] Calculated from published Reference Dose using assumptions of 70 kg body weight, 2 liters/day water consumption, and 20% relative source contribution from drinking water. An additional uncertainty factor of 10 used for Class C and 3 carcinogens. (US EPA IRIS Reference dose as drinking water level
[30] For 1,2- and 1-3-dichlorobenzenes.
[31] The sum of aldicarb, aldicarb sulfoxide and aldicarb sulfone should not exceed 7 ug/L because of similar mode of action. Administrative stay of the effective date.
[32] For total trihalomethanes (sum of bromoform, bromodichloromethane, chloroform and dibromochloromethane); based largely on technology and economics.
[33] For five haloacetic acids (sum of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid).
[34] Treatment Technique: Not to exceed 0.01% residual when dosed at 20 mg/L for drinking water treatment.
[35] Measured as ClO2. Maximum residual disinfectant level.
[36] Measured as Cl2. Maximum residual disinfectant level.
[37] Cancer risk at Notification Level is 1 in 100,000. 1 in 1,000,000 cancer risk at 0.001 ug/L.
[38] Draft / tentative / provisional

Table 4. Approved Laboratory List for the Mid-Pacific Region Environmental Monitoring Branch

APPL Laboratory	**Address**	908 North Temperance Avenue, Clovis, CA 93611
	Contact	Diane Anderson (Project Manager) or Cynthia Clark
	P/F	(559) 275-2175 / (559) 275-4422
	Email	danderson@applinc.com; cclark@applinc.com
	Methods	*Approved for inorganic and organic parameters in water and soil*
Basic Laboratory	**Address**	2218 Railroad Avenue Redding, CA 96001 USA
	Contact	Nathan Hawley, Melissa Hawley, Ricky Jensen
	P/F	(530) 243-7234 / (530) 243-7494
	Email	nhawley@basiclab.com (QAO), mhawley@basiclab.com (PM), sthomas@basiclab.com (quotes)
		poilar@basiclab.com (sample custody), khawley@basiclab.com (sample custody)
	CC Info	nhawley@basiclab.com, Jennifer Rawson (ext. 203 - invoices)
		Reanalysis requests need to always be addressed to Melissa Hawley and CC'd to Nathan Hawley
		Quotes address to Sabrina Thomas and cc Nathan Hawley
	Methods	*Approved for inorganic/organic parameters*
Block Environmental Services	**Address**	2451 Estand Way Pleasant Hill, CA 94523 USA
	Contact	David Block
	P/F	(925) 682-7200 / (925) 686-0399; (925) 382-9760 Cell
	Email	dblock@blockenviron.com
	Methods	*Approved for Toxicity Testing*
California Laboratory Services	**Address**	3249 Fitzgerald Road Rancho Cordova, CA 95742
	Contact	Scott Pieters
	P/F	(916) 638-7301 / (916) 638-4510
	Email	scottp@californialab.com (p.m.), janetm@californialab.com (QA)
	Methods	*Approved for inorganic, organic, and microbiological parameters.*
Caltest Analytical Laboratory	**Address**	1885 N. Kelly Rd. Napa, CA 94558
	Contact	Mike Hamilton
	P/F	(707) 258-4000/(707) 226-1001
	Email	Mike_Hamilton@caltestlabs.com; info@caltestlabs.com
	Methods	*Approved for inorganic parameters. Need to touch base with Bill frequently to insure TAT.*
Dept. of Fish & Game - WPCL	**Address**	2005 Nimbus Road Rancho Cordova, CA 95670 USA
	Contact	David B. Crane - Laboratory Director Patty Bucknell - Inorganic Chemist
		Gail Chow - QA Manager + re-analysis requests (916) 358-2840
	P/F	(916) 358-2858 / (916) 985-4301, Sample Receiving: (916) 358-0319 Scott or Mary
	Email	dcrane@ospr.dfg.ca.gov; pbucknell@ospr.dfg.ca.gov; gcho@ospr.dfg.ca.gov
	Methods	*Approved only for metals analysis in tissue, organics pending*, ***lab closes at 4:30 pm, best to call fir***
Fruit Growers Laboratory	**Address**	853 Corporation Street Santa Paula, CA 93060 USA
	Contact	David Terz, QA Director
	P/F	(805) 392-2024 / (805) 525-4172
	Email	davidt@fgllinc.com
	Methods	*Approved for all inorganic and organic parameters in drinking water and general physical analysis in soils*

Table 4. Approved Laboratory List for the Mid-Pacific Region Environmental Monitoring Branch

Montgomery Watson/Harza Laboratories	**Address**	750 Royal Oaks Drive Ste. 100 Monrovia, CA 91016 USA
	Contact	Bradley Cahoon and Rita Reeves (Project Managers - Sacramento), Linda Geddes* (Project Manager - Monrovia) *Work with Linda after samples arrive at laboratory
	P/F	(916) 418-8358, (626) 386-1100, Linda - (626) 386-1163, Rita cell 916-996-5929
	Email	Bradley.Cahoon@us.mwhglobal.com, linda.geddes@mwhglobal.com
	CC Info	cc. Rita on all communications to Bradley.
	Methods	*Approved for all inorganic, organic, and radiochemistry parameters in drinking water*
Moore Twining Laboratories, Inc.	**Address**	2527 Fresno Street Fresno, CA 93721 USA
	Contact	Julio Morales (PM), Maria Manuel (QA Officer), Sample Control (Bottle Orders), Juli Adams (Lab Director); Lisa Montijo (Assistant PM)
	P/F	(559) 268-7021 / (559) 268-0740
	Email	juliom@mooretwining.com; mariam@mooretwining.com; julia@mooretwining.com; lisam@mooretwining.com
	Methods	*Approved for COD by SM5220D and general chemistry including boron analysis (not TOC)*
Olson Biochemistry Laboratories	**Address**	SDSU: Box 2170, ACS Rm. 133 Brookings, SD 57007 USA
	Contact	Nancy Thiex, Laboratory Director
	P/F	(605) 688-5466 / (605) 688-6295
	Email	Nancy.Thiex@sdstate.edu
	CC Info	For re-analysis: contact Zelda McGinnis-Schlobohm and Nancy Anderson
		Zelda.Schlobohm@SDSTATE.EDU, Nancy.Anderson@SDSTATE.EDU
		For analysis questions only: just CC. Nancy Anderson
	Methods	*Approved for boron, selenium, and molybdenum analyses (except boron in soil; Olson does not have the capability). Boron by EPA 200.7 not recommended over other laboratories unless requesting a specialty method like vegetation and tissue. It's a direct analysis, so if digestion is needed make sure to specify on the C.O.C. If vegetation or tissue is requested, request an MDL study and have it attached to the report. Se 0.4 ug/L MDL study on file.*
Sierra Foothill Laboratory, Inc.	**Address**	255 Scottsville Blvd, Jackson, CA 95642
	Contact	Sandy Nurse (Owner) or Dale Gimble (QA Officer)
	P/F	(209) 223-2800 / (209) 223-2747
	Email	sandy@sierrafoothilllab.com, CC: dale@sierrafoothilllab.com
	Methods	*Approved for all inorganic parameters, microbiological parameters, acute and chronic toxicity*
TestAmerica	**Address**	880 Riverside Parkway West Sacramento, CA 95605 USA
	Contact	Linda Laver
	P/F	(916) 374-4362 / (916) 372-1059 fax
	Email	Linda.Laver@TestAmericaInc.com
	Methods	*Approved for all inorganic parameters and hazardous waste organics . Ag analysis in sediment, when known quantity is present, request 6010B*
Western Environmental Testing Laboratories	**Address**	475 East Greg Street # 119 Sparks, NV 89431 USA
	Contact	Erin Pfau (Client Services), Andy Smith (Lab Dirctr)
	P/F	(775) 355-0202 / (775) 355-0817
	Email	erinp@wetlaboratory.com, andy@wetlaboratory.com
	Methods	*Approved for inorganic parameters (metals, general chemistry) and coliforms*

revised: 2/14/2011