

RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Madera Irrigation District Long-Term Banking and Return Project with North Kern Water Storage District and/or Semitropic Water Storage District

EA-11-102



U.S. Department of the Interior
Bureau of Reclamation
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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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1 Introduction

This Environmental Assessment (EA) has been prepared to examine the impacts on environmental resources as a result of banking Madera Irrigation District (MID) Class 1 Friant Water supplies, Class 2 Friant Water supplies, Recovered Water Account water, available Section 215 Water from Friant Dam, and San Joaquin River Recapture and Recaptured Water in the existing water banks at North Kern Water Storage District (NKWSD) and Semitropic Water Storage District (Semitropic).

In the future, the water would be returned to MID or transferred to the Transfer Districts (Table 1). The Friant Kern Canal (FKC), the Cross Valley Canal (CVC), the California Aqueduct/San Luis Canal and other existing infrastructure would be used to convey the banked, transferred, and return water.

1.1 Background

The Bureau of Reclamation (Reclamation) Central Valley Project (CVP) water service contractors have experienced reduced water supply allocations in certain years. Water contractors strive to prepare for varying water supply conditions so that agricultural or urban water supply needs can be met regardless of the water availability conditions. In order to maximize the beneficial uses of their varied water supplies, CVP contractors pursue water supply and management options to offset any potential effects resulting from hydrologic and/or regulatory constraints. The ability to bank water supplies that exceed the current demand is one strategy that can be useful. The flexibility in the timing of delivery afforded by water banking would be advantageous to water agencies during the summer when water demand is at its peak and during years when supplies have been reduced.

1.2 Purpose and Need

There is a need for MID to maximize the beneficial use of its varied water resources. MID needs to protect the groundwater resources within its service area, and mitigate possible contract water supply shortages in future years due to hydrologic and/or regulatory constraints placed on Friant operations.

The propose of the proposed action is to preserve MID's water supplies that exceed current demand by banking excess water at NKWSD and Semitropic for later use as demand warrants.

1.3 Reclamation's Legal and Statutory Authorities and Jurisdiction Relevant to the Proposed Federal Action

Several Federal laws, permits, licenses and policy requirements have directed, limited or guided the National Environmental Policy Act (NEPA) analysis and decision-making process of this EA

and include the following as amended, updated, and/or superseded (all of which are incorporated by reference):

1.3.1 Reclamation Reform Act of 1982

The RRA of 1982 applies to all irrigation land within an irrigation/water district, which has a water service or repayment contract with Reclamation and is subject to the acreage limitation and full-cost pricing provisions of Reclamation law. Acquisition of irrigation water by exchange shall not subject the non-CVP users of such water to Federal Reclamation law and the associated rules and regulations.

1.3.2 Central Valley Project Water Service or Repayment Contracts

Section 3(d) of CVP Water Service and Repayment Contracts identifies the use of CVP water outside the Contractors' service area. This section states that "Groundwater recharge programs, groundwater banking programs, surface water storage programs and other similar programs utilizing CVP water or other water furnished pursuant to the CVP contract conducted outside the Contractors' service area may be permitted upon written approval of the Contracting Officer, which approval will be based upon environmental documentation, CVP water rights, and CVP operation concerns. The Contracting Officer will address such concerns in regulations policies, or guidelines."

1.3.3 Contracts for Additional Storage and Delivery of Water

Central Valley Project Improvement Act (CVPIA) of 1992, Title 34 (of Public Law 102-575), Section 3408(c), Additional Authorities authorizes the Secretary of the Interior to enter into contracts pursuant to Reclamation law and this title with any Federal agency, California water user or water agency, State agency, or private nonprofit organization for the exchange, impoundment, storage, carriage, and delivery of CVP and non-CVP water for domestic, municipal, industrial, fish and wildlife, and any other beneficial purpose, except that nothing in this subsection shall be deemed to supersede the provisions of section 103 of Public Law 99-546 (100 Stat. 3051).

1.3.4 Water Quality Standards

Reclamation requires that the operation and maintenance of CVP facilities shall be performed in such a manner as is practical to maintain the quality of raw water at the highest level that is reasonably attainable. Water quality and monitoring requirements are established by Reclamation and are instituted to protect water quality in Federal facilities by ensuring that imported (including non-CVP) water does not impair existing uses or adversely impact existing water quality conditions. These standards are updated periodically and could be modified at Reclamation's discretion on a case-by-case basis. The water quality standards are the maximum concentration of certain contaminants that may occur in each imported source of water. The water quality standards for imported water to be stored and conveyed in Federal facilities are currently those set out in Title 22 of the California Code of Regulations, which Reclamation has adopted and incorporated into their water quality monitoring requirements, *Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals*.

1.4 Related Environmental Documents

- Storage of Central Valley Project Water from Westland Water District in Semitropic Water Storage District EA/Finding of No Significant Impact (FONSI)-05-96; November 2005. This EA/FONSI evaluated the impacts on environmental resources as a result of the banking of up to 25,000 acre feet (AF) of CVP water at Semitropic banking facilities for the 2005-2006 water year.
- Poso Creek Water Company, LLC Execution of Temporary Water Service Contract and Banking of Section 215 Water at Semitropic Water Storage District, EA/FONSI-6-67;
- May 2006. This EA/FONSI evaluated the impacts on environmental resources as a result of executing and implementing a one-year temporary water service contract pursuant to Section 215 of the RRA with the Poso Creek Water Company, LLC during the 2006 Contract Year for up to 15,000 AF of water.
- Storage and Exchange of Central Valley Project Water Westlands Water District to Semitropic Water Storage District, EA/FONSI-EA-06-78; September 2006. This EA/FONSI evaluated the impacts on environmental resources as a result of a one-time water banking project in which WWD would bank up to 50,000 AF of their 2006 allocated CVP contract supply in Semitropic's facilities for use by WWD at a later date. The CVP water banked would be in excess of WWD immediate demands. WWD would then recover up to 20,000 AF per year (AF/y) of the banked water during water supply shortages when water supply was insufficient to meet demand.
- Madera Irrigation District Transfer of Friant Central Valley Project Water to Semitropic Water Storage District as Facilitated by NKWSD, EA/FONSI06-130; December 2006. This EA/FONSI evaluated the impacts on environmental resources as a result of approving a transfer of up to 15,000 AF of Friant water from MID delivered in 2006 to Semitropic facilitated by NKWSD. The water was to be delivered to Semitropic using existing NKWSD spreading facilities for recharge or the Poso Creek channel for direct delivery and recharge into Semitropic.
- Madera Irrigation District Transfer, Banking and Exchange of Friant Central Valley Project water to Westlands Water District (WWD) as Facilitated by NKWSD and Kern County Water Agency, EA-06-129/MID Transfer, Banking and Exchange of Friant CVP Water to Westlands Water District (Up to 25,000 Acre Feet), FONSI-07-01-MP; January 2007. The project allows WWD to purchase 25,000 AF of Madera Irrigation District's CVP (Friant) water to be delivered to NKWSD and Semitropic for future exchange to WWD when it is needed.
- Transfer of Stored Water from WWD to Semitropic, EA/FONSI-08-10-MP; October 2008. Reclamation approved the transfer of up to 8,086 AF of previously stored water from WWD to Semitropic prior to January 26, 2012.
- Madera Irrigation District One-Year Transfer to North Kern Water Storage District and/or Semitropic Water Storage District (2011-2012), EA/FONSI 11-042, September 2011. Reclamation approved the transfer of up to 20,000 AF of Friant Class 1 and/or Class 2 water to NKWSD and/or Semitropic before February 28, 2012.
- Poso Creek Integrated Regional Water Management Plan, 25-Year Groundwater Banking, Transfer, and Exchange Program, EA/FONSI 09-121, May 2011. Reclamation approved 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.

1.5 Scope

The Proposed Action area is located in Alameda, Contra Costa, Fresno, Kern (Central Valley Portion), Kings, Madera, Merced, San Joaquin, San Benito, Santa Clara, Stanislaus and Tulare Counties. Aside from MID, NKWSD, Semitropic and the Transfer Districts, other agencies could be involved with the Proposed Action as possible exchange partners (Exchange Districts), such as, but not limited to: Arvin Edison Water Storage District (Arvin Edison), the Kern County Water Agency (KCWA) and other State Water Project (SWP) contractors listed in Table 1 and Figure 1.

The Proposed Action timeframe would be for 10 years. The recharge portion of the program would begin when approved by Reclamation and be in effect for five years from the date of approval or through the end of February 2017, whichever comes first. Because it is possible that not all of the banked water will be recovered within this 5 year period, the portion of the program to recover banked water will extend for an additional five years from the date the recharge portion of the program ends through the end of February 2022. If water remains in storage at the end of this period, additional environmental documentation and Reclamation approval will be required to cover the potential future recovery of this remaining water after February 2022.

Specific details are discussed in Section 2 Alternatives Including the Proposed Action.

1.6 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment of the Proposed Action and No Action Alternative and has determined that there is no potential for direct, indirect, or cumulative effects to the following resources:

- **Biological Resources:** Section 7 of the Endangered Species Act 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.

Reclamation's Biology Branch issued a determination on February 1, 2012 that there would be no effect on Federally listed or proposed species or critical habitat, so no consultation with either the U.S. Fish and Wildlife Service or the National Marine Fisheries Service is required. Reclamation will notify the U.S. Fish and Wildlife Service of the availability of the draft Environmental Assessment and Finding of no Significant Impact.

- **Cultural Resources:** Cultural Resources 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 (National Register). Those resources that are on or eligible for inclusion in the National Register are referred to as historic properties.

Reclamation's Cultural Resources Branch issued a determination on January 4, 2012 that the Proposed Action has no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1).

- **Indian Trusts Assets:** 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.

Reclamation's ITA Branch issued a determination on January 4, 2012 that there are no ITA within the Proposed Action area and therefore the proposed action does not have a potential to affect ITA.

- **Indian Sacred Sites:** Reclamation is required by EO 13007, to the extent practicable permitted by law, and not clearly inconsistent with essential agency functions, to: (1) accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners; and (2) avoid adversely affecting the physical integrity of such sacred sites. When appropriate, Reclamation shall, to the greatest extent possible, maintain the confidentiality of sacred sites.

The Proposed Action would not inhibit access to or ceremonial use of an Indian Sacred Site, nor would the Proposed Action adversely affect the physical integrity of such sacred sites.

- **Floodplains, Wetlands and Waterways:** 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 does not involve construction, dredging or other modification of regulated water features. No permits under the Clean Water Act [CWA] (33 U.S.C. 1251) would be needed.

- **Environmental Justice:** The February 11, 1994, Executive Order 12898 requiring Federal agencies to ensure that their actions do not disproportionately impact minority and disadvantaged populations went into effect. The Proposed Action does not propose any features that would result in adverse human health or environmental effects, have any physical effects on minority or low-income populations, and/or alter socioeconomic conditions of populations that reside or work in the vicinity of the Proposed Action.
- **Air Quality:** Section 176 (C) of the Clean Air Act [CAA] (42 U.S.C. 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 CAA (42 U.S.C. 7401 [a]) before the action is otherwise approved. Under the

Proposed Action, MID water would be conveyed into storage generally through gravity flow. Banked water would be recovered using NKWSD and Semitropic wells that are equipped with electric motors and therefore have no direct emissions. The air quality emissions from electrical power have been considered in environmental documentation for the generating power plants that supply the system. There are no direct emissions from electrical motors and therefore a conformity analysis is not required under the CAA and there would be no impact on air quality. The Proposed Action would not involve any construction or land disturbing activities that could lead to fugitive dust emissions and/or exhaust emissions associated with the operations of heavy machinery.

- Global Climate Change: The EPA has issued regulatory actions under the CAA as well as other statutory authorities to address climate change issues (EPA 2011c). In 2009, the EPA issued a rule (40 CFR Part 98) for mandatory reporting of Greenhouse Gases (GHG) by large source emitters and suppliers that emit 25,000 metric tons or more of GHG [as CO₂ equivalents (CO_{2e}) per year] (EPA 2009). The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change and has undergone and is still undergoing revisions (EPA 2011c). In 2006, the State of California issued the California Global Warming Solutions Act of 2006, widely known as Assembly Bill 32, which requires California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is further directed to set a GHG emission limit, based on 1990 levels, to be achieved by 2020.

As there are no direct emissions from gravity flow or electric pumps, the Proposed Action would not increase GHG emissions.

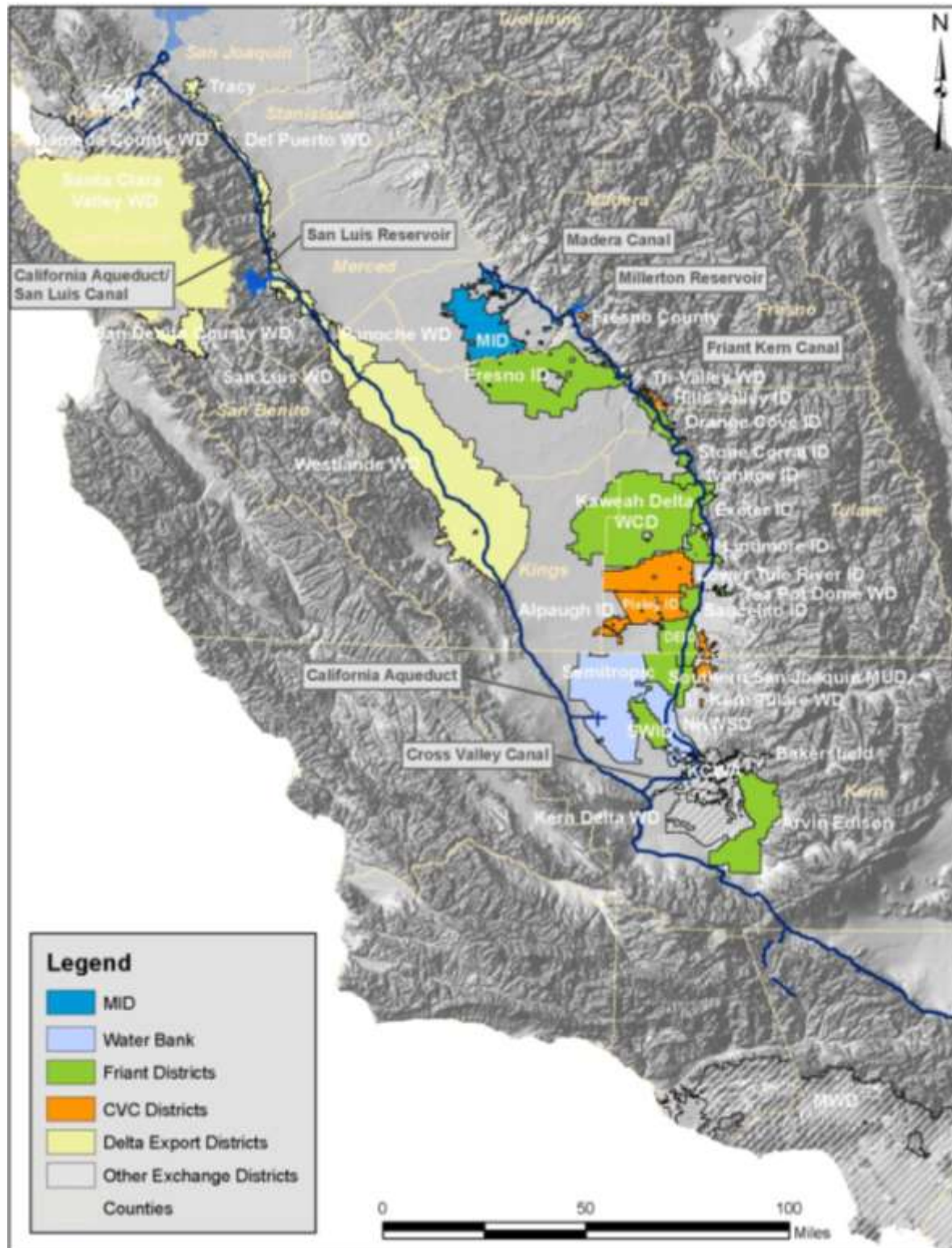
As there would be no impact to the resources listed above as a result of the Proposed Action or the No Action alternative, they will not be considered further.

1.7 Resources Requiring Further Analysis

This EA will analyze the affected environment of the Proposed Action and No Action Alternative in order to determine the potential direct, indirect, and cumulative effects to the following resources:

- Water Resources
- Land Use
- Socioeconomic Resources

Figure 1 District Boundaries



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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 Alternative A-No Action Alternative

Under the No Action Alternative, Reclamation would not approve MID's delivery of its Friant Water (including any available 215 Water or Recaptured Water) in excess of its immediate needs to be banked in NKWSD or Semitropic.

2.2 Alternative B-Proposed Action

Under the Proposed Action, Reclamation would approve MID's delivery of its Friant Water, Recaptured Water, Recovered Water Account water, and 215 Water (when available) for banking outside of their service area boundary in NKWSD and Semitropic. MID would deliver up to 20,000 acre-feet per year (AF/y) (March through February) to NKWSD or Semitropic for banking, contingent on availability of wheeling capacity in the FKC, or for the Recaptured Water made available in San Luis Reservoir, contingent upon;

- 1) availability of wheeling capacity in the California Aqueduct/San Luis Canal;
- 2) wheeling capacity in locally owned conveyances and
- 3) recharge capacity at NKWSD or Semitropic.

Banking capacity would be made available entirely at the discretion of NKWSD and Semitropic on a lower priority basis. This means that banking capacity would only be made available if it is:

- 1) within the limits of the existing environmental documentation/permits for NKWSD and Semitropic;
- 2) above that required by NKWSD and Semitropic to serve their district needs; and
- 3) above the needs of higher priority water banking customers (existing and future) and more senior lower priority banking customers.

MID would be allowed to store a maximum of 100,000 AF at any time at NKWSD or Semitropic (contingent on availability of lower priority capacity as defined above). NKWSD or Semitropic would return up to 20,000 AF per year to MID, Exchange Districts or Transfer Districts listed in Table 1 upon request - contingent on availability of lower priority capacity as defined above, wheeling capacity in various conveyances and ability to comply with the then-current water quality standards in conveyances to be used.

The Proposed Action is subject to the following conditions:

- The water: 1) would only be used for beneficial purposes and in accordance with Federal Reclamation law and guidelines (excluding acreage limitations, full-cost pricing and

reporting requirements of the Reclamation Reform Act of 1982); 2) banked, exchanged, or transferred water will comply with all federal, state, local, and tribal law, and requirements imposed for protection of the environment and Indian Trust Assets; and 3) would be used within the Friant or CVP Delta Export permitted place-of-use;

- MID water transferred to Transfer Districts would not be used to place untilled or new lands into agricultural production, or to convert undeveloped land to other uses;
- Transfers and exchanges to deliver MID water to Transfer Districts would not result in new Delta exports above those already scheduled for normal CVP or State Water Project (SWP) operations;
- The Proposed Action would not interfere with the normal CVP or SWP operations; and
- The Proposed Action would not require the construction of any new water conveyance, pumping, diversion, recharge, storage or recovery facilities.

The operations that would occur under this program are detailed below. The wheeled water may be subject to conveyance losses imposed by these agencies, which vary, but can be up to 10 percent.

2.2.1 Delivery of MID Friant Unit CVP Water and 215 Water to NKWSD

NKWSD holds perpetual contractual water rights on the Kern River with available supplies ranging from less than 10,000 AF in dry years to almost 400,000 AF in wet years. In years when there is inadequate surface water availability, farmers supplement their supplies by pumping groundwater. In the early 1950's the District began to develop recharge basins and recovery wells to enable the recharge and recovery of surface water periodically available in excess of current needs (collectively referred to as water banking). NKWSD has employed a variety of water banking and transfer programs since that time, including several transactions with Friant Division Unit and Delta Export Contractors. NKWSD banks water using recharge basins that percolate applied water into the underlying aquifer for recovery at a later date (direct recharge) and also using in-lieu methods. In-lieu recharge is an operation in which the imported surface water is delivered to farmers "in-lieu" of their normal groundwater pumping, resulting in a gain to the underlying aquifer equal to the volume of delivered surface water. NKWSD has more than 200,000 AF per year of recharge capacity. The district has more than 100,000 AF per year of recovery capacity through district operated recovery wells equipped with electric motors. Up to 20,000 AF per year of MID Friant water, Recaptured Water made available in Millerton and 215 Water would be released from Millerton Reservoir, conveyed south via the Friant-Kern Canal (FKC), and delivered to NKWSD through one or more delivery mechanisms detailed below. NKWSD would take control of the delivered water and recharge it using direct or in-lieu means. A 10 percent loss would be deducted from the applied water to account for in-district conveyance and aquifer losses. The following delivery methods have been approved and used by NKWSD in the past.

- Water would be diverted from the FKC into NKWSD turnouts at mileposts 130.0 and/or 144.9; or
- Contingent on consent from Arvin Edison and Kern-Delta Water District, water would be conveyed to the terminus of the FKC and into the Arvin Edison canal for conveyance to

Kern-Delta Water District. The Friant water entering the Arvin Edison canal would be delivered to meet Kern-Delta Water District's Kern Island demand. The Kern-Delta Water District Kern River water supplies that would have been delivered to Kern Island would then be delivered to NKWSD's Beardsley-Lerdo Canal for delivery to NKWSD for recharge on behalf of MID.

The wheeling and exchange operations described here would be subject to consent from Arvin Edison and Kern-Delta Water District, Reclamation (operator of Millerton Reservoir), the Friant Water Authority (FWA, operator of the FKC) and potentially the KCWA to ensure that they do not interfere with normal operations.

2.2.2 Delivery of MID Friant Unit CVP Water and 215 Water to Semitropic

Semitropic holds a contract with the Kern County Water Agency (KCWA) for 155,000 AF per year of SWP Table A water. In years when there is inadequate surface water availability, farmers supplement their supplies by pumping groundwater. Semitropic has been operating a water bank since 1995 using both direct recharge and in-lieu recharge. At full build out the program will have up to 400,000 AF per year of recharge capacity and up to 423,000 AF per year of recovery capacity through district and farmer owned recovery wells that are equipped with electric motors. Up to 20,000 AF per year of MID Friant water, Recaptured Water made available in Millerton and 215 Water would be released from Millerton Reservoir and conveyed south via the FKC. The water could be delivered to Semitropic for recharge in two ways:

- NKWSD banks water adjacent to and in the same aquifer as Semitropic. Therefore, NKWSD could recharge the water as described above. NKWSD would then credit the Semitropic water bank for the amount of recharged water. A 10 percent loss would be deducted from the applied water by NKWSD to account for in-district conveyance and aquifer losses; or
- Through its membership in the Poso Creek Integrated Regional Water Management Group with NKWSD and SWID (and five other districts), Semitropic has developed facilities sharing agreements that enable Semitropic to convey water from the FKC to Semitropic from turnouts at mileposts 130.0, 144.9, 134.4 and 137.2 on the FKC. MID water delivered through these turnouts would be conveyed (contingent on availability of wheeling capacity) through Poso Creek, NKWSD conveyances or SWID conveyances to Semitropic for direct or in-lieu recharge. A 10 percent loss would be deducted from the applied water by Semitropic to account for conveyance and aquifer losses.

The operations described here would be subject to consent from Reclamation, the FWA, NKWSD and potentially SWID to ensure that they do not interfere with normal operations.

2.2.3 Delivery of MID Recaptured Water to Semitropic and NKWSD.

Recaptured water made available to MID in Millerton Reservoir would be delivered into storage at Semitropic and NKWSD using the methods described in the previous sections. Absent the methods described in the previous sections, Recaptured water made available to MID in San Luis Reservoir requires use of wheeling capacity in the California Aqueduct and exchanges with Arvin Edison or SWID (facilitated by conveyance through Semitropic) to enable delivery to MID. In some instances the timing of these availabilities does not match with MID's demand

schedule and as a result the water is spilled from San Luis Reservoir before MID can take delivery. Under this program, up to 20,000 AF per year of MID Recaptured water would be released from San Luis Reservoir, made available in the SWP O'Neill Forebay and conveyed south through the California Aqueduct by the SWP for banking at Semitropic or NKWSD through either of the following methods:

- Water would be diverted from the California Aqueduct at turnouts 134.4 or 137.2 and into Semitropic. The water would be recharged at Semitropic through direct or in-lieu means, or conveyed through Semitropic to NKWSD (contingent on Semitropic's approval) for recharge through direct or in-lieu means.
- Water would be conveyed south into the CVC and then into Arvin Edison's canal, which would take delivery of this water in-lieu of their normal Friant deliveries. In turn, a like amount of Arvin Edison's Friant water would be delivered down the FKC to NKWSD for recharge.
- Water would be conveyed into the CVC and diverted at existing turnouts on the CVC to NKWSD.

The wheeling and exchange operations described here would be subject to consent from Reclamation, the DWR, the KCWA (operator of the CVC) and Arvin Edison to ensure that the wheeling and exchanges do not interfere with normal operations and to ensure compliance with the then-current water quality criteria.

2.2.4 Recovery of Banked MID water back to MID from NKWSD or Semitropic

Up to 20,000 AF per year of banked MID water would be delivered back to MID via exchange with Arvin Edison or SWID. Exchanges could be performed in several ways including:

- MID water banked at NKWSD or Semitropic would be recovered using NKWSD or Semitropic recovery wells and pumped back into the FKC for delivery to Arvin Edison. Arvin Edison water stored in Millerton Reservoir would then be made available for delivery to MID through the Madera Canal; or
- MID water banked at NKWSD or Semitropic would be recovered using NKWSD or Semitropic recovery wells and delivered to SWID using internal district conveyances. SWID water stored in Millerton Reservoir would then be made available for delivery to MID through the Madera Canal; or
- MID water banked at Semitropic would be recovered using Semitropic recovery wells and delivered (either directly or through exchange with Semitropic farmers for their normal SWP deliveries) to the California Aqueduct for conveyance south to Arvin Edison via the CVC. Arvin Edison water stored in Millerton Reservoir would then be made available for delivery to MID through the Madera Canal.

It is important to note that Semitropic's facilities sharing agreement with SWID provides Semitropic with a first right to perform exchanges involving SWID water stored in Millerton Reservoir.

In 2005, KCWA finalized an Environmental Impact Report for the CVC Expansion Project (SCH#2004081183) which included new pump stations, new turnouts, increased conveyance capacity of the CVC by raising sections of the canal, and the FKC/CVC Intertie (analyzed in EA-07-70). The expansion project was funded by both state and local agencies, with KCWA overseeing the normal operations of the facility. Semitropic's participation in the CVC expansion project entitles it to at least 15% of KCWA's allocation of CVC expansion project capacity. NKWSD has also acquired rights to use CVC capacity through agreements with Cross Valley contractors.

The exchange operations described here would be subject to consent from Reclamation, the FWA, potentially the DWR, potentially the KCWA, SWID and Arvin Edison to ensure that the exchanges do not interfere with normal operations and to ensure compliance with the then-current water quality criteria.

2.2.5 Recovery and Transfer of Banked MID water from NKWSD or Semitropic to Certain Transfer Districts through Direct Delivery

Up to 20,000 AF per year of banked MID water could be recovered from NKWSD or Semitropic for transfer and direct delivery to Arvin Edison or SWID in several ways as follows:

- MID water recovered from NKWSD or Semitropic could be directly delivered to SWID through internal district conveyances that allow water to flow back-and-forth between the three districts without entering the FKC or the California Aqueduct; or
- MID water recovered from NKWSD or Semitropic could be pumped back into the FKC for delivery south to Arvin Edison; or
- MID water recovered from Semitropic could be delivered (either directly or through exchange with Semitropic farmers for their normal SWP deliveries) to the California Aqueduct for conveyance south to Arvin Edison via the CVC.

The potential transfers described here would be subject to compliance with CVPIA transfer guidelines and the Friant Repayment Contracts. Some of the recovery operations described here would be subject to consent from Reclamation, the DWR, the FWA and potentially the KCWA to ensure that the transfers do not interfere with normal operations and to ensure compliance with the then-current water quality criteria.

2.2.6 Recovery and Exchange Facilitated Transfer of Banked MID water from NKWSD to Delta Export Districts.

Up to 20,000 AF per year of banked MID water could be recovered from NKWSD for exchange facilitated transfer to Delta Export Districts in several ways as follows:

- MID water banked at NKWSD would be recovered using district recovery wells and pumped into the FKC for conveyance to Arvin Edison in-lieu of CVC Contractor Delta Export deliveries that would otherwise be made to Arvin Edison. This would make a like amount of Delta Export water available in the Delta or San Luis Reservoir for delivery to the Delta Export Contractor Districts listed in Table 1. This transfer and exchange would occur

through existing facilities. The operations described here would be subject to consent from Arvin Edison, Reclamation and the KCWA to ensure that the exchanges do not interfere with normal operations, to ensure compliance with the then-current water quality criteria and that the exchanges do not result in increases in Delta exports; or

- MID water banked at NKWSD would be recovered using district recovery wells and delivered to farmers within NKWSD in-lieu of their normal Kern River water supplies. In turn, a like quantity of NKWSD's Kern River supplies would be delivered to the Kern County Water Agency (KCWA) or member units which would make a like quantity of KCWA's SWP water available in the O'Neill Forebay for delivery to the Delta Export Contractor Districts. None of the CVP water involved would be used or stored in KCWA. The exchange component involving KCWA is merely a swap of water and no changes in KCWA would occur. This exchange facilitated transfer would occur through existing facilities. The operations described here would be subject to consent from the KCWA, the DWR and Reclamation to ensure that the exchanges do not interfere with normal operations, are in compliance with the then-current water quality criteria and that the exchanges do not result in increases in Delta exports.

The exchanges described here may be limited by a number of factors including: potential Exchange District priorities, CVP priorities, SWP priorities, NKWSD priorities, Arvin Edison priorities, available capacity in conveyances, regulatory restrictions, and water allocations.

2.2.7 Recovery and Exchange Facilitated Transfer of Banked MID water from Semitropic to Delta Export Districts

Up to 20,000 AF per year of banked MID water could be recovered from Semitropic for exchange facilitated transfer to Delta Export Districts listed in Table 1 in four ways as follows:

- MID water banked at Semitropic would be recovered using Semitropic recovery wells and delivered to Semitropic farmers in-lieu of their normal SWP deliveries. This would make a like quantity of Semitropic's SWP water (through its KCWA contract) available in the O'Neill Forebay for delivery to the Delta Export Contractor Districts. The exchange facilitated transfer involving KCWA is merely a swap of water and no changes in KCWA would occur. This exchange facilitated transfer would occur through existing facilities. The operations described here would be subject to consent from the KCWA, the DWR and Reclamation to ensure that the exchanges do not interfere with normal operations, are in compliance with the then-current water quality criteria and that the exchanges do not result in increases in Delta exports; or
- MID water banked at Semitropic would be recovered using Semitropic recovery wells and pumped into the California Aqueduct for delivery to downstream SWP contractors (e.g. the KCWA and the Metropolitan Water District of Southern California) in-lieu of their normal SWP deliveries. This would make a like amount of the downstream contractors' SWP water available in O'Neill Forebay for delivery to the Delta Export Contractor Districts. This exchange facilitated transfer would occur through existing facilities. The operations

described here would be subject to consent from the KCWA, the downstream SWP contractors, the DWR and Reclamation to ensure that the exchanges do not interfere with normal operations, are in compliance with the then-current water quality criteria and that the exchanges do not result in increases in Delta exports; or

- MID water banked at Semitropic would be recovered using Semitropic recovery wells and pumped into the California Aqueduct for conveyance to the CVC and delivery to Arvin Edison in-lieu of CVC Contractor Delta Export deliveries that would otherwise occur. This would make a like amount of Delta Export water available in the Delta or San Luis Reservoir for delivery to the Delta Export Contractor Districts. This transfer and exchange would occur through existing facilities. The exchange operations described here would be subject to consent from Arvin Edison, the KCWA, the DWR and Reclamation to ensure that the exchanges do not interfere with normal operations, are in compliance with the then-current water quality criteria and that the exchanges do not result in increases in Delta exports; or
- Several Delta Export Contractors (Santa Clara Valley Water District, the City of Tracy and Poso Creek Water Company) and Bay Area SWP Contractors (Alameda County Water District and Zone 7 Water Agency) are Semitropic Banking Partners. In some instances the demand schedules of these Semitropic Banking Partners may be different from those of the districts desiring to receive MID's transfer water banked at Semitropic under this program. In the event that a Semitropic Banking Partner is willing, the volume of water requested for recovery could be transferred into the account of the Semitropic Banking Partner. Depending on the contractor, this would make a like quantity of the Semitropic Banking Partner's CVP water or SWP water available in San Luis Reservoir, O'Neill Forebay or in the Delta for exchange facilitated transfer to the Delta Export Contractor Districts. This operation would be subject to consent from the Semitropic Banking Partners, Reclamation and potentially the DWR to ensure that the exchanges do not interfere with normal operations and that the exchanges do not result in increases in Delta exports.

The exchanges described here may be limited by a number of factors including: potential Exchange District priorities, CVP priorities, SWP priorities, KCWA priorities, Semitropic priorities, available capacity in conveyances, fish actions, and water allocations.

2.2.8 Potential Banking of Water at a Ratio of Up to 2:1

Up to 20,000 AF per year of banked MID Class 1 or Class 2 water (including Recovered Water Account water and Recaptured water) could be banked in NKWSD and/or Semitropic on a 2:1 basis. After accounting for a 10 percent leave behind, one AF of banked Class 1 or Class 2 water would be transferred to NKWSD or Semitropic (for use in those districts). The remaining AF would be banked for the benefit of MID and subsequently recovered and returned to MID utilizing one of the return conveyance methods.

In years when 215 Water is available, the recharge operations described in previous sections may be performed on a 2:1 basis. After accounting for a 10 percent leave behind, one AF of banked Class 1 or Class 2 Water (including Recovered Water Account water and Recaptured Water) would be transferred to NKWSD or Semitropic (for use in those districts). The remaining AF of

Section 215 water would be banked for the benefit of MID and subsequently recovered and returned to MID utilizing one of the return conveyance methods. However, at this time, Reclamation has not yet developed the necessary contractual regulations, policies, or guidelines for groundwater banking to include 215 Water being left behind in a 2:1 banking to return ratio. Additional environmental review may be required regarding the leave-behind water(s) as part of the 2:1 Banking once Reclamation has developed the necessary regulations, policies or guidelines for groundwater banking.

Table 1: Districts That May be Involved in the Proposed Program

District	Surface Water Sources (AF per Year)
Madera Irrigation District (MID)	Friant Class 1: 85,000, Class 2: 186,000 Pre-1914, Hidden Unit
Potential Water Banking, Transfer and Exchange Districts	
North Kern Water Storage District (NKWSD)	Kern River rights: up to 400,000
Semitropic Water Storage District (Semitropic)	SWP (through KCWA): 133,000, Poso Creek water rights
Friant Unit Contractors That May Transfer or Exchange Water	
Arvin Edison Water Storage District (Arvin Edison)	Friant Class 1: 40,000, Class 2: 311,675
Delano-Earlimart Irrigation District	Friant Class 1: 108,800, Class 2: 74,500
Exeter Irrigation District	Friant Class 1: 11,500, Class 2: 19,000
Fresno Irrigation District	Friant Class 1: 108,800, Class 2: 74,500
Ivanhoe Irrigation District	Friant Class 1: 6,500, Class 2: 500
Kaweah Delta Water Conservation District	Friant Class 1: 1,200, Class 2: 7,400
Lindmore Irrigation District	Friant Class 1: 33,000, Class 2: 22,000
Orange Cove Irrigation District	Friant Class 1: 39,200
Saucelito Irrigation District	Friant Class 1: 21,200, Class 2: 32,800
Shafter Wasco Irrigation District (SWID)	Friant Class 1: 50,000, Class 2: 39,600
Southern San Joaquin MUD (SSJMUD)	Friant Class 1: 97,000, Class 2: 50,000
Stone Corral Irrigation District	Friant Class 1: 10,000
Tea Pot Dome Irrigation District	Friant Class 1: 7,500
Delta Export Contractors That May Transfer or Exchange Water	
City of Tracy	Delta Export CVP: 10,000
Del Puerto Water District	Delta Export CVP: 12,060
Panoche Water District	Delta Export CVP: 108,580
San Benito County Water District	Delta Export CVP: 43,800
San Luis Water District	Delta Export CVP: 125,080
Santa Clara Valley Water District	Delta Export CVP: 152,500
Westlands Water District (including Poso Creek Water Company, also a Semitropic Banking partner)	Delta Export CVP: 1,150,000
Cross Valley Canal Contractors That May Transfer or Exchange Water	
County of Fresno	Delta Export CVP: 3,000
County of Tulare ¹	Delta Export CVP: 5,308
Hill's Valley Irrigation District	Delta Export CVP: 3,346
Kern-Tulare Water District	Delta Export CVP: 53,300
Lower Tule River Irrigation District (also a Friant Unit Contractor)	Delta Export CVP: 31,102
Pixley Irrigation District	Delta Export CVP: 31,102
Tri-Valley Water District	Delta Export CVP: 1,142
Other Potential Exchange Districts	
Alameda County Water District	SWP: 42,000 (KCWA), Hetch Hetchy, Local supplies
Kern County Water Agency	SWP: 1,000,949 (for 21 sub-contracting agencies)
Kern-Delta Water District	SWP: 25,500, Kern River
Metropolitan Water District of Southern California (MWD)	SWP: 1,911,500, Colorado River, Local supplies
San Diego County Water Authority (not on the map)	SWP (through MWD): Colorado River, Local Supplies
Zone7 Water Agency	SWP: 80,619

¹County of Tulare CVC Supply is served to ten subcontractors as follow: Alpaugh Irrigation District (100 AF), Atwell Island Water District (50 AF), Hills Valley Irrigation District (2,913 AF), City of Lindsay (50 AF), Saucelito Irrigation District (100 AF), Fransinetta Farms LLC (400 AF), Stone Corral Irrigation District (950 AF), Strathmore Public Utility District (400 AF, Stro-Tek, Inc. (45 AF), City of Visalia (300 AF).

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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.

3.1 Water Resources

3.1.1 Affected Environment

Madera Irrigation District: MID has a Perpetual Repayment Contract with Reclamation for 85,000 AF/Y of Class 1 and 186,000 AF per year of Class 2 water from the Friant Division of the CVP. In an average year, MID receives 100% of their Class 1 water and approximately 48% of their Class 2 water, totaling approximately 174,000 AF/Y. In 1975 Hidden Dam was completed on the Fresno River providing a more regulated flow. MID has entered into a Perpetual Repayment Contract with Reclamation for water from Hensley Lake behind Hidden Dam for 24,000 AF/Y. MID also has pre-1914 water rights which average approximately 20,000 AF per year from the Soquel-Big Creek (MID, 2001).

Reclamation approved an Environmental Impact Statement/Record of Decision for a project to recharge, bank and recover up to 55,000 AF/Y of Friant, Hidden Unit and Pre-1914 water in a 250,000 AF water bank owned and operated by MID. This project, known as the MID Water Supply Enhancement Project, once fully functional will be MID's preferred water banking facility. However, the project is at least several years from full-build out. Therefore, in the interim, MID is pursuing this Proposed Action. To the degree that the MID Water Supply Enhancement Project comes online during the period of this Proposed Action, MID intends to reduce reliance on the Proposed Action and correspondingly ramp up banking at MID's facility.

North Kern Water Storage District: NKWSD is a non-CVP Contractor within the CVP Place of Use. NKWSD is located south-southwest and downstream from MID and is bisected by the FKC. The approximately 60,000 acres of land within NKWSD are fully developed for irrigated agriculture with water supplies principally from the Kern River and pumped groundwater. NKWSD has a permanent contract for Kern River water with the City of Bakersfield. Historical surface water supplies from the Kern River delivered to NKWSD have ranged from less than 10,000 AF/Y to nearly 400,000 AF/Y. As a result of this highly variable water supply, NKWSD has developed an extensive groundwater recharge, banking and extraction program utilizing the groundwater basin to regulate its water supplies. The FKC turnouts that would be used for the conveyance of MID Friant water to NKWSD are located at mileposts 130.0 and 144.9. The turnout at milepost 130.0 delivers water directly into the Poso Creek channel. The turnout at milepost 144.9 delivers water to NKWSD's 8-1 lateral which ties into NKWSD's Callaway Canal and Lerdo Canal.

Semitropic Water Storage District: Semitropic is located in north-central Kern County in the San Joaquin Valley, about 20 miles northwest of the City of Bakersfield. The total area of

Semitropic is 220,000 acres with about 159,000 acres irrigated. Semitropic was organized in 1958 for the purpose of supplying supplemental water within its service area boundaries (Semitropic 2006a). Semitropic obtains surface water from local supplies and from its contract with the KCWA for 155,000 AF per year of SWP Table A water. The SWP water is pumped from the Delta and conveyed through the California Aqueduct. The SWP water can be stored in the State's share of San Luis Reservoir for subsequent conveyance in the California Aqueduct to Semitropic (Semitropic 1997).

In 1995, Semitropic began implementation of the Semitropic Groundwater Banking and Exchange Program. The Semitropic water bank is a long-term program designed to increase operational reliability and flexibility, and optimize the distribution and use of available water resources between Semitropic and banking partners. Under the Semitropic program, banking partners deliver a portion of their excess SWP, CVP or other surface water supplies to Semitropic during periods when such water is available. Semitropic may use this water in-lieu of pumping groundwater for irrigation or directly recharge the underlying groundwater basin. Upon request, Semitropic returns the banking partner's previously stored water by exchange. The banking partner's stored water may be pumped from Semitropic through pump-back facilities into the California Aqueduct and provided to DWR in exchange for SWP water delivered to the banking partners from the Delta; or Semitropic retains the stored water for its own use in exchange for an equivalent portion of its SWP water supply. Under the first method (delivery of recovered banked water to the California Aqueduct), the water is delivered to the SWP water supply pool from which deliveries are made by DWR to the banking partners (Semitropic 1997).

3.1.1.2 Groundwater Resources

The project area lies within the San Joaquin River Valley and Tulare Hydrologic Regions, including the Madera County and Kern County Groundwater Sub-Basins. In general, groundwater quality throughout the region is suitable for most urban and agricultural uses with only local impairments. The primary constituents of concern are nitrate, arsenic, and organic compounds (DWR, 2005).

San Joaquin River Hydrologic Region: The San Joaquin River Hydrologic Region covers approximately 9.7 million acres (15,200 square miles) and includes all of Calaveras, Tuolumne, Mariposa, Madera, San Joaquin, and Stanislaus counties, most of Merced and Amador counties, and parts of Alpine, Fresno, Alameda, Contra Costa, Sacramento, El Dorado, and San Benito Counties. The region is heavily reliant on groundwater. On average, the sub-basin water level has increased by 2.2 feet total from 1970 through 2000. The period from 1970 through 1985 showed a general increase, topping out in 1985 at 7.5 feet above the 1970 water level. The nine-year period from 1985 to 1994 saw general declines in groundwater levels, reaching back down to the 1970 groundwater level in 1994. Groundwater levels rose in 1995 to about 2.2 feet above the 1970 groundwater level, then water levels fluctuated around this value until 2000. (DWR 2003)

MID is located entirely in the Madera Groundwater Sub-Basin. The sub-basin has a surface area of 614 square miles and lies within Madera County. Groundwater in the sub-basin is recharged by natural river and stream seepage, deep percolation of irrigation water, canal seepage, and

intentional recharge. The amount of groundwater pumping within the Madera sub-basin varies from year to year, depending on the availability of surface water, precipitation, and temperature. In critically dry years, groundwater pumping can more than double over the amount of pumping during wet years. As detailed in MID's AB3030 Groundwater Management Plan (GMP) and in DWR's Bulletin 118 (California Department of Water Resources 2004), the Madera sub-basin has been subjected to severe long-term groundwater overdraft. Groundwater levels in the Madera sub-basin have declined an average of 67 feet since 1945 and 30 feet since 1980 (California Department of Water Resources 2005). Although there have been some years of slight recovery, the overall trend is downward.

Tulare Lake Hydrologic Region: The Tulare Lake Hydrologic Region covers approximately 10.9 million acres (17,000 square miles) and includes all of Kings and Tulare Counties and most of Fresno and Kern Counties. The extensive use of groundwater has historically caused subsidence of the land surface primarily along the west side and south end of the San Joaquin Valley. Groundwater levels were generally at their lowest levels in the late 1960s, prior to importation of surface water. Water levels gradually increased to a maximum in about 1987-88 and falling briefly during the 1976-77 drought. Water levels began dropping again during the 1987-92 drought with water levels showing the effects until 1994. Through a series of wet years after the drought, 1998 water levels recovered to nearly 1987-88 levels (DWR 2003).

NKWSD and Semitropic are located entirely in the Kern County Groundwater Sub-Basin. The sub-basin has a surface area of just under two million acres and underlies most of western Kern County. Natural recharge is primarily from stream seepage along the eastern sub-basin and the Kern River. Recharge of applied irrigation water; however, is the largest contributor (DWR, 2006). Review of the sub-basin groundwater level records indicate that except for seasonal variation resulting from recharge and pumping, the groundwater levels in wells have remained relatively unchanged from 1970 to 2000 (DWR, 2006). In addition to other water providers in Kern County, NKWSD and Semitropic have adopted AB 3030 water management plans. The districts are also participants in monitoring committees that were established to monitor the impacts of banking programs. The purpose of the committees is to ensure that projects do not result in adverse impacts to water levels, groundwater quality, or land subsidence. Groundwater quality is compared with health-based thresholds established by the U.S. Environmental Protection Agency and the California Department of Public Health. Most detections of organic constituents are below health-based thresholds. Most detections of trace elements, nutrients, and radioactive constituents are below health-based thresholds. Constituents detected above health-based thresholds include: arsenic, nitrate, vanadium, and radon-222. Specific conductance, pH, total dissolved solids, chloride, manganese, and sulfate are detected at concentrations above thresholds set for aesthetic concerns (Shelton et Al. 2006).

3.1.1.3 Reservoirs, Conveyance Facilities and Rivers

Friant Dam/Millerton Lake: 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. Millerton Lake was created as a result of Friant Dam and first stored water on February 21, 1944. Millerton Lake has a total capacity of 520,528 AF, a surface area of 4,900 acres, and is approximately 15 miles long. Friant Dam and Millerton Reservoir are part of the CVP, which annually delivers seven million AF of water for

agricultural, urban and wildlife use. The reservoir also provides for recreation such as boating, fishing, picnicking, and swimming.

Madera Canal: The Madera Canal carries water north 35.9 miles from Friant Dam to furnish lands in Madera and Merced Counties with supplemental and new irrigation supply. The Madera Canal is part of the CVP and was completed in 1945. It had an initial capacity of 1,000 cubic-feet per second (cfs), decreasing to 625 cfs at the Chowchilla River. In 1965, the canal lining from the head works to milepost 2.09 was raised so that 1,250 cfs could be delivered.

Friant-Kern Canal: The FKC is part of the CVP and operated by the FWA. It carries water south 151.8 miles from Friant Dam to its terminus at the Kern River, four miles west of Bakersfield. The FKC has an initial capacity of 5,000 cfs that gradually decreases to 2,000 cfs at its terminus in the Kern River (Reclamation, 2009). The water is used for municipal and industrial, and agricultural purposes in Fresno, Tulare, and Kern Counties. 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. Salinity measured as total dissolved solids (TDS) typically average about 50 mg/L. Farmers in the Friant Division sometimes need to apply gypsum or other chemicals to raise the Salt Absorption Ratio (SAR) to allow the water to percolate through charged soil particles (Reclamation, 2007). Non-CVP water proposed to be introduced into the FKC is required to meet the water quality standards of Title 22 and/or Reclamation's then-current water quality policy.

Cross Valley Canal: The CVC, a locally-financed facility completed in 1975, extends from the California Aqueduct near Tupman to Bakersfield. The CVC is a joint-use facility operated by the KCWA. It consists of four reaches which have capacities ranging from 890 cfs through the first two pumping plants to 342 cfs in the unlined extension near Bakersfield.

KCWA requires that the quality of water being introduced into the CVC either meets or exceeds those of Title 22 and/or the quality of the water currently in the CVC as to not impact those stakeholders who receive their water supply from the CVC. At any given time, the CVC can have water from SWP and CVP Delta Exports (through the California Aqueduct), groundwater pump-ins, the Kern River, the FKC, and other sources. While the TDS of CVC water is generally higher than that of FKC water, it is still considered to be acceptable for both agricultural and municipal and industrial uses.

Kern River: The Kern River is about 165 miles long and is the southernmost river in the San Joaquin Valley. The river originates from the Sierra Nevada Mountains on the eastern side of Tulare County and terminates on the west side of Kern County where it is mainly diverted for local water supplies. When the Kern River enters Kern County, it deposits into Lake Isabella behind Isabella Dam. Below the dam, the river is diverted through a series of canals to irrigate farms in the southern San Joaquin Valley and provide municipal water supplies to a portion of the City of Bakersfield and surrounding areas. The Kern River is one of the few rivers in the Central Valley which does not contribute water to the CVP; however, the FKC joins the river approximately 4 miles west of downtown Bakersfield. Kern River water quality is generally similar to that in the FKC since it also originates from snow melt in the Sierra Nevada.

CVP and SWP Joint-Use Facilities: The San Luis Canal, a part of the CVP and also part of the SWP, was authorized in 1960. Reclamation and the State constructed and operate this unit jointly. The principal purpose of the Federal portion of the facilities is to furnish approximately 1.25 million AF per year for supplemental irrigation supply to approximately 600,000 acres located in the western portion of Fresno, Kings, and Merced Counties (Delta Export Contractors, see Table 1).

The joint-use facilities are O'Neill Dam and Forebay, B.F. Sisk San Luis Dam, San Luis Reservoir, William R. Gianelli Pumping-Generating Plant, Dos Amigos Pumping Plant, Los Banos and Little Panoche Reservoirs, and California Aqueduct/San Luis Canal from O'Neill Forebay to Kettleman City, together with the necessary switchyard facilities. The Federal-only portion of the San Luis Unit includes the O'Neill Pumping Plant and Intake Canal, Coalinga Canal, Pleasant Valley Pumping Plant, and the San Luis Drain.

San Luis Reservoir serves as the major storage reservoir and O'Neill Forebay acts as an equalizing basin for the upper stage dual-purpose pumping-generating plant. Pumps located at the base of O'Neill Dam take water from the Delta-Mendota Canal (DMC) through an intake channel (a Federal feature) and discharge it into O'Neill Forebay. The California Aqueduct flows directly into O'Neill Forebay. The pumping-generating units lift the water from the O'Neill Forebay and discharge it into the main reservoir. When not pumping, these units generate electric power by reversing flow through the turbines. Water for irrigation is released into the California Aqueduct/San Luis Canal and flows by gravity to Dos Amigos Pumping Plant where it is lifted more than 100 feet to permit gravity flow to its terminus at Kettleman City. The DWR operated California Aqueduct continues to southern California. During irrigation months; water from the Aqueduct flows through the O'Neill Forebay into the Aqueduct instead of being pumped into the San Luis Reservoir. Two detention reservoirs, Los Banos and Little Panoche, control cross drainage along the San Luis Canal. The reservoirs also provide recreation and flood control benefits (Reclamation 2009).

Both the SWP and CVP are operated pursuant to a complex set of environmental and other operational requirements. Delta export operations are subject to Delta water quality standards set by the State Water Resources Control Board, various Biological Opinions under the Endangered Species Act (ESA), provisions of the Coordinated Operations Agreement, and various other criteria, plans and agreements.

Water quality in the Aqueduct is affected by the tidal influences of the Delta and has increased salinity compared to the SJV eastside rivers.

3.1.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not approve the banking program between MID, NKWSD and Semitropic. As a result, surface water supplies would be the same as existing conditions described above in the affected environment. There would be no impacts to surface water resources, groundwater resources or conveyance facilities as conditions would remain the same as existing conditions.

Under the No Action Alternative individual MID and certain Transfer District landowners would continue to pump groundwater in order to make up for any potential shortages in surface water supplies, which could contribute to declining groundwater levels in both the San Joaquin River and Tulare Lake Hydrologic Regions. In addition, without the Proposed Action, the Kern County Groundwater Sub-Basin underlying NKWSD and Semitropic would not benefit from the contribution of 10 percent of the recharged good quality water that would have been left behind as a result of the Proposed Action.

Under the No Action Alternative, MID could engage in transfers, exchanges and banking programs with other agencies in order to regulate the timing of their water supplies. However, the scope of this EA does not cover those actions and those actions may be subject to additional environmental analysis.

Proposed Action

Exchange District Water Supplies All potential exchanges would require the consent of the potential Exchange Districts. The Exchange Districts that would directly or indirectly exchange water being delivered to NKWSD or Semitropic for banking, being returned to MID and/or being transferred to Transfer Districts merely represent avenues through which the Proposed Action would be implemented. The Exchange Districts would not experience any loss or gain in water supply that would impact their respective water resources. The Proposed Action would not interfere with the normal operations of any Exchange District, nor would it impede any SWP or CVP obligations to deliver water to other contractors or to local fish and wildlife habitat. In the case of Arvin Edison, exchanges entailing conveyance of Delta Export Water through the CVC and into the FKC have the potential to impact the quality of water entering that district. Therefore, in addition to complying with then-current water quality standards cited above, potential exchanges involving this operation would require the consent of Arvin Edison as per Article 9 of the “Contract Among Kern County Water Agency and Various Parties for the Operation of the Cross Valley Canal, Extension and Intertie” (November 15, 2006).

Transfer District Water Supplies Similar to the No Action Alternative, the Proposed Action would not increase or decrease the amount of CVP water each Transfer District is entitled to under their contract with Reclamation. Transfers would help supplement surface water shortages that a district could be experiencing at that current time. The Proposed Action would improve a Transfer District’s water supply reliability and operational efficiency. Neither a Transfer District nor any CVP or SWP water user would be changing historic land and water management practices as a result of the Proposed Action. CVP operations and facilities would not vary considerably under either alternative. There would be no adverse impacts to participating districts and their respective CVP water supplies.

Under the Proposed Action, Transfer Districts that wish to recover MID water banked at NKWSD or Semitropic would provide Reclamation with advance notice of any proposed transfer so that Reclamation could determine if the action is consistent with the Proposed Action description and to coordinate with the FWA, the KCWA and/or the DWR to make sure that excess capacity exists within the facilities that would be used to convey the recovered water (either directly or through exchange). In addition, coordination would ensure that Reclamation’s obligations to deliver water to other CVP contractors, wildlife refuges, and other requirements

would not be adversely impacted by the Proposed Action. There would be no adverse impacts to CVP facilities.

Conveyances No new facilities would be needed as a result of the Proposed Action. The Proposed Action would not interfere with the normal operations of the SWP or CVP facilities, nor would it impede any SWP or CVP obligations to deliver water to other contractors or to fish and wildlife habitat. Furthermore, the Proposed Action would not alter the quantity or timing of diversions from the Delta. The 1994 Semitropic Groundwater Banking Project Environmental Impact Report (EIR) evaluated potential impacts of the Banking Program operations on the timing of diversions from the Delta. Those studies determined that the timing of these diversions are regulated through operational restrictions under a number of agreements and biological opinions designed to protect sensitive fish species and on this basis, Semitropic operations would not considerably impact the timing of diversions from the Delta (Semitropic 1994). The Proposed Action would be regulated by the same operational restrictions.

Reclamation, the FWA, the KCWA, the DWR and the Kern River Watermaster manage the FKC, the CVC, the California Aqueduct/San Luis Canal and the Kern River respectively. These agencies would continue to manage these facilities in such manners that normal operations would not be hindered by the Proposed Action. Likewise, NKWSD, SWID and Semitropic will continue to manage their conveyances in such manners that normal operations of their systems would not be hindered by the Proposed Action. Delivery of water for recharge and conveyance of recovered banked water involved with the Proposed Action would occur during times when these agencies determine that there is excess capacity. The capacities of the conveyance facilities would not change, and therefore water service or delivery obligations for these conveyances would continue as they have in the past. Taken together, the Proposed Action would not have adverse impacts on conveyance facilities or surface water resources.

Groundwater Levels With the ability to reregulate its water supplies by controlling the timing of delivery, the Proposed Action would provide MID and the Transfer Districts with improved surface water reliability and likely decrease reliance on groundwater pumping by landowners during surface water shortages. The Proposed Action would result in a small net increase in groundwater levels since more surface water would be delivered to the groundwater sub-basin underlying NKWSD and Semitropic than would have occurred absent the project because ten percent of all recharged MID water would be contributed to the basin. The Proposed Action would not deplete groundwater supplies or interfere with groundwater recharge (that would otherwise occur). Taken together, the Proposed Action could result in a net rise in groundwater levels within the San Joaquin River and Tulare Lake Hydrologic Regions.

Water Quality Application of MID's CVP water from the FKC for recharge in NKWSD and Semitropic could result in a beneficial impact to groundwater quality since the quality of FKC water is better than that of the underlying aquifer. Therefore, the Proposed Action could have beneficial impacts on groundwater resources.

NKWSD and Semitropic have conducted monitoring programs for several decades so that any adverse groundwater impacts of water banking would be identified and could be mitigated. The monitoring program is overseen by a committee made up of Semitropic, Buena Vista Water

Storage District, Rosedale-Rio Bravo Water Storage District, SWID, NKWSD, SSJMUD and banking participants. KCWA and DWR are interested parties and participate in committee activities and water scheduling. NKWSD monitoring indicates that the wells that are currently used for recovery back to the FKC are in compliance with Reclamation pump-in requirements. Likewise, Semitropic monitoring indicates that water recovered by Semitropic back to the California Aqueduct has been in compliance with DWR requirements for pump-in to the California Aqueduct.

Banked MID water recovered from Semitropic through exchange with Semitropic farmers does not introduce new water into the California Aqueduct. Therefore, this operation would not have any impacts on water quality.

As per existing operations and previously approved actions, during pump-in of banked water from NKWSD and Semitropic, the districts will be required to comply with Reclamation (FKC), KCWA (CVC) and/or the DWR (California Aqueduct) then-current monitoring requirements and criteria for introduction of water into the relevant conveyance(s). If monitoring indicates that the melded quality of water fails to meet criteria for pump-in to one of these conveyances, then program pump-in operations will be constrained, altered or halted as required by Reclamation, the KCWA or the DWR until testing, operational adjustments and/or treatment have demonstrated to the applicable agencies that the water quality is sufficiently acceptable so as not to impact other stakeholders receiving water from the conveyance(s).

Certain transfer and exchange operations would entail conveyance of Delta Export water through the CVC and into the FKC. The KCWA regulates the quality of water conveyed through the CVC. However, because the intake to the Arvin Edison Canal is less than 100 feet from the FKC-CVC intertie, these operations have the potential to impact the quality of water entering Arvin Edison. Reclamation recognized the potential for this impact in Delano-Earlimart Irrigation District and Rosedale-Rio Bravo Water Storage District Banking Program: 2010-2026, EA-FONSI-09-92 (January 2010) and required a supplemental monitoring program near the Arvin Edison Canal intake. In recognition of this issue, under this proposed program, potential operations that would entail conveyance of Delta Export water through the CVC and into the FKC would require:

- Consent of the KCWA and compliance with KCWA monitoring and water quality requirements for wheeling through the CVC;
- Consent of Reclamation and compliance with the then-current Reclamation monitoring and water quality requirements for discharge to the FKC;
- Consent of Arvin Edison and compliance with any supplemental monitoring requirements that Arvin Edison may have as per Article 9 of the “Contract Among Kern County Water Agency and Various Parties for the Operation of the Cross Valley Canal, Extension and Interie” (November 15, 2006).

Taken together, there would be no adverse impacts to water quality as a result of the Proposed Action.

3.2 Land Use

3.2.1 Affected Environment

The land use is primarily irrigated agriculture with some urbanization.

3.2.2 Environmental Consequences

No Action

No changes to land use would occur in MID, the Transfer Districts or the Exchange Districts under the No Action Alternative and conditions would likely remain the same as existing conditions as described above in the affected environment. Impacts to crops in MID and Transfer Districts could occur without supplemental water during years with surface water shortages, but the overall land use would be within historical conditions.

Proposed Action

MID's water to be banked would be reregulated through the existing NKWSD and Semitropic banking facilities and would not require the modification or construction of new conveyance facilities. The Proposed Action would not induce the construction of any new homes or businesses, or road extensions or other new infrastructure. Similar to the No Action Alternative, the Proposed Action would not increase or decrease the amount of CVP water MID, the Transfer Districts or the Exchange Districts are entitled to under their contracts with Reclamation. The Proposed Action would maintain current land uses by providing reliable water to MID and Transfer Districts during years with surface water shortages. Therefore, the Proposed Action would not result in increased or decreased water supplies in MID, NKWSD, Semitropic, the Exchange Districts or the Transfer Districts that would induce growth or land use changes. There would be no adverse impacts from the Proposed Action as land use would remain the same as described in the affected environment.

3.3 Socioeconomic Resources

3.3.1 Affected Environment

The Proposed Action Area is primarily rural agricultural land which provides farm-related jobs. There are small businesses that support agriculture, for example: feed and fertilizer sales, machinery sales and service, pesticide applicators, transport, packaging, marketing, etc. within the surrounding area.

3.3.2 Environmental Consequences

No Action

The No Action Alternative would have no effect on socioeconomic resources. MID and Transfer District farmers would continue to rely on groundwater during surface water shortages, with acreages under cultivation within historical ranges. NKWSD and Semitropic could continue to engage in water banking opportunities and/or exchanges that do not involve Federal facilities and/or CVP water. The socioeconomic conditions in the districts would be within historical ranges.

Proposed Action

The Proposed Action would provide water supply reliability to MID and Transfer Districts that would help to sustain existing croplands. Businesses and farm workers rely on these crops to maintain jobs. Conditions would remain the same as existing conditions and there would be no adverse impacts to socioeconomic resources. The Proposed Action would continue to support the economic vitality in the region; therefore, there would be no adverse impacts to socioeconomic resources.

3.4 Cumulative Impacts

CEQ regulations implementing NEPA define cumulative impacts as: the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Existing or foreseeable projects that could affect or could be affected by the Proposed Action include:

MID Water Supply Enhancement Project: Reclamation approved an Environmental Impact Statement and Record of Decision for a project to recharge and recover up to 55,000 AF per year of Friant, Hidden Unit and Pre-1914 water in a 250,000 AF water bank that will be owned and operated by MID. This project is at least several years away from full-build out and therefore, in the interim, MID is pursuing the Proposed Action. To the degree that the Water Supply Enhancement Project comes online during the period of this Proposed Action, MID intends to reduce reliance on the Proposed Action and correspondingly ramp up banking at MID's facility.

FONSI/EA-10-052 Accelerated Water Transfer Program (AWTP) for Friant Division and Cross Valley Central Valley Project Contractors, 2011-2015: Reclamation approved continuation of a five-year AWTP, that provides a streamlined process for annual transfers and/or exchanges of Friant Division CVP water between eligible Friant Division and CVC Contractors within the same geographical area who can receive CVP service from Friant Division facilities and who possess CVP interim or long-term water service contracts, or repayment contracts.

FONSI/EA-09-92 Delano-Earlimart Irrigation District (DEID) and Rosedale-Rio Bravo Water Storage District (RRBWSD) Banking Program 2010-2026: Reclamation approved DEID's delivery of its CVP and 215 Water (when available) supplies for banking outside of their service area boundary in RRBWSD. DEID will deliver up to 80,000 AF per year to RRBWSD for banking from March 2010 through February 2026. DEID will be allowed to store up to 100,000 AF maximum at any one time, and RRBWSD will return up to 10,000 AF per year to DEID upon request.

SEA-09-74 Amendment to the Storage and Exchange of Central Valley Project Water Delano-Earlimart Irrigation District to North Kern Water Storage District: The extension of water banking through 2026 and the addition of uncontrolled spill from Millerton Reservoir (Section 215 water) to the Class 1 and Class 2 CVP water to be banked.

SEA-09-62 Meyers Farm Water Banking Project Addition of Banta Carbona Irrigation District Supplies: The annual banking, extraction, and exchange of up to 5,000 AF of Banta Carbon Irrigation District's pre-1914 San Joaquin River water rights water in Meyers Farm Water Bank over a 22 year period.

EA-09-157 Storage and return of Westlands Water District's Central Valley Project Water in Semitropic Water Storage District: The banking of 50,000 AF of Westlands Water District's 2009-2010 CVP allocation in Semitropic by March 1, 2010 and the annual recovery of up to 20,000 AF as needed within 10 years of the initial banking deposit.

FONSI-09-164 City of Tracy Long-term Central Valley Project Water Groundwater Banking with Semitropic Water Storage District: The long-term groundwater banking program will include the banking of up to 10,500 AF per year of Tracy's available CVP surface water supplies within Semitropic.

San Joaquin River Restoration Settlement: As part of the San Joaquin River Restoration Settlement (Settlement), the Water Management Goal aimed to reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the Interim and Restoration Flows provided for in the Settlement. As a result, Reclamation is currently developing plans for Recaptured, recapture, reuse, and exchange or transfer of Interim and Restoration Flows. Specifics for these plans are currently unknown; however, one proposal involves recapturing the flows from the Delta and Recaptured through the California Aqueduct. The flows would then be introduced into the FKC via the CVC for ultimate delivery to Friant Division CVP contractors. Installation of permanent pump-back facilities at key check structures would allow reverse-flow in the FKC for direct delivery to the contractors upstream of the CVC introductory point.

EA-09-157 Storage and return of Westlands Water District's Central Valley Project Water in Semitropic Water Storage District: The banking of 50,000 AF of Westlands Water District's 2009-2010 CVP allocation in Semitropic by March 1, 2010 and the annual recovery of up to 20,000 AF as needed within 10 years of the initial banking deposit.

The Proposed Action and other similar projects would not interfere with the projects listed above, nor would it hinder the normal operations of the CVP and Reclamation's obligation to deliver water to its contractors or to local fish and wildlife habitat. The FWA manages the FKC, on Reclamation's behalf, such that capacity must exist before any movement of water is scheduled under the Proposed Action. Similarly, the KCWA must determine that there is excess capacity before water involved with the Proposed Action is allowed to enter the CVC so as not to impact any stakeholders that normally receive their water supply from the CVC. Likewise, the DWR and Reclamation would make determinations that there is excess capacity before water involved with the Proposed Action is allowed to enter the California Aqueduct/San Luis Canal so as not to impact any stakeholders that normally receive their water supply from SWP and CVP Delta Exports. The Kern River Watermaster would also have to determine that the Kern River is able to accommodate certain operations under the Proposed Action. Therefore, when taking into consideration other similar existing and/or future actions, the implementation of the Proposed Action would not have adverse cumulative impacts on the normal operations of the conveyance facilities involved.

As discussed in Section 3, Arvin Edison's Intake Canal is within 100 feet of the FKC-CVC intertie and that district is the last CVP contractor on the FKC system. Through various existing transfer, exchange and water banking agreements, Arvin Edison frequently receives a significant portion of its supply from Delta Exports that are conveyed through the CVC. The previously approved, "FONSI/EA-09-92 Delano-Earlimart Irrigation District and Rosedale-Rio Bravo Water Storage District Banking Program 2010-2026," (2010) included an analysis of how the proportions of Arvin Edison FKC and CVC supplies vary and the resultant impact on water quality. That analysis concluded that water quality standards would still be met even if the majority of water being conveyed to Arvin Edison originated in the CVC. Arvin Edison disagrees with this conclusion. Therefore, in recognition of this issue, under this proposed program, potential operations that would entail conveyance of Delta Export water through the CVC and into the FKC would require:

- Consent of the KCWA and compliance with KCWA monitoring and water quality requirements for wheeling through the CVC;
- Consent of Reclamation and compliance with the then-current Reclamation monitoring and water quality requirements for discharge to the FKC;
- Consent of Arvin Edison and compliance with any supplemental monitoring requirements that Arvin Edison may have as per Article 9 of the, "Contract Among Kern County Water Agency and Various Parties for the Operation of the Cross Valley Canal, Extension and Interie," (November 15, 2006).

The case-by-case consent of each of these agencies (and imposed monitoring conditions and standards) would include consideration of the cumulative effects of all other actions being performed at that time and these consents would be withheld if the cumulative impacts would be unacceptable. Therefore, overall, the Proposed Action would not result in adverse cumulative impacts to water quality.

Reclamation's action is the approval of banking of MID's Friant Water, Recaptured Water and 215 Water (when available) outside of the MID service area boundary in NKWSD and Semitropic. The use of this water upon return to MID or Transfer Districts would be to maintain current land uses that are predominantly the growing of crops on existing agricultural lands. Since there would be no cumulative adverse impacts to water quality, it is then anticipated that lands receiving this water would not be adversely impacted. No native or previously untitled lands would be put into production. The Proposed Action would maintain existing land uses and would not contribute to cumulative changes or impacts to land uses or planning. Land use trends around the action area in recent years have resulted in urbanization of agricultural lands. This trend is typically caused by economic pressures and is likely to continue with or without these water service actions. Therefore, there would be no cumulative effects to land use as a result of the Proposed Action.

The banked water recovery wells involved with this project are located within NKWSD's and Semitropic's existing banking facilities and through implementation of Monitoring Committee requirements, would not interfere with any private wells. NKWSD and Semitropic have been banking water for decades. Groundwater levels in the area would also rise slightly since 10

percent of recharged water will be left behind. In the event that 2:1 banking of 215 water is approved and performed, an additional 1 AF of water would be left behind for each AF recovered causing further rises in groundwater levels (Section 2.2.9. Potential Banking of Water at a Ratio of Up to 2:1). In addition, the groundwater level underlying MID and the Transfer Districts could experience beneficial cumulative impacts over the course of this project because landowners in these districts would need to rely less on groundwater pumping during years with surface water shortages. Application of better quality CVP water from the FKC over the course of the project (including other similar existing and/or foreseeable projects) for recharge would result in a beneficial cumulative impact to groundwater quality in the Kern County Groundwater Sub-basin. The Proposed Action, when added to other similar existing and proposed actions, may result in beneficial cumulative impacts to overall groundwater resources in the project area on a small scale.

The Proposed Action itself has no adverse impacts on air quality because well pumps are operated using electric motors and the amount of well pumpage would be approximately equal to that under the No Action Alternative (although at different times and places in the same air basin). Not all pumping for this Proposed Action and similar actions could be done at the same time due to limitations of the pumps. Therefore, cumulative impact emissions from the power plants serving electricity to the pumps for these projects would still be below the de minimis thresholds. It is likely that the Proposed Action, when combined with other similar actions within the SJVAB, would still be well below the de minimis thresholds and would therefore have no cumulative adverse impacts.

Under the Proposed Action, the ability to manage varied water resources could help maintain agricultural production and local employment in MID and the Transfer Districts. Since there is no construction or other impacts that could disproportionately affect minority or disadvantaged populations, there are no cumulative adverse impacts involving socioeconomic or environmental justice interests. Since there is no construction or other ground disturbing actions there are no cumulative adverse impacts involving ITAs or Indian sacred sites.

CVP water allocations are made dependent on hydrologic conditions and environmental requirements. Since Reclamation operations and allocations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility and therefore water resource changes due to climate change would be the same with or without the Proposed Action.

As in the past, hydrological conditions and other factors are likely to result in fluctuating water supplies which drives requests for water service actions such as water banking. Water districts aim to provide water to their customers based on available water supplies and timing, all while attempting to minimize costs. Farmers irrigate and grow crops based on these conditions and factors, and a myriad of water service actions are approved and executed each year to facilitate water needs. Each water service transaction involving Reclamation undergoes environmental review prior to approval. Due to the general nature of water banking, the project would have no adverse impacts that are individually limited, but cumulatively considerable.

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4 Consultation and Coordination

4.1 Public Review Period

Reclamation intends to provide the public with an opportunity to comment on the Draft Finding of No Significant Impact and Draft EA between July 2, 2012 and August 2, 2012.

4.2 Fish and Wildlife Coordination Act (16 U.S.C. § 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 “whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under 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 would not impound, divert, control, or otherwise modify a body of water, and so the FWCA would not apply.

4.3 Endangered Species Act (16 U.S.C. § 1531 et seq.)

Section 7 of the Endangered Species Act 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.

Reclamation has determined that there would be no effect on Federally listed or proposed species or critical habitat, so no consultation with either the U.S. Fish and Wildlife Service or the National Marine Fisheries Service is required. Reclamation will notify the U.S. Fish and Wildlife Service of the availability of the draft Environmental Assessment and Finding of no Significant Impact.

4.4 National Historic Preservation Act (16 U.S.C. § 470 et seq.)

The NHPA of 1966, as amended (16 U.S.C. 470 et seq.), requires that federal agencies give the Advisory Council on Historic Preservation an opportunity to comment on the effects of an undertaking on historic properties, properties that are eligible for inclusion in the National Register. The 36 CFR Part 800 regulations implement Section 106 of the NHPA.

Section 106 of the NHPA requires federal agencies to consider the effects of federal undertakings on historic properties, properties determined eligible for inclusion in the National Register. Compliance with Section 106 follows a series of steps that are designed to identify interested parties, determine the APE, conduct cultural resource inventories, determine if historic properties are present within the APE, and assess effects on any identified historic properties. Reclamation has determined that the type of Action proposed has no potential to affect historic properties.

4.5 Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.)

The MBTA implements various treaties and conventions between the United States 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 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. Reclamation has determined that the type of Action proposed has no potential to affect migratory birds.

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 Water Act (33 U.S.C. § 1251 et seq.)

Section 401 of the Clean Water Act [CWA] (33 U.S.C. § 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 U.S.C. § 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 (Section 404) 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 activities such as dredging or filling of wetlands or surface waters would be required for implementation of the Proposed Action, therefore permits associated with CWA are not required.

5 List of Acronyms and Abbreviations

Arvin Edison	Arvin Edison Water Storage District
AF	acre-feet
APE	Area of Potential Effect
CAA	Clean Air Act
CFR	Code of Federal Regulations
cfs	cubic-feet per second
CO ₂	Carbon dioxide
CVC	Cross Valley Canal
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWA	Clean Water Act
DEID	Delano-Earlimart Irrigation District
DMC	Delta Mendota Canal
DWR	California State Department of Water Resources
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FKC	Friant-Kern Canal
FWA	Friant Water Authority
FWCA	Fish and Wildlife Coordination Act
ESA	Endangered Species Act
GHG	greenhouse gases
GMP	Groundwater Management Plan
ITA	Indian Trust Asset
KCWA	Kern County Water Agency
KDWCD	Kaweah Delta Water Conservation District
KTWD	Kern-Tulare Water District
MBTA	Migratory Bird Treaty Act
MID	Madera Irrigation District
MWD	Metropolitan Water District of Southern California
mg/m ³	Milligram per cubic meter
M&I	Municipal and Irrigation
National Register	National Register of Historic Places
NHPA	National Historic Preservation Act
NKWSD	North Kern Water Storage District
NHPA	National Historic Preservation Act
PM _{2.5}	Particulate matter less than 2.5 microns in diameter
PM ₁₀	Particulate matter between 2.5 and 10 microns in diameter
PPM	Parts per million
Reclamation	Bureau of Reclamation
Semitropic	Semitropic Water Storage District
SHPO	State Historic Preservation Office
SIP	State Implementation Plan

SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SSJMUD	Southern San Joaquin Municipal Utility District
SWID	Shafter-Wasco Irrigation District
SWP	State Water Project
$\mu\text{g}/\text{m}^3$	Microgram per cubic meter
USFWS	U. S. Fish and Wildlife Service

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7 References

Anderson, J., F. Chung, M. Anderson, L. Brekke, D. Easton, M. Ejetal, R. Peterson, and R. Snyder. 2008. Progress on Incorporating Climate Change into Management of California's Water Resources. *Climatic Change* (2008) 87 (Suppl 1):S91–S108 DOI 10.1007/s10584-007-9353-1.

Arvin-Edison Water Storage District Negative Declaration, *Arvin-Edison Water Management Program*. Arvin, California. May 1996.

Barr, C. B. 1991. *The distribution, habitat, and status of the valley elderberry longhorn beetle, Desmocerus californicus dimorphus*. USFWS; Sacramento, California.

City of Tracy (Tracy). 2005. *City of Tracy General Plan: Draft Environmental Impact Report*. Prepared by Design, Community, and Environment. Berkeley, California.

City of Tracy (Tracy). 2006. *City of Tracy General Plan: Final Environmental Impact Report (SCH#1992122069)*. Prepared by Design, Community, and Environment. Berkeley, California. Certified by the City of Tracy on July 20, 2006.

CNDDDB (California Natural Diversity Database). 2010. California Department of Fish and Game's Natural Diversity Database, Version 3.1.1. RareFind 3 (computer application). Last Updated: XX.

CNDDDB (California Natural Diversity Database). 2009. California Department of fish and Game's Natural Diversity Database, Version 3.1.1. RareFind 3. May 2, 2009.

Collinge, S. K., M. Holyoak, C. B. Barr, and J. T. Marty. 2001. *Riparian habitat fragmentation and population persistence of the threatened valley elderberry longhorn beetle in central California*. *Biological Conservation* 100: 103-113.

Contract Among Kern County Water Agency and Various Parties for the Operation of the Cross Valley Canal, Extension and Interie,” (November 15, 2006).

DWR (Department of Water Resources). 2003. California's Groundwater, Bulletin 118. <http://www.water.ca.gov/groundwater/bulletin118/update2003.cfm>. Accessed: April 20, 2011.

DWR, 2005. *California Water Plan Update 2005*; Volume 3 – Regional Reports; Chapter 8: Tulare Lake Hydrologic Region. California Department of Water Resources, September 2005.

DWR, 2006. *California Groundwater Bulletin 118*; 2003 (Updated 2006)

Environmental Protection Agency (EPA). 2009. Mandatory Reporting of Greenhouse Gases, Final Rule (40 CFR Parts 86, 87, 89 et al.) *Federal Register*. 74(209): 56260-56519.

Kern. 2005. *County of Kern Community and Economic Development Department Economic Development Strategy Final Report*. April, 2005. Prepared by ICF Consulting, San Francisco, CA. Prepared for County of Kern, Community and Economic Development Department, Bakersfield, CA.

Kern County Water Agency Environmental Impact Report, *Cross Valley Canal Expansion Project*. SCH# 2004081183. Bakersfield, California. 2005.

Klute, D. S., L. W. Ayers, M. T. Green, W. H. Howe, S. L. Jones, J. A. Shaffer, S. R. Sheffield, and T. S. Zimmerman. 2003. *Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States*. U.S. Department of Interior.

MID, 2001. Madera Irrigation District Water Conservation Plan. February 2001. Prepared by Madera Irrigation District, Madera, CA.

Meretsky, V. and N. F. R. Snyder. 1992. *Range use and movements of California condors*. Condor 94: 313-335.

Montanucci, R. R. 1965. *Observations on the San Joaquin leopard lizard, Crotaphytus wislizenii silus* Stejneger. Herpetologica 21: 270-283.

NMFS (National Marine Fisheries Service). 2009. Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project. June 4, 2009.

NKWSD, 2001. Initial Study of Environmental Aspects of the North Kern Groundwater Storage Project. October 2001. Prepared by Bookman-Edmonston Consulting Engineers, Bakersfield, CA. Prepared for North Kern Water Storage District, Kern County, CA.

Oshel, Paul. 2010. Semitropic District Engineer, personal communication, April 2, 2010.

Reclamation, 1999. *Final Programmatic Environmental Impact Statement for the Implementation of the Central Valley Project Improvement Act*, October 1999.

Reclamation, 2001. *Biological Opinion on U.S. Bureau of Reclamation Long Term Contract Renewal of Friant Division and CVC Contractors*. January, 2001. Prepared by United States Bureau of Reclamation and U.S. Fish and Wildlife Service, Sacramento, CA.

Reclamation. 2004. *Long-Term Renewal of the Contract Among the United States and the Pajaro Valley Water Management Agency, Westlands Water District Distribution District No. 1 and Santa Clara Valley Water District Providing for Central Valley Project Water Service, Draft Environmental Assessment*; December 2004. Prepared by Bureau of Reclamation, Sacramento, CA.

Reclamation. 2005. *Storage of Central Valley Project Water from Westland Water District in Semitropic Water Storage District, Final Environmental Assessment*. November 2005. Prepared by United States Bureau of Reclamation, Sacramento, CA.

Reclamation, 2005. *FONSI/EA-05-01: Kern-Tulare Water District and Rag Gulch Water District Groundwater Banking Project in Rosedale-Rio Bravo Water Storage District*, dated January 2005.

Reclamation. 2006a. *Poso Creek Water Company, LLC, Execution of Temporary Water Service Contract and Banking and Exchange of Section 215 Water at Semitropic Water Storage District, Final Environmental Assessment*, May 2006. Prepared by Bureau of Reclamation, Fresno, CA.

Reclamation (Bureau of Reclamation). 2006. Final Environmental Assessment for the Accelerated Water Transfers and Exchanges, Central Valley Project Contractors, Friant Division, 2006-2010. March 3, 2006.

- Reclamation (Bureau of Reclamation). 2006. Final Supplemental Environmental Assessment for the Accelerated Water Transfer Program, Friant and Cross Valley Contractors, 2006/2010. March 30, 2006.
- Reclamation, 2006. *FONSI/EA-05-92: Accelerated Water Transfers and Exchanges, Friant Division Contractors Water Year 2006-2010*, dated March 2006.
- Reclamation, 2006a. *FONSI/EA-06-92: Delano-Earlimart Irrigation District to North Kern Water Storage District*, dated November 2006.
- Reclamation. 2007. *FONSI/EA-05-111 Groundwater Banking Pilot Project of Central Valley Project Water from City of Tracy to Semitropic Water Storage District*. Mid Pacific Region, South-Central California Area Office. Fresno, California.
- Reclamation, 2007. *Friant-Kern/Cross Valley Canals Intertie Construction Project*, dated October 2007.
- Reclamation. 2009. Madera Irrigation District Draft Environmental Impact Statement, dated July 2009
- Reclamation, 2010. *FONSI/EA-09-169 Two-Year Exchange Agreements and/or Warren Act Contracts for Conveyance of non-Central Valley Project (Groundwater) in the Delta-Mendota Canal – Water Year 2010 through Water Year 2011*, dated March 2010.
- San Joaquin Valley Air Pollution Control District (SJVAPCD). 2010. Ambient Air Quality Standards and Valley Attainment Status. Website: <http://www.valleyair.org/aqinfo/attainment.htm> Accessed: March 17, 2010.
- Semitropic. 1994. Semitropic Water Storage District and Metropolitan Water District of Southern California. *Semitropic Groundwater Banking Project, Final Environmental Impact Report, Findings and Mitigation Monitoring Plan*; July, 1994.
- Semitropic Water Storage District (Semitropic). 1997. *Semitropic Water Banking and Exchange Program (Semitropic Groundwater Banking Program), Initial Study*; April 18, 1997.
- Semitropic. 2006a. Semitropic Water Storage District, Bakersfield, CA. Available: <http://www.semitropic.com/AboutUs.htm>. Accessed: 2009.
- Semitropic. 2006b. Semitropic Water Storage District, Bakersfield, CA. Available: <http://www.semitropic.com/FuturePlans.htm>. Accessed: 2009.
- Shelton, J.L., I. Pimentel, M.S. Fram, and K. Belitz. 2006. USGS. *Ground-Water Quality Data in the Kern County Subbasin Study Unit, 2006—Results from the California GAMA Program*, Data Series 337
- USFWS. 1988. *Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Tipton Kangaroo rat*. Federal Register 53, 131: 25608-25611.
- USFWS. 1989. *Wetlands of the California Central Valley: status and trends-1939 to mid-1980's*. Portland, Oregon. 28 pp.
- USFWS. 1996. *California Condor Recovery Plan*, Third Revision. Portland, OR. 62 pp.

USFWS. 1998. *Recovery plan for upland species of the San Joaquin Valley*, California. Portland, OR. 319 pp.

USFWS (United States Fish and Wildlife Services). 2001. Biological Opinion on U.S. Bureau of Reclamation Long Term Contract Renewal of Friant Division and Cross Valley Unit Contracts. January 19, 2001.

USFWS. 2002. *Endangered and Threatened Wildlife and Plants*; Endangered Status for the Buena Vista Lake shrew (*Sorex ornatus relictus*). Federal Register 67, 44: 10101-10113.

USFWS (United States Fish and Wildlife Services). 2008. Biological Opinion on the Coordinated Operations of the Central Valley Project and State Water Project. December 15, 2008.

Warrick, G. D. Clark, H. O. Kelly, P. A. Williams, D. F. and B. L. Cypher. 2007. *Use of agricultural lands by San Joaquin kit foxes*. Western North American Naturalist 67: 270