

RECLAMATION

Managing Water in the West

Final Environmental Assessment/Initial Study

Arvin-Edison Water Storage District and Metropolitan Water District 12-Month Water Exchange Project

EA11-085



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

Arvin-Edison Water Storage District
PO Box 175
Arvin, CA 93293-0175

April 2012

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.

Please note: A vertical line in the left margin indicates a change since the draft document was circulated for public review and comment.

Table of Contents

Section 1	Introduction.....	1
1.1	Background.....	1
1.2	NEPA Purpose and Need/CEQA Project Objectives.....	1
1.3	Scope/ Project Location and Setting.....	2
1.4	Reclamation’s Legal and Statutory Authorities and Jurisdiction Relevant to the Proposed Federal Action.....	3
1.5	Related Environmental Documents	3
1.6	The Proposed Action would comply with this approval from the SWRCB. Potential Issues.....	4
Section 2	Section 2 Alternatives Including the Proposed Action	1
2.1	No Action Alternative.....	1
2.2	Proposed Action.....	1
Section 3	NEPA Affected Environment and Environmental Consequences	3
3.1	Water Resources	3
3.1.1	Affected Environment.....	3
3.1.2	Environmental Consequences	6
3.2	Land Use	8
3.2.1	Affected Environment.....	8
3.2.2	Environmental Consequences	9
3.3	Biological Resources	10
3.3.1	Affected Environment.....	10
3.3.2	Environmental Consequences	13
3.4	Cultural Resources	13
3.4.1	Affected Environment.....	14
3.4.2	Environmental Consequences	14
3.5	Indian Sacred Sites.....	15
3.5.1	Affected Environment.....	15
3.5.2	Environmental Consequences	15
3.6	Indian Trust Assets	16
3.6.1	Affected Environment.....	16
3.6.2	Environmental Consequences	16
3.7	Environmental Justice	16
3.7.1	Affected Environment.....	16
3.7.2	Environmental Consequences	17
3.8	Socioeconomic Resources	17
3.8.1	Affected Environment.....	17
3.8.2	Environmental Consequences	18
3.9	Air Quality	18
3.9.1	Affected Environment.....	19
3.9.2	Environmental Consequences	20
3.10	Global Climate	20
3.10.1	Affected Environment.....	21
3.10.2	Environmental Consequences	21
Section 4	CEQA Environmental Factors Potentially Affected	23

4.1	Discussion of Potentially Affected Environmental Factors.....	23
4.1.1	Aesthetics.....	23
4.1.2	Agricultural Resources.....	23
4.1.3	Air Quality	23
4.1.4	Biological Resources	23
4.1.5	Cultural Resources	25
4.1.6	Geology and Soils.....	25
4.1.7	Greenhouse Gas Emissions.....	25
4.1.8	Hazards and Hazardous Materials	25
4.1.9	Hydrology and Water Quality.....	25
4.1.10	Land Use and Planning	25
4.1.11	Mineral Resources	26
4.1.12	Noise	26
4.1.13	Population and Housing.....	26
4.1.14	Public Services.....	26
4.1.15	Recreation	26
4.1.16	Transportation/Traffic.....	26
4.1.17	Utilities and Service Systems.....	26
4.2	Mandatory Findings of Significance.....	27
Section 5	Consultation and Coordination	29
5.1	Public Review Period.....	29
5.2	Fish and Wildlife Coordination Act (16 USC § 661 et seq.).....	29
5.3	Endangered Species Act (16 USC § 1531 et seq.).....	29
5.4	National Historic Preservation Act (16 USC § 470 et seq.)	29
5.5	Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.)	30
5.6	Executive Order 11988 – Floodplain Management and Executive Order 11990 – Protection of Wetlands.....	30
Section 6	List of Preparers and Reviewers	31
Section 7	References.....	33

List of Tables and Figures

Figure 1-1	Proposed Action Location.....	5
Table 3-1	Federal status species that could potentially occur within AEWS 10	10
Table 3-2	San Joaquin Valley Attainment Status	19
Table 4-1	Federal and State-Listed Status	24

Appendices

Appendix A Comments and Responses on Draft EA/FONSI

List of Acronyms and Abbreviations

AEWSD	Arvin-Edison Water Storage District
AF	acre-feet
APE	area of potential effects
Aqueduct	California Aqueduct
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic-feet per second
CO	carbon monoxide
CO ₂	carbon dioxide
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CPOU	Consolidated Place of Use
CVC	Cross Valley Canal
CVP	Central Valley Project
DWR	Department of Water Resources
EA	environmental assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FKC	Friant-Kern Canal
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
GHG	green house gases
ITA	Indian Trust Assets
IS	Initial Study
KCWA	Kern County Water Agency
MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
MWD	Metropolitan Water District of Southern California
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
National Register	Nation Register of Historic Places
ND	Negative Declaration
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
O ₃	ozone
PM _{2.5}	particulate matter less than 2.5 microns in diameter
PM ₁₀	particulate matter between 2.5 and 10 microns in diameter
Program	Water Management Program between AEWSD and MWD
Reclamation	Bureau of Reclamation
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SJRRP	San Joaquin River Restoration Program
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District

SLR	San Luis Reservoir
SO ₂	sulfur dioxide
SWP	State Water Project
SWRCB	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service
U.S.C.	U.S. Code

Section 1 Introduction

This Environmental Assessment/Initial Study (EA/IS) has been prepared in accordance with the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA), respectfully, to analyze and document potential direct, indirect and cumulative environmental impacts from a proposed water exchange by Arvin-Edison Water Storage District (AEWSD) and Metropolitan Water District of Southern California (MWD), collectively referred to as Districts. The Districts are proposing an action that would:

- Deliver AEWSD's Central Valley Project (CVP) water to MWD in exchange for previously banked MWD State Water Project (SWP) water (note: MWD delivers to AEWSD first);
- Deliver AEWSD's CVP water to MWD during times of abundant AEWSD supplies after which MWD would return a like amount of SWP water, metered at the California Aqueduct (Aqueduct) to AEWSD later in the 12-month period.

This action required approval of a temporary change to the Reclamation's Consolidated Place of Use (CPOU) provisions and Friant Division Place of Use provisions through a petition to the State Water Resources Control Board. The order approving the petitions for temporary change was approved on April 2, 2012. The proposed exchange will occur in accordance with the terms and conditions of the State Water Resources Control Board order in effect through April 1, 2013.

This EA/IS was jointly prepared by Reclamation as the lead federal agency and AEWSD as the lead state agency. AEWSD and MWD have requested Reclamation's approval for the proposed exchange of AEWSD's CVP water for MWD's SWP water (including previously banked SWP water). Reclamations action is to approve the exchange involving up to 100,000 acre-feet (AF) of CVP water.

1.1 Background

In December 1997, AEWSD entered into a long-term Water Management Program (Program) with MWD. Under the Program, up to 350,000 AF, after a 10 percent loss is applied, of MWD's SWP supply could be banked within AEWSD's groundwater bank at any one time. Upon request, AEWSD would return MWD's previously banked SWP water. This would typically occur during certain dry hydrological periods when MWD needs to supplement its water supply. An IS was first prepared by AEWSD to analyze the potential impacts of the Program and a Negative Declaration (ND) was adopted by AEWSD and MWD in July 1996. In addition, MWD prepared an Addendum to the ND to address the execution of a point of delivery and turn-in agreement for the Program in December 2002. The IS/ND (Program 1996) and Addendum (Addendum 2002) are hereby incorporated by reference.

1.2 NEPA Purpose and Need/CEQA Project Objectives

The need for the Proposed Action is two-fold:

- **Return of Banked Water:** AEWSO has historically extracted MWD's previously banked SWP supplies from their groundwater bank and delivered those supplies back to MWD. This return mechanism, while effective, has associated high energy use (pumping cost) and operation and maintenance costs as well as the increased need for water quality management and associated cost. In the event that MWD requests a return of water during the 12-month period, AEWSO desires the flexibility to send a portion of their CVP water to MWD in lieu of, and in exchange for, MWD's previous banked SWP water stored in AEWSO's groundwater bank. This exchange is proposed to occur only within the timeframe specified in the petition for the CPOU, typically a 12-month period, and only to the extent MWD has water in storage in AEWSO.

These same actions have been employed the last three water years whereby AEWSO substituted and exchanged approximately 115,000 AF of AEWSO CVP surface water for previously banked MWD SWP water. This resulted in an effective and efficient water management program.

- **Regulation of AEWSO CVP Supplies:** A large part of AEWSO's contract supplies consist of CVP water that cannot be stored and regulated by Reclamation to meet irrigation demand so it must be delivered during wet conditions, often during high-flow, short-duration periods (such as Uncontrolled Season periods). Subsequently, AEWSO is also in need of the ability to temporarily store CVP water with MWD during these periods and have MWD return the water to AEWSO on a usable schedule (within a 12-month period) that preferably will offset irrigation demand or extend spreading periods. This exchange is proposed to occur only within the timeframe specified in the CVP CPOU petition.

The purpose of the Proposed Action is twofold:

- **Delivery of Surface Water:** Provide for the expeditious and timely delivery of surface water supplies available to AEWSO in lieu of groundwater it otherwise would have pumped and delivered to MWD in fulfilling its return water obligations to MWD under the Program, and in allowing AEWSO to temporarily store water with MWD for return later within a 12-month period thereby making more efficient use of its contract water supplies.
- The Proposed Action would serve to reduce energy use, pumping and operation costs, enhance water quality, and provide overall water management flexibility to AEWSO.

1.3 Scope/ Project Location and Setting

This is a joint document completed to satisfy compliance with both NEPA and CEQA. As such, Section 3 addresses the NEPA Affected Environment and Environmental Consequences while Section 4 addresses the CEQA Environmental Factors Potentially Affected. Under NEPA, a determination of significant impacts to the environment considers the action in its entirety. Under CEQA, a determination of significant impacts to the environment considers each resource individually.

AEWSD is located on the southern end of the San Joaquin Valley in Kern County and MWD is located in Southern California (Figure 1-1).

1.4 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 NEPA analysis and decision-making process of this EA/IS and include the following as amended, updated, and/or superseded (all of which are incorporated by reference):

- The Reclamation Reform Act 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 provisions of Reclamation law, however, as a result of AEWSD's Repayment Contract and full payment of the Repayment Obligation there under, the acreage limitation and full cost provisions of Reclamation law would not apply to the water subject to this proposed exchange.
- Reclamation and United States Fish and Wildlife Service (USFWS) Regional, Final Administrative Proposal on Water Transfers April 16, 1998.

1.5 Related Environmental Documents

In June 2009 (EA-09-97) and July 2010 (EA-10-38), Reclamation prepared an EA to approve the delivery of up to 40,000 AF per year of AEWSD's 2009, 2010 and 2011 CVP supplies to MWD in-lieu of pumping and returning a like-amount of MWD's previously banked SWP supplies within AEWSD's groundwater bank under the Program. A Finding of No Significant Impact (FONSI) was signed in July 2009, December 2009 (augmenting July 2009), and September 2010, respectively, to approve the exchange; both EA's and FONSI's are hereby incorporated by reference (Reclamation 2009 and Reclamation 2010). The Proposed Action is similar to the exchange approved in 2009 and 2010, which was made possible due to the temporary consolidation of the CVP and SWP places-of-use and points-of-diversion from June 2009 to October 2011.

As part of the San Joaquin River Restoration Program (SJRRP), Reclamation, as the lead agency under the NEPA, and the California Department of Water Resources (DWR), as the lead agency under the CEQA prepared EA/IS to evaluate activities necessary to convey the flows in the San Joaquin River from Friant Dam to the Sacramento-San Joaquin Delta (Delta), and to conduct data collection and monitoring activities during Interim Flow releases during Water Year (WY) 2010. Reclamation approved the FONSI and DWR adopted the Mitigated Negative Declaration (MND) on September 25, 2009. A Draft Supplemental EA for WY 2011 Interim Flows was prepared and the Final Supplemental EA for WY 2011 Interim Flows and FONSI was issued on September 21, 2010. A Draft Supplemental EA for WY 2012 Interim Flows was prepared and the Final Supplemental EA for WY 2012 Interim Flows and signed FONSI was issued on September 30, 2011.

In order to return the 2011 recaptured interim flows stored in SLR back to the Friant Division CVP contractors, Reclamation prepared an EA to analyze potential transfer and exchange scenarios to make up to 260,000 AF available from Millerton Lake as Class 1 or Class 2 CVP water supplies. A Final EA was completed and a FONSI was signed on May 24, 2011, and both are hereby incorporated by reference (Reclamation 2010b).

The California State Water Resources Control Board (SWRCB), Division of Water Rights, issued corrected Water Rights Order (Order) WR 2010-0029-DWR. The order specifies necessary terms and conditions to be carried out for WY 2012. Condition #2 of the Order states *“Any San Joaquin River water temporarily stored or routed through San Luis Reservoir shall not be delivered to south-of-Delta contractors other than Friant Division Contractors. The water need not be directly delivered, but can be made available through transfers and exchanges. Reclamation shall document that it has taken all practicable measures to provide contract water to the Friant Division Contractors, while complying with all other conditions of this Order.”*

Therefore, this Order allows for transfers and exchanges of Friant water that need not be directly delivered to the Friant contractors provided this water is put to beneficial use in other districts.

1.6 The Proposed Action would comply with this approval from the SWRCB. Potential Issues

This EA/IS will analyze the affected environment of the Proposed Action in order to determine the potential direct, indirect, and cumulative impacts to the following resources: Water Resources, Land Use, Biological Resources, Cultural Resources, Indian Trust Assets (ITA), Socioeconomic Resources, Environmental Justice, Air Quality, Global Climate, Aesthetics, Agricultural Resources, Geology and Soils, Hazards and Hazardous Materials, Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Utilities and Service Systems.



Figure 1-1 Proposed Action Location

PAGE INTENTIONALLY LEFT BLANK

Section 2 Section 2 Alternatives Including the Proposed Action

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

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not approve the exchange of AEWS's CVP water for MWD's SWP water. AEWS would still be able to pump MWD's previously stored SWP water within AEWS's groundwater bank and deliver it to MWD via the Aqueduct as originally arranged and analyzed under the ND for the Program but will not be able to reduce energy use as contemplated by the Proposed Action. In addition, AEWS would not have the ability to capture and regulate wet year type supplies that would help offset groundwater extraction and/or have supplies for irrigation or recharge later in the year. MWD would not get the Friant CVP water and the associated water quality benefits.

2.2 Proposed Action

There are two components to the Proposed Action. The first component involves the exchange of AEWS CVP water for previously banked MWD SWP water that was delivered to AEWS.

AEWS's CVP supplies from Millerton Lake would be conveyed down the Friant-Kern Canal (FKC) towards its terminus and diverted into:

- The FKC/Cross Valley Canal (CVC) Intertie at milepost 151.70 and subsequently into the CVC and the Aqueduct;
- AEWS's Intake Canal facilities via AEWS's FKC turnout at milepost 151.80 for subsequent delivery into the CVC (note AEWS also has a direct connection into the CVC);
- AEWS's South Canal and Intertie Pumping Plant and subsequently into the Aqueduct.

Once in the CVC or AEWS's facilities, the water would be introduced into the Aqueduct at existing diversion points and ultimately delivered to MWD.

AEWS's CVP supplies from SLR, if utilized, would be conveyed to the CVC/Tupman turnout, or down the San Luis Canal/Aqueduct and to MWD's service area by the Department of Water Resources (DWR).

Reclamation proposes to approve AEWS's request to exchange a portion of its CVP water supply for a like-amount (bucket-for-bucket) of MWD's SWP supply (including previously banked). The delivery of up to 100,000 AF from AEWS to MWD could include the following CVP water types:

- Class 1;
- Class 2;
- Recovered Water Account;
- Recaptured SJRRP Interim Flows (including those supplies made available through transfers/exchanges as analyzed in the 2010, 2011 and 2012 EA for recirculation of recaptured interim flows);
- Section 215 water supplies, to the extent Section 215 water is declared by Reclamation and is available to AEWS.

In order to complete the exchange, the banked SWP water that would have been pumped and returned to MWD would change in ownership from MWD to AEWS and remain within AEWS's groundwater bank.

The second component of the Proposed Action involves the delivery of AEWS CVP water to MWD and the subsequent return from MWD to AEWS during the approved CPOU timeframe. The conveyance facilities and type of water CVP would be the same as listed above.

The Proposed Action is contingent upon approval by the SWRCB to temporarily consolidate the CVP places-of-use (CPOU) for a 12-month period, and would only occur during the timeframe for which the CPOU is in effect.

In addition, the Proposed Action would include the following commitments:

Resource	Environmental Commitment
Biological Resources	The Proposed Action may not involve the conversion of any land fallowed and untilled for three or more years. The Proposed Action may not change the land use patterns of cultivated or fallowed fields that potentially have some value to listed species or birds protected by the Migratory Bird Treaty Act.
Biological Resources	Exchange involving CVP and SWP water cannot alter the flow regime of natural water bodies such as rivers, streams, creeks, ponds, pools, wetlands, etc., so as to not have a detrimental effect on fish or wildlife, or their habitats.
Water Resources	In continuance of commitments from the Program, existing Aqueduct Pump-in Facilitation Group guidelines would be followed by both AEWS and Kern County Water Agency (KCWA) when introducing water into the Aqueduct to insure that water quality would not be adversely impacted.
General	• No new construction or modification of existing facilities would be required; • Exchange involving CVP and SWP facilities, and the CVC would be required to obtain the applicable approval/permission so as not to hinder the respective normal operations and maintenance of the facilities; • Exchange involving CVP and SWP facilities, and the CVC would be required to schedule accordingly with Reclamation, DWR and the Kern County Water Agency (KCWA), respectively, so as not to hinder their respective obligations to deliver water to contractors, participants, wildlife refuges, and to meet regulatory requirements.

Section 3 NEPA Affected Environment and Environmental Consequences

This section of the EA/IS includes the NEPA analysis portion of the potentially affected environment and the environmental consequences involved with the Proposed Action and the No Action Alternative.

3.1 Water Resources

3.1.1 Affected Environment

AEWSD/MWD Water Management Program

Under the AEWSD/MWD Water Management Program, AEWSD agreed that MWD would be able to deliver a minimum of 277,778 AF (which equates to approximately 250,000 AF after a 10 percent loss factor is applied) to AEWSD. It was also anticipated that MWD would cycle water through the Program, and at AEWSD's discretion, MWD would be able to store up to 388,889 AF (which equates to approximately 350,000 AF after a 10 percent loss factor is applied) at any one time in AEWSD's groundwater bank. In order to facilitate the Program, AEWSD constructed facilities including 500 acres of new spreading works, 15 new groundwater wells, a 4.5-mile bi-directional pipeline connecting the terminus of AEWSD's South Canal with the Aqueduct and recently expanded its South Canal capacity as well as made improvements/structures in the last 9 miles of canal for the ability to "reverse flow" the canal and assist in operational flexibility. These new facilities are used in conjunction with AEWSD's existing facilities and distribution system to manage the Program.

The Program has operated successfully for nearly 15 years resulting in benefits for both AEWSD and MWD. For AEWSD, the Program has generated revenue for new infrastructure to manage its water supplies, stabilize water rates, increased groundwater levels, and increased drought year supplies. In addition, improved conjunctive use operations and in-lieu banking have also allowed AEWSD's farmers to utilize surface supplies instead of groundwater supplies at times when MWD banks water. AEWSD has benefitted from enhanced recharge capabilities resulting from the facilities that were constructed as part of the Program as well as from higher groundwater levels resulting in lesser overall groundwater pumping energy use and costs. For MWD, the Program has provided an opportunity to convert its surplus wet year SWP supplies into a firm dry year supply and to improve water quality in the Aqueduct when AEWSD returns groundwater and/or Friant Division CVP water to MWD.

San Joaquin River Restoration Program

The SJRRP is a comprehensive, long-term effort to restore flows to the San Joaquin River from Friant Dam to the confluence of Merced River in order to restore a self-sustaining Chinook salmon fishery in the river, while reducing/avoiding adverse water supply impacts to Friant Division CVP contractors. The SJRRP is the program that implements both the San Joaquin River Restoration Settlement (a settlement that resulted from legal action) and the San Joaquin River Restoration Settlement Act (the law that directs Federal entity and Federal funding actions

relative to the settlement). Reclamation initiated the SJRRP in October 2009 with the first interim flows project. Interim flows have been provided since in accordance with the SJRRP. To reduce/avoid water supply impacts to Friant Division CVP contractors, the interim flows have/would be recaptured and stored in SLR for return to the Friant Division CVP contractors. Reclamation has since determined that the amount of water to be recaptured in SLR and recirculated back to Friant long-term contractors is between approximately 20,000 and 80,000 AF for Water Year 2012 (October 2011 through September 2012).

Arvin-Edison Water Storage District

AEWSD was formed in 1942 to provide a reliable water supply for its landowners for agricultural purposes. In order to regulate a highly variable water supply, AEWSD developed and continues to develop water management programs based on the concept of delivering imported water in years of above average water supplies to 1) spreading ponds for groundwater recharge and/or 2) transfers/exchanges with other agencies and entities (such as MWD) that can in turn provide return water at times later in the same year (or in subsequent years) and typically during drought or low allocation years or periods. During below average or dry years or periods, AEWSD extracts (via wells) previously stored groundwater and/or accepts return of water from water transfers and exchanges to meet its agricultural demands when surface supplies are deficient.

AEWSD is a long-term CVP contractor; its current facilities were primarily constructed in the 1960s and are based on the conjunctive use of surface water imported from the CVP, SWP, Kern River, including other supplies (i.e. flood flows from northern rivers/creek on FKC) and groundwater resources that underlie AEWSD. AEWSD owns and operates spreading/percolation/recharge basins and groundwater extraction wells, which are used to supply previously banked groundwater to its landowners within its service area when surface water supplies are deficient. AEWSD facilities (recharge and extraction) are also made available to other water agencies for their utilization through water management programs/agreements on a second priority basis.

AEWSD has an annual contract entitlement with Reclamation for 40,000 AF of Class 1 and 311,675 AF of Class 2 Friant Division CVP supplies. The Class 2 supply comprises a large portion of their contract allocation; however, this supply is highly variable depending on availability and hydrology. AEWSD manages this supply by using an underlying groundwater reservoir to regulate water availability and to stabilize water reliability by percolating water through spreading basins in addition to water management programs (i.e. transfers/exchanges) with other water agencies outside its service area. AEWSD takes Friant CVP water from their Intake Canal located at the terminus of the FKC and serves landowners within its district through 45 miles of lined canals and 170 miles of pipeline.

AEWSD has historically made available a portion of its Friant Division CVP water supply to other CVP contractors located on the eastside of the San Joaquin Valley in exchange for alternate CVP supplies originating from the Sacramento-San Joaquin River Delta, diverted and wheeled through the Aqueduct for ultimate delivery to AEWSD. Due to a decrease in supply reliability, cost increases, and water quality concerns, several of these exchanges are no longer feasible to the extent they once were. As a result, it has been necessary for AEWSD to identify and implement additional programs to manage its CVP water supplies.

AEWSD could also have recirculation water made available to it for delivery from SLR as a result of releases made into the San Joaquin River from Millerton Lake, captured at Mendota Pool and subsequently stored through exchange/transfer agreements that were analyzed under a separate EA for recirculation of recaptured interim flows. The volume of recaptured and recirculated interim flows to be available to AEWSD in 2012 will not be known until later in the 2012 water year.

Metropolitan Water District

MWD was created in 1928 under an enabling act of the California State Legislature to provide supplemental water to cities and counties in the Southern California coastal plain. This supplemental water is delivered to MWD's twenty six member agencies through a regional network of canals, pipelines, reservoirs, treatment plants and related facilities. In the late 1990's, MWD developed an Integrated Resources Plan which predicted significant water supply deficits for its service area and also outline the efforts needed on several fronts to avoid significant water shortages, especially in dry years. This plan called for a mix of water resources derived from conservation, reclamation, groundwater conjunctive-use and water transfers to ensure adequate system flexibility to protect public safety, particularly during droughts. The plan specifically cites a need for diversification of MWD's source of supply including accessing transfers, exchanges and groundwater banking programs involving Central Valley water districts.

Groundwater Resources

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 nearly to 1987-88 levels (DWR 2003).

AEWSD is located within the Kern County Subbasin of the Tulare Lake Hydrologic Region. In addition to adopting a groundwater management plan, AEWSD has successfully operated a conjunctive use program in order to balance and provide sufficient water supplies to their customers. As mentioned earlier, AEWSD operates approximately 1,500 acres of spreading ponds including the North Canal, Sycamore, and Tejon Spreading Works. Water quality within the subbasin contains primarily calcium bicarbonate waters in the shallow zones, increasing in sodium with depth. While the local groundwater in AEWSD is of good quality, it is generally higher in total dissolved solids, nitrates, boron, and other constituents than that from the FKC (Program 1996).

South Coast Hydrologic Region The South Coast Hydrologic Region covers approximately 6.78 million acres (10,600 square miles) of the southern California watershed that drains to the Pacific Ocean. The region underlies all of Orange County, most of San Diego and Los Angeles Counties, parts of Riverside, San Bernardino, and Ventura Counties, and a amount of Kern and Santa Barbara Counties. The majority of MWD is located within the South Coast Hydrologic

Region. Groundwater provides about 23 percent of water demand in normal years and about 29 percent in drought years. Conjunctive use of surface water and groundwater is a long-standing practice in the region. Groundwater quality varies with local impairments of excess nitrate, sulfate, and volatile organic compounds (DWR 2003).

Conveyance Facilities

California Aqueduct/San Luis Canal The California Aqueduct (SWP) and San Luis Canal (CVP) is a joint-use facility. The San Luis Canal is the Federally-built and operated section and extends 102.5 miles from O'Neill Forebay in a southeasterly direction to a point west of Kettleman City. At this point, the facility becomes the State's California Aqueduct; however, the Aqueduct actually begins at the Banks Pumping Plant where the canal conveys water pumped from the Sacramento-San Joaquin River Delta directly into O'Neill Forebay.

Cross Valley Canal The CVC, a locally-financed facility completed in 1975. The canal extends from the California Aqueduct near Tupman to Bakersfield. It consists of four reaches consisting of 6 pumping lifts, which has a capacity of 1,400 cubic-feet per second (cfs) from the Aqueduct to AEWS's Intake Canal (also near the FKC terminus and Kern River). The CVC "extension", an unlined canal, continues past AEWS Intake Canal, of which is rated 342 cfs and has an additional 2 pumping lifts. The CVC is a joint-use facility owned by various "Participants", of which AEWS is but one participant. The CVC, which is operated by the KCWA, can convey water from the Aqueduct to the Kern Water Bank, the City of Bakersfield groundwater recharge facility, the Berrenda Mesa Property, the Pioneer Banking Project, the Kern River channel, to AEWS's Intake Canal, or to various member units of KCWA and other districts who have access to the CVC. The CVC is also capable of conveying water, in reverse flow-gravity mode, to the Aqueduct. In 2008, as part of the CVC expansion project, an additional 500 cfs turnout was constructed from the FKC that can deliver water by gravity into either the AEWS Intake Canal or the CVC.

Friant-Kern Canal The FKC carries water over 151.8 miles in a southerly direction 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 2010). The water conveyed in the FKC is from the San Joaquin River and is considered to be of pristine quality because it originates from snow melt from the Sierra Nevada. The water is used for municipal and industrial, and agricultural purposes in Fresno, Tulare, and Kern Counties. The FKC is a part of the CVP, which annually delivers about seven million AF of water for agricultural, urban, and wildlife use.

3.1.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not approve the proposed exchange of AEWS's CVP water for MWD's SWP water. AEWS would retain their Friant Division CVP supplies and recaptured interim flows stored in SLR, and use them as allowed under their contract to meet in-district irrigation demands or apply the water to spreading works for groundwater recharge, if available capacities exist. As a result, AEWS would fulfill its obligation to return water under the Program by extracting/pumping previously banked SWP supplies for delivery to MWD. MWD would use this water to satisfy their customers' needs.

AEWSD would not have the ability to capture and regulate wet year type supplies that would help offset groundwater extraction and/or have supplies for recharge later in the year. MWD would not get the Friant CVP water and associated water quality benefits. There also would not be any benefits to the environment from the reduction in power generation.

There would be no additional impacts to any of the conveyance facilities and water resources listed in the affected environment from what was already analyzed under the Program. There would be no impacts to the SJRRP (unless the water is not taken), its projects, and objectives.

Proposed Action

The Proposed Action would allow AEWSD to deliver their CVP supplies to MWD in exchange for MWD's SWP water (including previously banked SWP). MWD would not experience a net gain or loss in water supply as compared to the Program arrangement, nor would it hinder the Program's ability to continue operating as has historically occurred.

Allowing AEWSD to temporarily send CVP water to MWD for return within a 12-month period would allow AEWSD to better manage supply that is already available to AEWSD but for which there isn't any instantaneous grower demands and/or available recharge capacity within the District to fill. AEWSD would have the ability to better utilize this supply as a result of this temporary exchange. This may allow AEWSD to reduce or eliminate groundwater extractions to meet deficient supply later in the year and/or direct groundwater recharge in their recharge basins later in the year (regulate supply).

Both AEWSD and MWD would not experience a net gain or loss in their respective water supplies under the Proposed Action since the exchange would be "bucket for bucket". AEWSD would still have sufficient water resources to provide to their landowners for agricultural purposes and MWD would use this water to supplement their reduced SWP supplies in order to meet its customers' demand for municipal and industrial use. The Proposed Action could improve the timing in delivery, increase return volumes (return rates could be greater than instantaneous well extraction rates and/or potential capacity limitations), and improve water quality for MWD.

The Proposed Action would not increase groundwater pumping from what has historically occurred within the Kern County Subbasin by AEWSD, but has the potential to reduce groundwater pumping. In addition to adopting a groundwater management plan, AEWSD has successfully operated a conjunctive use program by which to balance its surface and groundwater supplies. Surface water imported into the district is used to recharge the groundwater through AEWSD's many spreading works if not used immediately for agricultural irrigation purposes. The Proposed Action would allow AEWSD to exchange its CVP water supplies for MWD's SWP supplies (including previously banked water). Aside from the 10 percent loss factor left in the groundwater bank as part of the Program, there would be no net gain or loss to groundwater levels underlying AEWSD from implementing the Proposed Action. There would be no measurable changes to the groundwater basin underlying MWD since the water would be used for municipal and industrial purposes, and little, if any, water would seep into the groundwater basin. The supplemental water would be used to satisfy current customers' needs and could alleviate the region's reliance on groundwater pumping; however, groundwater

pumping as part of the region's conjunctive use practice would continue as has historically occurred and would occur with or without the Proposed Action.

The CVC, CVP and SWP facilities would not be impacted as the Proposed Action must be scheduled and approved by KCWA, Reclamation and DWR, respectively. If a canal capacity prorate is required during the period this water is moving through the FKC, the prorate priority shall be pursuant to the tiers defined in Section VII of the Operational Guidelines for Water Service, Friant Division CVP, dated March 18, 2005. Additionally, the exchange must be conducted in a manner that would not harm other CVP contractors or other CVP contractual or environmental obligations, or SWP contractors. Therefore, normal obligations by the overseeing agencies to deliver water to their contractors and other obligations would not be impacted. In continuance of commitments from the Program, existing Aqueduct Pump-in Facilitation Group guidelines would followed by both AEWS and KCWA when introducing water into the Aqueduct to insure that water quality would not be adversely impacted.

Cumulative Impacts

No adverse cumulative impacts to water resources is expected as the Proposed Action would likely have similar results as the No Action Alternative as surface water would be delivered to the same general area for irrigation and recharge.

3.2 Land Use

3.2.1 Affected Environment

Arvin-Edison Water Storage District

AEWS includes the City of Arvin and is located in the proximity of the unincorporated communities of Edison, Lamont, Mettler, and DiGiorgio. The vast majority of farmland in the AEWS's service area is classified as Irrigated Farmland by the California Department of Conservation (DOC 2010). The second main farmland classification in the service area is Non-irrigated Farmland.

Agriculture, in the form of row crops, orchards and vineyards, is the primary land use in the region. The Kern County General Plan designates most areas within the AEWS service area as "intensive agriculture". Supplemental irrigation is required for these activities as the area receives an average of only 8.5 inches of rainfall per year. Other agricultural uses, while not directly dependent on irrigation for production, are also consistent with the intensive agriculture designation. The minimum parcel size is 20 acres and permitted uses include, but are not limited to, irrigated cropland, orchards, vineyards, horse ranches, beekeeping, ranch and farm facilities, and related uses. One single-family dwelling unit is permitted per 20-acre parcel (KCPD 2007).

Metropolitan Water District

The Southern California Association of Governments area comprises the bulk of MWD's service area both in terms of area and water usage. Only 10 percent of the region is urbanized. The remainder is largely uninhabited mountain and desert area, rich in natural resources.

Principal land use trends include densification of existing residential and commercial areas, urban fill on scattered pockets of vacant land, extension of urban development into hillside and mountainous terrain and suburban expansion on the perimeter of the urbanized regions with new planned developments. Such trends are operating differently in various sub regions, depending upon their respective histories, locations and socio-economic influences. City and county regional plans reflect mainly incremental changes to existing land use in coastal areas, while major expansions of the new urban development are shown for undeveloped land in outlying valleys and desert areas.

3.2.2 Environmental Consequences

No Action

Under the No Action Alternative, AEWS D would deliver banked SWP supplies in the form of pumped groundwater back to MWD as originally arranged and analyzed under the Program. Therefore, no new land use impacts associated with the No Action Alternative would occur.

Proposed Action

As to facilitating the return of previously banked water under the Program, the Proposed Action would utilize existing facilities to convey waters involved and would not require the need to construct new facilities or modifications to existing facilities that would result in ground disturbance. The exchange would be “bucket for bucket”; therefore, AEWS D and MWD would not experience a net gain or loss in water supply available to them. MWD would exchange an equivalent amount of banked SWP water under the Program for AEWS D’s CVP supplies. The SWP water exchanged would change in ownership over to AEWS D and remain in AEWS D’s groundwater bank. At a time of its choosing, AEWS D would pump the banked water and deliver it to their landowners for existing agricultural purposes.

Allowing AEWS D to temporarily send CVP water to MWD for return in the same year would allow AEWS D to better manage supply that is already available to AEWS D but for which there isn’t any instantaneous grower demands and/or available recharge capacity within the District. AEWS D would have the ability to better utilize this supply as a result of this temporary exchange which may allow AEWS D to reduce or eliminate groundwater extractions to meet deficient supply later in the year and/or groundwater recharge in their recharge basins later in the year (regulate supply).

AEWS D would not experience a decrease in water supply that would impact existing irrigated farmlands within its service area, nor would the banked or return water be used to cultivate native or fallowed land that has been in those conditions for three or more consecutive years. MWD intends to use the exchanged CVP water to supplement its water supplies for existing municipal and industrial purposes within its service area, and would not contribute to any potential expansion within the area. Therefore, the Proposed Action would not have any impacts on existing land use.

Cumulative Impacts

In recent years, land use changes within the San Joaquin Valley have involved the urbanization of agricultural lands. These types of changes are typically driven by economic pressures and are

as likely to occur with or without the Proposed Action; therefore, no cumulative effects to land use are expected as a result of the Proposed Action.

3.3 Biological Resources

3.3.1 Affected Environment

A Special-Status species list for the AEWS D service area was obtained from the USFWS Sacramento Field Office, on January 18, 2012 (File Number 120118023519). On January 18, 2012 a species list for the MWD was requested from the Ventura and Carlsbad Service Offices. Reclamation further queried the California Natural Diversity Database (CNDDB) for records of protected species within 10 miles of the project location (CNDDB 2012). The USFWS and CNDDB data, in addition to other information within Reclamation's files, was compiled into Tables 3-1 and 3-2 for AEWS D and MWD, respectively.

Table 3-1 Federal status species that could potentially occur within AEWS D

<u>Species</u>	<u>Status¹</u>	<u>Effects²</u>
Amphibians		
California red-legged frog (<i>Rana aurora draytonii</i>)	T	NE
Birds		
California Condor (<i>Gymnogyps californianus</i>)	E	NE
southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	E	NE
Fish		
delta smelt (<i>Hypomesus transpacificus</i>)	T	NE
Invertebrates		
valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	T	NE
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	T	NE
Mammals		
Buena Vista Lake shrew (<i>Sorex ornatus relictus</i>)	E, X	NE
giant kangaroo rat (<i>Dipodomys ingens</i>)	E	NE
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	E	NE
Tipton kangaroo rat (<i>Dipodomys nitratoide nitratoide</i>)	E	NE
Plants		
Bakersfield cactus (<i>Opuntia treleasei</i>)	E	NE
California jewelflower (<i>Caulanthus californicus</i>)	E	NE
San Joaquin adobe sunburst (<i>Pseudobahia peirsonii</i>)	T	NE
San Joaquin woolly-threads (<i>Monolopia congdonii</i>)	E	NE
Source list: USFWS Sacramento Office 2012 1 Status= Listing of Federally special status species E: Listed as Endangered T: Listed as Threatened X: Critical Habitat designated for this species 2 Effects = Endangered Species Act Effect determination NE: No Effect		

Table 3-2 Federal status species that could potentially occur within MWD

<u>Species</u>	<u>Status</u>¹	<u>Effects</u>²
Reptiles		
blunt-nosed leopard lizard (<i>Gambelia sila</i>)	E	NE
giant garter snake (<i>Thamnophis gigas</i>)	T	NE
Amphibians		
Arroyo toad (<i>Bufo californicus</i>)	E, X	NE
California red-legged frog (<i>Rana aurora draytonii</i>)	T, X	NE
Birds		
California Condor (<i>Gymnogyps californianus</i>)	E	NE
California Least tern (<i>Sterna antillarum browni</i>)	E, X	NE
Coastal California gnatcatcher (<i>Polioptila californica californica</i>)	T, X	NE
Least Bell's vireo (<i>Vireo bellii pusillus</i>)	E	NE
Light-Footed Clapper rail (<i>Rallus longirostris levipes</i>) Population: U.S.A. only	E	NE
Marbled murrelet (<i>Brachyramphus marmoratus</i>) Population: CA, OR, WA	T	NE
southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	E, X	NE
Western Snowy plover (<i>Charadrius alexandrinus nivosus</i>) Population: Pacific coastal pop.	T, X	NE
Fish		
Santa Ana sucker (<i>Catostomus santaanae</i>) Population: 3 CA river basins	T, X	NE
steelhead (<i>Oncorhynchus mykiss</i>) Population: southern CA coast	E, X	NE
Tidewater goby (<i>Eucyclogobius newberryi</i>)	E, X	NE
Invertebrates		
Delhi Sands Flower-Loving fly (<i>Rhaphiomidas terminatus abdominalis</i>)	E	NE
El Segundo Blue butterfly (<i>Euphilotes battoides allyni</i>)	E	NE
Palos Verdes Blue butterfly (<i>Glaucopsyche lygdamus palosverdesensis</i>)	E	NE
Quino Checkerspot butterfly (<i>Euphydryas editha quino</i>)	E, X	NE
Riverside fairy shrimp (<i>Streptocephalus woottoni</i>)	E, X	NE
San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>)	E, X	NE
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	T	NE
Mammals		
Pacific Pocket mouse (<i>Perognathus longimembris pacificus</i>)	E	NE
San Bernardino Merriam's kangaroo rat (<i>Dipodomys merriami parvus</i>)	E	NE
Stephens' kangaroo rat (<i>Dipodomys stephensi</i>)	E	NE
Plants		NE
Big-Leaved crownbeard (<i>Verbesina dissita</i>)	T	NE
Brand's phacelia (<i>Phacelia stellaris</i>)	C	NE
Braunton's milk-vetch (<i>Astragalus brauntonii</i>)	E, X	NE
California Orcutt grass (<i>Orcuttia californica</i>)	E	NE
Coastal Dunes milk-vetch (<i>Astragalus tener</i> var. <i>titi</i>)	E	NE
Conejo dudleya (<i>Dudleya abramsii</i> ssp. <i>parva</i>)	T	NE

<u>Species</u>	<u>Status</u> ¹	<u>Effects</u> ²
Del Mar Manzanita (<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>)	E	NE
Encinitas baccharis (<i>Baccharis vanessae</i>)	T	NE
Gambel's watercress (<i>Rorippa gambellii</i>)	E	NE
Laguna Beach liveforever (<i>Dudleya stolonifera</i>)	T	NE
Lyon's pentachaeta (<i>Pentachaeta lyonii</i>)	E, X	NE
Marcescent dudleya (<i>Dudleya cymosa</i> ssp. <i>marcescens</i>)	T	NE
Marsh Sandwort (<i>Arenaria paludicola</i>)	E	NE
Mexican flannelbush (<i>Fremontodendron mexicanum</i>)	E	NE
Munz's onion (<i>Allium munzii</i>)	E, X	NE
Nevin's barberry (<i>Berberis nevinii</i>)	E	NE
Orcutt's hazardia (<i>Hazardia orcuttii</i>)	C	NE
Orcutt's spineflower (<i>Chorizanthe orcuttiana</i>)	E	NE
Otay mesa-mint (<i>Pogogyne nudiuscula</i>)	E	NE
Otay tarplant (<i>Deinandra conjugens</i>)	T, X	NE
Salt Marsh bird's-beak (<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>)	E	NE
San Diego ambrosia (<i>Ambrosia pumila</i>)	E, X	NE
San Diego button-celery (<i>Eryngium aristulatum</i> var. <i>parishii</i>)	E	NE
San Diego mesa-mint (<i>Pogogyne abramsii</i>)	E	NE
San Diego thornmint (<i>Acanthomintha ilicifolia</i>)	T, X	NE
San Fernando Valley Spineflower (<i>Chorizanthe parryi</i> var. <i>fernandina</i>)	C	NE
San Jacinto Valley crownscale (<i>Atriplex coronata</i> var. <i>notatior</i>)	E	NE
Santa Ana River woolly-star (<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>)	E	NE
Santa Monica Mountains dudleyea (<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>)	T	NE
Slender-Horned spineflower (<i>Dodecahema leptoceras</i>)	E	NE
Spreading navarretia (<i>Navarretia fossalis</i>)	T, X	NE
Thread-Leaved brodiaea (<i>Brodiaea filifolia</i>)	T, X	NE
Vail Lake ceanothus (<i>Ceanothus ophiocylus</i>)	T	NE
Ventura Marsh Milk-vetch (<i>Astragalus pycnostachyus</i> var. <i>lanosissimus</i>)	E	NE
Verity's dudleya (<i>Dudleya verityi</i>)	T	NE
Willow monardella (<i>Monardella linoides</i> ssp. <i>viminea</i>)	E, X	NE
Source: USFWS Ventura and Carlsbad Service Offices 2012		
1 Status= Listing of Federally special status species C: Listed as Candidate E: Listed as Endangered T: Listed as Threatened X: Critical Habitat designated for this species 2 Effects = Endangered Species Act Effect determination NE: No Effect		

3.3.2 Environmental Consequences

No Action

Under the No Action Alternative, there would be no effects to biological resources since conditions would remain the same as existing conditions.

Proposed Action

Under the Proposed Action the affects are similar to the No Action Alternative. Most of the habitat types required by species protected by the Endangered Species Act (ESA) no longer occur in the Proposed Action area (Reclamation 1999). The Proposed Action would not involve the conversion of any land fallowed and untilled for three or more consecutive years. The Proposed Action also would not change the land use patterns of cultivated or fallowed fields potentially have some value to listed species or to birds protected by the Migratory Bird Treaty Act (MBTA). Since no natural stream courses would be affected or additional pumping would occur, there would be no effects on listed fish species. No critical habitat occurs within the area affected by the Proposed Action therefore, none of the primary constituent elements of any critical habitat would be affected. Considering the above limitations, Reclamation has determined that there would be No Effect to listed species or designated critical habitat under the ESA (16 U.S.C. §1531 et. seq.) for the proposed federal action of approving this Assignment.

Cumulative Impacts

Existing conditions, such as loss of habitat due to urbanization and expanding agricultural lands that cumulatively impact listed species and their habitats, are expected to occur with or without the Proposed Action. The exchange of AEWS's CVP water for MWD's SWP water is not expected to contribute cumulatively to habitat loss as this water would be used consistent with current uses. Therefore, there would be no cumulative adverse impacts to biological resources as a result of the Proposed Action.

3.4 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.

The Section 106 process is outlined in the Federal regulations at 36 Code of Federal Regulations (CFR) Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking would have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects (APE), determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation

Office (SHPO), to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties. Reclamation uses the Section 106 process to identify and consider impacts to cultural resources that may be affected by actions outlined in this EA/IS.

3.4.1 Affected Environment

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

Resources within the scope of this project include historic features of the built environment primarily those of the CVP and SWP. Components of the CVP have been determined eligible for inclusion in the National Register and have been prepared for inclusion in the National Register through a multiple property nomination. The CVP multiple property nomination is currently being reviewed for submission to the Keeper of the National Register for inclusion in the National Register.

Friant Dam is located on the San Joaquin River, northeast of Fresno, California. Completed in 1942, the dam is a concrete gravity structure, 319 feet high, with a crest length of 3,488 feet. Construction of the canal began in 1945 and was completed in 1951. Both Friant Dam and the FKC are considered contributing elements of the CVP multiple property listing and are considered eligible for inclusion in the National Register. The San Luis Unit is a joint Federal and State project. The Federal components of the San Luis Unit include O'Neil Pumping Plant and Intake Canal, Coalinga Canal, Pleasant Valley Pumping Plant, and the San Luis Drain. The features of the San Luis Unit are not considered contributing features of the CVP's National Register status. Additionally, the features of the San Luis Unit were all completed in the late 1960's and are not yet eligible for inclusion in the National Register.

3.4.2 Environmental Consequences

No Action

Under the No Action Alternative, there would be no Federal undertaking as described in the NHPA at Section 301(7). As a result, Reclamation would not be obligated to implement Section 106 of that NHPA and its implementing regulations at 36 CFR Part 800. Because there is no undertaking, impacts to cultural resources would not be evaluated through the Section 106 process. All operations would remain the same, resulting in no impacts to cultural resources.

Proposed Action

The Proposed Action to exchange water as described in the Section 2.2 of this EA/IS constitutes an undertaking as pursuant to Section 301(7) of the NHPA, initiating Section 106 of the NHPA and its implementing regulations at 36 CFR Part 800. All exchanges would occur through existing facilities and water would be provided within existing service area boundaries to areas that currently use water. The Proposed Action would not result in modification of any existing facilities, construction of new facilities, change in land use, or growth. Because the Proposed Action would result in no physical alterations of existing facilities and no ground disturbance as stipulated in Section 2.2 of this EA/IS, Reclamation concludes that the Proposed Action has no potential to cause effect to historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1), and would result in no impacts to cultural resources (Appendix A).

Cumulative Impacts

No cumulative impacts would result from the proposed action as there is no land disturbance or direct impacts.

3.5 Indian Sacred Sites

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

3.5.1 Affected Environment

Native American consultation activities consisted of a Sacred Lands File Search performed by the Native American Heritage Commission (NAHC); no resources were identified during this activity. Project notification letters and requests for consultation were sent to the designated Native American area contacts as identified by the NAHC. No responses were received from the Native American representatives regarding the Proposed Action.

3.5.2 Environmental Consequences***No Action***

There would be no impacts to sacred sites as conditions would remain the same as existing conditions.

Proposed Action

At this time, no Indian sacred sites have been identified. In addition, the Proposed Action would not impede access to or ceremonial use of Indian sacred sites. If sites are identified in the future, Reclamation would comply with Executive Order 13007.

Cumulative Impacts

Should any sacred sites be identified in the future, Reclamation would comply with Executive Order 13007. This would ensure that no cumulative impacts would occur that could impede access to or ceremonial use of Indian sacred sites due to the Proposed Action.

3.6 Indian Trust Assets

ITA are legal interests in assets that are held in trust by the U.S. Government for Federally recognized Indian tribes or individuals. The trust relationship usually stems from a treaty, executive order, or act of Congress. The Secretary of the Interior is the trustee for the United States on behalf of Federally recognized Indian tribes. “Assets” are anything owned that holds monetary value. “Legal interests” means there is a property interest for which there is a legal remedy, such a compensation or injunction, if there is improper interference. ITA cannot be sold, leased or otherwise alienated without the United States’ approval. Assets can be real property, physical assets, or intangible property rights, such as a lease, or right to use something; which may include lands, minerals and natural resources in addition to hunting, fishing, and water rights. Indian reservations, rancherias, and public domain allotments are examples of lands that are often considered trust assets. In some cases, ITA may be located off trust land.

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

3.6.1 Affected Environment

The nearest ITA is a Public Domain Allotment approximately 38 miles east of the Proposed Action location.

3.6.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not approve the exchange and conditions would remain the same as existing conditions; therefore, there would be no impacts to ITA.

Proposed Action

Approval of the exchange between AEWS and MWD would not involve any construction on lands or impact water, hunting, and fishing rights associated with the nearest ITA listed in the affected environment. Therefore, the Proposed Action does not have a potential to affect ITA.

Cumulative Impacts

There are no ITA in the action area; therefore, the Proposed Action when added to previous and reasonably foreseeable banking activities do not contribute to cumulative impacts to ITA.

3.7 Environmental Justice

3.7.1 Affected Environment

The February 11, 1994, Executive Order 12898 requires Federal agencies to ensure that their actions do not disproportionately impact minority and disadvantaged populations. The market for seasonal workers on local farms draws thousands of migrant workers, commonly of Hispanic origin from Mexico and Central America, into the San Joaquin Valley. Agriculture and related

businesses are the main industry within AEWS, which provides employment opportunities for these minority and/or disadvantaged populations.

MWD would still receive water supplies to supplement their current SWP supplies under the No Action Alternative or the Proposed Action. As a result, disproportional impacts to minority and disadvantaged populations would not occur within MWD, and is not discussed further in Section 3.7.2 below.

3.7.2 Environmental Consequences

No Action

The No Action Alternative would not result in harm to minority or disadvantaged populations within the vicinity of AEWS since the district would not experience a net gain or loss in water supply that would otherwise be used to irrigate farmlands which these populations depend upon for employment opportunities.

Proposed Action

Similar to the No Action Alternative, the Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease within the affected environment. The Proposed Action would not disproportionately impact economically disadvantaged or minority populations. The Proposed Action is intended to allow the expeditious delivery of surface water supplies available to AEWS and delivered to MWD in exchange for water supplies available to MWD (SWP or previously banked groundwater) over a 12-month period. Water so delivered would primarily serve to reduce energy use with attendant cost savings and would also allow AEWS to increase their groundwater banking account to meet current and future summertime peaking demands, which would support agricultural jobs in the region.

Cumulative Impacts

The Proposed Action, when added to other existing and proposed actions, would have a slight beneficial contribution to cumulative impacts for minority or disadvantaged populations as it would help support and maintain jobs that low-income and disadvantaged populations rely upon due to increased irrigation water supply reliability.

3.8 Socioeconomic Resources

3.8.1 Affected Environment

The agricultural industry significantly contributes to the overall economic stability of the San Joaquin Valley. The CVP allocations each year allow farmers to plan for the types of crops to grow and to secure loans to purchase supplies. Depending upon the variable hydrological and economical conditions, water transfers and exchanges could be prompted. The economic variances may include fluctuating agricultural prices, insect infestation, changing hydrologic conditions, increased fuel and power costs.

MWD would still receive water supplies to supplement their current SWP supplies under the No Action Alternative or the Proposed Action. As a result, MWD would not incur any impacts to its socioeconomic resources and is not discussed further in Section 3.8.2 below.

3.8.2 Environmental Consequences

No Action

Under the No Action Alternative, the exchange would not affect agricultural production within AEWS; therefore, the socioeconomic conditions within AEWS would remain the same as existing conditions.

Proposed Action

The Proposed Action would result in less energy use with virtually no changes in flow path from what was analyzed under the Program. This would save AEWS the energy and costs associated with otherwise pumping and returning groundwater. If AEWS is also directly recharging water to their groundwater at this time on their own behalf, it would also save AEWS the expenses associated with operating their recharge basins. Agricultural practices within AEWS would be within historical conditions and would not be adversely impacted by the implementing the Proposed Action.

Cumulative Impacts

Over the long term, the Proposed Action would benefit AEWS by increasing groundwater levels and dry year supplies. Improved conjunctive use operations and in-lieu banking could also allow AEWS's farmers to utilize surface supplies instead of groundwater supplies at times when MWD banks or returns water. This would subsequently help to maintain the economic viability of irrigated agriculture within the district. When added to other similar existing and proposed actions, the Proposed Action could contribute to beneficial cumulative impacts to socioeconomic resources within AEWS.

3.9 Air Quality

Section 176 (C) of the Clean Air Act [CAA] (42 U.S. Code [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. In this context, conformity means that such federal actions must be consistent with SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements would, in fact conform to the applicable SIP before the action is taken.

On November 30, 1993, the Environmental Protection Agency (EPA) promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed federal

action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by the Proposed Action equal or exceed certain *de minimis* amounts thus requiring the federal agency to make a determination of general conformity.

3.9.1 Affected Environment

The Proposed Action area lies within the San Joaquin Valley Air Basin (SJVAB) under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). NAAQS and California Ambient Air Quality Standards (CAAQS) have been established for the following criteria pollutants: carbon monoxide (CO), ozone (O₃), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), inhalable particulate matter between 2.5 and 10 microns in diameter (PM₁₀) and particulate matter less than 2.5 microns in diameter (PM_{2.5}), and lead. The CAAQS also set standards for sulfates, hydrogen sulfide, and visibility.

The pollutants of greatest concern in the San Joaquin Valley are CO, O₃, O₃ precursors such as reactive organic gases and nitrogen oxides (NO_x), as well as PM₁₀, and PM_{2.5}. The SJVAB has reached Federal and State attainment status for CO, NO₂, and SO₂. Federal attainment status has been reached for PM₁₀ but is in non-attainment for O₃ and PM_{2.5} (Table 3-2). State attainment status has also been reached for lead but is in non-attainment for O₃, PM₁₀, and PM_{2.5}. There are no established standards for NO_x; however, NO_x does contribute to NO₂ standards and is an O₃ precursor (SJVAPCD 2011).

Table 3-2 San Joaquin Valley Attainment Status

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
O ₃	8 Hour	0.070 ppm (137 µg/m ³)	Nonattainment	0.075 ppm	Nonattainment
	1 Hour	0.09 ppm (180 µg/m ³)	Nonattainment	--	--
CO	8 Hour	9.0 ppm (10 mg/m ³)	Attainment	9.0 ppm (10 mg/m ³)	Attainment
	1 Hour	20.0 ppm (23 mg/m ³)	Unclassified	35.0 ppm (40 mg/m ³)	Unclassified
NO ₂	Annual arithmetic mean	0.030 ppm (56 µg/m ³)	Attainment	0.053 ppm (100 µg/m ³)	Attainment
	1 Hour	0.18 ppm (338 µg/m ³)	Attainment	--	--
SO ₂	Annual average	--	--	0.03 ppm (80 µg/m ³)	Attainment
	24 Hour	0.04 ppm (105 µg/m ³)	Attainment	0.14 ppm (365 µg/m ³)	Attainment
	1 Hour	0.25 ppm (655 µg/m ³)	Attainment	--	--
PM ₁₀	Annual arithmetic mean	20 µg/m ³	Nonattainment	--	--
	24 Hour	50 µg/m ³	Nonattainment	150 µg/m ³	Attainment

PM _{2.5}	Annual Arithmetic mean	12 µg/m ³	Nonattainment	15 µg/m ³	Nonattainment
	24 Hour	--	--	35 µg/m ³	Attainment
Lead	30 day average	1.5 µg/m ³	Attainment	--	--
	Rolling-3 month average	--	--	0.15 µg/m ³	Unclassified

Source: CARB 2011; SJVAPCD 2011; 40 CFR 93.153

ppm = parts per million

mg/m³ = milligram per cubic meter

µg/m³ = microgram per cubic meter

-- = No standard established

3.9.2 Environmental Consequences

No Action

There would be no impacts to air quality as conditions would remain the same as existing conditions under this alternative.

Proposed Action

Under the Proposed Action, AEWS D would deliver their CVP supplies to fulfill its return obligation to MWD under the Program, instead of pumping and returning banked SWP water back to MWD, and regulate AEWS D CVP supplies within a one year period. Delivery of water would require no modification of existing facilities or construction of new facilities. In addition, water would be moved either via gravity or electric motors/pumps which would not produce emissions that impact air quality. Therefore, a conformity analysis is not required and there would be no impact to air quality as a result of the Proposed Action.

Cumulative Impacts

There would be no cumulative impacts to air quality as there would be no emissions that impact air quality or construction activities that would produce emissions that could cumulatively impact air quality.

3.10 Global Climate

Climate change refers to significant change in measures of climate (e.g., temperature, precipitation, or wind) lasting for decades or longer. Many environmental changes can contribute to climate change [changes in sun's intensity, changes in ocean circulation, deforestation, urbanization, burning fossil fuels, etc.] (EPA 2011a)

Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). Some GHG, such as carbon dioxide (CO₂), occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHG (e.g., fluorinated gases) are created and emitted solely through human activities. The principal GHG that enter the atmosphere because of human activities are: CO₂, methane, nitrous oxide, and fluorinated gasses (EPA 2011a).

During the past century humans have substantially added to the amount of GHG in the atmosphere by burning fossil fuels such as coal, natural gas, oil and gasoline to power our cars,

factories, utilities and appliances. The added gases, primarily CO₂ and methane, are enhancing the natural greenhouse effect, and likely contributing to an increase in global average temperature and related climate changes. At present, there are uncertainties associated with the science of climate change (EPA 2011b).

3.10.1 Affected Environment

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

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

California Assembly Bill 32, the Global Warming Solutions Act of 2006, mandates the reduction of GHG emissions in California to 1990 levels by the year 2020. Currently there are no established significance thresholds for GHG in the SJVAB or in California.

3.10.2 Environmental Consequences

No Action

There would be no impacts to global climate change as conditions would remain the same as existing conditions under this alternative.

Proposed Action

Electric pumps produce CO₂ that could potentially contribute to GHG. However, water under the Proposed Action is water that would be delivered from the FKC with or without the Proposed Action and is therefore part of the existing conditions. There would be no additional impacts to GHG as a result of the Proposed Action.

Cumulative Impacts

Impacts from GHG are considered to be cumulative impacts; however, delivery of water with or without the Proposed Action is part of the existing baseline conditions of the Central Valley and is not expected to produce additional GHG that could contribute to global climate change.

PAGE INTENTIONALLY LEFT BLANK

Section 4 CEQA Environmental Factors Potentially Affected

This section of the EA/IS includes the CEQA analysis portion of potentially affected issues that may result from implementation of the Proposed Action. Reference to the “Project” in this section is synonymous with the term “Proposed Action” used in other sections.

4.1 Discussion of Potentially Affected Environmental Factors

The Project is the exchange of a portion of AEWS’s CVP water supply for a like-amount of MWD’s SWP water supply, either by exchanging its CVP water supply for a like amount of MWD’s SWP supply already stored with AEWS’s groundwater bank or by capturing and delivering to MWD AEWS’s contract supplies not otherwise storable during wet periods for later return to AEWS on a schedulable basis.

The following is a discussion of each of the environmental factors potentially affected.

4.1.1 Aesthetics

The Project area is developed to production agriculture, which dominates the aesthetics of the surrounding area. No new lands would be planted in AEWS as a result of the Project. There would be no impact to this resource category as a result of this Project.

4.1.2 Agricultural Resources

As described in Section 4.1.1, no farmland would be converted to non-agricultural use as a result of the Project. Additionally, existing zoning would not be changed, and Williamson Act contracts would not be affected. As such, there would be no impact to agricultural resources as a result of this Project.

4.1.3 Air Quality

Impacts have been discussed in Section 3.9.

4.1.4 Biological Resources

Analysis of federally listed species and birds protected under the MBTA can be found in Section 3.3 above. A list of State-listed and special status species of concern relevant to CEQA was generated by Provost and Pritchard Consulting Group on August 3, 2011 using the California Department of Fish and Game Natural Diversity Database (CNDDB) RareFind2 data (2011, February) for the following USGS 7½ minute quadrangles that overlap AEWS: Bear Mountain, Arvin, Weed Patch, Mettler, Tejon Hills, Coal Oil Canyon, Bena, Lamont, and Edison. There are twelve plant species with federal, state, or California Native Plant Society (CNPS) listed status,

and sixteen species of wildlife that are federally or state-listed or have other special status that are reported from historical information as shown in Table 4-1.

Table 4-1 Federal and State-Listed Status

Scientific Name	Common Name	Special Status	CNPS
<i>Agelaius tricolor</i>	tricolored blackbird	SSC	
<i>Antrozous pallidus</i>	pallid bat	SSC	
<i>Asio otus</i>	long-eared owl	SSC	
<i>Astragalus hornii</i> var. <i>hornii</i>	Horn's milk-vetch		1B.1
<i>Athene cunicularia</i>	burrowing owl	SSC	
<i>Atriplex tularensis</i>	Bakersfield smallscale	SE	1A
<i>Buteo swainsoni</i>	Swainson's hawk	ST	
<i>Caulanthus californicus</i>	California jewel-flower	FE, SE	1B.1
<i>Caulanthus lemmonii</i>	Lemmon's jewel-flower		1B.2
<i>Clarkia tembloriensis</i> ssp. <i>calientensis</i>	Vasek's clarkia		1B.1
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	FT	
<i>Dipodomys nitratoideus nitratoideus</i>	Tipton kangaroo rat	FE, SE	
<i>Emys marmorata</i>	western pond turtle	SSC	
<i>Ensatina eschscholtzii croceator</i>	yellow-blotched salamander	SSC	
<i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>	Tejon poppy		1B.1
<i>Eumops perotis californicus</i>	western mastiff bat	SSC	
<i>Gambelia sila</i>	blunt-nosed leopard lizard	FE, SE	
<i>Layia heterotricha</i>	pale-yellow layia		1B.1
<i>Layia leucopappa</i>	Comanche Point layia		1B.1
<i>Lithobates pipiens</i>	northern leopard frog	SSC	
<i>Mimulus pictus</i>	calico monkeyflower		1B.2
<i>Monolopia congdonii</i>	San Joaquin woollythreads	FE	1B.2
<i>Navarretia setiloba</i>	Piute Mountains navarretia		1B.1
<i>Onychomys torridus tularensis</i>	Tulare grasshopper mouse	SSC	
<i>Opuntia basilaris</i> var. <i>treleasei</i>	Bakersfield cactus	FE, SE	1B.1
<i>Sorex ornatus relictus</i>	Buena Vista Lake shrew	FE, SSC	
<i>Stabilized Interior Dunes</i>	Stabilized Interior Dunes		
<i>Taxidea taxus</i>	American badger	SSC	
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	FE, ST	
Source: CNDDDB (8/3/2011)			
FE: Federally listed as Endangered			
FT: Federally listed as Threatened			
SE: State listed as Endangered			
ST: State listed as Threatened			
CSC: California Special Concern species by California Department of Fish and Game			
List 1B: Plants considered by the CNPS to be rare, threatened, or endangered in California and elsewhere			
List 2: Plants considered by the CNPS to be rare, threatened, or endangered in California but more common elsewhere			

As no construction or conversion of farmland would occur as a result of the Project, there would be no impacts to listed species that may occur in the Project area.

4.1.5 Cultural Resources

The Project does not involve construction activities that would alter a historical, archaeological or paleontological resource, or disturb any human remains. There would be no impact to Cultural Resources as a result of this Project.

4.1.6 Geology and Soils

Several faults are known to exist in Kern County near the Project (shown in the Mettler, Arvin and Edison Quadrangles) according to the Alquist-Priolo Earthquake Fault Zoning Map (DOC 2010). As this Project does not involve the construction of new facilities, the risk to people or structures by earthquake, ground shaking, liquefaction or landslides is negligible. As discussed in Section 4.1.1, no land conversion that could result in soil erosion or loss of topsoil would occur. There would be no impact to this resource category as a result of this Project.

4.1.7 Greenhouse Gas Emissions

Impacts have been discussed in Section 3.10.

4.1.8 Hazards and Hazardous Materials

The Project does not involve the generation of any hazardous emissions or involve the transport, use, storage, or disposal of any hazardous materials, and would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

The Project does not involve land that is listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control (California Department of Toxic Substances Control 2011). There would be no impact to this resource category as a result of this Project.

4.1.9 Hydrology and Water Quality

The water made available to AEWS and MWD as a result of the Project would be delivered through existing facilities and not alter the existing drainage pattern in the area, create runoff, or otherwise degrade water quality. Delivery of this water in-lieu of groundwater pumping or delivery to groundwater recharge basins would improve local groundwater conditions. There would be no impact to this resource category as a result of this Project.

4.1.10 Land Use and Planning

Impacts have been discussed in Section 3.2.

4.1.11 Mineral Resources

The Project does not involve construction or land alteration that would have the potential to impact the availability of any mineral resources or mineral resource recovery sites. There would be no impact to mineral resources as a result of this Project.

4.1.12 Noise

The facilities used to make the water deliveries as a result of this Project are already in place and in use – no additional noise or vibration would be generated as a result of this Project. There would be no impact to this resource category as a result of this Project.

4.1.13 Population and Housing

The Project does not include any features that would require the destruction or relocation of existing housing or the construction of replacement housing, and would not increase or decrease the number of available dwelling units in the area. The Project would not displace any people. The Project would have no effect on population growth. There would be no impact to this resource category as a result of this Project.

4.1.14 Public Services

The Project does not include any features or facilities that would require additional or unusual fire protection resources, enhanced levels of police protection, nor does it have the potential to increase or decrease the area's population, and would therefore not result in a greater or lesser demand for schools or parks. There would be no impact to this resource category as a result of this Project.

4.1.15 Recreation

The Project does not have the potential to increase or decrease the area's population, and would therefore not result in increased or decreased use of parks or other recreational facilities. Additionally, the Project does not include recreational facilities and would not require the construction or expansion of any recreational facilities. There would be no impact to this resource category as a result of this Project.

4.1.16 Transportation/Traffic

The Project does not involve construction or land alteration that would have the potential to impact transportation, create additional traffic, or affect emergency access. There would be no impact to this resource category as a result of this Project.

4.1.17 Utilities and Service Systems

The Project would not result in a change to facilities or operations at existing wastewater basins, nor would it require additional water supplies or generate wastewater. The amount of runoff at

the Project area would not change as a result of this Project nor would implementation of the Project generate any solid waste. There would be no impact to this resource category as a result of this Project.

4.2 Mandatory Findings of Significance

The analysis conducted in this EA/IS results in a determination that the project would have no significant effect on the local environment. The project would involve no potential for significant impacts through the degradation of the quality of the environments, the reduction in the habitat or population of fish or wildlife, including endangered plants or animals, the elimination of a plant or animal community or example of a major period of California history or prehistory. The project would not result in substantial adverse effects on human beings, either directly or indirectly.

PAGE INTENTIONALLY LEFT BLANK

Section 5 Consultation and Coordination

5.1 Public Review Period

Reclamation and AEWSD provided the public with an opportunity to comment on the Draft Finding of No Significant Impact and Draft EA/IS during a 30 day public comment period beginning February 22, 2012 and ending March 22, 2012.

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

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. The amendments enacted in 1946 require consultation with the Service and State fish and wildlife agencies “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 does not involve any new impoundment or diversion of waters, channel deepening, or other control or modification of a stream or body of water as described in the statute as the Proposed Action. Consequently, Reclamation has determined that the FWCA does not apply.

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

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

The Proposed Action would not change land use patterns, no ground disturbing activities would take place, and water from this assignment comes from an existing allocation which would not require additional diversions. Based upon the above limitations, Reclamation has determined that there would be No Effect to listed species or designated critical habitat under the ESA (16 U.S.C. §1531 et. seq.) for the proposed federal action of approving this Assignment.

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

The NHPA of 1966, as amended, is the primary legislation that outlines the Federal government’s responsibility to cultural resources. Cultural resources include both archaeological and built environment resources. Section 106 of the NHPA requires that Federal agencies take

into consideration the effects of their undertakings on historic properties. Historic properties are cultural resources that are included in, or eligible for inclusion in, the National Register. The 36 CFR Part 800 regulations implement Section 106 of the NHPA and outline the procedures necessary for compliance with the NHPA. Compliance with the Section 106 process follows a series of steps that are designed to identify if cultural resources are present and to what level they would be affected by the proposed Federal undertaking. The Proposed Action would not change land use patterns, no ground disturbing activities would take place, and water from this assignment comes from an existing allocation which would not require additional diversions. As such, the Proposed Action has no potential to affect historic properties pursuant to 36 CFR 800.3(a)(1).

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

The Migratory Bird Treaty Act 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.

The Proposed Action would not change land use patterns, no ground disturbing activities would take place, and water from this assignment comes from an existing allocation which would not require additional diversions. Based upon the above limitations, Reclamation has determined the exchange of AEWS's CVP water for MWD's SWP water would not impact migratory birds.

5.6 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 as there are none in the Proposed Action location.

Section 6 List of Preparers and Reviewers

Reclamation

Rena Ballew, Repayment Specialist, SCCAO – Reviewer/Preparer

Jennifer Lewis, Ph. D., Wildlife Biologist, SCCAO -Preparer

Scott Williams, Archaeologist, MP-153-Preparer

Patricia Rivera, Indian Trust Assets, MP-400

Chuck Siek M.A., Supervisory Natural Resource Specialist-Preparer

Provost and Prichard

Rick Besecker, Water Resources Specialist

Richard Moss, Principle Engineer

Arvin-Edison Water Storage District

Steve Collup

Jeevan Muhar

PAGE INTENTIONALLY LEFT BLANK

Section 7 References

- Addendum, 2002. Addendum to the Negative Declaration for the Arvin-Edison Water Management Project. Metropolitan Water District. December, 2002.
- 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.
- California Air Resources Board. 2011. California Air Basins. Website: <http://www.arb.ca.gov/knowzone/basin/basin.htm> Accessed: August 2011.
- California Department of Conservation (DOC) 2010 . Official Maps of Earthquake Fault Zones delineated by the California Geological Survey through December 2010. Website: http://www.quake.ca.gov/gmaps/ap/ap_maps.htm. Accessed: August 2011.
- California Department of Toxic Substances Control. 2011. Website: <http://www.envirostor.dtsc.ca.gov/public/> Accessed: August 2011.
- California Department of Fish and Game Natural Diversity Database (CNDDB). 2012. RareFind version 3.1.1 (data from 1/1/12) accessed January 2012.
- California Department of Water Resources (DWR). 2003. *California's Groundwater: Bulletin 118 Update 2003*. Sacramento, CA.
- Environmental Protection Agency (EPA). 2011a. Climate Change, Basic Information. Website: <http://www.epa.gov/climatechange/basicinfo.html>. Accessed: March 2011.
- Environmental Protection Agency (EPA). 2011b. Climate Change, Science. Website: <http://www.epa.gov/climatechange/science/index.html>. Accessed: March 2011.
- Hansen, G. E., and J. M. Brode. 1980. Status of the giant garter snake, *Thamnophis couchi gigas* (Fitch). California Department of Fish & Game, Inland Fisheries Endangered Species Program Special Publication Report. 80-5: 1-14.
- Kern County Planning Department (KCPD) 2007. Kern County General Plan, 2007. Website: <http://www.co.kern.ca.us/planning/pdfs/kcgp/KCGP.pdf>. Accessed: August, 2011.
- Program (Water Management Program). 1996. Arvin-Edison Water Management Project Initial Study/Negative Declaration. Arvin-Edison Water Storage District. May, 1996.
- Reclamation (Bureau of Reclamation). 1999. Final Programmatic Environmental Impact Statement for the Implementation of the CVPIA. October 1999.

Reclamation (Bureau of Reclamation). 2009. Arvin-Edison Water Storage District / Metropolitan Water District 2009-2010 Water Exchange Program Final Environmental Assessment and Finding of No Significant Impact. Updated December 2009.

Reclamation (Bureau of Reclamation). 2009a. San Joaquin River Restoration Program Water Year 2010 Interim Flows Project Final Environmental Assessment/Initial Study and Finding of No Significant Impact/Mitigated Negative Declaration. September 9, 2009.

Reclamation (Bureau of Reclamation). 2010. Arvin-Edison Water Storage District / Metropolitan Water District 2010-2011 Water Exchange Program Final Environmental Assessment and Finding of No Significant Impact. September 2010.

Reclamation (Bureau of Reclamation). 2010a. Bureau of Reclamation website:
http://www.usbr.gov/projects/Project.jsp?proj_Name=Friant%20Division%20Project. Accessed: July, 2010.

Reclamation (Bureau of Reclamation). 2010b. Recirculation of Recaptured Water Year 2011 San Joaquin River Restoration Program Interim Flows Final Environmental Assessment and Finding of No Significant Impact. May 24, 2011.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2011. Ambient Air Quality Standards and Valley Attainment Status. Website:
<http://www.valleyair.org/aqinfo/attainment.htm>. Accessed: March 2011.

Taylor, D. W., and W. B. Davilla. 1986. Status survey of three plants endemic to the San Joaquin Valley and adjacent areas, California. U.S. Fish and Wildlife Service, Sacramento, CA, 131 pp.

U.S. Census Bureau. 2011. County Quick Facts. Website:
<http://quickfacts.census.gov/qfd/states/06000.html>. Accessed: March 2011.

USFWS (U.S. Fish and Wildlife Service). 2012. Sacramento Field Office: Federal Species List (document number 120118023519). Website:
http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists-form.cfm. Accessed: January 2012.

USFWS (U.S. Fish and Wildlife Service). 2012. Federal Species List from Ventura and Carlsbad Service: via the - Information, Planning, and Conservation System (IPaC) website, <http://ecos.fws.gov/ipac/> on January 18, 2012 (Version 1.4).