

RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Five-year Warren Act Contracts for Banta-Carbona Irrigation District, Byron-Bethany Irrigation District, Patterson Irrigation District, and West Stanislaus Irrigation District

EA-09-156



U.S. Department of the Interior
Bureau of Reclamation
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Mission Statements

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

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

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List of Acronyms, Abbreviations, and Definition of Terms

AF	acre-feet (the volume of water one foot deep and an acre in area)
AF/y	AF per year
APE	area of potential effects
BCID	Banta-Carbona Irrigation District
BBID	Byron Bethany Irrigation District
CAA	Clean Air Act
CCID	Central California Irrigation District
CDFG	California Department of Fish and Game
cfs	cubic feet per second
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CVO	Central Valley Operations Office
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
DMC	Delta-Mendota Canal
DOI	Department of Interior
DWR	California Department of Water Resources
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
Exchange Contractors	San Joaquin River Exchange Contractors
FWCA	Fish & Wildlife Coordination Act
GHG	greenhouse gases
ITA	Indian Trust Assets
MBTA	Migratory Bird Treaty Act
M&I	municipal and industrial
mg/L	milligrams per liter
NHPA	National Historic Preservation Act
NO _x	nitrous oxides
O ₃	Ozone
pCi/L	picocuries per liter
PID	Patterson Irrigation District
PM ₁₀	particulate matter less than 10 microns in diameter
Reclamation Service	Bureau of Reclamation U.S. Fish and Wildlife Service
SJV	San Joaquin Valley
SJVAB	San Joaquin Valley Air Basin

SJR	San Joaquin River
SLC	San Luis Canal
SLDMWA	San Luis & Delta-Mendota Water Authority
SOD	south-of-Delta
SWP	California State Water Project
µg/L	micrograms per liter
µS/cm	microSiemens per centimeter
VOC/ROG	volatile organic compounds/reactive organic gases
WSID	West Stanislaus Irrigation District

Section 1 Purpose and Need for Action

1.1 Background

The San Luis & Delta-Mendota Water Authority (SLDMWA), on behalf of its member agencies has requested approval of five-year Warren Act contracts for Contract Water Years 2010 through 2015 (March 1, 2010-February 28, 2016). Warren Act Contracts allow for the storage and conveyance of non-CVP water in Reclamation-owned CVP facilities for irrigation purposes when excess capacity exists in CVP facilities; however, conveyance and storage of non-CVP water is limited to the availability of excess capacity in CVP facilities and water quality.

The Warren Act (Act as of February, 21, 1911, CH. 141, (36 STAT. 925)) authorizes Reclamation to negotiate agreements to store or convey non-CVP water when excess capacity is available in federal facilities. The action area of the Proposed Action consists of the service areas of Banta-Carbona Irrigation District (BCID), Byron-Bethany Irrigation District (BBID), Patterson Irrigation District (PID), and West Stanislaus Irrigation District (WSID) in central California.

1.2 Purpose and Need

In 2010, and probably for several years to come, because of hydrologic conditions and/or regulatory constraints, the operation of the CVP by Reclamation will likely result in less water being made available to the south-of-Delta (SOD) CVP water service contractors and State Water Project (SWP) contractors than is required to meet the demands of their customers. California experienced dry years in 2007, 2008, and 2009. The California Department of Water Resources (DWR) is anticipating a fourth year of drought (DWR 2009a). In addition, due to operational, hydrological, and regulatory constraints, operation of the Federal Jones Pumping Plant will likely be limited and further reduce available CVP contract supplies in 2010. Pumping curtailments began in 2007 in response to Federal Judge Oliver Wanger's Delta Smelt Interim Remedy Order.

Water District members of the SLDMWA will need additional water to supplement their 2010 CVP water supply during another potential water shortage year. In order to proactively offset the effects of limited CVP contracts supplies, participating CVP contractors will need additional non-CVP water to supplement their CVP water supplies. The purpose of approving the Warren Act contracts is to allow participating districts to store and/or convey their non-CVP water through any available excess capacity in CVP facilities during water shortages. The flexibility in the timing of delivery afforded by storage would be advantageous to the districts during the summer growing season when water demand is at its peak.

1.3 Scope

This environmental assessment (EA) has been prepared to examine the impacts on the quality of the human environment as a result of No Action Alternative of not conveying non-CVP water in federal facilities, and the Proposed Action of conveying non-CVP water in federal facilities.

Under the Proposed Action, the following Districts are considered in the EA in the effects analysis and could potentially participate in this Proposed Action (see figure 1-1 location map):

- Byron Bethany Irrigation District
- Banta Carbona Irrigation District
- Patterson Irrigation District
- West Stanislaus Irrigation District

1.4 Potential Issues

The resources potentially affected by the Proposed Action and therefore analyzed within this EA include:

- Surface Water Resources
- Biological Resources
- Land Use
- Cultural Resources
- Indian Trusts Assets
- Socioeconomic Resources
- Environmental Justice
- Air Quality
- Global Climate Change
- Cumulative Effects

1.5 Reclamation's Legal Authorities and Jurisdiction

Several Federal laws, permits, licenses and policy requirements have directed, limited or guided the National Environmental Policy Act analysis and decision making process of this EA and include the following:

- *Reclamation States Emergency Drought Relief Act* – Section 102 of the Reclamation States Emergency Drought Relief Act of 1991 provides for use of Federal facilities and contracts for temporary water supplies, storage and conveyance of non-CVP water inside and outside project service areas for municipal and industrial (M&I), fish and wildlife and agricultural uses.
- *Reclamation States Emergency Drought Relief Act* - Section 305 of 1991, enacted March 5, 1992 (106 Stat. 59), also authorizes Reclamation to utilize excess capacity to convey non-CVP water.
- *Contracts for Additional Storage and Delivery of Water* – CVPIA of 1992, Title 34 (of Public Law 102-575), Section 3408, Additional Authorities (c) authorizes the Secretary

of the Interior to enter into contracts pursuant to Reclamation law and this title with any Federal agency California water user or water agency, State agency, or private nonprofit organization for the exchange, impoundment, storage, carriage, and delivery of CVP and non-CVP water for domestic, municipal, industrial, fish and wildlife, and any other beneficial purpose, except that nothing in this subsection shall be deemed to supersede the provisions of section 103 of Public Law 99-546 (100 Stat. 3051). The CVPIA is incorporated by reference.

- *Water Quality Standards* – Reclamation requires that the operation and maintenance of CVP facilities shall be performed in such manner as is practical to maintain the quality of raw water at the highest level that is reasonably attainable. Water quality and monitoring requirements are established by Reclamation to protect water quality in the DMC by ensuring that imported non-CVP water does not impair existing uses or negatively impact existing water quality conditions. These standards are updated periodically. The annual review for the approval of Warren Act contracts would be subject to the then-existing water quality standards. The water quality standards are the maximum concentration of certain contaminants that may occur in each source of non-CVP water. The water quality standards for non-CVP water to be conveyed and stored in federal facilities are currently those set out in Title 22 of the California Code of Regulations.
- Title XXXIV Central Valley Project Improvement Act, October 30, 1992, Section 3405 (a)
- Reclamation Reform Act, October 12, 1982
- Warren Act - Act as of February, 21, 1911, CH. 141, (36 STAT. 925) authorizes the Bureau of Reclamation (Reclamation) to negotiate agreements to store or convey non-CVP water when excess capacity is available in federal facilities

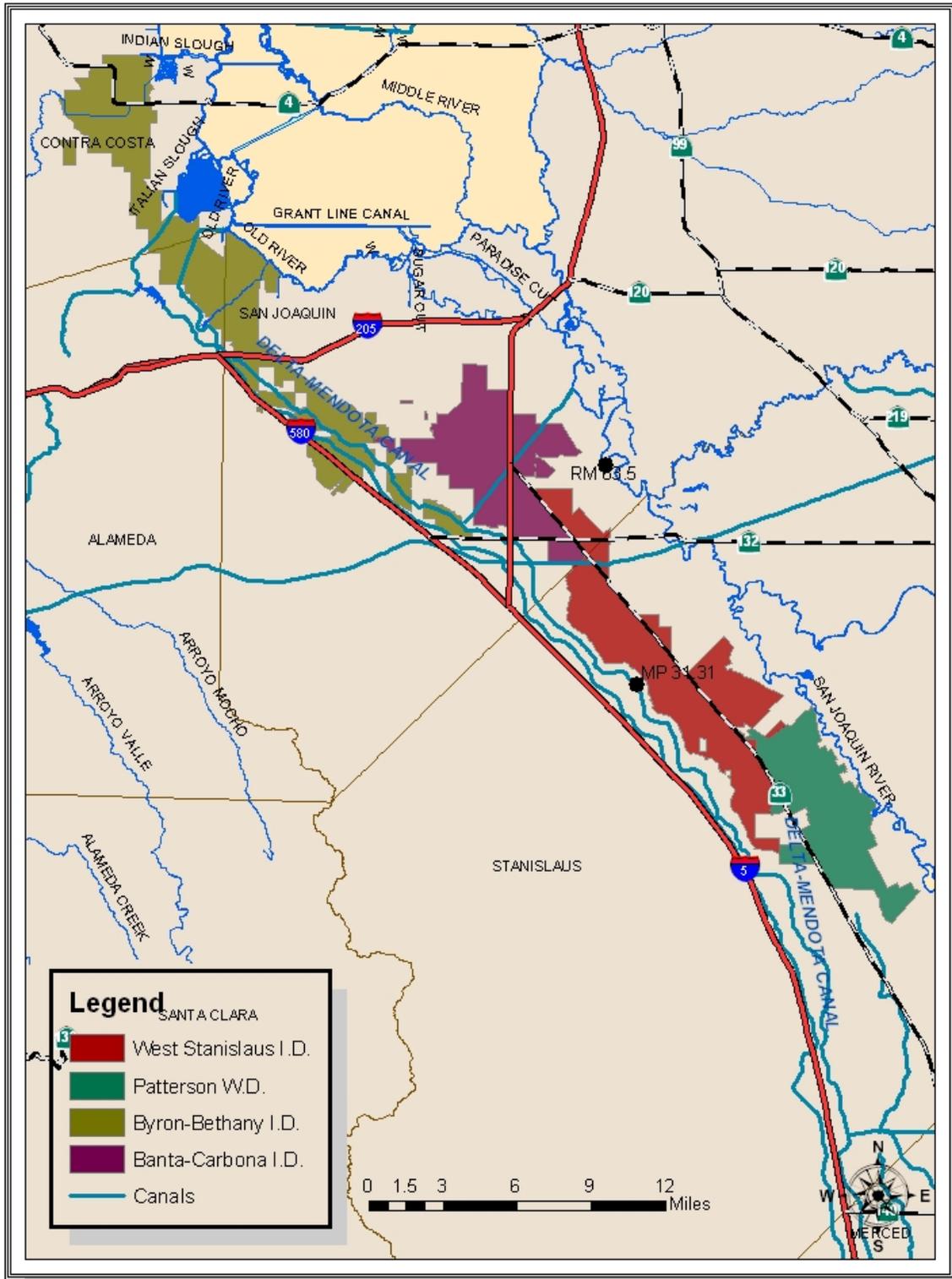


Figure 1-1 General Location Map

Section 2 Alternatives Including Proposed Action

2.1 Alternative A – No Action

Under the No Action Alternative, Reclamation would not issue the requested Warren Act contracts that would all for conveyance and storage of participating districts’ surface waters in CVP facilities.

2.2 Alternative B - Proposed Action

Reclamation proposes to issue five-year temporary Warren Act contracts in 2010 for the conveyance and storage of non-CVP (pre-1914 surface or State Water Resources Control Board License 3957) water in the DMC for up to 10,000 acre-feet per year (AF/y) per contractor (See Table 2-1) through contract water year 2015. All water would be moved before the end of the five-year period (contract year ending February 28, 2016). Conveyance of non-CVP water under a Warren Act contract would be subject to available capacity. All surface water pumped under the Warren Act contract is for storage and later use within district boundaries when the district’s demand exceeds the rate at which it may be diverted from the source.

Table 2-1 Warren Act Contract Amounts

District	Estimated Non-CVP Water pumping
Byron Bethany Irrigation District	5,000
Banta-Carbona Irrigation District	10,000
Patterson Irrigation District	10,000
West Stanislaus Irrigation District	10,000

Generally, the following mechanisms would be used to convey this non-CVP water:

Byron Bethany Irrigation District (BBID)

BBID, previously known as Plainview Water District, has up to 5,000 AF of pre-1914 water rights that are pumped via the Clifton Court Forebay and delivered directly to BBID’s distribution system. The non-CVP water would be conveyed in BBID’s distribution system and pumped into the DMC at Milepost 3.71R.

Banta Carbona Irrigation District (BCID)

BCID would convey under its Warren Act contract up to 10,000 AF/y of its non-CVP water supplies from the San Joaquin River diverted based on their pre-1914 water rights. BCID supplies are diverted from the San Joaquin River through a screened diversion at river mile 63.5 located about five miles north of Vernalis.

Patterson Irrigation District (PID)

PID would convey under its Warren Act contract up to 10,000 AF/Y of its non-CVP water supplies from the San Joaquin River diverted based on their pre-1914 water rights. PID supplies are diverted from the San Joaquin River at River Mile 98.5. The water is then conveyed through the district's distribution system and pumped into the DMC.

West Stanislaus Irrigation District (WSID)

Surface water would be diverted from the San Joaquin River through WSID's existing facility pursuant under State Water Resources Control Board (SWRCB) License 3957. At the end of the WSID's main canal, portable pumps would divert water into the DMC at Milepost 31.31L utilizing surface pipe. All surface water pumped under the Warren Act contract is for regulatory storage for later use within district boundaries when district demand exceeds the rate at which it may be diverted from the source. No surface water pumping into the DMC under the Warren Act contract would be transferred outside district boundaries.

Water Quality Monitoring

Water quality and monitoring requirements are established by Reclamation. These standards were established to protect water quality in federal facilities by ensuring that imported water does not impair existing uses or negatively impact existing water quality conditions.

Reclamation, the SLDMWA, and the SOD water districts would monitor the quality of water in the DMC to confirm that the non-CVP water would be suitable for downstream users (e.g. Exchange Contractors, Mendota Pool). Water quality would meet Title 22 standards. Independent data from several agencies would be compiled. Real-time salinity measurements are conducted by CVO and the DWR. Reclamation would measure selenium, boron, and salinity. The San Joaquin River Exchange Contractors (Exchange Contractors) have salinity sensors in the Mendota Pool. The U.S. Geological Survey measures salinity in the lower SJR and Grasslands tributaries.

Reclamation staff would monitor the salinity of water in the DMC using sensors operated by CVO. These real-time data are posted online by the California Data Exchange Center. Staff from Reclamation, CVO, and SLDMWA would monitor salinity in the canal daily to detect any adverse changes in water quality caused by the addition of the non-CVP water.

A water balance model would be used to predict water quality changes with the addition of the non-CVP water. The model would be run by Reclamation frequently and would be confirmed with real-time salinity measurements.

There would be no new construction or excavation occurring as part of the Proposed Action. No native or untilled land (fallow for three years or more) would be cultivated with water involved with these actions.

Section 3 Affected Environment & Environmental Consequences

3.1 Surface Water Resources

3.1.1 Affected Environment

San Joaquin River

Below Friant Dam, various segments of the San Joaquin River have degraded water quality because of low flow, and discharges from agricultural areas, wildlife refuges, and wastewater treatment plants. Below its confluence with the Merced River, San Joaquin River water quality generally improves at successive confluences with rivers draining the Sierra Nevada, particularly at confluences with the Merced, Tuolumne, and Stanislaus Rivers (Reclamation 2009a). In the relatively long reach between the Merced and Tuolumne Rivers, mineral concentrations tend to increase because of inflows of agricultural drainage water, other wastewaters, and effluent groundwater (Dubrovsky et al. 1998; Reclamation 2009a).

In 2006, the Central Valley Regional Water Quality Control Board (CVRWQCB), in compliance with the Section 303(d) of the Clean Water Act [33 USC Section 1313(d)], prepared a list of “impaired” water bodies in the State of California. The list was approved by the Environmental Protection Agency on June 28, 2007 (CVRWQCB 2010). The list includes a priority schedule for the development of total maximum daily loads (TMDL) for each contaminant or “stressor” impacting the water body. The San Joaquin River is identified in the 2006 California Section 303(d) List and TMDL Priority Schedule as an impaired water body for several different contaminants including: boron, (di)parachlorophenyl trichlorethane (DDT), electrical conductivity, Group A pesticides, mercury, selenium, exotic species, toxaphene, and unknown toxicity. The sections of the San Joaquin River involved in the Proposed Action (29 miles from the Merced River to the Stanislaus River) are impaired for the following contaminants that still require TDML development: DDT, Group A pesticides, mercury, and unknown toxicity (CVRWQCB 2010). TDML’s have not yet been reached for these contaminants; however, boron, chlorpyrifos, diazinon, EC, and selenium are being addressed by U.S. Environmental Protection Agency (EPA) approved TMDLs (SWRCB 2010).

Delta-Mendota Canal

The DMC, completed in 1951, carries water southeasterly from the Tracy (C.W. "Bill" Jones) Pumping Plant along the west side of the San Joaquin Valley for irrigation supply, for use in the San Luis Unit, and to replace San Joaquin River water stored at Friant Dam and used in the Friant-Kern and Madera systems. The canal is about 117 miles long and terminates at the Mendota Pool, about 30 miles west of Fresno. The initial diversion capacity is 4,600 cubic feet per second (cfs), which is gradually decreased to 3,211 cfs at the terminus (Reclamation 2009b).

Banta-Carbona Irrigation District

BCID is located in San Joaquin County just south of the City of Tracy and is adjacent to the Del Puerto Water District to the southwest and the WSID to the southeast. The district’s primary supply of water is its pre-1914 water rights on the San Joaquin River. Historically, the district uses all of its pre-1914 water rights in order to irrigate lands within the district. The district has a contract with

Reclamation for 20,000 AF of CVP water. CVP water is used as a supplemental supply to the district's pre-1914 water supply for agricultural purposes.

The distribution system in BCID consists of 2.5 miles of unlined canal, 33.2 miles of concrete-lined canal, and 46 miles of underground pipeline. CVP water from the DMC is gravity-fed through two turnouts and is then distributed through a pipeline connected to the BCID Main Lift Canal. All of the district's facilities are either pump or gravity delivery canals. Currently, all gates within the district are manually operated and all the turnouts are measured daily (Reclamation 2005).

Byron Bethany Irrigation District

BBID is located near the City of Tracy. Although primarily an agricultural district, portions of the district are within the sphere of influence for the City of Tracy and are, therefore, currently facing pressures from the development community to convert lands currently in agriculture to municipal and industrial (M&I) land uses. BBID's CVP water supply is for irrigation and M&I purposes; however, only a portion of the district's CVP supply is subject to Reclamation's M&I water shortage policy. Under agreements with the City of Tracy, the district provides raw water for treatment and final delivery back to lands within BBID's boundaries. Since the 1990s, approximately 1,500 acres of land have been converted to M&I use. It is possible that, as the City and San Joaquin County continue to develop, the amount of CVP water used for M&I purposes could increase.

Patterson Irrigation District

PID's distribution system consists of 309 turnouts, 3.8 miles of unlined canal, 51.8 miles of concrete-lined canal, and 84 miles of pipeline. PID provides agricultural water to approximately 770 customers on about 12,800 acres. The district currently gets between 70 to 80 percent of its water supply from the San Joaquin River, with its remaining supply coming from groundwater, recirculation projects and CVP supplies. In 2008, the in-district demand was approximately 38,344 AF.

As a pre-1914 water rights holder, PID has the authority and right under California law to divert from the San Joaquin River what water is needed as long as it is put to beneficial use. San Joaquin River water is pumped by PID uphill into its Main Canal through a series of pump stations and reservoir pools. Originally designed as settling basins to settle out silt from the San Joaquin River water source, the reservoirs have negligible storage capacity. The Main Canal flows from east to west, and supplies 13 main laterals which flow north and south. The current Main Canal peak capacity is 200 cubic-feet per second (cfs). On average, PID pumps approximately 23,000 AF per year (AFY); although in 2008, the gross amount pumped by the district was 43,371 AF. In general, PID is 80 percent efficient at delivering San Joaquin River water to its landowners, which includes losses from evaporation and seepage.

West Stanislaus Irrigation District

WSID was formed November 29, 1920. WSID serves an area that is unincorporated and agricultural, located west of the San Joaquin River, northwest of the City of Patterson, and includes the unincorporated communities of Westley, Grayson and Vernalis. A small portion of the district extends into San Joaquin County. WSID's boundaries include approximately 21,676 acres.

WSID provides its customers with irrigation water for agricultural purposes. This water is provided via several sources including surface water from the Tuolumne and San Joaquin Rivers, groundwater from four deep wells within WSID's boundaries, and importing water from the DMC as part of the CVP.

WSID, under a water rights agreement, also sells irrigation water to 13 landowners, which includes approximately 2,203 irrigable acres outside its sphere of influence in the "White Lake" area (north of the unincorporated community of Grayson) [Stanislaus 2009].

San Joaquin River Exchange Contractors

The Exchange Contractors consist of Central California Irrigation District (CCID), Columbia Canal Company, Firebaugh Canal Water District, and San Luis Canal Company (Figure 3-1). The Exchange Contractors hold historic water rights to the SJR. Their service area is located on the west side of the SJR Valley. In exchange for the regulation and diversion of the SJR at Millerton Lake (Friant Division), Reclamation agreed to supply water to the Exchange Contractors from the CVP's Delta supply. The Exchange Contractors provide water delivery to over 240,000 acres of irrigable land on the west side of the SJV, spanning a distance roughly from the town of Mendota in the south to the town of Crows Landing in the north. Conveyance and delivery systems generally divert water from the CVP's DMC and Mendota Pool to convey water to customer delivery turnouts and at times discharge to tributaries of the SJR. Deliveries include conveyance of water to wildlife areas.

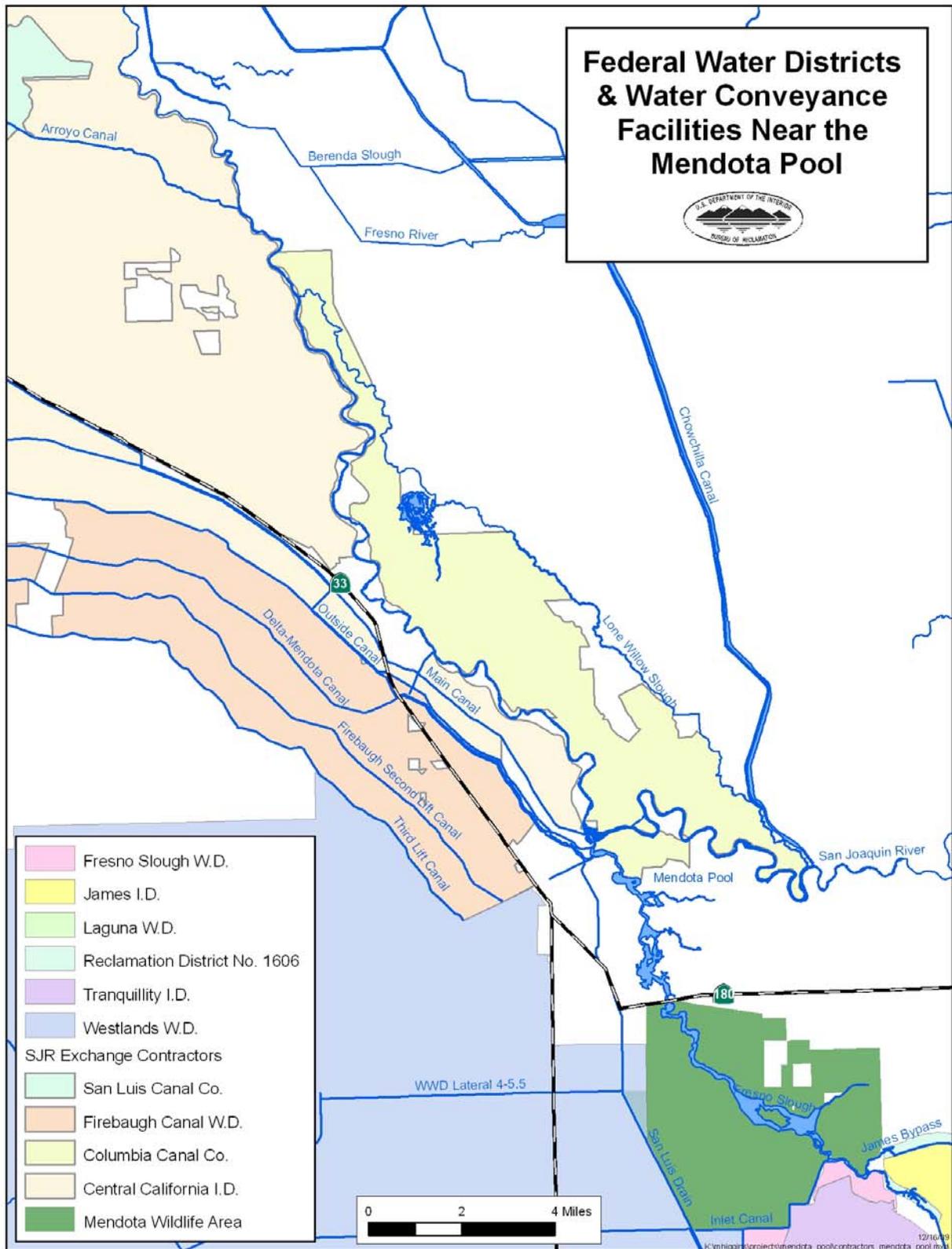


Figure 3-1 Federal Water Districts and Water Conveyance Facilities near the Mendota Pool

Mendota Pool

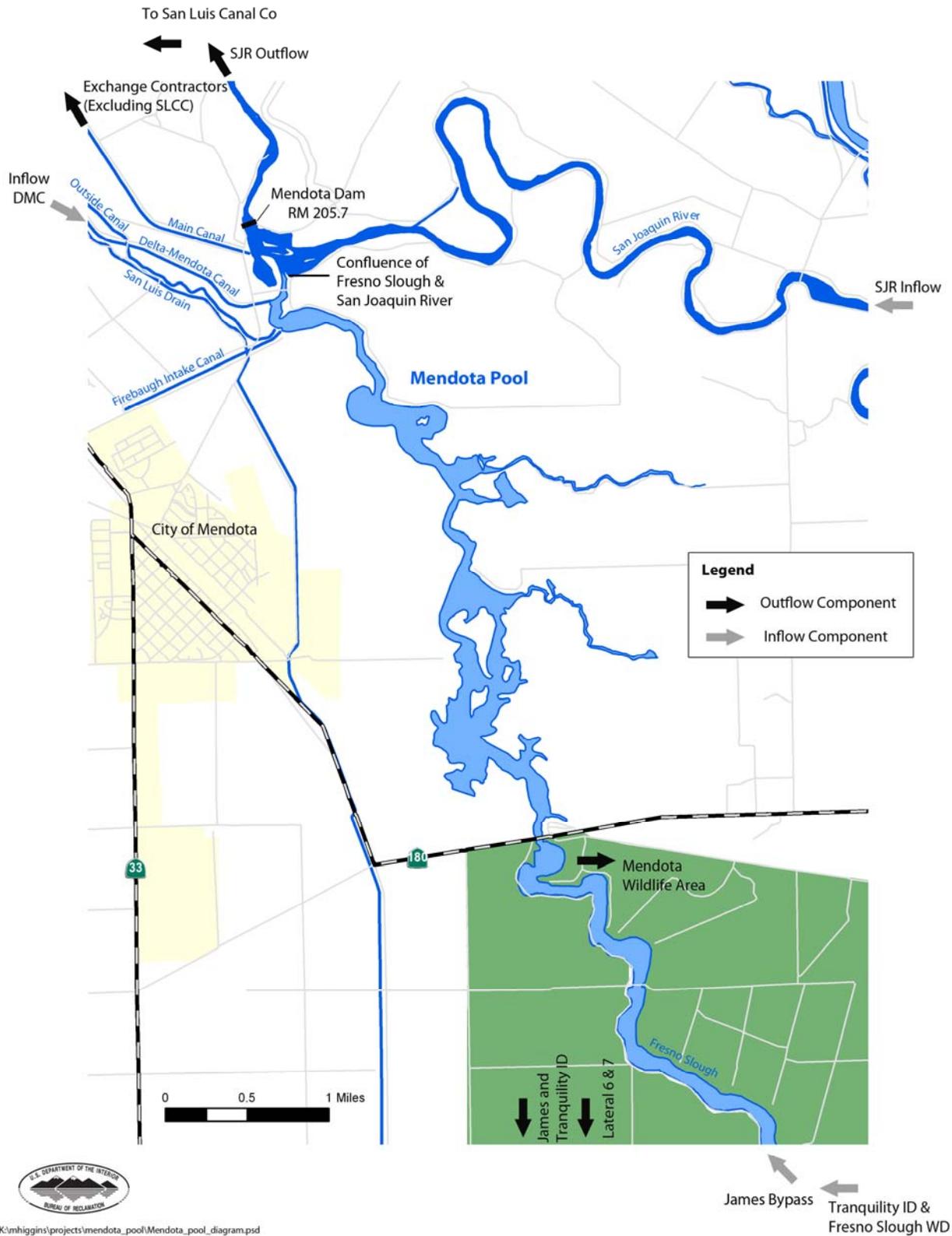
Mendota Pool is a re-regulating reservoir for more than one million AF of CVP water pumped from the Delta and delivered by the DMC. The Mendota Pool is impounded by Mendota Dam, which is owned and operated by CCID. Currently, Mendota Pool is sustained by the inflow from the DMC, which typically conveys 2,500 to 3,000 cubic feet per second (cfs) to the Mendota Pool during the irrigation season. SJR water is only conveyed to the Mendota Pool during periods of flood flow. Mendota Pool extends over 5 miles up the SJR Channel and over 10 miles into Fresno Slough and varies from less than one hundred to several hundred feet wide. Water depth varies but averages about 4 feet. Mendota Pool contains approximately 8,000 AF of water and has a surface area of approximately 2,000 acres when full. It is the largest body of ponded water on the SJV basin floor.

Water from the Mendota Pool is diverted for a variety of agricultural, municipal, and habitat management uses. Mendota Wildlife Area (Mendota WA) receives water from the Mendota Pool via Fresno Slough, which is managed by CCID as a water conveyance facility. Gates and pumps divert water from Fresno Slough to Mendota WA.

In addition to Mendota WA, several CVP Settlement Contractors and SJR Exchange Contractors (Exchange Contractors) rely on Mendota Pool for water deliveries.

Water quality conditions in the Mendota Pool depend on inflows from the DMC, groundwater pumped into Mendota Pool by the Mendota Pool Pumpers and, to a limited extent, SJR inflows (See Figure 3-2). Water quality in the SJR varies considerably along the river's length. Above Millerton Lake and downstream towards Mendota Pool, flows are infrequent, but the quality of water released from Friant Dam is generally excellent. The reach from Gravelly Ford to Mendota Pool (about 17 miles) is perennially dry except during flood control releases from Friant Dam, although that is projected to change as a result of the SJR Restoration Program. During the irrigation season, most of the water released from the Mendota Pool to the SJR and to irrigators is imported from the Delta via the DMC. This water has higher concentrations of total dissolved solids (TDS) than water in the upper reaches of the SJR, and might be affected by runoff and seepage into the canal.

An additional source of water in Mendota Pool is from adjacent land owners pumping well water into Mendota Pool and taking delivery of it in a more convenient location, at convenient timing (but within 60 days of pumping in) and at differing water quality. In 2007, these adjacent landowners pumped 7,423 AF into Mendota Pool.



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Figure 3-2 Mendota Pool

3.1.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not issue a Warren Act contract for these participating contractors. The DMC would continue to be used to provide CVP water to CVP contractors. Under the No Action Alternative, there would be no change to CVP facilities and operations. Conveyance and storage of participating districts' non-CVP water would not be approved. The districts would have to rely on their current CVP allocation and/or purchase water from willing sellers; however, no sellers have been identified and the action is outside the scope of this EA.

The districts would continue to maintain their pre-1914 appropriative water rights and beneficially use this non-CVP water. Loss of pre-1914 appropriate water rights would occur after five years of nonuse (SWRCB 2010).

Proposed Action

The Proposed Action would allow non-CVP water to be conveyed and stored in CVP facilities. This would allow non-CVP water to be delivered to other areas to supplement diminished CVP water supplies in 2010. No new facilities would be needed as a result of the Proposed Action. There would be no construction or modification to the DMC. The capacity of the facility would be the same. The Proposed Action would not interfere with the normal operations of the DMC nor would it impede any SWP or CVP obligations to deliver water to other contractors or to local fish and wildlife habitat. Furthermore, the Proposed Action would not interfere in the quantity or timing of diversions from the Sacramento-San Joaquin Bay Delta. CVP operations and facilities would not vary considerably under either alternative. Because the DMC and Mendota Pool are sources that the Exchange Contractors divert water from, they would be monitoring the water quality at the Mendota Pool.

The Proposed Action would not interfere with existing deliveries of water. As in the No Action Alternative, there would be no negative impacts to the DMC or its normal functions and operations. The Proposed Action would not impact water quality in the Mendota Pool. If Reclamation determines that the quality of the non-CVP water will substantially degrade the quality of CVP water, the district would arrange for the immediate termination of the introduction of non-CVP water into the DMC.

The additional non-CVP water conveyed in the DMC from BCID's and PID's surface water rights water supplies would allow supplemental non-CVP water supplies to irrigate crops. BCID's pre-1914 diversions from the SJR would remain within historic pre-conservation levels.

BBID would also be able to convey up to 5,000 AF of its pre-1914 water rights to irrigate crops when needed.

In addition, WSID would be able to convey up to 10,000 AF of its pre-1914 water rights to irrigate crops when needed.

This non-CVP water is appropriative water rights initiated prior to December 19, 1914, and, in general became fixed by actual beneficial use as to both amount and season of diversion. This non-CVP is existing water that has been used by the districts historically. The Proposed Action would not create a new water source

There would be no adverse impacts to surface water resources from the Proposed Action.

3.2 Land Use

3.2.1 Affected Environment

Banta-Carbona Irrigation District

BCID is entirely an agricultural district and does not supply or intend to supply any water for M&I use. BCID extends from the City of Tracy to the San Joaquin-Stanislaus County line near the town of Vernalis. BCID's current size is 14,000 acres and its water needs are 47,000 AF. The major crops are primarily almonds and walnuts, with smaller amounts of apricots, apples, and vineyards; some areas have been planted with grapes over the last few years.

As the City of Tracy and the Interstate 5 corridor continue to grow, attachments and detachments would continue. Also, new areas that may require water for M&I purposes would be detached from the district. Currently, a few parcels within the district are targeted for detachment and would be annexed to the City of Tracy. This detachment process has been on-going in the district. Whenever a new urban expansion is planned, the land is deleted from district boundaries. BCID has assigned 5,000 AF/y through an assignment of its CVP supply to the City of Tracy. Therefore, while vulnerable to development pressures along the Interstate 5 corridor, BCID is expected to remain an entirely agricultural district.

Byron Bethany Irrigation District

BBID is primarily agricultural. BBID's current size is 2,700. Its major crops are pasture. In 1990, a small portion of the district's CVP supply was allocated for M&I use to service commercial and residential development. The water provided by the BBID was treated and delivered by the City of Tracy. Since 1990, approximately 1,500 acres of land have been converted to M&I use. By 2005, a portion of Tracy Hills was annexed into BBID (City of Tracy 2007).

The water allocated for converted land would continue to be used to serve the new land use through the City of Tracy water supply system. It is possible that as Tracy continues to grow, the amount of CVP water used for M&I purposes could increase. It is also possible that the anticipated growth could result in some areas currently within the district being detached and annexed by the City of Tracy. BBID has informed Reclamation of its plan to transfer a portion of its CVP supply to the City of Tracy by 2025.

Row crops produced within the district are primarily alfalfa. Permanent crops include almond and cherries. There is also some dry farming in the district. Typical irrigation methods include primarily furrow and border irrigation and sprinklers.

Patterson Irrigation District

PID is approximately 12,800 acres in size and is entirely an agricultural district growing a variety of orchard and row crops. It is anticipated that as the City of Patterson and the Interstate 5 corridor continue to grow, any new proposed development requiring municipal and industrial (M&I) water would be detached from the district. It is currently PID policy to require water users requesting M&I water to detach from the district. The district detached 692 acres in July 2007 currently with the annexation of the same lands to the City of Patterson for urban

development. Therefore, despite neighboring growth pressures, PID is expected to remain entirely an agricultural district.

West Stanislaus Irrigation District

WSID irrigates approximately 22,500 acres of cropland through 84 miles of laterals and sublaterals. Although Delta water typically is of better quality than San Joaquin River water WSID typically diverts its maximum allocation from the San Joaquin River, largely on account of the lower cost (San Joaquin River Dissolved Oxygen Technical Working Group 2002).

3.2.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not issue a Warren Act contract for these participating contractors. Districts could attempt to purchase other sources of water or construct new facilities; however, no sources of additional water are known and construction would likely not be completed in time to meet district needs.

Proposed Action

The Proposed Action would not conflict with existing zoning for agricultural use or promote the conversion of farmland to non-agricultural use. Conveyance of this non-CVP water would be used to meet the needs of existing land uses and would not result in land use changes.

Conveyance of this non-CVP water is contingent upon available capacity in Reclamation facilities. The Proposed Action would not lead to any long-term land use decisions. The Proposed Action would maintain existing land uses and would not contribute to impacts to land uses or planning. Therefore, there would be no adverse impacts due to the Proposed Action.

3.3 Air Quality

3.3.1 Affected Environment

The Proposed Action lies within the San Joaquin Valley Air Basin (SJVAB) and the San Francisco Bay Area Air Basin (SFBAAB). Air basins share a common “air shed,” the boundaries of which are defined by surrounding topography. Although mixing between adjacent air basins inevitably occurs, air quality conditions are relatively uniform within a given air basin. The San Joaquin Valley experiences episodes of poor atmospheric mixing caused by inversion layers formed when temperature increases with elevation above ground, or when a mass of warm, dry air settles over a mass of cooler air near the ground.

Despite years of improvements, neither the SJVAB nor the SFBAAB meets state and federal health-based air quality standards for volatile organic compounds (VOC)/reactive organic gases (ROG); however, both have reached attainment status for carbon monoxide (CO). Additionally, SFBAAB has reached attainment status for nitrous oxides (NO_x) but is unclassified for inhalable particulate matter less than 10 microns in diameter (PM₁₀) whereas; SJVAB has reached attainment status for PM₁₀ but not for NO_x (see Table 3-4). To protect health, the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the Bay Area Air Quality Management District (BAAQMD) is required by federal law to adopt stringent control measures to reduce emissions (SJVAPCD 2010).

Section 176 (C) of the Clean Air Act [CAA] (42 USC 7506 (C)) requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the Federal Clean Air Act (42 USC 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards 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 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. The following de minimis thresholds covering the Proposed Action are presented in Table 3-4.

Table 3-1 lists the de minimis thresholds for the San Joaquin Valley Air Basin.

Table 3-1 San Joaquin Valley General Conformity de minimis Thresholds

San Joaquin Valley Air Basin			
Pollutant	Federal Status	de minimis (Tons/year)	de minimis (Pounds/day)
VOC/ROG (as an ozone precursor)	Nonattainment serious 8-hour ozone	50	274
NO _x (as an ozone precursor)	Nonattainment serious 8-hour standard	50	274
PM ₁₀	Attainment	100	548
CO	Attainment	100	548

Sources: SJVAPCD 2010a; 40 CFR 93.153

3.3.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not issue a Warren Act contract for these participating contractors. Districts could attempt to purchase other sources of water or construct new facilities; however, no sources of additional water are known and construction would likely not be completed in time to meet district needs.

Proposed Action

The Proposed Action would not involve any construction or land disturbing activities that could lead to fugitive dust emissions and/or exhaust emissions associated with the operations of heavy machinery. The water to be pumped down the DMC would be via gravity, electric, and/or diesel pumps. The air quality emissions from electrical power have been considered in environmental documentation for the generating power plant. There are no emissions from electrical engines. The diesel pumps emissions' would not exceed applicable standards. Therefore a conformity

analysis is not required under the Clean Air Act (CAA); there would be no adverse impact on air quality.

3.4 Biological Resources

3.4.1 Affected Environment

A list of federal listed candidate, threatened, and endangered species that occur within or near BBID, BCID, PID and WSID and/or may be affected as a result of the Proposed or Alternative Action was obtained on January 26, 2010, by accessing the U.S. Fish and Wildlife Service (USFWS) Database: http://www.fws.gov/sacramento/es/spp_list.htm (Document Number: 100212094756). The list is for the following USGS 7½ minute quadrangles (quads): which are overlapped by BBID, BCID, PID and WSID: Crows Landing, Patterson, Westley, Brush Lake, Vernalis, Tracy, Solyo, Midway, Woodward Island, Brentwood, Byron Hot Springs, and Clifton Court Forebay (USFWS 2010) (Table 3-1).

Giant Garter Snake USFWS published a proposal to list the giant garter snake as an endangered species on December 27, 1991 (USFWS 1991) (56 FR 67046). The Service reevaluated the status of the snake before adopting the final rule, which was listed as a threatened species on October 20, 1993 (USFWS 1993a) (58 FR 54053).

Endemic to wetlands in the Sacramento and San Joaquin valleys, the giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, and other waterways and agricultural wetlands, such as irrigation and drainage canals, rice fields and the adjacent uplands (USFWS 1999).

Giant garter snakes formerly occurred throughout the wetlands that were extensive and widely distributed in the Sacramento and San Joaquin Valley floors of California (Fitch 1940; Hansen and Brode 1980; Rossman and Stewart 1987). The historical range of the snake is believed to have extended from the vicinity of Chico, in Butte County, southward to Buena Vista Lake, near Bakersfield, in Kern County (Fitch 1940; Fox 1948; Hansen and Brode 1980; Rossman and Stewart 1987). Early collecting localities of the giant garter snake coincide with the distribution of large flood basins, particularly riparian marsh or slough habitats and associated tributary streams (Hansen and Brode 1980). Loss of habitat due to wetlands reclamation, agricultural activities and flood control have extirpated the snake from the southern one third of its range in former wetlands associated with the historic Buena Vista, Tulare, and Kern lake beds (Hansen 1980; Hansen and Brode 1980).

Other Terrestrial Species Vernal pool fairy shrimp, longhorn fairy shrimp, and Conservancy fairy shrimp require vernal pool habitats.

California tiger salamander, California red-legged frog and California tiger salamander could occur within the Proposed Action area.

Riparian woodrat and riparian brush rabbit could potentially occur within the Proposed Action area.

San Joaquin kit fox could potentially occur within the Proposed Action area.

Table 3-2 Sensitive Species Reported in the Proposed Action Area

<i>Species</i>	<i>Status</i> ¹	<i>Summary basis for ESA determination</i> ²
Amphibians		
California red-legged frog <i>Rana aurora draytonii</i>	T, X	Present. Documented as extant within BBID but designated Critical Habitat absent. No construction of new facilities; no conversion of lands from existing uses.
California tiger salamander <i>Ambystoma californiense</i>	T, PX	Present. Documented as extant within BBID but Proposed Critical Habitat absent. No construction of new facilities; no conversion of lands from existing uses.
Bird		
burrowing owl <i>Athene cunicularia</i>	MBTA	Present. Documented as extant within BBID and potential habitat present. No construction of new facilities; no conversion of lands from existing uses.
Least Bell's vireo <i>Vireo bellii pusillus</i>	E	Absent. No individuals or habitat in area of effect.
Swainson's hawk <i>Buteo swainsoni</i>	MBTA	Present. Documented as extant in Project Area. No construction of new facilities; no conversion of lands from existing uses.
Fish		
Central Valley spring-run chinook salmon <i>Oncorhynchus tshawytscha</i>	T, NMFS	Absent. No individuals or habitat in area of effect. No natural waterways within the species' range would be affected by the Proposed Action.
Central Valley Steelhead <i>Oncorhynchus mykiss</i>	T, X, NMFS	Possible. Habitat is present for this species along the San Joaquin River. No natural waterways within the species' range would be affected by the Proposed Action.
Delta smelt <i>Hypomesus transpacificus</i>	T, X	Possible. Critical Habitat occurs in both BBID and BCID. No natural waterways within the species' range would be affected by the Proposed Action.
Green sturgeon <i>Acipenser medirostris</i>	T, NMFS	Absent. No individuals or habitat in area of effect. No natural waterways within the species' range would be affected by the Proposed Action.
Winter-run Chinook salmon, Sacramento River <i>Oncorhynchus tshawytscha</i>	E, NMFS	Absent. No individuals or habitat in area of effect. No natural waterways within the species' range would be affected by the Proposed Action.
Invertebrates		
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i>	E	Absent. No individuals or habitat in area of effect.
Longhorn fairy shrimp <i>Branchinecta longiantenna</i>	E, X	Absent. No individuals documented and Critical Habitat absent from Proposed Action area.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T	Absent. No individuals documented in this area.

Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T, X	Present. CNDDDB-recorded occurrences indicate this species in Byron Hot Springs Quad. Critical Habitat absent from Proposed Action area.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E	Absent. No individuals or habitat in area of effect.
Mammals		
riparian brush rabbit <i>Sylvilagus bachmani riparius</i>	E	Absent. No individuals or habitat in area of effect.
riparian (San Joaquin Valley) woodrat <i>Neotoma fuscipes riparia</i>	E	Absent. No individuals documented in this area. Does not occur in agricultural habitats. No construction of new facilities; no conversion of lands from existing uses.
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	E	Present. CNDDDB records indicate this species occurs in the Project Area. No construction of new facilities; no conversion of lands from existing uses.
Plant		
<i>Contra Costa goldfields</i> <i>Lasthenia conjugens</i>	E, X	Possible. No individuals reported but Critical Habitat occurs in both Bryon Hot Springs and Clifton Court Forebay Quads.
large-flowered fiddleneck <i>Amsinckia grandiflora</i>	E, X	Absent. Individuals and Critical Habitat not documented in Proposed Action area.
Reptiles		
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	T, X	Absent. Individuals and Critical Habitat not documented in Proposed Action area.
Blunt-nosed leopard lizard <i>Gambelia sila</i>	E	Absent. No individuals documented in this area.
giant garter snake <i>Thamnophis gigas</i>	T	Absent. No individuals documented in this area.
<p>Source: USFWS Sacramento Database 2010, CNDDDB (California Natural Diversity Database) 2010</p> <p>1 Status= Listing of Federally special status species, unless otherwise indicated</p> <p>E: Listed as Endangered</p> <p>MBTA: Birds protected under the Migratory Bird Treaty Act</p> <p>NMFS: Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service</p> <p>PX: Critical Habitat designated for this species</p> <p>T: Listed as Threatened</p> <p>X: Critical Habitat designated for this species</p> <p>2 Definition Of Occurrence Indicators</p> <p>Present: Species observed in area</p> <p>Possible: Species not documented but Critical Habitat present</p> <p>Absent: Species not observed in study area and habitat requirements not met</p>		

3.4.2 Environmental Consequences

No Action

Under the No Action Alternative, no non-CVP water would be conveyed or stored in CVP facilities. There would be no impacts to biological resources since conditions would remain the same as existing conditions.

Proposed Action

There would be no impacts to biological resources. Most of the habitat types required by species protected by the ESA do not occur in the Proposed Action area. The Proposed Action would not involve the conversion of any land fallowed and untilled for three or more years. The Proposed Action also would not change the land use patterns of the cultivated or fallowed fields that do have some value to listed species or birds protected by the Migratory Bird Treaty Act (MBTA). Due to the fact that the Warren Act related water would not reach streams containing listed fish species, there would be no affects to these species. No critical habitat occurs within the area affected by the Proposed Action and so none of the primary constituent elements of any critical habitat would be affected.

Potential effects to giant garter snakes would be expected only if the water quality parameters exceed levels identified as toxic or of concerns (e.g., CVRWQCB 1998, USBR 2004b, USFWS and NMFS 2000, USFWS 2008). Daily water quality monitoring, with the requirement of pumps ceasing if water quality objectives are exceeded, however, would avoid effects to the species. A brief “lag time” between detection of the exceedance (and the resultant shutting down of pumps) and the subsequent reduction in contaminant concentration will be no more than a day or two and would not cause any effect over the extremely short duration before the water quality standards are returned to the target levels.

The short duration of the water availability, the requirement that no native lands be converted without consultation with U.S. Fish and Wildlife Service, and the stringent requirements for transfers under applicable laws would preclude any impacts to wildlife, whether federally listed or not.

3.5 Cultural Resources

3.5.1 Affected Environment

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

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

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

The DMC is a component of the CVP that is currently being evaluated for the National Register. The DMC, completed in 1951, carries water southeasterly from the Tracy Pumping Plant along the west side of the San Joaquin Valley for irrigation supply, for use in the San Luis Unit, and to replace San Joaquin River water stored at Friant Dam and used in the Friant-Kern and Madera systems.

3.5.2 Environmental Consequences

No Action

The No Action Alternative would not change nor modify the DMC and has no potential to affect historic properties pursuant to 36 CFR Part 800.3(a)(1).

Proposed Action

The Proposed Action is an administrative action that would allow for the flow of water through existing facilities to existing users. There is no ground disturbance or modification needed to the existing facilities as a result of this action nor would there be any changes in cropping patterns or urban development. As a result there is no potential to affect historic properties pursuant to 36 CFR Part 800.3(a)(1). There are no impacts to cultural resources as a result of implementing the Proposed Action.

3.6 Indian Trust Assets

3.6.1 Affected Environment

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

The U.S. Department of the Interior (DOI) Departmental Manual Part 512.2 ascribes the responsibility for ensuring protection of ITA to the heads of bureaus and offices (DOI 1995). Part 512, Chapter 2 of the Departmental Manual states that it is the policy of the Department of the Interior to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members.

The nearest ITA is Lytton Rancheria approximately 36.2 miles west northwest of the Proposed Action location. The nearest ITA is determined by using the distance from the boundary of the district that is closest to an ITA.

Environmental Consequences

No Action

Under the No Action Alternative there would be no impacts to ITA as there are none in the study area.

Proposed Action

As in the No Action Alternative, there would no impacts to ITA as there are no ITA within district service area boundaries.

3.7 Socioeconomic Resources

3.7.1 Affected Environment

The agricultural industry significantly contributes to the overall economic stability of the SJV. The CVP allocations each year allow farmers to plan for the types of crops to grow and to secure loans to purchase supplies. The economic variances may include fluctuating agricultural prices, insect infestation, changing hydrologic conditions, increased fuel and power costs.

Per the California Labor & Workforce Development Agency (2009), the SJV economic region grew by 7.51 percent from 2001 to 2007. Government was the largest employer. Agriculture, forestry and fishing ranked second. Retail trade came in third with Health Care and Social assistance ranking fourth (See Table 3-3).

Table 3-3 Job Distribution (2007) and Growth by Industry Sector (2001-2007)

Listed by 2007 employment size

INDUSTRY SECTOR	% OF ALL JOBS	JOB GROWTH	INDUSTRY SECTOR	% OF ALL JOBS	JOB GROWTH
Government	19.7%	8.1%	Transportation & Warehousing	3.0%	6.5%
Ag, Forestry, Fishing & Hunting	13.8%	0.1%	Prof., Scientific & Technical Services	2.7%	23.1%
Retail Trade	10.7%	8.9%	Finance & Insurance	2.4%	10.2%
Health Care & Social Assistance	9.2%	12.1%	Real Estate & Rental & Leasing	1.2%	5.4%
Manufacturing	8.5%	0.2%	Information	1.1%	1.8%
Accommodation & Food Services	6.6%	9.4%	Arts, Entertainment & Recreation	0.8%	7.2%
Construction	5.8%	32.2%	Mgmt. of Companies & Enterprises	0.8%	-38.5%
Administrative & Waste Services	4.4%	14.3%	Educational Services	0.8%	29.0%
Other Services (except Public Admin)	3.8%	16.7%	Mining	0.8%	-2.3%
Wholesale Trade	3.3%	13.8%	Utilities	0.5%	9.6%

(California Labor & Workforce Development Agency 2009)

Table 3-4 is the labor market information for the counties included in the Proposed Action area.

Table 3-4 County-Level Socioeconomic Data

County	2008 Population (estimate)	2009 Labor Force	2009 Employment	1999 Per Capita Income (most recent available)	2009 Unemployment Rate (%)
Contra Costa	1,029,703	529,200	469,800	\$30,615	11.2
San Joaquin	672,388	302,600	251,400	\$17,365	16.9
Stanislaus	510,694	240,500	199,100	\$16,913	17.2
California	36,756,666	18,365,000	16,164,300	\$22,711	12.0

Sources: Census Bureau 2009, EDD 2009

3.7.2 Environmental Consequences

No Action

Reclamation would not approve Warren Act contracts to convey and store non-CVP water in CVP facilities. Non-CVP water could still be pumped and distributed to other areas to supplement the diminished CVP water supply. However, this could increase costs to the Water Districts to distribute to other areas. Demand for local labor and farm supplies would be reduced.

Proposed Action

Under the Proposed Action, participating districts could convey and store non-CVP water in CVP facilities to supplement their CVP water supply. Since water supply allocations may be reduced, districts must find supplemental supplies in order to sustain agricultural production. The Warren Act contracts would allow CVP water to be distributed to sustain permanent crops. Therefore, there would be no adverse impact due to the Proposed Action.

3.8 Environmental Justice

3.8.1 Affected Environment

Executive Order 12898, dated February 11, 1994, requires Federal agencies to ensure that their actions do not disproportionately impact minority and disadvantaged populations. The population of some small communities typically increases during late summer harvest. The market for seasonal workers on local farms draws thousands of migrant workers, commonly of Hispanic origin from Mexico and Central America. Table 3-5 characterizes the area by county.

Table 3-5 Community Characteristics by County

General Characteristics	Contra Costa		San Joaquin		Stanislaus	
	Number	%	General Characteristics	Number	%	Number
White		71.7	White		71.7	
Black or African American		9.7	Black or African American		9.7	
American Indian/Alaskan Native		0.8	American Indian/Alaskan Native		0.8	
Asian		13.7	Asian		13.7	
Native Hawaiian/Pacific Islander		0.5	Native Hawaiian/Pacific Islander		0.5	
Hispanic/Latino (of any race)		22.9	Hispanic/Latino (of any race)		22.9	
Two or more races		3.6	Two or more races		3.6	
Average household size	2.72		Average household size	2.72		2.71
Median household income	\$76,317		Median household income	\$76,317		\$68,263
Individuals below poverty level		8.7	Individuals below poverty level		8.7	

Source: US Census Bureau 2009.

3.8.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not approve Warren Act contracts to convey and store non-CVP water. Non-CVP water could still be pumped and distributed to other areas to supplement the diminished CVP water supply. However, this could increase costs to the Water Districts to distribute to other areas. Demand for local labor and farm supplies would be reduced.

Proposed Action

Implementing the Proposed Action would not cause any harm to minority or disadvantaged populations within the Proposed Action area. A Warren Act contract would allow the water districts to use their non-CVP water for irrigation in their service area. The availability of this water would help maintain agricultural production and local employment if 2010 is a dry year. Therefore, there would be no adverse impact from the Proposed Action.

3.9 Global Climate Change

3.9.1 Affected Environment

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 2008a).

Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). Some greenhouse gases such as carbon dioxide 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 greenhouse gases that enter the atmosphere because of human activities are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide, and fluorinated gasses (EPA 2008a).

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 CH₄, are enhancing the natural greenhouse effect, and likely contributing to an increase in global average temperature and related climate changes. There are uncertainties associated with the science of climate change (EPA 2008b).

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).

3.9.2 Environmental Consequences

No Action

Reclamation would not approve Warren Act contracts to convey and store non-CVP water in CVP facilities. Non-CVP water could not be distributed to other areas to supplement the diminished CVP water supply.

Implementation of the No Action Alternative would have no change on the composition of the atmosphere and therefore would have no direct or indirect effects to climate.

Proposed Action

The Proposed Action would involve no physical changes to the environment, no construction activities, and therefore, would not impact global climate change. However, global climate change is expected to have some effect on the snow pack of the Sierra Nevadas and the run off regime. Current data are not yet clear on the hydrologic changes and how they will affect the San Joaquin Valley. Water allocations are made dependent on hydrologic conditions and environmental requirements. Since Reclamation operations and allocations are flexible, any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operation flexibility and therefore surface water resource changes due to climate change would be the same with or without the Proposed Action. Therefore, there would be no significant impact due to the Proposed Action.

3.10 Cumulative Impacts

Cumulative impacts result from incremental impacts of a Proposed Action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment.

To determine whether cumulatively significant impacts are anticipated from the Proposed Action, the incremental effect of the Proposed Action was examined together with impacts from past, present, and reasonably foreseeable future actions in the same geographic area.

Reclamation's action would be the approval of Warren Act contracts for conveyance and storage of non-CVP water. Subsequent actions are beyond Reclamation's approval and authority. Reclamation has made Warren Act contracts available in previous years when excess capacity was available. Most likely in 2010, more districts will request Warren Act contracts since it may be a dry year and groundwater is needed to supplement the reduced CVP supply. This is a five-year action. However, districts can request a Warren Act contract separate from this Proposed Action for up to 10,000 AF of non-CVP water, but this action would be analyzed in a separate environmental document. Additionally, in accordance with the Warren Act contract, Reclamation would continue to make these contracts available to requesting districts in future years, given that each district meets present and future requirements for Warren Act contracts.

Reclamation has approved transfers and Warren Act contracts in previous years when excess capacity was available (see Table 3-13).

Table 3-6 Warren Act Contracts and Transfers Proposed between 2007-2009

	2006	2007	2008	2009
Warren Acts	3	9	6	15
Transfers	7	4	4	8
Used DMC	1	5	5	2

In 2009, Reclamation received 15 requests for Warren Act contracts and 8 requests for transfers. Two of these requests propose to use the DMC as a conveyance facility. Many of these requests are still under analysis and have not been completed at this time. Reclamation did approve the transfer of 3,700 AF of PID's Replacement Water to Del Puerto Water Storage District via the DMC.

Requests still pending for use of the DMC include:

- A 40-year Warren Act contract for conveyance of 4,500 AFY of Byron Bethany Irrigation District's non-CVP Delta water through the DMC to the City of Tracy's Water Treatment Plant. This proposed action includes an easement for placement of a new discharge pipeline at the headwall of the DMC.
- A transfer of up to 20,500 AF of Central California Irrigation District's (CCID) Exchange Contract CVP supplies to Westlands Water District, San Luis Water District, Panoche Water District, and Del Puerto Water District for the period April through December

2010 and April through December 2011. Certain landowners within CCID would pump up to 75 cfs of groundwater to meet in-district demands in lieu of CCID taking surface water deliveries. The groundwater would be discharged into CCID's conveyance system freeing up its CVP water under the San Joaquin Exchange Contractor's Contract to be delivered to the districts via the DMC and/or the San Luis Canal.

- PID has requested a temporary four-year Warren Act for storage and conveyance of up to 10,000 AF of their pre-1914 San Joaquin River water between Contract Water Years 2010 through 2015 (March 1, 2010-February 28, 2016). The additional non-CVP water conveyed in the DMC from PID's pre-1914 surface water rights water supplies would allow supplemental non-CVP water supplies to irrigate crops within their district boundaries.

Other potential projects in the area:

WWD is preparing an Environmental Impact Report to convey a maximum of 100,000 AF/y of groundwater that may be delivered into the California Aqueduct during any single year. However, actual annual project volume may be less than this maximum value. Pumping would occur mostly between the months of May and September. However, to provide flexibility in water supply, pumping and conveyance may occur in other months. WWD has about 600 operational groundwater wells. Only 15 percent of the total number of wells within WWD would participate in this project initially, and WWD would cap participation at 20 percent. The project area makes it feasible to include all the wells in WWD.

Agricultural run-off and San Joaquin River water pump-in would have cumulative water quality effects to the Mendota Pool; however, the Contracting Officer would terminate conveyance should water quality exceed State water quality standards.

There would be no cumulative effects as a consequence of these actions/proposed actions. All these actions require monitoring and/or permitting and would not have adverse cumulative effects. Therefore, there would be no cumulative impacts from the Proposed Action.

Section 4 Consultation and Coordination

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

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water resource development projects that could affect biological 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, but only the movement of non-CVP water through CVP facilities. Therefore the FWCA does not apply.

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

Section 7 of this Act requires Federal agencies to ensure that all federally associated activities within the U.S. do not jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of the critical habitat of these species. Action

agencies must consult with the USFWS, which maintains current lists of species that have been designated as threatened or endangered, to determine the potential impacts a project may have on protected species. The Proposed Action would have no effect to threatened or endangered species or designated critical habitats, based on the lack of construction and the implementation of stringent water quality standards.

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

Federal agencies are required to consider the effects of their undertakings on historic resources, and to give the Advisory Council a reasonable opportunity to comment on those undertakings. The 36 CFR Part 800 regulations that implement Section 106 of the NHPA describe how Federal agencies address these effects. There would be no adverse impacts from the Proposed Action.

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

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

The Proposed Action would have no effect on birds protected by the MBTA, based on the lack of construction and the implementation of stringent water quality standards.

4.5 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. This action would not adversely affect floodplains or wetlands.

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

Section 401

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

effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling.

Section 404

Section 404 of the CWA authorizes the United States Army Corps of Engineers to issue permits to regulate the discharge of “dredged or fill materials into waters of the United States” (33 USC § 1344).

The Proposed Action does not involve discharge into waters of the United States or wetlands; hence, no permit would be required.

4.7 Clean Air Act (42 USC § 7506 (C))

Section 176 of the CAA requires that any entity of the Federal government that engages in, supports, or in any way provided financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable SIP required under Section 110 (a) of the CAA (42 U.S.C. 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with a SIP’s purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements will, in fact conform to the applicable SIP before the action is taken.

There would be no adverse impacts to air quality. Therefore, a conformity analysis is not required.

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