

RECLAMATION

Managing Water in the West

Final Environmental Assessment

Transfer of up to 20,500 acre-feet of Central Valley Project Water from Central California Irrigation District to San Luis, Panoche, Del Puerto and Westlands Water Districts and up to 5,000 acre-feet of Central Valley Project Water from Firebaugh Canal Water District to San Luis Water District or Westlands Water District

EA-12-006



U.S. Department of the Interior
Bureau of Reclamation
Mid Pacific Region
South Central California Area Office
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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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Section 1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the Draft Finding of No Significant Impact (FONSI) and Draft Environmental Assessment (EA) between June 27 and July 10, 2012 (the original closing date was July 5, but was extended to July 10). Reclamation received one comment letter, one memorandum, and several requests for information during the public review period.

Reclamation's response to comments can be found in Section 5, and the comment letter, memo, and requests for information can be found in Appendix B. Changes from the draft EA that are not minor editorial changes are indicated by vertical lines in the left margin of this document.

1.1 Background

Central California Irrigation District (CCID) proposes to transfer a portion of their Central Valley Project (CVP) water allocation to San Luis Water District (SLWD), Westlands Water District (WWD), Del Puerto Water District (DPWD) or Panoche Water District (PWD). The Transfer Recipient Districts (SLWD, WWD, DPWD, and PWD) would deliver the transferred water to District members that also own land in CCID.

Similarly, the Firebaugh Canal Water District (FCWD) proposes to transfer a portion of their CVP water allocation to SLWD or WWD, for use by landowners that own property in both FCWD and either SLWD or WWD.

1.2 Purpose and Need

The South-of-Delta (SOD) CVP agricultural allocation for 2012 is at 40% (Reclamation, 2012a). As a result, SOD water contractors have a need to find alternative sources of water to not only fulfill 2012 demands, but to prepare for demands going into 2013. The proposed transfers would allow water districts and landowners greater flexibility to manage limited water supplies during summer months in these years.

1.3 Scope

Environmental impacts including impacts to facilities used to convey or store water for the proposed action may occur in the CVP service area boundaries of CCID, FWCD, and the Transfer Recipient Districts (Figure 1-1). Facilities used in the transfer and potentially impacted include the San Luis Reservoir (SLR), Delta-Mendota Canal (DMC), Mendota Pool, and San Luis Canal (SLC). Following execution of the potential Finding of No Significant Impact and approval by the Contracting Officer, the transfers would occur July 1, 2012 through December 31, 2012 and April 1, 2013 through December 31, 2013. This will be the study period for evaluating any direct, indirect and cumulative effects.

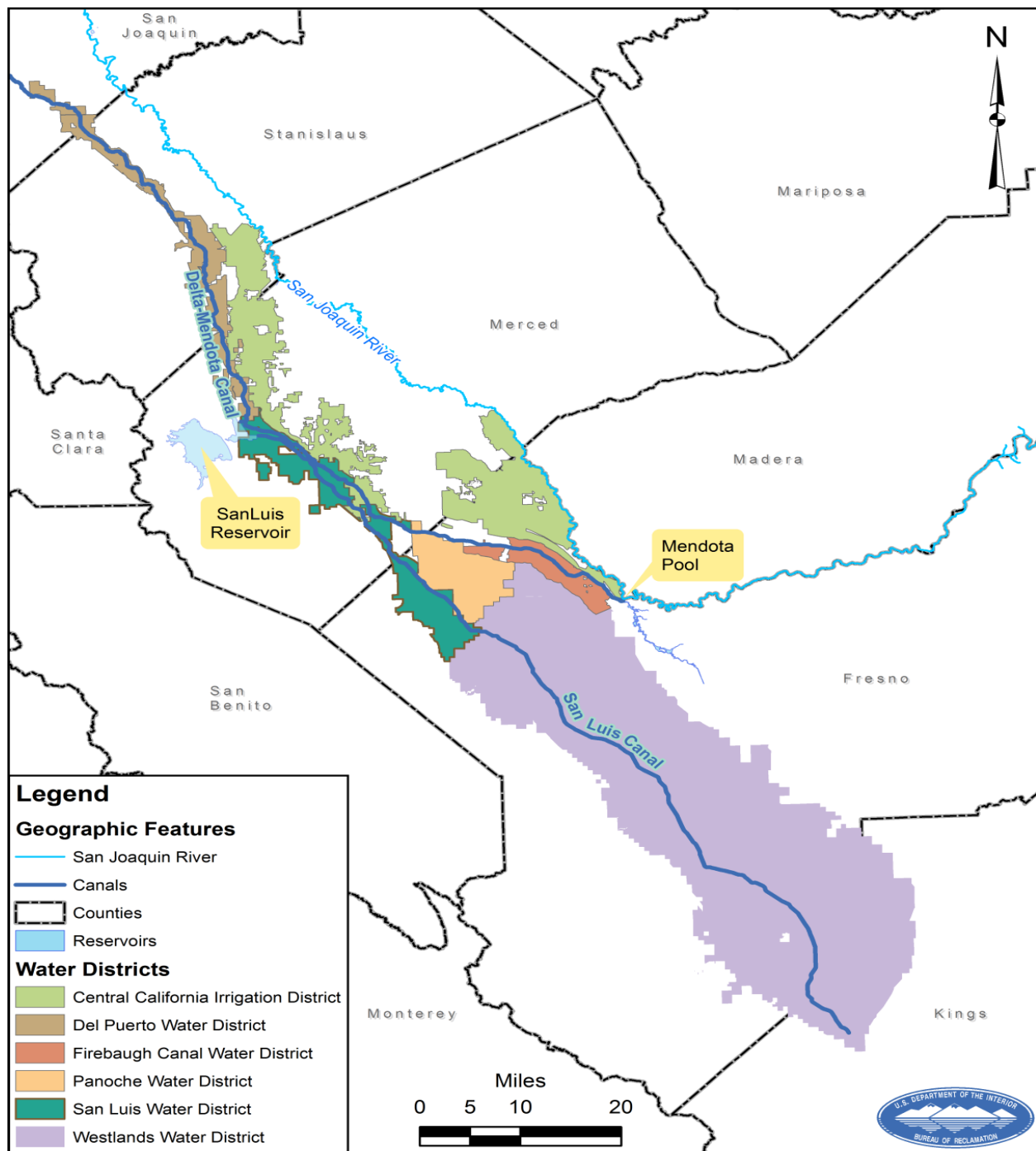


Figure 1-1 Project Area

1.4 Reclamation's Legal and Statutory Authorities

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

1.4.1 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 M&I, fish and wildlife, and agricultural uses. Section 305, enacted March 5, 1992 (106 Stat. 59; U.S.C. § 2245), also authorizes Reclamation to utilize excess capacity to convey non-CVP water.

1.4.2 Reclamation Project Act

Section 14 of the Reclamation Project Act of 1939 (53 Stat. 1197; 43 U.S.C. § 389) authorizes the Secretary of the Interior, for the purpose of orderly and economical construction or operation and maintenance of any project, to enter into such contracts for exchange or replacement of water, water rights, or electrical energy, or for the adjustment of water rights, as in his judgment are necessary and in the interests of the United States and the CVP project.

1.4.3 Central Valley Project Improvement Act (CVPIA)

Central Valley Project Improvement Act of 1992, Title 34 (of Public Law 102-575), Section 3405(a), authorizes all individuals or districts who receive CVP water under water service or repayment contracts, water rights settlement contracts or exchange contracts to transfer, subject to certain terms and conditions, all or a portion of the water subject to such contract to any other California water users or water agency, State or Federal agency, Indian Tribe, or private non-profit organization for project purposes or any purpose recognized as beneficial under applicable State law.

CVPIA Section 3408(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).

Reclamation completed the Final Programmatic Environmental Impact Statement (EIS) for the CVPIA in October 1999 that analyzed alternatives and implementation of the CVPIA. The Record of Decision (ROD) was signed in January 9, 2001.

1.5 Related Projects and Programs

The following EAs and FONSI's performed by Reclamation were similar in scope and effects to the current project, and are incorporated by reference.

1.5.1 EA-09-031

Reclamation approved EA and FONSI-09-031 “Transfer of up to 4,400 Acre-feet (af) of Central Valley Project Water from Firebaugh Canal Water District to San Luis Water District or Westlands Water District” on April 21, 2009. This action was similar to the FCWD portion of the Proposed Action analyzed in this document, except that the amount of water was 600 af less, and the period evaluated was from April 2009 through September 2009.

1.5.2 EA-09-067

Reclamation approved EA and FONSI-09-067 “Central California Irrigation District Transfer of up to 15,000 af to San Luis, Panoche, Del Puerto and Westlands Water Districts” on May 5, 2009. This action was similar to the CCID portion of the Proposed Action analyzed in this document, except that the amount of water was 5,500 af less, and the period evaluated was from May 2009 through September 2009.

1.5.3 SEA-09-114

Reclamation approved Supplemental EA 09-114 “Amendment to Approve an Additional 5,500 af to Central California Irrigation District's Transfer of up to 15,000 af to San Luis, Panoche, Del Puerto, and Westlands Water Districts” on July 23, 2009. This action increased the amount of water involved with the project listed in 1.5.2, but didn't change the time frame. When combined with the quantity of water analyzed in the original EA, the total was 20,500 af. This means that the CCID proposed actions in 2009 differed from the currently proposed action only in the time period covered.

1.5.4 EA-10-02

Reclamation approved EA and FONSI-10-02 “Transfer of up to 20,500 af of Central Valley Project Water from Central California Irrigation District to San Luis, Panoche, Del Puerto and Westlands Water Districts and up to 5,000 af of Central Valley Project Water from Firebaugh Canal Water District to San Luis Water District or Westlands Water District” on May 28, 2010. This action was identical to the Proposed Actions, except FCWD proposed use of an additional well, the time periods evaluated were May 2010 through December 2010 and April 2011 through December 2011.

1.5.5 South-of-Delta Accelerated Water Transfer Program

The CVPIA was signed into law in 1992 to mandate changes in management of the CVP. In addition to protecting, restoring, and enhancing fish and wildlife, one of the other purposes of the CVPIA is to increase water-related benefits provided by the CVP to the State of California through expanded use of voluntary water transfers and improved water conservation. To assist California urban areas, agricultural water users, and others in meeting their future water needs, Section 3405(a) of the CVPIA authorizes all individuals or districts who receive CVP water under water service or repayment contracts, water rights settlement contracts or exchange contracts to transfer, subject to certain terms and conditions, all or a portion of the water subject to such contract to any other California water users or water agency, State or Federal agency, Indian Tribe, or private non-profit organization for project purposes or any purpose recognized as beneficial under applicable State law.

After enactment of the CVPIA, Reclamation has historically acknowledged water transfers and/or exchanges between CVP contractors geographically situated within the same region and who are provided water service through the same CVP facilities under an accelerated water transfer program. In 2010, Reclamation approved the continuation of the SOD AWTP through February 29, 2016. Reclamation prepared EA-10-051, *Accelerated Water Transfers and Exchanges, Central Valley Project, South of Delta Contractors 2011-2015* and a FONSI was signed on February 14, 2011.

1.5.6 Exchange Contractors 25-Year Water Transfer Program

The Exchange Contractors are currently transferring up to 130,000 AF of their substitute water to Reclamation under a 10-year (March 1, 2005, through February 28, 2014) water transfer program. Under the current program, the Exchange Contractors develop sources of water to temporarily reduce the need for delivery of substitute water by Reclamation. The sources of water developed by the Exchange Contractors include a maximum of 80,000 AF from conservation, tailwater recapture, and groundwater as well as a maximum of 50,000 AF from voluntary temporary land fallowing. For each acre-foot of water developed by the Exchange Contractors, an in-kind amount of water is considered acquired and left within the CVP for Reclamation to deliver to CVP contractors or wildlife areas. Reclamation and the Exchange Contractors prepared an Environmental Impact Statement (EIS) / Environmental Impact Report (EIR) for the 10 year program and a Record of Decision (ROD) was completed March 23, 2005. As the program will expire soon, Reclamation and the Exchange Contractors have proposed extending the program for another 25 years. A draft EIS/EIR was released for a 60 day public review on May 4, 2012 (Reclamation, 2012b).

1.5.7 Groundwater Pumping/Water Transfer Project for 25 Consecutive Years

CCID and FCWD operate this program to alleviate drainage impacts to approximately 28,000 acres of land in the two districts. The program relies on a combination of strategies to manage drainwater production, including: groundwater pumping, water conservation, and temporary land fallowing. Approximately 28,000 acres of drainage-impaired land within the two districts are a part of the program. The groundwater supply and demand reductions developed by the program frees up commensurate surface water supplies that are used for transfer to other CVP contractors in the San Luis Unit and San Felipe Division. These transfers provide funding for managing shallow groundwater levels within a portion of the Exchange Contractors' service area and implementation of capital improvements for the Grassland Bypass Project (see below). Reclamation and the Exchange Contractors prepared EA-07-140, *Groundwater Pumping/Water Transfer Project for 25 Consecutive Years* and a FONSI was signed on January 14, 2008.

1.5.8 Mendota Pool Group Exchanges

In March 2005, Reclamation signed a ROD approving the implementation of a 10 year exchange agreement between Reclamation and the members of the Mendota Pool Group. The Mendota Pool Group is comprised of an unincorporated association of farmers that own approximately 50,000 acres of historically irrigated farmland in WWD and SLWD. The Mendota Pool Group also has members located near the Mendota Pool in WWD and Farmers Water District. The 10 year exchange agreement allows Mendota Pool Group

farmers in the Mendota Pool area to deliver up to 25,000 af/year of groundwater into the Mendota Pool in exchange for CVP irrigation water delivered to the San Luis Canal for use by Mendota Pool Group farmers in SLWD and WWD.

The environmental effects of the Mendota Pool Group 10 year exchange program were analyzed in the Environmental Impact Statement EIS-01-81 *Mendota Pool 10 Year Exchange Agreements* (Reclamation 2005). EIS-01-81 analyzed impacts to groundwater levels, groundwater quality, land subsidence, surface water quality and sediment quality in the Mendota Pool, biological resources, CVP operations, archaeological and cultural resources, Indian Trust Assets, land use, traffic, air quality, noise, environmental justice, and socioeconomics. The 10 year exchange agreement was anticipated to have less-than-significant effects on the majority of resource areas considered in the analysis. The primary adverse effect of the action was to increase the cumulative rate of groundwater degradation in wells west of the Mendota Pool, primarily Mendota Pool Group wells. The degradation of groundwater quality was not anticipated to be translated to a significant effect on surface water quality because of the adaptive management of surface water quality using modeling to forecast potential effects. Mitigation actions that addressed potential impacts of the exchange program were included in the EIS and incorporated into the exchange agreement. These mitigation actions include a baseline pumping program, design constraints, a monitoring program, and adaptive management.

1.5.9 Groundwater Pump-in Programs for San Luis Unit and Delta Division Contractors

Under this project, participating CVP contractors within the Delta Division and San Luis Unit of the CVP could pump up to 50,000 AF total of groundwater into the Delta-Mendota Canal between March 1, 2012 through February 28, 2014 (Contract Years 2012 and 2013). The project was analyzed in EA-12-005 *Two-Year Exchange Agreements and/or Warren Act Contracts for Conveyance of Groundwater in the Delta-Mendota Canal – Contract Years 2012 through 2014 (March 1, 2012 – February 28, 2014)* and a FONSI was completed on May 8, 2012. The action was previously conducted between March 1, 2010 through February 28, 2012 (Contract Years 2010 and 2011) and analyzed in EA-09-169. It is likely that these actions would be requested in the future.

1.5.10 San Joaquin River Restoration Project

In 2006, the San Joaquin River Restoration Program (SJRRP) was established to implement the Stipulation of Settlement in *NRDC, et al. v. Kirk Rodgers et al.* The Settlement's two primary goals include: (1) restoration and maintenance of fish population in the San Joaquin River below Friant Dam to the confluence of the Merced River; and (2) management of water resources in order to reduce or avoid adverse water supply impacts to Friant Division long-term contractors. The SJRRP is a long-term effort to restore flows to the San Joaquin River from Friant Dam to the confluence of Merced River in order to meet the two goals established in the Settlement. In 2007, Reclamation released a notice of intent to prepare a programmatic EIS/EIR in the Federal Register. The draft programmatic EIS/EIR was released for a 60 day public review on April 22, 2011. A final programmatic EIS/EIR is pending.

As an initial action to guide implementation of the SJRRP, the Settlement requires that Reclamation modify releases from Friant Dam from October 1 to September 30 for a program of interim flows in order to collect pertinent scientific data and to implement a monitoring program. Environmental effects for the release of interim flows from Friant Dam down the San Joaquin River were addressed in a FONSI and EA/Initial Study entitled *Water Year 2010 Interim Flows Project*. Supplemental EAs and FONSIs for continuation of interim flows were also completed for Water Years 2011 and 2012 (October 1, 2011 through September 30, 2013). Full restoration flows are scheduled to start no later than January 1, 2014.

In order to reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the interim flows, Reclamation developed plans for recirculation, recapture, reuse, and exchange or transfer of interim flows. An EA that analyzed the impacts of recirculation of interim flows entitled *Recirculation of Recaptured Water Year 2012 San Joaquin River Restoration Program Interim Flows* was released for public comment on February 7, 2012 and a FONSI completed on April 3, 2012.

1.5.11 Grassland Bypass Project

In March 1996, the Grassland Area Farmers formed a regional drainage entity under the umbrella of the San Luis and Delta-Mendota Water Authority (SLDMWA) to implement the Grassland Bypass Project and manage subsurface drainage within the Grassland Drainage Area. Participants included the Broadview Water District, Charleston Drainage District, Firebaugh Canal Water District, Pacheco Water District, Panoche Drainage District, Widren Water District, and the Camp 13 Drainers (an association of landowners located in the Central California Irrigation District). The Grassland Area Farmers' drainage area consists of approximately 97,400 gross acres of irrigated farmland on the west side of San Joaquin Valley and is known as the Grassland Drainage Area. Discharges of subsurface drainage from this area contain elevated levels of salt, selenium, and boron (Reclamation 2009a).

The original Grassland Bypass Project was implemented in November 1995 through an *Agreement for Use of the San Luis Drain* (Agreement No. 6-07-20-w1319) between Reclamation and the SLDMWA. The agreement allowed SLDMWA to use a portion of the San Luis Drain to convey agricultural drainage water through adjacent wildlife management areas to Mud Slough, a tributary to the San Joaquin River. The 1995 Use Agreement allowed for use of the San Luis Drain through September 30, 2001. This agreement was extended through December 31, 2009 through a second Use Agreement. On December 21, 2009, Reclamation signed a ROD to extend the Use Agreement to December 31, 2019.

1.5.12 Meyers Farms Groundwater Banking Program

The Meyers Family Farm Trust pursued development of the Meyers Farm Water Bank to store water in above-normal and wet years for later use during below-normal, dry, and critically-dry years. Under the banking program, CVP and non-CVP water to be banked flows from the Mendota Pool into five recharge ponds. Banked water is later extracted and pumped into Mendota Pool for exchange with Reclamation.

The original project was analyzed in EA-05-09 *Meyers Farm Water Banking Project – Mendota, California* and a FONSI signed May 9, 2005. Two supplemental EAs and FONSIs for the project were prepared to increase the annual extraction rate and to add Banta-Carbona Irrigation District's non-CVP surface water to the banking program. In addition, Reclamation has recently received a request to increase the rate of extraction from Meyers Bank from 6,316 AFY to 10,526 AFY, to amend the cumulative total amount of CVP water banked from 35,000 AF to 60,000 AF at any given time, to increase the amount of Banta Carbona Irrigation District's non-CVP water conveyed in the Delta-Mendota Canal for banking from 5,000 AFY to 10,000 AFY, to approve the annual transfer of up to 10,000 AFY of Banta Carbona Irrigation District's CVP water in-lieu of their non-CVP water for banking at Meyers Bank, and to deliver banked water via exchange to other areas within the service area of SLWD. Reclamation is currently preparing an EA for the proposed amendments. A draft EA/FONSI was released for public review on July 2, 2012; the comment period is scheduled to close on July 31, 2012.

1.6 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment of the Proposed Action and has determined that there is no potential for direct, indirect, or cumulative effects to the following resources; therefore they will not be considered further.

1.6.1 Cultural Resources

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

Reclamation determined on March 9, 2012 that the Proposed Action has no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1).

1.6.2 Indian Sacred Sites

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

Executive Order 13007 requires Federal land managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites.

No impact to Indian sacred sites would occur under the No Action Alternative as conditions would remain the same as existing conditions. The Proposed Action would not limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or adversely affect the physical integrity of such sacred sites. There would be no impacts to Indian sacred sites as a result of the Proposed Action.

1.6.3 Indian Trust Assets

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

Reclamation determined on June 26, 2012 that the Proposed Action would not impact ITA as there are none in the Proposed Action area.

1.7 Resources Requiring Further Analysis

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

- Water Resources
- Land Use
- Biological Resources
- Socioeconomic Resources
- Environmental Justice
- Air Quality
- Global Climate

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Section 2 Alternatives Including the Proposed Action

This EA considers two possible actions: the No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions over the next two years 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 transfer of up to 20,500 af from CCID to the Transfer Recipient Districts from July 2012 through December 2012, and April 2013 through December 2013. In addition, Reclamation would not approve the transfer of up to 5,000 af from FCWD to SLWD and WWD for the same period. Reclamation would continue to deliver CVP water to CCID and FCWD, which would be delivered by the districts to individual landowners within the respective boundaries of CCID and FWCD.

2.2 Proposed Action

2.2.1 Central California Irrigation District Transfers

Reclamation proposes to approve a series of annual transfers of up to 20,500 af of CCID's San Joaquin River Exchange Contractors' (Exchange Contractors) CVP Contract (Exchange Contract) supplies to the Transfer Recipient Districts. Following execution of the potential Finding of No Significant Impact and approval by the Contracting Officer, the transfers would occur July 1, 2012 through December 31, 2012 and April 1, 2013 through December 31, 2013. This will be the study period for evaluating any direct, indirect and cumulative effects.

Common landowners in CCID and the Transfer Recipient Districts would pump up to 75 cubic feet per second (cfs) of groundwater from up to 23 wells interspersed throughout CCID. The District has an "open enrollment" process and because of this, the exact well locations from which the water would be pumped are not yet known; wells within CCID that have previously pumped groundwater for transfer are shown in Figure 2-1. This groundwater would be discharged into CCID's conveyance system to meet in-district demands. In exchange, a portion of CCID's CVP surface water supply would be delivered to the Transfer Recipient Districts from the DMC and/or SLC.

2.2.2 Firebaugh Canal Water District Transfers

Reclamation proposes to approve a series of annual transfers of up to 5,000 af of FCWD's Exchange Contract CVP supplies to WWD and/or SLWD. Following execution of the potential Finding of No Significant Impact and approval by the Contracting Officer, the transfers would occur July 1, 2012 through December 31, 2012 and April 1, 2013 through

December 31, 2013. This will be the study period for evaluating any direct, indirect and cumulative effects.

FCWD would pump up to 15 cfs of groundwater from up to 4 wells that would directly discharge into FCWD's Intake Canal (Figure 2-2). This groundwater would be used to meet FCWD's in-district demands. In exchange, a portion of FCWD's CVP surface water supply would be delivered to WWD and/or SLWD from the DMC and/or SLC.

2.2.3 Environmental Commitments/Requirements

Reclamation's CVP Transfer Restrictions

Reclamation would place the following restrictions on the CVP water associated with this action.

- No native or untilled land (fallow for three consecutive years or more) may be cultivated with CVP water involved in these actions.
- No new construction or modification of existing facilities may occur in order to complete the Proposed Action.
- Transfers and exchanges involving CVP water cannot alter the flow regime of natural waterways or natural watercourses such as rivers, streams, creeks, ponds, pools, wetlands, etc., so as to have a detrimental effect on fish or wildlife or their habitats.
- All transfers and exchanges involving CVP water must comply with all applicable Federal, State and local laws, regulations, permits, guidelines and policies.
- The Proposed Action would not increase or decrease water supplies that would result in development.
- Under the Proposed Action, CCID would not increase the receiving water's salinity above 700 mg/L TDS, and would apply these commitments for any wells that would pump groundwater into CCID's Main Canal upstream of Mile Post 53.856:
- The wells would not be authorized to pump for transfer during the fall months (September 15 through December), when there is reduced flow and water quality for some wildlife refuges is most critical.
- A non-detect requirement for selenium in groundwater tested at least annually at the wellhead, by a method with a detection limit of no more than 1 microgram/liter (µg/L).

Exchange Contractors' Groundwater Management Plan

Both CCID and FWCD are party to the San Joaquin River Exchange Contractors Water Authority's AB 3030 Groundwater Management Plan (Appendix A). The entire plan and its requirements are incorporated herein by reference. Transfers conducted under this action would be required to follow the plan's requirements for surface water transfers.

Central California Irrigation District

In addition to Reclamation's policies and the Exchange Contractors' groundwater management plan, CCID and their landowners would follow the policies entitled "*Central California Irrigation District Water Transfer Policy*" and "*Central California Irrigation District Rules Governing Pumping of Private Wells for Credits in Other Districts.*" Copies

of both policies are attached to the Exchange Contractors' groundwater management plan (Appendix A).

Refuge Supplies To avoid potential adverse impacts to wildlife refuge water supplies, CCID would apply these additional commitments for any wells that would pump groundwater into CCID's Main Canal upstream of Mile Post Station 53.856:

- The wells would not be authorized to pump for transfer during the fall months (September 15 through December 15), when there is reduced flow and water quality for some wildlife refuges is most critical.
- Non-detect for selenium in groundwater tested at least annually at the wellhead, by a method with a detection limit of no more than 1 µg/L.

Firebaugh Canal Water District

In addition to Reclamation's policies and the Exchange Contractors' groundwater management plan, FCWD and their landowners would follow the policy entitled "*Firebaugh Canal Water District Water Transfer Policy*." A copy of the policy is attached to the Exchange Contractors' groundwater management plan (Appendix A).

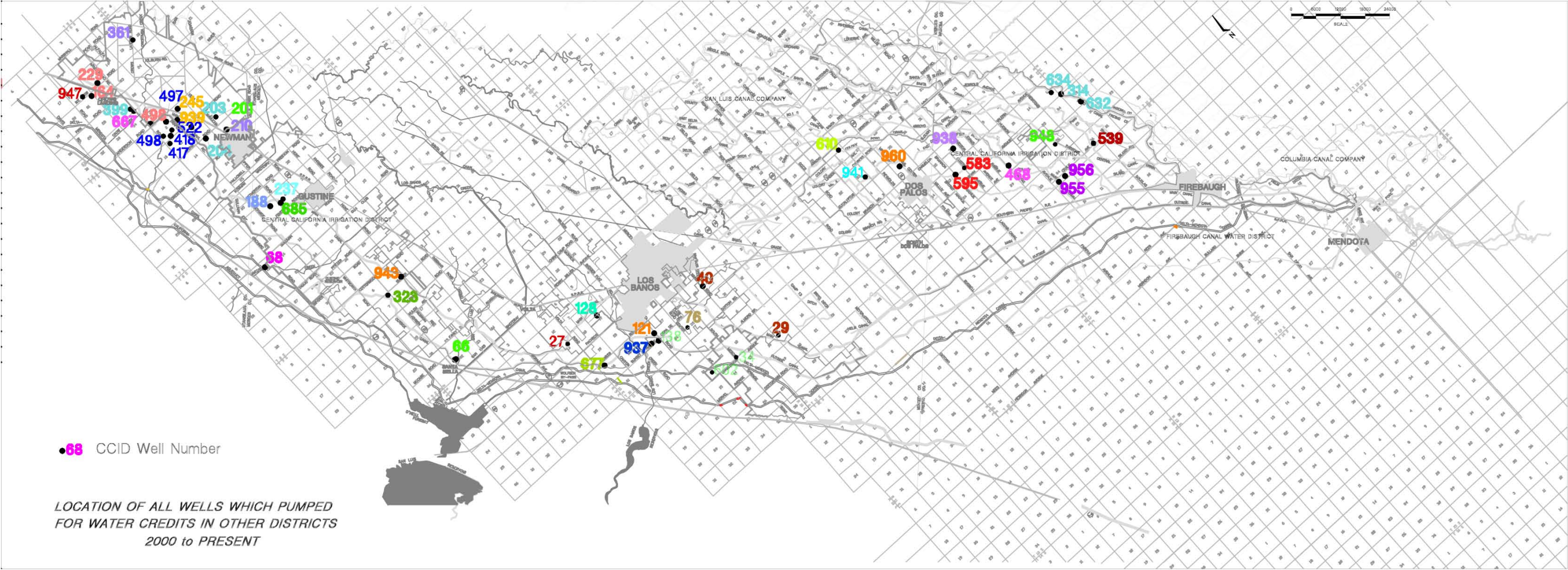


Figure 2-1 Location of Wells utilized in CCID Which Have Pumped for Transfer Credits, 2000 to Present



Figure 2-2 Location of FCWD Wells Which Would Pump Up to 15 cfs/day

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Section 3 Affected Environment and Environmental Consequences

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

3.1 Water Resources

3.1.1 Affected Environment

Surface Water

Table 3-1 lists the most recent allocations for SOD CVP agricultural contractors. The five-year average is 43% of contract total. Allocations are made and refined throughout the year, based on hydrologic conditions and pumping capabilities; therefore the 2012 allocation may increase if there are additional rain and snow events. The Transfer Recipient Districts are likely to be in a water deficit even if the allocation increases.

Table 3-1 Past Decade's SOD CVP Agricultural Allocations

Year	Allocation (% of Contract Total)
2012-2013	40 %
2011-2012	80 %
2010-2011	45 %
2009-2010	10 %
2008-2009	40 %
Average	43 %

San Joaquin River Exchange Contractors The Exchange Contractors, which include CCID, FCWD, San Luis Canal Company and Columbia Canal Company, hold historic water rights to water in the San Joaquin River (SJR). Their service area is located on the west side of the San Joaquin Valley. In exchange for the CVP's 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 terms of the Exchange Contract limit the quantity of surface water delivery in accordance with a five-month and seven-month schedule, and further limit the monthly quantity of water delivered.

Central California Irrigation District CCID receives its surface water supplies from Reclamation pursuant to the Exchange Contract. CCID's annual CVP supply is 532,000 af in a non-critical year. As a result of the Exchange Contract schedule constraints, CCID has historically relied on groundwater to supplement surface water especially during peak summer water demand months.

The district historically utilizes all of its annual contract supply. CCID also typically pumps approximately 49,000 af/year of groundwater and utilizes approximately 46,000 af of reclaimed water from drainage reuse (CCID, 2005).

CCID has one Municipal and Industrial (M&I) customer, the City of Dos Palos, which typically receives approximately 1,450 af/year.

CCID's water quality is reflected by water quality analyses in CCID's Main Canal (Table 3-2). Values are in the typical range for DMC deliveries, with some variation due to additional sources of water (for example, flood flows).

Table 3-2 CCID Main Canal Headworks Salinity Data

Five Year Monthly Averages												
Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	550	559	521	482	457	473	350	470	593	533	548	599
2008	568	611	685	562	525	549	426	525	598	575	602	
2009		872	689	588	565	587	346	478	562	556	524	
2010	863	726	474	249	281	332	292	341	503	519	426	554
2011	140	319	218	101	73	79	140	292	295	265	285	
Avg. EC	484	587	559	529	409	361	302	408	492	481	532	618
Avg. TDS	315	379	361	343	269	239	203	268	320	313	345	398
Annual											5 Year Avg.	
Year	2007		2008		2009		2010		2011		2007 - 2011	
Avg. EC	508		301		572		454		194		468	
Avg. TDS	330		202		369		297		136		305	
Comments:												
Daily	Values originate from a continuous EC recorder, averaged over a 24 hour period											
Monthly	Values originate from the average of each daily value recorded for that month.											
Annual	Values originate from the average of each daily value recorded for that year.											
Five Year	Values originate from the average of each daily value recorded for the five year period.											
EC	Electrical Conductivity measured in micromhos/cm.											
TDS	Total Dissolved Soldis measures in parts per million											
EC to TDS	Conversion factor of 0.618+16											

Firebaugh Canal Water District Firebaugh Canal Water District provides water to 22,600 irrigable acres in northwestern Fresno County, extending from just north of the City of Mendota to northwest of the City of Firebaugh. The District shares a common boundary with Westlands, Broadview, Mercy Springs, Widren, and Panoche Water Districts. FCWD's Exchange Contract CVP supply is 85,000 af in a non-critical year. The district historically utilizes all of its annual contract supply.

Transfer Recipient Districts The Transfer Recipient Districts hold contracts with Reclamation for delivery of CVP supply via the Delta. Their service areas are located on the west side of the San Joaquin Valley. The Districts take delivery via the DMC, SLC, and/or Mendota Pool.

Del Puerto Water District Del Puerto Water District is located in San Joaquin, Stanislaus, and Merced Counties. The district annually irrigates approximately 40,000 acres and its CVP contract amount is 131,000 af/year delivered from the DMC. The district's only M&I uses are approximately 2 af/month used for commercial landscape irrigation and dust suppression.

Panoche Water District Panoche Water District is located in both Merced and Fresno Counties. The District annually irrigates approximately 35,000 acres and has a CVP contract for 93,988 af/year from either the DMC (2 turnouts), or the SLC (6 turnouts). With the exception of drought conditions, almost no groundwater is utilized in the District. The District supplies about 50 acre-feet of water per year for M&I purposes; there is also some domestic use which is incidental to agriculture.

San Luis Water District The San Luis Water District is located near in both Merced and Fresno Counties. The District annually irrigates between approximately 30,000 and 40,000 acres. They have a CVP contract for 125,080 af/year from either the DMC or SLC. Although water deliveries by SLWD historically have been almost exclusively used for agricultural use, substantial development in and around Los Banos and Santa Nella have resulted in a shift of some water supplies to M&I use. The district currently supplies approximately 800 af/year to 1,300 homes and businesses.

Westlands Water District Westlands Water District provides water to over 570,000 acres of farmland between the California Coast Range and the trough of the San Joaquin Valley in western Fresno and Kings Counties. Westlands' CVP supply portfolio includes several contracts (Table 3-3), providing delivery from the DMC, SLC, or Mendota Pool. In addition to these CVP supplies, approximately 200,000 af of groundwater is pumped per year within the district's boundaries. The district supplies groundwater to some district farmers and owns some groundwater wells, with the remaining wells privately owned by water users within the district. Other water supply sources in the district include flood flows from the Kings River, which are available periodically and diverted from the Mendota Pool as well as transfers of supplemental water from other sources.

Table 3-3 Westlands Water District CVP Contracts

Contract or Assignment	Contract Supply (acre-feet / year)
Westlands Water District	1,150,000
Westlands Water District Distribution District #1 (full assignment from Broadview Water District)	27,000
Westlands Water District Distribution District #1 (full assignment from Centinella Water District)	2,500
Westlands Water District Distribution District # 1, Pajaro Valley Water Management Agency, and Santa Clara Valley Water District (3-way assignment from Mercy Springs Water District)	6,260
Westlands Water District Distribution District #1 (partial assignment from Oro Loma Water District)	4,000

Contract or Assignment	Contract Supply (acre-feet / year)
Westlands Water District Distribution District #1 (full assignment from Widren Water District)	2,990
Westlands Water District Distribution District #2 (partial assignment from Mercy Springs Water District)	4,198
Source: Reclamation, 2012b	

Westlands delivers small amounts of untreated, non-potable CVP water which is ultimately used for M&I purposes by Lemoore Naval Air Station and by various rural commercial and residential customers located within the district boundaries (Westlands, 2008). These M&I water deliveries are less than 0.5 percent of the water delivered by Westlands. Westlands also operates and maintains the 12-mile-long, concrete-lined Coalinga Canal, the Pleasant Valley Pumping Plant, and the laterals that supply CVP water to the cities of Coalinga and Huron, which have separate CVP supply contracts.

Mendota Pool The Mendota Pool is a regulating reservoir for 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 cfs to the Mendota Pool during the irrigation season. A lesser amount of water from the San Joaquin River enters Mendota Pool under the San Joaquin River Restoration Program; more enters during periods of flood flow from the San Joaquin River and Kings River. Mendota Pool extends over 5 miles up the San Joaquin River 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 due to siltation. 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 San Joaquin Valley basin floor.

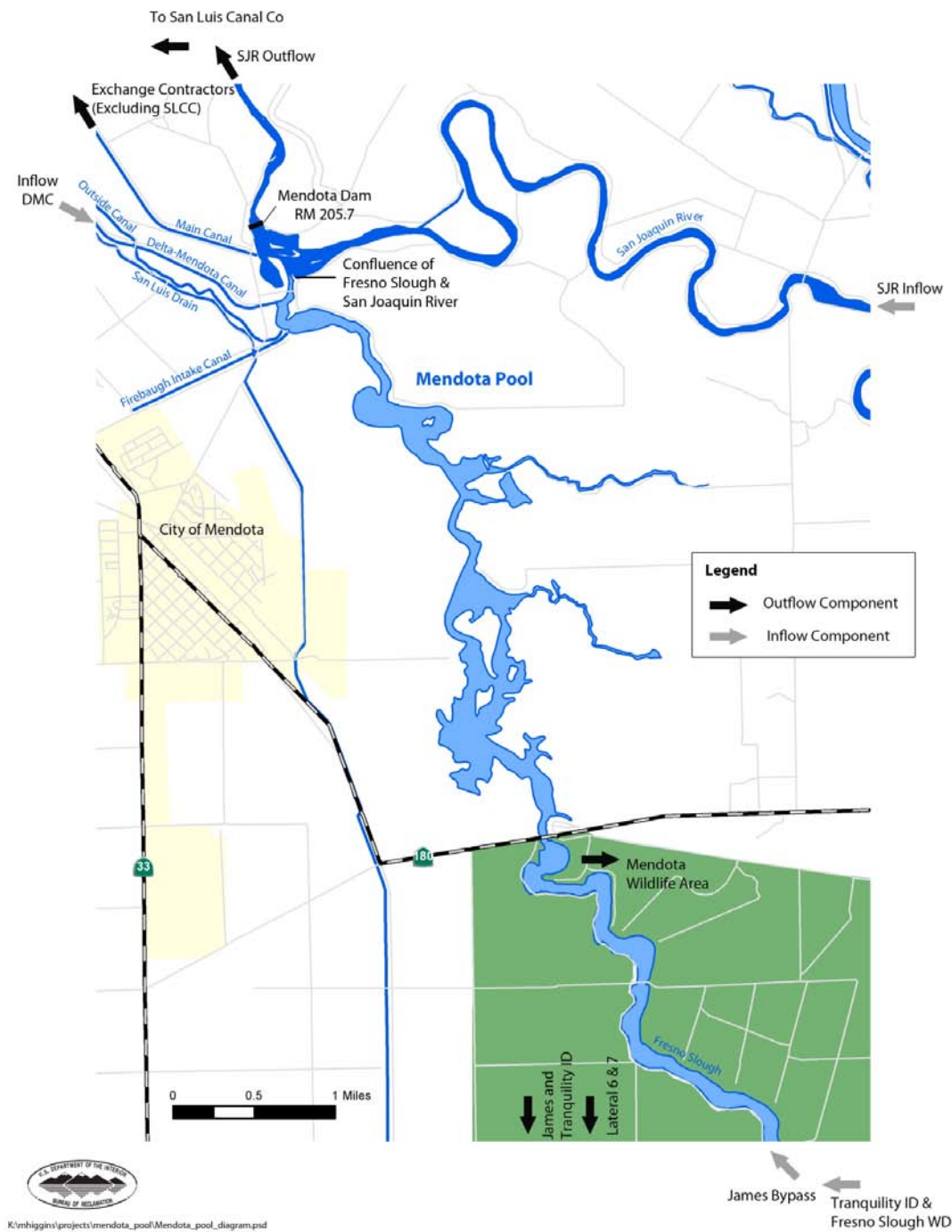
Water quality conditions in the Mendota Pool depend on inflows from the DMC, groundwater pumped into Mendota Pool from local wells and, to a limited extent, San Joaquin River inflows. Water quality in the San Joaquin River varies considerably along the river's length. Between Friant Dam and the Mendota Pool, the quality of water is generally excellent, with TDS concentrations of less than 50 milligrams per liter (mg/L). During the irrigation season, most of the water in the Mendota Pool is imported from the Delta via the DMC. This water has higher concentrations of TDS (often more than 300 mg/L).

Panoche Creek, an ephemeral stream, also flows into Mendota Pool and, during high flows in the winter and spring, high concentrations of selenium have been brought into Mendota Pool via Panoche Creek flows (North State Resources 1999).

An additional source of water into Mendota Pool comes from adjacent landowners pumping groundwater water into Mendota Pool and taking delivery

from it off the SLC via an exchange with Reclamation, at convenient timing (but within 30 days of pumping in) and at differing water quality.

Figure 3-1 Mendota Pool



Groundwater

According to the California Department of Water Resources (DWR) Bulletin 118 (DWR, 2003), groundwater provides approximately 30 percent of the total supply for the San Joaquin River Hydrologic Region. However, the amount of groundwater use within the region varies widely, both between different areas and from one year to the next. In WWD for example, groundwater has accounted for between 5 and 60 percent of total supply over the last 15 years, while in the Exchange Contractors' service area groundwater supplies have accounted for between 10 and 40 percent of the total over the last 10 years.

Much of the San Joaquin Valley (SJV) aquifer system is in overdraft conditions, although the extent of overdraft varies widely from region to region. The Tulare Basin region has experienced a greater degree of overdraft. Groundwater pumping in the SJV varies seasonally. Most groundwater is withdrawn during the spring-summer growing season, although pumping in some areas may occur throughout the entire year. Currently, the Exchange Contractors are not in an overdraft condition with the exception of the lands that lie in Madera County. No groundwater pumping for transfer would occur within Madera County.

The western SJV region has drainage problems caused by shallow clay layers of low permeability that limit recharge to groundwater. In addition, elevated concentrations of salinity, selenium, and boron exist in the semi-perched aquifer zone due to leaching from naturally occurring saline deposits from the Coast Range and have resulted in the accumulation of salts in the root zones of irrigated cropland. The San Joaquin Valley Drainage Program, established in 1984, published its recommendations for managing the drainage problem in 1990 (SJVDP 1990), culminating in a Memorandum of Understanding in 1991 that allows Federal and State agencies to coordinate activities for implementing the plan. East of the SJR, the valley is underlain by older sediments. The shallow groundwater quality is generally very good in this portion of the valley.

In the areas west of the SJR, unconfined groundwater generally flows to the northeast from the southwest, although groundwater pumping and irrigation complicates and changes local flow directions with time. Aquifer response to pumping and irrigation is relatively rapid, resulting in local changes in groundwater flow direction as associated temporary cones of depression and recharge mounds form and dissipate.

Exchange Contractors Generally, groundwater development in the Exchange Contractor's service area has not influenced shallow groundwater interaction with surface water bodies. The depth to shallow groundwater, less than 10 feet deep, has been monitored intensively since 1984. Studies performed by Kenneth D. Schmidt & Associates (KDSA) between 1997 and 2011 indicate that the predominant trend in the Exchange Contractor's service area is a long term constancy of water levels. No long term overdrafts are indicated for the upper or lower aquifers. Over 500 agricultural wells are located in the service area, and little or no expansion of the existing groundwater production well field is

projected. The projected agricultural demand for groundwater in the Exchange Contractors service area is static, while M&I demand is expected to increase moderately with time.

Agricultural pumping and transfers vary based on the availability of surface water. Table 3-4 shows historical pumping under prior years' transfer programs similar to the Proposed Action. The table gives an idea of the relationship between the Federal allocation and amounts of water pumped; for instance, in two years when the Federal allocation was 100 percent, a transfer program similar to the Proposed Action wasn't established and no water was pumped; however the table also shows that the lower the CVP allocation, the more water was transferred.

Table 3-4 Transfer Pumping in Relation to SOD CVP Agricultural Allocations

Year	SOD CVP Agricultural Allocation (% of Contract Total)	Transfer Quantity Approved (acre-feet)	Quantity Actually Pumped (acre-feet)
2011	80 %	20500	0
2010	40 %	20500	350
2009	10 %	21000	18078
2008	40 %	8900	7953
2007	50 %	14000	6202
2006	100 %	0	0
2005	100 %	0	0
2004	70 %	7629	3982
2003	75 %	5143	1957
2002	70 %	5700	4410
10-Year Average	63.5 %	10337.2	4293.2

Central California Irrigation District CCID is underlain by the Delta-Mendota Basin which has a usable capacity of 4,440,000 af and a safe yield of 503,000 af/year (CCID Water Conservation Plan 2005). As mentioned earlier, CCID would allow "open enrollment" in the transfer program, up to a maximum of 23 wells, which would pump an aggregate of up to 75 cfs. The wells which are part of the Proposed Action have previously been pumped (either for transfer or for landowner use); however the same wells cannot be pumped for three consecutive years under the program. While the exact location of enrolled wells is not yet known, Figure 2-1 shows wells within CCID that have previously pumped groundwater for transfers. The wells pumping under this action would be pumping from a relatively shallow level above the Corcoran clay.

CCID actively manages its surface and groundwater through tiered water price incentives and disincentives. Programs involving groundwater pumping are only

approved by CCID after evaluation of any impacts of the prior year's monitoring data.

Firebaugh Canal Water District Firebaugh Canal Water District is not in a groundwater conjunctive use area. Groundwater in FCWD has generally not been pumped for direct irrigation use (without mixing), because of the high salinity (often exceeding about 3,000 mg/l of total dissolved solids) (Reclamation 2004). FCWD overlies a saline sink with very poor groundwater quality that can only be pumped and used if blended into large fresh water supplies. The wells which are part of the Proposed Action have previously been pumped from 2007 to 2009, however for 12 years prior the wells had not been used. The wells pumping under this action would also be pumping from a relatively shallow level above the Corcoran clay, from 180 to 240 feet below ground surface.

San Luis Water District and Westlands Water District Groundwater conditions of the San Luis Unit are typified by those of the Westside Sub-basin. This sub-basin consists mainly of lands in WWD and is located between the Coast Range foothills on the west and the SJR drainage and Fresno Slough on the east. Primary recharge to the aquifer system is from seepage of Coast Range streams along the west side of the sub-basin and deep percolation of surface irrigation. Flood basin deposits have caused near surface soils to drain poorly, thus restricting the downward movement of percolating water. This restricts drainage of irrigation water and results in the development of irrigation problem areas.

Groundwater levels in the Westside Sub-basin were generally at their lowest levels in the late 1960s, prior to importation of surface water. After the CVP began delivery to the San Luis Unit in 1967-68, water levels gradually increased to a maximum in about 1987-88, falling briefly during the 1976-77 drought. Water levels began dropping again during the 1987-92 drought. Through a series of wet years after the drought, 1998 water levels recovered nearly to 1987-88 levels. The fluctuations in water levels illustrate both the importance of CVP deliveries in sustaining groundwater levels and the continuing influence of local and CVP-wide hydrologic conditions on surface water availability and, hence, on groundwater conditions in those areas where groundwater is pumped. Westlands Water District and SLWD both have approved groundwater management plans, an indication of the districts' involvement in management of their groundwater resources.

In addition to the CVP supply, groundwater is available to some of the lands within WWD. The safe yield of the aquifer underlying WWD is approximately 200,000 af of water. WWD supplies groundwater to some district farmers and owns some groundwater wells, with the remaining wells privately owned by water users in WWD. Other water supply sources available to the district for purchase include floodwater diverted from the Mendota Pool in periods of high runoff (Reclamation 2007b).

Subsidence This occurs in the western SJV where land that had been used for grazing or dry farming was converted to irrigated agriculture with the use of groundwater. As a result of historic groundwater overdraft, land subsidence is widespread along the western and southern parts of the SJV. In the years since 1970, the rate of subsidence has declined because surface water was imported to the areas. The Exchange Contractors are conducting annual subsidence monitoring as part of their AB 3030 Groundwater Management Plan (Exchange Contractors 1997, 2008). The Exchange Contractors are also continuously monitoring subsidence, water levels, and compaction at two extensometers located along CCID facilities in Fresno County. The sites are located near the Mendota Pool and at the intersection of Russell Avenue and the DMC.

The Mendota Pool Group has subsidence data for the Mendota Pool area. Their data has shown that shallow wells do not substantially contribute to inelastic subsidence defined as a permanent reduction in aquifer capacity. Their most recent report indicates that inelastic compaction above the Corcoran clay in the Mendota Pool area was .01 feet per year or less, while inelastic compaction below the Corcoran clay was ten times as great (Luhdorff & Scalmanini and Kenneth D. Schmidt and Associates, 2011).

3.1.2 Environmental Consequences

No Action

Under the No Action Alternative Reclamation would not approve any of the proposed transfers. SLWD, PWD, DPWD and WWD's options to mitigate the current surface water supply deficits would be limited. Landowners in SLWD, PWD, DPWD and WWD would pump available groundwater or acquire other surface water as well as taking actions to strategically reduce water demand in the district through abandonment of crops or fallowing lands.

CCID would retain their 20,500 af of Exchange Contactor CVP supplies, FCWD would retain their 5,000 af of Exchange Contactor CVP supplies, and no additional groundwater due to this project would be pumped.

Proposed Action

For the CCID action, the transfer of 20,500 af would offset a small portion of the total 2012-2013 surface water supply deficit in the Transfer Recipient Districts. The water transfer would minor compared to the total surface water supply deficits in the Transfer Recipient Districts; however some individual growers would benefit.

Water supplies in CCID would continue to meet agricultural water demand despite the transfer. Landowners in CCID would pump an equivalent amount of groundwater to offset surface water deliveries. This transfer would be required to follow the environmental commitments outlined above in subsection 2.2.3. Following these commitments would maintain safe yield in the groundwater

basin. The CCID groundwater pumping may be further offset by a reduction in groundwater pumping in the Transfer Recipient Districts.

The 20,500 af of lower-quality groundwater pumped into the CCID's distribution system is required to not increase the TDS in CCID's canals to more than 700 mg/L.

Under the Proposed Action CCID would have sufficient water supplies to meet their water demands. CVP and California State Water Project (SWP) facilities would not be impacted as the transferred water must be scheduled and approved by Reclamation and DWR. No natural streams or water courses would be affected since no additional pumping or diversion that would not have happened under the No Action Alternative would occur. There would be a minor positive impact to surface water resources and a no impact to groundwater resources due to the Proposed Action.

For the FCWD action, transfer of 5,000 af would offset a small portion of the total 2012-2013 surface water supply deficit in WWD and SLWD; however some individual growers would benefit.

Water supplies in FCWD would continue to meet agricultural water demand despite the transfer. FCWD would pump an equivalent amount of groundwater to offset surface water deliveries. This transfer would be required to follow the environmental commitments outlined above in subsection 2.2.3. Following these commitments would maintain safe yield in the groundwater basin. The FCWD groundwater pumping may be further offset by a reduction in groundwater pumping in the Transfer Recipient Districts.

Well specifications for the FCWD action include:

- 8 cfs well estimated to pump up to 2,000 af
- 4 cfs well estimated to pump up to 1,100 af
- 5 cfs well estimated to pump up to 1,000 af
- 3 cfs well estimated to pump up to 900 af

Due to the shallow zone from which the wells are pumping, the groundwater being intercepted would be water that is normally replenished annually. There has been no long-term overdraft experienced in this aquifer (KDSA 2011b).

Additionally, since the wells are pumping a relatively small quantity from an area of no other groundwater pumping and the pumping is being done from the shallow zone, inelastic subsidence is unlikely to occur.

The 5,000 af of low quality groundwater pumped into the FCWD's distribution system has been calculated to change the TDS in FCWD's Intake Canal by no more than 30 mg/L. This water quality impact is within the normal water quality fluctuation in the canal system due to Delta pumping tidal influences and other

influences. Under the Proposed Action, FCWD would have sufficient water supplies to meet their water demands. Central Valley Project and SWP facilities would not be impacted, as the transferred water must be scheduled and approved by Reclamation and DWR. No natural streams or water courses would be affected since no additional pumping or diversion that would not have happened under the No Action Alternative would occur. There would be no impact to surface or groundwater water resources due to the Proposed Action.

Cumulative Impacts

Cumulative impacts result from incremental impacts of the Proposed Action or No Action alternative 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 or the No Action alternative, the incremental effect of both alternatives were examined together with impacts from past, present, and reasonably foreseeable future actions in the same geographic area. A list of related projects and programs is located in Section 1.5.

Since the Proposed Action would not involve construction or modification, nor interfere with CVP or SWP operations, there would be no cumulative impacts to existing facilities or other contractors.

As CCID and FCWD would follow the Exchange Contractors' AB3030 Groundwater Management Plan and restrict pumping to below the safe yield, there would be no cumulative impacts to groundwater or subsidence in the Exchange Contractors' service area. Since the transfers may reduce groundwater pumping in the Transfer Recipient Districts, the Proposed Action may reduce the risks of groundwater overdraft and subsidence in their respective areas. As a result, the Proposed Action would have no potential adverse impacts, but may have a cumulative beneficial effect on groundwater resources.

CCID and FCWD would avoid any cumulative adverse impacts to water quality involving water delivered to their users by following the commitments outlined in the districts' respective rules. CCID's commitments regarding the Main Canal upstream of Mile Post Station 53.856 would avoid potential adverse cumulative impacts to refuge water quality. Since the transferred water delivered via the DMC and SLC would be CVP supplies, there would be no cumulative impacts to water quality delivered to the Transfer Recipient Districts.

These findings indicate that there may be slight beneficial effects, but no adverse impacts to water resources resulting from the Proposed Action.

3.2 Land Use

3.2.1 Affected Environment

Central California Irrigation District

CCID covers an area of 144,000 acres on the west side of the SJV lying between cities of Mendota on the south and Crows Landing on the north. CCID serves 1,500 agricultural customers as well as the City of Dos Palos, their sole M&I customer.

Del Puerto Water District

Del Puerto Water District is located along the DMC corridor in southern San Joaquin County, western Stanislaus County and northwestern Merced County. The district's overall area is approximately 54,671 acres in size, of which approximately 40,000 acres are developed in irrigated agriculture. The district's only M&I uses are approximately 2 af/month used for commercial landscape irrigation and dust suppression.

Firebaugh Canal Water District

Firebaugh Canal Water District provides water to 22,600 irrigable acres in northwestern Fresno County, extending from just north of the City of Mendota to northwest of the City of Firebaugh. The District shares a common boundary with Westlands, Broadview, Mercy Springs, Widren, and Panoche Water Districts. FCWD is located within the Grassland Drainage Area boundary.

Panoche Water District

Panoche Water District is located in both Merced and Fresno Counties. The District annually irrigates approximately 35,000 acres. There are approximately 300 full-time residents living in the PWD service area. This population is comprised primarily of farm labor residents working on adjacent farms. This population has remained virtually the same for over 10 years and is not anticipated to grow due to any non-farming circumstances. Panoche Water District supplies about 50 af of water per year for M&I and domestic purposes. Panoche Water District does not have any industrial use customers.

San Luis Water District

SLWD is located on the western side of the SJV near the town of Los Banos, within both Merced and Fresno Counties. SLWD was formed in 1951 and is comprised of approximately 66,218 acres, of which 56,500 are irrigable. In recent years irrigated acreage has been between 30,000 and 40,000 acres due to declining water supply reliability. Although water deliveries by SLWD historically have been almost exclusively used for agricultural use, substantial development in and around Los Banos and Santa Nella have resulted in a shift of some water supplies to M&I use. The district currently supplies approximately 800 af/year to 1,300 homes and businesses.

Westlands Water District

Westlands covers almost 950 square miles of prime farmland and includes approximately 570,000 irrigable acres. More than 60 different crops are grown commercially in the district. The cropping patterns have changed over the years depending upon water availability, water quality and the agricultural economy and market factors. The acreage trend is toward the planting of vegetable and permanent crops while cotton and grain crops have decreased.

Westlands supplies small amounts of water for domestic and M&I uses, however the majority of their water supply is used for agriculture. The current population within the district is approximately 50,000. The major community entirely within WWD is Huron. Three Rocks and Five Points are smaller communities within WWD. The communities of Firebaugh, Mendota, Kerman, Tranquillity, San Joaquin, Lemoore, and Stratford lie just outside the district's eastern edge. Unlike many other key growing areas of California, urbanization is not a direct threat to productivity. The district's M&I deliveries include cities and governmental agencies; however, none of this water is treated by the district before its distribution.

3.2.2 Environmental Consequences***No Action***

There is a potential to lose crops under the No Action Alternative. With insufficient water to continue with current agricultural practices, row crops could likely be abandoned and additional ground fallowed. Water would most likely be diverted to sustain permanent crops.

Proposed Action

For the proposed action involving CCID, the water delivered to the Transfer Recipient Districts would offset a small portion of their surface water supply deficit. The 20,500 af/year of additional water supplies would allow continued production on lands that would have otherwise been fallowed, and sustain permanent crops that otherwise may have been abandoned.

There would be no land use changes in CCID as their water supply quantity would not change. Irrigated acreages and crop mixes would remain the same.

There would be a slight positive impact on land use in the Transfer Recipient Districts due to the ability of some established row crops to remain in production and the enhanced survival of orchards and vineyards.

For the proposed action involving FCWD, the 5,000 af/year of additional water delivered to SLWD or WWD would offset a portion of their surface water supply deficit. The 5,000 af/year of additional water supplies would allow continued production on lands that would have otherwise been fallowed, and sustain permanent crops that otherwise may have been abandoned.

There would be no land use changes in FCWD as their water supply quantity would not change. Irrigated acreages and crop mixes would remain the same.

There would be a slight positive impact on land use in SLWD and/or WWD due to the ability of some established row crops to remain in production and the enhanced survival of orchards and vineyards.

Cumulative Impacts

There would be no new construction or excavation occurring as part of the Proposed Action. No native or untilled land (fallow for 3 years or more) would be cultivated with the CVP water involved with these actions. The Proposed Action would not increase or decrease water supplies that would result in development. Due to these requirements and since the Proposed Action supports current land use, there would be no cumulative adverse impacts to land use.

3.3 Biological Resources

3.3.1 Affected Environment

The following list (Table 3-5) was obtained on March 28, 2012, (document number 120328061159) by accessing the U.S. Fish and Wildlife Service (Service) Database:

http://www.fws.gov/pacific/sacramento/es/spp_lists/auto_list.cfm. The database was last updated on September 18, 2011.

The list is for the Stratford, Westhaven, Kettleman City, Huron, Gujarral Hills, Avenal, La Cima, Coalinga, Burrel, Vanguard, Lemoore, Five Points, Westside, Harris Ranch, Califax, Tres Pecos Farms, Lillis Ranch, San Joaquin, Helm, Tranquillity, Coit Ranch, Levis, Cantua Creek, Chaney Ranch, Chounet Ranch, Monocline Ridge, Firebaugh, Oxalis, Dos Palos, Hammonds Ranch, Broadview Farms, Charleston School, Ortigalita Peak, Laguna Seca Ranch, Los Banos Valley, Volta, Los Banos, Tracy, Vernalis, Solyo, Patterson, Howard Ranch, Westley, Delta Ranch, Poso Farm, Mendota Dam, Crows Landing, Newman, Gustine, Hatch, Ingomar, Santa Rita Bridge and San Luis Dam quadrangles.

Table 3-5 Federal Status Species Potentially Found in the Proposed Action Area

<u><i>Common Name</i></u>	<u><i>Species Name</i></u>	<u><i>Federal Status under the ESA</i></u>	<u><i>Determination of Effect under ESA</i></u>	<u><i>Summary basis for ESA determination</i></u>
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
California condor	<i>Gymnogyps californianus</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
California jewelflower	<i>Caulanthus californicus</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.

<u>Common Name</u>	<u>Species Name</u>	<u>Federal Status under the ESA</u>	<u>Determination of Effect under ESA</u>	<u>Summary basis for ESA determination</u>
California red-legged frog	<i>Rana draytonii</i>	T	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
California red-legged frog critical habitat		Proposed CH	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
California tiger salamander	<i>Ambystoma californiense</i>	T	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
California tiger salamander critical habitat		CH	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Central Valley spring-run chinook salmon	<i>Oncorhynchus tshawytscha</i>	T	NE	No effect on natural stream systems.
Central Valley steelhead	<i>Oncorhynchus mykiss</i>	T	NE	No effect on natural stream systems.
Central Valley steelhead critical habitat		CH	NE	No effect on natural stream systems.
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Conservancy fairy shrimp critical habitat		CH	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Delta smelt	<i>Hypomesus transpacificus</i>	T	NE	No downstream effects from action.
Delta smelt critical habitat		CH	NE	No downstream effects from action.
Fresno kangaroo rat	<i>Dipodomys nitratoideus exillis</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Fresno kangaroo rat critical habitat		CH	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Giant garter snake	<i>Thamnophis gigas</i>	T	NE	No land use changes would occur as a result of this action, no adverse water quality changes in refuge water supply channels; no conversion of habitat, and no new facilities.
Giant kangaroo rat	<i>Dipodomys ingens</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.

<u>Common Name</u>	<u>Species Name</u>	<u>Federal Status under the ESA</u>	<u>Determination of Effect under ESA</u>	<u>Summary basis for ESA determination</u>
Green sturgeon, North American DPS	<i>Hypomesus transpacificus</i>	T	NE	No downstream effects from action.
Large-flowered fiddleneck	<i>Amsinckia grandiflora</i>	E	NE	Does not occur in area of effect.
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	E	NE	Might fly over but would not stop in area of effect.
Longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	E	NE	Does not occur in area of effect.
Longhorn fairy shrimp critical habitat		CH	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Palmete-bracted bird's beak	<i>Cordylanthus palmatus</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Riparian brush rabbit	<i>Sylvilagus bachmani riparius</i>	E	NE	Does not occur in area of effect.
Riparian woodrat	<i>Neotoma fuscipes riparia</i>	E	NE	Does not occur in area of effect.
Sacramento River winter-run chinook salmon	<i>Oncorhynchus tshawytscha</i>	T	NE	No effect on natural stream systems.
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
San Joaquin woolly-threads	<i>Monolopia congdonii</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Tipton kangaroo rat	<i>Dipodomys nitratoides nitratoides</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Vernal pool fairy shrimp critical habitat		CH	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	E	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.

<u>Common Name</u>	<u>Species Name</u>	<u>Federal Status under the ESA</u>	<u>Determination of Effect under ESA</u>	<u>Summary basis for ESA determination</u>
Vernal pool tadpole shrimp critical habitat		CH	NE	No land use changes would occur as a result of this action, no conversion of habitat, and no new facilities.
Western Yellow-billed Cuckoo	<i>Coccyzus americanus occidentalis</i>	C	NE	Might fly over but would not stop in area of effect.

3.3.2 Environmental Consequences

The action area consists of agricultural fields that provide some habitat values for a few species listed above, particularly the San Joaquin kit fox. However there is routine disturbance due to on-going farming practices, and so even the San Joaquin kit fox would have very limited use of the area and would generally not be able to den there.

The giant garter snake can potentially be affected by low water quality, and in this portion of its range, the species is threatened with extirpation. Its status has been detailed in the recent biological opinion issued by the USFWS for the third use agreement for the Grassland Bypass Project (FWS 2010). The biological opinion also explains the risks that elevated selenium pose for the giant garter snake.

Water that the snakes are exposed to should not exceed 2 ppb selenium, in order to avoid selenium toxicosis. Water quality for the giant garter snake would be of issue for water pumped into any canal that serves as a water supply channel for Grasslands wetlands. The Main Canal upstream of Mile Post 53.856 conveys wetlands water supplies.

Under the Proposed Action, CCID would not increase the receiving water's salinity above 700 mg/L TDS, and would apply these commitments for any wells that would pump groundwater into CCID's Main Canal upstream of Mile Post 53.856:

- The wells would not be authorized to pump for transfer during the fall months (September 15 through December), when there is reduced flow and water quality for some wildlife refuges is most critical.
- A non-detect requirement for selenium in groundwater tested at least annually at the wellhead, by a method with a detection limit of no more than 1 µg/L.

The giant garter snake, because of extensive losses of suitable natural wetlands, now relies on rice fields in parts of its range. Some rice is grown in portions of some of the districts involved in these proposed actions. As recently as 2008, the giant garter snake was sighted in the Mendota Pool area (Winckel, 2010).

No Action

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

Proposed Action

Most of the habitat types required by species protected by the ESA do not occur in the project 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 to birds protected by the Migratory Bird Treaty Act (MBTA). Since no natural stream courses or additional surface water pumping would occur, there would be no effects on listed fish 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.

The 20,500 af of lower-quality groundwater pumped into the CCID's distribution system is required to not increase the TDS in CCID's canals to more than 700 mg/L, which would be low enough to protect the giant garter snake in suitable habitat in the Grasslands wetlands. Requirements by CCID for non-detect levels of selenium (detection limit of no higher than 1 µg/L) and no pumping during the fall upstream of Mile Post 53.856, and the fact that FCWD will not approve any water transfer involving a substitution of groundwater that FCWD determines would interfere with their ability to meet water quality objectives imposed by the Central Valley Regional Water Quality Control Board, would protect the giant garter snake from effects of elevated selenium. There would be no loss of acres of land planted with rice as a result of these proposed actions. Although these are transfers with regard to Reclamation's involvement, there would be groundwater substitution.

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

Cumulative Impacts

As the Proposed Action is not expected to result in any direct or indirect impacts to biological resources, there would be no cumulative impacts.

3.4 Socioeconomic Resources**3.4.1 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. Depending upon the variable hydrological and economic conditions, water transfers and exchanges could be prompted. The economic variances may include fluctuating agricultural prices, pest outbreaks, changing hydrologic conditions, increased fuel and power costs.

3.4.2 Environmental Consequences

No Action

Under the No Action Alternative, economic conditions in the vicinity of SLWD, DPWD, PWD and WWD could worsen. As agricultural land is taken out of production there could be a decreasing need for farm labor, and farm equipment and supplies.

Proposed Action

The Proposed Action would allow for continued water deliveries to SLWD, DPWD, PWD and WWD and would maintain the stability of the agricultural market and economic vitality for the SJV to some degree. The proposed transfer would not interfere with SWP or CVP priorities or operations.

The water service transactions are temporary actions and do not result in long-term increases in water supplies that would encourage urbanization or construction.

Cumulative Impacts

The Proposed Action may result in a stronger local agricultural economy during the program timeframe. Since water supply availability may allow permanent crops to be sustained during dry years, there may be beneficial cumulative impacts to socioeconomic resources as a result of the Proposed Action.

3.5 Environmental Justice

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

3.5.1 Affected Environment

The market for seasonal workers on local farms draws thousands of migrant workers, commonly of Hispanic origin from Mexico and Central America. The population of some small communities typically increases during late summer harvest.

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.

3.5.2 Environmental Consequences

No Action

The No Action Alternative could result in harm to minority or disadvantaged populations within the vicinity of the Transfer Recipient Districts. Lands could be

temporarily or permanently taken out of agricultural production with resulting reduction in the need for farm labor.

Proposed Action

The Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease. The Proposed Action would not disproportionately impact economically disadvantaged or minority populations. Some amount of agricultural production that would not be sustained with the current water availability would continue with the resulting preservation of jobs. The unemployment rate in the vicinity of the Transfer Recipient Districts suggests that any actions that maintain seasonal jobs should be considered beneficial. Employment opportunities for low-income wage earners and minority population groups would be within historical conditions. Disadvantaged populations would not be subject to disproportionate impacts.

Cumulative Impacts

Similar to the evaluation performed in socioeconomic resources, water supply availability may allow permanent crops to be sustained during dry years. Since there may be beneficial cumulative impacts to the local agricultural economy as a result of the Proposed Action, employment would remain the same as historical levels for minority and low-income wage earners. Therefore, there may be a beneficial cumulative impact to low-income and minority populations.

3.6 Air Quality

3.6.1 Regulatory Setting

Section 176 (c) of the Federal Clean Air Act (42 U.S.C. 7506 (c)) requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan required under Section 110 (a) of the Clean Air Act (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 State Implementation Plan'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 State Implementation Plan 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. A federal agency that takes action in a non-attainment or maintenance area is required to make a determination of general conformity. A determination of general conformity is not required if the proposed action's total of direct and

indirect emissions of the relevant criteria pollutants and their precursors are less than *de minimis* amounts (Table 3-6).

3.6.2 Affected Environment

The Action area lies within the San Joaquin Valley Air Basin, the second largest air basin in California (California Air Resources Board, 2012). 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 Air Basin 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, the air basin does not meet state and federal health-based air quality standards (Table 3-6).

The pollutant of greatest concern in the San Joaquin Valley Air Basin is ozone. Ozone precursors include carbon monoxide, volatile organic compounds (VOC), and nitrogen oxides (NO_x). Other pollutants of concern in the air basin include 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}).

Table 3-6 San Joaquin Valley Air Basin Attainment Status and General Conformity *de minimis* Thresholds

Pollutant	Federal Attainment Status	40 CFR §93.153 <i>de minimis</i> Threshold (tons/year)	California Attainment Status
Ozone - One hour	No Federal Standard ^f	-	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Extreme ^e	10 tons/year VOCs or NO _x as precursors	Nonattainment
PM ₁₀	Attainment/Maintenance ^c	100	Nonattainment
PM _{2.5}	Nonattainment ^d	100	Nonattainment
Carbon Monoxide	Attainment/Unclassified	-	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	-	Attainment
Sulfur Dioxide	Attainment/Unclassified	-	Attainment
Lead (Particulate)	No Designation or Classification	-	Attainment
Hydrogen Sulfide	No Federal Standard	-	Unclassified
Sulfates	No Federal Standard	-	Attainment
Visibility Reducing Particles	No Federal Standard	-	Unclassified
Vinyl Chloride	No Federal Standard	-	Attainment

See 40 CFR Part 81

^b See CCR Title 17 Sections 60200-60210

^c On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM₁₀ National Ambient Air Quality Standard (NAAQS) and approved the PM₁₀ Maintenance Plan.

^d The Valley is designated nonattainment for the 1997 PM_{2.5} NAAQS. EPA designated the Valley as nonattainment for the 2006 PM_{2.5} NAAQS on November 13, 2009 (effective December 14, 2009).

^e Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

^f Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

3.6.3 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not approve the proposed transfers. Private well owners could continue to pump groundwater for local use, potentially impacting air quality.

Proposed Action

Most of the wells that would be pumped have electric motors. Two wells have diesel engines that meet California Air Resources Board and Environmental Protection Agency Tier 3 specifications. As such, the engines meet the emission requirements for compression engines as outlined in San Joaquin Valley Air Pollution Control District Rule 4702, Section 5.2.4. Projected emissions from these engines would be below the *de minimis* amounts specified in 40 CFR § 93.153. Therefore, a determination of general conformity under the Clean Air Act is not required, and there would be no air quality impacts associated with this Proposed Action.

Cumulative Impacts

All emissions result in a cumulative increase in pollutants within the air basin; however emissions from the Proposed Action are well below the *de minimis* thresholds.

3.7 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, such as changes in sun's intensity, changes in ocean circulation, deforestation, urbanization, and burning fossil fuels (EPA 2011a).

Gases that trap heat in the atmosphere are often called greenhouse gases. Some greenhouse gases, such as carbon dioxide, occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (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, methane, nitrous oxide, and fluorinated gases (EPA 2011a).

During the past century humans have substantially added to the amount of greenhouse gases 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 carbon dioxide 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).

Climate change has only recently been widely recognized as an imminent threat to the global climate, economy, and population. As a result, the national, state, and local climate change regulatory setting is complex and evolving.

In 2006, the State of California issued the California Global Warming Solutions Act of 2006, widely known as Assembly Bill 32, which requires California Air Resources Board to develop and enforce regulations for the reporting and verification of statewide greenhouse gases emissions. California Air Resources Board is further directed to set a greenhouse gases emission limit, based on 1990 levels, to be achieved by 2020.

In addition, the EPA has issued regulatory actions under the Clean Air Act as well as other statutory authorities to address climate change issues (EPA 2011c). In 2009, the EPA issued a rule (40 CFR Part 98) for mandatory reporting of greenhouse gases by large source emitters and suppliers that emit 25,000 metric tons or more of greenhouse gases as carbon dioxide equivalents per year. The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change and has undergone and is still undergoing revisions (EPA 2012).

3.7.1 Affected Environment

Global mean surface temperatures have increased nearly 1.8°F from 1890 to 2006 (Intergovernmental Panel on Climate Change, 2007). Models indicate that average temperature changes are likely to be greater in the northern hemisphere. Northern latitudes (above 24°North) have exhibited temperature increases of nearly 2.1°F since 1900, with nearly a 1.8°F increase since 1970 alone (Intergovernmental Panel on Climate Change, 2007). Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of greenhouse gases are likely to accelerate the rate of climate change.

More than 20 million Californians rely on the CVP and SWP. 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).

3.7.2 Environmental Consequences

No Action

The No Action Alternative could result in reduced crop production, which could reduce carbon dioxide fixation. Estimates for this are uncertain, since it is dependent on the crops grown and any processing requirements.

Proposed Action

The Proposed Action would result in the direct emissions of greenhouse gases through the use of diesel fuel. Greenhouse gases generated are expected to be extremely small compared to sources contributing to potential climate change since the movement of water under the Proposed Action would be conveyed mostly via electric pumps which would not result in the power plant exceeding operating capacity, and, thus, the applicable emissions permit. The total greenhouse gas emissions from the diesel pumps would be far below the 25,000 metric tons per year threshold for reportable greenhouse gas emissions. As such, the Proposed Action would not result in a substantial change in greenhouse gases emissions, and there would be no adverse effect to global climate.

Cumulative Impacts

Cumulative impacts from greenhouse gas emissions generated by the Proposed Action are expected to be extremely small compared to the background emissions in the area. The total emissions are well below any established threshold. While any increase in greenhouse gases emissions would add to the global inventory of gases that would contribute to global climate change, the Proposed Action would not result in a substantial increase in local or global greenhouse gas emissions.

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

Section 4 Consultation and Coordination

4.1 Public Review Period

Reclamation provided the public with an opportunity to comment on the Draft EA and FONSI between June 27 and July 10, 2012. The original closing date was July 5, but was extended to July 10. Reclamation received one comment letter, one memorandum, and several requests for information during the public review period. Reclamation's response to comments can be found in Section 5, and the comment letter, memo, and request for comments can be found in Appendix B.

Between June 27 and July 10, Reclamation corresponded with the Service regarding several concerns regarding water quality and cumulative impacts on the Giant Garter Snake. On July 10, the Service provided a draft memorandum summarizing these concerns. A finalized copy of the memorandum was provided on July 11.

On July 10, Reclamation received a comment letter from a coalition of several organizations (California Water Impact Network, California Sportfishing Protection Alliance, Planning and Conservation League, Salmon Water Now, The Modoc Nation, North Coast Rivers Alliance, Environmental Protection Information Center, Public Trust Alliance, Southern California Watershed Alliance, Northcoast Environmental Center, SAFE Alternatives for our Forest Environment, San Francisco Crab Boat Owners Association).

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

The Fish and Wildlife Coordination Act requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. The Proposed Action does not involve federal water development projects. Therefore the Fish and Wildlife Coordination Act does not apply.

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

Section 7 of the ESA requires Federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species. Reclamation notified the Service when the DEA was being developed; additionally, Reclamation corresponded with the Service regarding ESA concerns during the draft and

comment period of EA-10-002, which involved an action similar to the current Proposed Action. Since there would be no ground disturbance, no adverse water quality changes in giant garter snake habitat, no change in rice acreage, and because water would move in existing facilities, there would be no effect on endangered species.

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

The National Historic Preservation Act (NHPA) of 1966, as amended, is the primary Federal legislation outlining the Federal government's responsibility to cultural resources. Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on cultural resources eligible for inclusion in the NRHP. Such cultural resources are referred to as historic properties. The 36 CFR Part 800 regulations that implement Section 106 of the NHPA describe how Federal agencies assess and resolve the effects of undertakings on historic properties. Reclamation determined on March 9, 2012 that the Proposed Action has no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1).

4.5 Indian Trust Assets

ITA are legal interests in property held in trust by the United States for federally-recognized Indian tribes or individual Indians. An Indian trust has three components: (1) the trustee, (2) the beneficiary, and (3) the trust asset. ITA can include land, minerals, federally-reserved hunting and fishing rights, federally-reserved water rights, and in-stream flows associated with trust land. Beneficiaries of the Indian trust relationship are federally-recognized Indian tribes with trust land; the United States is the trustee. By definition, ITA cannot be sold, leased, or otherwise encumbered without approval of the United States. The characterization and application of the United States trust relationship have been defined by case law that interprets Congressional acts, executive orders, and historic treaty provisions. Reclamation determined on June 26, 2012 that the Proposed Action would not impact ITA as there are none in the Proposed Action area.

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

The MBTA implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the MBTA 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 MBTA, 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 would be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

The Proposed Action would not affect birds protected under the MBTA.

4.7 Floodplain Management (Executive Order 11988) and Protection of Wetlands (Executive Order 11990)

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

4.8 Clean Air Act (42 USC § 7506(C))

Section 176 (c) of the Clean Air Act [42 U.S.C. 7506 (c)] requires 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 State Implementation Plan (SIP) required under Section 110 (a) of the Federal Clean Air Act (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 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 will, in fact conform to the applicable SIP before the action is taken.

On November 30, 1993, USEPA 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.

Most of the wells that would be pumped have electric motors and the other two have the latest tier three diesel engines. These low emission engines would not reach the de minimis threshold and therefore a conformity analysis is not required under the Clean Air Act and there would be a slight impact on air quality.

4.9 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 Army Corps of Engineers dredge and fill discharge permit to first obtain certification from the state that the activity associated with dredging or filling will comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling.

No dredged or fill material would be discharged into any waters of the U.S. under the Proposed Action, so no water quality certifications under Section 401 of the CWA are required.

Section 402

Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) to regulate point source discharges of pollutants into waters of the United States. A NPDES permit sets specific discharge limits for point sources discharging pollutants into waters of the United States and establishes monitoring and reporting requirements, as well as special conditions.

No point sources would discharge pollutants to waters of the United States under the Proposed Action, so no NPDES permits under Section 402 of the CWA are required.

Section 404

Section 404 of the CWA authorizes the Army Corps of Engineers to issue permits to regulate the discharge of “dredged or fill materials into waters of the United States” (33 USC § 1344). No activities such as dredging or filling of wetlands or surface waters would be required for implementation of the Proposed Action, therefore permits obtained in compliance with CWA section 404 are not required.

Section 5 Comments Received on the Draft EA/FONSI

5.1 Comments Regarding NEPA Process

In accordance with NEPA, an EA is initially prepared to determine if there are significant impacts on the human environment from carrying out the Proposed Action. Reclamation has followed applicable procedures in the preparation of this EA. The EA includes the required components of an EA as described in the CEQ's NEPA regulations: discussion of the need for the proposal, alternatives as required, environmental impacts of the proposed action and alternatives, and listing of agencies and persons consulted.

In accordance with the Department of the Interior's NEPA regulations (43 CFR Part 46.310), EAs are not required to develop alternatives unless there are issues related to unresolved conflicts concerning alternative uses of available resources.

The purpose of this EA is to evaluate the impacts on the human environment from the transfer of CVP supplies from transfers from CCID to Transfer Districts and to SLWD and WWD for the same period. Under the No Action Alternative, Reclamation would not approve the transfers, but instead deliver the CVP water to CCID and FCWD. Using the No Action Alternative as a baseline for comparison is supported by CEQ's 'NEPA's Forty Most Asked Questions' (Question 3). Given contractual, legal and regulatory constraints and the short term nature of the proposed action, the two action alternatives in the EA provide a reasonable range of alternatives for this action.

5.2 Comments Regarding CVP and Delta Operations

Water resources north of the Delta including the Trinity, Sacramento and American rivers are not analyzed in this EA as the diversion of water is an ongoing action and the current conditions of that diversion were analyzed in the Programmatic Environmental Impact Statement (PEIS) for the implementation of the CVPIA.

There would be no change in the point of diversion for the transferred water as the point of diversion in the Delta (Jones Pumping Plant) would be the same. Further, there would be no increase in diversions from the Delta as a result of these transfers. In the absence of the transfers, Reclamation would continue to deliver CVP water to CCID and FCWD, which would be delivered by the districts to individual landowners within the respective boundaries of CCID and FWCD. The water is therefore already part of the baseline conditions for diversion from the Delta.

5.3 Comments Regarding Water Quality

Subsection 4.9 has been revised to reflect that no point sources would discharge pollutants to waters of the United States under the Proposed Action. Additionally, the Proposed Action would not authorize discharges to the Delta-Mendota Canal.

FCWD has agreed not to use Well #5, which would have pumped into Mendota Pool; the Proposed Action and Reclamation's analysis have been revised accordingly. FCWD monitors quality in the Intake Channel via its Supervisory Control And Data Acquisition (SCADA) system, which allows real-time monitoring of EC. For all four wells, FCWD would not allow the TDS to increase by more than 30 mg/L. As stated in their rules, FCWD will not approve any water transfer involving a substitution of groundwater that FCWD determines would interfere with their ability to meet water quality objectives imposed by the Central Valley Regional Water Quality Control Board.

In CCID, a test is done at the beginning of the year for agricultural suitability and for selenium, before wells are approved. In order for a well to be approved, selenium levels cannot exceed two ppb. During the summer months, CCID goes through their system and grabs samples from the canals on a weekly basis, and then conducts in-house tests for EC and boron. These tests, along with real-time EC sensors, are fed into CCID's SCADA system. If this monitoring shows any exceedance of acceptable levels of TDS or boron, the problem well is shut down until the problem is rectified.

The 20,500 af of lower-quality groundwater pumped into the CCID's distribution system is required to not increase the TDS in CCID's canals to more than 700 mg/L. While this is higher than the Main Canal Headworks' average (Table 3-2), it allows for adjustment to varying water quality conditions at the headworks. This level is a maximum, not an average; water quality in CCID's canals would likely be substantially lower, depending on TDS at the Main Canal's headworks.

Concerns were expressed regarding the potential effects of the transfers to wildlife refuge supplies. CCID's Main Canal conveys refuge supplies, which are delivered via turnouts upstream of Mile Post Station 53.856. To avoid potential adverse impacts, CCID has adopted additional environmental commitments regarding wells that may pump into the Main Canal upstream of Mile Post Station 53.856, and Section 2.2.3 and Reclamation's analysis were revised accordingly.

The well test result for the one well that pumped under the previous program is included as Appendix C. The well is identified in Figure 2-1 as Well #539, which pumped approximately 350 acre-feet of water into CCID's Central Canal in 2010.

CCID and FCWD's above commitments would avoid increasing Selenium levels in their water supplies.

5.4 Comments Regarding Cumulative Effects

Cumulative impacts are defined in the regulations (40 CFR 1508.7 and 43 CFR 46.30), and Reclamation has used those definitions in our analysis.

The commenters expressed concern regarding cumulative impacts to water quality. Responding to this concern, along with the changes in project description and additional commitments mentioned in Section 5.3, Reclamation re-evaluated cumulative impacts to water resources and biology. Section 1.5 been revised to include a summary of related projects and programs.

5.5 Comments Regarding Locations of CCID Wells and Conveyance Facilities

Reclamation is unable to provide specific information on which would be pumped within CCID, and hence which conveyances would be used. CCID has an “open enrollment” process and because of this, the exact well locations from which the water would be pumped are not yet known; wells within CCID that have previously pumped groundwater for transfer are shown in Figure 2-1. The project proponents have designed the project description elements which are under their control, and have established the maximum number of wells and the open enrollment process. As described above, CCID has made additional environmental commitments to avoid potential impacts to wildlife refuge water quality. Only five wells within the central portion of CCID that could potentially participate would discharge into the Main Canal; the other wells lie in the northern and southern portions of the district, and discharge into canals that do not convey any refuge water supplies.

5.6 Comments on the Giant Garter Snake, other Federally Listed Species, and Migratory Birds

A number of comments were received regarding impact analyses and conclusions for the giant garter snake, other Federally listed species, and migratory birds. Reclamation has determined that there would be no effects on Federally listed or proposed species or critical habitat as a result of these Proposed Actions, and we are not requesting consultation with the Service. The Proposed Action area does not include habitat for the Sacramento River winter-run Chinook salmon, whose freshwater habitat only includes the Sacramento River system, and the Sacramento-San Joaquin Delta. Migratory birds would be protected by the same limitations on water quality impacts as are protective of the giant garter snake. After receiving the comments, Reclamation carefully reconsidered the effects determinations to listed species, and again reached the conclusion that the Proposed Action would have No Effect to listed species or critical habitats, for the reasons explained in the Biological Resources section of the Final EA.

CCID would ensure that water pumped into the Main Canal upstream of Mile Post Station 53.856 would have a non-detectable level of selenium (a detection level of not higher than 1 µg/L), would not be pumped in the fall, and TDS would not exceed 700 mg/L. This would ensure that water that might reach wildlife refuge lands would be of a quality that would not impact the giant garter snake or migratory birds.

Please note that there is actually no evidence that elevated salinity levels are detrimental to the giant garter snake. However, the Service has previously stated concerns on a number of occasions about the possibility that elevated salinity may have a negative impact on the giant garter snake. The following is an excerpt from the Grassland Bypass Project 2010 - 2019 Biological Opinion:

Contaminants in wetland water supplies - salinity in wetland water supplies: The Final Rule to list the giant garter snake (USFWS 1993) noted that elevated salinities of waters in the Grasslands due to a sodium sulfate based salt also have been documented at deleterious levels in resident fishes and amphibians (Ohlendorf et al. 1986, 1988; Saiki et al. 1992), the major food source of giant garter snakes. Many species of fish and amphibians cannot survive in saline waters (M. Jennings, herpetologist, pers. comm., 1993; Ruibal 1959, 1962). Cumulatively, threats to this formerly large regional population operate in combination with the other decimating factors described herein, in contributing to the imperilment of the species.

Mosquitofish, one common prey item for giant garter snakes, can tolerate high levels of salinity (Chervinski 1983), such as those found in some evaporation ponds (salinities at Kesterson Reservoir became so high that this was the only fish species that survived). Pacific chorus frogs may be adversely affected at only five ppt (Yohannes et al. 2005) (this equates to 5,000 ppm or 7,800 µS/cm). Pacific chorus frogs are unlikely to co-occur with mosquitofish, because mosquitofish will prey heavily upon chorus frogs, even when other potential prey are present (Goodsell and Kats 1999). Therefore, the effects of increased salinity might depend upon the prey species available to the snakes. Due to the abundance of non-native fish in the Grassland wetland channels, an abundance of Pacific chorus frogs would be unlikely.

Therefore, Reclamation does not believe that there is any evidence to suggest that the Proposed Actions would impact the food supply of the giant garter snake within the action area, and has again determined that the Proposed Action will not affect listed species or critical habitats.

5.7 Comments Regarding Conservation Measures

The CCID, FCWD, and Transfer Recipient Districts all have water conservation plans in place that include Best Management Practices for agricultural

contractors. Adoption and implementation of additional conservation measures are beyond the scope of the Proposed Action.

5.8 Comments Regarding CEQA Compliance

Reclamation cannot authorize a transfer that would be inconsistent with State law. However, the completion of Reclamation's NEPA compliance does not depend upon the completion of the districts' CEQA compliance. Reclamation's contract repayment specialist will verify that the districts have completed their CEQA compliance before approving the Proposed Actions.

5.9 Requests for Additional Information

Several requests for additional data were received. Informal requests by the Service were addressed during the comment period, and the information was incorporated into their memo. Reclamation is in the process of providing digital copies of documents requested. Hardcopies of reference documents have been available for public inspection at either Reclamation's South-Central California Area Office (1243 N Street, Fresno, CA), or CCID's Main Office, 1335 West I Street, Los Banos, CA.

Section 6 Preparers and Reviewers

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6.3 Firebaugh Canal Water District

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Section 7 Acronyms & Abbreviations

af	acre-feet; the amount of water required to cover an area of one acre with one foot of water.
CCID	Central California Irrigation District
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWA	Clean Water Act
DMC	Delta-Mendota Canal
DPWD	Del Puerto Water District
DWR	California Department of Water Resources
EA	Environmental Assessment
EC	Electrical conductivity
EIS	Environmental Impact Statement
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Endangered Species Act
Exchange Contract	San Joaquin Exchange Contractors' CVP contract
Exchange Contractors	San Joaquin River Exchange Contractors Water Authority
FCWD	Firebaugh Canal Water District
ITA	Indian Trust Assets
KDSA	Kenneth D. Schmidt & Associates
M&I	municipal and industrial
MBTA	Migratory Bird Treaty Act
MPG	Mendota Pool Group
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
PWD	Panoche Water District
Reclamation	Bureau of Reclamation
ROD	Record of Decision
SCADA	Supervisory Control And Data Acquisition
Service	U.S. Fish and Wildlife Service
SIP	State Implementation Plan
SJR	San Joaquin River
SJV	San Joaquin Valley
SLC	San Luis Canal
SLR	San Luis Reservoir
SLWD	San Luis Water District
SLDMWA	San Luis and Delta-Mendota Water Authority
SOD	South-of-Delta
SWP	California State Water Project
TDS	Total dissolved solids
Transfer Recipient Districts	SLWD, PWD, DPWD, and WWD
WWD	Westlands Water District

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