

RECLAMATION

Managing Water in the West

Environmental Assessment

Approval of Warren Act Contract and Renewal of Right of Way License for San Luis Water District

EA-11-003



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

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Mission Statements

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

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

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Section 1 Introduction

The Bureau of Reclamation (Reclamation) proposes to issue a five-year Warren Act contract that would allow San Luis Water District (SLWD) to convey groundwater in the San Luis Canal (SLC). Additionally, Reclamation proposes to issue a 25-year license to use, operate and maintain an existing pipeline over the SLC right of way.

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the Draft Finding of No Significant Impact and Draft Environmental Assessment (EA) between June 27 and July 11, 2012. No comments were received. 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

The Warren Act authorizes Reclamation to negotiate agreements to store or convey non-Project Water when excess capacity is available in Federal facilities.

San Luis Water District (SLWD) requests approval of a five-year Warren Act contract to pump up to 1,500 acre-feet (af) per year of groundwater into the San Luis Canal (SLC) for delivery to landowners.

The source of the groundwater would be from a single well within the SLWD's boundaries. SLWD requests a 25-year license to use, operate and maintain an existing pipeline from the well over Reclamation's right of way for the SLC at milepost 79.67R, to discharge groundwater into the SLC (see Figure 1-1 for general location).

1.2 Purpose and Need

California has experienced severe droughts in recent years that have reduced water supplies to many Central Valley Project (CVP) water service contractors, including SLWD. SLWD experienced reduced water supply allocations in 2007, 2008, and 2009 due to hydrologic conditions and/or regulatory constraints. Though 2010 and 2011 had above normal rainfall, the District received only 45 percent of their full CVP contract supply in 2010 and 80% in 2011. The hydrologic conditions for 2012 have been below normal and SLWD's agricultural allocation is 40 percent of its CVP contract amount (Reclamation 2012a). Supplemental water is needed to irrigate permanent crops in the district. The hydrologic conditions for 2013-2017 are highly uncertain; SLWD may need additional supplies in those years if conditions are below normal.

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

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

1.3.1 Warren Act

The Warren Act (Act of February 21, 1911; Chapter 141 (36 Stat. 925)) authorizes Reclamation to negotiate agreements to store or convey non-Project water when excess capacity is available in Federal facilities.

1.3.2 Reclamation States Emergency Drought Relief Act

Section 102 of the Reclamation States Emergency Drought Relief Act of 1991 provides for use of Federal facilities and contracts for temporary water supplies, storage and conveyance of non-CVP water inside and outside project service areas for municipal and industrial (M&I), fish and wildlife, and agricultural uses. Section 305, enacted March 5, 1992 (106 Stat. 59), also authorizes Reclamation to utilize excess capacity to convey non-CVP water.

1.3.3 Central Valley Project Improvement Act

Central Valley Project Improvement Act of 1992, Title 34 (of Public Law 102-575), 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 a Final Programmatic Environmental Impact Statement in October 1999 that analyzed alternatives and implementation of the Central Valley Project Improvement Act. The Record of Decision was signed in January 9, 2001.

1.3.4 Water Quality and Monitoring Standards

Reclamation requires that the operation and maintenance of CVP facilities shall be performed in such a manner as is practical to maintain the quality of raw water at the highest level that is reasonably attainable. Water quality and monitoring requirements are established by Reclamation and are instituted to protect water quality in Federal facilities by ensuring that imported non-CVP water does not impair existing uses or negatively impact existing water quality conditions. The water quality standards are the maximum concentration of certain contaminants that may occur in each source of non-CVP water. Monitoring standards also

include measuring depth to groundwater to avoid localized impacts due to well drawdown. See Appendix A for the current monitoring plan and standards for conveyance of non-CVP water in the SLC.

1.4 Scope

This Environmental Assessment has been prepared to examine the potential impacts on environmental resources as a result of the No Action Alternative of not conveying groundwater in Federal facilities nor issuing license for use of Reclamation's right of way, and the Proposed Action of conveying groundwater in Federal facilities and issuing a license to use, operate and maintain an existing pipeline over Reclamation's right of way. The location of the Proposed Action would be in the water districts and facilities displayed in Figure 1-1. The time period evaluated in this document would be the term of the contract.

1.5 Resources Eliminated from Further Analysis

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

1.5.1 Cultural Resources

There would be no modification of CVP storage and conveyance facilities and no activities that would result in ground disturbance under the Proposed Action or No Action Alternative. On May 21, 2012, Reclamation's Mid-Pacific Region, Cultural Resources Branch, determined that the Proposed Action and No Action Alternative involve the type of activity that has no potential to cause effects on historic properties, pursuant to 36 CFR Part 800.3(a)(1).

1.5.2 Indian 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 significantly 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.

1.5.3 Indian Trust Assets

Indian Trust Assets are legal interests in assets that are held in trust by the United States Government for Federally recognized Indian tribes or individuals. On May 22, 2012 Reclamation's Mid-Pacific Region Native American Affairs Program issued a determination that there are no Indian Trust Assets within the Proposed Action area and therefore the proposed action does not have a potential to affect Indian Trust Assets.

1.6 Resources Requiring Further Analysis

This Environmental Assessment 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
- Geologic Resources
- Land Use
- Biological Resources
- Environmental Justice
- Socioeconomic Resources
- Air Quality
- Global Climate

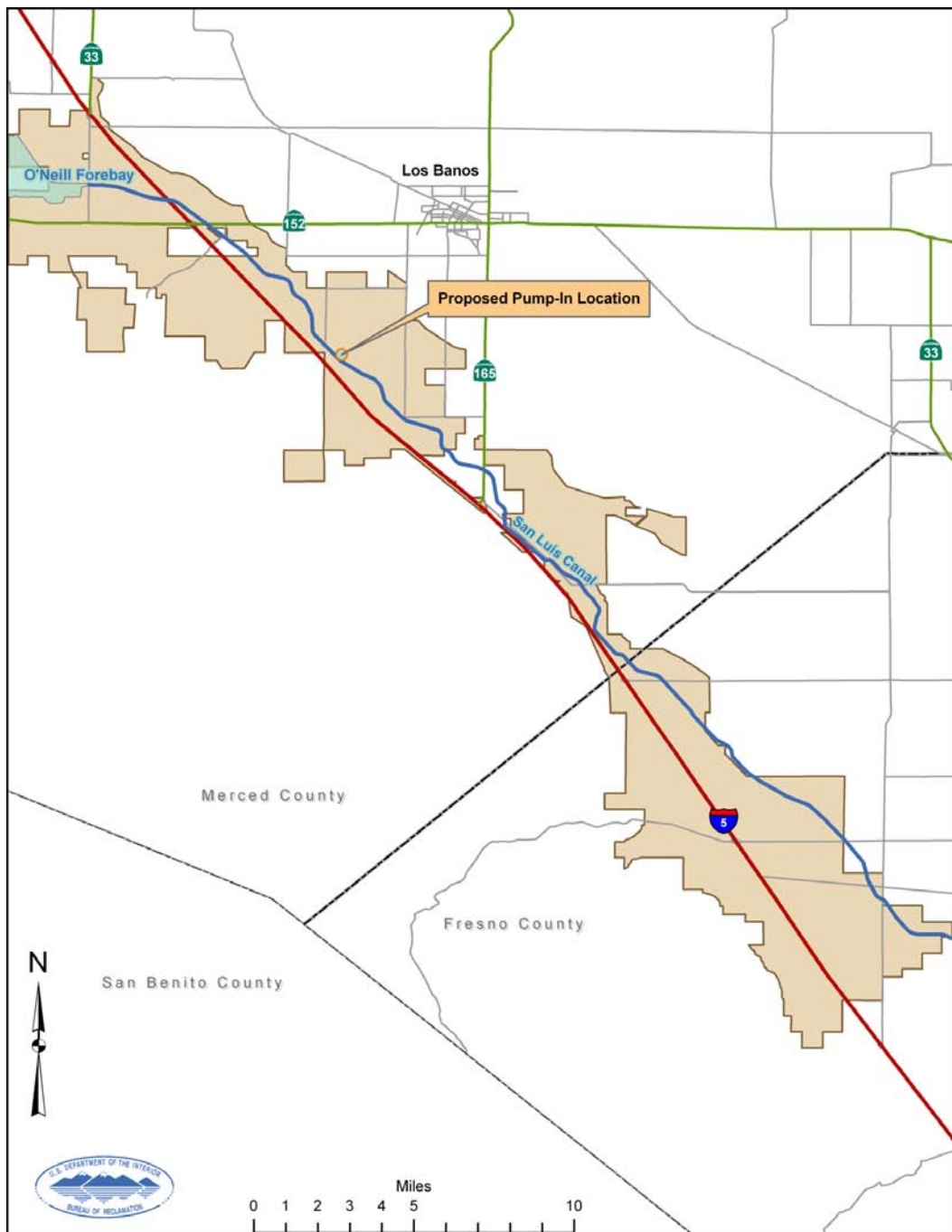


Figure 1-1 General Location Map

Section 2 Alternatives Including the Proposed Action

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

2.1 No Action Alternative

The No Action Alternative consists of the continuation of deliveries of CVP water supply in accordance with the terms and conditions of SLWD's CVP water service contract. Reclamation would not issue the proposed five-year Warren Act contract to SLWD. The well owner could still pump groundwater for local use, but would not be authorized to pump the groundwater into the SLC for conveyance to other areas.

Reclamation would also not issue a license to use, operate and maintain an existing pipeline over Reclamation's right of way for the San Luis Canal at milepost 79.67R. Non-issuance of the license may result in removal of the existing pipeline, which could require ground-disturbing activity.

2.2 Proposed Action

Reclamation proposes to issue a five-year Warren Act contract to SLWD for conveyance of up to 1,500 af/year of groundwater in the SLC. The term for pumping and conveyance would be July 2012 through February 28, 2017.

To facilitate the pump-in, Reclamation proposes to issue License No. 12-LC-20-0162, which would grant SLWD authority to use, operate and maintain the existing pipeline over Reclamation's SLC right of way at Mile Post 79.67R, for a period of 25 years.

2.2.1 Source of Non-CVP Water

The source of the non-CVP water would be from a single existing well in SLWD. Groundwater would be pumped directly into the SLC from this well (coordinates 36° 59' 51.46" N, 120° 54' 7.25" W- see Figure 1-1 for general well location) via the existing pipeline and pump-in point.

The amount of water pumped into the SLC would be measured with a flow-meter located near the discharge point. The meter would be calibrated and read by the California Department of Water Resources (DWR). SLWD intends to pump up to 1,500 af/year of groundwater into the SLC each year, and would then take out a like amount, minus losses, from its existing turnouts for agricultural use within

SLWD's boundaries (Figure 1-1). Actual amounts of pump-in would be subject to available capacity, and driven by water allocations and availability of other supplemental supplies.

2.2.2 Environmental Commitments

SLWD would be required to confirm that the proposed pumping of groundwater would be compatible with local groundwater management plans. SLWD would be limited to pumping a quantity below the "safe yield" as established in their groundwater management plan, in order to prevent groundwater overdraft and avoid adverse impacts.

SLWD would be required to comply with all provisions of Reclamation's water quality and monitoring requirements in effect at the time of pump-in. The 2012 Water Quality Monitoring Plan for the Proposed Action is attached as Appendix A.

The water would be used for irrigation purposes on established lands. There would be no new construction or excavation occurring as part of the Proposed Action. Any associated ground disturbing activities would require separate NEPA analysis. Pumping and conveyance would occur within existing wells, meters, and pipes across SLC right of way, and existing water diversion and field delivery facilities.

No native or untilled land (fallow for three years or more) may be cultivated with the water involved in these actions.

Section 3 Affected Environment and Environmental Consequences

This section identifies the affected environment and potential adverse or beneficial environmental consequences involved with the Proposed Action and the No Action Alternative.

3.1 Water Resources

3.1.1 Affected Environment

Surface Water Resources

SLWD is located on the western side of the San Joaquin Valley 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 averaged around 34,000 acres due to declining water supply reliability.

SLWD's current distribution system includes 52 miles of pipelines, 10 miles of lined canals, and 7.5 miles of unlined canals. About 20,000 acres within SLWD, referred to as the Direct Service Area, receive water from 39 turnouts on the Delta-Mendota Canal and 23 turnouts on the SLC. In addition to the Direct Service Area, three improvement districts are also served through distribution systems branching off the SLC. Improvement District 1 and 2 are located primarily within Fresno County; Improvement District 3 is located entirely within Merced County.

SLWD entered into a long-term contract with Reclamation in 1959 for 93,300 af/year of CVP water. This contract was superseded with a contract executed in 1974, for a maximum of 125,080 af/year of CVP water. In December 2008 and again in 2011, Reclamation and SLWD executed Interim Renewal Contracts for the same 125,080 af. Although water deliveries by SLWD historically have been almost exclusively used for agricultural use, development in and around Los Banos and Santa Nella have resulted in a shift of approximately 1,200 af/year to M&I use.

For the purposes of the effects analysis, baseline conditions are described as the existing environment, and the existing environment is defined as the conditions during the past five years. Table 3-1 lists SLWD's allocations of CVP water supplies from 2007 to 2011. The five-year average is 45 percent of contract amounts for agriculture. The annual contract amount for SLWD is 125,080 af, thus the baseline supply is 56,286 af.

Table 3-1 Five-Year CVP Allocations

Year	% Allocation	SLWD CVP Contract Allocation, acre-feet
2007	50	62,540
2008	40	50,032
2009	10	12,508
2010	45	56,286
2011	80	100,064
5-year Average	45	56,286

CVP Facilities

The SLC is a joint-use facility owned and operated with DWR. The concrete-lined canal has a conveyance capacity ranging from 8,350 to 13,100 cubic feet per second and is the biggest earth-moving project in Reclamation history. The SLC is the Federally-built and operated section of the California Aqueduct. It extends 102.5 miles from O'Neill Forebay in a southeasterly direction to its terminus at Kettleman City.

Groundwater Resources

According to DWR Bulletin 118 (2003), groundwater provides approximately 30 percent of the total water 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.

SLWD overlies the Delta-Mendota subbasin of the San Joaquin River Hydrologic Region. The San Joaquin River Hydrologic Region covers approximately 15,200 square miles and includes all of Calaveras, Tuolumne, Mariposa, Madera, San Joaquin, and Stanislaus counties, most of Merced and Amador counties, and parts of Alpine, Fresno, Alameda, Contra Costa, Sacramento, El Dorado, and San Benito counties. The Delta-Mendota subbasin covers approximately 1,170 square miles and includes portions of Fresno, Madera, Merced and Stanislaus counties (DWR, 2006).

Groundwater in the Delta-Mendota subbasin occurs in three water-bearing zones. These include the lower zone, which contains confined fresh water in the lower section of the Tulare Formation, an upper zone which contains confined, semi-confined, and unconfined water in the upper section of the Tulare Formation and younger deposits, and a shallow zone which contains unconfined water within about 25 feet of the land surface (Belitz & Heimes, 1990; Bertoldi et al. 1991).

Groundwater quality conditions vary throughout the San Joaquin River Hydrologic Region. The primary constituents of concern are salinity expressed as total dissolved solids (TDS), nitrate, boron, chloride, and organic compounds. Of particular concern on the west side are TDS and selenium. The groundwater in the Delta-Mendota subbasin is characterized by mixed sulfate to bicarbonate types in the northern and central portion with areas of sodium chloride and sodium sulfate waters in the central and southern portion. TDS values range from 400 to 1,600 mg/L in the northern portion of the subbasin and from 730 to 6,000 mg/L in the southern portion of the subbasin (Hotchkiss and Balding, 1971). The Department of Health Services, which enforces Title 22 domestic water quality standards, reports TDS values in 44 public supply wells to range from 210 to 1,750 mg/L, with an average value of 770 mg/L (DWR, 2006).

Reclamation and DWR have established maximum acceptable concentrations for several constituents of concern. The Water Quality Monitoring Plan (Appendix A) lists these standards and compares them to the latest lab test results for the well listed in the Proposed Action (MWH Laboratories, 2009); tests indicate that the well's water quality meets Reclamation's standards. Further water quality analyses would be provided to Reclamation and DWR according to the Monitoring Plan.

3.1.2 Environmental Consequences

No Action

Under the No Action Alternative, no Warren Act contract would be issued to SLWD. No groundwater would be pumped into the SLC. The SLC would continue to be used to provide CVP water to CVP contractors. Under the No Action Alternative, there would be no change to CVP facilities and operations. Under the No Action Alternative, the well owner could continue to pump groundwater to irrigate adjacent crops, potentially contributing to overdraft.

Proposed Action

Surface Water No new facilities would be constructed as a result of the Proposed Action. There would be no construction or modification to the SLC and the capacity of the facility would remain the same. The Proposed Action would use only excess capacity for conveyance in the SLC. The Proposed Action would not interfere with the normal operations of the SLC nor would it impede any State Water Project or CVP obligations to deliver water to other contractors or to local fish and wildlife habitat. Furthermore, the Proposed Action would not interfere with the quantity or timing of diversions from the Sacramento-San Joaquin Bay Delta. CVP operations and facilities would not vary considerably under either alternative.

Groundwater The total quantity of groundwater that can be pumped into the SLC under the Proposed Action would be limited to 1,500 af/year. Additionally, SLWD would be limited to pumping a quantity below the "safe yield" as established in their groundwater management plan, in order to prevent groundwater overdraft and avoid adverse impacts. Safe yield is defined as the amount of groundwater that can be continuously withdrawn from a basin without adverse impact. The amount of water pumped into the SLC, minus losses, would be credited to SLWD, and that quantity of groundwater pumped into the SLC would then be delivered back into SLWD and used for irrigation purposes. Though some of the water used for irrigation would be used by plants or evaporate, some would also seep back into the ground.

Additionally, the pump-in water must meet water quality standards prior to approval for conveyance, and the monitoring of groundwater quality would continue for the duration of the contract. If the well does not meet the water quality standards, SLWD could not pump water from that well into the SLC under the Warren Act contract. The Warren Act contract provides for routine testing of the well by Reclamation to confirm that the groundwater still meets standards. The contract also allows the Contracting Officer to stop introduction of water into the SLC if the well fails to meet standards. Reclamation and DWR staff would monitor water quality in the canal to identify degradation caused by the groundwater, and would work with SLWD to modify or restrict pumping to improve water quality.

Cumulative Impacts

Because the Proposed Action would not involve construction or modification, nor interfere with operations, there would be no cumulative impacts to existing facilities or other contractors. Because pumping would be restricted to below the safe yield, there would not be cumulative impacts to groundwater. Because groundwater quality would be monitored throughout the year, there would be no cumulative impacts to water quality involving water delivered through the SLC.

These findings indicate that there would be no adverse impact to water resources resulting from the Proposed Action.

3.2 Geologic Resources

3.2.1 Affected Environment

Regional Subsidence

Land subsidence in the San Joaquin Valley has been studied extensively in the past by the U.S. Geological Survey (USGS) and DWR. A State-Federal committee on subsidence was formed in the early 1950's that measured subsidence until 1970. By 1970, 5,200 square miles in the San Joaquin Valley had subsided more than 1 foot. Between 1926 and 1970, a maximum of 29.7 feet of subsidence was measured at a point southwest of Mendota. The compacting forces caused by groundwater level decline squeezed more than 15.6 million af of water out of San Joaquin Valley sediments during the same period.

There are two types of land subsidence due to withdrawal of groundwater resources; elastic and inelastic. Elastic subsidence is not permanent and is largely reversible, if water levels recover to above historic low levels. Inelastic subsidence is permanent and occurs when water is removed from a confined aquifer for the first time, and is sometimes referred to as virgin subsidence. Between the mid-1920s to about 1980 the San Joaquin Valley experienced inelastic, non-recoverable subsidence.

The most recent reports on land subsidence in the San Joaquin Valley were completed by R.L. Ireland of the USGS in 1986 and Arvey A. Swanson of DWR in 1995. Ireland (1986) states that "*Land subsidence to groundwater withdrawal in the San Joaquin Valley that began in the mid-1920's and reached a maximum of 29.7 feet in 1981 has been halted by the importation of surface water through major canals and the California Aqueduct in the 1950's through 1970's.*" This was evident because large scale regional subsidence had halted, but smaller-scale local subsidence continued in many areas.

3.2.2 Environmental Consequences

No Action

Under the No Action Alternative, no Warren Act contract would be issued. No groundwater would be pumped into the SLC; however the well owner could continue to pump groundwater to irrigate adjacent crops, potentially contributing to overdraft.

Proposed Action

Under the Proposed Action, up to 1,500 af/year of groundwater could be pumped into the SLC. Subsidence would be avoided by limiting pumping to a quantity below the "safe yield" as established in SLWD's groundwater management plan, and by following the Monitoring Plan (Appendix A). The Monitoring Plan includes provisions to avoid subsidence from groundwater pumping:

- SLWD must measure and report to Reclamation the depth to groundwater in the well before pumping, and every two months while pumping.

- Reclamation would compare the current depth to groundwater in the well to the initial depth measurement.
- If the current depth to groundwater is more than 25 feet below the initial depth, Reclamation would advise the District and may recommend that pumping from the well be stopped until the depth recovers to an agreed upon depth, such as the median observed depth.

These measures would ensure that overdraft and resulting subsidence does not occur from the Proposed Action.

Cumulative Impacts

Cumulative impacts resulting in overdraft and/or subsidence would be avoided by implementation of the measures outlined for the Proposed Action.

3.3 Land Use

3.3.1 Affected Environment

SLWD is located on the western side of the San Joaquin Valley near the city of Los Banos, in both Merced and Fresno Counties. Construction of the Delta-Mendota Canal in the 1950's sparked major development of farmland in the San Joaquin Valley that led to the formation of SLWD in January 1951. SLWD's current size is approximately 66,218 acres.

The current population within SLWD is approximately 700, with most individuals residing in the community of Santa Nella, located in the extreme northern portion of the district. The southern section of the district, located in Fresno County, is primarily agricultural. The land is planted with either row crops, including cotton and melons, or permanent crops, including primarily almonds. In recent years, some parcels in this area of the district have not been farmed because they are of marginal quality or have high water costs or drainage problems.

CVP water is the SLWD's only long-term water supply. SLWD does not own any groundwater wells and has no other long-term contracts for surface or groundwater supplies. All of the groundwater wells in the area are privately owned and operated. About 20 private agricultural wells provide water to 6,000 acres in the Direct Service Area. The vast majority of SLWD's water users do not have meaningful access to groundwater that can be used for irrigation, and therefore, supplementation of the CVP supply is nominal.

Although water deliveries by the 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 SLWD currently supplies approximately 1,200 af/year to approximately 1,300 homes and businesses. M&I demands within SLWD are expected to increase in the future.

M&I use primarily occurs in the northern section of SLWD, which is located in Merced County. It is anticipated that the conversion from agricultural use to M&I use will continue to occur mostly in this section of SLWD. Approximately 10,000 acres identified as potential development locations are currently in the planning stages within Merced County and the SLWD. Much of the land targeted for M&I development is currently unused for irrigated agriculture.

3.3.2 Environmental Consequences

No Action

Under the No Action Alternative, no Warren Act contract would be issued that would allow this non-CVP water to be conveyed and stored in CVP facilities. In the event of a dry year, some agricultural lands may be fallowed if alternative supplies of water are not found.

Proposed Action

The Proposed Action would utilize CVP facilities to allow district agricultural lands to remain in production, and to convey non-CVP water to other receiving areas to support existing farmlands and minimize the potential for fallowing agricultural land. No new lands would be cultivated with this water. The conveyance of the non-CVP water through CVP facilities would not contribute to changes in land use. The Proposed Action would not increase or decrease long-term water supplies that would result in additional homes to be constructed and served.

Cumulative Impacts

Because the Proposed Action would not involve construction or other land disturbance, and because the Proposed Action supports current land use, there would be no cumulative adverse impacts to land use.

3.4 Biological Resources

3.4.1 Affected Environment

This section analyzes the potential impacts to listed (under the Federal ESA) species and their habitats that may occur in the study area. The following list (See Table 3-1) was obtained on May 4, 2012, by accessing the U.S. Fish and Wildlife Service Database:

http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists-form.cfm (Document Number: 120504120632). The list is for the following U.S.

Geological Survey 7½ minute quadrangles which are overlapped by SLWD: Chounet Ranch, Dos Palos, Hammonds Ranch, Charleston School, Ortigalita Peak NW, Laguna Seca Ranch, Los Banos Valley, Volta, Los Banos, and San Luis Dam. Reclamation further queried the California Natural Diversity Database for records of protected species within the project location (CNDDDB 2012). The two lists, in addition to other information within Reclamation's files were combined to create the following list (Table 3-4).

Table 3-2 Special status species that could potentially occur within in affected area.

Species	Status¹	Summary basis for ESA determination²
AMPHIBIANS		
California red-legged frog <i>Rana aurora draytonii</i>	T, PX	Absent. No CNDDB ³ -recorded occurrences reported in SLWD and critical habitat absent.
California tiger salamander <i>Ambystoma californiense</i>	T, X	Absent. No CNDDB ³ -recorded occurrences reported in SLWD and critical habitat absent.
FISH		
Central Valley Steelhead <i>Oncorhynchus mykiss</i>	T, NMFS	Absent. No natural waterways within the species' range will be affected by the proposed action.
delta smelt <i>Hypomesus transpacificus</i>	T, NMFS	Absent. No natural waterways within the species' range will be affected by the proposed action.
INVERTEBRATEs		
longhorn fairy shrimp <i>Branchinecta longiantenna</i>	E	Absent. No records or vernal pool habitat in area of effect.
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T	Absent. No records or elderberry shrub habitat in area of effect.
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T	Absent. No records or vernal pool habitat in area of effect.
vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E	Absent. No records or vernal pool habitat in area of effect.
MAMMALS		
Fresno kangaroo rat <i>Dipodomys nigratoides exilis</i>	E	Absent. No records or habitat in area of effect.
giant kangaroo rat <i>Dipodomys ingens</i>	E	Possible. CNDDB records indicate this species occurs in the project area but is believed to be extirpated from the area with development of Interstate-5 and the CA Aqueduct. No construction of new facilities; no conversion of lands from existing uses.
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	E	Present. CNDDB records indicate this species occurs in the project area. No construction of new facilities; no conversion of lands from existing uses.
PLANT		
San Joaquin woolly-threads <i>Monolopia congdonii</i>	E	Absent. No records or habitat in area of effect.
REPTILES		
blunt-nosed leopard lizard <i>Gambelia sila</i>	E	Present. CNDDB records indicate this species can occur in the project area. No construction of new facilities; no conversion of lands from existing

		uses.
giant garter snake <i>Thamnophis gigas</i>	T	Absent. No records or habitat in area of effect.
<p>1 Status= Status of Federal protected species E: Listed as Endangered NMFS: Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service PX: Critical Habitat proposed for this species T: Listed as Threatened X: Critical Habitat designated for this species</p> <p>2 Definition Of Occurrence Indicators Absent: Species not reported from area and habitat absent Possible: Species reported from area but actively cultivated lands provide poor quality habitat. Present: Species reported from area and habitat is present</p> <p>3 CNDDB = California Natural Diversity Database 2012</p>		

3.4.2 Environmental Consequences

No Action

Under the No Action Alternative, non-CVP water would not be conveyed or stored in CVP facilities. However, non-issuance of a license to use, operate and maintain the existing pipeline over Reclamation's right of way may result in removal of the existing pipeline, which could require ground-disturbing activity.

San Joaquin kit fox, giant kangaroo rat and blunt-nosed leopard lizard have been reported in the vicinity of the project area. The removal of the existing pipeline could have potential effects to listed species, and as such, would require further environmental review.

Proposed Action

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

There would be no new pumps or construction under the Proposed Action. There would be no effects to the giant garter snake due to groundwater overdraft, under this short term action, because groundwater would remain within the district.

The short duration of the water availability, the requirement that no native lands be converted without consultation with U.S. Fish and Wildlife Service, and the

stringent requirements for water quality 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.

3.5 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 population of some small communities in the San Joaquin Valley 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

Under the No Action Alternative, Reclamation would not approve a Warren Act contract to convey and store non-CVP water in CVP facilities. The well owner could continue to pump their groundwater for local use. This could help maintain limited agricultural production and local employment.

Proposed Action

A Warren Act contract would allow SLWD to use non-CVP water for irrigation in their service area. The availability of this water could help maintain District-wide agricultural production and farm worker employment. Therefore, implementing the Proposed Action may benefit minority or disadvantaged populations within the Proposed Action area.

Cumulative Impacts

While the Proposed Action may benefit minority and low-income populations during the life of the contract, the action has a relatively short duration. There would be neither beneficial nor adverse cumulative impacts to minority and low-income populations as a result of the Proposed Action.

3.6 Socioeconomic Resources

3.6.1 Affected Environment

The agricultural industry contributes to the overall economic stability of the San Joaquin Valley (California Labor & Workforce Development Agency, 2009). CVP allocations each year allow farmers to plan for the types of crops to grow

and to secure loans to purchase supplies. The economic variances may include fluctuating agricultural prices, insect infestation, changing hydrologic conditions, increased fuel and power costs.

3.6.2 Environmental Consequences

No Action

Reclamation would not approve a Warren Act contract to convey and store non-CVP water in CVP facilities. The well owner could continue to pump their groundwater for local use. However, reduced supplies to SLWD could result in reduced demand for local labor and farm supplies. Under the No Action Alternative, there could be temporary impacts to socioeconomic resources due to potential fallowing of farmland. However, this could change with the hydrological conditions.

Proposed Action

Under the Proposed Action, SLWD could convey and store non-CVP water in CVP facilities to supplement their water supply. A Warren Act contract would allow the non-CVP water to be distributed to sustain permanent crops. This would help maintain the agricultural economy of the area. Therefore, implementing the Proposed Action may provide a benefit to socioeconomic resources in the area.

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.

3.7 Air Quality

3.7.1 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 3-3).

3.7.2 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 3-2).

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}).

The Proposed Action would use a well equipped with a new John Deere 6068H diesel engine, installed in 2010. The engine meets California Air Resources Board, Environmental Protection Agency Tier 3 and EU Stage IIIA specifications. As such, the engine meets the emission requirements for compression engines as outlined in San Joaquin Valley Air Pollution Control District Rule 4702, Section 5.2.4.

3.7.3 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not issue the proposed Warren Act contract. The well owner could continue to pump groundwater for local use.

Proposed Action

The Proposed Action would allow non-CVP water to be conveyed and stored in CVP facilities. This would allow non-CVP water to be delivered to areas in SLWD to supplement diminished CVP water supplies. No new facilities would be needed as a result of the Proposed Action.

Air quality emissions for the Proposed Action are well below the *de minimis* thresholds for the San Joaquin Valley Air Basin (Table 3-3) and meet San Joaquin

Valley Air Pollution Control District standards; therefore, there would not be substantial air quality impacts associated with this Proposed Action.

Table 3-3 San Joaquin Valley Air Basin Attainment Status

Pollutant	Federal Attainment Status	California Attainment Status
Ozone - One hour	No Federal Standard ^f	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Extreme ^e	Nonattainment
PM ₁₀	Attainment/Maintenance ^c	Nonattainment
PM _{2.5}	Nonattainment ^d	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/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

^a 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.

Source: San Joaquin Valley Air Pollution Control District (2012)

Table 3-4 General Conformity *de minimis* Thresholds and Estimated Emissions

Pollutant	San Joaquin Valley Air Basin Attainment Status	<i>de minimis</i> Threshold (tons/year)	Estimated Emissions (tons/year)
Ozone (VOCs or NO _x as precursors)	Nonattainment/Extreme	10	4.7
PM (total)			0.23
PM ₁₀	Attainment/Maintenance	100	
PM _{2.5} (Direct Emissions)	Nonattainment	100	
PM _{2.5} (SO ₂ as a precursor)	Nonattainment	100	
PM _{2.5} (NO _x as a precursor)	Nonattainment	100	
PM _{2.5} (VOCs or ammonia as precursors)	Nonattainment	100	

Sources: San Joaquin Valley Air Pollution Control District (2012), John Deere Inc. (2010), Besecker (2012)

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* standards.

3.8 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).

3.8.1 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 California State Water Project. 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).

3.8.2 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. Based on manufacturer's fuel consumption information (John Deere Inc., 2012), EPA (2005) carbon dioxide emissions rates, and the well's operational information (Besecker, 2012), the amount of carbon dioxide that would be generated as a result of the Proposed Action would be approximately 657 metric tons per year. These emissions would not continue past the Proposed Action completion date.

The total emissions are 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 Finding of No Significant Impact and Draft Environmental Assessment between June 27 and July 11, 2012. No comments were received.

4.2 Fish and Wildlife Coordination Act (16 U.S.C. § 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 amendments enacted in 1946 require consultation with the Service and State fish and wildlife agencies "whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license". Consultation is to be undertaken for the purpose of "preventing the loss of and damage to wildlife resources".

The Proposed Action does not involve any new impoundment or diversion of waters, channel deepening, or other control or modification of a stream or body of water as described in the statute, but only the movement of non-CVP water through existing CVP facilities. Therefore the Fish and Wildlife Coordination Act does not apply.

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

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

The Proposed Action would not change the land use patterns of the cultivated or fallowed fields that do have some value to listed species or birds protected by the Migratory Bird Treaty Act; therefore, the Proposed Action would have no effect on birds protected by the Migratory Bird Treaty Act.

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

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

The Proposed Action would not change land use patterns of cultivated or fallowed fields that do have some value to listed species within SLWD. In addition, no native lands would be converted without consultation with the U.S. Fish and Wildlife Service. Therefore, Reclamation has determined the Proposed Action would have no effect to Federally protected species or designated critical habitats.

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

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

Section 106 of the NHPA requires Federal agencies to consider the effects of Federal undertakings on historic properties, properties determined eligible for

inclusion in the National Register. Compliance with Section 106 follows a series of steps that are designed to identify interested parties, determine the APE, conduct cultural resource inventories, determine if historic properties are present within the APE, and assess effects on any identified historic properties.

There would be no impacts to cultural resources as a result of implementing the Proposed Action or No Action Alternative. The Proposed Action would involve the movement of water through existing facilities to existing users. No new construction or ground disturbing activities would occur as part of the Proposed Action. The pumping, conveyance, and storage of water would be confined to existing wells, pumps, and CVP facilities. These activities have no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1).

4.6 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, and similarly, Executive Order 11990 places similar requirements for actions in wetlands.

There would be no impacts to floodplains or wetlands as a result of implementing the Proposed Action or No Action Alternative. The Proposed Action would involve the movement of water through existing facilities to existing users. No new construction or ground disturbing activities would occur as part of the Proposed Action.

4.7 Clean Water Act (33 U.S.C. § 1251 et seq.)

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

No activities such as dredging or filling of wetlands or surface waters would be required for implementation of the Proposed Action, therefore permits obtained in compliance with Clean Water Act are not required.

Section 5 List of Preparers and Reviewers

5.1 Bureau of Reclamation

Nicholas Kilb, Natural Resources Specialist, SCCAO
 Michael C. S. Eacock, Natural Resources Specialist, SCCAO
 Jennifer Lewis, PhD, Wildlife Biologist, SCCAO
 Adam Nickels, M.S., Archaeologist, MP-153
 Patricia Rivera, Native American Affairs Specialist, MP-400
 Chuck Siek, M.A., Supervisory Natural Resources Specialist, SCCAO – reviewer
 Erma Clowers, Repayment Specialist, SCCAO – reviewer
 Laura Couron, Realty Specialist, SCCAO – reviewer

5.2 San Luis Water District

Martin McIntyre, General Manager – reviewer

5.3 Provost & Pritchard Consulting Group

Rick Besecker

Section 6 List of Acronyms and Abbreviations

af	acre-feet (the volume of water one foot deep and an acre in area)
APE	area of potential effects
CNDDDB	California Natural Diversity Database
CVP	Central Valley Project
DWR	California Department of Water Resources
EPA	Environmental Protection Agency
M&I	municipal and industrial
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO _x	nitrogen oxides
PM ₁₀	particulate matter between 2.5 and 10 microns in diameter
PM _{2.5}	particulate matter less than 2.5 microns in diameter
Reclamation	Bureau of Reclamation
SLC	San Luis Canal

SLWD	San Luis Water District
TDS	Total Dissolved Solids
USGS	United States Geological Survey
VOC	volatile organic compounds

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Appendix A Water Quality Monitoring Plan

RECLAMATION

Managing Water in the West

2012 Warren Act Contracts San Luis Canal Pump-in Program San Luis Water District Water Quality Monitoring Plan



Dos Amigos Pumping Plant, near Los Banos California



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

Revised: 05 Jun 2012

Mission Statements

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

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

List of Abbreviations and Acronyms

Authority	San Luis and Delta-Mendota Water Authority
COC	chain of custody
CVP	Central Valley Project
EC	electrical conductivity, $\mu\text{S}/\text{cm}$
mg/L	milligrams per liter, equivalent to parts per million
QA	Quality Assurance
QC	Quality Control
QCO	Quality Control Officer
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
SLC	San Luis Canal, federal portion of the California Aqueduct
SLC Check 13	SLC Milepost 66.74, O'Neill Forebay
SLC Check 21	SLC Milepost 172.44, near Kettleman City
TDS	Total dissolved solids, mg/L
$\mu\text{g}/\text{L}$	micrograms per liter, equivalent to parts per billion
$\mu\text{S}/\text{cm}$	microSiemens per cm, salinity in water

2012 Warren Act Contracts

San Luis Canal Pump-in Program

Water Quality Monitoring Plan

Introduction

The 2012 supply of Central Valley Project (CVP) water has been reduced by drought and restrictions on pumping from the Sacramento-San Joaquin Delta. Under the Warren Act of 1911, Reclamation may execute temporary contracts to convey non-project water in excess capacity in federal irrigation canals.

San Luis Water District has requested a temporary contract to allow up to 1,500 acre-feet of groundwater to be pumped into the San Luis Canal (SLC) in exchange for CVP water delivered from the San Luis Reservoir. The groundwater would come from a well operated by Bettencourt Farms and would enter the SLC at Milepost 79.67. The water in this well has been tested¹ and it meets current standards for conveyance in the San Luis Canal in 2012. The flow rate would be less than 3 cubic feet per second; the capacity of the canal at this point is 13,100 cfs.

No other water districts have requested similar contracts in 2012.

This activity is subject to the approval of the California Department of Water Resources (DWR). The 2001 DWR policy for wheeling non-project water in the State Water Project is included as Appendix 1. The 2009 Agreement between DWR and SLWD is included as Appendix 2.

This document describes the plan for measuring the changes in the quality of water in the SLC caused by the conveyance of groundwater during 2012, plus changes in groundwater elevation to estimate subsidence. Various agencies will use these data to determine the water quality conditions in the SLC and physical condition of local groundwater resources.

This document has been prepared by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), in cooperation with the San Luis &

¹ MWH Laboratory Report # 200902190001 (sample date 18 Feb 2009)

Delta-Mendota Water Authority (Authority), the California Department of Water Resources (DWR), and the State Water Contractors.

This monitoring plan will be conducted by staff of Reclamation and DWR and will complement independent monitoring by other Federal, State, and private agencies.

Several sampling techniques will be used to collect samples of water, including real-time and grab. The techniques used at each location are summarized in Section 3. Continuous measurement specific conductance (salinity) will be recorded in the canal using sondes connected to digital data loggers. The real-time data from the sondes will be sent via satellite to the California Data Exchange Center where it will be posted in the Internet as preliminary data:

<http://cdec.water.ca.gov/queryDaily.html>

The real-time salinity data will be collected by Reclamation and used in a mass balance to calculate and predict water quality conditions along the SLC. The calculated results will be compared with independent field measurements collected by the Reclamation and DWR.

Background

The federal Central Valley Project (CVP) delivers water to almost a million acres of farmland in the San Joaquin Valley of California. The CVP is also the sole source of clean water for several cities as well as state, federal, and private wildlife areas in Fresno, Merced, San Joaquin, and Stanislaus Counties.

The source of CVP water for the western San Joaquin Valley is the Sierra Mountains in northern California. This water flows down the Sacramento River to the delta of the Sacramento and San Joaquin Rivers, where it is pumped into the Delta-Mendota Canal and the California Aqueduct.

This water is suitable in quality for irrigation and wetlands. The San Joaquin Valley is regularly affected by droughts that reduce the supply of water. Environmental regulations also restrict the operation of the federal and state pumping plants to divert water from the delta. The salinity of water in the Delta is highly variable due to the influence of tides and outflow of river water.

The San Luis Canal is a concrete-lined canal with a capacity ranging from 8,350 to 13,100 cfs. It is the federal section of the California Aqueduct and

extends 102.5 miles from the O`Neill Forebay, near Los Banos, in a southeasterly direction to a point west of Kettleman City. Beyond that point, water is delivered by the State water project to cities and farms.

Local federal water districts in the San Luis Unit must use groundwater to supplement their contractual supply of CVP water.

The Warren Act of 1911⁽²⁾ authorizes Reclamation to execute temporary contracts to impound, store, and carry water in federal irrigation canals when excess capacity is available. The Central Valley Project Improvement Act of 1992 (CVPIA)³ supports exchanges and transfers of CVP water.

The quality of local groundwater is variable and must be measured to confirm that there will be no harm to downstream water users when the non-project water is pumped into the canal. Reclamation staff developed standards for the acceptance of non-project water in the SLC based on the requirements of downstream water users.

In 2012, seasonal drought has reduced the CVP allocation to 40 percent⁴ to San Luis Unit contractors. Furthermore, environmental regulations and climate change continue to reduce the supply of surface water for the CVP. Water managers now must depend on groundwater to supplement surface water for irrigation. However, continuous pumping of groundwater can quickly reduce local aquifers and can cause irreversible damage to facilities through subsidence.

Reclamation will require information about each source of groundwater and more monitoring of the aquifer to measure overdraft, prevent subsidence, and determine the feasibility of continuing this program in the future. Staff from DWR and water districts will be take regular measurements of depth to groundwater, pump rates, and in-stream salinity measurements.

This Monitoring Plan will ensure that monitoring data will measure any changes in the quality of CVP water in the SLC and assess impacts on local aquifers.

² Act of February 21, 1911, ch. 141, 36 Stat. 925

³ Section 3405(a) of the Central Valley Project Improvement Act (CVPIA) (Title 34 of Public Law 102-575)

⁴ April 13, 2012. <http://www.usbr.gov/mp/PA/water/>

Monitoring Mission and Goals

The mission of this monitoring program is to produce physical measurements that will determine the changes in the quality of the water in SLC caused by the conveyance of groundwater during 2012. The data will be used to implement the terms of the 2012 Warren Act Contract, and to ensure that the quality of CVP water is commensurate with the needs and expectations of water users.

The monitoring program will also deal with changes to groundwater resources to identify and prevent long-term problems to local aquifers and facilities.

Program Goals

The general goals of monitoring are:

- Evaluate the quality of water in each well, and
- Confirm that the blend of CVP water and groundwater is suitable for domestic and agricultural uses.
- Provide reliable data for regulation of the 2012 SLC Pump-in Program and future pump-in programs to prevent contamination problems
- Provide measurements of groundwater dynamics (depth, recharge) to identify overdraft and subsidence

Study Area

The Study Area for this program encompasses the San Luis Canal from the O'Neill Forebay to Kettleman City. The State Water Project shares ownership of this portion of the canal and conveys water beyond Kettleman City to its contractors in southern California.

Water Quality Standards

Non-project water must meet the standards listed in Table 5. The list has been developed by Reclamation and DWR to measure constituents of concern that would affect downstream water users. The salinity of each source of pump-in water shall not exceed 1,100 mg/L TDS. The other

constituents are agricultural chemicals listed in the California Drinking Water Standards (Title 22)⁵.

Water Quality Monitoring Plan

In-stream Monitoring

Reclamation and DWR will operate and maintain the real-time stations listed in Table 1.

The quality of water in the SLC will be measured at the locations listed in Tables 2 and 3.

Table 4 is a list of action limits for water in the canal to regulate the introduction of groundwater.

Table 5 is a list of constituents of concern to be measured in each source of groundwater, as well as proposed maximum contaminant levels.

Reclamation will be responsible for the costs of sampling and analysis of water sampled from the SLC under this monitoring program.

If the real-time monitoring is not sufficient to identify in-stream changes in quality caused by the addition of this groundwater, Reclamation may require weekly measurements of canal water to determine effects of the wells.

Table 1. Real-Time Monitoring Stations

Location	Operating Agency	Parameters	Frequency	Remarks
SLC Check 13 O'Neill Forebay	DWR	EC	Real-time	CDEC Site: C13
SLC Check 21 at Kettleman City	DWR	EC	Real-time	CDEC site : C21

Key:

CDEC: California Data Exchange Center

DWR: California Department of Water Resources

⁵ California Code of regulations, Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010 4037), and Administrative Code (Sections 64401 et seq.), as amended. <http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Lawbook/DWstatutes-2012-01-01a.pdf>

Table 2. San Luis Canal Water Quality Monitoring Stations

Location	Operating Agency	Parameters	Frequency	Remarks
SLC Check 13 O'Neill Forebay	DWR	EC, selenium, boron, mercury	Monthly	Grab sample
SLC Check 21 Kettleman City	DWR	EC, selenium, boron, mercury	Monthly	Grab sample

Table 3. In-Stream Monitoring Stations (Optional)

Location	Responsible Agency	Parameters	Frequency	Remarks
Upstream of pump-in	DWR	EC	TBD	Field measurement
Downstream of pump-in	DWR	EC	TBD	Field measurement

Wellhead Monitoring

Initial Analysis

All districts participating in the 2012 SLC Pump-in Program must provide the following information about each well to Reclamation prior to pumping groundwater into the canal:

- the location of each well, pumping rate, and point of discharge in to the SLC;
- complete water quality analyses (Table 5)⁶
- the depth to groundwater in every well before pumping into the SLC commences.

Though most of the wells are privately owned, the Districts must provide access to each well for Reclamation and DWR staff.

All water samples must be sampled and preserved according to established protocols in correct containers. Analyses should be conducted by laboratories that have been approved by Reclamation, listed in Table 6. Each sample of well water must be sampled and analyzed at the expense of the well owner.

⁶ Note: Laboratory analyses of water in each well may be measured within three years

Compliance Monitoring

Daily Salinity

Mean daily salinity will be assessed with the sensors along the canal that report real-time data to CDEC, listed in Table 1. These data will be compiled by Reclamation to monitor changes along the canal.

Weekly Monitoring (OPTIONAL)

Reclamation may require weekly measurements of salinity along the SLC if the real-time sensors are not sufficient to identify changes. If necessary, Reclamation will require the measurement of the EC of water in the canal at the places listed in Table 3. The volume of groundwater pumped into the SLC from each well will be measured by DWR and sent to Reclamation at the end of each month.

Depth to Groundwater

The Districts must measure the depth to groundwater in each active well before pumping, and every two months while pumping. The current depth to groundwater in each well will be compared to the initial depth measurement. If the current depth is more than 25 below the initial depth, Reclamation advise the District and may recommend that pumping from that well be stopped until the depth recovers to an agreed upon depth, such as the median observed depth.

Data Compilation and Review

All compliance monitoring data collected by the districts (i.e., flow, EC, depth of groundwater from each active well) will be presented each month to Reclamation and DWR via e-mail.

Reclamation and DWR will review the data to identify changes in the quality of water in the canal and in individual wells, and potential changes in the local aquifer that could lead to overdraft or subsidence.

Water Quality Monitoring Parameters and Data Management

The following sections describe the parameters for real-time and laboratory measurement of water quality, as well as methods for quality control, data management, and data reporting.

Real-Time Water Quality Monitoring Parameter

DWR operates sensors along the SLC that measure salinity and temperature of water. These continuous measurements are posted on the Internet in real-time.

Salinity

Salinity is a measure of dissolved solids in water. It is the sum weight of many different elements within a given volume of water, reported in milligrams per liter (mg/L) or parts per million (ppm). Salinity is an ecological factor of considerable importance, influencing the types of organisms that live in a body of water. Also, salinity influences the kinds of plants and fish that will grow in a water body. Salinity can be estimated by measuring the electrical conductivity (EC) of the water.

Sampling For Laboratory Analyses of Water Quality

The following sections describe constituents for laboratory analyses of water quality, as well as methods for water quality sampling and chain of custody documentation.

Constituents

Table 5 is a list of constituents to be measured at in each well that will pump into the SLC during 2012. Parameters include selenium, mercury, boron, nutrients, and other compounds that cannot be measured with field sensors. Table 6 is a list of laboratories that have been approved by Reclamation.

Sampling methods

Grab samples will be collected in a bucket or bottle from the point of discharge into the canal. Samples of canal water should be collected mid-stream from a bridge or check structure. Grab samples should be poured directly into sample bottles appropriate to the analyses. This technique is for samples collected weekly or less frequently. The laboratory will specify the sample volume, type of bottle, need for preservative, and special handling requirements for each constituent. Reclamation may train field staff on proper sample collection and handling.

Chain of Custody documentation

Chain of custody (COC) forms will be used to document sample collection, shipping, storage, preservation, and analysis. All individuals

transferring and receiving samples will sign, date, and record the time on the COC that the samples are transferred.

Laboratory COC procedures are described in each laboratory's Quality Assurance Program Manual. Laboratories must receive the COC documentation submitted with each batch of samples and sign, date, and record the time the samples are transferred. Laboratories will also note any sample discrepancies (e.g., labeling, breakage). After generating the laboratory data report for the client, samples will be stored for a minimum of 30 days in a secured area prior to disposal.

Quality Control

Quality control (QC) is the overall system of technical activities that measure the attributes and performance of a process, item, or service against defined standards to verify that stated requirements are met.

Quality assurance (QA) is an integrated system of management activities involving, planning, implementation, documentation, assessment, reporting, and quality improvement to ensure that a process, item, or service is of the type and quality needed and expected by the customer.

QA objectives will be used to validate the data for this project. The data will be accepted, rejected, or qualified based on how sample results compare to established acceptance criteria.

The precision, accuracy, and contamination criteria will be used by the QCO to validate the data for this project. The criteria will be applied to the blind external duplicate/split, blank, reference, or spiked samples submitted with the production samples to the analytical laboratories by the participating agencies to provide an independent assessment of precision, accuracy, and contamination.

Laboratories analyze their own QC samples with the client's samples. Laboratory QC samples, including laboratory fortified blanks, matrix spikes, duplicates, and method blanks, assess precision, accuracy, and contamination. Laboratory QC criteria are stated in the analytical methods or determined by each laboratory. Since internal control ranges are often updated in laboratories based on instrumentation, personnel, or other influences, it is the responsibility of the QCO to verify that these limits are well documented and appropriately updated during system audits. The preferred method of reporting the QC results is for the laboratory to provide a QC summary report with acceptance criteria for each QC parameter of interest.

For water samples, the QCO will use a statistical program to determine if current concentrations for parameters at given sites are consistent with the historical data at these sites. A result is determined to be a historical outlier if it is greater than 3 standard deviations from the average value for the site. The presence of an outlier could indicate an error in the analytical process or a significant change in the environment.

Samples must be prepared, extracted, and analyzed within the recommended holding time for the parameter. Data may be qualified if the sample was analyzed after the holding time expires.

Completeness refers to the percentage of project data that must be successfully collected, validated, and reported to proceed with its intended use in making decisions.

Constraints with regard to time, money, safety, and personnel were some of the factors in choosing the most representative sites for this project. Monitoring sites have been selected by considering the physical, chemical, and biological boundaries that define the system under study.

Sites also were selected to be as representative of the system as possible. However, Reclamation will continue to evaluate the choice of the sites with respect to their representativeness and will make appropriate recommendations to the Contracting Officer given a belief or finding of inadequacy.

Comparability between each agency's data is enhanced through the use of Standard Operating Procedures that detail methods of collection and analysis. Each agency has chosen the best available protocol for the sampling and analyses for which it is responsible based on the agency's own expertise. Audits performed by the QCO will reinforce the methods and practices currently in place and serve to standardize techniques used by the agencies.

Data Management

This program will use data from several independent sources. Each collecting agency will be responsible for its data reduction (analysis), internal data quality control, data storage, and data retrieval.

Real-Time Data – Raw data from field sensors, must be identified as preliminary, subject to change

Provisional Data - Data that have been reviewed by the collecting agency but may be changed pending re-analyses or statistical review

Laboratory Data – Data produced by the laboratory following laboratory QA/QC protocols

Data Reporting

Preliminary data for each well must be compiled by each district and reported to Reclamation for review and approval. The list of approved wells will be included in the District's 2012 Warren Act contract.

In-stream data will be collected by DWR and Reclamation. Routine measurements of flow, EC, and depth of groundwater in each well will be collected by the District and sent to Reclamation each week.

Reclamation will compile these data in a water balance model developed by Reclamation to predict the change in salinity in the canal with the addition of groundwater.

Real-time data will be used to monitor day-to-day patterns and assess actual conditions. The real-time data will be posted in regular e-mail messages to the districts and DWR. Reclamation will compile all flow, water quality, and groundwater data into a final report for future reference.

Data Interpretation

Reclamation staff will review all data for the canal and all wells pumping into the canal.

Each week, Reclamation staff will use the real-time salinity measurements (Table 1) and optional weekly in-stream measurements (Table 3) to monitor and determine the changes in water quality caused by the conveyance of groundwater in the SLC.

Reclamation will direct the Districts to stop pumping groundwater into the SLC if the concentration of these constituents in the canal exceed the maximum allowable concentrations listed in Table 4.

Table 4. Maximum Allowable Change in Salinity in the San Luis Canal

Constituent	San Luis Canal Monitoring Location	Maximum concentration in the San Luis Canal
Daily Change in TDS	Checks 13 – 21	Less than 30 mg/L
Total Dissolved Solids	Check 21	450 mg/L

Reclamation will direct the Districts to stop pumping groundwater into the SLC if any of these parameters are exceeded.

Reclamation reserves the right to modify this monitoring program at any time to change.

Revised: 08 June 2012 SCC-107

**Table 5. Water Quality Standards for Acceptance of Groundwater into the San Luis Canal
Check 13 (O'Neill Forebay) to Check 21 (Kettleman City)**

SLC MP 79.67
Bettencourt

Constituent	Units	Maximum Contaminant Level	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method	MWH 200902190001 (18 Feb 2009)
Primary						
Aluminum	mg/L	1 (1)	0.05 (2)	7429-90-5	EPA 200.7	<0.02
Antimony	mg/L	0.006 (1)	0.006 (2)	7440-36-0	EPA 200.8	<0.001
Arsenic	mg/L	0.01 (1)	0.002 (2)	7440-38-2	EPA 200.8	0.0055
Barium	mg/L	1 (1)	0.1 (2)	7440-39-3	EPA 200.7	0.073
Beryllium	mg/L	0.004 (1)	0.001 (2)	7440-41-7	EPA 200.7	<0.001
Boron	mg/L	2.0 (16)		7440-42-8	EPA 200.7	1.4
Bromide	mg/L	NA (17)		24959-67-9	EPA 300.1	
Cadmium	mg/L	0.005 (1)	0.001 (2)	7440-43-9	EPA 200.7	<0.0005
Chromium (total)	mg/L	0.05 (1)	0.01 (2)	7440-47-3	EPA 200.7	0.0035
Lead	mg/L	0.015 (9)	0.005 (8)	7439-92-1	EPA 200.8	<0.0005
Mercury (inorganic)	mg/L	0.002 (1)	0.001 (2)	7439-97-6	EPA 245.1	
Nickel	mg/L	0.1 (1)	0.01 (2)	7440-02-0	EPA 200.7	<0.005
Nitrate (as NO3)	mg/L	45 (1)	2 (2)	7727-37-9	EPA 300.1	8.1
Nitrate + Nitrite (sum as nitrogen)	mg/L	10 (1)			EPA 353.2	
Nitrite (as nitrogen)	mg/L	1 (1)	0.4 (2)	14797-65-0	EPA 300.1	
Selenium	mg/L	0.05 (17)		7782-49-2	EPA 200.8	0.0025
Thallium	mg/L	0.002 (1)	0.001 (2)	7440-28-0	EPA 200.8	<0.001
Secondary						
Chloride	mg/L	250 (7)		16887-00-6	EPA 300.1	200
Copper	mg/L	1 (10)	0.05 (8)	7440-50-8	EPA 200.7	<0.002
Iron	mg/L	0.3 (6)		7439-89-6	EPA 200.7	0.028
Manganese	mg/L	0.05 (6)		7439-96-5	EPA 200.7	<0.002
Molybdenum	mg/L	0.01 (11)		7439-98-7	EPA 200.7	<0.002
Silver	mg/L	0.1 (6)		7440-22-4	EPA 200.7	<0.0005
Sodium	mg/L	69 (15)		7440-23-5	EPA 200.7	140
Specific Conductance	µS/cm	1,600 (7)			SM 2510 B	1200
Sulfate	mg/L	600 (17)		14808-79-8	EPA 300.1	97
Total Dissolved Solids	mg/L	1,040 (17)			SM 2540 C	690
Total Organic Carbon	mg/L as C	NA (17)			EPA 415.1	
Zinc	mg/L	5 (6)		7440-66-6	EPA 200.7	<0.020
Radioactivity						
Gross Alpha	pCi/L	15 (3)	3 (3)		SM 7110C	6.8
Organic Chemicals						
Aldicarb	µg/L	3 (17)				<0.5
Atrazine	µg/L	1 (4)	0.5 (5)	1912-24-9	EPA 508.1	<0.05
Bentazon	µg/L	18 (4)	2 (5)	25057-89-0	EPA 515	<0.5
Carbaryl	µg/L	400 (17)		63-25-2	EPA 531.1-2	<0.5
Carbofuran	µg/L	18 (4)	5 (5)	1563-66-2	EPA 531.1-2	<0.5
Chlordane	µg/L	0.1 (4)	0.1 (5)	57-74-9	EPA 505	<0.1
Chlorpyrifos	µg/L	0.025 (14)		2921-88-2	EPA 8141	<0.05
2,4-D	µg/L	70 (4)	10 (5)	94-75-7	EPA 515.1-4	<0.5
Diazinon	µg/L	0.16 (14)		333-41-5	EPA 507	<0.1
Dibromochloropropane (DBCP)	µg/L	0.2 (4)	0.01 (5)	96-12-8	EPA 504.1	<0.01
Diquat	µg/L	20 (4)	4 (5)	85-00-7	EPA 549.2	
Endothall	µg/L	100 (4)	45 (5)	145-73-3	EPA 548.1	
Endrin	µg/L	2 (4)	0.1 (5)	72-20-8	EPA 505, 508.1, 8081A	<0.01
Ethylene Dibromide (EDB)	µg/L	0.05 (4)	0.02 (5)	206-93-4	EPA 504.1	
Glyphosate	µg/L	700 (4)	25 (5)	1071-83-6	EPA 547	<6
Heptachlor	µg/L	0.01 (4)	0.01 (5)	76-44-8	EPA 505	<0.01
Heptachlor Epoxide	µg/L	0.01 (4)	0.01 (5)	1024-57-3	EPA 505	<0.01
Lindane	µg/L	0.2 (4)	0.2 (5)	58-89-9	EPA 505	<0.01
Methiocarb	µg/L	NA (17)		2032-65-7	EPA 531.1-2, 8321B	<0.5
Methomyl	µg/L	200 (17)		16752-77-5	EPA 531.1-2, 8321B	<0.5
Methoxychlor	µg/L	30 (4)	10 (5)	72-43-5	EPA 505	<0.05

**Table 5. Water Quality Standards for Acceptance of Groundwater into the San Luis Canal
Check 13 (O'Neill Forebay) to Check 21 (Kettleman City)**

SLC MP 79.67
Bettencourt

Constituent	Units	Maximum Contaminant Level	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method	MWH 200902190001 (18 Feb 2009)
Molinate	µg/L	20 (4)	2 (5)	2212-67-1	EPA 525.2	<0.1
Oxamyl	µg/L	50 (4)	20 (5)	23135-22-0	EPA 531.1-2, 8321B	<0.5
2, 4, 5-TP (Silvex)	µg/L	50 (4)	1 (5)	93-72-1	EPA 515.1-4	<0.2
Simazine	µg/L	4 (4)	1 (5)	122-34-9	EPA 508.1	<0.2
Thiobencarb	µg/L	70 (4)	1 (5)	28249-77-6	EPA 525.2	<0.2
Toxaphene	µg/L	3 (4)	1 (5)	8001-35-2	EPA 505	<0.5

Sources:

Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010-4037), and Administrative Code (Sections 64401 et seq.), as amended.

- (1) Title 22. Table 64431-A (mg/L) (6) Title 22. Table 64449-A (mg/L)
 (2) Title 22. Table 64432-A (mg/L) (7) Title 22. Table 64449-B (mg/L)
 (3) Title 22. Table 64442 (pCi/L) (8) Title 22. Table 64678-A (mg/L)
 (4) Title 22. Table 64444-A (mg/L) (9) Title 22. Section 64678 (d)
 (5) Title 22. Table 64445.1-A (mg/L) (10) Title 22. Section 64678 (e)

[California Drinking Water Statutes and Regulations](http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Lawbook/dwregulations-2011-09-22.pdf)

<http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Lawbook/dwregulations-2011-09-22.pdf>

California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins.

- (13) Basin Plan, Table III-1 (ug/L) (selenium in Grasslands water supply channels)
 (14) Basin Plan, Table III-2A (ug/L) (chlorpyrifos & diazinon in San Joaquin River from Mendota to Vernalis)

[Sacramento & San Joaquin River Basin Plan 2009](http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf)

http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf

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

- (15) Ayers, Table 1 (mg/L) (sodium)
 (16) Ayers, Table 16 (mg/L) (boron)

[Water Quality Standards for Agriculture 1985](http://www.fao.org/DOCREP/003/T0234E/T0234E00.HTM)

<http://www.fao.org/DOCREP/003/T0234E/T0234E00.HTM>

State of California, Department of Water Resources (DWR), August 3, 2009. Agreement between DWR and San Luis Water District for Introduction and Conveyance of Local Groundwater in the California Aqueduct. SWPAO #09061.

- (17) Attachment 1.

Table 6. Approved Laboratory List for the Mid-Pacific Region Environmental Monitoring Branch

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

Table 6. Approved Laboratory List for the Mid-Pacific Region Environmental Monitoring Branch

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

revised: 2/14/2011

Appendix 1. Department of Water Resources - Interim Water Quality
Criteria for Acceptance of Non-Project Water into the State Water Project
2001

INTERIM

DEPARTMENT OF WATER RESOURCES WATER QUALITY CRITERIA FOR ACCEPTANCE OF NON-PROJECT WATER INTO THE STATE WATER PROJECT

MARCH 1, 2001

In accordance with the Water Code, non-project water may be conveyed, wheeled, or transferred in the State Water Project provided that water quality is protected.

GENERAL PROVISIONS

The proponent of any non-project water input proposal shall demonstrate that the water is of consistent, predictable, and acceptable quality.

The Department of Water Resources shall consider all non-project water input proposals based upon the criteria established in this document.

DWR will consult with State Water Project contractors and the Department of Health Services on drinking water quality issues relating to non-project water as needed to assure the protection of SWP water quality.

Nothing in this document shall be considered as authorizing the objectives of Article 19 of the water supply contracts or drinking water maximum contaminant levels to be exceeded.

These criteria shall not constrain DWR's ability to operate the SWP for its intended purposes or to protect its integrity during emergencies. There shall not be any adverse impacts to SWP water deliveries, operations or facilities.

DWR will use a two-tier approach for accepting non-project water into the California Aqueduct. Tier 1 programs have a "no adverse impact" criteria and shall be tied to historical water quality levels in the California Aqueduct. Programs meeting Tier 1 criteria shall be approved by DWR. Tier 2 programs, have water quality levels that exceed the historical water quality levels in the California Aqueduct and have the potential to cause adverse impacts to state water contractors. Tier 2 programs shall be referred to a state water contractor facilitation group for review. The facilitation group would review the program and if needed make recommendations to DWR to use during consideration of the project.

SPECIFIC PROVISIONS

Tier 1

Under Tier 1, all constituents of non-project water shall not exceed the historical water quality levels measured at the O'Neill Forebay Outlet (formerly Check 13) on the SWP as measured by DWR's water quality monitoring program (Table 1).

Blending of multiple water sources prior to inflow into the SWP is acceptable. As part of a non-project water proposal, water may be introduced into the aqueduct that by itself might cause the ambient baseline to be exceeded, provided that the sum total of all introduced waters from a defined project do not exceed the historical baseline for the Aqueduct on an instantaneous flow weighted basis. Blending (mixing) within the aqueduct must be between and cannot overlap any active municipal and industrial delivery locations, without approval of DWR. The proponent shall demonstrate by model or an approach acceptable to DWR and the state water contractor facilitation group, that the water is adequately mixed before reaching the first M&I customer.

Non-project water proposals meeting Tier 1 water quality standards shall be approved by DWR without further review by other agencies except as is required by law. However, upon approval by DWR of any pumpin under Tier 1, the state water contractor facilitation group will be notified by DWR of the action.

Tier 2

Non-project water exceeding Tier 1 standards or contributing to aqueduct levels that exceed the historical water quality baseline may be considered for input into the SWP on a case-by-base basis by the SWP contractors and DWR. Proposals that would impact SWP water quality delivered to downstream state water contractors will be reviewed by state water contractors. The intent is that proposals that produce an overall net water quality benefit will be approved.

A state water contractor non-project inflow **facilitation group** will be established and will review all requests for non-project inflow that do not meet Tier 1 water quality criteria. This group will consist of representatives from each state water contractor, that chooses to participate. DWR may participate as an observer. The group will consider the merits, impacts, mitigation, cost/benefits or other issues of each Tier 2 non-project water proposal (s) and provide recommendations to DWR. DWR will consider

the **facilitation group** and any individual SWP contractor recommendations in reviewing the proposal. DWR will make the final decision to approve, modify or deny the non-project water proposal. Any decision must be in compliance with law and existing contracts.

The **facilitation group** would consider the range of potential impacts along with potential benefits, mitigation, and other issues associated with the program.

A consensus recommendation from the facilitation group would be sought regarding a potential exceedance of the historical water quality levels. In the absence of consensus from the **facilitation group**, DWR will base its decision on the merits of the program and its ability to provide overall benefits to the state water project.

WATER QUALITY CHANGES

Once a program for delivery of non-project water to the Aqueduct has been approved, an annual review of the program with the state water contractors will occur.

As needed, DWR, DHS or state water contractors may recommend changes or additions to these water quality criteria governing non-project water proposals. Proposed changes or additions will be reviewed by the **facilitation group** prior to consideration by DWR.

MONITORING

Non-project inflow proponents are responsible for monitoring the quality of the water at the point of introduction into the Aqueduct for the duration of the program.

IMPLEMENTATION

DWR will develop procedures to implement these criteria.

Appendix 2. 2009 Agreement between DWR and San Luis WD for the Introduction and Conveyance of Local Groundwater in the California Aqueduct.

From: **Trombly, Craig** <craigt@water.ca.gov>
Date: Wed, Apr 25, 2012 at 3:58 PM
Subject: RE: San Luis Canal Pump in proposal
To: Martin McIntyre <mcintyre.martin@gmail.com>

Martin,

The DWR water quality folks have agreed that the 2008 criteria are fine. Let us know if there's anything else we can help with.

Craig

Craig Trombly, Chief

Project Water Management Group

916.653.4547

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

AGREEMENT BETWEEN
THE DEPARTMENT OF WATER RESOURCES, OF THE STATE OF
CALIFORNIA,
AND
SAN LUIS WATER DISTRICT
FOR
INTRODUCTION and CONVEYANCE OF LOCAL GROUNDWATER IN
THE CALIFORNIA AQUEDUCT

SWPAO #09061

THIS AGREEMENT is made and entered into as of the 3rd day of
August, 2009 pursuant to the provisions of the California Water
Resources Development Bond Act and other applicable laws of the State of California,
between the Department of Water Resources (DWR) of the State of California and San
Luis Water District (SLWD), a water district, duly organized, existing and acting
pursuant to the laws of the State of California. This Agreement may refer to DWR or
SLWD individually by name, as "Party" or collectively as "Parties".

Recitals

- A. DWR operates and maintains the State Water Resources Development System pursuant to the laws of the State of California, involving the development and conveyance of water supplies to public agencies and water districts throughout the State of California.
- B. DWR operates and maintains, under Federal contract #14-06-200-9755 with the United States Department of the Interior Bureau of Reclamation, that portion of the California Aqueduct, Reach 3, known as the San Luis Canal (Aqueduct) as a Joint-use facility for conveyance of State Water Project (SWP) water and Central Valley Project (CVP) water.
- C. SLWD has requested DWR to allow SLWD to pump into the Aqueduct through DWR approved turn-in structures, up to 1,500 acre-feet of local groundwater originating from a well at Mile Post 79.67R, with coordinates 36 ° 59' 51.46" North-120° 54' 7.25" West , in the SLWD service area, Reach 3, and for DWR to provide conveyance and delivery of this water to SLWD turnouts in Reach 3 for use by SLWD on agricultural lands only within its service area.
- D. Due to the critically dry hydrologic conditions in 2008 and 2009, court ordered restrictions on pumping from the Delta, reductions in SLWD's CVP water allocations, and rationing of CVP water south of the Delta, SLWD has a compelling need to transfer a portion of its local groundwater supply for use between farmers and landowners within its service area.

AGREEMENT

DWR agrees to accept, convey, and deliver for SLWD up to 1,500 acre-feet of local groundwater within SLWD's service area under the following terms and conditions:

1. Pump-in, Conveyance and Delivery of Local Groundwater
 - a. DWR will allow pump-in of SLWD local groundwater from the individual source well, identified in Recital C of this Agreement, hereinafter referred to as the "Source Well" approved by DWR into the Aqueduct, Reach 3 during the period of June 1, 2009 through February 28, 2010.
 - b. The Source Well selected by SLWD to provide local groundwater to be pumped into the Aqueduct must be approved by DWR prior to any actual pump-in of local groundwater into the Aqueduct.
 - c. DWR will allow and provide conveyance and delivery of SLWD local groundwater to turnouts located within Aqueduct Reach 3 during the period of June 1, 2009 through February 28, 2010.
 - d. DWR shall have no obligation to return any local groundwater introduced into the Aqueduct under this program that does not meet DWR's requirements for water quality or documented measurement.
 - e. Any local groundwater introduced into the Aqueduct by SLWD which is not accepted for delivery by SLWD by February 28, 2010 shall be considered SWP water and will not be available for delivery to SLWD.
2. Services Provided

SLWD shall assure timely access for DWR personnel to conduct any of the following activities within SLWD's service area during the term of this Agreement:

 - a. Verification of metering calibration standards and requirements for meters located at the point of entry into the Aqueduct and at the point of delivery out of the Aqueduct.
 - b. Collecting of water samples from the Source Well and at the point of pump-in to the Aqueduct for testing of water quality.
 - c. Any other activities deemed necessary by DWR to comply with the terms of this Agreement.

3. Water Quality

- a. Prior to any pump-in approval being granted to SLWD by DWR, SLWD shall be responsible for providing water, from the Source Well pumping local groundwater, to be tested by a certified laboratory and no water shall be pumped into the Aqueduct that exceeds the Maximum Contaminant Levels (MCL) standards or fails to meet the acceptable concentrations of MCL established for the six constituents of concern (COC):
- | | |
|------------------------|--|
| Arsenic | .01 mg/L |
| Boron | 2.0 mg/L |
| Bromide | no proposed MCL, to be reviewed on a case by case basis by DWR |
| Nitrates | 45 mg/L |
| Sulfates | 600 mg/L |
| Total Dissolved Solids | 1100 mg/L |
- b. DWR staff will conduct routine water quality measurements of the Aqueduct, within the SLWD service area, from Check 13 through Dos Amigos Pumping Plant. The results of DWR water quality testing will be available on the DWR Water Data Library website within 2 weeks of sampling.
- c. If any water from the Source Well providing local groundwater is tested and found to be at, or within, 10 percent of the acceptable MCL concentration, DWR shall re-sample and test the well water again. If a second test of groundwater from the Source Well is found not to meet the acceptable MCL concentration, SLWD will cause the Source Well to discontinue pumping water into the Aqueduct immediately, and it will not be allowed to resume pumping water into the Aqueduct.
- d. All water from the Source Well must also comply with the California Code of Regulations, Title 22 Water Quality Analysis requirements, as modified for this Agreement, in order to continue to provide local groundwater pumping into the Aqueduct under this Agreement. Within 2 weeks of well start-up, a modified Title 22 Water Quality Analysis shall be provided to DWR. If the Source Well does not meet the modified Title 22 primary requirements, it shall cease pumping into the Aqueduct immediately. During the term of this Agreement, if any modified Title 22 secondary metal MCL is exceeded in the Aqueduct at Dos Amigos Pumping Plant, the Source Well shall cease pumping into the Aqueduct.
- e. DWR's water quality testing results will govern over laboratory results provided by SLWD. SLWD may request that DWR resample and test the Source Well for the COC.

4. Water Operations

- a. SLWD shall receive pump-in approval from DWR prior to the introduction of local groundwater into the Aqueduct. SLWD shall provide DWR with daily and weekly schedules which shall identify the approved Source Well flow rates, and delivery of local groundwater by Reach.
- b. DWR shall have no obligation to return to SLWD any local groundwater pumped into the Aqueduct under this Agreement that does not meet DWR's requirements for water quality or measurement.
- c. Any local groundwater pumped into the Aqueduct by SLWD which is not accepted for delivery by SLWD by February 28, 2010 shall be considered SWP water.
- d. No pump-in of SLWD local groundwater shall be permitted by DWR after February 28, 2010.
- e. DWR will not allow any transfer or exchange of SWP water for local groundwater and will not provide for storage of local groundwater for SLWD under this Agreement.
- f. DWR may, upon notice orally by telephone, electronic mail or notice by facsimile transmission and confirmed in writing, require SLWD to stop the pump-in of local groundwater into the Aqueduct immediately, if, in the judgment of DWR, its continuance could result in disruption of or damage to the SWP, including but not limited to unacceptable degradation of water quality.

5. Water Accounting

- a. At the end of each month from June 1, 2009 through May 28, 2010 during the pump-in and delivery period of local groundwater within Reach 3, SLWD shall submit a Water Accounting Statement (WAS) to the following DWR staff at San Luis Field Division and the State Water Project Analysis Office:

Mr. Mandeep S. Bling
Supervising HEP Utility Engineer
Department of Water Resources
San Luis Field Division
31770 Gonzaga Road
Gustine, California 95322
Office Phone: (209) 827-5110
Fax: (209) 827- 0846
E-Mail: bling@water.ca.gov

Mr. Vinh Giang
Engineer Water Resources
Department of Water Resources
State Water Project Analysis Office
Post Office Box 942836
Sacramento, California 94236-0001
Office Phone: (916) 657-0269
Fax: (916) 653-9628
E-Mail: vgiang@water.ca.gov

- b. The WAS will provide documentation to DWR of the total amount of SLWD's local groundwater pumped into the Aqueduct within Reach 3, all deliveries to turnouts, and include conveyance losses calculated at 2 percent.
 - c. Any differences between SLWD and DWR related to water accounting shall be immediately reconciled and settled monthly. DWR will determine the final water deliveries.
 - d. All SLWD local groundwater, total pump-in and total deliveries, water, and conveyance losses must balance to zero by the end of each month.
6. No Impacts to State Water Project
- a. DWR shall accept and convey SLWD local groundwater inflow in accordance with a schedule approved by DWR, and at times, amounts, and locations consistent with the overall delivery capability of the SWP.
 - b. SLWD agrees that DWR will have sole determination of whether conveyance of the groundwater adversely affects SWP operations, including but not limited to, SWP approved allocations, water storage and deliveries, compliance with environmental regulations and water rights permits, flood control, or other SWP purposes.
 - c. SLWD shall be responsible, as determined by DWR, for any adverse impacts to the SWP or its long-term water contractors, including but not limited to damages to the Aqueduct from subsidence and water quality impacts that may result from the local groundwater pumping into the Aqueduct or conveyance of local groundwater to turnouts within Reach 3.
7. California Environmental Quality Act Compliance
SLWD will file, with the State Clearinghouse, appropriate CEQA compliance for activities under this Agreement.
8. Charges
SLWD shall pay DWR for all services provided by DWR related to this Agreement, including:
- a. A one-time Agreement Preparation Fee of \$2,000 to cover DWR's costs for the development, preparation and execution of this Agreement;
 - b. A Monthly Administrative Fee of \$500 to cover DWR's costs to administer the Agreement, maintain records, and prepare monthly billings. This fee shall be charged beginning in the month when DWR first accepts local groundwater into the Aqueduct and will be charged each month during

pump-in, conveyance or delivery of local groundwater to SLWD, or this Agreement is terminated.

- c. SLWD agrees to pay direct costs incurred by DWR as a result of providing services under this Agreement which otherwise would not have been performed in absence of this Agreement. These costs include, but are not limited to water quality testing, meter calibration, water measurements, and personnel costs of staff time and travel.
- d. A Use-of-Facilities fee of \$0.93 per acre-foot for the conveyance of local groundwater to turnouts in Reach 3 of the Aqueduct.
- e. Any other costs identified as reasonably incurred by DWR for providing services to SLWD under this Agreement.

9. Billings and Payments

- a. Upon execution of this Agreement, DWR shall bill SLWD the \$2,000 Agreement Preparation Fee under Article 8.a.
- b. DWR shall bill SLWD for the \$500 monthly administrative fee as applicable under Article 8.b.
- c. DWR shall bill SLWD for the direct costs of DWR personnel to provide services under Article 8.c. when costs are determined by DWR.
- d. DWR shall bill SLWD for the Aqueduct Use-of-Facilities charge under Article 8.d. after deliveries have been confirmed by DWR.
- e. All payments shall be due within 30 days after the date of DWR's invoice.
- f. Interest shall be charged for all delinquent payments. SLWD shall pay to DWR accrued interest on all overdue payments at the rate of 1 percent per month from the due date to the date of payment.
- g. All invoices billed under this Agreement should be mailed to:
Mr. Martin McIntyre
General Manager
San Luis Water District
Post Office Box 2135
Los Banos, California 93635
Office Phone: (559) 593-3448

10. Liability

- a. DWR shall not be responsible for any use, effects, or disposal of SLWD's local groundwater from the Source Well prior to introduction into the Aqueduct or after the water passes through SLWD's turnouts in Reach 3 of the California Aqueduct. Responsibility under the terms of this Agreement shifts from DWR to SLWD when the local groundwater passes through SLWD's turnouts.
- b. SLWD agrees to defend and hold DWR, its officers and employees, jointly or severally, harmless from any direct or indirect loss, liability, lawsuit, cause of action, judgment or claim, and shall indemnify DWR, its officers and employees, jointly or severally, for all lawsuits, costs, damages, judgments, attorneys fees, and liabilities that DWR, its officers and employees incur as result of DWR providing services to SLWD under this Agreement, except to the extent resulting from the sole negligence or willful misconduct of DWR.
- c. If DWR is precluded in whole or in part from accepting or delivering local groundwater from or to SLWD because of uncontrollable forces, then DWR is relieved from the obligation to deliver the water to the extent it is reasonably unable to complete the obligation due to the uncontrollable force. Uncontrollable forces shall include, but are not limited to earthquakes, fires, tornadoes, floods, and other natural or human caused disasters.
- d. The performance of the parties to this Agreement is contingent upon approval of all governmental agencies with jurisdiction over approval of this Agreement, including without limitation any necessary compliance with applicable environmental laws. If unforeseen conditions prohibit completion of deliveries herein, after partial deliveries are made hereunder, this Agreement will be treated as though rescinded except for responsibilities for liabilities and water already delivered. Unforeseen conditions include, but are not limited to, failure of approvals or withdrawal of approval by any governmental agency with jurisdiction over this Agreement or administrative order with respect thereto.
- e. SLWD shall not be entitled to recover any costs, including, but not limited to any charges billed under Articles 8 and 9 of this Agreement, DWR verification of water accounting costs, or Use-of-Facilities fees paid for conveyance of local groundwater if uncontrollable forces preclude DWR from delivering the local groundwater as described in this Agreement, or this Agreement is terminated pursuant to Article 11.

11. Term

This Agreement shall be effective from the date when the last Party signs this Agreement and shall remain in effect until whichever occurs later: February 28, 2010, or upon final payment to DWR by SLWD of all costs attributable to this Agreement, including liabilities.

- a. Either party may terminate the Agreement, as set forth below, for good cause. In addition, upon notice to SLWD, DWR may terminate this Agreement if the local groundwater pumped into the California Aqueduct does not meet the water quality criteria provided in Article 3 and Attachment 1 or metering standards as required by DWR.
- b. If this Agreement is terminated, SLWD shall not be relieved of its obligation to pay any costs incurred under this Agreement nor for payment for liabilities related to services provided by DWR prior to the time of termination.
- c. DWR shall be obligated to return any local groundwater that has been pumped into the Aqueduct and meets the metering and water quality criteria provided under Article 3 and Attachment 1.
- d. Before terminating this Agreement, either party shall provide the other with the specific ground(s) on which it wishes to terminate the Agreement. The party wishing to terminate this Agreement shall provide the other party with a reasonable opportunity to adjust or correct any problems that may have arisen in the implementation of this Agreement. Termination may only take place 5 days after written notice has been provided to the other party unless termination is based on Articles 3, 4.f., or 6 of this Agreement in which case those Articles shall control.

12. Notices

All communications or notices in connection with this Agreement shall be in writing and either hand-delivered or sent by United States first class mail, postage prepaid, facsimile, or electronic mail followed by written notice sent by U.S. mail, and addressed as follows to the appropriate recipient:

Mr. Robert B. Cooke, Chief
State Water Project Analysis Office
Department of Water Resources
Post Office Box 942836
Sacramento, California 94236-0001
Office Phone: (916) 653-4313
Fax: (916) 653-9628
E-Mail: cooke@water.ca.gov

Mr. Mandeep S. Bling
Supervising HEP Utility Engineer
Department of Water Resources
San Luis Field Division
31770 Gonzaga Road
Gustine, California 95322
Office Phone: (209) 827-5110
Fax: (209) 827-0846
E-Mail: bling@water.ca.gov

Mr. Martin McIntyre
General Manager
San Luis Water District
Post Office Box 2135
Los Banos, California 93635
Office Phone: (559) 593-3448
Fax: (209) 826-0524
E-Mail: martin.m3653@sbcglobal.net

13. No Precedent

This Agreement is a response to a unique situation, and the parties specifically understand, and acknowledge that this Agreement shall not be considered as a precedent for any DWR agreements or activities of a similar nature in the future.

14. Signature Clause

The signatories represent that they have appropriate authorization to enter into this "Agreement for Introduction and Conveyance of Local Groundwater in the California Aqueduct" on behalf of the Party for whom they sign. If SLWD requires special written authorization from its Board of Directors, SLWD shall deliver to DWR a copy of its Board of Directors resolution and/or other documentation authorizing its signature.

15. Execution in Counterpart

The Parties may execute this Agreement in counterpart. The Parties agree to accept facsimile or PDF (Portable Document Format) signatures as original signatures. The Agreement shall take effect as soon as both Parties have signed.

Immediately after execution, SLWD shall transmit a copy of the executed Agreement and any required Board approvals by facsimile or email to Robert Cooke, Chief, State Water Project Analysis Office at (916) 653-9628 or cooke@water.ca.gov and to other contacts as listed in Article 12 (Notices).

IN WITNESS WHEREOF, the Parties hereto have entered into this Agreement
for Introduction and Conveyance of Local Water in the California Aqueduct.

Approved as to legal form
And Sufficiency

State Of California
Department Of Water Resources



Chief Counsel
Department of Water Resources
JUL 30 2009

Date

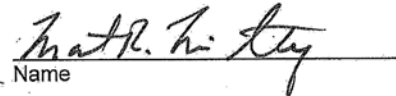


Raphael A. Torres
Deputy Director

Date

8/3/09

SAN LUIS WATER DISTRICT



Name

GENERAL MANAGER

Title

JULY 21, 2009

Date

ATTACHMENT 1

**CALIFORNIA DEPARTMENT OF WATER RESOURCES
WATER QUALITY STANDARDS FOR ACCEPTANCE
OF WESTLANDS WATER DISTRICT GROUNDWATER INTO THE SWP**

Constituent	Units	Maximum Contaminant Level	Source
Primary			
Aluminum	mg/L	1	(1)
Antimony	mg/L	0.006	(1)
Arsenic	mg/L	0.01	(12)
Barium	mg/L	1	(1)
Bromide	mg/L	N/A	(13)
Beryllium	mg/L	0.004	(1)
Boron	mg/L	2.0	(13)
Cadmium	mg/L	0.005	(1)
Chromium (total)	mg/L	0.05	(1)
Lead	mg/L	0.015	(5)
Mercury (inorganic)	mg/L	0.002	(1)
Nickel	mg/L	0.1	(1)
Nitrates (as NO3)	mg/L	45	(1)
Selenium	mg/L	0.05	(1)
Sulfate *	mg/L	600	(13)
Thallium	mg/L	0.002	(1)
Total Dissolved Solids *	mg/L	1,100	(13)

* Note: Sulfate and Total Dissolved Solids are treated as primary Constituents of Concern in this agreement, as stated in Article 3.d.

Secondary

Chloride	mg/L	250	(4)
Copper	mg/L	1	(3)
Iron	mg/L	0.3	(3)
Manganese	mg/L	0.05	(3)
Molybdenum	mg/L	0.01	(10)
Silver	mg/L	0.1	(3)
Sodium	mg/L	69	(9)
Specific Conductance	µS/cm	1,600	(4)
Zinc	mg/L	5	(3)

Total Organic Carbon by Combustion

TOC	mg/L as C	N/A	(11)
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Constituent	Units	Maximum Contaminant Level	Source
Organic Chemicals			
Aldicarb	mg/L	0.003	(14)
Atrazine	mg/L	0.001	(2)
Carbaryl	mg/L	0.4	(16)
Carbofuran	mg/L	0.018	(2)
Chlordane	mg/L	0.0001	(2)
Chlorpyrifos	µg/L	0.025	(8)
2, 4-D	mg/L	0.07	(2)
Diazinon	µg/L	0.16	(8)
Dibromochloropane (DBCP)	mg/L	0.0002	(2)
Diquat	mg/L	0.02	(2)
Endothall	mg/L	0.1	(2)
Endrin	mg/L	0.002	(2)
Ethylene Dibromide (EDB)	mg/L	0.00005	(2)
Heptachlor	mg/L	0.00001	(2)
Heptachlor Epoxide	mg/L	0.00001	(2)
Lindane	mg/L	0.0002	(2)
Methiocarb	mg/L	N/A	
Methomyl	mg/L	0.2	(15)
Methoxychlor	mg/L	0.03	(2)
Oxamyl	mg/L	0.05	(2)
2, 4, 5-TP (Silvex)	mg/L	0.05	(2)
Simazine	mg/L	0.004	(2)
Toxaphene	mg/L	0.003	(2)

Sources:

(A) Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 60001-64690.80), as amended March 9, 2008.

- (1) Title 22. Table 64431-A
- (2) Title 22. Table 64444-A
- (3) Title 22. Table 64449-A

- (4) Title 22. Table 64449-B
- (5) Title 22. Section 64678 (d)

(B) California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins.

- (7) Basin Plan, Table III-1

- (8) Basin Plan, Table III-2A

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

(9) Ayers, Table 1

(10) Ayers, Table 21

(D) Total Organic Carbon in Water EPA Method 415.1 (Combustion)

(11) EPA 415.1 (T) Ox

(E) On January 22, 2001 EPA adopted a new standard for arsenic in drinking water at 10 parts per billion (ppb), replacing the old standard of 50 ppb. The rule became effective on February 22, 2002. The date by which systems must comply with the new 10 ppb standard is January 23, 2006.

(12) 40 CFR 141.62(b)(16)

(F) State of California, The Resources Agency Department Of Water Resources Agreement Among The Department Of Water Resources, State Of California, Bureau Of Reclamation, U.S. Department Of Interior And Westlands Water District for Introduction and Conveyance Of Local Groundwater In The California Aqueduct.

(13) SWPAO #08-052

(G) U.S. EPA Water Quality limits for Constituents and Parameters,

(14) U.S. EPA, Maximum Contaminant Levels;

(15) Drinking Water Health Advisories or Suggested No-Adverse-Response Levels (SNARLs) for toxicity other than cancer risk. August 2007 updates.

(16) RSD5, risk specific dose at $10E-5$ $\mu\text{g/L}$.