BUREAU OF RECLAMATION

Friant Division Groundwater Pump-in Program, Contract Years 2020-2022

CGB-EA-2021-033
Final Environmental Assessment

U.S. Department of the Interior July 2021

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

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

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1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the Draft Environmental Assessment (EA) between May 27, 2021 and June 11, 2021. Two comment letters were received and are included in Appendix A. Response to comments are provided in Section 4.2. Changes between this Final EA and the Draft EA, which are not minor editorial changes, are indicated by vertical lines in the left margin of this document.

1.1 Background

In 2014, due to drought conditions and an unprecedented zero percent allocation for the Friant Division contractors, Reclamation received requests to allow the cumulative annual introduction of up to 50,000 acre-feet of groundwater into the Friant-Kern Canal (FKC). Potential participants included any of the Friant Division or Cross Valley Central Valley Project (CVP) contractors located along the FKC. Reclamation analyzed a two-year FKC Groundwater Pump-in Program in EA-14-011 (Reclamation 2014a). Based on specific environmental commitments, including water quality requirements, Reclamation determined that the cumulative introduction, storage, and conveyance of up to 50,000 acre-feet per year of groundwater by the Friant Division and Cross Valley CVP contractors over a two-year period would not significantly affect the quality of the human environment and a Finding of No Significant Impact (FONSI) was completed on May 2, 2014.

Subsequently, North Kern Water Storage District, a non-CVP contractor located adjacent to the FKC in Kern County, requested approval from Reclamation to participate in the FKC Groundwater Pump-in Program. Reclamation analyzed the addition of North Kern to the FKC Groundwater Pump-in Program in EA-14-051 (Reclamation 2014b) and a FONSI was completed on October 15, 2014.

Due to limited water supplies available to the Friant Division, the Friant Water Authority on behalf of contractors participating in the FKC Groundwater Pump-in Program, requested permission to temporarily convey groundwater from wells that exceed the 45 milligram per liter (mg/L) limit for nitrates established by the State of California[1]. Reclamation analyzed the request in EA-14-043 (Reclamation 2014c). Based on specific conditions imposed by Reclamation on the exceedances (i.e. limit on nitrates and salinity in the FKC and frequent monitoring to prevent exceedance of the limits placed on the project), a FONSI was completed on December 17, 2014.

In 2015, due to ongoing dry conditions, the participating contractors requested to extend the FKC Groundwater Pump-in Program for an additional five years once the program expired in February 2016. The specific participants included: Delano-Earlimart Irrigation District, Lindsay-Strathmore Irrigation District, North Kern Water Storage District, Orange Cove Irrigation District, Saucelito

[1] 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.

Irrigation District, Southern San Joaquin Municipal Utility District, Tea Pot Dome Water District, and Terra Bella Irrigation District. Reclamation analyzed the continuation of the FKC Groundwater Pump-in Program for these participating districts over a five-year period in EA-15-046 and issued a FONSI on March 4, 2016 (Reclamation 2016a).

As the five-year period for the FKC Groundwater Pump-in Program has expired and due to current drought conditions, the participants have requested another extension of the FKC Groundwater Pump-in Program to include the same relaxation of electrical conductivity and nitrate concentrations done under the previous program.

1.2 Purpose and Need for the Proposed Action

In February 2021, Reclamation issued its initial water supply allocations for CVP contractors. The initial allocation was based on an estimate of water available for delivery to CVP water users reflecting current reservoir storage, precipitation, and snowpack in the Central Valley and Sierra Nevada. Based on these conditions, Friant Division contractors received a 20 percent Class 1 and 0 percent Class 2 initial allocation. South of Delta CVP contracts, such as the Cross Valley contractors, received an initial 5 percent allocation (Reclamation 2021a). In March 2021, due to worsening hydrologic conditions, Reclamation announced that the 5 percent allocation for South of Delta CVP contractors was no longer available (Reclamation 2021b). These low allocations are an indicator of the dry winter California is experiencing after the dry water year of 2020.

Facing record dry conditions and insufficient CVP and State Water Project (SWP) water allocations, contractors will need to rely on groundwater to satisfy the demand of existing crops. The purpose of the Proposed Action is to provide Friant Division CVP contractors the flexibility to distribute groundwater to areas within their own districts where water demands from existing crops cannot be fully satisfied by the low supply of CVP water as well as provide North Kern Water Storage District's available groundwater to SWP contractors to meet existing demands.

2 Alternatives Including Proposed Action

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not issue Warren Act agreements or contracts to the participating districts and groundwater would not be introduced into the FKC. Affected growers would have to find alternative supplies of water, provide for alternative conveyance path(s), or temporarily take land out of production if water supplies are insufficient to meet demands. Groundwater pumping within the respective districts would continue as managed by the districts and their respective Groundwater Sustainability Plans (GSPs).

2.2 Proposed Action

Under the Proposed Action, Reclamation would issue annual Warren Act agreements/contracts to the following participating districts: Delano-Earlimart Irrigation District, Lindsay-Strathmore Irrigation District, North Kern Water Storage District, Orange Cove Irrigation District, Porterville Irrigation District, Saucelito Irrigation District, Southern San Joaquin Municipal Utility District, and Terra Bella Irrigation District for the annual introduction of groundwater into the FKC over a two-year period.

The source of the non-Project water would be groundwater pumped from privately owned wells within each district. The groundwater would then be introduced into the FKC through existing infrastructure. No ground disturbance or modification of facilities will be needed to complete the Proposed Action.

The amount of groundwater that would be allowed to be introduced into the FKC would be limited to 12,000 acre-feet over the two-year period with no more than 6,500 acre-feet introduced in a given year. Friant Water Authority manages the FKC Groundwater Pump-in Program and would coordinate the distribution of the annual amounts amongst the participating districts with priority given to Friant Division contractors and any remaining availability then made available to North Kern Water Storage District.

Prior to the introduction of groundwater into the FKC, all wells must be tested to demonstrate compliance with the water quality standards included in Reclamation's *Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals* (Appendix B), in addition to the standards listed in Table 1. However, selenium concentrations for each well cannot exceed 2 µg/L.

Table 1. Additional Water Quality Standards for Agricultural Suitability

Constituent	Units	Maximum Contaminant Level	Recommended Analytical Method	CAS Registry Number
Boron	mg/L	2.0[1]	EPA 200.7	7440-42-8
Chloride	mg/L	500[2]	EPA 300.1	16887-00-6
Sodium	mg/L	100[1]	EPA 200.7[3]	7440-23-5
Specific Conductance	µmhos/cm	2,200[2]	SM 2510 B[3]	E-10184
Sulfate	mg/L	500[2]	EPA 300.1[3]	14808-79-8
Total Dissolved Solids	mg/L	1,500[2]	SM 2540 C[3]	E-10173

Notes: Recommended Analytical Methods: https://www.nemi.gov/home/:
[1]Table 1: Guidelines for Interpretations of Water Quality for Irrigation, from 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). http://www.fao.org/3/T0234E/T0234E00.htm
[2]Title 22[2]. Table 64449-B. Secondary Maximum Contaminant Levels "Consumer Acceptance Levels"
[3]Title 22. Table 64432-A. Detection Limits for Purpose of Reporting (DLRs) for Regulated Inorganic Chemicals

[2] 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.

In addition, Reclamation would allow the introduction of groundwater from wells with high nitrates for the proposed two-year FKC Groundwater Pump-in Program, subject to the following conditions:

- The concentration of nitrates in the FKC may not exceed 20 mg/L, less than half of the maximum contaminant level (MCL) established by the State of California for nitrates.
- Water salinity in the FKC may not exceed 900 micromhos per centimeter (µmhos/cm).

During the course of the Proposed Action, water samples from the FKC shall be collected each week by the Friant Water Authority near the following municipal and industrial diversions:

- FKC Milepost 43.45 (City of Orange Cove diversion)
- FKC Milepost 85.55 (Lyndsay-Strathmore Irrigation District diversion)
- FKC Milepost 89.35 (Strathmore Public Utility District diversion)
- FKC Milepost 102.65 (Terra Bella Irrigation District diversion)
- FKC Milepost 151.80 (Arvin-Edison Water Storage District diversion, turnout near Terminus of the FKC at the Kern River)

Each weekly collection would consist of one sample from each location, plus one duplicate sample (total of six samples per week). The Friant Water Authority would deliver the samples to a Reclamation approved laboratory as noted in Appendix A. The Friant Water Authority will pay for all water sampling conducted for this contractor-requested water quality variance. Reclamation can provide bottles for sampling. Each sample will be tested for nitrates (as NO_3) with a minimum detection level of 1 µg/L and specific conductance (as a measure of salinity). If the concentration of nitrates or salinity exceeds the parameters listed above, the Friant Water Authority shall incrementally direct the well operators with the highest levels of nitrates to stop pumping into the FKC until thresholds are met. The Friant Water Authority, as Reclamation's agent, will determine which wells should be shut off.

The quantity of groundwater pumped into the FKC would be measured by flowmeters read and calibrated by Friant Water Authority field staff.

After introduction, the participating districts, with the exception of North Kern Water Storage District, would deliver the water, less conveyance losses if applicable, through turnouts on the FKC for agricultural use within their respective districts. Operational exchanges would also be permitted in situations where a district's discharge point to the canal is downstream of the location where the water is needed.

North Kern Water Storage District's groundwater would be introduced and conveyed through the FKC to the Cross Valley Canal for delivery to the following Kern County water districts via the California Aqueduct as was done under the previous FKC Groundwater Pump-in Programs:

- Belridge Water Storage District
- Berrenda Mesa Water District
- Lost Hills Water District
- Wheeler Ridge-Maricopa Water Storage District

All delivery schedules for North Kern Water Storage District's groundwater would be coordinated with the Kern County Water Agency and the California Department of Water Resources (DWR) and approved by Reclamation prior to introduction into the FKC. All delivery scheduled for Friant Division and Cross Valley CVP contractors would be coordinated with Friant Water Authority and approved by Reclamation prior to introduction into the FKC. The participating districts, conveyance facilities, and recipients of North Kern Water Storage District's groundwater are shown in Figure 1.

2.2.1 Environmental Commitments

The participating contractors shall implement the following environmental protection measures to reduce environmental consequences associated with the Proposed Action:

- All pumps to be used shall meet the applicable emission standards set by the San Joaquin Valley Air Pollution Control District.
- Districts shall comply with applicable local groundwater exportation policies.
- Districts shall comply with applicable Groundwater Sustainability Plans pursuant to the Sustainable Groundwater Management Act.
- Water from each well must meet water quality standards included in Appendix B and noted above prior to approval for introduction. If testing from any individual well indicates that its water does not meet these standards, it would not be allowed to introduce groundwater into the FKC until water quality concerns are addressed. Under the Proposed Action, individual wells will be exempt from the nitrate and salt content requirements in Appendix B, providing that water quality measurements from the FKC satisfy the two conditions for nitrate concentration and salt content, measured by electrical conductivity, noted above.
- Selenium concentrations at the well head shall not exceed 2 μg/L.
- The groundwater involved in these actions must not be used to cultivate native or untilled land (fallow for three consecutive years or more).
- The Proposed Action shall 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.

Environmental consequences for resource areas assume the measures specified would be fully implemented. Copies of all reports and monitoring data collected for the Proposed Action shall be submitted to Reclamation.

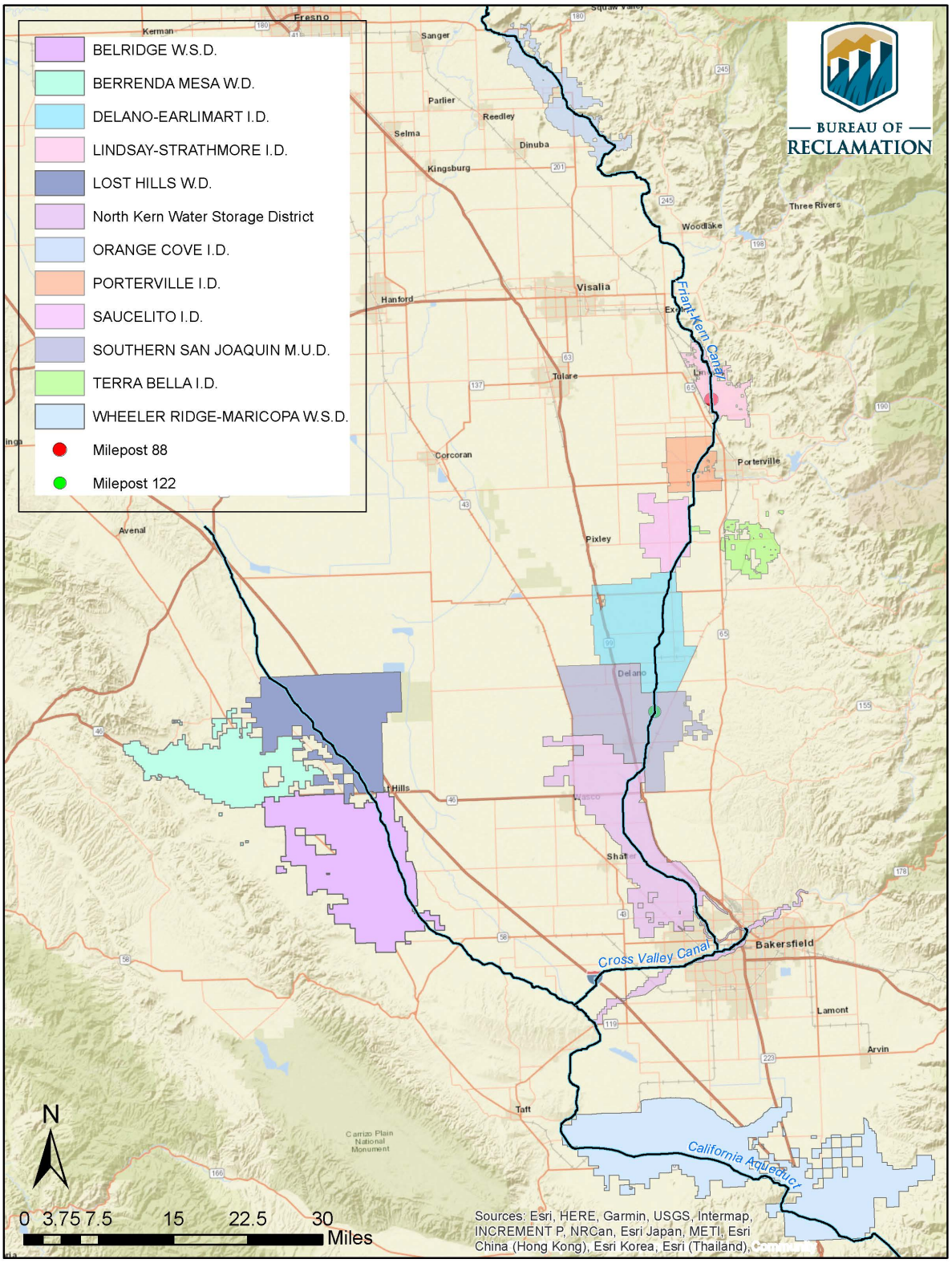

Figure 1. Participating Districts, Conveyance Facilities, and Recipients of North Kern's Groundwater

3 Affected Environment and Environmental Consequences

The Affected environment is the same as described in EA-15-046 (Reclamation 2016a), EA-14-051 (Reclamation 2014b), and EA-14-011 (Reclamation 2014a) which are hereby incorporated by reference.

3.1 Resources Eliminated from Further Analysis

Reclamation analyzed the affected environment and determined that the Proposed Action did not have the potential to cause adverse effects to the following resources:

3.1.1 Air Quality

The Proposed Action would not involve physical changes to the environment or construction activities that could impact air quality. Pumping would be required to introduce groundwater into the FKC under the Proposed Action, but power usage would be within the typical range for the facilities involved. In addition, any diesel pumps would be required by the San Joaquin Valley Air Pollution Control District to meet emission standards.

3.1.2 Agricultural Resources

The Proposed Action would be beneficial to agricultural resources as the groundwater would be used to maintain existing agricultural crops during drought conditions.

3.1.3 Biological Resources

The Proposed Action would not affect biological resources, species protected under the Endangered Species Act, critical habitat, migratory birds protected under the Migratory Bird Treaty Act, or eagles protected under the Bald and Golden Eagle Protection Act as no ground disturbance, conversion of native land or land that has not been tilled for three or more consecutive years would occur. There would be no change from current conditions.

3.1.4 Climate Change

The Proposed Action would not require additional diesel or electrical production beyond baseline conditions and would therefore not contribute to additional greenhouse gas emissions. As such, there would be no additional impacts to global climate change. Global climate change is expected to have some effect on the snowpack of the Sierra Nevada and the runoff regime. It is anticipated that climate change would result in more short-duration high-rainfall events and less snowpack runoff in the winter and early spring months by 2030 compared to recent historical conditions (Reclamation 2016b, pg 16-26). However, the effects of this are long-term and are not expected to impact CVP operations within the two-year window of this action. Further, 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.

3.1.5 Cultural Resources

There would be no impacts to cultural resources as a result of implementing the Proposed Action as the Proposed Action would facilitate the flow of water through existing facilities to existing users. No new construction or ground disturbing activities would occur as part of the Proposed Action. Reclamation has determined that these activities have no potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1).

3.1.6 Environmental Justice

Executive Order 12898 requires each federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. The Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease nor would it disproportionately impact economically disadvantaged or minority populations.

3.1.7 Indian Sacred Sites

Executive Order 13007 (May 24, 1996) requires that federal agencies accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoids adversely affecting the physical integrity of such sacred sites. The Proposed Action would not limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or affect the physical integrity of such sacred sites. There would be no impacts to Indian sacred sites as a result of the Proposed Action.

3.1.8 Indian Trust Assets

Indian Trust Assets are legal interests in assets that are held in trust by the United States for federally recognized Indian tribes or individuals. There are no Indian reservations, rancherias or allotments in the Proposed Action area. The nearest Indian Trust Asset is tribal land above Lake Success near the Tule River about 14 miles to the northeast. The Proposed Action does not have the potential to affect Indian Trust Assets.

3.1.9 Land Use

The Proposed Action would not change land use within the participating districts service areas as the groundwater would be used as a supplemental water supply to maintain existing agricultural crops. There would be no conversion of undeveloped/native land.

3.2 Water Resources

3.2.1 Affected Environment

As the affected environment for EA-15-046 (Reclamation 2016a), EA-14-051 (Reclamation 2014b), and EA-14-011 (Reclamation 2014a) has been incorporated by reference into this EA, rather than repeating the same information, the affected environment and environmental consequences section in this EA will focus on any updates or changes.

3.2.1.1 Groundwater Resources in the Action Area

The participating districts overlie the following San Joaquin Valley subbasins: Kings, Kaweah, Kern, and Tule. All four have been designated as critically overdrafted by the California Department of Water Resources (DWR 2020). Table 2 lists the participating districts, their respective subbasins, and their applicable Groundwater Sustainability Agency (GSA) pursuant to the Sustainable Groundwater Management Act (SGMA). Water supplies in the Action area are managed through conjunctive use, i.e. aquifers are recharged with surface water in wet years to offset drawdown of groundwater supplies during dryer periods as was done under previous pump-in programs. For example, Orange Cove Irrigation District generally implements in lieu recharge during years when Friant Division Class 1 allocations are 90 percent or greater resulting in increased groundwater levels in that district averaging 60 acre-feet per year since 1950 (F. Morrissey pers. communication). All participating districts, except for North Kern Water Storage District, have used and will continue to use the pumped groundwater within their respective districts as they would without the Proposed Action.

Table 2. Participating Districts, Groundwater Subbasins and Groundwater Sustainability Agencies

District	Subbasin	Groundwater Sustainability Agency
Delano-Earlimart Irrigation District	Tule	Delano-Earlimart Irrigation District GSA
Lindsay-Strathmore Irrigation District	Kaweah	East Kaweah GSA
North Kern Water Storage District	Kern	Kern Groundwater Authority GSA
Orange Cove Irrigation District	Kings	Kings River East GSA
Porterville Irrigation District	Tule	Eastern Tule GSA
Saucelito Irrigation District	Tule	Eastern Tule GSA
Southern San Joaquin Municipal Utility District	Kern	Kern Groundwater Authority GSA
Terra Bella Irrigation District	Tule	Eastern Tule GSA

Delano-Earlimart Irrigation District GSA

The average annual water deliveries of imported surface water to Delano-Earlimart Irrigation District are about 121,000 acre-feet per year and consumptive use of about 111,000 acre-feet per year. As such, Delano-Earlimart Irrigation District is a net depositor to the Tule Subbasin, offsetting all Delano-Earlimart Irrigation District pumping through deposits averaging 10,000 acre-feet per year. Delano-Earlimart Irrigation District expects to stabilize and increase water levels and storage in the Tule Subbasin, notwithstanding the effect of anticipated continued over-pumping that will occur during the SGMA implementation period by others adjacent to the Delano-Earlimart Irrigation District as projected (Delano-Earlimart Irrigation District GSA 2020). Any pumping under the Proposed Action is anticipated to be offset from past and future groundwater deposits by Delano-Earlimart Irrigation District.

Eastern Tule GSA

Due to the presence of the FKC as critical infrastructure within the Eastern Tule GSA, undesirable results for land subsidence within the Eastern Tule GSA is defined as the unreasonable subsidence below the minimum threshold at any of one representative monitoring sites as described in the GSA. Interim milestones at each site allow for some "transitional" pumping up to 2040, which could potentially cause an additional 3 feet of subsidence (Eastern Tule GSA 2020). This transitional pumping and associated subsidence, as well as another other projected subsidence in the Tule Basin are considered in the design and construction of the FKC Middle Reach Capacity Correction Project (Reclamation 2019).

East Kaweah GSA

The East Kaweah GSA and its stakeholders identified the FKC as the critical infrastructure within the East Kaweah GSA that could be negatively impacted by subsidence. Based on the discussions with stakeholders and landowners, there have been no known undesirable subsidence results to date within the East Kaweah GSA boundary. Despite this, the East Kaweah GSA Groundwater Sustainability Plan (GSP) requires cumulative subsidence to be no greater than 9.5 inches by 2040 (East Kaweah GSA 2020*).*

In addition, average surface water deliveries in Lindsay Strathmore Irrigation District are 24,000 acre-feet per year, and consumptive use is 31,250 acre-feet per year. The average native groundwater yield within Lindsay Strathmore Irrigation District is 12,300 acre-feet per year and therefore over 5,000 acre-feet of native yield is saved each year for use in drier years (C. Wallace pers. communication). Any pumping under the Proposed Action is anticipated to be offset from past and future groundwater savings by Lindsay Strathmore Irrigation District.

Kern Groundwater Authority GSA

The Kern Groundwater Authority and Kern Groundwater Authority's member agencies conduct semi-annual groundwater level measurements to ensure that the agencies and the Subbasin as a whole, are in compliance with the Sustainable Management Criteria defined in the Kern Groundwater Authority GSP. Each Representative Monitoring Well has a Minimum Threshold and a Measurable Objective assigned to it, with respect to groundwater level elevations. These Sustainable Management Criteria account for projected groundwater level elevations, based on historic trends in the District's service area, and provide for 10 years of drought storage (Kern Groundwater Authority GSA 2020).

While it is generally acknowledged that subsidence exists in portions of the Kern Subbasin, there are generally no significant impacts to infrastructure. It is unclear whether subsidence occurring in the northern portion of the Subbasin is the result of groundwater pumping from within the Subbasin or from the subbasins to the north, where subsidence has been documented to significantly impact critical water infrastructure. The Kern Groundwater Authority along with the other GSAs in the Subbasin will develop a joint subsidence monitoring program and minimum thresholds for subsidence for inclusion in the 2025 GSP update. The GSP provides a description of the proposed basin-wide land subsidence monitoring strategy that has been adopted by the KGA and all other GSAs in the Subbasin. While there are currently no Representative Monitoring Wells located immediately next to FKC, two additional monitoring wells located in proximity to FKC are planned to be installed through implementation of the GSP (Kern Groundwater Authority GSA 2020).

Kings River East GSA Subbasin

Land subsidence is occurring within the Kings Subbasin and is primarily concentrated along the lower portion of the western boundary of the Subbasin with no known subsidence observed within the Kings River East GSA. The historical rate of 4 inches per year of subsidence is used as measurable objective in the Kings River East GSA with a minimum threshold twice this number to allow for operational flexibility during periods of drought. Since there have been no undesirable results with the historical rate of subsidence, it is anticipated that the minimum threshold will not cause undesirable results (Kings River East GSA 2019).

Over the long-term, water levels in the Orange Cove Irrigation District have been relatively stable and are greater than they were before the construction of the CVP. The average groundwater safe yield within Orange Cove Irrigation District is 27,800 acre-feet per year (Kings River East GSA 2019, Orange Cove Irrigation District 2018). Any pumping under the Proposed Action is a relatively small increase in use above existing safe yield in critically dry years and would be required to comply with Kings River East GSA requirements for subsidence thresholds.

Previous Pump-ins

Table 3 summarizes the annual amount of groundwater pumped into the FKC by district over the previous pump-in projects. Since initiation of the program, groundwater introduction to the FKC has only occurred during the 2014 and 2015 contract years (March 1, 2014 through February 28, 2016).

Table 3. Groundwater Pumped by District During Previous Pump-in Programs

Contractor	2014 (acre-feet)	2015 (acre-feet)	Total (acre-feet)
Delano-Earlimart Irrigation District	2,059	2,588	**4,647**
Lindsay-Strathmore Irrigation District	1,078	1,317	**2,395**
North-Kern Water Storage District	0	0	**0**
Orange Cove Irrigation District	308	576	**884**
Saucelito Irrigation District	675	850	**1,525**
Southern San Joaquin Municipal Utility Districts	0	1,315	**1,315**
Tea Pot Dome Water District	0	0	**0**
Terra Bella Irrigation District	409	624	**1,033**
Total	**4,529**	**7,270**	**11,799**

Water Quality

As described in Section 1.1, Reclamation previously approved groundwater pump-in programs for the participating districts including relaxation of electrical conductivity and nitrates. In order to prevent potential impacts to municipal and industrial users downstream of the pump-in locations, Reclamation required weekly monitoring at five key locations (mileposts 43.45, 85.55, 102.65, and 151.80) to ensure that nitrates in the FKC did not exceed 20 mg/L, less than half the maximum contaminant level for nitrates established by the State of California for drinking water standards. In addition, Reclamation required that salinity (measured as electrical conductivity) not exceed 900 µmhos/cm. All of the wells that previously participated were tested prior to introduction and met Reclamation's water quality criteria except for certain Friant Division contractor wells that exceeded the relaxed standard for nitrates (Figure 2). None of the wells exceeded the relaxed standard for electrical conductivity (Figure 3).

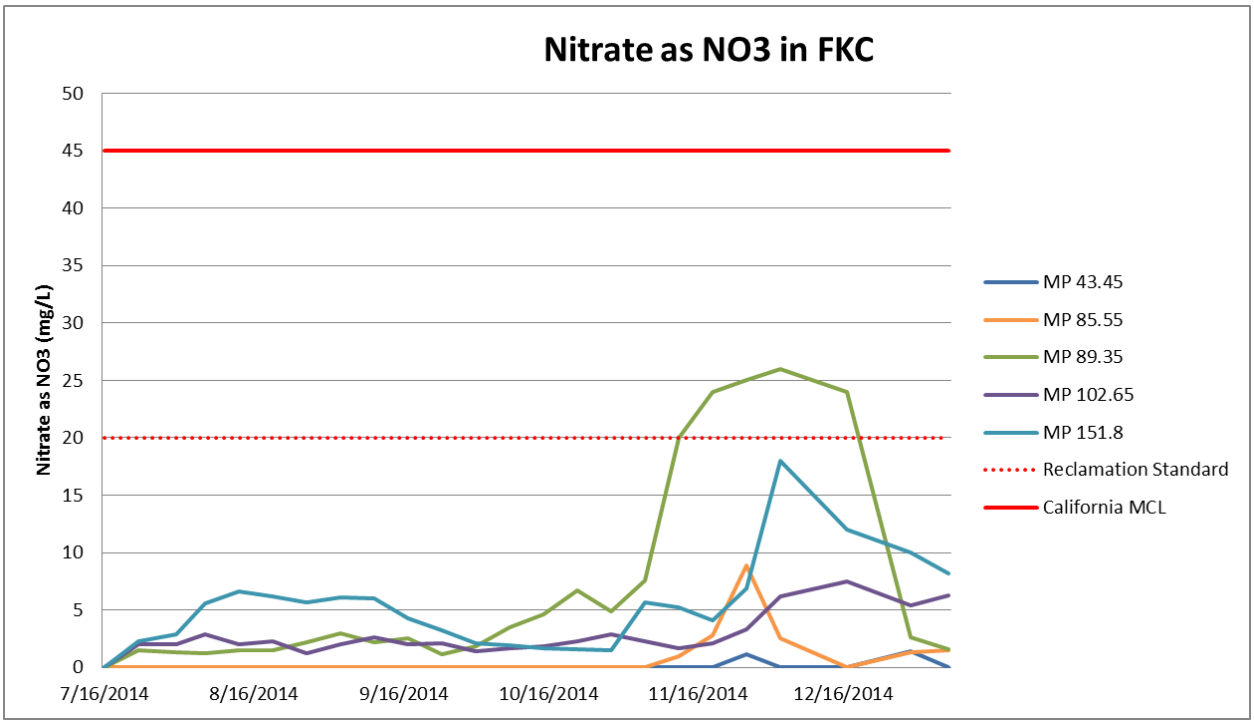

Figure 2. Summary of Nitrate (NO_3-) in FKC during 2014 Pump-in Events

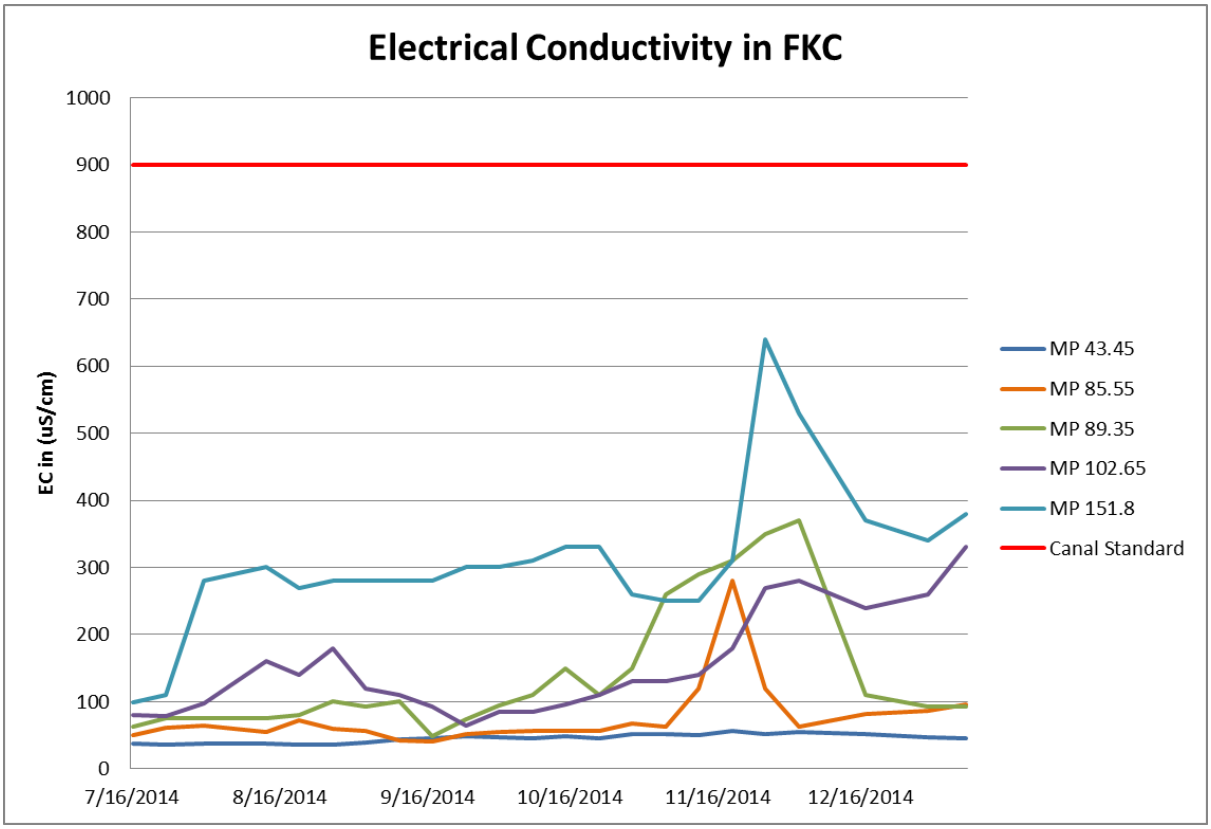

Figure 3. Summary of Electrical Conductivity in FKC during 2014 Pump-in Events

The only exceedance of Reclamation's relaxed standard for nitrates (as NO_3-) occurred in November 2014 at milepost 89.35; however, the exceedance was not recorded downstream as the water was held back by a check structure. Upon notification of the exceedance, the Friant Water Authority shut off the wells per Reclamation's water quality requirements.

3.2.1.2 Subsidence in the Action Area

Land subsidence is caused by subsurface movement of earth materials. Principal causes of subsidence within the San Joaquin Valley include: aquifer compaction due to groundwater pumping, hydrocompaction caused by application of water to dry soils, and oil extraction operations. Subsidence in the Action area specifically linked to withdrawal of groundwater resources has been studied extensively by DWR (2014).

Land subsidence has caused portions of the FKC to sink significantly in recent years, which has decreased the capacity of the canal to carry and deliver water. Hydraulic modeling completed as part of the *Friant-Kern Canal Capacity Restoration Feasibility Report* authorized pursuant to Section 10201(a)(1) of the San Joaquin River Restoration Settlement Act confirmed the reduction in FKC capacity in several segments (Reclamation 2020a). A portion of the Action area (Figure 1) falls within an approximately 33-mile section of the FKC located within Tulare and Kern Counties (milepost 88 to milepost 121.5), that has experienced more than 50 percent capacity loss due to regional land subsidence and other factors. The subsidence-induced capacity loss has resulted in downstream water delivery impacts to six Friant Division long-term contractors: Arvin-Edison Water Storage District, Delano-Earlimart Irrigation District, Kern-Tulare Water District, Sausalito Irrigation District, Shafter-Wasco Irrigation District, and Southern San Joaquin Municipal Utility District, three of which are participants under this Proposed Action. Several of the participants are located outside this area as shown in Figure 1.

To address this issue, Reclamation and the Friant Water Authority have proposed to restore this section by raising portions of the embankments in the existing FKC over approximately 13 miles and constructing an approximately 20-mile realigned canal segment east of the existing FKC (Reclamation 2020b).

3.2.2 Environmental Consequences

3.2.2.1 No Action

Under the No Action Alternative, Reclamation would not approve the introduction of pumped groundwater into federal facilities. The contractors would need to find alternative supplies of water, provide for alternative conveyance path(s), or temporarily take land out of production if existing water supplies are insufficient to meet demands. As noted above, groundwater would continue to be withdrawn by landowners within the participating districts to meet existing demands as is being done currently. It is likely that existing crops would need to be fallowed due to water supply shortages this year and may not be able to be planted next year depending on hydrology and associated water allocations.

3.2.2.2 Proposed Action

The Proposed Action would allow groundwater to be introduced and conveyed in the FKC when excess capacity is available. This would allow the water to be delivered to the participants' service areas for existing agricultural use. There would be no modification to any of the conveyance

facilities. All water conveyance would be coordinated and scheduled in advance in order to not impact other deliveries.

Groundwater from each well must meet the water quality standards included in Appendix B and described above in Section 2.2, whichever is more restrictive, prior to approval for introduction. At this time new information on the water quality for the participating wells is not available but is being gathered by the respective districts. It is anticipated that water quality results would be similar to what was shown for the previous pump-ins (Figure 2 and 3), i.e. well below the California drinking water standard that could adversely impact municipal and industrial uses downstream of the pump-ins. In addition, as noted in Appendix B and Table 1, Reclamation requires adherence to specific agricultural water quality criteria in order to protect downstream agricultural uses. The testing and monitoring program adequately protected the quality of water in the canal during the previous pump-in programs and is expected to do the same for the Proposed Action. Although there was a spike in nitrates in November 2014 (Figure 2), Reclamation was able to prevent the movement of impacted water from affecting other users' water supplies located downstream of the introduction points.

The groundwater to be pumped under the Proposed Action would come from wells at varying depths, from a wide range of locations along the FKC. As described above, landowners within each of the participating districts use groundwater as part of their normal irrigation practices and this use is addressed in the respective GSPs. The Proposed Action is part of each districts' drought operations and would be addressed through their conjunctive use programs, i.e. groundwater levels would be recharged with surface water during wetter periods. It is not anticipated that over the two-year period of the Proposed Action that substantial subsidence or overdraft would occur outside what is currently happening in the area.

4 Consultation and Coordination

4.1 Agencies and Persons Consulted

Reclamation consulted and coordinated with the Friant Water Authority, Delano-Earlimart Irrigation District, Lindsay-Strathmore Irrigation District, North Kern Water Storage District, Orange Cove Irrigation District, Saucelito Irrigation District, Southern San Joaquin Municipal Utility District, Tea Pot Dome Water District, and Terra Bella Irrigation District in the preparation of this EA.

4.2 Public Involvement

As noted in Section 1, Reclamation provided the public with an opportunity to comment on the Draft EA between May 27, 2021 and June 11, 2021. Two comment letters were received and are included in Appendix A of this Final EA. Substantive comments related to Reclamation's Proposed Action and analysis are addressed below.

4.2.1 Absence of Water Quality Data and Analysis

The commenters assert that limited or no water quality data is provided in the Draft EA and that annual water quality monitoring is lax.

As noted on page 10 of the Draft EA, "All of the wells that previously participated were tested prior to introduction and met Reclamation's water quality criteria except for certain Friant Division contractor wells that exceeded the relaxed standard for nitrates (Figure 2). None of the wells exceeded the relaxed standard for electrical conductivity (Figure 3)." As 2014 and 2015 were the only times water was introduced under this program, Reclamation focused its water quality analysis on those constituents that were exceeded (i.e. nitrates and electrical conductivity). Water quality data for these constituents were provided on pages 10-11 in the Draft EA.

In addition, as noted on page 5 of the Draft EA, "Water from each well must meet water quality standards included in Appendix A and noted above prior to approval for introduction. If testing from any individual well indicates that its water does not meet these standards, it would not be allowed to introduce groundwater into the FKC until water quality concerns are addressed." At the time of releasing the Draft EA for public comment, updated water quality information was not available, as noted on page 12, Reclamation is requiring that each participant provide updated water quality data to confirm that water quality is similar or better than what was provided in 2014 and 2015. Reclamation will be reviewing the updated water quality data for each well proposed to participate in the program to ensure it meets the water quality thresholds identified in this EA. Wells that do not meet the required thresholds will not be allowed to participate; therefore, there would be no additional impacts beyond those already disclosed and sufficient information is provided for Reclamation to make a determination on whether a Finding of No Significant Impact (FONSI) or Environmental Impact Statement (EIS) is appropriate pursuant to National Environmental Policy Act (NEPA) regulations (40 CFR§ 1501.6).

In addition, as noted on page 4 of the Draft EA, monitoring would be done on a **weekly** basis to monitor nitrates and electrical conductivity within the canal to ensure levels do not exceed criteria identified in Section 2.2.

4.2.2 Environmental Commitments and Mitigation

The commenters assert that Reclamation "assumes that any adverse Project impacts would be mitigated by Reclamation's 2008 "Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals" (the "2008 Policy")" and that "The 2008 Policy is based on Title 22 drinking water standards, which fail to include standards designed to protect irrigation uses."

As noted on page 3 of the Draft EA, "Prior to the introduction of groundwater into the FKC, all wells must be tested to demonstrate compliance with the water quality standards included in Reclamation's Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals (Appendix A), in addition to the standards listed in Table 2." Table 2 water quality criteria are agricultural suitability standards that are designed to protect irrigation uses. Reclamation is not using the 2008 Policy to "mitigate" potential impacts but rather to minimize and avoid impacts with the inclusion of additional agricultural suitability requirements.

As noted in the comment letter, Friant Water Authority and Friant Contractors are developing a "mitigation program that will update – or perhaps fully replace – the 2008 Policy". As this program has not been approved for implementation and is still under development, Reclamation has

identified and specifically addressed water quality criteria required to be implemented over this two-year program as identified in Section 2.2 of the EA. Any introduction of non-Project water is required to meet Reclamation's then-current water quality standards.

4.2.3 Improper Reliance on 2014 Pump-in Program

The commenters assert that there is no basis to assume impacts from the previous pump-in program would be the same as the current proposal and that the current proposal would authorize four times the amount of water introduced under the Proposed Action.

As summarized on page 1 of the Draft EA, Reclamation analyzed the initiation of the FKC groundwater pump-in program in EA-14-011 which included the cumulative annual introduction of up to 50,000 acre-feet of groundwater over a two-year period. Due to ongoing drought conditions and the request of the participants, Reclamation analyzed the continuation of this program over an additional five-years in EA-15-046. Since its initiation, the program assumed an up to 50,000 acre-feet annual introduction might occur; however, as noted on page 9 of the Draft EA, "Since initiation of the program, groundwater introduction to the FKC has only occurred during the 2014 and 2015 contract years (March 1, 2014 through February 28, 2016)." The amount of introduction during those periods were included in Table 4 of the Draft EA (now Table 3 in the Final EA). Although the cumulative introduction was only 11,799 acre-feet over those two years, the program would have allowed up to 50,000 acre-feet. However, based on feedback received on the Draft EA, Reclamation has reduced the overall program and annual amounts as described in Section 2.2 of the Final EA to be closer to what was done during the previous drought.

4.2.4 Subsidence

The commenters express concerns regarding subsidence impacts from the Proposed Action within the area of the FKC that is currently being addressed in the FKC Middle Reach Capacity Correction Project. In addition, the comment notes that the Proposed Action "creates a strong new incentive to pump groundwater from wells *in close proximity to a portion of the FKC that is extremely sensitive to subsidence*" and recommends that Reclamation limit wells within 1-mile of the FKC.

Reclamation acknowledges these concerns. Based on feedback received on the Draft EA, Reclamation has reduced the overall program from 50,000 acre-feet per year to a total of 12,000 acre-feet over the two-year period with no more than 6,500 acre-feet cumulatively pumped by the participants in a given year (see Section 2.2 of the Final EA).

4.2.5 Key Documents Missing from Draft EA

The commenters assert that the following "key documents" are missing from the Draft EA: Warren Act contracts/agreements, agreement with DWR, and a quality assurance project plan and that without these documents "the public is left in the dark about what contractual terms and conditions are required for these groundwater discharges to the canals."

Reclamation disagrees. The EA includes all of the requirements for groundwater to be introduced into the FKC under the Proposed Action as well as the water quality criteria and monitoring requirements (see Section 2.2 and Appendix A). The inclusion of these documents would not change the environmental requirements for the Proposed Action.

4.2.6 Impacts to Delta Estuary, American River, Yuba River, Sacramento River, and Shasta Dam Operations

The comment asserts that "impacts from discharging this groundwater and potentially substituting or exchanging it with water exported from the Delta Estuary or other exchanges that have the potential to impact the American River, Yuba River, Sacramento River and Shasta Dam operations."

The Proposed Action analyzed in the EA does not involve operation of the CVP or SWP but introduction and conveyance of groundwater during drought conditions. The majority of which stay within the participating districts along the FKC. Any water introduced into the California Aqueduct operationally exchanged for SWP water is water that is already allocated and located south of the Delta. No changes in Delta pumping would occur and there would be no impacts to the Delta Estuary, American River, Yuba River, Sacramento River, or Shasta Dam operations.

4.2.7 No Evidence of CEQA Compliance

The commenter states that they "see no evidence of a CEQA analysis of this action". The document being commented on is an EA prepared in compliance with NEPA. As a Federal agency, Reclamation is not required to comply with the California Environmental Quality Act.

4.2.8 North Kern Water Storage District Delivery via California Aqueduct

The commenter notes that some of the potential recipients of North Kern Water Storage District's introduced groundwater are upstream of the introduction point to the California Aqueduct and requests clarification on how they would receive this water (i.e. would it be reversed flowed or operational exchanges).

The project would not reverse flow water in the California Aqueduct. Any water introduced would be received by downstream water users and an operational exchange for that water would be implemented by DWR to provide water to the recipients located upstream. Additional information has been added to the EA to describe this.

4.2.9 Compliance with Clean Water Act and California Porter Cologne Act

The commenter states that no compliance with the Clean Water Act or California Porter Cologne Act has been provided for the project and without that "no assurance the beneficial uses will be protected".

Reclamation disagrees. The FKC is not designated a water of the United States. Additionally, the FKC does not have a designated beneficial use listed under the Central Valley California Regional Water Quality Control Board's Water Quality Control Plan for the Tulare Lake Basin, revised 2018. Thus, permitting is not required under the Clean Water Act or California Porter-Cologne Act. However, Reclamation has implemented in-canal water quality constraints consistent with Municipal and Industrial and Agricultural beneficial uses. Although the California Aqueduct does have designated beneficial uses as noted in the comment letter, as shown in Table 5, groundwater that may be introduced into the California Aqueduct would not impact designated beneficial uses as the constituents of concern are substantially below the State Water Resources Control Board's maximum contaminant levels. See also response to comments below regarding water quality and the California Aqueduct.

4.2.10 Impact to Beneficial Use for California Aqueduct

The commenters assert that introduction of groundwater from North Kern Water Storage District to the California Aqueduct would impact beneficial uses and "could affect" water quality in the Kern National Wildlife Refuge. However, the comment letter does not provide information or data that supports this assertion, but rather notes that other groundwater pump-ins in 2014 and 2015 along the California Aqueduct monitored by DWR "at times contributed 100% of the flow in the Aqueduct at Check 21."

The groundwater pump-ins noted in the comment letter are from the westside of the Central Valley and are unrelated to the Proposed Action. Under the Proposed Action, only up to 10,000 acre-feet of North Kern Water Storage District's groundwater would potentially be introduced into the California Aqueduct annually over the two-year period substantially less than the flows in the Aqueduct. As shown in Table 4, water quality from North Kern Water Storage District's participating wells fall well below any thresholds of concern and would not impact beneficial uses of the California Aqueduct.

Table 4. North Kern Water Storage District Water Quality Data for Participating Wells

Sample Date	Well #	Arsenic (µg/L)	Chloride	NO_3-N (mg/L)	Se (µg/L)	EC (µmhos/cm)	Mercury (µg/L)
8/10/2020	99-02-004	ND	39	ND	ND	450	ND
8/10/2020	99-02-006	3.6	29	ND	ND	270	ND
8/10/2020	99-00-022	3.6	9.5	0.34	ND	240	ND
8/10/2020	99-00-026	ND	13	0.45	ND	250	ND
8/10/2020	99-00-032	ND	11	0.48	ND	260	ND
8/10/2020	99-00-035	3.5	13	0.59	ND	270	ND
2/4/2021	88-25-016	ND	17	0.97	ND	260	ND
2/4/2021	88-17-024	ND	15	3.5	ND	310	ND
2/4/2021	88-17-023	ND	28	7.4	ND	510	ND
3/8/2021	88-29-009	ND	28	1.7	ND	300	ND
3/8/2021	88-29-006	2.3	29	1.5	ND	300	ND
3/8/2021	88-25-30	ND	17	1.1	ND	300	ND
3/8/2021	88-25-31	ND	19	0.76	ND	270	ND
Reclamation Thresholds		**10**	250/**500**/600	**10**	**2**	900/1600/**2200**	**2**

Notes: NO_3-N = nitrate nitrogen; Se = selenium; EC = electrical conductivity; ND = Non-Detect

4.2.11 Water Quality Standards for Selenium not Protective

The commenters state that Title 22 selenium criteria of 50 ppb is not protective of biological resources and sensitive species that could receive water from the Proposed Action from the California Aqueduct. The commenters recommend the use of 1 ppb.

Reclamation's criteria for selenium concentration in non-Project water introduced into federal facilities is ≤ 2 µg/L (i.e. 2 ppb) with no allowance for dilution in the canal. This criterion is based on the Central Valley Regional Water Quality Control Board's 1996 selenium objective of 2 ppb monthly average for Grasslands wetlands water supply channels. No new objectives or criteria for wetlands has been promulgated by the Water Board. Should revised criteria be put in place, Reclamation's water quality requirements will be revised accordingly. The 2 µg/L criteria have been added to Section 2.2.1 of the EA. However, as shown in the table above, selenium is non-detect for

all wells that would potentially be adding groundwater to the California Aqueduct and would have no impacts on biological resources or sensitive species that would receive water introduced under the Proposed Action.

The commenters also assert that Reclamation made a no effect determination "without evidence" and did not consult with the U.S. Fish and Wildlife Agency or California Department of Fish and Wildlife. Reclamation addressed biological resources in Section 3.4 and Section 3.3 of EA-14-011 and EA-14-051, respectively, and determined based on specific environmental commitments, that there would be No Effect to listed species or designated critical habitat under the Endangered Species Act (16 U.S. C. §1531 et seq.) and No Take of birds protected under the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.). Both EAs were incorporated by reference into the Draft EA (see Section 1). As the Proposed Action and Action Area are the same as analyzed in the incorporated EAs, Reclamation's previous determination still stands. As such, no consultation with the U.S. Fish and Wildlife Service or National Marine Fisheries Service is necessary. As a Federal Agency, Reclamation does not have a requirement to consult with the California Department of Fish and Wildlife. Further, as shown above, water quality from wells that would potentially introduce groundwater into the California Aqueduct would not impact protected species as the constituents are either non detect or well below any thresholds of concern.

4.2.12 Cumulative Impacts

The commenters state that "Cumulative impacts from these pump-ins into the FKC, conveyance to the California Aqueduct, and potential exchanges or reverse flow of the Aqueduct are not disclosed or analyzed".

Cumulative impacts is a term that has been struck in the NEPA regulations issued on July 16, 2020 with an effective date of September 14, 2020.

Pursuant to NEPA regulations (40 CFR §1508.1[g]), Reclamation provided a brief analysis of the effects of the Proposed Action compared to the No Action/Baseline including those that are "reasonably foreseeable and have a reasonably close causal relationship to the proposed action". See previous response to comments regarding potential impacts and analysis regarding the California Aqueduct.

4.2.13 Objection to Issuance of a Finding of No Significant Impact

The commenters "object to the adoption of a FONSI for this project" as "The project definition is not complete, mitigation measures are absent and data or evidence is not provided to make such a determination and finding."

Reclamation disagrees. Reclamation prepared the Draft EA consistent with NEPA regulations, guidance from the Council on Environmental Quality (CEQ), and the Department of the Interior's NEPA regulations. In accordance with NEPA, an EA is prepared to determine if there are significant impacts on the human environment from carrying out the Proposed Action. Reclamation has followed applicable procedures in the preparation of the EA which includes the required components of an EA as described in CEQ's NEPA regulations (40 CFR §1501.5[c]): discussion of the purpose and need for the proposed action, alternatives as required by section 102(2)(E) of NEPA, environmental impacts of the proposed action, and a listing of agencies and persons consulted.

Reclamation finds that the impacts analysis included in the EA, including additional language added to the Final EA to clarify the analysis included in the Draft, is sufficient and does not preclude the public or decision makers from making an informed decision related to the Proposed Action.

4.2.14 Request to be Added to Notification List

The commenters requested to be added to Reclamation's notification list. To be added to Reclamation's notification list, please go to https://www.usbr.gov/mp/nepa/ and click on the link at the bottom of the page labeled "NEPA Distribution List Request".

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Appendix A: Comment Letters Received on Draft EA

ARVIN-EDISON WATER STORAGE DISTRICT

June 11, 2021
Via Electronic: remerson@usbr.gov

Rain Emerson
United States Department of the Interior
BUREAU OF RECLAMATION
1243 N Street
Fresno, CA 97321

Re: Draft Environmental Assessment for the Friant Division Groundwater Pump-In Program, Contract Years 2020-2022 [CGB-EA-2021-033]

Dear Mr. Emerson:

Thank you for providing Arvin-Edison Water Storage District ("AEWSD") an opportunity to review and comment on the United States Bureau of Reclamation ("Reclamation") Draft Environmental Assessment ("EA") for the Friant Division Groundwater Pump-In Program for Contract Years 2020-2022 (the "Project").

AEWSD is generally supportive of federal programs and projects designed to help Central Valley Project ("CVP") water users address drought conditions and resulting reductions in CVP allocations. But we have significant concerns about *this Project's* potential water quality impacts – and the failure of the Draft EA to meaningfully address water quality issues.

The Project would allow groundwater pumped from privately owned wells within eight participating districts to be introduced into the Friant-Kern Canal ("FKC"). As you know, the quality of that groundwater is very different from the quality of water supplies drawn from Millerton Lake. By introducing groundwater into the FKC, the Project may significantly impact the quality of both surface water and groundwater – as well as agricultural land uses and water banking programs – within and involving AEWSD.

We are also concerned that the Project may exacerbate subsidence

Our specific comments on the Draft EA are as follows:

1. Absence of Specific Water Quality Data and Analysis. The Draft EA does not appear to provide any specific information about current (or "baseline") conditions in the FKC. Nor does it include any specific projections of FKC conditions for the "no action" and "proposed action" alternatives. Without that information, Reclamation cannot possibly take a "hard look" at the Project's water quality impacts or provide interested stakeholders with meaningful environmental information, as required by the National Environmental Policy Act ("NEPA").

2. Environmental Commitments and Mitigation. Rather than providing a "hard look" at current and future water quality, the Draft EA assumes that any adverse Project impacts would be mitigated by Reclamation's 2008 "Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals" (the "2008 Policy"). That approach is legally inadequate in multiple respects.

NEPA mandates that *prior to approving* a discretionary project the lead federal agency must carefully consider information about potentially-significant environmental issues and make that information available to the public.[1] Here, Reclamation has assumed the 2008 Policy will be sufficient to address any water quality problems that may arise without first understanding or disclosing the extent of those problems or the specific

To be clear, reliance on a mitigation program to avoid water quality impacts is not inherently impermissible. An effective mitigation program that provides up-to-date information and meaningful environmental protections would streamline proposed federal actions like this one. But the 2008 Policy – the "mitigation" on which the Draft EA relies – is outdated and inadequate. To briefly summarize:

- The 2008 Policy is based on Title 22 drinking water standards, which fail to include standards designed to protect irrigation uses.
- The scope of the 2008 Policy is limited to "non-project water." It does not address other introduced water supplies that may be of lesser quality than supplies drawn from Millerton Lake.
- Because the 2008 Policy contains no in-canal standards, it does not adequately protect downstream users from all significant water quality impacts.
- Under the 2008 Policy, Type B water has to "generally" comply with Title 22, but it may exceed Title 22 standards for certain constituents of concern as determined by Reclamation and the Friant Water Authority on a case-by-case basis.
- Type C water is not required to meet any water quality requirements because it is erroneously stated to be "physically the same as Project water." Type C water that is (a) Delta water introduced into the Cross-Valley Canal; or (b) groundwater introduced through various banking programs will ***not*** be "physically the same as" supplies drawn from Millerton Lake. (*See also* comment 4, below).
- The 2008 Policy is not consistent with all relevant and current authorities, laws, statutes, contracts, state and regional water quality standards, policies, objectives, regulations, case law, and basin plans (including recently approved CV-Salts revisions).

Indeed, the Friant Water Authority, Friant Division contractors, and Reclamation are in the final stages of developing and implementing a science-based mitigation program that will update – or perhaps fully replace – the 2008 Policy. Once formally adopted, the mitigation program would provide the kind of water quality analysis and mitigation allowing significant streamlining Reclamation's subsequent NEPA analyses. In the interim, however, Reclamation remains obligated to fully identify, specifically address, and effectively mitigate this Project's potential water quality impacts – and the Draft EA and 2008 Policy fail to do so.

In light of the above, the Draft EA must be revised to provide a meaningful analysis of 2008 Policy's effectiveness in eliminating potentially significant water quality impacts.[2] AEWSD requests, in the strongest possible terms, that those revisions (and any resulting Finding of No Significant Impact) clearly state *that any and all introduction of groundwater into the FKC are required to meet then-current water quality standards*. The absence of such language from the Draft EA is inconsistent Reclamation's past and current practice in other Environmental Assessments.

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[1] *See N. Idaho Cmty. Action Network v. Dep't of Transp*., 545 F.3d 1147, 1153 (9th Cir. 2008). As the United States Court of Appeals for the Ninth Circuit has explained, "mitigation measures may help alleviate impact *after* [approval], but do not help to evaluate and understand the impact before [approval]." *N. Plains Resource Council v. Surface Transp. Bd*., 668 F.3d 1067, 1083-85 (9th Cir. 2011) (emphasis original).

[2] *See S. Fork Band Council of W. Shoshone v. United States Dep't of the Interior*, 588 F. 3d 718, 727 (9th Cir. 2008) (discussion of mitigation is "useless" without an evaluation of effectiveness).

3. Improper Reliance on 2014 Pump-In Program. The Draft EA further assumes "water quality results would be similar to what was shown for previous pump-ins" conducted pursuant to Reclamation's 2014 groundwater pump-in program. But the 2014 program introduced less than 12,000 acre-feet of groundwater into the FKC over a two-year period. The Project would authorize introduction 50,000 acre-feet – more than four times as much – each year. There is no sound basis to assume the impacts of the two projects would be the same.

4. Subsidence. The Draft EA accurately notes that subsidence is a significant issue within the Project area – and, further, that subsidence caused by groundwater pumping has severely impacted FKC water delivery to AEWSD. But the document dismisses subsidence concerns by suggesting groundwater pumping "would occur with or without the [Project]." Even if that were true – a proposition for which there is no support in the Draft EA – it does not follow that *subsidence impacts along the FKC and resulting impacts on AEWSD* would be identical with and without the Project. As currently proposed, the Project creates a strong new incentive to pump groundwater from wells *in close proximity to a portion of the FKC that is extremely sensitive to subsidence*. To prevent further subsidence impacts – impacts which, by Reclamation's own admission, are indisputably significant – we would strongly recommend limiting the volume of pump-ins from wells located within 1 mile of the FKC.

Again, AEWSD appreciates the opportunity to review the Draft EA and provide these comments on the Project. We would welcome the opportunity for additional discussion, and I would be pleased to answer any questions you may have.

Sincerely,

Jeevan Muhar, P.E.
Engineer-Manager

cc: Matthew Adams, Esq. madams@kaplankirsch.com
Board of Directors

JSM:sj\AEWSD\USBR\Envir.Docs\2021\ Emerson.Rain.AE.comments.Friant.GW.Pump.in.Proj.06.21.dotx

June 11, 2021

Ms. Rain Emerson
U.S. Bureau of Reclamation
South-Central California Area Office
1243 N Street
Fresno, California 93721
Email: remerson@usbr.gov

Comments on the Draft Environmental Assessment (DEA) for Groundwater Pump-ins into the Friant Kern Canal to certain participating Friant Division contractors and North Kern Water Storage District Enabled by the Bureau of Reclamation annual Warren Act Agreements/Contracts (CGB-EA-2021-033).

Dear Ms. Emerson:

Thank you for the opportunity to comment. We have reviewed the subject DEA and find that it is incomplete with regard to addressing environmental impacts in several areas, which we address in detail in comments below. Furthermore, the DEA lacks sufficient data to determine compliance with NEPA, provisions of State of California water quality laws under Porter Cologne and the federal Clean Water Act, the federal and State of California Endangered Species Acts (ESA and CESA), and the California Environmental Quality Act (CEQA). The Friant groundwater pump-ins ("FKC pump-ins" or "action") is a substantial and complex project that clearly requires a comprehensive Environmental Impact Statement (EIS) to properly address potential impacts and alternatives to the proposed project. Further a programmatic impact statement is required due to the potentially significant individual actions that will likely result in cumulatively significant impacts to fish, wildlife and water quality.

Further, key documents related to this action are missing, including but not limited to:

1. the Warren Act Contracts/Agreements governing these groundwater pump-ins into the Friant Kern Canal,
2. the Agreement with the California Department of Water Resources (DWR) authorizing groundwater inputs from the Cross Valley Canal (as a part of this action) into the California Aqueduct,
3. A Quality Assurance Project Plan (QAPP) that describes water quality sampling and analysis requirements for non-project water.

Without these key documents, the public is left in the dark about what contractual terms and conditions are required for these groundwater discharges to the canals.

The National Environmental Policy Act (NEPA) compels an informed process. NEPA requires that federal decision makers be informed of the environmental consequences of their decisions and undertake an assessment of the environmental effects of their proposed actions prior to making decisions.[1] An informed decision document under NEPA should include all relevant data, including past monitoring data along with analysis of that data, to help inform the public and decision makers as to impacts and guide future implementation of the project. This data is also essential in determining individual and potentially significant cumulative impacts from all the proposed transfers and various canal pump-in projects.

The DEA is incomplete in several respects, which we will discuss. There are significant data gaps that hinder the public and decision makers' from making an informed decision regarding the potential environmental consequences of allowing these groundwater pump-ins into the Friant Kern Canal (FKC) and Cross Valley Canal and California Aqueduct. Also completely neglected are the impacts from discharging this groundwater and potentially substituting or exchanging it with water exported from the Delta Estuary or other exchanges that have the potential to impact the American River, Yuba River, Sacramento River and Shasta Dam operations.

There is substantial evidence that groundwater pumping including this project have caused and—if permitted again, will continue to cause—water pollution, land subsidence, increased water supply costs to others, and further damage to the FKC. The DEA fails to provide a complete assessment of the impacts of this project, fails to include effects of these prior pump-ins on subsidence damages to the FKC, and provides very little information and analysis of prior water quality data, from previous groundwater pump-ins associated with this project. The DEA, as presented, does not support a "fair argument" that this project does not have significant environmental impacts. A full Environmental Impact Statement (EIS) is required so that the environmental impacts, as well as costs and damage to infrastructure and downstream beneficial uses, can be adequately analyzed and described to the public and decision makers.

Further, we see no evidence of a CEQA analysis of this action. The Friant Water Users Authority, a state agency directly involved with these groundwater inputs into the FKC, should complete a CEQA analysis prior to the commencement of this project. Clearly extracting ground water and discharging it into canals will create a physical change and meets the definition of a Project under CEQA i.e., *"Project means an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and which is any of the following: a) An activity directly undertaken by any public agency;..."* California Environmental Quality Act, Cal. Pub. Res. **Code** §§ 21000-21189.3. Reclamation law requires CVP operations to follow state law provided it does not conflict with Congressional directives to the contrary. Congress has not directed Reclamation to operate

[1] https://ceq.doe.gov/docs/get-involved/Citizens_Guide_Dec07.pdf

the CVP without compliance with environmental rules and water quality laws of the State of California. Allowing the discharge of ground water contaminated with harmful pollutants is contrary to both federal and state law and the impacts especially of accumulating pollutants must be fully analyzed, permitted and disclosed prior to discharge.

Our organizations provide these comments on Reclamation's DEA for a proposed two-year Warren Act Agreements[2] for the Friant Division contractors and North Kern Water Storage District. In accordance with NEPA, Reclamation, as the Federal lead agency, made the DEA available for a 15-day public comment period closing on June 11, 2021.[3] Our comments are organized in two parts: (1) a summary of the project as described in the DEA as background for our critique, and (2) a critique of the project, monitoring requirements, and environmental analysis.

SUMMARY OF PROJECT AS DESCRIBED BY RECLAMATION IN THE DEA

Reclamation proposes to issue annual Warren Act agreements to the participating districts listed in Table 1 that would allow the cumulative annual introduction of up to 50,000 acre-feet of groundwater into the FKC over a two-year period. The maximum pump-in amounts listed in Table 1 may be adjusted among the participants as needed in a given year (i.e., could be more or less depending on need) but cannot exceed the cumulative total of 50,000 acre-feet. We note that the previous FKC pump-in program only pumped 11,799 AF over a 2-year period (2014-2015) detailed in Table 2 below. If the proposed project pumps the maximum cumulative total allowed (50,000 AF over the 2-year period) it would be over 4 times more than was pumped in 2014-2015. No cumulative impacts or groundwater impacts are provided.

Table 1. 2021-2022 Proposed FKC Pump-ins:

District	Maximum pump-in quantity (acre-foot)
Delano-Earlimart Irrigation District	12,000
Lindsay-Strathmore Irrigation District	3,000
North Kern Water Storage District	10,000
Orange Cove Irrigation District	5,000
Porterville Irrigation District	5,000
Saucelito Irrigation District	2,000
Southern San Joaquin Municipal Utility District	3,000
Terra Bella Irrigation District	1,500

[2] The Warren Act (Pub. L. No. 61-406) authorizes USBR to enter into contracts to impound, store, or convey non-CVP water in federal facilities, when excess capacity is available. Warren Act Contracts are issued by Reclamation to allow movement of non-federal water through federal facilities.

[3] See: https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=49768

Table 2. 2014-2015 FKC Pump-ins:

Contractor	2014 (acre-feet)	2015 (acre-feet)	Total (acre-feet)
Delano-Earlimart Irrigation District	2,059	2,588	**4,647**
Lindsay-Strathmore Irrigation District	1,078	1,317	**2,395**
North-Kern Water Storage District	0	0	**0**
Orange Cove Irrigation District	308	576	**884**
Saucelito Irrigation District	675	850	**1,525**
Southern San Joaquin Municipal Utility Districts	0	1,315	**1,315**
Tea Pot Dome Water District	0	0	**0**
Terra Bella Irrigation District	409	624	**1,033**
Total	**4,529**	**7,270**	**11,799**

Description of Types of water included in this Action (A, B and C).

Type "A" Non-Project Water
Water for which analytical testing demonstrates only compliance with California drinking water standards (Title 22)[4] but fails to test and comply with water quality standards and objectives to protect migratory birds, fish and wildlife. Type A water must be tested every year for the full list of constituents listed in Table 2. No in-prism (within the Canal) monitoring is required to convey Type A water.

Type "B" Non-Project Water
This is water that generally complies with Title 22 standards, but may exceed the Maximum Contaminant Level (MCL) for certain inorganic constituents of concern to be determined by Reclamation and the Authority on a case-by-case basis. This water may be discharged into the Canal over short- intervals. Type B water shall be tested every year for the full list of constituents in Table 2, and more frequently for the identified constituents of concern. Flood Water and Ground Water are Type B non-project water.

Type B water may not be pumped into the FKC within a half-mile upstream of a delivery point to a CVP Municipal and Industrial contractor. The introduction of Type B water into the Friant-Kern and Madera Canals will require regular in-prism monitoring (in FCK) to confirm that the CVP water delivered to downstream customers is suitable in quality for their needs. The location, frequency, and parameters of in-prism monitoring (in FKC) will be determined by Reclamation and the Authority on a case-by-case basis.

Type "C" Non-Project Water
Type C Water is non-project water that originates in the same source as CVP water but that has not been appropriated by the United States. For example, non-project water from a tributary within the upper San Joaquin River watershed, such as the Soquel Diversion from Willow Creek above Bass Lake, is Type C water. Another example is State Water Project water pumped from the California Aqueduct and Cross Valley Canal into the lower Friant-Kern Canal. No water quality analyses are required to convey Type C water through the Friant-Kern or Madera Canals because it is physically the same as Project water.

[4] 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. See: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dw_regulations_2019_04_16.pdf As noted in our comments below the 50 ppb selenium concentration allowed is not protective of fish, wildlife and migratory birds.

North Kern WSD pump-ins into the Cross Valley Canal and delivery via the California Aqueduct
North Kern Water Storage District's (North Kern WSD) groundwater would be introduced and conveyed through the FKC to the Cross Valley Canal for delivery to the following Kern County water districts via the California Aqueduct. All delivery schedules for North Kern WSD's groundwater would be coordinated with the Kern County Water Agency and the California Department of Water Resources (DWR) and approved by Reclamation prior to introduction into the FKC:

- Belridge Water Storage District
- Berrenda Mesa Water District
- Lost Hills Water District
- Wheeler Ridge-Maricopa Water Storage District

We note that the above recipient districts are upstream of the Cross Valley Canal discharge point into the California Aqueduct. The DEA does not disclose the mechanism by which this groundwater will be delivered to these districts. Will the Aqueduct allow reverse directional flow in this area to facilitate the delivery of this water? Or will the water be made available to these recipient districts by means of operational exchanges? This information needs to be disclosed and analyzed in the DEA.

Water Quality Commitments - FKC
Every four months, Reclamation will collect samples of water from the Friant-Kern Canal near Friant Dam and near Lake Woolomes. These samples will be analyzed for Title 22 and many other constituents. The purpose of theses samples is to identify the baseline quality of water in the canal. No direct analysis within the Madera Canal will be conducted at this time.

Individual wells will be exempt from the nitrate and salt content requirements, provided that water quality measurements from the FKC satisfy the two conditions for nitrate concentration and salt content, measured by electrical conductivity (EC), as noted below:

- The concentration of nitrates (as NO3 = 10 mg/L as N) in the FKC may not exceed 20 mg/L, less than half of the maximum contaminant level (MCL for NO3 is 45 mg/L) established by the State of California for nitrates.
- EC in the FKC may not exceed 900 micromhos per centimeter (μmhos/cm).

During the term of this action and while groundwater is being introduced into the FKC, water samples from the FKC will be collected each week by the Friant Water Authority and analyzed for nitrates and EC near the following municipal and industrial diversions:

- FKC Milepost 43.45 (City of Orange Cove diversion)
- FKC Milepost 85.55 (Lyndsay-Strathmore Irrigation District diversion)
- FKC Milepost 89.35 (Strathmore Public Utility District diversion)
- FKC Milepost 102.65 (Terra Bella Irrigation District diversion)
- FKC Milepost 151.80 (Arvin-Edison Water Storage District diversion, turnout near Terminus of the FKC at the Kern River).

Water Quality Sampling of FKC Non-Project Water
Each source of Type A and B non-project water must be tested once every year for the complete list of constituents of concern and bacterial organisms listed as described in Table 3 below.[5]

[5] From page 7 of Appendix A to DEA, Reclamation's Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals, @ pdf pg 28 of the DEA:
https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=49770

Table 3. Water Quality Monitoring Requirements

Type of Water	Location	Frequency	Constituents Measured
Project Water	Friant	January, April, June, October	Title 22 and bacterial constituents (1) (2)
	Lake Woolomes	January, April, June, October	Title 22 and bacterial constituents (1) (2)
Type A Non-Project Water		Every year	Title 22 and bacterial constituents (1) (2)
Type B Non-Project Water		Every year	Title 22 and bacterial constituents (1) (2)
		Every month (5)	Constituents of concern (5)
		Every week (5)	EC, turbidity, etc. (3) (5)
Type C Non-Project Water		None required	
Project Water	Upstream of each Type B discharge (4)	Every week (5)	EC, turbidity, etc. (3) (5)
	Downstream of each Type B discharge (4)	Every week (5)	EC, turbidity, etc. (3) (5)

Revised: 08/16/2007 SCC-107
(1) California Department of Health Services, California Code of Regulations, Title 22, Division 4, Chapter 15, Domestic Water Quality and Monitoring
http://www.dhs.ca.gov/ps/ddwem/publications/Regulations/regulations_index.htm.
(2) Cryptosporidium, Giardia, total coliform bacteria
(3) Field measurements
(4) Location to be determined by the Contracting Officer
(5) To be determined by the Contracting Officer, if necessary
This water quality monitoring program is subject to change at any time by the Contracting Officer

SPECIFIC DEA COMMENTS AND RECOMMENDATIONS

I. Compliance with Clean Water Act & California Porter Cologne Act are Absent.

As the USEPA (EPA) noted in comments submitted on another groundwater pumping program into the California Aqueduct, the discharge of groundwater with potentially high salt, boron, chromium, arsenic, selenium, and other metals would be subject to the National Pollution Discharged Elimination System (NPDES) permitting requirements pursuant to the federal Clean Water Act. Further EPA noted, "*Permits will need to be designed to ensure the discharges do not cause or contribute to exceedences of applicable State water quality standards or degradation of designated beneficial uses*."[6]

The Clean Water Act prohibits the discharge of "pollutants" through a "point source" into a "water of the United States" unless they have an NPDES permit. Such a permit would contain limits on what can be discharged, monitoring and reporting requirements, and other provisions to ensure that the discharge does not harm water quality or human health. The term point source is also defined very broadly in the Clean Water Act. It means any discernible, confined, and discrete conveyance, such as a pipe, ditch, channel, tunnel, conduit, discrete fissure, or container.[7] Yet, no compliance with the federal Clean Water Act has been provided for this project.

[6] See: http://calsport.org/news/wp-content/uploads/EPA-comments-Westlands-WD-EIR-NOP-3-4-10.pdf
[7] See: https://www.epa.gov/npdes/npdes-permit-basics

Further, we note that no Waste Discharge Requirements (WDRs) have been issued for this project. Waste Discharge Requirements established pursuant to the Porter-Cologne Water Quality Control Act (Wat. Code, § 13263) permit discharges that "could affect the quality of waters of the state" – both surface and groundwater. These permits shall take into consideration beneficial uses to be protected, water quality objectives required for that purpose, other waste discharges, and the need to prevent nuisance. Some WDRs can also serve as a CWA NPDES permit (Wat. Code, § 13377; Chapter 5.5, Wat. Code, § 13370 et seq.).[8]

The DEA notes @ pg 1 that Type B non-project water can have constituents that may exceed the Title 22 California drinking water standards. The DEA @pdf pg 26 notes that Reclamation will provide a Quality Assurance Project Plan (QAPP) that will describe sampling and analysis of Type B non-project water. Yet the QAPP was not provided with this DEA. Failing to publicly provide this document effectively precludes public comment and analysis.

Groundwater discharge into the FKC can impact municipal beneficial uses of this water downstream. The law requires this type of discharge project to be permitted. And yet there is no Waste Discharge Requirements (WDR) nor a CWA NPDES permit. Without these necessary permits there is no assurance that beneficial uses will be protected. Further failure to provide these permits precludes public participation and fails to provide decision makers with the necessary data and information necessary to determine adequate water quality and beneficial use protection measures. Further it is not clear how the discharge of this groundwater containing contaminants will ensure that water supplies are not degraded as required under both federal and state law. Finally there is little or no monitoring sufficient to determine impacts and virtually no enforcement or remedy for failure to meet even the minimal requirements cited in the monitoring for the project.

II. Proposed Water Quality Monitoring is Lax.

Annual monitoring of groundwater (types A and B) for Title 22 constituents is inadequate. No water quality data or analysis has been provided to justify only annual monitoring of water quality. Further, the DEA identifies annual monitoring of "constituents of concern" for type B water, without identifying what these constituents are. The DEA should be withdrawn and replaced with an EIS that includes the QAPP for public comment review and more robust groundwater water quality monitoring requirements. Enforcement is necessary to ensure compliance and is absent from the project.

III. Limited FKC Water Quality Data and no Groundwater Water Quality Data from Previous FKC Pump-ins is Provided in DEA, Thus Precluding Cumulative Impact Analysis.

Limited water quality data is provided in the DEA for Nitrate (as NO3) and EC in the FKC from July thru December 2014 only. Data on groundwater quality from participating wells from previous FKC pump-ins is not provided in the DEA. The DEA fails to include data from previous FKC groundwater pump-ins on water quality from each participating well, quantity of groundwater pumped by each well, depth to groundwater of each well prior to pumping, or contaminant mass balance in the FKC. Data on the previous performance of the FKC pump-ins is essential information missing from the DEA. These data are also important to inform decision makers and the public about the cumulative impacts of this action. Further, with respect to groundwater inputs into the California Aqueduct, it is important to estimate mass balance contaminant loading from these discharges to ensure that discharges do not harm downstream beneficial uses.

[8] See: https://www.waterboards.ca.gov/board_reference/docs/wq_law.pdf

As emphasized for other issues as well, the DEA should be withdrawn and replaced with an EIS that includes all this critical information and related analysis for public review and comment.

IV. Groundwater that is pumped into the California Aqueduct from the Cross Valley Canal Likely Impacts Beneficial Uses Associated with the California Aqueduct.

As proposed in the DEA, groundwater from North Kern WSD would be introduced and conveyed through the FKC to the Cross Valley Canal for delivery to four Kern County water districts (Belridge WSD, Berrenda Mesa WD, Lost Hills WD, and Wheeler Ridge Maricopa WSD) via the California Aqueduct (DEA @ pg 4). As we noted earlier in this letter, the DEA does not describe or analyze how this water will be delivered to these recipient districts in Kern County as they are upstream of the input from the Cross Valley Canal. Will the flow of the Aqueduct be reversed to allow delivery of this groundwater, or will this water be operationally exchanged with surface water? Either of these scenarios could affect water quality in the Aqueduct and beneficial uses associated with Aqueduct water.

The groundwater discharge from this North Kern WSD in the Cross Valley Canal into the Aqueduct could affect quality of water delivered to Kern NWR. The CVPIA refuge water supply for Kern National Wildlife Refuge (NWR) comes from the California Aqueduct and is diverted near Check 29. Kern NWR provides habitat for rare species including the federally listed Buena Vista Lake Ornate Shrew (Endangered). Numerous water actions such as groundwater pump-ins and exchanges into the California Aqueduct have the potential to cumulatively degrade the quality of refuge water delivered to Kern NWR. Past data on the percent of flow in the Aqueduct (POA) comprised of groundwater pump-ins in the fall of 2014 and early 2015 indicate that the groundwater pump-ins have at times contributed 100% of the flow in the Aqueduct at Check 21 as depicted in the Figures 3-1 and 3-2 from DWR 2015[9] and Figure 3-1 from DWR 2016[10] reports. Some of these time periods overlap with refuge water deliveries to Kern NWR.

Further, groundwater inputs from the Cross Valley Canal could be conveyed south through the California Aqueduct and stored in four reservoirs (Pyramid Lake, Castaic Lake, Silverwood Lake, and Lake Perris). The aqueduct and these four reservoirs are regulated under four Regional Water Boards jurisdictions. Designated fish and wildlife beneficial uses of the Aqueduct and downstream reservoirs are listed in Table 1.

Table 1. Fish and Wildlife Beneficial Uses Associated with CA Aqueduct south of Pump-in Project

Waterbody Name	WARM	COLD	SPWN	WILD	RARE
California Aqueduct[11]				E	
Castaic Lake[12]	E	I	E	E	E
Pyramid Lake[5]	E	E		E	E
Silverwood Lake[13]	E		E	E	

[9] See: https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2014.pdf
[10] See: https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2015.pdf
[11] See: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf
[12] See Beneficial Use Designations of Inland Surface Waters, Los Angeles Regional Water Board: https://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/2020/Chapter_2/Chapter_2_Table_2-1/Chapter_2_-_Table_2-1.pdf
[13] See: https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/docs/ch2_bu.pdf

Lake Perris[14]	E	E		E	E

E: Existing beneficial use.
I: Intermittent beneficial use.
WARM: Warm Freshwater Habitat - Uses of water that support warm water ecosystems including but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
COLD: Cold Freshwater Habitat - Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
SPWN: Spawning, Reproduction, and/or Early Development - Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.
WILD: Wildlife Habitat - Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
RARE: Endangered Species - Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

The FKC pump-ins should be protective of downstream beneficial uses of the water from the California Aqueduct and these impacts need to be disclosed and addressed in a full EIS. The DEA is deficient and fails to disclose immediate significant impacts to these beneficial uses and long term cumulative impacts. No data is provided in the DEA on groundwater quality from North Kern WSD. This lack of data does not support the adoption of an EA/FONSI for environmental impacts of this action. Further, the cumulative impacts of these groundwater inputs along with other groundwater pump-in projects that affect water quality of the California Aqueduct needs to be analyzed.

V. Water Quality Standards for Selenium in the DEA are not Protective of Downstream Fish and Wildlife Beneficial Uses.

On page 8 of Appendix A to the DEA (Reclamation's Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals) Reclamation listed Water Quality Standards, Title 22 in Table 2. Included with those standards is a water quality standard for selenium listed as 50 µg/L (0.05 mg/L). The Title 22 selenium objective of 50 µg /L MCL for selenium is not protective of fish and wildlife resources that use water from the Aqueduct, which require levels less than 2 µg /L, specifically 1.5 µg /L, as we discuss in more detail below.

In addition, on page 2 of Appendix A of the DEA, Reclamation states that for Type B Non-Project Water: "*Water that generally complies with Title 22, but may exceed the Maximum Contaminant Level (MCL) for certain inorganic constituents of concern to be determined by Reclamation and the Authority on a case-by-case basis. This water may be discharged into the Canal over short- intervals. Type B water shall be tested every year for the full list of constituents in Table 2, and more frequently for the identified constituents of concern.*" Title 22 standards would have a significant impact on endangered species and bio accumulation of selenium in the food chain impacts reproduction, survival along with resulting deformities. In addition, there is no regulatory basis for the relaxation of Title 22 standards for type B

[14] See: https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/docs/2019/New/Chapter_3_June_2019.pdf

water which would further impact endangered species, migratory birds, the Pacific Flyway and other fish and wildlife that rely upon waters from the California Aqueduct.

Without evidence Reclamation concludes that the FKC pump-ins would have no effect on proposed or listed species or critical habitat under the federal ESA of 1973, as amended (16 U.S.C. §1531 et seq.), and there would be no take of birds protected under the Migratory Bird Treaty Act (16 U.S.C. §703 et seq.) or eagles under the Bald and Golden Eagle Protection Act (16 U.S. Code § 668**).** No biological data or monitoring is provided in the DEA to support such a conclusion. No consultation was completed with CDFW or USFWS.

On July 13, 2016, the Environmental Protection Agency (EPA) released a Final Updated Clean Water Act (CWA) section 304(a) recommended national chronic aquatic life criterion for the pollutant selenium in fresh water.[15] The final criterion supersedes EPA's 1999 CWA section 304(a) recommended national acute and chronic aquatic life criteria for selenium. The 2016 criterion reflects the latest scientific information, which indicates that selenium toxicity to aquatic life is primarily based on organisms consuming selenium-contaminated food rather than direct exposure to selenium dissolved in water. The federal register notice identified revised chronic selenium criteria in water for lentic waters (e.g., meaning of, relating to, or living in still waters, such as lakes, ponds, or swamps) and lotic waters (e.g., rivers and streams). EPA's revised chronic selenium criterion for lentic waters of a monthly mean of 1.5 µg /L is the criterion that should be applied to water in the California Aqueduct to protect fish and wildlife beneficial uses. Reclamation provides no data or studies to warrant the proposed arbitrary relaxation of these regulatory standards.

These complex issues related to impacts on fish and wildlife beneficial uses require a full analysis of the proposed project and potential project alternatives that could better minimize environmental risks. This should be done as part of a full EIS. Consultation with CDFW and USFWS is essential.

Warren Act Contracts/Agreements and the Agreement with DWR allowing water to be conveyed in the Aqueduct are not Included in the DEA.

The proposed Warren Act Contracts/Agreements are not included with the DEA and have not been made available for public review. Thus, an informed decision and analysis of this action is precluded. In order to accurately assess the impacts and cumulative impacts of this FKC pump-ins, a copy of the Contracts/Agreements and all Exhibits for the time period being considered (2021-2022) should be disclosed and included in the environmental analysis for this Project.

Further, adding to the incomplete project description and definition of the project, the Agreement with DWR (DWR Agreement) for introduction and conveyance of local groundwater in the California Aqueduct is also absent. Without these documents, the public is prevented from seeing key information regarding the contractual requirements of this action. Omitting these key documents keeps the public in the dark regarding the project definition, baseline, and potential contractual remedies available to downstream beneficial uses that could be harmed by the degradation of water quality in the California Aqueduct.

VI. Subsidence Impacts to the FKC are not Disclosed & Monitoring Requirements are Insufficient.

Land subsidence is a major and growing consequence of groundwater pumping in the project area and

[15] See: https://www.federalregister.gov/documents/2016/07/13/2016-16585/recommended-aquatic-life-ambient-water-quality-criterion-for-selenium-in-freshwater

threatens the FKC and other infrastructure. Increases in subsidence, impacts, and costs to the infrastructure, and long-term cumulative impacts are significant. Operational impacts of subsidence to the FKC include reduction in conveyance capacity, increase in power cost, decrease in available freeboard (the difference in elevation between the crest of the canal and the water level as fixed by design requirements). These effects are significant and costly to repair. Reclamation estimated that implementing the preferred alternative for the Friant-Kern Canal Middle Reach Capacity Correction Project that would build a parallel canal to the impacted reach of the FKC would have a total capital cost of $430,000,000.[16]

As denoted in the DEA @ pg 11-12: "*Land subsidence has caused portions of the FKC to sink significantly in recent years, which has decreased the capacity of the canal to carry and deliver water. Hydraulic modeling completed as part of the Friant-Kern Canal Capacity Restoration Feasibility Report authorized pursuant to Section 10201(a)(1) of the San Joaquin River Restoration Settlement Act confirmed the reduction in FKC capacity in several segments (Reclamation 2020a). A portion of the Action area falls within an approximately 33-mile section of the FKC located within Tulare and Kern Counties (milepost 88 to milepost 121.5), that has experienced more than 50 percent capacity loss due to regional land subsidence and other factors. The subsidence-induced capacity loss has resulted in downstream water delivery impacts to six Friant Division long-term contractors: Arvin-Edison Water Storage District, Delano-Earlimart Irrigation District, Kern-Tulare Water District, Sausalito Irrigation District, Shafter-Wasco Irrigation District, and Southern San Joaquin Municipal Utility District, three of which are participants under this Proposed Action…To address this issue, Reclamation and the Friant Water Authority have proposed to restore this section by raising portions of the embankments in the existing FKC over approximately 13 miles and constructing an approximately 20-mile realigned canal segment east of the existing FKC (Reclamation 2020b).*"

On page 5 of the DEA, Reclamation includes the following environmental commitment regarding subsidence, "*Districts shall comply with applicable Groundwater Sustainability Plans pursuant to the Sustainable Groundwater Management Act*." Yet, no details of what commitments are in those Groundwater Sustainability Plans is provided in the DEA.

Reclamation concludes on page 12 of the DEA: "*The groundwater to be pumped under the Proposed Action would come from wells at varying depths, from a wide range of locations along the FKC. Although the withdrawal of up to 50,000 acre-feet per year over a two-year period would contribute to regional overdraft and subsidence, this would occur with or without the Proposed Action*."

The proposed FKC pump-ins would authorize up to 50,000 AF to be pumped in 2021 and 2022. If this full pumping amount is realized, that would be an over 4-fold increase in groundwater pumping compared with the previous program in 2014-2015. The DEA assumes that regional overdraft and subsidence will be the same with or without the project, yet this finding is not supported by any data or analysis. Further, the DEA points to commitments in groundwater sustainability plans without providing any detailed information. The DEA provides no clear plan for mitigating future excessive subsidence. The impacts of this action are complex, broad, and far reaching, and need to be considered in a full EIS analysis. A full EIS should evaluate all areas that would be affected by increased subsidence and provide a plan to offset losses of wetland and riparian vegetation communities caused by changes in hydrology associated with subsidence caused by the FKC pump-ins.

[16] See pg 4-30 of Friant-Kern Canal Middle Reach Capacity Correction Project Feasibility Report: https://usbr.gov/mp/docs/fkc-feasibility-report.pdf.

VII. Cumulative Impacts.

Cumulative impacts from these pump-ins into the FKC, conveyance to the California Aqueduct, and potential exchanges or reverse flow of the Aqueduct are not disclosed or analyzed. We adopt by reference our comments from previous exchanges and transfers and previous scoping comments.[17] Numerous water actions such as groundwater pump-ins and exchanges into the California Aqueduct have the potential to cumulatively degrade the quality in the Aqueduct and affect beneficial uses associated with Aqueduct water supplies.[18]

In addition to the continued extraction of water from already over-drafted groundwater basins, the impacts from discharging this groundwater to the FKC and California Aqueduct is not adequately addressed. These impacts are merely brushed aside. No data from previous pump-ins is provided to support Reclamation's conclusions of no impact in the DEA. No alternatives are considered. Finally, there is insufficient analysis of the cumulative impact of discharging these contaminants into drinking water, wildlife refuge supplies, or downstream fish and wildlife beneficial uses.

VIII. Conclusion.

The DEA does not adequately assess the potentially significant environmental impacts from the FKC pump-ins. In addition, there are reasonably available alternatives that have not been considered and should be analyzed to reduce the potentially significant environmental impacts. Absent from the document is any assessment of the cumulative impacts, including third party impacts and impacts to fish, wildlife, and water quality. Required permits and compliance with the Clean Water Act to allow discharge of contaminants into the waters of the State and Nation have not been provided; nor have necessary consultations with federal and state wildlife agencies concerning potential endangered and threatened species impacts. The Warren Act Contracts/Agreements and associated Contract Exhibits and

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[17] See Coalition comments on Westlands pump-in project, 9.30.2020: https://calsport.org/news/wp-content/uploads/Env-Advocate-Cmts-9-30-2020_WWD-SLC-Pump-in-2020-IS_ND_-Cal-Aqueduct-Corrected.pdf
See also comments provided http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=14341
"Resnicks'Westside Mutual Water District member lands in Westlands Water District to the AEWSD service area and Westside Exchange Program are not disclosed nor analyzed. Nor are the impacts to Madera County from the potential groundwater transfers likely contemplated under the proposed action. The existing Exchange Program involves delivery of Arvin's supplies to Westside member lands as exchange water, based on a 1 for 1 or "bucket for bucket" basis, up to 50,000 acre-feet (AF)."
See 30,000 acre-feet of groundwater proposed to be transferred to Westlands et. al. from the Mendota Pool http://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=49107
See also North Valley Regional Recycled Water Program-- http://www.nvrrecycledwater.org/description.asp *The NVRRWP could produce and deliver up to 32,900 acre-feet per year of tertiary-treated recycled water to the drought-impacted west side. This water can be used to irrigate food crops, public and privately-owned landscaping, and for industrial uses. This basin transfer would alter San Joaquin River Flows and flows to refuges, and the South Delta Bay Estuary. The project would deliver up to 59,000 acre-feet per year (AFY) of recycled water produced by the cities of Modesto and Turlock via the Delta-Mendota Canal (DMC), a feature of the Central Valley Project owned by Reclamation. Instead of discharging fresh treated water into the San Joaquin River, recycled water would be conveyed from Modesto and Turlock through pipelines from their wastewater treatment facilities, crossing the San Joaquin River, ending at the DMC.*

[18] See: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Water-Quality/Documents/2018-Turn-In-Report.pdf
https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2014.pdf
https://calsport.org/news/wp-content/uploads/Water-Quality-Assessment-of-Non-Project-Turn-ins-to-the-California-Aqueduct-2015.pdf

Agreement with DWR governing the discharge into the Aqueduct from 2021-2022 is absent and therefore could not be reviewed. Thus, the public is provided an incomplete project, incomplete project description and no mitigation and compliance measures upon which the public and decision makers can rely to make an informed opinion regarding the environmental impacts.

Prior to commencing with the proposed project, which has in the past and likely will continue to harm downstream uses, a complete EIS is required that includes, among other things, a QAPP that ensures waters of the State and Nation are not degraded, compilation and analysis of prior groundwater water quality data, flow rates and quantities pumped from participating wells from previous pump-ins, the Warren Act Contracts/Agreements and Exhibits, the Agreement with DWR allowing discharge into the Aqueduct, documentation of Clean Water Act permit compliance, and full analysis of alternatives and cumulative impacts. We object to the adoption of a FONSI for this project. The project definition is not complete, mitigation measures are absent and data or evidence is not provided to make such a determination and finding.

Thank you for the opportunity to comment. Please add our names to Reclamation's electronic notification lists for environmental documents regarding water supplies or contracts or conveyance.

Sincerely,

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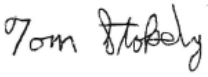

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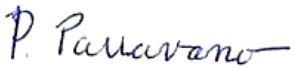

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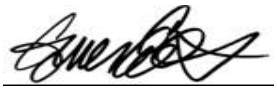

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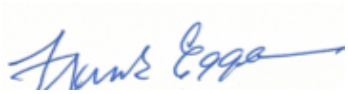

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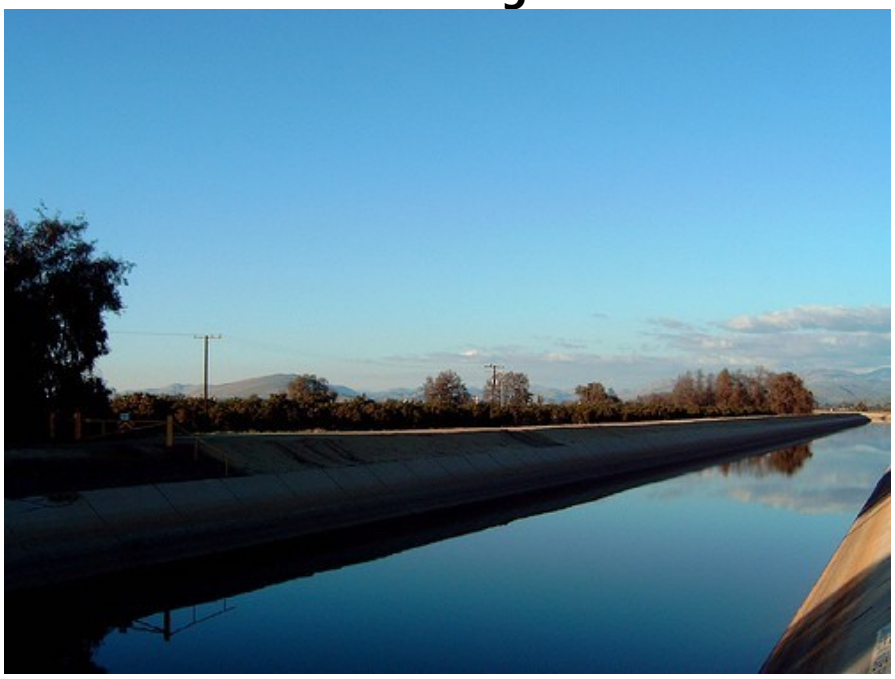
Appendix B: Reclamation's Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals

BUREAU OF RECLAMATION

Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals Water Quality Monitoring Requirements

Friant Division, Central Valley Project, California
California Great Basin Region



U.S. Department of the Interior

March 7, 2008
Revised 05/13/2021

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated 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.

Cover Photo: Friant-Kern Canal in Tulare County (Credit: Ted Holzem, Mintier & Associates)

Contents

Definitions

CVP or Project water

Water that has been appropriated by the United States for the Friant Division of the CVP. The source of Project water in the Friant Division is the San Joaquin River watershed.

Non-project water

Water that has not been appropriated by the United States for the Friant Division of the CVP. This includes groundwater, and surface water from other streams and rivers that cross the Friant-Kern and Madera Canals, such as Wutchumna Ditch.

Maximum Contaminant Level

Usually reported in milligrams per liter (parts per million) or micrograms per liter (parts per billion).

Non-project discharge system

The pipe and pumps from which non-project water enters the Friant Division.

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.

Type A water

This is non-project water that meets California drinking water standards. This water must be tested every year for the full list of Title 22 constituents. No in-stream monitoring is required to convey Type A water in the Friant Division.

Type B water

This is non-project water that has constituents that may exceed the California drinking water standards. This water must be tested every year for the full list of Title 22 constituents, plus annually for constituents of concern. Field monitoring is required of each source and of water upstream and downstream of the discharge point.

Type C water

This is non-project water from the same watershed as Project water that has not been appropriated by the United States for the Central Valley Project. Water from Soquel Creek diversion or the State Water Project are Type C water. No water quality analyses are required to convey this water in the Friant-Kern Canal.

Introduction

This Policy describes the approval process, implementation procedures, and responsibilities of a Contractor requesting permission from the U.S. Bureau of Reclamation (Reclamation) to introduce non-project water into the Friant-Kern and Madera Canals, features of the Friant Division of the Central Valley Project (CVP). The monitoring requirements contained herein are intended to ensure that water quality is protected and that domestic and agricultural water users are not adversely impacted by the introduction of non-project water. The discharge of non- project water shall not in any way limit the ability of either Reclamation or the Friant Water Authority (Authority) to operate and maintain the Canals for their intended purposes nor shall it adversely impact existing contracts or any other agreements. The discharge of non-project water into the Canals will be permissible only when there is excess capacity in the system as determined by the Authority and or Reclamation.

The Contractor shall be responsible for securing other requisite Federal, State or local permits.

Reclamation, in cooperation with the Authority, will consider all proposals to convey non- project water based upon this Policy's water quality criteria and implementation procedures established in this document. Table 1 provides a summary of the Policy's water quality monitoring requirements.

Types of Non-Project Water

Type "A" Non-Project Water

Water for which analytical testing demonstrates complete compliance with California drinking water standards (Title 22)[1]. Type A water must be tested every year for the full list of constituents listed in Table 2. No in-prism (within the Canal) monitoring is required to convey Type A water.

Type "B" Non-Project Water

Water that generally complies with Title 22, but may exceed the Maximum Contaminant Level (MCL) for certain inorganic constituents of concern to be determined by Reclamation and the Authority on a case-by-case basis. This water may be discharged into the Canal over short- intervals. Type B water shall be tested every year for the full list of constituents in Table 2, and more frequently for the identified constituents of concern. Flood Water and Ground Water are Type B non-project water.

[1] 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.

Type B water may not be pumped into the Friant-Kern Canal within a half-mile upstream of a delivery point to a CVP Municipal and Industrial contractor. At this time, there are no M & I Contractors served from the Madera Canal.

The introduction of Type B water into the Friant-Kern and Madera Canals will require regular in-prism monitoring to confirm that the CVP water delivered to downstream customers is suitable in quality for their needs. The location, frequency, and parameters of in-prism monitoring will be determined by Reclamation and the Authority on a case-by-case basis.

Type "C" Non-Project Water

Type C Water is non-project water that originates in the same source as CVP water but that has not been appropriated by the United States. For example, non-project water from a tributary within the upper San Joaquin River watershed, such as the Soquel Diversion from Willow Creek above Bass Lake, is Type C water. Another example is State Water Project water pumped from the California Aqueduct and Cross Valley Canal into the lower Friant-Kern Canal. No water quality analyses are required to convey Type C water through the Friant-Kern or Madera Canals because it is physically the same as Project water.

Authorization

The Warren Act (Act of February 21, 1911, ch. 141, 36 Stat. 925), as supplemented by Section 305 of Public Law 102-250, authorizes Reclamation to contract for the carriage and storage of non-project water when excess capacity is available in Federal water facilities. The terms of this Policy are also based on the requirements of the Clean Water Act (33 U.S.C. 1251 et seq.), the Endangered Species Act of 1973 (P.L. 93-205), the National Environmental Policy Act of 1969 (NEPA, 42 U.S.C. 4321 et seq.), the Reclamation Act of 1902 (June 17, 1902 as amended), and the Safe Drinking Water Act of 1974 (P.L. 93-523, amended 1986) and Title XXIV of the Reclamation Projects Authorization and Adjustments Act of 1992 (P.L. 102-575, 106 Stat 4600).

General Requirements for Discharge of Non-Project Water

Contract Requirements

A Contractor wishing to discharge non-project water into the Friant-Kern or Madera Canals must first execute a contract with Reclamation. The contract may be negotiated with Reclamation's South Central California Area Office (SCCAO) in Fresno.

Facility Licensing

Each non-project water discharge facility must be licensed by Reclamation and the Authority. The license for erection and maintenance of structures may be negotiated with the SCCAO.

Prohibition When the Canal is Empty

Non-project shall not be conveyed in the Friant-Kern or Madera Canals during periods when the canal is de-watered for maintenance.

Non-Project Discharge, Water Quality, and Monitoring Program Requirements

General Discharge Approval Requirements

Each source of non-project water must be correctly sampled, completely analyzed, and be approved by Reclamation prior to introduction into the Friant-Kern or Madera Canals. The Contractor shall pay the cost of collection and analyses of the non-project water required under this policy[2].

[2] Reclamation will pay for the collection and analyses of quarterly baseline samples collected at Friant Dam and Lake Woolomes.

Water Quality Sampling and Analyses

Each source of Type A and B non-project water must be tested every year for the complete list of constituents of concern and bacterial organisms listed in Table 2. The analytical laboratory must be approved by Reclamation (Table 3).

Water Quality Reporting Requirements

Water quality analytical results must be reported to the Contracting Officer for review.

Type B Water Quality Monitoring

Reclamation will provide a Quality Assurance Project Plan (QAPP) that will describe the protocols and methods for sampling and analysis of Type B non-project water. The program may include sampling of canal water upstream and downstream of the Contractor's discharge point into the Friant-Kern or Madera Canal. The location of samples, and the duration and frequency of sampling, and the list of constituents to be analyzed, may be changed upon review of measured trends in concentration of those constituents of concern.

Control of Water Quality in the Friant Division

The quality of CVP water will be considered impaired if the conveyance of the Contractor's non-project water is causing the quality of CVP water to exceed a maximum contaminant level specified in Title 22 (Table 2).

Reclamation, in consultation with the Authority, will direct the Contractor to stop the discharge of non-project water from this source into the Friant-Kern or Madera Canal.

Baseline Water Quality Analysis

Every four months, Reclamation will collect samples of water from the Friant-Kern Canal near Friant Dam and near Lake Woolomes. These samples will be analyzed for Title 22 and many other constituents. The purpose of theses samples is to identify the baseline quality of water in the canal. No direct analysis within the Madera Canal will be conducted at this time.

The cost of this analysis will be borne by Reclamation under the CVP Baseline water quality monitoring program.

Water Quality Data Review and Management

All water quality data must be sent to Reclamation for review, verification, and approval. All water quality data will be entered into a database to be maintained by Reclamation. All field notes and

laboratory water quality analytical reports will be kept by the Authority. All water quality data will be available upon request to the Contractor and other interested parties.

Revision

This policy is subject to review and modification by Reclamation and the Authority. Reclamation and the Authority reserve the right to change the water quality monitoring requirements for any non-project water to be conveyed in the Friant-Kern and Madera Canals.

Table 1. Water Quality Monitoring Requirements – Friant Division, Central Valley Project

Type of Water	Location	Frequency	Constituents Measured
Project Water	Friant	January, April, June, October	Title 22 and bacterial constituents (1) (2)
	Lake Woolomes	January, April, June, October	Title 22 and bacterial constituents (1) (2)
Type A Non-Project Water		Every year	Title 22 and bacterial constituents (1) (2)
Type B Non-Project Water		Every year	Title 22 and bacterial constituents (1) (2)
		Every month (5)	Constituents of concern (5)
		Every week (5)	EC, turbidity, etc. (3) (5)
Type C Non-Project Water		None required	
Project Water	Upstream of each Type B discharge (4)	Every week (5)	EC, turbidity, etc. (3) (5)
	Downstream of each Type B discharge (4)	Every week (5)	EC, turbidity, etc. (3) (5)

Revised: 08/16/2007 SCC-107

(1) California Department of Health Services, California Code of Regulations, Title 22, Division 4, Chapter 15, Domestic Water Quality and Monitoring *http://www.dhs.ca.gov/ps/ddwem/publications/Regulations/regulations_index.htm.*

(2) Cryptosporidium, Giardia, total coliform bacteria

(3) Field measurements

(4) Location to be determined by the Contracting Officer

(5) To be determined by the Contracting Officer, if necessary

This water quality monitoring program is subject to change at any time by the Contracting Officer

Table 2. Water Quality Standards, Title 22

Constituent	Units	Maximum Contaminant Level	Recommended Analytical Method	Detection Limit for Reporting	CAS Registry Number
Primary Constituents (CCR § 64431)					
Aluminum	mg/L	1. [1]	EPA 200.7	0.05 [2]	7429-90-5
Antimony	mg/L	0.006 [1]	EPA 200.8	0.006 [2]	7440-36-0
Arsenic	mg/L	0.010 [1]	EPA 200.8	0.002 [2]	7440-38-2
Asbestos	MFL	7 [1]	EPA 100.2	0.2 MFL>10µm [2]	1332-21-4
Barium	mg/L	1. [1]	EPA 200.7	0.1 [2]	7440-39-3
Beryllium	mg/L	0.004 [1]	EPA 200.7	0.001 [2]	7440-41-7
Cadmium	mg/L	0.005 [1]	EPA 200.7	0.001 [2]	7440-43-9
Chromium	mg/L	0.05 [1]	EPA 200.7	0.01 [2]	7440-47-3
Cyanide	mg/L	0.15 [1]	EPA 335.4	0.1 [2]	57-12-5
Fluoride	mg/L	2.0 [1]	EPA 300.1	0.1 [2]	16984-48-8
Hexavalent chromium	mg/L	0.010 [1]	EPA 218.7	0.001 [2]	18540-29-9
Mercury	mg/L	0.002 [1]	EPA 245.1	0.001 [2]	7439-97-6
Nickel	mg/L	0.1 [1]	EPA 200.7	0.01 [2]	7440-02-0
Nitrate (as NO_3)	mg/L	45. [1]	EPA 300.1	0.4 [2]	7727-37-9
Nitrate + Nitrite (sum as nitrogen)	mg/L	10. [1]	EPA 353.2	[2]	14797-55-8
Nitrite (as nitrogen)	mg/L	1. [1]	EPA 300.1	0.4 [2]	14797-65-0
Perchlorate	mg/L	0.006 [1]	EPA 314/331/332	0.004 [2]	14797-73-0
Selenium	mg/L	0.05 [1]	EPA 200.8	0.005 [2]	7782-49-2

Constituent	Units	Maximum Contaminant Level	Recommended Analytical Method	Detection Limit for Reporting	CAS Registry Number
Thallium	mg/L	0.002 [1]	EPA 200.8	0.001 [2]	7440-28-0
Secondary Constituents (CCR § 64449)					
Aluminum	mg/L	0.2 [6]	EPA 200.7	0.05 [2]	7429-90-5
Chloride	mg/L	250/500/600 [7]	EPA 300.1		16887-00-6
Color	units	15 [6]	SM 2120 B		E-11712
Copper	mg/L	1.0 [6]	EPA 200.7	0.050 [10]	7440-50-8
Foaming Agents (MBAS)	mg/L	0.5 [6]	SM 5540 C		E-14562
Iron	mg/L	0.3 [6]	EPA 200.7		7439-89-6
Manganese	mg/L	0.05 [6]	EPA 200.7		7439-96-5
Methyl-*tert*-butyl ether (MTBE)	mg/L	0.005 [6]	EPA 524.2	0.003 [5]	1634-04-4
Odor – Threshold	Units	3 [6]	SM 2150 B		E-11734
Silver	mg/L	0.1 [6]	EPA 200.7		7440-22-4
Specific Conductance (EC)	µS/cm	900/1600/2200 [7]	SM 2510 B		E-10184
Sulfate	mg/L	250/500/600 [7]	EPA 300.1		14808-79-8
Thiobencarb	mg/L	0.001 [6]	EPA 525.2	0.001 [5]	28249-77-6
Total Dissolved Solids (TDS)	mg/L	500/1000/1500 [7]	SM 2540 C		E-10173
Turbidity	Units	5 [6]	EPA 190.1/SM2130B		E-10617
Zinc	mg/L	5.0 [6]	EPA 200.7		7440-66-6
Other Required Analyses (CCR § 64449 (b)(2); CCR § 64670; CCR § 64678)					
Bicarbonate	mg/L	[8]	SM 2320B		
Calcium	mg/L	[8,9]	SM3111B		7440-70-2
Carbonate	mg/L	[8]	SM 2320B		

Constituent	Units	Maximum Contaminant Level	Recommended Analytical Method	Detection Limit for Reporting	CAS Registry Number
Copper	mg/L	1.3 [12]	EPA 200.7	0.050 [10]	7440-50-8
Hardness	mg/L	[8]	SM 2340 B		E-11778
Hydroxide alkalinity	mg/L	[8,9]	SM 2320B		
Lead	mg/L	0.015 [11]	EPA 200.8	0.005 [10]	7439-92-1
Magnesium	mg/L	[8]	EPA 200.7		7439-95-4
Orthophosphate	mg/L	[9]	EPA 365.1		
pH	units	[8,9]	EPA 150.1		
Silica	mg/L	[9]	EPA 200.7		7631-86-9
Sodium	mg/L	[8]	EPA 200.7		7440-23-5
Temperature	degrees C	[9]	SM 2550		
Radiochemistry (CCR § 64442)					
Radioactivity, Gross Alpha	pCi/L	15 [3]	SM 7110C	3 [3]	12587-46-1
Microbiology					
Cryptosporidium	org/liter	No MCL, measure for presence (surface water only)			137259-50-8
Fecal Coliform	MPN/100ml	No MCL, measure for presence (surface water only)			E-761692
Giardia	org/liter	No MCL, measure for presence (surface water only)			137259-49-5
Total Coliform bacteria	MPN/100ml	No MCL, measure for presence (surface water only)			E-761700
Organic Chemicals (CCR § 64444)					
(a) Volatile Organic Chemicals (VOCs)					
Benzene	mg/L	0.001 [4]	EPA 524.2	0.0005 [5]	71-43-2
Carbon Tetrachloride	mg/L	0.0005 [4]	EPA 524.2	0.0005 [5]	56-23-5
1,2-Dichlorobenzene	mg/L	0.6 [4]	EPA 524.2	0.0005 [5]	95-50-1
1,4-Dichlorobenzene	mg/L	0.005 [4]	EPA 524.2	0.0005 [5]	106-46-7
1,1-Dichloroethane	mg/L	0.005 [4]	EPA 524.2	0.0005 [5]	75-34-3
1,2-Dichloroethane	mg/L	0.0005 [4]	EPA 524.2	0.0005 [5]	107-06-2

Constituent	Units	Maximum Contaminant Level	Recommended Analytical Method	Detection Limit for Reporting	CAS Registry Number
1,1-Dichloroethylene	mg/L	0.006 [4]	EPA 524.2	0.0005 [5]	75-35-4
cis-1,2-Dichloroethylene	mg/L	0.006 [4]	EPA 524.2	0.0005 [5]	156-59-2
trans-1,2-Dichloroethylene	mg/L	0.01 [4]	EPA 524.2	0.0005 [5]	156-60-5
Dichloromethane	mg/L	0.005 [4]	EPA 524.2	0.0005 [5]	75-09-2
1,2-Dichloropropane	mg/L	0.005 [4]	EPA 524.2	0.0005 [5]	78-87-5
1,3-Dichloropropene	mg/L	0.0005 [4]	EPA 524.2	0.0005 [5]	542-75-6
Ethylbenzene	mg/L	0.3 [4]	EPA 524.2	0.0005 [5]	100-41-4
Methyl-*tert*-butyl ether (MTBE)	mg/L	0.013 [4]	EPA 524.2	0.003 [5]	1634-04-4
Monochlorobenzene	mg/L	0.07 [4]	EPA 524.2	0.0005 [5]	108-90-7
Styrene	mg/L	0.1 [4]	EPA 524.2	0.0005 [5]	100-42-5
1,1,2,2-Tetrachloroethane	mg/L	0.001 [4]	EPA 524.2	0.0005 [5]	79-34-5
Tetrachloroethylene (PCE)	mg/L	0.005 [4]	EPA 524.2	0.0005 [5]	127-18-4
Toluene	mg/L	0.15 [4]	EPA 524.2	0.0005 [5]	108-88-3
1,2,4-Trichlorobenzene	mg/L	0.005 [4]	EPA 524.2	0.0005 [5]	120-82-1
1,1,1-Trichloroethane	mg/L	0.200 [4]	EPA 524.2	0.0005 [5]	71-55-6
1,1,2-Trichloroethane	mg/L	0.005 [4]	EPA 524.2	0.0005 [5]	79-00-5
Trichloroethylene (TCE)	mg/L	0.005 [4]	EPA 524.2	0.0005 [5]	79-01-6
Trichlorofluoromethane	mg/L	0.15 [4]	EPA 524.2	0.005 [5]	75-69-4
1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/L	1.2 [4]	EPA 524.2	0.01 [5]	76-13-1
Vinyl Chloride	mg/L	0.0005 [4]	EPA 524.2	0.0005 [5]	75-01-4
Xylenes	mg/L	1.750[3] [4]	EPA 524.2	0.0005 [5]	1330-20-7

[3] MCL is for either a single isomer or the sum of the isomers.

Constituent	Units	Maximum Contaminant Level	Recommended Analytical Method	Detection Limit for Reporting	CAS Registry Number
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)					
Alachlor	mg/L	0.002 [4]	EPA 508.1	0.001 [5]	15972-60-8
Atrazine	mg/L	0.001 [4]	EPA 508.1	0.0005 [5]	1912-24-9
Bentazon	mg/L	0.018 [4]	EPA 515	0.002 [5]	25057-89-0
Benzo(a)pyrene	mg/L	0.0002 [4]	EPA 508.1	0.001 [5]	15972-60-8
Carbofuran	mg/L	0.018 [4]	EPA 508.1	0.0005 [5]	1912-24-9
Chlordane	mg/L	0.0001 [4]	EPA 515	0.002 [5]	25057-89-0
2,4-D	mg/L	0.07 [4]	EPA 525.2	0.0001 [5]	50-32-8
Dalapon	mg/L	0.2 [4]	EPA 531.1-2	0.005 [5]	1563-66-2
Dibromochloropropane (DBCP)	mg/L	0.0002 [4]	EPA 505	0.0001 [5]	57-74-9
Di(2-ethylhexyl)adipate	mg/L	0.4 [4]	EPA 515.1-4	0.01 [5]	94-75-7
Di(2-ethylhexyl)phthalate	mg/L	0.004 [4]	EPA 515.1-4	0.01 [5]	75-99-0
Dinoseb	mg/L	0.007 [4]	EPA 504.1	0.00001 [5]	96-12-8
Diquat	mg/L	0.02 [4]	EPA 525.2	0.005 [5]	103-23-1
Endothall	mg/L	0.1 [4]	EPA 525.2	0.003 [5]	117-81-7
Endrin	mg/L	0.002 [4]	EPA 515.1-4	0.002 [5]	88-85-7
Ethylene Dibromide (EDB)	mg/L	0.00005 [4]	EPA 549.2	0.004 [5]	85-00-7
Glyphosate	mg/L	0.7 [4]	EPA 548.1	0.045 [5]	145-73-3
Heptachlor	mg/L	0.00001 [4]	EPA 505	0.0001 [5]	72-20-8
Heptachlor Epoxide	mg/L	0.00001 [4]	EPA 504.1	0.00002 [5]	206-93-4
Hexachlorobenzene	mg/L	0.001 [4]	EPA 547	0.025 [5]	1071-83-6
Hexachlorocyclopentadiene	mg/L	0.05 [4]	EPA 505	0.00001 [5]	76-44-8
Lindane (gamma-BHC)	mg/L	0.0002 [4]	EPA 505	0.00001 [5]	1024-57-3
Methoxychlor	mg/L	0.03 [4]	EPA 505	0.0005 [5]	118-74-1

Constituent	Units	Maximum Contaminant Level	Recommended Analytical Method	Detection Limit for Reporting	CAS Registry Number
Molinate	mg/L	0.02 [4]	EPA 505	0.001 [5]	77-47-4
Oxamyl	mg/L	0.05 [4]	EPA 505	0.0002 [5]	58-89-9
Pentachlorophenol	mg/L	0.001 [4]	EPA 505	0.01 [5]	72-43-5
Picloram	mg/L	0.5 [4]	EPA 525.2	0.002 [5]	2212-67-1
Polychlorinated Biphenyls (PCBs)	mg/L	0.0005 [4]	EPA 531.1-2	0.02 [5]	23135-22-0
Simazine	mg/L	0.004 [4]	EPA 515.1-4	0.0002 [5]	87-86-5
Thiobencarb	mg/L	0.07 [4]	EPA 515.1-4	0.001 [5]	1918-02-1
Toxaphene	mg/L	0.003 [4]	EPA 505	0.0005 [5]	1336-36-3
1,2,3-Trichloropropane (TCP)	mg/L	0.000005 [4]	EPA 508.1	0.001 [5]	122-34-9
2,3,7,8-TCDD (Dioxin)	mg/L	$3x10^{-8}$ [4]	EPA 525.2	0.001 [5]	28249-77-6
2,4,5-TP (Silvex)	mg/L	0.05 [4]	EPA 505	0.001 [5]	8001-35-2

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Notes for Table 2:

Recommended Analytical Methods: https://www.nemi.gov/home/

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. Maximum Contaminant Levels, Inorganic Chemicals
[2] Title 22. Table 64432-A. Detection Limits for Purpose of Reporting (DLRs) for Regulated Inorganic Chemicals
[3] Title 22. Table 644442. Radionuclide Maximum contaminant Levels (MCLs) and Detection Levels for Reporting (DLRs)
[4] Title 22. Table 64444-A. Maximum Contaminant Levels, Organic Chemicals
[5] Title 22. Table 64445.1-A. Detection Limits for Reporting (DLRs) for Regulated Organic Chemicals
[6] Title 22. Table 64449-A. Secondary Maximum Contaminant Levels "Consumer Acceptance Levels"
[7] Title 22. Table 64449-B. Secondary Maximum Contaminant Levels "Consumer Acceptance Levels"
[8] Title 22. § 64449-B.(b)(2)
[9] Title 22. § 64670.(c)
[10] Title 22. Table 64678-A. DLRs for Lead and Copper
[11] Title 22. § 64678-A. (d) Lead Action Level
[12] Title 22. § 64678-A. (e) Copper Action Level

Abbreviations

MFL Million fibers per liter; MCL for fibers exceeding 10 µm in length
µg/L Micrograms per liter or parts per billion

Table 3. Approved Laboratory List for the Mid-Pacific Region Quality Assurance and Data Management Branch (MP-156) Environmental Monitoring and Hazardous Materials Branch (MP-157)

Alpha Analytical Laboratories, Inc.	Address	208 Mason Street, Ukiah, CA 95482
	Contact	Robbie Phillips
	P/F	916-686-5190
	Email	robbie@alpha-labs.com
	Methods	*Inorganics in Water, Organics in Water*

APPL Laboratory	Address	908 North Temperance Avenue, Clovis, CA 93611
	Contact	Chue Moua, Project Manager
	P/F	(559) 275-2175 /direct: (559) 862-2155
	Email	cmoua@applinc.com
	Methods	*Inorganics in Water/Soil, Organics in Water/Soil*

Basic Laboratory	Address	2218 Railroad Avenue Redding, CA 96001
	Contact	Josh Kirkpatrick, Nathan Hawley, Melissa Hawley
	P/F	(530) 243-7234 / (530) 243-7494
	Email	jkirkpatrick@basiclab.com (QAO and PM), nhawley@basiclab.com, mhawley@basiclab.com (invoices), poilar@basiclab.com (sample custody), khawley@basiclab.com (sample custody)
	Methods	*Inorganics in Water/Soil, Organics in Soil, Hazardous Waste in Water/Soil*

Brooks Applied Labs	Address	18804 North Creek Parkway, Bothell, WA 98011
	Contact	Jeremy Maute
	P/F	206-632-6206 / 206-632-6016
	Email	jeremy@brooksapplied.com
	Methods	*Selenium Speciation*

Calscience Environmental Laboratories (under Eurofins ownership)	Address	7440 Lincoln Way, Garden Grove, CA 92841
	Contact	Don Burley
	P/F	714-895-5494 (ext. 203)/714-894-7501
	Email	DBurley@calscience.com
	Methods	*Organics in Water*

Eurofins Eaton Analytical, Inc. (formerly MWH Laboratories)	Address	750 Royal Oaks Drive Ste. 100, Monrovia, CA 91016 180 Blue Ravine Rd., Folsom, CA 95630
	Contact	Rosalynn Dang
	P/F	(626) 386-1250, Linda - (626) 386-1163, Rita cell (916) 996-5929, Rick - (626) 386-1157
	Email	RosalynnDang@EurofinsET.com
	Methods	*Organics in Water*

Fruit Growers Laboratory	Address	853 Corporation Street, Santa Paula, CA 93060
	Contact	David Terz, QA Director
	P/F	(805) 392-2024 / (805) 525-4172
	Email	davidt@fglinc.com
	Methods	*Inorganics in Water (Gross Alpha)*

Oilfield Environmental & Compliance	Address	307 Roemer Way Ste 300, Santa Maria, CA 93454
	Contact	Will update when assigned a PM
	P/F	805-922-4772
	Email	info@oecusa.com
	Methods	*(Approval Pending) Hazardous Waste in Water/Soil*

Pacific EcoRisk	Address	2250 Codelia Road, Fairfield, CA 94534
	Contact	Stephen L. Clark
	P/F	(707) 207-7760 / (707) 207-7916
	Email	slclark@pacificecorisk.com
	Methods	*Toxicity in Water/Sediments*

Physis	Address	1904 East Wright Circle, Anaheim, CA 92806
	Contact	Will update when assigned a PM
	P/F	1-714-602-5320 ext 204
	Email	markbaker@physislabs.com
	Methods	*(Approval Pending) Inorganics in Soil*

South Dakota Agricultural Laboratories	Address	Brookings Biospace, 1006 32nd Avenue, Suites 103,105, Brookings, SD 57006-4728
	Contact	Regina Wixon, Annie Mouw (sample custodian)
	P/F	(605) 692-7325 / (605) 692-7326
	Email	regina.wixon@sdaglabs.com, annie.mouw@sdaglabs.com
	Methods	*Selenium in Water/Soil/Sediments/Tissue (Plant/Animal)*

Western Environmental Testing Laboratories	Address	475 East Greg Street # 119 Sparks, NV 89431
	Contact	Logan Greenwood (PM), Andy Smith (QA Manager)
	P/F	(775) 355-0202 / (775) 355-0817
	Email	logang@wetlaboratory.com, andy@wetlaboratory.com
	Methods	*Inorganics in Water*

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