

RECLAMATION

Managing Water in the West

FINDING OF NO SIGNIFICANT IMPACT

Temporary Change in Water Quality Requirements for the Friant-Kern Canal Groundwater Pump-in Program

FONSI-14-043



Mission Statements

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor 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.

BUREAU OF RECLAMATION
South-Central California Area Office, Fresno, California

FONSI-14-043

**Temporary Change in Water Quality
Requirements for the Friant-Kern Canal
Groundwater Pump-in Program**

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Introduction

In accordance with section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, as amended, the South-Central California Area Office of the Bureau of Reclamation (Reclamation), has determined that an environmental impact statement is not required for the temporary change in water quality requirements for the Friant-Kern Canal (FKC) Groundwater Pump-in Program. This Findings of No Significant Impact (FONSI) is supported by Reclamation's Environmental Assessment (EA)-14-043, *Temporary Change in Water Quality Requirements for the Friant-Kern Canal Groundwater Pump-in Program*, and is hereby incorporated by reference.

Reclamation provided the public with an opportunity to comment on the Draft FONSI and Draft EA between October 30, 2014 and November 13, 2014. Comment letters were received from Arvin-Edison Water Storage District and Delano-Earlimart Irrigation District. Comment letters and Reclamation's response to comments are included in Appendix D of EA-14-043.

Background

In 2014, due to ongoing drought conditions and reduced water supplies, Friant Division Central Valley Project (CVP) contractors requested approval from Reclamation to pump cumulatively up to 50,000 acre-feet (AF) of groundwater into the FKC over a two-year period (referred to as the FKC Groundwater Pump-in Program). Reclamation analyzed the two-year FKC Groundwater Pump-in Program in EA-14-011. Based on specific environmental commitments required for the FKC Groundwater Pump-in Program, including water quality requirements, Reclamation determined that the cumulative introduction, storage, and conveyance of up to 50,000 AF per year of groundwater will not significantly affect the quality of the human environment and a FONSI was executed on May 2, 2014.

All wells that participate in the FKC Groundwater Pump-in Program are required to meet Reclamation's water quality requirements specifically described in Reclamation's *Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals*. Due to limited water supplies available to the Friant Division, the Friant Water Authority (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 established by the State of California for nitrates.

Proposed Action

Reclamation proposes to temporarily allow the introduction of groundwater from wells with high nitrates through the end of the FKC Groundwater Pump-in Program (February 29, 2016), subject to the conditions described in Section 2.2 of EA-14-043.

Findings

Reclamation's finding that implementation of the Proposed Action will result in no significant impact to the quality of the human environment is supported by the following findings:

Resources Eliminated from Detailed Analysis

As described in Section 3.1 of EA-14-043, Reclamation analyzed the affected environment and determined that the Proposed Action does not have the potential to cause direct, indirect, or cumulative adverse effects to the following resources: cultural resources, Indian Sacred Sites, Indian Trust Assets, land use, socioeconomic resources, environmental justice, air quality or global climate.

Water Resources

Under the Proposed Action, 33 wells that exceed the 45 mg/L maximum contaminate level (MCL) for nitrates will temporarily be allowed to introduce groundwater into the FKC for use by Friant Division contractors through the term of the FKC Groundwater Pump-in Program (February 28, 2016). Introduced water will be within the 50,000 AF per year limit placed on the entire pump-in program. In order to prevent potential impacts to municipal and industrial (M&I) users downstream of pump-in locations, Reclamation has required weekly monitoring at five key locations (see Figure 1 in EA-14-043) to ensure that nitrates in the FKC does not exceed 20 mg/L, less than half the MCL for nitrates established by the State of California for drinking water standards. In addition, Reclamation has also required that salinity (measured as Electrical Conductivity [EC]) not exceed 900 micromhos per centimeter (µmhos/cm). If the concentration of nitrates or salinity in the FKC exceeds these thresholds, the Authority will incrementally direct the well operators with the highest levels of nitrates to stop pumping into the FKC until thresholds are met.

Biological Resources

Nitrate is an important useable source of nitrogen for living organisms, but may be toxic in certain concentrations. Nitrate is the least toxic of the three major nitrogenous compounds (ammonia, nitrate, and nitrite) that are commonly found in water supplies, so its effects on wildlife have not been as extensively studied. The United States Environmental Protection Agency only has nitrate criteria for drinking water and has not yet established criteria for maximum nitrate concentrations necessary to protect aquatic life. Studies that have been conducted on the effects of nitrate to freshwater aquatic life have recommended maximum

nitrate levels ranging from 21.7 mg NO₃⁻/L to 40 mg NO₃⁻/L (Monson & Preimesberger 2010; Nordin & Pommen 2001). The maximum recommended nitrate concentration for terrestrial organisms is 100 mg NO₃⁻/L (Nordin & Pommen 2001). However, as described in Section 2.2 of EA-14-043, the total concentration of nitrates in the FKC will not be allowed to exceed 20 mg/L, and will therefore remain within the suggested concentrations necessary to protect aquatic and terrestrial wildlife.

Although the FKC may be occasionally occupied by non-native fish like bass, blue-gill and minnows, the canal's fast flows and steep-sided concrete channel do not provide much suitable habitat for aquatic wildlife. No federally listed or proposed aquatic species occur within the FKC, so none will be affected by increased nitrate concentrations within the FKC. The water associated with the Proposed Action will only be used to irrigate agricultural lands or be used for M&I purposes, which will maintain the baseline conditions for listed species. No native or fallowed lands, untilled for three or more years, will be converted as a result of the Proposed Action. Land use patterns of cultivated and fallowed fields that could provide suitable habitat for listed species or birds protected under the Migratory Bird Treaty Act (MBTA) will also not be changed as a result of the Proposed Action. No ground disturbance, construction, or alteration of natural stream courses will be required to complete the Proposed Action. There is no designated critical habitat within the Action area, so none will be affected. With the implementation of the environmental commitments listed in Table 1, Reclamation has determined that the Proposed Action will result in *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 MBTA (16 U.S.C. 703 et. seq.).

Cumulative Impacts

Cumulative impacts result from incremental impacts of the Proposed Action or No Action alternative when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. To determine whether cumulatively significant impacts are anticipated from the Proposed Action or the No Action alternative, the incremental effect of both alternatives were examined together with impacts from past, present, and reasonably foreseeable future actions in the same geographic area.

Water Resources

Reclamation has reviewed existing or foreseeable projects in the same geographic area that could affect or could be affected by the Proposed Action as Reclamation and CVP contractors have been working on various drought-related projects, including this one, in order to manage limited water supplies due to current hydrologic conditions and regulatory requirements. This and similar projects will have a cumulative beneficial effect on water supply during this critically dry year.

As in the past, hydrological conditions and other factors are likely to result in fluctuating water supplies which drive requests for water service actions. Water districts provide water to their customers based on available water supplies and timing, while attempting to minimize costs. Farmers irrigate and grow crops based on these conditions and factors, and a myriad of water service actions are approved and executed each year to facilitate water needs. It is likely that through the end of the FKC Groundwater Pump-in Program (February 29, 2016), more districts will request exchanges, transfers, and Warren Act contracts (conveyance of non-CVP water in CVP facilities) due to hydrologic conditions. Each water service transaction involving Reclamation undergoes environmental review prior to approval.

The Proposed Action and other similar projects will not hinder the normal operations of the CVP and Reclamation's obligation to deliver water to its contractors or to local fish and wildlife habitat. Since the Proposed Action will not involve construction or modification of facilities, there will be no cumulative impacts to existing facilities or other contractors.

Capacity in Friant Division facilities is limited, and if many water actions were scheduled to take place concurrently they could cumulatively compete for space. However, non-CVP water will only be allowed to enter these facilities if excess capacity is available. As such, the Proposed Action will not limit the ability of other users to make use of the facilities.

The addition of groundwater with high nitrates is not expected to cause the concentration of nitrates in the canal to exceed the California Drinking Water Standard¹ of 45 mg/L. However, the Authority and Reclamation will continue to measure the concentration of nitrates and salinity at five places along the canal. As mentioned above, the pumping will be restricted if the in-stream concentrations exceed 20 mg/L nitrates as NO₃ or 900 µmhos/cm electrical conductivity. If these thresholds are exceeded, the Authority will incrementally direct the well operators with the highest levels of nitrates to stop pumping into the FKC until thresholds are met.

Biological Resources

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

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.

RECLAMATION

Managing Water in the West

Final Environmental Assessment

Temporary Change in Water Quality Requirements for the Friant-Kern Canal Groundwater Pump-in Program

EA-14-043



U.S. Department of the Interior
Bureau of Reclamation

December 2014

Mission Statements

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Section 1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the Draft Finding of No Significant Impact (FONSI) and Draft Environmental Assessment (EA) between October 30, 2014 and November 13, 2014. Comment letters were received from Arvin-Edison Water Storage District and Delano-Earlimart Irrigation District. Comment letters and Reclamation's response to comments are included in Appendix D. 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 ongoing drought conditions and reduced water supplies, Friant Division Central Valley Project (CVP) contractors requested approval from Reclamation to pump cumulatively up to 50,000 acre-feet (AF) of groundwater into the Friant-Kern Canal (FKC) over a two-year period (referred to as the FKC Groundwater Pump-in Program). Reclamation analyzed the two-year FKC Groundwater Pump-in Program in EA-14-011 (Reclamation 2014). Based on specific environmental commitments required for the FKC Groundwater Pump-in Program, including water quality requirements, Reclamation determined that the cumulative introduction, storage, and conveyance of up to 50,000 AF per year of groundwater would not significantly affect the quality of the human environment and a FONSI was executed on May 2, 2014.

All wells that participate in the FKC Groundwater Pump-in Program are required to meet Reclamation's water quality requirements specifically described in Reclamation's *Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals* (see Appendix A). Due to limited water supplies available to the Friant Division, the Friant Water Authority (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.

1.2 Need for the Proposed Action

The State of California is currently experiencing unprecedented water management challenges due to severe drought and regulatory actions. Both the State and Federal water projects are forecasting very low storage conditions in all major reservoirs. In addition, CVP contractors experienced reduced water supply allocations in recent years due to hydrologic conditions and regulatory requirements. Based on hydrologic conditions, Reclamation declared an

allocation of 0 percent Class 1 and 0 percent Class 2 supplies for Friant Division CVP contractors for the 2014 Contract Year¹. As a result, Friant Division contractors (Figure 1) have a need to find additional sources of water to meet existing demands.

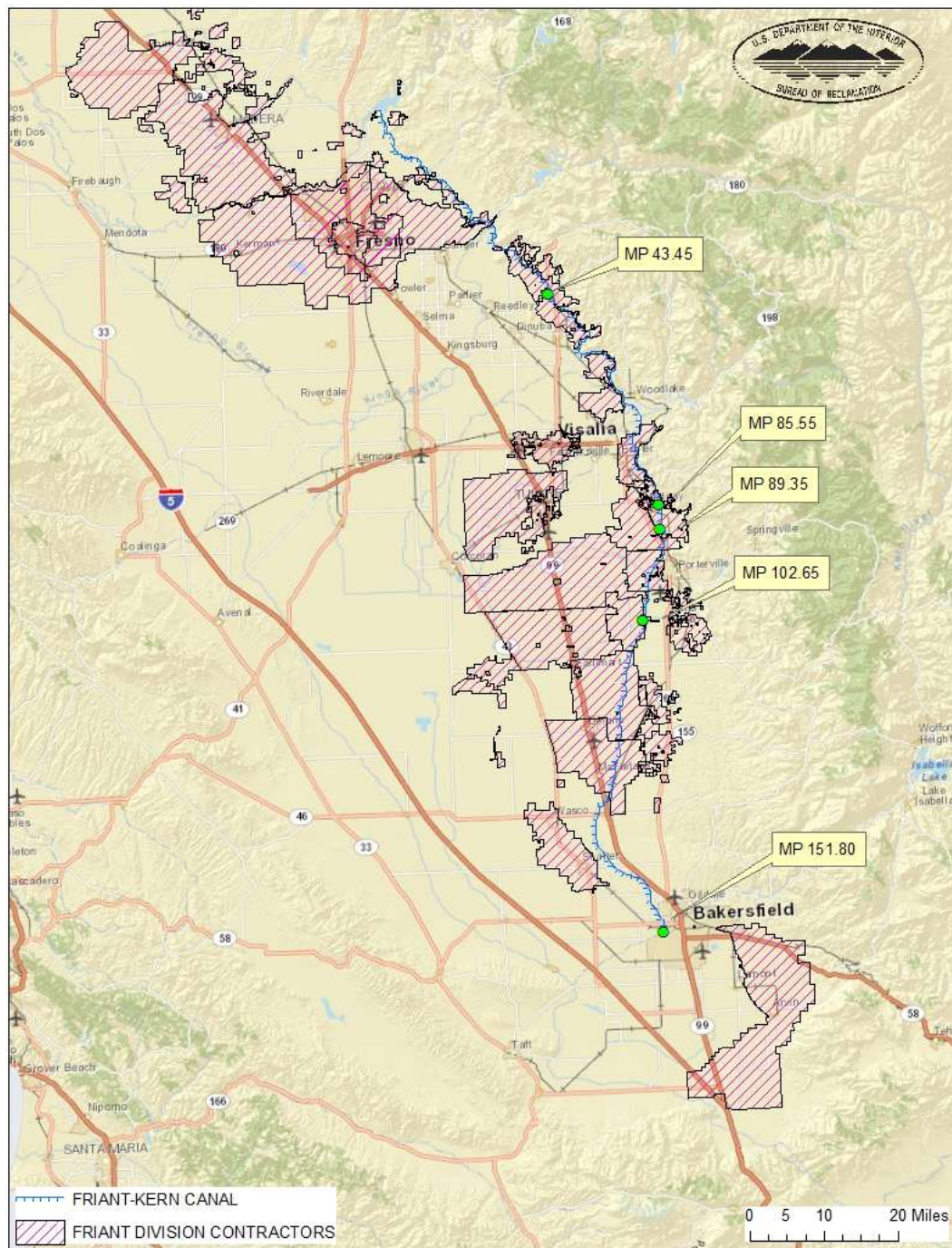


Figure 1 Proposed Action area

¹ A Contract Year is from March 1 through February 28/29 of the following year.

Section 2 Alternatives Including the Proposed Action

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

2.1 No Action Alternative

Reclamation would not temporarily allow the introduction of groundwater from wells with high nitrates through the end of the FKC Groundwater Pump-in Program. Certain Friant Division contractors would need to find other sources of water to make up for reduced CVP allocations.

2.2 Proposed Action

Under the Proposed Action, Reclamation would temporarily allow the introduction of groundwater from wells with high nitrates through the end of the FKC Groundwater Pump-in Program (February 29, 2016), 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 Authority near the following municipal and industrial (M&I) diversions (see Figure 1):

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

Each weekly collection will consist of one sample from each location, plus one duplicate sample (total of six samples per week). All samples would be collected in bottles provided by Reclamation and delivered to the South-Central California Area Office by 5pm on Thursday. Reclamation will incorporate two additional samples for quality assurance. The Authority will pay for all water sampling

conducted for this variance. Each sample will be tested for nitrates (as NO₃) with a minimum detection level of 1 microgram per liter (µg/L) and specific conductance (as a measure of salinity). If the concentration of nitrates or salinity exceeds the parameters listed above, the Authority will incrementally direct the well operators with the highest levels of nitrates to stop pumping into the FKC until thresholds are met. The Authority, as Reclamation's agent, will determine which wells should be shut off.

In addition to the conditions described above and the criteria included in Appendix A, the Authority and participating FKC contractors shall implement the environmental commitments listed in Table 1 as part of the FKC Groundwater Pump-in Program.

Table 1 Environmental Protection Measures and Commitments

Resource	Protection Measure
Air Quality	All pumps to be used shall meet the applicable emission standards set by the San Joaquin Valley Air Pollution Control District.
Biological Resources	No native or untillied land (fallow for three consecutive years or more) may be cultivated with this water without additional environmental analysis and approval.
	The Proposed Action cannot alter the flow regime of natural waterways or natural watercourses such as rivers, streams, creeks, ponds, pools, wetlands, etc., so as to have a detrimental effect on fish or wildlife or their habitats.
	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 (MBTA).
Water Resources	Districts in Fresno and Kern Counties shall comply with applicable ordinances regarding transfer of pumped groundwater outside of the county and/or aquifer zone. Kings and Tulare Counties do not have such ordinances.
Various Resources	Use of the water shall comply with all federal, state, local, and tribal law, and requirements imposed for protection of the environment and Indian Trust Assets.
	No land conversions may occur as a result of the Proposed Action.
	No new construction or modification of existing facilities may occur in order to complete the Proposed Action.
	No ground disturbance or modification of facilities would occur under the Proposed Action.

Section 3 Affected Environment and Environmental Consequences

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

The only difference between the Proposed Action analyzed in this EA and the action analyzed in the EA for the FKC Groundwater Pump-in Program (EA-14-011) is the introduction of groundwater from wells that exceed the nitrate MCL (45 mg/L as NO₃) at the wellhead. Therefore, the affected environment and environmental consequences section in this EA will focus on those changes and will not repeat information included in EA-14-011 as it is incorporated by reference into this EA.

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 direct, indirect, or cumulative adverse effects to the resources listed in Table 2.

Table 2 Resources Eliminated from Further Analysis

Resource	Reason Eliminated
Cultural Resources	The Proposed Action would not involve physical changes to the environment or construction activities that could impact cultural resources. As the Proposed Action would facilitate the flow of water through existing facilities to existing users and no construction or modification of these facilities would be needed in order to complete the Proposed Action, Reclamation has determined that these activities have no potential to cause effects to historic properties pursuant to 36 Code of Federal Regulations Part 800.3(a)(1). See Appendix B for Reclamation's determination.
Indian Sacred Sites	The Proposed Action would not limit access to ceremonial use of Indian Sacred Sites on federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites. Therefore, there would be no impacts to Indian Sacred Sites as a result of the Proposed Action.
Indian Trust Assets	The Proposed Action would not impact Indian Trust Assets as there are none in the Proposed Action area. See Appendix C for Reclamation's determination.
Land Use	The introduced groundwater would be used for existing M&I and agricultural purposes within the Friant Division supporting current land uses. No conversion of undeveloped/native land would occur.
Socioeconomic Resources	The Proposed Action would have beneficial impacts on socioeconomic resources within the Friant Division as the introduced groundwater would be used for existing M&I uses and to help sustain existing crops and maintain farming.
Environmental Justice	The Proposed Action would not cause dislocation, changes in

Resource	Reason Eliminated
	employment, or increase flood, drought, or disease nor would it disproportionately impact economically disadvantaged or minority populations.
Air Quality	No additional pumping would occur as a result of the Proposed Action beyond what was previously covered in EA-14-011, as such, there would be no additional impacts beyond those previously covered. In addition, the San Joaquin Valley Air Pollution Control District requires pumps operated within the participating districts to meet strict emission standards. With the requirement that equipment used for the Proposed Action must meet San Joaquin Valley Air Pollution Control District standards, impacts to air quality should be discountable and a conformity analysis pursuant to the Clean Air Act is not required.
Global Climate	No additional pumping would occur as a result of the Proposed Action beyond what was previously covered in EA-14-011, as such, there would be no additional impacts beyond those previously covered. In addition, no physical changes to the environment or construction would occur as a result of the Proposed Action. Global climate change is expected to have some effect on the snow pack of the Sierra Nevada and the runoff regime. Current data are not yet clear on the hydrologic changes and how they will affect the San Joaquin Valley. 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.

3.2 Water Resources

3.2.1 Affected Environment

The affected environment is the same as described in Section 3.2 of EA-14-011 (Reclamation 2014). Rather than repeating the same information that has been incorporated by reference into this document, the affected environment and environmental consequences section in this EA will focus on updates or changes.

Friant-Kern Canal Water Quality

As shown in Table 3, Reclamation tested the water in 67 wells located alongside the FKC as part of the FKC Groundwater Pump-in Program. Thirty-four of the wells meet Reclamation's current water quality standards for conveyance in the canal while 33 exceed the MCL for nitrates. The 33 wells could provide an additional supply of 34 cubic feet per second (cfs) of supplemental water for Friant water users. Other wells may be added to the list as Warren Act contracts are issued or amended.

Table 3 List of Wells Along the FKC Who May Participate

MP	District	Well Discharge (gpm)	Well Discharge (cfs)	Nitrate as NO ₃ (mg/L)
36.50	Orange Cove ID	300	0.66	45.8
38.88	Orange Cove ID	300	0.66	66.0
38.88	Orange Cove ID	350	0.77	65.8
40.37	Orange Cove ID	254	0.56	121.0
43.45	City of Orange Cove (Instream sampling point)			

MP	District	Well Discharge (gpm)	Well Discharge (cfs)	Nitrate as NO ₃ (mg/L)
46.65	Orange Cove ID	300	0.66	12.1
46.65	Orange Cove ID	300	0.66	59.5
46.65	Orange Cove ID	300	0.66	32.8
47.37	Orange Cove ID	60	0.13	121.0
50.38	Orange Cove ID	125	0.28	121.0
52.44	Orange Cove ID	2,989	6.58	121.0
81.75	Lindsay-Strathmore ID	230	0.51	52.6
84.11	Lindsay-Strathmore ID	300	0.66	49.0
84.26	Lindsay-Strathmore ID	275	0.61	53.1
85.55	Lindsay-Strathmore ID (Instream sampling point)			
86.00	Lindsay-Strathmore ID	120	0.26	1.5
86.17	Lindsay-Strathmore ID	30	0.07	50.5
86.23	Lindsay-Strathmore ID	382	0.84	46.9
86.34	Lindsay-Strathmore ID	400	0.88	61.1
86.42	Lindsay-Strathmore ID	100	0.22	87.6
86.62	Lindsay-Strathmore ID	150	0.33	98.7
86.66	Lindsay-Strathmore ID	460	1.01	43.0
86.78	Lindsay-Strathmore ID	500	1.10	51.0
87.00	Lindsay-Strathmore ID	66	0.15	110.0
87.42	Lindsay-Strathmore ID	200	0.44	120.0
87.43	Lindsay-Strathmore ID	100	0.22	95.5
87.68	Lindsay-Strathmore ID	600	1.32	121.0
88.06	Lindsay-Strathmore ID	700	1.54	90.8
88.07	Lindsay-Strathmore ID	300	0.66	87.4
88.62	Lindsay-Strathmore ID	150	0.33	78.6
88.78	Lindsay-Strathmore ID	150	0.33	93.0
88.94	Lindsay-Strathmore ID	350	0.77	78.6
88.84	Lindsay-Strathmore ID	289	0.64	115.0
89.35	City of Lindsay (Instream sampling point)			
93.57	Terra Bella ID	1,000	2.20	3.2
95.52	Terra Bella ID	750	1.65	31.6
98.12	Saucelito ID	900	1.98	7.9
98.78	Saucelito ID	425	0.94	0.6
98.79	Saucelito ID	750	1.65	3.8
101.05	Saucelito ID	730	1.61	1.0
101.90	Terra Bella ID	856	1.88	4.5
102.19	Terra Bella ID	700	1.54	5.0
102.65	Terra Bella ID	300	0.66	8.2
102.65	Terra Bella ID (Instream sampling point)			
103.19	Terra Bella ID	1,500	3.30	121.0
103.19	Saucelito ID	1,196	2.63	1.1

MP	District	Well Discharge (gpm)	Well Discharge (cfs)	Nitrate as NO ₃ (mg/L)
104.34	Saucelito ID	1,351	2.97	5.8
105.00	Saucelito ID	1,026	2.26	5.8
107.29	Delano-Earlimart ID	1,200	2.64	31.5
107.34	Delano-Earlimart ID	1,500	3.30	4.0
108.45	Delano-Earlimart ID	1,250	2.75	15.6
108.70	Delano-Earlimart ID	1,000	2.20	121.0
108.85	Delano-Earlimart ID	800	1.76	26.3
110.17	Delano-Earlimart ID	200	0.44	33.2
110.57	Delano-Earlimart ID	1,790	3.94	1.5
110.57	Delano-Earlimart ID	950	2.09	26.8
111.07	Delano-Earlimart ID	900	1.98	34.6
111.63	Delano-Earlimart ID	1,000	2.20	1.1
112.09	Delano-Earlimart ID	600	1.32	24.1
112.60	Delano-Earlimart ID	2,500	5.50	1.1
113.20	Delano-Earlimart ID	1,250	2.75	7.3
113.62	Delano-Earlimart ID	7,500	16.50	15.4
113.86	Delano-Earlimart ID	800	1.76	46.0
115.85	Delano-Earlimart ID	2,000	4.40	17.9
115.95	Delano-Earlimart ID	1,800	3.96	5.5
117.49	Delano-Earlimart ID	750	1.65	50.5
117.49	Delano-Earlimart ID	750	1.65	70.7
118.11	Delano-Earlimart ID	750	1.65	81.9
119.48	Southern San Joaquin MUD	700	1.54	1.0
120.31	Southern San Joaquin MUD	1,300	2.86	0.3
120.55	Southern San Joaquin MUD	750	1.65	45.0
151.50	Terminus at Kern River (Instream sampling point)			
Total cfs from all wells			120.27	
Total cfs from 33 wells exceeding 45 mg/L NO ₃			34.13	
ID = Irrigation District MUD = Municipal Utility District				

Nitrate concentrations at the required testing locations listed in Table 1 are shown in Figure 2. Electrical conductivity has also been measured weekly at the same sampling points are compared with the 900 μ mhos/cm limit in Figure 3. Measurements for both have been recorded since July 16, 2014.

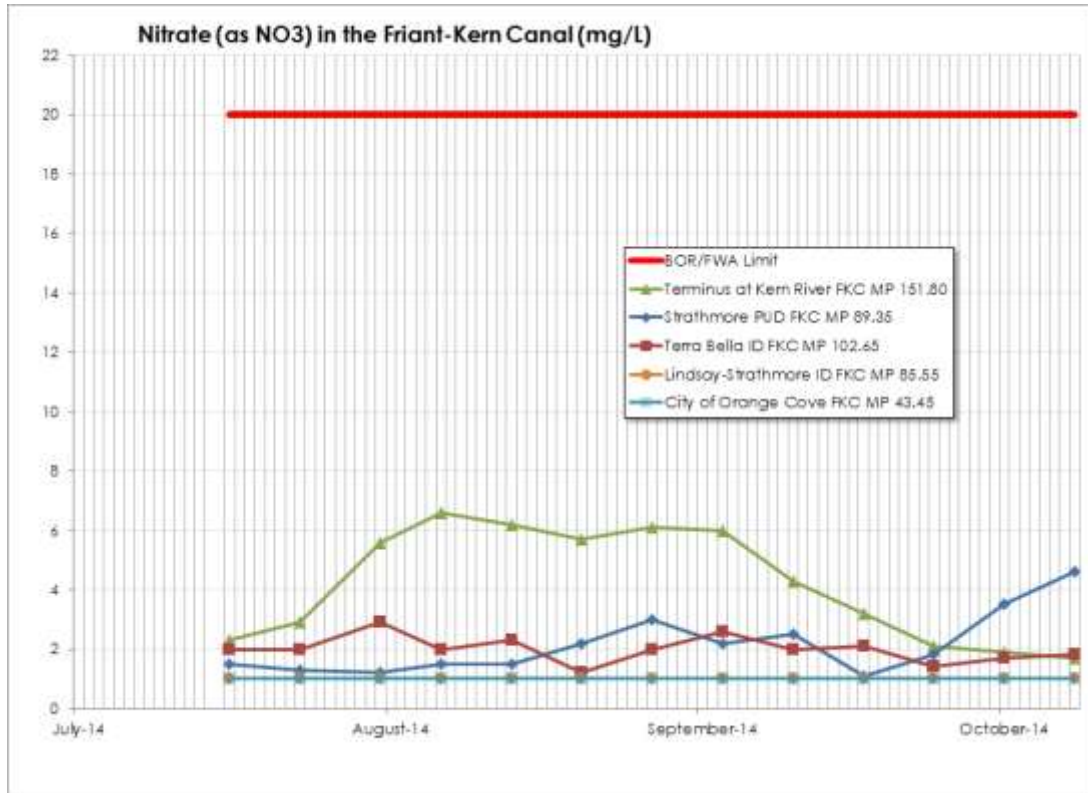


Figure 2 Nitrate Concentrations in the Friant-Kern Canal

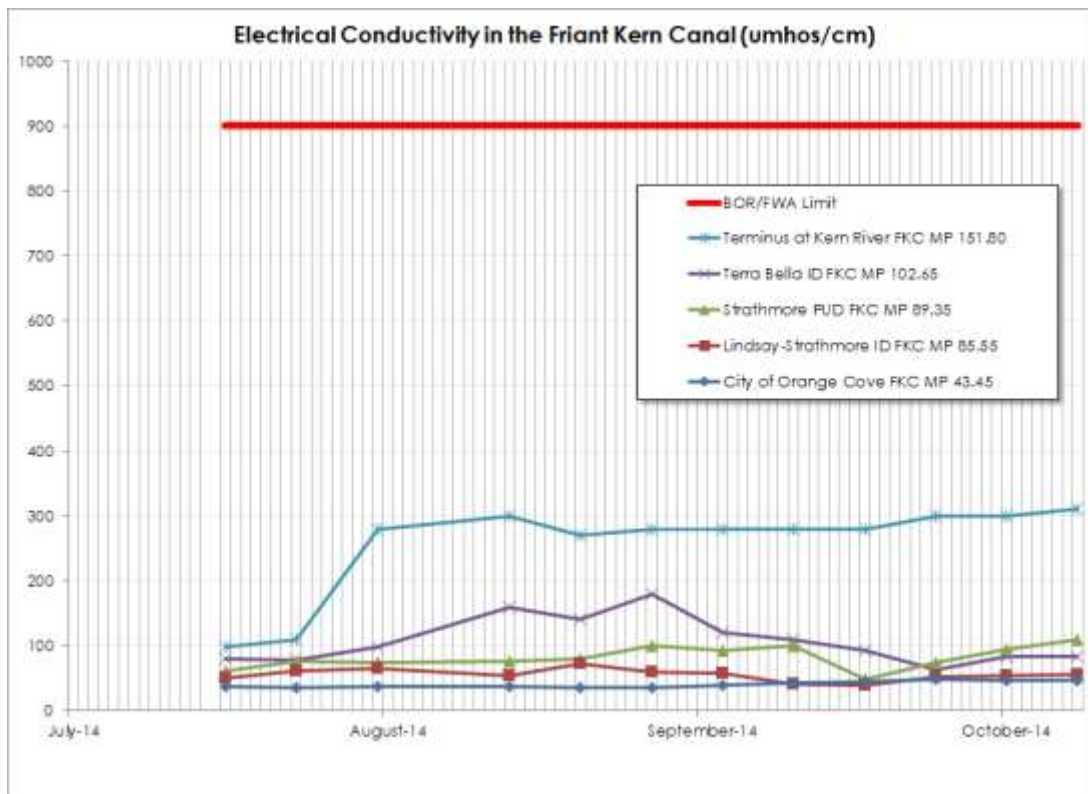


Figure 3 Electrical Conductivity in the Friant-Kern Canal

3.2.2 Environmental Consequences

No Action

Groundwater pumping under the FKC Groundwater Pump-in Program would continue for those wells that meet Reclamation's current water quality standards as previously analyzed in EA-14-011. The Authority would not convey groundwater that exceeds the 45 mg/L MCL for nitrates.

Proposed Action

Under the Proposed Action, 33 wells that exceed the 45 mg/L MCL for nitrates would temporarily be allowed to introduce groundwater into the FKC for use by Friant Division contractors through the term of the FKC Groundwater Pump-in Program (February 28, 2016). Introduced water would be within the 50,000 AF per year limit placed on the entire pump-in program. In order to prevent potential impacts to municipal and industrial (M&I) users downstream of pump-in locations, Reclamation has required weekly monitoring at five key locations (see Figure 1) to ensure that nitrates in the FKC does not exceed 20 mg/L, less than half the MCL for nitrates established by the State of California for drinking water standards. In addition, Reclamation has also required that salinity (measured as EC) not exceed 900 μ mhos/cm. If the concentration of nitrates or salinity in the FKC exceeds these thresholds, the Authority would incrementally direct the well operators with the highest levels of nitrates to stop pumping into the FKC until thresholds are met.

Cumulative Impacts

Cumulative impacts result from incremental impacts of the Proposed Action or No Action alternative when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. To determine whether cumulatively significant impacts are anticipated from the Proposed Action or the No Action alternative, the incremental effect of both alternatives were examined together with impacts from past, present, and reasonably foreseeable future actions in the same geographic area.

Reclamation has reviewed existing or foreseeable projects in the same geographic area that could affect or could be affected by the Proposed Action as Reclamation and CVP contractors have been working on various drought-related projects, including this one, in order to manage limited water supplies due to current hydrologic conditions and regulatory requirements. This and similar projects would have a cumulative beneficial effect on water supply during this critically dry year.

As in the past, hydrological conditions and other factors are likely to result in fluctuating water supplies which drive requests for water service actions. Water districts provide water to their customers based on available water supplies and

timing, while attempting to minimize costs. Farmers irrigate and grow crops based on these conditions and factors, and a myriad of water service actions are approved and executed each year to facilitate water needs. It is likely that through the end of the FKC Groundwater Pump-in Program (February 29, 2016), more districts will request exchanges, transfers, and Warren Act contracts (conveyance of non-CVP water in CVP facilities) due to hydrologic conditions. Each water service transaction involving Reclamation undergoes environmental review prior to approval.

The Proposed Action and other similar projects would not hinder the normal operations of the CVP and Reclamation's obligation to deliver water to its contractors or to local fish and wildlife habitat. Since the Proposed Action would not involve construction or modification of facilities, there would be no cumulative impacts to existing facilities or other contractors.

Capacity in Friant Division facilities is limited, and if many water actions were scheduled to take place concurrently they could cumulatively compete for space. However, non-CVP water would only be allowed to enter these facilities if excess capacity is available. As such, the Proposed Action would not limit the ability of other users to make use of the facilities.

The addition of groundwater with high nitrates is not expected to cause the concentration of nitrates in the canal to exceed the California Drinking Water Standard² of 45 mg/L. However, the Authority and Reclamation would continue to measure the concentration of nitrates and salinity at five places along the canal. As mentioned above, the pumping would be restricted if the in-stream concentrations exceed 20 mg/L nitrates as NO₃ or 900 µmhos/cm electrical conductivity. If these thresholds are exceeded, the Authority would incrementally direct the well operators with the highest levels of nitrates to stop pumping into the FKC until thresholds are met.

3.3 Biological Resources

3.3.1 Affected Environment

The Action area includes the FKC from Friant Dam south to the FKC terminus at MP 151.80, and the place-of-use for Friant Division CVP contractors included in the FKC Groundwater Pump-In Program.

Special-Status Species

Reclamation requested an official species list from the U.S. Fish and Wildlife Service (Service) on October 17, 2014 via the Sacramento field office's website, http://www.fws.gov/sacramento/es/spp_list.htm (Document

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.

number:141017110340). The list is for the following 7 ½ minute U.S. Geological Survey quadrangles which are overlapped by the Action area: Bear Mountain, Arvin, Weed Patch, Mettler, Tejon Hills, Coal Oil Canyon, Bena, Lamont, Edison, Oildale, Rosedale, Gosford, Rio Bravo, Deepwell Ranch, McFarland, Famoso, North of Oildale, Pond, Wasco NW, Wasco SW, Wasco, Fountain Springs, Ducor, Sausalito School, Delano East, Richgrove, Pixley, Alpaugh, Allensworth, Delano West, Hacienda Ranch, Frazier Valley, Success Dam, Lindsay, Cairns Corner, Porterville, Tulare, Paige, Taylor Weir, Tipton, Waukena, Corcoran, Woodlake, Ivanhoe, Exeter, Rocky Hill, Goshen, Visalia, Stokes Mountain, Orange Cove North, Wahtoke, Orange Cove South, Sanger, Malaga, Fresno South, Kearney Park, Kerman, Piedra, Friant, Clovis, Round Mountain, Herndon, Fresno North, Gravelly Ford, and Biola. The California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDDB) was also queried for records of protected species near the Action area (CNDDDB, 2014). The information collected above, in addition to information within Reclamation's files, was combined to determine the likelihood of protected species occurrence within the Action area.

Table 4 Special Status Species with the Potential to Occur in the Action area

Species	Status ¹	Effects ²	Occurrence in the Study Area ³
INVERTEBRATES			
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E	NE	Possible. There are no CNDDDB records of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve any ground-disturbance or changes in land-use and would not impact vernal pools. There would be No Effect to this species.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T	NE	Present. There are several CNDDDB records of this species along the FKC and in water districts within the Action area (CNDDDB 2014). The Proposed Action would not involve any ground-disturbance or changes in land-use and would not impact vernal pools. There would be No Effect to this species.
Critical Habitat Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	X	NE	Present. There is designated Critical Habitat for this species along the FKC near Friant, and within two water districts in southwestern Tulare County. The Proposed Action would not involve any ground disturbing activities, construction, or changes in land use and would therefore have No Effect on any of the primary constituent elements of Critical Habitat for this species.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T	NE	Present. There is a CNDDDB record of this species along the FKC in Fresno County (CNDDDB 2014). The Proposed Action would not involve any construction or changes in land use and would not impact this species' host plant, the elderberry bush. There would be No Effect to this species.

Species	Status ¹	Effects ²	Occurrence in the Study Area ³
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E	NE	Possible. There are no CNDDDB records of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve any ground-disturbance or changes in land-use and would not impact vernal pools. There would be No Effect to this species.
Critical Habitat Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	X	NE	Absent. There is no designated Critical Habitat for this species within the Action area.
FISH			
Delta smelt <i>Hypomesus transpacificus</i>	T	NE	Absent. This species is not present within the FKC. No waterways within this species range would be affected by the Proposed Action. There would be No Effect to this species.
Central Valley steelhead <i>Oncorhynchus mykiss</i>	T (NMFS)	NE	Absent. This species is not present within the FKC. No waterways within this species range would be affected by the Proposed Action. There would be No Effect to this species.
AMPHIBIANS			
California tiger salamander, Central population <i>Ambystoma californiense</i>	T	NE	Present. There are several CNDDDB records of this species within the Action area in Fresno and Tulare Counties (CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities, construction, or conversion of suitable habitat. There would be No Effect to this species.
Critical Habitat California tiger salamander, Central population <i>Ambystoma californiense</i>	X	NE	Present. There is designated Critical Habitat for this species along the FKC near Friant and within water districts in southern Fresno County. The Proposed Action would not involve any ground disturbing activities, construction, or changes in land use and would therefore have No Effect on any of the primary constituent elements of Critical Habitat for this species.
California red-legged frog <i>Rana draytonii</i>	T	NE	Absent. California red-legged frogs are believed to be extirpated from the Valley floor and there are no CNDDDB records of this species within the Action area (CNDDDB 2014; Service 2002). The Proposed Action would not involve any ground disturbance, construction, or conversion of suitable habitat. There would be No Effect to this species.
Mountain yellow-legged frog <i>Rana muscosa</i>	C	NE	Absent. This species does not occur within the Action area due to a lack of suitable habitat. The Proposed Action would not involve any ground-disturbing activities, construction, or conversion of natural lands. There would be No Effect to this species.
REPTILES			

Species	Status ¹	Effects ²	Occurrence in the Study Area ³
Blunt-nosed leopard lizard <i>Gambelia sila</i>	E	NE	Possible. There are several CNDDDB records of this species within the southern portion of the Action area (CNDDDB 2014). Irrigated agricultural lands do not provide suitable habitat for this species. The Proposed Action would not involve any ground-disturbing activities or conversion of suitable habitat. There would be No Effect to this species.
Giant garter snake <i>Thamnophis gigas</i>	T	NE	Absent. Giant garter snakes are believed to be extirpated south of the Mendota Wildlife Area, and there are no CNDDDB records of this species within the Action area (Service 2012; CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities or conversion of suitable habitat. There would be No Effect to this species.
BIRDS			
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	T	NE	Present. There are CNDDDB records of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities, construction, or conversion of suitable habitat. There would be No Effect to this species.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	E	NE	Possible. There are no CNDDDB records of this species within the Action area (CNDDDB 2014). This species may fly over the Action area during migration, but is not expected to nest there due to a lack of suitable habitat. The Proposed Action would not involve any construction or conversion of suitable habitat. There would be No Effect to this species.
California condor <i>Gymnogyps californianus</i>	E	NE	Possible. There are no CNDDDB records of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve any construction or conversion of suitable habitat. There would be No Effect to this species.
Critical Habitat California condor <i>Gymnogyps californianus</i>	X	NE	Absent. There is no designated Critical Habitat for this species within the Action area.
Burrowing Owl <i>Athene cunicularia</i>	MBTA	NT	Present. There are several CNDDDB occurrences of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities, construction, or conversion of suitable habitat. There would be No Take of this species.
Tri-colored blackbird <i>Agelaius tricolor</i>	MBTA	NT	Present. There are CNDDDB occurrences of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve any construction or conversion of suitable habitat. There would be No Take of this species.
Swainson's hawk <i>Buteo swainsonii</i>	MBTA	NT	Present. There are CNDDDB occurrences of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve any construction or conversion of suitable habitat. There would be No Take of this species.
MAMMALS			

Species	Status ¹	Effects ²	Occurrence in the Study Area ³
Giant kangaroo rat <i>Dipodomys ingens</i>	E	NE	Absent. There are no CNDDDB records of this species within the Action area (CNDDDB 2014). Irrigated agricultural lands do not provide suitable habitat for this species. The Proposed Action would not involve any construction or conversion of suitable habitat. There would be No Effect to this species.
Fresno kangaroo rat <i>Dipodomys nitratoideis exilis</i>	E	NE	Absent. There are some old CNDDDB records of this species from the early 1930s, but this species is now believed to be extirpated from the Action area (CNDDDB 2014). The Proposed Action would not involve any construction or conversion of suitable habitat. There would be No Effect to this species.
Tipton kangaroo rat <i>Dipodomys nitratoideis nitratoideis</i>	E	NE	Present. There are CNDDDB records of this species within the Action area in Kern and Tulare Counties (CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities, construction, or conversion of suitable habitat. There would be No Effect to this species.
Buena Vista Lake shrew <i>Sorex ornatus relictus</i>	E	NE	Possible. There are no CNDDDB records of this species within the Action area (CNDDDB 2014). This species requires riparian habitat which is largely absent from the Action area. The Proposed Action would not involve any construction or conversion of suitable habitat. There would be No Effect to this species.
Critical Habitat Buena Vista Lake shrew <i>Sorex ornatus relictus</i>	X	NE	Absent. There is no designated Critical Habitat for this species within the Action area.
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	E	NE	Present. There are several CNDDDB records of this species in and around the Action area (CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities, construction, or conversion of suitable habitat. There would be No Effect to this species.
PLANTS			
Succulent (Fleshy) owl's-clover <i>Castilleja campestris</i> ssp. <i>succulenta</i>	T	NE	Possible. There are CNDDDB records of this species within the Action area in Fresno County (CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities or conversion of suitable habitat. There would be No Effect to this species.
Critical Habitat Succulent (Fleshy) owl's-clover <i>Castilleja campestris</i> ssp. <i>succulenta</i>	X	NE	Present. There is designated Critical Habitat for this species along the FKC south of Friant in Fresno County. The Proposed Action would not involve any ground disturbing activities, construction, or changes in land use and would therefore have No Effect on any of the primary constituent elements of Critical Habitat for this species.

Species	Status ¹	Effects ²	Occurrence in the Study Area ³
California jewelflower <i>Caulanthus californicus</i>	E	NE	Absent. There are CNDDDB records of this species within the Action area, but all of these occurrences have been extirpated due to habitat loss (CNDDDB 2014). The Proposed Action would not involve the conversion of any natural lands that may still provide suitable habitat for this species. There would be No Effect to this species.
Hoover's spurge <i>Chamaesyce hooveri</i>	T	NE	Possible. There are no CNDDDB records of this species within the Action area (CNDDDB 2014). Agricultural lands do not provide suitable vernal pool habitat for this species. The Proposed Action would not involve any ground-disturbing activities, construction, or conversion of suitable habitat. There would be No Effect to this species.
Critical Habitat Hoover's spurge <i>Chamaesyce hooveri</i>	X	NE	Present. There is designated Critical Habitat for this species along the FKC in northern Tulare County. The Proposed Action would not involve any ground disturbing activities, construction, or changes in land use and would therefore have No Effect on any of the primary constituent elements of Critical Habitat for this species.
Springville clarkia <i>Clarkia springvillensis</i>	T	NE	Absent. There are no CNDDDB records, or other known occurrences, of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve the conversion of any natural lands that may provide suitable habitat for this species. There would be No Effect to this species.
Palmate-bracted bird's beak <i>Cordylanthus palmatus</i>	E	NE	Absent. There are no CNDDDB records, or other known occurrences, of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve the conversion of any natural lands that may provide suitable habitat for this species. There would be No Effect to this species.
Kern mallow <i>Eremalche kernensis</i>	E	NE	Absent. There are no CNDDDB records, or other known occurrences, of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve the conversion of any natural lands that may provide suitable habitat for this species. There would be No Effect to this species.
San Joaquin woolly-threads <i>Monolopia congdonii</i>	E	NE	Possible. There are CNDDDB records of this species within the Action area in Kern County; however, many of these occurrences may now be extirpated (CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities or conversion of natural lands that may provide suitable habitat. There would be No Effect to this species.
Bakersfield cactus <i>Opuntia treleasei</i>	E	NE	Present. There are CNDDDB records of this species within the Action area in Kern County (CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities or conversion of natural lands that may provide suitable habitat. There would be No Effect to this species.

Species	Status ¹	Effects ²	Occurrence in the Study Area ³
San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	E	NE	Absent. There are CNDDDB records of this species within the Action area, but all of these occurrences are now extirpated (CNDDDB 2014). The Proposed Action would not involve the conversion of any natural lands that may provide suitable habitat for this species. There would be No Effect to this species.
Critical Habitat San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	X	NE	Present. There is designated Critical Habitat for this species along the FKC near Friant and in northern Tulare County. The Proposed Action would not involve any ground disturbing activities, construction, or changes in land use and would therefore have No Effect on any of the primary constituent elements of Critical Habitat for this species.
Hairy Orcutt grass <i>Orcuttia pilosa</i>	E	NE	Absent. There are no CNDDDB records, or other known occurrences, of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve the conversion of any natural lands that may provide suitable habitat for this species. There would be No Effect to this species.
Hartweg's golden sunburst <i>Pseudobahia bahiifolia</i>	E	NE	Possible. There are CNDDDB records of this species near the Action area (CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities or conversion of natural lands that may provide suitable habitat. There would be No Effect to this species.
San Joaquin adobe sunburst <i>Pseudobahia peirsonii</i>	T	NE	Possible. There are CNDDDB records of this species within the Action area, but many are now extirpated (CNDDDB 2014). The Proposed Action would not involve any ground-disturbing activities or conversion of natural lands that may provide suitable habitat. There would be No Effect to this species.
Keck's checker-mallow <i>Sidalcea keckii</i>	E	NE	Absent. There are no CNDDDB records, or other known occurrences, of this species within the Action area (CNDDDB 2014). The Proposed Action would not involve the conversion of any natural lands that may provide suitable habitat for this species. There would be No Effect to this species.
Critical Habitat Keck's checker-mallow <i>Sidalcea keckii</i>	X	NE	Absent. There is no designated Critical Habitat for this species within the Action area.
Greene's tuctoria <i>Tuctoria greenei</i>	E	NE	Absent. There are CNDDDB records of this species within the Action area, but all of these occurrences are now extirpated (CNDDDB 2014). The Proposed Action would not involve the conversion of any natural lands that may provide suitable habitat for this species. There would be No Effect to this species.

Species	Status ¹	Effects ²	Occurrence in the Study Area ³
<p>1 Status= Listing of Federally special status species E: Listed as Endangered MBTA: Protected under the Migratory Bird Treaty Act T: Listed as Threatened C: Candidate for listing X: Critical Habitat designated for this species</p> <p>2 Effects = Effect determination NE: No Effect from the Proposed Action to federally listed species NT: No Take would occur from the Proposed Action to migratory birds</p> <p>3 Definition Of Occurrence Indicators Absent: Species not recorded in study area and/or habitat requirements not met Possible: Species has the potential to occur in the Action area Present: Species recorded in or near Action area and habitat present</p>			

3.3.2 Environmental Consequences

No Action

Under the No Action Alternative, the FKC Groundwater Pump-In Program would continue for wells that meet current water quality standards. Environmental protection measures for the pump-in program would continue to be implemented and there would be no impacts to biological resources because conditions would not change.

Proposed Action

Nitrate is an important useable source of nitrogen for living organisms, but may be toxic in certain concentrations. Nitrate is the least toxic of the three major nitrogenous compounds (ammonia, nitrate, and nitrite) that are commonly found in water supplies, so its effects on wildlife have not been as extensively studied. The United States Environmental Protection Agency only has nitrate criteria for drinking water and has not yet established criteria for maximum nitrate concentrations necessary to protect aquatic life. Studies that have been conducted on the effects of nitrate to freshwater aquatic life have recommended maximum nitrate levels ranging from 21.7 mg NO₃⁻/L to 40 mg NO₃⁻/L (Monson & Preimesberger 2010; Nordin & Pommen 2001). The maximum recommended nitrate concentration for terrestrial organisms is 100 mg NO₃⁻/L (Nordin & Pommen 2001). However, as described in Section 2.2, the total concentration of nitrates in the FKC would not be allowed to exceed 20 mg/L, and would therefore remain within the suggested concentrations necessary to protect aquatic and terrestrial wildlife.

Although the FKC may be occasionally occupied by non-native fish like bass, blue-gill and minnows, the canal's fast flows and steep-sided concrete channel do not provide much suitable habitat for aquatic wildlife. No federally listed or proposed aquatic species occur within the FKC, so none would be affected by increased nitrate concentrations within the FKC. The water associated with the Proposed Action would only be used to irrigate agricultural lands or be used for M&I purposes, which would maintain the baseline conditions for listed species. No native or fallowed lands, untilled for three or more years, would be converted as a result of the Proposed Action. Land use patterns of cultivated and fallowed

fields that could provide suitable habitat for listed species or birds protected under the Migratory Bird Treaty Act (MBTA) would also not be changed as a result of the Proposed Action. No ground disturbance, construction, or alteration of natural stream courses would be required to complete the Proposed Action. There is no designated critical habitat within the Action area, so none would be affected. With the implementation of the environmental commitments listed in Table 1, Reclamation has determined that the Proposed Action would result in *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 MBTA (16 U.S.C. 703 et. seq.).

Cumulative Impacts

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

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Section 4 Consultation and Coordination

4.1 Public Review Period

Reclamation provided the public with an opportunity to comment on the Draft FONSI and Draft EA between October 30, 2014 and November 13, 2014. Comment letters were received from Arvin-Edison Water Storage District and Delano-Earlimart Irrigation District. Comment letters and Reclamation's response to comments are included in Appendix D.

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5.1 Friant Water Authority

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Appendix A

Reclamation's Water Quality Standards for the Friant-Kern Canal

RECLAMATION

Managing Water in the West

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



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



U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

March 7, 2008

United States Bureau of Reclamation
South-Central California Area Office
and
Friant Water Authority

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

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.

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.

A. Types of Non-Project Water

This policy recognizes three types of non-project water with distinct requirements for water quality monitoring.

1. "Type A" Non-Project Water

Water for which analytical testing demonstrates complete compliance with California drinking water standards (Title 22)¹, plus other constituents of concern recommended by the California Department of Health Services. Type A water must be tested every year for the full list of

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.

constituents listed in Table 2. No in-prism (within the Canal) monitoring is required to convey Type A water.

2. **“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.

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.

3. **“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.

B. 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).

C. General Requirements for Discharge of Non-Project Water

1. 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.

2. 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.

3. 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.

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

1. 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 policy².

2. 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).

3. Water Quality Reporting Requirements

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

4. 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.

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

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.

E. 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.

F. 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 these 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.

G. 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.

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.

Table 1. Water Quality Monitoring Requirements in the Friant Division

Table 2. Title 22 California Drinking Water Standards

Table 3. List of Labs Approved by Reclamation

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

Type of Water		Location	How often will a sample be collected?	What will be measured in the water?	Who will collect samples?
Project Water	Friant		January, April, June, October	Title 22 and bacterial constituents (1) (2)	Reclamation, MP-157
	Lake Woolomes		January, April, June, October	Title 22 and bacterial constituents (1) (2)	Reclamation, MP-157
Type A Non-Project Water			Every year	Title 22 and bacterial constituents (1) (2)	Contractor
Type B Non-Project Water			Every year	Title 22 and bacterial constituents (1) (2)	Contractor
			Every month (5)	Constituents of concern (5)	Contractor
			Every week (5)	EC, turbidity, etc.(3) (5)	Friant Water Authority
Type C Non-Project Water			None required		
Project water	Upstream of each Type B discharge (4)		Every week (5)	EC, turbidity, etc.(3) (5)	Friant Water Authority
	Downstream of each Type B discharge (4)		Every week (5)	EC, turbidity, etc.(3) (5)	Friant Water Authority

Notes:

(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.

Revised: 08/16/2007 SCC-107

U.S. Bureau of Reclamation
 Friant Water Authority
 Friant Division, California
 Water Quality Monitoring Requirements

Table 2a. Water Quality Constituents

CONSTITUENT OR PARAMETER	Units	Recommended Method	California DHS Maximum Contaminant Level		CAS Registry Number
Primary Constituents (CCR § 64431)					
Aluminum	µg/L	EPA 200.7	1,000	1	7429-90-5
Antimony	µg/L	EPA 200.8	6	1	7440-36-0
Arsenic	µg/L	EPA 200.8	10	16	7440-38-2
Asbestos	MFL > 10µm	EPA 100.2	7	1	1332-21-4
Barium	µg/L	EPA 200.7	1,000	1	7440-39-3
Beryllium	µg/L	EPA 200.7	4	1	7440-41-7
Cadmium	µg/L	EPA 200.7	5	1	7440-43-9
Chromium	µg/L	EPA 200.7	50	1	7440-47-3
Cyanide	µg/L	EPA 335.4	150	1	57-12-5
Fluoride	mg/L	EPA 300.1	2	1	16984-48-8
Mercury (inorganic)	µg/L	EPA 245.1	2	1	7439-97-6
Nickel	µg/L	EPA 200.7	100	1	7440-02-0
Nitrate (as NO ₃)	mg/L	EPA 300.1	45	1	7727-37-9
Total Nitrate + Nitrite (as Nitrogen)	mg/L	EPA 353.2	10	1	
Nitrite (as Nitrogen)	mg/L	EPA 300.1	1	1	14797-65-0
Selenium	µg/L	EPA 200.8	50	1	7782-49-2
Thallium	µg/L	EPA 200.8	2	1	7440-28-0
Secondary Constituents (CCR § 64449)					
Aluminum	µg/L	EPA 200.7	200	6	7429-90-5
Chloride	mg/L	EPA 300.1	250/500/600	7	16887-00-6
Color	units	SM 2120 B	15	6	
Copper	µg/L	EPA 200.7	1,000	6	7440-50-8
Foaming agents (MBAS)	mg/L	SM 5540 C	0.5	6	
Iron	µg/L	EPA 200.7	300	6	7439-89-6
Manganese	µg/L	EPA 200.7	50	6	7439-96-5
Methyl-tert-butyl ether (MtBE)	µg/L	EPA 524.2	5	6	1634-04-4
Odor - Threshold	threshold units	SM 2150 B	3	6	
Silver	µg/L	EPA 200.7	100	6	7440-22-4
Specific conductance (EC)	µS/cm	SM 2510 B	900/1600/2200	7	
Sulfate	mg/L	EPA 300.1	250/500/600	7	14808-79-8
Thiobencarb	µg/L	EPA 525.2	1	6	28249-77-6
Total dissolved solids (TDS)	mg/L	SM 2540 C	500/1000/1500	7	
Turbidity	NTU	EPA 180.1	5	6	
Zinc	mg/L	EPA 200.7	5	6	7440-66-6

Table 2a. Water Quality Constituents

CONSTITUENT OR PARAMETER		Units	Recommended Method	California DHS Maximum Contaminant Level	CAS Registry Number
Other required analyses (CCR § 64449 (b)(2); CCR § 64670)					
Bicarbonate	mg/L	SM 2320B		8	
Calcium	mg/L	SM3111B		8,12	7440-70-2
Carbonate	mg/L	SM 2320B		8	
Copper	mg/L	EPA 200.7	1.3	14	7440-50-8
Hardness	mg/L	SM 2340 B		8	
Hydroxide alkalinity	mg/L	SM 2320B		8,12	
Lead	mg/L	EPA 200.8	0.015	14	7439-92-1
Magnesium	mg/L	EPA 200.7		8	7439-95-4
Orthophosphate	mg/L	EPA 365.1		12	
pH	units	EPA 150.1		8,12	
Silica	mg/L	EPA 200.7		12	
Sodium	mg/L	EPA 200.7		8	7440-23-5
Temperature	degrees C	SM 2550		12	
Radiochemistry (CCR § 64442)					
Radioactivity, Gross Alpha	pCi/L	SM 7110C		15 3	
Microbiology					
Cryptosporidium	org/liter		No MCL, measure for presence (surface water only)		
Fecal Coliform	MPN/100ml		No MCL, measure for presence (surface water only)		
Giardia	org/liter		No MCL, measure for presence (surface water only)		
Total Coliform bacteria	MPN/100ml		No MCL, measure for presence (surface water only)		
Organic Constituents (CCR § 64444)					
EPA 504.1 method					
Dibromochloropropane (DBCP)	µg/L	EPA 504.1		0.2 4	96-12-8
Ethylene dibromide (EDB)	µg/L	EPA 504.1		0.05 4	206-93-4
EPA 505					
Chlordane	µg/L	EPA 505		0.1 4	57-74-9
Endrin	µg/L	EPA 505		2 4	72-20-8
Heptachlor	µg/L	EPA 505		0.01 4	76-44-8
Heptachlor epoxide	µg/L	EPA 505		0.01 4	1024-57-3
Hexachlorobenzene	µg/L	EPA 505		1 4	118-74-1
Hexachlorocyclopentadiene	µg/L	EPA 505		50 4	77-47-4
Lindane (gamma-BHC)	µg/L	EPA 505		0.2 4	58-89-9
Methoxychlor	µg/L	EPA 505		30 4	72-43-5
Polychlorinated biphenyls	µg/L	EPA 505		0.5 4	1336-36-3
Toxaphene	µg/L	EPA 505		3 4	8001-35-2
EPA 508 Method					
Alachlor	µg/L	EPA 508.1		2 4	15972-60-8
Atrazine	µg/L	EPA 508.1		1 4	1912-24-9
Simazine	µg/L	EPA 508.1		4 4	122-34-9

Table 2a. Water Quality Constituents

CONSTITUENT OR PARAMETER	Units	Recommended Method	California DHS Maximum Contaminant Level		CAS Registry Number
EPA 515.3 Method					
Bentazon	µg/L	EPA 515	18	4	25057-89-0
2,4-D	µg/L	EPA 515.1-4	70	4	94-75-7
Dalapon	µg/L	EPA 515.1-4	200	4	75-99-0
Dinoseb	µg/L	EPA 515.1-4	7	4	88-85-7
Pentachlorophenol	µg/L	EPA 515.1-4	1	4	87-86-5
Picloram	µg/L	EPA 515.1-4	500	4	1918-02-1
2,4,5-TP (Silvex)	µg/L	EPA 515.1-4	50	4	93-72-1
EPA 524.2 Method (Volatile Organic Chemicals)					
Benzene	µg/L	EPA 524.2	1	4	71-43-2
Carbon tetrachloride	µg/L	EPA 524.2	0.5	4	56-23-5
1,2-Dibromomethane	µg/L	EPA 524.2	0.05		106-93-4
1,2-Dichlorobenzene	µg/L	EPA 524.2	600	4	95-50-1
1,4-Dichlorobenzene	µg/L	EPA 524.2	5	4	106-46-7
1,1-Dichloroethane	µg/L	EPA 524.2	5	4	75-34-3
1,2-Dichloroethane	µg/L	EPA 524.2	0.5	4	107-06-2
1,1-Dichloroethylene	µg/L	EPA 524.2	6	4	75-35-4
cis-1,2-Dichloroethylene	µg/L	EPA 524.2	6	4	156-59-2
trans-1,2-Dichloroethylene	µg/L	EPA 524.2	10	4	156-60-5
Dichloromethane	µg/L	EPA 524.2	5	4	75-09-2
1,2-Dichloropropane	µg/L	EPA 524.2	5	4	78-87-5
1,3-Dichloropropene	µg/L	EPA 524.2	0.5	4	542-75-6
Ethylbenzene	µg/L	EPA 524.2	300	4	100-41-4
Methyl-tert-butyl ether (MtBE)	µg/L	EPA 524.2	13	4	1634-04-4
Monochlorobenzene	µg/L	EPA 524.2	70	4	108-90-7
Styrene	µg/L	EPA 524.2	100	4	100-42-5
1,1,2,2-Tetrachloroethane	µg/L	EPA 524.2	1	4	79-34-5
Tetrachloroethylene (PCE)	µg/L	EPA 524.2	5	4	127-18-4
Toluene	µg/L	EPA 524.2	150	4	108-88-3
1,2,4-Trichlorobenzene	µg/L	EPA 524.2	5	4	120-82-1
1,1,1-Trichloroethane	µg/L	EPA 524.2	200	4	71-55-6
1,1,2-Trichloroethane	µg/L	EPA 524.2	5	4	79-00-5
Trichloroethylene (TCE)	µg/L	EPA 524.2	5	4	79-01-6
Trichlorofluoromethane	µg/L	EPA 524.2	150	4	75-69-4
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/L	EPA 524.2	1,200	4	76-13-1
Total Trihalomethanes	ug/L	EPA 524.2	80	10	
Vinyl chloride	µg/L	EPA 524.2	0.5	4	75-01-4
Xylene(s)	µg/L	EPA 524.2	1,750	4	1330-20-7
EPA 525.2 Method					
Benzo(a)pyrene	µg/L	EPA 525.2	0.2	4	50-32-8
Di(2-ethylhexyl)adipate	µg/L	EPA 525.2	400	4	103-23-1
Di(2-ethylhexyl)phthalate	µg/L	EPA 525.2	4	4	117-81-7
Molinate	µg/L	EPA 525.2	20	4	2212-67-1
Thiobencarb	µg/L	EPA 525.2	70	4	28249-77-6
EPA 531.1 Method					
Carbofuran	µg/L	EPA 531.1-2	18	4	1563-66-2
Oxamyl	µg/L	EPA 531.1-2	50	4	23135-22-0

Table 2a. Water Quality Constituents

CONSTITUENT OR PARAMETER	Units	Recommended Method	California DHS Maximum Contaminant Level		CAS Registry Number
EPA 547 Method					
Glyphosate	µg/L	EPA 547	700	4	1071-83-6
EPA 548.1 Method					
Endothal	µg/L	EPA 548.1	100	4	145-73-3
EPA 549.2 Method					
Diquat	µg/L	EPA 549.2	20	4	85-00-7
EPA 613 Method					
2,3,7,8-TCDD (Dioxin)	µg/L	EPA 1613	0.00003	4	1746-01-6

Source Data:

Adapted from Marshack, Jon B. August 2003. A Compilation of Water Quality Goals. Prepared for the California Environmental Protection Agency, Regional Water Quality Control Board.

U.S. Bureau of Reclamation
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Table 2b. Unregulated Chemicals (CCR § 64450)

			California Department of Health Services				CAS
CONSTITUENT OR PARAMETER	Units	Recommended Method	Notification Level		Response Level	Registry Number	
Boron	mg/L	EPA 200.7	1	9, 17	10	7440-42-8	
n-Butylbenzene	µg/L	EPA 524.2	260	17	2,600	104-51-8	
sec-Butylbenzene	µg/L	EPA 524.2	260	17	2,600	135-98-8	
tert-Butylbenzene	µg/L	EPA 524.2	260	17	2,600	98-06-6	
Carbon disulfide	µg/L		160	17	1,600		
Chlorate	µg/L	EPA 300.1	0.8	17	8		
2-Chlorotoluene	µg/L	EPA 524.2	140	17	1,400	95-49-8	
4-Chlorotoluene	µg/L	EPA 524.2	140	17	1,400	106-43-4	
Dichlorofluoromethane (Freon 12)	µg/L	EPA 524.2	1,000	9,17	10,000	75-43-4	
1,4-Dioxane	µg/L	SM 8270	3	17	300	123-91-1	
Ethylene glycol	µg/L	SM 8015	1,400	17	14,000	107-21-1	
Formaldehyde	µg/L	SM 6252	100	17	1,000	50-00-0	
n-Propylbenzene	µg/L		260	17	2,600		
HMX	µg/L	SM 8330	350	17	3,500	2691-41-0	
Isopropylbenzene	µg/L		770	17	7,700		
Manganese	mg/L		1	17	5		
Methyl isobutyl ketone	µg/L		120	17	1,200		
Napthalene	µg/L	EPA 524.2	17	17	170	91-20-3	
n-nitrosodiethylamine (NDEA)	µg/L	1625	0.01	17	0.1		
n-nitrosodimethylamine (NDMA)	µg/L	1625	0.01	17	0.2		
n-nitroso-n-propylamine (NDPA)	µg/L	1625	0.01	17	0.5		
Perchlorate	µg/L	EPA 314	6	9, 17	60	13477-36-6	
Propachlor	µg/L	EPA 507 or 525	90	17	900	1918-16-7	
p-Isopropyltoluene	µg/L	EPA 524.2	770	17	7,700	99-87-6	
RDX	µg/L	SM 8330	0.30	17	30	121-82-4	
tert-Butyl alcohol (ethanol)	µg/L	EPA 524.2	12	9,17	1,200	75-65-0	
1,2,3-Trichloropropane (TCP)	ug/L	EPA 524.2	0.005	9,17	0.5	96-18-4	
1,2,4-Trimethylbenzene	µg/L	EPA 524.2	330	17	3,300	95-63-6	
1,3,5-Trimethylbenzene	µg/L	EPA 524.2	330	17	3,300	95-63-6	
2,4,6-Trinitrotoluene (TNT)	µg/L	SM 8330	1	17	100		
Vanadium	mg/L	EPA 286.1	0.05	9,17	0.5	7440-62-2	

Revised: 05/17/2007

**U.S. Bureau of Reclamation
Friant Water Authority
Friant Division, California
Water Quality Monitoring Requirements**

Notes for Tables 2a and 2b

Title 22. California Code of Regulations, California Safe Drinking Water Act and Related Laws and Regulations. February 2007.
<http://www.dhs.ca.gov/ps/ddwem/publications/lawbook/PDFs/dwregulations-02-06-07.pdf>

- [1] Table 64431-A. Maximum Contaminant Levels, Inorganic Chemicals
- [2] Table 64432-A. Detection Limits for Purpose of Reporting (DLRs) for Regulated Inorganic Chemicals
- [3] Table 64442. Radionuclide Maximum contaminant Levels (MCLs) and Detection Levels for Reporting (DLRs)
- [4] Table 64444-A. Maximum Contaminant Levels Organic Chemicals
- [5] Table 64445.1-A. Detection Limits for Reporting (DLRs) for Regulated Organic Chemicals
- [6] Table 64449-A. Secondary Maximum Contaminant Levels "Consumer Acceptance Levels"
- [7] Table 64449-B. Secondary Maximum Contaminant Levels "Consumer Acceptance Levels"
- [8] § 64449(b)(2)
- [9] Table 64450. Unregulated Chemicals
- [10] Appendix 64481-A. Typical Origins of Contaminants with Primary MCLs
- [11] Table 64533-A. Maximum Contaminant Levels and Detection Limits for Reporting Disinfection Byproducts
- [12] § 64670.(c)
- [13] Table 64678-A. DLRs for Lead and Copper
- [14] § 64678 (d)
- [15] § 64678 (e)
- [16] New Federal standard as of 1/23/2006
- [17] Dept Health Services Drinkig Water Notification Levels (June 2006)

RECLAMATION

Managing Water in the West

Table 3. Approved Laboratory List for the Mid-Pacific Region Environmental Monitoring Branch (MP-157)

Basic Laboratory	<u>Address</u>	2218 Railroad Avenue Redding, CA 96001 USA
	<u>Contact</u>	Nathan Hawley, Melissa Hawley, Ricky Jensen
	<u>P/F</u>	(530) 243-7234 / (530) 243-7494
	<u>Email</u>	nhawley@basiclab.com (QAO), mhawley@basiclab.com (PM), jcady@basiclab.com (quotes), poilar@basiclab.com (sample custody), khawley@basiclab.com (sample custody)
	<u>CC Info</u>	nhawley@basiclab.com, jcady@basiclab.com (sample custody)
	<u>Methods</u>	<i>Approved only for inorganic parameters (metals, general chemistry)</i>
BioVir Analytical Laboratories	<u>Address</u>	685 Stone Road Unit 6 Benicia, CA 94510 USA
	<u>Contact</u>	Rick Danielson, Lab Director
	<u>P/F</u>	(707) 747-5906 / (707) 747-1751
	<u>Email</u>	red@biovir.com, csj@biovir.com, lb@biovir.com, QAO Jim Truscott jrt@biovir.com
	<u>Methods</u>	<i>Approved for all biological and pathogenic parameters</i>
Block Environmental Services	<u>Address</u>	2451 Estand Way Pleasant Hill, CA 94523 USA
	<u>Contact</u>	David Block
	<u>P/F</u>	(925) 682-7200 / (925) 686-0399
	<u>Email</u>	dblock@blockenviron.com
	<u>Methods</u>	<i>Approved for Toxicity Testing.</i>
California Laboratory Services	<u>Address</u>	3249 Fitzgerald Road Rancho Cordova, CA 95742
	<u>Contact</u>	Raymond Osowski
	<u>P/F</u>	(916) 638-7301 / (916) 638-4510
	<u>Email</u>	rayo@californialab.com
	<u>Methods</u>	<i>Approved for Chromium VI</i>
Caltest Analytical Laboratory	<u>Address</u>	1885 North Kelly Road Napa, CA 94558
	<u>Contact</u>	Bill Svoboda, Project Manager x29
	<u>P/F</u>	(707) 258-4000 / (707) 226-1001
	<u>Email</u>	bsvoboda@caltestlab.com
	<u>Methods</u>	<i>Approved for all inorganic parameters and biological parameters</i>
Columbia Environmental Resource Center	<u>Address</u>	4200 New Haven Road Columbia, MO 65201 USA
	<u>Contact</u>	Tom May, Research Chemist
	<u>P/F</u>	(573) 876-1858 / (573) 876-1896
	<u>Email</u>	tmay@usgs.gov
	<u>Methods</u>	<i>Approved for mercury in biological tissue</i>
Data Chem Laboratories	<u>Address</u>	960 West LeVoy Drive Salt Lake City, UT 84123-2547 USA
	<u>Contact</u>	Bob DiRienzo, Kevin Griffiths-Project Manager, Rand Potter - Project Manager, asbestos
	<u>P/F</u>	(801) 266-7700 / (801) 268-9992
	<u>Email</u>	griffiths@datachem.com, Potter@datachem.com Invoicing: (Justin) pate@datachem.com
	<u>Methods</u>	<i>Approved for asbestos, metals, organochlorine pesticides and PCBs in solids</i>
Dept. of Fish & Game - WPCL	<u>Address</u>	2005 Nimbus Road Rancho Cordova, CA 95670 USA
	<u>Contact</u>	David B. Crane
	<u>P/F</u>	(916) 358-2858 / (916) 985-4301
	<u>Email</u>	dcrane@ospr.dfg.ca.gov
	<u>Methods</u>	<i>Approved only for metals analysis in tissue.</i>
Frontier Geosciences	<u>Address</u>	414 Pontius North Seattle, WA 98109 USA
	<u>Contact</u>	Shelly Fank - QA Officer, Matt Gomes-Project Manager
	<u>P/F</u>	(206) 622-6960 / (206) 622-6870
	<u>Email</u>	shellyf@frontiergeosciences.com, mattg@frontiergeosciences.com
	<u>Methods</u>	<i>in low level metals analysis.</i>

Fruit Growers Laboratory	<u>Address</u>	853 Corporation Street Santa Paula, CA 93060 USA
	<u>Contact</u>	David Terz, QA Director
	<u>P/F</u>	(805) 392-2024 / (805) 525-4172
	<u>Email</u>	davidt@fglinc.com
	<u>Methods</u>	<i>Approved for all inorganic and organic parameters in drinking water.</i>
Montgomery Watson/Harza Laboratories	<u>Address</u>	750 Royal Oaks Drive Ste. 100 Monrovia, CA 91016 USA
	<u>Contact</u>	Allen Glover (project manager), Bradley Cahoon (quotes)
	<u>P/F</u>	(916) 374-8030, 916-996-5929 (AG-cell) / (916) 374-8061
	<u>Email</u>	Allen.Glover@us.mwhglobal.com, Bradley.Cahoon@us.mwhglobal.com
	<u>CC Info</u>	cc. Sam on all communications to Allen. Samer.Momani@us.mwhglobal.com
Olson Biochemistry Laboratories	<u>Address</u>	SDSU: Box 2170, ACS Rm. 133 Brookings, SD 57007 USA
	<u>Contact</u>	Nancy Thiex, Laboratory Director
	<u>P/F</u>	(605) 688-5466 / (605) 688-6295
	<u>Email</u>	Nancy.Thiex@sdstate.edu
	<u>CC Info</u>	For re-analysis: contact Zelda McGinnis-Schlobohm and Nancy Anderson Zelda.Schlobohm@SDSTATE.EDU, Nancy.Anderson@SDSTATE.EDU For analysis questions only: just CC. Nancy Anderson
Severn Trent Laboratories	<u>Address</u>	880 Riverside Parkway West Sacramento, CA 95605 USA
	<u>Contact</u>	Jeremy Sadler
	<u>P/F</u>	(916) 374-4381 / (916) 372-1059
	<u>Email</u>	jsadler@stl-inc.com
	<u>Methods</u>	<i>Approved for all inorganic parameters and hazardous waste organics except for Ammonia as Nitrogen . Ag analysis in sediment, when known quantity is present, request 6010B</i>
Sierra Foothill Laboratory, Inc.	<u>Address</u>	255 Scottsville Blvd, Jackson, CA 95642
	<u>Contact</u>	Sandy Nurse (Owner) or Dale Gimble (QA Officer)
	<u>P/F</u>	(209) 223-2800 / (209) 223-2747
	<u>Email</u>	sandy@sierralab.com, CC: dale@sierralab.com
	<u>Methods</u>	<i>Approved for all inorganic parameters, microbiological parameters, acute and chronic toxicity.</i>
Twining Laboratories, Inc.	<u>Address</u>	2527 Fresno Street Fresno, CA 93721 USA
	<u>Contact</u>	Jim Brownfield (QA Officer), Sample Control (for Bottle Orders)
	<u>P/F</u>	(559) 268-7021 / (559) 268-0740
	<u>Email</u>	JimB@twining.com cc. to JosephU@twining.com
	<u>Methods</u>	<i>Approved only for general chemistry and boron analysis.</i>
U.S. Geological Survey - Denver	<u>Address</u>	Denver Federal Center Building 20, MS 973 Denver, CO 80225 USA
	<u>Contact</u>	Stephen A. Wilson
	<u>P/F</u>	(303) 236-2454 / (303) 236-3200
	<u>Email</u>	swilson@usgs.gov
	<u>Methods</u>	<i>Approved only for inorganic parameters in soil .</i>
USBR Technical Service Center Denver Soils	<u>Address</u>	Denver Federal Center Building 67, D-8750 Denver, CO 80225-0007 USA
	<u>Contact</u>	Juli Fahy or Stan Conway
	<u>P/F</u>	(303) 445-2188 / (303) 445-6351
	<u>Email</u>	jfahy@do.usbr.gov
	<u>Methods</u>	<i>Approved only for general physical analysis in soils.</i>
Western Environmental Testing Laboratories	<u>Address</u>	475 East Greg Street # 119 Sparks, NV 89431 USA
	<u>Contact</u>	Ginger Peppard (Customer Service Manager), Andy Smith (Lab Director), Michelle Kramer
	<u>P/F</u>	(775) 355-0202 / (775) 355-0817
	<u>Email</u>	ginger@WETLaboratory.com, andy@WETLaboratory.com, michelle@WETLaboratory.com
	<u>Methods</u>	<i>Approved only for inorganic parameters (metals, general chemistry).</i>

Revised: 04/16/2007 MP-157

Appendix B

Reclamation's Cultural Resources Determination

CULTURAL RESOURCE COMPLIANCE
Mid-Pacific Region
Division of Environmental Affairs
Cultural Resources Branch

MP-153 Tracking Number: 15-SCAO-012

Project Name: Temporary Change in Water Quality Requirements for the Friant-Kern Canal Groundwater Pump-in Program

NEPA Document: EA-14-043

MP 153 Cultural Resources Reviewer: Scott Williams



Date: October 15, 2014

The proposed undertaking by Reclamation is would temporarily allow the introduction of groundwater from wells with high nitrates through the end of the Friant-Kern Canal Groundwater Pump-in Program (February 28, 2016), with no changes to the service area, no construction, and no ground disturbing activities. This is the type of undertaking that does not have the potential to cause effects to historic properties, should such properties be present, pursuant to the NHPA Section 106 regulations codified at 36 CFR § 800.3(a)(1). Reclamation has no further obligations under NHPA Section 106, pursuant to 36 CFR § 800.3(a)(1).

No changes to the contractors' service areas or water deliveries are part of the Proposed Action. If the contractor proposes to change the designated contract service area separate environmental documentation and approval will be required.

This document is intended to convey the completion of the NHPA Section 106 process for this undertaking. Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including consultation with the State Historic Preservation Officer, may be necessary. Thank you for providing the opportunity to comment.

Appendix C

Reclamation's Indian Trust Assets Determination



Emerson, Rain <remerson@usbr.gov>

Re: PD for Review (14-043)

RIVERA, PATRICIA <privera@usbr.gov>

Thu, Oct 23, 2014 at 9:36 AM

To: "Emerson, Rain" <remerson@usbr.gov>

Cc: Kristi Seabrook <kseabrook@usbr.gov>, "Williams, Mary D (Diane)" <marywilliams@usbr.gov>

Rain,

I reviewed the proposed action as described below and determined there are no potential impacts to Indian Trusts Assets.

Project Description:

In 2014, due to ongoing drought conditions and reduced water supplies, Friant Division Central Valley Project (CVP) contractors requested approval from the Bureau of Reclamation (Reclamation) to pump cumulatively up to 50,000 acre-feet (AF) of groundwater into the Friant-Kern Canal (FKC) over a two-year period (referred to as the FKC Groundwater Pump-in Program). Reclamation analyzed the two-year FKC Groundwater Pump-in Program in Environmental Assessment (EA)-14-011. Based on specific environmental commitments required for the FKC Groundwater Pump-in Program, including water quality requirements, Reclamation determined that the cumulative introduction, storage, and conveyance of up to 50,000 AF per year of groundwater would not significantly affect the quality of the human environment and a Finding of No Significant Impact (FONSI) was executed on May 2, 2014.

All wells that participate in the FKC Groundwater Pump-in Program are required to meet Reclamation's water quality requirements specifically described in Reclamation's Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals. Due to limited water supplies available to Friant Division contractors, the Friant Water Authority (Authority) requested permission to temporarily convey groundwater from wells that exceed the 45 mg/L limit established by the State of California.

Under the Proposed Action, the Authority would temporarily allow the introduction of groundwater from wells with high nitrates through the end of the FKC Groundwater Pump-in Program (February 28, 2016), 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 μ S/cm.

Patricia Rivera
Native American Affairs Program Manager
US Bureau of Reclamation
Mid-Pacific Region

10/23/2014

DEPARTMENT OF THE INTERIOR Mail - Re: PD for Review (14-043)

2800 Sacramento, California 95825
(916) 978-5194

Kristi please log in. Thanks

Appendix D

Comment Letters and Reclamation's Response to Comments



ARVIN-EDISON WATER STORAGE DISTRICT

November 13, 2014

Via email (remerson@usbr.gov) and fax (559-487-5397)

DIRECTORS

Edwin A. Camp
President
Jeffrey G. Giumarra
Vice President
John C. Moore
Secretary/Treasurer
Howard R. Frick
Ronald R. Lehr
Dennis B. Johnston
Charles Fanucchi
Donald Valpredo
Kevin E. Pascoe

Rain Emerson
United States Bureau of Reclamation (USBR)
1243 N. Street
Fresno CA, 93721

Re: Temporary Change in Water Quality Requirements for the Friant-Kern Canal Groundwater Pump-In Program draft FONSI and EA Comments (14-043)

Dear Ms. Emerson:

Following are Arvin-Edison Water Storage District's (AEWSD) comments on the "Temporary Change in Water Quality Requirements for the Friant-Kern Canal Groundwater Pump-In Program" draft Environmental Assessment and Findings of No Significant Impact (EA/FONSI-14-043).

AEWSD's comments fall into the following four categories and are focused on the proposed changes to water quality requirements involving the introduction of groundwater/Non-Project water supplies (Project) into the Friant-Kern Canal (FKC).

Water Quality Guidelines (2008 versus 2014 versions)

The majority of AEWSD's concerns with the *original/draft* EA/FONSI (14-011) had originally been addressed as a result of the "updated" Water Quality (WQ) Guidelines dated March 21, 2014. However, AEWSD now understands the WQ Guidelines in the *final* EA/FONSI (14-011) reverted back to the archaic and deficient March 7, 2008 version, upon which AEWSD has extensively commented on in the past, and which comments are hereby incorporated.

AEWSD's primary concerns with the March 2008 WQ Guidelines remain as follows:

- Guidelines address only "non-project water" but should include all sources of introduced water supplies that are NOT chemically the same as project water
- Title 22 standards generally are not protective of the water quality for irrigation uses
- Guidelines do not adequately protect downstream users from significant water quality impacts as there are no in-canal standards for turbidity and salinity
- Type B water has to "generally" comply with Title 22, but may exceed Title 22 for certain constituents of concern as determined by Reclamation and Friant Water Authority on a case-by-case basis
- Type C water is not required to meet any water quality requirements as it is erroneously stated to be "physically the same as Project water." However, this is a misstatement because State Water Project water does not originate from Millerton Lake and is not chemically the same as FKC water

Limits of Degradation by Nitrates and Salinity

AEWSD understands the proposed action is to increase the allowable level of degradation of both nitrates and salinity. The below table illustrates the various constituents of interest to AEWSD.

	Discharge/In-Canal Nitrate (mg/L)	Discharge/In-Canal Salinity (uS/cm)
Background	0.3	67
Irrigation Standard	22	700
2013 Pump-in draft	45/45	900/increase of 50 (<250)
2013 Pump-in final	45/45	900/900
2014 Pump-in proposed	No limit/20	No limit/900

It is noted the background and historical FKC water quality levels for nitrate is 0.3 mg/L and salinity is 67 uS/cm. The proposed levels represent a 6,500% increase in nitrate and a 1,250% increase in salinity.

Therefore this proposed action represents significant degradation.

Irrigated Lands Regulatory Program and CVSALTS Program

In addition to the water quality provisions in AEWS's water contract, water quality regulations currently being pursued by the Central Valley Regional Water Quality Control Board (CVRWQCB) include an Irrigated Lands Regulatory Program (ILRP) and a CVSALTS Program. Under the ILRP regulations, much of AEWS has preliminarily been classified as a "high vulnerability" area by the CVRWQCB with regards to high nitrate levels in groundwater. In addition, the CVSALTS Program is envisioned to limit the salt (TDS and/or EC) loading on agricultural irrigated land.

The Project, as proposed by the United States, will severely degrade both the nitrate and salt levels that these two CVRWQCB programs will regulate. It is unconscionable that the United States be given free reign to introduce high concentration of nitrates and salt into a pristine water supply and then have the CVRWQCB enforce regulations on AEWS to control and reduce said constituents. In that regard, please note that the CVRWQCB has been copied and AEWS will be investigating remedies in that forum.

Reference to AEWS's Contract

While the United States does not warrant the quality of water delivered to a contractor, the United States is obligated to operate and maintain project facilities in the most practical manner to maintain the quality of the water at the highest level possible.

Furthermore, the water supplied to AEWS pursuant to its repayment contract is Central Valley Project Water stored or flowing through Millerton Lake. Indeed, the definition of Class 1 water is defined as *"that supply of water stored in or flowing through Millerton Lake..."*

Water that is stored in or flowing through Millerton Lake is pristine Sierra Nevada snowmelt and, as such, relied upon by AEWS to maintain its water quality. The Project as proposed will displace and degrade AEWS's contractual supply.

Thank you, and again we appreciate the opportunity to provide input into your Project. If you have questions or comments, please don't hesitate to call or email.

Sincerely,

Steve Collup
Engineer-Manager

cc: Jeevan Muhar, Staff Engineer
Michael Jackson, Chris Eacock and Scott Taylor, USBR
Pamela Creedon and Clay Rodgers, CVRWQCB

Response to Arvin-Edison Water Storage District Comment Letter, November 13, 2014

AEWSD-1 Reclamation is in receipt of Arvin-Edison Water Storage District's (AEWSD's) past comments on our Water Quality Monitoring Policy. The AEWSD concern about poor quality water supplies being introduced in the Friant-Kern Canal (FKC) is noted. The Friant Water Authority (Authority) did not endorse the proposed 2014 Water Quality Guidelines originally included in the draft Environmental Assessment (EA) for the Friant-Kern Canal Groundwater Pump-in Program. As such, the previously agreed upon 2008 Water Quality Guidelines was included in the Final EA.

AEWSD is correct. The 2008 Water Quality Guidelines erroneously states that Type C water is "physically the same as Project water". Reclamation will continue to work with the Authority, Friant Division contractors, including AEWSD, and others to develop revised guidelines.

AEWSD-2 The Proposed Action would allow groundwater to be conveyed in the FKC through February 28, 2016, the end of the FKC Groundwater Pump-in Program. As described in Section 2.2 of EA-14-043, the conditions for accepting the water under the Proposed Action is that the concentrations of nitrates (as NO₃) and salinity (measured as Electrical Conductivity) not exceed the following thresholds:

- Nitrate-nitrogen not to exceed 20 mg/L in the FKC
- Salinity not to exceed 900 µS/cm in the FKC

Reclamation agrees that these thresholds are much higher than the background concentrations in the CVP water diverted from the San Joaquin River. However, the salinity threshold is within the 700-3,000 µS/cm range recommended for irrigation with slight to moderate restrictions and the nitrate-nitrogen threshold is within the recommended range of 5 – 30 mg/L.¹ Neither of these thresholds exceed the current California Drinking Water Standards (2,200 uS/cm and 45 mg/L respectively).²

AEWSD-3 As stated above, the instream threshold values for nitrate-nitrogen and salinity are within recommended values for irrigated agriculture, and are below domestic water quality standards. We welcome the Central Valley Regional Water Quality Control Board's review of the Proposed Action.

¹ Ayers, R. S. and D. W. Westcot, 1985. Water Quality for Agriculture, Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29, Rev. 1, Rome. Table 1 Guidelines for Interpretations of Water Quality for Irrigation. <http://www.fao.org/DOCREP/003/T0234E/T0234E00.htm>.)

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.

AEWSD-4 See Responses to AEWSD-2 and AEWSD-3.



Emerson, Rain <remerson@usbr.gov>

Draft EA for temporary change in WQ for FKC pump-in program

Dale Brogan <dbrogan@deid.org>

Fri, Nov 14, 2014 at 2:46 PM

To: "remerson@usbr.gov" <remerson@usbr.gov>

Rain-

I would offer the following comment regarding the draft EA.

DEID-1 The EA proposes to limit pumping into the FKC when the in-prism testing shows nitrates exceeding 20ppm. The MCL for nitrates is 45 ppm. The EA states that once an in-prism test shows the nitrate level at or above 20 ppm, pumpers that are upstream of the measuring point with wells that have nitrates exceeding 45 ppm would be required to shut off. I assume that the shut off order would begin with those with the highest level of nitrates and would continue down until the desired threshold level within the FKC was reached.

DEID-2 The proposed threshold level of 20 ppm, less than one-half of the MCL, seems to be exceedingly conservative. I would think that something closer to the maximum MCL of 45 ppm would be more appropriate. Specifically:

1. How did Reclamation arrive at the proposed 20 ppm threshold for nitrates in-prism?

DEID-3 2. Would Reclamation consider raising the proposed threshold level to 40 ppm? It would appear to me that at 40 ppm, Reclamation would have ample time and ability to terminate the higher level nitrate pumpers to quickly insure that the in-prism nitrate level did not exceed the MCL level of 45 ppm.

DEID-4 Raising the threshold to 40 ppm would allow greater opportunity to continue introducing non-project water by those irrigators with the greatest need for that water. In a year such as we experienced in 2014, it can mean the difference between crop success and failure. Reclamation should facilitate such an opportunity to the greatest extent possible so long as it can be done without endangering others. I believe that, in very practical terms, Reclamation can do that at a 40 ppm in-prism threshold.

Thank you for the opportunity to comment on this EA.

Dale Brogan, General Manager

Delano-Earlimart Irrigation District

14181 Avenue 24

Delano. CA 93215

Office: 661-725-2526

Cell: 559-901-3113

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Response to Delano-Earlimart Irrigation District Comment Letter, November 14, 2014

- DEID-1 As described in Section 2.2 (page 5) of Environmental Assessment (EA)-14-043, the Friant Water Authority (Authority) will determine which wells should be shut off should the concentration of nitrates or salinity exceed the parameters described in Section 2.2 (page 4) of EA-14-043. Specifically, the Authority will incrementally direct the well operators with the highest levels of nitrates to stop pumping into the FKC until thresholds are met.
- DEID-2 Reclamation's water quality requirements are specifically described in Reclamation's *Policy for Accepting Non-Project Water into the Friant-Kern and Madera Canals* (see Appendix A of EA-14-043). Three types of non-Project water are described in this plan: Type A, Type B, and Type C. Type B water (such as the groundwater proposed for introduction under the Friant-Kern Canal [FKC] Groundwater Pump-in Program) is defined as water that "generally complies with Title 22, but may exceed Maximum Contaminant Level (MCL) for certain inorganic constituents of concern to be determined by Reclamation and the Authority on a case-by-case basis." Due to the needs faced by Friant Division contractors as described in Section 1.2 (page 1) of EA-14-043, the 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. Reclamation and the Authority agreed to the 20 mg/L threshold (or 20 ppm) for water within the FKC (in-prism).
- DEID-3 At this time, Reclamation will continue to use the 20 mg/L threshold as described in EA-14-043 while all water quality data from the 2014 FKC Groundwater Pump-in Program is reviewed and analyzed. Reclamation and the Authority have been and will continue to collect weekly water quality samples from the five locations described in EA-14-043 to test for nitrates and salinity. Lab results take approximately one week to be published.
- DEID-4 See Response to DEID-2 and DEID-3.