

RECLAMATION

Managing Water in the West

Final Environmental Assessment

Friant-Kern Canal Groundwater Pump-In Program Warren Act Agreements

EA-14-011



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

May 2014

Mission Statements

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

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

Table of Contents

Section 1	Introduction	1
1.1	Background.....	1
1.2	Need for the Proposed Action.....	2
Section 2	Alternatives Including the Proposed Action	3
2.1	No Action Alternative.....	3
2.2	Proposed Action.....	3
2.2.1	Environmental Commitments	6
Section 3	Affected Environment and Environmental Consequences	7
3.1	Resources Eliminated from Further Analysis.....	7
3.2	Water Resources	7
3.2.1	Affected Environment	7
3.2.2	Environmental Consequences.....	10
3.3	Land Use.....	11
3.3.1	Affected Environment	11
3.4	Biological Resources	12
3.4.1	Affected Environment	12
3.4.2	Environmental Consequences.....	16
3.5	Cultural Resources.....	17
3.5.1	Affected Environment	17
3.5.2	Environmental Consequences.....	17
3.6	Socioeconomic Resources	18
3.6.1	Affected Environment	18
3.6.2	Environmental Consequences.....	18
3.7	Environmental Justice.....	18
3.7.1	Affected Environment	18
3.7.2	Environmental Consequences.....	19
Section 4	Consultation and Coordination.....	20
4.1	Public Review Period	20
4.2	Endangered Species Act (16 U.S.C. § 1531 et seq.).....	20
4.3	National Historic Preservation Act (16 U.S.C. 470)	20
Section 5	Preparers and Reviewers	21
Section 6	References.....	21

List of Tables and Figures

Figure 2-1 Friant-Kern Canal Contractors	4
Table 2-1 Discharge Point Authorizations.....	4
Table 2-2 Environmental Protection Measures and Commitments	6
Table 3-1 Resources Eliminated from Further Analysis.....	7
Table 3-2 Participating Contractors and their CVP Contract Supply	8
Table 3-3 Cross Valley Contractors and their CVP Contract Supply.....	9

Table 3-4 Agricultural Products by County.....	11
Table 3-5 Special-Status Species with the Potential to Occur in the Action Area	12
Table 3-6 Economic Data, 2012	18
Table 3-7 Demographic Data, 2012.....	19

Appendices

Appendix A	Comment Letters and Reclamation Responses
Appendix B	Guidelines for Accepting Non-Project Water in Friant Division Facilities
Appendix C	Indian Trust Assets Determination
Appendix D	Cultural Resources Determination

Section 1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the draft Environmental Assessment (EA) and draft Finding of No Significant Impact between April 10, 2014 and April 17, 2014. Two sets of comments were received during the comment period: Arvin-Edison Water Storage District and Lindsay-Strathmore Irrigation District. The comments and Reclamation's responses may be found in Appendix A. Changes from the draft EA that are not minor editorial changes are indicated by vertical lines in the left margin of this document.

1.1 Background

In recent years California has experienced droughts that have reduced water supplies to many water districts. As a result, Friant Division Central Valley Project (CVP) water service contractors have received unprecedented initial 0% water supply allocations in 2014. The historically low allocation is due to a combination of hydrologic, environmental, and regulatory conditions. The zero allocation follows previous dry years in 2012 and 2013, in which Friant Division CVP contractors received 57 and 62 percent of their full Class 1 contract supply, respectively.

Friant Division and other CVP contractors along the Friant-Kern Canal (FKC) thus need additional water supplies in order to mitigate for the shortages to their water users. The contractors have requested Warren Act agreements to convey pumped groundwater into the FKC for conveyance of such groundwater to their agricultural users. In addition to the Warren Act agreements, certain contractors could also have need of exchange agreements, for situations where water is needed upstream of the location where it can be discharged to the canal. This kind of arrangement was used in 1999 under similarly dry conditions in the Friant Division, and a corresponding program is currently in place for users of the Delta-Mendota Canal (Reclamation 1999, Reclamation 2013). In addition to the exchange and/or Warren Act agreement, certain Friant Division CVP contractors have also requested land use authorizations to use Reclamation right of way for temporary pumping facilities.

The Warren Act of February 21, 1911, CH. 141, (36 STAT. 925; 43 U.S.C. § 523) authorizes Reclamation to enter into agreements to store or convey Non-Project Water when excess capacity is available in federal facilities. Section 14 of the Reclamation Project Act of 1939 (53 Stat. 1197; 43 U.S.C. § 389) allows the United States to enter into contracts for the exchange or replacement of water for the benefit of the United States and the project. Title 34, Section 3408(c) of P.L. 102-575, Central Valley Project Improvement Act allows for the exchange, impoundment, storage, carriage, and delivery of CVP and Non-CVP water for domestic, municipal, industrial, fish and wildlife, and any other beneficial purpose.

1.2 Need for the Proposed Action

There is a need to supply additional water to areas where shortages are taking place within the Friant CVP Division. The purpose of Reclamation's action is to facilitate conveyance of supplemental water supplies to areas where it is needed to maintain crops, and to provide authorizations for the necessary discharge facilities within Reclamation right of way.

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

Under the No Action Alternative, Reclamation would not permit the CVP contractors located within the Friant Division to discharge pumped groundwater into the FKC. Affected growers would have to find alternative supplies of water, provide for alternative conveyance path(s), and/or temporarily take land out of production.

2.2 Proposed Action

Reclamation proposes to enter into Warren Act agreements with the CVP contractors located in the Friant Division and physically adjacent to the FKC. A list of the participating contractors may be found in Section 3.2 (also see Figure 2-1). The agreements would allow for the cumulative introduction of up to 50,000 acre-feet (AF) of non-CVP water. The agreements would be effective for a period of one year, with an option for a second one-year term.

The source of the non-CVP water introduced into the FKC would be groundwater pumped from privately owned wells within each district. The water would be introduced either directly or via the district's existing distribution systems. The quantity of groundwater pumped into the FKC would be measured by flow-meters read and calibrated by Friant Water Authority (FWA) field staff. Each participating district would be permitted to pump groundwater into the FKC, although total quantities introduced under the Proposed Action would not exceed a combined volume of 50,000 AF. After introduction, the district(s) would then convey a like amount of water through turnouts on the FKC within their district or to other districts within the Friant CVP Division for agricultural use. Exchanges would also be permitted in situations where a contractor's discharge point to the canal is downstream of the location where the water is needed. Prior to introduction of water, all wells would be tested to demonstrate compliance with Reclamation's then-current water quality standards. The current water quality standards can be found in Appendix B.

Also as part of the Proposed Action, Reclamation would issue land use authorizations for use of Reclamation right of way at discharge points at the locations listed in Table 2-1. No new permanent modifications to the FKC would be authorized. However, some existing discharge facilities whose licenses have expired would have their license renewed for a period of 25 years. Also some locations are proposed to have new temporary discharge points. These could involve facilities placed over the canal bank (drivable pipe or hose) or suspended from bridges, or new temporary pipe installation. The new temporary pipes would be no larger than 1 foot in

diameter, and would be installed only within the canal berm, existing roadways, and disturbed agricultural fields within the plow zone. These new pipes would be removed upon expiration of the Warren Act agreement.

Additional land use authorizations or discharge points within the geographical coverage of this environmental analysis may also be included as long as they meet the then-current water quality requirements for the FKC and do not affect protected species.

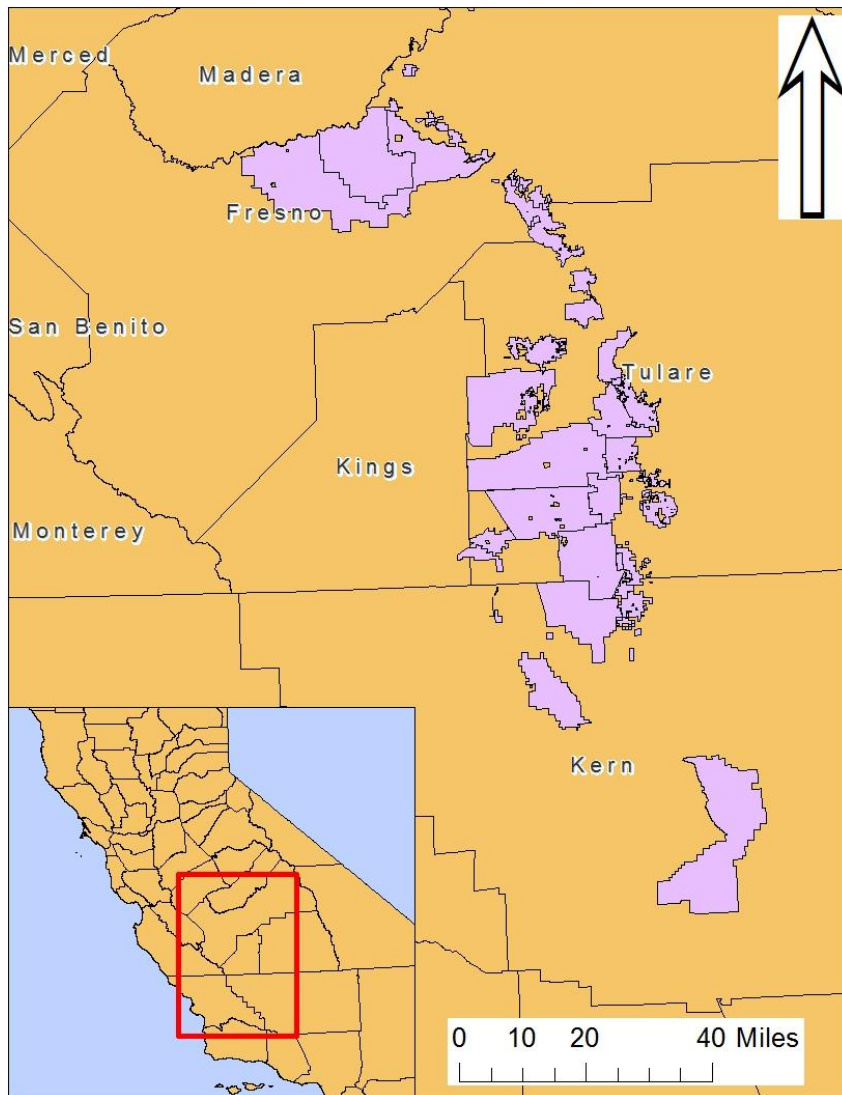


Figure 2-1 Friant-Kern Canal Contractors

Table 2-1 Discharge Point Authorizations

Irrigation District	FKC Milepost	Section/Township/Range	Well Owner/ID
Delano-Earlimart ID	107.34	23-23-26	Castlerock
Delano-Earlimart ID	(Not Provided)	23-23-26	Castlerock 2
Delano-Earlimart ID	110.57	03-24-26	Sun Pacific 1
Delano-Earlimart ID	110.57	03-24-26	Sun Pacific 2
Delano-Earlimart ID	(Not Provided)	15-24-26	Poonian
Delano-Earlimart ID	112.09	09-24-26	Kovacevich 5 #3
Delano-Earlimart ID	(Not Provided)	27-23-26	Golden State Grapes

Irrigation District	FKC Milepost	Section/Township/Range	Well Owner/ID
Delano-Earlimart ID	108.45	27-26-23	Kovacevich #1
Delano-Earlimart ID	(Not Provided)	09-25-26	Hronis Family #1
Delano-Earlimart ID	(Not Provided)	03-25-26	Hronis Family #2
Delano-Earlimart ID	(Not Provided)	04-25-26	K & P Hronis
Delano-Earlimart ID	111.07	04-24-26	Delano Vineyards
Delano-Earlimart ID	(Not Provided)	21-24-26	Delano Farms
Delano-Earlimart ID	115.8	16-24-26	Di Buduo
Delano-Earlimart ID	112.3	34-23-36	Four Star Fruit
Delano-Earlimart ID	115.8W	17-24-26	Delano
Delano-Earlimart ID	115.85	29-24-26	Avenue 8 Almond
Delano-Earlimart ID	105.66	01-26-23	Hronis Ranch #4
Delano-Earlimart ID	112.09	09-24-26	D Hillon #1
Delano-Earlimart ID	112.09	09-24-26	D Hillon #2
Delano-Earlimart ID	108.85	27-23-26	Kovacevich #2
Lindsay-Strathmore ID	(Not Provided)	28-20-27	Lobue
Lindsay-Strathmore ID	86.42	16-20-27	M Kausen
Lindsay-Strathmore ID	86.17	09-20-27	S Kausen
Lindsay-Strathmore ID	84.11	04-20-27	Limoneira
Lindsay-Strathmore ID	86.19	16-20-27	C Loeffler
Lindsay-Strathmore ID	84.26	04-20-27	M Loeffler
Lindsay-Strathmore ID	86.17	09-20-27	Mittman
Lindsay-Strathmore ID	86.0	16-20-27	Sun Pacific North
Lindsay-Strathmore ID	87.68	21-20-27	Sun Pacific South
Lindsay-Strathmore ID	86.44	27-16-20	Chill
Lindsay-Strathmore ID	(Not Provided)	28-20-27	Bechtel
Lindsay-Strathmore ID	86.19	16-20-27	Heuer
Lindsay-Strathmore ID	89.19	28-20-27	Patterson
Lindsay-Strathmore ID	81.75R	29-19-27	CUS
Lindsay-Strathmore ID	87.30	21-20-27	Golden Valley
Lindsay-Strathmore ID	88.18	21-20-20	Sierra Sunrise
Lindsay-Strathmore ID	88.18	21-20-27	Starr Warson
Lindsay-Strathmore ID	86.68	16-20-27	M Kausen #2
Lindsay-Strathmore ID	86.68	16-20-27	Sun Pacific Middle
Orange Cove ID	38.88R	34-14-24	P Lawson
Orange Cove ID	38.88L	34-14-24	M Lawson
Orange Cove ID	40.37	04-15-24	Booth #2
Orange Cove ID	52.44	14-16-25	Booth #28
Orange Cove ID	47.37	28-15-25	Booth #4
Orange Cove ID	50.38	11-16-25	K Harrison
Orange Cove ID	51.62	(Not Provided)	Bee Sweet Citrus
Orange Cove ID	(Not Provided)	(Not Provided)	Bee Sweet Citrus
Orange Cove ID	39.45	(Not Provided)	Mulholland
Orange Cove ID	45.46	(Not Provided)	Ken Carrol
Orange Cove ID	44.56	(Not Provided)	Ken Carrol
Orange Cove ID	45.46	(Not Provided)	CitriCare
Orange Cove ID	45.46	(Not Provided)	CitriCare
Orange Cove ID	53.52	(Not Provided)	Riddle
Orange Cove ID	45.46	(Not Provided)	Kryder
Orange Cove ID	38.74	(Not Provided)	Barthulli
Orange Cove ID	38.74	(Not Provided)	Barthulli
Orange Cove ID	38.74	(Not Provided)	Barthulli
Orange Cove ID	45.46	(Not Provided)	Rogalsky
Orange Cove ID	44.56	(Not Provided)	MilMar
Orange Cove ID	47.03	(Not Provided)	MilMar
Orange Cove ID	53.32	(Not Provided)	MilMar
Orange Cove ID	45.46	(Not Provided)	Dean Gillette
Orange Cove ID	45.46	(Not Provided)	Jay Gillette
Orange Cove ID	47.03	(Not Provided)	Booth

Irrigation District	FKC Milepost	Section/Township/Range	Well Owner/ID
Orange Cove ID	40.37	(Not Provided)	Booth
Orange Cove ID	52.44	(Not Provided)	Booth
Orange Cove ID	47.37	(Not Provided)	Booth
Orange Cove ID	45.65	(Not Provided)	K Howard
Orange Cove ID	36.50	(Not Provided)	Cotter
Orange Cove ID	38.88R	(Not Provided)	P Lawson
Orange Cove ID	38.88L	(Not Provided)	M Lawson
Orange Cove ID	36.79	(Not Provided)	Carlson/Carlson
Orange Cove ID	47.03	(Not Provided)	H&H Ranches
Orange Cove ID	36.79	(Not Provided)	Hogan Citrus
Orange Cove ID	36.5	20-14-24	J Cotter
Orange Cove ID	46.65	29-15-25	K Howard
Saucelito ID	103.19R	36-22-26	MZIRP Inc.
Saucelito ID	98.12	06-22-27	Changala
Saucelito ID	105.55L	12-23-26	MAMZIRP LLC
Terra Bella ID	(Not Provided)	04-23-28	Cholworthy
Terra Bella ID	(Not Provided)	30-22-27	BTV Crown/Weldon
Terra Bella ID	(Not Provided)	(Not Provided)	J Poonian Wilkinson
Terra Bella ID	(Not Provided)	31-22-37	South Valley Farms
Terra Bella ID	(Not Provided)	16-21-27	Cannella

ID – Irrigation District

Note that addition of wells would not increase the total volume of non-CVP water that could be conveyed under this program above 50,000 AF. Prior to introduction, additional wells must meet the requirements described above and shall be added, by an amendment, to the applicable agreements.

2.2.1 Environmental Commitments

The participating CVP contractors shall implement the following environmental protection measures to reduce environmental consequences associated with the Proposed Action (Table 2-2). The determinations of the effects from the Proposed Action assume the following measures would be fully implemented. Copies of all reports and monitoring data collected for the Proposed Action shall be submitted to Reclamation.

Table 2-2 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 (SJVAPCD).
Groundwater	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.
Water Quality	Water from each well must meet water quality standards prior to approval for conveyance. If testing from any individual well indicates that its water does not meet then-current standards, it would not be allowed to discharge into the FKC until water quality concerns are addressed.
Land Use/Biology	The non-CVP water involved in these actions must not be used to cultivate native or untilled land (fallow for three consecutive years or more).
Land Use	The Proposed Action does not allow permanent modification of existing facilities.
Biological Resources	A preconstruction survey for Federally protected species will be required prior to any ground disturbance.
Cultural Resources	Warren Act agreements for the new temporary pipes which require ground disturbance would not be issued until Cultural Resources consultation is completed.

Section 3 Affected Environment and Environmental Consequences

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

3.1 Resources Eliminated from Further Analysis

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 resources listed in Table 3-1.

Table 3-1 Resources Eliminated from Further Analysis

Resource	Reason Eliminated
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	On March 19, 2014, Reclamation determined that the Proposed Action has no potential to affect Indian Trust Assets. See Appendix C.
Air Quality	The SJVAPCD requires pumps operated within the district to meet strict emission standards. With the requirement that equipment used for the Proposed Action must meet SJVAPCD standards, impacts to air quality should be discountable.
Global Climate	The combined greenhouse gas emissions of all pumps that could be used under the Proposed Action are not anticipated to approach the 25,000 tons of carbon dioxide equivalent per year threshold of significance set by the Environmental Protection Agency. The pumps would also have to meet SJVAPCD emission standards, which are set such that impacts from regulated emission sources would not cumulatively cause an adverse effect.

3.2 Water Resources

3.2.1 Affected Environment

Friant Division

Friant Dam is located on the San Joaquin River, 25 miles northeast of Fresno, California. The dam controls the San Joaquin River flows, provides downstream releases to meet requirements above Mendota Pool, and provides flood control, conservation storage, diversion into Madera and Friant-Kern Canals, and delivers water to a million acres of agricultural land in the San Joaquin Valley. The reservoir, Millerton Lake, has a total capacity of 520,528 AF, a surface area of 4,900 acres, and is approximately 15 miles long.

There are 32 Friant Division CVP contractors located on the eastern side of the San Joaquin Valley in Merced, Madera, Fresno, Tulare, Kings, and Kern Counties. CVP water for a majority of these contractors comes from Millerton Lake via the FKC or the Madera Canal. Water conveyed to these contractors is categorized as either Class 1 or Class 2 water depending on its

reliability and allocation circumstances. Twenty-eight of the Friant contractors are included in this Proposed Action.

Cross Valley contractors are CVP contractors that are geographically located on the eastern side of the San Joaquin Valley in Fresno, Kern, Kings, and Tulare Counties. There are seven Cross Valley contractors with a total CVP supply of 128,300 AF/year. Those Cross Valley contractors which are located in the Friant Division are included in the Proposed Action.

A list of participating contractors and their contract supplies may be found in Tables 3-2 and 3-3, below.

Table 3-2 Participating Contractors and their CVP Contract Supply

Contractor	Class 1 (AF/year)	Class 2 (AF/year)
Arvin-Edison Water Storage District	40,000	311,675
City of Fresno	60,000	0
² City of Lindsay	2,500	0
City of Orange Cove	1,400	0
Delano-Earlimart Irrigation District	108,800	74,500
Exeter Irrigation District	11,100	19,000
Fresno Irrigation District	0	75,000
Garfield Water District	3,500	0
Gravelly Ford Water District	0	14,000
² Hills Valley Irrigation District	1,250	0
International Water District	1,200	0
Ivanhoe Irrigation District	6,500	500
¹ Kaweah Delta Water Conservation District	1,200	7,400
² Kern-Tulare Irrigation District	0	5,000
Lewis Creek Water District	1,200	0
Lindmore Irrigation District	33,000	22,000
Lindsay-Strathmore Irrigation District	27,500	0
² Lower Tule River Irrigation District	61,200	238,000
Orange Cove Irrigation District	39,200	0
Porterville Irrigation District	15,000	30,000
² Saucelito Irrigation District	21,500	32,800
Shafter-Wasco Irrigation District	50,000	39,600
Southern San Joaquin Municipal Utility District	97,000	45,000
² Stone Corral Irrigation District	10,000	0
Tea Pot Dome Water District	7,200	0
Terra Bella Irrigation District	29,000	0
² Tri-Valley Water District	400	0
Tulare Irrigation District	30,000	141,000
¹ Kaweah Delta Water Conservation District is comprised of four districts: Lakeside Irrigation Water District, Kings County Water District, Corcoran Irrigation District, and Tulare Irrigation District. ² Lower Tule River ID, Saucelito ID, Stone Corral ID, Tri-Valley, Kern-Tulare, Hills Valley and City of Lindsay receive CVP water under more than one contract, either as a Friant Division and/or Cross Valley Contractor/Sub-Contractor.		

Table 3-3 Cross Valley Contractors and their CVP Contract Supply

Contractor	CVP Contract Supply (AF/year)
Hills Valley Irrigation District	3,346
¹ Kern Tulare Water District	53,300
² Lower Tule River Irrigation District	31,102
Tri-Valley Water District	1,142
¹ Kern Tulare Water District and Rag Gulch Water District consolidated on January 1, 2009. ² Lower Tule River ID, Saucelito ID, Stone Corral ID, Tri-Valley, Kern-Tulare, Hills Valley and City of Lindsay receive CVP water under more than one contract, either as a Friant Division and/or Cross Valley Contractor/Sub-Contractor.	

Friant-Kern Canal

The FKC carries water over 151.8 miles in a southerly direction from Millerton Lake to the Kern River, four miles west of Bakersfield. The water is used for supplemental and new irrigation supplies in Fresno, Tulare, and Kern Counties. The canal has an initial capacity of 5,000 cubic feet per second that gradually decreases to 2,000 cubic feet per second at its terminus near the Kern River.

Groundwater Resources

Two primary hydrologic divisions of the San Joaquin Valley are agreed upon by the Department of Water Resources (DWR), the State Water Resources Control Board, and the U.S. Geological Survey: 1) the San Joaquin River Hydrologic Region covering approximately 15,200 square miles and including all of Calaveras, Tuolumne, Mariposa, Madera, San Joaquin, and Stanislaus counties, most of Merced and Amador counties, and parts of Alpine, Fresno, Alameda, Contra Costa, Sacramento, El Dorado, and San Benito counties; and 2) the Tulare Lake Hydrologic Region covering approximately 17,000 square miles and including all of Kings and Tulare counties and most of Fresno and Kern counties (DWR 2003).

According to DWR Bulletin 118, groundwater provides approximately 30 percent of the total supply for the San Joaquin River Hydrologic Region (DWR 2003). All of the sub-basins within the San Joaquin River Hydrologic Region have experienced some overdraft. Groundwater quality conditions vary throughout the San Joaquin River Hydrologic Region. Salinity, boron, nitrates, arsenic, selenium, and mercury are parameters of concern for agricultural and municipal uses throughout the region.

In the southern region of the San Joaquin Valley, several conjunctive use projects are operating or are in the proposal stages. The purposes of each project vary and include recharge of overdrafted basins using surface water, cooperative banking concepts that rely on groundwater in dry years and surface water in wet years, and temporary storage of surface water for later withdrawal.

Fresno and Kern Counties have ordinances in place which restrict transfer of groundwater outside of their respective counties and/or aquifer areas. Kings and Tulare Counties do not have such ordinances at this time.

Subsidence is an ongoing problem in the Central Valley. Historically, the impacts have been most pronounced on the western side of the Valley (Ireland et al. 1984). Consequently, most monitoring and analysis efforts have focused on trends and impacts in that area.

3.2.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not permit the introduction of the pumped groundwater into federal facilities. The contractors would need to find alternative supplies of water, provide for alternative conveyance path(s), and/or temporarily take land out of production.

Proposed Action

The Proposed Action would allow groundwater to be conveyed and stored in CVP facilities when excess capacity is available. This would allow the water to be delivered to CVP contractors' service areas for agricultural use. There would be no permanent modification of the FKC, and the capacity of the facility would remain the same.

Water from each well must meet water quality standards prior to approval for conveyance. If testing from any individual well indicates that its water does not meet then-current standards, it would not be allowed to discharge into the FKC until water quality concerns are addressed. This testing program is anticipated to adequately protect the quality of water in the canal and limit degradation of other users' supplies.

The total quantity of groundwater that would be pumped into the FKC under the Proposed Action would be limited to 50,000 AF/year over a two year period. The quantity of groundwater pumped into the FKC by a district would be delivered by way of the canal (less conveyance losses), and used for irrigation purposes. Though some of the water used for irrigation would be lost to evapotranspiration, some would also percolate back into the aquifer.

The groundwater to be pumped under the Proposed Action would come from wells at varying depths, at a wide range of locations along the FKC. The wells involved are anticipated to draw at most several hundred AF/year of water individually, which is minor in the context of local and regional supplies. However, cumulative regional groundwater overdraft is an ongoing concern. Supplies in the area are managed through conjunctive use, and aquifers are recharged with surface water in wet years to offset drawdown of groundwater supplies during dryer periods.

Similarly, none of the wells are expected to individually pump enough water to create subsidence problems, but regional trends are towards gradually lowering ground surface levels as a result of subsidence. Since the Proposed Action is temporary and involves relatively small volumes of water drawn from many locations over a wide geographic area, it is not expected that it would result in subsidence beyond historical fluctuations.

Water users within Fresno and Kern counties would be required to comply with applicable groundwater ordinances in order to limit impacts to local groundwater supplies. Kings and Tulare Counties have not elected to implement groundwater ordinances. At this time Reclamation does not believe it would be appropriate to impose restrictions on use or transport of groundwater beyond those already established by local jurisdictions.

Cumulative Impacts

The FKC is used to convey water for a variety of users from a variety of sources. The quality of water being introduced is tested regularly in order to limit the potential for degradation of mixed water supplies. This testing program is anticipated to adequately protect the quality of water in the FKC from the cumulative effects of this and other water conveyance actions.

Although capacity in the FKC is limited, FWA and Reclamation actively operate the canal in order to balance competing demands. Non-CVP water such as the groundwater which would be conveyed under the Proposed Action has a lower priority than CVP water for conveyance in the FKC. Therefore the Proposed Action is not anticipated to cause conflicts or other cumulative impacts to FKC operations.

Groundwater overdraft is an ongoing challenge in the San Joaquin Valley. Pumping increases in dry years, and drops off in years when surface water supplies are plentiful. A variety of agencies throughout the region and state are working on balancing competing water needs in order to provide the greatest benefit possible with the limited resources available. The needs of the State will likely be met over time through a combination of demand management, increases in storage capacity and new supply development. Ground subsidence is related, and efforts to reduce subsidence will depend on success in meeting California's surface water needs while keeping groundwater pumping within a sustainable range.

3.3 Land Use

3.3.1 Affected Environment

The CVP contractors are located in Fresno, Kern, Kings and Tulare Counties, in California's Central Valley. The valley is generally rural and agricultural in nature, with several medium-sized cities located along major transportation corridors. The leading agricultural products in each county are outlined below in Table 3-4.

Table 3-4 Agricultural Products by County

County	Major Agricultural Products
Fresno	Almonds, livestock, raisins, milk, tomatoes
Kern	Grapes, almonds, milk, vegetables, pistachios
Kings	Milk, cotton, cattle, tomatoes, walnuts
Tulare	Milk, grapes, cattle, navel oranges, silage corn
Source: California Farm Bureau Federation 2012	

No Action

Under the No Action Alternative, Reclamation would not permit the CVP contractors located in the Friant Division to discharge pumped groundwater into the FKC. Growers would have to find alternative supplies of water, provide for alternative conveyance path(s), and/or temporarily take land out of production.

Proposed Action

The Proposed Action would support current land uses by making additional supplies of water available to agricultural users to support existing crops. It would help sustain permanent crops

that are currently at risk of dying due to lack of water. The water would not be used to support new development or convert fallow land for agriculture.

Cumulative Impacts

The Proposed Action would provide a source of water to support agriculture in a time of shortage. This helps to mitigate the impacts of external challenges, in particular California's ongoing drought. Several similar water-moving actions have been authorized or are currently under review. Cumulatively they are expected to provide a benefit to existing land uses.

3.4 Biological Resources

3.4.1 Affected Environment

Reclamation requested an official species list from the U.S. Fish and Wildlife Service (Service) via the Sacramento Field Office's website, http://www.fws.gov/sacramento/es_species/Lists/es_species_lists-overview.htm, on March 25, 2014 (document number: 140325073023). The list is for the following counties: Fresno, Kings, Kern, and Tulare (Service 2014). Reclamation further queried the California Department of Fish and Wildlife California Natural Diversity Database (CNDDB) for records of Federally listed species within the Proposed Action Area (CNDDB 2014). A summary table (Table 3-5) was created from the Service's species list, CNDDB records, and additional information in Reclamation's files.

Table 3-5 Special-Status Species with the Potential to Occur in the Action Area

Species	Status¹	Effects²	Summary basis for ESA determination
INVERTEBRATES			
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	E	NE	Not documented in the Proposed Action Area, and no ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
Kern primrose sphinx moth (<i>Euproserpinus euterpe</i>)	T	NE	Does not occur in Proposed Action Area.
longhorn fairy shrimp (<i>Branchinecta longiantenna</i>)	E, X	NE	Not documented in the Proposed Action Area, and no ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	T, X	NE	Known from along the FKC, but no ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	T	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	E, X	NE	Not documented in the Proposed Action Area, and no ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.

Species	Status ¹	Effects ²	Summary basis for ESA determination
FISH			
delta smelt (<i>Hypomesus transpacificus</i>)	T	NE	No waterways within the species' range would be affected by the proposed project.
Central Valley steelhead (<i>Oncorhynchus mykiss</i>)	T, NMFS	NE	No waterways within the species' range would be affected by the proposed project.
Lahontan cutthroat trout (<i>Oncorhynchus clarki henshawi</i>)	T	NE	Does not occur in Proposed Action Area.
Little Kern golden trout (<i>Oncorhynchus aquabonita whitei</i>)	T, X	NE	Does not occur in Proposed Action Area.
Paiute cutthroat trout (<i>Oncorhynchus clarki seleniris</i>)	T	NE	Does not occur in Proposed Action Area.
Owens tui chub (<i>Gila bicolor snyderi</i>)	E	NE	Does not occur in Proposed Action Area.
AMPHIBIANS			
California tiger salamander, central population (<i>Ambystoma californiense</i>)	T, X	NE	Known from along the FKC, but no ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
California red-legged frog (<i>Rana draytonii</i>)	T, X	NE	Presumed extirpated from the Proposed Action Area, and no ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
mountain yellow-legged frog (<i>Rana muscosa</i>)	PE, PX	NE	Does not occur in Proposed Action Area.
Sierra Nevada yellow-legged frog (<i>Rana sierriae</i>)	PE, PX	NE	Does not occur in Proposed Action Area.
Yosemite toad (<i>Bufo canorus</i>)	PT, PX	NE	Does not occur in Proposed Action Area.
REPTILES			
blunt-nosed leopard lizard (<i>Gambelia sila</i>)	E	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
giant garter snake (<i>Thamnophis gigas</i>)	T	NE	Presumed extirpated from the Proposed Action Area, and no ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.

Species	Status ¹	Effects ²	Summary basis for ESA determination
BIRDS			
California condor (<i>Gymnogyps californianus</i>)	E, X	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
least Bell's vireo (<i>Vireo bellii pusillus</i>)	E	NE	Could fly over the Proposed Action Area during migration, but habitat is lacking.
southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	E, X	NE	Could fly over the Proposed Action Area during migration, but habitat is lacking.
western snowy plover (<i>Charadrius alexandrinus nivosus</i>)	T	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
western yellow-billed cuckoo (<i>Coccyzus americanus occidentalis</i>)	PT	NE	Could fly over the Proposed Action Area during migration; no ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
MAMMALS			
giant kangaroo rat (<i>Dipodomys ingens</i>)	E	NE	Irrigated agriculture does not provide suitable habitat for this species. No change in land use as a result of the Proposed Action.
fisher (<i>Martes pennanti</i>)	C	NE	Does not occur in Proposed Action Area.
Fresno kangaroo rat (<i>Dipodomys nitratooides exilis</i>)	E, X	NE	Does not occur in Proposed Action Area
Sierra Nevada bighorn sheep (<i>Ovis canadensis californiana</i>)	E	NE	Does not occur in Proposed Action Area.
Tipton kangaroo rat (<i>Dipodomys nitratooides nitratooides</i>)	E	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
Buena Vista Lake shrew (<i>Sorex ornatus relictus</i>)	E, X	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	E	NE	There are multiple CNDDDB-recorded occurrences of San Joaquin kit fox in and near the action area. No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
PLANTS			
Bakersfield cactus (<i>Opuntia treleasei</i>)	E	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.

Species	Status ¹	Effects ²	Summary basis for ESA determination
California jewelflower (<i>Caulanthus californicus</i>)	E	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
Greene's tuctoria (<i>Tuctoria greenei</i>)	E	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
hairy Orcutt grass (<i>Orcuttia pilosa</i>)	E, X	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
Hartweg's golden sunburst (<i>Pseudobahia bahiifolia</i>)	E	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
Hoover's spurge (<i>Chamaesyce hooveri</i>)	T, X	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
Keck's checker-mallow (<i>Sidalcea keckii</i>)	E, X	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
Kern mallow (<i>Eremalche kernensis</i>)	E	NE	Not documented in the Proposed Action Area, and no ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of
Mariposa pussy-paws (<i>Calyptridium pulchellum</i>)	T	NE	Does not occur in Proposed Action Area.
Palmate-bracted bird's-beak (<i>Cordylanthus palmatus</i>)	E	NE	Does not occur in Proposed Action Area.
Ramshaw sand-verbena (<i>Abronia alpina</i>)	C	NE	Does not occur in Proposed Action Area.
San Benito evening-primrose (<i>Camissonia benitensis</i>)	T	NE	Does not occur in Proposed Action Area.
San Joaquin adobe sunburst (<i>Pseudobahia peirsonii</i>)	T	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
San Joaquin woolly-threads (<i>Monolopia congdonii</i>)	E	NE	No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
San Joaquin Valley Orcutt grass (<i>Orcuttia inaequalis</i>)	T, X	NE	No ground disturbance No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.
Springville clarkia (<i>Clarkia springvillensis</i>)	T	NE	Does not occur in Proposed Action Area.
succulent owl's-clover (<i>Castilleja campestris</i> ssp. <i>succulenta</i>)	T, X	NE	No ground disturbance No ground disturbance (without a survey verifying that no impact would occur) or land conversion as a result of the Proposed Action.

Species	Status ¹	Effects ²	Summary basis for ESA determination
1 Status= Listing of Federally special status species E: Listed as Endangered NMFS: Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service T: Listed as Threatened P: Proposed for listing or designation C: Candidate for listing X: Critical Habitat designated for this species 2 Effects = Effect determination NE: No Effect from the Proposed Action to federally listed species			

3.4.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not permit the introduction of the pumped groundwater into federal facilities. The contractors would need to find alternative supplies of water, provide for alternative conveyance path(s), and/or temporarily take land out of production. If this were to occur, there might be some fallowed fields that could temporarily be used by the San Joaquin kit fox and the Tipton kangaroo rat. However, the fields would likely be disced so often that denning and burrowing would be unlikely to occur, and the value of the fallowed fields to those species would be low.

Proposed Action

Under the Proposed Action, Federally listed or proposed or candidate species, and critical habitat would not be affected, nor would any migratory birds. Many of the species and their critical habitat do not occur in the Proposed Action Area. The FKC is not used by any Federally listed or proposed aquatic species. For those that do occur in the Proposed Action Area, the restriction to only allow ground disturbance within-already disturbed areas would reduce the chance of encountering a Federally listed or proposed species, of affecting a primary constituent element of critical habitat, or of impacting a migratory bird. In order to avoid effects, prior to any ground disturbance a preconstruction survey will be conducted and the results provided to Reclamation. If the results of the survey indicated that there would be no impact to protected biological resources, the work could then proceed. Otherwise, separate environmental analysis would be needed and the ground disturbance would not occur as part of the proposed action. With the above limitations and based upon the nature of this action Reclamation has determined there would be No Effect to listed species or designated critical habitat under the Endangered Species Act (16 U.S.C. §1531 et. seq.). There would also be no take of migratory birds.

Cumulative Impacts

As the Proposed Action would not result in any direct or indirect impacts to Federally listed, proposed, or candidate species, or critical habitat, it would not contribute cumulatively to any impacts to these resources.

3.5 Cultural Resources

3.5.1 Affected Environment

Friant-Kern Canal

Initial CVP features were authorized for construction by the United States Army Corps of Engineers under the Rivers and Harbors Act of 1935. In 1937, the CVP, including the Friant Division, was re-authorized by Congress for construction by the Secretary of the Interior, specifically Reclamation. One purpose of the CVP was to partially offset the geographical imbalance of land and water resources between the wetter northern and drier southern parts of the San Joaquin River Valley. San Joaquin River water stored at Friant Dam is directed through the dam into two canals that serve the eastern-central and southern end of the Central Valley: the over 150-mile-long FKC and the shorter Madera Canal. Reclamation considers and treats the FKC as eligible for inclusion in the National Register of Historic Places (National Register) for its association with the CVP under the themes of planning and construction and contribution to the economic and agricultural history of California.

3.5.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not permit the CVP contractors located in the Friant Division to discharge pumped groundwater into the FKC. Growers would have to find alternative supplies of water, provide for alternative conveyance path(s), and/or temporarily take land out of production. There would be no impacts to the FKC as a historic property.

Proposed Action

The Proposed Action would result in new temporary discharge points into the FKC that could involve facilities placed over the canal bank (drivable pipe or hose) or suspended from bridges, or new temporary pipe installation. The new temporary pipes would be no larger than 1 foot in diameter and would be installed only within the canal berm, existing roadways, and disturbed agricultural fields within the plow zone. These new pipes would be removed upon expiration of the Warren Act agreements. Water discharge, conveyance, exchanges, and distribution are all consistent with the intended purpose and function of the FKC and would have no effect on the historic significance of the FKC. Placing pipes over or within previously disturbed contexts of existing roadways and plow zones of agricultural fields would have no effect to significant cultural resources.

Cumulative Impacts

The cumulative temporary discharges of the Proposed Action would have no adverse effect to the FKC as none of the characteristics that make the FKC eligible for listing on the National Register would be altered. The discharge pipes/hoses are temporary and would be removed upon expiration of the Warren Act agreements. Reclamation is consulting, pursuant to Section 106 of the National Historic Preservation Act (NHPA), with the California State Historic Preservation Officer (SHPO) on the finding of no adverse effects for the cumulative effects of increased, temporary discharge facilities into the FKC (see Appendix D). Warren Act agreements for the new temporary pipes would not be issued until this consultation is completed.

3.6 Socioeconomic Resources

3.6.1 Affected Environment

The covered contractors are located in Fresno, Kern, Kings and Tulare Counties. According to 2012 Census estimates, all four counties have lower per capita income, greater unemployment and higher rates of poverty than California as a whole. See Table 3-6, below.

Table 3-6 Economic Data, 2012

County	Per Capita Income	Unemployment Rate	Poverty Rate
Fresno County	\$20,391	15.7%	24.8%
Kern County	\$20,216	14.0%	22.5%
Kings County	\$18,566	16.5%	20.7%
Tulare County	\$18,021	13.6%	24.8%
California	\$29,551	11.4%	15.3%

Source: Census Bureau 2012 , Census Bureau 2013

3.6.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not permit the contractors to discharge pumped groundwater into the FKC. Growers would have to find alternative supplies of water, provide for alternative conveyance path(s), and/or temporarily take land out of production. Agriculture is a major contributor to the area's economy, so this would have a disproportionate negative impact on employment and wages in the Central Valley.

Proposed Action

The Proposed Action would provide a source of water to support agriculture, which is the Central Valley's primary source of economic activity. This would provide direct benefits to growers from crop sales, as well as indirect benefits to area businesses which provide agricultural supplies and services.

Cumulative Impacts

The Proposed Action would provide a source of water to support agriculture in a time of shortage. Because of agriculture's importance to the area's economy, any impacts, either positive or negative, tend to have a disproportionate and cumulative effect on employment and wages. Several similar water-moving actions have been authorized or are currently under review. Cumulatively they are expected to provide a benefit to the area's economic well-being.

3.7 Environmental Justice

3.7.1 Affected Environment

The covered contractors are located in Fresno, Kern, Kings and Tulare Counties. According to Census Bureau estimates, the demographic makeup of the counties is similar to California's, with several exceptions. In particular, the percentage of the population who identify as Hispanic or Latino is higher than the statewide average. Some counties also have smaller Asian and/or Black/African-American populations than California as a whole. See Table 3-7 below for more information.

Table 3-7 Demographic Data, 2012

	Total Population	White (not Hispanic)	Black or African American	American Indian	Asian	Native Hawaiian/ Pacific Islander	Hispanic or Latino
Fresno County	947,895	77.5%	5.9%	3.0%	10.4%	0.3%	51.2%
Kern County	856,158	83.0%	6.3%	2.7%	4.8%	0.3%	50.3%
Kings County	151,364	81.4%	7.5%	3.0%	4.3%	0.3%	52.0%
Tulare County	451,977	88.4%	2.2%	2.8%	4.0%	0.2%	61.8%
California	37,999,878	73.7%	6.6%	1.7%	13.9%	0.5%	38.2%

Source: Census Bureau 2013

3.7.2 Environmental Consequences

No Action

Under the No Action Alternative, Reclamation would not permit the CVP contractors located in the Friant Division to discharge pumped groundwater into the FKC. Growers would have to find alternative supplies of water, provide for alternative conveyance path(s), and/or temporarily take land out of production. Farm laborers often come from minority and low-income communities. Therefore reductions in agricultural productivity would have a disproportionate, adverse impact on those communities.

Proposed Action

The Proposed Action would support agriculture by making additional supplies of water available to support existing crops. Since farm laborers often come from minority and low-income communities, supporting farm employment is a benefit to those disadvantaged groups.

Cumulative Impacts

The Proposed Action would provide a source of water to support agriculture in a time of shortage. Because of agriculture's importance to the area's economy, any impacts, either positive or negative, tend to have a disproportionate and cumulative effect on employment and wages. Farm laborers often come from low-income and minority populations, and they are therefore disproportionately affected by these trends. Several similar water-moving actions have been authorized or are currently under review. Cumulatively they are expected to provide a benefit to the economic well-being of disadvantaged groups.

Section 4 Consultation and Coordination

4.1 Public Review Period

Reclamation provided the public with an opportunity to comment on the Draft Finding of No Significant Impact and Draft EA during a 7 day public review period. Two comment letters were received. The letters and Reclamation's responses may be found in Appendix A.

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

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

Reclamation has determined that the Proposed Action would not affect any Federally listed or proposed species or any critical habitat. Therefore, consultation with either the Service or National Marine Fisheries Service is not required. The Service was sent a copy of the EA and Finding of No Significant Impact when they were released for public review. Based upon the nature of this action Reclamation has determined there would be No Effect to listed species or designated critical habitat under the Endangered Species Act (16 U.S.C. §1531 et. seq.).

4.3 National Historic Preservation Act (16 U.S.C. 470)

Section 106 of the National Historic Preservation Act requires Federal agencies to consider the effects of their actions on historic properties and to provide the Advisory Council on Historic Preservation an opportunity to comment. Implementing regulations at 36 CFR Part 800 identify the consultation requirements, steps, and processes to comply with Section 106 of the NHPA.

Reclamation determined that the cumulative effects of installing multiple discharges, even though temporary, have the potential to affect the FKC, a historic property. Reclamation initially met with SHPO on February 12, 2014, to discuss potential actions that Reclamation may need to take in response to Governor Brown's Drought State of Emergency for the State of California, on January 17, 2014. Reclamation is consulting with SHPO on a finding of no adverse effect to the FKC for the installation of these multiple, temporary discharges, pursuant to 36 CFR § 800.5(b).

Section 5 Preparers and Reviewers

Ben Lawrence, Natural Resources Specialist, SCCAO
Shauna McDonald, Wildlife Biologist, SCCAO
Bill Soule, Archaeologist, MP-153
Laureen Perry, Regional Archaeologist, MP-153
Patricia Rivera, Indian Trust Assets, MP-400
Rain Emerson, Acting Supervisory Natural Resources Specialist, SCCAO – reviewer
David E. Hyatt, Supervisory Wildlife Biologist, SCCAO – reviewer
Rena Ballew, Contracts Administration Branch Chief, SCCAO – reviewer

Section 6 References

- Bureau of Reclamation (Reclamation). 1999. Categorical Exclusion Checklist 99-015, Incremental Fee Warren Act Contracts. October 14, 1999.
- Bureau of Reclamation (Reclamation). 2013. Environmental Assessment 12-061, 10-Year Exchange and/or Warren Act Contracts for Conveyance of Groundwater in the Delta Mendota Canal DMC (DMC pump-in program). January 10, 2013.
- California Department of Water Resources (DWR). 2003. California's Groundwater. Bulletin 118 Update. 2003.
- California Farm Bureau Federation. 2012. County Farm Bureaus. Website: <http://www.cfbf.com/>. Accessed March 2014.
- California Natural Diversity Database (CNDDDB). 2014. California Department of Fish and Wildlife. Government Edition. March 1, 2014.
- Ireland, R.L., J.F. Poland, and F.S. Riley. 1984. Land subsidence in the San Joaquin Valley, California, as of 1980. USGS Professional Paper: 437-I.
- U.S. Census Bureau (Census Bureau). 2012. American Community Survey. Website: <http://www.census.gov/acs/www/>. Accessed March 2014.
- U.S. Census Bureau (Census Bureau). 2013. State and County QuickFacts. Website: <http://quickfacts.census.gov/qfd/index.html>. Accessed March 2014.
- U.S. Fish and Wildlife Service (Service). 2014. Federal Species List (document No. 140325073023). Website: http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists-form.cfm.

Appendix A Comment Letters and Reclamation Responses



ARVIN-EDISON WATER STORAGE DISTRICT

April 15, 2014

Via Email (blawrence@usbr.gov) & Via 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

Ben Lawrence
United States Department of the Interior
BUREAU OF RECLAMATION
1243 N. Street
Fresno CA, 93721

Re: Friant-Kern Canal Groundwater Pump-In Program Warren Act Agreements Draft FONSI & EA Comments

STAFF

Steven C. Collup
Engineer-Manager
David A. Nixon
Assistant Manager
Jeevan S. Muhar
Staff Engineer
Christ P. Krauter
General Superintendent

Dear Mr. Lawrence:

Thank you for providing Arvin-Edison Water Storage District (AEWSD) the opportunity to comment on the Friant-Kern Canal Groundwater Pump-In Program Warren Act Agreements draft Environmental Assessment and Findings of No Significant Impact (EA/FONSI-14-011) regarding the proposed one year Warren Act Contract involving Non-Project water supplies (Project).

AEWSD is generally supportive of water management programs such as described in the EA/FONSI. We do however request clarification and/or additions to the final EA/FONSI on following points, both with respect to Guidelines for Accepting Non-Project Water in Friant Division Facilities (WQ Guidelines) (**bold underline**).

Reference to Water Quality Guidelines in Appendix A

AEWSD understands the WQ Guidelines in Appendix A, as attached, are the Guidelines that will be used under this program and subsequently serves as the "filter" the EA should be viewed through in regards to comments. In that regard, the majority of AEWSD's concerns with this EA/FONSI have been addressed as a result of the "updated" WQ Guidelines (vs. previous versions) and accordingly any proposed change to the referenced WQ Guidelines would necessitate that AEWSD provide additional comments to the USBR on this EA/FONSI.

In-Canal Testing for Degradation

In a couple sections it is not clear that the "in-canal field testing" as outlined in the WQ Guidelines, in addition to the actual discharge test, are to be completed to limit the degradation of CVP supplies, and in order for wells to continue pumping into the canal.

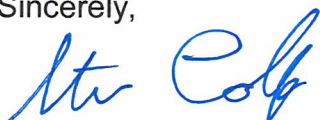
In Section 3.2.2, we suggest the following paragraph be modified to read as follows (AEWSD proposed edits in red):

"Water from each well must meet water quality standards prior to approval for conveyance, and that well must further satisfy the in-canal field testing, to verify degradation limits are not surpassed. If testing from any individual well indicates that its water does not meet then-current standards, or its in-canal contribution exceeds degradation limits, it would not be allowed to discharge into the FKC until water quality concerns are addressed. This testing program is anticipated to adequately protect the quality of water in the canal and limit degradation of other users' supplies."

Ben Lawrence
April 15, 2014
Page 2

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 contact me.

Sincerely,



Steve Collup
Engineer-Manager

Enclosure

cc: Jeevan Muhar, Staff Engineer
Scott Taylor, USBR Fresno

Response to Arvin-Edison Water Storage District Comments

Thank you for your letter. We received several comments on the version of the water quality standards that were included with the draft document. It was not our intention to use this action to impose new or different requirements on the contractors. The final environmental document uses the March 7, 2008 version of the water quality requirements, with an understanding that all discharges are subject to the then-current standards that are in place at the time of the discharge.

Discussions about updates to the water quality standards are proceeding along a separate track. AEWSD has been invited to participate in that process. Since all of AEWSD's concerns appear to be related to water quality standards, and a separate comment period has been provided to solicit input on those standards, we do not believe an additional review period is necessary specific to this action.

LINDSAY-STRATHMORE IRRIGATION DISTRICT

POST OFFICE BOX 846

TELEPHONE 559-562-2581

LINDSAY, CALIFORNIA 93247

April 16, 2014

Mr. Michael Jackson
Area Manager, SSCAO
1243 N Street
Fresno, CA. 93721-1813

RE: Friant-Kern Canal (FKC) Groundwater Pump-In Warren Act Contract Draft EA

Dear Mr. Jackson:

The Lindsay-Strathmore Irrigation District (District or LSID) submits the following comments on the subject Draft EA.

1. All canal pump-in groundwater in the Lindsay-Strathmore Irrigation District is Type B water, i.e., water that may exceed one or more MCL's for inorganic constituents. The District requests that this water be allowed to be pumped into the FKC subject to monitoring at the District's turnout and the Strathmore Public Utility District turnout rather than prohibiting that introduction due to exceeding any MCL at the point source.

2. Paragraph C(4) states that "non-Project shall not be conveyed in the canals of the Friant Division when flows of less than ... 1000 cfs being (are being) released from Friant Dam into the Friant-Kern Canal." This is unacceptable in that it prohibits the introduction of any water this year. The flows in the FKC will never reach 1000 cfs.

The Lindsay-Strathmore Irrigation District stands to lose approximately 30% of its permanent crops this year due to no water supply. The extent of the damage will be greater without the ability of the landowners adjacent to the FKC to pump in groundwater to supplement their supplies. A further 10-15% loss is likely.

The District is facing a disaster that may not be overcome. The loss of acreage in the District puts stress on the District's finances. Homes and acreages are abandoned. Working people move elsewhere. The local economy enters a death spiral.

No one wants to serve water that may be hazardous to both crops and people. Precautions are already in place to mitigate the hazard. However, without the ability to utilize our groundwater this year, the resulting devastation is far worse than the hazard.

Respectfully yours,



Scott A. Edwards
Manager
Lindsay-Strathmore Irrigation District

Response to Lindsay-Strathmore Irrigation District Comments

1. The referenced Maximum Contaminant Levels (MCLs) are health-based drinking water standards established by the California Department of Public Health. Before allowing discharges that exceed the MCLs, Reclamation would need a determination from the Department of Public Health that public health would not be harmed. Reclamation would also need to be satisfied that downstream water users, particularly municipal and industrial users, are willing to accept increased concentrations of the constituents of concern.
2. As a result of comments received during the comment period, Reclamation has replaced the 2014 Water Quality Standards that were included with the draft EA with the March 7, 2008 version (Appendix A of the draft EA, Appendix B of this Final EA). The 2008 version does not include the referenced text.

Appendix B Guidelines for Accepting Non- Project Water in Friant Division Facilities

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
Friant Water Authority
Friant Division, California
Water Quality Monitoring Requirements

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 C Indian Trust Assets Determination



Lawrence, Benjamin <blawrence@usbr.gov>

Request for Determinations, EA 14-011, Friant-Kern Canal Groundwater Pump-In Program

RIVERA, PATRICIA <privera@usbr.gov>

Wed, Mar 19, 2014 at 10:04 AM

To: "Lawrence, Benjamin" <blawrence@usbr.gov>, Kristi Seabrook <kseabrook@usbr.gov>

Ben,

I reviewed the proposed action to issue Warren Act Contracts to five Friant Division contractors: Delano-Earlimart Irrigation District, Lindsay-Strathmore Irrigation District, Orange Cove Irrigation District, Saucelito Irrigation District, and Terra Bella Irrigation District. Each WAC would be for 10,000 AF of groundwater, for a total of 50,000 AF per year considered under this action. The water would be discharged to the Friant-Kern Canal at various locations, to be used for agricultural purposes.

Existing discharge facilities whose licenses have expired would have their license renewed. Also some locations are proposed to have new temporary discharge points (i.e. hoses placed over the canal embankment or suspended from canal bridges). Future new, permanent discharge points are also being considered, and we'd like to look at the most efficient/expedient way of approaching those future installations as well.

The proposed action does not have a potential to impact Indian Trust Assets.

Patricia Rivera
Native American Affairs Program Manager
US Bureau of Reclamation
Mid-Pacific Region
2800 Sacramento, California 95825
(916) 978-5194

Kristi this is admin. Please long in. Have great day! On travel so will be checking emails when get an opportunity so please keep up your reviews-thanks so much

Appendix D Cultural Resources Determination

CULTURAL RESOURCE COMPLIANCE

Reclamation Division of Environmental Affairs

MP-153

MP-153 Tracking Number: 14-SCAO-138

Project Name: Friant-Kern Canal Groundwater Pump-In Program

NEPA Document: EA-14-011

NEPA Contact: Ben Lawrence, Natural Resource Specialist

MP 153 Cultural Resources Reviewer: Laureen Perry, Regional Archaeologist

Date: 05/01/2014

Reclamation proposes to issue Warren Act Contracts to Friant Division contractors served by the Friant-Kern Canal. The amount pumped and conveyed by each contractor could vary, but the maximum total allowed would be 50,000 AF per year. The water would be discharged to the Friant-Kern Canal from various discharge locations, to be used for agricultural purposes. No new permanent modifications to the Canal would be authorized under this action. However, some existing discharge facilities whose licenses have expired would have their license renewed. Also some locations are proposed to have new temporary discharge points. These could involve temporary hoses placed over the canal bank or suspended from bridges, or new temporary pipe installations. The new temporary pipes would be no larger than 1 foot in diameter, and would be installed only within the canal berm, existing roadways, and disturbed agricultural fields within the plow zone. These new pipes would be removed upon expiration of the Warren Act Contract.

Individually, this is the type of undertaking that does not have the potential to cause effects to historic properties, should such historic properties be present, pursuant to the National Historic Preservation Act (NHPA) Section 106 regulations codified at 36 CFR Part 800.3(a)(1). The installation of numerous temporary pipes within the canal berm, along with ongoing and future actions on the Friant-Kern Canal, which is a historic property, may have cumulative effects on the Canal. Reclamation finds that none of the historic characteristics that make the Friant-Kern Canal eligible for listing on the National Register of Historic Places will be adversely affected from the cumulative actions of the proposed action, resulting in no adverse effect to the Canal. Reclamation is consulting with the California State Historic Preservation Officer on this finding of effect pursuant to 36 CFR § 800.5(b). Once concurrence is received, Reclamation will proceed with issuing Warren Act Contracts/easements for the new temporary installations.