

Appendix A: Comments and Reclamation's Response to Comments



ARVIN-EDISON WATER STORAGE DISTRICT

May 4, 2018

Via Electronic Mail (mconnor@usbr.gov) & Fax (559) 487-5927

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

Re: *Ivanhoe Irrigation District's 5-Year Warren Act Agreement for Kaweah River Water (Draft FONSI/EA 17-044)*

Dear Ms. Connor:

Following are Arvin-Edison Water Storage District's (AEWSD) comments on the subject Draft FONSI/EA (Program).

AEWSD's primary concerns about the Program relate to the proposed discharge of water from the Program into the Friant-Kern Canal (FKC) and potentially causing significant water quality impacts to AEWSD's surface water and groundwater supplies, water management programs, and the associated negative impacts on crops in the District among other things.

Our comments focus on both Reclamation's Water Quality Policy, which we believe to be deficient, as well as potential water quality impacts to AEWSD from the Program.

Water Quality Guidelines

AEWSD has extensively commented on the referenced Bureau of Reclamation (Reclamation) Water Quality (WQ) Guidelines in the past, and which comments are hereby incorporated by reference. As you may be aware, Reclamation has stated in previous responses to AEWSD that the WQ Guidelines will be "...updated...along a separate track." AEWSD looks forward to working with Reclamation in the near future on revisions to the archaic and deficient 2008 Water Quality Guidelines. Many significant projects proposing to introduce water in the FKC have been noticed (released for comment) as well many others that have been approved and it seems prudent for Reclamation to engage in such WQ Guideline revisions NOW and therefore provide project proponents, and those impacted by degraded water supplies, with the most probable outcome of such revisions.

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

- Guidelines address only "non-project water" but should clarify they apply to all sources of introduced water supplies that are NOT chemically the same as water from Millerton Lake whether someone considers them non-project supplies or not; and
- Title 22 standards generally are not protective of the water quality for irrigation uses; and
- Guidelines do not adequately protect downstream users from significant water quality impacts as there are no in-canal standards; and

AE-2
cont.

- Type B water has to “generally” comply with Title 22, but may exceed Title 22 for certain constituents of concern as determined by Reclamation and Friant Water Authority on a case-by-case basis; and
- Type C water is not required to meet any water quality requirements as it is erroneously stated to be “physically the same as Project water.” However, this is a misstatement because State Water Project water or CVP water that is conveyed from the Delta and introduced into the CVC and ultimately into the FKC does not originate from Millerton Lake and is not chemically the same as FKC water. The same is true of the groundwater introduced into the CVC from various banking programs that use the CVC for conveyance. Subsequently, the provisions of the Policy are woefully deficient.
- Incorporate all applicable state and regional water quality standards, polices, objectives, regulations, laws and Basin Plans.

Limits of Degradation

AEWSD understands the Program is to introduce water into the FKC. No water quality information regarding the Program supply was made available, no analysis between Program water to baseline FKC water was made, and there is no analysis of the downstream water quality or associated adverse impacts from the Program.

By allowing the degradation, if any, Reclamation is purposely allowing a few districts to benefit by the high quality of their FKC supply, while denying the same benefit to AEWSD and other downstream long-term contractors.

AE-3

Finally, AEWSD’s request to avoid degradation of its water supplies isn’t new, unique, or unreasonable. Reclamation has imposed anti-degradation conditions on other CVP facilities including, for example, the Delta-Mendota Canal and associated selenium and Total Dissolved Solids requirements. While Reclamation’s requirements for protection of CVP water quality should be even-handed, that does not appear to be the case for the FKC.

Reference to AEWSD’s Contract

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

AE-4

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

Water that is stored in or flowing through Millerton Lake is pristine Sierra Nevada snowmelt and, as such, relied upon by AEWSD to maintain its water quality. No information about the Project’s anticipated degradation, if any, was made available. AEWSD wishes to continue to utilize its Friant Division supplies, un-degraded, to benefit AEWSD landowners and its water management programs.

Cumulative Impacts Analysis

AE-5

AEWSD is aware of multiple current and proposed projects along the FKC that need to be considered in the Program EA/FONSI cumulative impacts analysis.

Kate Connor
Bureau of Reclamation
May 4, 2018
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AE-6

In summary, our comments focused on both Reclamation's Water Quality Policy, which we believe to be deficient, as well as potential water quality impacts to AEWSD from the Program (and other similar projects that are lacking in the cumulative impacts analysis).

Thank you, and again we appreciate the opportunity to provide input into the Program.

If you have questions or comments, please don't hesitate to call or email.

Sincerely,



Jeevan Muhar
Engineer-Manager

cc: Board of Directors
Steve Collup, Director of Water Resources
Anona Dutton, EKI
Michael Jackson and Chris Eacock, USBR

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**Response to Arvin-Edison Water Storage District (Arvin-Edison, AE) Comment Letter,
May 4, 2018**

AE-1 This is a general introductory comment with specific comments provided in the rest of the letter. Responses to the specific comments are addressed below.

AE-2 The comment addresses concerns related to Reclamation's 2008 water quality guidelines for the Friant-Kern Canal (FKC) and urges Reclamation to engage in revisions to the guidelines.

It is Reclamation's understanding that the Friant Water Authority and Friant Division contractors are currently engaged in a forum to develop a science-based understanding of potential water quality impacts of introducing water into the FKC and means for addressing said impacts. Reclamation intends to use the science-based outcome of this forum to inform revision of the water quality standards and guidelines for introduction of water into the FKC.

AE-3 The comment states that no water quality information or analysis of "downstream water quality or adverse impacts" was included in EA-17-044. As described in Section 3.3.2, the source of water proposed for introduction into the FKC is Kaweah River water which originates from the Sierra Nevada Mountains as does the "baseline" CVP water that flows in the FKC from Millerton Lake. As the sources of water are similar, i.e. snowmelt from the Sierra Nevada Mountains, no degradation of water supplies or adverse impacts are anticipated. In addition, the Kaweah River water, as with all non-CVP water, is required to be tested for the full suite of primary and secondary constituents under Title 22 (California Domestic Water Standards) prior to introduction. Since the Kaweah River water will be tested prior to introduction into the FKC, additional analysis or comparison of water quality in the Kaweah River and the FKC would be redundant.

Reclamation disagrees that "Reclamation is purposefully allowing a few districts to benefit by the high quality of their FKC supply, while denying the same benefit to AEWSD" or that protection of CVP water quality from degradation is not "even-handed" for the FKC. Reclamation requires annual sampling of non-Project water prior to introduction into its facilities to be sure it meets Reclamation's then-current water quality requirements prior to introduction. This is required for all projects that introduce non-Project water into our facilities and has thus far been shown to prevent the possibility of substantial degradation of water quality in the canal. In addition, the implementation of monitoring thresholds during introductions based on field measurements pursuant to Reclamation's then-current water quality monitoring plan allows for rapid assessment of degradation caused by introduction of non-CVP water and termination of pumping as needed to maintain water quality for all downstream users. See also Response to AE-2.

AE-4 The comment references Article 17(a) of Arvin-Edison's water service contract related to maintenance of water quality and states that the "United States is obligated to operate and maintain project facilities in the most practical manner to maintain the quality of the water at the highest level possible."

Article 17(a) of Arvin-Edison's water service contracts specifically states: "Project facilities used to make available and deliver water to the Contractor shall be operated and maintained in the most practical manner to maintain the quality of the water at the highest level possible *as determined by the Contracting Officer*: Provided, That the United States does not warrant the quality of the water delivered to the Contractor and is under no obligation to furnish or construct water treatment facilities to maintain or improve the quality of water delivered to the Contractor." (emphasis added).

The comment correctly references the definition of Class 1 water in Arvin-Edison's water service contract as being "that supply of water stored in or flowing through Millerton Lake..." and states that the district relies on that water to maintain its water quality and no information was provided in regarding the Project's "anticipated degradation" of water supplies. As noted above, and described in Section 3.3.2 of EA-17-044, the source of water proposed for introduction into the FKC is Kaweah River water which originates from the Sierra Nevada Mountains as does the CVP water that flows in the FKC from Millerton Lake. As the sources of water are similar, i.e. snowmelt from the Sierra Nevada Mountains, no degradation of water supplies or adverse impacts are anticipated.

AE-5 The comment asserts that there are "multiple current and proposed projects along the FKC" that need to be addressed in the cumulative impacts analysis. It is unclear what projects are being referred to in the letter as none are described. However, Reclamation did address potential cumulative water quality impacts in EA-17-044. As stated in Section 3.3.2, "The Friant-Kern Canal 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 the mixed water supplies. This testing program is anticipated to adequately protect the quality of water in the Friant-Kern Canal from the cumulative effects of this and other water conveyance actions." See also Response to AE-2 through AE-4.

AE-6 This is a general conclusory summary comment of the specific comments provided previously in the letter. Responses to the specific comments are addressed above.

Appendix B: Reclamation's Cultural Resource Determination

CULTURAL RESOURCES COMPLIANCE
Division of Environmental Affairs
Cultural Resources Branch (MP-153)

MP-153 Tracking Number: 18-SCAO-047

Project Name: Ivanhoe Irrigation District 5 Year Warren Act Agreement for up to 6,500 Acre-Foot of Kaweah River Water in the Friant-Kern Canal

NEPA Document: CEC-17-044

NEPA Contact: Kate Connor, Natural Resource Specialist

MP 153 Cultural Resources Reviewer: Scott Williams, Archaeologist



Date: December 14, 2017

Reclamation is proposing to approve a 5-year Warren Act Agreement for Ivanhoe to convey up to 6,500 acre-feet annually of non-project Kaweah River water in the Friant-Kern Canal. This is the type of undertaking that does not have the potential to cause effects to historic properties, should such properties be present, pursuant to the NHPA Section 106 regulations codified at 36 CFR § 800.3(a)(1). Reclamation has no further obligations under NHPA Section 106, pursuant to 36 CFR § 800.3(a)(1).

The Kaweah River water would be introduced into the Friant-Kern Canal at Milepost 69.13. Ivanhoe's delivery points (Mileposts 65.04R, 67.05R, and 68.13R) are upstream of Milepost 69.13 which would make it necessary for Ivanhoe to enter into transfer agreements with downstream Friant Division contractors. These agreements would allow Ivanhoe to transfer the Kaweah River water to them while being transferred a like amount of their Friant Division project water from Millerton Reservoir. There are three Friant Division Repayment contractors downstream of Milepost 69.13 which have Kaweah River water Warren Act Agreements that could partake in this action. They are Lindsay-Strathmore Irrigation District, Exeter Irrigation District, and Terra Bella Irrigation District. No construction is required for this project.

This document is intended to convey the completion of the NHPA Section 106 process for this undertaking. I concur with item 8 that this action would not have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by Reclamation (LND 02-01) (43 CFR 46.215 (g)). Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including consultation with the State Historic Preservation Officer, may be necessary. Thank you for providing the opportunity to comment.

Appendix C: Reclamation's Current Water Quality Requirements

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
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Table 2b. Unregulated Chemicals (CCR § 64450)

CONSTITUENT OR PARAMETER	Units	Recommended Method	California Department of Health Services		CAS Registry Number	
			Notification Level	Response Level		
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@atachem.com, Potter@atachem.com Invoicing: (Justin) pate@atachem.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
<u>Methods</u>	<i>Approved for all inorganic and organic parameters in drinking water</i>	
Olson Biochemistry Laboratories	<u>Address</u>	SDSU: Box 2170, ACS Rm. 133 Brookings, SD 57007 USA
	<u>Contact</u>	Nancy Thiex, Laboratory Director
	<u>P/F</u>	(605) 688-5466 / (605) 688-6295
	<u>Email</u>	Nancy.Thiex@sdstate.edu
	<u>CC Info</u>	For re-analysis: contact Zelda McGinnis-Schlobohm and Nancy Anderson Zelda.Schobohm@SDSTATE.EDU, Nancy.Anderson@SDSTATE.EDU For analysis questions only: just CC. Nancy Anderson
<u>Methods</u>	<i>Approved only for low level selenium analysis.</i>	
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>

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