Appendix A: DMC Pump-in Program Monitoring Plan

RECLAMATION

Managing Water in the West

Delta-Mendota Canal
Non-Project Water Pump-in Program
Monitoring Plan

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

Revised: 20 Mar 2018

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.

Contents

Introduction

The overall supply of Central Valley Project (CVP) water has been reduced by drought and restrictions on pumping from the Sacramento-San Joaquin Delta. Under the Warren Act of 1911[1], U.S. Department of the Interior, Bureau of Reclamation (Reclamation) may execute temporary contracts to convey non-project water in excess capacity in federal irrigation canals.

Reclamation proposes to execute contracts with local water districts to convey non-project water in the Delta-Mendota Canal (DMC) subject to water quality monitoring, groundwater monitoring and reporting requirements outlined in this document.

This document describes the plan for measuring required monitoring data used to limit impacts of subsidence and water quality degradation in the DMC as it relates to this program. The monitoring data must be measured properly to demonstrate it is consistent, predictable, and of acceptable quality.

Reclamation will use these data for the administration of the then current Warren Act contracts and environmental review for future contracts.

In addition to this monitoring program, the following constraints also apply:

1) The DMC will be split into four zones based on severity of historical subsidence:

DMC Zone	Milepost Range
1	0.0 to 24.43
2	24.44 to 70.01
3	70.02 to 99.82
4	99.83 to 116.48

2) Each zone will only be allowed to discharge non-project water when their CVP allocation is less than or equal to the following:

DMC Zone	CVP Allocation
1	50%
2	40%
3	45%
4	40%

3) Each zone will have a pumping limit based on the following CVP allocation ranges:

CVP Allocation	Pumping Limit
50%-41%	15,000 AFY
40%-21%	17,500 AFY
20%-0%	20,000 AFY

[1] Warren Act (Act of February 21, 1911, ch. 141, 36 Stat. 925)

Definitions

Non-Project Water means surface or ground water:

(1) Pumped, diverted, and/or stored based upon the exercise of water rights which have not been appropriated or acquired by, or apportioned to, the United States or others, or which have not been decreed, permitted, certificated, licensed, or otherwise granted to the United States or others, for a Reclamation project, or

(2) Water not reserved or withdrawn from appropriation by the United States for, nor allocated by the United States to, a Reclamation project.

Excess Capacity means diversion, storage, conveyance, or pumping capacity in project facilities which is excess to that needed to achieve a Reclamation project's authorized purposes.

Max Depth to Groundwater (Max DTGW) represents the maximum depth to groundwater measurement collected from an individual well.

Fall/Winter Median Groundwater Level represents the average historical recovery level for each well. Determined by using groundwater level data recorded in the Fall/Winter after the well has had time to recover from irrigation season. Current historical Fall/Winter Median Groundwater Levels use data through 2016. Reclamation reserves the right to re-evaluate these data, if needed, as new data becomes available.

Background

The Delta Division of the federal CVP delivers water to almost a million acres of farmland in the San Joaquin Valley of California. The CVP is also the sole source of water for state and federal wildlife refuges and many private wetlands in Fresno, Merced, San Joaquin, and Stanislaus Counties.

The source of water for the Division is the northern Sierra Nevada, passing through the delta of the Sacramento and San Joaquin Rivers. This water is suitable in quality for irrigation and wetlands. The Central Valley is regularly affected by droughts that reduce the annual supply of water. Environmental regulations also restrict the operation of the Jones Pumping Plant to divert water from the Delta. The salinity of water in the Delta is highly variable due to the tidal intrusion of seawater and outflow of river water.

The DMC carries CVP water to farms, communities, and wetlands between Tracy and Mendota. The 116 mile canal was built by Reclamation in 1952 and is currently operated and maintained by the San Luis and Delta-Mendota Water Authority (Authority). Uncontrolled inflows of tailwater from uphill fields and subsurface water add contaminants to the canal. The addition of non-project water may further degrade the quality of water in the canal.

The districts in the Delta Division use surface and ground water to supplement their contractual supply from the CVP. These supplies are called "Non-Project Water" because they have not been appropriated by the United States for the purposes of the CVP.

Monitoring Mission and Goals

The mission of this monitoring plan is to produce physical measurements that will determine the effects of non-project water pumping and conveyance in the DMC. The data will be used to implement the terms of the then current Warren Act Contracts and exchange agreements, and to ensure that the quality of CVP water is suitable for downstream water users.

The general goals of this monitoring plan are:

-monitor and evaluate groundwater level data,

-monitor and evaluate the baseline quality of CVP water in the DMC,

-monitor and evaluate the quality of water in each source of non-project water,

-identify changes in water quality related to the addition of the non-project water, and

-confirm the blend of CVP water and non-project water is suitable for downstream agricultural and wetlands use.

Study Area

The Study Area is the Delta-Mendota Canal from Tracy to the Mendota Pool. The canal is divided into two reaches in relation to the O'Neill Forebay and the connection to the State Water Project.

Water Quality Monitoring Plan

Water Quality Standards

The quality of each source of non-project water must meet the standards listed in **Tables 1 and 2.** The standards have been developed by Reclamation to measure constituents of concern that would affect downstream water users. In particular, the concentration of selenium in any pump-in water shall not exceed 2 µg/L, the limit for the Grasslands wetlands water supply channels

specified in the 1998 Basin Plan.[2] The salinity of each source of pump-in water should not exceed 1500 mg/L TDS. The other constituents are mainly agricultural chemicals listed in the California Drinking Water Standards (Title 22)[3]. We are also requiring measurements of boron and sodium that are not included in Title 22.

Real-time Monitoring

Reclamation will monitor the electrical conductivity (EC) of water in the DMC at the locations listed in **Table 3**. Reclamation is responsible for the management and maintenance of these real-time EC stations.

In-Canal Sampling

Based on available funding, Reclamation will collect monthly water samples from the DMC at the sites listed in **Table 4**.

Source Sampling

Prior to pumping into the DMC, the water in each source of non-project water must be tested for a short list of constituents of concern (**Table 1**). This initial test will economically screen out unacceptable water sources. Upon review of the short list laboratory results and written approval from Reclamation and the Authority, the non-project water may be discharged into the DMC. Non-project water sources discharging into the DMC are required to sample the short list of constituents every week for the first four weeks, followed by monthly sampling for the duration of pumping.

Every three years the non-project source is required to sample for the full suite of Title 22 (**Table 2**). Any source of non-project water with out-of-date analysis will not be allowed to discharge until laboratory data is updated.

Laboratory analysis for non-project source water is at the expense of the discharger. Reclamation has provided a list of approved laboratories (**Table 5**). These laboratories have passed an audit by Reclamation Mid-Pacific Region Quality Assurance Staff. Samples shall be collected using industry approved field methods. Laboratory reports must be sent to Reclamation and contain appropriate chain of custody and laboratory quality control information. The source of analysis must be clearly labeled on the laboratory report.

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[2] California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Revised http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf

[3] California Code of Regulations, Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010 4037), and Administrative Code (Sections 64401 et seq.), as amended. http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2016-09-23.pdf

Reclamation will not provide funding for source sampling. This analysis is the responsibility of the program participants.

Maximum Allowable Concentrations

Reclamation will use real-time monitoring stations and in-canal water samples to monitor changes in the salinity and selenium levels in the DMC, and determine if non-project water has caused these changes. In-canal changes in salinity and selenium are limited to the concentrations listed in **Table 6**. Reclamation will direct the Authority to stop the pumping if concentrations exceed these limits.

Groundwater Level Monitoring Plan

Groundwater Level Monitoring

Groundwater levels in each non-project water well will be measured by the Authority once per month from March to September and every other month outside of that range. Measurements must be made using industry approved methods.

Groundwater Level Constraints

Groundwater level constraints are put in place to protect wells from pumping below their Max DTGW. Groundwater level data will be used for the following constraints:

-An individual well will be shutoff when its Depth to Groundwater reaches 75% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

Shutoff Trigger= 0.75(Max DTGW-Fall/Winter Median) + Fall/Winter Median*

- If an individual well is shutoff due to groundwater levels reaching the shutoff trigger, it will not be allowed to resume pumping until it reaches 70% of the difference between the Fall/Winter Median Groundwater Level and the Max DTGW using the following equation:

Well Resumption= 0.70 (Max DTGW-Fall/Winter Median) + Fall/Winter Median*

Groundwater level measurements will follow a strict schedule. If a well is shutoff it will not be measured again until the next scheduled measurement date. The Authority must notify Reclamation in writing when a well is shutoff or resuming. See Definitions section for explanation for Max DTGW and Fall/Winter Median.

Groundwater Data Requirements

Each well must have static Max DTGW and Fall/Winter Median data established in order to participate in the program. Any well which is missing this data will be excluded from discharging

into the DMC until a groundwater level measurement can be recorded and a Fall/Winter Median depth to groundwater level can be developed. New wells may use Fall/Winter Median and Max DTGW levels of nearby wells, upon Reclamation approval, until unique level measurements are established.

Access

Reclamation or its designees will be allowed access to well heads and discharge locations for independent verification of water quality, groundwater level, and flow measurements.

Revision

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

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Table 1. Water Quality Standards, Short List

Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
Arsenic	mg/L	0.01	(1)	0.002	(2)	7440-38-2	EPA 200.8
Boron	mg/L	0.7	(13)			7440-42-8	EPA 200.7
Nitrate (as nitrogen)	mg/L	10	(1)	0.4	(2)	7727-37-9	EPA 300.1
Selenium	mg/L	0.002	(10)	0.0004	(2)	7782-49-2	EPA 200.8
Sodium	mg/L	69	(12)			7440-23-5	EPA 200.7
Specific Conductance	µS/cm	1,600	(7)				SM 2510 B
Sulfate	mg/L	500	(7)			14808-79-8	EPA 300.1
Total Dissolved Solids	mg/L	1,000	(7)				SM 2540 C

Sources:
Recommended Analytical Methods: https://www.nemi.gov/home/
Maximum Contaminant Levels:
Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010-4037), and Administrative Code (Sections 64401 et seq.), as amended.

(1) Title 22. Table 64431-A Maximum Contaminant Levels, Inorganic Chemicals
(2) Title 22. Table 64432-A Detection Limits for Reporting (DLRs) for Regulated Inorganic Chemicals
(3) Title 22. Table 64442 Radionuclide Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs)
(4) Title 22. Table 64444-A Maximum Contaminate Levels, Organic Chemicals
(5) Title 22. Table 64445.1-A Detection Limits for Purposes of Reporting (DLRs) for Regulated Organic Chemicals
(6) Title 22. Table 64449-A Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Levels"
(7) Title 22. Table 64449-B Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Level Ranges"
(8) Title 22. Table 64678-A DLRs for Lead and Copper
(9) Title 22. Section 64678 (d) Lead Action level

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2017-12-29.pdf

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

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

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

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

(12) Ayers, Table 1 (mg/L) (sodium)
(13) Ayers, Table 21 (mg/L) (boron)

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

revised: 05 July 2017

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Table 2. Water Quality Standards, Title 22

Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
Primary							
Aluminum	mg/L	1	(1)	0.05	(2)	7429-90-5	EPA 200.7
Antimony	mg/L	0.006	(1)	0.006	(2)	7440-36-0	EPA 200.8
Arsenic	mg/L	0.010	(1)	0.002	(2)	7440-38-2	EPA 200.8
Asbestos	MFL	7	(1)	0.2 MFL>10um	(2)	1332-21-4	EPA 100.2
Barium	mg/L	1	(1)	0.1	(2)	7440-39-3	EPA 200.7
Beryllium	mg/L	0.004	(1)	0.001	(2)	7440-41-7	EPA 200.7
Cadmium	mg/L	0.005	(1)	0.001	(2)	7440-43-9	EPA 200.7
Chromium, total	mg/L	0.05	(1)	0.01	(2)	7440-47-3	EPA 200.7
Cyanide	mg/L	0.15	(1)	0.1	(2)	57-12-5	EPA 335.2
Fluoride	mg/L	2.0	(1)	0.1	(2)	16984-48-8	EPA 300.1
Mercury	mg/L	0.002	(1)	0.001	(2)	7439-97-6	EPA 245.1
Nickel	mg/L	0.1	(1)	0.01	(2)	7440-02-0	EPA 200.7
Nitrate (as nitrogen)	mg/L	10	(1)	0.4	(2)	7727-37-9	EPA 300.1
Nitrate + Nitrite (sum as nitrogen)	mg/L	10	(1)			14797-55-8	EPA 353.2
Nitrite (as nitrogen)	mg/L	1	(1)	0.4	(2)	14797-65-0	EPA 300.1
Perchlorate	mg/L	0.006	(1)	0.004	(2)	14797-73-0	EPA 314/331/332
Selenium	mg/L	0.002	(10)	0.0004		7782-49-2	EPA 200.8
Thallium	mg/L	0.002	(1)	0.001	(2)	7440-28-0	EPA 200.8
Secondary							
Aluminum	mg/L	0.2	(6)			7429-90-5	EPA 200.7
Color	units	15	(6)				EPA 110
Copper	mg/L	1.0	(6)	0.05	(8)	7440-50-8	EPA 200.7
Foaming Agents (MBAS)	mg/L	0.5	(6)				
Iron	mg/L	0.3	(6)			7439-89-6	EPA 200.7
Manganese	mg/L	0.05	(6)			7439-96-5	EPA 200.7
Methyl-tert-butyl ether (MTBE)	mg/L	0.013	(4)			1634-04-4	EPA 502.2/524.2
Odor -threshold	units	3	(6)				SM 2150B
Silver	mg/L	0.1	(6)			7440-22-4	EPA 200.7
Thiobencarb	mg/L	0.001	(6)			28249-77-6	EPA 527
Turbidity	units	5	(6)				EPA 190.1/SM2130B
Zinc	mg/L	5	(6)			7440-66-6	EPA 200.7
Total Dissolved Solids	mg/L	1,000	(7)				SM 2540 C
Specific Conductance	µS/cm	1,600	(7)				SM 2510 B
Chloride	mg/L	500	(7)			16887-00-6	EPA 300.1
Sulfate	mg/L	500	(7)			14808-79-8	EPA 300.1
Other Required Analyses							
Boron	mg/L	0.7	(13)			7440-42-8	EPA 200.7
Lead	mg/L	0.015	(8)	0.005	(8)	7439-92-1	EPA 200.8
Molybdenum	mg/L	0.01	(11)			7439-98-7	EPA 200.7
Sodium	mg/L	69	(12)			7440-23-5	EPA 200.7
Radioactivity							
Gross Alpha	pCi/L	15	(3)	3	(3)		SM 7110C

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Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
Organic Chemicals							
(a) Volatile Organic Chemicals (VOCs)							
Benzene	mg/L	0.001	(4)	0.0005	(5)	71-43-2	EPA 502.2/524.2
Carbon Tetrachloride	mg/L	0.0005	(4)	0.0005	(5)	56-23-5	EPA 502.2/524.2
1,2-Dichlorobenzene	mg/L	0.6	(4)	0.0005	(5)	95-50-1	EPA 502.2/524.2
1,4-Dichlorobenzene	mg/L	0.005	(4)	0.0005	(5)	106-46-7	EPA 502.2/524.2
1,1-Dichloroethane	mg/L	0.005	(4)	0.0005	(5)	75-34-3	EPA 502.2/524.2
1,2-Dichloroethane	mg/L	0.0005	(4)	0.0005	(5)	107-06-2	EPA 502.2/524.2
1,1-Dichloroethylene	mg/L	0.006	(4)	0.0005	(5)	75-35-4	EPA 502.2/524.2
cis-1,2-Dichloroethylene	mg/L	0.006	(4)	0.0005	(5)	156-59-2	EPA 502.2/524.2
trans-1,2-Dichloroethylene	mg/L	0.01	(4)	0.0005	(5)	156-60-5	EPA 502.2/524.2
Dichloromethane.	mg/L	0.005	(4)	0.0005	(5)	75-09-2	EPA 502.2/524.2
1,2-Dichloropropane.	mg/L	0.005	(4)	0.0005	(5)	78-87-5	EPA 502.2/524.2
1,3-Dichloropropene.	mg/L	0.0005	(4)	0.0005	(5)	542-75-6	EPA 502.2/524.2
Ethylbenzene.	mg/L	0.3	(4)	0.0005	(5)	100-41-4	EPA 502.2/524.2
Methyl-tert-butyl ether	mg/L	0.013	(4)	0.003	(5)	1634-04-4	EPA 502.2/524.2
Monochlorobenzene	mg/L	0.07	(4)	0.0005	(5)	108-90-7	EPA 502.2/524.2
Styrene.	mg/L	0.1	(4)	0.0005	(5)	100-42-5	EPA 502.2/524.2
1,1,2,2-Tetrachloroethane.	mg/L	0.001	(4)	0.0005	(5)	79-34-5	EPA 502.2/524.2
Tetrachloroethylene (PCE)	mg/L	0.005	(4)	0.0005	(5)	127-18-4	EPA 502.2/524.2
Toluene	mg/L	0.15	(4)	0.0005	(5)	108-88-3	EPA 502.2/524.2
1,2,4-Trichlorobenzene	mg/L	0.005	(4)	0.0005	(5)	120-82-1	EPA 502.2/524.2
1,1,1-Trichloroethane	mg/L	0.200	(4)	0.0005	(5)	71-55-6	EPA 502.2/524.2
1,1,2-Trichloroethane	mg/L	0.005	(4)	0.0005	(5)	79-00-5	EPA 502.2/524.2
Trichloroethylene	mg/L	0.005	(4)	0.0005	(5)	79-01-6	EPA 502.2/524.2
Trichlorofluoromethane	mg/L	0.15	(4)	0.005	(5)	75-69-4	EPA 502.2/524.2
1,1,2-Trichloro-1,2,2-Trifluoroethane.	mg/L	1.2	(4)	0.01	(5)	76-13-1	SM 6200B
Vinyl Chloride	mg/L	0.0005	(4)	0.0005	(5)	75-01-4	EPA 502.2/524.2
Xylenes	mg/L	1.750	(4)	0.0005	(5)	1330-20-7	EPA 502.2/524.2
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)							
Alachlor	mg/L	0.002	(4)	0.001	(5)	15972-60-8	EPA 505/507/508
Atrazine	mg/L	0.001	(4)	0.0005	(5)	1912-24-9	EPA 505/507/508
Bentazon	mg/L	0.018	(4)	0.002	(5)	25057-89-0	EPA 515.1
Benzo(a)pyrene	mg/L	0.0002	(4)	0.0001	(5)	50-32-8	EPA 525.2
Carbofuran	mg/L	0.018	(4)	0.005	(5)	1563-66-2	EPA 531.1
Chlordane	mg/L	0.0001	(4)	0.0001	(5)	57-74-9	EPA 505/508
2,4-D	mg/L	0.07	(4)	0.01	(5)	94-75-7	EPA 515.1
Dalapon	mg/L	0.2	(4)	0.01	(5)	75-99-0	EPA 515.1
Dibromochloropropane	mg/L	0.0002	(4)	0.00001	(5)	96-12-8	EPA 502.2/504.1
Di(2-ethylhexyl)adipate	mg/L	0.4	(4)	0.005	(5)	103-23-1	EPA 506
Di(2-ethylhexyl)phthalate	mg/L	0.004	(4)	0.003	(5)	117-81-7	EPA 506
Dinoseb	mg/L	0.007	(4)	0.002	(5)	88-85-7	EPA 5151-4
Diquat	mg/L	0.02	(4)	0.004	(5)	85-00-7	EPA 549.2
Endothall	mg/L	0.1	(4)	0.045	(5)	145-73-3	EPA 548.1
Endrin.	mg/L	0.002	(4)	0.0001	(5)	72-20-8	EPA 505/508
Ethylene Dibromide	mg/L	0.00005	(4)	0.00002	(5)	106-93-4	EPA 502.2/504.1
Glyphosate	mg/L	0.7	(4)	0.025	(5)	1071-83-6	EPA 547
Heptachlor.	mg/L	0.00001	(4)	0.00001	(5)	76-44-8	EPA 508
Heptachlor Epoxide	mg/L	0.00001	(4)	0.00001	(5)	1024-57-3	EPA 508
Hexachlorobenzene	mg/L	0.001	(4)	0.0005	(5)	118-74-1	EPA 505/508
Hexachlorocyclopentadiene	mg/L	0.05	(4)	0.001	(5)	77-47-4	EPA 505/508
Lindane (gamma-BHC)	mg/L	0.0002	(4)	0.0002	(5)	58-89-9	EPA 505/508
Methoxychlor	mg/L	0.03	(4)	0.01	(5)	72-43-5	EPA 505/508

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Constituent	Units	Maximum Contaminant Level		Detection Limit for Reporting		CAS Registry Number	Recommended Analytical Method
Molinate	mg/L	0.02	(4)	0.002	(5)	2212-67-1	EPA 525.1
Oxamyl	mg/L	0.05	(4)	0.02	(5)	23135-22-0	EPA 531.1
Pentachlorophenol	mg/L	0.001	(4)	0.0001	(5)	87-86-5	EPA 515.1-3
Picloram	mg/L	0.5	(4)	0.001	(5)	1918-02-1	EPA 515.1-3
Polychlorinated Biphenyls	mg/L	0.0005	(4)	0.0005	(5)	1336-36-3	EPA 130.1
Simazine	mg/L	0.004	(4)	0.001	(5)	122-34-9	EPA 505
Thiobencarb (Bolero)	mg/L	0.07	(4)	0.001	(5)	28249-77-6	EPA 527
Toxaphene	mg/L	0.003	(4)	0.001	(5)	8001-35-2	EPA 505
1,2,3-Trichloropropane	mg/L	0.000005	(4)	0.000005	(5)	96-18-4	EPA 524.3
2,3,7,8-TCDD (Dioxin)	mg/L	3 x 10-8	(4)	5 x 10-9	(5)	1746-01-6	EPA 130.3
2,4,5-TP (Silvex)	mg/L	0.05	(4)	0.001	(5)	93-72-1	EPA 515.1
Other Organic Chemicals							
Chlorpyrifos	ug/L	0.015	(11)			2921-88-2	EPA 8141A
Diazinon	ug/L	0.10	(11)			333-41-5	EPA 8141A

Sources:
Recommended Analytical Methods: https://www.nemi.gov/home/
Maximum Contaminant Levels:

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

(1) Title 22. Table 64431-A Maximum Contaminant Levels, Inorganic Chemicals

(2) Title 22. Table 64432-A Detection Limits for Reporting (DLRs) for Regulated Inorganic Chemicals

(3) Title 22. Table 64442 Radionuclide Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs)

(4) Title 22. Table 64444-A Maximum Contaminate Levels, Organic Chemicals

(5) Title 22. Table 64445.1-A Detection Limits for Purposes of Reporting (DLRs) for Regulated Organic Chemicals

(6) Title 22. Table 64449-A Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Levels"

(7) Title 22. Table 64449-B Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Level Ranges"

(8) Title 22. Table 64678-A DLRs for Lead and Copper

(9) Title 22. Section 64678 (d) Lead Action level

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2017-12-29.pdf

California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Revised June 2015

(10) Basin Plan, Table III-1 (ug/L) (selenium in Grasslands water supply channels)

(11) Basin Plan, Table III-2A. 4-day average (chronic) concentrations of chlorpyrifos & diazinon in San Joaquin River from Mendota to Vernalis

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

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

(12) Ayers, Table 1 (mg/L) (sodium)

(13) Ayers, Table 21 (mg/L) (boron)

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

revised: 29 December 2017

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Table 3. Reclamation Real-time Salinity Monitoring Stations

DMC Milepost	San Joaquin River Mile	Location	Operating Agency	CDEC
3.46		Jones Pumping Plant	CVO	DMC
70.01		DMC Check 13	CVO	ONI
111.26		DMC Check 20	CVO	DM2
116.48	204.2	DMC Check 21	CVO	DM3

Key:
CDEC: California Data Exchange Center
CVO: Central Valley Operations Office

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Table 4. Reclamation Water Quality Monitoring Stations

DMC Milepost	River Mile	Location	Operating Agency	Parameters	Frequency/ method	CDEC
3.46		Top of siphon above Jones Pumping Plant	Reclamation	EC, selenium	Daily composite	
63.98		Check 12	Reclamation	Title 22	Monthly grab	
70.01		Check 13 O'Neill Forebay	CVO	EC, selenium	Daily composite	ONI
97.68		DMC at Russell Ave	Reclamation	EC, selenium, boron	Monthly grab	
100.85		DMC at Telles Farm Bridge	Reclamation	EC, selenium, boron	Monthly grab	
110.12		DMC at Washoe Ave	Reclamation	EC, selenium, boron	Monthly grab	
111.26		DMC Check 20	CVO	EC	Real-time	DM2
116.48	204.2	DMC Check 21	CVO	EC, selenium	Daily composite	DM3

Key:
CVO: Central Valley Operations Office
EC: Electrical conductivity
Reclamation: MP-157 Environmental Monitoring Branch

RECLAMATION
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Table 5. Approved Laboratory List for the Mid-Pacific Region Quality Assurance and Data Management Branch (MP-156) and Environmental Monitoring and Hazardous Materials Branch (MP-157)

APPL Laboratory	**Address**	908 North Temperance Avenue, Clovis, CA 93611
	Contact	Renee' Patterson, Project Manager
	P/F	(559) 275-2175 / (559) 275-4422
	Email	rpatterson@applinc.com; danderson@applinc.com;
	Methods	*Approved for inorganic and organic parameters in water and soil*
Basic Laboratory	**Address**	2218 Railroad Avenue Redding, CA 96001 USA
	Contact	Josh Kirkpatrick, Nathan Hawley, Melissa Hawley
	P/F	(530) 243-7234 / (530) 243-7494
	Email	jkirkpatrick@basiclab.com (QAO and PM); nhawley@basiclab.com, mhawley@basiclab.com (invoices); poilar@basiclab.com (sample custody), khawley@basiclab.com (sample custody)
	Methods	*Approved for inorganic/organic parameters*
California Laboratory Services	**Address**	3249 Fitzgerald Road Rancho Cordova, CA 95742
	Contact	Scott Furnas
	P/F	(916) 638-7301 / (916) 638-4510
	Email	janetm@californialab.com (QA); scottf@californialab.com (PM)
	Methods	*Approved for inorganic, organic, and microbiological parameters*
Calscience Environmental Laboratories	**Address**	7440 Lincoln Way; Garden Grove, CA 92841
	Contact	Don Burley
	P/F	714-895-5494 (ext. 203)/714-894-7501
	Email	DBurley@calscience.com
	Methods	*Approved for inorganic and organic parameters in water, sediment, and soil.*
Caltest Analytical Laboratory	**Address**	1885 N. Kelly Rd. Napa, CA 94558
	Contact	Mike Hamilton, Patrick Ingram (Lab Director)
	P/F	(707) 258-4000/(707) 226-1001
	Email	Mike_Hamilton@caltestlabs.com; Patrick_Ingram@caltestlabs.com info@caltestlabs.com
	Methods	*Approved for inorganic and microbiological parameters*
Eurofins Eaton Analytical, Inc. (formerly MWH Laboratories)	**Address**	750 Royal Oaks Drive Ste. 100 Monrovia, CA 91016 USA
	Contact	Linda Geddes (Project Manager), Rick Zimmer (quotes)
	P/F	(626) 386-1100, Linda - (626) 386-1163, Rick - (626) 386-1157
	Email	lindageddes@eurofinsus.com
	Methods	*Approved for all inorganic, organic, and radiochemistry parameters in water*
Fruit Growers Laboratory	**Address**	853 Corporation Street Santa Paula, CA 93060 USA
	Contact	David Terz, QA Director
	P/F	(805) 392-2024 / (805) 525-4172
	Email	davidt@fglinc.com
	Methods	*Approved for general physical analysis in soils and most inorganic and organic parameters in water and soil; not approved for mercury in water or silver in soil.*

RECLAMATION
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Table 5. Approved Laboratory List for the Mid-Pacific Region Quality Assurance and Data Management Branch (MP-156) and Environmental Monitoring and Hazardous Materials Branch (MP-157)

Sierra Foothill Laboratory, Inc.	**Address**	255 Scottsville Blvd, Jackson, CA 95642
	Contact	Sandy Nurse (Owner) or Karen Lantz (Program Manager)
	P/F	(209) 223-2800 / (209) 223-2747
	Email	sandy@sierrafoothilllab.com, CC: dale@sierrafoothilllab.com
	Methods	*Approved for all inorganic parameters (except low level TKN), microbiological parameters, acute and chronic toxicity.*
South Dakota Agricultural Laboratories	**Address**	Brookings Biospace, 1006 32nd Avenue, Suites 103,105, Brookings, SD 57006-4728
	Contact	Regina Wixon, Jessie Davis, Steven Hauger (sample custodian)
	P/F	(605) 692-7325/(605) 692-7326
	Email	regina.wixon@sdaglabs.com, annie.mouw@sdaglabs.com, emily.weissenfluh@sdaglabs.com, darin.wixon@sdaglabs.com
	Methods	*Approved for selenium analysis*
TestAmerica	**Address**	880 Riverside Parkway West Sacramento, CA 95605 USA
	Contact	Linda Laver
	P/F	(916) 374-4362 / (916) 372-1059 fax
	Email	Linda.Laver@TestAmericaInc.com
	Methods	*Approved for all inorganic parameters and hazardous waste organics . Ag analysis in sediment, when known quantity is present, request 6010B*
Western Environmental Testing Laboratories	**Address**	475 East Greg Street # 119 Sparks, NV 89431 USA
	Contact	Kurt Clarkson/Logan Greenwood (Client Services), Andy Smith (Lab Director)
	P/F	(775) 355-0202 / (775) 355-0817
	Email	kurtc@wetlaboratory.com, logang@wetlaboratory.com, andy@wetlaboratory.com
	Methods	*Approved for inorganic parameters (metals, general chemistry) and coliforms.*

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Table 6. Parameters for Accepting Non-Project Surface Water in the Upper DMC

Parameter	Values in the DMC
Recommended flow passing Headworks and Check 13	More than 500 cfs
Change in EC attributable to the addition of non-project water	Less than 100 µS/cm
Increase in Selenium attributable to the addition of non-project water	Less than 1 µg/L