

INFORMATION SHEET

INFORMATION SHEET ORDER R5-2016-XXXX
RIO ALTO WATER DISTRICT
LAKE CALIFORNIA WASTEWATER TREATMENT PLANT
TEHAMA COUNTY

BACKGROUND

Rio Alto Water District (Discharger) owns and operates the Lake California Wastewater Treatment Plant (WWTP). On 3 June 2014, the Discharger submitted a Report of Waste Discharge (RWD) to apply for Waste Discharge Requirements (WDRs) for an existing publicly owned wastewater treatment facility. An amended RWD was submitted on 17 October 2014.

The wastewater treatment plant currently serves approximately 1,900 residents and has approximately 800 active connections. Discharges to the wastewater treatment plant are entirely residential with the exception of one light commercial user.

The WWTP is currently regulated under WDRs Order R5-2010-0103 (NPDES No. CA 0077852) which allows discharge to the Sacramento River and was adopted by the Central Valley Water Board on 23 September 2010. Based on historical monitoring, it was unlikely that the Discharger would be able to meet the final effluent limits for zinc, dichlorobromomethane (DCBM), and dibromochloromethane (CDBM) set in WDRs Order R5-2010-0103. Therefore, Cease and Desist Order (CDO) R5-2010-0104-01 was also adopted at the same time as WDRs Order R5-2010-0103.

The Discharger has now redirected their discharge of secondary disinfected wastewater from the Sacramento River to percolation/evaporation wastewater disposal ponds located adjacent to Lake California and the Sacramento River. Surface water discharge to the Sacramento River has been eliminated. The percolation/evaporation wastewater disposal ponds are classified as Title 22 landscape impoundments and are required to contain at least disinfected secondary-23 recycled water.

The Discharger submitted a *Title 22 Engineering Report* in May 2014 to the Central Valley Water Board and the Division of Drinking Water pursuant to Title 22 for water recycling of disinfected secondary-23 recycled water as defined by Title 22, section 60301.2. The Division of Drinking Water approved the *Engineering Report* on 2 June 2014.

PREVIOUS FACILITY

Prior to the recent WWTP upgrade project, the WWTP consisted of headworks, one oxidation ditch, one secondary clarifier, one effluent holding pond, three pressure filters, a chlorine contact basin, a dechlorination system, and 5 sludge storage beds. The pressure filters were used as needed, but weren't required by the NPDES permit. Advanced secondary treated effluent was discharged to the Sacramento River. WDRs Order R5-2010-0103 allowed an ADFW of 0.644 mgd.

EXISTING FACILITY

As part of the Discharger's compliance project, the following upgrades were made:

- An additional secondary clarifier was added.
- A RAS pump station was constructed.
- Effluent pumps were upsized for redundancy.
- The pressure filters, chlorine contact chamber, and dechlorination system were taken off-line, although they remain on-site.
- Two additional sludge drying beds were constructed.
- An effluent force main was installed.
- Four percolation/evaporation ponds were constructed for final disposal.
- Four groundwater monitoring wells were installed around the pond area.

Wastewater enters the wastewater treatment plant through a Palmer Bowlus flume equipped with an ultrasonic flow meter. The wastewater then flows through a headworks structure equipped with a grinder and a bar screen. From the headworks, the wastewater flows to an oxidation ditch equipped with two brush aerators. The effluent from the oxidation ditch can flow to either or both of the secondary clarifiers and then to a secondary effluent holding pond. Historically, the secondary effluent from the holding pond was pumped to a chlorine contact chamber where the wastewater was disinfected and dechlorinated before being discharged to the Sacramento River. However, with the adoption of this order, the discharger has redirected the secondary disinfected wastewater from the Sacramento River to four percolation/evaporation wastewater disposal ponds located between Lake California and the Sacramento River. Chlorination occurs in the 10-inch diameter, 12,500-foot long force main that routes effluent from the treatment plant to the percolation/evaporation ponds. The percolation/evaporation wastewater disposal ponds are classified as Title 22 landscape impoundments.

The effluent character from 2011-2014 is summarized in the following table. It should be noted that 2013 and 2014 were drought years.

Table 1: Effluent Character from 2011-2014

Constituent	Units	Average	Range
Biological Oxygen Demand (5-day)	mg/L	3.3	0.8-15
Total Suspended Solids	mg/L	3.7	0.2-14
Electrical Conductivity	umhos/cm	481	264-692
Total Dissolved Solids	mg/L	310	180-380
pH	S.U.	7.4	6.5-8.2
Ammonia	mg/L	5.8	0.2-17.3
Nitrate, Total (as N)	mg/L	6.9	0.1-14.5
Total Coliforms	MPN/100 mL	7.46	1.8-240
Dibromochloromethane	µg/L	1.3	0.25-3.3
Dichlorobromomethane	µg/L	11.2	0.25-67.8
Phosphorus, Total (as P)	mg/L	3.7	2-6.3
Sulfate, Total (as SO ₄)	mg/L	21.8	9-28.8

GROUNDWATER CONDITIONS

Prior to pond construction, five temporary piezometers were installed to evaluate background groundwater conditions in and around the pond area. The borings for the piezometers show that the stratigraphy beneath the pond area consists of an upper unit of silty sand to a depth of 5 to 15 feet below ground surface (bgs). Underlying the silty sand is a gravelly sand or sand, occurring to at least the total depth of each hole (26.5 feet bgs). First groundwater occurred with the gravelly sand/ sand unit. The hydraulic conductivity of the aquifer material underlying the pond area is about 260 feet per day.

Separation between the base of Pond 1 and groundwater is approximately 5 feet. Separation between the base of the other ponds and groundwater ranges from approximately 5 to 10 feet.

Background groundwater quality was determined through sampling events of Piezometers 1 through 5 between February 2014 and September 2014. The maximum background concentrations are listed in the following table.

INFORMATION SHEET ORDER R5-2016-XXXX
 RIO ALTO WATER DISTRICT
 LAKE CALIFORNIA WASTEWATER TREATMENT PLANT
 TEHAMA COUNTY

Table 2. Background Groundwater Quality at the Percolation/Evaporation Ponds' Site

Constituent	Units	Min	Max	Primary MCL	Secondary MCL
Alkalinity	mg/L	71	130	-	-
Aluminum, Dissolved	µg/L	<10	20	-	-
Aluminum, Total	µg/L	1800	3100	1000	200
Arsenic	µg/L	2	2	10	-
Bicarbonate	mg/L	87	158	-	-
Calcium	mg/L	14.2	26.2	-	-
Chloride	mg/L	2.91	4.04	-	250
Copper, Total	µg/L	5	9	1300	1000
Electrical Conductivity	µS/cm	168	290	-	900
Iron, Dissolved	µg/L	<30	50	-	-
Iron, Total	µg/L	1990	3730	-	300
Lead, Total	µg/L	0.7	1.4	15	-
Magnesium	mg/L	8.9	16.6	-	-
Manganese, Dissolved	µg/L	0.5	38.7	-	-
Manganese, Total	µg/L	57.9	182	-	50
Mercury, Total	µg/L	0.04	0.05	2	-
Nitrate (as N)	mg/L	0.06	1.24	10	-
pH	SU	7.24	7.45	-	6.5-8.5
Phosphorus (as P)	mg/L	0.04	0.14	-	-
Potassium	mg/L	1.2	2.7	-	-
Sodium	mg/L	7.3	11.7	-	-
Sulfate	mg/L	2.41	14.1	500	250
Total Dissolved Solids	mg/L	114	211		500
Zinc, Total	µg/L	10	20	-	5000

Local drainage is to the Sacramento River. Four permanent groundwater monitoring wells, MW-1, MW-2, MW-3 and MW-4, were installed around the ponds in January

2015. MW-1 and MW-2 were installed as upgradient wells, and MW-3 and MW-4 were installed as downgradient wells. The locations of the monitoring wells are shown in Attachment C.

BASIN PLAN, BENEFICIAL USES, AND REGULATORY CONSIDERATIONS

The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition, revised June 2015 (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

ANTIDEGRADATION

The Discharger has been monitoring groundwater quality at the pond site since 2014. Based on the data available, it is not possible to determine pre-1968 groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on existing background groundwater quality.

The discharge and the potential for groundwater degradation allowed in this Order is consistent with the Antidegradation Policy since; (a) the limited degradation allowed by this Order will not result in water quality less than the water quality objectives, or unreasonably affect present and anticipated beneficial uses, (b) the Discharger has implemented BPTC to minimize degradation, and (c) the limited degradation is of the maximum benefit to the people of the State.

CEQA

A Mitigated Negative Declaration was certified by the Rio Alto Water District on May 23, 2011 in accordance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The Mitigated Negative Declaration describes the project as improvements to the existing wastewater treatment plant, installation of approximately 12,000 lineal feet of reclaimed water pipeline, and the construction of ponds within the community of Lake California.

TITLE 27

Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt domestic sewage, wastewater, and reuse. Title 27, section 20090 states in part:

- a. Sewage - Discharges of domestic sewage or treated effluent which are regulated by WDRs issued pursuant to Chapter 9, Division 3, Title 23 of this code, or for which WDRs have been waived, and which are consistent with applicable water quality objectives, and treatment or storage facilities associated with municipal wastewater treatment plants, provided that residual sludge or solid waste from wastewater treatment facilities shall be

- discharged only in accordance with the applicable SWRCB-promulgated provisions of this division.
- b. Wastewater - Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leach fields if the following conditions are met:
 - 1) The applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
 - 2) The discharge is in compliance with the applicable water quality control plan; and
 - 3) The wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste . . .
 - h. Reuse - Recycling or other use of materials salvaged from waste, or produced by waste treatment, such as scrap metal, compost, and recycled chemicals, provided that discharges of residual wastes from recycling or treatment operations to land shall be according to applicable provisions of this division.

Proposed Order Terms and Conditions

DISCHARGE PROHIBITIONS, SPECIFICATIONS AND PROVISIONS

The proposed Order would prohibit discharge of wastes to surface waters or surface water drainage courses.

The proposed Order would set an average daily dry weather flow limit of 0.27 mgd and a peak wet weather flow limit of 1.0 mgd.

Note: Although Order No. R5-2010-0103 allowed an ADWF of 0.644 mgd, the RWD submitted by the Discharger stated that the WWTP is actually capable of only treating an ADWF of 0.27 mgd; therefore, the flow limits for the facility have be set to an ADWF of 0.27 mgd and a PWWF of 1.0 mgd.

The proposed Order sets the following effluent limits:

Constituent	Units	Limit	Basis of Compliance Determination
BOD ₅	mg/L	30	30-Day Average
BOD ₅	mg/L	45	7-Day Average
Total Suspended Solids	mg/L	30	30-Day Average
Total Suspended Solids	mg/L	45	7-Day Average
Total Coliform Organisms	MPN/100mL	23	7-Day Median
Total Coliform Organisms	MPN/100mL	240	Monthly Maximum
pH	S.U.	6.0-9.0	Instantaneous Range

The proposed Order's provisions regarding storage the percolation/evaporation ponds' dissolved oxygen and freeboard are consistent with Central Valley Water Board policies for the prevention of nuisance conditions and are applied to all similarly-situated facilities.

The proposed Order prescribes groundwater limitations that ensure the discharge does not affect present and anticipated beneficial uses of groundwater.

The proposed Order includes provisions that require the Discharger to submit a Groundwater Quality and Initial Trigger Report.

MONITORING REQUIREMENTS

Section 13267 of the California Water Code authorizes the Central Valley Water Board to require the Discharger to submit monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State.

The proposed Order includes effluent, pond, groundwater, and ash solids monitoring. This monitoring is necessary to characterize the discharge, evaluate compliance with effluent limitations prescribed by this Order, and evaluate groundwater quality and the extent of degradation, if any, caused by the discharge.

REOPENER

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.