CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2016-0033

WASTE DISCHARGE REQUIREMENTS

FOR
RIO ALTO WATER DISTRICT
LAKE CALIFORNIA WASTEWATER TREATMENT PLANT
TEHAMA COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. On 3 June 2014, Rio Alto Water District submitted a Report of Waste Discharge (RWD) to apply for Waste Discharge Requirements (WDRs) for an existing publicly owned wastewater treatment plant (WWTP), which serves the community of Lake California in Tehama County. An amended RWD was submitted on 17 October 2014.

2. Rio Alto Water District (hereafter "Discharger") owns and operates the Lake California Wastewater Treatment Plant (Facility) and is responsible for compliance with these WDRs.

3. The Facility is located at 22099 River View Drive in Cottonwood, CA (Sections 15, 16, 20, 21, 27, 28, and 29 T29N, R3W, MDB&M). The Facility occupies Assessor's Parcel Numbers (APN) 009-110-83-1 and 009-080-51-1. A location and site map are shown in Attachment A and Attachment B, which are attached hereto and made part of this Order by reference.

4. WDRs Order R5-2010-0103 (NPDES No. CA 0077852), adopted by the Central Valley Water Board on 23 September 2010 prescribes requirements for the Facility. 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 Order R5-2010-0103. Therefore, Cease and Desist Order (CDO) R5-2010-0104-01 was also adopted at the same time as Order R5-2010-0103. R5-2010-0103 allows an average dry weather flow of up to 0.644 million gallons per day (mgd) of treated wastewater to be discharged to the Sacramento River. 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. The percolation/evaporation wastewater disposal ponds are classified as Title 22 landscape impoundments. The surface water discharge to the Sacramento River has been eliminated; and Order R5-2010-0103 and CDO R5-2010-0104-01 will be rescinded.

Background Information

5. The Facility currently serves approximately 1,900 residents and has approximately 832 active connections. Discharges to the Facility are entirely residential with the exception of one light commercial user.

6. The original sewer system was constructed out of vitrified clay pipe (VCP) in 1972. The sewer system has since been expanded with polyvinyl chloride pipe (PVC) to accommodate growth. High inflow and infiltration (I/I) rates are routinely observed and are suspected to originate from the VCP sections of the collection system.

Previous Facility

7. Prior to compliance upgrades, the Facility consisted of headworks, one oxidation ditch, one secondary clarifier, one secondary effluent holding pond, three pressure filters, a chlorine contact basin, a dechlorination system, and five sludge drying beds.

8. Wastewater entered the Facility through a Palmer Bowlus flume equipped with an ultrasonic flow meter. The wastewater then flowed through a headworks structure equipped with a grinder and a bar screen. From the headworks, the wastewater flowed to an oxidation ditch equipped with two brush aerators. The effluent from the oxidation ditch flowed to a secondary clarifier and then to a secondary effluent holding pond. Secondary effluent from the holding pond was pumped to a chlorine contact chamber where the wastewater was disinfected with sodium hypochlorite and dechlorinated with sodium bisulfite. The secondary effluent could be filtered as needed to meet effluent limits through multimedia pressure filters; however, filtration was not normally required, and is not a requirement of this permit or the previous permit. The advanced secondary treated effluent was discharged daily to the Sacramento River.

9. The discharge into the Sacramento River has been disconnected, and all valves to the discharge have been closed and locked out. Monthly verification of valve closure and lock-out is required by this Order and the attached Monitoring and Reporting Program R5-2016-0033 (MRP).

10. The Facility processed sludge using four concrete lined drying beds and one asphalt-lined drying bed. Sludge was disposed of offsite at an approved landfill. The Facility had two on-site standby generators for emergency backup.

11. From 2011-2014, the average annual flow was 0.167 mgd. Each of the unit processes treated all of the flow that entered the Facility on a given day. The following table summarizes the influent character from 2011-2014.

Table 1: Influent Character from 2011-2014

Constituent	Units	Average	Range
Biological Oxygen Demand (5-day)	mg/L	129	16-330
Total Suspended Solids	mg/L	138	40-705
Electrical Conductivity	umhos/cm	573	295-696
pH	S.U.	7.3	6.6-8

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

Table 2: 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

Existing Facility and Discharge

13. The Discharger has 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. The Discharger has completed several projects to improve the treatment system. The design average dry weather flow is now 0.27 mgd, with a design peak wet weather flow of 1.0 mgd.

14. The Facility currently consists of headworks, oxidation ditch, two secondary clarifiers, secondary effluent holding pond, return activated sludge (RAS) pump station, effluent pump station, force main, four percolation/evaporation ponds, and seven sludge drying beds.

15. An additional 36-feet diameter, 14-feet deep secondary clarifier has been constructed. The secondary clarifier was designed using a peak overflow rate of 800 gallons per day per square foot (gpd/sf), and a peak solids loading rate of 1.4 pounds per square foot per hour.

16. A new return activated sludge (RAS) pump station was constructed. It services both the existing and new secondary clarifiers, and provides continuous RAS return to just below the headworks. The pump station consists of two 5-horsepower (Hp) variable frequency pumps capable of each pumping 400 gallons per minute (gpm). The variable frequency drives allow for speed adjustment and improve operator control of the activated sludge process.

17. The effluent pumps were upsized to each have a capacity of 750 gpm, allowing for redundancy. A 300 gpm effluent pump station drain pump was installed. This allows for effluent pond cleaning and the capability of pumping effluent to either the sludge drying beds or back to the headworks.

18. The chlorine contact chamber has been taken out of service. 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 force main provides a chlorine contact time of 68 minutes at a pumping rate of 750 gpm. This is in addition to the contact time received in the effluent holding pond which is 5.5 to 33 hours. An emergency chlorine dosing station is located at the pond site to allow for additional chlorine dosing as needed. Currently, sodium hypochlorite is the only chemical used in the treatment process. Three chemical dosing pumps have the ability to inject 12.5% sodium hypochlorite solution at the RAS pipeline, the secondary clarifiers, and the effluent pump station.

19. An emergency generator was installed. The generator is equipped with an automatic transfer switch that turns the generator on during a power failure. The generator will turn on all required process components.

20. Effluent is sent to percolation/evaporation ponds for final disposal. The four ponds are located approximately 10,000 feet northeast of the wastewater treatment Facility. The perimeter of the pond area is approximately 300 feet from Lake California and 1,000 feet from the Sacramento River. Each pond is designed to have two feet of freeboard at 100-year flow and precipitation conditions. Table 3 summarizes the ponds' characteristics. The elevation of the pond berms also prevents inundation from at least the 100-year flood zone.

Table 3: Pond Sizing

Pond	Total Area (acres)	Total Depth (feet)	Total Volume (acre-feet)	Operating Volume (with 2-feet of freeboard) (acre-feet)
Pond 1	7.8	10	70.2	54.9
Pond 2	5.1	7.5	38.6	26.6
Pond 3	5.2	6.5	33.8	22.5
Pond 4	5.5	8	39.7	29.0
Totals	23.6		182.3	133.0

21. The top of all pond berms are at an elevation of 362 feet, which equates to an exterior berm height ranging from 6 to 8 feet. All interior and exterior berm slopes are 3:1, with a crest of 12 feet. Pond 1 has a 95% compacted, 1-foot thick, 4% bentonite clay amended liner. Ponds 2, 3, and 4 have 93% compacted embankment fill.

22. A secondary purpose of the ponds is to provide landscape impoundments for the aesthetic enjoyment of local residents. Walking trails, benches, and picnic tables are located around the perimeter of the ponds. In order to enhance the recreational and wildlife characteristics, wetland plants are planted along the perimeter berms of Pond 1. The interiors of Ponds 2, 3, and 4 were hydroseeded with a mix that attracts waterfowl and thrives in moist, wet, and flooded conditions.

23. All unit processes are designed and sized to handle anticipated average dry weather flow and peak wet weather flow. All unit processes are equipped with redundancy and alarm features such that Discharger staff is notified immediately should a malfunction occur.

24. Two additional concrete sludge drying beds were constructed for a total sludge drying area of approximately 21,000 square feet. Solids produced during the activated sludge process are applied to the sludge drying beds and dried in the summer. Sludge is discharged into to the drying beds at about 1.5-2% solids. Depending on the weather, the sludge is dried to approximately 8% in two to four weeks. The Discharger disposes of the biosolids at a local landfill yearly.

Site-Specific Conditions

25. The supply water character from 2010-2014 is summarized in the following table. The municipal water supply is sampled at the District's water storage tanks near District Supply Well 3. It should be noted that 2013 and 2014 were drought years.

Table 4: Supply Water Characteristics

Constituent	Units	Min	Max
Alkalinity	mg/L	90	100
Aluminum	µg/L	ND	ND
Boron	µg/L	ND	ND
Calcium	mg/L	ND	13
Chloride	mg/L	3	4
Copper	µg/L	1	13
Electrical Conductivity	µS/cm	192	198
Hardness	mg/L	62.9	65.4
Iron	µg/L	ND	ND
Magnesium	mg/L	8	8
Manganese	µg/L	ND	ND
Nitrate (as N)	mg/L	3.3	3.8
Phosphorus (as P)	mg/L	0.1	0.5
Potassium	mg/L	3	3
Sodium	mg/L	13	15
Total Dissolved Solids	mg/L	160	170
Zinc	µg/L	ND	30

26. The WWTP is located at an approximate elevation of 370 feet mean sea level (MSL) and is situated on a flat area above the Sacramento River and below treed hills. The ponds are located on relatively flat terrain at an approximate elevation of 350 feet MSL. Based on the FEMA flood insurance map, part of the WWTP and all of the ponds are within the 100-year flood plain, but outside of the floodway. The top of all pond berms are at an elevation of 362 feet MSL which prevents inundation from at least the 100-year flood elevation.

27. The nearest surface water drainage course to the WWTP and the pond area is the Sacramento River which is approximately 1,120 feet from the southeasternmost edge of the ponds and 100 feet from the easternmost edge of the WWTP.

28. The alluvium at the site consists of unconsolidated gravel, sand, silt and clay from stream channel and floodplain deposits.

29. The average annual precipitation for the area is approximately 23 inches. The 100 year, 365-day precipitation is approximately 50 inches. The local annual evapotranspiration is approximately 57 inches, and the annual pan evaporation rate is approximately 66 inches.

30. Most of the surrounding land is used as farmland for cattle grazing. No crops are grown in the immediate vicinity of the WWTP or the ponds area other than a remnant, abandoned walnut orchard. Single-family residential homes are located along the recycled water force main alignment.

Groundwater Conditions

31. The site is located in the Bowman Subbasin aquifer system. The pond area and surroundings are immediately underlain by river-terrace deposits mapped as Modesto or Riverbank Formations. The terrace deposits sit atop eroded surfaces of the older Tehama (west of the river) and Unit D of the Tuscan Formation (east of the river). The terrace deposits consist of mixtures of silt, sand, and gravel, which are unconsolidated to weakly consolidated. The Tehama Formation consists of interbedded clay, silt, sand, and gravel units, and is well consolidated. Unit D of the Tuscan Formation, in the vicinity of the site, is a volcaniclastic breccia with a mudstone matrix. All of these units can contain groundwater. The Tehama Formation is the main water-bearing formation of the northern Sacramento Valley. There is some production from the terrace deposits, but because they are of limited areal extent and thickness, they are not an important groundwater source. Typically, water in the terrace deposits is perched on the underlying, lower-permeability Tehama or Tuscan Formations.

32. 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.

33. 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.

34. 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.

Table 5. 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

35. Total concentrations of three metals in groundwater; aluminum, iron, and manganese, exceed the Maximum Contaminant Levels as shown in Table 5. The dissolved concentrations for aluminum, iron, and manganese are all below their respective MCL, and the percentage of dissolved concentrations range from 1% to 13.3% of total concentrations. This illustrates that most of the metals detected in the total-metal samples occurred as particulates, not dissolved in the groundwater.

36. Four permanent groundwater monitoring wells, MW-1, MW-2, MW-3 and MW-4, were installed 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, which is attached hereto and made part of this Order by reference.

Basin Plan, Beneficial Uses, and Regulatory Considerations

37. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition (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. Pursuant to California Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.

38. Local drainage is to the Sacramento River. The existing beneficial uses of the Sacramento River (Shasta Dam to the Colusa Basin Drain), as stated in the Basin Plan, are: municipal and domestic supply (MUN); agricultural irrigation and stock watering (AGR); industrial service and power supply (IND and POW); non-contact and body contact recreation, including canoeing and rafting (REC-1 and REC-2); warm and cold freshwater aquatic habitat (WARM and COLD); warm and cold water fish migration habitat (MIGR); warm and cold spawning, reproduction, and/or early development habitat (SPWN); and wildlife habitat (WILD), and navigation (NAV).

39. 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.

40. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.

41. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater.

42. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, require waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of the California Code of Regulations (hereafter Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

43. The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.

44. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.

45. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as Water Quality for Agriculture by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 µmhos/cm. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 µmhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

Antidegradation Analysis

46. State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (*State Anti-Degradation Policy*) generally prohibits the Central Valley Water Board from authorizing activities that will result in the degradation of high-quality waters unless it has been shown that:

    a. The degradation is consistent with the maximum benefit to the people of the state.

    b. The degradation will not unreasonably affect present and anticipated future beneficial uses.

    c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and

    d. The Discharger employs best practicable treatment or control (BPTC) to minimize degradation.

47. Degradation of groundwater by some of the typical waste constituents associated with discharges from a municipal wastewater utility, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from reliance on numerous, concentrated individual wastewater systems, and the impact on water quality will be substantially less. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and provides sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order.

48. 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 State Anti-Degradation Policy for this Facility must be based on existing background groundwater quality.

49. The Discharger submitted a Groundwater Quality Impacts Analysis in October 2014. The results of this analysis are listed in Table 6. Two resultant groundwater concentrations were calculated using the weighted average of future wastewater flow/quality and groundwater flow/quality. Two scenarios of aquifer conditions were evaluated, one with an aquifer hydraulic conductivity of 3 feet/day and one at 259 feet/day. The higher hydraulic conductivity represents current conditions; the slower hydraulic conductivity represents conditions that may occur if groundwater mounding causes water levels to rise into the lower permeability zone overlying the zone in which groundwater currently occurs. The latter was predicted by a groundwater mounding analysis.

50. At a hydraulic conductivity of 259 feet/day (current conditions), the analysis found that although there would be some degradation to groundwater; beneficial uses would be protected, and water quality objectives would not be exceeded.

51. At a hydraulic conductivity of 3 feet/day, the analysis shows higher potential impacts. This reflects conditions immediately beneath Pond 1, in the zone where groundwater mounding may occur. Away from the pond, the groundwater mound will dissipate, and the conditions predicted for the higher permeability aquifer will prevail. Thus, the results for the lower permeability zone reflect potential conditions for a limited area only.

Table 6. Estimated Constituent Concentrations in Groundwater

Constituent	Unit	Max BG GW[1]	Max Eff[2]	Est. GW 259 ft/day[4]	Est. GW 3 ft/day[3]	Primary MCL[5]	Secondary MCL[6]
Aluminum, Dissolved	µg/L	20	100	21.1	62.9	-	-
Ammonia	mg/L	<0.2	17.3	0.2	9.3	-	-
Arsenic	µg/L	2	1.8	2.0	1.9	10	-
CDBM	µg/L	<0.5	24.5	0.3	13.1	80	-
Chloride	mg/L	4.04	62	4.8	35.1	-	250
Copper	µg/L	9	7	9.0	7.9	1300	1000
Electrical Conductivity	µS/cm	290	692	295.3	505.7	-	900
DCBM	µg/L	<0.5	67.8	0.9	36.4	80	-
Iron, Dissolved	µg/L	50	37.2	49.8	43.1	-	-
Lead	µg/L	1.4	0.2	1.4	0.8	15	-
Manganese, Dissolved	µg/L	38.7	20	38.5	28.7	-	-
Nitrate as N	mg/L	1.24	14.5	1.4	8.4	10	-
Sodium	mg/L	11.7	62	12.4	38.7	-	-
Sulfate	mg/L	14.1	29.1	14.3	22.1	500	250
Total Dissolved Solids	mg/L	211	370	213.1	296.3	-	500
Zinc, Total	µg/L	20	140	21.6	84.4	--	5000

[1] Maximum Background Groundwater Concentration

[2] Maximum Effluent Concentration

[3] Estimated Groundwater Concentration, Aquifer at 3 ft/day

[4] Estimated Groundwater Concentration, Aquifer at 259 ft/day

[5] Primary Maximum Contaminant Level

[6] Secondary Maximum Contaminant Level

52. Total nitrogen loadings are expected to be 1,588 pounds per acre per year based on the current average day dry weather flow of 0.13 mgd and maximum effluent sampling results of 17.3 mg/L of ammonia nitrogen as N and 14.5 mg/L of nitrate nitrogen as N. Approximately 18,722 pounds per year of total dissolved solids (TDS)

are anticipated based on a maximum effluent concentration of 370 mg/L. These values assume all effluent will be sent to Pond 1 only. If all pond areas are included the loadings drop to 525 and 6,204 pounds per acre per year of total nitrogen and TDS loadings, respectively. Actual maximum loadings will likely be somewhere in the middle of these estimates, and the average loading will be much lower.

53. This Order establishes effluent and groundwater limitations for the WWTP that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater pollutant concentrations that exceed water quality objectives set forth in the Basin Plan.

54. The Discharger provides treatment and control of the discharge that incorporates:

    a. Optimization of the Oxidation Ditch operation to maximize BOD removal, nitrification, and denitrification.

    b. Optimization of the Secondary Clarifiers operation to maximize sludge removal.

    c. Effluent disinfection with sodium hypochlorite to achieve a disinfection level of secondary-23 recycled water.

    d. Percolation/evaporation ponds with engineered clay pond liners for effluent disposal and waste containment.

    For this Facility, the Board considers these measures to be BPTC.

    The nature of the waste, site-specific conditions, and pre-discharge groundwater monitoring data indicate that although the discharge may cause degradation, the discharge will not result in exceedances of any applicable water quality objectives. Furthermore, this Order requires the Discharger to implement BPTC, and the degradation is consistent with the maximum benefit to the people of the state. Therefore, the degradation authorized herein is consistent with the *State Anti-Degradation Policy*.

Water Recycling Regulatory Considerations

55. Undisinfected domestic wastewater contains human pathogens that are typically measured using total or fecal coliform organism as indicator organisms. The State Water Resources Control Board Division of Drinking Water (formerly the California Department of Public Health Drinking Water Program), which has primary statewide responsibility for protecting drinking water quality and the public health, has established statewide criteria in Title 22, section 60301 et seq. for the use of recycled water.

56. On 3 February 2009, the State Water Board adopted Resolution 2009-0011, *Adoption of a Policy for Water Quality Control for Recycled Water* (Recycled Water Policy). The Recycled Water Policy promotes the use of recycled water to achieve sustainable local water supplies and reduce greenhouse gases.

57. On 23 April 2009, the Central Valley Water Board adopted Resolution R5-2009-0028, *In Support of Regionalization, Reclamation, Recycling and Conservation for Wastewater Treatment Plant*. Resolution R5-2009-0028 encourages water recycling, water conservation, and regionalization of wastewater treatment facilities. It requires the municipal wastewater treatment agencies to document:

    a. Efforts to promote new or expanded wastewater recycling opportunities and programs;

    b. Water conservation measures; and

    c. Regional wastewater management opportunities and solutions (e.g., regionalization).

58. The distribution of disinfected secondary-23 recycled water by the Discharger is consistent with the intent of State Board Resolution 2009-0011 and Central Valley Water Board Resolution R5-2009-0028.

59. 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 60301.230. The Division of Drinking Water approved the *Engineering Report* on 2 June 2014 and provided recommendations to the Central Valley Water Board.

60. This order includes conditions that implement the recommendations from the Division of Drinking Water.

Other Regulatory Considerations

61. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.

62. Based on the threat and complexity of the discharge, the Facility is determined to be classified as 2B as defined below:

    a. Category 2 threat to water quality: “Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”

    b. Category B complexity, defined as: “Any discharger not included [as Category A] that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal) or any Class 2 or Class 3 waste management units.”

63. 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 sludges 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 leachfields 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 . . .

    c. 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.

64. The discharge authorized herein (except for the discharge of residual sludge and solid waste), and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:

    a. The oxidation ditch, clarifiers, sludge drying beds, and holding pond are exempt pursuant to Title 27, section 20090(a) because they are treatment and storage facilities associated with a municipal domestic wastewater treatment plant.

    b. Ponds 1, 2, 3, and 4, are exempt pursuant to Title 27, section 20090(b) because they are wastewater percolation/evaporation ponds and:

        1) The Central Valley Water Board is issuing WDRs.

        2) The discharge is in compliance with the Basin Plan because this order establishes effluent and groundwater limitations for the WWTP that will

not unreasonably threaten present and anticipated beneficial uses or result in groundwater pollutant concentrations that exceed water quality objectives set forth in the Basin Plan, and;

3) The treated effluent discharged to the ponds does not need to be managed as hazardous waste.

c. Ponds 1, 2, 3, and 4 are also exempt pursuant to Title 27, section 20090(h) because the ponds are part of a recycled water project, and they contain disinfected secondary-23 recycled water as defined by Title 22, section 60301.230.

65. The U.S. EPA published *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (hereafter "Unified Guidance") in 2009. As stated in the Unified Guidance, the document:

> …is tailored to the context of the RCRA groundwater monitoring regulations … [however, t]here are enough commonalities with other regulatory groundwater monitoring programs…to allow for more general use of the tests and methods in the Unified Guidance…Groundwater detection monitoring involves either a comparison between different monitoring stations…or a contrast between past and present data within a given station…The Unified Guidance also details methods to compare background data against measurements from regulatory compliance points…[as well as] techniques for comparing datasets against fixed numerical standards…[such as those] encountered in many regulatory programs.

66. The statistical data analysis methods in the Unified Guidance are appropriate for determining whether the discharge complies with Groundwater Limitations of this Order.

67. The State Water Board adopted Order 2014-0057-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The wastewater treatment Facility has a design capacity of less than 1.0 mgd. The Discharger is therefore not required to obtain coverage under NPDES General Permit CAS000001.

68. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems General Order 2006-0003-DWQ (the General Order). The General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with the Order. The Discharger's collection system exceeds one mile in length and the Discharger is enrolled under the General Order.

69. Water Code section 13267(b)(1) states:

> In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region … shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

70. The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2016-0033 (MRP) are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the Facility that discharges the waste subject to this Order.

71. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 74-81 (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.

72. 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.

73. The Mitigated Negative Declaration evaluated the potential impacts to groundwater quality and found that compliance with WDRs will ensure that impacts to water quality would be less than significant. Compliance with this Order will mitigate or avoid significant impacts to water quality. No other specific mitigations associated with the Central Valley Water Board were required by the Mitigated Negative Declaration.

74. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 CFR 503, *Standard for the Use or Disposal of Sewage Sludge,* which establishes management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria.

75. The Central Valley Water Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Central Valley Water Board is not the implementing agency for 40 CFR 503 regulations. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to the EPA.

76. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

77. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

78. The Discharger and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and an opportunity for a public hearing.

79. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that pursuant to Water Code sections 13263 and 13267, the Discharger, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Discharge of waste classified as 'hazardous', as defined in the California Code of Regulations, title 23, section 2510 et seq., is prohibited.

3. Treatment system bypass of untreated or partially treated waste is prohibited, except as allowed by Standard Provision E.2 of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*. Use of sand filters is not specifically required.

4. Discharge of waste at a location or in a manner different from that described in the Findings is prohibited.

5. The Discharger shall not allow toxic substances to be discharged into the wastewater treatment system such that biological treatment mechanisms are disrupted.

B. Flow Limitations

1. Effectively immediately effluent flows from the WWTP shall not exceed the following limits:

Flow Measurement	Flow Limit
Average Dry Weather Flow [1]	0.27 mgd
Peak Wet Weather Flow [2]	1.0 mgd

[1] The average dry weather flow (ADWF) represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow limitations will be determined annually based on the average daily flow over the three consecutive driest weather months (e.g., July, August, and September).

[2] The peak wet weather flow (PWWF) is the highest flow at the plant sustained for one hour. The PWWF is expected to occur during the peak day flow.

C. Effluent Limitations and Mass Loading Limitations

1. Effluent discharged to the percolation/evaporation ponds shall not exceed the following limits:

Constituent	Units	Limit	Basis of Compliance Determination
BOD_5 [1]	mg/L	30	30-Day Average
BOD_5 [1]	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 [2]
Total Coliform Organisms	MPN/100mL	240	Monthly Maximum [3]
pH	S.U.	6.0-9.0	Instantaneous Range

[1] 5-day biochemical oxygen demand at 20˚C.

[2] The 7-day median concentration of total coliform bacteria measured in the disinfected effluent shall not exceed a most probable number (MPN) of 23 per 100 milliliters. Compliance with this requirement will be determined using data for each calendar week (Sunday through Saturday).

[3] The number of total coliform bacteria shall not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30-day period

2. Compliance with these effluent limitations shall be determined based on samples obtained at the sampling locations described in the MRP.

D. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will cause a violation of the Groundwater Limitations of this Order.

2. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.

3. The discharge shall remain within the permitted waste treatment/containment structures and Recycled Water Use Areas at all times.

4. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.

5. All conveyance, treatment, storage, and disposal systems shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

6. Public contact with wastewater at the WWTP shall be prevented through such means as fences, signs, or acceptable alternatives.

7. Objectionable odors shall not be perceivable beyond the limits of the WWTP property or the evaporation/percolation ponds property at an intensity that creates or threatens to create nuisance conditions.

8. As a means of discerning compliance with Discharge Specification D.7, the dissolved oxygen (DO) content in the upper one foot of any wastewater treatment or storage pond shall not be less than 1.0 mg/L for three consecutive monitoring events. If the DO in any single pond is below 1.0 mg/L for three consecutive monitoring events, the Discharger shall report the findings to the Regional Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.

9. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.

10. Wastewater treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring

compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

11. On or about 1 October of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications D.9 and D.10.

12. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically:

    a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.

    b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.

    c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

    d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.

13. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within a pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.

14. Wastewater contained in any unlined pond shall not have a pH less than 6.0 or greater than 9.0.

15. Discharger shall monitor sludge accumulation in the wastewater treatment/storage ponds at least every five years beginning in 2016, and shall periodically remove sludge as necessary to maintain adequate storage capacity.

E. Groundwater Limitations

Release of waste constituents from any portion of the WWTP or land disposal areas shall not cause groundwater to:

1. Contain constituents in concentrations statistically greater than current background groundwater quality or that exceed either the Primary or Secondary MCLs established in Title 22 of the California Code of Regulations, whichever is greater.

2. Exceed a total coliform organism level of 2.2 MPN/100 mL over any seven-day period.

3. Exceed nitrate (as nitrogen) concentrations of 10 mg/L.

4. Have a pH of less than 6.5 or greater than 8.5.

5. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

F. Water Recycling Specifications

1. For the purpose of this Order, “use area" means an area with defined boundaries where recycled water is used or discharged as per Title 22 Section 60301.920.

2. Notwithstanding the following requirements, the production, distribution, and use of recycled water shall conform to an Engineering Report prepared pursuant to Title 22, section 60323 and approved by the Division of Drinking Water.

3. The recycled water shall be at least disinfected secondary 23 recycled water as defined in Title 22, section 60301.

4. Recycled water shall be used in compliance with Title 22, section 60304. Specifically, uses of recycled water shall be limited to those set forth in Title 22, section(s) 60304(c), 60304(d), 60305(e), 60306(b), 60307(b), and 60307(c).

5. The ponds are considered a landscape impoundment per Title 22, Section 60301.550, and landscape impoundments require recycled water sources have a water quality of “at least disinfected secondary-23.” Title 22, Section 60321(a) requires disinfected secondary-23 recycled water to be sampled daily for total coliform bacteria and analyzed by an approved laboratory.”

6. No recycled water used for irrigation, or soil that has been irrigated with recycled water, shall come into contact with the edible portion of food crops that may be eaten raw by humans.

7. Irrigation of the use areas using recycled water shall occur only when appropriately trained personnel are on duty,

8. The Discharger shall conduct periodic inspections of the recycled water use areas to determine compliance with the requirements of this Order. If an inspection reveals noncompliance or threat of noncompliance with this Order, the Discharger shall immediately cease all public access and implement corrective actions to ensure compliance with this Order.

9. The irrigation with recycled water shall be managed to minimize erosion within the use areas.

10. The use areas shall be managed to prevent breeding of mosquitoes or other vectors.

11. Use areas and recycled water impoundments shall be designed, maintained, and operated to comply with the following setback requirements:

Setback Definition	Minimum Irrigation Setback (feet)
Toe of recycled water impoundment berm to domestic water supply well	100 [1]
Edge of use area to residence	100 [2]
Edge of use area using spray irrigation to public park, playground, school yard, or similar place of potential public exposure	100 [2]

[1] In accordance with 22 CCR Section 60310(c).
[2] In accordance with 22 CCR Section 60310(f).

12. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.

13. Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.

14. Public contact with recycled water shall be controlled using fences, signs, and other appropriate means.

15. Use areas that are accessible to the public shall be posted with signs that are visible to the public and no less than four inches high by eight inches wide. Signs shall be placed at all areas of public access and posted at no more than 500-foot intervals along the perimeter fence line and pond area and at above-ground portions of recycled water conveyances to alert the public of the use of recycled water. All signs shall display an international symbol similar to that shown in Attachment D which is attached and forms part of this Order, and shall include the following wording:

"RECYCLED WATER – DO NOT DRINK"

Alternative language will be considered by the Executive Officer if approved by the Division of Drinking Water (DDW).

16. In addition, a sign shall be posted at the entrance gate to the ponds stating the following rules:

- No Drinking
- Avoid Contact
- Wash Hands After Contact
- No Smoking
- No Swimming Or Wading
- No Boating Or Fishing
- No Motorized Vehicles
- Not For Equestrian Use
- Stay On Walking Trails

- Bicycles Heed Right Of Way To Pedestrians
- Dogs Must Be On Leash At All Times
- Pick Up After Your Pets

17. All recycling equipment, pumps, piping, valves, and outlets shall be marked to differentiate them from potable water facilities. Quick couplers, if used, shall be different than those used in potable water systems.

18. Recycled water controllers, valves, and similar appurtenances shall be equipped with removable handles or locking mechanisms to prevent public access or tampering.

19. Hose bibs and unlocked valves, if used, shall not be accessible to the public.

20. No physical connection shall exist between recycled water piping and any potable water supply system (including domestic wells), or between recycled water piping and any irrigation well that does not have an approved air gap or reduced pressure principle device.

21. A reduced pressure principle (RPP) device must be located as near the on-site drinking water fountain as possible and must be tested annually to comply with Cross-connection Regulations.

22. Horizontal and vertical separation between pipelines transporting recycled water and those transporting potable water shall comply with Title 22, section 64572, except to the extent that DDW has specifically approved a variance.

23. No physical connection shall be made or allowed to exist between any recycled water system and any separate system conveying potable water or auxiliary water source system.

24. A public water supply shall not be used as backup or supplemental source of water for a recycled water system unless the connection between the two systems is protected by an air gap separation which complies with the requirements of California Code of Regulations, Title 17, sections 7602(a) and 7603(a).

25. All recycled water piping and appurtenances in new installations and appurtenances in retrofit installations shall be colored purple or distinctively wrapped with purple tape in accordance with California Health and Safety Code section 116815.

26. Any backflow prevention device installed to protect a public water system shall be inspected and maintained in accordance with Title 17, section 7605.

G. Solids Disposal Specifications

Sludge, as used in this document, means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTP. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially used as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities pursuant to federal and state regulations.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, and clarifiers as needed to ensure optimal plant operation.

2. Any handling and storage of residual sludge, solid waste, and biosolids at the WWTP shall be temporary (i.e., no longer than six months) and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.

3. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27, division 2. Removal for further treatment, disposal, or reuse at disposal sites (i.e., landfills, WWTPs, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy this specification.

4. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water board or the State Water Board except in cases where a local (e.g., county) program has been authorized by a regional water board. In most cases, this will mean the General Biosolids Order (State Water Resources Control Board Water Quality Order 2004-12-DWQ, “General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities”). For a biosolids use project to be covered by Order 2004-12-DWQ, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.

5. Use and disposal of biosolids shall comply with the self-implementing federal regulations of 40 Code of Federal Regulations part 503, which are subject to enforcement by the U.S. EPA, not the Central Valley Water Board. If during the life of this Order, the State accepts primacy for implementation of part 503, the Central Valley Water Board may also initiate enforcement where appropriate.

6. Any proposed change in sludge use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

H. Provisions

1. The Discharger shall submit a *Groundwater Background Quality Report* and an *Initial Groundwater Trigger Report* based on monitoring data obtained from at least 12 quarterly monitoring events (approximately 3 years).

    a. *Groundwater Background Quality Report*.

        1) For each groundwater monitoring constituent identified in the MRP, the report shall present a summary of monitoring data and the calculated concentration of each constituent in each monitoring well. The report shall also determine which wells are the background monitoring wells and which wells are compliance monitoring points downgradient of the discharge.

        2) Once the groundwater background quality is established, the Annual Groundwater Monitoring Report shall include annual interwell comparisons of the background wells' constituent concentrations and the compliance wells' constituent concentrations.

    b. Initial Groundwater Trigger Report

        1) For downgradient compliance wells, groundwater triggers shall be established for the following constituents; nitrate, electrical conductivity, iron, and manganese. Groundwater triggers shall be equal to one standard deviation above the arithmetic mean or the Water Quality Objective, whichever is more restrictive. The triggers are not intended to act as groundwater limits, but as a basis for initiating further evaluation of potential impacts to groundwater from the land application of wastewater.

        2) Once initial groundwater triggers are established, the Annual Groundwater Monitoring Report shall evaluate if a trigger has been exceeded. A trigger exceedance evaluation shall consist of comparing the annual average concentration for each trigger constituent in each downgradient well during the calendar year to the corresponding trigger concentration. If any trigger is exceeded, the Discharger shall do further evaluation.

        3) Such further evaluation consists of determining concentration trends in the wells for specific constituents. If analysis indicates an increasing trend in any trigger constituent, then the Discharger will be required to perform an updated BPTC analysis to determine if BPTC is still being implemented. If the updated BPTC analysis indicates that additional or upgraded BPTC measures are necessary, then the Discharger shall submit a BPTC work plan, including a time schedule for implementation, to the Executive Officer for review and approval. If the updated BPTC analysis indicates that BPTC continues to be implemented and that no upgrades are required then no action will be required, and the

groundwater triggers will be increased as discussed below. Alternatively, if a BPTC work plan is required then the groundwater triggers will be increased as discussed below, following completion of the BPTC work plan activities.

4) Groundwater triggers will be reset (increased) and set equal to the new arithmetic mean plus one standard deviation, or the Water Quality Objective, whichever is more restrictive.

2. A Discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the Discharger shall notify the Central Valley Water Board by 31 January. This shall be submitted pursuant to Water Code section 13267 and shall be prepared as described in Provision H.3.

3. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain work plans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional’s signature and stamp.

4. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer, and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.

5. The Discharger shall comply with Monitoring and Reporting Program R5-2016-0033, which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.

6. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

7. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, the Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

8. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.

9. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.

10. The Discharger shall provide certified wastewater treatment plant operators in accordance with Title 23, division 3, chapter 26.

11. As described in the Standard Provisions, the Discharger shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.

12. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."

13. The Discharger shall comply with the requirements of the Statewide General Waste Discharge Requirements (General WDRs) for Sanitary Sewer Systems (Water Quality Order 2006-0003), the Revised General WDRs Monitoring and Reporting Program (Water Quality Order 2008-0002-EXEC), and any subsequent revisions thereto. Water Quality Order 2006-0003 and Order 2008-0002-EXEC require the Discharger to notify the Central Valley Water Board and take remedial action upon the reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer overflow.

14. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal systems in amounts that

significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

15. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

16. In the event of any change in control or ownership of the WWTP, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

17. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

18. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge Facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

19. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to $10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320

and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full true, and correct copy of an Order adopted by the California Regional Water Quality Control Board on 21 April 2016.

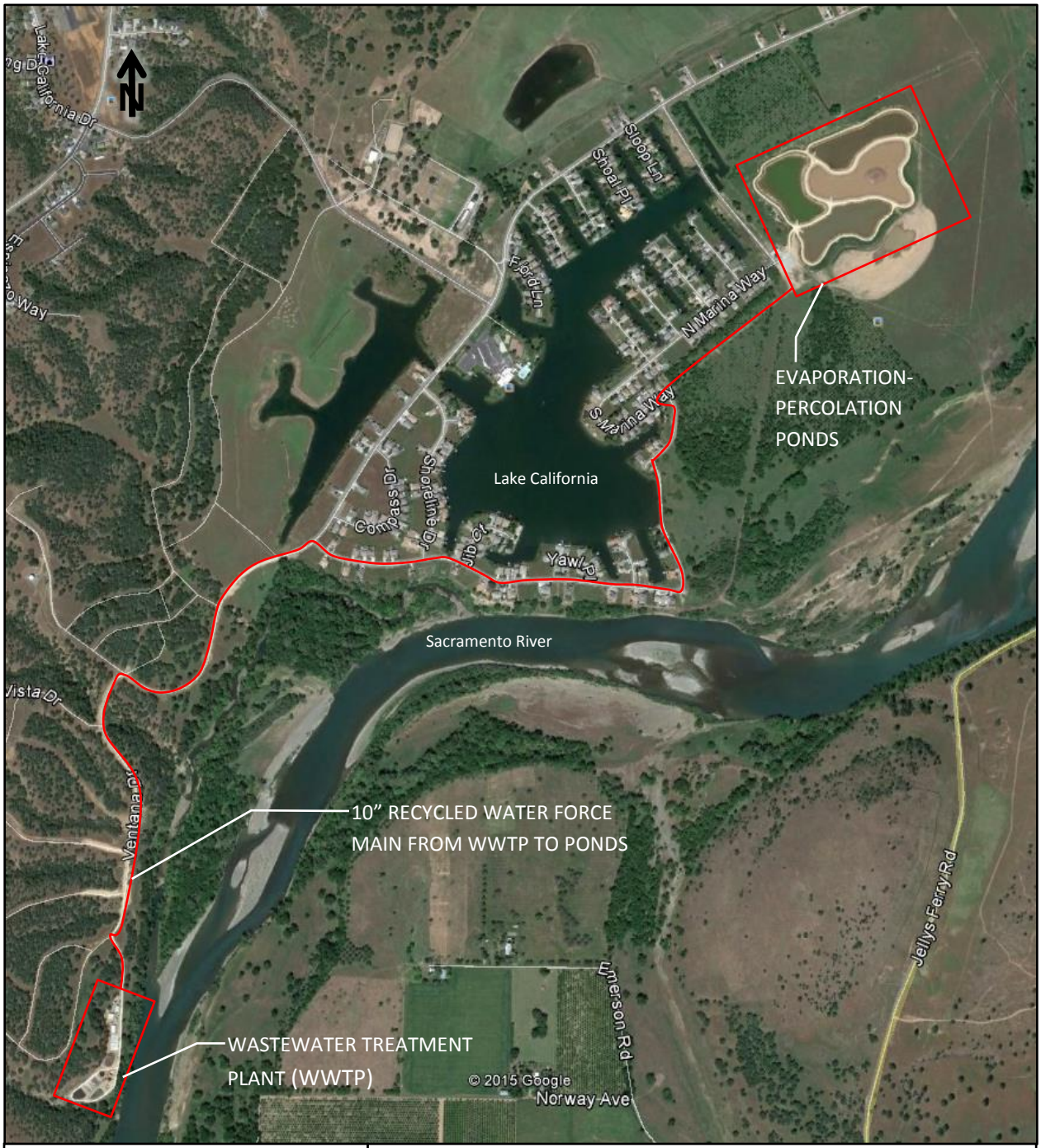
Original signed by:

PAMELA C. CREEDON, Executive Officer

ATTACHMENT A- LOCATION MAP

DRAWING REFERENCE: GOOGLE EARTH MAP DATA: © 2015 GOOGLE NO SCALE	LOCATION MAP RIO ALTO WATER DISTRICT LAKE CALIFORNIA WASTEWATER TREATMENT PLANT TEHAMA COUNTY

ATTACHMENT B- MAP



DRAWING REFERENCE: GOOGLE EARTH MAP DATA: © 2015 GOOGLE NO SCALE	SITE MAP RIO ALTO WATER DISTRICT LAKE CALIFORNIA WASTEWATER TREATMENT PLANT TEHAMA COUNTY

ATTACHMENT C- MONITORING WELL LOCATION MAP

DRAWING REFERENCE: GOOGLE EARTH MAP DATA: © 2015 GOOGLE NO SCALE	MONITORING WELL LOCATION MAP RIO ALTO WATER DISTRICT LAKE CALIFORNIA WASTEWATER TREATMENT PLANT TEHAMA COUNTY

ATTACHMENT D- INTERNATIONAL "DO NOT DRINK" SYMBOL

California Health Laws Related to Recycled Water *June 2001 Edition*
Title 22

Water Recycling Criteria

FIGURE 60310-A

DRAWING REFERENCE: 22 CCR §60310 NO SCALE	INTERNATIONAL "DO NOT DRINK" SYMBOL RIO ALTO WATER DISTRICT LAKE CALIFORNIA WASTEWATER TREATMENT PLANT TEHAMA COUNTY

INFORMATION SHEET

INFORMATION SHEET ORDER R5-2016-0033
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 ADWF 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 though 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.

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 results 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 Oder 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 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.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2016-0033

FOR

RIO ALTO WATER DISTRICT
LAKE CALIFORNIA WASTEWATER TREATMENT PLANT
TEHAMA COUNTY

This Monitoring and Reporting Program (MRP) is issued pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP. Section 13267 of the California Water Code states, in part:

> *"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."*

Section 13268 of the California Water Code states, in part:

> *"(a) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of Section 13267, or failing or refusing to furnish a statement of compliance as required by subdivision (b) of Section 13399.2, or falsifying and information provided therein, is guilty of a misdemeanor and may be liable civilly in accordance with subdivision (b).*
>
> *(b)(1) Civil liability may be administratively imposed by a regional board in accordance with Article 2.5 (commencing with section 13323) of Chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars ($1,000) for each day in which the violation occurs."*

Rio Alto Water District (hereafter "Discharger") owns and operates the Facility that is subject to the WDRs cited herein, and the monitoring reports are necessary to determine compliance with the WDRs.

Pursuant to Section 13267 of the California Water Code, the Discharger shall implement this MRP and shall submit the monitoring reports described herein. A glossary of terms used in this MRP is included on the last page.

I. GENERAL MONITORING REQUIREMENTS

A. FLOW MONITORING

Hydraulic flow rates shall be measured at the monitoring points specified in this MRP. Central Valley Water Board staff shall approve any proposed changes to flow monitoring locations prior to implementation of the change. All flow monitoring systems shall be appropriate for the conveyance system (i.e., open channel flow or pressure pipeline) and liquid type. Unless otherwise specified, each flow meter shall be equipped with a flow totalizer to allow reporting of cumulative volume as well as instantaneous flow rate. Flow meters shall be calibrated at the frequency recommended by the manufacturer; typically at least once per year and records of calibration shall be maintained for review upon request.

B. MONITORING AND SAMPLING LOCATIONS

Samples shall be obtained at the monitoring points specified in this MRP. Central Valley Water Board staff shall approve any proposed changes to sampling locations prior to implementation of the change.

The Discharger shall monitor the following locations to demonstrate compliance with the requirements of this Order:

Monitoring Location Name	Monitoring Location Description
EFF-1	Location where a representative sample of process wastewater effluent can be obtained prior to discharge to the ponds.
MW-1, MW-2, MW-3, and MW-4	Groundwater monitoring well locations.
PND-1, PND-2, PND-3, and PND-4	Evaporation/Percolation Ponds

C. SAMPLING AND SAMPLE ANALYSIS

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. Except as specified otherwise in this MRP, grab samples will be considered representative of water, wastewater, soil, solids/sludge and groundwater.

The time, date, and location of each sample shall be recorded on the sample chain of custody form. All analyses shall be performed in accordance with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as those used to measure pH, electrical conductivity, dissolved oxygen, wind speed, and precipitation) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;

2. The instruments are field calibrated at the frequency recommended by the manufacturer;

3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and

4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

Laboratory analytical procedures shall comply with the methods and holding times specified in the following (as applicable to the medium to be analyzed):

- *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (EPA);*
- *Test Methods for Evaluating Solid Waste (EPA);*
- *Methods for Chemical Analysis of Water and Wastes (EPA);*
- *Methods for Determination of Inorganic Substances in Environmental Samples (EPA);*
- *Standard Methods for the Examination of Water and Wastewater (APHA/AWWA/WEF); and*
- *Soil, Plant and Water Reference Methods for the Western Region (WREP 125).*

Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health's Environmental Laboratory Accreditation Program (ELAP). The Discharger may propose alternative methods for approval. Where technically feasible, laboratory reporting limits shall be lower than the applicable water quality objectives for the constituents to be analyzed.

If monitoring consistently shows no significant variation in a constituent concentration or parameter after at least 36 months of monitoring, the Discharger may request this MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency.

II. SPECIFIC MONITORING REQUIREMENTS

A. WASTEWATER TREATMENT PLANT MONITORING

The previous discharge point into the Sacramento River shall be monitored monthly to ensure that the discharge is disconnected, and that all valves to the discharge are closed and locked out. Verification of this shall be reported monthly.

B. EFFLUENT MONITORING

Effluent samples shall be collected upstream of the point of discharge to the effluent storage ponds. At a minimum, effluent shall be monitored as specified below:

Constituent/Parameter	Units	Sample Type	Monitoring Frequency	Reporting Frequency
Flow	MGD	Meter Reading	Continuous [1]	Monthly
Total Chlorine Residual	mg/L	Meter	Continuous [1]	Monthly
pH	S.U.	Grab	Daily	Monthly
Total Coliform Organisms [2]	MPN/100 mL	Grab	Daily	Monthly
BOD_5	mg/L	Grab	Weekly	Monthly
Total Suspended Solids	mg/L	Grab	Weekly	Monthly
Hardness (as CaCO3)	mg/L	Grab	Monthly	Monthly
Total Nitrogen	mg/L	Grab	Monthly	Monthly
Ammonia (as N)	mg/L	Grab	Monthly	Monthly
Nitrite (as N)	mg/L	Grab	Monthly	Monthly
Nitrate (as N)	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly
Electrical Conductivity	µmhos/cm	Grab	Monthly	Monthly
Chloride	mg/L	Grab	Quarterly	Quarterly
Sulfate	mg/L	Grab	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Standard Minerals [3]	mg/L	Grab	Annually	Annually

[1] For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation.

[2] Required to meet Title 22 Recycled Water Monitoring Requirements. IDEXX Quanti-Tray 2000 or equivalent is an acceptable test method.

[3] Standard minerals shall include, at a minimum, the following elements/compounds: aluminum (total), arsenic, bicarbonate, boron, calcium, carbonate, chloride, iron (total), magnesium, manganese (total), potassium, sodium, sulfate, and total alkalinity.

C. POND MONITORING

Ponds used for treatment, storage, or disposal of wastewater shall be monitored as specified below. Dissolved oxygen monitoring applies to any pond containing more than two feet of standing water:

Constituent/Parameter	Units	Sample Type	Monitoring Frequency	Reporting Frequency
Dissolved Oxygen [1]	mg/L	Grab	Weekly	Monthly
Freeboard [2]	0.1 feet	Measurement	Weekly	Monthly
pH [1]	Standard	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Berm condition	--	Observation	Weekly	Monthly
Liner condition		Observation	Weekly	Monthly

[1] Samples shall be collected opposite the pond inlet at a depth of one foot.
[2] Freeboard shall be measured vertically from the surface of the pond water to the lowest elevation of the surrounding berm and shall be measured to the nearest 0.1 feet.

In addition, the Discharger shall inspect the condition of the ponds once per week and document visual observations. Notations shall include observations of:

a. Presence of weeds in the water or along the berm;
b. Accumulations of dead algae, vegetation, scum, or debris on the pond surface;
c. Animal burrows in the berms;
d. Evidence of seepage from the berms or downslope of the ponds;

D. GROUNDWATER MONITORING

The Discharger shall maintain the groundwater monitoring well network. If a groundwater monitoring well is dry for more than four consecutive sampling events or is damaged, the Discharger shall submit a work plan and proposed time schedule to replace the well. The well shall be replaced following approval of the work plan.

Applicability of Groundwater Limitations

Prior to construction and/or sampling of any new groundwater monitoring wells, the Discharger shall submit plans and specifications for approval. Once installed, all new wells shall be added to the groundwater monitoring network. The following table lists all existing monitoring wells and designates the purpose of each well:

MW-1[1]	MW-2[1]	MW-3[2]	MW-4[2]

[1] Upgradient Compliance Well.
[2] Downgradient Compliance Well.

Groundwater Trigger Concentrations

The Discharger shall submit a *Groundwater Quality and Initial Trigger Report* as outlined in Section H Provision 1a of the WDRs.

Groundwater Sampling and Analysis

Prior to purging or sampling, the groundwater depth shall be measured in each well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction.

Low or no-purge sampling methods are acceptable, if described in an approved Sampling and Analysis Plan. Otherwise, each monitoring well shall be purged of at least 3 to 5 casing volumes until pH, electrical conductivity and turbidity have stabilized prior to sampling. Groundwater monitoring for all monitoring wells shall include, at a minimum, the following:

Constituent/Parameter	Units	Sample Type	Monitoring Frequency	Reporting Frequency
Depth to Groundwater [1]	0.01 feet	Measurement	Quarterly	Quarterly
Groundwater Elevation [1]	0.01 feet	Calculation	Quarterly	Quarterly
Gradient [1]	feet/feet	Calculation	Quarterly	Quarterly
Gradient Direction [1]	degrees	Calculation	Quarterly	Quarterly
Eh	mV	Grab	Quarterly	Quarterly
pH	standard	Grab	Quarterly	Quarterly
Total Nitrogen	mg/L	Grab	Quarterly	Quarterly
Ammonia (as N)	mg/L	Grab	Quarterly	Quarterly
Nitrite (as N)	mg/L	Grab	Quarterly	Quarterly
Nitrate (as N)	mg/L	Grab	Quarterly	Quarterly
Electrical Conductivity	µmhos/cm	Grab	Quarterly	Quarterly
Total Coliform Organisms	MPN/100 mL	Grab	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Total Kjehldal Nitrogen	mg/L	Grab	Quarterly	Quarterly
Turbidity	NTU	Grab	Quarterly	Quarterly
Standard Minerals [2]	mg/L	Grab	Quarterly	Quarterly
Metals [3]	µg/L	Grab	Quarterly	Quarterly

[1] Groundwater elevations shall be determined based on depth-to-water measurements using a surveyed elevation reference point on the well casing.

[2] Standard Minerals shall include, at a minimum, the following: aluminum (total), arsenic, bicarbonate, boron, calcium, carbonate, chloride, hardness, iron (total), magnesium, manganese (total), potassium, sodium, sulfate, total alkalinity.

[3] Samples for metals shall be filtered prior to preservation and digestion using a 0.45-micron filter. Metals shall include, at a minimum, the following: arsenic, cadmium, chromium (total and hexavalent), copper, iron, lead, manganese, mercury, nickel, selenium, thallium, and zinc.

E. SLUDGE/BIOSOLIDS MONITORING

Sludge and/or biosolids monitoring shall be conducted as required in Title 40 of the Code of Federal Regulations (40 CFR), Part 503.8(b)(4) at the following frequency, depending on volume of sludge generated and removed from the wastewater treatment system for disposal or treated for beneficial reuse as biosolids:

Volume Generated[1] (dry metric tons/year)	Monitoring Frequency	Reporting Frequency
0 to 290	Annually	Annually
290 to 1,500	Quarterly	Quarterly
1,500 to 15,000	Bimonthly	Bimonthly
Greater than 15,000	Monthly	Monthly

[1] For the purpose of this MRP, "generated" means produced as a separate waste stream by sludge wasting or pond cleanout. It does not apply to sludge that accumulates in treatment or storage ponds until the sludge is removed for treatment or disposal.

At a minimum, sludge/biosolids samples shall be analyzed to determine the total concentration in mg/Kg for arsenic, lead, nickel, cadmium, mercury, selenium, copper, molybdenum, zinc, total nitrogen, and total solids.

Sludge and/or biosolids monitoring records shall be retained for a minimum of five years in accordance with 40 CFR, Part 503.17. A log shall be kept of sludge quantities generated and of handling, application, and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis to report sludge monitoring.

The Discharger shall demonstrate that treated sludge (i.e., biosolids) meets Class A or Class B pathogen reduction levels by one of the methods listed in 40 CFR, Part 503.32, and shall maintain records of the operational parameters used to comply with the Vector Attraction Reduction requirements in 40 CFR, Part 503.33(b), as well as records of offsite disposal (quantity, date, disposal site).

III. REPORTING REQUIREMENTS

All monitoring reports should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be emailed to: centralvalleyredding@waterboards.ca.gov.

To ensure that your submittal is routed to the appropriate staff person, the following information should be included in the subject line of the email:

Rio Alto Water District/Tehama/WDR

Documents that are 50 MB or larger should be transferred to a CD, DVD, or flash drive and mailed to the following address:

Central Valley Regional Water Quality Control Board
364 Knollcrest Drive, Suite 205
Redding, CA 96002

A transmittal letter shall accompany each monitoring report. The letter shall include a discussion of all violations of the WDRs and this MRP during the reporting period and actions taken or planned for correcting each violation. If the Discharger has previously submitted a report describing corrective actions taken and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. Pursuant to Section B.3 of the Standard Provisions and General Reporting Requirements, the transmittal letter shall contain a statement by the Discharger or the Discharger's authorized agent certifying under penalty of perjury that the report is true, accurate and complete to the best of the signer's knowledge.

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

Laboratory analysis reports should be included in the monitoring reports. For a Discharger conducting any of its own analyses, reports must also be signed and certified by the chief of the laboratory.

In addition to the requirements of Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the Reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

All monitoring reports that involve planning, investigation, evaluation or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

In the future, the State Water Board or Central Valley Regional Water Board may require electronic submittal of monitoring reports using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html) or similar system. Electronic submittal to CIWQS, when implemented, will meet the requirements of our Paperless Office System.

Monthly Monitoring Reports

Monthly monitoring reports shall be submitted to the Board by the **1st day of the second month** following the end of the reporting period (i.e. the January monthly report is due by **March 1st**). At a minimum, each monitoring report shall include the following:

1. Verification that that the former discharge point to the Sacramento River is disconnected, and that all valves to the discharge are closed and locked out.

2. Results of monthly Effluent Monitoring, including:

    a. Calculated 7-day median and monthly maximum results for effluent total coliform organisms (TCO) for each month.

3. Results of Pond Monitoring.

4. Results of Sludge/Biosolids Monitoring, if applicable, and verification of classification of biosolids as nonhazardous per 22 CCR, Article 11, Criteria for Identification of Hazardous and Extremely Hazardous Waste (California Assessment Manual procedures).

5. Copies of laboratory analytical report(s).

6. A comparison of monitoring data to the effluent limitations and discharge specifications and an explanation of any violation of those requirements.

7. A copy of inspection log page(s) documenting inspections completed during the month.

8. A calibration log verifying calibration of all monitoring instruments and devices used to fulfill the prescribed monitoring program.

Quarterly Monitoring Reports

Quarterly monitoring reports shall be submitted to the Board by the **1st day of the second month after the quarter** (i.e. the January-March quarterly report is due by **May 1st**). Each Quarterly Monitoring Report shall include the following:

1. Results of quarterly Effluent Monitoring.

2. Results of Groundwater Monitoring, including:

    a. A narrative description of all preparatory, monitoring, sampling, and sample handling for groundwater monitoring.

    b. A field log for each well documenting depth to groundwater; method of purging; parameters measured before, during, and after purging; sample preparation (e.g., filtering); and sample preservation.

    c. Calculation of the groundwater elevation at each monitoring well, and determination of groundwater flow direction and gradient on the date of measurement.

    d. Summary data tables of historical and current water table elevations and analytical results.

    e. A scaled map showing relevant structures and features of the Facility, the locations of monitoring wells, surface waters, and groundwater elevation contours referenced to an appropriate datum (e.g., NGVD).

3. Results of and Sludge/Biosolids Monitoring, if applicable, and verification of classification of biosolids as nonhazardous per 22 CCR, Article 11, Criteria for Identification of Hazardous and Extremely Hazardous Waste (California Assessment Manual procedures).

4. Copies of laboratory analytical report(s).

5. A comparison of monitoring data to the effluent limitations, groundwater limitations, and discharge specifications and an explanation of any violation of those requirements.

6. A copy of inspection log page(s) documenting inspections completed during the quarter.

7. A copy of calibration log page(s) verifying calibration of all hand-held monitoring instruments performed during the quarter.

Annual Monitoring Reports

The Fourth Quarterly Monitoring Report will serve as an **Annual Monitoring Report**. The Fourth Quarterly Monitoring Report for each calendar year shall include the following in addition to the items listed above.

1. Effective 2016, and every five years thereafter, an evaluation of sludge depth and sludge removal plans pursuant to Discharge Specification D.15.

2. Concentration vs. time graphs for each monitored constituent using all historic groundwater monitoring data. Each graph shall show the background groundwater concentration range, the trigger concentration specified above, and the Groundwater Limitation as horizontal lines at the applicable concentration.

3. An evaluation of the groundwater quality beneath the site and determination of whether any trigger concentrations (once established) were exceeded in any compliance well during the calendar year. This evaluation shall be conducted as required by Section H Provision 1 of the WDRs.

4. Sludge/Biosolids monitoring results, if sludge or biosolids were removed for off-site disposal during the year.

5. A summary of all biosolids/sludge analytical data and verification of compliance with the biosolids/sludge monitoring requirements.

6. A summary of information on the disposal of sludge and/or solid waste during the calendar year.

7. An evaluation of the performance of the WWTF, including discussion of capacity issues, infiltration and inflow rates, nuisance conditions, and a forecast of the flows anticipated in the next year, as described in Standard Provision E.4.

8. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.

9. A copy of the certification for each certified wastewater treatment plant operator working at the Facility and a statement about whether the Discharger is in compliance with Title 23, CCR, Division 3, Chapter 26.

10. Monitoring equipment maintenance and calibration records, as described in Standard Provision C.4.

11. A statement of when the wastewater treatment system Operation and Maintenance Manual was last reviewed for adequacy and a description of any changes made during the year.

12. A discussion of any data gaps and potential deficiencies or redundancies in the monitoring system or reporting program.

The Discharger shall implement the above monitoring program as of the date of this Order.

Original signed by:

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

21 April 2016
(Date)

GLOSSARY

BOD5	Five-day biochemical oxygen demand
CaCO3	Calcium carbonate
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
NTU	Nephelometric turbidity unit
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
TSS	Total suspended solids
Continuous	The specified parameter shall be measured by a meter continuously.
24-hr Composite	Samples shall be a flow-proportioned composite consisting of at least eight aliquots over a 24-hour period.
Daily	Every day
Twice Weekly	Twice per week on non-consecutive days
Weekly	Once per week.
Twice Monthly	Twice per month during non-consecutive weeks
Monthly	Once per calendar month
Bimonthly	Once every two calendar months (i.e., six times per year) during non-consecutive months
Quarterly	Once per calendar quarter
Semiannually	Once every six calendar months (i.e., two times per year) during non-consecutive quarters
Annually	Once per year.
mg/L	Milligrams per liter
mL/L	Milliliters [of solids] per liter
µg/L	Micrograms per liter
µmhos/cm	Micromhos per centimeter
gpd	Gallons per day
mgd	Million gallons per day
MPN/100 mL	Most probable number [of organisms] per 100 milliliters
MTF	Multiple tube fermentation