

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

REVISED MONITORING AND REPORTING PROGRAM R5-2016-0028 REV1

FOR

CITY OF LATHROP
LATHROP CONSOLIDATED TREATMENT FACILITY
SAN JOAQUIN 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.

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/sludges, 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 the 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 by the Executive Officer. 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 8 consecutive monitoring events, the Discharger may request this MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency. 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.

A glossary of terms used in this MRP is included on the last page.

INFLUENT MONITORING

Influent monitoring shall be performed at the headworks. Time of collection of the grab sample shall be recorded. Grab samples are considered adequately composited to represent the influent. Influent monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow ¹	gpd	Continuous Meter	Daily	Monthly
BOD ₅ ²	mg/L	Grab	Weekly	Monthly
Total Suspended Solids ³	mg/L	Grab	Weekly	Monthly

¹ Flow represents the daily flow rate.

² Five-day, 20° Celsius biochemical oxygen demand.

³ Total Suspended Solids shall be performed using a Whatman glass fiber filter with a nominal pore size of about 1.58 µm or equivalent.

EFFLUENT MONITORING

Effluent samples shall be collected at a location downstream of the disinfection system and upstream of any effluent storage pond and shall be representative of the volume and nature of the discharge, with the exception of turbidity. Samples for turbidity analysis shall be obtained upstream of the disinfection system and shall be representative of the filtered effluent prior to disinfection. Analytical methods shall be selected to provide reporting limits below Water Quality Objectives for each constituent. Grab samples are considered adequately composited to represent the tertiary effluent.

Because recycled water is used for irrigation of public landscape areas¹, priority pollutant monitoring is required at the CTF. Priority pollutants are listed in Appendix A of 40 Code of Federal Regulations (CFR) Part 423. The frequency of monitoring corresponds to the flow rate of the recycled water use. Effluent monitoring shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
BOD ₅ ¹	mg/L	Grab	Weekly	Monthly
Total Coliform Organisms	MPN/100 ml ²	Grab	Daily	Monthly
Turbidity	NTU ³	Meter	Continuous	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Total Nitrogen (as N)	mg/L	Grab	Monthly	Monthly
Total Suspended Solids ⁴	mg/L	Grab	Monthly	Monthly
pH	Standard	Grab	Monthly	Monthly
Priority Pollutants ⁵	mg/L	Grab	Annually ⁶	Annually
<u>Free Chlorine Residual⁷</u>	<u>mg/L</u>	<u>Grab</u>	<u>Daily</u>	<u>Monthly</u>
<u>Free Chlorine Residual Contact Time⁸</u>	<u>mg-min/L</u>	<u>Calculated</u>	<u>Daily</u>	<u>Monthly</u>

¹ Five-day, 20° Celsius biochemical oxygen demand.

² Using a minimum of 10 tubes or two dilutions.

³ NTU denotes Nephelometric Turbidity Units.

⁴ Total Suspended Solids shall be performed using a Whatman glass fiber filter with a nominal pore size of about 1.58 µm or equivalent.

⁵ Priority pollutants are listed in Appendix A of 40 Code of Federal Regulations (CFR) Part 423. Monitoring shall include, at a minimum, the constituents listed in Table 1 of this MRP.

⁶ Analysis for priority pollutants shall be performed once every five years (beginning with monitoring year 2016) if the annual flow rate is less than or equal to 1.0 mgal, otherwise the analysis shall be performed annually.

⁷ Samples shall be taken at the outlet of the chlorine contact basin.

⁶⁸ The product of free chlorine residual concentration and the free chlorine modal contact time.

EFFLUENT STORAGE POND AND PERCOLATION POND MONITORING

The Discharger shall monitor all effluent storage ponds and percolation ponds in accordance with the following. Sampling will be conducted from permanent monitoring locations that will provide samples representative of the wastewater in the effluent equalization and storage ponds. Freeboard shall be measured vertically from the water surface to the lowest elevation of pond berm (or spillway/overflow pipe invert), and shall be measured to the nearest 0.10 feet.

¹ Landscape areas are defined as parks; greenbelts; playgrounds; school yards; athletic fields; golf courses; cemeteries; residential landscaping; common areas; commercial landscaping (except eating areas); industrial landscaping (except eating areas); freeway, highway, and street landscaping.

Liner condition is based on visible portions of the liner at the time of observation. Pond monitoring shall include, at a minimum, as specified below:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Dissolved Oxygen ¹	mg/L	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Liner condition	--	Observation	Quarterly ²	Monthly
Berm condition	--	Observation	Quarterly ²	Monthly

¹ Samples shall be collected opposite the inlet at a depth of one foot from each pond in use. Samples shall be collected between 0700 and 0900 hours.

² Quarterly observations shall be submitted in the monthly monitoring report for the month during which the quarterly observation was made.

AGRICULTURAL RECYCLED WATER USE AREA MONITORING

Agricultural recycled water Use Areas are agricultural fields and are designated with an “A” followed by an identification number. Monitoring of the agricultural recycled water Use Areas shall be conducted during the irrigation season on days when irrigation occurs. The results shall be included in the monthly monitoring reports. Effluent monitoring results shall be used in calculations to determine loading rates at the Use Areas. Monitoring of each agricultural recycled water Use Area shall include the following:

Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Recycled Water Flow	Gal/day, Inches	Continuous	Daily	Monthly
Supplemental Irrigation Water Flow	Gal/day, Inches	Continuous	Daily	Monthly
Rainfall	Inches	Observation	Daily	Monthly
Acreage Applied	Acres	Calculated	Daily	Monthly
Total Water Application Rate	Gal/acre, Inches	Calculated	Daily	Monthly
Total Nitrogen Loading Rate	lbs/acre	Calculated	Monthly	Monthly

In addition, the Discharger shall inspect each agricultural Use Area as needed following irrigation events to identify any equipment malfunction or other circumstance that might allow recycled water to runoff the land application area and/or create ponding conditions that violate the Waste Discharge Requirements. Evidence of erosion, field saturation, irrigation runoff, or the presence of nuisance conditions (if any) shall be noted. A log of these inspections shall be kept at the facility and made available for review upon request.

LANDSCAPE RECYCLED WATER USE AREA MONITORING

Landscape recycled water Use Areas consists of roadway medians, parks, pond berms, and open spaces. Landscape Use Areas are designated with an “L” followed by an identification number. Monitoring of the landscape recycled water Use Areas shall be conducted during the irrigation season on days when irrigation occurs. The results shall be included in the monthly monitoring reports. Monitoring of the landscape recycled water Use Area shall include the following and the results for all Use Areas may be reported as aggregated totals:

Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Recycled Water Flow	Gals/day, Inches	Continuous	Monthly	Monthly
Rainfall	Inches	Observation	Monthly	Monthly
Acreage Applied	Acres	Calculated	Monthly	Monthly
Water Application Rate	Gal/acre	Calculated	Monthly	Monthly

In addition, the Discharger shall inspect landscape Use Areas following irrigation events as needed to identify any equipment malfunction or other circumstance that might allow recycled water to runoff the land application area and/or create ponding conditions that violate the Waste Discharge Requirements. Evidence of erosion, field saturation, irrigation runoff, or the presence of nuisance conditions (if any) shall be noted. A log of these inspections shall be kept at the facility and made available for review upon request.

GROUNDWATER MONITORING

The groundwater monitoring program applies to groundwater monitoring wells tabulated below and any wells subsequently installed under direction of the Central Valley Water Board. The following table lists all existing monitoring wells and designates the purpose of each well:

Land Development Area	Attachment	Water Level Monitoring	Water Quality Monitoring Compliance Wells
CTF Facility	B	MBRMW-1, MBRMW-2, MBRMW-3, MBRMW-4	---
Formerly LAS-2	B	KMW-10, KMW-11	KMW-10, KMW-11
LAS-3	B	KMW-2, KMW-4, KMW-6, KMW-8, KMW-9	KMW-2, KMW-4, KMW-6, KMW-8, KMW-9
Mossdale	F	MWM-1, MWM-2, MWM-3, MWM-4, MWM-5, MWM-6, MWM-7, MWM-8 ¹ , MWM-9, MWM-11, MWM-12, MWM-13, MWM-15, MWM-17, MWM-19, MWM-20, MWM-21, MWM-22, MWM-23, MWM-24, MWM-25, MWM-27	MWM-12

Land Development Area	Attachment	Water Level Monitoring	Water Quality Monitoring Compliance Wells
River Islands	G	MWR-3, MWR-4, MWR-5, MWR-6 ² , MWR-7, MWR-8, MWR-9, MWR-10, MWR-11, MWR-12, MWR-23, MWR-24, MWR-25, MWR-26, MWR-27, MWR-28, MWR-29, MWR-30, MWR-31, MWR-32	MWR-24, MWR-28, MWR-32
Pond S6	I	RMW-1, RMW-2, RMW-3, RMW-4, RMW-5	---

¹ Well located on private property. The City has no access to well. Abandon and replace well in accordance with Provision H.1.j as appropriate.

² Damaged well. The City proposes to abandon. Replace well in accordance with Provision H.1.j as appropriate.

The groundwater monitoring wells listed below are existing wells located near Use Areas that have not received recycled water. Groundwater monitoring shall be conducted prior to initiation of recycled water use in accordance with Provision H.1.f. In order to evaluate the pre-discharge groundwater conditions within any new Use Areas in accordance with H.1.f, replacement wells may be required for wells identified as future compliance wells and proposed for abandonment.

Land Development Area	Attachment	Water Level Monitoring	Water Quality Monitoring	
			Current Compliance Wells	Future Compliance Wells
Mossdale	F	---	---	MWM-13
Northern Lathrop	H	MW-N1, MW-N3, MW-N4, MW-N5 ¹ , MW-N6 ¹	---	MW-N1, MW-N3, MW-N4, MW-N5 ¹ , MW-N6 ¹
Central Lathrop Specific Plan	H	CLSP-1, CLSP-2 ³ , CLSP-3, CLSP-4 ² , CLSP-8, CLSP-9, CLSP-10 ³	CLSP-1	CLSP-2 ³ , CLSP-3, CLSP-4 ² , CLSP-8, CLSP-9, CLSP-10 ³

¹ Well located on private property. The City has no access to well. Abandon and replace well in accordance with Provision H.1.j as appropriate.

² The City proposes to abandon and not replace.

³ Damaged well. The City proposes to abandon. Replace well in accordance with Provision H.1.j as appropriate.

Prior to construction of any additional groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Board for review and approval. Once installed, all new monitoring wells shall be added to the MRP, and shall be monitored on a quarterly basis for a minimum of eight consecutive quarters before a reduction in monitoring frequency can be considered.

Prior to sampling, depth to groundwater measurements shall be measured in each monitoring well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction. Monitoring wells to be sampled shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Low or no-purge sampling methods are acceptable, if described in an approved Sampling and Analysis Plan. Samples shall be collected and analyzed using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling and Reporting Frequency³
Depth to Groundwater	0.01 feet	Measurement	Semi-Annually
Groundwater Elevation ¹	0.01 feet	Calculated	Semi-Annually
Gradient	feet/feet	Calculated	Semi-Annually
Gradient Direction	degrees	Calculated	Semi-Annually
Total Dissolved Solids	mg/L	Grab	Semi-Annually
Nitrate as Nitrogen	mg/L	Grab	Semi-Annually
Total Coliform Organisms	MPN/100ml	Grab	Semi-Annually
Chloride	mg/L	Grab	Semi-Annually
Sodium	mg/L	Grab	Semi-Annually
Standard Minerals ²	mg/L	Grab	Annually

- ¹ Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation.
- ² Standard minerals shall include, at a minimum, the following elements/compounds: boron, calcium, magnesium, iron (dissolved), manganese (dissolved), potassium, sulfate, total alkalinity (including alkalinity series), and hardness.
- ³ Sample analyses from all new monitoring wells installed or included in the monitoring program after adoption of this Order to be conducted on a quarterly basis for eight consecutive monitoring events before a reduction in monitoring frequency can be considered.

APPLICABILITY OF GROUNDWATER LIMITATIONS

The Groundwater Limitations set forth in Section E of the WDRs shall apply to the specific compliance monitoring wells tabulated below. This table is subject to revision by the Executive Officer following construction of any new compliance monitoring wells.

Constituent	Use Area Location	Compliance Wells		Groundwater Limitation
		Current	Future ¹	
Total Dissolved Solids	Mossdale	MWM-12	MWM-13	Current Groundwater Quality ²
	River Island	MWR-24, MWR-28, MWR-32	--	
	CLSP	--	CLSP-1	1,000 mg/L
	LAS-2	KMW-10, KMW-11	--	Current Groundwater Quality ²
	LAS-3	KMW-2, KMW-4, KMW-6, KMW-8, KMW-9,	--	
Nitrate as N	Mossdale	MWM-12	--	10 mg/L
	River Island	MWR-24, MWR-28, MWR-32	--	
	CLSP	--	CLSP-1, CLSP-3, CLSP-8, CLSP-9, CLSP-10 ⁴	
	LAS-2	KMW-10, KMW-11	--	

Constituent	Use Area Location	Compliance Wells		Groundwater Limitation
		Current	Future ¹	
Nitrate as N	Northern Lathrop	--	MW-N1, MW-N3, MW-N4, MW-N5 ³ , MW-N6 ³ ,	Current Groundwater Quality ²
	CLSP	--	CLSP-2 ⁴ , CLSP-4 ⁵	
	LAS-3	KMW-2, KMW-4, KMW-6, KMW-8, KMW-9	--	
Boron	LAS-3	KMW-4	--	Current Groundwater Quality ²
Sulfate	LAS-3	KMW-4	--	Current Groundwater Quality ²
Manganese	LAS-3	KMW-4, KMW-6	--	Current Groundwater Quality ²

- ¹ Existing monitoring wells located near Use Areas that have not received recycled water. Groundwater monitoring shall be conducted prior to initiation of recycled water use in accordance with Provision H.1.f.
- ² "Current Groundwater Quality" means the quality of groundwater as evidenced by monitoring completed as of 31 March 2016 and as determined in the report described in Provision H.1.b for each of the specified compliance monitoring well listed above.
- ³ Well located on private property. The City unable to access well. Replace well in accordance with Provision H.1.j as appropriate.
- ⁴ Damaged well, City proposes to abandon. Replace wells in accordance with Provision H.1.j as appropriate.
- ⁵ The City proposes to abandon well and not replace.

SLUDGE MONITORING

The Discharger shall keep documentation regarding the quantity of biosolids generated by the treatment processes; any sampling and analytical data; the quantity of biosolids stored on site; and the quantity removed for disposal. If biosolids are transported off-site for disposal, then the Discharger shall submit documentation identifying the hauling company, the amount of biosolids transported, the date removed from the facility, the location of disposal, and copies of all analytical data required by the entity accepting the waste.

A composite sample of digested sludge shall be collected at least once per year in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989; and

analyzed for cadmium, copper, nickel, chromium, lead, and zinc when sludge is removed from the wastewater treatment system for disposal.

A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report. Documentation shall also indicate that steps were taken to reduce odor and other nuisance conditions. All records shall be stored onsite and available for review during inspections and submitted as part of the Annual Monitoring Report. Sampling records shall be retained for a minimum of five years.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Alternatively, the Discharger may submit a current Consumer Confidence Report for municipal supply water. Water supply monitoring shall include at least the following for each water source used during the previous year:

Constituents	Unit	Sampling Frequency
Total Dissolved Solids	mg/L	Annually
pH	Std. Unit	Annually
Standard Minerals ¹	mg/L	Annually

¹ Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, magnesium, sodium, potassium, chloride, nitrogen, sulfate, iron, manganese, total alkalinity (including alkalinity series), and hardness.

REPORTING

All regulatory documents, submissions, materials, data, monitoring reports, and correspondence should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be emailed to:

centralvalleysacramento@waterboards.ca.gov

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
ECM Mailroom
11020 Sun Center Drive, Suite 200
Rancho Cordova, California 95670

To ensure that your submittals are routed to the appropriate staff, the following information block should be included in any correspondence used to transmit documents to this office:

City of Lathrop Consolidated Treatment Facility, San Joaquin County		
Program: Non-15 Compliance	Order: R5-2016-0028	CIWQS Place ID: 271781

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 to the Central Valley Water Board.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Professional Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in the monthly monitoring report. Monthly reports shall be submitted to the Central Valley Water Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the reports shall include:

1. Tabulated influent wastewater flow monitoring data for each month of the calendar year, including average daily flow, cumulative flow to date, and comparison to the Flow Limitations of the WDRs;

2. Tabulated effluent monitoring data and comparison to the Effluent Limitations of the WDRs. Free chlorine residual contact time shall be calculated using the following formula:

$$CT = C \times T$$

Where:

<u>CT</u>	=	<u>Free chlorine residual contact time in mg-min/L.</u>
<u>C</u>	=	<u>Free chlorine residual concentration in mg/L.</u>
<u>T</u>	=	<u>Free chlorine modal contact time in minutes.</u>

When free chlorine is used as the disinfectant in production of disinfected tertiary recycled water, the lowest CT value shall be calculated for each 24-hour period. To calculate the lowest value, first record the following data for the 24-hour period:

- a. Modal contact time under highest flow and corresponding total chlorine residual at that time.

b. Lowest free chlorine residual and corresponding modal contact time.

c. Highest free chlorine residual and corresponding modal contact time.

d. Modal contact time under lowest flow and corresponding free chlorine residual at that time.;

2. Calculate CT values for each of the four conditions above. The lowest of the four calculated CT value is the lowest CT for the period and shall be compared to Effluent Limitation C.5.

3. Tabulated effluent storage pond and percolation pond monitoring data;
4. Tabulated agricultural recycled water use area monitoring data. The mass of total nitrogen to each agricultural Use Area on an annual basis shall be calculated using the following formula and compared to published crop demand for the crops actually grown.

$$M = \sum_{i=1}^{12} \frac{(8.345(C_i V_i) + M_x)}{A}$$

Where:	M	=	mass of nitrogen applied to LAA in lb/ac/yr
	C_i	=	Monthly average concentration of total nitrogen for month i in mg/L
	V_i	=	volume of wastewater applied to the LAA during calendar month i in million gallons
	A	=	area of the LAA irrigated in acres
	i	=	the number of the month (e.g., January = 1, February = 2, etc.)
	M_x	=	nitrogen mass from other sources (e.g., fertilizer and compost) in pounds
	8.345	=	unit conversion factor

5. Tabulated landscape recycled water use area monitoring data;
6. A comparison of monitoring data to the flow limitations, effluent limitations, and discharge specifications and an explanation of any violation of those requirements;
7. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program; and
8. Copies of the laboratory analytical data reports shall be maintained by the Discharger and provided upon request by the Regional Water Board.

B. Semi-Annual Monitoring Reports

A Semi-Annual Monitoring Report shall be submitted to the Regional Water Board by the **1st day of the second month following the second and fourth calendar quarter** (i.e. the January-June report is due by August 1st) and shall include the following:

1. A narrative description of all preparatory, groundwater monitoring, sampling, and analytical testing activities. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged. Low or no-purge sampling methods are acceptable if described in an approved Sampling and Analysis Plan;
2. A groundwater elevation map;
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison with previous flow direction and gradient data, and discussion of seasonal trends if any;
4. Cumulative data tables containing the water quality analytical results and depth to groundwater;
5. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
6. Copies of the laboratory analytical data reports shall be maintained by the Discharger and provided upon request by the Regional Water Board.

The Discharger shall establish a semi-annual sampling schedule for existing groundwater monitoring wells such that samples are obtained approximately every six months. For newly installed wells, the Discharger shall establish a quarterly sampling schedule such that samples are obtained approximately every three months. Any groundwater quarterly monitoring data shall be reported in the semi-annual report. A minimum of eight consecutive monitoring events shall be conducted before a reduction in monitoring frequency can be considered.

C. Annual Monitoring Report

An Annual Monitoring Report shall be submitted to the Central Valley Water Board by **1 February** each year and shall include the following:

1. Total annual influent flow and average dry weather flow for the calendar year and comparison to the Flow Limitations of the WDRs. If the approved influent flow limitation has been changed since adoption of the WDRs, the report shall specify the new flow

limitation, reference the date of the CTF Expansion Final Design Report proposing the flow limit increase, and reference the date of the Executive Officer letter approving the flow limit increase;

2. Flow-weighted annual average TDS and total nitrogen effluent concentration and comparison to the Effluent Limitations of the WDRs.
 - a. The flow-weighted average annual TDS effluent concentration shall be calculated using the following formula:

$$C_a = \frac{\sum_{i=1}^{12} [(C_{Pi} \times V_{Pi}) + (C_{Si} \times V_{Si})]}{\sum_{i=1}^{12} (V_{Pi} + V_{Si})}$$

- Where:
- C_a = Flow-weighted average annual TDS concentration in mg/L
 - i = the number of the month (e.g., January = 1, February = 2, etc.)
 - C_{Pi} = Monthly average process wastewater TDS concentration for calendar month i in mg/L
 - C_{Si} = Monthly average supplemental irrigation water TDS concentration for calendar month i in mg/L (considering each supplemental source separately)
 - V_{Pi} = volume of process wastewater applied to Use Area during calendar month i in million gallons
 - V_{Si} = volume of supplemental irrigation water applied to Use Area during calendar month i in million gallons (considering each supplemental source separately)

- b. The flow-weighted average annual total nitrogen effluent concentration shall be calculated using the following formula:

$$C_a = \frac{\sum_{i=1}^{12} [(C_{Pi} \times V_{Pi}) + (C_{Si} \times V_{Si})]}{\sum_{i=1}^{12} (V_{Pi} + V_{Si})}$$

Where:

C_a	=	Flow-weighted average annual total nitrogen concentration in mg/L
i	=	the number of the month (e.g., January = 1, February = 2, etc.)
C_{Pi}	=	Monthly average process wastewater total nitrogen concentration for calendar month i in mg/L
C_{Si}	=	Monthly average supplemental irrigation water total nitrogen concentration for calendar month i in mg/L (considering each supplemental source separately)
V_{Pi}	=	volume of process wastewater applied to Use Area during calendar month i in million gallons
V_{Si}	=	volume of supplemental irrigation water applied to Use Area during calendar month i in million gallons (considering each supplemental source separately)

3. Total precipitation for each month of the calendar year and annual total for the calendar year;
4. Tabulated recycled water Use Area monitoring for the calendar year including:
 - a. Summary tables of all recycled water, supplemental water, and total hydraulic loading for each recycled water Use Area for the calendar year with supporting data and calculations;
 - b. A map identifying all Use Areas. Newly permitted recycled water Users and Use Areas shall be identified;
 - c. Tabulated total annual flow of recycled water discharged to each discrete Use Area for the calendar year; and
 - d. A summary of all inspections and enforcement activities initiated by the Discharger.
5. Analytical results for any annual groundwater monitoring.
6. A summary of the information on the generation, any sampling and analytical data, and disposal of sludge and/or solid waste during the calendar year.
7. Analytical results for any annual water supply monitoring. The Discharger's Consumer Confidence Report (or Annual Water Quality Report) may be submitted to comply with this requirement, if applicable.
8. An evaluation of the performance of the CTF, including discussion of capacity issues, system problems, and a forecast of the flows anticipated in the next year. The evaluation shall include the following:
 - a. Waste constituent reduction efforts implemented in accordance with any required workplan;

- b. Other treatment or control measures implemented during the calendar year either voluntarily or pursuant to the WDRs, this MRP, or any other Order;
 - c. A discussion of anticipated pond sludge removal in the coming year, and if so, include anticipated schedule for cleaning, drying, and disposal; and
 - d. Based on monitoring data, an evaluation of the effectiveness of the treatment or control measures implemented to date.
 - e. Waste constituent reduction efforts implemented in accordance with any required workplan;
 - f. Other treatment or control measures implemented during the calendar year either voluntarily or pursuant to the WDRs, this MRP, or any other Order;
 - g. A discussion of anticipated pond sludge removal in the coming year, and if so, include anticipated schedule for cleaning, drying, and disposal; and
 - h. Based on monitoring data, an evaluation of the effectiveness of the treatment or control measures implemented to date.
9. An evaluation of the groundwater quality beneath the site and determination of compliance with the Groundwater Limitations of the WDRs based on statistical analysis for each constituent monitored for each compliance well in accordance with the approved Groundwater Limitations Compliance Assessment Plan. Where the Groundwater Limitation is the maximum allowable concentration of the “cumulative groundwater quality” near the specified Use Area or land discharge area, “cumulative groundwater quality” shall be the intra-well statistical average from the first monitoring event after discharge began to the previous monitoring event of the current monitoring year for each of the specified compliance monitoring well. Include all calculations and data input/analysis tables derived from use of statistical software, as applicable.
10. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
11. A discussion of the following:
- a. Waste constituent reduction efforts implemented in accordance with any required workplan;
 - b. Other treatment or control measures implemented during the calendar year either voluntarily or pursuant to the WDRs, this MRP, or any other Order;
 - c. A discussion of anticipated pond sludge removal in the coming year, and if so, include anticipated schedule for cleaning, drying, and disposal; and
 - d. Based on monitoring data, an evaluation of the effectiveness of the treatment or control measures implemented to date.

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

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by:

PAMELA C. CREEDON, Executive Officer

(Date)

LLA: 031616011718

Table 1 Priority Pollutant Scan

<u>Inorganics</u> ¹	<u>Organics</u>	3-Methyl-4-Chlorophenol	Hexachlorobenzene
Antimony	Acrolein	Pentachlorophenol	Hexachlorobutadiene
Arsenic	Acrylonitrile	Phenol	Hexachlorocyclopentadiene
Beryllium	Benzene	2,4,6-Trichlorophenol	Hexachloroethane
Cadmium	Bromoform	Acenaphthene	Indeno(1,2,3-c,d)pyrene
Chromium (III)	Carbon tetrachloride	Acenaphthylene	Isophorone
Chromium (VI)	Chlorobenzene	Anthracene	Naphthalene
Copper	Chlorodibromomethane	Benzidine	Nitrobenzene
Lead	Chloroethane	Benzo(a)Anthracene	N-Nitrosodimethylamine
Mercury	2-Chloroethylvinyl Ether	Benzo(a)pyrene	N-Nitrosodi-n-Propylamine
Nickel	Chloroform	Benzo(b)fluoranthene	N-Nitrosodiphenylamine
Selenium	Dichlorobromomethane	Benzo(g,h,i)perylene	Phenanthrene
Silver	1,1-Dichloroethane	Benzo(k)fluoranthene	Pyrene
Thallium	1,2-Dichloroethane	Bis(2-chloroethoxy) methane	1,2,4-Trichlorobenzene
Zinc	1,1-Dichloroethylene	Bis(2-chloroethyl) ether	
Cyanide	1,2-Dichloropropane	Bis(2-chloroisopropyl) ether	<u>Pesticides</u>
Asbestos	1,3-Dichloropropylene	Bis(2-Ethylhexyl)phthalate	Aldrin
	Ethylbenzene	4-Bromophenyl phenyl ether	alpha-BHC
	Methyl Bromide	Butylbenzyl Phthalate	beta-BHC
<u>Dioxin Congeners</u>	Methyl Chloride	2-Chloronaphthalene	gamma-BHC (Lindane)
2,3,7,8-TCDD	Methylene Chloride	4-Chlorophenyl Phenyl Ether	delta-BHC
1,2,3,7,8-PentaCDD	1,1,2,2-Tetrachloroethane	Chrysene	Chlordane
1,2,3,4,7,8-HexaCDD	Tetrachloroethylene (PCE)	Dibenzo(a,h)Anthracene	4,4'-DDT
1,2,3,6,7,8-HexaCDD	Toluene	1,2-Dichlorobenzene	4,4'-DDE
1,2,3,7,8,9-HexaCDD	1,2-Trans-Dichloroethylene	1,3-Dichlorobenzene	4,4'-DDD
1,2,3,4,6,7,8-HeptaCDD	1,1,1-Trichloroethane	1,4-Dichlorobenzene	Dieldrin
OctaCDD	1,1,2-Trichloroethane	3,3'-Dichlorobenzidine	alpha-Endosulfan
1,2,3,7,8-PentaCDF	Trichloroethylene (TCE)	Diethyl phthalate	beta-Endosulfan
2,3,4,7,8-PentaCDF	Vinyl chloride	Dimethyl phthalate	Endosulfan Sulfate
1,2,3,4,7,8-HexaCDF	2-Chlorophenol	Di-n-Butyl Phthalate	Endrin
1,2,3,6,7,8-HexaCDF	2,4-Dichlorophenol	2,4-Dinitrotoluene	Endrin Aldehyde
1,2,3,7,8,9-HexaCDF	2,4-Dimethylphenol	2,6-Dinitrotoluene	Heptachlor
2,3,4,6,7,8-HexaCDF	2-Methyl-4,6-Dinitrophenol	Di-n-Octyl Phthalate	Heptachlor epoxide
1,2,3,4,6,7,8-HeptaCDF	2,4-Dinitrophenol	1,2-Diphenylhydrazine	Polychlorinated biphenyls
1,2,3,4,7,8,9-HeptaCDF	2-Nitrophenol	Fluoranthene	Toxaphene
OctaCDF	4-Nitrophenol	Fluorene	

¹ With the exception of wastewater samples, samples for metals analysis must first be filtered. If filtering in the field is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24 hours with a request (on the chain of custody form) to immediately filter then preserve the sample.

² Samples to be analyzed for volatile compounds and phthalate esters shall be grab samples; the remainder shall be 24-hour composite samples.

GLOSSARY

BOD ₅	Five-day biochemical oxygen demand
CaCO ₃	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 except weekends or holidays
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