

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2018-0023

AMENDING WASTE DISCHARGE REQUIREMENTS ORDER R5-2016-0028-01
FOR

CITY OF LATHROP
LATHROP CONSOLIDATED TREATMENT FACILITY
SAN JOAQUIN COUNTY

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

1. On 21 April 2016, the Central Valley Water Board adopted Waste Discharge Requirements (WDRs) Order R5-2016-0028, prescribing requirements for the Lathrop Consolidated Treatment Facility (Lathrop CTF) in San Joaquin County. The City of Lathrop (hereafter "Discharger" or City) owns and operates the Lathrop CTF, which provides tertiary treatment and chlorine disinfection.
2. The Lathrop CTF was built in early 2004 and treats primarily domestic wastewater from three existing and planned development areas within the City: Central Lathrop Specific Plan, Mossdale, and River Island. The development areas comprise of approximately 8,400 acres of residential and commercial development.
3. On 25 August 2015, the Crossroads Industrial Park began diverting their commercial/industrial and domestic wastewater to the Lathrop CTF for treatment. Tenants at the Crossroads Industrial Park include manufacturing, food processing, distribution facilities, restaurants, and trucking companies.
4. On 14 August 2017, the City submitted a request and supporting information to amend WDRs Order R5-2016-0028. The request was intended to include the following:
 - a. Incorporate conditions as highlighted in the State Water Resources Control Board Division of Drinking Water's (DDW) 13 May 2016 letter regarding the City's use of free chlorine as an alternative disinfection technology for compliance with the California Water Recycling Criteria (Title 22), Section 60320.5.
 - b. Modify the WDRs to allow smaller expansion flow increments to the City's recycled water storage and disposal facilities.
5. On 2 October 2017, the City submitted a Recycled Water Pond and Land Application Areas (LAAs) Design Amendment Request, which describes the enlargement of Pond S16 and modifications of LAAs A35, A35b, and A35c.

Proposed WDRs Amendment

6. The definition of disinfected tertiary recycled water in Title 22, section 60301.230(a) is a filtered and subsequently disinfected wastewater that meets the following criteria, where the filtered wastewater has been disinfected by either:

- a. A chlorine disinfection process following filtration that provides a CT (the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter (mg-min/L) at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or
 - b. A disinfection process that, when combined with a filtration process, has demonstrated to inactivate and/or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus in the wastewater.
7. The City has requested the use of free chlorine disinfection and allow a shorter contact time in the chlorine contact basin to meet Title 22 requirements. The City conducted demonstration studies using free chlorine at the Lathrop CTF that has satisfactorily shown an equal degree of treatment and reliability as those technologies listed in Title 22. In a 13 May 2016 letter, DDW granted a conditional acceptance of free chlorine as an alternative treatment technology for recycled water disinfection based on the materials submitted by the City. The conditional acceptance was subject to the following conditions:
 - a. Deliver a minimum free chlorine residual contact time (FCRCT) of 60 mg-min/L at all times to meet both the virus and total coliform (limiting factor) reduction requirements of Title 22, section 60301.230.
 - b. Meet a minimum free chlorine residual (FCR) at the contact basin outlet of 1.0 mg/L at all times.
 - c. Maintain a minimum free chlorine modal contact time of 32 minutes.
 - d. Monitor for ammonia prior to the free chlorine addition and optimize the secondary treatment system to prevent ammonia breakthrough.
 - e. Repair chlorine contact basin baffles that contributed to short circuiting.
 - f. The free chlorine disinfection process meet Title 22, section 60301.230(b) requirements for total coliform.
 - g. The treatment processes be operated within a built-in automatic reliability feature that must be triggered when the minimum FCRCT or FCR values are below targets.
 - h. Install and calibrate (as recommended by the manufacturer) ammonia analyzers, free chlorine analyzers, and flow meters to ensure proper disinfection.
 - i. Routinely inspect ammonia and free chlorine analyzers against a reference bench-top unit to determine accuracy.
 - j. Routinely inspect and calibrate (as recommended by the manufacturer) flow meters to determine accuracy.
 - k. Submit an operations plan for DDW approval, which specifies operational limits and responses required for critical alarms. The approved operations plan shall be maintained at the treatment plant and be readily available to operations personnel and regulatory agencies. A reference plant operations data sheet shall be posted at the treatment plant and shall include the following:

- i. Alarm set points for tertiary turbidity, high flow, low FCR, low contact time, and low FCRCT.
 - ii. Values of high tertiary turbidity, high flow, low FCE, and low FCRCT when recycled water flow must be delivered.
 - iii. Required frequency of calibration for critical online instruments; such as online turbidity meters, ammonia analyzers, and chlorine analyzers.
 - I. Maintain records of compliance with these conditions, made available to DDW and Regional Water Quality Control Board (RWQCB) upon request and report a summary of compliance with an approved operations plan as part of its annual reporting to the RWQCB.
8. The City has requested a smaller expansion flow increment of 0.075 million gallons per day (mgd) associated with their recycled water storage and disposal facilities to accommodate the unpredictable housing market and economic growth of the area. Flow Limitation B.2.c of Order R5-2016-0028 states that capacity expansion requests shall be made in increments of 0.25 mgd or greater. Development of the residential and commercial properties, including design and construction of future ponds and spray fields within the City, is developer driven. The magnitude of future expansion requests will depend on individual developers and the projected growth for each project, which is variable.
9. Originally, Pond S16 was to be constructed in two phases. The initial phase would provide a storage capacity of 55 million gallons (mgal). During the second phase, the pond would be expanded to 78 mgal. To meet the future storage requirements for the expansion of the Lathrop CTF from 0.75 mgd to 1.0 mgd, Pond S16 was built with a 101 mgal storage capacity.
10. In addition to the Pond S16 expansion, the LAAs in the A35 group were modified. The LAA boundaries have changed but lies within the same general vicinity. The total acreage has changed from 69 to 51 acres. Modifications to the LAAs are summarized in the table below.

LAA	Original Area, acres	Current Area, acres
A35	22	21
A35a	25	0
A35b	22	15
A35c	0	15
Total Area:	69	51

California Environment Quality Act

11. The action of prescribing these WDRs, which impose regulatory requirements on the existing discharge in order to ensure the protection of groundwater resources, is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) in accordance with California Code of Regulations, title 14, section 15301, which exempts the “operation, repair, maintenance, [and] permitting ... of existing public or private structures, facilities, mechanical equipment, or topographical features” from environmental review.

CV-SALTS Initiative and Basin Plan Amendments

12. The Central Valley Water Board is developing amendments to the Basin Plan to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the waters and soils of the Central Valley. Strategies currently under consideration will likely:
 - Alter the way the Board calculates available assimilative capacity for nitrate, which could result in new or modified requirements for nitrate management;
 - Require dischargers to implement actions identified under an interim salinity permitting approach; and/or
 - Establish alternate compliance approaches that would allow dischargers to participate in efforts to provide drinking water to local communities in consideration for longer compliance time schedules.

Should the Board adopt amendments to the Basin Plan to effectuate such strategies, these waste discharge requirements may be amended or modified to incorporate any newly-applicable requirements.

13. The stakeholder-led Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative has been coordinating efforts to implement new salt and nitrate management strategies. The Board expects dischargers that may be affected by new salt and nitrate management policies to coordinate with the CV-SALTS initiative.

Public Notice

14. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to amend waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
15. The Central Valley Water Board, in a public meeting, heard, and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that, pursuant to sections 13263 and 13267 of the Water Code, Order R5-2016-0028 is amended to address the use of free chlorine as an alternative disinfection technology, allow smaller expansion flow increments, and identify the pond and LAAs modifications. The City of Lathrop, 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 amended Order R5-2016-0028-01 as follows:

1. Finding 12.e shall state the following:

“Tertiary treated effluent is then conveyed to the disinfection system. Previously, disinfection was accomplished using sodium hypochlorite solution in a chlorine contact tank that provided more than 90 minutes of modal contact time. To meet the requirements of Title 22, section 60301.230(a), the disinfection process provides a minimum free chlorine residual contact time (FCRCT) of 60 mg-min/L at all times with a minimum free chlorine modal contact time of 32 minutes. If disinfection fails, the effluent is rerouted back to the emergency storage basin and retreated.”

2. Finding 13, the table shall reflect the new storage capacity of 101 mgal for Pond S16 and footnote 2 has been deleted.
3. Finding 15 shall state the following and the table shall reflect the new area totals for the LAAs within the A35 group:

“...Use Areas A35, A35b, and A35c will be made available to accommodate the plant expansion to 1.0 mgd...”

Development Area	Agricultural Irrigation	
	Designation	Area (acres)
Mossdale	A23	12
River Islands	A28	31
	A30	35
	A31	95
	A35	21
	A35b	15
	A35c	15
	Total Acres:	224

4. Finding 26, the table shall reflect the new available storage volume and Use Area totals at an influent flow of 1.0 mgd and revisions to footnote 1 and 2.

Storage Volume and Use Area Requirements	0.75 mgd		1.0 mgd		6.0 mgd
	Required	Available	Required	Available	Required
Storage Volume (acre-feet)	345	429	502	595	2,677
Storage Volume (mgal)	112	139	164	240 ¹	872
Use Areas (acres)	165	172	207	224 ²	1,381

- ¹ Based on total volume including Ponds S1, S2, S3, S5, S6, and S16.
² Based on total acreage including Use Area A23, A28, A30, A31, A35, A35b, and A35c.

5. Flow Limitations B.2.c shall state the following:

“Capacity expansion requests shall be made in increments as follows:

- i. For capacity expansion requests associated with an expansion in treatment plant capacity, requests shall be made in increments of 0.25 mgd or greater.*
- ii. For capacity expansion requests associated only with an expansion in recycled water storage and/or disposal capacity, requests shall be made in increments of 0.075 mgd or greater.”*

6. Effluent Limitations and Mass Loading Limitations C.2 shall state the following:

“The turbidity of the filtered effluent prior to disinfection shall not exceed any of the following:

- a. 0.2 NTU more than 5 percent of the time within a 24-hour period; and*
- b. 0.5 NTU at any time.”*

7. Effluent Limitations and Mass Loading Limitations C.5 shall state the following:

“The free chlorine residual contact time (CT) shall not be less than 60-mg-min/L and a minimum free chlorine modal contact time of 32 minutes shall be maintained at all times. CT is the product of free chlorine residual concentration in mg/L and the free chlorine modal contact time in minutes”

8. Provisions H.1.g shall state the following:

“...Incremental flow rate increases associated with a treatment plant capacity shall be no less than 0.25 mgd. Incremental flow rate increases associated only with an expansion in recycled water storage and/or disposal capacity shall be no less than 0.075 mgd...”

9. Attachment D, which is titled the Recycled Water Use Area Overview, shall reflect the new location of LAAs A35, A35b, and A35c.

10. Effluent Monitoring section of Monitoring and Reporting Program (MRP) R5-2016-0028 shall state the following and the table shall include the additional constituents (free chlorine residual and free chlorine residual contact time) for analysis:

“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...”

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
Free Chlorine Residual ⁷	mg/L	Grab	Daily	Monthly
Free Chlorine Residual Contact Time ⁸	mg-min/L	Calculated	Daily	Monthly

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.

⁸ The product of free chlorine residual concentration and the modal contact time.

11. Monthly Monitoring Report Section A.2 of MRP R5-2016-0028 shall include the following:

“...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:

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

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.*

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.”

12. Annual Monitoring Report Section C.1 of MRP R5-2016-0028 shall include the following:

“...If the approved influent flow limitation has been changed since the 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;...”

13. The Information Sheet of Order R5-2016-0028 shall be revised to reflect the new available storage volume of S16 and Use Area totals of LAAs A35, A356b, and A35c.
14. Since adoption of Order R5-2016-0028 on 21 April 2016, the City’s monitoring well network has changed. Order R5-2016-0028 and MRP R5-2016-0028 shall be amended and revised, respectively, to reflect the City’s current monitoring well network and monitoring requirement changes resulting from the above amendments. Changes to the City’s monitoring network include the following:
 - a. Abandonment of wells MWR-6, MWR-7, MWR-8, CLSP-2, CLSP-4, and CLSP-10.
 - b. Use of existing well MWM-19 as a replacement well for CLSP-4.
 - c. Installation of well CLSP-11, which serves as a replacement well for CLSP-10.
 - d. Installation of well CLSP-12, which serves as a replacement well for CLSP-2.

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.

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This Order is effective as of the date of adoption.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 6 April 2018.

- original signed by -

PAMELA C. CREEDON, Executive Officer

LLA:022818