City of Lathrop

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February 22, 2018

Mr. Scott Armstrong
Senior Engineering Geologist, Waste Discharge to Land Permitting Unit
California Regional Water Quality Control Board, Region 5
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670

SUBJECT: City of Lathrop Comments on Tentative Order Amending Waste Discharge Requirements R5-2016-0028 and Master Reclamation Permit for City of Lathrop Consolidated Treatment Facility, San Joaquin County

Dear Mr. Armstrong:

The City of Lathrop ("City") has prepared this letter to transmit the City's comments on the Tentative Waste Discharge Requirements and Master Reclamation Permit ("WDRs") that were transmitted to us on January 24, 2018.

Comments are provided in the attached marked-up versions of the WDRs, the Monitoring and Reporting Program, and the Information Sheet. These comments are generally aimed at updating information regarding the treatment plant, groundwater monitoring network, and other system components that have been modified in the time since the original WDRs were issued. The City is not proposing any substantive changes to the requirements or prohibitions portion of the WDRs, other than miscellaneous clarifications.

If you have any questions, please contact our consultant, Dave Umezaki of EKI Environment & Water, Inc., at (650) 292-9079, or by email at dumezaki@ekiconsult.com.

Sincerely,

CITY OF LATHROP

Stephen Salvatore
City Manager

cc: Greg Gibson (City of Lathrop)
Dave Umezaki (EKI)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2016-0028-01

WASTE DISCHARGE REQUIREMENTS
AND
MASTER RECYCLING PERMIT

FOR

CITY OF LATHROP
LATHROP CONSOLIDATED TREATMENT FACILITY
SAN JOAQUIN COUNTY

TENTATIVE

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

1. On 12 June 2015, the City of Lathrop (City) submitted a Report of Waste Discharge (RWD) for its Consolidated Treatment Facility. The City ~~currently~~ ~~operates~~ two adjacent wastewater treatment facilities under separate WDRs: Consolidated Treatment Facility (CTF) and Crossroads Wastewater Treatment Facility (WWTF). The CTF receives primarily domestic wastewater from a large portion of the City. The Crossroads WWTF ~~receives~~ high strength process wastewater from the Crossroads Industrial Park. The City currently diverts all wastewater from the Crossroads Industrial Park to the CTF and is in the process of decommissioning the Crossroads WWTF. An addendum to the RWD was submitted on 17 December 2015. Additional information was submitted on 22 and 25 January 2016.

2. The City of Lathrop (hereafter "Discharger") owns and operates the CTF and is responsible for compliance with these Waste Discharge Requirements (WDRs). These WDRs include a Master Recycling Permit pursuant to Water Code section 13523.1(b)(1).

3. The CTF is located at 18800 Christopher Way in Lathrop in Section 35, TS1S, R6E, and Section 2, TS2S, R6E, MDB&M, as shown on Attachment A, which is attached hereto and made part of this Order by reference. The San Joaquin County Assessor's Parcel Numbers for the CTF and the Crossroad WWTF including associated effluent and emergency storage ponds are summarized below.

Description	Assessor's Parcel Number
Consolidated Treatment Facility (including Ponds S4 and S5)	198-130-35, 198-130-36, 198-130-45, 198-130-46, 198-130-47, 198-130-48
Pond S1	191-190-32
Pond S2	191-190-33
Pond S3	198-130-035
Pond S6	198-060-16, 198-060-17
Pond S16 ~~(under construction)~~	213-290-02

was

Description	Assessor's Parcel Number
Crossroads WWTF	198-130-21, 198-130-22
Ponds A, B, and C	198-130-19, 198-130-20
LAS-3 (percolation ponds, under construction)	198-130-32

4. Order R5-2015-0006 which includes a Master Recycling Permit was adopted by the Central Valley Water Board on 5 February 2015 and prescribes requirements for the CTF. Order R5-2015-0006 allows an average dry weather flow of up to 0.75 million gallons per day (mgd) and an increase in increments of no less than 0.25 mgd up to a maximum allowable flow rate of 6.0 mgd upon approval by the Executive Officer. Due to the Crossroads WWTF closure and the diversion of its wastewater to the CTF, Order R5-2015-0006 ~~will be~~ rescinded and replaced with this Order.

Existing Facility and Discharge

5. The CTF was built in early 2004. The CTF treats primarily domestic wastewater from three existing and planned development areas within the City of Lathrop: Central Lathrop Specific Plan (CLSP), Mossdale, and River Islands. The development areas comprise approximately 8,400 acres of residential and commercial development with a small number of commercial facilities discharging to the CTF.

treated and disposed

6. The Crossroads WWTF, built in 1994, ~~treats and disposes~~ of commercial/industrial and domestic wastewater from the Crossroads Industrial Park. Tenants at the industrial park include manufacturing, food processing, distribution facilities, restaurants, and trucking companies. The wastewater is relatively high stren commercial/industrial wastewater with less than 10 percent of domestic wast The average daily flow rate from the industrial park is approximately 0.15 mgd.

until 2015, when it was decommisioned

7. The City adopted an Industrial Sewer Use Ordinance (Ordinance) in December 2005. The Ordinance establishes pretreatment standards prior to discharging wastewater to the City's treatment facility. The Ordinance includes numerical limits for TDS as 700 mg/L, BOD as 400 mg/L, and nitrate as nitrogen as 250 mg/L (without mass limits).

8. The City established an Industrial Pretreatment Program that includes:

   a. Identifying commercial users;

   b. Routine and non-routine monitoring of commercial users, including sampling of their wastewater and identifying pollutants in their waste stream;

   c. Issuing industrial wastewater discharge permits if required by the Ordinance;

   d. Identifying non-compliant commercial users and issuing Notice of Violations as necessary; and

   e. Advising commercial users on better business practice to comply with the Ordinance.

9. Three out of 27 Crossroads Industrial Park tenants have been issued an Industrial Wastewater Discharge Permit (permit) by the City. A permit was issued to a food processor that manufactures sausage, whose saline wastewater represented about 10 to 20 percent of the total influent flow to the Crossroad WWTF and approximately 25 to 35 percent of the overall WWTF's TDS load. The manufacturer's wastewater has an average TDS concentration approximately 3,600 mg/L. The permit sets TDS best management practice goals that the tenant can reasonably comply with: a maximum daily concentration of 4,700 mg/L and a monthly average concentration of 4,000 mg/L for TDS.

10. From 2007 to 2015, the sausage manufacturer has implemented the following salinity control measures and reduction efforts:

    a. Elimination of the plant's meatball specialty line (2007 – 2008), a high salinity stream source;
    b. Modification of operations to capture and separately dispose of the discharge from its water softener and broth from its crumbles production line (2007 – 2008);
    c. Reduction in the use of caustic chemicals for cleaning (2007 – 2008);
    d. Extension of the production shift on the crumbles specialty line to reduce the number of cleaning cycles by 40 percent (2007 – 2008);
    e. Installation of various clean-in-place systems and chemical metering systems to ensure efficient use of cleaning chemicals (2008 - 2010);
    f. Modifications to the crumbles production line to improve sanitation efforts (2009);
    g. Modifications to the plant's pH monitoring system to allow for more efficient use of acid and caustic in the wastewater pre-treatment system (2009);
    h. Installation of additional TDS meters to more closely monitor TDS concentrations in the plant's discharge (2011);
    i. Increased vigilance on housekeeping measures including dry sweeping of materials in lieu of wet cleaning (2012);
    j. Elimination of the plant's crumbles production line (2014 – 2015), a high TDS mass source; and
    k. Implementation of various water conservation measures (2014 – 2015).

11. On 25 August 2015, the City began diverting wastewater from the Crossroa Industrial Park to the CTF based on the acknowledgment in the Central Valley Water Board letter entitled *Meeting Summary and Water Code 13267 Order for Technical Report, City of Lathrop Consolidated Wastewater Treatment Facility*, dated 6 August 2015. Components of the existing Crossroads WWTF ~~planned for demolition are anticipated to occur between Spring of 2016 and Fall of 2017~~, with the exception of the solids handling facilities and effluent storage ponds that ~~will be~~ were retained and incorporated into the CTF.

were demolished in 2016-2017

12. Wastewater treatment processes at the CTF include secondary treatment, tertiary filtration, and disinfection prior to storage and reuse for irrigation of agricultural and landscape Use Areas.

    a. Raw wastewater undergoes screening and grit removal prior to entering the influent pump station.

    b. A 950,000 gallon steel tank provides diurnal flow equalization and short-term emergency storage. Wastewater in the tank is automatically returned to the influent pump station as treatment capacity becomes available.

    c. Additional short-term emergency storage of influent is available in Pond S4 which is lined and has a storage capacity of approximately 11 million gallons (mgal). Wastewater in Pond S4 is returned to the headworks (rotary drum screens) when treatment capacity is available.

    d. From the influent pump station, wastewater is distributed evenly to two Membrane Bioreactor (MBR) treatment trains for a combined treatment capacity of 1.0 mgd as an average dry weather flow (ADWF). Each MBR train includes an anoxic basin, recirculation mixers, an aeration basin, anoxic pumps, aeration and membrane blowers and diffusers, membrane modules, a membrane tank, mixed liquor recycle pumps (RAS pumps), and filtrate pumps. provided

    e. Tertiary treated effluent is then conveyed to the disinfection system. Previously, ~~Disinfection is~~disinfection was accomplished using sodium hypochlorite solution in a chlorine contact tank that ~~provides~~ 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. ~~The City is in the process of seeking approval from the State Water Resources Control Board Division of Drinking Water (DDW) regarding the alternative criteria for disinfected tertiary recycled water as defined by California Code of Regulations, title 22 (Title 22) section 60301.230(a)(2).~~

recently

is now

13. Disinfected tertiary treated effluent is discharged into Pond S5 for immediate storage, and is then transferred to off-site storage ponds, Ponds S1, S2, S3, and S6. Off-site storage pond S16 ~~is under construction~~ to accommodate the plant expansion to 1.0 mgd. The Crossroads WWTF Effluent Storage Ponds A, B, and C ~~will be~~ available for off-site storage of CTF disinfected tertiary treated effluent ~~once~~ the initial pond sludge has been removed. The ponds are lined with at least 40-mil high-density polyethylene liner or concrete lined. A summary of the currently available storage ponds is provided below and their locations are shown on Attachments B and C, which are attached hereto and made part of this Order by reference.

has recently been completed

as

Pond Number	Storage Capacity [1] (mgal)	Pond Location
S1	41	Mossdale
S2	15	Mossdale
S3	21	Mossdale
S5	28	CTF
S6	34	McKinley Avenue
S16 ~~(under construction)~~	~~55~~ 101[2]	River Islands
A (former Crossroads WWTF effluent pond)	13.7	West of CTF
B (former Crossroads WWTF effluent pond)	10.8	West of CTF
C (former Crossroads WWTF effluent pond)	7.4	West of CTF
Total Storage Capacity:	**~~226~~272**	

[1] Capacity at 2-feet of freeboard.

[2] ~~Pond S16 will be constructed in two phases. The initial phase will provide approximately 55 mgal of storage capacity. The second phase will expand the pond an additional 23 mgal for a total volume of 78 mgal~~.

14. Additional information on existing and planned recycled water storage ponds is presented in the Information Sheet, which is attached hereto and made part of this Order by reference. An overview of the existing and planned storage ponds is shown on Attachment C.

15. Recycled water is pumped from the storage ponds as needed and conveyed to Use Areas for agricultural irrigation. For the purpose of this Order, 'Use Area(s)' as used herein means an area with defined boundaries where recycled water is used or discharged, as defined by California Code of Regulations, title 22 (Title 22) section 60301.920. Agricultural Use Areas are agricultural fields and are designated with an "A" followed by an identification number. Alfalfa and rye grass will be the primary crops grown. Use Areas A35, ~~A35a, and~~ A35b, and A35c will be made available to accommodate the plant expansion to 1.0 mgd. A summary of the current agricultural Use Areas is identified in the table below.

Development Area	Agricultural Irrigation	
	Designation	**Area (acres)**
Mossdale	A23	12
River Islands	A28	31
	A30	35
	A31	95
	A35	~~22~~21
	~~A35a~~	~~25~~24
	A35b	~~22~~15
	A35c	15
	Total Acres:	**~~242~~248**

224

16. There are approximately 200 acres of Use Areas available for public area landscape irrigation and over 2,100 acres of Use Areas available for agricultural irrigation located within the four development areas of Northern Lathrop, CLSP, Mossdale, and River Islands. Public area landscape consists of roadway medians, parks, pond berms, and open spaces. Landscape Use Areas are designated with an "L" followed by an identification number. Landscape Use Areas will consist of trees, shrubs, and grass. Additional information on existing and planned Use Areas is presented in the Information Sheet. An overview of the existing and planned Use Areas is shown on Attachment D, which is attached hereto and made part of this Order by reference.

former

17. Waste activated sludge (WAS) generated from the CTF is pumped to the solids handling facility located at the adjacent ~~a~~Crossroads WWTF. The solids handling facility includes a 190,000 gallon aerobic sludge storage tank, two belt filter presses, and a concrete drying bed used for supplemental air drying of dewatered sludge when conditions permit. Only sludge from the CTF is sent to the solids storage tank. Dewatered cake from the filter press is then transferred either to a sludge haul truck or to the drying bed for supplemental drying when conditions permit. Air-dried sludge is temporarily stored on the drying bed until a sufficient volume has accumulated to warrant transporting the material to the City of Merced for land application.

18. The CTF is equipped with an electronic management and control system that provides remote monitoring, alarms, and notifications to prevent bypass or failure of the treatment processes. The alarms have backup power provided by a standby generator and an uninterruptable power supply.

19. A summary of the CTF influent flows from 2011 through 2015 is provided below.

Month	Average CTF Influent Flow (mgd)				
	2011	**2012**	**2013**	**2014**	**2015** [1]
October	0.26	0.27	0.28	0.30	0.37
November	0.27	0.28	0.29	0.32	0.38

Month	Average CTF Influent Flow (mgd)				
	2011	**2012**	**2013**	**2014**	**2015** [1]
December	0.27	0.28	0.30	0.35	0.41
January	0.28	0.28	0.31	0.31	0.32
February	0.27	0.27	0.30	0.30	0.32
March	0.29	0.27	0.29	0.31	0.33
April	0.30	0.29	0.30	0.31	0.33
May	0.29	0.23	0.28	0.30	0.33
June	0.27	0.27	0.29	0.30	0.33
July	0.28	0.28	0.30	0.31	0.33
August	0.28	0.28	0.32	0.30	0.35
September	0.28	0.28	0.32	0.32	0.34
Annual Total (mgal)	**102**	**100**	**109**	**113**	**126**

NA denotes not available or not provided.
[1] Since 25 August 2015, all wastewater from the Crossroads Industrial Park is diverted to the CTF.

20. The average tertiary effluent quality from January 2011 through September 2013 is presented below for select constituents. Wastewater quality since diversion of all Crossroads' wastewater to the CTF is shown below.

Constituent	Average Effluent Quality, mg/L unless specified	
	Jan 2011 – Sep 2013	**Aug 2015 – Nov 2015**
BOD	< 2.3	< 2.0
TDS	688	720 [1]
Nitrate	7.0	NA
TKN	1.0	NA
Total Nitrogen	8.0	6.3
Chloride	194	NA
Sodium	181	NA
Sulfate	49.5	NA
Boron	0.4	NA
Iron	< 0.06	NA
Total Coliform Organisms, MPN/100 mL	< 2.0	< 1.8

NA denotes data not available or provided. RL denotes laboratory reporting limit and can vary between testing events.
[1] Flow-weighted average based on data from August 2015 through November 2015.

Planned Facility and Discharge

21. The City proposes the following Crossroads WWTF components to be retained and incorporated in the CTF.

    a. Influent pump station, piping, and associated Motor Control Centers.

    b. Former chlorine contact basin.

    c. Recycled water pump station.

    d. Effluent Storage Ponds A, B, and C: Each pond is lined with high-density polyethylene and is approximately 12 feet deep. The total combined capacity of the storage ponds is approximately 97.7 acre-feet with two feet of freeboard. ~~It is anticipated that the~~ storage ponds ~~will be~~ pumped of all effluent~~, removed of~~ all solids, and ready to accept CTF effluent for storage ~~by September 2016~~.

    e. Land application site LAS-3: LAS-3 is approximately 19.5 acres and will be converted into a future percolation pond(s) with an expected completion date by ~~August 2016~~.

    f. Sludge handling facility consisting of a sludge storage tank, two belt filter presses, and a ~~75 foot by 175 foot~~ concrete drying bed.

    g. Generator building.

    h. Maintenance garage.

    The wastewater treatment and disposal process is shown schematically on Attachment E, which is attached hereto and made part of this Order by reference.

22. Land application sites LAS-1 and LAS-2 at the Crossroads WWTF ~~has~~ been sold and ~~plans are in place to develop the sites~~ for industrial use. Wells KMW-1 and KMW-3 that once monitored groundwater quality near the two land application sites have been abandoned to accommodate future land development. Based on elevated salinity concentrations in the groundwater near LAS-2, the City was required to investigate and mitigate any impacts from its wastewater disposal operations. Two replacement wells (KMW-10 and KMW-11) were installed along the western edge of LAS-2. KMW-11 and KMW-10, installed on 9 and 10 December 2015, respectively, will monitor the effectiveness of the City's corrective action plan regarding the salinity impacts from past application of Crossroads WWTF effluent.

23. As needed to reduce impacts on the CTF's capacity, a portion of the CTF influent flow may be rerouted to the City of Manteca's wastewater collection system using the existing Mossdale interties. This rerouting is not strictly needed, but may be performed as needed to improve system efficiency and cost effectiveness.

24. The City has submitted the *Expansion Completion Report* dated 25 August 2015 confirming the completion of the 1.0 mgd facility expansion project. ~~However~~, the City ~~has not~~ submitted the *Recycled Water Storage and Conveyance System Improvements Completion Report* and the *Recycled Water User Report* as required

Spring

2.5

by Provisions H.1.e and H.1.f. of Order R5-2015-0006 to confirm the available storage and disposal capacity needed for a flow increase of 1.0 mgd.

The City anticipates the next CTF expansion to increase capacity from 1.0 to ~~1.5~~ mgd (CTF Phase 2 Expansion Project) with an expected completion date by ~~March~~ 2018. The 1.5 mgd expansion may consist of a new coarse and fine screening and grit removal headworks system; a new odor control system for the new headworks; a new influent, basin drain, mixed liquor suspended solids (MLSS) process and membrane filtration process structure; a new activated sludge treatment process, including associated valves, gates, mixers, pumps and process air diffuser; new aeration blowers; new membrane filtration units; new membrane scouring blowers; new waste activated sludge pumps; new emergency standby generator equipment; new motor control center equipment; upgraded central PLC and SCADA system; a new administration, lab, and maintenance building; a new equipment building; and miscellaneous site grading and storm water retention facilities. Additional recycled water storage capacity and Use Areas will be added as needed.

25. The 19 September 2014 water balance submitted for preparation of Order R5-2015-0006 determined the minimum recycled water storage volume and Use Areas needed for an average dry weather flow of 0.75 mgd, 1.0 mgd, and the long range projection at 6.0 mgd. The water balance showed recycled water storage ponds are typically used during the winter months and then drawn down for irrigation purposes during the spring through fall.

26. The City relies entirely on water recycling for the disposal of treated effluent. Therefore, effluent storage and Use Areas must increase to accommodate increases in influent flows to the CTF. Based on the water balance, the required storage volume and Use Areas for the three influent flow scenarios is summarized below.

224

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	~~194~~ 240 [1]	872
Use Areas (acres)	165	172	207	~~242~~ ~~248~~ [2]	1,381

[1] Based on total volume including Ponds S1, S2, S3, S5, S6, and ~~Phase 1 of~~ S16.
[2] Based on total acreage including Use Area A23, A28, A30, A31, A35, ~~A35a, and~~ A35b, and A35c.

27. The immediately applicable flow limitation in this Order is based on the current treatment, storage, and disposal capacity. Under the conditions of the Master Recycling Permit, the Discharger may add new Use Areas and construct additional recycled water storage ponds defined as "planned" in the Findings and Information Sheet of this Order with Executive Officer approval of the technical reports submitted pursuant to the Provisions of this Order [1]. The flow limits can be incrementally

[1] Use Areas and recycle water storage ponds defined as "future" will also require certification of an environmental review pursuant to the California Environmental Quality Act (CEQA).

increased up to a future treatment capacity of 6.0 mgd pending certification of an environmental review pursuant to CEQA and Executive Officer approval of each CTF expansion phase technical report submitted pursuant to the Provisions of this Order.

28. The City has adopted a Recycled Water Ordinance to establish its authority to enforce rules and/or regulations for Users governing the design and construction of recycled water use facilities and the use of recycled water. Therefore, the Discharger may issue water recycling permits to Users of WWTF effluent.

29. Lathrop Municipal Code Title 13, Chapter 13.09 establishes the authority to enforce rules and/or regulations for Users governing the design and construction of recycled water use facilities and the use of recycled water. As such, the Discharger may issue water recycling permits to Users of treated effluent from the CTF. Future Use Areas not identified in the Findings and Information Sheet as "existing" will require Executive Officer approval of certain reports described in the Provisions of this Order to satisfy Water Code section 13264.

Site-Specific Conditions

30. The City's water supply comes from six deep municipal wells that extract groundwater from approximately 160 to 270 feet below ground surface (bgs). Water is drawn from a 150-foot upper water-bearing interval overlying a 75 to 1,000 feet thick lower water-bearing zone in the Laguna Formation.

31. The City's potable water supply is supplemented with surface water from the Woodward Reservoir, which is distributed by the South San Joaquin Irrigation District as part of the South County Water Supply Program. Municipal supply water is treated prior to distribution to the community. A summary of the City's 2013 Drinking Water Consumer Confidence Report is presented below for select constituents.

	Potable Water Quality	
Constituent	**Units**	**Concentration**
Specific Conductivity	µmhos/cm	444 - 970
Total Dissolved Solids	mg/L	283 - 573
Nitrate as NO3	mg/L	8.3 – 28.7
Chloride	mg/L	32 - 108
Sodium	mg/L	41 - 75
Iron	mg/L	< 0.3
Manganese	mg/L	< 0.05 – 0.04
Hardness	mg/L	157 - 201
Total Coliform Organisms	MPN/100mL	< RL
Trihalomethanes	µg/L	9.8 – 31.8

RL denotes laboratory reporting limit and can vary between testing events.

32. Local topography at the CTF and existing and planned Use Areas is generally level and gently slopes toward the San Joaquin River and other tributaries. Ground surface elevation at the CTF is approximately 10 feet above mean sea level (MSL).

33. The CTF and Use Areas lie within the San Joaquin Delta Hydrologic Unit Area No. 544.00, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986. Surface drainage is to the San Joaquin River, which flows north along the western boundary of CLSP and Mossdale. Other nearby surface water courses that drain into the San Joaquin River include Paradise Cut that borders River Islands to the southwest, and Old River, which divides Mossdale and River Islands.

34. According to Federal Emergency Management Agency (FEMA) flood zone mapping, areas immediately east of the San Joaquin River (i.e., the CTF, Northern Lathrop, CLSP, and Mossdale) are in Flood Zone X, which is outside of the currently-defined 100-year flood zone. A developed portion of River Islands bordered by Stewart Road on the west and south and the San Joaquin River on the east is also identified as within Flood Zone X. These areas are protected from the 100-year flood by levees, dikes, or other structures that may be subject to possible failure or overtopping during larger flood events. A portion of the western half of River Islands is in Zone AE, which is within the 100-year floodplain. None of the current recycled water ponds are located within the 100-year floodplain. Any future recycled water storage ponds located within the 100-year floodplain will be designed such that the elevations of the tops of the berms of future recycled water storage ponds are at least 3 feet above the 100-year floodplain. As mandated by Senate Bill 5, the cities of Lathrop and Manteca are pursuing improvement of Reclamation District 17's (RD 17) levees to provide the new central valley standard of 200-year Urban Level of Flood Protection. This requires improvement of the entire 20 miles of RD 17 levees, including sections within the cities of Lathrop, Manteca, Stockton, and unincorporated San Joaquin County. Work will be started by July 2016, and will be completed by 2025.

35. The Lathrop area is underlain by alluvial deposits consisting of fine grained sand, silt, and clay. According to United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) data, near-surface soils in the CTF and Use Areas are classified primarily as Egbert, Merrit, Columbia, and Veritas series soils, among others. These soils are generally characterized as moderate to poorly drained floodplain deposits with low permeability rates. Based on the NRCS soil survey, the soils in the proposed Use Areas are sandy to silty clay loams. Published infiltration rates for the soils range from 0.06 to 6.0 in/hr.

36. Based on climate data from the California Irrigation Management Information System (CIMIS), the average annual precipitation for the nearby area (Manteca Station) is approximately 13 inches. The 100-year, 365-day precipitation event is approximately 22 inches, and the average reference evapotranspiration (ETo) rate is approximately 52 inches per year.

former

37. Land uses surrounding the CTF include the Crossroads WWTF immediately to the south, the Crossroads Industrial Park to the north, and other commercial development to the east and south. Interstate highway 5 separates the Northern Lathrop, CLSP, Mossdale and River Islands development areas from the rest of the City. Surrounding land uses in these areas are primarily agricultural, but some areas have recently transitioned to residential, commercial, and industrial land uses.

Groundwater Conditions

38. Lathrop is located within the San Joaquin River Groundwater Basin, San Joaquin River Hydrologic Region. The CTF, Northern Lathrop, CLSP, and Mossdale developments are located within the western portion of the Eastern San Joaquin Subbasin, while River Islands is in the Tracy Subbasin. Water-bearing units of the two subbasins include undifferentiated deposits of alluvium and flood basin deposits of the Laguna Formation. The Plio-Pleistocene Laguna Formation consists of discontinuous lenses of fluvial sand and silt with lesser amounts of clay and gravel.

39. Shallow groundwater in the Lathrop area occurs within the alluvial flood plain deposits at depths of less than 15 feet bgs. The depth to groundwater is as little as a few feet below ground surface in some areas, especially near surface water bodies, including agricultural drainage ditches that divide portions of River Islands.

40. Shallow groundwater depth and flow conditions can vary depending on location, season, land use, nearby pumping (i.e. construction dewatering, agricultural irrigation, etc.), and the proximity and flow stage of nearby surface water bodies. As a result, changes in agricultural land use, irrigation practices, and regional pumping have likely altered the groundwater flow regime. In the Northern Lathrop, CLSP, Mossdale, and River Islands areas, shallow groundwater generally flows laterally away from the San Joaquin River, Old River, and Paradise Cut, whereas the groundwater flow direction east of Interstate 5 is generally to the north-northwest, towards the river.

41. There are over 70 known existing groundwater monitoring wells near the CTF and the Northern Lathrop, CLSP, Mossdale, and River Islands Use Areas. General groundwater quality was previously evaluated at each of the four development areas in preparation of Order R5-2015-0006. Due to the extreme spatial variability of TDS concentrations in shallow groundwater across the Lathrop development areas, the local variability in groundwater flow, and the characteristics of recycled water, the anti-degradation analysis focused on specific Use Areas that illustrate typical groundwater conditions within each development area that has or will have Use Areas. An intra-well analysis of selected compliance wells was identified in Order R5-2015-0006 for compliance with the groundwater limitations. The monitoring well network as identified in Order R5-2015-0006 including location and function is shown below. Monitoring wells KMW-10 and KMW-11, which monitor the underlying groundwater near former LAS-2, is included in the table below; as is monitoring wells KMW-4, KMW-6, KMW-8, and KMW-9, which monitoring groundwater near LAS-3. Well locations are shown on Attachments B, F, G, H, and I, which is attached hereto and made part of this Order by reference.

[Changes in the groundwater monitoring tables made to reflect recent changes:
1. City obtained access to MWM-8.
2. MWR-6 through MWR-8 abandoned, as approved by Regional Board.
3. CLSP-2, CLSP-4, and CLSP-10 abandoned and replaced by MWM-19, CLSP-11, and CLSP-12 as approved by Regional Board.]

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
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
Northern Lathrop	H	MW-N1, MW-N3, MW-N4, MW-N5 [1], MW-N6 [1]	---
Central Lathrop Specific Plan	H	CLSP-1, ~~CLSP-2 [2],~~ CLSP-3, ~~CLSP-4 [3]~~, CLSP-8, CLSP-9, ~~CLSP-10 [2]~~ CLSP-10, CLSP-11	CLSP-1
Pond S6	I	RMW-1, RMW-2, RMW-3, RMW-4, RMW-5	---

~~[1] Well located on private property. City has no access to well. Abandon and replace well in accordance with Provision H.1.j as appropriate.~~
~~[2] Damaged well, City proposes to abandon. Replace well in accordance with Provision H.1.j as appropriate.~~
~~[3] City proposes to abandon well. Replace well in accordance with Provision H.1.j as appropriate.~~

A well inventory was performed in October 2015 to identify existing well conditions. Based on the *Groundwater Monitoring Well Condition Survey Report and Destruction Plan* dated 27 January 2016, several wells were identified as damaged, missing, or abandoned. Wells MWM-8, MW-N5, and MW-N6 are located on private property and the City was unable to access these wells to determine current well conditions. The investigation confirmed wells CLSP-2, CLSP-10, and MWR-6 were damaged and the City has requested these wells be abandoned. Additionally, the City has requested that well CLSP-4 also be abandoned and not replaced due to close proximity to existing well MWM-19. ~~In order to evaluate the pre-discharge groundwater conditions within any new Use Areas in accordance with Provision H.1.f, replacement wells may be required for wells identified as future compliance wells and proposed for abandonment.~~ Wells CLSP-2, CLSP-10, and MWR-6 were subsequently abandoned and replaced with Wells MWM-19, CLSP-11, and CLSP-12

42. Approximately 2,000 to 3,500 feet northeast and upgradient of LAS-2 was a former agricultural chemical production facility that consisted of unlined gypsum and wastewater ponds. The City has stated that the source of dissolved constituents including TDS, sulfate, and nitrate in groundwater within the vicinity of LAS-2 was likely caused by the unlined ponds at the former chemical production facility.

43. For the purpose of evaluating potential future groundwater degradation at a new discharge location, groundwater quality was evaluated at LAS-3. Well KMW-4 is located within LAS-3. Well KMW-6 is located near the east edge of LAS-3. Groundwater quality prior to discharge operations is based on samples collected on 29 January 2001 and 11 October 2002. Discharges of Crossroad's undisinfected secondary effluent to LAS-3 began in 2003.

44. Based on historical quarterly monitoring reports, KMW-6 was determined the background well. However, in January 2015, the City stated that the groundwater elevations were calculated based on a different datum and needed to be revised. In February 2015, the City conducted a well survey and submitted revised groundwater historical elevation data. Based on revised groundwater contour maps for eight quarters between 2013 through 2014, KMW-4 has slightly higher groundwater elevations than KMW-6. Although higher groundwater elevations were observed in KMW-4, it is not appropriate to use KMW-4 as a background well because of its location within LAS-3 and likely influences from future wastewater discharges. In addition, the conversion of LAS-3 to percolation ponds(s) will likely cause localized groundwater mounding that will result in detectable wastewater constituents in KMW-6.

45. In anticipation of percolation pond(s) at LAS-3, the City installed wells KMW-8 and KMW-9 on 13 November 2014 to obtain groundwater data prior to discharge. KMW-8 is located immediately outside of the LAS-3 northwest boundary. KMW-9 is located east of LAS-3 and is expected to be an upgradient well. Based on the first data set collected on 18 November 2014, the groundwater elevation in KMW-9 was lower than the elevations in nearby wells KMW-4 and KMW-6, indicating flow is to the north-northwest and away from KMW-4. The City stated that northeastward groundwater flow near KMW-4 and KMW-9 is likely due to groundwater pumping northeast of KMW-9.

46. Groundwater quality near LAS-3 is presented below for select constituents.

Constituent	Potential WQO	Average Groundwater Quality[5], mg/L					
		KMW-4		KMW-6		Pre-Discharge KMW-8[9]	Pre-Discharge KMW-9[9]
		Pre-Discharge[6]	Current[7]	Pre-Discharge[8]	Current[7]		
TDS	450[1] - 1,000[4]	3,840	2,430	NA	1,000	2,180	580
Nitrate as N	10[2]	80	50	20	20	20	9.7
TKN	none	0.9	0.5	60	30	<1	60
Chloride	106[1] – 500[4]	260	340	90	170	610	130
Sodium	69 [1]	400	450	70	140	350	90
Sulfate	250[3] - 500[4]	1,450	750	210	290	300	100
Boron	0.7[1]	1.4	1.3	0.3	0.4	0.8	0.3

Constituent	Potential WQO	Average Groundwater Quality[5], mg/L					
		KMW-4		KMW-6		Pre-Discharge KMW-8[9]	Pre-Discharge KMW-9[9]
		Pre-Discharge[6]	Current[7]	Pre-Discharge[8]	Current[7]		
Iron, dissolved	0.3[3]	0.01	0.19	0.01	0.07	0.11	0.04
Manganese, dissolved	0.05[3]	4	0.8	0.75	0.4	0.28	<0.01

WQO denotes Water Quality Objective. NA denotes not available or not provided.

1 Lowest Agricultural Water Quality Goal.
2 Primary Maximum Contaminant Level.
3 Secondary Maximum Contaminant Recommended Level.
4 Secondary Maximum Contaminant Upper Level.
5 For non-detect values, ½ of the laboratory detection limit was used to determine average.
6 TDS based on 29 January 2001 sample; boron, iron, and manganese based on 11 October 2002 sample; all other constituents, average based on 29 January 2001 and 11 October 2002 samples.
7 Average data collected quarterly from January 2007 through August 2014.
8 Based on 11 October 2002 sample.
9 Single monitoring event on 18 November 2014.

a. In general, the underlying groundwater is high in salinity and nitrate. Pre-discharge data from KMW-4 show a TDS concentration that exceeds the secondary maximum recommended limit (MCL) of 1,000 mg/L and data following discharge operations show some improvement in groundwater quality. Chloride concentrations in KMW-4 and KMW-6 have increased since discharge operations began. Increasing sodium concentrations were observed in KMW-6 since 2013. The single sample from KMW-8 contained a high concentration of nitrate as expected, because high concentrations of nitrate were found in KMW-4 and KMW-6. The nitrate and TDS concentration in KMW-9 was much less than the average concentration in KMW-6, which historically has been considered the background well.

b. Groundwater data for KMW-4 and KMW-6 show iron concentrations have increased since discharge operations began. However, concentrations do not exceed 0.3 mg/L, the water quality objective for iron. The iron concentration in KMW-8 is similar to the average iron concentrations in KMW-4 and KMW-6. The iron concentration in KMW-9 was much less than the average concentration in KMW-6.

c. Prior to discharge operations, the manganese concentration in KMW-4 and KMW-6 exceeded the secondary MCL of 0.05 mg/L. Groundwater data show improvements in groundwater quality post discharge operations. KMW-8 contained a high manganese concentration, as expected, because high manganese concentrations were found in KMW-4 and KMW-6. The manganese concentration in KMW-9 was much less than the average concentration in KMW-6 and does not exceed the water quality objective.

former

d. The spatial variability in the wells warrants an intra-well analysis of compliance wells to determine if the discharge has caused groundwater degradation. Due to proximity of KMW-4 and KMW-6 to impending percolation pond(s) at LAS-3, KMW-4 and KMW-6 would serve as compliance wells, along with newly installed wells KMW-8 and KMW-9.

47. As stated in Finding 22, wells KMW-10 and KMW-11 were installed to monitor the effectiveness of the City's corrective action plan regarding the salinity impacts (particularly near LAS-2) from past application of Crossroads WWTF effluent. Analytical data for groundwater samples obtained on 15 December 2015 are shown below for select constituents.

Constituent	Potential WQO	Groundwater Data for New Wells (mg/L unless specified)		
		KMW-10	KMW-11	KMW-11 (D)
TDS	450[1] - 1,000[4]	4,100	2,750	2,890
Nitrate as N	10[2]	22	0.1	< 0.1
TKN	none	< 0.5	< 0.5	< 0.5
Chloride	106[1] – 500[4]	920	600	630
Sodium	69 [1]	750	590	640
Sulfate	250[3] -500[4]	1,040	750	760
Boron	0.7[1]	1.2	1.1	1.2
Iron, dissolved	0.3[3]	0.1	6.0	7.3
Manganese, dissolved	0.05[3]	2.4	4.1	4.1

WQO denotes Water Quality Objective. D denotes duplicate sample.

1 Lowest Agricultural Water Quality Goal.
2 Primary Maximum Contaminant Level.
3 Secondary Maximum Contaminant Recommended Level.
4 Secondary Maximum Contaminant Upper Level.

Basin Plan, Beneficial Uses, and Regulatory Considerations

48. 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 section13263(a), waste discharge requirements must implement the Basin Plan.

49. Local drainage is to the San Joaquin River. The beneficial uses of the San Joaquin River, as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; industrial service supply; industrial process supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat;

migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation.

50. 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.

51. 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.

52. 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.

53. 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.

54. 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.

55. 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.

56. 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

57. State Water Resources Control Board Resolution 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater 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.

58. 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.

59. The Discharger has been monitoring groundwater quality at the CTF and near several of the Use Areas since 1999. Although some limited groundwater quality data that date back to 1945 is available, the hydrologic dynamics of such a large geographic area combined with a long history of both irrigated agriculture and land discharges of wastewater, it is not possible to determine pre-1968 groundwater quality. Therefore, determination of compliance with Resolution 68-16 for this discharge must be based on available local groundwater quality data.

60. As discussed in Finding 41, the anti-degradation analysis in Order R5-2015-0006 focused on specific Use Areas that illustrate typical groundwater conditions within each development areas that has or will have recycled water Use Areas. Information regarding the anti-degradation analysis for specific Use Areas can be found in the Information Sheet. For the purpose of evaluating potential future groundwater degradation at a new discharge location, this anti-degradation analysis focuses on LAS-3, the location of future percolation pond(s).

61. Constituents of concern from the treated effluent that have the potential to degrade groundwater include salts (primarily TDS, sodium and chloride). For the purpose of this evaluation, TDS is representative of overall salinity. Based on effluent quality and pre-discharge groundwater quality, elevated concentrations of nitrate in the

groundwater are likely due to historical agricultural practices and not the result of wastewater discharges. In addition, elevated sulfate, boron, and manganese concentrations in the groundwater are likely naturally occurring and not the result of wastewater discharges. TDS and total nitrogen effluent quality is representative of the combined wastewater as a flow-weighted average based on data from August through November 2015. All other constituents are representative of the CTF effluent or Crossroads effluent.

Constituent	Potential WQO	Average Groundwater Quality[5], mg/L				Effluent Quality, mg/L
		KMW-4		KMW-6		
		Pre-Discharge[6]	Current[7]	Pre-Discharge[8]	Current[7]	
TDS	450[1] - 1,000[4]	3,840	2,430	NA	1,000	720
Nitrate as N	10[2]	80	50	20	20	NA
TKN	none	0.9	0.5	60	30	NA
Total Nitrogen	none	73	NA	82	NA	6.3
Chloride	106[1] – 500[4]	260	340	90	170	NA
Sodium	69 [1]	400	450	70	140	NA
Sulfate	250[3] -500[4]	1,450	750	210	290	NA
Boron	0.7[1]	1.4	1.3	0.3	0.4	50[9] / 190[10]
Iron, dissolved	0.3[3]	0.01	0.19	0.01	0.07	0.4[9] / NA
Manganese, dissolved	0.05[3]	4	0.8	0.75	0.4	ND[9] / 0.01[11]

WQO denotes Water Quality Objective. NA denotes not available or not provided. ND denotes non-detect.

1 Lowest Agricultural Water Quality Goal.
2 Primary Maximum Contaminant Level.
3 Secondary Maximum Contaminant Recommended Level.
4 Secondary Maximum Contaminant Upper Level.
5 For non-detect values, ½ of the laboratory detection limit was used to determine average.
6 TDS based on 29 January 2001 sample; total nitrogen, boron, iron, and manganese based on 11 October 2002 sample; all other constituents, average based on 29 January 2001 and 11 October 2002 samples.
7 Average data collected quarterly from January 2007 through August 2014.
8 Based on 11 October 2002 sample.
9 CTF effluent, average based on data collected from January 2011 through September 2013.
10 Crossroads effluent, average based on data collected from February 2007 through August 2014.
11 Crossroads effluent, average based on 4 weekly samples from September through October 2014.

a. **Total Dissolved Solids.** Prior to wastewater discharge**,** the TDS concentration in KMW-4 was 3,840 mg/L. In general, the analytical data show an overall decreasing trend in KMW-4. However, the current TDS concentration continues to exceed the water quality objective. KMW-6 located within LAS-3, has historically been the background well with an average TDS concentration of 1,000 mg/L. The TDS concentrations in KMW-6 have ranged from 600 to 2,500 mg/L. Since 2010, TDS concentrations have increased in KMW-6. Based on data from January 2011 through September 2013, the TDS effluent concentration varied from 500 to 840 mg/L with an average of 690 mg/L.

For the purpose of this analysis, the water quality objective for TDS is 1,000 mg/L. The Basin Plan's Controllable Factors Policy is applicable because the pre-discharge groundwater quality exceeds the water quality objective. The Controllable Factors Policy does not allow further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded.

The RWD states that the current Crossroads and CTF effluent when combined would result in a TDS effluent concentration ranging from 800 to 900 mg/L. Since rerouting all wastewater to the CTF in August 2015, TDS effluent concentrations during the months of August through November 2015 have ranged from 580 to 800 mg/L with a flow-weighted average of 720 mg/L. The City implements an Industrial Pretreatment Program (IPP) to prevent the introduction of pollutants into their sewer system. Through the City's IPP, significant industrial users were identified and have taken reasonable salinity source control measures to reduce the salinity concentrations in their waste stream.

This Order prohibits any further degradation of groundwater quality. A performance-based TDS effluent limit will restrict effluent salinity to ensure compliance with the Controllable Factors Policy. The effluent limit will allow flexibility for increases due to water conservations as the community grows. The groundwater limitations of this Order prohibit statistically significant increases in TDS concentrations in the groundwater compliance wells associated with LAS-3.

b. **Nitrate.** For nutrients such as nitrate, the potential for degradation depends not only on the quality of the treated effluent, but the ability of the vadose zone below the percolation pond(s) to provide an environment conducive to nitrification and denitrification to convert the effluent nitrogen to nitrate and the nitrate to nitrogen gas before it reaches the water table. Pre-discharge nitrate concentration in KMW-4 was 80 mg/L. The current average nitrate concentration is 50 mg/L. In general, nitrate data from KMW-4 show a decreasing trend. Pre-discharge nitrate concentration in KMW-6 was 20 mg/L. The current average nitrate concentration in KMW-6 is approximately 20 mg/L and concentrations ranged from 9 to 40 mg/L. In general, nitrate data from KMW-6 show a decreasing trend.

For the purpose of this analysis, the Basin Plan's Controllable Factors Policy is applicable because the pre-discharge groundwater quality exceeds 10 mg/L, the water quality objective for nitrate. The Controllable Factors Policy does not allow further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded.

Since rerouting the Crossroads wastewater to the CTF, the flow-weighted average total nitrogen effluent concentration is approximately 6.3 mg/L (based on four months of data in 2015). The average total nitrogen concentration when wastewater was predominately domestic from the Lathrop development areas was approximately 8.0 mg/L. Although conversion to a percolation pond will result in no nitrogen uptake from plants, the discharge is unlikely to cause nitrate pollution due to the low nitrate concentration in the effluent. To ensure compliance with the

Controllable Factors Policy, the Order prescribes a total nitrogen effluent limit of 10 mg/L as a flow-weighted annual average. The groundwater limitations of this Order prohibit statistically significant increases in nitrate concentrations in the groundwater compliance wells associated with LAS-3.

c. **Boron.** Pre-discharge groundwater quality in KMW-4 exceeds 0.7 mg/L the water quality objective for boron. Since adoption of the Order R5-2015-0006, the CTF effluent has not been analyzed for boron. However, based on monitoring data from January 2011 through September 2013, the average effluent boron concentration is approximately 0.4 mg/L. Historically, the Crossroads' effluent has not been analyzed for boron.

   For the purpose of this analysis, the Basin Plan's Controllable Factors Policy is applicable because the pre-discharge groundwater quality exceeds the water quality objective for boron. The Controllable Factors Policy does not allow further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded.

   Although wastewater from the Crossroads Industrial Park is now routed to the CTF, in consideration of the combined wastewater quality and groundwater conditions, the discharge is not likely to degrade groundwater with respect to boron. To ensure compliance with the Controllable Factors Policy, the Order requires groundwater monitoring for boron to verify that the discharge has not caused groundwater quality to get any worse.

d. **Sulfate.** Pre-discharge groundwater quality in KMW-4 exceeds 500 mg/L, the water quality objective for sulfate. The average sulfate concentration in the CTF effluent based on monitoring data from January 2011 through September 2013 is approximately 50 mg/L. Order R5-2015-0006 does not require the CTF effluent to be analyzed for sulfate. The average sulfate concentration in the Crossroads' effluent is approximately 190 mg/L based on monitoring data from February 2007 through August 2014.

   For the purpose of this analysis, the Basin Plan's Controllable Factors Policy is applicable because the pre-discharge groundwater quality exceeds the water quality objective for sulfate. The Controllable Factors Policy does not allow further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded.

   In consideration of the combined wastewater quality and groundwater conditions, the discharge is not likely to degrade groundwater with respect to sulfate. To ensure compliance with the Controllable Factors Policy, the Order requires groundwater monitoring for sulfate to verify that the discharge has not caused groundwater quality to get any worse.

e. **Manganese.** Pre-discharge groundwater quality in KMW-4 and KMW-6 exceeds 0.7 mg/L, the water quality objective for manganese. Manganese has been non-

detect in the CTF effluent based on monitoring data from January 2011 through September 2013. Order R5-2015-0006 does not require the CTF effluent to be analyzed for manganese. The average manganese concentration in the Crossroads' effluent is approximately 0.01 mg/L based on four weekly sampling events from September to October 2014.

For the purpose of this analysis, the Basin Plan's Controllable Factors Policy is applicable because the pre-discharge groundwater quality exceeds the water quality objective for manganese. The Controllable Factors Policy does not allow further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded.

In consideration of the combined wastewater quality and groundwater conditions, the discharge is not likely to degrade groundwater with respect to manganese. To ensure compliance with the Controllable Factors Policy, the Order requires groundwater monitoring for manganese to verify that the discharge has not caused groundwater quality to get any worse.

62. This Order establishes effluent and groundwater limitations for the CTF that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

For TDS, nitrate, boron, sulfate and manganese, groundwater monitoring data show that groundwater is not high quality water and both pre-discharge and background groundwater quality exceeds the respective water quality objective. Where pre-discharge and background groundwater quality exceed the water quality objective, the Basin Plan's Controllable Factors Policy is applicable, which does not allow further degradation.

Membrane bioreactor

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

a. City-wide Industrial Pretreatment program;

b. Tertiary treatment and disinfection;

c. ~~Completely enclosed~~ wastewater treatment systems;

d. Lined wastewater and emergency storage ponds;

e. Automatic alarms and backup power systems;

f. Certified wastewater treatment operators; and

g. Use of effluent to irrigate crops and landscaped areas using water and nutrient application rates consistent with plant needs.

The Central Valley Water Board considers these treatment and control practices to be BPTC for the waste discharges regulated by this Order.

64. This Order is consistent with Resolution 68-16 since it is unlikely that discharges regulated by this Order will result in any degradation over baseline conditions. In addition, the Board herein finds that this Order will ensure that discharges from the facility will not unreasonably affect present and anticipated beneficial uses or result in water quality less than water quality objectives, that the Discharger is implementing BPTC to minimize degradation, and that any limited degradation that may occur will be consistent with the maximum benefit to the people of the State.

Water Recycling Regulatory Considerations

65. 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 water quality and the public health, has established statewide criteria in Title 22, section 60301 et seq. for the use of recycled water.

66. A 1998 Memorandum of Agreement (MOA) between DPH and the State Water Board on the use of recycled water establishes basic principles relative to the agencies and the regional water boards. In addition, the MOA allocates primary areas of responsibility and authority between these agencies, and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to the use of recycled water in California. This Order implements the applicable portions of the Title 22 water recycling regulation in accordance with the MOA.

67. 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.

68. 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).

The distribution of disinfected tertiary 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.

69. The Discharger submitted a *Title 22 Engineering Report* on 24 April 2014 to the Central Valley Water Board and the Division of Drinking Water pursuant to Title 22 for water recycling of disinfected tertiary recycled water as defined by Title 22, section 60301.230. The Title 22 Report stated that tertiary treated water will be applied to landscaped and agricultural areas located within "Mossdale Village, Stewart Tract, Paradise Cut, the CLSP area, and the agricultural lands located north of CLSP." DDW recommended in a letter to the Regional Water Quality Control Board dated 7 October 2014, that the Discharger be required to submit a Recycled Water Operations Plan to assure that the recycled water is produced, distributed, and used in conformance with the provisions of the DDW's Title 22 Water Recycling criteria. DDW's recommendations included the following:

    a. Sections of the overall Recycled Water Operation Plan should specifically address recycled water Use Areas and the City's cross-connection program.

    b. The Recycled Water Operation Plan must include detailed and specific procedures for various aspects of the City's recycled water Use Area operations, which include conducting and documenting inspections, specific frequencies for inspections, when not to irrigate, emergency procedures, etc.

    c. The Recycled Water Operation Plan provide guidance to address unusual occurrences or emergencies, having clear and detailed operating procedures for field personnel to follow to ensure rapid problem recognition and resolution.

    A Recycled Water Operation Plan was submitted to DDW on 20 August 2015. DDW reviewed and deemed the Plan complete in an email to the Regional Water Board on 28 January 2016.

70. Recycled water projects are limited to areas for which DDW has approved a Title 22 engineering report and for which prerequisites to discharge listed in Water Code section 13264(a) have been met. The Department of Public Health issued a letter on 3 August 2012 approving the Title 22 engineering reports for all the recycled water projects identified as "existing", "planned," and "future" in the Findings and Information Sheet of this Order.

Other Regulatory Considerations

71. 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.

72. Based on the threat and complexity of the discharge, the facility is determined to be classified as 2A 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 A complexity, defined as: "Any discharge of toxic wastes; any small volume discharge containing toxic waste; any facility having numerous discharge points and groundwater monitoring; or any Class 1 waste management unit."

73. 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:

> The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:
>
> (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.(…)

74. 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 MBR system; sludge handling facility; and Ponds S1, S2, S3, S4, S5, S6, S16, A, B and C 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. The recycled water Use Areas are exempt pursuant to Title 27, section 20090(b) because they are land discharge areas and:

   i. The Central Valley Water Board is issuing WDRs.

   ii. The discharge is in compliance with the Basin Plan, and;

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

75. 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.

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

76. 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 CTF has a design capacity of more than 1.0 MGD, but all storm water from the CTF is collected and disposed of onsite. The Discharger is therefore not required to obtain coverage under NPDES General Permit CAS000001.

77. 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.

78. 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.

REV1

The technical reports required by this Order and the attached Monitoring and Reporting Program ~~R5-____~~-R5-2016-0028 are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the ~~a~~facility that discharges the waste subject to this Order.

79. 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.

80. The City of Lathrop is the lead agency for purposes of implementing CEQA. The City has prepared a number of Environmental Impact Reports (EIRs) and addenda to EIRs for land development projects that include recycled water use within its jurisdiction that have been adopted in accordance with CEQA.

The Central Valley Water Board has considered the CEQA documents and has included requirements in this Order, including monitoring and reporting requirements to protect water quality and prevent nuisance. The proposed modifications to the CTF and recycled water disposal system expansion are consistent with the projects analyzed in the various CEQA documents. A list of CEQA documentation for each previously approved project that includes one or more Use Areas is included along with tables of existing and planned recycled water Use Area Parcel numbers in the Information Sheet. Compliance with this Order will mitigate or avoid significant impacts to water quality.

Future development projects involving recycled water Use Areas that are identified in this Order, but for which a CEQA environmental review has not yet been completed, are subject to CEQA review and Executive Officer approval prior to the first use of recycled water in any of those Use Areas. This includes future expansion of CTF capacity above 1.0 mgd. In all cases, compliance with this Order will mitigate or avoid significant impacts to water quality.

81. A Notice of Determination was issued on 7 July 2015 for the City of Lathrop Crossroads Decommissioning Project. The project involves decommissioning the Crossroads Wastewater Treatment Facility (WWTF) and rerouting all wastewater to the City's Consolidated Treatment Facility (CTF). The combined wastewater will be discharged to existing storage ponds, land application areas, or approved percolation ponds associated with the Crossroads WWTF and the CTF.

82. 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.

83. 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.

84. 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

85. 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.

86. 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.

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

IT IS HEREBY ORDERED that Order R5-2015-0006 and Order 5-01-251 are rescinded and, pursuant to Water Code sections 13263 and 13267, 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 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*. Temporary diversion of wastewater to emergency storage Pond S4 does not constitute a bypass provided that the wastewater is rerouted to the treatment system as soon as practical.

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. Effective immediately, influent flows to the CTF shall not exceed the following limits:

Influent Flow Measurement	Flow Limit
Total Annual Flow [1]	276 mgal
Average Dry Weather Flow [2]	0.75 mgd

[1] As determined by the total flow for the calendar year.
[2] As determined by the total flow for the months of July through September, inclusive divided by the number of days in those months.

[Footnote to be added saying that Completion Report and Recycled Water User Report for expansion from 0.75 mgd to 1 mgd were submitted on February 7, 2018, and are currently under review.]

2. **Effective on the date of the Executive Officer's approval** of each succ*CTF Expansion Completion Report* submitted pursuant to Provision H.1.h, flow limits greater than 0.75 mgd average dry weather flow and 276 mgal total annual flow will be allowed. Approval is subject to the following conditions:

   a. The maximum allowable dry weather flow rate is 6.0 mgd.

   b. Any expansion beyond 1.0 mgd average dry weather flow requires documentation of compliance with CEQA as appropriate.

   c. Capacity expansion requests shall be made in increments ~~of 0.25 mgd increments or greater~~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.

      ~~i.~~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.

~~c.~~d. The Discharger shall demonstrate through a water balance capacity analysis that sufficient effluent storage and disposal capacity is available at the proposed flow limit to ensure compliance with this Order.

C. Effluent Limitations and Mass Loading Limitations

1. **Effective immediately**, treated effluent discharged to the recycled water storage ponds shall not exceed the following limits:

Constituent	Limit	Basis of Compliance Determination
BOD_5 [1]	10 mg/L	Monthly average
Total dissolved solids	950 mg/L	Flow-weighted annual average
Total nitrogen	10 mg/L	Flow-weighted annual average

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

2. The turbidity of the filtered effluent prior to disinfection shall not exceed ~~2.0 NTU as a daily average; shall not exceed 5 NTU more than 5 percent of the time during a 24 hour period; and shall never exceed 10 NTU.~~ any of the following:

   a. 0.2 NTU more than 5 percent of the time within a 24-hour period; and

   ~~2.~~b. 0.5 NTU at any time.

3. Prior to discharge to the recycled water storage ponds, disinfected tertiary effluent shall not exceed the following limits for total coliform organisms:

   a. The 7-day median concentration of total coliform bacteria measured in the disinfected effluent shall not exceed a most probable number (MPN) of 2.2 per 100 milliliters. Compliance with this requirement will be determined using the median result of the seven most recent sampling events.

   b. The number of total coliform bacteria shall not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period.

   c. The number of total coliform bacteria shall not exceed an MPN of 240 per 100 milliliters at any time.

   Compliance with this requirement shall be determined based on samples obtained at the sampling locations listed in the Monitoring and Reporting Program and shown on Attachment E.

4. The total nitrogen mass loading to the agricultural Use Areas shall not exceed the agronomic rate for the crop grown. Compliance with this requirement shall be determined using published nitrogen uptake rates for the vegetation/crops grown as specified in the Monitoring and Reporting Program.

~~4.~~5. 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.

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 except as specified in Water Recycling Specification F.5.

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

5. All 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 CTF shall be prevented through such means as fences, signs, or acceptable alternatives.

7. Objectionable odors shall not be perceivable beyond the limits of the CTF 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 sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling 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.

E. Groundwater Limitations

Release of waste constituents from any portion of the CTF shall not cause groundwater to:

1. Contain any of the specified constituents in a concentration statistically greater than the maximum allowable concentration tabulated below. The wells to which these requirements apply are specified in the Monitoring and Reporting Program.

Constituent	Use Area Location	Maximum Allowable Concentration
TDS	Mossdale, River Island	Current Groundwater Quality [1]
TDS	CLSP	1,000 mg/L
TDS	LAS-2, LAS-3	Current Groundwater Quality [1]
Nitrate as N	Mossdale, River Island, LAS-2	10 mg/L
Nitrate as N	CLSP [2]	10 mg/L, Current Groundwater Quality [1]
Nitrate as N	Northern Lathrop, LAS-3	Current Groundwater Quality [1]
Boron	LAS-3	Current Groundwater Quality [1]
Sulfate	LAS-3	Current Groundwater Quality [1]
Manganese	LAS-3	Current Groundwater Quality [1]

[1] "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 wells listed in the Monitoring and Reporting Program~~. was defined in the Revised Groundwater Limitations Compliance Assessment Report submitted in August 2016.

[2] Nitrate as N concentrations are spatially variable within the CLSP area. The compliance wells to which the maximum allowable concentration applies to are specified in the Monitoring and Reporting Program.

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

3. Except as specified in E.1 above, contain constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22 of the California Code of Regulations.

4. Except as specified in E.1 above, contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

Compliance with these limitations shall be determined as specified in the Monitoring and Reporting Program using approved statistical methods.

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.

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 tertiary 2.2 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(a), 60304(b), 60304(c), and 60304(d).

5. Tailwater runoff and spray of recycled water shall not be discharged outside of the Use Areas except in minor, incidental amounts that cannot reasonably be eliminated by implementation and good maintenance of best management practices.

6. Application rates of recycled water to the Use Area shall be reasonable and shall consider soil, climate, and plant demand. In addition, application of recycled water and use of fertilizers shall be at a rate that takes into consideration nutrient levels in recycled water and nutrient demand by plants. As a means of discerning compliance with this requirement:

    a. Crops or landscape vegetation shall be grown on the Use Areas, and cropping activities shall be sufficient to take up the nitrogen applied, including any fertilizers and manure.

    b. Hydraulic loading of recycled water and supplemental irrigation water (if any) shall be managed to:

        i. Provide water only when water is needed and in amounts consistent with that need;

        ii. Maximize crop nutrient uptake;

        iii. Maximize breakdown of organic waste constituents in the root zone; and

        iv. Minimize the percolation of waste constituents below the root zone.

    The Central Valley Water Board recognizes that some leaching of salts is necessary to manage salt in the root zone of crops for production. Leaching shall be managed to minimize degradation of groundwater, maintain compliance with the groundwater limitations of this Order, and prevent pollution.

7. 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 temporarily stop recycled water use immediately and implement corrective actions to ensure compliance with this Order.

8. Use Areas where public access is allowed shall be managed to avoid public contact with recycled water.

9. Discharge to the Use Areas shall not be performed during rainfall or when the ground is saturated.

10. Discharge of storm water runoff from the Use Areas to off-site land or surface water drainage courses is allowed if the Discharger complies with Water Recycling Specification F.9 above.

11. The irrigation with recycled water shall be managed to minimize erosion within the Use Areas.

12. The Use Areas shall be managed to prevent breeding of mosquitoes or other vectors.

13. 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)**	**Title 22 Reference Section**
Edge of agricultural Use Area to manmade or natural surface water drainage course (does not apply to public landscaped Use Area)	25	Tertiary-2.2
Edge of Use Area to domestic water supply well	50 [1]	Tertiary-2.2 [ref: 22 CCR Section 60310(a)]
Toe of recycled water impoundment berm to domestic water supply well	100	Secondary-2.2 and Secondary-23 [ref: 22 CCR Section 60310(c)]
Edge of Use Area to residence	none	Tertiary-2.2 [ref: 22 CCR Section 60310(f)]
Edge of Use Area using spray irrigation to public park, playground, school yard, or similar place of potential public exposure	none	Tertiary-2.2 [ref: 22 CCR Section 60310(f)]

[1] Except as allowed pursuant to Water Recycling Specification F.14 below.

14. Irrigation with disinfected tertiary recycled water shall not take place within 50 feet of any domestic water supply well unless all of the following conditions have been met and DDW has approved a variance pursuant to Title 22, section 60310(a):

    a. A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from the ground and the surface.

    b. The well contains an annular seal that extends from the surface into the aquitard.

    c. The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities.

d. The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well.

e. The owner of the well approves of the elimination of the buffer zone requirement.

15. Spray irrigation with recycled water is prohibited when wind speed (including gusts) exceeds 30 mph.

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

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

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

19. 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 around the perimeter of all Use Areas 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 J, which is attached and forms part of this Order, and shall include the following wording:

"RECYCLED WATER – DO NOT DRINK"
"AGUA DE DESPERDICIO RECLAMADA – NO TOME"

Alternative language will be considered by the Executive Officer if approved by DDW.

20. 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.

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

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

23. 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.

24. 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.

25. 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.

26. 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).

27. 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.

28. 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 CTF. 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 CTF 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, CTF, 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

Propose removing a, b, c, and d, since they have already been submitted?

1. The following reports shall be submitted pursuant to Water and shall be prepared as described in Provision H.3:

   a. **By 1 July 2016**, the Discharger shall submit documentation from the State Water Resources Control Board Division of Drinking Water regarding conditional approval under the alternative criteria for disinfected tertiary recycled water as defined by California Code of Regulations, title 22 (Title 22) section 60301.230(a)(2).

   b. **By 1 August 2016**, the Discharger shall submit a *Revised Groundwater Limitations Compliance Assessment Plan*. The plan shall describe and justify the statistical methods that are proposed to determine compliance with the Groundwater Limitations of this Order for any compliance well listed in the Monitoring and Reporting Program. As described in the MRP, Compliance shall be determined annually based on intra-well statistical analysis that evaluates temporal trends based on all historic data collected at each well that uses methods prescribed in Title 27, section 20415(e)(7) and (8).

   c. **By 1 December 2016**, a *Well Destruction Report* shall be submitted to the Central Valley Water Board that describes in detail the methods used to abandon monitoring wells CLSP-2, CLSP-4, CLSP-10, and MWR-6 in accordance with the approved *Groundwater Monitoring Well Condition Survey Report and Destruction Plan* and includes copies of the well abandonment permits issued by the San Joaquin County Environmental Health Department.

d. **By 1 October 2017,** the Discharger shall submit a report that certifies completion of the pond sludge removal from Effluent Storage Ponds A, B, and C. The report shall describe the sludge removal and sludge drying operations, provide the total volume of sludge removed and sludge disposal location, and certify that the ponds are fully functional and ready to receive treated wastewater. The report shall include a description of the liner condition after sludge removal including visual inspection of any material damage such as holes or tears, and any repairs and or testing performed prior to pond use**.**

e. **At least 60 days** prior to operational use of any expansion of the recycled water system, including but not limited to new recycled water storage ponds, recycled water distribution system, and recycled water infrastructure improvements to deliver recycled water to new or expanded Use Areas, whether defined as "planned", "future" or undefined in this Order, the Discharger shall submit a *Recycled Water Storage and Conveyance System Improvements Completion Report.* The report shall document the construction of the improvements and certify that they are fully functional and ready to receive treated wastewater in compliance with the requirements of this Order. The report shall include design parameters, final dimensions and volumetric capacity (for ponds), and as-built drawings.

   For each recycled water storage pond or Use Area not defined as "existing" or "planned" in the Findings and Information Sheet of this Order, the report shall include a copy of the certified CEQA document for the expansion project.

f. **At least 60 days prior** to conveying recycled water to any new Use Area, whether defined as "planned", "future" or undefined in this Order, the Discharger shall submit a *Recycled Water User Report* to the Central Valley Water Board and Division of Drinking Water. The report shall include the following:

   i. The site location including a map showing the specific boundaries of the use site and the County Assessor's Parcel Number(s) (if appropriate, if Parcel Number(s) are not appropriate to accurately describe the site location, the Discharger shall provide the Central Valley Water Board with enough information for the Central Valley Water Board to accurately determine the location of the proposed reclamation activities);

   ii. The name of the Use Area property owner and contact information;

   iii. The name of the User and contact information;

   iv. The specific use to be made of the recycled water, the Use Area acreage, the type of vegetation/crops to which the recycled water will be applied, and the anticipated volume of recycled water to be used;

v. Identification of the on-site supervisor who is responsible for operation of the recycled water system;

vi. Description of the recycled water management facilities and operations plan;

vii. Plans and specifications that include the following:

1) Pipe locations of the recycled, potable, and auxiliary non-potable water systems;

2) Type and location of the outlets and plumbing fixtures that will be accessible to the public;

3) The methods and devices to be used to prevent backflow of recycled water into the public water system; and

4) Plan notes relating to recycled water specific installation and use requirements.

viii. Certification that the new Use Area conforms to the Discharger's rules and regulations;

ix. An assessment of whether groundwater monitoring is appropriate based on pre-discharge groundwater quality; the size of the proposed recycled water Use Area, and volume of recycled water to be received by the Use Area annually. For each new Use Area in the Northern Lathrop or CLSP development areas, the report shall also include a re-evaluation of pre-discharge groundwater conditions based on at least three quarterly groundwater monitoring events using the monitoring wells identified in the MRP, or other locations approved by the Central Valley Water Board. Parameters monitored shall be as specified in the MRP;

x. A copy of the signed User Agreement; and

if applicable

xi. The results of the cross-connection control test performed in accordance with the American Water Works Association and the Drinking Water Program (Title 17, section 7605). The results shall include a certification that the Drinking Water Program was notified of the initial cross-connection control test and was provided an opportunity to be present.

A copy of the User agreement and the Discharger's rules and regulations governing the distribution and use of recycled water shall be maintained at the User's facilities and be available at all times for inspection by Regional Water Board staff, the Discharger, and Division of Drinking Water staff.

If, in the opinion of the Executive Officer, reclamation at a proposed new Use Area cannot be adequately regulated under the Master Recycling Permit, a

Report of Waste Discharge may be requested and individual Water Recycling Requirements may be required.

g. **At least 180 days** prior to any planned increase in influent flow to the CTF, the Discharger shall submit a *CTF Expansion Final Design Report* that documents the design of facility improvements and provides technical justification for the proposed flow limit increases. Incremental flow rate increases associated with a treatment plant expansion 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. The report shall include a water balance that demonstrates the treatment, storage and disposal capacity of the CTF and completed recycled water Use Areas. The water balance shall provide the following treatment and hydraulic capacity information:

i. Design average dry weather flow for the months of July through September, inclusive;

ii. Design wet weather flows based on a reasonable allowance for sewer system inflow and infiltration (I/I) during the 100 year, 365-day precipitation event, and

iii. Total annual flow volume.

The water balance shall include documentation of, and technical support for, all data inputs used and shall consider at least the following.

i. The as-built geometry of all new recycled water ponds and Use Areas;

ii. A minimum of two feet of freeboard in each pond at all times;

iii. Historical local pan evaporation data (monthly average values) used to estimate pond evaporation rates;

iv. Local precipitation data (for the 100-year 365-day event distributed in accordance with mean monthly precipitation patterns) applied as direct precipitation onto all ponds and effluent recycling areas;

v. Proposed wastewater generation rates based on historical flows and new development to be served by the expansion distributed equally by month;

vi. Estimated I/I flows for the 100-year 365-day event based on historical flows, new development, and age and type of sewer pipes; and

vii. Use Area crop evapotranspiration rates, including consideration of the required setbacks.

For each CTF expansion with a proposed flow limit greater than 1.0 mgd, the report shall include a copy of the certified CEQA document for the CTF expansion project.

h. **At least 60 days** prior to any planned increase in influent flow to the CTF**,** the Discharger shall submit a *CTF Expansion Completion Report* that documents the completion of facility improvements described in the associated *CTF Expansion Final Design Report*. The report shall certify the construction of the facility as designed, or if modifications are made, provide an explanation of the reasons for the modifications. Any incremental flow increase will be granted upon Executive Officer's approval of the report.

i. **At least 60 days prior** to commencing irrigation with recycled water on any Use Area not identified as "existing" or "planned" in this Order, the Discharger shall submit documentation that the Division of Drinking Water has approved a Title 22 Engineering Report for the project and documentation of compliance with CEQA.

j. **At least 180 days** prior to initiation of recycled water use at Use Areas where existing monitoring wells listed as compliance wells for future use are proposed for abandonment, the Discharger shall submit a *Groundwater Monitoring Well Installation Workplan* that proposes replacement well(s) to ensure representative monitoring of the specified Use Area. The workplan shall be prepared in accordance with, and include the items listed in, the first section of Attachment K: "Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports", which is attached hereto and made part of this Order by reference. The groundwater monitoring wells shall be designed to yield samples representative of the uppermost portion of the first aquifer underlying the recycled water Use Areas.

k. **At least 30 days prior** to the first sampling event for any new monitoring wells at planned Use Areas, the Discharger shall submit a *Groundwater Monitoring Well Installation Report* for any new groundwater monitoring wells constructed to comply with Provision H.1.j. The report shall be prepared in accordance with, and including the items listed in, the second section of Attachment K: "Monitoring Well Workplan and Monitoring Well Installation Report Guidance", which is attached hereto and made part of this Order by reference. The report shall describe the installation and development of all new monitoring wells at planned Use Areas, explain any deviation from the approved workplan, and include a map with the new well locations.

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 three previous 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**.

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 workplans 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.

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5. The Discharger shall comply with Monitoring and Reporting Program R5-2016-0028-01, 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 CTF, 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 and amended on DATE.

PAMELA C. CREEDON, Executive Officer

Amended by Order R5-xxxx-xxxx
LLA: ~~032916~~1117~~7~~011718

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 areas[1], 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
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.
~~6~~8 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

[Changes in the groundwater monitoring tables made to reflect recent changes:
1. City obtained access to MWM-8.
2. MWR-6 through MWR-8 abandoned, as approved by Regional Board.
3. CLSP-2, CLSP-4, and CLSP-10 abandoned and replaced by MWM-19, CLSP-11, and CLSP-12 as approved by Regional Board.]

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 mo~~nitoring 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	---	[CLSP-1 is not a current compliance well, because no there are no CLSP use areas currently. Also note CLSP shown as "Future" on Page 8]	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]~~

MWM-19, CLSP-11, CLSP-12

MWM-19, CLSP-11, CLSP-12

[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 Frequency [3]
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] CLSP-12	
	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]

CLSP-11, MWM-19

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~~ Revised Groundwater Limitations Compliance Assessment Plan submitted August 1, 2016.

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: 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.;

~~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:

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

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:

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

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: ~~031616~~011718

Table 1 Priority Pollutant Scan

Inorganics [1]	***Organics***	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	
Asbestos	1,3-Dichloropropylene	Bis(2-Ethylhexyl)phthalate	***Pesticides***
	Ethylbenzene	4-Bromophenyl phenyl ether	Aldrin
	Methyl Bromide	Butylbenzyl Phthalate	alpha-BHC
Dioxin Congeners	Methyl Chloride	2-Chloronaphthalene	beta-BHC
2,3,7,8-TCDD	Methylene Chloride	4-Chlorophenyl Phenyl Ether	gamma-BHC (Lindane)
1,2,3,7,8-PentaCDD	1,1,2,2-Tetrachloroethane	Chrysene	delta-BHC
1,2,3,4,7,8-HexaCDD	Tetrachloroethylene (PCE)	Dibenzo(a,h)Anthracene	Chlordane
1,2,3,6,7,8-HexaCDD	Toluene	1,2-Dichlorobenzene	4,4'-DDT
1,2,3,7,8,9-HexaCDD	1,2-Trans-Dichloroethylene	1,3-Dichlorobenzene	4,4'-DDE
1,2,3,4,6,7,8-HeptaCDD	1,1,1-Trichloroethane	1,4-Dichlorobenzene	4,4'-DDD
OctaCDD	1,1,2-Trichloroethane	3,3'-Dichlorobenzidine	Dieldrin
1,2,3,7,8-PentaCDF	Trichloroethylene (TCE)	Diethyl phthalate	alpha-Endosulfan
2,3,4,7,8-PentaCDF	Vinyl chloride	Dimethyl phthalate	beta-Endosulfan
1,2,3,4,7,8-HexaCDF	2-Chlorophenol	Di-n-Butyl Phthalate	Endosulfan Sulfate
1,2,3,6,7,8-HexaCDF	2,4-Dichlorophenol	2,4-Dinitrotoluene	Endrin
1,2,3,7,8,9-HexaCDF	2,4-Dimethylphenol	2,6-Dinitrotoluene	Endrin Aldehyde
2,3,4,6,7,8-HexaCDF	2-Methyl-4,6-Dinitrophenol	Di-n-Octyl Phthalate	Heptachlor
1,2,3,4,6,7,8-HeptaCDF	2,4-Dinitrophenol	1,2-Diphenylhydrazine	Heptachlor epoxide
1,2,3,4,7,8,9-HeptaCDF	2-Nitrophenol	Fluoranthene	Polychlorinated biphenyls
OctaCDF	4-Nitrophenol	Fluorene	Toxaphene

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

INFORMATION SHEET

ORDER R5-2016-0028-01
CITY OF LATHROP
LATHROP CONSOLIDATED TREATMENT FACILITY
SAN JOAQUIN COUNTY

Current Facility Description

As of June 2015, the City currently operates two adjacent wastewater treatment facilities under separate WDRs: Consolidated Treatment Facility (CTF) regulated under Order R5-2015-0006 and Crossroads Wastewater Treatment Facility (WWTF) regulated under Order 5-01-251. The CTF receives primarily domestic wastewater from a large portion of the City. The Crossroads WWTF receives high strength process wastewater from the Crossroads Industrial Park. The City currently diverts all wastewater from the Crossroads Industrial Park to the CTF and is in the process of decommissioning the Crossroads WWTF.

Communities serviced by the CTF includes Central Lathrop Specific Plan (CLSP), Mossdale Landing (Mossdale), and River Islands. The CTF provides secondary treatment, tertiary filtration, and disinfection prior to storage and discharge. The CTF currently has two Membrane Bioreactor (MBR) treatment trains for a combined treatment capacity of 1.0 million gallons per day (mgd) as an average dry weather flow (ADWF). Disinfected effluent is stored in lined storage ponds prior to discharge as recycled water for irrigation of agricultural and public landscape areas in the developments areas within the City of Lathrop.

Proposed Changes to the Facility and Discharge

With the closure of the Crossroads WWTF, the following Crossroads WWTF components will be retained and incorporated in the CTF: influent pump station, piping and associated motor control centers; former chlorine contact basin; recycled water pump station; effluent storage ponds A, B, and C; land application area site LAS-3; sludge handling facility; generator building; and maintenance garage.

LAS-1 and LAS-2 at the Crossroads WWTF have been sold and wells KMW-1 and KMW-3, that monitored groundwater near the two land application sites, have been abandoned. Based on elevated groundwater salinity concentrations near LAS-2, the City was required to investigate and mitigate any impacts from its wastewater disposal operations. Replacement wells KMW-10 and KMW-11 were installed along the western edge of LAS-2 to monitor the effectiveness of the City's corrective action plan regarding the salinity impacts from past application of Crossroads WWTF effluent.

The City has submitted the *Expansion Completion Report* dated 25 August 2015 confirming the completion of the 1.0 mgd facility expansion project. However, the City has not submitted the *Recycled Water Storage and Conveyance System Improvements Completion Report* and the *Recycled Water User Report* as required by Provisions H.1.e and H.1.f. of Order R5-2015-0006 to confirm the available storage and disposal capacity needed for the plant expansion to 1.0 mgd. The City anticipates the next CTF expansion to increase

2.5

Spring

capacity from 1.0 to ~~1.5~~ mgd with an expected completion date by ~~the end of March~~ 2018. Additional recycled water storage capacity and Use Areas will be added as needed.

Effluent Storage Ponds

The City currently uses five high-density polyethylene (HDPE)-lined effluent storage ponds (S1, S2, S3, S5, and S6) and a sixth pond (S16) is currently in construction. Table 1 provides a summary of existing and planned effluent storage ponds. A list of corresponding CEQA documentation with respect to each pond location is cross-referenced below the table.

Table 1: Existing and Planned Effluent Storage Ponds

Site ID	APN	Development Area	Parcel Area (acres)	Capacity (mgal) [1]	Use Status	Project Level CEQA Completed [4]
S1	191-190-32	Mossdale	13.26	41	Existing	a, b
S2	191-190-33	Mossdale	6.89	15	Existing	a, b
S3	198-130-35	Mossdale South	9.91	21	Existing	c
S5	198-130-47	East Lathrop	9.96	28	Existing	a
	198-130-48	East Lathrop	0.59		Existing	a
S6	198-060-16	East Lathrop	5.61	34	Existing	e
	198-060-17		6.06		Existing	e
S7	198-040-14	East Lathrop	18.15	57	Planned	f
S8	241-020-70	East Lathrop	60.59	182	Planned	d
S9	241-030-13	East Lathrop	159.92	457	Planned	d
S11	213-300-07	River Islands	72.5	102	Planned	h, j
	213-300-08		86.83		Planned	h, j
S12	213-300-07	River Islands	72.5	97	Planned	h, j
	213-300-08		86.83		Planned	h, j
S13	213-210-06	River Islands	290.81	116	Planned	a
S14	213-22-001	River Islands	96.16	90	Planned	h
S15	198-120-08	East Lathrop	116.99	135	Planned	a, f
	198-120-09		48.64		Planned	a, f
	198-140-16		19.96		Planned	a, f
S16	213-290-02	River Islands	121.88	~~78~~ 101 [3]	Near Term	a, h, k
S17				61	Planned	a, h, k
S18				71	Planned	a, h, k
S19	239-040-04	River Islands	142.25	55	Planned	f, h
S20				66	Planned	f, h
S21				67	Planned	f, h
S22				71	Planned	f, h
S23				74	Planned	f, h

Table 1: Existing and Planned Effluent Storage Ponds

Site ID	APN	Development Area	Parcel Area (acres)	Capacity (mgal) [1]	Use Status	Project Level CEQA Completed [4]
S24	239-040-07	River Islands	137	65	Planned	f, h
S25				56	Planned	f, h
S26				63	Planned	f, h
S27				58	Planned	f, h
S28	191-220-14	CLSP	89.82	25	Planned	i
S29				95	Planned	i
S30	191-270-05	Northern Lathrop	20	172	Planned	g
	191-270-04		7.6		Planned	g
	191-260-22		31.4		Planned	g
Pond A, B, and C	198-130-19	Crossroads WWTF	9.8	32	Near Term	l
	198-130-20					
LAS-3	198-13-032	Crossroads WWTF	19.5	Unknown [2]	Near Term	l

[1] Assuming two feet of freeboard.

[2] Currently a land application area to be developed into percolation pond(s) for future disposal capacity.

[3] ~~Pond S16 will be constructed in two phases. The initial phase will provide approximately 55 mgal of storage. The second phase will construct an additional 23 mgal~~.

[4] Corresponding environmental documentation:

a. City of Lathrop. 2002. Draft Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. December 31. Prepared by EDAW. AND City of Lathrop. 2003. Final Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. February 28. Prepared by EDAW.

b. City of Lathrop. 2002. Draft Environmental Impact Report for the Mossdale Landing Urban Design Concept. SCH# 2001052059. 2002. Volume I: DEIR. August 29. Prepared by EDAW. AND City of Lathrop. Draft Environmental Impact Report for the Mossdale Landing Urban Design Concept. SCH# 2001052059. 2003. Volume I: DEIR. January. Prepared by EDAW.

c. City of Lathrop. 2003. Public Review Draft Supplemental Environmental Impact Report for Mossdale Landing East. December 6. Prepared by InSite Environmental, Inc. AND City of Lathrop. 2004. Public Review Draft Supplemental Environmental Impact Report for Mossdale Landing East. January 30. Prepared by InSite Environmental, Inc.

d. City of Lathrop. 2004. Draft Environmental impact Report for the CLSP (CLSP). SCH# 2003072132. July. Prepared by EDAW. and City of Lathrop. 2004. Final Environmental impact Report for the CLSP (CLSP). SCH# 2003072132. October. Prepared by EDAW.

e. City of Lathrop. 2004. Addendum the Environmental Impact Report for the City of Lathrop Wastewater Recycling Plant No. 1 (SCH#2001122108) relative to the Nurisso Road Recycled Water Storage Ponds. November 17. Prepared by InSite Environmental, Inc.

f. City of Lathrop. 2005. Addendum to the City of Lathrop Water, Wastewater, and Recycled Water Master Plan Environmental Impact Report. December 14. Prepared by EDAW.

g. City of Lathrop. 2006. Addendum the Environmental Impact Report for the City of Lathrop Wastewater Recycling Plant No. 1 (SCH#2001122108) relative to the Frewert Road Recycled Water Storage Pond. May 5. Prepared by InSite Environmental. Prepared by InSite Environmental, Inc.

h. City of Lathrop. 2002. Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project. Volume 1a. (SCH#1993112027). October 16. AND Prepared by EDAW. AND City of Lathrop. 2003. Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project. Volume 1a. #1993112027). January 22. Prepared by EDAW

i. City of Lathrop. 2014. CLSP Environmental Impact Report Addendum II (SCH#2003072132). March. Prepared by Ascent.

j. City of Lathrop. Initial Study for River Islands Disposal Fields Expansion. 2004. November. Prepared by the City of Lathrop Public Works Department.

k. City of Lathrop. 2014. River Islands at Lathrop Project Subsequent Environmental Impact Report Addendum IV. SCH#1993112027. Prepared by Ascent.

l. City of Lathrop. 7 July 2015, Notice of Determination for the City of Lathrop Crossroads Decommissioning Project.

The Discharger currently uses recycled water for agricultural irrigation in Mossdale and River Islands. The Discharger plans to expand using recycled water for agricultural irrigation in River Islands, CLSP, and the North Lathrop areas. Table 2 provides a summary of existing and planned agricultural irrigation Use Areas. A list of corresponding CEQA documentation with respect to each agricultural irrigation Use Area is cross-referenced below the table.

Table 2: Existing and Planned Agricultural Irrigation Use Areas

Site ID	APN	Development Area	Parcel Area (acres)	Irrigated Area (acres)	Phase	Project Level CEQA Completed [1]
A 01	191-280-10	Northern Lathrop	49.49	42.1	Planned	d
A 02	191-280-09	Northern Lathrop	101.2	86.0	Planned	d
A 03	191-270-33	Northern Lathrop	58.56	49.8	Planned	d
	191-270-32	Northern Lathrop	8.2			d
A 04	191-260-25	Northern Lathrop	18.09	15.4	Planned	f
A 05	191-260-13	Northern Lathrop	19.52	16.6	Planned	f
A 06	191-250-03	Northern Lathrop	8.83	7.5	Planned	f
A 07	191-250-12	Northern Lathrop	9.48	8.1	Planned	f
A 08	191-250-06	Northern Lathrop	10.3	8.8	Planned	f
A 09	191-270-24	Northern Lathrop	95.18	80.9	Planned	d
	191-270-25	Northern Lathrop	3.26			d
A 10	191-260-27	Northern Lathrop	154.77	131.6	Planned	d
	191-270-26	Northern Lathrop	4.82			d
A 11	191-230-01	Northern Lathrop	40	34.0	Planned	d
A 12	191-230-02	Northern Lathrop	29.33	24.9	Planned	d
A 13	191-270-21	Northern Lathrop	95.54	81.2	Planned	f
A 17	191-260-21	Northern Lathrop	20	17.0	Planned	f

Table 2: Existing and Planned Agricultural Irrigation Use Areas						
Site ID	**APN**	**Development Area**	**Parcel Area (acres)**	**Irrigated Area (acres)**	**Phase**	**Project Level CEQA Completed [1]**
A 18	191-260-28	Northern Lathrop	22.89	19.46	Planned	f
	191-260-29	Northern Lathrop	13.14			f
A 19	191-260-23	Northern Lathrop	12.75	10.8	Planned	f
A 20	191-220-04	CLSP	99.1	84.2	Planned	d
A 21	191-220-05	CLSP	313.88	266.8	Planned	d
A 23	191-190-49	Mossdale	12.4	10.5	Existing	a, h
A 28	213-300-09	River Islands	33.71	28.7	Existing	a, j
A 29	213-130-05	River Islands	231.4	444.2	Planned	a
	213-130-06	River Islands	74.7			a
	213-130-07	River Islands	12.5			a
	213-200-01	River Islands	153			a
	213-200-02	River Islands	229.42			a
A 30	213-210-06	River Islands	294.72	250.5	Existing	a, h
A 31	213-110-03	River Islands	151	128.4	Existing	a, f
A 32	213-110-02	River Islands	178.12	151.4	Planned	h
A 33	213-110-01	River Islands	221.21	188.0	Planned	h
A 34	213-210-06	River Islands	294.72	250.5	Planned	a, h
A 35	213-290-02	River Islands	25.44	~~21.6~~222	Near Term	h, k
~~A35a~~	~~213-290-02~~	~~River Islands~~	~~121.8~~	~~25.5~~24	~~Near Term~~	~~h, k~~
A35b	213-290-02	River Islands	121.8	~~22.1~~15	Near Term	h, k
A35c	213-290-02	River Islands	121.8	15	Near Term	h, k
A 36	191-220-10	CLSP	5.15	34.5	Planned	i
	191-220-11		10.43			i
	191-220-12		0.96			i
	191-220-13		16.38			i
	191-220-37		7.72			i
A 37	191-220-15	CLSP	19.48	125.5	Planned	i
	191-220-17		9.80			i
	191-220-35		8.96			i
	191-220-18		19.61			i
	191-22014		89.82			i
A 38	191-220-44	CLSP	1.74	2.6	Planned	i
	191-220-45		1.26			i

[No longer planned]

[1] Corresponding environmental documentation:

a. City of Lathrop. 2002. Draft Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. December 31. Prepared by EDAW. AND City of Lathrop. 2003. Final Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. February 28. Prepared by EDAW.

b. City of Lathrop. 2002. Draft Environmental Impact Report for the Mossdale Landing Urban Design Concept. SCH# 2001052059. 2002. Volume I: DEIR. August 29. Prepared by EDAW. AND City of Lathrop. Draft Environmental Impact Report for the Mossdale Landing

Urban Design Concept. SCH# 2001052059. 2003. Volume I: DEIR. January. Prepared by EDAW.

c. City of Lathrop. 2003. Public Review Draft Supplemental Environmental Impact Report for Mossdale Landing East. December 6. Prepared by InSite Environmental, Inc. AND City of Lathrop. 2004. Public Review Draft Supplemental Environmental Impact Report for Mossdale Landing East. January 30. Prepared by InSite Environmental, Inc.

d. City of Lathrop. 2004. Draft Environmental impact Report for the CLSP (CLSP). SCH# 2003072132. July. Prepared by EDAW. AND City of Lathrop. 2004. Final Environmental impact Report for the CLSP (CLSP). SCH# 2003072132. October. Prepared by EDAW.

e. City of Lathrop. 2004. Addendum the Environmental Impact Report for the City of Lathrop Wastewater Recycling Plant No. 1 (SCH#2001122108) relative to the Nurisso Road Recycled Water Storage Ponds. November 17. Prepared by InSite Environmental, Inc.

f. City of Lathrop. 2005. Addendum to the City of Lathrop Water, Wastewater, and Recycled Water Master Plan Environmental Impact Report. December 14. Prepared by EDAW.

g. City of Lathrop. 2006. Addendum the Environmental Impact Report for the City of Lathrop Wastewater Recycling Plant No. 1 (SCH#2001122108) relative to the Frewert Road Recycled Water Storage Pond. May 5. Prepared by InSite Environmental. Prepared by InSite Environmental, Inc.

h. City of Lathrop. 2002. Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project. Volume 1a. (SCH#1993112027). October 16. AND Prepared by EDAW. AND City of Lathrop. 2003. Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project. Volume 1a. #1993112027). January 22. Prepared by EDAW

i. City of Lathrop. 2014. CLSP Environmental Impact Report Addendum II (SCH#2003072132). March. Prepared by Ascent.

j. City of Lathrop. Initial Study for River Islands Disposal Fields Expansion. 2004. November. Prepared by the City of Lathrop Public Works Department.

k. City of Lathrop. 2014. River Islands at Lathrop Project Subsequent Environmental Impact Report Addendum IV. SCH#1993112027. Prepared by Ascent.

The Discharger plans to use recycled water for landscape irrigation in the Mossdale, River Islands, and CLSP residential areas. Table 3 provides a summary of existing and planned agricultural irrigation Use Areas. A list of corresponding CEQA documentation with respect to each agricultural irrigation Use Area is cross-referenced below the table.

Table 3: Existing and Planned Landscape Irrigation Use Areas

Site ID	APN(s)	Acres	Land Development Area	Land Use	Phase	Project Level CEQA Completed [1]
L01	191-220-35; 191-220-17	3.38	CLSP [2]	Park	Planned	a, d
L02	191-22015	7.80	CLSP [2]	K-8(2)	Planned	d
L03	191-22017	3.38	CLSP [2]	Park	Planned	d
L04	191-21032	11.10	CLSP	Park	Planned	d
L05	191-21032; 191-210-07; 191-210-33; 191-210-07; 191-210-33; 191-210-23; 191-210-17	3.38	CLSP	Park	Planned	d
	191-210-05	3.75	CLSP	Park	Planned	d
L07	191-210-23	3.75	CLSP	Park	Planned	d
L08	191-210-32	3.36	Mossdale	Park	Planned	a, b, d
L09	Right of Way	0.05	Mossdale	Median	Planned	a, d
L10	Right of Way	0.21	CLSP	Parkway	Planned	a, b, d
L11	Right of Way	0.74	Mossdale	Parkway	Planned	b
L12	Right of Way	0.05	Mossdale	Median	Planned	b
L13	Right of Way	0.45	Mossdale	Parkway	Planned	c
L14	191-330-09	6.00	Mossdale	Park	Planned	a, b
L15	Right of Way	0.10	Mossdale	Parkway	Planned	b
L16	Right of Way	0.23	Mossdale	Parkway	Planned	b
L17	Right of Way	0.04	Mossdale	Median	Planned	b
L18	Right of Way	0.26	Mossdale	Parkway	Planned	b
L19	191-540-61	1.20	Mossdale	Park	Planned	b
L20	191-350-04	6.20	Mossdale	Park	Planned	a, b
L21	Right of Way	0.29	Mossdale	Parkway	Planned	b
L22	191-210-17	3.38	Mossdale	Park	Planned	b
L23	Right of Way	0.14	Mossdale	Parkway	Planned	b
L24	Right of Way	0.91	Mossdale	Parkway	Planned	b
L25	Right of Way	0.04	Mossdale	Median	Planned	b
L26	Right of Way	0.40	Mossdale	Median	Planned	b
L27	191-360-68	0.75	Mossdale	Park	Planned	b
L28	Right of Way	0.32	Mossdale	Parkway	Planned	b
L29	Right of Way	0.34	Mossdale	Parkway	Planned	b
L30	Right of Way	0.10	Mossdale	Median	Planned	b
L31	Right of Way	0.09	Mossdale	Median	Planned	b
L32	Right of Way	0.04	Mossdale	Median	Planned	b
L33	191-380-67	1.05	Mossdale	Park	Planned	b
L34	Right of Way	0.06	Mossdale	Median	Planned	a
L35	Right of Way	0.10	Mossdale	Median	Planned	b
L36	Right of Way	0.10	Mossdale	Median	Planned	b
L37	Right of Way	0.03	Mossdale	Median	Planned	b
L38	Right of Way	0.09	Mossdale	Parkway	Planned	a
L39	Right of Way	0.37	Mossdale	Parkway	Planned	a
L40	Right of Way	0.28	Mossdale	Parkway	Planned	b
L41	Right of Way	0.18	Mossdale	Median	Planned	b
L42	Right of Way	0.31	Mossdale	Parkway	Planned	b
L43	191-190-32; 191-190-33	5.50	Mossdale	Pond Berm	Planned	a, b

Table 3: Existing and Planned Landscape Irrigation Use Areas

Site ID	APN(s)	Acres	Land Development Area	Land Use	Phase	Project Level CEQA Completed [1]
L44	Right of Way	2.30	Mossdale	Park/Median	Planned	a, b
L45	241-0020-52	2.10	Mossdale	Pond Berm	Planned	a, b
L46	198-060-16	3.00	Not Applicable [3]	Pond Berm	Planned	e
L47	213-300-06	0.30	River Islands	Median	Planned	h
L48	213-300-06	6.00	River Islands	Park	Planned	h
L49	213-300-06	1.60	River Islands	Park	Planned	h
L50	213-300-06	0.20	River Islands	Median	Planned	h
L51	213-300-06	0.40	River Islands	Park	Planned	h
L52	213-300-06	0.40	River Islands	Park	Planned	h
L53	213-300-06	15.00	River Islands	Park	Planned	h
L54	213-300-06; 213-310-10	0.20	River Islands	Median	Planned	h
L55	213-300-06	0.50	River Islands	Median	Planned	h
L56	213-300-06	0.10	River Islands	Median	Planned	h
L57	213-300-06	0.40	River Islands	Median	Planned	h
L58	213-300-06	0.40	River Islands	Median	Planned	h
L59	213-300-06	1.50	River Islands	Median	Planned	h
L60	213-300-06	2.70	River Islands	Park	Planned	h
L61	213-300-06	1.20	River Islands	Median	Planned	h
L62	213-300-06	1.10	River Islands	Median	Planned	h
L63	213-300-08; 213-300-09; 213-300-11; 213-300-07; 213-300-06; 213-310-10	2.10	River Islands	Park	Planned	h
L64	213-310-10	0.40	River Islands	Median	Planned	h
L65	213-310-10	1.90	River Islands	Park	Planned	h
L66	213-310-10	2.00	River Islands	Park	Planned	h
L67	213-310-10; 213-310-09	2.30	River Islands	Park	Planned	h
L68	213-310-10	0.40	River Islands	Median	Planned	h
L69	213-310-10	0.90	River Islands	Park	Planned	h
L70	213-310-10; 213-310-08	2.50	River Islands	Park	Planned	h
L71	213-310-09	0.40	River Islands	Median	Planned	h
L72	213-310-09; 213-310-08	2.30	River Islands	Park	Planned	h
L73	213-310-09	2.00	River Islands	Park	Planned	h
L74	213-310-08	6.00	River Islands	Park	Planned	h
L75	213-310-08; 213-310-10	0.10	River Islands	Median	Planned	h
L76	213-310-10	0.50	River Islands	Median	Planned	h
L77	213-220-02	2.80	River Islands	Park	Planned	h
L78	213-220-02; 213-310-08	0.50	River Islands	Median	Planned	h
L79	213-230-05	1.10	River Islands	Park	Planned	h
L80	213-230-05	0.80	River Islands	Median	Planned	h
L81	213-230-06	4.40	River Islands	Park	Planned	h
L82	213-230-01	34.00	River Islands	Park	Planned	h
L83	213-220-02	1.10	River Islands	Park	Planned	h
L84	213-310-08	2.20	River Islands	Park	Planned	h
L85	191-200-13; 191-210-05	0.94	CLSP	Median	Planned	d
L86	191-200-13; 191-210-05	1.37	CLSP	Parkway	Planned	d
L87	191-200-13; 191-210-05	2.50	CLSP	Open Space	Planned	d

Table 3: Existing and Planned Landscape Irrigation Use Areas						
Site ID	**APN(s)**	**Acres**	**Land Development Area**	**Land Use**	**Phase**	**Project Level CEQA Completed [1]**
L88	191-220-42	0.44	CLSP	Median	Planned	d
L89	191-220-42	0.64	CLSP	Parkway	Planned	d
L90	191-210-04; 191-220-42	0.41	CLSP	Median	Planned	d
L91	191-210-04; 191-220-42	0.96	CLSP	Parkway	Planned	d
L92	191-210-05	1.28	CLSP	Median	Planned	d
L93	191-210-05	1.82	CLSP	Parkway	Planned	d
L94	191-210-05	1.50	CLSP	Open Space	Planned	d
L95	191-210-05	0.13	CLSP	Median	Planned	d
L96	191-210-05	1.29	CLSP	Parkway	Planned	d
L97	191-210-05; 191-210-04	1.43	CLSP	Parkway	Planned	d
L98	191-200-13	1.11	CLSP	Parkway	Planned	d
L99	191-200-13	1.05	CLSP	Parkway	Planned	d
L100	191-210-05; 191-210-04	1.71	CLSP	Parkway	Planned	d

[1] Corresponding environmental documentation:

a. City of Lathrop. 2002. Draft Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. December 31. Prepared by EDAW. AND City of Lathrop. 2003. Final Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. February 28. Prepared by EDAW.

b. City of Lathrop. 2002. Draft Environmental Impact Report for the Mossdale Landing Urban Design Concept. SCH# 2001052059. 2002. Volume I: DEIR. August 29. Prepared by EDAW. AND City of Lathrop. Draft Environmental Impact Report for the Mossdale Landing Urban Design Concept. SCH# 2001052059. 2003. Volume I: DEIR. January. Prepared by EDAW.

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d. City of Lathrop. 2004. Draft Environmental impact Report for the CLSP (CLSP). SCH# 2003072132. July. Prepared by EDAW. AND City of Lathrop. 2004. Final Environmental impact Report for the CLSP (CLSP). SCH# 2003072132. October. Prepared by EDAW.

e. City of Lathrop. 2004. Addendum the Environmental Impact Report for the City of Lathrop Wastewater Recycling Plant No. 1 (SCH#2001122108) relative to the Nurisso Road Recycled Water Storage Ponds. November 17. Prepared by InSite Environmental, Inc.

f. City of Lathrop. 2005. Addendum to the City of Lathrop Water, Wastewater, and Recycled Water Master Plan Environmental Impact Report. December 14. Prepared by EDAW.

g. City of Lathrop. 2006. Addendum the Environmental Impact Report for the City of Lathrop Wastewater Recycling Plant No. 1 (SCH#2001122108) relative to the Frewert Road Recycled Water Storage Pond. May 5. Prepared by InSite Environmental. Prepared by InSite Environmental, Inc.

h. City of Lathrop. 2002. Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project. Volume 1a. (SCH#1993112027). October 16. AND Prepared by EDAW. AND City of Lathrop. 2003. Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project. Volume 1a. #1993112027). January 22. Prepared by EDAW.

i. City of Lathrop. 2014. CLSP Environmental Impact Report Addendum II (SCH#2003072132). March. Prepared by Ascent.

j. City of Lathrop. Initial Study for River Islands Disposal Fields Expansion. 2004. November. Prepared by the City of Lathrop Public Works Department.

k. City of Lathrop. 2014. River Islands at Lathrop Project Subsequent Environmental Impact Report Addendum IV. SCH#1993112027.Prepared by Ascent.

Because the proposed landscape Use Areas are typically small in application area, widely spaced, and typically receive small volumes of recycled water, the use of recycled water in these areas is unlikely to cause identifable groundwater degradation as compared to baseline conditions.

Site-Specific Conditions

The City of Lathrop's water supply comes from six deep municipal wells that extract groundwater from approximately 160 to 270 feet below ground surface (bgs) and is supplemented with surface water from the Woodward Reservoir, which is distributed by the South San Joaquin Irrigation District (SSJID).

Local topography at the CTF and existing and planned recycled water Use Areas is generally level and gently slopes toward the San Joaquin River and other tributaries. Ground surface elevation at the CTF is approximately 10 feet above mean sea level (MSL).

According to Federal Emergency Management Agency (FEMA) flood zone mapping, areas immediately east of the San Joaquin River (i.e., the CTF, Northern Lathrop, CLSP, and Mossdale) are in Flood Zone X, which is outside of the currently-defined 100-year flood zone. A developed portion of River Islands bordered by Stewart Road on the west and south and the San Joaquin River on the east is also identified as within Flood Zone X. These areas are protected from the 100-year flood by levees, dikes, or other structures that may be subject to possible failure or overtopping during larger flood events. The western half of River Islands is in Zone AE, which is within the 100-year floodplain.

The average annual precipitation and 100-year annual precipitation is approximately 13 and 22 inches, respectively. The average reference evapotranspiration (ETo) rate is approximately 52 inches per year. Surrounding land uses include agricultural, commercial, industrial, and residential developments.

Groundwater Conditions

Shallow groundwater in the Lathrop area occurs within the alluvial flood plain deposits at depths of less than15 feet bgs. Shallow groundwater depth and flow conditions can vary depending on location, season, land use, nearby pumping (i.e. construction dewatering,

agricultural irrigation, etc.), and the proximity and flow stage of nearby surface water bodies and recycled water Use Area. As a result, changes in agricultural land use, irrigation practices, and regional pumping have likely altered groundwater flow and the distribution of salinity resulting from on-site or regional agricultural practices.

former

There are currently over 70 existing shallow groundwater monitoring wells near the CTF, Northern Lathrop, CLSP, Mossdale, and River Islands recycled water Use Areas. There are five monitoring wells near recycled water storage Pond S6 on East Lathrop Road. There are a total of six monitoring wells near LAS-2 and LAS-3. The current monitoring well network was installed to monitor shallow groundwater conditions near existing and planned recycled water storage, Use Areas, or percolation ponds. A well inventory was performed in October 2015 to identify existing well conditions. Based on the *Groundwater Monitoring Well Condition Survey Report and Destruction Plan* dated 27 January 2016, several wells were identified as damaged, missing, or abandoned. A summary of the existing groundwater monitoring well network is provided in Table 4, however many of these wells will only be used for the collection periodic water level measurements.

Table 4: Groundwater Monitoring Well Details and Operational Status

Well Name	Date Drilled	Well Depth (ft bgs)	Diameter (inches)	Screened Interval (ft bgs)	Current Status [1]	Proposed Use / Action
Mossdale						
MWM-01	05/16/05	21.5	4	10-20	Existing	Monitoring
MWM-02	05/16/05	21	4	10-20	Existing	Monitoring
MWM-03	07/01/05	21	4	10-20	Existing	Monitoring
MWM-04	05/16/05	21	4	10-20	Existing	Monitoring
MWM-05	05/17/05	21	4	10-20	Existing	Monitoring
MWM-06	05/17/05	21	4	10-20	Existing	Monitoring
MWM-07	05/17/05	21	4	10-20	Existing	Monitoring
MWM-08	05/16/05	21	4	10-20	~~Inaccessible~~	~~Unknown~~
MWM-09	05/19/05	30	4	18-29	Existing	Monitoring
MWM-10	11/30/01	21.5	2	5-20	Abandoned	-
MWM-11	05/18/05	21	4	10-20	Existing	Monitoring
MWM-12	06/20/05	21	4	10-20	Existing	Monitoring
MWM-13	05/20/05	21	4	10-20	Existing	Monitoring
MWM-14	05/17/05	21	4	10-20	~~Existing~~	~~Abandon~~
MWM-15	05/16/05	21	4	10-20	Existing	Monitoring
MWM-16	05/17/05	21	4	10-20	~~Existing~~	~~Abandon~~
MWM-17	05/16/05	21	4	10-20	Existing	Monitoring
MWM-18	05/16/05	21	4	10-20	Abandoned	--
MWM-19	05/18/05	21	4	10-20	Existing	Monitoring
MWM-20	05/18/05	21	4	10-20	Existing	Monitoring

Existing

Abandoned

Monitoring

[Changes in the groundwater monitoring tables made to reflect recent changes:
1. City obtained access to MWM-8.
2. MWM-14, MWM-16, MWM-26, and MWR-6 through MWR-8 abandoned, as approved by Regional Board.
3. CLSP-2, CLSP-4, and CLSP-10 abandoned and replaced by MWM-19, CLSP-11, and CLSP-12 as approved by Regional Board.
4. Well depths changed at KMW-10 and KMW-11 due to grading activities associated with construction in the area.

Table 4: Groundwater Monitoring Well Details and Operational Status

Well Name	Date Drilled	Well Depth (ft bgs)	Diameter (inches)	Screened Interval (ft bgs)	Current Status [1]	Proposed Use / Action
MWM-21	05/18/05	21	4	10-20	Existing	Monitoring
MWM-22	01/17/01	20	2	--	Existing	Monitoring
MWM-23	07/01/05	21	4	10-20	Existing	Monitoring
MWM-24	05/16/05	21	4	10-20	Existing	Monitoring
MWM-25	05/19/05	21	4	10-20	Existing	Monitoring
MWM-26	05/18/05	21	4	10-20	~~Existing~~	~~Abandon~~
MWM-27	04/21/09	24	4	13-23	Existing	Monitoring
River Islands						
MWR-01	12/02/98	20	2	5-20	Abandoned	
MWR-02	12/02/98	20	2	5-20	Abandoned	--
MWR-03	12/09/98	20	2	5-20	Existing	Monitoring
MWR-04	12/09/98	20	2	5-20	Existing	Monitoring
MWR-05	12/02/98	20	2	5-20	~~Existing~~	Monitoring
MWR-06	12/02/98	20	2	5-20	~~Damaged~~	~~Abandon~~
MWR-07	12/02/98	20	2	5-20	~~Existing~~	~~Monitoring~~
MWR-08	12/09/98	20	2	5-20	~~Existing~~	~~Monitoring~~
MWR-09	12/09/98	20	2	5-20	Existing	Monitoring
MWR-10	12/02/98	20	2	5-20	Existing	Monitoring
MWR-11	12/02/98	20	2	5-20	Existing	Monitoring
MWR-12	12/02/98	20	2	5-20	Existing	Monitoring
MWR-13	Prior to 1999 [2]	--	--	--	Damaged	Abandon
MWR-14	Prior to 1999 [2]	--	--	--	Reported missing/destroyed [2]	
MWR-15	Prior to 1999 [2]	--	--	--	Existing-dry	Abandon
MWR-16	Prior to 1999 [2]	--	--	--	Reported missing/destroyed [2]	
MWR-17	Prior to 1999 [2]	--	--	--	Reported missing/destroyed [2]	
MWR-18	Prior to 1999 [2]	--	--	--	Abandoned	--
MWR-19	Prior to 1999 [2]	--	--	--	Reported missing/destroyed [2]	
MWR-20	Prior to 1999 [2]	--	--	--	Existing-dry	Abandon
MWR-21	Prior to 1999 [2]	--	--	--	Reported missing/destroyed [2]	
MWR-22	Prior to 1999 [2]	--	--	--	Reported missing/destroyed [2]	
MWR-23	08/15/05	22	4	11-21	Existing	Monitoring
MWR-24	08/15/05	21.5	4	10.5-20.5	Existing	Monitoring
MWR-25	08/15/05	22	4	11-21	Existing	Monitoring
MWR-26	08/15/05	21.7	4	11-21	Existing	Monitoring
MWR-27	08/16/05	22	4	11-21	Existing	Monitoring
MWR-28	08/16/05	22	4	11-21	Existing	Monitoring

Abandoned

Damaged

Abandoned

Table 4: Groundwater Monitoring Well Details and Operational Status

Well Name	Date Drilled	Well Depth (ft bgs)	Diameter (inches)	Screened Interval (ft bgs)	Current Status [1]	Proposed Use / Action
MWR-29	08/16/05	22	4	11-21	Existing	Monitoring
MWR-30	08/17/05	22	4	11-21	Existing	Monitoring
MWR-31	08/17/05	22	4	11-21	Existing	Monitoring
MWR-32	08/17/05	22.3	4	11.5-21.5	Existing	Monitoring
CTF Facility		27.5		12.5-27.5		
KMW-2	01/02/01	30	4	16-30	Existing	Monitoring
KMW-4 [3]	01/02/01	25	4	--	Existing	Monitoring
KMW-6 [3]	01/02/01	27.8	4	--	Existing	Monitoring
KMW-8 [3]	11/13/14	31	4	15-30	Existing	Monitoring
KMW-9 [3]	11/13/14	31	4	15-30	Existing	Monitoring
KMW-10 [3]	12/10/15	~~30~~	4	~~15-30~~	Existing	Monitoring
KMW-11 [3]	12/09/15	~~30~~	4	~~15-30~~	Existing	Monitoring
MBRMW-1	05/18/05	24	4	13-23	Existing	Monitoring
MBRMW-2	05/18/05	26	4	14-25	Existing	Monitoring
MBRMW-3	05/17/05	21	4	10-20	Existing	Monitoring
MBRMW-4	09/29/05	31	4	15-30	Existing	Monitoring
Pond S6		27		12-27		
RMW-1	03/31/04	30	2	15-30	Existing	Monitoring
RMW-2	03/30/04	30	2	15-30	Existing	Monitoring
RMW-3	03/30/04	30	2	15-30	Existing	Monitoring
RMW-4	09/27/05	31	4	15-30	Existing	Monitoring
RMW-5	09/27/05	31	4	15-30	Existing	Monitoring
Central Lathrop Specific Plan (CLSP)						Abandoned
CLSP-1	01/22/03	16.5	2	6.5-16.5	Existing	Standby [5]
CLSP-2	01/22/03	16.5	2	6.5-16.5	~~Damaged~~	~~Abandon~~
CLSP-3	01/22/03	16.5	2	6.5-19.5	Existing	Monitoring
CLSP-4	01/22/03	16.5	2	6.5-16.5	~~Existing~~	~~Abandon~~
CLSP-5	01/22/03	16.5	2	6.5-16.5	Abandoned	--
CLSP-6	01/14/03	16.5	2	6.5-16.5	Abandoned	--
CLSP-7	01/14/03	16.5	2	6.5-16.5	Abandoned	--
CLSP-8	01/14/03	16.5	2	6.5-16.5	Unknown	Unknown
CLSP-9	01/17/03	16.5	2	6.5-16.5	Existing	Monitoring
CLSP-10	01/17/03	16	2	6-16	~~Damaged~~	~~Abandon~~
CLSP-11	8/22/17	22	4	12-22	Existing	Monitoring
CLSP-12	8/23/17	24	4	13-23	Existing	Monitoring

Table 4: Groundwater Monitoring Well Details and Operational Status

Well Name	Date Drilled	Well Depth (ft bgs)	Diameter (inches)	Screened Interval (ft bgs)	Current Status [1]	Proposed Use / Action
North Lathrop						
MW-N1	12/02/04	21.5	--	--	Unknown	Unknown
MW-N2	12/02/04	21.5	--	--	Unknown	Unknown
MW-N3	12/02/04	21.5	--	--	Existing	Standby [5]
MW-N4	12/02/04	21.5	--	--	Existing	Standby [5]
MW-N5	12/02/04	21.5	--	--	Inaccessible	Unknown
MW-N6	12/02/04	26.5	--	--	Inaccessible	Unknown
NMW-1	07/12/05	25.5	4	15.5-25.5	Unknown	Unknown
NMW-2	07/12/05	20	4	10-20	Existing	Standby [5]
NMW-3	07/13/05	20	4	10-20	Existing	Standby [5]
NMW-4	07/13/05	20	4	10-20	Unknown	Unknown
NMW-5	07/13/05	20	4	10-20	Unknown	Unknown
South Lathrop Specific Plan (SLSP)						
MW-S1	05/03/04	21	--	--	Existing	Standby [5]
MW-S2	05/03/04	21	--	--	Existing	Standby [5]
MW-S3	05/03/04	21	--	--	Existing	Standby [5]
MW-S4	05/03/04	21	--	--	Existing	Standby [5]
MW-S5	05/03/04	21	--	--	Existing	Standby [5]

[1] Status as of ~~October 2015.~~ February 2018
[2] As documented in Monitoring Well Location Study, 13 January 2006, ENGEO.
[3] Monitoring well associated with Crossroads Wastewater Treatment Facility.
[4] Condition last observed in February 2007.
[5] Well located where future recycled water storage or use areas are anticipated. Currently, no plans to construct specified storage or disposal features. Well may be utilized for future groundwater monitoring once initiation of recycled water use.

Groundwater monitoring data has been collected from many of these well locations for nearly ten years or more. The resulting groundwater monitoring data illustrate high spatial and temporal variability, as reflected by the variability of shallow groundwater gradient directions and water quality. Baseline groundwater conditions were identified as impacted by salinity constituents TDS, chloride, and sulfate; along with sulfates, iron, and manganese. Groundwater pollution is likely the result of local and regional long term agricultural practices. Thus, baseline conditions were used to evaluate pre-discharge groundwater quality.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Local drainage is to San Joaquin River, which is a tributary to the Sacramento-San Joaquin Delta. The beneficial uses of San Joaquin River as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; industrial process supply; industrial service

supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation. 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 Analysis

Use Areas. Due to the extreme spatial variability of TDS concentrations in shallow groundwater across the Lathrop development areas, the local variability in groundwater flow, and the characteristics of recycled water, the anti-degradation analysis in Order R5-2015-0006 focused on specific Use Areas that illustrate typical groundwater conditions within each development areas that has or will have Use Areas.

As stated in Order R5-2015-006, constituents of concern that have the potential to degrade groundwater quality are salts (primarily TDS, sodium, and chloride) and nitrate, as discussed below. For the purpose of this evaluation, TDS is representative of overall salinity.

The following recycled water Use Areas were identified as representing typical groundwater conditions within their respective development area: River Islands Use Area A28, River Islands Use Areas A30/A31, Mossdale Use Area A23, Northern Lathrop planned Use Areas A1-13 and A17-19, and CLSP planned Use Areas L01 - L100. Each has an existing network of shallow groundwater monitoring wells and groundwater monitoring data collected prior to and, in the case of existing Use Areas, after initiation of recycled water discharge. Compliance wells are those that are located within recycled water Use Areas because those wells are most susceptible to water quality changes as a result of recycled water use.

a. **River Islands – Use Area A28:** Groundwater quality in this existing Use Area is substantially more saline than the treated effluent. Pre-discharge groundwater monitoring data collected from monitoring well MWR-24 (located within recycled water Use Area A28) reflects average TDS, chloride, and sodium concentrations of 2,820 mg/L, 948 mg/L, and 1,010 mg/L, respectively. These average concentrations each exceed their corresponding water quality objectives.

   Mean groundwater TDS concentrations in background monitoring wells for Area A28 (MWR-3, MWR-23, and MWR-25) currently range from 2,108 mg/L to 3,610 mg/L, which exceed both the average recycled water TDS concentration of 688 mg/L and the short-term maximum secondary MCL of 1,500 mg/L. Monitoring wells further distant around the perimeter of recycled water use Area A28 (MWR-1, MWR-4, MWR-15, and MWR-26) have mean TDS concentrations ranging from 1,090 mg/L to 1,484 mg/L. A comparison of average treated effluent and groundwater quality data for Use Area A28 is provided below.

Land Development Area: River Islands					
Recycled Water Use Area: A28			**Irrigated Acres: 30.63**		
Parameter [1]	**Treated Effluent [2]**	**Potential Compliance Well [3]**	**Background Wells [3]**		**Potential Water Quality Objective**
		MWR-24	**MWR-23**	**MWM-25**	
TDS	688	5,741	2,361	2,108	450 [4] - 1,000 [5]
Chloride	194	2,346	928	904	250 [4] - 500 [5]
Sodium	181	655	407	347	69 [4]
Nitrate nitrogen	7.0 [7]	1.0	7.3	0.8	10 [8]

1 Monitoring data reported in milligrams per liter (mg/L).
2 Mean effluent data (January 2011 through September 2013).
3 Average groundwater monitoring data (July 2006 through April 2014).
4 Lowest agricultural water quality goal.
5 Upper Secondary Maximum Contaminant Level.
6 Secondary Maximum Contaminant Level.
7 Effluent total nitrogen is used here to evaluate the threat of degradation with nitrate nitrogen.
8 Primary Maximum Contaminant Level.

TDS, chloride, and sodium concentrations both background and compliance wells greatly exceed the respective water quality objectives at this Use Area. Although compliance well concentrations for salinity constituents greatly exceed those in the background wells, this condition was apparent prior to any discharge to this Use Area. Since the discharge began in 2010, TDS concentrations in the compliance well improved somewhat but continue to exceed the water quality objective. Based on a comparison of treated effluent and groundwater quality trends, the use of recycled water in this area poses no threat of contributing to the existing condition of pollution.

Because salinity constituents in groundwater exceeded water quality objectives prior to the discharge, the Basin Plan's Controllable Factors Policy is applicable. The Controllable Factors Policy does not allow controllable factors, such as a discharge of waste, to cause further degradation of water quality where other uncontrollable factors have already caused exceedance of a water quality objective. This Order prohibits any further degradation of groundwater quality and includes a performance based TDS effluent limit that will restrict effluent salinity to ensure compliance with the Controllable Factors Policy.

Because there is no threat of further degradation, this Order does not require continued groundwater monitoring in this area.

River Islands – Use Areas A30 & A31: Groundwater quality in and around these two Use Areas is of lower quality than the treated effluent. Pre-discharge groundwater monitoring data collected from monitoring well MWR-28 (located within Use Area A30) has an average TDS concentration of 3,677 mg/L, and data from monitoring well MWR-32 (located within Use Area A31) has an average TDS concentration of 2,904 mg/L. These pre-discharge concentrations exceed the short-term maximum secondary MCL of 1,500 mg/L. Use Area A30 has received recycled water since 2010, but Use Area A31 has not yet received recycled water.

Mean groundwater TDS concentrations in A30's background monitoring wells (MWR-12 and MWR-27) currently range from 1,221 and 2,286 mg/L, which exceed both the average recycled water TDS concentration of 688 mg/L and the short-term maximum secondary MCL of 1,500 mg/L. Likewise, mean TDS concentrations in A31's background monitoring wells MWR-11, MWR-29, and MWR-31 range from 1,448 to 3,771 mg/L. A comparison of average treated effluent and groundwater quality data is provided below.

Land Development Area: River Islands				
Recycled Water Use Area: A30/A31			**Irrigated Acres: 130.2**	
Parameter [1]	**Treated Effluent [2]**	**Mean Analytical Results [3]**		**Potential Water Quality Objective**
		Potential Compliance Wells [4]	**Background Wells [5]**	
TDS	688	3,242	2,150	450 [6] – 1,000 [7]
Chloride	194	1,194	756	250 [6] - 500 [7]
Sodium	181	414	249	69 [6]
Nitrate nitrogen	7.0 [9]	1.3	1.9	10 [10]

1 All analytical data reported in milligrams per liter (mg/L).
2 Mean effluent data (January 2011 through September 2013).
3 Average groundwater monitoring data (May 2010 through April 2014).
4 Compliance wells include MWR-28 (A30) and MWR-32 (A31).
5 Background wells include MWR-11, MWR-12, MWR-27, and MWR-31.
6 Lowest agricultural water quality goal.
7 Upper Secondary Maximum Contaminant Level.
8 Secondary Maximum Contaminant Level.
9 Effluent total nitrogen is used here to evaluate the threat of degradation with nitrate nitrogen.
10 Primary Maximum Contaminant Level.

TDS, chloride, and sodium concentrations in both background and compliance wells greatly exceed the respective water quality objectives at these two Use Areas. Although compliance well concentrations for salinity constituents greatly exceed those in the background wells, this condition was apparent prior to any discharge to Use Area A30. Groundwater salinity constituent concentrations in Use Areas A30

and A31 have been both spatially and temporally variable prior to and since the discharge to Use Area A30 began. TDS concentrations in A30 compliance well MWR-28 initially declined after discharge to A30 began in 2010 but then rebounded to pre-discharge conditions. In nearby A31 compliance well MWR-32, the TDS concentration trend is similar to that of MRW-28 even though there has been no discharge to Use Area A31. Based on a comparison of treated effluent and groundwater quality trends, the use or recycled water in this area poses no threat of contributing to the existing condition of pollution.

Because salinity constituents in groundwater exceeded water quality objectives prior to the discharge, the Basin Plan's Controllable Factors Policy is applicable. The Controllable Factors Policy does not allow controllable factors, such as a discharge of waste, to cause further degradation of water quality where other uncontrollable factors have already caused exceedance of a water quality objective. This Order prohibits any further degradation of groundwater quality and includes a performance based TDS effluent limit that will restrict effluent salinity to ensure compliance with the Controllable Factors Policy.

Because there is no threat of further degradation, this Order does not require continued groundwater monitoring in this area.

b. **Mossdale – Use Area A23:** Groundwater quality in the Mossdale area is generally of lower quality than the treated effluent. Pre-discharge groundwater monitoring data collected from monitoring well MWM-12, which is located within recycled water Use Area A23, reflects mean TDS, chloride, and sodium concentrations of 2,820 mg/L, 948 mg/L, and 1,010 mg/L, respectively. These pre-discharge concentrations greatly exceed their corresponding water quality objectives.

Recycled water was discharged to Use Area A23 from May 2006 through September 2009. Post-discharge groundwater monitoring data collected from monitoring well MWM-12 from 2009 through 2014 reflects mean TDS, chloride, and sodium concentrations of 2,656 mg/L, 1,096 mg/L, and 1,019 mg/L, respectively, which indicates the discharge has caused no degradation. A comparison of average treated effluent and groundwater quality data are provided below.

Land Development Area: Mossdale					
Recycled Water Use Area: A23			**Irrigated Acres: 11.52**		
Parameter [1]	**Treated Effluent [2]**	**Compliance Well [3]**	**Background Wells [3]**		**Potential Water Quality Objective**
		MWM-12	**MWM-13**	**MWM-11**	
TDS	688	2,811	2,035	3,110	450 [4] - 1,000 [5]
Chloride	194	1,117	556	1,369	250 [4] - 500 [5]
Sodium	181	1,007	702	658	69 [4]
Sulfate	49.5	250	318	284	250 [6]
Nitrate nitrogen	7.0 [7]	3.4	3.7	0.4	10 [8]

1 Monitoring data reported in milligrams per liter (mg/L).
2 Mean effluent data (January 2011 through September 2013).
3 Average groundwater monitoring data (July 2006 through April 2014).
4 Lowest agricultural water quality goal.
5 Upper Secondary Maximum Contaminant Level.
6 Secondary Maximum Contaminant Level.
7 Effluent total nitrogen is used here to evaluate the threat of degradation with nitrate nitrogen.
8 Primary Maximum Contaminant Level.

TDS, chloride, and sodium concentrations in both background and compliance wells greatly exceed the respective water quality objectives at this Use Area. Although compliance well concentrations for salinity constituents exceed those of the background wells, this condition was apparent prior to any discharge to this Use Area. Groundwater salinity concentrations in MWR-12 increased briefly during the discharge of recycled water to Use Area A23, but declined to pre-discharge levels in 2008, approximately one year before the use of recycled water stopped. After the discharge was discontinued, TDS concentrations decreased gradually to about 2,600 mg/L, but still remain above the upper Secondary Maximum Contaminant Level of 1,500 mg/L. Based on a comparison of treated effluent and groundwater quality trends, the use or recycled water in this area poses no threat of contributing to the existing condition of pollution.

Because salinity constituents in groundwater exceeded water quality objectives prior to the discharge, the Basin Plan's Controllable Factors Policy is applicable. The Controllable Factors Policy does not allow controllable factors, such as a discharge of waste, to cause further degradation of water quality where other uncontrollable factors have already caused exceedance of a water quality objective. This Order prohibits any further degradation of groundwater quality and includes a performance based TDS effluent limit that will restrict effluent salinity to ensure compliance with the Controllable Factors Policy.

Because there is no threat of degradation, this Order does not require continued groundwater monitoring in this area.

c. **Northern Lathrop (Planned Use Areas):** Groundwater quality in North Lathrop is generally of lower quality than the treated effluent. Pre-discharge groundwater monitoring data collected from eleven monitoring wells MW-N1 through MW-N6 and NMW-1 through NMW-5) between 2005 and 2006 show average TDS, chloride, sodium, and nitrate nitrogen concentrations that often greatly exceed the respective water quality objectives. Additionally, one monitoring well (NMW-4) exhibited TDS concentrations over ten times the Secondary Maximum Contaminant Level of 1,500 mg/L. A comparison of average treated effluent and groundwater quality data is provided below.

Land Development Area: Northern Lathrop (Planned Use Areas)				
Recycled Water Use Areas: A1 - A13 and A17 – 19			**Irrigated Acres: 638.14**	
Parameter [1]	**Treated Effluent [2]**	**Groundwater Concentrations [3]**		**Potential Water Quality Objective**
		Range	**Mean**	
TDS	688	910 – 18,000	2,740	450 [4] - 1,000 [5]
Chloride	194	55 - 8,000	1,066	250 [4] - 500 [5]
Sodium	181	126 – 1,800	495	69 [4]
Sulfate	49.5	4.9 - 290	136	250 [6]
Nitrate as N	7.0 [7]	<0.1 – 102	29	10 [8]

1 Monitoring data reported in milligrams per liter (mg/L).
2 Mean effluent data (January 2011 through September 2013).
3 Groundwater monitoring data MW-N1 through MW-N6 and NMW-1 through NMW-5 (January 2005 – July 2006).
4 Lowest agricultural water quality goal.
5 Upper Secondary Maximum Contaminant Level.
6 Secondary Maximum Contaminant Level.
7 Effluent total nitrogen is used here to evaluate the threat of degradation with nitrate nitrogen.
8 Primary Maximum Contaminant Level.

Where salinity constituent concentrations in groundwater exceeded water quality objectives prior to any discharge, the Basin Plan's Controllable Factors Policy is applicable. The Controllable Factors Policy does not allow controllable factors, such as a discharge of waste, to cause further degradation of water quality where other uncontrollable factors have already caused exceedance of a water quality objective.

Where pre-discharge concentrations meet water quality objectives, the Anti-degradation Policy applies and it is appropriate to allow degradation, but not exceedance of a water quality objective due to the use of recycled water. With few exceptions, pre-discharge TDS, chloride, sodium, and nitrate nitrogen concentrations

greatly exceed the respective water quality objectives throughout the Northern Lathrop development area. Based on a comparison of treated effluent and groundwater quality trends, the use of recycled water in this area poses no threat of contributing to the existing condition of pollution. In the limited areas where high quality groundwater exists, the discharge might cause degradation but is not likely to cause or contribute to exceedance of a water quality objective.

This analysis is based on data obtained between 2005 and 2006. However, current groundwater quality is not known and groundwater quality may change prior to initiation of water recycling in these areas. Therefore, updated pre-discharge groundwater monitoring is necessary before these Use Areas can receive recycled water.

d. **CLSP (Planned Use Areas):** Approximately 199 acres of land within the CLSP development area have been identified as planned agricultural irrigation Use Areas. Pre-discharge groundwater quality indicates that shallow groundwater is generally of lower quality than the treated effluent. Pre-discharge groundwater monitoring data collected from ten monitoring wells (CLSP-1 through CLSP-10) between 2005 and 2006 show that average TDS, sodium, chloride, and nitrate nitrogen concentrations that greatly exceed the respective water quality objectives. A comparison of average treated effluent and groundwater quality data is provided below.

Land Development Area: CLSP (Planned Use Areas)				
Recycled Water Use Areas: L01 - L100			**Irrigated Acres: 198.98**	
Parameter [1]	**Treated Effluent [2]**	**Groundwater Concentrations [3]**		**Potential Water Quality Objective**
		Range	**Mean**	
TDS	688	308 – 4,160	1,727	450 [4] - 1,000 [5]
Chloride	194	63 – 1,320	407	250 [4] - 500 [5]
Sodium	181	62 – 1,250	407	69 [4]
Nitrate nitrogen	7.0 [7]	<0.01 - 26	10	10 [8]

1 Monitoring data reported in milligrams per liter (mg/L).
2 Mean effluent data (August 2005 – September 2013).
3 Groundwater monitoring data from CLSP-1 through CLSP-10 (January 2005 – July 2006).
4 Lowest agricultural water quality goal.
5 Upper Secondary Maximum Contaminant Level.
6 Secondary Maximum Contaminant Level.
7 Effluent total nitrogen is used here to evaluate the threat of degradation with nitrate nitrogen.
8 Primary Maximum Contaminant Level.

With few exceptions, pre-discharge TDS, chloride, and sodium concentrations greatly exceed the respective water quality objectives throughout the CLSP development area.

In the limited areas where high quality groundwater exists, Use Areas A21 and A37, the discharge might cause degradation but is not likely to cause or contribute to exceedance of a water quality objective. Where pre-discharge concentrations meet water quality objectives, the Anti-degradation Policy applies and it is appropriate to allow degradation, but not exceedance of a water quality objective due to the use of recycled water

For all other planned Use Areas, salinity constituent concentrations in groundwater exceeded water quality objectives prior to any discharge, so the Basin Plan's Controllable Factors Policy is applicable. The Controllable Factors Policy does not allow controllable factors, such as a discharge of waste, to cause further degradation of water quality where other uncontrollable factors have already caused exceedance of a water quality objective.

This analysis is based on data obtained between 2005 and 2006. However, current groundwater quality is not known and groundwater quality may change prior to initiation of water recycling in these areas. Therefore, updated pre-discharge groundwater monitoring is necessary before these Use Areas can receive recycled water.

Groundwater in the western Lathrop area has been severely compromised through a combination of long term agricultural practices and regional drainage from the Central Valley into the San Joaquin Delta. The land development areas as described in Order R5-2015-0006 that receive recycled water are located in close proximity to surface water courses that influence shallow groundwater flow and water quality conditions, creating a complex hydrogeologic model.

The primary constituents of concern from the treated effluent that have the potential to degrade groundwater include salts (primarily TDS, sodium, and chloride). The presence of elevated iron and manganese in groundwater near the River Islands recycled water Use Areas indicates that reducing conditions not associated with the use of recycled water have mobilized these metals in shallow groundwater. Elevated concentrations of nitrate as nitrogen in North Lathrop are indicative of agricultural practices, as there has not been any discharge of recycled water in that area.

For TDS, sulfate, iron, manganese, and nitrate; groundwater monitoring data indicate that groundwater has not been degraded further by the discharge, and that the expanded discharge does not pose a threat of significant degradation in the future. This Order contains effluent limits that will ensure that the use of recycled water does not cause groundwater quality to get any worse. The use of recycled water at the Use Areas does not pose a threat of significant degradation because of the high quality of the effluent and the ability of landscaping and crops to consume nitrogen.

Based on the foregoing findings, this Order requires continued groundwater monitoring only for selected recycled water Use Areas that have the greatest potential to impact groundwater quality, and are of a sufficient size that such an impact will be recognizable above background conditions. Groundwater monitoring may also be required for new recycled water Use Areas, but not near existing or future lined effluent storage ponds.

LAS-3. For the purpose of evaluating potential future groundwater degradation at a new discharge location, groundwater quality was evaluated at LAS-3 in preparation of the 2016 WDRs. The primary constituents of concern from the treated effluent that have the potential to degrade groundwater include salts (primarily TDS, sodium, and chloride). Based on effluent quality and pre-discharge groundwater quality, elevated nitrate concentrations are likely the result of agricultural practices. In addition, elevated sulfate, boron, and manganese concentrations in groundwater near LAS-3 are likely natural occurring. This Order contains effluent limits that will ensure that the discharge of recycled water to percolation pond(s) does not cause groundwater quality to get any worse.

This Order includes groundwater limitations that implement Resolution 68-16 and the Controllable Factors Policy as applicable. If effluent or other future monitoring data indicate an increased threat to groundwater quality, groundwater monitoring may be required in other areas at the Executive Officer's discretion.

Legal Effect of Rescission of Prior WDRs or Orders on Existing Violations

The Board's rescission of prior waste discharge requirements and/or monitoring and reporting orders does not extinguish any violations that may have occurred during the time those waste discharge requirements or orders were in effect. The Central Valley Water Board reserves the right to take enforcement actions to address violations of prior prohibitions, limitations, specifications, requirements, or provisions of rescinded waste discharge requirements or orders as allowed by law.

Discharge Prohibitions, Specification, and Provisions

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

1.0

This ~~Order restricts~~ influent flows to the CTF as an average dry weather flow (ADWF) of ~~0.75~~ mgd. The flow limit can be increased up to a maximum of 6.0 mgd upon approval by the Executive Officer.

This Order contains effluent limits that ensure that the discharge will not cause exceedance of a water quality objective in groundwater and comply with Title 22. This Order prescribes groundwater limitations that ensure the discharge does not affect present and anticipated future beneficial uses of groundwater.

This Order is also a Master Recycling Permit with requirements consistent with the Water Code section 13523.1, including the requirement to establish and have authority to enforce rules and/or regulations for recycled water Users governing the design and construction of recycled water use facilities and the use of recycled water in accordance with water recycling criteria established in Title 22, California Code of Regulations and this Order.

The Monitoring and Reporting Program is designed to verify compliance with effluent limitations and operational requirements of the WDRs.