CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2014-0157

CEASE AND DESIST ORDER
FOR
CITY OF IONE WASTEWATER TREATMENT FACILITY
AMADOR COUNTY

TO CEASE AND DESIST
FROM DISCHARGING CONTRARY TO REQUIREMENTS

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

1. On 26 May 1995, the Central Valley Water Board adopted Waste Discharge Requirements (WDRs) Order 95-125 (the 1995 WDRs) for a wastewater treatment and disposal facility owned and operated by the City of Ione (hereafter referred to as Discharger, City of Ione, or City). On 11 April 2013, the Board adopted WDRs Order R5-2013-0022 (the 2013 WDRs) and rescinded WDRs Order 95-125 except for purposes of enforcement.

2. On 11 July 2003, the Board issued Cease and Desist Order (CDO) R5-2003-0108 (the 2003 CDO) for the City of Ione. On 8 April 2011, the Board rescinded the 2003 CDO except for purposes of enforcement, and issued CDO R5-2011-0019 (the 2011 CDO). On 11 April 2013, the Board rescinded the 2011 CDO except for purposes of enforcement, and issued CDO R5-2013-0023 (the 2013 CDO).

3. The Discharger's wastewater treatment facility (the Facility) is in Amador County in Section 26, T6N, R9E, MDB&M. The Facility accepts and treats domestic wastewater from the City of Ione, filter backwash water from a water treatment plant operated by Amador Water Agency, domestic wastewater from Preston Youth Authority's administration buildings, and filter backwash water from Castle Oaks Water Reclamation Plant. In addition, the Discharger accepts secondary effluent from Preston Reservoir for disposal in the Facility's percolation/evaporation ponds.

4. The Facility consists of seven ponds covering approximately 28 acres. The first four ponds provide secondary treatment via aeration and settling, and the remaining three ponds provide disposal of treated effluent via percolation and evaporation. Neither the sixth nor the seventh pond was permitted under the 1995 WDRs. The Facility is adjacent to Sutter Creek, with the closest pond approximately 100 feet from the Creek.

5. The unlined ponds are constructed in alluvial deposits overlaying a clay formation. Groundwater at the site and surrounding properties is very shallow (approximately 5 to 25 feet below ground surface). The Discharger has been monitoring shallow groundwater since 2002.

6. A January 2003 report submitted by the Discharger states that seepage was observed in Sutter Creek, at an estimated rate of 173 gallons/day. The report concludes that at times of very low flow, or no flow, there is the potential for groundwater to flow from the

area underlying the wastewater treatment facility into the creek[1]. It is likely that this seepage contains constituents which are present as a consequence of the treatment and discharge of waste in unlined ponds[2]. The indirect discharge (seepage) of polluted groundwater is in violation of Prohibition A.1 of both the 1995 WDRs and the 2013 WDRs.

7. Groundwater monitoring shows that the discharge of wastewater has polluted the groundwater underneath and downgradient of the facility. The main constituents of concern are iron and manganese. The background monitoring well[3] contains dissolved iron at an average concentration of 14 µg/l, while the downgradient well[4] has an average concentration of 3,800 µg/l. The secondary Maximum Contaminant Level for iron is 300 µg/l. A similar situation exists for manganese. The background well contains an average concentration of 7 µg/l of dissolved manganese, while the downgradient well[5] has an average concentration of 5,500 µg/l, which far exceeds the secondary maximum contaminant level of 50 µg/l. The groundwater monitoring data therefore indicates that the discharges from the Facility are causing a condition of pollution in the groundwater.

8. It is unknown when the Discharger constructed wastewater disposal Pond 6. However, wastewater disposal Pond 7 was constructed in the early 2000's. The City did not submit a Report of Waste Discharge (RWD) prior to the construction or use of these ponds, which is considered a violation of WDRs Order 95-125 and of the Water Code. The 2013 WDRs permit the use of these ponds.

9. At times of the year, the shallow groundwater is close to ground surface in the vicinity of the Facility. Board staff has received complaints of surfacing effluent in the vicinity of Pond 7. The City's 2010 models showed that the facility expansion proposed at that time would cause the local water table to rise as much as two feet, and would result in seasonal surfacing of wastewater at the southern end of the Facility. Surfacing wastewater would be a violation of both the 1995 WDRs and the 2013 WDRs.

2001-2003 Enforcement Actions

10. Sutter Creek flows from east to west approximately 100 feet north of the northernmost of the Facility's ponds. Beginning in September 2000, Board staff observed seepage entering the creek along the southern bank of Sutter Creek that might have been evidence of a discharge of effluent from the Facility's ponds to Sutter Creek. However, creek water analyses completed by both the Discharger and staff did not conclusively show evidence of wastewater in the seepage. During a 21 September 2001 inspection, staff observed that the Discharger had begun construction of the seventh percolation

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1 Finding 9 of CDO R5-2011-0019.

2 Finding 19 of CDO R5-2011-0019.

3 Data obtained from MW-1 for the period of March 2009 through September 2012.

4 Data obtained from MW-3A for the period of March 2009 through September 2012.

pond without submitting a RWD which must be submitted to the Board pursuant to Water Code section 13260 when there is any material change in the character, location, or volume of a discharge. Staff advised the Discharger that the WDRs would have to be revised before any wastewater was discharged into the pond. However, the Discharger began using the pond without obtaining regulatory coverage for the expanded facility.

11. On 9 October 2001, the Executive Officer issued an Order pursuant to Water Code section 13267 (the 13267 Order), requiring the Discharger to submit: a groundwater monitoring well installation work plan by 1 December 2001; a monitoring well installation report within 60 days of Board staff's approval of the work plan; and a complete RWD (to address the new pond) by 15 April 2002. The Discharger installed the monitoring wells but did not submit the RWD.

12. On 21 January 2003, the Discharger submitted a *Hydrogeologic and Geotechnical Report.* The report documented the installation of groundwater monitoring wells and provided an assessment of potential seepage to Sutter Creek. Based on the subsurface investigation, groundwater levels, and in situ hydrogeologic testing, the report stated that shallow groundwater immediately adjacent to and downgradient of the ponds exhibited increased mineral concentrations[5]. At the time of the investigation, seepage was observed in Sutter Creek[6]. The report estimated the seepage rate to be approximately 173 gallons per day[7] into the creek. The report concluded that, at times of very low flow or no flow, there is a potential for groundwater to flow from the area underlying the wastewater treatment facility to the creek[8]. The report did not include recommendations for further evaluation, nor did it propose facility improvements to stop the seepage discharge into the creek.

2003 CDO and Violations of the CDO

13. On 11 July 2003, the Central Valley Water Board issued the 2003 CDO due to concerns regarding the discharge of polluted groundwater to Sutter Creek, the unauthorized degradation of groundwater quality beneath the Facility, and failure to submit a RWD as required by the 13267 Order.

14. The 2003 CDO required that the Discharger come into compliance with Discharge Prohibition A.1 and the Groundwater Limitations of the 1995 WDRs no later than 30 December 2005. The 2003 CDO also required that the Discharger comply with a schedule for submittal of certain technical reports.

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5 Wallace Kuhl Associates, Hydrogeologic and Geotechnical Report, page 2.

6 Wallace Kuhl Associates, Hydrogeologic and Geotechnical Report, Plate 6.

7 Wallace Kuhl Associates, Hydrogeologic and Geotechnical Report, pages 3-7.

8 Wallace Kuhl Associates, Hydrogeologic and Geotechnical Report, page 10

15. However, the Discharger did not come into compliance with Discharge Prohibition A.1 of the 1995 WDRs by 30 December 2005, and therefore violated the 2003 CDO.

16. The technical studies and monitoring completed since adoption of the 2003 CDO show that the unlined treatment and disposal ponds created a localized groundwater "mound" that causes shallow groundwater beneath the Facility's ponds to flow towards Sutter Creek, where it seeps into the creek channel during periods when natural flows in the creek are low.

17. The Discharger did not come into compliance with the Groundwater Limitations of the 1995 WDRs, in violation of the 2003 CDO.

18. The Discharger's groundwater monitoring data and technical reports show that the shallow groundwater contains elevated concentrations of iron and manganese downgradient of the Facility. Specifically, monitoring wells MW2 and MW3A are downgradient of the Facility's ponds, as well as directly adjacent to, and upgradient of, Sutter Creek. These wells consistently have dissolved iron and manganese concentrations greater than the background well. The following table summarizes dissolved iron and manganese concentrations between March 2009 and September 2012[9].

Dissolved Iron and Manganese Concentrations in Groundwater (µg/L)

Constituent	Monitoring Wells and Locations			Secondary MCL
	MW-1 (Background)	MW-2 (Downgradient)	MW-3A (Downgradient)	
Dissolved Iron				300
Range of Results	<5 to 31	25 to 2,100	<50 to 6,800	
Mean Results	13.9	1,940	3 ,820	
Dissolved Manganese				50
Range of Results	<5 to 28	3,100 to 4,600	3,000 to 6,500	
Mean Result	6.9	3,920	5,510	

These results show that the discharge has caused dissolved iron and manganese in shallow groundwater to exceed the secondary MCLs, in violation of the groundwater limitations. Although iron and manganese are not present in the Facility's effluent at high concentrations, the presence of degradable organic matter in the wastewater depletes oxygen, which creates reducing conditions in the groundwater mound beneath the WWTF's ponds. Reducing conditions promote dissolution of iron and manganese. These minerals are naturally present in the soil beneath the ponds. This mechanism of groundwater degradation was acknowledged in the December 2009 Final EIR, which states:

[9] Prior to 2008, groundwater samples were not filtered before analysis for metals. Without filtration to remove clay and silt particles, analytical results for metals would include any metals contained within the minerals that form the soil.

> *Dissolved iron and manganese levels* [in shallow groundwater] *are likely a result of anaerobic decomposition of biological material. This decomposition occurs either in the anaerobic zone at the bottom of the existing treatment ponds or subsurface as effluent enters the groundwater at the percolation ponds*.[10]

Combined with the fact that MW-2 and MW-3A are approximately 100 feet upgradient of the portion of Sutter Creek where groundwater has been observed seeping into the creek, these data show that it is likely that the seepage contains constituents that are present as a consequence of the treatment and discharge of waste in unlined ponds. The Discharger's 1995 WDRs did not allow these impacts to occur, and the Discharger was required to eliminate the processes that resulted in the discharge of polluted groundwater to the creek. This could have been accomplished by eliminating the groundwater degradation or by eliminating the seepage.

19. The Discharger did not comply with Task 8 of the 2003 CDO. Task 8 required the submittal of a complete RWD with proposed improvements to bring the facility into compliance with the 1995 WDRs and the 2003 CDO. Board staff concurred that the proposed lined treatment ponds, tertiary treatment, and disinfection with ultraviolet light would greatly improve the effluent quality discharged to the percolation/evaporation ponds, which might reduce the level of groundwater degradation caused by the discharge. However, the Discharger did not show that the design would stop the seepage of degraded groundwater into Sutter Creek, and did not show that the proposed improvements would result in significantly lower concentrations of iron and manganese in the shallow groundwater.

20. The City had been in violation of its 1995 WDRs since 2001, had not complied with the 2003 CDO, and had not submitted a complete RWD. The Discharger had been unable to commit to a course of action to prevent groundwater pollution, wastewater seepage to Sutter Creek, and surfacing of wastewater. In addition, the Discharger continued to discharge wastewater to two unpermitted ponds in violation of the 1995 WDRs.

2011 CDO and Violations of the CDO

21. As described above, the City failed to comply with the 2003 CDO. Although the Board had the option of issuing an administrative civil liability complaint to Ione for its failure to comply, the Board instead chose to adopt a new CDO that provided the City with a new timeline for compliance. On 8 April 2011, the Board adopted CDO R5-2011-0019, which requires, in part, that the City:

    a. Address the three underlying compliance issues: groundwater pollution with iron and manganese; seepage of polluted groundwater into Sutter Creek; and the construction and use of a two unpermitted effluent disposal ponds;
    b. Submit a Seepage Discharge Compliance Plan by 30 January 2012; and

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[10] City of Ione Wastewater Treatment Facility Final EIR, pages 2-36.

c. Construct facility improvements that will effectively stop the mobilization and discharge of iron and manganese, and either:

   i. Stop any indirect discharge (seepage) of degraded groundwater to Sutter Creek that is in violation of the Clean Water Act; or

   ii. Obtain an NPDES Permit that regulates the indirect discharge of degraded groundwater to Sutter Creek.

22. The City chose option (i), above, and therefore the CDO required that the City submit a RWD by 30 May 2012 and then by 30 October 2013, certify that (a) the facility upgrades have been completed, (b) the facility does not discharge to Sutter Creek in violation of the Clean Water Act, and (c) any groundwater degradation that occurs due to treatment and disposal of wastewater is consistent with State Water Board Resolution 68-16.

23. The City of Ione did not submit the RWD until 30 July 2012. Staff's review found that the RWD did not meet the criteria of the 2011 CDO, and therefore the City had failed to meet its obligation to submit a complete RWD by 30 May 2012. The Discharger subsequently submitted a revised RWD on 28 September 2012, which staff determined to be satisfactory.

2012 Administrative Civil Liability

24. On 10 September 2012, the Executive Officer issued Administrative Civil Liability Complaint R5-2012-0558 for $143,552 to the City of Ione for failure to submit a complete RWD as required by the 2011 CDO. On 10 January 2013, the matter was settled when the Assistant Executive Officer signed the Final Settlement Agreement and Stipulation. The City of Ione was assessed a civil liability of $123,818. Of that amount, $61,909 was paid into the Cleanup and Abatement Account and the remaining $61,909 will be permanently suspended after the City completes an Enhanced Compliance Action (the Preston Avenue Sewer Slip Lining Project).

2013 CDO

25. During 2012, the City submitted multiple RWDs and participated in a number of meetings with Board staff to discuss proposed upgrades designed to bring the Facility into compliance with the 2011 CDO and the 1995 WDRs. Because none of the City's proposals meet the timeline set forth in the 2011 CDO, a new CDO was necessary to allow the City additional time to come into compliance. In order to provide adequate treatment, storage, and disposal capacity and bring the discharge into compliance with the Basin Plan water quality objectives, the City of Ione proposed to:

   a. Construct and operate two new water recycling land application areas (LAAs), which would include an 11-acre area referred to as the WWTF Field and a 67-acre parcel known as the Town Field;

b. Install and operate a sodium hypochlorite injection system and contact chamber for effluent disinfection prior to land application;

c. Install and operate additional aerators in treatment Ponds 1 through 3 to achieve the horsepower shown in the table below:

Aeration Capacity

	Pond 1	**Pond 2**	**Pond 3**	**Pond 4**
Existing Capacity	15 HP	7.5 HP	7.5 HP	7.5 HP
Upgraded Capacity	30 HP	27.5 HP	17.5 HP	No change

d. Install and operate a mixer unit in Pond 5 (this task was completed June 2012);

e. Remove anoxic soil and sludge from Pond 5 and sludge from Pond 6, and subsequently backfill and compact with clean fill to bring the bottom of these two ponds to an elevation above the seasonal high groundwater level;

f. Monitor, on a monthly basis for one year, at Ponds 5, 6, and 7 using field instruments to measure dissolved oxygen (DO), oxygen reduction potential (ORP), and sludge depths;

g. Install a new groundwater monitoring well (MW-2A) between Ponds 1 and 5 in July 2013;

h. Monitor, on a monthly basis for one year, at groundwater wells MW-2, MW-2A, MW-3, and MW-3A[11] for pH, electrical conductivity (EC), DO, ORP, total dissolved solids (TDS), stable isotopes, total and fecal coliform, nitrate as nitrogen, total Kjeldahl nitrogen (TKN), chloride, sodium, and dissolved boron, iron and manganese;

i. If improvements in groundwater quality were not seen within one year, then 2 to 4 feet of clean soil will be added to the bottom of Pond 5;

j. If groundwater quality was not improved after the placement of the soil, then the City would either backfill the percolation ponds or convert them to lined storage ponds; and

k. As part of Phase II capacity improvements, construct a 17-million-gallon clay-lined effluent storage pond at the WWTF Field, and construct and operate two new LAAs (56 acres total).

[11] The City initially proposed increased monitoring for all four wells, but recently revised its proposal to monitor only wells MW-2 and MW-2A. However, this Order requires the accelerated monitoring of all four wells in order to evaluate the effectiveness of the City's remedial activities.

27. On 11 April 2013, the Board adopted WDRs Order R5-2013-0022 to regulate the facility based on the improvements proposed by the City of Ione. The 2013 WDRs establish flow limits, groundwater quality limits, and effluent quality limits, permit the use of Ponds 6 and 7, and, after improvements are made, allow the City to discharge treated wastewater to recycled water land application areas. However, the City could not immediately comply with Prohibition A.1, Groundwater Limitation D.2, Discharge Specification E.1, or Discharge Specification E.3 of the 2013 WDRs as follows:.

    a. Prohibition A.1 states: *Discharge of wastes to surface waters or surface water drainage courses is prohibited*.

    b. Groundwater Limitation D.2 states, in part: *Release of waste constituents from any portion of the WWTF shall not cause groundwater to… contain constituents in concentrations that exceed either the Primary or Secondary MCLs established therein.*

    c. Discharge Specification E.1 states: *No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations of this Order*.

    d. Discharge Specification E.3 states: *Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.*

28. The 2013 CDO included an enforceable schedule for the City to implement its proposed scope of work to ensure future compliance with the groundwater limitations in the 2013 WDRs. Specifically, the upgrades must ensure that discharges from the ponds do not result in exceedances of applicable secondary Maximum Contaminant Levels (MCLs) for dissolved iron (300 µg/L) and dissolved manganese (50 µg/L). The CDO included groundwater compliance concentrations for iron and manganese in the facility's compliance wells based on the City's estimates of the rate of change that could be expected following completion of the improvements described in Findings 25.a through 25.j. The limits would become increasingly stringent each year, and failure to meet those limits would trigger a requirement to install geosynthetic liners in Ponds 5, 6, and 7. The derivation of those limits is described further below.

29. On 12 March 2013, the Discharger submitted a report titled *Projected Statistically Significant Manganese and Iron Concentration Changes in Monitoring Wells, City of Ione, Wastewater Treatment Plant* (the *March 2013 Expected Concentration Change Report*). The *March 2013 Expected Concentration Change Report* provided an estimated range of travel times for groundwater moving from the western edge of Pond 5 in the downgradient direction, and predicted the estimated changes in manganese and iron concentrations in monitoring wells MW-2, MW-2A, MW-3, and MW-3A after sludge removal, installation of additional treatment pond aerators, and installation of a mixing unit in Pond 5. The Expected Concentration Change Report provided a range of projected concentrations expected to be found in the four monitoring wells in October 2014, October 2015, October 2016, and October 2017. The report did not consider the Discharger's proposal to add two feet of soil to the bottom of Pond 5. The 2013 CDO incorporated the least restrictive concentration in the estimated range as the manner of determining whether the Discharger's proposed improvements would

have the potential to result in compliance with the Groundwater Limitations of the WDRs.

30. Because the Discharger had not yet determined site-specific hydraulic conductivity or porosity values of the shallow zone groundwater, a range of published values were used in the March 2013 Expected Concentration Change Report to calculate expected groundwater travel times. This resulted in a wide range of estimated travel times to each well; for example, the estimated travel time from the edge of Pond 5 to well MW-3 ranged from 155 days to 2,322 days. The 2013 CDO required the Discharger to conduct a site-specific shallow zone aquifer test, or approved equivalent study, to refine the travel time estimates contained in the Expected Concentration Change Report. The 2013 CDO included a reopener to revise the future compliance concentrations as appropriate based on the outcome of that study.

Rationale for this Revised CDO

31. The City completed the improvements described in Findings 25 a, c, d, e, and g by 31 December 2013. Although it was not required, the City also placed approximately one foot of clean fill (crusher fines composed of gravel to fine sand) in Pond 5 in October 2013. Due to construction bids higher than the engineer's estimate, the City was not able to finance all of the work and elected not to install the effluent disinfection system described in Finding 25.b. Effluent disinfection is not necessary to protect groundwater quality, nor is it required by Title 22 if the recycled effluent is only used to irrigate fodder crops as proposed by the City in its Title 22 Engineering Report.

    However, Effluent Limitation C.2 of WDRs Order R5-2013-0022 requires that all recycled water contain no more than 23 MPN/100 mL of total coliform as a monthly median, and no more than 240 MPN/100 mL in more than one sample in any 30-day period. On 4 June 2013, the California Department of Public Health (CDPH) Drinking Water Program (now the State Water Board Division of Drinking Water) approved the use of undisinfected effluent to irrigate fodder crops and pasture for animals not producing milk for human consumption. Because disinfection is not necessary to protect groundwater quality, WDRs Order R5-2013-0022 will be amended to remove the disinfection requirement and the effluent coliform limit.

32. The Discharger has also complied with the supplemental monitoring requirements of the 2013 CDO. Since completion of the Phase I Improvements Project, groundwater monitoring data show that concentrations of iron have been declining in Wells MW-2, MW-3 and MW-3A, and concentrations of manganese have been declining in Wells MW-2 and MW-3A.

33. On 2 December 2013, the Discharger submitted the updated *Expected Concentration Change Report (*the *December 2013 Expected Concentration Change Report)* to comply with the 2013 CDO. As required, the report presented estimated future iron and manganese concentrations in downgradient wells MW-2, MW-2A, MW-3 and MW-3A based on additional aquifer testing and modeling. The table below summarizes the City's updated projections of groundwater iron and manganese concentrations for each year from

2014 to 2017.

Well	Constituent	Concentration (µg/L)				
		Average 2012-2013	Updated Projection for October 2014	Updated Projection for October 2015	Updated Projection for October 2016	Updated Projection for October 2017
MW-2	Manganese	4,700	3,070	1,030	<50	<50
MW-2A	Manganese	4,110	4,010	1,030	<50	<50
MW-3	Manganese	4,300	3,850	3,250	2,650	2,050
MW -3A	Manganese	6,400	5,440	4,120	2,800	1,480
MW-2	Iron	2,500	1,920	1,200	480	<300
MW-2A	Iron	13,400	12,620	10,820	9,020	7,220
MW-3	Iron	<300	<300	<300	<300	<300
MW-3A	Iron	4,900	4,200	3,240	2,280	1,320

Because the Discharger cannot comply with the previously projected groundwater concentration limits that became effective on 30 October 2014, it is appropriate to remove those requirements and update the groundwater concentration limits for future compliance dates. However, the model described in the *December 2013 Expected Concentration Change Report* used several assumptions that likely overestimate the rate of change that should be expected. In addition, a combination of drought conditions and use of effluent as recycled water have reduced the volume of effluent discharged to the percolation disposal ponds. Observed iron and manganese concentrations in shallow groundwater immediately downgradient of the percolation ponds have improved in some wells, but the most recent monitoring results from June 2014 do not support the projected future concentrations presented in the *December 2013 Expected Concentration Change Report*. Therefore, it is appropriate to continue using the projections used in the 2013 CDO (except for iron in MW-2A) to set future groundwater concentration limits which are higher than those proposed by the City.

The groundwater monitoring data for MW-2A show that iron concentrations were much greater than the pre-construction estimates used to set groundwater concentration limits in the 2013 CDO. Therefore, the projected iron concentrations for MW-2A in the *December 2013 Expected Concentration Change Report* represent the best available estimate of future water quality in this well.

Regarding the further downgradient wells MW-3 and MW-3A, it is appropriate to base revised concentration limits on the most current monitoring results and lower rates of concentration change than those projected in the *December 2013 Expected Concentration*

Change Report. No projection of future concentrations is needed for iron in well MW-3 because the current concentrations do not exceed the secondary MCL. It is neither necessary nor appropriate to set future limits that are less than the secondary MCLs.

The following table presents the projected concentrations that are used as future concentration limits in this CDO.

Well	Constituent	Average Result 2012-2013	June 2014 Result	Future Concentration Limit and Compliance Date (µg/L)		
				October 2015	October 2016	October 2017
MW-2	Manganese	4,700	3,100	2,930	1,850	770
MW-2A	Manganese	4,110	3,300	2,560	1,720	880
MW-3	Manganese	4,300	4,700	4,200	3,900	3,600
MW-3A	Manganese	6,400	6,700	5,500	4,500	3,500
MW-2	Iron	2,500	2,600	1,940	1,760	1,460
MW-2A	Iron	13,400	19,000	10,820	9,020	7,220
MW-3	Iron	<300	110	<300	<300	<300
MW-3A	Iron	4,900	4,800	4,000	3,500	3,000

34. Since adoption of the 2013 WDRs and CDO, the Discharger has been actively working with Amador Regional Sanitation Authority (ARSA)[12] to develop a plan for a consolidated regional treated wastewater conveyance and disposal system that could ultimately serve the needs of Ione, the nearby California Department of Corrections and Rehabilitation's Mule Creek State Prison, and ARSA's member agencies. Such a project would be beneficial to the communities and agencies involved and would provide superior protection of groundwater quality. Although the planning and implementation schedule of the regionalized system is not known, it is appropriate that this Order provide flexibility for the City of Ione to collaborate on this important effort. Therefore, if compliance with the groundwater concentration limits of this Order is not achieved by the any of the compliance dates, this revised Order establishes a time schedule for planning, design, and construction of unspecified improvements that would include either lining each pond or permanently closing it.

[12] ARSA is a Joint Powers Authority formed in 1978 by the City of Jackson, City of Sutter Creek, the City of Amador, and Amador County to provide wastewater conveyance and disposal services to its member agencies.

Regulatory and Policy Considerations

35. The Central Valley Water Board's Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition, revised September 2009 (the Basin Plan), designates beneficial uses, includes water quality objectives to protect the beneficial uses, and includes implementation plans to implement the water quality objectives.

36. Surface water drainage from the facility is to Sutter Creek, a tributary of the Cosumnes River. The beneficial uses of the Cosumnes River, as stated in the Basin Plan, are municipal and domestic supply, irrigation, stock watering, contact recreation, canoeing and rafting, other noncontact recreation, warm and cold freshwater habitat, warm and cold migration, warm and cold spawning, and wildlife habitat.
The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

37. State Water Resources Control Board Resolution 68-16 (the Antidegradation Policy) prohibits the 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.

    In issuing the 2013 WDRs, the Board found that any degradation authorized by the WDRs was consistent with the maximum benefit to the people of the State, and that the City was employing treatment or control of the wastes in its discharge that could be considered "best practicable treatment or control" of the wastes. However, because the City's discharges are causing groundwater beneath the Facility to exceed applicable secondary MCLs, the City's discharges are currently unreasonably affecting beneficial uses of the underlying groundwater, and are not in compliance with state and regional policies (secondary MCLs are applicable water quality objectives). This CDO sets forth a scope and schedule of work that will ensure that the City's discharges will not allow iron and manganese concentrations to impact beneficial uses in the shallow groundwater, and will ensure that the discharges will be in compliance with applicable state and regional policies.

38. The *Policy for Application of Water Quality Objectives*, in Chapter IV of the Basin Plan, states that the Board is under an obligation to require that actions undertaken by Dischargers to ensure compliance with applicable water quality objectives be conducted in a timeframe that is as short as practicable.

39. 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. In the 2013 WDRs, the Board found, *inter alia*, that Ponds 5, 6, 7 could qualify for the "wastewater" exemption found in section 20090(b) of Title 27. However, the wastewater exemption only applies when discharges from these ponds are in compliance with the Basin Plan. Without the improvements mandated by this CDO, discharges from these ponds would not be in compliance with the Basin Plan, because the discharges are currently causing groundwater to exceed applicable secondary MCLs. This CDO is therefore needed to ensure that the Title 27 wastewater exemption will be applicable to Ponds 5, 6, 7 after the upgrades mandated by this CDO are completed.

40. Water Code section 13301 states, in relevant part:

> When a regional board finds that a discharge of waste is taking place or threatening to take place in violation of requirements or discharge prohibitions prescribed by the regional board or the state board, the board may issue an order to cease and desist and direct that those persons not complying with the requirements or discharge prohibitions (a) comply forthwith, (b) comply in accordance with a time schedule set by the board, or (c) in the event of a threatened violation, take appropriate remedial or preventive action. In the event of an existing or threatened violation of waste discharge requirements in the operation of a community sewer system, cease and desist orders may restrict or prohibit the volume, type, or concentration of waste that might be added to such system by discharges who did not discharge into the system prior to the issuance of the cease and desist order. Cease and desist orders may be issued directly by a board, after notice and hearing.

41. Water Code section 13267 (b) 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 regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

42. The technical reports required by this Order are necessary to assure compliance with both this Order and the WDRs, and to ensure protection of public health and safety. The Discharger owns and operates the facility that discharges the waste subject to this Order.

43. Issuance of this Order is an enforcement action of a regulatory agency, and therefore, is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code § 21000 et seq.), in accordance with California Code of Regulations, title 14, section 15321(a)(2).

IT IS HEREBY ORDERED that Cease and Desist Order R5-2013-0023 is rescinded and, pursuant to Water Code sections 13301 and 13267, the City of Ione, its agents, successors, and assigns shall implement the following measures necessary to ensure long-term compliance with WDRs Order R5-2013-0022 and any amendments or revisions thereto.

Cease and Desist Order R5-2013-0023 rescinded and replaced Cease and Desist Order R5-2011-0019 except for the purpose of enforcing violations that occurred prior to the date of adoption, which was 11 April 2013. This Order continues that exception, and rescinds and replaces Cease and Desist Order R5-2013-0023 except for the purpose of enforcing violations that have occurred to date.

Any person signing a document submitted to comply with this Order shall make the following certification:

> *I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

1. **Effective immediately**, the Discharger shall comply with all requirements of WDRs Order R5-2013-0022, with the exception of Prohibition A.1 (as it relates to the discharge of degraded groundwater into Sutter Creek), Groundwater Limitation D.2, Discharge Specification E.1, and Discharge Specification E.3 as provided for in this Order below.

2. In accordance with the time schedule set forth in this Order and WDRs Order R5-2013-0022, the Discharger shall construct facility improvements that will effectively stop the mechanisms that result in the mobilization and discharge of iron and manganese in violation of the Groundwater Limitations of the 2013 WDRs; shall effectively stop any indirect discharge (seepage) of polluted groundwater to Sutter Creek; and shall bring the facility into compliance with the 2013 WDRs. In order to show that the Discharger's proposal is succeeding in a timely manner, the concentrations of iron and manganese in groundwater in monitoring wells MW-2, MW-2A, MW-3, and MW-3A shall not exceed certain numeric values by specific dates, as described in the paragraphs below.

<u>Compliance Dates</u>

3. If there is any perceived conflict between the compliance dates in the 2013 WDRs and this CDO, then the dates in this CDO take precedence.

Monitoring and Reporting

4. In addition to conducting the monitoring required by Monitoring and Reporting Program (MRP) R5-2013-0022, the Discharger shall:

   a. **Effective immediately**, monitor the wastewater in Ponds 5, 6, and 7 for dissolved oxygen (DO), temperature, and oxygen reduction potential (ORP) monthly. Samples shall be collected and analyzed in accordance with the requirements of MRP R5-2013-0022, and the results shall be presented in the monthly monitoring reports

   b. **Effective beginning with the first calendar quarter of 2015**, monitor the groundwater in wells MW-2, MW-2A, MW-3, and MW-3A quarterly for the following: pH, EC, DO, ORP, TDS, dissolved iron, and dissolved manganese. The sample collection, sample analysis, and information reported shall follow the procedures required by MRP R5-2013-0022 for quarterly groundwater monitoring, and the results shall be presented in the quarterly monitoring reports.

   c. The above monitoring and reporting shall continue until this CDO is rescinded.

Compliance Timeline and Tasks

5. If the Discharger decides to voluntarily line any pond with soil, clay, and/or a geosynthetic material, then **60 days prior** to the start of such lining work, the Discharger shall submit a *Pond Lining Work Plan*. This work plan shall include the specifications for the lining materials; the hydraulic conductivity of the proposed liner material; construction quality assurance tests and inspections, testing frequencies, and test pass/fail criteria; and procedures to ensure that the liner will be properly installed. If soil or clay is the selected lining material, then the Work Plan shall provide documentation of whether the proposed material is clean (based on analytical results). In addition, the Work Plan shall include a water balance containing the information listed in No. 17 of Attachment A to this Order. If the water balance shows that the storage and disposal capacity after liner installation will be less than that described in the 2013 WDRs, then the Discharger shall include an *Amended Report of Waste Discharge* including the information required in Attachment A and proposing additional facilities to maintain adequate storage and disposal capacity. If an amended Report of Waste Discharge is not necessary, then the Discharger shall submit a *Construction Completion Report* **60 days** after completion of the field work. The *Construction Completion Report* shall document whether the installation complied with the work plan, and shall provide the results of all construction quality assurance tests and inspections.

6. By **30 October 2015**, the Discharger shall submit a *2015 Groundwater Concentration Report* documenting the dissolved iron and dissolved manganese concentrations in

monitoring wells MW-2, MW-2A, MW-3, and MW-3A[13]. If the concentrations in MW-2, MW-2A, MW-3, and MW-3A are not the same as, or less than, the concentrations in the table below (as applicable), then by **30 December 2015** the Discharger shall submit a *Future Facilities Planning Update Report* that documents the following:

a. Efforts to collaboratively develop plans for a regionalized effluent conveyance and recycling or disposal system that will include permanent closure or lining of all wastewater ponds at the WWTF to comply with this Order; and

b. If the above efforts did not result in an executed interagency agreement [14] to proceed with planning, design, and construction of a regionalized system, acknowledgement that the Discharger will proceed with planning and design of any improvements needed to comply with this Order and the WDRs.

At a minimum, the *Future Facilities Planning Update Report* shall contain the information required to complete a *Planning/Design* application for a Clean Water State Revolving Fund loan to the State Water Resources Control Board's Division of Financial Assistance[15], and the improvements project shall include the following:

c. Lining all wastewater ponds with a geosynthetic liner or equivalent containment structure designed to prevent movement of wastes from the ponds to waters of the state; and

d. Improvements to increase storage and disposal capacity as needed to accommodate projected growth through 2020 based on the growth projection in the September 2012 Report of Waste Discharge (or a more current projection, if completed).

2015 Constituent Concentration Limits

Well	Constituent	Concentration Limit (µg/L) to be met by 30 October 2015
MW-2	Dissolved Manganese	2,930
MW-2A	Dissolved Manganese	2,560
MW-3	Dissolved Manganese	4,200
MW-3A	Dissolved Manganese	5,500
MW-2	Dissolved Iron	1,940

[13] The iron and manganese concentrations may either be calculated as the median of all values obtained between October 2014 and September 2015, or may be the value measured in September 2015.

[14] Such agreement may include, but may not be limited to, a revised Joint Powers Authority, a Memorandum of Agreement (MOA), a or contractual agreement between two or more public entities that binds the parties to a specific plan of action and schedule that will ensure compliance with this Order.

[15] The application process and information requirements are posted on the web at http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml.

Well	Constituent	Concentration Limit (µg/L) to be met by 30 October 2015
MW-2A	Dissolved Iron	10,820
MW-3	Dissolved Iron	<300
MW-3A	Dissolved Iron	4,000

7. By **30 October 2016**, the Discharger shall submit a *2016 Groundwater Concentration Report* documenting the dissolved iron and dissolved manganese concentrations in monitoring wells MW-2, MW-2A, MW-3, and MW-3A[16]. If the concentrations in MW-2, MW-2A, MW-3, and MW-3A are not the same as, or less than, the concentrations in the table below (as applicable), then by **30 December 2016** the Discharger shall submit a complete *Project Report* that describes an evaluation of facilities improvements options to ensure future compliance with the Groundwater Limitations of the WDRs and provide sufficient treatment, storage, and disposal capacity of projected influent flows from all sources through 2020. Each option shall include eliminating all unlined ponds at the current WWTF site by either permanent closure or installation of geosynthetic liners. At a minimum, the *Project Report* shall contain the information required to complete the technical portion of a *Construction/Implementation* application for a Clean Water State Revolving Fund loan to the State Water Resources Control Board's Division of Financial Assistance[17].

2016 Constituent Concentration Limits

Well	Constituent	Concentration (µg/L) to be met by 30 October 2016
MW-2	Dissolved Manganese	1,850
MW-2A	Dissolved Manganese	1,720
MW-3	Dissolved Manganese	3,900
MW-3A	Dissolved Manganese	4,500
MW-2	Dissolved Iron	1,760
MW-2A	Dissolved Iron	9,020
MW-3	Dissolved Iron	<300
MW-3A	Dissolved Iron	3,500

[16] The iron and manganese concentrations may either be calculated as the median of all values obtained between October 2015 and September 2016, or may be the value measured in September 2016.

[17] The application process and information requirements are posted on the web at http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml.

8. By **30 October 2017**, the Discharger shall submit a *2017 Groundwater Concentration Report* documenting the dissolved iron and dissolved manganese concentrations in monitoring wells MW-2, MW-2A, MW-3, and MW-3A[18]. If the concentrations in MW-2, MW-2A, MW-3, and MW-3A are not the same as, or less than, the concentrations in the table below (as applicable), then by **30 December 2017** the Discharger shall submit an *Facility Improvements Design Report* and a *Report of Waste Discharge* for the preferred improvements project proposed in the *Project Report* required pursuant to Item 7 above.

   The *Facility Improvements Design Report* shall include plans and specifications for the improvements project, and the *Report of Waste Discharge* shall include the information specified in Attachment A, which is attached and forms part of this Order by reference.

   The improvements project shall be completed by **30 October 2018.** Additionally, by **30 December 2018,** the Discharger shall submit a *Construction Completion Report,* documents the completion of the improvements project and certifies that the improvements are fully functional. The report shall include a *Pond Liner Construction Quality Assurance (CQA) Report* that documents all construction observation, testing, and test results for the pond lining system to verify that all seams and liner penetrations are leak-free at the time of acceptance, and the entire liner has been inspected for visible material defects and construction damage such as holes or tears prior to acceptance.

2017 Constituent Concentration Limits

Well	Constituent	Concentration (µg/L) to be met by 30 October 2017
MW-2	Dissolved Manganese	770
MW-2A	Dissolved Manganese	880
MW-3	Dissolved Manganese	3,600
MW-3A	Dissolved Manganese	3,500
MW-2	Dissolved Iron	1,460
MW-2A	Dissolved Iron	7,220
MW-3	Dissolved Iron	<300
MW-3A	Dissolved Iron	3,000

9. If the Discharger was not required by Items 6 through 8 to line or close unlined ponds used to contain wastewater, then **by 30 October 2018**, the Discharger shall submit a

[18] The iron and manganese concentrations may either be calculated as the median of all values obtained between October 2016 and September 2017, or may be the value measured in September 2017.

Groundwater Compliance Evaluation and Capacity Study Report. The Report shall include:

a. An evaluation of the concentration trends in monitoring wells MW-2, MW-2A, MW-3, and MW-3A between 2012 and 2018, and a discussion of whether the concentrations are decreasing, stable, or increasing.

b. Projected dates by which the dissolved iron and manganese concentrations in all four wells will comply with the Groundwater Limitations (i.e., Secondary MCLs) of the WDRs.

c. An evaluation of other options to accelerate compliance with the Groundwater Limitations of the WDRs, which shall include, but not be limited to, options that include relocation or other means of eliminating unlined ponds at the current WWTF site.

d. Documentation of actual influent flows for each year from 2013 through 2017 and projected influent flows for each subsequent year through 2030. If the projection shows that additional treatment, storage, or disposal capacity will be required to accommodate actual or projected growth, the report shall include a plan and schedule to submit a *Report of Waste Discharge* which contains a specific proposal for facility improvements to create adequate capacity at least two years before the current capacity would be exceeded.

In addition to the above, the Discharger shall comply with all applicable provisions of the Water Code that are not specifically referred to in this Order. As required by the Business and Professions Code sections 6735, 7835, and 7835.1, all technical reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed/stamped by the registered professional.

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 or may issue a complaint for administrative civil liability.

Failure to comply with this Order or with the WDRs 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 that this Order becomes final, except that if the thirtieth day following the date that this Order becomes final 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 the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 5 December 2014.

Original signed by

PAMELA C. CREEDON, Executive Officer

LF/ALO: 11/6/2014

Attachment A: Technical Information for a Report of Waste Discharge

Attachment A to CDO R5-2014-0157

TECHNICAL INFORMATION
FOR A REPORT OF WASTE DISCHARGE

For

Discharges to Land in the WDR (Non 15[1]) Program (Individual WDRs Only)

This document provides guidance for applying for individual waste discharge requirements only. If you believe that your discharge would be appropriately regulated under general waste discharge requirements or general waiver, please see the links below and contact Central Valley Water Board staff for guidance.

General WDRs: http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/#General
Waivers: http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/#Waivers

What is a Report of Waste Discharge?

A Report of Waste Discharge (ROWD) is an application for waste discharge requirements. A ROWD consists of the following:

1. A completed and signed Form 200, which can be down loaded from the internet at http://www.waterboards.ca.gov/publications_forms/forms/docs/form200.pdf.
2. A technical report prepared by a California registered Civil Engineer that presents the information listed in the table below.
3. For a new or previously unpermitted discharges, a check for the first annual fee made payable to the *State Water Resources Control Board*. Consult with staff to determine the required fee. There is no fee if you are applying for revised or updated WDRs because you are already subject to an annual permit fee. The current fee schedule can be viewed at the following link: http://www.waterboards.ca.gov/resources/fees/index.shtml#wdr

Compliance with the California Environmental Quality Act (CEQA)

Although not required as part of the ROWD, for new, previously unpermitted, or expanding/changing discharges, you must also submit a copy of any draft and final environmental review documents prepared to comply with the California Environmental Quality Act (CEQA).

If the local planning agency (city or county, as applicable) or another public agency has determined that the project (or expansion, changes, etc.) does not require any discretionary action by that agency, the Central Valley Water Board may be the lead agency for the purposes of CEQA, and you will be required to submit an Initial Study and pay all fees and other costs associated with the CEQA process unless the Board determines that the action falls within the scope of a categorical or statutory exemption. Fees associated with the filing of an Initial Study may include a California Department of Fish and Game fee, County Clerk recording fees, and costs for publishing the CEQA Notice of Intent in a local newspaper. Consult with your local planning agency and Central Valley Water Board

[1] The Non 15 Program regulates discharges to land that are exempt from Title 27 of the California Code of Regulations. See the following link for a brief explanation of Title 27 and exemptions that may be used: http://www.waterboards.ca.gov/water_issues/programs/land_disposal/waste_discharge_requirements.shtml

staff if you have any questions about CEQA. Additional information about CEQA is also available at the following link: http://opr.ca.gov/m_ceqa.php.

What is Required for the ROWD Technical Report?
Please note the following tips to expedite the ROWD review and waste discharge requirements development:

- Providing the information in the same order as the list below will help to expedite the ROWD review. Staff will use this as a checklist.
- If any of the information is missing or incomplete, the ROWD will be deemed incomplete and the process (and your project) will be delayed until all of the required information is submitted. You will be notified in writing of the ROWD status after it has been reviewed. If the ROWD is incomplete, we will specify the additional information that is required to complete the ROWD.
- All numerical data presented in tables and calculations performed using spreadsheets should be provided in digital form (MS Excel compatible spreadsheet) as well as hard copy.
- If some of the information listed below can be found in a previous technical report prepared by a registered professional, the ROWD can incorporate the report as an appendix, but the ROWD text must specify where in the report the required information can be found. However, if appended reports contain information that conflicts with the body of the ROWD, it may cause further delays.

	A. General Information
	1. Is this a new/proposed or existing facility?
	2. If this is an existing facility, is the discharge currently regulated under Waste Discharge Requirements (WDRs) issued by the Central Valley Water Board?
	a. If so, provide the WDRs order number.
	b. If not, provide the name of the local agency that issued the current permit.
	3. Provide a copy of any other permits that reference or relate to the wastewater disposal system. This includes Use Permits and Surface Mining and Reclamation Act (SMARA) reclamation plans, etc.
	4. Provide the following for the facility that generates the waste and the site where the waste is discharged:
	a. Street address (provide street name and distance from nearest cross street if there is no street number).
	b. The approximate latitude and longitude of the facility that generates the wastewater, wastewater treatment facilities, and wastewater land disposal areas.
	c. Township, Range, and Section.
	d. Assessor's parcel numbers.
	B. Wastewater Facility and Discharge Complete this section for both new/proposed facilities and existing facilities.
	1. A description of the sources and types of wastewater flowing into the system from:

	a. residential (population served and number of connections or equivalent dwelling units).
	b. commercial (number of connections by type).
	c. industrial (number of connections by type).
	2. Design influent flow rates (average daily, dry weather daily, peak hour, peak day, and peak month), and the design treatment capacity of the system with respect to each of these. For new/proposed facilities, provide the methods used to estimate these design parameters and copies of all calculations.
	3. For existing facilities, a summary table of monthly influent flow totals and monthly precipitation totals for the last five years. Explain any data gaps, outliers, and/or unusual circumstances that might affect measured flow rates. If sewer inflow and infiltration (I/I) contributes significantly to influent flow, provide an I/I analysis to project I/I as a function of total annual precipitation and/or groundwater level as appropriate.
	4. A detailed description of the facilities that generate wastewater, and all wastewater conveyance, treatment, and disposal systems. Use site plans and conceptual drawings as appropriate to illustrate locations and typical construction. Include all treatment processes. The following maps, plans, and illustrations are needed:
	a. A facility location map showing local topography, the facility location and/or boundaries, streets, and surface waters (including storm water drainage ditches, irrigation canals, and irrigation/tailwater ditches).
	b. A process flow schematic for the entire treatment and disposal system. Include existing and proposed flow monitoring devices and sampling locations proposed to determine compliance with the WDRs.
	c. A scaled treatment plant site plan.
	d. A scaled map showing the limits of all proposed wastewater treatment, storage and disposal areas.
	5. Characterization of the source water (the community or process water supply), influent wastewater quality (prior to treatment or discharge), and treated effluent quality. See Table 1 for a minimum list of constituents to be analyzed.
	6. For POTWs and domestic wastewater facilities, a description of the sewer system, sewer materials and age, and lift station details (type, location, capacity, backup systems, and alarm features). Discuss potential inflow and infiltration (I/I) rates in light of local groundwater conditions and sewer system materials/design. For industrial facilities, a description of the industrial wastewater collection and conveyance system.
	7. A description of proposed alarm systems, emergency wastewater storage facilities, and other means of preventing treatment system bypass or failure during reasonably foreseeable overload conditions (e.g., peak flows, power failure, sewer blockage). Consider both potential problems at the treatment system and within the conveyance system.
	8. Preventive and contingency measures for controlling spills and accidental discharges.
	9. Flood and frost protection measures (structural and operational) employed at the facility.
	10. For debris, grit and screenings, sludge, and biosolids the following:
	a. A description of solids generation rates, on-site treatment and handling systems, and short-term storage procedures.
	b. A description of solids disposal practices.
	c. For facilities that do not have continuous sludge wasting systems (i.e., where sludge

	accumulates in treatment and/or storage ponds), the frequency of assessing accumulated sludge volume, the date of the last sludge volume assessment, the date of the last sludge cleanout, and expected frequency of future sludge cleanout activities
	11. For each wastewater treatment, storage, or disposal pond and containment structure, provide the following information:
	a. Identification (name) and function of the pond.
	b. Surface area, depth, and volumetric capacity at two feet of freeboard.
	c. Height (relative to surrounding grade), crest width, interior slope, and exterior slope of each berm or levee.
	d. Materials used to construct each berm or levee.
	e. Description of engineered liner, if any. Include a copy of the Construction Quality Assurance (CQA) Report if one was prepared.
	f. Estimated steady state percolation rate for each unlined pond.
	g. Depth to shallow groundwater below the base and pond inverts.
	h. Overfilling/overflow prevention features.
	i. Operation and maintenance procedures.
	12. For subsurface disposal systems, provide the design basis and documentation demonstrating that the system has been designed in accordance with applicable regulations, codes, ordinances, and guidelines. If the design deviates from these requirements, provide justification in terms of system longevity, maintainability, and groundwater protection.
	13. If treated domestic effluent will be recycled for beneficial reuse or if wastewater will reused or land-applied[2], provide a complete description of the following:
	a. Ownership and contact information for each landowner[3].
	b. Effluent disinfection system.
	c. Effluent conveyance systems.
	d. Water recycling/Land application areas (LAA) areas.
	e. Cropping plans.
	f. Planned operations (planting and harvest, irrigation method, irrigation frequency, irrigation amounts).
	g. Expected nutrient loadings (pounds per acre per year total nitrogen).
	h. Expected salt loadings (pounds per acre per year total dissolved solids).
	i. Tailwater management methods.

[2] Uses of recycled water that are limited to landscape irrigation (including golf courses) can be regulated under General WDRs issued by the State Water Board. See this webpage for more information: http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/landscape_irrigation_general_permit.shtml.

[3] Landowners are typically named in WDRs as co-dischargers, and the WDRs may include separate requirements with which co-dischargers must comply.

	j. Storm water runoff management methods.
	k. Setback distances from the edge of each recycling/land application area from the property boundary, public streets, occupied structures owned by others, and surface waters/surface water conveyances.
	l. Plans that illustrate items c, d, i, j, and k above
	14. If wastewater effluent will be recycled pursuant to Title 22 of the California Code of Regulations (e.g., if domestic wastewater is recycled to grow crops, irrigate landscaping, provide pasture for livestock, or for landscape or recreational impoundments, including reclamation sites owned by a POTWs, unless water is recycled solely for irrigation of landscaping at the POTW site) a Title 22 Engineering Report must be submitted to both the Central Valley Water board and California Department of Public Health[4].
	15. Projected monthly water balances demonstrating adequate containment capacity for both the average rainfall year and the 100-year return period total annual precipitation, including consideration of at least the following:
	a. For POTWs and private domestic wastewater facilities, initial baseline influent and I/I flows as well as baseline influent and I/I flows at full build out with an aging sewer system.
	b. A minimum of two feet of freeboard in each pond at all times (unless a registered civil engineer determines that a lower freeboard level will not cause overtopping or berm failure).
	c. Historical local evapotranspiration, pan evaporation, and lake evaporation data (monthly average values).
	d. Local precipitation data with the 100-year return period annual total distributed monthly in accordance with mean monthly precipitation patterns.
	e. Proposed recycling area/land application area/disposal system hydraulic loading rates distributed monthly in accordance with expected seasonal variations based on crop evapotranspiration rates.
	f. Projected long-term percolation rates (including consideration of percolation from unlined ponds and the effects of solids plugging on all ponds).
	16. Proposed flow limits and basis for the limits. Consider dry weather flows vs. peak flows and seasonal variations. Include the technical basis for the proposed flow limit (e.g., design treatment capacity; hydraulic capacity of a main lift station, headworks, or other system element; and demonstrated effluent storage/disposal capacity).
	17. A narrative description of treatment system operation and maintenance procedures to be employed, including those associated with effluent storage and disposal.
	18. For POTWs, the level of operator certification and staffing; the names and grade levels of all certified operators, and the hours that the facility is manned.
	19. For privately owned domestic wastewater treatment facilities, the names and grade levels of all certified operators, and the hours that the facility is manned. If the facility does not have a certified operator, provide justification for not retaining one.

[4] To the extent this information is already presented in the Title 22 Engineering Report, the RWD may incorporate that report by reference. The Title 22 Engineering Report must also be submitted to the California Department of Public Health for review and approval.

	C. Planned Changes in the Facility and Discharge (for existing facilities only)
	1. Describe in detail any and all planned changes in the facility or discharge, addressing each of items listed in Section B above.
	D. Local and Site-Specific Conditions (Illustrate with maps as appropriate)
	1. Neighboring land uses.
	2. Typical crops grown (if agricultural area).
	3. Irrigation water source(s) and volume and quality data (if agricultural area).
	4. Terrain and site drainage features.
	5. Nearest surface water drainage course.
	6. FEMA floodplain designation(s).
	7. Average Annual precipitation (inches)
	8. 100-year 365-day precipitation (inches)
	9. Reference evapotranspiration (monthly and annual total)
	10. Pan evaporation (monthly and annual total)
	11. A description of the types and depths of soil underlying ponds and/or effluent disposal areas (include a copy of the geotechnical report and/or NRCS soil report). Include at least the following:
	a. Depth of unsaturated soil when groundwater is closest to the surface.
	b. Soil types based on site-specific information, sampling locations (accurately measured and recorded), description and results of percolation tests or other tests used to estimate soil long-term infiltration rates. Include depth, thickness, and soil horizons. Soils must be described at a minimum of five feet below the bottom of any disposal unit.
	c. Bedrock type and condition encountered in disposal area, if any.
	d. A scaled map depicting soil/rock types and test locations.
	12. Provide the following information about hydrogeology and groundwater:
	a. Stratigraphy, groundwater elevation and gradient, transmissivity, and influence of all recharge and pumping sources (site conceptual model).
	b. Elevation and gradient of first groundwater at the facility
	c. Depth to highest anticipated groundwater based upon onsite measurements taken during wet season.
	d. Shallow groundwater quality for typical waste constituents, up/down gradient. (See Table 1)
	e. Information on monitoring well locations, construction details, and locations of any geological features (e.g. aquitards, subterranean channels, faults) and aquifer characteristics.
	f. Summary of historical groundwater monitoring results (last 5 years for existing facilities, 2 years for new/planned facilities).
	E. Antidegradation Analysis
	The State Water Resources Control Board Resolution No. 68-16 (the Antidegradation Policy) requires that the Central Valley Water Board maintain the high quality of waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the state, will not unreasonably affect beneficial uses, and will not result in exceedances of one or more water quality objectives. If a discharge will degrade groundwater quality but will not cause an exceedance of one or more water quality objectives, the discharger must demonstrate that all practicable treatment or control measures have been implemented or will be implemented such that the Board can consider these

	measures to represent the "best practicable treatment or control" (BPTC) of the constituents of concern. Demonstrating that BPTC has been, or will be, implemented at the site can provide justification for the Board to allow the current level of degradation to continue or increase (as applicable), or for the Board to allow any degradation in the case of a new discharge. The Antidegradation Policy is incorporated into our Basin Plans, which also include implementation plans that we follow. See the following link for the Basin Plans and other important policy documents: http://www.waterboards.ca.gov/centralvalley/plans_policies/
	The Antidegradation Analysis must include the following:
	1. For existing facilities, whether the discharge has caused degradation. If so, for which constituents, to what degree, and whether the discharge has caused exceedance of a water quality objective.
	2. The potential for the discharge to degrade groundwater quality (for new discharges) or further degrade groundwater quality (for existing discharges, whether or not the discharge is expanding).
	The assessment must be made based on site-specific data and shall include the following items for each constituent listed in the effluent category on Table 1:
	a. Characterization of all waste constituents to be discharged that have the potential to degrade groundwater quality;
	b. Characterization of shallow groundwater quality (i.e., the uppermost layer of the uppermost aquifer) for typical waste constituents[5] upgradient and downgradient of the site and comparison to established water quality objectives [6] (include tabulated historical groundwater monitoring data and groundwater elevation contour maps for the last eight monitoring events);
	c. A description of the geology and hydrogeologic conditions of the site including groundwater elevation and gradient, transmissivity, influence of all known recharge and pumping sources, and subsurface conditions at the facility, including any proposed new disposal site or storage ponds;
	d. Groundwater degradation , if any, that has resulted from existing operations, other nearby discharges, or natural occurrences;
	e. The areal extent that the discharge has impacted or will impact the quality of the shallow groundwater, if any;
	f. The concentration found and/or expected increase in concentration in shallow groundwater for each constituent.
	g. If degradation has occurred or is expected to occur describe the following:
	i. Any facility design features and operational practices that reduce the potential for groundwater degradation (treatment or control). Such features might include salinity source control, other pollutant source control, advanced treatment, disinfection, concrete treatment structures, and pond lining systems, etc.
	ii. Additional treatment or control measures that could be implemented and a preliminary capital and annual operations and maintenance cost estimate for each.

[5] Include analyses for the following: total coliform organisms, total dissolved solids, fixed dissolved solids, electrical conductivity, nitrate nitrogen, total nitrogen, and major anions and cations.

[6] Compare to Basin Plan water quality objectives, including drinking water standards, agricultural water quality goals, etc.

	iii. How current treatment and control measures are justified as BPTC (i.e., what justifies not implementing additional measures);
	iv. How no water quality objectives will be exceeded; and
	v. Why allowing existing and/or anticipated degradation is in the best interest of the people of the state.
	F. Industrial Storm Water Permit
	The State Water Resources Control Board adopted Order 97-03-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. Many industrial facilities and some domestic wastewater treatment facilities are required to obtain coverage under this permit. Provide evidence that the facility is exempt or has applied for coverage under the Industrial Storm Water Permit. See the following link for more information: http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/
	G. General WDRs for Sanitary Sewer Systems.
	The State Water Resources Control Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (Order 2006-0003-DWQ). The permit requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to obtain coverage. Provide evidence that the facility is exempt or has applied for coverage under the General WDRs for Sanitary Sewer Systems. See the following link for more information: http://www.waterboards.ca.gov/water_issues/programs/sso/index.shtml
	H. Department of Water Resources Well Standards
	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 94-81* (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. Discuss whether existing monitoring wells at the facility were constructed in accordance with the Department of Water Resources Well Standards. See the following link for more information: http://wwwdpla.water.ca.gov/sd/groundwater/california_well_standards/well_standards_content.html

Table 1

The Report of Waste Discharge must characterize the groundwater (G), source water (S), treatment system influent (I), and effluent discharge (E) for, at minimum, the constituents indicated in the list below. The characterization must be based on a statistically significant number of representative samples as determined by an appropriately registered and/or licensed professional. All media must also be characterized for all additional waste constituents that may be in the discharge based on the facility processes employed but not listed below.

Constituent [1]	Units	Minimum Recommended Characterization Data			
		POTW/ Domestic	Food Processor	Sand and Gravel	Other Industry
Biochemical Oxygen Demand	mg/L	I, E	I, E		E
Chemical Oxygen Demand	mg/L	G, E	I, E		E
Settleable Matter	ml/L	E	E		E
Total Suspended Solids	mg/L	I, E	I, E		E
Total Dissolved Solids	mg/L	G, S, I, E	G, S, E	G	G, S, E
Fixed Dissolved Solids	mg/L		E		G, S, E
Electrical Conductivity	umhos/cm	G, S, I, E	G, S, I, E	G, S, I, E	G, S, I, E
Total Kjeldahl Nitrogen as N	mg/L	G, S, E	G, S, E		G, S, E
Ammonia Nitrogen as N	mg/L	G, S, E	G, S, E		G, S, E
Nitrate Nitrogen as N	mg/L	G, S, E	G, S, E		G, S, E
pH	pH Units	G, S, I, E	G, S, E	G, S, I, E	G, S, I, E
General Minerals[2]					
Alkalinity	mg/L	G, S, E	G, S, E	G, S, E	G, S, E
Hardness	mg/L	G, S, E	G, S, E	G, S, E	G, S, E
Bicarbonate	mg/L	G, S, E	G, S, E	G, S, E	G, S, E
Carbonate	mg/L	G, S, E	G, S, E	G, S, E	G, S, E
Calcium	mg/L	G, S, E	G, S, E	G, S, E	G, S, E
Magnesium	mg/L	G, S, E	G, S, E	G, S, E	G, S, E
Chloride	mg/L	G, S, E	G, S, E	G, S, E	G, S, E
Potassium	mg/L	G, S, E	G, S, E	G, S, E	G, S, E
Sodium	mg/L	G, S, E	G, S, E	G, S, E	G, S, E
Sulfate	mg/L	G, S, E	G, S, E	G, S, E	G, S, E
Metals[3]					
Aluminum	ug/L	E			E
Antimony	ug/L			S, E	
Arsenic	ug/L	G, S, E	G, S, E	G, S, E	G, S, E

Constituent [1]	Units	Minimum Recommended Characterization Data			
		POTW/ Domestic	Food Processor	Sand and Gravel	Other Industry
Barium	ug/L			S, E	
Beryllium	ug/L			S, E	
Boron	ug/L	G	G	G, S, E	G
Cadmium	ug/L			S, E	
Chromium (IV)	ug/L			S, E	
Chromium (III)	ug/L			S, E	
Total Chromium	ug/L	G	G	G, S, E	G
Cobalt	ug/L			S, E	
Copper	ug/L	E	E	S, E	E
Fluoride	ug/L			S, E	
Iron	ug/L	G, S, E	G, S, E	G, S, E	G, S, E
Lead	ug/L	E		S, E	E
Mercury	ug/L	E		S, E	E
Manganese	ug/L	G, S, E	G, S, E	G, S, E	G, S, E
Molybdenum	ug/L			S, E	
Nickel	ug/L			S, E	
Selenium	ug/L			S, E	
Silver	ug/L			S, E	
Thallium	ug/L			S, E	
Vanadium	ug/L			S, E	
Zinc	ug/L	E		S, E	E
Disinfection By-Products[4]	ug/L	G, E	E		E
Formaldehyde[5]	ug/L	G, E	E		E
Phenols[5]	ug/L	G, E			E
Priority Pollutants[6]	Various	G, E			E

[1] With the exception of wastewater samples, samples for metals analysis must first be filtered using a 0.45-micron filter. 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] General minerals analyses shall be accompanied by a cation/anion balance demonstrating complete analyses.

[3] Where constituents are analyzed as part of other suites of constituents, the results may be substituted to avoid redundant analyses (i.e., arsenic results collected to fulfill the metals suite requirements may also be used to fill the Priority Pollutant suite requirements provided appropriate detection limits are used.).

[4] If wastewater is disinfected using chlorination or chlorination is used in internal disinfection processes.

[5] If the facility accepts holding tank waste from RVs, boats, or portable toilets.

[6] The Discharger must determine which priority pollutants, if any, are likely to be present in the discharge at concentrations that might degrade groundwater quality, and must provide characterization data for those constituents.