

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

WASTE DISCHARGE REQUIREMENTS ORDER R5-2014-0147  
FOR  
CITY OF LIVINGSTON  
DOMESTIC WASTEWATER TREATMENT FACILITY  
MERCED COUNTY

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

**Background**

1. On 25 November 2002, the City of Livingston (Discharger) submitted a Report of Waste Discharge (RWD) for the construction of upgrades to its wastewater treatment facility (WWTF), and an increase in wastewater flows up to 2.0 million gallons per day (mgd).
2. The Discharger owns and operates the WWTF and is responsible for compliance with these Waste Discharge Requirements (WDRs).
3. The WWTF is at 7160 North Gallo Road, Livingston, (section 22, Township 6 South, Range 11 East, MDB&M) and occupies Assessor's Parcel Numbers (APN) 047-080-003, 047-080-004, 047-080-005, 047-160-001.
4. WDRs Order 89-066, adopted by the Central Valley Water Board on 28 May 1989, prescribes requirements for a WWTF consisting of a primary clarifier, chlorination facilities, and four evaporation/percolation ponds (two ponds to be constructed). Order 89-066 allows a monthly average dry weather flow of 1.18 mgd and an increase up to 1.8 mgd upon construction and certification of the two new ponds.
5. Cease and Desist Order (CDO) 98-057 was adopted on 27 February 1998. CDO 98-057 was issued due to unauthorized discharges to the Merced River. CDO 98-057 includes a time schedule requiring the City to implement short-term and long-term measures to come into compliance with WDRs Order 89-066. Subsequent discharges to the Merced River and effluent salinity issues lead to the adoption of Special Order 98-218 on 23 October 1998, which modifies CDO 98-057 to include salinity source control tasks and a connection ban. On 28 January 2000, Special Order 5-00-005 was adopted to remove the connection ban.
6. To comply with CDO 98-057, the Discharger constructed new WWTF units that went on-line in 2004 and that are described in Findings below. WDRs Order 89-066 needs to be updated to ensure that the discharge is consistent with Central Valley Water Board plans and policies and prescribe requirements that reflect changes the Discharger has made to its WWTF. WDRs Order 89-066 will be rescinded and replaced with this Order. CDO 98-057 and Special Orders 98-218 and 5-00-005 were rescinded with Order R5-2014-0148.

### Wastewater Treatment and Disposal

7. The November 2002 RWD describes new WWTF units that include: a new headworks, a new oxidation ditch, two new secondary clarifiers, four new soil cement sludge drying beds, one new soil cement sludge holding pad, and two new evaporation/percolation ponds.
8. The WWTF ponds and their configuration is shown on Attachment A, which is attached hereto and made a part of this Order by reference. Ponds 4, 5, and 6 are within the 100-year floodplain and the City has not discharged to them since Mid-2008. Ponds 1, 2, and 3 are adjacent to the Merced River but above the 100-year floodplain. However, in 2008, Pond 2's levee failed, resulting in an uncontrolled discharge of undisinfected effluent to the Merced River.
9. On 21 October 2010, the Discharger submitted a report titled *City of Livingston Percolation Ponds Reconfiguration* amending the RWD and proposing reconfiguration of the existing ponds. The modification plan includes permanent abandonment of Ponds 4, 5, 6 and the reconfiguration of Ponds 1, 2, and 3 into 1R and 10 to provide a buffer between the ponds and the Merced River as shown in Attachment B, which is attached hereto and made part of this Order by reference. According to the report the reconfigured ponds would have a total disposal capacity of 2.0 mgd. This Order includes a provision requiring the Discharger to implement the project described in the 21 October 2010 *City of Livingston Percolation Ponds Reconfiguration* report. Alternatively, the Discharger may consider alternative projects to increase disposal capacity to 2.0 mgd, provided that these projects are within the footprint of the Ponds 1, 2, and 3, are consistent with California Environmental Quality Act document described in Finding 55, and are first approved by the Board's Executive Officer.
10. The WWTF now consists of a headworks, one oxidation ditch, two secondary clarifiers, two existing scum ponds, four soil cement lined sludge drying beds with decanting structures, and a half-acre soil cement sludge holding pad. The Discharger never completed the pond reconfiguration described in the *City of Livingston Percolation Ponds Reconfiguration* report, and the Discharger now relies solely on Pond 7 and Pond 8, also shown in Attachment A. A process flow schematic is shown on Attachment C, which is attached hereto and made part of this Order by reference. The current disposal capacity of the WWTF is limited to 1.0 mgd when either Pond 7 or Pond 8 is out of service for maintenance.
11. The Discharger's self-monitoring reports (SMRs) from January 2011 through December 2013 indicate the monthly average flow rates range from 1.00 mgd to 1.08 mgd, or about the individual disposal capacity of Pond 7 or Pond 8. Because the ponds cannot both be operated continuously (but must periodically be out of service), the Discharger threatens to exceed its disposal capacity when it performs maintenance on either pond. This Order includes a time schedule that requires the Discharger to implement measures to complete the reconfiguration proposed in the October 2010 *City of Livingston Percolation Ponds Reconfiguration* report or to find another suitable project that will ensure a disposal capacity of 2.0 mgd. Until the Discharger reconfigures Ponds 1, 2, and 3, Pond 1 and possibly Pond 3 could be used in emergencies. Given this, and with proper management, the WWTF is able to dispose of a monthly average daily flow of 1.18 mgd. This Order maintains the WWTF's flow limit at 1.18 mgd until Provision

G.3. is satisfied and the Discharger can demonstrate to the Central Valley Water Board it has sufficient disposal capacity for 2.0 mgd.

12. Annual average effluent quality for five-day biochemical oxygen demand (BOD<sub>5</sub>), settleable solids, dissolved oxygen (DO), electrical conductivity (EC), and pH are shown in Table 1.

Table 1. Annual Average Effluent Quality

	BOD mg/L	Settleable Solids ml/L	DO mg/L	EC umhos/cm	pH <sup>1</sup> pH Units
2010	5.0	<1	8.5	653	7.49
2011	5.6	<1	8.4	692	7.23
2012	4.5	<1	9.1	858	7.11
2013	7.3	<1	8.6	693	7.00

<sup>1</sup> Calculated by taking the averages of the hydrogen ion concentrations and converting them back to pH.

13. Monitoring and Reporting Program (MRP) 89-066 requires the Discharger to sample for nitrate as nitrogen (NO<sub>3</sub> as N) and total kjeldahl nitrogen (TKN) twice a year. The Self-Monitoring Reports (SMRs) from 2010 through 2013 do not contain NO<sub>3</sub> as N and TKN as required.
14. The oxidation ditch was designed to reduce effluent nitrogen concentrations and produce an effluent with total nitrogen concentration of less than 10 mg/L. The influent and effluent total nitrogen concentrations, based on a sample collected on 21 July 2014, were 70 mg/L and 4.2 mg/L, respectively.
15. Sludge produced from the WWTF is dried on the soil cement sludge drying beds, stored in the soil cement sludge holding pad, and hauled off-site by Jim Brisco Enterprises, Inc., (Jim Brisco) to Ed Silva Ranch Farm in El Nido. Merced County Division of Environmental Health permits the land application of biosolids within the County. Jim Brisco is a permitted sludge applicator that has a Sludge Management Plan approved by Merced County.
16. The soil cement sludge holding pad was constructed on top of a former burn dump that closed in 1969, and it is within the 100-year flood plain. Finding 22 provides more detail on the flood plain. The Discharger has not submitted an engineering report detailing how the soil cement sludge holding pad was built, or whether it is sufficiently protective of groundwater quality. This Order requires the Discharger to submit technical reports evaluating the construction of the soil cement sludge holding pad, whether there are any impacts to groundwater associated with sludge storage on the soil cement holding pad, and how it will be protective of groundwater. This Order also requires that the Discharger propose measures that will ensure the soil cement sludge holding pad will be protected from inundation and washout during a 100-year flood event.
17. Scum removed from the secondary clarifier is stored in the scum ponds. Scum has not been removed from the scum ponds since they were constructed in 1989. Based on engineering plans, it appears that only the south scum pond is lined with soil cement. The Discharger has

not submitted a technical report containing a final design report and performance demonstration (i.e., permeability) for the lined scum ponds. It is uncertain how the scum ponds were constructed and whether the current integrity of the soil cement liner is sufficient to serve as an impermeable layer that is protective of groundwater quality. This Order requires the Discharger to submit a technical report evaluating the construction of the scum ponds and demonstrating their permeability and whether they are protective of groundwater quality.

### Wastewater Collection System

18. The Discharger's collection system is comprised of about 29 miles of gravity sewer lines and nine lift stations. The nine lift stations are Robin Road lift station, Brairwood Drive lift station, "I" Street lift station, Peach Avenue lift station, Burgundy Drive lift station, Dwight Way lift station, Walnut Avenue lift station, Nevada Way lift station, and 99 lift station.
19. On 2 May 2006, the State Water Resources Control Board (hereafter State Water Board) adopted a General Sanitary Sewer System Order (State Water Resources Control Board Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*) (the "General Order"). The General Order requires that all public agencies that own or operate sanitary sewers systems greater than one mile in length comply with the General Order. The Discharger's collection system is greater than one mile in length. The Discharger has applied for, and is enrolled under, the General Order.

### Site-Specific Conditions

20. Supply water for the City of Livingston is provided by eight groundwater wells within the City limits. The quality of source water, based on the City's 2011 through 2013 Consumer Confidence Report, is as follows.

Table 2. Source Water Quality

	Sodium (Na) mg/L	Chloride (Cl) mg/L	Manganese (Mn) mg/L	NO <sub>3</sub> as N mg/L	EC umhos/cm	Total Dissolved Solids (TDS) mg/L
2011	49	27	0.052	3.6	361	229
2012	58	23	0.063	3.6	---	---
2013	47	26	0.029	---	373	243

21. The nearest surface water body is the Merced River, which is tributary to the San Joaquin River.
22. According to the Federal Emergency Management Agency (FEMA) maps (Map Numbers 06047C0175G) portions of the WWTF (soil cement sludge holding pad, north scum pond, and Ponds 4, 5, and 6) are in Zone A. In Zone A there is a one percent annual chance of flooding (typically called the 100-year floodplain). No depth or base flood elevations are shown in the FEMA map for this site.

23. Soils in the vicinity of the WWTF are Hanford fine sandy loam, Grangeville loam, and Dinuba sandy loam, according to the Web Soil Survey published by the United States Department of Agriculture Natural Resources Conservation Service. Hanford fine sandy loam, Grangeville loam, and Dinuba sandy loam have land capability classifications of 1, 2w, and 2s, respectively. Soils with "Class 1" have slight limitations that restrict their use. Soils with "Class 2" have moderate limitations that restrict the choice of plants or require moderate conservation practices. The subclass "w" indicates that water in or on the soil interferes with plant growth or cultivation. In some soils, the wetness can be partly corrected by artificial drainage. Ponding, a high water table, and/or flooding affect the soils that are assigned this subclass. The subclass "s" shows that the soil has limitations within the root zone, such as shallowness of the root zone, a high content of stones, a low available water capacity, low fertility, and excessive salinity or sodicity. Overcoming these limitations is difficult.
24. The WWTF is in an arid climate characterized by dry summers and mild winters. The rainy season generally extends from October through April. Average annual pan evaporation in the discharge area is about 69 inches, according to the National Oceanic and Atmospheric Administration Technical Report NWS 34, *Mean Monthly, Seasonal, and Annual Pan Evaporation for the United States*. The average annual precipitation in the discharge area is about 13 inches based on 29 years of data collected by the Western Regional Climate Center.
25. Land uses in the vicinity of the WWTF consist of agriculture and surface waters (i.e., Merced River). Primary crops grown in the area include almonds, sweet potatoes, field crops, and vineyards, according to the Merced County 2002 Land Use Map published by the Department of Water Resources (DWR).

#### **Pretreatment**

26. The Discharger had one industrial discharger; Fresenius Medical Care (Fresenius) at 420 Industrial Drive, Livingston. Fresenius was a facility that manufactured hemodialysis concentrate solution. Fresenius was a significant contributor of high salinity wastewater to the WWTF (see table below). On 16 July 1998, the Discharger collected a wastewater sample downgradient from Fresenius and an effluent sample at the WWTF, the results are tabulated below. Analytical results show that the adjusted Sodium Adsorption Ratio (SAR) of Fresenius was as high as 288. In early 2014, Fresenius went out of business and no longer discharges to the Discharger's collection system. Effluent quality from Fresenius, the WWTF while Fresenius was discharging to the Discharger's collection system, and the WWTF now that Fresenius has ceased discharging to the WWTFs collection system are tabulated below.

Table 3. Quality of Fresenius effluent and WWTF effluent

Constituent	Units	16 July 1998		April 2014
		Sewer line from Fresenius	WWTF Effluent	WWTF Effluent
pH	pH Units	4.5	6.5	7.59
EC	umhos/cm	10,000	1,080	680
TDS	mg/L	6,137	606	---
Na	meq/L	98.45	6.61	---
Calcium (Ca)	meq/L	3.19	1.1	---
Magnesium (Mg)	meq/L	1.32	0.49	---
Cl	mg/L	100	6.15	---
Adjusted SAR	None	288	17.8	---

27. There is small commercial development in City of Livingston. A commercial shopping center near State Route 99 and Winton Parkway includes several fast food restaurants. The City of Livingston also has several car washes. This Order includes a time schedule for the Discharger to complete an industrial user survey and identify industrial dischargers that discharge into its collection system and evaluate the need for a pretreatment program.

**Basin Plan, Beneficial Uses, and Water Quality Objectives**

28. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition, revised October 2011* (the "Basin Plan") designates beneficial uses, establishes narrative and numerical water quality objectives, contains implementation plans and policies for protecting all waters of the Basin, and incorporates, by reference, plans and policies of the State Water Board. In accordance with Water Code section 13263(a), these waste discharge requirements implement the Basin Plan.
29. The WWTF is in the Merced Hydrologic Area (No. 535.80) of the San Joaquin Valley Floor Hydrologic Unit, as depicted on hydrologic maps prepared by State Water Resources Control Board. As indicated in the Basin Plan, the beneficial uses of the Merced River, as a tributary of the San Joaquin River, are municipal and domestic supply (MUN); agricultural supply (AGR), including stock watering; industrial service supply (IND); industrial process supply (PRO); hydropower generation (POW); water contact recreation (REC-1), including canoeing and rafting; non-contact water recreation (REC-2); warm freshwater habitat (WARM), cold freshwater habitat (COLD); migration of aquatic organisms (MIGR), warm and cold; spawning, reproduction, and/or early development (SPWN), warm and cold; and wildlife habitat (WILD).
30. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply, agricultural supply, industrial service and industrial process supply.
31. The Basin Plan includes a water quality objective for chemical constituents that at a minimum, requires waters designated as domestic or municipal supply to meet the Maximum Contaminant Levels (MCLs) specified in Title 22 of the California Code of Regulations ("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.

32. The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Taste and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. 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.

### Groundwater Considerations

33. The quality of groundwater from Well 006S011E27K001M, half a mile southeast of the WWTF and 63 feet deep, is shown below.

Table 4. Groundwater Quality Well 006S011E27K001M

Date	pH (pH units)	EC (umhos/cm)	TDS (mg/L)	NO <sub>3</sub> as N (mg/L)	Na (mg/L)	Cl (mg/L)	SAR (none)
7/9/1957	8.2	207	174	2.48	21	4.9	1.3
7/28/1958	7.5	220	149	2.26	20	11	1
7/6/1959	7.9	198	174	2.17	20	5	1.2
7/26/1960	8.2	210	163	2.26	23	9	1.4
6/26/1961	8	210	179	3.16	20	5	1.2
6/25/1962	---	241	---	---	23	6.7	1.3
7/1/1963	---	228	---	---	21	5.2	1.2
5/24/1966	8.5	228	---	3.39	---	4.9	---

34. The WWTF has a groundwater monitoring well network of seven monitoring wells (MW-1 through MW-7), as shown on Attachment A. Groundwater below the WWTF is found between 10 to 21 feet below the pond inverts and flow is generally to the north towards the Merced River, based on 2010-2013 SMR data.
35. Monitoring wells MW-1 through MW-5 were installed in 1989. The wells have a total depth ranging from 30 to 40 feet below ground surface (bgs). Annual average groundwater EC ranges from 888 to 1,028 umhos/cm for MW-1; 903 to 1,265 umhos/cm for MW-2; 865 to 928 umhos/cm for MW-3; 770 to 1,033 umhos/cm for MW-4; and 1,098 to 1,250 umhos/cm for MW-5 (based on data from January 2010 through December 2013). Annual average groundwater NO<sub>3</sub> as N concentrations range from 3 to 19 mg/L in MW-1; 8 to 27 mg/L in MW-2; 9 to 16 mg/L in MW-3; 7 to 17 mg/L in MW-4; and 3 to 12 in mg/L in MW-5 (based on data from January 2010 to December 2013). Average concentrations for selected constituents in groundwater below the WWTF are presented in Table 6 of the Information Sheet.
36. Monitoring wells MW-6 and MW-7 were installed in 2008 and have a total depth of 37 and 34 feet bgs, respectively. Quality of groundwater in monitoring wells MW-6 and MW-7, based on

a sample collected on 6 October 2008, is tabulated below; where bold, constituent concentrations are greater than listed MCLs.

Table 5. Groundwater Quality for MW-6 and MW-7

Constituent/Parameter	Units	MW-6	MW-7	MCL
EC	umhos/cm	897	<b>1190</b>	900/1600
TDS	mg/L	<b>530</b>	<b>680</b>	500/1000
TKN	mg/L	0.32	0.13	N/A
Constituent/Parameter	Units	MW-6	MW-7	MCL
Ammonia as Nitrogen	mg/L	0.04	0.035	N/A
NO <sub>3</sub> as N	mg/L	<b>11</b>	0.072	10
Na	mg/L	140	120	---
Cl	mg/L	160	170	250/500
Arsenic (As)	ug/L	<b>11</b>	1.9	10
Iron (Fe)	ug/L	<50	<50	300
Mn	ug/L	15	<b>530</b>	50

37. Groundwater exceedances for salinity are thought to be a result of historical high strength wastewater discharges to the WWTF from Fresenius. Groundwater exceedances for nitrogen are thought to be from the historical discharges of primary treated effluent discharges from the WWTF. Effluent quality with respect to salinity is good following the cessation of the Fresenius discharge to the collection system. With the completion of secondary treatment units and nitrogen reduction, effluent quality is good with respect to total nitrogen and NO<sub>3</sub> as N.

#### Antidegradation Analysis

38. State Water Board Resolution No. 68-16 (*"Policy with Respect to Maintaining High Quality Water of the State"*) (the "Antidegradation Policy") prohibits degradation of groundwater unless it has been shown that:
- 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;
  - The degradation will not unreasonably affect present and anticipated future beneficial uses;
  - The discharger employs Best Practicable Treatment or Control (BPTC) to minimize degradation; and
  - The degradation is consistent with the maximum benefit to the people of the state.
39. The WWTF was upgraded to include more modern treatment technology (oxidation ditch and secondary clarifiers). The WWTF treats domestic wastewater from residential and commercial developments. Source water is of good quality and the minimal increases in organics, nutrients, and salts from domestic use will not cause wastewater to exceed water quality objectives. Discussion of relevant constituents follows:

- a. For salinity, historical discharges from Fresenius contributed high salinity wastewater to the WWTF. Fresenius no longer discharges to the WWTF. Effluent quality of 693 umhos/cm (2013 annual average) now meets the most stringent water quality goal of 700 umhos/cm for the protection of salt-sensitive plants. The discharge as authorized herein will not contribute to groundwater exceedances of water quality objectives for salinity, and should help improve local groundwater quality that was impacted by historical discharges. This Order contains Groundwater Limitations that limit groundwater EC degradation to natural background quality or the numerical MCLs in Title 22, whichever is greater.
- b. Regarding nitrate as nitrogen, the upgraded WWTF is designed to remove total nitrogen and this Order includes an effluent limit that requires the effluent total nitrogen to be 10 mg/L or less. This Order also requires the Discharger to perform a liner permeability evaluation of the soil cement scum ponds and soil cement sludge holding pad. The authorized discharge is not expected to contribute to local groundwater nitrate pollution.

Based on this, the discharge is not expected to cause exceedances of water quality objectives nor impair beneficial uses.

40. This Order includes extensive influent, effluent, and groundwater monitoring requirements to verify that the discharge does not cause violations of water quality objectives or impairment of beneficial uses.
41. The WWTF described in Findings 7 through 17, will provide treatment and control of the discharge that incorporates:
  - a. Secondary treatment of wastewater;
  - b. Wastewater treatment for nitrogen removal;
  - c. Sludge hauled off-site
  - d. An operation and maintenance manual;
  - e. Soil cement lined sludge drying beds with decanting structures to minimize percolation to groundwater;
  - f. Certified operators to ensure proper operation and maintenance; and
  - g. Source water, discharge, and groundwater monitoring.

The Board finds that the preceding treatment and control measures represent BPTC for this discharge.

42. Generally, limited degradation of groundwater by some of the typical waste constituents of concern (e.g., EC and nitrate) released with discharge from a municipal wastewater utility after

effective source control, treatment, and control is consistent with maximum benefit to the people of the state. The technology, energy, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impacts 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 therefore provides sufficient reason to accommodate planned growth and allow for limited groundwater degradation.

### **Water Recycling Regulatory Considerations**

43. 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 supplied and reduced greenhouse gases.
44. 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).
45. Title 22, section 60323, requires recyclers of treated municipal wastewater to submit an engineering report detailing the use of recycled water, contingency plans, and safeguards. On 23 October 2003, the Discharger submitted a report titled *City of Livingston Title 22 Recycled Water Engineering Report* (Title 22 Engineering Report) to the Central Valley Water Board. According to the Title 22 Engineering Report, the Discharger proposed to recycle WWTF effluent on 320 acres of farmland owned by JEG Livingston Ranges LLC (Joseph Gallo Farms). The Discharger proposed to flood irrigate the reclamation lands and grow fodder, fiber, and seed crops for non-human consumption. However, the proposed recycled water use areas described in the 23 October 2003 Title 22 Engineering Report are now planted with crops such as almonds and grapes that are unsuitable to receive secondary undisinfected recycled water. This Order includes a provision requiring the Discharger to implement the project described in the 23 October 2003 Title 22 Engineering Report. Alternatively, the Discharger will need to provide justification why it has not implemented the project proposed in the October 2003 Title 22 Engineering Report, reexamine water recycling opportunities, and submit an updated Title 22 Engineering Report, if deemed appropriate.

### Other Regulatory Considerations

46. 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 uses.
47. Based on the threat and complexity of the discharge, the WWTF 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: “Any discharge of toxic wastes; any small volume discharge containing toxic waste; and facility having numerous discharge points and groundwater monitoring; or any Class 1 waste management unit.
48. Title 27 of the California Code of Regulations (“Title 27”) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste, which includes designated waste, as defined by Water Code section 13173. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt wastewater discharges. The exemption, found at 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.

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(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 regional water quality control board has issued WDRs, reclamation requirements, or waived such issuance;
- (2) The discharge is in compliance with 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.
49. The wastewater treatment units and discharge of effluent authorized herein, and the sludge treatment units (lined sludge drying beds), are exempt from the requirements of Title 27 as follows:
- a. The Central Valley Water Board is issuing WDRs.
  - b. The discharge is in compliance with the Basin Plan, and;
  - c. The treated effluent discharged to the evaporation/percolation ponds does not need to be managed as hazardous waste.
50. The discharges of scum to the unlined scum ponds, and the storage of biosolids on the sludge holding pad of unknown construction quality over a former burn dump may not meet the requirements of Title 27 section 20090, subsections (a) or (b) if the use of the unlined scum ponds or holding pad could result in impacts to groundwater. A Provision in this Order requires the Discharger to demonstrate it satisfies the preconditions of the wastewater exceptions under Title 27 for its scum and sludge handling facilities, or to comply with the regulatory requirements of Title 27.
51. The State Water 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. The wastewater treatment facility has a design capacity greater than 1.0 mgd. The Discharger is not enrolled under the NPDES General Permit CAS000001. This Order requires the Discharger to submit a Notice of Intent (NOI) for coverage under the NPDES General Permit CAS000001.
52. Water Code section 13267(b) states that:
- 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...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.
53. The technical reports required by this Order and monitoring reports required by the attached MRP R5-2014-0147 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the wastewater treatment facility that discharges the waste subject to this Order.

54. 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.
55. The City of Livingston adopted a Negative Declaration (SCH #2000101074) in accordance with California Environmental Quality Act (CEQA) and filed a Notice of Determination 18 October 2001 for flow increase up to 2.0 mgd and an upgrade of the WWTF to include rehabilitation of the headworks, an extended aeration system (Biolac or similar aeration system), two secondary clarifiers, sludge drying beds, and additional evaporation/percolation ponds on 40 acres of City-owned land.
56. Central Valley Water Board staff reviewed the Negative Declaration and concurs that the project will be an improvement over the former discharge and will not have a significant impact on water quality.
57. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 Code of Federal Regulations part 503, Standards for the Use or Disposal of Sewage Sludge (503 regulations), which establish management criteria for protection of ground and surface waters, sets limits and application rates for heavy metals, and establishes stabilization and disinfection criteria. The Central Valley Water Board is not the implementing authority for the 503 regulations. The Discharger may have permitting and reporting responsibilities to EPA.
58. 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**

59. 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 conditions of discharge of this Order.
60. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
61. All comments pertaining to the discharge were heard and considered in a public meeting.

**IT IS HEREBY ORDERED** that Waste Discharge Requirements Order 89-066 is rescinded and that pursuant to Water Code sections 13263 and 13267, the City of Livingston, 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 waste to surface waters or surface water drainage courses is prohibited.
2. Discharge of hazardous wastes, as that term is defined in California Code of Regulations, title 22, section 66261.1 *et seq.* is prohibited.
3. Bypass or overflow of untreated or partially treated wastes, except as allowed by Standard Provisions E.2 in *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991, is prohibited.
4. Discharge of wastewater in a manner or location other than that described herein or in the RWD and its amendments is prohibited.
5. Discharge of toxic substances into the wastewater treatment system or evaporation/percolation ponds such that biological treatment mechanics are disrupted is prohibited.

**B. Flow Limitations [Compliance shall be determined at EFF-001]**

1. The monthly average dry weather flow shall not exceed 1.18 mgd until Provision G.3 is satisfied. Following approval by the Executive Officer, the monthly average dry weather flow shall not exceed 2.0 mgd.

**C. Effluent Limitations [Compliance shall be determined at EFF-001]**

1. The effluent shall not have a pH less than 6.5 or greater than 9.0.
2. Effluent shall not exceed the following limitations:

<u>Constituent</u>	<u>Unit</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD <sub>5</sub> <sup>1</sup>	mg/L	40	80
TSS <sup>2</sup>	mg/L	40	80
Total Nitrogen	mg/L	10	---

<sup>1</sup> Five-day biochemical oxygen demand at 20°C.

<sup>2</sup> Total suspended solids

3. The arithmetic mean of BOD<sub>5</sub> and TSS in effluent samples collected over a monthly period shall not exceed 20 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (80 percent removal).

#### **D. Discharge Specifications**

1. No waste constituent shall be released, discharged, or placed where it will cause violation of Groundwater Limitations of this Order.
2. The discharge shall not cause degradation of any water supply.
3. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
4. The discharge shall remain within the permitted waste treatment/containment structures and evaporation/percolation ponds at all times.
5. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.
6. All conveyance, treatment, storage, and disposal units shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
7. Public contact with effluent (treatment works, percolation ponds) shall be precluded through such means as fences, signs, or acceptable alternatives.
8. Objectionable odors shall not be perceivable beyond the limits of the WWTF property at an intensity that creates or threatens to create nuisance conditions.
9. As a means of discerning compliance with Discharge Specification D.8, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive weekly 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 Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.
10. The Discharger shall maintain and operate ponds sufficiently to protect the integrity of containment levees and prevent overtopping or overflows. 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 shall never be less than two feet (measured vertically). As a means of management and to discern compliance with this Provision, the Discharger shall install and maintain a permanent marker with calibration that indicates the water level at the design capacity and enables determination of available operational freeboard.
11. The 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 continuous 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.

12. On or about **1 October** of each year, available pond storage capacity shall be at least equal the volume necessary to comply with Flow Limitation B.1.
13. All ponds shall be managed to prevent breeding of mosquitoes. In particular,
  - a. An erosion control plan should assure that coves and irregularities are not created around the perimeter of the water surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, and herbicides.
  - c. Dead algae, vegetation and other 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.
14. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within the pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.
15. The Discharger shall periodically monitor sludge accumulation in the wastewater treatment/storage ponds and shall remove sludge as necessary to maintain adequate treatment and storage capacity.

#### **E. Groundwater Limitations**

1. Release of waste constituents from any treatment, reclamation or storage component associated with the discharge shall not cause or contribute to groundwater:
  - a. Containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater:
    - (i) Nitrate (as N) of 10 mg/L.
    - (ii) For constituents identified in Title 22, the MCLs quantified therein.
  - b. Containing Total Coliform Organisms over any 7-day period equaling or exceeding 2.2 MPN/100 mL.

## **F. Solids and Sludge/Biosolids Disposal Specifications**

Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advance wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTF. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially used as 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, aeration basins, ponds, clarifiers, etc., as needed to ensure optimal plant operation.
2. Any handling and storage of residual sludge, solid waste, and biosolids on property of the WWTF shall be temporary (i.e., no longer than two years) 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, solid waste, and biosolids shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, and soil amendment sites) operated in accordance with valid waste discharge requirements issued by the Central Valley 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 or a local (e.g., county) program authorized by a regional water board. In most cases, this means the General Biosolids Order (State Water Board Water Quality Order No. 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 authorized by the General Biosolids Order, the Discharger must file a complete Notice of Applicability for each project.
5. 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.

## **G. Provisions**

1. The Discharger shall comply with MRP R5-2014-0147, which is part of this Order, and any revisions thereto as adopted by the Central Valley Water Board or approved by the Executive Officer.
2. The Discharger shall comply with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991 (Standard Provisions), which are attached hereto and made part of this Order.

3. The Discharger shall comply with Flow Limitations B.1 in accordance with the following compliance schedule:

<u>Task</u>		<u>Due Date</u>
a.	Commit to the reconfiguration project or submit proposal for alternative project.	<b>5 June 2015</b>
b.	Begin reconfiguration project or alternative project approved by the Executive Officer.	<b>7 December 2015 or upon approval by the Executive Officer of alternative project.</b>
c.	Complete the reconfiguration project proposed in the October 2010, <i>City of Livingston Percolation Ponds Reconfiguration</i> report. Alternatively, complete project to provide 2.0 mgd firm disposal capacity.	<b>5 December 2019</b>
d.	Submit a technical report in the form of an engineering report and certification that demonstrates the evaporation/percolation ponds can reliably dispose of WWTF effluent up to a monthly average dry weather flow of 2.0 mgd for Executive Officer approval. The technical report must also demonstrate that Ponds 4, 5, and 6 have been permanently disconnected from the WWTF.	<b>5 March 2020</b>

4. The Discharger shall comply with WDRs Order R5-2014-0147, Groundwater Limitation E.1, and the requirements of California Code of Regulations, Title 27 in accordance with the following compliance schedule:

<u>Task</u>		<u>Due Date</u>
a.	Submit a work plan and proposed time schedule to characterize all discharges to the soil cement scum ponds and soil cement sludge holding pad and evaluate whether they are consistent with the Basin Plan, the Antidegradation Policy, and the requirements of WDRs Order R5-2014-0147 such that they qualify for exemption to the requirements of California Code of Regulations, Title 27. The work plan and schedule shall be subject to	<b>7 December 2015</b>

	the approval of the Executive Officer.	
b.	Implement the approved work plan and time schedule required by Task a.	<b>5 December 2016</b>
c.	<p>Submit the results of the characterization and evaluation with either:</p> <ul style="list-style-type: none"> <li>i. A demonstration with appropriate supporting evidence (i.e., permeability test results) that the soil cement scum ponds and the soil cement sludge holding pad meet the requirements for exemption from Title 27, section 20090(b), or</li> <li>ii. A work plan and schedule for implementing modifications to the soil cement scum ponds and soil cement sludge holding pad that would qualify it for exemption from Title 27, section 20090 (b). The work plan shall provide for compliance with the California Environmental Quality Act and include a Report of Waste Discharge for any proposed structural modifications to the soil cement scum ponds and soil cement sludge holding pad, or</li> <li>iii. A work plan including a Report of Waste Discharge with a schedule for constructing modifications to the soil cement scum ponds and soil cement sludge holding pad to meet the containment requirements of Title 27.</li> </ul>	<b>5 June 2017</b>
d.	If the City chooses not to submit a demonstration as described in Task c.i., or if the Executive Officer does not concur with the results, the City shall submit the work plan required by c.ii or c.iii. and begin implantation thereof, as approved by the Executive Officer	<b>5 December 2017</b>

e.	Submit a technical report demonstrating complete implementation of the approved work plan and schedule. Upon receipt of written concurrence of Executive Officer approval of the technical report, this provision shall be considered satisfied.	<b>5 December 2019</b>
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5. **By 6 April 2015**, the Discharger shall submit a technical report describing measures it will implement to prevent inundation or washout of the soil cement sludge holding pad due to floods with a 100-year event. The report shall include a proposed implementation schedule. The Discharger shall complete the measures in accordance with the implementation schedule approved by the Executive Officer.
6. **By 6 April 2015**, the Discharger shall conduct an industrial user survey of existing and potential industrial dischargers into the collection system and submit the results.
7. With respect to recycling of effluent produced by the WWTF, the Discharger shall comply with the following compliance schedule

<u>Task</u>		<u>Due Date</u>
a.	i. Submit a technical report including a proposed schedule to implement the project described in the 23 October 2003 report titled <i>City of Livingston Title 22 Recycled Water Engineering Report</i> (Title 22 Engineering Report). The report shall include:  a) A Notice of Intent to comply with State Water Resources Control Board, Order WQ 2014-0090-DWQ, General Waste Discharge Requirements for Recycled Water Use, or  b) A complete application for a Master Reclamation Permit pursuant to Water Code section 13523.1 and evidence of compliance California Environmental Quality Act (CEQA) or	<b>5 December 2016</b>

	<p>c) A complete Report of Water Recycling and evidence of compliance with the CEQA,</p> <p style="text-align: center;"><b>Or</b></p> <p>ii. A technical report that demonstrates why the recycled water project proposed in October 2003 is no longer feasible and includes a feasibility analysis of potential recycled water projects that could be implemented. If the report identifies feasible recycled water projects, it shall also include a proposed implementation schedule(s) and:</p> <p>a) A Notice of Intent to comply with State Water Resources Control Board, Order WQ 2014-0090-DWQ, General Waste Discharge Requirements for Recycled Water Use and a revised Title 22 Engineering Report, or</p> <p>b) A complete application for a Master Reclamation Permit pursuant to Water Code section 13523.1 and a revised Title 22 Engineering Report and evidence of compliance CEQA, or</p> <p>c) Complete Reports of Water Recycling and revised Title 22 Engineering Reports for each feasible project and evidence of compliance with the CEQA,</p>	
b.	Submit with the Annual Report required by Monitoring and Reporting R5-2014-0147, updates on progress of compliance with this Provision.	<b>1 February of each year</b>

c.	Implement water recycling.	<b>According to implementation schedules as approved by the Executive Officer but by no later than 5 December 2018.</b>
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If the technical report required by Task a.ii. demonstrates that water recycling is not feasible at the time of submittal, this Provision shall be considered satisfied upon receipt of written concurrence from the Executive Officer.

8. **By 3 February 2015**, the Discharger shall submit to the State Water Board a Notice of Intent for coverage under the State Water Board, Water Quality Order 97-03-DWQ (NPDES General Permit CAS000001).
9. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain work plans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.
10. 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. The Discharger shall proceed with all work required by the following provisions by the due dates specified.
11. 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.
12. 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 include 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.

13. The Discharger shall provide certified wastewater treatment plant operators in accordance with Chapter 26 of Division 3 of Title 23 of the California Code of Regulations.
14. 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.
15. 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."
16. The Discharger shall continue to maintain coverage under, and comply with Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ and the Revised General WDRs Monitoring and Reporting Program Order 2006-0002-EXEC, and any subsequent revisions thereto as adopted by the State Water Board. Water Quality Order 2006-0003 and Order 2008-0002-EXEC requires 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.
17. The Discharger shall not allow pollutant-free wastewater to be discharged into the WWTF collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means storm water (i.e., inflow), groundwater (i.e., infiltration), cooling waters, and condensates that are essentially free of pollutants.
18. 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.
19. In the event of any change in control or ownership of land or WWTF and storage facilities presently owned or controlled by the Discharger, the Discharger shall 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.
20. 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 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.

21. A copy of this Order, including its 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.
22. If the Central Valley Water Board determines that the discharge has a reasonable potential to cause or contribute to an exceedance of a water quality objective, or to create a condition of nuisance or pollution, this Order may be reopened for consideration of additional requirements.
23. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan amendment that will establish a salt and nitrate management plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objectives are to be interpreted for the protection of agricultural use. If new information or evidence indicates that groundwater limitations are different than those prescribed herein are appropriate, this Order will be reopened to incorporate such limits.
24. 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/](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 4 December 2014.

Original signed by:

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PAMELA C. CREEDON, Executive Officer

Order Attachments:

- A Site Location Map
  - B Proposed Pond Reconfiguration Map
  - C Flow Schematic
- Monitoring and Reporting Program R5-2014-0147  
Information Sheet  
Standard Provisions (1 March 1991)  
State Water Board Order 97-03-DWQ (NPDES General Permit CAS000001)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2014-0147  
FOR  
CITY OF LIVINGSTON  
DOMESTIC WASTEWATER TREATMENT FACILITY  
MERCED COUNTY

This Monitoring and Reporting Program (MRP) is required 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. Changes to sample location shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer. All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with **Standard Provisions and Reporting Requirements for Waste Discharge Requirements**, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as pH) may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer and in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *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. The Discharger may propose alternative methods for approval by the Executive Officer.

If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after at least 12 months of monitoring, the Discharger may request the MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for the requested reduction in monitoring frequency.

A glossary of terms used within this MRP is included on [page 9](#) and a list of the constituents required for the monitoring of Priority Pollutants is included in Table 1, which is on [page 10](#).

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

Monitoring Location Name	Monitoring Location Description
INF-001	Location where a representative sample of the WWTF influent can be obtained prior to any additives, treatment processes, and WWTF return flow.
EFF-001	Location where a representative sample of the WWTF effluent can be obtained prior to discharge into the storage ponds.
PND-007 and PND-008	Evaporation Percolation Pond Nos. 7 and 8
LSW-8, LSW-9, and LSW-11 through LSW-16	Livingston Supply Wells (LSW) 8, 9, 11, 12, 13, 14, 15, and 16
MW-1 through MW-7	Monitoring well MW-1 through MW-7
SLD-001	Location where a representative sample of the WWTF sludge/biosolids can be obtained after removal from the sludge drying beds.

### INFLUENT MONITORING

The Discharger shall monitor the influent to the WWTF at INF-001 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Weekly	pH	pH units	Grab
Weekly	Electrical Conductivity (EC)	umhos/cm	Grab
Weekly	Total Dissolved Solids (TDS)	mg/L	24-hour composite
Weekly	Total Suspended Solids (TSS)	mg/L	24-hour composite
Weekly	Biochemical Oxygen Demand <sub>5</sub> (BOD <sub>5</sub> )	mg/L	24-hour composite
Monthly	Monthly Average Discharge Flow	mg/L	Computed
Annually	General Minerals	mg/L	24-hour composite

### EFFLUENT MONITORING

The Discharger shall monitor treated effluent at EFF-001 as follows:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	pH	pH Units	Grab
Weekly	EC	umhos/cm	Grab
Weekly	TSS	mg/L	24-hour composite
Weekly	BOD <sub>5</sub>	mg/L	24-hour composite
Monthly	TDS	mg/L	24-hour composite
Monthly	Total Kjeldahl Nitrogen (TKN)	mg/L	24-hour composite

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Monthly	Nitrate as Nitrogen (NO <sub>3</sub> as N)	mg/L	24-hour composite
Monthly	Nitrite as Nitrogen (NO <sub>2</sub> as N)	mg/L	24-hour composite
Monthly	Ammonia as Nitrogen (NH <sub>3</sub> as N)	mg/L	24-hour composite
Monthly	Total Nitrogen (TN)	mg/L	Computed
Annually	General Minerals	mg/L	24-hour composite
One time	Priority Pollutants (see Table 1)	Varies <sup>1</sup>	Varies

<sup>1</sup> mg/L or ug/L, as appropriate.

### POND MONITORING

A permanent marker (e.g., staff gages) shall be placed in the storage pond. The marker shall have calibrations indicating water level at the design capacity and available operational freeboard. Pond monitoring at PND-007 and PND-008 shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	DO <sup>1</sup>	mg/L	Grab <sup>2</sup>
Weekly	Freeboard	Feet <sup>3</sup>	Observation
Weekly	Odors	---	Observation
Weekly	Berm Condition	---	Observation

<sup>1</sup> Should the DO be below 1.0 mg/L during a weekly sampling event, the Discharger shall take all reasonable steps to correct the problem and commence daily DO monitoring in the affected ponds until the problem has been resolved.

<sup>2</sup> DO shall be measured between 8:00 am and 10:00 am and shall be taken opposite the pond inlet at a depth of approximately one-foot.

<sup>3</sup> To the nearest tenth of a foot.

The Discharger shall inspect the condition of the storage pond weekly and record visual observations in a bound logbook. Notations shall include observations of whether weeds are developing in the water or along the bank, and their location; whether grease, dead algae, vegetation, scum, or debris are accumulating on the storage pond surface and their location; whether burrowing animals or insects are present; and the color of the reservoirs (e.g., dark green, dull green, yellow, gray, tan, brown, etc.). A summary of the entries made in the log shall be included in the subsequent monitoring report.

### SOURCE WATER MONITORING

The Discharger shall submit source water monitoring data for Livingston Supply Wells 8, 9, 11, 12, 13, 14, 15, and 16 (LSW-8, LSW-9, LSW-11, LSW-12, LSW-13, LSW-14, LSW-15, and LSW-16). For each source (either well or surface water supply), the Discharger shall calculate the flow-weighted average concentrations for the specified constituents utilizing monthly flow data and the most recent chemical analysis conducted in accordance with Title 22 drinking water requirements. Alternatively, the Discharger may establish representative sampling stations within the distribution system serving the same area as is served by the WWTF.

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	Flow-Weighted EC	umhos/cm	Computed Average
Annually	General Minerals <sup>1</sup>	mg/L	Grab

<sup>1</sup> With the exception of wastewater samples, samples must be filtered. If field filtering 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.

### GROUNDWATER MONITORING

After measuring water levels and prior to collecting samples, each monitoring well (MW-1 through MW-7) shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume.

The Discharger shall monitor monitoring wells MW-1 through MW-7 and any subsequent additional wells, for the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	Depth to groundwater	Feet	Measured
Quarterly	Groundwater elevation	Feet	Computed
Quarterly	pH	pH units	Grab
Quarterly	EC	umhos/cm	Grab
Quarterly	TDS	mg/L	Grab
Quarterly	TKN	mg/L	Grab
Quarterly	NO <sub>3</sub> as N	mg/L	Grab
Quarterly	NO <sub>2</sub> as N	mg/L	Grab
Quarterly	NH <sub>3</sub> as N	mg/L	Grab
Quarterly	TN	mg/L	Computed
Quarterly	Total Coliform Organisms	MPN/100 mL	Grab
Quarterly	General Minerals <sup>1,2</sup>	mg/L	Grab

<sup>1</sup> With the exception of wastewater samples, samples must be filtered. If field filtering 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.

<sup>2</sup> See glossary on page 9 for list of general mineral constituents.

The Discharger shall maintain its groundwater monitoring well network. If a groundwater monitoring well(s) are dry for more than four consecutive sampling events, the Discharger shall submit a work plan and proposed time schedule to replace the well(s). The well(s) shall be replaced following written Executive Officer approval of the work plan and time schedule.

### **SLUDGE/BIOSOLIDS MONITORING**

The Discharger shall monitor sludge/biosolids at SLD-001 for the following:

Arsenic	Copper	Nickel
Cadmium	Lead	Selenium
Molybdenum	Mercury	Zinc

Monitoring shall be conducted: using the methods in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846) and updates thereto, as required in Title 40 of the Code of Federal Regulations (40 CFR), Part 503.8(b)(4).

The Discharger shall demonstrate that treated sludge (i.e., biosolids) meets Class A or Class B pathogens reduction levels by one of the methods listed in 40 CFR, Part 503.32. The Discharger shall track and keep records of the operational parameters used to achieve Vector Attraction Reduction requirements in 40 CFR, Part 503.33(b). The Discharger needs to demonstrate that the facility where sludge is hauled to complies with Title 40 CFR, Part 503.

### **REPORTING**

All monitoring results shall be reported in **Quarterly Monitoring Reports** which are due by the first day of the second month after the calendar quarter. Therefore, monitoring reports are due as follows:

First Quarter Monitoring Report:	<b>1 May</b>
Second Quarter Monitoring Report:	<b>1 August</b>
Third Quarter Monitoring Report:	<b>1 November</b>
Fourth Quarter Monitoring Report:	<b>1 February</b>

The Central Valley Water Board has gone to a Paperless Office System. All regulatory documents, submissions, materials, data, monitoring reports, and correspondence shall be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be mailed to: [centralvalleyfresno@waterboards.ca.gov](mailto:centralvalleyfresno@waterboards.ca.gov). Documents that are 50MB or larger should be transferred to a disc and mailed to the appropriate regional water board office, in this case 1685 E Street, Fresno, CA, 93706.

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

Program: Non-15, WDID: 5C240106002, Facility Name: Livingston Domestic WWTF, Order: R5-2014-0147

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements, and shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory.

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

Laboratory analysis reports do not need to be included in the monitoring reports; however, the laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. Monitoring data or discussions submitted concerning WWTF performance must also be signed and certified by the chief plant operator. If the chief plant operator is not in direct line of supervision of the laboratory function for a Discharger conducting any of its own analyses, reports must also be signed and certified by the chief of the laboratory.

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

In the future, the State or Central Valley Water Board may notify the District to electronically submit and upload monitoring reports using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site <http://www.waterboards.ca.gov/ciwqs/index.html> or similar system.

**A. All Quarterly Monitoring Reports** shall include the following:

**Wastewater Reporting**

1. The results of Influent, Effluent, and Pond Monitoring specified on page 2 and 3.
2. For each month of the quarter, calculation of the maximum daily flow and the monthly average flow.

3. For each of the quarters, calculation of the 12-month rolling average EC of the discharge using the EC value for that month averaged with EC values for the previous 11 months.
4. For each month of the quarter, calculation of the monthly average effluent BOD<sub>5</sub> and TSS concentrations, and calculation of the percent removal of BOD<sub>5</sub> and TSS compared to the influent.
5. A summary of the notations made in the pond monitoring log during each quarter. Copies of log pages covering the quarterly reporting period shall not be submitted unless requested by Central Valley Water Board staff.

### **Groundwater Reporting**

1. The results for Groundwater Monitoring specified on page 4 and 5.
2. For each monitoring well, a table showing constituent concentration for at least five previous years, if available, through the current quarter.
3. A groundwater contour map based on groundwater elevations for that quarter. The map shall show the gradient and direction of groundwater flow under/around the facility and/or effluent disposal area(s). The map shall also include the location of monitoring wells and wastewater discharge areas.

### **Source Water Reporting**

1. The results of Source Water Monitoring specified on page 4.
2. For each month of the quarter, calculation of the flow-weighted 12-month rolling average EC of the source water using monthly flow data and the source water EC values for the most recent four quarters.

**B. Fourth Quarter Monitoring Reports**, in addition to the above, shall include the following:

### **Wastewater Treatment Facility Information**

1. The names, certificate grades, and general responsibilities of all persons in charge of wastewater treatment and disposal.
2. The names and telephone numbers of persons to contact regarding the WWTF for emergency and routine situations.
3. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (Standard Provision C.4).

4. A statement whether the current operation and maintenance manual, sampling plan, and contingency plan, reflect the WWTF as currently constructed and operated, and the dates when these documents were last reviewed for adequacy.
5. The results of an annual evaluation conducted pursuant to Standard Provision E.4 and a figure depicting monthly average discharge flow for the previous five calendar years.
6. A summary and discussion of the compliance record for the reporting period. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with this Order.

### **Sludge/Biosolids Monitoring**

1. Annual production totals in dry tons or cubic yards.
2. A description of disposal methods, including the following information related to the disposal methods used. If more than one method is used, include the percentage disposed of by each method.
  - a. For landfill disposal, include: the name and location of the landfill, and the Order number of WDRs that regulate it.
  - b. For land application, include: the location of the site, and the Order number of any WDRs that regulate it.
  - c. For incineration, include: the name and location of the site where incineration occurs, the Order number of WDRs that regulate the site, the disposal method of ash, and the name and location of the facility receiving ash (if applicable).
  - d. For composting, include: the location of the site, and the Order number of any WDRs that regulate it.

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

*Original signed by:*

Ordered by: \_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer

4 December 2014

\_\_\_\_\_  
(Date)

## GLOSSARY

BOD <sub>5</sub>	Five-day biochemical oxygen demand		
CBOD	Carbonaceous BOD		
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-Hour Composite	Samples shall be a flow-proportioned composite consisting of at least eight aliquots.		
Daily	Samples shall be collected at least every day.		
Twice Weekly	Samples shall be collected at least twice per week on non-consecutive days.		
Weekly	Samples shall be collected at least once per week.		
Twice Monthly	Samples shall be collected at least twice per month during non-consecutive weeks.		
Monthly	Samples shall be collected at least once per month.		
Bimonthly	Samples shall be collected at least once every two months (i.e., six times per year) during non-consecutive months.		
Quarterly	Samples shall be collected at least once per calendar quarter. Unless otherwise specified or approved, samples shall be collected in January, April, July, and October.		
Semiannually	Samples shall be collected at least once every six months (i.e., two times per year). Unless otherwise specified or approved, samples shall be collected in April and October.		
Annually	Samples shall be collected at least once per year. Unless otherwise specified or approved, samples shall be collected in October.		
mg/L	Milligrams per liter		
mL/L	milliliters [of solids] per liter		
ug/L	Micrograms per liter		
umhos/cm	Micromhos per centimeter		
mgd	Million gallons per day		
MPN/100 mL	Most probable number [of organisms] per 100 milliliters		
General Minerals	Analysis for General Minerals shall include at least the following:		
	Alkalinity	Chloride	Sodium
	Bicarbonate	Hardness	Sulfate
	Calcium	Magnesium	TDS
	Carbonate	Potassium	Nitrate
	General Minerals analyses shall be accompanied by documentation of cation/anion balance.		

**Table 1. Priority Pollutant Scan**

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

<sup>1</sup> 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.

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

# INFORMATION SHEET

INFORMATION SHEET ORDER R5-2014-0147  
CITY OF LIVINGSTON  
DOMESTIC WASTEWATER TREATMENT FACILITY  
MERCED COUNTY

## **Background**

Waste Discharge Requirements (WDRs) Order 89-066, adopted 28 May 1989 regulates the discharge of a monthly average daily flow of 1.18 million gallons per day (mgd) of secondary undisinfected wastewater from the City of Livingston (Discharger) domestic wastewater treatment facility (WWTF) to evaporation/percolation ponds. Order 89-066 allows an increase up to a monthly average daily flow of 1.8 mgd upon expansion of the WWTF and certification of expansion.

On 27 February 1998, Cease and Desist Order (CDO) 98-057 was adopted due to several unauthorized discharges to the Merced River. CDO 98-057 includes a time schedule requiring the City to implement short-term and long-term measures to comply with WDRs Order 89-066.

In April 1992, the Discharger began accepting brackish wastewater from a Fresenius Medical Care (Fresenius), a company that manufactures hemodialysis concentrate solution. The wastewater from Fresenius contained elevated levels of electrical conductivity and sodium and had a high sodium adsorption ratio. The Discharger began experiencing reduced pond percolation resulting in discharges of wastewater to the Merced River. From 24 January 1997 through 18 September 1998, the Discharger had discharged approximately 61 million gallons of treated wastewater to the Merced River on 106 days. On 24 September 1998, the Central Valley Water Board issued Administrative Civil Liability (ACL) Complaint Order 98-507 in the amount of sixteen thousand dollars for the discharges. On 26 October 1998, the Discharger paid the ACL.

On 23 October 1998, the Central Valley Water Board issued Special Order 98-218 which modified CDO 98-057 by adding salinity source control tasks and a ban on new connections to the WWTF.

In mid-1999, the Discharger constructed two temporary evaporation/percolation ponds (Pond H and I) on land owned by Joseph Gallo Farms. Pond H and I together provided interim disposal capacity of 0.9 mgd and the Discharger ceased wastewater discharges to the Merced River. On 28 January 2000, Special Order 5-00-005 was adopted to remove the connection ban.

On 25 November 2002, the Discharger submitted a Report of Waste Discharge (RWD) for a monthly average flow increase up to 2.0 mgd and proposed upgrade of the WWTF to include a new headworks, one new oxidation ditch for nitrogen removal, two new secondary clarifiers, four new soil cement lined sludge drying beds, one new soil cement lined sludge holding pad, and two new evaporation/percolation ponds (Ponds 7 and 8).

On 21 October 2010, the Discharger submitted a technical report amending the RWD and proposing to reconfigure the existing disposal ponds (Ponds 1 through 6). The report proposes abandoning Ponds 4, 5, and 6 and reconfiguring Ponds 1, 2, and 3 into 1R and 10 to provide buffer of 550 feet between the disposal ponds and the Merced River.

## **Facility Description**

The Discharger completed construction of the improvements to the WWTF treatment units as proposed in the November 2002 RWD and they went on line in 2004. The former WWTF includes an

abandoned clarifier and digester. The Discharger plans on filling up the clarifier to grade level. The Discharger never completed the proposed reconfiguration of the disposal ponds. The WWTF now consists of a headworks, one oxidation ditch, two secondary clarifiers, two existing scum ponds, four soil cement sludge drying beds, a soil cement sludge holding pad, Ponds 7 and 8, and six previously used ponds (Ponds 1 through 6). Due to the location of the ponds next to the Merced River and potential for unauthorized discharges to the River, the City has not discharged to Ponds 1 through 6 since mid-2008.

The quality of treated wastewater subsequent to the WWTF upgrades and cessation of the discharges by Fresenius into the collection system, based on data from January 2010 through December 2013, is shown below.

Table 1. Yearly Average Effluent Quality

	BOD mg/L	Settleable Solids ml/L	DO mg/L	EC umhos/cm	pH <sup>1</sup> pH Units
2010	5.0	<1	8.5	653	7.49
2011	5.6	<1	8.4	692	7.23
2012	4.5	<1	9.1	858	7.11
2013	7.3	<1	8.6	693	7.00

<sup>1</sup> Calculated by taking the average of the hydrogen ion and converting back to pH.

On 21 July 2014, Central Valley Water Board staff inspected the WWTF and the operators collected an influent sample at the headworks and an effluent sample at the effluent wet well. The results are tabulated below.

Table 2. Influent and Effluent Wastewater Grab Samples

Constituents	Units	DMS140721-1 Influent/Headworks	DMS140721-2 Effluent/Wet Well
Total Nitrogen	mg/L	70	4.2
Total Kjeldahl Nitrogen	mg/L	70	0.35
Nitrate as Nitrogen	mg/L	<1.4	3.8
Ammonia as Nitrogen	mg/L	49	0.12
<i>General Minerals:</i>			
Total Alkalinity (as CaCO <sub>3</sub> )	mg/L	---	140
Bicarbonate Alkalinity (as HCO <sub>3</sub> )	mg/L	---	170
Boron	mg/L	---	0.16
Calcium	mg/L	---	23
Carbonate Alkalinity as (CO <sub>3</sub> )	mg/L	---	<1.0
Chloride	mg/L	---	84
Hardness as (CaCO <sub>3</sub> )	mg equiv CaCO <sub>3</sub> /L	---	81
Iron	mg/L	---	0.88
Magnesium	mg/L	---	5.4
Potassium	mg/L	---	20
Sodium	mg/L	---	100
Sulfate (as SO <sub>4</sub> )	mg/L	---	45
Total Dissolved Solids	mg/L	---	450
Electrical Conductivity	umhos/cm	---	710
<i>WWTF Metals:</i>			
Arsenic	ug/L	---	7.7
Cadmium	ug/L	---	<0.20
Copper	ug/L	---	2.9
Lead	ug/L	---	0.069
Mercury	ug/L	---	<20
Molybdenum	ug/L	---	5.5
Nickel	ug/L	---	2.0
Selenium	ug/L	---	0.73
Zinc	ug/L	---	23

As shown in Table 2, effluent total nitrogen is 4.2 mg/L compared to influent total nitrogen of 70 mg/L (94 percent removal). Effluent total nitrogen of 4.2 mg/L, will not result in exceedances of the primary MCL of 10 mg/L for nitrate as nitrogen.

### Groundwater Conditions

Groundwater is 10 to 21 feet below the pond inverts and flows in the north direction towards the Merced River.

The quality of groundwater from Well 006S011E27K001M, half a mile southeast of the WWTF and 63 feet deep is shown below.

Table 3. Groundwater Quality Well 006S011E27K001M

Date	pH (pH units)	EC (umhos/cm)	TDS (mg/L)	NO <sub>3</sub> as N (mg/L)	Na (mg/L)	Cl (mg/L)	SAR
7/9/1957	8.2	207	174	2.48	21	4.9	1.3
7/28/1958	7.5	220	149	2.26	20	11	1
7/6/1959	7.9	198	174	2.17	20	5	1.2
7/26/1960	8.2	210	163	2.26	23	9	1.4
6/26/1961	8	210	179	3.16	20	5	1.2
6/25/1962	---	241	---	---	23	6.7	1.3
7/1/1963	---	228	---	---	21	5.2	1.2
5/24/1966	8.5	228	---	3.39	---	4.9	---

The Discharger has a groundwater monitoring well network of seven wells. Monitoring wells MW-1 through MW-5 were installed in 1989 and have a 3-inch PVC pipe casing with a 0.020-inch slot size and a filter pack of #16 Monterey sand with a bentonite and sand/cement seal. On September 2008, Condor Earth Technologies, Inc., installed two new groundwater monitoring wells (MW-6 and MW-7) utilizing hollow-stem auger method. The new monitoring wells have a 2-inch schedule 40 PVC pipe casing with a 0.020-inch slot size and filter pack of #3 Monterey sand with bentonite-cement grout sanitary seal. The total depth and screen interval for the wells are tabulated below.

Table 4. MW-1 through MW-7 Monitoring Well Construction Details

Well	Total Depth (feet bgs)	Screen Interval (feet bgs)
MW-1	40	20-40
MW-2	35	25-35
MW-3	35	15-35
MW-4	32	22-32
MW-5	30	20-30
MW-6	37	17-37
MW-7	34	14-34

In July 1999, the Discharger contracted with Environmental Management Services (EMS), L.C. to operate, maintain, and manage the WWTF. Monitoring wells MW-6 and MW-7 were installed in 2008 when EMS was responsible for operating the WWTF. In late 2013, the Discharger ended the contract with EMS. New City staff was unaware of MW-6 and MW-7 until their discovery in March 2014, during a Central Valley Water Board inspection. The WWTF operator agreed to begin monitoring MW-6 and MW-7 as part of its groundwater monitoring well network.

Quality of groundwater in monitoring wells MW-6 and MW-7, based on a sample collected on 6 October 2008, is tabulated below, where bold, constituent concentrations are greater than listed MCLs.

Table 5. Groundwater Quality for MW-6 and MW-7

Constituent/Parameter	Units	MW-6	MW-7	MCL
EC	umhos/cm	897	<b>1190</b>	900/1600
TDS	mg/L	<b>530</b>	<b>680</b>	500/1000
TKN	mg/L	0.32	0.13	N/A
Constituent/Parameter	Units	MW-6	MW-7	MCL
Ammonia as Nitrogen	mg/L	0.04	0.035	N/A
NO <sub>3</sub> as N	mg/L	<b>11</b>	0.072	10
Na	mg/L	140	120	---
Cl	mg/L	160	170	250/500
Arsenic (As)	ug/L	<b>11</b>	1.9	10
Iron (Fe)	ug/L	<50	<50	300
Mn	ug/L	15	<b>530</b>	50

The annual average concentrations of groundwater based on MW-1 through MW-5 from January 2010 through December 2013 are shown in Table 5. For comparison purposes, State drinking water primary and secondary maximum contaminant levels (MCLs) are listed at the end of the table; where bold, constituent concentrations are greater than listed MCLs.

Table 6. Yearly Average Groundwater Quality for MW-1 through MW-5

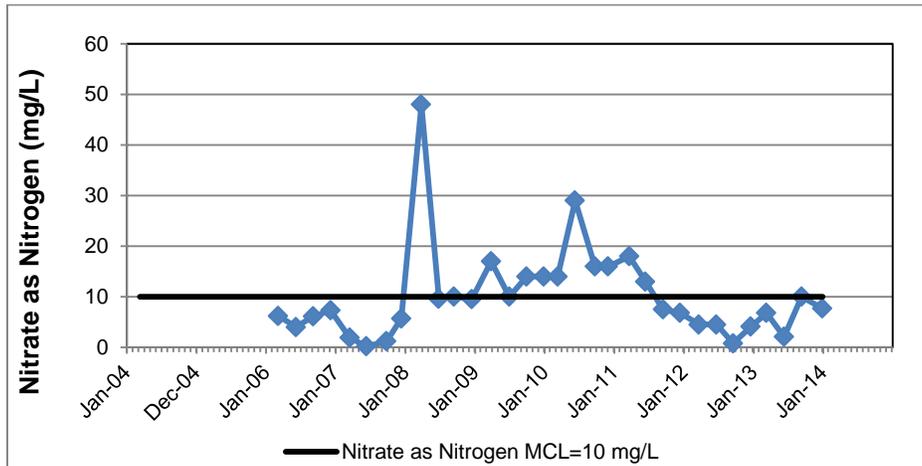
	Year		COD (mg/L)	NO <sub>3</sub> as N (mg/L)	TKN (mg/L)	EC (umhos/cm)
MW-1	2010	Average Count	<20 4	<b>19</b> 4	6 4	<b>1028</b> 4
	2011	Average Count	<20 4	<b>11</b> 4	1 <sup>2</sup> 4	<b>923</b> 4
	2012	Average Count	<20 4	3 4	1 <sup>2</sup> 4	<b>900</b> 4
	2013	Average Count	<20 4	7 4	2 <sup>2</sup> 4	888 4
MW-2	2010	Average Count	19 <sup>1</sup> 4	<b>11</b> 4	4 4	<b>903</b> 4
	2011	Average Count	12.5 <sup>1</sup> 4	8 4	3 <sup>2</sup> 4	<b>1175</b> 4
	2012	Average Count	<20 4	<b>10</b> 4	8 4	<b>1050</b> 4
	2013	Average Count	<20 4	<b>27</b> 4	16 4	<b>1265</b> 4
MW-3	2010	Average Count	<20 4	<b>12</b> 4	1 4	<b>928</b> 4
	2011	Average Count	<20 3	<b>16</b> 3	<1 <sup>2</sup> 3	<b>960</b> 3
	2012	Average Count	<20 4	<b>10</b> 4	3 <sup>2</sup> 4	885 4
	2013	Average Count	<20 4	9 4	<1 4	865 4
MW-4	2010	Average Count	<20 4	9 4	5 4	770 4
	2011	Average Count	<20 4	<b>10</b> 4	1 4	<b>1028</b> 4
	2012	Average Count	<20 3	<b>17</b> 3	2 <sup>2</sup> 3	<b>1033</b> 3
	2013	Average Count	<20 1	7 1	<1 <sup>2</sup> 1	820 1
MW-5	2010	Average Count	<20 4	<b>12</b> 4	2 <sup>2</sup> 4	<b>1225</b> 4
	2011	Average Count	<20 4	3 4	1 <sup>2</sup> 4	<b>1098</b> 4
	2012	Average Count	<20 4	3 4	2 <sup>2</sup> 4	<b>1098</b> 4
	2013	Average Count	<20 4	4 4	3 <sup>2</sup> 4	<b>1250</b> 4
		MCL	N/A	10	N/A	900/1600

- 1 Some of the sampling events were reported as less than the detection limit of 20 mg/L.  
For calculating purposes half the detection limit was used to calculate the annual average.
- 2 Some of the sampling events were reported as less than the detection limit of 1.0 mg/L.  
For calculating purposes half the detection limit was used to calculate the annual average.

Groundwater exceedances for salinity are a result of high strength wastewater discharges to the WWTF from Fresenius Medical Care (Fresenius) an industrial discharger that manufactured hemodialysis concentrate solution and discharged wastewater to the Dischargers collection system. Effluent EC based on a sample collected on 18 July 2008 shows Fresenius effluent EC of 10,000 umhos/cm and WWTF effluent EC of 1,080 umhos/cm. Since early 2014, Fresenius has ceased discharging to the Dischargers collection system. Effluent EC of the WWTF is not 680 umhos/cm.

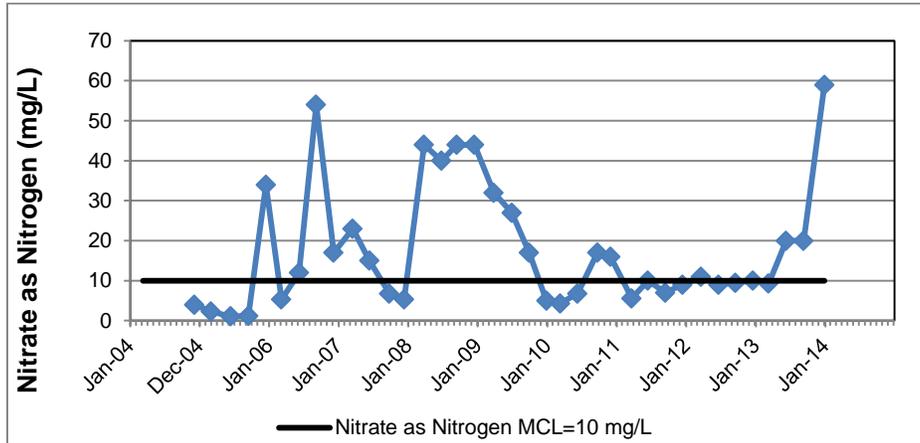
Groundwater below the WWTF has nitrate as nitrogen concentrations that exceed the primary MCL of 10 mg/L. Figures 1 through 5 depict the quality of groundwater below the WWTF for nitrate as nitrogen.

Figure 1. Nitrate as Nitrogen in MW-1



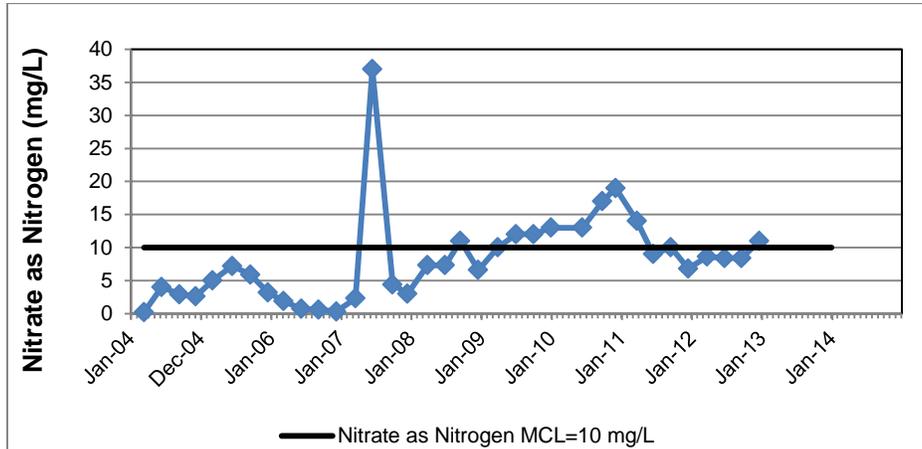
From January 2006 through December 2013, nitrate as nitrogen in MW-1 exceeds the MCL of 10 mg/L 10 out of 38 sampling events (see Figure 1).

Figure 2. Nitrate as Nitrogen in MW-2



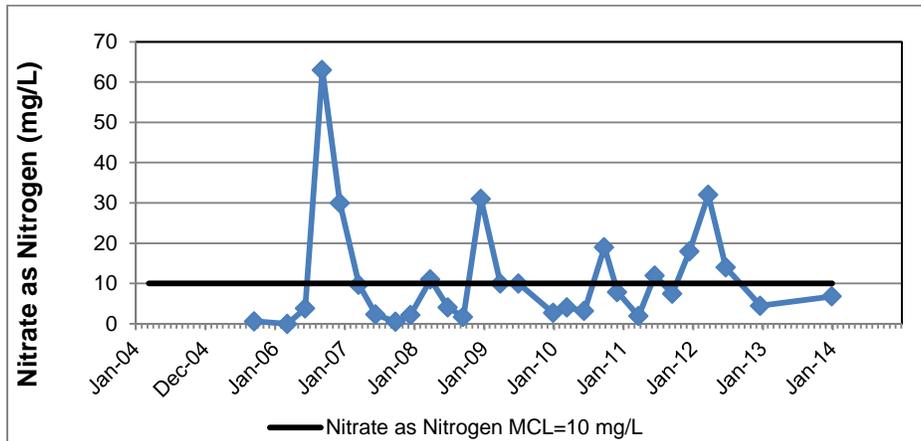
Nitrate as nitrogen in MW-2 exceeds the MCL 19 out of 37 sampling events from December 2004 through December 2013, as shown in Figure 2.

Figure 3. Nitrate as Nitrogen in MW-3



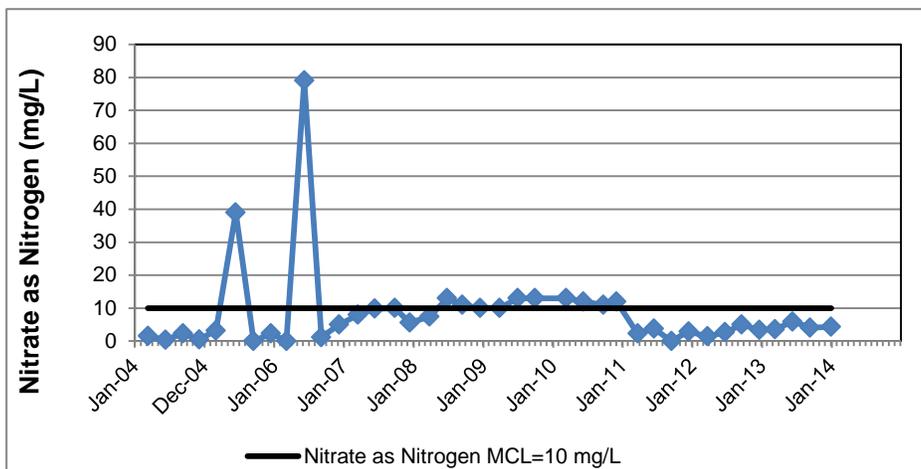
Nitrate as nitrogen in MW-3 exceeds the MCL 10 out of 38 sampling event from January 2004 through December 2013, as shown in Figure 3.

Figure 4. Nitrate as Nitrogen in MW-4



Nitrate as nitrogen in MW-4 exceeds the MCL 9 out of 28 sampling events from September 2005 through December 2013, as shown in Figure 4.

Figure 5. Nitrate as Nitrogen in MW-5



Nitrate as nitrogen in MW-5 exceeds the MCL 10 out of 39 sampling events from January 2004 through December 2013, as shown in Figure 5.

Nitrate as nitrogen concentrations in groundwater based on Figures 1 through 5 show no distinct increasing or decreasing trends. Exceedances in nitrogen are thought to be a result of historical discharges at the WWTF, which previously only provided primary treatment. The Discharger has upgraded the WWTF to secondary treatment with nitrogen reduction (oxidation ditch for nitrogen removal) and total nitrogen is now less than the nitrate as nitrogen MCL of 10 mg/L.

### **Basin Plan, Beneficial Uses, and Regulatory Considerations**

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition, revised October 2011* (Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the Basin, and incorporates, by reference, plans and policies adopted by the State Water Board. The beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

### **Antidegradation**

State Water Board Resolution 68-16, the *Statement of Policy with Respect to Maintaining High Quality of Water in California* (Antidegradation Policy), requires the regional water boards to maintain high quality water of the State until it is demonstrated that any change in quality will not result in water quality less than that described in State and Regional Water Board policies or exceed water quality objectives, will not unreasonably affect beneficial uses and is consistent with the maximum benefit to the people of the State.

This Order establishes terms and conditions to ensure that the authorized discharge will not further degrade groundwater, or unreasonably affect present and anticipated future beneficial uses of groundwater. This Order is consistent with the Anti-Degradation Policy since: (a) the Discharger has implemented Best Practicable Treatment or Control to minimize degradation, (b) the degradation will not unreasonably affect present and anticipated beneficial uses of groundwater, or result in water quality less than water quality objectives, and (c) the limited degradation is of maximum benefit to the people of the State.

### **CEQA**

On 18 October 2001, the City of Livingston adopted a Negative Declaration (SCH #2000101074) in accordance with California Environmental Quality Act (CEQA) and filed a Notice of Determination for flow increase up to 2.0 mgd and an upgrade of the WWTF to include rehabilitation of the headwork, an extended aeration system (Biolac or similar aeration system), two secondary clarifiers, sludge drying beds, and additional evaporation/percolation ponds on 40-acres of land owned by the City of Livingston.

Central Valley Water Board staff reviewed the Negative Declaration and concurs that the project will be an improvement over the former discharge and will not have a significant impact on water quality.

### **Title 27**

Unless the Board finds that the discharge of designated waste is exempt from Title 27 of the California Code of Regulations, the release of designated waste is subject to full containment requirements. Here, the effluent discharge is exempt from the requirements of Title 27 pursuant to the wastewater exemption found at Title 27, sections 20090 (b). Discharges of scum and sludge may not be exempt from Title 27 requirements and, therefore, this Order includes a Provision requiring the Discharger to demonstrate it satisfies the conditions of wastewater exceptions under Title 27 for its scum and sludge handling facilities or to comply with the regulatory requirements of Title 27.

## **Proposed Order Terms and Conditions**

### **Discharge Prohibitions, Specifications and Provisions**

The proposed Order prohibits the discharge of waste to surface waters and to surface water drainage courses, and prohibits the cross connection between potable water and well piping with recycled water piping.

The proposed Order restricts the discharge to a monthly average dry flow limit of 1.18 mgd until the Discharger completes the reconfiguration project or another suitable project that provides additional disposal capacity as specified in Provision G.3 and provides certification that the WWTF can dispose of a monthly average dry weather flow of 2.0 mgd.

This Order sets effluent limits for BOD<sub>5</sub> and TSS of 40 mg/L as monthly average and 80 mg/L as daily maximum.

The proposed Order's provisions regarding storage pond dissolved oxygen and freeboard are consistent with Central Valley Water Board policies for the prevention of nuisance conditions, and are applied to all similarly-situated facilities.

The proposed Order prescribes groundwater limitations that ensure the discharge does not affect present and anticipated beneficial uses of groundwater.

The proposed Order includes provisions that require the District to submit technical report certifying the WWTF can dispose of up to 2.0 mgd, a technical report evaluating the soil cement liner for sludge holding pad and scum ponds, a technical report describing measures to prevent inundation or washout of the soil cement sludge holding pad, conduct an industrial user survey of potential users and submit results, and submit a Notice of Intent for coverage under the State Water Board Order 97-03-DWQ (NPDES General Permit CAS000001).

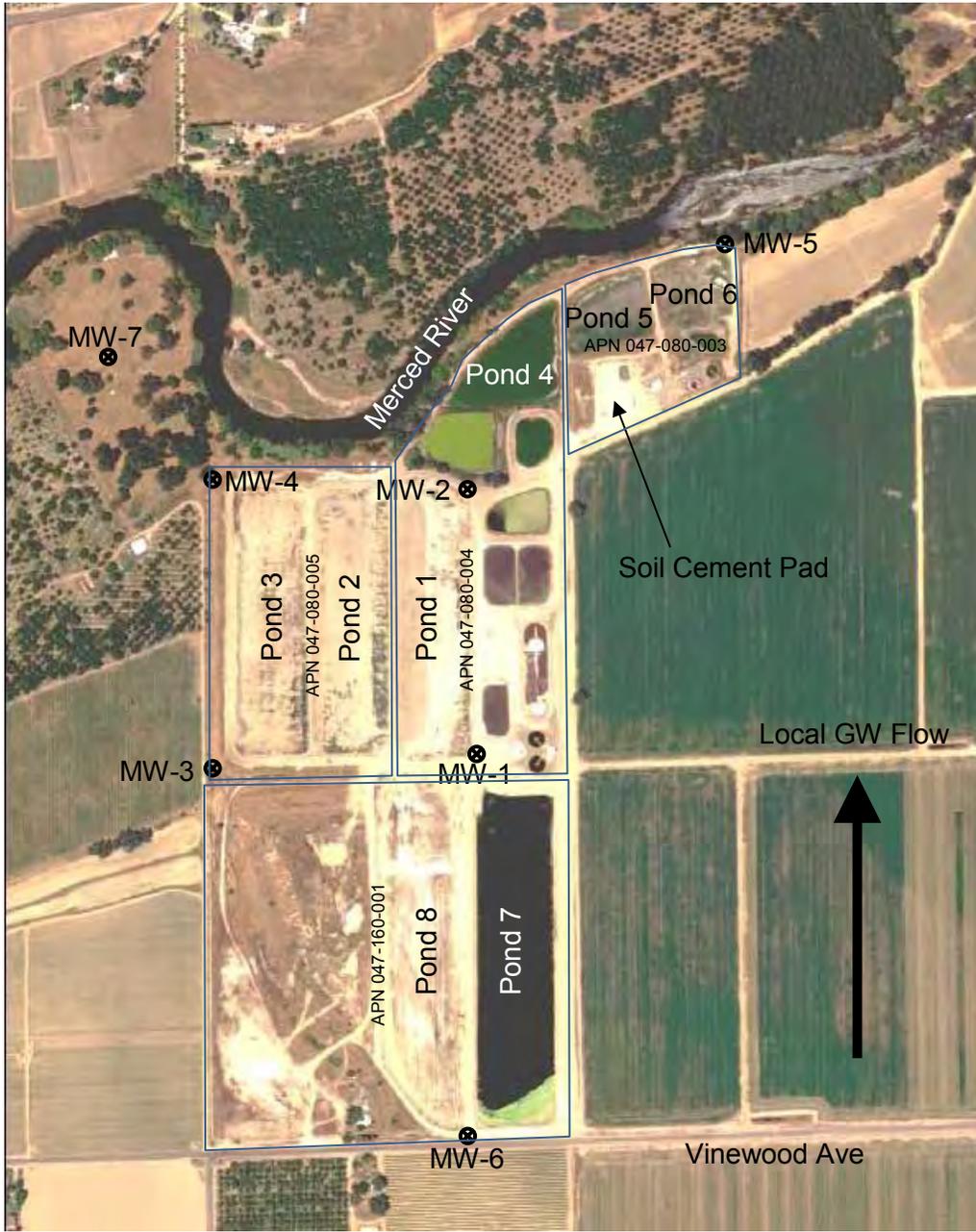
### **Monitoring Requirements**

Section 13267 of the Water Code authorizes the Central Valley Water Board to require the District to submit monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State.

The proposed Order includes influent and effluent monitoring requirements, pond monitoring, source water monitoring, groundwater monitoring, and sludge/biosolids monitoring. This monitoring is necessary to characterize the discharge, evaluate compliance with effluent limitations prescribed by the Order, and evaluate groundwater quality and the extent of degradation, if any, caused by the discharge.

### **Reopener**

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. It may be appropriate to reopen the Order if new technical information is received or if applicable laws and regulations change.



Map Source:  
Compressed NAIP DOQ  
Aerial Photograph (2005)

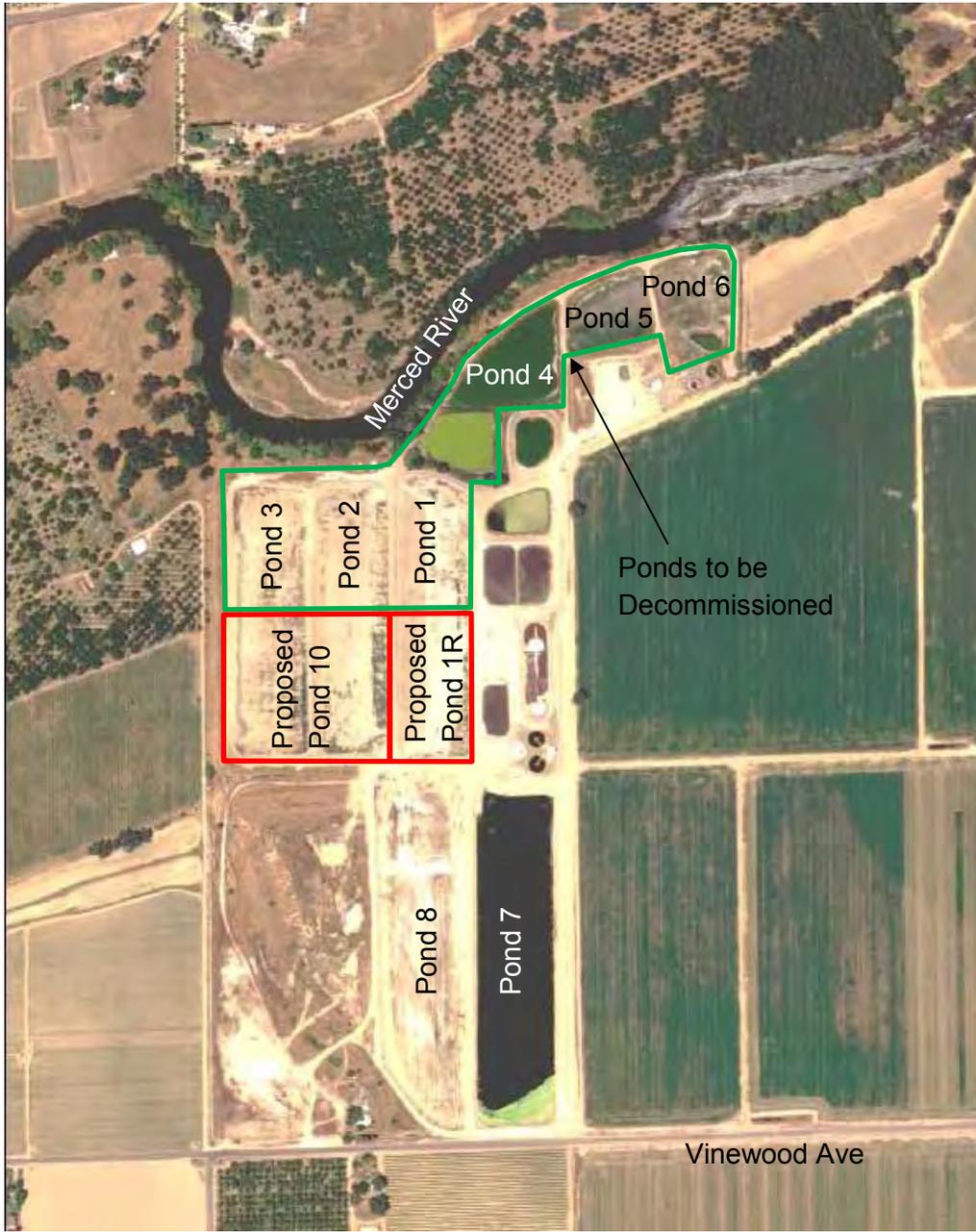


0 0.05 0.1 0.2 Miles

### SITE LOCATION MAP

WASTE DISCHARGE REQUIREMENTS ORDER R5-2014-0147  
FOR  
CITY OF LIVINGSTON  
DOMESTIC WASTEWATER TREATMENT FACILITY  
MERCED COUNTY

**ATTACHMENT A**



Map Source:  
 Compressed NAIP DOQ  
 Aerial Photograph (2005)

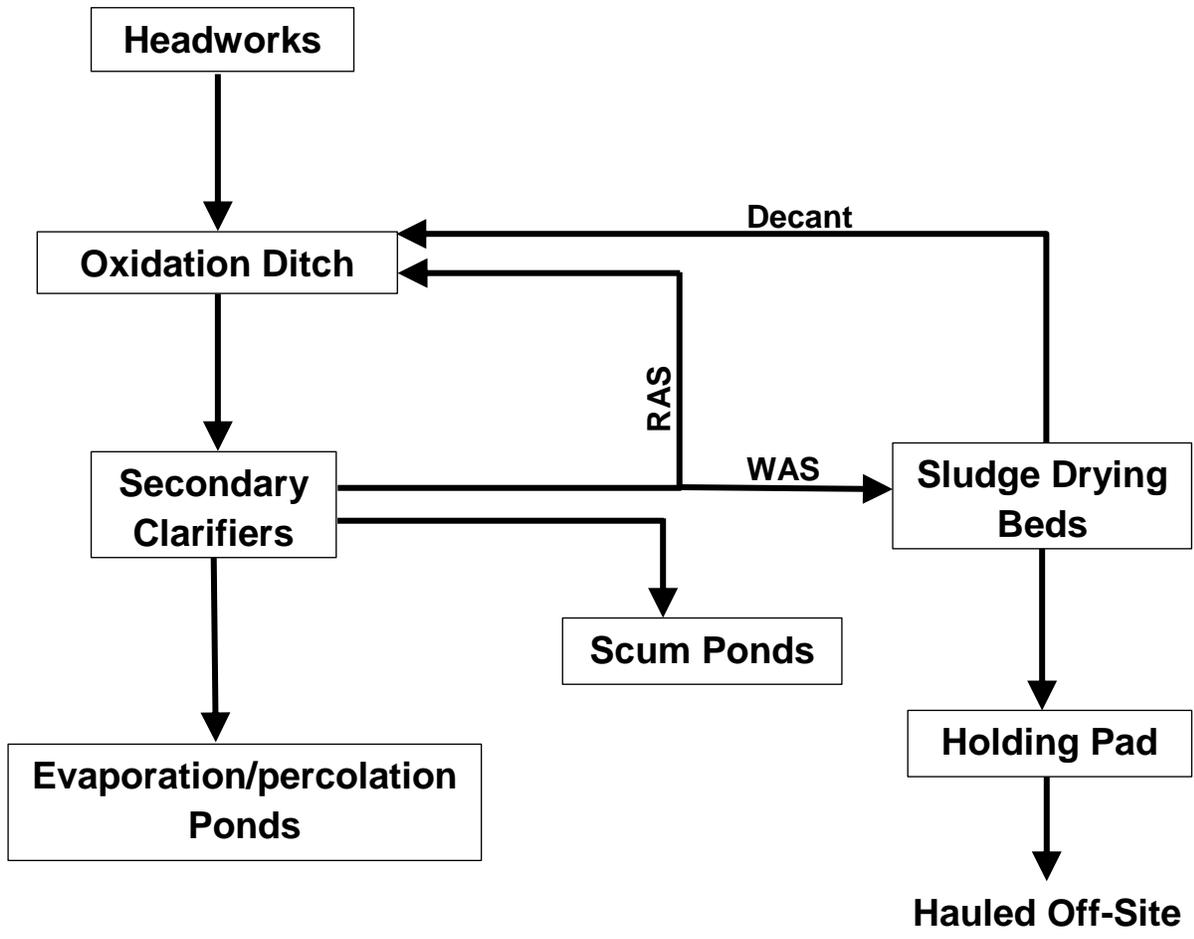


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**PROPOSED POND RECONFIGURATION**

WASTE DISCHARGE REQUIREMENTS ORDER R5-2014-0147  
 FOR  
 CITY OF LIVINGSTON  
 DOMESTIC WASTEWATER TREATMENT FACILITY  
 MERCED COUNTY

**ATTACHMENT B**



NOT TO SCALE

**FLOW SCHEMATIC**

WASTE DISCHARGE REQUIREMENTS ORDER R5-2014-0147  
 FOR  
 CITY OF LIVINGSTON  
 DOMESTIC WASTEWATER TREATMENT FACILITY  
 MERCED COUNTY

**ATTACHMENT C**