

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2015-XXXX
FOR
SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT
SACRAMENTO REGIONAL WASTEWATER TREATMENT PLANT
BIOSOLIDS AND SOLIDS STORAGE AND DISPOSAL FACILITIES
CLASS II LAND TREATMENT UNITS
UNCLASSIFIED SOLIDS STORAGE BASINS
CLASS III LANDFILL
CONSTRUCTION, CLOSURE, POST-CLOSURE MAINTENANCE, AND
CORRECTIVE ACTION
SACRAMENTO COUNTY

This monitoring and reporting program (MRP) is issued to Sacramento Regional County Sanitation District (Discharger) pursuant to California Water Code section 13267 and incorporates requirements for groundwater, surface water, and unsaturated zone monitoring and reporting; facility monitoring, maintenance, and reporting; and financial assurances reporting contained in California Code of Regulations, title 27, section 20005, et seq. (hereafter Title 27), Waste Discharge Requirements (WDRs) Order R5-2015-XXXX, and the Standard Provisions and Reporting Requirements dated November 2013 (SPRRs). Compliance with this MRP is ordered by the WDRs and the Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Central Valley Water Board or the Executive Officer. Failure to comply with this MRP, or with the SPRRs, constitutes noncompliance with the WDRs and with Water Code Section 13267, which can result in the imposition of civil monetary liability.

A. MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone in accordance with Standard Monitoring Specifications in Section I of the SPRRs. All monitoring shall be conducted in accordance with a *Sample Collection and Analysis Plan*, which includes quality assurance/quality control standards. WDRs R5-2015-XXXX requires the Discharger to submit a *Sample Collection and Analysis Plan* by 1 March 2016.

All compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All monitoring program groundwater monitoring wells, unsaturated zone monitoring devices, leachate, and waste discharge shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as indicated and listed in Tables 1 through 7.

The Discharger shall use approved test methods with the lowest achievable detection limit for that constituent taking any matrix interferences into account. The reporting limit shall be no higher than the practical quantitation limit. The Discharger shall report all

trace concentrations that are between the detection limit and the practical quantitation limit. All metals analyses shall be for dissolved metals, with exception of the digested sludge (Section 5.a.i) and harvested sludge (Section 5.c.i) samples that are analyzed as a solid.

The monitoring program of this MRP includes:

<u>Section</u>	<u>Monitoring Program</u>
A.1	Groundwater Monitoring
A.2	Surface Water Monitoring
A.3	Unsaturated Zone Monitoring
A.4	LCRS Monitoring and Annual LCRS Testing
A.5	Waste Discharge Monitoring
A.6	Closed Class III Landfill Gas Monitoring
A.7	Facility Monitoring
A.8	Corrective Action Monitoring

1. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The detection monitoring system shall be certified by a California-licensed professional civil engineer or professional geologist as meeting the requirements of Title 27. The current groundwater detection monitoring system meets the applicable requirements of Title 27.

The current groundwater monitoring network consists of the following:

<u>Well</u>	<u>Status</u>	<u>Zone</u>	<u>Area Being Monitored</u>
MW-219R	Background	Shallow	North Side
MW-220	Background	Shallow	North Side
MW-221R	Background	Shallow	North Side
MW-223	Detection/Extraction	Shallow	North Side
MW-233	Detection/Extraction	Shallow	North Side
MW-235	Detection/Extraction	Shallow	North Side
MW-236	Detection/Extraction	Shallow	North Side
MW-106R	Detection	Shallow	North Side
MW-226R	Detection	Shallow	North Side
MW-227R	Detection	Shallow	North Side
MW-228R	Extraction	Shallow	North Side
MW-232	Detection	Shallow	North Side
MW-237	Detection	Shallow	North Side
MW-238	Detection	Shallow	North Side
MW-239	Detection	Shallow	North Side
MW-240	Detection	Shallow	North Side
MW-241	Detection	Shallow	North Side

<u>Well</u>	<u>Status</u>	<u>Zone</u>	<u>Area Being Monitored</u>
MW-242	Detection	Shallow	North Side
MW-243	Detection	Shallow	North Side
MW-222R	Background	Shallow	South Side
MW-225	Detection	Shallow	South Side
MW-229R	Detection	Shallow	South Side
MW-235	Detection	Shallow	South Side
MW-301	Background	First Aquifer	North Side
MW-326	Background	First Aquifer	North Side
MW-303	Extraction	First Aquifer	North Side
MW-306	Extraction	First Aquifer	North Side
MW-313	Extraction	First Aquifer	North Side
MW-315	Extraction	First Aquifer	North Side
MW-328	Extraction	First Aquifer	North Side
MW-329	Extraction	First Aquifer	North Side
MW-330	Extraction	First Aquifer	North Side
MW-331	Extraction	First Aquifer	North Side
MW-333	Extraction	First Aquifer	North Side
MW-334	Extraction	First Aquifer	North Side
MW-305	Detection	First Aquifer	North Side
MW-310	Detection	First Aquifer	North Side
MW-311	Detection	First Aquifer	North Side
MW-312	Detection	First Aquifer	North Side
MW-314	Detection	First Aquifer	North Side
MW-318	Detection	First Aquifer	North Side
MW-319	Detection	First Aquifer	North Side
MW-320	Detection	First Aquifer	North Side
MW-322	Detection	First Aquifer	North Side
MW-323	Detection	First Aquifer	North Side
MW-324	Detection	First Aquifer	North Side
MW-335	Detection	First Aquifer	North Side
MW-336	Detection	First Aquifer	North Side
MW-337	Detection	First Aquifer	North Side
MW-339	Detection	First Aquifer	North Side
MW-340	Detection	First Aquifer	North Side
MW-341	Detection	First Aquifer	North Side
MW-316	Background	First Aquifer	South Side
MW-307	Extraction	First Aquifer	South Side
MW-308	Extraction	First Aquifer	South Side
MW-332	Extraction	First Aquifer	South Side
MW-309	Detection	First Aquifer	South Side
MW-316	Detection	First Aquifer	South Side
MW-317	Detection	First Aquifer	South Side
MW-321	Detection	First Aquifer	South Side
MW-325	Detection	First Aquifer	South Side
MW-338	Detection	First Aquifer	South Side

Groundwater samples shall be collected semiannually from the background wells, detection monitoring wells, and any additional wells added as part of the approved groundwater monitoring system. Extraction wells shall be monitored as specified in Section A.8 for corrective action and are not part of the detection monitoring system. The Discharger shall collect, preserve, and transport groundwater samples in accordance with a Sample Collection and Analysis Plan. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected and analyzed for the monitoring parameters in accordance with the methods and frequency specified in the following table:

Table 1: Groundwater Monitoring			
<u>Parameters^{4,5}</u>	<u>Units</u>	<u>Monitoring</u>	<u>Reporting</u>
<u>Field Parameters</u>			
Groundwater Elevation	Feet & 100ths, M.S.L.	Quarterly	Semi-Annually
Temperature	°F	Semi-Annually	Semi-Annually
Specific Conductance	µmhos/cm	Semi-Annually	Semi-Annually
pH	Number	Semi-Annually	Semi-Annually
Turbidity	Turbidity units	Semi-Annually	Semi-Annually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semi-Annually	Semi-Annually
Chloride	mg/L	Semi-Annually	Semi-Annually
Nitrate as Nitrogen	mg/L	Semi-Annually	Semi-Annually
Arsenic	µg/L	Semi-Annually	Semi-Annually
Chromium	µg/L	Semi-Annually	Semi-Annually
<u>Constituents of Concern</u>			
Cadmium	µg/L	Annually	Annually
Calcium	mg/L	Annually	Annually
Copper	µg/L	Annually	Annually
Magnesium	mg/L	Annually	Annually
Potassium	mg/L	Annually	Annually
Total Alkalinity	mg/L	Annually	Annually
Total Kjeldahl Nitrogen	mg/L	Annually	Annually
Nickel	µg/L	Annually	Annually
Sodium	mg/L	Annually	Annually
Zinc	µg/L	Annually	Annually
Sulfate	mg/L	Annually	Annually
Nitrite as Nitrogen	mg/L	Annually	Annually
Inorganic Parameters ²	mg/L	5 Years	5 Years
Trace Metals ³	µg/L	5 Years	5 Years

¹ The Discharger shall measure the groundwater elevation in each well **quarterly**, determine groundwater flow direction, and estimate groundwater flow rates in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation monitored. The results shall be reported semi-annually, including the times of expected highest and lowest elevations of the water levels in the wells, pursuant to Title 27, section 20415(e)(15).

² Inorganic parameters shall include: Ammonia, Phosphate, and Total Organic Carbon.

³ Trace Metals shall include: Barium, Cobalt, Lead, Mercury, Molybdenum, Selenium, Silver, and Vanadium.

⁴ Extraction wells shall be monitored as specified in Section A.8 for corrective action and are not part of the detection monitoring system.

2. Surface Water Monitoring

The Discharger has reported that no surface water from waste discharge areas regulated by these WDRs flows off-site. All surface water is returned to the treatment plant headworks. Therefore, these WDRs do not require surface water monitoring.

3. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The current unsaturated zone detection monitoring system meets the applicable requirements of Title 27. The Discharger shall install unsaturated zone monitoring devices (after review and approval by Central Valley Water Board staff) each time a new Class II waste management unit is constructed.

a. Solids Storage Basins

There is no unsaturated zone monitoring of the Solids Storage Basins (SSBs).

b. C-DLDs

The unsaturated zone for the unlined and closed DLDs (C-DLDs) including C-DLDs 1 and 5 shall be monitored by collecting soil core samples. Semiannually, four soil core samples are collected from randomly chosen locations within each C-DLD using a direct push drilling rig to a depth of fifteen feet below ground surface. Fifteen samples from the soil core, one sample from each foot, are analyzed for gravimetric water content and in-place density.

c. L-DLDs

The unsaturated zone monitoring network for the active, lined DLDs (L-DLDs) including L-DLDs 2, 3, and 4 include pan lysimeters located underneath the LCRS sumps. The current unsaturated zone monitoring network consists of:

<u>Monitoring Point</u>	<u>Status</u>	<u>Units Being Monitored</u>
L-DLD 2 SW	Detection	L-DLD 2
L-DLD 2 SE	Detection	L-DLD 2
L-DLD 3 SW	Detection	L-DLD 3
L-DLD 3 SE	Detection	L-DLD 3
L-DLD 4 NW	Detection	L-DLD 4
L-DLD 4 NE	Detection	L-DLD 4

Unsaturated zone samples shall be collected from the monitoring network listed above and shall be analyzed for the parameters and constituents listed in the following table in accordance with the specified methods and frequencies (pan lysimeters need only be sampled when liquid is present). Pan lysimeters shall be inspected for the presence of liquid **quarterly**. If liquid is detected in a previously dry pan lysimeter, the Discharger shall follow the procedures in the

WDRs under “C. Facility Specifications” and shall **immediately** sample and test the liquid for Field and Monitoring Parameters listed in the following table. If there is not enough liquid to analyze for all of the parameters, the analyses shall be conducted in the order of the indicated priorities 1, 2, and 3.

Table 2: L-DLD Liner Leak Detection Monitoring Program			
<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Free Liquid	Presence/Absence	Quarterly	Semi-Annually
Volume Evacuated	Gallons	As Present	Semi-Annually
Specific Conductance (1)	µmhos/cm	As Present	Semi-Annually
pH (1)	Number	As Present	Semi-Annually
<u>Monitoring Parameters</u>			
Arsenic (3)	µg/L	As Required	Semi-Annually
Barium (3)	µg/L	As Required	Semi-Annually
Cadmium (3)	µg/L	As Required	Semi-Annually
Chromium (3)	µg/L	As Required	Semi-Annually
Cobalt (3)	µg/L	As Required	Semi-Annually
Copper (3)	µg/L	As Required	Semi-Annually
Lead (3)	µg/L	As Required	Semi-Annually
Mercury (3)	µg/L	As Required	Semi-Annually
Molybdenum (3)	µg/L	As Required	Semi-Annually
Nickel (3)	µg/L	As Required	Semi-Annually
Selenium (3)	µg/L	As Required	Semi-Annually
Silver (3)	µg/L	As Required	Semi-Annually
Vanadium (3)	µg/L	As Required	Semi-Annually
Zinc (3)	µg/L	As Required	Semi-Annually
Ammonia as Nitrogen (2)	mg/L	As Required	Semi-Annually
Chloride (2)	mg/L	As Required	Semi-Annually
Nitrate as Nitrogen (1)	mg/L	As Present	Semi-Annually
Phosphate (2)	mg/L	As Required	Semi-Annually
Sulfate (2)	mg/L	As Required	Semi-Annually
Total Kjeldahl Nitrogen (2)	mg/L	As Required	Semi-Annually
Total Organic Carbon (2)	mg/L	As Required	Semi-Annually
Total Dissolved Solids (2)	mg/L	As Required	Semi-Annually

The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan.

Monitoring results for the unsaturated zone shall be included in monitoring reports and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

d. Closed Class III Landfill

There is no unsaturated zone monitoring for the Closed Class III Landfill (closed landfill).

4. LCRS Monitoring and Annual LCRS Testing

a. Solids Storage Basins

There is no LCRS monitoring for the SSBs.

b. C-DLDs

There is no LCRS monitoring for the C-DLDs.

c. L-DLDs

The Discharger shall operate and maintain leachate collection and removal system (LCRS) sumps, and conduct annual testing of each LCRS in accordance with Title 27 and this monitoring program.

The current LCRS leachate sump monitoring points are:

<u>Mon Pt.</u>	<u>Unit Where Sump is Located</u>
L-DLD 2	L-DLD 2
L-DLD 3	L-DLD 3
L-DLD 4	L-DLD 4

All LCRS sumps shall be inspected monthly for the presence of leachate, and flow shall be recorded in accordance with the following table.

Table 3: L-DLD Leachate (LCRS) Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Flow Volume	Gallons ¹	Monthly Total	Semi-Annually
Specific Conductance	µmhos/cm	Bi-Monthly	Semi-Annually
pH	Number	Bi-Monthly	Semi-Annually
LCRS Flow Test	Pass/Fail	Annually	Annually
<u>Monitoring Parameters</u>			
Arsenic	µg/L	Semi-Annually	Semi-Annually
Barium	µg/L	Semi-Annually	Semi-Annually
Cadmium	µg/L	Semi-Annually	Semi-Annually
Chromium	µg/L	Semi-Annually	Semi-Annually
Cobalt	µg/L	Semi-Annually	Semi-Annually
Copper	µg/L	Semi-Annually	Semi-Annually
Lead	µg/L	Semi-Annually	Semi-Annually
Mercury	µg/L	Semi-Annually	Semi-Annually
Molybdenum	µg/L	Semi-Annually	Semi-Annually
Nickel	µg/L	Semi-Annually	Semi-Annually
Selenium	µg/L	Semi-Annually	Semi-Annually
Silver	µg/L	Semi-Annually	Semi-Annually
Vanadium	µg/L	Semi-Annually	Semi-Annually
Zinc	µg/L	Semi-Annually	Semi-Annually
Ammonia as Nitrogen	mg/L	Annually	Annually
Chloride	mg/L	Annually	Annually
Nitrate as Nitrogen	mg/L	Bi-Monthly	Annually
Phosphate	mg/L	Annually	Annually
Sulfate	mg/L	Annually	Annually
Total Kjeldahl Nitrogen	mg/L	Annually	Annually
Total Organic Carbon	mg/L	Annually	Annually
Total Dissolved Solids	mg/L	Annually	Annually

¹ Flow in gallons per day from LCRS sump back to wastewater treatment plant headworks

Annual LCRS Testing: All LCRSs shall be tested annually pursuant to Title 27, section 20340(d) to demonstrate proper operation. The results of these tests shall be reported to the Central Valley Water Board in the Annual Monitoring Report and shall include comparisons with earlier tests made under comparable conditions.

d. Closed Class III Landfill

There is no LCRS monitoring for the closed landfill.

5. Waste Discharge Monitoring

a. Solids Storage Basins

i. Digested Sludge

The Discharger shall monitor the volume and chemical constituents in the digested sludge discharged to the SSBs monthly with semi-annual reporting. Samples of digested sludge shall be collected from the digester discharge pipe in accordance with the following table:

Table 4: Solids Storage Basins Digested Sludge Monitoring			
<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Quantity Discharged	Tons/day	Monthly	Semi-Annually
Total Solids	Percent	Monthly	Semi-Annually
Volatile Solids	Percent	Monthly	Semi-Annually
Specific Conductance	µmhos/cm	Monthly	Semi-Annually
pH	Number	Monthly	Semi-Annually
Chloride	mg/kg	Monthly	Semi-Annually
Sulfate	mg/kg	Monthly	Semi-Annually
Calcium	mg/kg	Monthly	Semi-Annually
Magnesium	mg/kg	Monthly	Semi-Annually
Potassium	mg/kg	Monthly	Semi-Annually
Sodium	mg/kg	Monthly	Semi-Annually
Total Phosphorus	mg/kg	Monthly	Semi-Annually
Total Nitrogen	mg/kg	Monthly	Semi-Annually
Nitrate as Nitrogen	mg/kg	Monthly	Semi-Annually
Nitrite as Nitrogen	mg/kg	Monthly	Semi-Annually
Total Kjeldahl Nitrogen	mg/kg	Monthly	Semi-Annually
Ammonia as Nitrogen	mg/kg	Monthly	Semi-Annually
Arsenic	mg/kg	Monthly	Semi-Annually
Cadmium	mg/kg	Monthly	Semi-Annually
Chromium	mg/kg	Monthly	Semi-Annually
Copper	mg/kg	Monthly	Semi-Annually
Lead	mg/kg	Monthly	Semi-Annually
Mercury	mg/kg	Monthly	Semi-Annually
Molybdenum	mg/kg	Monthly	Semi-Annually
Nickel	mg/kg	Monthly	Semi-Annually
Selenium	mg/kg	Monthly	Semi-Annually
Silver	mg/kg	Monthly	Semi-Annually
Zinc	mg/kg	Monthly	Semi-Annually

ii. Supernate

SSB supernate samples shall be collected from each SSB. Samples from the SSBs within each SSB battery shall be composited into one sample for laboratory analysis (one composite sample from each of the three batteries).

Samples of the SSB supernate shall be collected from the SSBs in accordance with the following table:

Table 5: Solids Storage Basins Supernate Monitoring			
<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Total Suspended Solids	mg/L	Semi-Annually	Semi-Annually
Total Dissolved Solids	mg/L	Semi-Annually	Semi-Annually
Specific Conductance	µmhos/cm	Semi-Annually	Semi-Annually
Ammonia Nitrogen (NH ₄ -N)	mg/L	Semi-Annually	Semi-Annually
Nitrate as N	mg/L	Semi-Annually	Semi-Annually
Nitrite as N	mg/L	Semi-Annually	Semi-Annually
Chloride	mg/L	Semi-Annually	Semi-Annually
Sulfate	mg/L	Semi-Annually	Semi-Annually
Sodium	mg/L	Semi-Annually	Semi-Annually
Calcium	mg/L	Semi-Annually	Semi-Annually

b. C-DLDs

There is no waste discharge monitoring of the C-DLDs.

c. L-DLDs

i. Harvested Sludge

The Discharger shall monitor the stabilized sludge (biosolids) discharged to the L-DLDs for the parameters listed below in Table 6. The monitoring shall occur at least two times per SSB harvested during the sludge removal season.

Table 6: L-DLD Waste Discharge Monitoring			
<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Biosolids Source	Slurry or Dewatered	During SSB harvest*	Annually
Application Rate to L-DLD	Dry tons/acre	During SSB harvest*	Annually
Total Solids	Percent	During SSB harvest*	Annually
Volatile Solids	Percent	During SSB harvest*	Annually
Specific Conductance	µmhos/cm	During SSB harvest*	Annually
pH	Number	During SSB harvest*	Annually
Chloride	mg/kg	During SSB harvest*	Annually
Sulfate	mg/kg	During SSB harvest*	Annually
Calcium	mg/kg	During SSB harvest*	Annually
Magnesium	mg/kg	During SSB harvest*	Annually
Potassium	mg/kg	During SSB harvest*	Annually
Sodium	mg/kg	During SSB harvest*	Annually
Total Phosphorus	mg/kg	During SSB harvest*	Annually
Total Nitrogen	mg/kg	During SSB harvest*	Annually
Nitrate as Nitrogen	mg/kg	During SSB harvest*	Annually
Nitrite as Nitrogen	mg/kg	During SSB harvest*	Annually
Total Kjeldahl Nitrogen	mg/kg	During SSB harvest*	Annually
Ammonia as Nitrogen	mg/kg	During SSB harvest*	Annually
Arsenic	mg/kg	During SSB harvest*	Annually
Cadmium	mg/kg	During SSB harvest*	Annually
Chromium	mg/kg	During SSB harvest*	Annually
Copper	mg/kg	During SSB harvest*	Annually
Lead	mg/kg	During SSB harvest*	Annually
Mercury	mg/kg	During SSB harvest*	Annually
Molybdenum	mg/kg	During SSB harvest*	Annually
Nickel	mg/kg	During SSB harvest*	Annually
Selenium	mg/kg	During SSB harvest*	Annually
Silver	mg/kg	During SSB harvest*	Annually
Zinc	mg/kg	During SSB harvest*	Annually

*Monitoring shall occur at least two times per SSB harvested during the sludge removal season

ii. Soil Monitoring

Semiannually the Discharger shall monitor soil pH at two surface locations for each L-DLD. The Discharger shall report the amount of lime applied to the L-DLDs in order to maintain the soil pH above the minimum level required by the WDRs.

The L-DLD monitoring shall include annual monitoring of the soil beneath the L-DLDs for the parameters listed in Table 7. The Discharger shall collect and analyze samples from two locations at each L-DLD. The Discharger shall sample each location at the following depths below the surface: 6-inches, 18-

inches and 36-inches. The Discharger shall collect the samples prior to the end of the annual application of stabilized sludge (biosolids) to the L-DLDs.

<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Moisture Content	Percent	Annually	Annually
Cation Exchange Capacity	meq/100 mg	Annually	Annually
pH	Number	Semi-annually	Semi-annually
Total Kjeldahl Nitrogen	mg/kg	Annually	Annually
Sulphur	mg/kg	Annually	Annually
Arsenic	mg/kg	Annually	Annually
Cadmium	mg/kg	Annually	Annually
Chromium	mg/kg	Annually	Annually
Copper	mg/kg	Annually	Annually
Lead	mg/kg	Annually	Annually
Mercury	mg/kg	Annually	Annually
Nickel	mg/kg	Annually	Annually
Selenium	mg/kg	Annually	Annually
Silver	mg/kg	Annually	Annually
Zinc	mg/kg	Annually	Annually

d. Closed Class III Landfill

There is no waste discharge monitoring of the closed landfill.

6. Closed Class III Landfill Gas Monitoring

The Discharger shall collect, analyze, and report data for landfill gas monitoring as required by CalRecycle. Current monitoring for landfill gas occurs at monitoring locations GW-6, GW-9, and GW-10. Copies of the CalRecycle landfill gas monitoring reports shall be included with the annual monitoring reports.

7. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for liner systems; LCRS pumps, piping and control systems; drainage control systems; groundwater monitoring wells; unsaturated zone monitoring systems; and shall assess preparedness for winter conditions including but not limited to the required surface impoundment capacity and erosion and sedimentation control. The Discharger shall take photos of any problems areas before and after repairs.

Any necessary construction, maintenance, or repairs shall be completed by **31 October**. Annual facility inspection reporting shall be submitted as required in Section B.3 of this MRP.

b. Major Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all waste management unit berms for damage **within 7 days** following major storm events capable of causing damage or significant erosion. SSB and DLD runoff zone freeboard shall be measured and recorded within 24 hours after onsite rainfall of greater than two inches in a 24 hour period. The Discharger shall take photos of any problems areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Section B.4 of this MRP.

c. Dedicated Land Disposal Units Inspections

The Discharger shall visually inspect the DLDs surfaces semi-annually and following unusual events such as major storms, earthquakes, and fires. Surface cracking, ponding, surface drainage interruptions, or unusual surface conditions should be identified during the inspections. Vegetation cover and plant health on closed DLDs should also be observed and notated during inspections. Results of the Inspections shall be submitted in the semiannual monitoring reports required in Section B.1 of this MRP.

d. Closed Class III Landfill Standard Observations

The Discharger shall conduct Standard observations at the closed landfill in accordance with this section of the MRP. Standard observations shall be conducted in accordance with the following schedule:

<u>Landfill Unit Type</u>	<u>Frequency</u>	<u>Season</u>
Inactive/Closed	Monthly	Wet: 15 October to 15 May
Inactive/Closed	Quarterly	Dry: 16 May to 14 October

The Standard Observations shall include:

1. For the closed landfill units:
 - a. Evidence of ponded water at any point on the closed landfill outside of any contact storm water diversions structures on the active face (show affected area on map); and
 - b. Evidence of erosion and/or of day-lighted refuse.
2. Along the perimeter of the closed landfill units:

a. Evidence of leachate seeps, estimated size of affected area, and flow rate (show affected area on map); and

3. Evidence of erosion and/or of day-lighted refuse.

Results of Standard Observations shall be submitted in the semiannual monitoring reports required in Section B.1 of this MRP.

8. Corrective Action Monitoring

The Discharger shall conduct corrective action monitoring to demonstrate the effectiveness of corrective action in accordance with Title 27, section 20430 and this MRP. Groundwater monitoring wells that are in a corrective action monitoring program shall be monitored quarterly for groundwater elevation.

The existing corrective action monitoring wells are listed below. The Discharger shall monitor and report semiannually: the average and accumulated flow of groundwater extracted, the effectiveness of cleanup, and the hydraulic influence of the well extraction network.

<u>Extraction Well</u>	<u>Zone</u>	<u>WMU Being Addressed</u>
MW-228R	Shallow Zone	C-DLDs 1 and 5, L-DLD 3
MW-233	Shallow Zone	C-DLDs 1 and 5, L-DLD 3
MW-235	Shallow Zone	C-DLDs 1 and 5, L-DLD 3
MW-236	Shallow Zone	C-DLDs 1 and 5, L-DLD 3
MW-303	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-306	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-307	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-308	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-313	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-315	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-328	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-329	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-330	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-331	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-332	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-333	First Aquifer	C-DLDs 1 and 5, L-DLD 3
MW-334	First Aquifer	C-DLDs 1 and 5, L-DLD 3

B. REPORTING

The Discharger shall submit the following reports in accordance with the required schedule:

Reporting Schedule

<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.1	Semiannual Monitoring Report	30 June, 31 December	1 August, 1 February
B.2	Annual Monitoring Report	31 December	1 February
B.3	Annual Facility Inspection Report	31 October	15 November
B.4	Major Storm Event Reporting	Continuous	7 days from damage discovery
B.5	Financial Assurances Report	31 December	1 June

Reporting Requirements

The Discharger shall submit monitoring reports **semiannually** with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order R5-2015-XXX and the Standard Provisions and Reporting Requirements (particularly Section I: "Standard Monitoring Specifications" and Section J: "Response to a Release"). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format, such as a computer disk.

Field and laboratory tests shall be reported in each monitoring report. Semiannual and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the above schedule for the calendar period in which samples were taken or observations made. In addition, the Discharger shall enter all monitoring data and monitoring reports into the online Geotracker database as required by Division 3 of Title 27.

The results of **all monitoring** conducted at the site shall be reported to the Central Valley Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained

throughout the life of the facility. Such records shall be legible and shall show the following for each sample:

- a) Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
- b) Date, time, and manner of sampling;
- c) Date and time that analyses were started, and the name of the personnel and laboratory performing each analysis;
- d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e) Calculation of results; and
- f) Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

Required Reports

1. **Semiannual Monitoring Report:** Monitoring reports shall be submitted semiannually and are due on **1 August** and **1 February**. Each semiannual monitoring report shall contain at least the following:
 - a) For each groundwater monitoring point addressed by the report, a description of:
 - 1) The time of water level measurement;
 - 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
 - 3) The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
 - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
 - 5) A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.
 - b) A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.

- c) The estimated quarterly groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations taken prior to the collection of the water quality data submitted in the report [Title 27, section 20415(e)(15)].
 - d) Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, LCRS/leachate, unsaturated zone, SSBs, C-DLDs, and L-DLDs. Concentrations below the laboratory reporting limit shall not be reported as “ND” unless the reporting limit is also given in the table. Otherwise they shall be reported “<” the reporting limit (e.g., <0.10). Units shall be as required in Tables 1 through 5 unless specific justification is given to report in other units. Refer to the SPRRs Section I “Standard Monitoring Specifications” for requirements regarding MDLs and PQLs.
 - e) Laboratory statements of results of all analyses evaluating compliance with requirements.
 - f) An evaluation of the concentration of each monitoring parameter as compared to the current concentration limits, and the results of any required verification testing for constituents exceeding a concentration limit. Report any actions taken under Section J: Response to a Release in the SPRRs for verified exceedances of a concentration limit for wells/constituents not already in corrective action monitoring.
 - g) A summary of visual inspection of the DLD surface semi-annually and following events such as major storms, earthquakes, and fire.
 - h) A summary of all waste discharge monitoring required in Section A.5 of this MRP.
 - i) A summary of all Facility Monitoring including onsite rainfall data for the reporting period required in Section A.7 of this MRP.
 - j) A summary of all Corrective Action Program monitoring required in Section A.8 of this MRP.
 - k) A discussion about any solids that were removed from the SSBs during the reporting period to regain capacity.
 - l) Results from additional monitoring requirements specified in the Revised Final Post-Closure Monitoring Plan required by WDR R5-2015-XXXX.
2. **Annual Monitoring Report:** The Discharger shall submit an Annual Monitoring Report to the Central Valley Water Board by **1 February** covering the reporting period of the previous monitoring year. If desired, the Annual Monitoring Report may be combined with the second semiannual report, but if so, shall clearly state that it is both a semi-annual and annual monitoring report in its title. Each Annual Monitoring Report shall contain the following additional information beyond what is required for semiannual monitoring reports:

- a) All monitoring parameters shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
- b) An evaluation of the monitoring parameters with regards to the cation/anion balance, and a graphical presentation using a Stiff diagram, a Piper graph, or a Schoeller plot.
- c) All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27, section 20420(h)], that facilitates periodic review by the Central Valley Water Board.
- d) Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.
- e) A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
- f) A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
- g) The results of the annual testing of the LCRS.
- h) Updated concentration limits for each monitoring parameter at each monitoring well based on the new background data set.
- i) A comprehensive discussion of any Corrective Action Program required by this MRP under Section A.8 including a discussion of long-term trends in the concentrations of the pollutants in the groundwater monitoring wells and an analysis of whether the pollutants are being effectively treated.
- j) Copies of the CalRecycle landfill gas monitoring reports.
- k) Trend analysis results for L-DLD leachate soluble metals versus pH as detailed in WDR R5-2015-XXXX Finding 73.
- l) Adequacy of the C-DLD vegetation and if mitigation measures are required as detailed in WDR R5-2015-XXXX Finding 92 and Provision E.21.

3. **Annual Facility Inspection Reporting:** By **15 November** of each year, the Discharger shall submit a report describing the results of the inspection and the repair measures implemented, preparations for winter, and include photographs of any problem areas and the repairs. Refer to Section A.7.a of this MRP, above.
4. **Major Storm Event Reporting:** The Discharger shall notify Central Valley Water Board staff within 24 hours after a storm event of greater than two inches in 24 hours as to the status of freeboard in the SSBs and DLD storm water runoff zones. The Discharger shall also notify Central Valley Water Board staff within **7 days** after major storm events of any damage or significant erosion and report any needed repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. Refer to Section A.7.b of this MRP above for requirements for performing the inspection and conducting the repairs.
5. **Financial Assurances Report:** By **1 June** of each year, the Discharger shall submit a report to the Central Valley Water Board that reports the balance of both the closure and corrective action funds or the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 Section 22236. Refer to Financial Assurances Specifications F.1 through F.3 of the WDRs.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard Report

For each waste management unit, the Water Quality Protection Standard shall consist of all COCs, the concentration limit for each constituent of concern, the verification retesting procedure to confirm measurably significant evidence of a release, the point of compliance, and all water quality monitoring points for each monitored medium.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the COCs, the concentration limits, and the point of compliance and all monitoring points. Any proposed changes to the Water Quality Protection Standard other than annual update of the concentration limits shall be submitted in a report for review and approval.

The report shall:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a waste management unit or portion of a unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program,

and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with Title 27, section 20405.

- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
- d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and constituents of concern that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E).
- e. Include a retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415(e)(8)(E) and section 20420(j)(1-3).

The Water Quality Protection Standard shall be certified by a California-professional civil engineer or professional geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard. The WQPS shall be reviewed and updated, as necessary, at least every 5 years. An updated WQPS report shall be submitted in accordance with MRP Section I.4.b.

2. Monitoring Parameters

Monitoring parameters are a select group of constituents that are monitored during each monitoring event that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a waste management unit. The monitoring parameters for all waste management units are those listed in the tables in Section A of this MRP specified monitored medium.

3. Concentration Limits

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
- b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

5. Retesting Procedures for Confirming Evidence of a Release

If monitoring results indicate measurably significant evidence of a release, as described in Standard Monitoring Specification I.43 of the SPRRs, then:

- a. For analytes that are detected in less than 10% of the background samples (such as non-naturally occurring constituents), the Discharger shall use the non-statistical retesting procedure required in Standard Monitoring Specification I.44 of the SPRRs.
- b. For analytes that are detected in 10% or greater of the background samples (naturally occurring constituents), the Discharger shall use one of the statistical retesting procedure as required in Standard Monitoring Specification I.45 of the SPRRs.

6. Point of Compliance

The point of compliance for the water standard at each waste management unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the unit. The following are monitoring locations at the point of compliance:

<u>Cell or Module</u>	<u>Point of Compliance Monitoring Wells</u>
Closed Landfill	MW-228R, MW-324
C-DLD 1	MW-232, MW-305
L-DLD 2	MW-239
L-DLD 3	MW-233, MW-303, MW-315, MW-322, MW-323, MW-329, MW-330, MW-331, MW-336, MW-337, MW-341
L-DLD 4	MW-233, MW-303, MW-315, MW-322, MW-323, MW-329, MW-330, MW-331, MW-336, MW-337, MW-341
C-DLD 5	MW-235, MW-307, MW-317, MW-338
SSB Battery I	MW-223, MW-238
SSB Battery II	MW-240, MW-241
SSB Battery III	MW-242, MW-243, MW-225

7. Compliance Period

The compliance period for each waste management unit shall be the number of years equal to the active life of the unit plus the closure period. The compliance

period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the waste management unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program [Title 27, section 20410].

8. Monitoring Points

A monitoring point is a well, device, or location specified in the waste discharge requirements, which monitoring is conducted and at which the water quality protection standard applies. The monitoring points for each monitored medium are listed in Section A of this MRP.

D. TRANSMITTAL LETTER FOR ALL REPORTS

A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report. The transmittal letter shall contain a statement by the Discharger, or the Discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

(Date)

AAH/WMH