

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2018-XXXX  
FOR  
AMADOR COUNTY  
BUENA VISTA  
CLASS II AND III LANDFILL  
POST-CLOSURE MAINTENANCE, CLASS II SURFACE IMPOUNDMENT OPERATION  
AND MAINTENANCE, AND CORRECTIVE ACTION  
AMADOR COUNTY

This monitoring and reporting program (MRP) is issued 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 R5-2018-XXXX, December 2015 Standard Provisions and Reporting Requirements (SPRRs): Nonhazardous Solid Waste Discharges Regulated by Subtitle D a. (Landfill SPRRs) and April 2016 Standard Provisions and Reporting Requirements for Industrial Facilities Regulated by Title 27 (Industrial 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 and the Monitoring Specifications in Section G of the WDRs. All monitoring shall be conducted in accordance with the most current approved *Sample Collection and Analysis Plan*, which includes quality assurance/quality control standards.

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

The Discharger may use alternative analytical test methods, including new United States Environmental Protection Agency (USEPA) approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this MRP, and are identified in the approved Sample Collection and Analysis Plan.

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The monitoring program of this MRP includes:

<u>Section</u>	<u>Monitoring Program</u> <sup>1</sup>
A.1	Groundwater Monitoring
A.2	Unsaturated Zone Monitoring
A.3	Leachate Monitoring, Seep Monitoring and Annual LCRS Testing and Action Leakage Rate
A.4	Surface Water Monitoring
A.5	Surface Impoundment Monitoring
A.6	Facility Monitoring
A.7	Corrective Action Monitoring

1. See Attachment C for monitoring locations

### 1. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of Title 27, Subchapter 3 “Water Monitoring”. The detection monitoring system shall be certified by a California-licensed professional civil engineer or 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 shall consist of the following:

<u>Well</u>	<u>Status</u>	<u>Groundwater Zone</u>	<u>Units Being Monitored</u>
Sump L-1	Corrective Action	Upper Aquifer	Phase I landfill WMU
MW-1	Detection	Upper Aquifer	Phase I landfill WMU
MW-3A	Corrective Action	Upper Aquifer	Phase I landfill WMU
MW-3B	Corrective Action	Upper Aquifer	Phase I landfill WMU
MW-4A	Detection	Upper Aquifer	Phase II and III landfill WMUs
MW-5	Detection	Upper Aquifer	Phase II and III landfill WMUs
MW-5S	Detection	Upper Aquifer	Phase II and III landfill WMUs
MW-7	Corrective Action	Upper Aquifer	Phase I landfill WMU
MW-9	Background Well	Upper Aquifer	
MW-10	Corrective Action	Upper Aquifer	Phase I landfill WMU
MW-11	Detection	Upper Aquifer	Phase I landfill WMU
MW-13	Detection	Upper Aquifer	Phase I landfill WMU
MW-14	Background Well	Upper Aquifer	



<u>Well</u>	<u>Status</u>	<u>Groundwater Zone</u>	<u>Units Being Monitored</u>
MW-15	Detection	Upper Aquifer	Phase II and III landfill WMUs
MW-16	Detection	Upper Aquifer	Phase II and III landfill WMUs
MW-20	Other MP	Perched Zone	
MW-21	Detection	Upper Aquifer	Class II Surface Impoundment

MW – Monitoring well  
 WMU – Waste management unit

Groundwater samples shall be collected from the background wells, detection monitoring wells, corrective action monitoring wells, and any additional wells added as part of the approved groundwater monitoring system. The collected samples shall be analyzed for Field and Monitoring Parameters and constituents listed in Table I in accordance with the specified methods and frequencies. For each semiannual report, all monitoring parameters shall be graphed so as to show historical trends at each monitoring point. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

**Once per quarter**, the Discharger shall measure the groundwater elevation in each well, 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. Additionally, the Discharger shall include 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. The results shall be reported semiannually, including the times of expected highest and lowest elevations of the water levels in the wells, pursuant to Title 27, section 20415(e)(15).

Samples collected for the COC monitoring specified in Table I shall be collected and analyzed in accordance with the methods listed in Table VI every five years. Five-year COCs were last monitored in 2015 and shall be monitored again in **2020**. The results shall be reported in the Annual Monitoring Report for the year in which the samples were collected.

## 2. 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. Unsaturated zone monitoring at the facility includes both soil pore liquid monitoring and soil pore gas monitoring. Soil pore liquid monitoring shall be accomplished by monitoring suction lysimeters installed below Phase I landfill WMU, and the leachate collection and removal system (LCRS) sumps of the Phase II and III landfill WMUs and the Class II surface impoundment. Soil pore gas monitoring shall be further accomplished by monitoring gas monitoring probes installed along or near the



perimeter of the WMUs at the site. 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 the landfill constructs a new cell or module.

**a. Soil Pore Liquid Monitoring**

The soil pore liquid monitoring consists of eight suction lysimeters installed under the Phase I, II and III landfill WMUs and the Class II Surface Impoundment.

<u>Mon Pt.</u>	<u>Status</u>	<u>Program</u>	<u>Units Being Monitored</u>
VZ-1	Existing	Detection	Phase I landfill WMUs
VZ-4	Existing	Detection	Phase II and III landfill WMUs
VZ-5	Existing	Detection	Phase II and III landfill WMUs
VZ-9	Existing	Detection	Phase II and III landfill WMUs
VZ-10	Existing	Detection	Phase II and III landfill WMUs
VZ-12	Existing	Detection	Phase II and III landfill WMUs
PZ-1	Existing	Detection	Class II Surface Impoundment
PZ-2	Existing	Detection	Class II Surface Impoundment

Unsaturated zone soil pore liquid samples shall be collected from the monitoring network listed above and shall be analyzed for Field and Monitoring Parameters and constituents listed in Table II in accordance with the specified methods and frequencies. For each semiannual report, all monitoring parameters shall be graphed so as to show historical trends at each monitoring point. Samples collected for the 5-year COC analyses specified in Table II shall be collected and analyzed in accordance with the methods listed in Table VI every five years, beginning again in **2020**.

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 WQPS.



**b. Soil Pore Gas Monitoring**

The soil pore gas monitoring system for the WMUs includes seven perimeter and four corrective action landfill gas (LFG) probes installed in the unsaturated zone.

<u>Monitoring Point.</u>	<u>Program</u>	<u>Units Being Monitored</u>
GP-1	Detection	Phase I landfill WMU
GP-2	Detection	Phase I landfill WMU
GP-3	Detection	Phase II and III landfill WMUs
GP-4	Detection	Phase II and III landfill WMUs
GP-5	Detection	Phase II and III landfill WMUs
GP-6	Detection	Phase I landfill WMU
GP-7	Detection	Phase I landfill WMU
GP-8	Corrective action	Phase I landfill WMU
GP-9 <sup>1</sup>	Corrective action	Phase I landfill WMU
GP-10 <sup>1</sup>	Corrective action	Phase I landfill WMU
GP-11S	Corrective action	Phase I landfill WMU
GP-11D	Corrective action	Phase I landfill WMU

1. Not a perimeter gas probe. GP-9 and GP-10 are used to monitor the presence of LFG adjacent to waste.

Unsaturated zone soil pore gas samples shall be collected from the monitoring network listed above and shall be analyzed for Monitoring Parameters and constituents listed in Table II in accordance with the specified methods and frequencies. Methane concentration in gas probes shall be measured with a hand held gas meter calibrated for methane.

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 WQPS.

**3. Leachate Monitoring, Seep Monitoring, Annual LCRS Testing and Action Leakage Rate**

**a. Leachate Monitoring**

The Discharger shall operate and maintain LCRS sumps to conduct monitoring of any detected leachate seeps, 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>Monitoring Point.</u>	<u>Unit Where Sump is Located</u>
L-2 sump	Phase II and III landfill WMU



<u>Monitoring Point.</u>	<u>Unit Where Sump is Located</u>
Class II surface impoundment LCRS sump	Class II surface impoundment

All LCRS sumps shall be inspected monthly for the presence of leachate, and flow shall be recorded in accordance with Table III. If leachate is detected in a previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table III. Leachate in the LCRS sump shall then be sampled for all parameters and constituents in accordance with the methods and frequencies listed in Table III whenever liquid is present. All LCRS sump samples shall be analyzed for the 5-year COCs specified in Table III and Table VI every five years, beginning again in **2020**.

**b. Seep Monitoring**

Leachate that seeps to the surface from landfill WMUs shall be sampled and analyzed for the Field and Monitoring Parameters listed in Table III upon detection. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons/day). Reporting for leachate seeps shall be conducted as required in Section B.3 of this MRP, below.

**c. 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. Action Leakage Rate**

If monthly monitoring of the flow rate into the Class II Surface Impoundment LCRS shows an exceedance of the action leakage rate (ALR) as approved by the Central Valley Water Board as detailed in WDRs Provisions H.4.K, the Discharger shall follow the procedures detailed in WDRs Facility Specification C.17. Tabulated monthly leakage rates shall be included in the semiannual monitoring reports.

**4. Surface Water Monitoring**

The Discharger shall operate a surface water detection monitoring system for any landfill facility where runoff from landfill areas flows or could flow to waters of the United States. The monitoring system shall comply with the applicable provisions of Title 27, sections 20415 and 20420. At the Buena Vista landfill facility (Facility), runoff from the landfill areas flows to the runoff holding pond near the southern property boundary. The runoff holding pond periodically discharges to two unnamed ephemeral



streams which eventually drain to Jackson Creek. The current surface water detection monitoring system meets the applicable requirements of Title 27.

The current surface water monitoring points for the landfill are:

<u>Monitoring Point.</u>	<u>Status</u>
S-1	Downstream of Phase I landfill WMU, and located west of Phase I at east side of the Buena Vista Road culvert
S-2	Downstream of Phase II and III landfill WMUs and located south of Phase III at the entrance to the runoff pond.
S-3	Background sample located in the intermittent stream bed in the northeast part of the landfill property.

For surface water detection monitoring, a sample shall be collected at each monitoring point location and analyzed for the monitoring parameters and constituents in accordance with the methods and frequency specified in Table IV. All surface water monitoring samples shall be collected and analyzed for the 5-year COCs specified in Table IV and Table VI every five years, beginning again in **2020**.

## 5. Surface Impoundment Monitoring

Quantity of all liquid waste discharged into the Class II surface impoundment shall be monitored monthly and reported to the Board in the semiannual monitoring report required in Section B.1 of this MRP. Leakage rate through the Class II surface impoundment primary liner shall be estimated based on the monthly liquid flow rate into the Class II Surface Impoundment LCRS and reported semiannually. Samples shall be collected from the Class II surface impoundment and analyzed for all Field and Monitoring Parameters listed in Table VIII in accordance with the specified methods and frequencies.



## 6. 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 drainage control systems, cover systems, and groundwater monitoring wells; and shall assess preparedness for winter conditions (including but not limited to 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.4 of this MRP.

### b. Major Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all landfill side slopes for damage **within 7 days** following major storm events capable of causing damage or significant erosion. 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.5 of this MRP.

### c. Rainfall Monitoring

The Discharger shall monitor and record onsite rainfall data using an automated rainfall gauge which to be installed by the Discharger per WDRs. Data shall be used in establishing the severity of storm events and wet seasons for comparison with design parameters used for waste management unit design and conveyance and drainage design. Daily data and onsite observation shall be used for establishing the need for inspection and repairs after major storm events. Rainfall data shall be reported in the semiannual monitoring reports as required by this MRP under "Reporting".

### d. Five-Year Iso-Settlement Survey for Closed Units

For closed landfill units, the Discharger shall conduct a five-year iso-settlement survey and produce an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer. For each portion of the landfill, this map shall show the total lowering of the surface elevation of the final cover, relative to the baseline topographic map [Title 27, section 21090(e)(1 & 2)]. Reporting shall be in accordance with Section B.6 of this MRP. The next iso-settlement survey shall be conducted by **29 June 2018** as required in Provisions H.4.G





**e. Standard Observations**

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

<u>Landfill Unit</u>	<u>Type</u>	<u>Frequency</u>	<u>Season</u>
Class II Surface Impoundment	Active	Weekly	Wet: 1 October to 30 April
Phase I, II and III landfill WMUs	Inactive/closed	Monthly	Dry: 1 May to 30 September
		Monthly	Wet: 1 October to 30 April
		Quarterly	Dry: 1 May to 30 September

In addition, major storm events, grass fires or other events that may potentially impact cover integrity shall trigger additional inspections.

The Standard Observations shall include:

- 1) For the landfill units:
  - a) Evidence of ponded water at any point on the landfill outside of any contact storm water/leachate diversions structures on the active face (show affected area on map);
  - b) Evidence of erosion and cracking of the protective soil layer and/or of day-lighted refuse;
  - c) Exposure/damage to the low permeability layer;
  - d) Burrowing animal holes;
  - e) Liquid seeps;
  - f) Area of distressed vegetation; and
  - g) Slope failure
- 2) Along the perimeter of the landfill units:
  - a) Evidence of leachate seeps, estimated size of affected area, and flow rate (show affected area on map);
  - b) Evidence of erosion and/or of day-lighted refuse; and
  - c) Blocking or obstructions of drainage structures.
- 3) For receiving waters:
  - a) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area; and
  - b) Discoloration and turbidity - description of color, source, and size of affected area.



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

## 7. 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 and unsaturated zone monitoring points that are in a corrective action monitoring program shall be monitored in accordance with the groundwater and unsaturated zone monitoring requirements in parts A.1 and A.2 of this MRP, except as modified in this part of the MRP for any additional constituents or modified monitored frequencies.

### a. Groundwater Corrective Action

The Discharger shall monitor the corrective action monitoring wells MW-3A, MW-3B, MW-7 and MW-10, and the groundwater extraction trench Sump L-1 as required in part A.1 and Table I of this MRP.

### b. Unsaturated Zone Corrective Action

The LFG probes associated with corrective action for a release to the unsaturated zone or groundwater is as follows:

<u>LFG Probe</u>	<u>Zone</u>	<u>Modules Being Addressed</u>
GP-8	Soil-Pore Gas	Phase I WMU
GP-9 <sup>1</sup>	Soil-Pore Gas	Phase I WMU
GP-10 <sup>1</sup>	Soil-Pore Gas	Phase I WMU
GP-11S	Soil-Pore Gas	Phase I WMU
GP-11D	Soil-Pore Gas	Phase I WMU

1. Not a perimeter gas probe. GP-9 and GP-10 are used to monitor the presence of LFG adjacent to waste.

LFG probe samples shall be collected from the monitoring network listed above and shall be analyzed for the parameters and constituents listed in Table VII in accordance with the specified methods and frequencies.

### c. Groundwater Extraction System

The groundwater extraction trench network is as follows:

<u>Extraction Trench</u>	<u>Zone</u>	<u>Modules Being Addressed</u>
Sump L-1	Shallow	Phase I landfill WMU

The following data for the Sump L-1 shall be reported to the Board with the Semiannual Monitoring Report required in Section B.1 of this MRP.

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<u>Parameter</u>	<u>Report in Units of</u>	<u>Frequency of Measurement</u>
Pump Status	On/off	Weekly
Pump Operation	Hours of operation	Weekly
Flow rate	gallons/month	Weekly
Pump Test	Pass/fail	Annually

The Discharger shall record the hours of operation for any corrective action system and report them in the Semiannual Monitoring Report required in Section B.1 of this MRP. The Discharger shall estimate the following annually to assess the progress of groundwater corrective action and reported in the Annual Monitoring Report (including method of calculations) in the format below:

<u>Zone</u>	<u>Mass of Total VOCs (lbs)</u>	
	<u>Amount Removed During Year</u>	<u>Cumulative Amount Removed</u>
Shallow		
Deep		

**d. Leachate and Landfill Gas Corrective Action System**

Active LFG and/or leachate extraction system at the Facility includes 24 extraction wells in the landfill WMUs. The Phase I landfill WMU leachate and LFG extraction network includes nine dual leachate and LFG extraction wells (P1-2, P1-3, P1-4, P1-5, P1-6, P1-7, P1-8, P1-9 and P1-11) and two LFG extraction wells P1-1 and P1-10). The Phase II and III landfill WMUs LFG extraction networks includes thirteen extraction wells (P2-1 through P2-13). The well locations are shown in Attachment C. Extracted LFG reports to a flare in the LFG control system for disposal. Leachate pumped from the extraction wells and LFG condensate are discharged to the Class II surface impoundment.

The dual leachate and LFG extraction wells shall be monitored and recorded for volume of leachate pumped and depth of leachate level, and reported in semi-annual report. Composite sample of leachate from the dual leachate and LFG extraction wells which are in operation, shall be collected at the discharge location to the Class II surface impoundment and analyzed for Field and Monitoring Parameters listed in Table III in accordance with the specified methods and frequencies. Additionally, the leachate samples shall be analyzed for 5-year COCs specified in Table III and Table VI every five years, beginning again in 2020.

LFG samples from the dual leachate and/or LFG extraction wells shall be collected and analyzed for the parameters and constituents listed in Table VII in accordance with the specified methods and frequencies.

All shutdowns of the leachate and LFG extraction system, regardless of the type of restart, shall be summarized and tabulated in the semiannual reports. The



summary shall include the start/stop dates, and the cause of the shutdown. In addition, the blower, flare and leachate extraction pump run-time per month and percent down-time per month shall be reported and tabulated in each semiannual report.

The LFG control system shall be monitored and recorded for the parameters in Table VII in accordance with the specified frequencies. The LFG control system influent samples shall be collected and analyzed for the parameters in Table VII and in accordance with the specified methods and frequencies.

**e. Leachate Seep Collection Trenches**

Leachate seep collection trenches were constructed to capture seeps discovered along the southern slope of the Phase I landfill WMU. The current leachate seep collection sump monitoring points are:

<u>Monitoring Point.</u>	<u>Unit Where Sump is Located</u>
LT-9 sump	Phase I landfill WMU

All existing and future leachate seep collection trench sumps shall be inspected monthly for the presence of leachate, and flow shall be recorded in accordance with Table III. If leachate is detected in a previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table III. Leachate in the leachate seep collection trench sump shall then be sampled for all parameters and constituents in accordance with the the methods and frequencies listed in Table III whenever liquid is present. All leachate seep collection trench sump samples shall be analyzed for the 5-year COCs specified in Table III and Table VI every five years, beginning again in **2020**.

The following data for the LT-9 sump shall be reported to the Board with the Semiannual Monitoring Report required in Section B.1 of this MRP.

<u>Parameter</u>	<u>Report in Units of</u>	<u>Frequency of Measurement</u>
Pump Status	On/off	Weekly
Pump Operation	Hours of operation	Weekly
Flow rate	gallons/month	Weekly
Pump Test	Pass/fail	Annually

**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	<b>1 August, 1 February</b>
B.2	Annual Monitoring Report	31 December	<b>1 February</b>
B.3	Seep Reporting	Continuous	<b>Immediately &amp; 7 Days</b>
B.4	Annual Facility Inspection Report	31 October	<b>15 November</b>
B.5	Major Storm Event Reporting	Continuous	<b>7 days from damage discovery</b>
B.6	Survey and Iso-Settlement Map for Closed Landfills	Every Five Years	<b>At Closure Completion and Every Five Years</b>
B.7	Financial Assurances Report	31 December	<b>1 June</b>

The Discharger shall enter all monitoring data and reports into the online Geotracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23. Notification of the Geotracker upload shall be emailed to the Central Valley Water Board at: [centralvalleysacramento@waterboards.ca.gov](mailto:centralvalleysacramento@waterboards.ca.gov). To ensure that the submittal is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

Attention:	Title 27 Compliance & Enforcement Unit Or Title 27 Permitting Unit
Report Title	
Geotracker Upload ID	
Discharger name:	Amador County
Facility name:	Buena Vista Landfill
County:	Amador County
CIWQS place ID:	210700

### 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 R5-201X-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.

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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.

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 including the post-closure period. 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 completed, 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. For each groundwater body, a description and graphical presentation of the gradient and direction of groundwater flow under/around the unit, and the groundwater flow rate, based upon water level elevations taken prior to the collection of the water quality data submitted in the report.
  - 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. The hydrographs shall be prepared quarterly and reported semiannually.
  - e. 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)].
  - f. Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, unsaturated zone, leachate, and surface water. 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 I through IV 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.
  - g. Laboratory statements of results of all analyses evaluating compliance with requirements.
  - h. An evaluation of the concentration of each monitoring parameter (or 5-year COC when five year COC sampling is conducted) 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 for verified exceedances of a concentration limit for wells/constituents not already in corrective action monitoring.
  - i. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities. Include a summary of any instances where leachate depth on an MSW landfill liner system exceeded 30 cm (excluding the leachate sump), and information about the required notification and corrective action in Standard Facility Specification E.13 of the SPRRs.



- j. A summary of all Standard Observations for the reporting period required in Section A.6.e of this MRP.
  - k. A summary of inspection, leak search, and repair of final covers on any closed landfill units in accordance with an approved final post-closure maintenance plan as required by Standard Closure and Post-Closure Maintenance Specifications G.26 through G.29 of the SPRRs.
  - l. A comprehensive discussion including the status and effectiveness of any Corrective Action Program. More frequent reporting may be required by the Regional Board as necessary to ensure the protection of human health or the environment.
  - m. Tabulated monthly freeboard levels in the Class II surface impoundment with comparison to the freeboard requirement in the Facility Specifications C.9 of the WDRs.
  - n. Tabulated monthly leakage rates into the Class II Surface Impoundment LCRS sump with comparison to the approved ALR in the section C. Facility Specifications of the WDRs, and a discussion of required response if ALR was exceeded.
  - o. A discussion about any solids that were removed from the Class II surface impoundment during the reporting period to regain capacity.
  - p. A summary of all Facility Monitoring including onsite rainfall data for the reporting period required in Section A.6 of this MRP.
  - q. A summary of all waste discharge monitoring required in Section A.8 of this MRP.
  - r. Cross sections showing the groundwater elevation, leachate elevation for the Phase I landfill WMU only, approximate location of the bottom waste elevation and the liner system shall be prepared in the north-south direction and east-west direction for the Phase I landfill WMU and Phase II and III landfill WMUs.
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 information:
- 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. If a 5-year COC event was performed, than these parameters shall also be graphically presented. 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

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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. 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.
  - e. A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours, and include a projection of the year in which each discrete landfill module will be filled.
  - 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 leachate collection and removal systems required under Standard Facility Specification E.14 of the SPRRs.
  - h. Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.
3. **Seep Reporting:** The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Central Valley Water Board **within seven days**, containing at least the following information:
- a. A map showing the location(s) of seepage;
  - b. An estimate of the flow rate;
  - c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
  - d. Verification that samples have been submitted for analyses of the Field Parameters and Monitoring Parameters listed in Table III of this MRP, and an estimated date that the results will be submitted to the Central Valley Water Board; and
  - e. Corrective measures underway or proposed, and corresponding time schedule.

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4. **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.6.a and e of this MRP, above.
5. **Major Storm Event Reporting:** The Discharger shall notify Central Valley Water Board staff within 24 hours when the 30-inch freeboard is reached in the Class II surface impoundment or after a storm event of greater than two inches in 24 hours as to the status of freeboard in the Class II surface impoundment. The notification shall be as specified in the WDR Section C. Facility Specifications. Following major storm events capable of causing damage or significant erosion, the Discharger **immediately** shall notify Central Valley Water Board staff of any damage or significant erosion upon discovery and report subsequent repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. Refer to Section A.6.b of this MRP, above.
6. **Survey and Iso-Settlement Map for Closed Landfills:** The Discharger shall conduct a survey and submit an iso-settlement map for each closed area of the landfill every five years pursuant to Title 27, section 21090(e). The survey results and an evaluation of the survey results shall be reported in semiannual monitoring report. Refer to Section A.6.d of this MRP, above. The next survey shall be conducted by 29 June 2018 and the results shall be reported in a report by 31 July 2018.
7. **Financial Assurances Report:** By **1 June** of each year, the Discharger shall submit a copy of the annual financial assurances report due to CalRecycle that updates the financial assurances for closure, post-closure maintenance, and corrective action. 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-registered civil engineer or 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 methods for calculating concentration limits were included in the August 2017 *Water Quality Protection Standard Report*. The proposed method uses intrawell evaluation to calculate the concentration limits. The approved method uses Shewhart-CUMSUM Control Charts for calculating Intrawell concentration limits for inorganic constituents.

The Water Quality Protection Standard shall be updated annually for each monitoring well using new and historical monitoring data.

## 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 Tables I through VIII for the specified monitored medium.



### 3. Constituents of Concern (COCs)

The COCs include a larger group of waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the waste management unit, and are required to be monitored every five years [Title 27, sections 20395 and 20420(g)]. The COCs for all waste management units at the facility are those listed in Tables I through IV for the specified monitored medium, and Table VI. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. The last 5-year COC report was submitted to the Central Valley Water Board in the 2015 (second semiannual 2015 and Annual Monitoring Report submitted in January 2016) *Annual Monitoring Report*, and 5-year COCs are due to be monitored again in **2020**

### 4. 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).

The methods for calculating concentration limits were included in the August 2017 *Water Quality Protection Standard Report*. The Intrawell analysis is used. The approved method uses Shewhart-CUMSUM Control Charts for calculating Intrawell concentration limits for inorganic constituents.

The 2016 concentration limits for select inorganic parameters as reported in the “*Second Semiannual and Annual 2016 Monitoring Report and Corrective Action Update (January 2017)*” are shown below:

All Concentration Limits in mg/L<sup>1</sup>

Well No.	TDS <sup>2</sup>	Cl	CO <sub>3</sub>	HCO <sub>3</sub>	Nitrate as N	Sulfate	Ca	Mg	K	Na
L-1	668	206	<5.0	170	<0.05	117	24	100	14.8	114
MW-1	559	47	<5.0	<5.0	3.15	72	5	7	1.2	44
MW-3A	634	138	<5.0	185	<0.05	290	33	24	7.8	84
MW-3B	360	69	<5.0	<5.0	<0.05	78	5	8	2.9	32
MW-4A	680	94	<5.0	<5.0	<0.05	218	45	16	9.7	61
MW-5	370	28	<5.0	<5.0	<0.05	129	10	8	2.1	23
MW-5S	1,452	294	<5.0	<5.0	0.40	658	57	42	9.8	234
MW-7	526	49	<5.0	78	<0.05	68	13	11	3.5	19
MW-9	229	24	<5.0	<5.0	<0.05	36	6	5	1.8	16
MW-10	667	170	<5.0	<5.0	<0.05	50	4	9	1.9	23
MW-11	1,169	51	<5.0	<5.0	<0.05	62	<3.0	6	1.4	39
MW-13	693	31	<5.0	<5.0	<0.05	109	14	11	2.4	29



Well No.	TDS <sup>2</sup>	Cl	CO <sub>3</sub>	HCO <sub>3</sub>	Nitrate as N	Sulfate	Ca	Mg	K	Na
MW-14	227	8	<5.0	<5.0	1.04	26	<3.0	5	4.1	8
MW-15	438	42	<5.0	<5.0	<0.05	205	6	11	4.5	28
MW-16	478	51	<5.0	177	<0.05	102	110	25	9.5	44
MW-20	227	18	<5.0	<5.0	3.26	17	13	5	2.8	21
MW-21	293	10	<5.0	<5.0	1.34	53	12	3	3.0	6

<sup>1</sup> Milligrams per liter

<sup>2</sup> Total Dissolved Solids

"<" – previously approved concentration limits are used if there is insufficient data and greater than 25 percent non-detects.

The concentration limit for all non-naturally occurring waste constituents including all volatile organic constituents is non-detect.

## 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.45 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.46 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.47 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>
Phase I landfill WMU	Groundwater Extraction Trench Sump L-1, MW-3A, MW-3B, MW-10, MW-11 and MW-13
Phase II and III landfill WMUs	MW-4A, MW-5, MW-5S, MW-15 and MW-16
Class II Surface Impoundment	MW-21

## 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)

MP

PRELIMINARY

**TABLE I**  
**GROUNDWATER DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
<b>Field Parameters</b>				
Groundwater Elevation	GWELEV	Ft. & 100ths, M.S.L.	Quarterly	Semiannual
Temperature	TEMP	°F	Semiannual	Semiannual
Electrical Conductivity	SC	umhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Turbidity	TURB	Turbidity units	Semiannual	Semiannual
<b>Monitoring Parameters</b>				
Total Dissolved Solids (TDS)	TDS	mg/L <sup>1</sup>	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Carbonate	CACO3	mg/L	Semiannual	Semiannual
Bicarbonate	BICACO3	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	NO3N	mg/L	Semiannual	Semiannual
Sulfate	SO4	mg/L	Semiannual	Semiannual
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)		ug/L <sup>2</sup>	Semiannual	Semiannual
<b>5-Year Constituents of Concern (see Table VI)</b>				
Total Organic Carbon	TOC	mg/L	5 years	2020
Inorganics (dissolved)		ug/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)		ug/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L	5 years	" "
Chlorophenoxy Herbicides (USEPA Method 8151A)		ug/L	5 years	" "
Organophosphorus Compounds (USEPA Method 8141B)		ug/L	5 years	" "

1. Milligrams per liter  
 2. Micrograms per liter



**TABLE II**

**UNSATURATED ZONE DETECTION MONITORING PROGRAM**

**SOIL-PORE GAS<sup>1</sup>**

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
<b>Monitoring Parameters</b>				
Volatile Organic Compounds <sup>2</sup> (USEPA Method TO-15)		ug/cm <sup>3</sup>	Annual	Annual
Methane	CH4	%	Semiannual	Semiannual

**LYSIMETERS<sup>3</sup> (or other vadose zone monitoring device)**

<u>Parameter</u>		<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
<b>Field Parameters</b>				
Electrical Conductivity	SC	umhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Volume of liquid removed		gallons	Monthly	Semiannual

**Monitoring Parameters**

Total Dissolved Solids (TDS)	TDS	mg/L	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Carbonate	CACO3	mg/L	Semiannual	Semiannual
Bicarbonate	BICACO3	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	NO3N	mg/L	Semiannual	Semiannual
Sulfate	SO4	mg/L	Semiannual	Semiannual
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)		ug/L	Semiannual	Semiannual

**5-Year Constituents of Concern (see Table VI)**

Total Organic Carbon	TOC	mg/L	5 years	2020
Inorganics (dissolved)		ug/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)		ug/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L	5 years	" "
Chlorophenoxy Herbicides (USEPA Method 8151A)		ug/L	5 years	" "
Organophosphorus Compounds (USEPA Method 8141B)		ug/L	5 years	" "

<sup>1</sup>. Soil-pore gas samples collected from LFG probes are only subject to the VOC (USEPA Method TO-15) and methane sampling (not the other parameters listed for pan lysimeters).

<sup>2</sup>. Gas samples may be prescreened to determine if laboratory analysis using Method TO-15 is required. A gas analyzer for methane concentrations or a Photo Ionization Detector (PID) for total VOCs concentrations may be used. If methane concentrations exceeding 1.0 percent by volume OR organic vapors (total VOCs) are





detected at a concentration greater than 1.0 ppm then a gas sample shall be obtained and analyzed for VOCs using EPA Method TO-15. Both the screening results and laboratory analysis results shall be reported. Otherwise, the Discharger shall report the methane or total VOC screening results and no further laboratory analysis is required.

3. Lysimeters shall be inspected for the presence of liquid **monthly**. If liquid is detected in a previously dry lysimeter, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the liquid for Field and Monitoring Parameters listed in Table II.

ALTERNATIVE

**TABLE III**  
**LEACHATE MONITORING <sup>1</sup>, SEEP MONITORING <sup>2</sup>, AND LCRS TESTING <sup>3</sup>**

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
<b>Field Parameters</b>				
Presence of leachate		Observation	Monthly	Semiannual
Total Flow		Gallons	Monthly	Semiannual
Flow Rate <sup>4</sup>	FLOW	Gallons/Day	Monthly	Semiannual
Electrical Conductivity	SC	umhos/cm	Quarterly	Semiannual
pH	PH	pH units	Quarterly	Semiannual
<b>Monitoring Parameters</b>				
Total Dissolved Solids (TDS)	TDS	mg/L	Annually	Annually
Chloride	CL	mg/L	Annually	Annually
Carbonate	CACO3	mg/L	Annually	Annually
Bicarbonate	BICACO3	mg/L	Annually	Annually
Nitrate - Nitrogen	NO3N	mg/L	Annually	Annually
Sulfate	SO4	mg/L	Annually	Annually
Calcium	CA	mg/L	Annually	Annually
Magnesium	MG	mg/L	Annually	Annually
Potassium	K	mg/L	Annually	Annually
Sodium	NA	mg/L	Annually	Annually
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)		ug/L	Annually	Annually
<b>5-Year Constituents of Concern (see Table VI)</b>				
Total Organic Carbon	TOC	mg/L	5 years	2020
Inorganics (dissolved)		ug/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)		ug/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L	5 years	" "
Chlorophenoxy Herbicides (USEPA Method 8151A)		ug/L	5 years	" "
Organophosphorus Compounds (USEPA Method 8141B)		ug/L	5 years	" "
<b>LCRS Testing <sup>3</sup></b>		---	Annually	Annually

1. If leachate is detected in a previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table III. Leachate in the leachate sump(s) shall then be sampled for all parameters and constituents in accordance with the frequencies listed in Table III whenever liquid is present.

2. Leachate seeps shall be sampled and analyzed for the Field and Monitoring Parameters in this table upon detection. The quantity of leachate shall be estimated and reported in gallons/day. Also, refer to Section B.3

3. The Discharger shall test each LCRS annually pursuant to Title 27, section 20340(d) to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions.

4. For Class II surface impoundment, flow in gallons per day from LCRS sump back to surface impoundment.



**TABLE IV**  
**SURFACE WATER DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u> <sup>1</sup>	<u>Reporting Frequency</u>
<b>Field Parameters</b>				
Electrical Conductivity	SC	umhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Turbidity	TURB	Turbidity units	Semiannual	Semiannual
Flow to Waters of U.S.		Yes or No	Semiannual	Semiannual
<b>Monitoring Parameters</b>				
Total Dissolved Solids (TDS)	TDS	mg/L	Semiannual	Semiannual
Carbonate	CACO3	mg/L	Semiannual	Semiannual
Bicarbonate	BICACO3	mg/L	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	NO3N	mg/L	Semiannual	Semiannual
Sulfate	SO4	mg/L	Semiannual	Semiannual
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)		ug/L	Semiannual	Semiannual
<b>5-Year Constituents of Concern (see Table VI)</b>				
Total Organic Carbon	TOC	mg/L	5 years	2020
Inorganics (dissolved)		ug/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)		ug/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L	5 years	" "
Chlorophenoxy Herbicides (USEPA Method 8151A)		ug/L	5 years	" "
Organophosphorus Compounds (USEPA Method 8141B)		ug/L	5 years	" "



<sup>1</sup>. Semiannual surface water monitoring is required twice per year when there is water present at the designated surface water monitoring point any time during the reporting period (1 January to 30 June or 1 July to 31 December). Reporting shall include whether there was flow from the facility to waters of the U.S. when the samples were collected.

**TABLE V**

**MONITORING PARAMETERS FOR DETECTION MONITORING**

**Surrogates for Metallic Constituents:**

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
pH	PH
Total Dissolved Solids	TDS
Electrical Conductivity	SC
Chloride	CL
Sulfate	SO4
Nitrate nitrogen	NO3N

**Volatile Organic Compounds, short list (USEPA Method 8260B):**

Acetone	ACE
Acrylonitrile	ACRAMD
Benzene	BZ
Bromochloromethane	BRCLME
Bromodichloromethane	BDCME
Bromoform (Tribromomethane)	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane (Ethyl chloride)	CLEA
Chloroform (Trichloromethane)	TCLME
Dibromochloromethane (Chlorodibromomethane)	DBCME
1,2-Dibromo-3-chloropropane (DBCP)	DBCP
1,2-Dibromoethane (Ethylene dibromide; EDB)	EDBHe
o-Dichlorobenzene (1,2-Dichlorobenzene)	DCBZ12
m-Dichlorobenzene (1,3-Dichlorobenzene)	DCBZ13
p-Dichlorobenzene (1,4-Dichlorobenzene)	DCBZ14
trans-1,4-Dichloro-2-butene	DCBE14T
Dichlorodifluoromethane (CFC-12)	FC12
1,1-Dichloroethane (Ethylidene chloride)	DCA11
1,2-Dichloroethane (Ethylene dichloride)	DCA12
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)	DCE11
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)	DCE12C
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)	DCE12T
1,2-Dichloropropane (Propylene dichloride)	DCPA12
cis- 1,3-Dichloropropene	DCP13C
trans- 1,3-Dichloropropene	DCP13T
Di-isopropylether (DIPE)	DIPE
Ethanol	ETHANOL
Ethyltertiary butyl ether	ETBE
Ethylbenzene	EBZ
2-Hexanone (Methyl butyl ketone)	HXO2
Hexachlorobutadiene	HCBU
Methyl bromide (Bromomethene)	BRME
Methyl chloride (Chloromethane)	CLME

ATTENTIVE

**TABLE V**  
**MONITORING PARAMETERS FOR DETECTION MONITORING**

**Continued**

Methylene bromide (Dibromomethane)	DBMA
Methylene chloride (Dichloromethane)	DCMA
Methyl ethyl ketone (MEK: 2-Butanone)	MEK
Methyl iodide (Iodomethane)	IME
Methyl t-butyl ether	MTBE
4-Methyl-2-pentanone (Methyl isobutylketone)	MIBK
Naphthalene	NAPH
Styrene	STY
Tertiary amyl methyl ether	TAME
Tertiary butyl alcohol	TBA
1,1,1,2-Tetrachloroethane	TC1112
1,1,2,2-Tetrachloroethane	PCA
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1-Trichloroethane (Methylchloroform)	TCA111
1,1,2-Trichloroethane	TCA112
Trichloroethylene (Trichloroethene)	TCE
Trichlorofluoromethane (CFC- 11)	FC11
1,2,3-Trichloropropane	TCPR123
Vinyl acetate	VA
Vinyl chloride	VC
Xylenes	XYLENES

PRELIMINARY

**TABLE VI**  
**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

<b><u>Inorganics (dissolved):</u></b>	<b><u>USEPA Method</u></b>	<b><u>Geotracker Code</u></b>
Aluminum	6010	AL
Antimony	7041	SB
Barium	6010	BA
Beryllium	6010	BE
Cadmium	7131A	CD
Chromium	6010	CR
Cobalt	6010	CO
Copper	6010	CU
Silver	6010	AG
Tin	6010	SN
Vanadium	6010	V
Zinc	6010	ZN
Iron	6010	FE
Manganese	6010	MN
Arsenic	7062	AS
Lead	7421	PB
Mercury	7470A	HG
Nickel	7521	NI
Selenium	7742	SE
Thallium	7841	TL
Cyanide	9010C	CN
Sulfide	9030B	S

**Volatile Organic Compounds, extended list (USEPA Method 8260B):**

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
Acetone	ACE
Acetonitrile (Methyl cyanide)	ACCN
Acrolein	ACRL
Acrylonitrile	ACRAMD
Allyl chloride (3-Chloropropene)	CLPE3
Benzene	BZ
Bromochloromethane (Chlorobromomethane)	BRCLME
Bromodichloromethane (Dibromochloromethane)	DBCME
Bromoform (Tribromomethane)	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane (Ethyl chloride)	CLEA
Chloroform (Trichloromethane)	TCLME
Chloroprene	CHLOROPRENE
Dibromochloromethane (Chlorodibromomethane)	DBCME
1,2-Dibromo-3-chloropropane (DBCP)	DBCP
1,2-Dibromoethane (Ethylene dibromide; EDB)	EDB
o-Dichlorobenzene (1,2-Dichlorobenzene)	DCBZ12

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**TABLE VI**  
**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

m-Dichlorobenzene (1,3-Dichlorobenzene)	DCBZ13
p-Dichlorobenzene (1,4-Dichlorobenzene)	DCBZ14
trans- 1,4-Dichloro-2-butene	DCBE14T
Dichlorodifluoromethane (CFC 12)	FC12
1,1 -Dichloroethane (Ethylidene chloride)	DCA11
1,2-Dichloroethane (Ethylene dichloride)	DCA12
1,1 -Dichloroethylene (1, I-Dichloroethene; Vinylidene chloride)	DCE11
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)	DCE12C
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)	DCE12T
1,2-Dichloropropane (Propylene dichloride)	DCPA12
1,3-Dichloropropane (Trimethylene dichloride)	DCPA13
2,2-Dichloropropane (Isopropylidene chloride)	DCPA22
1,1 -Dichloropropene	DCP11
cis- 1,3-Dichloropropene	DCP13C
trans- 1,3-Dichloropropene	DCP13T
Di-isopropylether (DIPE)	DIPE
Ethanol	ETHANOL
Ethyltertiary butyl ether	ETBE
Ethylbenzene	EBZ
Ethyl methacrylate	EMETHACRY
Hexachlorobutadiene	HCBU
2-Hexanone (Methyl butyl ketone)	HXO2
Isobutyl alcohol	ISOBTOH
Methacrylonitrile	METHACRN
Methyl bromide (Bromomethane)	BRME
Methyl chloride (Chloromethane)	CLME
Methyl ethyl ketone (MEK; 2-Butanone)	MEK
Methyl iodide (Iodomethane)	IME
Methyl t-butyl ether	MTBE
Methyl methacrylate	MMTHACRY
4-Methyl-2-pentanone (Methyl isobutyl ketone)	MIBK
Methylene bromide (Dibromomethane)	DBMA
Methylene chloride (Dichloromethane)	DCMA
Naphthalene	NAPH
Propionitrile (Ethyl cyanide)	PACN
Styrene	STY
Tertiary amyl methyl ether	TAME
Tertiary butyl alcohol	TBA
1,1,1,2-Tetrachloroethane	TC1112
1,1,2,2-Tetrachloroethane	PCA
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1 -Trichloroethane (Methylchloroform)	TCA111

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**TABLE VI**

**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

1,1,2-Trichloroethane	TCA112
Trichloroethylene (Trichloroethene; TCE)	TCE
Trichlorofluoromethane (CFC- 11)	FC11
1,2,3-Trichloropropane	TCPR123
Vinyl acetate	VA
Vinyl chloride (Chloroethene)	VC
Xylene (total)	XYLENES

**Semi-Volatile Organic Compounds (USEPA Method 8270C or D - base, neutral, & acid extractables):**

Acenaphthene	ACNP
Acenaphthylene	ACNPY
Acetophenone	ACPHN
2-Acetylaminofluorene (2-AAF)	ACAMFL2
Aldrin	ALDRIN
4-Aminobiphenyl	AMINOBP4
Anthracene	ANTH
Benzo[a]anthracene (Benzanthracene)	BZAA
Benzo[b]fluoranthene	BZBF
Benzo[k]fluoranthene	BZKF
Benzo[g,h,i]perylene	BZGHIP
Benzo[a]pyrene	BZAP
Benzyl alcohol	BZLAL
Bis(2-ethylhexyl) phthalate	BIS2EHP
alpha-BHC	BHCALPHA
beta-BHC	BHCBETA
delta-BHC	BHCDELTA
gamma-BHC (Lindane)	BHCGAMMA
Bis(2-chloroethoxy)methane	BECEM
Bis(2-chloroethyl) ether (Dichloroethyl ether)	BIS2CEE
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)	BIS2CIE
4-Bromophenyl phenyl ether	BPPE4
Butyl benzyl phthalate (Benzyl butyl phthalate)	BBP
Chlordane	CHLORDANE
p-Chloroaniline	CLANIL4
Chlorobenzilate	CLBZLATE
p-Chloro-m-cresol (4-Chloro-3-methylphenol)	C4M3PH
2-Chloronaphthalene	CNPH2
2-Chlorophenol	CLPH2
4-Chlorophenyl phenyl ether	CPPE4
Chrysene	CHRYSENE
o-Cresol (2-methylphenol)	MEPH2
m-Cresol (3-methylphenol)	MEPH3
p-Cresol (4-methylphenol)	MEPH4
4,4'-DDD	DDD44

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**TABLE VI**

**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

4,4'-DDE	DDE44
4,4'-DDT	DDT44
Diallate	DIALLATE
Dibenz[a,h]anthracene	DBAHA
Dibenzofuran	DBF
Di-n-butyl phthalate	DNBP
3,3'-Dichlorobenzidine	DBZD33
2,4-Dichlorophenol	DCP24
2,6-Dichlorophenol	DCP26
Dieldrin	DIELDRIN
Diethyl phthalate	DEPH
p-(Dimethylamino)azobenzene	PDMAABZ
7,12-Dimethylbenz[a]anthracene	DMBZA712
3,3'-Dimethylbenzidine	DMBZD33
2,4-Dimethylphenol (m-Xylenol)	DMP24
Dimethyl phthalate	DMPH
m-Dinitrobenzene	DNB13
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	DN46M
2,4-Dinitrophenol	DNP24
2,4-Dinitrotoluene	DNT24
2,6-Dinitrotoluene	DNT26
Di-n-octyl phthalate	DNOP
Diphenylamine	DPA
Endosulfan I	ENDOSULFANA
Endosulfan II	ENDOSULFANB
Endosulfan sulfate	ENDOSULFANS
Endrin	ENDRIN
Endrin aldehyde	ENDRINALD
Ethyl methanesulfonate	EMSULFN
Famphur	FAMPHUR
Fluoranthene	FLA
Fluorene	FL
Heptachlor	HEPTACHLOR
Heptachlor epoxide	HEPT-EPOX
Hexachlorobenzene	HCLBZ
Hexachlorocyclopentadiene	HCCP
Hexachloroethane	HCLEA
Hexachloropropene	HCPR
Indeno(1,2,3-c,d)pyrene	INP123
Isodrin	ISODRIN
Isophorone	ISOP
Isosafrole	ISOSAFR
Kepone	KEP
Methapyrilene	MTPYRLN
Methoxychlor	MTXYCL
3-Methylcholanthrene	MECHLAN3
Methyl methanesulfonate	MMSULFN

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**TABLE VI**

**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

2-Methylnaphthalene	MTNPH2
1,4-Naphthoquinone	NAPHQ14
1-Naphthylamine	AMINONAPH1
2-Naphthylamine	AMINONAPH2
o-Nitroaniline (2-Nitroaniline)	NO2ANIL2
m-Nitroaniline (3-Nitroaniline)	NO2ANIL3
p-Nitroaniline (4-Nitroaniline)	NO2ANIL4
Nitrobenzene	NO2BZ
o-Nitrophenol (2-Nitrophenol)	NTPH2
p-Nitrophenol (4-Nitrophenol)	NTPH4
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)	NNSBU
N-Nitrosodiethylamine (Diethylnitrosamine)	NNSE
N-Nitrosodimethylamine (Dimethylnitrosamine)	NNSM
N-Nitrosodiphenylamine (Diphenylnitrosamine)	NNSPH
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)	NNSPR
N-Nitrosomethylethylamine (Methylethylnitrosamine)	NNSME
N-Nitrosopiperidine	NNSPPRD
N-Nitrosopyrrolidine	NNSPYRL
5-Nitro-o-toluidine	TLDNONT5
Pentachlorobenzene	PECLBZ
Pentachloronitrobenzene (PCNB)	PECLNO2BZ
Pentachlorophenol	PCP
Phenacetin	PHNACTN
Phenanthrene	PHAN
Phenol	PHENOL
p-Phenylenediamine	ANLNAM4
Polychlorinated biphenyls (PCBs; Aroclors)	PCBS
Pronamide	PRONAMD
Pyrene	PYR
Safrole	SAFROLE
1,2,4,5-Tetrachlorobenzene	C4BZ1245
2,3,4,6-Tetrachlorophenol	TCP2346
o-Toluidine	TLDNO
Toxaphene	TOXAP
2,4,5-Trichlorophenol	TCP245
0,0,0-Triethyl phosphorothioate	TEPTH
sym-Trinitrobenzene	TNB135

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**TABLE VI**

**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

**Chlorophenoxy Herbicides (USEPA Method 8151A):**

2,4-D (2,4-Dichlorophenoxyacetic acid)	24D
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)	DINOSEB
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)	SILVEX
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	245T

**Organophosphorus Compounds (USEPA Method 8141B):**

Atrazine	ATRAZINE
Chlorpyrifos	CLPYRIFOS
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)	ZINOPHOS
Diazinon	DIAZ
Dimethoate	DIMETHAT
Disulfoton	DISUL
Methyl parathion (Parathion methyl)	PARAM
Parathion	PARAE
Phorate	PHORATE
Simazine	SIMAZINE

ATTENTIVE

**TABLE VII**  
**LANDFILL GAS CORRECTIVE ACTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
<b>LFG Control System</b>				
Control System Run-time	--	Hours	Quarterly	Semiannual
Control System Down-time	--	%	Quarterly	Semiannual
Temperature into Plant	--	°F	Quarterly	Semiannual
Flare Combustion Temperature	--	°F	Quarterly	Semiannual
System Vacuum	--	mm Hg vacuum	Quarterly	Semiannual
Totalized flow into Plant	--	Cubic Feet	Quarterly	Semiannual
Totalized flow rate into Plant	--	CFM	Quarterly	Semiannual
<b>LFG Control System Influent</b>				
Volatile Organic Compounds <sup>1</sup> (USEPA TO-15)	--	ug/cm	Semiannual	Semiannual
Methane	--	%	Quarterly	Semiannual
<b>LFG Extraction Wells</b>				
Atmospheric Temperature	--	°F	Quarterly	Semiannual
Atmospheric Pressure	--	inches Hg	Quarterly	Semiannual
Methane	--	% by volume	Quarterly	Semiannual
Carbon Dioxide	--	% by volume	Quarterly	Semiannual
Oxygen	--	% by volume	Quarterly	Semiannual
Remainder gas	--	% by volume	Quarterly	Semiannual
Gas temperature at each well	--	°F	Quarterly	Semiannual
Initial static pressure in wellhead	--	inches H2O	Quarterly	Semiannual
Adjusted static pressure in Wellhead	--	inches H2O	Quarterly	Semiannual
<b>LFG Probes</b>				
Atmospheric Temperature	--	°F	Quarterly	Semiannual
Atmospheric Pressure	--	inches Hg	Quarterly	Semiannual
Methane	--	% by volume	Quarterly	Semiannual
Carbon Dioxide	--	% by volume	Quarterly	Semiannual
Oxygen	--	% by volume	Quarterly	Semiannual
Remainder gas	--	% by volume	Quarterly	Semiannual
Probe pressure/vacuum	--	inches H2O	Quarterly	Semiannual
Volatile Organic Compounds <sup>1</sup> (USEPA TO-15)	--	ug/cm	Semiannual	Semiannual

<sup>1</sup>. Gas samples may be prescreened to determine if laboratory analysis using Method TO-15 is required. A gas analyzer for methane concentrations or a Photo Ionization Detector (PID) for total VOCs concentrations may be used. If methane concentrations exceeding 1.0 percent by volume OR organic vapors (total VOCs) are detected at a concentration greater than 1.0 ppm then a gas sample shall be obtained and analyzed for VOCs using EPA Method TO-15. Both the screening results and laboratory analysis results shall be reported. Otherwise, the Discharger shall report the methane or total VOC screening results and no further laboratory analysis is required.



**TABLE VIII**  
**SURFACE IMPOUNDMENT MONITORING**

<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
<b>Field Parameters</b>			
Freeboard	Feet and tenth	Weekly <sup>1</sup>	Semiannual
Remaining Capacity	Gallons	Monthly	Semiannual
Remaining Capacity	Percent	Weekly	Semiannual
Discharge Flow <sup>2</sup>	gallons/day	Monthly	Semiannual
pH	pH unit	Semiannual	Semiannual
Electrical Conductivity	umhos/cm	Semiannual	Semiannual
<b>Monitoring Parameters</b>			
Total Dissolved Solids	mg/L	Semiannual	Semiannual
Chloride	mg/L	Semiannual	Semiannual
Sulfate	mg/L	Semiannual	Semiannual
Nitrate as N	mg/L	Semiannual	Semiannual
Dissolved Lead	µg/L	Semiannual	Semiannual
Volatile Organic Compounds	µg/L	Semiannual	Semiannual

- 
- <sup>1</sup>. Freeboard shall be measured weekly and within 24 hours after onsite rainfall of greater than two inches in a 24 hour period. Freeboard shall be measured from the top of the surface impoundment down to the water level in the impoundment and can be measured using markings on the primary geomembrane liner or a free-standing gauge.
  - <sup>2</sup>. Flow of wastewater into Class II surface impoundment as measured and recorded at totalizing meter.

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