

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2016-0042-01  
FOR  
WASTE MANAGEMENT OF ALAMEDA COUNTY, INC.  
ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY  
CLASS II AND CLASS III LANDFILL  
CONSTRUCTION, OPERATION, CLOSURE, POST-CLOSURE MAINTENANCE,  
AND CORRECTIVE ACTION  
ALAMEDA COUNTY

This monitoring and reporting program (MRP) is issued pursuant to California Water Code section 13267 and incorporates requirements for groundwater, unsaturated zone, leachate, gas condensate, and surface water monitoring and reporting; facility monitoring, maintenance, and reporting; corrective action monitoring 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 R5-2016-0042, and the Standard Provisions and Reporting Requirements (SPRRs) dated December 2015. 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.

**A. MONITORING**

The Discharger shall comply with the monitoring program provisions of Title 27 for groundwater, surface water, leachate, gas condensate, 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* (SAP), which includes quality assurance/quality control standards. The most current SAP was submitted in July 2015. The SAP shall be updated as needed (either upon request of the Water Board or as the Discharger determines necessary) and submitted to the Water Board for approval prior to use.

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

The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program, and are identified in the approved Sample Collection and Analysis Plan.

While this MRP assigns monitoring points to background, detection, evaluation, and corrective action monitoring programs, it is acknowledged that these designations may change over time.

The monitoring program of this MRP includes:

**Section    Monitoring Program**

- A.1    Groundwater Monitoring
- A.2    Unsaturated Zone Monitoring (Gas Probes, Leak Detection System, and Underdrains)
- A.3    Leachate, Landfill Gas Condensate, and Surface Impoundment Monitoring
- A.4    Surface Water Monitoring
- A.5    Facility Monitoring
- A.6    Corrective Action Monitoring

**1. Groundwater Monitoring**

The Discharger shall operate and maintain a groundwater monitoring system that complies with the applicable provisions of Title 27, sections 20415 through 20430. The monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. As identified in the WDRs, the current groundwater monitoring system is being further evaluated to ensure compliance with Title 27 Detection Monitoring Program requirements.

The current groundwater monitoring network consists of the monitoring points listed below. The Discharger shall certify the groundwater monitoring system (after review and approval by Central Valley Water Board staff) each time a new unit is constructed or for corrective action. The groundwater monitoring network shall include all future or replacement wells installed for existing or future landfill units.

All wells listed in the table below shall be monitored for groundwater elevation on a quarterly basis. As described in the Table below, certain wells shall be sampled on a semiannual frequency and certain wells less frequently. Samples shall be analyzed for the constituents listed in Table 1.

Well	Water Level Monitoring	Analytical Sampling Frequency	Unit Monitored	Type	Other Information
MW-1A	Quarterly	Semiannual	FA1, Unit 2	Evaluation	Upgradient of unit
MW-1B	Quarterly	2016+COC schedule <sup>2</sup>	FA1, Unit 2	Evaluation	Upgradient of unit
MW-2A	Quarterly	Semiannual	FA1, Unit 1/2	Evaluation	West of unit
MW-2B	Quarterly	2016+COC schedule <sup>2</sup>	FA 1, Unit 1/2	Evaluation	West of unit
MW-2C	Quarterly	2016+COC schedule <sup>2</sup>	FA 1, Unit 1/2	Evaluation	West of unit

Well	Water Level Monitoring	Analytical Sampling Frequency	Unit Monitored	Type	Other Information
MW-3B	Quarterly	Semiannual	FA1, Unit 1, FA2	Detection	East of unit, near release
MW-3C	Quarterly	2016+COC schedule <sup>2</sup>	FA1, Unit 1, FA2	Evaluation	East of unit, near release
MW-4A	Quarterly	Semiannual	FA1, Unit 2	Evaluation	North of unit
MW-4B	Quarterly	2016+COC schedule <sup>2</sup>	FA1, Unit 2	Evaluation	North of unit
MW-5A	Quarterly	Semiannual	FA1, Unit 1	Evaluation	South of unit
MW-5B	Quarterly	2016+COC schedule <sup>2</sup>	FA1, Unit 1	Evaluation	South of unit
MW-6	Quarterly	Semiannual	FA1, Unit 2	Evaluation	West of unit
MW-7	Quarterly	Semiannual	FA1, Unit 1	Evaluation	South of unit
MW-8A	Quarterly	Semiannual	FA2, SI-1	Detection	Future d/g edge of unit
MW-8B	Quarterly	2016+COC schedule <sup>2</sup>	FA2, SI-1	Evaluation	Future d/g edge of unit
MW-9	Quarterly	*	FA2, future phase	Detection	South of unit
MW-10	Quarterly	*	FA2	Detection	East of unit
MW-11	Quarterly	Semiannual	FA1, Unit 1, future SI	Evaluation	Southeast of unit
MW-12	Quarterly	Semiannual	FA1, FA2	Corr. Action	Between the units
MW-13A	Quarterly	Semiannual <sup>1</sup>	FA2, Phase 3/4	Detection	Downgradient
MW-13B	Quarterly	Semiannual	FA2, Phase 3/4	Detection	Downgradient
MW-14	Quarterly	Semiannual	FA2, Phase 1/2	Detection	Downgradient
MW-15A	Quarterly	Semiannual <sup>1</sup>	SI-1	Detection	Around SI
MW-15B	Quarterly	Semiannual	SI-1	Detection	Around SI
MW-16	Quarterly	Semiannual	SI-1	Detection	Around SI
MW-17	Quarterly	Semiannual	SI-1	Detection	Around SI
MW-18	Quarterly	Semiannual	SI-1	Detection	Around SI
E-03A	Quarterly	Semiannual	FA1	Corr. Action	South of unit
E-05	Quarterly	Semiannual	FA1	Corr. Action	South of unit
E-07	Quarterly	Semiannual	FA1	Corr. Action	South of unit
E-20B	Quarterly	Semiannual	FA1, FA2	Corr. Action	Between units
E-21	Quarterly	Semiannual	FA1	Evaluation	South of unit
E-22	Quarterly	Semiannual	FA1	Evaluation	Southwest of unit
E-23	Quarterly	Semiannual	FA1	Evaluation	South of unit
PC-1A	Quarterly	Semiannual	FA2	Detection	In valley d/g of phases
PC-1B	Quarterly	2016+COC schedule <sup>2</sup>	FA2	Detection	In valley d/g of phases
PC-1C	Quarterly	2016+COC schedule <sup>2</sup>	FA2	Detection	In valley d/g of phases
PC-2A	Quarterly	*	FA2, SI-1	Detection	South of SI-1
PC-2C	Quarterly	*	FA2, SI-1	Detection	South of SI-1
PC-6B	Quarterly	Semiannual <sup>1</sup>	FA2	Detection	North of unit
PC-6B(R)	Quarterly	Semiannual	FA2	Detection	North of unit
P-2	Quarterly	*	FA2	Detection	In valley d/g of phases
WM-2	Quarterly	*	FA2	Detection	West side of unit
ARC-2	Quarterly	*	FA2	Detection	In valley d/g of phases

\*No need for analytical data now, but the Discharger shall initiate semiannual sampling in time to propose a WQPS prior to placement of any waste.

<sup>1</sup> Currently dry. If water is present, sample semiannually.

<sup>2</sup> Well shall be sampled in 2016 for the Field Parameters, Monitoring Parameters, and Supplemental Parameters listed in Table 1. After that, the well shall be sampled every five years, following the COC monitoring schedule (the next event is November 2020). The five year samples shall be analyzed for the Field Parameters, Monitoring Parameters, and Supplemental Parameters listed in Table 1.

<sup>3</sup> Wells not on this list may be abandoned. If the Discharger wishes to abandon a well, the Discharger shall submit a Well Abandonment Workplan to Board staff at least 60 days prior to the proposed field work.

Groundwater samples shall be collected from all wells listed above, and any additional wells added as part of the approved groundwater monitoring system. The samples shall be analyzed for the parameters and constituents listed in Table I in accordance with the specified methods and the frequencies.

The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

All monitoring wells shall be maintained such that a representative sample can be collected from the formation in the prescribed zone. If a well is no longer able to provide a representative sample, then the Discharger shall notify Board staff within 30 days, and shall modify, repair, or replace the well prior to the next scheduled monitoring event.

**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, in any zones of perched water, and in any additional portions of the zone of saturation monitored. 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). For paired wells, the Discharger shall report the vertical gradient for that location. All groundwater elevations shall be reported using only one common datum (e.g., NAVD88) for the entire network. Data analysis shall be conducted in a manner consistent with the statistical and non-statistical data analysis methods described in Section C.1.e, as updated by the approved WQPS report(s) submitted by the Discharger.

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 November 2015 and shall be monitored again in November 2020. The results shall be reported in the Annual Monitoring Report for the year in which the samples were collected.

## **2. Unsaturated Zone Monitoring (Gas Probes, Leak Detection System, and Underdrains)**

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

All 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.

The current unsaturated zone monitoring network consists of the monitoring points listed in each section below. As required by the WDRs, additional unsaturated zone monitoring devices will be installed in Fill Area 1 and 2, and a pan lysimeter will be installed under future Class II Surface Impoundment(s). The Discharger shall install unsaturated zone monitoring devices (after review and approval by Central Valley Water Board staff) each time a new unit is constructed. These monitoring devices will be added to this program once installed.

**a. Gas Monitoring**

Unsaturated zone samples shall be collected from the monitoring points listed below, as well as any gas probes installed in or around Fill Areas 1 or 2 after adoption of this MRP, and shall be analyzed for the soil-pore gas monitoring parameters and constituents listed in Table II in accordance with the specified methods and frequencies.

Monitoring Point	Unit Monitored	Type
GP-1	1 & 2	DMP
GP-7	1	DMP
GP-8	1	DMP
GP-9	1	DMP
LS2	1	-
VZM-A	1	CAP

Monitoring Point	Unit Monitored	Type
GP-10	1	DMP
GP-11	1	DMP
GP-12	1	DMP
GP-20	1 & 2	DMP
UD-1*	2	DMP
VD2	1	CAP

\*As soon as waste is placed

The requirement to monitor and report landfill gas removed from VD2 (valley drain) and LS-2 (LCRS sump in Fill Area 1, Unit 2) piping systems is discussed in Finding 105 of the WDRs. Gas concentrations shall also be monitored in lysimeter VZM-A, and the underdrains listed above, as corrective action and detection monitoring measures.

## b. Lysimeters and Leak Detection Monitoring

The monitoring points below shall be inspected for the presence of liquid monthly, and shall be sampled for the Monitoring Parameters in Table II when liquid is present, but no more frequently than semi-annually. All Field Parameters shall be sampled at the frequency described in Table II.

Monitoring Point	Unit Monitored	Type	Type of Device
VZM-A	Fill Area 1	CAP	Lysimeter
VZM-B	SI-1	DMP	Lysimeter
LD-1	Fill Area 2	DMP	Leak detection
LD-2	Fill Area 2	-	Leak detection (pipe)

If liquid is detected in a previously dry monitoring point, the Discharger shall notify Central Valley Board staff verbally and via email within seven days and shall immediately sample and test the liquid for the Field and Monitoring Parameters listed in Table II.

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 at the time of the first sample collection, and then added to the five-year program (i.e., 2020, 2025, etc.). Based on the monitoring results, the Discharger shall determine if a release from the primary containment system within the leachate conveyance pipe has occurred, following SPRRs guidelines and notification requirements.

The Discharger shall monitor point LD-2, the annular space between double walled leachate conveyance pipe, for Fill Area 2 Unit 1. The presence of liquid in the annular space shall be monitored monthly at a point immediately prior to the discharge point of leachate to the 8-million gallon Class II surface impoundment. Based on the monitoring results, the Discharger shall determine if a release from the primary containment system within the leachate conveyance pipe has occurred, following SPRRs guidelines and notification requirements.

## c. Underdrain Monitoring

The Discharger shall operate, maintain, and monitor an underdrain system consisting of the below monitoring points in order to satisfy (a) the requirements of the WDRs R5-2016-0042 for the approved alternative to 5-foot separation siting requirements and (b) to provide detection monitoring for a release of landfill leachate and landfill gas to the underdrain system.

Monitoring Point	Unit Monitored	Type
VD	1	CAP
VD2	1	CAP
UD-1	2	DMP

For monitoring point UD-1, it is expected that the location of the monitoring point will change as new units are added. The liquid shall be collected as close to edge of waste as possible for the most recent phase of construction in order to provide a representative sample.

All underdrains shall be monitored **monthly** for the presence of liquid, and flow shall be recorded in accordance with Table II. The Discharger shall sample and test any liquid present in the underdrain for Field and Monitoring Parameters listed in Table II, on a semi-annual basis. All Field Parameters shall be sampled at the frequency described in Table II. All underdrain samples shall be analyzed for the 5-year COCs specified in Table II every five years, beginning at the time of the first sampling in Fill Area 2 and on the schedule already provided for Fill Area 1 (i.e., the next event is in 2020).

**3. LCRS Monitoring, Seep Monitoring, Annual LCRS Testing, Landfill Gas Condensate Monitoring, Class II Surface Impoundment Monitoring**

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

In addition, the Discharger shall operate and maintain a LFG condensate collection and removal system, and conduct monitoring and reporting of the quantity and quality of the gas condensate collected if landfill gas condensate is to be returned to a WMU.

**a. LCRS Monitoring**

The Discharger shall operate and maintain a leachate collection and removal system (LCRS) including but not limited to all LCRS gravel windows, all LCRS collection systems, and all LCRS removal systems (LCRS sumps).

The current LCRS leachate monitoring points are:

<u>Monitoring Point</u>	<u>Waste Management Unit</u>
LS	Fill Area 1, Unit 1 LCRS Sump
LS2	Fill Area 1, Unit 2 LCRS Sump
LS-3	Surface Impoundment Leachate Pond SI-1 LCRS Sump
LS-4	Fill Area 2, Unit 1, LCRS Discharge Pipe

All LCRS sumps and/or LCRS discharge pipes shall be inspected monthly for the presence of leachate, and flow and Field Parameters shall be recorded in

accordance with Table III. If leachate is detected in a previously dry monitoring point, the Discharger shall notify Central Valley Water Board staff verbally and via email within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table III. Leachate which is detected in any of the above Monitoring Points shall be sampled for all parameters and constituents in accordance with the frequencies listed in Table III. All Monitoring Point samples shall be analyzed for the 5-year COCs specified in Table III when leachate is initially found, and then every five years, beginning again in 2020.

**b. Seep Monitoring**

Leachate that seeps to the surface from any landfill WMU including side slopes, intermediate and/or final cover 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 separately as Leachate Seep 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. Landfill Gas Condensate Monitoring**

Landfill gas condensate is collected in a central sump, monitoring point "condensate holding tank", prior to being returned to the WMU. If this condensate is returned to the landfill, on a semi-annual basis, the Discharger shall sample and analyze condensate at point "condensate holding tank" for the Field and Monitoring Parameters listed in Table III. The quantity of landfill gas condensate returned to a WMU shall be continuously measured and reported on a monthly basis as Landfill Gas Condensate Flow Rate (in gallons/month). Samples shall be analyzed for the 5-year COCs specified in Table III beginning in 2020.

**e. Class II Surface Impoundments Monitoring**

Samples shall be collected from each Class II surface impoundment in accordance with the Monitoring Parameters and 5 Year COCs found in Table III. One sample shall be collected from each surface impoundment during each semi-annual monitoring period. The following additional parameters shall be monitored and reported as part of the semiannual reporting requirement:

<b>Additional Class II Surface Impoundment Monitoring</b>			
<u>Field Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Flow Rate to each impoundment <sup>1</sup>	gallons/month	Weekly	Semiannually
Specific Conductance	umhos/cm	Semiannual	Semiannually
pH	pH units	Semiannual	Semiannually
Reapplication Flow Rate to <u>each</u> landfill WMU	gallons/month	Daily	Semiannually
Precipitation <sup>2</sup>	Inches & Tenths/month	Daily	Semiannually
Freeboard <sup>3</sup>	Feet & Tenths	Monthly	Semiannually
Off Site Removal of Wastewater <sup>4</sup>	Gallons per Event	Daily	Semiannually
Action Leakage Rate	Gallons/acre/day	Monthly	Semiannually

- <sup>1</sup> Flow of wastewater into Class II surface impoundments as measured and recorded at totalizing meter. If the Discharger discharges liquids other than landfill leachate or landfill gas condensate the Discharger shall report the flow rate of all other liquids to the surface impoundment separately.
- <sup>2</sup> Precipitation shall be measured as described in Section D of the SPRRs.
- <sup>3</sup> Freeboard shall be measured and recorded monthly and prior to major storm events using permanent markings on the primary geomembrane liner or a free-standing gauge.
- <sup>4</sup> Each time wastewater is removed from the facility for disposal elsewhere, the Discharger shall document the date of removal, gallons removed, and the location of disposal. A copy of each hauling receipt shall be included in the semiannual report.

**Action Leakage Rate:** The Discharger shall report the leakage rate for each Class II surface impoundment LCRS on a monthly basis, and convert the results into gallons per acre per day. The results shall be included in the information in the semiannual reports, and compared to the Action Leakage Rates found in the WDRs under Facility Specification C.19. If monitoring of the flow rate into the LCRS shows an exceedance of the Action Leakage Rate required by the WDRs, the Discharger shall follow the procedures in the WDRs under “C. Facility Specifications”. Tabulated leakage rates shall be included in the semiannual monitoring reports.

#### 4. Surface Water Monitoring (Including Springs)

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 Altamont Landfill and Resource Recovery Facility, runoff from landfill areas flows to sedimentation basins that periodically discharge to natural drainages. Discharges to natural drainages to the west of the facility flow west-southwest to channels along Dyer Road that drain to Altamont Creek which may flow into the San Francisco Bay. Discharges to natural drainages to the south and east of the facility flows eastward in un-named channels and ditches to Mountain House Creek, which flows to Old River in the Sacramento-San Joaquin Delta. The current surface water detection monitoring system meets the applicable requirements of Title 27. The Industrial Storm Water General Permit requires monitoring for the discharge from the basins and therefore that monitoring is not required in this MRP.

The current surface water monitoring points for the landfill are:

<u>Point Identification</u>
In Basin A
In Basin B
In Basin C
SB-A (Sedimentation Basin A)
SB-1 (Sedimentation Basin 1)
SB-2 (Sedimentation Basin 2)

For the 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. Regardless of whether or not the basins are discharging, samples shall be collected twice per year during the rainy season (15 October through 15 May), when water is present. All surface water monitoring samples shall be collected and analyzed for the 5-year COCs specified in Table IV every five years, beginning again in 2020.

##### Springs

Following the field survey of springs and submittal of a technical report in September 2017, and as approved by Water Board staff, it may be necessary to incorporate downgradient springs into the surface water monitoring program. If such springs are to be incorporated into the monitoring program they will be monitored for the Field and Monitoring Parameters listed in Table IV. The spring locations shall be inspected monthly, and one sample shall be collected during each semi-annual monitoring event, if water is present.

## 5. 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 to ensure the facility is capable of satisfying the prohibitions, specifications, and provisions sections of the WDRs. The inspection shall assess repair and maintenance needed for drainage control systems, cover systems, and groundwater, surface water, and unsaturated zone monitoring systems; 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. For purposes of this requirement, a "major storm event" is defined as an event which produces 1.5 inches or more of precipitation within a 24-hour period, as measured at the on-site weather station. 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. 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 or ET cover. 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 upon completion of installation of closure covers on Fill Area 1 Unit 1 and Fill Area 1 Unit 2 and every five years thereafter.

### d. Biennial Closure Cover Leak Search for Closed Units

Pursuant to California Code of Regulations, title 17, section 95471(c) and Title 27, section 21090(a)(4)(A) the Discharger shall conduct biennial monitoring of the integrity of the low-hydraulic-conductivity layer, including a method for effectively identifying and repairing breaches in that layer. Defects will be repaired and tested for adequacy based on the closure CQA Plan. The results shall be reported as required in Section B.7 of this MRP.

### e. Post-Earthquake Inspection and Response

In order to ensure that the Facility's waste containment structures have not sustained damage after an earthquake of Magnitude (Mw) 5.0 or greater within

25 miles of the facility or a Magnitude (Mw) 6.0 or greater earthquake within 50 miles of the facility, the Discharger shall implement its Post-Earthquake Inspection and Response. The inspection shall include, but not be limited to, inspecting WMU liners and covers where exposed and/or accessible; LCRS riser pipes, sump pump operation, and storage tanks; including the flare station; drainage control facilities; and detection monitoring facilities for damage.

The inspection shall be conducted in a timely manner following earthquakes of the magnitude specified above. A report of the inspection shall be submitted within 30 days after the inspection assessing any damage and shall contain proposals to repair or replace any damaged structures or facilities. The results shall be reported as required in Section B.9 of this MRP.

**f. Solidification Basins**

For existing basins, the Discharger shall document: the number of basins, the location of each basin, the volume of waste discharged into each basin, a summary of the types of liquid waste received, and characterization of the material used for the solidification. In accordance with WDR Provision H.8, the Discharger shall provide a Technical Report by 1 April 2017, which demonstrates that solidification operations have not resulted in the introduction of liquids into a solid waste WMU in excess of the moisture holding capacity of the WMU as a result of waste management operations, compaction or settlement, in accordance with Title 27 Section 20200(d).

For each basin that has been constructed during the semiannual period, the Discharger shall provide the following information in the semi-annual monitoring report: construction CQA report, description of how the clay liner was compacted and tested, the dimensions of basin including volume and depth of basin, and the monitoring procedures which will be used to demonstrate that solidification operations have not resulted in the introduction of liquids into a solid waste WMU in excess of the moisture holding capacity of the WMU as a result of waste management operations, compaction or settlement, in accordance with Title 27 Section 20200(d).

For each basin that has been closed during the semi-annual period, the Discharger shall provide a closure CQA report in the semiannual monitoring report.

The above information shall be submitted in the semi-annual monitoring report as required by Section B.1 of this MRP.

**g. Liquid Waste Handling Reporting**

Discharger shall monitor and report the amount of liquid waste, including but not limited to, liquid waste generated from recycling operations, truck wash facilities, landfill gas-to-energy plants, and vehicle maintenance facilities, applied to each WMU in accordance with intent and purposes listed in Title 27 section

21090(a)(5)(B) for closed WMUs and Title 27 section 20705 for active and inactive WMUs. The Discharger shall report the results as required in section B.8.

#### **h. 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 (except where noted):

<u>Landfill Unit Type</u>	<u>Frequency</u>	<u>Season</u>
Active	Weekly	Wet: 1 October to 30 April
Active	Monthly	Dry: 1 May to 30 September
Inactive/Closed	Monthly	Wet: 1 October to 30 April
Inactive/Closed	Quarterly	Dry: 1 May to 30 September

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); and
  - b) Evidence of erosion and/or of day-lighted refuse.
- 2) Along the perimeter and outward slopes of the landfill Units:
  - c) Evidence of leachate seeps, estimated size of affected area, and flow rate (show affected area on map); and
  - d) Evidence of erosion and/or of day-lighted refuse.
- 3) For receiving waters:
  - e) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area; and
  - f) Discoloration and turbidity - description of color, source, and size of affected area.

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

### **6. Corrective Action Monitoring**

The Discharger shall conduct corrective action monitoring to demonstrate the effectiveness of corrective action in accordance with Title 27 and this MRP.

#### **a. Groundwater**

Groundwater monitoring wells 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 of this MRP, with the following additional constituents. The following wells are in corrective action: MW-12, E-03A, E-05, E-07, and E-20B.

<u>Well</u>	<u>Zone</u>	<u>Additional Constituents</u>	<u>Sampling Frequency</u>
E-05	Shallow	Acetophenone	Semiannual
E-07	Shallow	Acetophenone	Semiannual
E-23	Shallow	Acetophenone	Semiannual
MW-1A	Shallow	Dinoseb*	Annual
MW-2A	Shallow	Dinoseb*	Annual
MW-4A	Shallow	Dinoseb*	Annual
MW-5A	Shallow	Dinoseb*	Annual
MW-6	Shallow	Dinoseb*	Annual
MW-7	Shallow	Dinoseb*	Annual
MW-11	Shallow	Dinoseb*	Annual
MW-12	Shallow	Dinoseb*	Annual
E-03A	Shallow	Dinoseb*	Annual
E-05	Shallow	Dinoseb*	Annual
E-07	Shallow	Dinoseb*	Annual
E-20B	Shallow	Dinoseb*	Annual
E-21	Shallow	Dinoseb*	Annual
E-22	Shallow	Dinoseb*	Annual
E-23	Shallow	Dinoseb*	Annual

\*Dinoseb = Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol

### **b. Unsaturated Zone and Leachate**

Unsaturated zone and leachate monitoring points that are in a corrective action monitoring program shall be monitored in accordance with the unsaturated zone and leachate monitoring requirements in parts A.2 and A.3 of this MRP, with the following additional constituents.

<u>Monitoring Point</u>	<u>Zone</u>	<u>Additional Constituents</u>	<u>Sampling Frequency</u>
LS/VD	Shallow	Acetophenone	Semiannual
VD2	Shallow	Dinoseb*	Annual
VZMA	Shallow	Dinoseb*	Annual
LS/VD	Shallow	Dinoseb*	Annual
LS2	Shallow	Dinoseb*	Annual

\*Dinoseb = Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol

### **c. Landfill Gas**

The Discharger has reported that landfill gas from Unit 1 is the source of VOCs in groundwater and the unsaturated zone at the point of compliance in Fill Area 1 Unit 1 and Unit 2. Currently, the two areas with elevated VOC impacts are near groundwater monitoring wells E-05/E-07 and E-20B. The Discharger has relied on active landfill gas extraction as its corrective action measure.

In accordance with Table VII, the Discharger shall monitor all active LFG extraction wells that are (a) within an 800 foot radius of groundwater monitoring wells E-05/E-07 and (b) within a 1,000 foot radius of groundwater monitoring well E-20B. The current active LFG extraction wells that meet these criteria and need to be monitored are listed below. It is understood that the Discharger may remove some wells and install other wells, but any LFG extraction well within the above radius must be sampled.

The Landfill Gas corrective action monitoring results shall be reported in the semiannual monitoring reports.

Current LFG extraction wells within an 800 foot radius of groundwater monitoring wells E-05/E-07: 3, 53, 54, 56, 59, 107, 551, 580, 624, and HC-108

Current LFG extraction wells within a 1,000 foot radius of groundwater monitoring well E-20B: 491, 629, 687, and 688.

## 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	Biennial Closure Cover Leak Search	Every Two Years	<b>At Closure Completion and Every Five Years</b>
B.8	Liquid Waste Handling Report	31 December	<b>1 February</b>
B.9	Post-Earthquake Inspection and Response Report	Continuous	<b>30 Days after Earthquake Event</b>
B.10	Improper Solid Waste Disposal	Continuous	<b>Immediately &amp; 7 Days</b>
B.11	Financial Assurances Report	31 December	<b>1 June</b>

### 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 R5-2016-0042 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

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 Div. 3 of Title 27.

The results of **all monitoring** conducted at the site in accordance with this MRP 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;
- e) Results derived by calculation (indicate that calculation was used to derive result); 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. Groundwater elevation contour maps showing groundwater elevation and directions of groundwater flow in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations based on quarterly groundwater elevation monitoring prior to sampling. Corresponding estimates of groundwater gradients and flow velocity shall also be provided.
  - d. Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater (MRP Section A.1), unsaturated zone (MRP Section A.2), leachate and gas condensate (MRP Section A.3), and surface water (MRP Section A.4). Concentrations below the reporting limit shall not be reported as non-detect "ND" unless the concentration is below the method detection limit (MDL) and the method detection limit is also given in the table. Laboratory results indicating trace values of COCs between the MDL and PQL (Reporting Limit or RL) shall be reported as estimated values (flagged and estimated value reported). Laboratory results of COCs at or above the PQL shall be reported and indicated clearly as exceeding the PQL relative to laboratory results reported below the PQL. Laboratory results shall clearly distinguish on time series graphs data that is reported as non-detect versus data that was reported at or above MDL (trace) levels. Units shall be monitored as required in Tables I through VI 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 (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 SPRRs Section J: Response to a Release for verified exceedances of a concentration limit.
  - g. Identification of any gas or liquid detected in a leak detection monitoring device or pan lysimeter based on the fluid sample analysis profiles provided in the Sample Collection and Analysis Plan consistent with the corrective action specifications of this Order.
  - h. 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.

- i. A summary of all Standard Observations for the reporting period required in Section A.5.h. of this MRP.
- j. 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.
- k. A summary of the solidification basin information required by Section A.5.f.
- l. The results of the landfill gas monitoring required by Sections A.2a and A.6, including (a) an evaluation of the effectiveness of the landfill gas extraction system and (b) for the landfill gas extraction system: a listing of the dates of shutdown, length of time of shutdown, how the system was re-started, the cause of the shutdown, and steps that have been taken to prevent such a shutdown in the future. The report shall include tabulated data for all monitoring parameters and time vs. concentration graphs showing the concentration of total VOCs in the TO15 analysis. The report shall include a discussion about the effectiveness of the Corrective Action Program including comparison of the current data with historical data, trends.

## 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. Constituent data of incompatible scales/ranges shall not be plotted on the same graph. 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. Upon request of Board staff, cumulative historical monitoring data organized per B.2.d in an electronic data format (i.e., Excel) amenable to statistical analysis.
- d. Hydrographs of each well showing the elevation of groundwater during each sampling event. Information regarding the elevations of the top and bottom of the

screened interval, the elevation of the pump intake, and the groundwater elevation shall be provided in a table. These hydrographs and Table shall be prepared 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 map(s) showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours, as well as a projection of the remaining capacity for each discrete landfill module.
- g. A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
- h. The results of the annual testing of leachate collection and removal systems required under Standard Facility Specification E.14 of the SPRRs.
- i. Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set as appropriate.
- j. A comprehensive discussion of any Corrective Action Program required by this MRP under Section A.6.

### 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.

### 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.5.a. of this MRP, above.

### 5. Major Storm Event Reporting

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.5.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). Refer to Section A.5.c of this MRP, above. The next report is due upon completion of each closed area and every five years thereafter by 1 February under a separate cover as part of the Annual Monitoring Report.

#### **7. Biennial Closure Cover Leak Search 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). Refer to Section A.5.d of this MRP, above. The next report is due upon completion of each closed area and every two years thereafter by 1 February under a separate cover as part of the Annual Monitoring Report.

#### **8. Liquid Waste Handling Report**

The Discharger shall report as part of the Annual Monitoring Report the results of all monitoring performed in Section A.5.g.

#### **9. Post-Earthquake Inspection and Response Report**

Discharger shall report the results of its Post-Earthquake Inspection and Response. The report shall include but not be limited to the inspection of the WMU liners and covers (where exposed and/or accessible); LCRS riser pipes, sump pump operation, and storage tanks; including the flare station; drainage control facilities; and detection monitoring facilities for damage. A report shall include assessing any damage and shall contain proposals to repair or replace any damaged structures or facilities as specified in Section A.5.e of this MRP.

#### **10. Improper Solid Waste Disposal Reporting**

The Discharger shall report by telephone any violation of disposal of designated waste or hazardous waste in a Class III WMU or hazardous waste in a Class II WMU **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 time and location(s) of improper disposal;
- b. An estimate of the quantity and type of waste that was disposed of;
- c. A description of the of the waste (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 (including the 5-year COCs) of this MRP (if the materials could be sampled), and an estimated date that the results will be submitted to the Central Valley Water Board; and
- e. Corrective measures underway or proposed to remove the waste, and corresponding time schedule.

## 11. 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

The Water Quality Protection Standard for naturally occurring waste constituents consists of the COCs, the concentration limits, the point of compliance, and all monitoring points consistent with this Order and Title 27, Section 20390. Any proposed changes to the Water Quality Protection Standard 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 listing or table showing all elements of the WQPS for each unit and water bearing media, including, but not limited to, concentration limits for all monitoring parameters and 5-year COCs.
- e. Include a proposed statistical method for calculating concentration limits for naturally-occurring monitoring parameters and constituents of concern that are detected in 10% or greater of the background data using a statistical procedure from Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E).
- f. 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 Discharger proposed the methods for calculating concentration limits in its June 2015 Joint Technical Document Appendix B Section 7.3 Statistical Methodology. The Discharger proposed using Intra-well analysis methodology for statistically determining

if there is measurably significant evidence of a release from a WMU. Unless otherwise approved by staff, the Discharger shall continue to use an intra-well analysis for Fill Area 2. As described in the findings in WDRs R5-2016-0042 and Provisions H.8 the Discharger is required to submit a revised WQPS. Concentration limits for wells MW-1B, MW-2B, MW-2C, MW-3C, MW-4B, and MW-5B shall be calculated when enough data to calculate the concentration limits is available, based on any previous data as well as the analytical results from the 2016 sampling event and future sampling events.

The current approved Water Quality Protection Standards, including appropriate concentration limits, for Fill Areas 1 and 2 are listed in Table VIII, and shall be updated every 2 years, after at least four additional independent data points have been obtained for that constituent at that monitoring point.

The Discharger has proposed to use intrawell statistics to determine the WQPS for Fill Area 1. The sequence of waste placement prior to well installation, and the documented occurrence of a release from Fill Area 1 limits the validity of these proposed limits to represent true background conditions. However, use of intrawell statistics for Fill Area 1 is approved.

Each new unit must have a WQPS proposed and approved by Board staff before waste may be placed in that unit.

## **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 VII for the specified monitored medium. The WQPS shall further identify which monitoring parameters are in Detection monitoring and which are in Corrective Action monitoring.

## **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 VII. 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 *Annual Monitoring Report*, and 5-year COCs are due to be monitored again in 2020, with the results reported in the Annual 2020 Monitoring Report, due 1 February 2021.

## **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 Discharger's JTD. The method uses Practical Quantitation Limits (PQLs) as the concentration limits for VOCs, and the Shewart-CUSUM control chart for intra-well statistical analysis of inorganic monitoring parameters.

## **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 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 naturally occurring constituents, the Discharger shall use one of the statistical retesting procedures as required in Standard Monitoring Specification I.47 of the SPRRs.

If, after retesting, the presence of a 5-year COC is confirmed at any required sampling location, then as required by Monitoring Specification G.10, if it is deemed appropriate based on consideration of laboratory false-positives, the repeatability of detections and the effectiveness of that COD in providing an early indication of a potential release, then that constituent shall be added to the Monitoring Parameters section in Tables I through IV, and shall be analyzed on a semi-annual basis for all future sampling events. If the Discharger does not think it appropriate to add that COC to the Monitoring Parameters list, then the Discharger shall submit a technical report describing the rationale for not adding it. The Executive Officer must agree with the Discharger's rationale.

## **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 current point of compliance monitoring wells are as follows:

<u>Fill Area</u>	<u>Point of Compliance Monitoring Wells</u>
Fill Area 1	MW-2A, MW-4A, MW-5A, MW-6, MW-7, E-05, E-07, E-23, E-20B
Fill Area 2	Phases I and II: MW-14, PC-6BR, UD-1* Phases III and IV: 13A, 13B, UD-1*
Surface Impoundment SI-1	MW-15B, MW-16, MW-17, and MW-18

\*UD-1 is a moving point that shall always be at the downgradient edge of waste in Fill Area 2, as the unit is expanded in phases.

## 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 that it has performed data analysis and whether in accordance with Title 27 section 20420(i) it has determined whether there is "measurably significant" evidence of a release from any WMU. 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: Original Signed By Andrew Altevogt for  
PAMELA C. CREEDON, Executive Officer

27 October 2016  
(Date)

**TABLE I  
GROUNDWATER MONITORING PROGRAM**

**Field Parameters**

<b>Parameter<sup>2</sup></b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency<sup>6, 7</sup></b>	<b>Reporting Frequency</b>
Groundwater Elevation	GWELEV	Ft. & 100ths, M.S.L.	Quarterly <sup>1</sup>	Semiannual
Temperature	TEMP	°C	Semiannual	Semiannual
Specific Conductance	SC	umhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Turbidity	TURB	NTU	Semiannual	Semiannual

**Monitoring Parameters<sup>3</sup>**

Total Dissolved Solids	TDS	mg/L <sup>4</sup>	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Chemical Oxygen Demand	COD	mg/L	Semiannual	Semiannual
Bicarbonate as CaCO <sub>3</sub>	BICACO <sub>3</sub>	mg/L	Semiannual	Semiannual
Nitrogen, Kjeldahl, Total	KN	mg/L	Semiannual	Semiannual
Sulfate	SO <sub>4</sub>	mg/L	Semiannual	Semiannual
Calcium (dissolved)	CA	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (See Table V)	(See Table V)	ug/L <sup>5</sup>	Semiannual	Semiannual

**Supplemental Parameters<sup>2</sup>**

Nitrogen, Nitrate (as N)	NO <sub>3</sub> N	mg/L	Semiannual	Semiannual
Magnesium (dissolved)	MG	mg/L	Semiannual	Semiannual
Manganese (dissolved)	Mn	mg/L	Semiannual	Semiannual
Potassium (dissolved)	K	mg/L	Semiannual	Semiannual
Sodium (dissolved)	NA	mg/L	Semiannual	Semiannual
Sulfide	S	mg/L	Semiannual	Semiannual

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

Total Organic Carbon (TOC)	TOC	mg/L	5 years	Nov. 2020
Inorganics (dissolved)	See Table VI	ug/L	5 years	and every
Volatile Organic Compounds	See Table VI	ug/L	5 years	5 years
Semi-Volatile Organic Compounds	See Table VI	ug/L	5 years	thereafter
Chlorophenoxy Herbicides	See Table VI	ug/L	5 years	
Organophosphorus Compounds	See Table VI	ug/L	5 years	

<sup>1</sup> The Discharger shall monitor groundwater elevation at least quarterly including the times during the year of expected highest and lowest elevations of the water levels in the wells. Groundwater elevation for all groundwater monitoring points shall be reported using a common datum e.g. NAVD88.

<sup>2</sup> Field and Supplemental parameters are collected for informational purposes to document groundwater conditions at the time of sampling, and are not included in statistical analysis.

<sup>3</sup> The Discharger shall apply the statistical analyses described in Section C.4 of this MRP to the inorganic monitoring parameters included on this list.

<sup>4</sup> Milligrams per liter

<sup>5</sup> Micrograms per liter

**TABLE I (Continued)**  
**GROUNDWATER DETECTION MONITORING PROGRAM**

- <sup>6</sup> MW-1B, MW-2B, MW-2C, MW-3C, MW-4B, MW-5B, MW-8B, PC-1B, PC-1C shall be monitored in 2016 for all of the COCs listed in this Table including 5 year COCs. Subsequent sampling events will be completed every 5 years beginning in 2020 and include the 5-year COCs, as detailed in Section A.1.
- <sup>7</sup> Currently, wells MW-9, PC-2A, PC-2C, P-2, WM-2, ARC-2 are not sampled. The Discharger shall initiate semiannual sampling in wells MW-9, PC-2A, PC-2C, P-2, WM-2, ARC-2 to propose a WQPS prior to placement in associated future WMUs, as detailed in Section A.1.

**TABLE II**  
**UNSATURATED ZONE DETECTION MONITORING PROGRAM**

**GAS MONITORING**

**Monitoring Parameters**

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Volatile Organic Compounds <sup>1</sup> (Use USEPA Method TO-15)	(See Table V)	ug/cm <sup>3</sup>	Annual	Annual
Methane	CH4	% by volume	Semiannual	Semiannual
Carbon Dioxide	CO <sub>2</sub>	% by volume	Semiannual	Semiannual
Oxygen	OXYGEN	% by volume	Semiannual	Semiannual
Remainder gas		% by volume	Semiannual	Semiannual
Gas Flow rate <sup>2</sup>		CFM	Semiannual	Semiannual

**LYSIMETERS, LEAK DETECTION SYSTEM, UNDERDRAINS**

**Field Parameters**

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Presence/Absence of Liquid			Monthly	Semiannual
Specific Conductance	SC	umhos/cm	Monthly	Semiannual
pH	PH	pH units	Monthly	Semiannual
Volume of liquid removed		gallons	Monthly	Semiannual
Flow from underdrains		gallons	monthly	Semiannual

**Monitoring Parameters**

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Total Dissolved Solids	TDS	mg/L	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Carbonate as CaCO <sub>3</sub>	CACO <sub>3</sub>	mg/L	Semiannual	Semiannual
Bicarbonate as CaCO <sub>3</sub>	BICACO <sub>3</sub>	mg/L	Semiannual	Semiannual
Nitrogen, Nitrate (as N)	NO <sub>3</sub> N	mg/L	Semiannual	Semiannual
Sulfate	SO <sub>4</sub>	mg/L	Semiannual	Semiannual
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual

<sup>1</sup> The Discharger may prescreen the gas sample to determine if the sample is required to be laboratory analyzed using Method TO-15 by using an approved gas analyzer to establish methane concentrations or an approved Photo Ionization Detector (PID) to establish total VOCs concentrations at the sampling point. If while using an approved sampling and analysis plan procedure the Discharger detects methane concentrations exceeding 1.0 percent by volume OR organic vapors (total VOCs) are detected with a PID at a concentration greater than 1.0 ppm then a gas sample shall be obtained and laboratory analyzed for specific 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.

<sup>2</sup> Does not apply to LFG probes.

**TABLE II (Continued)**

**UNSATURATED ZONE DETECTION MONITORING PROGRAM**

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Manganese	MN	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Pentachlorophenol	PCP	ug/L	Annual	Annual
Arsenic (dissolved)	AS	ug/L	Annual	Annual
Copper (dissolved)	CU	ug/L	Annual	Annual
Chromium (dissolved)	CR	ug/L	Annual	Annual
Volatile Organic Compounds <sup>1</sup> (in liquid matrix) (See Table V)	(See Table V)	ug/L	Semiannual	Semiannual
Methane	CH4	%	Semiannual	Semiannual
Carbon Dioxide	CO <sub>2</sub>	%	Semiannual	Semiannual
Oxygen	OXYGEN	%	Semiannual	Semiannual

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

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Total Organic Carbon (TOC)	TOC	mg/L	5 years	Nov. 2020
Inorganics (dissolved)	See Table VI	ug/L	5 years	and every
Volatile Organic Compounds	See Table VI	ug/L	5 years	5 years
Semi-Volatile Organic Compounds	See Table VI	ug/L	5 years	thereafter
Chlorophenoxy Herbicides	See Table VI	ug/L	5 years	
Organophosphorus Compounds	See Table VI	ug/L	5 years	

**TABLE III**  
**LEACHATE MONITORING, GAS CONDENSATE MONITORING, SEEP MONITORING,**  
**AND CLASS II SURFACE IMPOUNDMENT MONITORING**

**Field Parameters**

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Presence of liquid	--	Yes/No	Monthly	Semiannual
Flow Rate	FLOW	Gallons/Month	Monthly	Semiannual
Specific Conductance	SC	umhos/cm	Monthly <sup>1</sup>	Semiannual
pH	PH	pH units	Monthly <sup>1</sup>	Semiannual

**Monitoring Parameters**

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Total Dissolved Solids	TDS	mg/L	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Carbonate as CaCO <sub>3</sub>	CACO <sub>3</sub>	mg/L	Semiannual	Semiannual
Bicarbonate as CaCO <sub>3</sub>	BICACO <sub>3</sub>	mg/L	Semiannual	Semiannual
Nitrogen, Nitrate (as N)	NO <sub>3</sub> N	mg/L	Semiannual	Semiannual
Sulfate	SO <sub>4</sub>	mg/L	Semiannual	Semiannual
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual
Manganese	MN	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Pentachlorophenol	PCP	ug/L	Semiannual	Semiannual
Sulfide	S	mg/L	Semiannual	Semiannual
Arsenic (dissolved)	AS	ug/L	Annual	Annual
Copper (dissolved)	CU	ug/L	Annual	Annual
Chromium (dissolved)	CR	ug/L	Annual	Annual
Volatile Organic Compounds (See Table V)	(See Table V)	ug/L	Semiannual	Semiannual

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

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Total Organic Carbon (TOC)	TOC	mg/L	5 years	Nov. 2020
Inorganics (dissolved)	See Table VI	ug/L	5 years	and every
Volatile Organic Compounds	See Table VI	ug/L	5 years	5 years
Semi-Volatile Organic Compounds	See Table VI	ug/L	5 years	thereafter
Chlorophenoxy Herbicides	See Table VI	ug/L	5 years	
Organophosphorus Compounds	See Table VI	ug/L	5 years	

<sup>1</sup> Monthly for seeps, semiannually for everything else

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

**Field Parameters**

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency<sup>1</sup></b>	<b>Reporting Frequency</b>
Specific Conductance	SC	umhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Dissolved Oxygen	DOSAT	% Saturation	Semiannual	Semiannual
Turbidity	TURB	Turbidity units	Semiannual	Semiannual
Temperature	TEMP	°C	Semiannual	Semiannual
Discharge to Waters of U.S.		Yes or No	Each storm event <sup>2</sup>	Semiannual

**Monitoring Parameters**

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Total Dissolved Solids	TDS	mg/L	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Carbonate as CaCO <sub>3</sub>	CaCO <sub>3</sub>	mg/L	Semiannual	Semiannual
Bicarbonate as CaCO <sub>3</sub>	BICaCO <sub>3</sub>	mg/L	Semiannual	Semiannual
Nitrogen, Nitrate (as N)	NO <sub>3</sub> N	mg/L	Semiannual	Semiannual
Sulfate	SO <sub>4</sub>	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 (See Table V)	(See Table V)	ug/L	Semiannual	Semiannual

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

<b>Parameter</b>	<b>Geotracker Code</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
Total Organic Carbon (TOC)	TOC	mg/L	5 years	Nov 2020
Inorganics (dissolved)	See Table VI	ug/L	5 years	and every
Volatile Organic Compounds	See Table VI	ug/L	5 years	5 years
Semi-Volatile Organic Compounds	See Table VI	ug/L	5 years	thereafter
Chlorophenoxy Herbicides	See Table VI	ug/L	5 years	
Organophosphorus Compounds	See Table VI	ug/L	5 years	

<sup>1</sup> Semiannual surface water monitoring is required at a minimum of twice per year when there is water present in the designated surface water monitoring points at the beginning and the end of the wet season (15 October through 15 May). Reporting shall include whether there was flow from the facility to waters of the U.S. (as defined as the confluence of the storm water drainage course and a waterway identified on USGS maps) when the samples were collected.

<sup>2</sup> Monitor after each storm event, and report whether or not there is a discharge to waters of the U.S.

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

**Surrogates for Metallic Constituents:**

<u>Analyte Description</u>	<u>Geotracker Code</u>
pH	PH
Total Dissolved Solids	TDS
Specific Conductance	SC
Chloride	CL
Sulfate	SO4
Nitrogen, Nitrate (as N)	NO3N

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

<u>Analyte Description</u>	<u>Geotracker Code</u>
Acetone	ACE
Acrylonitrile	ACRAMD
Benzene	BZ
Bis(2-ethylhexyl)phthalate	BIS2EPH
Bromochloromethane	BRCLME
Bromodichloromethane	BDCME
Bromoform	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane	CLEA
Chloroform	TCLME
Dibromochloromethane	DBCME
1,2-Dibromo-3-chloropropane	DBCP
1,2-Dibromoethane	EDB
1,2-Dichlorobenzene	DCBZ12
1,3-Dichlorobenzene	DCBZ13
1,4-Dichlorobenzene	DCBZ14
trans-1,4-Dichloro-2-butene	DCBE14T
Dichlorodifluoromethane	FC12
1,1-Dichloroethane	DCA11
1,2-Dichloroethane	DCA12
1,1-Dichloroethene	DCE11
cis-1,2-Dichloroethene	DCE12C
trans-1,2-Dichloroethene	DCE12T
1,2-Dichloropropane	DCPA12
cis-1,3-Dichloropropene	DCP13C
trans-1,3-Dichloropropene	DCP13T
Di-isopropyl ether (DIPE)	DIPE
Ethanol (EtOH)	ETHANOL
Ethyl tert-butyl ether (ETBE)	ETBE

**TABLE V (Continued)**

**Volatile Organic Compounds, short list (continued)**

<b><u>Analyte Description</u></b>	<b><u>Geotracker Code</u></b>
Ethylbenzene	EBZ
2-Hexanone	HXO2
Hexachlorobutadiene	HCBU
Bromomethane	BRME
Chloromethane	CLME
Dibromomethane	DBMA
Dichloromethane	DCMA
2-Butanone	MEK
Methyl iodide	IME
Methyl-tert-butyl ether (MTBE)	MTBE
4-Methyl-2-pentanone	MIBK
Naphthalene	NAPH
Styrene	STY
tert-Amyl methyl ether (TAME)	TAME
tert-Butyl alcohol (TBA)	TBA
1,1,1,2-Tetrachloroethane	TC1112
1,1,2,2-Tetrachloroethane	PCA
Tetrachloroethene (PCE)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1-Trichloroethane	TCA111
1,1,2-Trichloroethane	TCA112
Trichloroethene (TCE)	TCE
Trichlorofluoromethane	FC11
1,2,3-Trichloropropane	TCPR123
Vinyl acetate	VA
Vinyl chloride	VC
Xylenes	XYLENES

**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	7131A	BE
Cadmium	6010	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, Total	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	ACCN
Acrolein	ACRL
Acrylonitrile	ACRAMD
Allyl chloride	CLPE3
Benzene	BZ
Bromochloromethane	BRCLME
Dibromochloromethane	DBCME
Bromoform	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane	CLEA
Chloroform	TCLME
2-Chloro-1,3-butadiene (Chloroprene)	CHLOROPRENE
Dibromochloromethane	DBCME
1,2-Dibromo-3-chloropropane	DBCP
1,2-Dibromoethane	EDB

**TABLE VI (Continued)**

**Volatile Organic Compounds, extended list (continued)**

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
1,2-Dichlorobenzene	DCBZ12
1,3-Dichlorobenzene	DCBZ13
1,4-Dichlorobenzene	DCBZ14
trans-1,4-Dichloro-2-butene	DCBE14T
Dichlorodifluoromethane	FC12
1,1-Dichloroethane	DCA11
1,2-Dichloroethane	DCA12
1,1-Dichloroethene	DCE11
cis-1,2-Dichloroethene	DCE12C
trans-1,2-Dichloroethene	DCE12T
1,2-Dichloropropane	DCPA12
1,3-Dichloropropane	DCPA13
2,2-Dichloropropane	DCPA22
1,1-Dichloropropene	DCP11
cis-1,3-Dichloropropene	DCP13C
trans-1,3-Dichloropropene	DCP13T
Di-isopropyl ether (DIPE)	DIPE
Ethanol (EtOH)	ETHANOL
Ethyl tert-butyl ether (ETBE)	ETBE
Ethylbenzene	EBZ
Ethyl methacrylate	EMETHACRY
Hexachlorobutadiene	HCBU
2-Hexanone	HXO2
Isobutanol	ISOBTOH
Methacrylonitrile	METHACRN
Bromomethane	BRME
Chloromethane	CLME
2-Butanone	MEK
Methyl iodide	IME
Methyl-tert-butyl ether (MTBE)	MTBE
Methylmethacrylate	MMETHACRY
4-Methyl-2-pentanone	MIBK
Dibromomethane	DBMA
Dichloromethane	DCMA
Naphthalene	NAPH
Propionitrile	PACN
Styrene	STY
tert-Amyl methyl ether (TAME)	TAME
tert-Butyl alcohol (TBA)	TBA
1,1,1,2-Tetrachloroethane	TC1112
1,1,2,2-Tetrachloroethane	PCA

**TABLE VI (Continued)**

**Volatile Organic Compounds, extended list (continued)**

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
Tetrachloroethene (PCE)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1-Trichloroethane	TCA111
1,1,2-Trichloroethane	TCA112
Trichloroethene (TCE)	TCE
Trichlorofluoromethane	FC11
1,2,3-Trichloropropane	TCPR123
Vinyl acetate	VA
Vinyl chloride	VC
Xylenes	XYLENES

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

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
Acenaphthene	ACNP
Acenaphthylene	ACNPY
Acetophenone	ACPHN
2-Acetylaminofluorene	ACAMFL2
Aldrin	ALDRIN
4-Aminobiphenyl	AMINOBP4
Anthracene	ANTH
Benzo(a)anthracene	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	BIS2CEE
Bis(2-chloroisopropyl)ether	BIS2CIE
4-Bromophenyl phenyl ether	BPPE4
Benzyl butyl phthalate	BBP
Chlordane	CHLORDANE
4-Chloroaniline	CLANIL4
Chlorobenzilate	CLBZLATE

**TABLE VI (Continued)**

**Semi-Volatile Organic Compounds (continued)**

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
4-Chloro-3-methylphenol	C4M3PH
2-Chloronaphthalene	CNPH2
2-Chlorophenol	CLPH2
4-Chlorophenyl phenyl ether	CPPE4
Chrysene	CHRYSENE
2-Methylphenol (o-Cresol)	MEPH2
3-methylphenol	MEPH3
4-Methylphenol (p-Cresol)	MEPH4
4,4'-DDD	DDD44
4,4'-DDE	DDE44
4,4'-DDT	DDT44
Diallate (cis- or trans-)	DIALLATE
Dibenzo(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	DMP24
Dimethyl phthalate	DMPH
1,3-Dinitrobenzene	DNB13
2-Methyl-4,6-dinitrophenol	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

**TABLE VI (Continued)**

**Semi-Volatile Organic Compounds (continued)**

<u>COC Description</u>	<u>Geotracker Code</u>
Heptachlor	HEPTACHLOR
Heptachlor epoxide	HEPT-EPOX
Hexachlorobenzene	HCLBZ
Hexachlorocyclopentadiene	HCCP
Hexachloroethane	HCLEA
Hexachloropropene	HCPR
Indeno(1,2,3-cd)pyrene	INP123
Isodrin	ISODRIN
Isophorone	ISOP
Isosafrole	ISOSAFR
Kepone	KEP
Methapyrilene	MTPYRLN
Methoxychlor	MTXYCL
3-Methylcholanthrene	MECHLAN3
Methyl methanesulfonate	MMSULFN
2-Methylnaphthalene	MTNPH2
1,4-Naphthoquinone	NAPHQ14
1-Naphthylamine	AMINONAPH1
2-Naphthylamine	AMINONAPH2
2-Nitroaniline	NO2ANIL2
3-Nitroaniline	NO2ANIL3
4-Nitroaniline	NO2ANIL4
Nitrobenzene	NO2BZ
2-Nitrophenol	NTPH2
4-Nitrophenol	NTPH4
n-Nitroso-di-n-butylamine	NNSBU
N-Nitrosodiethylamine	NNSE
N-Nitrosodimethylamine	NNSM
N-Nitrosodiphenylamine	NNSPH
n-Nitrosodi-n-propylamine	NNSPR
N-Nitrosomethylethylamine	NNSME
N-Nitrosopiperidine	NNSPPRD
N-Nitrosopyrrolidine	NNSPYRL
5-Nitro-o-toluidine	TLDNONT5
Pentachlorobenzene	PECLBZ
Pentachloronitrobenzene	PECLNO2BZ
Pentachlorophenol	PCP
Phenacetin	PHNACTN
Phenanthrene	PHAN
Phenol	PHENOL
1,4-Phenylenediamine	ANLNAM4
Polychlorinated biphenyls (PCBs)	PCBS

**TABLE VI (Continued)**

**Semi-Volatile Organic Compounds (continued)**

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
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
o,o,o-Triethyl phosphorothioate	TEPTH
1,3,5-Trinitrobenzene	TNB135

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

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
2,4-D (2,4-Dichlorophenoxyacetic acid)	24D
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)	DINOSEB
Silvex (2,4,5-Trichlorophenoxypropionic acid;	SILVEX
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	245T

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

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
Atrazine	ATRAZINE
Chlorpyrifos	CLPYRIFOS
Thionazine	ZINOPHOS
Diazinon	DIAZ
Dimethoate	DIMETHAT
Disulfoton	DISUL
Parathion methyl	PARAM
Parathion ethyl	PARAE
Phorate	PHORATE
Simazine	SIMAZINE

**TABLE VII**

**LANDFILL GAS (LFG) CORRECTIVE ACTION MONITORING PROGRAM**

<b>Parameter</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
<b>LFG Extraction Well Field</b> (See Section A.6 for monitoring locations)			
<u>Gas concentrations at each well</u>			
Methane	% by volume	Monthly	Semiannually
Carbon Dioxide	% by volume	Monthly	Semiannually
Oxygen	% by volume	Monthly	Semiannually
Remainder gas	% by volume	Monthly	Semiannually
Gas Temperature at each well	°F	Monthly	Semiannually
Gas Flow rate	CFM	Monthly	Semiannually
<u>Gas Pressure at each well</u>			
Initial static pressure in wellhead	inches H <sub>2</sub> O	Monthly	Semiannually
Adjusted static pressure in wellhead	inches H <sub>2</sub> O	Monthly	Semiannually

**TABLE VIII  
WATER QUALITY PROTECTION STANDARD**

This table lists the concentration limits as of October 2016. These values are updated every two years in accordance with Section C.1.

Monitoring Parameters		Alkalinity, bicarbonate (as CaCO <sub>3</sub> )	Calcium-dissolved	Chemical Oxygen Demand (COD)	Chloride	Nitrogen, total Kjeldahl	Sulfate	Total Dissolved Solids (TDS)	VOCs (Method 8260B)
Well	Unit	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
E-05*	1	1248	TBD	46	571	6.01	208	1,903	MDL
E-07*	1	817	TBD	55	700	1.69	66	1,926	MDL
E-23*	1	820	TBD	104	345	1.53	109	1,392	MDL
MW-2A*	1	656	TBD	13	162	2.24	427	2,709	MDL
MW-5A*	1 & SI-2	487	TBD	38	1805	2.67	568	3,480	MDL
MW-6*	1	596	TBD	15	138	1.0	194	1,782	MDL
MW-7*	1	951	TBD	20	624	1.55	605	2,273	MDL
MW-4A	1 & 2	480	68,789	10	321	0.57	290	1,375	MDL
MW-8A	2, SI-1	362	72,041	10	206	0.5	150	889	MDL
MW-8B	2, SI-1	346	66,213	10	200	0.5	125	905	MDL
MW-9	2	958	28,883	10	232	0.65	88	1,324	MDL
MW-10	2	599	33,429	10	227	2.7	232	1,324	MDL
MW-13B	2	354	71,083	11	138	0.5	170	719	MDL
MW-14	2	250	58,427	39	319	0.83	179	829	MDL
PC-1B	1 & 2	762	4,046	46	270	2.4	14.5	1,374	MDL
PC-1C	1 & 2	492	108,351	18	191	0.77	212	994	MDL
PC-2A	2, SI-1	353	68,462	10	178	0.6	132	792	MDL
WM-2	2	784	35,775	21	311	1.6	215	1,314	MDL

\* Well installed after placement of waste  
TBD - To be determined  
VOCs- Volatile Organic Compounds