

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2013-XXX  
FOR  
CORRECTIVE ACTION, POSTCLOSURE MAINTENANCE, AND  
SURFACE IMPOUNDMENT OPERATIONS  
NEVADA COUNTY DEPARTMENT OF PUBLIC WORKS  
MCCOURTNEY ROAD LANDFILL  
CLASS III LANDFILLS AND CLASS II SURFACE IMPOUNDMENTS  
NEVADA 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 contained in California Code of Regulations, title 27, section 20005, et seq. (hereafter Title 27), Waste Discharge Requirements (WDRs) Order No. R5-2013-XXXX, and the Standard Provisions and Reporting Requirements for Industrial Facilities (SPRRs) dated September 2003. 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 detection and corrective action monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone in accordance with the monitoring and response to release provisions (i.e., Sections IX and X) of the SPRRs and monitoring specifications (i.e., Section H) of the WDRs. All groundwater monitoring wells at which detection monitoring is conducted and/or along the Point of Compliance of a unit shall constitute Monitoring Points under the Water Quality Protection Standard. All groundwater monitoring wells, unsaturated zone monitoring devices, leachate, and surface water Monitoring Points shall be sampled and analyzed for monitoring parameters and Constituents of Concern (COCs) 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 (MRP). This MRP includes the following monitoring programs for each unit at the site:

**1. Groundwater Monitoring**

The Discharger shall operate and maintain groundwater monitoring systems that comply with the provisions of Title 27, sections 20415 through 20430, as applicable to the waste management units at the site. All groundwater monitoring systems shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The landfill units are currently in corrective action monitoring and the surface impoundments are currently in detection monitoring.

a. The groundwater monitoring points shall be as follows:

i. Landfill Unit 1

Table A.1.a.i Landfill Unit 1 Monitoring Wells			
<u>Program</u>	<u>Well</u>	<u>Zone</u>	<u>Location</u>
Background	MW-19	Upper	South
	DW-2	Lower	West
Corrective Action	MWs -A. 4, &17	Upper	North
	4A	Lower	
	MWs-2, 14, &16	Upper	Northeast
	MWs-5, 6, 13, 20A, & 22 <sup>1</sup>	Upper	East
	6A, 20B	Lower	
Detection	MWs-3, 9 &11 <sup>1</sup>	Upper	South

1. The groundwater monitoring points shall include all future wells installed at the unit per WDR Provision J.5.e (or as otherwise required to comply with Title 27 requirements), as approved by Central Valley Water Board staff.

ii. Landfill Unit 2

Table A.1.a.ii Landfill Unit 2 Monitoring Wells			
<u>Program</u>	<u>Well</u>	<u>Zone</u>	<u>Location</u>
Background	PZ-115	Upper	South
	DW-2	Lower	West
Corrective Action	DW-1	Upper	North
	PZ-105	Upper	East
	PZ-103	Lower	East

iii. Class II Surface Impoundments (contiguously monitored)

Table A.1.a.iii Surface Impoundment Monitoring Wells			
<u>Program</u>	<u>Well</u>	<u>Zone</u>	<u>Location</u>
Background	MW-3	Upper	North-NW
	DW-2	Lower	West-SW
Detection	--- <sup>1</sup>	Upper	East

1. The groundwater monitoring points shall include all future wells installed at the unit per WDR Provision J.6.e (or as otherwise required to comply with Title 27 requirements), as approved by Central Valley Water Board staff.

b. Monitoring Schedule

Monitoring at each unit shall include field parameter testing and groundwater sampling. Groundwater samples shall be collected and analyzed in accordance with the following schedule using the applicable test methods for each constituent listed in Table C.3 attached to this Order.

Table A.1.b Groundwater Monitoring Schedule – All Units			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Groundwater Elevation <sup>1</sup>	Feet & 100ths, MSL	Quarterly	Semiannually
Temperature	oF	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Bicarbonate Alkalinity	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Total Dissolved Solids (TDS)	mg/L	Semiannually	Semiannually
Volatile Organic Compounds (VOCs)	ug/L	Semiannually	Semiannually
<u>Constituents of Concern</u> (See Table C.3 below)		Every 5 years	Every 5 years

The Discharger shall measure the groundwater elevation in each well quarterly, determine groundwater flow direction, and estimate groundwater flow rates in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation monitored. The results shall be reported 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). Groundwater samples shall be collected semiannually from the background wells, detection monitoring wells, corrective action monitoring wells as applicable to each unit, and any additional wells added as part of the approved groundwater monitoring system. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

**2. Unsaturated Zone Monitoring**

The Discharger shall operate and maintain unsaturated zone detection and corrective action monitoring systems at the landfill units and surface impoundments that comply with the applicable provisions of Title 27, sections 20415 through 20430. The unsaturated zone monitoring system at the site shall consist of soil-pore water and soil-pore gas monitoring, as specified below.

a. Landfill Units

The soil-pore water monitoring network for the closed landfill units at the site shall consist of the following:

Table A.2.a Unsaturated Zone Monitoring Points – Landfill Units			
<u>Unit</u>	<u>Program</u>	<u>Lysimeter</u>	<u>Location</u>
Landfill Unit 1	Background	---	---
	Corrective Action	LY-3	NW perimeter
		LYs-1, 2, & 4	Eastern perimeter
		LVs-1 to 4	89-90 Cell LCRS line
Landfill Unit 2	Background	LV-7	SW of unit
	Corrective Action	----	----

b. Class II Surface Impoundments

The soil-pore water monitoring network for the two Class II surface impoundments at the site shall consist of the following:

Table A.2.b Unsaturated Zone Monitoring Points – Surface Impoundments			
<u>Unit</u>	<u>Program</u>	<u>Lysimeter</u>	<u>Location</u>
SI-1	Background	L-1	NE of SI-1
	Detection	LS-11 to 15; & LS-17 to 19	Beneath SI-1
		LS-2 & 3; LS-5 to 10	SI-1 perimeter
SI-2	Background	LV-14	Between SI-1 & SI-2
	Detection	LV-13	Beneath SI-2

c. Monitoring Schedule

Soil-pore water samples shall be collected from the monitoring network listed above and analyzed in accordance with the following schedule using the applicable test methods for each constituent listed in Table C.3 attached to this Order.

Table A.2.c Soil-Pore Water Monitoring Schedule -- All Units			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Bicarbonate Alkalinity	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
TDS	mg/L	Semiannually	Semiannually
Volatile Organic Compounds	ug/L	Semiannually	Semiannually
<u>Constituents of Concern</u> (See Table C.3 below)		Every 5 years	Every 5 years

**3. Surface Water Monitoring**

The Discharger shall operate a surface water detection monitoring system for any facility where runoff from waste management unit 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.

a. Ephemeral Stream

As noted in the WDRs, the landfill was sited in a ravine with an ephemeral stream running through it. Storm water that once fed the stream is now captured by the landfill's storm water drainage system and discharged to the landfill's sedimentation basins. Spring water that once fed the stream is captured by subdrain interceptor piping and pumped with leachate to the above-ground tank farm for temporary storage pending offsite disposal. Upstream surface water monitoring at the site is therefore infeasible and downstream flows consist primarily of discharges from the sedimentation basins. Monitoring of the ephemeral stream is therefore not required under this MRP. Surface water monitoring at the site may therefore be limited to storm water monitoring.

b. Storm Water

The Discharger shall monitor storm water runoff to the landfill perimeter sedimentation basins prior to discharge to ephemeral stream east of the facility.

i. Monitoring Points

The storm water monitoring points for the facility are:

Table A.3.b.i Storm Water Monitoring Points – All Units		
<u>Monitoring Point</u>	<u>Status</u>	<u>Location</u>
SW-101	Detection	East Sedimentation Basin (SB-E)
SW-102	Detection	South Sedimentation Basin 2 (SB-S2)
SW-103	Detection	North Sedimentation Basin (SB-N)
SW-104	Background	Northwest
SW-105	Background	Southeast

ii. Monitoring Schedule

Storm water samples shall be collected at each of the above monitoring points and analyzed in accordance with the following schedule using the applicable test methods for each constituent listed in Table C.3 attached to this Order.

Table A.3.b.ii Storm Water Monitoring Schedule – All Units			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Temperature	°F	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
<u>Constituents of Concern</u> (See Table C.3 below)		Every 5 years	Every 5 years

Storm water monitoring shall also be conducted in accordance with the NPDES General Storm Water Permit for Industrial Activities required under Storm Water Specification D.4 of the WDRs.

The above monitoring system meets Title 27 requirements for surface water detection monitoring.

**4. Surface Impoundment**

Surface impoundment monitoring shall be conducted in accordance with the following schedule. Samples collected from each impoundment shall be analyzed using the applicable test methods listed in Table C.3 attached to this Order.

Table A.4 - Surface Impoundment Monitoring			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Freeboard	feet and tenths	Weekly <sup>1</sup>	Semiannually
Flow In <sup>2</sup>	gallons	Monthly	Semiannually
Flow Out <sup>2</sup>	gallons	Monthly	Semiannually
Net Flow <sup>3</sup>	gallons	Monthly	Semiannually
Change in Freeboard	feet and tenths	Monthly	Semiannually
Remaining Capacity (excluding freeboard)	gallons	Monthly	Semiannually
Remaining volume stored	gallons	Monthly	Semiannually
pH	pH units	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Total Dissolved Solids	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
Dissolved Metals <sup>4</sup>	ug/L	Semiannually	Semiannually
VOCs <sup>4</sup>	ug/L	Semiannually	Semiannually
<u>Constituents of Concern<sup>4</sup></u> (See Table C.3 below)		Every 5 years	Every 5 years

- 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.
- Flow into or out of the Class II surface impoundment as measured and recorded at totalizing meter.
- Difference between calculated (or estimated) inflow and outflow.

4. Monitoring and reporting for these constituents not required at SI-2 nor at SI-1 where flow monitoring (i.e., under this Section and Section A.6 below) indicates that the impoundment contains only inert liquids.

**5. LCRS Monitoring, Action Leakage Rate, and Annual LCRS Testing**

The Discharger shall operate and maintain the leachate collection and recovery system (LCRS) sumps and conduct leachate monitoring of each unit in accordance with Title 27, applicable WDR specifications, and this monitoring program.

- a. Closed Landfill Units

The LCRS monitoring points for the closed landfill units shall be:

Table A.5.c LCRS Monitoring Points – Landfill Units			
<u>Unit</u>	<u>Monitoring Point</u>	<u>Source</u>	<u>Liquid</u>
Landfill Unit 1	PS-1	OLM and 89-90 Cell subdrain piping	Leachate mixed with groundwater
Landfill Unit 2	PS-2	90-91 Cell Sump	Leachate

All LCRS sumps shall be inspected monthly for the presence of leachate, and flow shall be recorded in accordance with the following table. 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 A.5.c. Leachate in the LCRS sump shall then be sampled for all parameters and constituents in accordance with the frequencies listed in the following table whenever liquid is present.

The Discharger shall also monitor the landfill final cover for the presence of leachate seeps. Any observed leachate seepage shall be sampled upon detection and analyzed for the Field and Monitoring Parameters listed in Table A.5.c. 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.

- b. Class II Surface Impoundments

The LCRS monitoring points for the Class II surface impoundments shall be the LCRS sumps for each impoundment. LCRS monitoring of a surface impoundment is required during all monitoring periods in which there is liquid in the impoundment. The monitoring schedule shall be the same as for the closed landfill units, except where noted in Table A.5.c below. If monthly monitoring of the flow rate into a surface impoundment LCRS shows an exceedance of the Action Leakage Rate required by the WDRs, the Discharger shall follow the procedures in the WDRs under “B. Discharge Specifications”.

c. Monitoring Schedule

Table A.5.c LCRS Monitoring Schedule – All Units			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u>			
Presence of leachate/liquid	observation	Monthly	Semiannually
Flow Rate <sup>1</sup>	gallons/day	Monthly	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
<u>Monitoring Parameters</u>			
Bicarbonate Alkalinity	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
TDS	mg/L	Semiannually	Semiannually
VOCs <sup>2</sup>	ug/L	Semiannually	Semiannually
Dissolved Metals <sup>2</sup>	ug/L	Semiannually	Semiannually
<u>Constituents of Concern<sup>2</sup></u> (See Table C.3 below)		Every 5 years	Every 5 years

1. For surface impoundments, the flow rate shall be the flow in gallons per day pumped from the LCRS sump back to surface impoundment.
2. Monitoring and reporting for these constituents not required at SI-2..
3. Monitoring and reporting for these constituents not required at SI-1 where impoundment contains only inert liquids as verified by flow monitoring under this section and Section A.6 below.

**Annual Testing:** All landfill and surface impoundment 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

**6. Liquids Discharge Monitoring**

In addition to leachate monitored under Section A.5 above, the Discharger shall monitor flows of all other liquid wastes generated and discharged at the site, including, but not necessarily limited to, landfill subdrain liquid, groundwater from de-watering wells, impacted groundwater, LFG condensate, septage and chemical toilet waste, contact storm water, and MRF/transfer station washwater.

a. Monitoring Locations

The monitoring locations shall be the pump stations or other locations where

the flow is measured or estimated, as outlined in the table below.

Table A.6 Liquids Discharge Monitoring Points				
<u>Monitoring Point</u>	<u>Monitoring Device</u>	<u>Source</u>	<u>Waste Type</u>	<u>Destination</u>
PS-1	Inflow Meter 1 <sup>1</sup>	Toe buttress drain	Leachate & groundwater	PS-1
	Inflow Meter 2 <sup>1</sup>	OLM interceptor trenches & 89-90 Cell LCRS	Leachate and LFG condensate	PS-1
	Outflow Meter <sup>1</sup>	PS-1	Leachate, groundwater & LFG condensate	Central manhole
PS-2	Outflow Meter <sup>2</sup>	90-91 Cell LCRS	Leachate	Central manhole
PS-3	Outflow Meter <sup>2</sup>	90-91 Cell Interceptor trench & LFG condensate line	Leachate and LFG condensate	Central manhole
90-91 Cell Subdrain Sump	Field Estimate	90-91 Cell Subdrain	Groundwater	PS-2
PS-4	Outflow Meter <sup>3</sup>	MRF/Transfer Station	Washwater	Central manhole
Septage Vault	Field Estimate	Facility buildings	Septage and chemical toilet waste	Central manhole
Central manhole	Meter or valve <sup>4</sup>	Any or all of above		Tank Farm/SI-1
SI-2	Meter or valve <sup>4</sup>	PW-1	Groundwater	SI-2

1. Automatic meter displaying cumulative flow.
2. Manual meter -- managed by maintenance technician when pumping.
3. Timed metering measuring seconds of flow and converting to gallons.
4. Monitoring device not yet installed.

b. Monitoring Schedule

<b>Other Waste Discharge Monitoring</b>			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring</u>	<u>Reporting</u>

		<u>Frequency</u>	<u>Frequency</u>
Type of Liquid	---	---	---
Location of Discharge	---	---	---
Quantity Discharged	Gallons	Monthly	Monthly
Average Flow Rate	Gallons per day	Monthly	Monthly

**7. Facility Monitoring**

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for 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. Five-Year Iso-Settlement Survey for Closed Units

By **1 June 2016**, and every five years thereafter, the Discharger shall conduct an iso-settlement survey for closed landfill units and produce an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover’s engineered soil 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. All final cover surveys shall be conducted in accordance with WDR Closure and Postclosure Specification F.1.i.

d. Standard Observations

The Discharger shall conduct Standard Observations at the landfill in accordance with this section of the MRP. Standard observations shall be conducted monthly during the wet season (1 October to 30 April) and quarterly during the dry season (1 May to 30 September). Results of

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

**8. Additional Corrective Action Monitoring**

a. Soil-Pore Gas Monitoring

i. Landfill Units

Soil-pore gas monitoring shall be conducted to monitor LFG migration and the effectiveness of landfill gas control measures. The soil-pore gas monitoring system shall consist of the following:

Table A.8.a.i Soil-Pore Gas Monitoring Points – Landfill Units		
<u>Unit</u>	<u>Piezometer</u>	<u>Gas Well/Probe</u>
Landfill Unit 1	PZ-105 <sup>1</sup>	OPs-4 <sup>1</sup> , 5, & 9 <sup>2</sup>
		OPs-6, 7, 8, 10, 11, & 12 <sup>3</sup>
Landfill Unit 2	PZs-100, 101, 102, 105 <sup>1</sup> , 113, & 116	OPs-1, 2, & 4 <sup>1,2</sup>
		OP-3 <sup>3</sup>
Site Perimeter	---	P-6 through P-9
		Ps-1, 2, 3, 4, 5, 10, 11, & 12 <sup>3</sup>

1. Monitoring point common to both units (separate sampling for each unit not required)
2. All wells in this row have double (shallow and deep)-nested probes.
3. All wells in this row have triple (shallow, middle, and deep)-nested probes.

ii. Monitoring Schedule

Soil-pore gas samples shall be collected from the monitoring network listed above and analyzed in accordance with the following schedule and corresponding test methods for each constituent listed in Table C.3 attached to this Order.

Table A.8.a.ii Soil-Pore Gas Monitoring Schedule			
<u>Parameters</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
<u>Field Parameters</u> <sup>1</sup>			
Methane	%	Semiannually	Semiannually
Carbon Dioxide	%	Semiannually	Semiannually
Organic Vapors	ppm	Semiannually	Semiannually
<u>Monitoring Parameters</u>			

Volatile Organic Compounds <sup>2,3</sup>	µg/cm <sup>2</sup>	Semiannually	Semiannually
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1. Field gas monitoring shall be conducted using appropriate field meter(s)
2. VOC sampling shall be required in all probes in which meter results show total organic vapors above 50 ppbv during the current monitoring event.
3. VOC analysis shall be conducted using USEPA Method TO-15.

**b. Landfill Gas Extraction System**

The Discharger shall sample the landfill gas extraction system to assess the effectiveness of the system in removing landfill gas from the landfill as a corrective action measure. Gas samples shall be collected from an appropriate location at each unit (e.g., manifold port or flare inlet) and analyzed for all parameters and constituents consistent with the following schedule:

<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
LFG extraction rate	cu ft/min	Monthly	Semiannually
LFG Composition <sup>1</sup>	---	Monthly	Semiannually
Total VOCs removed during year <sup>2</sup>	lbs/yr	Annually	Annually
Cumulative VOCs removed <sup>2</sup>	lbs	Annually	Annually

1. Monitoring shall include all Table A.8.a.ii field and monitoring parameters, as applicable to active extraction system.
2. Amounts shall be calculated or estimated per approved monitoring plan.

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 the monitoring reports submitted under this Order and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

**B. REPORTING**

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

<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.1	Semiannual	30 June, 31 December	<b>1 August, 1 February</b>

	Monitoring Report		
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>By 30 June 2016 and every 5 years thereafter</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 No. R5-2013-XXX and the SPRR, particularly the monitoring and response to release provisions (i.e., WDR Section H and SPRR Sections IX and X). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format, such as a computer disk.

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

The results of **all monitoring** conducted under this Order, and of all monitoring of the offsite domestic wells described in Finding 48 conducted by the Discharger outside of this Order, 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:

1. 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;

2. Date, time, and manner of sampling;
3. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
5. Calculation of results; and
6. Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

### **Required Reports**

#### **1. Semiannual Monitoring Report**

Monitoring reports shall be submitted semiannually and are due on **1 August** and **1 February**. Each semiannual monitoring report shall contain at least the following:

- a. For each groundwater monitoring point addressed by the report, a description of:
  - 1) The time of water level measurement;
  - 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
  - 3) The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
  - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
  - 5) A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.
- b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
- c. The estimated quarterly groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations taken prior to the collection of the water quality data submitted in the report [Title 27, section 20415(e)(15)].
- d. Cumulative tabulated monitoring data for all monitoring points and

constituents for groundwater, 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 IX, *Provisions for Monitoring*, 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 Section J: Response to a Release for verified exceedances of a concentration limit.
- g. An evaluation of the effectiveness of run-off/run-on control facilities.
- h. A summary of all Standard Observations for the reporting period required in Section A.7.d of this MRP.
- i. 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 Closure and Post-Closure Specifications F.1.g through F.1.j of the WDRs.
- j. Copies of monitoring reports or monitoring data for any groundwater monitoring conducted at the site or in nearby offsite wells (including those domestic wells listed in Finding 48) not required under this Order.

## 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 plotting mean values. Graphical

analysis of monitoring data may be used to provide significant evidence of a release.

- b. An evaluation of the monitoring parameters with regards to the cation/anion balance, and a graphical presentation using a Stiff diagram, a Piper graph, or a Schoeller plot.
- c. All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27, section 20420(h)], that facilitates periodic review by the Central Valley Water Board.
- d. Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.
- e. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
- f. A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
- g. The results of the annual testing of leachate collection and removal systems required under Facility Specification VI.O of the SPRRs.
- h. Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.
- i. A comprehensive discussion of any Corrective Action Program required by this MRP.

### 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 A.5.c 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.7.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.7.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). See WDR Closure and Postclosure Specification F.1.i and MRP Section A.7.c herein. The first report under this Order is due by **30 June 2016**.

## 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.

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 unrelated to waste management activities at the site, the Discharger may request a further modification of the Water Quality Protection Standard.

The Water Quality Protection Standard under this Order shall therefore be as set forth in the revised Water Quality Protection Standard Report submitted under WDR Provision J.7, as approved by Central Valley Water Board staff. Once approved, the Water Quality Protection Standard shall be updated annually as warranted, using new and historical background monitoring data and approved data analysis methods.

## 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 each respective medium (i.e., groundwater, soil-pore water, and surface water) at all waste management units are those listed in the monitoring schedule tables in Sections A.1 through A.3.

## 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 at least every five years [Title 27, sections 20395 and 20420(g)]. The COCs for all waste management units at the facility are those listed in Table C.3 below. The last COC monitoring event under previous WDRs was conducted in

November 2011 and reported in the *2011 Annual Monitoring Report* submitted to the Central Valley Water Board in February 2013. The first five-year COC monitoring event under this Order shall therefore be conducted by November 2016 and reported in the 2016 annual monitoring report due by **31 January 2017**.

#### 4. **Concentration Limits**

As noted in WDR Finding 55, the Discharger does not yet have an approved list of concentration limits for monitoring. The proposed concentration limits for monitoring for all media shall therefore be included in the Revised Water Quality Protection Standard Report required under WDR Provision J.7.

For a naturally occurring (i.e., statistical) 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).

#### Groundwater

Detection Monitoring - The concentration limits for non-statistical constituents of concern (e.g., VOCs) shall be non-detect. The concentration limits for statistical constituents of concern (e.g., inorganics) shall be determined based on an interwell monitoring procedure using upgradient or sidegradient monitoring data, unless the Discharger is able to demonstrate to the satisfaction of the Executive Officer that an intrawell approach is more representative of background conditions at the site due to the presence of significant spatial variability in the groundwater geochemistry not attributable to a release from the unit.

Corrective Action Monitoring -- The concentration limits for corrective action monitoring shall be the same as those for detection monitoring absent approval of a proposal for concentration limits greater than background (CLGBs) under Title 27 Section 20400(c) and revision of the WDRs. An intrawell statistical procedure (e.g., the Sens Slope Method) shall be used for trend analysis to monitor corrective action progress.

#### Unsaturated Zone

Concentration limits for naturally occurring constituents in the unsaturated zone shall be developed based on a representative background lysimeter (e.g., sufficiently far from the unit so as not to be affected by a release from it) at each unit or, where applicable, historical data predating the placement of waste in the unit.

Surface Water

Concentration limits for naturally occurring constituents in surface water shall be developed based on a representative background monitoring point upstream of the facility.

**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 H.18 of the WDRs, 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 Monitoring Specification H.19 of the WDRs.
- 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 Monitoring Specification H.20 of the WDRs.

**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 down gradient limit of the Unit that extends through the uppermost aquifer underlying the unit. The following are the Point of Compliance monitoring wells:

<u>Unit</u>	<u>Point of Compliance Monitoring Wells</u>
Unit 1	MW-11--- <sup>1</sup>
Unit 2	PZ-105
SI-1	--- <sup>2</sup>
SI-2	--- <sup>3</sup>

- 1. Additional Point of Compliance wells required for this unit per WDR Provision J.5.e.
- 2. Point of Compliance well required for this Unit per Provision J.6.e.
- 3. Unit contiguously monitored with SI-1.

**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 at 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

\_\_\_\_\_

JDM

**TABLE C.3  
 CONSTITUENTS OF CONCERN  
 & APPROVED USEPA ANALYTICAL METHODS**

**General Minerals**

	<b>USEPA Method</b>
Bicarbonate	2320B
Calcium	200.7/600
Carbonate	2320B
Chloride	300
Magnesium	200.7/600
Nitrate – Nitrogen	300
Potassium	200.7/600
Sodium	200.7/600
Sulfate	300
Total Dissolved Solids	2540C

**Volatile Organic Compounds:**

**USEPA Method 8260B**

Acetone  
 Acetonitrile (Methyl cyanide)  
 Acrolein  
 Acrylonitrile  
 Allyl chloride (3-Chloropropene)  
 Benzene  
 Bromochloromethane (Chlorobromomethane)  
 Bromodichloromethane (Dibromochloromethane)  
 Bromoform (Tribromomethane)  
 Carbon disulfide  
 Carbon tetrachloride  
 Chlorobenzene  
 Chloroethane (Ethyl chloride)  
 Chloroform (Trichloromethane)  
 Chloroprene  
 Dibromochloromethane (Chlorodibromomethane)  
 1,2-Dibromo-3-chloropropane (DBCP)  
 1,2-Dibromoethane (Ethylene dibromide; EDB)  
 o-Dichlorobenzene (1,2-Dichlorobenzene)  
 m-Dichlorobenzene (1,3-Dichlorobenzene)  
 p-Dichlorobenzene (1,4-Dichlorobenzene)  
 trans- 1,4-Dichloro-2-butene  
 Dichlorodifluoromethane (CFC 12)

1,1 -Dichloroethane (Ethylidene chloride)  
1,2-Dichloroethane (Ethylene dichloride)  
1,1 -Dichloroethylene (1, 1-Dichloroethene; Vinylidene chloride)  
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)  
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)  
1,2-Dichloropropane (Propylene dichloride)  
1,3-Dichloropropane (Trimethylene dichloride)  
2,2-Dichloropropane (Isopropylidene chloride)  
1,1 -Dichloropropene  
cis- 1,3-Dichloropropene  
trans- 1,3-Dichloropropene  
Di-isopropylether (DIPE)  
Ethanol  
Ethyltertiary butyl ether  
Ethylbenzene  
Ethyl methacrylate  
Hexachlorobutadiene  
2-Hexanone (Methyl butyl ketone)  
Isobutyl alcohol  
Methacrylonitrile  
Methyl bromide (Bromomethane)  
Methyl chloride (Chloromethane)  
Methyl ethyl ketone (MEK; 2-Butanone)  
Methyl iodide (Iodomethane)  
Methyl t-butyl ether  
Methyl methacrylate  
4-Methyl-2-pentanone (Methyl isobutyl ketone)  
Methylene bromide (Dibromomethane)  
Methylene chloride (Dichloromethane)  
Naphthalene  
Propionitrile (Ethyl cyanide)  
Styrene  
Tertiary amyl methyl ether  
Tertiary butyl alcohol  
1,1,1,2-Tetrachloroethane  
1,1,1,2,2-Tetrachloroethane  
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)  
Toluene  
1,2,4-Trichlorobenzene  
1,1,1 -Trichloroethane (Methylchloroform)  
1,1,2-Trichloroethane  
Trichloroethylene (Trichloroethene; TCE)  
Trichlorofluoromethane (CFC- 11)  
1,2,3-Trichloropropane  
Vinyl acetate  
Vinyl chloride (Chloroethene)  
Xylene (total)

**Inorganics (dissolved):**

**USEPA Method**

Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	7131A
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	7062
Lead	7421
Mercury	7470A
Nickel	7521
Selenium	7742
Thallium	7841
Cyanide	9010C
Sulfide	9030B

**Semi-Volatile Organic Compounds:**

**USEPA Method 8270D - base, neutral, & acid extractables**

Acenaphthene  
Acenaphthylene  
Acetophenone  
2-Acetylaminofluorene (2-AAF)  
Aldrin  
4-Aminobiphenyl  
Anthracene  
Benzo[a]anthracene (Benzanthracene)  
Benzo[b]fluoranthene  
Benzo[k]fluoranthene  
Benzo[g,h,i]perylene  
Benzo[a]pyrene  
Benzyl alcohol  
Bis(2-ethylhexyl) phthalate  
alpha-BHC  
beta-BHC  
delta-BHC  
gamma-BHC (Lindane)  
Bis(2-chloroethoxy)methane  
Bis(2-chloroethyl) ether (Dichloroethyl ether)  
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)  
4-Bromophenyl phenyl ether  
Butyl benzyl phthalate (Benzyl butyl phthalate)  
Chlordane

p-Chloroaniline  
Chlorobenzilate  
p-Chloro-m-cresol (4-Chloro-3-methylphenol)  
2-Chloronaphthalene  
2-Chlorophenol  
4-Chlorophenyl phenyl ether  
Chrysene  
o-Cresol (2-methylphenol)  
m-Cresol (3-methylphenol)  
p-Cresol (4-methylphenol)  
4,4'-DDD  
4,4'-DDE  
4,4'-DDT  
Diallate  
Dibenz[a,h]anthracene  
Dibenzofuran  
Di-n-butyl phthalate  
3,3'-Dichlorobenzidine  
2,4-Dichlorophenol  
2,6-Dichlorophenol  
Dieldrin  
Diethyl phthalate  
p-(Dimethylamino)azobenzene  
7,12-Dimethylbenz[a]anthracene  
3,3'-Dimethylbenzidine  
2,4-Dimehtylphenol (m-Xylenol)  
Dimethyl phthalate  
m-Dinitrobenzene  
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)  
2,4-Dinitrophenol  
2,4-Dinitrotoluene  
2,6-Dinitrotoluene  
Di-n-octyl phthalate  
Diphenylamine  
Endosulfan I  
Endosulfan II  
Endosulfan sulfate  
Endrin  
Endrin aldehyde  
Ethyl methanesulfonate  
Famphur  
Fluoranthene  
Fluorene  
Heptachlor  
Heptachlor epoxide  
Hexachlorobenzene  
Hexachlorocyclopentadiene  
Hexachloroethane  
Hexachloropropene  
Indeno(1,2,3-c,d)pyrene  
Isodrin  
Isophorone

Isosafrole  
Kepone  
Methapyrilene  
Methoxychlor  
3-Methylcholanthrene  
Methyl methanesulfonate  
2-Methylnaphthalene  
1,4-Naphthoquinone  
1-Naphthylamine  
2-Naphthylamine  
o-Nitroaniline (2-Nitroaniline)  
m-Nitroaniline (3-Nitroaniline)  
p-Nitroaniline (4-Nitroaniline)  
Nitrobenzene  
o-Nitrophenol (2-Nitrophenol)  
p-Nitrophenol (4-Nitrophenol)  
N-Nitrosodi-n-butylamine (Di-n-butylNitrosamine)  
N-Nitrosodiethylamine (DiethylNitrosamine)  
N-Nitrosodimethylamine (DimethylNitrosamine)  
N-Nitrosodiphenylamine (DiphenylNitrosamine)  
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylNitrosamine)  
N-Nitrosomethylethylamine (MethylethylNitrosamine)  
N-Nitrosopiperidine  
N-Nitrosopyrrolidine  
5-Nitro-o-toluidine  
Pentachlorobenzene  
Pentachloronitrobenzene (PCNB)  
Pentachlorophenol  
Phenacetin  
Phenanthrene  
Phenol  
p-Phenylenediamine  
Polychlorinated biphenyls (PCBs; Aroclors)  
Pronamide  
Pyrene  
Safrole  
1,2,4,5-Tetrachlorobenzene  
2,3,4,6-Tetrachlorophenol  
o-Toluidine  
Toxaphene  
2,4,5-Trichlorophenol  
0,0,0-Triethyl phosphorothioate  
sym-Trinitrobenzene

**Chlorophenoxy Herbicides:**

**USEPA Method 8151A**

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

## **Organophosphorus Compounds:**

### **USEPA Method 8141B**

Atrazine  
Chlorpyrifos  
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)  
Diazinon  
Dimethoate  
Disulfoton  
Methyl parathion (Parathion methyl)  
Parathion  
Phorate  
Simazine