

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-201X-XXXX
FOR
SHASTA COUNTY AND THE CITY OF REDDING

FOR OPERATION AND CORRECTIVE ACTION
WEST CENTRAL CLASS III MUNICIPAL SOLID WASTE LANDFILL
AND CLASS II SURFACE IMPOUNDMENT
SHASTA COUNTY

This monitoring and reporting program (MRP) is issued pursuant to California Water Code section 13267 and incorporates requirements for groundwater, surface water, and unsaturated zone monitoring and reporting; facility monitoring, maintenance, and reporting; and financial assurances reporting contained in California Code of Regulations, Title 27, section 20005, et seq. (hereafter Title 27), Waste Discharge Requirements (WDRs) Order No. R5-201X-XXXX, and the Standard Provisions and Reporting Requirements (SPRRs) dated January 2012. 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 corrective action monitoring program provisions of Title 27 for groundwater and the detection monitoring program provisions of Title 27 for surface water and the unsaturated zone in accordance with Standard Monitoring Specifications in Section I of the SPRRs and the Monitoring Specifications in Section G of the WDRs. All monitoring shall be conducted in accordance with an approved Sample Collection and Analysis Plan, which includes quality assurance/quality control standards.

All compliance monitoring wells (existing wells and any new wells installed as necessary) shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All 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) 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.

The monitoring program of this MRP includes:

<u>Section</u>	<u>Monitoring Program</u>
A.1	Groundwater Monitoring
A.2	Unsaturated Zone Monitoring
A.3	Leachate Monitoring, Seep Monitoring, and LCRS Testing
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 applicable provisions of Title 27, sections 20415 and 20430. The groundwater monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The current groundwater monitoring system meets the applicable requirements of Title 27. The Discharger shall review the adequacy of the groundwater monitoring system as needed each time a new landfill sub-Unit or Unit is constructed. Additional groundwater monitoring points will be added (after review and approval by Central Valley Water Board staff), as necessary to meet the requirements of Title 27. The current groundwater monitoring network consists of the following:

Well No.	Casing	Total Depth	Screen Interval	Well Type
MW-2	2" PVC	50 ft bgs	22 to 50 ft bgs	Compliance
MW-6A	6" Steel	19 ft bgs	13 to 19 ft bgs	Compliance
MW-6B	4" PVC	45 ft bgs	19 to 39 ft bgs	Compliance
MW-9	4" PVC	120 ft bgs	95 to 115 ft bgs	Compliance
MW-10	4" PVC	40 ft bgs	20 to 40 ft bgs	Compliance
MW-12	4" PVC	130 ft bgs	100 to 130 ft bgs	Background
MW-17	4" PVC	160 ft bgs	135 to 160 ft bgs	Compliance
MW-18	4" PVC	120 ft bgs	100 to 120 ft bgs	Compliance
MW-19	4" PVC	90 ft bgs	60 to 90 ft bgs	Background
MW-20	4" PVC	40 ft bgs	25 to 40 ft bgs	Compliance

ft bgs = feet below ground surface

Groundwater samples shall be collected from all wells listed in the table above, and any additional wells added as part of the approved groundwater monitoring system. The collected samples shall be analyzed for the parameters and constituents listed in Table I in accordance with the specified methods and frequencies. The Discharger shall collect, preserve, and transport groundwater samples in accordance with an approved Sample Collection and Analysis Plan.

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

Samples collected for the COC monitoring specified in Table I shall be collected and analyzed in accordance with the methods listed in Table VI every five years. Five-year COCs were last monitored in January 2013 and shall be monitored again in **January 2018**. The results shall be reported in the semiannual monitoring report for the respective period in which the samples were collected and the Annual Monitoring Report for the same year, as required in Sections B.1 and B.2 of this MRP.

2. **Unsaturated Zone Monitoring**

Unsaturated zone monitoring is not practical beneath the Phase 1 and Phase 2 Units at West Central Landfill due to the presence of shallow groundwater. Monitoring of underdrain systems beneath these Units provides early detection for releases of waste from the Units. Additionally, there is no unsaturated zone monitoring device located beneath the Class II surface impoundment base liner system. However, a leak detection system is installed between the geomembrane and clay liner of the impoundment, which provides for early detection of a release from the Unit (see Leak Detection System Monitoring in section A.3 below). For future Class II surface impoundments (and new Class III Units when practical), the Discharger is required to install a pan lysimeter or other type of unsaturated zone monitoring device beneath the lowest point of the Unit in order to provide for the earliest possible detection of a release.

The Phase 1 Underdrain and the Phase 2 Unit 1-2 Underdrain have been impacted by releases of waste from their respective Units. The Phase 1 Underdrain is connected to the Phase 1 Underdrain Wet Well, which pumps accumulated liquid to the Leachate Wet Well, and ultimately the Class II surface impoundment. The Phase 2 Unit 1-2 Underdrain has sporadic and minimal discharge, which is inspected weekly with liquids manually transferred to the Class II surface impoundment. **This MRP requires the Discharger to collect a sample from the Phase 1 Underdrain and the Phase 2 Unit 1-2**

underdrain (if sufficient volume becomes available for sampling purposes) in accordance with the methods and frequencies listed in Table II. The Discharger shall also continue weekly inspections of the Phase 2 Unit 1-2 Underdrain and continue transferring accumulated liquid to the Class II surface impoundment to prevent backup within the system. The total monthly flow from each underdrain system shall be monitored and reported in each semiannual monitoring report. The Phase 2 Unit 3-4 Underdrain has never had liquid present for monitoring purposes.

Upon detection of any liquids in the Phase 2 Unit 3-4 Underdrain or any previously dry pan lysimeter installed beneath a new Class II surface impoundment or Class III Unit, the Discharger shall collect samples for laboratory analyses of all Field Parameters, Monitoring Parameters, and COCs listed in Table II. **The Phase 2 Unit 3-4 Underdrain, and any pan lysimeter installed beneath a classified Unit shall be inspected monthly for the presence of liquid.** If liquid is detected in any of the monitoring devices described above, then the Discharger shall immediately notify Central Valley Water Board staff of the detection, and then follow up with written notification of the detection within seven days. The notification shall indicate that samples have been collected and shipped for laboratory analyses.

If the Discharger installs suction lysimeters beneath any classified Unit at the landfill, then samples shall be collected and analyzed for the Field Parameters, Monitoring Parameters, and COCs listed in Table II in accordance with the methods and frequencies specified. Unsaturated zone sampling results shall be reported in the semiannual monitoring report for the respective period in which the samples were collected and the Annual Monitoring Report for the same year, as required in Sections B.1 and B.2 of this MRP.

3. Leachate Monitoring, Leak Detection System Monitoring, Leachate Seep Monitoring, Annual LCRS Testing, and Class II Surface Impoundment Monitoring

Leachate Monitoring: The Discharger shall collect samples and monitor the flow of leachate **from each Unit's LCRS** in accordance with the methods and frequencies listed in Table III. Sampling and flow monitoring shall occur before leachate is commingled at the Leachate Wet Well and the Class II surface impoundment. Currently, only the Phase 2 Unit LCRS is producing leachate. The Phase 1 Unit LCRS has not generated leachate in over 10 years.

The Phase 2 Unit LCRS shall be sampled in accordance with the methods and frequencies listed in Table III. Upon detection of liquid in the Phase I Unit LCRS, a sample shall be collected and analyzed for all Field Parameters, Monitoring Parameters, and COCs in accordance with the methods listed in Table III. After collection of the initial sample from the Phase 1 Unit LCRS, sampling frequencies shall return to those prescribed in Table III.

Leak Detection System Monitoring: The sub-Unit 2-3 leak detection system (LDS) was connected to the Leachate Main Line in 2006 due to the presence of leachate in the LDS. This MRP requires monitoring of the flow from the sub-Unit 2-3 LDS (if possible), and reporting the total monthly flow in each semiannual monitoring report required in Section B.1 of this MRP and Annual Monitoring Report required in Section B.2 of this MRP.

Additionally, leachate has been sporadically observed in the Phase 2 sub-Unit 4A leak detection system (LDS). However, the sub-Unit 4A LDS is not currently connected to the Phase 2 Unit Leachate Main Line. Instead, leachate must be collected manually and transported to the Class II surface impoundment for storage and evaporation. **This MRP requires the Discharger to inspect the sub-Unit 4A LDS weekly for liquids.** The total monthly volume of leachate collected from the LDS shall be reported in each semiannual monitoring report required in Section B.1 of this MRP and Annual Monitoring Report required in Section B.2 of this MRP.

The Class II surface impoundment (Unit 3) leak detection system sump shall be inspected for the presence of leachate monthly with the results reported in each semiannual monitoring report required in Section B.1 of this MRP. Any liquid detected in the Class II surface impoundment leak detection system sump shall be sampled immediately for the Field Parameters, Monitoring Parameters, and COCs listed in Table III. The Discharger shall also immediately notify Central Valley Water Board staff that leachate has been detected in a previously dry leak detection system sump, and then follow up with written notification within seven days of the detection. The notification shall indicate that samples have been collected. Results of the sampling shall be reported in the semiannual monitoring report for the respective period in which the samples were collected and the Annual Monitoring Report for the same year, as required in Sections B.1 and B.2 of this MRP.

If additional leak detection systems are installed during construction of new Units, then the LDSs shall be inspected weekly for the presence of liquids. Upon detection of liquid in a previously dry LDS, the Discharger shall collect a sample and analyze for all Field Parameters, Monitoring Parameters, and COCs listed in Table III and immediately notify Central Valley Water Board staff of the detection.

Seep Monitoring: Leachate that seeps to the surface from a landfill Unit shall be assessed and monitored. 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.

Annual LCRS Testing: The Discharger shall operate and maintain the LCRSs for the Phase 1 Unit and the Phase 2 Unit during the operational life of the

landfill and throughout the post-closure maintenance period. 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 required in Section B.2 below, and shall include comparisons with earlier tests made under comparable conditions.

Class II Surface Impoundment Monitoring: All visible portions of Class II surface impoundment synthetic flexible membrane liner shall be inspected weekly for damage and/or deteriorating condition during the operational life of the landfill and throughout the post-closure maintenance period, in accordance with Title 27, section 20375(f). Results of the weekly Class II surface impoundment liner inspections shall be included in each semiannual monitoring report required in Section B.1 of this MRP.

4. Storm Water Monitoring

The Discharger shall conduct additional storm water monitoring for locations where runoff from active landfill areas can flow to waters of the United States. At West Central Landfill, runoff from the active Phase 2 Unit flows to a series of storm water detention basins located in the west-to-east trending drainage below and downgradient of the Units, which flows to Dry Creek. Dry Creek is tributary to Cottonwood Creek and the Sacramento River.

Three monitoring points are required for the additional storm water monitoring described herein. The background or upgradient monitoring point shall be at the inlet of the storm water diversion channel located in the drainage that's west of the Phase 2 Unit on property recently acquired from the United States Bureau of Land Management. The compliance or downgradient monitoring point shall be at the outlet of the lower (eastern most) storm water detention pond located in the drainage east of the Phase 2 Unit prior to its discharge to Dry Creek. The third surface water monitoring point shall be the outlet of the storm water detention pond located directly east of the public self-haul transfer and recycling area. This third surface water monitoring point only needs to be sampled when there is a discharge from the pond.

Two storm water samples are required from each monitoring point (except for the storm water detention pond on the east side of the public transfer area which only needs to be sampled if there is a discharge) over the course of a wet weather season. The first sample should be collected during the first storm of the season that causes a discharge from the eastern most storm water detention pond located in the drainage east of the Phase 2 Unit. A second sample should be collected before the end of the wet weather season (if possible), but only if the detention pond is discharging. Storm water samples shall be analyzed for the Field Parameters, Monitoring Parameters, and COCs in accordance with methods and frequencies listed in Table IV. Results of

Storm Water Monitoring shall be provided in the semiannual monitoring reports required in Section B.1 of this MRP.

As of 1 July 2015, the Discharger is also subject to the requirements of State Water Resources Control Board's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated With Industrial Activities, Order NPDES No. CAS000001, DWQ-2014-0057 (Industrial Storm Water General Permit). The Discharger shall conduct all required monitoring and submit all required reports in accordance with provisions of the Industrial Storm Water General Permit.

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. 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. A major storm event is defined as a two-year 24-hour precipitation event of approximately 3.5 inches of rain, as shown on the NOAA Atlas 2, Volume XI Isopluvial Map. 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. 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)] created at the time of closure. Reporting shall be in accordance with Section B.6 of this MRP. An iso-settlement map for the Phase 1 Unit is due **by 1 November 2015**, and every five years thereafter.

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 in accordance with the following schedule:

<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 diversion structures near the active face (show affected area on map); and
 - b) Evidence of erosion and/or of day-lighted refuse.
- 2) Along the perimeter of the landfill units:
 - a) Evidence of leachate seeps, estimated size of affected area, and flow rate (show affected area on map); and
 - b) Evidence of erosion and/or of day-lighted refuse.
- 3) For receiving waters:
 - a) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area; and
 - b) Discoloration and turbidity - description of color, source, and size of affected area.

Results of Standard Observations shall be submitted 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 actions being implemented in accordance with Title 27, section 20430 and this MRP. In addition to the monitoring requirements described in parts A.1 through A.5 of this MRP, the Discharger shall also conduct the following corrective action monitoring:

a. Additional Groundwater and Leachate Monitoring

As noted in Table I, monitoring for **VOCs extended list** (analytes are listed on Table VI) is required at each groundwater sampling point annually during the first half of each year instead of the previously required five-year sampling frequency. Monitoring for **VOCs short list** (analytes are listed on Table V) is required at each groundwater sampling point annually during the second half of each year. As noted in Table III, monitoring for **VOCs extended list** is required at each LCRS sampling point annually instead of the previously required five-year sampling frequency. Monitoring for dissolved inorganics and polychlorinated biphenyls (PCBs) is required at each compliance (downgradient and crossgradient) groundwater monitoring point and the Phase 2 Unit LCRS monitoring point on an annual frequency, instead of the previously required five-year frequency. Background groundwater monitoring points MW-12 and MW-19 are required to be analyzed for dissolved inorganics and PCBs (PCB analysis using USEPA Method 8270) on the five-year sampling schedule.

The Discharger may request a reduction of the additional groundwater and leachate monitoring required under Corrective Action Monitoring above, no sooner than three years after completing partial final closure of the western part of the Phase 2 Unit, if monitoring data and trend analyses support the request. Results of the Additional Groundwater Monitoring shall be submitted in the semiannual monitoring reports required in Section B.1 of this MRP.

B. REPORTING

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

Reporting Schedule

<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.1	Semiannual Monitoring Report	30 June, 31 December	1 August, 1 February
B.2	Annual Monitoring Report	31 December	1 February

<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.3	Seep Reporting	Continuous	Immediately & 7 Days
B.4	Annual Facility Inspection Report	31 October	15 November
B.5	Major Storm Event Reporting	Continuous	7 days from damage discovery
B.6	Survey and Iso- Settlement Map for Closed Landfills	Every Five Years	At Closure Completion and Every Five Years
B.7	Financial Assurances Report	31 December	1 August

Reporting Requirements

The Discharger shall submit monitoring reports **semiannually** with the data and information required in this Monitoring and Reporting Program and as required in **WDRs Order No. R5-201X-XXX** and the Standard Provisions and Reporting Requirements (particularly Section I: "Standard Monitoring Specifications" and Section J: "Response to a Release"). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof.

The results of all monitoring conducted at the site shall be reported to the Central Valley Water Board. 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 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 maintenance period. Such records shall be legible and shall show the following for each sample:

- a) Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
- b) Date, time, and manner of sampling;
- c) Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;

- d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e) Calculation of results; and
- f) Results of analyses, and the MDL and PQL (or reporting limit - RL) 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 an 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. Units shall be as required in Tables I through IV unless specific justification is given to report in other units. Refer to the SPRRs Section I "Standard Monitoring Specifications" for requirements regarding MDLs and PQLs/RLs.
 - e) All historical monitoring data for which there are detectable results shall be submitted in tabular form.

- f) Laboratory statements of results of all analyses evaluating compliance with requirements, including the additional groundwater monitoring results required under Corrective Action Monitoring in Section A.6 of this MRP.
 - g) 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 established for the Water Quality Protection Standard, and the results of any required verification testing for constituents exceeding a concentration limit. Report any actions taken under Section J of the SPRRs: Response to a Release for verified exceedances of a concentration limit.
 - h) An evaluation of the effectiveness of the leachate monitoring and control facilities and Unit underdrain facilities including the Leachate Wet Well and the Phase 1 Unit Underdrain Wet Well, 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). Include results of the Class II surface impoundment geomembrane liner inspection required pursuant to Title 27, section 20375(f) and Section A.3 of this MRP.
 - i) Results of the Leak Detection System Monitoring required in Section A.3 of this MRP.
 - j) Semiannual Progress Reports required pursuant to Title 27, section 20430(h) assessing the effectiveness of the Corrective Action Program.
 - k) A summary of all Standard Observations for the reporting period required in Section A.5.d of this MRP.
 - l) 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.
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 semiannual 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.
 - 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 map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours, and include a projection of the year in which each discrete landfill module will be filled.
 - 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.
 - 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) A description of measures underway (or proposed) to control and correct the seep, and corresponding time schedule for completing remedial actions.

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, a description of preparations for winter including construction of a winter tipping pad, 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 shall **immediately** 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. A report for the Phase 1 Unit is due **by 1 November 2015**.
7. **Financial Assurances Report:** By **1 June** of each year, the Discharger shall submit a copy of the annual financial assurances report due to CalRecycle that updates the financial assurances for closure, post-closure maintenance, and corrective action. Refer to Financial Assurances Specifications F.1 through F.3 of the WDRs.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard Report

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

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

The report shall:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a waste management unit or portion of a unit. This list shall include at least the uppermost aquifer and

any permanent or ephemeral zones of perched groundwater underlying the facility.

- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with Title 27, section 20405.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
- d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and constituents of concern that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E).
- e. Include a retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415(e)(8)(E) and section 20420(j)(1-3).

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

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

2. Monitoring Parameters

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

3. Constituents of Concern (COCs)

The COCs include a larger group of waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the waste management unit, and are required to be

monitored every five years [Title 27, sections 20395 and 20420(g)]. The COCs for all waste management units at the facility are those listed in Tables I through IV for the specified monitored medium, and Table VI. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. The last 5-year COC sampling event was completed in January 2013. 5-year COCs are due to be monitored again in **January 2018**.

4. Concentration Limits

For a naturally occurring COC, the concentration limit shall be determined as follows:

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

5. Retesting Procedures for Confirming Evidence of a Release

If monitoring results indicate measurably significant evidence of a release, as described in Standard Monitoring Specification I.45 of the SPRRs, then:

- a. For analytes that are detected in less than 10% of the background samples (such as non-naturally occurring constituents), the Discharger shall use the non-statistical retesting procedure required in Standard Monitoring Specification I.46 of the SPRRs.
- b. For analytes that are detected in 10% or greater of the background samples (naturally occurring constituents), the Discharger shall use one of the statistical retesting procedure as required in Standard Monitoring Specification I.47 of the SPRRs.

6. Point of Compliance

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

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 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 violation(s) found since the last report was submitted, and indicate if the violations were corrected. If no violation(s) 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 violation(s) found since the last report was submitted, and a description of the actions taken or planned for correcting those violation(s), including any references to previously submitted time schedules, is contained in the accompanying report. The transmittal letter shall contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

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

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

(Date)

DPS

TABLE I
GROUNDWATER MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Field Parameters			
Groundwater Elevation	Ft. & 100ths, M.S.L.	Quarterly	Semiannual
Temperature	°F	Semiannual	Semiannual
Electrical Conductivity	umhos/cm	Semiannual	Semiannual
pH	pH units	Semiannual	Semiannual
Turbidity	Turbidity units	Semiannual	Semiannual
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L	Semiannual	Semiannual
Chloride	mg/L	Semiannual	Semiannual
Carbonate	mg/L	Semiannual	Semiannual
Bicarbonate	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual	Semiannual
Sulfate	mg/L	Semiannual	Semiannual
Calcium	mg/L	Semiannual	Semiannual
Magnesium	mg/L	Semiannual	Semiannual
Potassium	mg/L	Semiannual	Semiannual
Sodium	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (VOCs) (USEPA Method 8260B, short list, see Table V)	ug/L	Annual ¹	Annual
Constituents of Concern (see Table VI)			
VOCs (Method 8260, extended list)	ug/L	Annual ¹	Annual
Polychlorinated Biphenyls (PCBs) ² (USEPA Method 8082)	ug/L	Annual	Annual
Inorganics (dissolved) ²	ug/L	Annual	Annual
Total Organic Carbon	mg/L	5 years	2018 and every
Semi-Volatile Organic Compounds (USEPA Method 8270D)	ug/L	5 years	5 years thereafter
Chlorophenoxy Herbicides (USEPA Method 8151A)	ug/L	5 years	" "
Organophosphorus Compounds (USEPA Method 8141B)	ug/L	5 years	" "

¹ Annual VOC extended list samples (Table VI) shall be collected during the first half of each year and Annual VOC short list samples (Table V) shall be collected during the second half of each year.

² Annual sampling for PCBs and dissolved inorganics is required for all compliance groundwater monitoring wells. Background groundwater monitoring wells MW-12 and MW-19 are required to analyze for PCBs (using USEPA Method 8270) and dissolved inorganics on the regular 5-year sampling schedule.

TABLE II
UNSATURATED ZONE DETECTION MONITORING PROGRAM

PAN LYSIMETERS ¹ (or other vadose zone monitoring device)

<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u> ²	<u>Reporting Frequency</u>
Field Parameters			
Electrical Conductivity	umhos/cm	Annual	Annual
pH	pH units	Annual	Annual
Volume of liquid removed	gallons	Monthly	Semiannual
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L	Annual	Annual
Chloride	mg/L	Annual	Annual
Carbonate	mg/L	Annual	Annual
Bicarbonate	mg/L	Annual	Annual
Nitrate - Nitrogen	mg/L	Annual	Annual
Sulfate	mg/L	Annual	Annual
Calcium	mg/L	Annual	Annual
Magnesium	mg/L	Annual	Annual
Potassium	mg/L	Annual	Annual
Sodium	mg/L	Annual	Annual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)	ug/L	Annual	Annual
5-Year Constituents of Concern (see Table VI)			
Total Organic Carbon	mg/L	5 years	2018 and every
Inorganics (dissolved)	ug/L	5 years	5 years thereafter
Volatile Organic Compounds (USEPA Method 8260B, extended list)	ug/L	5 years	" "
Semi-Volatile Organic Compounds (USEPA Method 8270D)	ug/L	5 years	" "
Chlorophenoxy Herbicides (USEPA Method 8151A)	ug/L	5 years	" "
Organophosphorus Compounds (USEPA Method 8141B)	ug/L	5 years	" "

¹ Pan lysimeters shall be inspected for the presence of liquid monthly. If liquid is detected in a previously dry pan lysimeter, the Discharger shall immediately notify Central Valley Water Board staff of the detection and follow up in writing within seven days. The Discharger shall immediately sample and test the liquid for Field Parameters, Monitoring Parameters, and COCs listed in Table II above.

² Samples shall be collected from the Phase 1 Underdrain and the Phase 2 Uni1-2 Underdrain (if sufficient liquid volume is present for sampling purposes) in accordance with the methods and frequencies listed in Table II above.

TABLE III

**LEACHATE MONITORING, CLASS II SURFACE IMPOUNDMENT LINER INSPECTIONS,
 and LCRS TESTING**

<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Field Parameters			
Total Flow	Gallons	Monthly	Semiannual
Flow Rate	Gallons/Day	Monthly	Semiannual
Electrical Conductivity	umhos/cm	Quarterly	Semiannual
pH	pH units	Quarterly	Semiannual
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L	Annual	Annual
Chloride	mg/L	Annual	Annual
Carbonate	mg/L	Annual	Annual
Bicarbonate	mg/L	Annual	Annual
Nitrate - Nitrogen	mg/L	Annual	Annual
Sulfate	mg/L	Annual	Annual
Calcium	mg/L	Annual	Annual
Magnesium	mg/L	Annual	Annual
Potassium	mg/L	Annual	Annual
Sodium	mg/L	Annual	Annual
Volatile Organic Compounds (USEPA Method 8260B, extended list, see Table VI)	ug/L	Annual	Annual
Constituents of Concern (see Table VI)			
Polychlorinated Biphenyls (PCBs) ¹ (USEPA Method 8082)	ug/L	Annual ¹	Annual
Inorganics (dissolved) ¹	ug/L	Annual ¹	Annual
Total Organic Carbon	mg/L	5 years	2018 and every
Semi-Volatile Organic Compounds (USEPA Method 8270D)	ug/L	5 years	5 years thereafter
Chlorophenoxy Herbicides (USEPA Method 8151A)	ug/L	5 years	" "
Organophosphorus Compounds (USEPA Method 8141B)	ug/L	5 years	" "
Class II Surface Impoundment Liner Inspections		Weekly	Semiannually
LCRS Testing		Annually	Annually

¹ Annual samples for PCBs and Inorganics shall be collected from the Phase 2 Unit LCRS during the first half of each year. Sampling for these constituents from the Phase 1 Unit LCRS shall occur in accordance with the 5-year sampling schedule.

TABLE IV
ADDITIONAL STORM WATER MONITORING

<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u> ¹	<u>Reporting Frequency</u>
Field Parameters			
Electrical Conductivity	umhos/cm	Semiannual	Semiannual
pH	pH units	Semiannual	Semiannual
Turbidity	Turbidity units	Semiannual	Semiannual
Flow to Waters of U.S.	Yes or No	Semiannual	Semiannual
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L	Semiannual	Semiannual
Carbonate	mg/L	Semiannual	Semiannual
Bicarbonate	mg/L	Semiannual	Semiannual
Chloride	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual	Semiannual
Sulfate	mg/L	Semiannual	Semiannual
Calcium	mg/L	Semiannual	Semiannual
Magnesium	mg/L	Semiannual	Semiannual
Potassium	mg/L	Semiannual	Semiannual
Sodium	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)	ug/L	Semiannual	Semiannual
5-Year Constituents of Concern (see Table VI)			
Total Organic Carbon	mg/L	5 years	2018 and every
Inorganics (dissolved)	ug/L	5 years	5 years thereafter
Volatile Organic Compounds (USEPA Method 8260B, extended list)	ug/L	5 years	" "
Semi-Volatile Organic Compounds (USEPA Method 8270D)	ug/L	5 years	" "
Chlorophenoxy Herbicides (USEPA Method 8151A)	ug/L	5 years	" "
Organophosphorus Compounds (USEPA Method 8141B)	ug/L	5 years	" "

¹ Additional storm water monitoring shall occur as required in Section A.4 of this MRP. Sample results shall be included with each respective semiannual monitoring report for the reporting period in which samples were collected. Reporting shall also indicate whether there was flow from the facility to waters of the U.S. when the samples were collected.

TABLE V

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Electrical Conductivity
Chloride
Sulfate
Nitrate nitrogen

Volatile Organic Compounds, short list:

USEPA Method 8260B

Acetone
Acrylonitrile
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
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)
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
2-Hexanone (Methyl butyl ketone)
Hexachlorobutadiene
Methyl bromide (Bromomethene)
Methyl chloride (Chloromethane)

TABLE V
MONITORING PARAMETERS FOR DETECTION MONITORING

Continued

Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
4-Methyl-2-pentanone (Methyl isobutylketone)
Naphthalene
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane (Methylchloroform)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes

TABLE VI

Annual and 5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

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

Polychlorinated Biphenyls (PCBs): USEPA Method 8082

Volatile Organic Compounds, extended list:

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)

TABLE VI

Annual and 5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

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
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene

TABLE VI

Annual and 5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

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)

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)

TABLE VI

Annual and 5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

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-Dimethylphenol (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

TABLE VI

Annual and 5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

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

TABLE VI

Annual and 5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

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