

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-201X-XXXX
FOR
OROVILLE LANDFILL PROPERTIES, OROVILLE LANDFILL PROPERTIES LLC,
JACK M. STEEBLES LLC, CAROL ANN SEIDENGLANZ LLC,
AND STEVEN CONN SEIDENGLANZ LLC
FOR
CLEAN-CLOSURE OF
OROVILLE LANDFILL PROPERTIES CLASS III WOOD WASTE LANDFILL
BUTTE COUNTY

This monitoring and reporting program (MRP) is issued pursuant to California Water Code section 13267 and incorporates requirements for groundwater 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 detection monitoring program provisions of Title 27 for groundwater in accordance with applicable Standard Monitoring Specifications in Section I of the SPRRs and the Monitoring Specifications in Section G of the WDRs. All monitoring shall be conducted in accordance with the approved 27 September 2007 *Sample Collection and Analysis Plan* (and subsequent approved revisions), which includes quality assurance/quality control standards.

All compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as indicated and listed in Tables I, IV, and V.

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	Leachate Seep Monitoring
A.3	Detention Pond Surface Water Monitoring
A.4	Facility Monitoring

1. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with applicable provisions of Title 27, sections 20415 and 20420. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The current groundwater detection monitoring system meets the applicable requirements of Title 27. The Discharger shall revise the groundwater detection monitoring system (after review and approval by Central Valley Water Board staff) as needed.

The current groundwater monitoring network consists of the following:

Well ID	Installation Date	Total Depth	Screen Interval	Well Type
LF-1A	August 2000	138 ft ¹	115 – 135 ft bgs ²	Background
LF-2	June 1987	162 ft	138 – 158 ft bgs	Compliance
LF-4	June 1987	160 ft	129 – 159 ft bgs	Compliance
LF-5	June 1987	169 ft	138 – 168 ft bgs	Compliance

¹ft = feet

²bgs = below ground surface

Groundwater samples shall be collected from the background wells, detection monitoring wells, 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 the approved Sample Collection and Analysis Plan.

Once every six months, the Discharger shall measure the groundwater elevation in each well, determine groundwater flow direction, and calculate the groundwater gradient 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 V every five years. Five-year COCs were last monitored in second half of 2012 and shall be monitored again in the second half of 2017. The results shall be reported in the Annual Monitoring Report for the year in which the samples were collected.

2. Leachate Seep Monitoring

The Units at the landfill are all unlined, and there is no leachate collection and removal system. However, leachate seeps have been observed at the northwest corner of Unit 1. Additionally, seeps could occur in areas undergoing clean-closure activities or at recovered material stockpiles if they become saturated.

Leachate that seeps to the surface from a landfill unit or from recovered material stockpiles shall be sampled (if sufficient quantity exists) and analyzed for the Field Parameters, Monitoring Parameters, and Constituents of Concern listed in Table II upon detection. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons/day) and the seep location shall be shown on a site map. Reporting for leachate seeps shall be conducted as required in Section B.3 of this MRP, below. Corrective action for leachate seeps shall be implemented immediately to prevent contact with storm water. Long-term corrective action measures, such as excavating and re-compacting affected areas, should be implemented as soon as equipment can access seep locations.

3. Detention Pond Surface Water Monitoring

Three unlined storm water detention basins exist at the site. Pond 1 is located at the northwest corner of Unit 1, Pond 5 is located at the western edge of Unit 2, and Pond 7 is located at the southeast corner of the facility beyond the eucalyptus grove and sawdust application area. Surface drainage from the site and Units drains toward these three ponds. Discharges from these ponds are regulated in accordance with State Water Resources Control Board Water Quality Order No. 97-03-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit), Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities, WDID No. 5R04I019233.

Ponds located downgradient of Units undergoing clean-closure activities are most susceptible to impacts from runoff from active work areas. If storm water contacts waste within a Unit and transports waste constituents to a detention pond, then that water may need to be managed differently than non-contact storm water that accumulates in a detention pond located away from clean-closure activities. For this reason, this MRP requires additional surface water monitoring at ponds accumulating storm water from active work areas on-site.

Current clean-closure operations are proceeding in Unit 2. The Discharger indicates that clean-closure activities will continue in Unit 2 until all clean-closure actions are completed, including stabilization of the Unit after all verification sampling is completed. The Discharger will then move clean-closure activities to Unit 1 or Unit 4.

Site drainage patterns may change as clean-closure actions occur in each Unit. Additional detention and/or retention ponds may need to be constructed to control off-site discharges of storm water, especially in the vicinity of Units 1 and 4. If new ponds are necessary, the Discharger shall submit design plans with construction quality assurance plans, prepared by a California registered civil engineer or a certified engineering geologist, for Executive Officer review and approval at least 90 days prior

to planned construction. Construction for any new detention and/or retention pond shall be conducted in accordance with all applicable requirements of Title 27, WDR Order No. R5-2013-XXXX, and the SPRRs dated January 2012.

The Discharger shall monitor the three existing detention ponds, and any other detention and/or retention ponds added as part of the surface water monitoring program. Each detention pond shall be evaluated for the field parameters in accordance with the methods and frequencies specified in Table III. Wet weather season monitoring (**1 October through 30 April**) shall occur weekly, while dry season monitoring (**1 May through 30 September**) shall occur monthly.

In addition, ponds located downgradient of active work areas (Active Ponds) shall be monitored for the monitoring parameters and constituents of concern in accordance with the methods and frequencies listed in Table III. Currently, only Pond 5 requires sampling for the monitoring parameters and constituents of concern. As clean-closure activities proceed, additional pond sampling for monitoring parameters and constituents of concern may be required.

4. Facility Monitoring

a. Unit Clean-Closure Monitoring

The Discharger shall submit the following information with each corresponding Annual Monitoring Summary Report during which the information was collected:

- 1) Unit where clean-closure activities are occurring or have occurred;
- 2) Volume and type of material recovered from the Unit;
- 3) After processing, volume and type of feedstock recovered (e.g.: fines used for soil amendment, fines used for fuel bricks, oversized rock and wood pieces, material recovered for co-generation fuel, etc.);
- 4) Recovered material characterization and analytical data (Summary tables of results, laboratory data sheets, and Chain of Custody);
- 5) Identification of facilities receiving previously characterized recovered materials. Include facility name, location, owner, and volume of recovered material shipped to the facility. (e.g.: Cold Creek Compost, co-generation facility, other);
- 6) Volume of solid waste recovered from the Unit and hauled off-site for disposal (indicate final disposal facility receiving this waste).
- 7) Volume of recovered material currently stockpiled on-site;
- 8) A description of all actions taken to stabilize slopes;
- 9) Show locations of clean-closure operations, processing equipment, residual stockpiles, sample locations (if any) on a site map.

b. Unit Verification Sampling

Provide a Verification Sampling Report for each Unit where clean-closure activities have been completed in accordance with an approved Verification Sampling Plan.

c. 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. Major storm events are defined as a 24-hour storm with a two-year return frequency (2.80 inches of rain in a 24-hour period for this landfill). The Discharger shall perform all Standard Observations described below and take photos of any problem areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Section B.4 of this MRP.

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 weekly during the wet weather season (1 October through 30 April) and monthly during the dry weather season (1 May through 30 September). Results of the Standard Observations shall be included with each Semiannual Monitoring Report for the period in which the observations were made.

The Standard Observations shall include:

- 1) For the landfill units:
 - a) Evidence of ponded water at any point on the landfill (except for constructed storm water detention and/or retention ponds). Show affected area on a site map; and
 - b) Evidence of erosion and/or of day-lighted waste.
- 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 waste.
- 3) For detention pond surface 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.

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 Summary Report	31 December	1 February
B.3	Seep Reporting	Continuous	Immediately & 7 Days
B.4	Major Storm Event Reporting	Continuous	7 days from damage discovery
B.5	Financial Assurances Report	31 December	1 June

Reporting Requirements

The Discharger shall submit monitoring reports **semiannually** with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order 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 clearly illustrate compliance with the 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 containing the results of all monitoring conducted at the site 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/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 the approved Sample Collection and Analysis Plan.
 - b) A map or aerial photograph showing the locations of observation stations, areas undergoing clean-closure, recovered material stockpiles, detention ponds, monitoring points, and background monitoring points.
 - c) The measured semiannual groundwater elevation, flow direction, and gradient in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored.
 - d) Cumulative tabulated monitoring data, including data collected during 5-year COC monitoring, for all monitoring points and constituents for groundwater, 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 III 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) Laboratory statements of results of all analyses evaluating compliance with these 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 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: Response to a Release for verified exceedances of a concentration limit.

- g) A summary of all Standard Observations for the reporting period required in Section A.4.d of this MRP.
 - h) A summary of all clean-closure activities that occurred during the reporting period.
2. **Annual Monitoring Summary 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 hard copy report and in a digital file format such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy reports 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 semiannually 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 clean-closure activities have occurred during the previous calendar year and a comparison to previous contours from the past year.
 - g) A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
 - h) A detailed description of all clean-closure activities completed during the reporting period. Include all information required under Section A.4.a **Unit Clean-Closure Monitoring** above.

- i) Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.
3. **Seep Reporting:** The Discharger shall report by telephone any seepage from the disposal area or recovered material feedstock stockpiles **immediately** after it is discovered. A written report shall be filed with the Central Valley Water Board **within seven days of discovery**, 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, Monitoring Parameters, and Constituents of Concern listed in Table II of this MRP if sufficient leachate volume exists, and an estimated date that the results will be submitted to the Central Valley Water Board. If only a limited volume of leachate exists, then prioritize which analytes to sample for such as VOCs first, then Pentachlorophenol, next Formaldehyde, next SVOCs, next monitoring parameters, etc.; and
 - e) Corrective measures underway or proposed, and a corresponding time schedule.
 4. **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.4.c of this MRP, above.
 5. **Financial Assurances Report:** By **1 June** of each year, the Discharger shall submit an Annual Financial Assurances Report in accordance with Title 27, section 22236 that updates the financial assurances for closure, post-closure maintenance, and corrective action based on the previous year's annual inflation factor. Refer to Financial Assurance Specifications F.1 through F.6 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 (COCs include the Monitoring Parameters and the 5-Year COCs as listed in Tables I through V), 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 (COCs include the Monitoring Parameters and the 5-Year COCs as listed in Tables I through V), 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 Executive Officer 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 and groundwater monitoring programs. 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 Discharger proposed methods for calculating concentration limits in the 19 May 2008 *Amended Water Quality Protection Standard Report*. However, at that time there was insufficient data available to calculate concentration limits for each inorganic monitoring parameter and constituent of concern. WDR Monitoring Specification G.2 requires the Discharger to update the Water Quality Protection Standard.

The Water Quality Protection Standard shall be updated in each Annual Monitoring Report 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 IV 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 III for the specified monitored medium, and Table V. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. The last 5-year COC report was submitted to the Central Valley Water Board in the 2012 *Annual Monitoring Report*, and 5-year COCs are due to be monitored again in 2017.

4. Concentration Limits

For naturally occurring constituents of concern, concentration limits 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).

WDR Monitoring Specification G.2 requires the Discharger to update the Water Quality Protection Standard concentration limits.

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, where monitoring is conducted and the Water Quality Protection Standard applies. The monitoring points for each monitored medium are discussed 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 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 DETECTION 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.	Semiannual	Semiannual
Temperature	OF	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 ¹	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
Tannins and Lignins	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table IV)	ug/L ²	Semiannual	Semiannual
5-Year Constituents of Concern (see Table V)			
Total Organic Carbon	mg/L	5 years	2 nd Half 2017
Inorganics (dissolved)	ug/L	5 years	and every 5 years
Pentachlorophenol (USEPA Method 8151)	ug/L	5 years	thereafter
Formaldehyde (USEPA Method 8315A)	ug/L	5 years	“ “
Volatile Organic Compounds (USEPA Method 8260B, extended list, see Table V)	ug/L	5 years	“ “
Semi-Volatile Organic Compounds (USEPA Method 8270D)	ug/L	5 years	“ “

¹ Milligrams per liter

² Micrograms per liter

TABLE II
LEACHATE SEEP MONITORING¹

<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting² Frequency</u>
Field Parameters			
Total Flow	Gallons	Upon detection	7 days after
Flow Rate	Gallons/Day	“	“ detection
Electrical Conductivity	umhos/cm	“	“ “
pH	pH units	“	“ “
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L	Upon detection	7 days after
Chloride	mg/L	“	“ detection
Carbonate	mg/L	“	“ “
Bicarbonate	mg/L	“	“ “
Nitrate - Nitrogen	mg/L	“	“ “
Sulfate	mg/L	“	“ “
Calcium	mg/L	“	“ “
Magnesium	mg/L	“	“ “
Potassium	mg/L	“	“ “
Sodium	mg/L	“	“ “
Tannins and Lignins	mg/L	“	“ “
Constituents of Concern (see Table V)			
Total Organic Carbon	mg/L	Upon detection	7 days after
Inorganics (dissolved)	ug/L	“	“ detection
Volatile Organic Compounds (USEPA Method 8260B, extended list, see Table V)	ug/L	“	“ “
Formaldehyde (USEPA Method 8315A)	ug/L	“	“
Pentachlorophenol (USEPA Method 8151)	ug/L	“	“ “
Semi-Volatile Organic Compounds (USEPA Method 8270D)	ug/L	“	“ “

¹ Leachate seeps shall be sampled and analyzed for the Field Parameters, Monitoring Parameters, and Constituents of Concern in this table upon detection. The quantity of leachate shall be estimated and reported in gallons/day. Also, refer to Section B.3

² Notification of leachate seeps shall occur within seven days of discovering the seep(s). The notification shall include verification that a sample of the seep has been collected and an estimated date of when the sample results will be available. See section B.3 above for additional reporting requirements.

TABLE III
DETENTION POND SURFACE WATER DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u> ¹	<u>Reporting Frequency</u> ²
Field Parameters (For All Ponds)			
Freeboard	Feet/Inches	Weekly/Monthly	Semiannual
Electrical Conductivity	umhos/cm	Weekly/Monthly	Semiannual
pH	pH units	Weekly/Monthly	Semiannual
Turbidity	Turbidity units	Weekly/Monthly	Semiannual
Discharge Flow Rate (if any) ³	Gallons/Minute	Weekly/Monthly	Semiannual
Monitoring Parameters (Active Ponds Only)			
Total Dissolved Solids (TDS)	mg/L	Twice per year	Semiannual
Chloride	mg/L	Twice per year	Semiannual
Carbonate	mg/L	Twice per year	Semiannual
Bicarbonate	mg/L	Twice per year	Semiannual
Nitrate - Nitrogen	mg/L	Twice per year	Semiannual
Sulfate	mg/L	Twice per year	Semiannual
Calcium	mg/L	Twice per year	Semiannual
Magnesium	mg/L	Twice per year	Semiannual
Potassium	mg/L	Twice per year	Semiannual
Sodium	mg/L	Twice per year	Semiannual
Tannins and Lignins	mg/L	Twice per year	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, extended list, see Table V)	ug/L	Twice per year	Semiannual
Constituents of Concern (Active Ponds Only - see Table V)			
Total Organic Carbon	mg/L	Annual	Semiannual
Inorganics (dissolved)	ug/L	Annual	Semiannual
Formaldehyde (USEPA Method 8315A)	ug/L	Annual	Semiannual
Pentachlorophenol (USEPA Method 8151)	ug/L	Annual	Semiannual
Semi-Volatile Organic Compounds (USEPA Method 8270D)	ug/L	Annual	Semiannual

¹ Surface water monitoring for Field Parameters shall occur weekly during the wet season (1 October – 30 April) and monthly during the dry season (1 May – 30 September). Active ponds located downgradient of active clean-closure areas and recovered material stockpiles shall also be sampled twice per year during the wet season for Monitoring Parameters and once per year during the wet season for the Constituents of Concern.

² Monitoring reports submitted semiannually shall include monitoring data collected during the respective reporting period. Reports shall include whether there was flow from any detention pond to waters of the U.S.

³ Discharges of storm water from any detention pond shall also be monitored in accordance with provisions of SWRCB Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, and subsequent revisions.

TABLE IV

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 (Bromomethane)
Methyl chloride (Chloromethane)

TABLE IV
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 V
CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

<u>Inorganics (dissolved):</u>	<u>USEPA Method</u>
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

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)
- o-Dichlorobenzene (1,2-Dichlorobenzene)
- m-Dichlorobenzene (1,3-Dichlorobenzene)
- p-Dichlorobenzene (1,4-Dichlorobenzene)

TABLE V

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

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
1,1,1 -Trichloroethane (Methylchloroform)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane

TABLE V

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

Vinyl acetate
Vinyl chloride (Chloroethene)
Xylenes (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)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dibenz[a,h]anthracene

TABLE V

CONSTITUENTS OF CONCERN AND APPROVED USEPA ANALYTICAL METHODS

Continued

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
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine

TABLE V

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Continued

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

For Pentachlorophenol:

Use EPA Method 8151

For Formaldehyde:

Use EPA Method 8315A