

California Regional Water Quality Control Board  
North Coast Region

MONITORING AND REPORTING PROGRAM  
ORDER NO. R1-2013-0003

FOR

OPERATION, CORRECTIVE ACTION, AND NEW CONSTRUCTION  
AT THE  
COUNTY OF SONOMA

CENTRAL DISPOSAL SITE  
LANDFILL 1, LANDFILL 2 PHASES I, II, III, AND IV

AND

SOUTH FACE PARTIAL FINAL CLOSURE

COUNTY OF SONOMA DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

CLASS III LANDFILLS  
CLASS II SURFACE IMPOUNDMENTS

SONOMA COUNTY

The Discharger shall maintain water quality monitoring systems that are appropriate for detection monitoring and corrective action, and that comply with Subchapter 3, Chapter 3, Subdivision 1, Division 2, Title 27, California Code of Regulations (CCR), and any other applicable provisions therein.

Compliance with this Monitoring and Reporting Program (MRP), and with the companion General Monitoring and Reporting Requirements, is ordered by Waste Discharge Requirements (WDRs) Order No. R1-2013-0003. Failure to comply with this MRP, or with the General Monitoring and Reporting Requirements, constitutes non-compliance with the WDRs and with Division 7 of the California Water Code, which can result in the imposition of civil monetary liability.

### **I. REPORTING**

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program, and as required in the General Monitoring and Reporting Requirements.

The Discharger shall submit a paper copy and an electronic format copy of each monitoring report, with transmittal letter, text, tables, figures, laboratory analytical data, and

appendices in PDF format (one PDF for the entire report). The Discharger is required to upload the full monitoring report into Geotracker, as stipulated by California State law.

All testing, other than field parameters, shall be performed at a laboratory certified by the California Department of Health Services. Instruments used for field parameters shall be kept in good condition and calibrated according to manufacturer's requirements. Reports which do not comply with the required format will be rejected, and the Discharger shall be deemed to be in noncompliance with the WDRs. Monitoring reports must include, but should not be limited to the following:

a) Letter of Transmittal:

A letter transmitting the essential points must accompany each report. The letter must include a discussion of violations caused by the Landfill since submittal of the last such report. If the Discharger has not observed any violations since the last submittal, the Discharger must state this in the transmittal letter. Both the monitoring report and the transmittal letter must be signed as follows: for private facilities, a principal executive officer at the level of vice president or responsible corporate officer; for public agencies, the director of the agency. Upon Water Board Executive Officer approval, the cited signature can be by a California Registered Civil Engineer, or Certified Engineering Geologist, or Professional Geologist who has been given signing authority by the cited signatories. The transmittal letter must contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b) Compliance Summary:

The summary shall contain at least a narrative discussion of the monitoring results, including a discussion of compliance with concentration limits, any water quality violations, or other monitoring results of potential significance to water quality and describe any corrective actions taken.

c) Tabular Presentation of Data:

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 as to illustrate clearly the compliance with waste discharge requirements or the lack thereof.

d) Graphical Presentation of Data (Annual Report):

For each Monitoring Point in each medium, submit, in graphical format, the complete history of laboratory analytical data. Graphs must effectively illustrate trends and/or variations in the laboratory analytical data.

Each graph must plot a single constituent concentration over time at one (for intra-well comparison) or more (for inter-well comparisons) Monitoring Points in a single medium. Where applicable, include concentration limits along with graphs of constituent concentrations. When multiple samples are taken, graphs must plot each datum, rather than plotting mean values. The Discharger must determine horizontal gradients, groundwater flow rate, and flow direction for each respective groundwater body. The Discharger must present this data on a figure that depicts groundwater contours and flow directions as well as gradient, and include one figure for each water level measuring period in the monitoring report.

- e) Corrective Action Summary:  
Discuss significant aspects of any corrective action measures conducted during the Monitoring Period and the status of any ongoing corrective action efforts, including constituent trend analysis.
- f) Laboratory Results:  
Summarize and report laboratory results and statements demonstrating compliance with the Monitoring Program. Include results of analyses performed at the Site that are outside of the requirements of this Monitoring and Reporting Program.
- g) Sampling Summary:
  - i. For each Monitoring Point addressed by the report, a description of: 1) the method and time of water level measurement, 2) the method of purging and purge rate and well recovery time, and 3) field parameter readings.
  - ii. For each Monitoring Point addressed by the report, a description of the type of sampling device used, its placement for sampling, and a description of the sampling procedure (number of samples, field blanks, travel blanks, and duplicate samples taken; the date and time of sampling; the name and qualification of the person actually taking the samples; and description of any anomalies).
- h) Leachate Detection and Leachate Management:  
A summary of results from leachate detection monitoring and sampling shall be reported in the monitoring report.

Discuss and summarize all leachate management components that are underway within the reporting period.

As a primary function of corrective action, provide a progress report detailing extraction rates, number of active extraction wells, a narrative description of areas with remaining leachate buildup, and an analysis of further steps necessary to achieve and maintain an overall program of continued leachate reduction.

i) Standard Observations:

Each monitoring report shall include a summary and certification of completion of all Standard Observations for each waste management unit (WMU), for the perimeter of each WMU, and for all receiving waters. The standard observations shall be performed on a weekly basis and shall include the following information: updated status of any current grading and liner construction phases; condition of WMU cover; whether storm water drainage ditches and sedimentation ponds contain liquids; condition of drainage facilities; condition of sedimentation ponds; whether there are any leachate seeps present, including estimates of seep size and flow; presence of odors; evidence of ponding; freeboard in leachate holding facilities; evidence of erosion; evidence of non-storm water discharges at any storm water discharge locations; evidence of floating and suspended material, discoloration, or turbidity in surface waters; presence of odors in surface waters; condition of access roads; other problems which could affect compliance with the waste discharge requirements; weather conditions during the observations; summary of precipitation during the five days preceding any observations made during the Monitoring Period and discussed in the monitoring report.

j) Map(s):

The base map for the Monitoring Report shall consist of a current aerial photograph and include relative topographical features, along with Monitoring Points and features of the Site.

**A. REQUIRED REPORTS**

**1. Detection and Corrective Action Monitoring Report**

Monitoring Reports (MRs) shall be prepared and submitted to the Regional Water Board quarterly by the 15<sup>th</sup> day of the month following the sampling period. The reports shall include the results of all monitoring programs listed herein. The established monitoring and reporting period is as follows:

<u>QUARTER</u>	<u>QUARTER No.</u>	<u>REPORTING DATE</u>
February, March, April	1	May 15
May, June, July	2	August 15
August, September, October	3	November 15
November, December, January	4	February 15 (Annual Report date)

## **2. Annual Monitoring and Corrective Action Summary Report**

An Annual Report, which summarizes the monitoring results for the prior four quarters, shall be submitted to the Regional Water Board by February 15, annually. The Annual Report may be combined with the February 15<sup>th</sup> (fourth) quarterly report. The Annual Report shall contain both tabular and graphical summaries of the detection and, if applicable, corrective action monitoring data, and a discussion of progress toward re-establishment of compliance with regulatory goals as described in the WDRs, and with the Water Quality Protection Standard (WQPS).

The Annual Report shall contain proof of adequate assurances of financial responsibility for closure, post-closure maintenance, and corrective action for all known or reasonably foreseeable releases from a WMU at the facility in accordance with Sections 20380(b), 20950(f), 22210, 22211, 22212, 22220, 22221, and 22222 of Title 27, CCR and include annual accounting for inflation. By February 15, 2018, 2023, and every five years thereafter, for the term of this MRP, the Discharger shall provide as part of the Annual Monitoring Report an updated closure and post-closure maintenance costs and corrective action cost estimate to the Regional Water Board. As noted in the WDRs, the Discharger shall also revise the closure and post-closure maintenance cost estimate immediately following completion of the partial final closure project on Landfill 1 South Face area, incorporating, as appropriate, actual costs incurred for specific items, elements, and features. The Discharger shall demonstrate to CalRecycle and report to the Regional Water Board that it has established and maintained an acceptable financial assurance mechanism described in Section 22228, Title 27 CCR in at least the amount of the cost estimate approved by the Executive Officer.

In accordance with Section 20340(d), Title 27, CCR, all leachate collection and removal system shall be tested annually to demonstrate proper operation. Results shall be compared with earlier tests made under comparable conditions. The results shall be submitted with the Annual Report.

The Annual Report shall include a map showing any areas of differential settlement, highlighting areas of repeat or severe differential settlement. This map shall be made by or under the direction of a professional civil engineer or registered geologist.

## **3. Wetlands Mitigation Area and Monitoring**

The Discharger is required to ensure the long term functionality of the 2.6 acre Mitigation Project located across Hammel Road.

The Annual Report shall include a periodic assessment report on the condition of the mitigation project, and any maintenance or modifications that are needed to ensure the continued function and value of the created wetlands features along the Stemple Creek tributary.

**4. Surface Water and Storm Water Sampling Report**

All surface water and storm water sampling results shall be reported and summarized in accordance with this Monitoring and Reporting Program.

**5. Water Quality Protection Standard Report**

As noted above, any changes to the water quality protection standard are to be included in the Annual Report.

**6. Five Year Iso-Settlement Map**

For all constructed cap acreage the Discharger shall produce an iso-settlement map by January 2018, January 2023, and every five years thereafter, until the Executive Officer has determined that differential settlement is unlikely to be of such magnitude as to impair either the Unit's containment features (e.g., final cover) or the free drainage of surface flow. The map shall be submitted to the Regional Water Board with the Annual Report for that year.

The iso-settlement map shall accurately depict the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer. Therefore, 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 produced at closure, and shall indicate all areas where visually noticeable differential settlement may have been obscured by grading operations. The map shall be drawn to the same scale and contour interval as the topographic map produced at closure, but showing the current topography of the final cover, and featuring overprinted isopleths indicating the total settlement to date. This map shall be made by, or under the direction of, a professional civil engineer or registered geologist and shall be stamped and signed.

**7. Annual Erosion Control Report**

By October 15, annually, the Discharger shall submit a report to the Executive Officer describing any measures taken to comply with erosion control requirements. This shall include a description of any erosion control measures implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities.

## **8. Constituents of Concern (COCs)**

The Discharger shall submit reports of the results of groundwater, springs, surface water, underdrains and leachate monitoring for the Constituents of Concern every 5 years, or more frequently if required. The COC monitoring results shall be submitted with, or reported in, the monitoring report for the period the sampling took place.

## **9. Notification of Release and Re-test**

For any WMU, if the results of a detection monitoring program shows that there is a measurably significant increase in an indicator parameter or waste constituents over the WQPS at or beyond the points of compliance (i.e., measurably significant evidence of an exceedance or release), the Discharger shall:

- a. within 2 hours of discovery, notify the Regional Water Board by telephone or fax of the exceedance,
- b. within seven days of the initial findings, follow up with written notification (or acknowledgment of the Regional Water Board's finding),
- c. within 30 days of the initial finding, re-sample for the constituent(s) or parameter(s) at the point where the standard was exceeded, and
- d. within 60 days of the initial finding, submit the results of the re-sampling and statistical analysis, indicating whether or not an exceedance or release was confirmed by the re-test.

## **10. Detection of a Release**

Immediately following detection of a release, or after completion of the retest, the Discharger:

- a. Shall immediately sample all Monitoring Points in the affected medium at the WMUs and determine the concentration of all COCs. [Section 20420(k)(1), Title 27, CCR]
- b. Within 90 days of determining measurably significant evidence of release, submit an amended Report of Waste Discharge (ROWD) to establish an evaluation monitoring program, in accordance with Section 20420(k)(5), Title 27, CCR.
- c. Within 180 days of verifying measurably significant evidence of a release from a WMU, submit an engineering feasibility study for a corrective action program. The corrective action program shall, at a minimum, meet the requirements of Section 20430, Title 27, CCR. [Section 20420(k)(6), Title 27, CCR]

## 11. Responding to a Release Discovery

Upon verifying a measurably significant evidence of a release from a WMU according to Section 20420(j) of Title 27 and Section I.A.7 and I.A.8 of this MRP, the Discharger shall follow the procedures and timeline described in Section 20420(k) of Title 27.

## 12. Closure Reports

A closure report for each construction season of closure activities and a full closure report once final closure is achieved shall be prepared and certified by the Construction Quality Assurance (CQA) Officer and submitted, under penalty of perjury, to the Regional Water Board and other appropriate agencies in accordance with Sections 20324(c), 20324(d), and 21880, Title 27, CCR. The CQA officer must be a registered civil engineer or a certified engineering geologist licensed in the State of California. The reports, at a minimum, shall include the certificate of closure; daily summary reports; material acceptance reports; photo logs of closure activities; final CQA documentation; laboratory testing results; field testing results; and an as-built topographic map of the capped area (for each construction season then for the completed project), prepared at a scale of one-inch to 100 feet, with a contour interval of two feet.

During times of active liner construction subject to this Order or any periods of repair to the waste containment, drainage, or monitoring facilities, legible copies of the daily CQA field notes and summary reports shall be submitted to the Regional Water Board via facsimile at (707) 523-0135 or via email to an appropriate staff contact by noon the following weekday. The facsimile or email shall be addressed to the Regional Water Board, Land Disposal Unit, and include the name of the staff person assigned to the Site.

## II. MONITORING PROGRAMS

### A. SOLID WASTE MONITORING

The Discharger shall monitor monthly all wastes discharged to each WMU Phase and report quarterly as follows:

**Table II.A: Nonhazardous Solid Waste Monitoring**

<u>Parameter</u>	<u>Units</u>	<u>Monitoring Frequency</u>	<u>Reporting Frequency</u>
Quantity discharged	cubic yards or tons	Monthly	Quarterly

Cell sequencing plan	---	Monthly	Quarterly
Constructed capacity of each landfill/phase remaining:	Percent	Monthly	Annually

Total Acres Constructed /Volume in Place/ Volume Remaining/Anticipated  
 Construction Year /Base Liner/ Date of 1st Waste Placement /Cap

- LF1
- LF1 Compost Deck\*
- LF2 Phase I and II
- LF2 Phase III\*
- LF2 Phase IV\*
- LF2 Phase V\*
- REA\*

\*For all Phases to be constructed provide anticipated construction season

**B. ROUTINE MAINTENANCE**

The Site shall be inspected weekly. At a minimum, the integrity of the WMUs, drainage structures, leachate collection system, landfill gas system, and any potential erosion areas shall be inspected.

The inspections shall include applicable elements to meet post closure inspection requirements for those portions of the landfill that are closed at the time of the inspection. Inspection logs, problem areas, special occurrences, and corrective actions taken shall be included in the quarterly monitoring reports. The Discharger may request a reduction in inspection frequency after the site has stabilized.

**C. CONSTITUENTS OF CONCERN**

Except as otherwise indicated in this Order, the Discharger shall monitor each medium of the Site for applicable Constituents of Concern (per State Water Resources Control Board Resolution 93-62). The monitoring locations, analytical methods, and frequencies of analysis are as follows:

**1. Monitoring Locations**

- a. Leachate Discrete samples will be taken from leachate extraction wells to be proposed.
- b. Leak Detection Systems Once constructed, LF2- Phase III & IV, REA
- c. Groundwater All groundwater monitoring wells
- d. Underdrains LP1, LP2, LF2 East Canyon Phase I & II, and once constructed, LF 2- Phase III & IV
- e. Springs - Any onsite springs, including those encountered during grading.
- f. Surface Water SW-1, SW-6, SW-7
- g. Unsaturated Zone The shallow and deep gas probes.

**2. Monitoring Schedule**

**TABLE II.B  
 CONSTITUENTS OF CONCERN MONITORING**

<u>Constituents of Concern</u>	<u>Units</u>	<u>Frequency</u>
Carbonate	mg/L	<b>Every 5 years</b>
Bicarbonate Alkalinity	mg/L	<b>Every 5 years</b>
Volatile Organic Compounds (EPA Method 8260)	ug/L	<b>Every 5 years</b>
Semi-Volatile Organic Compounds (EPA Method 8270)	ug/L	<b>Every 5 years</b>
Organochlorine Pesticide, PCBs (EPA Method 8080)	ug/L	<b>Every 5 years</b>
Chlorophenoxy Herbicides (EPA Method 8150)	ug/L	<b>Every 5 years</b>
Organophosphorus Compounds (EPA Method 8141)	ug/L	<b>Every 5 years</b>
Inorganics (dissolved)	mg/L	<b>Every 5 years</b>
MTBE	ug/L	<b>Every 5 years</b>
<b>UNSATURATED ZONE</b>		
Volatile Organic Compounds (EPA Method TO15)	ppb/v	<b>Every 5 years</b>
Methane	ppb/v	<b>Every 5 years</b>

**D. LEACHATE MONITORING**

**1. Monitoring Locations**

The leachate monitoring locations within each Waste Management Unit (WMU) shall be as follows:

**TABLE II.C.1 - LEACHATE MONITORING LOCATIONS**

<u>WMU</u>	<u>Location</u>	<u>Elevations ft. below surface</u>
Landfill 1	Well/Sump	Ft/tenths
Landfill 1	Groundwater Trench Riser	Ft/tenths
Landfill 1	LEW-2	Ft/tenths
Landfill 1	Well 60	Ft/tenths
Landfill 1	Well 9	Ft/tenths
Landfill 1	Well 66	Ft/tenths
LP1	LCRS-Sump	Presence of liquid
LP2	LCRS-Sump	Presence of liquid
Landfill 2	Well/Sump	Ft/tenths
Phase I/II	LCRS	
Landfill 2	Underdrain	gpm
Phase I/II		
Landfill 2	LCRS,LDS and Underdrain	Presence of liquid gpm
Phase III	Underdrain	gpm
Landfill 2	LCRS, LDS and Underdrain	Presence of liquid gpm
Phase IV	Underdrain	gpm
REA (future)	LDS and Underdrain	Presence of liquid gpm

## 2. Monitoring Schedule

Leachate monitoring shall be conducted as specified in Table II.C.2.

**TABLE II.C.2 - LEACHATE MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>	<u>Reporting</u>
<i>Field Parameters</i>			
Freeboard, LP1, LP2	Feet/tenths	Daily	Monthly
Landfill 2 Phase I/II Underdrain	gpm	Monthly	Monthly
Volume Collected	gallons	Daily	Monthly
Landfill 2 Phase III/IV Underdrain	gpm	Monthly	Monthly

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>	<u>Reporting</u>
Volume collected	gallons	Daily	Monthly
REA Underdrain	gpm	Monthly	Monthly
Volume collected	gallons	Daily	Monthly
Chlorides	mg/L	Quarterly	Quarterly
Fluoride	mg/L	Quarterly	Quarterly
COD	mg/L	Quarterly	Quarterly
Sodium	mg/L	Quarterly	Quarterly
Mineral series	mg/L	Quarterly	Quarterly
Nitrogen series	mg/L	Quarterly	Quarterly
CAM metals	mg/L	Quarterly	Quarterly
Sulfates	mg/L	Quarterly	Quarterly
Volatile Organic Compounds	ug/L	Quarterly	Quarterly
<i>Constituents of Concern</i>			
Table II.B constituents	ug/L	Annually	Annually

Upon detection of leachate in a previously dry leak detection layer, or LCRS sump, the leachate shall be sampled in accordance with the above schedule and the results included in the monitoring report. If COC constituents are detected that are not already Monitoring Parameters, then the leachate must be re-sampled for those constituents. If confirmed by re-test, then these constituents must be added to the Monitoring Parameter list and included in the quarterly laboratory analyses.

If liquids are observed in the LDS of the Landfill 2 liner system the Discharger must notify the Regional Board staff within 24 hours, in accordance with Contingency Plans. All visible portions of synthetic liners shall be inspected on a monthly basis. Each LCRS shall be hydraulically tested annually to demonstrate that it is still operating in conformance with the design. The results shall be reported to the Board in the Annual Report and shall include comparison with earlier tests made under comparable conditions.

Discrete samples will be taken from specified leachate extraction wells at each quarterly monitoring event. If leachate surfaces and is being discharged to surface waters, the Discharger shall immediately sample the leachate and report this to Regional Water Board staff. Results from the discrete samples, leachate pond sampling, and any leachate seeps shall be reported in the quarterly monitoring reports.

## **E. DETECTION AND CORRECTIVE ACTION MONITORING**

For each monitoring medium, samples from all Monitoring Points assigned to detection monitoring or corrective action monitoring shall be collected and tested specified herein for the Monitoring Parameters listed in this Program.

For any given monitored medium, a sufficient number of samples shall be taken from all Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

Statistical analyses shall be performed as soon as the monitoring data are available. Intra-well statistical data analyses shall be performed for both aquifers due to the lack of appropriate background monitoring capabilities. Concentration limits for man-made chemicals shall be set at method detection limits (MDLs) for individual analytes. Concentration limits for naturally occurring compounds are determined statistically for groundwater and surface water monitoring programs using normal tolerance limits developed from intra-sampling location data.

## **F. GROUNDWATER ELEVATION MONITORING**

The groundwater surface elevation (in feet and hundredths, above mean sea level (MSL)) in all wells and piezometers shall be measured on a quarterly basis for each monitored groundwater body and used to determine the velocity and direction of groundwater flow. Monitoring shall include the times of expected highest and lowest elevations of the water level for the respective groundwater body. Groundwater elevations for all upgradient and downgradient wells for a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater gradient and direction.

This information shall be included in the monitoring reports.

Perimeter Monitoring wells have been installed in both shallow and deep zones around the landfills. The wells will be monitored as sentry wells to ensure that the predicted groundwater potentiometric surface does not significantly change over the lifetime of this project, as the site undergoes blasting, earthmoving, grading and landfilling activities.

Sentry wells include: DW-1R, DW 3A/3B, DW-4B, DW-5, MW1, F2N, F12, F14, F16, F19

### **III. MONITORING**

#### **A. GENERAL**

The Discharger shall perform Detection Monitoring and Corrective Action Monitoring (per Sections 20420 and 20430, Title 27, CCR) on all media potentially affected by a release, including surface water and groundwater, and the unsaturated zone. For any given monitored medium, a sufficient number of samples shall be taken from all Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and samples shall be collected in a manner that ensures sample independence to the greatest extent feasible. All monitoring shall be conducted in accordance the standard water monitoring procedures developed and approved for the site, which includes quality assurance/quality control standards.

The Discharger shall use a Regional Water Board-approved statistical (or non-statistical) procedure to determine whether there has been a measurably significant increase in a constituent over the water quality protection standard, as set forth in Section 20415(e)(5) of Title 27 CCR.

Method detection limits and practical quantitation limits shall be reported. All peak shall be reported, including those that cannot be quantified and/or specifically identified.

The Discharger may, with approval of the EO, use alternative analytical test methods, including new US EPA approved methods, provided the methods have method detection limits equal to or lower than those for the analytical methods specified in this Monitoring and Reporting Program.

#### **B. UNSATURATED ZONE**

The Landfill Gas Monitoring Reports conducted quarterly for CalRecycle and the LEA shall be copied to this agency on a quarterly basis. Temporary Landfill Gas Probes TMP-1, TMP-1A, TMP-2, and TMP-3/R and the East Canyon Perimeter Probes and Cleanout Riser shall be retained in the quarterly monitoring program until such time as they are no longer available and written concurrence for their removal from the monitoring program is obtained from Regional Water Board staff.

#### **C. GROUNDWATER**

The groundwater surface elevation (in feet and hundredths, M.S.L.) in all wells and piezometers shall be measured on a quarterly basis and used to determine the velocity and direction of groundwater flow, in compliance with Title 27, CCR.

The amount of siltation in all wells and piezometers shall be measured on an annual basis and shall be used to make recommendations for maintenance. Additional monitoring wells shall be added to the program as needed.

### 1. Monitoring Locations

Sentry/Perimeter Monitoring Wells:	DW1R, DW-3A/3B, DW-4B, DW-5, F12, F14, F15, F16, F19, F20, F21, F25, MW1
Landfill 1	A-2, A-3, HA-1, HA-2, F-2, F-3, F-8, F-10, F-11, F-13, ST1W-1, ST1W-2, and ST1W-3.
Landfill 2 Phase I/II	A1 A7, A8, F-11, F-17, F-18, F-19, F31 and F32
Landfill 2, Phase III/IV	New wells proposed: F36, F40; subject to field review with Regional Water Board staff for final siting.
REA	New wells proposed: F2N F20; subject to field review with Regional Water Board staff for final siting.
Groundwater Interception and Diversion Systems	
Landfill 2	Underdrain
Surface Impoundment LP1	Underdrain
Surface Impoundment LP2	Underdrain
Points of Compliance Wells:	
Landfill 1	F10
Landfill 2	F-17, F-18 and F-19

Any additional monitoring wells or stations constructed at the site shall be added to the monitoring network. Samples shall be collected from all installed wells or stations at the frequency and for the parameters specified in Table IIA and IIB, respectively.

## 2. Monitoring Schedule

The analytes and frequency of groundwater monitoring are as follows:

**TABLE III.C.1  
 GROUNDWATER DETECTION MONITORING PROGRAM**

<b><u>Parameter</u></b>	<b><u>Units</u></b>	<b><u>Frequency</u></b>
<b><i>Field Parameters</i></b>		
pH	pH units	Quarterly
Specific Conductance	Mhos/cm	Quarterly
Temperature	□C	Quarterly
Groundwater Elevations	Ft./tenths TOC	Quarterly
Dissolved Oxygen	mg/L	Quarterly
Turbidity	Turbidity units	Quarterly
Siltation in Well Casing	Ft./tenths	Annually, All Wells
<b><i>Monitoring Parameters</i></b>		
Sodium	mg/L	Quarterly
Magnesium	mg/L	Quarterly
Calcium	mg/L	Quarterly
Speciated Alkalinity	mg/L	Quarterly
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chlorides	mg/L	Quarterly
Sulfates	mg/L	Quarterly
Nitrogen Series	mg/L	Quarterly
Halogenated VOC's	ug/L	Quarterly
Aromatic VOC's	ug/L	Quarterly
CAM Metals	mg/L	Annually
<b><i>Constituents of Concern</i></b>		
Table II.B constituents	ug/L	Every 5 years

## D. SURFACE WATER MONITORING

### 1. Monitoring Locations

Both unnamed tributaries flowing into Stemple Creek shall be sampled at the property boundary at locations SW1, SW6, and SW7 in addition to background station "Ditch."

Additional surface water monitoring points may be sited, installed, and/or monitored under General NPDES Storm Water permitting programs as appropriate for specific industrial and construction activities on the site.

## 2. Monitoring Schedule

Surface water monitoring shall be conducted as specified in Table III.D. below. Sampling shall begin with the first surface runoff in the fall of each year and shall continue monthly until surface runoff ceases in the dry season.

**TABLE III.D.  
 SURFACE WATER MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<i>Field Parameters</i>		
Flow	MGD	Continuous
Dissolved Oxygen	mg/L	Weekly
Hardness (as CaCO <sub>3</sub> )	mg/L	Weekly
Specific Conductance	mhos/cm	Weekly
pH	pH units	Weekly
Temperature	°C	Weekly
Ammonia	mg/L-grab	Weekly
Unionized Ammonia	mg/L-grab	Weekly
Turbidity	Turbidity Units	Weekly
Total Precipitation	In/days	Monthly
<i>Monitoring Parameters</i>		
Total Dissolved Solids (TDS)	mg/L	Monthly
Total Settable Solids	mg/L	Monthly
Total Suspended Solids	mg/L	Monthly
Ammonia	mg/L	Monthly
Chlorides	mg/L	Quarterly
Sulfates	mg/L	Quarterly
Nitrogen Series	mg/L	Quarterly
Carbonate	mg/L	Quarterly
Chemical Oxygen Demand (COD)	mg/L	Annually
Total Organic Carbon (TOC)	mg/L	Annually
Biological Oxygen Demand (BOD)	mg/L	Annually
Bioassay Test (96 hr.)	% survival	Annually
CAM Metals	mg/L	Annually

<i>Constituents of Concern</i>		
Table II.B constituents	mg/L	Every 5 years

The Discharger shall determine at each sampling whether there is either a statistically or non-statistically significant increase over water quality protection standards for each parameter and constituent analyzed. If a release is detected at the downstream sampling point, the Discharger shall proceed with an Evaluation Monitoring Program to determine the source(s) and extent of the release.

#### IV. CORRECTIVE ACTION

The following information shall be gathered annually as to the progress of groundwater remediation, leachate extraction, and landfill gas control and shall be reported in the format of Table IV.A.2 below:

#### A. CORRECTIVE ACTION MONITORING

##### 1. Monitoring Locations

The corrective action monitoring points for Landfill 1 and Landfill 2, shown in **Attachment XXX**, are as follows:

**TABLE IV.A.1  
 CORRECTIVE ACTION MONITORING LOCATIONS**

<u>WMU</u>	<u>Source Area</u>	<u>Monitoring Locations</u>
Landfill 1	Upper Canyon	F5
Landfill 1	East Canyon Area	Trench Riser*, F3*,F8*, F30*
Landfill 1	Cut-Off Trench	Discharge Pipe to Leachate Pond 2
Landfill 1	Toe Area	F10, F35, MW3A, MW3R,
Landfill 2	Toe Area	Underdrain, A7, A8, F31, F32
Landfill 2	Perimeter Gas Probes	ECP1U/EPC1L*, ECP2U,* ECP3U/3L*, ECSP3U/3L*, ECSP3U/3L*, ECP4U/ECP4L*, ECP5U/ECP5L*,ECP6U/ECP6*L and Cleanout Riser*

List includes former detection monitoring wells impacted by the spread of contaminants.

\*Denotes well(s) proposed for removal in advance of base liner construction phases. They will be phased out following review and concurrence with a well decommissioning workplan at each phase of construction.

## 2. Monitoring Schedule

The monitoring schedule for the corrective action wells is as follows:

**TABLE IV.A.2  
 CORRECTIVE ACTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<i>Field Parameters</i>		
pH	pH units	Quarterly
Specific Conductance	mhos/cm	Quarterly
Temperature	°C	Quarterly
Turbidity	Turbidity units	Quarterly
<i>Monitoring Parameters</i>		
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chlorides	mg/L	Quarterly
Sulfates	mg/L	Quarterly
Nitrate – Nitrogen	mg/L	Quarterly
Tritium	mg/l	Quarterly
Volatile Organic Compounds	ug/L	Quarterly
<i>Constituents of Concern</i>		
Table II.B constituents	ug/L	Annually

### Leachate Monitoring Locations

#### Landfill 1

The Discharger shall monitor effective drawdown of leachate from the leachate piezometers. Drawdown isohyetal contour maps shall be reported monthly along with individual rates of pumping from each extraction location.

#### Landfill 2

The Discharger shall monitor and report the volume and rates of flow into the East

Canyon liner sump, and the percentage of design capacity that these represent. The volume of leachate within the sump shall not exceed two thirds of the design capacity.

## **V. WATER QUALITY PROTECTION STANDARD**

The Water Quality Protection Standard (Standard) consists of the following elements:

- a. Constituents of Concern;
- b. Concentration Limits;
- c. Monitoring Points;
- d. Points of Compliance; and
- e. Compliance Period.

Each of these is described as follows:

### **A. Constituents of Concern**

The Constituents of Concern (COCs), as required under Section 20395 of Title 27 CCR, shall include all constituent groups identified in Table II.A. The Discharger shall test samples for all COCs every five years or more frequently, as required under the monitoring program.

### **B. Concentration Limits**

The Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (i.e., the uppermost aquifer) at the Site shall be as follows, and shall be used as the basis of comparison with data from the Monitoring Points in that monitored medium:

- a. The constituent's background value, from the Background Monitoring Points for that monitored medium. Either:
  - 1. The mean (or median, as appropriate) and standard deviation (or other measure of central tendency, as appropriate) of the constituent's background data; or
  - 2. The constituent's Method Detection Limit (MDL), in cases where less than 10 percent of the background samples exceed the constituent's MDL; or

- b. A concentration limit greater than background, as approved by the Regional Water Board for use during or after corrective action.

**C. Monitoring Points**

1. **Unsaturated Zone** - The Discharger shall submit copies of quarterly gas monitoring reports for all landfill gas probes monitored in accordance with the Solid Waste Facilities Permit issued by the Department of Resources, Recycling and Recovery (Cal-Recycle).
2. **Groundwater** - As listed in Tables III.C. for Landfill's 1, 2, and REA, respectively.
3. **Surface Water**- As described in Section III.D.

Upon confirmation of an exceedance from an existing release, the Discharger shall transfer the impacted monitoring point(s) from the Detection Monitoring Program (DMP) to the Corrective Action Monitoring Program (CAMP). Upon confirmation that levels in a previously impacted monitoring point has been reduced below concentration limits, the Discharger may, with Board staff approval, transfer that monitoring point from the CAMP to the DMP.

**D. Points of Compliance**

The point(s) of compliance for each waste management unit (WMU) is the vertical surface located at the downgradient limit of the WMU that extends through the uppermost aquifer underlying the WMU. Monitoring wells identified as the point of compliance monitoring wells for Landfill 1 constitute those wells located as close as physically/operationally feasible downgradient of Landfill 1. The Points of Compliance for Landfill 2, and for any subsequent lined units, are the underdrain for that unit and the closest feasible downgradient monitoring wells.

**E. Compliance Period**

The Compliance period is the number of years equal to the active life of the landfill plus the closure period. Each time the Standard is exceeded (i.e., a release is discovered), the Site begins a Compliance Period on the date the Regional Water Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the landfill has been in continuous compliance for at least three consecutive years.

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

Ordered by \_\_\_\_\_  
Matthias St. John  
Executive Officer

March 14, 2013

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