

California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM
ORDER NO. R1-2013-0014

FOR

**HUMBOLDT WASTE MANAGEMENT AUTHORITY
CUMMINGS ROAD CLASS III SOLID WASTE DISPOSAL SITE**

Humboldt 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 Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements (WDRs) Order No. R1-2013-0014, and under the authority of Water Code, section 13267(b). 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.

The Cummings Road Landfill (Landfill) shall be monitored for leak detection and corrective action because groundwater contamination has been detected and the Landfill is currently in corrective action. Monitoring wells or springs which are known to contain Volatile Organic Compounds or naturally occurring compounds at levels above background shall be monitored as corrective action wells and springs. Other monitoring locations shall be monitored for leak detection.

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 one paper copy of each monitoring report and a copy of the monitoring report in an electronic format, 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.

The paper copy shall have a body text size of no less than 11 point type and no text smaller than 8 point type. 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:

1. 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.

2. 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.

3. 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.

4. 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. Graphs are not required until a minimum of two samples of a given analyte have been taken at a given sampling point or

when an analyte at a given sampling point has always been non-detect. The Discharger must also determine horizontal gradients, groundwater flow rate, and flow direction for each respective groundwater body. Present this data on a figure that depicts groundwater contours and flow directions as well as gradient. Include one figure for each water level measuring period in the monitoring report.

5. 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.

6. Laboratory Results:

Summarize and report laboratory results and statements demonstrating compliance with **Part II**. Include results of analyses performed at the Site that are outside of the requirements of this Monitoring and Reporting Program.

Analytical laboratory results shall be sent directly from the laboratory to our staff via email to Gina.Morrison@waterboards.ca.gov, the same day they are submitted to the Discharger.

7. Sampling Summary:

- a. 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.
- b. 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).

8. Leachate Detection:

A summary of results from leachate detection monitoring and sampling shall be reported in the monitoring report.

9. Standard Observations:

Each monitoring report shall include a summary and certification of completion of all Standard Observations for the waste management unit (WMU), for the perimeter of the WMU, and for the receiving waters. The standard observations shall be performed on a weekly basis and shall include: 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; inspection of storm water discharge locations for evidence of non-storm water discharges; evidence of floating and suspended material or discoloration or turbidity in the receiving waters; presence of odors in the receiving waters; condition of access roads; other problems which could affect compliance with the waste discharge requirements; and weather conditions during the observations and the precipitation during the five days preceding the observations, which were made during the Monitoring Period.

10. Map(s):

The base map for the Monitoring Report must consist of a current aerial photograph or 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 semi-annually by the end of the month following the sampling period. Groundwater, spring, and leachate sampling shall occur in September and March of each year. Surface water, storm water, and unsaturated zone monitoring (both discrete vapor sampling and landfill gas sampling) shall be sampled as described and reported in the appropriate semi-annual report. The reports shall include the results of all monitoring programs listed herein. The established monitoring and reporting period is as follows:

<u>SEMI-ANNUAL</u>	<u>PERIOD NO.</u>	<u>REPORTING DATE</u>
January through June	1	July 31
July through December	2	January 31 (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 January 31, annually. The Annual Report may be combined with the semi-annual report

that is also due January 31. The Annual Report shall contain both tabular and graphical summaries of the detection and, if applicable, corrective action monitoring data and a discussion of the progress toward re-establishment of compliance with WDRs and 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 California Code of Regulations, title 27, sections 20380(b), 20950(f), 22210, 22211, 22212, 22220, 22221, and 22222 and include annual accounting for inflation. By January 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 post-closure costs and corrective action cost estimate to the Regional Water Board for review. The Discharger shall demonstrate to CalRecycle and report to the Regional Water Board that it has established an acceptable financial assurance mechanism described in California Code of Regulations, title 27, section 22228 in at least the amount of the cost estimate approved by the Executive Officer. The Executive Officer may delete the requirement of submitting updated cost estimates, with the exception of inflation adjustments, upon finding that the need for further corrective action is unlikely and that post-closure costs are likely to remain constant.

In accordance with California Code of Regulations, title 27, section 20340(d), any 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 noted by visual observation, 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. Surface Water and Storm Water Sampling Report

The Discharger shall submit the first report of each rainy season by the 15th day of the month after the first sampling and then every second month on the 15th of the month for the remainder of the rainy season. Each report shall include all sampling results from the previous month(s). The final report of each rainy season shall document when conditions of discharge stopped at the site for the season.

Each report shall contain a map showing the monitoring locations, topographic contours, and major site features. A second map showing the current Landfill topographic contours and the major site features shall be presented with the locations of the seeps detected during the monitoring period. This map shall be of a large enough scale that the locations are accurately shown. The report shall include a narrative discussion of water quality sampling and seep detection and response, including notations of any water quality violations, tabular summaries of the water quality data for the sampling locations specified in Item No.1, and tabular summaries for any seeps detected during the month. Tabular summaries shall include notations to clearly identify specific analytical results that indicate an exceedance of water quality standards for naturally occurring compounds; an exceedance of detection limits for all man-made compounds; or any other violation of the Site's WDR prohibition to discharge to surface water, surface water drainage systems, or groundwater; or both. Any of these conditions is a violation of the WDRs.

Any detection of a man-made compound in the Landfill drainage or surface water is a discharge violation. To determine if the Landfill has contributed to the discharge for naturally occurring compounds, data shall be compared to results from the background sampling location S-9. Any discharge of a naturally occurring compound at a level statistically greater than background is a violation. The calculation of background shall include consideration of variations that occur due to rainfall.

Records from daily rainfall measurements shall be included in the reports. Daily rainfall and estimated flow data shall be tabulated. 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 clearly illustrate compliance, or lack thereof, with the WDRs. Each report shall contain copies of the field sampling log, chain of custody, including the date and time of sample collection, the name of the person collecting the samples, the signed lab sheets including QA/QC, daily field logs, and leachate seep inspection logs. These reports shall be prepared by, or under the direction of, a professional civil engineer, or registered geologist, and shall be signed and stamped by this professional.

Results of the sampling field parameters and field logs from leachate seep detection inspections shall be submitted via email, prior to 5:00 p.m. each business day on the day of sample collection or inspection, to Gina.Morrison@waterboards.ca.gov, attention Gina Morrison.

4. Water Quality Protection Standard Report

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

5. Five Year Iso-Settlement Map

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.

6. 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. The Executive Officer may delete the requirement for submitting annual erosion control reports upon finding that no erosion control work is necessary prior to the return of winter rains.

7. Constituents of Concern (COCs)

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

8. 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. immediately 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.

9. Detection of a Release

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

- a. Shall immediately sample all Monitoring Points in the affected medium at the WMUs and determine the concentration of all COCs. Because this COC scan does not involve statistical testing, the Discharger need collect and analyze only a single water sample from each Monitoring Point in the affected medium. The Regional Water Board can approve an appropriate subset of Monitoring Points to be sampled for all COCs, based upon the hydrogeologic conditions at the Unit. [California Code of Regulations, title 27, section 20420(k)(1)]
- b. Within 90 days of determining measurably significant evidence of release, submit an amended ROWD to establish an evaluation monitoring program, in accordance with California Code of Regulations, title 27, section 20420(k)(5).
- 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 California Code of Regulations, title 27, section 20430. [California Code of Regulations, title 27, section 20420(k)(6)]

10. Responding to a Release Discovery

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

11. 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 California Code of Regulations, title 27, sections 20324(c), 20324(d), and 21880. 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 closure construction 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 Gina.Morrison@waterboards.ca.gov 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. ROUTINE MAINTENANCE

The Site shall be inspected weekly. At a minimum, the integrity of the WMU, drainage structures, leachate collection system, landfill gas system, and any potential erosion areas shall be inspected. The inspections shall also meet the requirements of the postclosure inspections. Inspection logs, problem areas, special occurrences, and corrective actions taken shall be included in the semi-annual

monitoring reports. The Discharger may request a reduction in inspection frequency after the site has stabilized.

B. 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 EW-11R, L-15, L-17R, and L-11 for full COC monitoring.
- b. Groundwater – Monitoring wells MW-5-AL, MW-7-W, MW-14-H, MW-15-W, MW-18-W, MW -19-H, MW-28A-W, MW-32-H, MW-45-W, MW-46-W, MW-47-W, MW-48-W, MW-49-W, MW-51-H, MW-52-W, and MW-53-H for full COC monitoring. MW-21-W, MW-31-H, MW-38-H, and MW-39-H will include additional ion analytes and organochlorine pesticides in addition to the routine monitoring parameters. MW-23-W, MW-25-W, MW-26-W, MW -22-H, MW-29-H, MW-30-H, MW-40-H will include additional ion analytes in addition to the routine monitoring parameters.
- c. Springs – SPR-1, SPR-2, SPR-8, and Woodgulch Spring for full COC monitoring.
- d. Surface Water – S-1, per Table IIID.
- e. Unsaturated Zone – The shallow and deep gas probes in GP-5; GP-1/D₂; and gas extraction well EW-12 for VOC monitoring by TO-15.

2. Monitoring Schedule

Groundwater monitoring wells shall be sampled for COCs in the Fall 2015, Spring of 2021, and every five years thereafter alternating between seasons.

C. LEACHATE MONITORING

Discrete samples will be taken from leachate extraction wells EW-11R, L-15, L-17R, L-11R, L-22, and L-20-R at each semi-annual monitoring event. Samples are also collected quarterly from the leachate tanker truck for disposal. 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. The volume of leachate collected each month since the previous monitoring report shall be reported in accordance with California Code of Regulations, title 27, section 20340(h). Results

from the discrete samples, tanker truck sampling, leachate collection volume, and any leachate seeps shall be reported in the semi-annual MRs.

D. 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 per Tables III.D. and III.E. 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 the Tolerance Interval method or other appropriate statistical method as approved by the Executive Officer (EO).

E. GROUNDWATER ELEVATION MONITORING

The groundwater surface elevation (in feet and hundredths, M.S.L.) 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. Monitoring Locations shall include MW-33-W, MW-34-W, MW-41-W, MW-42-H, MW-43-H and MW-44-H in addition to wells which are used for groundwater sampling.

F. UNSATURATED ZONE MONITORING

Since the liners at the Landfill do not have pan lysimeters, the existing landfill gas monitoring wells will be used for unsaturated zone monitoring. In addition to the landfill gas monitoring required by CalRecycle, the shallow and deep probes in GP-5;

the intermediate probe in GP-1; and the shallow probe in GP-2 will be analyzed for VOC vapors using TO-15 in fall 2012 and spring 2013 during regular probe sampling. These samples will be used to determine sampling frequency, which must be at least every five years thereafter.

III. MONITORING

A. GENERAL

The Discharger shall perform Detection Monitoring and Corrective Action Monitoring (per California Code of Regulations, title 27, sections 20420 and 20430) 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 and Background 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 with a Sample Collection and Analysis Plan, which includes quality assurance/quality control standards, that is acceptable to the EO.

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 California Code of Regulations, title 27, section 20415(e)(5).

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 the analytical methods specified in this Monitoring and Reporting Program.

B. UNSATURATED ZONE

1. Monitoring Locations

Gas Probes GP-1, GP-1/D₂/D₃/D₄, GP-2, GP-3, GP-4, GP-5, and GP-6. Gas Probes GP-1, GP-2, GP-3, GP-4, GP-5, and GP-6 each have probes screened at three different depths. These gas probes will be used for perimeter landfill-gas monitoring. The shallow and deep gas probes in GP-5; GP-1/D₂; and gas

extraction well EW-12 will be used for discrete VOC monitoring by TO-15. Attachment L shows the unsaturated zone monitoring points for Cummings Road SWDS.

2. Monitoring Schedule

The shallow and deep probes in GP-5; GP-1/D₂; and the gas extraction well EW-12 will be analyzed for VOC vapors using TO-15 in fall 2012 and spring 2013 during regular probe sampling. These samples will be used to determine future discrete sampling frequency, which must be at least once every five years. Regular perimeter landfill-gas sampling will be conducted as required by CalRecycle. These reports shall be submitted to the Regional Water Board.

The results for the discrete vapor monitoring shall be reported to the Regional Water Board in the semi-annual monitoring reports. Landfill-gas monitoring reports as required by CalRecycle may be submitted as a stand-alone report or as part of the semi-annual monitoring reports.

**TABLE III.A.
 UNSATURATED ZONE DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<i>Laboratory Monitoring Parameters</i>		
VOCs by US EPA Method TO-15	ug/cm ³	Fall 2012, Spring 2013, Fall 2013, and a minimum of every 5 years thereafter
Methane	%	Semi-annual

C. LEACHATE SAMPLING

1. Monitoring Locations

- a. Leachate – Discrete samples will be taken from leachate extraction wells EW-11R, L-15, L-17R, L-11R, L-22, and L-20-R at each semi-annual monitoring event. Samples are also collected quarterly from the leachate tanker truck for disposal per Eureka Waste Water Treatment Plant’s requirements. The leachate tanker truck samples shall also be reported.

- b. Seeps - If new seeps are detected the discharger shall immediately sample the leachate for field parameters and monitoring parameters in Table IIIB. and continue to sample and report the leachate at frequencies listed in Table IIIB., thereafter. If the seep has been determined to contain leachate, steps shall be taken to abate the discharge.

2. Monitoring Schedule

The parameters and frequency of leachate monitoring is as follows:

**TABLE III.B.
 LEACHATE MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<i>Field Parameters</i>		
pH	pH units	Semi-Annually
Specific Conductance	Mhos/cm	Semi-Annually
Temperature	°C	Semi-Annually
Elevations	Ft./tenths TOC	Semi-Annually
Flow Rate	Gallons/Day	Monthly
Total Flow (for entire leachate collection system)	Gallons/Month	Monthly
<i>Monitoring Parameters</i>		
Chloride	mg/l	Semi-Annually
Sodium	mg/l	Semi-Annually
Potassium	mg/l	Semi-Annually
Calcium	mg/l	Semi-Annually
Sulfate	mg/l	Semi-Annually
Magnesium	mg/l	Semi-Annually
Chemical Oxygen Demand	mg/l	Semi-Annually
Bicarbonate/carbonate Alkalinity as CaCO ³	mg/l	Semi-Annually
Total Dissolved Solids (TDS)	mg/l	Semi-Annually
Ammonia as N	mg/l	Semi-Annually
VOCs (low level)	ug/l	Semi-Annually

Constituents of Concern (See Attachment 1)

Inorganics (dissolved)	mg/l	Five years
VOCs (low level)	ug/l	Five years
Semi-VOCs	ug/l	Five years
Chlorophenoxy Herbicides	ug/l	Five years
Organophosphorus Pesticides	ug/l	Five years
Polychlorinated Biphenyls	ug/l	Five years
Organochlorine Pesticides	ug/l	Five years

D. SURFACE WATER AND STORM WATER

1. Monitoring Locations

Monitoring point S-1 is downgradient of the toe berm and all sediment gabions, near the property boundary; S-1A is at the discharge of the third (as counted from upgradient to downgradient) toe berm sediment gabion which captures the discharge from the lower sediment pond and the side slope french drains placed in Summer 2005; S-8 is the outlet of the upper sediment pond discharge pipe; S-8A is the upper sediment pond near the inlet pipe; and S-9 is an established sampling point on a tributary of Ryan Creek, upgradient of Landfill activities, which the Discharger established during Winter 2005-06.. The surface water and storm water monitoring points for Cummings Road SWDS are shown in Attachment O.

2. Monitoring Schedule (Sampling and Laboratory Analysis)

Surface water and storm water monitoring points shall be sampled and analyzed in accordance with the schedule presented in the following table:

**TABLE III.C.
 SURFACE WATER AND STORM WATER DETECTION MONITORING PROGRAM**

Sampling Point (1)	Sampling Frequency	VOCs (3)	General Laboratory Parameters (4)	Field Parameters (5)	Laboratory Parameters (6)	Daily Rainfall
S-1	As Determined by Turbidity Values (2)			X		
S-1	Twice per season	X		X	X	
S-1A	As Determined			X		

Sampling Point (1)	Sampling Frequency	VOCs (3)	General Laboratory Parameters (4)	Field Parameters (5)	Laboratory Parameters (6)	Daily Rainfall
	by Turbidity Values (2)					
S-1A	Monthly (7)	X (8)	X (8)	X		
S-7	Twice per season	X		X	X	
S-8 or S-8A	As Determined by Turbidity Values (2)			X		
S-8	Twice per season	X		X	X	
S-8A	Monthly (7)		X (8)	X		
S-9	As Determined by Turbidity Values (2)			X		
S-9	Monthly (7)		X (8)	X		
S-9	Twice per season	X		X	X	
Springs/ Seeps (At Each Location)	Initial Sample	X (9)	X	X		
Springs/ Seeps (At Each Location)	After Storm Events Greater Than or Equal to 1.0 inches	X (8)		X		
At Landfill (10)	Daily					X
Nearby Official Weather Station (10)	Daily					X

(1) S-1 is downgradient of the toe berm and all sediment gabions, near the property boundary; S-1A is at the discharge of the third (as counted from upgradient to downgradient) toe berm sediment gabion which captures the discharge from the lower sediment pond and the side slope french drains placed in Summer 2005;

S-8 is the outlet of the upper sediment pond discharge pipe; S-8A is the upper sediment pond near the inlet pipe; and S-9 is an established sampling point on a subtributary of Ryan Creek, upgradient of Landfill activities, which the Discharger established during Winter 2005-06. The seeps/springs are locations identified by field personnel as defined by seep/spring inspection requirements listed below. All sample locations and identifications shall be clearly marked on the site map.

- (2) Compliance with turbidity requirements shall be determined by comparing the turbidity measurements for samples collected at S-1 and S-8 to the turbidity value measured in the sample collected at S-9. An exceedance is any instance where the turbidity value at either S-1 or S-8 is more than 20 percent higher than that at S-9. Note, if sampling at S-8 is not possible, then sampling at S-8A may be substituted. Sampling at S-8 is not required if there is not any discharge, but the discharge condition shall be noted in the report in place of the field parameter values. An exceedance at either discharge point shall trigger the need for a landfill inspection to search for the sediment discharge source, and if the source proves to be anything other than sediments already within the sedimentation basins, a higher sampling frequency shall be required as described below. Sampling shall occur when there is discharge from the lowest toe berm sediment gabion and/or from the upper sediment pond.

At the start of the rainy season, sampling for field parameters shall be conducted as soon as flow is observed from either S-1 or S-8. A discharge day is defined as a day when water is discharging either from the lowest toe berm sediment gabion or from the upper sediment pond (or both). If there is not a turbidity exceedance, then samples shall be collected on those days when rainfall equals or exceeds 0.50-inches in 24 hours.

If there is a turbidity exceedance at either location during a sampling event, the Discharger shall inspect the Landfill immediately to determine the source(s) of the discharge. The Discharger shall document the inspection, including, at a minimum, a visual inspection of the surface area upgradient of the exceedance and turbidity sampling at sufficient sampling points from the storm water conveyances above the sedimentation pond(s) to identify the sources that are causing exceedance in turbidity. These inspections shall be documented by narration; photographs of the upgradient turbidity sampling points and any erosion areas found by the inspection; and the turbidity sampling data. If the discharge is only from the within the sedimentation basins, and no other source is found, sampling may stop until the next day when rainfall equals or exceeds 0.50-inches in 24 hours. The landfill inspection and corresponding field parameter sampling shall occur each time there is a turbidity exceedance.

- If a source of sediment other than the sedimentation basins is found, then the Discharger shall document the problem and repair as necessary. Sampling for field parameters shall continue daily until two consecutive discharge days with no measured turbidity exceedances in S-1 or S-8 or when the Discharger can document that the turbidity discharge is only from within the sedimentation basins. Once this is achieved sampling frequency may be reduced to only those days when rainfall equals or exceeds 0.50-inches in 24 hours. Once there have been two consecutive rainfall events that equals or exceeds 0.50-inches in 24 hours with no measured turbidity exceedances in S-1 or S-8, then the sampling frequency may be reduced to only those days when rainfall frequency equals or exceeds 1.0-inches in 24 hours.
- (3) Volatile Organic Compounds (VOC) shall be analyzed using a full scan EPA Method 8260 (low level). Laboratory turnaround times shall allow all results for the month to be evaluated and presented in the next monthly report by the 15th of the following month.
 - (4) General laboratory parameters for the purposes of this Monitoring and Reporting Program include total suspended solids and chloride. Laboratory turnaround times shall allow all results for the month to be evaluated and presented in the next monthly report by the 15th of the following month.
 - (5) Field parameters are turbidity, pH, specific conductance, dissolved oxygen, temperature, and estimated flow (gallons per minute).
 - (6) Laboratory parameters for the purposes of this Monitoring and Reporting Program include ammonia as N, bicarbonate/carbonate alkalinity, biological oxygen demand, calcium, iron, magnesium, nitrate as N, oil and grease, potassium, sodium, sulfate, total organic carbon, total suspended solids, total dissolved solids, and total settleable solids.
 - (7) Sampling personnel shall select the day for collecting samples during any given month based on precipitation events. Ideal sampling days are either those in which significant precipitation is occurring or days immediately following a storm event. Whenever possible, sampling shall be conducted during or after a rain event that is approximately 0.50-inches in 24 hours or greater.
 - (8) Samples shall be taken the first month of discharge each rainy season and every other month thereafter until the seasonal discharge period ends.
 - (9) VOC sampling is only required when the specific conductivity result at a given location equals or exceeds 400 umhos/cm.

(10) Monthly monitoring reports shall indicate the locations of rain measuring stations.

Sampling will not be required on January 1, Thanksgiving Day, the day after Thanksgiving, or December 25, regardless of rainfall amounts.

The Discharger shall conduct an initial site inspection prior to October of each year to identify any current seeps or springs on any of the Landfill faces, the toe berm, or within 10 horizontal feet of the Landfill front face or toe berm (transitional area). The Discharger shall then inspect the site bimonthly during expected dry periods when seeps are most likely to be visible, and within two weeks of any rainfall events which exceed 1.0-inch of precipitation in a 24-hour period, as rainfall is measured at the Eureka NWS, to determine if there are any additional seep/spring locations that have not previously been identified. The Discharger shall also inspect the site regularly during the course of normal operations and any new seeps identified shall be tested and reported in the same manner as seeps identified during seep inspections. Locations identified during inspections shall be surveyed using GPS or traditional surveying methods, plotted on a site topographic map, and given discrete identifiers to use in reference to any sampling or observations, and sampled per requirements in Item No. 1 to determine if they are leachate (regardless of whether they are currently discharging). If leachate seepage (other than seeps collected and transported to storage facilities) is occurring, the Discharger shall mark the location of the occurrence, take immediate steps to prevent leachate from discharging to surface waters, and report the occurrence to the Regional Water Board by telephone within 24 hours. A field log of seep/spring inspections shall be compiled and submitted to the Regional Water Board with the sample results, and shall be included in the monthly monitoring report.

E. 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 whenever a pump is removed for maintenance or whenever the water becomes turbid during sampling for those locations that have dedicated pumps. At locations without dedicated pumps the amount of siltation shall be measured on an annual basis. Siltation information shall be used to make recommendations for well maintenance or replacement. Additional monitoring wells shall be added to the program as needed. Samples shall be collected from wells and springs at the frequency and for the parameters specified below.

1. Monitoring Locations

Monitoring points included in the current groundwater monitoring system consist of fourteen detection monitoring wells, thirteen corrective action wells, six piezometers (elevations only), and eleven springs. Two of the springs have two sampling locations.

The groundwater monitoring points for Cummings Road SWDS, shown in Attachment O, are as follows:

Hookton Formation Monitoring Wells:	MW-7-W, MW-14-H, MW-19-H, MW-22-H, MW-29-H, MW-30-H, MW-31-H, MW-32-H, MW-38-H, MW-39-H, MW-40-H, MW-51-H, and MW-53-H
Wildcat Group Monitoring Wells:	MW-15-W, MW-18-W, MW-21-W, MW-23-W, MW-25-W, MW-26-W, MW-28A-W, MW-45-W, MW-46-W, MW-47-W, MW-48-W, MW-49-W, and MW-52-W
Alluvium Monitoring Wells: Piezometers: (water levels only, both Hookton Formation and Wildcat Group piezometers are listed)	MW-5-AL MW-33-W, MW-34-W, MW-41-W, MW-42-H, MW-43-H and MW-44-H
Springs:	SPR-1, SPR-2, SPR-3, SPR-4, SPR-5, SPR-6, SPR-7-W, SPR-7-H, SPR-8, SPR-9, SPR-10, Woodgulch Spring A, and Woodgulch Spring

Sampling at the above listed groundwater monitoring locations shall occur on the following schedule:

**TABLE III.D.
 GROUNDWATER DETECTION AND CORRECTIVE ACTION
 MONITORING PROGRAM SAMPLING FREQUENCY**

Semi-annual:	MW-5-AL, MW-7-W, MW-14-H, MW-19-H, MW-32-H, MW-45-W, MW-46-W, MW-47-W, MW-53-H, SPR-1, SPR-2, SPR-8, Woodgulch Spring A, and Woodgulch Spring
Biennial-odd years:	MW-15-W, MW-21-W, MW-22-H, MW-29-H, MW-31-H, MW-38-H, MW-40-H, SPR-3, SPR-5, and SPR-10
Biennial –even years:	MW-18-W, MW-28A-W, MW-30-H, MW-39-H, SPR-4, SPR-6, SPR-7, and SPR-9

Annual:	MW-23-W, MW-25-W, MW-26-W, MW-48-W, MW-49-W, MW-51-H, and MW-52-W
Five Year COC – Full Scan	MW-5-AL, MW-7-W, MW-14-H, MW-15-W, MW-18-W, MW-19-H, MW-28A-W, MW-32-H, MW-45-W, MW-46-W, MW-47-W, MW-48-W, MW-49-W, MW-51-H, MW-52-W, MW-53-H, SPR-1, SPR-2, SPR-8, and Woodgulch Spring
Five Year COC – Routine Parameters and Ions	MW-23-W, MW-25-W, MW-26-W, MW-22-H, MW-29-H, MW-30-H, MW-40-H
Five Year COC – Routine Parameters, organochlorine pesticides, and ions	MW-21-W, MW-31-H, MW-38-H, and MW-39-H

2. Monitoring Schedule

The analytes and frequency of groundwater monitoring is as follows:

**TABLE III.E.
GROUNDWATER DETECTION AND CORRECTIVE
ACTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
<i>Field Parameters</i>		
pH	pH units	See Table III.D.
Specific Conductance	Mhos/cm	See Table III.D.
Temperature	°C	See Table III.D.
Groundwater Elevations	Ft./tenths TOC	Quarterly, All Wells and Piezometers
Turbidity	Turbidity units	See Table III.D.
Siltation in Well Casing	Ft./tenths	Annually, All Wells
<i>Monitoring Parameters</i>		
<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Chloride	mg/l	See Table III.D.
Sodium	mg/l	See Table III.D.
Potassium	mg/l	See Table III.D.
Calcium	mg/l	See Table III.D.
Sulfate	mg/l	See Table III.D.
Magnesium	mg/l	Semi-Annually
Bicarbonate/carbonate Alkalinity as	mg/l	See Table III.D.

CaCO ³		
Total Dissolved Solids (TDS)	mg/l	See Table III.D.
Ammonia as N	mg/l	See Table III.D.
VOCs (low level)	ug/l	See Table III.D.

***Constituents of Concern Full Scan
(See Attachment 1)***

Inorganics (dissolved)	mg/l	Five years
VOCs (low level)	ug/l	Five years
Semi-VOCs	ug/l	Five years
Chlorophenoxy Herbicides	ug/l	Five years
Organophosphorus Pesticides	ug/l	Five years
Polychlorinated Biphenyls	ug/l	Five years
Organochlorine Pesticides	ug/l	Five years

IV. 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 California Code of Regulations, title 27, section 20395, 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 background value established in the WDRs by the Regional Water Board for that constituent and medium;
- b. 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 MDL, in cases where less than 10 percent of the background samples exceed the constituent's MDL; or
 - a. 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** - As listed in Section III.B.1.
2. **Surface Water** - As listed in Section III.C.1.
3. **Groundwater** - As listed in Section III.D.1.

D. Points of Compliance

The point(s) of compliance at each groundwater monitoring point is the vertical surface located at the downgradient limit of the waste extending through the uppermost aquifer underlying the Landfill. The wells representing the point of compliance for the Landfill shall be MW-5-AL, MW-7-W, MW-14-H, MW-15-W, MW-18-W, MW-19-H, MW-28A-W, MW-32-H, MW-45-W, MW-46-W, MW-47-W, MW-48-W, MW-49-W, MW-51-H, MW-52-W, and MW-53-H. The point of compliance for surface water is S-1.

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

May 2, 2013

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