# STATE OF CALIFORNIA
# REGIONAL WATER QUALITY CONTROL BOARD
# CENTRAL COAST REGION
# 895 Aerovista Place, Suite 101
# San Luis Obispo, California 93401-7906

## MONITORING AND REPORTING PROGRAM NO. R3-2007-0027
**Waste Discharge Identification No. 3 420301002**

## FOR

## FOXEN CANYON CLOSED CLASS III LANDFILL
## SANTA BARBARA COUNTY

**PART I: MONITORING AND OBSERVATION SCHEDULE**

Unless otherwise indicated, all monitoring and observations shall be reported as outlined in **Part III**.

**A. SITE INSPECTIONS**

The Discharger shall inspect the Foxen Canyon Closed Class III Landfill (hereafter "Landfill"), in accordance with the following schedule, and record at a minimum, the Standard Observations listed below:

1. **Site Inspection Schedule**:

   a. During the wet season (**October through April**), following each storm that produces storm water runoff and discharge, with inspections performed at least monthly.
   b. During the dry season (**May through September**) minimum one inspection each **three month period**.

2. **Standard Observations**

   a. Along the Landfill perimeter
      i. Evidence of liquid leaving or entering the Landfill.
      ii. Evidence of odors.
      iii. Evidence of erosion and/or exposed waste.
      iv. Inspection of storm water discharge locations for evidence of non-storm water discharges during dry season, and integrity of drainage systems during wet season.
   b. At the Landfill
      i. Evidence of ponded water at any point on the Landfill.
      ii. Evidence of odors.
      iii. Evidence of erosion and/or exposed refuse.
      iv. Compliance with Storm Water Pollution Prevention Plan, insuring that the terms of the General Permit are properly implemented.
      v. Integrity of drainage systems.
   c. For Receiving Waters
      i. Floating and suspended materials of waste origin.
      ii. Discoloration and turbidity.
      iii. Evidence of odors.
      iv. Evidence of beneficial use – presence of water-associated wildlife.
      v. Estimated flow rate to the receiving water.

**B. DRAINAGE SYSTEMS INSPECTIONS**

The Discharger shall inspect all drainage control systems following each runoff-producing storm event and record the following information:

1. Whether stormwater sedimentation basins and drainage ditches contain liquids.

2. General conditions of the stormwater facilities.

3. Compliance with the Landfill's Stormwater Pollution Prevention Plan, insuring the terms of the General Industrial Stormwater Permit are properly implemented.

4. Steps taken to correct any problems found during inspection and date(s) when corrective action was taken.

**C. RAINFALL DATA**

The Discharger shall record the following information from the nearest monitoring station:

1. Total precipitation, in inches, during each **three month period.**

2. Number of storms (≥1 inch in 24 hours) received during each **three month period.**

3. Precipitation, in inches, and return interval (25 year, 100 year, etc.) during the most intense twenty-four hour storm of each **three-month period**.

**D. POLLUTION CONTROL SYSTEMS INSPECTIONS**

The Discharger shall inspect all pollution control systems and record the following information as appropriate:

1. Landfill Gas Extraction System

   a. Monthly - inspect entire landfill gas extraction system for system integrity. Include monthly inspection, maintenance and testing demonstrations in Semiannual monitoring reports;
   b. Monthly - Record volume of landfill gas extracted. Report monthly volume and annual sub-totals. Indicate how volume measurement is made;
   c. Monthly - Record volume of landfill gas condensate. Report monthly, semiannual and annual sub-totals in Semiannual reports and report disposal method utilized. When more than one disposal method is used, be volume specific for each method;
   d. Semiannually - Using most recent landfill gas and condensate contaminant concentration data and collection volume, compute contaminant mass removed on a semiannual basis.
   e. Annually - submit an annual operational summary for the landfill gas extraction system;
   f. Annually - Sample landfill gas in the collection header and analyze for volatile organic compounds (VOCs).
   g. Annually - Sample landfill gas condensate and analyze for VOCs; and
   h. Annually – Summarize and report all scheduled and unscheduled maintenance.

**E. EVAPOTRANSPIRATIVE COVER PERFORMANCE MONITORING**

The Discharger shall evaluate final cover performance for a minimum of five years starting in January 2009:

1. Soil Moisture Analyses – Soil moisture profiles shall be monitored at locations approved by the Executive Officer. Moisture shall be monitored using solid state electronic monitoring devices, installed to report soil moisture content at six-inch vertical intervals within the cover section with one monitoring point at the base of the cover. Monitoring probes shall be standard of practice soil moisture monitoring instruments,

calibrated and installed to manufacturer's specifications. A data logger shall be incorporated to collect and store soil moisture data on a hourly basis.

2. Climatological Data – A local climatological data station may be used to collect daily values of solar radiation, windspeed and direction, relative humidity, temperature, and precipitation for purposes of estimating potential evapotranspiration; however, these data must correlate with local site conditions.

3. Vegetation Data – On an annual basis, visually estimate the vegetation coverage and vegetative health over the landfill cover and compare that condition to the initial model assumptions and vegetative coverage from previous years.

4. Soil Profile Data – On an annual basis, visually inspect the cover including but not limited to three specific transects, describe the surface soil conditions, including any evidence of preferential pathways for percolation of moisture.

## F. GROUNDWATER MONITORING

Unless otherwise authorized by the Executive Officer, all new groundwater-monitoring wells shall be incorporated into this monitoring and reporting program, and shall be sampled on a quarterly basis for a minimum of four consecutive quarters. Changes to the monitoring frequency, Monitoring Parameters or Constituents of Concern may be made upon receiving prior written approval from the Executive Officer. The Groundwater Monitoring Points shall include those shown in Table 1 below, locations are shown on R3-2007-0027, Attachment 2. For each monitored groundwater body, the water level in each well and piezometer shall be measured, at least quarterly, including the times of expected highest and lowest elevations of the water level. Horizontal and vertical gradients, groundwater flow rate, and direction for the respective groundwater body shall also be determined. Groundwater elevations for all wells in 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 flow rate and direction. The observed groundwater characteristics shall be compared with those of previous determinations, noting the appearance of any trends, and of any indications that a change in the hydrogeologic conditions beneath the site has occurred. This information shall be reported in the Semiannual Monitoring Reports.

## G. STORM WATER MONITORING

Unless required more frequently due to an indication of a release, the storm water discharge point(s) shall be monitored in accordance with the facility's National Pollutant Discharge Elimination System permit (NPDES). Storm water is sampled at the last accessible point before the storm water is discharged offsite. Samples are collected for two storm events per year, and within the first hour of discharge. Analytical analysis of the storm water samples includes pH, total suspended solids, specific conductance, oil and grease, and iron. Storm water discharge point(s) shall be monitored In accordance with the facility's National Pollutant Discharge Elimination System permit (NPDES).

## H. ANALYTICAL MONITORING AND MONITORING LOCATIONS

The Discharger shall monitor the Landfill monitoring points in accordance with the following schedule(s). Monitoring locations are shown on R3-2007-027, Attachment 2, and include groundwater monitoring wells, gas collection wells and headers, and surface water locations. Locations shall be sampled for Parameters shown in Table 2, and Constituents of Concern shown in Table 3.

1. **Groundwater and Surface Water Monitoring Parameters:** Monitoring Points shall be analyzed per **Table 1** for the Monitoring Parameters listed in Table 2. The groundwater and surface water monitoring point locations are shown in R3-2007-0027, Attachment 2.

2. **Landfill Gas Migration Monitoring:**
   Gas probes and on-site structures adjacent to the waste deposit areas shall be monitored **quarterly** for the monitoring parameters in Table 4 except for VOCs. Monitoring results shall be submitted to the Board in Semiannual reports and include information specified in Title 27, Section 20934.

3. **Constituents of Concern:** The Constituents of Concern (COC) includes constituents listed in **Table 3**, below. Monitoring for COC shall encompass only those COCs that do not also serve as Monitoring Parameters. Analysis of COCs shall be carried out **once every five years**, at each of the site's groundwater and surface water monitoring points, unless required more frequently due to an indication of a release. Wells that have not previously been sampled for COCs shall be sampled and analyzed for all COCs within three months of this program becoming effective.

4. **Sample Procurement Limitation:** For any given monitored medium, the samples taken from Monitoring Points to satisfy the data analysis requirements for a given Monitoring Period shall be taken within a span not exceeding 30 days, and shall be taken in a manner that ensures sample independence to the greatest extent feasible [CCR Title 27, Section 20415(e)(12)(B)]. Sampling for successive monitoring periods shall occur at least 30 days apart.

## TABLE 1
## MONITORING POINTS

| Monitoring Points (See Attachment 2) | | Monitoring Program | | Monitoring Parameters/Frequency | | |
|---|---|---|---|---|---|---|
| Well ID | Monitoring Zone | Detection Monitoring | Corrective Action Monitoring | Parameters | COCs[1] | Frequency[2] |
| MW-3 | Paso Robles Formation | X | | Table 2 | Table 3 | Semiannually |
| MW-4 | Paso Robles Formation | X | | Table 2 | Table 3 | Semiannually |
| MW-8 | Paso Robles Formation | X | | Table 2 | Table 3 | Semiannually |
| MW-9 | Alluvium Perched Zone | | X | Table 2 | Table 3 | Quarterly |
| MW-10 | Alluvium Perched Zone | | X | Table 2 | Table 3 | Quarterly |
| LY-1 | Vadose Zone | | X | Table 2 | Table 3 | Quarterly |
| LY-2 | Vadose Zone | | X | Table 2 | Table 3 | Quarterly |
| SWMP1 | Surface Water | X | | Table 2 | Table 3 | Semiannually[3] (During a flow event) |
| Gas Probes | Gas Migration | X | | Table 4 (w/o VOCs) | | Quarterly |
| Gas Collection Header | Collection System | | X | Table 4 | | Annually |
| Gas Condensate | Collection System | | X | VOCs | | Annually |

(1) Sample once every five years for full suite of analytes listed in Table 3. Next sampling event August 2008
(2) Quarterly monitoring shall be performed during Jan.-Mar., April-June, July-Sept., and Oct.-Dec. and includes water levels for all wells and piezometers. Semiannual monitoring shall be performed during Jan.-June and July-Dec.
(3) SWMP1 shall also be monitored if the Discharger observes an impact from the Landfill to runoff (ie. Leachate seep, exposed waste)

## TABLE 2
## MONITORING PARAMETERS

| Parameter | USEPA Method[4] | Units |
|---|---|---|
| Well Water Elevation and Depth [1] | Sounder | 0.01 feet |
| Electrical Conductivity | Field | µmhos/cm |
| pH | Field | pH Units |
| Temperature | Field | $^{o}F/^{o}C$ |
| Turbidity | Field | NTU |
| Dissolved Oxygen | Field | Varies |
| Barium (dissolved) [2] | 200.8/3015/6020A/6010B | mg/L |
| Chemical Oxygen Demand [2] | 410.1 | mg/L |
| Chloride [2] | 300.0/9253 | mg/L |
| Nitrate (as Nitrogen) [2] | 300.0/353.2 | mg/L |
| Sodium [2] | 200.7/3015/6010B | mg/L |
| Sulfate [2] | 300.0 | mg/L |
| Total Dissolved Solids (TDS) [2] | 160.1 | mg/L |
| VOCs [3] (including oxygenates). | 8260B | µg/L |

(1) Water elevation shall be recorded from all monitoring wells and piezometers **QUARTERLY** as defined in Table 1.
(2) Are subject to the statistical evaluation method described in Part II.D. of the Sample and Collection and Analysis Section, herein.
(3) The VOCs include all Volatile Organic Compounds (VOCs) detectable using USEPA Method 8260B including at a minimum all 47 VOCs listed in Appendix I to 40 CFR 258, and all unidentified peaks. Oxygenates include methyl tertiary-butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tertiary-butyl ether (ETBE), tertiary-amyl methyl ether (TAME), and tertiary-butyl alcohol (TBA). VOCs will be subjected to the non-statistical evaluation method described in Part II.E. of the Sample Collection and Analysis Section, herein.
(4) Or most recently approved EPA method that provides the lowest practicable detection limits.

**TABLE 3**
**CONSTITUENTS OF CONCERN**

| Parameter[1] | Method[2] | Units |
|---|---|---|
| Antimony | 6010B | mg/L |
| Arsenic | 7060A | mg/L |
| Barium | 6010B | mg/L |
| Beryllium | 6010B | mg/L |
| Cadmium | 6010B | mg/L |
| Chromium | 6010B/7196A | mg/L |
| Cobalt | 6010B | mg/L |
| Copper | 6010B | mg/L |
| Cyanide | 9010 or 335.2 | mg/L |
| Lead | 7421 | mg/L |
| Magnesium | 6010B | mg/L |
| Mercury | 7470A | mg/L |
| Nickel | 6010B | mg/L |
| Selenium | 7740 | mg/L |
| Silver | 6010B | mg/L |
| Sulfide | 9030B or 376.1 | mg/L |
| Thallium | 7841 | mg/L |
| Tin | 6010B | mg/L |
| Vanadium | 6010B | mg/L |
| Zinc | 6010B | mg/L |
| Chlorophenoxy Herbicides | 8151A | µg/L |
| Organochlorine Pesticides | 8081A | µg/L |
| Organophosphorous Pesticides | 8141A | µg/L |
| PCBs | 8082 | µg/L |
| Phthalate Esters | 8060 | µg/L |
| Phenols | 8040 | µg/L |
| Nonhalogenated Volatiles | 8015M | µg/L |
| Semi-Volatile Organic Compounds | 8270C | µg/L |
| Volatile Organic Compounds, Appendix II[3] | 8260B | µg/L |

(1) The Discharger shall analyze for all parameters using the USEPA analytical methods indicated above (or updated method), including all constituents listed in Appendix II to 40 CFR, Part 258. Wells that are normally monitored for COCs in Table 2 do not need to be re-sampled for same constituents in Table 3, during COC sampling events. The Quarterly, Semiannual, and COC monitoring event shall be conducted simultaneously.

(2) Or most recently approved EPA method that provides the lowest practicable detection limits.

(3) Includes MTBE (EPA Method 8260B), 1,4-Dioxane, TBA

**TABLE 4**
**LANDFILL GAS MONITORING PARAMETERS**

| Parameter | Method | Units |
|---|---|---|
| Methane | Field | ppm |
| Carbon Dioxide | Field | ppm |
| Oxygen | Field | ppm |
| VOCs | TO-14 | ppmv |

## PART II: SAMPLE COLLECTION AND ANALYSIS

### A. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analysis shall be performed according to the most recent version of Standard U.S. Environmental Protection Agency (USEPA) methods (USEPA publication "SW-846"), and in accordance with a sampling and analysis plan approved by the Water Board's Executive Officer. All water analyses shall be performed by a laboratory certified for these analyses by the State of California Environmental Laboratory Program. Specific methods of analysis must be identified. The director of the laboratory whose name appears in the certification shall supervise all analytical work in his/her laboratory and shall sign reports of such work submitted to the Board. In addition, the Discharger is responsible for seeing that the laboratory analysis of samples from Monitoring Points meets the following restrictions:

1. **Methods Selection:** The methods of analysis and the detection limits used must be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e. Trace) in historical data for that medium, the analytical method having the lowest Method Detection Limit (MDL) shall be selected.

2. **Trace results:** Results falling between the MDL and the Practical Quantitation (PQL) Limit shall be reported as "trace", and shall be accompanied by both the (nominal or estimated) MDL and PQL values for that analytical run.

3. **Nominal or Estimated MDL and PQL:** The nominal MDL and PQL shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. Both shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. If the laboratory suspects that, due to a change in matrix or their effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived values, the results shall be flagged accordingly, and an estimate of the limit actually achieved shall be included.

4. **Quality Assurance and Quality Control (QA/QC) data:** All QA/QC data shall be reported along with the sample results to which it applies. Sample results shall be reported unadjusted for blank results or spike recovery. The QA/QC data submittal shall include:

    a. Method, equipment, and analytical detection limits.
    b. Recovery rates, an explanation for any recovery rate that is outside the USEPA-specified recovery rate.
    c. Results of equipment and method blanks.
    d. Results of spiked and surrogate samples.
    e. Frequency of quality control analysis.
    f. Chain of custody logs.
    g. Name and qualifications of the person(s) performing the analyses.

5. **Common Laboratory Contaminant:** QA/QC analytical results involving detection of common laboratory contaminants in any sample shall be reported and flagged for easy reference.

6. **Unknowns:** Non-targeted chromatographic peaks shall be identified, quantified, and reported to a reasonable extent. When significant unknown peaks are encountered, second column or second method confirmation procedures shall be performed in attempt to identify and more accurately quantify the unknown analyte(s).

7. **Other Contaminants:** In cases where contaminants are detected in QA/QC samples (i.e. filed, trip, or lab blanks), the accompanying results shall be appropriately flagged for easy reference.

## B. CONCENTRATION LIMIT DETERMINATION

1. The concentration limit for Monitoring Parameters and Constituents of Concern shall be determined as follows:
   a. In cases where the constituent's Method Detection Limit is exceeded in less than ten percent of the historical samples, the MDL is the Concentration Limit.
   b. In cases where the constituent's MDL is exceeded in ten percent or more of the historical sample, a statistically based Concentration Limit must be defined and regularly updated as follows:
      i. Statistically analyze existing monitoring data, and propose, to the Executive Officer, statistically derived Concentration Limits for each Constituent of Concern and each Monitoring Parameter at each Monitoring Point for which sufficient data exists.
      ii. In cases where sufficient data for statistically determining Concentration Limits does not exist the Discharger shall collect samples and analyze for Constituent(s) of Concern and Monitoring Parameter(s) which require additional data. Once sufficient data is obtained, the Discharger shall submit proposed Concentration Limit(s) to the Executive Officer for approval. This procedure shall take no longer than two calendar years.
      iii. Sample and analyze new Monitoring Points, including any added by this monitoring and reporting program, until sufficient data is available to establish a proposed Concentration Limit for all COC and Monitoring Parameters. Once sufficient data is obtained the Discharger shall submit the proposed Concentration Limit(s) to the Executive Officer for approval. This procedure shall take no longer than two calendar years.

2. The Discharger shall review Concentration Limits annually. The past years data will be reviewed for application to revision of Concentration Limits. When appropriate, new Concentration Limits shall be proposed along with technical rationale for proposing the change.

## C. RECORDS TO BE MAINTAINED

Records shall be maintained in accordance with CCR Title 27 §21720(f). Analytical records shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of five years. The period of retention shall be extended during the course of any unresolved litigation or when requested by the Executive Officer. Such records shall show the following of each sample:

1. Identification of sample, Monitoring Point from which the sample was taken, and individual that obtained the sample.

2. Date and time of sampling.

3. Date and time that analyses were started and completed, and the name of personnel performing each analysis.

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.

5. Results of analyses, and Methods Detection Limit and Practical Quantitation Limit for each analysis.

6. A complete chain of custody log.

## D. STATISTICAL ANALYSIS

For Detection Monitoring during a COC event, the Discharger shall use statistical methods to analyze COCs that exhibit concentrations that equal or exceed their respective MDL in at least ten percent of applicable historical samples. For routine (i.e., semiannual) detection monitoring, the Discharger shall apply statistical methods for those Detection Monitoring Parameters defined in **Table 2** of Part I.G. The Discharger may

propose and use any statistical method that meets the requirements of California Code of Regulations, Title 27, Section 20414(e)(7). All statistical methods and programs proposed by the Discharger are subject to Executive Officer approval.

**E. NON-STATISTICAL METHOD**

The Discharger shall use the following non-statistical method for analyzing constituents, which are detected in less than 10% of applicable historical samples. This method involves a two-step process:

1. From constituents to whom the method applies, compile a specific list of those constituents, which exceed their respective MDL. The list shall be compiled based on either data from the single sample or in cases of multiple independent samples, from the sample, which contains the largest number of constituents.

2. Evaluate whether the listed constituents meet either of two possible triggering conditions. Either the list from a single well contains two or more constituents, or contains one constituent, which equals or exceeds its Practical Quantitation Limit. If either condition is met, the Discharger shall conclude that a release is tentatively indicated and shall immediately implement the appropriate re-test procedure under Part III.C.

**F. RE-TEST PROCEDURE**

1. In the event that the Discharger concludes that a release has been tentatively indicated, the Discharger shall carry out the appropriate reporting requirements and, within 30 days of receipt of analytical results, collect two new suites of samples for the indicated COC or Monitoring Parameter(s) at each indicating Monitoring Point, collecting at least as many samples per Monitoring Point as were used for the initial test.

2. Analyze each of the two suites of re-tested data using the same statistical method (or non-statistical comparison) that provided the tentative indication of a release. If the test results of either (or both) of the re-tested data suites confirm the original indication, the Discharger shall conclude that a release has been discovered and shall carry out the requirements of Part IV.C.

3. Re-tests shall be carried out only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the COC for Monitoring Parameter(s) which triggered the indication. When an analyte of the VOC composite parameter is re-tested the results of the entire VOC composite shall be reported. In that case, a re-test shall validate the original release in the sample, which initiated the re-test.

**PART III: REPORTING**

**A. MONITORING REPORT**

A written Monitoring Report shall be submitted semi-annually by **July 31st and January 31st** of each year. Monitoring Reports will be submitted in an electronic format, with text, tables, figures, laboratory analytical data, and appendices placed on a compact disc in PDF format. Accompany the electronic version of the report will be a hard copy transmittal letter, with signatures of preparers and submitters (in accordance with Provision - Reporting E.13 & 21 of Waste Discharge Requirements Order No. R3-2007-0027), along with an abstract of the report text. The Monitoring Report shall address all facets of the Landfill's monitoring. Reports shall include, at a minimum, the following:

1. **Letter of Transmittal:** A letter transmitting the essential points shall accompany each report. The letter shall include a discussion of violations that occurred since the last such report was submitted. If no new violations have been discovered since the last submittal, this shall be stated in the transmittal letter. Both the monitoring report and the transmittal letter shall be signed by a principal executive officer at the level of vice president. Upon Water Board Executive Officer approval, the cited signature can be by a California Registered Civil Engineer or Certified Engineering Geologist who has been given signing

authority by the cited signatories. The transmittal letter shall 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 update shall contain at least:

   a. Discussion of compliance with concentration limits. Release indications and actions taken.
   b. For each monitored groundwater body, calculate groundwater velocity and, based upon water level elevations taken during the Monitoring Period, graphically present groundwater flow direction under and around the Unit.

3. **Graphical Presentation of Analytical Data:** For each Monitoring Point in each medium, submit, in graphical format, the complete history of laboratory analytical data. Graphs shall effectively illustrate trends and/or variations in the laboratory analytical data (e.g., proper scale). Each graph shall 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. Maximum contaminant levels (MCL) and/or concentration limits shall be graphed along with constituent concentrations where applicable. When multiple samples are taken, graphs shall plot each datum, rather than plotting mean values.

4. **Corrective Action Summary:** Discuss significant aspects of any corrective action measures conducted during the monitoring period. Calculate pollutant load removed from the sites impacted media by mass (water, gas, leachate) removal system(s). Mass removal calculations shall be based on actual analytical data as required by Part I.E. Present discussion and indications, relating mass removal data to the violation the corrective action is addressing.

5. **Evapotranspirative Cover Performance Evaluation:**

   a. Collect Part I.E. water balance parameter data over a five-year duration starting in January 2009.
   b. Provide the Executive Officer with Part I.E. parameter data on a semiannual basis; in addition, provide tables, graphs, and preliminary performance evaluation in two biannual reports (estimated submittal with the January 2011 and 2013 semiannual monitoring reports).
   c. At the end of the five-year monitoring period, model unsaturated zone soil moisture variability using rigorous unsaturated flow software (such as UNSAT-H, or an equivalent computer code) and representative soil permeabilities and soil-moisture characteristic curves.
   d. Use the results of Part 5.c modeling to check the integrity of the alternative cover design model by comparing the simulated versus actual moisture contents. If observed field conditions (moisture content, vegetation, and soil permeability) are not accurately represented by the design model, or if modeling does not mimic the moisture contents observed, then the model shall be re-calibrated using updated input parameters.
   e. Once consistency is achieved between the simulated and monitored data, compare the flux performance of the alternative to the prescriptive standard cover section, using actual water balance parameter data, and data from relative wet periods in the climatological record (if necessary). Provide the results in one final report at the end of the five-year monitoring period (estimated submittal due with the January 2014 semiannual monitoring report).
   f. If modeling results in percolation estimates that exceed the prescriptive performance criteria, then the Discharger shall develop a final cover evaluation report including recommendations for mitigation of observed cover conditions in accordance with the submittal requirements for an evaluation monitoring program and engineering feasibility study (Section 20415, CCR Title 27).

6. **Laboratory Results:** Laboratory results and statements demonstrating compliance with Part II (Sample Collection and Analysis) and results of analyses performed at the Landfill, outside the requirements of this MRP, shall be summarized and reported.

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; description of any anomalies).

8. **Standard Observations:** A summary of Standard Observations made during the Monitoring Period as described in Part I.A.2.

9. **Map(s):** A map or an aerial photograph showing Monitoring Points, relative physical features, and with groundwater contours overlaid on the map or the aerial photograph to the greatest degree of accuracy possible.

10. **Proof of Notice to "Affected Persons"**

    a. Copy of mailing list of "Affected Persons."
    b. Copy of letter sent to "Affected Persons."

**B. ANNUAL SUMMARY REPORT**

The Discharger shall submit an annual report to the Water Board covering the previous monitoring year. The annual Monitoring Period ends on December 31st each year. This report may be combined with the Second Semiannual Monitoring Report of the year and shall be submitted no later than **January 31st** each year. The annual report must include the information outlined in Part III.A., above, and the following:

1. **Discussion:** Include a comprehensive discussion of the compliance record, a review of the past year's significant monitoring system and operational changes, a summary of corrective action results and milestones, and a review of construction projects, with water quality significance, completed or commenced in the past year or planned for the upcoming year.

2. **Statistical Limit Review:** Statistically derived concentration limits shall be reviewed annually and revised as necessary. Data collected during the past year shall be discussed and considered for inclusion in, and determination of, proposed limits for the coming year. For statistical limits that are changed from the previous year, include a comprehensive discussion of the proposed limit for Executive Officer review and consideration.

3. **Analytical Data:** Complete historical analytical data presented in a tabular form and on 3.5" diskettes or CD-ROM, and Excel™ format or in another file format acceptable to the Executive Officer.

4. **Graphical Presentation of Data:** All monitoring analytical data obtained during the previous year, presented in tabular and graphical form as well as on **CDROM**, in MS-EXCEL format or in another file format acceptable to the Executive Officer. Additionally complete data histories of each well shall be submitted on **CDROM**.

5. **Gas Collection System:** Results of annual gas collection system and condensate testing as required by Part I.D.1. Where condensate is used for dust control, testing that shows the condensate is non-hazardous shall be submitted annually.

6. **Map(s):** A map, or set of maps, that indicate(s) the type of cover material in place (final, long-term intermediate, or intermediate) over inactive and completed areas.

## C. CONTINGENCY RESPONSE

1. **Leachate Seep:** The Discharger shall, within 24 hours, report by telephone or electronic mail concerning the discovery of any previously unreported seepage from the Landfill disposal area. A written report shall be filed with the Water Board within **seven days**, containing at least the following information:

   a. **Map** - a map showing the location(s) of seepage.
   b. **Flow rate** - an estimate of the flow rate.
   c. **Description** - a description of the nature of the discharge (e.g., all pertinent observations and analysis).
   d. **Location** - Location of sample(s) collected for laboratory analysis, as appropriate.
   e. **Corrective measures** - A summary of corrective measures both taken and proposed.

2. **Physical Evidence of a Release:** If either the Discharger or the Water Board Executive Officer determines that there is significant physical evidence of a release pursuant to Title 27, Section 20385(a)(3), the Discharger shall conclude that a release has been discovered and shall:

   a. Within seven days notify the Water Board of this fact by certified mail (or acknowledge the Regional Water Board's determination).
   b. Carry out the appropriate Release Discovery Response for all potentially-affected monitored media.
   c. Carry out any additional investigations stipulated in writing by the Water Board Executive Officer for the purpose of identifying the cause of the indication.

3. **Responses to an Initial Indication of a Release**
   Should the initial statistical or non-statistical comparison (under Part II.D.) indicate that a new release is tentatively identified, the Discharger shall:

   a. Within 24 hours, notify the Board verbally or via electronic mail as to the Monitoring Point(s) and constituent(s) or parameter(s) involved;
   b. Provide written notification by certified mail within seven days of such determination; and,
   c. Either of the following:
      i Shall carry out a discrete re-test in accordance with Part II.F. If the re-test confirms the existence of a release or the Discharger fails to perform the re-test, the Discharger shall carry out the requirements of Part III.C.4. In any case, the Discharger shall inform the Board of the re-test outcome within 24 hours of results becoming available, following up with written results submitted by certified mail within seven days, or;
      ii Make a determination, in accordance with Title 27, Section 20420(k)(7), that a source other than the waste management unit caused the release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in the groundwater, surface water, or the unsaturated zone.

4. **Release Discovery Response**
   If the Discharger concludes that a new release has been discovered the following steps shall be carried out:

   a. If this conclusion is not based upon monitoring for COC, the Discharger shall sample for COC at Monitoring Points in the affected medium. Within seven days of receiving the laboratory analytical results, the Discharger shall notify the Executive Officer, by certified mail, of the concentration of COC at each Monitoring Point. This notification shall include a synopsis showing, for each Monitoring Point, those constituents that exhibit an unusually high concentration;
   b. The Discharger shall, within 90 days of discovering the release, submit to the Executive Officer a Revised Report of Waste Discharge proposing an Evaluation Monitoring and Reporting Program that:
      i. meets the requirements of Title 27, Sections 20420 and 20425; and

ii. satisfies the requirements of 40 CFR Section 258.55(g)(1)(ii) by committing to install at least one monitoring well directly down-gradient of the center of the release;

c. The Discharger shall, within 180 days of discovering the release, submit to the Executive Officer a preliminary engineering feasibility study meeting the requirements of Title 27, Section 20420; and

d. The Discharger shall immediately begin delineating the nature and extent of the release by installing and monitoring assessment wells as necessary to assure that the Discharger can meet the requirements of Title 27, §20425 to submit a delineation report within 90 days of when the Executive Officer directs the Discharger to begin the Evaluation Monitoring Program.

5. **Release Beyond Facility Boundary**
Any time the Discharger or the Executive Officer concludes that a release from the Unit has migrated beyond the facility boundary, the Discharger shall so notify persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).

a. Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the Discharger's current knowledge of the nature and extent of the release.

b. Subsequent to initial notification, the Discharger shall provide updates to Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding there has been any material change in the nature or extent of the release.

c. Each time the Discharger sends a notification to Affected Persons (under a. or b. above), the Discharger shall, within seven days of sending such notification, provide the Executive Officer with both a copy of the notification and a current mailing list of Affected Persons.

**PART IV: DEFINITION OF TERMS**

A. **AFFECTED PERSONS -** Individuals who either own or reside upon the land which directly overlies any part of that portion of a gas or liquid phase release that may have migrated beyond the facility boundary.

B. **CONCENTRATION LIMITS -** The Concentration Limit for any given COC or Monitoring Parameter in a given monitored medium shall be either:

1. The constituent's statistically determined background value or interval limit, established using an Executive Officer approved method (Part II); or

2. In cases where the constituent's MDL is exceeded in less than 10% of historical samples, the MDL is the concentration limit defined in **Part II. A.1.**

**C. CONSTITUENTS OF CONCERN (COC) -** A broad list of constituents likely to be present in a typical landfill, as listed in **Table 3.**

D. **MATRIX EFFECT -** Any increase in the MDL or Practical Quantitation Limit for a given constituent as a result of the presence of other constituents, either of natural origin or introduced through a release, that are present in the sample being analyzed.

E. **METHOD DETECTION LIMIT (MDL) -** The lowest concentration at which a given laboratory, using a given analytical method to detect a given constituent, can differentiate with 99% reliability, between a sample which contains the constituent and one which does not. The MDL shall reflect the detection capabilities of the specific analytical procedure and equipment used by the laboratory.

**F. MONITORED MEDIUM -** Those media that are monitored pursuant to this Monitoring and Reporting Program (groundwater, surface water, liquid, leachate, gas condensate, and other as specified).

G. **MONITORING PARAMETERS** - A short list of constituents and parameters used for the majority of monitoring activities. The Monitoring Parameters for this Unit are listed in **Table 2**.

H. **MONITORING PERIOD (frequency)** - The duration of time during which a sampling event must occur. Monitoring Period for analysis of all Constituents of Concern is five years; the Monitoring Period for the various monitoring points is shown in **Table 1**. Quarterly monitoring shall be performed each February, May, August, and November and includes water levels for all wells and piezometers. Semiannual monitoring shall be performed in February and August. The due date for the first Semi-annual report is July 31st. The due date for the second semi-annual report is January 31st. The due date for the annual summary is January 31st.

I. **MONITORING POINT** - A well, device, or location specified in the waste discharge requirements (WDR) at which monitoring is conducted.

J. **MUNICIPAL SOLID WASTE LANDFILL UNIT OR UNIT** - A discrete area of land or an excavation that receives waste and may be a new unit, an existing unit or a lateral expansion.

K. **POINT OF COMPLIANCE** - A vertical surface located at the hydraulically downgradient limit of a waste management unit (Unit) and that extends through the uppermost aquifer underlying the Unit.

L. **PRACTICAL QUANTITATION LIMIT (PQL)** - The lowest acceptable calibration standard (acceptable as defined for a linear response or by actual curve fitting) times the sample extract dilution factor times any additional factors to account for Matrix Effect. The PQL shall reflect the quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. PQLs reported by the laboratory shall not simply be restated from USEPA analytical method manuals. Laboratory derived PQLs are expected to closely agree with published USEPA estimated quantitation limits (EQL).

M. **RECEIVING WATERS** - Any surface water, which actually or potentially receives surface or groundwater, which pass over, through, or under waste materials or contaminated soils.

N. **VOLATILE ORGANIC COMPOUND (VOC) COMPOSITE MONITORING PARAMETER (VOC composite)** - VOC composite is a composite parameter that encompasses a variety of VOCs. The constituents addressed by the VOC composite Monitoring Parameter includes all VOCs detectable using USEPA Methods, 8260 (water) and TO-14 (gas).

O. **WASTE MANAGEMENT UNIT OR UNIT** - An area of land, or a portion of a waste management facility, at which waste is discharged. The term includes containment features and ancillary features for precipitation and drainage control and for monitoring.

P. **WASTE MANAGEMENT UNIT BOUNDARY** - A vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer.

Q. **WASTE MANAGEMENT FACILITY** - The entire parcel of property at which waste discharge operations are conducted. Such a facility may include one or more waste management units.

**ORDERED BY:** _____
Executive Officer

**DATE:** 9-18-07