

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**

MONITORING AND REPORTING PROGRAM R7-2014-0013
FOR

IMPERIAL LANDFILL, INC., OWNER/OPERATOR
ALLIED IMPERIAL LANDFILL

CLOSURE AND POST CLOSURE MAINTENANCE OF
ALLIED IMPERIAL CLASS III LANDFILL UNIT 1

and

ALLIED IMPERIAL ACTIVE CLASS III LANDFILL UNIT 2

MUNICIPAL SOLID WASTE MANAGEMENT FACILITIES
East of Imperial - Imperial County

CONSISTS OF

PART I, PART II, AND PART III

PART I

A. GENERAL

A Discharger who owns or operates a Waste Management Facility is required to comply with the provisions of Chapter 3, Subchapter 3, Article 1, Title 27, California Code of Regulations for the purpose of detecting, characterizing, and responding to releases to the ground water from the Waste Management Facility (WMF). California Water Code Section 13267 gives the Colorado River Basin Water Board authority to require monitoring program reports for discharges that could affect the quality of waters within its region. State Water Resources Control Board Resolution No. 93-062 requires the Colorado River Basin Water Board to implement federal Municipal Solid Waste Regulations (Title 40 Code of Federal Regulations, Parts 257 and 258).

This self-monitoring program is issued pursuant to Provision No. 9 of Colorado River Basin Water Board Order R7-2014-0013. The principal purposes of a self-monitoring program by a waste discharger are:

1. To document compliance with WDRs and prohibitions established by the Colorado River Basin Water Board;
2. To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge;
3. To prepare water quality analyses.

B. DEFINITION OF TERMS

1. The "Monitored Media" are those water- or gas-bearing media that are monitored pursuant to this Monitoring and Reporting Program. The monitored Media may include: (1) ground water in the uppermost aquifer, in any other portion of the zone of saturation (Section 20164, Title 27) in which it would be reasonable to anticipate that waste constituents migrating from the WMF could be detected, and in any perched zones underlying the WMF, (2) any bodies of surface water that could be measurably affected by a release, (3) soil-pore liquid beneath and/or adjacent to the WMF, and (4) soil-pore gas beneath and/or adjacent to the WMF.
2. The "Constituents of Concern (COC)" are those constituents which are likely to be in the waste in the landfill or which are likely to be derived from waste constituents, in the event of a release. The list of Constituents of Concern for this WMF is found in Part II.B.1 and Part II.B.2 of this program.
3. The "Monitoring Parameters" consists of a short list of constituents and parameters used for the majority of the monitoring activity. The list of Monitoring Parameters for this WMF is found in Part III. Summary of Monitoring and Reporting Programs, C.1. Of this program. Monitoring for the short list of Monitoring Parameters constitutes "indirect monitoring", in that the results are used to indirectly indicate the success or failure of adequate containment for the longer list of Constituents of Concern.

4. The “Volatile Organics Composite Monitoring Parameter for Water (VOC_{water})” and the “Volatile Organics Composite Monitoring Parameter for Soil-Pore Gas (VOC_{gas})” are composite Monitoring Parameters addressing all volatile organic constituents detectable in a sample of water- or soil-pore gas, respectively. (See Part III.A.2. of this Program for additional discussion of these Monitoring Parameters).
5. “Standard Observations” refers to:
 - a. For Adjacent Surface Waters or Receiving Waters:
 1. Floating and suspended materials of waste origin: presence or absence, source, and size of affected area;
 2. Discoloration and turbidity: description of color, source, and size of affected area;
 3. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
 4. Evidence of beneficial use: presence of water-associated wildlife;
 5. Flow Rate; and
 6. Weather conditions: wind direction and estimated velocity, total precipitation during the previous five (5) days and on the day of observation.
 - b. Along the perimeter of the Landfill:
 1. Evidence of liquid leaving or entering the WMF, estimated size of affected area, and flow rate (show affected area on a map);
 2. Evidence of odors: presence or absence, characterization, source, and distance of travel from source; and
 3. Evidence of erosion and/or of exposed refuse.
 - c. For the Landfill:
 1. Evidence of ponded water at any point on the WMF (show affected area on a map);
 2. Evidence of odor: presence, characterization, source, and distance of travel from source;
 3. Evidence of erosion and/or of day-lighted refuse; and
 4. “Standard Analysis and Measurements”, which refers to:
 - a. Turbidity (only for water samples) in NTU;

- b. Water elevation to the nearest 1/100th foot relative to mean sea level (ground water monitoring only); and
 - c. Sampling and statistical/non-statistical analysis of the Monitoring Parameters.
6. "Matrix Effect" refers to any increase in the Method Detection Limit 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 of water or soil-pore gas being analyzed.
 7. "Facility-Specific Method Detection Limit (MDL)", for a given analytical laboratory using a given analytical method to detect a given constituent (in spite of any Matrix Effect) means the lowest concentration that the laboratory can regularly differentiate – with 99 percent reliability – between a sample which contains the constituent and a sample which does not.
 8. "Facility-Specific Practical Quantitation Limit (PQL)", for a given analytical laboratory using a given analytical method to determine the concentration of a given constituent (in spite of any Matrix Effect) means the lowest constituent concentration the laboratory can regularly quantify within specified limits of precision that are acceptable to the Colorado River Basin Water Board's Executive Officer.
 9. "Reporting Period" means the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for submittal. Therefore, the reporting period for Monitoring Parameters is semi-annual. The reporting period for Constituents of Concern is every five years. An Annual Report period extends from January 1 to December 31 of the each year. A summary of due dates for all Monitoring Reports can be found in Part III. Summary of Reporting Requirements of this program.
 10. "Receiving Waters" refers to any surface water, which actually or potentially receives surface or ground waters, which pass over, through or under waste materials or contaminated soils.
 11. "Affected Persons" refers to all individuals who either own or reside upon the land that directly overlies any part of that portion of gas or liquid-phase release that has migrated beyond the facility boundary.

C. SAMPLING AND ANALYTICAL METHODS

Sampling collection, storage, and analysis shall be performed according to the most recent version of Standard USEPA methods, and in accordance with an approved sampling and analysis plan. Water and waste analysis shall be performed by a laboratory approved by the State of California for these analyses. Specific methods of analysis must be identified. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Colorado River Basin Water Board's Executive Officer prior to use. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and

shall sign all reports of such work submitted to the Colorado River Basin Water Board. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements. In addition, the Discharger is responsible for seeing that the laboratory analysis of all samples from Monitoring Points and Background Monitoring Points meets the following restrictions:

1. The methods and 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 percent non-numerical determinations (i.e. "trace" or "ND") in data from Background Monitoring Points for that medium, the analytical methods having the lowest "facility-specific method detection limit (MDL)", defined in Part I.B.7, shall be selected from among those methods which would provide valid results in light of any "Matrix Effects" (defined in Part I.B.6.) involved.
2. "Trace" results, results falling between the MDL and the facility-specific practical quantitation limit (PQL), shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run and by an estimate of the constituent's concentration.
3. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the laboratory, rather than simply being quoted from USEPA analytical method manuals. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with an estimate of the detection limit and quantitation limit actually achieved.
4. All QA/QC data shall be reported, along with the sample results to which it applies, including the method, equipment, and analytical detection limits, the recovery rates, an explanation of any recovery rate that is less than 80 percent, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recovery.
5. Upon receiving written approval from the Colorado River Basin Water Board's Executive Officer, an alternative statistical or non-statistical procedure can be used for determining the significance of analytical results for a constituent that is a common laboratory contaminant (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) during any given Reporting Period in which QA/QC samples show evidence of laboratory contamination for that constituent. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by the Colorado River Basin Water Board staff.

6. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
7. In cases where contaminants are detected in QA/QC samples (i.e. field, trip, or laboratory blanks), the accompanying sample results shall be appropriately flagged.
8. The MDL shall always be calculated such that it represents a concentration associated with a 99 percent reliability of a non-zero result.

D. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of five (5) years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Colorado River Basin Water Board. Such records shall show the following for each sample:

1. Identity of sample and of the Monitoring Point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample;
2. Date and time of sampling;
3. Date and time that analyses were started and completed, and the name of the personnel performing each analysis;
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
5. Calculations of results; and
6. Results of analyses, and the MDL and PQL for each analysis.

E. REPORTS TO BE FILED WITH THE BOARD

1. DETECTION MONITORING REPORT

A written "Detection Monitoring Report" shall be submitted semi-annually (Part II.B.1.), in addition to an "Annual Summary Report" (Part I.E.3.). Every five years, the Discharger shall submit a report concerning the direct analysis of all Constituents of Concern as indicated in Part II.B.2. ("COC Report"). All reports shall be submitted no later than their respective due dates as listed in Summary of Monitoring and Reporting Requirements.

In addition to hard copies delivered to the Colorado River Basin Water Board the Discharger shall submit information requested by the Executive Officer including the self-monitoring and other reports electronically over the Internet to the State Water Resource Control Board's Geotracker database. Electronic submission of reports containing soil,

vapor or groundwater data are required for subsurface investigation and remediation at sites in the leaking Underground Storage Tank (UST); Spills, Leaks, Investigation and Cleanup (SLIC); Department of Defense (DOD); and Land Disposal Programs, according to Chapter 30, Division 3, Title 23 of the California Code of Regulations.

The reports shall be comprised of at least the following:

a. Letter of Transmittal

A letter transmitting the essential points in each report shall accompany each report. Such a letter shall include a discussion of any requirement violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations. If the Discharger has previously submitted a detailed time schedule for correcting said requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or above, or by his/her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The 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;

b. Each Detection Monitoring Report and each COC Report shall include a compliance evaluation summary. The summary shall contain at least:

1. For each monitored ground water body, a description and graphical presentation of the velocity and direction of the ground water flow under/around the WMF, based upon water level elevations taken during the collection of the water quality data submitted in the report;
2. Pre-Sampling Purge for Samples Obtained From Wells: For each monitoring well addressed by the report, a description of the method and time of water level measurement, of the type of pump used for purging and the placement of the pump in the well, and of the method of purging (the pumping rate, the equipments and methods used to monitor field pH, temperature, and conductivity during purging, the calibration of field equipment, results of the pH, temperature, conductivity, and turbidity testing, the well recovery time, and the method of disposing of the purge water);
3. Sampling: For each Monitoring Point and Background Monitoring Point addressed by the report, a description of the type of pump – or other device – used and its placement for sampling, and a detailed description of the sampling procedure (number and description of the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations);

- c. A map or aerial photograph showing the locations of observation stations, Monitoring Points, and Background Monitoring Points;
- d. For each Detection Monitoring Report and each COC Report, include laboratory statements of results of all analyses demonstrating compliance with Part I.C.;
- e. An evaluation of the effectiveness of the run-off/run-on control facilities;
- f. A summary and certification of completion of all Standard Observations (Part I.B.5.) for the WMF, for the perimeter of the WMF, and for the Surface Waters or Receiving Waters; and
- g. The quantity and types of wastes discharged and the locations in the WMF where waste has been placed since submittal of last such report.

2. CONTINGENCY REPORTING

- a. The Discharger shall report by telephone concerning any seepage from the disposal area immediately after it is discovered. A written report shall be filed with the Colorado River Basin Water Board within seven (7) days, containing at least the following:
 1. A map showing the locations(s) of seepage;
 2. An estimate of the flow rate;
 3. A description of the nature of the discharge (e.g., all pertinent observations and analyses); and
 4. Corrective measures underway or proposed.
- b. Should the initial statistical comparison (Part III.A.1.) or non-statistical comparison (Part III.A.2.) indicate, for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified, the Discharger shall immediately notify the Colorado River Basin Water Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail with seven (7) days of such determination (Section 20420(j), Title 27), and shall carry out a discrete retest pursuant to Part III.A.3. If the retest confirms the existence of a release, the Discharger shall carry out the requirements of Part I.E.2.d. In any case, the Discharger shall inform the Colorado River Basin Water Board of the outcome of the retest as soon as the results are available, following up with written results submitted by certified mail within seven (7) days of completing the retest analysis.
- c. If either the Discharger or the Colorado River Basin Water Board determines that there is significant physical evidence of a release (Section 20420(j), Title 27) the Discharger shall immediately notify the Colorado River Basin Water Board of this fact by certified mail (or acknowledge the Colorado River Basin Water Board's determination) and shall carry out the requirements of Part I.E.2.d. for all potentially-affected monitored media.

- d. If the Discharger concludes that a release has been discovered:
- i. If this conclusion is not based upon “direct monitoring” of the Constituents of Concern, pursuant to Part II.B.2, then the Discharger shall, within 30 days, sample for all Constituents of Concern at all Monitoring Points and submit them for laboratory analysis. Within seven (7) days of receiving the laboratory analytical results, the discharger shall notify the Colorado River Basin Water Board, by certified mail, of the concentration of all Constituents of Concern at each Monitoring Point. Because this scan is not to be tested against background, only a single datum is required for each Constituent of Concern at each Monitoring Point (Section 20420(k)(1), Title 27);
 - ii. The Discharger shall, within 90 days of discovering the release, submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program meeting the requirements of Section 20420(k)(5) and Section 20425, Title 27; and
 - iii. The Discharger shall, within 180 days of discovering the release, submit a preliminary engineering feasibility study meeting the requirements of Section 20420(k)(6), Title 27.
- e. Any time the Discharger concludes – or the Colorado River Basin Water Board’s Executive Officer directs the Discharger to conclude – that a liquid- or gaseous-phase release from the WMF has proceeded beyond the facility boundary, the Discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).
- i. 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; and
 - ii. Subsequent to initial notification, the Discharger shall provide updates to all Affected Persons – including any newly Affected Persons – within 14 days of concluding there has been any material change in the nature or extent of the release.

3. ANNUAL SUMMARY REPORT

The Discharger shall submit an annual report to the Colorado River Basin Water Board by **January 31st** each year covering the previous monitoring year. This report shall contain:

- a. A Graphical Presentation of Analytical Data (Section 20415(e)(14), Title 27). For each Monitoring Point and Background Monitoring Point, submit in graphical format the laboratory analytical data for all samples taken within at least the previous five (5) calendar years. Each such graph shall plot the concentration of one or more constituents over time for a given Monitoring Point and Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or

- parameter, the scale for background plots shall be the same as that used to plot downgradient data. On the basis of any aberrations noted in the plotted data, the Colorado River Basin Water Board's Executive Officer may direct the Discharger to carry out a preliminary investigation (Section 20080(d)(2), Title 27), the results of which will determine whether or not a release is indicated;
- b. All monitoring analytical data obtained during the previous two six-month Reporting Periods, shall be presented in tabular form as well as in an electronic file format acceptable to the Colorado River Basin Water Board's Executive Officer. The Colorado River Basin Water Board regards the submittal of data in hard copy and on disk as "...the form necessary for..." statistical analysis (Section 20420(h), Title 27) in that this facilitates periodic review by the Colorado River Basin Water Board's statistical consultant;
 - c. A comprehensive discussion of the compliance record, and the result of any corrective action taken or planned which may be needed to bring the Discharger into full compliance with the WDRs;
 - d. A map showing the area, if any, in which filling has been completed during the previous calendar year;
 - e. A written summary of the ground water and soil-pore gas (if applicable) analyses, indicating any changes made since the previous annual summary report; and
 - f. An evaluation of the effectiveness of the Leachate Collection and Removal System (LCRS), pursuant to Section 20340, Title 27.

PART II: MONITORING AND OBSERVATION SCHEDULE

A. WASTE MONITORING

Report semi-annually, as part of the Monitoring Report on, or before, July 31st and January 31st.

1. Record the total volume and weight of refuse in cubic yards and tons disposed of at the site during each month, showing locations and dimensions on a sketch or map.
2. Record a description of the waste stream, including the percentage of the waste type (i.e., residential, commercial, industrial, or construction debris).
3. Record the location and aerial extent of disposal of each waste type.

B. GROUNDWATER AND SOIL-PORE GAS SAMPLING/ANALYSIS FOR DETECTION MONITORING

1. "Indirect Monitoring" for Monitoring Parameters Done Semi-Annually. The ground water monitoring points assigned to Detection Monitoring in Part II.B.4. of this Program, and shall be sampled semi-annually. Semi-Annual Reports shall be submitted on or before July 31st and January 31st of each year. The Detection Monitoring Points shall be sampled for the following Monitoring Parameters:

<u>Parameter & Constituents</u>	<u>Unit</u>
1. Groundwater Elevations	(USGS Datum)
2. Temperature	°F
3. pH	-----
4. Specific Conductance	Micromhos/cm
5. Total Dissolved Solids (TDS)	mg/L ¹
6. Chloride	mg/L
7. Nitrate Nitrogen	mg/L
8. Sodium	mg/L
9. Sulfate	mg/L
10. Total Hardness	mg/L
11. Volatile Organics (Appendix 1, 40 CFR 258 (EPA Method 8260)	µg/L ²

The collection, preservation and holding times of all samples shall be in accordance with United States Environmental Protection Agency (USEPA) approved procedures. Unless otherwise approved by the Colorado River Basin Water Board's Executive Officer, all analyses shall be conducted by a laboratory certified by the State Department of Public health. All analyses shall be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" (40 CFR 136), promulgated by the USEPA.

¹ mg/L – milligrams per liter

² µg/L – micrograms per liter

2. “Direct Monitoring” of all Constituent of Concern Every Five (5) Years. In the absence of a release being indicated (1) pursuant to Parts II.B.1. and III.A.3. for a Monitoring Parameter, (2) based upon physical evidence, pursuant to Part I.E.2.c. or (3) by a study required by the Colorado River Basin Water Board’s Executive Officer based upon anomalies noted during visual inspection of graphically-depicted analytical data (Part I.E.3.a.), then the Discharger shall sample all Monitoring Points and Background Monitoring Points of water-bearing media, not including soil-pore gas, for all Constituents of Concern every fifth year.

The Constituents of Concern for water-bearing media (i.e. ground water, surface water, and soil-pore liquid) shall consist of the combined listing of all constituents listed in Appendices I and II, 40 CFR Part 258, in addition to:

<u>Constituent</u>	<u>Units</u>
1. Total Dissolved Solids (TDS)	mg/L
2. Sulfate	mg/L
3. Carbonate	mg/L
4. pH	-----
5. Chloride	mg/L

The Five-Year Constituents of Concern Report shall be submitted with the appropriate Annual Report for that five-year sampling event.

3. “Monitoring Points and Background Monitoring Points for Each Monitored Medium”: The Discharger shall sample the following Monitoring Points and Background Monitoring Points in accordance with the sampling schedule given under Parts II.B.1. and II.B.2 (immediately foregoing), taking enough samples to qualify for the most appropriate test under Part III.
 - a. Groundwater
 1. Groundwater monitoring wells are shown on Attachment B attached hereto and made as part of this Board Order.
 2. For the purpose of establishing an initial pool of background data for each Constituent of Concern at each Background Monitoring Point in each monitored medium (Section 20415(e)(6), Title 27:
 - a. Whenever a new Constituent of Concern is added to the Water Quality Protection Standard, including any added by the adoption of this Board Order, the Discharger shall collect at least one sample quarterly for at least one year from each Background Monitoring Point in each monitored medium and analyze for the newly-added constituent(s); and
 - b. Whenever a new Background Monitoring Point is added, including any added by this Board Order, the Discharger shall sample it at least quarterly

for at least one year, analyzing for all Constituents of Concern and Monitoring Parameters.

3. The Discharger shall measure the water level in each well and determine ground water flow rate and direction in each ground water body described in Part II.B.4. and Part II.B.5 semi-annually, including the times of expected highest and lowest elevations of the water level for the respective ground water body. This information shall be included in the semi-annual monitoring report (Section 20415(e)(15), Title 27).
 4. The point of compliance for ground water monitoring shall be the location of the approved ground water monitoring wells.
 5. For the existing 131-acre MWU and the closed 31-acre MMU ground water in the uppermost aquifer, Monitoring Points MW-7R, MW-8, MW-9, MW-10, MW-12R, MW-13R, MW-14, MW-15, MW-20 and MW-21 shall be considered Point of Compliance monitoring wells (down gradient);
 6. Monitoring Points) MW-17 (installed in December 2006) and MW-18 and MW-19 (both installed in January 2012) are the Background Monitoring Points (up gradient).
- b. Vadose Zone Monitoring

Due to the shallow depth to groundwater beneath the 131-acre WMU, it is impractical to conduct vadose zone monitoring. The RWQCB and the LEA do not require vadose zone monitoring at the Facility.

c. Gas Monitoring

1. Gas monitoring probes shall be sampled semi-annually using a portable combustible gas meter to check for the presence of methane gas while the landfill is operating.
2. Monitoring results shall be reported to the Colorado River Basin Water Board semi-annually.
3. During the post-closure maintenance period, monitoring shall be done on a semi-annual basis; or at a frequency determined by the Colorado River Basin Water Board's Executive Officer.
4. A corrective action plan shall be implemented in the event that a gas is detected in quantities greater than the maximum allowable level in Section 17783, of Title 14, or 40 CFR Section 258.23

C. ON-SITE OBESERVATIONS

Weekly site inspections to be reported semi-annually. As described in Part I.B.5., standard observations of the site including the landfill, nearby surface waters, and the perimeter of the landfill. Discharger shall document inspections and corrective actions (if any).

**PART III: STATISTICAL AND NON-STATISTICAL ANALYSES OF SAMPLE DATA
DURING A DETECTION MONITORING PROGRAM**

- A. The Discharger shall use the following methods to compare the downgradient concentration of each monitored constituent or parameter with its respective background concentration to determine if there has been a release from the WMF. For any given data set, proceed sequentially down the list of statistical analysis methods listed in Part III.A.1., followed by the non-statistical method in Part III.A.2., using the first method for which the data qualifies. If that analysis tentatively indicates the detection of a release, implement the retest procedure under Part III.A.3.
1. Statistical Methods. The Discharger shall use one of the following statistical methods to analyze Constituents of Concern or Monitoring Parameters, which exhibit concentrations exceeding their respective MDL in at least ten percent of the background samples taken during that Reporting Period. Each of these statistical methods is more fully described in the statistical methods discussion, below. Except for pH, which uses a two-tailed approach, the statistical analysis for all constituents and parameters shall be one-tailed (testing only statistically significant increase relative to background):
 - a. One-Way Parametric Analysis of Variance ANOVA followed by multiple comparisons (Section 20415(e)(8)(A), Title 27). This method requires at least four (4) independent samples from each Monitoring Point and Background Monitoring Point during each sampling episode. It shall be used when the background data from the parameter or constituent, obtained during a given sampling period, has not more than 15 percent of the data below the PQL. Prior to analysis, replace all 'trace' determinations with a value halfway between the PQL and the MDL values reported for that sample run, and replace all "non-detect" determinations with a value equal to half the MDL value reported for that sample run. The ANOVA shall be carried out at the 95 percent confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99 percent confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any Monitoring Point, the Discharger shall conclude that a release is tentatively indicated from that parameter or constituent;
 - b. One (1)-Way Non-Parametric ANOVA (Kruskal-Wallis Test), followed by multiple comparisons. This method requires at least nine independent samples from each Monitoring Point and Background Monitoring Point, therefore, the Discharger shall anticipate the need for taking more than four samples per Monitoring Point, based upon past monitoring results. This method shall be used when the pooled background data for the parameter or constituent, obtained within a given sampling period, has not more than 50 percent of the data below the PQL. The ANOVA shall be carried out at a 95 percent confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99 percent confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any Monitoring Point, the Discharger shall conclude that a release is tentatively indicated for that parameter or constituent; or

- c. Method of Proportions. This method shall be used if the “combined data set”, the data from a given Monitoring Point in combination with data from the Background Monitoring Points, has between 50 percent and 90 percent of the data below the MDL for the constituent or parameter in question. This method (1) requires at least nine (9) downgradient data points per Monitoring Point per Reporting Period, (2) requires at least 30 data points in the combined data set, and (3) requires that $N * P > 5$ (where N is the number of data points in the combined data set and P is the proportion of the combined set that exceeds the MDL); therefore, the Discharger shall anticipate the number of samples required, based upon past monitoring results. The test shall be carried out at the 99 percent confidence level. If the analysis results in rejection of the Null Hypothesis (i.e., that there is no release), the Discharger shall conclude that a release is tentatively indicated for that constituent or parameter; or
 - d. Other Statistical Methods. These include methods pursuant to Section 20415(e)(8)(E).
 2. Non-Statistical Method. The Discharger shall use the following non-statistical method for the VOC_{water} and VOC_{spg} Composite Monitoring Parameters and for all Constituents of Concern which are not amenable to statistical tests under Part III.A.1.; each of these groupings of constituents utilizes a separate variant of the test, as listed below. Regardless of the variant used, the method involves a two-step process: (1) from all constituents to which the variant applies, compile a list of those constituents which exceed their respective MDL in the downgradient sample, yet do so in less than 10 percent of the applicable background samples; and (2) (where several independent samples have been analyzed for that constituent at a given Monitoring Point) from the sample which contains the largest number of constituents. Background shall be represented by the data from all samples taken from the appropriate Background Monitoring Points during that Reporting Period (at least one sample from each Background Monitoring Point). The method shall be implemented as follows:
 - a. For the Volatile Organics Composite Monitoring Parameter for Water Samples (VOC_{water}): For any given Monitoring Point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all VOCs detectable using USEPA Method 8260, including at least all 47 VOCs listed in Appendix I to 40 CFR 258, and all unidentified peaks. Compile a list of each VOC which (1) exceeds its MDL in the Monitoring Point sample (an unidentified peak is compared to its presumed (MDL), and also (2) exceeds its MDL in less than 10 percent of the samples taken during that Reporting Period from that medium’s Background Monitoring Points. The Discharger shall conclude that a release is tentatively indicated for the VOC_{water} Composite Monitoring Parameter if the list either (1) contains two or more constituents, or (2) contains one constituent that exceeds its PQL;
 - b. For the Volatile Organics Composite Monitoring Parameter for Soil-Pore Gas Samples (VOC_{spg}): The VOC_{spg} Monitoring Parameter is a composite parameter for soil-pore gas addressing at least all 47 VOCs listed in Appendix I 40 CFR 258, based upon either GC or GC/MS analysis of at least 10 liter samples of soil-pore gas (e.g., collected in a vacuum canister). It involves the same scope of VOCs as does the VOC_{water} Monitoring Parameter. Compile a list of each VOC which (1) exceeds its MDL in the Monitoring Point sample (as unidentified peak is compared to its

- presumed MDL), and also (2) exceeds its MDL in less than 10 percent of the samples taken during that Reporting Period from the (soil-pore-gas) Background Monitoring Points. The Discharger shall conclude that a release is tentatively indicated for the VOC_{spg} Composite Monitoring Parameter if the list either (1) contains two or more constituents, or (2) contains one constituent that exceeds its PQL; or
- c. For Constituent of Concern: Compile a list of constituents that exceed their respective MDL at the Monitoring Point yet do so in less than 10 percent of the background samples taken during that Reporting Period. The Discharger shall conclude that a release is tentatively indicated if the list either (1) contains two or more constituents, or contains one constituent, which exceeds its PQL.
3. Discrete Retest (Section 20415(e)(8)(E), Title 27). In the event that the Discharger concludes that a release has been tentatively indicated (under Parts III.A.1. or III.A.2.), the Discharger shall, within 30 days of this indication, collect two (2) new suites of samples for the indicated Constituent(s) of Concern or Monitoring Parameter(s) at each indicating Monitoring Point, collecting at least as many samples per suite as were used for the initial test. Re-sampling of the Background Monitoring Points is optional. As soon as the data is available, the Discharger shall rerun the statistical method (or non-statistical comparison) separately upon each suite of retest data. For any indicated Monitoring Parameter or Constituent of Concern at an affected Monitoring Point, if the test results of either (or both) of the retest data suites confirms the original indication, the Discharger shall conclude that a release has been discovered. All retests shall be carried out only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the Constituent of Concern or Monitoring Parameter which triggered the indication there, as follows:
- a. If an ANOVA method was used, the retest shall involve only a repeat of the multiple comparison procedure, carried out separately on each of the two new suites of samples taken from the indicating Monitoring Point;
- b. If the Method of Proportions statistical test was used, the retest shall consist of a full repeat of the statistical test for the indicated constituent or parameter, using the new sample suites from the indicating Monitoring Point;
- c. If the non-statistical method was used:
1. Because the VOC Composite Monitoring Parameters (VOC_{water} or VOC_{spg}) each address, as a single parameter, an entire family of constituents, which are likely to be present in any landfill release, the scope of the laboratory analysis for each retest sample shall include all VOCs detectable in that retest sample. Therefore, a confirming retest for either parameter shall have validated the original indication even if the suite of constituents in the confirming retest samples(s) differs from that in the sample which initiated the retest;

2. Because all Constituents of Concern that are jointly addressed in the non-statistical testing under Part III.A.2.c. remain as individual Constituents of Concern, the scope of the laboratory analysis for the non-statistical retest samples shall be narrowed to involve only those constituents detected in the sample which initiated the retest.

B. RESPONSES TO VOC DETECTION IN BACKGROUND

1. Except as indicated in Part III.B.2., below, any time the laboratory analysis of a sample from a Background Monitoring Point, sampled for VOCs under Part III.A., shows either (1) two or more VOCs above their respective MDL, or (2) one VOC above its respective PQL, then the Discharger shall immediately notify the Colorado River Basin Water Board by phone that possible background contamination has occurred, shall follow-up with written notification by certified mail within seven days, and shall obtain two new independent VOC samples from that Background Monitoring Point and send them for laboratory analysis of all detectable VOCs within 30 days. If either or both the new samples validates the presence of VOC(s) at that Background Monitoring Point, using the above procedure, the Discharger shall:
 - a. Immediately notify the Colorado River Basin Water Board about the VOC(s) verified to be present at that Background Monitoring Point, and follow up with written notification submitted by certified mail within seven (7) days of validation; and
 - b. Within 180 days of validation, submit a report, acceptable to the Colorado River Basin Water Board's Executive Officer, which examines the possibility that the detected VOC(s) originated from the WMF and proposing appropriate changes to the Monitoring Program.
2. If the Colorado River Basin Water Board's Executive Officer determines, after reviewing the report submitted under Part III.B.1.b., that the VOC(s) detected originated from a source other than the WMF, the Colorado River Basin Water Board's Executive Officer will make appropriate changes to the Monitoring Program.
3. If the Colorado River Basin Water Board's Executive Officer determines, after reviewing the report submitted under Part III.B.1.b., that the detected VOC(s) most likely originated from the WMF, the Discharger shall assume that a release has been detected and shall immediately begin carrying out the requirements of Part I.E.2.d.

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS

1. The Discharger shall arrange the data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance with Waste Discharge Requirements.
2. Records of monitoring information shall include:
 - a. The date, exact place, and time of sampling or measurement(s);
 - b. The individual(s) who performed the sampling or measurement(s);
 - c. The date(s) analyses were performed;
 - d. The individual(s) who performed the analyses;
 - e. The analytical techniques or method used; and
 - f. The results of such analyses.
3. Each report shall contain the following statement:

“I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.”
4. A duly authorized representative of the Discharger may sign the documents if:
 - a. The authorization is made in writing by the person described above;
 - b. The authorization specified an individual or person having responsibility for the overall operation of the regulated disposal system; and
 - c. The written authorization is submitted to the Colorado River Basin Water Board's Executive Officer.
5. Monitoring Reports shall be certified under penalty of perjury to be true and correct, and shall contain the required information at the frequency designated in this Monitoring and Reporting Program.
6. Semi-Annual Monitoring Reports shall be submitted to the Colorado River Basin Water Board according to the following schedule:
 - a. First Semi-Annual (January through June) – Report due by July 31st
 - b. Second Semi-Annual (July through December) – Report due by January 31st
7. Annual Summary Reports shall be submitted to the Colorado River Basin Water Board by **January 31st** of the each year, covering the Reporting Period from January 1st through December 31st of the previous year.

8. Five-Year COC Reports Continuing with the 2002 Fall COC sampling event schedule, with successive sampling efforts being carried out alternately between the spring of one Five-Year sampling event, and the fall of the next five-year sampling event, and every fifth year thereafter, as long as the WMF is in operation and through the closure/post-closure period.

The Five-Year COC Report shall be submitted with the appropriate Annual Report due on **January 31st** of the appropriate year for the particular Five-Year COC sampling event, pursuant to Parts II.B.2.

9. Contingency Reports Notify immediately by telephone, and submit a written report pursuant to Part I.E.2. of this Monitoring and Reporting Program.
10. Submit Monitoring Reports to:

California Regional Water Quality Control Board,
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260



Robert Perdue, Executive Officer

March 20, 2014

Date