

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

MONITORING AND REPORTING PROGRAM R7-2013-0064
FOR
UNITED STATES MARINE CORPS, OWNER/OPERATOR
AIR GROUND COMBAT CENTER
CLASS III LANDFILL
Twentynine Palms - San Bernardino County

CONSISTS OF

PART I, PART II, AND PART III

PART I

Location of Discharge: S 1/2, of Section 8, and NE 1/4 of Section 17. T2N, R9E, SBB&M

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 Regional 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 93-062 requires the Regional Water Board to implement federal Municipal Solid Waste Regulations (Title 40 Code of Federal Regulations, Parts 257 and 258). In addition, the Discharger shall enter all required information, monitoring data and reports into the online GeoTracker database as required by Division 3 of Title 27.

This self-monitoring program is issued pursuant to Provision No. 4 of Regional Water Board Order R7-2013-0064. The principal purposes of a self-monitoring program by a waste discharger are:

1. To document compliance with discharge requirements and prohibitions established by the Regional Board;
2. To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge;
3. To prepare vadose zone (unsaturated zone) gas quality analyses;
4. 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) groundwater 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 “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.
4. “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

5. "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.
6. "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.
7. "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 Regional Water Board's Executive Officer.
8. "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.
9. "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.
10. "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 Regional 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 Regional Water Board. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements. Groundwater sampling results of MW-15-8 in May 2012 are considered to be baseline groundwater quality for the background condition. In

addition, the Discharger is responsible for seeing that the laboratory analysis of all samples from Monitoring Point (well MW-15-8) meets the following restrictions:

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 baseline groundwater quality (May 2012 MW-15-8 groundwater data) 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.

1. "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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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 Regional Water Board. Such records shall show the following for each sample:

1. Identity of sample and of the 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. 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. 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 equipment 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);
 2. Sampling: For Monitoring Point (well MW-15-8) 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 station, Monitoring Point (well MW-15-8);
- 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 Regional Water Board within seven (7) days, containing at least the following:
 1. A map showing the location(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. If either the Discharger or the Regional Water Board determines that there is significant physical evidence of a release (Section 20420(j), Title 27) the Discharger shall immediately notify the Regional Water Board of this fact by certified mail (or acknowledge the Regional Water Board's determination) and shall carry out the requirements of Part I.E.2.d for all potentially-affected monitored media.
- c. 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 a Monitoring Point (well MW-15-8) and submit them for laboratory analysis. Within seven (7) days of receiving the laboratory analytical results, the discharger shall notify the Regional Water Board, by certified mail, of the concentration of all Constituents of Concern at a Monitoring Point (well MW-15-8). Because this scan is not to be tested against background (baseline groundwater quality of MW15-8 in May 2012), only a single datum is required for each Constituent of Concern at a 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.
- d. Any time the Discharger concludes – or the Regional 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 Regional Water Board by March 15th each year covering the previous monitoring year. This report shall contain:

US MCAGCC
Class III Municipal Solid
Waste Management Facility

- a. A Graphical Presentation of Analytical Data (Section 20415(e)(14), Title 27). For a Monitoring Point (well MW-15-8) and background condition (baseline groundwater data of MW15-8 in May 2012), 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 (well MW-15-8) and background condition (baseline groundwater data of MW15-8 in May 2012), 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 Regional 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 Regional Water Board's Executive Officer. The Regional Water Board regards the submittal of data in hard copy and on disk as "...the form 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;
- c. A map showing the area, if any, in which filling has been completed during the previous calendar year;
- d. A written summary of the groundwater and soil-pore gas (if applicable) analyses, indicating any changes made since the previous annual summary report; and
- e. 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 groundwater monitoring point 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 Point 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 Regional Water Board’s Executive Officer, all analyses shall be conducted by a laboratory certified by the State Department of Public health. All

¹ mg/L – milligrams per liter
² µg/L – micrograms per liter

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.

2. Direct Monitoring" of all Constituents of Concern Every Five (5) Years. In the absence of a release being indicated (1) pursuant to Parts II.B.1 for a Monitoring Parameter, (2) based upon physical evidence, pursuant to Part I.E.2.c. or (3) by a study required by the Regional 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 a Monitoring Point 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. groundwater, 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 Point for Each Monitored Medium": The Discharger shall sample the following Monitoring Point (MW-15-8) in accordance with the sampling schedule given under Parts II.B.1 and II.B.2 (immediately foregoing).
 - a. Groundwater
 1. Groundwater monitoring well (well MW-15-8) are shown on Attachment 2 attached hereto and made as part of this Board Order.
 2. For the existing 30-acre MMU groundwater in the uppermost aquifer, Monitoring Point MW 15-8 shall be considered Point of Compliance monitoring well (down gradient);
 3. Groundwater data of MW-15-8 obtained in May 2012 is determined to be the baseline groundwater quality for the background condition.
4. If the results of groundwater monitoring MW-15-8 indicate groundwater contamination in the uppermost aquifer caused by the Landfill, then the groundwater monitoring system must be established that consists of a sufficient number of monitoring wells, installed at appropriate locations and depths, to yield representative groundwater samples from the uppermost aquifer as defined in Title 27 of the California Code of Regulations section 20405. The Board Order requires updating to incorporate changes to the Facility.

b. Vadose Zone Gas Quality Monitoring

1. The Discharger shall establish vadose zone monitoring wells at locations approved by the Regional Board's Executive Officer.
2. The Discharger shall sample the vadose zone monitoring wells and perform analysis according to the most recent version of standard USEPA Methods (U. S. EPA Publications SW 846).
3. The monitoring parameters for the landfill shall include:

- i. methane gas;
- ii. vinyl chloride;

and any other constituents as may be directed by the Regional Board's Executive Officer.

4. Vadose Zone Reporting:

- a. Quarterly and Annual monitoring reports shall be submitted to the Regional Board.
- b. During the post-closure maintenance period, monitoring shall be done on a semi-annual basis; or at a frequency determined by the Regional Water Board's Executive Officer.
- c. 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 Observations

Weekly site inspections shall 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: 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 Regional 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. Quarterly monitoring reports shall be submitted to the Regional Water Board by January 15, April 15, July 15, and October 15 of each year.
7. Semi-Annual Monitoring Reports shall be submitted to the Regional 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
8. Annual Summary Reports shall be submitted to the Regional Water Board by March 15th of the each year, covering the Reporting Period from January 1st through December 31st of the previous year.

9. Five-Year COC Reports Continuing with the 2013 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 March 15th of the appropriate year for the particular Five-Year COC sampling event, pursuant to Parts II.B.2.

10. Contingency Reports Notify immediately by telephone, and submit a written report pursuant to Part I.E.2. of this Monitoring and Reporting Program.
11. Submit Monitoring Reports to the online GeoTracker database as required by Division 3 of Title 27.

Robert Perdue, Executive Officer

September 19, 2013

Date