

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

TENTATIVE MONITORING AND REPORTING PROGRAM NO. R9-2010-0004
FOR THE
UNITED STATES MARINE CORPS
MARINE CORPS BASE CAMP PENDLETON
LAS PULGAS LANDFILL
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter San Diego Water Board), finds that:

- 1. Legal and Regulatory Authority:** This Monitoring and Reporting Program (M&RP) conforms to and implements policies and requirements of the Porter-Cologne Water Quality Control Act (Division 7, commencing with Water Code section 13000) including section 13267; (2) applicable State and federal regulations including California Code of Regulations (CCR) Title 27, Division 2 and Title 40 Code of Federal Regulations (CFR) Parts 257 and 258; (3) all applicable provisions of Statewide Water Quality Control Plans adopted by the State Water Resources Control Board (State Board) and the Water Quality Control Plan, San Diego Basin (Basin Plan) adopted by the San Diego Water Board including beneficial uses, water quality objectives, and implementation plans; (4) State Board policies and regulations, including State Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste, Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California), and Resolution No. 88-63 (Sources of Drinking Water); (5) relevant standards, criteria, and advisories adopted by other State and federal agencies.
- 2. Purpose:** This M&RP is necessary to assure protection of the quality of the waters of the state for their beneficial uses by assessing the compliance of the United States Marine Corps (hereinafter Discharger) with WDR Order No. R9-2010-0004, Waste Discharge Requirements For The United States Marine Corps, Marine Corps Base Camp Pendleton, Las Pulgas Landfill, San Diego County.
- 3. Basis for Groundwater Corrective Action Monitoring:** This M&RP requires the Discharger to establish and implement a water quality monitoring program in accordance with CCR Title 27, section 20430(d) and 40 CFR, Part 258.58 that demonstrates the effectiveness of the Corrective Action Program. The presence of constituents in groundwater triggered the requirements for an Evaluation Monitoring Program (EMP) (CCR Title 27, Section 20425), and Assessment Monitoring Program (AMP) (40 CFR, Part 258.57) for the Las Pulgas Landfill (Landfill). The Discharger has completed the requirements for an EMP and AMP to the satisfaction of the San Diego Water Board.
- 4. Basis for Groundwater Monitoring System Requirements and Standards:** This M&RP prescribes performance requirements as set forth in CCR Title 27

sections 20415(b) and 20430(b) and 40 CFR, Part 258.51(a)(2)] for evaluating the release/discharge of waste constituents from the waste management unit (WMU) into the groundwater within the fractured rock aquifer.

5. **Basis for Requiring Reports:** Water Code section 13267 provides that the San Diego Water Board may require discharges, past Dischargers, or suspected Dischargers to furnish technical or monitoring reports as the San Diego Water Board may specify, provided that the burden, including costs, of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the San Diego Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The following identifies the basis for specific reports required under this M&RP.
 - a. **Core Monitoring Reports** – CCR Title 27, section 20430(h)
 - b. **Slope Stability Workplan and Monitoring Report** – CCR Title 27, section 21750(f)(5)
 - c. **Leachate Monitoring Report** – CCR Title 27, section 20340(h)
 - d. **Sampling and Analysis Plan** – CCR Title 27, section 21760(a)(3)(B)
 - e. **Construction Quality Assurance Report** – CCR Title 27, section 20324(c)
6. **Need for Technical and Monitoring Reports:** The technical and monitoring reports prescribed by this M&RP are needed to comply with CCR Title 27 and to enable the San Diego Water Board to effectively assess the compliance of the Discharger with WDR Order No. R9-2010-0004, Waste Discharge Requirements For The United States Marine Corps, Marine Corps Base Camp Pendleton, Las Pulgas Landfill, San Diego County. The burden of providing the required reports bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
7. **Qualified Professionals:** Qualified professionals are necessary for preparing the technical and monitoring reports required by this M&RP, to ensure that the collected data and interpretations are reliable and accurate. Professionals should be qualified, licensed where applicable, and competent and proficient in fields pertinent to the required activities. California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of registered professionals.
8. A list of definitions of terms and acronyms are contained in Appendix A attached to this M&RP.

9. **California Environmental Quality Act.** The Las Pulgas Landfill is an existing Site and as such is exempt from the provisions of the California Environmental Quality Act (CEQA) in accordance with Title 14, California Code of Regulations, Chapter 3, Article 19, section 15301.

IT IS HEREBY ORDERED that, pursuant to sections 13267 of the Water Code, the Discharger must comply with the following monitoring and reporting program requirements:

PART I – REPORTS TO BE FILED WITH THE SAN DIEGO WATER BOARD

A. CORE REPORTING

1. **Semi-Annual Report.** The semi-annual report shall contain, at a minimum, the following information:
 - a. A list of monitoring parameters for each well;
 - b. Detection limits of laboratory testing and monitoring equipment;
 - c. Measured concentrations of Monitoring Parameters (MPars) determined from samples collected during the current sampling event;
 - d. A map (or copy of an aerial photograph) which indicates the locations of observation stations, Monitoring Points, Background Monitoring Points, and groundwater flow rate/direction and graphical presentation (e.g., arrow on a map);
 - e. Monitoring well information, method and time of groundwater elevation measurement, and a description of the method used to purge the well and collect groundwater samples, and quality assurance/quality control (QA/QC) procedures used;
 - f. A discussion of the condition and performance of any leachate monitoring and control facilities and of the storm water control facilities;
 - g. Site inspection reports;
 - h. Inspection results for temporary soil stockpiles;
 - i. An evaluation of corrective action measures in accordance with Evaluation of Corrective Actions Part II.D;

- j. A graphical representation of concentration versus time, and concentration versus distance¹ data, using semi-log plots, covering all available monitoring data for at least the previous five years;
 - k. Landfill gas monitoring information, including method and time of landfill gas measurement, QA/QC procedures, and measured concentrations of methane and volatile organic compounds (VOCs) in landfill gas Monitoring Points.
2. **Annual Summary Report.** The annual summary report, covering the previous monitoring year, shall contain the following information:
- a. For each monitoring point and background monitoring point, the Discharger shall submit a graphical display per CCR Title 27 section 20415(e)(14) for all data collected within at least the previous five calendar years. Each graph shall plot the concentration of one or more constituents over a time for a given monitoring point. For any given constituent, the scale for all plots should be the same semi-log plot to facilitate comparison and identification of trends. On the basis of any outliers noted in the plotted data, the San Diego Water Board may direct the Discharger to carry out a preliminary investigation, the results of which will determine whether or not a release is indicated. Trend analyses shall include identification of current trends, a comparison to previously identified trends, and a discussion of any significant changes in the trends. This shall be prepared for groundwater, surface water (including seeps and springs), and any vadose zone Monitoring Points (including subdrains, lysimeters, or landfill gas).
 - b. All analytical data obtained during the previous two six-month reporting periods shall be presented in tabular form. The data shall be provided electronically on compact disks (CDs) in a file format and media acceptable to the San Diego Water Board.
 - c. A comprehensive discussion of the compliance record, and of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with WDR Order R9-2010-0004 or this M&RP.
 - d. A written summary of the monitoring results and monitoring system(s), indicating any changes made or observed since the previous annual report.
 - e. A topographic map at appropriate scale, showing the direction of groundwater flow at the Landfill.

¹ The distance must be plotted as distance along a transect parallel to the predominant groundwater flow direction through the center of the landfill.

- f. A written summary of monitoring results and monitoring system(s) indicating any changes made or observed since the previous Annual Report.
 - i. For units (i.e., lined phase of the Landfill) with leachate control/monitoring facilities, an evaluation of their effectiveness, pursuant to CCR Title 27, section 20340(b, c, & d).
 - ii. A copy of the Storm Water Pollution Prevention Plan, and any amendments.
 - iii. A demonstration/evaluation that the corrective action alternative implemented at the Landfill is effective.
3. **Slope Stability Monitoring Report.** The Discharger shall monitor/ measure the displacement along engineered final slopes in the 2:1 slope area, by use of inclinometers and/or permanent surface monuments, and visual inspections monthly for the first year and quarterly thereafter. An evaluation of the results of the slope stability monitoring shall be submitted to the San Diego Water Board quarterly for the first year (after adoption of WDR Order No. R9-2010-0004 and this M&RP) and semi-annually thereafter.
4. **Leachate Monitoring Report.** The leachate sample shall be collected and analyzed during September, and provided in a report that includes an identification of all detected Appendix II constituents that are not on the Landfill's COC list. The leachate monitoring report must be received by the San Diego Water Board office no later than **5:00 pm on October 30**.

For leachate sampling requiring a retest, a report must be received in this office no later than **5:00 pm on April 30** of the following calendar year. This report must identify all constituent that were detected in both the previous calendar year's September sample and in the March retest sample, and must add these constituents to the Landfill's COC list, and for at least two years, must also add them to the monitoring parameter list. The report shall also include an updated COC list that includes the Appendix II constituents that are newly detected in both the September and March leachate samples.
5. **Site Conditions.** Site inspections shall be completed at least once each quarter and reported to the San Diego Water Board. The site inspection reports must include all observations and monitoring activities to document compliance with performance standards set forth in CCR Title 27, section 20310(b).

- a. Site inspection reports shall be included in an Appendix to each Annual Summary Report and at a minimum, include the following information: an evaluation of all systems, including the landfill gas collection/ monitoring system, condensate and leachate containment structures, sumps, groundwater monitoring wells, and run-on and runoff drainage control structures. The inspection reports shall include the date and time of inspections, and contain information on site conditions and a discussion of any significant finding with regards to:
 - i. General site conditions;
 - ii. The condition of the storm water conveyance system;
 - iii. The effectiveness of erosion control BMPs;
 - iv. The condition of the leachate monitoring point(s);
 - v. The condition of the water quality Monitoring Points;
 - vi. The status/condition of the landfill gas control system;
 - vii. Maintenance activities performed at the site; and
 - viii. The condition of temporary soil stockpiles at the site.
- b. All deficiencies identified, and photographed, shall be recorded in a permanent log that is kept onsite and available for review at inspections. The volume of liquids collected in each containment structure shall be recorded quarterly in the log.
- c. The waste management unit shall be evaluated to determine its effectiveness to comply with the applicable requirements of CCR Title 27 and 40 CFR.
- d. During dry weather conditions, the effectiveness of the drainage control system shall be evaluated on the basis of its conformance to the as-built drawings, or revisions thereto, for the system.

B. SPECIAL REPORTS

1. **Sampling and Analysis Plan.** The Discharger shall submit a revised Sampling and Analysis Plan (SAP) (if necessary) to the San Diego Water Board as an attachment to the Semi-Annual Report due October 30, 2010. At a minimum, the SAP shall contain the following information regarding the corrective action monitoring reports:
 - a. A description of the statistical or non-statistical approach to be taken by the Discharger for intra-well analysis;

- b. A description and example of the type of graphical representation that will be contained with the semi-annual and annual monitoring reports;
 - c. A description of how the Discharger will demonstrate/evaluate the effectiveness of the selected corrective action measure for the Las Pulgas Landfill;
 - d. A sampling and analysis plan;
 - e. A constituent of concern (COC) list; and
 - f. A list of monitoring parameters for each well.
2. **Slope Stability Monitoring Program Workplan.** Within **90 calendar days** of the date of this Order, the Discharger shall submit a workplan for the design, implementation and reporting of the results from a slope stability monitoring program in the 2:1 slope area of Phase II. The workplan shall incorporate a combination of inclinometers and/or permanent surface monuments for measuring the displacement/slope movement of the 2:1 slopes within the Phase II expansion area, as well as a schedule for periodic visual inspections. The Discharger shall provide the San Diego Water Board with revisions to their slope stability monitoring workplan as warranted by changing conditions at the Site.
3. **Constituents of Concern Report (Every Five Years).** The Discharger shall monitor all constituents of concern (COCs) and submit a COC Report as follows:
 - a. Every five years the Discharger shall sample all Monitoring Points and Background Monitoring Points for each monitored medium for all COCs (Appendix II). The first COC report was received in Spring 1996, subsequent COC reports shall be due every fifth year thereafter alternately in the Fall (Reporting Period ends September 30) and Spring (Reporting Period ends March 31). The COC report may be combined with any Monitoring Report or any Annual Summary report having a reporting period that ends at the same time. The COC report shall meet the minimum monitoring report requirements as described in Reports to be Filed with the San Diego Water Board Part I.A.2.
 - b. The Discharger shall monitor for all COCs in accordance with this Section, provided that such monitoring need only encompass those COCs that do not also serve as monitoring parameters.
4. **Construction Quality Assurance Report.** The Discharger shall provide the San Diego Water Board with a complete Construction Quality Assurance (CQA) Report that contains all the final report elements and the results from laboratory and field testing referenced in CCR Title 27, sections 20320 and

20324 et seq. The preparation of the final CQA Report, and supervision of the CQA Program, shall be performed by persons having the qualifications required by CCR Title 27, section 20324(b). The CQA Report shall be submitted upon completion of construction activities and prior to the disposal of waste in each new phase of expansion of the Landfill.

- C. **REPORTING SCHEDULE.** Reports shall be received in the San Diego Water Board Office by 5:00 pm on the due date, in accordance with the following schedule:

Table C.1: Reporting Schedule for Special Reports

Report Type	Report Frequency	Report Due Date
Sampling and Analysis Plan	One Time	90 calendar days after adoption of WDR Order No. R9-2010-0004
Slope Stability Monitoring Program Workplan	One Time	90 calendar days after adoption of WDR Order No. R9-2010-0004
Revised JTD and Design Plan	Periodic	At least 120 days prior to the commencement of construction of a new phase
Construction Quality Assurance Report	Periodic	Upon completion of each new phase of construction

Table C.2: Reporting Schedule for Core Reports

Report Type	Report Frequency	Report Period	Report Due
Semi-Annual Groundwater, Maintenance, Monitoring, and Corrective Action Evaluation Report	Semi-Annual	April - September	October 30
Semi-Annual Groundwater, Maintenance, Monitoring, and Corrective Action Evaluation Report	Semi-Annual	October - March	April 30
Annual Groundwater, Maintenance and Monitoring Report	Annual	April - March	April 30
Leachate Monitoring	Annual	October - September	October 30
Leachate Retest*	Annual	March	April 30
COC Report ¹	First Five Years	October 2007 - March 2012	April 30, 2012
COC Report ¹	Second Five Years	April 2012 - September 2017	October 30, 2017
Surface Water COC Sampling ²	First Five Years	October 2007-March 2012	April 30, 2012
Surface Water COC Sampling ²	Second Five Years	April 2012 - September 2017	October 30, 2017
Slope Stability Reports ³	Quarterly	Monthly	April 30 July 30 October 30 January 30
Slope Stability Reports ⁴	Semi-Annually	January - March April - June July - September October - December	October 30 April 30

* - If necessary

¹ - COC Reports are due at alternating intervals to account for potential seasonal variations in these data (i.e., every other report is due in April of the reporting year).

² - Surface water COC sampling Reports are due at alternating intervals to account for potential seasonal variations in these data (i.e., every other report is due in April of the reporting year).

³ - Slope stability monitoring reports shall be performed monthly for the first year following adoption of WDR Order No. R9-2010-0004. Results from monthly slope stability monitoring shall be reported quarterly to the San Diego Water Board.

⁴ - Slope stability monitoring reports shall be performed quarterly upon completion of the first year of monthly monitoring. Results from quarterly slope stability monitoring shall be reported semi-annually to the San Diego Water Board.

Monitoring and technical reports shall be submitted to:

California Regional Water Quality Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123
Attn: Land Discharge Program Supervisor

D. STANDARD REPORTING REQUIREMENTS

1. **Use of Registered Professionals.** All reports, plans, and documents required under this Order must be prepared under the direction of appropriately qualified professionals. California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of registered professionals. A statement of qualifications and registration numbers of the responsible lead professionals shall be included in all plans and reports submitted by the Discharger. The lead professional shall sign and affix their registration stamp to the report, plan, or document
2. **Transmittal Letter.** A letter summarizing significant findings must be submitted with each report. The transmittal letter shall include:
 - a. A discussion of any violations of the Order identified since the last report was submitted, and a description of all actions taken or planned for correcting the violation(s). The Discharger shall also describe any actions taken to address previously identified violations. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter.
 - b. A statement certifying that, under penalty of perjury that to the best of the signer's knowledge the report is true, complete, and correct. This statement shall be signed by an individual that meets the requirements contained in **Reporting Requirement H. 9** of WDR Order No. R9-2010-0004.

PART II – CORRECTIVE ACTION MONITORING SPECIFICATIONS

A. GENERAL SPECIFICATIONS

1. To assure compliance with the requirements and considerations under 40 CFR sections 258.55 – 258.57, and CCR Title 27, section 20430 in the simplest way possible, the Discharger shall:
 - a. implement statistical or non-statistical data analysis at any give compliance well outside of the release, for those MPars that are in Detection Mode at that well;

- b. provide concentration-versus-time plotting, at any given Monitoring Point within the release, for all MPar that are in Tracking Mode at that well;
 - c. utilize an initial scan for all Appendix II constituents at all Point of Compliance Wells involved in the release to be sure that the MPar and COC lists include all Appendix II constituents detectable in groundwater;
 - d. thereafter, utilize a periodic (five-yearly) presence/absence screening of all COCs, rather than statistical/non-statistical data analysis, at all appropriate wells to keep the MPar list updated to include all COCs that are detectable in groundwater;
 - e. utilize annual leachate sampling, for all non-COC Appendix II constituents, to keep the COC list updated to include all Appendix II constituents that the Landfill could release; and
 - f. implement an automatic update procedure to assure that the MPar and COC lists remain current.
2. The Corrective Action Program (CAP) shall include and implement all applicable State and federal requirements (CCR Title 27, section 20385 through 20430 and 40 CFR, Part 258.58) and all applicable elements of an Assessment Monitoring Program (AMP: 40 CFR, Part 258.55) and Corrective Action Program (CAP: 40 CFR, Part 258.58).
 - a. The Discharger shall conduct water quality monitoring at the Las Pulgas Landfill in accordance with CCR Title 27, section 20430 (CAP) and 40 CFR, Part 258.55 (AMP).
 - b. The Discharger shall submit an assessment of the effectiveness of the Landfill's corrective action program semi-annually in accordance with CCR Title 27, section 20430(h). As of the date of this Monitoring and Reporting Program, the concentration limits for each MPar is established as its respective background concentration for that well;
 - c. The Discharger shall conduct annual Appendix II leachate analysis for all Appendix II constituents in compliance with **Leachate Monitoring Part II.G.1.**
 - d. In the event that any MPar involved in the release migrates offsite, the Discharger shall notify all off-site affected parties [under 40 CFR, Part 258.55(g)(1)(iii)] within **30 days** after discovery or confirmation. The Discharger shall keep this list updated and, within **30 days** of creating or updating the list, provide a copy to the San Diego Water Board and place a copy into the operating record.

B. WATER QUALITY PROTECTION STANDARD. The Las Pulgas Landfill is in violation of its water quality protection standard (Water Standard) any time a given detection mode well/MPar pair exhibits a measurably significant increase over the applicable background data set [per CCR Title 27, section 20415(e)(7)]. All well/MPar pairs in tracking mode remain in violation of the Water Standard until completion of a successful proof period that ends the CAP [see CCR Title 27, section 20430(g) and 40 CFR, Part 258.58(e)]. Pursuant to criteria established by CCR Title 27, section 20390, the Water Standard for groundwater at the Las Pulgas Landfill consists of the following components:

1. **Constituents of Concern (COC)** [CCR Title 27, section 20395]

The COCs for the Las Pulgas Landfill, including any updates made pursuant to General Specifications Part II.A.2.d, are listed in Attachment No. 1. Statistical and non-statistical data analysis is limited to only those COCs that are on the current MPar list.

2. **Concentration Limits** [CCR Title 27, section 20400(b)(2)]

The concentration limit of a given well/MPar pair is its applicable background data set, as determined or updated pursuant to **Statistical Analysis Part IV.C.1 and Part IV.E.1.**

3. **Point Of Compliance and Monitoring Wells** [CCR Title 27, section 20405]

The Compliance Wells (8W-02A, 8W-02B, 8W-08B, 8W-14A, 8W-14B, 8W-17A, 8W-17B, MW-01S, MW-02, MW-04, and MW-05), background wells (8W-06A and 8W-06B), and Monitoring Points/sentry wells (8W-04A, 8W-07A, 8W-09, 8W-15, and 8W-20) are shown in Attachment No. 2.

4. **Compliance Period** [CCR Title 27, section 20410]

The compliance period for this Landfill, at a minimum, is 97 years.

C. CORRECTIVE ACTION MEASURES. The Discharger has proposed monitored natural attenuation as the preferred Corrective Action Measure (CAMs) for the Las Pulgas Landfill.

1. The Discharger shall continue to implement the Corrective Action Measures (CAMs), together with any additional or replacement interim CAMs the San Diego Water Board either approves or requires for the protection of water quality, until such time the CAMs are no longer required.

2. The Discharger shall install any additional groundwater, soil pre-liquid, soil pore gas, or leachate monitoring devices necessary to comply with this M&RP.

D. EVALUATION OF CORRECTIVE ACTION. Because the Las Pulgas Landfill has had, and continues to have, a measurably significant release, the Discharger shall comply with the following requirements in order to bring the site into compliance with CCR Title 27, section 20430 and 40 CFR, Part 258.58.

1. The Discharger shall submit technical reports evaluating the effectiveness of the corrective action program semi-annually, as an appendix to the semi-annual monitoring reports required to be submitted in accordance with this **Reports to be Filed with the San Diego Water Board Part I.A.1.j.**
2. If the San Diego Water Board or the Discharger determines that the corrective action measures are ineffective the Discharger must submit revised CAMs in the next semi-annual monitoring report.

E. GROUNDWATER MONITORING. The specific requirements for the applicable groundwater monitoring programs are defined by performance standards given in CCR Title 27, section 20415(b), and must include a sufficient number of Monitoring Points, installed at appropriate depths and locations to provide the best assurance of the earliest possible detection of a release from the Unit (Detection Monitoring Program), to provide the data needed to evaluate changes in water quality due to the release from the Unit (Evaluation Monitoring Program), and to provide the data needed to evaluate the effectiveness of the corrective action program (Corrective Action Program).

1. The groundwater monitoring network for the Landfill is comprised of Background wells (which include upgradient and cross-gradient wells), Compliance Wells, and downgradient Monitoring Points. The Background monitoring wells are 8W-06A and 8W-06B. The Compliance Monitoring wells are: 8W-02A, 8W_02B, 8W-08B, 8W-14A, 8W-14B, 8W-17A, 8W-17B, MW-01S, MW-02, MW-04, and MW-05. The downgradient Monitoring Points are: 8W-04A, 8W-07A, 8W-09, 8W-15, and 8W-20. The locations of these groundwater monitoring wells are shown on **Attachment No. 2** to the M&RP.
2. Groundwater samples shall be collected, analyzed and reported as shown in the following table:

MONITORING PARAMETERS	UNITS	SAMPLING AND REPORTING FREQUENCY
pH	pH	Semi-annually
Total Dissolved Solids	mg/l	Semi-annually
Chloride	mg/l	Semi-annually
Sulfate	mg/l	Semi-annually
Nitrate as Nitrogen	mg/l	Semi-annually
Organic Constituents*	µg/l	Semi-annually

Note: mg/l = milligrams/liter and µg/l = micrograms/liter

- * Organic Constituents shall include Appendix II constituents previously detected in groundwater and verified by retest and all Constituents of Concern detected and verified by retest of samples collected to comply with *Statistical Analysis Part IV.F.1*.
- 3. The Discharger shall establish and maintain groundwater monitoring wells to be used to implement the groundwater monitoring programs.
- 4. Prior to pumping monitoring wells for sampling, the static water elevation shall be measured to the nearest 0.01 foot in each well.
- 5. For any given monitored medium, samples shall be collected:
 - a. from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period;
 - b. during the latter third of the Reporting Period within a span not exceeding **30 days**; and
 - c. in a manner that insures sample independence to the greatest extent feasible. Sample procurement shall be carried out as late in the Reporting Period as feasible, considering the time needed to analyze the samples, analyze the resulting data, and to prepare and submit the monitoring report and ensure it is received by the San Diego Water Board within **30 days** after the end of the Reporting Period.
- 6. Prior to sampling monitoring wells, the Discharger shall assess the well for the presence of a floating immiscible layer in all wells. This shall be done prior to any other activity that may disturb the surface of the water in a well, (e.g., water level measurements). If an immiscible layer is found, the Discharger shall notify the San Diego Water Board within **24 hours** of the discovery.
- 7. At least once a quarter the Discharger shall measure the water level elevation from each well and determine groundwater flow and direction, at the times of expected highest and lowest elevations of the water level for the respective groundwater body [CCR Title 27, section 20415(e)(15)]. Groundwater elevations for all background and downgradient wells screened within a given groundwater aquifer 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. This information shall be included in the semi-annual monitoring reports.
- 8. Groundwater sampling shall also include an accurate determination of field parameters (pH, temperature, electrical conductivity, and turbidity) for each Monitoring Point and Background Monitoring Point [CCR Title 27, section 20415(e)(13)].

F. SURFACE WATER MONITORING. Pursuant to CCR Title 27, section 20415(c), the Discharger must conduct surface water monitoring using a sufficient number of Monitoring Points, installed at appropriate locations and depths to provide the best assurance of the earliest possible detection of a release from the Unit (*Detection Monitoring Program*).

1. Surface water monitoring shall be conducted semi-annually in Las Pulgas Creek when there is sufficient water to collect a sample. Surface water samples shall be analyzed for the monitoring parameters in ***Statistical Analysis Part IV.C.2***. Every five years, coincident with the five-year COC scan [see ***Statistical Analysis Part IV.F.1*** above] the Discharger shall analyze surface samples for the constituents listed on the most current COC list. The point of compliance for surface water monitoring is located along the Las Pulgas Creek at the outfall from the desiltation basin for the Las Pulgas Landfill. The location of this sampling point is shown on Attachment No. 2 to this M&RP.

G. LEACHATE MONITORING. The purpose of leachate monitoring is to detect waste constituents produced by the Landfill which could potentially adversely impact groundwater, and to develop the Constituent of Concern (COC) list for the Las Pulgas Landfill.

1. Every ***September***, the Discharger shall collect a liquid sample of the leachate from the leachate collection and removal system (LCRS) and analyze the sample for all constituents listed in Appendix II (to 40 CFR, Part 258) constituents that are not yet on the Constituent of Concern (COC) list for the Unit. The COC list shall consist of all waste constituents listed in this M&RP and include each constituent listed in Appendix II to 40 CFR, Part 258, that is not already a COC for the Las Pulgas Landfill, and that is both:

- a. Detected in a sample of the Landfill's leachate.

The analytical results must be received in the San Diego Water Board office no later than ***5:00 pm on October 30***, and include an identification of all detected Appendix II constituents that are not currently on the Landfill's COC list (non-COCs); and

- b. Detected in a retest of a leachate sample collected the following ***March***.

The Discharger is required to sample and analyze this retest sample only in cases where the annual leachate sample identifies non-COCs. The retest sample shall be analyzed only for the non-COCs detected in the ***September*** sample. During any year in which a ***March*** leachate retest is carried out, the Discharger shall submit a report of the results to the San Diego Water Board, to be received no later than ***5:00 pm on April 30***. The ***April 30*** report shall also include an amended COC list that includes

the Appendix II constituents that were newly detected in both the **September** and **March** leachate samples. The revised COC list must be noted in the Site's Operating Record within **14 days**, permanently adding these constituents to the Landfill's COC list. Within **seven days** of amending the Facility's Operating Record pursuant to this section, the Discharger shall also provide written notification to the San Diego Water Board indicating that the Discharger has made the amendment.

2. For each Appendix II constituent (excluding synthetic constituents) that is added to the Landfill's COC list (as described above), the Discharger shall establish a reference background value in groundwater following the procedures required in **Statistical Analysis Part IV.B.1**. Once this reference set of background data is collected, the Discharger shall include it as a separate item in the next monitoring report submitted.
3. For those Appendix I metals detected and verified in the Landfill's leachate, the San Diego Water Board, after considering the factor listed under 40 CFR, Part 258.54(a)(2), can substitute inorganic surrogates in the Landfill's MPar list, but will include all such displaced metals in the Landfill's COC list at the request of the Discharger. The current MPar list is contained in **Attachment No. 1** to this M&RP.
4. In order to narrow the scope of monitoring parameters and reduce the costs of monitoring for waste constituents identified as groundwater monitoring MPars, this M&RP requires the Discharger to:
 - a. analyze for volatile organic constituents listed in Appendix I to 40 CFR, Part 258;
 - b. use surrogate species, as appropriate, (i.e., pH, Total Dissolved Solids (TDS), Chloride (CL), sulfate (SO₄) and nitrate (NO₃) to monitor groundwater at the Landfill for a release of metals listed in Appendices I and II to 40 CFR, Part 258; and
 - c. analyze soil vapor samples from either the vadose zone or a soil vapor-monitoring network (soil gas probes) or an active landfill gas (LFG) control system at the Las Pulgas Landfill. Analytical results from soil vapor (or LFG) samples may be used to identify additional specific volatile organic constituents (i.e., COCs), listed in Appendix II to 40 CFR, Part 258, that are actually being generated by the wastes within the Las Pulgas Landfill. All additional volatile organic constituents listed in Appendix II to 40 CFR, Part 258 that have been detected and verified by retest of vapor samples collected from properly constructed and maintained soil vapor monitoring probes or an active LFG control system may be used to augment the groundwater MPars for the Corrective Action Monitoring Program.

- H. **SLOPE STABILITY.** The Discharger shall monitor for slope stability by use of inclinometers and/or permanent surface monuments, and visual inspection, and report this information to the San Diego Water Board [see **Reports to be Filed with the San Diego Water Board Part I.A.3**] to ensure the integrity of the Unit, including its foundation, final slopes, and containment systems, has not been compromised in accordance with CCR Title 27, section 21750(f)(5) and 40 CFR, Part 258.15.

PART III – SAMPLING AND ANALYSIS

A. STANDARD MONITORING PROVISIONS

1. The Discharger shall comply with the requirements of CCR Title 27, sections 20385 through 20430 as described below:
 - a. The unsaturated zone monitoring system shall meet the requirements of CCR Title 27, section 20415(d);
 - b. The groundwater monitoring system shall meet the performance requirements of CCR Title 27, section 20415(b) and 40 CFR section 258.51(a, c, and d);
 - c. The surface water monitoring shall meet the performance requirements of CCR Title 27, section 20415(c), and shall be conducted in accordance with **Corrective Action Monitoring Specifications, Part II.F.1**. In addition, whenever possible, the Discharger shall measure volumetric flow – or at a minimum, visually estimate the flow rate – for all surface water Monitoring Points with flowing water;
 - d. All monitoring and data analysis shall be conducted in accordance with the general monitoring requirements of CCR Title 27, section 20415(e), or other options as provided in this Order.
2. Unless otherwise permitted by the San Diego Water Board, all analyses must be conducted at a laboratory certified for such analyses by the California Department of Health Services. The Discharger must use a laboratory capable of producing and providing quality assurance/quality control (QA/QC) records for San Diego Water Board review. The director of the laboratory whose name appears on the certification must supervise all analytical work in his/her laboratory and must sign all reports submitted to the San Diego Water Board.
3. Any report presenting new analytical data is required to include the complete Laboratory Analytical Report(s). The Laboratory Analytical Report(s) must be signed by the laboratory director and contain:
 - a. A complete sample analytical report.
 - b. A complete laboratory QA/QC report.

- c. A discussion of the sample and QA/QC data.
- d. A transmittal letter that must indicate whether or not all the analytical work was supervised by the director of the laboratory, and contain the following statement, "All analyses were conducted at a laboratory certified for such analyses by the California Department of Health Services in accordance with current USEPA procedures."
4. Specific methods of analysis must be identified in monitoring program reports. If the Discharger proposes to use methods or test procedures other than those included in the most current version of "Test Methods for Evaluations of Solid Waste, Physical/Chemical Methods, SW-846" (USEPA) or 40 CFR, Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification," the exact methodology must be submitted for review and must be approved by the San Diego Water Board prior to use.
5. If the Discharger monitors any pollutants more frequently than required by this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharger's monitoring report. The Discharger shall also report the increased frequency of monitoring and specific monitoring locations to the San Diego Water Board.
6. The Discharger shall report all instances of noncompliance not reported under **Reporting Requirements H.5** of WDR Order No. R9-2010-0004 at the time monitoring reports are submitted. The reports shall contain the information listed in **Reporting Requirements H.5** of WDR Order No. R9-2010-0004.
7. Sample collection, storage, and analysis shall be performed according to the protocols included in the USEPA's "SW-846: Test Methods for Evaluating Solid wastes, Physical/Chemical Methods" (available online at <http://www.epa.gov/epawaste/hazard/testmethods/index.htm>) and in accordance with a written sampling and analysis plan, approved by the San Diego Water Board.
8. All monitoring instruments and equipment shall be properly calibrated and maintained as necessary to ensure accuracy of measurements.
9. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, and copies of all reports required by this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurements, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the San Diego Water Board.
10. Records of monitoring information shall include:

- a. The date, identity of sample, Monitoring Point from which the sample was collected, and time of sampling or measurement;
 - b. The name of the individual(s) who performed the sampling or measurements;
 - c. Date and time that analyses were started and completed, and the names of the individuals performing each analysis;
 - d. The analytical techniques or method used, including method of preserving the sample and the identity and volumes of reagents used;
 - e. Calculation of results;
 - f. Results of analyses and the method detection limit (MDL) for each parameter; and
 - g. Laboratory quality assurance results (e.g., percent recovery, response factor, etc.).
11. The monitoring reports shall be signed by an authorized person as required by **Reporting Requirements H.7** of WDR Order No. R9-2010-0004.
12. The Discharger must comply with the following restrictions:
- a. The methods of analysis and the detection limits used shall be appropriate for the expected concentrations. For any constituent or parameter that is found in concentrations which produce more than 90 percent non-numerical determinations in detection monitoring data collected from Background Monitoring Points for that medium, the analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects involved.
 - b. Analytical results falling between the MDL and the practical quantitation limit (PQL) shall be reported as "trace" and shall be accompanied both by the (normal and estimated) MDL and PQL values for that analytical run.
 - c. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. The normal 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. In a relatively interference-free laboratory derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

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 nominal MDL/PQL values; the results shall be flagged accordingly along with estimates of the detection limit and quantitation limit actually achieved. The MDL shall always be calculated such that it represents a concentration associated with a 99 percent reliability of a non-zero result. The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedures.

- d. All Quality Assurance/Quality Control (QA/QC) data shall be reported, along with the sample results to which it applies. The QA/QC information shall include the method, equipment, and analytical detection and quantitation limits, the recovery rates, an explanation for 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. 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.
- e. Upon receiving written approval from the San Diego Water Board, a proposed alternative statistical or non-statistical procedure may be used for determining the significance of analytical results for a constituent that is a common laboratory contaminant (e.g., 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 San Diego Water Board.
- f. 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.
- g. The MDL and PQL shall be determined in accordance with the definitions of those terms in CCR Title 27. In the event that an MDL and/or PQL change for a MPar, the Discharger shall highlight that change in the report's summary and the report shall include an explanation for the change that is written and signed by the owner of the analytical laboratory.

13. The Discharger shall submit any reports required by this Order electronically, in accordance with CCR Title 23, Division 3, section 3890 et seq. The Discharger shall also continue to provide complete paper copies and an electronic copy of all reports to the San Diego Water Board.
14. The Discharger shall upload a complete copy of all reports in PDF format into the State Water Resources Control Board's (State Water Board's) on-line database (currently Geotracker).

PART IV – STATISTICAL ANALYSIS

A. ESTABLISHING INITIAL COC DATA

1. For any inorganic COC that does not have at least 10 data points of data at any given background and/or compliance well (e.g., for a new COC established under **Statistical Analysis Part IV.F.1**), the Discharger shall establish the prevailing concentration of that constituent at each such data-deficient well by taking and analyzing one sample monthly at each data-deficient background and downgradient monitoring point until each such well has at least 10 data points.
2. For any upgradient or downgradient well installed after the effective date of this M&RP, the Discharger shall establish the prevailing concentration for each inorganic COC by using an accelerated sampling schedule for ten months. These data shall be used, as described in **Statistical Analysis Part IV.B.1.a(i through iii)**, in the event that the COC becomes an MPar. If monthly sampling would be too frequent to obtain reasonably independent data for a constituent, even using the post-sampling purge approach described in CCR Title 27, section 20415(e)(12)(B), the Discharger shall include, for approval by the San Diego Water Board, a proposed date for completion of data procurement and a well- and constituent-specific technical validation for any delay of more than one month between successive sampling dates.

B. STATISTICAL DATA ANALYSIS METHODOLOGY

1. **Intra-Well Comparisons Are Standard** – The Discharger shall conduct intra-well comparison analysis for all well/MPar pairs in detection mode. Except as otherwise provided in **Statistical Analysis Part IV.B.1.a(ii & iii) and Part IV.B.5.b**, intra-well comparison methods shall be used at all Compliance Wells for all MPar that are subject to data analysis under this Order and shall be used to test individual “background” (e.g., upgradient) wells regarding unexpected increases in man-made constituents (e.g., VOCs), as follows:

a. **Pre-Detection Background Data Set** – Initially, except as otherwise provided in **Statistical Analysis Part IV.B.1.a.iii(1) and (2)**, or **Statistical Analysis Part IV.E**, for each given MPar at a given downgradient monitoring well (well/MPar pair), the proposed background data set shall be comprised (at a minimum) of all validated data from that compliance well and parameter from the period of 2004 through 2009. Alternatively, the Discharger may propose the use of a larger dataset for establishing the pre-detection background dataset. Every two years, following the adoption of the M&RP, as part of the annual monitoring summary report [see CCR Title 27, section 20415(e)(14)], the Discharger shall add the newer data to the background dataset for each well/MPar pair after validating (via a method approved by the San Diego Water Board) that the new data does not contain data indicating an increase over the existing background dataset. At that time, the Discharger shall also retire the well/MPar's oldest two years of background data, thereby producing a dataset covering a minimum of then-previous five years. The Discharger shall validate the proposed intra-well background dataset for each MPar at each well (initially) or, subsequently, at a new well, or for a new MPar at an existing well. The Discharger shall report the validated or updated background dataset, for each affected well/MPar pair, in the next scheduled monitoring report. Initial background data validation shall be as follows:

- i. **Accelerated Background Data Procurement** – if there are *less than ten post-2004 data points* available, for a given MPar at any background or compliance well, the Discharger shall implement the accelerated data procurement effort described in **Statistical Analysis Part IV.D** to achieve that minimum background sample size (**10 data points per well**) prior to initiating the intra-well background data set validation procedure described below.
- ii. **Validate Upgradient Data For Non-Metallic Appendix II MPar** – for any MPar that is a non-metallic Appendix II constituent (hereinafter synthetic), the initial intra-well data validation, under **Statistical Analysis Part IV.B.1.a.iii**, shall utilize only data from those upgradient (or cross-gradient) background wells whose post-2004 data, for that constituent, exceeds the constituent's method detection limit in less than 10 percent of the well's data. Such synthetic constituents should not be detectable at background wells except in error (around 1 percent of the time) or because the constituent comes either from the Unit or from another source. Therefore, for any background well rejected pursuant to this paragraph, for a given MPar, if the Discharger has not already explained the constituent's presence at that well to the satisfaction of the San Diego Water Board, the Discharger shall conduct an investigation under **Statistical Analysis Part IV.D**. If there are one or more acceptable background wells, the

Discharger shall use their data to validate each well/MPar pair's proposed intra-well background dataset, under ***Statistical Analysis Part IV.B.1.a.iii.***

- iii. **Intra-Well Background Validation for New Well/MPar Pairs** – for all Compliance Wells initially and, for new wells or a new MPar at an existing well, to determine whether the existing data for that MPar at that well can be used as its intra-well comparison background dataset the following methods shall be used:
 - (1) **Commonly Qualified Constituents** – for any MPar that, absent the Landfill's existence, would usually be detected in groundwater at concentrations exceeding the constituent's PQL, the Discharger shall validate the proposed intra-well background data at each compliance well by comparing it to a pooled box-and-whiskers plot, for that MPar, from all "background" (upgradient or cross-gradient background) wells completed in the same groundwater aquifer. If any such constituent's median concentration for a downgradient well exceeds the pooled background plot's 75th percentile (upper boundary of the box, in a box-and-whisker plot), then that compliance well's existing data cannot be used as the intra-well comparison background dataset for that well/MPar pair. Such a well/MPar pair shall be tested beginning no later than the next scheduled reporting period, using an inter-well comparison data analysis method [against the applicable background well(s)] that the San Diego Water Board agrees meets the requirements of CCR Title 27, section 20415(e)(9). Otherwise (i.e., for a well/MPar pair whose existing data's median is less than the pooled background plot's 75th percentile), that existing data shall be used as the initial background dataset for intra-well comparisons for that well/MPar pair; or
 - (2) **Rarely Quantified Constituents** – for an MPar that, absent the Landfill's existence, would seldom be detected in groundwater (e.g., synthetic constituents), the Discharger shall identify the highest value from the pooled dataset from all background wells that have passed validation under ***Statistical Analysis Part IV.B.1.a.ii*** or, in a case where all applicable upgradient well data is non-detect, the MDL. The Discharger shall use this value as a basis of comparison to validate the data points in the proposed intra-well background dataset. The initial intra-well background dataset for that downgradient well shall consist of all data points in the proposed intra-well background dataset that are less than this value.
- b. **Post-Detection Background Dataset** – For any constituent that is in "tracking mode" [***Statistical Analysis Part IV.B.5.b***], at a given well, its

background dataset shall be the background dataset that was in effect when the well/MPar pair exhibited a measurably significant increase.

2. **Performance Standards** – All data analysis methods (statistical or non statistical) shall meet the requirements of CCR Title 27, section 20415(e)(9).
3. **Retest is Part of the Method** – If an approved data analysis method provides a preliminary indication that a given MPar has displayed a measurably significant increase in concentration at a given well, then the Discharger shall perform a discrete retest, in accordance with CCR Title 27, section 20415(e)(8)(E) for verification. The retest is part of the data analysis method; therefore, a measurably significant increase exists only if either or both of the retest samples validate the preliminary indication.
4. **Limited Retest Scope** – For any given groundwater monitoring point, the Discharger shall perform the verification procedure only for those MPars that have shown a preliminary indication at that well for that reporting period.
5. **Water Quality Monitoring Approach** – The monitoring approach used for each well/MPar pair shall be controlled by whether that MPar has exhibited a measurably significant increase at any well within the plume. Therefore, the Discharger shall monitor each well/MPar pair in one of two modes, as follows:
 - a. **Detection Mode** – For an MPar that has not produced a measurably significant increase at that well, the purpose of monitoring, for any well/MPar pair, is to watch for the MPar's arrival at that well at a concentration high enough to trigger a measurably significant indication using an appropriate statistical or non-statistical data analysis method; or
 - b. **Tracking Mode** – For an MPar that has produced a measurably significant increase at any well, the purpose of the monitoring, for that well/MPar pair, is to verify the suitability and effectiveness of the existing or proposed corrective measures by tracking changes in the MPar's concentration at that location via an evolving concentration-versus-time plot.
6. **Detection Mode Data Analyses** – The following applies to all detection mode data analyses (i.e., this paragraph does not apply to the scans under ***Corrective Action Monitoring Specifications Part II.G.(1 through 4) and Statistical Analysis Part IV.F.1.)***
- a. **MPars Readily Detectable in Background** – At any given monitoring point, the Discharger shall apply an approved statistical analysis for each detection mode MPar that exceeds its respective MDL in **10 percent or more** of the applicable background dataset. For each well/MPar pair (separately), an approved statistical analysis is a method, other than

Analysis of Variance (ANOVA) that the San Diego Water Board agrees meets the performance standards of CCR Title 27, section 20415(e)(9). If using SANITAS®, the Discharger shall use the "CA Standards" and "CA Retest" settings (under the "Options" pull-down menu). Otherwise:

- i. For any such well/MPar pair that, as of the effective date of this Order, does not have an approved statistical analysis method, the Discharger shall propose and substantiate an appropriate statistical method within **30 days** of the adoption of this Order.
 - ii. After the adoption of this Order, for any new MPar that qualifies for statistical analysis by meeting the above 10 percent rule at a given well, the Discharger shall propose and substantiate an appropriate statistical method for that well/MPar pair as part of the background data validation under **Statistical Analysis Part IV.B.1.a.iii.**
- b. **MPars Not Readily Detectable in Background** – For any monitoring point at which one or more MPars exceed their respective MDL in less than 10% of the applicable background dataset, the Discharger shall analyze the data for these MPars via the California Non-Statistical Data Analysis Method (CNSDAM) test described in Statistical Analysis Part IV.D.

C. CALIFORNIA NON-STATISTICAL DATA ANALYSIS METHOD (CNSDAM)

1. **Non-Statistical Method for Detection Mode MPars Seldom Found in Background** – For any given downgradient compliance (downgradient) well, the Discharger shall use this data analysis method, jointly, for all constituents on the "scope list" below (or, for each retest sample, the modified scope list of paragraph 2.b below).
 - a. **Scope List** – A current "scope list" shall be created showing each detection mode MPar, at that well, that exceeds its MDL in less than 10 percent of its background data (see Statistical Analysis Part IV.B.5.a).
 - b. **Two Triggers** – From the scope list made under paragraph a.i above, for an initial test [or, for a retest, the modified scope list under paragraph b., below], each MPar in the current sample from that well that exceeds its respective MDL or PQL shall be identified. The Discharger shall conclude that these identified MPars provide a preliminary indication [or, for a retest, provide a measurably significant indication], at that well, or a change in the nature or extent of the release if **either**:
 - i. two or more of the MPars exceed their respective MDL; or
 - ii. at least one MPar equals or exceeds its respective PQL.

2. **Discrete Retest** [CCR Title 27, section 20415(e)(8)(E)]:

- a. In the event that the Discharger concludes (pursuant to paragraph a.ii above) that there is a tentative indication of a release, then the Discharger shall immediately notify the San Diego Water Board by phone or e-mail and, within **30 days** of such indication, shall collect two new retest samples from the indicating compliance well.
- b. For any given compliance well retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those constituents indicated in that well's original test, under paragraph a.ii above, and these indicated constituents shall comprise the well's "modified scope list." As soon as the retest data are available, the Discharger shall apply the same test [under paragraph C.1.b above, but using the modified scope list] to separately analyze each of the two suites of retest data at that compliance well.
- c. If either or both of the retest samples trips either or both of the triggers under paragraph C.1.b above, then the Discharger shall conclude that there is a measurably significant increase at that well for the constituent(s) indicated in the validating retest sample(s). Furthermore, thereafter, the Discharger shall monitor the indicated constituent(s) in tracking mode instead of detection mode (see **Statistical Analysis Part IV.B.5.b** above) at that well, and shall highlight this conclusion and these changes in the next scheduled monitoring report.

D. **FREQUENT DETECTIONS OF A SYNTHETIC CONSTITUENT IN A BACKGROUND WELL**

1. Any time a background well exhibits an excessive frequency or proportion of trace-level or numerical concentration data for any MPar (under **Statistical Analysis Part IV.B.1 or E.1**) or COC (under **Statistical Analysis Part IV.C.1 or D.1**) that is a synthetic constituent, the Discharger shall conduct an investigation under this paragraph. For such a constituent an "excessive proportion" constitutes a condition, under Statistical Analysis Part IV.B.1.a.i, where 10 percent or more of the data from that background well exceeds the MPar's MDL; and an "excessive frequency" constitutes a condition, under **Statistical Analysis Part IV.E.1**, in which new data at that background well exceeds the constituent's MDL for two successive samples. Given either condition, the Discharger shall notify the San Diego Water Board within **24 hours** by phone or e-mail and shall, within **180 days** thereafter, submit a report, acceptable to the San Diego Water Board, that adequately examines the possibility that this constituent originated from the Unit (e.g., using a concentration gradient analysis) and that proposes appropriate changes to the monitoring program. If, after reviewing this report, the San Diego Water Board:

- a. concludes that the evidence indicates the synthetic constituent originated from a source other than the Unit, then the San Diego Water Board may make appropriate changes to the monitoring program, including switching to an appropriate statistical inter-well comparison procedure, for that constituent, for all detection-mode analyses at that Landfill, using a suite of background data that reflects the expected concentration for that constituent; or
- b. is unable to conclude that the evidence indicates the detected synthetic constituent came from a source other than the Unit, then the Discharger shall:
- c. list the constituent as an MPar, if it is not already so listed, in the next scheduled monitoring report and shall note this change prominently in the report's summary;
 - i. include this background well as part of the release, for that MPar and, thereafter, shall address this well/MPar pair in tracking mode (i.e., as part of the release), in spite of the well's being a background well, beginning with the next scheduled monitoring report; and
 - ii. If there is not at least one other background (i.e., upgradient or cross-gradient) well unaffected by this constituent, within 90 days, install a new upgradient or cross-gradient background well in a portion of the aquifer that will provide data representative of background conditions for the Unit's Compliance Wells.

E. ONGOING BACKGROUND WELL TESTING

1. Even though most data analysis will be via intra-well comparisons, the Discharger shall continue to monitor background wells, for each MPar and COC, each time that MPar or COC is monitoring at downgradient wells. Each year that there is new "background" well data for a constituent (i.e., annually for MPars and every five years for non-MPar COCs), the Discharger shall include the new data in the annual monitoring summary report [see **CCR Title 27, section 20415(e)(14)**] as a time-versus-concentration plot for that "background" well and constituent. Any time such a plot for a given well and constituent shows two successive data points in excess of the MDL for any synthetic constituent that has not already been investigated at that well, under **Statistical Analysis Part IV.D.1**, the Discharger shall notify the San Diego Water Board immediately by phone or e-mail and shall initiate an investigation under **Statistical Analysis Part IV.C.2** within **30 days** of noting this condition.

F. FIVE-YEARLY COC SCAN

1. Every five years, subsequent to the initial Appendix II scan (under **Corrective Action Monitoring Specifications Part II.A.2.c**), the Discharger shall analyze a sample from each groundwater monitoring well known to be within the release as described in **Statistical Analysis Part IV.F.1(a and b)** below for the detectable presence (including trace determinations) of all COCs not yet known to be part of the release, including all Appendix II constituents (**Attachment No.3** to this M&RP) that have ever been detected and verified in leachate (see **Statistical Analysis Part IV.C**) but not yet identified as part of the release. This constitutes the means by which the Discharger continues to meet the requirements of 40 CFR, Part 258.55(b-d). [Note: See **Reports to be Filed with the San Diego Water Board Part I.B.3**].
 - a. A minimum of one sample from each affected wells must be collected and analyzed during each COC scanning event. If a COC is detected (including trace value) that is not yet on the MPar list, the Discharger shall, within **30 days**, collect a single resample from the indicating well(s) and reanalyze it only for the newly-detected constituent(s).
 - b. Any COC detected in samples collected from a groundwater monitoring well, and verified by a retest, automatically becomes part of the MPar list for the Site. The Discharger shall notify the San Diego Water Board of any such change within **24 hours**, via phone, facsimile or e-mail and shall note prominently the constituent(s) added to the MPar list in the next scheduled monitoring report, along with a listing of which well(s) were involved in this detection and verification. In addition, the updated MPar list must be noted in the Facility's Operating Record within **14 days** of verification, permanently adding these constituents to the MPar list. Within **seven days** of amending the Facility's Operating Record pursuant to this section, the Discharger shall also provide written notification to the San Diego Water Board indicating that they have made the amendment.

PART V – CONTINGENCY REPORTING

A. NOTIFICATION OF A RELEASE

1. If the Discharger determines that there is significant physical evidence of a release, the Discharger shall notify the San Diego Water Board by telephone within **24 hours**, and by certified mail within **seven days**. The Discharger shall carry out the requirements of **Evaluation of a Release Part V.B.1** for all potentially affected monitored media.
2. If the Discharger determines that there is significant statistical evidence of a release (i.e., the initial statistical comparison or non-statistical comparison indicates, for any COC or monitoring parameter, that a release is tentatively

identified), the Discharger shall, within **24 hours**, notify San Diego Water Board staff verbally as to the monitoring point(s) involved, shall provide written notification by certified mail within **seven days** of such determination, and shall carry out a discrete test [see **Statistical Analysis Part IV.B.3** (statistical method) or **Part IV.C.2** (non-statistical method) of this M&RP].

B. EVALUATION OF THE RELEASE

1. If the Discharger concludes that a release has been discovered:
 - a. If this conclusion is not based upon direct monitoring of the COC, then the Discharger shall, within **30 days**, sample for all COCs at all Monitoring Points in the affected medium for the waste management unit, and submit them for laboratory analysis. Within **seven days** of receiving the laboratory analytical results, the Discharger shall notify the San Diego Water Board, by certified mail, of the concentration of all COCs at each monitoring point in the affected medium. Because this scan is not to be statistically tested against background, only a single datum is required for each COC at each monitoring point.
 - b. The Discharger shall, within **90 days** of determining there is measurably significant evidence of a release, submit a revised Report of Waste Discharge proposing an Evaluation Monitoring Program meeting the requirements of CCR Title 27, sections 20420(k)(5) and 20425, and satisfies the requirements of 40 CFR, Part 258.55.
 - c. The Discharger shall, within **180 days** of discovering the release, submit to the San Diego Water Board a preliminary engineering feasibility study meeting the requirements of CCR Title 27, section 20420(k)(6).
 - d. Within **14 days** of completing an individual step in this section (**Evaluation of a Release Part V.B.1.a, 1.b or 1.c**) the Discharger shall amend the Facility's Operating Record with any results from its evaluation, testing, re-testing, or any technical reports submitted to the San Diego Water Board. Within **seven days** of making an amendment to the Facility's Operating Record pursuant to this section, the Discharger shall also provide written notification to the San Diego Water Board indicating that it has amended the Operating Record.
2. In the event the Discharger concludes a release has been tentatively indicated (under the statistical or non-statistical method), the Discharger shall, within **30 days**, collect additional sample(s) for the indicated COC(s) or monitoring parameter(s) at each indicated 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. Samples shall be analyzed using the same analytical methods that produced the original data indicating the tentative evidence of a release. Sample data shall be analyzed using the

same statistical procedure or non-statistical procedure that provided the tentative evidence of a release.

As soon as the data are available, the Discharger shall rerun the statistical or non-statistical method separately upon each suite of retest data. For any indicated monitoring parameter or COC at an affected monitoring point, if the test results of either or both of the retest data suites confirm 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 COC or monitoring parameters which triggered the indication there, as follows:

- a. If an ANOVA method was used for the original data, 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 was used for the original data, the retest shall consist of a full repeat of the statistical test for the indicated constituent or parameter, performed separately on each of the new sample suites from the indicating monitoring point.
- c. If the non-statistical method was used for the original data, all COCs that are jointly addressed in the non-statistical test remain as individual COCs, the scope of the laboratory analysis for the non-statistical retest samples shall address only those constituents detected in the sample that initiated the retest.
- d. If the retest confirms the existence of a release, the Discharger shall carry out the requirements described in *Evaluation of a Release B.1* above.

C. DETECTION OF VOCs IN BACKGROUND

1. Except as provided in C.3 below, any time the laboratory analysis of a sample from a background monitoring point sampled for VOCs shows either: two or more VOCs at or above their respective MDL, or one VOC at or above its respective PQL, then the Discharger shall:
 - a. **24 hours** notify the San Diego Water Board by phone and facsimile.
 - b. Follow up with written notification by certified mail within **seven days**.
 - c. Obtain two new independent VOC samples from that background monitoring point.

- d. Send the samples for laboratory analysis of all detectable VOCs within **30 days**.
2. If either or both the new samples validate the presence of VOCs using the above procedure, the Discharger shall:
 - a. Within **24 hours** notify the San Diego Water Board by phone and facsimile.
 - b. Follow up with written notification by certified mail within **seven days**.
 - c. Within **180 days** of validation, submit a report that evaluates the possibility that the detected VOCs originated from the waste management unit and propose appropriate changes to the monitoring program.
 3. If the San Diego Water Board determines, (after reviewing the report submitted under **C.2.b** above), that the detected VOCs most likely originated from the waste management unit, the Discharger shall immediately begin carrying out the requirements of **B.1** above.
 4. If the San Diego Water Board is unable to conclude that the evidence indicates the detected man-made constituent came from a source other than the Unit, then the Discharger shall:
 - a. List this constituent as an MPar, if it is not already so listed, in the next scheduled monitoring report and shall note this change prominently in the report's summary;
 - b. Include this background well as part of the release for that MPar, and thereafter, shall address this well/MPar pair in tracking mode (i.e., as part of the release), in spite of the well being a background well, beginning with the next scheduled monitoring report; and
 - c. Within 180 days, provide the San Diego Water Board with a work plan detailing the proposed activities associated with the installation of a new upgradient or cross-gradient monitoring well. Within **90 days** of approval of the work plan, install a new upgradient or cross-gradient background well in a portion of the aquifer that will provide data representative of background conditions for the Unit's Compliance Wells (if there is not at least one other background well unaffected by this constituent).

D. RELEASE BEYOND THE FACILITY BOUNDARY

1. Any time the Discharger concludes that a release from the waste management unit has proceeded beyond the Site boundary, the Discharger shall notify all persons who either own or reside upon the land that directly overlies any part of the plume (affected persons).

2. 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.
3. The Discharger shall provide updates to all affected persons, including any persons newly affected by a change in the boundary of the release, within **14 days** of the release.
4. Each time the Discharger sends a notification to affected persons, within **seven days** of sending such notifications, the Discharger shall provide the San Diego Water Board with copies of the notification and a current mailing list of affected persons.
5. Each time the Discharger sends a notification to affected persons or the San Diego Water Board, within **14 days** of sending the notification, the Discharger shall amend the Facility's Operating Record to include that notification and any attachments thereto. Within **seven days** of making an amendment to the Facility's Operating Record pursuant to this section, the Discharger shall also provide written notification to the San Diego Water Board indicating that it has amended the Operating Record for the Site.

Ordered by: 
DAVID W. GIBSON
Executive Officer

APPENDIX A: DEFINITION OF TERMS AND ACCRONYMS
MONITORING AND REPORTING PROGRAM NO. R9-2010-0004

Note: for terms-of-art that are not listed below, please see the definitions at CCR Title 27, section 20164.

“CCR Title 27” means the State Water Resources Control Board's (SWRCB) regulations, in division 2 of Title 27 of the California Code of Regulations, applicable to the discharge to land of waste that is not hazardous waste. A copy of these regulations can be found at http://www.waterboards.ca.gov/laws_regulations/

“40 CFR 258” means the regulations under Part 258 of Title 40 of the Federal Code of Regulations that apply to MSW landfills.

“ACM” means the federal Assessment of Corrective Measures process, under 40CFR §258.56, which applies to any MSW landfill that has exhibited a measurably significant release over the applicable Water Standard at any well along the point of compliance for any Appendix II constituent. In California, this process is one in which the discharger determines the nature and extent of the release, implements interim corrective action measures, and develops a broad suite of possible measures, including a subset thereof which the discharger will propose for Regional Board adoption under the Selection Of Remedy (SOR) process. Generally speaking, the federal ACM and SOR processes serve the same function, under the federal approach, as the Detection Monitoring Program does under the State approach.

“Affected persons” means all people who own, or reside upon, land outside the facility boundary that is underlain by any portion of the release from the landfill. Under 40 CFR Part 258.55(g)(1)(iii), the discharger must keep an up-to-date list of all such people and must assure that they are invited to the discussion of proposed corrective action measures, pursuant to 40 CFR Part 258.56(d).

“AMP” means a federal Assessment Monitoring Program, under 40 CFR Part 258.55, which applies to any MSW landfill that, under 40 CFR Part 258.54(c) has exhibited a measurably significant increase over the background value for any Monitoring Parameter. In California, given that an MSW landfill will have established background as the Concentration Limit for each Monitoring Parameter, the exceedance of the background value for a monitored constituent at any monitoring point also constitutes a violation of the Water Standard, thereby – in most instances – triggering the federal Assessment of Corrective Measures (ACM) and Selection Of Remedy (SOR) studies. The term also describes the federal program that: (1) is ongoing during the ACM and SOR studies and under the CAP; (2) constitutes the federal monitoring program that continues after successful completion of the Corrective Action Program.

“Appendix I” (to 40 CFR Part 258) means the suite of 47 volatile organic constituents and 17 metals used as the default monitoring parameter list under the federal MSW

landfill regulations (40 CFR Part 258.1 through Part 258.75). The listed constituents are a subset of those listed in Appendix II and are subject to monitoring and data analysis every six months. The Regional Board can adopt surrogates for the 17 metals, and can eliminate from the entire suite any constituent that it finds should not be released from the landfill or derived from such a release.

"Appendix II" (to 40 CFR Part 258) means the suite of 213 hazardous constituents used as the default constituent of concern list under the federal MSW landfill regulations (40 CFR Part 258.1 through Part 258.75). The listed constituents are subject to periodic scans, at selected compliance and background wells, either annually or, as adopted for this landfill, every five years. Constituents detected (trace level or higher) and verified in a retest sample become Monitoring Parameters. The Regional Board can eliminate from the entire suite any constituent that it finds could not be release from the landfill or derived from such a release.

"Background" when applied to a reference data set used in testing for a measurably significant indication of a release for a given well/MPar pair, means a suite of data which comes as close as possible to representing the data one would get, for that MPar at that well, if there were no release from the landfill.

"Background well" means a monitoring well whose purpose is to provide an indication, for each monitoring parameter (MPar) and monitored groundwater body, of the mean (or median) and variably one would expect in the MPar's concentration in that groundwater body in the absence of a release from the landfill. Such wells can be upgradient, side-gradient, or (in rare instances) far-downgradient of the landfill. Due to the nearly ubiquitous presence of geographic variation, intra-well comparisons have a greater statistical power than inter-well comparisons. Therefore, the purpose of this type of well is three-fold: (1) to validate that a compliance well's historical data, for a given MPar, can be used as the background data set for that well/MPar pair because the compliance well's historical data does not appear to reflect the presence of a release; (2) to identify the need to adjust the monitoring approach because of the arrival of waters affected by a release of that MPar from a source other than the landfill; and (3) to identify a condition in which an MPar is release from the landfill and migrates to this well in the unsaturated zone (e.g., volatile organic constituents carried by an expanding LFG release in the unsaturated zone).

"California Nonstatistical Data Analysis Method (CNSDAM)" means the test described in the M&RP for this landfill, for use jointly on all those MPars, at a given compliance well, whose applicable background data set exhibits trace level or higher concentrations in less than 10 percent of the data.

"CAP" means a Corrective Action Program that implements the SWRCB's requirements under CCR Title 27, section 20430 and under SWRCB Resolution No. 93-62 which requires the Regional Board to apply any federal requirements, under 40 CFR

Part 258.58 (federal Corrective Action Program), that are additional to, or are broader in scope than, the CCR Title 27 requirements.

“Compliance well” means any monitoring well named in the M&RP as a groundwater monitoring point to be used in detecting, or tracking, the release. The term does not include assessment wells that are used [under CCR Title 27, section 20425(b) and 40 CFR Part 258.55(g)] to delineate the nature and extent of the release, unless the Regional Board specifically names such a well as a groundwater monitoring point in the M&RP.

“Concentration limit” is a part of the landfill's Water Standard and means the reference background data set, or reference concentration value, for a given constituent against which one compares current compliance well data to identify, in detection mode, the arrival of the release at a given well and to identify, in tracking mode, if the corrective action measures are bringing the landfill back into compliance with the Water Standard [for that monitoring parameter (MPar), in the portion of the aquifer sampled by that compliance well]. For compliance wells within the area affected by the release, this limit can be a single number, adopted by the Regional Board as a concentration limit greater than background (**CLGB**) under CCR Title 27, section 20400(a)(3) through (h) and 40 CFR Part 258.55(l) for a given MPar involved in the release. Otherwise, this limit will be either the applicable background data set, for MPar's that are readily detectable, or will be the method detection limit, for a constituent that exhibits trace level or higher values in less than 10 percent of the background data (i.e., an MPar that is subject to the California Nonstatistical Data Analysis Method at that compliance well).

“Constituent of Concern (COC)” is a part of the landfill's Water Standard and means the list of constituents that could be released from the landfill, including the foreseeable breakdown products of all such constituents. For the groundwater medium at an MSW landfill, this list must include all Appendix II constituents except for those that the discharger can show are not being mobilized in the landfill's leachate or, for VOCs only, in its produced gases (LFG). A constituent on this list becomes a monitoring parameter only after being detected (at trace level or above) and then verified by a well-specific retest in a periodic scan of compliance wells affected by the release.

“Corrective action measure (CAM)” means an active or passive process (or installation) that the discharger implements or constructs to constrain a release, to eliminate its effects, or to prevent or minimize the release of additional waste from the landfill. The scope of the term includes **“interim CAM,”** which is applied before the adoption of the Corrective Action Program, and includes **“active CAM,”** which involves the induced movement of polluted water within the impacted aquifer (e.g., a pump-and-treat operation).

“Detect” when applied to a scan of leachate or groundwater, means that the constituent for which the scan is conducted shows up at trace level or higher. For constituents of concern and monitoring parameters that are rarely detected in background, the term means analyses done using a laboratory analytical method that complies with CCR Title 27, section 20415(e)(7).

“Discrete retest” means a particular means of validating a preliminary indication of a release, for a given compliance well and monitoring parameter (well/MPar) pair, whereby the discharger applies an approved data analysis method to two new samples for that well/MPar pair. The retest validates the preliminary indication if either or both of the retest samples triggers a measurably significant increase indication. The scope of the retest, at any given compliance well, is limited to only those MPar's that gave a preliminary indication at that monitoring point.

“Detection mode” for a given compliance well and monitoring parameter (MPar) pair, means a state in which one tests for a measurably significant increase, for that monitoring parameter at that well, using an appropriate statistical or nonstatistical data analysis method. Once that well/MPar pair exhibits a measurably significant increase (including an initial indication verified by a discrete retest), it is monitored, thereafter, in “tracking mode” until the inception of the proof period, following successful completion of corrective action.

“DMP” means a Detection Monitoring Program that implements the SWRCB's requirements, under CCR Title 27, section 20420 and under SWRCB Resolution No. 93-62, which requires the Regional Board to apply any federal MSW landfill requirements, under 40 CFR Part 258.54, that are additional to, or are broader in the scope than, the CCR Title 27 requirements.

“EMP” means an Evaluation Monitoring Program that implements the requirements under CCR Title 27, section 20425, and under SWRCB Resolution No. 93-62, which requires the Regional Board to apply any applicable federal MSW landfill requirements under 40 CFR Part 258.55 through 258.57, that are additional to, or are broader in scope than, the CCR Title 27 requirements. This state program constitutes a stepping stone to a Corrective Action Program, in response to the landfill's having exhibited a measurably significant increase of a release or to its having exhibited physical evidence of a release [see CCR Title 27, section 20385(a)(2 and 3)].

“Existing Footprint” (as capitalized) means the area of land, at an MSW landfill, that is covered by waste as of the date that landfill became subject to the federal regulations of 40 CFR Part 258, pursuant to Part 258.1 of that part.

“Inter-well comparison” means a type of statistical or nonstatistical data analysis, applied to a given detection mode compliance well and monitoring parameter

(well/MPar) pair, in which one compares current concentration data, for that MPar and well, with a suite of background data from the appropriate well(s) to determine if that

MPar has produced a measurably significant increase at that well. Generally speaking, the use of upgradient background data tends to produce higher false-positive and false-negative rates than the *intra-well comparison* approach, but is appropriate in those cases where it is not feasible to validate that a compliance well's own historical data reflects water quality in the absence of a release.

"Intra-well comparison" means a type of statistical or nonstatistical data analysis, applied to a given detection mode compliance well and monitoring parameter (well/MPar) pair, in which one compares current concentration data for that MPar, with a suite of background data consisting of selected historical data from that same well, to determine if that MPar has produced a measurably significant increase at that well. Typically, the use a compliance well's own historical data for an MPar, provides better statistical power (to identify a real release and to avoid producing false-positive indications) than does the *inter-well comparison* approach, but only in a case where it is reasonable to assume that the compliance well's own historical data does not reflect the presence of a release for that MPar.

"LCRS" means a functioning leachate collection and removal system (i.e., one that produces leachate).

"LFG" means landfill gas, including any volatile organic constituents.

"M&RP" means the Monitoring and Reporting Program that is an attachment to the waste discharge requirements (WDRs) (or other order) and that is incorporated by reference by the WDRs.

"Method Detection Limit (MDL)" means the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte's concentration is greater than zero, as defined in 40 CFR Part 136, Appendix B.

"Measurably significant increase" means a condition in which an appropriate data analysis method shows an initial indication of a release, for a given detection mode compliance well and monitoring parameter (well/MPar) pair, that is verified by a discrete retest (for that well and MPar).

"Monitoring parameter (MPar)" is a part of the landfill's Water Standard and means a list consisting of those constituents of concern (COCs) that are present at a detectable level (trace level or above) in ground or surface water affected by the release. This is the subset of all COCs that is subject to testing for a measurably significant increase, in detection mode, at all compliance wells. For groundwater, at a landfill with a functioning leachate collection and removal system (LCRS), this suite includes all Appendix II constituents that have been detected (at trace level or above) and verified in leachate and, subsequently, have been detected (at trace level or

above) and verified in a COC-scan of groundwater at compliance wells affected by the release. For groundwater, at a landfill without a functioning LCRS, this suite includes

all Appendix II constituents that have been detected (at trace level or above) and verified in a COC-scan of groundwater at any compliance well affected by the release.

“Monitoring Point” for any given monitored medium (surface water, groundwater, or the unsaturated zone), means a location, including any installed access device (e.g., well or lysimeter), that is named in the M&RP as a place where the discharger monitors that medium: (1) to detect the arrival of the release front for each monitoring parameter (MPar) that is in detection mode at that location; (2) to detect changes in the concentration of each MPar that is in tracking mode at that location; and (3) in a case where the location that is in tracking mode for most MPars that are involved in the release, to detect the presence at trace level or above, of any constituents of concern (COCs) that have not previously been detected in that medium (COCs newly detected and verified in that medium become MPars for that medium).

“MSW landfill” means any landfill that is subject to any portion of the federal regulations under 40 CFR Part 258 by virtue of having received municipal solid waste (household waste) at any time and having received any waste after October 9, 1991.

“Operating record” means the organized compendium of information about the landfill and facility that the discharger maintains and makes available to the public at a site approved by the Regional Board and/or Enforcement Agency and that contains a copy of each document submitted to, or received from, any State or local regulatory agency for purposes of obtaining or updating either the Facility Permit or the WDRs, demonstrating compliance with the California Environmental Quality Act, or complying (or demonstrating compliance) with any applicable requirements under 40 CFR Part 58.

“Point of compliance (POC)” is, for the ground-water medium, a part of the landfill’s Water Standard and means a conceptual vertical surface that is located, in map view, along the hydraulically downgradient limit of waste placement at the landfill and that extends downward through the uppermost aquifer underlying the Unit. The federal MSW regulations require one or more groundwater monitoring points along this vertical surface to monitor the quality of groundwater passing it (see 40 CFR Part 258.51), whereas the Regional Board will name other groundwater monitoring points (not along this vertical surface) as needed to provide the earliest possible detection and measurement of a release [see CCR Title 27, section 20415(b)(1)].

“Practical quantitation limit (PQL)” means the value established as a target value by USEPA that is the lowest concentration of a substance that can be consistently determined within +/- 20 percent of the true concentration by 75 percent of the laboratories tested in a performance evaluation study. Alternatively, if performance data are not available, the PQL for carcinogens is the method detection limit (MDL) multiplied by 5, and for noncarcinogens is the MDL multiplied by 10. These estimated PQLs are listed in Appendix II to 40 CFR Part 258. Generally, these are target values

that may not reflect the constraints of matrix effects; therefore, the Regional Board requires the discharger to keep an up-to-date listing of the applicable laboratory-specific PQL and MDL estimates for each analyte on the constituent of concern list.

“Release” means the three-dimensional portion of the monitored medium (groundwater, surface water, or the unsaturated zone) comprised of all locations therein that are affected by one or more monitoring parameters that have migrated from the landfill to such an extent that a properly constructed monitoring point, at that location, would trigger a measurably significant increase over the applicable concentration limit, using an appropriate data analysis method meeting the requirements of CCR Title 27, section 20415(e)(9) and a background data set sample size of 16 or more data points.

“Retest” when applied to a scan to detect the presence of an appropriate list of analytes in leachate, landfill gas, or groundwater (at an affected monitoring point), means taking a single additional sample from the indicating medium (or, for groundwater, the indicating monitoring point) to determine whether the initial detection for that analyte, is valid. When applied to the six-monthly monitoring effort for a given compliance well and monitoring parameter pair in detection mode, see “discrete retest.”

“Regional Board” means the California Regional Water Quality Control Board, San Diego Region.

“Sample size” for a given compliance well and monitoring parameter (well/MPar) pair in detection mode, means the number of data points used to represent the variability of the background population or to represent the present compliance status of the MPar at that well, when applying an appropriate data analysis method.

“Scan,” means a determination as to whether any of a given list of constituents are detectable (at the trace level or above) in the monitored medium (typically leachate, groundwater, or landfill gas). The term includes both the initial measurement and, for a newly detected constituent, the results of the single retest sample. To identify a newly detected constituent, the constituent must be detected (at trace level or above) and then verified by being detected in the single sample retest. When applied to leachate or landfill gas, the term indicates a way of determining which Appendix II constituents should be included in the landfill’s the COC list (once detected and verified, a constituent is added permanently to the COC list). When applied to groundwater, the term indicates a way of determining which Appendix II constituents should be included in the landfill’s MPar list (once detected and verified at any given compliance well or background well, a constituent is added permanently to the MPar list).

“SOR” means a federal Selection Of Remedy study, under 40 CFR Part 258.57, which applies to any MSW landfill that has exhibited a measurably significant release over the applicable Water Standard at any well along the Point of Compliance for any

Appendix II constituent. In California, this process is one in which the Regional Board, in the presence of any affected persons and other interested parties, considers all relevant factors and adopts a suite of corrective action measures – developed during the Assessment of Corrective Measures (ACM) study – which the discharger will apply during the CAP to remediate the effects of the release. Generally speaking, the studies serve the same function, under the federal approach, as the Evaluation Monitoring Program does under the State approach.

“**SW-846**” means the laboratory analytical guidance document published by the USEPA.

“**SWRCB**” means the State Water Resources Control Board.

“**SWRCB Resolution No. 93-62**” means the order the SWRCB adopted in 1993 as State Policy for Water Quality Control (has the force of regulation) that applies to all MSW landfills and requires a composite liner for all portions of the landfill outside of its Existing Footprint, with rare exceptions, and requires the Regional Board to apply any requirement of 40 CFR Part 258 that is missing from, or broader in scope than, the SWRCB’s landfill requirements under CCR Title 27.

“**Tracking mode**” for a given compliance well and monitoring parameter (well/MPar) pair, means a state in which there has already been a measurably significant increase (for that MPar at that well) such that the focus has changed from detecting the release to tracking it. In this mode, one keeps an up-to-date concentration versus time plot used in the six-monthly report validating the effectiveness of the corrective action measures (CAMs) – required under CCR Title 27, section 20430(h) – to demonstrate either that current CAMs are effectively remediating the release or to identify the need for proposing additional/changed CAMs under CCR Title 27, section 20430(i or j) and 40 CFR Part 258.58(b). A well/MPar pair in this mode remains in this mode until the inception of the proof period following successful completion of corrective action.

“**VOC**” means any of the volatile organic constituents that can be identified in a water or leachate sample under USEPA Method 8260 (see SW-846). The USEPA lists a subset of 47 such constituents in its Appendix I default monitoring parameter list (see Appendix I to 40 CFR Part 258).

“**Water quality protection standard (Water Standard)**” means the multi-part system by which the discharger determines the compliance status of the landfill, with respect to the release of waste constituents. For each monitored medium, the term includes: the constituent of concern (COC) list and the monitoring parameter (MPar) list (i.e., the subset of COCs that are detectable in that medium); the concentration limit for each MPar at each monitoring point; the monitoring point (for the groundwater medium, these are the compliance wells); and, for the groundwater medium, the point of compliance. A violation of this standard occurs whenever a COC that is detectable in that medium (i.e., an MPar) produces a measurable significant increase over its

applicable concentration limit at any monitoring point, as indicated by an appropriate statistical or nonstatistical data analysis method meeting the requirements of CCR Title 27, section 20415(e)(9). Such a violation triggers a change from detection mode to tracking mode for that well/MPar pair.

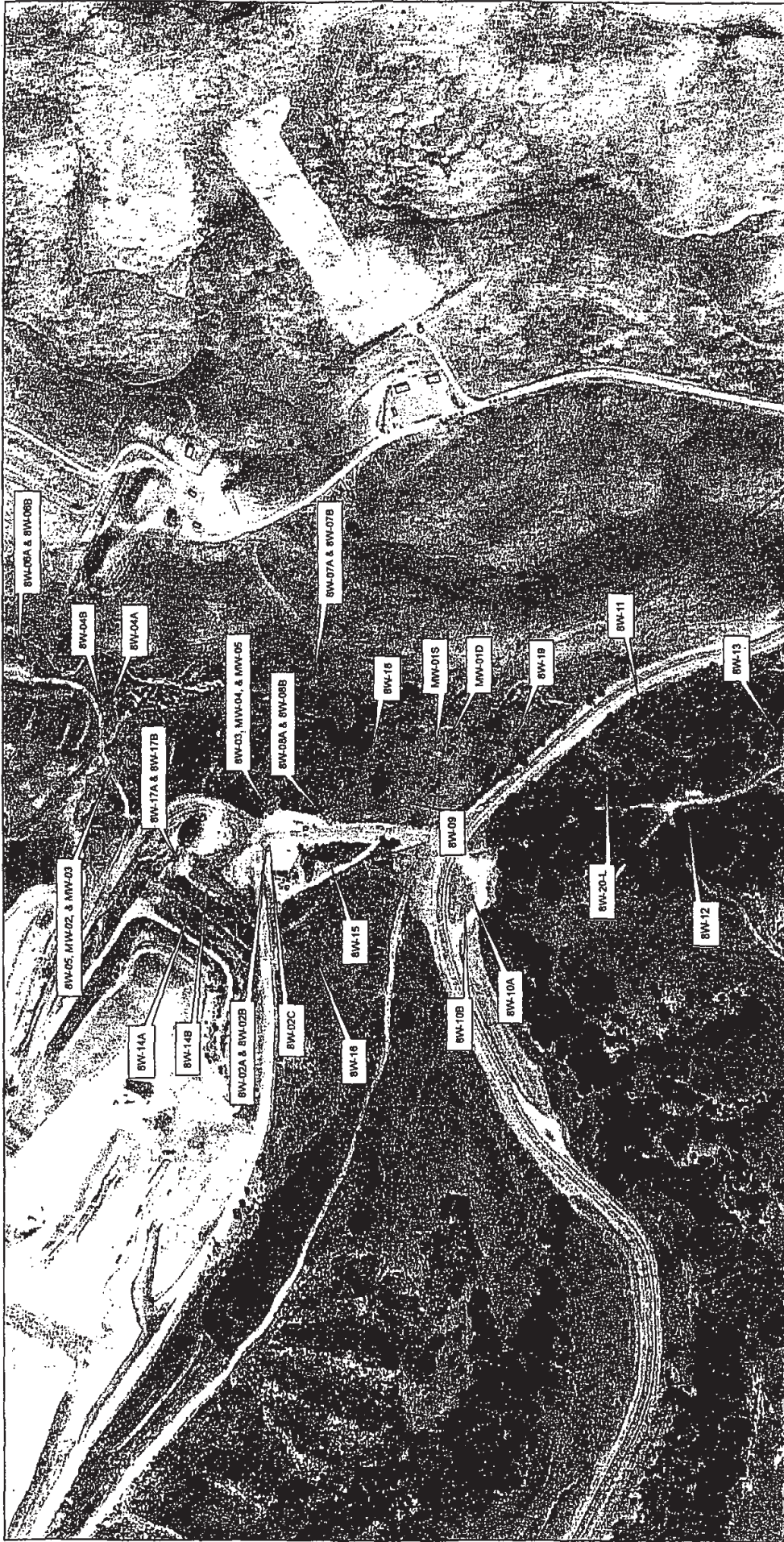
“Well and monitoring parameter (Well/MPar) pair” means a given monitoring parameter at a given well (typically a compliance well, unless a release is detected at a background well). The discharger tracks compliance with the Water Standard for each such pair; therefore, the minimum number of such pairs for groundwater medium is equal to the number of compliance wells times the number of MPars. At any given time, such a well and constituent combination will be either in detection mode or in tracking mode.

“WDRs” means Waste Discharge Requirements.



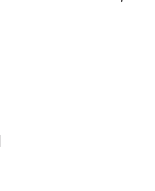
Attachment No. 1 to
 Monitoring and Reporting Program No. R9-2010-0004
 For the Las Pulgas Landfill

Constituent of Concern (COC) List

<i>Inorganic Constituents</i>	
Methane	Ferrous Iron
Ferrous Iron	Total Iron
Methane	
<i>Organic Constituents</i>	
Chlorobenzene	Cis-1,2-Dichloroethene
1,1-Dichloroethane	1,4-Dichlorobenzene
Dichlorodifluoromethane	Trichlorofluoromethane
Trichloroethene	Vinyl Chloride



**MARINE CORPS BASE
CAMP PENDLETON**

GEORGIA WATER JUCO Corp. Pendleton
 Phone: 706.783.2800
 Internet: <http://www.gwajucocorp.com>

Marine Corps Base Camp Pendleton
 Assistant Chief of Staff, Facilities
 Phone: 706.783.2800
 Email: mcbase.mcom.d@jucocorp.com
 Internet: <http://www.jucocorp.com>

Map Published: 09/22/2009 8:47:17 AM
 Project: GEORGIA WATER JUCO Corp. Pendleton
 Date: 09/22/2009 8:47:17 AM
 Scale: 1:25,000
 Units: Feet
 Projection: UTM
 Datum: NAD 83

SCALE: 1:25,000

0 250 500 750 Feet

0 0.025 0.05 0.075 0.1 0.125 Miles

NOTES

RESOURCES SHOWN ARE BEING CONSIDERED AS POTENTIAL SERVICE AREAS AND NOT GUARANTEED. DEVELOPED AREAS ONLY THROUGH ROAD ARE NOT SHOWN. ROAD CLASSIFICATION SHOULD BE OBSERVED WITH CAUTION. THE NATIONAL STATE TELEVISION SYSTEM ON THE STATE HIGHWAY SYSTEM IS NOT SHOWN TO SUPPORT THE PROPOSED SERVICE AREAS. SERVICE AREAS ARE SUBJECT TO CHANGE AND SHOULD BE VERIFIED BY THE CLIENT. THE CLIENT IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CLIENT IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CLIENT IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

LEGEND

SWA-01A & SWA-01B
 SWA-02
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 SWA-04
 SWA-05, MW-02, & MW-03
 SWA-06A & SWA-06B
 SWA-07A & SWA-07B
 SWA-08
 SWA-09
 SWA-10A
 SWA-10B
 SWA-10C
 SWA-11
 SWA-12
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 SWA-15
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 SWA-18
 SWA-19
 SWA-20-L

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ms. Tracy Sahagun
 2ERA Management Division
 Environmental Security Office
 P.O. Box 555008
 Marine Corps Base
 Camp Pendleton, CA 92055-
 5008

2. Article Number
(Transfer from S)

7009 1410 0002 2347 4558

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X

- Agent
 Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type

- Certified Mail Express Mail
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4. Restricted Delivery? (Extra Fee)

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 Ms. Tracy Sahagun
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 PS Form 3800, August 2005

See Reverse for Instructions

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