

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

MONITORING AND REPORTING PROGRAM NO. R9-2003-0306
FOR THE
PRIMA DESHECHA LANDFILL
ORANGE COUNTY

A. MONITORING PROVISIONS

1. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the Regional Board. Specific methods of analysis must be identified. If methods other than U.S. EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board prior to use. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.
2. If the discharger monitors any pollutants more frequently than required by this Order, using the most recent version of Standard U.S. EPA Methods, or as specified in 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 increased frequency of monitoring shall also be reported.
3. The discharger shall report all instances of noncompliance not reported under **Reporting Requirement D.5** of Order R9-2003-0306 at the time monitoring reports are submitted. The reports shall contain the information listed in **Reporting Requirement D.5** of Order R9-2003-0306.
4. Sample collection, storage, and analysis shall be performed according to protocols included in the U.S. Environmental Protection Agency (USEPA), "*SW-846: Test Methods for Evaluating Solid Wastes Physical/Chemical Methods*" (Version 5, dated April 1998 or most recent version), and in accordance with an approved sampling and analysis plan.
5. All monitoring instruments and equipment shall be properly calibrated and maintained as necessary to ensure accuracy of measurements.
6. 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, measurement, report or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board.

7. Records of monitoring information shall include:
 - a. The date, identity of sample, Monitoring Point from which it was taken, and time of sampling or measurement;
 - b. The individual(s) who performed the sampling or measurements;
 - c. Date and time that analyses were started and completed, and the name of the personnel 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, the method detection limit (**MDL**) and the practical quantitation limit (**PQL**) for each parameter; and
 - g. Laboratory quality assurance results (*e.g.*, percent recovery, and response factor).
8. The monitoring reports shall be signed by an authorized person as required by **Reporting Requirement D.10** of Order R9-2003-0306.
9. The discharger shall ensure that the laboratory analysis of all samples collected from Compliance Monitoring Points complies with the following restrictions:
 - a. The methods of analysis and the detection limits used shall be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (*i.e.*, “trace” or “ND”) in data from each Monitoring Point for that medium, the analytical method having the lowest method detection limit (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 PQL shall be reported as “trace” and shall be accompanied both by the (nominal or 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. These nominal MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

If the lab 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% 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.

- d. All Quality Assurance/Quality Control (QA/QC) data shall be reported, along with the sample results to which it applies, including the method, equipment, and analytical detection and quantitation limits, the recovery rates, an explanation for any recovery rate that is less than 80%, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and quantification 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 lab blanks), the accompanying sample results shall be appropriately flagged.
- e. Upon receiving written concurrence from the Regional Board, an alternative statistical or non-statistical procedure may be used for determining the 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 Regional Board.
- f. Unidentified peaks on chromatograms shall be reported, along with an estimate of the concentration of the unknown analyte. When unidentified peaks are encountered on chromatograms, 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 the California Code of Regulations (CCR) Title 27. In the event that a Monitoring Parameter (MPar)'s MDL and or PQL change, the discharger shall highlight the change in the laboratory report's summary and the report shall also include an explanation for the change that is written and signed by the owner of the analytical laboratory.

10. A list containing definitions of terms and acronyms are contained in Appendix A attached to this Monitoring and Reporting Program (**M&RP**).

B. GROUND WATER MONITORING FINDINGS

1. This M&RP complies with SWRCB Resolution No. 93-62 by requiring the discharger who owns or operates a landfill to implement a Detection Monitoring Program (DMP) pursuant to applicable requirements in CCR Title 27 and 40CFR §258.54.
2. Detection Mode testing can be compromised by a Constituent of Concern (COC) arriving at any compliance well either as a result of a release (*e.g.*, through advective flow, in the unsaturated zone, or of gas-phase volatile organic constituents, or VOCs in landfill gas) or through the arrival of such a constituent from an upgradient/offsite source, this M&RP implements a simple means for identifying such anomalies, requires the discharger to investigate their cause, and initiates appropriate adjustments to the monitoring program.
3. Like most landfills, the Prima Deshecha Landfill exhibits considerable natural geographic variation (between-well variation) using the median concentration of any given MPar. Under such conditions, comparing background data collected from “background wells” against data collected from downgradient wells may increase the chance that Detection Mode monitoring will fail to recognize a real release indication. These conditions may also increase the rate of occurrence of false-positive indications of a release. In order to mitigate these problems, the Regional Board has structured this M&RP to allow the discharger to implement an intra-well comparison style of monitoring well/MPar pairs for which this approach is feasible. Under this approach, the well’s own prior data is used as the reference against which new data is tested.
4. The discharger monitors leachate from the lined portions of the landfill (Phases A, A1 and C1) annually for Appendix II constituents of 40CFR §258, and re-testing for newly discovered constituents. This process is used to create a COC list containing those constituents from 40 CFR, Part 258, Appendix II (“*Appendix II*”) that could be released from the landfill. This M&RP narrows the scope of the COC list to include, from Appendix II, only those constituents that have been detected and verified in leachate.
5. The existing landfill gas (**LFG**) collection and extraction system consists of a series of 14 multi-depth soil-pore gas monitoring stations (MP-1 through MP-14). Each station is equipped with up to four probes at depths ranging from 13 to 195 feet below ground surface. The LFG monitoring probes are located around the perimeter of the landfill footprint.
6. The VOCs listed in 40 CFR, Part 258, Appendix I are identified as the federal MPar list and are also Appendix II constituents. This allows results from leachate sampling to also serve as a basis for narrowing the scope of VOCs that the discharger must

monitor for in the DMP. The VOCs identified as MPars include only those Appendix I constituents that have ever been detected in leachate, at trace levels or above, and have been verified by retest. All constituents listed in Appendix I to 40 CFR, Part 258 must be included as MPars for monitoring groundwater adjacent to unlined waste management units. This is the manner in which the M&RP implements 40 CFR §258.54(a)(1).

7. The Regional Board, after considering the factors listed under 40 CFR §258.54(a)(2), has substituted inorganic surrogates in the landfill's MPar list, but has included all such displaced metals in the landfill's COC list. The current COC list is contained in Attachment No. 2 to this M&RP.
8. This M&RP minimizes the occurrence of false-positive indications in two ways: (a) it includes a non-statistical data analysis method, meeting CCR Title 27 §20415(e)(8&9), that collectively analyzes all MPars, at a given well, whose background data exceeds its respective MDL no more than 10% of the time; and (b) all statistical and non-statistical data analysis methods used on well/MPars in Detection Mode data analyses, under the M&RP, include a discrete retest as described under CCR Title 27 §20415(e)(8)(E).
9. To assure compliance with the requirements and considerations under 40 CFR §258.54 and CCR Title 27 §20420 in the simplest way possible, this M&RP: (a) requires statistical or non-statistical data analysis, at any given compliance well, only for those MPars that are in Detection Mode at that well; (b) uses 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 ground water; (c) uses annual leachate sampling, for all non-COC Appendix II constituents that the landfill could release; and (d) implements an automatic update procedure to assure that the MPar and COC lists remain current.

C. DETECTION MONITORING PROGRAM

1. The ground water monitoring network for the Prima Deshecha Landfill consists of compliance wells for alluvium and bedrock aquifers. The compliance monitoring wells are, for alluvium: MW-G, MW-D, MW-F, and MW-J; and for bedrock: MW-1, MW-2, MW-4, MW-5A, MW-5B, MW-6, MW-7, MW-8, MW-9, MW-10, and MW-11 and MW-12. The location of these ground water monitoring wells are shown on Attachment No. 1 to this M&RP.
2. Water samples shall be collected, analyzed, and reported for constituents shown in the following table:

MONITORING PARAMETERS	UNITS	SAMPLING AND REPORTING FREQUENCY
pH	pH	Semi-Annually
Total Dissolved Solids (TDS)	mg/l	Semi-Annually
Chloride	mg/l	Semi-Annually
Sulfate	mg/l	Semi-Annually
Nitrate as Nitrogen	mg/l	Semi-Annually
Volatile Organics ¹	µg/l	Semi-Annually

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

¹ At a minimum, the list of volatile organic constituents shall include all constituents listed in Appendix I to Title 40 CFR, Part 258, any existing constituents identified as monitoring parameters (MPars), and any constituents subsequently amended to the list of MPars (per *Monitoring Specifications Sections D.7 or D.8* of this M&RP).

3. The discharger shall establish and maintain ground water wells at the landfill site to be used as part of the water quality monitoring program.
4. Prior to purging monitoring wells for purposes of groundwater sampling, the static water level shall be measured in each well.
5. For any given medium, samples shall be collected (1) from all Compliance Monitoring Points to satisfy the data analysis requirements for a given Reporting Period; (2) during the latter third of the Reporting Period within a span not exceeding **30 days**; and (3) 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 within **30 days** after the end of the Reporting Period.
6. Prior to sampling monitoring wells, the presence of a floating immiscible layer in all wells shall be evaluated at the beginning of each sampling event. 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 Regional Board by telephone and facsimile within **24 hours**.
7. For each monitoring well, the discharger shall measure the water level and determine ground water flow rate and direction at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective ground water body. Ground water elevations for all compliance wells for a given water aquifer shall be measured within a period of time short enough to avoid temporal variations in ground water flow, which could preclude accurate determination of ground water flow rate

and direction. This information shall be included in the semi-annual monitoring reports.

8. Ground water sampling shall also include an accurate determination of the ground water surface elevation and field parameters (temperature, electrical conductivity and turbidity) for each Compliance Point [CCR Title 27 §20415(e)(13)]. Ground water elevations measured prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the semi-annual ground water flow rate/direction analyses in *Detection Monitoring Program C.7*.

9. **Surface Water Monitoring**

Surface water monitoring shall be conducted in compliance with general monitoring requirements specified in CCR title 27, §20415(c)(1) through (2)(b). Surface water monitoring shall be conducted semi-annually at spring S-1 and sampling stations S-2 and S-3 (when there is sufficient water to collect a sample). Surface water samples are analyzed for all the monitoring parameters specified in *Detection Monitoring Program C.2*. The upgradient surface water sampling point for the realigned Prima Deshecha Cañada is S-2. The upgradient surface water sampling point for the entire Prima Deshecha Cañada is S-1. The locations of these sampling points are shown on Attachment No. 1 to this M&RP.

10. **Leachate Monitoring**

Waste Management Unit 1, (WMU1) is an unlined landfill with four extraction wells, E-1, E-2, E-3, and E-4 located at the toe of the unit. The purpose of the extraction wells is to intercept and remove alluvial ground water and leachate as WMU1 is unlined and not equipped with an LCRS.

In Zone 1, Phases A, A1, and C1 are equipped with a leachate collection and removal system (LCRS). For those existing and future units equipped with an LCRS, the following leachate monitoring and reporting requirements shall apply:

- (a) Every **October**, the discharger shall sample the leachate from the LCRS and analyze the sample for COCs. The analytes shall consist of all waste constituents listed as COCs in this M&RP and include each constituent listed in Appendix II of 40 CFR Part 258 that is not already a COC for the Prima Deshecha Landfill and that both:

- (1) Is detected in a sample of the landfill's leachate.

The discharger shall submit the analytical results to the Regional Board by **January 31**, including an identification of all detected Appendix II constituents that are not currently on the landfill's Constituent of Concern list (non-COCs); and

- (2) Is also detected in a retest leachate sample collected the following **April**.

The discharger shall submit a report to the Regional Board by **August 1**. This report must identify all constituents that were detected in both the previous calendar year's October sample and in the April retest sample. The report shall also include an updated COC list that includes the Appendix II constituents that are newly detected in both the **October** and **April** leachate samples. In addition, the revised COC list must be noted in the operating record within **14 days**, permanently add these constituents to the landfill's COC list. The report shall also include an updated COC list that includes the Appendix II constituents that are newly detected in both the **October** and **April** leachate samples. Within **seven days** of amending the Facility's Operating Record pursuant to this section, the discharger shall also provide written notification to the Regional Board indicating that they have made the amendment.

- (b) For each Appendix II constituent 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 *Detection Monitoring Specifications, Section D.6*. Once this reference set of background data is collected, the discharger shall include it as a separate item in the next monitoring report submittal.

11. **Report of Results from Five-Yearly COC Scan**

In the absence of a release being indicated through detection monitoring, the discharger shall monitor all constituents of concern (**COCs**) and submit a report (**COC Report**) as follows:

- (a) The discharger shall sample all Monitoring Points and Background Monitoring Points for each monitored medium for all **COCs every fifth year**, beginning with the year this Order is adopted by the Regional Board (**first Reporting period ends March 30, 2008**), with subsequent COC monitoring efforts being carried out **every fifth year thereafter** alternately in the **Fall (Reporting Period ends September 30)** and **Spring (Reporting Period ends March 30)**. The COC Report may be combined with any Semi-annual Monitoring Report or Annual Summary Report [required under **Reporting Schedule Section K** of the M&RP] having a Reporting Period that ends at the same time. The COC Report shall meet the minimum requirements of **Reports to be Filed with the Regional Board, Section J** of the M&RP.
- (i) A minimum of one sample from each background and compliance monitoring well 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 constituents(s).

- (ii) Any COC detected in samples collected from a ground water monitoring well, and verified by a retest, automatically becomes part of the MPar list for the facility. The discharger shall notify the Regional Board of any such change **immediately**, via phone, facsimile, or e-mail, shall add the newly detected constituents to the facility's MPar list, 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 landfill's 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 Regional Board indicating that they have made the amendment.

12. Site Inspections

- (a) At a minimum, a site inspection shall be conducted **quarterly** and include an evaluation of all waste containment structures and monitoring systems including, but not limited to, the landfill gas collection system, condensate and leachate containment structures, sumps, and run-on and runoff drainage control structures. The inspection reports shall contain information on the site condition and a discussion of any significant observations with regard to:
 - i. General site condition;
 - ii. The condition of the cover system at closed or inactive units, including the top deck, intermediate benches and sideslopes;
 - iii. The storm water conveyance system;
 - iv. The effectiveness of erosion control BMPs;
 - v. The leachate monitoring point(s);
 - vi. The water quality monitoring networks;
 - vii. The landfill gas control system;
 - viii. Maintenance activities performed at the site; and
 - ix. Condition of temporary soil stockpiles at the site.
- (a) All deficiencies identified, and photographed and shall be recorded in a permanent log. The volume of liquids collected in each containment structure shall be recorded **quarterly**.

- (b) The waste management unit shall be evaluated to determine its effectiveness to comply with this Order.
- (c) 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.
- (d) The quarterly inspection reports shall be filed with the next semi-annual monitoring report.

D. DETECTION MONITORING SPECIFICATIONS

1. The discharger shall comply with the requirements of CCR Title 27 §20415 for any water quality monitoring program developed to satisfy CCR Title 27 §20420 and the requirements of this Order.
 - i. The ground water monitoring shall meet the applicable requirements of CCR Title 27 §20415 and 40 CFR §258.51 (a, c, and d);
 - ii. The surface water monitoring shall meet the requirements of CCR Title 27 §20415(c) and shall be conducted in accordance with *Detection Monitoring Program C.9*. 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.
 - iii. All monitoring and data analysis shall be in accordance with the general monitoring requirements of CCR Title 27 §20415(e) or other options as provided in this Order.
2. The County of Orange shall conduct water quality monitoring at the Prima Deshecha Landfill in accordance with CCR Title 27 §20420 (Detection Monitoring Program, or DMP), 40 CFR §258.54 (DMP), and Detection Monitoring Program Specifications pursuant to this Order.
3. **Water Quality Protection Standard**

The five parts of the Water Quality Protection Standard [Standard] of CCR Title 27 §20390 are as follows:

- (a) **Constituents of Concern (COC) [§20395, CCR Title 27].**

The COCs for the Prima Deshecha Landfill are listed in Attachment No. 2 to this M&RP, including any updates made pursuant to *Detection Monitoring Program Section C.10* of this M&RP. Nevertheless, under this M&RP, statistical and non-statistical data analysis is limited to those COCs that are on

the current MPar list by virtue of their being present in detectable levels in ground water.

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

The concentration limit for any given well/MPar pair is its applicable background data set, as determined or updated pursuant to *Detection Monitoring Specification D.7* or *D.9* of this M&RP.

(c) **POC & Monitoring Wells [§20405, CCR Title 27].**

The point of compliance (POC) and compliance wells are shown in Attachment No. 1 to this M&RP.

(d) **Monitoring Points and Background Monitoring Points for Detection Monitoring [§20405, CCR Title 27].**

The Monitoring Points for the Prima Deshecha Landfill are listed in *C.I, Detection Monitoring Program*. This M&RP also includes previously established additional Background groundwater Monitoring Points and surface water Monitoring Points for the Prima Deshecha Landfill. These monitoring points are also shown on Attachment No. 1 to this M&RP.

(e) **Compliance Period [§20410, CCR Title 27]**

The minimum compliance period for Zone 1 of the Prima Deshecha Landfill is 48 years. However, the landfill post-closure maintenance period shall continue until the Regional Board determines that remaining wastes in all waste management units (WMUs) will not threaten water quality [CCR Title 27 §20950(a)(1)].

4. The Regional Board may approve alternative monitoring parameters that meet the requirements of both CCR Title 27 §20380 *et seq.*, and 40 CFR §258.54. The Regional Board may also approve alternative statistical or non-statistical methods that meet the requirements of CCR Title 27 §20415(e) and 40 CFR §258.53.

5. The discharger shall install any additional ground water or leachate monitoring devices as the Regional Board determines to be necessary to comply with this M&RP.

6. **Establishing Initial COC Data**

(a) For any COC that does not have at least 10 data points of data at any given compliance well (*e.g.*, for a new COC established under *Detection Monitoring Program C.II*), the discharger shall establish the prevailing concentration of that constituent at each such data-deficient well by collecting and analyzing

one sample monthly at each data-deficient background and downgradient monitoring point until each such well has at least 10 data points.

- (b) For any upgradient or downgradient well installed after the effective date of this M&RP, the discharger shall establish the prevailing concentration for each COC by using an accelerated sampling schedule for ten (10) months. These data shall be used, as described in *Detection Monitoring Specification D.7 (a through c)*, in the event that the COC becomes a MPar. For any constituent for which monthly sampling would be too frequent to obtain reasonably independent data, even using the post-sampling purge approach described in CCR Title 27 §20415(e)(12)(B), the discharger shall include, for concurrence by the Regional 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.

7. Statistical Data Analysis Methodology

- (a) **Intra-well Comparisons are Standard** – Except as otherwise provided in *Detection Monitoring Specification D.7.a.i.(B & C)*, 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:
 - i. **Pre-Detection Background Data Set** – Initially, except as otherwise provided in *Detection Monitoring Specification D.7.a.i.(C)(1) and (2) or D.9*, for each given MPar at a given downgradient monitoring well (well/MPar pair), the proposed background data set shall consist of all validated data from that compliance well and parameter, for the period of 1998 through 2003. Every two years, following the adoption of this M&RP, as part of the annual monitoring summary report [see CCR Title 27 §20415(e)(14)], the discharger shall add the newer data to the background data set for each well/MPar pair after validating (via a method approved by the Regional Board), that the new data does not contain results indicating an increase over the existing background data concentrations. At that time, the discharger shall also retire the well/MPar’s oldest two years of background data, thereby producing a data set covering the then-previous five years (10 data points). The discharger shall validate the proposed intra-well background data set as follows 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 data set, for each affected well/MPar pair, in the next scheduled monitoring report. Initial background data validation shall be as follows:

- (A) **Accelerated Background Data Procurement** – if there are less than ten post-1998 data points available, for a given MPar at any compliance well, the discharger shall implement the accelerated data procurement effort described in *Detection Monitoring Specification D.6* 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;

- (B) **Validate Upgradient Data for Man-Made MPars** – for any MPar that is a non-metallic Appendix II constituent (*i.e.*, that is artificially produced or synthetic), the initial intra-well data validation, under *Detection Monitoring Specification D.7(c)*, shall utilize only data from those upgradient (or cross-gradient) compliance wells whose post-1998 data, for that constituent, exceeds the constituent’s method detection limit in less than 10% of the well’s data. Such synthetic constituents should not be detectable at upgradient wells except in error (around 1% of the time) or because the constituent comes either from the Unit or from another source. For any upgradient well rejected pursuant to this paragraph, for a given MPar, where the discharger has not already explained the constituent’s presence at that well to the satisfaction of the Regional Board, the discharger shall conduct an investigation under *Detection Monitoring Specification D.9*. If there are one or more rejected background wells, the discharger shall use their data to validate each well/MPar pair’s proposed intra-well background data set, under *Detection Monitoring Specification D.7(c)*; and

- (C) **Intra-well Background Validation for New Well/MPar Pairs** – for all compliance wells initially and, subsequently, for new wells or a new MPar at an existing well, to determine whether the existing data for that MPar at the well can be used as its intra-well comparison background data set:
 - (1) **Commonly Quantified Constituents** – for determining the “naturally occurring” or “background” ground water conditions (*i.e.*, pre-landfill conditions) of any MPar that may commonly be detected in ground water at concentrations exceeding the constituent’s PQL, the discharger shall validate the proposed intra-well data from each compliance well by comparing that well’s data set to a pooled box-and-whiskers plot, for that particular MPar, from all “background” wells (*i.e.*, upgradient or cross-gradient wells) completed in the same ground water aquifer. If any such constituent’s

median concentration (for a downgradient well) exceeds the pooled background plot's 75th percentile (the upper boundary of the box in a box-and-whisker's plot), then that compliance well's existing data cannot be used as the intra-well comparison background data set for that well/MPar pair. That well/MPar 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 Regional Board agrees meets the requirements of CCR Title 27 §20415(e)(9). For wells/MPar pairs whose existing data's median is less than the pooled background plot's 75th percentile, the existing data shall be used as the initial background data set for intra-well comparisons for that well/MPar pair; or

- (2) **Rarely Quantified Constituents** – for determining the “naturally occurring” or “background” ground water conditions (*i.e.*, pre-landfill conditions) for an MPar that would rarely be detected in ground water (*e.g.*, non-metallic Appendix II constituents), the discharger shall identify the highest value from the pooled data set from all background wells that have passed validation under *Detection Monitoring Specification D.7(b)* 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 data set. The initial intra-well background data set for that downgradient well shall consist of all data points in the proposed intra-well background data set that are less than this value.
- (b) **Performance Standards** – All data analysis methods (statistical or non-statistical) shall meet the applicable requirements of CCR Title 27 §20415(e)(9).
- (c) **Retest is Part of the Method** – If an approved data analysis method provides a preliminary indication that a given MPar has displayed a measurably statistically significant increase in concentration at a given well, then the discharger shall perform a discrete retest, in accordance with CCR Title 27 §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 validates the preliminary indication.
- (d) **Limited Retest Scope** – For any given ground water monitoring point, the discharger shall perform the verification procedure only for those MPars that

have shown a measurably significant increase in that well for that reporting period.

- (e) **Detection Mode Data Analyses** – The following applies to all detection mode data analyses (i.e., this paragraph does not apply to the scans required under *Detection Monitoring Program C.10 and C.11*):

- i. **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% or more** of the applicable background data set. For each well/MPar pair (separately), an approved statistical analysis is a method, other than Analysis of Variance (**ANOVA**), that the Regional Board agrees meets the performance standards of CCR Title 27 §20415(e)(9). If using SANITAS[®], the discharger shall use the “CA Standards” and “CA Retest” settings (under the “Options” pull-down menu). Otherwise:

- (a) 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;

- (b) After the adoption of this Order, for any new MPar that qualifies for statistical analysis by meeting the above 10% 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 *Detection Monitoring Specification D.7.a.i.(C)*.

- ii. **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 data set, the discharger shall analyze the data for these MPars via the California Non-statistical Data Analysis Method (CNSDAM) test described in *Detection Monitoring Specification D.8*.

8. **CALIFORNIA NON-STATISTICAL DATA ANALYSIS METHOD (CNSDAM)**

- (a) **Non-Statistical Method for Detection Mode MPars Seldom Found in Background** – For any given 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 b.ii. below).

- i. **Scope List** – Create a current “scope list” showing each detection mode MPar, at that well, that exceeds its MDL in **less than 10%** of its background data (see *Detection Monitoring Specification D.7.e.i*).
 - ii. **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], identify each MPar in the current sample from that well that exceeds its respective MDL or PQL. The discharger shall conclude that these identified MPars provide a preliminary indication [or, for a retest, provide a measurably significant indication], at that well, of a change in the nature or extent of the release if either:
 - (A) two or more of the MPars exceed their respective MDL, or
 - (B) at least one MPar equals or exceeds its respective PQL.
- (b) **Discrete Retest:**
 - i. 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 Regional Board by phone or e-mail and, within **30 days** of such indication, shall collect two new (retest) samples from the indicating compliance well.
 - ii. 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 a.ii. above, but using this modified scope list] to separately analyze each of the two suites of retest data at that compliance well.
 - iii. If either (or both) of the retest samples trips either (or both) of the triggers under paragraph a.ii above, then the discharger shall conclude that there is a measurable 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 *Detection Monitoring Specification D.7.e.ii* above) at that well, shall remove the constituent(s) from the scope list created (under paragraph a.i. above) for that well, and shall highlight this conclusion and these changes in the next scheduled monitoring report.
9. **Frequent Detections of a Synthetic Constituent in a Background Well** – Any time an (upgradient or cross-gradient) compliance well exhibits an excessive frequency or proportion of trace-level or numerical concentration data for any MPar (under

Detection Monitoring Specification D.7 or D.10) or COC (under *Detection Monitoring Specification D.6 or D.7*) that is a non-metallic Appendix II constituent, the discharger shall conduct an investigation under this paragraph. For such a constituent: an “excessive proportion” constitutes a condition, under *Detection Monitoring Specification D.7.a.i.(A)*, where 10% or more of the data from that background well exceeds the MPar’s MDL; and an “excessive frequency” constitutes a condition, under *Detection Monitoring Specification D.10*, in which new data at the background well exceeds the constituent’s MDL for two successive samples. Given either condition, the discharger shall notify the Regional Board immediately by phone or e-mail and shall, within **180 days** thereafter, submit a report, acceptable to the Regional Board, that 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 Regional Board:

- a. concludes that the evidence indicates the synthetic constituent originated from a source other than the Unit, then the Regional Board may make appropriate changes to the monitoring program, including switching to an appropriate statistical inter-well procedure, for that constituent, for all detection-mode analyses at that landfill, using a suite of background data that reflect 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:
 - i. list the constituent as a MPar, if it is not already listed, in the next scheduled monitoring report and shall note this change prominently in the report’s summary;
 - ii. shall 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” (*i.e.*, upgradient or cross-gradient) well, beginning with the next scheduled monitoring report; and
 - iii. if there is not at least one other “background” (*i.e.*, upgradient or cross-gradient) well unaffected by this constituent, shall, 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.
10. **Ongoing Background Well Testing** – Even though most data analysis will be via intra-well comparisons, the discharger shall continue to monitor “background” (*i.e.*, upgradient or cross-gradient) wells, for each MPar and COC, each time that MPar or COC is monitored 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 §20415(e)(14)] as a time-versus-concentration plot for that “background” well and constituent. Any time such a plot (for a give well and constituent) shows two successive data points in excess of the MDL for any non-metallic Appendix II constituent that has not already been investigated at that well, under *Detection Monitoring Specification D.9*, the discharger shall notify the Regional Board immediately by phone or e-mail and shall initiate an investigation under *Detection Monitoring Specification D.9* within **30 days** of noting this condition.

E. SLOPE STABILITY MONITORING

1. The discharger shall submit a workplan for design, implementation and reporting of results from a slope stability-monitoring program. The workplan shall incorporate a combination of inclinometers and permanent surface monuments for measuring the displacement/slope movement within the landslide mitigation area. The discharger shall provide the Regional Board with revisions to their slope stability monitoring work plan as warranted by changing conditions at the facility.
2. The discharger shall continue to monitor/measure the displacement along engineered final slopes by use of inclinometers and permanent surface monuments **monthly** for the first year and **quarterly** thereafter. An evaluation of results of the slope-stability monitoring shall be submitted to the Regional Board **quarterly** for the first year (after adoption of this Order) and **semi-annually** thereafter.

F. RESPONSE TO A RELEASE

1. 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 Constituent of Concern or monitoring parameter, that a release is tentatively identified), the discharger shall **immediately** notify the Regional Board, 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 retest [see *Sections D.7* (statistical method) or *D.8* (non-statistical method) of this M&RP].

If the retest confirms the existence of a release, the discharger shall carry out the requirements described in *Section F.3* below.

2. If the discharger determines that there is significant physical evidence of a release, the discharger shall notify the Regional Board by telephone **within 24-hours** and by certified mail within **seven days**. The discharger shall carry out the requirements of *Section F.3* for all potentially affected monitored media.
3. If the discharger concludes that a release has been discovered:
 - (a) If this conclusion is not based upon “direct monitoring” of the Constituents of Concern, 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 Regional 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 discovering the 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 an Assessment Monitoring Program pursuant to requirements in 40 CFR Part 258.55.
 - (c) The discharger shall, within **180 days** of discovering the release, submit to the Regional 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* (*Section 3.a, 3.b or 3.c*) the discharger shall amend the Facility's Operating Record with any results from their evaluation, testing, re-testing, or any technical reports submitted to the Regional 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 Regional board indicating that they have amended the Operating Record.
4. 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 COCs or monitoring parameter(s) at each indicating monitoring point, collecting at least as many samples per suite as were used for the initial test. Re-sampling of the background monitoring points is optional. 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 collected 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:
 - i. Because all COCs jointly addressed in the non-statistical testing remain as individual COCs, the scope of the laboratory analysis for the non-statistical retest samples shall be narrowed to involve only those constituents detected in the sample which initiated the retest.

G. RESPONSE TO DETECTION OF VOCs IN BACKGROUND (or any other constituent which is expected to be “zero” in background and not amenable to statistical analysis)

- 1. Except as provided in G.3 below, any time the laboratory analysis of a sample from a background monitoring point or detection monitoring point, sampled for VOCs shows either:
 - (a) two or more VOCs at or above their respective MDL, or
 - (b) one VOC at or above its respective PQL, then the discharger shall:
 - i. Notify the Regional Board by telephone and facsimile.
 - ii. Follow up with written notification by certified mail within seven days.
 - iii. Obtain two new independent VOC samples from that background monitoring point.
 - iv. Send the samples for laboratory analysis of all detectable VOCs within 30 days.
- 2. If either or both of the new samples validates the presence of VOC(s), using the above procedure, the discharger shall:
 - (a) Notify the Regional Board by telephone 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 VOC(s) originated from the waste management unit and proposing appropriate changes to the monitoring program.
- 3. If the Regional Board determines, after reviewing the report submitted under 2.c above, that the VOC(s) detected originated from a source other than the waste

management unit, the Regional Board may make appropriate changes to the monitoring program.

4. If the Regional Board determines, after reviewing the report submitted under 2.c above, that the detected VOC(s) most likely originated from the waste management unit, the discharger shall assume that a release has been detected and shall immediately begin carrying out the applicable general requirements for Response to release (per *Section F.3* above).

H. RESPONSE TO LEACHATE SEEP

1. The discharger shall immediately report by telephone and facsimile the discovery of any previously unreported seepage from the waste management unit. A written report shall be filed with the Regional Board within **seven days**, containing at least the following information:
 - (a) Map – A map showing the location(s) of seepage;
 - (b) Flow rate – An estimate of the flow rate of the seepage;
 - (c) Description – A description of the nature and the discharge (*e.g.*, all pertinent observations and analyses); and
 - (d) Corrective measures approved (or proposed for consideration) by the Regional Board.

I. RELEASE BEYOND THE FACILITY BOUNDARY

1. Any time the discharger concludes that a release from the waste management unit has proceeded beyond the facility 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 concluding there has been any material change in the nature or extent of the release.
4. Each time the discharger sends a notification to affected persons, the discharger shall provide the Regional Board within **seven days** of sending such notification, with copies of the notification and an updated current mailing list of affected persons.

5. Each time the discharger sends a notification to affected persons or the Regional 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 Regional Board indicating that they have amended the Operating Record for the Facility.

J. REPORTS TO BE FILED WITH THE REGIONAL BOARD

All reports shall be submitted no later than one month following the end of their respective Reporting Period. The reports shall be comprised of at least the following in addition to the specific contents listed for each respective report type:

1. Transmittal Letter

A letter summarizing the essential points shall be submitted with each report. The transmittal letter shall include:

- a. A discussion of any requirement violations found since the last such report was submitted and shall describe actions taken or planned for correcting those violations. If the discharger has previously submitted a detailed time schedule for correcting said requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter; and
- 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 meeting the requirements contained in **Reporting Requirement D.10** of Order R9-2003-0306.

2. Semi-Annual Report

The semi-annual report shall contain, but not be limited to, a compliance evaluation summary of the ground water data obtained. The summary shall include the following information:

- a. Monitoring Parameters;
- b. Detection limit of monitoring equipment;
- c. Measured concentrations of 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, and Compliance Wells, and ground water flow rate/direction and graphical presentation (*e.g.*, arrow on a map);

- e. Monitoring well information, method and time of ground water level measurement, and a description of the method of purging used both before and after sampling;
- f. Sampling information, type of pump used and its vertical placement, detailed description of sampling procedure, QA/QC;
- g. Leachate and run-on/off control statement regarding the condition and performance of any leachate monitoring and control facilities and of the run-on/off control facilities;
- h. Site inspection reports;
- i. Inspection results for temporary soil stockpiles;
- j. Waste placement and type – the quantity and types of wastes discharged and the locations in the landfill where the waste has been placed since submittal of the last such report.
- k. Tabulation and technical evaluation of results from slope stability monitoring.

3. **Annual Summary Report**

The annual summary report, covering the previous monitoring year, shall contain the following information:

- (a) For each compliance monitoring well, the discharger shall submit a graphical display [per CCR Title 27 §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 time for a given monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. On the basis of any aberrations noted in the plotted data, the Regional 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 analysis of trends that have been identified over the last monitoring year, and analysis of any newly identified trends, significant changes in a known trend, or trend reversals identified in the historical data collected over the last **5 years** for groundwater, surface water (including seeps and springs), and vadose zone monitoring points (subdrains, lysimeters, or LFG);
- (b) All monitoring analytical data obtained during the previous two six-month reporting periods, presented in tabular form as well as on diskettes in a file format acceptable to the Regional Board. Data sets too large to fit on a single diskette may be submitted on disk in a commonly available compressed format (*e.g.*, PK-ZIP or NORTON BACKUP) acceptable to the Regional Board. This data set shall also include the background data used as a reference in detecting the measurably significant increase.

- (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 this Order.
- (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 ground water flow at the landfill site and showing the area in which filling has been completed in the previous year.
- (f) A written summary of monitoring results and monitoring system(s) indicating any changes made or observed since the previous report.
- (g) For units with leachate control/monitoring facilities, an evaluation of their effectiveness, pursuant to CCR Title 27 §20340(b, c, & d). This evaluation may be submitted under separate cover.
- (h) A copy of the Storm Water Pollution Prevention Plan, or as amended, under a separate cover.
- (i) Tabulation and technical evaluation of results from slope stability monitoring, under a separate cover.

4. **Leachate Report**

The discharger shall submit the leachate monitoring results each **January 31**, taken from the previous October, including an identification of all detected Appendix II constituents that are not on the landfill's COC list.

For leachate sampling requiring a retest, a report shall be submitted to this office by **August 1**. This report must identify all constituents that were detected in both the previous calendar year's October sample and in the April retest sample, and must permanently add these constituents to the landfill's COC list, and for at least two years, must also add them to its monitoring parameter list. The report shall also include an updated COC list that include any Appendix II constituents that are newly detected in both the October and April leachate samples.

5. **Constituents of Concern Report (every 5 years)**

In the absence of a release being indicated, the discharger shall monitor all constituents of concern (COCs) and submit a COC Report as follows:

- (a) The discharger shall sample all compliance wells for each monitored medium for all COCs every fifth year. The first COC report was due in Spring 1996, subsequent COC reports will be carried out 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 *F.11* above.

- (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.

6. Construction Quality Assurance (CQA) Reports

The discharger shall provide the Regional Board with a complete Construction Quality Assurance Report that contains all the final report elements and the results from laboratory and field testing referenced in CCR Title 27, §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, §20324(b).

7. Use of Registered Professionals

The discharger shall provide documentation that plans and reports required under this Order are prepared under the direction of appropriately qualified professionals. California Business and Professions Code § 6735, § 7835, and § 7835.1 require that engineering and geologic evaluations and judgements 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.

K. REPORTING

Monitoring reports shall be submitted in accordance with the following

Report Type	Report Frequency	Report Period	Report Due
Water Quality Monitoring	Semi-Annual	April – September	October 30
Water Quality Monitoring	Semi-Annual	October – March	April 30
Water Quality Monitoring	Annual	April – March	April 30
Storm Water Pollution Prevention Plan	Annual	April – March	April 30
Leachate Monitoring	Annual	November – October	January 31
Leachate Retest*	Annual	April	August 1
COC Report ¹	First Five Years	October 2001 – March 2006	April 30, 2008
COC Report ¹	Second five years	April 2008 – September 2013	October 30, 2013
Final Construction Quality			

Assurance (CQA) Report	N/A	N/A	April 16, 2004
Slope Stability Reports ²	Quarterly	Monthly	April 30 July 30 October 30 January 30
Slope Stability Reports ³	Semi-Annual	January – March April – June July – September October - December	October 30 and 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).

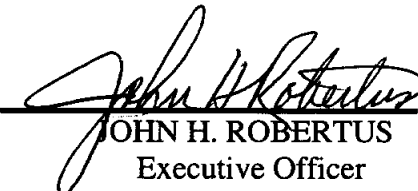
² Slope stability monitoring shall be performed monthly for the first year following adoption of Order R9-2003-0306. Results from monthly slope stability monitoring shall be reported quarterly to the Regional Board.

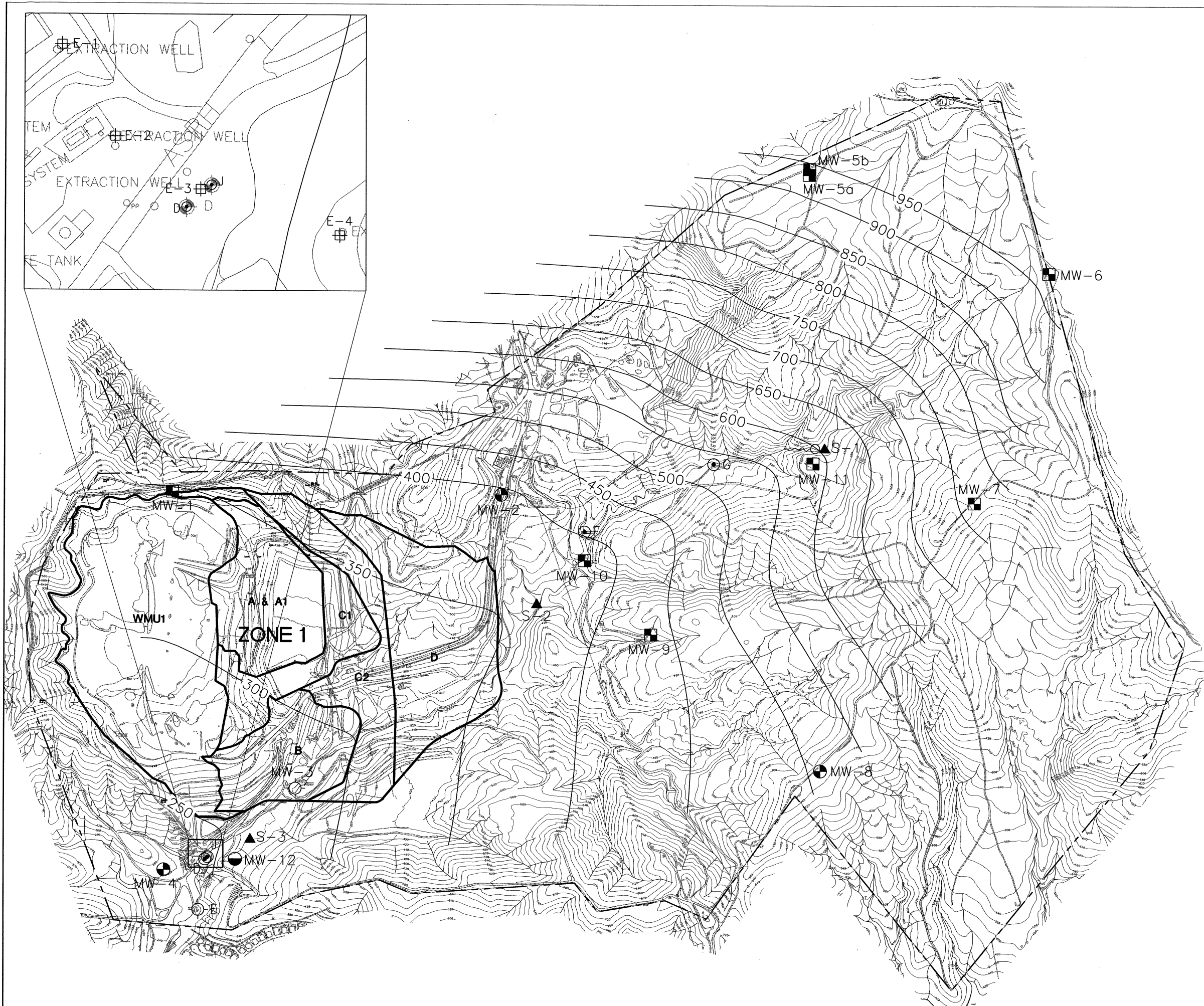
³ Slope stability monitoring shall be performed quarterly upon completion of the first year of monthly monitoring. Results from quarterly slope stability monitoring shall be reported semi-annually to the Regional Board.

All required technical and monitoring reports shall be submitted to:

Executive Officer
 California Regional Water Quality Control Board
 San Diego Region
 9174 Sky Park Court, Suite 100
 San Diego, CA 92123
 Attention: Land Discharge Unit Supervisor

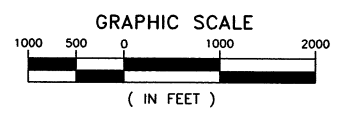
Ordered by:


 JOHN H. ROBERTUS
 Executive Officer



EXPLANATION:

- MW-2 BEDROCK GROUNDWATER MONITORING WELL
- MW-1 PIEZOMETER
- D ALLUVIUM MONITORING WELL (Stankov, 1986)
- E ABANDONED WELL
- SPRING
- MW-12 PROPOSED BEDROCK GROUNDWATER MONITORING WELL
- S-1 PROPOSED SURFACE WATER SAMPLING STATION
- E-1 GROUNDWATER EXTRACTION WELL
- 300 CONTOUR LINE SHOWING GROUNDWATER POTENTIOMETRIC SURFACE ELEVATIONS (CONTOUR INTERVAL = 50 FEET)



		COUNTY OF ORANGE INTEGRATED WASTE MANAGEMENT	
		PRIMA DESHECHA LANDFILL	
		GROUNDWATER MONITORING WELL AND SURFACE WATER SAMPLING LOCATION MAP	
MARK	DATE	DESCRIPTION	
REVISIONS			
BRYAN A. STIRRAT & ASSOCIATES CIVIL AND ENVIRONMENTAL ENGINEERS 1360 VALLEY VISTA DRIVE DIAMOND BAR, CA. 91765 (909) 860-7777			
DESIGNED	VC	CHECKED	
DRAWN	CAL	DATE	10/2003
SCALE	NTS	DRAWING NO.	171721DB.DWG
			SHEET 1 OF 1

ATTACHMENT NO. 2 TO
MONITORING AND REPORTING PROGRAM NO. R9-2003-0306

CURRENT CONTAMINANT OF CONCERN (COC)LIST

INORGANIC CONSTITUENTS	
Total Arsenic	Total Lead
Total Barium	Total Mercury
Total Cadmium	Total Nickel
Total Chromium	Total Selenium
Total Cobalt	Total Silver
Total Copper	Total Zinc
Total Iron	
ORGANIC CONSTITUENTS	
Benzene	Tetrachloroethene
1,1-Dichloroethane	Trichloroethene

APPENDIX A: DEFINITION OF TERMS AND ACCRONYMS

MONITORING AND REPORTING PROGRAM NO. R9-2003-0306

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

“CCR Title 27” means the State Water Resources Control Board’s 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. An unofficial copy of these regulations is available for downloading at <http://www.swrcb.ca.gov/cwphome/chap15/docs.htm>.

“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 40 CFR §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 RWQCB 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 parties” 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 §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 §258.56(d).

“AMP” means a federal Assessment Monitoring Program, under 40 CFR §258.55, which applies to any MSW landfill that, under 40 CFR §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 §258.1 through §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 RWQCB

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 §258.1 through §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 RWQCB 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 ground water body, of the mean (or median) and variably one would expect in the MPar’s concentration in that ground water 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% of the data.

“CAO” means a Cleanup and Abatement Order. [See also TSO]

“CAP” means a Corrective Action Program that implements the SWRCB’s requirements under CCR Title 27 §20430 and under SWRCB Policy No. 93-62 which, regarding an MSW landfill, requires the RWQCB to apply any federal requirements, under 40 CFR §258.58 (federal Corrective Action Program), that are additional to, or are broader in scope than, the CCR Title 27 requirements.

“CLGB” – see “concentration limit”

“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).

“Compliance well” means any monitoring well named in the M&RP as a ground water 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 §20425(b) and 40 CFR §258.55(g)] to delineate the nature and extent of the release, unless the RWQCB specifically names such a well as a ground water 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 RWQCB as a concentration limit greater than background (**CLGB**) under CCR Title 27 §20400(a)(3) through (h) and 40 CFR §258.55(I) 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% 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 ground water 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.

“Detect” when applied to a scan of leachate or ground water, 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 §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 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 §20420 and under SWRCB Policy No. 93-62, which requires the RWQCB to apply any federal MSW landfill requirements, under 40 CFR §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 §20425, and under SWRCB Policy No. 93-62, which requires the RWQCB to apply any applicable federal MSW landfill requirements under 40 CFR §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 §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 §258.1 of that part.

“Geographic variation” means the random change in the mean, or median concentration of a given MPar between different locations in a given ground water body, in the absence of a release.

“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 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% confidence that the analyte's concentration is greater than zero, as defined in 40 CFR §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 ground water, 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 ground water at compliance wells affected by the release. For ground water, 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 ground water at any compliance well affected by the release.

“Monitoring Point” for any given monitored medium (surface water, ground water, 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 §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 RWQCB 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 §258.

“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 of more ground water monitoring points along this vertical surface to monitor the quality of ground water passing it (see 40 CFR §258.51), whereas the RWQCB will name other ground water monitoring points (not along this vertical surface) as needed to provide the earliest possible detection and measurement of a release [see CCR Title 27 §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% of the true concentration by 75% 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 §258. Generally, these are target values that may not reflect the constraints of matrix effects; therefore, the RWQCB 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 (ground water, 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 §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 ground water (at an affected monitoring point), means taking a single additional sample from the indicating medium (or, for ground water, 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.”

“RWQCB” or “Regional Board” means the appropriate California Regional Water Quality Control Board.

“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, ground water, 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 ground water, 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). *{Note: for a landfill without an LCRS, delete the underlined words}*

“SOR” means a federal Selection Of Remedy study, under 40 CFR §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 RWQCB, 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 California 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 RWQCB to apply any requirement of 40 CFR §258 that is missing from, or broader in scope than, the SWRCB’s landfill requirements under CCR Title 27. This order is available for viewing or downloading at <http://www.swrcb.ca.gov/cwphome/chap15/93-62.htm>.

“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 §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 §20430(i or j) and 40 CFR §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.

“Time Schedule Order (TSO)” means a Cleanup and Abatement Order that includes an enforceable schedule of compliance for achieving listed milestones in the cleanup.

“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 §258).

“VSRLF” means a very small rural landfill that has demonstrated to the satisfaction of the RWQCB that it meets, and continues to meet, the qualifying preconditions, under 40 CFR §258.1(f), for being exempt from the federal design criteria (see 40 CFR §258, Subpart D) and the federal monitoring requirements (see 40 CFR §258, Subpart E). In California, to qualify as being such a landfill, the Operating Record must include the RWQCB’s concurrence with the discharger’s demonstration under 40 CFR §258.1(f). Such a landfill is still required to monitor pursuant to the CCR Title 27 regulations and the federal exemptions cease to apply as soon as the landfill exhibits evidence of a release.

“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 ground water medium, these are the compliance wells); and, for the ground water 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 §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 ground water 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.

“WC” means the statutes in the California Water Code.

“WDRs” means Waste Discharge Requirements.