

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

**MONITORING AND REPORTING PROGRAM NO. CI-5644
FOR
VENTURA REGIONAL SANITATION DISTRICT,
(TOLAND ROAD LANDFILL)**

(File No. 69-091)

General

1. Responsibilities of Ventura Regional Sanitation District (VRSD) are specified in section 13225(a), 13267(b) and 13387(b) of the California Water Code, and the State Water Resources Control Board's Resolution No. 93-62. This self-monitoring program is issued pursuant to California Regional Water Quality Control Board, Los Angeles Region (Regional Board) Order No. R4-2002-023. The principal purposes of a self-monitoring program by a waste discharger are:
 - a. To document compliance with discharge requirements and prohibitions established by the Regional Board;
 - b. To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge;
 - c. To prepare water quality analyses; and
 - d. To prepare vadose zone (unsaturated zone) and liquid quality analyses.

Definition of Terms

2. The *monitored media* are those water and/or gas-bearing media (if applicable) that are monitored pursuant to this monitoring and reporting program. The monitored media may include:
 - a. groundwater in the uppermost aquifer or in any other portion of the zone of saturation [section 20164 of title 27 of the California Code of Regulations (27 CCR)], in which it would be reasonable to anticipate that waste constituents migrating from the landfill could be detected, and in any perched zones underlying the landfill,
 - b. any bodies of surface water that could be measurably affected by a release,
 - c. soil-pore liquid beneath and/or adjacent to the landfill, and
 - d. soil-pore gas beneath and/or adjacent to the landfill.

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

3. The *constituents of concern* (COC) are those constituents which are likely to be in the waste in the landfill or which are likely to be derived from waste constituents, in the event of a release.
4. The *monitoring parameters* consists of a short list of constituents and parameters used for the majority of monitoring activity.
5. The *volatile organics composite monitoring parameter for water* (VOC_{water}) and the *volatile organics composite monitoring parameter for soil-pore gas* (VOC_{spg}) are composite monitoring parameters addressing all volatile organic constituents detectable in a sample of water or soil-pore gas, respectively.
6. *Standard observations* refers to:
 - a. For receiving waters:
 - i. Floating and suspended materials of waste origin: presence or absence, source, and size of affected area;
 - ii. Discoloration and turbidity: description of color, source, and size of affected area;
 - iii. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
 - iv. Evidence of beneficial use: presence of water-associated wildlife;
 - v. Flow rate; and
 - vi. Weather conditions: wind direction and estimated velocity, total precipitation during the previous five days and on the day of observation.
 - b. Along the perimeter of the landfill:
 - i. Evidence of liquid leaving or entering the landfill, estimated size of affected area, and flow rate;
 - ii. Evidence of odors: presence or absence, characterization, source, and distance of travel from source; and
 - iii. Evidence of erosion and/or of exposed refuse.
 - c. For the landfill:

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

- i. Evidence of ponded water at any point on the waste management facility;
 - ii. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
 - iii. Evidence of erosion and/or of daylighted refuse; and
 - iv. Standard Analysis and Measurements, which refers to:
 - A. Turbidity (only for water samples) in NTU;
 - B. Water elevation to the nearest 1/100th foot above mean sea level (only for groundwater monitoring); and
 - C. Sampling and statistical/non-statistical analysis of the monitoring parameters.
7. *Matrix effect* refers to any increase in the method detection limit (MDL) or practical quantitation limit (PQL) for a given constituent as a result of the presence of other constituents, either of natural origin or introduced through a release, that are present in the sample of water or soil-pore gas being analyzed.
8. *Facility-specific method detection limit*, for a given analytical laboratory using a given analytical method to detect a given constituent (in spite of any matrix effect), means the lowest concentration at which the laboratory can regularly differentiate, with 99% reliability, between a sample which contains the constituent and one which does not.
9. *Facility-specific practical quantitation limit*, for a given analytical laboratory using a given analytical method to determine the concentration of a given constituent (in spite of any matrix effect), means the lowest constituent concentration the laboratory can regularly quantify within specified limits of precision that are acceptable to the Regional Board's Executive Officer.
10. *Reporting period* means the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for submittal.

Monitoring Points

11. The existing groundwater monitoring system at the Toland Road Landfill includes twelve groundwater monitoring wells (Tw-Qal-1, Tw-Qal-2, Tw-Qal-3, TwP1A, TwP1B, TwP1C, TwP2C, TwP2B, TwP3B, TwP3C, TwPs4, and 29G1) and three vadose zone monitoring wells (Tv-1, Tv-2, and Tv-3).

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

12. Three groundwater seeps (Phase IIB seep, the Phase III seep, and the United Water seep) are monitored at the Toland Road Landfill.
13. Three vadose zone monitoring points, Tv-1, Tv-2, and Tv-3, are monitored at the Toland Road Landfill.
14. Three soil pore water monitoring points Tw-Qal-1, Tw-Qal-2, Tw-Qal-3 are monitored at the Toland Road Landfill
15. Monitoring points, points of compliance, and background monitoring points for each monitored medium shall include:
 - a. For water in the uppermost aquifer and for soil pore water, the monitoring points shall be Tw-Qal-1, Tw-Qal-2, Tw-Qal-3, TwP1A, TwP1B, TwP1C, TwP2C, TwP2B, TwP3B, TwP3C, TwPs4, 29G1, Tv-1, Tv-2, and Tv-3.
 - b. The point of compliance monitoring points shall be Tw-Qal-3, TwP1A, TwP1B, TwP1C, TwP2C, TwP2B, and TwPs4.
 - c. For monitoring wells where a landfill effect has not been detected, the background monitoring point shall be that same well in order to provide for a intrawell statistical analysis¹. For monitoring wells where a landfill effect has been detected VRSD shall identify an appropriate background monitoring well within 90 days after the adoption of Order No. R4-2002-023.

Sampling and Analytical Methods

16. Sample collection, storage, and analysis shall be performed according to the most recent version of standard U.S. Environmental Protection Agency (USEPA) methods, and in accordance with an approved sampling and analysis plan. Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. Specific methods of analysis must be identified. If methods other than USEPA-approved methods or standard methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board's Executive Officer prior to use. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements. In addition, VRSD is responsible for seeing that the laboratory analysis of all samples from monitoring points and background monitoring points meets the following restrictions:

¹ Intrawell statistics compare historical data at the compliance well against recent observations from that well. This eliminates the possibility that spatial variation between upgradient and downgradient wells can cause an erroneous conclusion that a release has occurred, but assumes that the historical data at the compliance wells have not been impacted by the facility.

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

- a. The methods and analysis and the detection limits used must be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e. "trace" or "ND") in data from background monitoring points for that medium, the analytical methods having the lowest facility-specific MDL shall be selected from among those methods which would provide valid results in light of any matrix effects involved.
- b. Trace results falling between the MDL and the facility-specific PQL, shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run and by an estimate of the constituent's concentration.
- c. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. 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 MDL/PQL values, the results shall be flagged accordingly, along with an estimate of the detection limit and quantitation limit actually achieved.
- 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 limits, the recovery rates, an explanation of 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 qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recovery.
- e. Upon receiving written approval from the Regional Board's Executive Officer, an alternative statistical or non-statistical procedure can be used for determining the significance of analytical results for a constituent that is a common laboratory contaminant (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) during any given reporting period in which QA/QC samples show evidence of laboratory contamination for that constituent. Nevertheless, analytical results involving detection of these analytes in any sample shall be reported and flagged for easy reference by Regional Board staff.
- 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. 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.
- h. The MDL shall always be calculated such that it represents a concentration associated with a 99% reliability of a non-zero result.

Records to be Maintained

- 17. Written reports shall be maintained by VRSD or it's laboratory and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board. Such records shall show the following for each sample:
 - a. Identity of sample and of the monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
 - b. Date and time of sampling;
 - c. Date and time that analyses were started and completed, and the name of the personnel performing each analysis;
 - d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
 - e. Calculations of results; and
 - f. Results of analyses, and the MDL and PQL for each analysis.

Reports to be Filed with the Board

- 18. A detection monitoring report and an annual summary report shall be submitted pursuant the following schedule. Every five years, VRSD shall also submit a report concerning the direct analysis of all COCs (COC report), alternating between the Spring/Summer and Fall/Winter monitoring periods.

- a. Semiannual Reports

<u>Period</u>	<u>Sampling Period</u>	<u>Reporting Date</u>
Spring/Summer	September	October 30
Fall/Winter	March	April 30

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

b. Annual Summary Report

<u>Period</u>	<u>Sampling Period</u>	<u>Reporting Date</u>
January 1 - December 31	December	February 15

19. The detection monitoring and COC reports shall be comprised of at least the following:

a. Letter of Transmittal:

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

b. Each report shall include a compliance evaluation summary. The summary shall contain at least:

i. For each monitored groundwater body, a description and graphical presentation of the velocity and direction of the groundwater flow under/around the landfill, based upon water level elevations taken during the collection of the water quality data submitted in the report;

ii. Pre-Sampling Purge for Samples Obtained from Wells:

For each monitoring point addressed by the report, a description of the method and time of water level measurement, of the type of pump used for purging and the placement of the pump in the well, and of the method of purging (the pumping rate, the equipment and methods used to monitor field pH, temperature, electrical conductivity and turbidity during purging, the calibration of the field equipment, results of the pH, temperature, electrical conductivity, and turbidity testing, the well recovery time, and the method of disposing of the purge water);

iii. Sampling:

For each monitoring point addressed by the report, a description of the type of pump, or other device, used and its placement for sampling, and a

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

detailed description of the sampling procedure (number and description of the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name and qualifications of the person taking the samples, and any other observations).

- c. A map or aerial photograph showing the locations of observation stations and monitoring points;
- d. For each report, include laboratory statements of results of all analyses demonstrating compliance with Sampling and Analytical Methods (Item No. 16 of this monitoring and reporting program);
- e. An evaluation of the effectiveness of the run-off/run-on control facilities;
- f. A summary and certification of completion of all standard observations (Item No. 6 of the monitoring and reporting program) for the landfill, for the perimeter of the landfill, and for receiving waters.

20. Contingency Reporting

- a. VRSD shall report by telephone to Regional Board staff, any seepage from the disposal area immediately after it is discovered. A written report shall be filed with the Regional Board within seven days of the verbal report, containing at least the following information:
 - 2. A map showing the location(s) of seepage;
 - 3. An estimate of the flow rate;
 - 4. A description of the nature of the discharge (e.g., all pertinent observations and analyses); and
 - 5. Corrective measures underway or proposed.
- b. Should the initial statistical comparison or non-statistical comparison (Item Nos. 32 through 34 of this monitoring and reporting program) indicate, for any monitoring parameter or COC, that a release is tentatively identified, VRSD shall immediately verbally notify Regional Board staff as to the monitoring point(s) involved, shall provide written notification by certified mail within seven days of such determination [27 CCR, section 20420(j)(1)], and shall carry out a discrete retest in accordance with Item No. 36 of this monitoring and reporting program. If the retest confirms a release, VRSD shall carry out the requirements of Item No. 20d of this monitoring and reporting program. In any case, VRSD shall inform the

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

Regional Board of the outcome of the retest as soon as the results are available, and follow up with written results submitted by certified mail within seven days of completing the retest.

- c. If either VRSD or the Regional Board determines that there is significant physical evidence of a release [27 CCR, section 20385(3)], VRSD shall immediately notify the Regional Board of this fact by certified mail (or acknowledge the Regional Board's determination of a potential release) and shall carry out the requirements of Item No. 20d of this monitoring and reporting program for all potentially-affected monitored media.
- d. If VRSD concludes that a release has been discovered:
 - i. If this conclusion is not based upon direct monitoring of the monitoring parameters or COCs, VRSD shall, within thirty days, sample for all COCs at all monitoring points and submit them for laboratory analysis. Within seven days of receiving the laboratory analytical results, VRSD shall notify the Regional Board, by certified mail, of the concentration of all COCs at each monitoring point. Because this scan is not to be tested against background, only a single datum is required for each COC at each monitoring point [27 CCR, section 2040(k)(1)];
 - ii. VRSD shall, within 90 days of discovering a release, submit a revised report of waste discharge (ROWD) proposing an evaluation monitoring program (EMP) meeting the requirements of 27 CCR, section 20420(k)(5) and 20425; and
 - iii. VRSD shall, within 180 days of discovering a release, submit a preliminary engineering feasibility study meeting the requirements of 27 CCR, section 20420(k)(6).
- e. Any time VRSD concludes, or the Regional Board Executive Officer directs VRSD to conclude, that a liquid release from the landfill has extended beyond the facility boundary, VRSD shall so notify all persons who either own or reside upon the land (affected persons) that directly overlies any part of the plume.
 - i. Initial notification to affected persons shall be accomplished within fourteen days of making this conclusion and shall include a description of VRSD's current knowledge of the nature and extent of the release; and
 - ii. Subsequent to initial notification, VRSD shall provide updates to all affected persons, including any newly affected persons, within fourteen days of concluding there has been any material change in the nature or extent of the release.

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

21. VRSD shall submit an annual summary report to the Regional Board covering the previous monitoring year. The reporting period ends February 15. This report shall contain:
 - a. A graphical presentation of analytical data [27 CCR, section 20415(e)(14)]:
For each monitoring point, submit in graphical format the laboratory analytical data for all samples taken within at least the previous five calendar years. Each such 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's Executive Officer may direct VRSD to carry out a preliminary investigation [27 CCR, section 20080(d)(2)], the results of which will determine whether or not a release is indicated;
 - b. All monitoring analytical data obtained during the previous semiannual monitoring and reporting periods, presented in tabular form as well as on 3 ½-inch diskettes, either in MS-DOS/ASCII format or in another file format acceptable to the Regional Board's Executive Officer. 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). The Regional Board regards the submittal of data in hard copy and on diskette as "...the form necessary for..." statistical analysis [27 CCR, section 20420(h)];
 - c. A comprehensive discussion of the compliance record, and the result of any corrective actions taken, or planned, which may be needed to bring VRSD into full compliance with the WDRs;
 - d. A written summary of the groundwater and soil-pore gas analyses, indicating any changes made since the previous annual report; and
 - e. An evaluation of the effectiveness of the run on/run-off control facilities, pursuant to 27 CCR, section 20340 (b, c, and d).

Water and Soil-Pore Gas Sampling/Analysis for Detection Monitoring

22. **Thirty-Day Sample Procurement Limitation:**
For any given monitored medium, the samples taken from all monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken within a span of 30 days, and shall be taken in a manner that insures sample independence to the greatest extent feasible [27 CCR, section 20415(e)(12)(B)]. Groundwater sampling shall also include an accurate determination of the groundwater surface elevation and field

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

parameters (temperature, pH, electrical conductivity, turbidity) for that monitoring point [27 CCR, section 20415(e)(13)]; groundwater elevations taken prior to purging the well and sampling for monitoring parameters shall be used to fulfill groundwater flow rate/direction analyses required under Item No. 28 of this monitoring and reporting program. Statistical or non-statistical analysis shall be carried out as soon as the data is available, in accordance with Statistical and Non-Statistical Analyses of Sample Data During a Detection Monitoring Program (Item Nos. 32 through 34 of this monitoring and reporting program).

- 23. VRSD shall sample all monitoring points in accordance with the sampling schedule given under Item No. 17 of this monitoring and reporting program, taking enough samples to qualify for the most appropriate test under Statistical and Non-Statistical Analyses of Sample Data During a Detection Monitoring Program (Item Nos. 32 through 34 of this monitoring and reporting program).
- 24. Monitoring for Monitoring Parameters Conducted Semiannually:
All monitoring points assigned to detection monitoring (Item No. 15a of this monitoring and reporting program) shall be sampled semiannually during March and September. Monitoring for the following monitoring parameters shall be carried out in accordance with Statistical and Non-Statistical Analyses of Sample Data During a Detection Monitoring Program (Item Nos. 32 through 34 of this monitoring and reporting program) for all point of compliance monitoring points (Item No. 15b of this monitoring and reporting program).

<u>Groundwater Monitoring Parameters</u>	<u>Units</u>
Chemical Oxygen Demand	mg/l
Total Organic Halides	mg/l
Total Organic Carbon	mg/l
Total Dissolved Solids	mg/l
Chloride	mg/l
Sulfate	mg/l
Boron	mg/l
nitrate-nitrogen	mg/l
ammonia-nitrogen	mg/l
Hydroxide Alkalinity (CaCO ₃)	mg/l
Total Hardness (as CaCO ₃)	mg/l
Volatile Organics	mg/l
Electrical Conductivity	μhos/cm
pH	pH units

- 25. Monitoring of Select COCs Annually:
In the absence of a release being indicated pursuant to Item Nos. 20 and 30 of this monitoring and reporting program for a monitoring parameter or based upon physical

evidence pursuant to Item No. 20c of this monitoring and reporting program, VRSD shall sample all point of compliance monitoring points and background monitoring points of water-bearing media, not including soil-pore gas, for the following select COCs annually. VRSD can complete the sampling for this expanded list of COCs during the September semiannual monitoring event or as a separate monitoring event during December as indicated in Item No. 18 of the monitoring and reporting program.

Groundwater Monitoring Parameters

Volatiles*
Semi-volatiles*
Pesticides*
PCB's*
Metals**
Biological Oxygen Demand
Bicarbonate
Carbonate
Foaming Agents
Herbicides
Nitrate (as N)
Nitrite
Oil and Grease
Sulfate
Sulfides
Total cyanide
Total phenols
Turbidity

*All peaks greater than 10% of the internal standard shall be identified and quantified for gas chromatography analyses.

** Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Hexavalent chromium, Lead, Magnesium, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, and Zinc.

26. Direct Monitoring of All COCs Every Five Years:
In the absence of a release being indicated pursuant to Item Nos. 20 and 30 of this monitoring and reporting program for a monitoring parameter or based upon physical evidence pursuant to Item No. 20c of this monitoring and reporting program, or by a study required by the Regional Board's Executive Officer based upon anomalies noted during visual inspection of graphically-depicted analytical data (Item No. 21a of this monitoring and reporting program), VRSD shall sample all point of compliance monitoring points and background monitoring points of water-bearing media, not

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

including soil-pore gas, for all COCs every fifth year, beginning with the year of adoption of Regional Board Order No. R4-2002-023, with successive direct monitoring efforts being carried out alternately in the Spring/Summer of one year (Report Period ends October 30) and the Fall/Winter of the fifth year thereafter (Reporting Period ends April 30). Direct monitoring for COCs shall be carried out in accordance with Statistical and Non-Statistical Analyses of Sample Data During a Detection Monitoring Program (Item Nos. 32 through 34 of this monitoring and reporting program), and shall encompass only those COCs that do not also serve as a monitoring parameter.

The samples shall be analyzed for all COC constituents listed in Appendix I and Appendix II to 40 CFR, part 258 that are not already a monitoring parameter (Item No. 24 of this monitoring and reporting program). VRSD may propose for approval of the Executive Officer an alternative COC list for any monitoring points downgradient of an active LCRS for which testing of LCRS leachate per Section 11 (Constituents of Concern (COCs) for Landfills Having a Functioning LCRS) has been completed.

27. Initial Background Determination:

For the purpose of establishing an initial pool of background data for each COC at each background monitoring point in each monitored medium 27 CCR, section 20415(e)(6);

- a. Whenever a new COC is added to the Water Quality Protection Standard (WQPS), including any added by the adoption of Regional Board Order No R4-2002-023, VRSD shall collect at least one sample quarterly for at least one year from each background monitoring point in each monitored medium and analyze for the newly-added constituent(s); and
- b. Whenever a new background monitoring point is added, including any added by Regional Board Order No. R4-2002-023, VRSD shall sample it at least quarterly for at least one year, analyzing for all COCs and monitoring parameters.

28. Semiannual Determination of Groundwater Flow Rate / Direction (27 CCR, section 25415(e)(15):

VRSD shall measure the water level in each well and determine groundwater flow rate and direction in each groundwater body semiannually. This information shall be included in the semiannual monitoring parameter reports required under Item No. 18 of this monitoring and reporting program.

29. Groundwater Seepage Monitoring

VRSD shall monitor seepage water from the Phase IIB seep, the Phase III seep, and the United Water seep semiannually. The samples shall be analyzed for the following monitoring parameters:

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

<u>Groundwater Monitoring Parameters</u>	<u>Units</u>
Chemical Oxygen Demand	mg/l
Total Organic Halides	mg/l
Total Organic Carbon	mg/l
Total Dissolved Solids	mg/l
Chloride	mg/l
Sulfate	mg/l
Boron	mg/l
nitrate-nitrogen	mg/l
ammonia-nitrogen	mg/l
Hydroxide Alkalinity (CaCO ₃)	mg/l
Total Hardness (as CaCO ₃)	mg/l
Volatile Organics	mg/l
Electrical Conductivity	μhos/cm
pH	pH units

**Statistical and Non-Statistical Analyses of Sample Data
During a Detection Monitoring Program**

30. VRSD shall use the following methods to compare the downgradient concentration of each monitoring parameter with its respective background concentration to determine if there has been a release from the landfill. For any given interwell data set, proceed sequentially down the list of statistical analysis methods listed in Item Nos. 33 of this monitoring and reporting program, followed by the non-statistical method in Item No. 34, using the first method for which the data qualifies. If that analysis tentatively indicates the detection of a release, implement the retest procedure under Item No. 36 of this monitoring and reporting program.

At any time, VRSD may propose to revise or amend the statistical analysis methods for the Toland Road Landfill to develop a site specific analysis methodology that incorporates the spectrum of possible changes in data characteristics over time. Revised or amended statistical analysis methods will not be implemented by VRSD unless they are approved by the Executive Officer.

At any time, VRSD may propose, or revise, a set of metal surrogates [consistent with 258.54(a)(s)(2) of section 40 of the Code of Federal Regulations (40 CFR)] to the list of monitoring parameters identified in Item No. 25 of this monitoring and reporting program. Statistical analysis using the proposed or revised metal surrogates will not be implemented by VRSD unless they are approved by the Executive Officer.

31. Concentration Limits:
Within 90 days of the adoption of Order No. R4-2002-023, VRSD shall develop concentration limits for each COC per section 20400 of 27 CCR for monitoring points.

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

The concentration limits shall be developed at the 95% confidence level for each monitoring point based on the most recent five years of historical data, with a “normal” range of values predicted for all COCs.

32. Intrawell Statistical Methods:

At any given groundwater monitoring point, the discharger shall apply an approved statistical analysis method for each monitoring parameter that exceeds its respective MDL in 10% or more of the applicable background data set. For each monitoring parameter for each monitoring well (separately), an approved statistical analysis is a method, other than Analysis of Variance (ANOVA), that is either validated and analyzed by the SANITAS water quality analysis software [distributed by Intelligent Decisions Technology, Inc., 203 South Main Street, Longmont, CO 80501] or that the Executive Officer agrees meets the performance standards of 27 CCR 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:

- a. For any monitoring parameter for each monitoring well 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 60 days of the adoption of Order R4-2002-023;
- b. After the adoption of this order, for any new monitoring parameter 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 monitoring parameter for that well as part of a background validation check that is approved by the Executive Officer.

33. Interwell Statistical Methods:

VRSD shall use one of the following statistical methods to analyze COCs monitoring parameters which exhibit concentrations exceeding their respective MDL in at least ten percent of the background samples taken during that reporting period. Except for pH, which requires a two-tailed analysis, the statistical analysis for all constituents and parameters shall be one-tailed (testing only for statistically significant increase relative to background):

- a. One-Way Parametric Analysis of Variance (ANOVA) followed by multiple comparisons [27 CCR section 20415(e)(8)(A)]:
This method requires at least four independent samples from each monitoring point and background monitoring point during each sampling episode. It shall be used when the background data from the parameter or constituent, obtained during a given sampling period, has not more than 15% of the data below PQL. Prior to analysis, replace all 'trace' determinations with a value halfway between the PQL and the MDL values reported for that sample run, and replace all non-

detect determinations with a value equal to half the MDL value reported for that sample run. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient monitoring point shall be tested at a 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any monitoring point, VRSD shall conclude that a release is tentatively indicated for that parameter or constituent;

- b. One-Way Non-Parametric ANOVA (Kruskal-Wallis Test), followed by multiple comparisons:

This method requires at least nine independent samples from each monitoring point and background monitoring point; therefore, VRSD shall anticipate the need for taking more samples per monitoring point, based upon past monitoring results. This method shall be used when the pooled background data for the parameter or constituent, obtained within a given sampling period, has not more than 50% of the data below the PQL. The ANOVA shall be carried out at the 95% confidence level. Following the ANOVA, the data from each downgradient monitoring point shall be tested at 99% confidence level against the pooled background data. If these multiple comparisons cause the Null Hypothesis (i.e., that there is no release) to be rejected at any monitoring point, VRSD shall conclude that a release is tentatively indicated for that parameter or constituent; or

- c. Method of Proportions:

This method shall be used if the combined data set, the data from a given monitoring point in combination with the data from the background monitoring points, has between 50% and 90% of the data below the MDL for the constituent or parameter in question. This method (1) requires at least nine downgradient data points per monitoring point per reporting period, (2) requires at least thirty data points in the combined data set, and (3) requires that $N * P > 5$ (where N is the number of data points in the combined data set and P is the proportion of the combined set that exceeds the MDL); therefore, VRSD shall anticipate the number of samples required, based upon past monitoring results. The test shall be carried out at the 99% confidence level. If the analysis results in rejection of the Null Hypothesis (i.e., that there is no release), VRSD shall conclude that a release is tentatively indicated for that constituent or parameter; or

34. Interwell Non-Statistical Method:

VRSD shall use the following non-statistical method for the VOC_{water} and VOC_{spg} composite monitoring parameters and for all COC which are not amenable to the statistical tests under Item No. 33 of this monitoring and reporting program; each of these groupings of constituents utilizes a separate variant of the test, as listed below. Regardless of the variant used, the method involves a two-step process:

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

- a) from all constituents to which the variant applies, compile a list of those constituents which exceed their respective MDL in the downgradient sample, yet do so in less than ten percent of the applicable background samples; and
 - b) evaluate whether the listed constituents meet either of the test variant's two possible triggering conditions.
35. For interwell statistical analyses, background shall be represented by the data from all samples taken from the appropriate background monitoring points during that reporting period (at least one sample from each background monitoring point). The method shall be implemented as follows:

- a. For the Volatile Organics Composite Monitoring Parameter for Water Samples (VOC_{water}):
For any given monitoring point, the VOC_{water} monitoring parameter is a composite parameter addressing all VOCs detectable using the appropriate USEPA method including at least all 47 VOCs listed in Appendix I to 40 CFR, part 258, and all unidentified peaks. Compile a list of each VOC which exceeds its MDL in the monitoring point sample (an unidentified peak is compared to its presumed MDL), and also exceeds its MDL in less than ten percent of the samples taken during that reporting period from that medium's background monitoring points.

VRSD shall conclude that a release is tentatively indicated for the VOC_{water} composite monitoring parameter if the list either contains two or more constituents, or contains one constituent that exceeds its PQL;

- b. For the Volatile Organics Composite Monitoring Parameter for Soil-Pore Gas Samples (VOC_{spg}):
The VOC_{spg} monitoring parameter is a composite parameter for soil-pore gas addressing at least all 47 VOCs listed in Appendix I to 40 CFR, part 258, based upon either GC or GC/MS analysis of at least ten liter samples of soil-pore gas (e.g., collected in a vacuum canister). It involves the same scope of VOCs as does the VOC_{spg} monitoring parameter. Compile a list of each VOC which exceeds its MDL in the monitoring point sample (as unidentified peak is compared to its presumed MDL), and also exceeds its MDL in less than ten percent of the samples taken during that reporting period from the (soil-pore-gas) background monitoring points.

VRSD shall conclude that a release is tentatively indicated for the VOC_{spg} composite monitoring parameter if the list either contains two or more constituents, or contains one constituent that exceeds its PQL; or

- c. For COCs:

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

Compile a list of constituents that exceed their respective MDL at the monitoring point yet do so in less than ten percent of the background samples taken during that reporting period. VRSD shall conclude that a release is tentatively indicated if the list either (1) contains two or more constituents, or (2) contains one constituent which exceeds its PQL.

36. Discrete Retest [27 CCR, section 25415 (e)(8)(E)]:
In the event that VRSD concludes that a release has been tentatively indicated (under Item Nos. 32 through 34 of this monitoring and reporting program), VRSD shall, within 30 days of this indication, collect two new suites of samples for the indicated COCs or monitoring parameters at each indicating monitoring point, collecting at least as many samples per suite as were used for the initial test. Resampling of the background monitoring points is optional. As soon as the data is available, VRSD shall rerun the statistical method (or non-statistical comparison) 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 confirms the original indication, VRSD 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 parameter which triggered the indication there, as follows:
- a. If an ANOVA method was used, the retest shall involve only a repeat of the multiple comparison procedure, carried out separately on each of the two new suites of samples taken from the indicating monitoring point;
 - b. If the Method of Proportions statistical test was used, the retest shall consist of a full repeat of the statistical test for the indicated constituent or parameter, using the new sample suites from the indicating monitoring point;
 - c. If the non-statistical method was used:
 - i. Because the VOC composite monitoring parameters (VOC_{water} or VOC_{spg}) each address, as a single parameter, an entire family of constituents which are likely to be present in any landfill release, the scope of the laboratory analysis for each retest sample shall include all VOCs detectable in that retest sample. Therefore, a confirming retest for either parameter shall have validated the original indication even if the suite of constituents in the confirming retest sample(s) differs from that in the sample which initiated the retest;
 - ii. Because all COCs that are jointly addressed in the non-statistical testing under Item No. 34 of this monitoring and reporting program, 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.

Responses to VOC Detection in Background

37. Except as indicated in Item No. 38, if any time the laboratory analysis of a sample from a background monitoring point, sampled for VOCs under Item No. 35 of this monitoring and reporting program, shows either two or more VOCs above their respective MDL, or one VOC above its respective PQL, then VRSD shall immediately notify the Regional Board by phone that possible background contamination has occurred, shall follow up with written notification by certified mail within seven days, and shall obtain two new independent VOC samples from that background monitoring point and send them for laboratory analysis of all detectable VOCs within thirty days. If either or both the new samples validates the presence of VOC(s) at that background monitoring point, using the above procedure, VRSD shall:
- a. Immediately notify the Regional Board regarding the VOC(s) verified to be present at that background monitoring point, and follow up with written notification submitted by certified mail within seven days of validation; and
 - b. Within 180 days of validation, submit a report, acceptable to the Regional Board's Executive Officer, which examines the possibility that the detected VOC(s) originated from the landfill and proposing appropriate changes to the monitoring program.
38. If the Regional Board's Executive Officer determines, after reviewing the report submitted under Item No. 37b, that the detected VOC(s) most likely originated from the landfill, VRSD shall assume that a release has been detected and shall immediately begin carrying out the requirements of Item No. 20d of this monitoring and reporting program.

Waste Disposal Reporting Requirements

39. VRSD shall submit a monthly report to the Regional Board that includes a map of the site and indicates the area(s) where disposal is taking place or will begin. The map shall be updated monthly, and summarized and submitted with the annual report due February 15. If a new area is landfilled, it shall be identified in the corresponding monthly report.
40. Monthly observations and measurements of the static water levels shall be made on all monitoring wells, and records of such observations shall be submitted with the monthly reports. All monitoring wells shall be sounded each September to determine total depth. Wells affected by pumping shall be measured prior to pumping insofar as is possible.
41. Pumping data regarding fluid pumped from each well (other than for analytical samples) shall be reported to the Regional Board each month in the monthly waste disposal report and shall include:

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

- a. Date and quantity of fluid pumped, and the method of disposal or reuse purpose, if reused.
 - b. If no fluid was pumped during the month from any monitoring well, a statement to that effect shall be submitted.
42. A waste disposal report containing the following information shall be filed with this Regional Board each month:
- c. A tabular list of the estimated average monthly quantities (in cubic yards and tons) and types of materials (including dewatered sewage sludge) deposited each month.
 - d. An estimate of the remaining capacity (in cubic yards and tons), and the remaining life of the site in years and months.
 - e. A certification that all wastes deposited were deposited in compliance with the Regional Board's requirements, and that no wastes were deposited outside of the boundaries of the landfill as specified in Order No. R4-2002-023.
 - f. A description of the location and estimate of the seepage rate or flow of all known seeps and springs at the site.
 - g. The estimated amount of water used at the landfill for landscape irrigation, compaction, dust control, etc., during the month. (If a source other than potable water is used, the source and amount of water from each source shall also be reported).
 - h. Quantities of liquid pumped from the leachate monitoring sumps and/or extraction wells, including dates or removal, and the ultimate point of disposal, if other than an onsite leachate treatment plant. If no liquid was detected or pumped during the reporting period, a statement to that effect shall be submitted.
43. In addition to reporting the quantity of dewatered sewage sludge deposited each month, quarterly samples of incoming sludge shall be obtained and analyzed as follows:
- a. A time-composite sludge sample shall be collected during a 24-hour period. The composite sample shall consist of 12 subsamples taken at two-hour intervals. The subsamples shall be mixed as completely as possible into a single sample. The total percent solids of the sample shall be reported.
 - b. An extraction solution of the sludge shall be prepared for analyses using the Waste Extraction Test (WET) Method as contained in Title 22, California Code of Regulations, section 66261.24, appendix II. All testing shall be done on 48-hour

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

extracts. The extracts shall be analyzed for Soluble Threshold Limit Concentration (STLC) for the following metals: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, tin, vanadium, and zinc.

- c. The digested sludge shall also be analyzed semi-annually for the following parameters: polychlorinated biphenyls (PCBs), trichloroethylene (TCE), perchloroethylene (PCE), carbon tetrachloride, DDT DDE, DDD, Endrin, Lindane, Methoxychlor, Toxaphene, 2,4-D and 2,4,5-TP (Silvex).
 - d. These results shall be reported in the corresponding monthly report.
 - e. If VRSD performs sludge analyses more frequently than required by this program, the results of those analyses shall be included in the corresponding monthly report.
44. The results of the waste-load-checking program shall be approved by the California Integrated Waste Management Board and reported in the monthly waste disposal reports. VRSD shall report all hazardous or unacceptable (to this site) wastes inadvertently received at this site and their disposition. The following details shall be included:
- a. The source (if known), including the hauler, of the unacceptable wastes and dated received and/or discovered.
 - b. Identification of waste (if known) and the amount of waste.
 - c. The name and address of the hauler who removed the waste from this site.
 - d. The ultimate point of disposal for the waste.
 - e. VRSD's actions to prevent recurrence of the attempted depositing of unacceptable wastes by this source or individual (if applicable).
 - f. If no unacceptable wastes were received (or discovered) during the month, the report shall so state.
45. Waste water reuse reporting shall accompany the waste disposal reporting and include the following:
- a. A statement that, during the reporting period, all waste water was used only as specified, and for the uses specified in Order No. R4-2002-023.
 - b. Approximate acreage and locations receiving reused water for irrigation.

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

- c. Analytical results for waste water shall be submitted with the corresponding monthly report. If a waste water source was not sampled or measured during the reporting period, the reason for the omission shall be given. If no waste water reused from a source, a statement to that effect shall be provided in lieu of analyses.
- d. Records of operational problems, mechanical breakdowns, and diversions to emergency storage or disposal associated with any violations, or potential violations of Order No. R4-2002-023.
- e. Any corrective actions taken.
- f. If all or a portion of the waste water was not reused because of a failure to meet the limits specified in Order No. R4-2002-023, the report shall so state and identify the disposition of the effluent.

Summary of Self-Monitoring and Reporting Programs

46. Groundwater Monitoring

- a. Groundwater monitoring points shall be sampled semiannually. The samples shall be analyzed for the following monitoring parameters:

<u>Groundwater Monitoring Parameters</u>	<u>Units</u>
Chemical Oxygen Demand	mg/l
Total Organic Halides	mg/l
Total Organic Carbon	mg/l
Total Dissolved Solids	mg/l
Chloride	mg/l
Sulfate	mg/l
Boron	mg/l
nitrate-nitrogen	mg/l
ammonia-nitrogen	mg/l
Hydroxide Alkalinity (CaCO ₃)	mg/l
Total Hardness (as CaCO ₃)	mg/l
Volatile Organics	mg/l
Electrical Conductivity	μhos/cm
pH	pH units

- b. Once each year, during the Winter/Spring or annual monitoring period, point of compliance monitoring points shall be sampled and these samples analyzed for the following COCs:

Groundwater Monitoring Parameters

Volatiles*
Semi-volatiles*
Pesticides*
PCB's*
Metals**
Biological Oxygen Demand
Bicarbonate
Carbonate
Foaming Agents
Herbicides
Nitrate (as N)
Nitrite
Oil and Grease
Sulfate
Sulfides
Total cyanide
Total phenols
Turbidity

*All peaks greater than 10% of the internal standard shall be identified and quantified for gas chromatography analyses.

** Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Hexavalent chromium, Lead, Magnesium, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, and Zinc.

- c. VRSD shall monitor all COCs every five years which will include all monitoring parameters listed in this monitoring and reporting program in addition to all constituents listed in Appendix I and Appendix II to 40 CFR, part 258 (unless VRSD develops an alternative COC list based on testing of leachate from an active LCRS).

47. Gas Monitoring

VRSD shall monitor the soil-gas zone and perimeter gas monitoring systems semiannually and report the findings to the Regional Board semiannually.

48. Reporting

- b. VRSD shall arrange the data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance Order No. R4-2002-023.

**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

- c. Records of monitoring information shall include:
 - i. The date, exact place, and time of sampling or measurement(s);
 - ii. The individual(s) who performed the sampling or measurement(s)
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical techniques or method used; and
 - vi. The results of such analyses.

- d. Each report shall contain the following statement:

"I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations."

- e. A duly authorized representative of VRSD may sign the documents if:
 - ii. The authorization is made in writing by the person described above;
 - iii. The authorization specified an individual or person having responsibility for the overall operation of the regulated disposal system; and
 - iv. The written authorization is submitted to the Regional Board's Executive Officer.

- f. Report immediately any failure in the waste disposal system to the Regional Board's Executive Officer by telephone with follow-up letter.

- g. Monitoring reports shall be submitted to the Regional Board in accordance with the following schedule:

- i. Semiannual Reports:

<u>Period</u>	<u>Sampling Period</u>	<u>Reporting Date</u>
Spring/Summer	September	October 30
Fall/Winter	March	April 30

- ii. Annual Summary Report:

<u>Period</u>	<u>Reporting Date</u>
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**VENTURA REGIONAL SANITATION DISTRICT
TOLAND ROAD LANDFILL
MONITORING AND REPORTING PROGRAM NO. 5644**

ORDER NO. R4-2002-023

January 1 - December 31

February 15

iii. Five-year COC monitoring reports shall be submitted to the Regional Board by October 30 and April 30 (alternating Spring/Summer and Fall/Winter COC report) of the sixth year.

a. Submit monitoring reports to:

California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, California 90013
ATTN: Technical Services Unit

Ordered by _____

Dennis A. Dickerson
Executive Officer
January 24, 2002

