CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. R7-2002-0010
FOR
DESERT SOLUTIONS, INC., OWNER/OPERATOR
DESERT SOLUTIONS, INC. COMPOSTING FACILITY
Cathedral City – Riverside County

CONSISTS OF

PART I PART II AND PART III

PART I

Location of Discharge: Northeast ¼ of Section 27, T3S, R5E, SBB&M

A. GENERAL

1. The responsibilities of the waste dischargers are specified below are pursuant to the California Water Code, Sections 13225(a), 13267(b), and 13387(b). This self-monitoring program is issued in accordance with Provision No. 2 of Waste Discharge Requirements (WDRs) Order No. R7-2002-0010. The principal purpose of this Self Monitoring and Reporting Program is:

   a. To document compliance with the WDRs adopted by the Regional Board.

   b. To facilitate self-policing by the Discharger in the prevention and abatement of pollution arising from waste discharge.

   c. To prepare and water quality analyses.

   d. To prepare vadose zone (unsaturated zone) liquid quality analyses.

2. The Discharger shall submit a Water Quality Monitoring and Response Plan pursuant to Title 27 within **60 days** of the adoption of this Order. This Plan shall describe locations, including a map, of all surface, vadose zone, and ground water monitoring, background and points of compliance, required pursuant to Title 27 regulations.

3. All analytical methods not specified below shall be conducted in accordance with United States Environmental Protection Agency (USEPA) approved procedures. Analyses shall be conducted by a laboratory certified by the California Department of Health Services to perform the required analyses, unless a field analysis is specified.

B. DEFINITION OF TERMS

1. Monitored Media – Those water-or-gas-bearing media that are monitored pursuant to this Monitoring and Reporting Program. The Monitored Media may include: (1) ground water in the uppermost aquifer, in any other portion of the zone of saturation (Title 27, Section 20164) in which it would be reasonable to anticipate that waste constituents migrating from the CMF could be detected, and in any perched zones underlying the Unit; (2) any bodies of surface water that could be measurably affected by a release; and (3) soil-pore liquid beneath and/or adjacent to the CMF.

2. Constituents of Concern (COC) – Those constituents which are likely to be in the waste at the CMF, or which are likely to be derived from waste constituents, in the event of a release.

3. Monitoring Parameters – A short list of constituents and parameters used for the majority of monitoring activity.

4. Standard Observations – refers to the following:

    a. For Receiving Waters

        1) Floating and suspended materials of waste origin: presence or absence, source, and size of affected area;

        2) Discoloration and turbidity: description of color, source, and size of affected area;

        3) Evidence of odors: Presence or absence, characterization, source, and distance of travel from source;

        4) Evidence of beneficial use: presence of water-associated wildlife;

        5) Flow Rate; and

        6) Weather conditions: wind direction and estimated velocity, total precipitation during the previous five (5) days and the day of observation.

    b. Along the perimeter of the CMF:

        1) Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map);

        2) Evidence of odors; presence or absence, characterization, source, and distance of travel from source; and

        3) Evidence of erosion and/or windblown refuse.

    c. For the CMF:

        1) Evidence of ponded storm water or leachate (other than designated leachate catch basins or storm water detention basin) at any point within the CMF (show affected area on map);

        2) Evidence of odors: presence or absence, characterization, source, and distance of travel from source;

        3) Evidence of erosion within the CMF; and

        4) "Standard Analysis and Measurements", which refers to:

            (a) Turbidity (only water samples) in NTU;

            (b) Water elevation to the nearest $1/100^{th}$ foot above mean seal level (only for ground water monitoring); and

            (c) Sampling and statistical/non-statistical analysis of the Monitoring Parameters.

5. Matrix Effect – Any increase in the Method Detection Limit or Practical Quantitation Limit for a given constituent as a result of the presence of other constituents – either of natural

origin or introduced through a release – that are present in the sample of water or soil-pore gas being analyzed.

6. Facility-Specific Method Detection Limit (MDL) – 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.

7. "Reporting Period" – 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. The reporting period for the monitoring program is quarterly and semi-annually. An annual report, which is a summary of all the monitoring during the previous year, shall also be submitted to the Regional Board. The submittal dates for each reporting period shall be as follows:

   a. Quarterly Monitoring Reports

      1) First Quarter (January 1, through March 31) – Report due by April 15
      2) Second Quarter (April 1 through June 30) – Report due by July 15
      3) Third Quarter (July 1 through September 30) – Report due by October 15
      4) Fourth Quarter (October 1 through December 31) – Report due by January 15

   b. Semi-Annual Monitoring Report

      B. First Semi-Annual (January 1 through June 30) – Report due by July 15
      C. Second Semi-Annual (July 1 through December 31) – Report due by January 15

   c. Annual Summary Report

      January 1 through December 31 – report due on January 15 of the following year.

   d. Five-Year COC Report

      "Direct Monitoring" of all Monitoring Points of water bearing media for all Constituents of Concern shall be sampled and analyzed, prior to commencing composting operations, and then quarterly for the first year, followed by every five (5) years, thereafter, with successive direct monitoring efforts being carried out alternately in the first quarterly monitoring period of one (1) 5-year COC sampling event (Monitoring Period ends March 31), and the third quarterly monitoring period (Monitoring Period end September 30) of the next 5-year COC sampling event, and every five (5) years thereafter. COC monitoring reports shall be submitted as follows:

      1) Upon adoption of Board Order No. R7-2002-0010, and prior to commencing composting operations, quarterly for the first year (year 2002), the Discharger shall sample quarterly, according to the following schedule:

         1st Quarter – March 2002
         2nd Quarter – June 2002
         3rd Quarter – September 2002
         4th Quarter – December 2002

         Submit the 2002 COC Reports with the Quarterly Monitoring Report.

2) Every five (5) years, beginning in the year 2007, the Constituents of Concern shall be sampled and analyzed, with direct monitoring efforts being carried out alternately in the first quarter (Reporting Period ends March 31) of one (1) 5-year COC sampling event, and the third quarter (Reporting Period ends September 30) of the next 5-year COC sampling event, then every five (5) years, thereafter. The COC Report shall be included with the appropriate quarterly monitoring report.

e. Contingency Report

The Discharger shall report to the Regional Board by telephone, and written report, concerning any fires, leachate spills, detected leaks, or tentative release, pursuant to Part I.E.2. of this program.

C. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analysis shall be performed according to the most recent version of Standard USEPA methods, and in accordance with an approved sampling and analysis plan. Water and waste analysis shall be performed by a laboratory approved 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, the Discharger is responsible for seeing that the laboratory analysis of all samples from Monitoring Points and Background Monitoring Points meet the following restrictions:

1. The methods and analysis and the detection limits used must be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e. "trace" or "ND") in data from the Background Monitoring Points for that medium, the analytical methods having the lowest "facility-specific method detection limit (MDL)", shall be selected from among those methods which would provide valid results in light of any "Matrix Effects" involved.

2. MDLs and PQLs shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. The MDL and PQL shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the laboratory, rather than simply being quoted from USEPA analytical method manuals. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with an estimate of the detection limit and quantitation limit actually achieved.

3. "Trace" results, results falling between the MDL and the facility-specific practical quantitation limit (PQL), shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run and by an estimate of the constituents concentration.

4. All QA/QC data shall be reported, along with the sample results to which it applies, including the method, equipment, and analytical detection limits, the recovery rates, an explanation of

any recovery rate that is less than 80%, 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 person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recovery.

5. 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, diethyhexyl phthalate, and di-n-octyl phthalate) during any given Reporting Period 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 Regional Board staff.

6. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.

7. In cases where contaminants are detected in QA/QC samples (i.e. field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

8. The MDL shall always be calculated such that it represents a concentration associated with a 99% reliability of a non-zero result.

D. RECORDS TO BE MAINTAINED

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

1. Identity of sample and the Monitoring Point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample;

2. Date and time of sampling;

3. Date and time that analyses were started and completed, and the name of the personnel performing each analysis;

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;

5. Calculations of results; and

6. Results of analyses, and the MDL and PQL for each analysis.

E. REPORTS TO BE FILED WITH THE BOARD

1. A written **"Detection Monitoring Report"** shall be submitted quarterly and semi-annually (Part II.B.2), in addition to an "Annual Summary Report". The Discharger shall also submit a report concerning the direct analysis of all Constituents of Concern as indicated in Part

II.B.3) (COC Report). All reports shall be submitted by the stipulated date of their respective Reporting Period as shown in the Summary of Monitoring and Reporting Requirements of this program. The reports shall be comprised of at least the following:

a. **Letter of Transmittal**: A letter transmitting the essential points in each report shall accompany each Monitoring Report. Such a letter shall include a discussion of any requirement violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations. If the Discharger has previously submitted a detailed time schedule for correcting said requirement violations, a reference to the correspondence transmitting the 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 a level of vice-president or above, or by his/her duly authorized representative, if such representative is responsible for the overall operation of the CMF 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. **Detection Monitoring Report and COC Report:** Each Report shall include a compliance evaluation summary. The summary shall contain at least:

    1) For each monitored ground water body, the Discharger shall include a description and graphical presentation of velocity and direction of the ground water flow under/around the Unit, based upon water level elevation taken during the collection of the water quality data submitted in the report;

    2) Pre-sampling Purge for Samples Obtained From Monitoring Wells: For each monitoring well addressed by the report, the Discharger shall include a description of the time and method of water elevation measurement, the type of pump used for purging, pump placement in the well, and the purging method used (the pumping rate, equipment and methods used to monitor field pH, temperature, and electrical conductivity during purging, the calibration of field equipment, the results of pH, temperature, and electrical conductivity, turbidity testing, well recovery time, and the method of disposing of the purge water);

    3) Sampling: For each Monitoring Point and Background Monitoring Point addressed by the report, the Discharger shall include a description of the type of pump or other device used, and its placement for sampling. The Discharger shall also include a detailed description of the sampling procedure (number and description of samples, field blanks, travel blanks, and duplicate samples taken, type of containers and preservatives used, date and times samples were taken, and any other observations); and

    4) Post-Sampling (Section 20415(e)(12)(B): For each monitoring well addressed by the report, the Discharger shall include a description of how the well was purged to remove all portions of the water that was in the well bore while the sample was being taken.

c. For each Detection Monitoring Report and each COC Report, the Discharger shall include a map showing the location of the observation stations, Monitoring Points, and Background Monitoring Points.

d. For each Detection Monitoring Report and each COC Report, the Discharger shall include laboratory statements of results of all analyses demonstrating compliance with Part I.C of the Monitoring and Reporting Program.

e. Each Detection Monitoring Report shall also include the following general observations:

1) A description of the general condition of the berms around the perimeter of the CMF and a description of storm water surface impoundment;

2) A description of the general condition of CMF's tipping areas, feedstock storage areas, composting channels, curing channels, leachate collection system and storage areas, including if any leachate was observed other than within the leachate collection system;

3) If there is a fire during the reporting period, a summary report transmitting the essential points of the cause of the fire and the estimated volume of water used to suppress it. A brief description of the management practices of the fire-water runoff shall be included in the quarterly report;

4) If pesticides and herbicides were used for pest or weed control during the reporting period, a summary including quantity applied shall be reported in the quarterly report;

5) Estimated quantity in tons and cubic yards of green waste, manures, food waste, recycled new drywall, palm fronds, and untreated wood received for composting feedstock and/or chipping and grinding during the reporting period;

6) Estimated quantities of compostable and composting materials in different stages on site;

7) Estimated quantity of finished composted product stored on-site;

8) Report any liquid found by the leak detection and removal system (LDRS) located between each of the leachate storage tanks and vault liners. Report the estimated volume, describe physical characteristics of the liquid, and what corrective action was taken to correct the leak or spill, and what plan will be implemented to prevent further discharge of leachate; and

9) After a storm event, if leachate is observed emanating from the compost piles, describe the physical characteristics and estimated volume of leachate.

f. A summary and certification of completion of all Standard Observations (Part I.B.4) for the perimeter of the CMF, and for the Receiving Waters.

2. Contingency Reporting:

a. The Discharger shall report by telephone concerning any leachate spills or detected leaks from the leachate collection system within 48 hours after it is discovered. A written

report shall be submitted to the Regional Board within seven (7) days containing, at a minimum, the following information:

1) A map showing the locations(s) of the discharge;

2) An estimate of the flow rate;

3) A description of the nature of the discharge (e.g., all pertinent observation and analyses; and

4) Corrective measures underway or proposed.

b. Should the initial statistical comparison (Part III.A.1) or non-statistical comparison (Part III.A.2) indicate for any Constituent of Concern or Monitoring Parameter, that a release is tentatively identified, the Discharger shall notify the Regional Board verbally immediately as to the Monitoring Point(s) and constituent(s) or parameter(s) involved. Within seven (7) days of such determination, the Discharger shall provide written notification by certified mail (Section 20420(j)(1), Title 27), and shall carry out a discrete retest pursuant to Parts II.B.1 and III.A.3. If the retest confirms the existence of a release, the Discharger shall carry out the requirements of Part I.E.2.d., below. In any case, the Discharger shall inform the Regional Board of the outcome of the retest as soon as the results are available, following up with written results submitted by certified mail within seven (7) days of completing the retest.

c. If either the Discharger, or the Regional Board's Executive Officer makes an independent determination that there is significant physical evidence of a release, the Discharger shall immediately notify the Regional Board of this fact (or acknowledge the Regional Board's determination) and shall carry out the requirements of (d) below for all potentially affected monitored media.

d. If the Discharger concludes that a release has been discovered:

1) If this conclusion is not based upon "direct monitoring" of the Constituents of Concern, then the Discharger shall, within 30 days, sample for all Constituents of Concern at all monitoring points and submit them for laboratory analysis. Within seven (7) days of receiving the laboratory analytical results, the Discharger shall notify the Regional Board of the concentration of all Constituents of Concern at each Monitoring Point.

2) The Discharger shall, within 90 days of discovering the release, submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program.

3) The Discharger shall, within 180 days of discovering the release, submit a preliminary engineering feasibility study for remediation.

e. Any time the Discharger concludes, or the Regional Board's Executive Officer concludes, that a liquid release from the Composting Management Unit has proceeded beyond the boundary, the Discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).

1) Initial notification to affected persons shall be accomplished within seven (7) days of making this conclusion and shall include a description of the Discharger's current knowledge of the natural extent of the release, and

2) Subsequent to initial notification, the Discharger shall provide updates to all Affected Persons, including any newly Affected Persons, within seven (7) days of concluding there has been any material change in the nature or extent of the release.

3. Annual Summary Report

The Discharger shall submit an Annual Summary Report on **January 15** of each year summarizing the previous monitoring year. The Reporting Period is January 1 through December 31. The Annual Summary Report shall contain:

a. A Graphical Presentation of Analytical Data (Section 20415(e)(14), Title 27). For each Monitoring Point and Background Monitoring Point, submit in graphical format the laboratory analytical data for all samples taken within at least the previous five (5) calendar years. Each such graph shall plot the concentration of one (1) or more constituents over time for a given Monitoring Point and Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. On the basis of any aberrations noted in the plotted data, the Regional Board's Executive Officer may direct the Discharger to carry out a preliminary investigation (Section 20080(d)(2), Title 27), the results of which will determine whether or not a release is indicated;

b. All monitoring analytical data obtained during the previous two (2) 6-month Reporting Periods, shall be presented in tabular form, as well as on 3.5" 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 1.4 MB 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 (Section 20420(h), Title 27), in that this facilitates periodic review by the Regional Board's statistical consultant;

c. A comprehensive discussion of the year's compliance record, and the results of any corrective actions taken, or planned, which may be needed to bring the Discharger into full compliance with the waste discharge requirements; and

d. A written summary of the ground water analyses, indicating any changes made since the previous annual report.

PART II: MONITORING AND OBSERVATION SCHEDULE

A. WASTE MONITORING

The Discharger shall report quarterly, as part of the Monitoring Report, pursuant to monitoring and reporting schedule in the Part III, Summary of Monitoring and Reporting Requirements of this program the following:

1. General Observations: The Discharger shall monitor the general observations of the CMF as specified in Part III.B.1. of this program, and submit observations with the quarterly detection monitoring reports by the dates specified in Part III, Reporting Summary of this program.

2. Leachate Storage Tank Liquid Waste Monitoring: If leachate has accumulated in the leachate storage tanks during reporting period, and is re-applied to the composting materials, the Discharger shall sample and analyze the liquid waste from each leachate storage tank for the constituents listed in Part III.B.3.b. of this program quarterly and semi-annually, as specified in the sampling and reporting frequency (Part III.B.3.b). The Discharger shall report the quarterly and semi-annually, as specified in Part III, Reporting Summary of this program.

3. Leak Detection and Removal System (LDRS) for the Leachate Tank Vaults: The monitoring system shall consist of independent monitoring devices placed above each vault liner and below each leachate storage tank to assist in determining, at the earliest opportunity, if a leak has occurred, and whether leachate is under the leachate storage tanks. The LDRS shall be monitored quarterly for liquid. If liquid is discovered, then the Discharger shall sample and analyze for the constituents listed in Part III.B.2. of this program and describe corrective measures planned or taken. If no liquid is discovered, then that fact shall be reported. The Discharger shall report quarterly, as specified in Part III.E. Reporting Summary of this program.

B. GROUND WATER AND VADOSE ZONE SAMPLING/ANALYSIS FOR DETECTION MONITORING

1. Thirty-Day Sample Procurement Limitation: For any given monitored medium, the samples taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given reporting period shall all be taken within a span not exceeding 30 days, and shall be taken in a manner that ensures sample independence to the greatest extent feasible (Section 20415(e)(12)(B), Title 27). Ground water sampling shall also include an accurate determination of the ground water surface elevation and field parameters (temperature, electrical conductivity, turbidity) for that Monitoring Point or Background Monitoring Point (Section 20415(e)(13), Title 27); ground water elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the Spring and Fall ground water flow rate/direction analyses required by Part II.B.6. Statistical or non-statistical analysis shall be carried out as soon as the data is available, in accordance with Part III of this program.

2. "Indirect Monitoring" for Monitoring Parameters listed in Part III,B. of this Monitoring and Reporting Program shall be monitored quarterly for each monitored medium, at all Monitoring Points assigned to Detection Monitoring (Part II.B.4.), and at all Background Monitoring Points. Quarterly Reporting Periods are as follows:

   First Quarter: January 1 through March 31 – Report due April 15

Second Quarter:	April 1 through June 30 – Report due July 15
Third Quarter:	July 1 through September 30 – Report due October 15
Fourth Quarter:	October 1 through December 31 – Report due January 15

Monitoring for Monitoring Parameters shall be carried out in accordance with Parts II,B.1., and III.C.1. of this program.

3. "Direct Monitoring" of all Constituents of Concern (COC) of all Constituents of Concern shall be sampled and analyzed, prior to commencing composting operations, and then quarterly for the first year, followed by every five (5) years thereafter. In the absence of a release being indicated (1) pursuant to Part III.A.2. and Part III.A.3. for a Monitoring Parameter, (2) based upon physical evidence, pursuant to Part I.E.2.c., or (3) by a study required by the Regional Board's Executive Officer based upon anomalies noted during visual inspection of graphically-depicted analytical data (Part I.E.3.a.), then the Discharger shall sample all Monitoring Points and Background Monitoring Points of water-bearing media for all Constituents of Concern every five (5) years beginning five (5) years after the quarterly 1st year sampling events, upon adoption of this Board Order, with successive direct monitoring efforts being carried out alternately in the first quarterly monitoring period of one (1) 5-year COC sampling event (Monitoring Period ends March 31), and the third quarterly monitoring period (Monitoring Period ends September 30) of the next 5-year COC sampling event, and every five (5) years, thereafter. Direct monitoring for Constituent of Concern shall be carried out pursuant to Part II.B.2. and Part III.C.2. of this program, and shall encompass only those Constituents of Concern that do not also serve as a Monitoring Parameter.

4. Monitoring Points and Background Monitoring Points for each Monitored Medium: The Discharger shall sample the following Monitoring Points and Background Monitoring Points pursuant to the sampling schedules give in Part II.B.2. and Part II.B.3 (immediately foregoing), taking enough samples to qualify for the most appropriate test under Part III.

   a. Ground water monitoring in the uppermost aquifer: The Monitoring Points shall consist of, at a minimum, one (1) background monitoring well and two (2) points of compliance monitoring wells to yield ground water samples from the upper most aquifer, or a sufficient number of Monitoring Points to provide the best assurance of the earliest detection of a release from the CMF. Ground water monitoring wells shall be installed, sampled and analyzed prior to commencing operation of the CMF. Upon installation of the ground water monitoring system, the Discharger will provide the Regional Board, pursuant to Title 27, with all pertinent ground water monitoring well information, including a map depicting the location and ground water elevation of each well.

      Upon receipt of the groundwater well information, this Monitoring and Reporting Program will be reopened to incorporate that information within this program.

   b. Vadose Zone Monitoring: Prior to commencing composting operations, the Discharger shall install vadose zone monitoring devices, pursuant to Title 27, immediately underlying the flexible membrane liner to provide the best assurance of the earliest possible detection of whether liquid has passed through the liner system at the CMF. The Discharger shall monitor quarterly, as specified in Part III.D of this program, and report quarterly, as specified in Part III, Reporting Summary. If the vadose zone monitoring device detects liquid, then the Discharger shall sample the liquid for the constituents listed in Part III.D. and follow the requirements specified in Part I.E,2.a., Contingency Reporting of this program.

Upon receipt of the vadose zone monitoring system information, this Monitoring and Reporting Program will be reopened to incorporate that information within this program.

5. Initial Background Determination: For the purpose of establishing an initial pool of background data for each Constituent of Concern (COC) at each Background Monitoring Point in each monitored medium (Section 20415(e)(6), Title 27):

   a. Whenever a new Constituent of Concern is added to the Water Quality Protection Standard, the Discharger shall collect at least one (1) sample quarterly for at least one (1) 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, the Discharger shall sample it at least quarterly for at least one (1) year, analyzing for all Constituents of Concern and Monitoring Parameters.

6. Quarterly Determination of Ground Water Flow Rate/Direction (Section 20415(e), Title 27): The Discharger shall measure the ground water level in each well and determine ground water flow rate and direction for each ground body described in Part II.B.4.a. at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective ground water body. This information shall be included in the quarterly monitoring reports required under Part II.B.2. of this Monitoring and Reporting Program.

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

A. The Discharger shall propose appropriate data analysis method(s) for the approval of the Regional Board's Executive Officer for comparing downgradient concentrations of each monitored constituent or parameter with its respective background concentration to determine if there has been a release from the CMF. Unless or until the Discharger proposes an alternative data analysis method(s) acceptable to the Regional Board's Executive Officer, the Discharger shall proceed sequentially down the list of statistical analysis methods listed in Part III.A.1., followed by the non-statistical method in Part III.A.2., using the first method for which the data qualifies. If an analysis tentatively indicates the detection of a release, the Discharger shall implement the retest procedure under Part III.A.3.

1. Statistical Methods: The Discharger shall use one (1) of the following statistical methods to analyze Constituents of Concern (COC) or Monitoring Parameters which exhibit concentrations exceeding their respective MDL in at least ten percent of the background samples taken during the Reporting Period. Except for pH, which uses a two-tailed approach, 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 (Section 20415(e)(8)(A). This method requires at least four (4) independent samples from each Monitoring Point and Background Monitoring Point during each sampling episode. It shall be used when the background data from the parameter or constituent, obtained during a given sampling period, has not more than 15% 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 against the pooled background data. 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, the Discharger shall conclude that a release is tentatively indicated from that parameter or constituent;

   b. One-Way Non-Parametric ANOVA (Kruskal-Wallis Test) followed by multiple comparisons. This method requires at least nine (9) independent samples from each Monitoring Point and Background Monitoring Point, therefore, the Discharger shall anticipate the need for taking more than four (4) 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, the Discharger shall conclude that a release is tentatively indicated for that parameter or constituent; or

c. Method of Proportions. This method shall be used if the "combined data set", the data from a given Monitoring Point in combination with 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 (9) down gradient 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, the Discharger 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., there is no release), the Discharger shall conclude that a release is tentatively indicated for that constituent or parameter;

d. Other Statistical Methods. These include methods pursuant to Section 20415(e)(8)(C-E), Title 27.

2. Non-Statistical Method. The Discharger shall use the following non-statistical method for the VOC_{water} and VOC_{spg} Composite Monitoring Parameters and for all Constituents of Concern which are not amenable to the statistical tests under Part III.A.1.; each of these groupings of constituents utilizes a separate variant of the test, as listed below. Regardless of the variant used, the method involves a two-step process: (1) from all constituents to which the variant applies, compile a list of those constituents which exceed their respective MDL in the downgradient sample, yet do so in less than ten percent of the applicable background samples; and (2) where several independent samples have been analyzed for that constituent at a given Monitoring Point from the sample which contains the largest number of constituents. Background shall be represented by the data from all samples taken from the appropriate Background Monitoring Points during that Reporting Period (at least one sample from each Background Monitoring Point). The method shall be implemented as follows:

   a. For the Volatile Organics Composite Monitoring Parameter for Water Samples (VOC_{water}): For any given Monitoring Point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all VOCs detectable using the appropriate USEPA method, including at least all 47 VOCs listed in Appendix I to 40 CFR 258, and all unidentified peaks. Compile a list of each VOC which (1) exceeds its MDL in the Monitoring Point sample (an unidentified peak is compared to its presumed (MDL), and also (2) exceeds its MDL in less than 10 percent of the samples taken during that Reporting Period from that medium's Background Monitoring Points. The Discharger shall conclude that a release is tentatively indicated for the VOC_{water} Composite Monitoring Parameter if the list either (1) contains two (2) or more constituents, or (2) contains one (1) constituent that exceeds its PQL;

   b. For Constituents of Concern: Compile a list of constituents that exceed their respective MDL at the Monitoring Point yet do so in less than 10 percent of the background samples taken during that Reporting Period. The Discharger shall conclude that a release is tentatively indicated if the list either (1) contains two (2) or more constituents, or (2) contains one (1) constituent which exceeds its PQL.

3. Discrete Retest (Section 20415(e)(8)(E), Title 27): In the event that the Discharger concludes that a release has been tentatively indicated (under Parts III.A.1. or III.A.2.), the Discharger shall, within 30 day of this indication, collect two (2) new suites of samples for the indicated Constituent(s) of Concern or Monitoring Parameter(s) at each indicating

Monitoring Point, collecting at least as many samples per suite as were used for the initial test. Re-sampling of the Background Monitoring Points is optional. As soon as the data is available, the Discharger shall rerun the statistical method (or non-statistical comparison) separately upon each suite of retest data. For any indicated Monitoring Parameter or Constituent of Concern at an affected Monitoring Point, if the test results of either (or both) of the retest data suites confirms the original indication, the Discharger shall conclude that a release has been discovered. All retests shall be carried out only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the Constituent of Concern or Monitoring Parameter which triggered the indication there, as follows:

a. If an ANOVA method was used, the retest shall involve only a repeat of the multiple comparison procedure, carried out separately on each of the two (2) new suites of samples taken from the indicating Monitoring Point;

b. If the Method of Proportions statistical test was used, the retest shall consist of a full repeat of the statistical test for the indicated constituent or parameter, using the new sample suites from the indicating Monitoring Point;

c. If the non-statistical method was used:

   1) Because the VOC Composite Monitoring Parameters (VOC_{water} and VOC_{spg}) each address, as a single parameter, an entire family of constituents which are likely to be present in any release, the scope of the laboratory analysis for each retest sample shall include all VOCs detectable in that retest sample(s). 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;

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

SUMMARY OF MONITORING AND REPORTING REQUIREMENTS

B. WASTE MONITORING

1. General Observations (Part II.E.1.e):

	Monitoring Frequency	Reporting Frequency
a. Condition of the berms around perimeter of the CMF and Storm water surface impoundment.	Quarterly	Quarterly
b. Conditions of green waste storage areas, composting, Curing, and screening areas.	Quarterly	Quarterly
c. A summary of Fire(s), if any. (Contingency Reporting within 48 hours, Summarize quarterly)	-----	Quarterly

d.	Summary of pesticides and herbicides, if any, for pest or weed control.	Quarterly	Quarterly
e.	Quantity/type of feedstock received during Reporting period.	Quarterly	Quarterly
f.	Estimated quantity of green waste, food waste, manures, drywall, and product at different stages at the site.	Quarterly	Quarterly
g.	Estimated volume of liquid leachate re-applied to compost.	Monthly	Quarterly
h.	Estimated quantity of finished compost stored on-site.	Quarterly	Quarterly
i.	General description of findings of LDRS monitoring.	Monthly	Quarterly
j.	General description of any findings of vadose zone monitoring.	Quarterly	Quarterly
k.	General description of feedstock/composting materials regarding emanating leachate after a storm event.	Quarterly	Quarterly
l.	Letter of transmittal.	------	Quarterly

2. Leachate Storage Tank Monitoring (Part II.A.2.):

   a. Description of monitoring devices

   b. If leachate has accumulated and is re-applied to the composting materials from the LCRS, then the following steps shall be followed:

      1) Pre-sampling – a description of the sampling location and procedures.

      2) Analyze liquid sample for the following constituents:

Parameters	Units	Sampling Frequency	Reporting Frequency
pH	pH Units	Monthly	Quarterly
Total Dissolved Solids	mg/L	Monthly	Quarterly
Specific Conductance	μmohs/cm	Monthly	Quarterly
Sulfate	mg/L	Monthly	Quarterly
Total Nitrogen	mg/L	Monthly	Quarterly
Nitrate	mg/L	Monthly	Quarterly
Phosphate	mg/L	Monthly	Quarterly
Carbonate	mg/L	Monthly	Quarterly
Total Coliform	MPN/100 ml	Monthly	Quarterly
Fecal Coliform/E. coli	MPN/100 ml	Monthly	Quarterly
E. coli	MPN/100 ml	Monthly	Quarterly
Arsenic	mg/L	Quarterly	Semi-Annual
Antimony	mg/L	Quarterly	Semi-Annual

Cadmium	mg/L	Quarterly	Semi-Annual

Parameters Continued	Units	Sampling Frequency	Reporting Frequency
Chromium	mg/L	Quarterly	Semi-Annual
Copper	mg/L	Quarterly	Semi-Annual
Lead	mg/L	Quarterly	Semi-Annual
Nickel	mg/L	Quarterly	Semi-Annual
Mercury	mg/L	Quarterly	Semi-Annual
Selenium	mg/L	Quarterly	Semi-Annual
Zinc	mg/L	Quarterly	Semi-Annual
Total Petroleum Hydrocarbons	mg/L	Quarterly	Semi-Annual

If there no leachate observed in the leachate storage tanks during the monitoring period, then state that fact in the monitoring report.

3. Leak Detection and Removal System (LDRS) for the Leachate Tank Vaults (Part II.A.3.):

   a. Description of monitoring devices

   b. If liquid is observed in the LDRS, then the following steps shall be followed:

      1) Pre-sampling – a description of the sampling location and procedures.

      2) Analyze liquid sample for the following constituents:

Parameters	Units	Sampling Frequency	Reporting Frequency
pH	pH Units	Monthly	Quarterly
Total Dissolved Solids	mg/L	Monthly	Quarterly
Specific Conductance	µmohs/cm	Monthly	Quarterly
Sulfate	mg/L	Monthly	Quarterly
Total Nitrogen	mg/L	Monthly	Quarterly
Nitrate	mg/L	Monthly	Quarterly
Phosphate	mg/L	Monthly	Quarterly
Carbonate	mg/L	Monthly	Quarterly
Total Coliform	MPN/100 ml	Monthly	Quarterly
Fecal Coliform	MPN/100 ml	Monthly	Quarterly
E Coli	MPN/100 ml	Monthly	Quarterly

Provide a description of corrective measures taken or planned.

If no liquid was detected in the LDRS, then state that fact in the monitoring report.

C. GROUND WATER DETECTION MONITORING (Part II.B.2):

The Monitoring Points shall consist of, at a minimum, one (1) background monitoring well and two (2) points of compliance monitoring wells to yield ground water samples from the upper most aquifer, or a sufficient number of Monitoring Points to provide the best assurance of the earliest detection of a release from the CMF. The ground water monitoring system shall be installed and sampled prior to commencing composting operations.

1. All ground water monitoring wells shall be sampled for quarterly for Monitoring Parameters listed below according to the following schedule:

   1st Quarter – January 1 through March 31
   2nd Quarter – April 1 through June 30
   3rd Quarter – July 1 through September 30
   4th Quarter – October 1 through December 31

Ground Water Monitoring Parameters	Units	Sampling Frequency	Reporting Frequency
Ground Water Elevation	0.01 feet (USGS Datum)	Quarterly	Quarterly
Temperature	°F	Quarterly	Quarterly
pH	pH Units	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Quarterly	Quarterly
Specific Conductance	µmohs/cm	Quarterly	Quarterly
Calcium	mg/L	Quarterly	Quarterly
Carbonate	mg/L	Quarterly	Quarterly
Chloride	mg/L	Quarterly	Quarterly
Iron	mg/L	Quarterly	Quarterly
Magnesium	mg/L	Quarterly	Quarterly
Total Nitrogen	mg/L	Quarterly	Quarterly
Nitrate	mg/L	Quarterly	Quarterly
Phosphate	mg/L	Quarterly	Quarterly
Sulfate	mg/L	Quarterly	Quarterly
Total Coliform	MPN/100 ml	Quarterly	Quarterly
Fecal Coliform	MPN/100 ml	Quarterly	Quarterly
E Coli	MPN/100 ml	Quarterly	Quarterly

2. Ground water samples shall be collected and analyzed for the Constituents of Concern listed below at each Monitoring Point and Background Monitoring Point prior to commencing composting operations and then on a quarterly basis for the first year, and then every five (5) years thereafter, pursuant to Part II.B.2. Direct monitoring for Constituents of Concern shall encompass only those COCs that do not also serve as a Monitoring Parameter. The Discharger shall follow schedules a and b, below:

   a. Upon adoption of Board Order No. R7-2002-0010, and prior to commencing composting operations, quarterly for the first year (year 2002), the Discharger shall sample quarterly, according to the following schedule:

      1st Quarter – March 2002

2nd Quarter – June 2002
3rd Quarter – September 2002
4th Quarter – December 2002

Submit the 2002 COC Reports with the Quarterly Monitoring Report.

3. Every five (5) years, beginning in the year 2007, the Constituents of Concern shall be sampled and analyzed … with direct monitoring efforts being carried out alternately in the first quarter (Reporting Period ends March 31) of one 5-year COC sampling event, and the third quarter (Reporting Period ends September 30) of the next 5-year COC sampling event, then every 5 years, thereafter, for the following constituents:

Constituents Of Concern	Units	Sampling Frequency	Reporting Frequency
		Quarterly (2002)	Quarterly (2002)
		Every 5 years, thereafter, to Be reported with the appropriate 1st or 3rd Quarterly Report of the 5-year COC sampling event	
pH	pH Units		
Total Dissolved Solids	mg/L		
Specific Conductance	μmohs/cm		
Carbonate	mg/L		
Chloride	mg/L		
Fluoride	mg/L		
Iron	mg/L		
Magnesium	mg/L		
Total Nitrogen	mg/L		
Nitrate	mg/L		
Phosphate	mg/L		
Sulfate	mg/L		
Total Coliform	MPN/100 ml		
Fecal Coliform/E. coli	MPN/100 ml		
E. coli	MPN/100 ml		
Arsenic	mg/L		
Antimony	mg/L		
Cadmium	mg/L		
Chromium, Total	mg/L		
Chromium VI	mg/L		
Copper	mg/L		
Lead	mg/L		
Nickel	mg/L		
Mercury	mg/L		
Selenium	mg/L		
Zinc	mg/L		
Volatile Organic Compounds	μg/L		

Semi Volatile Organic Compounds μg/L

D. VADOSE ZONE MONITORING

Prior to commencing composting operations, the Discharger shall install vadose zone monitoring devices, pursuant to Title 27, immediately underlying the flexible membrane liner to provide the best assurance of the earliest possible detection of whether liquid has passed through the liner system at the CMF.

1. The Discharger shall monitor for soil-pore liquid of the vadose zone monitoring system quarterly and report semi-annually in the absence of a release from the liner system. If liquid is detected by the monitoring devices, the liquid shall be sampled and analyzed for the following constituents:

Parameters	Units	Sampling Frequency	Reporting Frequency
pH	pH Units	Quarterly	Semi-Annually
Total Dissolved Solids	mg/L	Quarterly	Semi-Annually
Specific Conductance	µmohs/cm	Quarterly	Semi-Annually
Total Nitrogen	mg/L	Quarterly	Semi-Annually
Nitrate	mg/L	Quarterly	Semi-Annually
Total Coliform	MPN/100 ml	Quarterly	Semi-Annually
Fecal Coliform	MPN/100 ml	Quarterly	Semi-Annually
E Coli	MPN/100 ml	Quarterly	Semi-Annually

2. If the vadose zone monitoring device detects liquid, the Discharger shall immediately notify the Regional Board by telephone, pursuant to Part I.E.2., Contingency Reporting, of this program. Within seven (7) days of discovering a the liquid, the Discharger shall submit a report to the Regional Board (Part I.E.2.a.) that includes, at a minimum, a description of the discharge and what corrective measures are planned or underway. The Discharger shall forward the laboratory analytical results of the vadose zone sample(s) to the Regional Board within seven (7) days of receiving the laboratory results.

3. Within 30 days of confirmation that liquid waste has passed through the liner, the Discharger shall submit a technical report for the Executive Officer's approval that includes a workplan and time schedule for corrective action.

E. REPORTING SUMMARY

1. The Discharger shall arrange the data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the CMF is operating in compliance with waste discharge requirements.

2. Record of monitoring information shall include:

   a. The date, exact place, and time of sampling or measurement(s);
   b. The individual(s) who performed the sampling or measurement(s);
   c. The date(s) analyses were performed;
   d. The individual(s) who performed the analyses;

e. The analytical techniques or method used; and
f. The result of such analyses.

3. Each report shall contain the following statement:

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

   a. The authorization is made in writing by the person described above;
   b. The authorization specified an individual having responsibility for the overall operation of the regulated disposal facility; and
   c. The written authorization is submitted to the Regional Board's Executive Officer.

5. Report immediately any failure of the CMF Leachate Collection and Removal System to the Regional Board's Executive Officer and the Director of the County Environmental Health Department by telephone and follow-up by letter.

6. Monitoring reports shall be certified under penalty of perjury to be true and correct, and shall contain the required information at the frequency designated in this monitoring report.

7. **Quarterly Monitoring Reports** shall be submitted to the Regional Board in accordance with the following schedule:

   First Quarter Monitoring Report (January 1 through March 31) – Report due on April 15.

   Second Quarter Monitoring Report (April 1 through June 30) – Report due on July 15.

   Third Quarter Monitoring Report (July 1 through September 30) - Report due by October 15.

   Fourth Quarter Monitoring Report (October 1 through December 31) – Report due by January 15.

8. **Semi-Annual Monitoring Reports** shall be submitted to the Regional Board in accordance with the following schedule:

   First Semi-Annual Report (January 1 through June 30) – Report due by July 15.

   Second Semi-Annual Report (July 1 through December 31) – Report due by January 15.

9. **Annual Summary Report** (January 1 through December 31) – Report due by January 15.

10. **COC Report** – Quarterly for the first year, - Reports due with the Quarterly Reports, and then every five (5) years thereafter. The COC Report shall be submitted with the appropriate Quarterly Report – 5-year report due by either April 15, or by October 15, whichever is appropriate for the particular 5-year monitoring event pursuant to Part III.C.2.

11. **Contingency Reports – Within 48 hours.**

12. Submit Monitoring Reports to:

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

Ordered by: _____
Executive Officer

_____
Date