CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM R7-2016-0016
FOR
MAGMA POWER COMPANY, OWNER
CALENERGY OPERATING CORPORATION, OWNER/ OPERATOR
CLASS II SOLID WASTE MANAGEMENT FACILITY

Northwest of Westmorland – Imperial County

CONSISTS OF:

PART I

GENERAL REQUIREMENTS

A. GENERAL

1. This Monitoring and Reporting Program (MRP) describes requirements for monitoring a wastewater system and groundwater quality. This MRP is issued pursuant to California Water Code (Water Code) section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

2. Water Code section 13267 states, in part:

   "In conducting an investigation specified in subdivision (a), the Colorado River Basin Water Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Colorado River Basin Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Colorado River Basin Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

3. Water Code section 13268 states, in part:

   "(a) (1) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of § 13267, or failing or refusing to furnish a statement of compliance as required by subdivision (b) of Section 13399.2, or falsifying any information provided therein, is guilty of a misdemeanor, and may be liable civilly in accordance with subdivision (b). (b) (1) Civil liability may be administratively imposed by a Colorado River Basin Water Board in accordance with Article 2.5 (commencing with § 13323) of Chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars ($1,000) for each day in which the violation occurs."

4. The Discharger owns and operates the waste management Facility that is subject to Order R7-2016-0016. The reports are necessary to ensure that the Discharger complies with the Order. Pursuant to Water Code section 13267, the Discharger shall implement the MRP and shall submit the monitoring reports described herein.

5. All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. If composite samples are collected, the basis for

sampling (time or flow weighted) shall be approved by Colorado River Basin Regional Water Quality Control Board staff.

6. Field test instruments (such as those used to test pH, dissolved oxygen, and electrical conductivity) may be used provided that:

    a. The user is trained in proper use and maintenance of the instruments;

    b. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;

    c. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and

    d. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

7. The collection, preservation and holding times of all samples shall be in accordance with United States Environmental Protection Agency (USEPA) approved procedures. Unless otherwise approved by the Colorado River Basin Regional Water Quality Control Board Executive Officer, all analyses shall be conducted by a laboratory certified by the Environmental Laboratory Accreditation Program (ELAP) with the State Water Board's Division of Drinking Water. All analyses shall be conducted in accordance with the latest edition of the "Guidelines Establishing Test Procedures for Analysis of Pollutants" (40 CFR Part 136), promulgated by the USEPA.

B. DEFINITION OF TERMS

1. Affected Persons – all persons who either own or occupy land outside the boundaries of the parcel upon which a waste management unit (surface impoundment or impoundment) is located that has been or may be affected by the release of waste constituents from the unit.

2. Background Monitoring Point – a device (e.g. well) or location (e.g. a specific point along a lakeshore) that is upgradient or side gradient from the impoundment assigned by this MRP, where water quality samples are taken that are not affected by a release from the impoundment and that are used as a basis of comparison against samples taken from downgradient Monitoring Points. Alternatively (in accordance with Section 21750 (g)(7) of Title 27 of the California Code of Regulations), where hydrogeologic conditions do not allow the determination of the upgradient direction, or where sampling at other wells will provide a representative indication of background water quality, other wells may be used as the background monitoring point(s).

3. Constituents of Concern (COCs) – those constituents likely to be in the waste, or derived from waste constituents in the event of a release from the impoundment.

4. Matrix Effect – refers to any change 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 spill or release - that are present in the sample being analyzed.

5. Method Detection Limit (MDL) – the lowest constituent concentration that can support a non-zero analytical result with 99 percent reliability. The MDL is laboratory specific and should reflect the detection capabilities of specific procedures and equipment used by the laboratory.

6. Monitored Media – water - bearing media monitored pursuant to this Monitoring and Reporting Program. The Monitored Media may include: (1) groundwater in the uppermost aquifer, in any other portion of the zone of saturation (as defined in Title 27, Section 20164) in which it would be reasonable to anticipate that waste constituents migrating from the surface impoundment could be detected, and in any perched zones underlying the impoundment, (2) any bodies of surface water that could be measurably affected by a release, (3) soil-pore liquid beneath and/or adjacent to the surface impoundment, and (4) soil-pore gas beneath and/or adjacent to the surface impoundment.

7. Monitoring Parameters – the list of constituents and parameters used for the majority of monitoring activity.

8. Monitoring Point – a device (e.g. well) or location (e.g. a specific point along a lakeshore) that is downgradient from the surface impoundment assigned by this MRP, at which samples are collected for the purpose of detecting a release by comparison with samples collected at Background Monitoring Points.

9. Practical Quantification Limit (PQL) – the lowest constituent concentration at which a numerical concentration can be assigned with a 99 percent certainty that its value is within 10 percent of the actual concentration in the sample. The PQL is laboratory specific and should reflect the detection capabilities of specific procedures and equipment used by the laboratory.

10. 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. Unless otherwise stated, the due date for any given report shall be 30 days after the end of its Reporting Period.

11. Sample Size –

    a. For Monitoring Points – the number of data points obtained from a given Monitoring Point during a given Reporting Period – used for carrying out the statistical or non-statistical analysis of a given analyte during a given Reporting Period.

    b. For Background Monitoring Points – the number of new and existing data points from all applicable Background Monitoring Points in a given Monitored Medium – used to collectively represent the background concentration and variability of a given analyte in carrying out a statistical or non-statistical analysis of that analyte during a given Reporting Period.

12. Uppermost Aquifer – the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

13. Volatile Organic Constituents (VOCs) – the suite of organic constituents having a high vapor pressure. The term includes at least the 47 organic constituents listed in Appendix I to 40 CFR Part 258.

14. VOC_{water} – the composite monitoring parameter that includes all VOCs that are detectable in less than 10 percent of the applicable background samples. This parameter is analyzed, using the non-statistical method described in Part III.A.2. of this MRP, to identify releases of VOCs that are detected too infrequently in backgroundwater to allow for statistical analysis.

C. SAMPLING AND ANALYTICAL METHODS

1. Methods, analysis, and detection limits used must be appropriate for expected concentrations. For detection monitoring of any constituent or parameter found in concentrations that 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 method detection limit (MDL)", defined in Part I.B.5., shall be selected from among those methods that provide valid results in light of any "Matrix Effects" (defined in Part I.B.4.) involved.

2. Analytical results falling between the MDL and the PQL shall be reported as "trace", 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.

3. 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 equipment used by the lab. 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.

4. 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.

5. Upon receiving written approval from the Colorado River Basin Regional Water Quality Control Board 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 background or downgradient sample shall be reported and flagged for easy reference by Colorado River Basin Regional Water Quality Control Board staff.

6. 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.

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

D. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Colorado River Basin Regional Water Quality Control Board. Such records shall show the following for each sample:

1. Identity of sample and of 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 initials 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 COLORADO RIVER BASIN WATER BOARD

1. Detection Monitoring Reports – For each Monitored Medium, all Monitoring Points and Background Monitoring Points assigned to detection monitoring under Part II.B.7 of this MRP shall be monitored **quarterly** for the Monitoring Parameters (Part II.B.4). A "Detection Monitoring Report" shall be submitted to the Colorado River Basin Regional Water Quality Control Board in accordance with the schedule contained in the Summary of Self-Monitoring and Reporting Requirements, and shall include the following:

   a. A Letter of Transmittal that summarizes the essential points in each report shall accompany each report submittal. The letter of transmittal 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 of transmittal shall include:

i. A discussion of any violations noted since the previous report submittal and a description of the actions taken or planned for correcting those violations. If no violations have occurred since the last submittal, that should be so stated;

ii. If the Discharger has previously submitted a detailed time schedule or plan for correcting any violations, a progress report on the time schedule and status of the corrective actions being taken; and

iii. 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. A Compliance Evaluation Summary shall be included in each Detection Monitoring Report. The compliance evaluation summary shall contain at least:

i. Velocity and direction of groundwater flow for each monitored groundwater body under and around the surface impoundment based upon the water level elevations taken during the collection of water quality data. A description and graphical presentation (e.g., arrow on a map) shall be submitted;

ii. Methods used for water level measurement and pre-sampling purging for each monitoring well addressed by the report including:

1. Method, time, and equipment used for water level measurement;
2. Type of pump used for purging, placement of the pump in the well, pumping rate, and well recovery rate;
3. Methods and results of field testing for pH, temperature, electrical conductivity, and turbidity, including;

a. Equipment calibration methods, and
b. Method for disposing of purge water

iii. Methods used for sampling each Monitoring Point and Background Monitoring Point, including:

1. A description of the type of pump, or other device used, and its placement for sampling;
2. A detailed description of the sampling procedure: number and description of samples, field blanks, travel blanks, and duplicate samples; types of containers and preservatives used; date and time of sampling; name and qualifications of individual collecting samples, and other relevant observations;

c. A map or aerial photograph showing the locations of Monitoring Points, and Background Monitoring Points;

d. For each Detection Monitoring Report, provide all relevant laboratory information including results of all analyses, and other information needed to demonstrate compliance with Part I.C.;

e. An evaluation of the effectiveness of the run-off/run-on control facilities;

f. A summary of reportable spills/leaks occurring during the reporting period; include estimated volume of liquids/solids discharged outside designated containment area, a description of management practices to address spills/leaks, and actions taken to prevent reoccurrence.

2. Annual Summary Report – The Discharger shall submit to the Colorado River Basin Regional Water Quality Control Board, an "Annual Summary Report" for the period extending from April 1 through March 31. The "Annual Summary Report" is due **March 15** of each year, and shall include the following:

a. A graphical presentation of analytical data for each Monitoring Point and Background Monitoring Point (Title 27, Section 20415(e)(14)). The Discharger shall 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 Colorado River Basin Regional Water Quality Control Board Executive Officer may direct the Discharger to carry out a preliminary investigation (Title 27, Section 20080(d)(2)), the results of which will determine whether or not a release is indicated;

b. A tabular presentation of all monitoring analytical data obtained during the previous two (2) Monitoring and Reporting Periods, submitted digitally on electronic media in a file format acceptable to the Colorado River Basin Regional Water Quality Control Board Executive Officer (Title 27, Section 20420(h)).

c. A comprehensive discussion of the compliance record and any corrective actions taken or planned, which may be needed to bring the Discharger into full compliance with WDRs;

d. A written summary of the groundwater analyses, indicating changes made since the previous annual report; and

e. An evaluation of the effectiveness of the run on/run-off control facilities, pursuant to Title 27, Section 20365.

f. An evaluation of the effectiveness of the Leachate Collection and Removal System, pursuant to Section 20340, Title 27**.**

g. A map showing the area, if any, in which deposition of geothermal materials has been completed during the previous calendar year.

3. Contingency Reporting

a. The Discharger shall report any spill by telephone within 48 hours of discovery. .

After reporting a spill, a written report, uploaded to the GeoTracker Data Base, shall be filed with the Colorado River Basin Regional Water Quality Control Board Executive Officer within seven (7) days, containing at a minimum the following:

i. A map showing the location(s) of the discharge/spill;

ii. A description of the nature of the discharge (all pertinent observations and analyses including quantity, duration, etc.); and

iii. 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 immediately notify the Colorado River Basin Regional Water Quality Control Board verbally as to the Monitoring Point(s) and constituent(s) or parameter(s) involved, shall provide written notification by certified mail within seven (7) days of such determination (Title 27, Section 20420(j)(1)), and shall conduct a discrete retest in accordance with Part III.A.3. If the retest confirms the existence of a release, the Discharger shall carry out the requirements of Part I.E.3.d. In any case, the Discharger shall inform the Colorado River Basin Regional Water Quality Control Board of the outcome of the retest as soon as the results are available, following up with written results uploaded to the GeoTracker Data Base within seven (7) days of completing the retest.

c. If either the Discharger or the Colorado River Basin Regional Water Quality Control Board determines that there is significant physical evidence of a release (Title 27, Section 20385(a)(3)), the Discharger shall immediately notify the Colorado River Basin Regional Water Quality Control Board of this fact by uploading the information to the GeoTracker Data Base and shall carry out the requirements of Part I.E.3.d. for all potentially-affected monitored media.

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

i. If this conclusion is not based upon “direct monitoring” of the Constituents of Concern, pursuant to Part II.A.5., then the Discharger shall, within thirty 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 Colorado River Basin Regional Water Quality Control Board, by uploading to the GeoTracker Data Base the

concentration of all Constituents of Concern at each Monitoring Point. Because this scan is not to be tested against background, only a single datum is required for each Constituent of Concern at each Monitoring Point (Title 27 Section 20420(k)(1));

ii. The Discharger shall, within 90 days of discovering the release (Title 27, Section 20420(k)(5)), submit a Revised Report of Waste Discharge proposing an Evaluation Monitoring Program, meeting the requirements of Title 27, Section 20425; and

iii. The Discharger shall, within 180 days of discovering the release (Title 27, Section 20420(k)(6), submit a preliminary engineering feasibility study meeting the requirements of Title 27, Section 20430. Both requirements (ii. and iii.) shall be uploaded to the GeoTracker Data Base.

e. Any time the Discharger concludes - or the Colorado River Basin Regional Water Quality Control Board Executive Officer directs the Discharger to conclude - that a liquid phase release from the surface impoundment has proceeded beyond the facility boundary, the Discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).

i. Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the Discharger's current knowledge of the nature and extent of the release; and

ii. Subsequent to initial notification, the Discharger shall provide updates to all Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding a material change in the nature or extent of the release has occurred.

PART II

MONITORING REQUIREMENTS

A. WASTE MONITORING

Report the following quarterly:

1. A table reporting the amount of waste received in tons for each month of the previous reporting period;

2. A table presenting the amount of ponded liquid removed from the Monofill for each month of the previous reporting period. If no liquid is present to remove then the statement of "No liquids present" shall be put in the report;

3. Describe the general condition of the Monofill (general maintenance, condition of slopes, etc.);

4. A map showing the locations of all observation stations, groundwater monitoring wells, vadose wells, and any other monitoring points.

B. GROUNDWATER SAMPLING AND ANALYSIS FOR DETECTION MONITORING

1. Groundwater Surface Elevation and Field Parameters – Groundwater sampling and analysis shall be conducted quarterly pursuant to California ELAP rulings, and include an accurate determination of the groundwater surface elevation and field parameters (temperature, electrical conductivity, turbidity) for each Monitoring Point and Background Monitoring Point (Title 27, Section 20415(e)(13)). Groundwater elevation obtained prior to purging the well and sample collection, shall be used to fulfill the quarterly groundwater flow rate/direction analyses required under Part I.E.1.b.i. Groundwater wells shall be gauged using an electronic sounder capable of measuring depth to groundwater within 100^{th} of an inch. Following gauging, wells shall be purged according to EPA groundwater sampling procedures until:

   a. pH, temperature, and conductivity are stabilized within 10 percent, and
   b. turbidity has been reduced to 10 NTUs or the lowest practical levels achievable.

   The above identified parameters shall be recorded in the field, and submitted in the monitoring report. Sampling equipment shall be decontaminated between wells. Discharge to the ground surface is prohibited.

2. Groundwater Sample Collection - Groundwater samples shall be collected from all monitoring points and background monitoring points after wells recharge to within at least 80 percent of their original static water level. Groundwater samples shall be collected with a peristaltic pump that is decontaminated between sampling events. Samples shall be labeled, logged on chain-of-custody forms, and placed in cold storage pending delivery to a State certified analytical laboratory.

3. Five-Day Sample Procurement Limitation – To satisfy data analysis requirements for a given reporting period, samples collected from all Monitoring Points and Background Monitoring Points shall be taken within a span not exceeding five (5) days, and shall be taken in a manner that insures sample independence to the greatest extent feasible (Title 27, Section 20415(e)(12)(B)).

4. Groundwater Monitoring Parameters for Detection Monitoring – Groundwater samples collected from monitoring points and background monitoring points shall be analyzed for the following:

Parameter & Constituents	Unit	Sampled	Reported
Groundwater Elevations	USGS Datum	Quarterly	Quarterly
Temperature	°F	Quarterly	Quarterly
pH	#	Quarterly	Quarterly
Specific Conductance	μmhos/cm	Quarterly	Quarterly
Total Dissolved Solids (TDS)	mg/L	Quarterly	Quarterly
Arsenic	mg/L	Quarterly	Quarterly
Barium	mg/L	Quarterly	Quarterly
Cadmium	mg/L	Quarterly	Quarterly
Lead	mg/L	Quarterly	Quarterly
Zinc	mg/L	Quarterly	Quarterly
Sodium	mg/L	Quarterly	Quarterly
Sulfate	mg/L	Quarterly	Quarterly
Chloride	mg/L	Quarterly	Quarterly
Gross Alpha Particles	pCi/L	Quarterly	Quarterly
Gross Beta Particles	pCi/L	Quarterly	Quarterly

5. All Monitoring Points assigned to Detection Monitoring shall be sampled quarterly pursuant to the following schedule and for parameters listed in the Part II.B.4.

    1. First Quarterly Report (January 1st through March 31th) – Due by April 30th
    b. Second Quarterly Report (April 1st through June 30st) – Due by July 31st
    c. Third Quarterly Report (July 1st through September 30th) – Due by October 31st
    d. Forth Quarterly Report (October 1st through December 31st) – Due January 31st

6. Data Analysis – Statistical or non-statistical analysis shall be carried out as soon as the data is available, in accordance with Part III of this monitoring program.

7. Monitoring Points and Background Monitoring Points – The Discharger shall sample the following Monitoring Points and Background Monitoring Points in accordance with the sampling schedule given under Parts II.A.5. (immediately foregoing), obtaining sufficient samples to qualify for the most appropriate test under Part III. For groundwater in the upper most aquifer, the Monitoring Points shall be:

    a. Upgradient Well:

        i. Well W306

b. Downgradient Wells:

i. Well W302
ii. Well 305
iii. Well W309
iv. Well W307
v. Well W308
vi. Well W01
vii. Well W10A
viii. Well W09A
ix. Well W11
x. Well W12

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

a. Whenever a new Constituent of Concern is added to the Water Quality Protection Standard, including any added by the adoption of this Board Order, 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, including any added by this Order, the Discharger shall sample the new monitoring point at least **quarterly** for at least one (1) year, analyzing for all Constituents of Concern and Monitoring Parameters.

9. Quarterly Determination of Groundwater Flow Rate/Direction (Title 27, Section 20415(e)(15): The Discharger shall measure the water level in each well and determine groundwater flow rate and direction in each groundwater body described in Part II.A.1. at least quarterly. This information shall be included in the quarterly Detection Monitoring Reports required under Part I.E.1.

10. "Direct Monitoring" of all Constituents of Concern Every Five (5) Years. In the absence of a release being indicated (1) pursuant to Parts II.B.2. and 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.), the Discharger shall sample all Monitoring Points and Background Monitoring Points of water-bearing media, for all Constituents of Concern every fifth year, with successive direct monitoring efforts being carried out in 2004 and every fifth year, thereafter. Direct monitoring for Constituents of Concern shall be carried out in accordance with Part II.B.4 of this program, and shall encompass only those Constituents of Concern listed in the Summary of Self-Monitoring and Reporting Program.

C. LEACHATE COLLECTION AND REMOVAL SYSTEM (LCRS) MONITORING

The following are the monitoring and reporting requirements of the LCRS for each **quarterly** report:

1. The LCRS shall be inspected weekly and any liquid present shall be removed and stored in either an above ground storage tank or lined surface impoundment. The liquid removed shall have field Specific Conductance and pH readings taken and recorded;

2. A table presenting the amount of liquid removed from the LCRS for each month of the reporting period. If no liquid is present to remove then the statement "No liquid present" shall be reported in the report.

D. LEAK DETECTION SYSTEM (LDS) MONITORING

The following are the monitoring and reporting requirements of the LDS for each **quarterly** report.

1. Each LDS sump shall be monitored weekly and any liquid found shall be removed and stored in either above ground storage tanks or lined surface impoundments used for the LCRS liquids. The liquid removed shall have field Specific Conductance and pH readings taken and recorded;

2. A table presenting the amount of liquid removed from the LDS for each month of the previous reporting period. If no liquid is present then the statement "No liquid present" shall be reported in the report;

3. Should an amount of liquid or analysis of the liquid removed from the LDS alert the discharger that leak may be occurring from the primary liner, the discharger shall contact the Regional Board immediately.

E. VADOSE ZONE MONITORING

The following are the monitoring and reporting requirements of the vadose zone monitoring for each quarterly report.

1. The vadose zone monitoring system shall be monitored on a quarterly basis. The results shall be presented in a table and shall report, at a minimum, the last four measurements taken for each access tube;

2. A written summary of the vadose zone data collected and summary of what the data represents shall be submitted;

3. Should a moisture measurement alert the discharger that a liquid leak may be occurring from the Monofill, the discharger shall contact the Regional Board immediately.

PART III

STATISTICAL AND NON-STATISTICAL ANALYSES

A. STATISTICAL AND NON-STATISTICAL ANALYSIS

The Discharger shall use the following method to compare the downgradient concentration of each monitored constituent or parameter with its respective background concentration to determine if there has been a release from the surface impoundment. For any given data set, the non-statistical method shall be used. If that analysis tentatively indicates the detection of a release, implement the retest procedure under Part III.A.2.

1. Statistical Methods. The Discharger shall use one (1) of the following statistical methods to analyze Monitoring Parameters, which exhibit concentrations exceeding their respective MDL in at least 10 percent of the background samples taken during that Reporting Period. Except for pH, which uses a two (2)-tailed approach, the statistical analysis for all constituents and parameters shall be one (1)-tailed (testing only for statistically significant increase relative to background):

   a. One (1)-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 of 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, the Discharger shall conclude that a release is tentatively indicated from that parameter or constituent;

   b. One (1)-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 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) downgradient data points per Monitoring Point per Reporting Period, (2) requires at least 30 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., that there is no release), the Discharger shall conclude that a release is tentatively indicated for that constituent or parameter; or

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

2. Non-Statistical Method. The Discharger shall use the following non-statistical methods for all constituents that are not amenable to statistical analysis by virtue of having been detected in less than 10% of applicable background samples. A separate variant of this test is used for the VOC_{water} Composite Monitoring Parameters. Regardless of the test variant used, the method involves a two-step process: (1) from all constituents to which the test variant applies, compile a list of those constituents which equal or exceed their respective MDL in the downgradient sample from a given Monitoring Point, then (2) evaluate whether the listed constituents meet either of the test variant's two possible triggering conditions. For each Monitoring Point, the list described above shall be compiled based on either the data from a single sample taken during the Monitoring Period for that Monitoring Point, or (where several independent samples have been analyzed for that constituent at a given Monitoring Point) from the sample that contains the largest number of detected 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 (1) sample from each Background Monitoring Point). The method shall be implemented as follows:

   a. VOC_{water} Composite Monitoring Parameter – For any given Monitoring Point, the VOC_{water} Monitoring Parameter is a composite parameter addressing all detectable VOCs including at least all 47 VOCs listed in Appendix I to 40 CFR 258 and all unidentified peaks. The Discharger shall 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 ten 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 or more constituents, or (2) contains one constituent that exceeds its PQL;

b. Constituents of Concern: As part of the COC monitoring required under Part 2.A.5 of this MRP, for each Monitoring Point, the Discharger shall compile a list of COCs 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. The Discharger shall conclude that a release is tentatively indicated if the list either (1) contains two or more constituents, or (2) contains one constituent that exceeds its PQL.

3. Discrete Retest – 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 days of that conclusion, collect two (2) new suites of samples for the indicated Constituent(s) of Concern or Monitoring Parameter(s) at each indicated Monitoring Point, collecting at least as many samples per suite as were used for the initial test. Re-sampling of Background Monitoring Points is optional. As soon as the retest data is available, the Discharger shall use the same statistical method or non-statistical comparison separately on 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 that triggered the indication there, as follows:

a. If an ANOVA method was used in the initial test, 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, carried out separately on each of the two (2) new sample suites from the indicating Monitoring Point;

c. If the non-statistical comparison was used:

i. Because the VOC Composite Monitoring parameters (VOC_{water}) each address, as a single parameter, an entire family of constituents which are likely to be present in any surface impoundment 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 that initiated the retest;

ii. 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.

B. RESPONSES TO VOC DETECTION IN BACKGROUND

1. Except as indicated in Part III.B.2., below, any time the laboratory analysis of a sample from a Background Monitoring Point, sampled for VOCs under Part III.A., shows either (1) two or more VOCs above their respective MDL, or (2) one VOC above its respective PQL, then the Discharger 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 with 30 days. If either or both the new samples validates the presence of VOC(s) at that Background Monitoring Point, using the above procedure, the Discharger shall:

    a. Immediately notify the Regional Board about the VOC(s) verified to be present at that Background Monitoring Point, and follow up with written notification submitted by certified mail within seven (7) 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 WMF and proposing appropriate changes to the Monitoring Program.

2. If the Regional Board's Executive Officer determines, after reviewing the report submitted under Part III.B.1.b., that the VOC(s) detected originated from a source other than the WMF, the Regional Board's Executive Officer will make appropriate changes to the Monitoring Program.

3. If the Regional Board's Executive Officer determines, after reviewing the report submitted under Part III.B.1.b., that the detected VOC(s) most likely originated from the WMF, the Discharger shall assume that a release has been detected and shall immediately begin carrying out the requirements of Part I.E.2.d.

SUMMARY OF SELF-MONITORING

A. WASTE MONITORING

Report the following quarterly:

1. Record the total amount of waste in tons disposed of at the site during each month.

2. Table presenting amount of any ponded liquid removed from monofill

3. Discuss general condition of the monofill (maintenance, condition of berms, etc.)

4. A map showing the locations of all observation stations, groundwater monitoring wells, vadose wells, and any other monitoring point.

5. Include a description of the waste stream.

B. GROUND WATER ANALYSIS FOR DETECTION MONITORING

1. "Indirect Monitoring" for Monitoring Parameters completed **quarterly**. The ground water monitoring points assigned to Detection Monitoring in Part II.B.1. of this Program, and shall be sampled quarterly. The Detection Monitoring Points shall be sampled for the following Monitoring Parameters:

Parameter & Constituents	Unit	Sampled	Reported
Groundwater Elevations	USGS Datum	Quarterly	Quarterly
Temperature	°F	Quarterly	Quarterly
pH	#	Quarterly	Quarterly
Specific Conductance	μmhos/cm	Quarterly	Quarterly
Total Dissolved Solids (TDS)	mg/L	Quarterly	Quarterly
Arsenic	mg/L	Quarterly	Quarterly
Barium	mg/L	Quarterly	Quarterly
Cadmium	mg/L	Quarterly	Quarterly
Lead	mg/L	Quarterly	Quarterly
Zinc	mg/L	Quarterly	Quarterly
Sodium	mg/L	Quarterly	Quarterly
Sulfate	mg/L	Quarterly	Quarterly
Chloride	mg/L	Quarterly	Quarterly
Gross Alpha Particles	pCi/L	Quarterly	Quarterly
Gross Beta Particles	pCi/L	Quarterly	Quarterly

The collection, preservation and holding times of all samples shall be in accordance with United States Environmental Protection Agency (USEPA) approved procedures. Unless otherwise approved by the Regional Board's Executive Officer, all analyses shall be conducted by a laboratory certified by the State Water Resources Control Board's Division of Drinking Water. All analyses shall be conducted in accordance with the latest

edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" (40 CFR 136), promulgated by the USEPA.

2. "Direct Monitoring" of all Constituents of Concern Done **Every Five Years**. In the absence of a release being indicated (1) pursuant to Parts II.B.2. and 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.), the Discharger shall sample all Monitoring Points and Background Monitoring Points of water-bearing media, for all Constituents of Concern every five years. Direct monitoring efforts shall be carried out in 2004 and every five years thereafter. The Five-Year Constituents of Concern Report shall be submitted with the appropriate Annual Report for that five-year sampling event.

   Direct monitoring for Constituents of Concern shall be carried out pursuant to Parts II.B.2. and III of this program, and shall encompass only those Constituents of Concern that do not also serve as a Monitoring Parameter.

   The Constituents of Concern for water-bearing media (i.e. ground water, surface water, and soil-pore liquid) shall consist of the combined listing of all constituents listed in Appendices I and II, 40 CFR Part 258, in addition to:

Constituent	Units
Fluoride	mg/L
Nitrate	mg/L
Gross Alpha Particles	pCi/L
Gross Beta Particles	pCi/L
Cesium 137*	pCi/L
Cobalt 60*	pCi/L
Radium 226*	pCi/L
Potassium 40*	pCi/L
Thorium 228*	pCi/L
Thorium 232*	pCi/L
(* by gamma scan)	
Total Dissolved Solids	mg/L
pH	#
Electrical Conductivity	μmhos/cm

C. LEACHATE COLLECTION AND REMOVAL SYSTEM (LCRS) MONITORING

Report the following inspections and data quarterly:

1. Inspect weekly and remove any liquid
2. Table showing the amount of liquid removed from LCRS per month

D. LEAK DETECTION SYSTEM (LDS) MONITORING

Report the following inspections and data quarterly:

1. Inspect LDS weekly and remove any liquid
2. Table showing the amount of liquid removed from LDS per month

E. VADOSE ZONE MONITORING

Report the following quarterly:

1. Data from quarterly monitoring of vadose zone presented in tabular form.
2. Written summary of what the data represents.

F. ANNUAL REPORT

The Discharger shall submit an annual report to the Regional Board on March 15th of each year covering the previous monitoring year as described in Part I.3. of this Monitoring and Reporting Program.

SUMMARY OF REPORTING REQUIREMENTS

1. The Discharger shall arrange the data in tabular form so that the specified information is readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the facility is operating in compliance with Waste Discharge Requirements.

2. Records of monitoring information shall include:

   a. The date, exact place, and time of sampling or measurement(s);
   b. The individual(s) who performed the sampling or measurement(s);
   c. The date(s) analyses were performed;
   d. The individual(s) who performed the analyses;
   e. The analytical techniques or method used; and
   f. The results of such analyses.

3. Each report shall contain the following statement:

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

4. A duly authorized representative of the Discharger may sign the documents if:

   a. The authorization is made in writing by the person described above;

b. The authorization specified an individual or person having responsibility for the overall operation of the regulated disposal system; and

c. The written authorization is submitted to the Regional Board's Executive Officer.

5. Quarterly Monitoring Reports shall be submitted to the Regional Board quarterly according to the following schedule:

4. First Quarterly Report (January 1st through March 31th) – Due by April 30th
b. Second Quarterly Report (April 1st through June 30st) – Due by July 31st
c. Third Quarterly Report (July 1st through September 30th) – Due by October 31st
d. Fourth Quarterly Report (October 1st through December 31st) – Due January 31st

7. Annual Reports Annual Monitoring Reports shall be submitted to the Regional Board by March 15th of the each year, covering the Reporting Period from the previous January 1st through December 31st.

8. Five-Year COC Reports Continuing with the 2004 COC sampling event schedule, with successive sampling efforts being carried out 2004 and every fifth year thereafter, as long as the WMF is in operation and through the closure/post-closure period.

   The Five-Year COC Report shall be submitted with the appropriate Annual Report due on March 15th, pursuant to Parts II.B.2. and Summary of Monitoring and Reporting Programs of this Monitoring and Reporting Program.

9. Contingency Reports Notify immediately by telephone, and submit a written report pursuant to Part I.E.2. of this Monitoring and Reporting Program.

10. Submit Monitoring Reports to: The Discharger shall furnish, under penalty of perjury, technical monitoring program reports, and such reports shall be submitted according to Chapter 30, Division 3, Title 23 of the California Code of Regulations, as data uploads and in Portable Document Format (PDF) electronically over the internet into the State Water Board's GeoTracker database. The Facility is identified in the GeoTracker by the global identification number L10003472657 and in the California Integrated Water Quality Systems (CWIQS) by waste discharge identification (WDID) No. 7A 13 2197 001

Ordered by: Jose L. Angel

JOSE L. ANGEL, P.E.
Executive Officer

6/30/2016
Date