CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM R7-2016-0014
FOR
COUNTY OF IMPERIAL, DEPARTMENT OF PUBLIC WORKS, OWNER/OPERATOR
CALEXICO WASTE MANAGEMENT FACILITY
CLASS III MUNICIPAL LANDFILL

Calexico – Imperial County

CONSISTS OF

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SUMMARY OF SELF-MONITORING AND REPORTING REQUIREMENTS

PART I

GENERAL REQUIREMENTS

A. GENERAL

A Discharger who owns or operates a Waste Management Facility is required to comply with the provisions of Chapter 3, Subchapter 3, Article 1,Title 27, California Code of Regulations for the purpose of detecting, characterizing, and responding to releases to the ground water. Section 13267, California Water Code gives the Regional Board authority to require monitoring program reports for discharges that could affect the quality of waters within its region. State Water Resources Control Board Resolution 93-062 requires the Regional Board to implement federal Municipal Solid Waste Regulations that are contained in Title 40, Code of Federal Regulations, Parts 257 and 258. In addition, the Discharger shall enter all required information, monitoring data and reports into the online GeoTracker database as required by Division 3 of Title 27.

This Monitoring and Reporting Program (MRP) is issued pursuant to Provision No. 1 of Colorado River Basin Regional Water Quality Control Board (Colorado River Basin Water Board) Order R7-2016-0014. The principal purposes of a self-monitoring program by a waste discharger are:

1. To document compliance with discharge requirements and prohibitions established by the Colorado River Basin Water Board;

2. To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge;

3. To prepare water quality analyses; and

4. To prepare vadose zone (unsaturated zone) gas, if applicable, and liquid quality analysis.

B. DEFINITION OF TERMS

1. Affected Persons – all persons who either own or occupy land outside the boundaries of the parcel upon which the Facility is located that has been or may be affected by the release of leachate or waste constituents (in gas or liquid phase) from the Facility.

2. Background Monitoring Point – a device (e.g. well) or location (e.g. a specific point along a stream channel) that is upgradient or side gradient from the Facility, assigned by this MRP, where water quality samples are taken that are not affected by any release from the landfill and that are used as a basis of comparison against samples taken from downgradient Monitoring Points.

3. Constituents of Concern (COCs) – those constituents which are likely to be in the waste in the WMF or which are likely to be derived from waste constituents in the event of a release. The COCs for this facility are listed in the Summary of Self-Monitoring and Reporting Requirements.

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 – those water and/or gas-bearing media that are 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 WMF could be detected, and in any perched zones underlying the WMF, (2) any bodies of surface water that could be measurably affected by a release, (3) soil-pore liquid beneath and/or adjacent to the WMF, and (4) soil-pore gas beneath and/or adjacent to the WMF.

7. Monitoring Parameters – the short list of constituents and parameters used for the majority of monitoring activity. Monitoring for the short list of Monitoring Parameters constitutes “indirect monitoring” in that the results are used to indicate indirectly whether the longer list of COCs are being adequately contained.

8. Monitoring Point – a device (e.g. well) or location (e.g. a specific point along a lakeshore) that is downgradient from the landfill, 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. Standard Observations –

a. For Receiving Waters

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

ii. Discoloration and turbidity: description of color, source, and size of affected area;

iii. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;

iv. Evidence of beneficial use: presence of water-associated wildlife;

v. Flow rate; and

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

b. Along the Perimeter of the Facility:

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

ii. Evidence of odors: presence or absence, characterization, source, and distance of travel from source; and

iii. Evidence of erosion and/or of exposed refuse.

c. For the Landfill:

i. Evidence of ponded water at any point on the waste management facility (show affected area on map);

ii. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;

iii. Evidence of erosion and/or of daylighted refuse; and

iv. Standard Analysis and Measurements, which refers to:

1) Turbidity (only for water samples) in NTU;

2) Water elevation to the nearest 1/100th foot above mean sea level (only for groundwater monitoring); and

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

13. 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.

14. 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.

15. VOCwater – 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 background samples to allow for statistical analysis.

C. SAMPLING AND ANALYTICAL METHODS

Sampling 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 Colorado River Basin Water 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 Colorado River Basin Water 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 meets 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 percent 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.7., shall be selected from among those methods which would provide valid results in light of any "Matrix Effects" (defined in Part I.B.6.) involved.

2. "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 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 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.

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 percent, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recovery.

5. Upon receiving written approval from the Colorado River Basin Water Board's Executive Officer, an alternative statistical or non-statistical procedure can be used for determining the significance of analytical results for a constituent that is a common laboratory contaminant (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) during any given Reporting Period in which QA/QC samples show evidence of laboratory contamination for that constituent. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by the Colorado River Basin Water Board staff.

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

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

8. 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 (5) 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 Water 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 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 COLORADO RIVER BASIN WATER BOARD

1. Detection Monitoring Reports – For each Monitored Medium, all Monitoring Points and Background Monitoring Points that are assigned to detection monitoring under Part II.A.7 of this MRP shall be monitored semi-annually for the Monitoring Parameters (Part II.A.4), and every fifth year, alternating between fall and spring, for the direct analysis of all COCs (Part II.A.5). A "Detection Monitoring Report" and a "Constituents of Concern Monitoring Report" shall be submitted to the Colorado River Basin Water 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 summarizing the essential points in each report. 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 and each COC Report. The compliance evaluation summary shall contain at least:

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

        ii. The methods used for water level measurement and pre-sampling purging of each monitoring well including:

            1. The method, time, and equipment used for water level measurement;
            2. The type of pump used for purging, the placement of the pump in the well, the pumping rate, and the well recovery rate;

3. The methods and results of field testing for pH, temperature, electrical conductivity, and turbidity;
4. Equipment calibration methods; and
5. The method of disposing of purge water.

iii. The methods used for sampling each Monitoring Point and Background Monitoring Point addressed by the report 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 the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations).

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

d. For each Detection Monitoring Report and each COC Report, include laboratory statements of results of all analyses demonstrating compliance with Part I.C.;

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

f. A summary and certification of completion of all Standard Observations (Part I.B.12.) for the WMF, for the perimeter of the WMF, and for any receiving waters.

2. Annual Summary Report – The Discharger shall submit an annual report covering the period from January 1 through December 31 to the Colorado River Basin Water Board by February 15 of the following year. The "Annual Summary Report" 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 date, the Colorado River Basin Water 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 Monitoring and Reporting Periods, submitted on hard copy within the annual report as well as digitally on electronic media in a file format acceptable to the

Colorado River Basin Water Board Executive Officer (Title 27, Section 20420(h)). The Colorado River Basin Water Board regards the submittal of data in hard copy and on diskette CD-ROM as "...a form necessary for..." statistical analysis in that this facilitates periodic review by the Colorado River Basin Water Board's statistical consultant;

c. A comprehensive discussion of the compliance record and of any corrective actions taken or planned needed to bring the Discharger into full compliance with the Waste Discharge Requirements;

d. A written summary of the groundwater and soil-pore gas analyses, indicating any changes made since the previous annual report; and

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

3. Contingency Reporting

a. The Discharger shall report by telephone any seepage observed from the disposal area immediately after it is discovered. A written report shall be filed with the Colorado River Basin Water Board within seven (7) days, containing at least the following information:

i. A map showing the location(s) of seepage;

ii. An estimate of the flow rate;

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

iv. 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 Constituents of Concern or Monitoring Parameter, that a release is tentatively identified, the Discharger shall immediately notify the Colorado River Basin Water 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 carry out 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 Water 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 Colorado River Basin Water 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 Water Board by certified mail (or acknowledge the Colorado River Basin Water Board's determination) 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 <u>not</u> 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 Water Board, by certified mail, of 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.

e. Any time the Discharger concludes – or the Colorado River Basin Water Board Executive Officer directs the Discharger to conclude – that a liquid- or gaseous-phase release from the WMF 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 there has been any material change in the nature or extent of the release.

4. <u>Responses to VOCs Detected in Background Monitoring Points</u>

a. Except for VOCs validated as not having come from the landfill as determined under Part I.4.b, any time the laboratory analysis of a sample from a Background Monitoring Point, sampled for VOCs under Part II.A.4, shows <u>either</u> (a) two or more VOCs at-or-above their respective MDL, or (b) one (1) VOC above its respective PQL, then the Discharger shall immediately notify the Colorado River Basin Water Board by phone that possible background contamination has occurred, shall follow up with written notification by certified mail within seven (7) days, and shall obtain two (2) new independent VOC samples from that Background Monitoring Point and send them for laboratory analysis of all detectable VOCs within thirty (30) days. If either or both of the retest samples

validate the presence of VOC(s) at that Background Monitoring Point, the Discharger shall:

i. Immediately notify the Colorado River Basin Water Board regarding the VOC(s) verified to be present at that Background Monitoring Point, and follow up with written notification submitted by certified mail within seven (7) days of validation; and

ii. Within 180 days of validation, submit a report, acceptable to the Colorado River Basin Water Board Executive Officer, which examines the possibility that the detected VOC(s) originated from the Unit and proposing appropriate changes to the Monitoring Program.

b. If after reviewing the report submitted under Part I.E.4.a.ii, the Colorado River Basin Water Board Executive Officer determines that the VOC(s) detected originated from a source other than the WMF, the Executive Officer will make appropriate changes to the monitoring program.

c. If after reviewing the report submitted under Part I.E.4.a.ii, the Colorado River Basin Water Board Executive Officer determines that the detected VOC(s) most likely originated from the WMF, the Discharger shall conclude that a release has been detected and shall immediately begin carrying out the requirements of Part I.E.3.d.

PART II

MONITORING REQUIREMENTS

A. WATER AND SOIL-PORE GAS 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 insures sample independence to the greatest extent feasible (Title 27, Section 20415(e)(12)(B)).

2. Groundwater Surface Elevation and Field Parameters – Groundwater sampling shall include an accurate determination of the groundwater surface elevation and field parameters (temperature, electrical conductivity, turbidity) for that Monitoring Point or Background Monitoring Point (Title 27, Section 20415(e)(13)). Groundwater elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the semi-annual groundwater flow rate/direction analyses required under Part I.E.1.b.i.

3. 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.

4. Indirect Monitoring of Monitoring Parameters – All Monitoring Points and Background Monitoring Points assigned to Detection Monitoring (Part II.A.7 below) shall be sampled semi-annually during February-March and June-September of each year in accordance with Part I of this MRP. Results of the Indirect Monitoring shall be reported in the semi-annual Detection Monitoring.

5. Direct Monitoring of COCs – In the absence of a release being indicated as a result of (a) Monitoring Parameters (Parts II.A.4. and III.A.), (b), physical evidence (Part I.E.3.c.), or (c), a study required by the Colorado River Basin Water Board Executive Officer based upon anomalies noted during visual inspection of graphically-depicted analytical data (Part I.E.2.a.); the Discharger shall sample all Monitoring Points and Background Monitoring Points of water-bearing media (not including soil-pore gas), for all Constituents of Concern every fifth year with successive direct monitoring of COCs being carried out alternately in the Spring of year one (Reporting Period ends June 30), and the Fall of the fifth year thereafter (Reporting Period ends December 31). The last COC monitoring for this facility was performed in Spring 2011 making the next COC monitoring event required in Fall 2016. Direct Monitoring for COCs shall be carried out in accordance with Part I of this MRP, and shall encompass only those Constituents of Concern that do not also serve as a Monitoring Parameter. Results of the Direct Monitoring shall be reported in the COC Monitoring Report submitted every five (5) years.

6. Soil Pore Gas Monitoring – Soil Pore Gas Monitoring shall be done in accordance with the field sampling protocol described in the Summary of Self Monitoring and Reporting Programs, Section B.

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.4 and II.A.5. (immediately foregoing), taking enough samples to qualify for the most appropriate test under Part III.

    a. For groundwater in the upper most aquifer the Monitoring Points shall be:

        i. Background Monitoring

            1. Monitoring Well C-WW-4
            2. Monitoring Well C-WW-5

        ii. Point of Compliance Monitoring

            1. Monitoring Well C-WW-2
            2. Monitoring Well C-WW-7

    b. For soil pore gas, the monitoring points shall be located along the perimeter of the landfill footprint within less than 1000 feet of each other.

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 in each monitored medium (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 Board Order, the Discharger shall sample it 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 including the times of expected highest and lowest elevations of the water level for the respective groundwater body. This information shall be included in the semi-annual Detection Monitoring Reports required under Part I.E.1.

PART III:

STATISTICAL AND NON-STATISTICAL ANALYSES

A. The Discharger shall use the most appropriate of the following methods 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 WMF. For any given data set, 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 that analysis tentatively indicates the detection of a release, implement the retest procedure under Part III.A.3.

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

   a. One-Way Parametric Analysis of Variance ANOVA followed by multiple comparisons (Section 20415(e)(8)(A), Title 27). 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 percent of the data below the 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 percent confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99 percent 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; or

   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 percent of the data below the PQL. The ANOVA shall be carried out at a 95 percent confidence level. Following the ANOVA, the data from each downgradient Monitoring Point shall be tested at a 99 percent 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 data from the Background Monitoring Points, has between 50 percent and 90 percent 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 percent 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).

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 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 retest data is available, the Discharger shall rerun the 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) 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:

      1) Because the VOC Composite Monitoring Parameters (VOC_{water} or VOC_{spg}) each address, as a single parameter, an entire family of constituents, which are likely to be present in any landfill release, the scope of the laboratory analysis for each retest sample shall include all VOCs detectable in that retest sample. Therefore, a confirming retest for either parameter shall have validated the original indication even if the suite of constituents in the confirming retest samples(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 SELF-MONITORING AND REPORTING PROGRAMS

A. WASTE MONITORING (In the Landfill)

Report the following semi-annually as part of the Semi-Annual Monitoring Reports in accordance with the reporting schedule in Section C.7. below:

1. Record the total volume and weight of refuse in cubic yards and tons disposed of at the site during each month, showing locations and dimensions on a sketch or map.

2. Record a description of the waste stream, including the percentage of the waste type (i.e., residential, commercial, industrial, or construction debris).

3. Record the location and aerial extent of disposal of each waste type.

B. ON-SITE OBSERVATIONS

1. Report the following semi-annually as part of the Semi-Annual Monitoring Reports in accordance with the reporting schedule in Section C.7. below:

Station	Description	Observation	Observation Frequency
V-1 through V-'n'	Located on waste disposal area as delineated by a 500-foot grid network	Standard Observations for the WMF	Weekly
P-1 through P-'n'	Located at equidistant intervals not exceeding 1000 feet around the perimeter of the WMF	Standard Observations for the perimeter	Weekly

2. Annually, prior to the first day of November, any necessary erosion control measures shall be completed, pursuant to Board Order R7-2016-0014. The report on such corrective measures shall be submitted to the Colorado River Basin Water Board by November 15 each year.

C. GROUNDWATER MONITORING

1. The groundwater monitoring wells shall be sampled semi-annually. The samples shall be analyzed for the following:

Parameters and Constituent	Unit	Type of Sample	Reporting Frequency
1. pH	pH units	Field Measurement	Semi-Annually
2. Total Dissolved Solids	mg/L	Grab	Semi-Annually
3. Chloride	mg/L	Grab	Semi-Annually
4 Sulfate	mg/L	Grab	Semi-Annually

5.	Nitrate (as N)	mg/L	Grab	Semi-Annually
6.	Groundwater elevation (USGS Datum)	feet	Measurement	Semi-Annually
7.	Volatile Organics (EPA Methods 8260)	ug/L	Grab	Semi-Annually
8.	Specific Conductance	Microhms/cm	Field Measurement	Semi-Annually
9.	Dissolved Oxygen	mg/L	Field Measurement	Semi-Annually
10.	Temperature	^{o}F	Field Measurement	Semi-Annually
11.	Turbidity	NTU	Field Measurement	Semi-Annually

2. The groundwater shall be sampled every five (5) years, with the next monitoring event to be performed in the Fall of 2016, and alternating between Fall and Spring of each five (5) year reporting period thereafter, for the following:

<u>Constituents of Concern:</u>

1. Total Dissolved Solids
2. Bicarbonate (HCO_3)
3. Carbonate ($CaCO_3$)
4. Total Alkalinity
5. Hydroxide
6. Fluoride
7. Dissolved Oxygen
8. Phosphate
9. Total Phosphate
10. Chemical Oxygen Demand
11. Total Hardness
12. Boron
13. Calcium
14. Magnesium
15. Potassium
16. Sodium
17. Iron
18. Manganese
19. Zinc
20. Antimony
21. Arsenic
22. Barium
23. Beryllium
24. Cadmium
25. Chromium, Total
26. Cobalt
27. Lead
28. Mercury
29. Nickel
30. Selenium
31. Silver
32. Thallium
33. Tin
34. Vanadium
35. Chromium, hexavalent

36. 40 CFR, Appendix II Pesticides
37. 40 CFR, Appendix II Herbicides
38. Volatiles (Method 8260)
39. 40 CFR, Appendix II Semi Volatiles
40. Sulfide
41. pH
42. Specific Conductance
43. Chloride
44. Nitrate (as Nitrogen)
45. Phenols (EPA Method 8270)
46. Cyanide

3. The collection, preservation, and holding times of all samples shall be in accordance with the U.S. Environmental Protection Agency approved procedures. All analyses shall be conducted by a laboratory certified by the State Water Resources Control Board's Division of Drinking Water to perform the required analyses.

D. GAS MONITORING

The Discharger shall monitor the vadose zone perimeter monitoring system, as described in Part II.A.7., quarterly and report the findings to the Colorado River Basin Water Board. The Discharger shall use a field screening protocol for soil gas monitoring at the site. A calibrated field instrument, such as a Landtec GEM 500 or equivalent, shall be used to measure total organic compounds as methane at each of the monitoring probes. If a field measurement of 5% or greater methane is detected, a soil pore gas sample will be collected in accordance with acceptable standard procedures and submitted for laboratory analysis of VOC's by EPA method TO-1 5 and methane by ASTM D1946.

E. REPORTING

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 in Part I.1.a;

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

   c. The written authorization is submitted to the Colorado River Basin Water Board Executive Officer.

5. Report immediately any failure in the waste disposal system to the Colorado River Basin Water Board Executive Officer and the Director of the County Environmental Health Department by telephone with a follow-up 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. Semi-Annual monitoring reports shall be submitted to the Colorado River Basin Water Board in accordance with the following schedule.

   a First semiannual report (January through June) report due by October 30
   b Second semiannual report (July through December) report due by April 30

8. Annual monitoring reports shall be submitted to the Colorado River Basin Water Board by April 30 of each year.

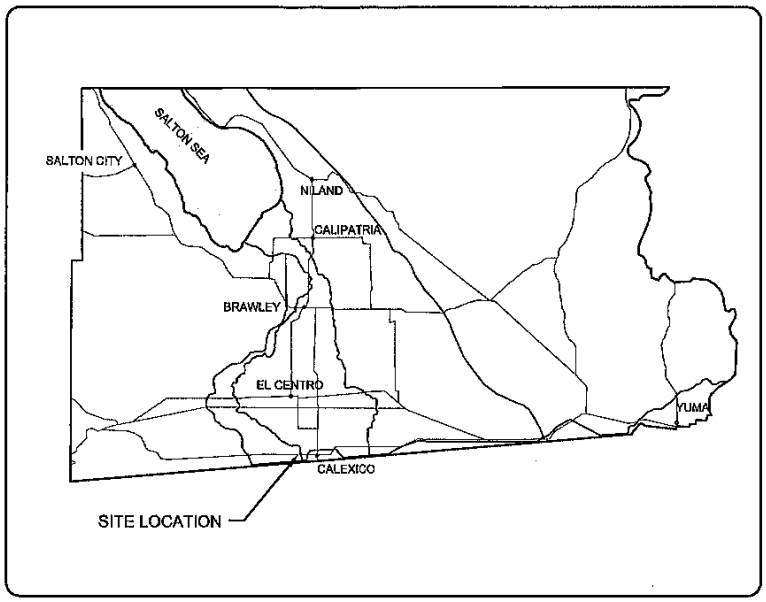
9. Five (5) year reports shall be submitted to the Colorado River Basin Water Board, commencing in the Fall of 2015 and every five (5) years after that, in accordance with the following schedule:

   a. Reports due by October 30 for testing done in the Spring
   b. Reports due by April 30 for testing done in the Fall.

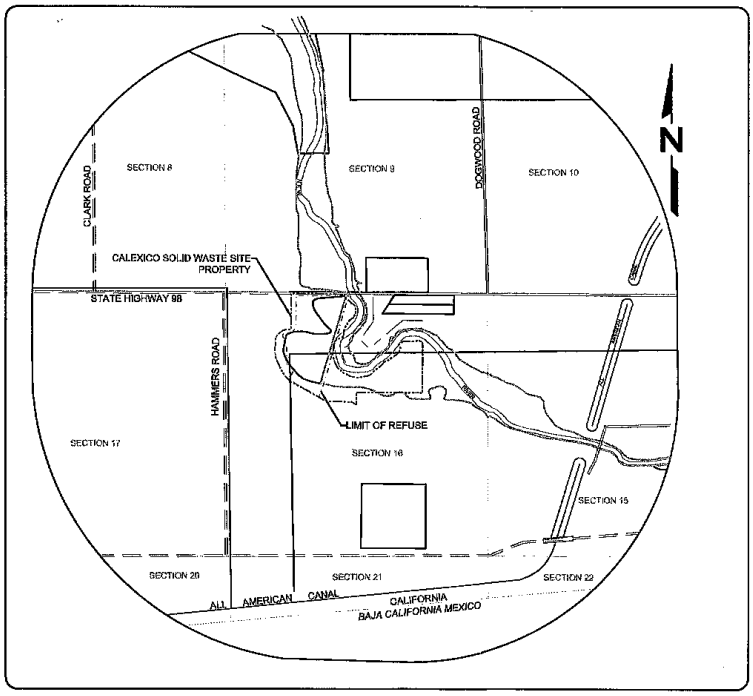
10. Submit Monitoring Reports to the online GeoTracker database as required by Division 3 of Title 27.

Ordered by: Jose L. Angel
JOSE L. ANGEL, P.E.
Executive Officer

June 30, 2016
Date

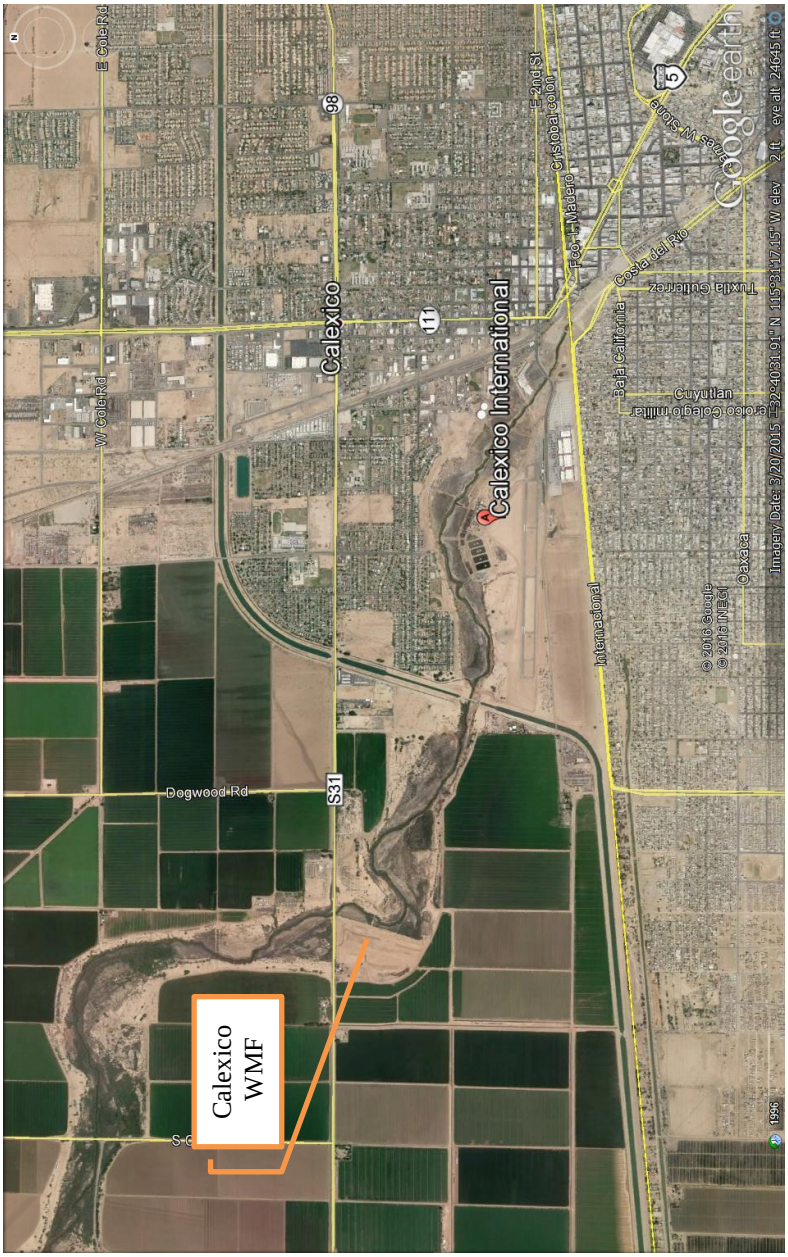


IMPERIAL COUNTY

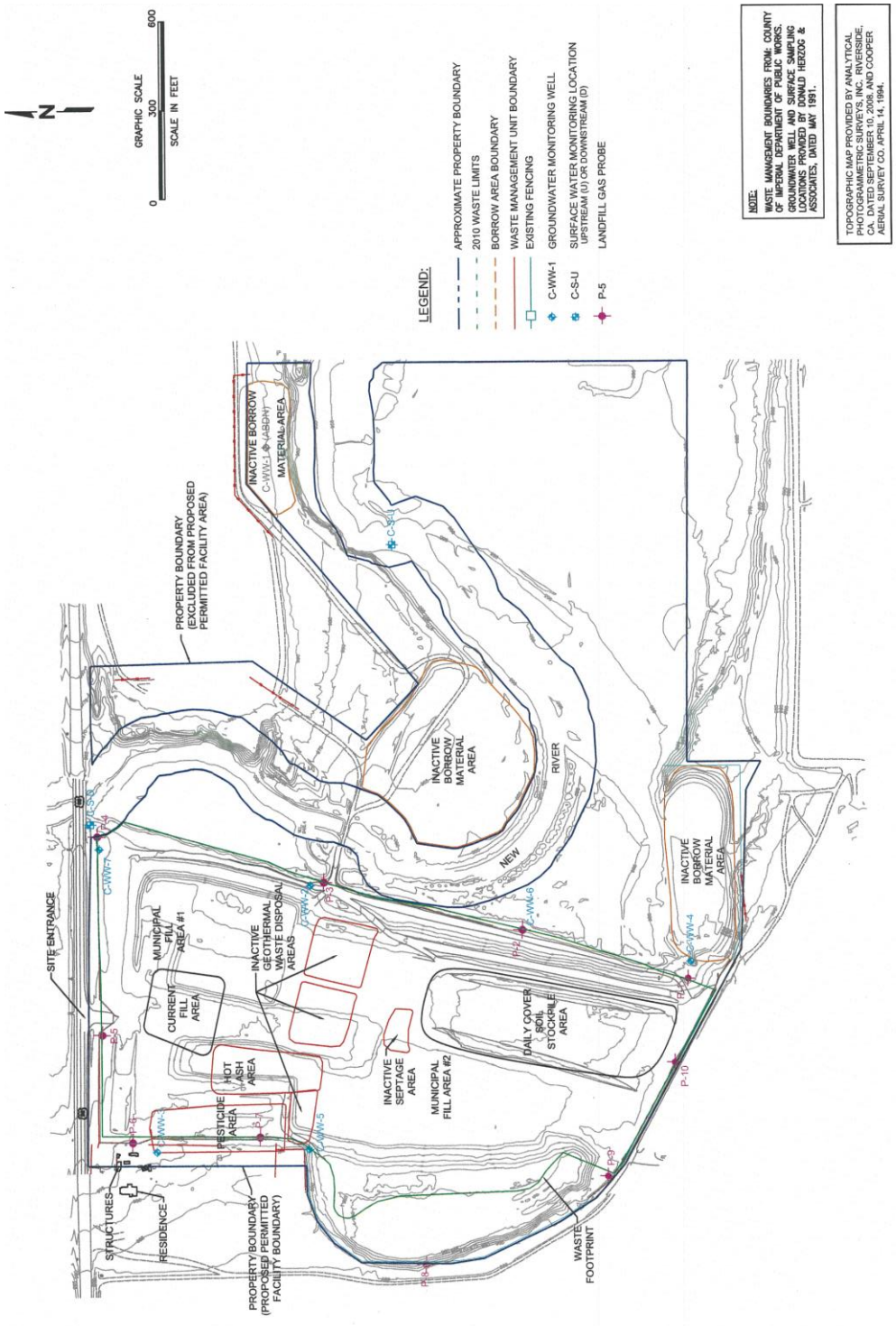


GRAPHIC SCALE
0 4,000 8,000
SCALE IN FEET

Attachment A
Calexico Waste Management Facility – Location Map
Imperial County Department of Public Works
Calexico, Imperial Valley



Attachment B
Calexico Waste Management Facility – Site Layout and Land Use
Imperial County Department of Public Works
Calexico, Imperial Valley



Attachment C
Calexico Waste Management Facility – Monitoring Wells and Disposal Areas
Imperial County Department of Public Works
Calexico, Imperial Valley