California Regional Water Quality Control Board
Santa Ana Region

September 16, 2010

STAFF REPORT

ITEM: ***8**

SUBJECT: Revision of Waste Discharge Requirements for Orange County Waste & Recycling, Santiago Canyon Landfill, Order No.R8-2010-0019

DISCUSSION:

Orange County Waste & Recycling (hereinafter Discharger) owns and operates the Santiago Canyon Landfill (SCL) located at 3099 Santiago Canyon Road. The SCL is a Class III landfill that ceased accepting waste on October 1, 1996.

SCL is currently regulated by Waste Discharge Requirements (WDR) Order Nos. 80-153, 89-34, 98-99, and State Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste. On December 15, 1999, the Discharger submitted a closure plan that proposed an engineered alternative cover consisting of a 5-foot-thick evapo-transpirative (ET) monolithic cover design topped with vegetation native to the local area. On November 14, 2001, Regional Board staff approved the Final Closure and Post-Closure Maintenance Plan for the SCL.

On May 30, 2005, the Discharger submitted the final *As-Built Construction Quality Assurance (CQA)* report for the SCL. Based on Regional Board staff's review of the report and an inspection of the completed final landfill ET cover system, staff agreed that the cover system at the landfill had been constructed in accordance with the approved plans and specifications, and in accordance with Title 27§20080(d), and Title 40, Code of Federal Regulations (CFR), Part 258, commonly referred to as Subtitle D. On June 27, 2005, Regional Board staff approved the final CQA report for the SCL, which finalized the closure of the site.

Proposed Order R8-2010-0019 replaces WDR Order Nos. 80-153, 89-34, and incorporates the post-closure requirements for the landfill as required by the California Code of Regulations Title 27.

RECOMMENDATION:

Adopt Order No.R8-2010-0019, as presented.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

ORDER NO. R8-2010-0019

CLOSURE WASTE DISCHARGE REQUIREMENTS FOR

OC WASTE & RECYCLING
SANTIAGO CANYON LANDFILL
CLASS III SOLID WASTE DISPOSAL SITE
ORANGE COUNTY

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter Board), finds that:

1. OC Waste & Recycling (hereinafter Discharger) owns and operates the Class III Santiago Canyon Landfill (SCL). The site is located at 3099 Santiago Canyon Road, approximately one-quarter of a mile east of the Eastern Transportation Corridor. The landfill is located in the map projection of Township 4 South, Range 8 West, Sections 38, 39, 69, and 70, SBB&M as shown on **Attachment A**, which is hereby made a part of this order.

2. The SCL is located in an area of complex hydrogeology. Available information on the hydrogeology of this site is limited. There are at least two distinct groundwater systems at this site, which consist of the southern and northern groundwater systems. The groundwater flow in both systems appears to be greatly influenced by faulting. The southern groundwater system appears to consist of a confined, southerly dipping bed of limited thickness with an approximate east-west strike. Groundwater flow appears to follow the plane of the dip in a south-southwest direction. The northern groundwater system appears to be strongly influenced by a series of faults and geologic contacts trending east-west across the northern part of the site. Groundwater underflow from the adjacent Irvine Lake and infiltration of surface runoff from the landfill and other adjacent surface drainages appear to contribute to this system, which exhibits a generally northern gradient.

3. Landfills are regulated by California Code of Regulations, Title 27 (Title 27). The terms used in this order are contained in Title 27, Subdivision 1, Chapter 2, §20150, §20163, §20164, and §20415.

4. SCL is currently regulated by Waste Discharge Requirements (WDR) Order Nos. 80-153, 89-34, 98-99, Monitoring and Reporting Program (M&RP) 98-99-01, and State Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste. This order updates and replaces WDR Order Nos. 80-153, 89-34, and removes SCL from WDR Order No. 98-99 and M&RP Order No. 98-99-01, Attachment 1, Item 4.

5. During its active life, the SCL accepted only non-hazardous municipal solid waste (MSW). On October 1, 1996, SCL ceased accepting waste. On December 15, 1999, the Discharger submitted a closure plan that proposed an engineered

alternative cover consisting of a 5-foot-thick evapo-transpirative (ET) monolithic cover design topped with vegetation native to the local area. On November 14, 2001, Regional Board staff approved the Final Closure and Post-Closure Maintenance Plan for the SCL.

6. On August 19, 2004, Regional Board staff approved a Revised Final Closure and Post-Closure Plan for the SCL, which included replacing the proposed vegetative cover with California coastal sage as part of a habitat restoration effort to mitigate habitat lost at another County landfill.

7. On May 17, 2005, the Discharger completed the final closure construction for the SCL. As installed, the engineered alternative final cover design consists of a 5-foot-thick ET cover, comprised of a 1.5 foot foundation layer and a 3.5 foot final cover. The cover overlies an area of 95.4 acres, and includes approximately 66 acres of side slopes and 29.4 acres of deck area. Additional activities during closure construction included: an upgrade of the landfill gas collection system, construction of drainage improvements and access roads, crew facility replacement, demolition of the scale house, construction of site fencing, and miscellaneous improvements needed for final closure.

8. On May 30, 2005, the Discharger submitted the final *As-Built Construction Quality Assurance (CQA)* report for the SCL. Based on Regional Board staff's review of the report and an inspection of the completed final landfill ET cover system, staff agreed that the cover system at the landfill had been constructed in accordance with the approved plans and specifications, and in accordance with Title 27§20080(d), and Title 40, Code of Federal Regulations (CFR), Part 258, commonly referred to as Subtitle D. Subtitle D applies to dischargers who own or operate landfills that accepted municipal solid waste on or after October 9, 1991, regardless of whether or not a permit was issued.

9. On June 27, 2005, Regional Board staff approved the final CQA report for the SCL, which finalized the closure of the site.

10. The Discharger has indicated in the Closure Plan for the landfill that the deed to the landfill property was filed on October 22, 2002. The deed restricts any post development of the landfill and includes a notation advising any potential purchaser of the property that:

    a. The parcel had been used as an MSW landfill;

    b. The land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the Post-Closure Plan and in WDRs for the landfill; and

    c. In the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.

11. A Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) became effective on January 24, 1995, and was updated in February 2008. The Basin Plan contains beneficial uses and water quality objectives for waters in the Santa Ana Region. The landfill overlies the Santiago Groundwater Management Zone (GMZ). This GMZ has the following beneficial uses:

    a. Municipal supply,

    b. Agricultural supply, and

    c. Industrial service supply.

12. Surface drainage in the area of the site is tributary to Reach 2 of the Santa Ana River, the beneficial uses of which include:

    a. Agricultural supply,

    b. Groundwater recharge,

    c. Water contact recreation,

    d. Non-contact water recreation,

    e. Warm freshwater habitat,

    f. Wildlife habitat, and

    g. Rare, threatened or endangered species.

13. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe closure waste discharge requirements.

14. The Regional Board, in a public meeting, heard and considered all comments pertaining to the order.

15. The SCL was originally regulated under Resolution No. 68-7, which the Regional Board adopted on April 26, 1968, and therefore this project is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21169, et seq.) in accordance with Section15261 (a) of Article 18, Division 6, Title 14 of the California Code of Regulations.

16. This Order supersedes WDR Order Nos. 80-153 and 89-34, which are hereby rescinded. It also removes SCL from WDR Order No. 98-99 and M&RP Order No. 98-99-01, Attachment 1, Item 4.

IT IS HEREBY ORDERED that the Discharger, in order to meet the applicable provisions contained in the California Water Code (CWC), Title 27, and 40CFR Part 258, shall comply with the following:

A. DISCHARGE SPECIFICATIONS

1. **GROUNDWATER:**

   Discharges from the site shall neither cause nor contribute to the contamination or pollution of ground water via the release of waste constituents in either the liquid or gaseous phase.

2. **SURFACE WATER:**

   Discharges from the site shall neither cause nor contribute to any surface water contamination, pollution, or nuisance, including, but not limited to:
   a. Floating, suspended, or deposited macroscopic particulate matter or foam;
   b. Increases in bottom deposits or aquatic growth;
   c. An adverse change in temperature, turbidity, or apparent color change beyond natural background levels and occurrences;
   d. The creation or contribution of visible, floating, suspended, or deposited oil or other products of petroleum origin; and
   e. The introduction or increase in concentration of toxic or other pollutants/ contaminants resulting in unreasonable impairment of beneficial uses of the waters of the State.

3. **UNSATURATED ZONE:**

   Discharges from the site shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials beneath or outside of SCL if such waste constituents could migrate to the waters of the State and cause a condition of contamination, pollution, or nuisance.

4. **PRECIPITATION AND DRAINAGE CONTROL**

   a. Waste management units shall be designed, constructed, and maintained to prevent, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, and washout which could occur as a result of precipitation from a 100-year, 24-hour frequency storm.
   b. The closed landfill shall be designed and constructed to achieve compliance with Title 27, §20365.
   c. Top deck surfaces shall be constructed to achieve a minimum one-percent slope and to direct flows to downdrains.
   d. Downdrains and other necessary drainage structures must be constructed for all sideslopes.

e. The gas condensate containment structures shall be protected and maintained continuously to prevent commingling of gas condensate with surface run-on and runoff and to ensure its effectiveness.

f. The closed landfill shall not cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act (CWA).

B. LIQUIDS USAGE:

The use of liquids, including groundwater or landfill gas condensate, for dust control or irrigation at the SCL is prohibited, unless they are used in accordance with an approved plan. Purged groundwater may be disposed at the site in accordance with requirements set forth in Resolution No.R8-2007-0036.

C. WATER QUALITY PROTECTION STANDARD

Unless the Discharger proposes, and the Regional Board approves, an alternative water quality protection standard that meets the requirements of both Title 27 §20390 and 40 CFR §258.50 et seq., the Discharger shall monitor compliance with this order using the water quality protection standard established by M&RP No. R8-2010-0019.

D. PROVISIONS

1. The Discharger shall comply with all discharge prohibitions, discharge specifications, provisions, and monitoring and reporting requirements of this order immediately upon its adoption.

2. The Discharger shall not cause the release of pollutants or waste constituents in a manner that could cause a condition of contamination, pollution, or nuisance to occur, as indicated by the most appropriate statistical or non-statistical data analytical method and retest method.

3. All wastes shall be maintained on property owned or controlled by the Discharger.

4. The discharge of all waste at a closed landfill is prohibited.

5. Post-closure maintenance of the SCL shall not cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the CWA.

6. The Discharger shall remove and properly dispose of any wastes that are placed at the site in violation of these requirements, and relocate that waste to an approved waste disposal facility.

7. The Discharger shall establish and maintain monuments in California coordinates (or equivalent) to define the boundary of the landfill footprint. The control

benchmarks shall be certified by a licensed surveyor or a professional civil engineer authorized to practice in California.

8. The ET cover thickness shall be maintained at all times.

9. The Discharger shall notify the Regional Board within 24 hours of any facility or slope failure necessary to maintain compliance with requirements within this order. A written notification shall be submitted to the Executive Office within five days. Any failure that threatens the integrity of containment features at the landfill shall be promptly corrected and a corrective action report submitted to the Executive Officer.

10. The Discharger shall implement the attached M&RP No. R8-2010-0019 in order to detect any unauthorized discharge of waste constituents from the landfill, or any unreasonable impairment of beneficial uses caused by or associated with discharges of waste to the landfill.

11. At any time, the Discharger may file a written request, including appropriate supporting documents, with the Regional Board, proposing modifications to M&RP No. R8-2010-0019. Once the revised M&RP has been approved by the Executive Officer, the Discharger shall implement any monitoring changes upon receipt of a signed copy of the revised M&RP.

12. The compliance period shall be in accordance with Title 27, §20410. At a minimum, the compliance period is equal to the active life of the landfill plus the closure period.

13. Concentration Limits – The concentration limit for any given Constituent of Concern (COC) or Monitoring Parameter in a given monitored medium at an MSW landfill shall be in accordance with Title 27, §20400.

14. The Discharger shall expand the existing landfill gas collection and recovery system, as necessary, to prevent the migration of landfill gas to groundwater and to the environment.

E. <u>CONTINGENCY RESPONSES</u>

1. **Leachate seep** – The Discharger shall immediately report by telephone the discovery of any seepage from, or soil staining at, the site. If feasible, a sample of the leachate shall be collected and analyzed. A corrective action report shall be submitted to the Regional Board within seven days, containing at least the following information:

    a. Map – A map showing the location(s) of seepage;

    b. Flow rate – An estimate of the flow rate or volume;

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

d. Corrective measures - Measures proposed to address any seep(s) for approval by Regional Board staff.

2. **An initial indication of a release** – Under Title 27, §20415, should the initial statistical or non-statistical comparison of the groundwater monitoring data for any COC or Monitoring Parameter indicate that a release is tentatively identified, the Discharger shall immediately notify the site's designated Regional Board staff person by phone. The Discharger shall also provide written notification by certified mail within seven days of such determination (Title 27, §20420(j)(1)) and shall carry out a discrete retest in accordance with Title 27, §20415(e)(8)(E). The Discharger shall inform Regional Board staff of the outcome of the retest as soon as the results are available, and follow up with written results submitted by certified mail within seven days of completing the retest.

3. **Retest** – If the retest confirms the existence of a release, the Discharger shall carry out the requirements of Title 27, §20420(k) and §20425.

4. **Physical evidence of a release** – If either the Discharger or Regional Board staff determines that there is significant physical evidence of a release (Title 27, §20385(3)), the Discharger shall conclude that a release has been discovered and shall:

   a. Immediately notify Regional Board staff of this fact by certified mail (or acknowledge Regional Board staff's determination);

   b. Carry out the requirements of Title 27, §20420(k) and §20425 for all potentially affected monitored media; and

   c. Carry out any additional investigations stipulated in writing by Regional Board staff for the purpose of identifying the cause of the release.

5. **Release beyond facility boundary** – Any time the Discharger or Regional Board staff concludes that a release from the landfill 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).

   a. **Initial notice** – 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.

   b. **Updated notice** – 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.

   c. **Submittal** – Each time the Discharger sends a notification to Affected Persons, the Discharger shall, within seven days of sending such notification,

provide Regional Board staff with both a copy of the notification and a current mailing list of all Affected Persons.

6. **Response to VOC detection in background**

   a. **Detection and verification** - Except for VOCs validated as not having come from the landfill, any time the laboratory analysis of a sample from a background monitoring point shows either three or more VOCs at or above their respective method detection limit (MDL), or one VOC at or above its respective practical quantitation limit (PQL), then the Discharger shall immediately notify Regional Board staff by phone that possible background contamination has occurred; shall follow up with written notification by certified mail within seven days; and within thirty days, shall obtain two new independent VOC samples from that background monitoring point and send them for laboratory analysis of all detectable VOCs. If either or both of these retest samples validate the presence of VOCs at that background monitoring point using the above procedure, the Discharger shall:

      i. **Notification** - Immediately notify Regional Board staff about the VOCs verified to be present at that background monitoring point, and follow up with written notification submitted by certified mail within seven days of validation; and

      ii. **Report** - Within 180 days of validation, submit a report, acceptable to Regional Board staff that examines the possibility that the detected VOC(s) originated from the SCL (e.g., using concentration gradient analyses) and proposes appropriate changes to the monitoring program.

   b. **VOCs not from landfill** - If, after reviewing the report, Regional Board staff determines that the VOC(s) detected originated from a source other than the Unit, the Regional Board will make appropriate changes to the monitoring program.

   c. **VOCs likely from landfill** - If, after reviewing the report, Regional Board staff determines that the detected VOC(s) most likely originated from the Unit, the Discharger shall be notified that a release has been detected and shall immediately begin carrying out the requirements of Title 27, §20420(k) and §20425.

F. <u>WATER SAMPLING AND ANALYSIS</u>

All water quality monitoring and sampling analysis for the monitored media, and the monitoring points and background monitoring points for each such medium, shall be in accordance with Title 27, §20415.

1. Monitoring parameters for the required monitoring program(s) at the landfill shall be approved by Regional Board staff. Regional Board staff may approve alternative monitoring parameters that meet the requirements of both Title 27, §§20380 et seq. and 40 CFR §258.54. Regional Board staff may also approve

alternative statistical methods that meet the requirements of Title 27, §20415(e) and 40 CFR §258.53.

2. **Latter third/thirty days** – For any given monitored medium, samples shall be taken from all monitoring points and background monitoring points to satisfy the data analysis requirements. All samples shall be taken during the latter third of the Reporting Period within a maximum of 30 days, and shall be taken in a manner that insures sample independence to the greatest extent feasible, in accordance with Title 27, §20415(e)(12)(B).

3. **Elevation/field parameters** – Shall be in accordance with Title 27, §20415(e)(13). Groundwater elevations shall be taken prior to purging the well and sampling for monitoring parameters and shall be used to fulfill the Spring and Fall groundwater flow rate/direction analyses required under item 5, below.

4. **Data analysis** – Data analysis shall be carried out as soon as the monitoring data are available, in accordance with Title 27, §20415(e).

5. **Groundwater flow rate/direction** – Shall be monitored in accordance with Title 27, §20415(e)(15). This information shall be included in the regular monitoring reports for the SCL.

G. POST-CLOSURE DRAINAGE AND EROSION CONTROL

1. Waste management units shall be designed, constructed, and maintained to prevent, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, and washout which could occur as a result of precipitation from a 100-year, 24-hour frequency storm. This shall be accomplished by, at a minimum, the following:

   a. Top deck surfaces shall be constructed to achieve a minimum of one percent (1%) slope, including structures which direct water to downdrains;

   b. Downdrains and other necessary drainage structures must be constructed for sideslopes as necessary; and

   c. Components which protect or convey drainage from the waste containment system must be designed and constructed to withstand site-specific maximum intensity precipitation (peak flow[1]) from a 100-year, 24-hour storm.

2. Leachate and landfill gas condensate containment system structures shall be protected and maintained to provide for their effectiveness and to prevent commingling of leachate and gas condensate with surface run-on and runoff.

3. The Discharger shall design, construct, and maintain:

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1 Peak flow is the maximum expected flow of run-on and runoff, resulting from precipitation both on and offsite for a given recurrence interval

a. A run-on drainage control system to prevent flow from off-site sources onto the disposal areas of the landfill (active or inactive portions), and to collect and divert the peak flow calculated volume from off-site sources that result from a 100-year, 24-hour storm;

b. A runoff drainage control system to collect and divert both the calculated volume of precipitation and the peak flow from on-site surface runoff that results from a 100-year, 24-hour storm.

4. All drainage structures shall be protected and maintained to assure their effectiveness.

5. Annually, by October 1, all drainage control system construction and maintenance activities shall be completed. By December 31 of each year, the Discharger shall submit a drainage control system maintenance report to staff of the Regional Board. The drainage control system maintenance report shall include, but not be limited to, the following information:

   a. For the previous 12 months, a summary of the adequacy and effectiveness of the drainage control system to collect and divert the calculated volume of precipitation and peak flows resulting from a 100-year, 24-hour storm;

   b. A tabular summary of both new and existing drainage control structures, including the types and completion dates of maintenance activities performed for each of these structures; and

   c. An 11"x17" or larger site map indicating the locations of the elements listed in Item b., above, and the flow direction of all site drainage.

6. At least 30 days prior to the construction of any new elements of the drainage control system, the Discharger shall submit a workplan outlining all design parameters and calculations, construction details, and a construction quality assurance plan for approval by Regional Board staff.

7. The Discharger shall submit as-built drawings within 4 weeks of completing construction of any new elements of the drainage control system at the site.

8. All design plans, construction plans, and operation and maintenance plans shall be prepared by, or prepared under the direct supervision of, a registered civil engineer or a certified engineering geologist.

9. Periodic inspection of all waste management units, the drainage control system, and all containment structures shall be performed to assess the conditions of these facilities, and to initiate corrective actions necessary to maintain compliance with **Provisions G.1 through G.5** of this order.

10. The facility shall be surveyed once a year either by aerial surveillance or a licensed surveyor to assure compliance with the one percent slope requirements.

By December 31 of each year, a map compiled from the survey data shall be submitted to Regional Board staff, showing landfill elevations, the flow direction of all site drainage, the drainage control system, and containment structures.

11. The Discharger shall notify the Regional Board staff site representative by telephone (951-782-4130) within 24 hours of determination of a failure of facilities necessary to maintain compliance with the requirements in this order. Within 5 days, the notification shall be submitted in writing to the Regional Board.

12. The Discharger shall maintain a copy of this order at the site so it is available at all times to site operating personnel.

13. The Discharger shall permit Regional Board staff:

    a. Entry upon premises where a discharge source is located;

    b. To copy any records required to be kept under the terms and conditions of this order;

    c. To photograph or videotape any structures, facilities, activities, or other phenomena that could result in adverse impacts to water quality and that are pertinent to compliance of the landfill with its WDRs; and

    d. To sample any discharges from the landfill.

14. The Discharger must perform all repair work that involves the integrity of the landfill's ET cover system in accordance with Title 27, §§ 20323 and 20324, which require the repair work to be carried out in accordance with an approved CQA plan.

15. The Discharger shall notify the Regional Board in writing of any proposed change in ownership or responsibility for construction, operation, closure, or post-closure maintenance of the landfill. This notification shall be given prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, and post-closure maintenance will be in compliance with any existing WDRs and any revisions thereof.

H. <u>REQUIRED REPORTS AND NOTICES</u>

1. REPORTING PROVISIONS:

    a. Applications, reports or information submitted to the Regional Board shall be signed and certified in accordance with 40CFR §122.22.

    b. The Discharger shall furnish, within a reasonable time, any information the Regional Board may request to determine whether cause exists for modifying, reissuing, or terminating this order. The Discharger shall also furnish to the Regional Board, upon request, copies of records that this order requires the Discharger to maintain.

2. The Discharger shall give advance notice to the Regional Board of any planned changes in the permitted facility or site activities that may result in noncompliance with these WDRs.

3. In the event of any change in control or ownership of land or waste discharge facilities currently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this order by letter. A copy of this letter shall be signed by the new owner accepting responsibility for complying with this order, and shall be forwarded to the Executive Officer of the Regional Board.

4. **CLOSURE AND POST-CLOSURE MAINTENANCE PLANS:**

   The Discharger shall implement the final Closure and Post-Closure Maintenance Plan, which was approved by Regional Board staff on August 19, 2004.

5. **FINANCIAL ASSURANCE PLANS:**

The Discharger shall obtain and maintain assurances of financial responsibility for:

a. Closure activities pursuant to Title 27 §22205;

b. Post-closure maintenance activities pursuant to Title 27 §22210;

c. Corrective action activities pursuant to Title 27 §22220.

I, Kurt V. Berchtold, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on September 16, 2010.

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Kurt V. Berchtold
Executive Office

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

ORDER NO. R8-2010-0019

MONITORING AND REPORTING PROGRAM
FOR
OC WASTE & RECYCLING
SANTIAGO CANYON LANDFILL
CLASS III SOLID WASTE DISPOSAL SITE
ORANGE COUNTY

A. GENERAL

1. The Discharger shall comply with all the monitoring programs required under this Monitoring and Reporting Program (M&RP).

2. Water Quality Protection Standard (Water Standard) – The Water Standard shall consist of the list of Constituents of Concern (COC) (under Title 27, §20395), the Concentration Limits (under Title 27, §20400), and the Point of Compliance and all Monitoring Points (under Title 27, §20405). The Water Standard shall apply during the active life of the landfill, the closure period, the postclosure maintenance period, and during any compliance period (under Title 27, §20410).

3. The Water Standard concentration limits shall be assumed to be equal to background concentration limits for all COCs unless the Discharger proposes, and the Regional Board approves, an alternative Water Standard. The Discharger shall perform all monitoring activities in compliance with the Water Standard, and the requirements of both Title 27, §20390 and 40 CFR §258.50 et seq.

4. The Concentration Limit for any given COC or Monitoring Parameter in a given monitored medium (e.g., the uppermost aquifer) shall be established in accordance with Title 27, §§20400 and 20415(e)(6, 7, and 10), and shall be used as the basis of comparison with data from the monitoring points in that monitored medium. Concentration Limits Greater than Background (CLGB), established pursuant to Title 27, §20400(c, d, and e) for each Appendix II constituent, are presented in Table 1 of this M&RP. Monitoring parameters, COCs, CLGB, data evaluation procedures, and reporting requirements for the required water quality monitoring programs for the SCL are specified in this M&RP. This M&RP may be revised and approved by the Executive Officer of the Regional Board if necessary to reflect changes in the required water quality programs.

5. The Regional Board shall specify the Points of Compliance at which the Water Standard applies, in accordance with Title 27, §20405. All Point of Compliance Monitoring Point and Background Monitoring Point locations and depths shall be in accordance with Title 27, §20415(a-d).

6. The compliance period of the Detection Monitoring Program (DMP) at SCL shall equal the active life of the landfill plus a 30 year closure period in accordance with Title 27, §20410. The compliance period may be extended if the facility is not in compliance with its Water Standard.

7. Sample collection, storage, and analysis shall be performed according to the most recent version of Standard U.S. EPA Methods (U.S. EPA Publication "SW-846").

8. **MONITORING PARAMETERS**

   a. The Discharger shall analyze separate water samples from each water-bearing medium for the monitoring programs and parameters approved (see **Attachment B**), and shall test the resulting data using one of the statistical or non-statistical methods listed in Title 27, §20415(e)(7) et seq. Monitoring parameters for the required monitoring program(s) at SCL shall be approved by the Executive Officer of the Regional Board. The Executive Officer may approve alternative monitoring parameters that meet the requirements of both Title 27, §§20380 et seq. and 40 CFR §258.54. The Executive Officer may also approve alternative statistical or non-statistical analytical methods that meet the requirements of Title 27, §20415(e) and 40 CFR §258.53.

   b. The VOCs listed as monitoring parameters in **Table 2** are based on a compilation of historical landfill gas and gas condensate data collected from SCL. The VOCs contained in **Table 2** were detected more than once (confirmed) in either landfill gas or gas condensate samples. The degradation by-products of the confirmed VOCs are also included in **Table 2**. The VOC monitoring parameters list will be updated annually as follows:

      i. Any Appendix I VOC or degradation by-products (**Table 4**) of confirmed VOCs that are detected in the landfill gas sample collected in October of each year and confirmed in the landfill gas sample collected in April of the following year will be permanently added to the VOC monitoring parameter list included in **Table 2**.

      ii. Any Appendix I VOC or degradation by-products of confirmed VOCs that are detected in the gas condensate sample collected in October of each year and confirmed in the gas condensate sample collected in April of the following year will be permanently added to the VOC monitoring parameter list included in **Table 2**.

   c. The groundwater monitoring parameters shall be evaluated as follows:

      i. **Monitoring parameters (metals surrogates) that use statistical data analysis methods**:

         (a) **Metals surrogates under 40 CFR §258.54(a)(2) -** pH, chloride, nitrate as nitrogen, and total dissolved solids shall be analyzed using an intrawell statistical analysis method specified in Title 27,

§20415(e)(8)(C, D, and E). If using SANITAS™, the Discharger shall use the "CA Standards" settings. Other inorganic monitoring parameters, in particular those that can be naturally-occurring (such as metals), shall be evaluated using time-series concentration plots.

ii. **Monitoring parameters (VOCs) that use non-statistical data analysis methods (see Figure 1 for flowchart of data evaluation and retesting procedures)**:

(a) **VOCs-** A release of VOCs in a DMP well will have tentatively occurred if either of the two following triggering conditions is met:
(i) Three or more VOCs exceed their laboratory method detection limits (MDLs) in the sample; or
(ii) One or more VOCs exceed their laboratory practical quantitation or reporting limit (PQL or RL) in the sample.

(b) If a tentative release is indicated in a DMP well, the Regional Board shall be immediately notified and two additional groundwater samples will be collected from this well within 30 days of the notification for retesting (unless laboratory contamination or impacts from naturally-occurring geochemical conditions are suspected). The two additional groundwater samples will be retested in the laboratory for only the constituents detected in the initial sample that triggered the retesting. If either of the two triggering conditions listed above is met for either of the two additional groundwater samples, then the release will be confirmed (**see Figure 1**).

(c) If the concentration(s) of the confirmed constituent(s) is below its corresponding CLGB (listed in Table 1), then the release will not be considered a significant release and no further action is necessary beyond continued routine semi-annual monitoring (**see Figure 1**). If the concentration(s) of the confirmed constituent(s) exceeds its corresponding CLGB, then the release will be considered a significant release (**see Figure 1**).

(d) If the release is confirmed and is considered significant, but is derived from off-site sources, then the Discharger shall comply with Title 27, §20420(k)(7) and demonstrate that the landfill is not the cause of the release. If the landfill is the cause of the release, then the Discharger shall implement an EMP pursuant to Section B.3 of this M&RP.

9. **CONSTITUENTS OF CONCERN (COCS)**

The Santiago Canyon Landfill is not equipped with a liner and a leachate collection and removal system (LCRS) that produces leachate. Therefore, COCs shall be established and monitored as follows:

a. The "COC list" (list of Constituents of Concern required under Title 27, §20395) includes all Appendix II constituents listed in **Table 5** of this M&RP.

b. The Discharger shall monitor all COCs every five years, pursuant to Title 27, §20420(g). Any COC that exceeds its PQL in any of the monitoring wells will be added to the list of groundwater monitoring parameters for the site.

c. Background sampling for new constituents - For each newly detected Appendix II constituent that is added to the existing monitoring parameter list, the Discharger shall establish a reference background value by analyzing at least one sample semi-annually from each background monitoring point for a period of at least two years. Once this reference set of background data is collected, the Discharger shall include it as a separate, identified item in the next monitoring report submittal. Existing background data for the newly identified Appendix II constituents may be substituted for additional background sampling with the approval of the Executive Officer of the Regional Board.

B. MONITORING PROGRAM

1. **Water Quality Monitoring**

   a. The Discharger shall comply with the requirements of Title 27, §20415 for any water quality monitoring program developed to satisfy §20420, §20425, or §20430 of Title 27 and the requirements of this order.

      i. The ground water monitoring shall meet the requirements of Title 27, §20415(b) and 40 CFR §§258.51(a, c, and d).

      ii. The surface water monitoring shall meet the requirements of Title 27, §20415(c).

      iii. Unsaturated zone monitoring shall meet the requirements of Title 27, §20415(d).

      iv. All general monitoring requirements shall be in accordance with Title 27, §20415(e).

2. **Detection Monitoring Program (DMP)** - The Discharger shall implement the requirements of the DMP as outlined in Title 27, §20420 and as specified in **Attachment B** of this M&RP.

3. **Evaluation Monitoring Program (EMP)** - In the event of the discovery of a release, the Discharger shall implement the requirements of Title 27, §20425. The EMP shall be used to assess the nature and extent of the new release and to design a corrective action program meeting the requirements of Title 27, §20430.

4. **General Site Monitoring**

   a. At a minimum, the landfill gas condensate collection system shall be inspected and evaluated on a monthly basis for its effectiveness. All

deficiencies identified and the dates and types of corrective action taken shall be recorded in a permanent log. All deficiencies shall be documented for the record. The volume of liquids collected in the containment structure shall be recorded monthly. Samples of gas condensate shall be collected in accordance with the monitoring frequency in **Table 3**, and analyzed for constituents specified in **Attachment B**.

b. Monthly, the Discharger shall inspect all waste management units and shall evaluate their effectiveness in achieving compliance with **Discharge Specifications, 4A through 4F** of the WDRs. All areas of slope failure, differential settlement, fissuring, erosion, ponding, leachate staining, and seepage into or from the landfill shall be identified, field-marked, and documented. In the event seepage is discovered, the location of each seep shall be mapped and a mitigation plan submitted for the approval of Regional Board staff. All findings shall be photographed for the record.

c. At a minimum, all run-on and runoff drainage control structures shall be inspected and evaluated quarterly for their effectiveness in achieving compliance with **Discharge Specification G.3** of the WDRs. During dry weather conditions, the effectiveness of the drainage control system shall be evaluated on the basis of its conformance to the as-built drawings, or revised drawings, for the system. All deficiencies shall be identified, recorded, and repaired.

d. Annually, by October 15, an aerial or ground survey of the landfill facility shall be performed in accordance with the schedule in **Table 3** of this M&RP. The Discharger shall notify the Regional Board if the October 15 deadline for the aerial photogrammetric survey cannot be adhered to due to bad weather conditions or bad visibility.

C. REPORTING

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

   a. **Transmittal letter** - A letter summarizing the essential points in the report. This letter shall include a discussion of any requirement violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations;

   b. **Compliance evaluation summary** - For groundwater monitoring and COC reports, a compliance evaluation summary containing at least:

      i. **Flow rate/direction** - For each monitored ground water body, a description and graphical presentation (e.g., arrow on a map) of the velocity and direction of ground water flow under/around the Unit, based

upon water level elevations taken during the quarterly collection of the water quality samples. The results are reported on semi-annual basis;

ii. **Well information** - For each monitoring well addressed by the report, a description of the method and time of water level measurement, and a description of the method of purging used before sampling to remove stagnant water in the well, pursuant to Title 27, §20415(e)(12)(B); and

iii. **Sampling Information** - For each monitoring point and background monitoring point addressed by the report, a description of the type of pump or other device used and its vertical placement for sampling, and 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 of the person collecting the samples, and any other observations);

c. **Map** - A map (or copy of an aerial photograph) showing the locations of observation stations, monitoring points, and background monitoring points;

d. **Laboratory data** - The laboratory results of all analyses shall be submitted in accordance with **Section A.7** of this M&RP;

e. **Landfill gas condensate containment, closure cap, and drainage and erosion control systems** - A statement as to the condition and performance of the landfill gas condensate containment structure, the landfill closure cap, and the drainage and erosion control systems. The summary shall include a list of deficiencies identified and the dates and types of corrective actions taken to achieve compliance with the requirements contained in this order. If corrective actions for identified deficiencies could not be implemented by the end of the monitoring period; the Discharger shall provide the reason(s) for noncompliance and a time schedule for implementing the corrective actions.

2. **Compliance monitoring report -** The Discharger shall submit monitoring reports for the monitoring periods and reporting due dates summarized in **Table 3**. The Discharger may propose an alternate schedule, and the Executive Officer may approve the proposal or require the Discharger to comply under an alternate reporting frequency.
3. **Semi-Annual monitoring reports** - For each monitored medium, all monitoring points assigned to detection monitoring, evaluation monitoring and corrective action monitoring, including all background monitoring points, shall be monitored on a semi-annual basis. Reports prepared for this M&RP shall be submitted semi-annually to the Regional Board in accordance with the schedule shown in **Table 3**.

4. **Landfill Gas or Gas Condensate Monitoring Report**

a. **October landfill gas or gas condensate sampling results -** The Discharger shall report to the Regional Board, no later than January 31 of each year, the

b. **April landfill gas or gas condensate retest results-** If the annual landfill gas or gas condensate samples taken in October identify constituents that are not on the updated monitoring parameters list, the Discharger shall collect and analyze a retest landfill gas or gas condensate sample in April. The retest sample or samples shall be analyzed only for the Appendix I constituents detected in the October sampling event. During any year in which an April landfill gas or gas condensate retest is carried out, the Discharger shall submit a report to the Regional Board no later than August 1 of that year. This report must identify all constituents that must be added to the landfill's monitoring parameters list as a result of having been detected in both the previous calendar year's October sample and confirmed in the April retest sample (as well as degradation by-products of confirmed constituents(s). The report shall also include an updated monitoring parameter list.

5. **Annual summary report** - The Discharger shall submit an annual report to the Regional Board covering the previous monitoring year (April 1 of the previous year through March 31 of the following year). The annual summary reports are due on April 30. This report may be combined with the water quality monitoring report period ending March 31, and shall meet the following requirements:

   a. **Graphical Presentation** - Graphing the Groundwater Analytical Data shall be in accordance with Title 27, §20415(e)(14);

   b. **Tables** - All monitoring analytical data obtained during at least the two previous semi-annual reporting periods shall be presented in tabular form in the annual summary report and shall be uploaded electronically onto the State’s database (GeoTracker) within one month following the submittal of the semi-annual monitoring reports to the Regional Board. The Regional Board regards the submittal of data in hard copy and electronically on the State’s database as the form necessary for statistical analysis [Title 27, §20420(h)]. This format facilitates periodic review by the Board's statistical consultant;

   c. **Compliance record discussion** - A comprehensive discussion of the compliance record, and of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the landfill's waste discharge requirements relating to water quality issues;

   d. **Summary of changes** - A written summary of monitoring results and monitoring and control systems, indicating any changes made or observed since the previous annual report;

6. **Annual drainage control and maintenance report** - Annually, by December 31, an annual site drainage control and maintenance report shall be submitted.

The drainage control system maintenance report shall include, but not be limited to, the following information:

a. For the previous 12 months, a summary of the adequacy and effectiveness of the drainage control system to collect and divert the calculated volume of precipitation and peak flows resulting from a 100-year, 24-hour storm.

b. A tabular summary of the new and existing drainage control structures including the types and completion dates of maintenance activities performed for each of these structures; and

c. An 11"x17" site map indicating the locations of the elements listed in Item b., above, and the flow direction of all site drainage.

7. **COC Report at least every five years** - In the absence of a new release being indicated, the Discharger shall monitor all parameters on the facility's COC list and submit a report (COC Report).

   a. **Reporting period for COCs** - The Discharger shall sample all monitoring points and background monitoring points for each monitored medium for all COCs every fifth year, beginning with the Fall of 2011. The first Reporting Period ends September 30, 2011, with subsequent COC monitoring to be carried out every fifth year thereafter, alternately in the Spring (Reporting Period ends March 31) and the Fall (Reporting Period ends September 30).

   b. **COC report** - This report, which is due one month following the Reporting period, may be combined with any semi-annual monitoring report or annual summary report. Previous COC reports were submitted in 1996, 2001, and 2006. Future COC reports are due every 5 years since the last COC report submittal (in 2011, 2016, 2021, etc.)

8. **Reporting Schedule** - The Discharger shall submit the reports/ documents in accordance with the deadlines specified in **Table 3**.

9. **Signature** - All reports shall be signed by a responsible officer or a duly authorized representative of the Discharger and shall be submitted under penalty of perjury.

I, Kurt V. Berchtold, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on September 16, 2010.

_____
Kurt Berchtold
Executive Officer

Attachment A

Attachment B

SANTIAGO CANYON LANDFILL

Type of Program	Monitoring Parameters	Monitoring Frequency
Detection water quality monitoring program (DMP Wells)	pH, nitrate, chloride, total dissolved solids (TDS), and volatile organic compounds (VOCs) listed in Table 2[1]	Semi-annually
Corrective action water quality monitoring program (CAP Wells)	VOCs listed in Table 2[1]	Semi-annually
Landfill gas condensate analysis	The Appendix II constituents	Annually
Landfill gas condensate (untreated) monitoring	VOCs specified by SCAQMD Rule 1150.1 Table 1 (which are not already groundwater monitoring parameters)	Semi-Annually (October and April of each year)[3]
Vadose Zone Monitoring (perimeter gas probes)	Methane (field), total gaseous non-methane organic hydrocarbons (TGNMO), and the VOCs specified by SCAQMD Rule 1150.1 Table 1	Monthly in the field and quarterly in the laboratory (per Rule 1150.1)
COC analysis	The Appendix II constituents and general minerals	Once every five years
Aerial or ground survey	Not applicable	Annually
General Site Monitoring	Not applicable	Varies (see Section B.5 of M&RP)

1. The list of VOCs shall be updated each year based on landfill gas condensate testing/retesting programs (See footnote on Table 2).

2. October landfill gas condensate testing with a confirmation retest in April of the following year

3. See attached SCAQMD Rule 1150.1 Table 1

TABLE 1
CONCENTRATION LIMITS GREATER THAN BACKGROUND
SANTIAGO CANYON LANDFILL
ORANGE COUNTY, CALIFORNIA

Appendix II Constituent [1]	Drinking Water Maximum Contaminant Level [2] (MCL)	Laboratory Practical Quantitation Limit [3] (PQL)	Concentration Limit Greater Than Background (CLGB)
Acenaphthene		10 ug/l	10 ug/l
Acenaphthylene		10 ug/l	10 ug/l
Acetone		100 ug/l	100 ug/l
Acetonitrile		50 ug/l	50 ug/l
Acetophenone		10 ug/l	10 ug/l
2-Acetylaminofluorene		20 ug/l	20 ug/l
Acrolein		50 ug/l	50 ug/l
Acrylonitrile		10 ug/l	10 ug/l
Aldrin		0.11 ug/l	0.11 ug/l
Allyl chloride		10 ug/l	10 ug/l
4-Aminobiphenyl		20 ug/l	20 ug/l
Anthracene		10 ug/l	10 ug/l
Antimony	0.006 mg/l	0.006 mg/l	0.006 mg/l
Arsenic	0.01 mg/l	0.002 mg/l	0.01 mg/l
Barium	1.0 mg/l	0.100 mg/l	1.0 mg/l
Benzene	1.0 ug/l	5.0 ug/l	1.0 ug/l
Benzo[a]anthracene		10 ug/l	10 ug/l
Benzo[b]fluoranthene		10 ug/l	10 ug/l
Benzo[k]fluoranthene		10 ug/l	10 ug/l
Benzo[ghi]perylene		10 ug/l	10 ug/l
Benzo[a]pyrene	0.2 ug/l	10 ug/l	0.2 ug/l
Benzyl alcohol		10 ug/l	10 ug/l
Beryllium	0.004 mg/l	0.001 mg/l	0.004 mg/l
alpha-BHC		0.04 ug/l	0.04 ug/l
beta-BHC		0.03 ug/l	0.03 ug/l
delta-BHC		0.03 ug/l	0.03 ug/l
gamma-BHC	0.2 ug/l	0.03 ug/l	0.2 ug/l
Bis(2-chloroethoxy)methane		10 ug/l	10 ug/l
Bis(2-chloroethyl) ether		10 ug/l	10 ug/l
Bis(2-chloroisopropyl) ether		10 ug/l	10 ug/l
Bis(2-ethylhexyl) phthalate		10 ug/l	10 ug/l
Bromochloromethane		5.0 ug/l	5.0 ug/l
Bromodichloromethane	100 ug/l	5.0 ug/l	100 ug/l
Bromoform	100 ug/l	5.0 ug/l	100 ug/l
4-Bromophenyl phenyl ether		10 ug/l	10 ug/l
Butyl benzyl phthalate		10 ug/l	10 ug/l
Cadmium	0.005 mg/l	0.001 mg/l	0.005 mg/l
Carbon disulfide	160 ug/l	5.0 ug/l	160 ug/l
Carbon tetrachloride	0.5 ug/l	5.0 ug/l	0.5 ug/l
Chlordane	0.1 ug/l	0.25 ug/l	0.1 ug/l
p-Chloroaniline		10 ug/l	10 ug/l
Chlorobenzene	100 ug/l	5.0 ug/l	100 ug/l
Chlorobenzilate		10 ug/l	10 ug/l
p-Chloro-3-methylphenol		10 ug/l	10 ug/l
Chloroethane		5.0 ug/l	5.0 ug/l
Chloroform	100 ug/l	5.0 ug/l	100 ug/l
2-Chloronaphthalene		10 ug/l	10 ug/l
2-Chlorophenol		10 ug/l	10 ug/l
4-Chlorophenyl phenyl ether		10 ug/l	10 ug/l

TABLE 1 (cont.)
CONCENTRATION LIMITS GREATER THAN BACKGROUND
SANTIAGO CANYON LANDFILL
ORANGE COUNTY, CALIFORNIA

Appendix II Constituent [1]	Drinking Water Maximum Contaminant Level [2] (MCL)	Laboratory Practical Quantitation Limit [3] (PQL)	Concentration Limit Greater Than Background (CLGB)
Chloroprene		5.0 ug/l	5.0 ug/l
Chromium	0.05 mg/l	0.01 mg/l	0.05 mg/l
Chrysene		10 ug/l	10 ug/l
Cobalt		0.001 mg/l	0.001 mg/l
Copper	1.0 mg/l	0.005mg/l	1.0 mg/l
m-Methylphenol		10 ug/l	10 ug/l
o-Methylphenol		10 ug/l	10 ug/l
p-Methylphenol		10 ug/l	10 ug/l
Cyanide	0.15 mg/l	0.01 mg/l	0.15 mg/l
2,4-D	70 ug/l	12 ug/l	70 ug/l
4,4-DDD		0.06 ug/l	0.06 ug/l
4,4-DDE		0.05 ug/l	0.05 ug/l
4,4-DDT		0.06 ug/l	0.06 ug/l
Diallate		10 ug/l	10 ug/l
Dibenz[a,h]anthracene		10 ug/l	10 ug/l
Dibenzofuran		10 ug/l	10 ug/l
Dibromomethane		5 ug/l	5 ug/l
Dibromochloromethane	100 ug/l	5.0 ug/l	100 ug/l
1,2-Dibromo-3-chloropropane	0.2 ug/l	0.01 ug/l	0.2 ug/l
1,2-Dibromoethane	0.05 ug/l	0.02 ug/l	0.05 ug/l
Di-n-butyl phthalate		10 ug/l	10 ug/l
o-Dichlorobenzene	600 ug/l	5.0 ug/l	600 ug/l
m-Dichlorobenzene		5.0 ug/l	5.0 ug/l
p-Dichlorobenzene	5.0 ug/l	5.0 ug/l	5.0 ug/l
3,3'-Dichlorobenzidine		10 ug/l	10 ug/l
trans-1,4-Dichloro-2-butene		20 ug/l	20 ug/l
Dichlorodifluoromethane	1,000 ug/l	5.0 ug/l	1,000 ug/l
1,1-Dichloroethane	5.0 ug/l	5.0 ug/l	5.0 ug/l
1,2-Dichloroethane	0.5 ug/l	5.0 ug/l	0.5 ug/l
1,1-Dichloroethene	6.0 ug/l	5.0 ug/l	6.0 ug/l
cis-1,2-Dichloroethene	6.0 ug/l	5.0 ug/l	6.0 ug/l
trans-1,2-Dichloroethene	10 ug/l	5.0 ug/l	10 ug/l
2,4-Dichlorophenol		10 ug/l	10 ug/l
2,6-Dichlorophenol		10 ug/l	10 ug/l
1,2-Dichloropropane	5.0 ug/l	5.0 ug/l	5.0 ug/l
1,3-Dichloropropane		5.0 ug/l	5.0 ug/l
2,2-Dichloropropane		5.0 ug/l	5.0 ug/l
1,1-Dichloropropene		5.0 ug/l	5.0 ug/l
cis-1,3-Dichloropropene	0.5 ug/l	5.0 ug/l	0.5 ug/l
trans-1,3-Dichloropropene	0.5 ug/l	5.0 ug/l	0.5 ug/l
Dieldrin		0.06 ug/l	0.06 ug/l
Diethyl phthalate		10 ug/l	10 ug/l
O,O-Diethyl O-2-pyrazinyl phosphorothioate		20 ug/l	20 ug/l
Dimethioate		20 ug/l	20 ug/l
p-(Dimethylamino)azobenzene		10 ug/l	10 ug/l
7,12-Dimethylbenz[a]anthracene		10 ug/l	10 ug/l
3,3'-Dimethybenzidine		10 ug/l	10 ug/l
2,4-Dimethylphenol		10 ug/l	10 ug/l
Dimethyl phthalate		10 ug/l	10 ug/l
m-Dinitrobenzene		20 ug/l	20 ug/l

TABLE 1 (cont.)
CONCENTRATION LIMITS GREATER THAN BACKGROUND
SANTIAGO CANYON LANDFILL
ORANGE COUNTY, CALIFORNIA

Appendix II Constituent (1)	Drinking Water Maximum Contaminant Level (2) (MCL)	Laboratory Practical Quantitation Limit (3) (PQL)	Concentration Limit Greater Than Background (CLGB)
4,6-Dinitro-2-methylphenol		10 ug/l	10 ug/l
2,4-Dinitrophenol		10 ug/l	10 ug/l
2,4-Dinitrotoluene		10 ug/l	10 ug/l
2,6-Dinitrotoluene		10 ug/l	10 ug/l
Dinoseb	7.0 ug/l	0.7 ug/l	7.0 ug/l
Di-n-octyl phthalate		10 ug/l	10 ug/l
Diphenylamine		20 ug/l	20 ug/l
Disulfoton		10 ug/l	10 ug/l
Endosulfan I		0.03 ug/l	0.03 ug/l
Endosulfan II		0.06 ug/l	0.06 ug/l
Endosulfan sulfate		0.06 ug/l	0.06 ug/l
Endrin	2.0 ug/l	0.06 ug/l	2.0 ug/l
Endrin aldehyde		0.13 ug/l	0.13 ug/l
Ethylbenzene	300 ug/l	5.0 ug/l	300 ug/l
Ethyl methacrylate		50 ug/l	50 ug/l
Ethyl methanesulfonate		20 ug/l	20 ug/l
Famphur		20 ug/l	20 ug/l
Fluoranthene		10 ug/l	10 ug/l
Fluorene		10 ug/l	10 ug/l
Heptchlor	0.01 ug/l	0.08 ug/l	0.01 ug/l
Heptachlor epoxide	0.01 ug/l	0.05 ug/l	0.01 ug/l
Hexachlorobenzene	1.0 ug/l	10 ug/l	1.0 ug/l
Hexachlorobutadiene		10 ug/l	10 ug/l
Hexachlorocyclopentadiene	50 ug/l	10 ug/l	50 ug/l
Hexachloroethane		10 ug/l	10 ug/l
Hexachloropropene		10 ug/l	10 ug/l
2-Hexanone		20 ug/l	20 ug/l
Indeno(1,2,3-cd)pyrene		10 ug/l	10 ug/l
Isobutyl alcohol		250 ug/l	250 ug/l
Isodrin		20 ug/l	20 ug/l
Isophorone		10 ug/l	10 ug/l
Isosafrole		10 ug/l	10 ug/l
Kepone		20 ug/l	20 ug/l
Lead	0.015 mg/l	0.005 mg/l	0.015 mg/l
Mercury	0.002 mg/l	0.001 mg/l	0.002 mg/l
Methacrylonitrile		35 ug/l	35 ug/l
Methapyrilene		100 ug/l	100 ug/l
Methoxychlor	30 ug/l	0.57 ug/l	30 ug/l
Methyl bromide		5.0 ug/l	5.0 ug/l
Methyl chloride		5.0 ug/l	5.0 ug/l
3-Methylcholanthrene		10 ug/l	10 ug/l
Methyl ethyl ketone		100 ug/l	100 ug/l
Methyl iodide		5.0 ug/l	5.0 ug/l
Methyl methacrylate		20 ug/l	20 ug/l
Methyl methanesulfonate		10 ug/l	10 ug/l
2-Methylnaphthalene		10 ug/l	10 ug/l
Methyl parathion		10 ug/l	10 ug/l
4-Methyl-2-pentanone		10 ug/l	10 ug/l
Methylene bromide		5.0 ug/l	5.0 ug/l
Methylene chloride	5.0 ug/l	5.0 ug/l	5.0 ug/l
Naphthalene	170 ug/l	10 ug/l	170 ug/l
1,4-Naphthoquinone		10 ug/l	10 ug/l

TABLE 1 (cont.)
CONCENTRATION LIMITS GREATER THAN BACKGROUND
SANTIAGO CANYON LANDFILL
ORANGE COUNTY, CALIFORNIA

Appendix II Constituent [1]	Drinking Water Maximum Contaminant Level [2] (MCL)	Laboratory Practical Quantitation Limit [3] (PQL)	Concentration Limit Greater Than Background (CLGB)
1-Naphthylamine		10 ug/l	10 ug/l
2-Naphthylamine		10 ug/l	10 ug/l
Nickel	0.1 mg/l	0.010 mg/l	0.1 mg/l
o-Nitroaniline		50 ug/l	50 ug/l
m-Nitroaniline		10 ug/l	10 ug/l
p-Nitroaniline		10 ug/l	10 ug/l
Nitrobenzene		10 ug/l	10 ug/l
o-Nitrophenol		10 ug/l	10 ug/l
p-Nitrophenol		10 ug/l	10 ug/l
N-Nitrosodi-n-butylamine		10 ug/l	10 ug/l
N-Nitrosodiethylamine		20 ug/l	20 ug/l
N-Nitrosodimethylamine	0.01 ug/l	10 ug/l	0.01 ug/l
N-Nitrosodiphenylamine		10 ug/l	10 ug/l
N-Nitrosodipropylamine		10 ug/l	10 ug/l
N-Nitrosomethylethalamine		30 ug/l	30 ug/l
N-Nitrosopiperidine		20 ug/l	20 ug/l
N-Nitrosopyrolidine		40 ug/l	40 ug/l
5-Nitro-o-Toluidine		10 ug/l	10 ug/l
Parathion		10 ug/l	10 ug/l
Pentachlorobenzene		10 ug/l	10 ug/l
Pentachloronitrobenzene		20 ug/l	20 ug/l
Pentachlorophenol	1.0 ug/l	10 ug/l	1.0 ug/l
Phenacetin		20 ug/l	20 ug/l
Phenanthrene		10 ug/l	10 ug/l
Phenol		10 ug/l	10 ug/l
p-Phenylenediamine		10 ug/l	10 ug/l
Phorate		10 ug/l	10 ug/l
Polychlorinated biphenyls	0.5 ug/l	0.65 ug/l	0.5 ug/l
Pronamide		10 ug/l	10 ug/l
Propionitrile		100 ug/l	100 ug/l
Pyrene		10 ug/l	10 ug/l
Safrole		10 ug/l	10 ug/l
Selenium	0.05 mg/l	0.005 mg/l	0.05 mg/l
Silver	100 ug/l	10 ug/l	100 ug/l
Silvex	50 ug/l	1.7 ug/l	50 ug/l
Styrene	100 ug/l	5.0 ug/l	100 ug/l
Sulfide		0.1 mg/l	0.1 mg/l
2,4,5-T		2.0 ug/l	2.0 ug/l
1,2,4,5-Tetrachlorobenzene		10 ug/l	10 ug/l
1,1,1,2-Tetrachloroethane		5.0 ug/l	5.0 ug/l
1,1,2,2-Tetrachloroethane	1.0 ug/l	5.0 ug/l	1.0 ug/l
Tetrachloroethene	5.0 ug/l	5.0 ug/l	5.0 ug/l
2,3,4,6-Tetrachlorophenol		10 ug/l	10 ug/l
Thallium	0.002 mg/l	0.001 mg/l	0.002 mg/l
Tin		0.005 mg/l	0.005 mg/l
Toluene	150 ug/l	5.0 ug/l	150 ug/l
o-Toluidine		10 ug/l	10 ug/l
Toxaphene	3.0 ug/l	3.13 ug/l	3.0 ug/l
1,2,4-Trichlorobenzene	5.0 ug/l	10 ug/l	5.0 ug/l
1,1,1-Trichloroethane	200 ug/l	5.0 ug/l	200 ug/l
1,1,2-Trichloroethane	5.0 ug/l	5.0 ug/l	5.0 ug/l
Trichloroethene	5.0 ug/l	5.0 ug/l	5.0 ug/l

TABLE 1 (cont.)
CONCENTRATION LIMITS GREATER THAN BACKGROUND
SANTIAGO CANYON LANDFILL
ORANGE COUNTY, CALIFORNIA

Appendix II Constituent (1)	Drinking Water Maximum Contaminant Level (2) (MCL)	Laboratory Practical Quantitation Limit (3) (PQL)	Concentration Limit Greater Than Background (CLGB)
Trichlorofluoromethane	150 ug/l	5.0 ug/l	150 ug/l
2,4,5-Tricholophenol		10 ug/l	10 ug/l
2,4,6-Trichlorophenol		10 ug/l	10 ug/l
1,2,3-Trichloropropane	0.005 ug/l	5.0 ug/l	0.005 ug/l
0,0,0-Triethyl phosphorothioate		20 ug/l	20 ug/l
1,3,5-Trinitrobenzene		10 ug/l	10 ug/l
Vanadium	0.05 mg/l	0.003 mg/l	0.05 mg/l
Vinyl acetate		50 ug/l	50 ug/l
Vinyl chloride	0.5 ug/l	5.0 ug/l	0.5 ug/l
Xylenes (total)	1,750 ug/l	5.0 ug/l	1,750 ug/l
Zinc	5.0 mg/l	0.050 mg/l	5.0 mg/l

(1) Appendix II constituents are listed in 40 CFR, Chapter 1, Part 258.

(2) MCLs, if any, as established by the California Department of Health Services- Drinking Water Program or the Environmental Protection Agency National Primary Drinking Water Standards as of 2007.

(3) Laboratory PQLs as provided from Associated Laboratories in April 2007.

TABLE 2
MONITORING PARAMETERS FOR GROUNDWATER
SANTIAGO CANYON LANDFILL
ORANGE COUNTY, CALIFORNIA

Volatile Organic Constituents *(DMP and CAP Wells)*		
	Appendix I VOCs Confirmed in Landfill Gas or Gas Condensate	**Degradation By-Products of Appendix I VOCs Confirmed in Landfill Gas Condensate**
Acetone Acrylonitrile 2-Butanone (MEK) Carbon Tetrachloride Chloroform 2-Hexanone 4-Methyl-2-pentanone	Benzene Chlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,1-Dichloroethane 1,2-Dichloroethane 1,1-DichloroetheneDichloromethane (Methylene Chloride) Ethylbenzene Tetrachloroethene Toluene 1,1,1-Trichloroethane Trichloroethene Vinyl Chloride Xylenes	Chloroethane Chloromethane cis-1,2-Dichloroethene trans-1,2-Dichloroethene
Inorganic Constituents *(DMP Wells)*		

Note:
Monitoring Parameters list shown in this table includes analytical and landfill gas condensate data collected through October 2009. This list of VOCs will be updated (augmented) by the Discharger each year based on the annual landfill gas condensate monitoring programs (any Appendix I VOC which is detected and confirmed in landfill gas condensate samples, as well as its degradation by-products, will be added to this list).

TABLE 3

MONITORING AND REPORTING

Task Description	Monitoring Period	Report Due Date
Semi-annual Water Quality monitoring	October 1 – March 31	April 30 of each year
	April 1 – September 30	October 31 of each year
Semi-annual general site monitoring	October 1 – March 31	April 30 of each year
	April 1 – September 30	October 31 of each year
October landfill gas condensate testing analysis	October 1 – October 31	January 31 of the following year
April landfill gas condensate retesting analysis	April 1 – April 30	August 1 of each year
Annual drainage control and maintenance	By October 1 of each year	December 31 of each year
Aerial or ground survey	By October 15 of each year	December 31 of each year
Annual summary	April 1 of previous year – March 31	April 30 of each year
COC analysis	Every 5 Years (alternating between Fall and Spring reporting periods)	October 31, 2011; April 30, 2016; October 31, 2021; April 30, 2026; etc.

Reports with the same submittal date may be consolidated into a single report.

TABLE 4

LIST OF APPENDIX I CONSTITUENTS

Inorganic Constituents	**Organic Constituents – continued**
Antimony	p-Dichlorobenzene; 1,4-Dichlorobenzene
Arsenic	trans-1,4-Dichloro-2-butene
Barium	1,1-Dichloroenthane; Ethylidene chloride
Beryllium	1,2-Dichloroethane; Ethylene dichloride
Cadmium	1,1-Dichloroethylene; 1,1-Dichloroethane; Vinylidene chloride
Chromium	cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene
Cobalt	trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene
Copper	1,2-Dichloropropane; Propylene dichloride
Lead	cis-1,3-Dichloro propene
Nickel	trans-1,2-Dichloropropene
Selenium	Ethylbenzene
Silver	2-Hexanone; Methyl butyl ketone
Thallium	Methyl bromide; Bromomethane
Vanadium	Methyl chloride; Chloromethane
Zinc	Methylene bromide; Dibromomethane
	Methylene chloride; Dichloromethane
Organic Constituents	Methyl ethyl ketone; MEK; 2-Butanone
Acetone	Methyl iodide; Iodomethane
Acrylonitrile	4-Methyl-2-pentanone; Methyl isobutyl ketone
Benzene	Styrene
Bromochloromethane	1,1,1,2-Tetrachloroethane
Bromodichloromethane	1,1,2,2-Tetrachloroethane
Bromoform; Tribromomethane	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene
Carbon disulfide	Toluene
Carbon tetrachloride	1,1,1-Trichloroethane; Methylchloroform
Chlorobenzene	1,1,2-Trichloroethane
Chloroethane; Ethyl chloride	Trichloroethylene; Trichloroethene
Chloroform; Trichloromethane	Trichlorofluoromethane; CFC-11
Dibromochloromethane; Chlorodibromomethane	1,2,3-Trichloropropane
1,2-Dibromo-3-chloropropane; DBCP	Vinyl acetate
1,2-Dibromoethane; Ethylene dibromide; EDB	Vinyl chloride
o-Dichlorobenzene; 1,2-Dichlorobenzene	Xylenes

TABLE 5

LIST OF APPENDIX II CONSTITUENTS

Acenaphthene
Acenaphthylene
Acetone
Acetonitrile; Methyl cyanide
Acetophenone
2-Acetylaminofluorene; 2-AAF
Acrolein
Acrylonitrile
Aldrin
Allyl chloride
4-Aminobiphenyl
Anthracene
Antimony (total)
Arsenic (total)
Barium (total)
Benzene
Benzo[a]anthracene; Benzanthracene
Benzo[b] fluoranthene
Benzo[k] fluoranthene
Benzo[ghi] perylene
Benzo[al pyrene
Benzyl alcohol
Beryllium (total)
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC; Lindane
Bis(2-chloroethoxy) methane
Bis(2-chloroethyl) ether; Dichloroethyl ether
Bis(2-chloro-1-methylethyl) ether; 2,2-Dichlorodiisopropyl ether; DCIP
Bis(2-ethylhexyl) phthalate
Bromochloromethane; Chlorobromomethane
Bromodichloromethane; Dibromochloromethane
Bromoform; Tribromomethane
4-Bromophenyl phenyl ether
Butyl benzyl phthalate; Benzyl butyl phthalate
Cadmium (total)
Carbon disufide
Carbon tetrachloride
Chlordane
p-Chloroaniline
Chlorobenzene
Chlorobenzilate
p-Chloro-m-cresol; 4-Chloro-3-methylphenol
Chloroethane; Ethyl chloride
Chloroform; Trichloromethane
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chloroprene
Chromium (total)
Chrysene
Cobalt (total)
Copper (total)
m-Cresol; 3-methylphenol
o-Cresol; 2-methylphenol
p-Cresol; 4-methylphenol
Cyanide
2,4-D; 2,4-Dichlorophenoxyacetic acid
4,4-DDD
4.4-DDE
4,4-DDT
Diallate
Dibenz [a,h] anthracene
Dibenzofuran
Dibromochloromethane; Chlorodibromomethane
1,2-Dibromo-3-chloropropane; DBCP
1,2-Dibromoethane; Ethylene dibromide; EDB
Di-n-butyl phthalate
o-Dichlorobenzene; 1,2-Dichlorobenzene
m-Dichlorobenzene; 1,3-Dichlorobenzene
p-Dichlorobenzene; 1,4-Dichlorobenzene
3,3-Dichlorobenzidine
trans-1,4-Dichloro-2-butene
Dichlorodifluoromethane; CFC 12
1,1-Dichloroethane; Ethyldidene chloride
1,2-Dichloroethane; Ethylene dichloride
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene
2,4-Dichlorophenol
2,6-Dichlorophenol
1,2-Dichloropropane; Propylene dichloride
1,3-Dichloropropane; Trimethylene dichloride
2,2-Dichloropropane; Isopropylidene chloride
1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Dieldrin
Diethyl phthalate
0,0-Diethyl 0-2-pyrazinyl phosphorothioate; Thionazin
Dimethoate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3-Dimethylbenzidine
2,4-Dimethylphenol; m-Xylenol
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol; 4,6-Dinitro-2-methylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol
Di-n-octyl phthalate
Diphenylamine
Disulfoton
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethylbenzene
Ethyl methacrylate
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
2-Hexanone; Methyl butyl ketone
lndeno (1,2,3-cd) pyrene
Isobutyl alcohol
Isodrin
Isophorone
Isosafrole
Kepone
Lead (total)

TABLE 5 (continued)

LIST OF APPENDIX II CONSTITUENTS

Mercury (total)
Methacrylonitrile
Methapyrilene
Methoxychlor
Methyl bromide; Bromomethane
Methyl chloride; Chloromethane
3-Methylcholanthrene
Methyl ethyl ketone; MEK; 2-Butanone
Methyl iodide; Iodomethane
Methyl methacrylate
Methyl methanesulfonate
2-Methylnaphthalene
Methyl parathion; Parathion methyl
4-Methyl-2-pentanone; Methyl isobutyl ketone
Methylene bromide; Dibromomethane
Methylene chloride; Dichloromethane
Naphthalene
1,4-Naphthoquinone
1-Napthylamine
2-Napthylamine
Nickel (total)
o-Nitroaniline; 2-Nitroaniline
m-Nitroaniline; 3-Nitroaniline
p-Nitroaniline; 4-Nitroaniline
Nitrobenzene
o-Nitrophenol; 2-Nitrophenol
p-Nitrophenol; 4-Nitrophenol
N-Nitrosodi-n-butylamine
N-Nitrosodiethylamine
N-Nitrosodimethylamine
N-Nitrosodiphenylamine
N-Nitrosodipropylamine; N-Nitroso-N-dipropylamine;
Di-n-propylnitrosamine
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane; Methylchloroform
1,1,2-Trichloroethane
Trichloroethyiene; Trichloroethene
Trichlorofluoromethane; CFC-1 I
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
1,2,3-Trichloropropane
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene
Vanadium (total)
Vinyl acetate
Vinyl chloride; Chloroethene
Xylenes (total)
Zinc (total)
N-NitrosomethylethylamineN-Nitrosopiperidine
N-Nitrosopyrrolidine
5-Nitro-o-toluidine
Parathion
Pentachlorobenzene
Pentachloronitrobenzene
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Phorate
Polychlorinated biphenyls; PCBS; Aroclors
Pronamide
Propionitrile; Ethyl cyanide
Pyrene
Safrole
Selenium (total)
Silver (total)
Silvex; 2,4,5-TP
Styrene
Sulfide
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid
1,2,4,5-Tetrachlorobenzene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene
2,3,4,6-Tetrachlorophenol
Thallium (total)
Tin (total)
Toluene
o-Toluidine
Toxaphene
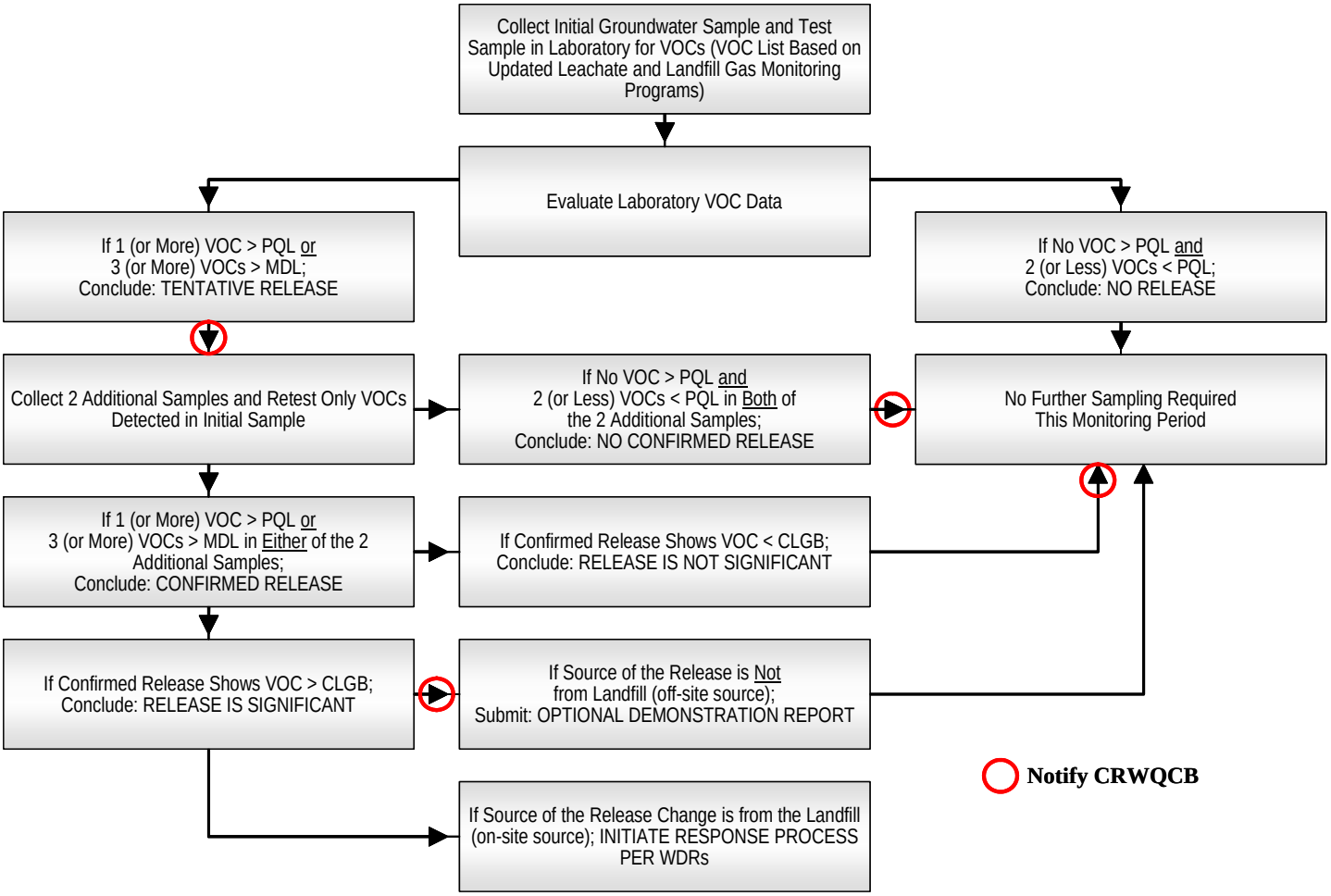
FIGURE 1
FLOWCHART FOR VOC DATA EVALUATION AND RETESTING PROCEDURES
SANTIAGO CANYON LANDFILL
ORANGE COUNTY, CALIFORNIA