

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

CEASE AND DESIST ORDER R5-2013-0024

FOR  
SAN JOAQUIN COUNTY DEPARTMENT OF PUBLIC WORKS  
CORRAL HOLLOW SANITARY LANDFILL  
SAN JOAQUIN COUNTY

GROUNDWATER CORRECTIVE ACTION REQUIREMENTS

The California Regional Water Quality Control Board, Central Valley Region, ("Central Valley Water Board" or "Board") finds that:

1. The San Joaquin County Department of Public Works (hereafter County or Discharger) owns and operates a closed municipal solid waste landfill about five miles south of Tracy, California. Municipal solid waste has been placed on property owned by both San Joaquin County and California Department of Transportation (CalTrans).
2. The facility consists of 57.71 acres, of which 42.79 acres were permitted for landfilling and are shown in Attachment A, which is attached hereto and made part of this Order by reference. The landfill is regulated by Waste Discharge Requirements (WDRs) Order R5-2013-0013 and consists of a single, closed unlined waste management unit (WMU).
3. The Facility began operations as a solid waste disposal site in the 1950's. The Discharger began operating the landfill in 1991 as a Class III landfill. The Discharger ceased accepting waste in 1995 and formal closure was completed in 1996. In 2007, the Discharger determined that an additional 1.3 acres of municipal solid waste existed outside of the original landfill area.
4. The landfill is on the alluvial fan at the mouth of Corral Hollow Creek at the base of the eastern side of the Coast Range. The landfill is bounded to the south by Corral Hollow Creek. Land within 1,000 feet of the facility is dry range land.

**Groundwater Monitoring**

5. Two groundwater zones have been identified beneath the landfill site. The first encountered groundwater is monitored by seven wells (SB-1, MW-4, MW-5, MW-8, MW-9A, MW-10A, and MW-11A), as shown on Attachment A. The groundwater monitored by all seven wells is considered to be perched water on top of the Corcoran Clay formation. Groundwater flow from these wells appears to move radially from well SB-1. However, groundwater flows northeast of the landfill (toward the valley) when groundwater elevations from all seven wells are considered. The first encountered groundwater ranges from about 12 feet to 65 feet below ground surface (bgs).

6. Groundwater has been encountered in a deep zone approximately 300 to 350 feet bgs and is monitored by two wells (MW-6 and MW-7). Groundwater found in the deep zone flows northeast.
7. Currently, the Discharger's detection monitoring program for shallow and deep groundwater monitoring meets the requirements contained in Title 27. However, additional groundwater monitoring wells may be required if it is determined that there is additional evidence of groundwater impacts.
8. In 1991, volatile organic compounds (VOCs) (Trichlorofluoromethane and Tetrachloroethene) were first detected in groundwater samples collected from MW-5. The detection was confirmed in February 1992.

### **Landfill Closure**

9. In response to the detection of VOCs, the Discharger implemented a corrective action plan in 1995, which included the construction of the final cover for the landfill.
10. In September 2005, the County investigated to determine if refuse was present below the drainage ditch, the access road, and east of the road at the eastern edge of the landfill. Refuse was found below the ditch and the final closure cover was found not to extend to the ditch. It was determined that refuse was outside the permitted WMU boundary covering an area approximately 1.3 acres.
11. On 17 August 2007, the Discharger submitted a document delineating the extent of refuse within County and Caltrans properties. In a letter dated 27 August 2007, CalRecycle staff directed the County and Caltrans to cover the refuse in both the Caltrans and County property according to Title 27 in a common construction project. Central Valley Water Board staff reaffirmed this directive. Caltrans declined to participate in the closure project with the County. The County subsequently submitted design plans addressing only the uncovered refuse on County property.
12. In May 2011, Water Board staff sent a draft Water Code section 13267 Order to the County and Caltrans, and asked for comments on the tasks and timelines. The intent of the Order was to require the County to characterize the extent of the groundwater release, and require both the County and Caltrans to submit technical reports describing how the waste outside of the closed units will be addressed. The parties had the option of either removing the waste outside of the cover or extending the cover to include the additional 1.3 acres.
13. In a letter dated 28 June 2011, the County stated that it has reached agreement with Caltrans to participate in a single project to extend the closure cover over the refuse on both properties. Caltrans reiterated this agreement in a letter dated 29 June 2011.

14. On 7 July 2011, the Executive Officer issued a Water Code Section 13267 Order to both the County and Caltrans requiring the submittal of plans to extend the closure cap over the areas of refuse identified outside of the landfill footprint. The intent of the Order was to commit the Dischargers to a plan of action such that the waste would be covered during the 2012 construction season.
15. On 30 August 2011, the County and Caltrans signed a Memorandum of Understanding agreeing to allow access to Caltrans property to install the closure cap over both properties in a single project.
16. On 6 October 2011 the County submitted a Final Cover Expansion Design which was intended to satisfy the requirements of the Water Code 13267 Order. However, on 15 March 2012 Board staff issued a Notice of Violation to the County and Caltrans for submitting a cover design that did not meet the performance standard of Title 27. The two parties then committed to submitting a revised design by 25 April 2012. The County anticipated the project would be issued for bid in July 2012 with construction starting in October 2012 and completion by December 2012, which would meet the intent of the Water Code section 13267 Order.
17. On 23 April 2012 the County submitted a revised Final Cover Expansion Design with preliminary schedule showing completion in December 2012. On 31 May 2012 the County submitted a revised Final Cover Expansion Design with a new schedule showing that construction would not be completed until March 2013.
18. In a letter dated 7 July 2012 the Discharger submitted a proposed revised schedule for the construction of the final cover over the refuse encountered outside the extent of the known final cover. The Discharger proposed to begin the construction by spring 2013 and complete the construction by August 2013. The Discharger proposed the change to the construction schedule based on the possibility of the contractor working during the wet season and having to start and stop due to wet site conditions. Board staff neither approved nor denied the County's proposed schedule, but reiterated the need to cover the refuse as soon as possible and that the Discharger could face a potential administrative civil liability for not meeting the closure date of December 2012.
19. WDRs Order R5-2013-0013 requires the Discharger to extend the closure cover over the areas of uncovered refuse by 1 September 2013. The delay in installing the cap over the additional waste may have increased the generation of landfill gas and the subsequent impacts to groundwater.

### **Corrective Actions to Address Groundwater Impacts**

20. In 2001, a landfill gas (LFG) collection system was installed as a corrective action to prevent further VOC impacts to groundwater, as well as to prevent offsite migration of LFG. Thirty-nine LFG extraction wells were installed initially.
21. In December 2006, Central Valley Water Board staff sent a Notice of Violation for the continued detection of VOCs in groundwater at monitoring well MW-5, and directed the County to conduct an evaluation monitoring program (EMP) to define the nature and extent of the release from the WMU. On 9 March 2007, Central Valley Water Board staff issued a second Notice of Violation letter for VOCs present in groundwater at monitoring well MW-5.
22. In March 2007, the County submitted an Evaluation Monitoring Program (EMP) work plan. In a letter dated 11 April 2007 Board staff approved the EMP. However, the County requested that it not be required to implement the EMP and instead install additional corrective action measures. The County stated that LFG was the cause of the continued groundwater impacts and that additional LFG extraction wells installed adjacent to the northeastern property boundary would likely improve groundwater quality.
23. In November 2007, an EMP was conducted, consisting of exploring for the presence of shallow groundwater along the northern and southern boundaries of the landfill. The investigation encountered a shallow groundwater aquifer approximately 400 feet west of MW-5, and monitoring well MW-8 was installed at that location. No shallow groundwater was detected further west than MW-8. On the southern boundary of the landfill, the borings did not encounter shallow groundwater to the west of MW-4 and therefore, no monitoring wells were installed.
24. On 14 January 2008, VOCs were detected in monitoring well MW-8. The compounds and concentrations detected indicate that the source of ground water contamination emanates from an area near MW-5, most likely from LFG not captured by the existing LFG system.
25. In December 2008, five new LFG extraction wells were installed for a total of 44 LFG extraction wells. The additional wells were placed to control LFG impacts to groundwater near MW-5.
26. Groundwater monitoring wells MW-5 and MW-8 continue to contain VOCs, including tetrachloroethene (PCE), at concentrations over the Public Health Goal of 0.06 µg/L and the Title 27 Water Quality Protection Standard of non-detect. VOCs have been detected in well MW-5 since 1991, and although the number of compounds reported has decreased since corrective action has been implemented, ten VOC compounds were reported in well MW-5 during the fourth quarter 2010 groundwater monitoring event.

27. The additional LFG extraction wells installed in 2008 to abate detected pollution in wells MW-5 and MW-8 have had little effect on groundwater impacts observed. In a letter dated June 2010, the County stated that the uncovered refuse identified outside the WMU is a likely contributor to groundwater degradation.
28. On 7 July 2011, the Executive Officer issued a Water Code Section 13267. Among other items, the Order required the County to submit an Evaluation Monitoring Program work plan to characterize the nature and extent of shallow groundwater impacted from the release from the WMU. The work plan required a minimum of three additional off site groundwater monitoring wells.
29. On 10 October 2011, the County drilled three temporary borings offsite to assess the extent of the release from the WMU as required by the Order. VOCs were detected in the grab groundwater samples collected from the three temporary wells, and according to the approved work plan, the County initiated step out borings to define the VOC plume. The three initial temporary borings were abandoned per San Joaquin County guidelines.
30. During February 2012, the County advanced three step-out borings to fulfill the requirements of the EMP. Three borings were constructed as permanent groundwater monitoring wells MW-9A through MW-11A. Groundwater samples were collected and analyzed for VOCs. Sampling results indicated that several VOCs were detected at low concentrations in all three step-out wells.
31. In a letter dated 26 September 2012, Board staff issued a Notice of Violation requesting that the County provide a work plan to conduct additional off site investigation to define the VOC plume northeast of the site, to conduct a water supply well search within a 1-mile radius of the site, and to propose the installation of a minimum of two soil gas probes along the northern site boundary to monitor migrating landfill gas.
32. In a letter dated 29 October 2012 the County submitted a work plan proposing to conduct a water supply well search and install two soil gas probes. The letter also confirmed a meeting between the County and Board staff discussing the 26 September NOV and staff's request for further off-site investigation. The County stated that additional work in the northeast direction to further define the plume would not affect the approach to corrective action. A complete EMP Report was submitted on 20 August 2012 and an Engineering Feasibility Study (EFS) was submitted on 25 January 2013.
33. The Third Quarter 2012 Groundwater Monitoring Report indicates that VOCs continue to affect shallow water quality beneath the site and off site in newly installed wells MW-10A and 11A. Up to six VOCs were detected in both wells MW-5 and MW-8 and up to three VOCs were detected in offsite wells MW-10A and MW-11A. PCE was detected above the PHG in wells MW-5, MW-8, MW-10A, and MW-11A. The highest PCE concentration was reported in well MW-5 at 4.2 µg/L.

34. According to the EMP Report submitted, VOCs are being detected approximately 1,000 feet downgradient of the point of compliance. The release from the landfill has been detected in groundwater since 1991 and the County has installed 44 LFG extraction wells to address impacts to the vadose zone and groundwater. LFG extraction has been in place since 2001, yet this corrective action does not appear to be effectively controlling the source as evidenced by offsite migration.
35. Since the additional LFG extraction wells installed in 2008 have become operational, little effect on groundwater impacts have been observed in on site groundwater wells. In a 24 June 2010 letter, the County stated that the uncovered refuse identified outside the WMU is a likely contributor to groundwater degradation.
36. Inorganics reported in the groundwater monitoring wells also indicate impacts from LFG and possibly leachate. Bicarbonate concentrations reported for VOC impacted wells MW-5, MW-8, MW-10A, and MW-11A range between 290 milligrams/liter (mg/L) to 680 mg/L. Total alkalinity in these wells ranged between 93 mg/L to 560 mg/L. Chloride ranged from 36 mg/L to 110 mg/L. Total Dissolved Solids ranged between 400 mg/L to 860 mg/L. The highest concentrations of these inorganics are being reported from the offsite wells MW-10A and MW-11A indicating that a release from the landfill is affecting groundwater beyond the point of compliance. Well MW-10A is located approximately 1,000 feet downgradient (north-northeast) of the landfill.
37. In response to staff's request, the Discharger has conducted an Evaluation Monitoring Program (EMP) and in January 2013 submitted an EMP/EFS report evaluating all soil and groundwater data collected to date. The Engineering Feasibility Study (EFS) postulates that the VOCs found in groundwater are a result of landfill gas, and that by controlling landfill gas, the groundwater will be remediated.
38. The Discharger proposes additional corrective action measures consisting of installation of the landfill cover on 1.3 acres (as required by the WDRs) and installation of seven landfill gas extraction wells and two triple-completion soil gas probes. This work will be completed by 1 September 2013. The Discharger then proposes to monitor the groundwater for a two-year period, and if VOC concentrations in the groundwater are not decreasing, then complete an audit of the landfill gas system. However, because control of landfill gas is crucial in remediating the groundwater, this Order requires that the audit be conducted by the end of 2013. This Order allows the Discharger to monitor groundwater for a two-year period following installation of the cover and audit of the gas system, and requires that additional corrective actions measures be implemented at the end of the two-year period if VOC concentrations in the groundwater do not show a statistically significant decrease.

39. This Order also allows the Discharger to initially remediate the VOCs in the groundwater by stopping the source of VOCs (through control of landfill gas) coupled with natural attenuation of the VOCs already present in the groundwater. The success of the natural attenuation will be measured by the VOC concentrations in perimeter groundwater monitoring wells MW-9A, 10A, and 11A. The gas extraction system is intended to control the source at the compliance boundary and keep VOCs from entering groundwater and further degrading the vadose zone and shallow groundwater. However, if after two years of additional LFG extraction, VOC concentrations do not show a statistically significant decrease in onsite groundwater monitoring wells MW-5 and MW-8, then this Order requires the Discharger to install one of the three treatment systems proposed in the EFS (air sparging/vapor extraction, groundwater extraction/air stripping, or groundwater extraction/GAC treatment).

### **REGULATORY CONSIDERATIONS**

40. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised September 2009 (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
41. The designated beneficial uses of the underlying groundwater, as stated in the Basin Plan, are domestic, municipal, agricultural, and industrial supply.
42. Surface water runoff from the site drains to sedimentation basins located northwest and southeast of the landfill as shown in Attachment A. The basins detain storm water for sedimentation control during the rainy season and are normally dry during the summer months. The southeast sedimentation basin can discharge to Corral Hollow Creek. The facility is permitted to discharge storm water to surface waters under a separate WDRs Order 97-03-DWQ , *Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities* (NPDES General Permit CAS000001).
43. Surface water that leaves the site drains to Corral Hollow Creek, a tributary of the San Joaquin River. Corral Hollow Creek is an intermittent stream with flows that dissipate during the summer months into the alluvium south of Tracy. As described in the Basin Plan, the beneficial uses of the San Joaquin River are municipal and domestic supply; agricultural supply, industrial supply, industrial process supply, and water contact recreation.
44. Water Code section 13301 states in part,  
When a regional board finds that a discharge of waste is taking place or threatening to take place in violation of requirements or discharge prohibitions prescribed by the regional board or the state board, the board may issue an order to cease and desist and direct that those persons not complying with the requirements or discharge prohibitions (a) comply

forthwith, (b) comply in accordance with a time schedule set by the board, or (c) in the event of a threatened violation, take appropriate remedial or preventative action...

45. As a result of the events and activities described in this Order, the Central Valley Water Board finds that the discharge of waste is taking place or threatening to take place in violation of WDRs Order R5-2013-0013. This Order requires the Discharger to take appropriate remedial action and to comply in accordance with the time schedule set forth below.
46. The WDRs require the Discharger to “comply with all applicable provisions of Title 27 and 40 Code of Federal Regulations Part 258 (Subtitle D) that are not specifically referred to in this Order”. Applicable sections from Title 27 include:
  - a. Title 27, section 20405(a), which states in part:

For each Unit, the RWQCB shall specify in the WDRs the Point of Compliance at which the Water Standard... applies. The Point of Compliance is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.
  - b. Title 27, section 20425(b), which states in part:

The discharger shall collect and analyze all data necessary to assess the nature and extent of the release from the Unit. This assessment shall include a determination of the spatial distribution and concentration of each COC throughout the zone affected by the release. The discharger shall complete and submit this assessment within 90 days of establishing an evaluation monitoring program.
  - c. Title 27, section 20425(i), which states in part:

Any time the RWQCB determines that the evaluation monitoring program does not satisfy the requirements of this section, the RWQCB shall send written notification of such determination to the discharger by certified mail, return receipt requested. The discharger shall, within 90 days of such notification by the RWQCB, submit an amended report of waste discharge to make appropriate changes to the program.
  - d. Title 27, section 20430(b), which states:

The discharger shall take corrective action to achieve the following goals: to remediate releases from the Unit; to ensure that the discharger achieves compliance with the Water Standard adopted under section 20390 for that Unit.
  - e. Title 27, section 20430(c), which states:

The discharger shall implement corrective action measures that ensure that COCs achieve their respective concentration limits at all Monitoring Points and throughout the zone affected by the release, including any portions thereof that extend beyond the facility boundary, by removing the waste constituents or treating them in place.
  - f. Title 27, section 20430(j), which states in part:

Any time the RWQCB determines that the corrective action program does not satisfy the requirements of this section, the discharger shall, within 90 days of receiving written notification of such determination by the RWQCB, submit an amended report of waste discharge to make appropriate changes to the program.

g. Title 27, section 20400, which states in part:

(a) ...For each Constituent of Concern..., the discharger shall propose one of the following...:

(1) **Background Value** — a concentration limit not to exceed the background value of that constituent as determined pursuant to §20415(e)(10)(A);

(2) **Value Redetermined Each Time** — that the WDRs include a statement that, at any given time, the concentration limit for that COC will be equal to the background value of that constituent, as determined pursuant to §20415(e)(10)(B); or

(3) **CLGB** — a concentration limit greater than background (**CLGB**) established pursuant to this section for a corrective action program.

(b) ... Upon final approval by the RWQCB, each concentration limit and each statement shall be specified in WDRs...

(c) **Establishing a CLGB** — For a corrective action program, the RWQCB shall establish a CLGB... only if the RWQCB finds that it is technologically or economically infeasible to achieve the background value for that constituent and that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the CLGB is not exceeded. In making this finding, the RWQCB shall consider the factors specified in ¶(d), the results of the engineering feasibility study submitted pursuant to §20425(c), data submitted by the discharger pursuant to §20425(d)(2) to support the proposed CLGB, public testimony on the proposal, and any additional data obtained during the evaluation monitoring program.

(d) **CLGB Ceiling** — In no event shall a CLGB for a constituent of concern exceed the lowest concentration that the discharger demonstrates and the RWQCB finds is technologically and economically achievable. No provision of this section shall be taken to allow a CLGB for a constituent of concern to exceed the maximum concentration that would be allowed under other applicable statutes or regulations [e.g., Maximum Concentration Limits established under the federal Safe Drinking Water Act...].

47. If the Discharger wishes the Board to consider concentration limits greater than background, then the Discharger shall submit an amended Report of Waste Discharge addressing all of the requirements set forth in section 20400 of Title 27.

48. Water Code section 13267, subdivision (b)(1) states that:

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region... shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable

relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

49. The Discharger owns and operates the facility subject to this Order. The technical reports required by this Order are necessary to determine compliance with the facility's WDRs and this Order.
50. The issuance of this Order is an enforcement action by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act, pursuant to Section 15321(a)(2) of Title 14, California Code of Regulations.
51. On 12 April 2013, in Rancho Cordova, California, after due notice to the Discharger and all other affected persons, the Central Valley Water Board conducted a public hearing at which evidence was received to consider a Cease and Desist Order under Water Code section 13301 to establish a time schedule to achieve compliance with waste discharge requirements.

**IT IS HEREBY ORDERED** that, pursuant to Water Code sections 13301 and 13267, San Joaquin County Department of Public Works, its agents, successors, and assigns shall, in accordance with the following tasks and time schedule, conduct corrective action activities to mitigate underlying groundwater affected by a release from the WMU to ensure compliance with WDRs Order R5-2013-0013.

Any person signing a document submitted under this Order shall make the following certification:

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

1. WDRs Order R5-2013-0013 requires that construction of the landfill cover extension (including installation of groundwater monitoring wells, gas extraction wells, and gas monitoring probes) be completed by 1 September 2013. Therefore, by **10 September 2013**, the Discharger shall submit a brief technical report certifying that it has constructed the 1.3 acre cover extension as described in the October 2012 Final Closure Plan and Engineering Feasibility Study. The Discharger shall also certify that the construction project included the installation of seven LFG extraction wells and two triple-completion soil vapor probes
2. By **20 December 2013**, the Discharger shall submit a *Landfill Gas Extraction System Audit and Upgrade Report*. The Report shall include an evaluation of the

effectiveness of the existing LFG system and the newly installed LFG extraction wells in terms of the system's ability to capture LFG, provide site-wide source control, and prevent any additional LFG from migrating into the vadose zone or groundwater. The Plan shall describe steps that have been taken to modify the physical components or operating elements of the landfill gas system to prevent landfill gas, to the extent possible, from entering groundwater throughout the entire footprint of the landfill and surrounding vadose zone adjacent to and beneath the landfill. The Report shall include:

- a. A description of the measures that have been taken to provide and maintain, to the extent possible, continuous negative pressure<sup>1</sup> in each landfill gas extraction well for each interval monitored;
  - b. Certification by an independent third party that those measures have been fully implemented; and
  - c. An *Operational Procedures* document that describes on-going procedures that will be implemented to ensure that landfill gas extraction is continuously optimized. The document may reference requirements from the regulations pertaining to Methane Emissions from Municipal Solid Waste Landfills contained in the California Code of Regulations, title 17, Subchapter 10, Article 4, Subarticle 6, section 95460 et seq.
3. Monitoring Reporting Program (MRP) R5-2013-0013 requires the submittal of quarterly groundwater monitoring and semi-annual corrective action progress reports. Beginning with the Fourth Quarter 2013 report (due by **1 February 2014**), each of the quarterly reports shall include the following additional information:
- The landfill gas system operational and monitoring data listed in Attachment A to this Order;
  - Time versus concentration graphs for total VOCs in groundwater monitoring wells MW-5, 8, 9A, 10A, and 11A. The starting point shall be the 2<sup>nd</sup> Quarter 2013 monitoring data;
  - An estimation of when the VOC concentrations in each of the above five wells will meet the Water Quality Protection Standard (WQPS) or an approved Concentration Limit Greater than Background (CLGB);

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<sup>1</sup> For purposes of this Order, "continuous negative pressure" means that each wellhead shall be operated under a vacuum (negative pressure) except (a) when a well has been decommissioned with approval of the Assistant Executive Officer, (b) when necessary to prevent or control a landfill fire, (c) during maintenance, construction, or well raising activities on a well, or (d) when the gas collection system has been temporarily shut down for maintenance or repairs.

- The results of a statistical trend test performed for each of the above five wells. The trend tests will be used to determine if the total VOC concentrations show a statistically significant upward or downward trend. The statistical tests shall be conducted using the tests recommended in the USEPA Unified Guidance<sup>2</sup>, such as Mann-Kendall, Theil-Sen, or Linear Regression; and
  - If the Discharger elects to install additional LFG extraction wells or complete additional enhancements to the LFG system, then the report shall contain a description of the work accomplished during the quarter.
4. For the First Quarter 2015 quarterly report (due by **1 May 2015**): If the total VOC concentration in either groundwater monitoring well MW-5 or MW-8 does not show a statistically significant decrease (using the data collected between the Second Quarter 2013 and the First Quarter 2015), then the report shall contain a brief evaluation of the three treatment options described in Finding 39 and shall state which option will be implemented if concentrations do not decrease by the Third Quarter 2015.
  5. For the Third Quarter 2015 quarterly report (due by **1 November 2015**): If the total VOC concentration in either groundwater monitoring well MW-5 or MW-8 does not show a statistically significant decrease (using the data collected between the Second Quarter 2013 and the Third Quarter 2015), then the report shall include a work plan to install the treatment option identified in the First Quarter 2015 report. The work plan shall include a schedule for implementation not to exceed **15 June 2016**.
  6. If the Discharger was required to submit the work plan described in Item 5, above, then by **15 November 2016** the Discharger shall submit a *Groundwater Remediation Installation Report* summarizing the installation of the groundwater treatment system identified in Item 4, above
  7. The Discharger may propose concentration limits greater than background (CLGB) provided the Discharger makes the demonstration that it is technically and economically infeasible to comply with the water standard in accordance with Title 27, section 20400(c) and (e).
  8. Corrective action will be deemed complete once compliance with the water standard has been met. To terminate corrective action, the Discharger shall demonstrate to the satisfaction of Water Board staff that concentrations of all constituents of concern have been reduced to levels below the established concentration limits throughout the entire zone affected by the release (Title 27, Section 20430 (f)). The Discharger shall submit this demonstration in a technical report.

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<sup>2</sup> March 2009 Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities- Unified Guidance

In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall contain the professional's signature and/or stamp of the seal.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions.

Failure to comply with this Order or with the WDRs may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date that this Order becomes final, except that if the thirtieth day following the date that this Order becomes final falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:  
[http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality)  
or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 12 April 2013.

Original signed by

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PAMELA C. CREEDON, Executive Officer

**ATTACHMENT A  
 LANDFILL GAS (LFG) MONITORING PROGRAM**

| <b>Parameter</b>   | <b>Units</b>            | <b>Frequency</b> |
|--|-------------------------|------------------|
| <b>LFG Extraction Well Field</b>   |                         |                  |
| Gas concentrations at each well  |                         |                  |
| Methane  | % by volume             | Monthly          |
| Carbon Dioxide <sup>1</sup>  | % by volume             | Monthly          |
| Oxygen <sup>1</sup>  | % by volume             | Monthly          |
| Remainder gas <sup>1</sup>   | % by volume             | Monthly          |
| Gas Temperature at each well   | °F                      | Monthly          |
| Gas Pressure at each well  |                         |                  |
| Initial static pressure in wellhead  | inches H <sub>2</sub> O | Monthly          |
| Adjusted static pressure in wellhead   | inches H <sub>2</sub> O | Monthly          |
| <b>Flare Station</b>   |                         |                  |
| Temperature into LFG Flare   | °F                      | Monthly          |
| Pressure into the LFG Flare  | inches H <sub>2</sub> O | Monthly          |
| LFG Flow rate into the Flare   | CFM                     | Monthly          |
| Total halogenated VOCs<br><b>(USEPA Method TO-15)</b>  | µg/cm                   | Semi-annually    |
| <b>Perimeter LFG Migration Monitoring Probes GW-1 through GW-7</b><br>As Identified in the WDR and MRP |                         |                  |
| Gas Concentration  |                         |                  |
| Methane  | % by volume             | Quarterly        |
| Carbon Dioxide <sup>1</sup>  | % by volume             | Quarterly        |
| Oxygen <sup>1</sup>  | % by volume             | Quarterly        |
| Remainder gas <sup>1</sup>   | % by volume             | Quarterly        |
| Probe Pressure   | inches H <sub>2</sub> O | Quarterly        |

Notes:

1: Measurement of CO<sub>2</sub>, O<sub>2</sub> and “remainder gas” may be postponed due to unavailability of gas measurement instrument during factory-calibration. Measurement of methane will be made by other instruments that may not allow measurement of CO<sub>2</sub>, O<sub>2</sub> and “remainder gas”.