

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER R5-2015-0700
FOR
CITY OF MODESTO PUBLIC WORKS DEPARTMENT
STANISLAUS COUNTY

This Order is issued to the City of Modesto Department of Public Works based on provisions of Water Code section 13304, which authorizes the California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board or Board) to issue a Cleanup and Abatement Order (CAO), and Water Code section 13267, which authorizes the Board to require the submittal of technical reports.

The Assistant Executive Officer of the Central Valley Water Board finds, with respect to the Discharger's acts, or failure to act, the following:

1. The City of Modesto Department of Public Works (hereafter Discharger) owns, operated, and now maintains the former Carpenter Road Landfill.
2. The Carpenter Road Landfill is on a 39 acre parcel in Section 12, T4S, R8E, MDB&M and is comprised of Assessor's Parcel Numbers 017-021-001 and 037-037-001. The landfill is located approximately four miles southwest of downtown Modesto, and is bordered by the Tuolumne River to the south, residential properties to the north and west, and a wastewater treatment plant to the east. The landfill is within the 100-year flood plain of the Tuolumne River.
3. The landfill includes two separate waste management units (WMUs) located on the west and east sides of Carpenter Road. The landfill received municipal, industrial, and agricultural waste during its operation. The west WMU is approximately 28 acres and received waste from 1956 to October 1968. The east WMU is approximately 11 acres and received waste from October 1967 to October 1968. Because of the time of operation, there is no liner beneath the filled waste. The current cover is comprised of native soil has not been compacted or graded to promote drainage. Drainage ditches have not been installed to enhance runoff.
4. Because the landfill has been inactive since October 1968, it is considered a closed, abandoned or inactive (CAI) Unit and regulated under Section 20080(g) of Title 27 (see Finding 20 of this Order).

INDICATION OF IMPACT TO WATER QUALITY

5. Gas monitoring began in 1993 with the installation of six gas probes along the northern boundary of the landfill where residences are approximately 120 to 200 feet from the landfill. Because methane was reported in a gas probe at concentrations above the regulatory limit in 2005, the California Integrated Waste

Management Board required the Discharger to determine the cause of the elevated methane and to develop a mitigation and monitoring plan. In response to the elevated landfill gas concentrations, in January 2007 Board staff requested that the Discharger conduct an assessment of the groundwater and landfill gas. Subsequent investigations showed the gas probe in question was actually installed directly into the waste mass, which may have been the cause of the elevated methane concentrations. The probe was abandoned and replaced with two new gas probes along the perimeter of the landfill property. There have been no methane concentrations detected at or above the regulatory limit in the new perimeter gas probes.

6. Since submittal of a Site Assessment Workplan in July 2007, the Discharger has voluntarily been collecting information through multiple investigations. The investigations have included: (a) geophysical surveying and cone penetrometer testing to determine the extent and depth of wastes, (b) surface emission measurements to evaluate any methane releases from gas probes installed at the site, and (c) installing and monitoring nine groundwater monitoring wells.
7. The investigations have also defined the thickness of the waste and depth to groundwater. Geophysical profiles show the waste is up to 20 feet thick. The estimated amount of waste based on an average waste thickness of 15 feet is one million tons. The groundwater beneath the waste ranges in depth from approximately 36 to 39 feet above mean sea level (approximately 16 to 33 feet below ground surface). The groundwater flows from the north to south toward the Tuolumne River. Groundwater gradients range between 0.006 feet/foot and 0.007 feet/foot.
8. The site investigations have confirmed the presence of volatile organic compounds (VOCs) in the groundwater, and that the landfill is the source of the release. Semi-annual groundwater monitoring indicates the continued presence of VOCs, including tetrachloroethylene (PCE), trichloroethylene, Freon 113, and chloroform in the groundwater underlying the western WMU. PCE is consistently reported above its Maximum Contaminant Level of 5 micrograms per liter in Compliance Monitoring Well 4. The Discharger believes that the chloroform in the groundwater is not due to the landfill, rather it believes the contaminant is from another source.
9. The Discharger has submitted multiple documents associated with the site investigations and monitoring. Those documents include:
 - a. Site Assessment Report (October 2007).
 - b. Workplan for Site Assessment - Phase Two (January 2008).
 - c. Quarterly, Semi-Annual, and Annual Monitoring Reports (July 2008 through January 2015).

- d. Evaluation Monitoring Program Workplan (August 2009).
 - e. Evaluation Monitoring Program Report (December 2009).
 - f. Engineering Feasibility Study (June 2010).
 - g. Groundwater Monitoring Well Installation Report (July 2010).
 - h. Corrective Action Plan (CAP) (November 2010).
 - i. Monitoring Point Installation Workplan (June 2013).
 - j. Groundwater Monitoring Well Installation and Abandonment Report (July 2013).
 - k. Revised CAP and Final Closure and Post Closure Maintenance Plan (October 2014).
 - l. Groundwater Monitoring Well MW-9 Installation Report and MW-6A Installation Workplan (October 2014).
 - m. Groundwater Monitoring Well MW-6A Installation and MW-6 Abandonment Report (January 2015).
10. In February 2014, Board staff met with the Discharger to discuss the extent of the VOC groundwater contamination, and the 2010 CAP. Based on those discussions, it was determined that the plan to implement *insitu* groundwater treatment was not an acceptable corrective action method, and that a final closure cap would need to be installed, and a revised CAP and a Post Closure Maintenance and Monitoring Plan would need to be submitted. On 31 October 2014, the Discharger submitted a revised CAP and a Final Closure Plan and Post Closure Maintenance Plan to propose a corrective action remedy. This Order implements the Discharger's proposed corrective actions.

CORRECTIVE ACTIONS

11. The Discharger has proposed to install a final cover to address the detections of VOC in groundwater. The Discharger's final remedy will be done in phases and is described in the CAP as follows:
 1. Remove waste from the eastern WMU and place it onto the western WMU.
 2. Use the wastes removed from the eastern WMU to build elevation and slopes on the western WMU, then cap the western WMU with clean soil, either from onsite sources and/or imported.

3. Convert the areas excavated in the eastern WMU into a storm water retention basin.
 4. Following the grading of the final cover material on the Western WMU, stabilize the slopes by vegetating the slopes.
 5. Install a water system to convey storm water runoff from the final cover and channel the runoff under Carpenter Road, to the new storm water retention basin.
12. The final cover system for the west WMU as described in *Final Closure Plan* includes: (a) grading the surface of the waste to approximately two percent, and (b) placing a 24 inch thick soil vegetative layer on top of the relocated waste. The vegetative layer will be compacted to a minimum 85 percent in accordance with ASTM D698.
 13. Because the information in the *Final Closure Plan* does not include design specifications or a detailed schedule, this Order requires the Discharger to submit a *Design and Construction Plan*.
 14. This Order requires the Discharger to clean close the east WMU, and install a final cover at the west WMU. At the time of this Order, there is no proposal for a landfill gas recovery system or a groundwater treatment system. However, this may change if the ongoing groundwater monitoring shows that VOC concentrations do not decrease after the cover is installed.
 15. Post closure maintenance and monitoring of the site will be conducted under Waste Discharge Requirements, which will be prepared following installation of the final cover and the approval of the Final Construction Report required by this Order.

REGULATORY CONSIDERATIONS

16. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.
17. Surface water drainage from this site is to the Tuolumne River. The Basin Plan designates the beneficial uses of the Tuolumne River as municipal and domestic supply; agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms, spawning reproduction and/or early development; and wildlife habitat.

18. The Basin Plan designates the beneficial uses of the underlying groundwater as municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
19. The State Water Resources Control Board (hereafter State Board) has adopted Resolution No. 92-49, the *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304*. This Policy sets forth the policies and procedures to be used during an investigation or cleanup of a polluted site and requires that cleanup levels be consistent with State Board Resolution No. 68-16, the *Statement of Policy With Respect to Maintaining High Quality of Waters in California*. Resolution No. 92-49 and the Basin Plan establish the cleanup levels to be achieved. Resolution No. 92-49 requires the waste to be cleaned up to background, or if that is not reasonable, to an alternative level that is the most stringent level that is economically and technologically feasible in accordance with Title 23, California Code of Regulations (CCR) Section 2550.4. Any alternative cleanup level to background must (1) be consistent with the maximum benefit to the people of the state; (2) not unreasonably affect present and anticipated beneficial use of such water; and (3) not result in water quality less than that prescribed in the Basin Plan and applicable Water Quality Control Plans and Policies of the State Board.
20. Applicable sections of Title 27, CCR are as follows:

*Section 20080(g) of Title 27 states: “**CAI Units**—Persons responsible for discharges at Units which were closed, abandoned, or inactive on or before November 27, 1984 (**CAI Units**), may be required to develop and implement a detection monitoring program in accordance with Article 1, Subchapter 3, Chapter 3, Subdivision 1 of this division (§20380 et seq.). If water quality impairment is found, such persons may be required to develop and implement a corrective action program under that article.”*

*Section 20385(a)(4) of Title 27 states: “**Corrective Action** — The discharger shall institute a corrective action program under §20430 of this article when the RWQCB determines (pursuant to §20425) that the assessment of the nature and extent of the release and the design of a Corrective Action Program have been satisfactorily completed and the RWQCB approves the application for an amended report of waste discharge for corrective action submitted by the discharger during an evaluation monitoring program [pursuant to §20425(d)].*
21. Water Code section 13304(a) states, in relevant part:

Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits,

or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.

22. Water Code section 13267(b) states, in relevant part:

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.

23. The technical reports required by this CAO are necessary to ensure compliance with this Order, and to ensure protection of water quality. The Discharger is subject to these requirements because the Discharger owns and previously operated the landfill.

24. The issuance of this Order is an enforcement action taken by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, title 14, section 15321(a)(2).

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13304 and 13267, the City of Modesto Department of Public Works shall cleanup and abate the Carpenter Road Landfill in accordance with the scope and schedule set forth below.

1. **Beginning immediately**, the Discharger shall monitor the groundwater in accordance the requirements in the attached Monitoring and Reporting Program (MRP), which is included as Attachment B to this Order. Monitoring and reporting under this MRP shall be conducted until this Order is rescinded, and Waste Discharge Requirements (WDRs) are adopted by the Central Valley Water Board.
2. **Beginning 1 April 2015, and continuing quarterly until this Order is rescinded**, the Discharger submit quarterly progress reports describing the work completed to date to comply with each of the requirements described below. The reports shall also discuss the status of obtaining the funds necessary to complete the work described in this Order. The Quarterly Progress Reports shall be submitted by the 1st day of the month following the end of the quarter (e.g. 1 January, 1 April, 1 July, and 1 October).

3. By **1 May 2015**, the Discharger shall submit a *Design and Construction Plan* that includes specific design and construction details and proposed schedules for clean closing the east WMU, and installing a final cover at the west WMU. The Plan shall include consideration of the items listed in Item No. 4, below, and shall provide step-by-step details regarding:
 - a. Removal of the soil overlying the waste from the west and east WMUs, and sampling of the material overlying the waste.
 - b. Methods used to separate any waste for the soil fill material to be used on final cover of the west WMU.
 - c. Size considerations and construction details for the storm water retention basin at the east WMU.
 - d. Waste handling and disposal requirements if any hazardous waste is encountered during the excavation activities.
 - e. Placement of the final cover on the west WMU, including grading the final cover to promote runoff and eliminate ponding and stabilizing the slopes of the final cover.

The final cover must be designed and constructed in such a manner that it is thick enough to limit percolation and migration of landfill gas to the atmosphere. In addition, the final cover must be designed and constructed in such a manner that is protected from flood events. The Plan shall also contain a *Construction Quality Assurance (CQA) Plan* as described in Title 27 Section 20324, and shall include those items found in Attachment A to this Order.

4. By **1 November 2015**, the Discharger shall provide documentation showing that it has obtained all applicable permits (construction storm water, etc.) associated with clean closing the east WMU and installing a final cover on the west WMU.
5. By **1 June 2016**, the Discharger shall submit a technical report documenting that it has begun clean closure¹ of the east WMU by removing all of the waste and constructing a storm water retention basin at the site, and closing the west WMU by constructing a final cover and grading the site to drain into the newly constructed storm water retention basin. The final cover shall be designed and constructed in a manner that incorporates the following sections of Title 27, such that:

¹ Clean Closure means that all waste, waste residues, contaminated system components, contaminated subsoils, and all other contaminated materials are removed or decontaminated at closure, pursuant to: §21090(f) of Title 27.

- a. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineering alternative design, in accordance with this Order.
 - b. Materials used in the final cover shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because the stress of daily operations.
 - c. The final cover for the west MWU shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27 Section 20365(a)]. Furthermore, the upper surface of the landfill shall be graded such that the overall slope is graded with an overall slope greater than three degrees as required by Title 27 Section 21090(b).
 - d. The west WMU final cover shall include protective barriers to prevent washout or inundation from a 100 year flood event.
 - e. All construction of the final cover system shall be performed in accordance with a CQA Plan certified by a registered civil engineer or a certified engineering geologist [Title 27 Section 20323] and approved by the Executive Officer.
 - f. The CQA program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27 Section 20324(b)(2)].
6. By **15 January 2017**, the Discharger shall submit a Report of Waste Discharge for postclosure WDRs. Prior to that date, the Discharger shall consult with the Water Board's Permitting Unit to determine the information to be included in the Report of Waste Discharge.
 7. By **15 January 2017**, the Discharger shall submit a *Final Construction and Completion Report* that complies with Section 20324 (d)(1)(c) of Title 27 CCR and documents all work associated with clean closing the east WMU and installing a final cover on the west WMU. The report must also demonstrate that all storm water control measures are successfully installed (including vegetation rooted and growing) to protect the final cover from erosion during a 100 year, 24 hour precipitation event. In addition, the report shall provide evidence that the CQA

Plan was implemented as proposed, and that the construction was completed in accordance with the Design and Construction Plan. Finally, the report shall include a *Revised Post Closure Maintenance Plan* that describes any changes to the maintenance and monitoring described in the 31 October 2014 Post Closure Maintenance Plan, and includes any updated costs associated with these changes.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all reports shall be prepared by, or under the supervision of, a California Registered Engineer or Professional Geologist and signed by the registered professional. Each technical report submitted by the Discharger shall contain the professional's signature and/or stamp of the seal.

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."

All submittals for this Order shall be converted to a PDF file and uploaded to GeoTracker. Additionally, to ensure that each uploaded document is properly logged and routed to the appropriate Water Board staff, after each successful report upload to GeoTracker, please send an e-mail notification to **centralvalleysacramento@waterboards.ca.gov** stating that the subject report has been uploaded. Each notification e-mail is to contain: (1) A line stating that the subject report, with report date, has been uploaded to GeoTracker, and (2) a completed copy of the following table:

| | |
|-----------------------------------|--|
| Date and Title of Report | Add Date and Title of Report Here |
| Regulatory Program | Title 27 |
| Unit | "Compliance and Enforcement" |
| Regulated Party Name (Discharger) | City of Modesto Department of Public Works |
| Facility Name | Carpenter Road Landfill |
| County | Stanislaus |
| GeoTracker ID No. | |
| GeoTracker Confirmation No. | |

If the Discharger is unable to perform any activity or submit any document in compliance with the schedule set forth herein, or in compliance with any work schedule submitted pursuant to this Order and approved by the Assistant Executive Officer, the Discharger may request, in writing, an extension of the time specified. The extension

request shall include justification for the delay. Any extension request shall be submitted as soon as a delay is recognized and prior to the compliance date. An extension may be granted by revision of this Order or by a letter from the Assistant Executive Officer.

If the Discharger fails to comply with the provisions of this Order, the Assistant Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability. Failure to comply with this Order may result in the assessment of administrative civil liability up to \$10,000 per violation per day, pursuant to the Water Code sections 13268, 13350, and/or 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 of this Order, except that if the thirtieth day following the date of this Order 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

or will be provided upon request.

This Order is effective upon the date of signature.

Original signed by

ANDREW ALTEVOGT, Assistant Executive Officer

(Date)

Attachments

Attachment A Minimum information to be included in the CQA Plan and CQA Report
Attachment B Monitoring and Reporting Program

gjc: 4 Mar-15

ATTACHMENT A TO CLEANUP AND ABATEMENT ORDER R5-2015-0700
 CITY OF MODESTO DEPARTMENT OF PUBLIC WORKS
 CARPENTER ROAD LANFILL
 STANISLAUS COUNTY

| Title 27 References | Minimum Information To Be Included in the CQA Plan and CQA Report |
|--|--|
| 20324(b)(2) –Professional Qualifications | The name and registration (civil engineer or certified engineering geologist) of the designated CQA Officer. |
| 20324(c)(1)(A)–Reports | An organization chart showing the chain of command, the management organization, and the names and titles for the CQA Officer, CQA inspectors, and contractors. |
| 20324(c)(1)(B)–Reports | A detailed description of the level of experience and training for the contractor, the work crew, and CQA inspectors. |
| 20324(d)–Documentation | Documentation shall include, at the minimum: reports bearing unique identifying sheet numbers for cross referencing and document control, the date, project name, location, descriptive remarks, the data sheets, inspection activities, and signature of the designated authorities with concurrence of the CQA Officer. |
| 20324(d)(1)(A)—Daily Summary Reports | <ol style="list-style-type: none"> 1. Daily recordkeeping shall include daily summary reports with supporting inspection data sheets, problem identification, and corrective measures reports. Daily summary reports shall provide a chronological framework for identifying and recording all other reports. 2. Inspection data sheets shall contain all observations (i.e., notes, charts, sketches, or photographs), and a record of field and/or laboratory tests. Problem identification and corrective measures reports shall include detailed descriptions of materials and/or workmanship that do not meet a specified design and shall be cross-referenced to specific inspection data sheets where the problem was identified and corrected. |
| 20324(d)(1)(B)—Acceptance Reports | All reports shall be assembled and summarized into Acceptance Reports in order to verify that the materials and construction processes comply with the specified design. Each Acceptance Report shall include, at a minimum, inspection summary reports, inspection data sheets, problem identification, corrective measures reports. |
| 20324(d)(1)(C)—Final Documentation | The revised <i>Final Construction Quality Assurance Report</i> shall provide evidence that the CQA Plan was implemented as proposed and that the construction proceeded in accordance with design criteria, plans, and specifications, as prepared by the CQA Officer. |

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ATTACHMENT B TO CLEANUP AND ABATEMENT ORDER R5-2015-0700

MONITORING AND REPORTING PROGRAM
FOR
CITY OF MODESTO
DEPARTMENT OF PUBLIC WORKS
CARPENTER ROAD LANDFILL

This Monitoring and Reporting Program (MRP) presents requirements for monitoring of groundwater. This MRP is issued pursuant to Water Code Section 13267.

Field testing instruments (such as those used to test pH, electrical conductivity, turbidity, and temperature) may be used provided that:

- 1 The operator is trained in proper use and maintenance of the instruments;
- 2 The instruments are calibrated prior to each monitoring event;
- 3 The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency;
- 4 Field calibration reports are submitted as described in the "Reporting" section of this MRP.

GROUNDWATER MONITORING

The current groundwater monitoring network consists of monitoring wells (MWs) 1 through 9. Prior to sampling, depth to groundwater measurements shall be measured in each monitoring well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction.

Low or no-purge sampling methods are acceptable, if described in an approved sampling and analysis plan. Groundwater monitoring for all monitoring wells shall include, at a minimum, the following:

| Constituent | Units | Type of Sample | Sampling Frequency | Reporting Frequency |
|------------------------------------|--------------|-----------------------|---------------------------|----------------------------|
| Depth to groundwater | 0.01 feet | Measurement | Quarterly | Semi-Annually |
| Groundwater elevation ¹ | Feet | Calculated | Quarterly | Semi-Annually |
| Gradient magnitude | feet/feet | Calculated | Quarterly | Semi-Annually |
| Gradient direction | Degrees | Calculated | Quarterly | Semi-Annually |
| pH | pH Units | Grab | Semi-Annually | Semi-Annually |
| Electrical Conductivity | µmhos/cm | Grab | Semi-Annually | Semi-Annually |
| Turbidity | NTU | Grab | Semi-Annually | Semi-Annually |

| Constituent | Units | Type of Sample | Sampling Frequency | Reporting Frequency |
|---|-------|----------------|------------------------|------------------------|
| Total Dissolved Solids | mg/L | Grab | Semi-Annually | Semi-Annually |
| Chloride | mg/L | Grab | Semi-Annually | Semi-Annually |
| Nitrate as N | mg/L | Grab | Semi-Annually | Semi-Annually |
| Sulfate | mg/L | Grab | Semi-Annually | Semi-Annually |
| Calcium | mg/L | Grab | Semi-Annually | Semi-Annually |
| Magnesium | mg/L | Grab | Semi-Annually | Semi-Annually |
| Potassium | mg/L | Grab | Semi-Annually | Semi-Annually |
| Sodium | mg/L | Grab | Semi-Annually | Semi-Annually |
| Volatile Organic Compounds ² | µg/L | Grab | Semi-Annually | Semi-Annually |
| Dissolved Metals ³ | µg/L | Grab | Five Year ⁴ | Five Year ⁴ |

¹ Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and surveyed reference elevation.

² Volatile Organic Compounds analyzed by EPA Method 8260B.

³ Aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, chromium 6+, mercury, lead, manganese, molybdenum, nickel, selenium, silver, tin, thallium, vanadium, zinc, total cyanide, total sulfide.

⁴ Conducted every 5 years during the second semi-annual sampling and reporting period, beginning in 2015.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., MW-1, etc), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, the Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or a professional Geologist and signed/stamped by the registered professional.

Semi-Annual Groundwater Monitoring Reports

The Discharger shall establish a semi-annual sampling schedule for groundwater monitoring such that samples are obtained approximately every six months. Semi-Annual Groundwater Monitoring Reports shall be submitted to the Central Valley Water Board by the **1st day of the second month after the sampling event** (i.e., the January through June report is due by 1 August each year). The monitoring report shall at a minimum include the following:

1. Tabulated results of groundwater monitoring;
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;
3. For each monitoring event:
 - a. Calculation of groundwater elevations, determination of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any; and
 - b. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).
4. Summary data tables and graphs of historical and current water table elevations and analytical results;
5. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
6. Copies of laboratory analytical report(s) for groundwater monitoring.
7. A calibration log verifying calibration of all monitoring instruments and devices used to fulfill the prescribed monitoring program.

A transmittal letter shall accompany each monitoring report. Pursuant to Section K.2 of the Standard Provisions and Reporting Requirements, the transmittal letter shall contain a statement by the Discharger or the Discharger's authorized agent certifying under penalty of perjury that the report is true, accurate and complete to the best of the signer's knowledge. The Standard Provisions and Reporting Requirements can be found at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/std_provisions/title27_nov2013.pdf.

Central Valley Regional Water Quality Control Board

4 March 2015

Joceylin Reed
 City of Modesto
 Parks, Recreation and Neighborhoods Department
 1010 Tenth Street, Suite 4100
 Modesto, CA 95354

CLEANUP AND ABATEMENT ORDER R5-2015-0700, CITY OF MODESTO CARPENTER ROAD LANDFILL, STANISLAUS COUNTY

Enclosed is Cleanup and Abatement Order (CAO) No. R5-2015-0700 for the Carpenter Road Landfill. The CAO incorporates the City of Modesto’s comments. The CAO includes timelines for the completion of certain tasks and the submittal of specific reports associated with final closure of the Carpenter Road Landfill.

| Required Reports | Due Date |
|---|------------------------|
| Quarterly Progress Reports | Beginning 1 April 2015 |
| Design and Construction Plan | 1 May 2015 |
| Documentation showing that the Discharger has obtained all applicable permits (construction storm water, etc.) associated with clean closing the east Waste Management Unit (WMU) and installing a final cover on the west WMU. | 1 November 2015 |
| Technical Report documenting that the Discharger has begun the clean closing the east WMU and installing a final cover on the west WMU. | 1 June 2016 |
| Report of Waste Discharge | 15 January 2017 |
| Final Construction and Completion Report | 15 January 2017 |

In addition to the above reports required by the CAO, the CAO includes a Monitoring and Reporting Program (MRP) which is intended to formalize the monitoring program which the City has been voluntarily conducting. Please review the MRP closely so that you may establish appropriate sampling schedules and reporting protocols. The required monitoring report submittal dates are in the table below.

| Required Monitoring Report | Due Date |
|---|--|
| Semi-Annual Groundwater Monitoring Report | 1st day of second month following the sampling event (the January through June report is due by 1 August of each year. |

Please be advised that the monitoring reports must be submitted on time and complete. Monitoring reports must include all of the items described in the Reporting Section of the MRP. **The first monitoring report required under this Order is due by 1 August 2015 for the January through June 2015 monitoring.**

Finally, all documents including monitoring reports shall be converted to a searchable Portable Document Format (PDF) and uploaded to GeoTracker. Additionally, to ensure that each uploaded document is properly logged and routed to the appropriate Water Board staff, after each successful report upload to GeoTracker, please send an e-mail notification to **centralvalleysacramento@waterboards.ca.gov** stating that the subject report has been uploaded. Each notification e-mail is to contain a line stating that the subject report, with report date, has been uploaded to GeoTracker.

If you have any questions regarding the CAO or MRP, please contact Guy Childs at (916) 464-4648 or at gchilds@waterboards.ca.gov.

Original signed by

HOWARD HOLD, P.G.
Senior Engineering Geologist

Enc: Cleanup and Abatement Order R5-2015-0700

cc: Troy Weber, CalRecycle, Sacramento
Wayne Pearce, SCS Engineers, Sacramento