

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2011-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
CHEMICAL WASTE MANAGEMENT, INC.
FOR
POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION
BAKERSFIELD FACILITY
KERN COUNTY

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

1. Chemical Waste Management, Inc. (hereafter Discharger), a wholly owned subsidiary of Waste Management, Inc. of Texas, owns the closed Bakersfield facility. The Discharger owns property totaling approximately 1,089 acres, approximately 13 miles northeast of the City of Bakersfield at 27001 Round Mountain Road, and about two miles east of the intersection of the Bakersfield-Glennville Road and Round Mountain Road, as shown in Attachment A, which is attached to and made part of this Order.
2. The closed portion of the facility covers 142.31 acres in the north $\frac{1}{2}$ of the northeast $\frac{1}{4}$ and a portion of the north $\frac{1}{2}$ of the northwest $\frac{1}{4}$ of Section 2, T28S, R28E, MDB&M and includes Assessor Parcel Numbers (APN) 093-010-05 and 093-010-06. The remaining 947.13 acres of land in the south $\frac{1}{2}$ of Section 35 and the west $\frac{1}{2}$ of Section 36, T27S, R28E, and the west $\frac{1}{2}$ of Section 2, T28S, R28E, MDB&M that includes APN 074-120-09, 074-120-24, and 093-010-08, is adjacent to the closed portion of the facility.
3. The facility was originally operated in 1972 by M.P. Oil Company for the disposal of Class II-1 liquid, semisolid, and solid wastes generated mainly from oilfield exploration and production. The wastes were initially discharged to several small unlined surface impoundments and trenches in the Eastern Waste Management Unit (EWMU) and later expanded to the Western Waste Management Unit (WWMU).
4. The Discharger purchased the facility in 1981 and closed several unlined surface impoundments and constructed clay-lined surface impoundments in both the EWMU and WWMU. During the Discharger's operation, the facility consisted of nine surface impoundments (P-1, P-2, P-3, P-5, P-6, P-7, P-1W, P-2W, P-3W), two unlined landfills (B-1 and B-1W), and a spreading area (S-1) as shown in Attachment B, which is attached to and made part of this Order.

5. Landfill B-1 was later covered with soil and used as a spreading area (S-1) for the evaporation of liquid wastes.
6. The Discharger operated the facility from 1981 until 1985. Closure construction occurred between 1986 and 1988 in accordance with closure and post-closure plans approved by the Department of Health Services (DHS), now the Department of Toxic Substances Control (DTSC), and the Central Valley Water Board. Closure construction included stabilization of liquids and sludge in all surface impoundments, consolidation of contaminated material, construction of a cap and drainage and erosion control features, and vegetation of the cap.
7. Correspondence dated 31 March 1989 from the DHS certified that the facility was closed. The Central Valley Water Board adopted Waste Discharge Requirements (WDRs) Order No. 90-264 for Post-Closure and site monitoring. On 30 April 1991, the DHS issued a Post-Closure Hazardous Waste Facility Permit (HWFP). On 11 June 1999, the Central Valley Water Board adopted WDRs Order No. 99-088, which addressed groundwater issues and updated the facility classification. The WDRs need to be revised to address changes related to the DTSC permitting process, the facility hydrogeologic information, and the monitoring and reporting program.

COVENANT AND AGREEMENT TO RESTRICT USE OF PROPERTY

8. On 13 October 2009 the Discharger petitioned DTSC to end the requirement to maintain a Post-Closure HWFP. The petition was submitted to demonstrate that the facility met the closure by removal or decontamination standards of Title 22, Section 66270.1(c)(5) & (6) and that the facility does not present a significant risk to human health or the environment.
9. The petition referenced three supporting documents prepared by Amec Geomatrix:
1) *Waste Characterization Report Bakersfield Facility*, dated 4 November 2008;
2) *Health and Ecological Risk Assessment Bakersfield Facility*, dated 2 June 2009;
and 3) *Health and Ecological Risk Assessment Update Bakersfield Facility*, September 2009. Two-hundred thirty-eight soil samples were collected from below the cover and tested for potential hazardous characteristics, including ignitibility, corrosivity, reactivity, and toxicity, with locations biased toward known waste disposal areas. The results indicated that six samples contained a constituent concentration that potentially exceeded a hazardous characteristic.
10. On 25 June 2010, the DTSC issued a Notice of Final Decision that the facility meets the requirements for closure by decontamination or removal consistent with Title 22. The decision stated that the Post-Closure HWFP dated 30 April 1991 is no longer required, and that the facility is not required to renew a Post-Closure HWFP.
11. Based on the site characterization and human and ecological risk assessment(s), the DTSC determined that management of the facility through implementation of and

compliance with the Covenant To Restrict Use of Property – Environmental Restriction (Covenant), dated 8 September 2010, with continued oversight by the Central Valley Water Board, is protective of human health and the environment. The Covenant states that no unacceptable risks are shown for future maintenance workers, future offsite residents and future consumers of beef or dairy products originating from the adjacent portion of the facility not associated with the closed areas.

SITE DESCRIPTION

12. Land adjacent to the facility is used primarily for oil and gas production and cattle grazing.
13. Surface elevations range from about 670 to 940 feet above mean sea level (MSL). The topography is characterized by two low-lying hills separated by the northeast to southwest trending Central Drainage as shown on Attachment B. The facility is bounded to the northwest and west by the Northwest Canyon.
14. The facility lies on a gently westward dipping sequence of Tertiary sedimentary rocks. The sequence consists of approximately 3,000 feet of marine and non-marine sedimentary rocks that overlie Sierran basement rock. The geologic formations significant to the site hydrogeology include, from oldest to youngest, the Olcese Sand, the Round Mountain Silt (RMS), and the Quaternary Units.
15. The Olcese Sand does not crop out at the facility, but has been encountered in borings at depths of 53 to 216 feet. The upper portion of the Olcese Sand is a marine deposit consisting of laterally continuous, fine-to-medium-grained sandstone with siltstone and claystone interbeds, containing shells and plant fossils.
16. The RMS conformably overlies the Olcese Sand and crops out in the eastern portion of the facility and along the western flanks of the Central Drainage. The RMS is a marine deposit consisting of siltstone and claystone with minor, fine-grained laterally continuous sandstone interbeds, containing various marine organisms and plant and small animal fossils. The upper, shallow portion of the RMS is weathered and contains both open and gypsum-filled fractures.
17. Two Quaternary alluvial units on the facility overlie the RMS. The older unit consists of terrace deposits that cap ridges in the western and southeastern portion of the facility. The younger unit occurs at the bottom of active stream beds and within Poso Creek.
18. There are no known Holocene faults within 200 feet of the facility.

19. The facility receives an average of 7.2 inches of precipitation annually. The mean annual evaporation rate is 67.9 inches. Measurements are from the Lerdo 10 Northwest Station.
20. The 1,000-year, 24-hour precipitation event is approximately 3.3 inches and the 100-year, 24-hour precipitation event is approximately 2.6 inches.
21. The closed portion of the facility shown on Attachment B is not within the 100-year flood plain based on Federal Emergency Management Agency's Flood Insurance Rate Map, Community-Panel Number 060075 0750 B. Areas adjacent to the closure cap that are in the 100-year flood plain include the Central Drainage, the Northwest Canyon, and Poso Creek.

WASTE AND SITE CLASSIFICATION

22. Waste was last received at the facility in 1985. A variety of waste was received, primarily related to oilfield development and production activities and consisted of flue-gas desulfurization (scrubber) wastes, drilling mud, tank bottom sludge, wastewater, and petroleum brine, some of which contained hazardous materials. The waste was predominately non-Resource Conservation and Recovery Act (RCRA) regulated waste, although the facility was permitted by the DTSC to receive RCRA waste. No municipal solid waste was discharged at the facility.
23. The waste is considered Class III non-municipal solid waste which contains some hazardous materials, and subject to those applicable provisions of Title 27, California Code of Regulations (CCR), §20005, et seq. (Title 27). Based on information contained in Finding 11, regulation and management of the closed waste management units in accordance with this Order and the Covenant, is considered protective of human health and the environment.

SURFACE WATER AND GROUNDWATER CONDITIONS

24. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition*, revised January 2004 (the Basin Plan), designates beneficial uses of the waters of the State and establishes water quality objectives (WQOs) and contains implementation plans and policies for all waters of the Tulare Lake Basin. The Site is within Poso Creek Hydrologic Area 555.
25. Poso Creek, an intermittent stream immediately south of the facility, flows westward and drains into the San Joaquin Valley. Storm water runoff from the Central Drainage, Northwest Canyon, and other ephemeral drainages flows into Poso Creek.

26. The designated beneficial uses of Poso Creek, as specified in the Basin Plan, are agricultural supply, contact and noncontact water recreation, warm and cold fresh water habitat, wildlife habitat, groundwater recharge, and fresh water replenishment.
27. The Site is within Kern County groundwater sub-basin, DAU 257. Present and potential future beneficial use of groundwater has been designated by the Basin Plan as including municipal and domestic supply (MUN), agricultural supply (AGR) and industrial and process supply (IND).
28. State Water Resources Control Board Order No. 97-03-DWQ (General Permit No. CAS000001), amended 17 April 1997, specifies WDRs for discharges of storm water associated with industrial activities, excluding construction activities, and requires submission of a Notice of Intent by industries to be covered under the permit.
29. The nearest water supply well, located on the Discharger's adjacent property, is C02 and used only for stock watering.
30. Groundwater occurs in three zones beneath the facility: 1) Olcese Sand; 2) weathered Round Mountain Silt (RMS); and 3) the alluvium. The EWMU is monitored by groundwater monitoring wells installed in the Olcese Sand. The WWMU is monitored by groundwater monitoring wells installed at or near the contact between the weathered RMS and the alluvium.
31. The Olcese Sand is the main water bearing zone, with groundwater occurring in the sandstone interbeds. Beneath the EWMU area, the upper portion of the Olcese Sand is unsaturated. Moving westward, groundwater first encountered in the upper portion of the Olcese is unconfined, and becomes confined below the RMS further westward beneath the WWMU area. The Olcese groundwater elevations vary from about 670 feet MSL near the eastern portion of the facility to 663 feet MSL in the western portion. Depth to groundwater ranges from about 25 to 215 feet depending on surface topography. The average hydraulic gradient is 0.001, with groundwater flow to the west-southwest toward Poso Creek at a calculated rate of about one foot per year. Below the facility, the Olcese background groundwater quality is variable with the total dissolved solids (TDS) ranging from 420 milligrams per liter (mg/L) to 3,700 mg/L.
32. The significant thickness of the RMS creates an effective aquitard, separating perched groundwater in the upper fractured/weathered portion of the formation from confined groundwater in the underlying Olcese Sand formation.
33. Shallow perched groundwater in the RMS in the WWMU area is located below ephemeral stream beds where runoff, primarily from winter storms recharges the younger alluvium. Deeper perched groundwater also occurs in the weathered RMS monitored by piezometer CW07. Groundwater does not occur in the RMS in the EWMU area.

34. Groundwater flow in the RMS is basically restricted to the Central Drainage and the Northwest Canyon (see Attachment B). Groundwater elevations in the RMS in the Central Drainage vary from about 739 feet MSL near monitoring well CW17 to 693 feet MSL near monitoring well MW02. See Attachment C which is incorporated herein and made part of this Order. Groundwater elevations in the RMS in the Northwest Canyon vary from about 731 feet MSL near piezometer MW09 to 655 feet MSL near monitoring well MW06. The average hydraulic gradient is 0.02, with groundwater flow south towards Poso Creek, at a calculated rate of from 13 to 130 feet per year.
35. Monitoring wells MW01, MW11, and CW10 are completed at or near the younger alluvium/RMS contact. Hydrographs indicate that these wells are influenced by the recharge and discharge of Poso Creek. Other monitoring wells completed at this contact that are influenced by Poso Creek include MW02 at the lower end of the Central Drainage, and MW06 at the lower end of the Northwest Canyon.
36. Depth to groundwater near the younger alluvium/RMS contact varies from about 20 to 37 feet. Background groundwater quality is poor, with the TDS ranging from about 4,000 to 5,100 mg/L.

GROUNDWATER MONITORING

37. Sections 20415(e)(8) and (9) of Title 27 provide for the statistical and non-statistical analysis methods of monitoring data that will provide the best assurance of the earliest possible detection of a release from a Unit in accordance with §20415(b)(1)(B)2.-4. of Title 27.
38. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Section 20080(a)(1) of Title 27. The Porter-Cologne Water Quality Control Act (California Water Code) §13360(a)(1) allows the Central Valley Water Board to specify requirements to protect underground or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.
39. The Discharger is required to monitor groundwater in the Olcese and RMS in accordance with the most recently approved Site-Specific Water Quality Monitoring Plan (SSWQMP).
40. There are 23 groundwater monitoring wells at the Bakersfield facility as shown on Attachment C. The function of each well is shown on Table 3 of Monitoring and Reporting Program No. R5-2011-XXXX.
41. Based on historical data and information, groundwater monitoring in the Poso Creek alluvium and unsaturated zone monitoring are not required.

GROUNDWATER DEGRADATION

42. Localized degradation is present in perched groundwater as noted in the following wells: MW01, MW06, CW10, and Northwest Canyon Collection Well (NWC). The groundwater impact is characterized by sodium, sulfate, and TDS, constituents associated with scrubber waste. Groundwater monitoring data indicates that the concentrations of constituents have declined significantly as shown in Table 1 below.

TABLE 1

WELL	Sodium		Sulfate		TDS	
	Historic	Current	Historic	Current	Historic	Current
MW01	17,000	1,600	35,103	4,500	77,000	7,700
MW06	8,320	760	19,131	1,700	25,400	2,900
CW10	18,000	620	36,143	3,200	55,300	4,700
NWC	31,000	9,900	69,780	23,000	110,000	28,000

* Concentrations in mg/L

43. Volatile organic constituents have not been detected during groundwater or corrective action monitoring.
44. Historical monitoring data from former Poso Creek groundwater monitoring wells indicates that the localized degradation mentioned in Finding No. 42 has not affected groundwater offsite.

CORRECTIVE ACTION PROGRAM

45. The Corrective Action Program consists of monitoring the attenuation of sodium, sulfate, and TDS in RMS Wells NWC, MW01, MW06, and CW10.

CLOSURE AND POST-CLOSURE MAINTENANCE

46. Between 1986 and 1988 the Discharger closed two landfills, nine surface impoundments, and one spreading area by constructing a low permeability closure cap over units in the EWMU area and the WWMU area (see Attachment B). The closure system is designed and constructed to provide a surface capable of resisting erosion, support native vegetation, prevent ponding, and minimize infiltration.
47. The closure cap consists of a 15-inch vegetated soil cover over an 18-inch layer of compacted clay with a hydraulic conductivity of 1×10^{-7} centimeters/sec or less. In the area of the surface impoundments, sludge was mixed with cement and/or soil and compacted as an engineered foundation. The closure cap system exceeds the requirements for closure of Class II and III WMUs as contained in Section 21090, Title 27.
48. The Dischargers Post-Closure Maintenance Plans were approved in WDRs Order 90-264. Post-Closure maintenance includes those items contained in the Covenant

as well as maintaining: 1) groundwater, and leachate /seep detection monitoring; 2) the structural integrity of the final cover system and effectiveness of containment structures as necessary to correct the effects of settlement, ponding, burrowing rodents, and equipment damage; and 3) the effectiveness of the drainage systems to prevent erosion of the final cover system and promote storm water drainage off of the final cover system.

49. Closed surface impoundments P-1, P-2, P-3, P-5 and P-6 have leachate collection and removal systems that are monitored in accordance with the Monitoring and Reporting Program that is part of this Order. Collected leachate is stored in tanks and then removed and disposed of at a properly permitted facility offsite.

CEQA AND OTHER CONSIDERATIONS

51. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code Section 21000, et seq., and the CEQA guidelines, in accordance with Title 14 CCR, Section 15301.
52. Provisions of Title 27 require that waste be contained to protect the beneficial uses of surface and/or groundwater, and to remediate any release to surface water and/or groundwater. This Order does not allow the degradation of surface water or groundwater and further antidegradation analysis is not needed.
53. The threat and complexity are used to determine the annual fee for this Order in accordance with Title 23, CCR, section 2200. The facility is classified as a Closed landfill with a rating of 2-B as defined below:
- a. Category 2 threat to water quality, defined as, "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."
 - b. Category B complexity, defined as, "Any discharger not included in category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal) or any Class 2 or Class 3 waste management units."
54. Section 13267(b)(1) of the California Water Code provides that: "In conducting an investigation specified in subdivision (a), the regional water board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency, or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its

region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional water board requires. The burden, including costs of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.”

55. The technical reports required by this Order and the attached Monitoring and Reporting Program No. R5-2011-XXXX are necessary to assure compliance with this Order. The Discharger owns and operated the facility where waste discharges occurred and is subject to this Order.

PROCEDURAL REQUIREMENTS

56. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to revise the WDRs for post-closure maintenance and corrective action for this facility, and has provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
57. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the proposed WDRs.
58. The Central Valley Water Board will periodically review this Order and it will be updated as necessary.
59. Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Resources Control 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 the 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 laws and regulations applicable to the filing of a petition are available on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality
or will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 98-088 is rescinded, and that the Discharger, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of waste to this facility is prohibited.

B. DISCHARGE SPECIFICATIONS

1. Wastes shall remain within the designated disposal areas at all times.
2. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.

C. FACILITY SPECIFICATIONS

1. The Discharger shall immediately notify the Central Valley Water Board of any flooding, unauthorized discharge of waste off-site, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste containment facilities or precipitation and drainage control structures.
2. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control and construction.
3. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with this Order.

D. POST-CLOSURE MAINTENANCE SPECIFICATIONS

1. The facility shall be maintained during post-closure to prevent a pollution or nuisance as defined by the California Water Code, Section 13050.
2. The closure cap shall be maintained to prevent ponding, minimize erosion and other defects which could compromise the integrity of the closure cap.
3. The leachate collection and removal systems (LCRSs) for surface impoundments P-1, P-2, P-3, P-5, and P-6 shall be monitored at the frequency specified in the Monitoring and Reporting Program that is part of this Order. Accumulated leachate shall be removed and shall be managed and discharged in a manner consistent with the classification of the leachate.
4. Precipitation and drainage control systems shall be operated and maintained to accommodate the anticipated peak flow volume of surface runoff from the 100-year, 24-hour precipitation event.
5. Surface drainage from tributaries and internal facility drainage control systems shall not contact or percolate through wastes.

E. CORRECTIVE ACTION GROUNDWATER MONITORING

1. Corrective action monitoring shall be conducted at the facility as specified in the most recently approved SSWQMP and Monitoring and Report Program.
2. For the corrective action monitoring of impacted wells NWC, MW01, MW06, and CW10, the trend analysis described in the most recently approved SSQWMP shall be used to determine the effectiveness of the corrective action monitoring program.

F. PROVISIONS

1. The Discharger shall provide a copy of this Order to consultants and to contract maintenance and construction personnel who shall be familiar with the contents.
2. The Discharger shall comply with Monitoring and Reporting Program No. R5-2011-XXXX, which is incorporated into and made part of this Order.
3. The Discharger shall comply with all the applicable provisions of the Standard Provisions and Reporting Requirements dated August 2003, which are hereby incorporated into and made part of this Order.
4. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to the construction, alteration, destruction, or decommissioning of all monitoring wells and piezometers as required by Section 13750 through 13755 of the California Water Code.
5. The Discharger shall notify the Central Valley Water Board in writing of any proposed change of ownership **at least three months** prior to the effective date of the change. The notification shall contain the new discharger's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in General Provisions III.F. of the Standard Provisions and Reporting Requirements and state that post-closure maintenance and monitoring will be in compliance with any existing WDRs and any revisions thereof.
6. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, and the address and telephone number of the persons responsible for contact with the Regional Water Board and a

statement. The statement shall comply with the signatory paragraph of standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code.

7. **Within 60 days** of adoption of this Order, the Discharger shall submit a revised SSWQMP.
8. **Within 180 days** of adoption of this Order, the Discharger shall submit a *Facility Post-Closure Maintenance and Monitoring Plan* that is consistent with the requirements of this Order.
9. **Within 180 days** of adoption of this Order, the Discharger shall *submit a financial assurance mechanism(s) containing estimates for costs for post-closure maintenance and all monitoring. The Discharger shall conduct an annual review of the estimates and submit a report for EO review and approval by 1 October of each year. The Discharger shall adjust the cost annually to account for inflation and any changes in facility operation, design, etc.* The document shall describe the financial assurances in the form of an irrevocable fund or other mechanism(s) that the Discharger has created, with the Central Valley Water Board named as the beneficiary, to ensure that funds are available for the post-closure maintenance and the corrective action and other monitoring of the closed facility. The funding shall be based on the *Facility Post-Closure Maintenance and Monitoring Plan*.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a revised Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on XX June 2011.

JKD:jkd

PAMELA C. CREEDON, Executive Officer