

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2011-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF CLOVIS
FOR
OPERATION AND CONSTRUCTION
CITY OF CLOVIS MUNICIPAL SOLID WASTE LANDFILL
FRESNO COUNTY

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

1. The City of Clovis (hereafter Discharger) owns and operates a municipal solid waste landfill (waste management facility) is approximately eight miles north of the City of Clovis, just north of Auberry Road and Little Dry Creek, and south of the Friant-Kern Canal, in Sections 28 and 29, T11S, R21E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order by reference.
2. The waste management facility contains one waste management unit comprised of the following: 1) an inactive unlined waste management cell covering approximately 27 acres from which all waste have been removed; 2) a clay-lined waste management unit adjacent to the eastern edge of the unlined unit covering approximately eight acres; and 3) a 21-acre waste management unit adjacent to the eastern edge of the clay-lined unit constructed using an engineered alternative composite liner design.
3. On 16 September 2005, the Central Valley Water Board adopted Order No. 5-05-0133 which classified the Unit as a Class III landfill as defined in Title 27, California Code of Regulations, Section 20005 et seq. (hereafter Title 27).
4. Waste Discharge Requirements need to be revised to provide for the reconstruction of the unlined waste management cell with an engineered alternative composite liner system, construction of an expansion waste management unit east of the existing composite lined unit, and completion of the evaluation monitoring program.

SITE DESCRIPTION

5. The measured hydraulic conductivity of the native soils underlying the waste management facility ranges between 3.0×10^{-4} and 1×10^{-3} centimeter per second (cm/sec).
6. A Class III landfill must be designed to withstand the maximum probable earthquake (MPE). The MPE is calculated using historic seismic activity within 100 kilometers of the Unit. The closest Holocene fault is the Coast Range-Sierran Block fault zone, approximately 60 miles to the west. A site-specific maximum historical horizontal acceleration of 0.07g was derived from the maximum probable earthquake of magnitude 7.25 occurring in the Coast Range-Sierran Block fault zone.
7. The waste management facility is in a topographically hummocky region of the Sierra Nevada foothills. The native ground surface elevation ranges between approximately 380 feet above mean sea level at the southern boundary of the facility and 490 feet above mean sea level at the northern facility boundary.
8. The waste management facility is primarily on the cobbly-clay deposits of the Centerville series and the sandy-loam deposits of the Cometa series. The soils underlying the facility are alluvial soils, consisting of interbedded silty-clay, silty-clayey-sand, and gravelly-cobbly-sand. The soils overlie fractured bedrock at depths ranging from ten to 100 feet below ground surface.
9. Land within 1,000 feet of the facility is used as open pasture and a public shooting range.
10. The facility receives an average of 14.5 inches of precipitation per year as measured at the Friant Government Camp Station. The average pan evaporation from 1948 to 2002 was 79.8 inches as measured at the same station.
11. The 100-year, 24-hour precipitation event for this facility is estimated to be 4.04 inches, based on the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Office of Hydrology, NOAA Atlas 2, Volume XI, Figure 31, *Isopluvials of 100-yr., 24-hr. Precipitation for Northern Half of California*.
12. The waste management facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 065029-0585-B.

13. There is one industrial supply well within one mile of the site. A few seasonal surface springs were observed during excavation for the composite-lined waste management unit expansion, which subsequently dried up prior to construction of the liner systems.

WASTE CLASSIFICATION AND UNIT CLASSIFICATION

14. The Discharger disposes of municipal and industrial solid wastes, which are classified as “nonhazardous solid waste” or “inert waste” suitable for discharge to a Class III landfill as defined in Section 20164 of Title 27. Nonhazardous solid waste includes municipal solid wastes, as referred to in Title 40 Code of Federal Regulations, Part 258.2.
15. The site characteristics where the Unit is located (see Finding No. 5) do not meet the siting criteria for a new Class III landfill contained in Section 20260(a) and (b)(1) of Title 27. As such, the site is not suitable for operating new Units or lateral expansions of existing Units for the discharge and containment of the wastes described in Finding No. 14, without the construction of additional waste containment features in accordance with Section 20260(b)(2) of Title 27 and State Water Resources Control Board Resolution No. 93-62.

SURFACE AND GROUNDWATER CONDITIONS

16. The *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin*, Fourth Edition (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
17. Surface drainage is toward Little Dry Creek in the Berenda Creek Hydrologic Area, 545.30 of the San Joaquin River Basin.
18. Little Dry Creek is a tributary to the San Joaquin River between Friant Dam and Mendota Pool. The designated beneficial uses of this stretch of the San Joaquin River and its tributaries, as specified in the Basin Plan, are municipal and domestic supply, agricultural irrigation and stock watering supply, industrial process supply, contact and non-contact water recreation, warm and cold fresh water habitat, warm and cold fresh water migration, warm and cold fresh water spawning, wildlife habitat, and groundwater recharge.
19. The facility is in the Kings Basin Hydrologic Unit, Detailed Analysis Unit (DAU) 234. The designated beneficial uses of the groundwater, as specified in the Basin Plan for DAU 234, are municipal and domestic supply, agricultural supply, and industrial service supply.
20. Depth to first encountered groundwater ranges from approximately 40 feet below the native ground surface in the southwestern portion of the landfill to greater than 80 feet

below the native ground surface in the northern portion. Groundwater elevations range from 350 feet mean sea level (MSL) to 370 feet MSL.

21. Drilling records indicate that three geologic units have been encountered beneath the facility. Those units include: a) an upper unconsolidated sequence of silty-clay, silty-clayey-sand, and gravelly-cobbly-sand, varying in thickness from zero to 90 feet; b) a middle unit of highly fractured metamorphic phyllites with an estimated minimum thickness of 50 feet; and c) underlying granitic basement rock.
22. The first encountered groundwater is unconfined within the upper geologic unit. The direction of groundwater flow is generally toward the south beneath the western half of the facility, and toward the southwest beneath the eastern half of the site. The average groundwater gradient is approximately 0.015 feet per foot. The average groundwater velocity is 18 to 55 feet per year.
23. Monitoring data indicate background groundwater quality has an electrical conductivity (EC) ranging between 300 and 1,000 microhos/cm, and with total dissolved solids (TDS) ranging between 150 and 800 milligrams per liter (mg/l).

DETECTION MONITORING PROGRAM

24. The existing groundwater detection monitoring system consists of ten monitoring wells. In addition, pan lysimeters have been installed beneath the leachate collection and removal system (LCRS) sumps of the composite-lined unit to monitor the vadose zone beneath the landfill.
25. The surface water detection monitoring system consists of two upstream and one downstream sampling points in Little Dry Creek as shown in Attachment B, which is incorporated herein and made part of this Order.
26. The existing detection monitoring programs for surface water and groundwater at this waste management unit satisfy the requirements contained in Title 27.
27. Volatile organic compounds (VOCs) are often detected in a release from a landfill, and are the primary waste constituents detected in groundwater beneath a municipal solid waste landfill. Since volatile organic compounds are not naturally occurring and thus have no background value, they are not amendable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a waste management unit.
28. Title 27, Sections 20415(e)(8) and (9) provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a waste management unit in accordance with Title 27 Section 20415(b)(1)(B)2.-4. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

29. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27 Section 20080(a)(1). Section 13360(a)(1) of the California Water Code allows the Central Valley Water Board to specify requirements to protect groundwater 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.
30. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a Unit, this Order specifies a non-statistical method for the evaluation of monitoring data.
31. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a Unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL), indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the Unit, or there is a source of the detected constituents other than the landfill, or the detection was a false detection. Although the detection of one non-naturally occurring waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release, the detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

EVALUATION MONITORING PROGRAM

32. Groundwater monitoring performed at the landfill has detected VOCs in samples collected in detection monitoring wells since 1989. Several VOCs have been detected in detection monitoring wells at concentrations above water quality objectives in two or more consecutive monitoring events, including; 1,4-dichlorobenzene; 1,2-dichloroethane; cis-1,2-dichloroethylene; and vinyl chloride. Other constituents detected in monitoring wells at or below water quality objectives include: 1,1-dichloroethane; 1,2-dichlorobenzene; 2-hexanone; acetone, acrylonitrile; benzene; bromochloromethane; 2-butanone; carbon disulfide; chlorobenzene; chloroethane, chloromethane; cis-1,2-dichloroethene; 1,2-dichloropropane; di-isopropyl ether; dichlorodifluoromethane; ethanol; ethylbenzene; hexachlorobutadiene; hexachloroethane, methylene chloride, methyl-t-butyl ether, trichloroethene (PCE) trans-1,2-dichloroethylene; tetrachloroethylene; trichloroethylene and vinyl chloride.
33. The groundwater degradation was caused by a release (discharge of waste) from the waste management unit (see Finding Nos. 32 and 37).

34. The current plume of degraded groundwater created or threatens to create a condition of pollution or nuisance.
35. The Discharger is currently conducting evaluation monitoring in accordance with Cleanup and Abatement Order No. 98-711, issued by the Executive Officer in 1998. The evaluation monitoring program has not been completed to date.
36. Nine groundwater evaluation monitoring wells have been constructed downgradient (south) of the landfill to determine the nature and extent of groundwater degradation.
37. Non-naturally occurring waste constituents detected in evaluation monitoring wells include: 1-4-dichlorobenzene; cis-1,2-dichloroethylene, ethylbenzene; tetrachloroethylene; toluene; and trichloroethylene.
38. The lateral extent of groundwater degradation by VOCs extends to monitoring wells MW-16 and MW-17, approximately 1,000 feet downgradient of the landfill.
39. The nature and extent of groundwater degradation for non-naturally occurring waste constituents has been adequately determined.
40. The release of waste constituents to the vadose zone reduces the capacity of the vadose zone to attenuate any further release and threatens to degrade the groundwater.
41. The nature and extent of groundwater degradation has not been determined for naturally-occurring waste constituents. Additional groundwater evaluation is needed to delineate the nature and extent of naturally-occurring waste constituents in groundwater.
42. California Water Code Section 13304 authorizes the Central Valley Water Board to require dischargers to cleanup waste and abate the effects of waste. Cleanup and abatement measures include corrective action measures as required under Title 27.
43. Section 13304(a) of the California Water Code states in 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....”.
44. An evaluation monitoring program is used to assess the nature and extent of a

release from a Unit and to design a corrective action program in accordance with §20430 of Title 27 [Title 27, §20425(a)(2)]. In assessing the nature and extent of a release from a Unit, the Discharger is obligated to include a determination of the spatial distribution and concentration of each constituent of concern throughout the zone affected by the release [Title 27, §20425(b)]. The goals of evaluation monitoring are to determine where concentrations of constituents of concern cease to exceed their respective water quality protection standards (the zero-impact line) and to gather information for the selection of an appropriate corrective action.

45. Evaluation monitoring is required to be implemented when the detection monitoring program determines that waste constituents have been released from the Unit (see Finding Nos. 32 and 37) to the vadose zone or to groundwater. In the case of organic compounds that are not naturally occurring, their presence in samples from detection monitoring wells is evidence of a release from the Unit. For naturally occurring compounds and constituents, evidence of a release is based on a measurably significant increase in their concentration(s) above the upper tolerance limit established in the water quality protection standard.
46. Section 20420(k)(5) of Title 27 requires that within 90 days of determining a measurably significant evidence of a release, a discharger shall submit to the Regional Water Board an amended report of waste discharge, including information specified in §20420(k)(5) of Title 27, to establish an evaluation monitoring program meeting the provisions of §20425 of Title 27.
47. Section 20420(k)(6) of Title 27 requires that within 180 days of determining a measurably significant evidence of a release, a discharger shall submit an engineering feasibility study for a corrective action program necessary to meet the requirements of §20430 of Title 27. At a minimum, the feasibility study needs to contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern.
48. Section 20425(b) of Title 27 requires a discharger to complete an evaluation of the nature and extent of a release from the Unit and to submit the assessment to the Regional Water Board within 90 days of establishing an evaluation monitoring program.
49. Section 20425(c) of Title 27 requires a discharger to submit an updated engineering feasibility study for corrective action pursuant to §20420(k)(6) of Title 27 based on the results of the data collected pursuant to §20425(b) and (e) of Title 27. A discharger is required to submit the updated engineering feasibility study to the Regional Water Board within 90 days of establishing an evaluation monitoring program.
50. Section 20425(d) of Title 27 requires a discharger to submit an amended report of waste discharge to establish a corrective action program meeting the requirements of

§20430 of Title 27 to the Regional Water Board within 90 days of establishing an evaluation monitoring program. The proposed corrective action program is to be based on the data collected pursuant to §20425(b) of Title 27, and on the engineering feasibility study for corrective action submitted pursuant to §20425(c) of Title 27.

51. Pursuant to §13268 of the California Water Code, if the Regional Water Board determines there is a failure or refusal to furnish technical or monitoring program report as required by subdivision (b) of Section 13267, or a falsification of any information provided therein, the Discharger will be guilty of a misdemeanor and may be liable civilly in accordance with subdivision §13268(b) of the California Water Code. Civil liability may be administratively imposed by the Regional Water Board in accordance with Article 2.5 (commencing with Section 13323) of Chapter 5 of the California Water Code for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars (\$1,000) for each day in which the violation occurs.
52. Any person who fails to achieve compliance in accordance with the schedule established in an order issued pursuant to §13304 of the California Water Code may be subject to injunctive relief or may be liable civilly in an amount not to exceed the amount prescribed by law.
53. This order requires completion of the evaluation monitoring program and submission of a final feasibility study for corrective action acceptable to the Executive Officer by specified dates.

CONSTRUCTION AND ENGINEERED ALTERNATIVE

54. Section 20080(b) of Title 27 allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard liner design. In order to approve an engineered alternative in accordance with Sections 20080(c)(1) or (2) of Title 27, the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Section 20080(b) of Title 27, or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative liner system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Section 20080(b)(2) of Title 27.
55. Section 13360(a)(1) of the California Water Code allows the Central Valley Water Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.

56. The Discharger proposes to construct a waste containment system which will be designed, constructed, and operated to prevent degradation of waters of the state during disposal operations, closure, and the post-closure maintenance period in accordance with the criteria set forth in Title 27 for a Class III waste management unit.
57. The proposed waste containment system consists of, from the bottom up:
 - a. Prepared subgrade for both bottom and side slopes;
 - b. Geosynthetic clay liner over subgrade;
 - c. Single-sided textured 60-mil high density polyethylene (HDPE) geomembrane;
 - d. Geocomposite drainage layer; and
 - e. 18-inch operations layer and working surface.
58. The proposed LCRS would consist of a geocomposite drainage media on the floor of the cell. The leachate collection and recovery system of the Stage I construction will flow to a double-lined internal sump at the low point of the cell. Eventually Stage III will be tied with Stage I. The entire flow from Stage I and Stage III will flow to the Stage I sump, where it will be pumped out on a regular basis for application to the working face of the landfill.
59. The Discharger demonstrated that the proposed liner system meets the performance goal contained in Section 20310 of Title 27. The demonstration utilized a three-dimensional flow model, and a three-dimensional multi-species transport model to predict the performance of the proposed liner design and the fate and transport of a release of waste constituents. The results of the model show that the proposed liner design will be protective of water quality.

CEQA AND OTHER CONSIDERATIONS

60. The action to update waste discharge requirements for this 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.
61. This order implements:
 - a. *The Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin, Fourth Edition;*

- b. The prescriptive standards and performance goals of Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions;
 - c. The prescriptive standards and performance criteria of RCRA Subtitle D, Part 258; and
 - d. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993 and revised on 21 July 2005.
62. Based on the threat and complexity of the discharge, the facility is determined to be classified 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 violation 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 above 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."
63. Section 13267(b) of California Water Code provides 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 proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of having discharged or discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state 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 reports and the benefits to be obtained from the reports."
64. The technical reports required by this Order and attached Monitoring and Reporting Program No. R5-2011-XXXX are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.
65. This Order requires full containment of wastes and does not permit degradation of surface water or groundwater. Further antidegradation analysis is therefore not needed. The discharge as permitted is consistent with the antidegradation provisions of State Water Resources Control Board Resolution No. 68-16.

PROCEDURAL REQUIREMENTS

66. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
67. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.
68. Any person affected by this action of the Central Valley Water Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at http://www.waterboards.ca.gov/laws_regulations/index.shtml and will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263, 13267 and 13304 of the California Water Code, that Order No. 5-05-0123 and Cleanup and Abatement (CAO) Order No. 98-711 are rescinded, and that the City of Clovis, 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 'hazardous waste' or 'designated waste' is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in Title 23, California Code of Regulations, Section 2510 et seq., and 'designated waste' is as defined in Title 27.
2. The discharge of wastes outside of a Unit or portions of a Unit specifically designed for their containment is prohibited.
3. The discharge of waste to a closed Unit is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The discharge shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of nuisance, degradation, contamination, or pollution of groundwater to occur, as indicated by the most appropriate statistical or

nonstatistical data analysis method and retest method listed in this Order, the Monitoring and Reporting Program, or the Standard Provisions and Reporting Requirements.

2. The discharge of solid waste, liquid waste, leachate, or waste constituents shall neither cause nor contribute to any degradation, contamination, pollution, or nuisance to surface waters, ponded water, or surface water drainage courses.
3. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.
4. 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, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste 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 the waste discharge requirements.
4. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, degradation, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.
5. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.
6. The Discharger shall maintain a Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site, until closure of the landfill is complete and approved.

7. Annually, prior to the anticipated rainy season, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the site.

D. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for Executive Officer review and approval either prior to, or concurrent with, submission of the Construction Quality Assurance Plan as per Construction Specification D.2.a., a Design Report for the construction of each cell of the proposed Unit that includes detailed plans, specifications, and descriptions for the liner components and leachate collection and removal system components. The Design Report shall incorporate design rationale, with supporting calculations, for all components of the proposed containment system, and shall describe design details that allow for annual integrity testing of the leachate collection and removal system to demonstrate whether the leachate collection and removal system was designed and is operating to function without clogging, pursuant to Section 20340(d) of Title 27.
2. The Discharger shall submit for Executive Officer review and approval **at least 90 days** prior to construction, design plans and specifications for a Unit that includes the following:
 - a. A Construction Quality Assurance Plan meeting the requirements of Section 20324 of Title 27; and
 - b. A geotechnical evaluation of the area soils, evaluating their use as the base of the waste containment system; and
 - c. An unsaturated zone monitoring system, which is demonstrated to remain effective throughout the active life, closure, and post-closure maintenance periods, which shall be installed beneath the composite liner system in accordance with Section 20415(d) of Title 27.
3. The Stage I liner shall be constructed in accordance with the following composite liner design that has been demonstrated by the Discharger to meet the performance standards of Title 27:
 - a. An engineered alternative composite liner system that is comprised, in ascending order, of the following:
 - 1) A subgrade prepared in an appropriate manner using accepted engineering and construction methods that provides a surface that is smooth and free from rocks, sticks, and other debris that could damage

or otherwise limit the performance of the composite liner system.

- 2) A geosynthetic clay liner (GCL)
 - 3) A single-sided textured 60-mil HDPE geomembrane
 - 4) A geocomposite drainage layer
 - 5) An operations layer of appropriate material to allow drainage of leachate to and through the leachate collection and removal system and provide a working surface protective of the leachate collection and removal system.
4. The Discharger may propose changes to the liner system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed liner system results in the protection of water quality equal to or greater than the design prescribed by this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation and approval by the Central Valley Water Board.
 5. The leachate collection and removal system shall be designed and operated so that there is no buildup of hydraulic head on the base or sideslope liners.
 6. Construction shall proceed only after all applicable construction quality assurance plans have been approved by the Executive Officer.
 7. Following the completion of construction of any portion of a Unit, and prior to discharge to the newly constructed Unit, the final documentation required in Section 20324(d)(1)(C) of Title 27 shall be submitted to the Executive Officer for review and approval. The report shall be certified by a registered civil engineer or a certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, and with the prescriptive standards and performance goals of Title 27.
 8. A third party independent of both the Discharger and the construction contractor shall perform all of the construction quality assurance monitoring and testing during the construction of a liner system.
 9. If leachate monitoring reveals substantial or progressive increases of leachate generation above the design leachate flow volume of a Unit or portion of a Unit, such that the depth of fluid on any portion of the leachate collection and removal system (excluding the leachate removal pump sump) exceeds 30 cm, the Discharger shall immediately notify the Central Valley Water Board in writing within

seven days. The notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.

10. Closure shall not proceed in the absence of closure waste discharge requirements.

E. DETECTION MONITORING SPECIFICATIONS

1. The Discharger shall provide Central Valley Water Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices. At the beginning of each sampling period, in accordance with Section B. Reporting of Monitoring and Reporting Program No. R5-2011-XXXX, a schedule shall be submitted listing anticipated sampling dates for that reporting period.
2. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater and the unsaturated zone in accordance 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 the Water Quality Protection Standard (as defined in Section 20390 of Title 27), which is specified in Monitoring and Reporting Program No. R5-2011-XXXX and the Standard Provisions and Reporting Requirements, dated April 2000.
4. The Water Quality Protection Standard for compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (i.e., USEPA methods 8260 and 8270). The presence of non-naturally occurring compounds in samples from detection monitoring wells is evidence of a release from the Unit unless the Discharger can demonstrate that the Unit is not the cause pursuant to Section 20420(k)(7) of Title 27.
5. The concentrations of the constituents of concern in waters passing the Point of Compliance shall not exceed the concentration limits established pursuant to Monitoring and Reporting Program No. R5-2011-XXXX.
6. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in Monitoring and Reporting Program No. R5-2011-XXXX and Section 20415(e) of Title 27.
7. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**,

- unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.
8. Specific methods of collection and analysis shall be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) *Methods for the Analysis of Organics in Water and Wastewater* (USEPA 600 series), (2) *Test Methods for Evaluating Solid Waste* (SW 846-latest edition), and (3) *Methods for Chemical Analysis of Water and Wastes* (USEPA 600/4-79-020), in accordance with an approved Sample Collection and Analysis Plan.
 9. If methods other than USEPA-approved methods or Standard Methods are used, a detailed description of the methodology shall be submitted for review and approval by the Executive Officer prior to use.
 10. The **methods of analysis and the detection limits** used shall be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., “trace” or “ND”) in data from Background Monitoring Points for that medium, the analytical method having the MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
 11. **“Trace” results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
 12. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.
 13. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. **The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent’s actual concentration in the

sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

14. The Quality Assurance/Quality Control (**QA/QC**) **data** shall be reported, along with the sample results to which they apply, including the method, equipment, and analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.
15. **Unknown chromatographic peaks** shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
16. The statistical method shall account for data below the PQL with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Section 20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in this Order for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to Section 20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties."
17. The Discharger may propose an alternate statistical method [to the methods listed under Section 20415(e)(8)(A-D) of Title 27] in accordance with Section 20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer. Upon receiving written approval from the Executive Officer, alternate statistical procedures may be used for determining the significance of analytical results for

common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). The analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.

18. The Discharger shall use the following nonstatistical method specified in Detection Monitoring Specification E.19 for all constituents which are not amenable to the statistical tests above (i.e., less than 10% of the data from background samples that equal or exceed their respective MDL). This includes all constituents in the Monitoring Parameters and for all Constituents of Concern (COC) found in groundwater and unsaturated zone (in soil-pore liquid or gas). Each constituent at a monitoring point shall be determined to meet this criterion based on either:
 - a. The results from a single sample for that constituent, taken during that reporting period from that monitoring point; or
 - b. If more than one sample has been taken during a reporting period from a monitoring point, the results from the sample which contains the largest number of qualifying constituents shall be used.

Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point). The Discharger may propose an alternate statistical method [to the methods listed under 27 Section 20415(e)(8)(A-D)] in accordance with Section 20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer.

19. The nonstatistical method shall be implemented as follows:
 - a. For every compliance well, regardless of the monitoring program, the Discharger shall use this data analysis method, jointly, for all monitoring parameters and COCs that are detected in less than 10% of background samples. Any COC that triggers a discrete retest per this method shall be added to the monitoring parameter list.

Triggers — From the monitoring parameters and COC list identify each constituent in the current sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provide a measurably significant indication] of a change in the nature or extent of the release, at that well, if either:

- 1) The data contains two or more qualifying monitoring parameters and/or COCs that are detected in less than 10% of background samples that equal or exceed their respective MDLs; or
- 2) The data contains one qualifying monitoring parameter and/or COC that equals or exceeds its PQL.

b. Discrete Retest [Title 27, Section 20415(e)(8)(E)]:

- 1) In the event that the Discharger concludes (pursuant to paragraph 19.a., above) that there is a preliminary indication, then the Discharger shall immediately notify Central Valley Water Board staff by phone or e-mail and, within 30 days of such indication, shall collect two new (retest) samples from the indicating compliance well.
- 2) For any given compliance well retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those constituents indicated in that well's original test. As soon as the retest data are available, the Discharger shall apply the same test [under 19.a.], to separately analyze each of the two suites of retest data at that compliance well.
- 3) If either (or both) of the retest samples meets either (or both) of the triggers under 19.a., then the Discharger shall conclude that there is a measurably significant increase at that well for the constituent(s) indicated in the validating retest sample(s).

20. If the Executive Officer determines, after reviewing the submitted report, that the detected constituent(s) most likely originated from the Unit(s), the Discharger shall **immediately** implement the requirements of Section XI. Response To A Release, C. Release Has Been Verified, contained in the Standard Provisions and Reporting Requirements.

F. EVALUATION MONITORING SPECIFICATIONS

1. **By 31 March 2012**, the Discharger shall complete an Evaluation Monitoring Program to the satisfaction of the Executive Officer that meets the provisions of Section 20425(b) of Title 27, and a report shall be submitted that describes all actions and monitoring taken to complete the Evaluation Monitoring Program.
2. At a minimum, the following documentation is needed to complete the Evaluation Monitoring Program:

- a. An assessment of the nature and extent for each waste constituent in groundwater shall be determined when the constituent no longer meets the trigger criteria for detection in accordance with the detection monitoring program contained in Monitoring and Reporting Program No. R5-2011-XXXX.
 - b. For naturally occurring waste constituents, or waste constituents that have a statistically derived water quality protection standard, the extent will be determined when groundwater sample analyses do not detect a released constituent at a “measurably significant” concentration as defined by the most current water quality protection standard.
 - c. A table listing the constituents of concern that includes the concentration limit for metals and general water quality parameters based on a statistical evaluation of the background concentrations of these parameters.
 - d. A description of how the determination of the spatial distribution and concentration of each constituent of concern throughout the zone affected by the release was accomplished.
3. **By 30 June 2012**, the Discharger shall submit, pursuant to Section 20425(c) of Title 27, a report containing a final engineering feasibility study for corrective action pursuant to Section 20420(k) of Title 27. At a minimum, the feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern.

G. PROVISIONS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Central Valley Water Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility maintenance personnel, who shall be familiar with its contents, and to regulatory agency personnel.
3. The Discharger shall 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.

4. The Discharger shall comply with Monitoring and Reporting Program No. R5-2011-XXXX, which is incorporated herein and made part of this Order.
5. The Discharger shall comply with the applicable portions of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 Section 20005 et seq. and 40 CFR 258 et seq.)*, dated April 2000, which is hereby incorporated into this Order.
6. All reports and transmittal letters shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor.
 - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if:
 - 1) The authorization is made in writing by a person described in a, b, or c of this provision;
 - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - 3) The written authorization is submitted to the Central Valley Water Board.
 - e. Any person signing a document under this Section 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 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.”
7. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps

shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

8. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the closure and post-closure maintenance period of the Unit(s) and during subsequent use of the property for other purposes.
9. If the Discharger or the Central Valley Water Board determines that the corrective action program is not adequate (i.e. does not satisfy the provisions of Section 20430 of Title 27), the Discharger shall, within 90 days of making the determination, or of receiving written notification from the Central Valley Water Board of such determination, submit an amended report of waste discharge (RWD) to make appropriate changes to the program. The amended RWD shall include the following:
 - a. A discussion as to why existing corrective action measures have been ineffective or insufficient.
 - b. A revised evaluation monitoring plan if necessary to further assess the nature and extent of the release.
 - c. A discussion of corrective action needs and options.
 - d. Proposed additional corrective action measures, as necessary, for:
 - 1) Source control,
 - 2) Groundwater cleanup, and/or
 - 3) Landfill gas control
 - e. A plan to monitor the progress of corrective action measures consistent with Monitoring and Reporting Program No. R5-2011-XXXX.
 - f. Cost estimates for implementing additional corrective action, including monitoring.
 - g. An implementation schedule.
10. The fact that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violation of the Order.

11. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order **within 14 days** of assuming ownership or operation of this facility. The request must contain the requesting entity'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 Provision G.6 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 California Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.
12. The Discharger shall conduct an annual review of the financial assurance for initiating and completing corrective action, and submit a report for Executive Officer review and approval by **30 September of each year**. The assurances of financial responsibility shall provide that funds for corrective action shall be available to the Central Valley Water Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.
13. The Discharger shall conduct an annual review of the financial assurance for closure and post-closure maintenance, and submit a report for Executive Officer review and approval by **30 September of each year**. The assurances of financial responsibility shall provide that funds for closure and post-closure maintenance shall be available to the Central Valley Water Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.
14. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule.

<u>Task</u>	<u>Compliance Date</u>
A. Construction Plans	
Submit construction and design plans	At Least 90 Days

for Executive Officer review and approval.
(see Construction Specification D.2)

**Prior to
Construction**

B. Construction Report

Submit a construction report upon completion demonstrating construction was in accordance with approved construction plans for Executive Officer review and approval.
(see Construction Specification D.7)

Prior to discharge

E. Evaluation Monitoring Specifications

1. Submit a report describing completion of the Evaluation Monitoring Program
(see Evaluation Monitoring Specification No. F.1)

31 March 2012

2. Submit a final engineering feasibility study for a corrective action program.
(see Evaluation Monitoring Specification No. F.3)

30 June 2012

G. Financial Assurance Review

1. Annual Review of Financial Assurance for initiating and completing corrective action
(see Provision G.12.)

30 September each year

2. Annual Review of Financial Assurance for closure and post-closure maintenance
(see Provision G.13.)

30 September each year

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provision of this Order, the Executive Officer may apply to the Attorney General for judicial enforcement or issue a complaint for Administrative Civil Liability.

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

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2011-XXXX
CITY OF CLOVIS
FOR OPERATION AND CONSTRUCTION
CITY OF CLOVIS MUNICIPAL SOLID WASTE LANDFILL
FRESNO COUNTY

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PAMELA C. CREEDON, Executive Officer