CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2017-0073

WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF TEHAMA AND CITY OF RED BLUFF
TEHAMA COUNTY AND CITY OF RED BLUFF
CLASS III MUNICIPAL SOLID WASTE LANDFILL
CONSTRUCTION, OPERATION, CLOSURE, AND POSTCLOSURE MAINTENANCE
TEHAMA COUNTY

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

1. The County of Tehama and City of Red Bluff (hereinafter Discharger) jointly own and operate the Tehama County and City of Red Bluff Class III Municipal Solid Waste Landfill (facility) about 2 miles northwest of the City of Red Bluff, in Section 15, T27N, R4W, MDB&M, as shown in Attachment A. The facility is a municipal solid waste (MSW) landfill regulated under authority given in Water Code section 13000 et seq.; California Code of Regulations[1], title 27 ("Title 27"), section 20005 et seq.; and 40 Code of Federal Regulations section 258 (a.k.a, "Subtitle D") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62.

2. The following documents are attached to this Order and hereby incorporated into and made a part of this Order by reference:
   a. Attachment A – Site Location Map
   b. Attachment B – Site Map
   c. Information Sheet
   d. Standard Provisions and Reporting Requirements (SPRRs) dated December 2015

3. The facility is on a 159.6-acre property at 19995 Plymire Road, Red Bluff. The existing and future landfill area is approximately 52.7 acres of which 41 acres have been constructed. Existing landfill units consist of an unlined landfill [Phase 1 waste management unit (WMU)] covering 31.6 acres and a lined landfill (Phase 2 WMU, Cells 1A, 1B, 2A) covering 9.5 acres. The existing and future permitted landfill area is shown in Attachment B. The facility is comprised of Assessor's Parcel Numbers (APN) 21-010-04, 24-010-59, and 24-010-60, and a portion of APN 14-010-64.

4. The Discharger submitted amendments to the Report of Waste Discharge (ROWD) as part of the Joint Technical Document (JTD) for the landfill on 23 January 2004, 22

[1] Unless otherwise specified, all title and section references are to the California Code of Regulations.

February 2009, 25 August 2009, 10 October 2014, and 30 June 2015. The information in the 30 June 2015 ROWD/JTD has been used in updating these waste discharge requirements (WDRs). The ROWD contains the applicable information required in Title 27. The ROWD/JTD and supporting documents contain information related to this update of the WDRs including:

a. The Discharger submitted a demonstration report for an engineered alternative liner for Phase 2 Cells 2, 3 and 4 on 31 July 2007. The Central Valley Water Board conditionally approved the engineered alternative liner for Phase 2 Cells 2, 3, and 4 on 9 October 2007.

b. On 19 January 2009, the Discharger submitted a preliminary closure plan for the Phase 2 WMU which included an engineered alternative cover.

c. In a Notice of Determination filed on 2 April 2009, the Discharger certified a negative declaration that increased the maximum height of the Phase 1 WMU and Phase 2 WMU by 20 feet.

d. The Discharger submitted a final closure plan for the Phase 1 WMU on 14 September 2014. The Central Valley Water Board conditionally approved the final closure plan on 13 May 2015. Closure activities are expected to begin in the summer of 2017.

5. On 5 September 2003, the Central Valley Water Board issued Order No. R5-2003-0144 in which the Phase 1 WMU and Phase 2 WMU were classified as Class III units for the discharge of MSW. This Order continues to classify the Phase 1 WMU and Phase 2 WMU as Class III units in accordance with Title 27.

6. The existing and future landfill units authorized by this Order are described as follows:

Unit	**Area[1]**	**Liner/LCRS[2] Components[3]**	**Unit Classification & Status**
Phase 1	31.6 acres	Unlined, no LCRS	Class III, closing
Phase 2, Cell 1A	3.9 acres	Bottom Liner (from bottom up) • Compacted subgrade with a permeability (k) $\leq 1 \times 10^{-6}$ centimeters per second (cm/s) • Geosynthetic clay (GCL) layer • 60-mil textured high density polyethylene (HDPE) geomembrane • Six-inch thick pea gravel with 8-oz/yd^2 nonwoven geotextile filter fabric (LCRS) • One-foot thick soil operations layer Slide Slope Liner (from bottom up) • Prepared subgrade • GCL layer • 60-mil HDPE geomembrane • Two-foot thick operations layer soil	Class III, active
Phase 2, Cell 1B	2.1 acres		Class III, active

Unit	Area[1]	Liner/LCRS[2] Components[3]	Unit Classification & Status
Phase 2, Cell 2A	3.5 acres	Bottom Liner (from bottom up) • One-foot thick compacted subgrade with a k $\leq$1 x 10^{-6} cm/s • GCL layer • 60-mil double-sided textured HDPE geomembrane • Geocomposite drainage layer, or six-inch thick pea gravel drainage layer overlying an 8-oz/yd^2 geotextile (LCRS) • Minimum one-foot thick soil operations layer Side Slope Liner (from bottom up) • Prepared subgrade • GCL layer • 60-mil single-sided textured HDPE geomembrane, smooth side up • Minimum 2-foot thick operations layer soil	Class III, active
Phase 2, Cell 2B	1.5 acres		Class III future
Phase 2, Cell 2C	1.7 acres		Class III future
Phase 2, Cell 3	4.2 acres		Class III, future
Phase 2, Cell 4	4.6 acres		Class III, future

[1] Area of future cells will vary depending on future tonnage
[2] LCRS – Leachate collection and removal system
[3] All liner systems are composite liner systems unless otherwise noted

7. On-site facilities at the Tehama County / City of Red Bluff Class III MSW Landfill include: a materials recovery facility (MRF); household hazardous waste collection areas; an antifreeze, batteries, oil, and paint (ABOP) collection area; material-specific segregation areas and piles; landfill gas monitoring probes, extraction system, and flare; groundwater monitoring program; leachate collection tanks; and condensate collection tank.

8. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated federal MSW regulations under the Resource Conservation and Recovery Act (RCRA), Subtitle D. These regulations are under 40 Code of Federal Regulations section 258, and are hereafter referred to as either "Subtitle D" in reference to the RCRA federal law that required the regulations or "40 C.F.R. section 258.XX". These regulations apply to all California Class II and Class III landfills that accept MSW. State Water Board Resolution 93-62 requires the Central Valley Water Board to implement in WDRs for MSW landfills the applicable provisions of the federal MSW regulations that are necessary to protect water quality, and in particular the containment provisions and the provisions that are either more stringent than, or that do not exist in, Title 27.

9. This Order implements the applicable regulations for discharges of solid waste to land through Prohibitions, Specifications, Provisions, and monitoring and reporting requirements. Prohibitions, Specifications, and Provisions are listed in Sections A through H of these WDRs below, and in the SPRRs dated December 2015. Monitoring and reporting requirements are included in Monitoring and Reporting Program (MRP) No. R5-2017-0073 and in the SPRRs. In general, requirements that are either in regulation or

otherwise apply to all MSW landfills are considered to be "standard" and are therefore in the SPRRs. Any site-specific changes to a requirement in the SPRRs are included in the applicable section (A through H) of these WDRs, and the requirement in the WDRs supersedes the requirement in the SPRRs.

10. Title 27 contains regulatory standards for discharges of solid waste promulgated by the State Water Board and the California Department of Resources Recovery and Recycling (CalRecycle). In certain instances, this Order cites CalRecycle regulatory sections. Title 27, section 20012 allows the Central Valley Water Board to cite CalRecycle regulations from Title 27 where necessary to protect water quality provided it does not duplicate or conflict with actions taken by the Local Enforcement Agency (LEA) in charge of implementing CalRecycle's regulations.

WASTE CLASSIFICATION AND UNIT CLASSIFICATION

11. The Discharger proposes to continue to discharge nonhazardous solid waste, including MSW, dewatered sewage sludge, sterilized medical waste, non-friable asbestos, fiber glass, and petroleum-contaminated soil to lined Class III landfill units at the facility. These classified wastes may be discharged only in accordance with Title 27, Resolution 93-62, and Subtitle D as required by this Order.

12. The Phase 1 WMU is an "existing unit" under Title 27 that was permitted before 27 November 1984, and continued to accept waste in the "Existing Footprint" until it was determined to be ready for closure in February 2017. The "Existing Footprint" as defined in Title 27, section 20164 is the area that was covered by waste as of the date that the landfill unit became subject to Subtitle D. The Existing Footprint for the active unlined area of the landfill is shown on Attachment B.

13. The Discharger proposes to discharge treated wood waste in the composite-lined units at the landfill. Title 22 defines "treated wood" to mean wood that has been treated with a chemical preservative for purposes of protecting the wood against attacks from insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA; 7 U.S.C. Sec. 136 and following). This may include but is not limited to waste wood that has been treated with chromated copper arsenate, pentachlorophenol, creosote, acid copper chromate, ammoniacal copper arsenate, ammoniacal copper zinc arsenate, or chromated zinc chloride.

14. Title 22, section 67386.11 allows treated wood waste to be discharged to a composite-lined portion of a MSW landfill that is regulated by WDRs issued pursuant to the Water Code provided that the landfill owner/operator:

    a. Comply with the prohibitions in Title 22, section 67386.3, which are:

i. Treated wood waste shall not be burned, scavenged, commingled with other waste prior to disposal, stored in contact with the ground, recycled without treatment (except as in iii, below), treated except in compliance with Title 22, section 67386.10, or disposed to land except in compliance with Title 22, section 67386.11.

ii. Any label or mark that identifies the wood and treated wood waste shall not be removed, defaced, or destroyed.

iii. Treated wood waste may be recycled only by reuse when all of the following apply:

(1) Reuse is on-site.

(2) Reuse is consistent with FIFRA-approved use of the preservative.

(3) Prior to reuse, treated wood waste is handled in compliance with Title 22, division 4.5, chapter 34.

b. Ensure treated wood waste is managed at the landfill according to Title 22, division 4.5, chapter 34 prior to disposal.

c. Monitor the landfill for a release and if a verified release is detected from the unit where treated wood is discharged, the disposal of treated wood will be terminated at the unit with the verified release until corrective action ceases the release. .

d. Handle treated wood waste in a manner consistent with the applicable sections of the California Occupational Safety and Health Act of 1973.

15. Title 27, section 20690 allows the use of alternative daily cover (ADC) at MSW landfills upon approval by the LEA and concurrence from CalRecycle. Title 27, section 20705 provides the Water Board's regulations for all daily and intermediate cover including that it shall minimize the percolation of liquids through waste and that the cover shall consist of materials that meet the landfill unit classification (Class II or Class III). The regulations also require that for non-composite lined portions of the landfill, that any contaminants in the daily or intermediate cover are mobilized only at concentrations that would not adversely affect beneficial uses of waters of the state in the event of a release. For composite-lined portions of the landfill, the regulations require that constituents and breakdown products in the cover material are listed in the Water Quality Protection Standard.

16. The Discharger uses the following materials for ADC: geosynthetic fabric, foam products, processed green material, sludge and sludge-derived materials, ash and cement kiln dust materials, compost materials, construction and demolition debris, and shredded tires. The Discharger has demonstrated that these materials will minimize percolation of liquids through waste, that they meet the unit classification where they will be discharged, and

that the constituents and breakdown products are included in the Water Quality Protection Standard.

17. Landfills propose new ADC materials regularly in order to preserve landfill air space and to beneficially reuse waste materials. Title 27, section 20686 includes regulations for beneficial reuse, including use of ADC. Approval of ADC is primarily handled by the LEA and CalRecycle under Title 27, section 20690. This Order allows any ADC proposed for use at the facility after the adoption of this Order to be approved by Central Valley Water Board staff provided the Discharger has demonstrated it meets the requirements in Title 27, section 20705. The approved ADC materials should then be listed in the facility's WDRs during the next regular update or revision with information about the Discharger's demonstration. This Order also includes a requirement that ADC only be used in internal areas of the landfill unless the Discharger demonstrates that runoff from the particular ADC is not a threat to surface water quality. The demonstration can take sedimentation basins into account.

18. Leachate is extracted from the Phase 2 WMU leachate collection system sump and temporarily stored on-site in four 10,000 gallon polyethylene tanks. Disposal options for stored leachate include: (1) pretreatment (if necessary) and disposal at the City of Red Bluff sewage treatment plant; (2) pretreatment (if necessary) and disposal at another permitted wastewater treatment plant; and/or (3) dust control within the Phase 2 WMU liner footprint during the months of June through September.

19. Condensate collected by the landfill gas collection and control system is temporarily stored on-site in the condensate tank. Disposal options for stored condensate include: (1) pretreatment (if necessary) and disposal at the City of Red Bluff sewage treatment plant; (2) pretreatment (if necessary) and disposal at another permitted wastewater treatment plant; and/or (3) dust control within the Phase 2 WMU liner footprint during the months of June through September.

SITE DESCRIPTION

20. The site topography consists of rolling hills with ground elevation ranging from 420 to 536 feet mean sea level (MSL). The facility is located along an unnamed tributary of Brickyard Creek which flows into the Sacramento River approximately 3.5 miles to the southeast. Two springs are present within one mile of the facility.

21. Land uses within 1,000 feet of the facility are predominantly open space used for cattle and sheep grazing. The zoning classifications within 1,000 feet of the facility are "Rural Residential" and "Exclusive Agricultural".

22. There are 15 groundwater supply wells within one mile of the facility and include an agricultural supply well and 14 domestic supply wells. The closest well is located approximately 700 feet east of the facility.

23. The site is located within the Great Valley Geomorphic Province and is underlain by the Tehama Formation, consisting of river deposited silts, clays, sands, and gravels derived from the Coast Ranges west of the valley. The Tehama Formation immediately underlying the landfill consists primarily of well-consolidated dense to very dense clays and sandy clays and sands and gravels.

24. The measured hydraulic conductivity of the native soils underlying the landfill units ranges between 1×10^{-7} and 1×10^{-5} cm/s.

25. Based on a site-specific seismic analysis, the controlling maximum probable earthquake (MPE) for the site is a moment of magnitude 6.5 event along the Battle Creek Fault Zone at a closest rupture distance of 18.6 miles northwest of the site. It is estimated that a MPE event would produce a peak ground acceleration of 0. 1g at the site with a return period of 50 years.

26. The facility receives an average of 23.12 inches of precipitation per year as measured at the Red Bluff Flight Service Station (FSS). The mean pan evaporation is 65.6 inches per year as measured at the Red Bluff FSS.

27. The 100-year, 24-hour precipitation event for the facility is estimated to be 3.65 inches, based on Department of Water Resources' Bulletin 195 entitled *Rainfall Depth-Duration-Frequency for California*, revised November 1982, updated August 1986.

28. 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 065054270C.

29. Storm water sedimentation basins for the facility are located southwest and southeast of the Phase 1 WMU, and west of the Phase 2 WMU, as shown on Attachment B. The basins detain storm water for sedimentation control during the rainy season and are normally dry during the summer months. The sedimentation basins discharge to an unnamed tributary to Brickyard Creek.

SURFACE WATER AND GROUNDWATER CONDITIONS

30. The *Water Quality Control Plan for Sacramento and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.

31. Surface water drainage from the site is to an unnamed tributary of Brickyard Creek thence to Brickyard Creek, a tributary of the Sacramento River.

32. The designated beneficial uses of the Sacramento River, as specified in the Basin Plan, are municipal and domestic supply; agricultural supply; industrial service supply; industrial power generation; navigation; water contact recreation; non-contact water recreation;

warm freshwater habitat; cold freshwater habitat; wildlife habitat; migration of aquatic organisms; spawning, reproduction, and/or early development.

33. The first encountered groundwater ranges from about 90 feet below the native ground surface (bgs) to 145 feet bgs. Groundwater elevations range from about 335 feet MSL to 350 feet MSL. Two distinct water-bearing zones are present beneath the site. The upper sand unit occurs at a depth of approximately 100 feet bgs and is believed to be unconfined. The lower sand unit occurs at a depth of 175 feet bgs; it is undetermined whether it is unconfined or confined because no wells are screened solely in this unit.

34. Monitoring data indicate background groundwater quality for first encountered groundwater has electrical conductivity ranging between 150 and 290 micromhos/cm, with total dissolved solids ranging between 100 and 240 milligrams per liter.

35. The direction of groundwater flow beneath the Phase 1 WMU is generally toward the southeast with an approximate gradient on the order of 0.001 to 0.003 feet/foot (ft/ft) and an estimated groundwater velocity of 2 to 5 feet per year (ft/yr). The direction of groundwater flow beneath the Phase 2 WMU is generally toward the northeast with an approximate gradient ranging from 0.008 to 0.020 ft/ft, and an estimated groundwater velocity ranging from 15 to 40 ft/yr.

36. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply, agricultural supply, industrial service supply, and industrial process supply.

GROUNDWATER AND UNSATURATED ZONE MONITORING

37. The existing groundwater monitoring network for the landfill units consists of background monitoring wells OB-1 and OB-7, and detection monitoring wells OB-4A, OB-5, OB-6 Although installed as a downgradient monitoring well, well OB-7 is currently located upgradient of the Phase 2 WMU. An additional upgradient monitoring well may be necessary, if well OB-1 is ever determined not to be upgradient following construction of the Phase 2 WMU.

    Additional wells at the facility which are not monitored include well OB-3 which is pumped for dust control water and well OB-2 which may be screened across the two uppermost water-bearing sands. This Order requires an evaluation of well OB-2 and well decommissioning, if necessary.

38. At the time this Order was adopted, the Discharger's detection monitoring program for groundwater at the landfill did not satisfy the requirements contained in Title 27.

    a. The facility does not have a Water Quality Protection Standard Report that addresses the Phase 2 WMU. Provision 7 requires submittal of an updated Water Quality Protection Standard Report that addresses both the Phase 1 WMU and Phase 2 WMU.

b. The facility does not have a detailed description of the current data analysis methods used for evaluating water quality monitoring data [Title 27, section 20145(e)(7)]. Provision 7 requires submittal of a comprehensive technical report documenting the current data analysis methods.

39. The vadose zone monitoring network consists of two active vacuum cup lysimeters, L-1 and L-3, which are completed at 33 and 30 feet bgs, respectively. L-1 is located north of the Phase 2 WMU and L-3 is located east of the Phase 1 WMU. A pan lysimeter was constructed for leak detection under the Phase 2 WMU liner; the system contains a liquid indicator system.

40. Volatile organic compounds (VOCs) are often detected in a release from a MSW landfill and are often associated with releases of landfill gas rather than leachate. Since VOCs are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a landfill unit. Title 27, sections 20415(e)(8) and (9) allow the use of a non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a landfill unit in accordance with Title 27, sections 20415(b)(1)(B)2.-4. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

41. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27, section 20080(a)(1). Water Code section 13360(a)(1) 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.

42. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a landfill unit, the SPRRs specify a non-statistical method for the evaluation of monitoring data for non-naturally occurring compounds. 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 landfill 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) [a.k.a, laboratory reporting limit (RL)], indicates that a release of waste from a landfill unit has occurred. Following an indication of a release, verification testing must be conducted to determine whether there has been a release from the landfill unit or the detection was a false positive. 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.

43. For a naturally-occurring constituent of concern (COC), Title 27 requires concentration limits for each COC be determined as follows:

    a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or

    b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

44. The Discharger has not submitted a Water Quality Protection Standard Report that addresses both the Phase 1 WMU and Phase 2 WMU, or a comprehensive technical report that proposes statistical data analysis methods to calculate concentration limits for each monitored constituent in accordance with Title 27. Provision 7 requires submittal of an updated Water Quality Protection Standard Report and comprehensive technical report documenting the current data analysis methods.

GROUNDWATER CONDITIONS

45. Based upon groundwater monitoring data collected through 2016, a release to groundwater has not been confirmed. No VOCs have been detected in groundwater. However, concentrations of calcium, chloride, sodium, and sulfate appear to be increasing in well OB-5 which is located downgradient of the Phase 1 WMU. The implications of these apparent concentration trends will be evaluated as part of the on-going groundwater monitoring program, and if needed, appropriate response actions will be taken in accordance with Title 27 requirements.

46. Landfill influence on vadose zone water quality is suggested by elevated concentrations and increasing trends for chloride, conductivity, and total dissolved solids in lysimeters L-1 and L-3. Low concentrations of VOCs ranging between 0.7 and 22.6 micrograms per liter have been detected periodically in lysimeters L-1 and L-3. The most recent detections were observed in lysimeter L-3 in March 2005. Detected VOCs include 1,1-dichloroethane, 1,2-dichloroethane, cis-1,2-dichloroethene, methylene chloride, dichlorofluoromethane, tetrachloroethene, trichloroethene, vinyl chloride, 1,1,1-trichloroethane, and xylenes. A 2007 Engineering Feasibility Study concluded that the VOCs detected in lysimeters L-1 and L-3 resulted from landfill gas migration. The recommended scope of corrective action included: continued operation of the existing landfill gas collection system; maintaining temporary perimeter wells on standby status for future use, if needed; and continued monitoring of the perimeter probes on a quarterly basis and operations monitoring on the landfill gas extraction system on a monthly basis. Methane has not been detected in landfill gas monitoring probes since 2011. VOCs have not been sampled in landfill gas probes. MRP No. R5-2017-0073 requires sampling of landfill gas monitoring probes for VOCs.

LINER PERFORMANCE DEMONSTRATION

47. On 15 September 2000, the Central Valley Water Board adopted Resolution No. 5-00-213 *Request For The State Water Resources Control Board To Review The Adequacy Of The Prescriptive Design Requirements For Landfill Waste Containment Systems To Meet The Performance Standards Of Title 27*. The State Water Board responded, in part, that "a single composite liner system continues to be an adequate minimum standard" however, the Central Valley Water Board "should require a more stringent design in a case where it determines that the minimum design will not provide adequate protection to a given body of groundwater."

    In a letter dated 17 April 2001, the Executive Officer notified Owners and Operators of Solid Waste Landfills that "the Board will require a demonstration that any proposed landfill liner system to be constructed after 1 January 2002 will comply with Title 27 performance standards. A thorough evaluation of site-specific factors and cost/benefit analysis of single, double, and triple composite liners will likely be necessary."

48. The Discharger prepared the *Liner Performance Demonstration Report, Phase 2 Area, Red Bluff Landfill*, dated 15 May 2003, which presented a liner performance demonstration for the Phase 2 WMU liner configuration and modeled the potential impacts to groundwater resulting from liner defects. The maximum concentration and time to reach maximum concentration were predicted in groundwater for seven constituents found in leachate (benzene, 1,3-dichloroethane, methylene chloride, methyl tert butyl ether, vinyl chloride, chloride, and barium) for a given leakage rate.

49. Initial results of the liner performance evaluation did not adequately demonstrate to Central Valley Water Board staff that the proposed liner design for the Phase 2 WMU, Cell 1 would meet the performance standards contained in Title 27. Central Valley Water Board staff requested the Discharger submit an amended liner design and subsequent liner performance demonstration. The Discharger submitted the 13 June 2003 *Response to RWQCB Comments to the Liner Performance Demonstration Report for the Red Bluff Landfill, Tehama County*. Amendments to the liner design included: improving the one-foot thick low permeability subgrade (base area only) from hydraulic permeability of less than 1×10^{-5} cm/s to less than or equal to 1×10^{-6} cm/s; adding a landfill gas extraction system; adding pan lysimeters beneath the lowest portion of the liner; and adding an electronic leak location survey in the Construction Quality Assurance (CQA) Plan. Central Valley Water Board staff approved the revised liner performance demonstration for the Phase 2 WMU, Cell 1 in a 20 June 2003 letter.

50. The Discharger presented a liner performance demonstration for the future Phase 2 cells in the 20 August 2007 *Liner Demonstration Report, Proposed Phase 2, Cells 2, 3, and 4, Tehama County City of Red Bluff Municipal Solid Waste Landfill*. Changes to the liner approved for Phase 2 WMU, Cell 1 include an option to use either a geocomposite drainage layer, or a six-inch thick pea gravel drainage layer overlying an 8-oz/yd^2 geotextile for the LCRS. In addition, the proposed liner design was non-specific regarding

the subgrade permeability. Central Valley Water Board staff approved the liner demonstration for the Phase 2 WMU, Cells 2, 3, and 4 in a 9 October 2007 letter with the requirement for a one-foot thick subgrade having a permeability of less than or equal to 1×10^{-6} cm/s.

CONSTRUCTION AND ENGINEERED ALTERNATIVE

51. On 17 June 1993, the State Water Board adopted Resolution 93-62 implementing a State Policy for the construction, monitoring, and operation of MSW landfills that is consistent with the federal MSW regulations promulgated under 40 Code of Federal Regulations section 258 (a.k.a, Subtitle D). Resolution 93-62 requires the construction of a specified composite liner system at new MSW landfills, or expansion areas of existing MSW landfills, that receive wastes after 9 October 1993. Resolution 93-62 also allows the Central Valley Water Board to consider the approval of engineered alternatives to the prescriptive standard. Section III.A.b. of Resolution 93-62 requires that the engineered alternative liner systems be of a composite design similar to the prescriptive standard.

52. Title 27, section 20080(b) allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative, in accordance with Title 27, sections 20080(c)(1) or (2), 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 Title 27, section 20080(b), 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 Title 27, section 20080(b)(2).

53. Water Code section 13360(a)(1) allows the Central Valley Water Board to specify the design, type of construction, and/or particular manner in which compliance must be met in WDRs or orders for the discharge of waste at solid waste disposal facilities.

54. The Discharger proposes a liner system which will be designed, constructed, and operated in accordance with the criteria set forth in Title 27, and the provisions in State Water Board Resolution 93-62 for MSW.

55. On 31 October 2002, the Discharger submitted a ROWD requesting approval of an engineered alternative to the prescriptive standard for liner requirements for Phase 2 WMU, Cell 1. The alternative liner components adopted by WDR Order No. R5-2003-0144 (Items 40 and 41) included:

    Bottom Liner (in ascending order):
    - Prepared subgrade with a permeability (k) equal to or less than 1×10^{-6} cm/s.
    - GCL layer.

- 60-mil textured HDPE geomembrane.
- Six-inch thick pea gravel (LCRS) with 8-oz/yd^2 nonwoven geotextile filter fabric.
- One-foot thick soil operations layer.

Side Slope Liner (in ascending order):
- Prepared subgrade.
- GCL layer.
- 60-mil HDPE geomembrane.
- Two-foot thick operations layer placed during filling.

56. The Discharger presented a liner performance demonstration for future Phase 2 cells in the 20 August 2007 *Liner Demonstration Report, Proposed Phase 2, Cells 2, 3, and 4, Tehama County City of Red Bluff Municipal Solid Waste Landfill*. The alternative liner components for Phase 2 Cells 2, 3, and 4 included:

Bottom Liner (in ascending order):
- Minimum one-foot thick prepared subgrade with a k equal to or less than 1 x 10^{-6} cm/s
- GCL layer
- 60-mil double-sided textured HDPE geomembrane
- Geocomposite drainage layer, or six-inch thick pea gravel drainage layer overlying an 8-oz/yd^2 geotextile (LCRS)
- Minimum one-foot thick soil operations layer

Slide Slope Liner (in ascending order):
- Prepared subgrade
- GCL layer
- 60-mil single side textured HDPE geomembrane with smooth side up
- Two-foot thick soil operations layer placed during filling

57. The Discharger proposed the engineering alternative design because of: (1) the substantial separation to underlying groundwater; (2) the naturally low permeability (estimated to range from 1 x 10^{-7} cm/s to 1 x 10^{-5} cm/s) of the underlying native soil; (3) the lack of suitable available soil for the prescribed low permeability soil layer in the Phase 2 excavation; and (4) the exceptional low permeability characteristics of man-made material.

58. The Discharger adequately demonstrated that construction of a Subtitle D prescriptive standard liner would be unreasonably and unnecessarily burdensome when compared to the proposed engineered alternative design. The Discharger demonstrated that the proposed engineered alternative is consistent with the performance goals of the prescriptive standard and affords at least equivalent protection against water quality impairment.

59. The Phase 2 LCRS consists of, or will consist of, a gravel drainage blanket or geocomposite drainage layer throughout the base of WMU with perforated HDPE piping that is designed to convey leachate to a double-lined collection sump. The drainage layer will be covered with a minimum one-foot thick protective soil layer. HDPE piping will be placed around the perimeter of the WMU and in evenly spaced intervals within the WMU interior. Both the perimeter and interior leachate collection drain piping will consist of 3-inch diameter perforated HDPE pipe encompassed by drain rock wrapped in geotextile. All leachate pipes are sized to convey at least twice the peak design flow for leachate production. Leachate will be conveyed to the sump (20 feet in length and width), and lined from top to bottom with a geomembrane, GCL, and one-inch minus recompacted subgrade meeting a hydraulic conductivity of 1×10^{-6} cm/s. The sump is equipped with a riser pipe for annual inspection, leachate removal, and cleaning if necessary. Leachate extracted from the sump is temporarily stored on-site in two 10,000 gallon polyethylene tanks. Stored leachate is transported to the City of Red Bluff sewage treatment plant, transported to another permitted wastewater treatment plant for disposal, and/or used for dust control within the Phase 2 WMU liner footprint.

60. The Phase 1 WMU has an infill gas collection system for controlling the perimeter migration of methane. To optimize gas collection, horizontal collectors were installed prior to placing the final 20-foot waste lift. The Phase 1 gas-collection system consists of 12 vertical gas collection wells, four horizontal gas collectors, a vacuum blower system, gas flare condensate tank, and piping; the system is sized to operate between 75 and 500 cubic feet per minute at 50 percent methane. The Phase 2 WMU gas extraction system consists of horizontal collectors installed every 50 vertical feet and spaced every 200 feet horizontally. The horizontal collector in the Phase 2 WMU is not yet connected to the gas system because of insufficient waste coverage to prevent air intrusion. The blower/flare system is sized to provide capacity for both the Phase 1 WMU and Phase 2 WMU. Condensate generated from the gas-extraction system is stored and taken to the City of Red Bluff Waste Water Treatment Plant for disposal, transported to another permitted wastewater treatment plant for disposal, and/or mixed with leachate and used for dust suppression on the Phase 2 WMU liner footprint.

61. A pan lysimeter was installed beneath the Phase 2 LCRS sump for the purpose of unsaturated zone monitoring. The pan lysimeter consists of (from bottom to top): 1) an underlying 60-mil HDPE liner on a prepared grade; 2) perforated or slotted 3-inch diameter HDPE piping wrapped with a filter fabric and encased in drainage rock; and 3) an overlying non-woven geotextile.

62. The Phase 1 WMU and Phase 2 WMU are monitored by two suction lysimeters, L-1 and L-3, as required by MRP No. R5-2017-0073.

63. Eight perimeter gas monitoring wells (GW-1 through GW-8) covering the Phase 1 WMU and Phase 2 WMU are monitored as required by MRP No. R5-2017-0073.

64. The 30 June 2015 ROWD includes a stability analysis for the Phase 2 WMU pursuant to Title 27, section 21750(f)(5). The Discharger's stability analysis includes components to demonstrate the integrity of the landfill foundation, final slopes, and containment systems under both static and dynamic conditions throughout the landfill's life including the closure period and post-closure maintenance period. The stability analysis demonstrates that the structural components of the Phase 2 WMU will withstand the forces of the MPE without failure of the containment systems or environmental controls. The interim fill slope angle for Cell 2 was stable as long as the waste footprint is at least 100 feet wide at the toe of the north-south trending slope between Cells 1 and 2. To avoid an unstable condition, Cell 2 must be filled one horizontal lift at a time from the bottom up (and not by covering the side slopes first).

65. This Order approves the Discharger's proposed liner system for future modules (Phase 2 WMU, Cells 2B, 3 and 4) as described in Finding 6 and requires that the Discharger submit: design plan revisions, if any, for review and approval at least 180 days prior to construction; and CQA plans for each new module or modules for review and approval at least 60 days prior to construction.

LANDFILL CLOSURE

66. Title 27, section 21090 provides the minimum prescriptive final cover components for landfills consisting of, in ascending order, the following layers:

    a. Two-foot soil foundation layer.
    b. One-foot soil low hydraulic conductivity layer, less than $1x10^{-6}$ cm/s or equal to the hydraulic conductivity of any bottom liner system.
    c. Geomembrane layer (this layer is required for composite-lined landfills for equivalency to bottom liner).
    d. One-foot soil erosion resistant/vegetative layer.

67. Title 27 allows engineered alternative final covers provided the alternative design will provide a correspondingly low flow-through rate throughout the post-closure maintenance period.

68. The Discharger submitted a 14 September 2014 *Partial-Final Closure and Postclosure Maintenance Plan for the Tehama County/City of Red Bluff Phase 1 Landfill, Tehama County* for the unlined Phase 1 WMU at the facility. The Central Valley Water Board approved the *Partial-Final Closure and Postclosure Maintenance Plan for the Tehama County/City of Red Bluff Phase 1 Landfill, Tehama County* in a 13 May 2015 letter. Closure activities for the Phase 1 WMU are expected to begin in the summer of 2017. The Discharger proposes a prescriptive final cover for the Phase 1 WMU consisting of (in ascending order) the following layers:

    a. Two-foot soil foundation layer.
    b. One-foot soil low flow-hydraulic conductivity layer, less than $1x10^{-6}$ cm/s.

c. One-foot soil erosion resistant/vegetative layer.

69. The Discharger submitted the 19 January 2009 *Preliminary Closure and Postclosure Maintenance Plan, Tehama County/City of Red Bluff, Phase 2 Landfill* as an appendix to the 30 June 2015 ROWD. Closure activities for the Phase 2 WMU are projected to begin in 2040, depending on the WMU filling rate. The Discharger proposes an engineered alternative final cover for the Phase 2 WMU consisting of (in ascending order) the following layers:

    a. A minimum two-foot thick soil foundation layer, of which the first eight inches is recompacted intermediate cover and the remaining 16 inches is added soil.
    b. 60-mil textured HDPE flexible membrane liner.
    c. Geocomposite drainage layer on side slopes, where needed, to prevent hydraulic failure of the vegetative layer.
    d. A minimum 1.5-foot thick vegetative soil cover suitable to support good vegetation of native plant species.

70. The *Preliminary Closure and Postclosure Maintenance Plan, Tehama County/City of Red Bluff, Phase 2 Landfill* states that inclusion of the 60-mil textured HDPE flexible membrane liner in the engineered cover meets the prescriptive Title 27 requirement that the cover hydraulic conductivity be equal to or less than that of the liner.

71. Side slopes for the closed Phase 1 WMU will be sloped generally at 3H:1V, with some areas as steep as 2.4H:1V, and will include 15-foot wide benches every 50 vertical feet as required by Title 27. Side slopes for the Phase 2 WMU will be sloped at 3H:1V, and will include 15-foot wide benches every 50 vertical feet as required by Title 27.

72. The Discharger performed a global and infinite slope stability analysis for the proposed Phase 1 WMU final cover. A critical slope on the southeast portion of the Phase 1 WMU was modeled for slope stability because it is the longest or steepest slope that is considered likely to fail. The Discharger's static and dynamic stability analysis demonstrates that the side slopes of the final cover will be stable in accordance with the requirements of Title 27, provided that the maximum slope is 2.4H:1V and the final cover is constructed with materials having properties similar to those used in the analysis.

73. Pursuant to Title 27, section 21090(e)(1), this Order requires a survey of the final cover following closure activities for later comparison with iso-settlement surveys required to be conducted every five years.

74. This Order approves the proposed final covers for the Phase 1 WMU and Phase 2 WMU. Central Valley Water Board staff previously reviewed and approved the design documents and CQA Plan for the Phase 1 WMU final cover in its approval of the 14 September 2014 *Partial-Final Closure and Postclosure Maintenance Plan for the Tehama County / City of Red Bluff Phase 1 Landfill*. This Order requires that a final closure and post-closure

maintenance plan, design documents, and CQA plan for the Phase 2 WMU be submitted for review and approval at least 180 days prior to actual closure.

LANDFILL POST-CLOSURE MAINTENANCE

75. The Discharger submitted a 14 September 2014 *Partial-Final Closure and Postclosure Maintenance Plan for the Tehama County / City of Red Bluff Phase 1 Landfill* for closure and post-closure maintenance of the Phase 1 WMU and the19 January 2009 *Preliminary Closure and Postclosure Maintenance Plan, Tehama County / City of Red Bluff Phase 2 Landfill* for closure and post-closure maintenance of the Phase 2 WMU. The plans include inspection, maintenance, and monitoring of the applicable WMU during the post-closure maintenance period, and include a post-closure maintenance cost estimate for the entire facility. Inspection and maintenance will include the condition of the final cover, drainage features, LCRS, groundwater monitoring wells, unsaturated zone monitoring points, access roads, landfill gas system, and site security. The plans will be implemented for a minimum period of 30 years or until the waste no longer poses a threat to environmental quality, whichever is greater.

76. Once every five years during the post-closure maintenance period, aerial photographic maps of the closed landfill area will be made to identify and evaluate landfill settlement. Iso-settlement maps will be prepared to determine the amount of differential settlement occurring over the previous five years. Pursuant to Title 27, section 21090(e)(2), this Order requires iso-settlement maps to be prepared and submitted every five years.

77. The completed final cover will be periodically tested for damage or defects by monitoring surface emissions pursuant to California Code of Regulations, title 17, section 95471(c) and Title 27, section 21090(a)(4)(A). Defects will be repaired and tested for adequacy based on the closure CQA Plan.

FINANCIAL ASSURANCES

78. Title 27, sections 21820 and 22206 require a cost estimate for landfill closure. The cost estimate must be equal to the cost of closing the landfill at the point in its active life when the extent and manner of operation would make closure the most expensive. When closing units in phases, the estimate may account for closing only the maximum area or unit of a landfill open at any time. The Discharger's 19 January 2009 *Preliminary Closure and Post Closure Maintenance Plan, Tehama County / City of Red Bluff Phase 2 Landfill* and 14 September 2014 *Partial-Final Closure and Postclosure Maintenance Plan for the Tehama County / City of Red Bluff Phase 1 Landfill* include cost estimates for landfill closure. The lump sum estimate is for the cost to close the largest future area needing closure at any one time. The total amount of the closure cost estimate for the Phase 1 WMU in 2017 dollars is $3.2 million. The total amount of the closure cost estimate for the Phase 2 WMU in 2008 dollars is $1.4 million. This Order requires that the Discharger maintain financial assurance with CalRecycle in at least the amount of the closure cost estimate. As of 9 November 2016, the balance of the closure fund was $3.2 million.

79. Title 27, sections 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The Discharger's 19 January 2009 *Preliminary Closure and Post Closure Maintenance Plan, Tehama County / City of Red Bluff Phase 2 Landfill* and 14 September 2014 *Partial-Final Closure and Postclosure Maintenance Plan for the Tehama County / City of Red Bluff Phase 1 Landfill* include cost estimates for landfill post-closure maintenance. The amount of the cost estimate for post-closure maintenance for the Phase 1 WMU in 2014 dollars is $1.9 million. The amount of the cost estimate for post-closure maintenance for the Phase 2 WMU in 2008 dollars is $1 million. This Order requires that the Discharger maintain financial assurance with CalRecycle in at least the amount of the post-closure maintenance cost estimate adjusted annually for inflation. As of 2016, the annual Pledge of Revenue for post-closure maintenance was $201,000.

80. Title 27, section 22221 requires a cost estimate for corrective action of all known or reasonably foreseeable releases. The Discharger submitted a 5 June 2001 cost estimate of $724,000 for corrective action of all known or reasonably foreseeable releases. This Order requires that the Discharger maintain financial assurance with the CalRecycle in at least the amount of the cost estimate adjusted annually for inflation. As of 30 June 2016, the balance of the corrective action fund was $362,000.

81. Title 27 section 22100(b) requires owners and operators of disposal facilities that are required to be permitted as solid waste landfills to provide cost estimates for initiating and completing corrective action for known or reasonably foreseeable releases of waste. Title 27 section 22101 requires submittal of a *Water Release Corrective Action Estimate* and a *Non-Water Release Corrective Action Cost Estimate*. The *Water Release Corrective Action Estimate* is for scenarios where there is statistically significant evidence of a release of waste to groundwater or surface water when comparing point-of-compliance analyte concentrations to background concentrations. The *Non-Water Release Corrective Action Cost Estimate* is for complete replacement of the landfill final cover system, however a site-specific corrective action plan pursuant to Title 27 section 22101(b)(2) may be provided in lieu of the final cover replacement cost estimate. Title 27 section 22221 requires establishment of financial assurances in the amount of an approved *Water Release Corrective Action Estimate* or an approved *Non-Water Release Corrective Action Cost Estimate*, whichever is greater.

CEQA AND OTHER CONSIDERATIONS

82. On 26 September 2001, Tehama County and the City of Red Bluff certified the final negative declaration for the facility to address expansion of the landfill property, addition of the Material Recovery Facility (MRF), and a possible future compost operation. The Initial Study was limited to property expansion areas and described the Phase 2 WMU as part of the general project description. Mitigation measures identified in the Notice of Determination (NOD) pertained to the MRF.

83. On 16 December 2003, Tehama County and the City of Red Bluff certified a negative declaration for the Phase 2 expansion. The NOD was filed on 16 December 2003 for the

Phase 2 WMU expansion, in accordance with the California Environmental Quality Act (CEQA; Public Resources Code Section 21000 et seq.) and CEQA guidelines (Title 14, section 15000 et seq.). Mitigation measures incorporated into the Phase 2 WMU project pertained to aesthetics (trash removal), protection of raptor nests, biological evaluation, protection of riparian and wetland areas, and cultural resources protection. The Central Valley Water Board considered the negative declaration and incorporated mitigation measures from the negative declaration, designed to prevent potentially significant impacts to design facilities and to water quality, into these WDRs.

84. On 2 April 2009, the Tehama County and the City of Red Bluff certified a negative declaration for the Phase 1 WMU and Phase 2 WMU height increase, tonnage increase, and traffic increase. The NOD was filed on 16 December 2003, in accordance with the CEQA (Public Resources Code Section 21000 et seq.) and CEQA guidelines (Title 14, section 15000 et seq.). Mitigation measures pertained to air quality, biological resources, and cultural resources. The Central Valley Water Board considered the negative declaration and incorporated mitigation measures from the negative declaration, designed to prevent potentially significant impacts to design facilities and to water quality, into these WDRs.

85. This Order implements:

    a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*;

    b. The prescriptive standards and performance goals of California Code of Regulations, Title 27, section 20005 et seq., effective 18 July 1997, and subsequent revisions;

    c. State Water Board Resolution 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993, and revised on 21 July 2005; and

    d. The applicable provisions of Title 40 C.F.R. section 258 “Subtitle D” federal regulations as required by State Water Board Resolution 93-62.

86. 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 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.”

87. The *Statement of Policy With Respect to Maintaining High Quality of Waters in California*, SWRCB Order WQ 68-16 (hereinafter "Anti-Degradation Policy") was adopted by the State Water Board in October 1968. Anti-Degradation Policy limits the Board's discretion to authorize the degradation of "high-quality waters." This policy has been incorporated into the Board's Basin Plans. "High-quality waters" are defined as those waters where water quality is more than sufficient to support beneficial uses designated in the Board's Basin Plan. Whether or not a water is a high-quality water is established on a constituent-by-constituent basis, which means that an aquifer can be considered a high-quality water with respect to one constituent, but not for others. (SWRCB Order No. WQ 91-10.)

88. The Anti-Degradation Policy applies when an activity discharges to high quality waters and will result in some degradation of such high quality waters. When it applies, the Policy requires that WDRs reflect best practicable treatment or control (BPTC) of wastes and that any degradation of high quality waters (a) will be consistent with the maximum benefit to the people of the State, and (b) will not result in an exceedance of water quality objectives. If the activity will not result in the degradation of high quality waters, the Anti-Degradation Policy does not apply, and the Discharger need only demonstrate that it will use "best efforts" to control the discharge of waste.

89. Due to the presence of unlined waste disposal units at the site (Phase 1 WMU), waste discharged at the site could be discharged to waters of the State as a result of permitted activities at the facility. A release to groundwater has not been confirmed. VOC impacts observed in lysimeter samples in 2005 were attributed to landfill gas migration; the facility operates a landfill gas extraction system to mitigate these impacts and methane has not been detected in landfill gas monitoring probes since 2011. Compliance with this Order, the attached SPRSS, and MRP No. R5-2017-0073 represent BPTC of the discharge of waste to waters of the State. Therefore, the site complies with the Anti-Degradation Policy.

90. Any degradation that may result from the facility's discharges to waters of the State would be consistent with the maximum benefit to the people of the State. Avoiding or preventing such degradation would require unearthing and re-engineering the facility at significant expense to the City of Red Bluff and Tehama County. From a water quality standpoint, implementing the BPTC measures required under this Order is a more effective use of the Discharger's limited resources.

91. Water Code section 13267(b) 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 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 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".

92. The technical reports required by this Order and the attached MRP No. R5-2017-0073 are necessary to assure compliance with these WDRs. The Discharger owns the facility that discharges the waste subject to this Order. Typical annual costs of the Site monitoring and reporting program range from $21,000 to $27,000 and are commensurate with similar programs at other landfills throughout the state. The Central Valley Water Board finds that, given the necessity of obtaining accurate and up to date information to inform management of this facility's discharges, these costs bear a reasonable relationship to the benefit and need for the reports required by the MRP.

PROCEDURAL REQUIREMENTS

93. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

94. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

95. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

96. Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date that this Order becomes final, except that if the thirtieth day following the date that this Order becomes final falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

    http://www.waterboards.ca.gov/public_notices/petitions/water_quality

    or will be provided upon request.

IT IS HEREBY ORDERED, pursuant to California Water Code sections 13263 and 13267, that Order No. R5-2003-0144 is rescinded except for purposes of enforcement, and that Tehama County / City of Red Bluff, their 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 California Code of Regulations, Title 23, section 2510 et seq., and 'designated waste' is as defined in Title 27.

2. No further waste shall be discharged to the Phase 1 WMU, except as needed to finish filling prior to installing closure cap.

3. The Discharger shall comply with all Standard Prohibitions listed in Section C of the SPRRs dated December 2015.

B. DISCHARGE SPECIFICATIONS

1. The Discharger shall only discharge the wastes listed or allowed under the Waste Classification and Unit Classification section in the Findings of this Order.

2. The Discharger shall not discharge treated wood waste to the Phase 2 WMU until the Discharger submits a Report of Facility Information and revised JTD, and the Central Valley Water Board approves discharge of treated wood waste to the Phase 2 WMU.

3. The Discharger shall discharge treated wood wastes only to landfill units equipped with a composite liner system and a leachate collection and removal system (i.e., Phase 2, Cells 1A, 1B, and 2A, and future modules listed in Finding 6 of this Order). If a verified release is detected from the WMU where treated wood is disposed, the disposal of treated wood shall be terminated at the unit with the verified release until corrective action ceases the release.

4. The Discharger shall manage treated wood waste in accordance with California Health and Safety Code sections 25143.1.5 and 250150.7 and shall comply with all prohibitions listed in Title 22, section 67386.3.

5. The Discharger may not use any material as ADC that is not listed as approved ADC in the Findings of these WDRs unless and until the Discharger has demonstrated it meets the requirements in Title 27, section 20705, and the Discharger has received approval that it may begin using the material as ADC.

6. The Discharger shall use approved ADC only in internal areas of the landfill that do not drain outside of the limits of the contiguous landfill units unless the Discharger demonstrates that runoff from the particular ADC is not a threat to surface water quality and the demonstration has been approved. This demonstration may take removal of sediment or suspended solids into account for landfills where surface water drains to a sedimentation basin.

7. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order. If the Discharger is unable to remove and relocate the waste, the Discharger shall submit a report to the Central Valley Water Board explaining how the discharge occurred, why the waste cannot be removed, and any updates to the waste acceptance program necessary to prevent re-occurrence. If the waste is a hazardous waste, the Discharger shall immediately notify the Department of Toxic Substances Control.

8. Leachate and/or landfill gas condensate may be returned only to Phase 2, Cells 1A, 1B, and 2A, and future composite lined modules listed in Finding 6 of this Order in accordance with Standard Discharge Specifications D.2 through D.4 of the SPRRs dated December 2015.

9. The Discharger shall comply with all Standard Discharge Specifications listed in Section D of the SPRRs dated December 2015.

C. FACILITY SPECIFICATIONS

1. The Discharger shall comply with all Standard Facility Specifications listed in Section E of the SPRRs dated December 2015.

2. Leachate and landfill gas condensate used for dust control shall be limited to the minimum amount necessary and shall only be applied to the Phase 2 WMU during the months of June through September.

D. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall construct the base liner and side slope liner of new Class III landfill units as described in Finding 6 of this Order in accordance with the following approved engineered alternative liner design:

   a. An engineered alternative composite **base liner system** that is comprised, in ascending order, of the following:

      1) 12 inches compacted subgrade with a k equal to or less than 1×10^{-6} cm/s

      2) GCL layer

      3) 60-mil double-sided, textured HDPE geomembrane

      4) Geocomposite drainage layer, or six-inch thick pea gravel drainage layer overlying an 8-oz/yd^2 geotextile

      5) 12 to 18-inch thick soil operations layer

   b. An engineered alternative composite **side slope liner system** that is comprised, in ascending order, of the following:

      1) Prepared subgrade

2) GCL layer
3) 60-mil single-side textured HDPE with smooth side up
4) Two-foot thick operations layer placed during filling

2. The Discharger shall not proceed with liner construction (other than earth moving and grading in preparation for liner construction) until the construction plans, specifications, and all applicable CQA plans have been approved.

3. 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 Title 27 and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Central Valley Water Board in revised WDRs.

4. The Discharger shall comply with all Standard Construction Specifications listed in Section F of the SPRRs dated December 2015.

5. The Discharger shall comply with all Storm Water Provisions listed in Section L of the SPRRs dated December 2015.

E. CLOSURE AND POST-CLOSURE MAINTENANCE SPECIFICATIONS

1. The Discharger shall submit a final or partial final closure and post-closure maintenance plan at least two years prior to proposed closure of any portion of the landfill in accordance with requirements in Section G of the Standard Closure and Post-Closure Specifications in the SPRRs dated December 2015.

2. The Discharger shall close the Phase 1 WMU with a final cover as proposed in the 14 September 2014 *Partial-Final Closure and Postclosure Maintenance Plan for the Tehama County / City of Red Bluff Phase 1 Landfill*. The components of the approved final cover as proposed in the Partial Final Closure and Postclosure Maintenance Plan are listed in Finding 68.

3. The Discharger shall close the Phase 2 WMU with a final cover as proposed in the 19 January 2009 Preliminary Closure and Postclosure Maintenance Plan (PCPCMP) and as approved by this Order. The components of the approved final cover as proposed in the PCPCMP are listed in Finding 69.

4. The Discharger shall obtain revised WDRs prior to closure with any other final cover design than the design or designs approved in this Order, except when modifications are necessary for problematic areas of the final cover needing repair so long as the

barrier layer (e.g., geomembrane, GCL, and/or compacted clay layer) remains intact, and the modifications are approved by Central Valley Water Board staff.

5. The Discharger shall close the Phase 1 WMU with side slopes generally at steepness of 3H:1V, with some areas as steep as 2.4H:1V, and top deck areas shall be sloped at three percent or greater. The Discharger shall close the Phase 2 WMU with side slopes at steepness of 3H:1V or less, and top deck areas shall be sloped at three percent or greater.

6. The Discharger shall install an active landfill gas extraction system for the closed landfill unit during landfill closure, and landfill gas shall be extracted from closed landfill units until such time that the landfill gas is no longer a threat to water quality as documented by the Discharger and approved by the Executive Officer.

7. The Discharger shall seal the edges of the final cover for the Phase 2 WMU by connecting the cover geomembrane to the liner geomembrane.

8. The Discharger shall test the critical interfaces of the final cover in a laboratory to ensure minimum design shear strengths are achieved and include the results in the final documentation report.

9. The Discharger shall ensure that the vegetative/erosion resistant layer receives necessary seed, binder, and nutrients to establish the vegetation proposed in the final closure plan. The Discharger shall install necessary erosion and sedimentation controls to prevent erosion and sediment in runoff from the closed landfill during the period the vegetation is being established.

10. The Discharger shall comply with all Standard Closure and Post-Closure Specifications listed in Section G and all Standard Construction Specifications that are applicable to closure in Section F of the SPRRs dated December 2015.

F. FINANCIAL ASSURANCE SPECIFICATIONS

1. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for closure and post-closure maintenance for the landfill in at least the amounts described in Findings 78 and 79, adjusted for inflation annually. A report regarding financial assurances for closure and post-closure maintenance shall be submitted to the Central Valley Water Board by **1 July of each year**. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.

2. The Discharger shall update the PCPCMP for the Phase 2 WMU any time there is a change that will increase the amount of the closure and/or post-closure maintenance

cost estimate. The updated PCPCMP shall be submitted to the Central Valley Water Board, the LEA, and CalRecycle. The PCPCMP shall meet the requirements of Title 27, section 21769(b), and include a lump sum estimate of the cost of carrying out all actions necessary to close each Unit, to prepare detailed design specifications, to develop the final closure and post-closure maintenance plan, and to carry out the first thirty years of post-closure maintenance. Reports regarding financial assurance required in F.1 above shall reflect the updated cost estimate.

3. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in at least the amount of the annual inflation-adjusted cost estimate described in Finding 80. A report regarding financial assurances for corrective action shall be submitted to the Central Valley Water Board by **1 July of each year**. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.

4. The Discharger shall comply with all Standard Financial Assurance Specifications listed in Section H of the SPRRs dated December 2015.

G. MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with MRP No. R5-2017-0073, and the Standard Monitoring Specifications listed in Section I of the SPRRs dated December 2015.

2. The Discharger shall, for any landfill unit in a corrective action monitoring program, comply with the corrective action monitoring program provisions of Title 27, MRP No. R5-2017-0073, and the Standard Monitoring Specifications listed in Section I of SPRRs dated December 2015.

3. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP No. R5-2017-0073, and the SPRRs dated December 2015.

4. The concentrations of the COCs in waters passing the Point of Compliance (defined pursuant to Title 27, section 20164 as a vertical surface located at the hydraulically downgradient limit of the landfill unit that extends through the uppermost aquifer underlying the unit) shall not exceed the concentration limits established pursuant to MRP No. R5-2017-0073.

5. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in

MRP No. R5-2017-0073 and the Standard Monitoring Specifications in Section I of the SPRRs dated December 2015.

6. As specified in MRP No. R5-2017-0073, the Discharger shall enter all monitoring data and monitoring reports into the online Geotracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23.

7. The Discharger shall comply with all Standard Monitoring Specifications and Response to a Release specifications listed in Sections I and J of the SPRRs dated December 2015.

H. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility, including MRP No. R5-2017-0073 and the SPRRs dated December 2015, and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

2. The Discharger shall comply with all applicable provisions of Title 27 and Subtitle D that are not specifically referred to in this Order.

3. The Discharger shall comply with MRP No. R5-2017-0073, which is incorporated into and made part of this Order by reference.

4. 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 Subtitle D and/or Title 27, dated December 2015, which are attached hereto and made part of this Order by reference.

5. If there is any conflicting or contradictory language between the WDRs, the MRP, or the SPRRs, then language in the WDRs shall supersede either the MRP or the SPRRs, and language in the MRP shall supersede the SPRRs.

6. All reports required by this Order shall be submitted pursuant to Water Code section 13267.

7. The Discharger shall complete the tasks contained in these WDRs in accordance with the following time schedule:

Task	Compliance Date
A. Construction Plans	
Submit construction and design plans for review and approval. (see Finding #65, all Construction Specifications in Section D, above and Section F of the SPRRs.)	**60 or 180 days prior to proposed construction**
B. Construction Report	
Submit a construction report for review and approval upon completion demonstrating construction was in accordance with approved construction plans (see Standard Construction Specification F.27 in the SPRRs).	**60 days prior to proposed discharge**
C. Final Closure Plans	**Two years prior to closure**
Submit a final or partial final closure and post-closure maintenance plan, design plans, and CQA plan for review and approval (see all Closure and Post-Closure Specifications in Section E, above and Section G of the SPRRs).	
D. Well OB-2 Report	**31 July 2017**
Submit a report that addresses well OB-2 construction details with respect to the uppermost water-bearing sands at the Site. If the well is screened across more than one water-bearing sand, include a Well Decommissioning Plan with the report.	
E. Well OB-2 Decommissioning Report	**31 October 2017**
If the report required under Provision 7D indicates well OB-2 should be abandoned, submit a Well OB-2 Decommissioning Report.	

F. Corrective Action Cost Estimate	**31 December 2017**
G. Water Quality Protection Standards Report	
Submit a report that addresses both the Phase 1 WMU and Phase 2 WMU. Also incorporate a comprehensive technical report for the current data analysis methods. (See C.1 MRP No. R5-2017-0073).	**31 January 2018**

8. The Discharger shall comply with all General Provisions listed in Section K of the SPRRs dated December 2015.

I, PAMELA C. 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 9 June 2017.

Original signed by Pamela C. Creedon

PAMELA C. CREEDON, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2017-0073
FOR
COUNTY OF TEHAMA AND CITY OF RED BLUFF
TEHAMA COUNTY AND CITY OF RED BLUFF
CLASS III MUNICIPAL SOLID WASTE LANDFILL
CONSTRUCTION, OPERATION, CLOSURE, AND POST-CLOSURE MAINTENANCE
TEHAMA COUNTY

This monitoring and reporting program (MRP) is issued pursuant to California Water Code section 13267 and incorporates requirements for groundwater, surface water, unsaturated zone, and leachate monitoring and reporting; facility monitoring, maintenance, and reporting; and financial assurances reporting contained in California Code of Regulations, Title 27, section 20005, et seq. (hereafter Title 27), Waste Discharge Requirements (WDRs) Order No. R5-2017-0073, and the Standard Provisions and Reporting Requirements (SPRRs) dated December 2015. Compliance with this MRP is ordered by the WDRs and the Discharger shall not implement any changes to this MRP unless a revised MRP is issued by Central Valley Water Board or the Executive Officer.

A. MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone in accordance with Standard Monitoring Specifications in Section I of the SPRRs and the Monitoring Specifications in Section G of the WDRs. All monitoring shall be conducted in accordance with the approved October 2004 *Sampling and Analysis Plan (Ground Water, Landfill Gas, Lysimeters, and Leachate) for the Tehama County/City of Red Bluff Landfill* (SAP), or most recent approved update of the SAP, which includes quality assurance/quality control (QA/QC) standards.

All compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard (WQPS). All detection monitoring program groundwater monitoring wells, unsaturated zone monitoring devices, leachate, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as indicated and listed in Tables I through V.

The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this MRP, and are identified in the approved SAP.

The monitoring program of this MRP includes:

Section	Monitoring Program
A.1	Groundwater Monitoring
A.2	Unsaturated Zone Monitoring
A.3	Leachate Monitoring, Seep Monitoring, and LCRS Testing
A.4	Surface Water Monitoring
A.5	Facility Monitoring

1. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The current groundwater detection monitoring system does not meet the applicable requirements of Title 27. The facility does not have a WQPS Report that addresses the Phase 2 WMU and does not have a detailed description of the current data analysis methods for evaluating water quality data. Provision 7 of WDR Order No. R5-2017-0073 requires submittal of these documents. The Discharger shall revise the groundwater detection monitoring system (after review and approval by Central Valley Water Board staff) as needed each time a new landfill cell or module is constructed.

The current groundwater monitoring network shall consist of the following:

Well	Status	Units Being Monitored
OB-1	Background	Phase 1 WMU
OB-4A	Detection	Phase 1 WMU
OB-5	Detection	Phase 1 WMU, Phase 2 WMU
OB-6	Detection	Phase 1 WMU, Phase 2 WMU
OB-7	Background	Phase 2 WMU

Groundwater samples shall be collected from the background wells and detection monitoring wells, and any additional wells added as part of the approved groundwater monitoring system. The collected samples shall be analyzed for the parameters and constituents listed in Table I in accordance with the specified methods and frequencies. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved SAP.

Once per quarter, the Discharger shall measure the groundwater elevation in each well, determine groundwater flow direction, and estimate groundwater flow rates in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation monitored. The results shall be reported semiannually, including the times of expected highest and lowest

elevations of the water levels in the wells, pursuant to Title 27, section 20415(e)(15).

Samples collected for the COC monitoring specified in Table I shall be collected and analyzed in accordance with the methods listed in Table V every five years. Five-year COCs were last monitored in 2013 and shall be monitored again in **2018**. The results shall be reported in the Annual Monitoring Report for the year in which the samples were collected.

2. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The current unsaturated zone detection monitoring system meets the applicable requirements of Title 27. The Discharger shall install unsaturated zone monitoring devices (after review and approval by Central Valley Water Board staff) each time the landfill constructs a new cell or module.

The current unsaturated zone monitoring network shall consist of:

Mon Pt.	Status	Units Being Monitored
Lysimeter L-1	Detection	Phase 2 WMU
Lysimeter L-3	Detection	Phase 1 WMU
Pan Lysimeter	Detection	Phase 2 WMU
GW-1[1]	Detection	Phase 1 WMU
GW-2[1]	Detection	Phase 1 WMU
GW-3[1]	Detection	Phase 1 WMU
GW-4[1]	Detection	Phase 1 WMU, Phase 2 WMU
GW-5[1]	Detection	Phase 2 WMU
GW-6[1]	Detection	Phase 2 WMU
GW-7[1]	Detection	Phase 1 WMU
GW-8[1]	Detection	Phase 2 WMU

[1] Landfill gas monitoring well

Unsaturated zone samples shall be collected from the monitoring network listed above and shall be analyzed for the parameters and constituents listed in Table II in accordance with the specified methods and frequencies (pan lysimeters need only be sampled when liquid is present). Pan lysimeters shall be inspected for the presence of liquid **monthly**. If liquid is detected in a previously dry pan lysimeter, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the liquid for Field and Monitoring Parameters listed in Table II. Samples collected for the 5-year COC analyses specified in Table II shall be collected and analyzed in accordance with the methods listed in Table V every five years, beginning again in **2018** (does not include soil-pore gas).

The Discharger shall collect, preserve, and transport samples in accordance with the QA/QC standards contained in the approved SAP.

Monitoring results for the unsaturated zone shall be included in monitoring reports and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the WQPS.

3. Leachate Monitoring, Seep Monitoring, and Annual LCRS Testing

Leachate Monitoring: The Discharger shall operate and maintain leachate collection and removal system (LCRS) sumps, conduct monitoring of any detected leachate seeps, and conduct annual testing of leachate in accordance with Title 27 and this monitoring program.

The current leachate monitoring points are:

Mon Pt.	Unit Where Storage Tank is Located
Leachate Storage Tank #1	Phase 2 WMU
Leachate Storage Tank #2	Phase 2 WMU

All LCRS sumps shall be inspected monthly for the presence of leachate, and flow shall be recorded in accordance with Table III. If leachate is detected in a previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table III. Leachate in the leachate storage tanks shall be sampled for all parameters and constituents in accordance with the frequencies listed in Table III whenever liquid is present. All leachate samples shall be analyzed for the 5-year COCs specified in Table V every five years, beginning again in **2018**.

Seep Monitoring: Leachate that seeps to the surface from a landfill unit shall be sampled and analyzed for the Field and Monitoring Parameters listed in Table III upon detection. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons/day). Reporting for leachate seeps shall be conducted as required in Section B.3 of this MRP.

Annual LCRS Testing: All LCRSs shall be tested annually pursuant to Title 27, section 20340(d) to demonstrate proper operation. The results of these tests shall be reported to Central Valley Water Board in the Annual Monitoring Report and shall include comparisons with earlier tests made under comparable conditions.

4. Surface Water Monitoring: Surface waters shall be monitored in accordance with State Water Resources Control Board Order No. 2014-0057-DWQ (NPDES No. CAS000001), *General Permit for Storm Water Discharges*

Associated with Industrial Activities. The current storm water monitoring points for the landfill are:

Mon Pt.	Status
SW-1	Southeastern detention pond outlet
SW-2	Western detention pond outlet
SW-3	Easternmost detention pond outlet
SW-4	Upgradient

5. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for drainage control systems, cover systems, and groundwater monitoring wells; and shall assess preparedness for winter conditions (including but not limited to erosion and sedimentation control). The Discharger shall take photos of any problem areas before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. Annual facility inspection reporting shall be submitted as required in Section B.4 of this MRP.

b. Major Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all landfill side slopes for damage **within 7 days** following major storm events capable of causing damage or significant erosion. The Discharger shall take photos of any problem areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Section B.5 of this MRP.

c. Five-Year Iso-Settlement Survey for Closed Units

For closed landfill units, the Discharger shall conduct a five-year iso-settlement survey and produce an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer. For each portion of the landfill, this map shall show the total lowering of the surface elevation of the final cover, relative to the baseline topographic map [Title 27, section 21090(e)(1 & 2)]. Reporting shall be in accordance with Section B.6 of this MRP. The next iso-settlement survey shall be conducted at the completion of Phase 1 WMU closure.

d. **Standard Observations**

The Discharger shall conduct Standard Observations at the landfill in accordance with this section of the MRP. Standard observations shall be conducted in accordance with the following schedule:

Landfill Unit Type	Frequency	Season
Active	Weekly	Wet: 1 October to 30 April
Active	Monthly	Dry: 1 May to 30 September
Inactive/Closed	Monthly	Wet: 1 October to 30 April
Inactive/Closed	Quarterly	Dry: 1 May to 30 September

The Standard Observations shall include:

1) For the landfill units:

   a) Evidence of ponded water at any point on the landfill outside of any contact storm water/leachate diversions structures on the active face (show affected area on map); and

   b) Evidence of erosion and/or of day-lighted refuse.

2) Along the perimeter of the landfill units:

   a) Evidence of leachate seeps, estimated size of affected area, and flow rate (show affected area on map); and

   b) Evidence of erosion and/or of day-lighted refuse.

3) For receiving waters:

   a) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area; and

   b) Discoloration and turbidity - description of color, source, and size of affected area.

Results of Standard Observations shall be submitted in the semiannual monitoring reports required in Section B.1 of this MRP.

B. REPORTING

The Discharger shall submit the following reports in accordance with the required schedule:

Reporting Schedule

Section	Report	End of Reporting Period	Due Date
B.1	Semiannual Monitoring Report	30 June, 31 December	**1 August, 1 February**
B.2	Annual Monitoring Report	31 December	**1 February**
B.3	Seep Reporting	Continuous	**Immediately & 7 Days**
B.4	Annual Facility Inspection Report	31 October	**15 November**
B.5	Major Storm Event Reporting	Continuous	**7 days from damage discovery**
B.6	Survey and Iso-Settlement Map for Closed Landfills	Every Five Years	**At Closure Completion and Every Five Years**
B.7	Financial Assurances Report	31 December	**1 July**

Reporting Requirements

The Discharger shall submit monitoring reports **semiannually** with the data and information as required in this MRP and as required in WDRs Order No. R5-2017-0073 and the SPRRs (particularly Section I: "Standard Monitoring Specifications" and Section J: "Response to a Release"). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with WDRs or the lack thereof. Data shall also be submitted in a digital format, such as a computer disk.

Field and laboratory tests shall be reported in each monitoring report. Semiannual and annual monitoring reports shall be submitted to Central Valley Water Board in accordance with the above schedule for the calendar period in which samples were taken or observations made. In addition, the Discharger shall enter all monitoring data and monitoring reports into the online Geotracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23.

The results of **all monitoring** conducted at the site shall be reported to Central Valley Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the post-closure period. Such records shall be legible and shall show the following for each sample:

a) Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;

b) Date, time, and manner of sampling;

c) Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;

d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;

e) Calculation of results; and

f) Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

Required Reports

1. **Semiannual Monitoring Report:** Monitoring reports shall be submitted semiannually and are due on **1 August** and **1 February**. Each semiannual monitoring report shall contain at least the following:

    a) For each groundwater monitoring point addressed by the report, a description of:

        1) The time of water level measurement;

        2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;

        3) The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;

        4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and

        5) A statement that the sampling procedure was conducted in accordance with the approved SAP.

b) A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.

c) The estimated quarterly groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations taken prior to the collection of the water quality data submitted in the report [Title 27, section 20415(e)(15)].

d) Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, unsaturated zone, leachate, and surface water. Concentrations below the laboratory reporting limit shall not be reported as "ND" unless the reporting limit is also given in the table. Otherwise they shall be reported "<" the reporting limit (e.g., <0.10). Units shall be as required in Tables I through IV unless specific justification is given to report in other units. Refer to the SPRRs Section I "Standard Monitoring Specifications" for requirements regarding MDLs and PQLs.

e) Laboratory statements of results of all analyses evaluating compliance with requirements.

f) An evaluation of the concentration of each monitoring parameter (or 5-year COC when five year COC sampling is conducted) as compared to the current concentration limits, and the results of any required verification testing for constituents exceeding a concentration limit. Report any actions taken under Section J: Response to a Release for verified exceedances of a concentration limit for wells/constituents not already in corrective action monitoring.

g) An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities. Include a summary of any instances where leachate depth on an MSW landfill liner system exceeded 30 cm (excluding the leachate sump), and information about the required notification and corrective action in Standard Facility Specification E.13 of the SPRRs.

h) A summary of all Standard Observations for the reporting period required in Section A.d of this MRP.

i) A summary of inspection, leak search, and repair of final covers on any closed landfill units in accordance with an approved final post-closure maintenance plan as required by Standard Closure and Post-Closure Maintenance Specifications G.26 through G.29 of the SPRRs.

j) Field documentation for the sampling events conducted during the reporting period (e.g., field notes, sampling forms, calibration logs, chain-of-custody).

2. **Annual Monitoring Report:** The Discharger shall submit an Annual Monitoring Report to Central Valley Water Board by **1 February** covering the reporting period of the previous monitoring year. If desired, the Annual Monitoring Report may be

combined with the second semiannual report, but if so, shall clearly state that it is both a semi-annual and annual monitoring report in its title. Each Annual Monitoring Report shall contain the following information:

a) All monitoring parameters shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. If a 5-year COC event was performed, then these parameters shall also be graphically presented. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. Graphical analysis of monitoring data may be used to provide significant evidence of a release.

b) An evaluation of the monitoring parameters with regards to the cation/anion balance, and a graphical presentation using a Stiff diagram, a Piper graph, or a Schoeller plot.

c) All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format such as a computer disk. Central Valley Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27, section 20420(h)], that facilitates periodic review by Central Valley Water Board.

d) Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.

e) A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the WDRs.

f) A map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours, and include a projection of the year in which each discrete landfill module will be filled.

g) A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.

h) The results of the annual testing of leachate collection and removal systems required under Standard Facility Specification E.14 of the SPRRs.

i) Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.

3. **Seep Reporting:** The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with Central Valley Water Board **within seven days**, containing at least the following information:

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

   b) An estimate of the flow rate;

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

   d) Verification that samples have been submitted for analyses of the Field Parameters and Monitoring Parameters listed in Table III of this MRP, and an estimated date that the results will be submitted to Central Valley Water Board; and

   e) Corrective measures underway or proposed, and corresponding time schedule.

4. **Annual Facility Inspection Reporting:** By **15 November** of each year, the Discharger shall submit a report describing the results of the inspection and the repair measures implemented, preparations for winter, and include photographs of any problem areas and the repairs. Refer to Section A.5.a of this MRP.

5. **Major Storm Event Reporting:** Following major storm events capable of causing damage or significant erosion, the Discharger **immediately** shall notify Central Valley Water Board staff of any damage or significant erosion upon discovery and report subsequent repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. Refer to Section A.5.b of this MRP.

6. **Survey and Iso-Settlement Map for Closed Landfills:** The Discharger shall conduct a survey and submit an iso-settlement map for each closed area of the landfill every five years pursuant to Title 27, section 21090(e). Refer to Section A.5.c of this MRP. The next report is due as part of the Phase 1 WMU Closure Report.

7. **Financial Assurances Report:** By **1 July** of each year, the Discharger shall submit a copy of the annual financial assurances report due to CalRecycle that updates the financial assurances for closure, post-closure maintenance, and corrective action. Refer to Financial Assurances Specifications F.1 through F.3 of the WDRs.

C. WQPS AND COMPLIANCE PERIOD

1. WQPS Report

For each waste management unit (WMU), the WQPS shall consist of all COCs, the concentration limit for each COC, the verification retesting procedure to

confirm measurably significant evidence of a release, the point of compliance (POC), and all water quality monitoring points for each monitored medium.

The WQPS for naturally-occurring waste constituents consists of the COCs, the concentration limits, and the POC and all monitoring points. Any proposed changes to the WQPS, other than annual update of the concentration limits, shall be submitted in a report for review and approval.

The report shall:

a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a WMU or portion of a unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.

b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with Title 27, section 20405.

c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and COCs that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E).

e. Include a retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415(e)(8)(E) and section 20420(j)(1-3).

The WQPS shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the WQPS.

Provision 7 of WDR No. R5-2017-0073 requires submittal of an updated *Water Quality Protection Standard Report* that addresses both the Phase 1 WMU and Phase 2 WMU and that proposes methods for calculating concentration limits.

The WQPS shall be updated annually for each monitoring well using new and historical monitoring data.

2. Monitoring Parameters

Monitoring parameters are a select group of constituents that are monitored during each monitoring event that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a WMU. The monitoring parameters for all WMUs are those listed in Tables I through III for the specified monitored medium.

3. Constituents of Concern (COCs)

The COCs include a larger group of waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the WMU, and are required to be monitored every five years [Title 27, sections 20395 and 20420(g)]. The COCs for all WMUs at the facility are those listed in Tables I through III for the specified monitored medium, and Table V. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. The last five-year COC report was submitted to Central Valley Water Board in the 2013 *Annual Monitoring Report*, and 5-year COCs are due to be monitored again in **2018**.

4. Concentration Limits

For naturally-occurring COCs, the concentration limit for each COC shall be determined as follows:

a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or

b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

The methods for calculating concentration limits will be updated in the *WQPS Report* as required by Provision 7 of WDR No. R5-2017-0073. Currently the Discharger is using intrawell tolerance limits.

The most recent concentration limits for select parameters as reported in the 31 January 2017 *Second 2016 Semi-Annual and 2016 Annual Monitoring Summary Report* were as follows:

Background Well	Analysis Type	Calcium (mg/L)	Sodium (mg/L)	Chloride (mg/L)[3]	Nitrate as N (mg/L)	Sulfate (mg/L)	TDS[2] (mg/L)
OB-1	Intrawell	22.6	20.5	3.6	0.97	2.5	201
OB-4A	Intrawell	24.2	23.1	4.0	1.3	2.0	195
OB-5	Intrawell	31.9	24.8	8.7	1.1	2.8	263
OB-6	Intrawell	27.5	29.0	3.2	1.2	2.2	234
OB-7	Intrawell	26.1	18.3	3.3	1.3	3.1	200

[1] Electrical Conductivity

[2] Total Dissolved Solids

[3] Milligrams per liter

5. Retesting Procedures for Confirming Evidence of a Release

If monitoring results indicate measurably significant evidence of a release, as described in Standard Monitoring Specification I.45 of the SPRRs, then:

a. For analytes that are detected in less than 10% of the background samples (such as non-naturally occurring constituents), the Discharger shall use the non-statistical retesting procedure required in Standard Monitoring Specification I.46 of the SPRRs.

b. For analytes that are detected in 10% or greater of the background samples (naturally occurring constituents), the Discharger shall use one of the statistical retesting procedures as required in Standard Monitoring Specification I.47 of the SPRRs.

6. Point of Compliance

The POC for the WQPS at each WMU is a vertical surface located at the hydraulically downgradient limit of the WMU that extends through the uppermost aquifer underlying the WMU. The following are monitoring locations at the POC:

Cell or Module	*POC Monitoring Wells*
Phase 1 WMU	OB-4A, OB-5, OB-6
Phase 2 WMU	OB-5, OB-6

7. Compliance Period

The compliance period for each WMU shall be the number of years equal to the active life of the unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the WMU. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program [Title 27, section 20410].

8. Monitoring Points

A monitoring point is a well, device, or location specified in the WDRs, which monitoring is conducted and at which the WQPS applies. The monitoring points for each monitored medium are listed in Section A of this MRP.

D. TRANSMITTAL LETTER FOR ALL REPORTS

A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report. The transmittal letter shall contain a statement by the Discharger, or the Discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: Original signed by Pamela C. Creedon
PAMELA C. CREEDON, Executive Officer

9 June 2017
(Date)

TABLE I

GROUNDWATER DETECTION MONITORING PROGRAM

Parameter	Units	Sampling Frequency	Reporting Frequency
Field Parameters			
Groundwater Elevation	Ft. & 100ths, M.S.L.	Quarterly	Semiannual
Temperature	°F	Semiannual	Semiannual
Electrical Conductivity	umhos/cm	Semiannual	Semiannual
pH	pH units	Semiannual	Semiannual
Turbidity	Turbidity units	Semiannual	Semiannual
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L[1]	Semiannual	Semiannual
Chloride	mg/L	Semiannual	Semiannual
Carbonate	mg/L	Semiannual	Semiannual
Bicarbonate	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual	Semiannual
Sulfate	mg/L	Semiannual	Semiannual
Calcium	mg/L	Semiannual	Semiannual
Magnesium	mg/L	Semiannual	Semiannual
Potassium	mg/L	Semiannual	Semiannual
Sodium	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table IV)	ug/L[2]	Semiannual	Semiannual
5-Year Constituents of Concern (see Table V)			
Total Organic Carbon	mg/L	5 years	February 1, 2019
Inorganics (dissolved)	ug/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	ug/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)	ug/L	5 years	'' ''
Chlorophenoxy Herbicides (USEPA Method 8151A)	ug/L	5 years	'' ''
Organophosphorus Compounds (USEPA Method 8141B)	ug/L	5 years	'' ''

[1] Milligrams per liter
[2] Micrograms per liter

TABLE II

UNSATURATED ZONE DETECTION MONITORING PROGRAM

LANDFILL GAS[1]

Parameter	Units	Sampling Frequency	Reporting Frequency
Monitoring Parameters			
Methane	%	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method TO-14)	ug/cm^3	When methane is detected in a landfill gas monitoring well, when VOCs are detected in a lysimeter, or every 5 years, whichever is more frequent	Annual

PAN LYSIMETERS[2] (or other vadose zone monitoring device)

Parameter	Units	Sampling Frequency	Reporting Frequency
Field Parameters			
Electrical Conductivity	umhos/cm	Semiannual	Semiannual
pH	pH units	Semiannual	Semiannual
Volume of liquid removed	gallons	Monthly	Semiannual
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L	Semiannual	Semiannual
Chloride	mg/L	Semiannual	Semiannual
Carbonate	mg/L	Semiannual	Semiannual
Bicarbonate	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	mg/L	Semiannual	Semiannual
Sulfate	mg/L	Semiannual	Semiannual
Calcium	mg/L	Semiannual	Semiannual
Magnesium	mg/L	Semiannual	Semiannual
Potassium	mg/L	Semiannual	Semiannual
Sodium	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table IV)	ug/L	Semiannual	Semiannual
5-Year Constituents of Concern (see Table V)			
Total Organic Carbon	mg/L	5 years	February 1, 2019
Inorganics (dissolved)	ug/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	ug/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)	ug/L	5 years	‘’ ‘’
Chlorophenoxy Herbicides (USEPA Method 8151A)	ug/L	5 years	‘’ ‘’
Organophosphorus Compounds (USEPA Method 8141B)	ug/L	5 years	‘’ ‘’

TABLE II

UNSATURATED ZONE DETECTION MONITORING PROGRAM

Continued

[1] Soil-pore gas samples collected from landfill gas probes are only subject to the VOC (USEPA Method TO-14) and methane sampling (not the other parameters listed for pan lysimeters).

[2] Pan lysimeters shall be inspected for the presence of liquid **monthly**. If liquid is detected in a previously dry pan lysimeter, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the liquid for Field and Monitoring Parameters listed in Table II.

TABLE III

LEACHATE MONITORING [1], SEEP MONITORING [2], AND LCRS TESTING [3]

Parameter	Units	Sampling Frequency	Reporting Frequency
Field Parameters			
Total Flow	Gallons	Monthly	Semiannual
Flow Rate	Gallons/Day	Monthly	Semiannual
Electrical Conductivity	umhos/cm	Quarterly	Semiannual
pH	pH units	Quarterly	Semiannual
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L	Annually	Annually
Chloride	mg/L	Annually	Annually
Carbonate	mg/L	Annually	Annually
Bicarbonate	mg/L	Annually	Annually
Nitrate - Nitrogen	mg/L	Annually	Annually
Sulfate	mg/L	Annually	Annually
Calcium	mg/L	Annually	Annually
Magnesium	mg/L	Annually	Annually
Potassium	mg/L	Annually	Annually
Sodium	mg/L	Annually	Annually
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table IV)	ug/L	Annually	Annually
5-Year Constituents of Concern (see Table V)			
Total Organic Carbon	mg/L	5 years	February 1, 2019
Inorganics (dissolved)	ug/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	ug/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)	ug/L	5 years	'' ''
Chlorophenoxy Herbicides (USEPA Method 8151A)	ug/L	5 years	'' ''
Organophosphorus Compounds (USEPA Method 8141B)	ug/L	5 years	'' ''
LCRS Testing [3]	---	Annually	Annually

[1] If leachate is detected in a previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table III. Leachate in the LCRS sump shall then be sampled for all parameters and constituents in accordance with the frequencies listed in Table III whenever liquid is present.

[2] Leachate seeps shall be sampled and analyzed for the Field and Monitoring Parameters in this table upon detection. The quantity of leachate shall be estimated and reported in gallons/day. Also, refer to Section B.3

[3] The Discharger shall test each LCRS annually pursuant to Title 27, section 20340(d) to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions.

TABLE IV

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Electrical Conductivity
Chloride
Sulfate
Nitrate nitrogen

Volatile Organic Compounds, short list:

USEPA Method 8260B
Acetone
Acrylonitrile
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- l ,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC-12)
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
cis- 1,3-Dichloropropene
trans- 1,3-Dichloropropene
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
2-Hexanone (Methyl butyl ketone)
Hexachlorobutadiene
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)

TABLE IV

MONITORING PARAMETERS FOR DETECTION MONITORING

Continued

Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK: 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
4-Methyl-2-pentanone (Methyl isobutylketone)
Naphthalene
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane
1,1.2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane (Methylchloroform)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes

TABLE V

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Inorganics (dissolved):	**USEPA Method**
Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	7131A
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	7062
Lead	7421
Mercury	7470A
Nickel	7521
Selenium	7742
Thallium	7841
Cyanide	9010C
Sulfide	9030B

Volatile Organic Compounds, extended list:

USEPA Method 8260B

Acetone
Acetonitrile (Methyl cyanide)
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Benzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dibromochloromethane)
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)

TABLE V

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- 1,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC 12)
1,1 -Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1, l-Dichloroethene; Vinylidene chloride)
cis- l ,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans- l ,2-Dichloroethylene (trans- 1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane (Trimethylene dichloride)
2,2-Dichloropropane (Isopropylidene chloride)
1,1 -Dichloropropene
cis- 1,3-Dichloropropene
trans- l ,3-Dichloropropene
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1 -Trichloroethane (Methylchloroform)
1,1,2-Trichloroethane

TABLE V

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

TABLE V

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

Semi-Volatile Organic Compounds:

USEPA Method 8270C or D - base, neutral, & acid extractables

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
Aldrin
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
Bis(2-ethylhexyl) phthalate
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether (Dichloroethyl ether)
Bis(2-chloro-1-methyethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane
p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dibenz[a,h]anthracene

TABLE V

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

Dibenzofuran
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Dieldrin
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimehtylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isodrin
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine

TABLE V

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosospyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
Toxaphene
2,4,5-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

TABLE V

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

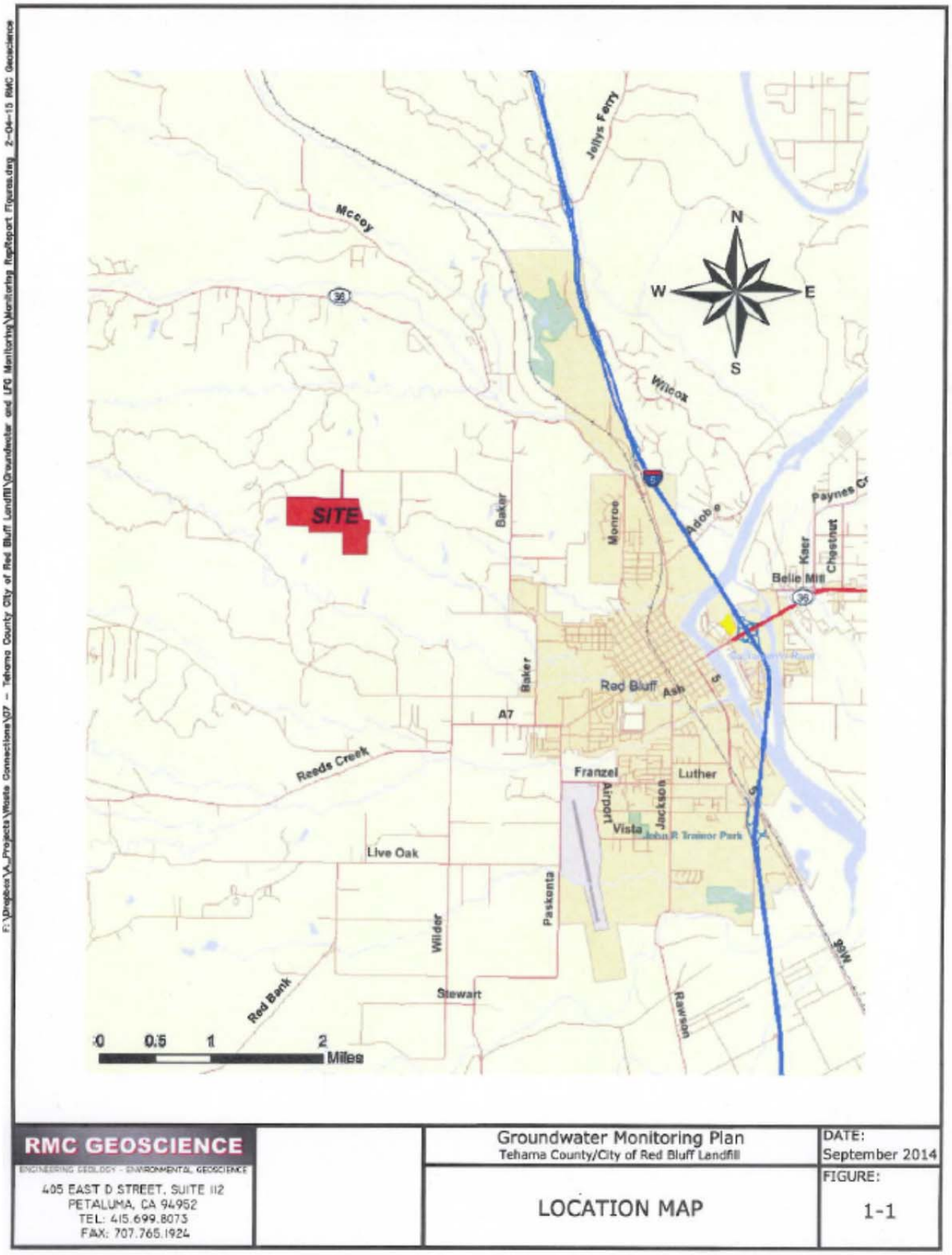
Continued

Chlorophenoxy Herbicides:

USEPA Method 8151A
2,4-D (2,4-Dichlorophenoxyacetic acid)
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

Organophosphorus Compounds:

USEPA Method 8141B
Atrazine
Chlorpyrifos
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Diazinon
Dimethoate
Disulfoton
Methyl parathion (Parathion methyl)
Parathion
Phorate
Simazine



ATTACHMENT A

PHASE 2 LANDFILL
APPROXIMATE NEW BOUNDARY LINE
PUBLIC WILL USE ACCESS ROADS DURING CONSTRUCTION
EXISTING BURIED ELECTRICAL AND CONTROL LINES (PROTECT)
SCALE
ENTRANCE BOOTH
ANTIFREEZE, BATTERIES, OIL, AND PAINT FACILITY
TO PLYMIRE ROAD
GW-7(D)
GW-7
GW-1(DD)
GW-1
SOIL BORROW AREA
WAPA EASEMENT
WASTE AREA BOUNDARY
MAINTENANCE SHED
EXISTING CROSSING
CARPET AREA
MATTRESS AREA
GW-6B(S&I)
GW-6B(D&DD)
GW-6
OB-1
HAUL PATH
OB-3
WOODWASTE PILE
ASPHALT & CONCRETE PILE
HAUL ROAD
18" N-12 140'
18" N-12 220'
18" N-12 150'
PHASE 2 CELL 3 (FUTURE)
CELL 4 (FUTURE)
HORIZONTAL COLLECTOR
18" N-12 100'
GEW-12
HOUSEHOLD HAZARDOUS WASTE FACILITY
LFG FLARE
BINS
PUBLIC TIPPING AREA BIN STORAGE
PHASE 1 LANDFILL
GEW-1
GEW-11
HC-1
METALS PILES
MRF
OFFICE
PROVIDE TRAFFIC CONTROL WHERE ACCESS ROAD CROSSES HAUL ROAD
WUPPER TEMPORARY BASIN
GW-8
GEW-2
CRT STORAGE UNIVERSAL WASTE
OB-4A
CELL 2C (FUTURE)
GEW-10
AREA STILL BEING FILLED
PHASE 1 AREA TO BE CAPPED
BAILED STORAGE
GREENWASTE WOODWASTE AREA
CELL 2A TEMPORARY BASIN
LIMIT OF LINER
W.L. 391.7
RISER PAD
GEW-9
HC-2
SOIL STOCKPILE ±30,000 CY
GEW-8
GEW-3
DOMESTIC
CELL 2B (FUTURE)
SW-2
CELL 1 (EXISTING)
CELL 2A (EXISTING)
36" N-12 (BURIED)
HC-3
GEW-7
18" N-12 40'
GEW-4
PG-1 (ABANDONED)
GW-2
GW-2(D)
HC-4
CONSTRUCTION WATER SOURCE
18" N-12 100'
GEW-6
GEW-5
18" N-12 100'
18" N-12 120'
CONDENSATE LINE AND CENTRAL CONDUIT
MIDDLE DETENTION BASIN
18" N-12 250'
18" N-12 (ABANDON)
EASTERN RETENTION BASIN
EXISTING DOWNDRAIN CULVERTS WITH FLARED INLET AND TEE (TYP)
18" N-12 60'
L-3
OB-5
CONDENSATE TANK
OB-7
OB-6
PG-5
PG-4
PG-3
OB-2
PG-2
CONDENSATE LINE
CONSTRUCTION WATER SOURCES
GW-5
GW-5 I D
EXISTING BURIED ELECTRICAL AND CONTROL LINES (PROTECT)
EXISTING BURIED CONDENSATE LINE (PROTECT)
GW-4(DD)
GW-4
SOUTHEAST DETENTION BASIN
SW-1
NOTE: RETAIN AND REUSE EXISTING CULVERTS.
GW-3
GW-3(D)

N
W
E
S

0 100 200 Feet
CONTOUR INTERVAL = 2'
3-24-2016 TOPOGRAPHY

LEGEND

GW-8	PERIMETER GAS MONITORING WELL	L-1	LYSIMETER		END CAP
GEW-10	LANDFILL GAS EXTRACTION WELL		SOIL BERM OVER PIPE		CROSSING
PG-1	PERIMETER GAS WELL		VALVE	E	ELECTRICAL LINE
OB-1	GROUNDWATER MONITORING WELL	HC-1	HORIZONTAL COLLECTOR (DASHED WHERE BURIED)		TEE OUTLET
SW-1	STORMWATER MONITORING POINT	W	LIMITS OF WASTE		FLARED INLET
	PUMPING WELL (DOMESTIC)	FW	FUTURE LIMITS OF WASTE		

NO.	DATE	REVISIONS	BY	CHK

PROJECT NO: 016056.00	PROJECT ID:
DRAWN BY: J. BEERS	SCALE: 1"=100'
ENGINEER: J. SOLORIO	DATE:
CHECKED BY: C. COLES	DATE:

ORIGINAL SCALE IN INCHES
0 1 2

LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

PHASE 1 FINAL CLOSURE

TEHAMA COUNTY
WASTE MANAGEMENT AGENCY
TEHAMA COUNTY/RED BLUFF LANDFILL

ATTACHMENT B
SITE CONDITIONS
AS OF MARCH 2016

DRAFT

DRAWING: 1.0
SHEET: OF
DATE: 1/17/2017

p:\016056.00_tehama_lf_ph1_fc\c1.0_site_vicinity.dwg J.R.B. 1/17/2017

INFORMATION SHEET

ORDER R5-2017-0073
COUNTY OF TEHAMA AND CITY OF RED BLUFF
FOR CONSTRUCTION, OPERATION, CLOSURE, AND POST-CLOSURE MAINTENANCE
TEHAMA COUNTY / CITY OF RED BLUFF
CLASS III MUNICIPAL SOLID WASTE LANDFILL
TEHAMA COUNTY

Tehama County and the City of Red Bluff, through a joint powers authority called the Tehama County / City of Red Bluff Landfill Management Agency, own and contract for operation of a landfill two miles northwest of the City of Red Bluff in Tehama County, Section 15, T27N, R4W, MDB&M. Site topography consists of rolling hills with ground elevation ranging from 420 to 536 feet mean sea level. The facility receives an average 23 inches of precipitation each year, largely between October and May, and has a pan evaporation of approximately 66 inches per year.

The disposal site was opened in 1964 as an open burn dump. In 1974, the site was converted to a sanitary landfill, and in 1978, the California Integrated Waste Management Board classified the site as a Class II-2 disposal facility. Waste Discharge Requirements Order No. 88-036 reclassified the facility as a Class III waste facility accepting only non-hazardous municipal solid waste. The site is comprised of approximately 159.6 acres of which 83.6 acres were associated with the original landfill area and 76 acres were acquired in 1999 and 2000.

The existing and future landfill area is approximately 52.7 acres of which 41 acres have been constructed. Existing landfill units consist of: the unlined Phase 1 Waste Management Unit (WMU) which covers 31.6 acres; and the lined Phase 2 WMU, Cells 1A, 1B, and 2A which cover 9.5 acres. Future development of the Phase 2 WMU will include approximately 12 acres, referred to as Cells 2B, 3, and 4. The Phase 1 WMU reached capacity in February 2017, and closure activities will begin in the summer of 2017. The Phase 2 WMU is projected to reach capacity in 2040.

The facility is located within the Great Valley Geomorphic Province and is underlain by the Tehama Formation. Immediately beneath the landfill, the Tehama Formation consists primarily of well-consolidated dense to very dense clays and sandy clays with interbedded sands and gravels. The uppermost water-bearing sand occurs at a depth of approximately 90 to 145 feet below ground surface and is monitored by the facility's groundwater monitoring program. Based on groundwater monitoring data collected through 2016, a release to groundwater has not been confirmed. However, concentrations of calcium, chloride, sodium, and sulfate appear to be increasing in well OB-5 which is located downgradient of the Phase 1 WMU. The implications of these apparent concentration trends will be evaluated by the detection monitoring program.

Landfill influence on vadose zone water quality is suggested by data collected from lysimeters L-1 and L-3 which show increasing trends for chloride, electrical conductivity, and total dissolved solids and periodic volatile organic compound (VOC) detections. A 2007 Engineering Feasibility Study concluded that VOCs detected in the lysimeters were the result of landfill gas migration. The facility operates a landfill gas extraction system to address these impacts and conducts monthly monitoring of landfill gas probes. Methane has not been detected in landfill gas probes since 2011. MRP R5-2017-0073 requires sampling of landfill gas probes for VOCs when methane is detected, when VOCs are detected in lysimeter samples, or at least every five years.

KB: 3/1/2017

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS FOR WASTE DISCHARGE REQUIREMENTS FOR NONHAZARDOUS SOLID WASTE DISCHARGES REGULATED BY SUBTITLE D AND/OR TITLE 27

(40 C.F.R. section 258 and Title 27, § 20005 et seq.)

December 2015

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A. APPLICABILITY

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to nonhazardous solid waste disposal sites that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, title 27 ("Title 27"), section 20005 et seq., and municipal solid waste (MSW) landfills that are subject to the Federal Subtitle D regulations contained in 40 Code of Federal Regulations section 258 (hereafter, "Subtitle D" or "40 C.F.R. § 258.XX") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62. The Subtitle D regulations are only applicable to MSW landfills and therefore any requirements in these SPRRs that are referenced as coming from Subtitle D are not applicable to non-MSW waste management units such as Class II surface impoundments, Class II waste piles, and non-MSW landfill units. All Subtitle D requirements in these SPRRs are referenced with "[40 C.F.R. § 258.XX]" after the requirement.

2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.

3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.

4. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.

5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.

6. If there is a site-specific need to change a requirement in these SPRRs for a particular landfill facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.

7. Unless otherwise stated, all terms are as defined in Water Code section 13050 and in Title 27, section 20164.

B. TERMS AND CONDITIONS

1. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or

other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]

2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:

   a. Violation of any term or condition contained in this Order;

   b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;

   c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or

   d. A material change in the character, location, or volume of discharge.

3. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. A material change includes, but is not limited to, the following:

   a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;

   b. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment);

   c. A change in the type of waste being accepted for disposal; or

   d. A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.

4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].

5. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].

6. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Central Valley Water Board [Wat. Code, § 13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

7. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [Wat. Code, § 13263(g)].

8. Technical and monitoring reports specified in this Order are requested pursuant to the Water Code [§13267(b)]. Failure to furnish the reports by the specified deadlines or falsifying information in the reports, are misdemeanors that may be liable civilly in accordance with §13268(b) of the Water Code [Wat. Code, §13268(a)].

C. STANDARD PROHIBITIONS

1. The discharge of liquid or semi-solid waste (waste containing less than 50 percent solids) is prohibited, except for the following when proposed in the ROWD/JTD and approved by this Order:

    a. Dewatered sewage or water treatment sludge as described in Title 27, section 20220(c) provided it is discharged above a composite liner with a leachate collection and removal system (LCRS) [Title 27, § 20200(d)(3)].

    b. Leachate and/or landfill gas condensate that is returned to the composite-lined waste management unit (with an LCRS) from which it came [Title 27, § 20340(g) and 40 C.F.R. § 258.28].

2. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:

    a. require a higher level of containment than provided by the unit; or

    b. are ‘restricted wastes’; or

    c. impair the integrity of containment structures;

    is prohibited [Title 27, § 20200(b)].

3. The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.

4. The discharge of solid waste containing free liquid or which may contain liquid in excess of the moisture holding capacity as a result of waste management operations, compaction or settlement is prohibited.

5. The discharge of waste to a closed landfill unit is prohibited.

6. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited.

7. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

D. STANDARD DISCHARGE SPECIFICATIONS

1. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the waste management unit and whether or not the wastes are required to be managed as a hazardous waste [Title 27, § 20200(c)] or designated waste [Title 27, § 20210].

2. Leachate and landfill gas condensate collected from a waste management unit shall be discharged to the unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [Title 27, § 20200(d) and § 20340(g)].

3. The discharge of leachate or landfill gas condensate is restricted to those portions of a waste management unit that has a composite liner system and LCRS meeting the Federal Subtitle D requirements [40 C.F.R. § 258.28].

4. Leachate and condensate returned to a composite-lined landfill unit (when approved by this Order) shall be discharged and managed such that it does not cause instability of the waste, does not cause leachate seeps, does not generate additional landfill gas that is not extracted from the landfill by an active landfill gas extraction system, does not cause contaminants to enter surface water runoff, and does not cause leachate volumes to exceed the maximum capacity of the LCRS.

5. Any discharge of waste outside the portion of the landfill that was already covered with waste as of the landfill unit’s respective Federal Deadline constitutes a “lateral expansion” and requires the installation of an approved composite liner system and LCRS [40 C.F.R. § 258.40(b)].

6. Wastes shall be discharged only into waste management units specifically designed for their containment and/or treatment, as described in this Order.

7. The discharge shall remain within the designated disposal area at all times.

8. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].

E. STANDARD FACILITY SPECIFICATIONS

1. All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [Title 27, § 20240(c)], including the capillary fringe.

2. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].

3. Interim cover is daily and intermediate cover [Title 27, § 20750(a)]. Interim cover over wastes discharged to a landfill shall be designed and constructed to minimize percolation of liquids through the wastes [Title 27, § 20705(b)].

4. Intermediate cover consisting of compacted earthen material of at least twelve (12) inches shall be placed on all surfaces of the fill where no additional solid waste will be deposited within **180 days** [Title 27, § 20700(a)].

5. During wet weather conditions, the facility shall be operated and graded to minimize leachate generation.

6. The Discharger shall **immediately** notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method [Title 27, § 21710(c)(2)].

7. The Discharger shall **immediately** notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site or outside of waste management units, equipment failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

8. The Discharger shall limit water used for facility maintenance within landfill areas to the minimum amount necessary for dust control and construction.

9. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

10. The Discharger shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation including all monitoring wells, LCRS risers, and lysimeter risers and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.

11. The Discharger shall ensure that methane and other landfill gases are adequately vented, removed from landfill units, 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.

12. The Discharger shall maintain the depth of the fluid in the sump of each landfill unit at the minimum needed for efficient pump operation (the depth at which the pump turns on given the pump intake height and maximum pump cycle frequency).

13. The depth of fluid on the landfill liner shall not exceed **30 centimeters** (cm) [40 C.F.R. § 258.40(a)(2)]. This regulation is interpreted by the Central Valley Water Board to exclude the leachate sump. The Discharger shall **immediately** notify the Central Valley Water Board staff by telephone, and follow up in writing within **seven** days if monitoring reveals that the depth of fluid on any portion of the liner (excluding the sump) exceeds 30 cm (approximately 12 inches). The written notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.

14. Each LCRS shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [Title 27, § 20340(d)].

15. The Discharger shall maintain a *Storm Water Pollution Prevention Plan* and *Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (Industrial General Permit) or most recent general industrial storm water permit), or retain all storm water on-site.

16. Internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.

17. New MSW landfill units or lateral expansions of existing units shall not be sited in a “wetland” [as defined in 40 C.F.R. § 232.29(r)] unless there is no practical alternative; steps have been taken to assure no net loss of wetland; the landfill unit will not degrade the wetland; the unit will not jeopardize threatened or endangered species or produce adverse modification of a critical habitat or violate any requirement of the Marine Protection, Research, and Sanctuaries Act of 1972 [40 C.F.R. § 258.12].

F. STANDARD CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for review and approval at least **90 days** prior to proposed construction, design plans and specifications for new landfill modules that include the following:

    a. Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone monitoring system, any proposed landfill gas monitoring and extraction points, and access to the LCRS for required annual testing.

    b. A Construction Quality Assurance (CQA) Plan prepared by a California-registered civil engineer or certified engineering geologist, and that meets the requirements of Title 27, section 20324.

    c. A geotechnical evaluation of the area soils, evaluating their use as the base layer or reference to the location of this information in the ROWD/JTD [Title 27, § 21750(f)(4)].

    d. Information about the seismic design of the proposed new module (or reference to the location of this information in the ROWD/JTD) in accordance with Title 27, section 20370.

    e. A revised water quality monitoring plan for groundwater detection monitoring (or information showing the existing plan is adequate) in accordance with Title 27, section 20415.

    f. An Operation Plan (or reference to the location of this information in the ROWD/JTD) meeting the requirements of Title 27, section 21760(b).

2. 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 engineered alternative design, in accordance with this Order prior to waste discharge.

3. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have been approved. Waste management units shall receive a final inspection and approval of the construction by Central Valley Water Board staff before use of the unit commences [Title 27, § 20310(e)].

4. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].

5. Materials used in containment structures 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 of the stress of daily operations [Title 27, § 20320(a)].

6. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27, § 20365(a)].

7. The Discharger shall design storm water conveyance systems for Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

8. All Class III landfill units shall be designed to withstand the maximum probable earthquake and Class II waste management units shall be designed to withstand maximum credible earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion, or gas [Title 27, § 20370(a)].

9. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the landfill foundation, final slopes, and containment systems under both static and dynamic conditions throughout the landfill's life including the closure period and post-closure maintenance period [Title 27, § 21750(f)(5)].

10. New waste management units and expansions of existing units shall not be located on a known Holocene fault [Title 27, § 20260(d)].

11. Liners shall be designed and constructed to contain the fluid, including landfill gas, waste, and leachate [Title 27, § 20330(a)].

12. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, § 20320(c)].

13. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)].

14. A test pad for each barrier layer and final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].

15. Performance requirements for geosynthetic membranes shall include, but are not limited to, a need to limit infiltration of water, to the greatest extent possible; a need to control landfill gas emissions; mechanical compatibility with stresses caused by equipment traffic, and for final covers the result of differential settlement over time and durability throughout the post-closure maintenance period [Title 27, § 20324(i)(1)].

16. The Discharger shall ensure proper preparation of the subgrade for any liner system that includes a GCL so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.

17. The Discharger shall propose an electronic leak location survey of the top liner for any new landfill module in the construction quality assurance plan unless the Discharger demonstrates that a leak location survey is not needed.

18. Leachate collection and removal systems are required for Class II landfills and surface impoundments, MSW landfills, and for Class III landfills which have a liner or which accept sewage or water treatment sludge [Title 27, § 20340(a)].

19. All new landfill units or lateral expansions of existing units that require a LCRS shall have a blanket-type LCRS that covers the bottom of the unit and extends as far up the sides as possible. The LCRS shall be of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the unit [Title 27, § 20340(e)].

20. The LCRS shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit [Title 27, § 20340(b)].

21. Leachate collection and removal systems shall be designed and operated to function without clogging through the scheduled closure of the landfill unit and during the post-closure maintenance period.

22. The LCRS shall be designed to maintain the depth of fluid over any portion of the LCRS of no greater than 30 cm [40 C.F.R. § 258.40(a)(2)], excluding the leachate sump. The leachate sump, leachate removal pump, and pump controls shall be designed and set to maintain a fluid depth no greater than the minimum needed for efficient pump operation [Title 27, § 20340(c)].

23. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [Title 27, § 20323].

24. The Construction Quality Assurance program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27, § 20324(b)(2)].

25. The Discharger shall ensure that a third party independent of both the Discharger and the construction contractor performs all of the construction quality assurance monitoring and testing during the construction of a liner system.

26. The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new lined cell or module, construction of a final cover, or any other construction that requires Central Valley Water Board staff approval under this Order.

27. The Discharger shall submit for review and approval at least **60 days** prior to proposed discharge, final documentation required in Title 27 Section 20324(d)(1)(C) following the completion of construction of a new lined landfill module. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the liner system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of the WDRs, and that it meets the performance goals of Title 27. The report shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, the construction quality assurance plan, and the performance goals of Title 27.

28. The Discharger shall not discharge waste onto a newly constructed liner system until the final documentation report has been reviewed and an acceptance letter has been received.

29. Prior to placement of waste in a new landfill unit, the Discharger shall monitor any pan lysimeter for the unit that has received enough rainfall to flood the LCRS sump. If liquid is detected in the pan lysimeter, the Discharger shall verify that the liquid is not from a leak in the primary liner system before waste can be accepted to the new module.

G. STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS

1. The Discharger shall submit a final or partial final closure and post-closure maintenance plan at least **two years** prior to the anticipated date of closure [Title 27, § 21780(d)(1)].

2. The Discharger shall notify the Central Valley Water Board in writing that a landfill unit or portion of a unit is to be closed either at the same time that the California Department of Resources Recycling and Recovery (CalRecycle) is notified or **180 days** prior to beginning any final closure activities, whichever is sooner [Title 27, § 21710(c)(5)(A)]. The notice shall include a statement that all closure activities will conform to the most recently approved final or partial final closure plan and that the plan provides for site closure in compliance with all applicable federal and state regulations [Title 27, § 21710(c)(5)(C)].

3. Initiation of closure activities shall begin within **30 days** of final waste receipt, or within **one year** of receipt of most recent waste if additional capacity remains [40 C.F.R. § 258.60(f)].

4. Closure activities shall be completed within **180 days** of the beginning of closure activities unless an extension is granted by the Executive Officer [40 C.F.R. § 258.60(g)].

5. The Discharger shall carry out both mandatory closure and normal closure of a waste management unit or a portion of a unit in accordance with a closure and post-closure maintenance plan approved by the Central Valley Water Board [Title 27, § 20950(a)(1)] through the issuance of closure waste discharge requirements.

6. The Discharger shall notify the Central Valley Water Board that a preliminary closure and post-closure maintenance plan has been prepared and placed in the operating record by the date of initial receipt of waste at any new MSW landfill unit or lateral expansion of any existing unit [40 C.F.R. § 258.60(d)]. This notification shall be included in the cover letter transmitting the preliminary closure and post-closure maintenance plan.

7. In addition to the applicable provisions of Title 27, the preliminary closure and/or the post-closure maintenance plans for MSW landfill units shall include the following:

    a. A description of the steps necessary to close all MSW landfill units at any point during their active life in accordance with the cover design requirements [40 C.F.R. § 258.60(c)];

    b. An estimate of the largest area of the landfill unit(s) ever requiring a final cover at any time during the active life of the unit(s) [40 C.F.R. § 258.60(c)(2)];

    c. An estimate of the maximum inventory of wastes ever on-site over the active life of the waste management facility [40 C.F.R. § 258.60(c)(3)]; and

    d. A schedule for completing all activities necessary to satisfy the closure criteria in 40 C.F.R. section 258.60 [40 C.F.R. § 258.60(c)(4)].

8. The final closure and post-closure maintenance plan for the waste management unit shall include at least the following: an itemized cost analysis, closure schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent ROWD, federal requirements for a MSW facility, land use of the closed unit, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].

9. Closure of each waste management unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [Title 27, § 20950(b)].

10. The final cover of closed landfills shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].

11. The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [Title 27, § 21090(b)(1)(C)].

12. All final cover designs shall include a minimum 1-foot thick erosion resistant layer [Title 27, § 21090(a)(3)(A)].

13. The Discharger shall close the landfill with minimum 15-foot wide benches every 50 vertical feet [Title 27, § 21090(a)].

14. Final cover slopes shall not be steeper than a horizontal to vertical ratio of one and three quarters to one and designs having any slopes steeper than a horizontal to vertical ratio of three to one, or having a geosynthetic component, shall have these aspects of their design specifically supported in the slope stability report required in Title 27, section 21750(f)(5) [Title 27, § 21090(a)].

15. For any portions of the final cover installed after July 18, 1997, for which the Central Valley Water Board has not approved a slope and foundation stability report on or before that date, the Discharger shall meet the requirements of Title 27, section 21750(f)(5) [Title 27, § 21090(a)(6)].

16. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [Title 27, § 21090(b)(2)].

17. The Discharger shall design storm water conveyance systems for closed Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for closed Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

18. Closed landfill units shall be provided with at least two permanent surveying monuments, installed by a licensed land surveyor or by a registered civil engineer, from which the location and elevation of all wastes, containment

structures, and monitoring facilities can be determined throughout the post-closure maintenance period [Title 27, § 20950(d)].

19. Following closure of any MSW landfill units, the Discharger shall notify the Executive Officer that the deed to the landfill facility property, or some other instrument that is normally examined during a title search, has been recorded and a copy placed in the operating record. The notation on the deed shall in perpetuity notify any potential purchaser of the property that the land has been used as a landfill facility and that use of the land is restricted to the planned use described in the post-closure maintenance plan [Title 27, § 20515(a)(4) and §21170, and 40 C.F.R. § 258.60(i)].

20. Construction or repair of the final cover system's low-hydraulic conductivity layer is to be carried out in accordance with an approved construction quality assurance plan [Title 27, § 21090(b)(1)(E)].

21. The Discharger shall incorporate into the closure and post-closure maintenance plan a cover-integrity monitoring and maintenance program which includes at least the following: a periodic leak search, periodic identification of other problem areas, prompt cover repair, and vegetation maintenance [Title 27, § 21090(a)(4)].

22. The Discharger shall complete a final cover survey upon completion of closure activities for that portion of the landfill. The final cover surveys shall include an initial survey and map [Title 27, § 21090(e)(1). Every **five years**, the Discharger shall conduct a survey of the closed landfill cover and submit an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer [Title 27, § 21090(e)(2)].

23. Within **30 days** of completion of <u>all</u> closure activities, the Discharger shall certify that all closure activities were performed in accordance with the most recently approved final closure plan and CQA Plan, and in accordance with all applicable regulations. The Discharger shall also certify that closed landfill units shall be maintained in accordance with and approved post-closure maintenance plan [Title 27, § 21710(c)(6)].

24. Within **180 days** of completion of closure construction activities, the Discharger shall submit final documentation of closure, including the Certification of Closure. The closure documents shall include a final construction quality assurance report and any other documents necessary to support the certification [Title 27, § 21880].

25. The post-closure maintenance period shall continue until the Central Valley Water Board determines that wastes remaining in the landfill unit(s) no longer pose a threat to water quality [Title 27, § 20950(a)(1)].

26. The Discharger shall conduct a periodic leak search to monitor of the integrity of the final cover in accordance with the schedule in the approved final post-closure maintenance plan [Title 27, § 21090(a)(4)(A)].

27. The Discharger shall periodically inspect and identify problems with the final cover including areas that require replanting, erosion, areas lacking free drainage, areas damaged by equipment operations, and localized areas identified in the required five-year iso-settlement survey [Title 27, § 21090(a)(4)(B)].

28. The Discharger shall repair the cover promptly in accordance with a cover repair plan to be included in the final post-closure maintenance plan [Title 27, § 21090(a)(4)(C)].

29. Throughout the post-closure maintenance period, the Discharger shall maintain the structural integrity and effectiveness of all containment structures, maintain the final cover as necessary to correct the effects of settlement and other adverse factors, continue to operate the LCRS as long as leachate is generated and detected, maintain the monitoring systems, prevent erosion and related damage of the final cover due to drainage, and protect and maintain surveyed monuments [Title 27, § 21090(c)].

30. Post-closure maintenance shall be conducted for a minimum period of **30 years** or until the waste no longer poses a threat to environmental quality, whichever is greater [Title 27, § 21180(a) and Title 27, § 21900(a)].

H. STANDARD FINANCIAL ASSURANCE PROVISIONS

1. The Discharger shall establish an irrevocable fund for closure and post-closure maintenance to ensure closure and post-closure maintenance of each classified unit in accordance with an approved closure and post-closure maintenance plan [Title 27, § 20950(f) and § 22207(a)].

2. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management unit [Title 27, §20380(b), § 22221, and § 22222].

I. STANDARD MONITORING SPECIFICATIONS

1. The water quality monitoring program shall include appropriate and consistent sampling and analytical procedures and methods designed to ensure that monitoring results provide a reliable indication of water quality at all monitoring points and background monitoring points [Title 27, § 20415(e)(4) and 40 C.F.R. § 258.53(b)].

2. All monitoring systems shall be designed and certified by a registered geologist or a registered civil engineer [Title 27, § 20415(e)(1)].

3. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport [Title 27, § 20415(b)(4)(A)].

4. All sample chemical analyses of any material shall be performed by a laboratory certified by the California Department of Health Services [Wat. Code, § 13176(a)].

5. A Detection Monitoring Program for a new landfill facility shall be installed, operational, and one year of monitoring data collected from background monitoring points prior to the discharge of wastes [Title 27, § 20415(e)(6)].

6. Background for water samples or soil-pore gas 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).

7. The Discharger shall submit for approval, establish, and maintain an approved Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:

    a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;

    b. Sample preservation information and shipment procedures;

    c. Sample analytical methods and procedures;

    d. Sample quality assurance/quality control (QA/QC) procedures;

    e. Chain of Custody control; and

    f. Sample analysis information including sample preparation techniques to avoid matrix interferences, method detection limits (MDLs), practical quantitation limits (PQLs) and reporting limits (RLs), and procedures for reporting trace results between the MDL and PQL.

    If required by the Executive Officer, the Discharger shall modify the Sample Collection and Analysis Plan to conform with this Order.

8. 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 a longer time period is approved, and shall be taken in a manner that

ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must 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), and in accordance with the approved Sample Collection and Analysis Plan. Appropriate sample preparation techniques shall be used to minimize matrix interferences.

9. If methods other than USEPA-approved methods or Standard Methods are used, or there is a proposed alternant USEPA method than the one listed in the MRP, the proposed methodology shall be submitted for review and approval prior to use, including information showing its equivalence to the required method.

10. The **methods of analysis and the detection limits** used must 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 lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.

11. The laboratory reporting limit (RL) for all reported monitoring data shall be set no greater than the practical quantitation limit (PQL).

12. **“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.

13. Laboratory data shall not be altered or revised by the Discharger. If the Discharger observes potential lab errors, it shall identify the issue in the monitoring report and shall describe steps that will be taken to prevent similar errors in the future.

14. **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. MDLs and PQLs shall be reported.

15. 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 in the laboratory report 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.

16. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, 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 signature of a responsible person from the laboratory. **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, but the analytical results shall not be adjusted.

17. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.

18. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples [Title 27, § 20415(b)(4)(B)]. Groundwater samples shall not be field-filtered prior to laboratory analysis [40 C.F.R. § 258.53(b)]. Groundwater samples needing filtering (e.g., samples to be analyzed for dissolved metals) shall be filtered by the laboratory prior to analysis.

19. Groundwater elevations shall be measured in each well immediately prior to purging, each time groundwater is sampled. The owner or operator shall determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same waste management area shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction [40 C.F.R. § 258.53(d)].

20. Monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design

specifications throughout the life of the monitoring program [40 C.F.R. § 258.51(c)(2)]. Monitoring devices that cannot be operated and maintained to perform to design specifications shall be replaced after review and approval of a report (i.e., work plan) for the proposed replacement devices.

21. All borings are to be logged during drilling under the direct supervision of a registered geologist or registered civil engineer with expertise in stratigraphic well logging [Title 27, § 20415(e)(2)].

22. Soils are to be described according to the Unified Soil Classification System [Title 27, § 20415(e)(2)(A)]. Rock is to be described in a manner appropriate for the purpose of the investigation [Title 27, § 20415(e)(2)(B)].

23. The Discharger shall submit a work plan for review and approval at least **60 days** prior to installation or abandonment of groundwater monitoring wells.

24. 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 or abandonment of monitoring devices.

25. The water quality protection standard shall consist of the constituents of concern (COC), concentration limits, and the point of compliance. The water quality protection standard shall apply during the active life of the waste management unit, closure period, post-closure maintenance period, and any compliance period under Title 27, section 20410 [Title 27, § 20390].

26. The point of compliance at which the water quality protection standard applies is a vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit [Title 27, § 20405).

27. The compliance period is the minimum period of time during which the Discharger shall conduct a water quality monitoring program and is the number of years equal to the active life of the waste management unit plus the closure period [Title 27, § 20410(a)].

28. The groundwater monitoring system shall include a sufficient number of monitoring points, installed at appropriate locations, to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the waste management unit [Title 27, § 20415(b)(1)(A)].

29. The Detection Monitoring Program shall include a sufficient number of monitoring points, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of

groundwater passing the point of compliance to allow the detection of a release from the waste management unit [Title 27, § 20415(b)(1)(B)1.].

30. Additional monitoring points shall be added as necessary to provide the best assurance of the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)2.].

31. The Detection Monitoring Program shall also include a sufficient number of monitoring points installed at appropriate depths and locations to yield groundwater samples from other aquifers or perched zones not already monitored to provide the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)3. and 4., and §20420(b)].

32. A surface water monitoring system shall be established to monitor each surface water body that could be affected by a release from the waste management unit [Title 27, § 20415(c)].

33. An unsaturated zone monitoring system shall be established for each waste management unit [Title 27, § 20415(d)].

34. The Discharger shall notify Central Valley Water Board staff within **seven days** if fluid is detected in a previously dry LCRS, unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a LCRS [Title 27, § 21710(c)(3)].

35. Driller's logs for all monitoring wells shall to be submitted to the Central Valley Water Board and the Department of Water Resources [Wat. Code, § 13751 and Title 27, § 20415(b)(3)].

36. Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [Title 27, § 21415(e)(13)].

37. The groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation being monitored shall be determined at least quarterly [Title 27, § 20415(e)(15)].

38. The Discharger shall graph all analytical data from each monitoring point and background monitoring point and shall submit the graphs to the Central Valley Water Board annually [Title 27, § 20415(e)(14)].

39. For each waste management unit, the Discharger shall collect all data necessary for selecting appropriate data analysis methods for establishing background values for each constituent of concern and for each monitoring parameter [Title 27, § 20420(c)]. The Discharger shall propose a data analysis method that includes a detailed description of the criteria to be used for

determining “measurably significant” (as defined in Title 27, section 20164) evidence of a release from the waste management unit and determining compliance with the water quality protection standard [Title 27, § 20415(e)(6) and (7)].

40. For statistical analysis of data, the Discharger shall use one of the methods described in Title 27, section 20415(e)(8)(A)-(E). A non-statistical data analysis method can be used if the method can achieve the goal of the particular monitoring program at least as well as the most appropriate statistical method [Title 27, § 20415(e)(8)]. The Discharger shall use a statistical or nonstatistical data analysis method that complies with Title 27, section 20415(e)(7, 8, 9, and 10), to compare the concentration of each constituent of concern or monitoring parameter with its respective background concentration to determine whether there has been a measurably significant evidence of a release from the waste management unit. For any given monitoring point at which a given constituent has already exhibited a measurably significant indication of a release at that monitoring point, the Discharger may propose to monitor the constituent, at that well, using a concentration-versus-time plot.

41. The Discharger may propose an alternate statistical method [to the methods listed under Title 27, section 20415(e)(8)(A-D)] in accordance with Title 27, section 20415(e)(8)(E), for review and approval.

42. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27, section 20415(e)(7) 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 the WDRs or an approved Sample Collection and Analysis Plan for routine laboratory operating conditions that are available to the facility. The Discharger’s technical report (Sample Collection and Analysis Plan and/or Water Quality Protection Standard Report), pursuant to Title 27, section 20415(e)(7), shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, CCR, 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 non-statistical 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”.

43. The water quality protection standard for organic 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 (e.g., USEPA methods 8260 and 8270).

44. 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) if part of an approved water quality protection standard. Nevertheless, 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.

45. **Confirmation of Measurably Significant Evidence of a Release.** Whenever a constituent is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the water quality protection standard, the Discharger shall conduct verification sampling to confirm if the exceedance is due to a release or if it is a false-positive (unless previous monitoring has already confirmed a release for that constituent at that monitoring point). An exceedance of the concentration limit from the water quality protection standard is considered measurably significant evidence of a release that must be either confirmed or denied. There are two separate verification testing procedures:

    a. Standard Monitoring Specification I.46 provides the procedure for analytes that are detected in less than 10% of the background samples such as non-naturally occurring constituents like volatile organic compounds; and

    b. Standard Monitoring Specification I.47 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.

46. **Verification Procedure for Analytes Detected in Less than 10% of Background Samples**. The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:

    a. **Initial Determination of Measurably Significant Evidence of a Release**. Identify each analyte in the **current** detection monitoring point sample that exceeds either its respective MDL or PQL, and for which a release has not been previously confirmed. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if ***either:***

        1) The data contains two or more analytes that equal or exceed their respective MDLs; or

        2) The data contains one or more analyte that equals or exceeds its PQL.

b. **Discrete Retest** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)]:

1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.46.a., above) that there is a preliminary indication of a release, 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 monitoring point where the release is preliminarily indicated and analyze them for the constituents that caused the need for the retest.

2) **Confirmation of a Release**. As soon as the retest data are available, the Discharger shall conclude that measurably significant evidence of a release is confirmed if (not including the original sample) two or more analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL. The Discharger shall then:

a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and

b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.

c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

47. **Verification Procedure for Analytes Detected in 10% or Greater of the Background Samples.** The Discharger shall use either a statistical or non-statistical method pursuant to Title 27, section 20415(e)(8)(E) for all analytes that are detected in 10% or greater of the background samples. The Discharger shall use one of the statistical methods required in Title 27, section 20415(e)(8)(E) unless another method has been proposed by the Discharger in a Water Quality Protection Standard Report (or equivalent report) and approved by the Central Valley Water Board in a Monitoring and Reporting Program pursuant to Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E). The method shall be implemented as follows:

a. **Initial Determination of Measurably Significant Evidence of a Release**. The Discharger shall compare the value reported by the laboratory for each analyte to the statistically-derived concentration limit from the most recent report (Annual Monitoring Report or Water Quality Protection Standard Report) that uses the approved statistical procedure. If the value exceeds the concentration limit for that constituent, the Discharger shall conclude that there in measurably significant evidence of a release [Title 27, § 20420(i)].

b. **Retest Method** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)].

1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.47.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** [Title 27, § 20415(e)(3)] of such indication, the Discharger shall implement a verification procedure/retest option, in accordance with Title 27, sections 20415(e)(8)(E) and 20420(j)(2). The verification procedure shall include either a single "composite" retest (i.e., a statistical analysis that augments and reanalyzes the data from the monitoring point that indicated a release) or shall consist of at least two "discrete" retests (i.e., statistical analyses each of which analyzes only newly-acquired data from the monitoring point that indicated a release) [Title 27, § 20415(e)(8)(E)]. The Discharger may use an alternate method previously approved by the Central Valley Water Board and included in the Monitoring and Reporting Program. The verification procedure shall comply with the requirements of Title 27, section 20415(e)(8)(E) in addition to the performance standards of Title 27, section 20415(e)(9). The retest samples shall be collected from the monitoring point where the release is preliminarily indicated and shall be analyzed for the constituents that caused the need for the retest. For any indicated monitoring parameter or constituent of concern, if the retest results of one or more of the retest data suites confirm the original indication, the Discharger shall conclude that measurably significant evidence of a release has been confirmed.

2) **Confirmation of a Release**. As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph I.47.b.1, above and shall:

a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and

b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.

c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

48. **Physical Evidence of a Release**. If the Discharger determines that there is a significant **physical** evidence of a release, the Discharger shall immediately

verbally notify Central Valley Water Board staff and provide written notification **by certified mail within 7 days** of such determination, and within **90 days** shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program [Title 27, § 20385(a)(3) and § 20420(l)(1) & (2)].

J. RESPONSE TO A RELEASE

1. Measurably Significant Evidence of a Release Has Been Confirmed. If the Discharger has confirmed that there is measurably significant evidence of a release from a waste management unit pursuant to Standard Monitoring Specification I.46 or I.47, then the Discharger shall:

   a. **Immediately** sample all monitoring points in the affected medium at that waste management unit and determine the concentration of all monitoring parameters and constituents of concern for comparison with established concentration limits. Because this constituent of concern scan does not involve statistical testing, the Discharger will need to collect and analyze only a single water sample from each monitoring point in the affected medium [Title 27, § 20420(k)(1)].

   b. **Within 14 days** of confirming measurably significant evidence of a release, the Discharger shall (for releases from MSW landfill units) notify all persons who own the land or reside on the land that directly overlies any portion of the plume of contamination if contaminants have migrated off-site if indicated by sampling of detection monitoring wells [40 C.F.R. § 258.55(g)(1)(iii)].

   c. **Within 90 days** of confirming measurably significant evidence of a release, the Discharger shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program meeting the requirements of Title 27, sections 20420(k)(5)(A-D), including but not limited to the results of sampling pursuant to paragraph J.1.a, above. The Evaluation Monitoring Program shall be designed for the collection and analysis of all data necessary to assess the nature and extent of the release and to determine the spatial distribution and concentration of each constituent throughout the zone affected by the release [Title 27, § 20420(k)(5) and § 20425(b)]. For releases from MSW landfill units, the Evaluation Monitoring Program shall also include any additional proposals necessary to comply with 40 C.F.R. § 258.55, particularly the additional monitoring well required by 40 C.F.R. § 258.55(g)(1)(ii).

   d. **Within 180 days** of confirming measurably significant evidence of a release, the Discharger shall submit to the Central Valley Water Board an <u>initial</u> engineering feasibility study for a Corrective Action Program necessary to meet the requirements of Title 27, section 20430. At a minimum, the initial engineering 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 [Title 27, § 20420(k)(6)].

e. If the Discharger confirms that there is measurably significant evidence of a release from the waste management unit at any monitoring point, the Discharger may attempt to demonstrate that a source other than the waste management unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to Title 27, section 20420(k)(7) in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements and due dates of Title 27, sections 20420(k)(6) & (7) unless Central Valley Water Board staff agree that the demonstration successfully shows that a source other than the waste management unit caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In order to make this demonstration, the Discharger shall notify the Central Valley Water Board by certified mail of the intent to make the demonstration **within seven days** of determining measurably significant evidence of a release, and shall submit a report **within 90 days** of determining measurably significant evidence of a release [Title 27, § 20420(k)(7)].

f. **Within 90 days** of the date that the Evaluation Monitoring Program from paragraph J.1.c is approved (the date is it established), the Discharger shall complete and submit the following:

i) **Results and Assessment for the Evaluation Monitoring Program.** A report with the results and assessment based on the approved Evaluation Monitoring Program [Title 27, § 20425(b)].

ii) **Updated Engineering Feasibility Study.** An updated engineering feasibility study for corrective action based on the data collected to delineate the release and data from the ongoing monitoring program required under Title 27, section 20425(e) [Title 27, § 20425(c)].

iii) **Amended ROWD for a Corrective Action Program.** An amended report of waste discharge to establish a Corrective Action Program meeting the requirements of Title 27, section 20430 based on the data collected to delineate the release and based on the updated engineering feasibility study [Title 27, § 20425(d)].

g. The Discharger shall (for releases from MSW landfill units) discuss the results of the updated engineering feasibility study, prior to the final selection of a remedy, in a public meeting with interested and affected parties [40 C.F.R. § 258.56(d)].

K. GENERAL 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. 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."

3. 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.

4. 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 active life, closure, and post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.

5. The fact that it would have been 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 violations of this Order.

6. The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Central Valley Water Board approval following authorization for closure pursuant to the site Notification of Closure [Title 27, § 21710(a)(4)].

7. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit or portion of a unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Central Valley Water Board [Title 27, § 21720(f)].

8. In the event of any change in landowner or the operator of the waste management facility, the Discharger shall notify the succeeding owner or

operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.

9. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [Title 27, § 21710(c)(1)].

10. 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 General Provision K.2 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. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

L. STORM WATER PROVISIONS

1. New and existing Class III landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [Title 27, § 20260(c)].

2. New and existing Class II landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [Title 27, § 20250(c)].

3. The Discharger shall design storm water conveyance systems for Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

4. MSW landfills located in a 100-year floodplain shall demonstrate that the landfill unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health or the environment [40 C.F.R. § 258.11(a)].

5. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding,

infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions for the unit [Title 27, § 20365(a)].

6. Precipitation on landfills or waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the LCRS, which shall be designed and constructed to accommodate the precipitation conditions for each class unit [Title 27, § 20365(b)].

7. Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:

    a. accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit:

    b. effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities;

    c. prevent surface erosion;

    d. control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste;

    e. take into account:

        i) for closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern;

        ii) for operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time;

        iii) the possible effects of the waste management unit's drainage pattern on and by the regional watershed;

        iv) the design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility; and

    f. preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.

8. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [Title 27, § 20365(d)].

9. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].

10. Cover materials shall be graded to divert precipitation from the waste management unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation [Title 27, § 20365(f)].

11. Any drainage layer in the final cover shall be designed and constructed to intersect with the final drainage system for the waste management unit in a manner promoting free drainage from all portions of the drainage layer [Title 27, §20365(f)].