

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2017-XXXX

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 Regulations¹, 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:

<u>Unit</u>	<u>Area¹</u>	<u>Liner/LCRS² Components³</u>	<u>Unit Classification & Status</u>
Phase 1	31.6 acres	Unlined, no LCRS	Class III, closing
Phase 2, Cell 1A	3.9 acres	<u>Bottom Liner (from bottom up)</u> <ul style="list-style-type: none"> • 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/yd² nonwoven geotextile filter fabric (LCRS) • One-foot thick soil operations layer <u>Slide Slope Liner (from bottom up)</u> <ul style="list-style-type: none"> • 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

<u>Unit</u>	<u>Area</u> ¹	<u>Liner/LCRS</u> ² <u>Components</u> ³	<u>Unit Classification & Status</u>
Phase 2, Cell 2A	3.5 acres	<u>Bottom Liner (from bottom up)</u> <ul style="list-style-type: none"> • One-foot thick compacted subgrade with a $k \leq 1 \times 10^{-6}$ 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/yd² geotextile (LCRS) • Minimum one-foot thick soil operations layer <u>Side Slope Liner (from bottom up)</u> <ul style="list-style-type: none"> • 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-XXXX 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-XXXX 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/yd² 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/yd² 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 1×10^{-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/yd² 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 1×10^{-7} cm/s to 1×10^{-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-XXXX.
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-XXXX.

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 1×10^{-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 1×10^{-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 the 19 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-XXXX 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-XXXX 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:

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2017-XXXX
COUNTY OF TEHAMA AND CITY OF RED BLUFF
TEHAMA COUNTY AND CITY OF RED BLUFF CLASS III MUNICIPAL SOLID WASTE LANDFILL
TEHAMA COUNTY

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/yd² 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-XXXX, 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-XXXX, 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-XXXX, 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-XXXX.
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-XXXX and the Standard Monitoring Specifications in Section I of the SPRRs dated December 2015.

6. As specified in MRP No. R5-2017-XXXX, 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-XXXX 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-XXXX, 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

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2017-XXXX
COUNTY OF TEHAMA AND CITY OF RED BLUFF
TEHAMA COUNTY AND CITY OF RED BLUFF CLASS III MUNICIPAL SOLID WASTE LANDFILL
TEHAMA COUNTY

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

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).

Two years prior to closure

D. Well OB-2 Report

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.

31 July 2017

E. Well OB-2 Decommissioning Report

If the report required under Provision 7D indicates well OB-2 should be abandoned, submit a Well OB-2 Decommissioning Report.

31 October 2017

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-XXXX).

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 _____.

PAMELA C. CREEDON, Executive Officer

KB