CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

Fresno Office
1685 "E" Street
Fresno, CA 93706-2007

Sacramento Office (Main)
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Redding Office
364 Knollcrest Drive #205
Redding, CA 96002

Regional Board Website (https://www.waterboards.ca.gov/centralvalley)

[TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER R5-2021-####

ORDER INFORMATION

Order Type(s):	Waste Discharge Requirements (WDRs)
Status:	TENTATIVE
Program:	Title 27 Discharges to Land
Region 5 Office:	Fresno
Discharger(s):	County of Tulare
Facility:	Visalia Disposal Site
Address:	Intersection of Avenue 328 & Road 80, Visalia
County:	Tulare County
Parcel Nos.:	925-000-375-000, 077-020-021-000, 077-020-024-000, 077-020-026-000, 077-020-030-000
WDID:	5D540300009
Prior Order(s):	71-326, 90-222, 99-047, R5-2003-0146, R5-2013-0059, R5-2014-0107

CERTIFICATION

I, PATRICK PULUPA, Executive Officer, hereby certify that the following is a full, true, and correct copy of the order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____ February 2021.

TENTATIVE

PATRICK PULUPA,
Executive Officer

REGIONAL BOARD INFORMATION

Sacramento Office (Main)
Rancho Cordova, CA 95670-6114
11020 Sun Center Drive #200
Telephone: (916) 464-3291

Fresno Office
1685 "E" Street
Fresno, CA 93706-2007
Telephone: (559) 445-5116

Redding Office
364 Knollcrest Drive #205
Redding, CA 96002
Telephone: (530) 224-4845

Regional Board Website
https://www.waterboards.ca.gov/centralvalley

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GLOSSARY

ADC	Alternative Daily Cover
Antidegradation Policy	Statement of Policy with Respect to Maintaining High Quality Waters in California, State Water Board Resolution 68-16
Basin Plan	*Water Quality Control Plan for the Tulare Lake Basin*
bgs	Below Ground Surface
C&D	Construction and Demotion Materials
CalRecycle	California Department of Resources Recovery and Recycling
CAP	Corrective Action Program
CAMP	Corrective Action Monitoring Program
CEQA	California Environmental Quality Act
CEQA Guidelines	California Code of Regulations, Title 14, section 15000 et seq.
C.F.R.	Code of Federal Regulations
COCs	Constituents of Concern
CPMP	Closure and Post-Closure Maintenance Plan
CQA	Construction Quality Assurance
Designated Waste	(a) Hazardous Waste subject to variance from management requirements per Health and Safety Code section 25143; and (b) Nonhazardous Waste containing pollutants that, under ambient conditions, could be released in concentrations exceeding applicable WQOs, or that could reasonably be expected to affect beneficial uses of water. (Wat. Code, § 13173.)
DMP	Detection Monitoring Program

GLOSSARY

DTSC .....California Department of Toxic Substances Control

DWR.....California Department of Water Resources

EC .....Electrical Conductivity

EIR .....Environmental Impact Report

EMP .....Evaluation Monitoring Plan

FEMA .....Federal Emergency Management Agency

GCL.....Geosynthetic Clay Liner

Hazardous Waste .....Wastes which, pursuant to Title 22, section 66261.3 et seq., are required to be managed in accordance with Division 4.5 of Title 22. (Title 27, § 20164; Title 23, § 2521(a).)

HDPE .....High-Density Polyethylene

JTD .....Joint Technical Document

LCRS .....Leachate Collection and Removal System

LEA .....Local Enforcement Agency

Leachate.....Liquid formed by the drainage of liquids from waste or by the percolation or flow of liquid through waste. Leachate includes any constituents extracted from the waste and dissolved or suspended in the fluid. (Title 27, § 20164.)

LFG .....Landfill Gas Condensate

MCE .....Maximum Credible Earthquake

MDB&M .....Mount Diablo Base and Meridian

MDL .....Method Detection Limit

µg/L.....Micrograms per Liter

GLOSSARY

mg/L.....Milligrams per Liter

MPE .....Maximum Probable Earthquake

msl.....Mean Sea Level

MRP .....Monitoring and Reporting Program

MSW .....Municipal Solid Waste regulated under 40 C.F.R. part 258

MSWLF.....Municipal Solid Waste Landfill

MW.....Monitoring Well

SPRRs .....Standard Provisions and Reporting Requirements

Subtitle D .....USEPA-promulgated MSW regulations under RCRA (see 40 C.F.R. part 258)

RCRA.....Resource Conservation and Recovery Act

ROWD.....Report of Waste Discharge

TDS.....Total Dissolved Solids

Title 22.....California Code of Regulations, Title 22

Title 23.....California Code of Regulations, Title 23

Title 27.....California Code of Regulations, Title 27

USEPA.....United States Environmental Protection Agency

VOCs .....Volatile Organic Compounds

WDRs.....Waste Discharge Requirements

WMU .....Waste Management Unit

WQOs .....Water Quality Objectives

WQPS .....Water Quality Protection Standard

FINDINGS

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) hereby finds as follows:

Introduction

1. The County of Tulare (Discharger) owns and operates the Visalia Disposal Site (Facility), which is located approximately seven miles northwest of City of Visalia in Tulare County, Section 5, Township 18 South, Range 24 East, Mount Diablo Base and Meridian (MDB&M). The Facility has also been referred to as the Visalia Municipal Solid Waste Landfill in previous Orders. The Facility's location is depicted on the Site Location Map in **Attachment A**.

2. The Facility is situated on a 631-acre property comprised of Assessor's Parcel Numbers (APNs) 925-000-375-000, 077-020-021-000, 077-020-024-000, 077-020-026-000, 077-020-030-000. The Facility is located at the northeast intersection of Avenue 328 and Road 80 in Visalia, California.

3. As the Facility's owner and operator, the Discharger is responsible for compliance with this Order, which prescribes Waste Discharge Requirements (WDRs) regulating the construction, operation, post-closure maintenance, and corrective action of the Waste Management Units (WMUs) listed in **Table 1**.

Table 1—Summary of Waste Management Units (WMUs) Permitted under Order

Unit	Type	Class	Size	Status
WMU 1	Unlined Landfill	Class III	127 acres	Closed
WMU 2 (Cells 1 -10)	Lined Landfill	Class III	115 acres	Operating/Planned

See Glossary for definitions of terms and abbreviations in table.

Materials Accompanying Order

4. The following materials are attached to this Order, and incorporated herein:

Attachment A—SITE LOCATION MAP
Attachment B—FACILITY MAP
Attachment C—OFF-SITE WELL LOCATIONS

Attachment D—LINER PERFORMANCE DEMONSTRATION AND DESIGN

Standard Provisions & Reporting Requirements for Non-Hazardous Discharges of Waste Regulated under Subtitle D and/or Title 27, December 2015 Edition (SPRRs or Standard Provisions)

Information Sheet for [Tentative] Waste Discharge Requirements Order R5-2021- (Information Sheet)

5. This Order is also accompanied by the concurrently adopted **Monitoring & Reporting Program R5-2021- (MRP)**, the provisions of which are incorporated as part of this Order. Each time the operative MRP is modified by the Central Valley Water Board or its Executive Officer, the revised version shall become the operative MRP (superseding the prior version) and be incorporated as part of this Order (i.e., in lieu of the prior version).

6. To the extent there are any material inconsistencies between the provisions of this Order, the operative MRP and the SPRRs, the provisions of this Order shall be controlling. However, to the extent a revised MRP contains new or different factual findings reflecting changed conditions or circumstances at the Facility, the revised MRP findings shall be controlling.

7. Additional information about the Facility is set forth in the **Information Sheet**, which is incorporated as part of these findings. (See Finding 0.)

Facility

8. The Facility started operations in 1952. The operational history of the Facility has included the employment of a number of different waste disposal procedures, including cut and cover methods (1952 to 1956 and 1971 to 1980), open burning (1956 to 1971), and area fill methods (1980 to present). All of these types of waste disposal procedures were employed in WMU 1, while only area fill methods have been utilized in WMU 2. WMU 1 stopped receiving waste in 2007 and was formally closed in 2018. WMU 2 commenced receiving waste in 2005 and is still active. Cells 1 through 7 of WMU 2 have been constructed and Cells 8 through 10 are planned for future construction.

9. The Facility includes the following onsite features, systems, and structures:

   a. Stormwater retention basin,

   b. Landfill gas extraction system and flare,

   c. Groundwater extraction and treatment system.

Waste Classification & Permitting

10. The Facility's landfills are subject to federal Municipal Solid Waste (MSW) regulations promulgated under the Resource Consideration Recovery Act (RCRA) (42 U.S.C. § 6901 et seq.). Typically referred to as "Subtitle D," these regulations are now codified as 40 C.F.R. part 258 and implemented in part through the provisions California Code of Regulations, Title 27 (Title 27) and in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62.

11. On 30 April 1999, the Central Valley Water Board adopted WDRs Order 99-047, classifying WMU 1 as a Class III unit for the discharge of municipal solid waste. On 5 September 2003, the Central Valley Water Board adopted WDRs Order R5-2003-0146, classifying WMU 2 as a Class III unit for the discharge of municipal solid waste, C&D wastes, green and wood waste. This Order continues such classifications, which are set forth above in **Table 1**.

12. In December 2013, the Discharger submitted a Joint Technical Document (JTD) revision proposing the discharge of dewatered sewage or water treatment sludge at the facility in accordance with Title 27, §20220(c) and for use as an alternative daily cover (ADC) in accordance with Title 27, §20690. WDRs Order R5-2014-0107 was adopted by the Central Valley Water Board to modify WDRs Order R5-2013-0059 for the acceptance and disposal of dewatered sewage or water treatment sludge into the lined WMU 2, which is equipped with a Leachate Collection and Removal System (LCRS).

13. The dewatered sewage or water treatment sludge contains 20 percent or more solids by weight, has undergone both primary and secondary treatment, and is designated non-hazardous by laboratory analysis, in accordance with Title 27, §20220(c)(1) and (2). In accordance with Title 27, §20220(c)(3), a minimum solids-to-liquids ratio of 5:1 by weight is required to be maintained in the sludge/solid waste mixture.

14. The Discharger proposes to continue discharging non-friable asbestos-containing waste (i.e., >1% asbestos) at the Facility. Although asbestos-containing waste is classified as "hazardous" under California Code of Regulations, title 22 (Title 22), the discharge of such waste does not pose a threat to water quality and is therefore authorized for WMUs as specified in **Section 0** and **Table 6**. (Health & Safety Code, § 25143.7.)

15. This Order updates the waste discharge requirements for the Facility's WMUs or landfills, as part of an administrative policy of periodic review, to incorporate revisions to regulations and policies adopted thereunder, for the construction and the continued operation of WMU 2 and for the continued corrective action and post-closure maintenance of WMU 1.

Alternative Daily Cover / Intermediate Cover (Operating Landfill Units)

16. In lieu of the daily cover required per Title 27, §20680, the Discharger proposes to use an approved alternative daily cover (ADC) (see Title 27, §§ 20690, 20705), which consists of geosynthetic fabric or panel products, dewatered sludge and sludge derived material including biosolids per §20220(c), and ash per §20220(d).

17. The proposed ADC has already been approved by the Local Enforcement Agency (LEA) and is hereby also approved by the Central Valley Water Board for use at the Facility.

18. In accordance with Title 27 section 20705, the Discharger has demonstrated that its proposed ADC materials: (a) will minimize percolation of liquids through waste; and are (b) consistent with the classification of the WMUs to which they are to be applied. The approved ADC material constituents and breakdown products are also included as part of the WQPS set forth in the MRP.

Site Conditions

19. The Facility is located on the westward dipping, eastern limb of the asymmetrical trough of the San Joaquin Valley. Sediments ranging in age from Jurassic to Holocene fill the trough. The site overlies a basement complex of pre-Tertiary age metasediments, plutonics, and ultramafics. Sequentially overlying the basement complex are approximately 1,000 to 3,500 feet of consolidated and unconsolidated Tertiary marine deposits, continental deposits, and unconsolidated Quaternary alluvium. Of significance to the Facility, are the unconsolidated alluvial fan deposits of the Kaweah River that occur above the continental deposits. The unconsolidated alluvial fan deposits consist of approximately 330 to 350 feet of interbedded clayey silt, silt, and fine-to-medium-grain fluvial and flood basin sands. A 30-foot thick, low resistivity, hard clay and silt zone that may possibly represent the regionally extensive E-Clay, occurs between 180 and 210 feet below ground surface (bgs) beneath the western margin of WMU I and areas west of WMU I. The low-resistivity layer is laterally continuous and serves as an aquitard that separates groundwater into an unconfined upper alluvial groundwater zone (above 180 feet bgs) and a lower alluvial groundwater zone (below 210 feet bgs).

20. Land uses within one mile of the Facility are agricultural. The Van Grouw Dairy is located adjacent to the Facility on the western side of Avenue 328.

21. Surface water from the Facility drains to Cross Creek, a tributary to St. Johns River. According to the Central Valley Water Board's *Water Quality Control Plan for the Tulare Lake Basin* (Basin Plan), the beneficial uses of St. Johns River

include: municipal and domestic use (MUN); agricultural supply (AGR); industrial process supply (PRO); water contact recreation (REC-1); non-water contact recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); migration of aquatic organisms (MIGR); and spawning, reproduction and/or early development (SPAWN).

22. Groundwater underneath the Facility is first encountered between approximately 67 and 110 feet bgs. Groundwater elevations in the upper alluvial groundwater zone during the 1st and 2nd quarter of 2020 periods ranged from approximately 206 to 231 feet mean sea level (MSL) and 207 to 227 feet MSL, respectively. Groundwater elevations in the lower alluvial groundwater zone ranged from approximately 190 to 230 feet MSL and 177 to 228 feet MSL, respectively.

23. Soil types observed beneath the Facility consist of interbedded clay, silt, sandy silt, silty sand, and fine to medium-sand deposited in stream channels and flood basins adjacent to distributary channels. Beneath the Facility, four reasonably distinct hydrogeologic units were defined in the *Phase 1 Evaluation Monitoring Program Report* (Phase 1 EMP Report) by Malcolm Pirnie. These units included the following: upper alluvial aquifer (water table to about 180 feet bgs), E-Clay aquitard (about 180 feet to 210 feet bgs), lower alluvial aquifer (about 210 feet to about 340 feet bgs), deeper aquifer (about 340 feet bgs and deeper).

24. For the purpose of developing a groundwater monitoring network, four monitoring zones containing predominantly sandy soil intervals were defined in the Phase 1 EMP Report. The selected monitoring intervals and approximate depth range for each interval include the following: S-Zone (40 to 60 feet bgs), A-Zone (80 to 100 feet bgs), B-Zone (130 to 150 feet bgs), C-Zone (220 to 240 feet bgs).

25. The S-Zone, A-Zone, and B-Zone monitoring wells are screened in the “upper alluvial groundwater zone”, which is an unconfined aquifer. The C-Zone wells are screened in a semi-confined aquifer, identified as the “lower alluvial groundwater zone”. The E-Clay aquitard hydraulically separates the upper and lower alluvial groundwater zones. The regional groundwater flow direction is to the southwest.

26. According to the Basin Plan, the designated beneficial uses of groundwater at the Facility are municipal and beneficial use (MUN), agricultural supply (AGR) and industrial process supply (PRO).

27. There are domestic, industrial and agricultural supply wells within one mile of the Facility.

28. Class III WMUs must be designed and constructed to withstand a maximum probable earthquake (MPE). (Title 27, § 20370.) The Discharger’s site-specific seismic analysis indicates that an earthquake, occurring along the Landers Fault,

at a closest rupture distance of 220 miles, would result in an MPE with a magnitude of 7.3 and a peak ground acceleration of 0.11 g.

29. Based on data from the nearest weather station (Exeter), the Facility has an annual average precipitation of 11.34 inches, and a mean pan evaporation of 70.7 inches per year as measured at the Tulare weather station. The nearest weather station is reflective of conditions at the Facility.

30. Class III WMUs must be constructed to accommodate stormwater runoff from 24-hour precipitation events with a return period of 100 years for Class III WMUs. (See Title 27, § 20320.) According to National Oceanic and Atmospheric Administration's (NOAA) Precipitation Frequency Atlas 14, Volume 6 (rev. 2014), the Facility's 100-year, 24-hour rainfall events are estimated to result in 3.79 inches of precipitation, respectively. Source: NOAA Precipitation Frequency Data Server (https://hdsc.nws.noaa.gov/hdsc/pfds).

31. A stormwater retention basin is situated in the northern portion of the Facility, as depicted in **Attachment B**. The basin captures stormwater runoff from the Facility and retains it on-site.

32. According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (https://msc.fema.gov/portal), the northern portion of the Facility property is located within a 100-year floodplain. However, the Facility's WMUs are located on property designated as Zone X with a 0.2 percent annual chance of flooding (i.e. 500-year flood zone).

Monitoring Networks

33. As of the date of this Order, the Facility's **groundwater** monitoring network consists of the monitoring wells listed in **Table 2**. The network consists of background, point of compliance (POC), extraction, and both on- and off-site wells associated with the Corrective Action Program (CAP). Since the off-site CAP wells are not owned by the Discharger, access to these wells is not guaranteed. As such, the off-site CAP wells that are sampled may vary between monitoring events. Monitoring well clusters are present at many locations in which the wells are completed at different depths. Clusters are identified by monitoring wells with the same numerical designation and different letter designations (S, A, B, or C) corresponding to the four monitoring zones as describe above. Some monitoring wells have an "r" designation that signifies a replacement monitoring well.

Table 2—Groundwater Monitoring Well Network

Well	Program	Water-Bearing Zone
M-1	POC	Upper Alluvial
M-2 A,B	POC	Upper Alluvial
M-3 A,B	POC	Upper Alluvial
M-4 A,B	POC	Upper Alluvial
M-5	CAP	Upper Alluvial
M-6 A,B	Background	Upper Alluvial
M-6C	Background	Lower Alluvial
M-7 A,B,C	Background	Upper Alluvial
M-7Cz	Background	Lower Alluvial
M-8	Background	Upper Alluvial
M-9	Background	Upper Alluvial
M-10	Background	Upper Alluvial
M-11 Sr,Ar,Br	CAP	Upper Alluvial
M-11Cr	CAP	Lower Alluvial
M-12	POC	Upper Alluvial
M-13 S,A,B	CAP	Upper Alluvial
M-13C	CAP	Lower Alluvial
M-14 S,A,B	CAP	Upper Alluvial
M-14C	CAP	Lower Alluvial
M-15 S,A,B	CAP	Upper Alluvial
M-16 S,A,Br	POC	Upper Alluvial
M-17 S,A,B	CAP	Upper Alluvial
M-17C	CAP	Lower Alluvial
M-18 S,A,B	POC	Upper Alluvial
M-19 S,A,B	Background	Upper Alluvial
M-19C	Background	Lower Alluvial
M-20 S,A,B	CAP	Upper Alluvial
M-20C	CAP	Lower Alluvial
M-21B	CAP	Upper Alluvial

Well	Program	Water-Bearing Zone
M-22B	CAP	Upper Alluvial
M-23B	CAP	Upper Alluvial
Van Grouw North (VG North)	Off-site CAP	Lower Alluvial
Van Grouw South (VG South)	Off-site CAP	Lower Alluvial
Van Grouw West (VG West)	Off-site CAP	Lower Alluvial
Van Grouw Main (VG Main)	Off-site CAP	Lower Alluvial
Gun Club Well (GC Well)	Off-site CAP	Lower Alluvial
Gun Club Well West (GC Well West)	Off-site CAP	Lower Alluvial
AG-8	Off-site CAP	Lower Alluvial
AG-9	Off-site CAP	Lower Alluvial
AG-10	Off-site CAP	Lower Alluvial
AG-15R	Off-site CAP	Lower Alluvial
AG#D6	Off-site CAP	Lower Alluvial
EW-5	Extraction	Upper Alluvial
EW-6	Extraction	Upper Alluvial
EW-7	Extraction	Upper Alluvial
EW-8	Extraction	Upper Alluvial
EW-9	Extraction	Upper Alluvial
EW-10	Extraction	Upper Alluvial
EW-11	Extraction	Upper Alluvial

See Glossary for definitions of terms and abbreviations in table.

34. As described in Order R5-2013-0059, WMU 1 was permitted and in operation before 1 July 1991 and qualifies for exemption of unsaturated zone monitoring pursuant to Title 27, §20415(d). However, unsaturated zone monitoring is required for WMU 2. This monitoring is accomplished using pan lysimeters located beneath the primary LCRS sumps for the active waste cells. As of the date of this Order, the Facility's **unsaturated zone** monitoring network consists of the existing and proposed monitoring points listed in **Table 3**.

Table 3—Unsaturated Zone Monitoring Network

Monitoring Point	Device Type	Program	Monitored Unit	Status
Cell 1	Pan Lysimeter	Detection	WMU 2	Active
Cell 2	Pan Lysimeter	Detection	WMU 2	Active
Cell 3	Pan Lysimeter	Detection	WMU 2	Active
Cell 4	Pan Lysimeter	Detection	WMU 2	Active
Cell 5	Pan Lysimeter	Detection	WMU 2	Active
Cell 6	Pan Lysimeter	Detection	WMU 2	Active
Cell 7	Pan Lysimeter	Detection	WMU 2	Active
Cell 8	Pan Lysimeter	Detection	WMU 2	Planned
Cell 9	Pan Lysimeter	Detection	WMU 2	Planned
Cell 10	Pan Lysimeter	Detection	WMU 2	Planned

See Glossary for definitions of terms and abbreviations in table.

35. As of the date of this Order, there are no **surface water** monitoring requirements for the Facility.

36. As of the adoption of this Order, the above-described networks comply with the monitoring requirements of Title 27. (See Title 27, §§ 20415–20435.) Subsequent changes to these networks will be reflected in a Revised Monitoring & Reporting Program issued by the Executive Officer.

Water Quality Protection Standard

37. A Water Quality Protection Standard (WQPS) is the analytical framework through which WMUs are individually monitored for releases and impacts to water quality. (Title 27, § 20390, subd. (a).) Under Title 27, a WQPS is separately established for each WMU in WDRs. (*Id*.)

38. In accordance with Title 27, this Order, by virtue of its incorporation of **Monitoring & Reporting Program R5-2021- (MRP)** and subsequent revisions thereto, establishes a WQPS for each WMU at the Facility.

Corrective Action

39. WMU 1 has released volatile organic compounds (VOCs) to groundwater. These VOCs include the following: tetrachloroethylene (PCE); trichloroethylene (TCE); 1,1,1- trichloroethane (1,1,1-TCA); cis-1,2-dichloroethylene (cis-1,2-DCE); trans-1,2-dichloroethylene (trans-1,2-DCE); 1,1-dichloroethylene (1,1-DCE); 1,1-dichloroethane (1,1-DCA); 1,2-dichlorethane (1,2-DCA); vinyl chloride; chloroethane; chloroform; dichlorofluoromethane; di-isopropyl ether (DIPE); and trichlorofluoromethane. During the 1st semiannual 2020 monitoring period, most of these VOCs were detected in the upper alluvial groundwater zone and only few (dichlorofluoromethane, PCE, and TCE) were detected in the lower alluvial groundwater zone.

40. Historically, the VOCs migrated from the upper alluvial groundwater zone into the lower alluvial groundwater zone as a result of two agricultural supply wells (AG-13 and AG-15) and the landfill supply well that were screened across the E-Clay and into both groundwater zones. Both AG-13 and AG-15, along with the landfill supply well, have been properly destroyed. VOCs also migrated off-site beneath the Van Grouw Dairy whose wells are used as off-site CAP wells. However, VOCs have not been detected in these wells since October 2018.

41. Cleanup and Abatement Order 99-718 was issued to the Discharger and required them to complete an evaluation monitoring program (EMP) and establish a CAP. The EMP determined that the lateral extent of the VOC plume in the upper alluvial groundwater zone extended approximately 3,300 feet to the southwest of the southwestern corner of WMU 1 to well AG-8; approximately 750 feet north of the northwestern corner of WMU 1 to monitoring well M-5; approximately 350 feet north of the northern boundary of WMU 1; and approximately 450 east of the southeastern corner of WMU 1.

42. The lateral extent of the VOC plume in the lower alluvial groundwater zone was determined to extend approximately 2,300 feet southwest of the southwestern corner of WMU 1 to the VG South well; possibly as much as 850 feet south of the southwestern corner of WMU 1 to monitoring well M-11C; and along the western boundary between destroyed well AG-15 to monitoring well M-20C.

43. Groundwater degradation in the lower alluvial groundwater zone was determined to be localized around the VG South well (screened from 300 feet to 400 feet bgs); the Facility's former supply well at the southwest corner of WMU 1; and destroyed wells AG-13 (screened from 153 feet to 360 feet bgs) and AG-15 (screened from 201 feet to 371 feet bgs).

44. The Facility's CAP consists of two separate corrective action measures (CAMs) along the southern and western boundaries of WMU 1 to address groundwater impacts. The Southern CAM uses in-situ bioremediation methods, which consists

of the injection of HRC-x® into the uppermost saturated zone. The Western CAM consists of a groundwater extraction and treatment system.

45. The Southern CAM was first implemented in April 2005 and includes injection points in wells EW-5 through EW-7. Wells EW-5 through EW-7 were constructed in the upper alluvial groundwater zone along the southern boundary of WMU 1 in 2003. These wells were originally intended to be extraction wells, but it was later determined that they produced an insufficient volume of water due the low hydraulic conductivity of the subsurface geologic materials. These wells were subsequently converted to bioremediation injection points. A second injection was completed in 2012 using 3D Microemulsion® (3DMe), emulsified HRC, and vegetable oils, after monitoring results suggested the HRC-x® had been depleted. A third injection event using HRC-x® was completed in December 2018. Chlorinated VOCs in groundwater have demonstrated declines in the Southern CAM wells since the December 2018 injection.

46. The Western CAM was initiated in May 2002 and remains ongoing. There was an increase in VOC concentrations in the B-Zone monitoring wells after groundwater extraction was temporarily discontinued in shallow (less than 100 feet bgs) extraction wells (EW-1 through EW-4). Groundwater extraction had been discontinued due to declining groundwater levels and treatment system damage following a lightning strike. Findings from a CAP investigation performed by Arcadis, U.S., Inc. (Arcadis) in 2015 concluded that the restoration of groundwater extraction along the western boundary with deeper extraction wells was needed to allow the capture of chlorinated VOCs from both the B-Zone and the interbedded zone.

47. A work plan to restore and upgrade the Western CAM was developed by Arcadis in November 2015. The work plan provided a phased approach for implementing the upgrades to the Western CAM. The implementation of the work plan included the installation of two additional monitoring wells (M-22B and M-23B) in the B-Zone; installation of four deeper groundwater extraction wells (EW-8 through EW-11); updating the existing treatment system controls; and initiating system startup as summarized in the *Design Report of Waste Discharge*, dated April 2016. The Western CAM became operational again in December 2016.

48. Following completion of the system upgrades in 2016, which focused on extraction in the B-Zone and the interbedded zone, groundwater levels have rebounded in shallow groundwater (above 100 feet bgs). In the most recent assessment report (February 2020), it was noted that due to the rebounding groundwater levels, additional VOC concentration data points (M-2B, M-3B, and M-23B) should be available for trend analyses at the end of 2020. In the event that groundwater levels remain stable (or increase) and that there are increasing concentrations (or no significant trends) occuring in monitoring wells screened at

less than 100 feet bgs, the Discharger will re-evaluate the conceptual site model to determine if modifications can be made to the Western CAM to increase its effectiveness in this shallow zone.

Unit Construction

49. Liners for **new Class III WMUs** (landfills) must be designed and constructed to contain fluids (e.g., leachate, waste and landfill gas condensate), so as to be capable of preventing degradation of groundwater and surface water, even with inadequate site characteristics. (See Title 27, §§ 20310(c), 20330(a).)

50. The Central Valley Water Board is authorized to approve an **engineered alternative** to Title 27 prescriptive standards (see, e.g., Title 27, § 20330, subd. (c)), provided that the discharger demonstrates that compliance with the prescriptive standard would be unreasonably and unnecessarily burdensome in comparison to the proposed alternative. (Title 27, § 20080, subds. (b), (c); State Water Board Resolution 93-62).

51. The Discharger has submitted design plans for the construction of new cells within WMU 2. This design incorporates an engineered alternative outlined in **Attachment D**, which is incorporated herein.

52. The Dischargers have adequately demonstrated that construction of a liner in accordance with the Title 27 prescriptive standard would be unreasonably and unnecessarily burdensome in comparison to the proposed engineered alternative. The Dischargers have further demonstrated that the proposed engineered alternative(s), as described in **Attachment D**, are not only consistent with the performance goals of the prescriptive standard, as described above, and will afford at least equivalent water quality protections.

53. New WMUs will incorporate the leachate collection and removal systems (LCRS) described in further detail on **Attachment D**. The proposed LCRS comply with Title 27 prescriptive standards. (See Title 27, § 20340.)

54. The unsaturated zone monitoring system for future modules shall be implemented in accordance with the operative MRP.

55. According to the submitted seismic analysis, the proposed new WMUs will be able to withstand MPE seismic events described in **Finding 0**. (Title 27, § 20370.)

Unit Closures

56. In April 2012, the Discharger submitted a Final Closure and Post-Closure Maintenance Plan (Final CPMP) for WMU 1. The Final CPMP was approved on

22 August 2012. The closure construction for WMU 1 was completed in 2018 and consisted of a 6.5-foot thick evapotranspirative final cover system.

57. In May 2000, the Discharger submitted a Preliminary Closure and Post-Closure Maintenance Plan (Preliminary CPMP) for WMU 2. Per the Preliminary CPMP, the Discharger proposes the closure of WMU 2 with an engineered alternative final cover that will be constructed in accordance with the applicable state and federal regulations at the time of closure.

Post-Closure Maintenance & Financial Assurances

58. The Final CPMP is the operative document providing for post-closure maintenance of WMU 1 for the entire post-closure maintenance period of at least 30 years, and until it is demonstrated that the Facility no longer poses a threat to the public health and safety and the environment. (See Title 27, §§ 20950(a)(1), 21180(a).)

59. The Preliminary CPMP includes costs estimates for closure of WMU 2 (Title 27, §§ 21820, 22206), post-closure maintenance (§§ 22210–22212), and foreseeable corrective action for releases (§§ 22220–22222). As of the date of this Order, these estimates, calculated in accordance with Title 27, are specified in **Table 4**.

Table 4—Current Cost Estimates (Financial Assurances)

Requirement	Estimated Cost
Closure	$ 22.2 million
Post-Closure Maintenance	$ 10.0 million
Corrective Action	$ 0.79 million

60. This Order requires the Discharger to maintain financial assurances with CalRecycle in accordance with Title 27.

61. As of the date of this Order, the Discharger maintains an enterprise fund, which have the closure fund, post-closure maintenance fund, and corrective action fund balances specified in **Table 5**.

Table 5—Current Fund Balances (Financial Assurances)

Requirement	Current Balance
Closure	$ 4.28 million
Post-Closure Maintenance	$ 5.48 million
Corrective Action	$ 0.79 million

California Environmental Quality Act

62. The issuance of this Order, which prescribes requirements and monitoring of waste discharges at an **existing facility**, with negligible or no expansion of its existing use, is exempt from the procedural requirements of the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq., pursuant to California Code of Regulations, title 14, section 15301 (CEQA Guidelines). The discharges authorized under this Order are substantially within parameters established under prior WDRs, particularly with respect to character and volume of discharges.

63. This Order is issued in part pursuant to Water Code section 13263, subdivision (a), which provides as follows:

> The regional board, after any necessary hearing, shall prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge…, with relation to the conditions existing in the disposal area … into which, the discharge is made or proposed. The requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of [Water Code] Section 13241.

64. This Order implements the Central Valley Water Board's Basin Plan, which designates beneficial uses for surface water and groundwater and establishes water quality objectives (WQOs) necessary to preserve such beneficial uses.[1] (Wat. Code, § 13241 et seq.)

65. The State Water Board's *Statement of Policy with Respect to Maintaining High Quality Waters in California*, Resolution 68-16 (*Antidegradation Policy*) prohibits the Central Valley Water Board from authorizing degradation of "high quality waters" unless it is shown that such degradation: (1) will be consistent with the maximum benefit to the people of California; (2) will not unreasonably affect beneficial uses, or otherwise result in water quality less than as prescribed in applicable policies; and (3) is minimized through the discharger's best practicable treatment or control.

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[1] Designated beneficial uses surface water and groundwater are discussed in Finding 0 and Finding 0, respectively.

66. Consistent with Title 27, this Order requires the Discharger to maintain the Facility to contain waste within WMUs, thereby preventing degradation of water quality. To the extent that there are releases from Facility WMUs, will be required to address such releases through a Corrective Action Program. (See Title 27, §§ 20385, 20415, 20430.) Because this Order does not authorize any degradation in water quality, it complies with the *Antidegradation Policy*.

67. For the purposes of California Code of Regulations, title 23 (Title 23), section 2200, the Facility has a threat-complexity rating of **1**-**B**, where:

    a. Threat Category "1" reflects waste discharges that can cause long-term loss of receiving water beneficial uses (e.g., drinking water supply loss, water-contact recreation area closures, or posting of areas used for spawning/growth of shellfish or migratory fish); and

    b. Complexity Category "B" reflects any discharger not included in Category A, with either (1) physical, chemical or biological treatment systems (except for septic systems with subsurface disposal), or (2) any Class II or Class III WMUs.

Reporting Requirements

68. This Order is also issued in part pursuant to Water Code section 13267, subdivision (b)(1), which provides that:

> [T]he regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region … shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

69. The technical reports required under this Order, as well as those required under the separately issued MRP, are necessary to ensure compliance with prescribed WDRs and the provisions of Title 27, Subtitle D (40 C.F.R. part 258) and State Water Board Resolution 93-62. Additionally, the burdens associated with such reports are reasonable relative to the need for their submission.

70. Failure to comply with the reporting requirements under this Order and the MRP may result in enforcement action pursuant to Water Code section 13268.

Procedural Matters

71. All local agencies with regulatory jurisdiction over land-use, solid waste disposal, air pollution and public health protection have approved the use of the Facility's site for the discharge of waste to land as provided for herein.

72. The Discharger, interested agencies, and interested persons were notified of the Central Valley Water Board's intent to prescribe the WDRs in this Order, and provided an opportunity to submit their written views and recommendations at a public hearing. (Wat. Code, § 13167.5; Title 27, § 21730.)

73. At a public meeting, the Central Valley Water Board heard and considered all comments pertaining to the discharges regulated under this Order.

74. The Central Valley Water Board will review and revise the WDRs in this Order as necessary.

REQUIREMENTS

IT IS HEREBY ORDERED, pursuant to Water Code sections 13263 and 13267, that WDRs Orders R5-2013-0059 and R5-2014-0107 are rescinded, except for enforcement purposes; and that the Discharger shall comply with the following requirements.

Pursuant to Water Code sections 13263 and 13267, that the Discharger and their agents, employees and successors shall comply with the following.

A. Discharge Prohibitions—Except as otherwise expressly directed below, the Discharger shall comply with all Standard Prohibitions (SPRRs, § C), which are incorporated herein, as well as the following.

1. "**Hazardous Waste**," as defined per Title 23, section 2601, shall not be discharged at the Facility. The Department of Toxic Substances Control (DTSC) shall be immediately notified of any such discharges in violation of this Order.

2. Except as specifically authorized in **Section 0** and **Table 6**, "Designated Waste," as defined per Water Code section 13173, shall not be discharged at the Facility.

3. Except as expressly authorized in **Section 0** and **Table 6**, leachate and landfill gas (LFG) condensate shall not be discharged into Facility WMUs.

B. Discharge Specifications—Except as otherwise expressly directed below, the Discharger shall comply with all Standard Discharge Specifications (SPRRs, § D), which are incorporated herein, as well as the following.

1. The Discharger shall only discharge waste to Facility WMUs as specified in **Table 6**, subject to the table-specific definitions provided below.

Table 6—Authorized Waste Discharges at Facility

Waste Category	WMU-2
Hazardous Waste Wastes which, pursuant to Title 22, section 66261.3 et seq., must be managed in accordance with Division 4.5 of Title 22. (Title 27, § 20164; Title 23, § 2521(a).)	No
Municipal Solid Waste (MSW) Wastes subject to 40 C.F.R. part 258. (Title 27, § 20164.)	Yes
Designated Waste (1) Hazardous Wastes subject to a variance from management requirements per Health and Safety Code section 25143; and (2) Nonhazardous Waste containing constituents that, under ambient conditions, could be released in concentrations exceeding WQOs, or could reasonably be expected to affect beneficial uses. (Wat. Code, § 13173.)	No
Inert Wastes Wastes that contain neither (i) hazardous wastes or soluble pollutants at concentrations in excess of WQOs, nor (ii) significant quantities of decomposable material. (Title 27, §§ 20164, 20230(a).)	Yes
Landfill Gas Condensate Liquid removed from a gas control system at a landfill and which are produced by the condensation of landfill gas being conveyed by that system. (Title 27, § 20164.)	Return Only

Waste Category	WMU-2
Leachate Liquid formed by the drainage of liquids from waste or by the percolation or flow of liquid through waste. Includes any constituents extracted from the waste and dissolved or suspended in the fluid. (Title 27, § 20164.)	Return Only
Treated Wood Waste Wood treated with chemical preservatives that are: (i) administered for protection against insects, microorganisms, fungi, and other conditions leading to decay; and (ii) registered under the Federal Insecticide, Fungicide and Rodenticide Act. (Title 22, § 67386.4.)	No
Asbestos-Containing Waste (>1%) Wastes containing at least 1 percent of non-friable asbestos particles.	Yes
Dewatered Sludge Dewatered sewage or water treatment sludge containing 20 percent or more solids by weight, which has undergone both primary and secondary treatment and is designated non-hazardous by laboratory analysis, in accordance with Title 27, §20220(c)(1) and (2).	Yes

2. The Discharger shall promptly remove and relocate all waste discharged at the Facility in violation of this Order. If unable to do so, they shall submit a report to the Central Valley Water Board: explaining how the violative discharge(s) occurred, and why the waste(s) cannot be feasibly removed; and proposing waste acceptance program updates to prevent reoccurrences. If the infeasibility is economic, cost estimates shall be provided as part of the report.[2]

3. For landfill WMUs, the Discharger shall only use the previously approved materials as an alternative daily cover (ADC) for landfill WMUs, provided

[2] Submission of this letter does not constitute approval for discharge. The Central Valley Water Board may direct the removal of waste not authorized under this Order.

that other materials may be used if approved in writing by the Central Valley Water Board as meeting the standards of Title 27, section 20705.

4. The Discharger shall not apply ADC materials to areas with drainage beyond contiguous landfill WMUs unless:

   a. The Discharger demonstrate that resulting runoff will not pose a threat to surface water quality (accounting for sediment and suspended solids removal in a sedimentation basin); and

   b. The Central Valley Water Board approves the demonstration in writing.

5. Notwithstanding Section B.1 and Table 6, **Landfill Gas Condensate** and **Leachate** from landfill WMUs shall not be discharged to other WMUs unless approved in writing by the Central Valley Water Board. (See Title 27, § 20340.)

6. The Discharger may dispose of dewatered sewage or water treatment sludge as described in Title 27, §20220(c) provided it is discharged above a composite liner with a LCRS [Title 27, § 20200(d)(3)].

C. Facility Specifications—The Discharger shall comply with all Standard Facility Specifications (SPRRs, § E) which are incorporated herein.

D. Unit Construction Specifications—Except as otherwise expressly directed below, the Discharger shall comply with all Standard Construction Specifications and Standard Storm Water Provisions (SPRRs, §§ D, L), which are incorporated herein, as well as the following.

1. Except as authorized in **Section 0**, the Discharger shall not commence liner construction (other than preparatory earthmoving and grading) until the Central Valley Water Board has approved in writing all necessary construction plans, specifications and construction quality assurance plans related to the new liner(s).

2. Base liners and slope liners for **new WMUs** listed in **Finding 0** and **Section 0** shall be constructed according to specifications in **Attachment D**.

3. The Discharger shall not implement changes to approved liner designs in **Attachment D** until the Central Valley Water Board approves of the proposed changes in writing, provided that the proposed changes:

   a. Previously approved components are not eliminated;

b. The engineering properties of previously approved components are not substantially reduced; and

c. The proposed liner system will result in water quality equal to or greater than the design(s) prescribed per Title 27, section 20310 et seq., and this Order.[3]

E. Closure & Post-Closure Maintenance Specifications—Except as otherwise directed below, the Discharger shall comply with all Standard Closure and Post-Closure Specifications (SPRRs, § G) and closure-related Standard Construction Specifications (SPRRs, § F), as well as the following with respect to closure of landfills at the Facility.

1. The Discharger shall submit a Final or Partial Final Closure and Post Closure Maintenance Plan (CPMP), in accordance with section G of the SPRRs, at least two years prior to the proposed closure of any portion of any landfill.

2. The Discharger shall obtain revised WDRs prior to closure of any landfill with a final cover.

3. The Discharger shall apply a volume of seed, binder and nutrients to the vegetative/erosion-resistant layer sufficient to establish the vegetation proposed in the final closure plan. The Discharger shall also install any necessary erosion and sedimentation controls to protect vegetation while it is being established.

F. Financial Assurances—Except as otherwise directed below, the Discharger shall comply with all Standard Financial Assurance Provisions (SPRRs, § H), as well as the following.

1. The Discharger shall maintain with CalRecycle assurances of financial responsibility for the amounts specified for each category in **Finding 0**, adjusted annually for inflation.

2. A report regarding financial assurances, or a copy of the financial assurances report submitted to CalRecycle, shall be submitted to the Central Valley Water Board annually, no later than **1 October**.

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[3] Proposed changes that do not meet these criteria are considered “material,” and will require the revision of this Order.

3. If CalRecycle determines that the submitted financial assurances for the Facility are inadequate, the Discharger shall, within 90 days of such determination:

    a. Obtain a new financial assurance mechanism for the amount specified by CalRecycle; and

    b. Submit a report documenting such financial assurances to CalRecycle and the Central Valley Water Board.

4. The operative Preliminary CPMP shall include all components required per Title 27, section 21769, subdivision (c), and include a lump sum cost estimate for:

    a. Completion of all actions required for closure of each WMU;

    b. Preparation of detailed design specifications;

    c. Development of a Final CPMP; and

    d. Undertaking at least 30 years of post-closure maintenance.

5. Whenever changed conditions increase the estimated costs of closure and post-closure maintenance, the Discharger shall promptly submit an updated CPMP to the Central Valley Water Board, CalRecycle and the LEA.

G. Monitoring Requirements—Except as otherwise directed below, the Discharger shall comply with all applicable Standard Monitoring Specifications (SPRRs, § I) and Standard Response to Release Specifications (SPRRs, § J), as well as the following:

1. The Discharger shall comply with all provisions of the separately issued Monitoring R5-2021- and any subsequent revisions thereto (operative MRP).

2. The Discharger shall implement the Water Quality Protection Standard (WQPS) set forth in the operative MRP (see also Title 27, § 20390); and shall verify the compliance of each WMU with each subsequent monitoring event.

3. For all WMUs, the Discharger shall implement a groundwater and unsaturated zone detection monitoring program (DMP) in accordance with Title 27, sections 20385, 20415 and 20420.

4. For each WMU subject to corrective action, the Discharger shall implement a corrective action monitoring program (CAMP) in accordance with Title 27, sections 20385, 20415 and 20430, and Section I of the SPRRs.

H. Corrective Action Specifications1. —The Discharger shall comply with the following:

1. The Discharger shall conduct corrective action measures in accordance with the approved CAP. The CAP includes groundwater extraction and treatment by air-stripping along the western point of compliance of WMU 1 and in-situ bioremediation product injections along the southern point of compliance of WMU 1.

2. Any modifications to the CAP, or a proposal for an alternative, needs to be approved by the Executive Officer. A proposal to modify the CAP or a proposal for an alternative CAP shall be submitted at least 90 days prior to the anticipated implementation of the proposed modification or alternative.

3. By **28 February** of each year, the Discharger shall submit a CAP evaluation report that evaluates the following:

   a. Bioremediation by-product impacts to groundwater;

   b. Efficacy of bioremediation in remediating VOCs in groundwater along the southern point of compliance of WMU 1;

   c. Need for replenishment of bioremediation products in groundwater injection wells EW-5 through EW-7 along the southern point of compliance of WMU 1;

   d. Operational status of the groundwater extraction and treatment system along the western point of compliance of WMU 1; and

   e. Efficacy of the groundwater extraction and treatment system in remediating waste constituents at the western point of compliance and hydraulically downgradient of the western point of compliance.

4. By **28 February 2025** and every five years thereafter, the Discharger shall submit a technical report with statistical analyses of groundwater monitoring data that summarizes the results of waste constituent remediation in the upper and lower alluvial groundwater zones and determines whether corrective action methods can cease, continue, be modified, or an alternative corrective action method needs to be implemented to remediate waste constituents.

5. The Discharger shall operate and maintain a groundwater corrective action monitoring system for the purpose of monitoring the nature and extent of the waste constituent release, including bioremediation by-products and the progress of corrective action.

6. Corrective action measures may be terminated when the Discharger demonstrates to the satisfaction of the Executive Officer that the concentrations of all waste constituents are reduced to levels below their respective concentration limits throughout the entire zone affected by the release.

7. After suspending the corrective action measures, the Discharger shall demonstrate that the concentration of each waste constituent in each sample from each monitoring point remained at or below its concentration limit for at least three consecutive years, beginning immediately after the suspension of corrective action measures.

8. Upon completion of corrective action, the Discharger shall certify, in writing, that corrective action has been completed in compliance with Title 27 and the WDRs. The certification shall be signed by a California Registered Civil Engineer or Professional Geologist.

9. If at any time, either the Discharger or the Executive Officer determines that the CAP is unsuccessful in remediating waste constituents, is exacerbating groundwater degradation by bioremediation by-product generation resulting from injections, or that natural attenuation of VOCs in groundwater is unsuccessful (i.e. does not satisfy the provisions of §20430 of Title 27), the Discharger shall, within 90 days of making the determination, or of receiving written notification from the Central Valley Water Board of such determination, submit an amended report of waste discharge for Executive Officer approval, to make appropriate modifications to the CAP that includes a detailed work plan, and/or proposes other alternative correction action methods to remediate COCs in groundwater.

10. At a minimum, a determination that the CAP is unsuccessful in remediating waste constituents may result if one of the following conditions is met:

    a. Waste constituent concentrations in point of compliance groundwater monitoring wells exhibit an increasing trend not originally predicted after implementation of corrective action; or

b. Point of Compliance groundwater monitoring wells exhibit significant waste constituent concentration increases indicative of a new or renewed release; or

c. Significant waste constituent concentrations are identified in corrective action groundwater monitoring wells, or off-site agricultural or domestic supply wells; or

d. Waste constituent concentrations are not decreasing at a sufficient rate to meet the remediation objectives; or

e. Bioremediation by-products exacerbate groundwater degradation.

11. The amended report of waste discharge shall include the following:

a. A discussion as to why existing corrective action measures have been ineffective or insufficient;

b. A revised evaluation monitoring plan, if necessary, to further assess the nature and extent of the release;

c. A discussion of corrective action needs and alternatives;

d. A discussion of the potential impacts to groundwater that may occur as a result of by-products from bioremediation product injections, or another in-situ remediation method;

e. Proposed alternative corrective action measures, as necessary, for: 1) Source control; 2) Groundwater cleanup; and/or 3) Landfill gas control.

f. A plan to monitor the progress of corrective action measures consistent with Monitoring and Reporting Program R5-2021-####; and

g. Cost estimates for implementing additional and/or alternative corrective action measures, including monitoring.

12. Within one year of Executive Officer approval of the amended report of waste discharge that determines that the corrective action program is unsuccessful in remediating waste constituents in groundwater and/or that natural attenuation is unsuccessful in remediating VOCs in groundwater, the Discharger needs to implement a modified or alternative corrective action program to remediate waste constituents in groundwater.

I. Reporting Requirements—In addition to those Standard Provisions pertaining to notification and reporting obligations (see, e.g., §§ K.1-2, K.6, K.8-10), the Discharger shall comply with the following provisions.

1. The Discharger shall comply with all MRP provisions pertaining to the submittal and formatting of reports and data.

2. Reports shall be submitted electronically via the State Water Board's GeoTracker Database (https://geotracker.waterboards.ca.gov). After uploading, the Discharger shall notify Central Valley Water Board staff via email at CentralValleyFresno@WaterBoards.ca.gov. The following information shall be included in the body of the email:

Attention:	Title 27 Compliance & Enforcement Unit
Report Title:	[Title]
GeoTracker Upload ID:	[number]
Facility:	Visalia Disposal Site
County:	Tulare County
WDID:	5D540300009

3. All technical reports submitted under this Order shall be prepared by, or under the direct supervision of, a California-licensed civil engineer or engineering geologist. For the purposes of this section, a "technical report" is a report incorporating the application of scientific or engineering principles.

J. Time Schedule—The Discharger shall complete the following tasks in accordance with the specified deadlines:

Table 7—Time Schedule

Item No.	Category	Task	Deadline
1.	Construction	Submit construction and design plan(s) for review and approval in accordance with Section D of this Order, and Section F of the SPRRs.	90 Days Prior to Proposed Construction
2.	Construction	Submit construction report(s) for review and approval upon completion demonstrating construction was in accordance with approved construction plans and Section F.27 of the SPRRs.	60 Days Prior to Proposed Discharge to WMU(s)
3.	Final Closure	Submit final or partial final closure and post-closure maintenance plan (PCMP), design plans, and CQA plan for review and approval, in accordance with Section E of this Order and Section G of the SPRRs.	2 Years Prior to Closure
4.	Corrective Action	Submit a technical report with statistical analyses of groundwater monitoring data that summarizes the results of waste constituent remediation in the upper and lower alluvial groundwater zones and determines whether corrective action methods can cease, continue, be modified, or an alternative corrective action method needs to be implemented to remediate waste constituents.	28 February 2025 and every five years after
5.	Corrective Action	Submit an annual evaluation report of the efficacy and operational status of the corrective action program.	28 February

K. Other Provisions

1. The Discharger shall maintain at the Facility copies of this Order (including all attachments), the operative Monitoring & Reporting Program (i.e., MRP R5-2021- and any revisions thereto), and the SPRRs. These materials shall be made available to all operating personnel, who shall be familiar with the contents of such materials.

2. The Discharger shall comply with all applicable provisions of Title 27 (including those provisions not specifically referenced herein).

LIST OF ATTACHMENTS

Attachment A—SITE LOCATION MAP
Attachment B—FACILITY MAP
Attachment C—OFF-SITE WELL LOCATIONS
Attachment D—LINER PERFORMANCE DEMONSTRATION AND DESIGN

Standard Provisions and Reporting Requirements for Non-Hazardous Discharges of Waste Regulated under Subtitle D and/or Title 27, December 2015 Edition (SPRRs or Standard Provisions)

Information Sheet

Monitoring and Reporting Program R5-2021- (separate document)

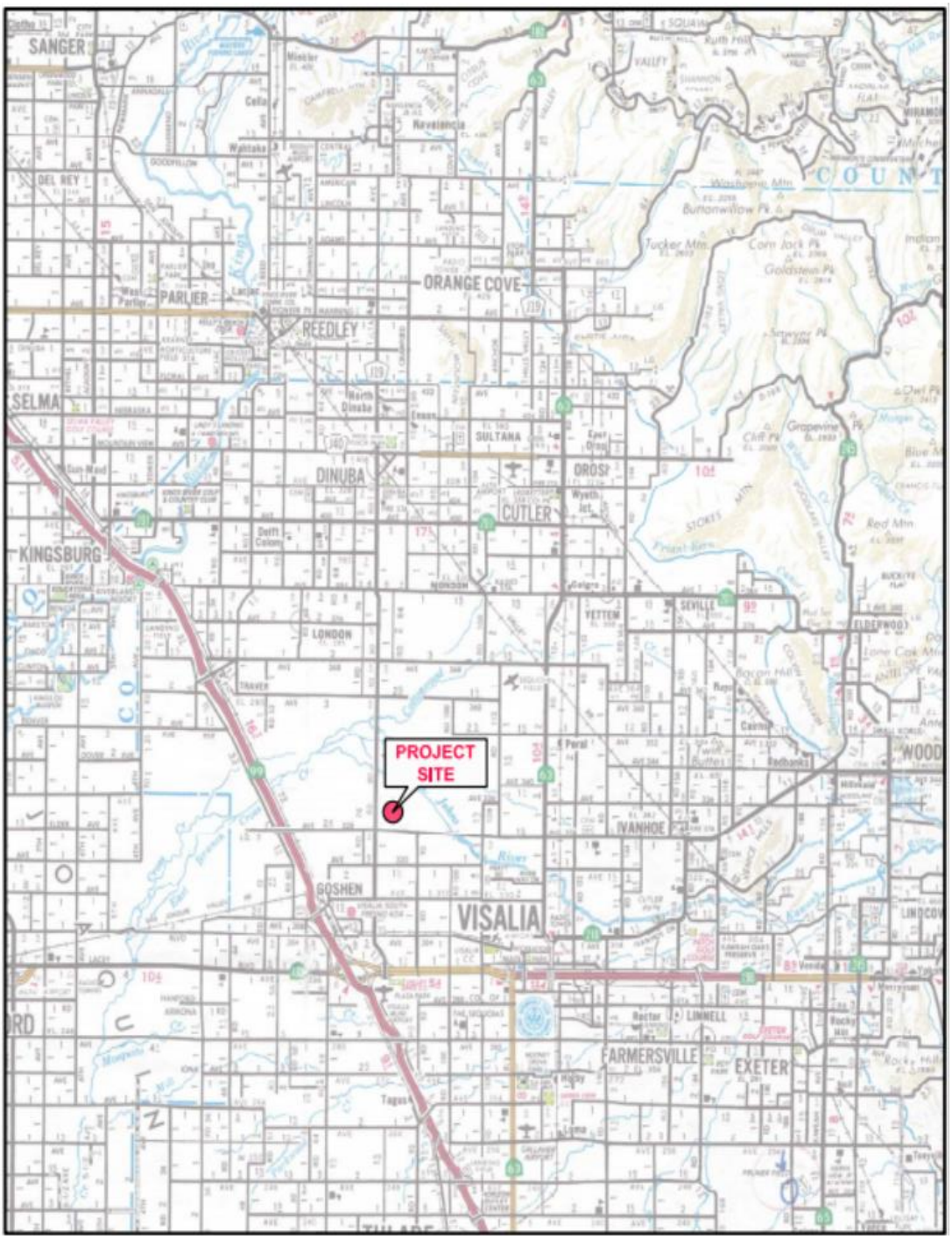
ENFORCEMENT

If, in the opinion of the Executive Officer, the Dischargers fail to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to $10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

ADMINISTRATIVE REVIEW

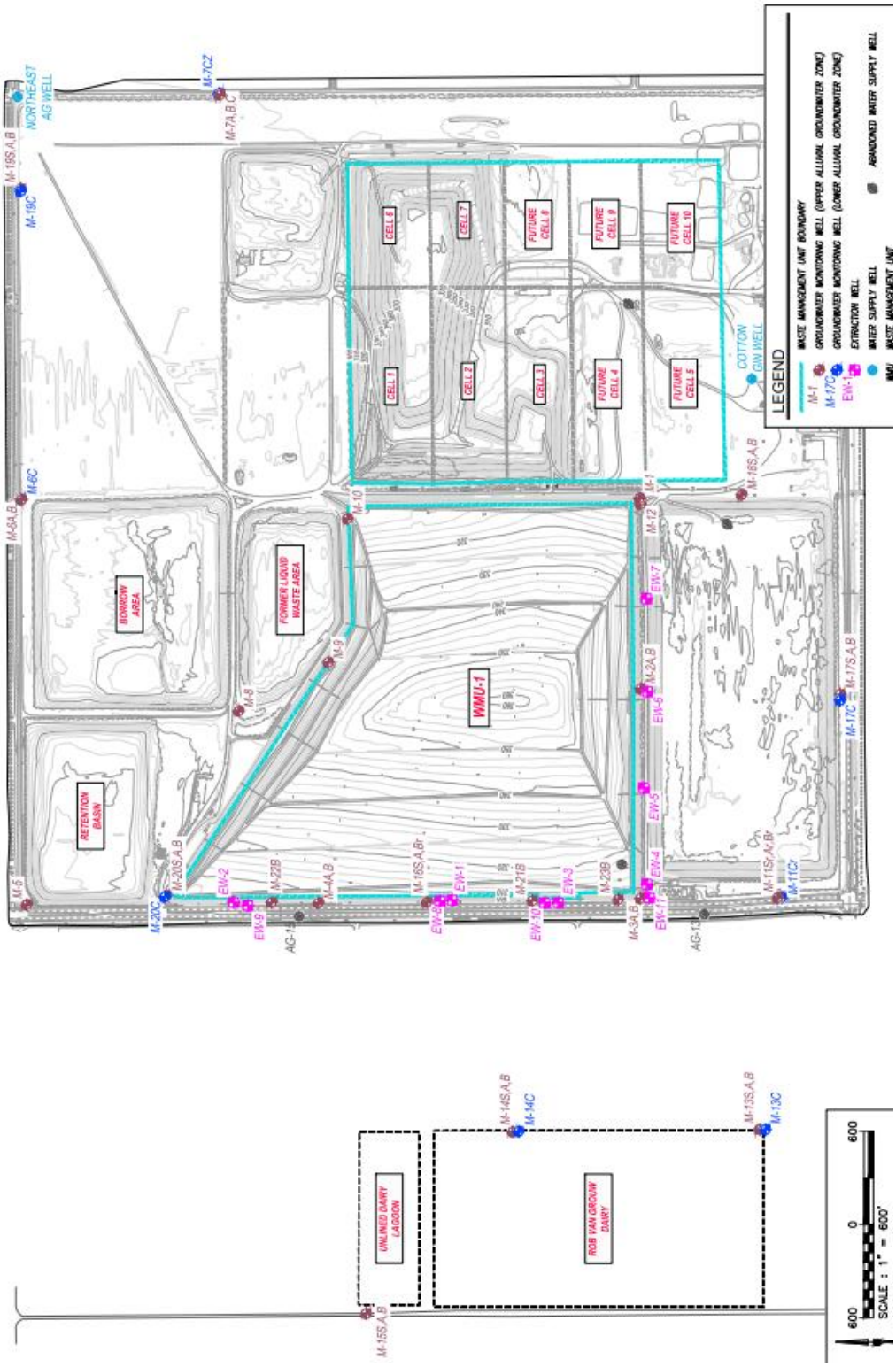
Any person aggrieved by this Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. To be timely, the petition must be received by the State Water Board by 5:00 pm on the 30th day after the date of this Order; if the 30th day falls on a Saturday, Sunday or state holiday, the petition must be received by the State Water Board by 5:00 pm on the next business day. The law and regulations applicable to filing petitions are available on the State Water Board website (http://www.waterboards.ca.gov/public_notices/petitions/water_quality). Copies will also be provided upon request.

ATTACHMENT A—SITE LOCATION MAP

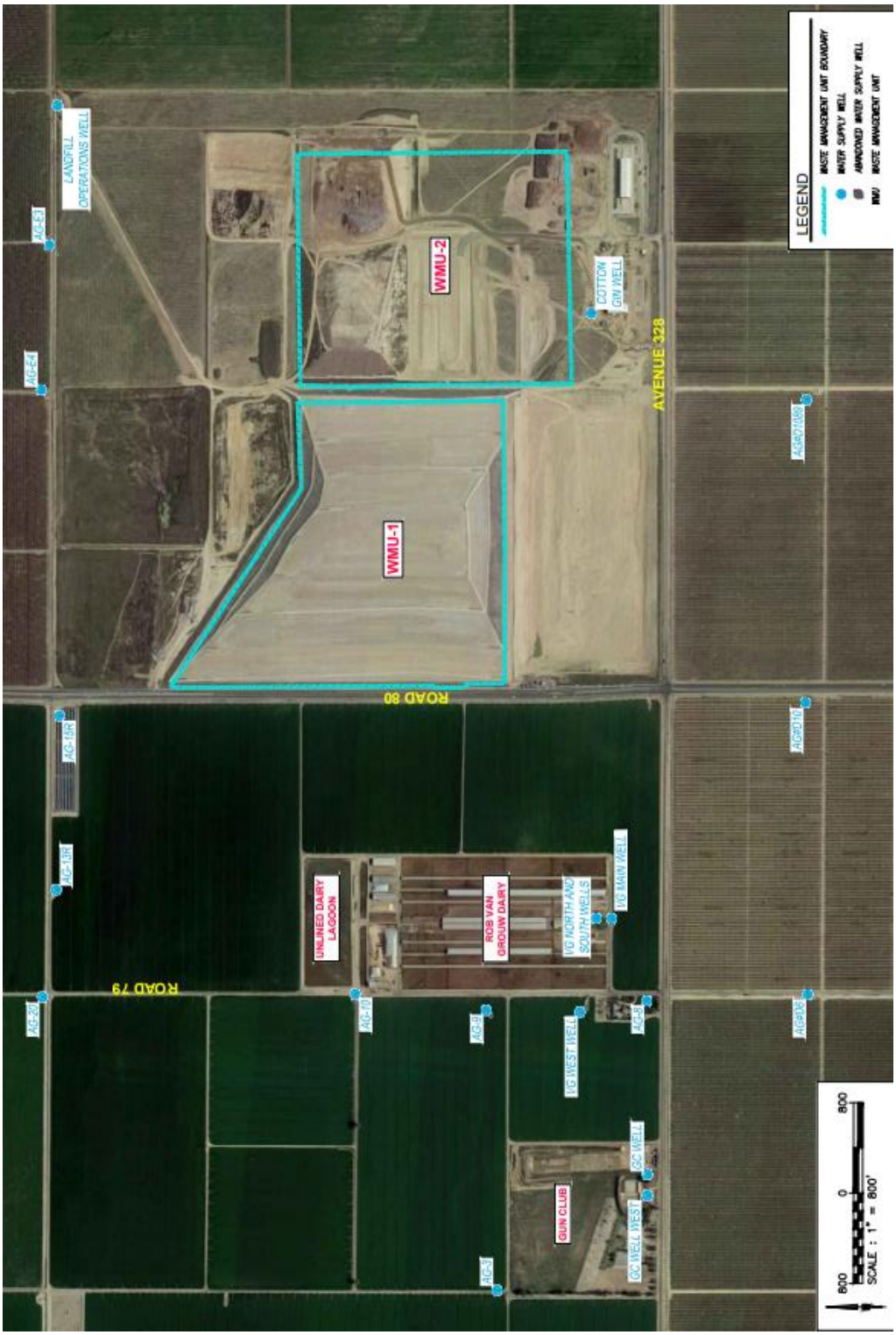


*Not to scale

ATTACHMENT B—FACILITY MAP



ATTACHMENT C—OFF-SITE WELL LOCATIONS



ATTACHMENT D— LINER PERFORMANCE DEMONSTRATION AND DESIGN

The reports entitled *Amended Design Report, Response to Comments, Visalia Landfill, Phase I Construction* and *Base Liner Demonstration Report, Visalia Landfill, Phase I Construction*, were submitted by the Discharger on 15 August 2002 and provided a performance demonstration for an engineered alternative liner design for WMU 2. The proposed liner system consisted of the following (in ascending order): a six-inch thick prepared subgrade; a secondary double non-woven geosynthetic clay liner (GCL); a secondary double-textured 60-mil thick HDPE geomembrane; a geocomposite secondary leachate collection and removal (LCRS); a one-foot thick protective clean soil layer; a primary double non-woven GCL; a primary double-textured 60-mil HDPE geomembrane, a geocomposite primary LCRS; and a two-foot thick soil operations layer.

The proposed liner system consisting of secondary and primary composite liner systems, each equipped with a GCL and a 60-mil HDPE geomembrane, meets the hydraulic conductivity liner requirement contained Title 27, §30320(e) for a Class III landfill. The proposed double-composite liner systems combined with a primary LCRS and a secondary LCRS provide for an overall containment system that meets the performance goal contained in §20310 of Title 27 for a Class III landfill.

The Discharger adequately demonstrated that construction of a Subtitle D prescriptive standard liner would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. The soils underlying the facility consist primarily of interbedded coarse sand, silty-sand, and sandy-silt. There are no known local sources of clay with low hydraulic conductivities to construct the prescriptive two-feet thick, 1×10^{-7} cm/sec secondary and primary liner systems. The Discharger performed an economic analysis to compare the costs of constructing the prescriptive double-composite liner system verses the proposed engineered alternative double-composite liner system. The results determined that constructing the prescriptive double-composite liner system would cost substantially more than the engineered alternative double-composite liner system. 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.

The proposed primary LCRS design for each expansion cell of WMU 2 consists of a geocomposite drainage layer placed on top of the primary geomembrane liner and extending to the top of each waste cell slope. A perforated HDPE main pipe surrounded by gravel exhibiting a hydraulic conductivity of one cm/sec or greater and wrapped in a geotextile filter fabric will be placed in a trench down the center of each waste cell. The HDPE perforated main pipe will drain to a three-foot deep sump located at the low point of each waste cell on the east and west sides of the WMU 2 footprint. Each sump will be fitted with an automated submersible pump housed in a riser pipe accessible from the

surface, and each sump will be filled with gravel. A two-foot thick clean soil operations layer will be placed over the primary LCRS. The proposed primary LCRS design for the Phase 1 expansion cell of WMU 2 was analyzed using the Hydrologic Evaluation of Landfill Performance (HELP) model. The results of the HELP analysis determined that the maximum leachate head on the liner system would be less than one inch and that the maximum daily leachate generation rate would be approximately 126 gallons per acre per day.

A secondary LCRS is proposed to monitor for leaks from the primary liner system of each expansion cell of WMU 2. The Discharger proposes to construct the secondary LCRS with a geocomposite drainage layer placed directly above the secondary geomembrane. Liquids collected in the secondary LCRS will drain via a gravel-filled trench down the center of each waste cell to a gravel-filled, dedicated secondary LCRS sump. A pan lysimeter will be installed under each LCRS sump.

This Order approves the Discharger's proposed liner system for future cells, which is re-summarized below. This Order also requires that the Discharger submit design plans and construction quality assurance (CQA) plans for each new cell or cells for Executive Officer review and approval.

<u>Secondary Liner Components (in ascending order)</u>

-Prepared subgrade

-GCL

-60-mil HDPE geomembrane

-Geocomposite drainage layer

-One-foot thick soil layer (clean fill)

<u>Primary Liner Components (in ascending order)</u>

-GCL

-60-mil HDPE geomembrane

-Geocomposite drainage layer

-Two-foot thick soil operations layer

STANDARD PROVISIONS & REPORTING REQUIREMENTS

Non-Hazardous Discharges of Waste Regulated under Subtitle D and/or Title 27, December 2015 Edition

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 all 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***:

i. The data contains two or more analytes that equal or exceed their respective MDLs; or

ii. 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)]:

i. 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.

ii. **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)].

i. 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.

ii. **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 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 initial 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:

i. The authorization is made in writing by a person described in a, b, or c of this provision;

ii. 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

iii. 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)].

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)]. [paste SPRRs here]

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

[TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER R5-2021-####
FOR
COUNTY OF TULARE
VISALIA DISPOSAL SITE
TULARE COUNTY

INFORMATION SHEET

The County of Tulare (hereafter Discharger) owns and operates the Visalia Disposal Site (Facility) at the intersection of Road 80 and Avenue 328 about seven miles northwest of the City of Visalia. The Facility has also been referred to as the Visalia Municipal Solid Waste Landfill. The Facility contains one closed, unlined WMU that covers 127 acres (WMU 1) and one lined 115- acre expansion WMU (WMU 2). The California Regional Water Quality Control Board (Central Valley Water Board) adopted Waste Discharge Requirements Order R5-2003-0146 (Order R5-2003-0146) on 5 September 2003, which classified WMUs 1 and 2 as Class III landfills as defined in Title 27, California Code of Regulations, Section 20005 et seq. (hereafter Title 27), that accepts or accepted municipal solid waste. This Order revises the existing WDRs to provide for operation of WMU 2, construction of additional cells within WMU 2, post-closure maintenance of WMU 1, and the continuation of the previously approved corrective action program.

Groundwater underneath the Facility is first encountered between approximately 67 and 110 feet below ground surface (bgs). Groundwater elevations in the upper alluvial groundwater zone during the 1st and 2nd quarter of 2020 periods ranged from approximately 206 to 231 feet mean sea level (MSL) and 207 to 227 feet MSL, respectively. Groundwater elevations in the lower alluvial groundwater zone ranged from approximately 190 to 230 feet MSL and 177 to 228 feet MSL, respectively.

The first encountered groundwater is unconfined. The depth to the first encountered groundwater fluctuates seasonally. Four distinct hydrostratigraphic units (S, A, B, and C) have been identified beneath the Facility. The uppermost units (S, A, B) are termed the upper alluvial groundwater zone, which is unconfined and extends from the water table to about 180 feet bgs. Directly beneath the upper alluvial groundwater zone is a 30-foot thick, low resistivity, hard-clay and silt zone that the Discharger considers being the E-clay. According to the Discharger, the low resistivity zone extends from 180 to 210 feet bgs and is laterally continuous. Directly beneath the low resistivity layer is what the Discharger terms the lower alluvial groundwater zone, which is confined or semi-confined. The lower alluvial groundwater zone extends from the base of the E-clay (about 210 feet bgs) downward to the top of oxidized continental deposits (about 340 feet bgs). Underlying the lower alluvial groundwater zone is what the Discharger terms the deep groundwater zone.

WMU 1 has released volatile organic compounds (VOCs) to groundwater. These VOCs include the following: tetrachloroethylene (PCE); trichloroethylene (TCE); 1,1,1-trichloroethane (1,1,1-TCA); cis-1,2-dichloroethylene (cis-1,2-DCE); trans-1,2-dichloroethylene (trans-1,2-DCE); 1,1-dichloroethylene (1,1-DCE); 1,1-dichloroethane (1,1-DCA); 1,2-dichlorethane (1,2-DCA); vinyl chloride; chloroethane; chloroform; dichlorofluoromethane; di-isopropyl ether (DIPE); and trichlorofluoromethane. During the 1st semiannual 2020 monitoring period, most of these VOCs were detected in the upper alluvial groundwater zone and only few (dichlorofluoromethane, PCE, and TCE) were detected in the lower alluvial groundwater zone.

Historically, the VOCs migrated from the upper alluvial groundwater zone into the lower alluvial groundwater zone as a result of two agricultural supply wells (AG-13 and A-15) and the landfill supply well that were screened across the E-Clay and into both groundwater zones. Both AG-13 and AG-15, along with the landfill supply well, have been properly destroyed. VOCs also migrated off-site beneath the Van Grouw Dairy whose wells are used as off-site CAP wells. However, VOCs have not been detected in these wells since October 2018.

In accordance with Cleanup and Abatement Order 99-718, the Discharger completed an evaluation monitoring program (EMP) and establish a corrective action program (CAP). The EMP delineated the lateral and vertical extent of the VOC plume. The Facility's CAP consists of two separate corrective action measures (CAM) along the southern and western boundaries of WMU 1 to address groundwater impacts. The Southern CAM uses in-situ bioremediation methods, which consists of the injection of HRC-x® into the uppermost saturated zone. The Western CAM consists of a groundwater extraction and treatment system. The CAP is ongoing.