CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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

ORDER INFORMATION

Order Type(s):	Waste Discharge Requirements (WDRs)
Status:	TENTATIVE
Program:	Title 27 Discharges to Land
Region 5 Office:	Sacramento (Rancho Cordova)
Discharger(s):	Stanislaus County, Dept. of Environmental Resources
Facility:	Fink Road Landfill
Address:	4000 Fink Road, Crows Landing, California 95313
County:	Stanislaus County
Parcel No.:	027-017-040-000
CIWQS ID:	224472
Prior Order(s):	73-108, 88-038, 90-269, 94-257, 98-184, 5-01-207, R5-2004-0158, & R5-2008-0144

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 XX October 2021.

PATRICK PULUPA,
Executive Officer

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GLOSSARY

ACW	Asbestos Containing Wastes (> 1% friable asbestos by weight)
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 Sacramento and San Joaquin River Basins*
bgs	Below Ground Surface
BPTC	Best Practicable Treatment and Control
C&D	Construction and Demotion Wastes
CalRecycle	California Department of Resources Recycling and Recovery
CAP	Corrective Action Program
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CEQA Guidelines	CCR, Title 14, section 15000 et seq.
CFR.	Code of Federal Regulations
CHSC	California Health & Safety Code
COCs	Constituents of Concern
C-Soil	Contaminated Soil
CQA	Construction Quality Assurance
DEIR	Draft Environmental Impact Report
DMP	Detection Monitoring Program

GLOSSARY

DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EMP	Evaluation Monitoring Program
Existing WMU	Units permitted/operated on or before 27 November 1984 per Title 27, section 20080(d)
Existing MSWLF	MSWLF unit operating before Subtitle D federal deadline (typically 9 October 1993).
FCPMP	Final Closure and Post-Closure Maintenance Plan
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
GCL	Geosynthetic Clay Liner
HDPE	High-Density Polyethylene
Hazardous Waste	Waste defined as hazardous under Title 22, CCR
Inert Waste	Solid waste defined as inert in Title 27, section 20230(a)
JTD	Joint Technical Document
LCRS	Leachate Collection and Recovery System
LEA	Local Enforcement Agency
LFG	Landfill Gas
MCE	Maximum Credible Earthquake
MDB&M	Mount Diablo Base and Meridian
MDL	Method Detection Limit
µg/L	Micrograms per Liter

mg/L	Milligrams per Liter
MPE	Maximum Probable Earthquake
MSL	Mean Sea Level
MRP	Monitoring and Reporting Program
MSW	Municipal Solid Waste
MSWLF	Municipal Solid Waste Landfill
MW	Monitoring Well
NAVD88	North American Vertical Datum of 1988
New WMU	Units permitted/constructed and operated after 27 November 1984 per Title 27, section 20080(d)
New MSWLF	MSWLF unit constructed on or after Subtitle D federal deadline (typically 9 October 1993).
Nonhazardous Waste	Solid Waste defined as nonhazardous in Title 27, section 20220(a)
PCPMP	Preliminary Closure and Post-Closure Maintenance Plan
RCRA	Resource Conservation and Recovery Act
ROWD	Report of Waste Discharge
SPRRs	Standard Provisions and Reporting Requirements
STLC	Soluble Threshold Limit Concentration per Title 22, § 66261.24 (Table II)
Subtitle D	USEPA-promulgated MSW regulations under RCRA (see 40 C.F.R. part 258)
Subtitle D Effective Date	Subtitle D Promulgation Date (23 October 1991)
Subtitle D Federal Deadline	Subtitle D Compliance Date (23 October 1993)

GLOSSARY

Title 22	California Code of Regulations, Title 22
Title 23	California Code of Regulations, Title 23
Title 27	California Code of Regulations, Title 27
TSCA	Federal Toxic Substances Control Act (40 CFR 763)
TTLC	Total Threshold Limit Concentration per Title 22, § 66261.24 (Table II)
TWW	Treated Wood Waste, as defined in Title 22, section 67386.4
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOCs	Volatile Organic Compounds
WDRs	Waste Discharge Requirements
WMU or Unit	Waste Management Unit
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 Stanislaus owns and operates the Fink Road Landfill (Facility), an active, 203-acre municipal solid waste (MSW) landfill facility located in Stanislaus County near the Interstate 5 freeway about six miles south of the City of Patterson and 4.5 miles west of the town of Crows Landing. The Facility is on a 219-acre parcel in Section 30, T6S, R7E and Section 19, T6S, R8E, MDB&M. See Finding 25 and Attachment A.

2. The 203-acre Facility is on a single, 219-acre parcel of land owned by the County of Stanislaus. The assessor's parcel number (APN) for the site is Stanislaus County APN 027-017-040-000. As owner and operator of the Facility, the County of Stanislaus (Discharger) is responsible for compliance with this Order.

3. This Order prescribes waste discharge requirements for construction, operation, monitoring, corrective action, closure, and/or postclosure maintenance of three classified landfill units under Title 27 regulations, as summarized in Table 1 below.

Table 1- Landfill (LF) Units

Unit	Fill Areas	Area (acres)	Containment System	Unit Class	Subtitle D	Primary Wastes	Status
LF-1	Cell 1	18.5	Unlined w/ Final Cover	III	Closure only	MSW	Closed
LF-2	Cell 1	6	Single Clay Liner	III	Closure only	MSW	Active
LF-2	Cells 2 - 7	84	Single Composite Liner	III	Applicable	MSW	Active
LF-2	Infill & Overlap	27	Single Composite Liner	III	Applicable	MSW	Future
LF-3	Cell 1	5	Double Clay Liner	II	Not Applicable	Boiler Ash	Active
LF-3	Cell 2	6	Single Composite Liner	II	Not Applicable	Boiler Ash	Active
LF-3	Cells 3 - 5	26	Double Composite Liner	II	Not Applicable	Boiler Ash	Active

4. This Order also prescribes waste discharge requirements for operation, monitoring, closure, and/or postclosure maintenance of two classified surface impoundment units under Title 27 regulations, as summarized in Table 2 below.

Table 2 - Surface Impoundment (SI) Units

Unit	Volume (MGal)	Containment System	Unit Class	Wastes	Status
SI-1	5.0	Double-lined	II	LF-3 leachate	Active
SI-2	5.8	Double-lined	II	LF-2 leachate	Active

Materials Accompanying this Order

5. The following documents are attached to this Order and incorporated herein:

Attachment A—Location Map
Attachment B—Area Map
Attachment C—Site Map
Attachment D—Perimeter Gas Monitoring Probes & LFG Controls
Attachment E—Groundwater Monitoring System
Attachment F—Surface Impoundment, Unsaturated zone (Soil Pore Water), & Leachate Monitoring
Attachment G—Authorized Waste Discharges
Attachment H—Conditionally-Approved Final Closure Designs
Attachment I—Preliminary Closure Grades
Attachment J—Approved Landfill Liner Designs
Attachment K—Surface Water Monitoring
Attachment L—Infill and Vertical Expansion Project

Standard Provisions and Reporting Requirements, December 2015 Edition (MSW Landfill SPRRs)

Standard Provisions and Reporting Requirements, April 2016 Edition (Industrial SPRRs)

Information Sheet (including Attachment IS-A and Attachment IS-B)

6. Also attached and incorporated as part of this Order is the separately issued Monitoring and Reporting Program R5-2020-XXXX (MRP), which sets forth the approved Water Quality Protection Standard (WQPS). (Title 27, § 20390 et seq.) Compliance with the operative MRP (including subsequent amendments) is required under this Order.

7. The Facility was previously regulated under WDR Order R5-2008-0144. On 23 August 2019, the Discharger submitted a revised JTD describing significant changes at the Facility since 2008 and plans for vertical expansion, including, but not limited to, the following information:

   a. Construction of three additional landfill modules (LF-2 Cells 5 & 6 and LF-3 Cell 4);

   b. A plan for infill and vertical expansion of LF-2 (construction estimated to begin in 2027) that would extend the estimated active life of the Facility by 27 years;

   c. An updated PCPMP reflecting preliminary plans for landfill closure after lateral and vertical expansion of LF-2;

   d. Updated slope stability analysis and pipe hydraulics and loading calculations for the proposed infill and vertical expansion of LF-2;

   e. Updated monitoring data collected under previous WDRs since 2008;

   f. An updated WQPS Report;

   g. Financial assurance cost estimates and funding for post-closure maintenance and corrective action; and

   h. Updated Facility maps and related information showing the existing landfill gas (LFG) extraction system, monitoring wells and other site improvements implemented since the adoption of previous WDRs in 2008.

   These revised WDRs prescribe Title 27 requirements applicable to the Facility based on information in the JTD and project files and by consulting relevant online sources, including government websites (e.g., CalRecycle, DWR, USGS and FEMA), for pertinent site information.

8. On-site facilities include the landfill and surface impoundment units; access roads; precipitation and drainage controls, including a sedimentation pond; erosion controls; leachate collection systems; a LFG extraction system and flare station; monitoring wells/probes, and various other landfill facilities. See Attachment C—Site Map.

Wastes & Unit Classifications

9. One or more of the landfill units at the Facility (i.e., LF-1 & LF-2) accepted MSW (i.e., household waste) on or after 9 October 1991, the effective date of Subtitle D regulations and are therefore subject to Subtitle D in whole or in part. Title 27

regulations implement Subtitle D through SWRCB Resolution 93-62, which adopted portions of Subtitle D necessary to comply with federal law.

10. These WDRs continue the Title 27 unit classifications of previous WDRs as listed in Table 1 and Table 2 and further described below. See Findings 11, 13 and 18.

11. Constructed in 1971, unlined LF-1 is an existing, Class III landfill unit under Title 27 regulations.[1] LF-1 is also an "existing MSWLF" unit under Subtitle D regulations because it operated prior to the Subtitle D federal deadline.

12. LF-1 historically accepted inert and nonhazardous wastes consisting primarily of MSW, commercial wastes and C&D from communities in western Stanislaus County. The waste stream also included treated medical wastes. About 6,000 tons/year of waste was discharged to LF-1 over its active life. In June 1993, upon start-up of LF-2, LF-1 ceased accepting wastes and in 1997 was closed with a Title 27-compliant final cover.

13. Constructed beginning in 1993, LF-2 currently consists of six cells, of which five (Cells 2 – 6) were constructed with a Subtitle D composite liner and one (Cell 1) was constructed with a single clay liner. One additional compositely lined LF-2 cell (Cell 7) is planned for future construction. LF-2 will also include compositely lined infill and unit overlap areas associated with the proposed infill and vertical expansion project estimated to begin in about 2027. See Finding 60 and Attachment L— Infill and Vertical Expansion Project.

14. LF-2 is a new, Class III unit under Title 27 and, given that it consists of pre (Cell 1) and post (Cells 2 – 7) Subtitle D Federal Deadline MSWLF footprints, a lateral expansion MSWLF unit under Subtitle D.[2] Also, since LF-2, Cell 1 was not constructed with a Subtitle D composite liner, it cannot accept MSW, including MSW leachate drainage from adjacent fill areas. See Discharge Specification A.5.

15. LF-2 historically accepted the same types of wastes as LF-1 (i.e., MSW, C&D and treated medical wastes), as well as commercial, industrial, and agricultural wastes. Most of these wastes were co-disposed of with the MSW, except for

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1. Although LF-1 is unlined, soils underlying the site have sufficient clay content and low enough permeability to meet Class III standards. LF-1 was also closed with a Title 27 final cover, which constitutes its principle containment system. See Findings 23 and 75.

2. LF-2 may alternatively be considered either two separate units under Subtitle D (i.e., existing MSWLF and MSWLF lateral expansion unit).

where special handling was required. See Finding 70. LF-2 is still operating and will close upon completion of the proposed vertical expansion project (estimated to occur in 2050). See Finding 71. Until then, the Discharger proposes to continue discharging MSW and non-MSW to LF-2 consistent with past operations.

16. The Discharger also proposes to continue discharging asbestos-containing wastes (ACW) to LF-2 Cells 4, 5, 6 and 7. Classified as a non-RCRA hazardous waste under Title 22 regulations. ACW does not pose a threat to groundwater quality and, per CHSC section 25143.7, may be discharged to a landfill if specifically authorized under its WDRs and handled and disposed of in accordance with applicable statutes and regulations.[3] These WDRs allow ACW to be discharged to LF-2 as proposed, provided that it is specially handled in accordance with applicable solid waste regulations so as not to be disturbed after disposal. See Finding 70 and Discharge Specifications B.1 and B.6.

17. LF-2 also accepts treated wood waste (TWW) per Title 22, section 67386.11, which allows it to be discharged to a landfill provided that such discharge is limited to Subtitle D compositely-lined units/cells and the waste is handled and disposed of in accordance with CHSC sections 250150.7 and 25143.1.5; Title 22 section 67386.3; and Title 27. See Discharge Specifications B.1 and B.3 and the Landfill SPRRs.

18. LF-3, a non-Subtitle D, Class II landfill under Title 27, has been in operation since 1988. LF-3 currently consists of four cells (Cells 1 through 4), with one additional cell (Cell 5) planned for future construction. Cell 1 is a single clay-lined cell, Cell 2 is a single compositely lined cell, and Cells 3 and 4 are double compositely lined cells. Future Cell 5 will also be double compositely lined. All cells are/will be operated as boiler ash monofills, as described in Finding 19.

19. Waste discharges to LF-3 have been historically limited to boiler ash generated by an offsite waste-to-energy (WTE) Plant immediately southwest of the Facility. The WTE Plant, owned and operated by Covanta Stanislaus Inc., imports commercial and industrial waste from high technology companies in the Silicon Valley. The boiler ash typically contains soluble metals at concentrations exceeding water quality objectives, rendering it a designated waste under Title 27 regulations. Some of the ash is also Title 22 hazardous (i.e., contains concentrations of soluble and/or total metals (e.g., cadmium and lead) exceeding

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3. Such laws and regulations include, but are not limited to, the federal Toxic Substances Control Act (15 U.S.C. §2601 et seq.) and federal Clean Air Act (42 U.S.C. § 7401), including regulations thereunder; and Title 14, Division 7, Chapter 3.5.

the TTLC or STLC). The hazardous boiler ash is discharged to LF-3 under an exemption (approved by DTSC in 1990) that allows the waste to be managed and discharged to a landfill as a Title 22 "nonhazardous" waste if authorized under WDRs issued by the Water Board. The Discharger proposes to continue discharging boiler ash from the WTE to LF-3. No other wastes are proposed for discharge to LF-3.

20. Surface Impoundments SI-1 and SI-2 are new, Class II WMUs under Title 27 regulations.[4]

21. SI-1 was constructed in 1988 to store and dispose of (through dry season evaporation) leachate flows from LF-3 and any liquid recovered from LF-3's LCRS. In 1998, SI-1 was re-constructed to accommodate increased leachate flows from LF-3 development, increasing SI-1's capacity from 218,000 gallons to five million gallons. The containment system design was also modified to incorporate an approved engineered alternative liner design. See Finding 66.

22. SI-2 was similarly constructed in 1993 to store and dispose of (through dry season evaporation) leachate flows from LF-2, any leachate recovered from LF-2's LCRS, and any liquid recovered from LF-2's underdrain (historically installed beneath Cell 3 to control groundwater seeps). The containment system design of the unit is summarized Finding 67.

23. The lowest waste elevations at each landfill/cell are as follows:[5]

    a. LF-1: Unknown (Previous WDRs required 20 feet of separation when unit constructed). See Finding 43.

    b. LF-2: 259 feet MSL (Cell 1), 254 feet MSL (Cell 2), 252 feet MSL (Cell 3), 246 feet MSL (Cell 4), 248 feet MSL (Cell 5), 244 feet MSL (Cell 6) and 287 feet MSL (future Cell 7).

    c. LF-3: 254 feet MSL (Cells 1 & 2), 254 feet MSL (Cell 3), 257 feet MSL (Cell 4) and 257 feet MSL (future Cell 5).

    See Information Sheet, Attachment IS-B—Landfill 1 & 2 Base Grades.

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4. Title 27 surface impoundments are not subject to Subtitle D regulations.

5. Lowest waste elevation at each cell corresponds to LCRS sump or, if not constructed with a sump, the toe of each cell's LCRS where it is plumbed for drainage.

24. Previous WDRs required that the Discharger monitor leachate quality and flows from each landfill cell to their corresponding surface impoundments. Leachate monitoring results for the site generally indicate LF-3's active cells (1, 2 and 3) generate a much stronger (i.e., more saline) leachate than those at LF-2. For example, over the past three years (2017 – 2019), the concentrations of TDS and chloride detected in LF-3 leachate averaged about 155,000 mg/L and 65,000 mg/L, compared to 3,090 mg/L and 1,055 mg/L at LF-2. Annual leachate flows at LF-2 ranged from about 420 gallons (Cell 1) to about 158,000 gallons (Cell 5) and averaged about 40,000 gallons per cell. LF-3 averaged about 232,000 gallons. Annual average leachate flow rates at LF-2 and LF-3 ranged up to about 433 gpd (LF-2, Cell 5) and 1,400 gpd (LF-3, Cell 3) respectively with corresponding averages of about 130 gpd (LF-2) and 700 gpd (LF-3) for the units as a whole.

Site Description

25. The Facility is on a low hill in the eastern foothills of the Diablo Mountains (part of the Coast Range) overlooking the San Joaquin Valley floor to the north, east and south. The geographic coordinates of the site are Latitude 37.388° north, Longitude -121.136° west. See Attachment A and Attachment B.

26. To the west is an intermittent stream draining north to the valley floor. Site elevations generally range from about 240 feet MSL to about 360 feet MSL. The Valley floor in the area (200 feet MSL) generally slopes to the east at about a 1.5 percent grade.

27. Land uses in the vicinity of the Facility include industrial (i.e., the landfill), irrigated agriculture, ranching, water conveyance (State Water Project), transportation corridor (Interstate 5 freeway) and former aviation (closed private-use airport formerly owned by NASA). The former airport area, now owned by Stanislaus County, is planned for future commercial space development. See Attachment B—Area Map**.**

28. The Facility is not within a 100-year flood plain based on FEMA's online Flood Insurance Rate (FIRM) Map for the area.[6]

29. The Facility receives an average of about 10 inches of precipitation per year based on historical data for DWR's Patterson Station approximately five miles north/northeast of the site. The 100-year, 24-hour and 1,000-year, 24-hour

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6. Based on FIRM Map No. 06099C0745E for Stanislaus County, Community Panel No. 060384, updated on 26 September 2008. See https://msc.fema.gov/portal.

precipitation events for the site are about 2.6 inches and 3.2 inches.[7] The mean pan evaporation rate is about 54 inches per year (6.8 inches per month during the dry season and 2.2 inches per month during the wet season).[8] Average monthly evaporation typically exceeds average monthly precipitation 10 consecutive months (February through November) out of the year.

30. An August 2019 DWR well survey identified at least 15 groundwater supply wells within a one-mile radius of the site, including six domestic supply wells, four agricultural/irrigation wells, and five livestock watering wells. The locations of these wells relative to the Facility are shown on Information Sheet Attachment IS-A—Supply Well Survey Map.

31. The regional geology of the eastern Diablo Mountains consists of Cretaceous Great Valley sequence marine sediments (e.g., shales) thrust up against a Franciscan subduction complex core (e.g., volcanic and metamorphic rocks) forming the Central Valley Thrust Fault Zone.[9] Along this topographic boundary between the Coast Range and San Joaquin Valley, sedimentary rocks of the Plio-Pleistocene Tulare and Turlock Lake Formations dip northeastward off the Range into the San Joaquin Valley where they flatten out. Overlying soils in this area generally consist of weathered bedrock on hills and alluvial deposits from San Joaquin River tributaries in valleys between the hills.

32. The site is underlain by terrace deposits to a maximum depth of about 60 feet bgs and then bedrock. The weathered terrace deposit generally consist of clay loam (e.g., interbedded clays, silts and sands) and gravelly clay loam soils to a

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7. Based on the Rainfall Depth Duration Frequency Data provided on DWR's Flood Emergency Response Information Exchange (FERIX) website for the Patterson Station (B00 6679 05). See http://ferix.water.ca.gov/webapp/precipitation.

8. Estimate based on historical data collected at DWR's Denair II California Irrigation Management Information System (CIMIS) Station about 20 miles northeast of the site.

9. The San Joaquin Valley is part of the Great Valley sedimentary basin, a 22,500 square mile structural trough comprising California's Central Valley. See Information Sheet.

maximum depth of 15 feet underlain by more sandy loam soil.[10,11] Permeabilities of the terrace deposits generally range from $1x10^{-5}$ cm/sec to 1×10^{-9} cm/sec. Bedrock underlying the site generally consists of Tertiary Fanglomerate siltstone to a depth of about 400 feet bgs, Tertiary Valley Springs Tuffaceous Sandstone to about 630 feet bgs, and Poverty Flat Sandstone to at least 1,000 feet bgs.

33. Seismic hazard analysis for the site included in the JTD indicates a design MCE of 6.9M occurring along the Great Valley Thrust Fault zone (Orestimba/GV07) approximately one mile east of the site with a corresponding median peak ground acceleration (PGA) of 0.52g. See Findings 63 and 64.

Unsaturated Zone

34. The unsaturated zone beneath the site generally consists of the weathered terrace deposits described in Finding 32. All landfill cells were constructed for at least five feet of separation from the highest anticipated groundwater elevation. See Findings 41 and 42.

35. Soil gas at the site is monitored by single and multi-tiered (i.e., shallow, middle and deep) gas monitoring probes installed along the landfill perimeter/property boundary. The present monitoring system is the result of an August 2009 upgrade to comply with Title 27 solid waste regulations that included decommissioning of previous probes except for GP-2 and GP-3. The upgraded network includes 12 multi-tier soil gas monitoring probes (GP-1R, and GP-4 through GP-14) along the perimeter of the site and three additional dual

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10. Surface soils at the site have been classified as Damluis and Calla-Carbona Complex clay loam alluvial soils. See 2002 U.S. Department of Agriculture, NaturalResources Conservation Service, Soil Survey of Stanislaus County, California, Western Part (CA642).

11. A May 2017 geotechnical investigation conducted along the site perimeter confirmed interbedded layers of silt, clay, and sand to at least 60 feet bgs. The upper layers were primarily comprised of silt and clay with the deeper layers more sandy. See March 2018 *Geotechnical Analysis Report for Infill and Vertical Expansion, Fink Road Landfill*, prepared by Golder Associates, Inc.

completion probes GP-15, GP-16, and GP-17 installed near the WTE plant in March 2018.[12] See MRP Table 6 and Attachment D: Gas Monitoring & Controls.

36. Quarterly soil gas monitoring conducted under the Facility's Solid Waste Facilities Permit indicates that all perimeter soil gas probes at the site have been at or near non-detect levels for methane for several years. The maximum methane concentration detected in the Fourth Quarter 2019, for example, was 0.3 percent by volume. No VOC sampling of the probes has been historically conducted at the site. The MRP under these WDRs requires that the Discharger conduct quarterly monitoring for specified field gases and VOC sampling as warranted based on levels of total organic vapors. See MRP Section B.3.a.ii.

37. No soil pore water monitoring devices were historically installed beneath unlined unit LF-1 (the unit pre-dates Chapter 15, Article 5 regulations adopted in 1991) and retrofitting the unit with vadose zone monitoring devices is not technically or economically feasible. As such, LF-1's soil pore gas and groundwater monitoring systems provide the earliest detection of a release from the unit. See Title 27, section 20415, subdivision (d)(5). See Attachment D and MRP Table 6.

38. The unsaturated zone soil pore liquid monitoring network for the other units at the Facility generally consists of lysimeters installed beneath landfill cells and/or LCRS sumps and their associated background monitoring points/devices. The system also includes pan lysimeters installed beneath the subdrain at SI-1.

39. Impacted liquid historically detected in some of the lysimeters, primarily those associated with non-compositely lined landfill cells, has been adequately addressed through repairs and other corrective action measures. See Attachment F and MRP Table 8 and Table 9 .

Surface & Groundwater Conditions

40. Surface drainage for the northern quarter of the site is to an intermittent stream draining north to the South Fork of Little Saldo Creek, a tributary of the San Joaquin River. The remaining three quarters of the site drains to the east to an existing sedimentation basin. The basin is connected to a closed conduit that runs under Interstate 5 and the California Aqueduct. Stormwater discharges through this conduit only when the existing stormwater basin capacity is reached. From the conduit stormwater discharges toan open channel to Crow Creek, a tributary of the San Joaquin River. Both drainages are in the Delta-Mendota Canal Hydrologic Unit (541.10) of the San Joaquin River Basin.

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12. See October 2009 technical report *Construction Observation Report for the Installation of Landfill Gas Perimeter Probes at the Fink Road Landfill*.

41. The uppermost aquifer beneath most of the site begins at depths ranging from about 12 to 94 feet bgs. Isolated perched zones may also exist in some areas above the water table. Individual monitoring well groundwater elevations fluctuate from 15 feet to little or no seasonal variation. Monitoring Well MW-23P was installed to monitor groundwater existing in a perched zone along the western perimeter of LF-3. Groundwater elevations generally range from about 194 feet MSL (SE corner of site) to about 262 feet MSL (SW corner of site).

42. With the exception of the southern portion of the site in the area of LF-3 and the surface impoundments, groundwater flows to the northeast at a gradient of about 0.018 ft/ft. Along the southern part of the site at LF-3, groundwater flows to the east at a gradient of about 0.030 ft/ft, and north of LF-3 (Cells 1-3) in the area of SI-1 and SI-2, groundwater flows to the southeast at a gradient of about 0.28 ft/ft. Corresponding groundwater velocities are estimated to range from about 22 ft/yr in the area of LFs-1 & 2, 34 ft/yr in the area of SI-1 & SI-2, and 37 ft/yr in the area of LF-3.

Groundwater Separation

43. Title 27, section 20240(c), a siting requirement, requires that existing landfill units be operated to maintain at least five feet of separation between the lowest elevation of landfill wastes and highest anticipated elevation of groundwater. Exemptions from this prescriptive standard may be approved upon demonstration of infeasibility provided adequate separation is maintained per Title 27, sections 20080(c) and 20260(a). See Facility Specification C.2

44. Previous WDRs (Order 73-108) required at least 20 feet of groundwater separation at unlined unit LF-1 when it was constructed/developed and (Orders 88-038, 90-296 and 94-257) 10 feet of separation at Cells 1 & 2 at both LF-2 and LF-3. Cells constructed under subsequent WDRs (Orders 98-184, r5-2004-0158 & r5-2008-0144), including LF-2, Cells 3 - 6 and LF-3, Cells 3 & 4 were required to be constructed with at least five feet of separation. Monitoring Well MW-23P was installed to monitor groundwater existing in a perched zone along the western perimeter of LF-3.

    These WDRs require that the Discharger maintain at least the prescriptive minimum five feet of groundwater separation at all units absent Executive Officer approval of alternative minimum separation. In addition, the MRP under these WDRs requires that the Discharger estimate and report groundwater separation at the lowest waste elevations of each landfill cell. See Finding 23, Facility Specification C.1 and C.2 and MRP Section C.1.e0.

45. In some areas (i.e., both onsite and offsite), LF-1 and LF-2 are monitored contiguously, including upgradient and along the northeastern site perimeter. See MRP Sections B.1.a (Table 1) and B.2.a (Table 2). Title 27 regulations generally

require that WMUs have separate groundwater monitoring systems and a separate Point of Compliance along the down gradient perimeter of each unit, absent an approved, site-specific demonstration for a shared monitoring system and/or Point of Compliance. In general, the Discharger is required to demonstrate that the units are contiguous and separate monitoring of each unit is not feasible. See Title 27, sections 20405 (b) and 20415(e)(3). The Discharger is also typically required to demonstrate that the proposed contiguous monitoring program meets Title 27 performance standards for monitoring.

These WDRs require that the Discharger monitor LF-1 and LF-2 separately, to the extent feasible, until such time as lateral expansion of LF-2 requires removal of monitoring wells between the units. The WDRs also require the Discharger to monitor the LF-1 and LF-2 contiguously in areas where separate monitoring is not currently feasible as well as after lateral expansion of LF-2 renders separate monitoring of the units unfeasible. See Monitoring Specification G.5.

Groundwater Monitoring

46. There are currently 27 groundwater monitoring wells at the site, including five upgradient wells along the western site perimeter (BGs 1 - 4 and MW-12); nine downgradient wells along the eastern site perimeter (MWs 13, 14, 18, 19, 25, 26, 27S, 27D, and 29); seven side-gradient wells along the southern site perimeter (16, 16A, 17, 20, 21, 24 & 31); two wells within the site interior between landfill units (MWs 9B and 22); three monitoring wells MW-23, MW-23P, and MW-30 along the western perimeter of LF-3; and one monitoring well MW-32 constructed within the footprint of future LF-3 cell #5. Other wells historically installed within the site perimeter have since been abandoned to make room for construction of new cells (e.g., MW-9, 9A, MW-10, MW-11, 28S & 28D). See Attachment E.

47. The Discharger is not currently proposing to install any additional wells at the site, however, these WDRs require that additional monitoring wells be installed at the following approximate locations, as feasible:

    a. Downgradient of LF-1 between LF-1 and LF-2, Cell 5;

    b. Upgradient of future LF-2, Cell 7;

    c. Downgradient of LF-3

    d. Upgradient of SI-2 between LF-2 and SI-2; and

    e. Downgradient of SI-2 north of SI-1.

    These WDRs include a time schedule for installation of the above wells and require that the Discharger submit a work plan for review and approval at least

60 days prior to installation or abandonment of groundwater monitoring wells. See Monitoring Specification G.9; MRP Sections B.1.a and B.1.b, and Standard Monitoring Specifications I.23 and I.24, SPRR.

48. Groundwater detection monitoring of constituents that can be evaluated statistically (i.e., general minerals and inorganic constituents naturally occurring in background) is conducted using an interwell approach (i.e., by comparison of downgradient sample results with concentration limits derived from statistical evaluation of historical upgradient data) in accordance with Title 27 regulations, while groundwater detection monitoring of non-statistical parameters (i.e., organic and inorganic constituents not naturally present in background) is conducted using a non-statistical, intrawell approach (i.e., by comparing of sample results from a given monitoring well with the method detection limit for that inorganic constituent). See MRP, Section D.2.

49. Sample collection and analysis is currently conducted in accordance with a 2014 Sample Collection and Analysis Plan submitted under previous WDRs.[13] These WDRs require that the Discharger submit an updated Sample Collection and Analysis Plan consistent with the requirements of this Order, including the MRP (and any future revision thereof). See Monitoring Specification G.8 and Standard Monitoring Specification I.7, SPRR.

50. Title 27 specifies the prescriptive requirements and performance standards applicable to monitoring data analysis and requires that such methods be implemented as follows:

    a. As specified in the existing MRP under the WDRs; or

    b. In accordance with a technical report (certified by an appropriately registered professional) documenting such methods, submitted to, and approved by, the Central Valley Water Board; or

    c. In accordance with any water quality data analysis software deemed appropriate for such use by either the Central Valley Water Board or State Water Resources Control Board (SWRCB).

    (See Title 27, § 20415, subds. (e)(7), (10).)

    These WDRs require that the Discharger submit a technical report (Monitoring Data Evaluation Methods Report) describing the statistical and nonstatistical

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13. See 14 February 2014 *Sampling and Analysis Plan, Version 3*, prepared by SCS Engineers.

data analysis methods used to evaluate background, detection and corrective action monitoring data at the site, including documentation of the software program used. The report may be submitted as part of the updated WQPS Report required under this order. See Finding 51, Monitoring Specifications G.6 and G.7, and Provision H.6.d.i.

51. Title 27, section 20390 requires that the Central Valley Water Board establish a Water Quality Protection Standard (WQPS) in the WDRs for each unit, including Constituents of Concern (COCs), Concentration Limits, Point of Compliance, and Monitoring Points.

In 2016, with Water Board staff approval, the Discharger installed four new background wells (BG-1 through BG-4) estimated to be sufficiently upgradient of the site so as to be free of any landfill influence. The wells were also installed to assess whether spatial variability of general minerals and other inorganic constituents historically detected at the site may be natural, and to calculate concentration limits for the site.

On 28 December 2018, the Discharger submitted a revised Water Quality Protection Standard (WQPS) Report using monitoring data from the new background monitoring wells.[14] To address the upgradient variability, the revised WQPS Report proposed separating and pooling background data into north (BG-1 & 2) and south (BG-3 & 4) groups using the Interwell Tolerance statistical method described in MRP, Section D.2. In a 19 April 2019 letter, Staff approved the report and proposed method for calculating concentration limits on the condition that the method by which the data was split into groups also be re-evaluated each year.

These WDRs incorporate the above approach but require that the annual WQPS Report updates be consistent with the requirements of this Order, including the need for an additional background well upgradient of future LF-2 Cell 7. See Finding 47.b, Monitoring Specification G.7, Provision H.6.d.ii and MRP Section D.2.c.

Groundwater Impacts and Corrective Action

52. Groundwater impacts including volatile organic compounds (VOCs) were first detected in MW-9 downgradient of LF-1 in 1991, indicating a release from the unit. VOCs detected consisted primarily of chlorinated VOCs, Freon

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14. Monitoring well MW-12 along the western perimeter of LF-1 was historically used to calculate concentration limits at the site but found to be too close to the landfill to resolve issues of spatial variability at the site.

compounds, and BTEX. Three of these VOCs exceeded drinking water standards, including 1,1-DCA, benzene, and methylene chloride. Maximum concentrations of these VOCs detected in MW-9 during 1997 were 9.0 µg/l, 1.3 µg/l and 24 µg/l respectively.

53. In 2006, five VOCs were detected in monitoring well MW-9 immediately downgradient of LF-1, including 1,1-DCA (1.0 µg/l), cis-1,2 DCE (1.4 µg/l), chlorobenzene (1.9 µg/l), chloroethane (0.6 µg/l) and methylene chloride (1.3 µg/l). Total VOCs detected were approximately 4.0 µg/l. Corrective action measures to address the release from LF-1 included closure of the unit in 1996 (described in Finding 75), and the implementation of LFG controls beginning in 1998. As of the Fourth Quarter 2019, the concentration of total VOCs detected immediately downgradient of LF-1 (i.e., in MWs-9, 9A and/or 9B) had declined to non-detect levels.

    During the third quarter 2020 no VOCs were detected in monitoring wells BG-1, BG-2, BG-3, BG-4, MW-12, MW-13, MW-14, MW- 16A, MW-18, MW-25, MW-29, and MW-31. Dibromochloromethane was detected above the PQL in MW-32; Freon-12 was detected above the PQL in MW-22, MW-26 (primary and duplicate samples), MW-27S; and cis-DCE was detected above the PQL in MW-26. The results were within the historical ranges, with the exceptions of cis-DCE and PCE, which were detected above the historical range in MW-26. No new VOCs were detected in groundwater samples collected during the third quarter 2020 sampling event, with the exception of trace concentrations of carbon disulfide in MW-23 and toluene in MW-32.

    Groundwater samples collected during the third quarter of 2020 were analyzed for the 5-year COCs. The following 5-year COCs were detected above the concentration limits: barium in MW-13, MW-14, MW-18, MW-25, and MW-26; chromium in MW-17, MW-19, and MW-29; nickel in MW-30 and MW- 32; selenium in MW-20, MW-23, MW-30, and MW-32; and TOC in MW-20, MW21, MW-22, MW-26, MW-30, and MW-32. No SVOCs were detected during the third quarter of 2020, with the exception of a trace concentration of diethyl phthalate in MW-29. No chlorinated herbicides or organophosphorus compounds were detected

54. Elevated concentrations of inorganic constituents have also been historically detected at the site, consisting primarily of general minerals. It is unknown to

what extent this spatial variability is natural or attributable to impacts from LFG and/or leachate from LF-1.[15]

55. Impacted liquid historically detected in lysimeters beneath LF-2, Cell 2; LF-3, Cells 1 & 2; SI-1 and SI-2 in the late 1990s was subsequently addressed through source control measures, including reconstruction of SI-1 (described in Finding 66); reconstruction of the LCRS for LF-3, Cells 1 & 2; and the implementation of LFG controls at LF-2. Since the implementation of these corrective action measure in the late 1990s, lysimeters at the site have been historically dry or un-impacted.

Landfill Gas Controls

56. Beginning in 1998, as part of a corrective action program to address the release from LF-1, the Discharger installed an LFG control system within the LF-1 footprint, including 22 vertical LFG extraction wells and associated facilities (e.g., collection piping, condensate traps, blower and flare station). The system started-up in 2002 and operates 24 hours per day and 7 days per week (24/7). In 2004, six additional LFG extraction wells were installed to the base of LF-1 to increase LFG extraction. The system was also connected to LF-2's LCRS (Cells 1 – 5) providing enough methane to run the flare 24/7.

In July 2019, the Discharger completed an extension of the system to LF-2, including installation of 37 vertical and 14 horizontal LFG extraction wells at LF-2, Cells 1 – 3. The work also included extension of LF-2's LCRS risers and modification of the LFG extraction system's main header pipe to include flows from LF-2. The expanded system started up in August 2019. See Attachment D: Gas Controls & Monitoring.

The MRP under these WDRs requires LFG monitoring at representative locations to monitor the effectiveness of the system. See MRP Section B.8.a.

WMU Design and Construction

57. LF-1 was constructed without a liner and LCRS.

58. The existing containment system for LF-2 was generally constructed as follows:

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15. In 2007, a study of arsenic concentrations in the area of the landfill concluded that natural background concentrations of arsenic ranged from non-detect up to about 4.42 µg/L.

a. Cell 1 was constructed with a Title 27 prescriptive clay liner (i.e., one foot thick, k ≤1 x 10^{-6} cm/sec) and a six-inch gravel LCRS.

b. Cell 2 was constructed with a prescriptive Subtitle D composite liner system including 60 mil HDPE geomembrane overlying two feet of compacted clay soil (k ≤1 x 10^{-7} cm/sec).

c. Cell 3 was constructed similar to Cell 2 except for the substitution of geosynthetic clay liner (GCL) as an approved engineered alternative design to the two-foot prescriptive clay layer.

d. Cells 4, 5 & 6 were constructed similar to Cell 3 with the addition of one foot of compacted clay beneath the GCL layer.

59. Landfill excavation slopes were graded to maximum of 2.0 H:1V or flatter. The base grades included 1.0 to 2.0 percent slopes along the floor and a minimum of 1.25 percent grade along leachate collection pipes. All existing LF-2 cells were constructed with a six-inch gravel LCRS overlain by a geosynthetic filter layer. Cells 1 and 6 were also constructed with a geotextile cushion layer beneath gravel LCRS. Future Cell 7 will also be constructed in accordance with the Cell 6 design, as approved under previous WDRs. See also Construction Specification D.3 and Attachment J: Approved Landfill Cell Designs.

Existing exterior side slopes range from about 2.5H:1V and 2H:1V (horizontal to vertical), and approximately 10 to 25 feet in height, throughout the site.

60. The LF-2 vertical expansion liner designs, including infill, LF-1, and LF-3 abutment/overlap areas will be as follows from top to bottom:

a. Infill Area (slopes less than 10%) –18-inch operations layer, 8 oz/sy nonwoven geotextile, 6-inch gravel LCRS and Subtitle D composite liner equivalent (60-mil HDPE/GCL)

b. LF-1 Top Deck: 1-foot operations layer, 8 oz/sy nonwoven geotextile, 6-inch gravel LCRS, 60-mil LLDPE and GCL (i.e., LF-2 containment system will incorporate LF-1's final cover vegetative cover layer in this area).

c. LF-1's Eastern Side Slopes: 1-foot operations layer, geocomposite, 60-mil LLDPE, GCL and 1-foot foundation layer (i.e., LF-2 containment system will incorporate LF-1's final cover vegetative cover layer in this area).

d. LF-3 Northern Side Slopes: 1-foot operations layer, geocomposite, 60-mil LLDPE, GCL, 1-foot minimum foundation layer (LF-2 containment system will constitute LF-3's final cover in this area).

All proposed excavation slopes and base grading for the Infill and Vertical Expansion areas will be consistent with previously approved LF-2 designs for Cells 6 and 7. See Attachment J.

61. The existing and proposed LCRS pipe network was evaluated to verify that the pipes will maintain capacity and structural integrity with the increased loading from the proposed Infill and Vertical Expansion. Based on these calculations, all of the existing and proposed LF-2 and LF-3 LCRS pipes are/will be adequately sized to handle twice the anticipated leachate volume and will maintain structural integrity.[16]

62. The containment system for LF-3 was generally constructed as follows:

    a. Cell 1 was constructed with a Title 27 prescriptive clay liner underlain by an additional one foot of compacted clay soil ($k \leq 1 \times 10^{-6}$ cm/sec) and overlain by an eight-inch gravel LCRS.

    b. Cell 2 was constructed with a Subtitle D prescriptive liner overlain by a six-inch gravel LCRS.

    c. Cells 3 and 4 were base lined with Subtitle D-equivalent primary and secondary composite liners (GCL substituted for clay layers) separated by a geosynthetic (geonet) LCRS/leak detection layer and overlain by a six-inch gravel LCRS layer. The excavation slopes were constructed with a primary composite liner overlain by two feet of sandy soil as the LCRS layer.

    Future Cell 5 will have the same design as Cells 3 and 4 above. All LF-3 cells were/will be constructed with a six-inch gravel LCRS overlain by a geosynthetic filter layer. Cell 1 was also constructed with a geotextile cushion layer underlying the LCRS. See Construction Specification D.4 and Attachment J.

63. Static slope stability analysis (two-dimensional limit equilibrium using the Slide software program) for the LF-2 vertical expansion project based on seismic hazardous analysis indicated stable interim and final cover slopes with a minimum static safety factor of 1.5. Pseudo-static analysis was also conducted using the same program to identify critical interfaces with the lowest yield accelerations (i.e., failure surfaces). Dynamic analysis was also conducted (using SHAKE91 software) to model the expected ground response

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16. The LCRS for LF-2 cells includes six-inch diameter, HDPE perforated pipes along the floor. The pipes have a minimum standard dimension ratio (SDR) of 11 to withstand anticipated waste loading.

(acceleration-time history). The results indicated stable slopes under design seismic conditions with a maximum expected permanent displacement of less than 6.5 inches compared to the EPA-recommended maximum of 12 inches. These WDRs require that the Discharger maintain the final cover slopes in this condition. See Post-Closure Maintenance Specification E.9.

64. All Class II and Class III units at the site were designed to withstand a design earthquake equal to the MCE per Title 27, Section 20370.

65. All classified WMUs at the site, including Class III units LF-1 and LF-2, were designed to withstand a 1,000-year, 24-hour storm event including top deck perimeter swales/berms, drop inlets/over-side drains; roadside ditches. The perimeter drains in the surface impoundment area drain to the unlined sedimentation basin in the southeast part of the site. See Attachment K: Surface Water Monitoring.

66. SI-1 was reconstructed in 1998 as a corrective action measure and to increase its capacity to handle leachate flows from LF-3. SI-1 was double-lined with an 80 mil HDPE primary liner overlying and an 80 mil HDPE/GCL secondary composite liner separated by a geosynthetic (geonet) leak detection layer.

    A subdrain was also constructed beneath the base of SI-1 to ensure adequate separation from high groundwater. The subdrain design consists of, from top to bottom, a one-foot thick gravel drainage layer and an 8 oz/ft^2 geotextile. Groundwater collected in the subdrain flows by gravity to a sump plumbed to a riser pipe. Groundwater from the sump is discharged to SI-1. The Discharger is also required to monitor the subdrain system in accordance with the requirements of unsaturated zone monitoring.

67. SI-2 was constructed similar to SI-1 except that the clay component of the secondary composite liner consisted of two feet of compacted clay ($k \leq 1 \times 10^{-6}$ cm/sec) rather than GCL.

Landfill Operations

68. Waste disposal operations at both active landfill units (i.e., LF-2 and LF-3) are conducted by the area fill method. The active face is approximately 100 feet in length by 100 feet in width. The slope of the active face is 4:1 or 25 percent. Lifts are placed in two-foot thick (minimum) lifts and compacted with approximately three passes (or more) with a landfill waste compactor.

69. MSW (and other wastes co-disposed of with MSW) are generally covered with at least 6 inches of compacted soil (i.e., daily cover) and/or alternative daily cover (ADC) at the end of each operating day to control moisture infiltration, vectors, fires, odor, blowing litter, and scavenging. The historical refuse to cover soil ratio

is 5:1. Sources of cover soil come from excavation of future cells and from an existing off-site stockpile west of the WTE plant. Boiler ash discharged to LF-3 in the west season is similarly handled (no daily cover is applied at LF-3 during the dry season).

The primary ADC method used in landfill operations at the site are tarps.[17] Other LEA-approved ADC materials currently used include composite or wood roofing shingles and wood byproducts from composting facilities (i.e. compost overages). These materials are generally used in places not covered with tarps. See Discharge Specification B.8.

70. Special handling procedures are employed for certain other wastes in accordance with applicable regulations. For hazardous and other wastes requiring special handling (e.g., asbestos, ash and medical waste), haulers are required to be informed and comply with applicable State and County handling procedures. Upon arrival at the landfill, the scale house attendant calls the active disposal area and informs staff that a waste requiring special handling has arrived. In the case of a dead animal carcass, for example, a hole is prepared in the existing active face for the placement of the waste. After unloading the waste into the hole, an equipment operator will back-fill the hole with other waste so as to reduce the potential for contacting the carcass with the heavy equipment. Similarly, ACW is disposed of in LF-2.

Boiler ash is transported by truck to LF-3. Due to quenching of the ash prior to discharge, the Discharger has implemented a load-checking plan to prevent the discharge of free liquid to LF-3.

Fill Sequencing

71. MSW is currently being placed in LF-2 Cells 5 and 6, which will be filled to an interim grade of approximately 350 feet MSL level with LF-2 Cells 1, 2, 3, and 4. Cells 6. 7 and the infill (i.e., LF-2 lateral expansion) areas between LF-1 and LF-2 and LF-2 and LF-3 will then be sequentially filled to the 350 foot MSL interim grade, After all these fill areas have reached interim grade, filling will commence across the surface of LF-2 including waste placement over LF-1 and LF-3 until final grades are reached in approximately 2050.

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17. The operator employs the Tarp-O-Matic system, including nine 40-foot by 100-foot tarps and a 100 ft. x 100 ft. pull tarp to cover the active face each day. At the end of each working day, a dozer hooks onto the Tarp-O-Matic or two dozers hook onto the pull tarp and lay tarps over exposed refuse. The tarps are removed each morning in the reverse manner to which they were placed.

72. The Discharger is currently operating in LF-3 Cells 3 and 4 which will be filled up to an elevation of approximately 400 feet and then partially closed to allow for LF-2 expansion over the northwest slope. LF-3, Cell 4 (constructed in February 2018) will begin receiving ash for disposal sometime in mid to late 2020 after which Cell 5, the last LF-3 disposal cell, will be constructed.

Landfill Closure

73. A landfill's containment system includes its base liner, and, after closure, its final cover. Title 27, section 20950, subdivision (a)(2)(A).1 states, in part:

> *Closure — for landfills . . . and surface impoundments closed as landfills, the goal of closure, including but not limited to the installation of a final cover, is to minimize the infiltration of water into the waste, thereby minimizing the production of leachate and gas. For such Units, after closure, the final cover constitutes the Unit's principal waste containment feature….*

74. The Title 27 prescriptive final cover designs for non-compositely and compositely lined landfills are outlined in Attachment H.

75. LF-1 was closed in 1996 with the Title 27 prescriptive final cover design described in Finding 74. In areas overlapped by LF-2 expansion, LF-3's partial final cover will consist of LF-2's side slope containment system (see Finding 60.d). Based on the fill volume estimates from Infill and Vertical Expansion base grading and final grading plans, both LF-2 and LF-3 are expected to reach capacity in 2050 and closed by 2052. The maximum area to be closed in 2052 will include about 121.1 acres of LF-2 and be about 38.2 acres of LF-3.

76. The JTD/PCPMP includes a preliminary plan to close the remainder of LF-3 (i.e., west slopes), and all of LF-2, with a contiguous final cover consisting of the following elements, from top to bottom:

    a. Erosion Resistant/Vegetative Cover Layer – One-foot vegetative cover soil or other material (e.g., cobble or gravel) capable of resisting foreseeable erosion.

    b. Drainage Layer (side slopes only) – Geocomposite drainage layer (need for this to be evaluated at time of final closure)

    c. Barrier Layer - minimum 40-mil LLDPE geomembrane

    d. Foundation Layer – Minimum two feet of foundation soil (unless lesser thickness demonstrated per Title 27) compacted to specifications.

    A conceptual grading plan for the contiguous final cover over the units is shown in Attachment I—Preliminary Closure Grades.

The above final cover design does not include a low hydraulic conductivity (LHC) layer and therefore does not meet the Title 27 prescriptive design for a Subtitle D landfill. These WDRs require that the Discharger submit a revised PCPMP for the landfill reflecting the Title 27 prescriptive standard design or a specified equivalent engineered alternative design that includes an LHC layer. See Closure and Postclosure Specification E.1.

77. The Central Valley Water Board is authorized to approve an engineered alternative to Title 27 prescriptive standards , provided that the Discharger demonstrate 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).

Landfill Post-Closure Maintenance

78. Title 27, section 20950, subdivision (a)(2) provides in relevant part that " *the goal of post-closure maintenance … is to assure that the Unit continues to comply with the performance standard of [Title 27, section 20950(a)(2)(A).1] until such time as the waste in the Unit no longer constitutes a potential threat to water quality…..*"

79. The PCPMP in the JTD included plans for post-closure maintenance and monitoring consistent with current site conditions and those after the proposed infill expansion, including final cover, drainage controls, leachate and LFG controls, and gas and groundwater monitoring systems.

80. The most recent aerial topographic survey of the facility was last completed on 1 September 2017. Consistent with Title 27 requirements, this Order requires that the Discharger complete and submit an aerial topographic survey of the site (including immediate surrounding areas) and iso-settlement map of the landfill final cover's LHC layer every five years. See MRP Section C.6; Standard Closure and Post-Closure Maintenance Specification G.22, SPRR and the MRP).

Cost Estimates and Financial Assurances

LFs-1, 2 & 3

81. The Discharger is required to demonstrate financial assurances for closure and post-closure maintenance to CalRecycle per Title 27, Section 22210(b) for all landfill units at the site (LF-1, LF-2 & LF-3) because each operated on or after 1 January 1988. The Discharger is also required to demonstrate financial

assurances to CalRecycle for corrective action for per 22220(b) for all three units because each operated on or after 1 July 1991.[18]

82. The closure, post-closure and corrective action cost estimates for the landfill units following completion of the infill and vertical expansion at the site reported in the JTD, escalated to 2019 dollars, were as follows:

Table 3 - Financial Assurance Cost Estimates

Financial Assurance Requirement	Est. Cost ($2019)
Closure (Title 27, §§ 21820, 22206)	$14,782,134
Post-Closure Maintenance (Title 27, §§ 20950(f), 21840, & 22210–22211, 22212)	$11,141,880 ($371,396 per year)
Corrective Action (Title 27, §§ 20380(b), 22222)	$1,499,005

The closure and post-closure maintenance costs will be funded incrementally per Title 27 as areas are filled to the final grade. These WDRs therefore require that the Discharger submit updated financial assurance cost estimates for closure and post-closure maintenance as part of the revised PCPMP required under Closure and Postclosure Specification E.1.

83. The Discharger maintains an Enterprise Fund as the approved financial assurance mechanism for closure, post-closure maintenance and corrective action. This mechanism (last approved by CalRecycle in July 2019) requires maintaining minimum account balances for each financial assurance type. For closure, post-closure maintenance and corrective action the combined amount funded was $20,049,158 in 2019 dollars.

These WDRs require that the Discharger submit an annual financial assurance status report to the Central Valley Water Board for the landfill units. See Financial Assurance Specification F.2.

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18. The Discharger is also subject to non-water release corrective action funding requirements per Title 27, section 22101 because the landfill units operated on or after to 1 July 2011 if non-water release corrective action costs are greater than corrective action costs necessary to address a release to receiving water.

Surface Impoundments

84. The August 2019 JTD included a cost estimate of $68,783 for closure (i.e., removal) of the two surface impoundments at the site. The JTD did not provide corrective action cost estimates for the surface impoundments, however. These WDRs require that the Discharger submit an updated corrective action (i.e., known or reasonably foreseeable release) cost estimates report for the surface impoundments at the site for Central Valley Water Board review and approval. See Financial Assurances Specification F.4 and Provision H.6.c.i.

85. The JTD also did not provide information on surface impoundment closure and corrective action funding and funding mechanism. This Order requires that the Discharger establish a Title 27-compliant funding mechanism with the Central Valley Water Board for surface impoundment closure and corrective action financial assurances and maintain adequate funding of the mechanism consistent with currently approved cost estimates, as annually adjusted for inflation. The Discharger is also required to submit annual financial assurance status reports for the surface impoundments. See Financial Assurance Specifications F.5 and F.6.

California Environmental Quality Act (CEQA)

86. 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 CQA-exempt. The discharges authorized under this Order are substantially within parameters established under prior WDRs, particularly with respect to character and volume of discharges.

87. A 4 June 1985 Environmental Impact Report (EIR) for the landfill was approved by the Stanislaus County Board of Supervisors as lead agency in accordance with the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq. and State Guidelines. The project was found to have possible significant impacts on water quality, including degradation by leachate from fill or erosion of exposed slopes. Possible ponding or flooding from runoff was also noted. The Central Valley Water Board reviewed the EIR and adopted previous WDRs implementing Chapter 15 (now Title 27) requirements to mitigate or avoid the possible significant impacts on water quality, including landfill containment system design. precipitation and drainage controls, flood controls, erosion controls, and ground water monitoring to detect a release at the earliest opportunity.[19]

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19. See Findings 17, 18, 31 and 32, WDR Order 88-038.

88. A Negative Declaration for the planned LF-2 expansion project was approved by the Stanislaus County Board of Supervisors as lead agency in 2010. The Central Valley Water Board was consulted with in the development of the Negative Declaration and the discharges and other activities authorized under this Order fall within the scope of the project as contemplated in the Negative Declaration. Additionally, there are no substantial changes to either the proposed project or the attendant circumstances under which it will be undertaken, and no new information requiring revision of the Negative Declaration. The Negative Declaration is therefore conclusively presumed compliant with CEQA for use by the Central Valley Water Board as a "responsible agency" under CEQA. Accordingly, no further environmental review is required under CEQA. (See Cal. Code Regs., tit. 14, § 15162.)

Other Regulatory Matters

89. 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.*

90. This Order implements the Central Valley Water Board's revised May 2018 *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (*Basin Plan*), which designates beneficial uses for surface water and groundwater and establishes water quality objectives (WQOs) necessary to preserve such beneficial uses. (See Wat. Code, § 13241 et seq.)

91. According to the Basin Plan, the designated beneficial uses of the surface waters are municipal and domestic supply (MUN); agricultural supply (AGR); industrial process supply (IND); water contact recreation (REC-1); non-water contact recreation (REC-2); warm fresh water habitat (WARM); cold fresh water habitat (COLD); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPWN); and wildlife habitat (WILD).

92. According to the *Basin Plan*, designated beneficial uses of groundwater at the Facility include municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); and industrial process supply (PRO).

93. This Order implements the prescriptive standards and performance goals of Title 27.

94. The State Water Resources Control 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.

95. Consistent with Title 27, this Order requires that 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, including the existing historical releases described in Findings 52 and 53, the Discharger is required to address such releases through appropriate corrective action measures. (See Title 27, §§ 20385, 20415, 20430 & 21090.).[20] Accordingly, this Order complies with the *Antidegradation Policy*.

96. 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 that could cause the long-term loss of a designated beneficial use of the receiving water. Examples of long-term loss of a beneficial use include the loss of drinking water supply, the closure of an area used for water contact recreation, or the posting of an area used for spawning or growth of aquatic resources, including shellfish and migratory fish.

    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.

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20. With regard to corrective action, LF-1 was graded and closed to promote runoff and minimize infiltration of precipitation into the landfill as required under Title 27. Closure of the unit should also minimize any leachate generation in the landfill that could potentially threaten or impact groundwater. Also, this Order requires that the Discharger continue LFG extraction prevent/minimize further groundwater impacts at the site to restore groundwater to Concentration Limits. Continued post-closure maintenance, monitoring, and reporting are also required for LF-1 to ensure the integrity of the landfill cover as its principle waste containment system.

97. Water Code section 13267, subdivision (b)(1) 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.

98. 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. Additionally, the burdens associated with such reports are reasonable relative to the need for their submission.

Procedural Matters

99. 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.

100. 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.)

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

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

REQUIREMENTS

IT IS HEREBY ORDERED, pursuant to Water Code sections 13263 and 13267, that WDR Order R5-2008-0144 is hereby rescinded (except for enforcement purposes); and that the Stanislaus County Department of Environmental Resources, its agents, successors, and assigns, in accordance with Water Code division 7 (§ 13000 et seq.), shall comply with the following.

A. Discharge Prohibitions—Except as otherwise expressly directed within this section below, the Discharger shall, for landfill units and Title 27 surface impoundments, comply with all applicable Standard Prohibitions (§ C) of both the Landfill SPRRs (referenced in Finding 5) and Industrial SPRRs (referenced in Finding 5), respectively, which are incorporated herein, as well as the following Discharge Prohibitions.

1. The discharge of new or additional waste to LF-1 is prohibited.

2. The discharge to LF-3 of any wastes other than boiler ash from the offsite WTE is prohibited.

3. The discharge of designated wastes to any WMU at the Facility is prohibited, except as authorized under the Discharge Specifications of this Order, including Attachment G. See Discharge Specification B.1.

4. The discharge of hazardous wastes to any WMU at the Facility is prohibited, except as authorized under the Discharge Specifications of this Order, including Attachment G. See Discharge Specification B.1.

5. The discharge of MSW to LF-2, Cell 1, including MSW leachate drainage from adjacent fill areas (e.g., Cell 2, infill, and/or sideslope expansion), is prohibited. Appropriate design features and/or operational measures shall be implemented as the landfill is further developed to ensure compliance with this requirement.

6. Leachate collected from LF-3 shall not be returned to that unit and shall not be discharged to LF-2 or SI-2.

7. Leachate from LF-2 shall not be returned to that unit and shall not be discharged to LF-3 or SI-1.

8. Leachate and LFG condensate shall not be used at the Facility for dust control.

9. LFG condensate shall not be discharged to SI-1.

10. The discharge of solid wastes to the Class II surface impoundments at the site is prohibited, except for solids settled out and accumulated from authorized discharges to an impoundment.

11. The Class II surface impoundments shall not be used for indefinite storage inconsistent with the Discharger's water balance analysis demonstrating that the Discharger has sufficient liquid storage capacity on a monthly basis in accordance with Title 27 § 20375 .

B. Discharge Specifications—Except as otherwise expressly directed within this section below, the Discharger shall, for landfill units and Title 27 surface impoundments, comply with all applicable Standard Discharge Specifications (§ D) of both the Landfill SPRRs and Industrial SPRRs (§ D), respectively, which are incorporated herein, as well as the following Discharge Specifications.

1. The Discharge of waste to WMUs at the Facility shall be consistent with Attachment G and these Discharge Specifications.

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 removed; and proposing waste acceptance program updates to prevent reoccurrences.

3. Treated wood waste (TWW) shall only be discharged to LF-2 consistent with Discharge Specification B.1 and Finding 17. The Discharger shall manage such waste in accordance with Health and Safety Code sections 25143.1.5 and 250150.7, and otherwise comply with California Code of Regulations, Title 22, section 67386.3. In the event of a verified release from an authorized WMU containing treated wood waste, the Discharger shall suspend all discharges of treated wood waste until corrective action is terminated.

4. The waste acceptance program for the Facility shall include soluble designated levels for all inorganic constituents of concern for wastes discharged to both active landfill units at the site (i.e., LF-2 and LF-3).[21]

5. Any TWW load suspected of being a designated waste based on LEA-approved waste acceptance criteria shall be tested at a state-certified

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21. Soluble designated levels for each inorganic COC shall be determined using the Designated Level Methodology.

laboratory for soluble constituents of concern to verify that the TWW is a nonhazardous solid waste (i.e., does not contain soluble constituents in excess of soluble designated levels) prior to discharge to LF-2. The waste extraction test (WET) using citrate buffer shall be used for this determination.

6. The Discharge of asbestos containing wastes (ACW) shall be limited to LF-2 Cells 4, 5, 6 and 7 as described in Finding 16.

7. The Discharge of designated waste at the Facility shall be limited to boiler ash discharged to LF-3 consistent with Discharge Specification B.1 as described in Finding 19.

8. The use/application of alternative daily cover (ADC) at landfill WMUs shall be limited to the following:

    a. The materials described in Finding 69 or

    b. Other LEA-approved materials demonstrated to meet the standards of Title 27, section 20705, as approved in writing by the Central Valley Water Board.

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

    a. The Discharger demonstrates 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 of the demonstration in writing.

10. The discharge of leachate from LF-2 shall be limited to SI-2 and the discharge of leachate to SI-2 shall be limited to leachate from LF-2.

11. The discharge of leachate from LF-3 shall be limited to SI-1 and the discharge of leachate to SI-1 shall be limited to leachate from LF-3.

12. The discharge of LFG condensate shall be limited to SI-2.

13. The Discharge of liquid waste from SI-1 and SI-2 is prohibited except by evaporation or to an authorized offsite facility.

14. The Discharger shall record onsite rainfall to track the magnitude of storm events and shall record surface impoundment freeboard levels in accordance with the attached monitoring and reporting program.

15. A freeboard of at least 2.0 feet shall be maintained in the surface impoundments at all times. To ensure compliance with this requirement, the Discharger shall maintain at least 2.3 feet (2.0 feet plus the volume of direct rainfall from a design storm to the nearest tenth of a foot).

    The Discharger shall immediately notify Central Valley Water Board staff by telephone and email and immediately take measures to regain required surface impoundment freeboard in the event it is exceeded.

16. The commingling of inert and non-inert liquids in SI-1 shall be kept to a minimum to prevent unnecessary buildup of hydraulic head on the liner and the reduction of freeboard.

17. Liquid collected and recovered from the LCRS of a Class II surface impoundment shall be either returned to the impoundment from which it came or pumped directly to the above-ground tank farm pending disposal at an authorized offsite facility.

18. Solids and semi-solid wastes removed from the Class II surface impoundments shall be tested in accordance with the approved Surface Impoundment O&M Plan submitted under Facility Specification C.5.b. Inert solids and semi-solids from the impoundments may be beneficially reused onsite.

19. The Discharge of designated or hazardous waste residues from clean-out of SI-1 or SI-2 shall be limited to an authorized offsite facility.

20. Storm water runoff from the Facility shall be discharged in accordance with applicable storm water regulations.

21. The Discharger shall obtain and maintain coverage under applicable State Water Board or Central Valley Water Board permits for all non-Title 27 discharges to land or surface water.

C. Facility Specifications— Except as otherwise expressly directed within this section below, the Discharger shall, for landfill units and Title 27 surface impoundments, comply with all applicable Standard Facility Specifications (§ E) and Standard Storm Water Provisions (§§ D, L) of both the Landfill SPRRs and Industrial SPRRs, respectively, which are incorporated herein, as well as the following Facility Specifications.

1. A minimum separation of five feet shall be maintained between the bottom of wastes and the highest anticipated elevation of underlying groundwater at each WMU per Section 20240(c) of Title 27, absent approval of

approved engineered alternative for minimum separation under Facility Specification C.2.

2. Proposals for less than minimum five-feet of separation between the lowest elevation of landfill waste and the highest anticipated elevation of groundwater (i.e., prescriptive standard) required under Title 27, section 20240 may be approved by the Executive Officer upon sufficient demonstration by the Dischargers that compliance with the five-foot prescriptive standard is infeasible per Title 27, section 20080(c) and that the proposed lesser minimum separation meets Title 27 performance standards (i.e., is adequate) per Title 27, section 20240.

3. Annually, prior to the anticipated rainy season but no later than **31 October**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent storm water flows from:

   a. Contacting or percolating through wastes,

   b. Causing erosion or inundation of the landfill cover or other WMUs of the site, or

   c. Causing sedimentation and clogging of the storm drains.

4. The LFG extraction system shall be operated, and modified or expanded, if necessary, to prevent, to the extent possible, further impacts to groundwater from LFG.

5. By **31 March 2022**, the Discharger shall submit the following Facility O&M plans:

   a. An updated LFG Extraction System O&M Plan; and

   b. An updated Surface impoundment O&M Plan.

   Each of the above Facility O&M plans shall describe the subject portion of the Facility and include plans and procedures necessary to maintain each system/unit in good working order and to maximize its effectiveness in achieving its purpose; and how it will be operated so as not to violate these WDRs. The Surface Impoundment O&M Plan shall include a schedule for cleanout of each impoundment and testing protocols for classification of waste residues for disposal or onsite reuse (if inert). See Provision H.6.e.

6. The Discharger shall inspect, maintain, and operate all Facility control, treatment, and/or disposal systems (i.e., LFG extraction system/flare station and surface impoundments) in accordance with their respective O&M plans, as approved by Water Board staff.

7. LFG extraction and flaring shall not be terminated without express written approval by the Executive Officer. Central Valley Water Board staff shall be notified of all corrective action system shutdowns lasting longer than one week. For the purposes of this provision, “terminated” does not include:

    a. LFG extraction well shutdowns of less than one week (e.g., routine maintenance); and

    b. Planned periods of LFG extraction well nonoperation, if previously-approved in writing by Central Valley Water Board staff.

8. The Discharger shall continue implementation of the Corrective Action Program under this Order until such time as impacts to groundwater in all corrective action monitoring wells have been reduced to Concentration Limits and the Discharger has completed the requisite “proof period” under Title 27, Section 20430(g). See Monitoring Specification G.13.

D. Construction Specifications— Except as otherwise expressly directed within this section below, the Discharger shall, for landfill units and Title 27 surface impoundments, comply with all applicable Standard Construction (§ F)and Storm Water (§ L) Specifications in both the Landfill SPRRs and Industrial SPRRs, respectively, which are incorporated herein, as well as the following Discharge Specifications.

1. 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). See Provision H.6.a.

2. The Discharger shall submit revised design plans for expansion of LF-2 consistent with the requirements of this Order prior to initiating construction expansion liner systems. See Provision H.6.a.

3. LF-2, Cell 7 shall be constructed in accordance with the containment system designs described in Finding 58.d and Attachment J, or as otherwise specified in revised design plans submitted under this Order.[22]

4. LF-3, Cell 5 shall be constructed in accordance with the containment system designs described in Finding 62.c and Attachment J, or as otherwise specified in revised design plans submitted under this Order.

5. The Discharger may propose changes to approved liner designs provided that:

   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.

   The proposed changes shall not be implemented until the Central Valley Water Board approves of them in writing, Proposed changes that do not meet the above criteria are considered “material,” and will require the revision of this Order.

E. Closure and Post-Closure Maintenance Specifications— Except as otherwise expressly directed within this section below, the Discharger shall, for landfill units and Title 27 surface impoundments, comply with all applicable Standard Closure and Post-Closure Specifications (§ G) and closure-related Standard Construction Specifications (§ F) in both the Landfill SPRRs and Industrial SPRRs, respectively, which are incorporated herein, as well as the following Discharge Specifications.

Closure (LFs-2 & 3)

1. The PCPMP for LF-2 and LF-3 shall include closure and postclosure maintenance cost estimates consistent with the requirements of this Order, including, but not necessarily limited to, costs of installing a Title 27

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22. The design report for LF-2, Cells 6 & 7 was approved under previous WDRs.

prescriptive cover or one of the other conditionally-approved (engineered alternative) final cover designs outlined in Attachment H of this Order.[23]

By **1 January 2023**, the Discharger shall submit a revised PCPMP for LF-2 and LF-3 consistent with the requirements of this Order, including the above requirement. See Provision H.6.b.i.

2. The Discharger shall submit a Partial FCPMP for LF-2 and LF-3 for Executive Officer approval **at least two years prior to reaching final waste grades** on areas of the units to be partially closed (e.g., slopes underlying LF-2 lateral expansion). See Provision H.6.b.ii. See also Standard Closure Specification G.1, Landfill SPRRs.

3. Except for partial final closure of slopes in preparation for lateral and vertical expansion (e.g., northern slopes of LF-3), closure of LF-2 and LF-3 shall require submission and Central Valley Water Board approval of a revised FCPMP/Partial FCPMP and revision of these WDRs.

4. By **1 April 2023**, the Discharger shall submit a PCPMP for the surface impoundments at the site, including a discussion as to the feasibility of clean closure, clean closure cost estimates, and (in the event that clean closure of the units may not be feasible in whole or in part) a conceptual back-up plan for closure and postclosure of the units as a landfill.[24] See Title 27, section 21400; Provision H.6.b.iv, and Financial Assurances Specification F.4.

Postclosure

5. By **1 April 2023**, the Discharger shall submit an updated Postclosure Maintenance Plan (PMP) for LF-1. See Provision H.6.b.iii.

6. Proposed change(s) to the approved, as-built landfill final cover design, including drainage controls shall be subject to the same requirements as those for proposed changes to the liner design. See Construction Specification D.5.

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23. Conditionally-approved designs outlined in Attachment H subject to approval of appliable FCPMP (or Partial FCPMP) and design report(s), including Title 27 demonstrations required under this Order, prior to construction per Closure and Post-Closure Maintenance Specification E.3.

24. The PCPMP does not need to include cost estimated for closure and postclosure of the surface impoundments as landfill units unless the feasibility of the preliminary plan for clean closure of the units cannot be adequately supported.

7. The Discharger shall not alter the design or disturb containment components of any portion of the final cover (e.g., LHC or barrier layer) over a landfill unit, other than preparatory work, until the Central Valley Water Board has approved in writing all necessary construction plans, specifications and construction quality assurance plans related to the final cover repairs or revisions.

8. Earthen materials used in repair of the LHC layer shall consist of a mixture of clay and other suitable fine-grained soils which have the following characteristics, and which, in combination, can be compacted to attain the required hydraulic conductivity when installed.

    a. At least 30 percent of the material, by weight, shall pass a No. 200 U.S. Standard sieve.

    b. The materials shall be fine grained soils with a significant clay content and without organic matter, and which is a clayey sand, clay, sandy or silty clay, or sandy clay under a soil classification system having industry-wide use [e.g., the “SC”, “CL”, or “CH” soil classes under ASTM Designation: A2487-93 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)]. See Title 27, section 20320(d).

    c. Have a hydraulic conductivity of no greater than 1 $x10^{-6}$ cm/sec and for MSW Units have no greater through-flow rate than the bottom liner system throughout the post-closure maintenance period in accordance with Title 27 section 21090(a)(1).

9. All final cover slopes, including side slopes and top deck areas, shall be maintained and repaired, as necessary, to withstand their design earthquake magnitudes (i.e.., MPE, MCE). See Findings 33 and 63-64 and Standard Construction Specification F.8 of Landfill and Industrial SPRRs.

10. The Discharger shall maintain the final cover over the closed landfill units, including monitoring and control systems (e.g., monitoring wells, precipitation and drainage controls, LFG controls) in accordance with the requirements of this Order (including MRP) and currently approved PCPMP throughout the post-closure maintenance period. See also Standard Closure and Post-Closure Specifications G.26 through G.29.

11. The erosion resistant/vegetative cover layer shall be maintained with native or other vegetation capable of providing effective erosion resistance.

12. The PCPMP may incorporate by reference (rather than repeat) post-closure maintenance plans already described in one of the subject Facility O&M plans required under Facility Specification C.5.

13. The Discharger shall perform all post-closure maintenance activities specified in the Facility's PCPMP that are not specifically referred to in this Order.

14. The PCPMP shall include all components required per Title 27, section 21769, subdivision (c), and include detailed cost estimates for:

    a. Completion of all actions required for repair of the WMU's containment system (final cover), if needed based on the results of inspection;

    b. Preparation of detailed design specifications;

    c. Updating the PCPMP; and

    d. The annual and 30-year cost of post-closure maintenance, in current dollars.

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

16. Any proposed change in post-closure use shall be in accordance with Section 21190 of Title 27.

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.

Landfills

1. The Discharger shall maintain with CalRecycle assurances of financial responsibility for the estimated costs of closure, postclosure maintenance, and corrective action, adjusted annually for inflation, as provided in the most-recently approved FCPMP (LF-1) and PCPMP (LF-2 & LF-3) or amendments thereto. See Findings 81 to 83 and Post-Closure Maintenance Specification E.14.d.

2. A report regarding financial assurances for landfill closure and/or postclosure maintenance, as applicable, 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 June of each year**. See Provision H.6.c.ii.

3. If CalRecycle determines that the Discharger post-closure maintenance financial assurances for the Facility are inadequate based on the cost estimates in the currently approved PCMP, 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.

Surface Impoundments

4. By **1 April 2023**, the Discharger shall submit an updated corrective action (i.e., known or reasonably foreseeable release) cost estimates report for the surface impoundments at the site Central Valley Water Board review and approval. See Provision H.6.c.i.

5. The Discharger shall maintain with the Central Valley Water Board assurances of financial responsibility for the estimated costs of closure specified in the most recently approved surface impoundment PCPMP and corrective action specified in the most recently approved corrective action cost estimates report, adjusted annually for inflation. See Closure and Postclosure Specification E.4, Financial Assurances Specification F.4 and Standard Financial Assurances Specification H.2.

6. The Discharger shall establish an approved financial assurance mechanism pursuant to the CalRecycle-promulgated sections of Title 27, but with the RWQCB named as beneficiary, to ensure funds are available for closure and corrective action associated with the surface impoundments at the site. See Title 27, Chapter 6, Subchapter 3 (“Allowable Mechanisms”), Article 2.

7. A report regarding surface impoundment closure and corrective action financial assurances shall be submitted to the Central Valley Water Board annually, no later than **1 June of each year**. See Provision H.6.c.ii.

8. If the Central Valley Water Board determines that the Discharger’s closure and/or corrective action financial assurances for the surface impoundments are inadequate, the Discharger shall, within 90 days of such determination:

a. Obtain a new or revised financial assurance mechanism satisfying CalRecycle requirements for the amount specified by the Central Valley Water Board; and

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

G. Monitoring Specifications—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 MRP R5-2020-XXXX and any subsequent revisions thereto.

2. The Discharger shall comply with 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, surface water and unsaturated zone detection monitoring program (DMP), including background monitoring, in accordance with Title 27, sections 20385, 20415 and 20420. Unsaturated zone monitoring at the site shall include both soil pore gas and soil pore liquid monitoring for physical or analytical evidence a release.

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

5. Absent approval of shared monitoring of units consistent with Title 27 regulations, each WMU shall have a separate groundwater monitoring system. Unless otherwise specified in the MRP under this Order, approval of shared monitoring shall require a technical demonstration to the satisfaction of the Central Valley Water Board per Title 27 as follows:

   a. Section 20405 (b) - That the subject units are contiguous and that monitoring along a shared boundary would impair the integrity of a containment or structural feature of any of the Units; and/or

   b. Section 20415(e)(3) - That the subject units are contiguous, and that the proposed shared monitoring system will comply with Title 27 performance standards for background, detection and corrective

action monitoring per Title 27, section 20415, subdivisions (b)(1), (2); and/or

c. Title 27, sections 20380(e) – That the proposed shared monitoring system qualifies as an engineered alternative design per Title 27, section 20080(c)-(d).

The above demonstration may be included in the updated WQPS Report submitted under Monitoring Specification G.7. See also Finding 51.

6. By **1 January 2023**, the Discharger shall submit an updated Monitoring Data Evaluation Methods Report consistent with the requirements of this Order per Finding 50.b and Provision H.6.d.i.[25]

7. By **1 January 2023**, and annually thereafter for two years, the Discharger shall submit an updated WQPS report per Finding 51, MRP Section D.1, and Provision H.6.d.ii.[25]

8. By **1 January 2023**, the Discharger shall submit an updated Sample Collection and Analysis Plan per Finding 49 and Provision H.6.d.iii. The plan may be submitted as part of the Second Semiannual 2020 monitoring report (described in MRP Section C.1) or 2020 Annual Report (described in MRP Section C.2.).[25]

9. By **1 May 2023**, the Discharger shall submit a work plan for installation of monitoring wells at locations needed to comply with Title 27 performance standards, as indicated in MRP Table 1and Table 2. See Provision H.6.d.iv.

10. Constituents of concern (COC) in water passing through each WMU's Point of Compliance shall not exceed concentration limits specified (or referenced) in the MRP.

11. Absent an approved demonstration under Monitoring Specification G.5 above, the Point of Compliance shall be a vertical plane situated at the hydraulically downgradient limit of each WMU, extending through the uppermost underlying aquifer. (See Title 27, §§ 20164, 20405.)

12. By **15 August 2022**, the Discharger shall submit a proposal and schedule for establishing additional storm water sampling locations

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25. These reports may be submitted as part of the same document (e.g., Annual Monitoring Report) provided that they are separate within the document.

necessary to meet Title 27 performance standards for detection of a release and assess the effectiveness of precipitation and drainage controls and erosion controls. See Provision H.6.d.v.

13. Detection monitoring shall be conducted for at least three years after completion of corrective action of a unit (including any applicable "proof period") to demonstrate that groundwater down gradient of the unit is in compliance with the Water Quality Protection Standard. See Title 27, sections 20380(d) and 20430(g).

H. Provisions—Except as otherwise expressly directed below, the Discharger shall comply with the Standard Provisions (SPRRs, § K), as well as the following.

1. Notwithstanding Section G.1, the provisions of this Order shall supersede any contrary provision in MRP R5-2020-XXXX and revisions thereto.

2. The Discharger shall comply with all applicable provisions of Title 27 not specifically referenced in this Order.

3. The Discharger shall ensure that operating personnel are familiar with this Order (including all attachments and SPRRs) and MRP R5-2020-XXXX (or any revision thereto) both of which shall always be kept onsite and made available to operating personnel and regulatory agency personnel.

4. All reports and monitoring data shall be submitted online in an appropriately formatted file via the State Water Board's GeoTracker Database, at (https://geotracker.waterboards.ca.gov/). (Title 23, §§ 3892(d), 3893.) Additional information regarding electronic submittals is accessible through the "Information" tab on the GeoTracker homepage. After uploading a document via GeoTracker, the submitting party shall notify Central Valley Water Board staff via email at centralvalleysacramento@waterboards.ca.gov, including the following information body of the email:

Attention:	Title 27 Compliance & Enforcement Unit, or Title 27 Permitting & Mining Unit
Report Title:	[title of submitted report]
Discharger:	County of Stanislaus Department of Environmental Resources
Facility:	Fink Road Landfill
County:	Stanislaus
CIWQS ID:	224472

5. All reports and workplans that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geological sciences, shall:

   a. Be prepared by, or under the direction of, professionals registered to practice in California pursuant to Business and Professions Code sections 6735, 7835 and 7835.1; and

   b. Bear the signature(s) and seal(s) of the responsible registered professional(s) described above.

6. The Discharger shall submit the following technical reports for Central Valley Water Board review and approval:

Table 4—Compliance Schedule

Task		Compliance Date
a.	**Construction**	
	i. Construction and design plans, including quality assurance (CQA) plan.	**90 days prior to proposed construction date**
	ii. Upon completion of WMU construction or repair, including associated control systems, a certification report demonstrating construction in accordance with approved construction plans.	**Within 60 days of completing construction**
b.	**Closure & Post-Closure**	
	i. A revised Preliminary Closure and Postclosure Maintenance Plan (PCPMP) for LF-2 and LF-3 per Closure and Postclosure Maintenance Specification E.1.	**1 January 2023**
	ii. A Partial Final Closure and Postclosure Maintenance Plan for LF-2 and LF-3 per Closure and Postclosure Maintenance Specification E.2	**At least 2 years before reaching final waste grades**

Task		Compliance Date
iii.	An updated Postclosure Maintenance Plan (PMP) for LF-1 per Closure and Postclosure Maintenance Specification E.5.	**1 April 2023**
iv.	A PCPMP for both surface impoundments per Closure and Postclosure Maintenance Specification E.4.	**1 April 2023**
Task		**Compliance Date**
c.	**Financial Assurances**	
i.	An updated Corrective Action Cost Estimates Report for the surface impoundments at the site per Financial Assurance Specification F.4.	**1 April 2023**
ii.	Submit proof of required WMU financial assurances per Financial Assurance Specifications F.2 and F.7.	**1 June 2021 & annually thereafter**
d.	**Monitoring**	
i.	A Monitoring Data Evaluation Methods Report per Monitoring Specification G.6.	**1 January 2023**
ii.	An Updated WQPS Report per Monitoring Specification G.7	**1 January 2023 & annually thereafter for two years**
iii.	An updated Sample Collection and Analysis Plan per Monitoring Specification G.8.	**1 January 2023**
iv.	A work plan for the installation of additional groundwater monitoring wells per Monitoring Specification G.9.	**1 May 2023**
v.	A proposal and schedule for establishing additional storm water sampling locations necessary to adequate monitor the WMUs at the site per Monitoring Specification G.12.	**15 August 2022**
e.	**Facility**	**--**

Task		Compliance Date
i.	An updated LFG Extraction System O&M Plan per Facility Specification C.5.a.	**31 March 2022**
ii.	An updated Surface Impoundment O&M Plan per Facility Specification C.5.b.	**31 March 2022**

ENFORCEMENT

If, in the opinion of the Executive Officer, the Discharger fails 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, and/or $10 for each gallon of waste discharged , 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.

The failure to furnish any of the required reports, or the submittal of substantially incomplete reports or false information, is a misdemeanor, and may result in additional enforcement actions being taken against Stanislaus County, Department of Environmental Resources, including issuance of an Administrative Civil Liability Complaint pursuant to California Water Code section 13268. Liability may be imposed pursuant to California Water Code section 13268 in an amount not to exceed one thousand dollars ($1,000) for each day in which the violation occurs. 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. The State Water Board must receive the petition by 5:00 p.m. 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 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions are available on the Internet (at the address below) and will be provided upon request.

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

LIST OF ATTACHMENTS

Attachment A—Location Map
Attachment B—Area Map
Attachment C—Site Map
Attachment D—Perimeter Gas Monitoring Probes & LFG Controls
Attachment E—Groundwater Monitoring System
Attachment F—Leachate & Soil Pore Water Monitoring
Attachment G—Authorized Waste Discharges
Attachment H—Conditionally-Approved Final Closure Designs
Attachment I—Preliminary Closure Grades
Attachment J—Approved Landfill Liner Designs
Attachment K—Surface Water Monitoring
Attachment L—Infill and Vertical Expansion Project

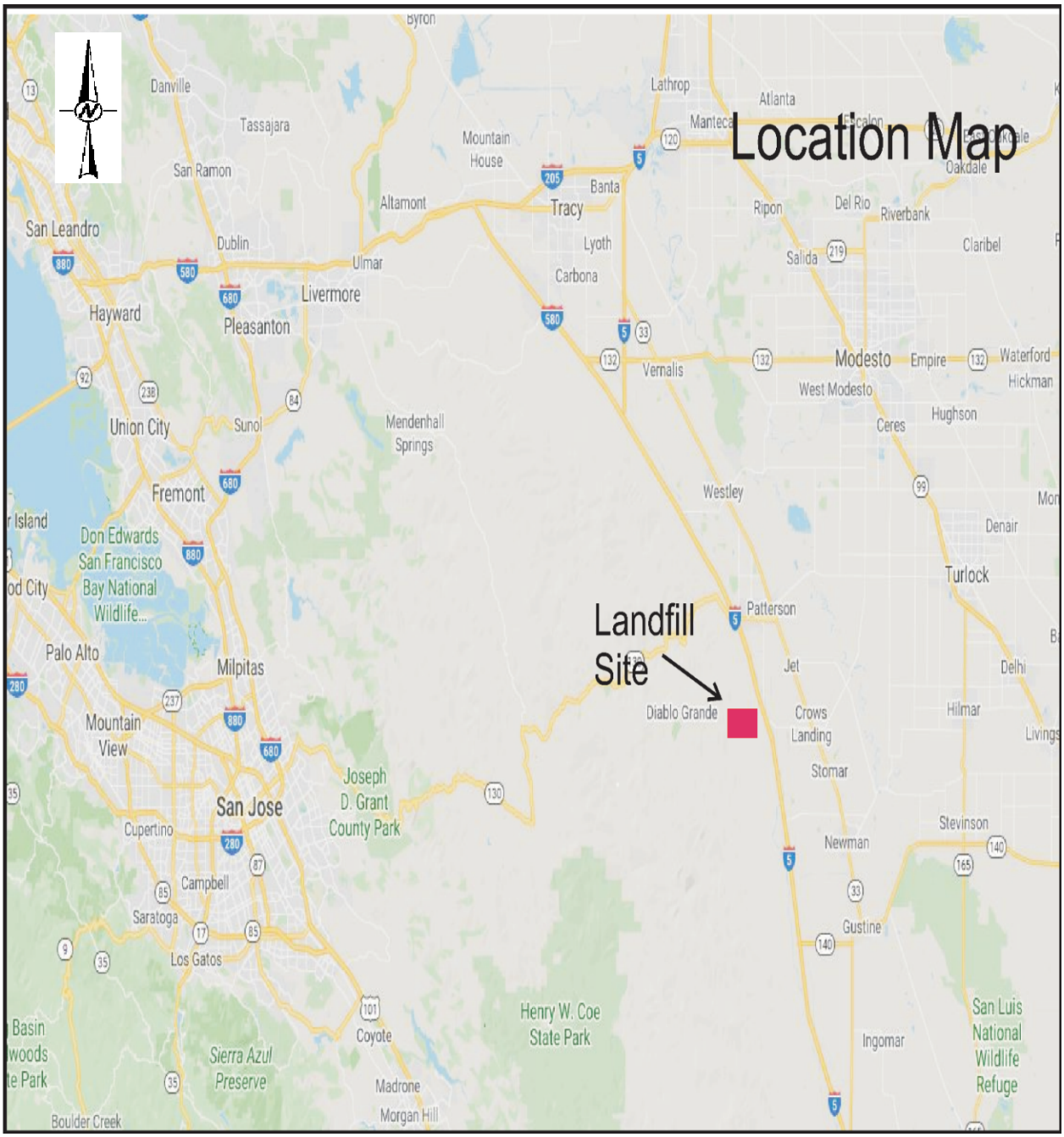
Standard Provisions and Reporting Requirements, December 2015 Edition (MSW Landfill SPRRs)

Standard Provisions and Reporting Requirements, April 2016 Edition (Industrial SPRRs)

Information Sheet
- Attachment IS-A—Supply Well Survey Map
- Attachment IS-B—Landfill 1 & 2 Base Grades

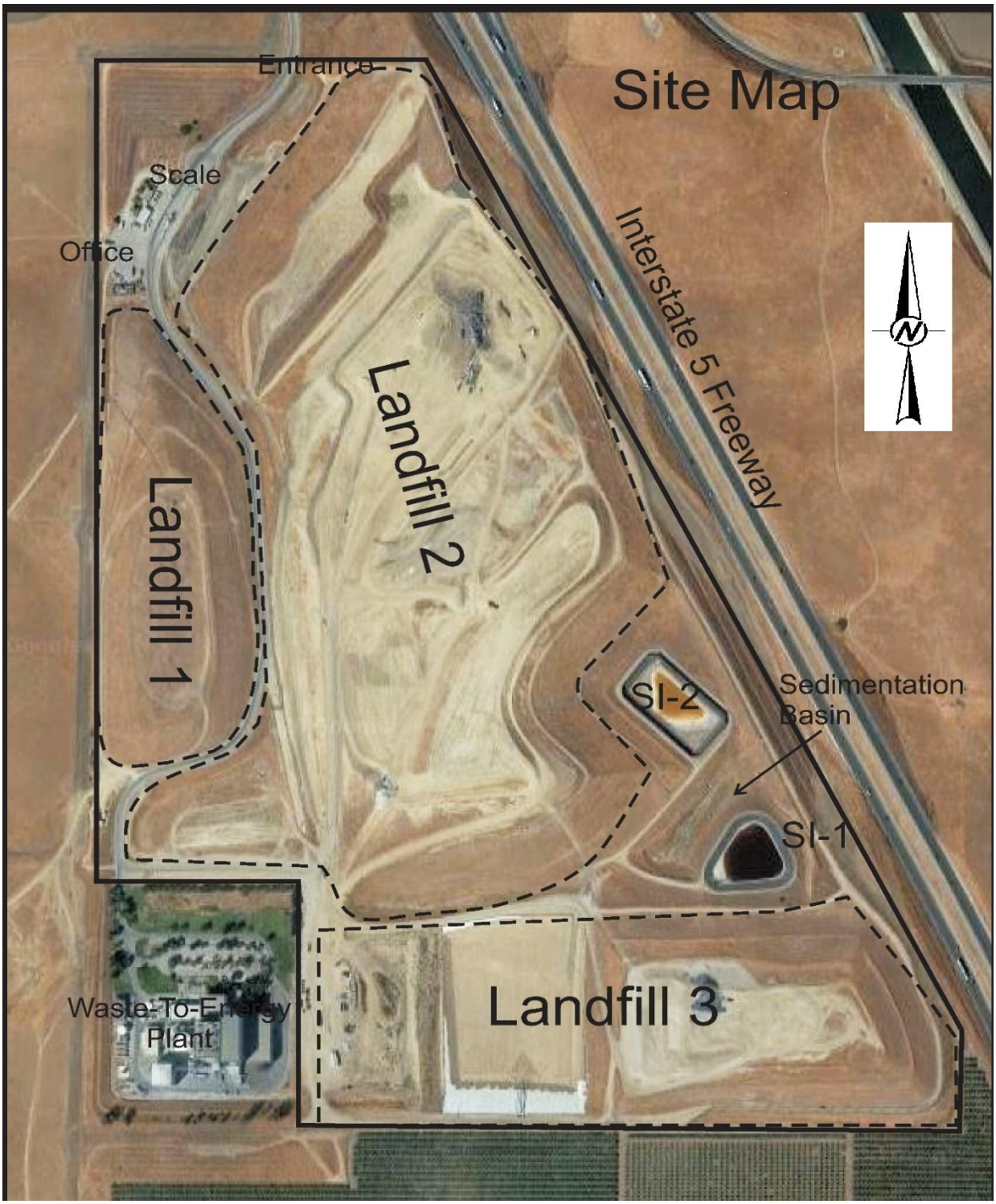
Monitoring and Reporting Program R5-2021-XX (separate document)

ATTACHMENT A—LOCATION MAP

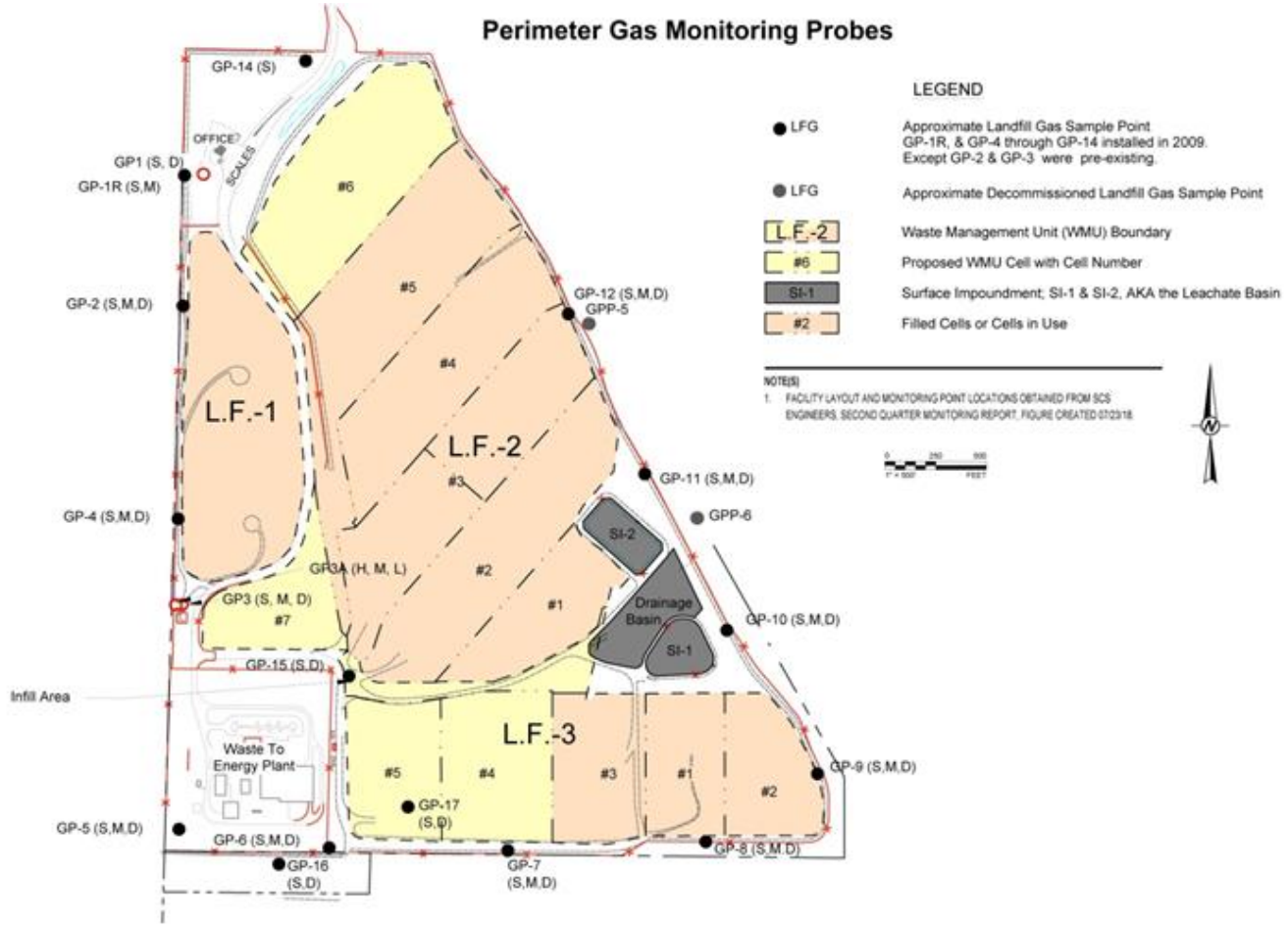


ATTACHMENT B—AREA MAP

ATTACHMENT C—SITE MAP

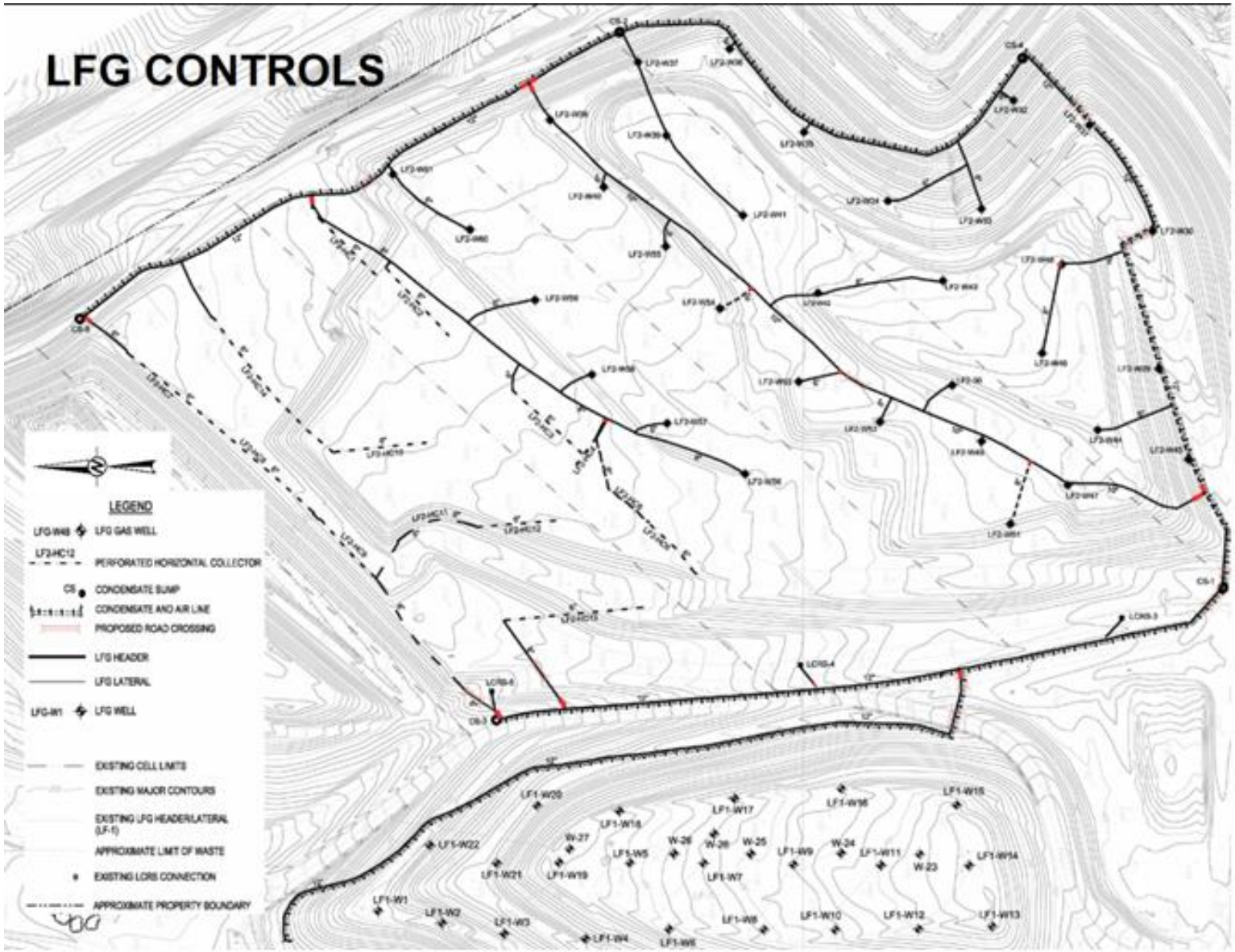


ATTACHMENT D—PERIMETER GAS MONITORING PROBES & LFG CONTROLS



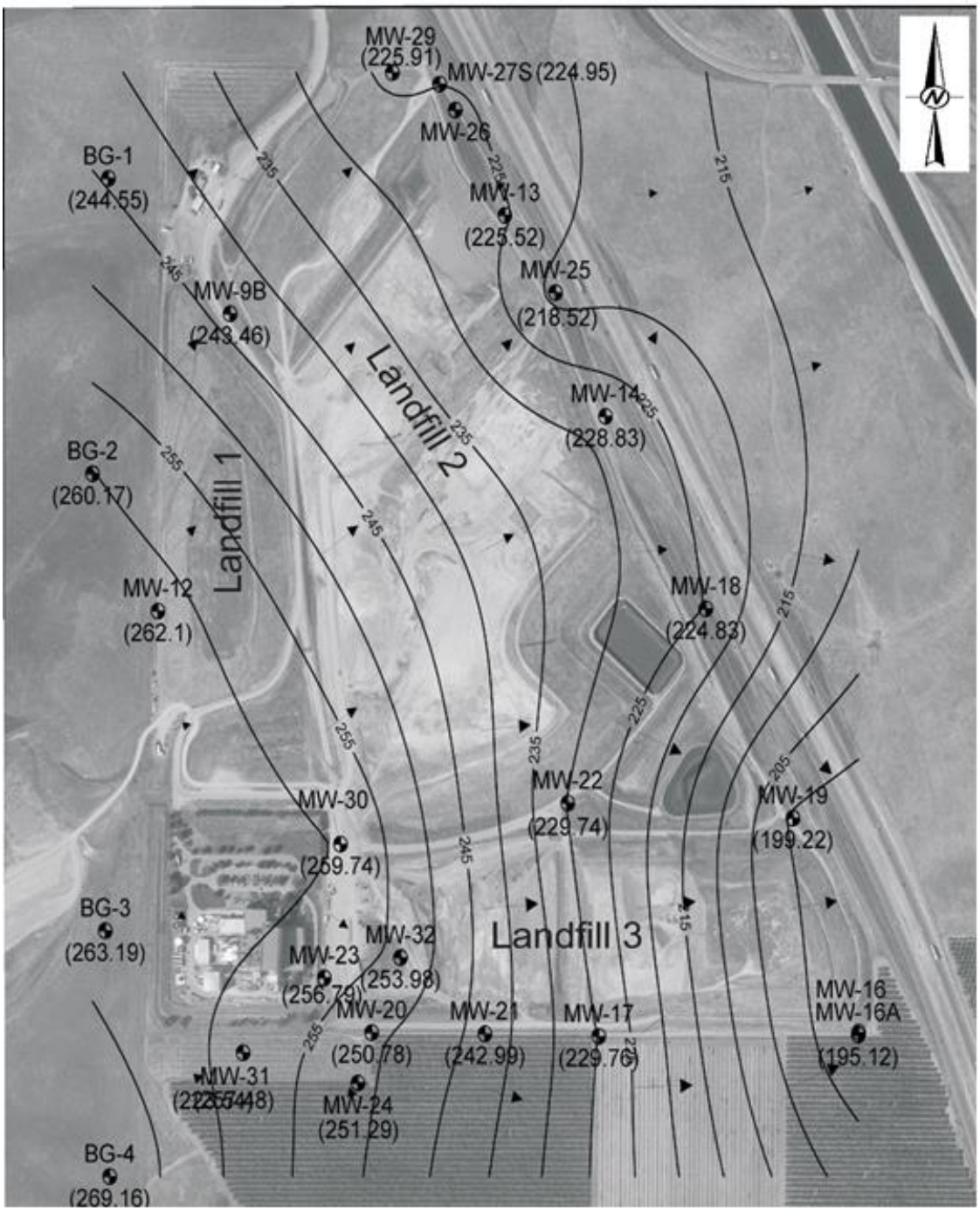
Attachment D.1

ATTACHMENT D



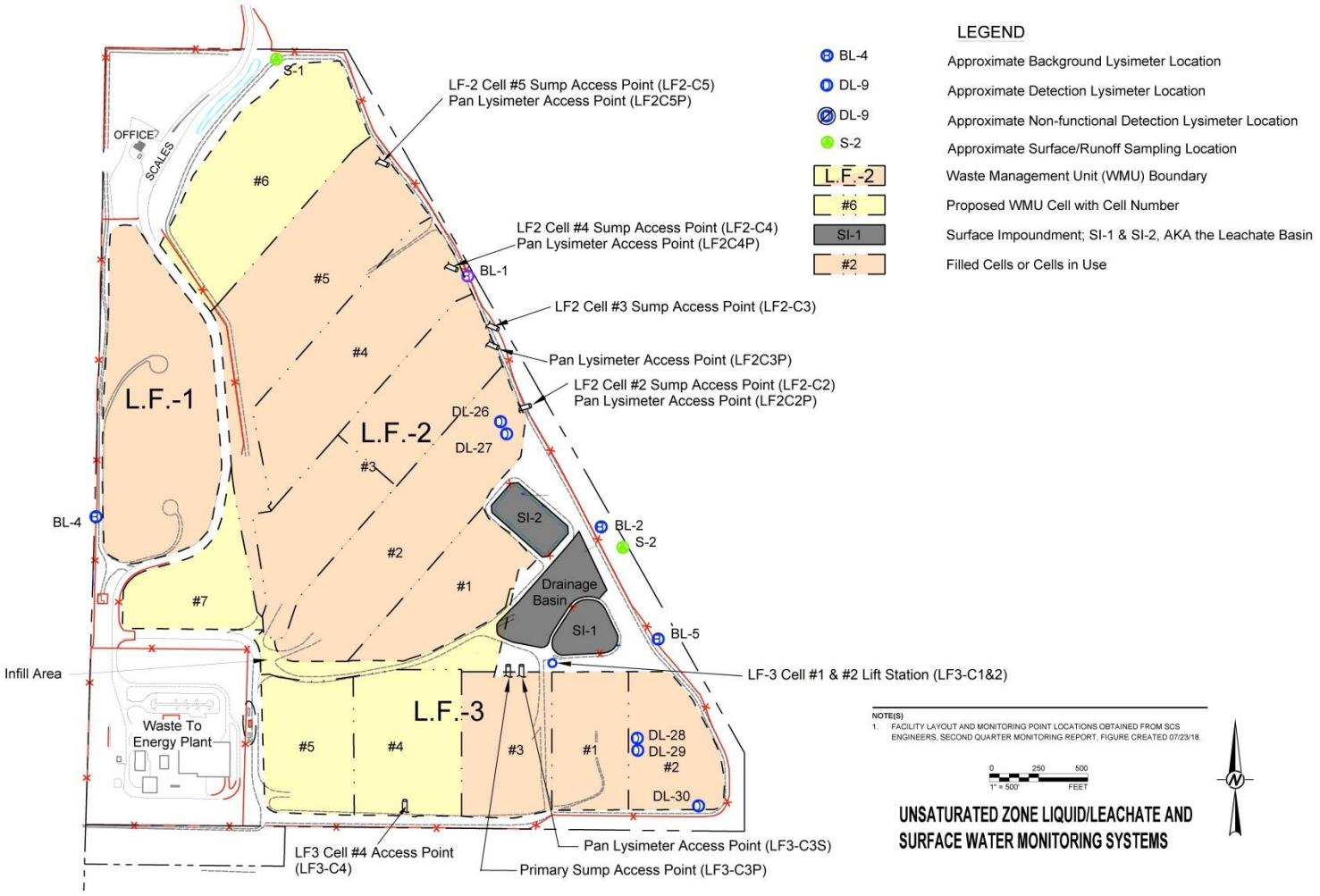
Attachment D.2

ATTACHMENT E—GROUNDWATER MONITORING SYSTEM

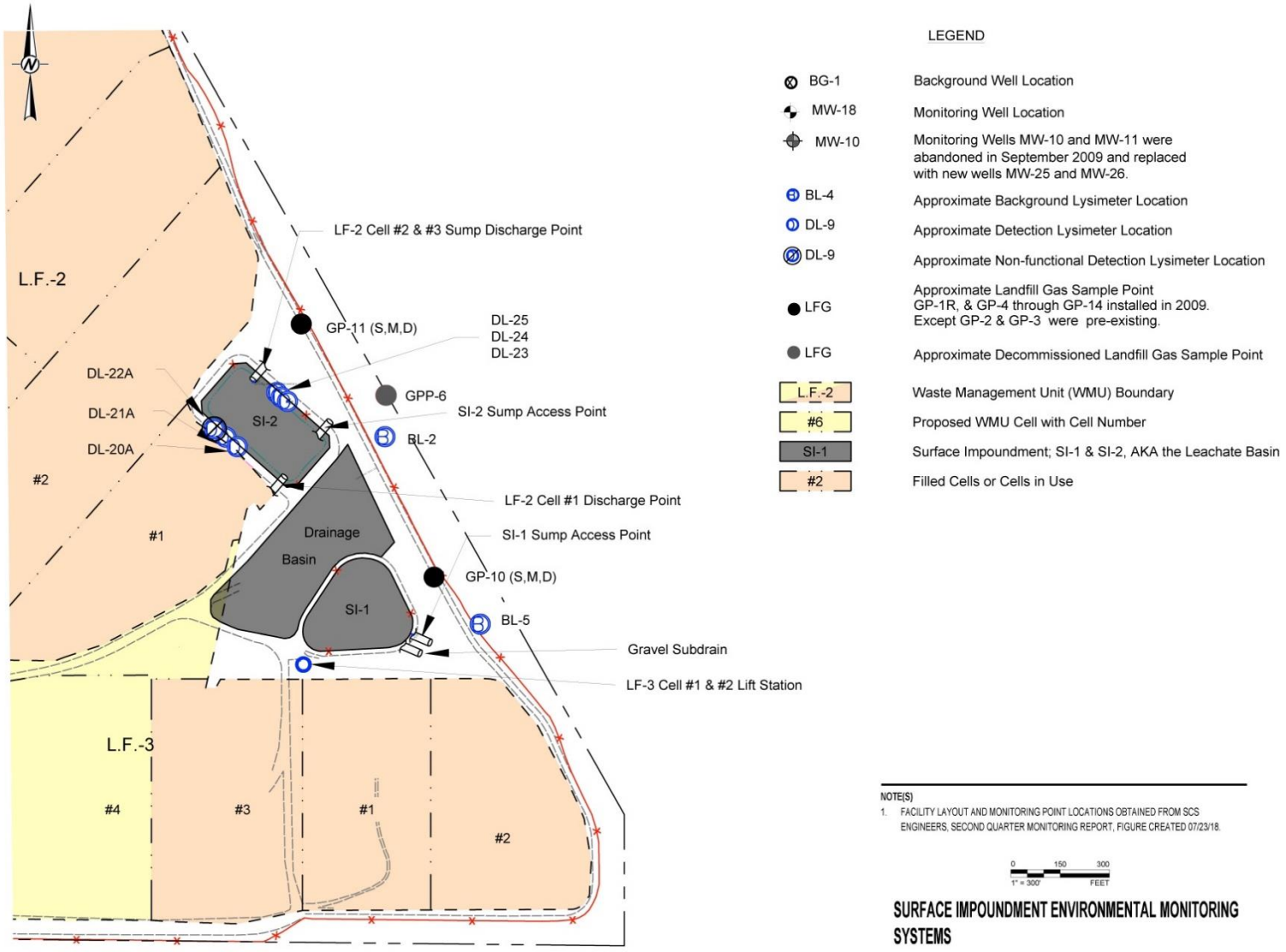


Map obtained from First Quarter 2019 Monitoring Report.

ATTACHMENT F—SURFACE IMPOUNDMENT, UNSATURATED ZONE (SOIL PORE WATER), & LEACHATE MONITORING



ATTACHMENT G



ATTACHMENT G—AUTHORIZED WASTE DISCHARGES

Waste Type	Waste Sub-Type	Unit			
		LF-2	LF-3	SI-1	SI-2
Inert & Nonhazardous Solid Wastes	MSW	Yes	No	No	No
	Commercial	Yes	No	No	No
	Industrial	Yes	No	No	No
	C&D	Yes	No	No	No
	Green Waste	Yes	No	No	No
Designated Solid Wastes	C-Soil	No	No	No	No
	Treated Wood Waste (TWW)	Yes	No	No	No
	Boiler ash from offsite WTE	No	Yes	No	No
Hazardous Wastes	ACW (>1% friable asbestos)	Yes	No	No	No
	Special Wastes	No	No	No	No
	Other Industrial (e.g., sludge, ash)	No	No	No	No
Liquid Wastes	Leachate	No	No	Yes	Yes
	LFG Condensate	No	No	No	Yes
	Other Bulk Liquids	No	No	No	No
	Containerized Liquids (see notes below)	Yes	No	No	No
	Wastewater & Brines	No	No	Yes	Yes
Semi-Solid Wastes IAW Title 27 Section 20200(d) and Section 20220(c)	WWTP & WTP Sludges	Yes	No	No	No
	Dredge Material & Drilling Mud	Yes	No	No	No

Waste Type	Waste Sub-Type	Unit			
		LF-2	LF-3	SI-1	SI-2
Wastes Requiring Special Handling	Treated Medical Waste	Yes	No	No	No
	Small Dead Animals and Carcasses (see notes below)	Yes	No	No	No

Attachment G Notes: This attachment shall be construed consistent with the Discharge Prohibitions and Discharge Specifications of this Order, which may impose additional restrictions on waste discharges. For the purposes of this attachment, leachate and LFG condensate from LF-2 and LF-3 shall not be considered “bulk liquids” or “wastewater and brines” Containerized liquids are those liquids found in household waste in accordance with 40CFR258.28(b).

LF-2 is permitted as a Class III landfill that accepts municipal solid wastes from households and non-MSW wastes (co-disposal) including residential, commercial and industrial wastes, construction and demolition debris, street sweepings, yard waste, inert materials, agricultural wastes, small dead animals, emergency livestock carcasses and body parts, waste treatment plant solids (solids from screen and grit chambers and dewatered sludge), minor amounts of non-friable asbestos, mobile homes (appliances and A/C units removed), treated wood waste, mattresses and waste tires in accordance with State regulations. Disposal of Title 22 special wastes (treated wood and non-friable asbestos) are in accordance with the WDRs and Title 22. No designated wastes are discharged to the Class III landfill units. All special handling procedures for these wastes are described in the Discharger’s Joint Technical Document Section 7.4. Waste tires are segregated and picked up by a tire recycling vendor that removes them from the site once enough tires have accumulated for a load. Liquids, medical wastes, radioactive materials, designated wastes (other than combustion ash), and hazardous wastes are not accepted. Other prohibited materials include cannery wastes and wastes including free liquids in excess of the moisture holding capacity.

On 1 January 2018, recreational cannabis became legal to cultivate, distribute, manufacture and sell in California. According to California State Regulations, cannabis waste is defined as non-hazardous and includes cannabis that has been made unusable and unrecognizable. The site proposes to accept cannabis waste from licensed cannabis growers and waste management companies. All cannabis waste will be weighed and tracked similar to other waste streams accepted at the landfill. Cannabis waste material will be processed in the same manner as other compostable material received at the site. All non-hazardous waste will be co-disposed of with MSW and disposed of in the landfill.

LF-3 is permitted as a Class II landfill that is used solely for disposal of combustion ash from the on-site WTE facility. On 8 February 1990, the Department of Toxic Substances Control (DTSC) approved a request to manage and classify the boiler ash as 'non-hazardous' because of mitigating characteristics. This combustion ash is classified under Title 22 as a designated waste because it has soluble constituents that exceed applicable water quality standards. No boiler ash is disposed of in the Class III landfill units as specified in the WDRs.

ATTACHMENT H—CONDITIONALLY-APPROVED FINAL CLOSURE DESIGNS

1. Non-Compositely Lined Landfill

a. Prescriptive Final Cover Design

Component	Top Deck & Side Slopes
Erosion Resistant Layer	1 feet vegetative cover soil
Low Hydraulic Conductivity (LHC) Layer	1-foot compacted clay soil ($k \leq 1x10^{-6}$ cm/sec)
Foundation Layer	≥ 2 feet soil and/or appropriate waste materials

b. Engineered Alternative Option 1

Component	Top Deck & Side Slopes
Erosion Resistant Layer	1 feet vegetative cover soil
LHC Layer	Geosynthetic Clay Liner (GCL)
Foundation Layer	≥ 2 feet soil and/or appropriate waste materials

c. Engineered Alternative Option 2

Component	Top Deck & Upper Slopes (≤ 10H:1V)	Side Slopes (> 4H:1V)
Erosion Resistant Layer	1 feet vegetative cover soil	1 feet vegetative cover soil
Drainage Layer	Not required	Geocomposite
LHC Layer	GCL	40 mil LLDPE Geomembrane ($k \leq 1x10^{-7}$ cm/sec)
Foundation Layer	≥ 2 feet soil and/or appropriate waste materials	≥ 2 feet soil and/or appropriate waste materials

2. Compositely Lined Landfill

a. Prescriptive Final Cover Design

Component	Top Deck & Side Slopes
Erosion Resistant Layer	1 feet vegetative cover soil
Barrier Layer (for base liner equivalency)	Minimum 40 mil LLDPE Geomembrane
LHC Layer	1-foot compacted clay soil ($k \leq 1x10^{-6}$ cm/sec)
Foundation Layer	≥ 2 feet soil and/or appropriate waste materials

b. Engineered Alternative Option 1

Component	Top Deck & Side Slopes
Erosion Resistant Layer	1 feet vegetative cover soil
Drainage Layer	Geocomposite (only on > 4H:1V side slopes)
Barrier Layer (for base liner equivalency)	40 mil LLDPE (or VLPDE) Geomembrane ($k \leq 1x10^{-7}$ cm/sec)
LHC Layer	GCL
Foundation Layer	≥ 2 feet soil and/or appropriate waste materials

c. Engineered Alternative Option 2

Component	**Top Deck & Upper Slopes (≤ 10H:1V)**	**Side Slopes (> 4H:1V)**
Erosion Resistant Layer	1 feet vegetative cover soil	1 feet vegetative cover soil
Drainage Layer	Not required	Geocomposite
Barrier Layer	40 mil LLDPE (or VLDPE) Geomembrane ($k \leq 1x10^{-7}$ cm/sec)	40 mil LLDPE (or VLDPE) Geomembrane ($k \leq 1x10^{-7}$ cm/sec)
LHC Layer	GCL	Not required
Foundation Layer	≥ 2 feet soil and/or appropriate waste materials	≥ 2 feet soil and/or appropriate waste materials

3. Attachment H Notes:

a. All of the above closure designs are subject to Executive Officer approval of subject FCPMP and design report(s) required under this Order.

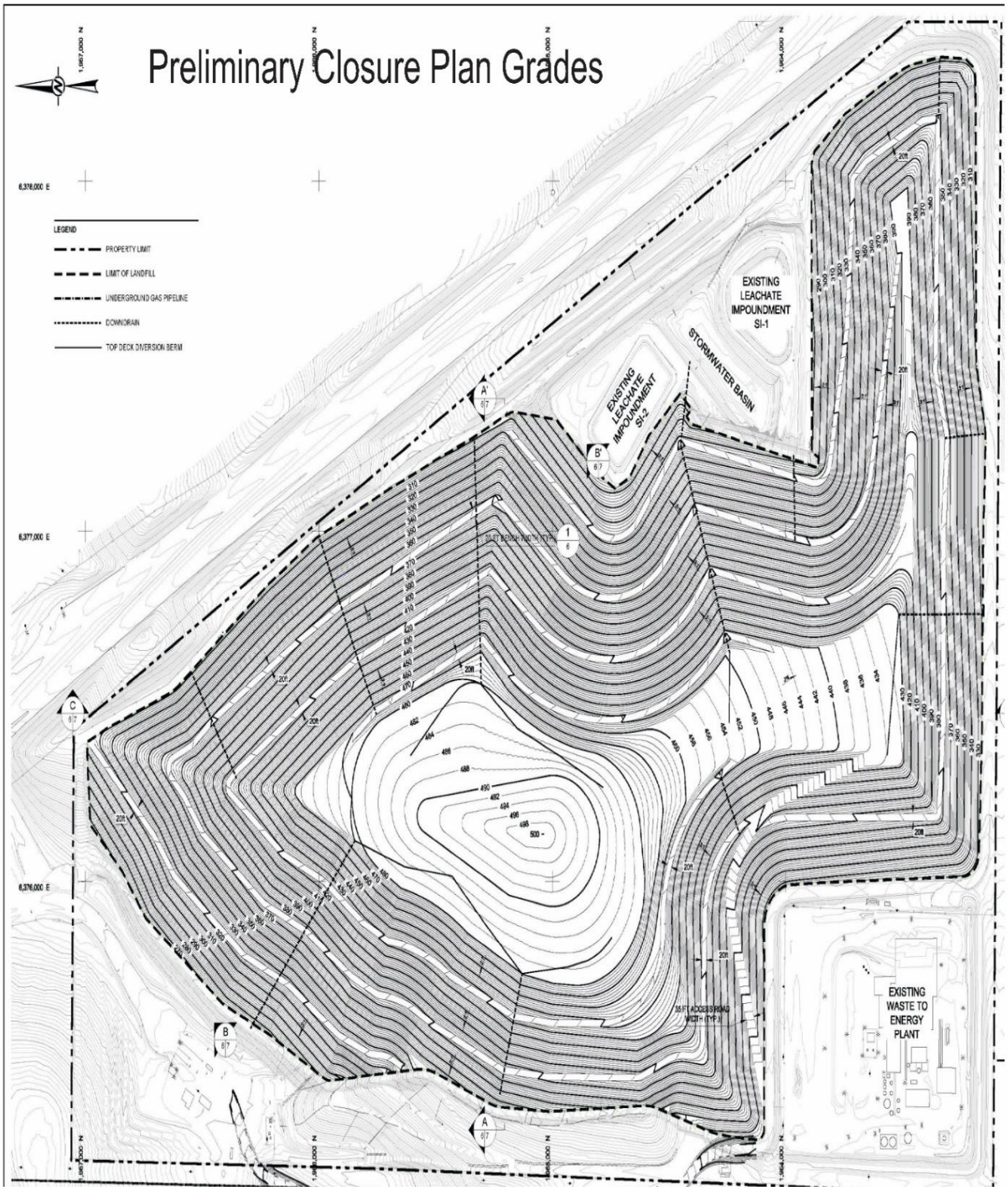
b. All engineered soil layers shall be compacted to a minimum of 90% of maximum dry density. See WDR Construction Specifications.

c. The permeability of the LHC layer shall not exceed that of the underlying clay soil liner or natural geologic materials, as applicable, to prevent “bathtub effect”.

d. In engineered alternative designs, GCL may be substituted for compacted clay in the LHC layer provided it is demonstrated that the design meets Title 27 performance standards and slope stability requirements.

e. Geomembrane may be similarly substituted for the LHC layer on the side slopes if a drainage component is included in the design.

ATTACHMENT I—PRELIMINARY CLOSURE GRADES



ATTACHMENT J—APPROVED LANDFILL LINER DESIGNS

1. LF-2 - Cells 4 to 7 (Class III)

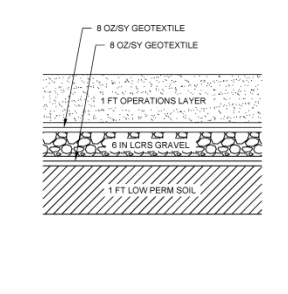
Component	Base	Excavation Slopes
Operations Layer	24 inches of soil	24 inches of sandy soil
Filter Fabric	Geotextile (8 oz/yd^2)	
LCRS	6-inches gravel	
Cushion Layer (Cells 6 & 7 only)	Geotextile (12 oz/yd^2)	geotextile
Composite Liner	60-mil HDPE Geomembrane	60-mil HDPE Geomembrane
	Geosynthetic Clay Liner	Geosynthetic Clay Liner
	12-inches CCL ($k \leq 1 \times 10^{-6}$ cm/sec)	n/a
Foundation Layer	Prepared subgrade	Prepared subgrade

2. LF-3 - Cells 4 & 5 (Class II)

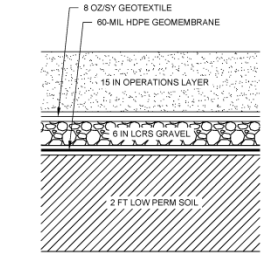
Component	Base	Excavation Slopes
Operations Layer	15 inches of soil	24 inches of sandy soil ($K > 10^{-3}$ cm/sec)
Filter Fabric	Geotextile (8 oz/yd^2)	
Primary LCRS	6-inches gravel	
Primary Composite Liner	60-mil HDPE Geomembrane	60-mil HDPE Geomembrane
	GCL	Geosynthetic Clay Liner
Secondary LCRS/Leak Detection Layer	Geocomposite	n/a
Secondary Composite Liner	60-mil HDPE Geomembrane	
	Geosynthetic Clay Liner	
Foundation Layer	Prepared subgrade	Prepared subgrade

Attachment J Notes: All of above LCRS designs include 6-inch HDPE collection pipe in central trough.

3. Landfill Liner Cross-Sections – All Cells



NO SCALE 1/23 LF-2 CELL 1



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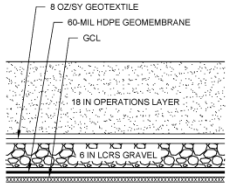
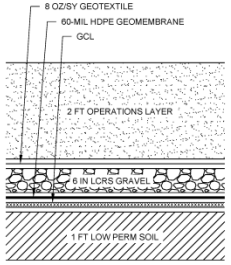
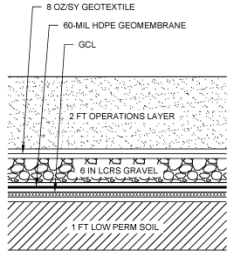


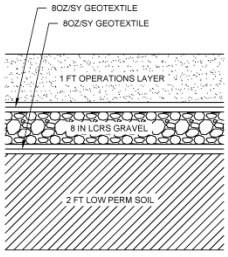
NO SCALE 3/23 LF-2 CELL 3



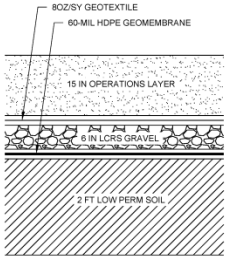
NO SCALE 4/23 LF-2 CELLS 4, 5, 6, & 7



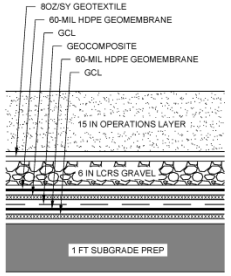
NO SCALE 5/23 INFILL LINER



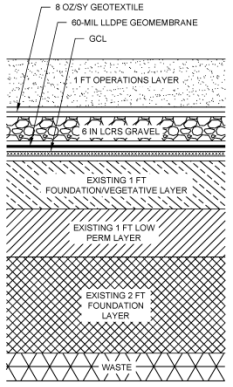
NO SCALE 6/23 LF-3 CELL 1



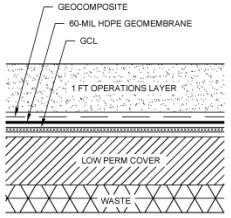
NO SCALE 7/23 LF-3 CELL 2



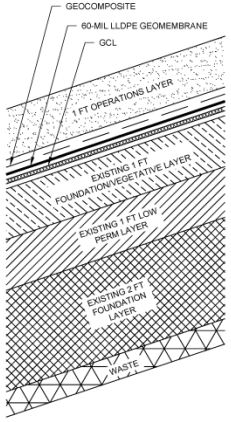
NO SCALE 8/23 LF-3 CELLS 3, 4, & 5



NO SCALE 9/23 LF-1 TOP DECK SEPARATION LINER / CLOSURE DESIGN

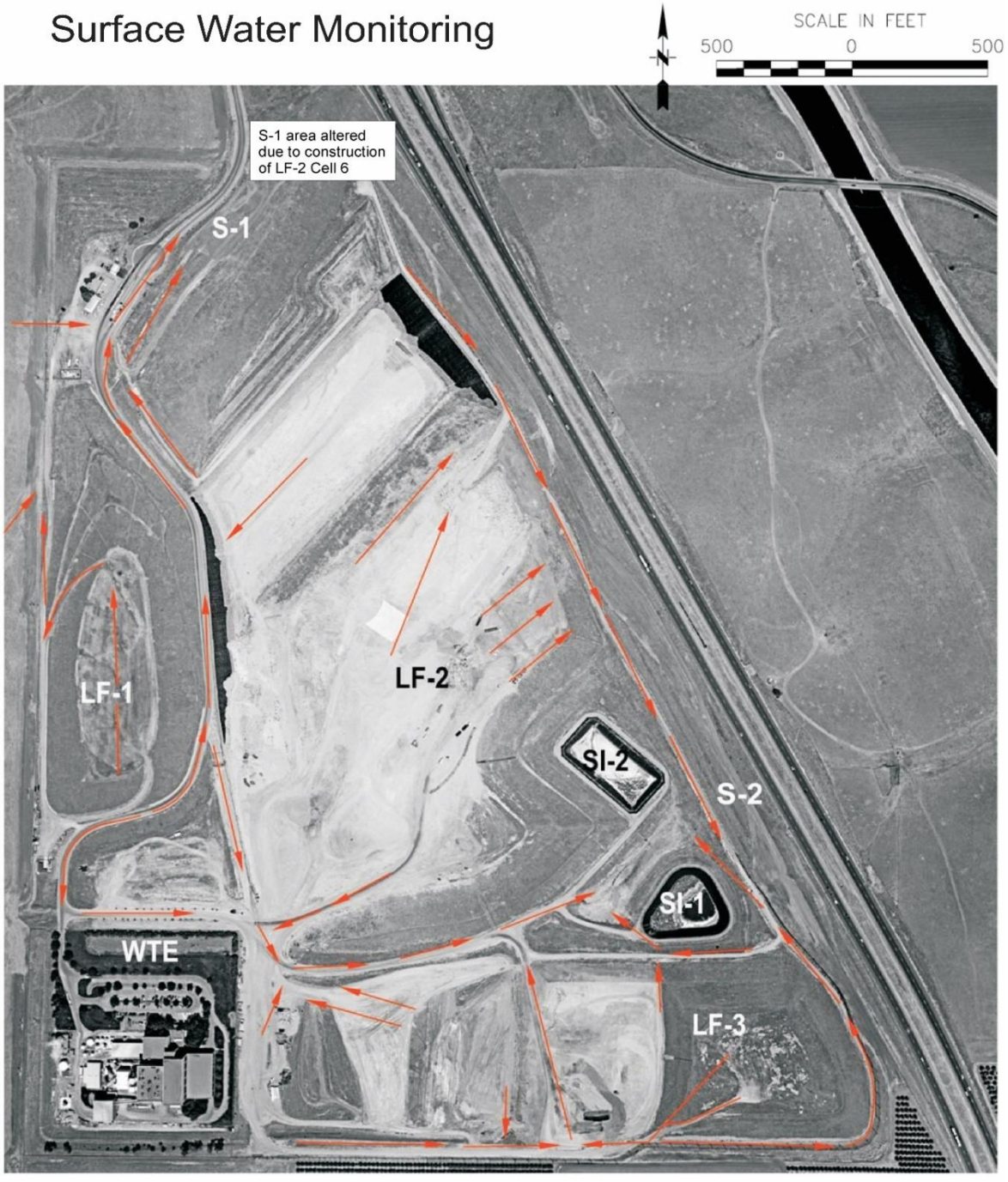


NO SCALE 10/23 LF-1 SIDE SLOPE SEPARATION LINER / CLOSURE DESIGN

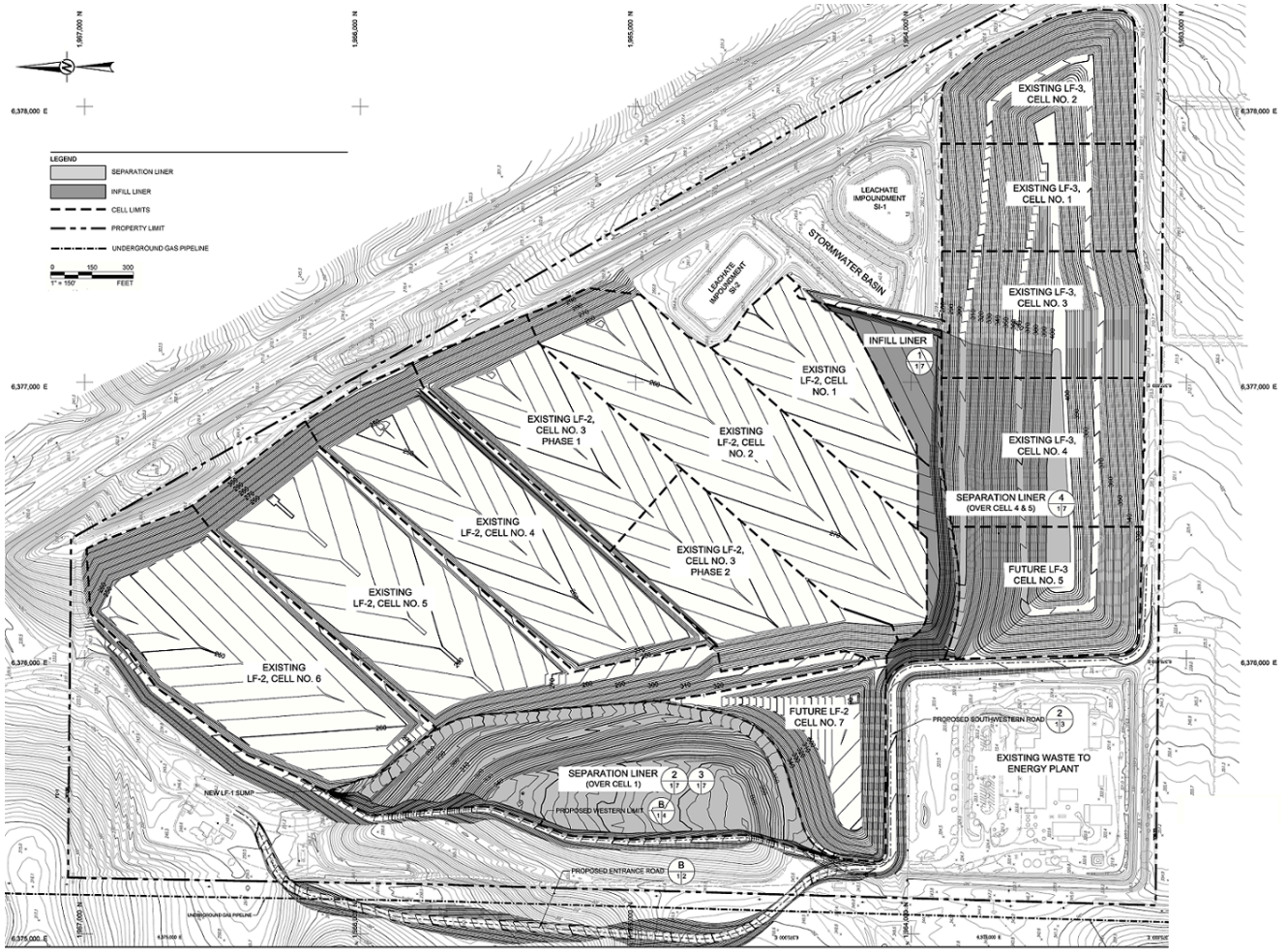


NO SCALE 11/23 LF-3 SEPARATION LINER / CLOSURE DESIGN

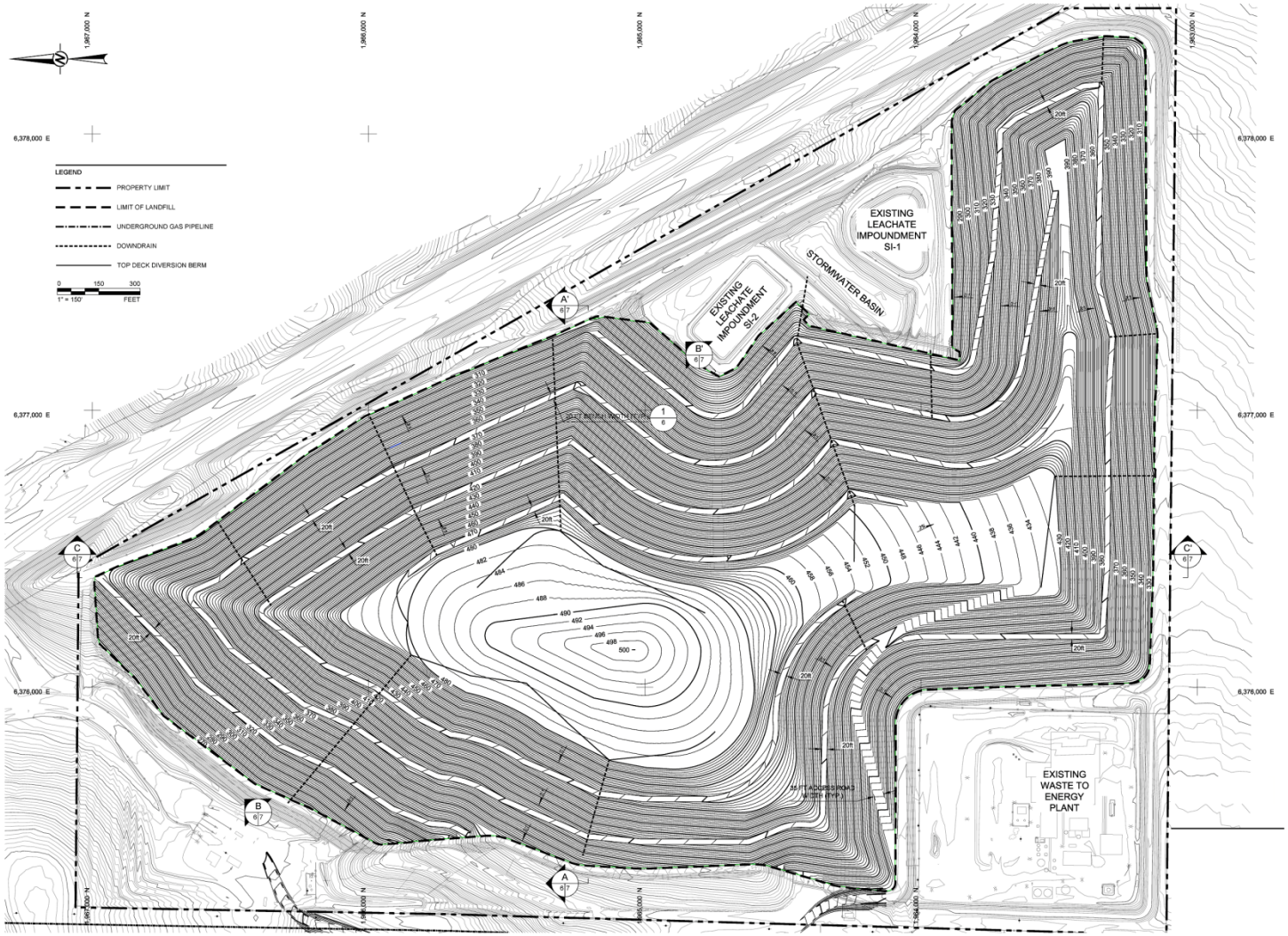
ATTACHMENT K—SURFACE WATER MONITORING



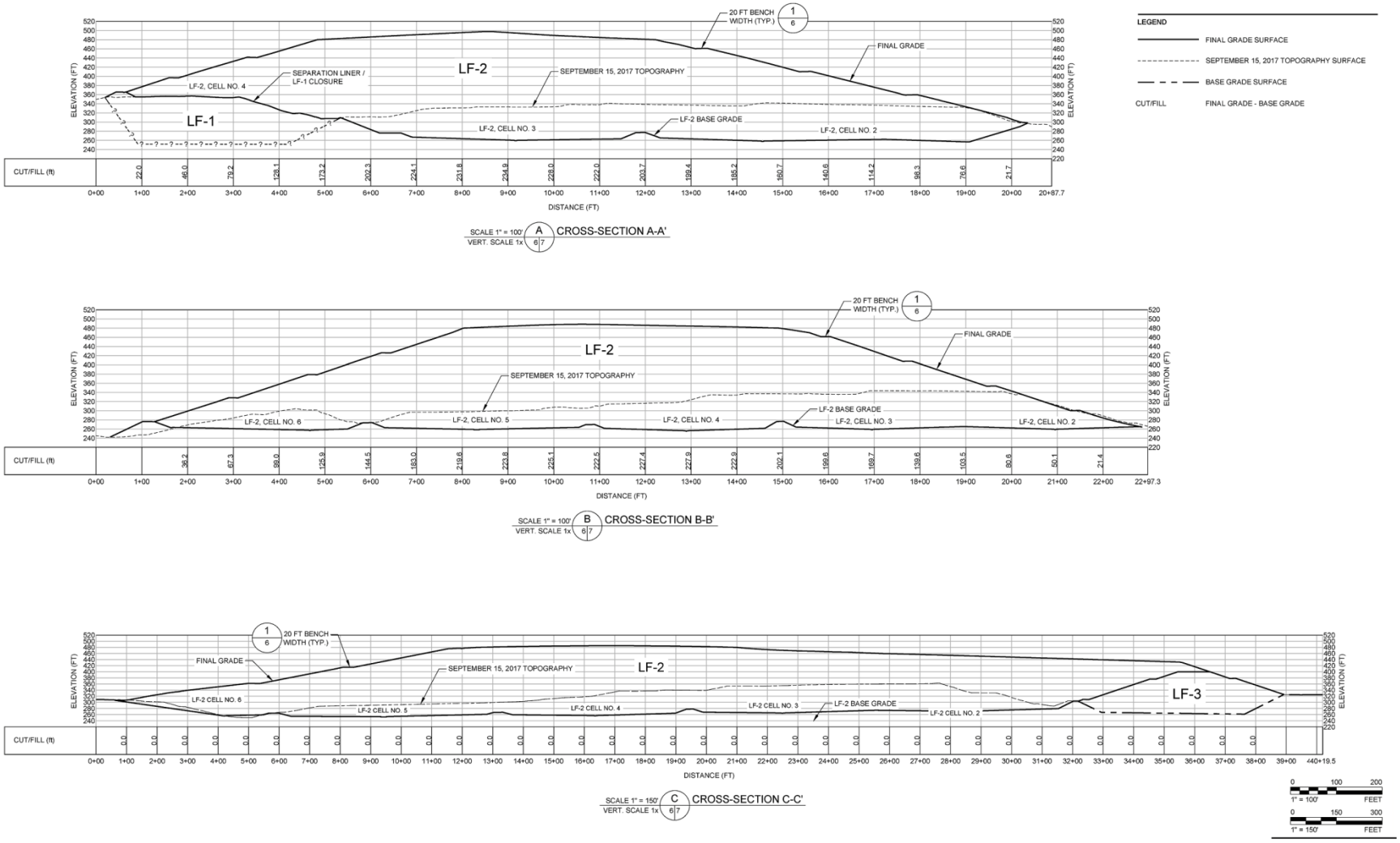
ATTACHMENT L—INFILL AND VERTICAL EXPANSION PROJECT



1. Proposed Vertical Expansion Cell- Location of Infill and Separation Liners



2. Final Grading of Vertical Expansion Cell



3. Final Cover Grades- Cross-Sections after Vertical Expansion

STANDARD PROVISIONS & REPORTING REQUIREMENTS- (LANDFILLS- 12/2015)

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)].

STANDARD PROVISIONS & REPORTING REQUIREMENTS- (INDUSTRIAL FACILITIES- 04/2016)

STANDARD PROVISIONS AND REPORTING REQUIREMENTS INDUSTRIAL FACILITIES REGULATED BY TITLE 27
(Title 27, § 20005 et seq.)

April 2016 Edition

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A. Applicability

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to Class II surface impoundments, waste piles, and land treatment units 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.

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 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 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)].

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

3. The discharge of waste to a closed waste management unit is prohibited.

4. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited, except within the treatment zone at a land treatment unit.

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

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

5. 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. 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)].

4. 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.

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

6. 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.

7. The Discharger shall maintain the depth of the fluid in the sump of each waste management 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).

8. 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)].

9. 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 (or most recent general industrial storm water permit), or retain all storm water on-site.

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 Class II waste management units that include the following:

    a. Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone monitoring system, 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 waste management unit (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, sections 21760(b) and 20375(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 II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

8. All 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 [Title 27, § 20370(a)].

9. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the waste management unit foundation, final slopes, and containment systems under both static and dynamic conditions throughout the life of the unit [Title 27, § 21750(f)(5)].

10. New Class II Units, other than LTUs and expansions of existing Class II units, shall have a 200 foot setback from any known Holocene fault. [Title 27, § 20250(d)].

11. Liners shall be designed and constructed to contain the fluid, including 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 any 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. 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.

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

17. Leachate collection and removal systems are required for Class II surface impoundments [Title 27, § 20340(a)].

18. 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)].

19. Leachate collection and removal systems shall be designed and operated to function without clogging through the life of the waste management unit.

20. 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)].

21. 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].

22. 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)].

23. 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.

24. The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new Class II waste management unit, construction of a final cover (for units closed as a landfill), or any other construction that requires Central Valley Water Board staff approval under this Order.

25. 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 Class II waste management unit. 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.

26. 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.

G. Standard Closure and Post-Closure Specifications

1. 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, future land use, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].

2. 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)].

3. The final cover of waste management units closed as a landfill shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].

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

5. All final cover designs shall include a minimum 1-foot thick erosion resistant vegetative layer or a mechanically erosion-resistant layer [Title 27, § 21090(a)(3)(A)(1 & 2)].

6. 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)].

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

8. Construction or repair of a 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)].

9. 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 units that are closed as a landfill shall be maintained in accordance with an approved post-closure maintenance plan [Title 27, § 21710(c)(6)].

10. The post-closure maintenance period for units closed as a landfill 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)].

11. The Discharger shall periodically inspect and identify problems with the final cover including areas that require replanting, erosion, areas lacking free drainage, and any areas damaged by equipment operations [Title 27, § 21090(a)(4)(B)].

12. The Discharger shall repair any 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)].

H. Standard Financial Assurance Provisions

1. The Discharger shall establish an irrevocable fund (or provide other means) for closure to ensure closure of each Class II unit in accordance with an approved closure 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) 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)].

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 Class II waste management unit 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 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)].

19. 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)].

20. 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)].

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

22. 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.

23. 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].

24. 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).

25. 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)].

26. 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)].

27. 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.].

28. 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.].

29. 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)].

30. 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)].

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

32. 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)].

33. 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)].

34. Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [Title 27, § 20415(e)(13)].

35. 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)].

36. 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)].

37. 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)].

38. 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.

39. 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.

40. 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, Article 19 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".

41. 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).

42. 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.

43. **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.44 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.45 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.

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

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

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

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

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

1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.44.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated and analyze them for the constituents that caused the need for the retest.

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

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

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

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

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

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

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

1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.45.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)(8)(E)(3)] of such indication, the Discharger shall implement a verification procedure/retest option, in accordance with Title 27, sections 20415(e)(8)(E) and 20420(j)(2). The verification procedure shall include either a single “composite” retest (i.e., a statistical analysis that augments and reanalyzes the data from the monitoring point that indicated a release) or shall consist of at least two “discrete” retests (i.e., statistical analyses each of which analyzes only newly-acquired data from the monitoring point that indicated a release) [Title 27, § 20415(e)(8)(E)]. The Discharger may use an alternate method previously approved by the Central Valley Water Board and included in the Monitoring and Reporting Program. The verification procedure shall comply with the requirements of Title 27, section 20415(e)(8)(E) in addition to the performance standards of

Title 27, section 20415(e)(9). The retest samples shall be collected from the monitoring point where the release is preliminarily indicated and shall be analyzed for the constituents that caused the need for the retest. For any indicated monitoring parameter or constituent of concern, if the retest results of one or more of the retest data suites confirm the original indication, the Discharger shall conclude that measurably significant evidence of a release has been confirmed.

2) **Confirmation of a Release**. As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph I.45.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.

46. **Physical Evidence of a Release**. If the Discharger determines that there is a significant **physical** evidence of a release, the Discharger shall immediately verbally notify Central Valley Water Board staff and provide written notification **by certified mail within 7 days** of such determination, and within **90 days** shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program [Title 27, § 20385(a)(3) and § 20420(l)(1) & (2)].

J. Response To A Release

1. **Measurably Significant Evidence of a Release Has Been Confirmed**. If the Discharger has confirmed that there is measurably significant evidence of a release from a waste management unit pursuant to Standard Monitoring Specification I.44 or I.45, 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 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)].

c. **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)].

d. 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)].

e. **Within 90 days** of the date that the Evaluation Monitoring Program from paragraph J.1.b 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)].

K. General Provisions

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

2. All reports and transmittal letters shall be signed by persons identified below:

   a. For a corporation: by a principal executive officer of at least the level of senior vice-president.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor.

   c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.

d. A duly authorized representative of a person designated in a, b or c above if:

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

2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and

3) The written authorization is submitted to the Central Valley Water Board.

e. Any person signing a document under this Section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

3. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

4. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and leachate generated by discharged waste during the active life, closure, and any 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. The Discharger shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

2. 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)].

3. Precipitation on Class II 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)].

4. 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 through the use of energy dissipators where required to decrease the velocity of runoff, slope protection, and other erosion control measures where needed to prevent 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.

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.

5. 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)].

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

7. 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)].

8. Any drainage layer in a 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)].

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

[TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER R5-2021-XXXX FOR STANISLAUS COUNTY, DEPT. OF ENVIRONMENTAL RESOURCES FINK ROAD LANDFILL STANISLAUS COUNTY

INFORMATION SHEET

The Fink Road Landfill is a 203-acre MSW landfill Facility located on a 219-acre site near the Interstate 5 freeway about 4.5 miles west of the town of Crows Landing and six miles south of the City of Patterson. The USGS coordinates are latitude 37.3919°N, longitude 121.1374° W. The Facility includes three landfill units (LF-1, LF-2 and LF-3) and two Class II surface impoundments (SI-1 and SI-2).

Landfill Wastes

LF-1, an unlined Class III unit operated from 1971 to June 1993, accepted primarily MSW, C&D and treated medical wastes. LF-1 was closed with a Title 27 prescriptive clay soil cover in 1997. LF-2, a compositely lined Class III MSW landfill unit, has been in operation since 1993 accepting the same types of wastes historically discharged to LF-1 as well other nonhazardous wastes from commercial, industrial and agricultural sources. Leachate from LF-2 is discharged to SI-2. LF-3, a Class II non-MSW landfill, has been in operation since 1988 accepting only boiler ash from an adjacent, offsite Waste-to-Energy (WTE) plant operated by Covanta Stanislaus Inc. The boiler ash consists primarily of incinerated MSW and other wastes imported from companies in the Silicon Valley about 45 miles west of the site on the other side of the Diablo Mountains. Leachate from LF-3 is discharged to SI-1.

Site Description

The Facility is on a low hill overlooking the San Joaquin Valley in the eastern foothills of the Diablo Mountains, which are part of the Coast Range. Land uses in the vicinity of the Facility include industrial (i.e., the landfill), irrigated agriculture, ranching, water conveyance (e.g., State Water Project), transportation corridor (Interstate 5 freeway) and former aviation (closed private airport formerly owned by NASA). The site is underlain by weathered terrace deposits (e.g., interbedded clays, silts and sands, and gravelly clay) to a depth of about 60 feet bgs and then bedrock. Permeabilities of the

terrace deposits generally range from $1x10^{-4}$ cm/sec to l x 10^{-9} cm/sec. Depths to groundwater ranges from 12 to 85 feet bgs, including small perched zones that follow surface topography. Groundwater generally flows to the northeast in the area of LF-1 and LF-2, to the east in the area of LF-3, and to the southeast in the area of SI-1 and SI-2. An August 2019 DWR well survey identified at least 15 groundwater supply wells within a one-mile radius of the site. See WDR Finding 30 and Attachment IS-A—Supply Well Survey Map.

Corrective Action

Groundwater impacts consisting of VOCs and mildly elevated concentrations of inorganic constituents have been historically detected down gradient of LF-1, indicating a release from the unit. VOCs detected consisted primarily of chlorinated VOCs, Freon compounds, and BTEX. Corrective action measures implemented to address the release included landfill closure in 1996 (see WDR Finding 75) and the installation of LFG controls in 1998. See WDR Finding 56. Since the implementation of these measures, the concentration of total VOCs detected immediately downgradient of LF-1 in MW-9A and/or 9B) has declined to non-detect levels as of the Fourth Quarter, 2019 monitoring period.

Corrective action measures have also been historically implemented to address the detection of impacted liquid in some of the lysimeters including those beneath LF-2 Cell 2; LF-3 Cells 1 & 2; and SI-1 and SI-2. In the late 1990s source control measures, including reconstruction of SI-1 (described in Finding 66); reconstruction of the LCRS for LF-3 Cells 1 & 2; and the extension of LFG controls to LF-2 (see WDR Finding 56) were implemented, for example. Since the implementation of these corrective action measure in the late 1990s, lysimeters at the site have been historically dry or unimpacted.

WMU Design

LF-1 is unlined and has no LCRS. LF-2 currently consists of six cells, with one additional cell, Cell 7 planned for future construction.[26] LF-3 currently consists of four cells (Cells 1 to 4) with an additional cell (Cell 5) planned for future construction in about 2022 or 2023. The lowest elevation of wastes at LF-2 and LF-3 generally occur at the LCRS sumps of each cell, or if the cell is not equipped with an LCRS sump, the toe of the cell. See WDR Finding 23 and Attachment IS-B—Landfill 1 & 2 Base Grades.

SI-1 and SI-2 are double-lined Class II surface impoundments that accept leachate from LF-3 and LF-2, respectively, as well as any liquid recovered from their own leak

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[26] The Discharger estimates that LF-2 Cell 7 will be constructed in the year 2022.

detection systems. SI-2 also accepts liquid recovered from an underdrain installed to maintain adequate separation from high groundwater.

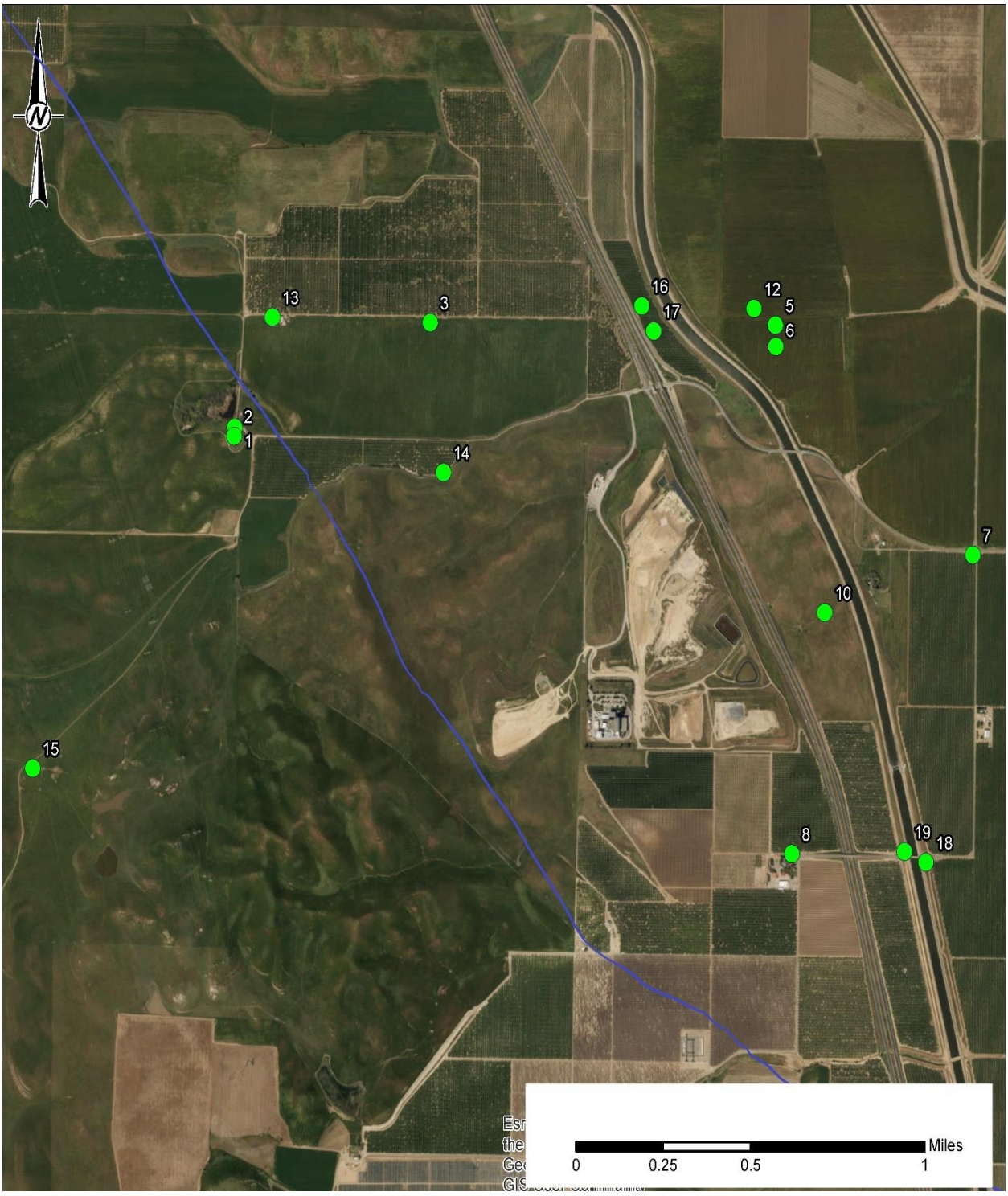
Once the above LF-2 and LF-3 cells are all filled to interim grades, the Discharger plans to vertically and laterally expand LF-2, overlapping portions of LF-1 and LF-3 and in-filling between the units. The expansion project is expected to begin in about 2027 concurrent with partial final closure of the western slopes of LF-3 that it overlaps.

Revised WDRs

These WDRs prescribe requirements for WMU operation, construction, corrective action, closure and post-closure maintenance and monitoring consistent with Title 27 and applicable Subtitle D regulations. The MRP attached to the WDRs generally requires semiannual monitoring for landfill monitoring parameters and five-year monitoring for landfill and surface Impoundment constituents of concern.

JDM

Attachment IS-A—Supply Well Survey Map



Attachment IS-B—Landfill 1 & 2 Base Grades