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**DRAFT [TENTATIVE] WASTE DISCHARGE REQUIREMENTS
ORDER R5-2024-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): Forward, Inc., an Arizona corporation &
Republic Services, Inc., a Delaware corporation
Facility: Forward Landfill
Address: 9999 South Austin Road, Manteca CA 95336
County: San Joaquin County
Parcel Nos.: 181-150-07, 181-150-08, 181-150-09, 181-150-010,
201-060-01, 201-060-02, 201-060-03, 201-060-04, 201-060-
05 and 201-070-01
WDID: 5B390306001
Prior Order(s): R5-2017-0703, R5-2014-0006, R5-2008-0714, and
R5-2003-0049

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 Month 2024.

PATRICK PULUPA,
Executive Officer

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GLOSSARY

ADC	Alternative Daily Cover
AMW	Austin Monitoring Well
ASW	Austin Surface Water Station
Antidegradation Policy	Statement of Policy with Respect to Maintaining High Quality Waters in California, State Water Board Resolution 68-16
Basin Plan	<i>Water Quality Control Plan for the Sacramento River and San Joaquin River Basins</i>
bgs	Below Ground Surface
BMP	Best Management Practices
BPTC	Best Practicable Treatment or Control
BOD	Biological Oxygen Demand
C&D	Construction and Demotion Materials
CalRecycle	California Department of Resources Recycling and Recovery
CAP	Corrective Action Program
CAMP	Corrective Action Monitoring Program
CDCR	California Department of Corrections and Rehabilitation
CEQA	California Environmental Quality Act
C.F.R.	Code of Federal Regulations
COCs	Constituents of Concern
CPMP	Closure and Post-Closure Maintenance Plan
CQA	Construction Quality Assurance

CV-SALTS	Central Valley Salinity Alternatives for Long-Term Sustainability
Designated Waste	(a) Hazardous Waste subject to variance from management requirements per Health and Safety Code section 25143; and (b) Nonhazardous Waste containing pollutants that, under ambient conditions, could be released in concentrations exceeding applicable WQOs, or that could reasonably be expected to affect beneficial uses of water. (Wat. Code, § 13173.)
DMP	Detection Monitoring Program
DTSC	California Department of Toxic Substances Control
DW	Domestic Well
EMP	Evaluation Monitoring Plan
EPA	Environmental Protection Agency
EW	Groundwater Extraction Well
Fe	Iron
FEMA	Federal Emergency Management Agency
FSW	Forward Surface Water Station
GCL	Geosynthetic Clay Liner
Hazardous Waste	Wastes which, pursuant to Title 22, section 66261.3 et seq., are required to be managed in accordance with Division 4.5 of Title 22. (Title 27, § 20164; Title 23, § 2521(a).)
HDPE	High-Density Polyethylene
JTD	Joint Technical Document
LAA	Land Application Area

LCRS	Leachate Collection and Removal System
LEA	Local Enforcement Agency
Leachate	Liquid formed by the drainage of liquids from waste or by the percolation or flow of liquid through waste. Leachate includes any constituents extracted from the waste and dissolved or suspended in the fluid. (Title 27, § 20164.)
LFG	Landfill Gas
LY	Lysimeter
MCE	Maximum Credible Earthquake
MCL	Maximum Contaminant Level
MDB&M	Mount Diablo Base and Meridian
MDL	Method Detection Limit
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
Mn	Manganese
MPE	Maximum Probable Earthquake
MSL	Mean Sea Level
MRP	Monitoring and Reporting Program
MSW	Municipal Solid Waste regulated under 40 C.F.R. part 258
MW	Monitoring Well
N	Total Nitrogen
NCP	Nitrate Control Program

NOAA	National Oceanic and Atmospheric Administration
OAL	Office of Administrative Law
P&O	Prioritization & Optimization
PZ	Piezometer
RCRA	Resource Conservation and Recovery Act
ROWD	Report of Waste Discharge
SCP	Salt Control Program
SEIR	Supplemental Environmental Impact Report
sMCL	Secondary Maximum Contaminant Level
SPRRs	Standard Provisions and Reporting Requirements
Subtitle D	USEPA-promulgated MSW regulations under RCRA (see 40 C.F.R. part 258)
TKN	Total Kjeldahl Nitrogen
TDS	Total Dissolved Solids
Title 22	California Code of Regulations, title 22
Title 23	California Code of Regulations, title 23
Title 27	California Code of Regulations, title 27
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds
WDRs	Waste Discharge Requirements
WMU	Waste Management Unit
WQOs	Water Quality Objectives
WQPS	Water Quality Protection Standard

FINDINGS

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

Introduction

1. Forward, Inc., an Arizona corporation and subsidiary of Republic Services, Inc., a Delaware corporation (hereinafter referred to jointly as “Discharger”) owns and operates the Forward Landfill (Facility), which is located approximately 7 miles southeast of Stockton in San Joaquin County, Section 3 and 10, Township 1 South, Range 7 East, Mount Diablo Base and Meridian (MDB&M) and Section 34, Township 1 North, Range 7 East. The Facility’s location is depicted on the Site Location Map in **Attachment A**.
2. The Facility is situated on a 744-acre property comprised of Assessor’s Parcel Numbers (APNs) 181-150-07, 181-150-08, 181-150-09, 181-150-010, 201-060-01, 201-060-02, 201-060-03, 201-060-04, 201-060-05 and 201-070-01. The address associated with the Facility is 9999 South Austin Road, Manteca, California 95336. The current permitted footprint is approximately 388 acres.
3. As the Facility’s owner and operator, the Discharger is responsible for compliance with this Order, which prescribes Waste Discharge Requirements (WDRs) regulating construction, monitoring, operation, closure, and post-closure maintenance of the Waste Management Units (WMUs) listed in **Table 1** and **Attachment G**.

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

Unit	Size (acres)	Liner/LCRS	Class	Status
WMU A	8.0	Four trenches with a compacted clay liner and dendritic LCRS. Designated and hazardous waste.	Class I	Closed, in 1989
WMU B	12.1	Unlined – nonhazardous solid waste.	Class III	Inactive, since 1986

Unit	Size (acres)	Liner/LCRS	Class	Status
WMU B North	2.8	Unlined – construction debris and inert waste.	Class III	Inactive, overlain by later units
WMU C	3.9	Compacted clay liner (CCL) base, dendritic LCRS.	Class III	Inactive, overlain by later units
WMU D-87	2.5	2-feet CCL base, dendritic LCRS.	Class III	Inactive, overlain by later units
WMU D-88N	4.6	4-feet CCL base, dendritic LCRS.	Class II	Inactive, overlain by later units
WMU D-88S	1.5	4-feet CCL base, dendritic LCRS.	Class II	Inactive, overlain by later units
WMU D-89	3.5	4-feet CCL base, blanket LCRS.	Class II	Inactive, overlain by later units
WMU D-93	4.6	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Inactive, overlain by later units
WMU D-94	2.5	Single composite liner GCL, 60-mil HDPE and blanket LCRS.	Class II	Inactive, overlain by later units
WMU D-95	9.2	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Inactive
WMU D-97	5.6	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Inactive

Unit	Size (acres)	Liner/LCRS	Class	Status
WMU D-98	2.5	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Inactive
WMU D-99	3.6	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Inactive
WMU D-00	6.6	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Inactive
WMU D-01	12.2	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Inactive
WMU D-02	10.4	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Inactive
WMU E	6.0	2-feet CCL base, blanket LCRS. Coal ash only.	Class II	Closed, 1999
WMU F North	1.3	Leachate surface impoundment – double liner composed of GCL, 60-mil HDPE, geonet, 60-mil HDPE.	Class II	Operating

Unit	Size (acres)	Liner/LCRS	Class	Status
WMU F West	0.97	Leachate surface impoundment – double liner composed of GCL, 60-mil HDPE, geonet, 60-mil HDPE.	Class II	Operating
WMU Austin Road Unit	123.9	Unlined municipal solid waste landfill.	Class III	Partially closed (see Finding 13)
WMU FU-03	11.9	Single composite liner – 2-foot CCL, 60-mil HDPE and blanket LCRS.	Class II	Operating
WMU ART-03	9.4	1-foot CCL, 1-foot vegetation layer, blanket LCRS.	Class II	Operating
WMU FU-04 North	7.6	1-foot CCL, 1-foot vegetation layer, blanket LCRS.	Class II	Operating
WMU FU-04 South	21.8	Single composite liner – 2-foot CCL, 60-mil HDPE and blanket LCRS.	Class II	Operating
WMU FU-05 North	14.0	1-foot CCL, 1-foot vegetation layer, blanket LCRS.	Class II	Operating
WMU FU-05 South	10.9	Single composite liner – 2-foot CCL, 60-mil HDPE and blanket LCRS.	Class II	Operating
WMU FU-06 North	15.2	1-foot CCL, 1-foot vegetation layer, blanket LCRS.	Class II	Operating

Unit	Size (acres)	Liner/LCRS	Class	Status
WMU FU-06 South	9.9	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Operating
WMU FU-08 North	15.0	1-foot CCL, 1-foot vegetation layer, blanket LCRS.	Class II	Operating
WMU FU-08 South	11.6	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Operating
WMU FU-10	8.0	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Operating
WMU FU-13	9.9	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Operating
WMU FU-14	11.6	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Operating
WMU FU-17	8.5	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Operating
WMU FU-19	8.0	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS.	Class II	Operating

Unit	Size (acres)	Liner/LCRS	Class	Status
Composting Area		Compacted native soils	Unclassified	Operating, separately regulated (see Finding 33)
WMU Future H (Phase 3)	31.5	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS	Class II	Planned
Phase 1	15.17	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS	Class II	Planned
Phase 2 (WMU FU-23)	22.21 (4.5 built)	Single composite liner – 2-feet CCL, 60-mil HDPE and blanket LCRS	Class II	Planned (WMU FU-23 operational, see note 1)
WMU F South	(See Finding 32)	Leachate surface impoundment	Class II	Planned
WMU F East	(See Finding 32)	Leachate surface impoundment	Class II	Planned

Notes:

1. WMU FU-23 completed construction and received approval on 6 November 2023 and is located within the WDR R5-2014-0006 approved area. Phase 2 currently has 17.71 acres available.
2. See Glossary for definitions of terms and abbreviations in table.

Materials Accompanying Order

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

- Attachment A—Location Map
- Attachment B—Site Map
- Attachment C—Cannery Waste Location Map
- Attachment D—Monitoring Network Map
- Attachment E—Approved Landfill Liner Design
- Attachment F—Approved Final Closure Design
- Attachment G—Waste Management Units Map

Attachment H—Residential Domestic Wells
Attachment I—1,000 FT Radius/ Adjacent Land Use Map

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

Information Sheet for Draft [Tentative] Waste Discharge Requirements
Order R5-4-XXXX (Information Sheet)

5. This Order is also accompanied by the concurrently adopted **Monitoring & Reporting Program (MRP) Order R5-2024-XXXX**, the provisions of which are incorporated as part of this Order. Each time the operative MRP is modified by the Central Valley Water Board or its Executive Officer, the revised version shall become the operative MRP (superseding the prior version) and be incorporated as part of this Order (i.e., in lieu of the prior version).
6. To the extent there are any material inconsistencies between the provisions of this Order, the operative MRP, and the SPRRs, the provisions of this Order shall be controlling. However, to the extent a revised MRP contains new or different factual findings reflecting changed conditions or circumstances at the Facility, the revised MRP findings shall be controlling.
7. Additional information about the Facility is set forth in the **Information Sheet**, which is incorporated as part of these findings. See Finding 4.

Facility

8. The Facility is an existing solid waste disposal facility comprised of the former Forward Landfill and the former Austin Road Landfill. The former Austin Road Landfill was originally opened in 1954 and accepted municipal solid waste. In 1973, the Discharger began operating the former Forward Landfill. In 2000, the Discharger purchased the adjacent Austin Road Landfill.
9. In April 2001, the County of San Joaquin granted Use Permit UP-00-7 to Forward, Inc. to combine the former Austin Road Landfill and the original Forward Landfill into a single disposal facility with a single set of permits. See **Attachment B** for site map.
10. The entire site area is 744-acres based on Assessor's Parcel information. Approximately 144-acres is comprised of the former Forward Landfill, 244-acres is comprised of the former Austin Road Landfill, and 172-acres of the site incorporates the creeks, easements, entrance facilities, scales, roadways, storage areas, borrow areas, maintenance areas, and other miscellaneous

operational areas. A 184-acre buffer area is located to the southwest corner of the site. Landfilling or associated activities are not allowed on the 184-acre site.

11. The Facility includes the following onsite features, systems and structures:
 - a. Solid waste disposal facility
 - b. Transfer station/materials recovery facility (MRF)
 - c. Composting facility
 - d. Office
 - e. Scale house
 - f. Maintenance areas
 - g. Landfill gas extraction system
 - h. Gas-to-energy plant
 - i. Landfill gas flare
 - j. Groundwater remediation system
 - k. Wheel wash station (Tracinator) and concrete basin
 - l. Land application area (LAA)
12. WMU A, a Class I unit, accepted hazardous waste from 1979 to 1984. WMU A was closed in 1989 and is currently in the post-closure maintenance period under the oversight of the Department of Toxic Substance Control (DTSC) and United States Environmental Protection Agency (USEPA). WMU A is regulated by Hazardous Waste Postclosure Facility Permit EPA ID No. CAD990794133.
13. The 123.9-acre unlined Austin Road Landfill does not contain a base liner or leachate collection and removal system (LCRS). An intermediate liner system was constructed, or will be constructed, to separate Class III waste in unlined or non-Subtitle D lined existing WMUs from adjacent Class II WMUs (see **Attachment E**). At approximately 90 feet mean sea level (MSL), the top of former Austin Road Landfill was graded to drain south, and a final cover was placed on top of the northern slope and portions of the western slope. The intermediate liner system was utilized along the southern slope (see Finding 82) in support of additional waste being placed over the former Austin Road Landfill. The eastern slope will utilize an intermediate liner system as cover when Phase 1

and Phase 2 expand the landfill to the east (**Attachment G**). The former Austin Road Landfill is therefore partially closed.

14. On 13 November 2019, WMU FU-19 was completed connecting the Forward and Austin Road landfills. WMU FU-19 ties into the southern side of WMUs FU-06, FU-08, FU-10, and FU-14 together with the northern side of WMU D-02, D-93, and D-95.

Waste Classification & Permitting

15. The Facility's landfills are subject to federal Municipal Solid Waste (MSW) regulations promulgated under the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. sec. 6901 et seq.). Typically referred to as "Subtitle D," these regulations are now codified as 40 Code of Federal Regulations (C.F.R.) part 258 (1991) and implemented in part through the provisions California Code of Regulations, title 27 (Title 27) and in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62.
16. On 6 February 2014, the Central Valley Water Board adopted WDRs Order R5-2014-0006, classifying the Facility's WMUs as either Class II or Class III units for the discharge of MSW and designated waste (as defined per Wat. Code, sec. 13173). This Order continues such classifications, which are set forth above in **Table 1**.
17. On 22 June 2021, the Discharger submitted an updated Report of Waste Discharge (ROWD) as part of its Joint Technical Document (JTD) for the Facility. Information in the JTD was used in the development of this Order. The Discharger's ROWD/JTD makes the following significant proposals:
 - Additional landfill disposal area in the northeast portion of the site
 - Realigning the existing South Fork of South Littlejohns Creek (also known as South Branch) to the southern and eastern boundaries of the site
 - New bridge across the south creek
 - Additional landfill disposal area in the south area gained by realigning the South Fork
 - Associated increase in landfill disposal capacity (approximately 8.12 million cubic yard)
- a. The ROWD/JTD dated 30 October 2020 was originally submitted on 13 November 2020. The 22 June 2021 ROWD/JTD was a resubmittal that included revisions based on comments from the following agencies:

- i. San Joaquin County, Environmental Health Department
 - ii. CalRecycle
18. On 22 March 2022, the ROWD/JTD was deemed complete.
19. The Discharger proposes to continue discharging asbestos-containing waste (i.e., >1% asbestos) at the Facility. Although asbestos-containing waste is classified as “hazardous” under California Code of Regulations, title 22 (Title 22), the discharge of such waste does not pose a threat to water quality and is therefore authorized for WMUs as specified in **Section B.1** and **Table 16**. (Health & Saf. Code, sec. 25143.7.)
20. The Discharger proposes to continue discharging **Treated Wood Waste**, as defined per Title 22 section 67386.4, at the Facility. Treated Wood Waste may contain chemicals such as chromated copper arsenate (CCA), pentachlorophenol, creosote, acid copper chromate (ACC), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), or chromated zinc chloride (CZC). In accordance with Title 22 section 67386.11, this Order authorizes the discharge of treated wood waste to composite-lined WMUs specified in **Section B.1** and **Table 16**, provided that the Discharger complies with Article 11.2 of the Health and Safety Code, commencing with section 25230; Title 22 section 67386.3; and the applicable SPRRs.
21. The Discharger proposes to continue discharging certain **Designated Wastes** (per Wat. Code, sec. 13173)—specifically industrial waste, coal and wood ash, contaminated soils, salty wastes, and auto shredder waste—to Class II WMUs at the Facility. This Order authorizes the discharge of such wastes to the WMUs specified in **Section B.1** and **Table 16**.
22. DTSC has granted a variance from Title 22 hazardous waste management requirements for disposal of shredder waste (see State Water Board Resolution No. 87-22). Shredder waste is any non-recyclable wastes which results from the shredding of automobile bodies (from which batteries, mufflers, and exhaust pipes have been removed), household appliances, and sheet metal. The Discharger proposes to discharge shredder waste to units with single composite liners.
23. The Discharger proposes to discharge cannery rinsate muds, dewatered sewage, and water treatment sludges to units with single composite liners. If disposed directly into the landfill, sludge is mixed with refuse so that the mixed sludge will not exceed the moisture holding capacity of the refuse. Rinsate muds and sludges containing excess moisture may be air-dried on a bermed, compacted clay pad. When dry, the rinsate mud, sludge, and underlying soil impacted by contact with the sludge are disposed in the WMU.

24. The Discharger accepts soils contaminated with less than hazardous levels of petroleum hydrocarbons. These soils were historically either treated in a land treatment unit or discharged to Class II landfill units. The Discharger demonstrated that soil contaminated with less than hazardous levels of petroleum hydrocarbons can be transformed to a 'nonhazardous solid waste' in the treatment unit. There are currently no active soil Land Treatment Units (LTUs) at the site. Soil LTUs are no longer permitted on the site.

**Alternative Daily Cover / Intermediate Cover
(Operating Landfill Units)**

25. In lieu of the daily cover required per Title 27 section 20680, the Discharger proposes to use an approved alternative daily cover (ADC) (see Title 27, secs. 20690 and 20705), which consists of nonhazardous ash and cement kiln dust, pre-processed treated auto shredder waste, pre-processed construction and demolition (C&D) waste, shredded tires, compostable materials (off-specification and delivered by generator), processed green material, and geosynthetic tarps.
26. In accordance with Title 27 section 20705, Discharger has demonstrated that its proposed ADC materials: (a) will minimize percolation of liquids through waste and are (b) consistent with the classification of the WMUs to which they are to be applied. The approved ADC material constituents and breakdown products are also included as part of the WQPS set forth in the MRP.
27. The materials approved for use as ADC are as follows:
- a. Nonhazardous ash and cement kiln dust
 - b. Pre-processed treated auto shredder waste
 - c. Pre-processed construction and demolition waste
 - d. Shredded tires
 - e. Compostable materials
 - f. Processed green materials
 - g. Geosynthetic tarps
28. The proposed ADC has already been approved by the Local Enforcement Agency (LEA). The Central Valley Water Board concurs that the proposed ADC meets applicable requirements in accordance with Title 27 section 20690, subdivision (b), and section 20705.

29. Intermediate cover generally consists of soil placed and compacted to a depth of at least 12 inches. The proposed use of an alternative intermediate cover would require a site-specific demonstration project and approval of the LEA with concurrence by CalRecycle.

Surface Impoundments

30. Liquid wastes will be discharged to one of two existing surface impoundments (WMU F North and WMU F West) and two proposed Class II surface impoundments (WMU F South and WMU F East). See **Table 1** for additional information regarding existing and proposed surface impoundments as well as **Attachment G** for locations. If leachate production exceeds impoundment capacity at any impoundment, excess leachate will be contained in temporary on-site, aboveground tanks. No liquids generated offsite will be discharged to the impoundments without prior approval of the Central Valley Water Board. Discharges to Class II surface impoundments may include the following:
- a. Leachate from the landfill units and surface impoundments;
 - b. Landfill gas (LFG) condensate from the LFG extraction system;
 - c. Impacted storm water runoff from the landfill and associated facilities;
 - d. Cannery rinse water; and/or
 - e. Other liquid wastes that are compatible with the liner system and approved by Board staff.

All Class II surface impoundment LCRSs are required to be tested annually.

31. Facility Specification C.6 requires that the Discharger operate the Class II impoundments so that, on October 15 of each year, a freeboard of at least 4.74 feet and 5.53 feet in WMU F North and WMU F West, respectively. This corresponds to two feet plus the calculated rise in liquid level associated with an average annual storm season according to the ROWD/JTD. Title 27 sections 20320, subdivision (e), and 20375, as well as the accompanying Table 4.1,¹ require the Class II surface impoundment to be sited and designed to a 1,000-year, 24-hour storm event.
32. The Discharger proposed additional surface impoundments, WMU F South and WMU F East, for the Facility. The Discharger must submit design reports,

¹ Title 27, div. 2, subd. 1, ch. 3, subch. 2, art. 4, tbl. 4.1.

Construction Quality Assurance (CQA) plans, and CQA reports for Central Valley Water Board review and approval prior to discharging waste to these WMUs. (See Section I, **Table 17** Item 4.)

Compost Facility

33. A Compost Facility exists on site and was previously permitted under the previous WDRs Order R5-2014-0006. The composting facility is now regulated under State Water Board Order WQ 2020-0012-DWQ-R5S013, General Waste Discharge Requirements for Commercial Composting Operations. A Notice of Applicability was issued on DD MM 2023.

Site Conditions

34. Forward Landfill is situated in the eastern San Joaquin Valley on relatively flat terrain with pre-landfill surface elevations ranging from 30 to 40 feet above MSL. The existing Solid Waste Facility Permit allows landfilling to a maximum elevation of 210 feet MSL. The North Fork of South Littlejohns Creek forms the north and west boundaries of the Austin Road unit and drains the north half of the combined landfill area. The South Fork of South Littlejohns Creek separates the old Forward units and the composting/materials recycling area and drains the south half of the combined landfill area.
35. The site is underlain by lenticular deposits of clay, silt, and sand with minor gravel of the Pleistocene Victor Formation. The closest fault, the Tracy-Stockton Fault Zone is approximately 6.5 miles to the northwest.
36. Land uses within one mile of the Facility include agriculture, industrial, and residential. The Stockton Metropolitan Airport is approximately one mile to the west. California State facilities such as NA Chaderjian Youth Correctional Facility, O.H. Close Youth Correctional Center, Youth Authority Department, California Health Care Facility, and Delta Center California Conservation Corps are approximately one mile to the north. The BNSF Intermodal Facility is approximately one mile to the northeast. There are six residences within one half mile of the landfill, one on Austin Road and five on Newcastle Road. See **Attachment I** for a 1,000 feet radius and land use map.
37. Surface water from the Facility drains to North and South Fork Branches of South Littlejohn Creek, a tributary to San Joaquin River. According to the Central Valley Water Board's *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan), the beneficial uses of Duck-Littlejohns Hydrologic Area (31.40) include: municipal and domestic use (MUN); agricultural supply (AGR); industrial process supply (PRO); water contact recreation (REC-1); non-water contact recreation (REC-2); warm freshwater habitat

(WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); and spawning, reproduction and/or early development (SPAWN).

38. Groundwater underneath the Facility is first encountered between approximately 60 and 80 feet below ground surface (bgs). Groundwater elevations range between -14 and -30 feet MSL. The depth to groundwater fluctuates seasonally as much as 10 feet. Groundwater is unconfined.
39. The direction of groundwater flow is generally toward the north-northeast. The estimated average groundwater gradient is approximately 0.002 feet per foot. The estimated average groundwater velocity is 195 feet per year.
40. According to the Basin Plan, the designated beneficial uses of groundwater at the Facility are municipal and beneficial use (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial service supply (PRO).
41. According to previous WDRs adopted in 2003 and 2014, there are 35 domestic, industrial, and agricultural supply wells within one mile of the Facility. These WDRs require the Discharger to submit an updated sensitive receptor survey. See **Table 17**, Item 6.
42. Class III WMUs must be designed and constructed to withstand a maximum probable earthquake (MPE), whereas Class II WMUs must withstand a maximum credible earthquake (MCE) (Title 27, sec. 20370). The Discharger's site-specific seismic analysis indicates that an earthquake occurring along the Great Valley Fault, at a closest rupture distance of 20 miles southwest of the site, would result in the events summarized in **Table 2**.

Table 2—Seismic Analysis

Earthquake	Magnitude	Peak Ground Acceleration	Return Period
Max Credible (MCE)	6.7	0.13 g	1,000 Years
Max Probable (MPE)	6.4	0.09 g	1,000 Years

See Glossary for definitions of terms and abbreviations in table.

43. Based on data from the nearest weather station (Stockton weather station number B00-8560), the Facility has an annual average precipitation of 14.27 inches, and a mean pan evaporation of 78.43 inches per year as measured from

the Oakdale Woodward Dam. The nearest weather station is reflective of conditions at the Facility.

44. WMUs must be constructed to accommodate stormwater runoff from 24-hour precipitation events with a return period of 100 years for Class III WMUs, and a return period of 1,000 years for Class II WMUs (see Title 27, section 20320). According to National Oceanic and Atmospheric Administration's (NOAA) Precipitation Frequency Atlas 14, Volume 6 (rev. 2014), the Facility's 100-year and 1,000-year, 24-hour rainfall events are estimated to result in 3.58 and 4.92 inches of precipitation, respectively. Source: [NOAA Precipitation Frequency Data Server](https://hdsc.nws.noaa.gov/hdsc/pfds) (https://hdsc.nws.noaa.gov/hdsc/pfds).
45. Stormwater sedimentation basins are situated in the western portion of the Facility, as depicted in **Attachment B**. A proposed sedimentation basin is permitted in the current entrance and located on the eastern boundary of the Facility. Stormwater from the sedimentation basins is typically evaporated but may be discharged to North or South Forks of South Littlejohns Creek. The Facility is covered under the State Water Board's operative General Permit for Storm Water Discharges Associated with Industrial Activities, NPDES Permit No. CAS000001 (Industrial General Permit).
46. According to the Federal Emergency Management Agency's (FEMA) [Flood Insurance Rate Map](https://msc.fema.gov/portal) (https://msc.fema.gov/portal), the Facility is not located within a 100-year floodplain, except for the South Fork of South Littlejohns Creek. Per Finding 17 the Discharger is currently realigning South Littlejohns Creek south of the site. The new channel is designed to carry the 100-year flood flows within its banks.

Monitoring Networks

47. As of the date of this Order, the Facility's **groundwater** monitoring network consists of the existing and proposed monitoring wells listed in **Table 3**. As noted in Finding 14, with the completion of WMU FU-19 the various landfill units are considered contiguous units for the purposes of groundwater monitoring (Title 27, sec. 20405, subd. (b)). See Monitoring Network Map in **Attachment D**.
48. Any additional groundwater wells installed as part of an investigation or for any other reason shall be sampled quarterly for the parameters and constituents listed in Table I of the MRP until they are either abandoned with concurrence of Water Board staff or they are incorporated into a regular monitoring program as part of a revised MRP.

Table 3—Groundwater Monitoring Well Network

Well	Program	Water-Bearing Zone	Status
MW-22, -23R, -24, AMW-2	Upgradient	Shallow	Operational
MW-1A, -13A, -14A, -15, -21, -25, -26 AMW-5R	Detection	Shallow	Operational
MW-1B, -2B, -3B, -13B, -14B CDCR-PZ-1, -2, -3	Piezometers	Shallow	Operational
MW-2A, -3A, -16, -17R, -19R AMW-1, -4, -12 -14, -18, -22S, -23S, -33S, -34S, -35S, -36S, -37S, -38S, -39S, -40S, -41S, -42S, -43S, -44, -45, -46, -50S, -51S, -52S, -54, -55, -57S, -58S, -59S	Corrective Action	Shallow	Operational
MW-10 AMW-7, -11, -13, -13B, -18B, -19, -19BR, -21S, -21, -22, -23M, -24R, -24SR, -25, -26R, -29S, -29, -30S, -30, -31S, -31, -32S, -32, -35, -40M, -41M, -42M, -43M, -47, -48, -49, -50M, -51M, -52M, -56, -57M, -58M, -59M	Corrective Action	Intermediate	Operational
AMW-6, -23D, -28, -33, -34, -34M, -36, -37	Corrective Action	Deep	Operational

Well	Program	Water-Bearing Zone	Status
Residential Domestic Wells (See Attachment H) DW-9690, 7898-A, 8106-A	Corrective Action	Intermediate	Operational

See Glossary for definitions of terms and abbreviations in table.

Notes:

1. Piezometers are sampled only if the associated “A” well is dry.
 2. Shallow wells are screened at elevations greater than -50 feet relative to MSL.
 3. Intermediate wells are screened at elevations of -50 to -125 feet relative to MSL.
 4. Deep wells are screened at elevations less than -125 feet relative to MSL.
 5. Point of Compliance wells are MW-1A, MW-13A, MW-14A, MW-15, MW-21, MW-25, MW-26, AMW-5R.
 6. The Residential Domestic Wells are listed here in corrective action as part of Cleanup and Abatement Order (CAO) R5-2017-0703. All sampling and reporting of the Domestic Well Sampling Program must follow the guidelines as set forth in the CAO. The requirement to sample these wells can only be changed and removed from the corrective action program with a rescission of the CAO.
49. As of the date of this Order, the Facility’s **unsaturated zone** monitoring network consists of the existing and proposed monitoring points listed in **Table 4**. See Monitoring Network Map in **Attachment D**.
50. Landfill units built after 2001 are constructed with pan lysimeters below the landfill sump as a final check of the integrity of the base liner. Suction lysimeters were used under pan lysimeters in WMU D-01, WMU D-02, WMU FU-03, WMU FU-04S, WMU FU-05S, and WMU FU-06S. The use of suction cup lysimeters has been discontinued starting with WMU FU-19 and they will not be installed on any future WMUs.

Table 4—Unsaturated Zone Monitoring Network

Monitoring Point	Device Type	Program	Monitored Unit	Status
E-1, E-2, W-1, W-2	Suction Lysimeter	Detection	WMU F North	Operational

Monitoring Point	Device Type	Program	Monitored Unit	Status
LY-Pond-N, LY-Pond-S	Suction Lysimeter	Detection	WMU F West	Operational
LY-BG-1	Suction Lysimeter	Background	Forward Unit	Operational
LY-A, -E1A, -E1B, -E2A, -E2B, D93A, D93B FU-03, -04W-A, -04W-B, -04E-A, -04E-B, -05-A, -05-B, -06-A, -06-B	Suction Lysimeter	Detection	Forward Unit	Operational
D-01S, -01N, -02 FU-03, -04W, -04E, -05, -06	Pan Lysimeter	Detection	Forward Unit	Operational

See Glossary for definitions of terms and abbreviations in table.

51. As of the date of this Order, the Facility’s **surface water** monitoring network consists of the existing and proposed monitoring points listed in **Table 5**. See Monitoring Network Map in **Attachment D**.

Table 5—Surface Water Monitoring Network

Monitoring Point	Location	Program	Status
FSW-1	South Fork Littlejohns Creek	Discharge (Downstream)	Operational
FSW-2	South Fork Littlejohns Creek	Background (Upstream)	Operational
ASW-1	North Fork Littlejohns Creek	Background (Upstream)	Operational
ASW-2	North Fork Littlejohns Creek	Discharge (Downstream)	Operational

See Glossary for definitions of terms and abbreviations in table.

52. As of the adoption of this Order, the above-described networks comply with the monitoring requirements of Title 27 (see Title 27, secs. 20415–20435).

Subsequent changes to these networks will be reflected in a Revised MRP issued by the Executive Officer.

Water Quality Protection Standard

53. A Water Quality Protection Standard (WQPS) is the analytical framework through which WMUs are individually monitored for releases and impacts to water quality (Title 27, sec. 20390, subd. (a)). Under Title 27, a WQPS is separately established for each WMU in WDRs. (*Id.*)
54. In accordance with Title 27, this Order, by virtue of its incorporation of **MRP Order R5-2024-XXXX** and subsequent revisions thereto, establishes a WQPS for each WMU at the Facility.

Notification of Release, Acceptance of Hazardous Waste, Recent Enforcement and Corrective Action

55. Groundwater downgradient of the old Austin Road Unit is impacted with volatile organic compounds (VOCs), including but not limited to: dichloroethane, dichloroethylene, tetrachloroethylene, and trichloroethylene. VOC impacts were detected in 1989 and, by 1991, evaluation monitoring determined that chlorinated hydrocarbon impacts extended as far as 1,000 feet downgradient of the landfill. A corrective action plan was approved for implementation in August 1991. The plan consisted of a load checking program, extraction and treatment of impacted groundwater from two wells, and continued monitoring of the effectiveness of corrective action.
56. In 1998, corrective action monitoring determined that the initial corrective actions had failed to contain groundwater contamination or remediate groundwater impacts. In April 1999, the City of Stockton (previous discharger) submitted a Draft Engineering Feasibility Study (EFS) for an improved corrective action plan. Staff determined that the Draft EFS was inadequate and requested changes. On 3 September 2000, ownership of Austin Road landfill was transferred to Forward, Inc. Forward submitted a revised EFS on 11 June 2001 and a second revised EFS on 30 August 2001. On 13 December 2001, the Central Valley Water Board issued a Time Schedule for Corrective Action. On 26 February 2002, Forward submitted an Evaluation Procedures for Proposed Corrective Action. The resulting corrective action plan includes the following activities:
 - a. Enhance landfill gas control system to prevent further release of VOCs from the landfill;
 - b. Continued groundwater extraction and treatment with existing extraction wells;

- c. Implementation of a groundwater artificial recharge system using treated water;
 - d. Additional groundwater monitoring wells to monitor the effectiveness of the corrective action and determination of the need for modifications; and
 - e. Install an interim cover on Austin Road Landfill Unit 1.
57. In 2008, chlorinated solvents including tetrachloroethylene and trichloroethylene were detected in water supply wells at the California Department of Corrections and Rehabilitation (CDCR) facility, located north of the Facility. On 8 December 2008, the Executive Officer issued CAO R5-2008-0714 (2008 CAO). The 2008 CAO required the Discharger to define the lateral and vertical extent of groundwater impacts downgradient of the landfill, provide an alternate source of drinking water to any landowner with a municipal or domestic well that had a confirmed detection of VOCs, implement source control to prevent VOCs from migrating past the landfill point of compliance, enhance the Facility's landfill gas and groundwater monitoring programs, and submit quarterly progress reports.
58. The Discharger began its efforts to comply with the 2008 CAO by addressing the requirement to provide replacement water for the CDCR facility. This was done by extending the City of Stockton's drinking water supply line to the facility. The Discharger also began supplying replacement water to two households near the landfill. The Discharger implemented an evaluation monitoring program in which numerous wells were installed; however, none of the wells were at the downgradient edge of the plume, nor did the Discharger continuously monitor these wells. With regard to source control and remedial actions, the Discharger installed an additional groundwater extraction well and multiple LFG extraction wells between 2008 and 2011.
59. On 10 April 2017, CAO R5-2008-0714 was rescinded, except for enforcement purposes, and replaced by CAO R5-2017-0703, which requires the Discharger to conduct additional investigations to delineate the vertical and lateral extent of the VOC release from the landfill, install corrective action systems to control and capture the migration of contaminants, enhance the groundwater treatment system, and address violations associated with over-loading of nitrogen in the cannery waste LAA (see Finding 99 for additional information). Compliance with CAO R5-2017-0703 is ongoing. The Discharger has yet to implement the interim and final corrective action measures required by the CAO. To protect the community with domestic wells in or near the current defined limit of the plume, the Discharger is required to sample residential domestic supply wells for VOCs. See **Table 3** and **Attachment H** for residential domestic wells included in the sampling program.

60. On 20 June 2016, a Notice of Violation for Acceptance of Hazardous Waste was issued. Forward Landfill accepted and buried hazardous waste on several dates between April 2014 and December 2015.
61. On 16 May 2017, Water Code section 13267 Order for Enhanced Monitoring was issued for investigation of the Discharger's failure to remove hazardous waste.
62. On 2 March 2018, a Notice of Violation for Acceptance of Hazardous Waste was issued for the illegal acceptance of hazardous waste. The hazardous waste was identified by the LEA as approximately 9 tons of lime mixed with debris and soil associated with a Union Pacific Railroad cleanup action.
63. On 9 May 2018, a Notification of Release was issued to the Discharger for the Forward Landfill WMU.
64. On 8 September 2018, the Discharger submitted an alternative source demonstration report to DTSC and addressed the statistically significant exceedance of organic and inorganic constituents of concern in groundwater wells downgradient from WMU A. The Discharger concluded that the concentration limit exceedance was caused by another Forward Landfill unit upgradient of WMU A.
65. On 4 June 2020, a Notice of Violation for Acceptance of Hazardous Waste was issued for the illegal acceptance of hazardous waste. The Discharger accepted hazardous waste from the Alco Iron and Metal Company, which contained hazardous levels of lead, cadmium, zinc, chromium, copper, and nickel.
66. On 3 August 2021, a Notice of Violation was issued regarding observed settlement above the former Austin Road Unit. Based on the Settlement Analysis on the Austin Road Unit – Leachate/Gas System Impacted report submitted by the Discharger on 3 September 2021, these WDRs require the functionality of the LCRS above the 4-foot clay cap to be evaluated. See Section I, **Table 17**, Item 7.
67. On 29 March 2022, a Notice of Release was issued to the Discharger for the unauthorized release of waste from WMU F West. Liquid was discovered in the sump on 23 February 2022, which prompted the Discharger to begin transferring leachate from WMU F West to WMU F North. On 9 March 2022, liquid was discovered in suction lysimeter LY-Pond-S, which was located beneath the secondary geomembrane liner. On 22 March 2022, a leak location survey was conducted on the primary geomembrane liner. On 5 May 2022, the Discharger confirmed that two holes, six inches in diameter, were identified on the primary and secondary geomembrane liner. The Discharger established an Evaluation Monitoring Program (EMP) to assess the nature and extent of the release from the unit, as well as, design a corrective action program. Soil and groundwater data, including the installation of additional groundwater monitoring wells,

indicate that there was not a significant release to the environment. The Discharger pursued the option to reconstruct the entire WMU F West. Central Valley Water Board staff concurred with the Second Revision to WMU F-West EMP and CAP Report in a letter dated 10 May 2023. On 09 November 2023, Central Valley Water Board staff concurred with Discharger's CQA Report and WMU F West was allowed to operate.

68. On 06 October 2023, a Notice of Release was issued to the Discharger for the unauthorized release of VOCs detected in groundwater monitoring well AMW-56.
69. The groundwater extraction system consists of five groundwater extraction wells at the downgradient boundary of the former Austin Road Unit and one groundwater extraction well on the CDCR property, located approximately 1,900 feet north of the landfill. These wells are identified as EW-1, EW-2, EW-3R, EW-4, and EW-5 on the Austin Road Unit and CDCR-EW-1 on the CDCR property. VOCs were removed with an air stripper until May 2018.
70. The extracted groundwater is currently treated by two 10,000-pound granular active carbon (GAC) vessels that were installed in January 2020. The treated water is discharged to a recharge basin to recharge the shallow aquifer. Discharges from the groundwater extraction system are regulated by WDRs Order R5-2003-0080 for the discharge of treated groundwater.

Unit Construction

71. Liners for **new Class II WMUs** (landfills and surface impoundments) must be designed and constructed to contain fluids (e.g., leachate, waste, and LFG condensate) to prevent the migration of waste to adjacent geologic materials, groundwater, and surface water (see Title 27, section 20310 subd. (a), 20330 subd. (a)).
72. Liners for **new Class III WMUs** (landfills) must be designed and constructed to contain fluids (e.g., leachate, waste, and LFG condensate) so as to be capable of preventing degradation of groundwater and surface water, even with inadequate site characteristics (see Title 27, secs. 20310, subd. (c), and 20330, subd. (a)).
73. General water quality monitoring and system requirements (Title 27, sec. 20415, subd. (e)(6)) require initial background sampling for each unit. At minimum, the Discharger needs to collect analytical data obtained during the quarterly sampling of all the Background Monitoring Points for a period of one year. For a new unit, this data shall be collected before waste is discharged at the unit and background soil-pore liquid data shall be collected from beneath the unit before the unit is constructed.

74. Unless otherwise specified in Title 27, division 2, subdivision 1, the Central Valley Water Board may approve an engineered alternative to the State Water Board-promulgated construction and prescriptive standards therein, provided that the Discharger demonstrates that the standard is not feasible and there is a specific engineered alternative that is consistent with the performance goal addressed by the particular standard and affords equivalent protection against water quality impairment. (Title 27, sec. 20080, subds. (b)-(c); State Water Board Resolution 93-62).
75. A Liner Performance Demonstration for a Single Composite Liner (GLA, 2002) was submitted to and approved by the Central Valley Water Board for final determination of the existing base liner design. Future landfill modules shall have an engineered alternative base and side slope outlined in **Attachment E**, which is incorporated herein.
76. The Discharger submitted Construction Plans for the construction of new WMUs at the Facility, specifically the Infill Expansion Area located within the proposed Phase 1, Phase 2, and WMU Future H (Phase 3) units, which incorporate an engineered alternative, as outlined in Finding 74 and **Table 1**.
77. The Discharger proposes to construct new Class II surface impoundments (WMU F East and WMU F South, see **Table 1**) as needed to contain and evaporate leachate from solid waste management units. An engineered alternative to the prescriptive liner requirements of Title 27 is proposed for the Class II Surface Impoundments. The engineered alternative is outlined in **Attachment E**.
78. The Discharger has adequately demonstrated that construction of a liner in accordance with the Title 27 prescriptive standard is infeasible, as it would be unreasonably and unnecessarily burdensome in comparison to the proposed engineered alternative. The Discharger has further demonstrated that the proposed engineered alternative(s), as described in **Attachment E**, are not only consistent with the performance goals of the prescriptive standard, as described above, and will afford at least equivalent water quality protections.
79. New WMUs will incorporate the LCRS described in further detail on **Attachment E**. The proposed LCRS comply with Title 27 prescriptive standards (see Title 27, sec. 20340). Collected leachate is either recirculated to composite-lined landfill units or discharged to one of the on-site Class II impoundments. Recirculated leachate may be discharged by spraying from a tanker truck or by subsurface injection.
80. The unsaturated zone monitoring system for future modules shall be implemented in accordance with the operative MRP.

81. Pan lysimeters will be installed beneath the LCRS sump in each new landfill cell/module for the purpose of vadose zone monitoring. The designs for pan lysimeters are described in **Attachment E**.
82. The Discharger proposed to install an intermediate liner where modules are constructed over the existing Class III waste disposal area. The design for intermediate liners is described in **Attachment E**. An intermediate liner was constructed for WMU D-94, WMU D-97, WMU D-98, WMU D-99, WMU D-00, WMU Art-03, WMU FU-04 North, WMU FU-05 North, WMU FU-06 North, WMU FU-08 North, WMU FU-10, WMU FU-13, and WMU FU-17.
83. According to the submitted seismic analysis, the proposed new WMUs will be able to withstand MCE and MPE seismic events described in Finding 42 (Title 27, sec. 20370).
84. New and existing LCRSs shall be fitted with an automated pumping system and operated to prevent buildup of head on the liner. The depth of leachate in any LCRS sump shall be kept at or below the minimum needed to ensure safe pump operation and shall be no greater than 30 centimeters (12 inches) unless the Discharger demonstrates that it is infeasible to maintain less than 12 inches in the LCRS sump area. If leachate depths exceed these levels or liquid is detected in the underlying leak detection layer, the Discharger shall immediately notify the Central Valley Water Board in writing within seven days. Notification shall include a time table for remedial or corrective action necessary to reduce leachate production (Title 27, sec. 20370, subd. (c)).

Land Application of Cannery Wastes

85. The Discharger receives and accepts cannery waste from different canning facilities in San Joaquin and Stanislaus County that process a variety of fruits and vegetables, which include but not limited to peaches, tomatoes, cucumbers, cherries, and apricots. The cannery waste consists of the following three forms:
 - a. Rinsate: A liquid waste with 1-2% solids that is produced as a result of the canning and equipment cleaning processes.
 - b. Residuals: Cannery solid residual material which is the organic matter that is removed as part of the canning process. This organic material consists of whole fruit, vines, leaves, pomace, culls, peels, and seeds.
 - c. Mud: This waste is the settled solids produced as the result of initially washing dust and dirt from the fruits and vegetables. This product is 40-50% solid.

86. The cannery waste is discharged to a 75-acre portion Land Application Area (LAA) of the Facility, which is located directly north of the former Austin Road Landfill unit (see Attachment C). Approximately 23.3 acres of this area is also designated as soil borrow area. If the Discharger decides to cease cannery waste discharge, groundwater concentrations and effluent monitoring will follow the post closure requirements listed in the operative MRP.
87. Cannery waste is nonhazardous decomposable waste that, when land applied as a soil amendment under appropriate best management practices (BMPs), may be exempt from the State Water Board-promulgated containment provisions of Title 27. (See Title 27 sec. 20090, subd. (f) [stating in part, "Soil Amendments – Use of nonhazardous decomposable waste as a soil amendment pursuant to applicable best management practices, provided that RWQCBs may issue waste discharge or reclamation requirements for such use."].)
88. Rinsate and residual cannery waste can be discharged to the designated LAA. Excess cannery rinsate may be discharged to surface impoundments WMU F West, WMU F North and future surface impoundments as long as the Discharger follows an approved surface impoundment operations and maintenance plan.
89. Mud waste application has changed from past practices. Prior to 2017, mud waste was applied to the LAA, but this practice is no longer in use. Mud waste is now transported to a bermed, compacted clay pad within the landfill and is air-dried. Following a drying period of a minimum of five days, the dried mud is disposed in the WMUs for use as alternative daily cover.
90. Residuals and mud cannery waste are transported to the Facility in 10-ton capacity roll-off bins. Rinsate cannery waste is transported in 5,000-gallon tanker trucks and spread uniformly. Small berms were implemented to maintain dry pathways for tanker trucks. Residual cannery waste is placed in a small area and then spread over a larger area using a tractor blade followed by discing. The dried wastes (liquid and solid) will be disked approximately 4- to 6-inches into the ground. Additional tillage is used when necessary to accelerate drying and minimizing nuisance conditions.
91. Land application of cannery waste follows a seasonal discharge and cropping schedule as delineated in the 2017 Cannery Waste Land Application Area Nutrient Management Plan (2017 Nutrient Management Plan) submitted by Kennedy Jenks Consultants on behalf of the Discharger. Cannery waste is discharged to the LAA according to the canning season, which starts in June and finishes through the end of October. The LAA is then tilled, prepared for planting, and seeded with a winter crop by late November. The winter crop harvest typically occurs during the second half of April. No additional water besides the rinsate is currently available for supplemental crop irrigation.

92. Excessive application of decomposable organic waste to land can create objectionable odors, soil conditions that are harmful to crops, and degradation of underlying groundwater with nitrogen species and certain metals, as discussed below. Such groundwater degradation can be prevented or minimized through implementation of BMPs which include planting crops to take up plant nutrients and maximizing oxidation of biochemical oxygen demand (BOD) to prevent nuisance conditions.
93. The Discharger is required to implement the following BMPs for cannery waste:
 - a. The ground surface will be prepared prior to the application of waste.
 - b. Waste will be spread thinly, no more than 3 inches deep, to ensure complete drying within five days.
 - c. Waste will be turned twice daily with a cultivating device to facilitate drying.
94. Groundwater degradation and pollution with nitrogen species such as ammonia and nitrate can be prevented by minimizing percolation below the root zone of crops and ensuring that the total nitrogen load does not exceed crop needs over the course of a typical year. Where there is sufficient unsaturated soil in the vadose zone, excess nitrogen can be mineralized and denitrified by soil microorganisms. Previous WDRs limited annual total nitrogen loading of the LAA to 300 pounds per acre to ensure no adverse effects on soil and groundwater. These WDRs continue this requirement (See Discharge Specifications B.12.c).
95. Excess BOD is developed by excessive organic waste application that depletes oxygen in the vadose zone creating anoxic conditions. At the surface, this can result in nuisance odors and fly-breeding. When insufficient oxygen is present below the ground surface, anaerobic decay of organic matter can create reducing conditions that convert naturally occurring metals from insoluble to a more soluble reduced form. This condition can be exacerbated by acidic soils and excess moisture. If reducing conditions do not reverse as the percolate moves down through the vadose zone, the dissolved metals (primarily iron and manganese) can degrade shallow groundwater quality. Many aquifers contain enough dissolved oxygen to reverse the process.
96. Effluent samples are collected from each cannery waste form that is being land applied at least one day each week from each canning facility. Sampling occurs prior to discharge to the LAAs. A summary of the average effluent concentrations is presented below for rinsate, residuals, and mud. For non-detect results, half of the analytical method detection limits were used for averaging purposes.

Table 6—Effluent Quality

Waste Type	Constituent	Unit	Avg 2014-2021 ²	Avg 2018-2021 ³	Trend
Rinsate	BOD	mg/L	15,265	16,805	Increasing
	Total Nitrogen	mg/L	469	347	Decreasing
	TKN	mg/L	467	346	Decreasing
	TDS	mg/L	13,751	15,050	Increasing
Residuals	BOD	mg/kg	21,909	21,428	Decreasing
	Total Nitrogen	mg/kg	2,711	2,138	Decreasing
	TKN	mg/kg	2,705	2,127	Decreasing
	TDS	mg/kg	13,314	14,221	Increasing
Mud ¹	BOD	mg/kg	4,422	Stopped land application in 2017	Decreasing
	Total Nitrogen	mg/kg	2,489	Stopped land application in 2017	Decreasing
	TKN	mg/kg	2,489	Stopped land application in 2017	Decreasing
	TDS	mg/kg	3,971	Stopped land application in 2017	Decreasing

Notes:

1. Mud application to the LAA was discontinued in the 2017 cycle. The average value only includes data points from 2014 to 2016.
 2. Data was taken from the submitted Cannery Waste Land Application Area Monitoring Report which are included in the quarterly Water Quality Monitoring Reports.
 3. Average effluent concentrations are summarized for 2018 to 2021 to show how concentrations changed after the 2017 Nutrient Management Plan was implemented.
 4. See Glossary for definitions of terms and abbreviations in table.
97. A summary of the annual effluent concentrations from 2018 to 2021 is summarized below for rinsate and residuals.

Table 7—Annual Average Effluent Quality for Rinsate and Residuals

Waste Type	Constituent	Unit	2018	2019	2020	2021
Rinsate	BOD	mg/L	18,317	14,050	23,991	13,000

Waste Type	Constituent	Unit	2018	2019	2020	2021
	Total Nitrogen	mg/L	477	253	288	380
	TKN	mg/L	476	253	281	379
	TDS	mg/L	14,313	12,721	23,282	12,877
Residuals	BOD	mg/kg	21,674	24,122	16,475	16,720
	Total Nitrogen	mg/kg	2,615	1,033	2,050	3,760
	TKN	mg/kg	2,613	1,032	2,048	3,706
	TDS	mg/kg	12,325	14,748	21,600	13,850

98. Previous WDRs Order No. R5-2014-0006 required that the LAA area not exceed the annual total nitrogen load limit of 300 pounds per acre, however the WDRs allowed for a site-specific loading rate to be established by a Nutrient Management Plan and approved by the Executive Officer. On 21 May 2015, the Discharger submitted a Nutrient Management Plan to demonstrate site-specific data that would justify an increase in nitrogen loading to the LAA for the cannery waste operation. In response to exceeding the total nitrogen loading limit in 2015, on 27 June 2016, the Assistant Executive Officer issued a Water Code section 13267 Order for Technical Reports requiring the Discharger to submit a Cannery Waste Land Application Area Compliance Plan to address nitrogen loading exceedances.
99. As stated in Finding 59, CAO R5-2017-0703 required the Discharger to address violations associated with the over-loading of nitrogen in the cannery waste LAA. In April 2018, the Discharger submitted its 2017 Nutrient Management Plan, which evaluated the cannery waste management program and recommended best practices to limit nitrogen loading. One of the changes made by the Discharger as a result of the updated plan was to stop land applying cannery mud waste.
100. Based on an evaluation of the available analytical data for effluent and groundwater quality, these changes have resulted in less nitrogen loading. Concentrations of constituents in groundwater are now stable, decreasing, or require additional samples to be taken (see Finding 31).
101. Site and groundwater conditions for the Facility are discussed in Findings 34 to 46.
102. Under WDRs Order R5-2014-0006, the cannery waste monitoring area was monitored by AMW-1, AMW-7, AMW-13, and AMW-10. AMW-10 was abandoned on 1 October 2018. AMW-31S was then used for groundwater monitoring. Under

these current WDRs, alternative shallow groundwater monitoring wells were selected to better detect levels of waste constituents. The four shallow groundwater monitoring wells are AMW-44, AMW-45, AMW-46 and AMW-14. AMW-44, AMW- 45, and AMW-46 are considered downgradient wells and located on the northern edge of the land application area. AMW-14 is a downgradient well located approximately 775 feet northeast of the land application area. Well construction details are shown below.

Table 8—Well Construction Details

Monitoring Well	Well Depth (feet bgs)	Screen Interval (feet bgs)	Installation Year
AMW-44	78	58-78	2020
AMW-45	80	58-78	2020
AMW-46	80	58-78	2020
AMW-14	108.5	75-100	1995

103. A summary of the groundwater monitoring data for selected constituents for downgradient wells AMW-44, AMW-45, AMW-46, and AMW-14 is presented below. For groundwater monitoring wells AMW-44, AMW 45, and AMW-46, annual average concentrations for 2020 to 2023 are shown for TDS and nitrate as N. For AMW-14, annual concentrations of TDS and nitrate as N were taken from 2005 to 2023. For all analyzed wells, Fe and Mn samples were taken at first installation of the well and at five-year intervals (i.e. 2008, 2013, 2018, 2023). Non-detect samples were reported as half the method detection limit for averaging purposes.

Table 9—AMW-44 Groundwater Quality

Year	TDS (mg/L)	Nitrate as N (mg/L)	Fe (ug/L)	Mn (ug/L)
2020	610	10	15	2
2021	563	10.8	--	--
2022	578	10.8	--	--
2023	575	9.5	< 30	< 4
Potential WQO	500/1,000 (sMCL/sMCL upper)	10 (MCL)	300 (sMCL)	50 (sMCL)

Table 10—AMW-45 Groundwater Quality

Year	TDS (mg/L)	Nitrate as N (mg/L)	Fe (ug/L)	Mn (ug/L)
2020	570	10	15	12
2021	533	9.8	--	--
2022	518	10.2	--	--
2023	289	9.6	< 30	< 4
Potential WQO	500/1,000 (sMCL/sMCL upper)	10 (MCL)	300 (sMCL)	50 (sMCL)

Table 11—AMW-46 Groundwater Quality

Year	TDS (mg/L)	Nitrate as N (mg/L)	Fe (ug/L)	Mn (ug/L)
2020	580	9.5	15	93
2021	590	9.8	--	--
2022	530	10	--	--
2023	600	7.9	< 30	< 4
Potential WQO	500/1,000 (sMCL/sMCL upper)	10 (MCL)	300 (sMCL)	50 (sMCL)

Table 12—AMW-14 Groundwater Quality

Year	TDS (mg/L)	Nitrate as N (mg/L)	Fe (ug/L)	Mn (ug/L)
2005	430	5.7	--	--
2006	480	7.4	--	--
2007	560	10	--	--
2008	573	10.8	3.6	0.34
2009	590	12.3	--	--
2010	591	12	--	--
2011	627	13.7	--	--
2012	653	13.5	--	--
2013	623	12	33	2
2014	607	12	--	--
2015	628	12.8	--	--

Year	TDS (mg/L)	Nitrate as N (mg/L)	Fe (ug/L)	Mn (ug/L)
2016	633	9.5	--	--
2017	585	9	--	--
2018	688	13.8	15	2
2019	653	9.7	--	--
2020	573	6.9	--	--
2021	493	4.8	--	--
2022	443	3.8	--	--
2023	425	1.8	< 30	< 4
Potential WQO	500/1,000 (sMCL/sMCL upper)	10 (MCL)	300 (sMCL)	50 (sMCL)

104. Average concentrations of TDS in AMW-44, AMW-45, and AMW-46 are over the secondary Maximum Contaminant Level (sMCL) of 500 (see Title 22, sec. 64449), but within range of the upper sMCL of 1,000 mg/L. Comparatively, AMW-14 located further downstream of the cannery waste has been currently under the sMCL of 500 from 2020 to 2023.
105. Average concentration of nitrate as N in AMW-44, AMW-45, and AMW-46 ranges between 9.5 and 10.8 mg/L and hovers around the Maximum Contaminant Level (MCL) of 10 mg/L (Title 22, sec. 64431), except for the first and second quarter of 2023 for AMW-46. Comparatively, the average concentration of nitrate as N in AMW-14 located further downstream of the cannery waste has seen a decrease in nitrate concentration after 2018.
106. Given the limited data points for Fe and Mn in AMW-44, AMW-45, AMW-46, and AMW-14, a trend can not be established. However, given the data that was supplied, concentrations of these metals do not exceed the sMCL levels, except for Mn in the year 2020. In order to properly monitor Fe and MN, the Discharger will be required to sample these constituents as outlined in the operative MRP. New sampling requirements for the LAA are effective at the adoption of this Order.
107. In general, the groundwater monitoring constituent concentrations for TDS and nitrate as N show a stable trend since implementing the 2017 Nutrient Management Plan. Based on the data from AMW-14, nitrate is showing a decrease in concentration.

Salt and Nitrate Control Program Reopener

108. On 31 May 2018, the Central Valley Water Board adopted Basin Plan amendments incorporating the Salt Control Program (SCP) and Nitrate Control Program (NCP). The State Water Board conditionally approved the amendments on 16 October 2019 (State Water Board Resolution 2019-0057). The effective date of the Basin Plan amendments was 17 January 2020, the Notice of Decision filing date following approval by the Office of Administrative Law (OAL) (OAL Matter No. 2019-1203-03). For those components subject to United States Environmental Protection Agency (USEPA) approval, the effective date was 2 November 2020. On 10 December 2020, the Central Valley Water Board adopted revisions to the Basin Plan amendments (Resolution R5-2020-0057). The State Water Board conditionally approved these revisions on 1 June 2021 (State Water Board Resolution 2021-0019). The effective date of the revisions to the Basin Plan amendments was 10 November 2021, the Notice of Decision filing date following OAL approval (OAL Matter No. 2021-0929-05S). The overarching goals and priorities of these programs are to (1) ensure safe drinking water supply; (2) reduce salt and nitrate loading so that ongoing discharges neither threaten to degrade high quality waters absent findings by the Central Valley Water Board nor cause or contribute to exceedances of Water Quality Objectives (WQOs); and (3) implement long-term, managed restoration of impaired water bodies.
109. For the SCP, the Central Valley Water Board will issue a Notice to Comply requiring the Discharger to submit a Notice of Intent specifying whether the Discharger intends to participate in the Conservative Salinity Permitting Approach or the Alternative Salinity Permitting Approach (i.e., Prioritization & Optimization (P&O) Study). In the interim, this Order requires the Discharger to maintain existing salt discharge levels and prohibits the Discharger from causing or contributing to a condition of pollution and/or nuisance, as those terms are defined in Water Code section 13050. After receiving the Discharger's Notice of Intent to participate in the SCP, the Central Valley Water Board will update these WDRs to reflect the requirements of the Discharger's chosen regulatory pathway.
110. For the NCP, the Facility falls within the San Joaquin Valley – Eastern San Joaquin Basin 5-022.01, a Priority 2 Basin. Notices to Comply for Priority 2 Basins were issued December 2023 and will require the Discharger to submit a Notice of Intent specifying whether the Discharger intends to comply with the NCP individually (Path A) or as part of a Management Zone (Path B). After receiving the Discharger's Notice of Intent to comply with the NCP, the Central Valley Water Board may update these WDRs to reflect the requirements of the Discharger's chosen regulatory pathway. The Discharger is required to comply with the groundwater limitations of this Order during the NCP process.

111. As these strategies are implemented, the Central Valley Water Board may find it necessary to modify the requirements of these WDRs to ensure the goals of the SCP and NCP are met. This Order may be amended or modified to incorporate any newly applicable requirements. More information regarding this regulatory planning process can be found on the [Central Valley Water Board's CV-SALTS website](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity). (https://www.waterboards.ca.gov/centralvalley/water_issues/salinity).

Compliance with the Antidegradation Policy for Land Application of Cannery Waste

112. State Water Board Resolution 68-16, Policy with Respect to Maintaining High Quality Waters of the State (Antidegradation Policy), prohibits degradation of high-quality groundwater unless it has been demonstrated that such degradation:
- a. Will be consistent with the maximum benefit to the people of the State of California;
 - b. Will not unreasonably affect present and anticipated future beneficial uses of such water; and
 - c. Will not result in water quality less than that prescribed in State Water Board and Central Valley Water Board policies (i.e., violation of one or more WQOs).

Discharges to high quality groundwater must be subject to WDRs that will result in the best practicable treatment or control (BPTC) of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit of the people of the State will be maintained.

113. The Discharger has monitored groundwater quality at the Facility since 2005. Compliance with the Antidegradation Policy is therefore based on any available groundwater data collected since 2005.
114. For the purposes of this Order, constituents associated with the discharge that have the potential to degrade groundwater and/or affect beneficial uses include:
- a. TDS
 - b. Nitrate as nitrogen; and
 - c. Iron and manganese.
115. A summary of effluent quality compared to downgradient (AMW-44, AMW-45, AMW-46, and AMW-14) groundwater quality is presented below. Effluent

concentrations are separated into cannery rinsate waste (mg/L) and residual waste (mg/kg). The averages for constituents in effluent are calculated using data from 2018 through 2021, after the 2017 Nutrient Management Plan was implemented. Annual averages for groundwater were calculated using data collected between 2020 through 2023. For non-detect concentrations, half of the reporting limit was used for averaging purposes. For samples that were detected, but less than the reporting limit, the reporting limit value was used.

- a. **Salinity.** For the purposes of evaluation, TDS is representative of overall salinity. The best measure of total salinity in groundwater is TDS. The concentration levels of TDS in the effluent, both in the rinsate and residual, are high. The overall concentration trend for TDS in the effluent is increasing based on data from 2014 to 2021. However, since the implementation of the 2017 Nutrient Management Plan, the concentration trend for TDS in effluent has been decreasing over time. It should be noted that the downgradient groundwater concentrations of TDS are stable in groundwater wells AMW-44, AMW-45, AMW-46, and AMW-14. While the TDS concentration limits consistently exceed the 500 mg/L sMCL in AMW-44, AMW-45, and AMW-46, the concentrations are below the upper sMCL of 1,000 mg/L. AMW-14, being the furthest downgradient groundwater well, shows that TDS concentration levels have been trending down since 2018 and is currently under the 500 sMCL. Discharges of rinsate and residual cannery waste with respect to TDS do not appear to be degrading groundwater beyond existing conditions at this time and will not unreasonably affect beneficial uses of groundwater. This Order prohibits pollution and degradation as a result of the discharge of Cannery Waste to the LAAs (see Discharge Specifications B.13).

Upon receiving a Notice to Comply with the SCP, the Discharger will be subject to the Basin Plan's Conditional Prohibition of Salinity Discharges until the Discharger has established participation in the SCP Conservative Approach or the Alternative Approach (i.e., the P&O Study). Under the Conservative Approach, the Discharger would continue to be required to meet applicable WQOs for saline constituents. Under the Alternative Approach, the Discharger would be required to participate in the P&O Study and implement reasonable, feasible, and practicable efforts to control levels of salt in discharges. This Order will be revised at a later date to reflect the Discharger's choice of salinity permitting pathway.

- b. **Nitrate as Nitrogen.** For nutrients such as nitrate, the potential for groundwater degradation depends on wastewater quality and the ability of the vadose zone below the LAAs to support nitrification and denitrification to convert nitrogen to nitrate or nitrogen gas (ammonia) before it reaches the water table. Nitrate levels are significantly high in both the rinsate and

residual cannery waste effluent concentrations. For downgradient wells AMW-44, AMW-45, and AMW-46, nitrate concentrations are generally around the primary MCL of 10 mg/L. It is difficult to determine if these higher nitrate concentrations are the result of the LAA, since nitrate levels upgradient to the entire facility show nitrate concentration values consistently above 10 mg/L. For nitrate concentrations in AMW-14 from 2018 to 2023, the concentrations are decreasing. Discharges of rinsate and residual cannery waste with respect to nitrate do not appear to be degrading groundwater beyond existing conditions at this time and will not unreasonably affect beneficial uses of groundwater.

TKN concentrations in effluent are within the same concentration range of nitrate as nitrogen. The concentration trend of TKN in effluent is decreasing over time in both rinsate and residual. TKN data has not been collected from the downgradient groundwater monitoring wells. This Order prohibits pollution and degradation as a result of the discharge of Cannery Waste to the LAAs (Discharge Specification 48B.13). Further, it requires that TKN be analyzed in AMW-44, AMW-45, AMW-46, and AMW-14 in order to establish a trend in TKN concentration in the downgradient direction. The Discharger will continue to monitor for nitrate in the effluent and groundwater, as well as implement the latest Nutrient Management Plan. New sampling requirements for the LAA are effective at the adoption of the Order.

- c. **Iron and manganese.** Fe and Mn can be present in groundwater as a result of excessive BOD loading rates, which can deplete oxygen, resulting in anoxic conditions. An anoxic environment can solubilize naturally occurring metals in the soil, including Fe and Mn.
- d. Fe and Mn data concentrations have not been collected in the effluent. This Order requires that Fe and Mn to be monitored in the effluent and groundwater, as well as continued BPTC implementation. New sampling requirements for the LAA are effective at the adoption of this Order. This Order does not permit degradation or pollution. (Discharge Specification B.13.)

Table 13—Data Comparison

Constituent	Effluent (Rinsate, mg/L) ¹	Effluent (Residuals, mg/kg) ²	Downgradient Groundwater (mg/L) ³	Potential WQO Reference
TDS	15,050	14,221	545	500 mg/L /1,000 mg/L (sMCL/sMCL upper)
Nitrate as N	347	2,138	8.8	10 mg/L (MCL)

Constituent	Effluent (Rinsate, mg/L) ¹	Effluent (Residuals, mg/kg) ²	Downgradient Groundwater (mg/L) ³	Potential WQO Reference
TKN	346	2,127	--	None
Fe	--	--	23	300 mg/L (sMCL)
Mn	--	--	16	50 mg/L (sMCL)

Notes:

1. Effluent concentrations from the rinsate is an average of samples taken from 2018 to 2023 for comparative purposes.
 2. Effluent concentrations from the residuals is an average of samples taken from 2018 to 2023 for comparative purposes.
 3. Averages of constituents from downgradient wells AMW-44, AMW-45, and AMW-46 were taken from 2020 to 2023. Averages of constituents from downgradient well AMW-14 were taken from 2018 to 2023.
116. In addition to the Prohibition on causing or contributing to pollution or nuisance, these WDRs require the Discharger to provide treatment and control of the discharge that incorporates the following measures, which constitute BPTC for the COCs discussed above:
- a. Cannery waste shall be incorporated within 24 hours of receipt,
 - b. Cannery waste operation shall be conducted in a manner that will prevent odor and vermin harborage,
 - c. Daily documentation record of cannery waste loads received and locations of disposal,
 - d. Regular monitoring of soil and waste,
 - e. Weekly total nitrogen applied per acre shall be calculated and a crop sufficient to uptake nitrogen planted and harvested,
 - f. Daily inspections of the land application areas during the discharge season must be documented and removed from waste.
117. The economic prosperity of Central Valley communities and associated industry is of maximum benefit to the people of the State and provides justification for allowing the limited groundwater degradation that may occur pursuant to this Order. Degradation of groundwater by some typical waste constituents released with discharge from the Facility after effective source reduction, treatment and control, and considering the best efforts of the Discharger and magnitude of

degradation, is of maximum benefit to the people of the state. The Facility's beneficial reuse of cannery waste through land application helps San Joaquin to achieve state-mandated waste diversion goals. The canneries also employ 4,000 seasonal employees and these facilities rely on the cannery waste discharge service for a source of reliable and economical waste disposal.

118. Consistent with Title 27, this Order requires the Discharger to maintain the Facility to contain all waste, other than cannery waste (see Finding 85), within WMUs, thereby preventing degradation of water quality by discharges to WMUs. To the extent that there are releases from Facility WMUs, the Discharger will be required to address such releases through a Corrective Action Program. (See Title 27 secs. 20385, 20415, 20430).
119. Based on the foregoing, the adoption of this Order is consistent with the State Water Board's Antidegradation Policy.

Unit Closures

120. On July 2021, the Discharger submitted a Preliminary Closure and Post-Closure Maintenance Plan (Preliminary CPMP). The closure sequence for the Facility is intended to be implemented in 5 stages, Stages I through V. Stage I has been divided into 3 phases. See closure dates specified in **Table 14**.

Table 14—Stage I Closure Schedule²

Unit Module	Closure Date	Acreage
Stage IA	2006	30
Stage IB	2012	20
Stage IC	To Be Determined	71

121. Per the Preliminary CPMP, the Discharger proposes closure of Stage IC with an engineered alternative final cover, as specified in **Attachment F**.
122. Scheduled dates for Stages II through Stage V were not submitted. The Discharger will need to submit an updated Preliminary CPMP with estimated scheduled closure dates for the remaining stages. See Section I, **Table 17**, Item 5.
123. The Discharger has adequately demonstrated that construction of a final slope in accordance with the Title 27 prescriptive standard would be unreasonably and unnecessarily burdensome in comparison to the proposed engineered

² Closure dates are estimates, which may be affected by several factors (e.g., fluctuating waste receipts).

alternative. The Discharger has further demonstrated that the proposed engineered alternatives described in **Attachment E** are not only consistent with the performance goals of the prescriptive standard, as described above, and will afford at least equivalent water quality protections.

124. As discussed in **Attachment F**, the Discharger proposes an evapotranspiration final cover for closure of Stage IC to Stage V. The final cover will consist of 4 feet of soil.
125. The proposed final cover slopes specified in **Attachment F** are within Title 27 limits (i.e., 1¾ horizontal feet for every 1 foot of vertical gain) and supported by a static and dynamic slope stability analysis demonstrating that side slopes will remain stable, both under stable and dynamic conditions, throughout the life of the unit. (See Title 27, section 21750, subd. (f)(5)). The final cover will include a 15-foot wide bench at minimum for every 50 feet of vertical gain. (See Title 27 section 21090, subd. (a)).
126. The Discharger's proposed final covers, together with any modifications set forth in **Attachment F**, can proceed with the closure of the WMUs identified in Finding 121.

Post-Closure Maintenance & Financial Assurances

127. The Discharger's Multi-phased CPMP is the operative document providing for post-closure maintenance of Stage IC through Stage V for the entire post-closure maintenance period of at least 30 years, and until it is demonstrated that the Facility no longer poses a threat to the public health and safety and the environment. (See Title 27, sections 20950 subd. (a)(1), 21180 subd. (a)).
128. The CPMP includes cost estimates for closure (Title 27, secs. 21820, 22206), post-closure maintenance (secs. 22210–22212), and foreseeable corrective action for releases (secs. 22220–22222). As of the date of this Order, these estimates, calculated in accordance with Title 27, are specified in **Table 15**.

Table 15—Current Cost Estimates (Financial Assurances)

Requirement	Estimated Cost
Closure	\$ 27,854,721
Post-Closure Maintenance	\$ 27,310,621
Corrective Action	\$ 378,766

129. This Order requires the Discharger to maintain financial assurances with CalRecycle in accordance with Title 27 sections 22221, 22225, 22226. With the addition of WMU FU-19, Forward Landfill herein will be referred to as one landfill.

130. The Discharger utilizes a surety bond (Title 27, sec. 22244) financial assurance mechanism. The penal sum of the bond must be in the amount at least equal to the closure and/or post closure and/or the corrective action cost estimate, except as provided in Title 27 section 22228. Therefore, there is currently no fund balance to report.
131. Title 27 section 22221 requires a cost estimate for corrective action of all known or reasonably foreseeable releases. The Discharger submitted a 2014 cost estimate of \$345,574 for corrective action of all known or reasonably foreseeable releases. As of 2021, the balance of the corrective action fund was \$378,766. This amount seems unrealistically low and this Order requires that the Discharger re-evaluate the corrective action cost estimate and maintain financial assurance with CalRecycle in at least the amount of the re-evaluated cost estimate adjusted annually for inflation. See Section I, **Table 17**, Item 8.

California Environmental Quality Act

132. The California Environmental Quality Act (CEQA) requires a government agency to comply with certain procedures when it approves or proposes to carry out an activity. (Cal. Code Regs., tit. 14, sec. 15502(e).) This includes private activities which require approval from a governmental agency. (Cal. Code Regs., tit. 14, sec. 15502(b)(3).) The adoption of WDRs therefore requires compliance with CEQA prior to approval of the WDRs. In accordance with CEQA, on 14 January 2020, San Joaquin County Community Development Department, as lead agency, certified a final **Supplemental Environmental Impact Report (SEIR)** in connection with its issuance of a SCH#2008052024 for the Forward Landfill Expansion. For purposes of the SEIR, the “project” includes the following pertinent elements:
 - a. Improvements to Intersection 11, Arch Road/Austin Road, Southbound;
 - b. Reduce the impact of increased truck noise to a level that would be less than significant, if residences request funding and implement the soundproofing measures;
 - c. Reduce cumulatively significant air quality impacted in the project area; and
 - d. Reduce the visual effects of the project caused by an increase in height and mass of the proposed project.
133. The Central Valley Water Board is a responsible agency pursuant to CEQA (Pub. Res. Code, sec. 21069). The Central Valley Water Board has reviewed and considered the SEIR. The SEIR found that mitigation would reduce water quality impacts to less than significant. This Order implements all applicable mitigation

and monitoring measures specified in the SEIR. The Central Valley Water Board has determined that the project, when implemented in accordance with the conditions of this Order and MRP, will not result in any significant adverse water resource impacts.

Other Regulatory Matters

134. 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.

135. This Order implements the Central Valley Water Board's Basin Plan, which designates beneficial uses for surface water and groundwater and establishes WQOs necessary to preserve such beneficial uses.³ (Wat. Code, sec. 13241 et seq).

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

- a. Threat Category "1" reflects waste discharges that can cause long-term loss of receiving water beneficial uses (e.g., drinking water supply loss, water-contact recreation area closures, or posting of areas used for spawning/growth of shellfish or migratory fish); and
- b. Complexity Category "A" reflects (1) any discharge to toxic wastes, (2) any small volume discharge containing toxic waste, (3) any facility having numerous discharge points and groundwater monitoring, or (4) any Class I WMUs.

³ Designated beneficial uses to surface water and groundwater are discussed in Finding 37 and Finding 40, respectively.

137. These WDRs regulate a facility that may impact a disadvantaged community and/or tribal community. The Central Valley Water Board has satisfied the outreach requirements set forth in Water Code section 189.7 by conducting outreach in affected disadvantaged and tribal communities. Notification of Consultation Opportunity letters were sent to local or historically local tribal groups, environmental justice groups, 60 residential homes, libraries, a local post office, and local newspaper. A Spanish translation version of the Notice of Public hearing was also published online.
138. Pursuant to Water Code section 106.3, subdivision (a), it is “the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.” Although this Order is not subject to Water Code section 106.3, as it does not revise, adopt or establish a policy, regulation or grant criterion, (see § 106.3, subd. (b)), it nevertheless promotes the policy by prohibiting exceedances of maximum contaminant levels (MCLs) for drinking water, which are designed to protect human health and ensure that water is safe for domestic use, in the groundwater to which waste is discharged.

Reporting Requirements

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

[T]he regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region ... shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.
140. The technical reports required under this Order, as well as those required under the separately issued MRP, are necessary to ensure compliance with prescribed WDRs and the provisions of Title 27, Subtitle D (40 C.F.R. part 258) and State Water Board Resolution 93-62. Additionally, the burdens associated with such reports are reasonable relative to the need for their submission.
141. Failure to comply with the reporting requirements under this Order and the MRP may result in enforcement action pursuant to Water Code section 13268.

Procedural Matters

142. 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.
143. 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, sec. 13167.5; Title 27, sec. 21730.)
144. At a public meeting, the Central Valley Water Board heard and considered all comments pertaining to the discharges regulated under this Order.
145. The Central Valley Water Board will review and revise the WDRs in this Order as necessary.

REQUIREMENTS

IT IS HEREBY ORDERED, pursuant to Water Code sections 13263 and 13267, that Forward Inc., a subsidiary of Republic Services Inc., and their agents, employees, and successors shall comply with the following.

- A. Discharge Prohibitions**—Except as otherwise expressly directed below, the Discharger shall comply with all Standard Prohibitions (SPRRs, section C), which are incorporated herein, as well as the following.
 1. **"Hazardous Waste,"** as defined per Title 23, section 2601, shall not be discharged at the Facility. The Department of Toxic Substances Control (DTSC) shall be immediately notified of any such discharges in violation of this Order.
 2. Except as specifically authorized in **Section B.1** and **Table 16**, **"Designated Waste,"** as defined per Water Code section 13173, shall not be discharged at the Facility.
 3. Except as expressly authorized in **Section B.1** and **Table 16**, leachate and landfill gas (LFG) condensate shall not be discharged into Facility WMUs.

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

1. The Discharger shall only discharge waste to Facility WMUs as specified in **Table 16**, subject to the table-specific definitions provided below.

Table 16—Authorized Waste Discharges at Facility

Waste Category	WMUs Class I	WMUs Class II	WMUs Class III	Surface Impoundments	Cannery Waste Land Application Area
<p>Hazardous Waste Wastes which, pursuant to Title 22 section 66261.3 et seq., must be managed in accordance with Division 4.5 of Title 22. (Title 27, sec. 20164; Title 23, sec. 2521 subd. (a)).</p>	No	No	No	No	No
<p>Municipal Solid Waste (MSW) Wastes subject to 40 C.F.R. part 258. (Title 27, sec. 20164).</p>	No	Yes	Yes	No	No

Waste Category	WMUs Class I	WMUs Class II	WMUs Class III	Surface Impoundments	Cannery Waste Land Application Area
<p>Designated Waste (1) Hazardous Wastes subject to a variance from management requirements per Health and Safety Code section 25143; and (2) Nonhazardous Waste containing constituents that, under ambient conditions, could be released in concentrations exceeding WQOs, or could reasonably be expected to affect beneficial uses. (Wat. Code, sec. 13173).</p>	No	Yes	No	Yes	Yes (Cannery Waste only)
<p>Inert Wastes Wastes that contain neither (i) hazardous wastes or soluble pollutants at concentrations in excess of WQOs, nor (ii) significant quantities of decomposable material. (Title 27, sections 20164, 20230 subd. (a)).</p>	No	Yes	Yes	No	Yes (Cannery Waste only)
<p>Landfill Gas Condensate Liquid removed from a gas control system at a landfill and which are produced by the condensation of landfill gas being conveyed by that system. (Title 27, section 20164).</p>	No	Yes	No	Yes	No

Waste Category	WMUs Class I	WMUs Class II	WMUs Class III	Surface Impoundments	Cannery Waste Land Application Area
<p>Leachate Liquid formed by the drainage of liquids from waste or by the percolation or flow of liquid through waste. Includes any constituents extracted from the waste and dissolved or suspended in the fluid. (Title 27, section 20164).</p>	No	Yes	No	Yes	No
<p>Asbestos-Containing Waste (>1%) Wastes containing at least 1 percent of non-friable asbestos particles.</p>	No	Yes	Yes	No	No
<p>Treated Wood Waste Wood treated with chemical preservatives that are: (i) administered for protection against insects, microorganisms, fungi, and other conditions leading to decay; and (ii) registered under the Federal Insecticide, Fungicide and Rodenticide Act. (Title 22, section 67386.4).</p>	No	Yes	Yes	No	No

2. The Discharger shall promptly remove and relocate all waste discharged at the Facility in violation of this Order. The Discharger shall submit a report to the Central Valley Water Board explaining how the violative discharge(s) occurred and propose a method for its removal.

3. Treated Wood Waste shall only be discharged to landfill WMUs specified above in **Section B.1, Table 16**, and Finding 20. The Discharger shall manage such waste in accordance with Health and Safety Code section 25230 et seq., and otherwise comply with 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 ceases the release.
4. For landfill WMUs, the Discharger shall only use the materials described in Finding 27 as an ADC, provided that other materials may be used if approved in writing by the Central Valley Water Board as meeting the standards of Title 27 section 20705.
5. The Discharger shall not apply ADC materials to areas with drainage beyond contiguous landfill WMUs unless:
 - a. The Discharger will demonstrate that resulting runoff will not pose a threat to surface water quality (accounting for sediment and suspended solids removal in a sedimentation basin); and
 - b. The Central Valley Water Board approves the demonstration in writing.
6. Notwithstanding **Section B.1** and **Table 16**, Landfill Gas Condensate and Leachate from landfill WMUs shall not be discharged to other WMUs from which leachate and landfill gas condensate was extracted from. (See Title 27, sec. 20340). Collected leachate can be discharged to a different WMU only if:
 - a. the receiving WMU has a LCRS, contains wastes which are similar in classification and characteristics to those in the WMUs from which the leachate was extracted, and has at least the same classification as the unit from which leachate was extracted;
 - b. the discharge to a different WMU is approved by the Central Valley Water Board; and
 - c. the leachate shall not exceed the moisture holding capacity of the receiving unit.
7. The Discharger shall discharge cannery waste as described in Findings 85 through 119 of this Order. LAA shown on **Attachment C** and Class II surface impoundments are shown on **Attachment G**.

8. The Discharger shall apply the following measures for discharges of cannery waste to the LAA:
 - a. Daily documentation record of cannery waste loads received and locations of disposal;
 - b. Regular monitoring of soil and waste in accordance with the operative MRP;
 - c. Weekly total nitrogen applied per acre shall be calculated and a crop sufficient to uptake 100 percent of applied nitrogen shall be planted and harvested;
 - d. Daily inspections of the LAAs during the discharge season for soil saturation, ponding, runoff, accumulated organic solids, odors, and vectors; and
 - e. Any irregular material (i.e. non-compostable items) must be documented and removed from waste.
9. The Discharger shall implement the following BMPs for land application of cannery waste:
 - a. The ground surface shall be prepared consistent with the latest Nutrient Management Plan prior to the application of waste.
 - b. Waste shall be spread thinly, no more than 3 inches deep, to ensure complete drying within five days.
 - c. Waste shall be turned twice daily with a cultivating device to facilitate drying.
10. The Discharger shall land apply cannery waste during June – October following accordance with the cropping methodologies described in the Discharger's latest Nutrient Management Plan.
11. The Discharger shall monitor the cannery waste application area as required in the operative MRP R5-2024-XXXX.
12. The Discharger shall record average total nitrogen content and total wet weight for wastes and calculate the total mass of nitrogen applied in pounds per acre on a weekly basis.
 - a. Cannery Waste application shall be managed so that nitrogen is evenly applied across the application area.

- b. At the end of the waste application season, the total mass of nitrogen applied per acre shall be calculated and a crop shall be planted, grown, and harvested that will remove enough nitrogen applied over the season so as to not exceed established concentration limits in groundwater.
 - c. The annual total nitrogen load shall not exceed 300 pounds per acre, unless a site specific loading rate is established by a Nutrient Management Plan approved by the Executive Officer.
 13. Discharge of cannery wastes to the LAA or the surface impoundments shall not degrade groundwater or cause or contribute to condition of pollution and/or nuisance as those terms are defined in Water Code section 13050. Discharge of cannery rinsate to the compost facility shall be regulated by WQ 2020-0012-DWQ-R5S013 NOA dated DD MM 2023.
 14. Cannery rinsate mud discharged for air drying on a clay pad constructed over a lined WMU shall be dried in bermed areas. Following a minimum of five days for drying, the dried mud can be disposed to an active WMU and used as alternative daily cover. The dried wastes (liquid and solid) will be disked approximately 4- to 6-inches into the ground. Rapid evaporation prevents anaerobic odors and interrupts the life cycle of vectors (flies). Excess cannery rinsate water may be discharged into Class II surface impoundment WMU F West, WMU F North, and future surface impoundments as prescribed in an approved surface impoundment operations and maintenance plan.
- C. Facility Specifications**—The Discharger shall comply with all Standard Facility Specifications (SPRRs, section E) which are incorporated herein.
 1. The Discharger shall maintain a 50-foot setback between LAAs and all water bodies.
 2. LAAs shall be at least 1,000 feet from a domestic water supply well.
 3. Staging or storage of food processing residuals on the ground in any area not equipped with the means to prevent leachate infiltration is prohibited.
 4. Irrigation tail water or storm water runoff from the LAA shall not enter any surface water drainage course or storm water drainage system.
 5. Water in surface impoundments shall contain at least 1.0 mg/L Dissolved Oxygen.

6. The minimum freeboard on October 15 of each year shall be 4.74 feet for WMU F North and 5.53 feet for WMU F West.
7. The Discharger shall develop and implement an approved operations and maintenance plan for the Class II surface impoundments at the site as required under Title 27 section 21760, subdivision (b). At a minimum, the plan shall address:
 - a. expected flows and liquids balance calculations;
 - b. expected waste types and commingling;
 - c. contingency plans in the event of facility breakdown or failure;
 - d. seasonality issues;
 - e. inspection and maintenance programs;
 - f. LCRS to be tested at least annually (see SPRR E.14); and
 - g. other information relevant to impoundment operations and maintenance that could potentially affect water quality.
8. Solids that accumulate in the Class II surface impoundment, if any, shall be periodically removed to maintain minimum required freeboard. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Title 27 sections 20200-20230. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to Central Valley Water Board staff for review before the discharge of the solids.

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

1. Except as authorized in **Section D.2**, the Discharger shall not commence liner construction (other than preparatory earthmoving and grading) until the Central Valley Water Board has approved in writing all necessary construction plans, specifications and construction quality assurance plans related to the new liner(s).

2. Base liners and slope liners for **new WMUs** listed in Finding 75 and **Section B.1** shall be constructed according to specifications in **Attachment E**.
3. The Discharger shall not implement changes to approved liner designs in **Attachment E** until the Central Valley Water Board approves of the proposed changes in writing. Board approval will only be granted if the proposed changes meet the following criteria:
 - 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.⁴

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

1. The Discharger shall submit a Final or Partial Final Closure and Post Closure Maintenance Plan (CPMP), in accordance with section G of the SPRRs, at least two years prior to the proposed closure of any portion of any landfill.
2. The Discharger shall close landfills with the final cover components proposed in the operative Preliminary CPMP, as described in Finding 126 and **Attachment F**.
3. The Discharger shall obtain revised WDRs prior to closure of any landfill with a final cover other than the one(s) approved herein.
4. During or after final cover installation, the Discharger may perform minor modifications to problematic areas of the final cover, provided that: (a) the barrier layer of the final cover (e.g., geomembrane, GCL and/or

⁴ Proposed changes that do not meet these criteria are considered “material,” and will require the revision of this Order.

compacted clay layer) remains intact; and (b) the Central Valley Water Board approves of such modifications.

5. If the final cover incorporates a geomembrane barrier, all edges of the final cover shall be sealed by connecting to the liner.
6. The Discharger shall apply a volume of seed, binder, and nutrients to the vegetative/erosion-resistant layer sufficient to establish the vegetation proposed in the final closure plan. The Discharger shall also install any necessary erosion and sedimentation controls to protect vegetation while it is being established.
7. Critical interfaces of the final cover shall be laboratory-tested to ensure minimum design shear strength. The results of such testing shall be reported to the Central Valley Water Board as part of the Construction Quality Assurance (CQA) Report.
8. The Discharger shall include estimated final closure dates of the WMUs in the Annual Monitoring Report as specified in **Section E.2** of the operative MRP.

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

1. The Discharger shall maintain with CalRecycle assurances of financial responsibility for the amounts specified for each category in Finding 128, adjusted annually for inflation.
2. A report regarding financial assurances, or a copy of the financial assurances report submitted to CalRecycle, shall be submitted to the Central Valley Water Board annually, no later than **1 June**.
3. If CalRecycle determines that the submitted financial assurances for the Facility are inadequate, the Discharger shall, within 90 days of such determination:
 - a. Obtain a new financial assurance mechanism for the amount specified by CalRecycle; and
 - b. Submit a report documenting such financial assurances to CalRecycle and the Central Valley Water Board.

4. The operative Preliminary CPMP shall include all components required per Title 27 section 21769, subdivision (c), and include a lump sum cost estimate for:
 - a. Completion of all actions required for closure of each WMU;
 - b. Preparation of detailed design specifications;
 - c. Development of a Final CPMP; and
 - d. Undertaking at least 30 years of post-closure maintenance.
5. Whenever changed conditions increase the estimated costs of closure and post-closure maintenance, the Discharger shall promptly submit an updated CPMP to the Central Valley Water Board, CalRecycle, and the LEA.

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

1. The Discharger shall comply with all provisions of the separately issued operative MRP.
2. The Discharger shall implement the Water Quality Protection Standard (WQPS) set forth in the operative MRP (see also Title 27 sec. 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) in accordance with Title 27 secs. 20385, 20415, and 20420.
4. For each WMU subject to corrective action, the Discharger shall implement a corrective action monitoring program (CAMP) in accordance with Title 27 secs. 20385, 20415, and 20430, and Section I of the SPRRs.

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

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

2. Reports and data required herein, including but not limited to, technical reports, Electronic Data Format (EDF) data, well data, boring log, data, well survey_XY data, well survey_Z data, and site maps shall be submitted electronically via the State Water Board's [GeoTracker Database](https://geotracker.waterboards.ca.gov) (<https://geotracker.waterboards.ca.gov>). After uploading, the Discharger shall notify Central Valley Water Board staff via email at CentralVallySacramento@WaterBoards.ca.gov. The following information shall be included in the body of the email:

Attention:	Title 27 Compliance & Enforcement Unit
Report Title:	[Title]
GeoTracker Upload ID:	L10008827999
Facility:	Forward Landfill
County:	San Joaquin County
CIWQS Place ID:	225098

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

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

Table 17—Time Schedule

Item No.	Category	Task	Deadline
1.	Construction	Submit construction, design plan(s), and updated CQA plans for review and approval in accordance with Section D of this Order, and Section F of the SPRRs.	120 Days Prior to Proposed Construction
2.	Construction	Submit construction report(s) for review and approval upon completion demonstrating construction was in accordance with approved construction plans and Section F.27 of the SPRRs.	60 Days Prior to Proposed Discharge to Unit(s)
3.	Final Closure	Submit final or partial final closure and post-closure maintenance plan (PCMP), design plans, and CQA plan for review and approval, in accordance with Section E of this Order and Section G of the SPRRs.	2 Years Prior to Closure
4.	Surface Impoundment Construction	Submit design report and CQA plan of WMU F South and WMU F East for review and approval, prior to discharging waste into the unit. A revised Operation and Maintenance plan must also be submitted after construction has been completed.	120 Day Prior to Proposed Construction

Item No.	Category	Task	Deadline
5.	Multi-Phased Partial Final Closure/Post-Closure Maintenance Plan	Submit updated estimated closure dates in order to be in compliance with Title 27 section 21769 subd. C.2.B.	30 March 2024
6.	Sensitive Receptor Survey	Submit an updated sensitive receptor survey that encompass the facility and one mile of the Facility.	30 March 2024
7.	Leachate Collection and Removal System Evaluation	Submit a leachate collection and recovery system (LCRS) evaluation of the WMUs overlaying the unlined former Austin Road unit.	15 April 2024 (LCRS Evaluation Report)
8.	Update Financial Assurance Cost Estimate	Submit an updated and revised cost estimate for initiating and completing corrective actions of all known or reasonably foreseeable releases. The revised cost estimates must consider the future costs to cleanup groundwater north of the Austin Road unit and other potential releases from the expanding landfill footprint.	1 June 2024
9.	Enroll in the Salt and Nitrate Control Program	Submit a Notice of Intent to the SCP and NCP.	30 April 2024

J. Other Provisions

1. The Discharger shall maintain at the Facility copies of this Order (including all attachments), the operative Monitoring & Reporting Program (i.e., MRP R5-2024-XXXX and any revisions thereto), and the SPRRs. These materials shall be made available to all operating personnel, who shall be familiar with the contents of such materials.

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

LIST OF ATTACHMENTS

Attachment A—Location Map
Attachment B—Site Map
Attachment C—Cannery Waste Location Map
Attachment D—Monitoring Network Map
Attachment E—Approved Landfill Liner Design
Attachment F—Approved Final Closure Design
Attachment G—Waste Management Units Map
Attachment H—Residential Domestic Wells
Attachment I—1,000 FT Radius/ Adjacent Land Use Map

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

Monitoring and Reporting Program R5-2024-XXXX (separate document)

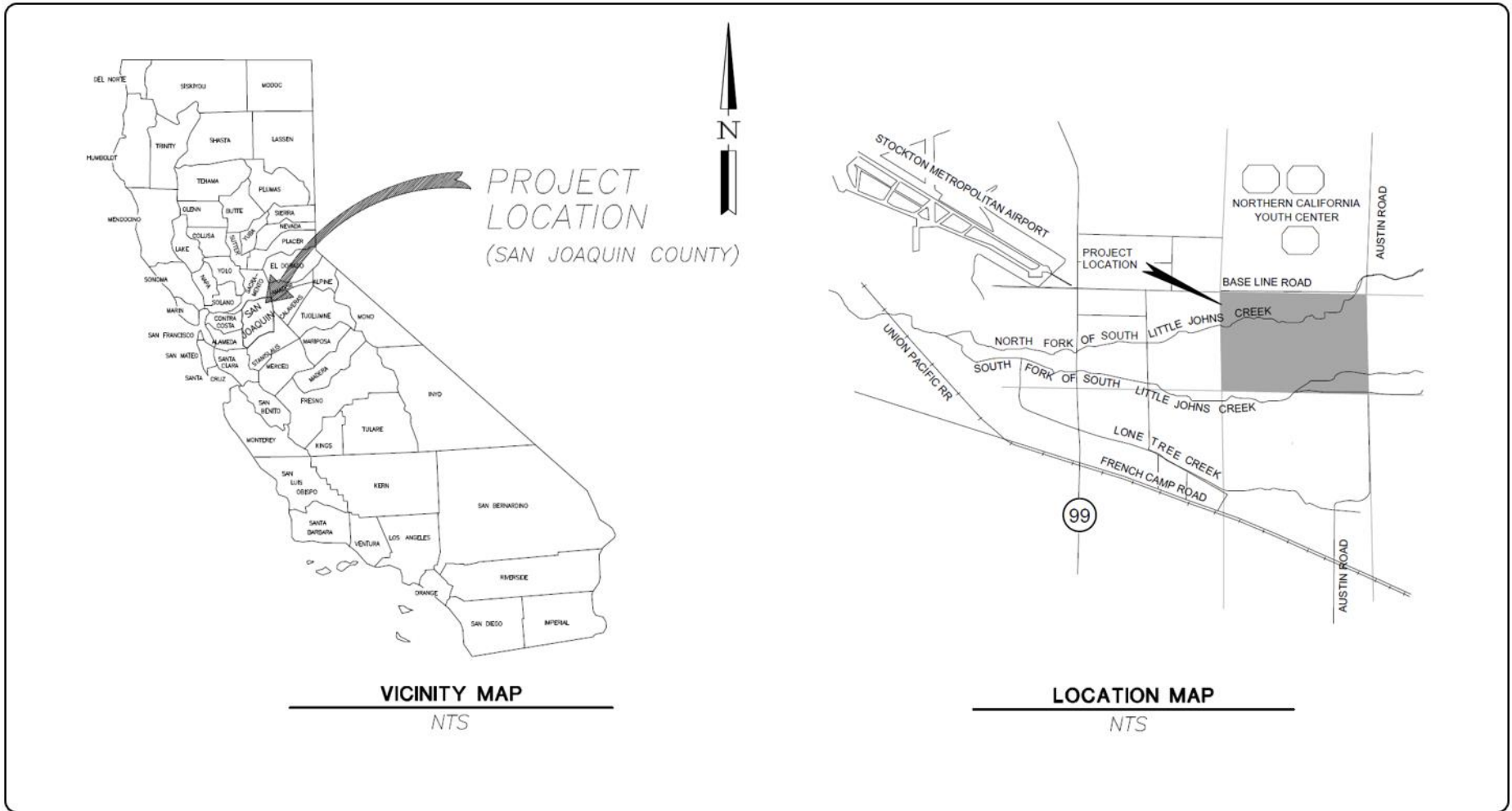
ENFORCEMENT

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, pursuant to the Water Code, including sections 13268, 13350, and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

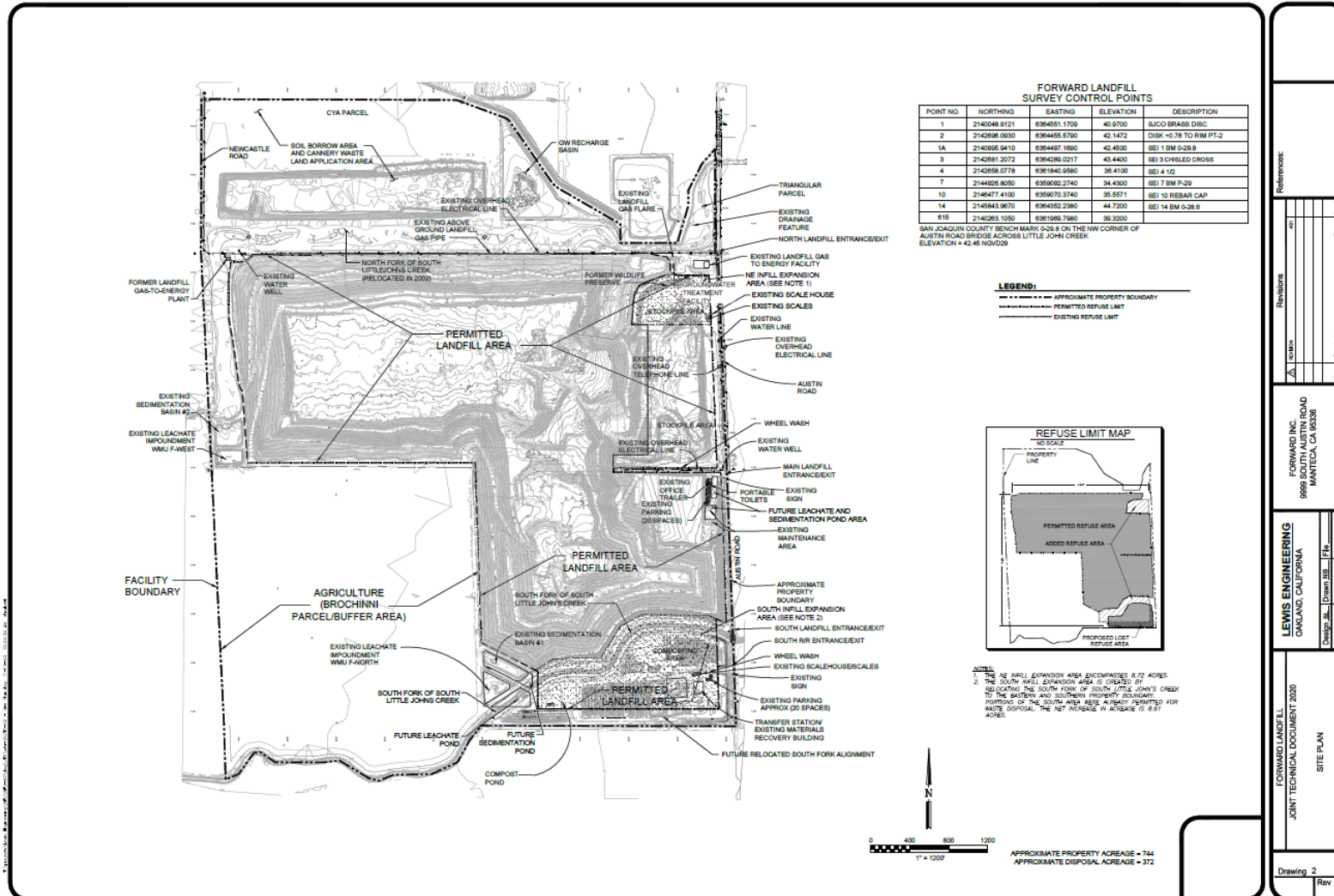
ADMINISTRATIVE REVIEW

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

ATTACHMENT A—LOCATION MAP



ATTACHMENT B—SITE MAP



Reference:

Revisions:

Rev	Date	Descr

FORWARD, INC.
 9699 SOUTH AUSTIN ROAD
 MANTECA, CA 95336
 Phone: (209) 952-2288

LEWIS ENGINEERING
 OAKLAND, CALIFORNIA

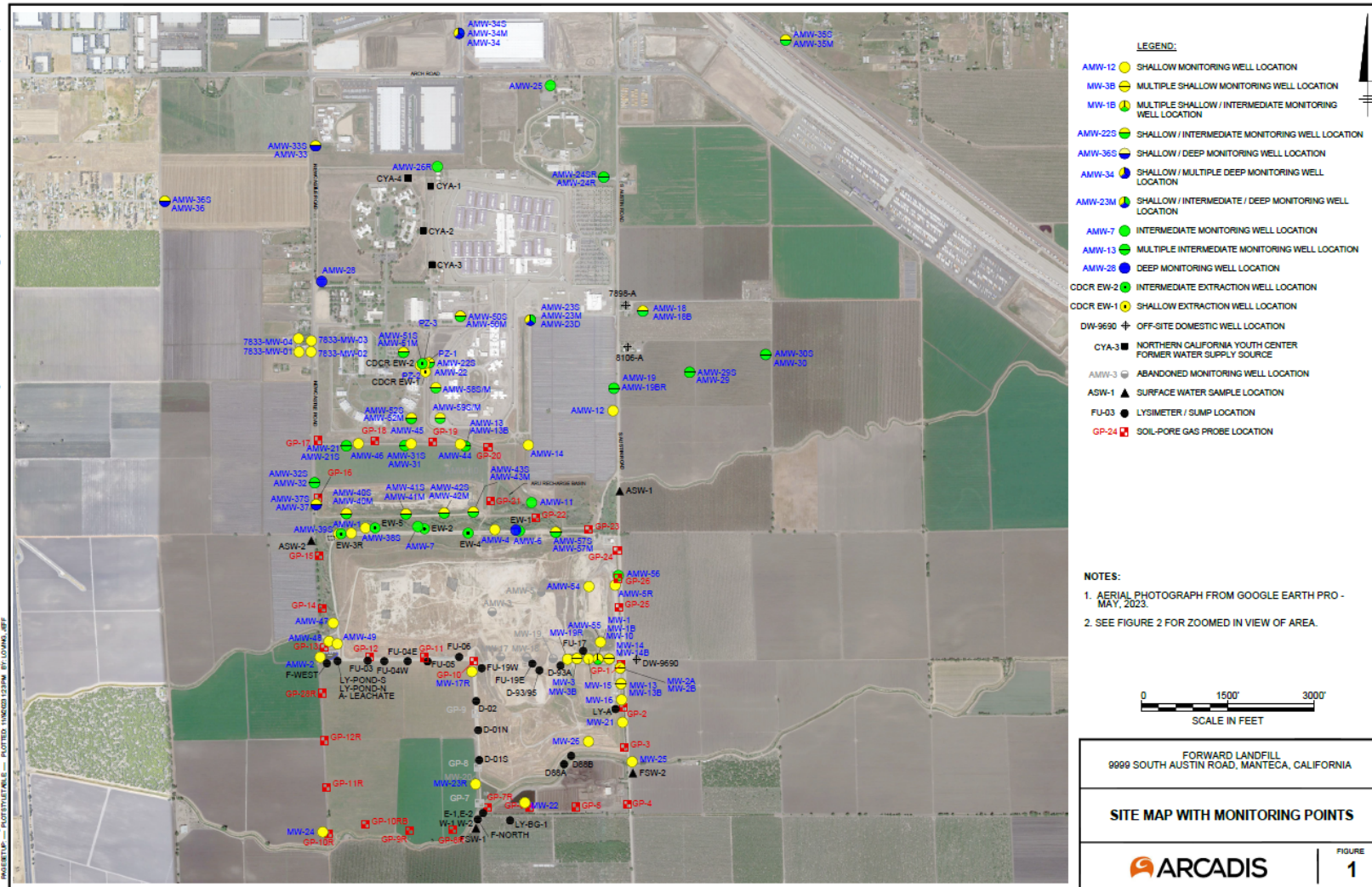
Design	Drawn	Check	Date

FORWARD LANDFILL
 JOINT TECHNICAL DOCUMENT 2203
 SITE PLAN
 Drawing 2
 Rev

ATTACHMENT C—CANNERY WASTE LOCATION MAP



ATTACHMENT D—MONITORING NETWORK MAP



ATTACHMENT E—APPROVED LANDFILL LINER DESIGN

1. Single Composite Liner – from top to bottom:

Component	Base	Side Slopes
Operations Layer	12-inch thick protective cover soil	12-inch thick protective cover soil
Filter Fabric	Geotextile (8 oz/yd ²)	N/A
LCRS	12-inch thick LCRS gravel	Geocomposite drainage net
Cushion Layer	Geotextile (12 oz/yd ²) (may be omitted if the LCRS gravel is sub-angular to rounded)	N/A
Composite Liner	60-mil HDPE Geomembrane	60-mil HDPE Geomembrane
	24-inch thick low-permeability soil (minimum permeability 1 x 10 ⁻⁷ cm/sec)	Geosynthetic clay liner (GCL) or 24-inch thick low-permeability soil (minimum permeability 1 x 10 ⁻⁷ cm/sec)
Foundation Layer	Prepared subgrade	Prepared subgrade

Note: The side slope liner system will be anchored in a trench located at the top of the excavation slope.

2. Surface Impoundment – from top to bottom:

Component	Base
Primary Liner	60-mil HDPE Geomembrane
Leak Detection System	Geonet or Geocomposite LCRS
Secondary Composite Liner	60-mil HDPE Geomembrane
	Geosynthetic clay liner (GCL)
Foundation Layer	Prepared subgrade (graded and compacted native soil)

3. Sump and Pan Lysimeter – from top to bottom:

Component	Base
Sump Operations Layer	12-inch thick protective cover soil

Sump Filter Fabric	Geotextile separator (8 oz/yd ²)
Sump LCRS	Gravel filled LCRS sump with access pipe
Sump Composite Liner	60-mil HDPE Geomembrane Geosynthetic clay liner (GCL)
Sump Foundation Layer	6-inch compacted soil
Pan Lysimeter	Gravel filled pan lysimeter with access pipe
Composite Liner	60-mil HDPE Geomembrane
	Geosynthetic clay liner (GCL) or 24-inch thick low-permeability soil (minimum permeability 1 x 10 ⁻⁷ cm/sec)
Foundation Layer	Prepared subgrade (graded and compacted native soil)

Note: Pan lysimeters installed beneath the LCRS sump in each new landfill cell/module for the purpose of vadose zone monitoring.

4. Intermediate Liner – from top to bottom:

Component	Base
Operations Layer	12-inch thick protective cover soil
Cushion Layer	Geocomposite drainage net
Composite Liner	60-mil HDPE Geomembrane
	24-inch thick low-permeability soil (minimum permeability 1 x 10 ⁻⁷ cm/sec) or geosynthetic clay liner (GCL)
Foundation Layer	Min 12-inch foundation soil 12-inch existing soil cover

Note: Intermediate liner system were constructed to separate Class III waste in unlined or non-Subtitle D lined existing WMUs from adjacent Class II WMUs. Intermediate liner systems were utilized for WMU ART-03, WMU FU-04 North, WMU FU-05 North, WMU FU-06 North, WMU FU-08 North, WMU FU-10, WMU FU-13, and WMU FU-17.

ATTACHMENT F—APPROVED FINAL CLOSURE DESIGN

1. Prescriptive Final Cover

Component	Top Deck and Side Slopes
Erosion Resistant Layer	Minimum 1-foot vegetative cover soil
Low Hydraulic Conductivity (LHC) Layer	Minimum 1-foot clean compacted clay soil ($k \leq 1 \times 10^{-6}$ cm/sec)
Foundation Layer	Minimum 2-foot thick soil

2. Engineered Alternative 1

Component	Top Deck and Side Slope
Cover Layer	3-foot thick select soil material for upper monolithic cover layer
Foundation Layer	1-foot thick select soil materials placed as interim cover

3. Engineered Alternative 2

Component	Top Deck and Side Slope
Cover Layer and Foundation Layer	4-foot thick select soil material for upper monolithic cover layer and foundation layer

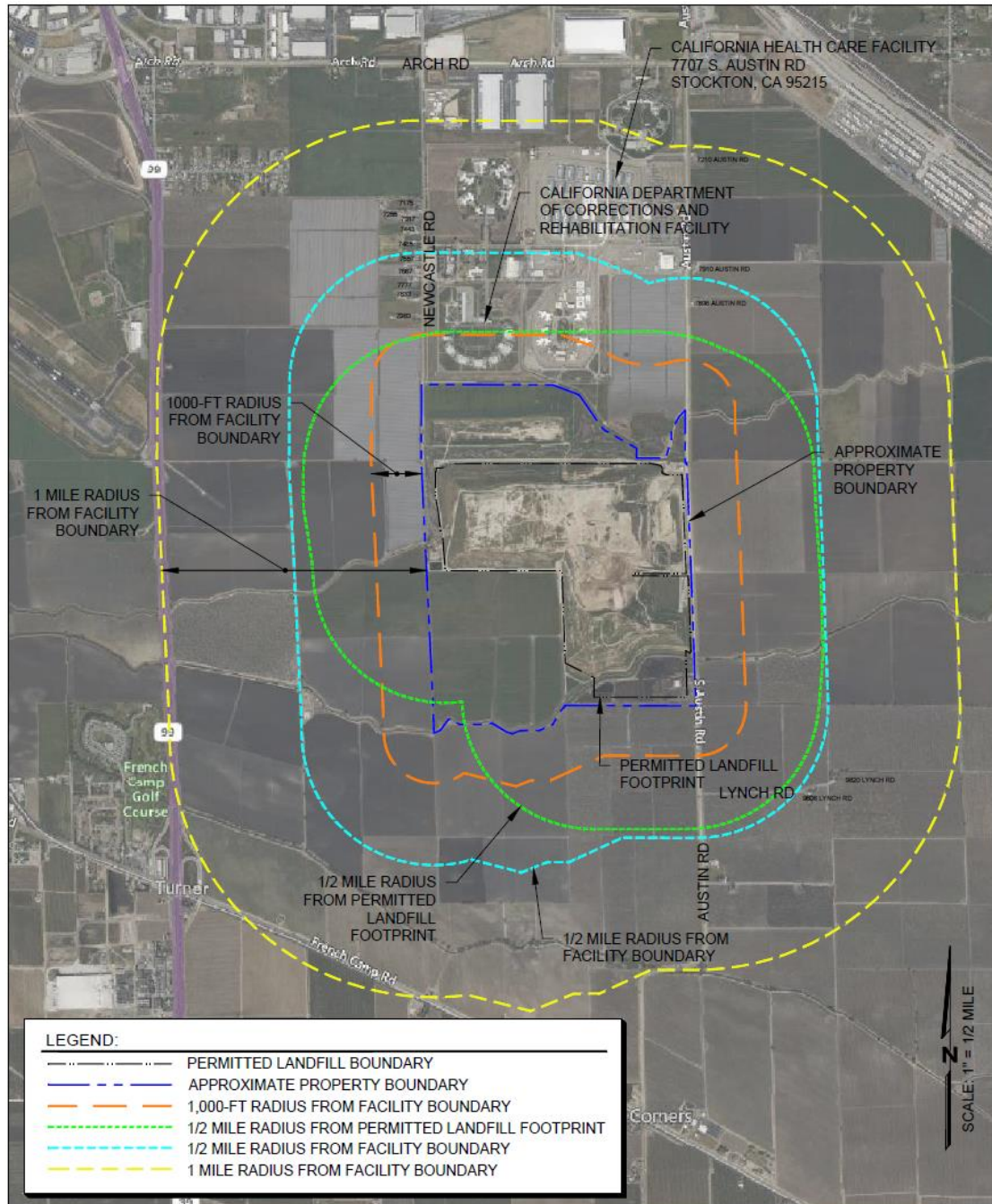
ATTACHMENT H—RESIDENTIAL DOMESTIC WELLS


Location Name	Type	Monitoring Frequency
7210 Austin Road	Domestic	Quarterly
7898 Austin Road North	Domestic	Quarterly
7175 Newcastle Road	Domestic	Quarterly
7443 Newcastle Road	Domestic	Quarterly
7557 Newcastle Road	Domestic	Quarterly
7601 Newcastle Road	Domestic	Quarterly
7667 Newcastle Road	Domestic	Quarterly
7777 Newcastle Road North	Domestic	Quarterly
7777 Newcastle Road South	Domestic	Quarterly
7833 Newcastle Road	Domestic	Monthly
7983 Newcastle Road	Domestic	Quarterly
7995 Newcastle Road	Domestic	Quarterly
3902 Arch Road	Domestic	Semi-Annual
4310 Arch Road	Domestic	Semi-Annual
4832 Arch Road	Domestic	Semi-Annual
4920 CA-99	Domestic	Semi-Annual
5190 CA-99	Domestic	Semi-Annual
6595 S Jacktone Road	Domestic	Semi-Annual
6631 S Jacktone Road	Domestic	Semi-Annual
6701 S Jacktone Road	Domestic	Semi-Annual
6380 Kaiser Road	Domestic	Semi-Annual
6677 Kaiser Road	Domestic	Semi-Annual
6715 Kaiser Road	Domestic	Semi-Annual

Location Name	Type	Monitoring Frequency
9852 E. Mariposa Road	Domestic	Semi-Annual
11040 E. Mariposa Road	Domestic	Semi-Annual
11362 E. Mariposa Road	Domestic	Semi-Annual
11534 E. Mariposa Road	Domestic	Semi-Annual
12022 E. Mariposa Road	Domestic	Semi-Annual
12226 E. Mariposa Road	Domestic	Semi-Annual
12440 E. Mariposa Road	Domestic	Semi-Annual
12726 E. Mariposa Road	Domestic	Semi-Annual
12754 E. Mariposa Road	Domestic	Semi-Annual
12886 E. Mariposa Road	Domestic	Semi-Annual
12954 E. Mariposa Road	Domestic	Semi-Annual
13019 E. Mariposa Road	Domestic	Semi-Annual
13225 E. Mariposa Road	Domestic	Semi-Annual
6258 Santa Ana Way	Domestic	Semi-Annual
6350 Santa Ana Way	Domestic	Semi-Annual
6365 Santa Ana Way	Domestic	Semi-Annual
6416 Santa Ana Way	Domestic	Semi-Annual
6450 Santa Ana Way	Domestic	Semi-Annual
6555 Santa Ana Way	Domestic	Semi-Annual
6562 Santa Ana Way	Domestic	Semi-Annual
6568 Santa Ana Way	Domestic	Semi-Annual
3314 Sunny Road	Domestic	Semi-Annual
3320 Sunny Road	Domestic	Semi-Annual
3440 Sunny Road	Domestic	Semi-Annual
3447 Sunny Road	Domestic	Semi-Annual

Location Name	Type	Monitoring Frequency
3560 Sunny Road	Domestic	Semi-Annual
3647 Sunny Road	Domestic	Semi-Annual
3734 Sunny Road	Domestic	Semi-Annual
3792 Sunny Road	Domestic	Semi-Annual
3823 Sunny Road	Domestic	Semi-Annual
3904 Sunny Road	Domestic	Semi-Annual
3912 Sunny Road	Domestic	Semi-Annual
3935 Sunny Road	Domestic	Semi-Annual
3947 Sunny Road	Domestic	Semi-Annual
3948 Sunny Road	Domestic	Semi-Annual
4062 Sunny Road	Domestic	Semi-Annual

ATTACHMENT I—1,000 FT RADIUS/ ADJACENT LAND USE MAP



	FORWARD LANDFILL JOINT TECHNICAL DOCUMENT 2023 1,000 FT RADIUS/ADJACENT LAND USE MAP	FIGURE 1 IMAGE SOURCE: BING MAPS
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T:\projects\Lewis Engineering\WFW\WFW-23\dwg\Figure 1 - Adjacent Land Use Map.dwg

STANDARD PROVISIONS & REPORTING REQUIREMENTS

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

A. Applicability

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to nonhazardous solid waste disposal sites that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, Title 27 ("Title 27"), section 20005 et seq., and municipal solid waste (MSW) landfills that are subject to the Federal Subtitle D regulations contained in 40 Code of Federal Regulations section 258 (hereafter, "Subtitle D" or "40 C.F.R. § 258.XX") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62. The Subtitle D regulations are only applicable to MSW landfills and therefore any requirements in these SPRRs that are referenced as coming from Subtitle D are not applicable to non-MSW waste management units such as Class II surface impoundments, Class II waste piles, and non-MSW landfill units. All Subtitle D requirements in these SPRRs are referenced with "[40 C.F.R. § 258.XX]" after the requirement.
2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.
3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
4. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.
6. If there is a site-specific need to change a requirement in these SPRRs for a particular landfill facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed

as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.

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

B. Terms and Conditions

1. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]
2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:
 - a. Violation of any term or condition contained in this Order;
 - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or
 - d. A material change in the character, location, or volume of discharge.
3. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. A material change includes, but is not limited to, the following:
 - a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;
 - b. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment);

- c. A change in the type of waste being accepted for disposal; or
 - d. A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.
4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].
5. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].
6. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with the 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 subd. (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].

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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)].

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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)].

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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 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 is 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 1.47.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)].

STANDARD PROVISIONS & REPORTING REQUIREMENTS

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)].

STANDARD PROVISIONS & REPORTING REQUIREMENTS

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)].

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

DRAFT [TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER
R5-2024-XXXX
FOR
FORWARD, INC.
FORWARD LANDFILL
SAN JOAQUIN COUNTY

INFORMATION SHEET

Findings

Forward, Inc., an Arizona corporation and subsidiary of Republic Services, Inc., a Delaware corporation, (collectively, Discharger) owns and operates Forward Landfill, consisting of one closed Class I landfill unit and several Class II and Class III landfill units on 388-acres of a 744-acre site. The Discharger has requested revised Waste Discharge Requirements to address revised disposal areas, realignment of the existing South Fork of South Littlejohns Creek, and an increase in landfill disposal capacity. These WDRs also address updates to the monitoring network, new requirements for landfill application of cannery waste, new Salt and Nitrogen Control Program enrollment request, and new requirements for a composting operation.

These WDRs prescribe requirements for WMU operation, construction, corrective action, closure, and post-closure maintenance and monitoring consistent with Title 27.

Other issues addressed in this revised Waste Discharge Requirements Order include: a request for a revised Closure and Postclosure Maintenance Plan with revised dates for closure stages, request for financial assurance re-evaluation, and a request for surface impoundment construction of WMU F South and WMU F East.

SMG: 25 January 2024