

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-201X-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF WINTERS
WINTERS LANDFILL
CLASS III LANDFILL
CLOSURE, POST-CLOSURE MAINTENANCE
AND CORRECTIVE ACTION
YOLO COUNTY

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

1. The City of Winters (hereinafter referred to as “Discharger”) owns and operates the Winters Landfill, an inactive, municipal solid waste (MSW) landfill located in the City of Winters about 14 miles north of Vacaville, as shown in Attachment A: Location Map (incorporated by reference in Finding 2 below). The landfill facility is regulated under authority provided in Water Code section 13000 et seq. and the California Code of Regulations, title 27 (“Title 27”).
2. The following documents are attached to this Order and hereby incorporated into and made a part of this Order by reference:
 - a. Attachment A – Location Map
 - b. Attachment B – Area Map
 - c. Attachment C – Site Map
 - d. Information Sheet
 - e. April 2016 *Standard Provisions and Reporting Requirements for Industrial Facilities Regulated by Title 27* (Industrial SPRRs).
3. The landfill has not been previously regulated under waste discharge requirements (WDRs). The landfill was previously regulated under a stand-alone monitoring and reporting program (MRP), Order 5-00-802, issued by the Executive Officer in January 2000 and revised in September 2001. In April 2017, Central Valley Water Board staff notified the Discharger that staff planned to prepare WDRs for the facility and requested that the Discharger submit a Report of Waste Discharge (ROWD) and completed application for WDRs.^{1,2} On 30 November 2017, the Discharger submitted

1. Title 27, section 21720(a) requires that the provisions of Title 27 applicable to a facility be implemented through the issuance of WDRs.
2. Section 21710(a) of Title 27 requires that an ROWD be submitted to the Regional Board for any discharge of solid waste to land where water quality could be affected by the discharge, unless (in the case of a non-Subtitle D landfill) the ROWD is waived by the Regional Board.

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the completed WDR application and ROWD, including or referencing the following information:

- a. Site history and waste disposal information;
- b. 1990 Solid Waste Assessment Test Assessment (SWAT) Report;
- c. 2001 Final Closure and Postclosure Maintenance Plan;
- d. 2007 topographic survey; and
- e. Historical groundwater monitoring data.

This WDR Order includes findings, regulatory references, and requirements appropriate for closure and postclosure maintenance of a Class III landfill based on the ROWD and a review of the project files.

4. The facility is on a 29.5-acre site is in the southwest ¼ of Section 16, T8N, R1W Mount Diablo Base and Meridian (MDB&M), corresponding to Assessor Parcel Number 030-210-007. The geographic coordinates of the site are Latitude 38.533°, Longitude - 121.988°. The site is located on Moody Slough Road at County Road 38 about one-mile northwest of downtown Winters, as shown in Attachment B: Area Map.
5. The landfill consists of a single, unlined waste management unit referred to as Landfill 1 (LF-1). LF-1 operated from 1962 to September 1975, accepting primarily MSW and agricultural wastes. The site was previously operated as a burn dump from 1925 to 1961. In June 2000, after 25 years of inactivity, an interim cover consisting of two feet of compacted soil was installed over the landfill. Burn dump ash and wastes from other historical operations were also excavated and consolidated into LF-1. The disposal areas associated with the site are summarized below:

Disposal Area	T 27 Unit Class	Area (acres)	Status	Waste Containment System		Wastes
				Liner	Cover	
LF-1	Class III	6.5	Inactive	Unlined ¹	Interim ²	MSW, agricultural, industrial, ash & construction
Burn Dump						
Onsite Footprint ³	---	7.3	Partially clean closed	Unlined	Excavation Backfill soil	Shallow ash
Offsite Footprint ³	---	3.8	Clean Closed			
Debris piles ³	---	0.7				
Firing range berm soil ³	---	0.3				Residual lead ⁴

1. Unit not constructed with a base liner or leachate collection and recovery system (LCRS).
 2. Interim cover consists of two feet of compacted soil.

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3. Wastes/soil excavated from these areas consolidated into LF-1 prior to installation of interim cover.
4. Soil screened for lead fragments prior to removal.

Other landfill-associated facilities at the site include precipitation and drainage controls, access roads, and groundwater monitoring wells. See Attachment C: Site Map.

6. Title 27 contains regulatory standards for discharges of solid waste promulgated by the State Water Board and the California Department of Resources Recovery and Recycling (CalRecycle). In certain instances, this Order cites CalRecycle regulatory sections. Title 27, section 20012 allows the Central Valley Water Board to cite CalRecycle regulations from Title 27 where necessary to protect water quality, provided it does not duplicate or conflict with actions taken by the Local Enforcement Agency (LEA) in charge of implementing CalRecycle regulations.
7. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated MSW landfill regulations under the Resource Conservation and Recovery Act (RCRA), Subtitle D. These regulations are under 40 Code of Federal Regulations section 258, and are hereafter referred to as either “Subtitle D” in reference to the RCRA federal law that required the regulations or “40 C.F.R. section 258.XX”. Subtitle D regulations apply to all California Class II and Class III landfills that accepted MSW on or after the Subtitle D “federal deadline” (typically 9 October 1993).
8. The Winters landfill is not subject to federal Subtitle D regulations because it ceased accepting wastes before 9 October 1991 and subsequent clean closure activities did not expand the existing (i.e., pre-Subtitle D) MSW footprint, which included the onsite burn dump.³
9. This Order implements the applicable regulations for discharges of solid waste to land through Prohibitions, Specifications, Provisions, and monitoring and reporting requirements. Prohibitions, Specifications, and Provisions are listed in Sections A through I of these WDRs below, and in the Industrial SPRRs dated April 2016 which are part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) R5-201X-XXXX and in the Industrial SPRRs. In general, requirements in regulation that are common to landfill units (as opposed to being site-specific) are considered to be “standard” and are therefore in the SPRRs. Any site-specific changes to a requirement in the SPRRs are included in the applicable section (Sections A through I) of these WDRs, and such requirement in the WDRs supersedes the requirement in the SPRRs.

3. Burn dump clean closure activities conducted in 2000 reduced the total area of the MSW footprint (including offsite portion) from about 11.1 acres to 6.3 acres (i.e., the area of LF-1).

WASTES AND UNIT CLASSIFICATION

10. LF-1 accepted household, agricultural and industrial wastes defined as “nonhazardous” and “inert” under Title 27, sections 20220 and 20230, respectively. The former burn dump areas accepted MSW refuse and associated combustible wastes, which were burned.
11. Wastes discharged to the landfill (LF-1) included burn dump ash, firing range berm soil, automobile bodies, engine blocks, tires, metal wire, household applicates (e.g., refrigerators, water heaters), concrete and asphalt. Green waste (i.e., plant cuttings) and nut shells were also discharged to the landfill.
12. Waste disposal operations originally consisted of pit fill, and then, after the pit was filled, area fill. The original landfill pit is estimated to have been approximately 250 to 300 feet long, 20 to 30 feet wide, and 12 to 20 feet deep. The base of fill in the landfill is estimated to range from about 129 feet MSL to about 149 feet MSL. The maximum height of the landfill waste column is about 41 feet (i.e., 170 feet MSL minus 129 feet MSL) in the crest area. See Findings 27 and 34. Approximately 200,000 in-place cubic yards of waste are estimated to have been discharged to the landfill (i.e., LF-1) based on its estimated dimensions.
13. LF-1 is a “closed, abandoned, or inactive” (CAI) unit under Title 27 regulations because it ceased accepting wastes prior to 27 November 1984, the effective date of Chapter 15 regulations. CAI units are subject to Title 27 detection monitoring requirements, and if water quality impairment is found, to Title 27 corrective action requirements, including landfill closure. CAI units that have been classified (or re-classified) under WDRs implementing Chapter 15/Title 27 regulations may be subject to all Title 27 provisions applicable to existing units of that classification. See Title 27, sections 20080(d)(1) and 20950(a)(1).
14. These WDRs classify LF-1 as a Class III landfill unit based on a requirement that the Discharger close the landfill with a Title 27-compliant clay soil cover or approved engineered alternative design. See Postclosure Specification E.3.

SITE DESCRIPTION

15. The site is on relatively flat alluvial terrain about one-half mile east of the Vaca Mountain and Blue Ridge foothills. Surrounding grade generally ranges from about 150 feet MSL along the northeast perimeter of the site to about 175 feet MSL along the southwest perimeter of the site. Slopes generally range from about 2 to 3 percent to the northeast.
16. Land uses within one mile of the site include residential and commercial to the south and southwest (i.e., City of Winters); transportation (i.e., roads); irrigated agriculture

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(e.g., orchards) and open space to the north, east and west; parks and recreation to the south; and water conveyance (i.e., Highland and Willow Canals) to the west and east.

17. A March 2018 Department of Water Resources (DWR) well survey indicated there are at least six supply wells within a one-mile radius of the site, including two domestic supply wells, two agricultural irrigation wells, and two public supply wells within a one-mile radius of the site.
18. The 100-year, 24-hour precipitation event for the site is estimated to be about 5.2 inches based on rainfall depth duration frequency data (1949 through 2006) from the nearest Department of Water Resources (DWR) weather station about one mile southeast of the site (Winters Station No. A00 9742 00). Based on this weather station, the average 24-hour precipitation event at the site is about 2.3 inches. The average annual rainfall in the Winters area is estimated to be about 24 inches.⁴
19. The site is not within a 100-year floodplain based on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map No. 06113C0561G (dated 18 June 2010), which includes the landfill site.

GEOLOGY

20. The Sacramento Valley is part of the Great Valley sedimentary basin, a 22,500 square mile area comprising California's Central Valley. The Great Valley area is bounded by the Coast Range to the west, the Sierra Nevada to the east, the Tehachapi Mountains to the south, and the Klamath Mountains to the north. Continental deposits in the Sacramento Valley consist of alluvial, fluvial, delta, and flood plain sediments generated by glaciation processes and weathering and erosion in the surrounding mountain ranges. Deposited over geologic time by the Sacramento and San Joaquin Rivers and their tributaries, such sediments are estimated to be thousands of feet thick in some areas. Underlying the continental deposits are ancient marine deposits.
21. The site is in the Putah Plain in the southwestern part of the Sacramento Valley. The Putah Plain is a late Pliocene to Recent age alluvial plain formed by Putah Creek, Cache Creek and various meandering streams. Soils underlying the Putah Plain are classified as Stream Channel Deposits (Recent); Younger Alluvium (Holocene); Older Alluvium (late Pleistocene); and the Tehama formation (Pliocene-Pleistocene). Younger Alluvium generally consists of fine-grained sandy silts up to 30 feet thick. The younger alluvium covers all of the Putah Plain, except near the Coast Ranges where older alluvium is exposed along with the Tehama Formation. The Older Alluvium consists of silts and clays interspersed with sand and gravel lenses ranging

4. Based on historical rainfall data (1963 through 2001) for DWR's Lake Solano Station (No. A00 4712 00) about three miles southwest of the site.

from 60 to 130 feet thick and are characterized by a dense, clay-rich B-Horizon. The underlying Tehama formation generally consists of clean sands interspersed with silts and clays. Due to its great thickness (up to 2,500 feet), the Tehama formation is the primary aquifer in the western part of the Sacramento Valley.

22. Surface soils at the site generally consist of Corning Gravelly Loam, as classified by the U.S Department of Agriculture Natural Resources Conservation Service soil survey for the area.⁵ Such soils occur on slopes ranging from 0 to 12 percent and typically consist of one foot of gravelly loam soil underlain by up to four feet of clay and/or gravelly clay. The surface soils are underlain by Older Alluvium of the Putah Plain fan deposits consisting primarily of alternating layers of clayey silt, silty clay, sand, and sandy gravel.
23. The nearest Quaternary fault zones to the facility include, but may not limited to, the following:
 - a. The Great Valley Thrust Fault Zone (Segment 4), Trout Creek (Great Valley 04a) and Gordon Valley (Great Valley 04b) sections -- a submerged, NW-SE trending thrust fault running along the eastern foothills of the Coast Range north, west and southwest of the site.
 - b. The Midland Fault Zone, a NW-SE trending subsurface slip fault about 10 miles southeast of the site extending from Dixon to eastern Brentwood.
 - c. The Lagoon Valley/Vaca Valley Fault about 10 miles southwest of the site extending south from Vacaville to Fairfield.
 - d. The Rio Vista Fault about 10 miles southwest of the site extending south from Vacaville to Pittsburg.
 - e. The Hunting Creek-Berryessa Fault Zone, a NW-SE trending slip fault running along the western side of Lake Berryessa about 12 miles west of the site;
 - f. Green Valley Fault Zone, an extension of the Hunting Creek-Berryessa Fault Zone running along the western side of the Vaca Mountains about 15 miles southwest of the site;
 - g. The West Napa Fault Zone, a NW-SE trending slip fault running through the Napa Valley about 24 miles west of the site;
 - h. The Collayomi Fault Zone, a NW-SE trending slip fault running along the western side of Clear Lake about 32 miles northwest of the site; and
 - i. The Rodgers Creek - Healdsburg Fault Zone a NW-SE trending slip fault running along the western side of Clear Lake about 32 miles northwest of the site.

5. See June 1972 U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey for Yolo County (CA113).

Most of the above fault zones have Holocene components (faults or fault segments) and some have been historically active during the past 150 years. In 1892, for example, an earthquake registering 6.5 on the Richter scale occurred in Winters and Vacaville along the Great Valley Fault Zone, Segment 4. Also, in 2014, a 6.0 moment magnitude earthquake occurred near Napa along the West Napa Fault Zone. There are no known Holocene faults within 1,000 feet of the facility.

24. The maximum probable earthquake (MPE) for the site is estimated to be about 6.5 on the Richter scale based on the 1892 Vacaville/Winters earthquake noted above. The associated peak horizontal ground acceleration at the site is estimated to be about 0.5 g.

UNSATURATED ZONE CONDITIONS

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25. Monitoring well boring logs from the 1989 SWAT investigation indicate an unsaturated zone lithology consistent with the Older Alluvium described in Finding 22 (i.e., alternating layers of clayey silt, silty clay, sand, and sandy gravel).
26. No landfill gas (LFG) or soil gas monitoring wells have ever been installed at the site or required by the Local Enforcement Agency (LEA), given the absence of nearby receptors. Also, no obvious indications of LFG (e.g., distressed vegetation) have ever been detected at the site. Investigations of the waste in the landfill unit have further confirmed the absence of any putrescible wastes, which, given the age of the landfill, would have long since degraded. Some decomposable wastes, such as wood, were detected however.⁶ As noted in Finding 62, the Discharger has a conceptual plan to install public park and/or sports facilities at the site in the future. In such event, it is possible that the LEA may require installation of gas monitoring wells at the site.
27. The unsaturated zone column (i.e., the distance between the base of wastes and seasonal high groundwater) at the site is estimated to be about 27 feet.

LEACHATE MONITORING

28. The landfill was not constructed with a leachate collection and recovery system and there is no leachate monitoring data on file for the site. The MRP under this Order requires leachate seep monitoring as part of Facility monitoring. See MRP, section A.3.

SURFACE AND GROUNDWATER CONDITIONS

29. Surface drainage at the site includes both run-on and runoff. Surface water run-on occurs in an unlined swale that enters the western side of the site and flows into the landfill perimeter drain. The landfill perimeter drain discharges to Dry Slough, an ephemeral stream about 100 feet north of the site that is tributary to Willow Slough (north of Davis) and ultimately the Yolo Bypass area. Other surface waters in the area include Dry Creek (about 2,000 feet west of the site), which flows into Putah Creek about 1.5 miles southeast of the site. Dry Creek is tributary to Putah Creek and the Yolo Bypass area. Maps of the area also show an old agricultural drain (The Highland Canal) meandering from the north to south and ultimately entering to Dry Creek. Available information indicates that this canal was diverted into Dry Slough north of the site and no longer exists south of the site.⁷

6. Samples recovered from borings installed in LF-1 in 1999 showed primarily ash, glass, asphalt, concrete, metal, cans and wood. Most of the waste encountered appeared to have been burnt. See 18 October 1999 report *Additional Site Characterization, Winters Landfill Closure*, prepared by Harding Lawson Associates.

7. USGS maps of the area also show the Highland Canal crossing the landfill site, but no evidence of the canal was noted in site inspections, indicating the canal was diverted north of the site.

30. The beneficial uses of Dry Slough, by application of the tributary rule, are the same as those of the Yolo Bypass specified in the Basin Plan. These existing and potential designated uses include agricultural supply (stock watering and irrigation); water contact recreation; non-contact water recreation; warm freshwater habitat; cold fresh water habitat (potential); migration of aquatic organisms; spawning, reproduction, and/or early development (warm only); wildlife habitat; and navigation.
31. Regional groundwater flow is generally to the east or northeast away from the Vaca Mountains where groundwater is recharged. The regional gradient is also affected locally by factors such as supply well pumping, recharge from surface waters, and water district projects. Most supply wells are screened in the Tehama formation, which is recharged by overlying alluvium. Background groundwater quality is good with total dissolved solids (TDS) of about 190 milligrams per liter (mg/L), alkalinity about 170 mg/L, and hardness about 130 mg/L. See Finding 44.
32. The beneficial uses of the ground water are domestic, municipal, agricultural, and industrial supply.

GROUNDWATER MONITORING

33. Three shallow groundwater monitoring wells, MWs -1, -2, and -3 were installed at the site in 1989 as part of the 1989 SWAT investigation. MW-2 was installed at an assumed upgradient location along the western site perimeter, MW-1 at an assumed side gradient location along the southern site perimeter, and MW-3 at an assumed down gradient location along the eastern site perimeter. In 1999, an additional shallow well, MW-4, was installed down gradient along the eastern site perimeter based on the results of the 1989 SWAT investigation. After installation of MW-4, MW-3 was monitored only as a piezometer. Subsequently, MW-3 was damaged by a maintenance vehicle in 2006 and abandoned. MW-3 was not replaced because it was believed to have been within the landfill waste footprint.
34. Monitoring data for the site has historically indicated that MW-2 was upgradient of the landfill and MW-4 was downgradient of the landfill. The estimated groundwater gradient is about .016 feet/feet to the northeast consistent with the regional gradient.⁸ Shallow groundwater beneath the site has historically ranged from about 47 feet bgs (102 feet MSL) at MW-4 to 92 feet bgs (74 feet MSL) at MW-2.
35. A lack of functional monitoring wells at the site has resulted in unreliable and variable

⁸. Estimate based on pre-2006 groundwater elevation monitoring data from wells MW-1, MW-2 and MW-3, given that MW-3 was subsequently abandoned and MW-4 did not appear to be a reliable replacement well.

estimates of the groundwater flow direction and gradient over the past 15 years. Contributing factors have included the following:

- a. As noted in Finding 33, monitoring well MW-3 was abandoned and not replaced, leaving only three monitoring wells to measure groundwater elevation.
- b. The groundwater elevation historically measured in well MW-4 has been anomalously high compared to the other wells at the site, including former well MW-3, which was only about 150 feet south of MW-4 (along the eastern perimeter of the landfill), but had a seven-foot lower groundwater elevation.
- c. Well log data indicates that well MW-4 is about 20 feet shallower than the other wells at the site and may not have been screened in the same zone and/or be in hydraulic communication with the other wells.
- d. Well MW-1 has been dry since November 2013, rendering it impossible to triangulate a groundwater flow direction. MW-2 has also been dry since June 2013. It is unknown whether the wells are dry because of damage or clogging or whether the water table has fallen below the level of the screens. (The 1989 SWAT report states that “flowing sands” were encountered during installation of the wells).

These WDRs require that the Discharger submit a work plan to investigate the condition of all monitoring wells at the site and repair or replace, as applicable, all groundwater monitoring wells that are not functioning properly and/or not meeting Title 27 performance standards for monitoring. At a minimum, such wells would need to include MW-1 (dry), MW-2 (dry) and MW-3 (abandoned, but not replaced). Additional wells or piezometers may also be needed to meet Title 27 performance standards for monitoring or reliable measurement of the groundwater gradient. See Provision H.10.a.

36. On 15 May 2009, the Discharger submitted an amended Sample Collection and Analysis Plan subsequently approved by Water Board staff. The plan described sampling protocols and procedures for groundwater sampling and analysis at the site, including the optional use of HydraSleeve sampling, a no-purge, passive sampling method. These WDRs require that the Discharger update and re-submit this plan after completion of the required groundwater monitoring well investigation noted above. In addition to updated sampling procedures, the plan is required to include monitoring data analysis methods. See Findings 37 and 38; and Provision H.8.
37. Title 27 specifies the prescriptive requirements and performance standards applicable to monitoring data analysis and requires that such methods be implemented as follows:
 - a. As specified in the existing MRP under the WDRs; or
 - b. In accordance with a technical report (certified by an appropriately registered

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professional) documenting such methods, submitted to, and approved by, the Central Valley Water Board; or

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

See Title 27, section 20415, subparagraphs (e)(7) and (e)(10).

- 38. The Discharger has not previously submitted a technical report describing the data analysis methods used for groundwater monitoring pursuant to Sections 20415(e)(4) and 20415 (e)(7) of Title 27. These WDRs require that the Discharger include this information in the Updated Sample Collection and Analysis Plan required under this Order. Pending submission of this plan, the Discharger is required to use the data analysis methods specified in the MRP, as summarized below:

<u>COC Group</u>	<u>Data Analysis Method</u>	<u>Trigger^{1,2}</u>	<u>Needed for Confirmation¹</u>
VOCs & other organics	Nonstatistical	1 ≥ PQL or 2 ≥ MDL	Same COC(s) triggered in at least 1 of 2 retest samples
Inorganic COCs, < 10% in background	Nonstatistical	1 ≥ PQL	
Inorganic COCs, ≥ 10% in background	Statistical (Tolerance Interval)	1 > Concentration Limit	
Trend analysis: Monitoring Parameters	Mann-Kendall test	At least 4 historical detections >PQL	Not applicable
COCs	Time series plots	for each COC ³	

1. Notification and retest not required for tentatively indicated constituents previously confirmed as part of the release at a given monitoring point (these exceedances shall be assumed confirmed without retest).
2. "1" and "2" in listed trigger criteria refer to number of monitoring parameters or COCs.
3. Trigger for performing trend analysis not for a release.

See Provision H.8 and MRP Section C.4.a.

- 39. Volatile organic compounds (VOCs) may be detected in a release from a MSW landfill and may be associated with landfill gas and/or leachate. VOCs are not naturally occurring, however, and have no background value. They are therefore not amenable to the statistical data analysis procedures. Title 27, sections 20415(e)(8) and (9) allow the use of a non-statistical evaluation approach that will provide the best assurance of the earliest possible detection of a release from a landfill unit in accordance with Title 27, sections 20415(b)(1)(B)(2 - 4).

Given that no VOCs have been historically detected and confirmed in monitoring wells at the site during the past 20 years, these WDRs therefore require that the Discharger monitor for VOCs as five-year constituents of concern every, rather than as

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semiannual monitoring parameters. See MRP, Table I.

40. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27, section 20080(a)(1). Water Code section 13360(a)(1) allows the Central Valley Water Board to specify requirements to protect groundwater or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a landfill unit, the SPRRs specify a non-statistical method for the evaluation of monitoring data for non-naturally occurring compounds.

The MRP under these WDRs specifies the data analysis methods applicable to monitoring data for the site based on the Sample Collection and Analysis Plan referenced in Finding 38. For VOCs and other organic compounds (as well as for inorganic compounds not present in background) a non-statistical method is specified for detection monitoring consistent with Title 27, section 20080(a)(1).

41. For a naturally occurring constituent of concern (i.e., inorganic constituents present in background), Title 27 requires concentration limits for each constituent of concern be determined either by calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8) or by an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).
42. Title 27, section 20390 requires that the Central Valley Water Board establish a Water Quality Protection Standard (WQPS) in the WDRs for each unit, including Constituents of Concern (COCs), Concentration Limits, Point of Compliance, and Monitoring Points. A report describing the WQPS has not been previously submitted for the site and was not required under previous WDRs. These WDRs require that the Discharger submit a WQPS report for the site describing the WQPS elements for the landfill. The WQPS report is required to be submitted after the Discharger has completed a sufficient amount of background monitoring to develop proposed concentration limits, A Sample Collection and Analysis Plan consistent with the WQPS report is also required to be submitted. See Provisions H.8 and H.9 and MRP Section C.1.

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GROUNDWATER IMPACTS AND CORRECTIVE ACTION

LF-1

- 43. A 1989 Solid Waste Assessment Test (SWAT) investigation found groundwater impacts at the site indicative of a leachate release from the landfill, including, but not limited to, elevated concentrations of total dissolved solids (TDS). In June 2001, the landfill was closed with a non-Title 27 soil cover as a corrective action measure and in September 2001, the MRP was revised to include postclosure monitoring requirements.
- 44. Postclosure monitoring under Revised MRP No. 5-00-802 shows that elevated concentrations of general minerals continue to be detected in groundwater at the site, as follows:

Constituent	Upgradient ¹	Historical Concentration (mg/L)			
		Sidegradient/Downgradient ^{2,3}			
		2002	2007	2012	2017
Alkalinity	163	190/210	217/324	280/380	---/300
Chloride	5	49/49	70/130	130/140	---/82
Hardness	131	270/340	250/470	412/490	---/340
Sulfate	3	120/120	23/48	29/40	---/95
Total Dissolved Solids (TDS)	188	330/450	322/812	540/690	---/610

1. Approximate historical average concentration based on corresponding data from MW-2, as available.
 2. Based on data from wells MW-3 (sidegradient) and MW-4 downgradient).
 3. Highest concentration reported for listed year.

Time series plots of the data do not indicate any obvious declining (or rising) trends in constituent concentrations since a non-Title 27 soil cover was installed over LF-1 in June 2000. Concentrations of TDS detected down gradient of the landfill in well MW-4, and side gradient of the landfill in well MW-1, have exceeded both the federal and state secondary maximum contaminant level (MCL) for taste and odor (500 mg/L) and its state agricultural water quality goal (450 mg/L). Concentrations of chloride have also exceeded its state agricultural water quality goal (106 mg/L).

In addition to general minerals, barium also exceed background concentrations, but at levels well below water quality goals. No dissolved lead was detected either in background or downgradient during the above monitoring period.

- 45. To address the groundwater impacts from the landfill summarized in Finding 44, and the threat to groundwater from landfill wastes, these WDRs require that the Discharger submit a work plan for the installation of a Title 27-compliant clay soil cover over the landfill consistent with the unit’s classification under these WDRs. See Finding 60 and

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Closure and Postclosure Specification E.2.

WASTE MANAGEMENT UNIT DESIGN AND CONSTRUCTION

- 46. The landfill originally consisted of a large, unlined pit excavated in 1962 in the northeast portion of the site. The reported dimensions of the pit were approximately 250 to 300 feet long, 20 to 30 feet wide, and 12 to 20 feet deep.⁹ Native soils at the base of the excavation were reported to be clay-rich. The excavation slopes of the pit are estimated to have been about 1.5H:1V. No liner or leachate collection and recovery system was installed in the pit prior to filling.
- 47. The original pit was filled to ground surface level in about three years, after which the landfill was developed above ground surface, ultimately creating a 4.3-acre, elongated mound of waste up to 20 feet high. It is unknown whether the landfill unit was excavated beyond the limits of the original pit boundary prior to lateral expansion. See Attachment 1, Information Sheet.

LANDFILL OPERATIONS

- 48. Prior to 1962, the site was operated as a burn dump, creating ash footprints up to 18 inches thick on the western and southern parts of the site, as well as on the privately-owned parcel immediately east of the site. See Information Sheet, Attachments 1 and 2. After LF-1 was excavated in 1962, the site was operated as primarily a pit fill operation, although refuse burning may also have occurred prior to disposal in the pit. After the original LF-1 pit was filled, the landfill began to expand laterally by the area fill method. Disposal practices at this time consisted of compacting the refuse and covering it with native soil. Refuse may also have been burned before compaction.
- 49. Wastes and materials were also stockpiled onsite during landfill operations, including imported cover soil, concrete and asphalt debris, drilling muds from water wells, and other materials or wastes. Also, after LF-1 stopped accepting wastes in 1975, the City used the landfill site for temporary storage of materials associated with construction projects (e.g., asphalt, concrete, and excavated soil). Small quantities of refuse were also burned at the site during this period.

LANDFILL CLOSURE

- 50. A landfill’s containment system includes its base liner, and, after closure, its final cover. Title 27, section 20950(a)(2)(A).1 states, in part:
“Closure — for landfills . . . and surface impoundments closed as landfills, the goal of closure, including but not limited to the installation of a final cover, is to minimize the

⁹ Assuming these dimensions are accurate, the waste footprint of the original pit would have been only 0.2 acres, much smaller than the 4.3-acre footprint of the landfill prior to closure.

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infiltration of water into the waste, thereby minimizing the production of leachate and gas. For such Units, after closure, the final cover constitutes the Unit's principal waste containment feature . . . “

Given that LF-1 was constructed in an unlined pit and on surrounding native soil, the final cover constitutes its principle containment feature.

51. The Title 27 prescriptive final cover design for a non-Subtitle D-lined MSW landfill includes the following components, from top to bottom:¹⁰
- a. Erosion Resistant Layer -- at least one foot of vegetative cover soil with established vegetative cover;
 - b. Low Hydraulic Conductivity (LHC) Layer -- Minimum one foot of compacted clay soil with a permeability not exceeding the lesser of:
 - i. 1×10^{-6} cm/s and
 - ii. The permeability of underlying clay soil liner or natural geologic materials, as applicable;
 - c. Foundation Layer - at least two feet of materials (soil and/or waste) with appropriate engineering properties to support the overlying cover.

See Title 27, section 21090. In lieu of the prescriptive final cover design, the Discharger may construct an engineered alternative design (EAD) provided that it meets the requisite demonstration under Title 27, section 20080(a).

52. On 16 July 1999, the Discharger submitted a workplan proposing closure of the landfill in two phases, as follows:¹¹
- a. Phase 1
 - 1) Characterization and clean closure of the burn dump area on the privately-owned parcel immediately east of LF-1;
 - 2) Characterization and partial clean closure of the onsite burn dump areas west and south of LF-1;
 - 3) Characterization and clean closure of soil berms remaining from a former police department firing range in the northwest corner of the site;
 - 4) Characterization and clean closure of onsite debris piles associated with historical site operations;
 - 5) Removal and disposal of wastes not appropriate for discharge to LF-1 (i.e.,

10. For compositely lined MSW landfills (not applicable to the Winters Landfill), a geomembrane barrier layer is also required in the final cover design to prevent a “bathtub effect”,

11. See 16 July 1999 *Workplan for Final Closure, Winters Landfill* and 25 August 1999 amendment thereto, both prepared by Harding Lawson Associates.

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hazardous wastes, MSW refuse) at an authorized offsite facility.

- 6) Removal and consolidation of nonhazardous and acceptable designated wastes from the above areas into LF-1 prior to cover installation;
- 7) Installation of a two-foot thick, interim soil cover ("soil separation layer) over LF-1;
- 8) Submission of a Phase 1 certification report documenting Phase 1 closure activities; and
- 9) Four quarters of groundwater monitoring in accordance with MRP No. 5-00-802 to complete characterization of landfill wastes and assess whether they remain a threat to water quality (i.e., assess the effectiveness of the Phase 1 measures as a corrective action).

b. Phase 2

Based on the results of waste characterization and groundwater monitoring conducted above, submit a Final Closure and Postclosure Maintenance Plan (FC/PCMP) incorporating one of the following as the proposed final cover for the landfill:

- 1) If the Phase 1 measures appeared to be adequate in protecting groundwater at the site, the Phase 1 non-Title 27 soil cover, as built; or
- 2) If the Phase 1 measures did not appear to be adequate in protecting groundwater at the site, a Title 27-compliant clay soil cover.

The FC/PCMP was also required to include plans for postclosure maintenance and monitoring of the landfill, as appropriate depending on the Phase 1 results and final cover design.

On 22 July 1999, Water Board staff conditionally approved the workplan subject to comments and subsequently accepted a 25 August 1999 amendment to the workplan addressing those comments.

53. The burn dump areas addressed in Phase 1 included two areas of ash west and south of the landfill and another area of ash and associated debris on a privately-owned parcel (Benson parcel) immediately east of the landfill. The debris pile wastes (e.g., concrete and asphalt) debris included two areas northwest of LF-1 and two areas immediately south of LF-1. The firing range berm soil was part of a former police firing range that operated in the northwestern corner of the site in the late 1970s. See Information Sheet Attachments 1 and 2.
54. The ash in the three burn dump areas was determined to be nonhazardous, except for the area on the privately-owned parcel (Benson parcel) immediately east of LF-1, where one sample showed California hazardous levels of total lead. Follow-up testing by the Toxic Characterization Leachate Procedure (TCLP) indicated that the

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sample contained nonhazardous levels of soluble lead, however, and testing by the deionized Waste Extraction Test (DI WET) was nondetect for soluble lead with leachate pH levels in the alkaline range.¹² The sample also tested high for soluble general minerals, indicating TDS up to 2,480 mg/L and sulfate up to 1,560 mg/L. Based on this data, the Discharger concluded that the burn dump ash on the Benson parcel could be discharged to LF-1. Clean closure of the Benson parcel was documented in a 1 June 2000 report (*Clean Closure Analysis of East Ash Area*) approved by Water Board staff on 1 June 2000.

55. Testing of the firing range soil was also non-detect for soluble lead and no lead fragments were detected in screening of the soil. All clean closed areas were over excavated and sampling and testing conducted to ensure that residual concentrations met applicable clean closure criteria.¹³
56. The burn dump ash and firing range soil was consolidated into LF-1 beneath the final cover over the top deck, while the debris pile material was placed beneath the cover along the side slopes of LF-1. A two-foot thick layer of cover soil (soil separation layer) was then installed over the landfill using clean, imported fill soil and graded and compacted to specifications (e.g., 90 percent of maximum dry density). Laboratory testing of two samples collected from the soil cover showed permeabilities of 1.3×10^{-5} cm/sec and 5.1×10^{-5} cm/sec. The landfill cover was graded to a two percent minimum slope on the landfill top deck and 4H:1V (25%) maximum slope on side slopes. The eastern portion of the landfill was graded to drain toward the east, following natural drainage patterns, while the western portion of the unit was graded to drain to the west into the a perimeter drainage channel. The Phase 1 closure work also included seeding the landfill cover to establish cover vegetation.

The Phase 1 closure work and results were documented in a December 2000 CQA Report¹⁴ submitted by the Discharger.

57. The Discharger subsequently submitted a 5 February 2001 FC/PCMP including the proposed final cover design for the landfill. The FC/PCMP stated that, based on the results of Phase 1 closure activities, including waste characterization and postclosure monitoring, the landfill wastes had not significantly impacted groundwater and did not pose a significant threat to groundwater. As such, a Title 27 engineered final cover

12. A 3 March 1995 Department of Toxic Substances Control (DTSC) memorandum addressing the issue of burn dumps with hazardous waste stated that a variance from DTSC was not required for movement of burn ash within the area of contamination, and that DTSC involvement was not required if the ash was not RCRA hazardous.

13. See 30 April 1997 report *Firing Range Investigation, Winters Landfill* and 28 October 1999 report *Additional Site Characterization, Winters Landfill Closure*, both prepared by Harding Lawson Associates.

14. See 22 December 2000 *Construction Quality Assurance Report, Winters Landfill Closure - Phase 1*, prepared by Harding E.S.E.

did not need to be installed over the landfill and the two-foot thick, non-Title 27 soil cover installed in Phase 1 would suffice as the final cover for the landfill.

58. In a 22 February 2001 letter providing comments on the FC/PCMP, Water Board staff informed the Discharger that the plan had not adequately demonstrated that the landfill wastes were no longer a threat to groundwater and that postclosure monitoring needed to be conducted as long as the wastes remained a threat to water quality. The letter did not include a statement approving the FC/PCMP, however, and there is no record on file indicating that the FC/PCMP was ever approved.

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59. In lieu of submitting a revised FC/PCMP proposing a Title 27 engineered soil cover over the landfill for Phase 2 closure construction, the Discharger requested that the MRP be revised to reduce the groundwater monitoring frequency from quarterly to semi-annually; that monitoring for VOCs and dissolved metals be reduced to annually; that monitoring for dissolved metals be limited to lead and barium; and that monitoring for semi-VOCs not be required. On 11 September 2001, the Executive Officer issued Revised MRP No. 5-00-802 incorporating the above requested changes to the MRP. Since then, the Discharger has been conducting groundwater monitoring at the site in accordance with the revised MRP.
60. As noted in Finding 44, groundwater monitoring data for the site collected under Revised MRP No. 5-00-802 continues to show elevated concentrations of general minerals in groundwater down gradient of the landfill with no obvious declining trends. The lack of a clear declining trend in the data indicates that the interim soil cover installed over LF-1 during Phase 1 closure activities was not sufficient to protect groundwater and that Phase 2 of the 1999 closure workplan (i.e., installation of a Title 27-compliant final cover) needs to be implemented as a further corrective action measure. Further, as a classified unit under these WDRs, LF-1 is required to be closed with a Title 27-compliant cover. See Title 27, section 20950. These WDRs therefore require that the Discharger submit the following items by specified due dates:
- a. A preliminary Closure and Postclosure Maintenance Plan (PC/PCMP), including a preliminary closure plan, closure and postclosure cost estimates and other information required under Title 27 for a Class III landfill;
 - b. A revised FC/PCMP including detailed plans and a schedule for installation of a Title 27 prescriptive clay soil final cover over the landfill or an equivalent engineered alternative design.
 - c. A closure certification report documenting closure of the landfill in accordance with the revised FC/PCMP, as approved by the Executive Officer.

See Closure and Postclosure Specifications E.1 through E.3 and Provision H.11.

LANDFILL POST-CLOSURE MAINTENANCE

61. Title 27, section 20950(a)(2) states, in part:

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

These WDRs require that the Discharger submit and implement, as approved, a revised FC/PCMP per Title 27, section 21769(c) that includes plans for performing postclosure maintenance consistent with the above standard.

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62. In June 2007, the City of Winters requested agency comments on the report *Initial Study and Mitigated Negative Declaration, Winters Sports Park*, prepared by EDAW. The report proposed construction of a 22-acre sports park, including baseball diamonds, soccer fields, play areas, and associated park facilities at the landfill site. The sports park would be constructed beyond the perimeter of LF-1, which would be fenced. Water Board staff comments on the project included issues such as site access for landfill maintenance and monitoring, project drainage controls, the potential for landfill trespass, the design of the fence, disturbance of the onsite swale, the possible need for a Section 401 Water quality Certification for the project, and other issues.
63. A revised version of the Negative Declaration was subsequently issued for agency review and in a 7 November 2007 letter staff acknowledged that the revised Negative Declaration addressed most, but not all, of staff's comments. The letter requested that the issues not yet addressed (site drainage and the possible need for a Section 401 Water quality Certification) be addressed before the Negative Declaration was finalized.
64. The most recent aerial topographic survey of the site was conducted in 2007 as part of the grading plan for the Sports Park project planned at the time. These WDRs require that the Discharger conduct an aerial topographic survey of the landfill immediately after installation of the final cover and every five years thereafter.

COST ESTIMATES AND FINANCIAL ASSURANCES

65. The Discharger is not required to demonstrate financial assurances for landfill closure and post-closure maintenance to CalRecycle because the landfill ceased operations prior to January 1, 1988. See Title 27, sections 22205(b) and 22210(b). The Discharger is also not required to demonstrate financial assurances for landfill corrective action to CalRecycle because the landfill ceased operations prior to July 1, 1991. See Title 27, section 22220(b).
66. For those solid waste landfills for which closure, postclosure maintenance, and corrective action financial assurances are not required by CalRecycle under Title 27, Chapter 6, the Discharger is required to demonstrate these financial assurances to the Central Valley Water Board pursuant to Title 27, sections 22207(a), 22212(a) and 22222, respectively.
67. No closure, postclosure, and/or corrective action financial assurances have been previously provided by the Discharger for the landfill facility nor have they been required given that the landfill has not been previously regulated under WDRs. Consistent with Finding 66, these WDRs require that the Discharger submit a PC/PCMP that includes estimated closure and postclosure maintenance (including

monitoring) cost estimates for the landfill. A report providing corrective action cost estimates for addressing a known or reasonably foreseeable release from the unit is also required to be submitted. See Finding 60.a, Postclosure Specification E.1.c, Financial Assurance Specification F.5, and Provision H.11a.

68. This Order requires that the Discharger provide and maintain financial assurances for closure, postclosure maintenance and corrective action of the landfill in at least the amounts of the approved cost estimates for the unit, as adjusted annually for inflation, to ensure that funds are available for completing required closure and conducting postclosure maintenance and corrective action of the unit. The Discharger is required to establish an irrevocable fund (or to provide other means) as the financial assurance mechanism(s) for the landfill pursuant to the CalRecycle-promulgated sections of Title 27, Chapter 6, with the Central Valley Water Board named as beneficiary per Financial Assurance Specification F.1.

CEQA AND OTHER REFERENCES

69. The action to revise WDRs for the landfill is exempt from the provisions of the California Environmental Quality Act (Public Resources Code §21000, et seq.), in accordance with California Code of Regulations, title 14, section 15301.
70. This Order implements:
- a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition;*
 - b. The prescriptive standards and performance goals of California Code of Regulations, title 27, section 20005 et seq., effective 18 July 1997, and subsequent revisions;
 - c. *The Porter-Cologne Water Quality Control Act*, Division 7, California Water Code; and
 - d. State Water Resources Control Board Resolution No. 68-16, *Statement of Policy With Respect to Maintaining High Quality of Waters in California.*
71. *The Statement of Policy With Respect to Maintaining High Quality of Waters in California*, SWRCB Order WQ 68-16 (hereinafter "Anti-Degradation Policy") was adopted by the State Water Board in October 1968. Anti-Degradation Policy limits the Board's discretion to authorize the degradation of "high-quality waters." This policy has been incorporated into the Board's Basin Plans. "High-quality waters" are defined as those waters where water quality is more than sufficient to support beneficial uses designated in the Board's Basin Plan. Whether or not a water is a high-quality water is established on a constituent-by-constituent basis, which means that an aquifer can be considered a high-quality water with respect to one constituent, but not for others. (SWRCB Order WQ 91-10.)

72. Anti-Degradation Policy applies when an activity discharges to high quality waters and will result in some degradation of such high quality waters. When it applies, the Policy requires that WDRs reflect best practicable treatment or control (BPTC) of wastes and that any degradation of high quality waters (a) will be consistent with the maximum benefit to the people of the State, and (b) will not result in an exceedance of water quality objectives. If the activity will not result in the degradation of high quality waters, Anti-Degradation Policy does not apply, and the Discharger need only demonstrate that it will use "best efforts" to control the discharge of waste.
73. Anti-Degradation Policy does not apply to the discharge of waste to the Winters Landfill. The requirements of this Order are designed to ensure that any such wastes remain contained at the facility and will not reach waters of the State. The requirements of this Order reflect the Discharger's best efforts to control such wastes.
74. Facilities under WDRs are classified for the purposes of determining the annual permit fee and WDR update cycle. These classifications are based on threat to water quality and complexity associated with the discharge. The Winters Landfill has not previously been classified for fee purposes. These WDRs classify the landfill as a "2B" discharge based on the following fee criteria:
- Threat to Water Quality:
Category "2" – "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."
- Complexity:
Category "B" – "Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units."
- The WDR review cycle for 2B discharges is 10 years from the date of adoption of the WDRs, or, if granted a continuance by the Executive Officer, from the continuance date. The WDR fee schedule may be found on the State Water Resource Control Board website at: <http://www.waterboards.ca.gov/>.
75. Water Code Section 13267(b) provides that: "In conducting an investigation specified in subdivision (a), the Central Valley Water Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Central Valley Water Board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the

need for the reports and the benefits to be obtained from the reports.”

76. The technical reports required by this Order and the attached "Monitoring and Reporting Program R5-2018-XXXX" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

PROCEDURAL REQUIREMENTS

77. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
78. The Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
79. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with California Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of the Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the State Water Resource Control Board website at: <http://www.waterboards.ca.gov/>, or will be provided upon request.

IT IS HEREBY ORDERED that revised MRP Order 5-00-892 is rescinded and the City of Winters, and its agents, successors and assignees, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of new or additional waste, or the relocation of existing waste at the site, to LF-1, the former burn dump areas, or any other part of the site, is prohibited.
2. The discharge of ‘hazardous waste’ or ‘designated waste’ to the site, except for the previously-approved MSW ash from the offsite Benson parcel discharged to

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LF-1 in 2001 as part of Phase 1 closure construction (described in Finding 54), is prohibited. For the purposes of this Order, the term 'hazardous waste' is as defined in California Code of Regulations, Title 23, section 2510 et seq., and 'designated waste' is as defined in Title 27.

3. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].
4. The Discharger shall comply with all Standard Prohibitions listed in Section C of the Industrial SPRRs, as applicable to an inactive, unlined, Class III landfill.

B. DISCHARGE SPECIFICATIONS

1. Wastes shall remain within their designated disposal area at all times.
2. The Discharger shall, in a timely manner, remove any wastes discharged at this facility in violation of this Order and dispose of them at an authorized facility. If the Discharger is unable to remove the waste, the Discharger shall submit a report to the Central Valley Water Board explaining how the discharge occurred, why the waste cannot be removed. If the waste is a hazardous waste, the Discharger shall immediately notify the Department of Toxic Substances Control.
3. During wet weather conditions, the facility shall be maintained and graded to minimize leachate generation.

C. FACILITY SPECIFICATIONS

1. The landfill (i.e., LF-1) shall be maintained to ensure that there is adequate separation between the base of wastes, including leachate, and the highest anticipated elevation of underlying groundwater, including capillary fringe. For the purposes of this specification, a minimum of 5 feet of separation (the prescriptive standard for a Class III unit per Title 27, section 20240(c)) shall be presumed to be adequate. Engineered alternatives to the minimum five-foot prescriptive standard may be approved by the Executive Officer upon sufficient demonstration by the Discharger that the minimum separation is adequate. See Title 27, sections 20080(c) and 20260; and Response to Release specifications in Section J of the Industrial SPRRs, as applicable.
2. Storm water runoff from the facility shall be discharged in accordance with Monitoring and Reporting Program No. R5-2018-XXXX and applicable storm water regulations.
3. Annually, prior to the anticipated rainy season but no later than 1 November, any necessary construction, maintenance, or repairs of precipitation and drainage

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control facilities shall be completed and reported in compliance with MRP No. R5-2018-XXXX.

4. The Discharger shall comply with Standard Facility Specifications 2 through 8 listed in Section E of the Industrial SPRRs, as applicable to an inactive, unlined Class III landfill.

D. DESIGN AND CONSTRUCTION SPECIFICATIONS

1. The final cover installed over LF-1 shall, at a minimum, be constructed consistent with one of the following designs:

- a. The Title 27 prescriptive standard design, from top to bottom:

<u>Component</u>	<u>Top Deck</u>	<u>Side Slopes</u>
Erosion Resistant Layer	≥ 2 feet vegetative cover soil	
Low Hydraulic Conductivity (LHC) Layer	≥ 1-foot compacted clay soil ($k \leq 1 \times 10^{-6}$ cm/sec) ^{1,2}	
Foundation Layer	≥ 2 feet soil and/or appropriate waste materials ^{1,3}	

1. Minimum compaction of 90% of maximum dry density.
2. See Construction Specification D.6.
3. See Construction Specification D.7.

- b. The following Engineered Alternative Design, from top to bottom:

<u>Component</u>	<u>Top Deck</u>	<u>Side Slopes</u>
Erosion Resistant Layer	≥ 2 feet vegetative cover soil	
Low Hydraulic Conductivity Layer	Geosynthetic Clay Liner (GCL) ^{1,2}	
Foundation Layer	≥ 2 feet soil and/or appropriate waste materials ^{3,4}	

1. GCL shall exhibit appropriate strength characteristics (hydrated) to accommodate stresses associated with specific landfill design parameters, with particular attention to interface, long-term creep, shear, and bearing capacity.
2. GCL may be used on either the top deck, side slopes, or both.
3. Minimum compaction of 90% of maximum dry density.
4. See Construction Specification D.7.

- c. Any other Executive Officer-approved EAD demonstrated to be equivalent to or better than the prescriptive standard design.

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

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3. 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)].
4. All Class III landfill units shall be designed to withstand the maximum probable earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion, or gas [Title 27, § 20370(a)].
5. All layers of the final cover shall be constructed, maintained, and repaired in accordance with the specifications in the revised FC/PCMP or project design report, as approved.
6. Earthen materials used in containment structures (i.e., LHC layer of final cover) shall consist of a mixture of clay and other suitable fine-grained soils which have the following characteristics, and which, in combination, can be compacted to attain the required hydraulic conductivity when installed.
 - a. At least 30 percent of the material, by weight, shall pass a No. 200 U.S. Standard sieve.
 - b. The materials shall be fine grained soils with a significant clay content and without organic matter, and which is a clayey sand, clay, sandy or silty clay, or sandy clay under a soil classification system having industry-wide use [e.g., the "SC", "CL", or "CH" soil classes under ASTM Designation: A2487-93 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)]. See Title 27, section 20320(d).
7. The materials used for the foundation layer shall have appropriate engineering properties for a foundation layer in accordance with Section 21090(a)(1). The foundation layer shall be engineered to minimize the potential for differential settlement so as not to affect the structural integrity of the final cover.
8. The Discharger shall ensure that the vegetative/erosion resistant layer receives necessary seed, binder, and nutrients to establish the vegetation proposed in the final closure plan. The Discharger shall install necessary erosion and sedimentation controls to prevent erosion and sediment in runoff from the closed landfill during the period the vegetation is being established.
9. At least 90 days prior to initiation of closure construction activities under an FC/PCMP, as approved by the Executive Officer, the Discharger shall submit for review and approval all applicable plans and reports, including, but not necessarily limited to, the following:

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- a. Any proposed design modifications pertaining to closure of the unit per Construction Specification D.10;
- b. A construction design report, including project specifications, drawings, grading and design plans; and
- c. A Construction Quality Assurance (CQA) Plan which satisfies the requirements of Section 20324 of Title 27 as it applies to the construction of the erosion-resistant and foundation layers.
- d. A geotechnical evaluation of area soils as to their suitability for final cover soil, if such use is planned, and identification of any borrow areas where final cover soil will be obtained. See Title 27, section 21750(f)(4).
- e. If not already demonstrated in the approved FC/PCMP, a technical report demonstrating that the proposed landfill final cover design will be stable under both static and dynamic conditions. See Standard Construction Specification F.9, SPRR.

Closure construction shall proceed only after the above (and any other applicable) reports have been approved by Executive Officer.

10. The Discharger may propose changes to a containment system (i.e., landfill final cover) design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed containment system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Central Valley Water Board in revised WDRs.
11. 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)].
12. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have been approved.
13. 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)].
14. Construction activities conducted within the landfill area or affecting landfill facilities shall be limited to completing landfill closure, conducting necessary

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postclosure maintenance and repairs, or be related to an authorized postclosure use under this Order and Title 27 regulations.

15. **Within 90 days** of completion of all closure construction activities at the landfill, the Discharger shall submit for review and approval a certification report documenting completion of construction of landfill final cover. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the final cover 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. Any variances from the approved design shall be identified and explained. 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. See Title 27 Section 20324(d)(1)(C).
16. For the purposes of this Order, provisions of Title 27 and the SPRR pertaining to containment structures, features, or systems; or to WMU design or construction, shall include landfill final cover unless otherwise indicated by the provision.
17. The Discharger shall comply with all Standard Construction Specifications listed in Section F of the Industrial SPRRs, as applicable to an inactive, unlined, Class III landfill. [Note: Standard Construction Specifications specifically referring to a "Class II Unit" shall not apply to this facility.]

E. CLOSURE AND POSTCLOSURE MAINTENANCE SPECIFICATIONS

1. By **15 June 2019**, the Discharger shall submit for approval a Preliminary Closure and Postclosure Maintenance Plan (PC/PCMP) for the landfill that, at a minimum, includes the following:
 - a. A preliminary plan and timeline for landfill closure;
 - b. A conceptual design consistent with Design and Construction Specification D.1, including preliminary demonstration under Title 27, section 20080(b) of any anticipated EAD per Design and Construction Specification D.1.c;
 - c. Maximum estimated costs to close the landfill and perform 30-years of postclosure maintenance per Title 27, sections 21769(b)(2)(A), 21820 and 21840;
 - d. A topographic map of the site showing the landfill unit and surrounding area, including proposed final contours and changes to drainage; and
 - e. All other information required under Title 27, section 21769.

See Finding 60.a and Provision H.11.b.

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2. By **15 June 2020**, the Discharger shall submit for approval a revised Final Closure and Postclosure Maintenance Plan (FC/PCMP) for the landfill that, at a minimum, includes the following:
 - a. A planned final cover design consistent with Design and Construction Specification D.1 including demonstration for any proposed EAD under Design and Construction Specification D.1.c;
 - b. A demonstration of the stability of the proposed final cover design under both static and dynamic conditions per Title 27, section 21090(a)(6). See Standard Construction Specification F.9, SPRR.
 - c. Engineered drawings showing at least 70 percent final cover design;
 - d. A detailed list of actions necessary to close the landfill and perform required postclosure maintenance;
 - e. A project schedule; and
 - f. All other information required under Title 27, section 21769(c).See Findings 52.b.2) and 60.b; Provision H.11.c; and Standard Closure and Postclosure Specification G.1, SPRR.
3. By **31 December 2021**, the Discharger shall submit a certification report documenting closure of the landfill in accordance with the revised FC/PCMP submitted in E.2 above, as approved by the Executive Officer, and other requirements of this Order. See Finding 60.c and H.11.d.
4. 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)].
5. 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)].
6. Following closure of the landfill unit, 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

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and that use of the land is restricted to the planned use described in the post-closure maintenance plan. See Title 27, sections 20515(a)(4) and §21170.

7. The completed final cover shall be periodically tested for damage or defects by monitoring surface emissions pursuant to California Code of Regulations, title 17, section 95471(c) and Title 27, section 21090(a)(4)(A). Defects will be repaired and tested for adequacy based on the closure CQA Plan.
8. Post-closure maintenance shall be conducted for a minimum period of **30 years** or until the waste no longer poses a threat to environmental quality, whichever is greater [Title 27, § 21180(a) and Title 27, § 21900(a)].
9. 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, 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)]. See also Standard Closure and Postclosure Specification G.10.
10. The Discharger shall update the PC/PCMP or FC/PCMP any time such change is warranted (e.g., due to a change in plans or site conditions). The updated plan(s) shall be submitted to the Central Valley Water Board, the Local Enforcement Agency, and CalRecycle. Significant changes to either of these plans shall require approval of the Executive Officer.
11. The Discharger shall comply with Standard Closure and Postclosure Maintenance Specifications 1 through 12 listed in Section G of the Industrial SPRRs, and Design and Construction Specifications D.1 through D.17 herein, as applicable to an inactive, unlined, Class III landfill.

F. FINANCIAL ASSURANCE SPECIFICATIONS

1. The Discharger shall demonstrate to the Central Valley Water Board that it has obtained and maintained required assurances of financial responsibility for LF-1 for closure, post-closure maintenance, and corrective action (to address all known or reasonably foreseeable releases from the landfill) per Title 27, sections 22207(a), 22212(a) and 22222. respectively.
2. The financial assurances mechanisms for closure, postclosure maintenance and corrective action shall be among those listed in Title 27 Section 22228 for which the Discharger is eligible. For financial assurance mechanisms requiring funding, the Discharger shall either fully fund the mechanism by 1 June 2020 or may

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propose a payment schedule. If the Discharger proposes a payment schedule to fund the mechanism, it shall submit a report by 1 June 2021 showing that the mechanism is fully funded. For financial assurance mechanisms not requiring funding, such as a Guarantee, the Discharger shall submit a report showing the mechanism is in place by 1 June 2020.

3. By **1 June 2020**, the Discharger shall, per Financial Assurance Specification F.1 above, submit a report showing that it has established the following:
 - a. An irrevocable closure funding mechanism, with the Central Valley Water Board named as beneficiary, to ensure funds are available for required closure of LF-1. The funding amount shall be consistent with the PC/PCMP submitted under Closure and Postclosure Maintenance Specification E.1, as annually adjusted for inflation; and
 - b. An irrevocable postclosure maintenance funding mechanism, with the Central Valley Water Board named as beneficiary, to ensure funds are available for required postclosure maintenance of LF-1. The funding amounts shall be consistent with the PC/PCMP submitted under Closure and Postclosure Maintenance Specification E.1, as annually adjusted for inflation; and
 - c. An irrevocable funding mechanism for corrective action, with the Central Valley Water Board named as beneficiary, to ensure funds are available for required corrective action of LF-1. The funding amounts shall be in accordance with the approved corrective action cost estimates for these units provided in the corrective action cost estimates report for these units submitted under Provision H.11.a, as annually adjusted for inflation.
4. By **1 June of each year**, the Discharger shall submit a report to the Central Valley Water Board that reports the balance of both the postclosure and corrective action funds or the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 Section 22236.
5. The Discharger shall update the PC/PCMP or FC/PCMP any time there is a change that will increase the amount of the closure or post-closure maintenance or monitoring cost estimate and/or as otherwise required under this Order (see Closure and Postclosure Specification E.10). Updated PC/PCMPs shall meet the requirements of Title 27, section 21769(b) and updated FC/PCMPs shall meet the requirements of Title 27, section 21769(c). Reports regarding financial assurance submitted under F.3.a above shall reflect the updated cost estimate. See Postclosure Specification E.10.

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G. MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection and corrective action monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone in accordance with these WDRs, MRP R5-2018-XXXX, and the applicable sections of the Industrial SPRRs.
2. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP No. R5-2018-XXXX, and the applicable sections of the Industrial SPRRs incorporated by reference under this Order.
3. The Discharger shall conduct background monitoring for the landfill unit consistent with Section 20415, including, but not necessarily limited to, subsections 20415 (b), (e)(6), and (e)(10).¹⁵ See also Standard Monitoring Specification G.26, Industrial SPRRs.
4. Concentration limits shall be developed using upgradient data absent a satisfactory demonstration to the contrary in an approved WQPS Report. The groundwater monitoring system may include Background Monitoring Points that are not hydraulically upgradient of the Unit if the discharger demonstrates to the satisfaction of the Central Valley Water Board that sampling at other Background Monitoring Points will provide samples that are representative of the background quality of ground water or are more representative than those provided by the upgradient Background Monitoring Points. See Title 27, section 20415(b)(2).
5. Initial Background Sampling –Consistent with Title 27, section 20415(e)(6), the discharger shall collect all groundwater monitoring data necessary for selecting the appropriate monitoring data analysis methods and for establishing background values for the landfill unit under Title 27. Upon installation of a new background monitoring well, quarterly sampling shall be conducted on that well for at least one year to establish background concentrations for inorganic constituents.
6. The concentrations of the constituents of concern in waters passing the Point of Compliance (defined pursuant to Title 27, section 20164 as a vertical surface located at the hydraulically downgradient limit of the landfill unit that extends through the uppermost aquifer underlying the unit) shall not exceed the concentration limits established pursuant to MRP R5-2018-XXXX.

¹⁵. Background and downgradient wells for interwell detection monitoring shall be identified by tracing groundwater gradient flow streamlines (i.e., flow lines perpendicular to the gradient contours) through each unit, as applicable. Background wells shall be found by following the flow streams upgradient from the unit (or units, if contiguous). and down gradient wells shall be found by following the same flow streams down gradient from the unit(s).

7. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in MRP R5-2018-XXXX and the applicable sections of the Industrial SPRRs incorporated by reference under this Order.
8. Detection monitoring of each unit for naturally occurring inorganic constituents shall be conducted on an interwell basis (i.e., using hydraulically upgradient monitoring points as background) absent an approved demonstration of intrawell monitoring as an engineered alternative design under Title 27, section 20380(e). To the extent that such demonstration is based on a claim of spatial variability of the groundwater geochemistry, the report shall demonstrate that such variability is not the result of a release from a waste management unit at the site.
9. Detection monitoring data analysis methods, including those used for analysis of background data, shall be in accordance with Title 27, Section 20415(e)(7) through (e)(10) and the Industrial SPRRs, as applicable.
10. All groundwater monitoring wells shall be adequately developed to enable collection of representative ground water samples.
11. The corrective action monitoring program shall include a sufficient number of groundwater monitoring wells at appropriate locations and depths in the uppermost aquifer, and in other aquifers or perched zones not already monitored, as necessary, to define the nature and extent of the release and evaluate the effectiveness of the corrective action program. See Title 27, section 20415(b)(1)(D).
12. Corrective action data analysis methods shall also include trend analysis and an evaluation of the water chemistry to monitor the nature of the release and effectiveness of corrective action measures, as specified in the MRP.
13. As permitted by Title 27, Section 20430(f), corrective action may be terminated when the Discharger demonstrates that the constituents of the release have been reduced to levels at or below their respective concentration limits throughout the entire zone affected by the release. The Discharger may make this demonstration by satisfying the minimum “proof period” specified in Title 27 (one year) or as otherwise demonstrated under Title 27, section 20380(e) and approved by Water Board staff. The “proof period” shall consist of at least six semiannual sampling events for each monitoring point that are approximately evenly distributed over a three-year period in which the concentration of the constituents of the release remain at or below their respective sampling limit.

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14. Any proposal for concentration limits greater than background (CLGBs) shall be accompanied by the requisite demonstration under Section 20400(c) (i.e., that it is technologically or economically infeasible to achieve the background value for that constituent and that the constituent will not pose a substantial present or potential hazard to human health or the environment). Approval of CLGBs shall require approval of revised WDRs by the Central Valley Water Board.
15. The Discharger shall comply with all Standard Monitoring Specifications listed in Section I, and all Response to a Release specifications listed in Section J, of the Industrial SPRRs, as applicable to a closed, unlined, Class III landfill.

H. PROVISION

1. The Discharger shall maintain a copy of this Order at the facility, including the MRP R5-2018-XXXX, and the Industrial SPRRs dated April 2016, which are part of this Order, and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
2. The Discharger shall comply with all applicable provisions of Title 27 not specifically referred to in this Order.
3. The Discharger shall comply with MRP R5-2018-XXXX, which is incorporated into and made part of this Order by reference.
4. The Discharger shall comply with the applicable portions of the Industrial SPRRs, as referenced in the specifications of this Order.
5. The Discharger shall comply with all General Provisions listed in Sections K of the Industrial SPRRs applicable to a closed, Class III landfill.
6. If there is any conflicting or contradictory language between the WDRs, the MRP, or the SPRRs, then language in the WDRs shall supersede either the MRP or the SPRRs, and language in the MRP shall supersede the SPRRs.
7. All reports required by this Order shall be submitted pursuant to Water Code section 13267, and shall be prepared by the appropriately licensed professional as described in the Standard Provisions and Reporting Requirements.

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8. By **31 October 2019**, the Discharger shall submit an updated Sample Collection and Analysis Plan containing proposed sampling and analysis methods and protocols for monitoring all units at the site consistent with the revised WQPS Report required under Provision H.9 and Standard Monitoring Specification I.7 of the Industrial SPFRs. See Finding 36.
9. By **31 January 2021**, the Discharger shall submit a revised Water Quality Protection Standard (WQPS) Report describing the WQPS for LF-1 and each water-bearing media monitored under this Order (i.e., groundwater and surface water). The revised WQPS report shall specify the Constituents of Concentration, Concentration Limits, Monitoring Points, Points of Compliance, and Compliance Periods, consistent with the requirements of this Order and Title 27 regulations. In addition, the WQPS shall evaluate whether monitoring wells are appropriately placed and screened, including in zone(s) with the highest hydraulic conductivity, to detect the earliest possible release from a unit to the uppermost aquifer.
10. Pursuant to Section 13267 of the California Water Code, the Discharger shall submit the following technical reports relevant to corrective action monitoring at the site:

	Report	Due Date
a.	<p>A work plan and schedule to assess whether the existing groundwater monitoring wells at the site meet Title 27 construction and performance standards, including, but not limited to:</p> <ul style="list-style-type: none"> - The condition and operability of the wells; - The cause of wells going dry for consecutive monitoring periods; - Whether the wells are appropriately screened to measure the depth to groundwater each monitoring period. - Whether there are a sufficient number of monitoring wells at appropriate locations to reliably estimate the groundwater flow direction and gradient each monitoring period. - Whether the wells are appropriately screened for detection and corrective action monitoring <p>See Finding 35; Monitoring Specification G.11; and Industrial SPFRs, Standard Monitoring Specifications.</p>	<p>31 October 2018</p>

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b.	A work plan and schedule that includes the following: <ul style="list-style-type: none"> - A report of the results of the above monitoring well investigation; - Plans for the repair or replacement of any wells that are non-operable or otherwise not meeting Title 27 standards; - Plans for the replacement of abandoned wells (e.g., MW-3); - Plans for the installation of any additional wells or piezometers necessary to reliably estimate the groundwater flow direction and gradient each monitoring period; and - Plans for the installation of any additional wells necessary to meet Title 27 performance standards for detection and corrective action monitoring. 	31 March 2019
c.	A Monitoring Well Installation Report for the groundwater monitoring wells and/or piezometers installed under the work plan in H.10.b above.	31 October 2019

11. Pursuant to Section 13267 of the California Water Code, the Discharger shall submit the following technical reports relevant to landfill closure, postclosure maintenance, and financial assurances:

	Report	Due Date
a.	A corrective action cost estimates report for LF-1 per Financial Assurances Specification F.3.b.	15 February 2018
b.	A preliminary closure and postclosure maintenance plan (PC/PCMP) for the landfill per Closure and Postclosure Specification E.1.	15 June 2019
c.	A revised final closure and postclosure maintenance plan (FC/PCMP) for the landfill per Closure and Postclosure Specification E.2.	15 June 2020
d.	A final closure certification report documenting all landfill cover construction activities. See Postclosure Specification E.3.	31 December 2021

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12. The Central Valley Water Board has converted to a paperless office system. All project correspondence and reports required under this Order shall therefore be submitted electronically rather than in paper form, as follows:

- a. All project correspondence previously submitted in paper form (e.g., letters, short reports) shall be converted to Portable Document Format (PDF) and emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov. To ensure that the submittal is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

Attention:	Title 27 Compliance & Enforcement Unit
Discharger name:	City of Winters
Facility name:	Winters Landfill
County:	Yolo
CIWQS place ID:	272836

Unit staff and senior shall also be cc'd on the email.

- b. All technical reports and monitoring reports required under this Order shall be converted to PDF and uploaded via internet to the State Water Board's GeoTracker database at <http://geotracker.waterboards.ca.gov>, as specified in California Code of Regulations, title 23, section 3892, subdivision (d) and section 3893. Project-associated analytical data shall be similarly uploaded to the GeoTracker database in an appropriate format specified under this Order under a site-specific global identification number. Information on the GeoTracker database is provided at:

http://www.swrcb.ca.gov/ust/electronic_submittal/index.shtm

Notification of the Geotracker upload shall be emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov, as described above.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

PAMELA C. CREEDON, Executive Officer

WASTE DISCHARGE REQUIREMENTS ORDER R5-2018-XXXX
CITY OF WINTERS
WINTERS LANDFILL
YOLO COUNTY

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