

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2018-0047

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF WINTERS
WINTERS LANDFILL
CLASS III LANDFILL
EVALUATION MONITORING, 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

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

case of a non-Subtitle D landfill) the ROWD is waived by the Regional Board.

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.
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) R5-2018-0047 and in the Industrial SPRRs. In general, requirements 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 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 47 and 48. 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 an existing, Class III landfill unit based on factors in Title 27, section 20260 (e.g., underlying soil type, distance to groundwater, nature of landfill wastes) and Title 27 cover requirements. See Findings 23, 26 and 47; Design and Construction Specification D.1 and Title 27, sections 20080(d) and 20260.

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 industrial; municipal (e.g., landfill, wastewater treatment); residential; commercial; transportation (i.e., roads); irrigated agriculture (e.g., orchards); recreational; and water conveyance (i.e., Highland and

Willow Canals) to the west and east.

17. The landfill is located about 850 feet southeast of the City of Winters wastewater treatment Plant (WWTP), which is operated under separate (non-Chapter 15) WDRs Order R5-2002-0136, including an MRP last revised in July 2014. The 285-acre facility includes several wastewater ponds, two wastewater reclamation spray fields, and several monitoring wells screened in the underlying perched and shallow aquifers. See Information Sheet: Attachment 3.
18. 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.
19. 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
20. 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

21. 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.
22. 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

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.

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 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.

23. 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.
24. 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;

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

- 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.

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.

- 25. 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

- 26. Monitoring well boring logs from the 1989 SWAT investigation indicate an unsaturated zone lithology consistent with the Older Alluvium described in Finding 23 (i.e., alternating layers of clayey silt, silty clay, sand, and sandy gravel).
- 27. 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 These WDRs require that the Discharger monitor any future gas monitoring wells required by the LEA along the perimeter of the landfill unit. See MRP, section A.2.b.
- 28. The unsaturated zone column (i.e., the distance between the base of wastes and

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.

seasonal high groundwater) at the site is estimated to be about 27 feet.

LEACHATE MONITORING

29. 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

30. 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 the Highland Canal, an old agricultural drain crossing the site south of the landfill unit and ultimately discharging to Dry Creek south of the site. Findings in the WDRs for the City of Winters WWTP indicate that this canal was filled in north of the site and no longer crosses the site.⁷
31. 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.
32. 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, wastewater reclamation (i.e., City of Winters WWTP) 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 45.
33. The beneficial uses of the ground water are domestic, municipal, agricultural, and industrial supply.

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.

GROUNDWATER MONITORING

34. 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.
35. 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, while the regional gradient varies from southeasterly to northeasterly.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.
36. A lack of functional monitoring wells at the site has resulted in unreliable and variable estimates of the groundwater flow direction and gradient over the past 15 years. Contributing factors have included the following:
 - a. As noted in Finding 34, 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

8. Estimate based on pre-2007 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.

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 I.10.a.

37. On 15 May 2009, the Discharger submitted an updated 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 38 and 39; and Provision I.9.
38. Title 27 specifies the prescriptive requirements and performance standards applicable to monitoring data analysis and requires that such methods be implemented as follows:
 - a. As specified in the existing MRP under the WDRs; or
 - b. In accordance with a technical report (certified by an appropriately registered professional) documenting such methods, submitted to, and approved by, the Central Valley Water Board; or
 - c. In accordance with any water quality data analysis software deemed appropriate for such use by either the Central Valley Water Board or SWRCB.

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

39. 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 for each COC ³	Not applicable
COCs	Time series plots		

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 I.9 and MRP Section C.4.a.

40. 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).

No VOCs have been historically detected and confirmed in monitoring wells at the site during the past 20 years, and given the nature of the wastes in the landfill, these WDRs do not require that the Discharger monitor for VOCs.

41. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27, section 20080(a)(1). Water Code section 13360(a)(1) allows the Central Valley Water Board to specify requirements to protect groundwater or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release. 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 39. 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).

42. 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).
43. 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 required evaluation monitoring and a sufficient amount of background monitoring to develop proposed concentration limits. See Provision I.12; and MRP Section C.1.

GROUNDWATER IMPACTS AND CORRECTIVE ACTION

LF-1

44. 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, a two-foot thick interim soil cover (“soil separation layer”) was installed on the landfill as a closure/corrective action measure and in September 2001, the MRP was revised to reduce the groundwater monitoring frequency to from quarterly to semi-annual monitoring requirements and eliminate monitoring for semi-VOCs and dissolved metals, except for barium and lead.
45. Groundwater 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:

<u>Constituent</u>	<u>Upgradient</u> ¹	<u>Historical Concentration (mg/L)</u>			
		<u>Sidegradient/Downgradient</u> ^{2,3,4}			
		<u>2002</u>	<u>2007</u>	<u>2012</u>	<u>2017</u>
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
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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.
4. Groundwater flow direction for all years assumed to be to the northeast based on pre-2007 groundwater elevation monitoring data from monitoring wells MW-1, MW-2 and MW-3.

Time series plots of the data do not indicate any obvious declining (or rising) trends in constituent concentrations since an interim 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.

46. Groundwater monitoring data for the City of Winters WWTP north and northwest of the landfill site show similar impacts to those detected downgradient of the landfill (e.g., elevated TDS, alkalinity and chloride) and indicate that the TDS plume may extend offsite onto the landfill site. The Discharger has attributed the elevated constituents detected in the landfill monitoring wells to offsite impacts from the WWTP, rather than impacts from the landfill. To resolve this issue, these WDRs require that the Discharger submit and implement an Executive Officer-approved Evaluation Monitoring Program (EMP) to investigate the source of the impacts detected in the landfill monitoring wells at the site. The results of the EMP can then be used along with the results of a required Landfill Cover Investigation to assess whether additional landfill closure/corrective action measures are needed. See Finding 61, Closure and Postclosure Specification E.4, and Evaluation Monitoring and Corrective Action Specification H.4.

WASTE MANAGEMENT UNIT DESIGN AND CONSTRUCTION

47. 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

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.

recovery system was installed in the pit prior to filling.

48. 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

49. 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.
50. 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

51. 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 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.

52. The Title 27 prescriptive final cover design for a non-Subtitle D-lined MSW landfill includes the following components, from top to bottom:¹⁰

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”,

- 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; or
 - 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, sections 20080 (b) and (c).

53. 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., 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

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

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.

54. 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.
55. 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 sample contained nonhazardous levels of soluble lead, however, and testing by the deionized Waste Extraction Test (DI WET) was non-detect 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*)

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.

approved by Water Board staff on 1 June 2000.

56. 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
57. 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 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.
58. The Discharger subsequently submitted a 5 February 2001 (i.e., Phase 1) FC/PCMP including the proposed final cover design for the landfill. The Phase 1 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 did not need to be installed over the landfill and the two-foot thick engineered soil cover installed in Phase 1 would suffice as the final cover for the landfill.
59. In a 22 February 2001 letter providing comments on the Phase 1 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 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 Phase 1 FC/PCMP, however, and there is no record on file indicating that the Phase 1 FC/PCMP was ever

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.

approved as the FC/PCMP for the landfill.

60. 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.
61. As noted in Findings 45 and 46, there is some question as to whether impacts historically detected in the landfill monitoring wells are due to a release from the landfill, the nearby City of Winters WWTP, or both. In addition to the required EMP investigation, these WDRs require that the Discharger conduct a Landfill Cover Investigation to assess whether or not the existing landfill it meets Title 27 standards. If the landfill cover is determined to be inadequate (e.g., allows too much storm water infiltration) or the EMP indicates that the landfill may be a significant source of the impacts to shallow groundwater at the site, the Discharger is required to upgrade the existing soil cover to Title 27 standards. See Design and Construction Specification D.1, Closure and Postclosure Specifications E.1 and E.4, and Provision I.11.

LANDFILL POST-CLOSURE MAINTENANCE

62. 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.

63. 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.

64. 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.
65. 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

66. 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).
67. 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.
68. 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 67, 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 Closure and Postclosure Specification E.2, Financial Assurance Specification F.3 and Provision I.8.
69. 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

70. 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.
71. 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*.
72. *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.)
73. 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.

74. 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.
75. 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 "3B" discharge based on the following fee criteria:

Threat to Water Quality:

Category "3" – "Those discharges of waste that could degrade water quality without violating water quality objectives, or could cause a minor impairment of designated beneficial uses as compared with Category 1 and Category 2."

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 3B discharges is 15 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/>.

76. 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."
77. The technical reports required by this Order and the attached "Monitoring and Reporting Program R5-2018-0047" 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

78. 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.

79. 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.
80. 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 LF-1 in 2001 as part of Phase 1 closure construction (described in Finding 55), 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. R5-2018-0047 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 control facilities shall be completed and reported in compliance with MRP No. R5-2018-0047.
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 EAD demonstrated to be Title 27-compliant per Title 27, Sections 20080(b) and (c), as approved by the Executive Officer.

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)].
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 Phase 2 closure construction activities under an Phase 2 FC/PCMP, as approved by the Executive Officer, the Discharger shall submit a project design report for review and approval all applicable plans and reports, including, but not necessarily limited to, the following:¹⁵
 - a. Any proposed design modifications pertaining to closure of the unit per Construction Specification D.10;
 - b. Design plans, project specifications, drawings, grading plans;
 - c. A project CQA plan per Title 27, section 20324 of Title 27;

15. This specification applies only if a Phase 2 FC/PCMP is required to be submitted per Closure and Postclosure Specification E.4.b.

- 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 Phase 2 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 postclosure maintenance and repairs, or be related to an authorized postclosure use under this Order and Title 27 regulations.
15. By **15 December 2022**, 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) and Provision I.12.f.

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 SPECIFICATIONS

1. By **31 March 2019**, the Discharger shall submit for approval a Landfill Cover Investigation Work Plan to assess whether the existing soil cover over LF-1 meets Title 27 standards for landfill final cover. At a minimum, the Landfill Cover Investigation Work Plan shall include the following:
 - a. A summary of Title 27 performance and prescriptive standards applicable to final cover over the unit (see Findings 51 and 52);
 - b. A list of tasks, including, but not necessarily limited to:
 - i. An investigation of the cover thickness(es) and soil type(s);
 - ii. Plans for appropriate field and laboratory testing of the cover (e.g., moisture, compaction, hydraulic conductivity);
 - iii. Estimates of the amount of infiltration into the landfill cover;
 - iv. Plans for the installation of lysimeters to monitor infiltration, if necessary;
 - v. Estimates of the amount and nature of leachate that could percolate to groundwater;¹⁶
 - vi. An evaluation as to the adequacy of landfill grading and drainage controls;
 - vii. Identification of any areas of the cover not meeting Title 27 prescriptive and/or performance standards; and
 - c. An implementation schedule consistent with the due date for submission of a Report of Results. See Closure and Postclosure Specification E.3 below.

See Finding 61 and Provision I.12.a.

¹⁶. Estimates of landfill cover infiltration and leachate generated shall be made by appropriate analytical means such as with Hydrologic Evaluation of Landfill Performance (HELP) model software.

2. By **15 September 2018**, 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 Phase 2 landfill closure;
 - b. A conceptual closure design based on a Phase 2 closure scenario (i.e., one that assumes the existing landfill cover will need to be upgraded to meet Title 27 requirements). See Closure and Postclosure Specification E.7.
 - 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 estimated elevation contours of the final cover; and
 - e. All other information required under Title 27, section 21769.

See Finding 68; Financial Assurances Specification F.3, and Provision I.8.a.

3. By **15 October 2020**, the Discharger shall submit a Report of Results of the Landfill Final Cover Investigation required above for Board staff review and approval. See Provision I.12.b.
4. Depending on the results of the above Landfill Cover Investigation and the EMP investigation required under Evaluation Monitoring and Corrective Action Specification H.1, the Discharger shall submit for Executive Officer approval one of the following FC/PCMPs by the dates specified:
 - a. By **15 December 2020**, a Revised Phase 1 FC/PCMP, if the results of the Landfill Cover Investigation indicate that the existing soil cover over the landfill substantially meets Title 27 standards as a prescriptive design or approved EAD under Design and Construction Specification D.1 and the results of the EMP investigation indicate that LF-1 is not likely a significant source of impacts to groundwater at the site; or
 - b. By **15 December 2021**, a Phase 2 FC/PCMP, if the results of the Landfill Cover Investigation indicate that the existing soil cover over the landfill does not substantially meet Title 27 standards as a prescriptive design or approved EAD under Design and Construction Specification D.1 or the results of the EMP indicate that LF-1 may be a significant source of impacts to groundwater at the site. Also submit as directed by the Executive Officer if a Revised Phase 1 FC/PCMP submitted under E.4.a is not approved based on a finding that the proposed final cover design does not comply with Title 27.

See Findings 58 and 59; Design and Construction Specification D.1; Evaluation Monitoring and Corrective Action Specification H.2.a; and Provisions I.12.c and I.12.d.

5. Both of the Revised Phase 1 FC/PCMP and Phase 2 FC/PCMP shall, at a minimum, include the following information:
 - a. A summary of the results of the Landfill Final Cover Investigation;
 - b. Engineered drawing(s) showing the current cover design at the unit, including cover layer(s), soil type(s) and grading and drainage controls;
 - c. A proposed final cover design consistent with Construction Specification D.1, including required demonstration for any EAD proposed under Construction Specification D.1.c;
 - d. A demonstration of the stability of the proposed EAD final cover design under both static and dynamic conditions per Title 27, section 21090(a)(6). See Standard Construction Specification F.9, SPRR.
 - e. A detailed list of actions for performing postclosure maintenance and associated maximum estimated costs per Title 27, sections 21769(b)(2)(A), 21820 and 21840;
 - f. A topographic map of the site showing the landfill unit and surrounding area, including proposed final contours and changes to drainage, as applicable; and
 - g. A project schedule for implementing any planned cover repairs/improvements.
6. The Revised Phase 1 FC/PCMP may request ratification of the existing (i.e., as-built) cover design as an EAD and the Phase 1 certification report previously submitted. See Finding 57, Footnote 14. In such case, if the Revised Phase 1 FC/PCMP is approved by the Executive Officer as the FC/PCMP for the landfill, the landfill closure date shall be the date of the Phase 1 certification report (22 December 2000), and any Phase 1 cover repair/improvement issues shall be addressed as postclosure maintenance/repairs under the approved FC/PCMP.
7. The Phase 2 FC/PCMP shall include a detailed plan for implementing any upgrades to the landfill cover necessary to comply with Construction Specification D.1. Any proposed EAD shall include a detailed plan for reducing infiltration into the landfill, such as follows:
 - i. Lowering the hydraulic conductivity of the landfill cover (e.g., recompaction of existing cover soil, placement of additional clay soil, use of geosynthetic materials);
 - ii. Increasing the landfill cover thickness;
 - iii. Improving landfill grading to promote runoff;

- iv. Improving precipitation and drainage controls; and
- v. Establishing adequate vegetative cover to take up moisture and prevent erosion.

All Phase 2 cover repairs and/or improvements shall be completed in accordance with the Phase 2 FC/PCMP, as approved, and the project design report required per Design and Construction Specification D.9. See Provision I.11.d; and Standard Closure and Postclosure Specification G.1, SPRR.

- 8. 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)].
- 9. The Discharger shall complete a final cover survey upon completion of closure activities for 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)].
- 10. 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 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.
- 11. 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.
- 12. Post-closure maintenance shall be conducted for a minimum 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)].
- 13. 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.

14. 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.
15. 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 2019 or may propose a payment schedule. If the Discharger proposes a payment schedule to fund the mechanism, it shall submit a report by 1 June 2020 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 2019.
3. By **1 June 2019**, 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.2, as annually adjusted for inflation;
 - 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.2, 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 LF-1 provided in the corrective action cost estimates report submitted under Provision I.11.b, 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. 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.14.

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 R5-2018-0047, 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. R5-2018-0047, 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).¹⁷ See also Standard Monitoring Specification G.26, Industrial SPRRs.

¹⁷. 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).

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 R5-2018-0047.
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 R5-2018-0047 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. Evaluation Monitoring shall be to assess the nature and extent of a release from the Unit and to design a corrective action program meeting Title 27 requirements. See Section J, Industrial SPRRs.
12. 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).
13. 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.
14. 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 semi-annual 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.
15. 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.
16. 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. EVALUATION MONITORING AND CORRECTIVE ACTION SPECIFICATIONS

1. By **15 August 2018**, a Monitoring Well Evaluation Work Plan, including implementation schedule, to assess whether the existing groundwater monitoring wells at the site meet Title 27 construction and performance standards. At a minimum, the work plan shall include plans to evaluate the following:

- a. The condition and operability of the wells;
- b. The cause of wells going dry for consecutive monitoring periods;
- c. Whether the wells are appropriately screened to measure the depth to groundwater each monitoring period.
- d. Whether there are a sufficient number of monitoring wells at appropriate locations to reliably estimate the groundwater flow direction and gradient each monitoring period.
- e. Whether the wells are appropriately screened for detection and corrective action monitoring

See Finding 36; Monitoring Specification G.11; Provision I.10.a; and Industrial SPRRs, Standard Monitoring Specifications.

2. By **31 May 2019**, a Monitoring Well Repair/Replacement Work Plan, including implementation schedule, that includes the following:
 - a. A report of the results of the monitoring well investigation required under Evaluation and Corrective Action Specification H.1 above;
 - b. Plans for the repair or replacement of any wells that are non-operable or otherwise not meeting Title 27 standards;
 - c. Plans for the replacement of abandoned wells (e.g., MW-3);
 - d. Plans for the installation of any additional wells or piezometers necessary to reliably estimate the groundwater flow direction and gradient each monitoring period; and
 - e. Plans for the installation of any additional wells necessary to meet Title 27 performance standards for detection and corrective action monitoring.

See Provision I.10.b.

3. By **3 November 2019**, a Monitoring Well Repair/Installation Report for the groundwater monitoring wells/piezometers repaired or installed under the work plan required under Evaluation and Corrective Action Specification H.3 above. See Provision I.10.c.
4. By **15 August 2018**, the Discharger shall submit an Evaluation Monitoring Program (EMP) workplan to determine the source(s) of the groundwater impacts historically detected in the landfill monitoring wells at the site, including, but not necessarily limited to, the following:¹⁸

¹⁸ Title 27 allows the Discharger to demonstrate that a source other than the landfill unit caused the evidence of a release in lieu of or in addition to the EMP. Given that the 90-day period for confirmation of measurably

- LF-1;
- The former burn dump and firing range areas; and
- The City of Winters WWTP north and northeast of the site.

The EMP shall identify monitoring parameters most representative of potential impacts from each of the above areas and an evaluation as to whether additional groundwater monitoring and/or monitoring wells are needed to identify the source(s) of the impacts. The EMP shall include the following elements:

- a. Identification of onsite and offsite wells relevant to the study, including WWTP and landfill monitoring wells (new or existing);
- b. An evaluation of well log and well screen information for the above wells to identify and correlate upper aquifer zones;
- c. Identification of field and monitoring parameters (or monitoring parameter surrogates) most indicative of potential impacts from each possible source;
- d. An evaluation of historical groundwater flow direction and gradient data for the wells in H.4.a, including groundwater contour plots;
- e. An evaluation of historical groundwater monitoring data for the wells in H.4.a to identify the likely source(s) of impacts (e.g., constituents detected, constituent contour maps); and
- f. At least one year of quarterly monitoring for any indicator parameters not included in the historical monitoring data set for the landfill and offsite WWTP.

See Provision I.11.a.

5. By **15 October 2020**, the Discharger shall submit an EMP Report documenting the results of the EMP investigation, including contour maps of relevant parameters supporting the conclusions of the investigation. At a minimum, the report shall indicate whether a source other than LF-1 is the primary source of impacts detected in the landfill monitoring wells at the site. See Provision I.11.b.
6. By **15 April 2021**, the Discharger shall submit an Engineering Feasibility Study/Corrective Action Plan (EFS/CAP) if the results of the EMP investigation indicate that the landfill is the primary source of the impacts detected in landfill monitoring wells at the site. At a minimum, the EFS/CAP shall propose installation of a Title 27-compliant final cover over the landfill consistent with Closure and Postclosure Specification E.4.b. See Provision I.11.c.

significant evidence of a release has long since passed, and the possibility that the impacts may have come from more than one source, including LF-1, these WDRs require that such demonstration be incorporated into the EMP. See Title 27, sections 20420(k)(5-7).

I. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility, including the MRP R5-2018-0047, 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 R5-2018-0047, 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.
8. Pursuant to Section 13267 of the California Water Code, the Discharger shall submit the following technical reports relevant to landfill financial assurances:

	Report	Due Date
a.	A preliminary closure and postclosure maintenance plan (PC/PCMP), including financial assurance cost estimates, based on a Phase 2 closure scenario (i.e., one that assumes the existing landfill cover will need to be upgraded to meet Title 27 requirements) per Closure and Postclosure Specification E.2.	15 September 2018
b.	A corrective action cost estimates report for LF-1 per Financial Assurances Specification F.3.c.	15 September 2018

	Report	Due Date
c.	A report demonstrating that irrevocable funding mechanisms have been established for closure, postclosure maintenance and corrective action financial assurances per Financial Assurances Specification F.3.	1 June 2019

9. By **31 January 2020**, 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 Monitoring Well Repair/Installation Report submitted under Provision I.10.c, as approved, and Standard Monitoring Specification I.7 of the Industrial SPPRs. See Finding 37.

10. Pursuant to Section 13267 of the California Water Code, the Discharger shall submit the following technical reports relevant to the groundwater monitoring system at the site:

	Report	Due Date
a.	A Monitoring Well Evaluation Work Plan to assess whether the groundwater monitoring wells at the site meet Title 27 construction and performance standards. See Evaluation Monitoring and Corrective Action Specification H.1.	15 August 2018
b.	A Monitoring Well Repair/Replacement Work Plan, including the results of the above well evaluation and plans for repair/replacement of any existing wells and installation of any new wells at the site. See Evaluation Monitoring and Corrective Action Specification H.2.	31 May 2019
c.	A Monitoring Well Repair/Installation Report for the groundwater monitoring wells and/or piezometers installed and/or repaired under the work plan in I.10.b above. See Evaluation Monitoring and Corrective Action Specification H.3.	30 November 2019

11. Pursuant to Section 13267 of the California Water Code, the Discharger shall submit the following technical reports relevant to evaluation monitoring and corrective action at the site:

	Report	Due Date
a.	An Evaluation Monitoring Program (EMP) workplan to determine the source(s) of the groundwater impacts historically detected in the landfill monitoring wells at the site. See Evaluation Monitoring and Corrective Action Specification H.4.	15 August 2018
b.	An EMP Report documenting the results of the EMP investigation required above. See Evaluation Monitoring and Corrective Action Specification H.5.	15 October 2020
c.	An Engineering Feasibility Study/Corrective Action Plan (EFS/CAP) if it is determined that the landfill is the primary source of impacts detected in the landfill monitoring wells at the site. See Corrective Action Specification H.6.	15 April 2021

12. 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.
13. Pursuant to Section 13267 of the California Water Code, the Discharger shall submit the following technical reports relevant to landfill closure and postclosure maintenance, and financial assurances:

	Report	Due Date
a.	A Landfill Cover Investigation Workplan (LCIW) per Closure and Postclosure Specification E.1	31 March 2019
b.	A Report of Results of the LCIW per Closure and Postclosure Specification E.3.	15 October 2020

	Report	Due Date
c.	A Revised Phase 1 FC/PCMP, if the results of the EMP and landfill cover investigations indicate that the existing landfill cover does not need to be improved to meet Title 27 standards per Design and Construction Specification D.1. See Closure and Postclosure Specification E.4.a.	15 December 2020
d.	A Phase 2 FC/PCMP, if the results of the EMP or landfill cover investigations indicate that the existing landfill cover needs to be improved to meet Title 27 standards per Design and Construction Specification D.1. See Closure and Postclosure Specification E.4.b.	15 April 2021
e.	A design report for implementation of Phase 2 closure, as applicable, per Design and Construction Specification D.9.	At least 90 days prior to initiation of closure construction
f.	A certification report documenting closure of LF-1 consistent with the approved Phase 2 FC/PCMP, applicable per I.12.d and Design and Construction Specification D.15.	15 December 2022

14. 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, PATRICK PULUPA, 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 31 May 2018.

Original Signed By

PATRICK PULUPA, Executive Officer

JDM

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2018-0047
FOR
CITY OF WINTERS
WINTERS LANDFILL
CLASS III LANDFILL
EVALUATION MONITORING, CLOSURE,
POST-CLOSURE MAINTENANCE
AND CORRECTION ACTION
YOLO COUNTY

This monitoring and reporting program (MRP) is issued to the City of Winters (Discharger) pursuant to Water Code section 13267. The MRP contains requirements for groundwater, surface water, and unsaturated zone monitoring and reporting; facility monitoring, maintenance, and reporting contained in California Code of Regulations, Title 27, section 20005, et seq. (hereafter Title 27); Waste Discharge Requirements (WDRs) Order R5-2018-0047 and *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Industrial Facilities Regulated by Title 27*, dated April 2016 (Industrial SPRRs). Compliance with this MRP is ordered by the WDRs and the Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Central Valley Water Board or the Executive Officer. Failure to comply with this MRP, or with the SPRRs, constitutes noncompliance with the WDRs and with Water Code Section 13267, which can result in the imposition of civil monetary liability.

A. MONITORING

The Discharger shall monitor Class III landfill unit LF-1 in accordance with the detection, evaluation, and corrective action monitoring program provisions of Title 27 for groundwater and surface water. Monitoring shall also be in accordance with the Monitoring Specifications in Section G of the WDRs and the Standard Monitoring Specifications in Section I of the Industrial SPRRs. All monitoring shall be conducted in accordance with the most current approved Sample Collection and Analysis Plan, including quality assurance/quality control standards. The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program, and are identified in the approved Sample Collection and Analysis Plan.

All compliance monitoring wells established for the detection monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard. All detection monitoring program groundwater monitoring wells, unsaturated zone monitoring probes/wells, and surface water monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as indicated and listed in Tables I through VI.

As described in WDR Finding 35, groundwater beneath the site is currently believed to flow to the northeast, while the regional gradient varies from southeasterly to northeasterly. This MRP assigns monitoring points to background, detection, and

corrective action monitoring programs based on an assumption that groundwater flows to the northeast beneath the entire site; however, it is acknowledged that these designations may change over time as warranted by monitoring data from new or existing wells, the results of the Evaluation Monitoring Program (EMP) investigation required under WDR Provision I.11, and/or if the direction of groundwater flow beneath the site significantly changes.

The monitoring program of this MRP includes:

<u>Section</u>	<u>Monitoring Program</u>	<u>Reference Map¹</u>
A.1	Groundwater Monitoring	WDR Attachment C
A.2	Unsaturated Zone Monitoring	n/a
A.3	Leachate Monitoring	n/a
A.4	Surface Water Monitoring	WDR Attachments B & C
A.5	Landfill Facility Monitoring	n/a

1. See reference map for monitoring locations.

1. Groundwater Monitoring

The Discharger shall operate and maintain concurrent groundwater detection, evaluation and corrective action monitoring systems that comply with the applicable provisions of Title 27, Subchapter 3 "Water Monitoring". These groundwater monitoring systems shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The current groundwater monitoring system at the site does not meet the applicable requirements of Title 27 (see WDR Finding 36). WDR Provision H.10 therefore provides a schedule and list of tasks necessary for the installation of a Title 27-compliant groundwater monitoring system at the site.

Groundwater monitoring shall be conducted consistent with this MRP and the updated Sample Collection and Analysis Plan and Water Quality Protection Standard (WQPS) Report submitted under this Order. Detection monitoring for naturally occurring inorganic constituents at the site shall be conducted using an interwell monitoring approach, unless otherwise approved in the WQPS Report. Background and downgradient wells for interwell monitoring shall be identified by tracing the shallow groundwater gradient flow streams (i.e., flow lines perpendicular to the gradient contours) through the fill area.

Historical releases at the site have consisted primarily of inorganic constituents from landfill LF-1. This MRP therefore places LF-1 in corrective action monitoring with concurrent detection monitoring for constituents not previously detected as part of the release and concurrent evaluation monitoring to assess to the extent to which impacts historically detected in monitoring wells at the site may be coming from offsite (e.g., the nearby City of Winters wastewater treatment plant (WTP)).

The Discharger shall revise the groundwater monitoring system (after review and approval by Central Valley Water Board staff) as needed, upon the installation of the

additional wells required under the WDRs and/or upon completion of the required EMP investigation.

a. Monitoring Points (see WDR Attachment C: Site Map)

i. LF-1

<u>Program</u>	<u>Well</u>	Relative Location	
		GW Flow	Unit
Background	MW-2 ¹ , --- ²	Upgradient	West
Detection & Corrective Action	MW-1 ¹ , --- ²	Sidegradient	North
	MW-3 ³ , MW-4, --- ²	Downgradient	East or NE

1. Dry well -- may need to be replaced per WDR Finding 35.
2. Possible future well(s) to be installed per WDR Provision H.10.b.
3. Abandoned well to be replaced. See WDR Finding 35.

The groundwater monitoring network shall include any future or replacement wells installed under these WDRs, as indicated in the above table and/or any new or existing onsite or offsite wells installed/monitored under the EMP submitted under the WDRs, as approved. See Provision H.10.c.

b. Monitoring Schedule

Groundwater samples shall be collected from the background wells and all detection/evaluation monitoring/corrective action wells, and any additional wells added as part of the approved groundwater monitoring system as described above. The collected samples shall be analyzed for the parameters and constituents listed in Table I in accordance with the specified methods and frequencies. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the most recently approved Sample Collection and Analysis Plan.

Once per quarter, the Discharger shall measure the piezometric groundwater elevation in each well and piezometer, determine groundwater flow direction, and estimate groundwater flow rates in the uppermost aquifer and in any additional zones being monitored. Groundwater elevation monitoring shall be conducted in existing wells and any future wells added as part of the approved groundwater monitoring system. The results shall be reported semiannually, including the times of expected highest and lowest elevations of the water levels in the wells, pursuant to Title 27, section 20415(e)(15).

Samples collected for the COC monitoring specified in Table I shall be collected

and analyzed in accordance with the methods listed in Table V every five years. No five-year COC monitoring was required or conducted under previous MRP Order 5-00-802. The first five-year COC monitoring event under this Order shall be conducted by **15 December 2018**. The five-year COC results shall be reported in the Annual Monitoring Report for the year in which the samples were collected.

Background, detection, evaluation, and corrective action monitoring data analysis shall be conducted consistent with the statistical and non-statistical data analysis methods described in Section C.1.e, or as updated in the updated Sample Collection and Analysis Plan required to be submitted under WDR Provision I.9, as approved by the Executive Officer.

2. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection and corrective action monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420.

a. Soil Pore Water

These WDRs do not require soil pore water monitoring given that the landfill is unlined and was a pit fill operation. It is therefore not technically feasible to retrofit it with lysimeters. Further, detection monitoring of the unsaturated zone will not provide the earliest indication of a release from the landfill given that evidence of a release from the landfill has already been historically detected in groundwater monitoring at the site.

b. Soil Pore Gas

i. Monitoring Points

There are currently no soil pore gas monitoring wells or probes at the site. Given the age of the landfill and the fact that most of the MSW was burned, these WDRs do not require that the Discharger install gas monitoring wells at the site. The Discharger is required, however, to monitor any future gas wells or probes, if any, required by the LEA to be installed along the perimeter of the landfill unit.

ii. Monitoring Schedule

Any future gas monitoring wells/probes installed along the perimeter of the landfill unit per LEA requirements shall be sampled and analyzed for the parameters and constituents listed in Table II in accordance with the specified methods and frequencies. The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the most recently approved Sample Collection and Analysis Plan. Monitoring results for the unsaturated zone shall be included in monitoring reports and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

c. Confirmation of a Gas Release

In the event that LFG is detected in soil pore gas at levels triggering VOC testing (i.e., methane at or above 1% by volume and/or total organic vapors at or above 50 ppmv), the Discharger shall, within 24-hours, notify Central Valley Water Board staff by telephone or email. Retest sampling in accordance with the most recently approved Sample Collection and Analysis Plan shall be conducted thereafter, as necessary, to confirm a release. Confirmation of a landfill gas release to the unsaturated zone may constitute physically significant evidence of a release under the Landfill SPRRs. Upon confirmation of a gas release, the Discharger shall implement appropriate short term and long term corrective action measures consistent with the Response to Release requirements of the applicable SPRRs and/or as otherwise directed by the Central Valley Water Board.

3. Leachate Monitoring

As noted in WDR Finding 5, LF-1 is unlined and does not have a leachate collection and recovery system. Leachate monitoring at the site is therefore limited to seep monitoring. The Discharger shall visually monitor all areas of the landfill (e.g., cover decks, side slopes, and toe) for leachate seeps in the regular course of site maintenance and as part of Facility Monitoring under Section A.5. Any observed leachate seepage from the inactive/closed landfill unit shall be sampled upon detection and analyzed for the field parameters and applicable monitoring parameters and COCs listed in Table III. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons per day). Reporting for leachate seeps shall be conducted as required in Section B.3 of this MRP.

4. Surface Water Monitoring

The Discharger shall install and operate a surface water detection monitoring system to detect a release from the landfill to surface water and any resulting impacts to surface water if such a release occurs. The monitoring system shall comply with the applicable provisions of Title 27, sections 20415 and 20420.

a. Monitoring Points

Surface water monitoring at the Winters Landfill shall be conducted in the unlined drainage swale that enters the western side of the site, flows along the western perimeter of LF-1 and discharges to the unnamed seasonal tributary to Dry Slough in the northeast corner of the site. See Attachments B & C.

Table A.4.a Surface Water Monitoring Points ¹			
<u>Monitoring Point</u>	<u>Status</u>	<u>Location</u>	<u>Surface Water</u>
SW-1	Background	Upstream, western site perimeter	Unlined drainage swale crossing site

SW-2	Detection	Where drainage swale joins LF-1 perimeter drain	
SW-3	Detection	Northeast corner of site	Seasonal tributary to Dry Slough

1. Sampling required twice per year during the wet season when water is present during the monitoring period.

b. Monitoring Schedule

Surface water samples shall be collected at each monitoring point location and analyzed for the monitoring parameters and constituents in accordance with the methods and frequency specified in Table IV. All surface water monitoring samples shall be collected and analyzed for the 5-year COCs specified in Table IV every five years, beginning by **15 December 2018**.

The above monitoring system meets Title 27 requirements for surface/storm water monitoring.

5. Landfill Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **15 September** of each year, the Discharger shall conduct an inspection of the landfill facility. The inspection shall assess repair and maintenance needed for drainage control systems, cover systems, and monitoring systems; and shall assess preparedness for winter conditions (including but not limited to erosion and sedimentation control). The Discharger shall take photos of any problem areas before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by **31 October** of each year. Annual facility inspection reporting shall be submitted as required in Section B.4 of this MRP.

b. Major Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all unit side slopes for damage **within 7 days** following major storm events (i.e. one which produces 2.5 inches or more of precipitation within a 24-hour period (as measured at the nearest DWR or NOAA weather station collecting daily precipitation data) capable of causing damage or significant erosion.¹ The Discharger shall take photos of any problem areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted

¹ For example, online daily precipitation data from DWR's Winters.A (CIMIS #139, Winters) station at the Wolfskill Experimental Orchard or NOAA's Winters.C (NCDC #9742, Winters) behind the Winters Express Newspaper office.

as required in Section B.5 of this MRP.

c. Five-Year Topographic Surveys

Title 27 requires that the Discharger conduct an initial final cover topographic survey upon completion of landfill final cover installation and at least every five years thereafter. The purpose of the survey is to track differential settlement of the landfill's low hydraulic conductivity (LHC) layer of the cover. The Discharger is also required to produce an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's LHC (or engineered alternative cover, as applicable).

The first postclosure topographic survey of the site, including LF-1 and surrounding areas, shall be completed **within 60 days** of completion of the landfill final cover. Subsequent postclosure topographic surveys of the site shall be completed at least **every five years** thereafter.

Reporting of the above shall be in accordance with Section B.6 of this MRP.

d. Standard Observations

The Discharger shall conduct Standard Observations at the site in accordance with this section of the MRP. Standard observations shall be conducted monthly during the wet season (1 October to 30 April) and quarterly during the dry season (1 May to 30 September).

The Standard Observations shall include:

- i. For the unit:
 - (1) Evidence of ponded water at any point on the unit (show affected area on map); and
 - (2) Evidence of erosion and/or of day-lighted refuse.
- ii. Along the perimeter of the unit:
 - (1) Evidence of leachate seeps, estimated size of affected area, and flow rate (show affected area on map); and
 - (2) Evidence of erosion and/or of day-lighted refuse.
- iii. For receiving waters:
 - (1) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area; and
 - (2) Discoloration and turbidity - description of color, source, and size of affected area.

Results of Standard Observations shall be submitted in the semiannual monitoring reports required in Section B.1 of this MRP.

Landfill Facility Monitoring shall also include leachate seep monitoring during the regular course of site/postclosure activities under Section A.3.

B. REPORTING

The Discharger shall submit the following reports in accordance with the required schedule:

Reporting Schedule			
<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
1	Semiannual Monitoring Report	30 June & 31 December	1 August, 1 February
2	Annual Monitoring Report	31 December	1 February
3	Seep Reporting	Continuous	Immediately & Within 7 Days
4	Annual Facility Inspection Report	31 October	15 November
5	Major Storm Event Reporting	Continuous	Immediately & 14 days from damage repair
6	Topographic Survey and Iso-Settlement Map for Closed Landfills	Every 5 Years	Within 30 days of completion of survey & every 5 years thereafter (All units)

The Discharger shall enter all monitoring data and reports into the online Geotracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23. Notification of the Geotracker upload shall be 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, or Title 27 Permitting Unit
Report Title	
Geotracker Upload ID	
Discharger name:	City of Winters
Facility name:	Winters Landfill
County:	Yolo
CIWQS place ID:	272836

Reporting Requirements

The Discharger shall submit the monitoring reports required under this Order as a native pdf uploaded to Geotracker, as described above. Each monitoring report shall include the data and information as required in this Monitoring and Reporting Program and as

required in WDRs Order R5-2018-0047 and the Standard Provisions and Reporting Requirements (particularly Section I: "Standard Monitoring Specifications" and Section J: "Response to a Release"). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof.

Field and laboratory sheets shall be reported in each monitoring report. Semiannual and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the above schedule for the calendar period in which samples were taken or observations made.

The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the facility including the post-closure period. Such records shall be legible and shall show the following for each sample:

- a. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
- b. Date, time, and manner of sampling;
- c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
- d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e. Calculation of results; and
- f. Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.
- g. Well purge data sheets.

Required Reports

1. Semiannual Monitoring Report

Monitoring reports shall be submitted semiannually and are due on **1 August** and **1 February**. Each semiannual monitoring report shall contain at least the following:

- a. For each groundwater monitoring point addressed by the report, a description of:
 - i. The time of water level measurement;
 - ii. The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;
 - iii. The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of

- the purge water;
- iv. The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
 - v. A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.
- b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
 - c. Groundwater elevation contour and flow stream maps showing groundwater elevations and the directions of groundwater flow in the uppermost aquifer and in any additional zones of saturation based upon quarterly groundwater elevation monitoring prior to sampling. Corresponding estimates of groundwater gradients and flow velocity shall also be provided.
 - d. Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, unsaturated zone, leachate, and surface water. Concentrations below the laboratory reporting limit shall not be reported as "ND" unless the reporting limit is also given in the table. Otherwise they shall be reported "<" the reporting limit (e.g., <0.10). Units shall be as required in Tables I through IV unless specific justification is given to report in other units. Refer to the SPRRs Section I "Standard Monitoring Specifications" for requirements regarding MDLs and PQLs.
 - e. A discussion of the monitoring results, including detection, evaluation and corrective action. The discussion of the results of evaluation monitoring per the approved EMP shall include the nature and extent of any impacts from the landfill and any other onsite or offsite source.
 - f. Laboratory statements of results of all analyses evaluating compliance with requirements.
 - g. An evaluation of the concentration of each monitoring parameter (or 5-year COC when 5-year COC sampling is conducted) as compared to the current concentration limits, and the results of any required verification testing for constituents exceeding a concentration limit. Report any actions taken under SPRRs Section J: Response to a Release for verified exceedances of a concentration limit for wells/constituents not already in corrective action monitoring.
 - h. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
 - i. A summary of all Standard Observations for the reporting period required in Section A.5.d of this MRP.
 - j. A summary of inspection, leak search, repair or improvement of the landfill final cover in accordance with the most recently approved PCMP. See WDR Closure

and Postclosure Specification E.13; Standard Closure and Post-Closure Maintenance Specifications G.8, G.11 and G.12 of the Industrial SPRRs.

2. Annual Monitoring Report

The Discharger shall submit (i.e., upload to Geotracker) an Annual Monitoring Report to the Central Valley Water Board by **1 February** covering the reporting period of the previous monitoring year. If desired, the Annual Monitoring Report may be combined with the second semiannual report, but if so, shall clearly state that it is both a semi-annual and annual monitoring report in its title. Each Annual Monitoring Report shall contain the following information:

- a. All monitoring parameters shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous 10 calendar years. If a 5-year COC event was performed, then these parameters shall also be graphically presented for the entire history of COC monitoring. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. Constituent monitoring data of incompatible scales/ranges shall not be plotted on the same graph. The graphs shall plot each datum, rather than plotting mean values. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
- b. An evaluation of the monitoring parameters with regards to the cation/anion balance, and a graphical presentation using a Stiff diagram, a Piper graph, or a Schoeller plot.
- c. All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format per Geotracker. The Central Valley Water Board regards the submittal of data in digital format as "...the form necessary for..." statistical analysis [Title 27, section 20420(h)], that facilitates periodic review by the Central Valley Water Board.
- d. Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted annually.
- e. A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
- f. A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
- g. Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.
- h. A comprehensive summary of the effectiveness of any corrective actions

implemented (i.e., landfill closure).

3. Seep Reporting

The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Central Valley Water Board **within seven days**, containing at least the following information:

- a. A map showing the location(s) of seepage;
- b. An estimate of the flow rate;
- c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
- d. Verification that samples have been submitted for analyses of the Field Parameters and Monitoring Parameters listed in Table A.3 of this MRP, and an estimated date that the results will be submitted to the Central Valley Water Board; and
- e. Corrective measures underway or proposed, and corresponding time schedule.

4. Annual Facility Inspection Reporting

By **15 November** of each year, the Discharger shall submit an Annual Facility Inspection Report describing measures implemented based on the Annual Facility Inspection, including inspections and repairs, preparations for winter, and photographs of any problem areas and the repairs. See Section A.5.a.

5. Major Storm Event Reporting

Following major storm events capable of causing damage or significant erosion, the Discharger **immediately** shall notify Central Valley Water Board staff of any damage or significant erosion upon discovery and report subsequent repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. See Section A.5.b.

6. 5-Year Topographic Survey(s)

Within 30 days of completing the first postclosure topographic survey required under this Order, the Discharger shall submit the report for the first topographic survey. Subsequent topographic reports for the site shall be submitted at least **every five years** thereafter. Each report shall include topographic survey and a base-line iso-settlement map for the closed unit. See MRP Section A.5.c.

C. WATER QUALITY PROTECTION STANDARD

The Water Quality Protection Standard for the landfill unit shall consist of all Constituents of Concern (COCs), Concentration Limits, the Point of Compliance, and all Monitoring Points consistent with this Order and Title 27, Section 20390.

1. Water Quality Protection Standard Report

By **31 January 2021**, per WDR Provision I.12, the Discharger shall submit a revised

Water Quality Protection Standard (WQPS) Report proposing a WQPS for each classified unit at the site consistent with the Findings and Requirements of this Order. At a minimum, the report shall include the following information:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a waste management unit or portion of a unit. This list shall include at least the uppermost aquifer, unsaturated zone, and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
- c. A map showing the monitoring points and background monitoring points for groundwater, the unsaturated zone, and surface water for each unit and/or fill area. The map shall show the point of compliance for each unit in accordance with Title 27, section 20405.
- d. Listings/tables showing all elements of the WQPS for each unit and water bearing media, including, but not limited to, concentration limits for all monitoring parameters and 5-year COCs. See Standard Monitoring Specification I.23, SPRR.
- e. Proposed data analysis methods for calculating concentration limits for monitoring parameters and constituents of concern detected in 10% or greater of the background data (e.g., naturally-occurring constituents) per Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E). Note – WQPS Report may reference the Sample Collection and Analysis Plan for this information. See WDR Findings 37 through and 42.
- f. A retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415(e)(8)(E) and section 20420(j)(1-3).

Once approved, the concentration limits of the WQPS shall be annually updated to reflect current background monitoring data using the approved data analysis methods. Any subsequent proposed changes to the WQPS, other than annual update of the concentration limits shall be submitted in the form of a revised WQPS report for review and approval by the Executive Officer. The WQPS shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27.

2. Monitoring Parameters

Monitoring parameters are a select group of constituents that are monitored during each monitoring event that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a waste management unit. The monitoring parameters for all waste management units are those listed in Tables I through V for the specified monitored medium. Additional monitoring parameters indicative of a potential onsite or offsite source other than the landfill unit may also be included as part of the EMP investigation required under WDR Provision I.11.

3. Constituents of Concern (COCs)

The COCs include a larger group of waste constituents, their reaction products, and

hazardous constituents that are reasonably expected to be in or derived from waste contained in the waste management unit, and are required to be monitored every five years [Title 27, sections 20395 and 20420(g)]. The COCs for all waste management units at the facility are those listed in Tables I through IV for the specified monitored medium, and Table V. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. Five-year COC monitoring was not required under previous Revised MRP Order 5-00-802. The first five-year COC monitoring event under this Order shall be conducted by **15 December 2018**.

4. Concentration Limits

Previous Revised MRP Order 5-00-802 did not require that the Discharger develop concentration limits for the site and the Discharger does not yet have an approved set of concentration limits for the landfill. Proposed concentration limits for all water bearing media (e.g., surface water and groundwater) are, however, required to be included in the revised WQPS Report required under WDR Provision I.12.

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern shall be determined 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).

a. Detection Monitoring

- i. Non-naturally occurring COCs - The concentration limits for non-naturally-occurring constituents of concern, including organic compounds (e.g., VOCs and dissolved metals not detectable in background), shall be the laboratory detection limit.
- ii. Naturally Occurring COCs - The concentration limits for naturally-occurring COCs (e.g., general minerals and dissolved metals detectable in background) shall be determined by statistical analysis of upgradient monitoring data. The data analysis method for calculating concentration limits for naturally-occurring COCs under this Order shall be the interwell Tolerance Limit Method, or as otherwise proposed in the updated Sample Collection and Analysis Plan required to be submitted under WDR Provision I.9. Concentration limits for naturally occurring COCs shall be updated annually and included in the Annual Monitoring Report submitted under Section B.2.g of this MRP.

b. Corrective Action Monitoring

The concentration limits for corrective action monitoring shall be the same as those for detection monitoring absent approval of a proposal for concentration limits greater than background (CLGBs) under Title 27 Section 20400(c) and revision of the WDRs. Time series plots and/or an intrawell statistical procedure (e.g., Mann-Kendall test) shall be used for trend analysis to monitor corrective action progress.

5. Point of Compliance

The Point of Compliance for the water standard at each waste management unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the unit. The Point of Compliance wells for LF-1 shall include wells MW-1, MW-4, the required replacement well for MW-3, and any other future well(s) installed along the downgradient or sidegradient perimeter of LF-1. The WQPS Report required under the WDR provisions is required to specify the Point of Compliance well for each unit.

6. Compliance Period

The compliance period for each waste management unit shall be the number of years equal to the active life of the unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the waste management unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program [Title 27, section 20410].

7. Monitoring Points

A monitoring point is a well, device, or location specified in the waste discharge requirements, which monitoring is conducted and at which the water quality protection standard applies. The monitoring points for each monitored medium are listed in Section A of this MRP.

D. TRANSMITTAL LETTER FOR ALL REPORTS

A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report. The transmittal letter shall contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

I, PATRICK PULUPA, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of a Monitoring and Reporting Program issued by the California Regional Water Quality Control Board, Central Valley Region, on 31 May 2018.

Original Signed By

PATRICK PULUPA, Executive Officer

JDM

**TABLE I
 GROUNDWATER DETECTION, EVALUATION, AND
 CORRECTIVE ACTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Field Parameters¹				
Groundwater Elevation	GWELEV	Ft. & 10ths, M.S.L.	Quarterly	Semiannual
Temperature	TEMP	°F	Semiannual	Semiannual
Electrical Conductivity	SC	umhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Turbidity	TURB	Turbidity units	Semiannual	Semiannual
Monitoring Parameters¹				
Alkalinity, Total	ALKH	mg/L	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Hardness, Total	HARD	mg/L	Semiannual	Semiannual
Sulfate	SO4	mg/L	Semiannual	Semiannual
Total Dissolved Solids (TDS)	TDS	mg/L	Semiannual	Semiannual
Carbonate	CACO3	mg/L	Annually	Annually
Bicarbonate	BICACO3	mg/L	Annually	Annually
Calcium	CA	mg/L	Annually	Annually
Magnesium	MG	mg/L	Annually	Annually
Nitrate - Nitrogen	NO3N	mg/L	Annually	Annually
Potassium	K	mg/L	Annually	Annually
Sodium	NA	mg/L	Annually	Annually
Dissolved lead	PB	ug/L	Annually	Annually
5-Year Constituents of Concern (see Table V)				
General Minerals	---	mg/L	15 December 2018 & every 5 years thereafter	1 February 2019 & every 5 years thereafter
Inorganics (dissolved)		ug/L	“ “	“ “
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L	“ “	“ “

¹. List shall also include all field/monitoring parameters in the approved EMP submitted under WDR Provision I.11 not already included in this list.

**TABLE II
 UNSATURATED ZONE MONITORING PROGRAM**

SOIL-PORE GAS¹

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Monitoring Parameters				
Methane	CH4	%	Semiannual	Semiannual
Carbon Dioxide	CO2	%	Semiannual	Semiannual
Organic Vapors	---	ppmv	Semiannual	Semiannual
Volatile Organic Compounds ¹ (USEPA Method TO-15)	---	ug/cm ³	Annual	Annual

¹. Gas samples may be prescreened to determine if laboratory analysis using Method TO-15 is required. A gas analyzer for methane concentrations or a Photo Ionization Detector (PID) for total VOCs concentrations may be used. If methane concentrations exceeding 1.0 percent by volume OR organic vapors (total VOCs) are detected at a concentration greater than 50 ppmv then a gas sample shall be obtained and analyzed for VOCs using EPA Method TO-15. Both the screening results and laboratory analysis results shall be reported. Otherwise, the Discharger shall report the methane or total VOC screening results and no further laboratory analysis is required.

**TABLE III
 LEACHATE SEEP MONITORING**

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency¹</u>
Field Parameters				
Total Flow		Gallons	If seep detected	
Flow Rate	FLOW	Gallons/Day	"	"
Electrical Conductivity	SC	umhos/cm	"	"
pH	PH	pH units	"	"
Monitoring Parameters				
Total Dissolved Solids (TDS)	TDS	mg/L	"	"
Chloride	CL	mg/L	"	"
Carbonate	CACO3	mg/L	"	"
Bicarbonate	BICACO3	mg/L	"	"
Nitrate - Nitrogen	NO3N	mg/L	"	"
Sulfate	SO4	mg/L	"	"
Total Hardness	HARD	mg/L	"	"
Inorganics (dissolved)		ug/L	"	"
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L	"	"

¹. The Discharger shall report by telephone immediately the leachate seep is discovered and file a written report with the Central Valley Water Board within seven days. See MRP Section 3.

TABLE IV
SURFACE WATER DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u> ¹	<u>Reporting Frequency</u>
Field Parameters				
Electrical Conductivity	SC	umhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Turbidity	TURB	Turbidity units	Semiannual	Semiannual
Flow	FLOW	Yes or No	Semiannual	Semiannual
Monitoring Parameters				
Total Dissolved Solids (TDS)	TDS	mg/L	Semiannual	Semiannual
Bicarbonate	BICACO3	mg/L	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	NO3N	mg/L	Semiannual	Semiannual
Sulfate	SO4	mg/L	Semiannual	Semiannual
Total Hardness	HARD	mg/L	Semiannual	Semiannual
Dissolved lead	PB	ug/L	Annual	Annual
5-Year Constituents of Concern (see Table V)				
General Minerals	---	mg/L	15 December 2018 and every 5 years thereafter	1 February 2019 and every 5 years thereafter
Inorganics (dissolved)		ug/L	" "	" "
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L	" "	" "

¹. Surface water sampling shall be conducted anytime during each wet season monitoring period when water is present at the designated surface water monitoring point.

TABLE V
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

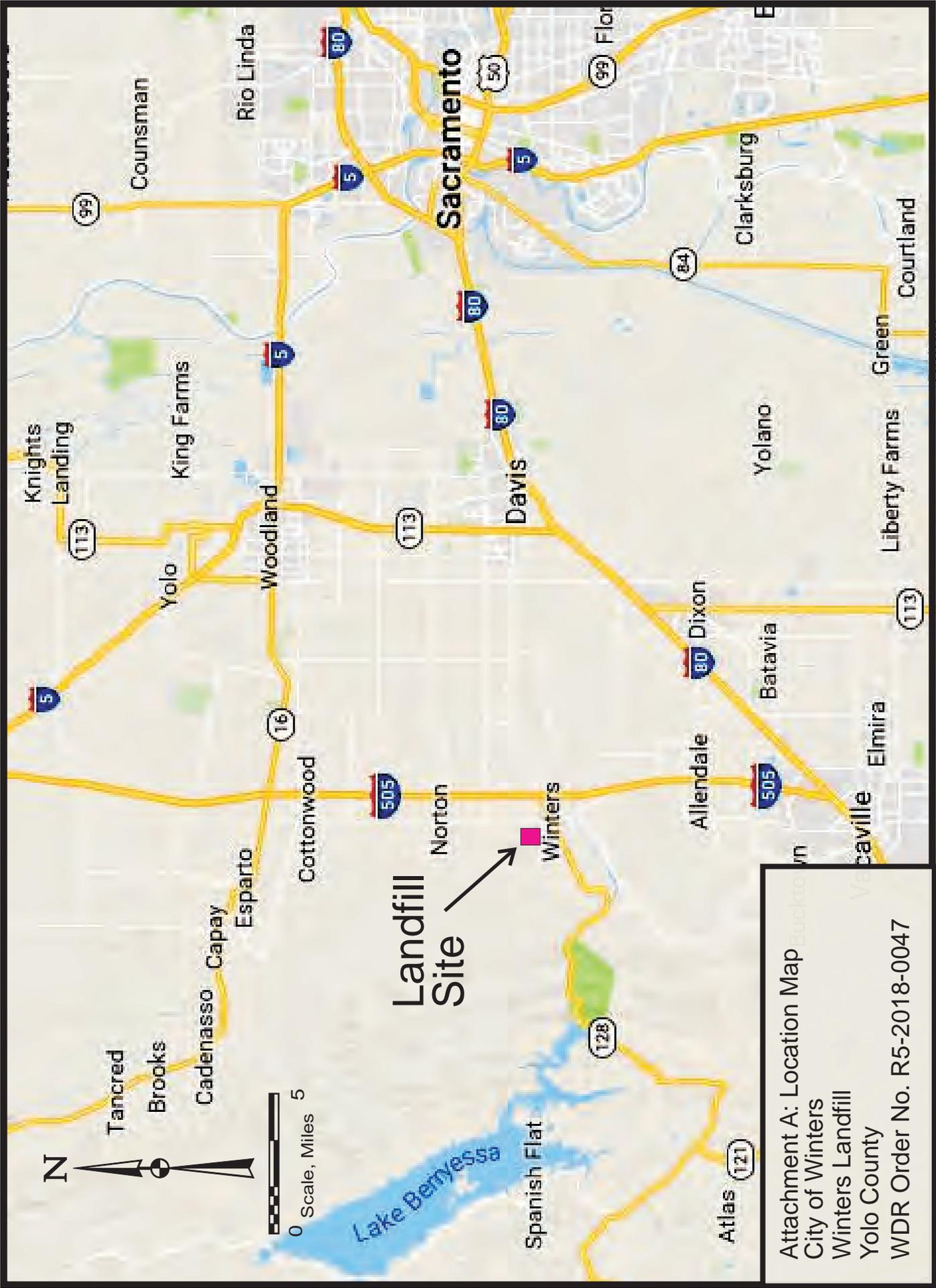
<u>COC Description</u>		<u>Geotracker Code</u>
<u>General Minerals</u>		
Total Dissolved Solids		TDS
Electrical Conductivity		SC
Chloride		CL
Sulfate		SO4
Nitrate nitrogen		NO3N
Alkalinity, Total		ALK
Hardness, Total		HARD
Carbonate		CACO3
Bicarbonate		BICACO3
Calcium		CA
Magnesium		MG
Potassium		K
Sodium		NA
<u>Inorganics (dissolved):</u>	<u>USEPA Method</u>	<u>Geotracker Code</u>
Aluminum	6010	AL
Antimony	7041	SB
Barium	6010	BA
Beryllium	6010	BE
Cadmium	7131A	CD
Chromium	6010	CR
Cobalt	6010	CO
Copper	6010	CU
Silver	6010	AG
Tin	6010	SN
Vanadium	6010	V
Zinc	6010	ZN
Iron	6010	FE
Manganese	6010	MN
Arsenic	7062	AS
Lead	7421	PB
Mercury	7470A	HG
Nickel	7521	NI
Selenium	7742	SE
Thallium	7841	TL
Cyanide	9010C	CN
Sulfide	9030B	S
Semi-Volatile Organic Compounds (USEPA Method 8270C or D - base, neutral, & acid extractables):		
Acenaphthene		ACNP
Acenaphthylene		ACNPY
Acetophenone		ACPHN

TABLE V
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS
Continued

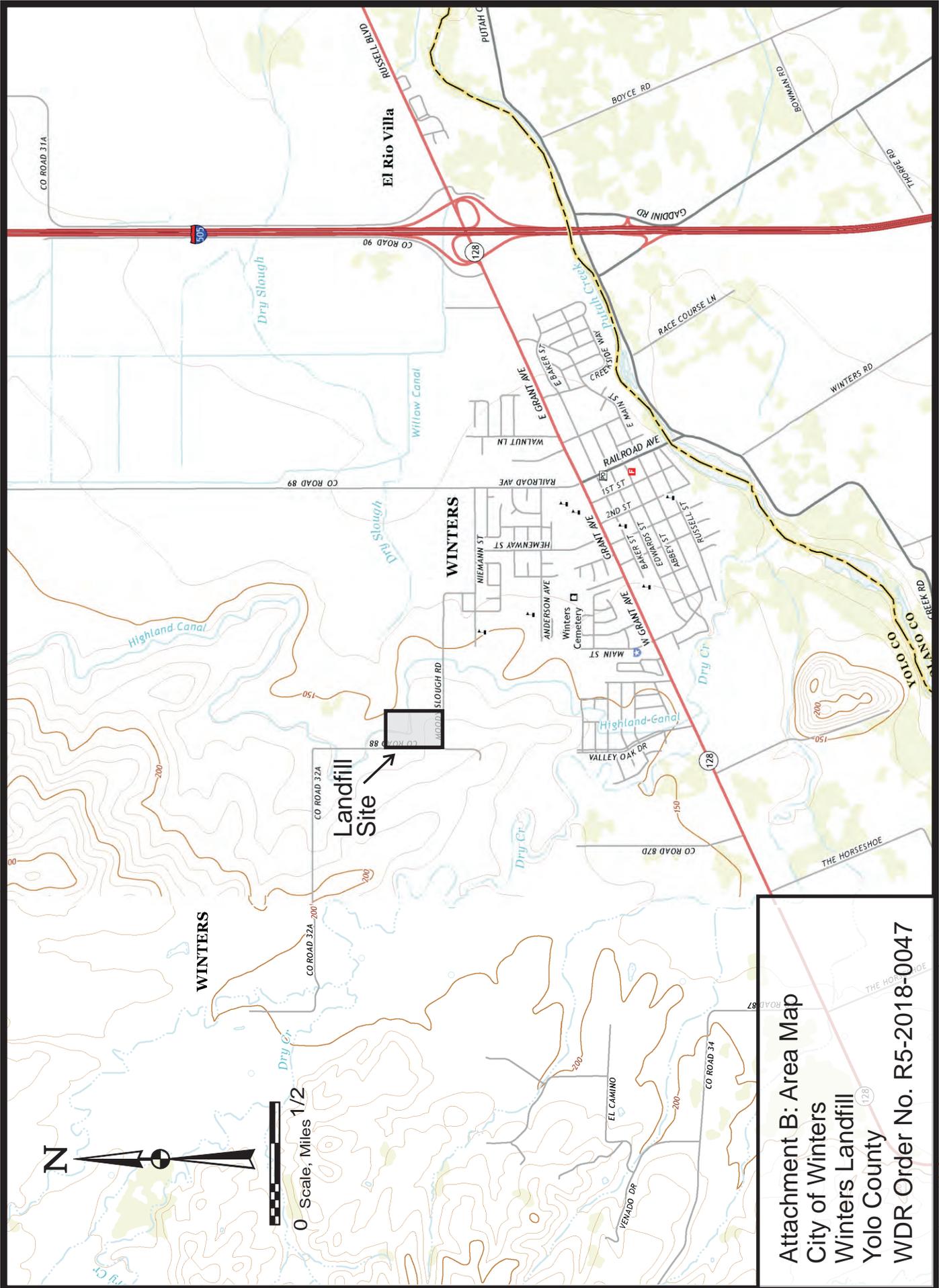
2-Acetylaminofluorene (2-AAF)	ACAMFL2
Aldrin	ALDRIN
4-Aminobiphenyl	AMINOBP4
Anthracene	ANTH
Benzo[a]anthracene (Benzanthracene)	BZAA
Benzo[b]fluoranthene	BZBF
Benzo[k]fluoranthene	BZKF
Benzo[g,h,i]perylene	BZGHIP
Benzo[a]pyrene	BZAP
Benzyl alcohol	BZLAL
Bis(2-ethylhexyl) phthalate	BIS2EHP
alpha-BHC	BHCALPHA
beta-BHC	BHCBETA
delta-BHC	BHCDELTA
gamma-BHC (Lindane)	BHCGAMMA
Bis(2-chloroethoxy)methane	BECEM
Bis(2-chloroethyl) ether (Dichloroethyl ether)	BIS2CEE
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)	BIS2CIE
4-Bromophenyl phenyl ether	BPPE4
Butyl benzyl phthalate (Benzyl butyl phthalate)	BBP
Chlordane	CHLORDANE
p-Chloroaniline	CLANIL4
Chlorobenzilate	CLBZLATE
p-Chloro-m-cresol (4-Chloro-3-methylphenol)	C4M3PH
2-Chloronaphthalene	CNPH2
2-Chlorophenol	CLPH2
4-Chlorophenyl phenyl ether	CPPE4
Chrysene	CHRYSENE
o-Cresol (2-methylphenol)	MEPH2
m-Cresol (3-methylphenol)	MEPH3
p-Cresol (4-methylphenol)	MEPH4
4,4'-DDD	DDD44
4,4'-DDE	DDE44
4,4'-DDT	DDT44
Diallate	DIALLATE
Dibenz[a,h]anthracene	DBAHA
Dibenzofuran	DBF
Di-n-butyl phthalate	DNBP
3,3'-Dichlorobenzidine	DBZD33
2,4-Dichlorophenol	DCP24
2,6-Dichlorophenol	DCP26
Dieldrin	DIELDRIN
Diethyl phthalate	DEPH
p-(Dimethylamino)azobenzene	PDMAABZ
7,12-Dimethylbenz[a]anthracene	DMBZA712
3,3'-Dimethylbenzidine	DMBZD33

2,4-Dimethylphenol (m-Xylenol)	DMP24
Dimethyl phthalate	DMPH
m-Dinitrobenzene	DNB13
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	DN46M
2,4-Dinitrophenol	DNP24
2,4-Dinitrotoluene	DNT24
2,6-Dinitrotoluene	DNT26
Di-n-octyl phthalate	DNOP
Diphenylamine	DPA
Endosulfan I	ENDOSULFANA
Endosulfan II	ENDOSULFANB
Endosulfan sulfate	ENDOSULFANS
Endrin	ENDRIN
Endrin aldehyde	ENDRINALD
Ethyl methanesulfonate	EMSULFN
Famphur	FAMPHUR
Fluoranthene	FLA
Fluorene	FL
Heptachlor	HEPTACHLOR
Heptachlor epoxide	HEPT-EPOX
Hexachlorobenzene	HCLBZ
Hexachlorocyclopentadiene	HCCP
Hexachloroethane	HCLEA
Hexachloropropene	HCPR
Indeno(1,2,3-c,d)pyrene	INP123
Isodrin	ISODRIN
Isophorone	ISOP
Isosafrole	ISOSAFR
Kepone	KEP
Methapyrilene	MTPYRLN
Methoxychlor	MTXYCL
3-Methylcholanthrene	MECHLAN3
Methyl methanesulfonate	MMSULFN
2-Methylnaphthalene	MTNPH2
1,4-Naphthoquinone	NAPHQ14
1-Naphthylamine	AMINONAPH1
2-Naphthylamine	AMINONAPH2
o-Nitroaniline (2-Nitroaniline)	NO2ANIL2
m-Nitroaniline (3-Nitroaniline)	NO2ANIL3
p-Nitroaniline (4-Nitroaniline)	NO2ANIL4
Nitrobenzene	NO2BZ
o-Nitrophenol (2-Nitrophenol)	NTPH2
p-Nitrophenol (4-Nitrophenol)	NTPH4
N-Nitrosodi-n-butylamine (Di-n-butyl nitrosamine)	NNSBU
N-Nitrosodiethylamine (Diethylnitrosamine)	NNSE
N-Nitrosodimethylamine (Dimethylnitrosamine)	NNSM
N-Nitrosodiphenylamine (Diphenylnitrosamine)	NNSPH
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)	NNSPR
N-Nitrosomethylethylamine (Methylethylnitrosamine)	NNSME
N-Nitrosopiperidine	NNSPPRD
N-Nitrosopyrrolidine	NNSPYRL
5-Nitro-o-toluidine	TLDNONT5
Pentachlorobenzene	PECLBZ

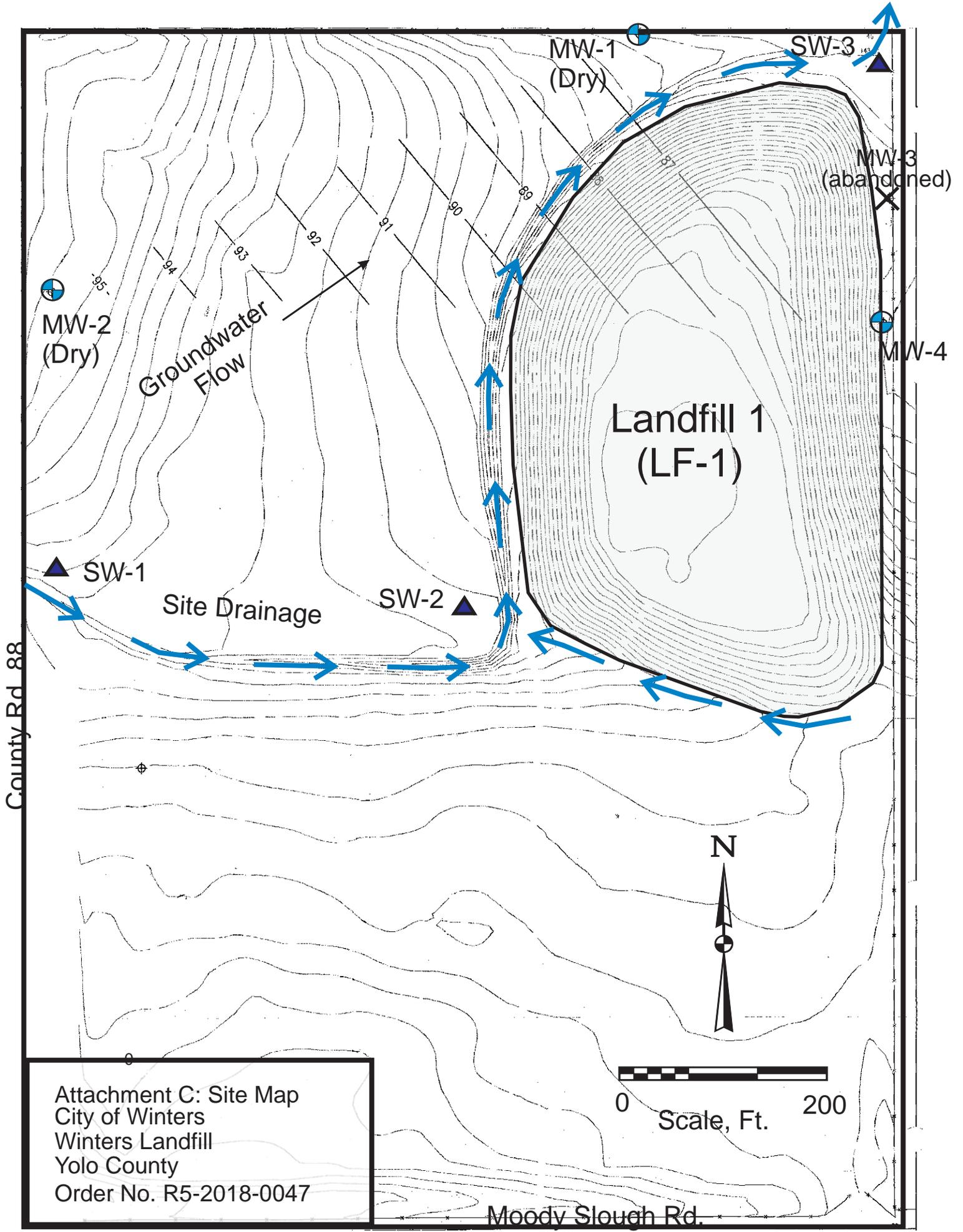
Pentachloronitrobenzene (PCNB)	PECLNO2BZ
Pentachlorophenol	PCP
Phenacetin	PHNACTN
Phenanthrene	PHAN
Phenol	PHENOL
p-Phenylenediamine	ANLNAM4
Polychlorinated biphenyls (PCBs; Aroclors)	PCBS
Pronamide	PRONAMD
Pyrene	PYR
Safrole	SAFROLE
1,2,4,5-Tetrachlorobenzene	C4BZ1245
2,3,4,6-Tetrachlorophenol	TCP2346
o-Toluidine	TLDNO
Toxaphene	TOXAP
2,4,5-Trichlorophenol	TCP245
0,0,0-Triethyl phosphorothioate	TEPTH
sym-Trinitrobenzene	TNB135



Attachment A: Location Map
 City of Winters
 Winters Landfill
 Yolo County
 WDR Order No. R5-2018-0047



Attachment B: Area Map
 City of Winters
 Winters Landfill
 Yolo County
 WDR Order No. R5-2018-0047



Attachment C: Site Map
City of Winters
Winters Landfill
Yolo County
Order No. R5-2018-0047

0 Scale, Ft. 200

Moody Slough Rd.

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER R5-2018-0047
CITY OF WINTERS
WINTERS LANDFILL
CLASS III LANDFILL
EVALUATION MONITORING, CLOSURE, POST-CLOSURE
MAINTENANCE. AND CORRECTION ACTION
YOLO COUNTY

Background

The Winters Landfill is an inactive, municipal solid waste (MSW) landfill facility on a 29.5-acre site about one-mile northwest of downtown Winters. The 6.5-acre 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 other wastes from historical operations were also excavated and consolidated into LF-1. The landfill predates Chapter 15 regulations and is a “closed, inactive, or abandoned” (CAI) unit under Title 27, section 20080(d)(1).

Geology

The site is in the Putah Plain in the southwestern part of the Sacramento Valley. The site is underlain by surface soils (gravelly clay or clay loam); Younger Alluvium (fine-grained sandy silts); Older Alluvium (silts and clays with sand and gravel lenses); and the Tehama formation (clean sands with silt and clay up to 2,500 feet thick), which is the primary aquifer in the western part of the Sacramento Valley.

Groundwater

Shallow groundwater at the site generally flows to the northeast consistent with the regional gradient. The depths to groundwater range from about 47 feet below ground surface (bgs) on the southwestern side of the site to about 92 feet bgs in the northeast corner of the site. Background groundwater quality is good with total dissolved solids (TDS) of about 190 milligrams per liter (mg/L). There are currently three landfill monitoring at the site, two which have been dry since 2013. Due to a lack of functional monitoring wells, the Discharger has not been able to determine the groundwater flow direction and gradient in recent years. 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.

A release to groundwater consisting primarily of elevation concentrations of general minerals was discovered at the site during a 1989 Solid Waste Assessment Test (SWAT) investigation. Historical monitoring data indicates elevated concentrations of general minerals in groundwater downgradient of the landfill indicative of a leachate release from the facility. Elevated concentrations of total dissolved solids (610 mg/L), chloride (82 mg/L) and other general minerals continue to be detected in point of compliance wells at the site.

The Discharger has indicated that the nearby City of Winters wastewater treatment Plant (WWTP) about 850 feet north and northeast of the site may be the primary source of the

groundwater impacts historically detected in the landfill monitoring wells. The 285-acre WWTF includes several wastewater ponds, two wastewater reclamation spray fields, and several monitoring wells screened in underlying perched and shallow aquifers. The WWTF is operated under separate, non-Chapter 15 WDRs Order R5-2002-0136, including an MRP last revised in July 2014.

Landfill Unit Design

The landfill originally consisted of a large, unlined pit excavated in 1962 in the northeast portion of the site. Native soils at the base of the excavation were reported to be clay-rich. No liner or leachate collection and recovery system was installed in the pit prior to filling. 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.

Closure/Corrective Action

In June 2000, burn dump ash and wastes from other historical site operations were excavated and consolidated into the landfill as a corrective action measure in accordance with a phased closure work plan approved by Water Board staff. Two feet of interim cover soil were then placed over the landfill and graded and compacted. The Discharger then conducted groundwater monitoring under a stand-alone monitoring and reporting program (MRP), Revised Order 5-00-802, to assess the effectiveness of the closure measures as a corrective action. In the event that monitoring indicated that the interim cover layer was not sufficient to protect groundwater, the closure work plan anticipated a second phase that included installation of a Title 27 clay soil cover over the landfill.

WDRs

The landfill has not been previously regulated under WDRs. These WDRs classify LF-1 as a Class III landfill unit based on site characteristics per Title 27, section 20260 (e.g., soil type, distance to groundwater) and requirements for installation of a Title 27-compliant cover. A Title 27-compliant cover is also required as a corrective action measure the landfill is degrading groundwater. To resolve this issue, the WDRs require that the Discharger conduct a Landfill Cover Investigation to assess whether the existing soil cover over the unit meets Title 27 performance standards. An Evaluation Monitoring Program (EMP) to assess whether the groundwater impacts may be coming from a source other than the landfill is also required.

If the Landfill Cover Investigation indicates that the interim cover substantially meets Title 27 standards, and the EMP investigation indicates that the landfill is not the primary source of groundwater impacts at the site, then the Discharger can submit a Final Closure and Postclosure Maintenance Plan (FC/PCMP) based on the original cover design. On the other hand, if the Landfill Cover Investigation indicates that the interim cover needs to be substantially upgraded to meet Title 27 performance standards, the WDRs require that the Discharger submit a Phase 2 FC/PCMP proposing the necessary upgrades to the landfill cover. In such case, a design report for Phase 2 landfill closure is also required under the WDRs.

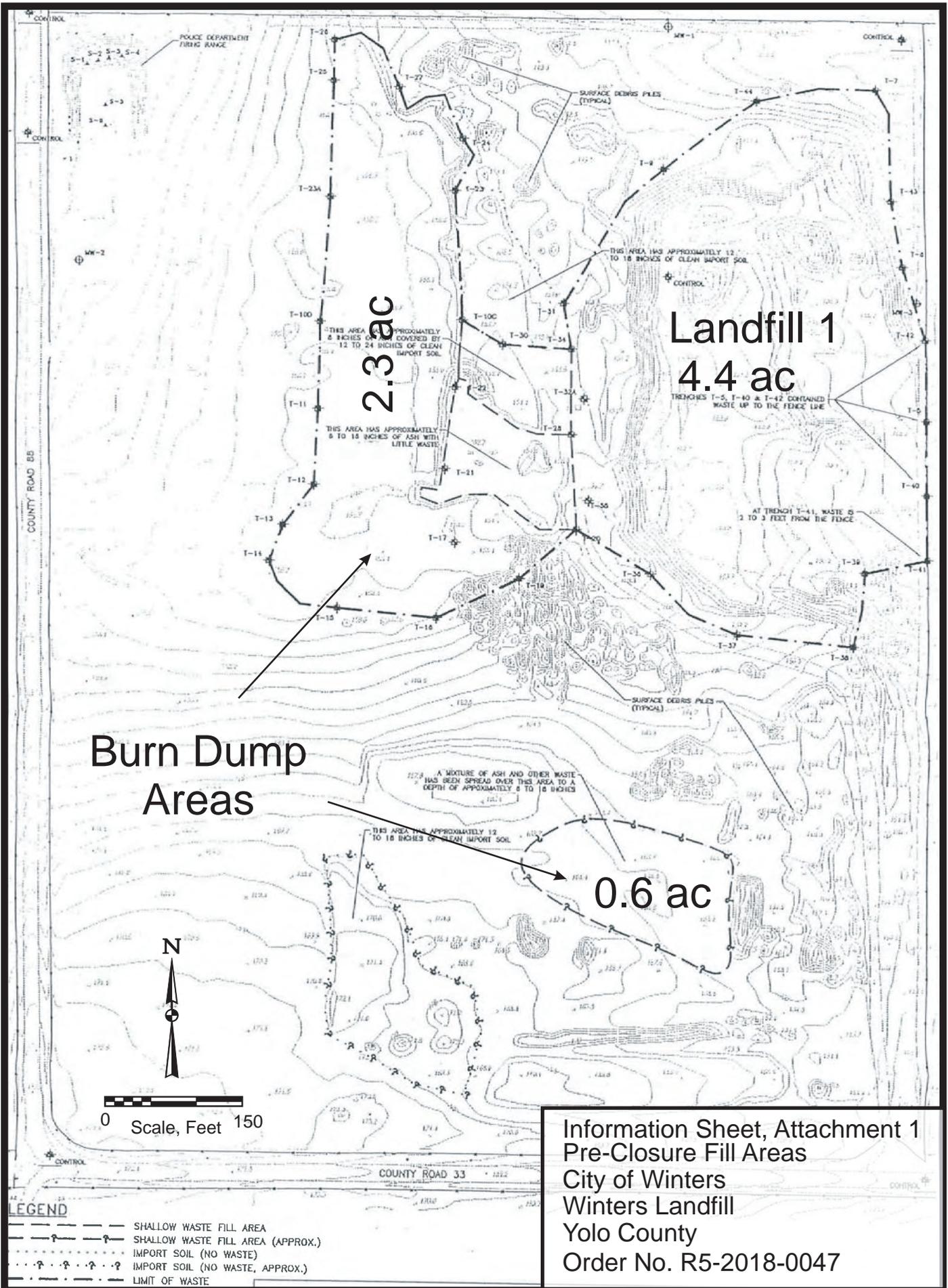
The WDRs also require that the Discharger provide financial assurances for closure, postclosure maintenance, and corrective action, including supporting documents (i.e., preliminary closure and postclosure maintenance plan (PC/PCMP), corrective action cost estimates, and demonstration of funding mechanisms). The PC/PCMP is required to reflect maximum estimated closure and postclosure maintenance costs (i.e., the Phase 2 closure scenario) described above.

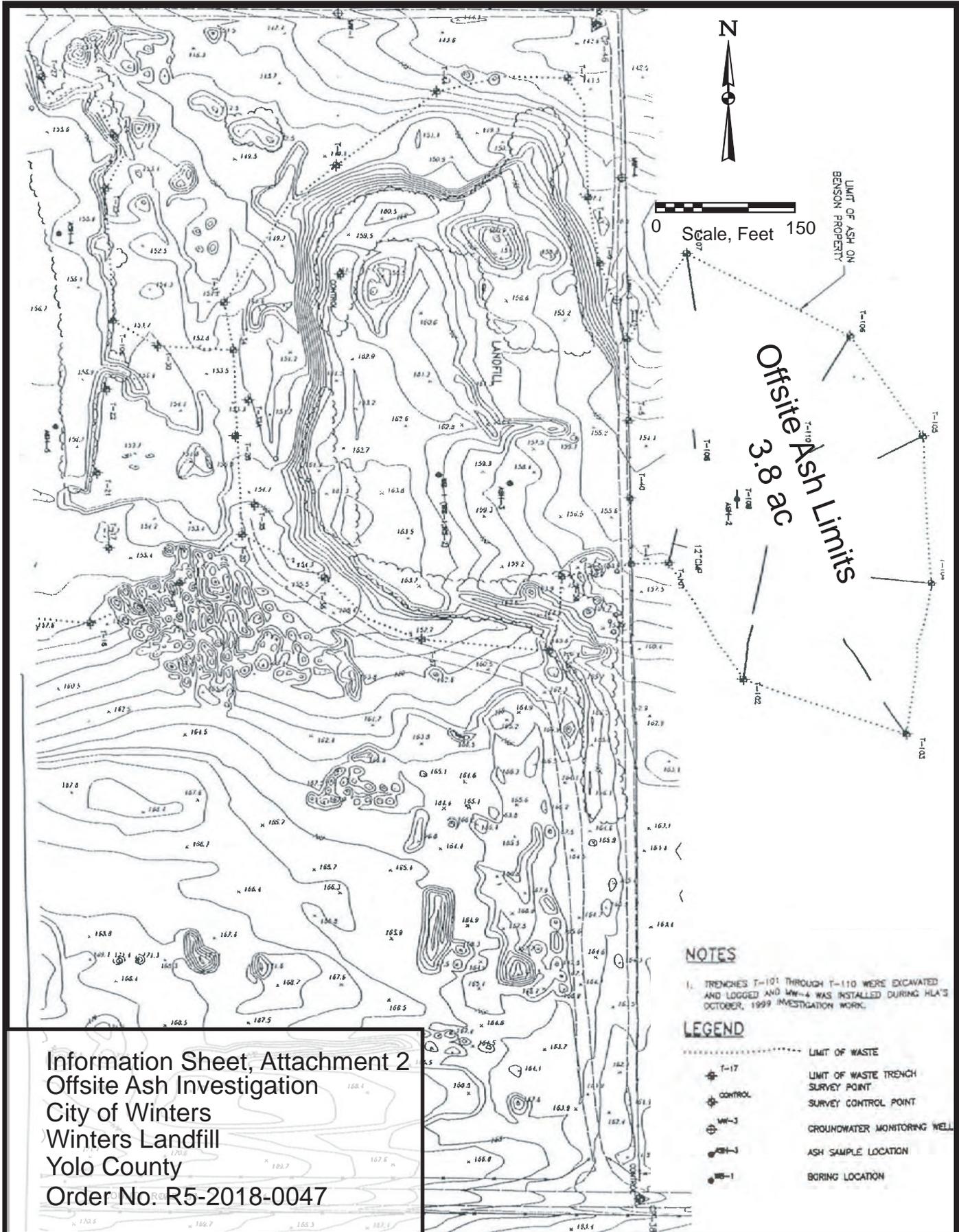
The WDRs also require that the Discharger investigate the condition and operability of all monitoring wells at the site and repair or replace any wells that are not operable or otherwise not meeting Title 27 construction or performance standards. Additional wells and/or piezometers may also be necessary depending on the results of the investigation. The WDR provisions require submission of the work plans and technical reports for this investigation.

The WDRs also require that the Discharger submit a revised Water Quality Protection Standard (WQPS) Report and an updated Sample Collection and Analysis Plan reflecting the installation any new monitoring wells, updated concentration limits, and proposed data analysis methods. The Monitoring and Reporting Program in the WDRs generally requires semiannual monitoring for general minerals and five-year monitoring for landfill constituents of concern (COCs). The first five-year COC monitoring event under the WDRs is required to be conducted by December 2018.

Surface drainage at the site is to Dry Slough, which is tributary to Willow Slough (north of Davis), the Yolo Bypass area. and ultimately the Sacramento River.

JDM





0 Scale, Feet 150

Offsite Ash Limits
3.8 ac

NOTES

1. TRENCHES T-101 THROUGH T-110 WERE EXCAVATED AND LOGGED AND MW-4 WAS INSTALLED DURING HLA'S OCTOBER, 1999 INVESTIGATION WORK.

LEGEND

- LIMIT OF WASTE
- T-17 LIMIT OF WASTE TRENCH SURVEY POINT
- ⊙ CONTROL SURVEY CONTROL POINT
- ⊕ MW-3 GROUNDWATER MONITORING WELL
- ⊙ T-1 ASH SAMPLE LOCATION
- ⊙ MW-1 BORING LOCATION

Information Sheet, Attachment 2
 Offsite Ash Investigation
 City of Winters
 Winters Landfill
 Yolo County
 Order No. R5-2018-0047

Information Sheet, Attachment 3
City of Winters Wastewater
Treatment Plant (WWTP)
City of Winters
Winters Landfill
Yolo County
Order No. R5-2018-0047



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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

April 2016

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A. APPLICABILITY

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to Class II surface impoundments, waste piles, and land treatment units that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, title 27 ("Title 27"), section 20005 et seq.
2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.
3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
4. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.
6. If there is a site-specific need to change a requirement in these SPRRs for a particular facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.
7. Unless otherwise stated, all terms are as defined in Water Code section 13050 and in Title 27, section 20164.

B. TERMS AND CONDITIONS

1. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]
2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:

- a. Violation of any term or condition contained in this Order;
 - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or
 - d. A material change in the character, location, or volume of discharge.
3. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. A material change includes, but is not limited to, the following:
- a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;
 - b. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment);
 - c. A change in the type of waste being accepted for disposal; or
 - d. A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.
4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].
5. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].
6. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Central Valley Water Board [Wat. Code, § 13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.
7. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is

made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [Wat. Code, § 13263(g)].

8. Technical and monitoring reports specified in this Order are requested pursuant to the Water Code [§13267(b)]. Failure to furnish the reports by the specified deadlines or falsifying information in the reports, are misdemeanors that may be liable civilly in accordance with §13268(b) of the Water Code [Wat. Code, §13268(a)].

C. STANDARD PROHIBITIONS

1. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:
 - a. require a higher level of containment than provided by the unit; or
 - b. are 'restricted wastes'; or
 - c. impair the integrity of containment structures;is prohibited [Title 27, § 20200(b)].
2. The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.
3. The discharge of waste to a closed waste management unit is prohibited.
4. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited, except within the treatment zone at a land treatment unit.
5. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

D. STANDARD DISCHARGE SPECIFICATIONS

1. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the waste management unit and whether or not the wastes are required to be managed as a hazardous waste [Title 27, § 20200(c)] or designated waste [Title 27, § 20210].
2. Leachate collected from a waste management unit shall be discharged to the unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [Title 27, § 20200(d) and § 20340(g)].

3. Wastes shall be discharged only into waste management units specifically designed for their containment and/or treatment, as described in this Order.
4. The discharge shall remain within the designated disposal area at all times.
5. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].

E. STANDARD FACILITY SPECIFICATIONS

1. All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [Title 27, § 20240(c)], including the capillary fringe.
2. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
3. The Discharger shall **immediately** notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method [Title 27, § 21710(c)(2)].
4. The Discharger shall **immediately** notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site or outside of waste management units, equipment failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
5. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
6. The Discharger shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation including all monitoring wells, LCRS risers, and lysimeter risers and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.
7. The Discharger shall maintain the depth of the fluid in the sump of each waste management unit at the minimum needed for efficient pump operation (the depth at which the pump turns on given the pump intake height and maximum pump cycle frequency).

8. Each LCRS shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [Title 27, § 20340(d)].
9. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (or most recent general industrial storm water permit), or retain all storm water on-site.

F. STANDARD CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for review and approval at least **90 days** prior to proposed construction, design plans and specifications for new Class II waste management units that include the following:
 - a. Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone monitoring system, and access to the LCRS for required annual testing.
 - b. A Construction Quality Assurance (CQA) Plan prepared by a California-registered civil engineer or certified engineering geologist, and that meets the requirements of Title 27, section 20324.
 - c. A geotechnical evaluation of the area soils, evaluating their use as the base layer or reference to the location of this information in the ROWD/JTD [Title 27, § 21750(f)(4)].
 - d. Information about the seismic design of the proposed new waste management unit (or reference to the location of this information in the ROWD/JTD) in accordance with Title 27, section 20370.
 - e. A revised water quality monitoring plan for groundwater detection monitoring (or information showing the existing plan is adequate) in accordance with Title 27, section 20415.
 - f. An Operation Plan (or reference to the location of this information in the ROWD/JTD) meeting the requirements of Title 27, sections 21760(b) and 20375(b).
2. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge.
3. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have

been approved. Waste management units shall receive a final inspection and approval of the construction by Central Valley Water Board staff before use of the unit commences [Title 27, § 20310(e)].

4. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].
5. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [Title 27, § 20320(a)].
6. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27, § 20365(a)].
7. The Discharger shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
8. All Class II waste management units shall be designed to withstand maximum credible earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion [Title 27, § 20370(a)].
9. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the waste management unit foundation, final slopes, and containment systems under both static and dynamic conditions throughout the life of the unit [Title 27, § 21750(f)(5)].
10. New Class II Units, other than LTUs and expansions of existing Class II units, shall have a 200 foot setback from any known Holocene fault. [Title 27, § 20250(d)].
11. Liners shall be designed and constructed to contain the fluid, including waste, and leachate [Title 27, § 20330(a)].
12. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, § 20320(c)].

13. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)].
14. A test pad for each barrier layer and any final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].
15. The Discharger shall ensure proper preparation of the subgrade for any liner system that includes a GCL so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.
16. The Discharger shall propose an electronic leak location survey of the top liner for any new waste management unit in the construction quality assurance plan unless the Discharger demonstrates that a leak location survey is not needed.
17. Leachate collection and removal systems are required for Class II surface impoundments [Title 27, § 20340(a)].
18. The LCRS shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit [Title 27, § 20340(b)].
19. Leachate collection and removal systems shall be designed and operated to function without clogging through the life of the waste management unit.
20. The leachate sump, leachate removal pump, and pump controls shall be designed and set to maintain a fluid depth no greater than the minimum needed for efficient pump operation [Title 27, § 20340(c)].
21. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [Title 27, § 20323].
22. The Construction Quality Assurance program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27, § 20324(b)(2)].
23. The Discharger shall ensure that a third party independent of both the Discharger and the construction contractor performs all of the construction quality assurance monitoring and testing during the construction of a liner system.

24. The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new Class II waste management unit, construction of a final cover (for units closed as a landfill), or any other construction that requires Central Valley Water Board staff approval under this Order.
25. The Discharger shall submit for review and approval at least **60 days** prior to proposed discharge, final documentation required in Title 27 Section 20324(d)(1)(C) following the completion of construction of a new Class II waste management unit. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the liner system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of the WDRs, and that it meets the performance goals of Title 27. The report shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, the construction quality assurance plan, and the performance goals of Title 27.
26. The Discharger shall not discharge waste onto a newly constructed liner system until the final documentation report has been reviewed and an acceptance letter has been received.

G. STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS

1. The final closure and post-closure maintenance plan for the waste management unit shall include at least the following: an itemized cost analysis, closure schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent ROWD, future land use, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].
2. Closure of each waste management unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [Title 27, § 20950(b)].
3. The final cover of waste management units closed as a landfill shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].
4. The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [Title 27, § 21090(b)(1)(C)].
5. All final cover designs shall include a minimum 1-foot thick erosion resistant vegetative layer or a mechanically erosion-resistant layer [Title 27, § 21090(a)(3)(A)(1 & 2)].

6. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [Title 27, § 21090(b)(2)].
7. The Discharger shall design storm water conveyance systems for Class II units that are closed as a landfill for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
8. Construction or repair of a final cover system's low-hydraulic conductivity layer is to be carried out in accordance with an approved construction quality assurance plan [Title 27, § 21090(b)(1)(E)].
9. Within **30 days** of completion of all closure activities, the Discharger shall certify that all closure activities were performed in accordance with the most recently approved final closure plan and CQA Plan, and in accordance with all applicable regulations. The Discharger shall also certify that units that are closed as a landfill shall be maintained in accordance with an approved post-closure maintenance plan [Title 27, § 21710(c)(6)].
10. The post-closure maintenance period for units closed as a landfill shall continue until the Central Valley Water Board determines that wastes remaining in the landfill unit(s) no longer pose a threat to water quality [Title 27, § 20950(a)(1)].
11. The Discharger shall periodically inspect and identify problems with the final cover including areas that require replanting, erosion, areas lacking free drainage, and any areas damaged by equipment operations [Title 27, § 21090(a)(4)(B)].
12. The Discharger shall repair any cover promptly in accordance with a cover repair plan to be included in the final post-closure maintenance plan [Title 27, § 21090(a)(4)(C)].

H. STANDARD FINANCIAL ASSURANCE PROVISIONS

1. The Discharger shall establish an irrevocable fund (or provide other means) for closure to ensure closure of each Class II unit in accordance with an approved closure plan [Title 27, § 20950(f) and § 22207(a)].
2. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management unit [Title 27, §20380(b) and § 22222].

I. STANDARD MONITORING SPECIFICATIONS

1. The water quality monitoring program shall include appropriate and consistent sampling and analytical procedures and methods designed to ensure that

monitoring results provide a reliable indication of water quality at all monitoring points and background monitoring points [Title 27, § 20415(e)(4)].

2. All monitoring systems shall be designed and certified by a registered geologist or a registered civil engineer [Title 27, § 20415(e)(1)].
3. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport [Title 27, § 20415(b)(4)(A)].
4. All sample chemical analyses of any material shall be performed by a laboratory certified by the California Department of Health Services [Wat. Code, § 13176(a)].
5. A Detection Monitoring Program for a new Class II waste management unit shall be installed, operational, and one year of monitoring data collected from background monitoring points prior to the discharge of wastes [Title 27, § 20415(e)(6)].
6. Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point).
7. The Discharger shall submit for approval, establish, and maintain an approved Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:
 - a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;
 - b. Sample preservation information and shipment procedures;
 - c. Sample analytical methods and procedures;
 - d. Sample quality assurance/quality control (QA/QC) procedures;
 - e. Chain of Custody control; and
 - f. Sample analysis information including sample preparation techniques to avoid matrix interferences, method detection limits (MDLs), practical quantitation limits (PQLs) and reporting limits (RLs), and procedures for reporting trace results between the MDL and PQL.

If required by the Executive Officer, the Discharger shall modify the Sample Collection and Analysis Plan to conform with this Order.

8. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless a longer time period is approved, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan. Appropriate sample preparation techniques shall be used to minimize matrix interferences.
9. If methods other than USEPA-approved methods or Standard Methods are used, or there is a proposed alternant USEPA method than the one listed in the MRP, the proposed methodology shall be submitted for review and approval prior to use, including information showing its equivalence to the required method.
10. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
11. The laboratory reporting limit (RL) for all reported monitoring data shall be set no greater than the practical quantitation limit (PQL).
12. **"Trace" results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
13. Laboratory data shall not be altered or revised by the Discharger. If the Discharger observes potential lab errors, it shall identify the issue in the monitoring report and shall describe steps that will be taken to prevent similar errors in the future.
14. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively

interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs. MDLs and PQLs shall be reported.

15. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged in the laboratory report accordingly, along with estimates of the detection limit and quantitation limit actually achieved. **The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
16. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and signature of a responsible person from the laboratory. **Sample results shall be reported unadjusted for blank results or spike recoveries.** In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged, but the analytical results shall not be adjusted.
17. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.
18. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples [Title 27, § 20415(b)(4)(B)].
19. All borings are to be logged during drilling under the direct supervision of a registered geologist or registered civil engineer with expertise in stratigraphic well logging [Title 27, § 20415(e)(2)].
20. Soils are to be described according to the Unified Soil Classification System [Title 27, § 20415(e)(2)(A)]. Rock is to be described in a manner appropriate for the purpose of the investigation [Title 27, § 20415(e)(2)(B)].

21. The Discharger shall submit a work plan for review and approval at least **60 days** prior to installation or abandonment of groundwater monitoring wells.
22. The Discharger shall provide Central Valley Water Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation or abandonment of monitoring devices.
23. The water quality protection standard shall consist of the constituents of concern (COC), concentration limits, and the point of compliance. The water quality protection standard shall apply during the active life of the waste management unit, closure period, post-closure maintenance period, and any compliance period under Title 27, section 20410 [Title 27, § 20390].
24. The point of compliance at which the water quality protection standard applies is a vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit [Title 27, § 20405).
25. The compliance period is the minimum period of time during which the Discharger shall conduct a water quality monitoring program and is the number of years equal to the active life of the waste management unit plus the closure period [Title 27, § 20410(a)].
26. The groundwater monitoring system shall include a sufficient number of monitoring points, installed at appropriate locations, to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the waste management unit [Title 27, § 20415(b)(1)(A)].
27. The Detection Monitoring Program shall include a sufficient number of monitoring points, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater passing the point of compliance to allow the detection of a release from the waste management unit [Title 27, § 20415(b)(1)(B)1.].
28. Additional monitoring points shall be added as necessary to provide the best assurance of the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)2.].
29. The Detection Monitoring Program shall also include a sufficient number of monitoring points installed at appropriate depths and locations to yield groundwater samples from other aquifers or perched zones not already monitored to provide the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)3. and 4., and §20420(b)].

30. A surface water monitoring system shall be established to monitor each surface water body that could be affected by a release from the waste management unit [Title 27, § 20415(c)].
31. An unsaturated zone monitoring system shall be established for each waste management unit [Title 27, § 20415(d)].
32. The Discharger shall notify Central Valley Water Board staff within **seven days** if fluid is detected in a previously dry LCRS, unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a LCRS [Title 27, § 21710(c)(3)].
33. Driller's logs for all monitoring wells shall to be submitted to the Central Valley Water Board and the Department of Water Resources [Wat. Code, § 13751 and Title 27, § 20415(b)(3)].
34. Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [Title 27, § 20415(e)(13)].
35. The groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation being monitored shall be determined at least quarterly [Title 27, § 20415(e)(15)].
36. The Discharger shall graph all analytical data from each monitoring point and background monitoring point and shall submit the graphs to the Central Valley Water Board annually [Title 27, § 20415(e)(14)].
37. For each waste management unit, the Discharger shall collect all data necessary for selecting appropriate data analysis methods for establishing background values for each constituent of concern and for each monitoring parameter [Title 27, § 20420(c)]. The Discharger shall propose a data analysis method that includes a detailed description of the criteria to be used for determining "measurably significant" (as defined in Title 27, section 20164) evidence of a release from the waste management unit and determining compliance with the water quality protection standard [Title 27, § 20415(e)(6) and (7)].
38. For statistical analysis of data, the Discharger shall use one of the methods described in Title 27, section 20415(e)(8)(A)-(E). A non-statistical data analysis method can be used if the method can achieve the goal of the particular monitoring program at least as well as the most appropriate statistical method [Title 27, § 20415(e)(8)]. The Discharger shall use a statistical or nonstatistical data analysis method that complies with Title 27, section 20415(e)(7, 8, 9, and 10), to compare the concentration of each constituent of concern or monitoring parameter with its respective background concentration to determine whether

there has been a measurably significant evidence of a release from the waste management unit. For any given monitoring point at which a given constituent has already exhibited a measurably significant indication of a release at that monitoring point, the Discharger may propose to monitor the constituent, at that well, using a concentration-versus-time plot.

39. The Discharger may propose an alternate statistical method [to the methods listed under Title 27, section 20415(e)(8)(A-D)] in accordance with Title 27, section 20415(e)(8)(E), for review and approval.
40. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27, section 20415(e)(7) that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs or an approved Sample Collection and Analysis Plan for routine laboratory operating conditions that are available to the facility. The Discharger's technical report (Sample Collection and Analysis Plan and/or Water Quality Protection Standard Report), pursuant to Title 27, section 20415(e)(7), shall consider the PQLs listed in Appendix IX, Article 19 to Chapter 14 of Division 4.5 of Title 22, CCR, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or non-statistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".
41. The water quality protection standard for organic compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (e.g., USEPA methods 8260 and 8270).
42. Alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) if part of an approved water quality protection standard. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.
43. **Confirmation of Measurably Significant Evidence of a Release.** Whenever a constituent is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the water quality protection standard, the

Discharger shall conduct verification sampling to confirm if the exceedance is due to a release or if it is a false-positive (unless previous monitoring has already confirmed a release for that constituent at that monitoring point). An exceedance of the concentration limit from the water quality protection standard is considered measurably significant evidence of a release that must be either confirmed or denied. There are two separate verification testing procedures:

- a. Standard Monitoring Specification I.44 provides the procedure for analytes that are detected in less than 10% of the background samples such as non-naturally occurring constituents like volatile organic compounds; and
- b. Standard Monitoring Specification I.45 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.

44. Verification Procedure for Analytes Detected in Less than 10% of Background Samples.

The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:

- a. **Initial Determination of Measurably Significant Evidence of a Release.** Identify each analyte in the **current** detection monitoring point sample that exceeds either its respective MDL or PQL, and for which a release has not been previously confirmed. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if **either**:
 - 1) The data contains two or more analytes that equal or exceed their respective MDLs; or
 - 2) The data contains one or more analyte that equals or exceeds its PQL.
- b. **Discrete Retest** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)]:
 - 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.44.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated and analyze them for the constituents that caused the need for the retest.
 - 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall conclude that measurably significant evidence of a release is confirmed if (not including the original sample) two or more

analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL. The Discharger shall then:

- a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
- b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
- c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

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

- a. **Initial Determination of Measurably Significant Evidence of a Release.**
The Discharger shall compare the value reported by the laboratory for each analyte to the statistically-derived concentration limit from the most recent report (Annual Monitoring Report or Water Quality Protection Standard Report) that uses the approved statistical procedure. If the value exceeds the concentration limit for that constituent, the Discharger shall conclude that there 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)].
 - 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.45.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** [Title 27, § 20415(e)(8)(E)(3)] of such indication, the Discharger shall implement a verification procedure/retest option, in accordance with Title 27, sections 20415(e)(8)(E) and 20420(j)(2). The verification procedure shall include either a single “composite” retest (i.e., a statistical analysis that augments and reanalyzes the data from the monitoring point that indicated a release) or shall consist of at least two “discrete” retests

(i.e., statistical analyses each of which analyzes only newly-acquired data from the monitoring point that indicated a release) [Title 27, § 20415(e)(8)(E)]. The Discharger may use an alternate method previously approved by the Central Valley Water Board and included in the Monitoring and Reporting Program. The verification procedure shall comply with the requirements of Title 27, section 20415(e)(8)(E) in addition to the performance standards of Title 27, section 20415(e)(9). The retest samples shall be collected from the monitoring point where the release is preliminarily indicated and shall be analyzed for the constituents that caused the need for the retest. For any indicated monitoring parameter or constituent of concern, if the retest results of one or more of the retest data suites confirm the original indication, the Discharger shall conclude that measurably significant evidence of a release has been confirmed.

- 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph I.45.b.1, above and shall:
 - a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
 - b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
 - c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

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

J. RESPONSE TO A RELEASE

1. **Measurably Significant Evidence of a Release Has Been Confirmed.** If the Discharger has confirmed that there is measurably significant evidence of a release from a waste management unit pursuant to Standard Monitoring Specification I.44 or I.45, then the Discharger shall:
 - a. **Immediately** sample all monitoring points in the affected medium at that waste management unit and determine the concentration of all monitoring parameters and constituents of concern for comparison with established concentration limits. Because this constituent of concern scan does not involve statistical testing, the Discharger will need to collect and analyze only a single water sample from each monitoring point in the affected medium [Title 27, § 20420(k)(1)].
 - b. **Within 90 days** of confirming measurably significant evidence of a release, the Discharger shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program meeting the requirements of Title 27, sections 20420(k)(5)(A-D), including but not limited to the results of sampling pursuant to paragraph J.1.a, above. The Evaluation Monitoring Program shall be designed for the collection and analysis of all data necessary to assess the nature and extent of the release and to determine the spatial distribution and concentration of each constituent throughout the zone affected by the release [Title 27, § 20420(k)(5) and § 20425(b)].
 - c. **Within 180 days** of confirming measurably significant evidence of a release, the Discharger shall submit to the Central Valley Water Board an initial engineering feasibility study for a Corrective Action Program necessary to meet the requirements of Title 27, section 20430. At a minimum, the initial engineering feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [Title 27, § 20420(k)(6)].
 - d. If the Discharger confirms that there is measurably significant evidence of a release from the waste management unit at any monitoring point, the Discharger may attempt to demonstrate that a source other than the waste management unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to Title 27, section 20420(k)(7) in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements and due dates of Title 27, sections 20420(k)(6) & (7) unless Central Valley Water Board staff agree that the demonstration successfully shows that a source other than the

waste management unit caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In order to make this demonstration, the Discharger shall notify the Central Valley Water Board by certified mail of the intent to make the demonstration **within seven days** of determining measurably significant evidence of a release, and shall submit a report **within 90 days** of determining measurably significant evidence of a release [Title 27, § 20420(k)(7)].

- e. **Within 90 days** of the date that the Evaluation Monitoring Program from paragraph J.1.b is approved (the date is it established), the Discharger shall complete and submit the following:
 - i) **Results and Assessment for the Evaluation Monitoring Program.** A report with the results and assessment based on the approved Evaluation Monitoring Program [Title 27, § 20425(b)].
 - ii) **Updated Engineering Feasibility Study.** An updated engineering feasibility study for corrective action based on the data collected to delineate the release and data from the ongoing monitoring program required under Title 27, section 20425(e) [Title 27, § 20425(c)].
 - iii) **Amended ROWD for a Corrective Action Program.** An amended report of waste discharge to establish a Corrective Action Program meeting the requirements of Title 27, section 20430 based on the data collected to delineate the release and based on the updated engineering feasibility study [Title 27, § 20425(d)].

K. GENERAL PROVISIONS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Central Valley Water Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. All reports and transmittal letters shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor.

- c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if:
 - 1) The authorization is made in writing by a person described in a, b, or c of this provision;
 - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - 3) The written authorization is submitted to the Central Valley Water Board.
 - e. Any person signing a document under this Section shall make the following certification:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”
3. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
 4. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and leachate generated by discharged waste during the active life, closure, and any post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.
 5. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of this Order.
 6. The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost

estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Central Valley Water Board approval following authorization for closure pursuant to the site Notification of Closure [Title 27, § 21710(a)(4)].

7. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit or portion of a unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Central Valley Water Board [Title 27, § 21720(f)].
8. In the event of any change in landowner or the operator of the waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.
9. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [Title 27, § 21710(c)(1)].
10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within **14 days** of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in General Provision K.2 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

L. STORM WATER PROVISIONS

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

2. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions for the unit [Title 27, § 20365(a)].
3. Precipitation on Class II waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the LCRS, which shall be designed and constructed to accommodate the precipitation conditions for each class unit [Title 27, § 20365(b)].
4. Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:
 - a. Accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit.
 - b. Effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities.
 - c. Prevent surface erosion through the use of energy dissipators where required to decrease the velocity of runoff, slope protection, and other erosion control measures where needed to prevent erosion.
 - d. Control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste.
 - e. Take into account:
 - i) For closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern.
 - ii) For operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time.
 - iii) The possible effects of the waste management unit's drainage pattern on and by the regional watershed.
 - iv) The design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility.
 - f. Preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.

5. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [Title 27, § 20365(d)].
6. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
7. Cover materials shall be graded to divert precipitation from the waste management unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation [Title 27, § 20365(f)].
8. Any drainage layer in a final cover shall be designed and constructed to intersect with the final drainage system for the waste management unit in a manner promoting free drainage from all portions of the drainage layer [Title 27, §20365(f)].