

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2017-0053

WASTE DISCHARGE REQUIREMENTS
COLUSA COUNTY DEPARTMENT OF PUBLIC WORKS
EVANS ROAD LANDFILL
CLOSED CLASS III LANDFILLS
POST-CLOSURE MAINTENANCE AND CORRECTION ACTION
COLUSA COUNTY

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

1. The Colusa County Department of Public Works (hereinafter Discharger) owns and operates the Evans Road Landfill, a closed, municipal solid waste (MSW) landfill facility about seven miles southwest of Williams in southern Colusa County (see location map referenced in Finding 3.a). The facility is regulated under the California Water Code, section 13000 et seq.; California Code of Regulations, title 27, section 20005 et seq. (Title 27); and the Code of Federal Regulations, title 40, section 258 (40 CFR 258 or "Subtitle D"). Applicable Subtitle D regulations are implemented through State Water Resources Control Board (State Water Board) Resolution 93-62.
2. The landfill was previously regulated under Waste Discharge Requirements (WDRs) Order R5-2002-0124 adopted in June 2002. A Central Valley Water Board staff review of the files indicated the need for an update and limited revision of the WDRs to address changes and issues that have occurred at the site since the WDRs were last revised in 2002. These changes and issues include the following:
 - a. Updated site information and attachment maps;
 - b. Updated financial assurances information;
 - c. Closure of the former pesticide container disposal area (PCD-1);
 - d. Reclassification of the former evaporation ponds;
 - e. Installation of passive landfill gas vents as a corrective action measure;
 - f. Drought conditions at the site;
 - g. Monitoring data collected since 2002; and
 - h. The need for additional groundwater monitoring wells.This revised WDR Order includes revised findings, regulatory references, and requirements to address the above issues and changes at the facility.
3. 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 – Facility Map
 - d. Attachment D – Gas Controls & Monitoring
 - e. Information Sheet

- f. December 2015 *Standard Provisions and Reporting Requirements for Nonhazardous Solid Waste Discharges Regulated by Subtitle D and/or Title 27* (Landfill SPRRs)
 - g. April 2016 *Standard Provisions and Reporting Requirements for Industrial Facilities Regulated by Title 27* (Industrial SPRRs).
4. The facility is on a 123-acre site comprising the southern half of the northeast quarter of Section 15, T14N, R3W, Mount Diablo Base and Meridian, corresponding to Assessor Parcel Numbers 018-160-46 and 018-160-68. The geographic coordinates of the site are Latitude 39.065° north, Longitude -122.170 ° west. The site is located along the west side of Evans Road about 1/2 mile north of Hahn Road. See Attachment B: Area Map.
5. The landfill facility operated from 1970 to 2001, accepting primarily household, construction and demolition, and industrial wastes from incorporated and unincorporated areas of Colusa County. Three unlined evaporation ponds and a pesticide container disposal area (PCD-1) also operated at the facility. The waste management units at the site, as classified under this order, are summarized below:

Unit	Title 27 Unit Class	Area (acres)	Status	Waste Containment System		Accepted MSW?
				Liner	Cover	
SWD-1 ^{1,2,4}	Class III	16.0	Closed	Unlined ⁴	Title 27 Prescriptive	Yes ¹
EP-1 ^{3,4}	Class III	4.0	Closed	Unlined ⁴	Title 27 Non-prescriptive	No
EP-2A ^{3,4}	Class III	1.5				No
EP-2B ^{3,4}	Class III	2.0				No
PCD-1 ^{2,5}	Class III	1.1	Closed	Unlined ⁴	Title 27 Prescriptive	No
Total:	5 units	24.6	---	---	---	---

- 1. Solid Waste Disposal (SWD) Unit operated and closed as a Class III MSW landfill.
- 2. Prior to closure of SWD-1 in 2001, the landfill operated under a Solid Waste Facilities Permit issued by CalRecycle.
- 3. Evaporation Pond (EP) Units operated as unlined surface impoundments and closed as Class III, non-MSW landfills.
- 4. Unit not constructed with a base liner or leachate collection and recovery system (LCRS).
- 5. Unit operated and closed as a Class III, non-MSW landfill.

6. The facility also includes landfill monitoring systems (e.g., gas, groundwater, surface water); landfill gas vents; storm water controls; a sedimentation basin; access roads; and a former scale area. All former facility structures, including scale house and office, were demolished as part of landfill closure in 2001. See Attachment C: Facility Map.
7. 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.

8. 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". These regulations apply to all California Class II and Class III landfills that accept MSW on or after the effective date of Subtitle D (9 October 1993). State Water Resources Control Board Resolution 93-62 (Resolution 93-62) requires the Central Valley Water Board WDRs for MSW landfills to implement the applicable provisions of the federal MSW regulations that are necessary to protect water quality, and in particular the containment provisions and the provisions that are either more stringent or that do not exist in Title 27.
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 H of these WDRs below, and in the Landfill SPRRs and Industrial SPRRs dated December 2015 and April 2016 which are part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) R5-2017-0053 and in the Landfill and Industrial SPRRs. In general, requirements that are either in regulation or otherwise apply to a classified unit 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 H) of these WDRs, and such requirement in the WDRs supersedes the requirement in the SPRRs.

WASTE CLASSIFICATION AND UNIT CLASSIFICATION

10. Class III Landfill SWD-1 accepted MSW, dried municipal sewage sludge (MSS), commercial and industrial solid wastes, and other wastes classified as nonhazardous under Title 27 regulations.
11. The former unlined evaporation ponds (EP-1, EP-2A and EP-2B) accepted liquid, semi-solid, and/or solid wastes classified as "inert" or "designated" under Title 27 regulations. These wastes primarily included drilling muds, gas well brines, and septage. EP-1 was originally used for disposal of construction and demolition wastes and subsequently as an evaporation pond like EP-2A and EP-2B. A combined total of about 500,000 gallons per month of liquid or semi-solid wastes were discharged to the ponds.
12. Previous WDRs (Order 88-145) classified EPs-1, 2A, and 2B as Class II surface impoundments based on requirements that each unlined pond be retrofitted with a Chapter 15 (now Title 27) compliant liner system, or, alternatively, closed. None of the ponds were retrofitted with a liner to come into compliance with Chapter 15, however, and

subsequent WDRs Order 91-228 required that all three ponds stop accepting wastes and be closed. The ponds were ultimately closed as landfills in 1997, but were not reclassified (i.e., as closed landfill units) under previous WDRs Order 2002-0124 pending lysimeter testing to verify that the landfill cover met Title 27 performance standards. These WDRs reclassify all three units as Class III landfills based on the level of containment provided by natural geologic materials beneath the units (primarily clay soil) and a requirement that the final covers of the former ponds be adequately tested to verify that they meet Title 27 performance standards. See Finding 20 and Postclosure Maintenance Specifications E.4 and E.5.

13. PCD-1 accepted empty, triple rinsed pesticide containers for disposal in trenches. Up to 1,500 empty pesticide containers per month, all with required certification, were historically discharged to Class III landfill PCD-1.¹ The total number of pesticide containers discharged to PCD-1 included 212 55-gallon drums, 7,938 30-gallon drums, 101,636 5-gallon containers, 17,023 2 ½-gallon containers, 23,418 1-gallon containers, 825 1-quart containers; and 130,401 “other” containers (e.g., bags, sacks, tubes).

SITE DESCRIPTION

14. The site is gently rolling grassland within the western side of the Sacramento Valley about one mile northeast of the Coast Range foothills. Land within 1000 feet of the facility is used for agriculture, including orchard land to the north and east and open grazing land on the south and west. A March 2017 Department of Water Resources (DWR) well survey found two domestic supply wells and six agricultural irrigation wells within a one-mile radius of the site (see Information Sheet, Attachment 1).
15. Regional surface drainage is to the northeast off the alluvial fans of the Coast Range foothills. Surface topography surrounding the site ranges from 195 to 250 feet above mean sea level.
16. The nearest DWR weather station is the Williams Station (No. A00 9677 00) about seven miles northeast of the site. Based on available historical Rainfall Depth Duration Frequency data for this station (i.e., years 1954 to 2000)², the Evans Road Landfill site received an average of about 14.1 inches per year of precipitation and the 100-year, 24-hour precipitation event was 3.5 inches. Evaporation for this facility was estimated at 54 inches per year.
17. Historical rainfall data for other (i.e., National Oceanic and Atmospheric Administration (NOAA)) weather stations in southern Colusa County indicate that the area has been under drought conditions for the last several years like most of California. For example,

1. Empty pesticide containers, if triple rinsed such that there is no residual residue, and accompanied by appropriate certification by the Colusa County Agricultural Commissioner, can be discharged to a Class III landfill as nonhazardous waste.
2. Rainfall Depth Duration Frequency data for DRW weather stations in Colusa County for the years 2001 to 2016 was not available at the time of writing these WDRs, however, due to a DWR data base overhaul.

rainfall data for Arbuckle (5 miles southeast of the site) and Colusa (10 miles northeast of the site) each showed a 4.5 inch decline in average annual rainfall over the past 10 years (2006 to 2016).³ Based on these declines, it is estimated that average rainfall at the Evans Road Landfill during the past 10 years was likely about 9.6 inches per year, or about 33 percent (one-third) less than normal on average. Evaporation rates at the facility were also likely higher during this period due to drought conditions.

18. A small zone of the site is within Zone A of the Federal Insurance Administration flood map, the 100-year flood plain of South Fork and Cortina Creeks.

GEOLOGY

19. 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 in the Sierra Mountains, and by weathering and erosion of the Sierra Nevada and Coast Range mountains. 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.
20. The site geology consists of surface alluvium underlain by Recent Alluvium and then the Tehama Formation. The surface alluvium consists primarily of Hillgate clay loam soil (as classified by the U.S. Department of Agriculture, Natural Resources Conservation Service soil survey for Colusa County) to a depth of at least 5 feet bgs. Along the western side of the site the surface soil is classified as Corning clay loam, which is typically more sandy and gravelly at depth. The Recent Alluvium typically extends to at least 57 feet bgs and consists of gravelly sand, silty sand, silt, and clay. The Recent Alluvium is generally unsaturated, but serves as a pathway for recharge of underlying groundwater. The underlying Tehama Formation typically consists of sandy silt, silty sand, and clayey silt with enclosed sand and gravel lenses. The Tehama Formation is a major aquifer in the Sacramento Valley.
21. Low permeability, finer grained sediments typically occur between depths of 25 to 40 feet, while relatively high permeability alluvial sediments can be found between depths of 45 to 90 feet.

UNSATURATED ZONE CONDITIONS

22. An unsaturated zone monitoring system formerly existed at the Evans Road Landfill that consisted of four suction lysimeters (LW-1 through LW-4). Three of these were located at landfill unit SWD-1 and one background lysimeter was located on the southwest perimeter

3. These stations received about 2.4 (Colusa) to 5.1 (Arbuckle) inches more average annual rainfall during the above period (1954 to 2000) than did the Williams station.

of the site. The Discharger has reported that each of these lysimeters failed shortly after they were installed, and that they were subsequently abandoned.

23. In 2002, the Discharger installed four soil gas monitoring wells along the perimeter of SWD-1 as part of SWD-1 closure activities. Each monitoring location included one shallow and one deep probe relative to landfill waste (GWs-1S, 1D, 2S, 2D, 3S, 3D, 4S, and 4D). See Attachment D: Gas Controls & Monitoring. The probes were installed to comply with Title 27 requirements for landfill gas monitoring, as implemented by the Local Enforcement Agency/ CalRecycle, which require quarterly monitoring of the probes for field gases. Since 2004, the results soil gas monitoring near SWD-1 have indicated a general decline in the concentrations of methane and carbon dioxide in soil gas detected in the probes since 2008, as follows:

SWD-1 Soil Gas Monitoring Results								
Parameter	Average Historical Concentrations, Percent							
	2004 - 2007				2008 - 2016			
Shallow Probes								
	1S	2S	3S	4S	1S	2S	3S	4S
Methane	0.4	0.1	8.0	13.9	0.0	0.0	0.0	0.0
C02	4.7	11.6	5.1	26.2	1.8	5.5	1.9	1.3
Deep Probes								
	1D	2D	3D	4D	1D	2D	3D	4D
Methane	0.0	7.1	16.8	16.0	0.0	0.4	0.0	6.1
C02	6.8	14.2	22.5	28.2	0.9	4.0	2.6	11.2

The post-2007 decline in the concentrations of methane and carbon dioxide in the soil gas probes roughly coincides with the onset of drought conditions at the site, the installation of passive vents on the landfill crest, and the decline in the groundwater table. Given that the concentrations of LFG detected in the vents since their installation in 2007 have also been generally low (see Finding 45), the decline in LFG concentrations detected in soil gas may be attributable to lower LFG generation rates as a result of drought conditions, rather than LFG extraction from the landfill. Lower LFG concentrations in the soil gas probes may also be attributable to the declining groundwater table beneath the site, which would create volume for expansion of soil gas.

24. In August 2004, the Discharger sampled probes GW-2S through GW-4D for VOCs using the TO-15 Method. Total VOCs detected in each probe averaged about 790 ppb, consisting primarily of Freon compounds, chlorinated VOCS, BTEX, and alcohols and ethers. These revised WDRs require that the Discharger continue monitoring the probes for field gases and perform annual monitoring for volatile organic compounds (VOCs). See MRP, section A.2 and Attachment D: Gas Controls & Monitoring.

SURFACE AND GROUNDWATER CONDITIONS

25. Surface drainage is to the South Fork of Cortina Creek, which flows (via an improved drain along Evans Road) into Cortina Creek about one mile north of the site. Cortina Creek is tributary to the Sacramento River.
26. The South Fork of Cortina Creek flows through the eastern portion of the site east of the landfill units. An unnamed tributary to the South Fork of Cortina Creek, which formerly flowed to the northeast diagonally through the site, was diverted around the west and north sites prior to construction of the landfill.
27. The beneficial uses of surface waters are domestic, municipal, agricultural, and industrial supply; groundwater recharge; recreation; aesthetic enjoyment; navigation; fresh water replenishment; and preservation and enhancement of fish, wildlife and other aquatic resources.
28. The regional groundwater gradient is generally to the northeast, fed by surface infiltration in the foothills southwest of the site. The uppermost aquifer occurs within the Tehama Formation at depths exceeding 100 feet. Regional groundwater gradients generally range from of 0.003 feet/foot to 0.006 feet/foot. Background groundwater quality is typically good with total dissolved solids (TDS) generally less than 300 milligrams per liter (mg/L).
29. The beneficial uses of groundwater are domestic, municipal, agricultural, and industrial supply.
30. The depth to groundwater beneath the site has historically ranged from about 95 feet below ground surface (bgs) to about 145 feet (bgs), corresponding to groundwater elevations of about 87 feet MSL to 37 feet MSL. During the past 10 years, the water table has dropped approximately 55 feet, likely due to the ongoing drought conditions in the area and pumping from agricultural wells on surrounding farmland. The groundwater gradient at the site has historically averaged about 0.005 feet/foot to the southwest.

GROUNDWATER MONITORING

31. The groundwater monitoring system for the landfill was originally designed under the assumption that the direction of groundwater flow was to the northeast consistent with the regional gradient. M-1, the original background well, was installed in 1995 in a planned expansion area about 825 feet west of the site, while downgradient wells M-2, M-3 and M-4 were installed on the eastern half of the site between SWD-1 and the Tehama-Colusa Canal crossing.
32. In 1998, M-3 went dry and was replaced with a deeper well, M-3A; M-2 was also abandoned after going dry; and M1-A was installed in the southwest corner of the site to replace offsite well M-1 as a background well. In early 2001, M-1 went dry and was abandoned in February 2003 after it was concluded that it was probably screened in a perched aquifer and was not in hydraulic communication with the other wells at the site.

Two additional monitoring wells, M-1B and M-5, were also installed at this time along the southern and eastern areas of the site, respectively. Subsequent monitoring indicated that M1-A was also likely installed in a perched zone and that the direction of groundwater flow in the uppermost aquifer was actually to the southwest, not to the northeast as previously assumed, making M-1B a down gradient well and M-3A, M-4 and M-5 upgradient wells.

33. A review of monitoring reports on file indicates that the monitoring well network is insufficient to accurately define the groundwater gradient and flow direction(s) at the site. For example, only one well (M-1B) is screened in the uppermost aquifer on the western half of the site and all three of the wells screened in the uppermost aquifer on the eastern half of the site (M-3A, M-4 and M-5) are proximate to each other making it more problematic to triangulate a reliable gradient direction. Also, since the September 2015 quarterly monitoring event, only one of the monitoring wells, M-3A, has been sufficiently saturated to allow for measurement of the groundwater elevation, while the other wells were dry. (M-3A was also dry three out of the four quarterly monitoring events during this period.)

To more accurately determine the groundwater flow direction and gradient at the site, these WDRs require that the Discharger submit a work plan and schedule for the installation of a minimum of three new groundwater monitoring wells appropriately spaced in plan view so as to provide representative control points for plotting groundwater elevation contours. Suggested locations for these wells are shown in Attachment C: Facility Map. At least one of these wells needs to be installed along the eastern perimeter of the site (north or south of the Tehama-Colusa Canal crossing) and another (on or offsite) along the northwestern perimeter of the site. All new groundwater elevation monitoring wells are also required to be completed and sufficiently screened in the uppermost saturated zone to ensure that the wells do not go dry under foreseeable drought conditions. See Provision H.9.a; Standard Monitoring Specifications 19, 36 & 37, Landfill SPRRs; and Standard Monitoring Specifications 19, 36 and 37; and Standard Monitoring Specifications 34 and 35.

34. A Site Conceptual Model was included in the 16 December 2008 report *Background Well Analysis Technical Report for Evans Road Landfill*, prepared by Haling & Associates. A review of the files indicates the need for an updated site conceptual model to better understand the hydrogeology of the site and aid in the design and installation of monitoring wells. This information would also be useful for interpretation of monitoring data from existing monitoring wells. These WDRs require that the Discharger prepare and submit an updated Site Conceptual Model using well logs from existing wells, abandoned wells, and the new groundwater elevation monitoring wells described in Finding 33. See Title 27, sections 21750 (f) and (g); and 21760(a)(3). The updated Site Conceptual Model is required to include appropriate cross-sectional diagrams, showing the well details, correlated zones, perched zones, the water table, screened intervals and other relevant information. The site conceptual model should also indicate which zones are and are not likely to be in hydraulic communication. See Provision H.9.c.
35. A review of the files also indicates that the groundwater monitoring system at the site does

not meet Title 27 performance standards for background and detection monitoring. Several of the units (e.g., SWD-1, PCD-1, EP-1) do not have background wells and/or wells along the Point of Compliance of the unit, as required under Title 27, section 20415(b) for detection monitoring and as part of the Water Quality Protection Standard (WQPS). In addition, as described in Finding 30, most of the existing wells at the site have gone dry and are no longer providing monitoring data.

These WDRs require that, after installation of the groundwater elevation monitoring wells described in Finding 33, and conducting one year of groundwater monitoring to confirm the groundwater gradient and flow direction, the Discharger shall submit a work plan and schedule for the installation of additional wells, as necessary, to bring the groundwater detection monitoring system into compliance with Title 27 performance standards, as feasible, including the replacement of any necessary dry detection monitoring wells (e.g., M-1A).⁴ See Monitoring Specification G.10; Provision H.9.d; Standard Monitoring Specifications 29 through 31, Landfill SPRRs; and Standard Monitoring Specifications 27 through 29, Industrial SPRRs.

36. 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). These WDRs require that the above monitoring data analysis methods be submitted as part of the WQPS report required to be submitted under this Order. See Finding 40.

37. Volatile organic compounds (VOCs) are often detected in a release from a MSW landfill and are often associated with releases of landfill gas rather than leachate. Since VOCs are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a landfill unit. Title 27, sections 20415(e)(8) and (9) allow the use of a non-statistical evaluation of monitoring data 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).
38. 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

4. Where the proximity of units to each other, physical constraints, or other related factors (e.g., gas pipeline easement) render installation of a monitoring well infeasible or impractical at a given location, the Discharger may propose a contiguous and/or engineered alternative monitoring system for the unit(s) per Title 27, sections 20405(b), 20415(e)(3) and 20380(e).

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 information referenced in the ROWD and/or on file. 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).

39. 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).
40. 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 each WQPS element for each unit and the proposed statistical and non-statistical methods for evaluating background, detection and corrective action monitoring data. The WQPS report is required to be submitted after the Discharger has completed a sufficient amount of background monitoring to develop proposed concentration limits. An updated Sample Collection and Analysis Plan consistent with the WQPS report is also required to be submitted. See Provisions H.7 and H.8 and MRP Section C.1.

GROUNDWATER IMPACTS AND CORRECTIVE ACTION

41. VOCs have been historically detected in groundwater at the site, primarily down gradient of SWD-1 (e.g., M-1B) and upgradient of SWD-1 near EP-1 (e.g., M-5). VOCs detected down gradient of SWD-1 have primarily included low to trace concentrations chlorinated VOCs and Freon compounds. In well M-1B, for example, 1,1-Dichloroethane (0.7 ug/L), Chloromethane (0.9 ug/L), and Tetrachloroethene (0.6 ug/L) were detected multiple times during the past five years. VOCs detected near EP-1 consisted primarily of ketones, alcohols, and ethers. In M-5, for example, Chloromethane (4.4 ug/L) and Di-isopropyl ether (0.9 ug/L) have been detected multiple times during the past five years. Acetone (108 ug/L) has also been detected multiple times in well M-3A north of EP-1. No VOC sampling has been conducted at those wells that have gone dry over the past three years.
42. Elevated concentrations of general minerals, primarily TDS, bicarbonate, and/or chloride

have also been historically detected in monitoring wells at the site, including M-1B near SWD-1 and M-5 near EP-1. In M-5, TDS, chloride, and bicarbonate have historically averaged 656 mg/L, 70 mg/L, and 631 mg/L, respectively. Similar historical average concentrations (except for lower chloride) have been detected in well M-1B. Also, the most recent sampling results (May 2016) showed a significant rise in TDS (1,000 mg/L) and bicarbonate (1,110 mg/L) in well M-3A compared to historical average concentrations of these constituents (378 mg/L and 347 mg/L). Additional monitoring will be necessary to determine whether the M-3A data may be indicative of a trend and, if so, whether such trend may be associated with LFG migration from the landfill or other factors such as groundwater geochemistry associated with the falling water table at the site.

43. Title 27, sections 20425 and 2043 require that the Discharger monitor groundwater to define the nature and extent of a release and evaluate the effectiveness of corrective action. As of May 2016, all but one of the corrective action monitoring wells at the site (M-3A) had gone dry and the elevation of groundwater in M-3A (39.7 feet MSL) was only five feet about the bottom of the well (34.8 feet MSL). These WDRs require that the Discharger submit a work plan and schedule for the installation of additional wells, as necessary, for corrective action monitoring, including replacement wells for any necessary corrective action monitoring wells that have gone dry. See Monitoring Specifications G.10 and G.12 and Provision H.9.f.
44. A 2005 Evaluation Monitoring program conducted in response to a Water Board staff directive found that landfill gas (LFG) was the likely the primary source of groundwater impacts at the site. In December 2006, the Discharger completed installation of a passive landfill gas (LFG) collection system at unit SWD-1 to address LFG in accordance with an August 2006 amended Correction Action Plan (CAP) approved by Water Board staff.⁵ The system was installed to help prevent LFG buildup beneath the landfill cover and LFG migration into the unsaturated zone beneath the landfill, where methane concentrations up 48 percent by volume had been historically detected. The system consisted of seven vertical risers plumbed to subsurface collection piping along the spine of the landfill crest. The collection piping was placed about 8 feet below the cover surface in a 200-foot long trench excavated to a depth of 15 feet below the cover surface and backfilled with pea gravel to the base of the cover. Wind-driven turbines were fitted on the risers to assist gas venting. The system was design to be expanded laterally from the crown, or converted to an active system, if necessary, depending on the results of vent monitoring, which has been conducted quarterly since installation of the vents.
45. The Discharger has been conducting quarterly gas monitoring of the seven passive vents installed at SWD-1 since March 2007. The results of this monitoring show generally low to non-detect concentrations of LFG in all vents except V-7, where methane and carbon dioxide have been detected at average historical concentrations of 3.9% and 3.8% respectively. The lack of LFG detected in the other vents may be attributable to the

5. See 3 October 2005 *Workplan for Landfill Gas Extraction, Evans Road Landfill*, prepared by Haling & Associates. as amended 11 October 2005 and 30 August 2006.

drought conditions that have occurred at the site since the vents were installed. (A lack of infiltration into the landfill associated with the drought could slow down the decomposition of waste in the landfill, thereby reducing the amount and rate of LFG generated by the landfill.)

LANDFILL DESIGN AND CONSTRUCTION

46. All four units at the site (i.e., SWD-1, EP-1, EP-2A, and EP-2B) were sited and constructed prior to the enactment of Chapter 15 (Title 27) regulations without a base liner and leachate collection and recovery system (LCRS). Retrofitting the units with a Class III level base liner per Title 27 was also infeasible. The containment systems for the units are therefore limited to their final covers and natural geologic materials beneath the site, which are primarily clay loam soils.

LANDFILL CLOSURE

47. 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”

48. The Title 27 prescriptive standard design for an unlined and/or non-MSW landfill final cover includes the following components, from top to bottom:⁶
- a. Erosion Resistant Layer -- at least one foot of vegetative cover soil;
 - b. Low Hydraulic Conductivity (LHC) Layer -- Minimum one foot of compacted clay soil with a permeability less than or equal to the lesser of 1×10^{-6} cm/s or 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.

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

SWD-1

49. SWD-1, an unlined, Class III landfill unit, was closed in 2001 with a Title 27 prescriptive clay cover in accordance with a March 2000 Final Closure and Post Closure Maintenance Plan (FC/PCMP) prepared by the Discharger.⁷ The prescriptive design included a

6. For compositely lined MSW landfills (none of which are present at the Evans Road Landfill), a geomembrane barrier layer is also required in the final cover design to prevent a “bathtub effect”,

7. See *Final Closure/Postclosure Maintenance Plan, Evans Road Landfill, Solid Waste Unit SWD-1*, prepared by Colusa County Department of Public Works.

minimum two-foot thick foundation layer, one-foot of compacted clay with maximum permeability of 1×10^{-6} cm/s, and a one-foot vegetative soil layer. Nonhazardous drilling muds, cogeneration ash, and mildly-contaminated soil with appropriate engineering properties were also used in the foundation layer consistent with Title 27, section 21090(a)(1). No geomembrane layer was required or proposed in the design because the landfill was not constructed with a composite base liner.

50. The landfill top deck was graded in the shape of a trapezoid with the shortest side to the south and a triangular crown. Both sides of the top deck were graded at a 4% maximum slope toward the landfill side slopes, which were graded at 3H:1V. A lower deck of the final cover graded to drain to the west was also constructed over the southeastern toe of the unit. Berm, ditches, overside drains and other controls were also constructed for storm water drainage. The SWD-1 closure construction was documented in the August 2001 *Final Construction Quality Assurance Report, Final Closure Cap, Evans Road Landfill*, prepared by Vector Engineering.

EPs-1, 2A & 2B

51. Title 27, section 21400 provides the following two options for closure of a Class II surface impoundment:
 - a. Clean closure; or, if clean closure is not feasible,
 - b. Closure as a landfill after removal of liquid wastes.
52. On 29 January 1993, the Central Valley Water Board issued Cease and Desist Order (CDO) 93-001 requiring closure of the three evaporation ponds at the site. In response to the CDO (and subsequently-issued Administrative Civil Liability Order 94-063), the Discharger submitted a June 1995 report (Evaporation Ponds FC/PCMP) proposing closure of the three evaporation ponds as landfills.⁸

Two alternative cover designs were considered for closure of the ponds, one a composite design and the other a non-composite, compacted clay soil cover. The composite design consisted of one foot of vegetative cover soil underlain by a geomembrane layer and several feet of compacted clay soil as a foundation layer. The non-composite design (referred to in the report as a "modified partial cover") was essentially the composite design without the vegetative cover and geomembrane layers. Given the difficulty of placing and compacting fill over semi-solid wastes, the non-composite final cover design included the installation of lysimeters at selected depths in each cover to monitor for infiltration.

53. The Discharger ultimately proposed the non-composite cover design (modified partial cover) as the most economically feasible alternative for closure of the ponds. In a 2 May 1996 letter to the Discharger, Central Valley Water Board staff stated that the proposed cover design did not appear to meet Title 27 performance standards without the

⁸. See June 1995 *Report to the California Regional Water Quality Control Board-Central Valley Region for Cleanup of Former Sludge Ponds*, prepared by Colusa County Department of Public Works.

geosynthetic component (e.g., due to the difficulty of placing and compacting soil over semi-solid wastes), but allowed the Discharger to proceed with closing the units per the non-composite final cover design at the Discharger's own risk pending the results of the proposed lysimeter monitoring.^{9, 10}

54. The Discharger initiated closure construction of EPs-1, 2A and 2B in September 1997. Pond berm material and/or onsite borrow soil was first spread over the semi-solid sludge wastes in each pond as a foundation layer. The foundation layer was then compacted, as feasible, and covered with two-feet of clay soil compacted to 90 percent of maximum. The covers were then graded for drainage and seeded. Approximately 7,350 cubic yards of onsite borrow soil was used in construction of the cover over EP-2A, and 14,000 cubic yards was used for construction of EP-2B. The completed final covers over the ponds ranged in thickness from 5 to 8 feet. Lysimeters (gypsum moisture blocks) were placed at depths of 1, 2 and 3 feet in the cover of each pond.
55. The Discharger monitored the lysimeters for two years after closure, but was not able to locate all of the lysimeters to complete testing. As a consequence, previous WDRs Order R5-2002-0124 did not re-classify EPs-1, 2A, and 2B as closed landfills. These WDRs require that the Discharger re-evaluate the clay soil covers over the closed ponds by conducting sufficient testing and/or analysis (e.g., permeability, moisture, evapotranspiration) so as to determine whether or not they meet Title 27 performance standards for minimizing infiltration into landfill wastes, any pond cover not meeting those standards is required to be re-compacted or otherwise repaired or improved as appropriate to bring the cover into Title 27 compliance. See Closure and Postclosure Specifications E.4 and E.5.

PCD-1

56. In 2003, PCD-1 was closed with a Title 27 prescriptive clay cover in accordance with a January 2003 amended Final Closure and Postclosure Maintenance Plan (FC/PCMP) for PCD-1 submitted under previous WDRs Order R5-2002-0124.¹¹ The final cover consisted of a minimum two-foot thick foundation layer, one-foot of compacted clay with maximum permeability of 1×10^{-6} cm/s, and a one-foot vegetative soil layer. The top deck graded to drain to the northeast at a 3% slope. Angular rock was also installed as rip rap along the base of the north side of the landfill for storm water erosion control. Documentation of the final cover installation and construction quality assurance data were presented in the January 2004 *Final Construction Quality Assurance Report, Closure of Pesticide Container Unit PCD-1, Evans Road Landfill*, prepared by Taber Consultants.

9. See August 1997 *Special Provisions, Notice to Contractors, and Contract for Closure of the Evaporation Ponds at Evans Road Landfill*, prepared by Colusa County Department of Public Works.

10. Given the problematic task of compacting a clay soil over semi-solid wastes, it was presumed that a geomembrane barrier layer would be needed to minimize infiltration in accordance with Title 27 performance standards.

11. See 22 October 2002 *Final Closure/Postclosure Maintenance Plan, Evans Road Landfill, Pesticide Container Area PCD-1*, prepared by Colusa County Department of Public Works.

In 2014, the Discharger conducted repairs to the final cover of PCD-1 after it was damaged by run-on diverted from the adjacent farmland. The repairs included restoring a perimeter ditch to prevent future run-on onto the site and repair of the damaged to the unit's low hydraulic conductivity layer.

LANDFILL POSTCLOSURE MAINTENANCE

57. 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 . . . ”

58. On 20 November 2015, the Discharger submitted an amendment to the March 2000 FC/PCMP for SWD-1 containing updated cost estimates for postclosure maintenance, including monitoring. See Financial Assurances section below.

FINANCIAL ASSURANCES

SWD-1 and PCD-1

59. The Discharger is required to demonstrate financial assurances for postclosure maintenance to CalRecycle for solid waste landfill units that operated under a Solid Waste Facilities Permit (SWFP) issued by CalRecycle on or after 1 January 1988. See Title 27, section 22210. The Discharger is also required to demonstrate financial assurances for corrective action to CalRecycle for solid waste landfill units that operated under a SWFP issued by CalRecycle on or after 1 July 1991. See Title 27, section 22220.

60. Title 27, sections 21840 and 22211 require cost estimates for post-closure maintenance of solid waste landfills for which postclosure financial assurances are required by CalRecycle under section 22210. The total estimated annual cost for post-closure maintenance for SWD-1 was \$42,825 in 2015 dollars, corresponding to a 30-year postclosure maintenance cost of about \$1.28 million in 2015 dollars.¹² The total estimated annual cost for post-closure maintenance in the FC/PCMP for PCD-1 was \$3,870 in 2003 dollars, corresponding to a 30-year postclosure maintenance cost of \$116,100 in 2003 dollars. CalRecycle recently requested that the postclosure cost estimates for the landfill be escalated/updated.¹³

The Discharger has established a Pledge of Revenue per Title 27, section 22245 in the amount of the postclosure cost estimate as the mechanism for postclosure financial assurances, as approved by CalRecycle. The Pledge of Revenue is required to be

12. Postclosure cost estimate for SWD-1 based on 20 November 2015 report *Postclosure Maintenance Plan/Cost Estimate, Evans Road Landfill, Colusa County*, prepared by Haling Associates.

13. In a 12 January 2017 letter, CalRecycle notified the Discharger that previously-requested financial assurances information for the site, including updated/escalated cost estimates and recertification of financial assurance mechanisms, had not yet been submitted. The letter stated that failure to submit the required information by 16 February 2017 may result in an enforcement action by CalRecycle.

recertified annually per Title 27, section 22233(b) (4) (B).¹³ This Order requires that the Discharger provide and maintain postclosure maintenance financial assurances with CalRecycle in at least the amount of the approved post-closure maintenance cost estimate adjusted annually for inflation.

61. Title 27, section 22221 requires a cost estimate for corrective action of all known or reasonably foreseeable releases associated with solid waste landfills for which corrective action financial assurances are required by CalRecycle under section 22220. In a 28 March 2000 letter, Central Valley Water Board staff approved the Discharger's proposed cost estimates for corrective action of all known or reasonably foreseeable releases, including \$1,039,500 for capital and installation costs, and \$220,000 for annual operation and maintenance in 2000.^{13,14} This Order requires that the Discharger provide and maintain corrective action financial assurances with the CalRecycle in at least the amount of the approved corrective action cost estimate adjusted annually for inflation.
62. On 8 July 2002, the Discharger submitted a Certificate of Insurance per Title 27, section 22248, in the amount of the above corrective action cost estimate, as the mechanism for corrective action financial assurances for the landfill. CalRecycle recently requested that corrective action financial assurance mechanism be updated/recertified.¹³

EPs-1, 2A & 2B

63. For those solid waste landfills for which postclosure and corrective action financial assurances are not required by CalRecycle under Title 27, Chapter 6 (i.e., EPs-1, 2A & 2B), the Discharger is required to demonstrate financial assurances for postclosure maintenance and corrective action to the Central Valley Water Board pursuant to Title 27, sections 22212(a) and 22222, respectively.
64. No postclosure cost estimates have currently been developed for EPs-1, 2A and 2B separate from those for SWD-1. These WDRs require that, after completion of the required cover investigation of EPs-1, 2A and 2B, and approval of the work plan for monitoring wells for these units submitted under Provision H.9.d, the Discharger shall submit an updated PCMP for EPs-1, 2A and 2B that itemizes the postclosure cost estimates for the former evaporation pond units at the site. The updated PCMP for these units may be submitted as an amendment to the PCMP for SWD-1 referenced in Finding 60 (or as part of, or as an update to, any revised or updated PCMP for SWD-1 submitted under this Order). See Postclosure Specifications E.4 and E.6; Financial Assurance Specification F.1; and Provisions H.10.f and H.9.d.
65. The Discharger has not previously submitted corrective action cost estimates for EPs-1, 2A and 2B separate from those for SWD-1. These WDRs therefore require that the Discharger submit an addendum to the corrective cost estimates report for SWD-1

14. [20 August 1999](#) *Response Plan for Financial Responsibility. Colusa County Municipal Solid Waste Landfill, Evans Road*, prepared by Harza Engineering Company.

(referenced in Finding 61) providing corrective action cost estimates for these former evaporation ponds. See Financial Assurance Specification F.8 and Provision 10.a.

66. This Order requires that the Discharger provide and maintain financial assurances for postclosure maintenance and corrective action of closed units EP-1, EP-2A and EP-2B in at least the amounts of the approved cost estimates for these units, as adjusted annually for inflation, to ensure that funds are available for required postclosure maintenance and corrective action of these units. The Discharger is required to establish an irrevocable fund (or to provide other means) as the financial assurance mechanism(s) for these units pursuant to the CalRecycle-promulgated sections of Title 27, Chapter 6, with either the Central Valley Water Board or CalRecycle named as beneficiary, as applicable per Financial Assurance Specification F.6. The funding mechanism may be the same as that provided for SWD-1/PCD-1.

CEQA AND OTHER REFERENCES

67. 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.
68. 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. State Water Board Resolution 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993, and revised on 21 July 2005.
 - d. The applicable provisions of Title 40 C.F.R. section 258 "Subtitle D" federal regulations as required by State Water Board Resolution 93-62.
69. 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 No. WQ 91-10.)
70. 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.

71. Anti-Degradation Policy does not apply to the discharge of waste to the Evans Road 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.
72. 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 Evans Road Landfill was classified as a "2B" discharge under the previous WDR Order R5-2002-0124. These revised WDRs maintain the "2B" designation. The following fee criteria were used:

Threat to Water Quality:

Category "2" – "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."

Complexity:

Category "B" – "Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units."

The WDR review cycle for 2B discharges is 10 years from the date of adoption of the WDRs, or, if granted a continuance by the Executive Officer, from the continuance date. The WDR fee schedule may be found on the State Water Resource Control Board website at: <http://www.waterboards.ca.gov/>.

73. 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."
74. The technical reports required by this Order and the attached "Monitoring and Reporting Program R5-2017-0053" 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

75. 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.
76. 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.
77. 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 Order R5-2002-0124 is rescinded and Colusa County Department of Public Works, 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

All Units

1. The discharge of new or additional waste, or the relocation of existing waste, to any unit at the site, is prohibited.
2. The discharge of 'hazardous waste' or 'designated waste' to any unit at the site 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. Internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.
4. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].

SWD-1

5. The Discharger shall comply with all Standard Prohibitions listed in Section C of the Landfill SPRRs applicable to a closed, unlined, Class III landfill.

PCD-1, EP-1, EP-2A & EP-2B

6. The Discharger shall comply with all Standard Prohibitions listed in Section C of the Industrial SPRRs, as applicable to a closed, 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. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
4. During wet weather conditions, the facility shall be operated and graded to minimize leachate generation.

C. FACILITY SPECIFICATIONS

1. The Discharger shall maintain a Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements in accordance with State Water Board Order No. 2014-0057-DWQ (Industrial General Permit) (or most recent general industrial storm water permit), or retain all storm water on-site.
2. 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 R5-2017-0053.
3. The Discharger shall comply with Standard Facility Specifications 6 through 11 listed in Section E of the Landfill SPRRs, as applicable to a closed, unlined Class III landfill.

D. DESIGN AND CONSTRUCTION SPECIFICATIONS

1. 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)].
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 [Title 27, § 20365(a)].

3. 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)].
4. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the landfill foundation, final slopes, and containment systems under both static and dynamic conditions throughout the landfill's life including the closure period and post-closure maintenance period [Title 27, § 21750(f)(5)].
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. Performance requirements for geosynthetic membranes shall include, but are not limited to, a need to limit infiltration of water, to the greatest extent possible; a need to control landfill gas emissions; mechanical compatibility with stresses caused by equipment traffic, and for final covers the result of differential settlement over time and durability throughout the post-closure maintenance period [Title 27, § 20324(i)(1)].
7. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)]. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. 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)].
8. A test pad for each barrier layer and final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].
9. 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.

10. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have been approved.
11. The Discharger may propose changes to a containment system 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.
12. 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)].

E. POSTCLOSURE MAINTENANCE SPECIFICATIONS

All Units

1. 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.
2. 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.
3. The Discharger shall comply with Standard Postclosure Maintenance Specifications 8 through 30 listed in Section G of the Landfill SPRRs, and Design and Construction Specifications D.1 through D.12 herein, as applicable to a closed, unlined, Class III landfill.

EPs-1, 2A & 2B

4. By **15 May 2017**, the Discharger shall submit for approval a work plan for a field investigation to verify that the final covers installed over the three closed evaporation ponds at the site meet Title 27 performance standards for a closed landfill. At a minimum, the Former Evaporation Ponds Cover Investigation Work Plan shall include the following:
 - a. A summary of Title 27 performance standards applicable to the units;

- b. A plan view engineered drawing of each unit showing existing cover grades;
- c. A list of tasks, including, but not necessarily limited to:
 - i. An investigation of the cover thickness(es) and soil type(s) at each unit;
 - ii. Plans for appropriate field and laboratory testing of the cover (e.g., moisture, compaction, hydraulic conductivity);
 - iii. Plans for the installation of lysimeters, if necessary, to monitor moisture levels and evapotranspiration/water balance; and
- d. An implementation schedule, including any cover monitoring plans and estimated date for submitting a report of results.

See Finding 55 and Provision H.10.b.

5. Based on the Report of Results of the Evaporation Ponds Cover Investigation required above, the Discharger shall, by **at least 90 days** prior to initiation of repairs/construction, submit for approval a work plan proposing all repairs and/or improvements necessary to bring to the pond covers into compliance with Title 27 performance standards. At a minimum, the Evaporation Ponds Cover Repair/Improvement Work Plan shall include the following:
- a. A summary of the results of the Evaporation Ponds Cover Investigation;
 - b. Appropriate engineered drawings showing the locations of planned repairs and/or improvements, including cover grades and thickness;
 - c. A list of tasks describing the work to be performed at each unit;
 - d. A Construction Quality Assurance Plan for the work to be performed;
 - e. Plans for the installation of additional lysimeters, if necessary, to monitor moisture levels and evapotranspiration/water balance; and
 - f. An implementation schedule, including an estimated date for submitting a construction certification report and any post-repair/improvement cover monitoring plans.

All pond cover repairs and/or improvements, including re-compaction and/or re-construction of the covers, if necessary, shall be completed by **15 October 2018** in accordance with the approved Evaporation Ponds Cover Repair/Improvement Work Plan. See Finding 55 and Provision H.10.e.

6. By **31 December 2019**, the Discharger shall submit an updated PCMP for EPs-1, 2A and 2B, including as-built cover design and updated postclosure maintenance plans and cost estimates reflecting the cover repairs/improvements implemented at the closed ponds, as described in the certification report submitted under E.5.f above. The updated PCMP may be submitted as an amendment to the PCMP for SWD-1 (or as part of, or as an update to, any revised or updated PCMP for SWD-1) submitted under this Order. See Finding 64, Financial Assurances Specification F.1, and Provision H.10.f.

F. FINANCIAL ASSURANCE SPECIFICATIONS

All Units

1. The Discharger shall update the PCMP for a unit any time there is a change that will increase the amount of the post-closure maintenance/monitoring cost estimate and/or as otherwise required under this Order (e.g., per Postclosure Specification E.6), Updated PCMPs shall meet the requirements of Title 27, section 21769(c), and include a lump sum estimate of the cost of carrying out all actions necessary to update the post-closure maintenance plan and to carry out the remainder of the first thirty years of post-closure maintenance and monitoring. Reports regarding financial assurance required in F.3 below shall reflect the updated cost estimate. Updated PCMPs for the five closed landfill units at the site shall be submitted to the Central Valley Water Board, the Local Enforcement Agency, and CalRecycle.
2. The financial assurances mechanisms for 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 2017 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 2018 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 2017.

SWD-1 and PCD-1

3. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for landfill post-closure maintenance per Title 27, section 22210. Required funding shall be in at least the approved amount identified in Finding 60, or per an approved updated PCMP submitted under Financial Assurance Specification F.1, as annually adjusted for inflation.
4. A report regarding financial assurances for closure and post-closure maintenance shall be submitted to the Central Valley Water Board **by 1 June of each year**. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.
5. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for landfill corrective action for all known or reasonably foreseeable releases from the landfill per Title 27, section 22220. Required funding shall be in at least the approved amounts identified in Finding 61, or per an approved updated cost estimate report submitted under this Order, as annually adjusted for inflation.

EPs-1, 2A & 2B

6. The Discharger shall demonstrate to the Central Valley Water Board that it has obtained and maintained required assurances of financial responsibility for both post-closure maintenance and corrective action to address all known or reasonably foreseeable releases for landfill units EPs-1, 2A & 2B per Title 27, sections 22212(a) and 22222, respectively; or, in the event CalRecycle determines that it requires post-closure maintenance and corrective action financial assurances for these units, per Title 27, sections 22210 and 22220.
7. By **1 June 2020**, the Discharger shall submit a report showing that it has established an irrevocable postclosure maintenance funding mechanism, with either the Central Valley Water Board or CalRecycle named as beneficiary, as applicable per Financial Assurance Specification F.6 above, to ensure funds are available for required postclosure maintenance of EP-1, EP-2A and EP-2B. The funding amounts shall be consistent with the updated postclosure maintenance cost estimates provided in the approved updated PCMP for these units (or SWD-1/PCD-1) submitted under Provision H.10.f, as annually adjusted for inflation. The postclosure funding mechanism may be the same instrument as that used for SWD-1/PCD-1 (e.g., Pledge of Revenue), if approved by CalRecycle.
8. By **1 June 2017**, the Discharger shall submit a report showing that it has established an irrevocable funding mechanism for corrective action, with either the Central Valley Water Board or CalRecycle named as beneficiary, as applicable per Financial Assurance Specification F.6, to ensure funds are available for required corrective action of EP-1, EP-2A and EP-2B. The funding amounts shall be in accordance with the approved corrective action cost estimates for these units provided in the addendum to the corrective action cost estimates report for unit SWD-1 submitted under Provision H.10.a, as annually adjusted for inflation. The corrective action funding mechanism may be the same instrument as that used for SWD-1/PCD-1, if approved by CalRecycle.
9. 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.

G. MONITORING SPECIFICATIONS

All Units

1. The Discharger shall, for each landfill unit, 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 R5-2017-0053, and the applicable sections of the Landfill and Industrial SPRRs.

2. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP R5-2017-0053, and the applicable sections of the Landfill and Industrial SPRRs incorporated by reference under this Order.
3. The Discharger shall conduct background monitoring for each classified unit at the site consistent with Section 20415, including, but not necessarily limited to, subsections 20415 (b), (e)(6), and (e)(10).¹⁵ Background monitoring of units may be conducted contiguously if demonstrated per Monitoring Specification G.10. See also Standard Monitoring Specification G.28, Landfill SPRRs and Standard Monitoring Specification G.26, Industrial SPRRs.
4. Concentration limits shall be developed using upgradient data absent a satisfactory demonstration to the contrary in an approved WQPS Report. The groundwater monitoring system may include Background Monitoring Points that are not hydraulically upgradient of the Unit if the discharger demonstrates to the satisfaction of the Central Valley Water Board that sampling at other Background Monitoring Points will provide samples that are representative of the background quality of ground water or are more representative than those provided by the upgradient Background Monitoring Points. See Title 27, section 20415(b)(2).
5. Initial Background Sampling –Consistent with Title 27, section 20415(e)(6), the discharger shall collect all groundwater monitoring data necessary for selecting the appropriate monitoring data analysis methods and for establishing background values for the landfill unit under Title 27. Upon installation of a new background monitoring well, quarterly sampling shall be conducted on that well for at least one year to establish background concentrations for inorganic constituents.
6. The concentrations of the constituents of concern in waters passing the Point of Compliance (defined pursuant to Title 27, section 20164 as a vertical surface located at the hydraulically downgradient limit of the landfill unit that extends through the uppermost aquifer underlying the unit) shall not exceed the concentration limits established pursuant to MRP R5-2017-0053.
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 R5-2017-0053 and the applicable sections of the Landfill and Industrial SPRRs incorporated by reference under this Order.

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

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 MSW Landfill or Industrial SPRRs, as applicable.
10. Where the proximity of units to each other, physical constraints, obstructions or other related factors (e.g., gas pipeline easement) render installation of a monitoring well infeasible or impractical at a given location, the Discharger may propose a contiguous and/or engineered alternative monitoring system for the unit(s) per Title 27, sections 20405(b), 20415(e)(3) and 20380(e).
11. For units in corrective action (including evaluation monitoring), the data analysis methods shall also include trend analysis; an evaluation of the water chemistry; and preparation of contaminant contour plots to monitor the nature of the release and effectiveness of corrective action measures, as specified in the MRP.
12. For units in corrective action (including evaluation monitoring), the Discharger shall install 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.
13. As permitted by Title 27, Section 20430(f) and 40 CFR 258.58(e)(2), 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 Subtitle D regulations (three year), as applicable to a unit, or as otherwise demonstrated under Title 27, section 20380(e) and approved by Water Board staff.
 - a. For Subtitle D units (i.e., SWD-1), the corrective action "proof period" shall consist of at least eight sampling events for each monitoring point that are approximately evenly distributed over a minimum of a one-year period in which the concentration of the constituents of the release remain at or below their respective sampling limit.
 - b. For non-Subtitle D units (i.e., PCD-1, EP-1, EP-2A & EP-2B), the "proof period" shall consist of at least six semiannual sampling events for each monitoring point that are approximately evenly distributed over a three-year period in which the

concentration of the constituents of the release remain at or below their respective sampling limit.

14. The Discharger shall adequately monitor soil pore gas for the presence of LFG in concentrations that may threaten water quality or otherwise warrant adjustments or improvements to the LFG extraction system, including the installation of additional gas extraction vents or monitoring wells.
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.

SWD-1

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 Landfill SPRRs, as applicable to a closed, unlined, Class III landfill.

PCD-1 and EPs-1, 2A & 2B

17. 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. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility, including the MRP R5-2017-0053, the Landfill SPRRs dated December 2015, 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 and Subtitle D that are not specifically referred to in this Order.
3. The Discharger shall comply with MRP R5-2017-0053, which is incorporated into and made part of this Order by reference.
4. The Discharger shall comply with the applicable portions of the Landfill SPRRs and Industrial SPRRs, as referenced in the specifications of this Order.
5. 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.

6. All reports required by this Order shall be submitted pursuant to Water Code section 13267, and shall be prepared by a California-registered Civil Engineer or Certified Engineering Geologist.
7. By **30 November 2019**, the Discharger shall submit a revised Water Quality Protection Standard (WQPS) Report describing the WQPS for each classified landfill unit at the site (i.e., SWD-1, PCD-1, EP-1, EP-2A & EP-2B) and each water-bearing media under this Order (i.e., soil pore water, 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.
8. By **30 November 2019**, the Discharger shall submit an updated Sample Collection and Analysis Plan containing proposed sampling and analysis methods and protocols for monitoring all units at the site consistent with the revised WQPS Report required under Provision H.7 above and Standard Monitoring Specification I.7 of the Landfill and Industrial SPPRs.

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

	Report	Due Date
a.	A work plan and schedule for the installation of three groundwater monitoring wells appropriately spaced and screened to verify groundwater flow direction and gradient in the uppermost aquifer at the site. See Finding 33 and Landfill SPRRs, Standard Monitoring Specifications I.19 and I. 37.	31 May 2017
b.	A Monitoring Well Installation Report for the groundwater monitoring wells required under H.9.a above.	30 September 2017
c.	An updated Site Conceptual Model with cross-sections showing monitoring wells, correlated zones, perched zones, the uppermost aquifer, the water table, and other information. See Finding 34.	15 November 2018
d.	A work plan and schedule for the installation of additional monitoring wells necessary to comply with Title 27 background and detection monitoring standards based on the updated Site Conceptual Model, including replacement of any necessary detection monitoring wells that have gone dry. See Finding 35.	15 November 2018
e.	A Monitoring Well Installation Report for the groundwater monitoring wells required under H.9.d above.	31 October 2019
f.	A work plan and schedule for the installation of additional wells necessary for corrective action monitoring, including replacement of any necessary corrective action monitoring wells that have gone dry. See Finding 43.	15 November 2019
g.	A Monitoring Well Installation Report for the groundwater monitoring wells required under H.9.f above.	31 October 2020

10. Pursuant to Section 13267 of the California Water Code, the Discharger shall submit the following technical reports relevant to postclosure maintenance of the non-MSW landfills at the site (i.e., PCD-1 and EPs-1, 2A and 2B):

	Report	Due Date
a.	An addendum to the corrective action cost estimates report for SWD-1 that includes corrective action cost estimates for EPs-1, 2A and 2B. See Finding 65 and Financial Assurances Specification F.8.	1 May 2017
b.	A Former Evaporation Ponds Cover Investigation Workplan to verify that the final covers over EPs-1, 2A and 2B meet Title 27 performance standards for a closed Class III landfill. See Postclosure Specification E.4.	15 May 2017
c.	A Report of Results for former evaporation pond cover investigation required in H.10.b.	15 October 2017
d.	A work plan for any necessary repairs and/or improvements necessary to bring the final covers over the closed ponds into Title 27 compliance based on the Report of Results. See Postclosure Specification E.5.	At least 90 days prior to initiation of repairs/construction
e.	A certification report documenting all repairs and/or improvements implemented under the work plan required in H.10.d.	15 October 2018
f.	An updated PCMP for EPs-1, 2A and 2B, including updated postclosure cost estimates reflecting the cover repairs/improvements implemented under H.10.e, monitoring wells approved in the work plan submitted under H.9.d., and any other relevant issues. See Postclosure Specification E.6.	31 December 2019

11. The Discharger shall comply with all General Provisions listed in Sections K of the Landfill and Industrial SPRRs applicable to a closed, Class III landfill.

12. The Central Valley Water Board has converted to a paperless office system. All project correspondence and reports required under this Order shall therefore be submitted electronically rather than in paper form, as follows:
- a. All project correspondence previously submitted in paper form (e.g., letters, short reports) shall be converted to Portable Document Format (PDF) and emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov. To ensure that the submittal is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

Attention:	Title 27 Compliance & Enforcement Unit
Discharger name:	Colusa County Department of Public Works
Facility name:	Evans Road Landfill
County:	Colusa
CIWQS place ID:	223044

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

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

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

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

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 7 April 2017.

ORIGINAL SIGNED BY

PAMELA C. CREEDON, Executive Officer

JDM/MWH

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2017-0053
FOR
COLUSA COUNTY DEPARTMENT OF PUBLIC WORKS
EVANS ROAD LANDFILL
CLOSED CLASS III LANDFILLS
POST-CLOSURE MAINTENANCE AND CORRECTION ACTION
COLUSA COUNTY

This monitoring and reporting program (MRP) is issued pursuant to California Water Code section 13267 and incorporates 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 R5-2017-0053; *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Subtitle D and/or Title 27*, dated December 2015 (Landfill SPRRs); 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.

A. MONITORING

The Discharger shall monitor all closed landfill units at the site, including SWD-1, PCD-1, and the closed former evaporation ponds (EPs-1, 2 and 3) in accordance with the detection and corrective action monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone. Monitoring shall also be in accordance with the Monitoring Specifications in Section G of the WDRs, the Standard Monitoring Specifications in Section I of the Landfill SPRRs (SWD-1 only) and the Standard Monitoring Specifications in Section I of the Industrial SPRRs (PCD-1, EP-1, EP-2A and EP-2B). 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 devices, leachate, 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 Findings 31 through 33, groundwater beneath the site is currently believed to flow to the southwest, but may have historically flowed to the northeast consistent with the regional gradient. This MRP assigns monitoring points to background,

detection, and corrective action monitoring programs based on an assumption that groundwater flows to the southwest; however, it is acknowledged that these designations may change over time as warranted by monitoring data 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 Map</u> ¹
A.1	Groundwater Monitoring	Attachment C
A.2	Unsaturated Zone Monitoring	Attachment D
A.3	Leachate Seep Monitoring	n/a
A.4	Surface Water Monitoring	Attachment C
A.5	Landfill Facility Monitoring	n/a
A.6	Corrective Action Monitoring (Passive LFG Vents)	Attachment D

1. See reference map for monitoring locations.

1. Groundwater Monitoring

The Discharger shall operate and maintain groundwater detection 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 systems at the site do not meet the applicable requirements of Title 27. WDR Provision H.9 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 revised Water Quality Protection Standard (WQPS) Report. 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.

Historical releases from the units at the site have primarily consisted of landfill gas from SWD-1 and leachate from EPs-1, 2A, and 2B prior to cessation of unlined pond operations in 1993. This MRP therefore places all units at the site, except PCD-1, from which no release has been detected, in concurrent detection and corrective action monitoring. PCD-1 is placed in detection monitoring.

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.

a. Monitoring Points

Well	Status	Zone	Units Being Monitored
1A	Detection	Perched	PCD-1
1A	Detection & Corrective Action	Perched	EP-2B
1B	Detection & Corrective Action	Shallow	SWD-1
3A	Background	Shallow	SWD-1
4	Background	Shallow	EP-1
5	Background	Shallow	EP-1

The groundwater monitoring network shall also include any future/replacement wells installed under these WDRs, but not listed in the above table. Where the proximity of units, physical constraints, or other related factors render installation of a monitoring well infeasible, the Discharger may propose a contiguous and/or engineered alternative monitoring system for the unit(s). See WDR Monitoring Specification G.10.

b. Monitoring Schedule

Groundwater samples shall be collected from the background wells, detection monitoring wells, corrective action monitoring wells (if any), and any additional wells added as part of the approved groundwater monitoring system. 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 approved Sample Collection and Analysis Plan.

Once per quarter, the Discharger shall measure the piezometric groundwater elevation in each well, 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 VI every five years. Five-year COCs were last monitored in **March 2013** and shall be monitored again in **March 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, 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, as updated in the WQPS Report submitted under WDR Provision I.7, 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. Unsaturated zone monitoring at the facility may be limited to soil pore gas monitoring given that all of the units at the site are unlined and that it is not technically feasible to retrofit them with lysimeters.

a. Monitoring Points (See Attachment D: Gas Controls & Monitoring)

Well	Status	Zone	Units Being Monitored
1S	Detection & Corrective Action	Shallow	SWD-1
2S			
3S			
4S			
1D	Detection & Corrective Action	Deep	SWD-1
2D			
3D			
4D			
All dry groundwater Monitoring Wells ¹	Detection & Corrective Action	Deep	All units

1. As of December 2016, the dry groundwater monitoring wells included M-1A, M-1B, and M-4 & M-5.

Soil pore gas monitoring shall also include any future or replacement soil gas wells/probes installed at the site.

b. Monitoring Schedule

Unsaturated zone samples shall be collected from the monitoring network listed above and shall be 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 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 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 approved Sample Collection and Analysis Plan shall be conducted thereafter, as necessary, to confirm a release. Confirmation of a gas release (i.e., LFG) 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 Seep Monitoring

The Discharger shall monitor all areas of each closed landfill (e.g., top deck, side slopes, and toe) for leachate seeps, including as part of Facility Monitoring under Section A.5. Any observed leachate seepage from a 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/day). Reporting for leachate seeps shall be conducted as required in Section 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 and any resulting impacts to surface water if such a release occurs. Surface water monitoring is specifically required where runoff from waste management unit flows, or could flow, to waters of the United States. The monitoring system shall comply with the applicable provisions of Title 27, sections 20415 and 20420.

a. Monitoring Points

Surface water monitoring at the Evans Road Landfill shall be conducted in the South Fork of Cortina Creek and its re-aligned tributary, as shown in Attachment C: Facility Map.

Table A.4.a Surface Water Monitoring Points			
<u>Monitoring Point</u>	<u>Status</u>	<u>Location</u>	<u>Surface Water</u>
SW-1	Background	Upstream, western site perimeter	Re-aligned tributary to South Fork Cortina Creek
SW-2	Background	Upstream, southern site perimeter	South Fork Cortina Creek

SW-3	Detection	Immediately downstream of confluence	South Fork Cortina Creek and its re-aligned tributary
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b. Monitoring Schedule

Surface water samples (excluding Storm Water samples collected under the General Industrial Storm Water Permit per A.4.c below) 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 again in **March 2018**.

c. General Storm Water Permit -- Storm water monitoring shall also be conducted in accordance with the NPDES Industrial Storm Water General Permit (NPDES NO. CAS000001, Order 2014-0057-DWQ).

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**, the Discharger shall conduct an inspection of all classified units at the landfill facility, including SWD-1; EPs-1, 2A & 2B; and PCD-1. The inspection shall assess repair and maintenance needed for drainage control systems, cover systems, turbine vents, 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 problems areas before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. Annual facility inspection reporting shall be submitted as required in Section 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 capable of causing damage or significant erosion. The Discharger shall take photos of any problems 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 as required in Section 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 closure or partial closure 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 most recent aerial topographic survey of the site was conducted in 2001. The site is therefore overdue for a topographic survey. The next topographic survey of the site, including all closed landfill units shall therefore be completed by **15 June 2017** and subsequent topographic surveys of the site shall be completed at least **every five years** thereafter.

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

d. Standard Observations

The Discharger shall conduct Standard Observations at all classified units at the site (i.e., SWD-1; EPs-1, 2A & 2B; and PCD-1) 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 units:
 - (1) Evidence of ponded water at any point on the unit outside of any contact storm water/leachate diversions structures on the active face (show affected area on map); and
 - (2) Evidence of erosion and/or of day-lighted refuse.
- ii. Along the perimeter of the units:
 - (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 continuous leachate seep monitoring under Section A.3.

6. Corrective Action Monitoring

The Discharger shall conduct corrective action monitoring to demonstrate the effectiveness of corrective action in accordance with Title 27, section 20430 and this MRP. Groundwater monitoring wells and unsaturated zone monitoring points that are

in a corrective action monitoring program shall be monitored in accordance with the groundwater and unsaturated zone monitoring requirements in parts A.1 and A.2 of this MRP, except as modified in this part of the MRP for any additional constituents or modified monitored frequencies.

a. Landfill Gas Corrective Action System

The LFG corrective action system at the site currently consists of the seven passive gas vents installed on the top deck of unit SWD-1, all plumbed to a subsurface collection trench and equipped with wind-driven turbines, as described in WDR Finding 44. Vent monitoring shall be conducted to qualitatively assess the amount of LFG being produced by the landfill and the effectiveness of the vents in removing it.

i. Monitoring Points

Well	Status	Zone	Units Being Monitored
V-1	Corrective Action	Shallow	SWD-1
V-2			
V-3			
V-4			
V-5			
V-6			
V-7			

1. Collection piping placed about 8 feet below the cover surface in a 200-foot long trench excavated to a depth of 15 feet below the cover surface and backfilled with pea gravel to the base of the cover.

b. Monitoring Schedule

Gas samples shall be collected from the monitoring network listed above and shall be analyzed for the parameters and constituents listed in Table VII in accordance with the specified methods and frequencies.

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

Reporting Schedule			
<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
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	15 July 2017 & 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:	Colusa County Department of Public Works
Facility name:	Evans Road Landfill
County:	Colusa
CIWQS place ID:	223044

Reporting Requirements

The Discharger shall submit monitoring reports semiannually with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order R5-2017-0053 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. Data shall also be submitted in a digital format, such as a computer disk.

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.

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. Laboratory statements of results of all analyses evaluating compliance with requirements.
- f. 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.
- g. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities. Include information about the required notification and corrective action in Standard Facility Specification E.13 of the SPRRs.
- h. A summary of all Standard Observations for the reporting period required in Section A.5.d of this MRP.
- i. A summary of inspection, leak search, and repair of final covers on any closed landfill units in accordance with an approved final post-closure maintenance plan as required by Standard Closure and Post-Closure Maintenance Specifications G.26 through G.29 of the SPRRs.
- j. A comprehensive discussion of any Corrective Action Program required by this MRP under Section A.6.

2. Annual Monitoring Report

The Discharger shall submit 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 such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy and 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 summary of any new wells installed or abandoned at the site during the previous year in accordance with WDR Provision H.9.

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 under the approved Annual

Winterization Plan, including inspections and repairs, preparations for winter, and include 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)

By **15 July 2017**, the Discharger shall submit the report for the initial postclosure topographic survey conducted under this Order for the closed landfill units at the site. Each report shall include topographic survey and a base-line iso-settlement map for the closed unit. Subsequent topographic reports for the site shall be submitted by **15 July 2022** and at least **every five years** thereafter. 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 **30 November 2019**, 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. 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.25, 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). See WDR Findings 36 through 40.

- 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.

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 VI. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. The last 5-year COC report was submitted to the Central Valley Water Board in the 2013 *Annual Monitoring Report*, and 5-year COCs are due to be monitored again in **2018**.

4. Concentration Limits

As noted in the WDR Findings, several additional monitoring wells need to be installed at the site to confirm the direction of groundwater flow and to comply with Title 27 performance standards for background, detection, and/or corrective action monitoring at each unit. The Discharger therefore does not yet have an approved set of concentration limits for naturally occurring constituents in groundwater for each unit. The WQPS for the site will therefore need to be revised once the required wells have been installed and monitored for at least one year. Proposed concentration limits for all water bearing media (e.g., surface water and groundwater) shall therefore be included in the revised WQPS Report required under the WDR Provisions.

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/intrawell Tolerance Limit Method, or as otherwise proposed in the revised WQPS Report and approved by Board staff. Concentration limits for naturally occurring COCs shall be updated annually and included in the Annual Monitoring Report submitted under Section 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., the Sens Slope Method) 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 each classified unit at the site are not yet known because the groundwater gradient direction has not yet been confirmed at the site and all but one of the wells at the site (M-3A) is currently dry. 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.

The Discharger shall implement the above monitoring program on the effective date of this Order.

ORIGINAL SIGNED BY

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

7 April 2017

JDM/WMH

TABLE I
GROUNDWATER DETECTION AND
CORRECTIVE ACTION MONITORING PROGRAM

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Field Parameters				
Groundwater Elevation	GWELEV	Ft. & 100ths, 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 Parameters				
Total Dissolved Solids (TDS)	TDS	mg/L ¹	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Carbonate	CACO3	mg/L	Semiannual	Semiannual
Bicarbonate	BICACO3	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	NO3N	mg/L	Semiannual	Semiannual
Sulfate	SO4	mg/L	Semiannual	Semiannual
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)		ug/L ²	Semiannual	Semiannual
Chlorophenoxy Herbicides ³		ug/L	Every 2½ years	Every 2½ years
Organophosphorus Compounds ³		ug/L	Every 2½ years	Every 2½ years
5-Year Constituents of Concern (see Table VI)				
Total Organic Carbon	TOC	mg/L	31 March 2018 & every 5 years thereafter	1 February 2019 & every 5 years thereafter
Inorganics (dissolved)		ug/L	“ “	“ “
Volatile Organic Compounds (USEPA Method 8260B, extended list)		ug/L	“ “	“ “
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L	“ “	“ “
Chlorophenoxy Herbicides (USEPA Method 8151A)		ug/L	“ “	“ “
Organophosphorus Compounds (USEPA Method 8141B)		ug/L	“ “	“ “

¹. Milligrams per liter

². Micrograms per liter

³. Additional monitoring parameters for PCD-1 only.

TABLE II
UNSATURATED ZONE DETECTION AND
CORRECTIVE ACTION 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	%	Semiannua;	Semiannual
Carbon Dioxide	C02	%	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 Frequency</u>
Field Parameters				
Total Flow		Gallons	Upon Detection ²	
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	“	“
Calcium	CA	mg/L	“	“
Magnesium	MG	mg/L	“	“
Potassium	K	mg/L	“	“
Sodium	NA	mg/L	“	“
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)		ug/L	“	“
Chlorophenoxy Herbicides ¹		ug/L	“	“
Organophosphorus Compounds ¹		ug/L	“	“

¹. Additional monitoring parameters for PCD-1 only.

². 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 to Waters of U.S.		Yes or No	Semiannual	Semiannual
Monitoring Parameters				
Total Dissolved Solids (TDS)	TDS	mg/L	Semiannual	Semiannual
Carbonate	CACO3	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
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)		ug/L	Semiannual	Semiannual
5-Year Constituents of Concern (see Table VI)				
Total Organic Carbon	TOC	mg/L	31 March 2018 and every 5 years thereafter	1 February 2019 and every 5 years thereafter
Inorganics (dissolved)		ug/L	" "	" "
Volatile Organic Compounds (USEPA Method 8260B, extended list)		ug/L	" "	" "
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L	" "	" "
Chlorophenoxy Herbicides (USEPA Method 8151A)		ug/L	" "	" "
Organophosphorus Compounds (USEPA Method 8141B)		ug/L	" "	" "

¹. Semiannual surface water monitoring is required twice per year when there is water present at the designated surface water monitoring point any time during the reporting period (1 January to 30 June or 1 July to 31 December). Reporting shall include whether there was flow from the facility to waters of the U.S. when the samples were collected.

TABLE V
MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

<u>COC Description</u>	<u>Geotracker Code</u>
pH	PH
Total Dissolved Solids	TDS
Electrical Conductivity	SC
Chloride	CL
Sulfate	SO4
Nitrate nitrogen	NO3N

Volatile Organic Compounds, short list (USEPA Method 8260B):

Acetone	ACE
Acrylonitrile	ACRAMD
Benzene	BZ
Bromochloromethane	BRCLME
Bromodichloromethane	BDCME
Bromoform (Tribromomethane)	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane (Ethyl chloride)	CLEA
Chloroform (Trichloromethane)	TCLME
Dibromochloromethane (Chlorodibromomethane)	DBCME
1,2-Dibromo-3-chloropropane (DBCP)	DBCP
1,2-Dibromoethane (Ethylene dibromide; EDB)	EDB
o-Dichlorobenzene (1,2-Dichlorobenzene)	DCBZ12
m-Dichlorobenzene (1,3-Dichlorobenzene)	DCBZ13
p-Dichlorobenzene (1,4-Dichlorobenzene)	DCBZ14
trans-1,4-Dichloro-2-butene	DCBE14T
Dichlorodifluoromethane (CFC-12)	FC12
1,1-Dichloroethane (Ethylidene chloride)	DCA11
1,2-Dichloroethane (Ethylene dichloride)	DCA12
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)	DCE11
cis-1,2-Dichloroethylene (cis-1,2-Dichloroethene)	DCE12C
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)	DCE12T
1,2-Dichloropropane (Propylene dichloride)	DCPA12
cis-1,3-Dichloropropene	DCP13C
trans-1,3-Dichloropropene	DCP13T
Di-isopropylether (DIPE)	DIPE
Ethanol	ETHANOL
Ethyltertiary butyl ether	ETBE
Ethylbenzene	EBZ
2-Hexanone (Methyl butyl ketone)	HXO2
Hexachlorobutadiene	HCBU
Methyl bromide (Bromomethane)	BRME
Methyl chloride (Chloromethane)	CLME

TABLE V
MONITORING PARAMETERS FOR DETECTION MONITORING

Continued

Methylene bromide (Dibromomethane)	DBMA
Methylene chloride (Dichloromethane)	DCMA
Methyl ethyl ketone (MEK: 2-Butanone)	MEK
Methyl iodide (Iodomethane)	IME
Methyl t-butyl ether	MTBE
4-Methyl-2-pentanone (Methyl isobutylketone)	MIBK
Naphthalene	NAPH
Styrene	STY
Tertiary amyl methyl ether	TAME
Tertiary butyl alcohol	TBA
1,1,1,2-Tetrachloroethane	TC1112
1,1,2,2-Tetrachloroethane	PCA
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1-Trichloroethane (Methylchloroform)	TCA111
1,1,2-Trichloroethane	TCA112
Trichloroethylene (Trichloroethene)	TCE
Trichlorofluoromethane (CFC- 11)	FC11
1,2,3-Trichloropropane	TCPR123
Vinyl acetate	VA
Vinyl chloride	VC
Xylenes	XYLENES

TABLE VI
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

<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

Volatile Organic Compounds, extended list (USEPA Method 8260B):

<u>COC Description</u>	<u>Geotracker Code</u>
Acetone	ACE
Acetonitrile (Methyl cyanide)	ACCN
Acrolein	ACRL
Acrylonitrile	ACRAMD
Allyl chloride (3-Chloropropene)	CLPE3
Benzene	BZ
Bromochloromethane (Chlorobromomethane)	BRCLME
Bromodichloromethane (Dibromochloromethane)	DBCME
Bromoform (Tribromomethane)	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane (Ethyl chloride)	CLEA
Chloroform (Trichloromethane)	TCLME
Chloroprene	CHLOROPRENE
Dibromochloromethane (Chlorodibromomethane)	DBCME
1,2-Dibromo-3-chloropropane (DBCP)	DBCP
1,2-Dibromoethane (Ethylene dibromide; EDB)	EDB
o-Dichlorobenzene (1,2-Dichlorobenzene)	DCBZ12

TABLE VI

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

m-Dichlorobenzene (1,3-Dichlorobenzene)	DCBZ13
p-Dichlorobenzene (1,4-Dichlorobenzene)	DCBZ14
trans- 1,4-Dichloro-2-butene	DCBE14T
Dichlorodifluoromethane (CFC 12)	FC12
1,1 -Dichloroethane (Ethylidene chloride)	DCA11
1,2-Dichloroethane (Ethylene dichloride)	DCA12
1,1 -Dichloroethylene (1, 1-Dichloroethene; Vinylidene chloride)	DCE11
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)	DCE12C
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)	DCE12T
1,2-Dichloropropane (Propylene dichloride)	DCPA12
1,3-Dichloropropane (Trimethylene dichloride)	DCPA13
2,2-Dichloropropane (Isopropylidene chloride)	DCPA22
1,1 -Dichloropropene	DCP11
cis- 1,3-Dichloropropene	DCP13C
trans- 1,3-Dichloropropene	DCP13T
Di-isopropylether (DIPE)	DIPE
Ethanol	ETHANOL
Ethyltertiary butyl ether	ETBE
Ethylbenzene	EBZ
Ethyl methacrylate	EMETHACRY
Hexachlorobutadiene	HCBU
2-Hexanone (Methyl butyl ketone)	HXO2
Isobutyl alcohol	ISOBTOH
Methacrylonitrile	METHACRN
Methyl bromide (Bromomethane)	BRME
Methyl chloride (Chloromethane)	CLME
Methyl ethyl ketone (MEK; 2-Butanone)	MEK
Methyl iodide (Iodomethane)	IME
Methyl t-butyl ether	MTBE
Methyl methacrylate	MMTHACRY
4-Methyl-2-pentanone (Methyl isobutyl ketone)	MIBK
Methylene bromide (Dibromomethane)	DBMA
Methylene chloride (Dichloromethane)	DCMA
Naphthalene	NAPH
Propionitrile (Ethyl cyanide)	PACN
Styrene	STY
Tertiary amyl methyl ether	TAME
Tertiary butyl alcohol	TBA
1,1,1,2-Tetrachloroethane	TC1112
1,1,1,2-Tetrachloroethane	PCA
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1 -Trichloroethane (Methylchloroform)	TCA111

TABLE VI

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

1,1,2-Trichloroethane	TCA112
Trichloroethylene (Trichloroethene; TCE)	TCE
Trichlorofluoromethane (CFC- 11)	FC11
1,2,3-Trichloropropane	TCPR123
Vinyl acetate	VA
Vinyl chloride (Chloroethene)	VC
Xylene (total)	XYLENES

Semi-Volatile Organic Compounds (USEPA Method 8270C or D - base, neutral, & acid extractables):

Acenaphthene	ACNP
Acenaphthylene	ACNPY
Acetophenone	ACPHN
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

TABLE VI

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

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

TABLE VI

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

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 (Diethyl nitrosamine)	NNSE
N-Nitrosodimethylamine (Dimethyl nitrosamine)	NNSM
N-Nitrosodiphenylamine (Diphenyl nitrosamine)	NNSPH
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propyl nitrosamine)	NNSPR
N-Nitrosomethylethylamine (Methylethyl nitrosamine)	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

TABLE VI
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

Chlorophenoxy Herbicides (USEPA Method 8151A):

2,4-D (2,4-Dichlorophenoxyacetic acid)	24D
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)	DINOSEB
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)	SILVEX
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	245T

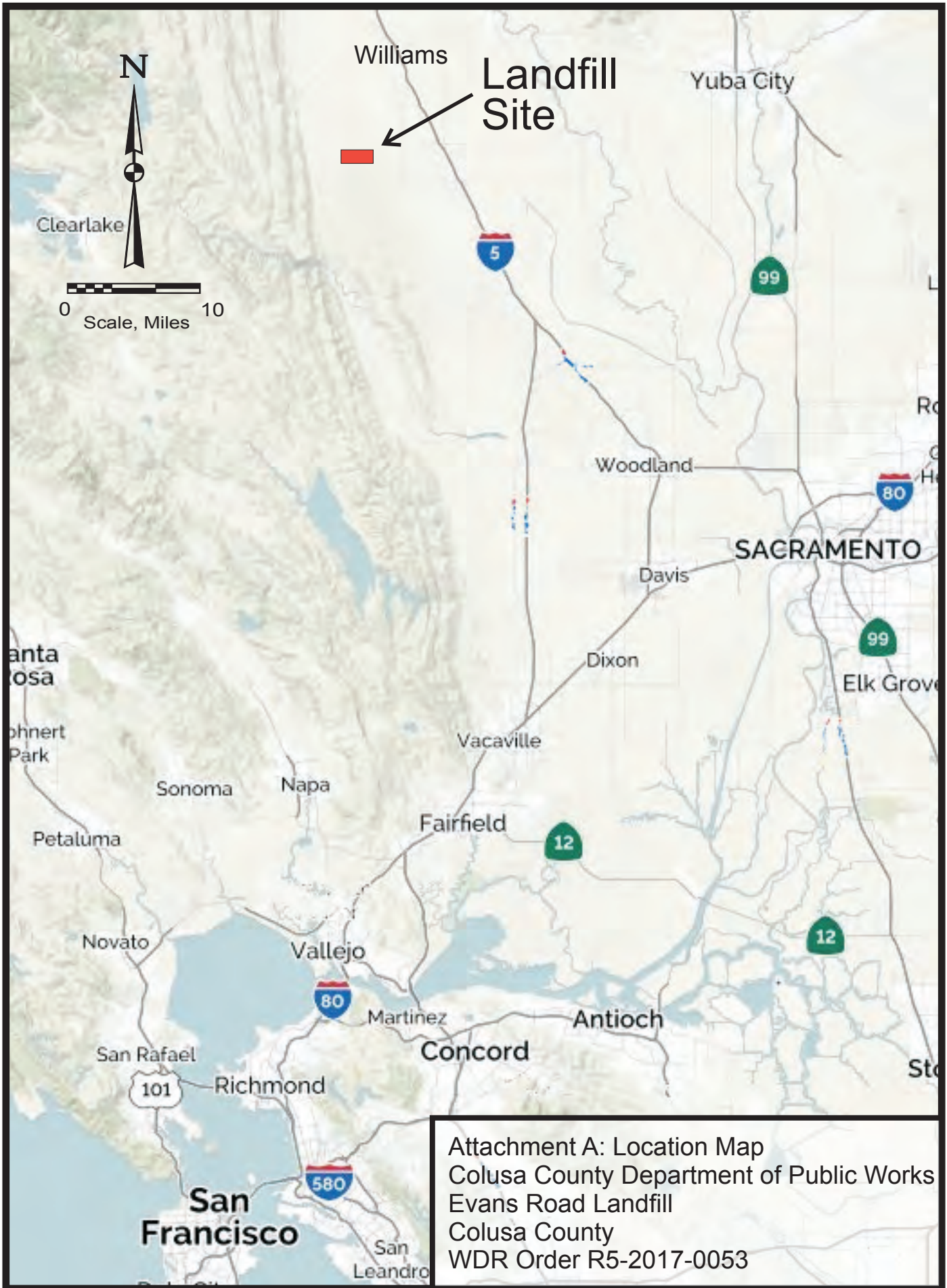
Organophosphorus Compounds (USEPA Method 8141B):

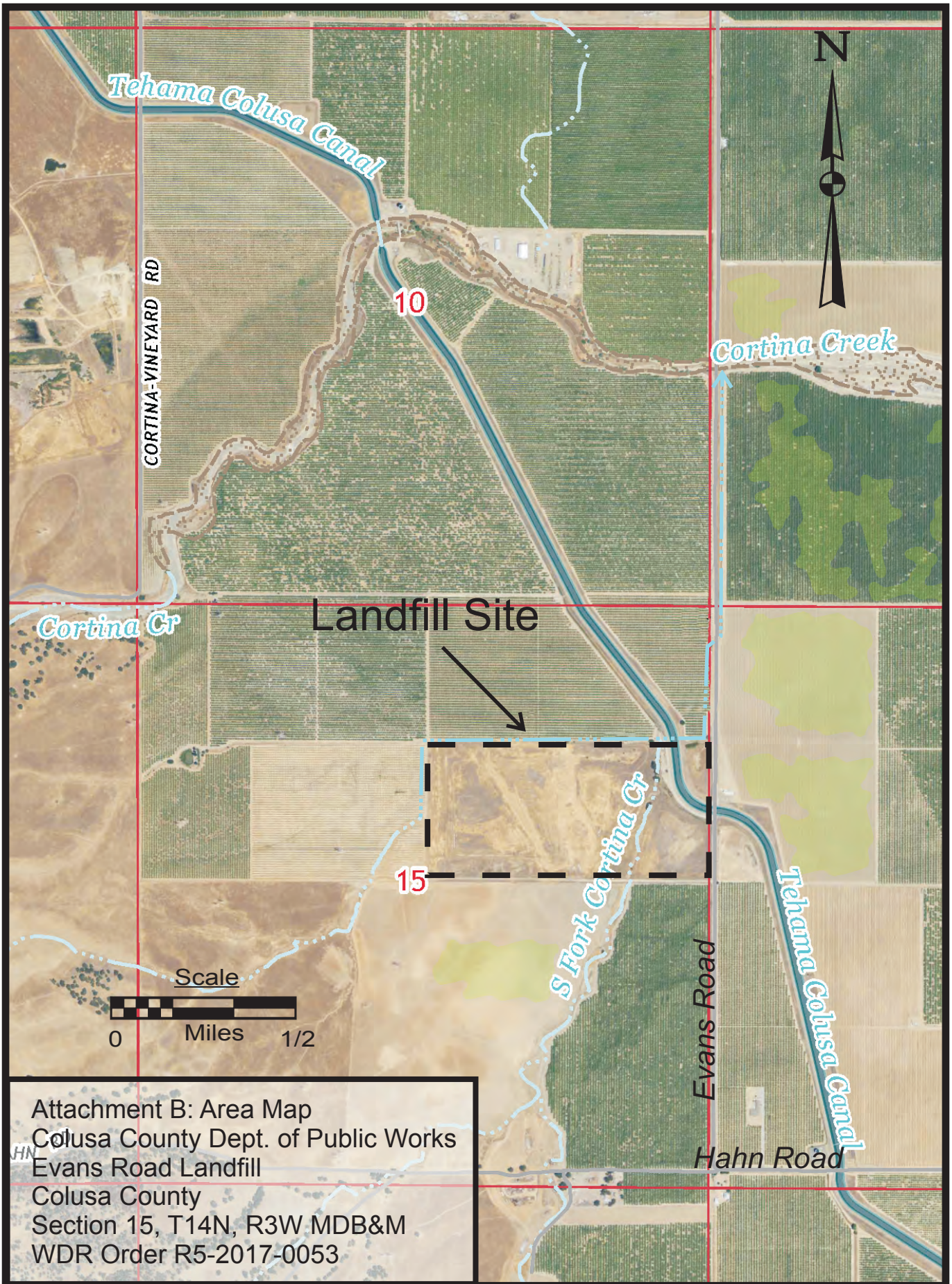
Atrazine	ATRAZINE
Chlorpyrifos	CLPYRIFOS
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)	ZINOPHOS
Diazinon	DIAZ
Dimethoate	DIMETHAT
Disulfoton	DISUL
Methyl parathion (Parathion methyl)	PARAM
Parathion	PARAE
Phorate	PHORATE
Simazine	SIMAZINE

TABLE VII
LANDFILL GAS CORRECTIVE ACTION MONITORING PROGRAM

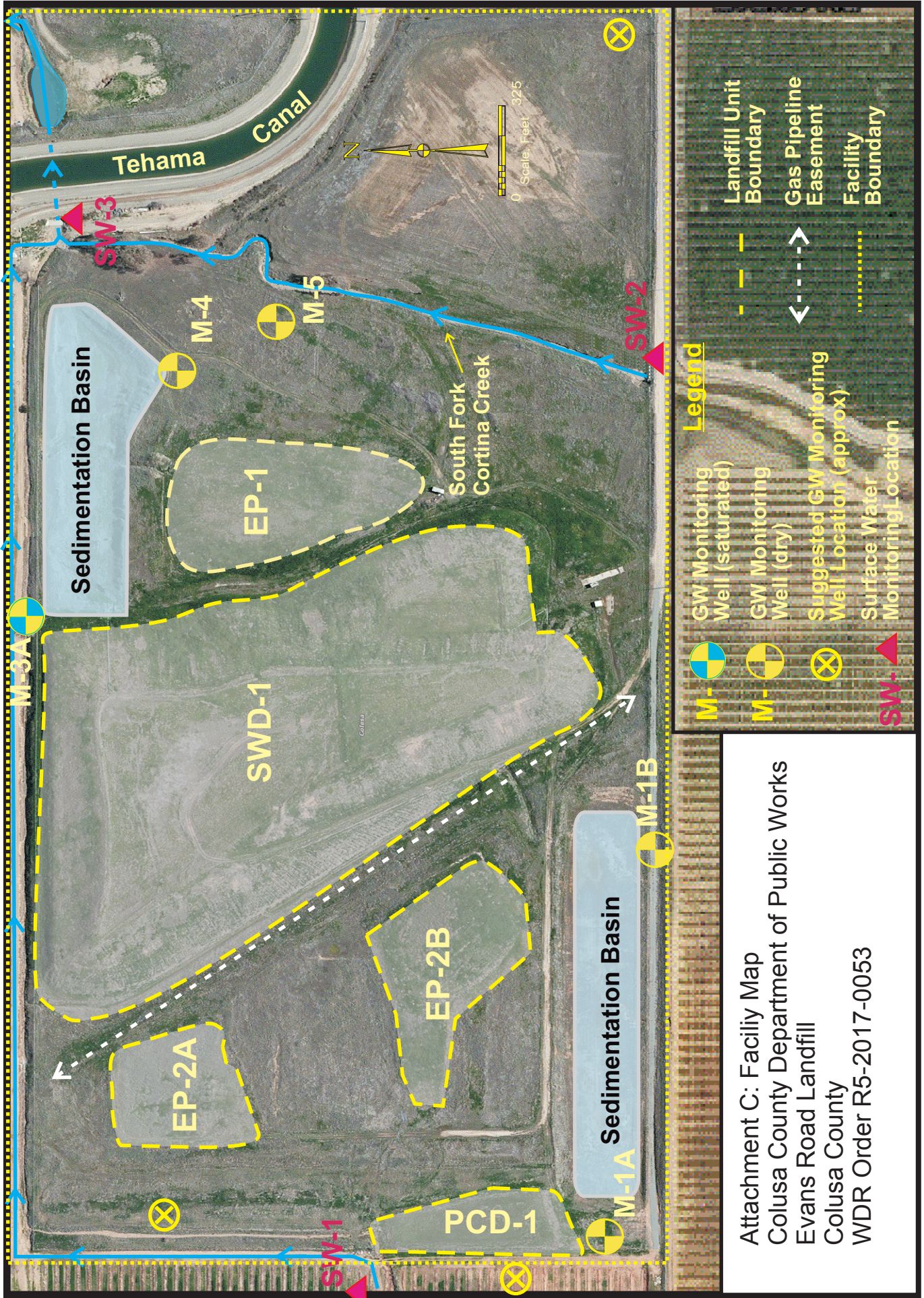
<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Passive LFG Vents				
Atmospheric Temperature	--	°F	Quarterly	Semiannual
Atmospheric Pressure	--	inches Hg	Quarterly	Semiannual
Methane ¹	--	% by volume	Quarterly	Semiannual
Carbon Dioxide	--	% by volume	Quarterly	Semiannual
Oxygen	--	% by volume	Quarterly	Semiannual
Remainder gas	--	% by volume	Quarterly	Semiannual
Vent pressure/vacuum ²	--	inches H2O	Quarterly	Semiannual
Organic Vapors ¹	--	ppmv	Quarterly	Semiannual
Volatile Organic Compounds ¹ (USEPA TO-15)	--	ug/cm	Quarterly	Semiannual

-
- ^{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. VOC sampling may be limited to vents showing methane $\geq 20\%$ and/or total organic vapors > 50 ppmv. If VOC sampling is triggered, VOC sampling shall be conducted during the same monitoring event at which the elevated gas was detected. Both the screening results and laboratory analysis results shall be reported. VOC samples do not need to be collected more than once per year on each such vent. Otherwise, if VOC sampling is not triggered, the Discharger shall report the methane or total VOC screening results and no further laboratory analysis is required.
- ^{2.} Vent pressure shall be measured with the wind turbine gate valve open and closed.

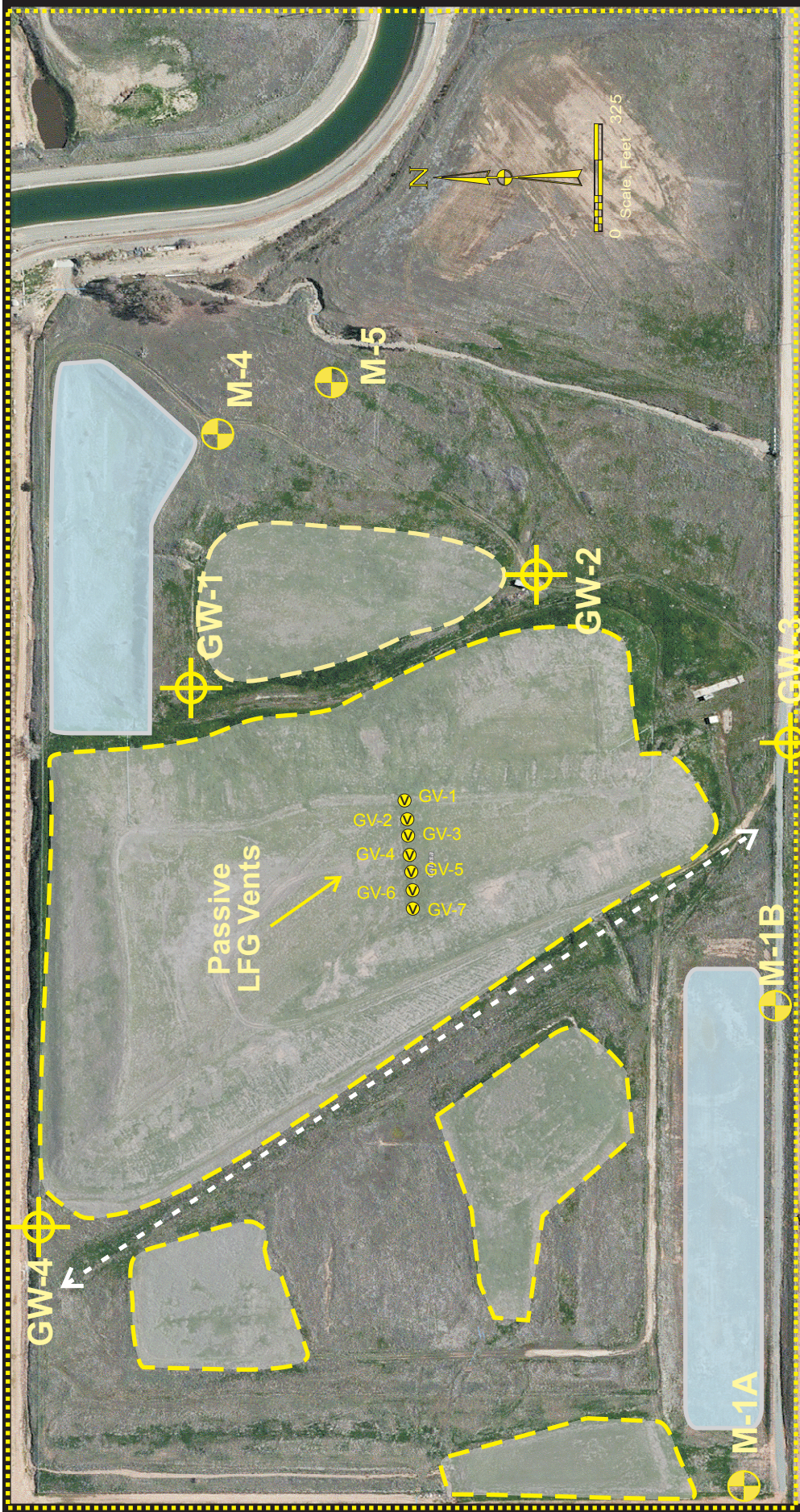




Attachment B: Area Map
 Colusa County Dept. of Public Works
 Evans Road Landfill
 Colusa County
 Section 15, T14N, R3W MDB&M
 WDR Order R5-2017-0053



Attachment C: Facility Map
 Colusa County Department of Public Works
 Evans Road Landfill
 Colusa County
 WDR Order R5-2017-0053



Legend

-  Passive LFG Vent
-  Soil Gas Monitoring Well (includes S & D probes)
-  Dry Groundwater Monitoring Well
-  Landfill Unit Boundary
-  Natural Gas Pipeline
-  Facility Boundary

Attachment D: Gas Controls & Monitoring
 Colusa County Department of Public Works
 Evans Road Landfill
 Colusa County
 WDR Order R5-2017-0053

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS
FOR
NONHAZARDOUS SOLID WASTE DISCHARGES
REGULATED BY SUBTITLE D AND/OR TITLE 27
(40 C.F.R. section 258 and Title 27, § 20005 et seq.)

December 2015

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A. APPLICABILITY

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to nonhazardous solid waste disposal sites that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, title 27 ("Title 27"), section 20005 et seq., and municipal solid waste (MSW) landfills that are subject to the Federal Subtitle D regulations contained in 40 Code of Federal Regulations section 258 (hereafter, "Subtitle D" or "40 C.F.R. § 258.XX") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62. The Subtitle D regulations are only applicable to MSW landfills and therefore any requirements in these SPRRs that are referenced as coming from Subtitle D are not applicable to non-MSW waste management units such as Class II surface impoundments, Class II waste piles, and non-MSW landfill units. All Subtitle D requirements in these SPRRs are referenced with "[40 C.F.R. § 258.XX]" after the requirement.
2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.
3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
4. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.
6. If there is a site-specific need to change a requirement in these SPRRs for a particular landfill facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.
7. Unless otherwise stated, all terms are as defined in Water Code section 13050 and in Title 27, section 20164.

B. TERMS AND CONDITIONS

1. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or

- other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]
2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:
 - a. Violation of any term or condition contained in this Order;
 - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or
 - d. A material change in the character, location, or volume of discharge.
 3. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. A material change includes, but is not limited to, the following:
 - a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;
 - b. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment);
 - c. A change in the type of waste being accepted for disposal; or
 - d. A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.
 4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].

5. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].
6. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Central Valley Water Board [Wat. Code, § 13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.
7. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [Wat. Code, § 13263(g)].
8. Technical and monitoring reports specified in this Order are requested pursuant to the Water Code [§13267(b)]. Failure to furnish the reports by the specified deadlines or falsifying information in the reports, are misdemeanors that may be liable civilly in accordance with §13268(b) of the Water Code [Wat. Code, §13268(a)].

C. STANDARD PROHIBITIONS

1. The discharge of liquid or semi-solid waste (waste containing less than 50 percent solids) is prohibited, except for the following when proposed in the ROWD/JTD and approved by this Order:
 - a. Dewatered sewage or water treatment sludge as described in Title 27, section 20220(c) provided it is discharged above a composite liner with a leachate collection and removal system (LCRS) [Title 27, § 20200(d)(3)].
 - b. Leachate and/or landfill gas condensate that is returned to the composite-lined waste management unit (with an LCRS) from which it came [Title 27, § 20340(g) and 40 C.F.R. § 258.28].
2. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:
 - a. require a higher level of containment than provided by the unit; or
 - b. are 'restricted wastes'; or
 - c. impair the integrity of containment structures;is prohibited [Title 27, § 20200(b)].

3. The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.
4. The discharge of solid waste containing free liquid or which may contain liquid in excess of the moisture holding capacity as a result of waste management operations, compaction or settlement is prohibited.
5. The discharge of waste to a closed landfill unit is prohibited.
6. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited.
7. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

D. STANDARD DISCHARGE SPECIFICATIONS

1. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the waste management unit and whether or not the wastes are required to be managed as a hazardous waste [Title 27, § 20200(c)] or designated waste [Title 27, § 20210].
2. Leachate and landfill gas condensate collected from a waste management unit shall be discharged to the unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [Title 27, § 20200(d) and § 20340(g)].
3. The discharge of leachate or landfill gas condensate is restricted to those portions of a waste management unit that has a composite liner system and LCRS meeting the Federal Subtitle D requirements [40 C.F.R. § 258.28].
4. Leachate and condensate returned to a composite-lined landfill unit (when approved by this Order) shall be discharged and managed such that it does not cause instability of the waste, does not cause leachate seeps, does not generate additional landfill gas that is not extracted from the landfill by an active landfill gas extraction system, does not cause contaminants to enter surface water runoff, and does not cause leachate volumes to exceed the maximum capacity of the LCRS.
5. Any discharge of waste outside the portion of the landfill that was already covered with waste as of the landfill unit's respective Federal Deadline constitutes a "lateral expansion" and requires the installation of an approved composite liner system and LCRS [40 C.F.R. § 258.40(b)].

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

E. STANDARD FACILITY SPECIFICATIONS

1. All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [Title 27, § 20240(c)], including the capillary fringe.
2. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
3. Interim cover is daily and intermediate cover [Title 27, § 20750(a)]. Interim cover over wastes discharged to a landfill shall be designed and constructed to minimize percolation of liquids through the wastes [Title 27, § 20705(b)].
4. Intermediate cover consisting of compacted earthen material of at least twelve (12) inches shall be placed on all surfaces of the fill where no additional solid waste will be deposited within **180 days** [Title 27, § 20700(a)].
5. During wet weather conditions, the facility shall be operated and graded to minimize leachate generation.
6. The Discharger shall **immediately** notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method [Title 27, § 21710(c)(2)].
7. The Discharger shall **immediately** notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site or outside of waste management units, equipment failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
8. The Discharger shall limit water used for facility maintenance within landfill areas to the minimum amount necessary for dust control and construction.
9. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

10. The Discharger shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation including all monitoring wells, LCRS risers, and lysimeter risers and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.
11. The Discharger shall ensure that methane and other landfill gases are adequately vented, removed from landfill units, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, degradation, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.
12. The Discharger shall maintain the depth of the fluid in the sump of each landfill unit at the minimum needed for efficient pump operation (the depth at which the pump turns on given the pump intake height and maximum pump cycle frequency).
13. The depth of fluid on the landfill liner shall not exceed **30 centimeters** (cm) [40 C.F.R. § 258.40(a)(2)]. This regulation is interpreted by the Central Valley Water Board to exclude the leachate sump. The Discharger shall **immediately** notify the Central Valley Water Board staff by telephone, and follow up in writing within **seven** days if monitoring reveals that the depth of fluid on any portion of the liner (excluding the sump) exceeds 30 cm (approximately 12 inches). The written notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.
14. Each LCRS shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [Title 27, § 20340(d)].
15. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (Industrial General Permit) or most recent general industrial storm water permit), or retain all storm water on-site.
16. Internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.
17. New MSW landfill units or lateral expansions of existing units shall not be sited in a "wetland" [as defined in 40 C.F.R. § 232.29(r)] unless there is no practical alternative; steps have been taken to assure no net loss of wetland; the landfill unit will not degrade the wetland; the unit will not jeopardize threatened or endangered species or produce adverse modification of a critical habitat or violate any requirement of the Marine Protection, Research, and Sanctuaries Act of 1972 [40 C.F.R. § 258.12].

F. STANDARD CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for review and approval at least **90 days** prior to proposed construction, design plans and specifications for new landfill modules that include the following:
 - a. Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone monitoring system, any proposed landfill gas monitoring and extraction points, and access to the LCRS for required annual testing.
 - b. A Construction Quality Assurance (CQA) Plan prepared by a California-registered civil engineer or certified engineering geologist, and that meets the requirements of Title 27, section 20324.
 - c. A geotechnical evaluation of the area soils, evaluating their use as the base layer or reference to the location of this information in the ROWD/JTD [Title 27, § 21750(f)(4)].
 - d. Information about the seismic design of the proposed new module (or reference to the location of this information in the ROWD/JTD) in accordance with Title 27, section 20370.
 - e. A revised water quality monitoring plan for groundwater detection monitoring (or information showing the existing plan is adequate) in accordance with Title 27, section 20415.
 - f. An Operation Plan (or reference to the location of this information in the ROWD/JTD) meeting the requirements of Title 27, section 21760(b).
2. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge.
3. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have been approved. Waste management units shall receive a final inspection and approval of the construction by Central Valley Water Board staff before use of the unit commences [Title 27, § 20310(e)].
4. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].

5. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [Title 27, § 20320(a)].
6. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27, § 20365(a)].
7. The Discharger shall design storm water conveyance systems for Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
8. All Class III landfill units shall be designed to withstand the maximum probable earthquake and Class II waste management units shall be designed to withstand maximum credible earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion, or gas [Title 27, § 20370(a)].
9. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the landfill foundation, final slopes, and containment systems under both static and dynamic conditions throughout the landfill's life including the closure period and post-closure maintenance period [Title 27, § 21750(f)(5)].
10. New waste management units and expansions of existing units shall not be located on a known Holocene fault [Title 27, § 20260(d)].
11. Liners shall be designed and constructed to contain the fluid, including landfill gas, waste, and leachate [Title 27, § 20330(a)].
12. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, § 20320(c)].
13. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)].

14. A test pad for each barrier layer and final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].
15. Performance requirements for geosynthetic membranes shall include, but are not limited to, a need to limit infiltration of water, to the greatest extent possible; a need to control landfill gas emissions; mechanical compatibility with stresses caused by equipment traffic, and for final covers the result of differential settlement over time and durability throughout the post-closure maintenance period [Title 27, § 20324(i)(1)].
16. The Discharger shall ensure proper preparation of the subgrade for any liner system that includes a GCL so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.
17. The Discharger shall propose an electronic leak location survey of the top liner for any new landfill module in the construction quality assurance plan unless the Discharger demonstrates that a leak location survey is not needed.
18. Leachate collection and removal systems are required for Class II landfills and surface impoundments, MSW landfills, and for Class III landfills which have a liner or which accept sewage or water treatment sludge [Title 27, § 20340(a)].
19. All new landfill units or lateral expansions of existing units that require a LCRS shall have a blanket-type LCRS that covers the bottom of the unit and extends as far up the sides as possible. The LCRS shall be of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the unit [Title 27, § 20340(e)].
20. The LCRS shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit [Title 27, § 20340(b)].
21. Leachate collection and removal systems shall be designed and operated to function without clogging through the scheduled closure of the landfill unit and during the post-closure maintenance period.
22. The LCRS shall be designed to maintain the depth of fluid over any portion of the LCRS of no greater than 30 cm [40 C.F.R. § 258.40(a)(2)], excluding the leachate sump. The leachate sump, leachate removal pump, and pump controls shall be designed and set to maintain a fluid depth no greater than the minimum needed for efficient pump operation [Title 27, § 20340(c)].

23. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [Title 27, § 20323].
24. The Construction Quality Assurance program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27, § 20324(b)(2)].
25. The Discharger shall ensure that a third party independent of both the Discharger and the construction contractor performs all of the construction quality assurance monitoring and testing during the construction of a liner system.
26. The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new lined cell or module, construction of a final cover, or any other construction that requires Central Valley Water Board staff approval under this Order.
27. The Discharger shall submit for review and approval at least **60 days** prior to proposed discharge, final documentation required in Title 27 Section 20324(d)(1)(C) following the completion of construction of a new lined landfill module. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the liner system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of the WDRs, and that it meets the performance goals of Title 27. The report shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, the construction quality assurance plan, and the performance goals of Title 27.
28. The Discharger shall not discharge waste onto a newly constructed liner system until the final documentation report has been reviewed and an acceptance letter has been received.
29. Prior to placement of waste in a new landfill unit, the Discharger shall monitor any pan lysimeter for the unit that has received enough rainfall to flood the LCRS sump. If liquid is detected in the pan lysimeter, the Discharger shall verify that the liquid is not from a leak in the primary liner system before waste can be accepted to the new module.

G. STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS

1. The Discharger shall submit a final or partial final closure and post-closure maintenance plan at least **two years** prior to the anticipated date of closure [Title 27, § 21780(d)(1)].

2. The Discharger shall notify the Central Valley Water Board in writing that a landfill unit or portion of a unit is to be closed either at the same time that the California Department of Resources Recycling and Recovery (CalRecycle) is notified or **180 days** prior to beginning any final closure activities, whichever is sooner [Title 27, § 21710(c)(5)(A)]. The notice shall include a statement that all closure activities will conform to the most recently approved final or partial final closure plan and that the plan provides for site closure in compliance with all applicable federal and state regulations [Title 27, § 21710(c)(5)(C)].
3. Initiation of closure activities shall begin within **30 days** of final waste receipt, or within **one year** of receipt of most recent waste if additional capacity remains [40 C.F.R. § 258.60(f)].
4. Closure activities shall be completed within **180 days** of the beginning of closure activities unless an extension is granted by the Executive Officer [40 C.F.R. § 258.60(g)].
5. The Discharger shall carry out both mandatory closure and normal closure of a waste management unit or a portion of a unit in accordance with a closure and post-closure maintenance plan approved by the Central Valley Water Board [Title 27, § 20950(a)(1)] through the issuance of closure waste discharge requirements.
6. The Discharger shall notify the Central Valley Water Board that a preliminary closure and post-closure maintenance plan has been prepared and placed in the operating record by the date of initial receipt of waste at any new MSW landfill unit or lateral expansion of any existing unit [40 C.F.R. § 258.60(d)]. This notification shall be included in the cover letter transmitting the preliminary closure and post-closure maintenance plan.
7. In addition to the applicable provisions of Title 27, the preliminary closure and/or the post-closure maintenance plans for MSW landfill units shall include the following:
 - a. A description of the steps necessary to close all MSW landfill units at any point during their active life in accordance with the cover design requirements [40 C.F.R. § 258.60(c)];
 - b. An estimate of the largest area of the landfill unit(s) ever requiring a final cover at any time during the active life of the unit(s) [40 C.F.R. § 258.60(c)(2)];
 - c. An estimate of the maximum inventory of wastes ever on-site over the active life of the waste management facility [40 C.F.R. § 258.60(c)(3)]; and
 - d. A schedule for completing all activities necessary to satisfy the closure criteria in 40 C.F.R. section 258.60 [40 C.F.R. § 258.60(c)(4)].

8. The final closure and post-closure maintenance plan for the waste management unit shall include at least the following: an itemized cost analysis, closure schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent ROWD, federal requirements for a MSW facility, land use of the closed unit, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].
9. Closure of each waste management unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [Title 27, § 20950(b)].
10. The final cover of closed landfills shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].
11. The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [Title 27, § 21090(b)(1)(C)].
12. All final cover designs shall include a minimum 1-foot thick erosion resistant layer [Title 27, § 21090(a)(3)(A)].
13. The Discharger shall close the landfill with minimum 15-foot wide benches every 50 vertical feet [Title 27, § 21090(a)].
14. Final cover slopes shall not be steeper than a horizontal to vertical ratio of one and three quarters to one and designs having any slopes steeper than a horizontal to vertical ratio of three to one, or having a geosynthetic component, shall have these aspects of their design specifically supported in the slope stability report required in Title 27, section 21750(f)(5) [Title 27, § 21090(a)].
15. For any portions of the final cover installed after July 18, 1997, for which the Central Valley Water Board has not approved a slope and foundation stability report on or before that date, the Discharger shall meet the requirements of Title 27, section 21750(f)(5) [Title 27, § 21090(a)(6)].
16. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [Title 27, § 21090(b)(2)].
17. The Discharger shall design storm water conveyance systems for closed Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for closed Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
18. Closed landfill units shall be provided with at least two permanent surveying monuments, installed by a licensed land surveyor or by a registered civil engineer, from which the location and elevation of all wastes, containment

structures, and monitoring facilities can be determined throughout the post-closure maintenance period [Title 27, § 20950(d)].

19. Following closure of any MSW landfill units, the Discharger shall notify the Executive Officer that the deed to the landfill facility property, or some other instrument that is normally examined during a title search, has been recorded and a copy placed in the operating record. The notation on the deed shall in perpetuity notify any potential purchaser of the property that the land has been used as a landfill facility and that use of the land is restricted to the planned use described in the post-closure maintenance plan [Title 27, § 20515(a)(4) and §21170, and 40 C.F.R. § 258.60(i)].
20. Construction or repair of the final cover system's low-hydraulic conductivity layer is to be carried out in accordance with an approved construction quality assurance plan [Title 27, § 21090(b)(1)(E)].
21. The Discharger shall incorporate into the closure and post-closure maintenance plan a cover-integrity monitoring and maintenance program which includes at least the following: a periodic leak search, periodic identification of other problem areas, prompt cover repair, and vegetation maintenance [Title 27, § 21090(a)(4)].
22. The Discharger shall complete a final cover survey upon completion of closure activities for that portion of the landfill. The final cover surveys shall include an initial survey and map [Title 27, § 21090(e)(1). Every **five years**, the Discharger shall conduct a survey of the closed landfill cover and submit an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer [Title 27, § 21090(e)(2)].
23. Within **30 days** of completion of all closure activities, the Discharger shall certify that all closure activities were performed in accordance with the most recently approved final closure plan and CQA Plan, and in accordance with all applicable regulations. The Discharger shall also certify that closed landfill units shall be maintained in accordance with and approved post-closure maintenance plan [Title 27, § 21710(c)(6)].
24. Within **180 days** of completion of closure construction activities, the Discharger shall submit final documentation of closure, including the Certification of Closure. The closure documents shall include a final construction quality assurance report and any other documents necessary to support the certification [Title 27, § 21880].
25. The post-closure maintenance period shall continue until the Central Valley Water Board determines that wastes remaining in the landfill unit(s) no longer pose a threat to water quality [Title 27, § 20950(a)(1)].

26. The Discharger shall conduct a periodic leak search to monitor of the integrity of the final cover in accordance with the schedule in the approved final post-closure maintenance plan [Title 27, § 21090(a)(4)(A)].
27. The Discharger shall periodically inspect and identify problems with the final cover including areas that require replanting, erosion, areas lacking free drainage, areas damaged by equipment operations, and localized areas identified in the required five-year iso-settlement survey [Title 27, § 21090(a)(4)(B)].
28. The Discharger shall repair the cover promptly in accordance with a cover repair plan to be included in the final post-closure maintenance plan [Title 27, § 21090(a)(4)(C)].
29. Throughout the post-closure maintenance period, the Discharger shall maintain the structural integrity and effectiveness of all containment structures, maintain the final cover as necessary to correct the effects of settlement and other adverse factors, continue to operate the LCRS as long as leachate is generated and detected, maintain the monitoring systems, prevent erosion and related damage of the final cover due to drainage, and protect and maintain surveyed monuments [Title 27, § 21090(c)].
30. Post-closure maintenance shall be conducted for a minimum period of **30 years** or until the waste no longer poses a threat to environmental quality, whichever is greater [Title 27, § 21180(a) and Title 27, § 21900(a)].

H. STANDARD FINANCIAL ASSURANCE PROVISIONS

1. The Discharger shall establish an irrevocable fund for closure and post-closure maintenance to ensure closure and post-closure maintenance of each classified unit in accordance with an approved closure and post-closure maintenance plan [Title 27, § 20950(f) and § 22207(a)].
2. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management unit [Title 27, §20380(b), § 22221, and § 22222].

I. STANDARD MONITORING SPECIFICATIONS

1. The water quality monitoring program shall include appropriate and consistent sampling and analytical procedures and methods designed to ensure that monitoring results provide a reliable indication of water quality at all monitoring points and background monitoring points [Title 27, § 20415(e)(4) and 40 C.F.R. § 258.53(b)].

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

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

8. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless a longer time period is approved, and shall be taken in a manner that

ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan. Appropriate sample preparation techniques shall be used to minimize matrix interferences.

9. If methods other than USEPA-approved methods or Standard Methods are used, or there is a proposed alternant USEPA method than the one listed in the MRP, the proposed methodology shall be submitted for review and approval prior to use, including information showing its equivalence to the required method.
10. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
11. The laboratory reporting limit (RL) for all reported monitoring data shall be set no greater than the practical quantitation limit (PQL).
12. **"Trace" results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
13. Laboratory data shall not be altered or revised by the Discharger. If the Discharger observes potential lab errors, it shall identify the issue in the monitoring report and shall describe steps that will be taken to prevent similar errors in the future.
14. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs. MDLs and PQLs shall be reported.

15. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged in the laboratory report accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
16. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and signature of a responsible person from the laboratory. **Sample results shall be reported unadjusted for blank results or spike recoveries.** In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged, but the analytical results shall not be adjusted.
17. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.
18. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples [Title 27, § 20415(b)(4)(B)]. Groundwater samples shall not be field-filtered prior to laboratory analysis [40 C.F.R. § 258.53(b)]. Groundwater samples needing filtering (e.g., samples to be analyzed for dissolved metals) shall be filtered by the laboratory prior to analysis.
19. Groundwater elevations shall be measured in each well immediately prior to purging, each time groundwater is sampled. The owner or operator shall determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same waste management area shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction [40 C.F.R. § 258.53(d)].
20. Monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design

specifications throughout the life of the monitoring program [40 C.F.R. § 258.51(c)(2)]. Monitoring devices that cannot be operated and maintained to perform to design specifications shall be replaced after review and approval of a report (i.e., work plan) for the proposed replacement devices.

21. All borings are to be logged during drilling under the direct supervision of a registered geologist or registered civil engineer with expertise in stratigraphic well logging [Title 27, § 20415(e)(2)].
22. Soils are to be described according to the Unified Soil Classification System [Title 27, § 20415(e)(2)(A)]. Rock is to be described in a manner appropriate for the purpose of the investigation [Title 27, § 20415(e)(2)(B)].
23. The Discharger shall submit a work plan for review and approval at least **60 days** prior to installation or abandonment of groundwater monitoring wells.
24. The Discharger shall provide Central Valley Water Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation or abandonment of monitoring devices.
25. The water quality protection standard shall consist of the constituents of concern (COC), concentration limits, and the point of compliance. The water quality protection standard shall apply during the active life of the waste management unit, closure period, post-closure maintenance period, and any compliance period under Title 27, section 20410 [Title 27, § 20390].
26. The point of compliance at which the water quality protection standard applies is a vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit [Title 27, § 20405].
27. The compliance period is the minimum period of time during which the Discharger shall conduct a water quality monitoring program and is the number of years equal to the active life of the waste management unit plus the closure period [Title 27, § 20410(a)].
28. The groundwater monitoring system shall include a sufficient number of monitoring points, installed at appropriate locations, to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the waste management unit [Title 27, § 20415(b)(1)(A)].
29. The Detection Monitoring Program shall include a sufficient number of monitoring points, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of

groundwater passing the point of compliance to allow the detection of a release from the waste management unit [Title 27, § 20415(b)(1)(B)1.].

30. Additional monitoring points shall be added as necessary to provide the best assurance of the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)2.].
31. The Detection Monitoring Program shall also include a sufficient number of monitoring points installed at appropriate depths and locations to yield groundwater samples from other aquifers or perched zones not already monitored to provide the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)3. and 4., and §20420(b)].
32. A surface water monitoring system shall be established to monitor each surface water body that could be affected by a release from the waste management unit [Title 27, § 20415(c)].
33. An unsaturated zone monitoring system shall be established for each waste management unit [Title 27, § 20415(d)].
34. The Discharger shall notify Central Valley Water Board staff within **seven days** if fluid is detected in a previously dry LCRS, unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a LCRS [Title 27, § 21710(c)(3)].
35. Driller's logs for all monitoring wells shall to be submitted to the Central Valley Water Board and the Department of Water Resources [Wat. Code, § 13751 and Title 27, § 20415(b)(3)].
36. Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [Title 27, § 21415(e)(13)].
37. The groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation being monitored shall be determined at least quarterly [Title 27, § 20415(e)(15)].
38. The Discharger shall graph all analytical data from each monitoring point and background monitoring point and shall submit the graphs to the Central Valley Water Board annually [Title 27, § 20415(e)(14)].
39. For each waste management unit, the Discharger shall collect all data necessary for selecting appropriate data analysis methods for establishing background values for each constituent of concern and for each monitoring parameter [Title 27, § 20420(c)]. The Discharger shall propose a data analysis method that includes a detailed description of the criteria to be used for

determining “measurably significant” (as defined in Title 27, section 20164) evidence of a release from the waste management unit and determining compliance with the water quality protection standard [Title 27, § 20415(e)(6) and (7)].

40. For statistical analysis of data, the Discharger shall use one of the methods described in Title 27, section 20415(e)(8)(A)-(E). A non-statistical data analysis method can be used if the method can achieve the goal of the particular monitoring program at least as well as the most appropriate statistical method [Title 27, § 20415(e)(8)]. The Discharger shall use a statistical or nonstatistical data analysis method that complies with Title 27, section 20415(e)(7, 8, 9, and 10), to compare the concentration of each constituent of concern or monitoring parameter with its respective background concentration to determine whether there has been a measurably significant evidence of a release from the waste management unit. For any given monitoring point at which a given constituent has already exhibited a measurably significant indication of a release at that monitoring point, the Discharger may propose to monitor the constituent, at that well, using a concentration-versus-time plot.
41. The Discharger may propose an alternate statistical method [to the methods listed under Title 27, section 20415(e)(8)(A-D)] in accordance with Title 27, section 20415(e)(8)(E), for review and approval.
42. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27, section 20415(e)(7) that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs or an approved Sample Collection and Analysis Plan for routine laboratory operating conditions that are available to the facility. The Discharger’s technical report (Sample Collection and Analysis Plan and/or Water Quality Protection Standard Report), pursuant to Title 27, section 20415(e)(7), shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, CCR, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a “trace” detection) shall be identified and used in appropriate statistical or non-statistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory’s concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of “ties”.
43. The water quality protection standard for organic compounds which are not naturally occurring and not detected in background groundwater samples shall

be taken as the detection limit of the analytical method used (e.g., USEPA methods 8260 and 8270).

44. Alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) if part of an approved water quality protection standard. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.
45. **Confirmation of Measurably Significant Evidence of a Release.** Whenever a constituent is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the water quality protection standard, the Discharger shall conduct verification sampling to confirm if the exceedance is due to a release or if it is a false-positive (unless previous monitoring has already confirmed a release for that constituent at that monitoring point). An exceedance of the concentration limit from the water quality protection standard is considered measurably significant evidence of a release that must be either confirmed or denied. There are two separate verification testing procedures:
- a. Standard Monitoring Specification I.46 provides the procedure for analytes that are detected in less than 10% of the background samples such as non-naturally occurring constituents like volatile organic compounds; and
 - b. Standard Monitoring Specification I.47 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.
46. **Verification Procedure for Analytes Detected in Less than 10% of Background Samples.** The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:
- a. **Initial Determination of Measurably Significant Evidence of a Release.** Identify each analyte in the **current** detection monitoring point sample that exceeds either its respective MDL or PQL, and for which a release has not been previously confirmed. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if **either**:
 - 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.46.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated and analyze them for the constituents that caused the need for the retest.
- 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.

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

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

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

- 1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.47.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** [Title 27, § 20415(e)(3)] of such indication, the Discharger shall implement a verification procedure/retest option, in accordance with Title 27, sections 20415(e)(8)(E) and 20420(j)(2). The verification procedure shall include either a single “composite” retest (i.e., a statistical analysis that augments and reanalyzes the data from the monitoring point that indicated a release) or shall consist of at least two “discrete” retests (i.e., statistical analyses each of which analyzes only newly-acquired data from the monitoring point that indicated a release) [Title 27, § 20415(e)(8)(E)]. The Discharger may use an alternate method previously approved by the Central Valley Water Board and included in the Monitoring and Reporting Program. The verification procedure shall comply with the requirements of Title 27, section 20415(e)(8)(E) in addition to the performance standards of Title 27, section 20415(e)(9). The retest samples shall be collected from the monitoring point where the release is preliminarily indicated and shall be analyzed for the constituents that caused the need for the retest. For any indicated monitoring parameter or constituent of concern, if the retest results of one or more of the retest data suites confirm the original indication, the Discharger shall conclude that measurably significant evidence of a release has been confirmed.
- 2) **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph I.47.b.1, above and shall:
 - a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and
 - b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.
 - c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

48. Physical Evidence of a Release. If the Discharger determines that there is a significant **physical** evidence of a release, the Discharger shall immediately

verbally notify Central Valley Water Board staff and provide written notification **by certified mail within 7 days** of such determination, and within **90 days** shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program [Title 27, § 20385(a)(3) and § 20420(l)(1) & (2)].

J. RESPONSE TO 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.46 or I.47, then the Discharger shall:
 - a. **Immediately** sample all monitoring points in the affected medium at that waste management unit and determine the concentration of all monitoring parameters and constituents of concern for comparison with established concentration limits. Because this constituent of concern scan does not involve statistical testing, the Discharger will need to collect and analyze only a single water sample from each monitoring point in the affected medium [Title 27, § 20420(k)(1)].
 - b. **Within 14 days** of confirming measurably significant evidence of a release, the Discharger shall (for releases from MSW landfill units) notify all persons who own the land or reside on the land that directly overlies any portion of the plume of contamination if contaminants have migrated off-site if indicated by sampling of detection monitoring wells [40 C.F.R. § 258.55(g)(1)(iii)].
 - c. **Within 90 days** of confirming measurably significant evidence of a release, the Discharger shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program meeting the requirements of Title 27, sections 20420(k)(5)(A-D), including but not limited to the results of sampling pursuant to paragraph J.1.a, above. The Evaluation Monitoring Program shall be designed for the collection and analysis of all data necessary to assess the nature and extent of the release and to determine the spatial distribution and concentration of each constituent throughout the zone affected by the release [Title 27, § 20420(k)(5) and § 20425(b)]. For releases from MSW landfill units, the Evaluation Monitoring Program shall also include any additional proposals necessary to comply with 40 C.F.R. § 258.55, particularly the additional monitoring well required by 40 C.F.R. § 258.55(g)(1)(ii).
 - d. **Within 180 days** of confirming measurably significant evidence of a release, the Discharger shall submit to the Central Valley Water Board an initial engineering feasibility study for a Corrective Action Program necessary to meet the requirements of Title 27, section 20430. At a minimum, the initial engineering feasibility study shall contain a detailed

description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [Title 27, § 20420(k)(6)].

- e. If the Discharger confirms that there is measurably significant evidence of a release from the waste management unit at any monitoring point, the Discharger may attempt to demonstrate that a source other than the waste management unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to Title 27, section 20420(k)(7) in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements and due dates of Title 27, sections 20420(k)(6) & (7) unless Central Valley Water Board staff agree that the demonstration successfully shows that a source other than the waste management unit caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In order to make this demonstration, the Discharger shall notify the Central Valley Water Board by certified mail of the intent to make the demonstration **within seven days** of determining measurably significant evidence of a release, and shall submit a report **within 90 days** of determining measurably significant evidence of a release [Title 27, § 20420(k)(7)].
- f. **Within 90 days** of the date that the Evaluation Monitoring Program from paragraph J.1.c is approved (the date is it established), the Discharger shall complete and submit the following:
 - i) **Results and Assessment for the Evaluation Monitoring Program.** A report with the results and assessment based on the approved Evaluation Monitoring Program [Title 27, § 20425(b)].
 - ii) **Updated Engineering Feasibility Study.** An updated engineering feasibility study for corrective action based on the data collected to delineate the release and data from the ongoing monitoring program required under Title 27, section 20425(e) [Title 27, § 20425(c)].
 - iii) **Amended ROWD for a Corrective Action Program.** An amended report of waste discharge to establish a Corrective Action Program meeting the requirements of Title 27, section 20430 based on the data collected to delineate the release and based on the updated engineering feasibility study [Title 27, § 20425(d)].

- g. The Discharger shall (for releases from MSW landfill units) discuss the results of the updated engineering feasibility study, prior to the final selection of a remedy, in a public meeting with interested and affected parties [40 C.F.R. § 258.56(d)].

K. GENERAL PROVISIONS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Central Valley Water Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. All reports and transmittal letters shall be signed by persons identified below:
 - a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor.
 - c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if:
 - 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 from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.
5. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger’s violations of this Order.
6. The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Central Valley Water Board approval following authorization for closure pursuant to the site Notification of Closure [Title 27, § 21710(a)(4)].
7. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit or portion of a unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Central Valley Water Board [Title 27, § 21720(f)].
8. In the event of any change in landowner or the operator of the waste management facility, the Discharger shall notify the succeeding owner or

operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.

9. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [Title 27, § 21710(c)(1)].
10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within **14 days** of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in General Provision K.2 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

L. STORM WATER PROVISIONS

1. New and existing Class III landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [Title 27, § 20260(c)].
2. New and existing Class II landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [Title 27, § 20250(c)].
3. The Discharger shall design storm water conveyance systems for Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].
4. MSW landfills located in a 100-year floodplain shall demonstrate that the landfill unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health or the environment [40 C.F.R. § 258.11(a)].
5. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding,

infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions for the unit [Title 27, § 20365(a)].

6. Precipitation on landfills or waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the LCRS, which shall be designed and constructed to accommodate the precipitation conditions for each class unit [Title 27, § 20365(b)].
7. Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:
 - a. accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit:
 - b. effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities;
 - c. prevent surface erosion;
 - d. control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste;
 - e. take into account:
 - i) for closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern;
 - ii) for operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time;
 - iii) the possible effects of the waste management unit's drainage pattern on and by the regional watershed;
 - iv) the design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility; and
 - f. preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.
8. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [Title 27, § 20365(d)].

9. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].
10. Cover materials shall be graded to divert precipitation from the waste management unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation [Title 27, § 20365(f)].
11. Any drainage layer in the final cover shall be designed and constructed to intersect with the final drainage system for the waste management unit in a manner promoting free drainage from all portions of the drainage layer [Title 27, §20365(f)].

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

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(I)(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)].

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER R5-20017-0053
COLUSA COUNTY DEPARTMENT OF PUBLIC WORKS
EVANS ROAD LANDFILL
CLOSED CLASS III LANDFILLS
POST-CLOSURE MAINTENANCE
AND CORRECTION ACTION
COLUSA COUNTY

Background

The Evans Road Landfill is a closed, municipal solid waste (MSW) landfill facility about seven miles southwest of Williams. The landfill facility operated from 1970 to 2001, accepting primarily household, construction and demolition, and industrial wastes. The site previously operated as a burn dump from 1967 to 1972. Three unlined evaporation ponds (7.5 acres total) and a pesticide container disposal area were also historically operated at the facility.

Geology

The site is underlain by clay loam soils to a depth of about 5 feet and then Recent Alluvium consisting of gravelly sand, silty sand, silt, and clay. The uppermost aquifer beneath the site is in the underlying Tehama Formation, an extensive water-bearing formation on the west side of the Sacramento Valley. The regional groundwater gradient is generally to the northeast, fed by surface infiltration in the foothills southwest of the site. Background groundwater quality is typically good with total dissolved solids (TDS) generally less than 300 milligrams per liter (mg/L).

Groundwater

A March 2017 DWR well survey showed two domestic wells and six agricultural irrigation wells within a one-mile radius of the site. See Attachment 1. The depth to groundwater beneath the site has historically ranged from about 95 feet below ground surface (bgs) to about 145 feet bgs, corresponding to groundwater elevations of about 87 feet MSL to 37 feet MSL. During the past 10 years, the water table has fallen up to 55 feet, likely due to the ongoing drought conditions in the area and pumping from agricultural wells on surrounding farmland. In addition, the direction of groundwater flow now appears to be to the southwest, opposite the direction of the regional gradient and historical groundwater flow at the site. It is not currently known whether the apparent reversal in the groundwater gradient is a real phenomenon or a result of measurement error.

There are currently five groundwater monitoring wells at the site, including M-1A, M-1B, M-3A, M-4 and M-5. All but one of these wells, M-3A, have gone dry over the past few years due to the falling water table at the site and M-3A could go dry soon if the water table continues to fall. Also, most of the wells were installed before the apparent reversal in the direction of groundwater flow. As a result of these and other issues, the current groundwater monitoring configuration at the site does not meet Title 27 performance standards for background, detection and corrective action monitoring.

Waste Classification

The main landfill unit at the site, SWD-1 (16 acres) accepted MSW and was subject to Subtitle D regulations, as incorporated in Title 27. The other units at the site accepted non-MSW and were not subject to Subtitle D. The unlined evaporation ponds (EPs-1, 2A, & 2B), for example, accepted semi-solid wastes for drying, including septage, gas well brines, and drilling muds. The pesticide container disposal area (1.1 acres) accepted triple-rinsed pesticide containers certified for disposal at a Class III landfill as a nonhazardous waste.

Corrective Action

VOCs have been historically detected in groundwater at the site, primarily down gradient of SWD-1 (e.g., M-1B) and upgradient of SWD-1 near EP-1 (e.g., M-5). VOCs detected down gradient of SWD-1 have primarily included low to trace concentrations chlorinated VOCs and Freon compounds. Elevated concentrations of general minerals, primarily TDS, bicarbonate, and/or chloride have also been historically detected in monitoring wells at the site, including M1-B near SWD-1 and M-5 near EP-1.

In December 2006, the Discharger completed installation of a passive landfill gas (LFG) collection system at unit SWD-1 to address LFG as a likely source of impacts to groundwater. The system consisted of seven vertical risers plumbed to subsurface collection piping along the spine of the landfill crest. Wind-driven turbines were fitted on the risers to assist gas venting. Quarterly gas monitoring of the vents since their installation indicates generally low to non-detect concentrations of LFG in all of the vents except V-7, where methane and carbon dioxide averaged 3.9% and 3.8% respectively.

Soil pore gas monitoring of gas probes around the landfill also shows a significant decline in LFG concentrations over the last 10 years. The reason for the low concentrations of LFG detected in the vents and soil gas probes is not known, but could be associated with drought conditions at the site reducing the amount of methane being generated by the landfill.

Unit Design and Closure

All four units at the site (i.e., SWD-1, EP-1, EP-2A, and EP-2B) pre-dated Chapter 15 (Title 27) regulations and were constructed without a base liner and leachate collection and recovery system (LCRS). The containment systems for the units are therefore limited to the clay soil natural geologic materials on which they were sited and, after closure as landfills, the landfill covers. SWD-1 and PCD-1 were closed with Title 27 prescriptive clay covers in 2001 and 2003, respectively. Title 27, section 21400 allows Class II surface impoundments to be closed as landfills. EPs-1, 2A & 2B were closed in 1997 with earthen covers consisting of several feet of onsite/local borrow clay soil. Given underlying semi-solid wastes, compaction of the cover to Title 27 standards was problematic at the time the pond covers were constructed. The Discharger also failed to complete postclosure lysimeter monitoring of the pond covers to demonstrate that the covers met Title 27 performance standards. Consequently, previous WDRs did not reclassify the ponds as closed Class III landfills.

Revised WDRs

These revised WDRs re-classify the closed evaporation ponds as closed, Class III landfill units and require that the Discharger demonstrate that the covers meet Title 27 performance standards. The WDRs require submission of the necessary work plans and reports for this

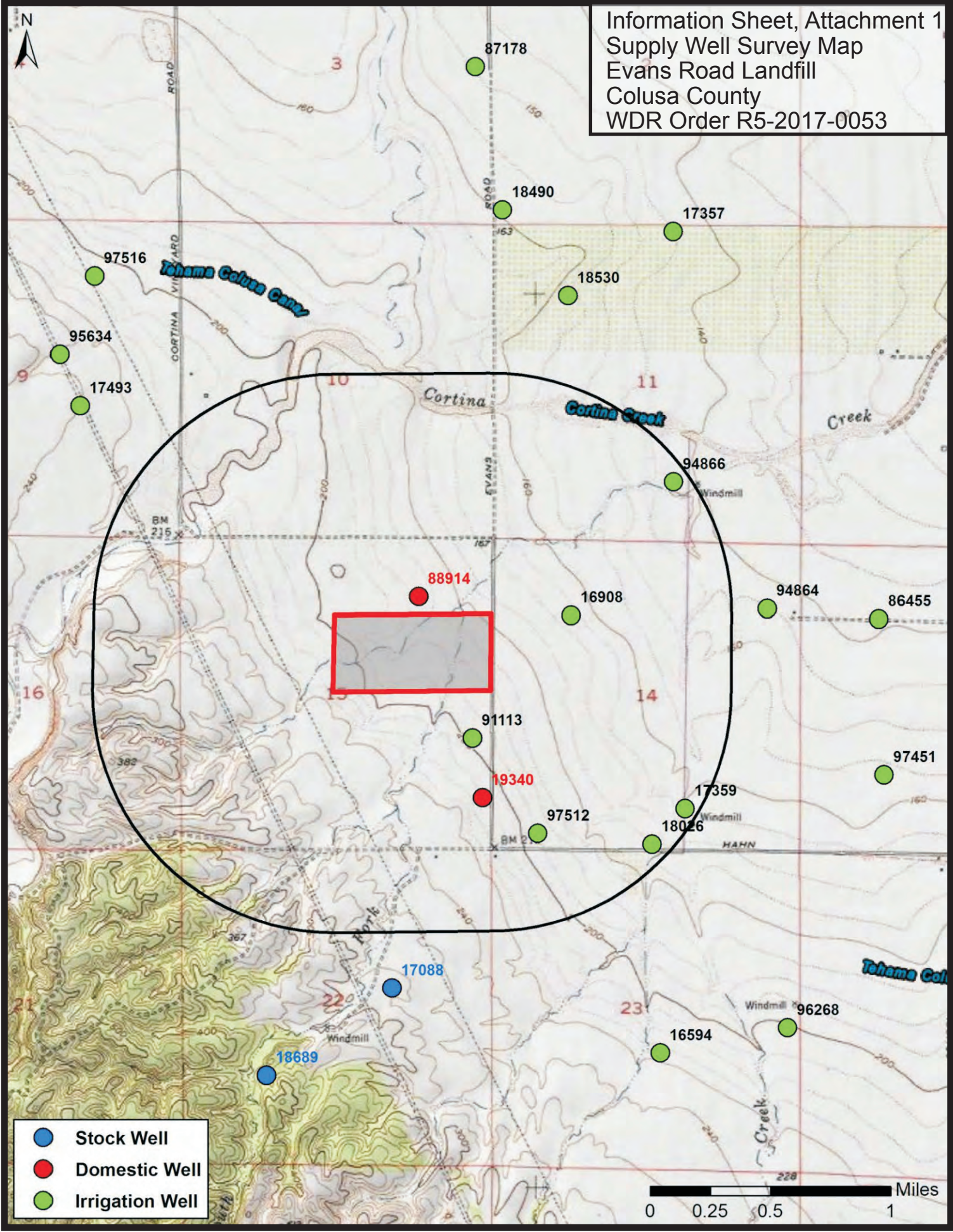
demonstration, including any necessary repairs or improvements. An updated PCMP is also required after the demonstration is completed. See WDR Provision H.9.

The Discharger is also required to propose and install Title 27-compliant groundwater monitoring systems for each unit, including background, detection and corrective action monitoring. Additional groundwater monitoring wells are also required to confirm the direction of groundwater flow at the site. WDR Provision 9 includes a schedule for submission of required work plans and installation reports for these wells over a four year period ending in **31 October 2020**. The WDRs also require that the Discharger submit a revised Water Quality Protection Standard (WQPS) Report reflecting installation of the above wells, including concentration limits and proposed data analysis methods. A Sample Collection and Analysis Plan is also required to be submitted concurrent with the revised WQPS Report.

The revised WDRs also require that the Discharger provide updated financial assurance cost estimates and funding for the units at the site for postclosure maintenance and corrective action. Funding mechanisms for units for which CalRecycle does not require financial assurances are required to name the Central Valley Water Board as beneficiary.

JDM

Information Sheet, Attachment 1
Supply Well Survey Map
Evans Road Landfill
Colusa County
WDR Order R5-2017-0053



- Stock Well
- Domestic Well
- Irrigation Well

0 0.25 0.5 1 Miles