

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2014-XXXX
WASTE DISCHARGE REQUIREMENTS
FOR
COLUSA COUNTY DEPARTMENT OF PUBLIC WORKS
STONYFORD LANDFILL
CLASS III LANDFILL
OPERATIONS AND CORRECTIVE ACTION MONITORING
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 Stonyford Landfill, an active municipal solid waste (MSW) landfill about one mile south of Stonyford, as shown in Attachment A: Location Map, which is incorporated herein and made a part of this Order by reference. 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 facility comprises 6.3 acres of a 48-acre parcel of land in Section 5, T17N, R6W, MDB&M, corresponding to Assessor Parcel Number 10-250-020. The geographic coordinates of the facility are Latitude 39.375° north, Longitude -122.544° west. The parcel is located on 5160 Ladoga-Stonyford Road at Dennis Drive south of Stonyford.
3. A Central Valley Water Board staff review of the files indicated that previous Waste Discharge Requirements (WDR) Order No. 99-080 for the facility needed to be updated based on its fee code (see Finding 79) and that significant changes had occurred at the site since 1999 when the WDRs were last revised. These changes included, but were not limited to, the following:
 - a. An updated site description and background information;
 - b. Installation of perimeter gas monitoring probes;
 - c. Installation of passive landfill gas vents as a corrective action measure;
 - d. Monitoring data showing significant progress in groundwater cleanup; and
 - e. Updated financial assurances information.

This revised WDR Order includes revised findings, regulatory references, and requirements to reflect the current status of the facility.

4. The landfill has been in operation since March 1974, accepting primarily household wastes from incorporated and unincorporated areas of western Colusa County (e.g., Stonyford, Lodoga, Leesville, Cook's Station, Fout's Springs, and Happy Camp). The landfill also accepts waste from U.S. Forest Service campgrounds within the

Mendocino National Forest to the west and U.S. Bureau of Reclamation recreation areas along the East Park Reservoir to the east.

5. The 6.3-acre facility includes the landfill (4.0 acres), monitoring systems (e.g., gas, groundwater, surface water); landfill gas and storm water controls; a borrow area; a former septage pond area; a drop-off area for recyclable materials, access roads, a tipping area; and related landfill facilities. The facility does not have a scale for weighing incoming loads, however. See Attachment B: Facility Map, which is incorporated herein and made a part of this Order by reference.
6. The 4.0-acre landfill was constructed without a base liner and a leachate collection and recovery system (LCRS) and generally pre-dates current regulatory standards for waste containment under applicable Title 27/Subtitle D regulations. A Subtitle D composite liner is therefore not required for the unit. Further, no lateral expansion of the landfill is planned prior to anticipated closure in the year 2036. Future development of the landfill will therefore be limited to vertical expansion over the existing footprint. Vertical development will be limited by slope stability considerations and the maximum waste elevation authorized under the facility's Solid Waste Facility Permit (1,320 feet MSL). The design elements of the landfill are summarized in Finding 55.

SUBTITLE D

7. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated MSW landfill regulations under the Resource Conservation and Recovery Act (RCRA), Subtitle D. These regulations are under 40 Code of Federal Regulations section 258, and are hereafter referred to as either "Subtitle D" in reference to the RCRA federal law that required the regulations or "40 C.F.R. section 258.XX". These regulations apply to all California Class II and Class III landfills that accepted MSW or after 9 October 1991. State Water Board Resolution 93-62 requires the Central Valley Water Board to implement in WDRs for MSW landfills 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. Limited Subtitle D exemptions relevant to the landfill are summarized in Finding 54.
8. 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 J of these WDRs below, and in the *Standard Provisions and Reporting Requirements for Nonhazardous Solid Waste Discharges Regulated by Subtitle D and/or Title 27* (SPRRs) dated January 2012 which is part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) No. R5-2014-XXXX and in the SPRRs. In general, requirements that are either in regulation or otherwise apply to all MSW landfills 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 (A through J) of these WDRs, and the requirement in the WDRs supersedes the requirement in the SPRRs.

9. 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's regulations.

WASTE AND UNIT CLASSIFICATIONS

10. The landfill is an existing, Class III unit under Title 27 regulations. See Finding 53.
11. The landfill accepts MSW (e.g., household waste) and other nonhazardous solid wastes. The Discharger proposes to continue these discharges to the landfill. The landfill is not authorized to accept hazardous, designated, liquid, and/or semi-solid wastes and no such wastes are known to have been discharged to the landfill.
12. The landfill accepts an average of about 480 cubic yards of compacted waste per quarter, excluding cover material, corresponding to about 1,920 cubic yards of compacted waste per year. Landfill tonnage is approximately 120 tons of waste per quarter (480 tons per year) assuming a volume conversion factor of 4 cubic yards per ton. (As noted above, the landfill does not have a scale).
13. The facility formerly included two unlined ponds historically used for disposal of designated liquid wastes under Title 27, including septage and chemical toilet wastes. Both ponds were closed/decommissioned in 1992 under previous WDRs and the area subsequently incorporated into the existing landfill footprint, as shown in Attachment B. See Information Sheet.
14. The Materials Drop-Off Area includes drop off areas for white goods; scrap metal, wood and green waste. Household hazardous waste is handled separately under the County's CUPA/HazMat program. The landfill and Materials Drop-Off Area are regulated under a single solid waste facilities permit issued by the Local Enforcement Agency (LEA).

SITE DESCRIPTION

15. The site is in the Indian Valley in the eastern foothills of the Coast Mountain Range east of the Mendocino National Forest Area. Topography in the area consists of gentle rolling hills and grassland vegetated with native grasses, shrubs, and trees (e.g., manzanita, pine, scrub oak). Surface elevations in the area range from

approximately 1200 to 1400 feet above mean sea level.

16. The landfill was sited on a northwest trending topographic knob along the upstream end of an ephemeral stream at the west side of Indian Valley. The site generally slopes away from the knob toward the north and northeast at an average grade of about 7%. Corresponding surface elevations range from about 1330 feet MSL in the southwest corner of the site (NE corner of knob) to about 1240 feet MSL in the northeast corner of the site. Differences between the original and present site topography reflect changes associated with landfill development.
17. Land uses within one mile of the facility include agricultural (e.g., farming, ranching), rural residential (minimum 10-acre lot size), limited industrial and commercial, and open space.
18. A January 2014 Department of Water Resources (DWR) well survey identified 31 supply wells within a one-mile radius of the site. The wells ranged from approximately 21 to 310 feet deep. Water yields for the wells were generally less than 35 gallons per minute (gpm).
19. The site is not within a 100-year floodplain based on the Federal Emergency Management Agency's Flood Insurance Rate Map, Community Panel Number 060-11C-0275F, effective May 15, 2003.
20. The 100-year, 24-hour precipitation event for the site area is about 4.8 inches based on historical Rainfall Depth Duration Frequency data for the Stonyford Ranger Station about 1/3 mile south of the site. The site receives an average of about 22 inches per year of precipitation. The mean annual Pan A evaporation at the site is about 53.75 inches per year.¹ Mean monthly precipitation is expected to exceed mean monthly evaporation from November through February.² Net average annual evaporation at the site is estimated to be about 31.75 inches.

Geology

21. The site is in the Stonyford Town Area Groundwater Basin, which consists of Quaternary stream terrace deposits that may be bounded on several sides by faulting of the Stony Creek Fault Zone (see Finding 22). The Stony Creek fault zone marks a topographic break between the flat lying alluvial deposits of the Great Valley Sequence (Knoxville Formation) to the east and the volcanic/volcanoclastic/ultrabasic

1. Based on an average of monthly historical data from Department of Water Resources' CIMIS Weather Stations 8 (Gerber) in Red Bluff 84 miles north of the site and 32 (Colusa) in Colusa 45 miles west-SW of the site.
2. Based on comparison of monthly evapotranspiration data from the above stations with monthly precipitation data from the Stony Gorge Reservoir station about 20 miles north of the site.

rocks of the Franciscan Formation (Late Jurassic) to the west. Topographic relief is significantly greater on the Franciscan Formation

22. The nearest quaternary faults to the site include the Bad Ridge Fault (Resort Fault Zone) 11 miles to the south; the Stony Creek Fault (Stony Creek Thrust Fault Zone) 12 miles to the north; the Corning Fault 14 miles to the NE; the Great Valley Fault, Segment 1 (Great Valley Thrust Zone) 15 miles to the east; and the Bartlett Springs Fault (Bartlett Springs Fault Zone) 19 miles to the west-SW. The closest known active fault systems to the site are the Great Valley Thrust Zone, which trends north-south along the eastern foothills Coast Range, and the Bartlett Springs Fault System, which trends NW-SE through the Coast Range. In 1892, an earthquake registering 6.5 on the Richter scale occurred along the Great Valley Thrust Zone in Winters and Vacaville. No significant earthquakes have been historically recorded along the Bartlett Springs fault zone, but it is considered active due to its relatively high slippage rate (6 mm/yr) and the fact that it is in a branch of the San Andreas Fault System.
23. The maximum probable earthquake (MPE) for the site is estimated to be about 6.5 on the Richter scale based on the 1892 Vacaville/Winters quake noted above. A maximum magnitude earthquake of 6.8 and a peak horizontal ground acceleration of 0.246 g were computed for the site using a probabilistic approach (i.e., seismic hazard distributed across area rather than single source).³
24. Native soil in the area has been mapped as Millsholm-Contra Costa complex soil in areas with 5% to 30% slopes, and Corning Clay Loam soil in areas with 1% to 5% slopes. The former typically consist of clay loam or gravelly clay loam ranging from 14 to 35 feet bgs underlain by unweathered bedrock. The latter typically includes clay or clay loam soils to a depth of 20 inches underlain by gravelly clay or sandy soil to about 60 inches.⁴ Well boring logs indicate that the site is underlain by 77 to 84 feet of clay, clayey gravel, and gravelly clay alluvial deposits and soils which overlay shale bedrock of the Knoxville Formation (Upper Jurassic Age).

SURFACE WATER CONDITIONS

25. The site is drained by an ephemeral stream that flows north into an unnamed stream that is tributary to Stony Creek. Stony Creek flows north into the Stony Gorge Reservoir. Black Butte Lake, and thence the Sacramento River (near Hamilton City about 40 miles northeast of the site). Other surface waters near the site include Salt Creek about 1/4 mile east of the site and a small agricultural supply reservoir about

3. Maximum magnitude earthquake derived from probabilistic seismic hazard (PSH) de-aggregation analysis assuming an earthquake in the Foothills Fault System with a 475-year return period (10% chance in 50 years).

4. See report *Soil Survey of Colusa County, California*; Natural Resources Conservation Service, U.S. Department of Agriculture; 2006.

3/8 mile west of the site. The former flows north into Stony Creek and the latter east into Little Stony Creek. Neither water body is known to drain any portion of the site, however. See Attachment A.

26. The *Water Quality Control Plan for Sacramento and San Joaquin River Basins, Fourth Edition*, designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. The designated beneficial uses of Stony Creek under the Basin Plan are agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; migration of aquatic organisms; spawning, reproduction and/or early development; and wildlife habitat. Cold freshwater habitat is listed as a potential beneficial use.
27. Storm water runoff at the site is directed via perimeter swales to an unlined sedimentation basin in the northeast corner of the facility. The sedimentation basin detains storm water for silt and sediment control during the rainy season and is normally dry during the summer months. The basin discharges to the north-flowing ephemeral stream noted in Finding 25. See Attachment B: Facility Map.

UNSATURATED ZONE CONDITIONS

28. No lysimeters or other soil pore water devices were installed or required prior to construction of the landfill, which occurred in the 1970s prior to the applicability of current monitoring standards under Title 27. The Discharger has also adequately demonstrated that it would be infeasible and impractical to retrofit the landfill with lysimeters given that the footprint has already been established and that the landfill is unlined.
29. The unsaturated zone monitoring system for the site consists of four soil gas monitoring wells (SGPs-1 through 4) installed along the perimeter of the site in 2010 in accordance with Title 27 solid waste regulations implemented by the Local Enforcement Agency (LEA). Two of these wells (SGPs-2 and 3) are single completion, shallow probes and the other two (SGP-1 and 4) each have three nested probes screened in shallow, intermediate, and deep intervals of the unsaturated zone relative to landfill waste. See MRP, Section A.2.a. The locations of these soil pore gas monitoring wells are shown in Attachment B. The probes were installed in 2010 to comply with solid waste regulations and are monitored quarterly for field gases.
30. The Discharger monitors the perimeter soil gas probes under the Solid Waste Facilities Permit issued by the LEA. Since initiation of quarterly field gas monitoring in October 2010, no methane exceedances have been detected in any of the probes. The highest concentration of methane detected in the probes has not exceeded 0.2% by volume. No VOC monitoring of the probes has ever been conducted or required by the LEA, and it is unlikely that significant VOCs would be present at such low methane concentrations. Given the potential for LFG to migrate and carry VOCs with

it, however, the monitoring and reporting program requires VOC sampling if meter results show total organic vapors above 50 ppbv in a given probe. See MRP Section A.2.b.

31. The Discharger also monitors landfill gas emitted from the six passive vents installed within the landfill footprint as a source control measure in 2007. See Finding 58. Bimonthly (i.e., every two months) gas monitoring data collected from the vents since October 2007 shows average historical methane concentrations in the probes ranged from 7% (V-4) to about 32% (V-2 and V-6) with an overall average of about 21% among the probes. Average historical carbon dioxide concentrations in the probes similarly ranged from about 12% (V-4) to 29% (V-6) with an overall average of about 21% among the probes. Previous WDRs predated installation of the vents and therefore did not include monitoring requirements for landfill gas. No VOC sampling of the landfill gas emitted from the probes has ever been conducted, so it is not currently known what VOCs the gas may contain and at what concentrations.

To evaluate the nature of landfill gas as a potential source of impacts at the site, and to monitor the effectiveness of corrective action measures, MRP No. R5-2014-XXXX requires that the Discharger conduct semiannual monitoring of the vents for field gases and organic vapors, and, for all vents showing elevated concentrations of landfill gas (i.e., methane \geq 40% and/or organic vapors $>$ 50 ppbv), concurrently collect VOC samples from those vents. VOC samples do not need to be collected more frequently than one time per year on each such vent. See MRP, Section A.7.

32. The minimum separation between landfill wastes and groundwater is about 52 feet.

GROUNDWATER CONDITIONS

33. The uppermost aquifer at the site is confined to semi-confined and occurs in the clayey, gravelly alluvial deposits described in Finding 24. Piezometric groundwater elevations at the facility range from about 1,235 feet MSL upgradient at MW-1A to about 1,195 feet MSL downgradient at MW-6 with about +/- 1 to 2 feet of seasonal variation. Corresponding depths to groundwater range from about 55 to 95 feet below ground surface (bgs). The groundwater flow direction is generally to the northeast and the piezometric flow gradient averages about 0.04 ft/ft.
34. Background groundwater quality in the uppermost aquifer at the site has not been established for all constituents due to reliability issues with the well currently used for background monitoring at the site. These WDRs require that the Discharger install a new background well to resolve this issue. See Finding 37.
35. The beneficial uses of the ground water at the site are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

36. The groundwater monitoring system for the landfill currently consists of five monitoring wells (i.e., MWs-1A, 3, 4, 5 & 6), including one upgradient well (MW-1A), one side gradient well (MW-4), and three down gradient wells (MWs-3, 5 & 6). The monitoring system formerly included two other monitoring wells, one abandoned in 1997 (MW-1) and the other abandoned in 2004 (MW-2). Historical monitoring data exists for both the existing and former monitoring wells. All monitoring wells are completed in the upper zone and one of the wells, MW-3, is a Point of Compliance well under the landfill's Water Quality Protection Standard. See Attachment B. With the exception of the background monitoring issue noted above, the landfill's detection monitoring system complies with Title 27 performance standards.
37. Monitoring data for the site indicates that the well used for background monitoring, MW-1A, may not be a representative of background conditions for one or more of the following reasons:
 - a. The well appears to have been completed in a different geological interval than the other monitoring wells at the site. Specifically, boring logs indicate that MW-1A was completed in a shale interval, while the other wells were completed in alluvial material in the uppermost portion of the aquifer.^{5,6}
 - b. Significantly higher concentrations of sulfate (see Finding 39) have been historically detected in MW-1A compared to the downgradient and sidegradient wells at the site, indicating natural variability or possible impacts from the landfill or former septage pond operations.
 - c. Most of the TDS detected in MW-1A (see Finding 39) consisted of bicarbonate alkalinity, a common artifact of landfill gas, which can migrate upgradient in the unsaturated zone.
38. To help resolve the above issues and ensure that representative background monitoring data is obtained for the development of concentration limits (described in Findings 44 through 47 below), these WDRs require that the Discharger submit a work plan for installation of a new upper zone background monitoring well located a sufficient distance from the landfill (e.g., upgradient near the property boundary or offsite, if necessary) so as to be beyond any possible influence of the landfill or other legacy impacts. The work plan is also required to include a design for installation of a lower zone background monitoring well at approximately the same location as the upper zone well. The lower zone well would need to be installed if the initial well boring indicates that there are two saturated zones (i.e., upper and lower) within the

5. See 15 January 2002 *2001 Annual and Second Semester Self-Monitoring Report, Stonyford (Class III) Landfill Facility*, prepared by MWH Consultants.

6. In a 28 January 2002 letter regarding apparent groundwater exceedances at the site, Central Valley Water Board staff requested that the Discharger submit either an Evaluation Monitoring Proposal, or, in the alternative, an assessment as to the adequacy of MW-1A as a background monitoring well. The Discharger submitted the EMP proposal.

uppermost aquifer that need to be separately monitored. The decision whether or not to install the lower zone well is required to be made based on field data and must be approved by Water Board staff. See Provision J.6.b and MRP Table A.1.a.

39. Elevated concentrations of certain inorganic constituents have been historically detected in groundwater at the site, as noted in the table below in bold:

Constituent	Average Groundwater Concentration, 1999 – 2013			
	Units	Upgradient ¹	Side Gradient ²	Downgradient ³
General Minerals:				
Specific Conductance	µmhos/cm	855	769	1,312
Total Dissolved Solids	mg/L	546	437	849
Bicarbonate ⁴	mg/L	470	515	1,100
Chloride	mg/L	14	6.4	43.4
Nitrate	mg/L	<0.20	2.5	1.6
Sulfate	mg/L	86.4	12.4	11.4
Dissolved Metals:				
Arsenic	µg/L	<2.0	3.5	5.3
Barium	µg/L	68	340	450

1. Based on monitoring data from upgradient well MW-1A.

2. Based on monitoring data from side gradient well MW-4.

3. Based on monitoring data from Point of Compliance well MW-3.

4. Bicarbonate data based on 5-year COC sampling conducted in May 2006 and March 2011.

All elevated concentrations, except for sulfate, occurred in downgradient or side gradient wells, indicating possible impacts from the landfill. Time series plots of the data did not indicate any clear long-term rising or falling trends in the wells since initiation of monitoring under previous WDRs.

40. Low concentrations of volatile organic compounds (VOCs) have also been historically detected in groundwater at the site, indicating a release from the landfill. Time series plots of VOC data did not indicate any obvious trends in VOC concentrations prior to the implementation of corrective action. None of the VOCs historically exceeded drinking water standards, except for benzene in MW-3 in 1999, which was detected 4.2 µg/L compared to its 1 µg/L primary maximum contaminant level (MCL). No VOCs have been detected in any of the groundwater monitoring wells at the site since 2007 when the Discharger installed passive landfill gas vents as a corrective action measure (see Finding 59).
41. The historical VOCs impacts and results after implementation of corrective action in 2007 are summarized as follows:

VOC	Maximum Concentration, µg/L ¹		
	1999 - 2007	2010	2013
Benzene	4.2	<0.2 ²	<0.2 ²
1,1-Dichloroethane	0.2	<0.2 ²	<0.2 ²
Dichloromethane	0.9 ³	<0.2 ²	<0.2 ²
Dichlorodifluoromethane	0.9	<0.2 ²	<0.2 ²
Ethylbenzene	<0.2 ²	<0.2 ²	<0.2 ²
Methyl tert-butyl ether (MTBE)	0.2 ³	<0.2 ²	<0.2 ²
Tert-butyl alcohol	24.4	<0.2 ²	<0.2 ²
Toluene	3.4 ³	<0.2 ²	<0.2 ²
Trichloroethylene (TCE)	0.8	<0.2 ²	<0.2 ²
Trichlorofluoromethane	0.8	<0.2 ²	<0.2 ²

1. Based on monitoring data from Point of Compliance well MW-3, except where otherwise footnoted.
2. Non-detect.
3. Trace concentrations also detected MWs-1A, 4, 5 and/or 6.

Monitoring Data Analysis Methods

42. 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 volatile organic compounds 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) allows 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). However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.
43. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27, section 20080(a)(1). Water Code section 13360(a)(1) allows the Central Valley Water Board to specify requirements to protect groundwater or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.
44. 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 SPRs specify a non-statistical method for the evaluation of monitoring data for non-naturally occurring compounds. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a landfill unit. The presence of two non-naturally occurring waste constituents above their respective

method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL) [a.k.a, laboratory reporting limit (RL)], indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing must be conducted to determine whether there has been a release from the landfill unit or the detection was a false detection. The detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

45. For a naturally occurring constituent of concern, the Title 27 requires concentration limits for each constituent of concern be determined as follows:
 - a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
 - b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).
46. 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.
47. Previous WDRs Order No. 99-080 required that the Discharger propose data analysis methods for developing concentration limits at the site and include an updated list of concentration limits based on those methods in the annual reports submitted under that Order. The Discharger subsequently proposed to use the interwell tolerance method for statistical parameters and a non-statistical approach for non-naturally occurring constituents (e.g., VOCs). The first list of concentration limits for the landfill based on those methods was included in the 1999 Annual Report. No formal approval of the Discharger's proposed data analysis methods was issued, however no objections to the procedure were noted in monitoring report reviews. These WDRs incorporate the most recent list of updated concentration limits for the site (submitted in 2013 Annual Report), but require that the Discharger submit a revised Water Quality Protection Standard Report, once the new background well is installed at the site and a sufficient amount of background monitoring data has been obtained from the well to develop revised concentration limits. See Monitoring Specification G.5.

48. To demonstrate that corrective action has been completed (i.e., concentrations along Point of Compliance returned to compliance with the water quality protection standard), Monitoring Specification G.8 specifies a four year “proof” period. During this period, the Discharger must demonstrate that all constituents of the release have been reduced to concentration limits for at least eight consecutive semiannual monitoring events.

OPERATION OF FACILITIES

49. Wastes were historically discharged to the landfill by the trench and fill method, which approximately defined the present-day landfill footprint. In these operations, waste was dumped into the landfill from the main access road, bulldozed into a previously excavated trench, and then compacted and covered with on-site soil. Waste disposal operations have since been conducted by the area fill cell method, which has included both lateral and vertical development of the landfill. Approximately one foot of cover soil is currently placed over waste weekly.
50. As of December 2013, the fill status of the landfill was estimated to be as follows:

<u>Area</u> (acres)	<u>In-Place Volume</u> (1,000 cubic yds)		<u>In-Place Tonnage</u> (kilotons) ¹		<u>Percent Filled</u>
	<u>Current</u>	<u>Ultimate</u>	<u>Current</u>	<u>Ultimate</u>	
3.3	92.0	149.2	23.0	37.3	61.6

1. Estimated from in-place survey volume using a conversion factor of 4 cubic yards of compacted MSW per ton.

Based on the maximum waste elevation authorized under the facility’s Solid Waste Facilities Permit (1,320 feet MSL) and an average historical disposal rate of 5,453 cy/yr uncompacted (2,181 cy/yr compacted), it is estimated that the landfill will reach capacity in the year 2036. It should be noted, however, that the above calculations assumed a 3.3-acre landfill footprint, whereas the 2009 topographic survey indicated a footprint of about 4.0 acres. Closure and Postclosure Specification E.1 requires that the Discharger address this issue as part of a revised Preliminary Closure and Postclosure Maintenance Plan required under these WDRs.

51. Title 27, section 21570(f) (10) requires that a topographic ground or aerial survey be completed at least once every ten years at disposal sites permitted for 20 tons-per-day or less. The survey is required for estimating the landfill footprint area, in-place volume of solid waste and cover material discharged to the landfill, and for landfill capacity calculations. A copy of the survey is also required to be included in the JTD submitted as part of the Solid Waste Facilities Permit application package. The survey also provides useful information for Central Valley Water Board staff in conducting site inspections and in updating the facility’s WDRs under Title 27 regulations (e.g., landfill slopes and drainage grades).

52. The most recent topographic survey of the site was conducted in 2009. Consistent with Title 27, section 21570(f) (10) and the need for reasonably current topographic information by Central Valley Water Board staff, as noted above, these WDRs require that the Discharger perform the next topographic site survey by **31 October 2019** and submit a certification report of the results within 90 days. See Facility Specification C.2 and MRP Section B.6.

DESIGN AND CONSTRUCTION

53. The landfill was constructed in the early 1970s without a liner or LCRS under previous Subchapter 15 regulations. Previous WDRs Order No. 90-015 subsequently re-classified the landfill as a Class III unit under Title 27, section 20260 (formerly Chapter 15, section 2533) based on a finding that the Discharger had adequately demonstrated that natural geologic materials underlying the site were sufficiently protective of groundwater.⁷ The unit was therefore not required to be constructed or retrofitted with a prescriptive clay liner and LCRS.
54. Limited exemptions to the applicability of Subtitle D regulations include, but may not be limited to, the following:
- a. MSW landfills that ceased accepting wastes prior to the federal deadline (e.g. 9 October 1993) may only be required to comply with the Closure and Postclosure Care requirements (Subpart F);
 - b. MSW landfills developed prior to the federal deadline may be exempt from the Design Criteria (Subpart D) to the extent of their pre-deadline footprint; and
 - c. Small rural landfills (Subpart A, General) may be exempt from the Design Criteria (Subpart D) if they have not impacted groundwater. See 40 CFR 258.1(f).

A review of the files indicates that the landfill footprint had been established prior to the applicable federal deadline and that the landfill therefore qualifies for the limited exemptions under Finding 54 above. None of the footprint is therefore required to be constructed with a Subtitle D composite base liner, for example. Further, given the rural location of the landfill, its small size, and low disposal rate, it is likely that the landfill would have been exempt under (c) as a small rural landfill.

55. The unit's design may be summarized as follows, from top to bottom:

7. WDRs Order No. 90-015 included a finding stating "*The Discharger has demonstrated that, with a revised operation and design plan, the minimum 52 feet of natural geologic materials between the base of the Class III landfill and ground water will prevent the impairment of beneficial uses of ground water from the discharge of 'nonhazardous solid wastes' to the landfill during the operation, closure, and post-closure maintenance period.*"

<u>Component</u>	<u>Base</u>	<u>Side Slopes</u>
Operations layer	None	
Primary Liner	None ¹	
Filter Fabric	None	
LCRS	None ¹	
Subgrade	Native soil (graded & compacted) ²	
Subdrain	None	

1. See Footnote 7 on this page and Title 27, section 20260(b).
2. The base of the landfill unit was graded toward the east and northeast to a slope of about 0.1 ft/ft consistent with the pre-landfill topography of the site.

56. The maximum elevation of waste at the landfill is currently about 1,295 feet MSL (landfill crest) and the lowest elevation of waste is about 1,250 feet MSL corresponding to the landfill toe on the eastern side of the unit. The maximum height of the landfill waste column, including cover material, is currently about 25 feet.
57. The former septage ponds were considered existing, unclassified units under previous WDRs Order No. 90-115 because the ponds pre-dated Title 27/Chapter 15 regulations and retrofitting the ponds to meet Class II standards for containment of liquid wastes was infeasible. Also see Information Sheet.

CORRECTIVE ACTION

58. On 3 October 2005, after completion of Evaluation Monitoring and a preliminary Engineering Feasibility Study (see Information Sheet), the Discharger submitted a corrective action plan (CAP) for the installation of gas controls at the site, as requested by Central Valley Water Board staff (see *Workplan for Landfill Gas Extraction System, Stonyford Landfill*, prepared by Haling & Associates). The work plan proposed the installation of six passive gas vents (schedule 80 PVC) about equally spaced in an approximate ring configuration within the landfill footprint. The vents would be setback about 100 feet from the landfill perimeter, A short trench would be excavated to a depth of about 8 feet for installation of the vents and then backfilled with 2-inch particle size gravel overlain by cover soil. Vent risers (6-foot minimum height) fitted with wind-driven turbines would then be connected to the vents to assist in gas venting. Each vent riser would include a bibcock port for gas sampling. The system was designed to be expanded laterally and vertically if needed, but such need was not expected for several years given the slow pace of landfill development.
59. In November 2007, the Discharger completed installation of the passive gas control system, as documented in a 3 July 2007 addendum to the First Half 2007

groundwater monitoring report. The locations of the gas vents are shown in Attachment B.

CLOSURE

60. Title 27, section 21090 requires the following minimum prescriptive final cover components for landfills, from top to bottom:
- a. One-foot soil erosion resistant/vegetative layer.
 - b. Geomembrane layer (this layer is required for composite-lined landfills for equivalency to bottom liner).
 - c. One-foot soil low hydraulic conductivity layer, less than 1×10^{-6} cm/s or equal to the hydraulic conductivity of any bottom liner system.
 - d. Two-foot soil foundation layer.

Under Section 20080(b), the Discharger may construct an engineered alternative to the Title 27 prescriptive standard provided that the requisite demonstration is made (e.g., that the design meets Title 27 performance standards and that compliance with the prescriptive standard is not feasible).

61. On 12 June 2012, Central Valley Water Board staff approved a Preliminary Closure and Postclosure Maintenance Plan 2012 (PCPCMP) for the landfill. See 8 December 2011 *Preliminary Closure and Postclosure Maintenance Plan, Stonyford Landfill*, prepared by Haling & Associates. The Preliminary Closure Plan proposed an engineered alternative final cover design, including the following elements, from top to bottom:
- a. Deck Area & Adjacent Slopes (< 3H:1V)
 - i. Erosion resistant layer – One foot of clay loam soil vegetated with native grass.
 - ii. Low hydraulic conductivity (LHC) Layer – 60 mil textured LDPE geomembrane ($k < 1 \times 10^{-6}$ cm/sec) overlain by optional geocomposite drainage layer to promote lateral drainage.
 - iii. Foundation layer – Two feet compacted soil and/or wastes with appropriate engineering properties.

The need for the optional geocomposite layer in the LHC design would be determined based on the permeability of the erosion resistant layer soil and addressed in the Final Closure Plan (FCP). If the erosion resistant layer soil allows too much infiltration, the composite LHC design would be included to promote lateral drainage off the LHC.

- b. Side Slopes (> 3H:1V)
 - i. Erosion resistant layer – same as above
 - ii. LHC layer – 60 mil textured LDPE geomembrane ($k < 1 \times 10^{-6}$ cm/sec) overlain by a geocomposite drainage layer to allow drainage of the erosion

resistant layer, help hold vegetative cover soil in place, and prevent slippage.

iii. Foundation Layer – 2 feet compacted foundation soil.

Approximately 17,000 cubic yards of soil would be needed for the project. Foundation and cover soil would be obtained from onsite sources and offsite sources within a 10-mile radius of the landfill. A formal demonstration of the proposed final cover design as an engineered alternative would be included in the Final Closure Plan and submitted for approval prior to initiating closure activities. Construction activities would be completed by 2038.

62. The final cover would be graded uniformly in each direction (north, NE, east, SE, south, SW, west, and NW) into the approximate shape of a pyramid with top deck elevations ranging from 1,330 feet MSL at the crest to 1,323 feet MSL along the rim. (The crest elevation is based on the maximum waste elevation allowed under the landfill's Solid Waste Facilities Permit). The top deck rim would form a trapezoid with sides ranging from 70 feet (south) to about 220 feet (east). Landfill cover grades would range from a minimum of 6 degrees in the top deck area to a maximum of 3H:1V along the flanks. The lowest elevation of the final cover surface would be 1,250 feet MSL along the eastern toe.
63. A slope stability report prepared for a previous (1990) version of the PCPCMP used modified Bishop's (i.e., circular failure surfaces) and simplified Janbu methods in the analysis of the proposed final cover. Results of the analysis indicated stable slopes with estimated static and dynamic safety factors of 5.2 and 3.7, respectively. All modeled slopes were no steeper than 3H:1V as proposed in the current (2012) PCPCMP. The previously proposed final cover did not have a geosynthetic component, however, and assumed a shorter waste column (about 10 feet) than is currently proposed. Various other assumptions in the report may also need to be revisited (e.g., waste density, footprint, seismicity, model design). The demonstration would also need to address the absence of benching, given that one of the proposed cover slopes would exceed the 50 foot maximum rise specified in Title 27, section 21090(a) without benching. The demonstration would need to show that such slopes are stable in the absence of benching, for example. These WDRs require that the Discharger address these issues in an updated slope stability report required as part of a revised PCPCMP. See Finding 66 below.
64. Storm water controls would include berms along the rim of the top deck to direct runoff down the south slope of the landfill and a perimeter drain (18-inch corrugated metal pipe) along the base of the landfill to capture and convey side slope runoff. The landfill perimeter drain would discharge into the upstream end of the onsite swale at the south end of the landfill, which flows into the sedimentation basin in the northwestern part of the facility. See Finding 27. All landfill drainage facilities would be designed handle runoff flows and volumes associated with a 24-hour, 100-year storm event.

65. The 2012 Preliminary Postclosure Maintenance Plan (PCMP) included schedules for postclosure maintenance and monitoring of the landfill's environmental control and monitoring systems, including perimeter gas monitoring wells, landfill gas vents, groundwater monitoring wells, storm drains, and surface water.
66. Closure and Postclosure Specification E.1 requires that the Discharger submit a revised PCPCMP, including, but not limited to, updated landfill footprint and capacity calculations; a revised closure design, as necessary; updated slope stability analysis; and revised financial assurance cost estimates to reflect the findings and postclosure maintenance and monitoring requirements under this Order. See also Provision J.6.e.

FINANCIAL ASSURANCES

67. Title 27, sections 21820 and 22206 require that the Discharger provide a lump sum cost estimate for landfill closure. The total estimated cost of landfill closure specified in the PCPCMP is \$740,429 in 2013 dollars. This estimate includes, but is not limited to, costs of site preparation; facilities decommissioning; acquisition and placement of cover soil and geosynthetic layers; construction CQA testing; installation of drainage controls; completion of landfill gas controls; establishment of vegetative cover; reporting documentation (including FCP and certification report preparation), and other items, including 20% contingency,
68. Title 27, sections 21840 and 22211 require that the Discharger provide a lump sum estimate of the cost of landfill postclosure maintenance and monitoring. The total estimated cost of landfill postclosure maintenance and monitoring specified in the PCMP is \$1,238,648 (\$41,288 per year) in 2013 dollars.
69. The Discharger is required to demonstrate financial assurances for landfill closure and postclosure maintenance to CalRecycle pursuant to Sections 22205(a) and 22210(a).⁸ The Discharger has established an Enterprise Fund (Section 22241) funded by annual allocations from the County's solid waste budget for closure and postclosure financial assurances. CalRecycle has approved this mechanism. As of 17 January 2014, the combined balance of the Enterprise Fund account for closure and postclosure maintenance was \$364,036 in 2013 dollars, approximately 21 percent above the minimum required funding balance required by CalRecycle based on the proportion of total landfill capacity filled.

Financial Assurance Specification F.1 requires that the Discharger provide and maintain closure and postclosure financial assurances to the CalRecycle in at least the amount of the updated cost estimates in the currently approved PCPPCMP, as annually adjusted for inflation.

8. Sections 22205 and 22210 apply to all solid waste landfills permitted under Chapter 4 that have, or will be, operated after January 1, 1988.

70. The Discharger is required to provide cost estimates and demonstrate financial assurances to CalRecycle for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill, including a “water release” under Section 22101(a) and a “non-water” release such as caused by a natural event under Section 22101(b).⁹ Section 22221(b) requires that corrective action financial assurances be in at least the amount of the greater of the most recently approved (or most recently submitted) corrective action cost estimates for water and non-water releases, respectively.
71. In December 1999, the Discharger submitted a technical report providing corrective action cost estimates for a known or reasonably foreseeable release from the landfill as required under previous WDRs Order No. 99-080. See 17 August 1999 *Response Plan for Financial Responsibility, Stonyford Landfill Facility*, prepared by Harza. The report assumed a reasonably foreseeable release scenario consisting of a moderate size (i.e., “Case 2”) leachate release affecting about 132 acre-feet of groundwater in the upper aquifer. The total cost estimate to address the release, including installation and operation of a groundwater extraction system, was \$851,000 in 1999 dollars. The Central Valley Water Board’s Executive Officer approved the Discharger’s corrective action cost estimate.
72. Given the existence of a known release to groundwater (described in Findings 39 and 40) and the corrective action measures implemented to address it (described in Findings 58 and 59), the 1999 approved corrective action cost estimates (and release scenario upon which they are based) are out of date and need to be revised. Financial Assurances Specification F.3 therefore requires that the Discharger submit a report containing a revised corrective action cost estimate based on the costs of addressing the existing release at the landfill and any remaining reasonably foreseeable release issues at the site.
73. Financial Assurances Specification F.2 requires that the Discharger provide and maintain financial assurances to the CalRecycle in at least the amount of the above corrective action cost estimates, as annually adjusted for inflation.
74. The Discharger has provided a Certificate of Insurance (Section 22253) approved by CalRecycle as the funding mechanism for corrective action financial assurances. Financial Assurances. Specification F.4 requires that the Discharger submit a report demonstrating the adequacy of corrective action financial assurances, including funding and mechanism, by **1 June** of each year.

CEQA AND OTHER CONSIDERATIONS

75. The action to revise the WDRs is exempt from the provisions of the California

9. Solid waste section financial assurance requirements for “non-water” release may or may not exceed the scope of funding required for “water-release” under water qualify Section 20380(b).

Environmental Quality Act (Public Resources Code Section 21000, et seq.), in accordance with Title 14, CCR Section 15301 for existing facilities.

76. Water Code Section 13267(b) provides that: “In conducting an investigation specified in subdivision (a), the Central Valley Water Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Central Valley Water Board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.”
77. The technical reports and monitoring reports required by this Order (MRP No. R5-2014-XXXX, attached) 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.
78. This Order implements:
 - a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition;*
 - b. *Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, 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.
 - e. *The Porter-Cologne Water Quality Control Act (as amended January 1, 2002), Division 7, California Water Code.*
 - f. *State Water Resources Control Board Resolution No. 68-16, Statement of Policy With Respect to Maintaining High Quality of Waters in California.*
79. 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 Stonyford Landfill was classified as a “2B” discharge under previous WDRs Order 99-080. 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 update 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 Central Valley Water Board's website at:

http://www.waterboards.ca.gov/resources/fees/docs/fy13_14_fee_schedule_wdr.pdf

PROCEDURAL REQUIREMENTS

80. 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.
81. The Regional 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.
82. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.
83. 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 Water Code section 13320 and title 23, CCR, sections 2050 et seq. 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 Internet at:

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

or will be provided upon request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 99-080 is rescinded, except for purposes of enforcement, and that the Colusa County Department of Public Works, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of 'hazardous' or 'designated' waste, as defined under Title 27, section 20164, to the landfill unit is prohibited.
2. The discharge of liquid or semi-solid wastes to the landfill unit, including, but not limited to, septage and chemical toilet wastes, is prohibited.
3. The discharge/return of leachate and/or landfill gas condensate to the landfill unit is prohibited.
4. The discharge of biohazardous and/or biomedical waste, radioactive waste and dead animals is prohibited.
5. Lateral expansion of the existing landfill unit is prohibited under this Order. See also Construction Specification D.1 and Standard Prohibition C.3, SPRR.
6. The discharge of waste within 100 feet of surface waters is prohibited.
7. The Discharger shall comply with all Standard Prohibitions applicable to an active, unlined MSW landfill listed in Section C of the Standard Provisions and Reporting Requirements (SPRRs) dated January 2012, which are attached hereto and made part of this Order by reference.

B. DISCHARGE SPECIFICATIONS

1. The Discharger shall only discharge the wastes listed or allowed under the Waste and Unit Classifications section in the Findings of this Order.
2. Inert liquids (i.e., groundwater, surface water, or storm water) may be applied to areas of intermediate or final cover for maintenance purposes (e.g., dust control, limited irrigation of vegetative cover) consistent with Section 21090(a)(5)(B). Only clean soil meeting project specifications may be used for repair of the landfill cover.
3. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order. If the Discharger is unable to remove and relocate 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, and any updates to the waste acceptance program necessary to prevent re-occurrence. If the waste is a hazardous waste, the Discharger shall immediately notify the Department of Toxic Substances Control.
4. The Discharger shall comply with all Standard Discharge Specifications applicable to an active, unlined MSW landfill listed in Section D of the SPRRs dated January 2012, which are attached hereto and made part of this Order by reference.

C. FACILITY SPECIFICATIONS

1. The Discharger shall operate and maintain adequate landfill gas controls for the landfill unit, including associated facilities and monitoring systems, until such time as it can be demonstrated that landfill gas is no longer a threat to water quality, as documented by the Discharger and approved by the Executive Officer. See also Standard Facility Specification E.11, SPRR.
2. By **31 October 2019**, and **at least every 10 years** after that survey prior to landfill closure, the Discharger shall perform a topographic survey of the site (aerial or approved ground survey) consistent with Title 27, section 21570(f) (10) to track disposal operations and to provide information needed by Central Valley Water Board staff for regulatory oversight activities (i.e., site inspections, updating WDRs). **Within 90 days** of performing the survey, the Discharger shall submit a certification report containing, at a minimum, a new topographic map of the site showing monitoring well locations and other reference points, and a description of the surveying method. See Finding 52 and MRP Sections A.6.c and B.6.
3. The Discharger shall comply with all Standard Facility Specifications applicable to an active, unlined MSW landfill listed in Section E of the SPRRs dated January 2012, which are attached hereto and made part of this Order by reference.

D. CONSTRUCTION SPECIFICATIONS

1. Construction of a new landfill unit, or lateral expansion of the existing landfill unit at the site, is prohibited under these WDRs. Any proposal for construction of a new landfill unit or lateral expansion of the existing unlined unit shall be submitted in the form of a revised RWD/JTD and require approval of revised WDRs by the Central Valley Water Board prior to project construction.
2. The Discharger shall comply with all Standard Construction Specifications applicable to an active, unlined MSW landfill listed in Section F of the SPRRs dated January 2012, which are attached hereto and made part of this Order by reference.

E. CLOSURE AND POSTCLOSURE SPECIFICATIONS

1. By **15 March 2016**, the Discharger shall submit a revised Preliminary Closure and Postclosure Maintenance Plan (PCPCMP) for the landfill, including, but not limited to, the following to reflect the findings and closure and postclosure maintenance and monitoring requirements of this Order:
 - a. An updated landfill footprint estimate based on the most recent topographic site survey and other relevant information (e.g., historical records, field observations);
 - b. Revised landfill volumetrics and capacity calculations, as necessary, based

- on any significant change in the estimated landfill footprint size;
- c. An engineered alternative final cover demonstration;
- d. A revised slope stability report consistent with the preliminary closure design that addresses the issues noted in Finding 63;
- e. A revised closure design, as necessary, based on the above information;
- f. Revised financial assurance cost estimates; and
- g. Updated postclosure maintenance/monitoring schedules and costs, as necessary, to reflect the monitoring schedules under the MRP.

The Discharger shall update the PCPCMP any time there is a change that will increase the amount of the closure and/or post-closure maintenance cost estimate. The updated PCPCMP shall be submitted to the Central Valley Water Board, the Local Enforcement Agency, and CalRecycle. See Finding 66 and Provision J.6.e.

2. The PCPCMP shall meet the requirements of Title 27, section 21769(b), and include a lump sum estimate of the cost of carrying out all actions necessary to close each Unit, to prepare detailed design specifications, to develop the final closure and post-closure maintenance plan, and to carry out the first thirty years of post-closure maintenance. Reports regarding financial assurance required in F.1 below shall reflect the updated cost estimate.
3. Prior to initiation of final (or partial final) closure construction activities at the landfill, the Discharger shall prepare and submit an application for revised waste discharge requirements (WDRs), including a completed application form (Form 200) and a Report of Waste Discharge (RWD) prepared under Title 27, Title 27, Chapter 4, Subchapter 3, Article 4 (Section 21710 et. seq.). No landfill closure construction activities shall be initiated at the site in the absence of revised (i.e., closure) WDRs issued by the Central Valley Water Board based on the RWD, including approved FCPCMP, prepared under Title 27 regulations. See Section G, SPRR.
4. The Discharger shall comply with all Standard Closure and Post-Closure Specifications applicable to an active, unlined MSW landfill listed in Section G of the SPRRs dated January 2012, which are attached hereto and made part of this Order by reference.

F. FINANCIAL ASSURANCE SPECIFICATIONS

1. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for landfill closure and post-closure maintenance in at least the amount of the cost estimates provided in the currently approved PCPCMP, as annually adjusted for inflation. See Finding 67 and Title 27, Sections 20950(f), 22206(a), and 22211(a).

2. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in at least the amount of the currently approved cost estimate, as adjusted for inflation. See Finding 70 and Title 27, §§ 20380(b), 22221, and 22222.
3. As noted in Finding 72, the corrective action cost estimates for the site developed and approved in 1999 are out of date. By **30 June 2015**, the Discharger shall under Section 22222 submit a report providing revised corrective action cost estimates based on the costs of addressing the known release at the site and/or any reasonably foreseeable release issues. See also Provision J.6.d.
4. Reports regarding required financial assurances for landfill closure, postclosure maintenance, and corrective action, respectively, shall be submitted to the Central Valley Water Board by **1 July** of each year. These reports may be the same as those submitted to CalRecycle for this purpose. If CalRecycle determines that the amount of coverage and/or mechanism is inadequate for either type of financial assurance, 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. See Provision J.6.a.
5. The financial assurance mechanism(s) provided for closure, postclosure maintenance, and corrective action, as applicable, shall be among those listed in Title 27 Section 22228 for which the Discharger is eligible.
4. The Discharger shall comply with all Standard Financial Assurance Provisions applicable to an active, unlined MSW landfill listed in Section H of the SPRRs dated January 2012, which are attached hereto and made part of this Order by reference.

G. MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection and corrective action monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with Monitoring and Reporting Program (MRP) No. R5-2014-XXXX, and the SPRR.
2. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP No. R5-201X-XXXX, and the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
3. 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 No. R5-2014-XXXX.

4. 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 No. R5-2014-XXXX and the Standard Monitoring Specifications in Section I of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
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. Concurrent quarterly background sampling of other background wells at the site may also be required to meet Title 27 performance standards if the background data is pooled. See Title 27, sections 20415(e)(7-10) and Standard Monitoring Specifications I.5 and I.28, SPRR. See WDR Provision J.6.b.
6. The Corrective Action monitoring program shall include a sufficient number of Monitoring Points installed at appropriate locations and depths to yield ground water samples from the uppermost aquifer that represent the quality of ground water passing the Point of Compliance and at other locations in the uppermost aquifer to provide the data needed to evaluate the effectiveness of the corrective action program. See Title 27, section 20415(b)(1)(D).
7. 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.
8. Prior to termination of corrective action measures required under Section 20430(c), the discharger shall demonstrate, pursuant to Section 20430(f), that the constituents of the release have been reduced to levels below concentration limits throughout the entire zone affected by the release. During this “proof period”, the Discharger shall, for each monitoring event, demonstrate that
 - a. The concentration of each constituent at each monitoring point remained at or below its concentration limit for at least four years, beginning immediately after the suspension of active corrective action measures;
 - b. The individual sampling events for each monitoring point were evenly distributed throughout the proof period and consisted of at least two semiannual sampling events per year per monitoring point; and
 - c. At the end of the proof period, a single data analysis method (statistical or nonstatistical, as appropriate) was used for each monitoring parameter at

each monitoring point to determine whether that parameter has been reduced to levels at or below concentration limits at that monitoring point.

The Discharger shall notify the Board and obtain Executive Officer approval prior to (1) suspending active corrective action measures prior to making the above demonstration; and (2) terminating active corrective action measures after making the above demonstration.¹⁰

9. The Discharger shall comply with all Standard Monitoring Specifications and Response to a Release specifications listed in Sections I and J of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

H. REPORTING REQUIREMENTS

1. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with MRP No. R5-2014-XXXX, as required by Water Code sections 13750 through 13755.
2. **Within 90 days** of adoption of this Order, the Discharger shall establish and maintain an account with the SWRCB's GeoTracker geographic information system data base, including a full declaration of the names and locations of all waste management units and Field Points (the GeoTracker name for monitoring points), plus a declaration of all COCs, and shall begin uploading word-searchable pdf copies of all monitoring program reports and associated laboratory sheets (the latter in GeoTracker's proprietary format) required under these WDRs. The Discharger shall also upload any additional monitoring program reports or report features required by the Executive Officer beginning with the Reporting Period following notification to submit such additional reports/report-features.
3. The Discharger shall report, in writing, to the RWQCB on the effectiveness of the corrective action program. The Discharger shall submit these reports **at least semi annually**. More frequent reporting shall be required by the RWQCB as necessary to ensure the protection of human health or the environment. [Title 27, section 20430(h)]. If the Discharger determines that the corrective action program does not satisfy the provisions of this section, the discharger shall,

10. If groundwater monitoring data for the site indicates that active corrective action measures will not likely be necessary to successfully complete corrective action (e.g., passive measures sufficient or release constituents attenuating naturally), the requirement for suspension of such active corrective action measures shall be inapplicable and these notification and approval requirements considered waived by the Board. In such case, the Discharger may request that the proof period be deemed to have commenced in or after the first consecutive monitoring period in which concentrations of the constituents in groundwater were reduced to non-detect or background levels).

within 90 days of making the determination, submit an amended report of waste discharge to make appropriate changes to the program. See Provision J.7 and MRP Section B.1.i.

4. The Discharger shall comply with all the notification and reporting requirements applicable to an active, unlined MSW landfill contained in the SPRRs dated January 2012, which are attached hereto and made part of this Order by reference, including those in Sections I (Monitoring Specifications), J (Response to Release), and K (General Provisions).

I. STORM WATER SPECIFICATIONS

1. Annually, prior to the anticipated rainy season, but no later than 31 October, any necessary erosion control measures shall be implemented and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent storm water flows from:
 - a. Contacting or percolating through wastes;
 - b. Causing erosion or inundation of the landfill cover or other areas of site;
 - c. Causing sedimentation and clogging of the storm drains; and/or
 - d. Discharging sediment loads to surface waters.
2. Discharges to the onsite sedimentation basin shall be limited to non-contact storm water.
3. The Discharger shall maintain coverage under the NPDES General Storm Water Permit for Industrial Activities and maintain a Storm Water Pollution Prevention Plan and monitoring and reporting program under that permit.
4. The Discharger shall comply with all the Standard Storm Water Provisions applicable to an active, unlined MSW landfill contained in Section L of the SPRRs dated January 2012, which are attached hereto and made part of this Order by reference.

J. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility, including the MRP No. R5-2014-XXXX and the SPRRs dated January 2012 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. Pursuant to Water Code section 13267, the Discharger shall comply with Monitoring and Reporting Program No. R5-2014-XXXX, which is attached to and made part of this Order. A violation of Monitoring and Reporting Program No. R5-2014-XXXX is a violation of these waste discharge requirements.
3. The Discharger shall comply with the applicable portions of the Standard

Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Subtitle D and/or Title 27, dated January 2012, which are attached hereto and made part of this Order by reference.

4. 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.
5. The Discharger shall comply with all applicable provisions of Title 27 and Subtitle D that are not specifically referred to in this Order.
6. Pursuant to Section 13267 of the California Water Code, the Discharger shall submit the following reports relevant to the landfill.

Report		Due Date
a.	Financial assurances demonstration report for landfill closure, postclosure maintenance, and corrective action per Financial Assurances Specification F.4.	1 July each year beginning 2014
b.	A workplan for the installation of a new upper zone background monitoring well and, if the initial well boring indicates the need, a lower zone background monitoring well at the same location. The workplan shall describe the rationale for determining if the second well is necessary. See Finding 38 and Standard Monitoring Specification I.28, SPRR.	15 September 2014
c.	A well installation report for the new background well(s) installed under the above work plan, as approved.	31 January 2015
d.	A report providing revised corrective action cost estimates under Section 22222 per Financial Assurances Specification F.3.	30 June 2015
e.	A revised Preliminary Closure and Postclosure Maintenance Plan (PCPCMP) per Closure and Postclosure Maintenance Specification E.1.	15 March 2016
f.	A revised Water Quality Protection Standard Report reflecting installation and monitoring of the new background wells under J.6.c above.	31 January 2016
g.	A report evidencing the establishment of an account with the SWRCB's Geotracker data base per Reporting Requirement H.2.	Within 120 days of adoption of this Order.

All of the reports required above shall be prepared by a California-registered civil engineer or certified engineering geologist.

7. By **31 January 2015**, and semi-annually thereafter, the Discharger shall submit a report on the progress of corrective action at the closed landfill units per Reporting Specification H.3. Each progress report shall address the following issues:
 - d. The source of the impact.
 - e. The nature and extent of the release.
 - f. Whether the size of the plume and concentrations of constituents within have increased, decreased or have not changed.
 - g. The ongoing effectiveness of landfill closure as a corrective action.
 - h. The ongoing effectiveness of LFG extraction as a corrective action.
 - i. The need for additional or improved corrective action measures and/or monitoring wells.

The reports shall include or reference plans for the installation of any additional monitoring wells necessary to define the extent of the release and/or monitor the progress of corrective action. The report may be submitted as part of each semiannual monitoring report submitted under the MRP. See MRP Section B.1.i.

8. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
9. The Central Valley Water Board will review this Order periodically and may revise requirements when necessary.
10. This Order shall take effect upon the date of adoption.

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

PAMELA C. CREEDON, Executive Officer

JDM/WMH