CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2014-0083
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 though 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. R5-2014-0083 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 Jurrasic) 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 suppy 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. R5-2014-0083 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 ≥ 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 SPRRs 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:

Area (acres)	In-Place Volume (1,000 cubic yds)		In-Place Tonnage (kilotons)[1]		Percent Filled
	Current	Ultimate	Current	Ultimate	
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 Faciltiies 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.*"

Component	Base	Side Slopes
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 $1x10^{-6}$ 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 x 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 x 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 that 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 re-visited (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. R5-2014-0083, 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:

    <u>Threat to Water Quality:</u>

    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, SPRRs.

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 or 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, SPRRs.

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. R5-2014-0083, and the SPRRs.

2. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP No. R5-2014-0083, 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. R5-2014-0083.

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. R5-2014-0083 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, SPRRs. 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. R5-2014-0083, 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. R5-2014-0083 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. R5-2014-0083, which is attached to and made part of this Order. A violation of Monitoring and Reporting Program No. R5-2014-0083 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 90 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 6 June 2014.

_____
PAMELA C. CREEDON, Executive Officer

JDM/WMH

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2014-0083
FOR
COLUSA COUNTY DEPARTMENT OF PUBLIC WORKS
STONYFORD LANDFILL
CLASS III LANDFILL
OPERATIONS AND CORRECTIVE ACTION MONITORING
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 No. R5-2014-0083, and the *Standard Provisions and Reporting Requirements for Nonhazardous Solid Waste Discharges Regulated by Subtitle D and/or Title 27* (SPRRs) dated January 2012. 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 comply with the detection and corrective action monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone in accordance with the Standard Monitoring and Response to Release specifications in Sections I and J of the SPRRs and the Monitoring Specifications in Section G of the WDRs. All monitoring shall be conducted in accordance with an approved *Sample Collection and Analysis Plan*, which includes 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.

The monitoring program of this MRP includes:

Section	Monitoring Program
A.1	Groundwater Monitoring
A.2	Unsaturated Zone Monitoring
A.3	Leachate Seep Monitoring
A.4	Surface Water Monitoring
A.5	Solid Waste Monitoring
A.6	Facility Monitoring
A.7	Additional Corrective Action Monitoring

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, sections 20415 through 20430. These groundwater monitoring systems shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27.

a. Monitoring Points

The groundwater monitoring network for the landfill shall as follows:

Table A.1.a
Groundwater Monitoring Points

Well	Program	Zone	Location	Distance & Direction[1]
n/a[2]	Background	Upper	Upgradient	n/a[2]
n/a[2,3]		Lower[3]		
MW-1A[4]				75 feet to SW
MW-3[5]	Detection/ Corrective Action	Upper	Downgradient	20 feet to NE
MW-4			Sidegradient	175 feet to NW
MW-5			Downgradient	300 feet to N-NE
MW-6				300 feet to NE

1. Estimated distance and direction relative to landfill unit boundary.
2. New background well(s) to be installed near property boundary (or offsite, if necessary) per WDR Provision J.6.b.
3. Lower zone well required only if initial well boring indicates that there are two saturated zones (upper and lower) in the uppermost aquifer and that they need to be separately monitored. The decision whether or not to install the well must be approved by Water Board staff.
4. Historical background monitoring well subject to replacement. Once replaced by new background wells, MW-1A will not need to be monitored under this Order. See WDR Finding 37.
5. Point of Compliance well.

b. Monitoring Schedule

Monitoring at each unit shall include field parameter testing and groundwater sampling. Groundwater samples shall be collected and analyzed in accordance with the following schedule using the applicable test methods for each constituent listed in Table C.3 attached to this Order.

Table A.1.b Groundwater Monitoring Schedule			
Parameters	Units	Monitoring Frequency	Reporting Frequency
Field Parameters			
Groundwater Elevation	Feet & 100ths, M.S.L.	Quarterly	Semiannually
Temperature	^{o}F	Semiannually[1]	Semiannually
Specific Conductance	umhos/cm	Semiannually[1]	Semiannually
pH	pH units	Semiannually[1]	Semiannually
Turbidity	NTU	Semiannually[1]	Semiannually
Monitoring Parameters			
Bicarbonate Alkalinity	mg/L	Semiannually[1]	Semiannually
Chloride	mg/L	Semiannually[1]	Semiannually
Nitrate as N	mg/L	Semiannually[1]	Semiannually
Sulfate	mg/L	Semiannually[1]	Semiannually
Total Dissolved Solids (TDS)	mg/L	Semiannually[1]	Semiannually
Volatile Organic Compounds (VOCs)	ug/L	Semiannually	Semiannually
Constituents of Concern (See Table C.3 below)		Every 5 years[1,2]	Every 5 years

1. At least one year of quarterly monitoring shall be conducted on all new background well(s) after installation to establish background concentrations for these constituents.
2. The required minimum four quarters of initial background monitoring per Footnote 1 above may be limited to those Table C.3 COCs listed under “General Minerals” and “Inorganics (dissolved)”.

The Discharger shall measure the groundwater elevation in each well quarterly, determine groundwater flow direction, and estimate groundwater flow rates in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation monitored. 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). Groundwater samples shall be collected at least semiannually from the background wells, detection monitoring wells, and corrective action monitoring wells, as applicable, and any additional wells added as part of the approved groundwater monitoring system. Quarterly monitoring of new background wells shall also be required for at least one year to establish/re-establish concentration limits for inorganic constituents, as footnoted in the above table.

The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan. Background, detection, and corrective action monitoring data analysis shall be

conducted consistent with the statistical and non-statistical data analysis methods contained in the revised Water Quality Protection Standard Report submitted under WDR Provision J.6.f, as approved by Central Valley Water Board staff. The results of monitoring (including acquired data) for quarterly field parameters, semiannual monitoring parameters, and 5-year COCs, shall be reported in the monitoring report for the semiannual period in which the samples were collected.

2. Unsaturated Zone Detection Monitoring

As described in WDR Finding 52, the landfill was constructed without a liner or LCRS under previous Subchapter 15 regulations. No soil pore water monitoring devices (e.g., lysimeters) were installed beneath the landfill prior to development nor were they required because the landfill is unlined. The unsaturated zone detection monitoring program is therefore limited to soil pore gas monitoring.

a. Monitoring Points

The soil gas monitoring network shall consist of the following perimeter probes described in WDR Finding 30).

Table A.2.a
Unsaturated Zone Monitoring Points

Monitoring Point	Zone	Depth	Distance & Direction[1]
SGP-1S	Shallow	5 - 10	300 feet to west-NW
SGP-1I	Intermediate	16 - 21	
SGP-1D	Deep	29 – 39	
SGP-2	Shallow	5 - 10	400 feet to north -NE
SGP-3	Shallow	5 - 10	350 feet to east
SGP-4S	Shallow	5 - 10	450 feet to South-SW
SGP-4I	Intermediate	20 - 40	
SGP-4D	Deep	50 - 70	

1. Estimated distance and direction relative to landfill unit boundary.

The unsaturated zone detection monitoring network shall also include any future soil gas monitoring probes installed at the site to monitor the landfill.

b. Monitoring Schedule

Soil-pore gas samples shall be collected from the monitoring network listed above and analyzed in accordance with the following schedule.

Table A.2.b Unsaturated Zone Monitoring Schedule			
Parameters	Units	Monitoring Frequency	Reporting Frequency
Field Parameters[1]			
Methane	%	Semiannually	Semiannually
Carbon Dioxide	%	Semiannually	Semiannually
Organic Vapors	ppm	Semiannually	Semiannually
Monitoring Parameters			
VOCs[2,3]	µg/cm^3	Semiannually	Semiannually

1. Field gas monitoring shall be conducted using appropriate field meter(s)
2. VOC sampling shall be required in all wells in which meter results show total organic vapors above 50 ppbv during the current monitoring event. Sampling may be limited to the probe with the highest meter reading.
3. VOC analysis shall be conducted using USEPA Method TO-15.

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 the monitoring reports submitted under this Order and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

3. Leachate Seep Monitoring

The Discharger shall monitor for leachate seeps from the landfill as part of Facility Monitoring under Section A.6 herein. Any observed leachate seepage from the landfill unit shall be sampled upon detection and analyzed in accordance with the following schedule using the applicable test methods for each constituent listed in Table C.3 attached to this Order. Reporting for leachate seeps shall be conducted as required in Section B.3 of this MRP.

Table A.3 Leachate Seep Monitoring Schedule			
Parameters	Units	Monitoring Frequency	Reporting Frequency
Field Parameters			
Presence of leachate/liquid	observation	Each occurrence	Within 7 days
Flow Rate	gallons/day	Each occurrence	Within 7 days
Electrical Conductivity	umhos/cm	Each occurrence	Within 7 days
pH	pH units	Each occurrence	Within 7 days
Monitoring Parameters			
Bicarbonate Alkalinity	mg/L	Each occurrence	Within 7 days
Chloride	mg/L	Each occurrence	Within 7 days
Nitrate as N	mg/L	Each occurrence	Within 7 days
Sulfate	mg/L	Each occurrence	Within 7 days
TDS	mg/L	Each occurrence	Within 7 days
VOCs	ug/L	Each occurrence	Within 7 days
Dissolved Inorganics	ug/L	Each occurrence	Within 7 days
Constituents of Concern[1] (See Table C.3 below)		Each occurrence	Within 7 days

1. COC sampling requirement may be waived by Water Board staff upon satisfactory demonstration by Discharger that leachate seepage from that location has been previously characterized for COCs and that corrective measures have been (or are being) implemented to prevent future recurrence.

4. Surface Water Monitoring

The Discharger shall operate a surface water detection monitoring system for any facility where runoff from waste management unit areas 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. Ephemeral Stream

As noted in WDR Finding 16, the landfill was sited along the upstream end of an ephemeral stream that has since been incorporated into the landfill's precipitation and drainage system. The swale drains to the onsite sedimentation basin, which discharges to the remaining portion of the ephemeral stream during peak flow periods. See WDR Finding 27. Upstream surface water monitoring at the site is therefore infeasible and downstream flows consist primarily of discharges from the sedimentation basins. Monitoring of the ephemeral stream is therefore not required under this MRP. Surface water monitoring at the site may therefore be limited to storm water monitoring.

b. Storm Water

The Discharger shall monitor storm water runoff to the landfill sedimentation basin prior to discharge to ephemeral stream east of the facility.

i. Monitoring Points

Table A.2.a.i Storm Water Monitoring Points[1]		
Monitoring Point	Program	Location
S-1	Background	Onsite swale - Upstream
S-2	Detection	Onsite swale - Downstream
S-3	Detection	Sedimentation Basin

1. All storm water sampling shall be conducted during the same monitoring event.

ii. Monitoring Schedule

Storm water samples shall be collected at each of the above monitoring points when there is flow in the swales and analyzed in accordance with the following schedule using the applicable test methods for each constituent listed in Table C.3 attached to this Order.

Table A.2.a.ii Storm Water Monitoring Schedule			
Parameters	Units	Monitoring Frequency	Reporting Frequency
Field Parameters			
Temperature	^{o}F	Semiannually	Semiannually
Electrical Conductivity	umhos/cm	Semiannually	Semiannually
pH	pH units	Semiannually	Semiannually
Turbidity	NTU	Semiannually	Semiannually
Monitoring Parameters			
TDS	mg/L	Semiannually	Semiannually
Chloride	mg/L	Semiannually	Semiannually
Sulfate	mg/L	Semiannually	Semiannually
Nitrate as N	mg/L	Semiannually	Semiannually
VOCS	ug/L	Annually	Annually
Constituents of Concern (See Table C.3 below)		Every 5 years	Every 5 years

Storm water monitoring shall also be conducted in accordance with the NPDES General Storm Water Permit for Industrial Activities required under Storm Water Specification I.3 of the WDRs.

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

5. Solid Waste Monitoring

The Discharger shall monitor all wastes discharged to the landfill on a quarterly basis and report to the Board as follows:

Table A.5
Solid Waste Monitoring Schedule

Parameter	Units	Monitoring Frequency	Reporting Frequency
Quantity of waste discharged	cu yds & tons[1,2]	Quarterly	Semiannually
Type(s) of waste discharged	---	Quarterly	Semiannually
Quantity of cover discharged	cu yds & tons[1,2]	Quarterly	Semiannually
Type(s) of cover discharged	---	Quarterly	Semiannually
Elevation range of discharges	MSL	Quarterly	Semiannually
Remaining landfill capacity	%	Annually	Annually

1. Tonnage shall be estimated based on volume conversion.
2. Volume conversion factor used for estimating landfill tonnage shall also be reported.

6. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for drainage control systems, interim cover systems, and groundwater monitoring wells; 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 B.4 of this MRP.

b. Major Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all landfill 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 B.5 of this MRP.

c. 10-Year Topographic Survey for Active Units

By **31 October 2019**, and at least every 10 years thereafter (i.e., after the first survey conducted under this Order), the Discharger shall conduct a topographic survey of the landfill and adjacent areas in accordance with Title 27, section 21570(f) (10) and Facility Specification C.2 of the WDRs.

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

d. Standard Observations

The Discharger shall conduct Standard Observations at the landfill 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 landfill units:

1. Evidence of ponded water at any point on the landfill 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 landfill 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.

Facility Monitoring shall also include continuous leachate monitoring under Section A.3,

7. Additional Corrective Action Monitoring – Landfill Gas (LFG)

LFG monitoring shall be conducted to assess the nature and source of impacts at the site; to provide an ongoing assessment as to the effectiveness of existing landfill gas controls in mitigating that source; and to evaluate the possible need for additional corrective action measures to protect underlying water bearing media.

a. Monitoring Points – All six passive landfill gas vents within the landfill footprint (i.e., Vs-1 through -6)

b. Monitoring Schedule

LFG monitoring shall be conducted in accordance with the following schedule.

Table A.7 LFG Monitoring Schedule			
Parameter	Units	Sampling Frequency	Reporting Frequency
Field Parameters[1]			
Air flow rate	cu ft/min	Semiannually	Semiannually
Vent pressure[2]	psi	Semiannually	Semiannually
Temperature	^{o}F	Semiannually	Semiannually
Carbon dioxide	**%**	Semiannually	Semiannually
Hydrogen sulfide	ppmv	Semiannually	Semiannually
Methane	**%**	Semiannually	Semiannually
Organic Vapors	ppbv	Semiannually	Semiannually
Monitoring Parameter			
VOCs (USEPA Method TO-15)	$\mu g/cm^3$	Annually[3]	Annually

1. Field monitoring shall be conducted using appropriate measuring device for each parameter,
2. Vent pressure shall be measured with the wind turbine gate valve open and closed.
3. VOC sampling shall be limited to vents showing methane ≥ 40% and/or total organic vapors > 50 ppbv. VOC sampling shall be conducted during the same monitoring event at which the elevated gas was detected. VOC samples do not need to be collected more than once per year on each such vent.

B. REPORTING

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

Reporting Schedule			
Section	Report	End of Reporting Period	Due Date
B.1	Semiannual Monitoring Report	30 June & 31 December	**1 August, 1 February**
B.2	Annual Monitoring Report	31 December	**1 February**
B.3	Seep Reporting	Continuous	**Immediately & Within 7 Days**
B.4	Annual Facility Inspection Report	31 October	**15 November**
B.5	Major Storm Event Reporting	Continuous	**7 days from damage discovery**
B.6	Topographic Survey for Active Landfills	Every 10 Years	**31 January 2020 & every 10 years thereafter prior to landfill closure**

Reporting Schedule			
Section	Report	End of Reporting Period	Due Date
B.7	Financial Assurances Report	31 December	**1 July**

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 No. R5-2014-0083 and the SPRRs, particularly the monitoring and response to release provisions (i.e., WDR Section G and SPRR Sections I and J). 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 tests 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. In addition, the Discharger shall enter all monitoring data and monitoring reports into the online Geotracker database as required by Division 3 of Title 27.

The results of **all monitoring** conducted under this Order shall be reported to the Central Valley Water Board in accordance with the reporting schedule above 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:

- 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;
- Date, time, and manner of sampling;
- Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
- Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- Calculation of results; and

- 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. The estimated quarterly groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations taken prior to the collection of the water quality data submitted in the report [Title 27, section 20415(e)(15)].

   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 SPRR 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 five 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 Section J: Response to a Release for verified exceedances of a concentration limit.

g. An evaluation of the effectiveness of run-off/run-on control facilities.

h. The results of Facility Monitoring, including, but not limited to, a summary of all Standard Observations for the reporting period required in Section A.6. d of this MRP.

i. The results of Solid Waste Monitoring, including a summary table and narrative discussion of the results.

j. A discussion (i.e., report) as to the effectiveness of corrective action per Specification H.3 and Provision J.7 of the WDRs.

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 five calendar years. If a 5-year COC event was performed, than these parameters shall also be graphically presented. 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. 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 map showing the area and elevations in which filling has been completed during the previous calendar year and a comparison to final closure design contours, and include a projection of the year in which each discrete landfill module will be filled.

g. A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.

h. Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.

i. A comprehensive discussion of the Corrective Action Program as required by this MRP (e.g., Section A.6).

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 III 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 a report describing the results of the inspection and the repair measures implemented, preparations for winter, and include photographs of any problem areas and the repairs. Refer to Section A.6. a of this MRP, above.

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. Refer to Section A.6. b of this MRP, above.

6. **10-Year Topographic Survey for Active Landfill**

The Discharger shall conduct a topographic site survey, including the landfill facility and adjacent areas, **at least every 10 years** pursuant to WDR Facility Specification C.2. The first 10-year survey report is due by **31 January 2020** and may be included in the 2019 Annual Monitoring Report. At a minimum, the survey report shall include a new topographic map of the site showing monitoring well locations and other reference points, and a description of the surveying method. See also Section A.6.c above.

7. **Financial Assurances Report:**

By **1 July** of each year, the Discharger shall submit an updated report regarding required financial assurances for closure, post-closure maintenance, and corrective action. These reports may be the same as those submitted to CalRecycle for this purpose. Refer to Financial Assurances Specification F.4 of the WDRs.

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. **Water Quality Protection Standard Report**

For each waste management unit, the Water Quality Protection Standard shall consist of all COCs, the concentration limit for each constituent of concern, the verification retesting procedure to confirm measurably significant evidence of a release, the point of compliance, and all water quality monitoring points for each monitored medium.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the COCs, the concentration limits, and the point of compliance and all monitoring points. Any proposed changes to the Water Quality Protection Standard other than annual update of the concentration limits per Section C.4 herein shall be submitted in a report for review and approval. The report shall:

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 and any permanent or ephemeral zones of perched groundwater underlying the facility.

b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall

include the point of compliance in accordance with Title 27, section 20405.

c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and constituents of concern that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E).

e. Include 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).

The Water Quality Protection Standard shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

The Water Quality Protection Standard used under previous WDRs is not relevant under this Order because of the need for a new background well as required under WDR Provision J.6.b. The Water Quality Protection Standard under this Order shall therefore be as set forth in the updated Water Quality Protection Standard Report submitted under WDR Provision J.6.f, as approved by Central Valley Water Board staff. Once approved, the Water Quality Protection Standard shall be updated annually as warranted, using new and historical background monitoring data and approved data analysis methods.

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 A.1.b (groundwater), A.2.b (soil pore gas), A.3 (leachate), A.2.a.ii (surface/storm water), and A.7 (landfill gas).

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 at least every five years [Title 27, sections 20395 and 20420(g)]. The COCs for all waste management units at the facility are those referenced in Tables A.1.b (groundwater), 2.a.ii (surface/storm water), and Table C.2

(attached). The Discharger shall monitor all COCs every 5 years (or more frequently if required in a Corrective Action Program). The last COC monitoring events under previous WDRs was conducted in March 2008 (MWs 5 and 6) and March 2011 (MWs 1A, 3 and 4) and reported in the semiannual monitoring reports for those periods. The first 5-year COC monitoring event under this Order shall be conducted by 1 June 2016 and the results reported in the First Half 2016 monitoring report due by **1 August 2016**.

4. **Concentration Limits**

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

The data analysis methods used for calculating concentration limits under this Order shall be those set forth in the revised Water Quality Protection Standard Report submitted under WDR Provision J.6.f, as approved by Central Valley Water Board staff. Concentration limits for naturally occurring COCs shall be updated annually and included in the Annual Report submitted under this MRP. See Section B.2.h.

5. **Retesting Procedures for Confirming Evidence of a Release**

If monitoring results indicate measurably significant evidence of a release, as described in Standard Monitoring Specification I.45 of the SPRRs, then:

a. For analytes that are detected in less than 10% of the background samples (such as non-naturally occurring constituents), the Discharger shall use the non-statistical retesting procedure required in Monitoring Provision X.B.10 of the SPRRs.

b. For analytes that are detected in 10% or greater of the background samples (naturally occurring constituents), the Discharger shall use one of the statistical retesting procedure as required in Monitoring Provision X.B.12 of the SPRRs.

6. **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. There is currently one Point of Compliance well at the site, MW-3.

7. **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].

8. **Monitoring Points**

A monitoring point is a well, device, or location specified in the waste discharge requirements at 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 Program.

Ordered by:_____
PAMELA C. CREEDON, Executive Officer

6 June 2014

JDM/WMH

TABLE C.3

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

General Minerals

	USEPA Method
Bicarbonate	2320B
Calcium	200.7/600
Carbonate	2320B
Chloride	300
Magnesium	200.7/600
Nitrate – Nitrogen	300
Potassium	200.7/600
Sodium	200.7/600
Sulfate	300
Total Dissolved Solids	2540C

Volatile Organic Compounds:

USEPA Method 8260B

Acetone
Acetonitrile (Methyl cyanide)
Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene)
Benzene
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dibromochloromethane)
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- 1,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC 12)
1,1 -Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1 -Dichloroethylene (1, l-Dichloroethene; Vinylidene chloride)

cis- l ,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans- l ,2-Dichloroethylene (trans- 1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane (Trimethylene dichloride)
2,2-Dichloropropane (Isopropylidene chloride)
1,1 -Dichloropropene
cis- 1,3-Dichloropropene
trans- l ,3-Dichloropropene
Di-isopropylether (DIPE)
Ethanol
Ethyltertiary butyl ether
Ethylbenzene
Ethyl methacrylate
Hexachlorobutadiene
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl t-butyl ether
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene
Tertiary amyl methyl ether
Tertiary butyl alcohol
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1 -Trichloroethane (Methylchloroform)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

Inorganics (dissolved):	**USEPA Method**
Aluminum	6010
Antimony	7041
Barium	6010
Beryllium	6010
Cadmium	7131A
Chromium	6010
Cobalt	6010
Copper	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Iron	6010
Manganese	6010
Arsenic	7062
Lead	7421
Mercury	7470A
Nickel	7521
Selenium	7742
Thallium	7841
Cyanide	9010C
Sulfide	9030B

Semi-Volatile Organic Compounds:

USEPA Method 8270D - base, neutral, & acid extractables

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
Aldrin
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
Bis(2-ethylhexyl) phthalate
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether (Dichloroethyl ether)
Bis(2-chloro-1-methyethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane
p-Chloroaniline

Chlorobenzilate
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Dieldrin
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimehtylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isodrin
Isophorone
Isosafrole
Kepone

Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosospyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine
Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
Toxaphene
2,4,5-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Chlorophenoxy Herbicides:

<u>USEPA Method 8151A</u>
2,4-D (2,4-Dichlorophenoxyacetic acid)
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

Organophosphorus Compounds:

USEPA Method 8141B

Atrazine
Chlorpyrifos
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Diazinon
Dimethoate
Disulfoton
Methyl parathion (Parathion methyl)
Parathion
Phorate
Simazine

INFORMATION SHEET

ORDER NO. R5-2014-0083
COLUSA COUNTY DEPARTMENT OF PUBLIC WORKS
STONYFORD LANDFILL
COLUSA COUNTY

Background Information

The Stonyford Landfill is an active, Class III landfill on Ladoga-Stonyford Road about one mile south of downtown Stonyford. The facility comprises 6.3 acres of a 48-acre parcel owned by Colusa County. The facility includes the landfill (4.0 acres); associated monitoring systems (e.g., gas, groundwater, surface water); passive landfill gas vents; a former septage pond area; a drop-off area for recyclable materials, and other landfill-related facilities. The landfill has been in operation since 1974, accepting primarily household wastes from Stonyford and surrounding areas. The landfill currently accepts an average of about 5 cubic yards per day (about 1.25 tons per day) of compacted waste.

Landfill Design & Operations

The landfill was historically constructed without a base liner and leachate collection and recovery system (LCRS) and generally pre-dates current regulatory standards for waste containment under Title 27/Subtitle D regulations. A Subtitle D composite liner is therefore not required for the unit. Further, no lateral expansion beyond the existing 4.0-acre footprint is planned prior to the anticipated closure in the year 2036. Vertical development of the landfill will be limited by slope stability considerations and the facility's Solid Waste Facility Permit, which limits the maximum elevation of waste to 1,320 feet MSL.

Wastes were historically discharged to the landfill by the trench and fill method, and subsequently by the area fill cell method. The landfill is currently open one day a week (Saturday) to the public and 3 days a week to a franchise hauler. Average disposal rates noted above were estimated based on a 365-day operating year. The facility does not have a scale, so landfill tonnage must be estimated based on a volume conversion. As of December 2013, it was estimated that the landfill had reached approximately 62% of its estimated 149.2 kiloton capacity. Based on the remaining air space and current disposal rates, it is currently estimated that the landfill will reach capacity in the year 2036.

The facility formerly included two unlined ponds in the southern portion of the site historically used for disposal of septage and chemical toilet wastes classified as designated wastes under Title 27. Up to 400 gallons per week of septage and chemical toilet wastes from various offsite sources (e.g., septic tanks, U.S. Forest Service campgrounds) were historically discharged to the unlined septage ponds. Each pond was approximately 60 feet long, 10 feet wide, and 4 feet deep. The unlined ponds did not meet Title 27 standards for containment of designated liquid wastes, however. Title 27 requires that such wastes be stored in a classified (i.e., Class II) surface impoundment, a double-lined unit with an LCRS. Given the infeasibility of retrofitting the ponds, previous WDRs (Order 90-015) required that the Discharger cease operating (and submit a closure plan for) the ponds. In 1992, the facility ceased accepting septage and the ponds were closed/decommissioned in accordance with a final closure plan submitted under Order No. 90-115. The closed pond

INFORMATION SHEET (CON'T)

area was incorporated into the landfill footprint.

Site Description

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%. Surface elevations range from about 1330 feet MSL in the southwest corner of the site to about 1240 feet MSL in the northeast corner of the site. The uppermost aquifer at the site is confined to semi-confined and occurs in the clayey, gravelly alluvial deposits. Corresponding depths to groundwater range from about 55 feet upgradient to about 95 feet bgs downgradient. The groundwater gradient is about 0.04 ft/ft. to the northeast. The minimum separation between landfill wastes and groundwater is about 52 feet.

Groundwater Impacts

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

The Discharger attributed slightly elevated inorganic constituents detected at the site to spatial variability rather than a release from the landfill. See *2001 Annual and Second Semester Self-Monitoring Stonyford Class II Landfill Facility*, prepared by Montgomery Watson Harza. The report also stated that background well MW-1A appeared to have been completed in a different geological interval (shale) than the down gradient wells (alluvium) and therefore may not be representative of background water quality for the down gradient wells. The report recommended a spatial variability study including Stiff diagrams to assess the adequacy of well MW-1A for background monitoring.

Evaluation Monitoring Program

On 28 January 2002, Central Valley Water Board staff issued a letter requesting that the Discharger submit a report containing either (a) an assessment as to the adequacy of the background monitoring well (MW-1A) at the site; or (b) an Evaluation Monitoring Program (EMP) under Title 27 regulations to investigate the release. The letter was based on a review of the 2001 Second Half and Annual Report. In response to the letter, the Discharger submitted an EMP in lieu of a background monitoring well assessment, The EMP proposed installation and sampling of two monitoring wells (MWs-5 and 6) down

INFORMATION SHEET (CON'T)

gradient of the existing point of compliance well at the site (MW-3) to delineate the down gradient extent of the release.

The first monitoring event under the EMP was conducted in the First Half 2003. No VOCs or other organic compounds (e.g., semi-VOCs, pesticides) were detected in either of the two new wells and inorganic constituents were detected at or below background concentrations. Low to trace concentrations of VOCs and elevated general minerals continued to be detected on the point of compliance (MW-3), however.

Engineering Feasibility Study

On 4 February 2005, the Discharger submitted a Title 27 Preliminary Engineering Feasibility Study (EFS) in accordance with a schedule previously requested by Central Valley Water Board staff.[1] See Second Half and Annual 2004 monitoring report. The EFS was found to be incomplete, however, because it did not address landfill gas and leachate as possible sources of groundwater impacts at the site and did not consider the feasibility of corrective action measures to prevent such impacts, such as landfill gas controls and cover improvements. On 23 March 2005, Central Valley Water Board staff issued a Notice of Violation to the Discharger requesting submission of the required information in an addendum to the EFS report.

The Discharger subsequently submitted the EFS addendum as part of the First Half 2005 groundwater monitoring report. The report included the results of a 19 August 2004 soil sampling event conducted at the site that showed a wide range of VOCs at varying concentrations in the soil gas. The addendum concluded that both landfill gas and leachate could be the source of VOC impacts to groundwater at the site, but that it was not possible to determine which was actually the source due to limited sample data. The report also reiterated the position that the elevated concentrations of general minerals detected at the site could be due to natural spatial variability rather than impacts from the landfill. The EFS recommended further evaluation monitoring, including four additional quarterly soil sampling events to further assess landfill gas as a possible source of groundwater impacts at the site, and if warranted upon completion of this assessment, the installation of passive landfill gas controls as preventative corrective action measure.[2]

---

1. On 15 March 2004, Central Valley Water Board staff issued a staff enforcement letter to the Discharger requesting an addendum to the Second Half and Annual, 2003 monitoring report that includes a discussion of the status of Evaluation Monitoring and a schedule for submission of a Preliminary Engineering Feasibility Study required under Title 27 regulations.

2. The report stated, in part:
   Should further corrective action measures be deemed necessary following the assessment period, H&A/Colusa County will develop a workplan addressing the potential of landfill gas as a contamination source. The workplan may include, but will not be limited to, the installation of soil gas vents as well as a sampling and analysis plan for sampling of the already existing soil gas probes as well as the newly installed soil gas vents.

INFORMATION SHEET (CON'T)

Corrective Action Program

In response to the amended EFS, Central Valley Water Board staff requested the Discharger to submit a corrective action plan proposing installation of passive landfill gas controls at the site as described in WDR Findings 58 and 59.

Revised WDRs

These revised WDRs prescribe updated requirements for landfill operations and corrective action monitoring. The WDR findings describe various changes at the facility since 1999, including the installation of soil gas monitoring probes; the implementation of passive landfill gas controls as a corrective action measure; evaluation and corrective action monitoring results for the past 10 years; and updated financial assurances information. Updated requirements in the revised WDRs include, but are not limited to, the following:

- Background Monitoring – The WDRs require that a new well be installed to monitor background conditions in the upper zone of the uppermost aquifer beneath the site and to develop concentration limits for naturally occurring inorganic constituents. The WDRs further require that a lower zone background monitoring well be installed at the same location if the initial well boring log indicates that there are two saturated zones within the uppermost aquifer (upper and lower) that need to be separately monitored. A work plan and subsequent installation report for the new well(s) are due by **15 September 2014** and **31 January 2015,** respectively per WDR Provisions J.6.b and J.6.c.

- Financial Assurances – Revised corrective action cost estimates under Title 27 are due by **30 June 2015** per WDR Provision J.6.d. A financial assurances demonstration report for landfill closure, postclosure maintenance, and corrective action is due by **1 July each year** beginning in **2014** per WDR Provision J.6.a.

- Closure – A revised PCPCMP consistent with the findings and requirements of this Order is due by **15 March 2016** per WDR Provision J.6.e**.**

- Water Quality Protection Standard -- A revised Water Quality Protection Standard Report reflecting installation and monitoring of the new background wells is due by **31 January 2016** per WDR Provision J.6.f.

- Operations -- An updated topographic site survey is required to be performed every 10 years, beginning **31 October 2019** per Facility Specification C.2. The survey is also required under solid waste regulations and is necessary information for staff in conducting site inspections and updating WDRs.

- Geotracker -- The WDRs require that the Discharger establish and maintain an account with the SWRCB's Geotracker data base within 90 days of adoption of this Order. A report evidencing establishment of this account is due within 90 days of adoption of this Order. See Reporting Requirement H.2 and Provision J.6.g.

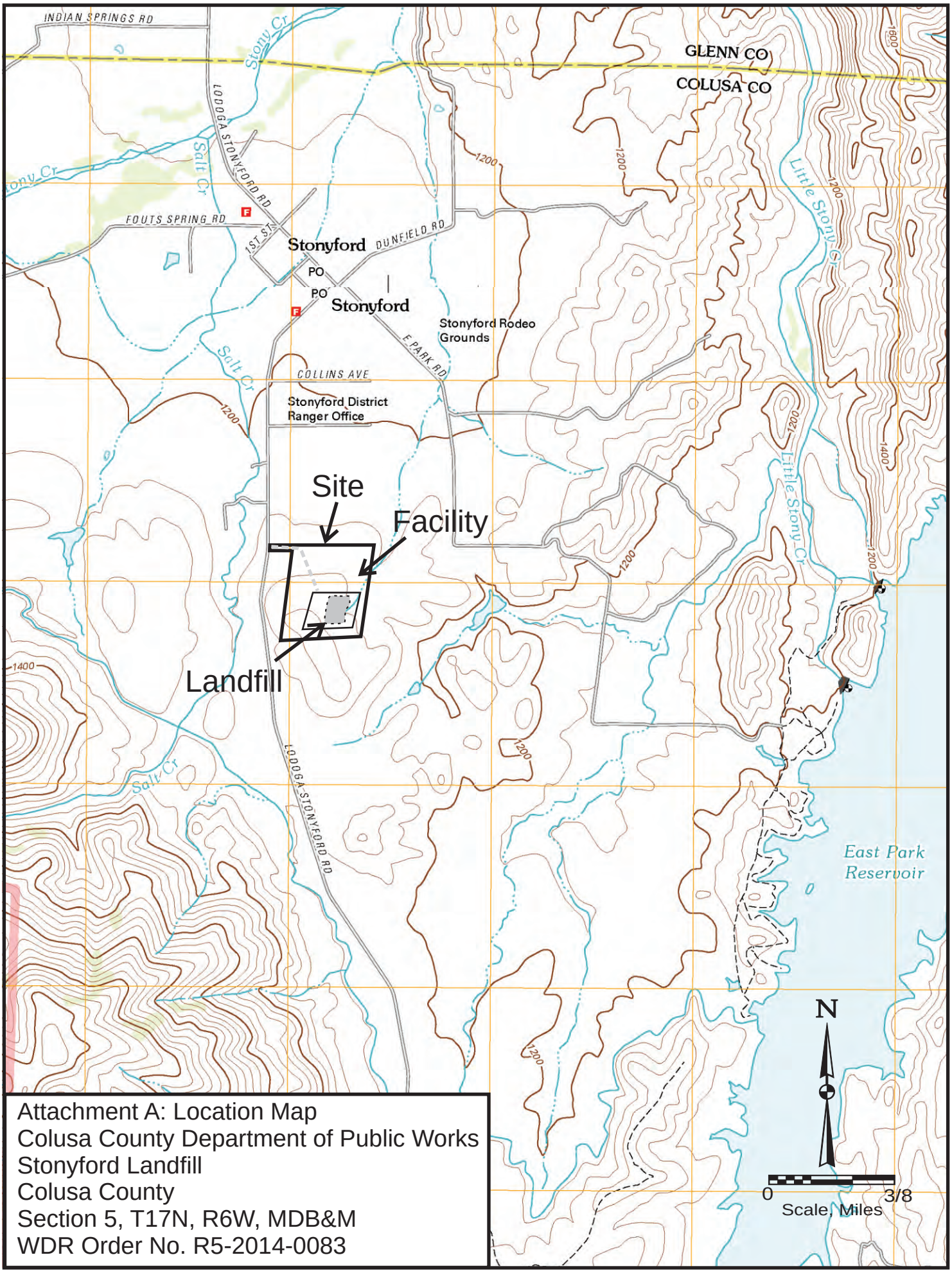
INFORMATION SHEET (CON'T)

Monitoring and Reporting Program

The monitoring and reporting program (MRP) in the revised WDRs requires corrective action monitoring for groundwater and detection monitoring for surface water. Soil gas and landfill gas monitoring is also required. Monitoring frequencies are generally quarterly for field parameters, semiannually for monitoring parameters, and every five years for Constituents of Concern. The monitoring parameters generally consist of volatile organic compounds (VOCs) and general minerals. Other constituents such as dissolved metals have not been included in semiannual monitoring because they have not been confirmed as part of the release from the unit.

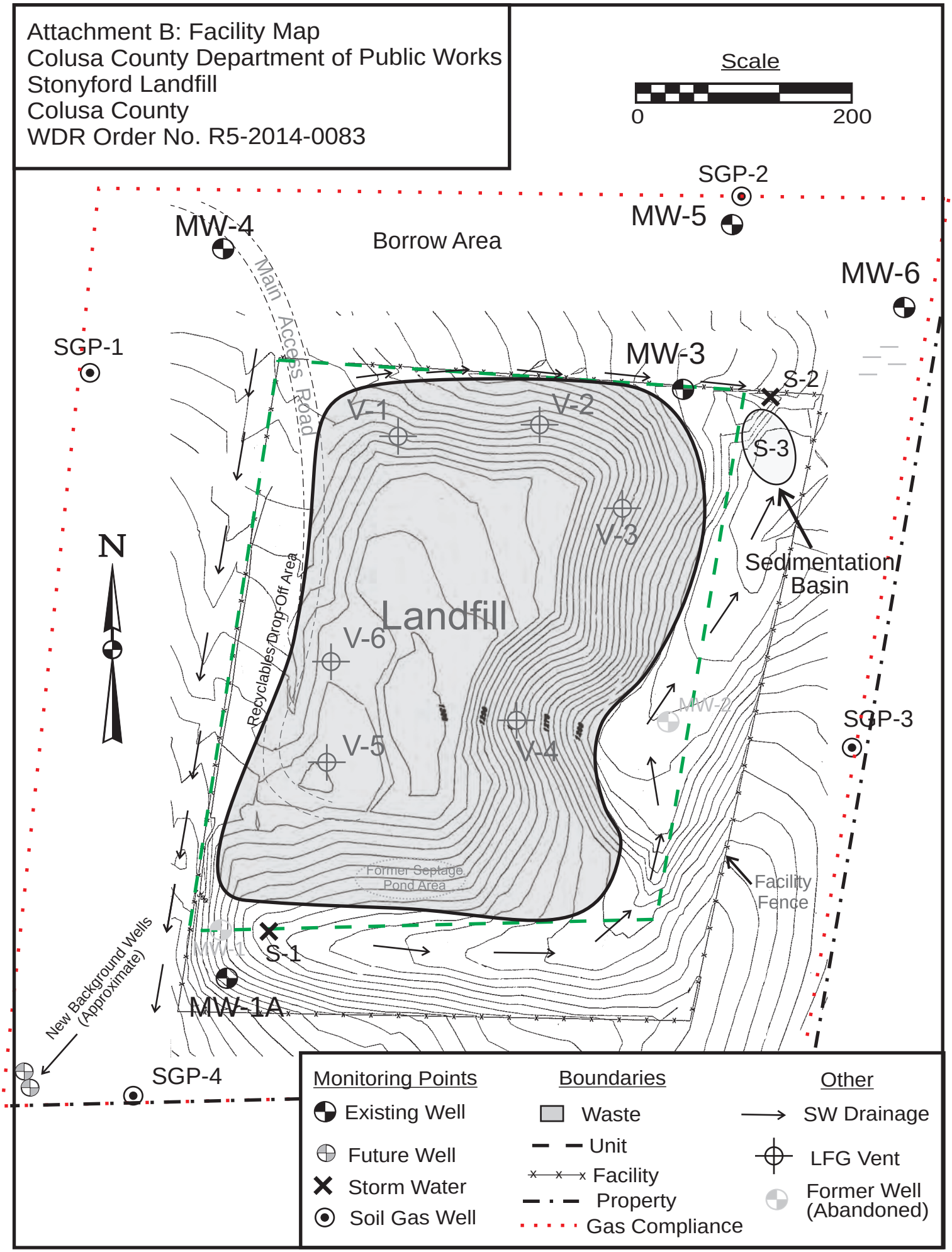
As noted in the WDRs, the landfill was sited near the upstream end of an ephemeral stream. The stream has since been incorporated into the facility's storm water drainage controls so surface water monitoring under the MRP is limited to storm water monitoring. The MRP also requires that the Discharger maintain coverage under the General Industrial Storm Water Permit.

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 into the Sacramento River near Hamilton City about 40 miles northeast of the site. (JDM)



Attachment A: Location Map
Colusa County Department of Public Works
Stonyford Landfill
Colusa County
Section 5, T17N, R6W, MDB&M
WDR Order No. R5-2014-0083

Attachment B: Facility Map
Colusa County Department of Public Works
Stonyford Landfill
Colusa County
WDR Order No. R5-2014-0083



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.)

JANUARY 2012

TABLE OF CONTENTS

Section		Page
A.	APPLICABILITY	2
B.	TERMS AND CONDITIONS	2
C.	STANDARD PROHIBITIONS	4
D.	STANDARD DISCHARGE SPECIFICATIONS	5
E.	STANDARD FACILITY SPECIFICATIONS	6
F.	STANDARD CONSTRUCTION SPECIFICATIONS	8
G.	STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS	11
H.	STANDARD FINANCIAL ASSURANCE PROVISIONS	15
I.	STANDARD MONITORING SPECIFICATIONS	15
J.	RESPONSE TO A RELEASE	25
K.	GENERAL PROVISIONS	27
L.	STORM WATER PROVISIONS	29

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. 97-03-DWQ (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 <u>all</u> 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 in 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 <u>initial</u> 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 <u>updated</u> 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)].