

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-201X-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR

TUOLUMNE COUNTY COMMUNITY RESOURCES AGENCY
BIG OAK FLAT (GROVELAND) SANITARY LANDFILL
CLASS III MUNICIPAL SOLID WASTE LANDFILL
POST-CLOSURE MAINTENANCE,
AND CORRECTIVE ACTION
TUOLUMNE COUNTY

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

1. The Tuolumne County Community Resources Agency (hereafter Discharger) owns and operates the closed Class III Big Oak Flat (Groveland) Sanitary Landfill (Facility) located approximately two miles south of the unincorporated town of Groveland at the end of Merrell Road, in Section 33, T1S, R16E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order by reference. The Facility is a municipal solid waste (MSW) landfill regulated under authority given in Water Code section 13000 et seq.; California Code of Regulations, title 27 ("Title 27"), section 20005 et seq.; and 40 Code of Federal Regulations section 258 (hereafter referred to as "Subtitle D") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62.
2. The closed Facility is on a 10-acre property that the County of Tuolumne (County) initially leased from the United States Department of the Interior Bureau of Land Management (BLM). The Facility consists of one unlined waste management unit (Unit) covering five acres. The Facility is comprised of Assessor Parcel Number (APN) 066-181-74. The closed landfill area is shown in Attachment B, which is incorporated herein and made part of this Order by reference.
3. The existing landfill Unit initiated operation in 1965. The Facility began operating as a burn dump in 1967. Burning ceased in 1975 and the Facility was operated as a "canyon fill" landfill. By the end of 2000, the total waste volume was estimated to be 124,863 cubic yards. The Facility ceased accepting waste in May 2001. The landfill was capped and closed in accordance with a Final Closure and Post-Closure Maintenance Plan (Revision 3) for the Facility dated May 2002. The County completed installation of the closure cap and cover in late 2002.
4. The landfill was under the administrative jurisdiction of the County Road Department prior to 1980, when this responsibility was transferred to the County Division of Environmental

Health. The site lease with the BLM expired in 1992 and was granted an extension pending acquisition of the property by the County under a federal program established in 1992. The administrative responsibility for the landfill was transferred to the County's Department of Public Works. The County acquired the property from BLM on 14 October 2004.

5. On 1 July 2012, the Discharger submitted an amended Report of Waste Discharge (ROWD) for the landfill. Some of the information in the amended ROWD has been used in revising these waste discharge requirements (WDRs). The amended ROWD contains the applicable information required in Title 27. However, Central Valley Water Board staff does not concur with the conclusions made in the amended ROWD regarding whether the current water quality monitoring system complies with Title 27 requirements, as described later in this Order. Revisions of the WDRs include:
 - a. Information describing unauthorized changes made by the Discharger to the groundwater monitoring network in 2005 (See Findings 40 thru 45) whereby the Central Valley Water Board staff finds the Facility's Detection Monitoring Program (DMP) to be non-compliant with Title 27, CCR, §20415 (b)(1)(B)(3 thru 5) requirements, and
 - b. Recommendations by the Discharger to reevaluate the groundwater monitoring network to bring the DMP back into compliance with Title 27 requirements, and
 - c. A time schedule describing tasks that the Discharger must perform to evaluate the Water Quality Protection Standard and the Groundwater Monitoring System at the Facility in order to ensure the Facility complies with Title 27 requirements for Class III landfills.
6. The existing landfill unit authorized by this Order is described as follows:

<u>Unit</u>	<u>Area</u>	<u>Liner/LCRS¹ Components²</u>	<u>Unit Classification & Status</u>
#1	5 acres	unlined	Class III, closed

¹ LCRS – Leachate collection and removal system

² All liner systems are composite liner systems unless otherwise noted

7. On-site facilities at the Big Oak Flat (Groveland) Sanitary Landfill currently include: a landfill closure cover, a storm water runoff sedimentation pond, a groundwater monitoring network, a surface water monitoring system, a perimeter gas monitoring network, a passive landfill gas vent system, and a waste transfer station.
8. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated federal MSW regulations under the Resource Conservation and Recovery Act (RCRA), Subtitle D. These regulations are under 40 Code of Federal Regulations section 258, and are hereafter referred to as either "Subtitle D" in reference to the RCRA federal law that required the regulations or "40 C.F.R. section 258.XX". These regulations

apply to all California Class II and Class III landfills that accept MSW. 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.

9. This Order implements the applicable regulations for discharges of solid waste to land through Prohibitions, Specifications, Provisions, and monitoring and reporting requirements. Prohibitions, Specifications, and Provisions are listed in Sections A through H of these WDRs below, and in the Standard Provisions and Reporting Requirements (SPRRs) dated January 2012 which are part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) No. R5-2013-XXXX and in the SPRRs. In general, requirements that are either in regulation or otherwise apply to all MSW landfills are considered to be “standard” and are therefore in the SPRRs. Any site-specific changes to a requirement in the SPRRs are included in the applicable section (A through H) of these WDRs, and the requirement in the WDRs supersedes the requirement in the SPRRs.
10. 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 in charge of implementing CalRecycle’s regulations.

WASTE CLASSIFICATION

11. The existing landfill Unit initiated operation in 1965. The Facility began operating as a burn dump in 1967. Burning ceased in 1975 and the Facility was operated as a “canyon fill” landfill. By the end of 2000, the total waste volume was estimated to be 124,863 cubic yards. The Facility ceased accepting waste in May 2001 and formal closure was completed in late 2002.
12. On 31 October 1995, the Central Valley Water Board issued Order No. 95-247, in which the facility was classified as a Class III waste disposal site for the discharge of non-hazardous solid or inert wastes in accordance with the regulations in effect when the order was issued. These wastes may have included friable asbestos, a hazardous waste under Title 22 of the California Code of Regulations (CCR), but considered an inert waste that does not pose a threat to groundwater quality. Section 25143.7 of the Health and Safety Code permits the disposal of friable asbestos with the appropriate permit and provided the wastes are handled and disposed of in accordance with other applicable State and Federal statutes and regulations. This Order continues to classify the Unit as a Class III solid waste landfill in accordance with Title 27, CCR, §20005, et seq. (Title 27).

SITE DESCRIPTION

13. The Big Oak Flat (Groveland) Sanitary Landfill is a closed, Class III, municipal solid waste landfill in Tuolumne County. The Landfill is located in the foothill region of the Sierra Nevada range in an area of generally steep topography characterized by rock outcroppings. Pine and manzanita vegetation dominate the landscape. The landfill is situated at the upper end of a ravine near the apex of a knoll at an elevation of about 3,300 feet mean sea level (MSL) approximately two miles south of the unincorporated town of Groveland at the end of Merrell Road. The nearest named surface water is Little Jackass Creek, which is south of the landfill.
14. Land uses within one mile of the landfill include agriculture and low density housing (5-acre minimum). Currently, there are no structures within 1,000 feet of the landfill. The area near the landfill is undeveloped and rural in nature.
15. Information provided by the Discharger on 17 February 2013 from the Department of Water Resources (DWR) identified 39 municipal and domestic supply wells within one mile of the site. These wells are reported to tap fractures (17 -475 feet bgs) with varying yields. The municipal and domestic wells with Assessor Parcel Numbers (APNs) are shown on Attachment C, which is incorporated herein and made part of this Order by reference. However, the majority of domestic water is supplied by the Groveland Community Services District, which derives its water source from the underground Hetch Hetchy Mountain Tunnel. The Hetch Hetchy aqueduct is approximately 1,000 feet north of the facility. At least two intermittent surface springs have been observed within 1,000 feet of the facility.
16. Tuolumne County resides within the central portion of the Sierra Nevada geomorphic province and has been characterized by geology dating back to the Paleozoic Era (about 570 million years ago). A majority of the County's geology is composed of Mesozoic (about 250 million years ago to about 65 million years ago) granitic rocks that are overlain by continental volcanic and sedimentary rock from the Cenozoic Era (beginning about 65 million years ago and continuing to present time).
17. Uplift and gentle folding occurred in the Sierra Nevada region between about middle Permian and middle Jurassic time but most of the deformation of the region occurred during Late Jurassic and Early Cretaceous time. The predominant structural trend was formed in Late Jurassic time and resulted in the northwest strike and steep dip of the Mesozoic and Paleozoic strata that dominate the region. Axes of folds formed during this deformation plunge northwest and southeast at angles of less than 30 degrees. A second major deformation continued into the Early Cretaceous resulted in the major faults, pervasive shearing, and steeply plunging minor folds and lineations present in the area. The Melones Fault Zone is the closest major seismic structure to the landfill and is located about 2.5 miles to the southwest.

18. The California Geological Survey indicates the landfill is located within a northwesterly-trending band of Jurassic metasedimentary rocks that include phyllite, slate, metagraywacke, and metaconglomerate. Site documents indicate the site is located within the adjacent and slightly older Paleozoic-Jurassic Calaveras Formation. This difference in nomenclature is judged not particularly significant because the lower portion of the metasedimentary rocks and the upper portion of the Calaveras Formation are both Jurassic in age and both units contain similar metasedimentary slate, phyllite, and schist.
19. The Groveland Landfill site is characterized by a general lack of soil mantle and frequent rock outcroppings along the cut slope adjacent to the landfill to the northwest. Bedrock at the site is also exposed in an eroded drainage channel just outside the northwestern perimeter fence and locally in a cut bank immediately south of monitoring well GMW-3. In addition, bedrock is exposed in a number of the cuts along Merrill Road (the principal road to the landfill). Bedrock exposed at the ground surface consists of steeply-dipping, fissile (very thinly bedded) metamorphosed slate, phyllite, and occasional schist that strike to the northwest and dip as part of the regional homoclinal structure about 75 to 82 degrees to the northeast. The individual units vary in thickness from less than 1 inch to massive (i.e. no apparent bedding). The fissile units break apart into intact "plates" under a moderate hammer blow. The relatively massive units are hard and resist hammering. Quartz veins and/or veinlets were not observed in outcrop but are assumed to be at least locally present based on relatively pure quartz fragments noted in the eroded drainage channel. Bedrock exposed at the ground surface is lightly to moderately oxidized and only slightly weathered. Boring logs indicate that the zone of oxidation and weathering extends to a depth of about 15 feet in GMW-1A, 12 feet in GMW-2, and 10 feet in GMW-3.
20. The intact underlying rock is dense and indurated and exhibits no discernible primary porosity. Except immediately at the ground surface, the individual bedding planes are tight and closed. Bedrock fracturing and jointing is infrequent and poorly defined at the site although an indistinct set of orthogonal joints that are subhorizontal and approximately normal to the bedrock trend were noted. All fracture surfaces observed in the field were tight and closed. When broken apart, the surfaces were smooth and no infilling or secondary mineralization or clay associated with weathering was associated with the bedrock discontinuities.
21. The bedrock is overlain by a thin veneer of residual and colluvial soil derived from the underlying bedrock. Based on laboratory testing, the soil consists primarily of a surficial layer of organic topsoil and an underlying layer of low plasticity sandy silt (ML in accordance with the Unified Soil Classification System) with between 53 percent and 69 percent of the soil finer than the No. 200 sieve. According one report the depth of soil cover across the site varies from several inches to as much as four feet.
22. Based on a site-specific seismic analysis dated 22 October 2001, the controlling maximum probable earthquake (MPE) for the site is a moment of magnitude 5.2 event along the Foothills Fault System, at a closest rupture distance of 15 miles from the site. It is estimated that a MPE event would produce a peak ground acceleration of 0.10g at the site with a return period of 100 years.

23. The Facility receives an average of 36 inches of precipitation per year as measured at the city of Groveland and the mean evaporation is 64 inches per year as measured at the Don Pedro Reservoir about 7 miles southwest of the site. The landfill is located above the snowline and receives precipitation in the form of snow as well.
24. The 100-year, 24-hour precipitation event for the Facility is estimated to be 9.16 inches, based on the National Oceanic and Atmospheric Administration (NOAA 2012) Atlas 14, Volume 6, Version 2 for nearby Groveland.
25. The waste management Facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM), Community-Panel Number 06109C1225C effective 16 April 2009.
26. A storm water sedimentation basin is located at the toe of the landfill as shown on Attachment B. The basin detains storm water for sedimentation control during the rainy season and is normally dry during the summer months. The sedimentation basin during overflow conditions can discharge to an unnamed tributary that drains southerly to Little Jackass Creek. The Facility is permitted (WDID# 5S551001874) to discharge storm water to surface waters under a separate WDRs 97-03-DWQ Order, *Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities* (NPDES General Permit CAS000001).

SURFACE WATER AND GROUNDWATER CONDITIONS

27. The *Water Quality Control Plan for Sacramento and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
28. Seasonal surface water runoff from the landfill is to an unnamed tributary that drains southerly to Little Jackass Creek. Little Jackass Creek flows into Big Jackass Creek, which then drains into Moccasin. Moccasin Creek merges with the Tuolumne River at the [New] Don Pedro Reservoir.
29. The landfill is within the western side of the Sierra Nevada Range. The designated beneficial uses of the source to [New] Don Pedro Reservoir (by inference source means tributary streams, including Little Jackass Creek, Big Jackass Creek, and Moccasin Creek), as specified in the Basin Plan, are municipal and domestic supply, agriculture, industrial power supply, water contact and non-contact recreation, warm and cold fresh water habitat, and wildlife habitat.
30. Previous site documents (EBA Wastechologies, Water Quality Solid Assessment Test Report (SWAT Report) dated September 1991 and the Final Closure and Post Closure Maintenance Plan (JTD) dated October 2001) suggest that the upper zone of weathered bedrock is more permeable than the underlying rock and that seasonal perched groundwater conditions may occur at the landfill. Site conditions and the boring logs indicate the weathered zone is thin and only ranges from about 10 to about 15 feet thick.

As result, perched groundwater, if it were to occur, would likely be a short duration occurrence in response to precipitation. The current Groundwater Monitoring System does not monitor for seasonal perched groundwater at the interface between the weathered and unweathered bedrock. This Order in Section H.8 requires the Discharger to evaluate detection monitoring of seasonal perched groundwater at the weathered-unweathered bedrock interface.

31. Two natural springs (GS-1 and GS-2) as shown on Attachment C are located respectively 240 feet west-southwest and 1200 feet south of the landfill. Figure 1 of the SWAT Report places GS-1 at approximately 3170 feet MSL and GS-2 at approximately 3100 feet MSL. The seasonal springs were originally presumed as downgradient groundwater monitoring points with maximum flow rates of 3 gallons per minute (gpm) at GS-1 and 7 gpm at GS-2. Maximum spring discharges are typically observed in the month of March, and both springs are dry in the summer and fall. In 1990, springs GS-1 and GS-2 were replaced with downgradient monitoring wells GMW-2 and GMW-3. Shortly thereafter, the Discharger discontinued monitoring GS-2 but continues to monitor GS-1. Title 27, section 21750(g)(5), requires the Discharger to provide a map showing the location of all springs within the waste management facility and within one mile of its perimeter. This Order requires the Discharger to provide as part of the revised Water Quality Monitoring Plan such information on all seasonal springs to determine whether additional monitoring locations are necessary.
32. The depth to groundwater and groundwater elevations suggest a southwesterly flow direction that approximately follows topography and fracture orientation. Groundwater elevation varies seasonally at upgradient background well GMW-1A between 3256 to 3273 feet MSL. Groundwater elevation varies seasonally at downgradient compliance well GMW-2 between 3210 to 3225 feet MSL. Groundwater elevation varies seasonally at downgradient compliance well GMW-3 between 3214 to 3237 feet MSL, but these reported groundwater elevations may be in error due to the discrepancies in elevation, as described in Finding 34.
33. Site data indicate the gradient at the site is on the order of 0.06 feet/ft based on reported groundwater elevations. Because the site is underlain by fractured bedrock, it is possible that groundwater flows preferentially along bedrock joints and fractures in directions that differ from a predominantly southwesterly flow direction.
34. In Table 3 of the first 2012 semiannual monitoring report the Discharger reports the monitoring point (MP) elevations of GMW-2 and GMW-3 at 3248.17 feet and 3296.12 feet respectively. In the same monitoring report in Figure 4 the Discharger depicts the MP elevations of GMW-2 and GMW-3 at approximately 3203 feet and 3248 feet respectively, a discrepancy of approximately 45 feet in elevation. This Order requires the Discharger to reconcile the discrepancy and submit a report as indicated in Section H.8.
35. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply, agricultural supply, and industrial supply.

SURFACE WATER MONITORING

36. Surface water runoff after storm events is sampled at three locations downslope from the landfill. Surface water sample location GLC-1 is within the Groveland Landfill Creek as shown in Attachment B. Locations LJC-1 and LJC-2 are within Little Jackass Creek approximately $\frac{3}{4}$ miles south of the landfill as shown in Attachment C. Location LJC-1 is upstream of the confluence with Groveland Landfill Creek, whereas location of LJC-2 is downstream of the confluence. This Order requires the Discharger to reevaluate the effectiveness of surface water monitoring points LJC-1 and LJC-2 and whether other alternative locations exist closer to the landfill that are more appropriate and effective surface water monitoring locations. The Facility is currently permitted (WDID# 5S55I001874) to discharge storm water to surface waters under a separate WDRs 97-03-DWQ Order, *Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities* (NPDES General Permit CAS000001).

UNSATURATED (VADOSE) AND GROUNDWATER ZONE MONITORING

37. There is no vadose zone monitoring associated with the landfill. The Central Valley Water Board granted exemption to vadose zone monitoring on 2 October 1989, because the landfill is unlined and was determined not practical to perform this type of monitoring.
38. The existing groundwater monitoring system includes three wells screened at varying depths based on the well boring logs. These wells are identified as GMW-1A, GMW-2, and GMW-3. GMW-1A represents the background well and was completed in January 2000 replacing former monitoring well GMW-1. The depth of the well is 161 feet below ground surface (bgs). GMW-1A is screened in the uppermost productive fracture zone between 145 and 160 feet bgs. Static water level in GMW-1A varies between 73 and 83 feet below the top of the casing. GMW-1A is located approximately 700 feet north of downgradient compliance well GMW-3. GMW-2 and GMW-3 represent downgradient compliance wells.
39. Groundwater monitoring well GMW-2 was originally installed in July 1990 to a depth of 250 feet bgs. The well was originally completed as an open-hole hard rock well with a boring diameter of 6 inches and with a sanitary seal extending from the surface to 32 feet bgs. The well monitored groundwater extracted from fractures in the dark-gray slates of the Calaveras Formation. Airlift development following drilling indicated a yield of 2.1 gpm. The well was favorably situated to monitor ground water within the slate bedrock downslope and to the west of the Big Oak Flat Landfill.
40. Groundwater monitoring well GMW-2 was rehabilitated on 12 August 2005 without prior Central Valley Water Board concurrence (See Findings 58 thru 61). The rehabilitation involved installing 2-inch casing and screen within the existing 6 inch well bore and placing sand filter material in the annulus. Three separate screened sections were placed opposite productive fracture zones. Number 3 Monterey sand was placed in the annulus opposite each screened section and the individual screened sections were isolated from each other with installation of 4 to 8.5 feet of bentonite seal material in the annulus. The

well screens were located between 34 and 54 feet bgs, between 164 and 184 feet bgs, and between 214 and 229 feet bgs. Bentonite seals were located from 2 to 6 feet bgs, 24 to 32.5 feet bgs, 60 to 65.7 feet bgs, 147 to 155 feet bgs, and 189 to 195 feet bgs.

41. Prior to the well rehabilitation of GMW-2 in August 2005, a dedicated ½ HP submersible pump had been installed at the base of the open boring to permit purging and sampling for inorganic constituents. At the time the well was rehabilitated the former pump was removed and replaced with a dedicated variable-speed submersible pump before the fourth quarter 2005 sampling event. The variable speed pump was replaced with a dedicated stainless steel bladder pump before the second quarter 2006. The well has been sampled using low-flow sampling with the pump intake set opposite the uppermost fracture zone (45 feet bgs) since the second quarter 2006. Prior to the second quarter 2006, the well was sampled using standard purge and sampling protocols. The potentiometric surface of the ground water measured at GMW-2 varies seasonally and ranges between 23 and 38 feet below the top of the well casing.
42. Groundwater monitoring well GMW-3 was originally installed in July 1990 to a depth of 225 feet bgs. The well was originally completed as an open-hole hard rock well with a boring diameter of 6 inches between 100 and 225 feet bgs. This well monitored groundwater extracted from fractures in the dark-gray slates of the Calaveras Formation. Airlift development following drilling indicated a yield of 3.6 gpm. The well is favorably situated to monitor ground water within the slate bedrock along strike to the south of the Big Oak Flat Landfill. Due to caving ground, the well was over bored to a diameter of 8 inches to a depth of 100 feet bgs and PVC casing was placed to this depth. A sanitary seal was placed from the surface to a depth of 30 feet bgs and the casing was perforated between 60 and 100 feet bgs to allow for shallow groundwater monitoring of zones of saturation, zones of perched water, and areas of highest hydraulic conductivity per Title 27 Section 20415(b)(B)(3 thru 5).
43. This well was rehabilitated on 11 August 2005 without prior Central Valley Water Board concurrence (See Findings 58 thru 61). The rehabilitation involved installing 2-inch casing and screen within the existing well bore and placing sand filter material in the annulus. Two separate screened sections were placed opposite productive fracture zones. Number 3 Monterey sand was placed in the annulus opposite each screened section and the individual screened sections were isolated from each other with installation of 5-foot thick bentonite seals. During rehabilitation, screening at 60 to 100 bgs depth was omitted. Instead, well screens were located between 160 and 180 feet bgs and between 200 and 220 feet bgs. Bentonite seals are located from 20 to 25 feet bgs, 100 to 104 feet bgs, 150 to 155 feet bgs, and 190 to 195 feet bgs.
44. Prior to the well rehabilitation in August 2005, a dedicated 1/2-HP submersible pump was installed at the base of the boring to permit purging and sampling for inorganic constituents and a 2-inch diameter perforated PVC casing was installed (no glues) in order to permit sounding water levels and sampling for organics via disposable bailers. The ½-HP submersible pump was removed in August 2005 and replaced with a dedicated variable-speed submersible pump. The variable-speed pump was replaced with a

dedicated stainless steel bladder pump before the fourth quarter 2007 sampling event. The intake of this pump was installed at the fracture zone, which is at a depth of 170 feet bgs in the well. Low flow sampling procedures began at GMW-3 in first quarter 2007. Prior to the first quarter 2007, the well was sampled using standard purge and sampling protocols. The potentiometric surface of the ground water measured at GMW-3 varies seasonally and ranges between 62 and 82 feet below the top of the well casing.

45. Currently, the Discharger's detection monitoring program for groundwater monitoring at the landfill does not meet the requirements contained in Title 27 due to unauthorized changes to the groundwater monitoring system for detection monitoring (See Findings 40 thru 44). Furthermore, groundwater monitoring wells GMW-2, and GMW-3 do not meet the DWR Well Standards for monitoring wells, due to the fact that the wells are screened across multiple intervals as described in Finding 58 thru 61. Attachment B shows the locations of the groundwater monitoring wells.
46. 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.
47. 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.
48. 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.

49. 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).

50. The Discharger submitted a Water Quality Protection Standard (WQPS) report dated March 1993 proposing statistical data analysis methods to calculate concentration limits for each monitored constituent in accordance with Title 27. The WQPS report was updated in first quarter 1995 to establish upper tolerance levels for constituents of concern. The WQPS report proposed to use intrawell data analysis to calculate tolerance limits for the monitored constituents. The WQPS and approved data evaluation methods are included in MRP No. R5-201X-XXXX.

51. There is no vadose zone monitoring associated with the landfill. In lieu of a vadose zone monitoring system the Facility utilizes four perimeter landfill gas probes GP-1 thru GP-4 which monitor landfill gas at three different depths for offsite landfill gas migration in compliance with Title 27, section 20919.5(1) and section 20919.5(2).

GROUNDWATER CONDITIONS (OR DEGRADATION AND CORRECTIVE ACTION)

52. The Big Oak Flat (Groveland) landfill originated as a burn site in 1965 and operated as such for approximately 10 years. Thereafter the landfill was converted to both a trench and area fill operation. The Central Valley Water Board issued Waste Discharge Requirements (WDRs) in May 1967 (Resolution No. 67-129) and revised WDRs in June 1988 (Order No. 88-112)

53. A ground water monitoring program was initiated in November 1988 under WDRs No. 88-112. The ground water monitoring system consisted of downgradient ground water monitoring locations represented by two natural springs GS-1 and GS-2 located approximately 250 feet westward and 1000 feet southward from the landfill.

54. In July 1990 the two spring sample locations GS-1 and GS-2 (see Finding 31) were replaced by two downgradient ground water monitoring locations GMW-2 and GMW-3. The upgradient well GMW-1 was established at a private residence approximately 2000 feet north-northwest of the landfill property.

55. A Water Quality Solid Waste Assessment Test (SWAT) Report was prepared in September 1991 based on groundwater monitoring results at the landfill. The SWAT report found evidence of leakage of six EPA 601 constituents detected at downgradient spring GS-1 and downgradient monitoring wells GMW-2 and GMW-3. 1,2-Dichloroethane

exceeded the minimum established water quality drinking standards at GS-1. Other constituents detected were Dichlorodifluoromethane, 1,1-Dichloroethane, 1,1,1-Trichloroethane, and Trichlorofluoromethane. Furthermore, general minerals and ICAP metals analysis test results showed relatively elevated concentrations in downgradient groundwater and surface water compared to the background analysis.

56. In March 1993 a Corrective Action Plan and Water Quality Monitoring Plan was prepared to address groundwater contamination and to provide a schedule for implementation of corrective actions. The corrective actions proposed included closure of the facility, minimization of leachate generation, and leachate capture, and installation of a final closure cover. The County prepared a Preliminary Closure Plan for planned closure in 2001.
57. In October 2000 the County prepared a Final Closure and Post-Closure Maintenance Plan. As an approved corrective action a final closure cover was placed over the landfill in late 2002. Groundwater monitoring wells continued to detect VOCs such as 1,1-Dichloroethane in downgradient wells GMW-2 and GMW-3 above the Practical Quantitation Limit (PQL). Trace concentrations of other VOCs such as dichlorodifluoromethane, toluene, chloroethane and carbon disulfide were also reported present in downgradient groundwater monitoring wells.
58. In August 2005 without prior authorization from the Central Valley Water Board the Discharger rehabilitated downgradient groundwater monitoring wells GMW-2 and GMW-3. In the process of rehabilitating the wells the Discharger changed the well configuration e.g. well screen locations, pump depth location, and pump type (high flow to low flow).
59. Following the rehabilitation of GMW-2 and GMW-3 the Discharger in its quarterly monitoring reports reported significant improvement in groundwater quality as many VOCs previously detected in trace values were now undetectable. Furthermore, VOCs reported above the PQL were now only detected intermittently as trace values.
60. On 30 March 2011 the Discharger requested reduction in monitoring frequency from quarterly to semiannually. Justification for reduction in monitoring frequency was based on the noticeable reduction in VOCs detected in downgradient groundwater monitoring wells. Based on monitoring results submitted by the Discharger the Central Valley Water Board staff granted on 18 May 2011 the reduction in monitoring frequency.
61. Upon periodic review of WDRs in preparation for issuing revised WDRs, Central Valley Water Board staff discovered the unauthorized changes made to downgradient groundwater monitoring wells GMW-2 and GMW-3 (See Findings 40, 43 and 58). On 11 January 2012 Central Valley Water Board staff notified the Discharger that the current site monitoring may not comply with Title 27 Section 20415 Detection Monitoring Program (DMP).

62. On 10 February 2012 the Discharger responded to the 11 January 2012 letter describing how it believes that the current groundwater monitoring system at the facility complies with Title 27 requirements.
63. On 30 March 2012 Central Valley Water Board staff issued a Notice of Violation (NOV) for existing conditions regarding the groundwater monitoring system that are contrary to current WDRs. The NOV identified six violations. The NOV required the Discharger to submit an amended Report of Waste Discharge (ROWD) describing how the Discharger will make appropriate changes to the monitoring system such that the detection monitoring system complies with Title 27 requirements.
64. Violation 4 from the 30 March 2012 NOV stated that Monitoring well GMW-2 did not monitor a discrete zone. The Discharger stated that "well screens are located adjacent to fractures between 34 and 54 feet, between 164 and 184 feet, and between 214 and 229 feet. The screened intervals are separated by bentonite seals." However, the described configuration provides only one well casing with multiple screen intervals allowing for groundwater from the different screened intervals to mix. The Department of Water Resources (DWR) Well Standards recognizes two scenarios for monitoring multiple zones. A monitoring well may be "nested" by using one borehole for multiple well casings with sealed discrete monitoring intervals, or wells may be installed as a cluster with individual well casings installed to different depths in close proximity. GMW-2 does not meet the DWR Well Standards. Furthermore, the design and construction of monitoring well GMW-2 does not comply with Section 20415(b)(1)(A) of Title 27 which states: "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."
65. Violation 5 from the 30 March 2012 NOV stated that Monitoring well GMW-3 is not monitoring a discrete zone. The Discharger states that the well screen intervals for this well are now located adjacent to water producing fractures between 160 and 180 feet, between 200 and 220 feet. As described in Finding 64 above, monitoring well GMW-3 also does not meet DWR Well Standards for a monitoring well design nor does it comply with Section 20415(b)(1)(A) of Title 27.
66. On 1 July 2012 the Discharger submitted an amended ROWD in response to the 30 March 2012 NOV describing current site geological and hydrogeological conditions. The amended ROWD also evaluated the existing monitoring well network relative to Title 27 requirements. The amended ROWD concluded that the existing groundwater monitoring system "generally complies with CCR Title 27 criteria for a Detection Monitoring System."
67. However, this Order finds that the existing groundwater monitoring system does not comply with Title 27 criteria for a Detection Monitoring System due to unauthorized changes to the water quality monitoring system that may have resulted in false indications of water quality improvements in underlying groundwater at the facility. This Order requires the Discharger to submit a revised Water Quality Monitoring Plan, a Site Survey Report, and a Storm Water Sedimentation Basin Analysis Report (see Section H.8

Provisions). This Order also requires that the Discharger install an appropriate Detection Monitoring Network.

LANDFILL GAS EXTRACTION SYSTEM

68. A landfill gas extraction system does not exist at the landfill. To protect the landfill cover a landfill gas passive vent system exists to prevent excessive landfill gas pressure from developing below the final landfill cover.

CONSTRUCTION AND ENGINEERED ALTERNATIVE

69. On 17 June 1993, the State Water Board adopted Resolution 93-62 implementing a State Policy for the construction, monitoring, and operation of municipal solid waste landfills that is consistent with the federal municipal solid waste regulations promulgated under 40 Code of Federal Regulations section 258 (a.k.a, Subtitle D). Resolution 93-62 requires the construction of a specified composite liner system at new municipal solid waste landfills, or expansion areas of existing municipal solid waste landfills, that receive wastes after 9 October 1993. Resolution 93-62 also allows the Central Valley Water Board to consider the approval of engineered alternatives to the prescriptive standard. Section III.A.b. of Resolution 93-62 requires that the engineered alternative liner systems be of a composite design similar to the prescriptive standard.

70. Title 27, section 20080(b) allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Title 27, sections 20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Title 27, section 20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative liner or cover system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Title 27, section 20080(b)(2). The Discharger proposed an engineered alternative to the prescriptive standard for the landfill final closure cover. The final closure cover is described in Findings 77 thru 81.

71. Water Code section 13360(a)(1) allows the Central Valley Water Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.

72. The Central Valley Water Board granted an exemption to unsaturated (vadose) zone monitoring on 2 October 1989. Migration of landfill gas from the site is monitored in compliance with Title 27, section 20919.5(1) and section 20919.5(2) at four perimeter probes GP-1 thru GP-4 at three different depths.

73. The Discharger performed a slope stability analysis dated 22 October 2001 for the final cover pursuant to Title 27, section 21750(f)(5). The slope stability analysis determined that for an earthquake of magnitude 5.2 and peak ground acceleration in rock of 0.10g there is zero expected displacement in the cover. RCRA Subtitle D (258) provides a maximum allowable permanent displacement of 6 to 12 inches. The Discharger's stability analysis includes components to demonstrate the integrity of the landfill final cover under both static and dynamic conditions throughout the landfill's closure period and post-closure maintenance period. The stability analysis demonstrates that the structural components of landfill final cover will withstand the forces of the Maximum Probable Earthquake (MPE) without failure of the landfill final cover.

LANDFILL CLOSURE

74. Title 27, section 21090 provides the minimum prescriptive final cover components for landfills consisting of, in ascending order, the following layers:

- a. Two-foot soil foundation layer.
- b. One-foot soil low flow-hydraulic conductivity layer, less than 1×10^{-6} cm/s or equal to the hydraulic conductivity of any bottom liner system.
- c. Geomembrane layer (this layer is required for composite-lined landfills for equivalency to bottom liner).
- d. One-foot soil erosion resistant/vegetative layer.

75. Title 27 allows engineered alternative final covers provided the alternative design will provide a correspondingly low flow-through rate throughout the post-closure maintenance period.

76. The Discharger submitted a Final Closure and Post-Closure Maintenance Plan (Revision 3 May 2002) requesting approval of an engineered alternative to the cover requirements. The engineered alternative proposed incorporating the use of 60-mil low linear density polyethylene (LLDPE) in the final cover section.

77. The Discharger proposed an engineered alternative final cover for the entire landfill Unit consisting of, in ascending order, the following layers:

- a. a minimum of two-feet thick foundation layer comprised of on-site soils (prescriptive per Title 27, CCR §21090(a)(1));
- b. a 60-mil thick textured (on both sides) LLDPE geomembrane barrier layer, overlain with a cushion of non-woven geotextile, and a composite of LLDPE geonet/non-woven geotextile drainage strips (proposed engineered alternative per Title 27, CCR §20080(b));
- c. and a minimum of one-foot thick vegetative soil layer comprised of on-site soils (prescriptive per Title 27, CCR §21090(a)(A)(1)).

78. The Discharger adequately demonstrated that construction of a Subtitle D and a Title 27 prescriptive standard cover would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design since there is no clay source on-site or nearby and the cost of importing clay from off-site or mixing on-site soils with bentonite would cost substantially more than the alternative design. The Discharger has demonstrated that the engineered alternative final cover meets the performance goals of Title 27 and that it is equivalent to the prescriptive standard.
79. The landfill was capped and closed in accordance with a Final Closure and Post-Closure Maintenance Plan (Revision 3) for the Facility dated May 2002. The County completed installation of the closure cap and cover in late 2002.
80. Side slopes for the closed landfill were sloped at maximum 3H:1V and included 15-foot wide benches every 50 vertical feet as required by Title 27.
81. Title 27 section 21090(a) requires that a slope stability analysis be performed for any final cover having a geosynthetic component. The Discharger performed a slope stability analysis for the final cover dated 22 October 2001. The Discharger's static and dynamic stability analysis demonstrated that the side slopes of the final cover will be stable in accordance with the requirements of Title 27.
82. Pursuant to Title 27, section 21090(e)(1), this Order requires a survey of the final cover following closure activities for later comparison with iso-settlement surveys required to be conducted every five years.

LANDFILL POST-CLOSURE MAINTENANCE

83. The Discharger submitted a final *Closure and Post-Closure Maintenance Plan* (Revision 3, dated May 2002) for closure and post-closure maintenance of all landfill units. The plan includes inspection, maintenance, and monitoring of the landfill during the post-closure maintenance period, and includes a post-closure maintenance cost estimate for the entire Facility. Inspection and maintenance includes the condition of the final cover, drainage features, groundwater monitoring wells, access roads, landfill gas system, and site security. The plan will be implemented for a minimum period of 30 years or until the waste no longer poses a threat to environmental quality, whichever is greater.
84. Once every five years during the post-closure maintenance period, aerial photographic maps of the closed landfill area will be made to identify and evaluate landfill settlement. Iso-settlement maps will be prepared to determine the amount of differential settlement occurring over the previous five years. Pursuant to Title 27, section 21090(e)(2), this Order requires iso-settlement maps to be prepared and submitted every five years.
85. The completed final cover will be periodically tested for damage or defects by monitoring surface emissions pursuant to California Code of Regulations, Title 17, section 95471(c) and Title 27, section 21090(a)(4)(A). Defects will be repaired and tested for adequacy based on the closure CQA Plan.

FINANCIAL ASSURANCES

86. Title 27, sections 21820 and 22206 require a cost estimate for landfill closure. The cost estimate must be equal to the cost of closing the landfill at the point in its active life when the extent and manner of operation would make closure the most expensive. When closing units in phases, the estimate may account for closing only the maximum area or unit of a landfill open at any time. The Discharger's *Closure and Post-Closure Maintenance Plan* (Revision 3, dated May 2002) includes a cost estimate for landfill closure. The lump sum estimate is for the cost to close largest future area needing closure at any one time. Since the landfill is closed the total amount of the closure cost estimate in 2012 dollars is zero. Title 27, sections 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The Discharger's *Closure and Post-Closure Maintenance Plan* (Revision 3, dated May 2002) includes a cost estimate for landfill post-closure maintenance. The amount of the cost estimate for post-closure maintenance in 2012 dollars is \$2.5 million. This Order requires that the Discharger maintain financial assurance with CalRecycle in at least the amount of the post-closure maintenance cost estimate adjusted annually for inflation. As of 2012, Discharger continues to use a dedicated Pledge of Revenues as financial assurances in lieu of maintaining a balance in a post-closure maintenance fund.
87. Title 27, section 22221 requires a cost estimate for corrective action of all known or reasonably foreseeable releases. The Discharger submitted a 28 August 2012 cost estimate of \$111,616 for corrective action of all known or reasonably foreseeable releases. This Order requires that the Discharger maintain financial assurance with the CalRecycle in at least the amount of the cost estimate adjusted annually for inflation. As of 2012, Discharger continues to use a Pledge of Revenue as financial assurances in lieu of maintaining a balance in a corrective action fund.

CEQA AND OTHER CONSIDERATIONS

88. The action to revise waste discharge requirements for this existing Facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code section 21000, et seq., and the CEQA guidelines, in accordance with Title 14, section 15301.
89. This Order implements:
- a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*;
 - b. The prescriptive standards and performance goals of California Code of Regulations, title 27, section 20005 et seq., effective 18 July 1997, and subsequent revisions;
 - c. State Water Board Resolution 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993, and revised on 21 July 2005.

- d. The applicable provisions of Title 40 C.F.R. section 258 "Subtitle D" federal regulations as required by State Water Board Resolution 93-62.
90. Based on the threat and complexity of the discharge, the Facility is determined to be classified 2-B as defined below:
- a. Category 2 threat to water quality, defined as, "*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.*"
 - b. Category B complexity, defined as, "*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.*"
91. Water Code section 13267(b) provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharge or 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 having discharged or 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 Regional 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."
92. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-201X-XXXX" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the Facility that discharges the waste subject to this Order.

PROCEDURAL REQUIREMENTS

93. 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.
94. The Central Valley Water 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.
95. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.
96. 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

California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date that this Order becomes final, except that if the thirtieth day following the date that this Order becomes final 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 California Water Code sections 13263 and 13267, that Order No. R5-2002-0142 is rescinded except for purposes of enforcement, and that Tuolumne County Community Resources Agency, 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. PROHIBITIONS

1. The discharge of any waste as defined in Water Code section 13050(d) is prohibited.
2. The Discharger shall comply with all Standard Prohibitions 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 not accept any new waste for disposal at this landfill Facility.
2. The Discharger shall comply with all Standard Discharge Specifications 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 comply with all Standard Facility Specifications listed in Section E of the SPRRs dated January 2012 which are part of this Order.

D. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall not proceed with construction, rehabilitation, or repair of the on-site facilities identified in Finding 7 excluding the waste transfer station until the construction plans, specifications, and all applicable construction quality assurance plans have been approved.

2. The Discharger shall comply with all Standard Construction Specifications listed in Section F of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
3. The Discharger shall comply with all Storm Water Provisions listed in Section L of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

E. POST-CLOSURE MAINTENANCE SPECIFICATIONS

1. The Discharger shall obtain revised WDRs prior to making any changes to the final cover design other than the design or designs approved in this Order.
2. The Discharger shall maintain the landfill with side slopes at steepness of 3H:1V or less, and top deck areas shall be maintained and sloped at three percent or greater.
3. The Discharger shall ensure that the vegetative/erosion resistant layer receives necessary seed, binder, and nutrients to maintain the vegetation proposed in the final closure plan. The Discharger shall install and maintain necessary erosion and sedimentation controls to prevent erosion and sediment in runoff from the closed landfill during the period when the vegetation is not performing as designed in the final closure plan to minimize erosion and protect the final closure cover.
4. The Discharger shall comply with the final *Closure and Post-Closure Maintenance Plan* (Revision 3, dated May 2002) including any addendums and revisions, all Standard Closure and Post-Closure Specifications listed in Section G and all Standard Construction Specifications that are applicable to closure in Section F 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 post-closure maintenance for the landfill in at least the amounts described in Findings 86 and 87, adjusted for inflation annually. A report regarding financial assurances for post-closure maintenance shall be submitted to the Central Valley Water Board by **1 June of each year**. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.
2. The Discharger shall update the closure and post-closure maintenance plan (CPCMP) any time there is a change that will increase the amount of the post-closure maintenance cost estimate. The updated CPCMP shall be submitted to the Central Valley Water Board, the Local Enforcement Agency, and CalRecycle. The CPCMP 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 prepare detailed design specifications, to develop the final post-closure maintenance plan, and to carry out the first thirty years of post-closure maintenance. Reports regarding financial assurance required in F.1 above shall reflect the updated cost estimate.

3. 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 annual inflation-adjusted cost estimate described in Finding 87. A report regarding financial assurances for corrective action shall be submitted to the Central Valley Water Board by **1 June of each year**. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.
4. The Discharger shall comply with all Standard Financial Assurance Specifications 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 monitoring program provisions of Title 27 for groundwater, and surface water, and in accordance with Monitoring and Reporting Program (MRP) No. R5-201X-XXXX, and the Standard Monitoring Specifications listed in Section I of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
2. The Discharger shall, for any landfill unit in a corrective action monitoring program, comply with the corrective action monitoring program provisions of Title 27, MRP No. R5-201X-XXXX, and the Standard Monitoring Specifications listed in Section I of SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
3. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP No. R5-201X-XXXX, and the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.
4. 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. R5-201X-XXXX.
5. 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. R5-201X-XXXX and the Standard Monitoring Specifications in Section I of the SPRRs dated January 2012 which are attached hereto and made part of this Order by reference.

6. 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. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the Facility, including the MRP No. R5-201X-XXXX and the SPRRs dated January 2012 which are part of this Order, and make it available at all times to Facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
2. The Discharger shall comply with all applicable provisions of Title 27 and Subtitle D that are not specifically referred to in this Order.
3. The Discharger shall comply with all applicable water quality criteria/objectives pertaining to this Facility specified in the Water Code and the Basin Plan that are not explicitly addressed in this Order.
4. The Discharger shall comply with MRP No. R5-201X-XXXX, which is incorporated into and made part of this Order by reference.
5. 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.
6. If there is any conflicting or contradictory language between the WDRs, the MRP, or the SPRRs, then language in the WDRs shall supersede either the MRP or the SPRRs, and language in the MRP shall supersede the SPRRs.
7. All reports required by this Order shall be submitted pursuant to Water Code section 13267.
8. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

- a. By **1 September 2013**, the Discharger shall submit a *Groundwater and Surface Water Monitoring Network Workplan* that describes how the current groundwater detection monitoring network will be modified to comply with Title 27, Section 20415(b)(1)(B), and this Order. If new groundwater monitoring wells are proposed, then the Workplan shall include the information listed in the first section of Attachment D of this Order. The workplan shall be prepared by a registered professional with experience in groundwater monitoring. In addition, the following items must be addressed in the work plan:
1. The current wells GMW-2 and GMW-3 monitor multiple zones as explained in Findings 40 and 43, respectively. These monitoring wells must comply with the Department of Water Resources well standards for monitoring well installation, such that each well casing shall only monitor one unique water bearing interval. Consequently, the workplan must describe how the wells will be modified to monitor the current water bearing intervals (listed in Finding 40 and 43 of this Order) using isolated well screens.
 2. As identified on the wells boring logs, the current wells GMW-2 and GMW-3 do not monitor the interface between the weathered bedrock and the underlying bedrock. Title 27 Section 20415(b)(1)(B)(2 & 4) and this Order require that the monitoring network must monitor first encountered groundwater. Therefore, the workplan must include a plan for monitoring of this interval.
 3. An evaluation must be made to determine if monitoring well GMW-2 fulfills the point of compliance requirement of Title 27 Section 20405(a). The Discharger must also evaluate whether the percolation of stormwater has the potential to influence water quality monitored historically, or in the future, for monitoring well GMW-2. If the evaluation shows the well does not comply with Title 27 Section 20405(a) or is, or may be, influenced by the infiltration of stormwater from the adjacent pond, then the work plan shall propose an alternate well location or other alternatives such as but not limited to lining the detention pond.
 4. The workplan must to identify all springs that discharge within one mile from the facility, and contain a proposal for monitoring to determine if they are being impacted by discharges from the facility.
 5. Using historical monitoring data, the Discharger shall evaluate the effectiveness of surface water monitoring points LJC-1 and LJC-2 to determine if their location complies with Title 27 Section 20415(c). If the location are not appropriate, then the workplan shall propose alternate monitoring points.
- b. No later than **30 May 2014**, all new wells or groundwater monitoring intervals installed pursuant to this Order shall become part of the groundwater monitoring network and monitored as required by Section A.1 of the MRP, with the exception

that for the first monitoring event, samples shall be analyzed for all constituents listed on Table VI

- c. No later than **30 May 2014**, all springs identified in the survey shall become part of the surface water monitoring program required by Section A.4 of the MRP, and samples shall be analyzed for the constituents listed in Table IV of the MRP.
 - d. By **1 June 2014**, the Discharger shall submit a *Monitoring Network Upgrade Report* that describes the changes made to the groundwater monitoring network. If new wells have been installed, then the report shall include a well installation report, which contains the information listed in the second section of Attachment D.
 - e. By **1 June 2014**, the Discharger shall submit a site topographic survey report that documents the re-survey of the entire facility (all features listed in Finding 7) and all monitoring points listed in the MRP as well all springs that are within a mile of the facility. This survey report shall reconcile the discrepancies between elevations reported on the site topographic map and those reported in the groundwater monitoring reports. The survey must be performed and stamped by a California-licensed land surveyor registered in good standing with the California Board of Land Surveyors. The report shall include the data presented in an excel spreadsheet .xls format as well as illustrated on a topographic map.
9. The Discharger shall comply with Standard Provisions and Reporting Requirements, January 2012, which is a part of this Order.

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

PAMELA C. CREEDON, Executive Officer

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