CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2019-0009

REVISED WASTE DISCHARGE REQUIREMENTS FOR COUNTY OF LAKE, PUBLIC SERVICES DEPARTMENT EASTLAKE SANITARY LANDFILL CLASS III LANDFILL CLASS II SURFACE IMPOUNDMENT CONSTRUCTION, OPERATION, CLOSURE, POST-CLOSURE MAINTENANCE, AND CORRECTIVE ACTION LAKE COUNTY

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

1. The County of Lake, acting by and through its Department of Public Services (Discharger), owns and operates the Eastlake Sanitary Landfill (facility), a municipal solid waste (MSW) landfill located at 16015 Davis Road at the eastern edge of the City of Clearlake, in Section 26, T13N, R7W, MDB&M, as shown in Attachment A. The facility is 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 (a.k.a, "Subtitle D") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62.

2. The following documents are attached to this Order and hereby incorporated into and made a part of this Order by reference:

   a. Attachment A – Site Location Map
   b. Attachment B – Predevelopment Topography Map
   c. Attachment C – Existing Site Plan
   d. Attachment D – Existing Facility Monitoring System Locations (Groundwater, Unsaturated Zone, and Surface Water)
   e. Attachment E – Groundwater Separation Map
   f. Attachment F – Surface Water Drainage Plan
   g. Attachment G – Existing Landfill Gas Extraction and Monitoring Map
   h. Attachment H – Proposed Final Closure Cover Drainage Plan
   i. Information Sheet
   j. Standard Provisions and Reporting Requirements for Landfills dated December 2015 (Landfill SPRRs); and
   k. Standard Provisions and Reporting Requirements for Class II Surface Impoundments dated April 2016 (Class II SPRRs).

3. The facility is on an 80-acre property at 16015 Davis Avenue, Clearlake. The permitted disposal area acreage is approximately 34.7 acres. The balance of the property provides a buffer zone

around operations with the largest portion on the western half of the property. The facility boundary is comprised of Assessor's Parcel Numbers (APN) 41-221-14,15; 41-222-34; 41-223-24; 41-224-39; 41-225-25; 41-226-17,22,23,24,25; 41-233-28; 41-234-01,23,24; 41-235-11,13,14; 41-244-18; 10-006-84, and 10-008-03,39. Additionally, the Discharger owns approximately 100 acres northeast and south of the facility property. These additional parcels are not included in the permitted facility boundary.

4. Eastlake Sanitary Landfill is a canyon fill landfill. The pre-disposal topography of the site is shown in Attachment B. Operation of this facility as a sanitary landfill began in 1972. Prior to 1972, a legal burn dump was operated on a southern portion of the same property where the facility is located as shown in Attachment C. The area of the burn dump covered approximately three acres. Around 1975, solid waste was placed in the upper end of the canyon. In addition, associated burn debris was removed from the lower canyon area and disposed within the limits of the current unlined waste management unit (WMU) Area I.

5. Previously, the landfill accepted empty pesticide containers for disposal at two separate areas, as shown on Attachment C. The first area was used during the early 1970's. During 1989, numerous pesticide containers and contaminated soil were excavated from the pesticide container area. This material was disposed off-site at the Class I Kettleman Hills disposal facility. Confirmation soil samples were collected during 1989 and during additional excavation performed during 1990; the samples indicated pesticides were not present in the surrounding soils. The second pesticide container disposal area accepted triple-rinsed containers until 1988, at which time the area was capped as shown in Attachment C.

6. The current waste management units (WMUs) is configured as two (2) contiguous disposal areas as shown in Attachment B, identified herein as Area I and Area II. Area I represent the original disposal area that encompasses approximately 22.4 acres. As outlined above, disposal in this area commenced in 1975. Area I, which is unlined, is equipped with a series of perforated plastic pipes at its base serving as a partial leachate collection and removal system (LCRS) that conveys any collected leachate via gravity to a Class II surface impoundment located along the southern toe of the WMU.

7. Area II borders Area I to the south-southeast and encompasses approximately 12.3 acres. This area was developed in two (2) phases, with Module 1 (6.5 acres) being constructed in 1999, followed by Module 2 (5.8 acres) in 2003. Both modules are completed within the same canyon, with Module 1 comprising the lower portion of Area II and Module 2 comprising the upper portion. Both Modules 1 and 2 are equipped with a single composite base liner system and leachate collection system that meets the requirements of the Federal Subtitle D regulations (CFR, Parts 257 and 258) and 27 CCR Regulations. Module 1 is also equipped with an underdrain system to intercept shallow groundwater that exists within the canyon where Molesworth Creek historically existed (See Attachment B).

8. As part of the design submitted and approved in 1998, Areas I and II have maximum elevations of 1,780 feet above mean sea level (MSL). Area III consists of additional fill placement i.e., vertical expansion to elevations that cover both unlined Area I and lined Area II up to a maximum permitted height of 1,860 feet above MSL (See Attachment H). Waste Discharge Requirements Order (WDRs) 98-159 adopted on 24 July 1998 in Finding 6 referred to Area III (Phase III) as a "*vertical expansion on top of Phases I (Area I) and II (Area II)*". Since the time the design was originally approved, construction and slope modifications have decreased the

maximum achievable fill elevation to 1,827 above MSL. The Discharger's current waste placement is below the 1,780 feet MSL elevation, and therefore has not begun filling Area III, the vertical expansion over unlined Area I, and lined Area 2. Current maximum waste thickness along the centerline of the canyon fill is estimated to be approximately 135 feet thick. Findings in these WDRs express concerns regarding whether Area I has an LCRS as defined in Title 27, whether there is adequate groundwater separation between waste and groundwater as required by Title 27 section 20260(a) below unlined Area I, and the ongoing release of leachate from Area I. These WDRs require the Discharger to evaluate and address these issues through provisions in these WDRs.

9. On 23 August 2018, the Discharger submitted an amended Report of Waste Discharge (2018 ROWD) as part of the Joint Technical Document (2018 JTD) for the landfill. The 2018 ROWD/JTD contains the applicable information required in Title 27. The 2018 ROWD/JTD stated that there were no major changes being proposed to the current waste management units design or containment features, permitted daily tonnage, waste throughput limits or types of materials accepted, landfill footprint/waste management unit boundary areas, final grades, hours of operation, ultimate designed airspace capacity, or closure/postclosure maintenance provisions. Furthermore, there are currently no proposed changes within the next five-to-ten-year timeframe that could impact water quality or public safety such as changes in wastes streams, new waste diversion processes (i.e., composting), or construction/operation of new landfill cells except Area III which they have not begun filling to date.

10. The Discharger is considering future expansion of the Eastlake Sanitary Landfill to meet long-term community public service and waste disposal needs. However, currently this effort is in the early planning stages and no formal plans have been developed or subjected to environmental review under the California Environmental Quality Act (CEQA). The Discharger will provide an amended or updated JTD, with any proposed changes related to landfill expansion as appropriate and will seek revised waste discharge requirements to include the proposed expansion.

11. The information in the 2018 ROWD/JTD has been used to revise the facility's WDRs. The 2018 ROWD/JTD and supporting documents contain information related to facility improvements and operational changes that have occurred since issuance of the last ROWD/JTD. Revisions include:

    a. Discharge of non-hazardous ash and wildfire debris to the lined Area II WMU under (1) an emergency waiver of State Minimum Standards (SMS) for solid waste, as administered by the Lake County Health Services Department (Local Enforcement Agency, or LEA); and (2) a conditional waiver of WDRs for receipt of disaster-related wastes during a state of emergency administered by the Central Valley Water Board;

    b. Installation and operation of a landfill gas (LFG) collection and control system (GCCS). The GCCS has been in operation since 2014 (See Attachment G). The GCCS was designed and is operated to protect public health and safety and to control subsurface combustible gas migration and landfill surface emissions; and

    c. Implementation of an Evaluation Monitoring Program (EMP) and Site investigation and water quality monitoring programs in response to Cleanup and Abatement (CAO) R5-2015-0713, issued by the Central Valley Water Board, related to the release of volatile organic compounds (VOCs) to groundwater. As a result, the Discharger installed additional

groundwater monitoring wells, and updated monitoring and sampling protocols. In May 2018, the Discharger submitted a work plan with a proposed remediation strategy for VOC control to the Central Valley Water Board which is addressed in these WDRs.

12. Following review of the 2018 ROWD/JTD, the Discharger's semiannual self-monitoring reports, and other technical reports submitted by the Discharger these revised WDRs also include findings, prohibitions, specifications, provisions, and monitoring requirements related to revisions to current WDRs R5-2006-0108 which address:

    a. Requirement to provide documentation related to authorization to dispose of Class II surface impoundment liquids into a sanitary sewer;

    b. Deficient groundwater, unsaturated zone, and surface water detection monitoring systems;

    c. Improper characterization of landfill leachate;

    d. Monitored corrective action for VOCs released outside of the WMU boundaries;

    e. Additional surface water monitoring requirements for stormwater collection prior to discharges to waters of the US;

    f. Evaluation of stormwater collection, conveyance, and detention system as it relates to the stormwater management system's potential interference with detection monitoring system's ability to collect representative samples of receiving water quality;

    g. Provision requiring Discharger to provide updated map of surrounding water supply wells;

    h. Limitations on placement of dewatered water treatment sludge and other special wastes to only lined Area II;

    i. Reevaluation of final closure cover over unlined Area I;

    j. Requirement to Update Water Quality Protection Standard including the Sample Collection and Analysis Plan;

    k. Financial Assurances for clean closure of Class II surface impoundment;

    l. Financial Assurances for future water release related corrective action; and

    m. Inadequate groundwater separation to ensure protection of the background quality of groundwater.

13. On 24 July 1998, the Central Valley Water Board issued Order No. 98-159, in which both the unlined and lined landfill Units were classified as Class III waste management units (WMUs) for the discharge of municipal solids waste in accordance with the regulations in effect when the Order was issued. On 6 December 2002, the Central Valley Water Board rescinded Order No. 98-159 and issued Order No. R5-2002-0217, which approved the Discharger's liner performance demonstration for the Module 2 side slope liner system for the Area II lined WMU that was constructed during 2003. Order R5-2006-0108 continued to classify the Units as Class III waste management units that accepts municipal solid waste in accordance with Title 27.

14. The existing and future landfill units authorized by this Order are described as follows:

Unit	Area	Liner/LCRS[1] Components[2]	Unit Classification & Status

Unit	Area	Liner/LCRS[1] Components[2]	Unit Classification & Status
Area I	22.4 acres	Unlined WMU with series of perforated plastic pipes at base serving as a partial LCRS which gravity drains to Class II surface impoundment	Class III, active
Area II, Module 1	6.5 acres	Geocomposite subdrain overlain by Liner System[2] overlain by 1-foot thick gravel LCRS which gravity drains to Class II surface impoundment	Class III, active
Area II, Module 2	5.8 acres	Liner System[2] overlain by geocomposite LCRS which gravity drains to Class II surface impoundment	Class III, active
Area III	N/A	Vertical expansion to be constructed over Area I and Area II raising maximum landfill elevation to 1,827 feet above mean sea level (MSL)	Class III, Future
Surface Impoundment	600,000-gallon capacity	Secondary Liner System overlain by geocomposite and gravel LCRS overlain by primary geomembrane liner	Class II, active

[1] LCRS – Leachate collection and removal system
[2] All liner systems are single composite liner systems consisting of a geosyntheic clay liner (GCL) overlain by geomembrane unless otherwise noted

15. Onsite facilities at the Eastlake Sanitary Landfill include: a paved two-lane access road, perimeter drainage control facilities, dedicated borrow source area, scale house and scale facilities, restroom building, bag dump facility, recycling and buy back center (outside contractor), hazmat building, equipment shop, 2,500-gallon potable water tank, LFG collection and control system (GCCS), and a gas blower/flare station (See Attachment C).

16. 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.

17. 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 December 2015 for landfills (Landfill SPRRs), and SPRRs for Class II Surface Impoundments dated April 2016 (Class II SPRRs) which are part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) R5-2019-0009 and in the SPRRs. In general, requirements that either are in regulation or otherwise apply to all MSW landfills or Class II surface impoundments are "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.

18. 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 AND UNIT CLASSIFICATION

19. The Discharger proposes to continue to discharge nonhazardous solid waste, including mixed municipal solid waste consisting of residential and commercial waste, construction/demolition debris, roll-off box debris, self-hauled wastes, bagdump refuse, treated medical waste deemed to be solid waste, dewatered water treatment sludge, and non-friable asbestos i.e., asbestos waste with less than one percent (<1%) friable asbestos to unlined (Area I) and lined (Area II) Class III landfill units. The Discharger also proposes to continue to discharge treated wood waste to only lined landfill units i.e., Area II (See Finding 22 below). These classified wastes may be discharged only in accordance with Title 27, Resolution 93-62, and Subtitle D as required by this Order.

20. Title 27, section 20210, Table 2.1, *waste category nonhazardous solid waste (including dewatered sludge and acceptable incinerator ash)*, note 12 requires that WMUs at sites not meeting siting and geologic criteria must have a single clay liner and LCRS. Furthermore, Title 27 section 20340(a) requires that Class III landfills which have a liner or which accept sewage or water treatment sludge contain an LCRS. Title 27 section 20260(a) requires that Class III landfills be located where site characteristics provide adequate separation between nonhazardous solid waste and waters of the state. Historical groundwater monitoring results indicate that the Discharger does not have adequate groundwater separation between highest anticipated groundwater and nonhazardous solid waste contained below unlined Area I as shown in Attachment E. These revised WDRs provide prohibitions and specifications requiring that the Discharger only place dewatered sludge and acceptable incinerator ash in lined Area II WMU.

21. Active unlined landfill units at the facility are “existing units” under Title 27 that were permitted before 27 November 1984 and may continue to accept waste in the “Existing Footprint” until ready for closure unless waste receipts do not meet the timeframes and amounts in Title 27, section 21110, or they are required to close sooner to address environmental impacts or other regulatory concerns. The “Existing Footprint” as defined in Title 27, section 20164 is the area that was covered by waste as of the date that the landfill unit became subject to Subtitle D. The Existing Footprint for the active unlined areas of the landfill is shown in Attachment B.

22. The Discharger proposes to continue to discharge treated wood waste in the composite-lined units at the landfill. Title 22 defines “treated wood” to mean wood that has been treated with a chemical preservative for purposes of protecting the wood against attacks from insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 and following). This may include but is not limited to waste wood that has been treated with chromated copper arsenate (CCA), pentachlorophenol, creosote, acid copper chromate (ACC), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), or chromated zinc chloride (CZC). Monitoring and Reporting Program (MRP) R5-2019-0009 requires that the Discharger monitor leachate and the unsaturated zone below the WMUs for constituents of concern typically found in treated wood waste.

23. Leachate collection was implemented at the landfill in 1975 through the installation of a series of plastic pipes set at the base of the unlined Unit to collect and remove leachate. Leachate and spring water commingled at the site of the collection. A cutoff wall was constructed at the base of the unlined Unit to collect the leachate. The leachate and spring water were discharged to Molesworth Creek. In 1982, the Central Valley Water Board advised the Discharger that a non-compliance condition existed at the landfill with respect to the discharge of leachate to Molesworth Creek. In March 1984, the Discharger began spray discharge of the leachate on a hillside in the approximate location shown on Attachment C. Leachate for spray discharge was collected from the cutoff wall and from an unlined surface impoundment located below the unlined landfill Unit. This practice was discontinued in 1997 with the completion of a Class II lined surface impoundment. Leachate continues to be collected from the cutoff wall and conveyed to the Class II surface impoundment where it is stored for discharge to the sanitary sewer. Collected landfill gas condensate liquids discharge to a Class II surface impoundment at the toe of the south-facing fill slope face.

24. The facility includes a 600,000-gallon lined Class II surface impoundment for collection of leachate and landfill gas condensate generated from the landfill Units. The surface impoundment liner system consists of an 80-mil high-density polyethylene (HDPE) geomembrane over a Geonet and gravel leachate collection and removal system (LCRS). The secondary liner system consists of a 40-mil HDPE geomembrane and a geosynthetic clay liner (GCL). The current WDRs R5-2006-0108 found that the Class II surface impoundment discharges its contents to the sanitary sewer system that drains to the Southeast Regional Wastewater Treatment Plant.

25. The Southeast Regional Wastewater Treatment Plant WDRs Order 96-166, Finding 5 states that “*The Discharger is considering accepting leachate from the East Lake Landfill in Clearlake*”. These revised WDRs require Lake County Public Service Department to provide contractual evidence of its long-term ability to continue to dispose of the contents of their Class II surface

impoundment to the sanitary sewer. Therefore, these WDRs in Provisions section H.8 require the Discharger to provide sufficient evidence that its current disposal option is contractually binding or the Discharger must provide a water balance analysis per Title 27 section 20375 demonstrating that it has adequate capacity including minimum 2-foot freeboard to contain all non-hazardous liquids at the facility.

26. Title 22, section 67386.11 allows treated wood waste to be discharged to a composite-lined portion of a MSW landfill that is regulated by WDRs issued pursuant to the Water Code provided that the landfill owner/operator:

    a. Comply with the prohibitions in Title 22, section 67386.3, which are:

        i. Treated wood waste shall not be burned, scavenged, commingled with other waste prior to disposal, stored in contact with the ground, recycled without treatment (except as in iii, below), treated except in compliance with Title 22, section 67386.10, or disposed to land except in compliance with Title 22, section 67386.11.

        ii. Any label or mark that identifies the wood and treated wood waste shall not be removed, defaced, or destroyed.

        iii. Treated wood waste many be recycled only by reuse when all of the following apply:

            (1) Reuse is on-site.

            (2) Reuse is consistent with FIFRA approved use of the preservative.

            (3) Prior to reuse, treated wood waste is handled in compliance with Title 22, division 4.5, chapter 34.

    b. Ensure treated wood waste is managed at the landfill according to Title 22, division 4.5, chapter 34 prior to disposal.

    c. Monitor the landfill for a release and if a verified release is detected from the unit where treated wood is discharged, the disposal of treated wood will be terminated at the unit with the verified release until corrective action ceases the release.

    d. Handle treated wood waste in a manner consistent with the applicable sections of the California Occupational Safety and Health Act of 1973.

27. Title 27, section 20690 allows the use of alternative daily cover (ADC) at MSW landfills upon approval by the Local Enforcement Agency (LEA) and concurrence from CalRecycle. Title 27, section 20705 provides the Water Board's regulations for all daily and intermediate cover including that it shall minimize the percolation of liquids through waste and that the cover shall consist of materials that meet the landfill unit classification (Class II or Class III). The regulations also require that for non-composite lined portions of the landfill, that any contaminants in the daily or intermediate cover are mobilized only at concentrations that would not adversely affect beneficial uses of waters of the state in the event of a release. For composite-lined portions of the landfill, the regulations require that constituents and breakdown products in the cover material are listed in the water quality protection standard.

28. The Discharger uses the following materials for ADC: onsite soils, reusable ADC tarps, and spray on material. The Discharger has demonstrated that these materials will minimize percolation of liquids through waste, that they meet the unit classification where they will be

discharged, and that the constituents and breakdown products are included in the water quality protection standard.

29. Landfills propose new ADC materials regularly in order to preserve landfill air space and to beneficially reuse waste materials. Title 27, section 20686 includes regulations for beneficial reuse, including use of ADC. Approval of ADC is primarily handled by the LEA and CalRecycle under Title 27, section 20690. This Order allows any ADC proposed for use at the facility after the adoption of this Order to be approved by Central Valley Water Board staff provided the Discharger has demonstrated it meets the requirements in Title 27, section 20705. This Order also includes a requirement that ADC only be used in internal areas of the landfill unless the Discharger demonstrates that runoff from the particular ADC is not a threat to surface water quality. The demonstration can take sedimentation basins into account.

SITE DESCRIPTION

30. Land uses within one mile of the facility include residential, commercial, agricultural, and open space. Properties west and southwest of the facility are comprised primarily of residential developments. A portion of the land generally located northwest of the facility is zoned *Neighborhood*. A larger and more significant portion of the land to the west of the facility is designated as Resource Protection to allow development in environmentally sensitive areas compatible with the environmental constraints of these parcels. The remaining adjoining properties to the north, east and south are comprised of unincorporated lands of the County with zoning designations: Unclassified (U); Open Space (OS), Planned Development Commercial (PDC); Rural Lands (RL); and Agriculture Preserve (APZ). The United States Department of the Interior, Bureau of Land Management owns the land east of the Landfill. The County owns the 77.2-acre parcel to the south of the facility. The proposed plan for the postclosure land use of the facility is to maintain the facility as non-irrigated open space.

31. Title 27, section 21750(h) requires that a Discharger's ROWD provide a well map showing the locations of all water wells, oil wells, and geothermal wells within the facility boundary and within one mile of the facility boundary. The Discharger's 2018 ROWD/JTD using information over 12 years old stated that there are two municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the facility. These WDRs in Provisions H require the Discharger to provide more recent well information which is necessary for understanding not only potential sources of changes to groundwater flow, direction, and water quality, but also to identify property owners for notification of potential impacts to their supply wells if a significant release were to occur from the landfill.

32. The Discharger's 2018 ROWD/JTD stated that published geologic mapping and reports in the immediate vicinity of the facility compiled by SHN Consulting Engineers and Geologists, Inc., in a report *Geologic and Seismic Siting Assessment for the Proposed Eastlake Landfill Expansion*, dated March 2018, indicates that the local basement rock consists of unnamed upper Cretaceous age sandstone. North of the site, Franciscan Complex bedrock composed of pervasively sheared and fractured metamorphosed sandstone, chert, and basalt is present. Bedrock encountered during drilling activities consisted of predominantly fractured and weathered sandstone, with Interbedded shale. These materials are consistent with the type of material found in the Great Valley sequence. Late Tertiary Age Cache formation is overlying the basement rocks and is visible in localized outcrops at the site. The Cache formation consists of freshwater sediments comprised of coarse gravel, sand, silt, and clay, and basal strata of poorly

sorted gravel with sand and silt, deposited in an alluvial environment. The slope of the contact between the Cache formation and the basement rock is toward the south at a moderately steep angle based on drill data. A southward dipping contact is consistent with the topography and a south-southwest groundwater gradient determined for the site.

33. The measured hydraulic conductivity of the native soils underlying the landfill units ranges between $1x10^{-4}$ and $1x10^{-5}$ centimeters per second (cm/s).

34. The closest Holocene fault is the is the seismically active Konocti Bay fault zone located 5 miles to the southwest at its closest point to the site. The Konocti Bay fault zone is comprised of multiple discontinuous fault segments that strike north-northwest to northnortheast and are located south and east of Mt. Konocti. The Maximum Credible Earthquake for this faults range is 6.3 on the Richter scale with a resulting Peak Ground Acceleration (PGA) of 0.48g.

35. The facility receives an average of 28.7 inches of precipitation per year (July 1 through June 30) as calculated by Desert Research Institute. The maximum rainfall 56.7 inches calculated in the last 100 years occurred in 1998. The mean pan evaporation is 60 inches per year as reported in the Discharger's 2018 ROWD/JTD.

36. The 100-year, 24-hour precipitation event for the facility is estimated to be 6.98 inches, with a 90% confidence interval based on National Oceanic and Atmospheric Administration, 2018. NOAA Atlas 14 Point Precipitation Estimates. The total quantity of stormwater generated by this storm over the approximately 58-acre drainage area is estimated at 1,472,000 cubic feet (ft^3) of water during a 24-hour period according to SHN Consulting Engineers and Geologists, Inc.

37. The waste management facility is not within a 100-year flood plain based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Community-Panel Number 060633 C0703 D (30 September 2005).

SURFACE WATER AND GROUNDWATER CONDITIONS

38. The facility is situated within a pre-existing canyon in the headwaters of Molesworth Creek, a tributary to Clear Lake as shown in Attachment B. The landfill is in the Clear Lake basin near the eastern foothills of the Coast Range.

39. 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.

40. The designated beneficial uses of Clear Lake, as specified in the Basin Plan, are municipal and domestic supply; industrial service supply; agricultural supply; water contact and non-contact water recreation; spawning, reproduction, and/or early development; warm fresh water habitat; cold fresh water habitat; and wildlife habitat.

41. The first encountered groundwater typically ranges from about 10 to 110 feet below the native ground surface with a seasonal fluctuation of up to 15 observed feet in some wells. The groundwater is unconfined across most of the site. Groundwater elevations in April 2018 ranged from about 1711 feet NAVD88 at the northeastern end of the permitted refuse limit to 1570 feet NAVD88 at the southwestern end of the permitted refuse limit along the canyon fill as shown in

Attachment E. During construction of unlined Area I WMU, water from springs was discovered requiring the Discharger to install a series of plastic under- drains in the canyon floor beneath the landfill WMU. Furthermore, a subdrain system was installed below lined Area II module 1 to collect any groundwater springs or seeps below the WMU. Based on excavation data provided by the Discharger, Attachment E shows areas below the permitted refuse limit where groundwater elevation contours exist above the base elevation of the WMUs. Under these conditions during certain times of the year unlined Area I does not have adequate groundwater separation. Title 27 section 20260(a) requires that Class III landfills provide adequate separation between nonhazardous solid waste and waters of the state. Therefore, these WDRs in Provisions section H.8 require the Discharger to prepare a technical report evaluating whether the Discharger maintains adequate separation between nonhazardous solid waste and waters of the state below Area I and Area II throughout the year. If there is not adequate separation, Provision section H.8 requires the Discharger to provide a workplan that outlines means and/or methods which will ensure future separation between nonhazardous solid waste and waters of the State.

42. Based on the existing groundwater monitoring network the direction of groundwater flow is south-southwest along the canyon fill toward Molesworth Creek. The estimated average groundwater gradient is approximately 0.04 to 0.07 feet per foot.

43. Background monitoring data at MW-3 and MW-9b indicates background groundwater has an electrical conductivity (EC) ranging between 115 and 420 µmhos/cm, with total dissolved solids (TDS) ranging between 134 and 292 mg/l.

44. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply, agricultural supply, industrial service supply, and industrial process supply.

LEACHATE MONITORING

45. Title 27, section 20340, subdivision (h) requires dischargers to monitor and report the total volume of leachate collected each month in its regularly scheduled monitoring report. The Discharger is required to report total flow in gallons per month of leachate collected and pumped from the LCRS sumps (LCRS) to the Class II surface impoundment. The results of the Discharger's leachate monitoring program are shown below:

	Quantity of Liquids Pumped from Class II Surface Impoundment to Sanitary Sewer (x 1000 gallons)												**Annual Total**
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	
2012	150	130	92	171	0	0	193	0	169	44	226	180	**1,355**
2013	114	190	89	0	0	205	0	0	311	0	0	259	**1,168**
2014	0	167	86	80	0	0	280	0	0	159	0	274	**1,046**
2015	142	0	159	307	0	0	271	0	0	230	302	143	**1,554**
2016	149	402	0	0	489	0	310	0	0	523	0	201	**2,075**
2017	434	671	573	346	205	421	256	118	162	0	256	150	**3,594**
	989	**1,561**	**1,000**	**903**	**694**	**626**	**1,311**	**118**	**643**	**957**	**783**	**1,207**	

Review of the Discharger's historical water quality monitoring reports indicates that the Discharger has not accurately reported leachate quantities removed from Area I and Area II LCRS sumps. The Discharger reports that leachate quantities removed from the LCRS is determined by the quantity of liquid pumped from the Class II surface impoundment to the sanitary sewer for disposal. However, this quantity includes underdrain liquids and spring water collected below the WMUs as well as precipitation which falls on the surface impoundment. Including these additional liquids does not provide an accurate assessment of the effectiveness of the WMU's LCRS system.

Provisions section H of this Order requires the Discharger to correct deficiencies in the Discharger's leachate monitoring and reporting process and review and/or revise the Discharger's Sample Collection and Analysis Plan for leachate monitoring.

46. Title 27, section 20200, subdivision (c) requires dischargers to accurately characterize waste to identify constituents of concern per Title 27, section 20395 that are reasonably expected to be in or derived from waste contained in a WMU. The existing leachate monitoring system in accordance with MRP No. R5-2006-0108 consists of monitoring leachate LCRS sumps prior pumping the leachate to the Discharger's Class II surface impoundment. The results of the Discharger's leachate monitoring program are shown below:

Discharger's Leachate Monitoring Results (2012 through 2016)

PARAMETER NAME	Units	Leachate Sampling Results				Typical Leachate Characteristics[1]	
		# Times Sampled	# Times Detected	Minimum Result	Maximum Result	low	high
Bicarbonate Alkalinity as CACO3	mg/L	6	6	340	550	NA	NA
Calcium[2]	mg/L	6	6	36	140	10	7,200
Chloride	mg/L	6	6	250	360	30	5,000
Magnesium	mg/L	6	6	100	150	3	15,600
Potassium	mg/L	6	6	0.74	5.8	35	2,300
Sodium[2]	mg/L	6	6	84	130	70	7,700
Sulfate	mg/L	6	6	0.4	5.4	25	500
TDS	mg/L	6	6	770	1400	725	55,000
Acetone	ug/L	6	4	5.5	530	140	11,000
tert-Butyl alcohol	ug/L	6	3	12	93	NA	NA
2-Butanone	ug/L	6	2	170	450	NA	NA
Ethanol (EtOH)	ug/L	6	2	290	1800	NA	NA
Naphthalene	ug/L	6	2	0.69	3	4	19
Toluene	ug/L	6	2	0.39	0.5	2	1,600
1,4-Dichlorobenzene	ug/L	6	1	0.18	0.18	2	20
4-Methyl-2-pentanone	ug/L	6	1	4.1	4.1	10	660
Arsenic[2]	mg/L	1	1	0.0077	0.0077	0.01	1.00

PARAMETER NAME	Units	Leachate Sampling Results				Typical Leachate Characteristics[1]	
		# Times Sampled	# Times Detected	Minimum Result	Maximum Result	low	high
Barium	mg/L	1	1	0.27	0.27	NA	NA
Carbonate Alkalinity as CACO3	mg/L	6	1	20	20	NA	NA
Chromium	mg/L	1	1	0.0013	0.0013	0.02	18.00
Cobalt[2]	mg/L	1	1	0.0011	0.0011	0.005	1.500
Ethylbenzene	ug/L	6	1	0.11	0.11	5	580
Iron	mg/L	1	1	0.25	0.25	200	5,500
Manganese	mg/L	1	1	1.1	1.1	0.6	41.0
Nickel	mg/L	1	1	0.011	0.011	0.2	79.0
Nitrogen, Nitrate (as N)	mg/L	6	1	0.4	0.4	0.1	45.0
pH	pH Units	1	1	8.44	8.44	3.5	8.5
Selenium	mg/L	1	1	0.0089	0.0089	-	2.7
Specific Conductance	Umhos /cm	1	1	1270	1270	960	16,300
Total Organic Carbon	mg/L	1	1	21	21	50	45,000
Turbidity	JTU	1	1	3.7	3.7	30	450

[1]Reference: *Subtitle D Study Phase I Report*, USEPA Special Wastes Branch, EPA/530-SW-86,054, October 1986

[2]Reference: *Present and Long-Term Composition of MSW Landfill Leachate: A Review*, Peter Kjeldsen, Critical Reviews in Environmental Science and Technology, 32 no4 2002, Copyright: The H.W. Wilson Company 1982-2002

The Discharger's characterization of leachate removed from the LCRS is uncharacteristic of leachate removed from MSW facilities. The Discharger's leachate laboratory results show very little detection of VOCs and low concentrations of inorganics, which is uncharacteristic of leachate at MSW facilities, indicating that a problem exists with the way leachate samples are obtained and/or preserved, and transported for laboratory analysis. The Discharger has stated that leachate water quality is determined from samples taken from the Class II surface impoundment that also contains underdrain liquids and spring water collected below the WMUs as well as precipitation which falls on the surface impoundment. The addition of these liquids prevents the Discharger from properly characterizing waste constituents in leachate that may be released from the WMUs. Provisions section H.8 of this Order requires the Discharger to correct deficiencies in the Discharger's leachate monitoring and reporting process and review and/or revise the Discharger's Sample Collection and Analysis Plan for leachate monitoring.

GROUNDWATER MONITORING

47. The existing groundwater monitoring network is comprised of 33 monitoring wells that include background wells MW-3, MW-9a, and MW-9b; detection wells MW-1, MW-2, MW-5, through MW-8, and MW-11 through MW-35, and evaluation monitoring wells MW-10 through MW-13, as shown in in Attachment D. Monitoring well MW-4 is no longer used for site monitoring, and MW-2 and MW-7 have been destroyed as shown in Attachment D. Background monitoring well MW-

9a is screened in a different geologic formation and its water quality characteristics are significantly different than background monitoring wells MW-3 and MW-9b. Therefore MW-9a is not used in calculating point of compliance concentration limits using the Interwell statistical method. The current Point of Compliance wells are MW-13 through MW-19 and MW-21 for unlined Area I, MW-14 for lined Area II, and MW-1 and MW-20 for the Class II surface impoundment.

48. Groundwater at the Eastlake Sanitary Landfill has been impacted by VOCs based on analytical results from monitoring wells primarily located along the western and southern boundary of the waste unit (MW-5, MW-10, MW-13, MW-14, MW-15, MW-16, and MW-17). A review of historical groundwater VOC data collected at the site indicates the presence of VOCs consisting of:

    a. Chlorinated Solvents: 1,1-dichlorethane (1,1-DCA), cis 1,2-dichloroethene (cis 1,2-DCE), chloroethane, chloromethane, vinyl chloride (VC), trichloroethene (TCE), dichlorofluoromethane, and trichlorofluoromethane.

    b. Petroleum Constituents: benzene, toluene, methyl tertiary-butyl ether (MTBE), tertiary-butyl alcohol (TBA), and diisopropyl ether (DIPE)

49. Groundwater degradation is discussed in more detail in later Findings of this Order. At the time this Order was adopted, the Discharger's detection monitoring program for groundwater at the landfill **did not satisfy** the requirements contained in Title 27. Title 27 section 20415(b)(4)(B) for groundwater monitoring system monitoring well performance standards requires that the "*sampling interval at each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples.*" Review of the Discharger's groundwater monitoring well network indicates that:

    a. Monitoring wells are inappropriately screened for an unconfined aquifer e.g., not screened across the water table. Monitoring wells MW-5, MW-8, and MW-16 are not screened deep enough to obtain groundwater samples when groundwater exists below the screened interval;

    b. Monitoring wells MW-9b and MW-12 are screened well below the water table under unconfined conditions;

    c. It is unclear what rationale the Discharger use in determining the depth to place low flow sampling pump inlet. For example, in monitoring wells MW-13, MW-14, and MW-15 the reported pump location is significantly below the lowest reported historical groundwater elevation;

    d. Groundwater monitoring well MW-19 has historically reported groundwater elevations significantly higher than surrounding groundwater monitoring wells indicating that groundwater mounding may be occurring which may be prohibiting the Discharger from obtaining representative samples of underlying groundwater quality. The Discharger's 2018 ROWD/JTD states that the Discharger uses rock armored areas and rock-lined drainage ditches/basins as shown in Attachment F. These stormwater drainage features may cause stormwater to artificially recharge groundwater and prevent the Discharger from obtaining representative samples of groundwater quality; and

    e. The Discharger's current groundwater detection monitoring network only has one monitoring point MW-34 along the edge of waste on the southeastern side of Area II. There exists a data gap along southeastern side of Area II.

Provisions section H.8 of this Order requires the Discharger to prepare a technical report for review and approval that addresses these deficiencies including preparing an updated Water Quality Protection Standard and the Sample Collection and Analysis Plan.

SURFACE WATER MONITORING

50. Surface water monitoring is conducted at the site to comply with the Monitoring and Reporting Program and with the General Industrial Storm Water Permit for the facility. The current MRP R5-2006-0108 surface-water monitoring is performed at a sample location in Molesworth Creek just below the leachate storage pond at monitoring point (SWMS-1), a downstream location in the unnamed tributary to Cache Creek at monitoring point (SWMS-2), and upstream in the unnamed tributary at monitoring point (SWMS-3)that is considered representative of background surface water quality.

51. A majority of the drainage from the site discharges to Molesworth Creek to the west. The northeast area of the facility drains to the unnamed tributary to Cache Creek to the south. Both creeks are ephemeral streams that primarily carry surface water in the winter and early spring months. Molesworth Creek drains into Clear Lake, near the southwestern limit of the City of Clearlake and the unnamed tributary to Cache Creek eventually reaches the Sacramento delta

52. Surface water that originates outside ESL is routed around the landfill footprint. Currently, stormwater that falls within the landfill footprint is routed through rocked culverts and downdrains to Molesworth Creek or an unnamed tributary of Cache Creek as shown in Attachment D. Stormwater that infiltrates into the landfill to form leachate is routed to the Class II surface impoundment for proper disposal. Monitoring for the SWPPP is conducted at discharge locations (DLs) where surface water leaves the site as shown in Attachment D.

53. A storm water sedimentation basin is located east of the landfill as shown on Attachment C. The basin detains storm water for sedimentation control during the rainy season and is normally dry during the summer months. The sedimentation basin discharges to Molesworth Creek.

54. At the time this Order was adopted, the Discharger's surface water detection monitoring program (DMP) **did not satisfy** the requirements of Title 27, section 20415, subdivision (c). Section A.6 of the prior WDRs (Prohibitions), Order No. R5-2006-0108, prohibited the discharge of liquid waste or leachate to surface waters, and surface water drainage courses. Currently, the Discharger does not monitor water quality at its stormwater sedimentation basin(s). The Discharger has stated that stormwater that falls within the landfill footprint is routed through rocked culverts and downdrains to Molesworth Creek or an unnamed tributary of Cache Creek. Leachate seeps, landfill gas condensate, degradation of alternative daily cover, waste within an intermediate cover can cause constituents of concern to enter stormwater that falls on the outer faces of landfill footprint. Therefore, Section H (Provisions) of these WDRs requires the Discharger to submit a work plan to monitor surface water quality entering, leaving, and within any sedimentation basin(s). Section C.7 of the Landfill SPRRS (Prohibitions) continues to prohibit the discharge of liquid waste or leachate to surface waters.

UNSATURATED ZONE MONITORING

55. The Discharger's current unsaturated zone monitoring system consists of two pan lysimeters LS-1 and LS-2 installed beneath Area II's LCRS sump. The lysimeters are used as a leachate

detection monitoring system beneath Area II's base liner system. The access point for LS-1 and LS-2 are located near the southern footprint of Area II. However, it is currently unclear where the LCRS sumps are located beneath Area II. Currently the Discharger is not monitoring the unsaturated zone beneath unlined Area 1 or the Class II surface impoundment. The Class II surface impoundment was constructed with an underlying bedding layer and bedding layer drain pipe below the surface impoundment LCRS sump which is not currently being utilized as an unsaturated zone monitoring system. Title 27 section 20415(d) requires unsaturated zone monitoring where feasible and allows for alternative monitoring methods such as but not limited to monitoring soil pore gas (non-liquid recovery). Therefore, Provisions section H.8 of these WDRs requires the Discharger to submit a technical report and work plan to implement unsaturated zone monitoring systems for Area I and the Class II surface impoundment including providing the locations of Area II's LCRS sump.

GROUNDWATER CONDITIONS (OR DEGRADATION AND CORRECTIVE ACTION)

VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

56. WDRs Order R5-2006-0108 adopted on 22 September 2006 in Finding 36 stated that volatile organic compounds (VOCs) were detected in groundwater monitoring wells MW-5, MW-8, MW-13, and MW-14. The WDRs in the provisions required that the Discharger submit a VOC site investigation report with an assessment of the VOC transport mechanism, an Engineering Feasibility Study for potential corrective actions, and a Corrective Action Program to address the VOCs in groundwater. The Discharger submitted a VOC investigation report in 2007 and an engineering feasibility study in 2008.

57. On 26 April 2013, the Central Valley Water Board requested an updated Site Investigation Workplan to define the vertical and lateral extent of VOC contamination in groundwater.

58. On 29 July 2013, the Discharger submitted the VOC Investigation Workplan, which proposed the installation of two wells to determine if a former burn pit was a source of VOC contamination in groundwater. In addition, two replacement wells were proposed to replace wells MW-2 and -7, which had historically produced insufficient water to obtain samples, even after re-development.

59. Wells MW-17, MW-18, MW-19, and MW-20 were installed and sampled in the spring of 2014.

60. On 1 October 2014, the Discharger submitted their *Volatile Organic Compounds Investigation Report of Findings*, which showed that new well MW-17 also exhibited concentrations of fuel-related hydrocarbons as well as VOCs. The VOCs detected at MW-17 include 1,1-dichloroethane, cis-1,2-dichloroethene, benzene, methyl-tert-butyl ether, and tert-butyl alcohol.

61. In April 2015, all site monitoring wells were sampled, and the table below provides a summary of wells with VOC detections during that sampling event. The Discharger reported VOC detections at wells MW-5, MW-10, MW-13, MW-14, and MW-17, with wells MW-5 and MW-17 exhibiting the most detections. The concentrations of benzene at wells MW-5 and MW-17 exceed the health-based California Primary Maximum Contamination Level of 1 mg/L. At well MW-10, methyl-tert-butyl ether was first detected in November 2012, and as of April 2015 it continues to be detected. At well MW-8, there have been no reported detections of VOCs since November 2012.

62. Three landfill gas monitoring wells (LGMW-1, LGMW-2, and LGMW-3) were installed in November 2005 as part of an evaluation monitoring program. LGMW-1 and LGMW-2 were installed within the limits of the landfill, and LGMW-3 was installed outside the limits of the landfill and adjacent to groundwater monitoring well MW-14. The Discharger's 2007 VOC Investigation Report of Findings indicates that all three wells were sampled for VOCs in 2005, and that wells LGMW-1 and LGMW-2 were sampled in 2006. The number of VOC constituents in each sample ranged from 25 to 39 VOCs, with fuel-related products, tetrachloroethene and reductive degradation products, and refrigerants (e.g., Freon-12) reported in all samples.

63. Based on Central Valley Water Board staff review of the data and the site investigation reports, the landfill is the source of the VOC releases to groundwater and has impacted the beneficial uses of groundwater.

64. On 12 May 2015, Central Valley Water Board staff met with the Discharger to discuss the extent of VOC contamination. Based on those discussions and as outlined in the above Findings, it was determined that the lateral and vertical extent of the VOC plume had not been fully defined, and that further investigation to delineate the release was required.

65. On 30 July 2015 Central Valley Water Board issued Cleanup and Abatement Order (CAO) R5-2015-0713, which required the Discharger to:

    a. By 31 August 2015, submit an Updated Evaluation Monitoring Work Plan to define the horizontal and lateral extent of volatile organic compound impacts in groundwater in all aquifer zones affected by the release;

    b. By 1 March 2016, submit a Well Installation Report for the monitoring wells installed for compliance with the CAO;

    c. By 30 November 2016, submit an Updated Evaluation Monitoring Report of Results, which depicts the vertical and lateral extent of the contamination for zones affected by the release;

    d. By 28 February 2017, submit an Updated Engineering Feasibility Study that evaluates different corrective action measures to remediate the groundwater VOC plume; and

    e. By 30 June 2017, submit an Additional Corrective Action Implementation Report documenting that the proposed corrective action(s) have been implemented.

66. Central Valley Water Board staff reviewed the Discharger's semiannual self-monitoring reports required under MRP R5-2006-0108, and found that the Discharger continues to detect VOCs in groundwater monitoring wells. The table below shows the number of VOC detections from 2010 through 2017:

	Year							
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
# Detections in Upgradient Background Wells								
MW-3	**1**	0	0	0	0	0	0	0
MW-9A	0	0	0	0	0	0	0	0
MW-9B	0	0	0	0	0	0	0	0
# Detections in Downgradient Monitoring Wells								
MW-1	0	0	0	**1**	0	0	0	0

	Year							
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
MW-2	0	0	0	0	0	0	0	0
MW-5	**3**	**9**	**7**	**16**	0	**8**	**15**	**17**
MW-6	0	0	0	0	0	0	0	0
MW-8	0	0	0	0	0	0	0	0
MW-10	0	0	**1**	**2**	**1**	**1**	**1**	**2**
MW-11	0	0	0	**1**	0	0	**5**	0
MW-12	0	0	0	0	0	0	0	0
MW-13	**3**	**3**	**4**	**4**	**5**	**5**	**8**	**6**
MW-14	**3**	**6**	**4**	**7**	**5**	**5**	**11**	**10**
MW-15	0	**3**	**5**	**7**	**9**	**8**	**11**	**6**
MW-16	0	**4**	**10**	**8**	0	**7**	0	0
MW-17	0	0	0	0	**10**	**9**	**4**	**10**
MW-18	0	0	0	0	0	0	0	0
MW-19	0	0	0	0	0	0	0	**2**
MW-20	0	0	0	0	0	0	0	0
MW-21	-	-	-	-	-	-	**12**	**8**
MW-22	-	-	-	-	-	-	0	0
MW-23	-	-	-	-	-	-	0	0
MW-24	-	-	-	-	-	-	0	0
MW-25	-	-	-	-	-	-	**1**	**1**
MW-26	-	-	-	-	-	-	0	**3**
MW-27	-	-	-	-	-	-	**2**	**2**
MW-28	-	-	-	-	-	-	0	**1**
MW-29	-	-	-	-	-	-	0	0
MW-30	-	-	-	-	-	-	0	**9**
MW-31	-	-	-	-	-	-	0	0
MW-32	-	-	-	-	-	-	0	0

Monitoring wells MW-5, MW-13, MW-14, MW-15, MW-17, and MW-21 continue to detect VOCs in groundwater. The Table below shows the type and number of VOCs detected in these monitoring wells:

Well	**Constituent of Concern**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
MW-5	**Methyl-tert-butyl ether (MTBE)**	0	2	2	2		1	3	2
	tert-Butyl alcohol (TBA)	0	1	1	2		1	2	2
	1,1-Dichloroethane	0	0	1	1		1	0	2
	Benzene	1	2	0	2		1	2	2
	cis-1,2-Dichloroethene	1	2	2	2		1	3	2
	Di-isopropyl ether (DIPE)	0	0	0	2		1	2	2
	Acetone	1	1	0	1		0	0	0

Well	Constituent of Concern	2010	2011	2012	2013	2014	2015	2016	2017
	Chloroethane	0	0	0	2		1	1	2
	Dichlorodifluoromethane	0	0	1	1		0	1	0
	Trichloroethene (TCE)	0	1	0	1		1	1	2
MW-13	**Methyl-tert-butyl ether (MTBE)**	1	2	2	2	2	2	3	2
	tert-Butyl alcohol (TBA)	1	1	1	0	0	1	2	2
	1,1-Dichloroethane	0	0	1	2	2	1	3	2
	Chloroethane	1	0	0	0	0	1	0	0
	Dichlorodifluoromethane	0	0	0	0	1	0	0	0
MW-14	**Methyl-tert-butyl ether (MTBE)**	0	2	2	2	2	2	3	2
	tert-Butyl alcohol (TBA)	1	2	1	1	0	1	2	2
	1,1-Dichloroethane	0	0	1	2	2	1	2	2
	Benzene	1	1	0	1	0	0	2	2
	Di-isopropyl ether (DIPE)	1	1	0	1	0	1	2	2
	Dichlorodifluoromethane	0	0	0	0	1	0	0	0
MW-15	**Methyl-tert-butyl ether (MTBE)**	0	0	2	2	2	2	3	2
	tert-Butyl alcohol (TBA)	0	2	1	2	1	2	3	2
	1,1-Dichloroethane	0	1	1	2	2	2	3	2
	Benzene	0	0	0	0	2	1	0	0
	Dichlorodifluoromethane	0	0	1	0	1	0	0	0
MW-17	**Methyl-tert-butyl ether (MTBE)**					2	2	1	2
	tert-Butyl alcohol (TBA)					2	1	1	2
	1,1-Dichloroethane					2	2	0	2
	Benzene					2	2	1	2
	cis-1,2-Dichloroethene					2	2	1	2
MW-21	**Methyl-tert-butyl ether (MTBE)**							3	2
	Benzene							3	1
	cis-1,2-Dichloroethene							2	2
	Dichlorodifluoromethane							0	1
	Toluene							2	0
	1,4-Dichlorobenzene							2	2

67. The Discharger has submitted the reports required by the CAO and is currently monitoring the effectiveness of its corrective action plan. These WDRs continue to require the Discharger to comply with Cleanup and Abatement Order (CAO) R5-2015-0713 for addressing VOCs in groundwater due to landfill gas impacts.

INORGANIC COMPOUNDS IN GROUNDWATER

68. The Discharger established concentration limits for inorganic compounds that naturally occur in groundwater to describe background water quality. Continued exceedances of background water quality concentration limits in downgradient groundwater monitoring wells is indication of a release from a WMU. Central Valley Water Board staff reviewed the Discharger's semiannual

self-monitoring reports required under MRP R5-2006-0108, and found that the Discharger continues to exceed background concentration limits for inorganic compounds in downgradient groundwater monitoring wells. The table below shows the percentage of the time the inorganic compound exceeded the background concentration limit from 2013 through 2017:

	Chloride					Sodium				
Well	**2013**	**2014**	**2015**	**2016**	**2017**	**2013**	**2014**	**2015**	**2016**	**2017**
MW-1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
MW-11	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
MW-12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
MW-14	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
MW-17	100%	100%	100%	100%	100%		100%	100%	100%	100%
MW-19		100%	100%	100%	100%		100%	100%	100%	100%
MW-21				100%	100%				100%	100%
MW-29					100%					100%
MW-31					100%					100%
MW-32					100%					100%

	Potassium					Sulfate				
Well	**2013**	**2014**	**2015**	**2016**	**2017**	**2013**	**2014**	**2015**	**2016**	**2017**
MW-1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
MW-11	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
MW-12	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
MW-14	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
MW-17		100%	100%	100%	100%	100%	100%	100%	100%	100%
MW-19		100%	100%	100%	100%		100%	100%	100%	100%
MW-21				100%	100%				100%	100%
MW-29					100%					100%
MW-31					100%					100%
MW-32					100%					100%

69. The continued exceedance of chloride, sodium, potassium, and sulfate is indicative of a leachate related release from a WMU. After review of the Discharger's Engineering Feasibility Study (Revision 2) and 2017 SMR monitoring data, Central Valley Water Board staff on 30 March 2018 notified the Discharger that corrective action for release of VOCs to groundwater would not address a release of leachate to groundwater. The 30 March 2018 letter required that the Discharger by 31 July 2017 (sic) submit an evaluation of the inorganic constituents across the site. The evaluation should make the determination whether groundwater impacts are likely being caused by landfill gas or leachate or both. The evaluation should propose further delineation of inorganic impacts to groundwater.

70. The Discharger submitted an *Inorganic Constituent Evaluation Report* dated July 2018 which evaluated concentrations of electrical conductivity, total dissolved solids, chloride, sulfate, and bicarbonate. The evaluation report confirmed the release of leachate from the WMU through excavation activities and inspection of conveyance piping. However, the Discharger stated that "*the collection of water testing data has shown levels for inorganic constituents in leachate are*

less than concentrations identified in some monitoring wells." This may be due to the Discharger not collecting representative samples of leachate as discussed in Findings 45-46. Furthermore, as discussed in Finding 41 unlined Area I at certain times of the year does not have adequate separation between underlying groundwater and waste. Waste which is in contact with groundwater and/or surface water will produce leachate and landfill gas. These WDRs in Provisions section H.8 require the Discharger to provide a technical report related to the source of leachate, the WMUs leachate containment systems, groundwater separation, existing leachate mitigation measures i.e., extraction wells, cutoff trenches, etc. and propose additional corrective action for addressing the release of leachate from its WMUs.

WATER QUALITY PROTECTION STANDARDS

71. 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.

72. 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.

73. 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.

74. 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).

75. The Discharger submitted a 2017 Water Quality Protection Standard (WQPS) report proposing statistical data analysis methods to calculate concentration limits for each monitored constituent in accordance with Title 27. The WQPS report proposed to use Interwell data analysis to calculate tolerance limits for the monitored constituents. The WQPS and approved data evaluation methods are included in MRP R5-2019-0009.

LINER PERFORMANCE DEMONSTRATION

76. On 15 September 2000 the Central Valley Water Board adopted Resolution No. 5-00-213 *Request For The State Water Resources Control Board To Review The Adequacy Of The Prescriptive Design Requirements For Landfill Waste Containment Systems To Meet The Performance Standards Of Title 27*. The State Water Board responded, in part, that "a single composite liner system continues to be an adequate minimum standard" however, the Central Valley Water Board "should require a more stringent design in a case where it determines that the minimum design will not provide adequate protection to a given body of groundwater."

77. In a letter dated 17 April 2001, the Executive Officer notified Owners and Operators of Solid Waste Landfills that "the Board will require a demonstration that any proposed landfill liner system to be constructed after 1 January 2002 will comply with Title 27 performance standards. A thorough evaluation of site-specific factors and cost/benefit analysis of single, double, and triple composite liners will likely be necessary. This demonstration will be required regardless of any expansion previously authorized in current waste discharge requirements." The Discharger has demonstrated that the landfill liner system for Fill Area II complies with Title 27 performance standards as described in Findings 82-84.

CONSTRUCTION AND ENGINEERED ALTERNATIVE

78. 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.

79. Title 27 section 20260(a) requires that Class III landfills be located where site characteristics provide adequate separation between nonhazardous solid waste and waters of the state. Existing WMUs are to be "operated" to maintain the required separation to ensure protection of the background quality of groundwater and surface water.

80. 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) or (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 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).

81. 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.

82. The Discharger proposed a liner system which was designed, constructed, and operated in accordance with the criteria set forth in Title 27, and the provisions in State Water Board Resolution 93-62 for municipal solid wastes.

83. The Discharger submitted a Report of Waste Discharge during 1998 requesting approval of an engineered alternative to liner requirements. The Central Valley Water Board approved an engineered alternative liner system design for the Area II lined Unit in previous WDRs Order No. 98-159 using GCL in place of two-feet of compacted clay. Module 1 of Area II was constructed during 1999 and included the entire base liner system for Area II, as well as the side slopes up to the first bench. Module 2 of Area II (the remainder of the side slope) was constructed in 2003. The Central Valley Water Board has routinely approved the substitution of GCLs for the low permeability layer of a landfill liner or cover system. The Discharger was not required to repeat the demonstrations because there are no significant differences in the characteristics of already approved GCLs and the low permeability layer substitution proposed for the Area II Unit. Furthermore, GCLs are more suitable for steep side slopes such as the Module 2 side-slope liner extension at the Eastlake Sanitary Landfill because of the difficulties in compacting a clay liner on a steep side-slope. The issuance of these WDRs constitutes continued Central Valley Water Board approval of the GCL engineered alternative. However, in the future, based on site conditions such as in typical canyon fills where groundwater springs and seeps exist, the evaluation of whether or not the GCL needs to be encapsulated to prevent large scale saturation and resulting reduced internal shear strength will need to be performed prior to approval of its general use.

84. The Discharger adequately demonstrated that construction of a Subtitle D prescriptive standard liner would be unreasonably and unnecessarily burdensome when compared to the proposed engineered alternative design. The Discharger demonstrated that the proposed engineered alternative is consistent with the performance goals of the prescriptive standard and affords at least equivalent protection against water quality impairment.

85. However, reevaluation of the base and side slope liner design has uncovered potential deficiencies in the base liner and side slope design such as (a) omission of a geotextile cushion layer of sufficient thickness to protect primary liner from overlying LCRS drainage material, and (b) lack of evaluation of suitability of soil used for operations layer that may exhibit low hydraulic conductivity properties after placement limiting ability of leachate to reach the LCRS, and (c) evaluation of need for GCL to be encapsulated to prevent large scale saturation and resulting reduced internal shear strength. Any lateral expansion at the facility will require revised WDRS and consideration given to the potential deficiencies listed above.

CLASS III LANDFILL LINER

86. The Discharger constructed Module 2 of Area II during 2003. This expansion is an extension of the Area II Module 1 liner system up the eastern side slope of Area II. The side slope is inclined at no less than 3H:1V (horizontal to vertical). The liner system design and expansion had been previously approved in Order No. 98-159; however, the Discharger was required to submit a liner performance demonstration for Central Valley Water Board approval as described in the previous Finding, above.

87. The Discharger submitted a liner performance demonstration report dated 24 September 2002 for Module 2 of Area II which is entirely within the upper side-slope area of Area II. The proposed design for Module 2 of Area II is the same as the previously approved liner system design that was used for Module 1, with the exception of the subdrain layer which the Discharger evaluated and determined was not needed in the upper portion of the side-slope area. Therefore, the liner system for Module 2 of Area II consists of (from top to bottom):

    a. Two-foot thick soil operations layer;
    b. LCRS drainage geocomposite;
    c. 60-mil thick HDPE geomembrane (double-sided textured);
    d. Geosynthetic clay liner;
    e. Subdrain on base to provide adequate groundwater separation (Module 1 only)
    f. Prepared subgrade

    As part of the liner performance demonstration, the consultant for the Discharger reported having performed detailed evaluations of the performance of single-composite liner systems for slopes ranging from 3H:1V to 2H:1V. The liner performance evaluations indicated that the leakage potentials on these steep side slopes are very low ranging from 2×10^{-4} gallons per acre per day (gpad) to 2×10^{-5} gpad based on leachate generation rates ranging from 25 gpad to 60 gpad. These estimated leakage rates were reported to be considered negligible. Cost-benefit analysis further demonstrated that additional liner components added significant cost but provided no significant increase in benefit. Based on the information presented in the liner performance demonstration report submitted by the Discharger, the Central Valley Water Board has found that the proposed side-slope single composite liner system meets the applicable performance standard.

CLASS II SURFACE IMPOUNDMENT

88. The liner system for the existing Class II surface impoundment consists of, from top to bottom:

    a. A primary 80-mil HDPE geomembrane;
    b. A one-foot gravel on base and geocomposite geonet drainage layer on side slopes as a Leachate Collection and Removal System (LCRS);
    c. A secondary 60-mil HDPE geomembrane or 40-mil LLDPE geomembrane;
    d. A Geosynthetic Clay Liner (GCL);
    e. An appropriate bedding layer if necessary; and

f. A foundation layer suitable for providing a stable base for the overlying secondary geomembrane that will not damage the geomembrane or GCL over the life of the surface impoundment.

89. The LCRS drains to a sump where leachate and gas condensate is pumped back into the surface impoundment. The LCRS is designed with capacity for at least twice the maximum anticipated daily volume of leachate.

90. Title 27, section 20080, subdivision (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, section 20080, subdivision (c)(1) or (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 section 20080, subdivision (b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative(s) provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Title 27, section 20080, subdivision (b)(2) and that any proposed engineered alternative is consistent with the performance goal in accordance with Title 27, sections 20240, 20250 and 20310.

91. The Discharger proposed a liner system which was designed, constructed, and operated to prevent migration of wastes from the Unit to adjacent natural geologic materials, groundwater, or surface water during disposal operations, closure, and the postclosure maintenance period in accordance with the criteria set forth in Title 27 for Class II WMUs.

92. The Discharger adequately demonstrated that construction of the liner prescriptive standard for the Class II surface impoundment as described in Title 27, section 20330, subdivision (b) requiring use 2-foot minimum thickness clay liner would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design using an equivalent geosynthetic clay liner (GCL) because there is no clay source on-site 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 proposed engineered alternative is consistent with the performance goals of the containment structures for a Class II WMU affords equivalent protection against water quality impairment.

93. Title 27, section 20370, subdivision (a) requires Class II units to be designed to withstand the maximum credible earthquake (MCE) without damage to foundation or containment structures. These WDRs require any future Class II surface impoundment to comply with Title 27 requirements under both static and dynamic conditions.

94. Title 27, section 20375, subdivision (a) requires Class II surface impoundments to have capacity for seasonal precipitation, a 1,000-year 24-hour design storm event, and to maintain at least two feet of freeboard at all times. The 1,000 year, 24-hour storm event for the site is 9.46 inches, and is referred to hereafter as the “design storm”. For containing seasonal precipitation, the Discharger has been required to use the 100-year wet season distributed monthly to prevent overflow of the impoundment or less than two feet of freeboard during a reasonable worst-case scenario wet season. A reasonable worst-case wet season is the 100-year wet season which for the site is 56.66 inches.

95. This Order requires that if the Discharger is unable to dispose of its contents to a sanitary sewer to have adequate storage capacity for leachate, underdrain liquids, and gas condensate flows to the impoundment from a 100-year wet season of 56.66 inches distributed at least monthly, a 1,000 year 24 hour storm event (design storm) of 9.46 inches, and the addition of underdrain liquids and shall maintain at least two (2.0) feet of freeboard at all times.

96. This Order includes an Action Leakage Rate (ALR) for the Class II surface impoundment LCRS. The ALR is the maximum flow rate through the primary liner to the LCRS beyond which the Discharger is required to take actions to inspect and repair the primary liner system. The ALR is based on the recommendations in the 1992 USEPA guidance document Action Leakage Rate for Leak Detection Systems. The guidance recommends that ALR for lined surface impoundments be set at no more than 1,000 gallons per acre per day. Using this recommendation, the calculated ALR is 400 gallons per day for the estimated 0.40-acre impoundment. This Order sets the ALR for the surface impoundment at 400 gallons per day. The leakage rate will be calculated based on monthly readings of the flow totalizer that records flow from the LCRS manhole back to the surface impoundment.

STABILITY ANALYSIS

97. Title 27 requires seismic design for Class III units to be based on the Maximum Probable Earthquake (MPE), or the maximum earthquake likely to happen within 100 years. Seismic design for the base liner system at the Eastlake Landfill conducted in 1998 was based on a Peak Ground Acceleration (PGA) with 10% probability of being exceeded in 250 years with a resulting PGA of 0.58g. This seismic design exceeds the required MPE. A different seismic analysis conducted in 2004 was used for design of the filling (side-slopes and benches) and closure of the landfill based on new seismic information at that time. The seismic design for the closure of the landfill has been based on a PGA with a 50% probability of being exceeded in 75 years with a resulting PGA of 0.17g. This design meets the MPE since the resulting PGA would be likely to occur within a period of 100 years (greater than 50% probability of being exceeded).

98. In 2018, additional seismic analyses were performed as part of the non-water release corrective action plan as required under Title 27 (Source: 2018 ROWD/JTD section 4.8). The objective was to assess potential earthquake-induced damage, including liquefaction, landsliding, surface fault rupture and permanent seismic deformation for the maximum credible earthquake (MCE) or an earthquake with a 2,475-year return period. The work entailed identification of the governing MCE ground motions, and a slope stability analysis under both static and seismic conditions. Conclusions of this analysis are as follows:

    a. For the most critical landfill slope section(s), the minimum factor of safety (FS) was calculated to be 2.1. The accepted minimum FS is 1.5.

    b. Under seismic conditions, a mean permanent deformation of less than 1 inch is predicted. This estimated seismic deformation is considered tolerable with little to no anticipated damage to the landfill slope or environmental containment features.

    c. These results indicate proposed final slope configurations are expected to remain stable under both static and seismic conditions.

99. As stated in earlier findings there is concern that adequate groundwater separation does not exist below unlined Area I which may impact seismic stability of the landfill. These WDRs in

Provisions section H.8 require the Discharger to reevaluate seismic stability of the landfill if it is confirmed that adequate groundwater separation does not exist below the landfill.

LANDFILL CLOSURE

100. 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 $1x10^{-6}$ 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.

101. 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.

102. The Discharger submitted a 2005 *Preliminary Closure and Postclosure Maintenance Plan* updated in the 2018 ROWD/JTD for closure and post-closure maintenance of all the unlined and composite-lined landfill units at the facility. Based on an airspace utilization, effective refuse density of 1,200 pounds per cubic yard (lb/cu yd) and other factors the Discharger estimates that Area I and Area II will reach fill capacity around January 2024 and May 2025 for 50,000 and 40,000 tons per year disposal rates, respectively.

103. The Discharger's 2005 *Preliminary Closure and Postclosure Maintenance Plan* updated in the 2018 ROWD/JTD includes an analysis of the proposed engineered alternative final cover which is as follows:

    a. **Unlined Area I.** The proposed final cover system will consist of the following (bottom to top):

        i. Foundation layer consisting of a 24-inch-thick compacted soil layer;

        ii. 60-mil minimum thickness, textured (both sides), HDPE geomembrane liner;

        iii. Geonet composite drainage layer; and

        iv. Erosion-resistant layer consisting of a 24-inch-thick vegetative soil layer.

    b. **Lined Area II (including portion that overlaps Area 1).** The proposed final cover system will consist of the following (bottom to top):

        i. Foundation layer consisting of a 24-inch-thick compacted soil layer.

        ii. Reinforced GCL barrier layer;

        iii. 60-mil minimum thickness, textured (both sides), HDPE geomembrane liner;

        iv. Geonet composite drainage layer; and

        v. Erosion-resistant layer consisting of a 24-inch-thick vegetative soil layer.

104. The Discharger demonstrated that the engineered alternative final cover for Lined Area II meets the performance goals of Title 27 and that it is equivalent to the prescriptive standard. The Discharger has not demonstrated that the engineered alternative final cover for unlined Area I meets the performance goals of Title 27 for a WMU that is in corrective action for release of leachate and gas and does not have a bottom liner containment system. Provision section H.8 requires the Discharger to provide a final cover system over the unlined Area I that will serve as the principal waste containment feature during the postclosure maintenance period as required by Title 27 section 20950(a)(2)(A)(1).

105. The Discharger performed a slope stability analysis for the proposed final cover (See Findings 97-98). The Discharger's static and dynamic stability analysis demonstrates that the side slopes of the final cover will be stable in accordance with the requirements of Title 27.

106. 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.

107. Side slopes for the closed landfill will be sloped at a maximum of 3H:1V and will include 20-foot wide benches every 50 vertical feet or less.

108. This Order approves the proposed final cover over Area II and requires that a final closure and post-closure maintenance plan, design documents, and CQA plan be submitted for review and approval at least 180 days prior to actual closure.

SURFACE IMPOUNDMENT CLOSURE

109. The Discharger currently operates a 0.40-acre Class II surface impoundment that receives leachate, gas condensate, and underdrain liquids from Area I and Area II WMUs. These WDRS require the Discharger upon closure of the Class II surface impoundment, to clean-close the unit pursuant to Title 27, section 21400, subdivision (b)(1). If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, these WDRs allow the impoundment to be closed as a landfill pursuant to Title 27, section 21400, subdivision (b)(2)(A).

LANDFILL POST-CLOSURE MAINTENANCE

110. The Discharger submitted a 2005 *Preliminary Closure and Postclosure Maintenance Plan* updated in the 2018 ROWD/JTD for closure and post-closure maintenance of Area I and Area II. 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 will include the condition of the final cover, drainage features, LCRS, groundwater monitoring wells, unsaturated zone monitoring points, access roads, landfill gas system, groundwater corrective action 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.

111. 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.

112. 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

113. 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 2005 *Preliminary Closure and Post Closure Maintenance Plan* updated in the 2018 ROWD/JTD 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. The total amount of the closure cost estimate for closing Area I and Area II in 2017 dollars is $6.33 million. This Order requires that the Discharger maintain financial assurance with the California Department of Resources Recycling and Recovery (CalRecycle) in at least the amount of the closure cost estimate. The Eastlake Landfill utilizes two enterprise funds to assure the costs of closure, postclosure maintenance. and corrective action. As of 27 April 2017 CalRecycle had determined that the enterprise funds are adequately funded to cover estimated closure costs for the landfill waste management units.

114. Title 27, sections 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The Discharger's 2005 *Preliminary Closure and Post Closure Maintenance Plan* updated in the 2018 ROWD/JTD includes a cost estimate for landfill post-closure maintenance. The amount of the cost estimate for post-closure maintenance in 2017 dollars is $6.78 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 27 April 2017, CalRecycle had determined that the enterprise funds are adequately funded to cover estimated postclosure maintenance costs for 30-years for the landfill waste management units.

115. Title 27 section 22100(b) requires owners and operators of disposal facilities that are required to be permitted as solid waste landfills to provide cost estimates for initiating and completing corrective action for known or reasonably foreseeable releases of waste. Title 27 section 22101 requires submittal of a *Water Release Corrective Action Estimate* and a *Non-Water Release Corrective Action Cost Estimate*. The *Water Release Corrective Action Estimate* is for scenarios where there is statistically significant evidence of a release of waste to ground or surface water when comparing point-of-compliance analyte concentrations to background concentrations. The *Non-Water Release Corrective Action Cost Estimate* is for complete replacement of the landfill final cover system, however a site-specific corrective action plan pursuant to Title 27 section 22101(b)(2) may be provided in lieu of the final cover replacement cost estimate. Title 27 section 22221 requires establishment of financial assurances in the amount of an approved *Water Release Corrective Action Estimate* or an approved *Non-Water Release Corrective Action Cost Estimate*, whichever is greater. The Discharger submitted a 2018 cost estimate of $946,652 for corrective action of all known or reasonably foreseeable non-water related

releases. A surface fire at the facility was determined as having the highest non-water release corrective action cost. The facility is currently under Cleanup and Abatement Order (CAO) R5-2015-0713 to address corrective action for a water release and associated groundwater impacts. Cost estimates for corrective action is being addressed in the Work Plans submitted to the RWQCB under the CAO. Therefore, these WDRs in Provisions H require the Discharger to prepare a technical report estimating the cost of corrective action for a water release and determine if its costs estimate is greater than the non-water related release of $946,652 and provide evidence that it has financial assurances in place to fund whichever cost is greater. This Order requires that the Discharger maintain financial assurance with CalRecycle in at least the amount of the greater cost estimate adjusted annually for inflation.

116. The 2018 PCPMP update did not include clean closure costs for the Discharger's existing Class II surface impoundment. Provisions section H.8 of these WDRs requires the Discharger to submit an updated PCPMP that satisfies the requirements of Title 27 and is approved by CalRecycle. The PCPMP shall include closure cost estimates, any applicable postclosure maintenance cost estimates, and corrective action cost estimates for both the landfill WMUs and the Class II surface impoundment WMU(s). The Discharger shall also provide documentation showing that financial mechanism(s) are in place to provide necessary financial assurances per Title 27 requirements.

CEQA AND OTHER CONSIDERATIONS

117. The County of Lake, Community Development Department, Planning Division certified a Notice of Exemption for the Eastlake Landfill on 30 January 1998, in accordance with CEQA (Pub.Resources Code, § 21000 et seq.) and the CEQA guidelines (Cal. Code Regs., tit. 14, 15000 et seq.). The Notice of Exemption stated that the project consists of a plan for continued operation of an existing facility, and revisions will not result in new significant adverse environmental impacts.

118. This action to revise WDRs for an existing facility is exempt from CEQA in accordance with section 15301 of the CEQA Guidelines.

119. 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.

120. 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."

121. The *Statement of Policy with Respect to Maintaining High Quality of Waters in California*, SWRCB Order WQ 68-16 (Anti-Degradation Policy) was adopted by the State Water Board in October 1968. Anti-Degradation Policy limits the Board's discretion to authorize the degradation of "high-quality waters." This policy has been incorporated into the Board's Basin Plans. "High-quality waters" are defined as those waters where water quality is more than sufficient to support beneficial uses designated in the Board's Basin Plan. Whether or not a water is a high-quality water is established on a constituent-by-constituent basis, which means that an aquifer can be considered a high-quality water with respect to one constituent, but not for others. (SWRCB Order No. WQ 91-10.)

122. Anti-Degradation Policy applies when an activity discharges to high quality waters and will result in some degradation of such high quality waters. When it applies, the Policy requires that WDRs reflect best practicable treatment or control (BPTC) of wastes and that any degradation of high quality waters (a) will be consistent with the maximum benefit to the people of the State, and (b) will not result in an exceedance of water quality objectives. If the activity will not result in the degradation of high quality waters, Anti-Degradation Policy does not apply, and the Discharger need only demonstrate that it will use "best efforts" to control the discharge of waste.

123. Anti-Degradation Policy does not apply to the discharge of waste to Eastlake Sanitary Landfill. The requirements of this Order are designed to ensure that any such wastes remain contained at the facility and will not reach waters of the State. The requirements of this Order require the Discharger's to implement best efforts to control such wastes.

124. Water Code section 13267(b) provides that:

> [T]he Regional Board may require that any person who has discharged, discharges, or is suspected of having discharge or discharging, or who proposes to discharge waste within its region … shall furnish, under penalty of perjury, technical or monitoring program reports which the 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.

125. The technical reports required by this Order and the attached MRP R5-2019-0009 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

126. 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.

127. 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.

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

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13263 and 13267, Order R5-2006-0108 is rescinded except for purposes of enforcement; and that the County of Lake, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharges of 'hazardous waste' and 'designated waste' are prohibited. For the purposes of this Order, 'hazardous waste' is defined per California Code of Regulations, title 23 (Title 23), section 2510 et seq., and 'designated waste' is as defined per Title 27.

2. The discharge of 'designated waste' anywhere at the facility other than the Class II surface impoundment is prohibited.

3. The discharge of waste from the Class II surface impoundment to a Class III WMU is prohibited.

4. The discharge of treated wood waste, acceptable incinerator ash, or dewatered sludge to unlined Area I WMU is prohibited.

5. The Discharge of any liquid wastes to any newly constructed Class II surface impoundment prior to submittal of a final construction report, completion of electronic leak survey of the primary and secondary geomembrane liners used for waste containment, receipt of Central Valley Water Board's approval of the construction, and approval of financial assurance documents by the Central Valley Water Board staff is prohibited.

6. The discharge of leachate for soil moisture conditioning is prohibited unless the leachate is "solidified" in accordance with Title 27, section 20200, subdivision (d) prior to placement of conditioned soil in a solid waste WMU.

7. Except for the Class II surface impoundment, the discharge of waste to ponded water from any source is prohibited.

8. The cessation of any corrective action measure (e.g. landfill gas extraction, soil vapor extraction, operation or maintenance of any leachate collection and removal system, underdrain collection and monitoring system) is prohibited without written Executive Officer approval. If routine maintenance or a breakdown results in cessation of corrective action for greater than 24 hours, the Discharger shall notify Board staff.

9. The Discharger shall comply with all Standard Prohibitions listed in Section C of both the Landfill SPRRs and Class II SPRRs, as incorporated herein.

B. DISCHARGE SPECIFICATIONS

1. The Discharger shall only discharge the following wastes including nonhazardous solid waste, including mixed municipal solid waste consisting of residential and commercial waste, construction/demolition debris, roll-off box debris, self-hauled wastes, bagdump refuse, treated medical waste deemed to be solid waste, dewatered water treatment sludge, and non-friable asbestos i.e., asbestos waste with less than one percent (<1%) friable asbestos, and treated wood waste in the WMUs shown below:

Title 27 Waste Type	Class III Unlined Area 1	Class III Lined Area 2	Class II Surface Impoundment
MSW	Yes	Yes	No
Inert C&D (e.g., concrete, cured asphalt, brick)	Yes	Yes	No
Nonhazardous C&D, commercial, & industrial	Yes	Yes	No
Leachate, LFG Condensate, and underdrain liquids	No	No	Yes
Non-Friable Asbestos containing wastes	Yes	Yes	No
Treated Wood Waste	No	Yes	No
Dewatered Sludge or acceptable incinerator ash	No	Yes	No
Designated and Special Wastes[1]	No	No	No
Disaster Related Waste	No	No[2]	No

[1]Special wastes as defined by Title 27 (e.g. triple-rinse pesticide containers, tires, large dead animals, medical wastes. Incinerator ash, and agricultural wastes)

[2]Disaster related waste may only be discharged under a *Conditional Waiver Of Waste Discharge Requirements For Disaster-Related Wastes During A State Of Emergency Within The Central Valley Region*

2. The discharge shall remain within the designated disposal area at all times.

3. "Treated wood" wastes may be discharged, but only to an area equipped with a composite liner and leachate collection and removal system, as described in Construction Specification D.2, and only if the wastes are handled in accordance with Health and Safety Code sections 25143.1.5 and 250150.7.

4. The Discharger shall manage treated wood waste in accordance with Health and Safety Code sections 25143.1.5 and 250150.7 and shall comply with all prohibitions listed in Title 22, section 67386.3. If a verified release is detected from the waste management unit where treated wood is disposed, the disposal of treated wood shall be terminated at the unit with the verified release until corrective action ceases the release.

5. The Discharger may not use any material as alternative daily cover (ADC) other than those currently approved unless the Discharger demonstrates it meets the requirements in Title 27, section 20705, and the Discharger has received written approval that it may begin using the

material as ADC. The following materials are currently approved for use as ADC: onsite soils, reusable ADC tarps, and spray on material.

6. The Discharger shall use approved ADC only in internal areas of the landfill that do not drain outside of the limits of the contiguous landfill units unless the Discharger demonstrates that runoff from the particular ADC is not a threat to surface water quality and the demonstration has been approved in writing. This demonstration may take removal of sediment or suspended solids into account for landfills where surface water drains to a sedimentation basin.

7. 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, determine what changes to MRP R5-2019-0009 are necessary to monitor for the new waste constituents, 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.

8. The Discharger shall comply with all Standard Discharge Specifications listed in Section D of both the Landfill SPRRs and Class II SPRRs, as incorporated herein.

C. FACILITY SPECIFICATIONS

1. The Discharger shall comply with all Standard Facility Specifications listed in Section E of both the Landfill SPRRs and Class II SPRRs, as incorporated herein.

2. Per Title 27, section 20260(a) for Class III landfills, the Discharger shall provide adequate separation between nonhazardous solid waste and waters of the state. Existing WMUs are to be "operated" to maintain the required separation to ensure protection of the background quality of groundwater and surface water.

3. Per Title 27, section 20240(k) for Class II surface impoundments, the Discharger shall operate the Class II surface impoundment such that the Discharger maintains 5-feet separation between waste and highest anticipated groundwater including any capillary fringe. The Class II surface impoundment waste elevation is at 1572 feet msl. Therefore, groundwater elevation including capillary fringe shall not exceed 1567 feet msl.

4. The Discharger shall immediately notify the Central Valley Water Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, significant erosion, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

5. The Discharger shall maintain any disturbed areas, including side-slopes, to prevent erosion in accordance with the Storm Water Pollution Prevention Plan for the landfill.

6. The Discharger shall repair erosion damage or slope failure in a timely manner and shall immediately provide interim repairs to such damaged areas if permanent repair is not immediately feasible due to wet conditions.

7. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control and construction.

8. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

9. Methane and other landfill gases shall be adequately vented, removed from the Units, or otherwise controlled as needed to prevent 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.

10. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.

11. The Discharger shall maintain a Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements in accordance with State Water Resources Control Board Order No. 97-03-DWQ or retain all storm water onsite.

D. DESIGN AND CONSTRUCTION SPECIFICATIONS (WHERE APPLICABLE)

1. The Discharger shall comply with all Standard Construction Specifications listed in Section F of both the Landfill SPRRs and Class II SPRRs, incorporated herein.

2. The Discharger shall comply with all Storm Water Provisions listed in Section L of both the Landfill SPRRs and Class II SPRRs, both of which as incorporated herein.

3. The Discharger shall submit for review and approval prior to construction, design plans and specifications for new Units and expansions of existing Units, that include the following:

    a. A Construction Quality Assurance (CQA) Plan meeting the requirements of Title 27, section 20324;

    b. A geotechnical evaluation of the area soils, evaluating their use as the base layer; and

    c. An unsaturated zone monitoring system, which is demonstrated to remain effective throughout the active life, closure, and postclosure maintenance periods of the Unit, which shall be installed beneath the composite liner system in accordance with §20415(d) of Title 27.

4. Per Title 27, section 20260(a) for Class III landfills, the Discharger shall provide adequate separation between nonhazardous solid waste and waters of the state. Existing WMUs are to be "operated" to maintain the required separation to ensure protection of the background quality of groundwater and surface water.

5. The Discharger shall not proceed with liner construction (other than earth moving and grading in preparation for liner construction) until the construction plans, specifications, and all applicable construction quality assurance plans have been approved.

6. A disinterested third party independent of both the Discharger and the construction contractor shall perform all construction quality assurance monitoring and testing during the construction of any liner or final closure cover system.

7. Following the completion of construction of a Unit or portion of a Unit, and prior to discharge onto the newly constructed liner system, the final documentation required per Title 27, 20324(d)(1)(C) shall be submitted for review and approval. The report shall be certified by a registered civil engineer or a certified engineering geologist, and contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, and with the prescriptive standards and performance goals of Title 27.

8. If monitoring reveals substantial or progressive increases of leachate generation above the design leachate flow volume for the Unit or portion of the Unit (landfill or surface impoundment), such that the depth of fluid on any portion of the LCRS (excluding the leachate removal pump sump) exceeds 30 cm, the Discharger shall immediately notify the Central Valley Water Board in writing within seven days. The notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.

LANDFILL LINER SYSTEM COMPONENTS

9. The liner system for Module 2 of the Area II Unit shall be constructed in accordance with the following composite liner design (from top to bottom):

    a. a two-foot thick soil operations layer;

    b. LCRS drainage geocomposite;

    c. 60-mil thick HDPE geomembrane (double-sided textured);

    d. a geosynthetic clay liner that shall exhibit appropriate strength characteristics (hydrated) to accommodate stresses associated with specific landfill design parameters, with particular attention to interface, long-term creep shear, and bearing capacity;

    e. a subdrain geocomposite drainage layer (if necessary);

    f. prepared subgrade that is prepared in an appropriate manner using accepted engineering and construction methods 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 or the HDPE geomembrane.

10. The Discharger may propose changes to the liner system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed liner system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following written approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Central Valley Water Board in revised WDRs.

CLASS II SURFACE IMPOUNDMENT

11. The Class II surface impoundment liner system shall consist of, from the top down:

    a. A primary 80-mil HDPE geomembrane;

    b. A one-foot gravel on base and geocomposite geonet drainage layer on side slopes as a Leachate Collection and Removal System (LCRS);

c. A secondary 60-mil HDPE geomembrane or 40-mil LLDPE geomembrane;

d. A Geosynthetic Clay Liner (GCL);

e. An appropriate bedding layer; and

f. A foundation layer suitable for providing a stable base for the overlying secondary geomembrane that will not damage the geomembrane or GCL over the life of the surface impoundment.

12. The Discharger shall include design features that protect the primary geomembrane from damage due to amongst other things wind uplift, maintenance procedures such as solids removal, ultraviolet radiation degradation, etc. for the entire useful life of the surface impoundment.

13. The Class II surface impoundment, if unable to discharge to a sanitary sewer shall be designed and constructed to have capacity for wastewater flows i.e., leachate, underdrain liquids, and gas condensate to the impoundment, precipitation from a 100-year wet season of 56.66 inches distributed at least monthly, a 1,000-year, 24-hour storm event (design storm) of 9.46 inches, and shall maintain at least two (2.0) feet of freeboard at all times..

14. The Discharger shall perform a detailed water balance for any new surface impoundment where the Discharger is unable to discharger from the surface impoundment to a sanitary sewer to demonstrate that the proposed design and construction has sufficient storage capacity to comply with Title 27, section 20375. The water balance at a minimum must take the following factors into account on a monthly basis:

    a. The average influent leachate, underdrain liquids and landfill gas condensate flow on a monthly basis;

    b. Evaporation losses from the impoundment distributed monthly;

    c. Authorized discharges from the impoundment for dust control, disposal via exportation or sanitary sewer, storage in auxiliary above ground tanks, etc.;

    d. Loss of storage capacity due to operations layer, solids accumulation, etc.

    e. The 100-year wet season (56.66 inches) is distributed monthly in accordance with average monthly rainfall patterns used to determine leachate, underdrain, and landfill gas condensate production discharged to a Class II surface impoundment that will be returned to a solid waste landfill WMU for dust control purposes;

    f. The 100-year wet season (56.66 inches) is distributed monthly in accordance with average monthly rainfall patterns used to determine wastewater production at the Facility and other liquid wastes discharged to a Class II surface impoundment that will not be returned to a solid waste landfill WMU;

    g. The evaporative surface area of the impoundment based on wastewater elevation in the pond for each month;

h. The total surface area of the site runoff area captured and conveyed to the impoundment (for Class II surface impoundments not discharging to the solid waste landfill WMUs);

i. The design storm event capacity that needs to be maintained to capture design storm runoff conveyed to the impoundment (for Class II surface impoundments not discharging to the solid waste landfill WMUs);

j. The design storm capacity for rainfall into the surface impoundment; and

k. Additional capacity necessary to maintain the minimum two-foot freeboard requirement.

15. The surface impoundment(s) shall be designed, constructed and maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the impoundments and by wave action at the water line.

16. Any direct-line discharge to the surface impoundment shall have fail-safe equipment or operating procedures that include daily inspection and manual control of pumping systems during the wet weather season to prevent overfilling.

17. The surface impoundment bottom slope shall have a minimum one percent post settlement slope and shall be graded to provide positive drainage of LCRS leachate to the leachate sump and ensure unconfined leachate flow in the LCRS drainage layer and proper venting of any landfill gas that may form in the LCRS or below the secondary geomembrane liner.

18. The LCRS for the Class II surface impoundment shall be designed, operated, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The LCRS pump shall be capable of removing this volume of fluid and/or 150 percent of the Action Leakage Rate (ALR) flow (ALR applicable to Class II surface impoundments), whichever is greater. The depth of fluid in the LCRS sump shall be kept at the minimum needed to ensure efficient pump operation and shall not exceed one-foot head at any time on the secondary liner.

19. The LCRS shall be designed and operated to function without clogging through the scheduled closure of the surface impoundment. The surface impoundment shall be equipped to facilitate annual testing of the LCRS drainage material to demonstrate proper operation as required by section 20340, subdivision (d) of Title 27.

20. The depth of the fluid in the leachate sump of the Class II surface impoundment shall be kept at the minimum needed for efficient pump operation (given the pump intake height and cycle frequency), and leachate shall not back up onto the secondary liner system outside of the sump area.

21. Leachate generation within a surface impoundment LCRS shall not exceed 85% of the design capacity of (a) the LCRS, or (b) the sump pump. If leachate generation exceeds this value and/or if the depth of the fluid in an LCRS exceeds the minimum needed for safe pump operation, then the Discharger shall immediately cease the discharge of waste (including leachate) to the impoundment and shall notify the Central Valley Water Board in writing within seven days. Notification shall include a timetable for a remedial action to repair the upper liner of the impoundment or other action necessary to reduce leachate production.

22. The LCRS for the Class II surface impoundment shall be designed and constructed to transmit twice the maximum Action Leakage Rate (ALR) of 1,000 gallons per acre per day (gpad) under unconfined flow conditions considering LCRS transmissivity reduction factors due to clogging of the LCRS over the life of the Class II surface impoundment.

23. Leachate removed from a surface impoundment LCRS shall be discharged to the impoundment from which it originated.

24. The Action Leakage Rate (ALR) for the existing 0.40-acre Class II surface impoundment is 1000 gallons per acre per day (gpad) or 12,000 gallons over a 30 day period. If leachate generation in the LCRS of the Class II surface impoundment exceeds the ALR, the Discharger shall:

    a. **Immediately** notify Central Valley Water Board staff by telephone and email.

    b. Submit written notification within **seven days** that includes a time schedule to locate and repair leak(s) in the liner system.

    c. If repairs do not result in a leakage rate less than the required ALR, the Discharger shall submit written notification within **seven days** that includes a time schedule for replacement of the upper liner of the surface impoundment or other action necessary to reduce leachate production.

    d. Complete repairs or liner replacement in accordance with the approved time schedule under “b” and/or “c”, above.

25. If liquid is detected in a pan lysimeter or any other unsaturated zone monitoring device for a Class II surface impoundment indicating a leak in the containment structure, the Discharger shall:

    a. **Immediately** notify Central Valley Water Board staff by telephone and email that the containment structure may have failed.

    b. Cease discharging waste into the Class II surface impoundment until a determination is made as to the source of the liquid.

    c. **Immediately** sample and test the liquid in accordance with the unsaturated zone monitoring requirements in MRP No. R5-2017-0108 (incorporated herein).

    d. If the laboratory results indicate that the liquid can be characterized as contents of the Class II surface impoundment, the Discharger must submit written notification of the release to Central Valley Water Board staff within **seven days** including a time schedule to repair the containment structure(s). Otherwise, the Discharger must submit to Central Valley Water Board staff within **14 days** a report including the laboratory results describing why the source of the liquid is not from the contents of the surface impoundment. The report must describe where the liquid originated from and what corrective action will be taken in the future to prevent the liquid from entering the pan lysimeter or other type of unsaturated zone monitoring device.

e. If repairs are necessary, complete repairs of the containment structures in accordance with the approved time schedule.

26. Solids that accumulate in the Class II surface impoundment shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for surface impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Article 2, Subchapter 2, Chapter 3, Division 2 of Title 27. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to Central Valley Water Board staff for review. The Discharger shall submit a work plan and schedule to Central Valley Water Board staff at least 90 days prior to removal of the waste that includes the waste characterization and how the Discharger plans to dispose of the sludge and solids.

27. Following sediment/solids removal from the Class II surface impoundment, the liner system shall be inspected for any damage caused by the process of removing the sediment/solids and any damage shall be repaired within 60 days prior to the discharge of additional wastewater. The Discharger shall submit a final report describing the results of the leak testing to Central Valley Water Board staff.

28. No waste shall be discharged into any new surface impoundment until all applicable financial accounts for these WMUs have been properly funded.

29. The Class II surface impoundment shall have a sump to collect and return leachate to the impoundment that leaks through the primary liner. The sump shall include a dedicated automated pump to remove leachate and return it to the impoundment. The sump and pumping system shall be designed and constructed such that in the case of a pump failure the Discharger has sufficient time to repair/replace the pump and still comply with the requirement to limit head on the secondary liner to one foot.

30. The Class II surface impoundment shall be designed and constructed to have a flow totalizer operational at all times that measures leachate volumes pumped from the LCRS sump in order to determine leakage rates and compliance with the ALR.

31. The Class II surface impoundment shall be designed and constructed to have an unsaturated zone monitoring system consisting of a pan lysimeter beneath the entire LCRS sump area of the impoundment or other approved unsaturated zone monitoring device where installation of a pan lysimeter is infeasible.

32. The Class II surface impoundment shall have permanent markings on the liner, or a permanent freeboard gauge so that the freeboard can be observed and recorded at any time. The markings or gauge shall have increments no greater than one vertical inch.

33. The Discharger shall not proceed with liner construction including earth moving and grading in preparation for liner construction until the construction plans, specifications, and all applicable construction quality assurance plans have been approved.

34. The Discharger shall perform a final electronic leak survey of the primary and secondary geomembrane liners and make repairs as necessary prior to placement of waste in the Class II surface impoundment.

E. CLOSURE AND POST-CLOSURE MAINTENANCE SPECIFICATIONS

1. The Discharger shall submit a final or partial final closure and post-closure maintenance plan at least two years prior to proposed closure of any portion of the landfill in accordance with requirements in Section G of the Standard Closure and Post-Closure Specifications in the applicable SPRRs. The Discharger shall close landfill units with a final cover as proposed in the 2005 Preliminary Closure and Postclosure Maintenance Plan (PCPCMP) updated in the 2018 ROWD/JTD and as approved by this Order. The components of the approved final cover as proposed in the PCPCMP are listed in Finding 103 for Area II. The components for an approved final cover for Area I shall be determined based on the results of the requirements of Finding 104.

2. The Discharger shall obtain revised WDRs prior to closure with any other final cover design than the design or designs approved in this Order, except when modifications are necessary for problematic areas of the final cover needing repair so long as the barrier layer (e.g., geomembrane, GCL, and/or compacted clay layer) remains intact, continues to satisfy slope stability requirements, does not degrade the ability of the final closure cover to meet original design and performance specifications, and the modifications are approved by Central Valley Water Board staff.

3. The landfill shall be filled with final side slopes with steepness no greater than 3H:1V (3 horizontal units to 1 vertical unit) and shall include, at a minimum, one 20-foot wide bench for every 50 feet in vertical height or less and top deck areas shall be sloped at five percent or greater taking into consideration post closure settlement.

4. Any final closure cover over a WMU shall be designed and constructed to reduce soil pore gas pressures below the closure over barrier layer that may cause final cover slope instability throughout the postclosure maintenance period.

5. The Discharger shall install an active landfill gas extraction system for the closed landfill unit during landfill closure, and landfill gas shall be extracted from closed landfill units until such time that the landfill gas is no longer a threat to water quality as documented by the Discharger and approved by the Executive Officer.

6. The Discharger shall seal the edges of the final cover by connecting the cover geomembrane to the liner geomembrane.

7. The Discharger shall test the critical interfaces of the final closure cover in a laboratory to ensure minimum design shear strengths are achieved and include the results in the final documentation report and also demonstrate and certify that any testing required and any limitations or additional requirements specified in the final closure cover’s slope stability analysis report was complied with during construction in order to validate the slope stability analysis report conclusions.

8. The Discharger shall ensure that the vegetative/erosion resistant layer receives necessary seed, binder, and nutrients to establish the vegetation proposed in the final closure plan. The Discharger shall install necessary erosion and sedimentation controls to prevent erosion and sediment in runoff from the closed landfill during the period the vegetation is being established.

9. At closure of the Class II surface impoundment, the Discharger shall clean-close the unit pursuant to Title 27, section 21400, subdivision (b)(1). All precipitates, settled solids, liner materials, and adjacent natural geologic materials contaminated by wastes shall be completely removed and discharged to an appropriately permitted landfill Facility. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, the impoundment shall be closed as a landfill pursuant to Title 27, section 21400, subdivision (b)(2)(A). In this event, the Discharger shall backfill and grade the area and submit a revised Final Closure and Post-Closure Maintenance Plan proposing a final cover meeting the requirements of Title 27, section 21090 and shall perform all post-closure maintenance in the approved Post-Closure Maintenance Plan.

10. Prior to closure, the Discharger shall submit a Final Closure and Post-Closure Maintenance Plan prepared by a California-registered civil engineer or certified engineering geologist, and that contains all applicable information required in Title 27, section 21769. The plan shall include any closure/post-closure elements proposed in the ROWD, and shall meet the requirements of this Order.

11. The Discharger shall perform final cover system maintenance in accordance with an approved Final Postclosure Maintenance Plan which shall include but not limited to:

    a. Periodic inspections;

    b. Final cover surveys;

    c. Five-year iso-settlement maps;

    d. Survey and maintenance of settlement monuments;

    e. Period leak searches;

    f. Preventative maintenance;

    g. Repairs; and

    h. Record keeping and reporting.

12. The Discharger shall comply with 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 Landfill SPRRs and the Class II SPRRs, incorporated herein.

F. FINANCIAL ASSURANCE SPECIFICATIONS

1. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for closure and post-closure maintenance for the landfill and Class II surface impoundment WMUs in at least the amounts of Findings 113 through 114, adjusted for inflation annually and shall be revised according to the approved PCPMP required by these

WDRs in Provisions section H.8. A report regarding financial assurances for closure and post-closure maintenance shall be submitted to the Central Valley Water Board by 1 June of each year. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle or Central Valley Water Board staff 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 preliminary closure and post-closure maintenance plan (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. The PCPCMP shall meet the requirements of Title 27, section 21769, subdivision (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 30 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 and Class II surface impoundment WMUs in at least the amount of the annual inflation-adjusted cost estimate of Findings 115 through 116 and shall be revised according to the approved PCPMP required by these WDRs in Provisions section H.8. 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 or Central Valley Water Board staff 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 both the Landfill SPRRs and Class II SPRRs, as incorporated herein.

G. MONITORING SPECIFICATIONS

1. The Discharger shall submit for review and approval a groundwater detection monitoring program demonstrating compliance with Title 27 for any new units or Unit expansion authorized by these WDRs.

2. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with MRP No. R5-2019-0009, and all Standard Monitoring Specifications and all applicable Response to a Release specifications listed in Sections I and J of both the Landfill SPRRs and Class II SPRRs, as incorporated herein.

3. 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. R5-2019-0009, and the Standard Monitoring Specifications listed in Section I of Landfill SPRRs and Class II SPRRs, incorporated herein.

4. The Discharger shall comply with the WQPS specified in this Order (and revisions thereto), MRP No. R5-2019-0009, and the Landfill SPRRs and Class II SPRRs, as incorporated herein.

5. A pan lysimeter shall be installed beneath the LCRS sump and a portion of the LCRS piping for each new landfill cell/module for the purpose of unsaturated zone monitoring. If any new or existing WMU does not have an LCRS sump the Discharger will install an appropriate number of landfill gas probes and/or lysimeters beneath the base of the new landfill and along the edge of the containment system to monitor soil pore gas and soil pore liquid in the unsaturated zone.

6. The Discharger shall monitor the underdrain, LCRS, and any leak detection system (secondary LCRS) associated with each WMU. The liquid shall be collected as close to edge of waste as possible for each phase of construction in order to provide representative samples.

7. Unsaturated zone monitoring systems shall be capable of measuring both saturated (soil pore liquids or leachate) and unsaturated (soil pore gas or landfill gas) COC concentrations that may exist as a result of a release from the WMU.

8. The concentrations of the constituents of concern in waters passing the Point of Compliance (defined by Title 27, § 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. R5-2019-0009 (incorporated herein).

9. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the WQPS using procedures specified in MRP No. R5-2019-0009 and Section I (Standard Monitoring Specifications) in both the Landfill SPRRs and Class II SPRRs, as incorporated herein.

10. As specified in MRP No. R5-2019-0009, the Discharger shall enter all reports and monitoring data including but not limited to boring logs, groundwater elevation readings, etc. into the online Geotracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23.

11. The Discharger shall evaluate as part of its Corrective Action Monitoring Program the effectiveness of its corrective action program and provide as part of its reporting requirements an estimate as to when the Discharger will achieve full compliance.

12. The Discharger shall add any confirmed COCs detected during its five-year monitoring schedule using Tables VI of MRP No. R5-2017-0108 to Table V for detection monitoring purposes.

13. Any new, repaired, or replaced monitoring device installed to determine compliance with these WDRs shall begin sampling for all parameters listed in the tables of MRP No. R5-2019-0009 for the applicable media being monitored (e.g., groundwater, unsaturated zone, surface waters, etc.) within 72 hours of determining that the monitoring device is fully functional. The Discharger shall also increase monitoring frequency at the new, repaired, and/or replaced

monitoring device such that the Discharger can establish baseline water and/or gas quality characteristics within one year at the monitoring point that is representative and captures seasonal fluctuations at the monitoring device. Installation of monitoring devices for monitoring new WMUs shall occur at least one year prior to placement of waste in the new WMU such that the Discharger can establish baseline water and/or gas quality characteristics at each new monitoring point that are representative of seasonal fluctuations at the monitoring device.

H. PROVISIONS

1. The Discharger shall maintain at the facility copies of: (a) this Order; (b) MRP No. R5-2019-0009; (c) Landfill SPRRs; and (d) Class II SPRRs. These materials shall be available at all times to Facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

2. A copy of all documents submitted to the Central Valley Water Board shall be maintained in the facility's operating record.

3. The Discharger shall comply with all applicable provisions of Title 27 and Subtitle D (40 C.F.R. part 258) not specifically referred to in this Order.

4. The Discharger shall comply with MRP No. R5-2019-0009 (incorporated herein).

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 December 2015 for landfills and SPRRs dated April 2016 for Class II surface impoundments, 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, and to the extent applicable, shall be prepared by the appropriately licensed professional who is competent to take responsible charge over the required report as described in the Standard Provisions and Reporting Requirements.

8. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

Task	Compliance Date
a. Evidence of Binding Agreement with Southeast Regional Wastewater System for Liquid Waste Disposal The Discharger shall provide sufficient evidence that its current liquid waste disposal option from its Class II surface impoundment is a long-term contractually binding agreement with Southeast Regional Wastewater System or the Discharger must provide a water balance analysis per Title 27 section 20375 demonstrating that its Class II surface impoundment has adequate capacity including minimum 2-foot freeboard to contain all non-hazardous liquid waste at the facility.	**1 May 2019**
b. Updated Supply Well Map Per Title 27, section 21750(h) provide a well map, well owner, and associated well information and groundwater use showing the locations of all water supply wells, oil wells, and geothermal wells within the facility boundary and within one mile of the facility boundary.	**1 May 2019**
c. Technical Report Evaluating Groundwater Separation The Discharger shall prepare a technical report evaluating whether the Discharger maintains adequate separation between nonhazardous solid waste and groundwater below Area I and Area II throughout the year. If the conclusion of the Report indicates that adequate separation between nonhazardous solid waste and waters of the state below Area I and Area II is not maintained throughout the year, the Discharger shall submit a Feasibility Study that evaluates alternatives to ensure future separation between nonhazardous solid waste and groundwater. The Report shall also evaluate static and dynamic stability of the landfill under conditions where adequate groundwater separation is not maintained.	**1 September 2019**

Task	Compliance Date
d. Leachate Characterization and Quantification Workplan and Technical Report The Discharger shall prepare a workplan and schedule for review and approval to install monitoring devices and sampling points that accurately describes the quantities and characteristics of liquids removed from Area 1 and Area II WMUs including leachate, underdrain liquids, etc. as close to where the liquids exit the WMUs. Upon receiving approval, the Discharger shall perform the necessary work and sample twice per quarter evenly spaced for one year the revised monitoring system and report the results in a technical report. The monitoring shall include all field and monitoring parameters including 5-year constituents of concern identified in Table III of MRP R5-2019-0009.	**1 July 2019**
e. Groundwater Monitoring Network Technical Report The Discharger shall prepare technical report for review and approval that addresses these groundwater monitoring network deficiencies such as but not limited to (1) Monitoring wells MW-5, MW-8, and MW-16 are not screened deep enough to obtain groundwater samples when groundwater exists below the screened interval, (2) Monitoring wells MW-9b and MW-12 are screened well below the water table, (3) Location of sampling pump in monitoring wells MW-13, MW-14, and MW-15, (4) Evaluation of stormwater controls, conveyance, and is detention and related to inhibiting the Discharger from obtaining representative samples of groundwater quality, and (5) Addressing a data gap along southeastern side of Area II. Following the approve technical report the Discharger shall implement the necessary changes needed to bring the Discharger's groundwater monitoring program into compliance with Title 27 requirements. The Discharger shall update its Water Quality Protection Standard including the Sample Collection and Analysis Plan accordingly.	**1 September 2019**
f. Surface Water Monitoring Program Discharger shall submit a work plan for review and approval followed by a schedule to implement monitoring surface water quality entering, leaving, and within any detention basin(s). The Discharger shall update its Water Quality Protection Standard including the Sample Collection and Analysis Plan accordingly.	**1 August 2019**

Task	Compliance Date
g. Unsaturated Zone Monitoring Program The Discharger shall submit a technical report for review and approval followed by a work plan and schedule to implement unsaturated zone monitoring systems for Area I and the Class II surface impoundment including providing the locations of Area II's LCRS sump to the extent feasible consistent with Title 27 section 20415(d). The Discharger shall update its Water Quality Protection Standard including the Sample Collection and Analysis Plan accordingly.	**1 October 2019**
h. Reevaluation of Final Closure Cover Over Unlined Area I The Discharger shall submit an updated Preliminary Closure Plan that includes an evaluation of the proposed final cover system for the unlined Area I and its ability to serve as the principal waste containment feature during the postclosure maintenance period as required by Title 27 section 20950(a)(2)(A)(1).	**1 October 2019**
i. Technical Report for Cost Estimate for Corrective Action for Water Release Financial Assurances The Discharger shall prepare a technical report estimating the cost of corrective action for a water release and determine if its costs estimate is greater than the non-water related release. The Discharger shall provide evidence that it has financial assurances in place to fund whichever cost is greater.	**1 June 2020**
j. Cost Estimate for Clean Closure of Class II Surface Impoundment Financial Assurances The Discharger shall submit an updated PCPMP that satisfies the requirements of Title 27 which includes closure cost estimates, any applicable postclosure maintenance cost estimates, and corrective action cost estimates for both the landfill WMUs and the Class II surface impoundment WMU. The Discharger shall also provide documentation showing that financial mechanism(s) are in place to provide necessary financial assurances per Title 27 requirements.	**1 November 2019**
k. Construction Plans Submit construction and design plans for review and approval. (see all Construction Specifications in Section D, above and Section F of the SPRRs.)	**90 days prior to proposed construction**

Task	Compliance Date
l. Construction Report Submit a construction report for review and approval upon completion demonstrating construction was in accordance with approved construction plans (see Standard Construction Specification F.27 in the SPRRs).	**60 days prior to proposed discharge**
m. Final Closure Plans Submit a final or partial final closure and post-closure maintenance plan, design plans, and CQA plan for review and approval (see all Closure and Post-Closure Specifications in Section E, above and Section G of the SPRRs).	**Two years prior to closure**

9. The Discharger shall comply with all General Provisions listed in Section K of both the Landfill SPRRs and Class II SPRRs which are part of this Order.

10. The Central Valley Water Board has converted to a paperless office system. All project correspondence and reports required under this Order shall therefore be submitted electronically rather than in paper form, as follows:

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

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

12. Notification of the Geotracker upload shall be emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov . To ensure that the submittal is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

Attention:	Title 27 Compliance & Enforcement Unit Or Title 27 Permitting Unit
Report Title	
Geotracker Upload ID	
Discharger name:	County of Lake Public Services Department
Facility name:	Eastlake Sanitary Landfill
County:	Lake
CIWQS place ID:	CW-222082

Any person aggrieved by this Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and Title 23, section 2050 et seq. 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 30th day 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 are published on the Internet at the address below, and will be provided upon request.

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

I, Patrick Pulupa, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 8 February 2019.

Original Signed By

PATRICK PULUPA, Executive Officer

bss/vkj

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2019-0009
FOR
COUNTY OF LAKE, PUBLIC SERVICES DEPARTMENT
EASTLAKE SANITARY LANDFILL
CLASS III LANDFILL
CLASS II SURFACE IMPOUNDMENT
CONSTRUCTION, OPERATION, CLOSURE, POST-CLOSURE MAINTENANCE,
AND CORRECTIVE ACTION
LAKE 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; and financial assurances reporting contained in California Code of Regulations, title 27, section 20005, et seq. (hereafter Title 27), Waste Discharge Requirements (WDRs) Order R5-2019-0009, and the Standard Provisions and Reporting Requirements for Landfills dated December 2015 (Landfill SPRRs) and Standard Provisions and Reporting Requirements for Class II Surface Impoundments dated April 2016 (Class II SPRRs). Compliance with this MRP is ordered by the WDRs and the Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Central Valley Water Board or the Executive Officer.

A. MONITORING

The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone in accordance with Standard Monitoring Specifications in Section I of the SPRRs and the Monitoring Specifications in Section G of the WDRs. All monitoring shall be conducted in accordance with the most current approved *Sample Collection and Analysis Plan*, which includes quality assurance/quality control standards.

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

The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program, and are identified in the approved Sample Collection and Analysis Plan.

The monitoring program of this MRP includes:

Section	Monitoring Program
A.1	Groundwater Monitoring
A.2	Unsaturated Zone Monitoring
A.3	Leachate, Leachate Seep, Gas Condensate, Underdrain, Class II Surface Impoundment Monitoring, and Annual LCRS Testing
A.4	Surface Water Monitoring
A.5	Facility Monitoring
A.6	Corrective Action Monitoring

1. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of Title 27, Subchapter 3 "Water Monitoring". The detection monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27. The current groundwater detection monitoring system **does not** meet the applicable requirements of Title 27. WDRs Order R5-2019-0009 in Section H Provisions requires the Discharger to make corrections to its groundwater detection monitoring system and *Sample Collection and Analysis Plan* in order to comply with Title 27 requirements. The Discharger shall revise the groundwater detection monitoring system and update its *Sample Collection and Analysis Plan* (after review and approval by Central Valley Water Board staff) as needed to bring the detection monitoring system in compliance with Title 27 requirements or each time a new landfill cell or module is constructed.

The current groundwater monitoring network shall consist of the following:

Well	Status[1]	Zone[2]	Units Being Monitored
MW-3	Background	Shallow	Area I, Area II
MW-9a	Background	Shallow	Area I, Area II
MW-9b	Background	Deep	Area I, Area II
MW-1	Detection	Shallow	Area I, Area II
MW-5	Detection/Corrective	Shallow	Area I
MW-6	Detection	Shallow	Area I
MW-8	Detection	Shallow	Area I
MW-10	Evaluation	Shallow	Area I
MW-11	Detection	Shallow	Area I, Area II
MW-12	Detection	Shallow	Area I, Area II
MW-13	Detection/Corrective	Shallow	Area I, Area II
MW-14	Detection/Corrective	Shallow	Area I, Area II
MW-15	Detection/Corrective	Shallow	Area I
MW-16	Detection/Evaluation	Shallow	Area I
MW-17	Detection/Corrective	Shallow	Area I
MW-18	Detection/Evaluation	Shallow	Area I
MW-19	Detection/Evaluation	Shallow	Area I
MW-20	Detection/Evaluation	Shallow	Area I, Area II
MW-21	Detection/Corrective	Shallow	Area I

Well	Status[1]	Zone[2]	Units Being Monitored
MW-22	Detection	Shallow	Area I
MW-23	Detection	Shallow	Area I
MW-24	Detection	Deep	Area I
MW-25	Detection	Deep	Area I
MW-26	Detection/Evaluation	Shallow	Area I, Area II
MW-27	Detection/Evaluation	Deep	Area I, Area II
MW-28	Detection/Evaluation	Deep	Area I
MW-29	Detection	Deep	Area I, Area II
MW-30	Detection/Evaluation	Shallow	Area I
MW-31	Detection/Evaluation	Shallow	Area I, Area II
MW-32	Detection/Evaluation	Shallow	Area I, Area II
MW-33	Detection	Shallow	Area I
MW-34	Detection	Shallow	Area I, Area II
MW-35	Detection	Shallow	Area I, Area II

[1] Evaluation monitoring wells may enter a corrective action monitoring program and require increased monitoring frequency as specified in section A.6 if it is determined that these evaluation monitoring points become corrective action monitoring points to address a known release.

[2] "Zone means" either relative depth of groundwater monitoring well below ground surface and/or indication of groundwater being monitored below the uppermost aquifer which is not hydraulically connected.

Groundwater samples shall be collected from the background wells, detection monitoring wells, evaluation and corrective action monitoring wells, and any additional wells added as part of the approved groundwater monitoring system. The collected samples shall be analyzed for the parameters and constituents listed in Table I for detection monitoring and Section A.6 for corrective action monitoring in accordance with the specified methods and frequencies. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan.

Once per quarter, the Discharger shall measure the groundwater elevation in each well, 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. If groundwater monitoring wells and wells used only for monitoring groundwater elevation have monitoring devices installed in them capable of daily monitoring groundwater elevation the Discharger shall daily monitor and record groundwater elevation and report the results on a semiannual basis. Such monitoring devices shall only be removed for (1) allowing groundwater sampling of the well; and (2) maintenance, repair or replacement.

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, subdivision (e)(15). All groundwater elevations shall be reported using only one common datum i.e., NAVD88 for the entire network for each quarter/sampling event. The Discharger shall provide a map which includes groundwater elevations showing the potentiometric groundwater surface using all groundwater monitoring points as well as showing groundwater elevation including capillary fringe relative to the bottom of the LCRS for lined units or base of waste placement for unlined units along the landfill WMU base and make a determination using the potentiometric groundwater surface method or other means to determine whether the Discharger has maintained adequate separation

between the waste and the uppermost aquifer and in any zones of perched water and any additional portions of the zone of saturation monitored including the capillary fringe as required in WDRs Order No. R5-2019-0009. The data shall be reported in the following format as part of the semiannual report and annual report.

WMU Area Groundwater Separation Monitoring Point	Monitoring Point Location (Latitude)	Monitoring Point Location (Longitude)	Base of waste elevation[1] (NAVD 88)	Calculated groundwater elevation[2] (NAVD 88)	Calculated Separation between waste and groundwater [3] (Ft)	Compliance with adequate groundwater separation requirements (Y/N)
Area I (A1-1)	38.95319536	-122.601007				
Area I (A1-2)	38.9528159	-122.6013832				
Area I (A1-3)	38.9525063	-122.6017308				
Area I (A1-4)	38.95220113	-122.6021582				
Area I (A1-5)	38.95151867	-122.6025539				
Area II (A2-1)	38.9538328	-122.6018007				
Area II (A2-2)	38.95436643	-122.601043				
Area II (A2-3)	38.95494683	-122.5997294				
Area II (A2-4)	38.95312253	-122.6027012				
Area II (A2-5)	38.95226801	-122.6032179				

[1] Base of waste elevation is the elevation at the base of the partial LCRS which exists in Area I (LCRS pipes) and LCRS which exists in Area II (bottom of LCRS gravel). The Discharger shall also provide the tolerance interval on the accuracy of the estimated base of waste elevation.

[2] Calculated groundwater elevation is calculated from interpolating between groundwater elevation contours mapped by the Discharger also considering any capillary fringe or other means at the point of interest (specified latitude and longitude). The Discharger shall also provide the tolerance interval on the accuracy of the calculated groundwater elevation.

[3]The Discharger shall provide an estimation of the accuracy of calculated groundwater separation.

Samples collected for the constituent of concern (COC) monitoring specified in Table I shall be collected and analyzed in accordance with the methods listed in Table VI every five years for all monitoring wells/groundwater monitoring devices. Five-year COCs were last monitored in 2013 and shall be monitored again in 2019. The results shall be reported in the Annual Monitoring Report for the year in which the samples were collected.

2. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The current unsaturated zone detection monitoring system **does not** meet the applicable requirements of Title 27. Title 27 section 20415(d) requires each WMU to have an unsaturated zone monitoring system unless the Discharger can demonstrate that it is infeasible to install such monitoring devises. Currently the Discharger's Class II surface impoundment and Area I WMU does not have an unsaturated zone monitoring system. WDRs Order R5-2019-0009 in Section H Provisions requires the Discharger to

make corrections to its unsaturated zone detection monitoring system in order to comply with Title 27 requirements. The Discharger shall install appropriate unsaturated zone monitoring devices and update its Sample Collection and Analysis Plan (after review and approval by Central Valley Water Board staff) to bring the detection monitoring system in compliance with Title 27 requirements or each time the landfill constructs a new cell or module.

The current unsaturated zone monitoring network shall consist of:

Mon Pt.	Status	Units Being Monitored
LS-1	Detection	Area II, Module 1
LS-2	Detection	Area II, Module 2

Unsaturated zone samples shall be collected from the monitoring network listed above and shall be analyzed for the parameters and constituents listed in Table II in accordance with the specified methods and frequencies (pan lysimeters need only be sampled when liquid is present). Pan lysimeters shall be inspected for the presence of liquid **monthly**. If liquid is detected in a previously dry pan lysimeter, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the liquid for Field and Monitoring Parameters listed in Table II. Samples collected for the 5-year COC analyses specified in Table II shall be collected and analyzed in accordance with the methods listed in Table VI every five years, beginning again in **2019** (does not include soil-pore gas).

The Discharger shall collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved Sample Collection and Analysis Plan.

Monitoring results for the unsaturated zone shall be included in monitoring reports and shall include an evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

3. Leachate, Leachate Seep, Gas Condensate, Underdrain, Class II Surface Impoundment Monitoring, and Annual LCRS Testing

The Discharger shall operate and maintain leachate collection and removal system (LCRS) sumps, conduct monitoring of any leachate LCRS sumps, monitoring of any detected leachate seeps, monitoring of any underdrain systems, Class II surface impoundments, and conduct annual testing of each LCRS in accordance with Title 27 and this monitoring program.

a. Leachate Monitoring

The current LCRS leachate sump monitoring points are:

Mon Pt.	Unit Where Sump is Located
LCRS-1	Area II, Module 1
LCRS-2	Area II, Module 2
LCRS-3	Class II Surface Impoundment

All LCRS sumps shall be inspected monthly for the presence of leachate, and flow shall be recorded in accordance with Table III. If leachate is detected in a previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table III. Leachate in the LCRS sump shall then be sampled for all parameters and constituents in accordance with the frequencies listed in Table III whenever liquid is present. All LCRS sump samples shall be analyzed for the 5-year COCs specified in Table III every five years, beginning again in **2019**. The Discharger shall obtain representative samples of leachate in the landfill LCRS sumps prior to discharge into the Class II surface impoundment. Reporting for leachate in LCRS sumps shall be conducted as required in Section B.1 of this MRP, below.

b. Seep Monitoring

Leachate that seeps to the surface from a landfill unit shall be sampled and analyzed for the Field and Monitoring Parameters listed in Table III upon detection. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons/day). Reporting for leachate seeps shall be conducted as required in Section B.3 of this MRP, below.

c. Gas Condensate Monitoring

Gas condensate from a landfill unit shall be sampled and analyzed for the Field and Monitoring Parameters listed in Table III. The quantity of gas condensate shall be estimated and reported as Gas Condensate Flow Rate (in gallons/month). Reporting for gas condensate shall be conducted as required in Section B.1 of this MRP, below.

d. Underdrain Monitoring

Underdrain liquids from a landfill unit shall be sampled and analyzed for the Field and Monitoring Parameters listed in Table III. The quantity of underdrain liquids removed shall be estimated and reported as Underdrain Flow Rate (in gallons/month). Reporting for underdrain liquids shall be conducted as required in Section B.1 of this MRP, below.

e. Class II Surface Impoundment Monitoring

The contents of the surface impoundment shall be sampled and analyzed for the Field and Monitoring Parameters listed in Table III. The quantity of liquid removed shall be estimated and reported as SI Discharge Flow Rate (in gallons/month) to the

sanitary sewer or other means of disposal. Reporting for the surface impoundment contents and liquids disposal shall be conducted as required in Section B.1 of this MRP, below.

The Discharger shall immediately notify Central Valley Water Board staff by telephone and email and immediately take measures to regain surface impoundment capacity in the event that freeboard levels are equal to or less than 2.0 feet.

f. Annual LCRS Testing

All LCRSs shall be tested annually pursuant to Title 27, section 20340(d) to demonstrate proper operation. The results of these tests shall be reported to the Central Valley Water Board in the Annual Monitoring Report and shall include comparisons with earlier tests made under comparable conditions.

4. Surface Water Monitoring

The Discharger shall operate a surface water detection monitoring system for any landfill facility where runoff from landfill 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. Currently, stormwater that falls within some areas of the landfill footprint is routed through rocked culverts and downdrains to Molesworth Creek or an unnamed tributary to Cache Creek. At the Eastlake Sanitary Landfill, some stormwater runoff from the outer slopes of some landfilled areas flow to a detention pond east of the landfill that periodically discharges to Molesworth Creek and/or an unnamed tributary to Cache Creek. The current surface water detection monitoring system **does not** meet the applicable requirements of Title 27 since it does not monitor influent into and effluent leaving the detention pond. WDRs Order R5-2019-0009 in Section H Provisions requires the Discharger to make corrections to its surface water detection monitoring system in order to comply with Title 27 requirements. The Discharger shall install appropriate surface water monitoring devices and update its Sample Collection and Analysis Plan (after review and approval by Central Valley Water Board staff) to bring the detection monitoring system in compliance with Title 27 requirements or each time the landfill constructs a new detention pond.

The current surface water monitoring points for the landfill are:

Mon Pt.	Status
SWMS-3	Background or Upstream in unnamed tributary to Cache Creek
SWMS-2	Downstream in unnamed tributary to Cache Creek
SWMS-1	Downstream in Molesworth Creek

For surface water detection monitoring, a sample shall be collected at each monitoring point location and analyzed for the monitoring parameters and constituents in accordance with the methods and frequency specified in Table IV. All surface water monitoring samples shall be collected and analyzed for the 5-year COCs specified in Table IV every five years, beginning again in **2019**.

5. 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 assuring the integrity and proper operation of drainage control systems, 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 problem 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 problem areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Section B.5 of this MRP.

c. Five-Year Iso-Settlement Survey for Closed Units

For closed landfill units, the Discharger shall conduct a five-year iso-settlement survey and produce an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer. For each portion of the landfill, this map shall show the total lowering of the surface elevation of the final cover, relative to the baseline topographic map [Title 27, section 21090(e)(1 & 2)]. 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 in accordance with the following schedule:

Landfill Unit Type	Frequency	Season
Active	Weekly	Wet: 1 October to 30 April
Active	Monthly	Dry: 1 May to 30 September
Inactive/Closed	Monthly	Wet: 1 October to 30 April
Inactive/Closed	Quarterly	Dry: 1 May to 30 September

The Standard Observations shall include:

i. **For the landfill units:**

a) 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

b) Evidence of erosion and/or of day-lighted refuse.

ii. **Along the perimeter of the landfill units:**

a) Evidence of leachate seeps, estimated size of affected area, and flow rate (show affected area on map); and

b) Evidence of erosion and/or of day-lighted refuse.

iii. **For receiving waters:**

a) Floating and suspended materials of waste origin - presence or absence, source, and size of affected area; and

b) 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.

6. Corrective Action Monitoring

The Discharger shall conduct corrective action monitoring to demonstrate the effectiveness of corrective action in accordance with Title 27, section 20430 and this MRP. Groundwater monitoring wells and unsaturated zone monitoring points that are in a corrective action monitoring program shall be monitored in accordance with the groundwater and unsaturated zone monitoring requirements in parts A.1 and A.2 of this MRP, except as modified in this part of the MRP for any additional constituents or modified monitoring frequencies.

a. Groundwater Corrective Action

The Discharger shall comply with Cleanup and Abatement Order (CAO) R5-2015-0713 for corrective action for a release of volatile organic compounds (VOCs) to the unsaturated zone or groundwater due to landfill gas.

The Discharger shall monitor the following corrective action monitoring wells as required in part A.1 and Table I of this MRP, with the following additional

constituents, and the following alternant sampling frequency for all Field and Monitoring Parameters listed in Table I:

Well	Zone	Additional Constituents	Sampling Frequency
MW-5	Shallow	None	Quarterly
MW-13	Shallow	None	Quarterly
MW-14	Shallow	None	Quarterly
MW-15	Shallow	None	Quarterly
MW-17	Shallow	None	Quarterly
MW-21	Shallow	None	Quarterly

b. Unsaturated Zone Corrective Action (Not applicable)

c. Groundwater Extraction System (Not applicable)

d. Landfill Gas Corrective Action System

The Discharger shall comply with Cleanup and Abatement Order (CAO) R5-2015-0713 for corrective action for a release of volatile organic compounds (VOCs) to the unsaturated zone or groundwater due to landfill gas.

The landfill gas (LFG) control system and LFG control system influent shall be sampled and analyzed for the Monitoring Parameters listed in Table VII and shall be summarized and tabulated in the semiannual reports.

All shutdowns of the landfill gas extraction system, regardless of the type of restart, shall be summarized and tabulated in the semiannual reports. The summary shall include the start/stop dates, and the cause of the shutdown. In addition, the LFG plant run-time per month and percent down-time per month shall be reported and tabulated in each semiannual report.

i. **Extraction Well Field**

The Discharger shall comply with Cleanup and Abatement Order (CAO) R5-2015-0713 for corrective action for a release of volatile organic compounds (VOCs) to the unsaturated zone or groundwater due to landfill gas. Landfill gas extraction well samples shall be collected from the LFG extraction network used for corrective action in response to the CAO and shall be analyzed for the parameters and constituents listed in Table VII in accordance with the specified methods and frequencies and shall be reported and tabulated in each semiannual report.

ii. **Probes**

The Discharger shall comply with Cleanup and Abatement Order (CAO) R5-2015-0713 for corrective action for a release of volatile organic compounds (VOCs) to the unsaturated zone or groundwater due to landfill gas. If landfill gas probes are used to monitor the effectiveness of corrective action measures landfill gas probe samples shall be collected from the monitoring probes used for corrective action in response to the CAO and shall be analyzed for the parameters and constituents listed in Table VII in accordance with the specified methods and frequencies and shall be reported and tabulated in each semiannual report.

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 & 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	Survey and Iso-Settlement Map for Closed Landfills	Every Five Years	**At Closure Completion and Every Five Years**
B.7	Financial Assurances Report	31 December	**1 June**

The Discharger shall enter all monitoring data in electronic data format (EDF) and reports into the online Geotracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23. Notification of the Geotracker upload shall be emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov . To ensure that the submittal is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

Attention:	Title 27 Compliance & Enforcement Unit Or Title 27 Permitting Unit
Report Title	
Geotracker Upload ID	
Discharger name:	County of Lake Public Services Department
Facility name:	Eastlake Sanitary Landfill
County:	Lake
CIWQS place ID:	CW-222082

Reporting Requirements

The Discharger shall submit monitoring reports **semiannually** with the data and information as required in this Monitoring and Reporting Program and as required in WDRs Order R5-2019-0009 and the Standard Provisions and Reporting Requirements (particularly Section I: "Standard Monitoring Specifications" and Section J: "Response to a Release"). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Data shall also be submitted in a digital format, such as a computer disk.

Field and laboratory 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.

The results of **all monitoring** conducted at the site 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:

a) Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;

b) Date, time, and manner of sampling;

c) Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;

d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;

e) Calculation of results; and

f) Results of analyses, and the MDL and PQL for each analysis. All peaks shall be reported.

Required Reports

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

   a. For each groundwater monitoring point addressed by the report, a description of:

      i. The time of water level measurement;

      ii. The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;

      iii. The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;

      iv. The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and

      v. A statement that the sampling procedure was conducted in accordance with the approved Sample Collection and Analysis Plan.

   b. A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.

   c. 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)]. The Discharger shall provide a map showing the potentiometric surface showing groundwater elevation relative to the bottom of waste e.g., waste in the bottom of the partial LCRS for Area I and bottom of LCRS in Area II and make a determination whether the Discharger has maintained adequate separation between the waste and the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation monitored including the capillary fringe as required in WDRs Order No. R5-2019-0009.

   d. Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, unsaturated zone, underdrain, leachate, gas condensate, and surface water. Concentrations below the reporting limit shall not be reported as non-detect "ND" unless the concentration is below the method detection limit (MDL) and the method detection limit is also given in the table. Laboratory results indicating trace values of COCs between the MDL and PQL (Reporting Limit or RL) shall be reported

as estimated values (flagged and estimated value reported). Laboratory results of COCs at or above the PQL shall be reported and indicated clearly as exceeding the PQL relative to laboratory results reported below the PQL. Laboratory results shall clearly distinguish on time series graphs data that is reported as non-detect versus data that was reported at or above MDL (trace) levels. Units shall be as required in Tables I through IV unless specific justification is given to report in other units. Refer to the SPRRs Section I "Standard Monitoring Specifications" for requirements regarding MDLs and PQLs.

e. Laboratory statements of results of all analyses evaluating compliance with requirements.

f. An evaluation of the concentration of each monitoring parameter (or 5-year COC when 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 for wells/constituents not already in corrective action monitoring.

g. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities. Include a summary of any instances where leachate depth on an MSW landfill liner system exceeded 30 cm (excluding the leachate sump), and information about the required notification and corrective action in Standard Facility Specification E.13 of the SPRRs.

h. A summary of all Standard Observations for the reporting period required in Section A.5.d of this MRP.

i. A tabulation of the results of leachate, gas condensate, underdrain, and Class II surface impoundment monitoring as specified in section A.3 above.

j. A summary of inspection, leak search, and repair of final covers on any closed landfill units in accordance with an approved final post-closure maintenance plan as required by Standard Closure and Post-Closure Maintenance Specifications G.26 through G.29 of the Landfill SPRRs.

k. A comprehensive discussion of any Corrective Action Program required by this MRP under Section A.6.

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

a. A table including all current and historical data for every monitoring device with exceedances clearly highlighted (bolded), and a second table with the current sample results only with exceedances clearly highlighted (bolded).

b. 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, then 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. The concentration limit from the Water Quality Protection Standard shall be included on each graph for the applicable constituent.

c. 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.

d. 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 portable document format (PDF) where the data in tabular form is readably extractible for statistical analysis. The Central Valley Water Board regards the submittal of data in digital format as "...the form necessary for..." statistical analysis [Title 27, section 20420(h)], that facilitates periodic review by the Central Valley Water Board.

e. 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.

f. 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.

g. 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.

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

i. An annual summary of the leachate, seeps, gas condensate, underdrain, and Class II surface impoundment monitoring results as reported in Section B.1 above.

j. The results of the annual testing of leachate collection and removal systems required under Standard Facility Specification E.14 of the Landfill SPRRs and E.8 of the Class II SPRRs.

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

l. The Discharger shall provide a map showing the potentiometric surface showing groundwater elevation relative to the bottom of waste e.g., waste in the bottom of the partial LCRS for Area I and bottom of the LCRS in Area II and make a determination whether the Discharger has maintained adequate separation between the waste and the uppermost aquifer and in any zones of perched water and in any additional

portions of the zone of saturation monitored including the capillary fringe as required in WDRs Order No. R5-2019-0009.

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.5.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.5.b of this MRP, above.

6. **Survey and Iso-Settlement Map for Closed Landfills:** The Discharger shall conduct a survey and submit an iso-settlement map for each closed area of the landfill every five years pursuant to Title 27, section 21090(e). Refer to Section A.5.c of this MRP, above.

7. **Financial Assurances Report:** By **1 June** of each year, the Discharger shall submit a copy of the annual financial assurances report due to CalRecycle that updates the financial assurances for closure, post-closure maintenance, and corrective action. Refer to Financial Assurances Specifications F.1 through F.3 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 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 Discharger proposed the methods for calculating concentration limits in the 2017 *Water Quality Protection Standard Report*. The limits are calculated using Interwell tolerance limits at 95% confidence and 95% coverage based on pooled background data from background monitoring wells MW-3 and MW-9b.

The Water Quality Protection Standard shall be updated annually for each monitoring well using new and historical monitoring data.

2. Monitoring Parameters

Monitoring parameters are a select group of constituents that are monitored during each monitoring event that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a waste management unit. The monitoring parameters for all waste management units are those listed in Tables I through V for the specified monitored medium.

3. Constituents of Concern (COCs)

The COCs include a larger group of waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the waste management unit and are required to be monitored every five years [Title 27, sections 20395 and 20420(g)]. The COCs for all waste management units at the facility are those listed in Tables I through IV for the specified monitored medium, and Table VI. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. The last 5-year COC report was submitted to the Central Valley Water Board in the 2013 *Annual Monitoring Report*, and 5-year COCs are due to be monitored again in **2019**.

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 methods for calculating concentration limits were included in the 2017 *Water Quality Protection Standard Report*. The approved method uses Interwell tolerance limits at 95% confidence and 95% coverage based on pooled background data from background monitoring wells MW-3 and MW-9b.

The most recent concentration limits for select parameters as reported in the *2nd Semiannual 2017 Self-Monitoring Report (SMR)* were as follows:

Constituent Concentration Limits (Interwell using pooled data from background monitoring wells MW-3 and MW-9b)		
Constituent	Units	Concentration Limit (as of Oct. 2017)
TDS[1]	(mg/L)[2]	267
Chloride	(mg/L)	9.84
Sulfate	(mg/L)	2.88
NO3[3]	(mg/L)	0.99
pH	(pH units)	6.5–8.5[7]
EC[4]	(umhos)[5]	393.6
Turbidity	(NTU)[6]	TBD[8]
Bicarbonate	(mg/L)	306.9
Calcium	(mg/L)	43.76
Magnesium	(mg/L)	30.88

Potassium	(mg/L)	2.15
Sodium	(mg/L)	39.78
Volatile Organic Compounds (VOCs)[9]	ug/L	Non-Detect

[1]TDS: total dissolved solids
[2]mg/L: milligrams per liter
[3]NO3: nitrate/nitrogen
[4]EC: electrical conductance
[5]umhos: micromhos
[6]NTU: nephelometric turbidity units
[7]Concentration limit based on Sacramento/San Joaquin Basin Plan limitations
[8]TBD- To Be Determined. Discharger's proposed concentration limit of 108 NTU indicates problems with sampling well screen and sand pack.
[9]VOCs include semi-volatile organic compounds, chlorophenoxy herbicides, and organophosphorus compounds

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 Landfill SPRRs (I.43 of the Class II 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 Standard Monitoring Specification I.46 of the Landfill SPRRs (I.44 of the Class II 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 procedures as required in Standard Monitoring Specification I.47 of the Landfill SPRRs (I.45 of the Class II 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. The following are monitoring locations at the point of compliance:

Cell or Module	Point of Compliance Monitoring Wells
Unlined Area I	MW-13 through MW-19 and MW-21
Lined Area II	MW-14
Class II Surface Impoundment	MW-1 and MW-20

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, 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.

I, PATRICK PULUPA, Executive Officer, do hereby certify the forgoing is a full, true and correct copy of the Monitoring and Reporting Program issued by the California Regional Water Quality Control Board, Central Valley Region, on 8 February 2019.

Original Signed By

PATRICK PULUPA, Executive Officer

bss/vkj

TABLE I

GROUNDWATER DETECTION MONITORING PROGRAM

Parameter	Geotracker Code	Units	Sampling Frequency	Reporting Frequency
Field Parameters				
Groundwater Elevation	GWELEV	Ft. & 100ths, NAVD88	Quarterly	Semiannual
Temperature	TEMP	^{o}F	Semiannual	Semiannual
Electrical Conductivity	SC	umhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Turbidity	TURB	Turbidity units	Semiannual	Semiannual
Monitoring Parameters				
Total Dissolved Solids (TDS)	TDS	mg/L[1]	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Carbonate	CACO3	mg/L	Semiannual	Semiannual
Bicarbonate	BICACO3	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	NO3N	mg/L	Semiannual	Semiannual
Sulfate	SO4	mg/L	Semiannual	Semiannual
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual
Manganese	MN	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)	See Table V	ug/L[2]	Semiannual	Semiannual
5-Year Constituents of Concern (see Table VI)				
Total Organic Carbon	TOC	mg/L	5 years	**2019** and every 5 years thereafter
Inorganics (dissolved)	See Table VI	ug/L	5 years	
Volatile Organic Compounds (USEPA Method 8260B, extended list)	See Table VI	ug/L	5 years	
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)	See Table VI	ug/L	5 years	'' ''
Chlorophenoxy Herbicides (USEPA Method 8151A)	See Table VI	ug/L	5 years	'' ''
Organophosphorus Compounds (USEPA Method 8141B)	See Table VI	ug/L	5 years	'' ''

[1.] Milligrams per liter
[2.] Micrograms per liter

TABLE II

UNSATURATED ZONE DETECTION MONITORING PROGRAM

SOIL-PORE GAS[1]

Parameter	Geotracker Code	Units	Sampling Frequency	Reporting Frequency
Monitoring Parameters				
Volatile Organic Compounds[2] (USEPA Method TO-15)	See Table V	ug/m^3	Annual	Annual
Methane	CH4	%	Semiannual	Semiannual
PAN LYSIMETERS[3] (or other vadose zone monitoring device where liquid and gas may be present)				
Field Parameters				
Electrical Conductivity	SC	umhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Volume of liquid removed	--	gallons	Monthly	Semiannual
Monitoring Parameters				
Total Dissolved Solids (TDS)	TDS	mg/L	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Carbonate	CACO3	mg/L	Semiannual	Semiannual
Bicarbonate	BICACO3	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	NO3N	mg/L	Semiannual	Semiannual
Sulfate	SO4	mg/L	Semiannual	Semiannual
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual
Manganese	MN	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Pentachlorophenol	PCP	ug/L	Semiannual	Semiannual
Arsenic (dissolved)	AS	ug/L	Semiannual	Semiannual
Copper (dissolved)	CU	ug/L	Semiannual	Semiannual
Chromium (dissolved)	CR	ug/L	Semiannual	Semiannual
Volatile Organic Compounds[1](in liquid matrix) (See Table V)	See Table V	ug/L	Semiannual	Semiannual
Volatile Organic Compounds in gas matrix[2] (Use USEPA Method TO-15)	See Table V	ug/m^3	Semiannual	Semiannual
Methane	CH4	%	Semiannual	Semiannual
Carbon Dioxide	CO2	%	Semiannual	Semiannual
Oxygen	OXYGEN	%	Semiannual	Semiannual

5-Year Constituents of Concern (see Table VI)

Total Organic Carbon	TOC	mg/L	5 years	**2019**
Inorganics (dissolved)	See Table VI	ug/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	See Table VI	ug/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)	See Table VI	ug/L	5 years	‘’ ‘’
Chlorophenoxy Herbicides (USEPA Method 8151A)	See Table VI	ug/L	5 years	‘’ ‘’
Organophosphorus Compounds (USEPA Method 8141B)	See Table VI	ug/L	5 years	‘’ ‘’

[1.] Soil-pore gas samples collected from landfill gas probes are only subject to the VOC (USEPA Method TO-15) and methane sampling (not the other parameters listed for pan lysimeters).

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

[3.] Pan lysimeters shall be inspected for the presence of liquid **monthly**. If liquid is detected in a previously dry pan lysimeter, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the liquid for Field and Monitoring Parameters listed in Table II.

TABLE III

LEACHATE[1], LEACHATE SEEP[2], GAS CONDENSATE, UNDERDRAIN, AND CLASS II SURFACE IMPOUNDMENT MONITORING, AND ANNUAL LCRS TESTING[3]

Parameter	Geotracker Code	Units	Sampling Frequency	Reporting Frequency
Field Parameters				
Total Flow	--	Gallons	Monthly	Semiannual
Flow Rate	FLOW	Gallons/Day	Monthly	Semiannual
Electrical Conductivity	SC	umhos/cm	Quarterly	Semiannual
pH	PH	pH units	Quarterly	Semiannual
Monitoring Parameters				
Total Dissolved Solids (TDS)	TDS	mg/L	Annually	Annually
Chloride	CL	mg/L	Annually	Annually
Carbonate	CACO3	mg/L	Annually	Annually
Bicarbonate	BICACO3	mg/L	Annually	Annually
Nitrate - Nitrogen	NO3N	mg/L	Annually	Annually
Sulfate	SO4	mg/L	Annually	Annually
Calcium	CA	mg/L	Annually	Annually
Magnesium	MG	mg/L	Annually	Annually
Manganese	MN	mg/L	Annually	Annually
Potassium	K	mg/L	Annually	Annually
Sodium	NA	mg/L	Annually	Annually
Pentachlorophenol	PCP	ug/L	Annually	Annually
Arsenic (dissolved)	AS	ug/L	Annually	Annually
Copper (dissolved)	CU	ug/L	Annually	Annually
Chromium (dissolved)	CR	ug/L	Annually	Annually
Volatile Organic Compounds[1](in liquid matrix) (See Table V)	See Table V	ug/L	Annually	Annually
5-Year Constituents of Concern (see Table VI)				
Total Organic Carbon	TOC	mg/L	5 years	**2019**
Inorganics (dissolved)	See Table VI	ug/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	See Table VI	ug/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)	See Table VI	ug/L	5 years	'' ''
Chlorophenoxy Herbicides (USEPA Method 8151A)	See Table VI	ug/L	5 years	'' ''
Organophosphorus Compounds (USEPA Method 8141B)	See Table VI	ug/L	5 years	'' ''
LCRS Testing [3]	--	---	Annually	Annually

1. If leachate is detected in a previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table III. Leachate in the LCRS sump shall then be sampled for all parameters and constituents in accordance with the frequencies listed in Table III whenever liquid is present.
2. Leachate seeps shall be sampled and analyzed for the Field and Monitoring Parameters in this table upon detection. The quantity of leachate shall be estimated and reported in gallons/day. Also, refer to Section B.3
3. The Discharger shall test each LCRS annually pursuant to Title 27, section 20340(d) to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions.

TABLE IV

SURFACE WATER DETECTION MONITORING PROGRAM

Parameter	Geotracker Code	Units	Sampling Frequency[1]	Reporting Frequency
Field Parameters				
Electrical Conductivity	SC	umhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Turbidity	TURB	Turbidity units	Semiannual	Semiannual
Flow to Waters of U.S.	--	Yes or No	Semiannual	Semiannual
Monitoring Parameters				
Total Dissolved Solids (TDS)	TDS	mg/L	Semiannual	Semiannual
Carbonate	CACO3	mg/L	Semiannual	Semiannual
Bicarbonate	BICACO3	mg/L	Semiannual	Semiannual
Chloride	CL	mg/L	Semiannual	Semiannual
Nitrate - Nitrogen	NO3N	mg/L	Semiannual	Semiannual
Sulfate	SO4	mg/L	Semiannual	Semiannual
Calcium	CA	mg/L	Semiannual	Semiannual
Magnesium	MG	mg/L	Semiannual	Semiannual
Manganese	MN	mg/L	Semiannual	Semiannual
Potassium	K	mg/L	Semiannual	Semiannual
Sodium	NA	mg/L	Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table V)	See Table V	ug/L	Semiannual	Semiannual
5-Year Constituents of Concern (see Table VI)				
Total Organic Carbon	TOC	mg/L	5 years	**2019**
Inorganics (dissolved)	See Table VI	ug/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	See Table VI	ug/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)	See Table VI	ug/L	5 years	'' ''
Chlorophenoxy Herbicides (USEPA Method 8151A)	See Table VI	ug/L	5 years	'' ''
Organophosphorus Compounds (USEPA Method 8141B)	See Table VI	ug/L	5 years	'' ''

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

TABLE V

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

COC Description	Geotracker Code
pH	PH
Total Dissolved Solids	TDS
Electrical Conductivity	SC
Chloride	CL
Sulfate	SO4
Nitrate nitrogen	NO3N
Volatile Organic Compounds, short list (USEPA Method 8260B):	
Acetone	ACE
Acrylonitrile	ACRAMD
Benzene	BZ
Bromochloromethane	BRCLME
Bromodichloromethane	BDCME
Bromoform (Tribromomethane)	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane (Ethyl chloride)	CLEA
Chloroform (Trichloromethane)	TCLME
Dibromochloromethane (Chlorodibromomethane)	DBCME
1,2-Dibromo-3-chloropropane (DBCP)	DBCP
1,2-Dibromoethane (Ethylene dibromide; EDB)	EDB
o-Dichlorobenzene (1,2-Dichlorobenzene)	DCBZ12
m-Dichlorobenzene (1,3-Dichlorobenzene)	DCBZ13
p-Dichlorobenzene (1,4-Dichlorobenzene)	DCBZ14
trans- l ,4-Dichloro-2-butene	DCBE14T
Dichlorodifluoromethane (CFC-12)	FC12
1,1-Dichloroethane (Ethylidene chloride)	DCA11
1,2-Dichloroethane (Ethylene dichloride)	DCA12
1,1 -Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)	DCE11
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)	DCE12C
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)	DCE12T
1,2-Dichloropropane (Propylene dichloride)	DCPA12
cis- 1,3-Dichloropropene	DCP13C
trans- 1,3-Dichloropropene	DCP13T
Di-isopropylether (DIPE)	DIPE
Ethanol	ETHANOL
Ethyltertiary butyl ether	ETBE
Ethylbenzene	EBZ
2-Hexanone (Methyl butyl ketone)	HXO2
Hexachlorobutadiene	HCBU
Hexachloroethane	HCLEA
Methyl bromide (Bromomethene)	BRME
Methyl chloride (Chloromethane)	CLME

TABLE V

MONITORING PARAMETERS FOR DETECTION MONITORING

(Continued)

COC Description	Geotracker Code
Methylene bromide (Dibromomethane)	DBMA
Methylene chloride (Dichloromethane)	DCMA
Methyl ethyl ketone (MEK: 2-Butanone)	MEK
Methyl iodide (Iodomethane)	IME
Methyl t-butyl ether	MTBE
4-Methyl-2-pentanone (Methyl isobutylketone)	MIBK
Naphthalene	NAPH
Styrene	STY
Tertiary amyl methyl ether	TAME
Tertiary butyl alcohol	TBA
1,1,1,2-Tetrachloroethane	TC1112
1,1.2,2-Tetrachloroethane	PCA
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1-Trichloroethane (Methylchloroform)	TCA111
1,1,2-Trichloroethane	TCA112
Trichloroethylene (Trichloroethene)	TCE
Trichlorofluoromethane (CFC- 11)	FC11
1,2,3-Trichloropropane	TCPR123
Vinyl acetate	VA
Vinyl chloride	VC
Xylenes	XYLENES

TABLE VI

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Inorganics (dissolved):	**USEPA Method**	**Geotracker Code**
Aluminum	6010	AL
Antimony	7041	SB
Barium	6010	BA
Beryllium	6010	BE
Cadmium	7131A	CD
Chromium	6010	CR
Cobalt	6010	CO
Copper	6010	CU
Silver	6010	AG
Tin	6010	SN
Vanadium	6010	V
Zinc	6010	ZN
Iron	6010	FE
Manganese	6010	MN
Arsenic	7062	AS
Lead	7421	PB
Mercury	7470A	HG
Nickel	7521	NI
Selenium	7742	SE
Thallium	7841	TL
Cyanide	9010C	CN
Sulfide	9030B	S

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

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

TABLE VI

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

1,2-Dibromoethane (Ethylene dibromide; EDB)	EDB
o-Dichlorobenzene (1,2-Dichlorobenzene)	DCBZ12
m-Dichlorobenzene (1,3-Dichlorobenzene)	DCBZ13
p-Dichlorobenzene (1,4-Dichlorobenzene)	DCBZ14
trans- 1,4-Dichloro-2-butene	DCBE14T
Dichlorodifluoromethane (CFC 12)	FC12
1,1 -Dichloroethane (Ethylidene chloride)	DCA11
1,2-Dichloroethane (Ethylene dichloride)	DCA12
1,1 -Dichloroethylene (1, l-Dichloroethene; Vinylidene chloride)	DCE11
cis- l ,2-Dichloroethylene (cis- 1,2-Dichloroethene)	DCE12C
trans- l ,2-Dichloroethylene (trans- 1,2-Dichloroethene)	DCE12T
1,2-Dichloropropane (Propylene dichloride)	DCPA12
1,3-Dichloropropane (Trimethylene dichloride)	DCPA13
2,2-Dichloropropane (Isopropylidene chloride)	DCPA22
1,1 -Dichloropropene	DCP11
cis- 1,3-Dichloropropene	DCP13C
trans- l ,3-Dichloropropene	DCP13T
Di-isopropylether (DIPE)	DIPE
Ethanol	ETHANOL
Ethyltertiary butyl ether	ETBE
Ethylbenzene	EBZ
Ethyl methacrylate	EMETHACRY
Hexachlorobutadiene	HCBU
2-Hexanone (Methyl butyl ketone)	HXO2
Isobutyl alcohol	ISOBTOH
Methacrylonitrile	METHACRN
Methyl bromide (Bromomethane)	BRME
Methyl chloride (Chloromethane)	CLME
Methyl ethyl ketone (MEK; 2-Butanone)	MEK
Methyl iodide (Iodomethane)	IME
Methyl t-butyl ether	MTBE
Methyl methacrylate	MMTHACRY
4-Methyl-2-pentanone (Methyl isobutyl ketone)	MIBK
Methylene bromide (Dibromomethane)	DBMA
Methylene chloride (Dichloromethane)	DCMA
Naphthalene	NAPH
Propionitrile (Ethyl cyanide)	PACN
Styrene	STY
Tertiary amyl methyl ether	TAME
Tertiary butyl alcohol	TBA
1,1,1,2-Tetrachloroethane	TC1112
1,1,2,2-Tetrachloroethane	PCA
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1 -Trichloroethane (Methylchloroform)	TCA111
1,1,2-Trichloroethane	TCA112
Trichloroethylene (Trichloroethene; TCE)	TCE

TABLE VI

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

Trichlorofluoromethane (CFC- 11)	FC11
1,2,3-Trichloropropane	TCPR123
Vinyl acetate	VA
Vinyl chloride (Chloroethene)	VC
Xylene (total)	XYLENES

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

Acenaphthene	ACNP
Acenaphthylene	ACNPY
Acetophenone	ACPHN
2-Acetylaminofluorene (2-AAF)	ACAMFL2
Aldrin	ALDRIN
4-Aminobiphenyl	AMINOBPH4
Anthracene	ANTH
Benzo[a]anthracene (Benzanthracene)	BZAA
Benzo[b]fluoranthene	BZBF
Benzo[k]fluoranthene	BZKF
Benzo[g,h,i]perylene	BZGHIP
Benzo[a]pyrene	BZAP
Benzyl alcohol	BZLAL
Bis(2-ethylhexyl) phthalate	BIS2EHP
alpha-BHC	BHCALPHA
beta-BHC	BHCBETA
delta-BHC	BHCDELTA
gamma-BHC (Lindane)	BHCGAMMA
Bis(2-chloroethoxy)methane	BECEM
Bis(2-chloroethyl) ether (Dichloroethyl ether)	BIS2CEE
Bis(2-chloro-1-methyethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)	BIS2CIE
4-Bromophenyl phenyl ether	BPPE4
Butyl benzyl phthalate (Benzyl butyl phthalate)	BBP
Chlordane	CHLORDANE
p-Chloroaniline	CLANIL4
Chlorobenzilate	CLBZLATE
p-Chloro-m-cresol (4-Chloro-3-methylphenol)	C4M3PH
2-Chloronaphthalene	CNPH2
2-Chlorophenol	CLPH2
4-Chlorophenyl phenyl ether	CPPE4
Chrysene	CHRYSENE
o-Cresol (2-methylphenol)	MEPH2
m-Cresol (3-methylphenol)	MEPH3
p-Cresol (4-methylphenol)	MEPH4
4,4'-DDD	DDD44
4,4'-DDE	DDE44
4,4'-DDT	DDT44

TABLE VI

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

(Continued)

Diallate	DIALLATE
Dibenz[a,h]anthracene	DBAHA
Dibenzofuran	DBF
Di-n-butyl phthalate	DNBP
3,3'-Dichlorobenzidine	DBZD33
2,4-Dichlorophenol	DCP24
2,6-Dichlorophenol	DCP26
Dieldrin	DIELDRIN
Diethyl phthalate	DEPH
p-(Dimethylamino)azobenzene	PDMAABZ
7,12-Dimethylbenz[a]anthracene	DMBZA712
3,3'-Dimethylbenzidine	DMBZD33
2,4-Dimehtylphenol (m-Xylenol)	DMP24
Dimethyl phthalate	DMPH
m-Dinitrobenzene	DNB13
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	DN46M
2,4-Dinitrophenol	DNP24
2,4-Dinitrotoluene	DNT24
2,6-Dinitrotoluene	DNT26
Di-n-octyl phthalate	DNOP
Diphenylamine	DPA
Endosulfan I	ENDOSULFANA
Endosulfan II	ENDOSULFANB
Endosulfan sulfate	ENDOSULFANS
Endrin	ENDRIN
Endrin aldehyde	ENDRINALD
Ethyl methanesulfonate	EMSULFN
Famphur	FAMPHUR
Fluoranthene	FLA
Fluorene	FL
Heptachlor	HEPTACHLOR
Heptachlor epoxide	HEPT-EPOX
Hexachlorobenzene	HCLBZ
Hexachlorocyclopentadiene	HCCP
Hexachloroethane	HCLEA
Hexachloropropene	HCPR
Indeno(1,2,3-c,d)pyrene	INP123
Isodrin	ISODRIN
Isophorone	ISOP
Isosafrole	ISOSAFR
Kepone	KEP
Methapyrilene	MTPYRLN
Methoxychlor	MTXYCL
3-Methylcholanthrene	MECHLAN3
Methyl methanesulfonate	MMSULFN
2-Methylnaphthalene	MTNPH2

TABLE VI

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

(Continued)

1,4-Naphthoquinone	NAPHQ14
1-Naphthylamine	AMINONAPH1
2-Naphthylamine	AMINONAPH2
o-Nitroaniline (2-Nitroaniline)	NO2ANIL2
m-Nitroaniline (3-Nitroaniline)	NO2ANIL3
p-Nitroaniline (4-Nitroaniline)	NO2ANIL4
Nitrobenzene	NO2BZ
o-Nitrophenol (2-Nitrophenol)	NTPH2
p-Nitrophenol (4-Nitrophenol)	NTPH4
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)	NNSBU
N-Nitrosodiethylamine (Diethylnitrosamine)	NNSE
N-Nitrosodimethylamine (Dimethylnitrosamine)	NNSM
N-Nitrosodiphenylamine (Diphenylnitrosamine)	NNSPH
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)	NNSPR
N-Nitrosomethylethylamine (Methylethylnitrosamine)	NNSME
N-Nitrosopiperidine	NNSPPRD
N-Nitrosospyrrolidine	NNSPYRL
5-Nitro-o-toluidine	TLDNONT5
Pentachlorobenzene	PECLBZ
Pentachloronitrobenzene (PCNB)	PECLNO2BZ
Pentachlorophenol	PCP
Phenacetin	PHNACTN
Phenanthrene	PHAN
Phenol	PHENOL
p-Phenylenediamine	ANLNAM4
Polychlorinated biphenyls (PCBs; Aroclors)	PCBS
Pronamide	PRONAMD
Pyrene	PYR
Safrole	SAFROLE
1,2,4,5-Tetrachlorobenzene	C4BZ1245
2,3,4,6-Tetrachlorophenol	TCP2346
o-Toluidine	TLDNO
Toxaphene	TOXAP
2,4,5-Trichlorophenol	TCP245
0,0,0-Triethyl phosphorothioate	TEPTH
sym-Trinitrobenzene	TNB135

Chlorophenoxy Herbicides (USEPA Method 8151A):

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

Organophosphorus Compounds (USEPA Method 8141B):

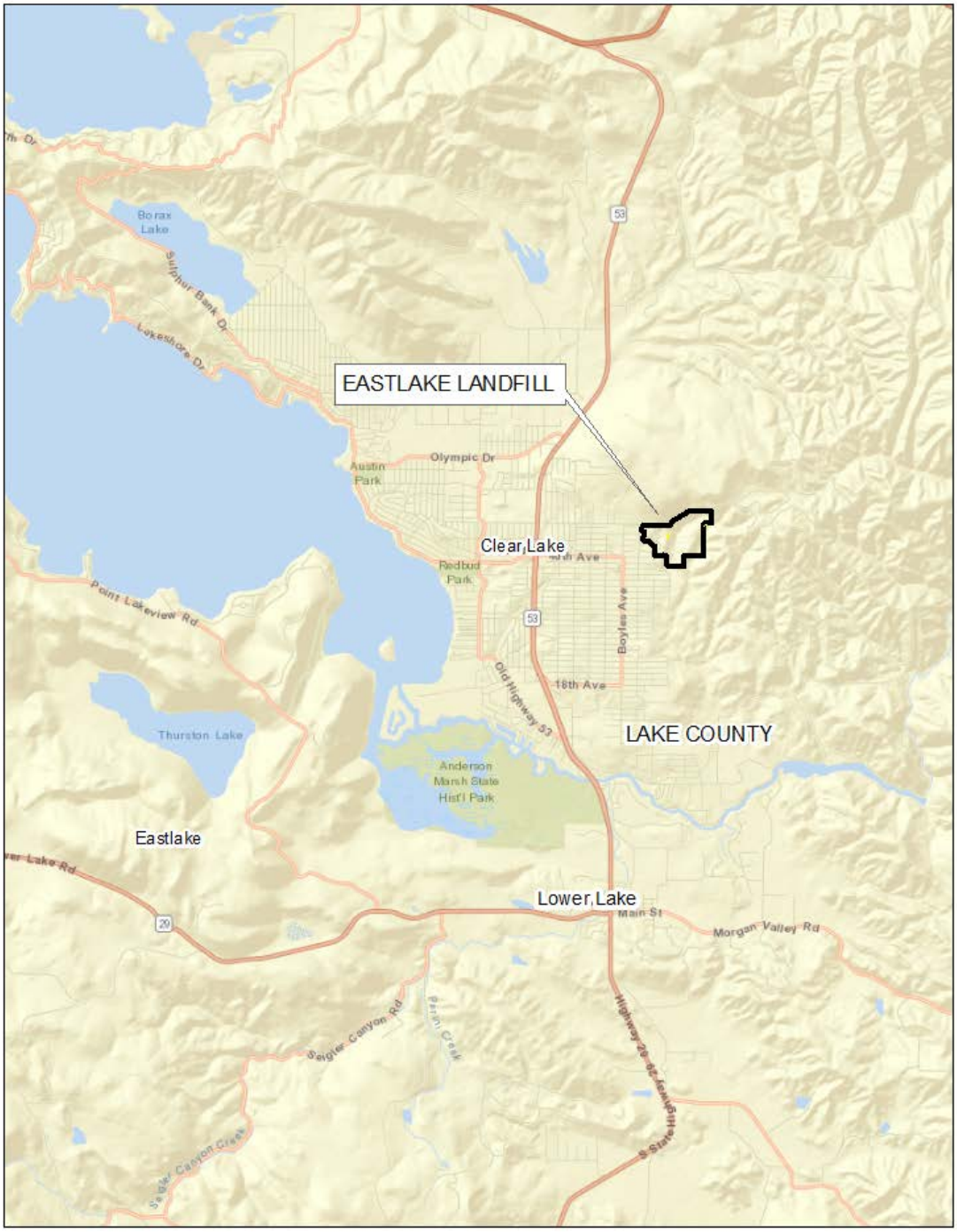
Atrazine	ATRAZINE
Chlorpyrifos	CLPYRIFOS
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)	ZINOPHOS
Diazinon	DIAZ
Dimethoate	DIMETHAT
Disulfoton	DISUL
Ethion	ETHION
Methyl parathion (Parathion methyl)	PARAM
Parathion	PARAE
Phorate	PHORATE
Simazine	SIMAZINE

TABLE VII

LANDFILL GAS CORRECTIVE ACTION MONITORING PROGRAM

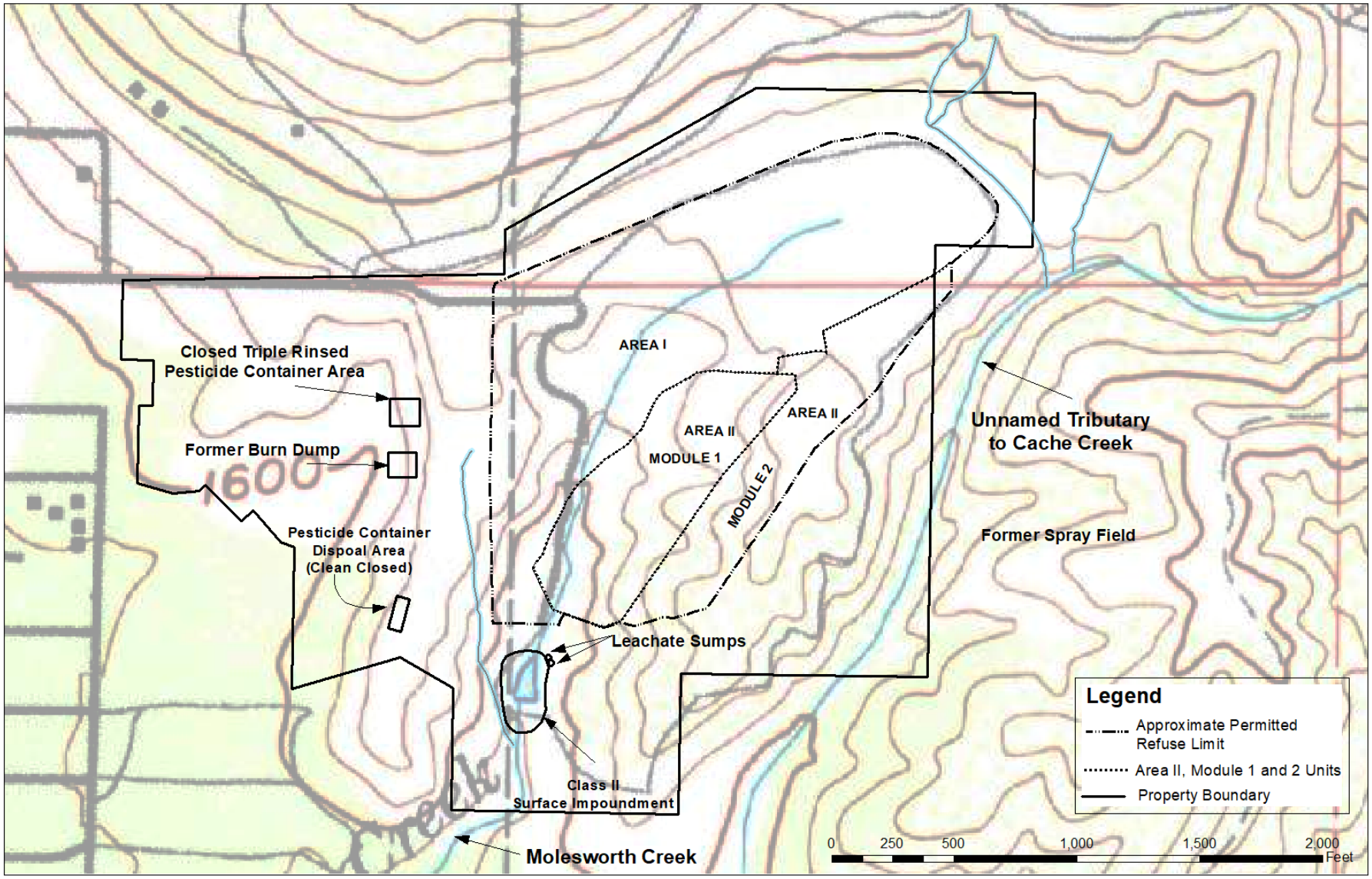
Parameter	Geotracker Code	Units	Sampling Frequency	Reporting Frequency
LFG Control System				
Control System Run-time	--	Hours	Quarterly	Semiannual
Control System Down-time	--	%	Quarterly	Semiannual
Temperature into Plant	--	^{0}F	Quarterly	Semiannual
Flare Combustion Temperature	--	^{0}F	Quarterly	Semiannual
System Vacuum	--	mm Hg vacuum	Quarterly	Semiannual
Totalized flow into Plant	--	Cubic Feet	Quarterly	Semiannual
Totalized flow rate into Plant	--	CFM	Quarterly	Semiannual
LFG Control System Influent				
Volatile Organic Compounds[1] (USEPA TO-15)	--	ug/m^3	Quarterly	Semiannual
Methane	--	%	Quarterly	Semiannual
LFG Extraction Wells				
Atmospheric Temperature	--	^{0}F	Quarterly	Semiannual
Atmospheric Pressure	--	inches Hg	Quarterly	Semiannual
Methane	--	% by volume	Quarterly	Semiannual
Carbon Dioxide	--	% by volume	Quarterly	Semiannual
Oxygen	--	% by volume	Quarterly	Semiannual
Remainder gas	--	% by volume	Quarterly	Semiannual
Gas temperature at each well	--	^{0}F	Quarterly	Semiannual
Initial static pressure in wellhead	--	inches H20	Quarterly	Semiannual
Adjusted static pressure in Wellhead	--	inches H20	Quarterly	Semiannual
LFG Probes				
Atmospheric Temperature	--	^{0}F	Quarterly	Semiannual
Atmospheric Pressure	--	inches Hg	Quarterly	Semiannual
Methane	--	% by volume	Quarterly	Semiannual
Carbon Dioxide	--	% by volume	Quarterly	Semiannual
Oxygen	--	% by volume	Quarterly	Semiannual
Remainder gas	--	% by volume	Quarterly	Semiannual
Probe pressure/vacuum	--	inches H20	Quarterly	Semiannual
Volatile Organic Compounds[1] (USEPA TO-15)	--	ug/m^3	Quarterly	Semiannual

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



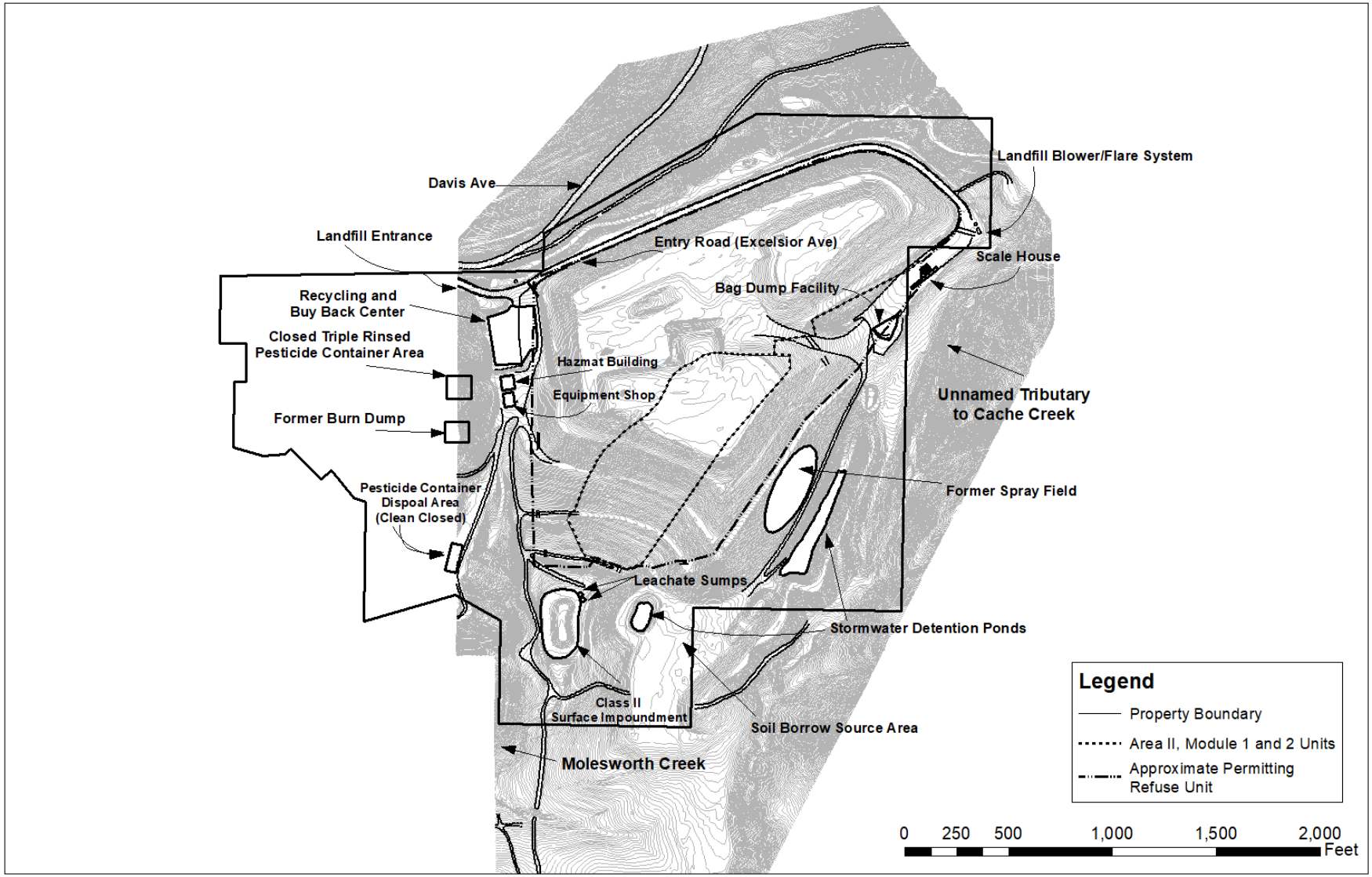
Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Source: gis.ca.gov, ESRI, USGS, Intermap, OpenStreetMap

Drawing Reference: **N/A**	**Site Location Map** Lake County Public Services Department Eastlake Sanitary Landfill Lake County	N W E S

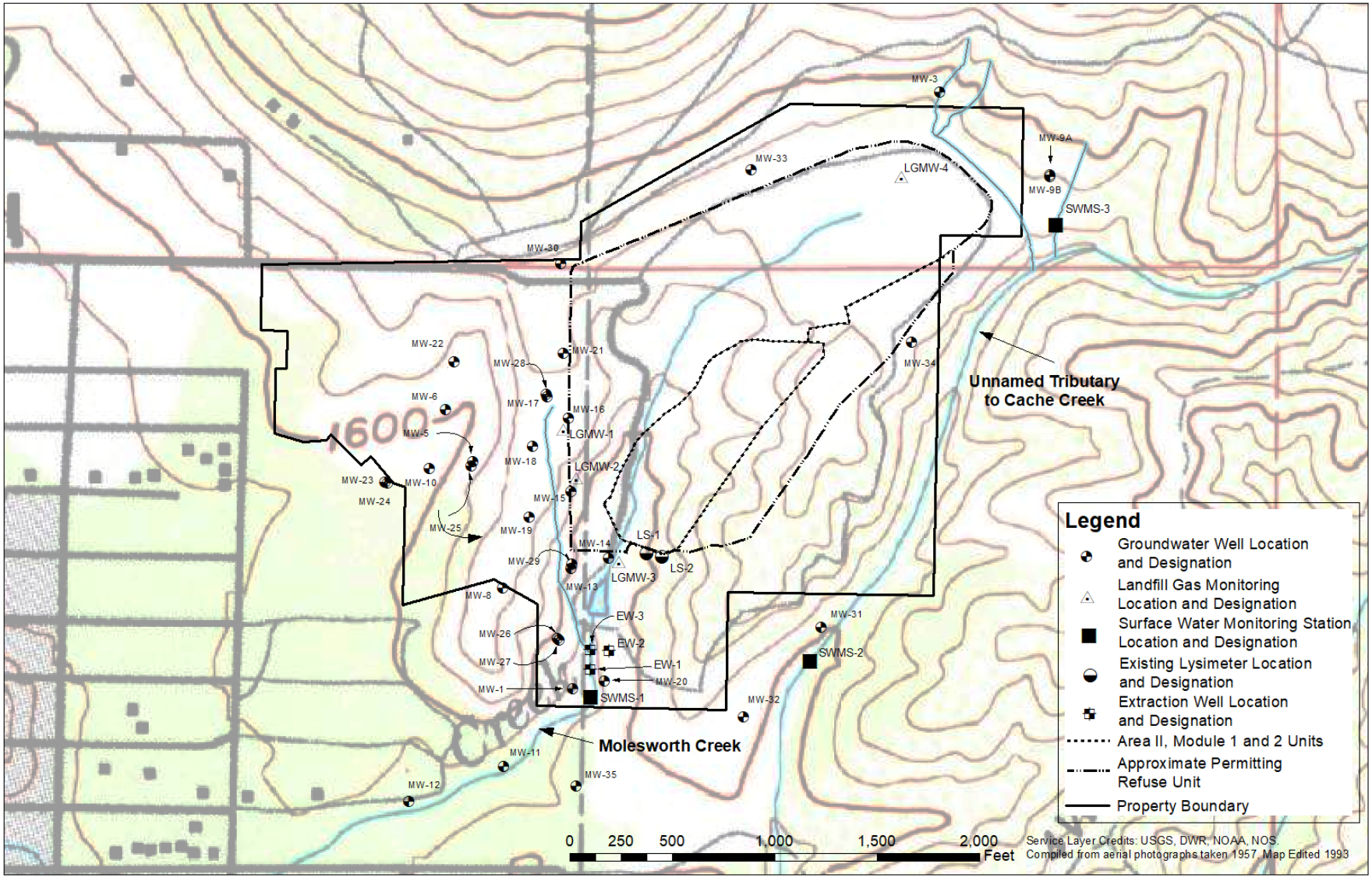


Drawing Reference:
2018 ROWD/JTD Figure 2

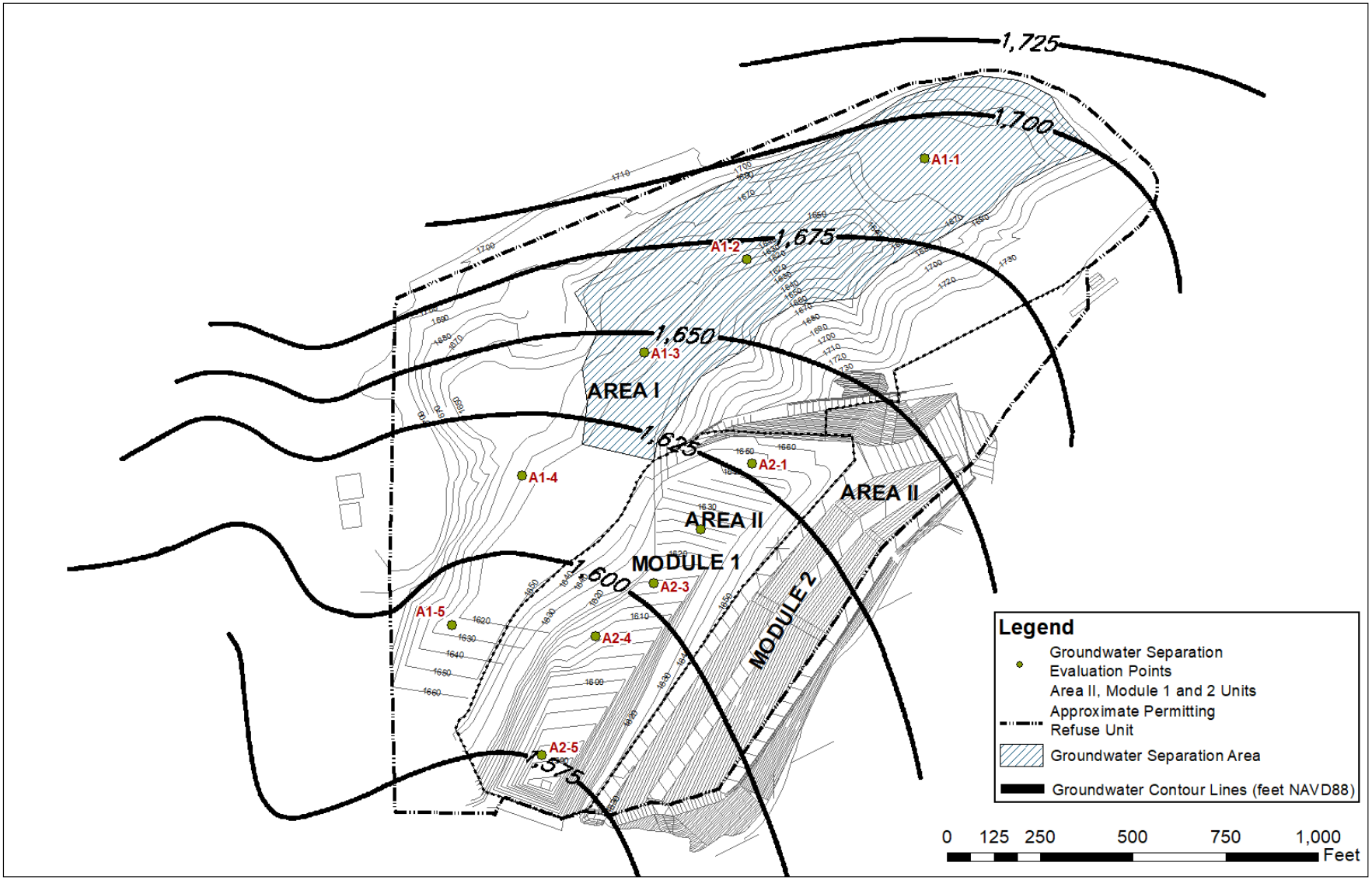
Predevelopment Topography Map
Lake County Public Services Department
Eastlake Sanitary Landfill
Lake County



Drawing Reference: 2018 ROWD/JTD Figure 2	**Existing Site Plan** Lake County Public Services Department Eastlake Sanitary Landfill Lake County	N W E S



Drawing Reference: 2018 ROWD/JTD Figure 2	**Existing Facility Monitoring System Locations** Lake County Public Services Department Eastlake Sanitary Landfill Lake County	N W E S



Drawing Reference:
SHN Consulting
JTD CAD Excavation Data in Figure 12 (23 Aug 2018)
1st Semiannual 2018 SMR Fig 3

Groundwater Separation Map
Lake County Public Services Department
Eastlake Sanitary Landfill
Lake County

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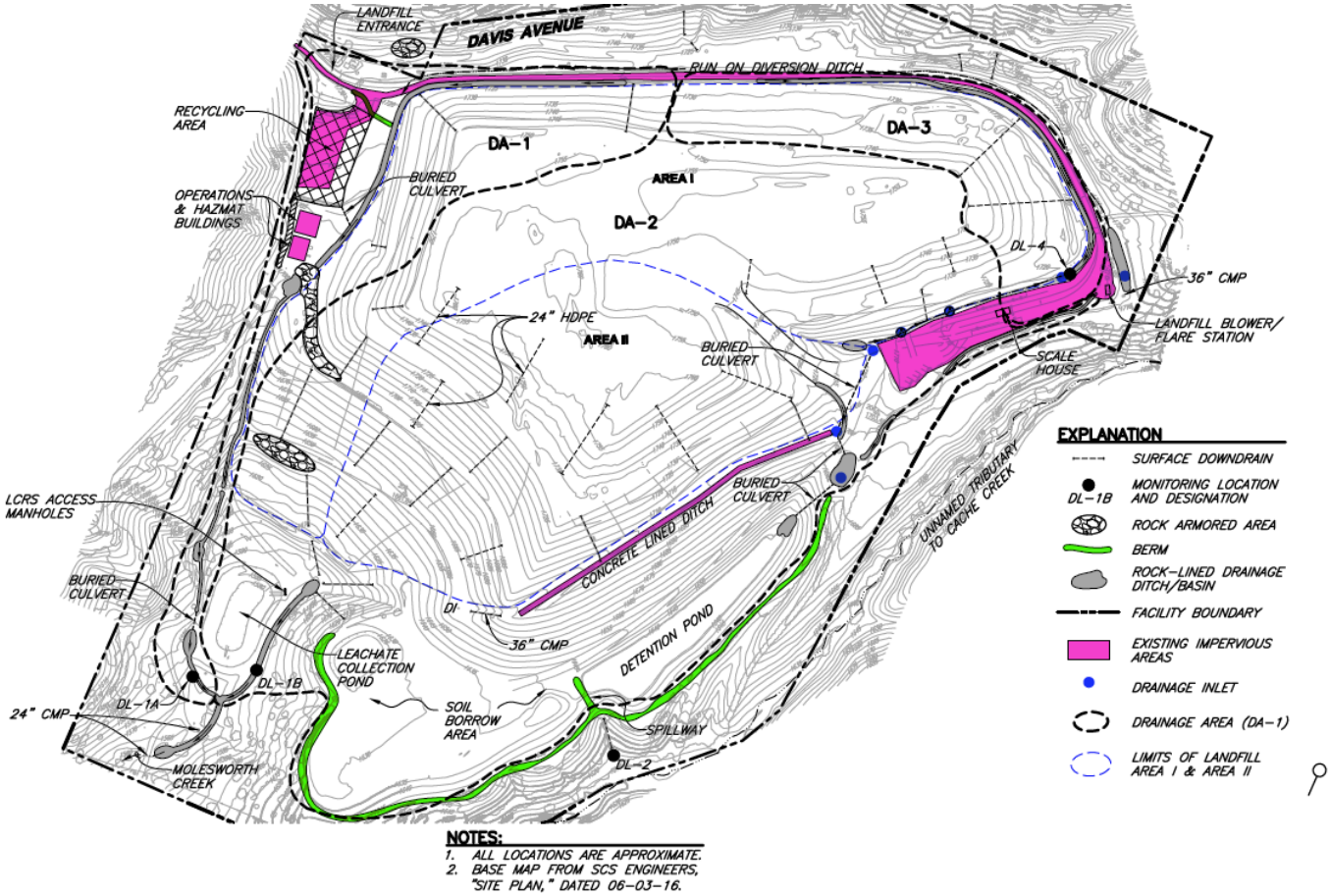
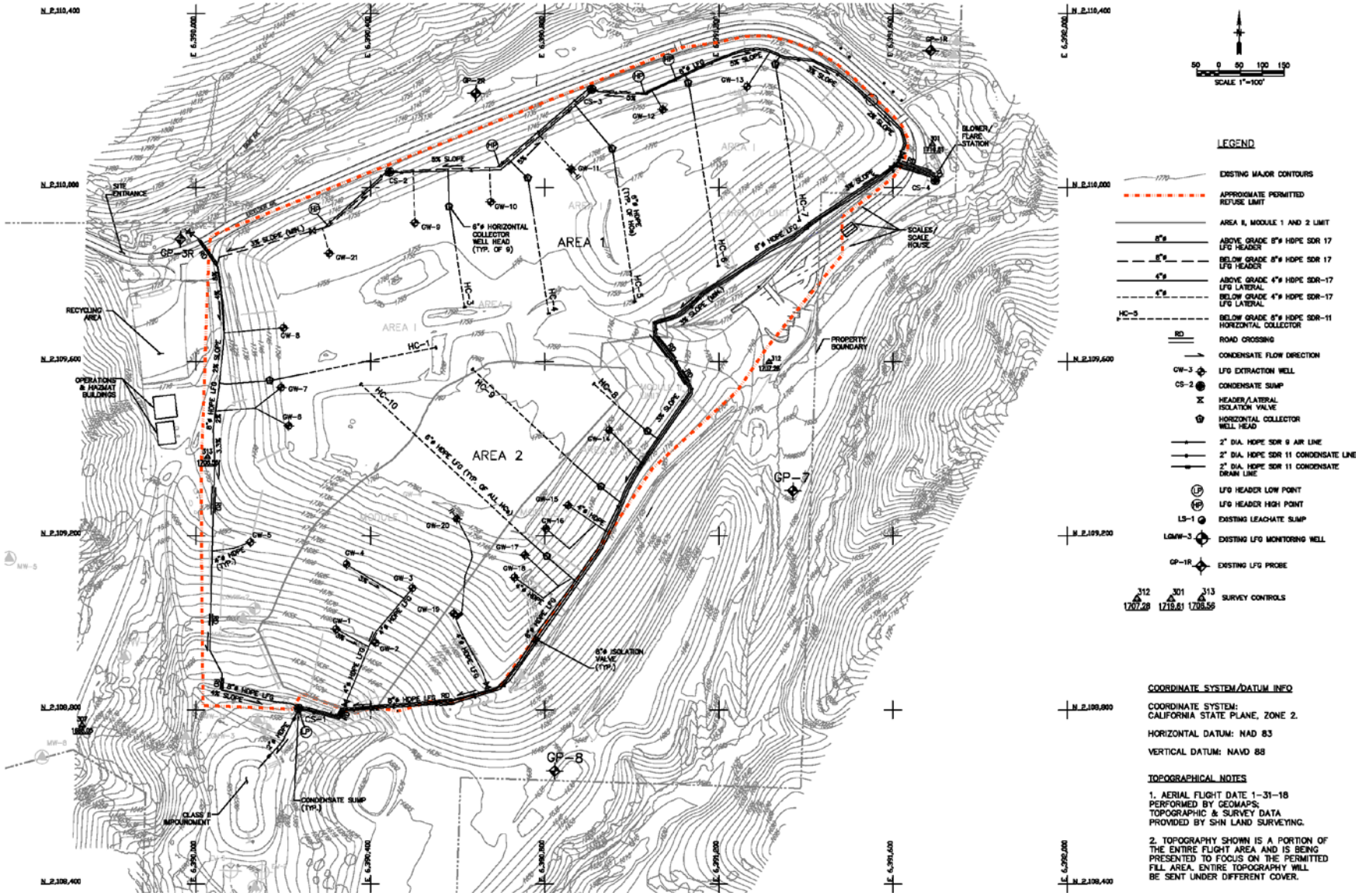
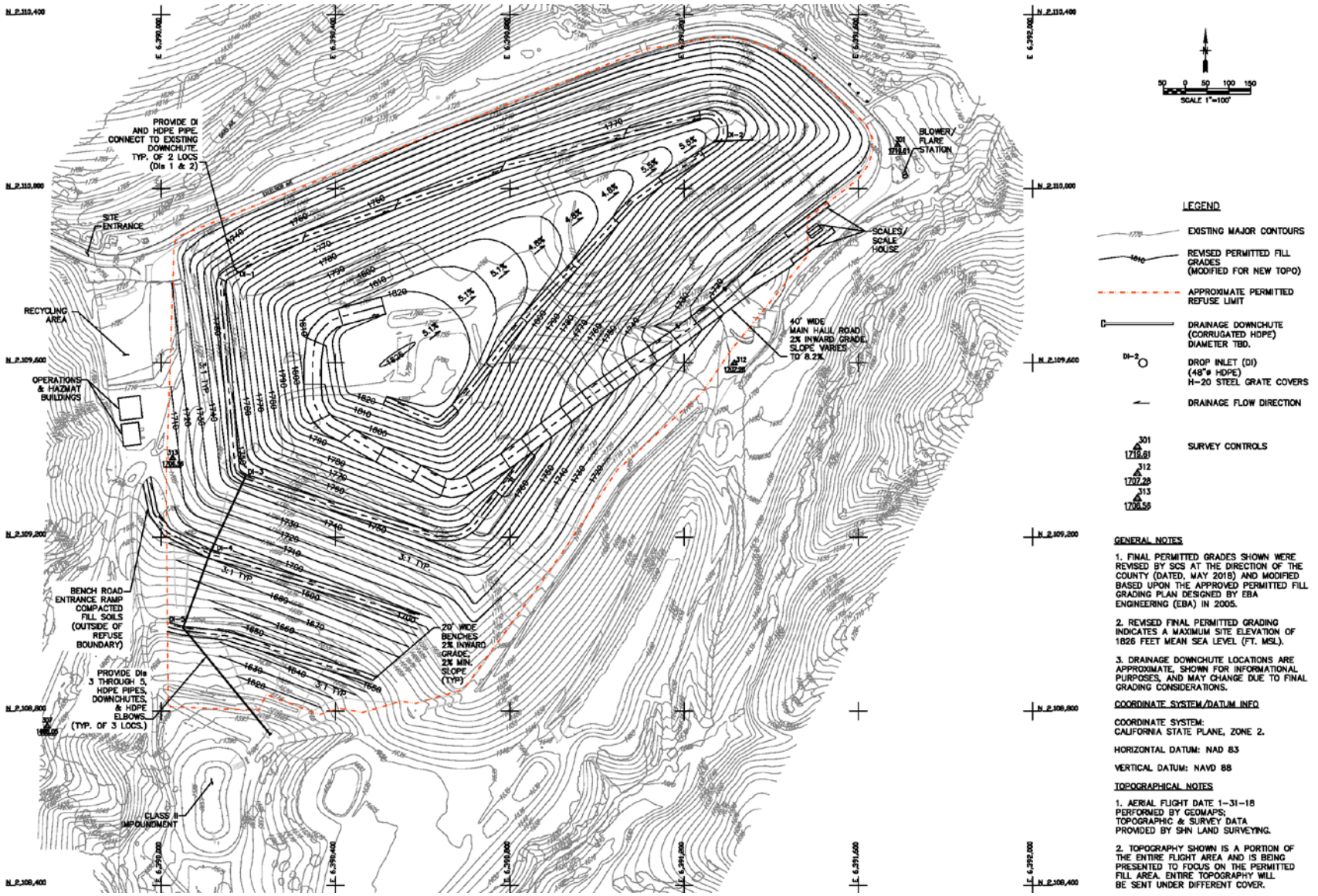


Drawing Reference: **SCS Engineers** **JTD Figure 10** **(23 August 2018)**	**Surface Water Drainage Plan** Lake County Public Services Department Eastlake Sanitary Landfill Lake County	N W E S



Drawing Reference:
SHN Consulting
JTD Figure 11
(23 Aug 2018)

Existing Landfill Gas Extraction and Monitoring Map
Lake County Public Services Department
Eastlake Sanitary Landfill
Lake County



Drawing Reference:
SHN Consulting
JTD Figure 12
(23 Aug 2018)

Proposed Final Closure Cover Plan
Lake County Public Services Department
Eastlake Sanitary Landfill
Lake County

INFORMATION SHEET

ORDER R5-2019-0009
COUNTY OF LAKE PUBLIC SERVICES DEPARTMENT
EASTLAKE SANITARY LANDFILL
CLASS III LANDFILL, CLASS II SURFACE IMPOUNDMENT, CONSTRUCTION, OPERATION, CLOSURE, POST-CLOSURE MAINTENANCE, AND CORRECTIVE ACTION

COUNTY OF LAKE PUBLIC SERVICES DEPARTMENT; EASTLAKE SANITARY LANDFILL; CLASS III LANDFILL; CLASS II SURFACE IMPOUNDMENT; LAKE COUNTY

The active landfill facility is a municipal solid waste (MSW) landfill regulated pursuant to Water Code section 13000 et seq., California Code of Regulations, title 27 (Title 27), section 20005 et seq. and Code of Federal Regulations, title 40, part 258; and in accordance with State Water Resources Control Board Resolution 93 62.

The Facility is in Lake County and is located at 16015 Davis Road at the eastern edge of the City of Clearlake. The facility is on an 80-acre property. The permitted disposal area acreage is approximately 34.7 acres. Operation of this facility as a sanitary landfill began in 1972. Prior to 1972, a legal burn dump was operated on a southern portion of the same property. The area of the burn dump covered approximately three acres. The facility consists of three landfill waste management units (WMU), unlined Area I, lined Area II, and a future vertical expansion over Area I and Area II known as Area III. The WMUs have in the past been classified as Class III units for the discharge of municipal solid waste (MSW) and other non-hazardous waste. The facility also has a Class II surface impoundment for containment of designated waste such as leachate, landfill gas condensate, and comingled underdrain liquids. The Class II surface impoundment currently discharges to a sanitary sewer where the liquids are conveyed to the Southeast Regional Wastewater Treatment Plant.

After the issuance of WDRs R5-2006-0108 on 22 September 2006, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) reviewed technical reports, existing operations, and historical monitoring results. The Central Valley Water Board has determined that revision of existing WDRs is necessary to address the following items, *inter alia*:

1. Requirement to provide documentation related to authorization to dispose of Class II surface impoundment liquids into a sanitary sewer;
2. Deficient groundwater, unsaturated zone, and surface water detection monitoring systems;
3. Improper characterization of landfill leachate;
4. Monitored corrective action for VOCs released outside of the WMU boundaries;
5. Additional surface water monitoring requirements for stormwater collection prior to discharges to waters of the US;
6. Evaluation of stormwater collection, conveyance, and detention system as it relates to the stormwater management system's potential interference with detection monitoring system's ability to collect representative samples of receiving water quality;
7. Provision requiring Discharger to provide updated map of surrounding water supply wells;
8. Limitations on placement of dewatered water treatment sludge and other special wastes to only lined Area II;
9. Reevaluation of final closure cover over unlined Area I;
10. Requirement to Update Water Quality Protection Standard including the Sample Collection and Analysis Plan;

11. Financial Assurances for clean closure of Class II surface impoundment;
12. Financial Assurances for future water release related corrective action; and
13. Inadequate groundwater separation to ensure protection of the background quality of groundwater.

The revised WDRs address these items as well as others in order to ensure compliance with existing laws and regulations related to protection of water quality.

RDB/VKJ

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS FOR WASTE DISCHARGE REQUIREMENTS FOR NONHAZARDOUS SOLID WASTE DISCHARGES REGULATED BY SUBTITLE D AND/OR TITLE 27

(40 C.F.R. section 258 and Title 27, § 20005 et seq.)

December 2015

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A. APPLICABILITY

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to nonhazardous solid waste disposal sites that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, title 27 ("Title 27"), section 20005 et seq., and municipal solid waste (MSW) landfills that are subject to the Federal Subtitle D regulations contained in 40 Code of Federal Regulations section 258 (hereafter, "Subtitle D" or "40 C.F.R. § 258.XX") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62. The Subtitle D regulations are only applicable to MSW landfills and therefore any requirements in these SPRRs that are referenced as coming from Subtitle D are not applicable to non-MSW waste management units such as Class II surface impoundments, Class II waste piles, and non-MSW landfill units. All Subtitle D requirements in these SPRRs are referenced with "[40 C.F.R. § 258.XX]" after the requirement.

2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.

3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.

4. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.

5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.

6. If there is a site-specific need to change a requirement in these SPRRs for a particular landfill facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.

7. Unless otherwise stated, all terms are as defined in Water Code section 13050 and in Title 27, section 20164.

B. TERMS AND CONDITIONS

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

other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]

2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:

   a. Violation of any term or condition contained in this Order;

   b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;

   c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or

   d. A material change in the character, location, or volume of discharge.

3. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. A material change includes, but is not limited to, the following:

   a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;

   b. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment);

   c. A change in the type of waste being accepted for disposal; or

   d. A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.

4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].

5. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].

6. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Central Valley Water Board [Wat. Code, § 13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

7. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [Wat. Code, § 13263(g)].

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

C. STANDARD PROHIBITIONS

1. The discharge of liquid or semi-solid waste (waste containing less than 50 percent solids) is prohibited, except for the following when proposed in the ROWD/JTD and approved by this Order:

    a. Dewatered sewage or water treatment sludge as described in Title 27, section 20220(c) provided it is discharged above a composite liner with a leachate collection and removal system (LCRS) [Title 27, § 20200(d)(3)].

    b. Leachate and/or landfill gas condensate that is returned to the composite-lined waste management unit (with an LCRS) from which it came [Title 27, § 20340(g) and 40 C.F.R. § 258.28].

2. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:

    a. require a higher level of containment than provided by the unit; or

    b. are ‘restricted wastes’; or

    c. impair the integrity of containment structures;

    is prohibited [Title 27, § 20200(b)].

3. The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.

4. The discharge of solid waste containing free liquid or which may contain liquid in excess of the moisture holding capacity as a result of waste management operations, compaction or settlement is prohibited.

5. The discharge of waste to a closed landfill unit is prohibited.

6. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited.

7. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

D. STANDARD DISCHARGE SPECIFICATIONS

1. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the waste management unit and whether or not the wastes are required to be managed as a hazardous waste [Title 27, § 20200(c)] or designated waste [Title 27, § 20210].

2. Leachate and landfill gas condensate collected from a waste management unit shall be discharged to the unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [Title 27, § 20200(d) and § 20340(g)].

3. The discharge of leachate or landfill gas condensate is restricted to those portions of a waste management unit that has a composite liner system and LCRS meeting the Federal Subtitle D requirements [40 C.F.R. § 258.28].

4. Leachate and condensate returned to a composite-lined landfill unit (when approved by this Order) shall be discharged and managed such that it does not cause instability of the waste, does not cause leachate seeps, does not generate additional landfill gas that is not extracted from the landfill by an active landfill gas extraction system, does not cause contaminants to enter surface water runoff, and does not cause leachate volumes to exceed the maximum capacity of the LCRS.

5. Any discharge of waste outside the portion of the landfill that was already covered with waste as of the landfill unit's respective Federal Deadline constitutes a "lateral expansion" and requires the installation of an approved composite liner system and LCRS [40 C.F.R. § 258.40(b)].

6. Wastes shall be discharged only into waste management units specifically designed for their containment and/or treatment, as described in this Order.

7. The discharge shall remain within the designated disposal area at all times.

8. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].

E. STANDARD FACILITY SPECIFICATIONS

1. All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [Title 27, § 20240(c)], including the capillary fringe.

2. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].

3. Interim cover is daily and intermediate cover [Title 27, § 20750(a)]. Interim cover over wastes discharged to a landfill shall be designed and constructed to minimize percolation of liquids through the wastes [Title 27, § 20705(b)].

4. Intermediate cover consisting of compacted earthen material of at least twelve (12) inches shall be placed on all surfaces of the fill where no additional solid waste will be deposited within **180 days** [Title 27, § 20700(a)].

5. During wet weather conditions, the facility shall be operated and graded to minimize leachate generation.

6. The Discharger shall **immediately** notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method [Title 27, § 21710(c)(2)].

7. The Discharger shall **immediately** notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site or outside of waste management units, equipment failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

8. The Discharger shall limit water used for facility maintenance within landfill areas to the minimum amount necessary for dust control and construction.

9. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

10. The Discharger shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation including all monitoring wells, LCRS risers, and lysimeter risers and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.

11. The Discharger shall ensure that methane and other landfill gases are adequately vented, removed from landfill units, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, degradation, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

12. The Discharger shall maintain the depth of the fluid in the sump of each landfill unit at the minimum needed for efficient pump operation (the depth at which the pump turns on given the pump intake height and maximum pump cycle frequency).

13. The depth of fluid on the landfill liner shall not exceed **30 centimeters** (cm) [40 C.F.R. § 258.40(a)(2)]. This regulation is interpreted by the Central Valley Water Board to exclude the leachate sump. The Discharger shall **immediately** notify the Central Valley Water Board staff by telephone, and follow up in writing within **seven** days if monitoring reveals that the depth of fluid on any portion of the liner (excluding the sump) exceeds 30 cm (approximately 12 inches). The written notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.

14. Each LCRS shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [Title 27, § 20340(d)].

15. The Discharger shall maintain a *Storm Water Pollution Prevention Plan* and *Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (Industrial General Permit) or most recent general industrial storm water permit), or retain all storm water on-site.

16. Internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.

17. New MSW landfill units or lateral expansions of existing units shall not be sited in a “wetland” [as defined in 40 C.F.R. § 232.29(r)] unless there is no practical alternative; steps have been taken to assure no net loss of wetland; the landfill unit will not degrade the wetland; the unit will not jeopardize threatened or endangered species or produce adverse modification of a critical habitat or violate any requirement of the Marine Protection, Research, and Sanctuaries Act of 1972 [40 C.F.R. § 258.12].

F. STANDARD CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for review and approval at least **90 days** prior to proposed construction, design plans and specifications for new landfill modules that include the following:

    a. Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone monitoring system, any proposed landfill gas monitoring and extraction points, and access to the LCRS for required annual testing.

    b. A Construction Quality Assurance (CQA) Plan prepared by a California-registered civil engineer or certified engineering geologist, and that meets the requirements of Title 27, section 20324.

    c. A geotechnical evaluation of the area soils, evaluating their use as the base layer or reference to the location of this information in the ROWD/JTD [Title 27, § 21750(f)(4)].

    d. Information about the seismic design of the proposed new module (or reference to the location of this information in the ROWD/JTD) in accordance with Title 27, section 20370.

    e. A revised water quality monitoring plan for groundwater detection monitoring (or information showing the existing plan is adequate) in accordance with Title 27, section 20415.

    f. An Operation Plan (or reference to the location of this information in the ROWD/JTD) meeting the requirements of Title 27, section 21760(b).

2. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge.

3. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have been approved. Waste management units shall receive a final inspection and approval of the construction by Central Valley Water Board staff before use of the unit commences [Title 27, § 20310(e)].

4. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].

5. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [Title 27, § 20320(a)].

6. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27, § 20365(a)].

7. The Discharger shall design storm water conveyance systems for Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

8. All Class III landfill units shall be designed to withstand the maximum probable earthquake and Class II waste management units shall be designed to withstand maximum credible earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion, or gas [Title 27, § 20370(a)].

9. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the landfill foundation, final slopes, and containment systems under both static and dynamic conditions throughout the landfill's life including the closure period and post-closure maintenance period [Title 27, § 21750(f)(5)].

10. New waste management units and expansions of existing units shall not be located on a known Holocene fault [Title 27, § 20260(d)].

11. Liners shall be designed and constructed to contain the fluid, including landfill gas, waste, and leachate [Title 27, § 20330(a)].

12. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, § 20320(c)].

13. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)].

14. A test pad for each barrier layer and final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].

15. Performance requirements for geosynthetic membranes shall include, but are not limited to, a need to limit infiltration of water, to the greatest extent possible; a need to control landfill gas emissions; mechanical compatibility with stresses caused by equipment traffic, and for final covers the result of differential settlement over time and durability throughout the post-closure maintenance period [Title 27, § 20324(i)(1)].

16. The Discharger shall ensure proper preparation of the subgrade for any liner system that includes a GCL so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.

17. The Discharger shall propose an electronic leak location survey of the top liner for any new landfill module in the construction quality assurance plan unless the Discharger demonstrates that a leak location survey is not needed.

18. Leachate collection and removal systems are required for Class II landfills and surface impoundments, MSW landfills, and for Class III landfills which have a liner or which accept sewage or water treatment sludge [Title 27, § 20340(a)].

19. All new landfill units or lateral expansions of existing units that require a LCRS shall have a blanket-type LCRS that covers the bottom of the unit and extends as far up the sides as possible. The LCRS shall be of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the unit [Title 27, § 20340(e)].

20. The LCRS shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit [Title 27, § 20340(b)].

21. Leachate collection and removal systems shall be designed and operated to function without clogging through the scheduled closure of the landfill unit and during the post-closure maintenance period.

22. The LCRS shall be designed to maintain the depth of fluid over any portion of the LCRS of no greater than 30 cm [40 C.F.R. § 258.40(a)(2)], excluding the leachate sump. The leachate sump, leachate removal pump, and pump controls shall be designed and set to maintain a fluid depth no greater than the minimum needed for efficient pump operation [Title 27, § 20340(c)].

23. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [Title 27, § 20323].

24. The Construction Quality Assurance program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27, § 20324(b)(2)].

25. The Discharger shall ensure that a third party independent of both the Discharger and the construction contractor performs all of the construction quality assurance monitoring and testing during the construction of a liner system.

26. The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new lined cell or module, construction of a final cover, or any other construction that requires Central Valley Water Board staff approval under this Order.

27. The Discharger shall submit for review and approval at least **60 days** prior to proposed discharge, final documentation required in Title 27 Section 20324(d)(1)(C) following the completion of construction of a new lined landfill module. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the liner system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of the WDRs, and that it meets the performance goals of Title 27. The report shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, the construction quality assurance plan, and the performance goals of Title 27.

28. The Discharger shall not discharge waste onto a newly constructed liner system until the final documentation report has been reviewed and an acceptance letter has been received.

29. Prior to placement of waste in a new landfill unit, the Discharger shall monitor any pan lysimeter for the unit that has received enough rainfall to flood the LCRS sump. If liquid is detected in the pan lysimeter, the Discharger shall verify that the liquid is not from a leak in the primary liner system before waste can be accepted to the new module.

G. STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS

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

2. The Discharger shall notify the Central Valley Water Board in writing that a landfill unit or portion of a unit is to be closed either at the same time that the California Department of Resources Recycling and Recovery (CalRecycle) is notified or **180 days** prior to beginning any final closure activities, whichever is sooner [Title 27, § 21710(c)(5)(A)]. The notice shall include a statement that all closure activities will conform to the most recently approved final or partial final closure plan and that the plan provides for site closure in compliance with all applicable federal and state regulations [Title 27, § 21710(c)(5)(C)].

3. Initiation of closure activities shall begin within **30 days** of final waste receipt, or within **one year** of receipt of most recent waste if additional capacity remains [40 C.F.R. § 258.60(f)].

4. Closure activities shall be completed within **180 days** of the beginning of closure activities unless an extension is granted by the Executive Officer [40 C.F.R. § 258.60(g)].

5. The Discharger shall carry out both mandatory closure and normal closure of a waste management unit or a portion of a unit in accordance with a closure and post-closure maintenance plan approved by the Central Valley Water Board [Title 27, § 20950(a)(1)] through the issuance of closure waste discharge requirements.

6. The Discharger shall notify the Central Valley Water Board that a preliminary closure and post-closure maintenance plan has been prepared and placed in the operating record by the date of initial receipt of waste at any new MSW landfill unit or lateral expansion of any existing unit [40 C.F.R. § 258.60(d)]. This notification shall be included in the cover letter transmitting the preliminary closure and post-closure maintenance plan.

7. In addition to the applicable provisions of Title 27, the preliminary closure and/or the post-closure maintenance plans for MSW landfill units shall include the following:

    a. A description of the steps necessary to close all MSW landfill units at any point during their active life in accordance with the cover design requirements [40 C.F.R. § 258.60(c)];

    b. An estimate of the largest area of the landfill unit(s) ever requiring a final cover at any time during the active life of the unit(s) [40 C.F.R. § 258.60(c)(2)];

    c. An estimate of the maximum inventory of wastes ever on-site over the active life of the waste management facility [40 C.F.R. § 258.60(c)(3)]; and

    d. A schedule for completing all activities necessary to satisfy the closure criteria in 40 C.F.R. section 258.60 [40 C.F.R. § 258.60(c)(4)].

8. The final closure and post-closure maintenance plan for the waste management unit shall include at least the following: an itemized cost analysis, closure schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent ROWD, federal requirements for a MSW facility, land use of the closed unit, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].

9. Closure of each waste management unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [Title 27, § 20950(b)].

10. The final cover of closed landfills shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].

11. The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [Title 27, § 21090(b)(1)(C)].

12. All final cover designs shall include a minimum 1-foot thick erosion resistant layer [Title 27, § 21090(a)(3)(A)].

13. The Discharger shall close the landfill with minimum 15-foot wide benches every 50 vertical feet [Title 27, § 21090(a)].

14. Final cover slopes shall not be steeper than a horizontal to vertical ratio of one and three quarters to one and designs having any slopes steeper than a horizontal to vertical ratio of three to one, or having a geosynthetic component, shall have these aspects of their design specifically supported in the slope stability report required in Title 27, section 21750(f)(5) [Title 27, § 21090(a)].

15. For any portions of the final cover installed after July 18, 1997, for which the Central Valley Water Board has not approved a slope and foundation stability report on or before that date, the Discharger shall meet the requirements of Title 27, section 21750(f)(5) [Title 27, § 21090(a)(6)].

16. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [Title 27, § 21090(b)(2)].

17. The Discharger shall design storm water conveyance systems for closed Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for closed Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

18. Closed landfill units shall be provided with at least two permanent surveying monuments, installed by a licensed land surveyor or by a registered civil engineer, from which the location and elevation of all wastes, containment

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

19. Following closure of any MSW landfill units, the Discharger shall notify the Executive Officer that the deed to the landfill facility property, or some other instrument that is normally examined during a title search, has been recorded and a copy placed in the operating record. The notation on the deed shall in perpetuity notify any potential purchaser of the property that the land has been used as a landfill facility and that use of the land is restricted to the planned use described in the post-closure maintenance plan [Title 27, § 20515(a)(4) and §21170, and 40 C.F.R. § 258.60(i)].

20. Construction or repair of the final cover system's low-hydraulic conductivity layer is to be carried out in accordance with an approved construction quality assurance plan [Title 27, § 21090(b)(1)(E)].

21. The Discharger shall incorporate into the closure and post-closure maintenance plan a cover-integrity monitoring and maintenance program which includes at least the following: a periodic leak search, periodic identification of other problem areas, prompt cover repair, and vegetation maintenance [Title 27, § 21090(a)(4)].

22. The Discharger shall complete a final cover survey upon completion of closure activities for that portion of the landfill. The final cover surveys shall include an initial survey and map [Title 27, § 21090(e)(1). Every **five years**, the Discharger shall conduct a survey of the closed landfill cover and submit an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer [Title 27, § 21090(e)(2)].

23. Within **30 days** of completion of <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 updated engineering feasibility study for corrective action based on the data collected to delineate the release and data from the ongoing monitoring program required under Title 27, section 20425(e) [Title 27, § 20425(c)].

iii) **Amended ROWD for a Corrective Action Program.** An amended report of waste discharge to establish a Corrective Action Program meeting the requirements of Title 27, section 20430 based on the data collected to delineate the release and based on the updated engineering feasibility study [Title 27, § 20425(d)].

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

K. GENERAL PROVISIONS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Central Valley Water Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.

2. All reports and transmittal letters shall be signed by persons identified below:

   a. For a corporation: by a principal executive officer of at least the level of senior vice-president.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor.

   c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.

   d. A duly authorized representative of a person designated in a, b or c above if:

      1) The authorization is made in writing by a person described in a, b, or c of this provision;

      2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and

      3) The written authorization is submitted to the Central Valley Water Board.

e. Any person signing a document under this Section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

3. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

4. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.

5. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of this Order.

6. The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Central Valley Water Board approval following authorization for closure pursuant to the site Notification of Closure [Title 27, § 21710(a)(4)].

7. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit or portion of a unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Central Valley Water Board [Title 27, § 21720(f)].

8. In the event of any change in landowner or the operator of the waste management facility, the Discharger shall notify the succeeding owner or

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

9. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [Title 27, § 21710(c)(1)].

10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within **14 days** of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in General Provision K.2 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

L. STORM WATER PROVISIONS

1. New and existing Class III landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [Title 27, § 20260(c)].

2. New and existing Class II landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [Title 27, § 20250(c)].

3. The Discharger shall design storm water conveyance systems for Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

4. MSW landfills located in a 100-year floodplain shall demonstrate that the landfill unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health or the environment [40 C.F.R. § 258.11(a)].

5. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding,

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

6. Precipitation on landfills or waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the LCRS, which shall be designed and constructed to accommodate the precipitation conditions for each class unit [Title 27, § 20365(b)].

7. Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:

    a. accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit:

    b. effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities;

    c. prevent surface erosion;

    d. control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste;

    e. take into account:

        i) for closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern;

        ii) for operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time;

        iii) the possible effects of the waste management unit's drainage pattern on and by the regional watershed;

        iv) the design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility; and

    f. preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.

8. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [Title 27, § 20365(d)].

9. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].

10. Cover materials shall be graded to divert precipitation from the waste management unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation [Title 27, § 20365(f)].

11. Any drainage layer in the final cover shall be designed and constructed to intersect with the final drainage system for the waste management unit in a manner promoting free drainage from all portions of the drainage layer [Title 27, §20365(f)].

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS FOR WASTE DISCHARGE REQUIREMENTS FOR INDUSTRIAL FACILITIES REGULATED BY TITLE 27

(Title 27, § 20005 et seq.)

April 2016

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A. APPLICABILITY

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to Class II surface impoundments, waste piles, and land treatment units that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, title 27 ("Title 27"), section 20005 et seq.

2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.

3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.

4. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.

5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.

6. If there is a site-specific need to change a requirement in these SPRRs for a particular facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.

7. Unless otherwise stated, all terms are as defined in Water Code section 13050 and in Title 27, section 20164.

B. TERMS AND CONDITIONS

1. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]

2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:

a. Violation of any term or condition contained in this Order;

b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;

c. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or

d. A material change in the character, location, or volume of discharge.

3. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. A material change includes, but is not limited to, the following:

   a. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;

   b. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment);

   c. A change in the type of waste being accepted for disposal; or

   d. A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.

4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].

5. The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].

6. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Central Valley Water Board [Wat. Code, § 13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

7. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is

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

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

C. STANDARD PROHIBITIONS

1. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:

   a. require a higher level of containment than provided by the unit; or

   b. are 'restricted wastes'; or

   c. impair the integrity of containment structures;

   is prohibited [Title 27, § 20200(b)].

2. The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.

3. The discharge of waste to a closed waste management unit is prohibited.

4. The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited, except within the treatment zone at a land treatment unit.

5. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

D. STANDARD DISCHARGE SPECIFICATIONS

1. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the waste management unit and whether or not the wastes are required to be managed as a hazardous waste [Title 27, § 20200(c)] or designated waste [Title 27, § 20210].

2. Leachate collected from a waste management unit shall be discharged to the unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [Title 27, § 20200(d) and § 20340(g)].

3. Wastes shall be discharged only into waste management units specifically designed for their containment and/or treatment, as described in this Order.

4. The discharge shall remain within the designated disposal area at all times.

5. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].

E. STANDARD FACILITY SPECIFICATIONS

1. All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [Title 27, § 20240(c)], including the capillary fringe.

2. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].

3. The Discharger shall **immediately** notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method [Title 27, § 21710(c)(2)].

4. The Discharger shall **immediately** notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site or outside of waste management units, equipment failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

5. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

6. The Discharger shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation including all monitoring wells, LCRS risers, and lysimeter risers and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.

7. The Discharger shall maintain the depth of the fluid in the sump of each waste management unit at the minimum needed for efficient pump operation (the depth at which the pump turns on given the pump intake height and maximum pump cycle frequency).

8. Each LCRS shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [Title 27, § 20340(d)].

9. The Discharger shall maintain a *Storm Water Pollution Prevention Plan* and *Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (or most recent general industrial storm water permit), or retain all storm water on-site.

F. STANDARD CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for review and approval at least **90 days** prior to proposed construction, design plans and specifications for new Class II waste management units that include the following:

    a. Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone monitoring system, and access to the LCRS for required annual testing.

    b. A Construction Quality Assurance (CQA) Plan prepared by a California-registered civil engineer or certified engineering geologist, and that meets the requirements of Title 27, section 20324.

    c. A geotechnical evaluation of the area soils, evaluating their use as the base layer or reference to the location of this information in the ROWD/JTD [Title 27, § 21750(f)(4)].

    d. Information about the seismic design of the proposed new waste management unit (or reference to the location of this information in the ROWD/JTD) in accordance with Title 27, section 20370.

    e. A revised water quality monitoring plan for groundwater detection monitoring (or information showing the existing plan is adequate) in accordance with Title 27, section 20415.

    f. An Operation Plan (or reference to the location of this information in the ROWD/JTD) meeting the requirements of Title 27, sections 21760(b) and 20375(b).

2. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge.

3. The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have

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

4. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].

5. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [Title 27, § 20320(a)].

6. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27, § 20365(a)].

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

8. All Class II waste management units shall be designed to withstand maximum credible earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion [Title 27, § 20370(a)].

9. The Discharger shall perform stability analyses that include components to demonstrate the integrity of the waste management unit foundation, final slopes, and containment systems under both static and dynamic conditions throughout the life of the unit [Title 27, § 21750(f)(5)].

10. New Class II Units, other than LTUs and expansions of existing Class II units, shall have a 200 foot setback from any known Holocene fault. [Title 27, § 20250(d)].

11. Liners shall be designed and constructed to contain the fluid, including waste, and leachate [Title 27, § 20330(a)].

12. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, § 20320(c)].

13. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)].

14. A test pad for each barrier layer and any final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].

15. The Discharger shall ensure proper preparation of the subgrade for any liner system that includes a GCL so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.

16. The Discharger shall propose an electronic leak location survey of the top liner for any new waste management unit in the construction quality assurance plan unless the Discharger demonstrates that a leak location survey is not needed.

17. Leachate collection and removal systems are required for Class II surface impoundments [Title 27, § 20340(a)].

18. The LCRS shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit [Title 27, § 20340(b)].

19. Leachate collection and removal systems shall be designed and operated to function without clogging through the life of the waste management unit.

20. The leachate sump, leachate removal pump, and pump controls shall be designed and set to maintain a fluid depth no greater than the minimum needed for efficient pump operation [Title 27, § 20340(c)].

21. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [Title 27, § 20323].

22. The Construction Quality Assurance program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27, § 20324(b)(2)].

23. The Discharger shall ensure that a third party independent of both the Discharger and the construction contractor performs all of the construction quality assurance monitoring and testing during the construction of a liner system.

24. The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new Class II waste management unit, construction of a final cover (for units closed as a landfill), or any other construction that requires Central Valley Water Board staff approval under this Order.

25. The Discharger shall submit for review and approval at least **60 days** prior to proposed discharge, final documentation required in Title 27 Section 20324(d)(1)(C) following the completion of construction of a new Class II waste management unit. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the liner system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of the WDRs, and that it meets the performance goals of Title 27. The report shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, the construction quality assurance plan, and the performance goals of Title 27.

26. The Discharger shall not discharge waste onto a newly constructed liner system until the final documentation report has been reviewed and an acceptance letter has been received.

G. STANDARD CLOSURE AND POST-CLOSURE SPECIFICATIONS

1. The final closure and post-closure maintenance plan for the waste management unit shall include at least the following: an itemized cost analysis, closure schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent ROWD, future land use, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].

2. Closure of each waste management unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [Title 27, § 20950(b)].

3. The final cover of waste management units closed as a landfill shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].

4. The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [Title 27, § 21090(b)(1)(C)].

5. All final cover designs shall include a minimum 1-foot thick erosion resistant vegetative layer or a mechanically erosion-resistant layer [Title 27, § 21090(a)(3)(A)(1 & 2)].

6. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [Title 27, § 21090(b)(2)].

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

8. Construction or repair of a final cover system's low-hydraulic conductivity layer is to be carried out in accordance with an approved construction quality assurance plan [Title 27, § 21090(b)(1)(E)].

9. Within **30 days** of completion of all closure activities, the Discharger shall certify that all closure activities were performed in accordance with the most recently approved final closure plan and CQA Plan, and in accordance with all applicable regulations. The Discharger shall also certify that units that are closed as a landfill shall be maintained in accordance with an approved post-closure maintenance plan [Title 27, § 21710(c)(6)].

10. The post-closure maintenance period for units closed as a landfill shall continue until the Central Valley Water Board determines that wastes remaining in the landfill unit(s) no longer pose a threat to water quality [Title 27, § 20950(a)(1)].

11. The Discharger shall periodically inspect and identify problems with the final cover including areas that require replanting, erosion, areas lacking free drainage, and any areas damaged by equipment operations [Title 27, § 21090(a)(4)(B)].

12. The Discharger shall repair any cover promptly in accordance with a cover repair plan to be included in the final post-closure maintenance plan [Title 27, § 21090(a)(4)(C)].

H. STANDARD FINANCIAL ASSURANCE PROVISIONS

1. The Discharger shall establish an irrevocable fund (or provide other means) for closure to ensure closure of each Class II unit in accordance with an approved closure plan [Title 27, § 20950(f) and § 22207(a)].

2. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management unit [Title 27, §20380(b) and § 22222].

I. STANDARD MONITORING SPECIFICATIONS

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

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

2. All monitoring systems shall be designed and certified by a registered geologist or a registered civil engineer [Title 27, § 20415(e)(1)].

3. All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport [Title 27, § 20415(b)(4)(A)].

4. All sample chemical analyses of any material shall be performed by a laboratory certified by the California Department of Health Services [Wat. Code, § 13176(a)].

5. A Detection Monitoring Program for a new Class II waste management unit shall be installed, operational, and one year of monitoring data collected from background monitoring points prior to the discharge of wastes [Title 27, § 20415(e)(6)].

6. Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point).

7. The Discharger shall submit for approval, establish, and maintain an approved Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:

    a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;

    b. Sample preservation information and shipment procedures;

    c. Sample analytical methods and procedures;

    d. Sample quality assurance/quality control (QA/QC) procedures;

    e. Chain of Custody control; and

    f. Sample analysis information including sample preparation techniques to avoid matrix interferences, method detection limits (MDLs), practical quantitation limits (PQLs) and reporting limits (RLs), and procedures for reporting trace results between the MDL and PQL.

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

8. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless a longer time period is approved, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan. Appropriate sample preparation techniques shall be used to minimize matrix interferences.

9. If methods other than USEPA-approved methods or Standard Methods are used, or there is a proposed alternant USEPA method than the one listed in the MRP, the proposed methodology shall be submitted for review and approval prior to use, including information showing its equivalence to the required method.

10. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., “trace” or “ND”) in data from background monitoring points for that medium, the analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.

11. The laboratory reporting limit (RL) for all reported monitoring data shall be set no greater than the practical quantitation limit (PQL).

12. **“Trace” results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.

13. Laboratory data shall not be altered or revised by the Discharger. If the Discharger observes potential lab errors, it shall identify the issue in the monitoring report and shall describe steps that will be taken to prevent similar errors in the future.

14. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively

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

15. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged in the laboratory report accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result**. The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

16. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and signature of a responsible person from the laboratory. **Sample results shall be reported unadjusted for blank results or spike recoveries**. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged, but the analytical results shall not be adjusted.

17. Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.

18. The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples [Title 27, § 20415(b)(4)(B)].

19. All borings are to be logged during drilling under the direct supervision of a registered geologist or registered civil engineer with expertise in stratigraphic well logging [Title 27, § 20415(e)(2)].

20. Soils are to be described according to the Unified Soil Classification System [Title 27, § 20415(e)(2)(A)]. Rock is to be described in a manner appropriate for the purpose of the investigation [Title 27, § 20415(e)(2)(B)].

21. The Discharger shall submit a work plan for review and approval at least **60 days** prior to installation or abandonment of groundwater monitoring wells.

22. The Discharger shall provide Central Valley Water Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation or abandonment of monitoring devices.

23. The water quality protection standard shall consist of the constituents of concern (COC), concentration limits, and the point of compliance. The water quality protection standard shall apply during the active life of the waste management unit, closure period, post-closure maintenance period, and any compliance period under Title 27, section 20410 [Title 27, § 20390].

24. The point of compliance at which the water quality protection standard applies is a vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit [Title 27, § 20405).

25. The compliance period is the minimum period of time during which the Discharger shall conduct a water quality monitoring program and is the number of years equal to the active life of the waste management unit plus the closure period [Title 27, § 20410(a)].

26. The groundwater monitoring system shall include a sufficient number of monitoring points, installed at appropriate locations, to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the waste management unit [Title 27, § 20415(b)(1)(A)].

27. The Detection Monitoring Program shall include a sufficient number of monitoring points, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater passing the point of compliance to allow the detection of a release from the waste management unit [Title 27, § 20415(b)(1)(B)1.].

28. Additional monitoring points shall be added as necessary to provide the best assurance of the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)2.].

29. The Detection Monitoring Program shall also include a sufficient number of monitoring points installed at appropriate depths and locations to yield groundwater samples from other aquifers or perched zones not already monitored to provide the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)3. and 4., and §20420(b)].

30. A surface water monitoring system shall be established to monitor each surface water body that could be affected by a release from the waste management unit [Title 27, § 20415(c)].

31. An unsaturated zone monitoring system shall be established for each waste management unit [Title 27, § 20415(d)].

32. The Discharger shall notify Central Valley Water Board staff within **seven days** if fluid is detected in a previously dry LCRS, unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a LCRS [Title 27, § 21710(c)(3)].

33. Driller's logs for all monitoring wells shall to be submitted to the Central Valley Water Board and the Department of Water Resources [Wat. Code, § 13751 and Title 27, § 20415(b)(3)].

34. Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [Title 27, § 20415(e)(13)].

35. The groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation being monitored shall be determined at least quarterly [Title 27, § 20415(e)(15)].

36. The Discharger shall graph all analytical data from each monitoring point and background monitoring point and shall submit the graphs to the Central Valley Water Board annually [Title 27, § 20415(e)(14)].

37. For each waste management unit, the Discharger shall collect all data necessary for selecting appropriate data analysis methods for establishing background values for each constituent of concern and for each monitoring parameter [Title 27, § 20420(c)]. The Discharger shall propose a data analysis method that includes a detailed description of the criteria to be used for determining "measurably significant" (as defined in Title 27, section 20164) evidence of a release from the waste management unit and determining compliance with the water quality protection standard [Title 27, § 20415(e)(6) and (7)].

38. For statistical analysis of data, the Discharger shall use one of the methods described in Title 27, section 20415(e)(8)(A)-(E). A non-statistical data analysis method can be used if the method can achieve the goal of the particular monitoring program at least as well as the most appropriate statistical method [Title 27, § 20415(e)(8)]. The Discharger shall use a statistical or nonstatistical data analysis method that complies with Title 27, section 20415(e)(7, 8, 9, and 10), to compare the concentration of each constituent of concern or monitoring parameter with its respective background concentration to determine whether

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

39. The Discharger may propose an alternate statistical method [to the methods listed under Title 27, section 20415(e)(8)(A-D)] in accordance with Title 27, section 20415(e)(8)(E), for review and approval.

40. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27, section 20415(e)(7) that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs or an approved Sample Collection and Analysis Plan for routine laboratory operating conditions that are available to the facility. The Discharger's technical report (Sample Collection and Analysis Plan and/or Water Quality Protection Standard Report), pursuant to Title 27, section 20415(e)(7), shall consider the PQLs listed in Appendix IX, Article 19 to Chapter 14 of Division 4.5 of Title 22, CCR, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or non-statistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".

41. The water quality protection standard for organic compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (e.g., USEPA methods 8260 and 8270).

42. Alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) if part of an approved water quality protection standard. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.

43. **Confirmation of Measurably Significant Evidence of a Release.** Whenever a constituent is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the water quality protection standard, the

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

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

b. Standard Monitoring Specification I.45 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.

44. **Verification Procedure for Analytes Detected in Less than 10% of Background Samples**. The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:

a. **Initial Determination of Measurably Significant Evidence of a Release**. Identify each analyte in the **current** detection monitoring point sample that exceeds either its respective MDL or PQL, and for which a release has not been previously confirmed. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if ***either:***

1) The data contains two or more analytes that equal or exceed their respective MDLs; or

2) The data contains one or more analyte that equals or exceeds its PQL.

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

1) In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.44.a., above) that there is a preliminary indication of a release, then the Discharger shall **immediately** notify Central Valley Water Board staff by phone or e-mail and, within **30 days** of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated and analyze them for the constituents that caused the need for the retest.

2) **Confirmation of a Release**. As soon as the retest data are available, the Discharger shall conclude that measurably significant evidence of a release is confirmed if (not including the original sample) two or more

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

a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and

b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.

c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

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

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

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

2) **Confirmation of a Release**. As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph I.45.b.1, above and shall:

   a) **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of the verbal notification; and

   b) Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.

   c) Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

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

J. RESPONSE TO A RELEASE

1. **Measurably Significant Evidence of a Release Has Been Confirmed**. If the Discharger has confirmed that there is measurably significant evidence of a release from a waste management unit pursuant to Standard Monitoring Specification I.44 or I.45, then the Discharger shall:

   a. **Immediately** sample all monitoring points in the affected medium at that waste management unit and determine the concentration of all monitoring parameters and constituents of concern for comparison with established concentration limits. Because this constituent of concern scan does not involve statistical testing, the Discharger will need to collect and analyze only a single water sample from each monitoring point in the affected medium [Title 27, § 20420(k)(1)].

   b. **Within 90 days** of confirming measurably significant evidence of a release, the Discharger shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program meeting the requirements of Title 27, sections 20420(k)(5)(A-D), including but not limited to the results of sampling pursuant to paragraph J.1.a, above. The Evaluation Monitoring Program shall be designed for the collection and analysis of all data necessary to assess the nature and extent of the release and to determine the spatial distribution and concentration of each constituent throughout the zone affected by the release [Title 27, § 20420(k)(5) and § 20425(b)].

   c. **Within 180 days** of confirming measurably significant evidence of a release, the Discharger shall submit to the Central Valley Water Board an initial engineering feasibility study for a Corrective Action Program necessary to meet the requirements of Title 27, section 20430. At a minimum, the initial engineering feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [Title 27, § 20420(k)(6)].

   d. If the Discharger confirms that there is measurably significant evidence of a release from the waste management unit at any monitoring point, the Discharger may attempt to demonstrate that a source other than the waste management unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to Title 27, section 20420(k)(7) in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements and due dates of Title 27, sections 20420(k)(6) & (7) unless Central Valley Water Board staff agree that the demonstration successfully shows that a source other than the

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

e. **Within 90 days** of the date that the Evaluation Monitoring Program from paragraph J.1.b is approved (the date is it established), the Discharger shall complete and submit the following:

i) **Results and Assessment for the Evaluation Monitoring Program.** A report with the results and assessment based on the approved Evaluation Monitoring Program [Title 27, § 20425(b)].

ii) **Updated Engineering Feasibility Study.** An updated engineering feasibility study for corrective action based on the data collected to delineate the release and data from the ongoing monitoring program required under Title 27, section 20425(e) [Title 27, § 20425(c)].

iii) **Amended ROWD for a Corrective Action Program.** An amended report of waste discharge to establish a Corrective Action Program meeting the requirements of Title 27, section 20430 based on the data collected to delineate the release and based on the updated engineering feasibility study [Title 27, § 20425(d)].

K. GENERAL PROVISIONS

1. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Central Valley Water Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.

2. All reports and transmittal letters shall be signed by persons identified below:

   a. For a corporation: by a principal executive officer of at least the level of senior vice-president.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor.

c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.

d. A duly authorized representative of a person designated in a, b or c above if:

1) The authorization is made in writing by a person described in a, b, or c of this provision;

2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and

3) The written authorization is submitted to the Central Valley Water Board.

e. Any person signing a document under this Section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

3. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

4. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and leachate generated by discharged waste during the active life, closure, and any post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.

5. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of this Order.

6. The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost

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

7. The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit or portion of a unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Central Valley Water Board [Title 27, § 21720(f)].

8. In the event of any change in landowner or the operator of the waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.

9. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [Title 27, § 21710(c)(1)].

10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within **14 days** of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in General Provision K.2 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

L. STORM WATER PROVISIONS

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

2. Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions for the unit [Title 27, § 20365(a)].

3. Precipitation on Class II waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the LCRS, which shall be designed and constructed to accommodate the precipitation conditions for each class unit [Title 27, § 20365(b)].

4. Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:

    a. Accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit.

    b. Effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities.

    c. Prevent surface erosion through the use of energy dissipators where required to decrease the velocity of runoff, slope protection, and other erosion control measures where needed to prevent erosion.

    d. Control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste.

    e. Take into account:

        i) For closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern.

        ii) For operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time.

        iii) The possible effects of the waste management unit's drainage pattern on and by the regional watershed.

        iv) The design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility.

    f. Preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.

5. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [Title 27, § 20365(d)].

6. Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].

7. Cover materials shall be graded to divert precipitation from the waste management unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation [Title 27, § 20365(f)].

8. Any drainage layer in a final cover shall be designed and constructed to intersect with the final drainage system for the waste management unit in a manner promoting free drainage from all portions of the drainage layer [Title 27, §20365(f)].