CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION

TENTATIVE ORDER

UPDATED WASTE DISCHARGE REQUIREMENTS AND RESCISSION OF ORDER NO. R2-2008-0074, FOR:

REPUBLIC SERVICES VASCO ROAD, LLC

VASCO ROAD LANDFILL
CLASS III SOLID WASTE DISPOSAL FACILITY LIVERMORE, ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Water Board), finds that:

SITE OWNER AND LOCATION

1. Vasco Road Landfill is owned and operated by Republic Services Vasco Road, LLC, a wholly owned subsidiary of Republic Services (hereinafter called the Discharger or Republic Services). Hereinafter, the Vasco Road Landfill is called VRL or the Landfill.

2. VRL is a Class III municipal refuse disposal site located within the unincorporated area of Alameda County north of the City of Livermore. The Landfill is on the east side of North Vasco Road about three miles north of Interstate 580 (Figure 1).

3. VRL was permitted for waste disposal in 1962 and began accepting waste in 1963. VRL was originally owned by Ralph Properties Inc. and operated by DePaoli Equipment Company. Browning Ferris Industries of California, Inc. (BFI) purchased the property in 1989. Allied Waste Industries, Inc. acquired BFI assets, including the VRL, in 1999. Republic Services purchased the Landfill in January 2000.The land owned by Republic Services at the site totals approximately 535 acres.

4. VRL accepts mixed municipal refuse consisting of nonhazardous solid waste (residential and commercial), inert construction and demolition (C & D) waste and industrial wastes. No hazardous wastes, liquid wastes, or infectious wastes are accepted. However, disposal units constructed after 1993 are authorized for disposal of Class II designated wastes, as defined by title 27 CCR Sections 20210, 20220, and 20230. These disposal units were designed and constructed in compliance with Part 258 of Title 40 of the Code of Federal Regulation (CFR) (referred to as "Subtitle D") and State Water Resources Control Board (State Board) Resolution No. 93-62.

PURPOSE OF ORDER

5. The purpose of this Order is to:

   (a) update Waste Discharge Requirements (WDRs) to reflect current landfill operations, design, and construction of waste disposal units;

   (b) reflect changes to the final closure schedule;

   (c) update designated waste acceptance criteria for disposal units constructed in compliance with Subtitle D;

   (d) specify monitoring, control, and collection requirements for groundwater, leachate, landfill gas and landfill gas condensate, and storm water consistent with Title 27 of the California Code of Regulations (CCR); and

   (e) rescind the current WDRs (Water Board Order No. R2-2008-0074).

6. This Order does not authorize the filling of wetlands or waters of the State. Such activities require certification of water quality impacts by the Water Board or Executive Officer pursuant to Section 401 of the Clean Water Act. Such activities may also require amendment or update of WDRs contained in this Order for the proposed fill area.

SITE DESCRIPTION

7. VRL is a canyon-fill disposal facility located in rolling hills of the northern Diablo Range north of the Livermore Valley. Land surrounding the Landfill is primarily privately owned ranch land and open space maintained by the East Bay Regional Parks District. Disposal units are constructed in phases as interim fill capacity is reached in previously constructed units until the final build-out of the entire landfill configuration is reached.

8. The permitted total landfill disposal area consists of approximately 323 acres, of which approximately 263 acres known as Area X is an existing permitted Class III waste disposal facility. However, only approximately 246 acres within Area X can receive waste because the Discharger is required to maintain a 200-foot buffer zone between the eastern strand of the Greenville Fault and any future waste disposal areas (see Finding 24). The developed disposal area currently occupies approximately 153 acres. About 92.6 acres of the Landfill are closed under final cover.

9. The permitted maximum landfill elevation is 1,025 feet above mean sea level (msl). The total remaining airspace for the VRL, as of January 31, 2021, is approximately 5.01 million cubic yards (mcy). VRL has proposed a refuse volume increase which would raise the maximum elevation to 1,170 feet above msl and add approximately 7,237,100 cubic yards of airspace and change the permitted

total design capacity from 32.97 mcy to approximately 40.21 mcy. With the additional site life, the revised estimated closure is proposed to be extended to December 31, 2051, as opposed to the current estimated closure year of 2031 based on the existing capacity. The additional refuse would be placed over the existing permitted waste footprint; no horizontal expansion is proposed.

REGULATORY HISTORY

10. Vasco Road Landfill currently operates under the following regulatory permits:

    (a) Solid Waste Facility Permit (SWFP) No. 01-AA-0010, issued by the Alameda County Environmental Health Department (Local Enforcement Agency or LEA) on June 19, 2007. The 5-year review was last completed in 2017.

    (b) WDR Order No. R2-2008-0074, adopted by the Water Board on August 13, 2008.

    (c) Conditional Use Permit C-4158, adopted by Alameda County Board of Supervisors, and last given a periodic review on May 4, 2006. This Permit expires on December 31, 2022, but the Landfill has applied for a new Conditional Use Permit to permit the increase of refuse volume and for the vertical expansion over the permitted footprint mentioned above.

    (d) Bay Area Air Quality Management District (BAAQMD) Permit to Operate (PTO) Plant No. 5095, dated March 5, 2021.

    (e) Industrial General Permit Order No. 2014-0057-DWQ, amended in 2018 and effective as of July 1, 2020.

11. The Discharger submitted a Report of Waste Discharge (ROWD) in 1986 and a Report of Disposal Site Information (RDSI) in October 1999. The ROWD and RDSI were updated in December 2006 with submission of a Joint Technical Document (JTD). The JTD presents a comprehensive description of the VRL including the existing and proposed design and operational features and procedures, geology, hydrogeology, climatology, and the proposed closure design and post-closure maintenance activities. The closure and post-closure design and maintenance procedures will provide the basis for developing the required cost estimates and establishing appropriate funding levels to be secured under an approved financial assurance mechanism.

12. The JTD was last amended in August 2018 and the LEA approved the amended JTD in May 2019. The Discharger submitted a Draft JTD in June 2021.The draft updates the current JTD to represent current design and operation of the site and proposes the refuse volume increase noted above.

WASTES AND THEIR CLASSIFICATION

13. VRL is permitted to receive up to 2,518 tons per day (tpd) of waste, but as of 2020 was receiving an average of approximately 1,636 tpd. VRL was designed to receive nonhazardous solid waste, as classified in Section 20220(a) of Title 27, from residential, commercial, and industrial sources. Nonhazardous solid waste includes, but is not limited to, putrescible and non-putrescible solid, semi-solid, and liquid wastes including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, and soil. Wastes that can be accepted at VRL include residential garbage and rubbish, commercial and nonhazardous industrial refuse, demolition and construction waste, hydrocarbon or otherwise contaminated soils that are profiled, sewage sludge or biosolids, industrial waste and sludges, brush and stumps, tires, and street refuse. The total waste stream for VRL consists of approximately 35% MSW, 8% C & D, 8% recyclables, and 49% alternative daily cover (ADC) and beneficial reuse materials.

14. No hazardous wastes, liquid wastes, or infectious wastes exceeding Title 22 hazardous waste criteria can be accepted at the site.

15. As stated in Finding 2, VRL is classified as a Class III landfill. However, disposal cells constructed since 1993 (Disposal Units (DUs) 6, 7, 8, 9,10, 11, 12, and 13A) have been designed and constructed to comply with the requirements of Subtitle D and meet the State siting and design requirements for a Class II waste management unit. The construction standards of newer Disposal Units provide a lower risk of water quality degradation than is generally afforded by Class III landfills. All future disposal units must be constructed to comply with Federal (Subtitle D) and State (Title 27) requirements for Class II waste management units.

16. Order No. R2-2008-0074 allowed VRL to accept Treated Wood Waste (TWW) in composite-lined cells. Assembly Bill (AB) 332, which went into effect August 31, 2021, authorized new management standards for TWW and allows municipal solid waste landfills with composite-lined cells to accept TWW. In a letter issued September 30, 2021, the Regional Water Board authorized VRL to resume accepting TWW in accordance with AB 332.

17. On December 10, 2021, the Office of Administrative Law approved the Department of Toxic Substances Control's (DTSC) Chemically Treated Metal Shredder Residue (CTMSR) Conditional Exclusion Emergency Rulemaking. The regulations establish uniform treatment, transportation, and disposal procedures for metal shredding facilities, as well as environmental and health-protective conditions to continue to dispose of CTMSR at authorized Class III nonhazardous waste landfills. The rulemaking created an exclusion for CTMSR from regulation as a hazardous waste for the purposes of transportation and disposal, provided certain conditions are met, mainly that CTMSR can be disposed only at a Class III nonhazardous landfill unit

that is composite lined. The rulemaking authorizes the discharge of CTMSR as alternative daily cover (ADC) or for another beneficial reuse. Vasco Road Landfill was identified as an authorized Class III nonhazardous waste landfill for the acceptance, direct disposal, and/or use of CTMSR as alternative daily cover (ADC), and therefore, can continue to accept CTMSR in accordance with the requirements and prohibitions of this Order.

18. Regional Board General WDR Order No. R2-2020-0023 updated concentration limits for the disposal or reuse of contaminated soils and related materials and required active MSW landfills in the San Francisco Bay Region, including VRL, to develop and submit a revised Waste Acceptance Plan (WAP) that complies with the new concentration limits for TPH and metals for unrestricted onsite use, for the disposal in unlined cells, and for the disposal in composite lined cells. Water Board staff approved VRL's updated WAP on February 22, 2021.

19. Wastes containing asbestos may be disposed at VRL in accordance with Section 25143.7 of the Health and Safety Code and Sections 66268.29 and 66268.100 (a)(13) and 66268.114 of Title 22 of the CCR.

20. Certain waste materials are being reused at VRL for various beneficial applications within the permitted waste boundary, including alternative daily cover (ADC) and construction of access and bench roads, tipping area decks, intermediate pads, backfilling of trenching projects, backfilling leachate seeps, repairing eroded areas, filling settlement depressed areas, stormwater berms, etc. These materials include geosynthetic blankets, sludge and sludge derived materials, ash and cement kiln dust, contaminated soils, processed C & D wastes and residuals, shredded tires, CTMSR, and biosolids.

PHYSICAL SETTING

Surface Hydrology

21. The natural topography of the area varies from moderate to steep, with elevations ranging from about 750 feet above MSL along the south side of the site to nearly 1,060 feet above MSL along the north boundary. The Landfill is constructed in a northwest-to-southeast trending canyon and is surrounded by steep, rounded hills. The canyon is drained by an unnamed, ephemeral stream. Surface water occurs within the site boundary as an improved spring located in the northern part of the site, upgradient of the current waste disposal areas. This water has historically been used for agricultural use.

22. Surface water runoff from the Landfill is routed around the active filling area by ditches, which direct the runoff to two sedimentation ponds (Ponds #2 and #3) (Figure 2). Discharge from the upper sedimentation pond (Pond #2) drains westward to an intermittent drainage channel located along Vasco Road (also known as Vasco Creek). The drainage channel flows southward into Kellogg

Creek, which flows into Altamont Creek and Arroyo Las Positas Creek into the Livermore Valley. Pond #3, located in the landfill toe area, drains into Vasco Creek. These tributaries to Alameda Creek also recharge the Livermore Valley Groundwater Basin. Pond #1, which was formerly located within the current waste disposal area, was removed in 2000-2001.

23. The mean annual precipitation for the site is about 14 inches. The 100-year, 24-hour storm event is estimated to be 4.99 inches and the 1,000-year, 24-hour storm is estimated to be 7.23 inches. The mean annual evaporation is estimated to be 72.5 inches.

Geology

24. The landfill lies within the Northern Diablo Range along the Altamont Anticline. Rock strata in this area dip to the west, so that the rocks beneath the eastern portion of the site are older than those in the west. The eastern portion of the site is underlain by rocks of the Panoche Formation of Cretaceous age, whereas rocks in the western portion of the site belong to the Cierbo Formation of Upper Miocene age. The Panoche Formation consists of two separate units.The first unit consists of clayey, micaceous shale and siltstone with some locally occurring sandstone interbeds. The second unit consists of resistant sandstone beds with interbedded shale and siltstone. The Cierbo Formation consists of fine- to coarse-grained sandstone with some shale and siltstone interbeds.

Earthquakes and Seismic Hazards

25. The landfill is in the seismically active Coast Ranges region. The entire region experiences moderate seismic activity as the result of strike-slip movement along the regional San Andreas Fault System. The closest active fault to the Landfill is the Greenville Fault, which is located along the west side of the site. The main trace of the Greenville Fault lies near Vasco Road, approximately 1000 feet to the west of the permitted waste boundary (Figure 2). The eastern strand of the Greenville Fault lies just outside the western boundary of the site. The waste limit boundary is situated to provide a 200-foot setback from the eastern strand of the fault. There are no known active fault traces within the permitted waste disposal area. However, additional geologic field investigations are required as future excavation and development of the landfill occurs.

26. The Greenville Fault has been active in recent times. A 5.2 Richter Magnitude earthquake occurred along the Greenville Fault on January 26, 1980. The epicenter of this earthquake was located approximately one-half mile southwest of the landfill. The earthquake was of shallow focus and caused considerable damage in the Livermore Valley and in the vicinity of the site. The 1980 earthquake produced minor, discontinuous surface rupture outside the Landfill area, but caused no observable damage to the Landfill.

Hydrogeology

27. VRL is in the Altamont Subbasin of the Livermore Valley Groundwater Basin. Groundwater in this basin is managed by the Alameda County Flood Control and Water Conservation District (Zone 7). The Livermore Valley Groundwater Basin provides an important source and reservoir of drinking water for residents of the Livermore Valley.

28. The Altamont Subbasin is bounded on three sides by rocks that do not bear water and on the fourth side by the Carnegie Fault, which separates this subbasin from the Spring Subbasin tothe west. Groundwater in the Altamont Subbasin occurs primarily in valley-fill alluvial materials, which are estimated to be up to 200 feet thick. Groundwater in the Altamont Subbasin is generally of relatively poor ambient quality due to elevated levels of sodium chloride (>350 parts per million (ppm)) and boron (>2 ppm) derived from its passage through sediments of marine origin. Nonetheless, several active domestic or agricultural groundwater wells are in the vicinity of the site.

29. Groundwater beneath the site occurs in three different water-bearing units: in alluvium and within fractured bedrock of the Panoche and Cierbo Formations. Groundwater elevation data indicates that groundwater beneath the landfill primarily flows from north to south towards the Livermore Valley. Groundwater is encountered in the surficial alluvium at depths ranging from 5 to 10 feet below ground surface (bgs). In the Panoche Formation, depth to groundwater ranges from 3 to 34 feet bgs, while in the Cierbo Formation, depth to groundwater ranges from 3 to 47 feet bgs. Groundwater within the Panoche and Cierbo formations occurs under confined to semi-confined conditions.

30. Rocks of the Panoche Formation have very low hydraulic conductivities in the range of 10^{-8} to 10^{-7} centimeters per second (cm/sec), based on laboratory tests of intact core samples. Hydraulic conductivities determined through laboratory studies of the Cierbo Formation rocks range from 10^{-6} to 10^{-5} cm/sec. However, groundwater flow occurs primarily through interconnected fractures. Field hydraulic conductivity tests have demonstrated *in situ* groundwater flow rates through both formations of 10^{-4} to 10^{-3} cm/sec.

31. Subsurface recharge to, and discharge from, the site is believed to be insignificant becauseof the low hydraulic conductivity and low storage potential of the underlying bedrock. Recharge at the site is primarily from precipitation. The California Department of Water Resources reports that there is very little subsurface outflow from the Altamont Subbasin.

32. In many portions of the Landfill, groundwater exists at shallow depths (less than 5 feet bgs), as stated in Finding 28. For this reason, the required minimum of 5 feet of separation between the water table and the base of waste does not exist in these places unless fill is imported to raise the base of the disposal cell. In all

recent Subtitle D compliant disposal units, a blanket underdrain system was utilized as an engineered alternative to the 5-foot separation requirement. The use of this engineered alternative will be considered for future disposal cells on a case-by-case basis.

LANDFILL DESIGN AND CONSTRUCTION HISTORY

Original Site (OS)

33. Waste disposal began in 1963 in what is called the" Original Site," which consisted of a single disposal cell that ultimately occupied about 64.4 acres. Wastes were placed on an unlined cell floor. The OS unit had no means of leachate collection until a leachate barrier, also referred to as groundwater trench and barrier (GWTB), was constructed at the Landfill toe in 1989. The location of the GWTB is shown in Figure 2. The GWTB was repaired and upgraded in 2017.

Disposal Units DU-1 through DU-5

34. After approval of a lateral expansion of the landfill in 1986, disposal units DU-1 through DU-5 were constructed. The first three, DU-1 through DU-3, were unlined. DU-1 covers 3.5 acres, DU-2 covers 9.5 acres, and DU-3 covers 6.5 acres. DU-1 was used for the disposal of construction demolition and inert waste. DU-2 and DU-3 received mostly municipal solid waste (MSW).

35. DU-4 covers 4.3 acres and was the first disposal unit to be partially (about 60%) lined with 12 inches of compacted clay with a hydraulic conductivity of 1×10^{-6} cm/s or less. DU-4 was used for the disposal of Class III wastes.

36. DU-5 was constructed in 1992 and covers approximately 16.7 acres and is lined with 12 inches of compacted clay with a hydraulic conductivity of 1×10^{-6} cm/s or less, and a 60-mil thick high-density polyethylene (HDPE) geomembrane over a non-woven geotextile on the west side slope. The unit was used for the disposal of Class III wastes and Class II designated wastes requiring special handling (i.e., industrial wastes: ashes, treated auto shredder waste, petroleum contaminated soils, sewage and wastewater sludges, industrial sludges, industrial filters, drilling muds, treated wood, and other nonhazardous waste).

Disposal Units DU-6 through DU-13A

37. DU-6 was the first disposal unit at this Landfill to be constructed after the 1993 passage of 40 CFR, Subtitle D, which established design and construction standards for solid waste landfills. DU-6 is lined with a containment system that fully complies with Subtitle D and CCR Title 27 requirements. DU-6 is 28.9 acres in size and was constructed between 1994 and 1996. DU-6 was used for the disposal of Class III waste and Class II designated wastes.

A containment system was installed over waste in DU-2, DU-3, and DU-4 during construction of DU-6 to separate previously disposed waste from the DU-6 waste and to provide a continuous leachate barrier.

38. All disposal cells constructed after DU-6 have been constructed with a composite liner and a leachate collection and removal system (LCRS) meeting Subtitle D and Title 27 requirements. All these disposal units were used for the disposal of Class III municipal solid wastes and Class II designated wastes. These units include:

    a) DU-7, which was constructed between 1997 and 1999 and totals 17.2 acres;
    b) DU-8, which was constructed in 2002 and totals 17.8 acres;
    c) DU-9, which was constructed in 2006-2007 and totals 11.9 acres;
    d) DU-10, which was constructed in 2007 and totals 4.2 acres;
    e) DU-11, which was constructed in 2009 and totals 8 acres. DU-11 has a continuous LCRS above the composite liner;
    f) DU-11B, which was constructed in 2010 and totals 9 acres;
    g) DU-12, which was constructed in 2010 and totals 9 acres.; and
    h) DU-12B, which was built in 2015 and totals 13.4 acres. DU-12 and -12B also have an LCRS above the composite liner;
    i) DU-13A, which was completed in 2019 and totals 7.8 acres. DU-13A is the currently active disposal cell and has not yet reached waste disposal capacity.

Future Disposal Cells

39. Once DU-13A reaches capacity, subsequent refuse disposal will occur in the 3.86-acre DU-13B. Once DU-13B nears or reaches capacity, refuse disposal will occur in the 14-acre DU-13C. Disposal Units DU-14, DU-15, and DU-16 are considered part of the proposed refuse volume increase and there will be no earthwork or liner development as these Units will be built in horizontal lifts spanning the width of the existing Landfill.

40. The containment system design and construction requirements for future disposal units at VRL are detailed in Specification B.20 of this Order.

Expansion of Landfill into Back Canyon Area

41. A lateral expansion of VRL into an area known as the "back canyon" on the north end of the Landfill was approved in 2002. The "back canyon" area includes disposal units DU-8 through DU-13A (Figure 2) as well as future disposal units DU-13B and DU-13C. Resource agencies determined that landfill development within the back canyon area would result in adverse water quality impacts to waters of the United States. Mitigation was required, consisting of the preservation of approximately 290 acres of open space as a conservation easement within the Brushy Peak Regional Preserve, owned by the East Bay Regional Park District. Mitigation measures also included the creation of the two seasonal ponds on the former Bosley property, which is located within the 290-

acre conservation easement. Construction of the ponds was completed in 2005.

42. These Waste Discharge Requirements apply to the discharge of waste to the existing Landfill as described in Finding 41. The Regional Water Board has not yet approved the proposal to expand the landfill capacity vertically and these WDRs do not authorize the discharges of waste associated with the proposed refuse volume increase. Alameda County issued a Notice of Intent to adopt a Negative Declaration for the refuse volume increase, dated March 3, 2022. A completed CEQA review that addresses water quality issues to the Board's satisfaction will be required for the Board's approval of the proposed expansion.

Landfill Slope Stability

43. Stability analyses have been done for all phases of landfill development and have considered interim and final fill conditions for the different disposal units and for the Landfill at its final permitted configuration. In addition to waste fill stability, some of the analyses included assessments of cut slopes and engineered fills. The most recent slope stability evaluation, which included static and seismic analyses, was performed in 2020 to support the proposed refuse volume increase project (as noted in Finding 9) that will be implemented by placing additional waste in the northern portion of the Landfill on top of existing refuse. In all cases, the analyses indicated that the constructed DUs, waste fill configurations, and cut slope met the static and seismic stability criteria specified in 27 CCR.

Landfill Closure

44. The Landfill will be sequentially closed as disposal units are filled to reduce the impacts of the Landfill on human health and the environment and to ensure the long-term integrity of the facility following closure. Approximately 30 acres of the southern portion of the Original Site (OS) were final closed prior to 1986. In 1999, an additional 25.6 acres of west facing slopes, including DU-1 and portions of DU-5 and the OS, were final closed. This brought the total closed area of VRL to approximately 55.6 acres.

45. Additional partial final closures took place in 2011, in which another 22 acres were closed, and then in 2015, when 15 acres were final closed. Both closures involved the placement of a four-foot-thick monolithic evapotranspiration cover. In 2019, the Water Board approved the closure of another 19 acres which has not yet taken place (as of 2022).

46. Financial Assurance for Closure: The Discharger has submitted evidence to CalRecycle documenting a financial assurance mechanism (Certificate of Liability Insurance) to ensure closure of the Landfill. The latest closure estimate is for $12.7 million as of 2021.The Final Closure Plan will include an Emergency Response Plan, that addresses the release of any wastes that could threaten public health or the environment.

47. Financial Assurance for Post-Closure Monitoring and Maintenance: The Discharger has submitted evidence to CalRecycle documenting a financial assurance mechanism to ensure monitoring and maintenance of the landfill during the post-closure period. The latest post-closure estimate is for $14.5 million as of 2021.

48. Financial Assurance for Known or Reasonably Foreseeable Releases: In accordance with 27 CCR, Section 20380(b), Republic has established and maintains assurance of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable water releases from the VRL.

49. Financial Assurance for Non-Water Release Corrective Action Plan: Based on enacted State regulations established within 27 CCR, Section 22101, effective July 1, 2011, Republic has established and maintains assurance of financial responsibility for initiation and completing corrective action for all known or reasonably foreseeable non-water releases from the Landfill.

MONITORING, COLLECTION, AND CONTROL PROGRAMS

Groundwater

50. The current water quality monitoring network at VRL consists of twelve groundwater monitoring wells, two underdrains, one above-ground water storage tank, five leachate sumps, and three stormwater stations. Monitoring station locations are shown in Figure 2. The monitoring stations include:

    - Shallow (alluvial), upgradient groundwater monitoring well MW-13.
    - Shallow (alluvial), downgradient groundwater monitoring wells MW-27, MW-32, and MW-54.
    - Deep (bedrock), background groundwater monitoring wells MW-37, MW-42, MW-51, and MW-55
    - Deep (bedrock), downgradient groundwater monitoring wells MW-17, MW-29, MW-48, and MW-39.
    - Above-ground water storage tank (WST). The WST receives a mixture of landfill toe area alluvial groundwater from unlined areas of the Landfill and leachate that is collected in the interceptor groundwater collection trench and barrier (GCTB) and automatically pumped into the tank. During July to September 2021, the flow into the WST averaged 7,908 gallons per day (GPD).

51. All wells completed in unconsolidated alluvium, except for MW-13 and MW-54, are in the landfill toe area. Monitoring wells MW-17, MW-29, and MW-39 are screened in rocks of the Cierbo Formation, whereas wells MW-42 and MW-48 are screened in rocks of the Panoche Formation. Both Formations have groundwater under confined and semiconfined conditions.

52. As VRL expanded within the approved waste boundaries, certain monitoring wells (MW-36, MW-43, and spring MW-1492), were abandoned and/or destroyed. New monitoring stations shall be installed to replace any monitoring wells that are destroyed during landfill expansion.

53. Site groundwater is monitored semi-annually for pH, electrical conductivity (EC), total dissolved solids (TDS), chloride, nitrate (as nitrogen), sulfate, turbidity, and volatile organic compounds (VOCs) (EPA Method 8260).

Leachate Management

54. Leachate control measures for the unlined portion of the Landfill consist of the GCTB and the associated extraction system constructed at the Landfill toe. The GCTB was installed in 1990 and consists of a 3-foot wide, 256-foot-long trench excavated through alluvium and keyed into Panoche Formation bedrock to a maximum depth of approximately 37 feet bgs. A vertical HDPE water collection riser and submersible pump was installed in the deepest portion of the trench. The trench was backfilled with permeable rock to facilitate drainage into the trench. A 60-mil thick HDPE geomembrane was installed along the downgradient side of the trench to impede the flow of water across the trench. Water collected in the GCTB is pumped to an above-ground 16,000-gal water storage tank located in the maintenance yard via double-walled pipe.

55. Leachate control measures for the Subtitle D-lined portion of the Landfill include a blanket-type LCRS located on the base of the expansion area. This horizontal barrier is designed to intercept and prevent downward migration of leachate into the underlying geologic materials. Leachate generated within the lined areas is collected in the five LCRS sumps (i.e., SV-1, SV-2, SV-3, SV-4, and SV-6), and removed from each sump daily by automatically controlled pumps. From October 2020 to September 2021, leachate volumes peaked as follows: SV-1 (704 GPD), SV-2 (1908 GPD), SV-3 (0), SV-4 102 GPD), and SV-6 (2045 GPD).

56. Leachate collected from the sumps is contained onsite in five 10,000-gallon tanks. Leachate is transferred from these tanks into the landfill water truck and reinjected into lined disposal units that comply with Subtitle D construction requirements. This recirculation is not conducted during wet weather.

57. Leachate is monitored and sampled quarterly at the five sumps. The amount of leachate extracted from the sumps has been recorded since 1996. Leachate samples typically show low concentrations of certain VOCs such as benzene, chlorobenzene, MTBE, naphthalene, and vinyl chloride below their MCLs.

Underdrain System

58. The underdrain system provides an engineered alternative to the requirement of a minimum 5-foot separation between waste and the highest anticipated groundwater. The underdrain system was installed in DU-6 and all subsequent disposal cells. There are currently two underdrain systems, UN-2 (in Phase 1A of DU-6) and UN-4 (formed by the connection of UN-1 and UN-3). Groundwater from each subdrain is pumped into a collection tank adjacent to each sump. The underdrain / capillary break system of future floor areas and east side slopes consists of a 12-inch think granular drainage material. For north and west side slope areas, it consists of a blanket double-sided geocomposite. During July to September 2021, the underdrain volumes averaged 122 GPD for UN-2, and 9287 GPD for UN-4. The underdrain water can be recirculated within lined landfill cells if it is below the California MCLs.

Stormwater and Surface Water

59. Parts 122, 123, and 124 of Title 40 CFR require specific categories of industrial activities, including landfills, to obtain a National Pollutant Discharge Elimination System(NPDES) permit for stormwater discharges. The State Water Resources Control Board (State Board) has issued a General Permit for Storm Water Discharges Associated with Industrial Activities (NPDES Permit No. CAS000001). The Landfill is subject to the requirements of the State Board's General Permit and as such is required to (1) submit a Notice of intent (NOI) for coverage under the General Permit, (2) prepare and implement a monitoring program, and (3) submit an annual report.

60. To comply with the Storm Water General Permit (IGP), storm water discharge from a qualifying storm event (QSE) is sampled a minimum of twice during the first half of the year and twice during the second half of the year, when qualifying storm events, per the IGP, occur at two locations (SR-1, SR-2). Station SR-1 is located at the outlet of Pond #3 (landfill toe area) and station SR-2 is located at the bottom of the Pond #2 spillway (Figure 2).

Landfill Gas

61. The Landfill's Gas Collection and Control System (GCCS) is regulated by the Bay Area Air Quality Management District (BAAQMD). The GCCS consists of collection wells located in the landfill that are connected to a header pipeline network to transmit landfill gas under vacuum pressure to a 4-megawatt landfill gas-to-energy plant is located on the VRL property. The plant, which converts most of the captured landfill gas to electricity, is operated by an independent company. As a backup, the landfill gas flare system can burn the gas to reduce potential pollutant emissions.

62. The landfill gas monitoring system at VRL currently consists of 27 perimeter gas migration monitoring probes and 5 continuous gas detection monitors located in

on-site buildings. The perimeter probes are monitored quarterly using a hand-held gas monitor. A record of the landfill gas monitoring logs is maintained on site. The landfill gas monitoring network will be expanded as landfill expansion occurs to meet the requirements of Title 27. Landfill gas condensate is collected in SV-1 and either reinjected into Subtitle D lined cells, or off hauled for disposal. During the third quarter 2021, condensate removal averaged 199 GPD.

Water Quality Impacts

63. Groundwater monitoring in the 1980s showed the presence of low levels of several VOCs in the alluvial water bearing unit in the Landfill toe area. A major source of these VOCs is the unlined portions of the Landfill, as the groundwater discharging from those portions of the Landfill may be mixed with landfill leachate. A groundwater extraction trench and barrier (GWTB) was installed in 1989 at the landfill toe area to intercept groundwater that was impacted by several VOCs.

64. While the GWTB is generally successful at capturing impacted groundwater, several VOCs began being consistently detected in the late 1990s at low levels in the groundwater samples downgradient from the Landfill toe area and the GWTB. In 2001 Republic Services initiated an Evaluation Monitoring Program (EMP) to evaluate this potential release from the landfill. The EMP originally included quarterly sampling and testing for VOCs and semiannual testing for certain metals at monitoring wells MW-17, MW-27, MW-31, MW-32, MW-33, MW-35, MW-39, and MW-42 (Figure 2). In 2005, with approval from Water Board staff, EMP sampling frequency was reduced from quarterly to semiannual sampling. In 2006, Water Board staff approved terminating the EMP for monitoring wells MW-17, MW-39, and MW-42. Recent (2021) results only show sporadic trace detections of VOCs with no exceedances of the MCLs.

65. In 1996, groundwater collected from the DU-6 underdrain was found to be impacted with VOCs. A hydrochemical investigation conducted by the Discharger concluded that landfill gas from unlined disposal cells had impacted the quality of the underdrain water. Several VOCs continue to be detected in the underdrain sumps, with occasional exceedances of the MCLs which are being addressed as described in Finding 62.

66. In the mid-2000s, concentrations of chloride ion and TDS were observed to be increasing over time in groundwater samples from two deep downgradient groundwater monitoring wells, MW-17 and MW-39. A focused EMP determined that the increasing TDS and chloride concentrations in wells MW-17, MW-39 and MW-42 are not consistent with the concentrations of these chemicals in VRL leachate, but rather reflect flow of high-TDS and high-chloride groundwaters that exist naturally in the vicinity of VRL. The trends may reflect changes in groundwater flow patterns caused by excavations associated with landfill development.

67. Due to the presence of VOCs in underdrain UN-4, the Regional Water Board in March 2010 requested implementation of a monthly EMP for underdrain UN-4 and leachate sump SV-6. This was later reduced to bi-monthly sampling. An attempt was made to determine the sources of the detected VOCs. Landfill gas (LFG) was determined to be the most likely source. Since the onset of the EMP, but particularly since April 2017, detected VOCs have dropped consistently to trace levels, with only occasional exceedances of the California MCL. It appears that the LFG impact on groundwater has ceased. The Discharger requested a reduction to semi-annual VOC sampling and reporting and requested termination of geochemical fingerprinting of potential VOC sources. The Discharger also proposed to resume more frequent sampling and fingerprinting should the UN-4 VOC detections start to increase again. In April 2021, the Regional Water Board concurred with these proposals.

68. In July 2020, VRL submitted a workplan for another Evaluation Monitoring Program for rising chloride and TDS levels in the vicinity of monitoring well MW-39. They proposed to conduct quarterly sampling of groundwater, underdrain, water, leachate, surface water and the Water Storage Tank. Approval of the workplan is pending.

69. The most recent semiannual monitoring report, covering April to September 2021, showed no detections of VOCs above the Practical Quantitation Limit (PQL) or MCL in VRL groundwater. There were trace detections of MTBE and tetrahydrofuran in one downgradient well, and benzene in one upgradient well. There are trace levels of VOCs in alluvial toe wells migrating past the GCTB, but these do not exceed the MCLs. There are detections of nitrate above the MCL in a single well, and exceedances of statistical inter-well prediction limits of sulfate, nitrate, and TDS in a few wells. A rising trend of inorganics prompted the EMP mentioned above. Sampling of the WST showed 2 VOCS above the PQL, and trace levels of other VOCs, but none exceeded the MCL. Every five years, a broader analysis of the Constituents of Concern (COC) in groundwater is done. The most recent, in August 2021, showed no detections of herbicides, pesticides or PCBs. There were trace levels of cyanide and sulfide in several wells, as well as one SVOC in a single well. Several metals were detected above the PQL but below MCLs.

70. Monitoring of Landfill leachate in the third quarter 2021 showed exceedances of state and/or federal MCLs for vinyl chloride in SV-1, 1,4-dichlorobenzene and benzene in SV-4, 1,2-dichloroethane and benzene in SV-6, nickel in SV-6, and arsenic in SV-1, SV-2, SV4, and SV-6. Monitoring of the underdrain at the same time showed only trace VOC concentrations in UN-4, allowing its recirculation within lined landfill cells. Vinyl chloride above the State MCL was detected in UN-2, precluding its recirculation.

71. Pursuant to Regional Water Board Order No. 2019-0006-DWQ, an investigation workplan for per- and polyfluoroalkyl substances (PFAS) was prepared and approved by the Water Board in September 2019. This Order was issued to landfills across the State to gain an understanding of PFAS occurrence. There are no federal or state MCLs established for these compounds. The one-time monitoring of leachate and

groundwater was conducted in January 2020. Five groundwater monitoring wells were sampled as well as landfill leachate. PFOS was detected at 24 to 59 nanograms per liter (ng/l) in two downgradient wells, and PFOA was detected at 6.8 to 190 ng/l in three downgradient wells. Landfill leachate also contained detectable concentrations of PFAS. No detectable PFAS were found in drinking water wells in the vicinity of the landfill. At present, no additional sampling or follow-up has been required, but the attached Self-Monitoring Program (SMP) will require PFAS sampling of groundwater in the vicinity of the Landfill as part of future 5-year COC sampling.

BASIN PLAN AND RESOLUTIONS

72. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Board and approved by the State Water Resources Control Board, the Office of Administrative Law, and the U.S. EPA where required.

73. Under State Water Resources Control Board Resolution No. 88-63, all surface and groundwater is considered suitable, or potentially suitable, for municipal or domestic water supply (MUN), with certain exceptions including when:

    a. The groundwater's total dissolved solids exceeds 3,000 mg/liter or electrical conductivity exceeds 5,000 µS:
    b. There is contamination, either by natural processes or human activity (unrelated to the specific pollution incident), that cannot reasonably be treated for domestic use using best management practices or best economically achievable treatment practices, or
    c. The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

74. This Order complies with State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste, by implementing waste discharge requirements for discharges at VRL that are necessary to protect water quality.

BENEFICIAL USES OF SURFACE WATER AND GROUNDWATER

Groundwater

75. The site resides within the Altamont Subbasin of the Livermore Valley Groundwater Basin, as defined in the Basin Plan. There are four domestic wells, one irrigation well, and 10 water supply wells in the vicinity of VRL. The existing and potential beneficial uses identified for groundwater in this basin, according to the Basin Plan, include:

a. Municipal and Domestic Supply (MUN)
b. Industrial Process Supply (PROC)
c. Industrial Service Supply (IND)
d. Agricultural Supply (AGR).

76. Based on the hydrogeologic characterization and water quality data for the site, groundwater underlying, and in the vicinity of, the Landfill qualifies as a potential source of drinking water in accordance with State Water Board Resolution No. 88-63. Therefore, all the above current and potential beneficial uses apply to groundwater beneath the Landfill. However, as groundwater at the site occurs within thin, low-yield alluvial sediments and low-permeability, fractured bedrock, the landfill site is considered an unlikely location for future water supply wells.

Surface Water

77. Existing or potential beneficial uses identified for surface water in the Livermore Valley watershed, according to the Basin Plan, include:

a. Municipal and Domestic Supply (MUN)
b. Industrial Process Supply (PROC)
c. Industrial Service Supply (IND)
d. Agricultural Supply (AGR)
e. Water Contact Recreation (REC1)
f. Non-Water Contact Recreation (REC2)
g. Wildlife Habitat (WILD)
h. Preservation of Rare and Endangered Species (RARE).

CALIFORNIA ENVIRONMENTAL QUALITY ACT

78. Adoption of this Order relates to construction and operation of waste management units within a permitted waste disposal area and is thus categorically exempt from the provision of CEQA pursuant to Section 15301, Title 14 CCR for existing facilities as there is no or negligible expansion of use save for the landfill expansions already approved, as noted in Finding 41.

HUMAN RIGHT TO WATER

79. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by prohibiting any discharges that do not meet MCLs to protect human health and ensure that water is safe for domestic use.

ANTI-DEGRADATION

80. State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to the Landfill and requires high quality water to be maintained until it has been demonstrated that any change will be consistent with the maximum benefit of the people, will not unreasonably affect present and anticipated beneficial uses of such water, and will not result in water quality less than that prescribed in the policies. Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained. These requirements are met by requiring that all future landfill containment systems at VRL shall be constructed as noted by Specification 20, and by the monitoring provisions in the attached SMP.

NOTIFICATION AND PUBLIC MEETING

81. The Water Board has notified the Discharger and interested agencies and persons of its intent to update these WDRs and has provided these parties with an opportunity to submit their written views and recommendations.

82. The Water Board in a public meeting heard and considered all comments pertaining to the proposed WDRs for the site.

IT IS HEREBY ORDERED pursuant to the authority in Division 7, Section 13263 of the California Water Code (CWC), Title 27, Division 2, Subdivision 1 of the California Code of Regulations (Title 27), and State Board Resolution No. 93-62 that the Discharger, its agents, successors, and assigns shall meet the applicable provisions contained in Title 27, Division 7 CWC, and State Board Resolution No. 93-62, and shall comply with the following:

A. PROHIBITIONS

1. Waste shall not be exposed at the surface of any waste unit, except at the working landfill face during disposal operations.

2. Wastes shall not be disposed of in any position where they can be carried from the disposal site and discharged into waters of the State or of the United States, during disposal operations, closure, and during the post-closure maintenance period, per Section 20310(A) of Title 27.

3. Wastes shall not be placed in or allowed to contact ponded water from any source whatsoever.

4. The discharge or storage of hazardous and infectious wastes except for waste that is

hazardous due only to its friable asbestos content, as defined in sections 2521 and 2522 of Title 23 and in Chapter 11, Division 4 of Title 22, is prohibited.

5. The discharge of wastes which have the potential to cause corrosion or decay, or otherwise reduce or impair the integrity of the containment structures or which, if mixed with other wastes in the unit, could produce a violent reaction (including heat, pressure, fire, explosion, toxic by-products, or reaction products) is prohibited per Section 20200(2)(b) of Title 27, if those wastes:

   a. Require a higher level of containment than provided by the unit, or
   b. Are "restricted hazardous waste."

6. The discharge of liquids and semi-solid wastes (wastes containing free liquids or less than 50% solids by weight), other than dewatered sewage or water treatment sludge as described in §20220(c) of Title 27, is prohibited.

7. The relocation of wastes is prohibited without prior Water Board staff concurrence. The relocation of wastes to or from any waste management unit (WMU) shall not create a condition of pollution or nuisance as defined in Section 13050(1) and (m) of the California Water Code. Any relocated waste shall not be placed in or allowed to contact ponded water from any source whatsoever. Wastes shall not be relocated to any location where they can be discharged into waters of the State or of the United States.

8. Excavation within, or reconfiguration of, any existing WMU is prohibited without prior concurrence of Water Board staff. Minor excavation or reconfiguration activities such as for installation of signs or landscaping, or for routine maintenance and repair, do not require prior staff concurrence.

9. Wastes shall not be placed in any portion of a permitted, newly constructed phase until the Executive Officer receives and has approved the detailed plans relating to the design and construction of the containment structures. Construction of the containment features of all future phases must follow this Order and Title 27 requirements. Waste shall not be placed in any portion of a newly constructed disposal cell until the Executive Officer receives and approves the supporting Final Construction Quality Assurance (CQA) documentation for the construction of the containment structures and has received written certification by a California-registered civil engineer or California-certified engineering geologist that the containment structures have been constructed in accordance with those plans.

10. Filling of wetlands or waters of the State at the Landfill without certification of water quality impacts associated with the proposed filling by the Water Board or Executive Officer pursuant to Section 401 of the Clean Water Act is prohibited.

11. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes during the life

of the site.

12. Buildup or mounding of leachate levels within the Landfill is prohibited and shall be prevented by operation of a LCRS. For lined disposal cells, the construction and design of the LCRS shall be such that the depth of leachate shall not be greater than 12 inches above the bottom liner and the leachate collection system shall be capable of handling at least twice the anticipated leachate volume.

13. Leachate, or storm water or groundwater containing leachate or in contact with waste, shall not be discharged to waters of the State or of the United States unless specifically authorized under an NPDES permit. During the wet season, recirculation shall be performed in a manner that does not cause surface runoff of water that has come in contact with landfill leachate or gas condensate.

14. The treatment, storage, or discharge of groundwater, storm water, or leachate shall not create a condition of pollution or nuisance as defined in Section 13050(m) of the CWC, nor degrade the quality of waters of the state or of the United States.

15. The Discharger shall not cause the following conditions to exist in waters of the state or of the United States at any place outside the landfill boundary

    a. Surface Waters:

    - floating, suspended, or deposited macroscopic particulate matter or foam.
    - bottom deposits or aquatic growth.
    - adverse changes in temperature, turbidity, or apparent color beyond natural background levels.
    - visible, floating, suspended, or deposited oil or other products of petroleum origin; or
    - toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created inthe receiving waters or as a result of biological concentrations.

    b. Groundwater:

    - degradation of groundwater quality; or
    - substantial worsening of existing groundwater impacts.

16. Migration of pollutants through subsurface transport to waters of the State is prohibited.

B. SPECIFICATIONS

1. Water used during disposal operations shall be limited to a minimal amount necessary for dust suppression, fire control, and moisture conditioning of refuse.

2. The Discharger shall conduct monitoring activities according to the Self-Monitoring Program attached to this Order, and as may be amended by the Executive Officer, to verify the effectiveness of the Landfill's systems for monitoring, containment, collection, treatment, and removal of groundwater, surface water, leachate, and landfill gas.

3. At any time, the Discharger may file a written request (including supporting documentation) with the Executive Officer, proposing modifications to the SMP. If the proposed modifications are acceptable, the Executive Officer may issue a letter of approval that incorporates the proposed revisions into the SMP.

4. The Discharger shall install any reasonable additional monitoring devices for groundwater, surface water, leachate, and landfill gas that are required to fulfill the terms of any future SMP issued by the Executive Officer for the Landfill.

5. The Discharger shall, at all times, properly operate, maintain, inspect, repair, and replace all facilities and systems of treatment and control (and all related appurtenances) which are installed or used by the discharger to achieve compliance with this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This specification requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order.

6. Surface drainage from tributary areas and internal site drainage from surface and subsurface sources shall not contact or percolate through wastes during disposal operations or during the life of the site. Surface drainage from tributary areas, and internal site drainage from surface sources shall be collected using surface drainage ditches, and/or other conveyance and collection methods. The Stormwater General Permit issued by the State Board shall govern the discharge of these water discharges. Surface drainage ditches shall be constructed and maintained to ensure that rainwater is diverted away from the disposal area.

7. Precipitation and drainage control facilities shall be designed with a minimum capacity to accommodate a 100-year, 24-hour storm event. Disposal units intended to accept designated waste shall be designed and constructed with a minimum capacity to accommodate a 1000-year, 24-hour storm event. The site shall be protected from any washout or erosion of waste from inundation which could occur as a result of a 100-year, 24-hour storm event, or as the result of flooding with a return frequency of 100 years.

8. The Discharger shall assure that all engineered structures (including, but not limited to, the foundation of the site, the solid waste fill, and the structures that control leachate,

surface drainage, erosion and landfill gas for this site) are constructed and maintained to withstand hydraulic pressure gradients to prevent failure due to settlement, compression, or uplift and all effects of ground motions, from the controlling ground motions associated with the maximum credible earthquake (MCE) of nearby Holocene-active faults.

9. The existing containment, collection, drainage, and monitoring systems for groundwater, surface water,leachate, and landfill gas condensate shall be maintained and operated as long as waste or leachate is present and poses a threat to water quality. The Discharger shall continue the water quality monitoring program, pursuant to Section 20410 of Title 27, as long as a threat of release from the Landfill exists.

10. The Discharger shall design install and operate an LCRS, acceptable to the Executive Officer, for all the landfilled areas, such that no more than one foot of leachate accumulates over any portion of the landfill liner. The system shall be designed to collect and remove twice the potential maximum daily volume of leachate. The system shall be designed and operated to function without clogging (Section 20340 of Title 27), shall be inspected monthly, and any accumulated fluid shall be removed and disposed of to an above ground, secondarily contained, enclosed leachate collection tank. The Discharger shall submit reports, on an annual basis, which demonstrate that the leachate control system is functioning properly.

    Measures shall be taken to ensure that leachate in the leachate collection system can flow freely into any collection sump. Measures shall also be taken to assure that the LCRS will remain operational through the closure/post-closure maintenance of the landfill.

11. Consistent with the requirements and authority granted to the local enforcement agencies, methane and other landfill gases shall be adequately monitored, vented, removed from the Landfill, prevented from building up in the Landfill, and controlled to minimize the danger of explosion, adverse health effects, nuisance conditions and the impairment of beneficial uses of water due to gas migration.

12. Discharge of leachate and landfill gas condensate is limited to areas of the landfill that are equipped with a Subtitle D-compliant composite liner and LCRS. However, leachate that is shown to meet drinking water standards (i.e., are below MCLs) for VOCs may be used for dust control within the Landfill boundaries.

13. Recirculation of leachate or gas condensate to a different disposal unit from where it was generated shall be allowed provided that 1) the receiving cell or unit must have a composite liner and LCRS designed to meet federal (Subtitle D) and state Class II standards; 2) the leachate generation and buildup above the composite liner must be monitored separately for each receiving cell or WMU and is limited to no more than 12 inches; 3) recirculation may not occur under

pressures exceeding gravity drainage.

14. As portions of the Landfill are closed, the exterior surfaces shall be graded in accordance with Title 27 requirements and have slopes no steeper than 3:1 (horizontal: vertical) with 15-foot-wide benches every 50 vertical feet. Benches shall be graded to collect and channel rainfall runoff to drainage down-chutes on the final cover. The top deck shall be no flatter than a 3 percent grade. Slopes within and adjacent to the disposal area shall be maintained in such a manner as to minimize the potential for sliding by control of grades, drainage or other means. Any slides discovered shall be stabilized as soon as possible, and the Regional Board shall be notified immediately. All lined and final refuse fill slopes shall not have a grade exceeding 3:1 (horizontal: vertical).

15. The Discharger shall operate the landfill to isolate waste from waters of the state. The Discharger shall implement a Detection Monitoring Program (DMP), pursuant to Title 27, Section 20420. The DMP shall be designed to identify any water quality impacts from the Landfill and demonstrate compliance with the Water Quality Protection Standard (WQPS), which is required pursuant to Title 27, Section 20390. The SMP attached to this Order is intended to constitute the DMP for the Landfill.

16. The WQPS for the Landfill shall include the following:

    a. Constituents of Concern: Section 20395 of Title 27 defines Constituents of Concern (COCs) as "all waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the Unit." COCs for the VRL include the monitoring parameters identified in the SMP attached to this Order,or any future amendment thereof, and all Appendix II parameters in the federal Subtitle D regulations

    b. Monitoring Parameters: Monitoring parameters (MPs), a subset of the COCs, are typically the most mobile and commonly detected COCs in groundwater at the site and are measured on a more frequent basis than the entire list of COCs. The MPs for the VRL shall include, at a minimum, all constituents identified as such in the SMP attachedto this Order, or any future amendments thereof. The Discharger may propose modification to the MPs as additional data become available concerning site-specific source characteristics and natural background water quality. However, modifications shall only be made upon written concurrence from the Executive Officer.

    c. Concentration Limits: Concentration limits for all COCs detected at the specified pointsof compliance shall be established using the background data set pursuant to Section 20400 of Title 27. An upper prediction limit (UPL) shall be calculated from the background data set using statistical methods, as appropriate. For non-naturally occurring chemicals, such as VOCs, the concentration limits may not exceed MCLs.

d. Point of Compliance: Title 27 defines the Point of Compliance (POC) as the "vertical surface located at the hydraulically downgradient limit of the Unit that extends throughthe uppermost aquifer underlying the Unit." The POC shall be the hydraulically downgradient perimeter of the waste fill area.

e. Monitoring Points: Title 27 defines Monitoring Points as "a well, device, or location specified in the waste discharge requirements at which monitoring is conducted and at which the water quality protection standard applies." Monitoring points for the Landfill,which are located along the POC and at additional locations, are specified in the SMP attached to this Order, or any future amendments thereof.

17. Whenever there is "measurably significant" geochemical evidence of an exceedance of concentration limits (as defined in Section 20164 of Title 27) or significant physical evidence of a release, the Discharger shall be prepared to implement an Evaluation Monitoring Program (EMP) pursuant to Section 20425 of Title 27, at the direction of the Water Board. In such a case, the Discharger shall continue implementing the DMP as prescribed in the SMP. If required, the EMP shall be implemented to determine the nature and extent of any release detected by the DMP.

18. Designated wastes requiring special handling (i.e., industrial ash, treated auto shredder waste, petroleum contaminated soils, sewage and wastewater sludges, industrial sludges, industrial filters, drilling muds, treated wood, and other nonhazardous waste) shall only be discharged into composite-lined WMUs equipped with leachate collection and removal systems meeting Subtitle D regulations and State Class II siting, construction, and design requirements specified in CCR Title 27, Section 20250.Hazardous wastes may not be disposed of or stored at this site.

19. The Discharger is authorized to use certain waste materials for various beneficial applications within the permitted waste boundary, including use as alternative daily cover (ADC) and operations layer material, for construction of access and bench roads, tipping area decks, intermediate pads, and stormwater berms, for backfilling trenching projects and leachate seeps, repairing eroded areas, and filling settlement areas. Waste materials cannot be used for beneficial applications outside the designated waste boundary.

20. Future landfill containment systems at VRL shall be constructed consistent with the design and components specified below, from top to bottom. Alternative containment system designs and/or components must be approved by the Executive Officer. Containment system designs consistent with the following specifications will likely streamline the Water Board staff review and approval process:

Cell Floors	Cell Side-Slopes & Benches
18-inch thick (minimum) soil operations layer	18-inch thick (minimum) soil operations layer
Geotextile filter	-
12-inch (minimum) granular LCRS with 6-inch (minimum) perforated pipe	Double-sided geocomposite LCRS
80-mil HDPE geomembrane	80-mil HDPE geomembrane
2-foot thick (minimum) compacted clay liner (CCL), with a hydraulic conductivity of 1 x 10^{-7} cm/s or less	Geosynthetic clay liner (GCL), encapsulated if necessary to preventhydration
Geotextile separator	-
12-inch thick (minimum) granular underdrain with 4-inch (minimum) perforated pipe*	Double-sided geocomposite underdrain*
Prepared subgrade	Prepared subgrade

* This, or other engineered alternatives to be considered if 5-foot separation from groundwater is otherwise infeasible.

21. Interim cover shall be maintained over all waste, at all times, except for the working face of the disposal area of the landfill, or as provided for by the performance standards adopted by CalRecycle.

22. The Discharger shall provide and maintain a minimum of two permanent, surveyed monuments near the Landfill from which the location and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the operation, closure, and post-closure maintenance periods. These monuments shall be installed by a licensed land surveyor or registered civil engineer.

23. The Discharger shall install new monitoring stations to replace any monitoring wellsdesignated as monitoring stations that are destroyed during landfill development or expansion.

24. The Discharger shall notify the Water Board immediately of any failure

occurring in the Landfill. Any failure that threatens the integrity of containment or control features or structures at the Landfill shall be promptly corrected after approval of the method and schedule by the Executive Officer.

25. The Board considers the property owner and site operator to have continuing responsibility for correcting any problems which arise in the future as a result of this waste discharge or related operations during the active life and post-closure maintenance period.

26. A geologic map of the base of the excavation shall be updated as excavation proceeds. This includes, but is not limited to, all fracture and shear zones, and areas where there is not a five-foot separation between groundwater and the waste. The updated geologic map shall be submitted to the Water Board at least every two years.

27. All reports submitted pursuant to this Order shall be prepared under the supervision of and signed by appropriately licensed professionals, such as a California Registered Civil Engineer, Professional Geologist, and/or Certified Engineering Geologist All design aspects related to closure activities, e.g., closure design, final cover construction, shall be under the direct supervision of a registered civil engineer.

28. The Discharger shall notify the Water Board at least 180 calendar days prior to beginning any final closure activities. This notice shall include a statement that all activities will conform to the most recently approved closure plan and that the plan provides for site closure in compliance with all applicable regulations.

C. PROVISIONS

1. Compliance: The Discharger shall comply immediately, or as prescribed by the time schedule below, with all Prohibitions, Specifications, and Provisions of this Order. All required submittals must be acceptable to the Executive Officer. The Discharger must also comply with all conditions of these WDRs, including the SMP**.** Violations may result in enforcement actions, including Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these waste discharge requirements by the Regional Board.

2. Authority: All technical and monitoring reports required pursuant to this Order are being requested pursuant to CWC Section 13267. These reports are necessary to assure compliance with these waste discharge requirements, and their burden and cost bear a reasonable relationship to the benefits to be obtained from the reports. Failure to submit reports in accordance with schedules established by this Order or failure to submit a report of sufficient technical quality acceptable to the Executive Officer may subject the Discharger to enforcement action pursuant to Section 13268 of the CWC.

3. Self-Monitoring Program: The Discharger shall implement and comply with the Self- Monitoring Program (SMP) attached to this Order and any revisions issued by the Executive Officer. The attached SMP is intended to constitute a Detection Monitoring Program (DMP) pursuant to Section 20420 of Title 27 and is designed to identify significant water quality impacts from the Landfill and demonstrate compliance with the Water Quality Protection Standard (WQPS) established pursuant to Section 20390 of Title 27. The SMP may also include an Evaluation Monitoring Plan (EMP) and Corrective Action Monitoring Program requirements, as required. The Discharger shall submit Semi-Annual and annual monitoring reports as noted below. Sample collection shall be conducted at all locations and frequencies specified in the SMP. The annual report shall cover the previous calendar year as described in Part A of the SMP. In addition to the requirements outlined in Attachment A, the reports shall also include the following: location and operational condition of all leachate and groundwater monitoring wells, groundwater and leachate contours for each monitoring event, tabulation of monthly leachate volumes collected and recirculated to the Landfill along with tabulated analytical results for these discharges' the existing gas extraction system and gas monitoring results (annual report only).

DUE DATES: **1st SEMI-ANNUAL REPORT – April 30 of each year & ANNUAL REPORT**
2nd SEMI-ANNUAL REPORT – October 31 of each year

4. Design Reports**:** The Discharger shall submit final landfill cell design proposals acceptable to the Executive Officer for all future disposal cell construction. The proposal shall include detailed specifications for construction of composite liners and the LCRS and shall include quality assurance and quality control procedures for all aspects of construction and installation. The proposal shall include slope stability analyses (including seismic stability analyses) for the proposed liner. All design reports must be approved in writing by the Executive Officer, prior to disposal of wastes in those areas.

COMPLIANCE DATE: 2 months prior to start of construction.

5. CQA Reports: The discharger shall submit as-built construction drawings and final Construction Quality Assurance (CQA) documentation for the construction of all new liner systems. The CQA will demonstrate that the construction of new containment features was in full compliance with this Order and Title 27 requirements. The CQA will contain written certification by a California registered civil engineer or a certified engineering geologist that the containment structures were built in accordance with a Board approved final design proposal. No waste shall be place in any portion of a newly constructed phase until the Executive Officer receives and approves the CQA documentation.

COMPLIANCE DATE: Prior to anticipated waste disposal.

6. Final Cover Plan: The Discharger shall submit a Final Cover Construction Plan, which

shall include, but is not limited to, the following: a schedule for completion of all construction field activities, CQA testing frequencies for in-place soils and any borrow materials, final cover design drawings, and details of landfill gas and leachate well configuration with system changes. If the Discharger is proposing an alternative final cover, the plan must include a detailed comparative analysis between the prescriptive cover design and the alternative design. The plan must demonstrate that the selected alternative cover design will continue to isolate landfill wastes from precipitation and irrigation waters at least as well as the prescriptive cover design. The plan must also show that the prescriptive standard is economically infeasible because it would cost substantially more than an alternative design that provides equal performance in isolating waste from infiltrating water.

COMPLIANCE DATE: 180 days prior to anticipated receipt of last waste, or 180 days prior to the anticipated reaching of final elevation of any portion of the landfill.

7. Joint Technical Document: The Discharger shall submit a technical report, acceptable to the Executive Officer, describing any proposed material change in the character, location, or volume of a discharge, or in the event of a proposed change in use or development of the Landfill (CWC Section 13260(c)). Formerly known as the ROWD, this document shall be submitted to the Regional Water Board in the form of a JTD to support the development or revision of WDRs for that WMU. For the purpose of this Order, this includes any proposed change in the boundaries of the area of wetland/waters of the State to be filled and mitigated. The JTD must include all applicable information necessary to support the development (or modification, as appropriate) and issuance of any State of local agency permits, other than the conditional use permit, that are required to operate the WMU (including but not limited to the lateral expansion of any WMU). The JTD shall describe the project, identify key changes to the design that may impact any portion of the Landfill, and specify components of the design necessary to maintain integrity of the landfill cover and prevent water quality impacts. No material changes to any portion of the Landfill shall be made without approval by the Executive Officer.

   COMPLIANCE DATE: 120 days prior to any proposed material change.

8. Financial Assurance for Landfill Closure and Post-Closure Monitoring and Maintenance: The Discharger shall submit evidence of an Irrevocable Fund, acceptable to the Executive Officer, to ensure funding is available to close the Landfill, and for monitoring and maintenance of the landfill during the post-closure period. The Irrevocable Fund shall allow for the use of Performance Bonds. Every five years, for the duration of the post-closure monitoring period, the Discharger shall submit a report that includes an outline of the financial assurance mechanism and verification that the fund has been created. The fund value must be supported by calculations, to be included with the submittal, providing cost estimates for all post-closure monitoring, maintenance, repair and replacement of landfill containment, cover and monitoring systems. The fund value should be based on the sum of these estimates. The cost estimates and funding must be updated to reflect change to monitoring systems as they occur. The post-closure maintenance period shall extend as long as landfilled wastes pose a threat to water quality, however for purposed of

calculating cost estimates, a period of no less than 30 years may be used.

COMPLIANCE DATE: Every 5 years.

9. Financial Assurance for Corrective Action of Reasonably Foreseeable Releases: The Discharger shall submit updated evidence of an Irrevocable Fund cost estimate, acceptable to the Executive Officer, to ensure any corrective action and remediation actions that may be necessary as a result of current or future unforeseen water and non-water releases from the landfill. The Irrevocable Fund shall allow for the use of Performance Bonds. Every five years for the duration of the post-closure monitoring period, the Discharger shall submit a report that includes an outline of the financial assurance mechanism and verification that the fund has been created. The fund value shall be supported by calculations, to be included with this submittal, providing cost estimates for all corrective action measures and remediation that may be required at the landfill. The fund value shall be based on the sum of these estimates. The post-closure maintenance period shall extend as long as landfill wastes pose a threat to water quality, however for purposes of calculating cost estimates, a period of no less than 30 years may be used.

   COMPLIANCE DATE: Every 5 years.

10. Industrial Activities Related Stormwater Controls: The Discharger shall comply with the State Water Board's General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Permit NPDES Permit No. CAS000001).

11. Construction-Related Storm Water Control Plans: For each proposed grading or development project outside of the permitted landfill footprint greater than one acre in size,the Discharger shall submit a Notice of Intent to the State Board, submit a Storm Water Pollution Prevention Plan (SWPPP) acceptable to the Executive Officer, and implement Best Management Practices (BMPs) for the control of storm water, in accordance with requirements specified in the State Board's General Permit for Storm Water Discharges Associated with Construction Activities (NPDES Permit No. CAS000001). The Discharger will be deemed in compliance with this Provision if another party constructing improvements on property owned by the Discharger, pursuant to an easement granted by the Discharger, has obtained coverage under the General Permit.

    COMPLIANCE DATE: 30 days prior to construction

12. Well Installation or Destruction Report: The Discharger shall submit a technical report, acceptable to the Executive Officer, that provides well construction details, geologic boring logs, and well development logs for all new wells installed or destroyed as part of the Discharge Monitoring Program (DMP).

    COMPLIANCE DATE: 60 days following well installation or destruction

13. Post-Earthquake Inspection: The Discharger shall submit a detailed Post-

Earthquake Inspection Report acceptable to the Executive Officer, in the event of any earthquake generating ground shaking of Richter Magnitude 7 or greater at or within 30 miles of the Landfill. The report shall describe the containment features, groundwater monitoring, and control facilities potentially impacted by seismic deformations of any WMU. Damage to any waste containment facility that may impact waters of the State must be reported immediately to the Executive Officer.

COMPLIANCE DATE: Within 2 weeks of earthquake

14. If groundwater contamination or potential contamination is detected, the Discharger shall give immediate notification to the San Francisco Bay Regional Water Quality Control Board, the LEA, and the Department of Health Services.

15. The Discharger shall comply with all applicable provisions of Title 27 that not specifically referred to in this Order.

16. The Discharger shall remove and relocate any wastes that are discharged at this site in violation of these requirements.

17. The Discharger shall immediately notify the Board of any flooding, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures. Any such failure shall be promptly corrected after approval of the method and schedule by the Executive Officer.

18. Availability: A copy of these WDRs shall be maintained by the Discharger and shall be made available by the Discharger to all employees or contractors performing work (maintenance, monitoring, repair, construction, etc.) at the Landfill.

19. Change In Ownership: The Discharger must notify the Executive Officer in writing at least 30 days in advance of any proposed transfer or extension of this Order's responsibility and coverage to a new Discharger. The notice must include a written agreement between the existing Discharger and the new Discharger containing a specific date for the transfer of this Order's responsibility and coverage between the current Discharger and the new Discharger. This agreement shall include an acknowledgment of which Discharger is liable for violations up to the transfer date and which Discharger is liable from the transfer date on [CWC Sections 13267 and 13263].

20. Revision: These Waste Discharge Requirements (WDRs) are subject to review and revision by the Water Board [CCR Section 13263].

21. JTD Reporting: When a Discharger becomes aware that it failed to submit any relevant facts in a JTD or submitted incorrect information in a JTD or in any report to the Water Board, it shall promptly submit such facts or information

[CWC Sections 13260 and 13267].

22. Vested Rights: This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the Discharger from liability under federal, state or local laws, nor do they create a vested right for the Discharger to continuethe waste discharge [CWC Section 13263(g)].

23. Severability: Provisions of this Order are severable. If any provisions of these WDRs arefound invalid, the remainder of these requirements shall not be affected.

24. Operation and Maintenance: The Discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with conditions of this Order. Proper operation and maintenance include effective performance, adequate funding,adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures.

25. Reporting of Hazardous Substance Release: If any hazardous substance is discharged in or on any waters of the state, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the state, the Discharger shall comply with CWC section 13271 pertaining to notification. Discharger shall also report such discharge to theWater Board by calling (510) 622-2300 during regular office hours (Monday through Friday, 8:00 a.m. to 5:00 p.m.). A written report shall be mailed or submitted electronically to the Water Board within 5 business days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

26. Entry and Inspection: The Discharger shall allow the Water Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

    a. enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order.
    b. have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order.
    c. inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
    d. sample or monitor at reasonable times, for the purposes of assuring

compliance with this Order or as otherwise authorized by the California Water Code, any substances, or parameters at any location [CWC Section 13267].

27. Discharges To Navigable Waters: Any person discharging or proposing to discharge to navigable waters from a point source (except for discharge of dredged or fill material subject to Section 404 of the Clean Water Act and discharge subject to a general NPDES permit) must file an NPDES permit application with the Water Board.

28. Endangerment of Human Health or the Environment: The Discharger shall report any event of noncompliance that may endanger human health or the environment. Any such information shall be provided orally to the Executive Officer, or an authorized representative, within 24 hours from the time the Discharger becomes aware of the circumstances by calling (510) 622-2300 during regular office hours (Monday through Friday, 8:00 a.m. to 5:00 p.m.). A written submission to the Water Board shall also be provided within 5 days of the time a Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has notbeen corrected; the anticipated time it is expected to continue and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oralreport has been received within 24 hours.

29. Document Distribution: Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:

    a. California Regional Water Quality Control Board, San Francisco Bay Region
    b. Alameda County Department of Environmental Health (Local Enforcement Agency).

    The Executive Officer may modify this distribution list as needed.

30. Reporting Requirements:

    Hardcopies:

    1. Technical reports/plans, submitted by the Discharger, in compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be submitted to the Water Board on the schedule specified herein. Hard copies of these reports/plans shall consist of a letter report that includes the following:

        a. Identification of any obstacles that may threaten compliance with the

schedule.

In the event of non-compliance with any Prohibition, Specification or Provision of this Order, written notification which clarifies the reasons for non-compliance, and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order.

b. In the self-monitoring reports, an evaluation of the current groundwater monitoring system and a proposal for modifications as appropriate; and
c. A signed transmittal letter and professional certification by a California Licensed Civil Engineer or a Professional Geologist

2. All application reports or information to be submitted to the Executive Officer shall be signed and certified as follows:

a. For a corporation - by a principal executive officer or the level of vice-president or an appropriate delegate.
b. or a partnership or sole proprietorship - by a general partner or the proprietor,respectively.
c. For a municipality, state, federal, or other public agency - by either a principal executive officer or ranking elected official.

Electronic Submittals:

1. The State Board has adopted regulations requiring electronic report and data submittal to Geotracker [http://www.geotracker.swrcb.ca.gov/]. The text of the regulations can be found at the following link:

http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/index.shtml

2. The Discharger is responsible for submitting the following via the internet:

a. Groundwater analytical data.
b. Surveyed locations of monitoring wells.
c. Boring logs describing monitoring well construction; and
d. Portable data format (PDF) copies of all reports identified in 1 and 2 above (the document, in its entirety [signature pages, text, figures, tables, etc.] must be saved to a single PDF file).
e. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order related to storm water and compliance with the State Board General Permit No. CAS000001 for the Discharge of Storm Water Associated with Industrial Activities

3. Upon request, monitoring results shall also be provided electronically in Microsoft Excel® to allow for ease of review of site data, and to facilitate data computations and/or plotting that Water Board staff may undertake during the review process. Datatables submitted in electronic spreadsheet format will not be included in the case of file review and should therefore be submitted on CD and included with the hard copyof the report. Electronic tables shall include the following information:

    a. Well designations;
    b. Well location coordinates (latitude and longitude)
    c. Well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, screen interval elevation, and a characterization of geology of subsurface the well is in).
    d. Groundwater depths and elevations (water levels);
    e. Current analytical results by constituent of concern (including detection limitsfor each constituent);
    f. Historical analytical results (including the past five years, unless otherwise requested); and
    g. Measurement dates.

33. All samples shall be analyzed by State-certified laboratories, or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review. This provision does not apply to analyses that can only be reasonably performed onsite (e.g., temperature).

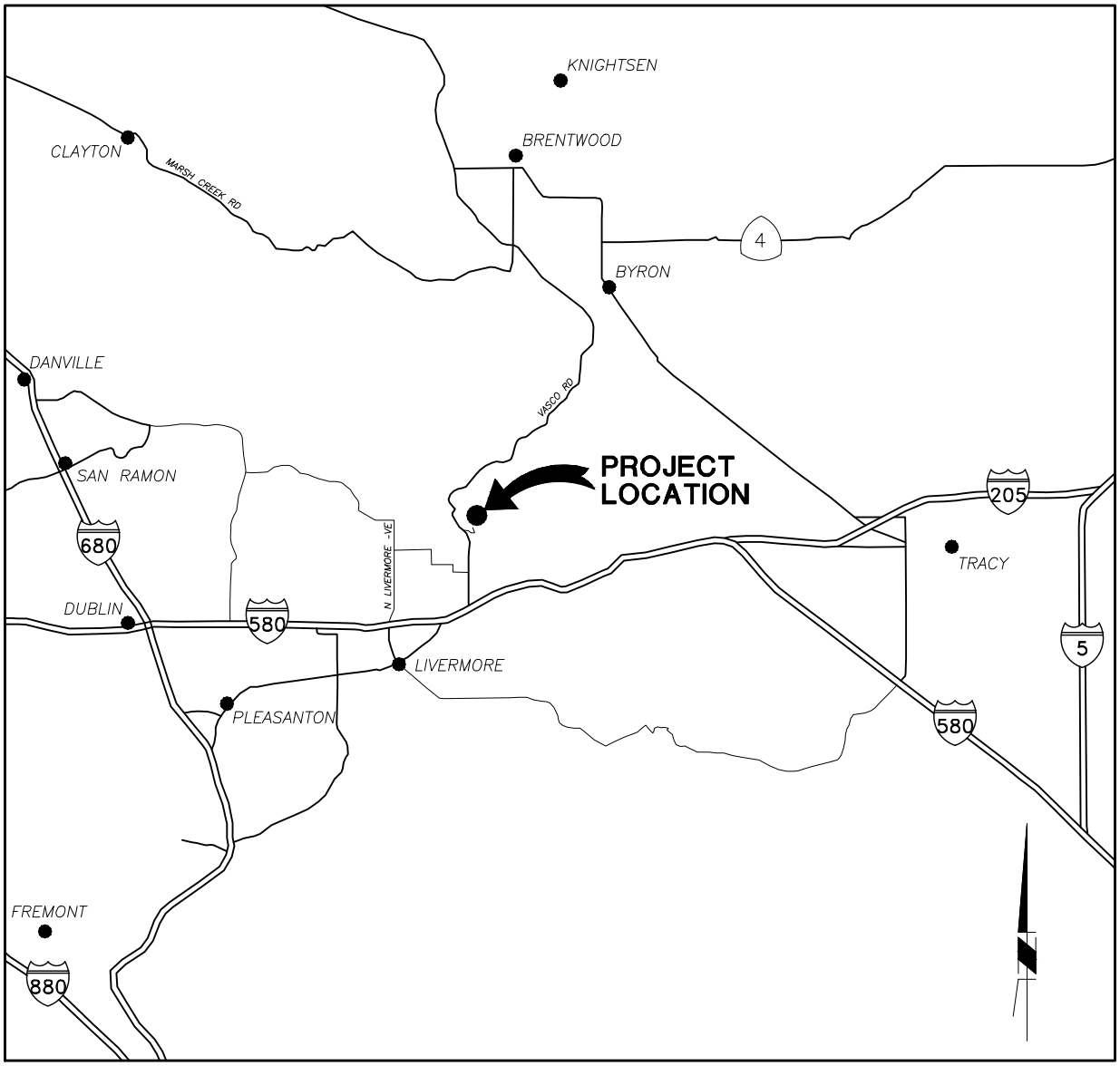
34. This Order supersedes and rescinds Order No R2-2008-0074.

I, TBD, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on.

_____

TBD
Executive Officer

Attachments: Figure 1 - Site Location Map
Figure 2 - Site Plan
Self-Monitoring Program (Part A and Part B)



VICINITY MAP

SCALE: 1"=5 MI

PREPARED BY:

SWT Civil & Environmental Engineering

800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

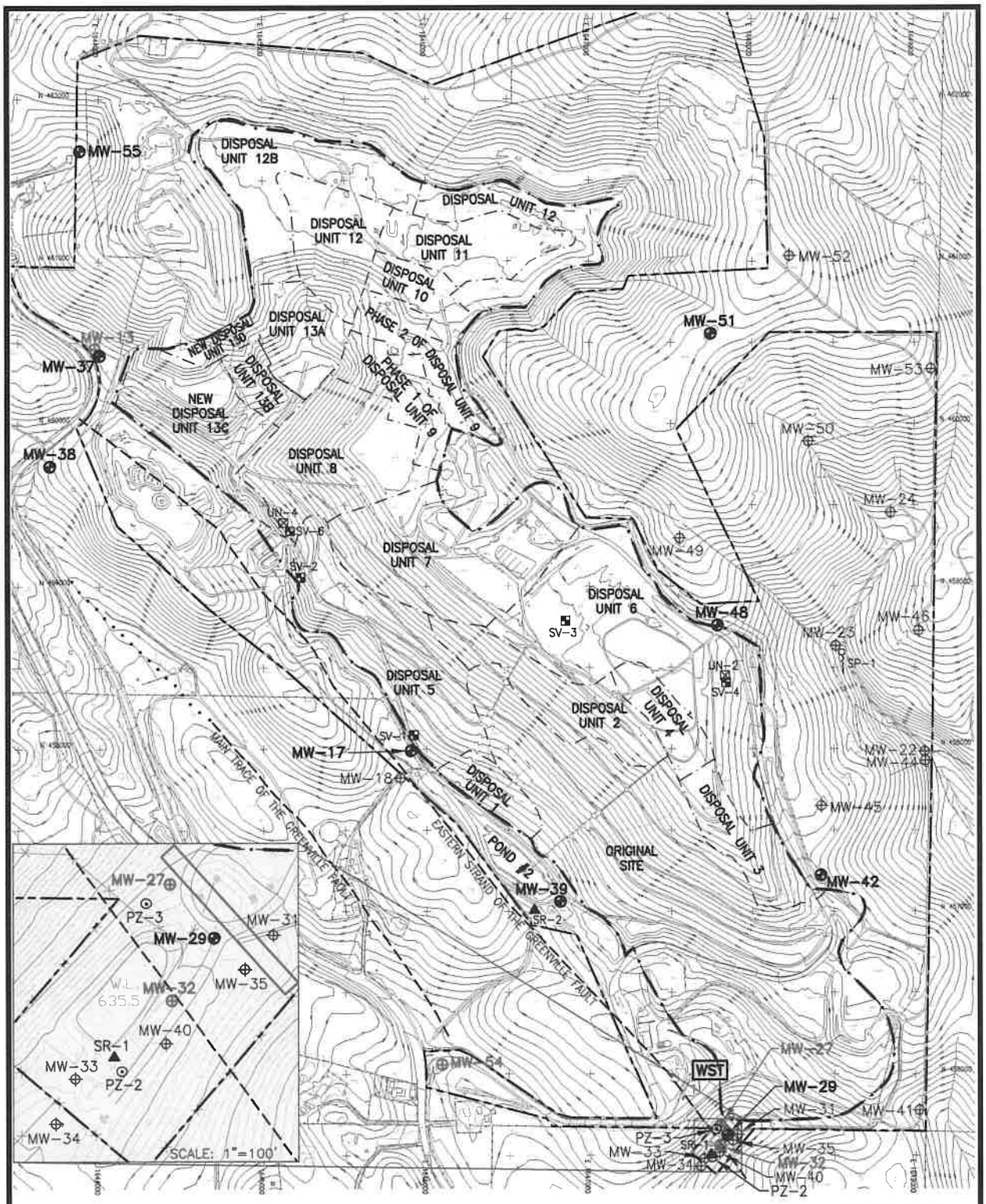
FIGURE 1

REPUBLIC SERVICES

VASCO ROAD SANITARY LANDFILL
STORMWATER POLUTION PREVENTION PLAN
VICINITY MAP

OCTOBER 2018

Z:\PROJECTS\-LLIED W-STE\V-SCO RO-D L-NDFILL\SWPPP 2018\-C-D\FIGURES\VRL-SWPPP-FIGURE 1



EXPLANATION:

- BEDROCK GROUNDWATER MONITORING WELL
- ALLUVIAL GROUNDWATER MONITORING WELL
- GROUNDWATER WELL NOT INCLUDED IN MONITORING PROGRAM
- SHALLOW PIEZOMETER
- STORM WATER MONITORING STATION
- UNDERDRAIN
- LEACHATE COLLECTION SUMP
- TOE AREA SUMP
- GROUNDWATER TRENCH AND BARRIER (GCTB)
- SPRING
- FAULT, DASHED WHERE APPROXIMATE, DOTTED WHERE CONCEALED
- PROPERTY BOUNDARY
- PERMITTED WASTE BOUNDARY

1/31/2020 TOPOGRAPHIC BASE MAP PROVIDED BY COOPER AERIAL SURVEYS CO. OF PHOENIX, ARIZONA.

FIGURE 2

LANDFILL MONITORING POINTS

JOINT TECHNICAL DOCUMENT
VASCO ROAD LANDFILL
LIVERMORE, CALIFORNIA

Geo-Logic ASSOCIATES

DRAFTER/PM: VL/JS	DATE: FEBRUARY 2022	JOB NO. RM21.1043

CALIFORNIA REGIONAL WATER QUALITY CONTROL
BOARD SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR

REPUBLIC SERVICES VASCO ROAD, LLC

VASCO ROAD LANDFILL,
CLASS III SOLID WASTE DISPOSAL SITE, LIVERMORE,
ALAMEDA COUNTY

TENTATIVE ORDER

CONSISTS OF PART A
AND PART B

PART A

This Self-Monitoring Program (SMP) specifies monitoring and reporting requirements, including:

(a) general monitoring requirements for landfills and waste management units (Part A)
(b) self-monitoring report content and format (Part A)
(c) self-monitoring report submittal frequency and schedule (Part B)
(d) monitoring locations and frequency (Part B)
(e) monitoring parameters and analytes (Part B).

A. AUTHORITY AND PURPOSE

For discharges of waste to land, water quality monitoring is required pursuant to the California Code of Regulations (CCR), Division 2, Title 27, Subdivision 1, Chapter 3, Subchapter 3, Sections 20380 through 20435. The principal purposes of an SMP are: (1) to document compliance with waste discharge requirements (WDRs) and prohibitions established by the Water Board, (2) to facilitate self-policing by the waste Discharger in the prevention and abatement of pollution arising from the waste discharge, (3) to develop or assist in the development of effluent standards of performance and toxicity standards, and (4) to assist the Discharger in complying with the requirements of Title 27.

B. MONITORING REQUIREMENTS

Monitoring refers to the observation, inspection, measurement, and/or sampling of environmental media, waste management units (WMUs), containment and control facilities, and waste disposed in each WMU. The following defines the types of monitoring that may be required.

Monitoring of Environmental Media

The Water Board may require monitoring of groundwater, surface water, vadose zone, storm water, leachate, landfill gas and any other environmental media that may pose a threat to water quality or provide an indication of a water quality threat at the site.

Sample collection, storage, and analyses shall be performed according to the most recent version of EPA-approved methods or in accordance with a sampling and analysis plan (SAP) approved by Water Board staff. Analytical testing of environmental media required by this SMP shall be performed by a California State-approved laboratory for the required analyses. The director of the laboratory whose name appears on the certification shall be responsible for supervising all analytical work in his/her laboratory and shall have signing authority for all reports or may designate signing of all such work submitted to the Water Board.

All monitoring instruments and devices used to conduct monitoring in accordance with this SMP shall be maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once every two years

Receiving waters refer to any surface water which actually or potentially receives surface or groundwater that pass over, through, or under waste materials or impacted soils. In this case, the groundwater beneath and adjacent to the landfill areas and the surface run-off from the site are considered receiving waters.

Standard Observations

Standard observations refer to observations within the limits of each WMU, at their perimeter,and of the receiving waters beyond their limits. Standard observations include:

1. WMUs:

a. evidence of ponded water at any point on the WMU.
b. evidence of odors, including their presence or absence, characterization, source, and distance of travel from source; and
c. evidence of erosion and/or daylighted waste.

2. Perimeter of WMUs:

a. evidence of liquid leaving or entering the WMU, estimated size of affected area and flowrate (show affected area on map).
b. evidence of odors, including their presence or absence, characterization, source, and distance of travel from source; and
c. evidence of erosion and/or daylighted waste.

3. Receiving Waters:

a. floating and suspended materials of waste origin, including their presence or absence,source, and size of affected area.
b. discoloration and turbidity: description of color, source, and size of affected area.
c. evidence of odors, presence or absence, characterization, source, and distance of travel from source.
d. evidence of beneficial use, such as presence of water associated with wildlife.
e. estimated flow rate; and
f. weather conditions, such as estimated wind direction and velocity, total precipitation.

Facilities Inspections

Facilities inspections refer to the inspection of all containment and control structures and devices associated with the landfill. Containment and control facilities may

include the following:

1. intermediate and final covers.
2. storm-water management system (SWMS) elements such as perimeter drainage and diversion channels, ditches and down chutes, and detention and sedimentation ponds or collection tanks.
3. landfill gas system; and
4. leachate collection and recovery system (LCRS) elements such as leachate storage tanks,pumps and control equipment

Quality Assurance/Quality Control (QA/QC) Sample Monitoring

The Discharger shall collect duplicate, field blank, equipment blank (if appropriate) and trip blank samples for each semiannual monitoring event at the following frequencies:

1. duplicate sample - one sample per 20 regular samples.
2. field blank - one per semiannual monitoring event.
3. equipment blank - one sample per 10 monitoring stations; and
4. trip blank - one sample per cooler.

Waste Monitoring

Waste monitoring shall consist of recording on a monthly basis the following:

1. the weight of waste disposed at the site during the month (i.e., municipal solid waste (MSW),construction and demolition waste, and industrial waste, including (i) asbestos, (ii) ash, (iii) treated auto shredder waste, (iv) petroleum contaminated soils, (v) lead-contaminated soils, (vi) sewage and wastewater treatment sludges with metal content, (vii) industrial sludges, and (viii) industrial filters);
2. remaining landfill capacity/waste volume in place; and
3. locations and dimensions of the fill areas on the map.

Leachate Monitoring

Landfill leachate shall be removed daily from the leachate collection sumps to the lowest practical level by dedicated automated leachate pumps. The LCRS shall be inspected daily.

Leachate removed from the LCRS shall be transported for disposal at a wastewater treatment plant or re-injected to a Subtitle D-compliant disposal unit. The Discharger shall record on a weekly basis the estimated volume of removed leachate and report the method of leachate disposal.

Landfill Gas Condensate Monitoring

Landfill gas condensate removed from the landfill gas collection system shall be

transported for disposal at a wastewater treatment plant or re-injected to a Subtitle D-compliant disposal unit. The Discharger shall record on a weekly basis the estimated volume of removed landfill gas condensate and report the method of condensate disposal.

C. REPORTING REQUIREMENTS

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b),13383, and 13387(b) of the California Code of Regulations (CCR) and this Water Board's Resolution No.73-16 and Order No. 93-113. At a minimum, each Self-Monitoring Report (SMR) shall include the following information:

1. Transmittal Letter: A cover letter transmitting the essential points of the monitoring report shall be included with each monitoring report. The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem

   The letter shall also certify the completion of all monitoring requirements. The letter shall be signed by the Discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

2. Graphic Presentation: The following maps, figures, and graphs (if applicable) shall be included in each SMR to visually present data collected pursuant to this SMP:

   a. plan-view maps showing all monitoring and sampling locations, waste management units,containment and control structures, treatment facilities, surface water bodies, and site/property boundaries.
   b. groundwater level/piezometric surface contour maps for each groundwater-bearing zone of interest showing inferred groundwater gradients and flow directions under/around each WMU, based upon the past and present water level elevations and pertinent visual observations; and
   c. any other maps, figures, photographs, cross-sections, graphs, and charts necessary to visually demonstrate the appropriateness and effectiveness of sampling, monitoring, characterization, investigation, or remediation activities relative to the goals of this SMP.

3. Tabular Presentation: The following data (if applicable) shall be presented in tabular form and included in each SMR to show a chronological history and allow quick and easy reference:

   a. well designation;
   b. well location coordinates (latitude and longitude).
   c. well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, and screen interval elevation).

d. groundwater depths.
e. groundwater elevations.
f. current analytical results (including analytical method and detection limits for each constituent).
g. historical analytical results (including at least the past five years unless otherwise requested); and
h. measurement dates.

4. Compliance Evaluation Summary and Discussion:

a. a summary and certification of completion of all environmental media monitoring, standard observations, and facilities inspections.
b. the quantity and types of wastes disposed of during the past quarter, and the locations of the disposal operations, if applicable.
c. a description of the waste stream including the percentage of each waste type (e.g., residential, commercial, industrial, construction/demolition, etc.), if applicable.
d. the signature of the laboratory director or his/her designee indicating that he/she has supervised all analytical work in his/her laboratory; and provide a discussion of the field and laboratory results that includes the following information
   (1) data interpretations
   (2) conclusions
   (3) recommendations
   (4) newly implemented or planned investigations and remedial measures
   (5) data anomalies
   (6) variations from protocols
   (7) condition of wells
   (8) effectiveness of leachate monitoring and control facilities.

5. Appendices: The following information shall be provided as appendices in electronic format only unless requested otherwise by Water Board staff and unless the information is already contained in an SAP approved by Water Board staff:

a. new boring and well logs.
b. method and time of water level measurements.
c. purging methods and results including the type of pump used, pump placement in the well, pumping rate, equipment and methods used to monitor field pH, temperature, and electrical conductivity, calibration of the field equipment, pH temperature, conductivity, and turbidity measurements, and method of disposing of the purge water.
d. sampling procedures, field, equipment, and travel blanks, number and description of duplicate samples, type of sample containers and preservatives used, the date and time of sampling, the name of the person taking the samples, and any other relevant observations; and
e. documentation of laboratory results, analytical methods, detection limits

(DLs) and reporting limits (RLs), and Quality Assurance/Quality Control (QA/QC) procedures for the required sampling.

D. CONTINGENCY REPORTING

1. The Discharger shall report to the Water Board by telephone (510-622-2300), Monday through Friday, 8 a.m. to 5 p.m.) any significant discharge from the disposal area immediatelyafter it is discovered. The Discharger shall submit a written report with the Water Board within five days of discovery of any discharge. The written report shall contain the following information:

a. a map showing the location(s) of discharge.
b. approximate flow rate.
c. nature of effects (e.g., all pertinent observations and analyses); and
d. corrective measures underway or proposed.

The Discharger shall submit a written report to the Water Board within seven days of determining that a statistically significant difference occurred between a SMP sample set andan approved Water Quality Protection Standard (WQPS). The written report shall indicate which WQPS(s) have been exceeded. If appropriate, the Discharger shall resample at the compliance point(s) where this difference has been found within 30 days.

2. If re-sampling and analysis confirms the earlier finding of a statistically significant difference between SMP results and WQPS(s), the Discharger shall, upon determination by the Executive Officer, submit to the Water Board an amended Report of Waste Discharge (ROWD) as specified in Section 20420 of Title 27 for establishment of an Evaluation Monitoring Program (EMP) meeting the requirements of Section 20425 of Title 27.

E. REPORTING REQUIREMENTS

The Discharger shall submit SMRs to Water Board staff in accordance with the schedule indicated in Table B-5. Reports due at the same time may be combined into one report for convenience, if monitoring activities and results pertaining to each monitoring period are clearly distinguishable. Reports shall be submitted in accordance with Provision C.32 in the WDRs.

F. MAINTENANCE OF WRITTEN RECORDS

The Discharger shall maintain information required pursuant to this SMP for at least five years. The five-year period of retention shall be extended during any unresolved litigation regarding a discharge or when requested by the Water Board.

PART B

A. MONITORING LOCATIONS AND FREQUENCY

Monitoring locations, frequencies, parameters, and analytes are specified in Tables B-1, and B-2 of this SMP and as indicated below. Monitoring locations are shown in Figure 2.

1. Environmental Media

a. Groundwater:

Groundwater shall be monitored at the locations specified in Table B-1 and shown on Figure 2. Monitoring frequencies, parameters, and analytes shall be in accordance with Table B-1.

b. Leachate:

Leachate shall be monitored at the locations specified in Table B-1 and shown on Figure 2. Monitoring frequencies, parameters, and analytes shall be in accordance with Table B-1.

c. Storm Water:

Stormwater shall be monitored at the locations specified in Table B-1 and shown on Figure 2. Monitoring parameters and analytes shall be in accordance with Table B-1.

Surface-water stations SR-1 and SR-2 shall be sampled per the most current State Board General Permit for Storm Water Discharges Associated with Industrial Activities.

2. Standard Observations

Standard observations shall be made within each WMU, along the perimeter of each WMU, and of the water courses and receiving waters beyond their limits. Standard observations shall be conducted at the frequency specified in Table B-2 and at the following locations:

a. "V" stations - located on the waste disposal area as delineated by an approximately 500-foot grid network; and
b. "P" stations - located at equidistant intervals not exceeding 1,000 ft around the perimeter of the waste area.

A map, showing visual (V) and perimeter (P) compliance points, shall be included in the SMRs.

3. **Facilities Inspections**

The Discharger shall inspect all containment and control structures and devices associated with the landfill to ensure proper and safe operation. Facility inspections shall be conducted at the locations and frequencies specified in Table B-4.

4. **Quality Assurance/Quality Control Samples**

The QA/QC samples shall be analyzed for VOCs (field blank, equipment blank and trip blank) or for same tests as a regular sample (duplicate sample).

B. REPORTING SCHEDULE

The Discharger shall submit SMRs to Water Board staff in accordance with the schedule indicated in Table B-5. Reports due at the same time may be combined into one report for convenience, if monitoring activities and results pertaining to each monitoring period are clearly distinguishable.

Attachments: SMP Tables B-1, B-2, B-3, B-4, and B-5
Figure 2

TABLE **B-1**
Self-Monitoring Program - Order No. R2-

Parameter or Constituent	Analytical Method (1)	Groundwater Monitoring Well (2)	Underdrain Sump (3)	Leachate Sump (4)	Water Storage Tank	QA/QC Sample (5)	Storm-Water Station (6)
Field Measurements - Depth to Water (DTW)		Q					
pH	Field	SA	Q	Q	SA		ws
- Temperature	Field	SA	Q	Q	SA		
- Turbidity	Field	SA	Q	Q	SA		
- Electrical Conductance	Field	SA	Q	Q	SA		
Laboratory Tests - Chloride	300	SA	Q				
- Nitrate (as Nitrogen)	300	SA	Q				
- Sulfate	300	SA	Q				
- Total Dissolved Solids	160.1	SA	Q				
- Total Suspended Solids	SM-2540 (D)			Q			ws
- Volatile Organic Compounds	8260	SA	Q	Q	SA	SA	
- Semi-Volatile Organic Compounds	8270			Q	SA		
- Polychlorinated Biphenyls (PCBs)	8082			Q			
- Total Metals (7)	6000/7000	SA (7)		Q			
- Total Oil and Grease	1664			Q			ws
- Total Cyanide	335.4			Q			
- Benzene, Toluene, Ethylbenzene, Xylenes	8020						
- Metal Iron (Fe)	200.7						ws
Constituents of Concern (COCs)		5-year (8)					

Notes:

1 - U.S. Environmental Protection Agency (EPA) methods
2- Includes: MW-13, MW-17, MW-27, MW-29, MW-32, MW-37, MW-39, MW-42, MW-48, MW-51, MW-54, MW-55
3 - Includes: UN-2, UN-4 and any additional underdrain sumps installed during landfill expansion
4- Includes: SV-1, SV-2, SV-3, SV-4, SV-6 and any additional leachate sumps installed during landfill expansion
5 - Includes: field blank, equipment blank and trip blank. Duplicate sample shall be analyzed for same parameters/constituents as the regular sample
6 – Sample whenever stormwater sample is collected. Includes: SR-1, SR-2
7 - Includes: arsenic (recoverable), cadmium, chromium (dissolved), copper, lead, mercury, nickel, silver, and zinc
8 - Most recent 5-year COC sampling event took place in August 2021. Next to occur in August 2026. Constituents consist of cyanide, sulfide, Total Phenolics, Antimony, total Arsenic, total Barium, total Beryllium, total Cadmium, total Chromium, total Cobalt, total Copper, total Lead, total Mercury, total Nickel, total Selenium, total Silver, total Thallium, total Tin, total Vanadium, total Zinc, VOCs (Appendix II), SVOCs (Appendix II). Organochloride Pesticides & PCBs, Organophosphate Pesticides, Chlorinated Herbicides, and PFAS per USEPA Analytical Method 533 (see Table B-2 for required analytes)

Q - Quarterly monitoring in February, May, August and November
SA - Semiannual monitoring in February and August
WS - Whenever storm-water sample is collected.

Table B-2: Required Analyte List and Target Reporting Limits for LC/MS/MS analysis of Per- and Polyfluorinated Alkyl Acids

Chemical Name/Abbreviation(s)	Geotracker PARLABEL	(CAS) No.	Groundwater (ng/L)
Perfluorobutanoic acid (PFBA)	PFBTA	375-22-4	8.0
Perfluoropentanoiic acid (PFPeA)	PFPA	2706-90-3	5.0
Perfluorohexanoic acid (PFHxA)	PFHA	307-24-4	5.0
Perfluoroheptanoic acid (PFHpA)	PFHPA	375-85-9	5.0
Perfluorooctanoic acid (PFOA)	PFOA	335-67-1	5.0
Perfluorononanoic acid (PFNA)	PFNA	375-95-1	5.0
Perfluorodecanoic acid (PFDA)	PFNDCA	335-76-2	5.0
Perfluoroundecanoic acid (PFUnDA, PFUda, PFUnA)	PFUNDCA	2058-94-8	5.0
Perfluorododecanoic acid (PFDoDA, PFDoA)	PFDOA	307-55-1	5.0
Perfluorobutane sulfonic acid (PFBS)	PFBSA	375-73-5	5.0
Perfluoropentane sulfonoic acid (PFPeS)	PFPES	2706-91-4	5.0
Perfluorohexane sulfonic acid (PFHxS)	PFHXSA	355-46-4	5.0
Perfluoroheptane sulfonic acid (PFHpS)	PFHPSA	375-92-8	5.0
Perfluorooctane sulfonic acid (PFOS)	PFOS	1763-23-1	5.0
2H,2H,3H,3H-Perfluorohexanoic acid(3:3 FTCA)	3:3FTCA	356-02-5	8.0
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	5:3FTCA	914637-49-3	8.0
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	7:3FTCA	812-70-4	8.0
Hexafluoropropylene Oxide Dimer Acid2 (HFPO-DA)	HFPA-DA	13252-13-6	8.0
4,8-Dioxa-3H-perfluorononanoic acid2 (ADONA)	ADONA	919005-14-4	8.0
9-Chlorohexadecafluoro-3-oxanonane-1- sulfonic acid2 (9-Cl-PF3ONS)	9ClPF3ONS	756426-58-1	8.0
11-Chloroeicosafluoro-3-oxaundecane-1- sulfonic acid2 (11-Cl-PF3OUdS)	11ClPF3OUdS	763051-92-9	8.0
Nonafluoro-3,6-dioxaheptanoic acid2 (NFDHA)	NFDHA	151772-58-6	8.0
Perfluoro(2-ethoxyethane) sulfonic acid2 (PFEESA)	PFEESA	113507-82-7	8.0
Perfluoro-3-methoxypropanoic acid2 (PFMPA)	PFMPA	377-73-1	8.0
Perfluoro-4-methoxybutanoic acid2 (PFMBA)	PFMBA	863090-89-5	8.0

TABLE B-3
Standard Observations
Self-Monitoring Program - Order No.
Vasco Road Landfill

Station	Frequency
V-Station (Landfill Interior)	Weekly
P-Station (Landfill Perimeter)	Weekly
Receiving Waters	Weekly

TABLE B-4
Facility
Inspections
Self-Monitoring Program - Order No.
Vasco Road Landfill

Containment and Control Facility	Frequency
Leachate Collection and Removal System (Storage tanks, pumps, piping, secondary containment)	Daily
Underdrain System (Storage tanks, pumps, piping, secondary containment)	Weekly
Storm-Water Management System (Sedimentation ponds, ditches, channels, downchutes)	Weekly

TABLE B-5
Reporting Requirements
Self-Monitoring Program - Order No.
Vasco Road Landfill

Report Type	Frequency
Environmental Media Monitoring (Groundwater and Surface Water)	Semiannual/Annual Reports Due - 30 April (Semiannual) 31 October (Annual)
Environmental Media Monitoring (Leachate and Underdrain)	Quarterly Reports Due - 30 April, 31 July, 31 October and 31 January
Waste Monitoring, Standard Observations and Facility Inspections	Quarterly Reports Due - 30 April, 31 July, 31 October and 31 January