CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION

ORDER NO. R2-2017-xxxx

UPDATED WASTE DISCHARGE REQUIREMENTS AND RESCISSION OF ORDER NO. 01-040, FOR:

KELLER CANYON LANDFILL COMPANY and REPUBLIC SERVICES INC.

KELLER CANYON LANDFILL
CLASS II SOLID WASTE DISPOSAL FACILITY
PITTSBURG, CONTRA COSTA COUNTY

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

SITE OWNER AND LOCATION

1. Owner, operator, and discharger named: The Keller Canyon Landfill is owned and operated by the Keller Canyon Landfill Company, a wholly-owned subsidiary of Republic Services, Inc., hereafter called the Discharger. Hereafter the Keller Canyon Landfill is called the Landfill.

2. Location: The Landfill is a Class II municipal waste disposal site and is located immediately south of the City of Pittsburg, and east of Bailey Road (Figures 1 and 2).

3. Physical Description: The Discharger owns a total of about 2,554 acres of land. The landfill's permitted boundary occupies a 1,399-acre area, within which about 244 acres is permitted and used for waste disposal (Figure 2). The remaining 1,155 acres acts as a buffer zone and includes various administrative and environmental control facilities.

4. Landfill History: The Landfill opened and began receiving wastes in May 1992. The Landfill was originally owned and operated by Browning Ferris Industries of California, Inc., until acquired by Allied Waste. The landfill operated under Allied Waste's ownership until 2008, when it merged with and became a wholly-owned subsidiary of Republic Services Inc.

5. Service Area: The Landfill receives about half of the waste originating in Contra Costa County. Since 2000, an increasing amount of waste has been accepted from outside Contra Costa County. The counties of Solano, Napa, Sonoma, Marin, and Alameda are major out-of-county contributors of waste to the Landfill.

PURPOSE OF ORDER

6. The purpose of this Order is to:

   a) Update the current Waste Discharge Requirements (WDRs) to reflect current landfill ownership, operations, design, and construction requirements for waste disposal units;
   b) Specify monitoring, control, and collection requirements for groundwater, leachate, landfill gas condensate, and stormwater consistent with Title 27 of the California Code of Regulations (CCR), hereinafter Title 27;
   c) Rescind the current WDRs (Order No. 01-040).

SITE DESCRIPTION

7. The Landfill is an "engineered canyon fill" landfill whereby the existing canyon topography is graded prior to construction of the liner system and subsequent placement of waste. A toe berm was constructed to close the open end of the canyon and provide a stable buttress for waste placement.

8. The landfill was originally designed in 1991 to be built in eight overlapping phases from the bottom to the top of the canyon, with Phase 1 being the lowermost phase, and Phase 8 as the uppermost. Under this plan, waste filling in the first phase would occur from the low-elevation northern end of the canyon to the high-elevation southern end. Subsequent phases would be filled in the opposite direction (from south to north). Phase development would occur vertically (i.e. a phase would traverse the canyon, and the next phase would be built over the previous one). The toe berm at the low end of the canyon was designed to be constructed and lined concurrently with the construction of the first three phases.

9. The 1991 phasing plan required modifications to address slope stability issues, and construction has not followed the original sequencing plan. All modifications to the original plan have been approved by the Board before construction.

REGULATORY HISTORY

10. The discharger submitted a Report of Waste Discharge (ROWD) on October 2, 1990, that served as an application for WDRs for the landfill. In 1990, Contra Costa County certified the final Environmental Impact Report for the landfill construction.

11. The original WDRs for the discharger were included in Board Order No. 91-052, issued by the Board in April 1991. The discharger also filed a Notice of Intent for the State Water Resources Control Board's General Permit for Stormwater Discharges Associated with Industrial Activities. Following the issuance of WDRs, the City of Pittsburg appealed Order No. 91-052 to the State Water Resources Control Board. The State Board responded in 1992 and issued Order No. WQ 92-06, which amended Order No. 91-052. The Regional Board amended the WDRs again on September 15, 1993, with Order No. 93-113. This

was a general amendment of WDRs intended to bring all of this Region's landfills into compliance with federal RCRA Subtitle D requirements for monitoring and waste containment.

12. The 1991 WDRs were amended by Order No. 97-060, that allowed an alternative liner design for a portion of the landfill's toe berm. The WDRs were amended by Order No. 98-081, which allowed for an alternative liner design for the Phase 3A (now called the Phase 2A) liner. Lastly, the WDRs were amended by Order No. 00-091, that allowed for an alternative liner design for the Phase 2B liner.

13. In 2001 the WDRs were updated in Order No. 01-040. In 2003 and 2004 these WDRs were amended to allow for alternative liner designs to those specified in Order No. 01-040, in Orders R2-2003-0063 and R2-2004-0080.

14. The Landfill currently operates under the following permits issued by other regulatory agencies:

    a. Solid Waste Facility Permit No. 07-AA-0032, issued by the Contra Costa County Health Services Department, Environmental Health Division (the Local Enforcement Agency (LEA)) with concurrence from CalRecycle (formerly the California Integrated Waste Management Board).

    b. Bay Area Air Quality Management District (BAAMQD) Title V Permit, issued January 3, 2008.

    c. Contra Costa County Land Use Permit 2020-89.

15. Section 13260(c) of the California Water Code (CWC) and sections 21710 through 21760 of Title 27 require the Discharger to update the ROWD and the Report of Disposal Site Information (RDSI) prior to a proposed change in use or development of the landfill. A Joint Technical Document (JTD) now takes the place of the ROWD and RDSI. The JTD must include all applicable information necessary to support the development or modification and issuance of any State or local agency permits, other than the conditional use permit, that are required to operate the Landfill.

16. On May 31, 2016, the discharger submitted an updated JTD to document updates to the current design and operation of the landfill. The updated JTD includes preliminary closure and post-closure maintenance plans (PCPMPs). The PCPMPs describe the methods and controls to be used to assure protection of the quality of surface water and groundwater of the area during final operations and following final closure of the Landfill. The PCPMPs include an estimate of closure and post-closure maintenance costs and propose a financial mechanism to finance costs associated with closure and post-closure activities.

WASTES AND THEIR CLASSIFICATION

17. As a Class II waste disposal facility, the landfill accepts nonhazardous solid waste and inert waste as classified in Title 27 section 20220(a), from residential, commercial, and industrial sources. Nonhazardous solid waste includes, but is not limited to, putrescible and nonputrescible solid, semi-solid, and liquid wastes including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, and soil.

18. All disposal cells constructed at the Landfill have been designed, constructed, and are in compliance with Part 258 of Title 40 of the Code of Federal Regulations (CFR) (referred to as "Subtitle D") and State Water Resources Control Board (State Water Board) Resolution No. 93-62. Disposal cells constructed in compliance with Subtitle D regulations provide a lower risk of water quality degradation than is generally afforded by Class III landfills. For this reason, all cells at the Landfill are considered suitable for disposal of designated wastes as defined in CWC section 13173, including treated wood waste, dewatered sewage sludge, dewatered water treatment sludge, sterilized infectious waste, and treated biosolids, and other designated wastes.

19. The discharger is currently permitted to accept up to 3,500 tons per day of waste. This total does not include additional 1,300 tons per day of alternative daily cover (ADC) such as green waste, wood waste or inert waste, or additional cover soil. Currently, the discharger receives an average of 3,270 tons of waste per day, or a fill volume of about 3,500 cubic yards per day. About 40% of this is residential waste, 27% commercial, 17% construction demolition waste, and 16% is industrial waste. The Discharger has applied to the LEA to amend their Land Use Plan to accept a higher tonnage of waste and this request is pending.

20. Biosolids: The management of treated biosolids in landfills and composting facilities is regulated under Title 27 and under site-specific WDRs. Title 27 allows the use of biosolids for various beneficial purposes in landfills, including use as alternate daily cover (ADC), mixing with other materials, or as compost feed stock. Biosolids can also be disposed as waste in landfills (such as Keller Canyon) that are constructed with a composite liner and a leachate collection and recovery system (LCRS).

    In 2004, the State Water Board clarified its position on the land application of biosolids with the issuance of General WDRs Order No. 2004-0012-DWQ. Order No. 2004-0012-DWQ provides guidance for the land application of biosolids, and places restrictions on the conditions under which biosolids can be applied.

21. Treated Auto Shredder Waste: Acceptance of treated auto shredder waste (TASW) at the Landfill is dependent upon its categorization by the State Department of Toxic Substances Control (DTSC) as a non-hazardous material. In 2011, DTSC initiated an evaluation to ensure that TASW was fully protective of human health and the environment. This evaluation has not been completed.

22. Wastes containing non-friable asbestos may be disposed at the Landfill 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.

23. Prohibited wastes include Class I wastes (i.e. hazardous wastes), liquid wastes, infectious wastes, untreated medical wastes, commercial loads of tires, incinerator wastes, radioactive wastes, large dead animals, grease trap pumpings, and/or septic tank pumpings.

PHYSICAL SETTING

Surface Hydrology

24. Keller Canyon is a closed hydrologic basin consisting of approximately 558 acres that discharges to a large onsite detention pond. The outlet of this pond drains to an inlet of the City of Pittsburg's storm drain system, which eventually discharges into Suisun Bay, in compliance with State Water Board National Pollutant Discharge Elimination System (NPDES) requirements. The watershed's discharge volume is estimated to be from zero to five gallons per minute (gpm) in the dry season, and up to 180 gpm during wet seasons. The 1,000 year, 24-hour precipitation event, as estimated by computer modeling, could produce a peak flow rate of up to 157,000 GPM for the existing site conditions of the watershed. The water from the landfill's underdrain, which is below the liner, as well as some seasonal springs, drains to a 7.21-acre wetland area that was built as compensation for 3.37 acres of wetland fill that resulted from the landfill construction. There have been low-level detections of volatile organic compounds (VOC) in the landfill's underdrain collection system for more than a decade. Provision 4 of these WDRs requires the discharger to evaluate and abate the source of the VOCs.

Geology

25. Keller Canyon and the surrounding hills are located south of Suisun Bay in the Los Medanos Hills along the northern flank of the Diablo Range. The topography is predominantly rolling hills with a few outcrops of moderately dipping weather-resistant bedrock. The bedrock underlying the landfill consists primarily of alternating sequences of siltstone and claystone of the Markley Formation, which dip about 30 degrees from horizontal in a northeastern direction. The Markley Formation is overlain by the Cierbo Sandstone, which is in turn overlain by the Neroly Sandstone. These sandstone layers outcrop downgradient of the landfill and toe berm. Near the ground surface, the Markley Formation sediments have been altered by weathering. The thickness of the weathered zone varies from less than 20 feet beneath the bottom of the canyon, to over 100 feet on top of the ridges. Unconsolidated deposits overlying the bedrock consist of alluvium and landslide deposits in the canyon drainage, and a thin mantle of colluvium and residual soils on the canyon side slopes.

Earthquakes and Seismic Hazards

26. Geologic structures in the seismically active San Francisco Bay Region are controlled by the major northwest-trending San Andreas Fault System. The Landfill is located in the Diablo Range, near the eastern margin of the San Andreas Fault System. Major faults located near the Landfill that have shown evidence of movement during the Holocene include (from east to west and from closest to farthest): the Greenville Fault, the Concord-Green Valley Fault, the Calaveras Fault (northern segment), and the Hayward Fault (northern segment). Although most of the relative motion on these faults is right-lateral strike-slip movement, there is a component of shortening or compression associated with these faults, which is accommodated by primarily buried (blind) thrust faults such as the Mt. Diablo Thrust Fault.

27. The area around and including the Landfill has experienced strong shaking from earthquakes during historic times. The most significant of these included the 1906 San Francisco earthquake and strong events on the Hayward Fault in in 1836 and 1868. The largest peak ground acceleration (PGA) at the site is estimated to be between about 0.33g and 0.44g and was associated with magnitude 6.0 earthquake that occurred in 1889 about 2 miles from the site.

28. Deterministic evaluations indicate the seismic risk at the Landfill is controlled by the Mt. Diablo Thrust Fault, the Concord-Green Valley Fault, and the San Andreas Fault. For most engineering purposes, ground motions from a Maximum Credible Earthquake (MCE) on the Mt. Diablo Thrust fault control design. The MCE on this fault has a moment magnitude of 6.7 and an estimated site PGA of 0.34g to 0.36g.

Hydrogeology

29. Groundwater movement is influenced by bedrock lithology and structure, the distribution and permeability of overburden materials, and the site topography. Most lateral groundwater movement occurs through the weathered and fractured bedrock within 100 feet of the ground surface. Flow in this zone is controlled by topographical variations in thickness and transmissivity of the zone, and by the presence and extent of fractures. Most of the water that enters this zone eventually discharges through seepage areas and springs in the bottom of the canyon.

30. An upward vertical gradient exists beneath much of the canyon. The upward gradient indicates that deep migration of water is generally upward, rather than downward, except in the recharge areas along the tops of the ridges on either side of the canyon. The upward gradient creates artesian conditions near the base of slopes and beneath the toe berm. This upward gradient also acts to prevent deep migration of surficial water. Recharge occurs by percolation of rainfall into the weathered and fractured bedrock on the ridges surrounding the canyon, into landslide deposits, and into the alluvial soils in the canyon bottom.

31. The average hydraulic conductivity of the Markley Formation is about 1 x 10^{-6} cm/sec, although the hydraulic conductivities of the unweathered siltstone and sandstone layers are typically at least an order of magnitude lower than this value. The hydraulic conductivity of the weathered bedrock ranges from about 1 x 10^{-4} cm/sec to 1 x 10^{-6} cm/sec. This information indicates the weathered zone is more transmissive than the underlying units and most of the flow takes place in the weathered materials.

32. Near the bottom of the canyon, groundwater occurs in the alluvium, which has a hydraulic conductivity of between about 1 x 10^{-3} cm/sec to 1 x 10^{-4} cm/sec. The hydraulic conductivity of the Cierbo and Neroly sandstones is estimated to be about 1 x 10^{-2} cm/sec.

33. The predominant groundwater flow paths in Keller Canyon are influenced by the canyon topography. Precipitation recharges on the ridge tops and percolates through the alluvium and weathered bedrock towards the bottom of the canyon and northward to the mouth of the canyon where the flows discharge to the surface as the canyon narrows. There is a slight downward gradient in the unweathered bedrock formations underlying the landfill site. There is a net upward flow of groundwater directly beneath the landfill and toe berm into the underdrain system. Flow velocities in the soil and bedrock beneath the landfill and toe berm are very slow, in the range of 5 to 50 feet per year. The canyon floor is not a significant groundwater recharge area, however, and the only likely hydraulic connection between the canyon watershed and the underlying groundwater plain is through the mouth of the canyon. This confined area is monitored in accordance with Title 27 requirements.

34. Groundwater in the bedrock and within the unconsolidated materials beneath the Landfill area contains levels of total dissolved solids (TDS), sodium, chloride, and sulfate exceeding the federal secondary drinking water standards. The concentrations of nitrate and iron are also above the federal standards at some locations. The groundwater in this area is not considered suitable or potentially suitable for municipal or domestic water supply. TDS concentrations range between 278 and 7,200 mg/1. The poorest quality water comes from deeper wells in the Markley Formation, where sodium and sulfate are the major ions and TDS is generally above 3,000 mg/1. Better quality water is found in the Cierbo/Neroly aquifer, which contains a mixed sodium/sulfate/bicarbonate-type water with TDS concentrations generally less than 1,500 mg/1.

LANDFILL DESIGN AND CONSTRUCTION HISTORY

35. Title 27, Section 20310, requires that Class II waste management units be designed and constructed to prevent migration of wastes from the Units to adjacent geologic materials, groundwater, or surface water, during disposal operations, and the closure and the post-closure maintenance periods.

36. The landfill is designed to isolate wastes from Waters of the State pursuant to Title 27, Section 20250(b). This is accomplished by installing a composite liner system consisting of an underdrain (a granular drain system to intercept rising groundwater) overlain by at least two feet of clay compacted to a permeability of not more than 1 x 10^{-7} cm/sec, overlain by a synthetic flexible membrane liner consisting of 80 mil (2mm) thick high density polyethylene (HDPE), overlain by an LCRS and lastly overlain by a one-foot thick soil operations layer.

37. Excavation of some disposal cells reduced the separation between wastes and Waters of the State to less than the 5 feet required by Title 27, Section 20240(c). Section 20080(b) of Title 27, however, allows for an engineered alternative to the separation requirement. The discharger has been authorized to install a blanket underdrain as an engineered alterative to the prescribed separation beneath some cells, because the underdrain can prevent rising groundwater from infiltrating the waste management unit as effectively as the prescribed separation. Future authorization of an underdrain as an engineered alternative to the 5-foot separation requirement beneath any new cell will require the Discharger to provide a demonstration for Executive Officer approval that the engineered alternative will provide equivalent protection.

38. Keller Canyon is an area susceptible to rapid geologic change as defined by Title 27. The landfill site includes several active landslides and engineering analyses are necessary to evaluate potential effects of grading on slope stability.

39. Order No. 91-052 specified the minimum criteria for the landfill's composite liner. As noted in Finding 11, the City of Pittsburg appealed Order No. 91-052 to the State Water Resources Control Board on the grounds that the proposed landfill containment system design approved by the Regional Board did not meet Chapter 15 (now Title 27) Class II standards. Pittsburg's appeal also raised issues regarding stability of slopes and the toe berm. The State Board responded to the appeal by issuing Order No. WQ 92-06, which amended Order No. 91-052. The State Board determined that the landfill site characteristics and design met the Class II standards, but they also determined that additional information regarding the preparation of stability analyses, and development plans for subsequent phases of the landfill, must be submitted to the Regional Board prior to the development of the future phases of the landfill.

40. The Landfill began accepting waste in May 1992 in Phase 1A, a 15-acre lined cell. Phase 1B consisted of 26 acres, and was completed in two parts. The western portion was completed in November 1992, and the eastern portion was completed in June 1993. Phase 1C consisted of a 4.4-acre area, which was completed in June 1996. Phase 1D consisted of 3.1 acres, which was completed in July 1997. Phase 1A and 1B collectively contain about 3 million cubic yards of waste. Phase 1C and 1D contain 1.2 million and 650,000 cubic yards of waste respectively.

41. A major landslide, designated LS-5, occurred following heavy rains on January 18, 1998. LS-5 measured about 2,100 feet in length and about 620 feet in width near its toe. The slide mass moved a distance of over 100 feet to the northwest, leaving a head scarp up to 85 feet high. This slide buried the floor of the proposed Phase 3A (now called Phase 2A) liner, forcing a redesign of the liner, and requiring the design of a means to stabilize or remove the landslide materials. The Discharger elected to partially remove and stabilize LS-5. The slide was entirely removed above an elevation of 750 feet MSL. The lower portion of the slide was partly removed, with the remainder being stabilized by construction of a buttress of engineered fill. About 2.1 million cubic yards of excess soil from the landslide were placed in a stockpile built at the southern portion of the site, for use in later site projects.

42. The Phase 2A liner was redesigned so that the floor of the liner lay at the north end of the stabilized LS-5 landslide, and the new toe buttress was used to support the south slope of the new liner. The 9.1-acre Phase 2A lined disposal cell to the south of Phase 1B was completed in September 1998. In November 1999, a one-acre interim waste disposal liner was completed as a horizontal and vertical expansion of Phase 1.

43. The Phase 2B liner expansion was completed in August 2000. This area consisted of 16.2 acres of lined disposal cell built in two separate projects (Phase 2B1 and 2B2) located to the southeast of the Phase 1 area. The Phase 2B liner also involved the partial removal and stabilization of an active landslide known as LS-4. The slopes above the slide were stabilized by reducing them to a grade of 4.2:1, requiring the removal of about 2.9 million cubic yards of soil. About 2 million cubic yards of this soil were used to build a buttress of engineered fill to stabilize LS-4 at its base. The remaining 0.9 million cubic yards of soil were added to the existing soil stockpile from the LS-5 excavation. The new liner was placed partly on and above the new buttress. Phases 2B3 and 2C, which were 3.55 and 14 acres, respectively, were completed in 2001 and 2002. The 6-acre Phase 2D liner was completed in 2007.

44. The 4-acre Phase 3A1 liner expansion was completed in 2003. The 3.4-acre Phase 3A2 liner expansion was completed in 2004. Phases 3A3 and 3A4, 7.5 acres and 3 acres, respectively, were completed in 2006 and 2010. In 2013, the 2.1-acre Phase 3A5 was built to the north of existing cells 3A4, west of Phase 3A3, and bordering undeveloped areas to the west and north. Since the separation between the highest anticipated groundwater elevation and base grades is greater than five feet, no underdrain layer was installed beneath Phase 3A5.

45. In 2014, the 12.2-acre Phase 3B1 liner was built adjacent to existing lined areas in Phases 1D, 1A, 3A2, 3A3, and 3A5. A total of 23.8 acres was graded, to include an excavation of approximately 510,000 cubic yards of soil to remove unstable landslide materials of Landslides LS-2 and LS-3, followed by approximately 770,000 cubic yards of fill to buttress the Phase 3B1 waste and to start the partial completion of the Landfill's toe berm. The Landfill's stormwater conveyance was relocated further west outside the Phase 3B1

lined cell, to culminate in a new trapezoidal channel and stilling pond.

46. Two liner configurations were used for the Phase 3B1 liner/containment system; one for the base area of this cell (approximately 7.7 acres) and another for the steeper side slopes (approximately 4.5 acres). In the areas using a slope liner, a geocomposite subdrain was placed where native rock or soils were exposed or were covered by less than 5 feet of engineered fill. In areas where the base liner was used, a 6- to 12-inch thick granular subdrain was used. Water collected in the Phase 3B1subdrain will flow into the groundwater collection system underlying the site's toe berm. Leachate collected in Phase 3B1 will drain to the Phase 1A leachate system.

WDR AMENDMENTS

47. The WDRs (originally contained in No. Order 91-052, then updated in Order No. 01-040) were amended five times to allow for alternative liner designs to those specified in the original WDRs. In all orders amending the original WDRs, the Board found that the submitted liner design met the Title 27 requirements for engineered alternatives. Order No. 97-060 amended the requirements allowing for an alternative liner design for a small portion of the landfill's toe berm. One design change was the deletion of the underdrain because the lined area did not contain shallow groundwater and the required 5-foot separation from groundwater was already achieved. The other design change was the substitution of the prescriptive 2-foot thick natural clay liner with a manufactured blanket liner known as a geosynthetic clay liner (GCL). The use of a GCL on a steep landfill slopes is an increasingly common alternative to a clay liner as it offers low permeability with cost savings due to its ease of installation. Order No. 97-060 also allowed the substitution of a manufactured drainage layer in place of the 1-foot thick gravel leachate collection layer.

48. Order No. 98-081 amended the requirements, allowing for an alternative liner design for the 9.1-acre Phase 3A area (now called the Phase 2A area). The discharger used a GCL in lieu of the clay liner, and another engineered alternative, a geonet, in place of the underdrain on the east slope. The south slope also used a GCL and no underdrain because the liner was installed on engineered fill more than five feet above the groundwater level.

49. Order No. 00-091 amended the requirements to allow for an alternative design for the liner in the Phase 2B area. The underdrain was eliminated for the second and third phases because they were built on engineered fill providing for more than five feet of separation from groundwater.

50. Order No. R2-2003-0063 amended the requirements to allow for an alternative liner design for the 3.8-acre Phase 3A area. The discharger used a tri-planar geocomposite drainage layer for the leachate collection system. The design met the

Title 27 requirements for an engineered alternative.

51. Order No. R2-2004-0080 amended the requirements to allow for an alternative liner design for the 3.6-acre Phase 3A2 area. Specification B.13 of the requirements contained in Order No. 01-040 was amended to read as follows:

> The minimum criteria for the landfill liner shall include, but not be limited to: a one foot thick granular underdrain, overlain by two feet of low permeability clay (with a hydraulic conductivity not more than 1×10^{-7} cm/sec), overlain by an 80-mil thick HDPE liner, overlain by a cushion geotextile, overlain by a one-foot thick dendritic LCRS designed and operated to prevent the development of hydraulic head on the liner, overlain by a filter geotextile, and lastly overlain by a one-foot thick operations layer. However, upon approval by the Executive Officer, the one-foot thick granular blanket underdrain may be deleted in those areas where such an underdrain is not necessary as an engineered alternative, pursuant to Title 27, Section 20080(b), to the prescribed 5-foot separation between wastes and groundwater required by Title 27, Section 20240(c). Also, upon approval by the Executive Officer, a synthetic drainage layer may be substituted as an engineered alternative to the one-thick dendritic LCRS.

52. Before proceeding with any future disposal cell developments, the discharger must provide slope stability analyses, ensuring the integrity of the waste management unit under both static and dynamic conditions throughout the unit's life, as required by Title 27, Section 21750(f)(5)(A). Section 21750(f)(5)(C) further provides that the discharger show a factor of safety for the unit's critical slope of at least 1.5 under dynamic conditions. Section 21750(f)(5)(D) allows for an exception where the discharger can estimate the magnitude of movement during the maximum credible earthquake (MCE) and demonstrate that this amount of movement can be accommodated without jeopardizing the integrity of the disposal cell.

LANDFILL CLOSURE

53. 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 containment and stability of the facility following closure. To date, no units have reached final height so none have been closed.

54. CCR Title 27, Section 21090(a) allows the Regional Water Board to approve alternatives to the prescriptive standard for final cover systems, provided that the selected alternative cover design would continue to isolate landfill wastes from precipitation and irrigation waters at least as well as the prescriptive cover design. This design must include a detailed

comparative analysis between the prescriptive cover design and the alternative, monolithic design. The Discharger must demonstrate that the prescriptive standard is infeasible because it would cost substantially more than an alternative design that provides equal performance in isolating wastes from infiltrating water. An Alternative Final Cover Design must be approved by the Executive Officer prior to the construction of an alternative final cover system over any part of the Landfill. On January 21, 2010, the Water Board approved a four-foot thick monolithic soil cover, pending the submission of a final design report.

55. Financial Assurance for Post-Closure Monitoring and Maintenance: The Discharger has submitted evidence to CalRecycle documenting a financial assurance mechanism (Certificate of Liability Insurance) to ensure monitoring and maintenance of the Landfill during the post-closure period, on August 22, 2016.

56. Financial Assurance for Corrective Action: The Discharger has submitted evidence to the Regional Water Board documenting a financial assurance mechanism to ensure corrective actions that may be necessary as a result of foreseeable releases from the Landfill on August 22, 2016.

MONITORING, COLLECTION AND CONTROL PROGRAMS

Groundwater and Underdrain Monitoring

57. The groundwater monitoring system consists of 24 wells, 19 piezometers and four springs. The discharger conducts semiannual detection monitoring at 12 wells and one spring (SFC-0) in areas downgradient from the landfill. The discharger also performs semiannual monitoring of the blanket drain underlying the toe berm, and bi-monthly detection monitoring of the discharge from the underdrain underlying the entire landfill. The detection monitoring program relies mainly on volatile organic compounds (VOCs) to indicate a release from the landfill. Ambient concentrations of inorganic parameters present in the groundwater preclude the use of these parameters to detect a release. The discharger also performs annual background monitoring at nine wells and one spring (LR-1) in areas upgradient or cross-gradient from the landfill. Every five years, monitoring for additional constituents of concern (COCs; see Specification 15a) is performed at all wells. Lastly, the discharger performs monthly water level measurements at all wells, and monthly flow rate monitoring at three springs and the drain discharge. This is described more fully in the Self-Monitoring Program (SMP) attached to this Order. The purposes of the groundwater monitoring program are to: characterize the background groundwater quality; to detect changes in water quality that might indicate changes in groundwater recharge, or landfill leakage or landfill gas impacts; and to monitor groundwater elevation and gradients to determine groundwater flow directions and velocity.

58. The current groundwater monitoring wells at the Landfill include:

Downgradient wells: MW-1, MW-2, MW-3, MW-4(s), MW-4(d), MW-5, MW-5(m), MW-11(s), MW-11(m), MW-12(m), MW-13, KL-1R, SFC-0.

Upgradient wells: MW-6, MW-6(d), MW-7S, MW-7D, MW-8, MW-9, MW-10, KL-10A, KL-12, LR-1.

59. Site groundwater samples are analyzed for VOCs (EPA 8260 plus MTBE), specific conductivity, pH, total dissolved solids, chloride, nitrate-nitrogen, temperature, turbidity, alkalinity, and sulfate. Every five years, site groundwater is analyzed for additional COCs including semi-volatiles (EPA 8270), metals (California Title 22 list), cyanide, total Kjedahl nitrogen, chemical oxygen demand (COD), and ammonia.

Leachate Collection and Monitoring

60. All existing disposal cells at the Landfill contain leachate collection and recovery capability. The LCRS is designed to collect up to twice the maximum daily leachate generated from the Landfill. Beneath the bases of disposal cells, the LCRS is a 12-inch thick gravel layer with a dendritic network of collection piping. In side-slope liners, generally where the slope is steeper than 3:1 (horizontal/vertical), geocomposite drainage materials (generally, a polyethylene drainage net) have been authorized. The leachate is collected via gravity and routed through a series of collector and header pipes to two 66,000-gallon storage tanks. The leachate is recirculated by re-injection into the waste mass at an upslope disposal cell. The current leachate volumes range from 20 to 31 gallons per day per acre.

61. The level of leachate in the tanks is recorded daily, and the quantity of leachate removed is reported as gallons per month. Per the attached self-monitoring program the leachate is also analyzed quarterly for ammonia, VOCs (EPA 8260 plus MTBE), metals (RCRA Appendix 1). Also, every December, leachate is sampled for the RCRA Appendix II list, which consists of 214 constituents, metals, VOCs, SVOCs, and pesticides.

Vadose Zone Monitoring

62. Vadose Zone monitoring, as required by Section 20415 (Title 27) is technically infeasible at this site. In most parts of the site, groundwater is currently in contact with the subdrain, effectively eliminating the vadose zone.

Landfill Gas and Condensate

63. The Landfill Gas Collection and Control System (GCCS) is regulated by BAAQMD. CalRecycle and the Contra Costa County LEA provides regulatory oversight of subsurface migration of landfill gas based on measurements from the perimeter gas monitoring probes to ensure that the system is working properly. The system consists of 130 landfill gas collection and monitoring wells located in the Landfill that are connected to a header

pipeline network to convey landfill gas under vacuum pressure to the landfill gas to energy plant and enclosed flares. Currently, the landfill gas to energy plant generates up 3.8 MW of power per day, and excess gas is abated in the two enclosed gas flares. The landfill gas monitoring network will be expanded as landfill expansion occurs. Landfill gas condensate (LGC) often contains elevated concentrations of VOCs and other chemicals. LGC is collected at low points in the gas collection system and re-injected into the Landfill along with the leachate. LGC is monitored for the same constituents as the leachate.

Inclinometers

64. Subsurface movement within and below the toe berm is monitored by a series of slope inclinometers that extend through the toe berm fill and underlying landslide deposits. These inclinometers are monitored quarterly. None of these inclinometers or monuments has shown significant deformation.

Stormwater Management and Monitoring

65. The Landfill's stormwater runoff is monitored pursuant to the Statewide General Permit for Storm Water Discharges Associated with Industrial Activities, Order No. 2014-0057-DWQ. Sampling is performed in accordance with the site-specific Storm Water Pollution Prevention Plan.

WATER QUALITY IMPACTS

66. In general, conventional water quality parameters in downgradient wells and the underdrain are detected at concentrations within their historical ranges. Non-naturally occurring VOCs are not typically detected above the minimum detection limit (MDL) or the practical quantitation limit (PQL) in the site groundwater monitoring wells. There have been detections of VOCs in the underdrain discharge of chlorofluorocarbon compounds Freon-11 and Freon-12, beginning in 1999. The compounds detected in the underdrain and the gas from the underdrain pipe are distinctly different from the VOCs detected in either leachate or landfill gas. The Discharger states that the underdrain contamination is not a result of a release from the landfill, and has argued that the net direction of groundwater movement beneath the landfill and the toe berm is upward into the underdrain. The total VOC concentrations in the underdrain since 1999 have dropped from a high of 60 ppb and are generally below 20 ppb. The actual source has not been determined, and Provision 4 of these WDRs requires investigation and abatement of the sources.

67. Landfill leachate shows low concentrations of metals and several VOCs, as does the landfill gas condensate. The condensate has lower metals concentrations but higher concentrations of acetone, methyl ethyl ketone (MEK) and 4-methyl-2-pentanone. Recent (2016) sampling of the condensate showed acetone detected at 35,000 ppb; MEK at 29,000 ppb; and 4-methyl-2-pentanone at 2,300 ppb.

BASIN PLAN AND RESOLUTIONS

68. The Basin Plan is the Regional 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 Board, the Office of Administrative Law, and the U.S. EPA where required.

69. The Basin Plan provides that all groundwater is considered suitable, or potentially suitable, for municipal or domestic water supply (MUN) and that, in making any exceptions, the Regional Water Board will consider the criteria referenced in Regional Water Board Resolution No. 89-39, "Sources of Drinking Water," where:

    a) TDS exceeds 3,000 mg/liter or electrical conductivity exceeds 5,000 μS/cm, or
    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.

    As noted in Finding 34, the TDS concentrations in groundwater in the vicinity of the Landfill generally exceed drinking water standards.

BENEFICIAL USES OF SURFACE WATER AND GROUNDWATER

70. The existing and potential beneficial uses of the surface waters in the vicinity of the site include:

    a. Livestock Water Supply
    b. Wildlife Habitat
    c. Warm Water Habitat

71. The existing and potential beneficial uses of the ground waters in the vicinity of the site include:

    a. Agricultural Supply
    b. Industrial Process Water Supply
    c. Industrial Service Supply

72. Based on the hydrogeologic characterization and water quality data for the landfill site, groundwater underlying the site does not qualify as a potential source of drinking water in accordance with Regional Water Board Resolution No. 89-39. The high TDS, sulfate, and chloride content of the groundwater contained in the Cierbo and Neroly sandstones exceed

drinking water limits. Furthermore, the low yield of the Markley Formation precludes the development of future water supply wells.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

73. The County of Contra Costa certified a final Environmental Impact Report (FEIR) in accordance with the California Environmental Quality Act (CEQA, Public Resources Code Section 21000 *et. seq*.) for the development of the Landfill. The FEIR found that operation of the Landfill could cause significant effects on water quality and degrade water quality unless appropriate mitigation measures are taken.

74. The Board is a responsible agency and has considered the Keller Canyon Landfill FEIR and the mitigation measures described therein relating to the protection of surface water and groundwater quality. In the Keller Canyon FEIR, various mitigation measures were recommended for the protection of surface water and groundwater quality.

75. The Board finds that water quality impacts have been mitigated or avoided by a series of design measures to control erosion and assure containment of waste and leachate through the use of liners, leachate collection and removal systems, groundwater control and limits on the physical dimensions of the fill. These mitigation measures, along with the requirements of this Order, avoid or substantially lessen the significant environmental effects on water quality, as identified in the FEIR.

SAFE DRINKING WATER POLICY

76. 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

77. State Water Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharger and requires maintenance of background levels of water quality, or in the case of corrective actions, achievement of the highest level of water quality which is reasonable if background levels of water quality cannot be restored.

NOTIFICATIONS AND MEETING

78. The Board has notified the discharger and interested agencies and persons of its intent to update these waste discharge requirements, and has provided them with an opportunity for a public hearing and an opportunity to submit their written comments.

79. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED pursuant to the authority in Division 7, Section 13263 of the CWC, Title 27, Division 2, Subdivision 1 of the CCR (Title 27), and State Water 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 Water 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 will migrate from the disposal site to adjacent geologic materials, 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,
   b. Or 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 Regional Water Board staff concurrence, and shall not create a condition of pollution or nuisance as defined in CWC Section 13050(l) and (m). Wastes shall not be relocated to any location where they can be discharged into waters of the State or waters of the United States.

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

9. Wastes shall not be placed in any portion of a 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 be in compliance with 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 without certification of water quality by the Regional 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 an LCRS. For lined disposal cells, the depth of leachate shall not be greater than 12 inches above the bottom liner (excluding in collection sumps).

13. Leachate, or stormwater 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.

14. The treatment, storage, or discharge of waste, groundwater, stormwater, leachate, or sludges shall not create a condition of pollution or nuisance as defined in CWC Section 13050(m), 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;
- 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 in the receiving waters or as a result of biological concentrations.

b. Groundwater shall not be degraded as a result of the waste disposal operation.

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 (SMP) 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 provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order (CWC Section 13263(f)).

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. The site shall be protected from any washout or erosion of wastes from inundation, which could occur as a result of a 1000-year, 24-hour storm event.

8. The Discharger shall ensure 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) on nearby faults that show evidence of activity during the Holocene period.

9. The existing containment, collection, drainage, and monitoring systems for groundwater, surface water, leachate, and LGC 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 201410 of Title 27, as long 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 of the landfill 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 post-closure maintenance period of the landfill.

11. Consistent with the requirements and authority granted to the certified local enforcement agencies, landfill gases shall be adequately monitored, vented, extracted from the landfill, prevented from building up in the landfill or structures, and controlled to minimize the danger of explosion, adverse health effects, nuisance conditions or the impairment of beneficial uses of water.

12. Re-injection of leachate and/or LGC is limited to areas of the Landfill that are equipped with a Subtitle D-compliant composite liner and LCRS. Leachate that is shown through

laboratory analysis to meet drinking water standards (i.e., is below MCLs) for VOCs may be applied for dust control within the landfill boundaries.

13. Recirculation of leachate and/or LGC to a disposal cell other than where it was generated or extracted is allowed, provided that 1) the receiving cell or unit is equipped with a composite liner and LCRS designed to meet federal (Subtitle D) and state Class II standards; 2) leachate accumulation above the composite liner is monitored and does not exceed a thickness of 12 inches (not including LCRS sumps); 3) recirculation may not occur under pressures exceeding gravity drainage; and 4) during the wet season, recirculation is performed in a manner that does not cause surface runoff of water that has come in contact with leachate or LGC.

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 fill slopes shall not have a grade exceeding 3:1 (horizontal/ vertical).

15. The discharger shall operate the Landfill so as to isolate waste from waters of the State. The discharger shall also operate the waste management facility so as to not exceed the Water Quality Protection Standards (WQPS) of the discharge monitoring program. The WQPS for the Landfill shall include the following:

    a) Constituents of Concern: Section 20395 of Title 27 defines 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 Landfill include the monitoring parameters identified in the SMP attached to this Order, or any future amendment thereof, and all Appendix II parameters in 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 Landfill shall include, at a minimum, all constituents identified as such in the SMP attached to 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: For non-naturally occurring chemicals such as VOCs, the

concentration limit (CL) may not exceed the practical quantitation limit (PQL) for each chemical.

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 through the 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.

16. Whenever there is 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 Regional 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.

17. Non-hazardous, inert wastes and non-friable asbestos may be disposed of at the Landfill provided that disposal is performed in compliance with all regulations and provisions of CalRecycle, DTSC, BAAQMD, the LEA, and local health agencies.

18. Designated wastes requiring special handling (such as 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 disposal cells equipped with an LCRS 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. Sludges, other than dewatered sewage or water treatment sludge, must contain no free liquids and must contain at least 50 percent solids by weight at the time of discharge into a disposal cell or use as ADC. Dewatered sewage sludge may be discharged if it contains at least 20 percent solids by weight. Water treatment sludge must contain at least 15 percent solids by weight for disposal. Sludges must be managed so they do not present nuisance concerns on neighboring properties.

21. Future containment systems at the Landfill shall be constructed in a manner that is consistent with the design and components specified below, from top to bottom. Alternative containment system designs and/or components proposed by the Discharger must be approved in advance of construction by the Executive Officer. Containment system designs consistent with the following specifications will likely streamline the Regional Water Board staff review and approval process.

22. The minimum criteria for the landfill liner shall include, but not be limited to: a one foot thick granular underdrain, overlain by two feet of low permeability clay (with a hydraulic conductivity not more than 1 x 10 -7 cm/sec), overlain by an 80- "mil" thick HDPE liner, overlain by a cushion geotextile, overlain by a one-foot thick dendritic LCRS designed and operated to prevent the development of hydraulic head on the liner, overlain by a filter geotextile, and lastly overlain by a one-foot thick operations layer. However, upon approval by the Executive Officer, the one-foot thick granular blanket underdrain may be deleted in those areas where such an underdrain is not necessary as an engineered alternative, pursuant to Title 27, Section 20080(b), to the prescribed 5-foot separation between wastes and groundwater required by Title 27, Section 20240(c). Also, upon approval by the Executive Officer, a synthetic drainage layer may be substituted as an engineered alternative to the one-thick dendritic LCRS.

23. 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 the CalRecycle.

24. 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.

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

26. The Discharger shall notify the Regional 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.

27. 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.

28. 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, or certified engineering geologist.

29. All design aspects related to closure activities, e.g., closure design and final cover construction, shall be under the direct supervision of a registered civil engineer.

30. The Discharger shall notify the Regional 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. Violations may result in enforcement actions, including Regional Water Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these WDRs by the Regional Water Board. [CWC sections 13261, 13263, 13265, 13267, 13268, 13300, 13301, 13304, 13340, and 13350]

2. Authority: All technical and monitoring reports required pursuant to this Order are being requested pursuant to CWC Section 13267. 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 CWC Section 13268.

3. Self-Monitoring Program: The Discharger shall implement and comply with the SMP attached to this Order and any revisions issued by the Executive Officer. The SMP is intended to constitute a Discharge Monitoring Program (DMP) pursuant to Title 27, §20420 and is designed to identify significant water quality impacts from the Landfill and demonstrate compliance with the WQPS established pursuant to Title 27, §20390. The SMP may also include an Evaluation Monitoring Plan (EMP) and Corrective Action Monitoring Program requirements, as required. The Discharger shall submit semi-annual monitoring reports, to be submitted no later than October 31 and April 30 of each year in accordance with the attached SMP (Attachment A). As part of the April 30 report, the discharger shall summit an annual monitoring report. Sample collection shall be conducted at all locations and frequencies specified in the SMP. The annual report to the Board shall cover the previous calendar year as described in Part A of the SMP. In addition to the requirements outline 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 & ANNUAL REPORT – April 30 of each year
2nd SEMI-ANNUAL REPORT – October 31 of each year

4. Subdrain VOC Investigation: The Discharger shall conduct an investigation to evaluate the source of low-level VOCs in the subdrain water. The Discharger shall submit a plan, acceptable to the Executive Officer, to evaluate the source(s) of this contamination, along with proposals to evaluate the feasibility of various treatment options to mitigate the VOC concentrations in the Landfill's underdrain.

COMPLIANCE DATE: **November 1, 2017**

5. Five-Year Development Plan: The Discharger shall submit a Five-Year Development Plan acceptable to the Executive Officer. This plan shall include, but not be limited to, scale drawings showing lined footprint expansion areas and grading locations and fill sequencing for each year in the five-year cycle. These Development Plans shall be updated as they are changed or annually at a minimum.

REPORT DUE DATE: FIRST REPORT- September 1, 2017

6. 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 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.

7. 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 Report 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 placed 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.

8. 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; a CQA testing frequencies for in-place soils and any borrow materials; final cover design drawings; details of landfill gas and leachate well contingencies during cover construction; proposed final 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 wastes 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.

9. 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 design and discharge requirements for that disposal cell. 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 or 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

10. 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. 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 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 five years

11. Financial Assurance for Corrective Action 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 releases from the Landfill. 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 five years thereafter

12. 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).

13. Construction-Related Stormwater Controls: For each proposed grading or development project, the Discharger shall submit a Notice of Intent to the State Water Board, submit a Storm Water Pollution Prevention Plan (SWPPP) acceptable to the Executive Officer, and implement Best Management Practices (BMPs) for the control of stormwater, in accordance with requirements specified in the State Water Board's General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit, NPDES Permit No. CAS000002).

    COMPLIANCE DATE: 30 days prior to commencement of each grading or development project construction

14. 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 SMP.

    COMPLIANCE DATE: 60 days following well installation or destruction

15. Post-Earthquake Inspection: The Discharger shall submit a Post-Earthquake Inspection Report acceptable to the Executive Officer in the event of any earthquake generating Moment Magnitude of 6.0 or greater at or within 30 miles of the Landfill. The report shall describe the general site conditions along with physical condition of waste containment features, leachate conveyance and storage facilities, landfill gas flare, gas collection piping, levees, and stormwater control features.

COMPLIANCE DATE: Written report must be submitted within 72 hours of a triggering seismic event. Any damage that may cause negative impacts to waters of the State must be reported immediately upon discovery to the Spill Hotline at 1-800-852-7550 and by sending an email to Rb2SpillReports@waterboards.ca.gov.

16. If actual or potential groundwater contamination is detected, the Discharger shall provide immediate notification to the Regional Water Board, the LEA, and the Department of Health Services (DOHS).

17. The Discharger shall comply with all applicable provisions of Title 27, including those that are not specifically referred to in this Order.

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

19. The Discharger shall file with this Board a report of any material change or proposed change in the character, location, or quantity of the waste discharge. For the purpose of these requirements, this includes any proposed change in the boundaries of the disposal areas or the ownership of the site.

20. In the event that the Discharger-owned property adjacent to the landfill is developed into residential dwellings, the discharger will notify perspective home purchasers of the presence of the landfill.

21. 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.

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

23. The Discharger shall submit, within 90 days after the closure of any portion of the

landfill, a closure certification report that documents that the area has been closed according to the requirements of this Order and Title 27. The Discharger shall certify under penalty of perjury that all closure activities were performed in accordance with the most recently approved closure plan and in accordance with applicable regulations.

24. 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.

25. Revision: These WDRs are subject to review and revision by the Regional Water Board [CCR Section 13263].

26. The Discharger shall file a technical report on any changes in site occupancy or ownership associated with the property described in this Order.

27. Where the Discharger becomes aware that it failed to submit any relevant facts or submitted incorrect information in a JTD or in any report to the Regional Board, it shall promptly submit and/or correct such facts or information (CWFC Sections 13260 and 13267).

28. 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 continue the waste discharge [CWC Section 13263(g)].

29. Severability: Provisions of this Order are severable. If any provisions of these WDRs are found invalid, the remainder of these requirements shall not be affected [CWC Section 9213].

30. Operation and Maintenance: The Discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with conditions of 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 provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order [CWC Section 13263(f)].

31. 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 immediately report such discharge to the Regional Water Board by calling the Spill Hotline at 1-800-852-7550 and by sending an email to Rb2SpillReports@waterboards.ca.gov. A written report shall be

mailed or submitted electronically to the Regional Water Board within five business days. The report shall describe the following: the nature of the hazardous substance released, 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.

32. Entry and Inspection: The Discharger shall allow the Regional 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].

33. 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 or discharge subject to a general NPDES permit) shall file an NPDES permit application with the Regional Water Board [CCR Title 2 Section 223571].

34. Endangerment of Human Health or the Environment: The Discharger shall report any event of noncompliance that may endanger human health or the environment to the Regional Water Board by calling the Spill Hotline at 1-800-852-7550 and by sending an email to Rb2SpillReports@waterboards.ca.gov. A written submittal to the Regional Water Board shall also be provided within five days of the time the Discharger becomes aware of the circumstances. The written submittal shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been 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 initial notification was received within 24 hours of discovery of the incident.

35. 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) Contra Costa County Department of Environmental Health (LEA).

The Executive Officer may modify this distribution list as needed.

36. Reporting Requirements:

a) Hardcopies:

i) Technical reports/plans, submitted by the Discharger, in compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be submitted to the Regional 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;

b. 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;

c. In the self-monitoring reports, an evaluation of the current groundwater monitoring system and a proposal for modifications as appropriate; and

d. A signed transmittal letter and professional certification by a California licensed civil engineer or a professional geologist.

ii) 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 principle executive officer or the level of vice-president or an appropriate delegate.

b. For 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.

b) Electronic Submittals:

i. The State Water Board has adopted regulations requiring electronic report and data submittal to Geotracker [http://www.geotracker.swrcb.ca.gov/].

ii. 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;

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); and

e. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order related to stormwater and compliance with the State Water Board' General Permit No. CAS000001 for the Discharge of Storm Water Associated with Industrial Activities.

iii) 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. Data tables 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 copy of 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 located in);

d. Groundwater depths and elevations (water levels);

e. Current analytical results by constituent of concern (including detection limits for each constituent);

f. Historical analytical results (including the past five years, unless otherwise requested); and

g. Measurement dates.

37. 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).

38. Board Order No. 01-040 is hereby rescinded.

I, Bruce H. Wolfe, 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 .

Bruce H. Wolfe
Executive Officer

Attachments: Figures 1 & 2, Site location Site Map
Self-Monitoring Program
Tables A-1 to A-4, Monitoring points, parameters & frequency

FIGURE 1

SITE LOCATION MAP
KELLER CANYON LANDFILL
PITTSBURG, CONTRA COSTA COUNTY

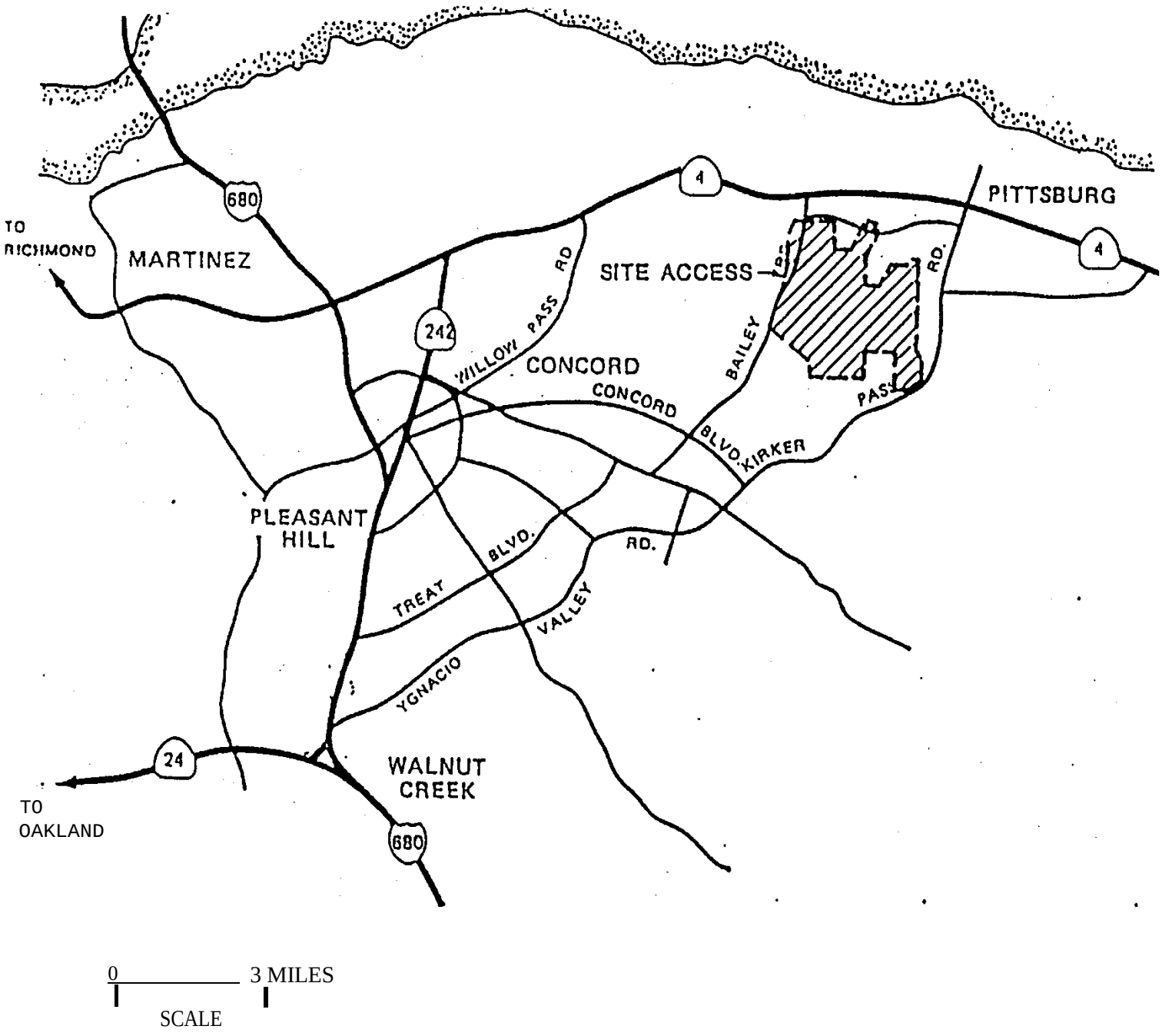
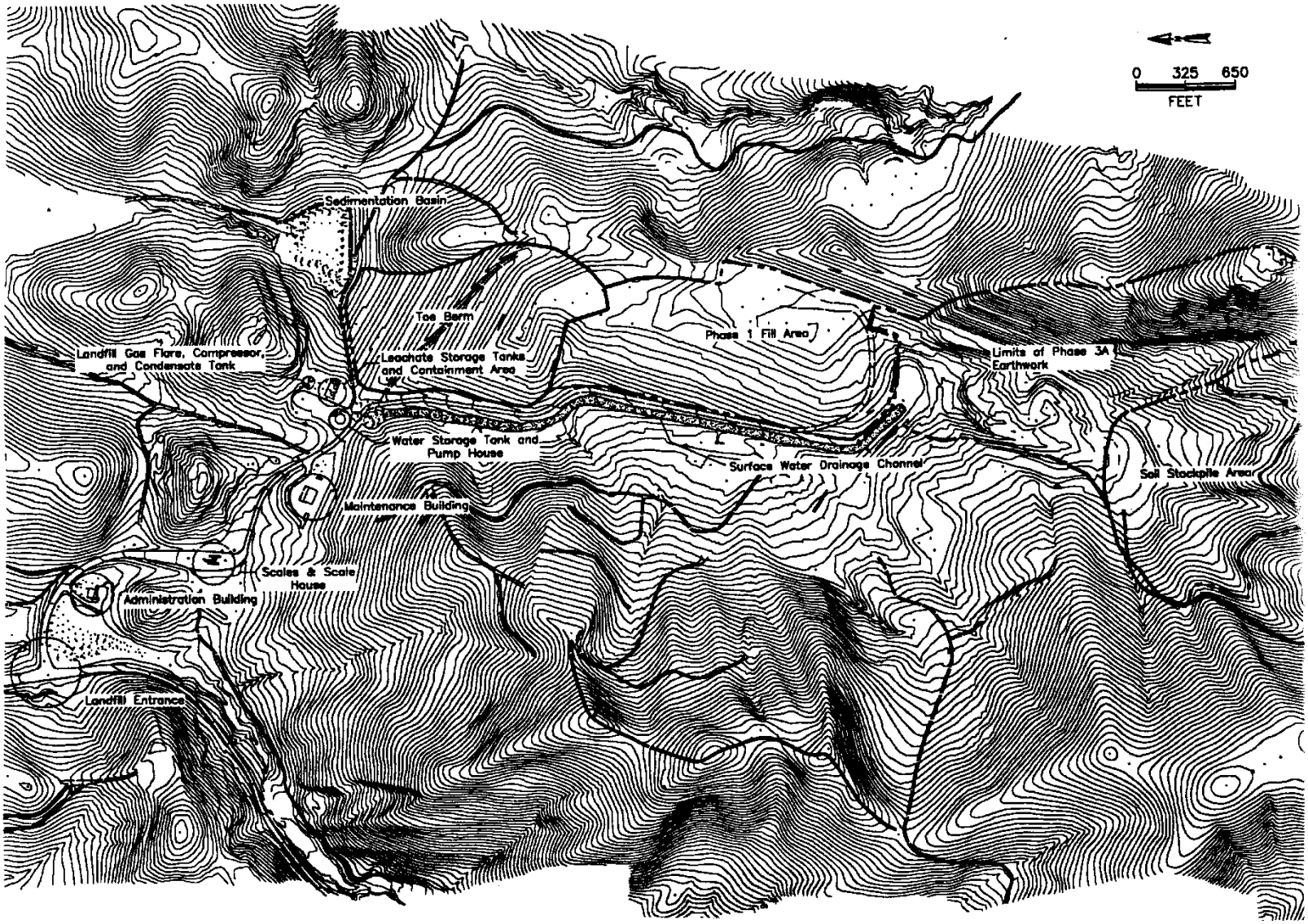


FIGURE 2

SITE MAP
KELLER CANYON LANDFILL
PITTSBURG, CONTRA COSTA COUNTY



CALIFORNIA REGIONAL WATER QUALITY CONTROL
BOARD SAN FRANCISCO BAY REGION

SELF-MONITORING

PROGRAM FOR

KELLER CANYON LANDFILL

COMPANY CLASS II SOLID WASTE

DISPOSAL SITE CONTRA COSTA

COUNTY

ORDER NO. R2-2017-

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); and
(e) Monitoring parameters and analytes (Part B).

A. AUTHORITY AND PURPOSE

For discharges of waste to land, water quality monitoring is required pursuant to 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 WDRs and prohibitions established by the Regional Water Board, (2) to facilitate self-policing by the 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 Regional Water Board may require monitoring of groundwater, surface water, vadose zone, stormwater, 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 U.S. EPA-approved methods or in accordance with a sampling and analysis plan (SAP) approved by Regional 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 Regional 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 runoff 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.

1. Perimeter of WMUs:

   a. Evidence of liquid leaving or entering the WMU, estimated size of affected area and flow rate (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.

2. 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. Stormwater management system (SWMS) elements such as perimeter drainage and diversion channels, ditches and downchutes, 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 day during each semiannual monitoring event;
3. Equipment blank – one sample per 10 monitoring stations; and
4. Trip blank – one sample per each semiannual monitoring event.

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 a 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 re-injected in a Subtitle D-compliant disposal unit or applied for dust control provided discharge limits are met. 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 re-injected to a Subtitle D-compliant disposal unit, flared off, or properly disposed offsite. 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 CCR sections 13225(a), 13267(b), 13383, and 13387(b) and this Regional 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, WMUs, 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 in the annual report 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 reporting period, 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
   e. 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; and
      (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 Regional Water Board staff and unless the information is already contained in a SAP approved by Regional 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 actually taking the samples, and any other relevant observations; and
   e. Documentation of laboratory results, analytical methods, detection limits and reporting limits, and Quality Assurance/Quality Control (QA/QC) procedures for the required sampling.

D. CONTINGENCY REPORTING

1. The Discharger shall report any significant discharge from the disposal area immediately after it is discovered to the Regional Water Board by calling the Spill Hotline at 1-800-852-7550 and by sending an email to Rb2SpillReports@waterboards.ca.gov. The Discharger shall submit a written report with the Regional Water Board within five days of discovery of any discharge. The written report shall contain, at a minimum, 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.

2. The Discharger shall submit a written report to the Regional Water Board within seven days of determining that a statistically significant difference occurred between a SMP sample set and an 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.

3. 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 Regional Water Board an amended Report of Waste Discharge as specified in Section 20420 of Title 27 for establishment of an Evaluation Monitoring Program meeting the requirements of Section 20425 of Title 27.

E. REPORTING REQUIREMENTS

The Discharger shall submit SMRs to Regional Water Board staff in accordance with the schedules indicated in Tables A-1, A-2, A-3, and A-4. Reports due at the same time may be combined into one report for convenience, as long as monitoring activities and results

pertaining to each monitoring period are clearly distinguishable. Reports shall be submitted in accordance with Provision xx in these 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 the course of any unresolved litigation regarding a discharge or when requested by the Regional Water Board.

Part B

1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS

A. WASTE MONITORING- Observe Monthly

1. Record the total volume and weight of refuse in cubic yards and tons disposed at the site during each month showing locations and dimensions on a sketch or map.

2. Record a description of waste stream to include percentage of waste type, i.e., Residential, Commercial, Industrial or Construction/ Demolition debris.

3. Record location and aerial extent of disposal of each waste type during the month.

B. ON-SITE OBSERVATIONS

Stations V-1 to V-10: Weekly Standard observations of the waste disposal area.

Stations P-1 to P-10: Weekly standard observations o fthe landfill perimeter.

Receiving Water: Monthly standard observations at receiving water stations.

C. SURFACE, GROUND WATER AND LEACHATE MONITORING

The discharger shall sample surface water, groundwater, leachate, surface springs and the underdrains as detailed in Table A-1 to A-4.

D. FACILITIES MONITORING

The discharger shall inspect all facilities to ensure proper and safe operation once per quarter and report annually. The facilities to be monitored shall include, but not be limited to:

a. Leachate Collection and Removal System
b. Sedimentation Pond
c. Leachate Tank
d. Perimeter diversion channels
e. Leachate Management procedures and containment capacity.
f. Underdrain system.

E. REPORT DUE DATES

Reports shall be due on the following schedule:

FIRST SEMI-ANNUAL REPORT & ANNUAL REPORT: April 30 of each year
SECOND SEMI-ANNUAL REPORT: October 31 of each year

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in this Board's Order No. R2-2017-

2. Is effective on the date shown below.

3. May be reviewed or modified at any time subsequent to the effective date, upon written notice from the Executive Officer.

Bruce H. Wolfe
Executive Officer

Date Ordered:

Attachment: Tables A-1 to A-4, Monitoring points, parameters & frequency

TABLE A-1- GROUNDWATER DETECTION MONITORING

STATION	SAMPLING FREQUENCY	PURPOSE	ANALYTICAL PARAMETERS
MW-1	Semi-Annual	Detection	Monitoring parameters (1A)
MW-2	Semi-Annual	Detection	Monitoring parameters (1A)
MW-3	Semi-Annual	Detection	Monitoring parameters (1A)
MW-4(s)	Semi-Annual	Detection	Monitoring parameters (1A)
MW-4(d)	Semi-Annual	Detection	Monitoring parameters (1A)
MW-5	Semi-Annual	Detection	Monitoring parameters (1A)
MW-5(m)	Semi-Annual	Detection	Monitoring parameters (1A)
MW-11(s)	Semi-Annual	Detection	Monitoring parameters (1A)
MW-11(m)	Semi-Annual	Detection	Monitoring parameters (1A)
MW-12(m)	Semi-Annual	Detection	Monitoring parameters (1A)
MW-13	Semi-Annual	Detection	Monitoring parameters (1A)
KL-1R	Semi-Annual	Detection	Monitoring parameters (1A)
SFC-0	Semi-Annual	Detection	Monitoring parameters (1A)
Underdrain	Monthly	Detection	Monitoring parameters (1A)
Blanket drain	Semi-Annual	Detection	Monitoring parameters (1A)

(1A) VOCs (EPA 8260 plus MTBE), pH, TDS, Chloride, Sulfate, Nitrate, Temperature, Electrical Conductivity, Turbidity, Alkalinity. **Every 5 years,** also analyze for the following additional constituents of concern: semi-volatile compounds (EPA 8270), metals (California Title 22 list), cyanide, TKN, COD and ammonia.

TABLE A-2- GROUNDWATER BACKGROUND MONITORING

STATION	SAMPLING FREQUENCY	PURPOSE	ANALYTICAL PARAMETERS
MW-6	Annual	Background	Monitoring Parameters (1B)
MW-6(d)	Annual	Background	Monitoring Parameters (1B)
MW-7S	Annual	Background	Monitoring Parameters (1B)
MW-7D	Annual	Background	Monitoring Parameters (1B)
MW-8	Annual	Background	Monitoring Parameters (1B)
MW-9	Annual	Background	Monitoring Parameters (1B)
MW-10	Annual	Background	Monitoring Parameters (1B)
KL-10A	Annual	Background	Monitoring Parameters (1B)
KL-12	Annual	Background	Monitoring Parameters (1B)
LR-1	Annual	Background	Monitoring Parameters (1B)

(1B) VOCs (EPA 8260 plus MTBE), pH, TDS, Chloride, Sulfate, Nitrate, Temperature, Electrical Conductivity, Turbidity, Alkalinity

TABLE A-3- OTHER MONITORING

STATION	SAMPLING FREQUENCY	ANALYTICAL PARAMETERS
Leachate	Quarterly	Monitoring Parameters (2)
Leachate	Daily	Flowrate
Condensate	Quarterly	Monitoring Parameters (2)
Underdrain	Monthly	Flowrate
Blanket drain	Monthly	Flowrate
SFC-0	Monthly	Flowrate
LR-1	Monthly	Flowrate
LR-2	Monthly	Flowrate
1-1	Quarterly	Displacement
GLA-1	Quarterly	Displacement
GLA-2	Quarterly	Displacement
GLA-4	Quarterly	Displacement
GLA-14	Quarterly	Displacement
Surface Water Stations	2 storm events	Monitoring Parameters (3)

Monitoring parameters (2): Ammonia, VOCs (EPA 8260 plus MTBE), Metals (RCRA Appendix 1). In December of every year, leachate is to be sampled for RCRA Appendix II list.

Monitoring parameters (3): To be sampled, per SWRCB General Industrial Activities Storm water Permit.

TABLE A-4 WATER LEVEL MEASUREMENT

STATION	FREQUENCY
MW-1	Quarterly
MW-2	Quarterly
MW-3	Quarterly
MW-4(s)	Quarterly
MW-4(d)	Quarterly
MW-5	Quarterly
MW-5(m)	Quarterly
MW-5(d)	Quarterly
MW-11S	Quarterly
MW-11M	Quarterly
MW-11D	Quarterly
MW-12M	Quarterly
MW-12D	Quarterly
MW-13	Quarterly
KL-1R	Quarterly
MW-6	Quarterly
MW-6D	Quarterly
MW-7S	Quarterly
MW-7D	Quarterly
MW-8	Quarterly
MW-9	Quarterly
MW-10	Quarterly
KL-10A	Quarterly
KL-12	Quarterly
CH-1	Quarterly
P-11(s)	Quarterly
P-11(d)	Quarterly
P-12(s)	Quarterly
P-12(d)	Quarterly
P-13(s)	Quarterly
P-13(d)	Quarterly
P-14	Quarterly
P-15	Quarterly