INFORMATION SHEET

ORDER NO. R5-2012-XXXX
L AND D LANDFILL LIMITED PARTNERSHIP
FRUITRIDGE ROAD LAND COMPANY
L AND D LANDFILL, LIMITED CLASS III LANDFILL
OPERATION, CLOSURE, POST-CLOSURE MAINTENANCE,
AND CORRECTIVE ACTION
SACRAMENTO COUNTY

L and D Landfill Limited Partnership (facility owner and operator) and Fruitridge Road Land Company (landowner), hereinafter referred to jointly as "Discharger", own and operate the L and D Landfill (facility) in Sacramento. The facility area is 177 acres and is located at 8635 Fruitridge Road in Sacramento. The landfill waste disposal units have been excavated from former gravel quarry pits. The landfill area is approximately 147 acres and no additional landfill units are to be constructed. The landfill units consist of unlined Landfill No. 1 (LF-1) covering about 92 acres (west pit and east pit) and lined Landfill No. 2 (LF-2) expansion area covering about 64 acres. The facility is a limited Class III landfill that primarily accepts construction and demolition debris, but also accepts paper, wood, shredded tires, plastic, non-friable asbestos, and similar non-petrescible materials. The landfill also accepts limited amounts of green waste but does not accept other municipal solid wastes. All landfill liner systems for the landfill have been constructed and no additional landfill modules are proposed or approved by this Order.

The landfill is located at the site of a former gravel quarry and the landfill units have been excavated from the former gravel pits at the site. Land uses within 1,000 feet of the facility include industrial and commercial buildings to the north, south, east, and west, and farming to north and east. On-site facilities at the facility include: the landfill areas, a runoff infiltration pond, a lined storm water pond in the east pit landfill area, a lined storm water pond in west pit landfill area, an active landfill gas extraction system, a landfill gas flare, an air stripper for treatment of impacted groundwater, a construction and demolition recycling facility, and a green waste transfer station.

The LF-2 area consists of seven composite-lined modules that drain to a common sump that is located in the southwest corner of Module 2. The composite liner systems for LF-2 Modules 1 through 7 include high-density poly ethylene (HDPE) geomembrane underlain by a geosynthetic clay liner (GCL). The leachate collection and removal system consists of one foot of gravel. LF-2 Modules 5, 6, and 7 include an additional GCL one foot below the primary liner and also include a thicker operations layer (two feet of shredded tires as opposed to the one-foot shredded tire operations layer for Modules 1 through 4). Additional liner system details are included in Finding 5 of the waste discharge requirements (WDRs).

The existing groundwater monitoring network for the landfill consists of three background wells, two detection monitoring wells for the lined LF-2 area, and several detection/corrective action monitoring wells downgradient from the unlined LF-1 landfills. Groundwater beneath and downgradient from the unlined LF-1 landfill is impacted with volatile organic compounds (VOCs). Corrective action began in 1993 and consists of groundwater extraction wells and a landfill gas extraction system. Ground water is extracted from 11 wells at up to a total of 99 gallons per minute total and is treated with an

air stripper and discharged to a percolation pond. Landfill gas is extracted from an in-fill and perimeter extraction system and routed to a landfill gas flare. The in-fill system consists of 14 double-completion extraction wells and 10 single-completion extraction wells in LF-1, and four LCRS laterals in LF-2. The perimeter system consists of 29 single-completion extraction wells.

Corrective action has resulted in significant decreases in the concentrations of VOCs in groundwater at the downgradient perimeter of the landfill; however, VOCs in groundwater at downgradient wells located off-site at monitoring wells MW-16 and MW-32 may require additional corrective action. Central Valley Water Board staff noted upon review of the 2011 Annual Monitoring Report that the quarterly groundwater contour and flow direction maps indicated that there may be areas along the downgradient perimeter of the landfill where groundwater is not being captured by the groundwater extraction system. On 1 March 2012, Central Valley Water Board staff issued a letter requiring the Discharger to submit a report with a capture zone analysis for the current groundwater extraction system at both the current extraction rate and at the maximum rate the wells were designed for in order to determine if the system is capturing or is capable of capturing the VOC-impacted groundwater. The Discharger submitted the reports by the required dates showing that all extraction wells had been redeveloped, the pumps had been cleaned or replaced, and that the extraction and treatment system had been cleaned to remove deposits in the piping caused by manganese fouling. The maintenance work resulted in the overall extraction rate increasing from about 64 gpm to about 90 gpm. The 1 June 2012 report also included a capture zone analysis using the MODFLOW computer model that indicated VOC-impacted groundwater could be sufficiently captured at a flow rates between 80 and 90 gpm, and that the system should be inspected, cleaned, and maintained if the average overall flow rate falls below 80 gpm. The 1 June 2012 report also recommended quarterly inspection of all system components and semiannual cleaning of all system components and that an updated Operation and Maintenance (O&M) Plan for the groundwater extraction and treatment system be submitted. This Order requires that the Discharger conduct groundwater extraction and treatment system maintenance and update the O&M Plan in accordance with the recommendations.

On 23 November 2011, the Discharger submitted an amended Report of Waste Discharge (ROWD) as part of the Joint Technical Document (JTD) for the landfill, and additional amendments dated 2 March 2012, 21 May 2012, and 15 June 2012 were submitted in response to agency comments. The ROWD/JTD also included an October 2011 *Preliminary Partial Final Closure and Post-Closure Maintenance Plan* that was revised on 22 February 2012, 21 May 2012, and 12 June 2012 in response to agency comments, and a 23 November 2011 *Solid Waste Facility Permit Revision Application*. The information in the ROWD/JTD has been used in revising these waste discharge requirements (WDRs). The ROWD contains the applicable information required in Title 27. The ROWD/JTD and supporting documents contain information related to this revision of the WDRs including:

a. An engineered alternative final cover system that is contained in the preliminary partial final closure plan.

b. A 12-foot increase in the final height of the landfill from 85 feet above mean sea level (MSL) to 97 feet MSL.

The engineered alternative final cover for the unlined landfill LF-1 (closure phases 7 through 12) consisting of, in ascending, the following layers:

a. One-foot soil foundation layer.
b. A 40-mil linear low-density poly ethylene (LLDPE) geomembrane layer, textured on both sides.
c. A geocomposite drainage layer (on side slopes steeper than 4H:1V).
d. One-foot soil erosion resistant soil layer, with vegetation.

The engineered alternative final cover for the composite-lined landfill LF-2 (closure phases 1 through 6) consisting of, in ascending, the following layers:

a. One-foot soil foundation layer.
b. A geosynthetic clay liner (GCL).
c. A 40-mil LLDPE geomembrane layer, textured on both sides.
d. A geocomposite drainage layer (on side slopes steeper than 4H:1V).
e. One-foot soil erosion resistant soil layer, with vegetation (closure phases 1, 2, 3, and 5 will receive a two-foot erosion resistant soil layer, with vegetation).

The Discharger included an infiltration analysis of the proposed engineered alternative final cover systems in Appendix D of the October 2011 (revised 22 February 2012 and 12 June 2012) *Preliminary/Partial Final Closure and Postclosure Maintenance Plan*. The infiltration analysis uses the Hydrologic Evaluation of Landfill Performance (HELP) computer model (model version 3.07) that was developed for USEPA by the US Army Corps of Engineers. The infiltration analysis compares the vertical flow through the engineered alternative final cover systems with the corresponding prescriptive final cover system. The infiltration analysis uses a 30-year simulation period using synthetically generated data for precipitation, temperature, and evapotranspiration based on local weather data. The analysis also assumes good geomembrane placement quality, one 1 millimeter pinhole per acre, and five 1 square centimeter holes per acre. The results of the infiltration analysis for the unlined LF-1 landfill indicate that the engineered alternative final cover will allow infiltration of 1,550 gallons per acre compared with 92,753 gallons per acre for the corresponding prescriptive cover. The results of the infiltration analysis for the composite-lined LF-2 landfill indicate that the engineered alternative final cover will allow infiltration of 15 gallons per acre compared with 75 gallons per acre for the corresponding prescriptive cover. In addition, the engineered alterative liners will prevent the need for importing clay soils from offsite to construct the compacted clay components of the prescriptive final cover systems. The Discharger has demonstrated that the engineered alternative final cover meets or exceeds the performance goals of Title 27 and that it is equivalent to or better than the prescriptive standard.

The Discharger performed a slope stability analysis for the proposed final cover that is included in Appendix B of the *Preliminary/Partial Final Closure and Postclosure Maintenance Plan*. The Discharger performed both static and seismic stability analyses as required by Title 27. For critical sections, the results for veneer stability under static

conditions show a factor of safety greater than 1.5 as required by Title 27. Under seismic conditions using the MPE peak ground acceleration of 0.115g, the lowest factor of safety is 1.38. This factor of safety is greater than 1.0 and the Discharger states that no deformation of the final cover will occur. The Discharger's static and dynamic stability analysis demonstrates that the side slopes of the final cover will be stable in accordance with the requirements of Title 27.

Storm water runoff from the landfill is retained onsite (is routed to an infiltration pond). Local surface drainage is toward Morrison Creek about one-half mile south of the landfill. Morrison Creek is a seasonal tributary to the Sacramento River.

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