

INFORMATION SHEET

ORDER R5-2014-XXXX
KINGS WASTE AND RECYCLING AUTHORITY
POSTCLOSURE MAINTENANCE AND CORRECTIVE ACTION
HANFORD MUNICIPAL SOLID WASTE LANDFILL
KINGS COUNTY

The Kings Waste and Recycling Authority (hereafter Discharger) owns and maintains a closed, unlined, municipal solid waste landfill (facility) about 2.5 miles southwest of the City of Hanford in Kings County.

The California Regional Water Quality Control Board (Central Valley Water Board) adopted Waste Discharge Requirements (WDRs) Order No. R5-2007-0154 (Order R5-2007-0154) on 26 October 2007, which classified the waste management unit (Unit) as a Class III landfill as defined in Title 27, California Code of Regulations, section 20005 et seq. (hereafter Title 27), that accepts or accepted municipal solid waste. The proposed Order revises the existing WDRs to provide for postclosure maintenance and to implement a corrective action program.

The 96.4-acre facility contains one closed unlined Unit that covers 79 acres. The Discharger does not propose expansion. The facility accepted waste from 1973 through 1998.

The facility is located within the southern portion of the San Joaquin Valley approximately 2.5 miles southwest of the City of Hanford. The facility is underlain by 6,000 of valley-fill sediments that result from alluvial, fluvial, lacustrine, and marine depositional processes.

The first encountered groundwater beneath the facility ranges between 121 and 131 feet below ground surface (bgs) depending on location at the facility. Groundwater elevations range between 123 and 116 feet above mean seas level (MSL) depending on location at the facility. The first encountered groundwater is unconfined. The depth to groundwater fluctuates seasonally as much as 25 to 30 feet. Background, detection, and corrective action groundwater monitoring wells are screened in the unconfined groundwater zone.

Unsaturated zone detection monitoring for leachate is not being conducted at the facility. Installing an unsaturated zone monitoring system for leachate (i.e., lysimeters) beneath the Unit at this time would not be practical based on the fact the existing Unit is closed, unlined without a leachate collection and removal system (LCRS), and has already released waste constituents to groundwater.

Volatile organic compounds (VOCs) have been detected in unconfined groundwater along the southern, western, and northwestern point of compliance. The VOCs detected in groundwater are: acetone; benzene, cis-1,2-dichloroethene (cis-1,2-DCE); trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); tetrachloroethene (PCE); trichloroethane (TCE); 1,1-dichloroethane (1,1-DCA); 1,1-dichloroethene (1,1-DCE); methylene chloride; trans-1,2-dichloroethene (trans-1,2-DCE); vinyl chloride; and 1,1,1-trichloroethane to groundwater. The latest self-monitoring report (Second

Semiannual Monitoring Report, 2012) detected: CFC-12; 1,1-DCA; 1,1-DCE; cis-1,2-DCE; TCE; PCE; CFC-11; and vinyl chloride in point of compliance and corrective action groundwater monitoring wells. Based on analytical results from samples collected from LFG monitoring wells, degradation by VOCs in groundwater beneath the Unit, especially the northwestern corner of the Unit where VOC concentrations are the highest, is attributed to LFG migration.

Inorganic waste constituents detected in point of compliance groundwater monitoring wells at concentrations statistically exceeding their respective background concentrations include: bicarbonate; carbonate; sulfate; total dissolved solids (TDS); calcium; magnesium; and potassium. The latest self-monitoring report (Second Semiannual Monitoring Report, 2012) detected: calcium; sulfate; and TDS in point of compliance groundwater monitoring wells at levels statistically exceeding their respective background concentrations. No inorganic waste constituent exceedences of background concentrations occurred at corrective action groundwater monitoring wells.

The Discharger's evaluation monitoring program (EMP) adequately determined the nature and lateral and vertical extent of the release and the EMP was deemed complete on 15 May 2002. Total VOC concentrations at the point of compliance and off-site locations ranged upward to 55 micrograms/liter. However, either PCE, TCE, and/or vinyl chloride exceeded their respective Maximum Contaminant Level (MCL) at point of compliance wells HL-7 and HL-8 and evaluation monitoring well HL-13. Currently, PCE exceeds its MCL at point of compliance well HL-6 and extraction well EX-2 near the Unit's northwestern point of compliance. Analytical data from evaluation groundwater monitoring determined that the lateral extent of the VOC plume was approximately 1,500 feet west of the Unit, 750 feet southwest of the Unit; approximately 200 feet north of the Unit; and approximately 100 feet east and south of the Unit. The vertical extent of the VOC plume appeared to be approximately 202 feet bgs. The lateral and vertical extent of inorganic waste constituents in groundwater fell within the VOC plume boundary.

A revised corrective action program (CAP) was submitted on 19 February 2013. The Discharger's revised CAP proposes a five-year pilot test utilizing a groundwater extraction/aeration system to remediate VOCs in groundwater and control the hydraulically downgradient migration of VOCs in groundwater. Proposed is that groundwater would initially be extracted from extraction well EX-2, which is located along the western point of compliance and pumped into four 10,000-gallon above-ground tanks for aeration. However, the number of extraction wells is subject to change. Once it is determined that the extraction/aeration system is removing VOCs from the extracted groundwater, the Discharger will evaluate whether additional site groundwater extraction wells should be added to the CAP. The aeration system would consist of a float-based aerator, and possibly more, placed inside each of the above-ground tanks to volatilize VOCs to nondetectable concentrations. Initiation of groundwater extraction was proposed for extraction well EX-2 where the most significant concentrations of total VOCs in groundwater have been detected. Following aeration, the treated groundwater would be discharged to one or more on-site

evaporation/percolation basins. Additionally, the Discharger proposes increasing LFG extraction in the northwestern portion of the Unit where VOC concentrations in groundwater and LFG are the highest to control VOC migration to groundwater.

The Discharger completed construction of an engineered alternative composite final cover system in October 1999. The final cover system is comprised, in ascending order: of a 12-inch thick foundation layer placed over an existing six-to-12-inch thick intermediate cover; a non-reinforced geosynthetic clay layer; and an 18-inch thick vegetative layer. Additionally, a landfill gas (LFG) extraction system was installed to remove and thermally destroy LFG. Postclosure maintenance includes inspection, maintenance, and monitoring of the landfill during the postclosure maintenance period, and includes a postclosure maintenance cost estimate for the entire facility.

This order requires full containment of wastes and does not permit degradation of surface water or groundwater. Further, antidegradation analysis is therefore not needed. The discharge is consistent with the antidegradation provisions of State Water Resources Control Board Resolution 68-16.