

INFORMATION SHEET

ORDER R5-2014-XXXX
COUNTY OF TULARE
POSTCLOSURE MAINTENANCE AND CORRECTIVE ACTION
EARLIMART MUNICIPAL SOLID WASTE LANDFILL
TULARE COUNTY

The County of Tulare (hereafter Discharger) owns and maintains a closed, unlined, municipal solid waste landfill (facility) about two miles north of the Earlimart in Tulare County. The facility contains one closed unlined Unit that covers 16.6 acres. The facility began operations prior to 1971 and ceased accepting waste in March 1999. The Discharger does not propose expansion.

The California Regional Water Quality Control Board (Central Valley Water Board) adopted Waste Discharge Requirements (WDRs) Order No. 5-00-236 on 27 October 2000, 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 facility is located within the southern portion of the San Joaquin Valley approximately two miles north of Earlimart. The facility is underlain by unconsolidated geologic material comprised of lenticular deposits of generally clay, silt, sands, and gravel. The first encountered groundwater beneath the facility is unconfined, ranges between 84 and 93 feet below ground surface (bgs), and groundwater elevations range between approximately 180 and 190 feet above mean seas level (MSL) depending on location at the facility. The depth to groundwater fluctuates seasonally as much as five feet. Background, detection, and corrective action groundwater monitoring wells are screened in the unconfined groundwater zone.

Volatile organic compounds (VOCs) have been detected in unconfined groundwater along the point of compliance. The VOCs detected in groundwater included 1,1-dichloroethane (1,1-DCA); trichloroethene (TCE); tetrachloroethene (PCE); trichlorofluoromethane (CFC11), and dichlorodifluoromethane (CFC12). However, there were no detectable levels of VOCs in groundwater samples collected and analyzed during the First Semi-Annual Monitoring Period, 2013. Inorganic waste constituents detected in point of compliance groundwater monitoring wells at concentrations statistically exceeding their respective background concentrations include lead, cadmium, copper, nickel, manganese, silver, selenium, beryllium, cobalt, calcium, and magnesium, and bicarbonate.

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 20 July 2012. The VOC plume extends approximately 180 feet hydraulically downgradient (northwesterly) and 95 feet to the southwest of the M-3 monitoring well cluster. The vertical extent of the VOC plume was determined to be limited to the uppermost groundwater zone, approximately 90 feet bgs. Off-site domestic wells in the vicinity of the facility were sampled as part of the EMP. Groundwater samples collected in the spring of 2012 determined that total VOC concentrations in hydraulically downgradient off-site domestic supply wells did not exceed 0.1 microgram per liter ($\mu\text{g/L}$). Of the VOCs detected in the domestic wells, the lowest primary maximum contaminant level is 5 $\mu\text{g/L}$.

The EMP demonstrated that the source of VOC release was due to a buildup and the resulting migration of landfill gas (LFG). The LFG extraction system was off-line from October 2008 until September 2010 during closure construction. The LFG, in addition to the VOC content, is typically 30% carbon dioxide. The disassociation of the carbon dioxide gas into groundwater caused an increase in pH. The increase of pH was then buffered by the dissolution of carbonate minerals into groundwater, which caused the release of calcium, manganese, and the bicarbonate anion. The Discharger hired an engineering consulting firm to develop a Standard Protocol that implemented the use of additional statistical routines in the Sanitas™ software program. It was concluded that the nine inorganic exceedences were artifacts of statistical analysis and not evidence of release, pursuant to Section 20420(k)(7) of Title 27. Since implementation of the Standard Protocol, there have been no statistical exceedences of lead, cadmium, copper, nickel, manganese, silver, selenium, beryllium, or cobalt. No VOCs were detected in groundwater during the last two semiannual monitoring periods (1 July 2012 to 31 December 2012 and 1 January 2013 to 30 June 2013), indicating a downward trend in VOC concentrations.

The Discharger submitted an initial updated engineering feasibility study (EFS) for a corrective action program (CAP) on 22 October 2012, in accordance with Section 20425(c) of Title 27. A revised EFS for a CAP was submitted on 13 January 2013. Central Valley Water Board staff, in a letter dated 21 December 2012, concurred with the Discharger's EFS for a CAP proposal. Subsequently, the Discharger submitted an amended Report of Waste Discharge (RWD) for the CAP on 1 May 2013, which was deemed adequate by Central Valley Water Board staff in a letter dated 22 April 2013. The EFS for a CAP concluded that the most technically and economically feasible corrective action alternative for VOCs is monitored natural attenuation and source control through operational changes to the LFG extraction system.

The Discharger completed construction of an engineered alternative composite final cover system in December 2011. The final cover system is comprised, in ascending order: two-foot thick foundation layer, a geosynthetic clay liner (GCL), a geosynthetic drainage layer, and a two-foot thick vegetated soil layer. Additionally, the LFG extraction system was modified and re-installed to more effectively 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.