

INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2008-XXXX
FORMER BALTIMORE AIRCOIL COMPANY FACILITY, MERCED
FULL-SCALE IN-SITU GROUNDWATER REMEDIATION
MERCED COUNTY

The 40.5-acre former Baltimore Aircoil Company (BAC) facility is located at 3058 Beachwood Drive, two miles northwest of Merced. The former BAC facility was used from 1961 to 1994 for cooling tower fabrication. In 1969, a pressure wood treatment system was installed at the facility that used treatment solutions containing arsenic, copper, and chromium. During the operations of the wood treatment system, waste treatment solution was discharged to soils and groundwater at the facility, creating a condition of pollution or nuisance. In 1975, BAC, then a subsidiary of Merck & Co., Inc. (Merck), purchased the cooling tower fabrication operation. Merck sold BAC to Amsted Industries, Inc. (Amsted), in 1985. Amsted ceased cooling tower manufacturing operations and closed the facility in February 1994. BAC, Amsted, and Merck are hereafter collectively referred to as the Discharger.

Chromium is the primary constituent of concern at the facility. A chromium groundwater plume currently extends in groundwater from the facility to about 800 feet to the southwest, and to about a 1,000 feet to the northwest. Total chromium concentrations are highest in the onsite well MW-8, with recent detections as high as 9,800 micrograms per liter (ug/l).

A groundwater extraction and treatment system is currently extracting about 42 gpm from nine of 14 extraction wells, both onsite and off-site. The groundwater extraction wells operate system operates with an extensive network at pumping at rates varying from one to 20 gpm depending on effective capture of the groundwater contamination plume. The extracted groundwater is treated at an onsite plant that uses flocculation tanks to precipitate out chromium, arsenic, and other dissolved solids. Treated groundwater is pumped into an onsite infiltration gallery.

A successful field demonstration was conducted at two onsite areas. In both areas, groundwater was extracted from a down-gradient extraction well. The groundwater was then combined with methanol or ethanol solutions (chemical amendments) and injected into up-gradient wells. This extraction/injection method was used to create groundwater recirculation cells that enhanced amendment delivery and formed chromium-reducing in situ reactive zones. The field demonstration showed that injecting dilute concentrations of either methanol or ethanol resulted in effective cleanup of chromium-impacted groundwater.

The full-scale in situ treatment remedy is to be implemented in phases. The first phase will involve installation of about 24 amendment injection wells at about 120-foot intervals, and in locations that target the source and toe areas of the plume. The second phase will involve installation of about 13 amendment injection wells at the same intervals, and in locations that target the central plume area. The third phase is an optional phase that may involve installation of additional injection wells for the delivery of amendment to areas within the central plume that require more treatment

The full-scale in situ treatment implementation, groundwater will be monitored for hexavalent chromium, total chromium, arsenic, total dissolved solids, and total organic carbon by laboratory

analysis. Iron and sulfate will be monitored if ferrous sulfate is used as an amendment during the full-scale treatment implementation. Electrical conductivity, pH, and water level will be measured in the field. Monitoring specific to the full-scale treatment implementation will begin prior to amendment injection, and will continue at semiannual intervals after injection until this monitoring is no longer deemed necessary.

Temporal, short-term degradation of the groundwater by methanol or ferrous sulfate injection may occur in a limited portion of the aquifer near the injection points. Such degradation is consistent with Resolution 68-16 since (a) the purpose of the discharge is to implement the cleanup of groundwater pollution and such remediation will benefit the people of the State; (b) this Order requires use of best practicable treatment, including adequate monitoring and contingency plans to assure protection of water quality; and (c) this Order does not allow discharges of waste to exceed water quality objectives other than those temporarily permitted by these WDRs.

The Discharger will continue to pump groundwater using the existing extraction system to maintain hydraulic capture of the chromium plume associated with the site.

The Discharger has proposed a contingency plan to remove injected waste constituents and byproducts using the existing groundwater extraction system in the event groundwater degradation occurs as a result of the discharge.

The *Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition* (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. The beneficial uses for the groundwater at the site are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

The proposed Order prohibits the discharge of wastes in any manner other than that described in the Findings of the Order, including prohibiting discharge of waste to surface waters or discharge of hazardous waste. The Order requires regular monitoring and reporting on the progress of the full-scale in situ groundwater treatment.