

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 West 4th Street, Suite 200, Los Angeles, California 90013**

**FACT SHEET
WASTE DISCHARGE REQUIREMENTS
FOR
BP CHEMICAL (now GROUP ENVIRONMENTAL MANAGEMENT COMPANY)
ORDER NO. R4-2002-0030 (SERIES NO. 026) CI-8596**

FACILITY ADDRESS

1600 West 135th Street
Gardena, California

FACILITY MAILING ADDRESS

4850 East 49th Street, MBC3-147
Cuyahoga Heights, OH 44125-1079

PROJECT DESCRIPTION:

The Facility is currently operated by HITCO Carbon Composites, Inc., and is located in a predominantly industrial area with some nearby residential and commercial properties. Historic operations were reportedly similar to current operations at the Facility. Operations at the Facility included manufacturing a variety of advanced silica-and carbon based products for aerospace, defense, marine and commercial applications. Examples of products manufactured by the Facility have included carbon-based aviation disc brakes, carbon-based rocket nozzles, and fiberglass radomes. Raw materials used to produce these products have included fiberglass, graphitized fabrics, paints, coating, resins, adhesives and solvents. Solvents and resins that have been used at the Facility include 1,1,1-trichloroethane (1,1,1-TCA), toluene, acetone, epoxy resins, phenolic resins, trichloroethene (TCE), tetrachloroethne (PCE), and isopropyl alcohol (IPA). The current owner has eliminated the use of solvents believed to have contributed to the soil and groundwater contamination beneath the Facility.

Since 1993, a series of soil and groundwater investigations have been performed at the Facility and in the vicinity to characterize the nature and extent of impacted soil and groundwater. Investigations have concentrated primarily around 27 "investigation areas" where chemicals are currently used or historically may have been used or stored. Results of the investigations have indicated concentrations of several volatile organic compounds (VOCs), particularly TCE and PCE, present in the soil and/or groundwater.

The consultants for B.P. Chemical (now Group Environmental Management Company or GEMC), J.A. Jones Environmental Services Division, McLaren Hart/Jones Division (McLaren-Hart/Jones), prepared a Feasibility Study Report in April 2001, to evaluate potential remedial alternatives for each source area to address the soil and groundwater contamination beneath those source areas. Based on the results of the Feasibility Study (FS), McLaren-Hart/Jones determined that the highest concentrations of volatile organic compounds (VOCs) in groundwater beneath the Facility are in the vicinity of Area 1 (the former Solvent/Cleaning Area in Building 16), and that the placement of an Iron Permeable Reactive Barrier (IPRB) along the southern property boundary, parallel to West 139th Street, would be the most suitable remedial alternative to prevent and control migration of high concentrations of chlorinated VOCs offsite in the south-southeast direction, beyond West 139th Street. The Feasibility Study was approved by the Regional Board on January 29, 2002. The proposed placement of the IPRB is considered an implementation of the results of the Feasibility Study. The IPRB is proposed to be constructed in two phases: 1) a Pilot IPRB of 100 feet in length to intersect the highest levels of contamination, and following satisfactory performance monitoring of the Pilot IPRB system and 2) an extension of the IPRB for the remaining 675 feet in length. The Pilot Test is being conducted at this stage to demonstrate the effectiveness of the IPRB in degrading high concentrations of chlorinated VOCs in groundwater to non-toxic end products.

GEMC submitted a Pilot Test Remedial Action Plan for in-situ remediation of VOCs in groundwater beneath the site by the installation of the IPRB by injection of zero-valent iron filings along the southern boundary of the site. This Regional Board approved the Remedial Action Plan on May 19, 2003.

VOLUME AND DESCRIPTION OF DISCHARGE (INJECTION):

Approximately 250 tons of zero-valent cast iron filings in a hydroxypropyl guar food-grade gel will be injected into the subsurface to enhance groundwater remediation during the proposed Pilot Test. Zero-valent iron is being used to enhance remediation in a number of similar remediation efforts. Subsequently, this technology has been included in the General Permit (Board Order No. R4-2002-0030). The zero-valent iron will be used to construct a 100 foot barrier parallel to, and in close proximity, to the southern perimeter of the site. The proposed Pilot IPRB will be constructed from seven hydraulic fracturing wells along the IPRB alignment as shown in Figure B-1 (attached). It will be 100 feet in length, oriented approximately perpendicular to the groundwater flow regime, be approximately 3 inches to 4.5 inches in average iron-effective thickness installed in the subsurface, and extend from a depth of 18 feet below ground surface down to a total depth of 100 feet, with a cross-sectional area of approximately 8,200 sq. feet.

Installation of the IPRB elastically displaces the soil and forms a fracture opening in the soil that is immediately filled by the fracture fluid (zero valent iron filings and gel). Accordingly, the only soil change is a slight compression in the vicinity of the created fracture and creation of a more permeable zone, horizontally and vertically, to fill the void space, created by splitting the hydrofracture well casing during injection, thus forming the IPRB. The soil permeability and porosity are not impacted by the IPRB installation process. Halogenated compounds, such as PCE, TCE, Vinyl Chloride and isomers of Dichloroethene (DCE), are abiotically degraded progressively by zero valent iron into ethanes and ethenes. The abiotic reductive process of chloroethenes, in the presence of zero valent iron, generates significantly less daughter products than those generated due to natural degradation.

The injection activities are expected to start after issuance of the General WDR. The quantities of iron filings injected will be required to be documented per the Monitoring and Reporting Program No. 8596. A technical report documenting the effectiveness of the Pilot Test program shall be submitted and reviewed by Regional Board staff prior to expanding the cleanup program. The technical report is to contain all data generated and materials used during the Pilot Test. The technical report is also to include an evaluation of the cleanup technology and any modifications to the injection and monitoring system, which may be needed for full scale operation. The technical report shall contain the locations, number, and depths of additional injection points, and the locations of multi-depth groundwater monitoring wells required for monitoring the upgradient area, source area, and downgradient of the source area, for full scale operation of the cleanup plan.

Prior to full scale operation of the cleanup plan, these Waste Discharge Requirements will need to be revised to incorporate the additional injection points and monitoring locations necessary for full scale cleanup.