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Waste Management Administration • Environmental Restoration & Redevelopment Program

ALLIED CHEMICAL CORPORATION
(Known as Honeywell, Inc.)
Baltimore, Maryland

Site Location

The Allied Chemical Corporation site is located on a peninsula on the northeast shore of the Inner Harbor in the Fells Point section of the City of Baltimore, Maryland. This former chromium chemical manufacturing facility consisted of two main production buildings and numerous support buildings on an area that covered approximately 20 acres. The facility is surrounded by water to the north, west and south and by small industrial operations to the east, one of which is still operating.

Site History

Chromium manufacturing began at the site in 1845 when Isaac Tyson established a plant to produce potassium bichromate on the north side of the 1300 block of Block Street. In 1908, the Mutual Chemical Company acquired Tyson's plant. Allied Chemical Corporation acquired the site from Mutual Chemical Company in 1954. Allied Chemical Corporation and Allied Corporation were predecessors to Allied-Signal Inc. Allied-Signal, Inc. ceased operating the plant in June 1985.

The plant imported chromium ore (chromite), extracted the chromium and produced a variety of chromium-containing chemicals. Successive owners expanded the facility to its ultimate size and shape by filling adjacent portions of the Baltimore Harbor with various materials, including tailings from the processing of chromite ore. Of the nearly 20 acres owned by Allied at Block and Wills Street, it is estimated that at least 7 to 8 acres consist of chromium-containing waste. The waste generated at the site has been used throughout the Baltimore Harbor area as fill material because it compacts well and has relatively great load-bearing strength.

Environmental Investigations and Actions

The Allied Chemical site was listed in the 1979 *Waste Disposal Site Survey* prepared by the Subcommittee on Oversight and Investigations of the House Committee on Interstate and Foreign Commerce (The Eckhardt Report) as having been used for disposal during 1955. The survey also reported that 6,800 tons of waste containing heavy and trace metals was disposed of at the site through 1978.

Background information in the 1981 *Draft Hazardous Waste Site Assessment* documented that interstitial subsurface water was heavily contaminated with hexavalent chromium (Cr^{6+}), surface water contamination was the most probable route of contaminant migration, and groundwater of the Patuxent Formation was not being contaminated by the waste used as fill at the Allied facility.

In July 1980, Allied filed a *Notification of Hazardous Waste Activity* with the U.S. Environmental Protection Agency (EPA), and in November the facility filed a Part A permit application to operate two indoor waste piles. The facility qualified for interim status under the Resource Conservation and Recovery Act (RCRA) as a hazardous waste storage facility.

A Part B permit application for the storage of hazardous waste was submitted in 1983 (and issued in 1985). In anticipation of the requirement for a Corrective Action permit to be issued by the EPA in conjunction with the Part B permit, Allied began an investigation of the solid waste management units at the facility.

In November 1986, EPA issued a Corrective Action permit to Allied, which Allied appealed. While EPA and Allied sought a resolution to the permit appeal, the EPA and the Maryland Department of the Environment (MDE) pursued remediation of the site under other regulatory authorities. These efforts resulted in a three-party Consent Decree between EPA, MDE, and Allied that was approved and entered by the Court on September 29, 1989. In July 1991, the Administrator of the EPA vacated EPA's permit and dismissed Allied's appeal as moot on the grounds that the permit was no longer necessary because the Consent Decree required corrective action.

In the Consent Decree, Allied agreed to perform a *Remedial Investigation* and *Feasibility Study*, (completed in July 1986 and November 1987, respectively) to determine the nature and extent of the contamination and to develop and evaluate alternative methods to eliminate and (or) reduce risks associated with the chromium contamination. Prior to the entry of the Consent Decree, Allied had evaluated alternatives for the remediation of the site in the *Feasibility Study*. It had determined that corrective measures including a multi-media cap, an enhanced bulkhead, a vertical hydraulic barrier, a groundwater withdrawal system that would maintain an inward hydraulic gradient around the containment area, and various surface and groundwater monitoring programs, would best achieve the remediation objective. The Consent Decree anticipated that these corrective measures would be the ones that Allied would propose in the 1991 *Corrective Measures Implementation Program Plan*. The Consent Decree also established the surface water and groundwater performance standards that the final corrective measures were to meet, as determined by the state and federal environmental agencies. The surface water performance standard requires a reduction in total chromium concentrations migrating into the Baltimore Harbor to 50 parts per billion, with measurements averaged over 4 consecutive days. The 50 parts per billion concentrations is the EPA's marine water quality criteria for hexavalent chromium. The groundwater gradient performance standard requires Allied to maintain an inward flow of groundwater into the site.

The first Allied investigation, *Site Study-Phase I* completed in May 1985, identified significant and extensive chromium contamination in the soils and groundwater at the facility. As a consequence of the initial findings, Allied conducted multiple investigations of both on and off-site conditions associated with the Baltimore facility beginning with a *Remedial Investigation* in 1986. Chromium was found in the shallow groundwater aquifer at levels from 0.01 milligrams per liter (mg/l, equivalent to parts per million) to 14,500 mg/l, with the higher concentrations near the chemical manufacturing buildings. Chromium contamination in the deep groundwater aquifer was found at levels of 0.25 to 8,000 mg/l and was also highest near the chemical manufacturing building. The studies found that contaminated groundwater had migrated away from the site. Chromium concentrations up to 1,600 mg/l were measured in the deep groundwater beneath the northwest branch of the Patapsco River. Migration of chromium-contaminated groundwater was primarily to the southeast, with little migration in other directions.

The 1989 *Supplemental Off-Site Investigation* report confirmed that the chromium plume described in the 1986 *Remedial Investigation* report had moved along the lower portion of

the aquifer above the bedrock and extended approximately 3,000 feet from the site. The 1989 *Supplemental Saprolite Study Report* evaluated the extent of saprolite beneath the site and determined the ability of the saprolite to support the proposed deep vertical hydraulic barrier.

The 1990 *Supplemental Site Characterization Report* reported that soil and groundwater samples were analyzed for organic and inorganic priority pollutants, but except for chromium, no other hazardous waste constituents were found above the Maximum Contaminant Level in the groundwater. In the soils proposed for containment, elevated levels of heavy metals were detected. It was determined that these levels should not impact the viability of the containment structure or the groundwater maintenance system. An additional investigation was completed on soils and groundwater at the Southeast Quadrant of the facility and at off-site areas to the east of the proposed containment structure. Sampling identified elevated levels of chromium and creosote-related organic compounds in the soil and elevated levels of chromium in the shallow groundwater.

Soils in the Southeast Quadrant, which were identified as hazardous through EPA's Toxicity Characteristic Leaching Procedure, were removed and disposed at an approved hazardous waste treatment facility. The remaining soils in the Southeast Quadrant did not contain levels of contaminants high enough to present a risk should the substances leach into ground water. However, their presence was determined to pose a potential hazard through direct exposure to the contaminated soil. A layered soil cap was identified as the preferred alternative and was proposed in the Corrective Measures Implementation Program Plan for the soil in the Southeast Quadrant.

In 1992, remedies were selected for four areas at and around the facility (Southeast Quadrant, Former Manufacturing Area, a Newly Acquired Contiguous Property, and Wills Street by Dock Street). In addition, EPA confirmed that the Allied Chemical Baltimore remediation is proceeding through RCRA and as a result, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) intervention was unnecessary.

Current Status

Allied Chemical is marketing the property in Baltimore's Inner Harbor area for public, commercial, and (or) office use. The approved zoning provides for potential residential use as well. Final approval on the reuse of the property will require agreement by MDE and EPA. Allied remains perpetually responsible for maintaining the containment structure and monitoring the environment around the property.

Facility Contacts

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Last Update: