Maryland Department of the Environment

FACTS ABOUT:
Kop-Flex

Site Location

The 25-acre property is located at 7565 Harmans Road in Hanover, Anne Arundel County, Maryland. The property is owned by Emerson Electric Company and is occupied by its subsidiary Kop-Flex. Kop-Flex is a manufacturer of flexible couplings and precision forging for the power transmission industry. The property consists of a manufacturing building and a forge building. The parcels of land adjacent to the property are vacant and undeveloped, except for a Verizon building located to the north.

Site History

The Washington Hydraulic Press Brick Company owned the property prior to 1943 and may have used portions of the property for mining clay and/or gravel. The property was not used from the early 1940s to the late 1960s. Koppers Company purchased the property in 1966 as part of a larger 92-acre site. The Power Transmission Division of Koppers Company began manufacturing operations at the property in 1969. In June 1986, members of the Koppers Company management and Lee Capital Holdings purchased the assets of the Power Transmission Division of Koppers Company and formed Kop-Flex, Inc. The adjoining 67 acres were sold in 1987, leaving the current 25-acre Kop-Flex property. Emerson Electric Co. acquired all of Kop-Flex's stock in 1996. Kop Flex ceased manufacturing operations in 2011 and the building is currently being used only for sales and engineering support.

From 1969 through 2011, the facility manufactured flexible couplings for the power transmission industry. The machining operations have included turning, milling, gear shaping, hobbing, drilling, broaching, sawing, and grinding of steel, aluminum, or other metals. In 1979, a forging facility was constructed at the property, allowing for operations such as fluidized bed heat treatment, screw press forging, and nitriding. The forging facility operated until 2002.

Environmental Investigations

The facility was listed on the U.S. Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation and Liability Information System list (CERCLIS) in 1988. The CERCLIS list includes sites which are either proposed to or on the National Priorities List (NPL) and sites which are or have been in

the screening and assessment phase for possible inclusion on the NPL. In June 1989, the facility was inspected by the Maryland Department of the Environment (MDE) under EPA's Environmental Priorities Initiatives program. The Environmental Priorities Initiatives Preliminary Assessment recommended a No Further Remedial Action Planned CERCLA status for the facility.

Sampling and analysis in 1996 and 1997 identified volatile organic compounds (VOCs) in the soil and groundwater at the property. The VOC contamination is attributed to the historic use of degreasing solvents and the on-site discharge of wastewater. VOCs were detected in the soil in the vicinity of the product storage area. The groundwater contamination resulted from the discharge of caustic wastewater from a treatment system to an on-site drainage field. The system, which operated from 1969 until 1986, was designed to treat wastewater, which resulted from using sodium hydroxide to remove rust on metal parts. The wastewater moved through a series of underground tanks and then discharged to the on-site drainage field. The following VOCs were detected in this area at concentrations that exceed EPA established drinking water standards: 1,1,1-trichloroethane (1,1,1-TCA), 1,1,2-trichloroethane (1,1,2-TCA), tetrachloroethene (PCE), trichloroethene (TCE), 1,2-dichloroethane (1,2-DCA), 1,1-dichloroethene (1,1-DCE) and vinyl chloride.

Current Status

On July 20, 1998, Emerson Electric Company applied to the VCP seeking a Certificate of Completion as a responsible person. The Department reviewed the application in April 1999 and advised the applicant that a response action plan must be developed to address environmental contamination at the property.

The applicant conducted pilot tests to identify appropriate remediation methods to address the contamination in three areas of the property: 1) VOC soil contamination in the products storage area (designated Area 1); 2) VOC groundwater contamination in the former drainage field (designated Areas 2 and 4); and 3) oil-contaminated soil in the vicinity of a cooling unit (Area 7). The applicant submitted a proposed response action plan (RAP) for Areas 2 and 4 in April 2000 and a separate plan for Areas 1 and 7 in August 2000. Both plans were approved in March 2001.

In Areas 2 and 4, a "vacuum vaporized well" (UVB) remediation system was installed to treat the contaminated groundwater. The treatment system uses a system of four UVB wells to extract, treat, and return the groundwater to the aquifer in a recirculating pattern. The UVB groundwater treatment system has operated since December 2000 but has not been as effective as hoped.

In Area 7, a 50 square foot area was excavated to a depth of 12 feet to remove petroleum-contaminated soil. Confirmatory soil samples from the excavation sidewalls and floor

verified the successful removal of the contaminated soil.

In Area 1, free product was encountered under the manufacturing building in the pilot test wells installed for the dual-phase extraction/soil vapor extraction (DVE/SVE) system. An amendment to the RAP was submitted to the Department in November 2001 to outline additional remedial measures to cleanup the contaminated source material prior to installation of the DVE/SVE system. Approximately 50 gallons of free product was removed from the source area between May and October 2001. In February 2002, approximately 270 tons of soil was excavated from beneath the floor of the manufacturing building and disposed off-site.

Construction of the DVE/SVE system was completed in June 2002. In March 2003, the VCP participant submitted an application to the Department's Water Management Administration for a permit to discharge treated groundwater from the DVE system to Stony Run via Kop-Flex's storm water outfall. A public information meeting for the permit was held at the request of the local civic association in June 2003 and a public hearing was held in October 2003. The permit was approved with concurrence of the local civic association.

In 2009, concerns about the effectiveness of the UVB remediation system spurred an additional investigation that identified an additional source of TCA in soils in Area 2. In January 2010, Emerson was also notified by EPA that the property was subject to oversight by RCRA Corrective Action. From 2009 through 2011, additional mid-depth and deep wells were installed on the property to further delineate the vertical extent of the contamination. In 2012, one off-site well was installed immediately south of the property that confirmed the migration of contaminants in the deep wells.

Emerson has continued carrying out the requirements of the approved response action plans for the property and is currently working to collect additional information in order to amend the RAP to address the additional contamination identified and propose a response to reduce the concentrations in the source area on the property. In addition, Emerson currently has an approved plan to further delineate the extent of off-site impacts under the oversight of the CHS Enforcement Section (Section) and is working to have off-site monitoring wells installed to fully determine the extent and potential sources of the off-site groundwater impacts.

In September 2012, the Section contacted the fifteen residences closest to the Kop-Flex facility and requested permission to sample the domestic wells on these properties in November 2012. The results were received in early December and three homes were impacted with 1,1-DCE above the regulatory limit and were immediately provided bottled drinking water.

Based on the presence of impacted groundwater, in December, Section then contacted 76 homes in the Phase 1 residential investigation area, which includes all homes located on

Minnetonka Road, Twin Oaks Road and David Victoria Lane. During this period, nine residents contacted the Section directly to request sampling. These nine homes were sampled in mid-December and two additional homes were identified as having 1,1-dichloroethene above the regulatory limit. These two homes were immediately provided with bottled water. Sampling of all homes in the Phase 1 began on January 3, 2013 and all 42 homes that provided access have been sampled. Thirteen contacted homes did not have wells, 3 refused sampling and 18 have not responded. The Phase 1 sampling identified one additional well with 1,1-dichloroethene above the regulatory limit and confirmed that 1,4-dioxane is also present in the impacted Phase 1 wells.

Based on the results of the Phase 1 sampling, in late January, Emerson's consultant contacted an additional 137 homes in the Phase 2 residential sampling area, which includes Old Camp Meade Road, Reece Road, Severn Station Road, Ricker Road and the Andorick Acres subdivision. Sampling began on February 6, 2013 and all 91 homes that have provided access have been sampled. Phase 2 sampling identified one additional well with 1,1-dichloroethene above the regulatory limit and the presence of 1,4-dioxane. Bottled drinking water was immediately provided to this home. Five contacted homes did not have wells and 41 have not responded.

In summary, a total of 133 homes have been sampled and eight have been identified with 1,1-dichloroethene and 1,4-dioxane above the recommended concentration. Seven of these homes are being provided with bottled water and one has a connection to the public water system already in place. An additional five wells have detected concentrations of 1,1-dichloroethene or 1,4-dioxane below the required limit.

On May 31, 2013, Emerson submitted a report describing the results of additional investigation activities to delineate the areal and vertical extent of chlorinated solvents in soil beneath the building. Based on the results of this investigation, a proposed Addendum to the RAP was submitted on May 20, 2013 that proposed soil removal and use of zero-valent iron to reduce the source near the building. A public informational meeting on the proposed plan was held on July 17, 2013 at 6:30 p.m. at the Severn Elementary School located at 838 Reece Road, in Severn, Maryland 21144. The RAP Addendum was approved on July 31, 2013.

Homeowners with wells of unknown depth or wells greater than 140 feet were resampled in July and August 2013. Sample results were consistent with previous results.
Six wells with concentrations of 1,1-dichloroethene or 1,4-dioxane below the required limit will be sampled quarterly for 2014 to evaluate the data trends before determining a long-term strategy. As of June 2014, the water line on Twin Oaks Road was extended and all eight impacted homes have been connected to the public water system.

In June 2014, Emerson gained permission from Anne Arundel County to install five off-site monitoring wells in right-of-ways to the south and southeast of the Kop-Flex

property. The wells were installed in July and August and with samples collected in September 2014. The results of the September 2014 sampling confirmed the presence of contaminants immediately to the south of the Kop-Flex facility and identified the presence of 1,4-dioxane above the screening level in two additional monitoring wells, located at Trysty Friend Place and at the intersection of Clark Station Road and Horwath Lane. The Department has requested that Emerson sample all residential wells within ½-mile of each of these monitoring wells. On November 17, 2014, the Department notified residents not previously sampled of potential impacts and requested that they grant access for sampling when contacted by Emerson. Sampling request letters may come from WSP Group, the contractor for Emerson for this project.