Maryland
Department of
the Environment

Former Alcoa Eastalco Works (MD 0202)

What You Need to Know

Site Location

The former Alcoa Eastalco Works ("Alcoa, the Facility, or Site") was located at 5601 Manor Woods Road in Frederick, Frederick County, Maryland and occupied approximately 400 acres of 2200 acres parcel[1]. The remainder of the 2200-acre parcel comprised primarily of farmland, wooded areas, and several ponds. The facility was used for industrial purposes and the surrounding areas are used for agricultural, residential, and commercial purposes. Tuscarora Creek and an unnamed stream flow southward through the Facility and discharge into the Potomac River.

Site History

Alcoa manufactured aluminum using an electrolysis process at the Facility from 1969 until December 2005. Waste materials including fluoride and cyanide were generated during this process[1]. Aluminum was produced in electrolytic cells (known as "pots"), comprised of a carbon anode and a carbon cathode. Spent carbon liner material from the pots were stored in an on-site storage area and waste materials generated by the smelting process (e.g., refractory bricks, broken anodes and cathodes, cryolite, and carbon pitch) were disposed of in an on-site industrial landfill. Therminol, a heat transfer medium containing polychlorinated biphenyls (PCBs), was used at the Facility between 1970 and 1976. From 1970 until 1980 tetrachloroethene (PCE) was used in a sub-station area to clean dirt-contaminated silicone grease from high voltage insulators prior to reapplication of fresh grease. Drums of PCE were stored on the south side of the sub-station control building. The use of PCE at the Facility was gradually phased out and eventually discontinued in 1987. The Facility closed in March 2010 and demolition of the Facility was completed in early 2017.

Environmental Investigation

In 1983-84, PCE, cyanide, and fluoride contamination were detected in the groundwater at the Facility. Additional investigation activities conducted between 1983 and 1989 identified soil and shallow groundwater located near the sub-station area as the source of the PCE. The source of the cyanide and fluoride in the shallow groundwater was attributed to a spent potliner waste storage area near the plant and the south pond. PCE, cyanide, and fluoride were transported in the groundwater in a southerly direction from the source areas forming narrow plumes. Alcoa conducted multiple drinking water quality assessments of the nearest private wells (located in Manor Village, approximately 1.25 miles downgradient of the Facility) but no PCE, fluoride, or cyanide was detected. Between 1988 and 1991, Alcoa identified and eliminated potential groundwater contamination sources by disposing of 36,000 tons of spent potliner carbon at an

approved out-of-state landfill, storing spent potliner carbon in a building until its off-site removal, capping old on-site disposal sites, and installing a leachate collection system for an on-site industrial landfill. The PCE source areas were addressed through excavation and removal of soil from the sub-station area.

In 1992, MDE and Alcoa entered into a Consent Order (CO-92-149) which included, among others, installation of a vacuum extraction system for additional PCE remediation in groundwater near the substation and implementation of a groundwater and surface water monitoring program. In 1997, the consent order was amended to include installation of a groundwater pump and treat system near the source of the fluoride plume. Following additional assessment, remediation, and monitoring of the groundwater, soil and surface water in and around the Site, a new consent order (CO-07-026) was signed in 2007, which eliminated PCE as a concern and required Alcoa to continue semi-annual groundwater and surface water monitoring for fluoride and cyanide.

Between 2003 and 2005, five (5) additional historical waste disposal sites (WDS-5 through -9) and buried debris were discovered in a 53-acre grassy field located south and west of the plant operation area. Following detection of elevated levels of PCBs (>50 mg/Kg) and poly-aromatic hydrocarbons (PAHs) in the soil, MDE requested Alcoa to conduct additional site characterization and determine the vertical and horizontal extent of contamination. Four (4) other waste disposal sites (WDS-1 through 4) were eliminated from further consideration due to closure of these WDS' in the 1980s with MDE approval. Future maintenance requirements remain regarding the covers.[2]

Between 2012 thru 2014, Alcoa completed additional Site characterization activities and designated an approximately 200-acre area where MDE required additional institutional controls to manage residual PAH, PCB and inorganic contamination in soil, surface water and groundwater. A Site Management Plan (SMP) was proposed to address the remediation and future management of these known and potential environmental concerns including contaminated groundwater and surface water, permitted industrial waste landfills, waste disposal sites and contaminated former plant areas, and was approved on October 30, 2017. The SMP, as well as other site-specific restrictions were implemented through recording of an Environmental Covenant (EC) in the Frederick County Land records on December 29, 2017. The EC requires current and future owners of the Site to adhere to the site-wide land and groundwater use restrictions, continued maintenance and monitoring of remediation measures including engineering controls already implemented on-site, management plans for excavated soil and groundwater during construction, continued long term groundwater and surface water monitoring, and implementation of the approved SMP during any activity in the SMP area[3]. With the implementation of the EC, the ACO (ACO-07-026) was deactivated. On May 15, 2018, MDE issued a No Further Action (NFA) letter for the Site.

In June 2021, Quantum Maryland LLC (Quantum Maryland), purchased approximately 2100 acres of land ("Property") with the intent to build a large data center in Frederick County. The property encompassed the former Alcoa Eastalco Facility (full EC and SMP areas) along with surrounding land comprised primarily of farmland, wooded areas, railway tracks, among others. Quantum Maryland plans to subdivide the 2100+-acre parcel and sell or lease the parcels for other companies to build data centers. At present an approximately 70-acre lot has already been purchased by Aligned Data Center. They are currently participants under the MDE's Voluntary Cleanup Program (MDE VCP).

In September 2021, Quantum Maryland applied to the MDE VCP for oversight during the Site development after receiving Inculpable Person status. Apart from the requirement to adhere to the land use controls outlined in the EC in the former plant area, MDE VCP had requirements for proper due diligence investigation in the surrounding areas prior to development. Subsequently, Quantum Maryland withdrew the VCP application on June 8, 2022, and requested oversight from the MDE's Controlled Hazardous Substance (CHS) Division for the upcoming Site activities. On March 16, 2023, CHS conditionally approved an Environmental Management Plan (EMP) for Phase I Utility Installation activity on March 16, 2023 dependent upon addendums, including, but not limited to, groundwater management during excavation. The approval was subsequently withdrawn by MDE on May 25, 2023, following information that Quantum Maryland had violated multiple environmental requirements set forth in the EC and EMP. This included unauthorized discharge of approximately 72,000 gallons per day of potentially contaminated water into the nearby Tuscarora Creek over a one-month period without containerizing and sampling. Quantum Maryland posted water contact advisory signs at multiple locations along Tuscarora Creek as required by the MDE's Water and Science Administration (WSA). Sign locations include Mountville Road, Doubs Road, Pleasant View Road (2 locations), and 28 Tuscarora Road.

Current Status

Following collection of additional surface water and sediment samples on-site and off-site in Tuscarora Creek, the MDE approved removal of the water contact advisory signs. The Site activities are currently on hold until MDE has sufficient information to plan a path forward and new work plans are approved by MDE.

1. Sitewide Investigation Report, October 2005 prepared by MFG, Inc.
2. Site Management Plan (SMP) Eastalco Aluminum Company October 30, 2017, prepared by Geo-Technology Associates, Inc.
3. Environmental Covenant, Frederick County Circuit Ct Bk 12205, Pg 1-243