Maryland Department of the Environment

BGE Riverside Property (AKA Fort Carroll Mainland)

What You Need to Know

SITE LOCATION

The approximately 170-acre Riverside Site (also known as Fort Carroll Mainland Site) is located on the north shore of the Patapsco River at 4000 Broening Highway in Dundalk, Baltimore County, Maryland. The property is bound to the west by the Patapsco River, to the east by Interstate 695 (northern terminus of the Key Bridge) and to the north by Broening Highway. The site is located in a mixed industrial, commercial and residential development and contains multiple warehouse/office buildings used for general maintenance and storage purposes by Baltimore Gas and Electric Company (BGE). BGE also operates two substations at the site. Exelon operates a power plant (Riverside generating station) on this property of land leased from BGE. A large freshwater pond is located on the western part of the site and is connected to the Patapsco River by a canal.

SITE HISTORY

The Site has a long and mixed use starting in the 1800's. The U.S. Government used the property for various purposes during the Civil War, World War I and World War II. Between 1847 and 1848, the U.S. Government leased 66 acres of the Site to use as a staging area for the construction of Fort Carroll Island in the Patapsco River. The leased property contained a depot, a framing yard, quarters for workers, a workshop, stables and a wharf. In August of 1865, the lease was terminated, the buildings were salvaged and the property was returned to its original condition. In the early 1900's the Bartlett-Hayward Company used a portion of the Site for manufacturing munition and sharpnell shells in support of World War I. The operation lasted from 1915 through 1919 after which the facility was decommissioned.

Consolidated Gas, Electric, Light and Power Company (CGELP) of Baltimore, a predecessor company to BGE, first purchased a portion of the site in 1922. The current 170-acre configuration of the Site has resulted from BGE's acquisition of multiple adjacent parcels over the years. From 1922 till 1950, BGE operated a gas purification plant on five (5) acres of land located in the east central portion of the site. Coke oven gas was piped from the Sparrows Point Bethlehem Steel mill and purified on site using the Thylox process. The clean gas was piped off site for use by gas customers. The Thylox process involved the spraying of arsenic trioxide (As2o3) and sodium carbonate (NaCO3) into the impure gas stream to liberate sulphur and other contaminants like hydrogen cyanide (HCn). The resultant byproducts were dispersed on site and typically resulted in causing a blue stain in soil from the cyanide and distressed vegetation. The gas purification operation ceased in the 1950's when pipelines began supplying natural gas to the Baltimore region and the plant building was demolished.

The Riverside generation plant started operation in 1942 and by 1951, five units were in operation. However, by 1993 four of the units were shut down. The generation plant has been decommissioned although the main structure remains. The only generation coming from Riverside today is from two peak loading combustion turbine units.

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Portions of the site were previously owned and/or operated by the Aluminum Company of America (ALCOA) for the processing of bauxite ore into aluminum using the Bayer process and the byproducts included oxides of metals including calcium, chromium, vanadium, zinc, etc. The plant operation lasted from 1917 thru 1939 in the southwestern portion of the site. The plant has long since ceased operation and replaced by an electric substation. The south central portion of the Site contained a Substitute Natural Gas Plant (SNG) and associated feedstock storage facility from 1976 until late 1990s. That facility was decommissioned in 1991. Some warehouse/storage structures remain today, but operation structures such as storage tanks and process structures were removed.

ENVIRONMENTAL HISTORY

In 2001, Resource Applications, Inc. conducted a Preliminary Assessment at the site for EPA. The report concluded that there was no evidence of ordnance or explosive related hazards on the site. In January of 2013, the MDE conducted a Site Investigation (SI) of the property. The SI included the collection of soil, groundwater, surface water and sediment samples from the entire property to determine if the various uses over the years have contaminated the site. The results indicated the presence of arsenic in soil at levels exceeding MDE industrial soil standards. In addition, metals like aluminum, manganese, cobalt and iron exceeded regulatory standard for Type I/II aquifer.

Based on the results of this investigation, in April 2014, MDE requested additional investigation to fully delineate the presence of gas purification by-products especially, arsenic and cyanide on the Property. BGE completed the investigation in October 2014. This investigation included a geophysical survey which identified multiple pits and vaults near the former plant footprint. These sub-grade vaults were associated with the plant's purification process and contained sludge, liquid and debris from the plant demolition. Soil and waste samples were collected for analysis during the investigation. In addition, soil and groundwater samples were also collected from the Property along with surface water and sediment samples from the on-site ponds and drainage ditches. The drainage ditches represented preferential pathways for surface soil migration from potential source areas to the on Site ponds and the Patapsco River. The results of this investigation indicated arsenic was the primary contaminant of concern with maximum detection occurring near the former gas purification plant and the vaults (source area) with decreasing concentration along preferred migration pathways. Cyanide was not a concern for the site soil or groundwater.

In October 2015, MDE requested additional characterization of surface soil in the residential areas beyond Broening Highway outside BGE property boundaries. BGE conducted additional environmental study and collected surface soil samples from the outside of the property boundary as well as sediment samples from the Patapsco River. The results indicated arsenic concentration beyond the property boundary didn't exceed the 10 parts per million limit requiring additional action in off-site areas.

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In February 2017, BGE conducted additional soil sampling and installed about 200 borings in and around the former plant area to further delineate the vertical and horizontal extent of the arsenic distribution on the property. BGE proposes to address the remediation at the Property in two phases, with Phase I involving the excavation and removal of the vaults and its content as well as impacted soil from the source area. The arsenic contamination on the reminder of the property including along the drainage swales will be addressed subsequently. In April 2018, BGE submitted a Corrective Action Work Plan-Unit 1 to MDE.

CURRENT STATUS

A source area Corrective Action Plan has been approved by the MDE. BGE is currently preparing for remediation activity.