



Former SHA Eastern Regional Laboratory (MD1249)

What You Need to Know

Site Location

The Former State Highway Administration (“SHA”) Eastern Regional Laboratory Property (the “Site”) is identified on the Brownfield Master Inventory as MD1249 and is located at 7857 Ocean Gateway in Easton, Talbot County, Maryland. The Site occupies approximately one half acre of land in a commercial area. Neighboring properties include retail shops to the north, a wetland and unnamed stream to the east, a church to the south, and four-lanes and associated easements of U.S. Route 50/Ocean Gateway to the west. Environmental oversight for the Site is currently provided by the Land Restoration Program (“LRP”) of Maryland Department of the Environment (“MDE”).

Site History

Prior to 1963, the Site was historically used for auto repair. In 1963, SHA purchased the Site and repurposed the auto repair building for use as a roadway materials testing laboratory. As part of the laboratory operations, chlorinated compounds, most notably trichloroethene (“TCE”), were used in an asphalt testing process to dissolve asphalt core samples for extraction of aggregate materials. It is estimated that on-Site asphalt testing activities generated approximately 836 gallons of chlorinated solvent-containing waste per year. The waste material generated by this process was stored in 55-gallon drums in a dedicated pre-disposal storage area on the north side of the laboratory building. Over time, chlorinated solvent-containing waste materials were inadvertently released into the subsurface in the form of both virgin and spent solvent during storage, handling and use in laboratory processes, impacting both soil and groundwater.

The roadway materials testing laboratory at the Site was originally served by an on-Site septic system, with potable water provided by an on-Site supply well until 1986, when the Site was connected to the municipal potable water and sanitary sewer systems. In 1988, the SHA relocated its regional laboratory operations to their present location at 8204 Elliott Road in Easton. The Site has remained unoccupied since then. In 2007, the empty building was razed and the Site was re-graded.

Environmental Investigation and Remediation

Beginning in 1985, extensive investigations have been conducted at the Site and on adjoining properties to the north and east. These included a 1989 soil gas survey, and a 1992 hydrological

assessment. The groundwater beneath the Site was found to contain free phase and elevated levels of dissolved phase chlorinated solvents, primarily in the form of TCE. A shallow groundwater pump-and-treat and liquid phase recovery system was designed for the Site in 1993 and installed in 1994. This system ran until 2003, recovering approximately 9.2 gallons of free phase TCE and 86.3 gallons of dissolved phase TCE; however, the dissolved phase concentrations of TCE remained elevated at concentrations that implied a continued presence of free phase TCE. The system was decommissioned in August 2003 and was removed during the demolition of the on-Site building in 2007.

Beginning in 2007, to better characterize the subsurface TCE plume, SHA's environmental consultants performed additional document review, characterization, and assessment of the Site and surrounding properties to evaluate the extent of the chlorinated solvent contamination and develop a better Site conceptual model. The additional investigation confirmed that groundwater contamination had migrated off-Site to the north and east. In September of 2008, MDE issued a Consent Order directing SHA to provide a comprehensive Remedial Investigation ("RI") Report to address the soil and groundwater contamination at the Site and on portions of the adjoining properties to the north and east. The Consent Order also required development of a Feasibility Study ("FS") of Remedial Alternatives following MDE acceptance of the RI Report. SHA submitted the RI Report to MDE on August 4, 2009.

These investigations noted that the water table was encountered at approximately 8 to 10 feet below ground surface ("bgs") at the Site, and groundwater locally trended to the northeast across the site towards wetlands and an unnamed tributary of the Tred Avon River, which flows southward regionally. TCE was detected in groundwater at concentrations up to approximately 230,000 parts per billion ("ppb"). TCE was detected in soil at concentrations up to 360 parts per million ("ppm") and was confirmed to be the main driver for site characterization. TCE had migrated to the bottom of the Columbia Aquifer at approximately 17 to 25 feet bgs and infiltrated the deeper Chesapeake Group clays to depths up to 43 feet below ground surface. The lateral and vertical limits of the TCE were defined, with most of the suspect TCE source material found to lay beneath the water table in a clayey aquitard of very low permeability. There was limited evidence of biodegradation of TCE within the source soils and there was no TCE source material identified beneath the wetlands or wetland buffer. Site-related TCE contamination was present on adjacent properties to the north and east. The impacted area to the north of the Site was purchased by the SHA to support remediation. The impacted area to the east of the Site is beneath wetlands, is undevelopable, and will be remediated over time by natural attenuation. The subsurface contamination in this area was monitored concurrently with the on-Site area undergoing active remediation and shall continue to be monitored as part of the post-remediation monitoring.

The RI identified no direct receptors for the Site contaminants and determined there was no immediate ecological risk posed by the Site. Five water supply wells were identified within 600 feet of the facility; however, the known wells are out of use, topographically isolated from the Site, and/or at least 140 feet deep and isolated from the contamination originating from the Site by a thick clay layer and are not anticipated to be at risk from the Site.

A feasibility study to evaluate remediation alternatives was generated by SHA's consultants in March 2010. Based on the findings of the study and conversation with MDE, SHA's consultants submitted a work plan in February 2011 for remediation of the TCE source area at the Site via an electrical resistance thermal remediation ("ERTR") system. The clean-up criteria for the ERTR was set at a 95% reduction of TCE concentrations in the source area, with maximum remaining TCE concentrations in soil not to exceed 7.2 ppm. The ERTR system was installed in 2011 and ran until 2012, when it was determined that the remediation goals had been met. Post-remediation, the monitoring well network at the Site was sampled semiannually from February 2013 to February 2018 and confirmed that the thermal remediation was successful at significantly reducing the source area concentrations at the Site; however, persistent localized areas of elevated chlorinated solvent concentrations remained in a few areas in the easterly adjacent forested wetlands. Due to the ecologically sensitive status of the affected area, the limited nature and the relative stability of the remaining chlorinated solvent contaminant concentrations over time, and logistical limitations of further mitigation efforts in the remaining affected area, the MDE has required the continued annual monitoring of a limited monitoring well network.

Current Site Status

As of May 2020, the annual sampling of the monitoring well network at the Site continues. The most recent monitoring report was generated by SHA and provided to the LRP for review in November 2019. and suggests that the general conditions at the Site and the contaminated area immediately down-gradient to the east of the Site remained effectively unchanged. The annual sampling of the monitoring well network is anticipated to continue for the immediate future. In the meantime, the LRP is exploring strategies to potentially bring the Site towards either conditional closure or longer-term sampling and monitoring frequencies, most likely under an environmental covenant.