

Frog Mortar Creek Surface Water Conditions

Frog Mortar Creek Swimming Advisory

Lockheed Martin conducts surface water monitoring in Frog Mortar Creek by Martin State Airport six times each year. This includes the four summer season months of June, July, August, and September. In 2019, during each sampling event, 40 samples were collected near the western Frog Mortar Creek shoreline, and four samples were collected from the eastern shore near Edwards Lane.

2019 marks the second summer season during which the groundwater treatment system at Martin State Airport captures and treats contaminated groundwater before it reaches Frog Mortar Creek. Chemical concentrations of chlorinated volatile organic compounds (CVOCs), including trichloroethene, cis-1,2-dichloroethene, and vinyl chloride were markedly lower in 2018 than in prior summer seasons. In the 2019 summer season, CVOCs were detected in only two creek samples, at very low concentrations, and only in June. No CVOCs were detected in samples collected in July, August, and September, demonstrating the effectiveness of the groundwater containment and treatment system.



The current levels of CVOCs do not warrant prohibiting swimming in Frog Mortar Creek. However, the Maryland Department of the Environment (MDE), in the 2012 swimming advisory available on its website, has suggested that swimming in these waters be for no more than four hours a day, 70 days a year. MDE has posted signs in the waters off the airport providing advice to limit swimming in the advisory area marked on the accompanying graphic. At the time MDE established this advisory, it was considered a very conservative approach to lowering potential health risks. With the significant reduction of CVOC concentrations in the creek since startup of the groundwater treatment system, Lockheed Martin will work with MDE towards removing the swimming advisory in the next few years, once long-term improvement has been demonstrated.

What are the primary contaminants being monitored?

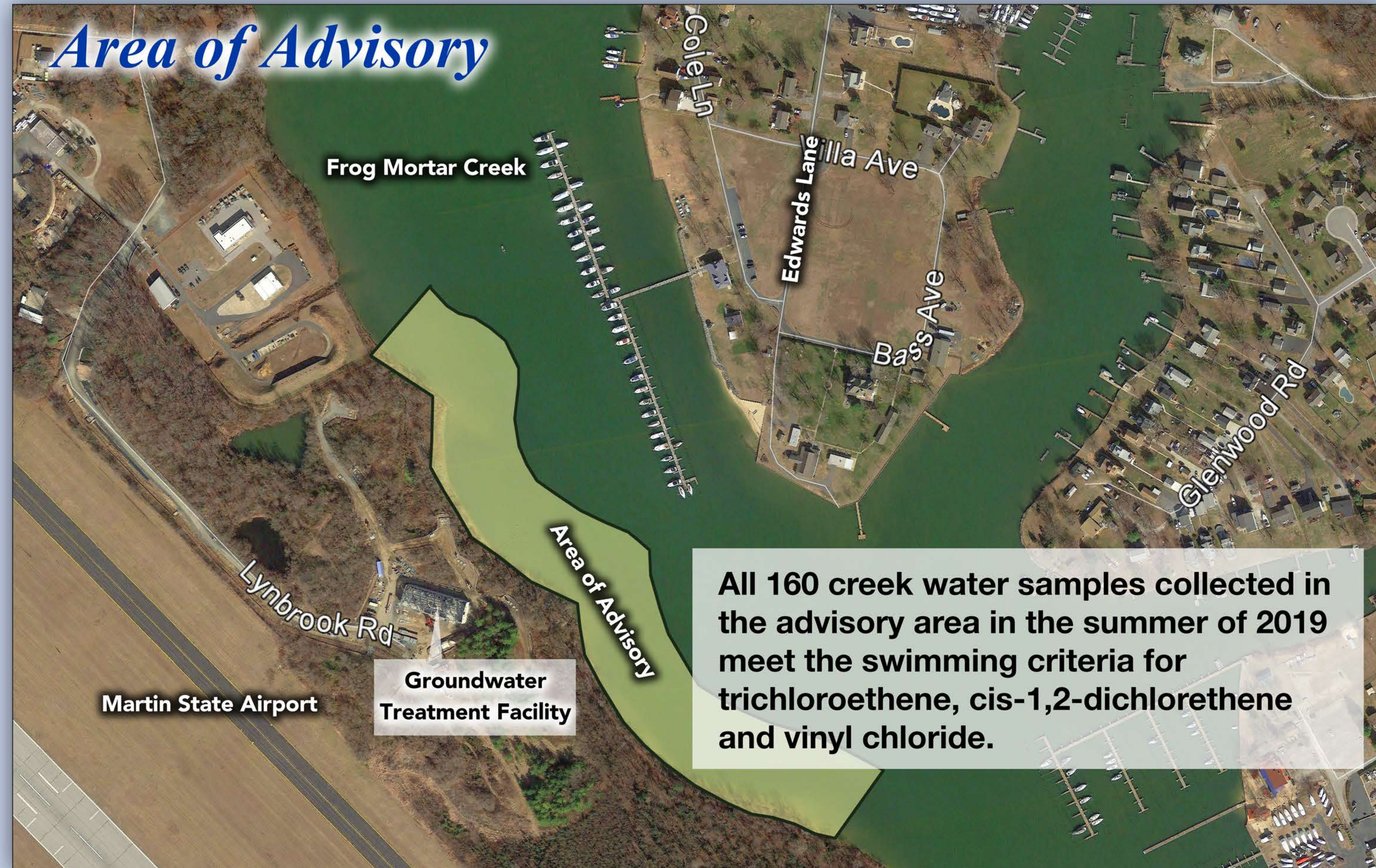
Trichloroethene (TCE) was a common solvent used for cleaning parts and machinery. It can break down over time into cis-1,2-dichloroethene and vinyl chloride.

Where did the contaminants come from?

Solvents and degreasers were used in factory operations of Lockheed Martin heritage companies located in Middle River. These chemicals have been found in the Dump Road Area on Martin State Airport, in Frog Mortar Creek, and in an underground plume of contaminated groundwater being cleaned by the groundwater treatment system at the airport. Martin State Airport originally belonged to the Glenn L. Martin Company, a Lockheed Martin heritage company. Lockheed Martin has been investigating the source and extent of these contaminants since they were first found in 1991. Lockheed Martin's groundwater treatment system for the Dump Road Area began operations in December 2017 and since then has been intercepting and treating the contaminated groundwater before it reaches the creek.

Is there a ban on swimming in this area?

No. According to the Maryland Department of the Environment, the contaminants in this area do not pose a significant health risk.



What's being done to clean up these chemicals?

The groundwater treatment plant captures and treats contaminated groundwater before it reaches Frog Mortar Creek. An array of sixteen capture wells parallel to Frog Mortar Creek in the Dump Road Area of the airport extracts groundwater and sends it to the treatment system.

The groundwater treatment plant is located between Frog Mortar Creek and the airport's Taxiway Tango. The groundwater is treated to drinking water standards before being discharged to Frog Mortar Creek through three underwater diffusers near the airport shoreline.



For further information you are encouraged to read the Frog Mortar Creek Water Contact Advisory found on the Maryland Department of the Environment website at: <https://mde.maryland.gov/programs/land/marylandbrownfieldvcp/pages/frogmortarcreekwatercontactadvisory.aspx>

For further information about Lockheed Martin's remediation project at Martin State Airport you are encouraged to visit the Lockheed Martin website

www.lockheedmartin.com/martinstate

Feel free to contact Lockheed Martin Communications at 1.800.449.4486 if you have questions or concerns.

