

# DAVIDSONVILLE FUEL OIL SPILL

## SS-11

Joint Base Andrews, Davidsonville Transmitter Annex

April 2022

### BACKGROUND

The Davidsonville Fuel Oil Spill Site (SS-11) at the Davidsonville Transmitter Annex is located approximately 15 miles northeast of Joint Base Andrews (JBA) in Davidsonville, MD. While Site SS-11 occupies approximately 900 acres, the actual study area covers approximately 18 acres. In 1984, a fuel oil leak originating from an underground storage tank (UST) and associated fuel lines (in operation from 1957 to 1984) was discovered. More significant impacts were noted from nearby above-ground storage tanks (ASTs) and fuel lines for the generator building.

Cleanup measures at the site included excavation of the original tank as well as the removal of the ASTs, fuel lines, and all visually contaminated soil under Maryland Department of the Environment (MDE) oversight in 2002. Some product saturated materials were under the east foundation of the generator building and could not be removed, so a recovery well (sump) was installed to obtain product from this area with assistance of surfactants and vacuum recovery. Continued petroleum product in the sump led to the installation and operation of a solar-powered petroleum product skimmer in 2004-2005 coupled with groundwater monitoring and bi-weekly well gauging.

Two separate sampling events in 2005 revealed chlorinated solvents such as trichloroethylene (TCE) in groundwater above regulatory limits. An expanded site investigation (ESI) was conducted in 2006-2007, but the plume was not delineated. A series of investigations (2008 to 2011) performed by URS under a FY08 Performance Based Contract determined that the plume of solvent contamination, TCE and TCE degradation products, extended west of the building compound and across at least 17 acres and at depths of over 80 ft. below ground surface of Air Force property. A follow-on Weston Solutions FY11 PBC included a Remedial Investigation (RI), Feasibility Study (FS), Proposed Plan, Record of Decision (ROD), Remedial Design (RD), Remedial Action – Operations (RA-O), and Remedy in Place (RIP). The Final RI for the site was completed in April 2013 and the Final FS was completed in August 2014. A Remedial Action Work Plan (RAWP) was completed in May 2016 and baseline sampling and injection activities completed in October 2016. It involved the injection of emulsified vegetable oil (EVO) via Direct Push Technology (DPT). The Final ROD was signed in February 2017, with the selected remedy being the injection of a mixture of in-situ bioremediation (ISB) and in-situ chemical reduction (ISCR) via carbon substrates, MNA for petroleum contaminants with in-situ chemical oxidation (ISCO) as a contingency. Following the initial injection, groundwater sampling has been conducted semi-annually as required by the ROD for 3 years post injection.

### CHALLENGES

Achieving sufficient EVO delivery via DPT across the thickness and width of the SS011 plume is challenging and may be the reason for increasing contaminant concentrations outside the radius of influence of the DPT injection points. This may delay the attainment of ROD remedial action goals and extend site closure dates.

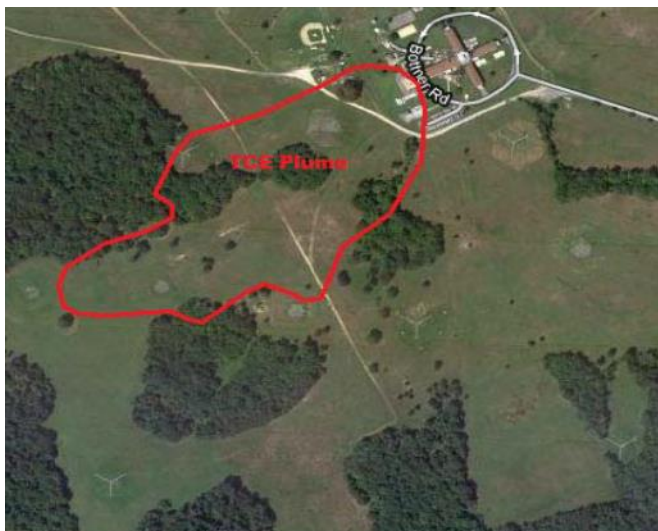


Figure 1: SS-11 TCE Plume

### POST PBC REMEDIAL ACTION ACTIVITIES

A 2020 Optimized Remediation Contract (ORC) is continuing the post-ROD RA-O activities at the site, including semi-annual groundwater monitoring and substrate injection. To address the increasing trend of groundwater contaminant concentrations outside the ROI of DPTs, the ORC Contractor will be installing permanent injection wells in April 2022 to allow higher volumes of injection solution to be delivered to the impacted aquifer through fewer injection locations. This will lead to faster cleanup timeframe and an overall reduction in remediation costs. The groundwater monitoring program will be refined as new data are collected and analyzed to meet MDE requirements. This may include the use of no-purge sampling, which is more cost effective than the current low-flow sampling method due to the elimination of equipment costs associated with purging, decrease in sampling times, and elimination of the costs for the disposal of investigation derived waste. Site Closure (SC) while uncertain, is currently expected by 2038. If RA-O and LTM data indicate that this date is not attainable, modifications to the amendment delivery and volumes will be evaluated.

### RISK DRIVERS

**Contaminants:** Petroleum hydrocarbons and chlorinated solvents (TCE, cis-1,2-DCE, and VC)

**Impacted Media:** Groundwater, subsurface soil

**Exposure Pathways Completed:** Construction workers

**Current Land Use/Surface Cover:** Industrial

**Reasonably Anticipated Land Use:** Industrial

**Relative Risk:** Medium