

EAST SIDE SERVICE STATION

ST-14

Joint Base Andrews

April 2022

BACKGROUND

Storage Tank Site ST-14 is located in the northeast quadrant of Joint Base Andrews (JBA) near Fetchet Avenue. The site was included in the Environmental Restoration Program (ERP) due to leakage from the underground storage tanks (USTs) and ancillary piping system associated with Building 3487, the former East Side Service Station.

In 1983, the USTs were removed, and 20,000 gallons of gasoline were recovered from an excavation trench at the site. Subsequent studies delineated a commingled solvent plume extending from the flight line toward the northeast. A former hangar and vehicle wash rack were among several suspected sources for these solvent plumes. The trichloroethylene (TCE) and carbon tetrachloride that were detected appeared to originate from other sources to the west. The TCE plume has been confirmed to reach a tributary to Cabin Branch Creek, which eventually flows off of the installation. Concentrations detected in seeps into the creek were right at the Maximum Contaminant Levels (MCLs).

CHALLENGES

Multiple contaminant source zones over many acres and large commingled solvent and petroleum constituent groundwater plumes under numerous buildings present technical challenges that must be overcome.

The restoration strategy has required several modifications throughout the remediation process. A few areas have not seen adequate reductions in contaminant levels. The aforementioned areas were addressed by injections of emulsified vegetable oil substrates (EOS) in 2016 and 2017. These injections stimulated the subsurface microbial populations and accelerated the remediation of the remaining contaminants. A monitoring well was also installed on the northeastern corner of the Navy apron to address a potential chlorinated solvent source area.

PERFORMANCE-BASED APPROACH

A performance-based restoration (PBR) contract for ST-14 (grouped with SS-22) was awarded in 2005. Objectives of this PB were to prevent further migration of plumes, eliminate/treat identified source areas, and to degrade contaminants in the groundwater. The overall goal was to return groundwater quality to beneficial use within a reasonable timeframe. The remedy was successfully designed and installed during that PBR contract, which expired in 2011. However, JBA still had significant environmental liability associated with ST-14.

The Air Force awarded a new PBR contract in 2011 to ensure that the effectiveness of the remedy is improved, and the remedial objectives are achieved within the timeframe decided upon in the Record of Decision (ROD). This process began with an update to the Conceptual Site Model (CSM) in 2013, followed by a re-evaluation of the Remedial Design (RD). RA-O is ongoing at the site. In 2015, the ROD was modified to substitute biosparging for ORC injection in the area around Bldg. 3487. In 2015, indoor air samples collected in Bldg. 3487 detected VOCs in the indoor air space. As a result, cracks in the flooring of Bldg. 3487 were sealed which addressed the indoor air quality issues. Bldg. 3487 is now unoccupied and scheduled for demolition. Air sampling associated with Bldg. 3487 is now unnecessary and the biosparge system can run unabated. Site Closure (SC) is currently anticipated by 2040 or later. JBA still has significant environmental liability associated with ST-14. A new Optimized Remediation Contract (ORC) was awarded in early 2020.

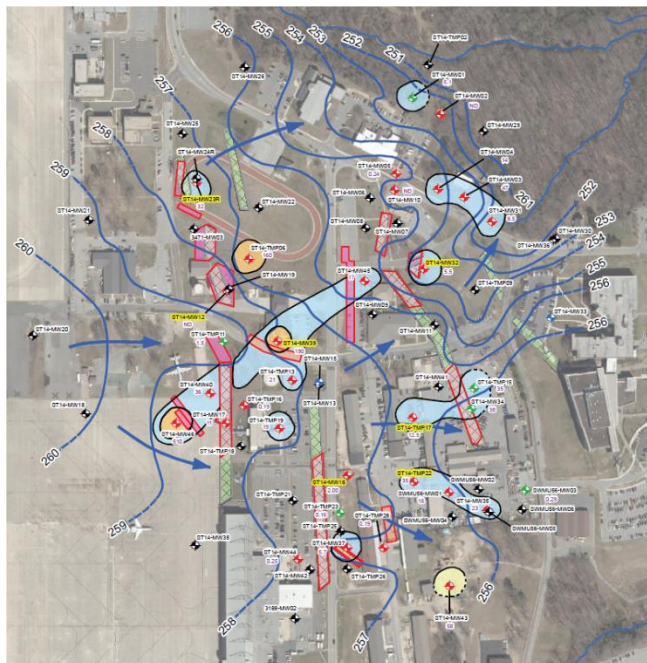


Figure 1: Site ST-14 with TCE Plume

POST PBC REMEDIAL ACTION ACTIVITIES

A 2020 Optimized Remediation Contract (ORC) was awarded, and the Contractor is continuing the post-ROD RA-O activities at the site, including semi-annual groundwater monitoring and substrate injection as specified in the ROD. In order to evaluate whether site COCs are migrating from the groundwater to indoor air of buildings located within the contaminant plume, a Vapor Intrusion (VI) investigation is being conducted. The first round of VI sampling was completed in January 2022 (heating season) with a second round of samples to be collected in the Fall of 2022 (cooling season).

A Supplemental Site Investigation (SSI) is scheduled to begin in the Summer of 2022. The SSI will collect additional data to support refinements and optimization of the remedy to achieve cleanup criteria for COCs in groundwater within the time frame specified in the ROD (2037). To this end, Vertical Aquifer Profile (VAP) sampling will be conducted via DPT in order to characterize source area contamination in preparation for future injections.

RISK DRIVERS

Contaminants: TCE, carbon tetrachloride and petroleum constituents

Impacted Media: Groundwater

Exposure Pathways Completed: Human (construction worker) and Ecological

Drainage: Cabin Creek

Current Land Use/Surface Cover: Administrative, industrial, and open space

Reasonably Anticipated Land Use: Administrative, industrial, and open space

Risk: Medium