

Piper Aircraft – Vero Beach Water & Sewer
Piper Drive and Aviation Boulevard
Vero Beach, Florida
County: Indian River
District: Central
Site Lead: EPA
Placed on National Priorities List: February 16, 1990
ERIC ID # 3799

Site Description and History

Piper Aircraft is a 90-acre site, located at the southern end of the Vero Beach Municipal Airport on SR 607 in Township 32S, Range 32E, Section 35 at 27° 38' 54.0120" N, 80° 24' 44.9780" W. The facility began operation in 1957, assembling and painting light aircraft. Chemicals utilized by Piper Aircraft in its operations were stored in underground storage tanks. During an inspection in 1978, trichloroethene (TCE) was detected in well #15 of the City of Vero Beach Well field. The well was immediately shut down. An area-wide search determined that a leaking TCE underground storage tank (UST) owned by Piper Aircraft was the source. Shallow groundwater samples near the tank indicated a TCE concentration of 39,000 µg/L. The leaking equipment was immediately taken out of service.

Piper Aircraft entered into a Consent Order with the Florida Department of Environmental Regulation (FDER, now DEP) in March 1981, and groundwater recovery and treatment for the removal of TCE was implemented in April 1981, operating until 1998. A June 1985 site inspection by FDER indicated that the groundwater recovery and treatment program was working well, and the TCE plume was receding from the Vero Beach Well field. The last effluent sample collected in October 1994 showed TCE at 3.4 µg/L and vinyl chloride at 24 µg/L. In June 1989, a contamination assessment was performed; and Piper removed the underground storage tank and contaminated soil in the spill area, treated the soil via land farming and aeration for six weeks, and returned the soil to the area of the excavation.

Threat

Groundwater contamination poses a potential threat to public health and the environment. Groundwater monitoring data indicates that the TCE plume has migrated off-site in response to the down gradient operating City of Vero Beach municipal well, CVB #15, located approximately 300 feet southeast of the Piper site. Well head treatment and monitoring at the municipality is ongoing to assure drinking water quality criteria are met prior to distribution to the public. However, there are nearly 10,000 residents who obtain drinking water from wells located within a mile of the Piper Aircraft site. The contamination poses a threat to the drinking water source near the site.

Response Strategy and Status (December 2020)

Piper Aircraft Corporation was added to the National Priorities List by the EPA in February 1990. Negotiations between EPA and the Potential Responsible Parties (PRPs) for performance of a remedial investigation/feasibility study (RI/FS) were unsuccessful. The PRPs filed for bankruptcy in July 1991.

The draft Remedial Investigation/Feasibility Study (RI/FS) work plan was submitted in July 1992 and field work was initiated by the EPA contractor in August 1992. The draft RI was submitted in March 1993 and identified the extent of the contaminant plume to the south and west. The data indicated that the plume was not discharging to the main relief canal located south of the site. A phase II RI was conducted in June 1993 to further delineate the northern and eastern extent of the contaminant plume. The draft FS was submitted in May 1993.

The EPA documented the selected remedy for the Piper Aircraft site in the December 1993 Record of Decision (ROD). The ROD identified the use of an enhanced groundwater recovery system to capture the TCE plume and a groundwater treatment system to include air stripping and aqueous phase carbon adsorption with discharge of treated groundwater to surface water. DEP issued a letter of concurrence in April 1994.

The Consent Decree between EPA and Piper Aircraft for Remedial Design and Construction of the groundwater recovery and treatment system was approved by the bankruptcy court in May 1995 and lodged and approved by the Federal Courts in November 1995. A Preliminary Remedial Design Work Plan was submitted in January 1996, which included additional field work to delineate the contaminant plume. Further groundwater assessment was completed in July 1996 to delineate the off-site groundwater contamination. The Final Remedial Design was submitted and approved in October 1997. Construction of the groundwater remediation system was completed in November 1998 and included installation of two (2) “recirculating” UVB wells. Upon startup of the UVB remedial system, the old Piper extraction well pump and treat system was discontinued and subsequently dismantled.

An evaluation of system performance and review of historical operations in the July 2000 operating report indicated that the 2 UVB wells had not performed as designed to effectively reduce contaminant concentrations. In October 2000, the EPA approved several proposed system improvements or modifications including: 1) the redevelopment of the UVB-1 well and the installation of a new extraction well (UVB-1A) in the “hotter” area of the plume; 2) pump replacements in the UVB-2 system and removal of iron deposits in the aeration system and; 3) UVB-2 system modifications to allow treated effluent to be discharged upgradient in the original Piper extraction well.

The UVB-1A Recovery well was installed and began operation in July 2001. Recovered groundwater is directed to the UVB-1 aeration system where the treated effluent is discharged to the aquifer. The UVB-2 system returned to operations in November 2001 following construction of an above ground aeration system. Recovered groundwater from UVB-2 is treated above ground, and the treated effluent is directed to the original extraction well, located upgradient of the groundwater plume, where it is re-injected into the aquifer.

The first Superfund Five Year Review Report was submitted in June 2003. The report summarized the first five years of system monitoring data for the site and evaluated the progress of the site cleanup and the effectiveness of the current groundwater remedy. Of particular concern was the continued offsite migration of groundwater contamination. Based on State and EPA review, the

EPA requested that Piper develop a monitoring proposal focused on adequately identifying the current extent of groundwater contamination and which would support evaluation of other technologies that might facilitate more effective cleanup. An assessment and bioremediation pilot test proposal was submitted in June 2004. An amended proposal was provided in March 2005 in response to agency comments, resulting in adjustments to the proposed additional monitoring well locations. Piper representatives indicated that groundwater monitoring inside the facility buildings as recommended by DEP was not feasible due to limited access resulting from materials storage.

Direct push groundwater sampling was completed in March 2008 at 7 locations, primarily around the perimeter of the manufacturing and storage buildings, to determine if contaminant concentrations and groundwater geochemistry was favorable for in situ bioremediation to enhance the rate of groundwater cleanup. The final November 2008 Phase I Activities report and January 2009 Phase II Activities report documented those results and recommended that a pilot test be conducted in one or more areas of the facility, whereby a carbon food source is injected in the groundwater to stimulate microbial growth and enhance degradation of groundwater contamination.

Five-Year Reviews of the site remedy were completed by the EPA in September 2009, September 2014 and June 2019. The reports concluded that the remedy remained protective.

Groundwater concentrations have continued to decline and in 2017 the decision was made to discontinue O&M of the remedial system and to perform long term monitoring (monitored natural attenuation) instead.

Schedule

The next Five-Year Review will be completed in 2024. Piper will continue to perform quarterly groundwater monitoring until the concentration of contaminants are below MCLs in all on- and offsite monitoring wells.