Explanation of Significant Differences Piper Aircraft/Vero Beach Water and Sewer Superfund Site

EPA United States Environmental Protection Agency

Site Name:	**Piper Aircraft/Vero Beach Water and Sewer Superfund Site**
CERCLA ID #:	**FLD004054284**
Site Location:	**2926 Piper Drive, Vero Beach, Florida**
Lead Agency:	**EPA, Region 4**
Support Agency:	**Florida Department of Environmental Protection**

Vero Beach, FL

I. Introduction

This decision document presents an Explanation of Significant Differences (ESD) for the Piper Aircraft/Vero Beach Water and Sewer Superfund Site (Site), located in Vero Beach, Florida. The Record of Decision (ROD) dated December 23, 1993 is addressed by this ESD.

This ESD is issued in accordance with §117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. §9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), §300.435(c)(2)(i). The Director of the Superfund Division has been delegated the authority to sign this ESD.

This ESD will become part of the Administrative Record for the Piper Aircraft/Vero Beach Water and Sewer Superfund Site (NCP §300.825(a)(2)), which has been developed in accordance with §113(k) of CERCLA, 42 U.S.C. §9613(k).

The Administrative Record is available for review at the Indian River County Main Library, located at 1600 21st Street in Vero Beach, Florida and at the United States Environmental Protection Agency (EPA) Region 4, 11th Floor Library, 61 Forsyth Street SW, Atlanta, Georgia 30303.

II. Statement of Purpose

Since the ROD finalization date, issues concerning institutional controls have been identified at the Site. Institutional controls have been implemented at the Site, but were not part of the selected remedy in the 1993 ROD. In addition, the designed and implemented remedy is not to the exact specification as prescribed by the selected remedy. However, similar alternatives were evaluated in the ROD. The purpose of this ESD is to document a final decision to include institutional controls in the form of a groundwater delineated area as part of the groundwater remedy for the Site, as well as incorporate the modifications of the groundwater treatment system into the groundwater remedy.

EPA prepares an ESD when it is determined by the Agency that changes to the original selected remedy are significant, but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance, or cost.

III. Site History and Contamination

Site History

Piper Aircraft, Inc. (Piper) operates an airplane manufacturing facility at 2926 Piper Road in Vero Beach, FL. In September 1975, Piper installed an underground storage tank (UST) which was used to store trichloroethylene (TCE). TCE was first placed in the UST in January 1976. In October 1978, TCE was detected in the City of Vero Beach municipal water supply well (CVB #15), which is located 1050 feet southeast of the UST. It was determined that the fitting on the tank had been leaking.

Use of well CVB #15 was discontinued after TCE was detected, and two new municipal supply wells were constructed. In 1979, a six-inch diameter extraction well was installed adjacent to the UST for the purpose of groundwater remediation. Extracted water was discharged via a mile long pipeline to a spray-header assembly installed across a flood control canal. Initial pumping began in April 1981. In October 1981, Piper signed a Consent Agreement with the Florida Department of Environmental Regulation for remediation of the TCE contamination.

In October 1984, EPA conducted a Preliminary Assessment of the Site. In June 1986, EPA proposed the Site for inclusion on the National Priorities List (NPL). In March 1988, EPA completed a Site Inspection of the Site.

In June 1989, Piper removed the UST as well as contaminated soil surrounding the UST to a depth of 14 feet below land surface. A total of 740 cubic yards of TCE-contaminated soils were "land farmed" with aeration for six weeks.

The Site was finalized on the NPL in February 1990. EPA completed the Remedial Investigation / Feasibility Study (RI/FS), as well as Ecological and Human Health Risk Assessments between April 1992 and December 1993. EPA issued a ROD for the Site on December 23, 1993.

Site Contamination

The contaminants found at this Site were TCE, cis-1,2-dichloroethene, 1,1-dichloroethene and vinyl chloride in groundwater. Some or all of the contaminants identified are hazardous substances as defined in § 104(14) of CERCLA, 42, U.S.C. § 9601(14), and 40 C.F.R. § 302.4. At the time of the ROD, as well as during the most recent sampling event (December 2008), three of the four contaminants had concentrations that exceeded Federal and State Maximum Contaminant Levels (MCL). The maximum concentrations detected during September 1992 (as presented in the 1993 ROD) and December 2008 are presented in the following table.

Contaminants of Concern	MCL* (µg/L)	1993 ROD Maximum Concen-tration	2008 Maximum Concen-tration
Trichloroethylene	3	300	20.8
cis-1,2-Dichloroethene	70	730	105
1,1-Dichloroethene	7	2.6	2.7
Vinyl chloride	1	30	192

* Note: The MCL value presented in this table is the more stringent value when the Federal and State MCL values differ. The Federal Safe Drinking Water Act MCL for trichloroethylene is 5 µg/L. The Federal MCL for vinyl chloride is 2 µg/L. The Federal and State MCLs are identical for cis-1,2-dichloroethene and 1,1-dichloroethene.

IV. Selected Remedy

The Site was addressed as a single Operable Unit. The ROD for the Site was signed on December 23, 1993. The results of the RI/FS and risk assessments indicated that ingestion of contaminated ground water posed a risk to human health. Soil, surface water, and/or sediment did not pose a risk to human health or the environment. Therefore, the ROD selected a remedy for ground water.

The 1993 ROD presented the following as the remedial action objective:

> *The ground water treatment component of the selected remedy will protect human health and the environment by reducing or preventing further migration of the*

contaminated ground water and by reducing the contaminant concentrations in ground water until the concentrations are less than or equal to the performance Standards. Compliance with MCLs will be protective at this site. The long-term cancer risk associated with possible ingestion of the ground water will be reduced to within EPA's acceptable risk range of $1x10^{-4}$ and $1x10^{-6}$ and the non carcinogenic risk would be reduced to the EPA goal of 1.

The remedy selected for the Site was Alternative 3a, Ex-situ Treatment of Groundwater with surface water discharge. The remedy components included:

- Groundwater withdrawal using extraction wells
- Treatment of groundwater via air stripping
- Discharge of treated effluent to surface water
- If necessary, treatment of air emissions

The cleanup levels specified in the 1993 ROD are:

Contaminants of Concern	Federal MCL (µg/L)	State MCL (µg/L)
Trichloroethylene	5.0	3.0
cis-1,2-Dichloroethene	70.0	70.0
1,1-Dichloroethene	7.0	7.0
Vinyl Chloride	2.0	1.0

(As of April 1, 2009, the Federal and State MCL values for these constituents have not changed.)

V. Description of Significant Differences and Basis for the ESD

The 1993 ROD evaluated several groundwater alternatives which included:

- GW1: No Action
- GW2: Groundwater Use Restrictions
- GW3a: Ex-Situ Treatment with Effluent Surface Discharge
- GW3b: Ex-Situ Treatment with Injection Well Disposal
- GW4a: In-Situ Treatment (bioremediation) with Injection Well Disposal; and
- GW4b: In-Situ Treatment, Gradient Control, Ex-Situ Treatment with Injection Well Disposal.

Alternative GW3a was selected as the remedy for the Site.

Treatment System Modifications

The remedy selected by the 1993 ROD included ground water extraction, treatment via air stripping, discharge of treated water to surface water, and if necessary, treatment of air emissions. EPA and Piper entered into a Consent Decree in November 1995. Piper began the Remedial Design in December 1995 and submitted a supplemental Focused Feasibility Study (FFS) in June 1997. Piper requested that EPA approve an alternate treatment technology, which consisted of proprietary in-well aeration/stripping system (UVB Well). The traditional pump and treatment technology includes pumping water from the ground, piping it to a treatment chamber such as an air stripper, and then piping the treated water to the discharge location (e.g. surface water). The UVB system eliminates the need for excess pumping and piping. The UVB system pumps contaminated water from the ground, treats the water with an air stripper just below the ground surface at the location of the well, and then pumps the treated water back into the ground at that same location. Because the UVB system was thought to be more efficient than the traditional pump and treat technology, EPA agreed to the proposal and Piper continued with the Remedial Design.

Installation of the two UVB Wells (UVB-1 and UVB-2) occurred in January 1998. UVB-1 was installed near the original extraction well and included an external air stripper, while UVB-2 was installed at the south end of the property as described in the preceding paragraph. The system was deemed "operational" in October 1998, although the flow rates for the return of treated water to the aquifer were ½ and 1/3 the rate estimated by the Remedial Design. Modifications

were made to the system over the next few years to improve the flow rates. Modifications included installation of an external air stripper on UVB-2 and piping the treated water from the UVB-2 air stripper to the former extraction well for injection into the ground. In addition, in 2001, UVB-1 was replaced with UVB-1a in hopes of increasing contaminant recovery rates. UVB-1a was located further east in an area of higher volatile organic compound concentrations.

Institutional Controls

The groundwater remedy selected in the 1993 ROD does not include a requirement for Institutional Controls (ICs). However, institutional controls have been implemented at the Site. Because hazardous substances, pollutants, or contaminants are present in groundwater above levels that allow for unlimited use and unrestricted exposure to ground water, institutional controls are warranted until CERCLA cleanup goals allowing unrestricted use of the aquifer are met for the Site.

Under chapter 62-524 of the Florida Administrative Code, if hazardous substances, pollutants, or contaminants are present in ground water above levels that allow for unlimited use and unrestricted exposure to groundwater, Sites and a buffer area are designated as a Florida Groundwater Delineation Area. The contaminated groundwater plume and the Delineation Area associated with the Site are illustrated in the attached figure. Implementation of the delineation rule is a cooperative effort among the FDEP, the Florida Department of Health, and the water management districts. The State water management districts may require additional well construction measures as part of the well permitting process in areas delineated by FDEP. Each permit application for a new well is reviewed to determine the well's location relative to delineated areas. If the well is located in a delineated area, the water management district may require more rigorous well construction specifications, a treatment filter may be installed on the well, or connection to a public water system may be necessary. More information about Florida groundwater delineation areas can be found at: http://www.dep.state.fl.us/water/groundwater/delineate.htm.

In addition, Section 78-202 of the Municipal Code of the City of Vero Beach, states

> *It is found and determined that it is necessary for the health and welfare of the inhabitants of the city that the owners or occupants of all commercial buildings, individual residences, condominium units, apartments, trailer parks, mobile home parks, and modular home parks and premises therein are required to connect with and use the services and facilities of the water system of the city for potable water needs. (Code 1982, § 19.02; Ord. No. 97-14, § 1, 5-20-1997)*

The Site and surrounding area are located within the city limits. The Municipal Code for the City of Vero Beach can be found at: http://www.municode.com/resources/gateway.asp?pid=11654&sid=9

Institutional Controls will be enforced by the City of Vero Beach and the State of Florida. EPA will evaluate the effectiveness of the ICs during the Five-Year Review process.

VI. Support Agency Involvement

In accordance with the NCP §300.435(c)(2), EPA consulted with the FDEP prior to the issuance of this ESD. EPA also provided FDEP with the opportunity to comment on the draft ESD. FDEP supports the issuance of this ESD and provided comments on an earlier draft. Their comments have been incorporated into this version.

VII. Statutory Determinations

EPA has determined that these significant changes comply with the statutory requirements of CERCLA §121, 42 U.S.C. §9621, are protective of human health and the environment, comply with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, are

cost-effective, and utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

Because this remedy upon completion, will not leave hazardous substances, pollutants, or contaminants on site above levels that allow for unlimited use and unrestricted exposure, but requires five years or more to complete, a *policy* review will be conducted no less often than each five years after the initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment. The first Five-Year Review was completed on May 14, 2004. The second Five-Year Review was completed on May 5, 2009. Five-Year Reviews will continue until cleanup goals have been attained.

VIII. Public Participation

The public participation requirements set out in the NCP §300.435(c)(2) will be met by publishing this ESD, making it available to the public in the Administrative Record, and publishing a notice summarizing the ESD in a major local newspaper.

EPA updated the Administrative Record in July 2009. The Vero Beach Press Journal published EPA's ad on August 5, 2009, which announced the availability of the updated Administrative Record and that the draft ESD was available for public comment at the repository listed in Section I. EPA also mailed a copy of the draft ESD to addresses within a half-mile radius of the Site.

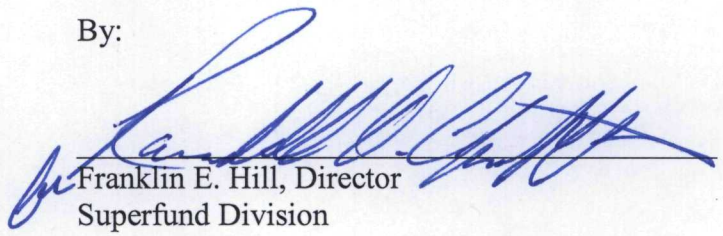
EPA considered written comments, postmarked on or before August 31, 2009, before preparing this final version of the ESD. Two citizens of Vero Beach submitted written comments regarding the draft ESD during the comment period. One citizen, whose deceased wife worked for Piper Aircraft in the 1980s, stated that employees should have been warned and protected from the effects of TCE. The other citizen commented about the expense of having to install a new well for residential irrigation purposes and that some residents must pay City of Vero Beach utility rates for water to irrigate because they cannot install wells for any purpose due to the ground water contamination. A third citizen has been corresponding with EPA during the past few years, but not regarding this ESD.

IX. Authorizing Signature

I have determined the remedy for the Site, as modified by this ESD, is protective of human health and the environment, and will remain so provided the actions presented in this report are implemented as described above. This ESD documents the significant changes related to the remedy at the Site.

U.S. Environmental Protection Agency

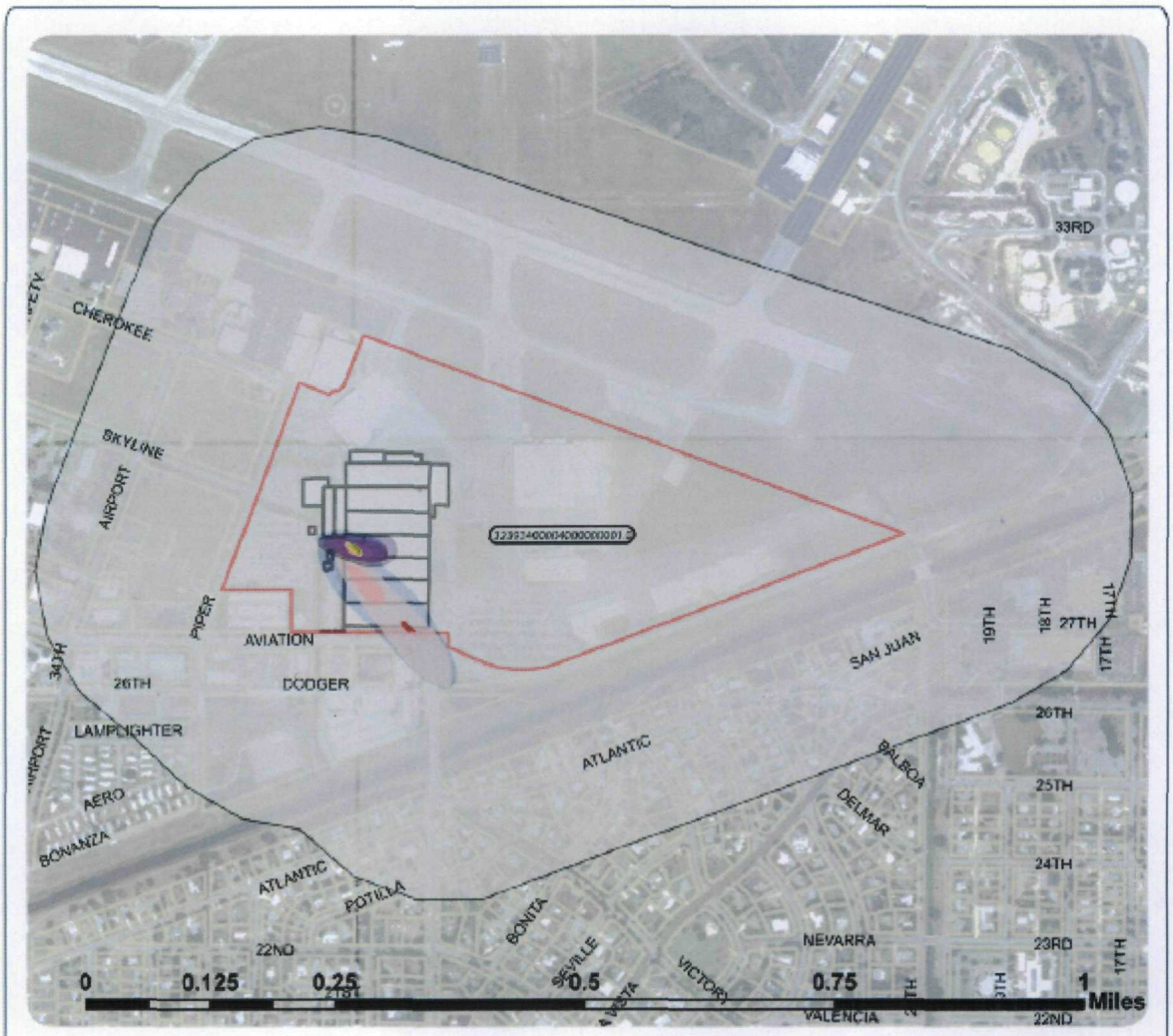
By:



Franklin E. Hill, Director
Superfund Division

Date:

9/28/09



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map does not purport to be a survey. The map is for informational purposes only regarding EPA's response actions at the site, and is not intended for any other purpose.

Legend

- Buildings
- Florida Ground Water Delineated Area
- Piper Aircraft Property Parcel
- Piper Aircraft Parcel Number
- Shallow-Depth Trichloroethylene 3.0 ppb Isopleth
- Shallow-Depth Trichloroethylene 10.0 ppb Isopleth
- 1997 Composite 3.0 ppb Trichloroethylene Isopleth
- 1997 Composite 10.0 ppb Trichloroethylene Isopleth
- 1997 Composite 20.0 ppb Trichloroethylene Isopleth
- 2002 Composite 3.0 ppb Trichloroethylene Isopleth
- June 2008 3.0 ppb Trichloroethylene Isopleth
- June 2008 10.0 ppb Trichloroethylene Isopleth
- June 2008 20.0 ppb Trichloroethylene Isopleth
- June 2008 1.0 ppb Vinyl Chloride Isopleth
- June 2008 10.0 ppb Vinyl Chloride Isopleth
- June 2008 20.0 ppb Vinyl Chloride Isopleth
- June 2008 30.0 ppb Vinyl Chloride Isopleth
- June 2008 100.0 ppb Vinyl Chloride Isopleth
- Area where VOCs exceed MCLs

NORTH

Figure 4
Florida Ground Water Delineated Area Map

Piper Aircraft Corp. Superfund Site
City of Vero Beach, Indian River County, Florida

LIST OF ABBREVIATIONS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CVB	City of Vero Beach
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FDEP	Florida Department of Environmental Protection
FFS	Focused Feasibility Study
ICs	Institutional Controls
MCL	Maximum Contaminant Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
Piper	Piper Aircraft, Inc.
RI/FS	Remedial Investigation / Feasibility Study
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act of 1986
Site	Piper Aircraft/Vero Beach Water and Sewer Superfund Site
TCE	trichloroethylene
U.S.C.	United States Code
UST	underground storage tank
UVB	Unterdruck-Verdampfer-Brunnen
µg/L	micrograms per liter