SITE REVIEW AND UPDATE

PIPER AIRCRAFT CORPORATION

VERO BEACH, INDIAN RIVER COUNTY, FLORIDA

CERCLIS NO. FLD004054284

Prepared by

The Florida Department of Health and Rehabilitative Services
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

Summary of Background and History

The purpose of this Site Review and Update Report is to summarize site activities since the 1988 Public Health Assessment report and determine if we should reevaluate the public health threat. The U.S. Environmental Protection Agency (EPA) listed the Piper Aircraft Corporation Site (Piper) on the Superfund National Priorities List (NPL) on February 16, 1990[1]. This active site occupies eight acres at the southern end of the Vero Beach Municipal Airport (Figure 1). The facility is at 2926 Piper Drive, at the intersection of Aviation Boulevard and Piper Drive (Figure 2). The Los Angeles Dodgers owns the undeveloped property west of the site. A canal is south of the site and a residential area is less than a half mile south of the canal. Storm water runoff from the site, parking lots and loading/receiving areas flows into a ditch between the parking lot and the main facility (Figure 2). Water from the ditch flows into the Canal, to the Indian River and then to the Atlantic Ocean. Municipal Well #15 is at the entrance to the southern parking area, about 1000 feet southeast of the dewatering / extraction well [2].

The facility began assembling and painting light aircraft in 1957. Piper stored chemicals used in operations in underground storage tanks. Harbor Branch Foundation, Inc. found four volatile organic compounds during routine sampling of Vero Beach's drinking water supply. They informed the City of Vero Beach on October 3, 1978. The City conducted tests on November 21, 1978 and identified trichloroethylene (TCE) in Municipal Well #15. They found the source as a leaky underground TCE storage tank 850 feet northwest of Well #15 belonging to Piper [3]. They did not estimate how much TCE was lost but the tank was in place for about three years [4]. Widespread elevated levels of contaminants were found in shallow wells near the leaky tank suggesting the well was leaking for some time [5]. Piper took the tank out of service and unsuccessfully attempted dewater the area around the tank to reduce TCE
concentrations [5].

On March 26, 1979, engineering consultants to the City of Vero Beach recommended shutting down Well #15. The city installed two new municipal wells to replace Well #15; they are about 2000 feet south and southeast of Well #15 [4]. In 1980, Piper and the Florida Department of Environmental Protection (FDEP) signed a consent agreement to clean up the site and Piper installed a dewatering well and a monitoring well south of Well #15. In 1981, with FDEP oversight, Piper placed the dewatering well into service. It pumps about 225 gallons per minute and discharges the water into the Main Relief Canal about one mile east of the site. They installed an air stripper to enhance the removal of volatile organic compounds, like TCE [4]. This extraction and treatment system remains in operation today [6]. In August 1985, EPA proposed to add Piper to the NPL. Piper and FDEP expressed concern since remediation was ongoing. In 1988, the Florida Department of Health and Rehabilitative Services (HRS) prepared a Health Assessment. They recommended air monitoring, determining the extent of groundwater

contamination, and surveying down gradient wells. In 1989, Piper with FDEP oversight, removed, treated, and replaced contaminated soil [1].

The site was added to the NPL on February 1990 due to the groundwater contamination. Piper attempted to negotiate with the EPA to have the site delisted from the NPL list [7]. In June 1991, the EPA started its community relations efforts by conducting community interviews and holding public meetings. In March 1992, the City returned Well #15 to service with treatment [4].

Piper wanted to conduct the Remedial Investigation (RI) and Feasibility Study but was not able to pay for the studies due to bankruptcy. Therefore, the EPA completed the Remedial Investigation and Feasibility Study in August 1993 [2]. They identified that the ground water beneath the site is contaminated with TCE and its degradation products: 1,1-dichloroethene, cis-1-2-dichloroethene, trans-1-2-dichloroethene, and vinyl chloride [8]. The RI said that the extraction and treatment system installed in 1981 did not adequately contain these contaminants under the site. It showed the contamination continued to migrate downgradient from the site and pose a threat to municipal drinking water supplies and surface water [6]. The groundwater treatment system also affected air quality [1].

The EPA conducted a Risk Assessment as part of the Remedial Investigation. The Risk Assessment quantifies risks based on levels of contamination at the site and on a selection of exposure scenarios. The groundwater assessment is based on the potential current scenario that residents drink water from Well #15 is without treatment. This does not represent actual exposures since the City treats the water before they release it into the municipal distribution system. A potentially unacceptable carcinogenic risk exists for a resident exposed to groundwater at the current contamination level. Vinyl chloride causes this risk [4].

The air exposure assessment assumes that the wind blows at the same speed and direction as it did on the day the EPA took samples. This assessment assumes that residents breathe air very close to the spray nozzle 100% of the time for a lifetime although the closest residence is 100 feet away from the spray nozzle. A potentially unacceptable carcinogenic risk exists for a resident exposed to air at the contamination level very close to the spray nozzle and 1,1-dichloroethene causes this risk. A potentially unacceptable non-carcinogenic risk also exists for a resident exposed to this air due to 1,1-dichloroethene and 1,1,1-trichloroethane. The EPA risk assessment states that based on the characteristics of the aeration mechanisms, it is unlikely that significant dilution of the air concentration would occur within 100 meters, to the closest resident [4]. FDEP commented that simple air modeling could validate this [9].

The EPA received public comments before they finalized the remediation plan. The local community believes that the Piper Aircraft has acted responsibly and the EPA should allow them to continue the remediation process using the existing system. The

community is concerned that the EPA will cause Piper to go back into bankruptcy due to the cost of the remedy [1].

In December 1993, the EPA completed the Record of Decision [1]. The ROD is EPA's decision on the remedial action carried out at the site and responses to public comments. The remedial alternative chosen by the EPA consists of extraction of groundwater and treatment by an air stripper until it meets discharge criteria. Water from the air stripper is discharged either off-site in the main relief canal, in a potable water system, or in an on-site drainage ditch [1]. All discharges will meet National Ambient Air Quality Standards and City criteria to discharge to the potable water system. The treatment of the groundwater will protect human health and the environment by reducing or preventing further migration of the contaminated groundwater and reduce contamination until they are less than governmental standards [1]. The ROD and other related documents are available for public review at the information repository in the Indian River County Main Library [10].

Comments made during the public meeting on October 20, 1993 included questions about the proposed cleanup plan but did not include health concerns. Several citizens wanted to know why the EPA wants to take more remedial action although Piper treated the groundwater and soil. They wanted to know why the EPA wanted to remediate current contaminant levels. Maximum concentrations of cis-1,2-dichloroethene, trichloroethene, and vinyl chloride exceed federal ground water standards and state of Florida standards. Violations of these standards generally warrant remedial [1].

In February 1994, the Viro Group prepared a Contamination Assessment Report for the site and found petroleum hydrocarbons in the groundwater. They recommended that monitoring for petroleum hydrocarbons along with TCE during remediation [11]. The consent Decree was signed November 11, 1996. The purpose of the consent decree is to establish cleanup actions at the site that will protect public health and the environment and to reimburse costs to the EPA. The EPA is presently preparing a remedial design for the cleanup actions.

Current Site Conditions

A fence encloses the facility. Asphalt or concrete covers most of the site except the drainage ditch, a grassy area to the north, and a strip of grass along the western fence [1]. The facility uses storm drains to remove rain from the parking areas. These drains empty into the Main Relief Canal which empties into the Indian River and Atlantic Ocean. The groundwater flow is southeast, but the pumping of Municipal Well #15 overrides the flow. In the future, this land will probably remain commercial/residential [10]. The contaminated groundwater plume extends from the facility south to the main relief canal and east to a spray nozzle aerating system.

On February 19, 1996, Randy Merchant and Julie Smith of Florida HRS, Office of Environmental Toxicology and Gary Purdy of the Indian River County Public Health Unit visited the site. The area north of the spray nozzle is a grass-covered field. The spray nozzle aerating system consists of a pipe extending across the main relief Canal with several corse nozzles spraying water into the canal. They detected a slight solvent odor. Some people fishing were upstream and downstream of the nozzle. The Mt. Zion Baptist Church and a residence are about 500 feet southeast of the nozzle. An abandoned building is about 100 feet south of the spray nozzle and a hardware store is about 2,000 feet to the southeast.

Current Issues

As recommended by the ATSDR Health Assessment, the EPA and consultants conducted air monitoring; however, they did not survey downgradient.

Currently Municipal Well #15 is contaminated with 1,2-dichloroethene and vinyl chloride. Samples from the canal downstream from the spray nozzle revealed trichloroethene and 1,2-dichloroethene. Air samples from the spray nozzle detected 1,1-dichloroethene, 1,1,1-trichlrorethane and toluene. Workers use 1,1,1-trichlrorethane for the air monitoring equipment and toluene is associated with fuel used at airports.

The community is concerned that the EPA wants to take more remedial action although Piper has treated the groundwater and soil. They feel Piper has been a good neighbor due to the actions taken since 1981 and due to their cooperation with the City of Vero Beach, FDEP and the EPA.

Conclusions

1. We do not need further investigation of downgradient wells because the canal is acting as a hydraulic barrier and is preventing the contaminants from migrating south of the canal and because homes downgradient use primarily municipal water, not private wells [12].

2. Although Municipal Well # 15 is contaminated, further assessment or action is not necessary because the City of Vero Beach treats this water before they release it into the municipal water supply.

3. Risk assessment results do not suggest any problems with surface water contamination.

4. The risk assessment identifies elevated cancer and non cancer risks associated with air contamination due to the spray nozzle. Further assessment of these risks should be conducted.

Recommendations

Florida HRS, in cooperation with ATSDR should evaluate the public health threat from exposure to contaminated air from the spray nozzles. Dispersion models should be used to find out how much of the air contamination would reach residential areas. Based on this evaluation, Florida HRS/ATSDR may recommend actions to reduce to eliminate this exposure.

Preparer of Report

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References

[1] U.S. Environmental Protection Agency. Record of Decision. Decision Summary Piper Aircraft Corporation Site, Vero Beach, Florida. December 23, 1993.

[2] Environmental Protection Agency. Remedial Investigation Report for Piper Aircraft Superfund Site. August 1983.

[3] University of Florida Department of Environmental Engineering Sciences. Groundwater Contamination Remedial Action Evaluation. Prepared for Florida Department of Environmental Regulation. May 1987.

[4] Roy F. Weston, Inc. Baseline Risk Assessment, Piper Aircraft Corporation Site, Vero Beach Florida. Prepared for Environmental Protection Agency. April 1993.

[5] ICF Institutional Responses to Contamination of Groundwater used for Public Water Supplies: Implications for EPA R&D Programs. For EPA Office of Research and Development. February 1983.

[6] Memo from John Ruddell of FDEP to Virginia Wetherell 4/12/94.

[7] Letter to James McGurie of the EPA dated 10-29\8-93 from Stroock and Stroock and Lavan on behalf of Piper Aircraft Corporation.

[8] Consent Decree. United States vs. The New Piper Aircraft, Inc. In the United States District Court for the Southern District of Florida. West Palm Beach Division. November 1, 1995.

[9] Letter from Douglas Fitton, Florida Department of Regulation, to Olga Perry, USEPA Region IV Regarding the Baseline Risk Assessment Report. June 18, 1993.

[10] Environmental Protection Agency. Superfund Proposed Plan Fact Sheet. Piper Aircraft Superfund Site. Vero Beach, Florida. September 1993.

[11] Viro Group. Contamination Assessment Report. Prepared for Piper Aircraft Corporation. February 1994.

[12] Letter from Michael Galanis, Director of Indian River CPHU to Richard Freeman, HRS, Regarding the Preliminary Health Assessment for Piper Aircraft Corporation. April 4, 1989.

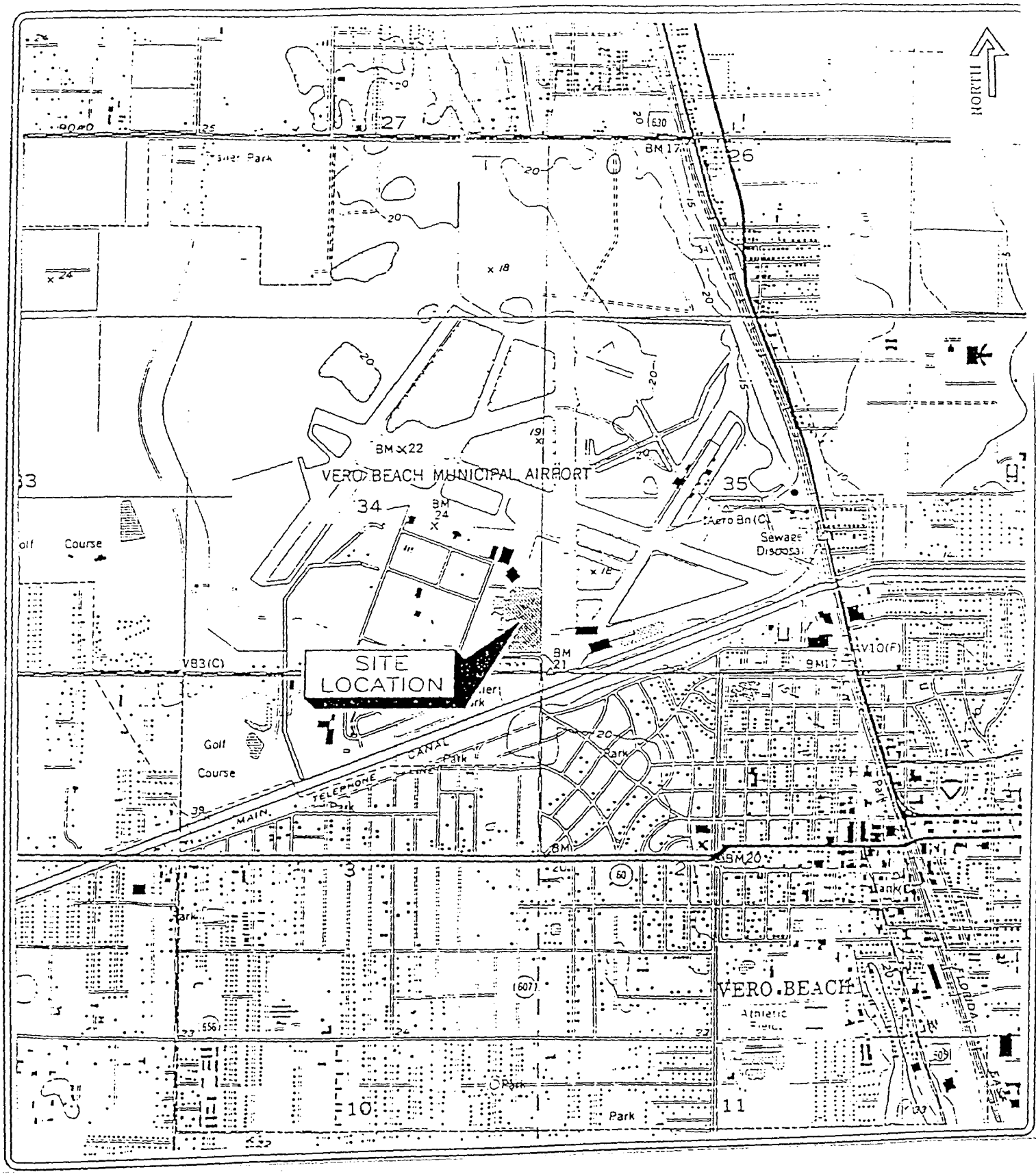

Figure 1
Piper Aircraft Corporation Site Location
Adapted from ViroGroup

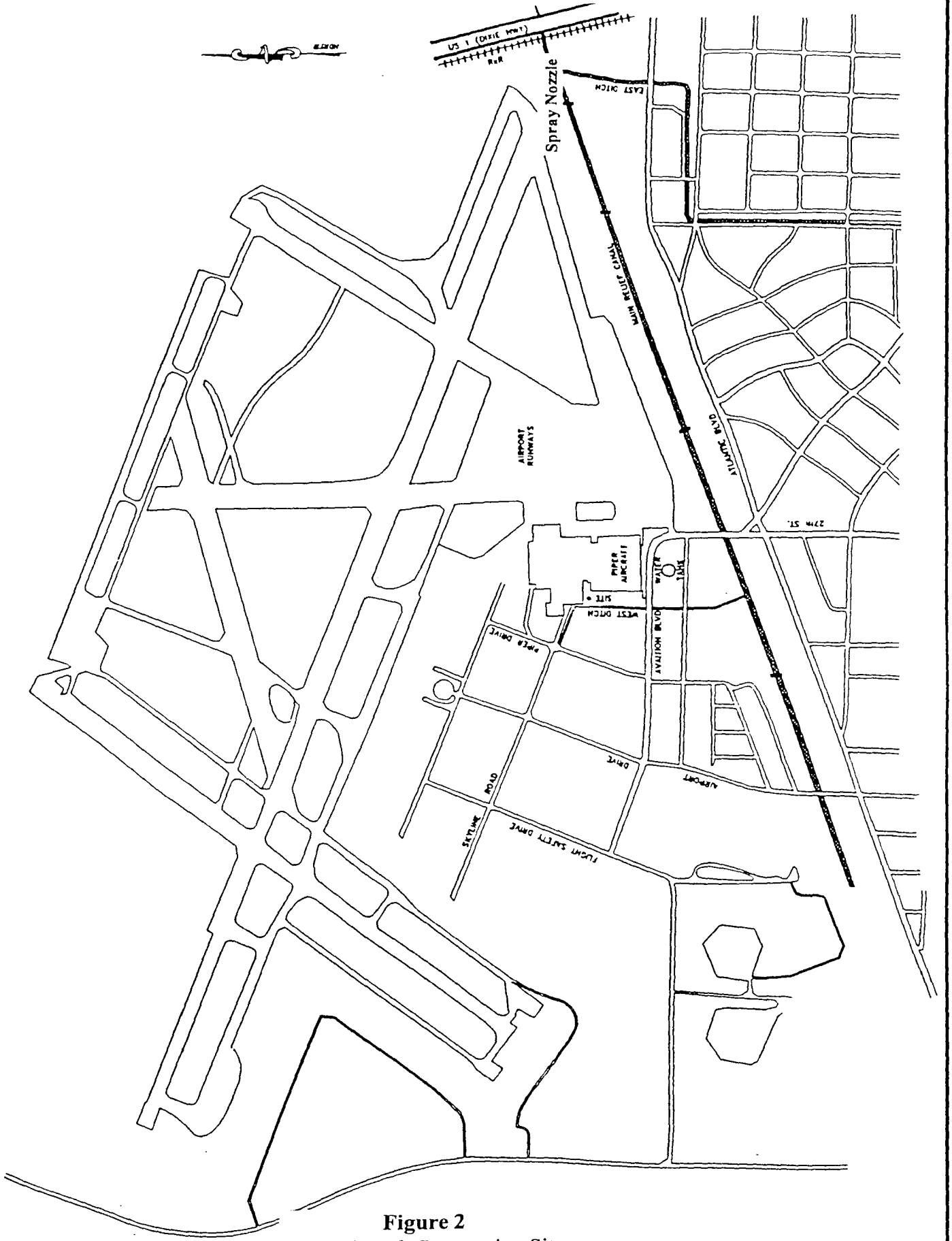

Figure 2
Piper Aircraft Corporation Site
Adapted from EPA