



ROY F. WESTON, INC.
 LANDMARK ONE
 ONE VAN DE GRAAFF DRIVE
 BURLINGTON, MA 01803
 (617) 229-2050

NAME: Jones Environmental
 ID NO: MAD047075734
 FILE NO: R-5
 OTHER: #103328

May 15, 1992
 Work Order No. 4100-11-02-0007

Ms. Sharon Hayes
 Work Assignment Manager
 U.S. EPA, Region I
 Superfund Support Section (HSS-CAN-7)
 John F. Kennedy Federal Building
 Boston, MA 02203-2211

Subject: Final Preliminary Assessment Plus Report
 Jet-Line Services Inc.
 Lowell, Massachusetts
 CERCLIS No. MAD047075734
 TDD No. 9108-03-AWE
 Work Assignment No. 11-1JZZ

Dear Ms. Hayes:

Enclosed are three copies of the Final Preliminary Assessment Plus Report for Jet-Line Services Inc. in Lowell, Massachusetts. Three copies of the final report have been sent to the appropriate State contact under separate cover. Draft report comments submitted by EPA have been incorporated. No comments were received by MA DEP during the review period. The Final Preliminary Assessment Plus Report was prepared in response to the Work Assignment No. 11-1JZZ.

Please call me if you have any questions regarding this report.

Very truly yours,

ROY F. WESTON, INC.

Joseph D. Mastone

Joseph D. Mastone
 WESTON Region I ARCS
 Site Manager

RDMS DocID



103328

JDM:day

Enclosure

cc: R. Kraybill (WESTON Deputy Program Manager) w/o enc.
 N. Smith (EPA SAM)
 E. Waterman (U.S. EPA)



ROY F. WESTON, INC.
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NAME JETLINE SERVICES
ID NO: MAD047075734
FILE LOC: R-5
OTHER: PA + corresp.
May 15, 1992
Work Order No. 4100-11-02-0007

Ms. Ida Babroudi
Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup
10 Commerce Way
Woburn, MA 01801

Subject: Final Preliminary Assessment Plus Report
Jet-Line Services Inc.
Lowell, Massachusetts
CERCLIS No. MAD047075734
TDD No. 9108-03-AWE
Work Assignment No. 11-1JZZ

Dear Ms. Babroudi:

Enclosed is one copy of the Final Preliminary Assessment Plus Report for Jet-Line Services Inc. in Lowell, Massachusetts. Draft report comments submitted by EPA have been incorporated. No comments were received by MA DEP during the review period.

Please call me if you have any questions regarding this report.

Very truly yours,

ROY F. WESTON, INC.

Joseph D. Mastone
WESTON Region I ARCS
Site Manager

JDM:day

Enclosure

cc: J. Chormann (MA RCRA)
S. Hayes (EPA WAM) w/o enc.
R. Kraybill (WESTON Deputy Program Manager) w/o enc.
H. Panchal (CERCLA)
N. Smith (EPA SAM) w/o enc.

NAME: JET LINE SERVICES
ID: MAD047075734
FILE LOG: May 15, 1992 R-5
OTHER: PA +

Final Preliminary Assessment Plus Report
Jet-Line Services, Inc.
Lowell, Massachusetts

CERCLIS No. MAD047075734
TDD No. 9108-03-AWE
Work Assignment No. 11-1JZZ
Work Order No. 4100-11-02-0007

INTRODUCTION

The Roy F. Weston, Inc. Alternative Remedial Contract Strategy (ARCS/Region I) team was requested by the Region I U.S. Environmental Protection Agency (EPA) Waste Management Division to perform a Preliminary Assessment Plus (PA-PLUS) of the Jet-Line Services Inc. property in Lowell, Massachusetts. Tasks were conducted in accordance with the ARCS contract, the PA-PLUS Scope of Work and Technical Specification provided by the EPA under Work Assignment No. 11-1JZZ which was issued to ARCS/Region I on August 27, 1991. This PA-PLUS was conducted as part of EPA's Environmental Priorities Initiative (EPI), a joint project overseen by the Resource Conservation and Recovery Act (RCRA) program and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) program, more commonly known as Superfund.

Background information used in the generation of this report was obtained through file searches conducted at the Massachusetts Department of Environmental Protection (MA DEP) and EPA, telephone interviews with town officials and individuals knowledgeable of the property history and characteristics, and conversations with other Federal, State and local agencies. Information was also collected during the ARCS/Region I on-site reconnaissance on February 18, 1992.

This package follows the guidelines developed under Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations such as those under the RCRA or other Federal, State or local regulations. The PA-PLUS provides a preliminary screening of facility operations. The EPI represents an integrated RCRA/CERCLA approach to assessing RCRA facilities, utilizing procedures that combine elements of the Superfund Preliminary Assessment (PA), and the RCRA Facility Assessment (RFA). Under the EPI, current and former hazardous waste treatment, storage and disposal facilities regulated by the RCRA program are being evaluated to determine whether corrective action may be warranted. The PA-PLUS is a limited effort and not intended to supersede more detailed investigations.

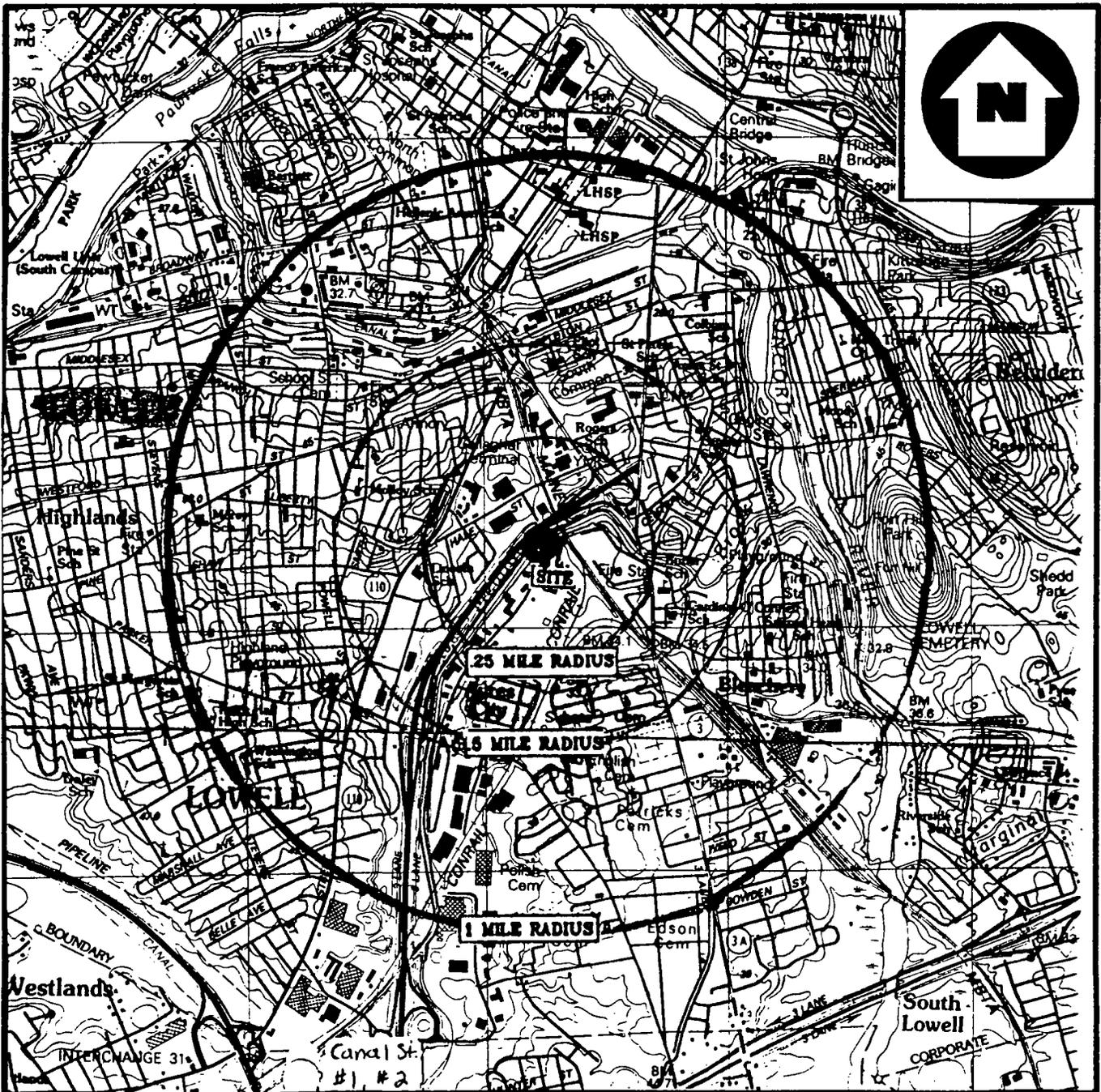
SITE DESCRIPTION

The Jet-Line Services Inc. (Jet-Line) (also referred to as Geochem, Inc. d.b.a. Jet-Line of Lowell) property is located at 263 Howard Street in Lowell, Middlesex County, Massachusetts at latitude 71° 18' 51" and longitude 42° 7' 53" (Figure 1) corresponding to the City of Lowell Tax Assessor's Map 164, Parcel 237. Jet-Line is an active treatment, storage and disposal facility currently operating under interim status. Jet-Line has been in operation since 1985. The property is bounded by River Meadow Brook to the north, Howard Street to the east, Tanner Street to the south, and Union Sheet Metal, Co. Inc. to the west. The Jet-Line property is zoned for Industrial use (Shah 1991). The property size is approximately 30,000 square feet. Five structures were observed during the on-site reconnaissance: Building 1, Building 2, loading dock, and two office trailers (Figure 2). The footprint of Building 1 was approximately 4,800 square feet in size and was located along the east side of the property. The building contained office and laboratory area, drum storage area A and B, and the interim drum storage area. Building 2 is located directly west and adjacent to Building 1. The footprint of Building 2 was approximately 2,652 square feet and is used for drum storage. To the north of Building 2 was the concrete loading dock. Two permanent office trailers were located near the northwest corner of the property (ARCS/Region I 1992).

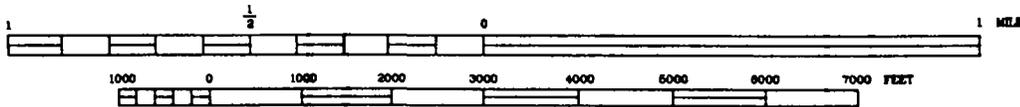
Figure 2 shows pertinent site features observed during the on-site reconnaissance. The perimeter of the property is fully fenced except for the area between River Meadow Brook to the top of the embankment. One gate (manual) provided the only access to the property. A covered roll-off was located adjacent to the permanent office trailers. The yard located west of Building 2 and the loading dock was paved. An embankment extends along the entire northern boundary separating the fenced in portion of the property and River Meadow Brook. The embankment runs horizontally 15 feet and rises vertically 10 feet. A 3 inch high bermed concrete loading/unloading area surrounds the concrete loading dock. A catch basin with containment was located in the loading dock. East of the loading dock and north of Building 1 was an outside storage area. The storage area was approximately 200 square feet and is used to store plastics and empty sample containers (ARCS/Region I 1992).

A former catch basin with containment was located inside Building 2 near the southeast corner (ARCS/Region I 1992). Jet-Line stated that no underground storage tanks or aboveground storage tanks were located or have been located on the site (ARCS/Region I 1992).

Five of the six monitoring wells were observed on-site. Well identification and location are shown in Figure 2 (ARCS/Region I 1992).



BASE MAP IS A PORTION OF THE FOLLOWING 7.5 X 15 MINUTE QUADRANGLE:
 LOWELL, MA 1987

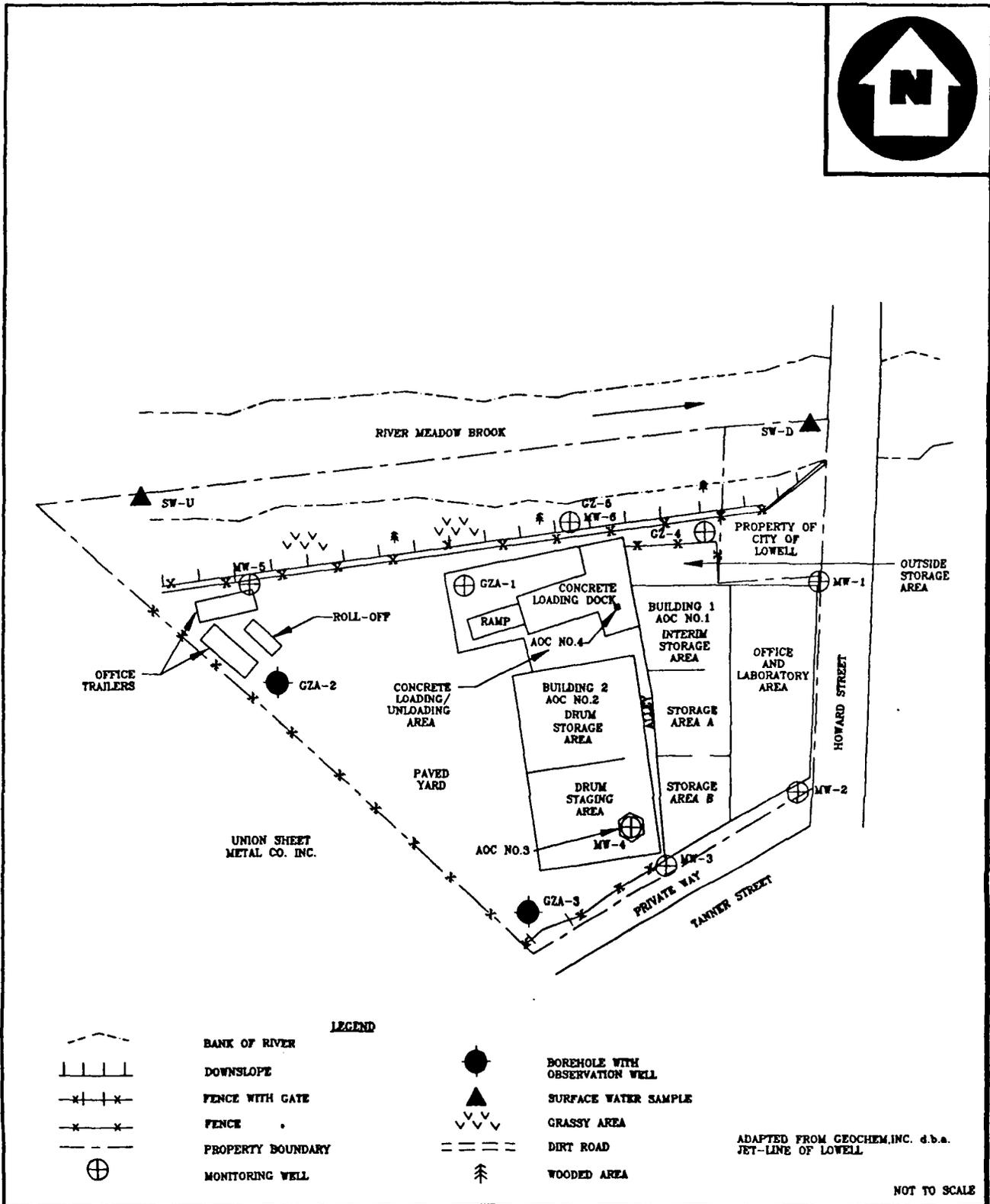
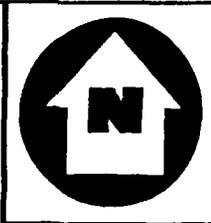


LOCATION MAP

JET-LINE SERVICES INC.
 LOWELL, MASSACHUSETTS

ARCS REGION I
 CONTRACT NO. 68-W9-0018

FIGURE 1



SITE SKETCH
 JET-LINE SERVICES INC.
 LOWELL, MASSACHUSETTS

ARCS REGION I
 CONTRACT NO. 68-W9-0018

FIGURE 2

Table 1 presents all identified structures or areas on the Jet-Line property that are potential sources of contamination, commonly referred to areas of concern (AOC). Table 1 also includes a brief description of the AOC, the date of startup and closure (if applicable) of the AOC, and their status with regard to the occurrence of or potential for releases of hazardous substances from those areas. Appendix A summarizes specific characteristics of each identified AOC on-site.

Table 1
Area of Concern (AOC) Status Summary

Area of Concern (AOC)	AOC Description	Start-Update/ Closure Date	Release Status	Reference
AOC No. 1 - Building 1	Drum storage areas - interim storage, areas A and B	prior to 1976 to present	High potential of release	ARCS/Region I 1992
AOC No. 2 - Building 2	Drum storage area	1979 to present	Low potential of release	ARCS/Region I 1992
AOC No. 3 - Former catch basin	Former catch basin located underneath Building 2	1979 to 1986	Release	ARCS/Region I 1992
AOC No. 4 - Catch basin/loading dock	Catch basin and loading dock area	unknown to present	Low potential of release	ARCS/Region I 1992

SITE ACTIVITY/HISTORY

The Jet-Line property in Lowell, Massachusetts is currently owned by Basil Waste Management, a wholly owned subsidiary of Frank E. Basil, Inc. The facility was originally started by Mr. George Haggerty of Geochem in 1976. In 1985, Basil Waste Management purchased Geochem and began operating under the name Jet-Line Services Inc. [also referred to as Jet-Line of Lowell (for business purposes, Geochem, Inc. d.b.a. Jet-Line of Lowell)]. No information was available on property ownership prior to 1976 (Shah 1991). Jet-Line stated that a boiler maintenance and repair company and a metal recycling company existed on the site at one time (ARCS/Region I 1992). The facility consists of two buildings. Building 1 (in existence since 1976) houses the offices, laboratory, interim drum storage, and drum storage areas A and B. Building 2 was constructed in 1979 and houses drum storage areas (MA DEP 1986).

The yard (unpaved until 1988) was used by Geochem as a parking area for trailers and for storage of empty drums prior to resale or disposal (Versar 1988).

The operations at Jet-Line are limited to the storing, bulking and testing of hazardous wastes. Approximately 75 percent of the wastes received are from other Jet-Line facilities. These wastes include corrosives (acids and bases), organic (halogenated and non-halogenated solvents and oily solids), and inorganic (plating wastes) compounds. The wastes are transferred from drums to bulk containers or stored in their original containers for shipment off-site. Jet-Line is permitted to store up to 500 drums. Table 2 lists the waste type allowed at the facility and the estimated annual quantity of waste.

Table 2
Annual Wastes Stored by Jet-Line Summary

Waste	Code	Quantity (55-gallon drums)
Halogenated solvents	F001, F002, U210, U228, U080, U226, U211, U037, M003	600 to 1,200
Metal hydroxide sludges	F006	4,800
Waste oils	D005, D006, D007, D008, M001	1,200
Acid and alkali solutions	D002	12,000
Cyanide bearing solutions	D003, F007, F008, P029, P030, P013, P063, P074, P098, P099, P104, P121	360 to 1,200
Contaminated solids (including absorbent and dirt, etc.)	may include any of the waste codes listed above	1,900

Source: AET 1986.

Building 1 was originally constructed with a wooden floor. Incoming wastes were handled and stored on the wooden floors. In 1984, concrete was poured over the wooden floor and berms were constructed to provide containment. The northwest corner of Building 1 has been used for interim storage of drums since 1976. In 1978, a solvent recovery system was installed in the interim storage area. The system recovered methylene chloride, Freon, and 1,1,1-trichloroethane. This system had a capacity of 900 gallons and processed at a rate of 45 gallons per hour. The solvent recovery system was decommissioned and removed in 1984 (Versar 1988).

The drum storage areas A and B in Building 1 have been used for drum storage since 1976. Presently, area A is approximately 652 square feet and area B is approximately 665 square feet. ARCS/Region I investigators were informed by Jet-Line, that prior to 1985, drum storage areas A and B also included a portion of the present office and laboratory space. Laboratory wastes

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are accumulated in daily, satellite and general accumulation areas. A laboratory sample consolidation area is presently located in the interim storage area (ARCS/Region I 1992).

Building 2 has a concrete floor and is approximately 2,652 square feet. Building 2 was originally used as a storage area for tanks and trailers which contained hazardous wastes but is now used primarily for drum storage and consolidation of wastes. The materials stored in Building 2 are similar to the materials stored in Building 1, drum storage areas A and B.

An underground catch basin located near the southeast corner of Building 2 was discovered in 1986. The concrete basin was most likely built in 1978 when Building 2 was constructed (Versar 1988). The basin, which is approximately 5 feet wide by 10 feet long by 5 feet deep, was used as a spill containment sump. MA DEP ordered Jet-Line to conduct an environmental assessment of the area. Clean-up activities were conducted during the weekend of September 14, 1986. Approximately 26 drums of liquid hazardous material and three drums of contaminated soil were removed from the basin during clean-up activities. Analyses of the material removed from the basin revealed that up to 39 percent of the material was chlorinated solvents (trichloroethane, methylene chloride, freon, 1,1,1-trichloroethane, and tetrachloroethene). The material also contained barium, cadmium, chromium, lead, selenium, and silver. In January 1987, Jet-Line discovered that the basin had filled up again, presumably with groundwater. The material was removed from the basin, analyzed and found to contain 1,1,1-trichloroethane, trichloroethane, tetrachloroethene and methylene chloride. In March 1987, a monitoring well (MW-4) was installed underneath the basin. Analytical results revealed that groundwater underneath the basin was similarly contaminated with these chlorinated solvents. A closure plan for the basin was submitted and approved by MA DEP in 1988. The closure of the basin included filling the basin with sand and capping with concrete (Versar 1988).

Geochem originally submitted a Part A application on July 6, 1981 for treatment and storage of RCRA wastes. Geochem's license also allowed the reclamation by distillation of chlorinated organic compounds. On November 19, 1985, MA DEP issued Geochem a Final Decision and Consent Order that presented the conditions of the sale of Geochem to Basil Waste Management and the requirements to continue operations. All wastes present on-site were transferred off-site and the facility was "house cleaned" prior to the sale of Geochem to Basil Waste Management. When Basil Waste Management purchased Geochem they operated under the name Jet-Line Services Inc. Jet-Line revised and resubmitted the Part A application on August 22, 1986. A Part B application was submitted on August 25, 1986. Jet-Line is presently operating under interim license as a transfer, storage, disposal facility and a large quantity generator status for its laboratory wastes. The property has no permit status under the National Pollutant Discharge Elimination System (NPDES) or the Groundwater Discharge Program (ARCS/Region I 1992).

MA DEP and EPA file information indicated a number of complaints, violation notices, and orders dating from 1978 through 1984, during Geochem's ownership. Activities referenced include the transportation and storage of polychlorinated biphenyls (PCBs) and pesticide waste

materials and the treatment by reduction of cyanide waste for which Geochem was not licensed. In addition, storage of waste in unauthorized areas, inaccurate recordkeeping and various other deficiencies were cited (Versar 1988). It is unknown where the location of the unauthorized areas of waste storage were on the property (ARCS/Region I 1992). Several spills were recorded during Geochem's ownership. Table 3 summarizes the date the spill was observed, location type and quantity of material spilled. There are no known reported releases or spills since Jet-Line began operating the facility. One record of non-compliance was issued through the execution of a Consent Order dated February 13, 1987. According to the Consent Order, Jet-Line failed to disclose to MA DEP the existence of the underground basin and the storage of hazardous waste in the basin without approval. In addition, Jet-Line failed to take precautions to prevent releases of hazardous waste from the basin to the environment by failing to test and monitor the basin as required by law. Jet-Line was ordered to cease accepting waste in the storage area where the basin was located and was ordered to conduct an environment assessment of the area (MA DEP 1987a). Other non-compliances dated June 22, 1987, September 14, 1987, October 16, 1987, and January 27, 1988 included violations for inadequate aisle spacing, inaccurate recordkeeping, container condition, manifest discrepancies, and various other deficiencies (MA DEP 1987b,c,d; MA DEP 1988).

Table 3

Recorded Spills at Jet-Line Property

Date of Spill	Material Released	Quantity Released	Location of Spill
1979 to 1986	Chlorinated solvents and metals	Unknown - 26 drums of liquid hazardous waste was removed	Former catch basin located underneath Building 2
February 24, 1978	Unknown	Unknown	Behind loading area north of Building 1
March 9, 1978	Acetone/methylene chloride	Unknown	Behind loading area north of Building 1
December 29, 1978	Ethyl benzene/acetone	55 gallon drum	Loading area
August 27, 1981	Various ignitable wastes	Unknown	Loading dock

Source: Versar 1988.

Six groundwater monitoring wells are located on-site. On December 13, 1984, three test borings including observation wells (GZA-1 through GZA-3) were installed on the property by Golberg-Zoino and Associates, Inc. (GZA). In addition, surface water samples were collected from River Meadow Brook upgradient and downgradient from the site (SW-d, SW-u). The 1984 analytical results for volatile organic compounds (VOCs) are presented in Appendix B of this report. Groundwater VOC levels observed on the site were highest at GZA-3, the upgradient

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well, where a total of 2.5 parts per million (ppm) were reported. GZA concluded in its opinion that VOCs are present at the property. But given that the highest concentration of VOCs in the groundwater upgradient and reported VOC levels decreased with distance across the site, the levels of VOCs reported are most likely indicative of regional groundwater quality. In early 1985, GZA installed two additional wells (GZ-4 and GZ-5). On March 24, 1987, Applied Environmental Technology Corporation (AET) installed MW-4, underneath the catch basin. MW-1, MW-2, and MW-3 were installed by Geochem prior to 1984. Wells GZA-1 through GZ-4 were removed in 1988. The wells that are still operative are MW-1 through MW-6 (GZ-5). MW-5 is part of the Silresim Trust monitoring well group. The Silresim Chemical Corporation site, a former solvent recovery facility, has been placed on the National Priority List by the EPA. The Silresim site is located 800 feet upgradient to Jet-Line. Table 4 summarizes the analytical results of the latest round of sampling conducted in 1987 and compares them to the Maximum Contaminants Levels (MCLs) as set by EPA. The analytical results clearly indicate that the groundwater beneath the former catchbasin was contaminated by releases from the catchbasin.

ENVIRONMENTAL SETTING

The Jet-Line property is located geographically in northeast Massachusetts in the City of Lowell, which is primarily an industrial area situated in Middlesex County. Lowell is bordered to the north by the Town of Dracut, to the east by the Town of Tewksbury, to the south by the Town of Chelmsford, and to the west by the Town of Tyngsborough.

The topography of the area surrounding the Jet-Line property is generally flat, sloping gently from west to northwest. Surface water runoff from the property center moving north flows towards the River Meadow Brook. Surface water runoff from the property center moving south flows along Tanner Street into a storm drain which eventually flows into the River Meadow Brook (ARCS/Region I 1992). The property is located approximately three-quarters of a mile southwest of Concord River. The most probable point of entry (PPE) of contaminants to surface water from the property is the River Meadow Brook along the northern boundary of the property. Overland surface water flows northeast from River Meadow Brook approximately three-quarters of a mile into the Concord River. (USGS 1987a). After entering the Concord River, surface water flows approximately one mile north where it enters into the Merrimack River. Surface water then flows generally northeast via the Merrimack River for the remaining 15 mile surface water pathway bordering the Towns of Dracut, Tewksbury, Methuen, Andover and Lawrence (USGS 1987b).

Table 4
Monitoring Well Samples
Analytical Results Summary - Jet-Line
(samples analyzed by R.I. Analytical Laboratories, Inc.)
(in parts per billion)

Parameter	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	SW-u ^a	SW-d ^b	MCL ^c
Methylene Chloride	13	13	*	*	*	29	14	16	N/A
Trichlorofluoromethane	*	*	*	500	*	*	*	*	N/A
1,1 Dichloroethylene	2	*	120	7,400	160	9	*	*	7
1,1 Dichloroethane	1	*	220	2,400	400	23	*	*	N/A
Trans-1,2-Dichloroethylene	*	*	*	*	100	1	*	2	100
1,2 Dichloroethane	*	*	*	*	*	1	*	*	5
1,1,1 Trichloroethane	81	6	800	490,000	3,200	48	*	*	200
Trichloroethylene	26	*	260	5,900	740	26	5	5	5
Tetrachloroethylene	10	*	*	7,200	*	*	*	*	5
Toluene	*	*	*	140,000	100	*	*	*	1,000
Ethylbenzene	*	*	*	1,600	*	*	*	*	700
Xylenes	*	*	*	7,600	*	*	*	*	10,000

*Indicates if present, this parameter is below the level of detection.

^aSurface water samples: u-upstream, d-downstream.

^cMCL - Maximum Contaminant Level. Drinking Water Regulations and Health Advisories, April 1991.
 Source: Drawas 1987.

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Geologically, Lowell is underlain by unconsolidated glacial drift and wind deposits of Pleistocene age, and alluvium and swamp deposits of Recent age. Unconsolidated material surrounding the property consists of outwash and alluvium. The outwash consists of stratified sand with silt and gravel. Thickness of the outwash and alluvium ranges from 0 to 100 feet. Geologically, the property is part of the Silurian Berwick Formation, which consists of thin to thickly bedded metamorphosed calcareous sandstone, siltstone, and minor muscovite schist. Depth to bedrock varies greatly because of the uneven erosional surface of the preglacial Merrimack River Valley.

The Jet-Line property is not located within a 100-year floodplain (AET 1986). Groundwater table at the property ranges in depth from approximately 10 feet to 15 feet below the ground surface. Groundwater flows north towards River Meadow Brook.

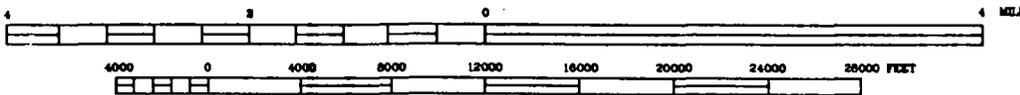
Eleven municipal water supply wells are located within four miles of the property (Figure 3). The population estimate includes persons residing inside and outside the four mile radius if they are served by a municipal well which is located within four miles. The closest well to the property are the Canal Street Wells Nos. 1 and 2 which are located approximately one and one-half miles southwest of the property. They are part of the Chelmsford municipal well system and serve approximately 1,800 and 200 persons, respectively. Table 5 lists the estimated population residing within and beyond the four mile radius served by municipal groundwater supply systems located within the four mile radius. The population estimates are based on conversations with town employees and are therefore approximate.

Private well information provided by the towns was based on general knowledge of private supply use and detailed knowledge of municipal water supply within a four mile radius of the property. Because many private wells were not registered with towns or the State, some information regarding private water supply use within four miles of the property may not be included in these estimates. No private well users are known to exist within a two mile radius of the property (Steuer 1991a). Table 6 shows the approximate population served by groundwater sources within four miles of the property as calculated into radial distance rings from the property. Groundwater sources include municipal wells and private wells. There are no known surface water (drinking) intakes within 15 downstream miles of the property (Steuer 1991c,e,g).

The Massachusetts Division of Fisheries and Wildlife (MA DFW) identified one State listed or proposed threatened or endangered species under their jurisdiction within 4 miles of the property or the area 15 miles downstream of the property. The endangered Banded Bog Skimmer is found within four miles of the property (MA DFW 1992a,b). The U.S. Department of the Interior identified one Federally listed or proposed threatened or endangered species under their jurisdiction. The endangered shortnose sturgeon is found in the Merrimack River within the 15 miles downstream surface water pathway. In addition, the occasional transient endangered bald eagles and peregrine falcons are located within 4 miles of the property or the area 15 miles downstream of the property (US DOI 1991; US DOI 1992).



BASE MAP IS A PORTION OF THE FOLLOWING 30 X 60 MINUTE QUADRANGLE:
 LOWELL, MA 1988 1 : 100,000



LOCATION MAP

JET-LINE SERVICES INC.
 LOWELL, MASSACHUSETTS

ARCS REGION I
 CONTRACT NO. 68-W9-0018

FIGURE 3

Table 5
Public Groundwater Supply Sources Within
Four Miles of Jet-Line

Well No.	Distance/ Direction	Source Name	Location of Source	Approximate Population Served	Source Type
1	1.5 miles SW	Canal Street No. 1	Chelmsford	1,800*	Gravel Pack
2	1.5 Miles SW	Canal Street No. 2	Chelmsford	200*	Gravel Pack
3	2.5 Miles N	Hildreth Street No. 6 & 7	Dracut	5,148*	Gravel Pack
4	3.5 Miles W	N. Chelmsford Well 1,2,3,4	Chelmsford	6,004*	Gravel Pack
5	3.75 Miles W	Crooked Springs 1 & 2	Chelmsford	2,048*	Gravel Pack
6	3.9 Miles W	Meadow Brook No. 2	Chelmsford	1,024*	Gravel Pack

*Indicates well is part of a town blended system.

Note: Well No. corresponds to Well No. as shown in Figure 3 of this report.

Sources: Steuer 1991b,c.

Table 6

**Approximate Drinking Water Population Served by Groundwater Sources
Within Four Miles from the Jet-Line Site**

Radial Distance (miles)	Approximate Population Served by Private Wells Within Radii	Approximate Population Served by Municipal Wells Within Radii
0.00 - 0.25	0	0
0.25 - 0.50	0	0
0.50 - 1.00	0	0
1.00 - 2.00	0	2,000
2.00 - 3.00	562	5,148
3.00 - 4.00	1,059	9,022

Sources: Steuer 1991a,c,d,e,f.

Jet-Line employs approximately 13 people. No schools or day-care facilities were identified with 200 feet of the property (ARCS/Region 1 1992). The closest regularly occupied building is the office building located on-site. Table 7 lists the approximate population within four miles of the property as calculated into radial distance rings from the property. Table 7 also lists the student population as determined from respective Town School Departments.

Table 7

**Approximate Population
Within Four Miles from the Jet-Line Site**

Radial Distance (miles)	Approximate Population	Student Population
0.00 - 0.25	1,427	0
0.25 - 0.50	4,269	1,821
0.50 - 1.00	17,075	4,312
1.00 - 2.00	53,562	3,379
2.00 - 3.00	34,681	Not Calculated
3.00 - 4.00	35,443	Not Calculated

Source: Shah 1992.

SUMMARY

The Geochem, Inc. d.b.a. Jet-Line of Lowell (Jet-Line) property is located at 263 Howard Street in Lowell, Middlesex County, Massachusetts. Jet-Line is an active treatment, storage and disposal facility currently operating under interim status. Jet-Line has been in operation since 1985. The property is bounded by River Meadow Brook to the north, Howard Street to the east, Tanner Street to the south, and Union Sheet Metal, Co., Inc. to the west.

The Jet-Line property is zoned for Industrial use. The property size is approximately 30,000 square feet. Jet-Line is currently owned by Basil Waste Management, a wholly owned subsidiary of Frank E. Basil, Inc. The facility was originally started by Mr. George Haggerty of Geochem in 1976. In 1985, Basil Waste Management purchased Geochem and began operating under the name Jet-Line of Lowell (for business purposes, Geochem, Inc. d.b.a. Jet-Line of Lowell).

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Geochem originally submitted a Part A application on July 6, 1981 for treatment and storage of RCRA wastes. Geochem's license also allowed the reclamation by distillation of chlorinated organic compounds. Jet-Line revised and resubmitted the Part A application on August 22, 1986. A Part B application was submitted on August 25, 1986. Jet-Line is presently operating under interim license as a transfer, storage, disposal facility and a large quantity generator status for its laboratory wastes. The property has no permit status under the National Pollutant Discharge Elimination System (NPDES) or the Groundwater Discharge Program.

MA DEP and EPA file information indicated a number of complaints, violation notices, and orders dating from 1978 through 1984, during Geochem's ownership. Several spills were recorded during Geochem's ownership. There are no known reported releases or spills since Jet-Line began operating the facility. One record of non-compliance was issued through the execution of a Consent Order dated February 13, 1987. According to the Consent Order, Jet-Line failed to disclose to MA DEP the existence of the underground basin and stored hazardous waste in the basin without approval.

The Jet-Line property is located geographically in northeast Massachusetts in the City of Lowell, which is primarily an industrial area situated in Middlesex County. The topography of the area surrounding the Jet-Line property is generally flat, sloping gently from west to northwest. Surface water runoff from the property center moving north flows towards the River Meadow Brook. The most probable point of entry (PPE) of contaminants to surface water from the property is the River Meadow Brook along the northern boundary of the property. Overland

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surface water flows northeast from River Meadow Brook approximately three-quarters of a mile into the Concord River. After entering the Concord River, surface water flows approximately one mile north where it enters into the Merrimack River. Surface water then flows generally northeast via the Merrimack River for the remaining 15 mile surface water pathway bordering the Towns of Dracut, Tewksbury, Methuen, Andover, and Lawrence.

Geologically, the property is part of the Silurian Berwick Formation, which consists of thin to thickly bedded metamorphosed calcareous sandstone, siltstone, and minor muscovite schist. Depth to bedrock varies greatly because of the uneven erosional surface of the preglacial Merrimack River Valley.

Eleven municipal water supply wells are located within four miles of the property. The closest well to the property are the Canal Street Wells Nos. 1 and 2 which are located approximately one and one-half miles southwest of the property. They are part of the Chelmsford municipal well system and serve approximately 1,800 and 200 persons, respectively. No private well users are known to exist within a one mile radius of the property. There are no known surface water (drinking) intakes within 15 downstream miles of the property.

The Massachusetts Division of Fisheries and Wildlife identified the State endangered Banded Bog Skimmer within 4 miles of the property. The U.S. Department of the Interior identified one Federally listed or proposed threatened or endangered species under their jurisdiction. The endangered shortnose sturgeon is found in the Merrimack River within the 15 miles downstream surface water pathway. In addition, the occasional transient endangered bald eagles and peregrine falcons are located within 4 miles of the property or the area 15 miles downstream of the property.

At this time, EPA recommends that Jet-Line be deferred to the RCRA program for further evaluation.

Submitted by:



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Task Manager



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Site Manager

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APPENDIX A
AOC OUTLINES

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AOC DESCRIPTION OUTLINE

AOC No. 1

AOC Name: Building 1 - drum storage areas (interim, areas A and B)

AOC Status: High potential of release as identified during the on-site reconnaissance.

AOC Description: Building 1 was originally constructed with a wooden floor. In 1984, concrete was poured over the wooden floors and berms were constructed to provide containment. The interim storage area is located near the northwest corner of Building 1 and is approximately 914 square feet. A solvent recovery system was located in this area between 1978 and 1984. A laboratory consolidation area is presently located in this area. The drum storage area inside Building 2 is divided into areas A and B. Area A is approximately 652 square feet and Area B is approximately 665 square feet (ARCS/Region I 1992; Versar 1988).

AOC Start-up Date: Unknown, prior to 1976 (ARCS/Region I 1992).

AOC Closure Date: Active (ARCS/Region I 1992).

Release Controls: A concrete berm surrounds the interim storage area which has the capacity to contain approximately 2,049 gallons of liquids. A concrete berm also separates areas A and B and has a capacity to contain approximately 1,470 gallons and 1,486 gallons, respectively (ARCS/Region I 1992).

Release History: No historical release information was found during the file review conducted at EPA and MA DEP or on-site reconnaissance. However, given the fact that the facility stored drums on wooden floors, it is probable that the soil underneath the floor could be contaminated. Groundwater at the site is contaminated as shown in the analytical results presented in Table 4 and Appendix B of this report (Versar 1988).

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AOC DESCRIPTION OUTLINE

AOC No. 2

AOC Name: Building 2

AOC Status: Low potential of release

AOC Description: Building 2 was constructed in 1979 and is approximately 2,652 square feet. Building 2 is presently used for drum storage. Prior to 1984, this area was used as a storage area for tanks/trailers which contained hazardous waste (ARCS/Region I 1992).

AOC Start-up Date: 1979 (ARCS/Region I 1992).

AOC Closure Date: Active (ARCS/Region I 1992).

Release Controls: A concrete berm provides containment in Building 2. The berm can hold a containment volume of approximately 3,967 gallons (ARCS/Region I 1992).

Release History: No sign of release was documented during the on-site reconnaissance.

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AOC DESCRIPTION OUTLINE

AOC No. 3

AOC Name: Former catch basin

AOC Status: Release.

AOC Description: The former catch basin located near the southeast corner of Building 2 was discovered in 1986. The basin which is approximately 5 feet wide by 10 feet long by 5 feet deep was used as a spill containment sump. The basin is composed of 2 precast concrete pieces with a large seam between the 2 pieces. Approximately 26 drums of liquid hazardous material and 3 drums of contaminated soil were removed during clean-up activities conducted during the weekend of September 14, 1986. In 1988, a closure plan was submitted and approved by MA DEP. The closure of the basin included filling the basin with sand and capping with concrete (Versar 1988).

AOC Start-up Date: 1979 (Versar 1988).

AOC Closure Date: 1986 (Versar 1988).

Release Controls: No release controls or secondary containment was found on this tank (Versar 1988). Groundwater beneath the former catchbasin has been determined to be contaminated by releases from the catchbasin.

Release History: During the clean-up activities of September 14, 1986, analyses of the materials removed from the basin revealed that up to 39 percent of the material was chlorinated solvents (trichloroethane, methylene chloride, freon, 1,1,1-trichloroethane, and tetrachloroethane). The material also contained barium, cadmium, chromium, lead, selenium, and silver. In January 1987, Jet-Line discovered that the basin had filled up again, presumably with groundwater. The material was removed from the basin, analyzed, and found to contain 1,1,1-trichloroethane, trichloroethane, tetrachloroethene, and methylene chloride (Versar 1988).

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AOC DESCRIPTION OUTLINE

AOC No. 4

AOC Name: Catch basin and loading dock area

AOC Status: Low potential of release

AOC Description: The loading and unloading activities occur in contained areas. The loading dock is constructed of concrete and is surrounded by a concrete berm. This berm provides a containment volume of approximately 1,525 gallons. The area in front of the loading dock is also paved and bermed to provide a containment volume of approximately 2,290 gallons. A catch basin with containment was located in the loading dock. The containment volume of the basin is approximately 50 gallons. The basin is cleaned out as needed (ARCS/Region I 1992).

AOC Start-up Date: Unknown (ARCS/Region I 1992).

AOC Closure Date: Present (ARCS/Region I 1992).

Release Controls: Secondary containment system for overflow from the catch basin would be contained by the concrete berms surrounding the loading dock (ARCS/Region I 1992).

Release History: Historical release information indicates that there have been reported spills in the loading dock area. These information is presented in Table 3 of this report.

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APPENDIX B
ANALYTICAL RESULTS

Lab Number: 4126-1
 Sample Designation: GZA-1
 Date: 12/21/84

VOLATILE ORGANICS		CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
1V.	CHLOROMETHANE	BDL	5
2V.	VINYL CHLORIDE	BDL	5
3V.	CHLOROETHANE	BDL	5
4V.	BROMOMETHANE	BDL	5
5V.	METHYLENE CHLORIDE	BDL	5
6V.	TRICHLOROFLUOROMETHANE	BDL	5
7V.	1,1-DICHLOROETHYLENE	16	5
8V.	1,1-DICHLOROETHANE	97	5
9V.	1,2-trans-DICHLOROETHYLENE	BDL	5
10V.	CHLOROFORM	BDL	5
11V.	1,2-DICHLOROETHANE	BDL	5
12V.	1,1,1-TRICHLOROETHANE	240	5
13V.	CARBON TETRACHLORIDE	BDL	5
14V.	BROMODICHLOROMETHANE	BDL	5
15V.	1,2-DICHLOROPROPANE	BDL	5
16V.	1,3-trans-DICHLOROPROPENE	BDL	5
17V.	TRICHLOROETHYLENE	26	5
18V.	1,3-cis-DICHLOROPROPENE	BDL	5
19V.	1,1,2-TRICHLOROETHANE	BDL	5
20V.	DIBROMOCHLOROMETHANE	BDL	5
21V.	BROMOFORM	BDL	5
22V.	TETRACHLOROETHYLENE	Trace	5
23V.	1,1,2,2-TETRACHLOROETHANE	BDL	5
24V.	CHLOROBENZENE	BDL	5
25V.	2-CHLOROETHYL VINYL ETHER	BDL	5

BDL = BELOW DETECTION LIMIT
 METHOD REFERENCE: EPA 600/4-79-020 METHOD 601

Lab Number: 4126-2
 Sample Designation: GZA-2
 Date: 12/21/84

VOLATILE ORGANICS		CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
1V.	CHLOROMETHANE	BDL	5
2V.	VINYL CHLORIDE	BDL	5
3V.	CHLOROETHANE	BDL	5
4V.	BROMOMETHANE	BDL	5
5V.	METHYLENE CHLORIDE	Trace	5
6V.	TRICHLOROFLUOROMETHANE	BDL	5
7V.	1,1-DICHLOROETHYLENE	16	5
8V.	1,1-DICHLOROETHANE	BDL	5
9V.	1,2-trans-DICHLOROETHYLENE	BDL	5
10V.	CHLOROFORM	BDL	5
11V.	1,2-DICHLOROETHANE	BDL	5
12V.	1,1,1-TRICHLOROETHANE	5	5
13V.	CARBON TETRACHLORIDE	BDL	5
14V.	BROMODICHLOROMETHANE	BDL	5
15V.	1,2-DICHLOROPROPANE	BDL	5
16V.	1,3-trans-DICHLOROPROPENE	BDL	5
17V.	TRICHLOROETHYLENE	Trace	5
18V.	1,3-cis-DICHLOROPROPENE	BDL	5
19V.	1,1,2-TRICHLOROETHANE	BDL	5
20V.	DIBROMOCHLOROMETHANE	BDL	5
21V.	BROMOFORM	BDL	5
22V.	TETRACHLOROETHYLENE	BDL	5
23V.	1,1,2,2-TETRACHLOROETHANE	BDL	5
24V.	CHLOROBENZENE	BDL	5
25V.	2-CHLOROETHYL VINYL ETHER	BDL	5

BDL = BELOW DETECTION LIMIT
 METHOD REFERENCE: EPA 600/4-79-020 METHOD 601

Lab Number: 4126-3
Sample Designation: GZA-3
Date: 12/21/84

VOLATILE ORGANICS		CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
1V.	CHLOROMETHANE	BDL	5
2V.	VINYL CHLORIDE	BDL	5
3V.	CHLOROETHANE	BDL	5
4V.	BROMOMETHANE	BDL	5
5V.	METHYLENE CHLORIDE	Trace	5
6V.	TRICHLOROFLUOROMETHANE	BDL	5
7V.	1,1-DICHLOROETHYLENE	570	5
8V.	1,1-DICHLOROETHANE	900	5
9V.	1,2-trans-DICHLOROETHYLENE	10	5
10V.	CHLOROFORM	BDL	5
11V.	1,2-DICHLOROETHANE	16	5
12V.	1,1,1-TRICHLOROETHANE	680	5
13V.	CARBON TETRACHLORIDE	BDL	5
14V.	BROMODICHLOROMETHANE	BDL	5
15V.	1,2-DICHLOROPROPANE	BDL	5
16V.	1,3-trans-DICHLOROPROPENE	BDL	5
17V.	TRICHLOROETHYLENE	290	5
18V.	1,3-cis-DICHLOROPROPENE	BDL	5
19V.	1,1,2-TRICHLOROETHANE	BDL	5
20V.	DIBROMOCHLOROMETHANE	BDL	5
21V.	BROMOFORM	BDL	5
22V.	TETRACHLOROETHYLENE	Trace	5
23V.	1,1,2,2-TETRACHLOROETHANE	BDL	5
24V.	CHLOROBENZENE	BDL	5
25V.	2-CHLOROETHYL VINYL ETHER	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-79-020 METHOD 601

Lab Number: 4226-4
Sample Designation: BROOK US
Date: 12/21/84

VOLATILE ORGANICS		CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
1V.	CHLOROMETHANE	BDL	5
2V.	VINYL CHLORIDE	BDL	5
3V.	CHLOROETHANE	BDL	5
4V.	BROMOMETHANE	BDL	5
5V.	METHYLENE CHLORIDE	Trace	5
6V.	TRICHLOROFLUOROMETHANE	BDL	5
7V.	1,1-DICHLOROETHYLENE	BDL	5
8V.	1,1-DICHLOROETHANE	BDL	5
9V.	1,2-trans-DICHLOROETHYLENE	BDL	5
10V.	CHLOROFORM	BDL	5
11V.	1,2-DICHLOROETHANE	BDL	5
12V.	1,1,1-TRICHLOROETHANE	BDL	5
13V.	CARBON TETRACHLORIDE	BDL	5
14V.	BROMODICHLOROMETHANE	BDL	5
15V.	1,2-DICHLOROPROPANE	BDL	5
16V.	1,3-trans-DICHLOROPROPENE	BDL	5
17V.	TRICHLOROETHYLENE	Trace	5
18V.	1,3-cis-DICHLOROPROPENE	BDL	5
19V.	1,1,2-TRICHLOROETHANE	BDL	5
20V.	DIBROMOCHLOROMETHANE	BDL	5
21V.	BROMOFORM	BDL	5
22V.	TETRACHLOROETHYLENE	BDL	5
23V.	1,1,2,2-TETRACHLOROETHANE	BDL	5
24V.	CHLOROBENZENE	BDL	5
25V.	2-CHLOROETHYL VINYL ETHER	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA 600/4-79-020 METHOD 601

Lab Number: 4126-5
 Sample Designation: BROOK DS
 Date: 12/21/84

VOLATILE ORGANICS		CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
1V.	CHLOROMETHANE	BDL	5
2V.	VINYL CHLORIDE	BDL	5
3V.	CHLOROETHANE	BDL	5
4V.	BROMOMETHANE	BDL	5
5V.	METHYLENE CHLORIDE	26	5
6V.	TRICHLOROFLUOROMETHANE	BDL	5
7V.	1,1-DICHLOROETHYLENE	Trace	5
8V.	1,1-DICHLOROETHANE	5	5
9V.	1,2-trans-DICHLOROETHYLENE	Trace	5
10V.	CHLOROFORM	BDL	5
11V.	1,2-DICHLOROETHANE	BDL	5
12V.	1,1,1-TRICHLOROETHANE	120	5
13V.	CARBON TETRACHLORIDE	BDL	5
14V.	BROMODICHLOROMETHANE	BDL	5
15V.	1,2-DICHLOROPROPANE	BDL	5
16V.	1,3-trans-DICHLOROPROPENE	BDL	5
17V.	TRICHLOROETHYLENE	17	5
18V.	1,3-cis-DICHLOROPROPENE	BDL	5
19V.	1,1,2-TRICHLOROETHANE	BDL	5
20V.	DIBROMOCHLOROMETHANE	BDL	5
21V.	BROMOFORM	BDL	5
22V.	TETRACHLOROETHYLENE	Trace	5
23V.	1,1,2,2-TETRACHLOROETHANE	BDL	5
24V.	CHLOROBENZENE	BDL	5
25V.	2-CHLOROETHYL VINYL ETHER	BDL	5

BDL = BELOW DETECTION LIMIT
 METHOD REFERENCE: EPA 600/4-79-020 METHOD 601