401100

SDMS DocID 556468

Superfund Records Center
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OTHER: 556468

ADDITIONAL M-8 INVESTIGATIONS

ATF/DAVIDSON ARCADE FACILITY

WHITINSVILLE, MASSACHUSETTS

Submitted to:

WHITE CONSOLIDATED INDUSTRIES

COLUMBUS, OHIO

Prepared by:

Caswell, Eichler and Hill, Inc.
Portsmouth, New Hampshire

March 1987

CEH Caswell, Eichler and Hill, Inc.
GEOLOGY HYDROLOGY GEOPHYSICS

Portsmouth, New Hampshire
West Topsham, Vermont
Augusta, Maine

CEH Caswell, Eichler and Hill, Inc.
GEOLOGY HYDROLOGY GEOPHYSICS
P.O. Box 4696
Portsmouth, NH 03801
TEL. (603) 431-4899

March 25, 1987

White Consolidated Industries, Inc.
300 Phillippi Road
Columbus, Ohio 43228

Attn: Mr. Daniel Marques, P.E.

Re: Additional Monitoring Well Installation, Soil Sampling and Analysis, and Groundwater Sampling and Analysis at the ATF/Davidson Arcade Facility, Whitinsville, Massachusetts

Dear Dan:

Consistent with the agreements reached at our November 1986 meeting with Ms. Carol de Groot of the Massachusetts Department of Environmental Quality Engineering (DEQE), we designed an additional monitoring and sampling program in the vicinity of monitoring well M-8 at the Arcade. On December 16, 1986 we met with Carol, reviewed the work plan, and obtained her approval to proceed. The scope of work consisted of installing and developing three additional monitoring wells (M-9, M-10 and M-11) at the site, collecting soil samples above and below the water table at the new well locations, and collecting groundwater samples from the new wells and existing wells M-6, M-7 and M-8. The wells were to be constructed of 1½ inch, flush joint, schedule 40, PVC. Five feet of ten-slot screen was to be placed at and below the water table, sand packed and isolated by a bentonite seal. Solid PVC riser was to continue from the top of the screen to above land surface. The wells were to be pumped until free of fines. The soil and groundwater samples were to be analyzed for volatile organic compounds (EPA-624) by GC/MS method. The overall thrust of the additional work was to determine if the contamination observed at M-8 is localized, or emanating from an hydraulically upgradient location.

On December 22, 1986, a CEH drilling, well construction and sampling crew under the supervision of CEH principal Matthew F. Eichler III mobilized to the site and completed all the necessary field work. Using a General 440 portable power auger unit, the wells were constructed to specification. The augers were thoroughly cleansed with deionized water and methanol between borings. Soil samples were collected from above and below the water table, placed in air-tight double plastic bags, and stored in an ice chest for transport to Resource Analysts, Inc. for laboratory analysis. Soil samples

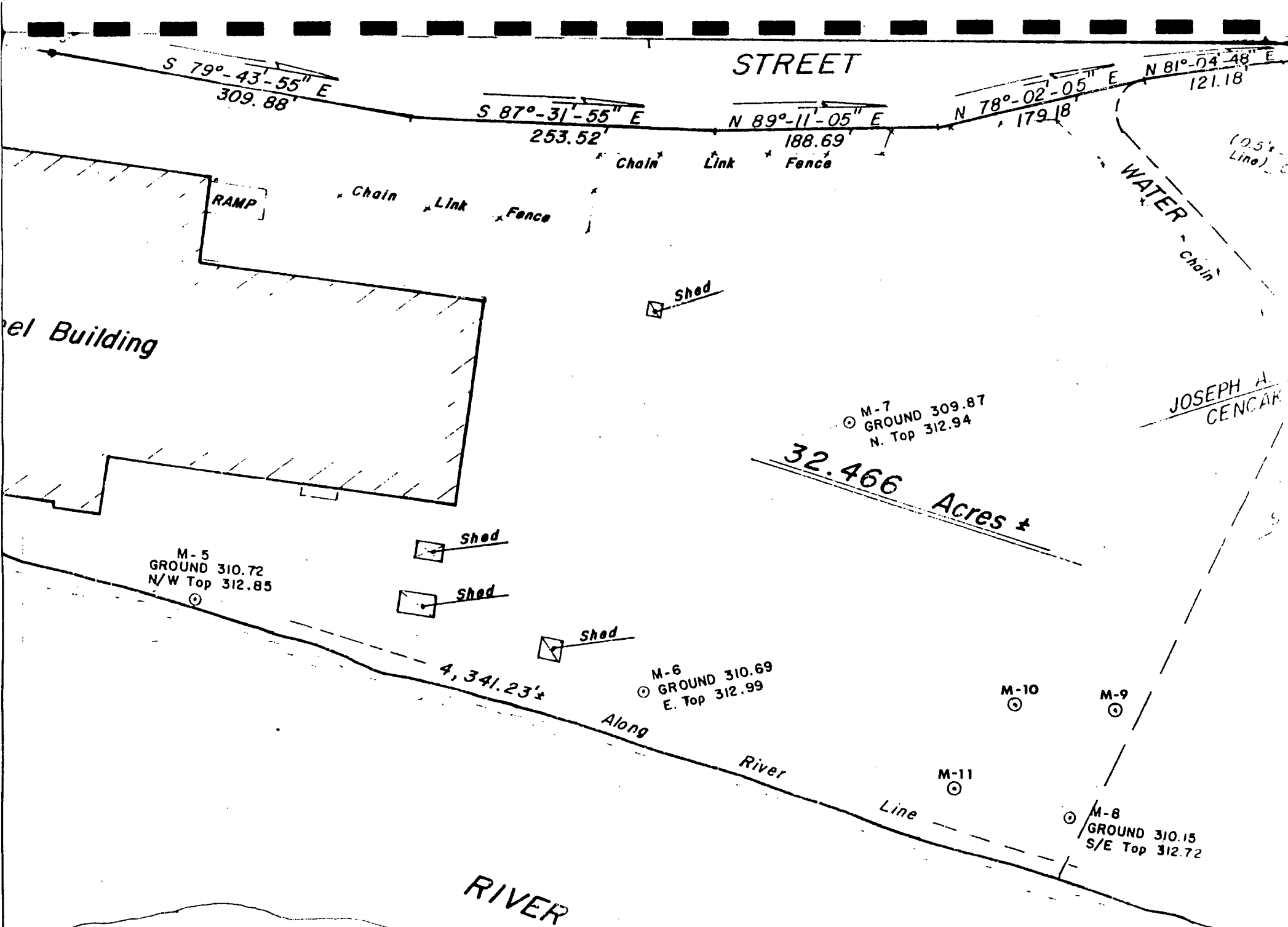
STREET
S 79°-43'-55" E
309.88'
S 87°-31'-55" E
253.52'
N 89°-11'-05" E
188.69'
N 78°-02'-05" E
179.18'
N 81°-04'-48" E
121.18'
Chain Link Fence
Chain Link Fence
RAMP
WATER
Chain
Shed
el Building
M-7
GROUND 309.87
N. Top 312.94
32.466 Acres ±
JOSEPH A.
CENCAK
M-5
GROUND 310.72
N/W Top 312.85
Shed
Shed
Shed
4,341.23'±
Along River Line
M-6
GROUND 310.69
E. Top 312.99
M-10
M-9
M-11
M-8
GROUND 310.15
S/E Top 312.72
RIVER

FIGURE 1

were noted to be the same coarse grained foundry fill as was observed during earlier well installations. Each well was pump developed for one hour using a peristaltic pump and dedicated polyethylene tubing. Each well produced a continuous flow of groundwater, and was noted to be clear of fines after 2-5 minutes. Groundwater samples were taken with dedicated teflon bailers and teflon coated stainless steel cable. The samples were immediately packed in ice for transport to the laboratory.

As seen on Figure 1, the new wells (M-9, M-10, M-11) were positioned in radial fashion around the hydraulically upgradient area surrounding M-8. Each well is approximately 100 feet from M-8 and its adjacent counterpart. Laboratory analyses of the soil and groundwater samples are contained in Appendix A. As these data indicate, the upgradient area surrounding M-8 is essentially clean. Only trace and low levels of the contaminants (48μg/l Tetrachloroethylene) found in M-8 are observed in the M-9 groundwater sample, and none were found in M-10 or M-11. The soil samples were also nearly devoid of any contaminants found in M-8. An extremely low level of Tetrachloroethylene (1.2 μg/g) was reported in the M-9 sample. Similarly, minute levels of Toluene (0.6-4.8 μg/g) were also reported in each soil sample.

Analysis of these data lead us to conclude that the contamination historically observed at M-8 is characteristic of a localized zone of groundwater degradation. In that groundwater and the contaminants are obviously flowing toward, and being diluted by the adjacent river, no emergency health hazard appears to exist.

We hope these additional analyses will prove helpful to you and the DEQE. Please call should you have any questions or additional needs.

Very truly yours,
Caswell, Eichler and Hill, Inc.

Matthew F. Eichler III
Principal

MFE/amk

APPENDIX A

WATER QUALITY DATA

RAI

Resource Analysts, Incorporated
Box 4778 Hampton, NH 03842
(603) 926-7777

TO:

Mr. Matt Eichler
Caswell, Eichler, & Hill
P.O. Box 4696
Portsmouth, NH 03801

PO # ATF Davidson

Date Received: 12/23/86 (1300

Lab Number: 8593

Date Reported: 1/13/87

Attached please find test results for Volatile Organic Compounds.

S

Technical Director

Date 1/13/87

page ____ of ____

CHAIN OF CUSTODY DOCUMENTATION

CLIENT: CASWELL EICHLER & HILL, INC.
ADDRESS: P.O. BOX 4696
PORTSMOUTH, N.H. 03801

JOB NAME/NUMBER: ATF/DAVIDSON

PROJECT CONTACT: MATT EICHLER
SAMPLING LOCATION: ATF/DAVIDSON WHITINSVILLE MA
SAMPLE COLLECTOR: MATT EICHLER

FIELD IDENTIFICATION (List each container separately)	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
B-11 ABOVE WATER TABLE Date 12/22/86 Time 3:00 PM	8593-1	⊘ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL Plastic bag	○ field ○ lab ⊘ none		EPA 624
B-11 BELOW WATER TABLE Date 12/22/86 Time 3:00 PM	2	⊘ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ⊘ none		
B-9 ABOVE WATER TABLE Date 12/22/86 Time 1:00 PM	3	⊘ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ⊘ none		
B-10 ABOVE WATER TABLE Date 12/22/86 Time 2:00 PM	4	⊘ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ⊘ none		
B-10 BELOW WATER TABLE Date 12/22/86 Time 2:00 PM	5	⊘ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ⊘ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
Matthew Eichler III	12/23/86	12:53			
Relinquished By:	**Date**	**Time**	**Received For Laboratory By:**	**Date**	**Time**
			[illegible]	12/23/86	[illegible]

Resource Analysts, Incorporated

Lab Number:	8593-1
Sample Designation:	B-11 Above Water Table
Date Analyzed:	1/2/87
Matrix:	Solid

Results expressed on a dry (103 degrees C) basis.

VOLATILE ORGANICS	CONCENTRATION (ug/g)	DETECTION LIMIT (ug/g)
CHLOROMETHANE	BDL	1
VINYL CHLORIDE	BDL	1
CHLOROETHANE	BDL	.5
BROMOMETHANE	BDL	1
METHYLENE CHLORIDE	BDL	.5
1,1-DICHLOROETHYLENE	BDL	.5
1,1-DICHLOROETHANE	BDL	.5
1,2-trans-DICHLOROETHYLENE	BDL	.5
CHLOROFORM	BDL	.5
1,2-DICHLOROETHANE	BDL	.5
1,1,1-TRICHLOROETHANE	BDL	.5
CARBON TETRACHLORIDE	BDL	.5
BROMODICHLOROMETHANE	BDL	.5
1,2-DICHLOROPROPANE	BDL	.5
1,3-trans-DICHLOROPROPENE	BDL	.5
TRICHLOROETHYLENE	BDL	.5
BENZENE	BDL	.5
1,3-cis-DICHLOROPROPENE	BDL	.5
1,1,2-TRICHLOROETHANE	BDL	.5
2-CHLOROETHYL VINYL ETHER	BDL	.5
DIBROMOCHLOROMETHANE	BDL	.5
BROMOFORM	BDL	.5
TETRACHLOROETHYLENE	BDL	.5
1,1,2,2-TETRACHLOROETHANE	BDL	.5
TOLUENE	4.3	.5
CHLOROBENZENE	BDL	.5
ETHYLBENZENE	BDL	.5
ACETONE	BDL	2.5
CARBON DISULFIDE	BDL	.5
THF	BDL	2.5
MEK	BDL	2.5
VINYL ACETATE	BDL	1
MIBK	BDL	2.5
2-HEXANONE	BDL	2.5
STYRENE	BDL	.5
XYLENES	BDL	.5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA SW 846, 2nd Edition METHOD 8240

Lab Number: 8593-2
Sample Designation: B-11 Below Water Table
Date Analyzed: 1/2/87
Matrix: Solid

Results expressed on a dry (103 degrees C) basis.

VOLATILE ORGANICS	CONCENTRATION (ug/g)	DETECTION LIMIT (ug/g)
CHLOROMETHANE	BDL	1
VINYL CHLORIDE	BDL	1
CHLOROETHANE	BDL	.5
BROMOMETHANE	BDL	1
METHYLENE CHLORIDE	BDL	.5
1,1-DICHLOROETHYLENE	BDL	.5
1,1-DICHLOROETHANE	BDL	.5
1,2-trans-DICHLOROETHYLENE	BDL	.5
CHLOROFORM	BDL	.5
1,2-DICHLOROETHANE	BDL	.5
1,1,1-TRICHLOROETHANE	BDL	.5
CARBON TETRACHLORIDE	BDL	.5
BROMODICHLOROMETHANE	BDL	.5
1,2-DICHLOROPROPANE	BDL	.5
1,3-trans-DICHLOROPROPENE	BDL	.5
TRICHLOROETHYLENE	BDL	.5
BENZENE	BDL	.5
1,3-cis-DICHLOROPROPENE	BDL	.5
1,1,2-TRICHLOROETHANE	BDL	.5
2-CHLOROETHYL VINYL ETHER	BDL	.5
DIBROMOCHLOROMETHANE	BDL	.5
BROMOFORM	BDL	.5
TETRACHLOROETHYLENE	BDL	.5
1,1,2,2-TETRACHLOROETHANE	BDL	.5
TOLUENE	.6	.5
CHLOROBENZENE	BDL	.5
ETHYLBENZENE	BDL	.5
ACETONE	BDL	2.5
CARBON DISULFIDE	BDL	.5
THF	BDL	2.5
MEK	BDL	2.5
VINYL ACETATE	BDL	1
MIBK	BDL	2.5
2-HEXANONE	BDL	2.5
STYRENE	BDL	.5
XYLENES	BDL	.5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA SW 846, 2nd Edition METHOD 8240

Lab Number: 8593-3
Sample Designation: B-9 Above Water Table
Date Analyzed: 1/2/87
Matrix: Solid

Results expressed on a dry (103 degrees C) basis.

VOLATILE ORGANICS	CONCENTRATION (ug/g)	DETECTION LIMIT (ug/g)
CHLOROMETHANE	BDL	1
VINYL CHLORIDE	BDL	1
CHLOROETHANE	BDL	.5
BROMOMETHANE	BDL	1
METHYLENE CHLORIDE	BDL	.5
1,1-DICHLOROETHYLENE	BDL	.5
1,1-DICHLOROETHANE	BDL	.5
1,2-trans-DICHLOROETHYLENE	BDL	.5
CHLOROFORM	BDL	.5
1,2-DICHLOROETHANE	BDL	.5
1,1,1-TRICHLOROETHANE	BDL	.5
CARBON TETRACHLORIDE	BDL	.5
BROMODICHLOROMETHANE	BDL	.5
1,2-DICHLOROPROPANE	BDL	.5
1,3-trans-DICHLOROPROPENE	BDL	.5
TRICHLOROETHYLENE	BDL	.5
BENZENE	BDL	.5
1,3-cis-DICHLOROPROPENE	BDL	.5
1,1,2-TRICHLOROETHANE	BDL	.5
2-CHLOROETHYL VINYL ETHER	BDL	.5
DIBROMOCHLOROMETHANE	BDL	.5
BROMOFORM	BDL	.5
TETRACHLOROETHYLENE	1.2	.5
1,1,2,2-TETRACHLOROETHANE	BDL	.5
TOLUENE	3.8	.5
CHLOROBENZENE	BDL	.5
ETHYLBENZENE	BDL	.5
ACETONE	BDL	2.5
CARBON DISULFIDE	BDL	.5
THF	BDL	2.5
MEK	BDL	2.5
VINYL ACETATE	BDL	1
MIBK	BDL	2.5
2-HEXANONE	BDL	2.5
STYRENE	BDL	.5
XYLENES	BDL	.5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA SW 846, 2nd Edition METHOD 8240

Resource Analysts, Incorporat...

Lab Number: 8593-4
Sample Designation: B-10 Above Water Table
Date Analyzed: 1/6/87
Matrix: Solid

Results expressed on a dry (103 degrees C) basis.

VOLATILE ORGANICS	CONCENTRATION (ug/g)	DETECTION LIMIT (ug/g)
CHLOROMETHANE	BDL	1
VINYL CHLORIDE	BDL	1
CHLOROETHANE	BDL	.5
BROMOMETHANE	BDL	1
METHYLENE CHLORIDE	BDL	.5
1,1-DICHLOROETHYLENE	BDL	.5
1,1-DICHLOROETHANE	BDL	.5
1,2-trans-DICHLOROETHYLENE	BDL	.5
CHLOROFORM	BDL	.5
1,2-DICHLOROETHANE	BDL	.5
1,1,1-TRICHLOROETHANE	BDL	.5
CARBON TETRACHLORIDE	BDL	.5
BROMODICHLOROMETHANE	BDL	.5
1,2-DICHLOROPROPANE	BDL	.5
1,3-trans-DICHLOROPROPENE	BDL	.5
TRICHLOROETHYLENE	BDL	.5
BENZENE	BDL	.5
1,3-cis-DICHLOROPROPENE	BDL	.5
1,1,2-TRICHLOROETHANE	BDL	.5
2-CHLOROETHYL VINYL ETHER	BDL	.5
DIBROMOCHLOROMETHANE	BDL	.5
BROMOFORM	BDL	.5
TETRACHLOROETHYLENE	BDL	.5
1,1,2,2-TETRACHLOROETHANE	BDL	.5
TOLUENE	2.7	.5
CHLOROBENZENE	BDL	.5
ETHYLBENZENE	BDL	.5
ACETONE	BDL	2.5
CARBON DISULFIDE	BDL	.5
THF	BDL	2.5
MEK	BDL	2.5
VINYL ACETATE	BDL	1
MIBK	BDL	2.5
2-HEXANONE	BDL	2.5
STYRENE	BDL	.5
XYLENES	BDL	.5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA SW 846, 2nd Edition METHOD 8240

Lab Number:	8593-5
Sample Designation:	B-10 Below Water Table
Date Analyzed:	1/2/87
Matrix:	Solid

Results expressed on a dry (103 degrees C) basis.

VOLATILE ORGANICS	CONCENTRATION (ug/g)	DETECTION LIMIT (ug/g)
CHLOROMETHANE	BDL	1
VINYL CHLORIDE	BDL	1
CHLOROETHANE	BDL	.5
BROMOMETHANE	BDL	1
METHYLENE CHLORIDE	BDL	.5
1,1-DICHLOROETHYLENE	BDL	.5
1,1-DICHLOROETHANE	BDL	.5
1,2-trans-DICHLOROETHYLENE	BDL	.5
CHLOROFORM	BDL	.5
1,2-DICHLOROETHANE	BDL	.5
1,1,1-TRICHLOROETHANE	BDL	.5
CARBON TETRACHLORIDE	BDL	.5
BROMODICHLOROMETHANE	BDL	.5
1,2-DICHLOROPROPANE	BDL	.5
1,3-trans-DICHLOROPROPENE	BDL	.5
TRICHLOROETHYLENE	BDL	.5
BENZENE	BDL	.5
1,3-cis-DICHLOROPROPENE	BDL	.5
1,1,2-TRICHLOROETHANE	BDL	.5
2-CHLOROETHYL VINYL ETHER	BDL	.5
DIBROMOCHLOROMETHANE	BDL	.5
BROMOFORM	BDL	.5
TETRACHLOROETHYLENE	BDL	.5
1,1,2,2-TETRACHLOROETHANE	BDL	.5
TOLUENE	4.8	.5
CHLOROBENZENE	BDL	.5
ETHYLBENZENE	BDL	.5
ACETONE	BDL	2.5
CARBON DISULFIDE	BDL	.5
THF	BDL	2.5
MEK	BDL	2.5
VINYL ACETATE	BDL	1
MIBK	BDL	2.5
2-HEXANONE	BDL	2.5
STYRENE	BDL	.5
XYLENES	BDL	.5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: EPA SW 846, 2nd Edition METHOD 8240

RAI

Resource Analysts, Incorporated
Box 4778 Hampton, NH 03842
(603) 926-7777

TO:

Mr. Matt Eichler
ATF/Davidson
C/O Caswell, Eichler & Hill
Box 4696
Portsmouth, NH 03801

PO # Whitinsville, MA

Date Received: 1/27/87 (150

Lab Number: 8806

Date Reported: 2/10/87

Attached please find test results for Volatile Organic Compounds.

Russell Foster h

Date 2/10/87

h

Technical Director

CHAIN OF CUSTODY DOCUMENTATION

M-6

CLIENT: ATF/Davidson
ADDRESS: c/o CEH
Box 4696 Portsmouth, NH 03801

PROJECT CONTACT: Matt Eichler
SAMPLING LOCATION: Whitinsville MA

JOB NAME/NUMBER:
SAMPLE COLLECTOR: B. Bline (CEH)

FIELD IDENTIFICATION (List each container separately)	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
Date 1/24/87 Time 11:45	8806-1	○ Solid ● Liquid ○ Other	○ P/ mL ○ G/2x40 mL ● G/T/ mL	○ field ○ lab ● none	4°C	VOA
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
Bruce Bline	1/25/87	9:45			
Relinquished By:	**Date**	**Time**	**Received For Laboratory By:**	**Date**	**Time**
[illegible]	1-27	1500	S. Channey	1/27	1500

Resource Analysts, Incorporated

CHAIN OF CUSTODY DOCUMENTATION

M-7

CLIENT: ATF/Davidson
ADDRESS: c/o CEH
Box 4696 Portsmouth, NH 03801

PROJECT CONTACT: Matt Eichler
SAMPLING LOCATION: Whitinsville Ma

JOB NAME/NUMBER:
SAMPLE COLLECTOR: B. Bline (CEH)

FIELD IDENTIFICATION (List each container separately)	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
Date 1/24/87 Time 12:50	8806-2	○ Solid ● Liquid ○ Other	○ P/ mL ○ G/2x40 mL ● G/T/ mL	○ field ○ lab ● none	4°C	VOA
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
Dan Bline	1/25/87	9:45			
Relinquished By:	**Date**	**Time**	**Received For Laboratory By:**	**Date**	**Time**
Dan Bline	1-27-	1500	J. C. Kennedy	1/27	1500

Resource Analysis, Incorporated

CHAIN OF CUSTODY DOCUMENTATION

M-8

CLIENT: ATF/Davidson
ADDRESS: c/o CEH
Box 4696 Portsmouth, NH 03801

PROJECT CONTACT: Matt Eichler
SAMPLING LOCATION: Whitinsville Mt

JOB NAME/NUMBER:
SAMPLE COLLECTOR: B. Bline (CEH)

FIELD IDENTIFICATION (List each container separately)	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
Date 1/24/87 Time 12:15	8806-3	○ Solid ● Liquid ○ Other	○ P/ mL ○ G/2x40 mL ● G/T/ mL	○ field ○ lab ● none	4°C	VOA
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
Bran Bline	1/25/87	9:45			
Relinquished By:	**Date**	**Time**	**Received For Laboratory By:**	**Date**	**Time**
Dm B Hm	1-27	1500	S Champion	1/27	1500

Resource Analysts, Incorporated

CHAIN OF CUSTODY DOCUMENTATION

M-10

CLIENT: ATF/Davidson
ADDRESS: c/o CEH
Box 4696 Portsmouth NH 03801

PROJECT CONTACT: Matt Eichler
SAMPLING LOCATION: Whitinsville MA

JOB NAME/NUMBER:
SAMPLE COLLECTOR: B. Bline (CEH)

FIELD IDENTIFICATION (List each container separately)	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
Date 1/24/87 Time 13:20	8806-4	○ Solid ● Liquid ○ Other	○ P/ mL ○ G/2x40 mL ● G/T/ mL	○ field ○ lab ● none	4°C	VOA
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
Bruce Bline	1/25/87	9:45			

Relinquished By:	Date	Time	Received for Laboratory By:	Date	Time
[illegible]	1-27	1500	[illegible]	1/27	1500

Resource Analysts, Incorporated

CHAIN OF CUSTODY DOCUMENTATION

M-11

CLIENT: ATF/Davidson
ADDRESS: c/o CEH
Box 4696 Portsmouth, NH 03801

JOB NAME/NUMBER:

PROJECT CONTACT: Matt Eichler
SAMPLING LOCATION: Whitingsville Mt

SAMPLE COLLECTOR: B. Bline (CEH)

FIELD IDENTIFICATION (List each container separately)	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
Date 1/24/87 Time 14:05	8806-5	○ Solid ● Liquid ○ Other	○ P/ mL ○ G/2x40 mL ● G/T/ mL	○ field ○ lab ● none	4°C	VOA
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
Anne Bline	1/25/87	9:45			
Relinquished By:	**Date**	**Time**	**Received For Laboratory By:**	**Date**	**Time**
[illegible]	1-27	1500	[illegible]	1/27	1500

Resource Analysts, Incorporated

Lab Number: 8806-1
Sample Designation: M-6
Date Analyzed: 1/30/87
Matrix: Water

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	48	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	13	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	7.6	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	13	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
VINYL ACETATE	BDL	10
MIBK	BDL	25
2-HEXANONE	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: 40 CFR PART 136, FRIDAY, OCTOBER 26, 1984
METHOD 624

Resource Analysts, Incorporated

Lab Number: 8806-2
Sample Designation: M-7
Date Analyzed: 2/3/87
Matrix: Water

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	BDL	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
VINYL ACETATE	BDL	10
MIBK	BDL	25
2-HEXANONE	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: 40 CFR PART 136, FRIDAY, OCTOBER 26, 1984
METHOD 624

Lab Number: 8806-3
Sample Designation: M-8
Date Analyzed: 2/2/87
Matrix: Water

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	280	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	640	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	17	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
VINYL ACETATE	BDL	10
MIBK	BDL	25
2-HEXANONE	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: 40 CFR PART 136, FRIDAY, OCTOBER 26, 1984
METHOD 624

Resource Analysts, Incorporated

Lab Number:	8806-4
Sample Designation:	M-10
Date Analyzed:	2/2/87
Matrix:	Water

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	BDL	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
VINYL ACETATE	BDL	10
MIBK	BDL	25
2-HEXANONE	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: 40 CFR PART 136, FRIDAY, OCTOBER 26, 1984
METHOD 624

Resource Analysts, Incorporated

Lab Number:	8806-5
Sample Designation:	M-11
Date Analyzed:	2/2/87
Matrix:	Water

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	BDL	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	BDL	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
VINYL ACETATE	BDL	10
MIBK	BDL	25
2-HEXANONE	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: 40 CFR PART 136, FRIDAY, OCTOBER 26, 1984
METHOD 624

RAI

Resource Analysts, Incorporated
Box 4778 Hampton, NH 03842
(603) 926-7777

TO:

Mr. Matt Eichler
Caswell, Eichler & Hill
P.O. Box 4696
Portsmouth, NH 03801

PO # ATF Davidson

Date Received: 3/13/87 (13

Lab Number: 9143

Date Reported: 3/18/87

Attached please find test results for Volatile Organic Compounds.

Russell Tesler Date 3/18/87

h

Technical Director

page 1 of 1

CHAIN OF CUSTODY DOCUMENTATION

CLIENT: ATF DAVIDSON

ADDRESS: Whitesville, [illegible]

JOB NAME/NUMBER:

PROJECT CONTACT: JOE MENENDEZ

SAMPLING LOCATION: M-9

SAMPLE COLLECTOR: BRUCE BLINE (CEH)

FIELD IDENTIFICATION (list each container separately)	LAB #	SAMPLE MATRIX	CONTAINER TYPE/VOLUME	FILTRATION	FIELD PRESERVATION	REMARKS/ANALYSIS REQUESTED
9143 Date 3/13/87 Time 1:15	9143	○ Solid ● Liquid ○ Other	○ P/ mL ○ G/2x40 mL ● G/T/ mL	○ field ○ lab ● none	4°C	VOA
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		
Date Time		○ Solid ○ Liquid ○ Other	○ P/ mL ○ G/ mL ○ G/T/ mL	○ field ○ lab ○ none		

Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By: Bruce P. Bline	3/13/87	13:19	Received For Laboratory By: Beth O'Brien	3/13/87	13:19

Resource Analysis, Incorporated

Lab Number: 9143-1
Sample Designation: M-9 ATF Davidson
Date Analyzed: 3/16/87
Matrix: Water

VOLATILE ORGANICS	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
CHLOROMETHANE	BDL	10
VINYL CHLORIDE	BDL	10
CHLOROETHANE	BDL	5
BROMOMETHANE	BDL	10
METHYLENE CHLORIDE	BDL	5
1,1-DICHLOROETHYLENE	BDL	5
1,1-DICHLOROETHANE	BDL	5
1,2-trans-DICHLOROETHYLENE	Trace	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
1,1,1-TRICHLOROETHANE	BDL	5
CARBON TETRACHLORIDE	BDL	5
BROMODICHLOROMETHANE	BDL	5
1,2-DICHLOROPROPANE	BDL	5
1,3-trans-DICHLOROPROPENE	BDL	5
TRICHLOROETHYLENE	Trace	5
BENZENE	BDL	5
1,3-cis-DICHLOROPROPENE	BDL	5
1,1,2-TRICHLOROETHANE	BDL	5
2-CHLOROETHYL VINYL ETHER	BDL	5
DIBROMOCHLOROMETHANE	BDL	5
BROMOFORM	BDL	5
TETRACHLOROETHYLENE	48	5
1,1,2,2-TETRACHLOROETHANE	BDL	5
TOLUENE	BDL	5
CHLOROBENZENE	BDL	5
ETHYLBENZENE	BDL	5
ACETONE	BDL	25
CARBON DISULFIDE	BDL	5
THF	BDL	25
MEK	BDL	25
VINYL ACETATE	BDL	10
MIBK	BDL	25
2-HEXANONE	BDL	25
STYRENE	BDL	5
XYLENES	BDL	5

"Trace" denotes probable presence below listed detection limit.

BDL = BELOW DETECTION LIMIT
METHOD REFERENCE: 40 CFR PART 136, FRIDAY, OCTOBER 26, 1984
METHOD 624