

**REMOVAL PROGRAM  
TRIP REPORT  
FOR THE SAMPLING ACTIVITIES  
AT THE FISHERVILLE MILL SITE  
GRAFTON, MASSACHUSETTS  
28 SEPTEMBER 2004 AND 5 THROUGH 6 OCTOBER 2004**

Prepared For:

U.S. Environmental Protection Agency  
Region I  
Emergency Planning and Response Branch  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023

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Submitted By:

Weston Solutions, Inc.  
Region I  
Superfund Technical Assessment and Response Team 2000 (START)  
37 Upton Drive  
Wilmington, MA 01887

November 2004

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## I. Narrative Chronology

## Narrative Chronology

### **Introduction**

The Fisherville Mill Site (the site) is located at 60 Main Street, Grafton, Worcester County, Massachusetts at 42° 10' 40" north latitude and 71° 41' 25" west longitude [see Appendix A - Site Location Map (Figure 1)]. The approximately 30-acre site formerly contained an abandoned industrial fabrication/textile mill that included a four-story brick-and-concrete mill building situated along the western bank of the Blackstone River. Private residences are located to the west of the site and on the opposite side of the Blackstone River to the east. A sluiceway, located on the western side of the site, is a section of the Blackstone Canal which flows through the turbine room portion of the former mill building, continues through a culvert beneath Main Street (Route 122A) and the remainder of the site, and empties into the Blackstone River. Debris piles are located along the northern and western sides of the mill building in the area that formerly contained dye ponds.

Site history and response activities conducted at the site up until March 2004 are summarized in a separate document prepared by START personnel, entitled *Removal Program Interim Report for the Insitu Chemical Oxidation Treatment at the Fisherville Mill Site Removal Action III South Grafton, Worcester County, Massachusetts, 6 May 2002 Through 25 March 2004*, and available on the Environmental Protection Agency (EPA) Region I On-Scene Coordinator (OSC) website at <http://www.oscnet.org>.

This trip report is a summary of sampling activities conducted during September and October 2004 to monitor the concentrations of permanganate and volatile organic compounds (VOCs) in groundwater in the vicinity of the insitu chemical oxidation (ISCO) treatment area.

### **Site Activities**

On 28 September 2004, Weston Solutions, Inc. Superfund Technical Assessment and Response Team (START) Site Leader (SL) Dean Brammer, and START members Carol Riga, Andrew Hill, and Amy Gibney mobilized to the site to conduct a comprehensive permanganate sampling round of all injection point (IP) wells and selected monitoring wells (MWs) [see Appendix B - Sample Location Diagram (Figure 2)].

From 5 through 6 October 2004, START SL Brammer, and START members Carol Riga and Wayne Brown mobilized to the site to conduct groundwater sampling of IP wells that did not contain permanganate based on the 28 September 2004 sampling, and of selected monitoring wells in the vicinity of the injection grid and on the peninsula area downgradient of the injection grid. The groundwater samples were analyzed for VOCs.

All field activities were conducted in accordance with the site health and safety plan (HASp) which was prepared as a separate document, entitled *Health and Safety Plan for the Fisherville Mill Site, Grafton, Worcester County, Massachusetts*. All sampling activities were conducted in accordance with the site Quality Assurance/Quality Control Plan (QA/QC Plan) and approved amendments prepared as a separate document, entitled *Removal Program Sampling Quality Assurance/Quality Control Plan for the In-Situ Chemical Oxidation at the Fisherville Mill Site, South Grafton, Worcester County, Massachusetts*.

## **Sampling Activities**

On 28 September 2004, START personnel collected a total of 118 groundwater samples from 107 overburden IP wells (selected locations from IP-1 through IP-123), six bedrock wells (IP-34B, IP-49B, IP-52B, IP-82B, MW-3T-B, and MW-101A), and five selected monitoring wells (MW-1D, MW-3T-B, MW-102, MW-205, and MW-207). Groundwater samples were collected using 0.5-inch-diameter disposable polyethylene bailers, and field screened for sodium permanganate concentrations using a spectrophotometer (see Appendix C - Summary of Permanganate Screening Results).

From 5 through 6 October 2004, START personnel collected 50 groundwater samples (including replicates) from selected IP wells and monitoring wells for VOC analysis. The IP wells selected for VOC sampling were those locations that did not exhibit permanganate in the on-site screening results of the 28 September 2004 comprehensive permanganate sampling. Peristaltic pumps and dedicated polyethylene tubing were used to sample all IP and monitoring well locations. In addition, three surface water samples were collected from the Blackstone Canal. Surface water sample SW-04A was collected south of the Route 122A bridge/culvert, and surface water samples SW-05 and SW-10 (replicate of SW-05) were collected north of the Route 122A bridge/culvert. The groundwater and surface water samples were field screened on site by Mr. Scott Clifford, EPA New England Regional Laboratory (NERL) Mobile Laboratory. Sample descriptions are presented in Table 1.

Upon completion of sampling activities, START personnel individually bagged the confirmation samples and placed them into a cooler with ice. SL Brammer completed chain-of-custody documentation for the samples (see Appendix D - Chain-of-Custody Records). Upon completion of daily site activities, START personnel departed the site. START personnel relinquished the confirmation samples to Mr. Clifford on 6 October 2004 under chain-of-custody for hand delivery to the EPA NERL, located in North Chelmsford, Massachusetts, for VOC analysis. Eleven samples were analyzed as laboratory confirmation samples, including a replicate and a trip blank (see Appendix E - Analytical Data).

**Table 1**  
**Groundwater VOC Sample Descriptions**  
**5 through 6 October 2004**

Station No. and EPA Sample No.	Sample Type and Matrix	Sample Depth (Feet)	VOC Analysis Method	Comments
IP-1 D15520	Groundwater	34	Field Screening/ Lab Confirmation	MS/MSD 44 ppb TCE/40 ppb TCE
IP-2	Groundwater	41	Field Screening	0.91 ppb TCE
IP-3	Groundwater	42	Field Screening	0.13 ppb TCE
IP-4	Groundwater	42	Field Screening	Non-detect for TCE
IP-5	Groundwater	41	Field Screening	7.0 ppb TCE
IP-6	Groundwater	27	Field Screening	Non-detect for TCE

**Table 1**  
**Groundwater VOC Sample Descriptions**  
**5 through 6 October 2004 (Continued)**

Station No. and EPA Sample No.	Sample Type and Matrix	Sample Depth (Feet)	VOC Analysis Method	Comments
IP-7 D16616	Groundwater	32	Field Screening/ Lab Confirmation	1,490 ppb TCE/1,400 ppb TCE
IP-200 D16617	Groundwater	32	Field Screening/ Lab Confirmation	Replicate of IP-7 1,520 ppb TCE/1,400 ppb TCE
IP-8	Groundwater	39.5	Field Screening	0.36 ppb TCE
IP-9	Groundwater	43	Field Screening	4.8 ppb TCE
IP-10	Groundwater	41.5	Field Screening	0.11 ppb TCE
IP-12 D16618	Groundwater	28	Field Screening/ Lab Confirmation	145 ppb TCE/150 ppb TCE
IP-16	Groundwater	27	Field Screening	6.2 ppb TCE
IP-17	Groundwater	28.5	Field Screening	1.1 ppb TCE
IP-52	Groundwater	35	Field Screening	1.3 ppb TCE
IP-53	Groundwater	37.5	Field Screening	Non-detect for TCE
IP-54	Groundwater	41	Field Screening	0.09 ppb TCE
IP-55	Groundwater	43	Field Screening	3.2 ppb TCE
IP-57	Groundwater	29	Field Screening	2.0 ppb TCE
IP-59	Groundwater	45	Field Screening	2.8 ppb TCE
IP-60	Groundwater	41	Field Screening	2.1 ppb TCE
IP-61	Groundwater	30.5	Field Screening	17 ppb TCE
IP-62	Groundwater	31	Field Screening	5.3 ppb TCE
IP-63 D16619	Groundwater	27.5	Field Screening/ Lab Confirmation	654 ppb TCE/650 ppb TCE
IP-65	Groundwater	36	Field Screening	22 ppb TCE
IP-67	Groundwater	25	Field Screening	2.0 ppb TCE
IP-68	Groundwater	32	Field Screening	6.6 ppb TCE
IP-69	Groundwater	29	Field Screening	1.5 ppb TCE
IP-70	Groundwater	30	Field Screening	6.0 ppb TCE
IP-116	Groundwater	35	Field Screening	0.48 ppb TCE
IP-117	Groundwater	17.5	Field Screening	72 ppb TCE
IP-118	Groundwater	29	Field Screening	0.59 ppb TCE
IP-119	Groundwater	17.5	Field Screening	0.31 ppb TCE
IP-122	Groundwater	21	Field Screening	8.5 ppb TCE
IP-123	Groundwater	35	Field Screening	21 ppb TCE

**Table 1**  
**Groundwater VOC Sample Descriptions**  
**5 through 6 October 2004 (Concluded)**

Station No. and EPA Sample No.	Sample Type and Matrix	Sample Depth (Feet)	VOC Analysis Method	Comments
MW-205	Groundwater	22.5	Field Screening	90 ppb TCE
MW-207	Groundwater	13.5	Field Screening	282 ppb TCE
MW-1D	Groundwater	42	Field Screening	6.6 ppb TCE
MW-3T	Groundwater	37.5	Field Screening	47 ppb TCE
MW-3T-B	Groundwater	66	Field Screening	23 ppb TCE
MW-30D D16620	Groundwater	38	Field Screening/ Lab Confirmation	116 ppb TCE/120 ppb TCE
MW-31D D16621	Groundwater	51.5	Field Screening/ Lab Confirmation	3.3 ppb TCE/3.7 ppb TCE
MW-31R D16622	Groundwater	83.5	Field Screening/ Lab Confirmation	538 ppb TCE/660 ppb TCE
IP-400	Groundwater	83.5	Field Screening	Replicate of MW-31R 588 ppb TCE
MW-100D	Groundwater	36.5	Field Screening	0.16 ppb TCE
MW-101A D16623	Groundwater	45.5	Field Screening/ Lab Confirmation	60,600 ppb TCE/80,000 ppb TCE (neutralized with sodium thiosulfate)
MW-101A-N	Groundwater	45.5	Field Screening	55,800 ppb TCE (neutralized with sodium thiosulfate)
IP-300 D16624	Groundwater	45.5	Field Screening/ Lab Confirmation	Replicate of MW-101A 55,700 ppb TCE/89,000 ppb TCE (neutralized with sodium thiosulfate)
IP-300-N	Groundwater	45.5	Field Screening	Replicate of MW-101A; neutralized with sodium thiosulfate. 62,900 ppb TCE
MW-102	Groundwater	40	Field Screening	267 ppb TCE
TB-01 D16625	Aqueous	NA	Lab Confirmation	Trip Blank Non-detect for TCE
SW-04A	Surface Water	NA	Field Screening	7.5 ppb TCE
SW-05	Surface Water	NA	Field Screening	14 ppb TCE
SW-10	Surface Water	NA	Field Screening	Replicate of SW-05 14 ppb TCE

VOC = Volatile Organic Compound.  
Lab = Laboratory.  
MS/MSD = Matrix Spike/Matrix Spike Duplicate.  
ppb = Parts per billion.  
TCE = Trichloroethylene.  
NA = Not applicable.  
No. = Number.

The following proposed locations were not sampled due to the pumping of permanganate from the well during purging: IP-11; IP-79; and IP-120. The steel drive-point riser of IP-121 is bent at an unknown depth, and START personnel were not able to install tubing to the screen interval of this well; therefore, no groundwater sample was collected. During well purging of MW-101A on 6 October 2004, groundwater was initially purple (containing permanganate), but cleared to a very light pink after approximately 15 to 20 minutes of purging. Six samples were collected from MW-101A: two un-neutralized samples for field screening (MW-101A and replicate IP-300); two samples neutralized with 1 gram of sodium thiosulfate (MW-101A-N and replicate IP-300-N); and two samples neutralized with 1 gram of sodium thiosulfate and preserved with hydrochloric acid for confirmatory analysis at NERL (MW-101A and IP-300). After collection of the samples from MW-101A, the permanganate-containing purgewater was pumped back down the well.

### **Discussion of Analytical Results**

Results of the 28 September 2004 comprehensive permanganate screening indicated that the general pattern of permanganate distribution in groundwater in the injection area has remained unchanged since the previous sampling round conducted during June 2004. The northern upgradient rows still have decreased or no detectable levels of permanganate, and the southern downgradient rows and IP locations in the center of the grid still have higher concentrations of permanganate. Bedrock wells IP-34B, IP-49B, IP-52B, and IP-82B still contained permanganate. Of particular note, MW-101A was purple during this sampling round. Permanganate is still apparently migrating through bedrock fractures to this well. MW-101A was pumped dry during the June 2004 VOC sampling round with no evidence of permanganate. The third injection of permanganate conducted during December 2003 in the vicinity of MW-101A, and the purging of the well during June 2004 may have induced permanganate migration to MW-101A.

Analytical results of the June 2004 VOC sampling indicated that concentrations of trichloroethylene (TCE) in three of the injection points (IP-7, IP-33, and IP-69) had increased to greater than 1 part per million (ppm). Analytical results of the October 2004 VOC sampling indicated that concentrations of TCE had decreased in IP-7 from 2.7 ppm to 1.5 ppm and in IP-69 from 1.2 ppm to 0.0015 ppm. Permanganate screening results of September 2004 indicated that IP-33 contained permanganate, and IP-33 was not sampled in October 2004.

The concentration of TCE in bedrock monitoring well MW-101A continues to significantly exceed 1 ppm. During the sampling round conducted in March 2004, the TCE concentration in MW-101A was 9.4 ppm. During the sampling round conducted in June 2004, the TCE concentration in MW-101A had increased to 55 ppm. However, analytical results of the October 2004 VOC sampling indicated that the TCE concentration in MW-101A had remained relatively unchanged (55 to 60 ppm) despite containing concentrations of permanganate that was purged during sampling.

Appendix F contains a summary table of the analytical results of VOC sampling rounds conducted at the site for all of the IP and selected monitoring well locations.

Based on the analytical results of the October 2004 VOC sampling, it does not appear that a continued rebound of TCE concentrations has occurred in the injection grid area. Potential explanations for the increase in TCE in three of the IP wells were discussed in the August 2004 sampling trip report, entitled *Removal Program Trip Report for the Sampling Activities at the*



*Fisherville Mill Site, Grafton, Massachusetts, 22 June 2004 and 28 through 30 June 2004, and available on the EPA OSC website at <http://www.eaposc.org>.*

### **Summary and Conclusions**

The objective of ISCO at the Fisherville Mill site was to reduce the contaminant mass in the source area, thereby decreasing the areal extent and contaminant concentrations in the downgradient plume. Baseline VOC monitoring conducted prior to ISCO implementation identified concentrations of TCE in bedrock groundwater within the source area ranging from 9,100 to 270,000 micrograms per liter (F g/L). TCE concentrations observed in the deep overburden groundwater within the source area were as high as 21,000 F g/L with most locations having a concentration on the order of 1,500 to 9,000 F g/L. The goal of the ISCO removal action was to reduce these concentrations by approximately two orders of magnitude, with the understanding that the resulting decrease in the contaminant mass and the size of the contaminant plume would make it highly unlikely that the South Grafton Water District (SGWD) wells would be impacted by the TCE contamination in the future.

Three rounds of sodium permanganate injections were performed in the source area. After each injection round, permanganate concentrations were monitored in the injection points. Injection points that no longer contained detectable levels of permanganate were sampled for VOCs. It was assumed that the persistence of permanganate in any injection point indicated that VOC concentrations were below the detection limit in that well. The average TCE concentration for all the injection points was calculated assuming a TCE concentration of zero in all injection points containing permanganate. Data from the most recent sampling round indicate that the average concentration of TCE in the injection points has decreased by two orders of magnitude since implementation of ISCO. The average permanganate concentration for each sampling round is presented in Table 2 below.

**Table 2**  
**Average Permanganate Concentrations**

Date of Sampling or Injection Round	Average Concentration of Permanganate in Injection Points
8/28/02-9/10/02	Permanganate Injection Round 1
11/4/02-11/5/02	36,899 ppm
3/26/03-3/28/03	Permanganate Injection Round 2
5/22/03	12,159 ppm
10/6/03-10/15/03	First Groundwater/Permanganate Recirculation
10/21/03	19,719 ppm
12/17/03-12/23/03	Permanganate Injection Round 3 and Second Groundwater/Permanganate Recirculation
2/25/04	4,546 ppm
6/22/04	11,755 ppm

**Table 2**  
**Average Permanganate Concentrations (Concluded)**

Date of Sampling or Injection Round	Average Concentration of Permanganate in Injection Points
9/28/04	5,042 ppm

ppm = Parts per million

The average TCE concentration for each sampling round is presented in Table 3 below.

**Table 3**  
**Average TCE Concentrations**

Date of Sampling or Injection Round	Average Concentration of TCE in Injection Points
7/29/02-8/27/02 (Baseline VOC sampling)	3,904 F g/L
8/28/02-9/10/02	Permanganate Injection Round 1
11/11/02-11/13/02	209 F g/L
3/24/03-3/25/03	172 F g/L
3/26/03-3/28/03	Permanganate Injection Round 2
5/28/03-5/29/03	94 F g/L
10/6/03-10/15/03	First Groundwater/Permanganate Recirculation
11/17/03-11/18/03	13 F g/L
12/17/03-12/23/03	Permanganate Injection Round 3 and Second Groundwater/Permanganate Recirculation
3/15/04-3/16/04	15 F g/L
6/28/04-6/30/04	103 F g/L
10/5/04-10/6/04	32 F g/L

VOC = Volatile organic compound  
TCE = Trichloroethylene  
F g/L = Micrograms per liter

A total of eight wells in the source area have TCE concentrations exceeding 100 ug/L. The TCE concentration in only one well (MW-101A) exceeds 1,600 ug/L. MW-101A is a bedrock monitoring well that was installed prior to implementation of ISCO. It was not used as a permanganate injection point because it is an extremely "tight" well with a very low yield. It is easily pumped dry during each sampling event; and during pilot injection testing, water could not be injected into this well. However, permanganate was observed to have migrated into this well after the initial injection and has persisted since that time. Stratification of groundwater and permanganate is commonly observed in this well, suggesting that little mixing of contaminated groundwater and permanganate is

occurring. This is consistent with the observed presence of VOCs in this well.

The TCE concentration in MW-101A decreased from 207,000 ug/L during the pre-injection sampling to 60,000 ug/L during the most recent sampling round. Although the TCE concentration remains high in this one bedrock well, it appears to be an anomaly. The volume of contaminated groundwater in the fractures that feed this well appears to be minimal, as indicated by the low well yield. In addition, conditions in this well do not appear to be indicative of general bedrock conditions. Concentrations of TCE in the other bedrock wells (IP-52B, IP-49B, IP-34B, and IP-82B) in the source area have been reduced to non-detectable levels.

Based on the review of the data presented above, the goal of reducing source area TCE contamination by two orders of magnitude has been achieved. The contaminant mass remaining in the source area has been significantly reduced. Concentrations of TCE in the contaminant plume are likely to attenuate to levels below Maximum Contaminant Levels (MCLs) before reaching the SGWD wells.

Based on field observations, the chemical data discussed above, and the impact of the temporary dam installation, it is unlikely that the VOC plume will migrate into the SGWD Well No. 3 for the following reasons:

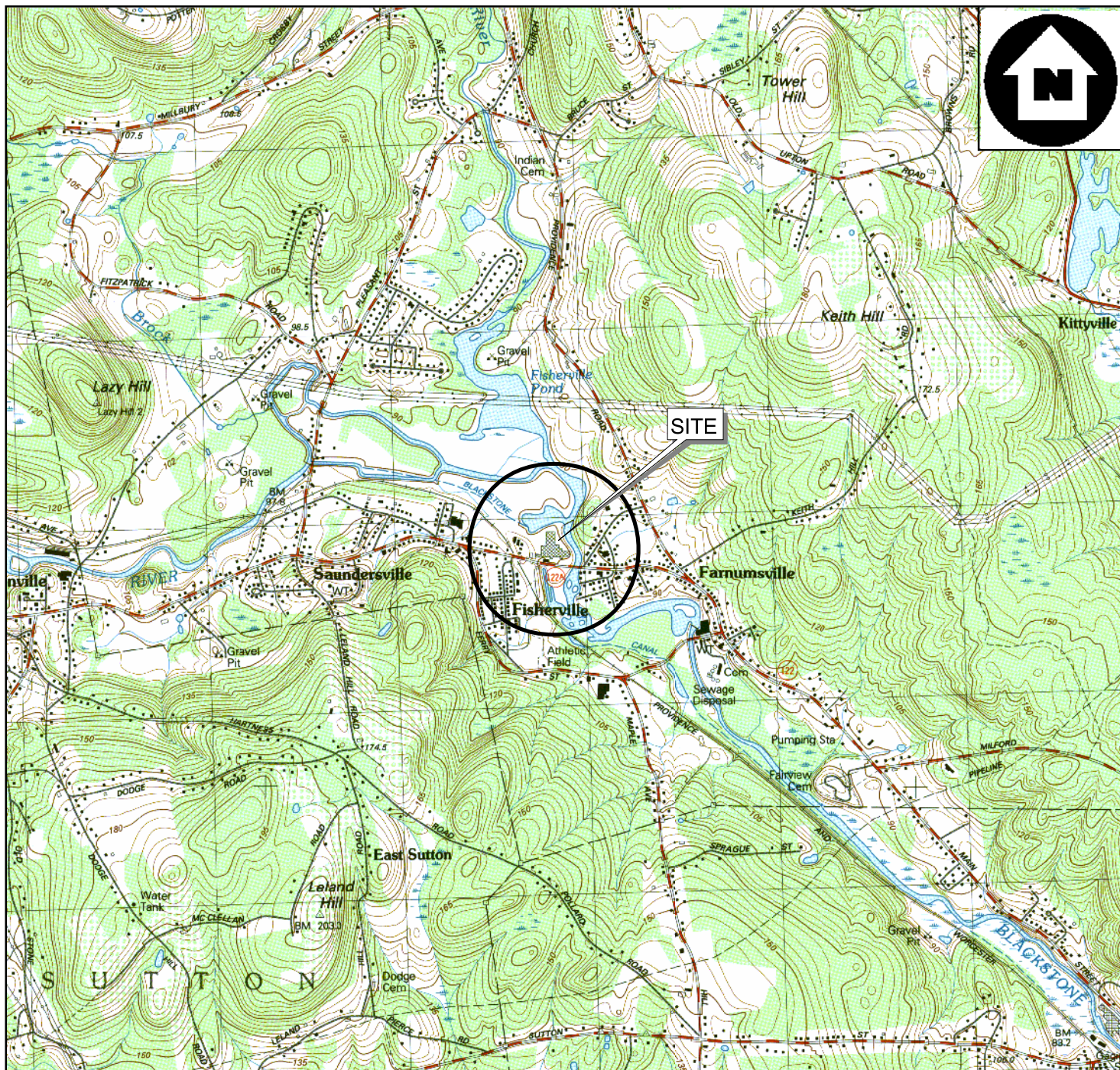
- C Analytical results of the October 2004 VOC sampling of the downgradient peninsula wells continue to indicate that groundwater quality conditions have been improving on the peninsula.
- C Analytical results of the October 2004 VOC sampling of the IP wells indicate that goals of the removal action have been attained.
- C The temporary dam continues to be effective in directing the plume in a more easterly direction, away from the SGWD wells, based on groundwater elevation data.
- C The remaining unreacted permanganate in the injection grid area continues to serve as a barrier to the potential movement of the remaining low levels of VOCs from the vicinity of the source area south toward the SGWD Well No. 3.
- C The results of the contaminant transport modeling conducted by Coler & Colantonio, Inc. for SGWD indicate that the two order of magnitude reduction in source area contaminant concentrations significantly reduces the risk of contamination entering SGWD Well No. 3. The model estimates that concentration of TCE entering SGWD Well No. 3 will remain below the present MCL of 5 parts per billion (ppb).

## II. Appendices

## Appendix A

### Site Location Map (Figure 1)



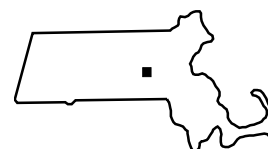


BASE MAP IS A PORTION OF THE FOLLOWING 7.5 X 15' U.S.G.S. QUADRANGLE(S):  
GRAFTON, MASSACHUSETTS. 1969 PHOTOREVISED 1979.

1 0 1 Miles

5000 0 5000 Feet

1 0 1 Kilometers



QUADRANGLE LOCATION

## SITE LOCATION MAP

**FISHERVILLE MILL**  
**60-62 MAIN STREET (ROUTE 122A)**  
**GRAFTON, MASSACHUSETTS**



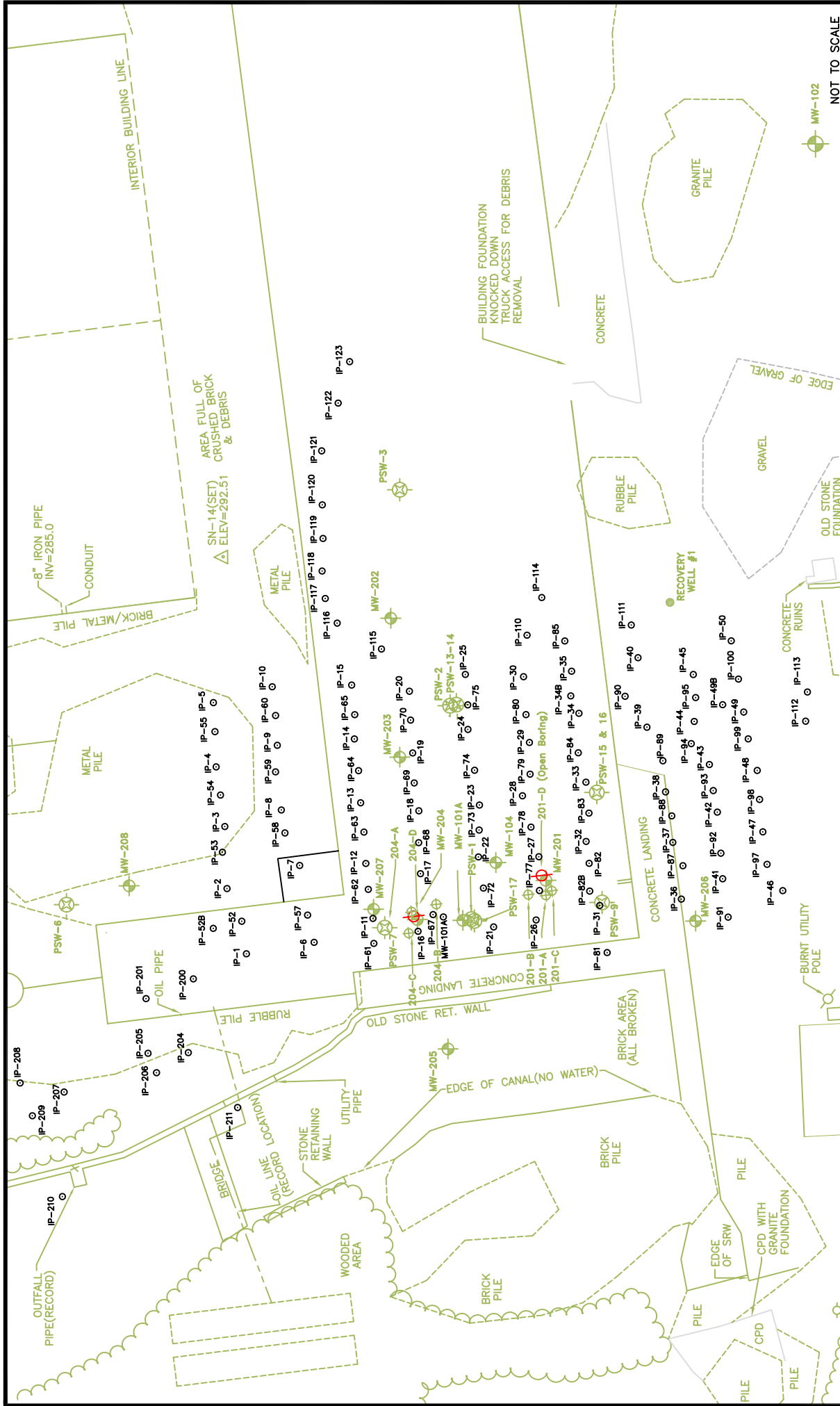
REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD #	DRAWN BY:	DATE:
04-05-0009	D. Brammer	04/04/2004
FILE NAME:		FIGURE 1
E:\ARC_APRS\START2\FISHERVILLEFIG1.APR		

## Appendix B

### Sample Location Diagram (Figure 2)







## Appendix C

### Summary of Fisherville Mill Permanganate Screening Results for 28 September 2004

### Fisherville Mill Permanganate Screening Results for 28 September 2004

Sample No.	Approximate Sample Depth (feet bgs)	Permanganate Concentration (ppm)	Sample Appearance/ Comments
IP-1	39	3	Clear
IP-2	46	1.2	Clear
IP-3	47	2.6	Brown
IP-4	47	1.2	Clear
IP-5	46	19	Clear
IP-6	32	1	Clear
IP-7	37	53	Tan with precipitates
IP-8	44.5	1	Clear
IP-9	48	1.6	Clear
IP-10	46.5	3.3	Clear
IP-11	39.5	1	Clear
IP-12	33	1	Clear
IP-13	35	31	Light pink
IP-14	35	166	Dark pink
IP-15	39	1,281	Purple
IP-16	10*	1	Clear
IP-17	33.5	209	Tan with precipitates
IP-18	35	447	Purple
IP-19	34	2,914	Purple
IP-20	39	237	Pink with precipitates
IP-21	36	10,763	Dark purple
IP-22	37	3,313	Dark purple
IP-23	41	31,019	Dark purple
IP-24	35	611	Purple with precipitates
IP-25	39.5	1,528	Purple
IP-26	34	503	Dark pink
IP-27	37.5	68	Light pink with precipitates
IP-28	37.5	5	Clear
IP-29	35	682	Purple
IP-30	41.5	65,798	Dark purple
IP-31	36	5,734	Dark purple

### Fisherville Mill Permanganate Screening Results for 28 September 2004 (Continued)

Sample No.	Approximate Sample Depth (feet bgs)	Permanganate Concentration (ppm)	Sample Appearance/ Comments
IP-32	38.5	9,635	Dark purple
IP-33	32	860	Purple with precipitates
IP-34	39.5	6,815	Dark purple
IP-34B	63	13,254	Dark purple
IP-35	39.5	126	Light pink
IP-36	47	8,084	Dark purple
IP-37	47	670	Purple
IP-38	47.5	327	Dark pink
IP-39	42.5	329	Purple
IP-40	45	881	Purple
IP-41	43	2,091	Dark purple
IP-42	42.5	1,668	Purple
IP-43	41	86	Pink
IP-44	41	340	Dark pink
IP-45	38.5	693	Purple
IP-46	41	6,862	Purple
IP-47	41	7,379	Dark purple
IP-48	38	2,773	Dark purple
IP-49	41	14,335	Dark purple
IP-49B	62	21,337	Dark purple
IP-50	43.5	4,794	Dark purple
IP-52	40	14	Clear
IP-52B	54	3,290	Dark purple
IP-53	42.5	0	Clear
IP-54	46	2,185	Orange with precipitates (no purple)
IP-55	48	12	Clear
IP-57	34	10	Clear
IP-58	45	29	Light pink with precipitates
IP-59	50	1	Clear
IP-60	46	2.3	Clear
IP-61	35.5	1.2	Clear

### Fisherville Mill Permanganate Screening Results for 28 September 2004 (Continued)

Sample No.	Approximate Sample Depth (feet bgs)	Permanganate Concentration (ppm)	Sample Appearance/ Comments
IP-62	36	1	Clear
IP-63	32.5	11	Clear
IP-64	37.5	432	Light purple
IP-65	41	114	Tan with precipitates
IP-67	30	264	Pink with precipitates
IP-68	37	105	Pink with precipitates
IP-69	34	28	Light brown
IP-70	35	123	Light brown
IP-72	36	13,818	Dark purple
IP-73	40.5	13,865	Dark purple
IP-74	39	186	Purple with precipitates
IP-75	39	5,781	Dark purple
IP-77	34	123	Pink
IP-78	38.5	5,945	Purple
IP-79	34	68	Light pink
IP-80	38.5	13,583	Dark purple
IP-81	36	55,458	Dark purple
IP-82	39	106,687	Dark purple
IP-82B	53.5	9,306	Purple
IP-83	39	22,559	Dark purple
IP-84	34	5,875	Dark purple
IP-85	41	787	Purple with precipitates
IP-87	45	1,163	Dark purple
IP-88	45	10,528	Dark purple
IP-89	46.5	2,279	Dark purple
IP-90	42.5	595	Purple
IP-91	38	194	Dark pink
IP-92	42	5,264	Purple
IP-93	45	693	Purple
IP-94	40	588	Purple
IP-95	43.5	220	Pink

### Fisherville Mill Permanganate Screening Results for 28 September 2004 (Concluded)

Sample No.	Approximate Sample Depth (feet bgs)	Permanganate Concentration (ppm)	Sample Appearance/ Comments
IP-97	42.5	21,995	Dark purple
IP-98	40	274	Purple
IP-99	42.5	19,598	Dark purple
IP-100	41.5	9,729	Dark purple
IP-110	42	8,225	Purple
IP-111	44	7,332	Dark purple
IP-112	37	1,927	Dark purple
IP-113	39.5	240	Purple
IP-114	35	20	Clear
IP-115	40.5	216	Dark pink
IP-116	40	22	Clear
IP-117	25	32	Clear
IP-118	34	43	Clear
IP-119	25	32	Clear
IP-120	38	13	Clear
IP-121	approximately 10	37	Clear with precipitates
IP-122	26	85	Brown with precipitates
IP-123	40	21	Clear
MW-1D	49.5	5	Clear
MW-3T-B	71	1	Clear
MW-101A	50.5	1,199	Purple
MW-102	45	1	Clear
MW-205	25	37	Clear
MW-207	17	2	Clear

\* = The polyvinyl chloride riser of IP-16 is bent below the ground surface. The bailer groundwater sample was collected at approximately 10 feet below ground surface. The total depth of the well is 32 feet below ground surface.

ppm = Parts per million.

bgs = Below ground surface.

## Appendix D

### Chain-of-Custody Records



WESTON START  
Generic Chain of Custody

Fisherville Mill  
Crafton, MA

Reference Case	L
Client No:	
SDG No:	
For Lab Use Only	
Lab Contract No:	
Unit Price:	
Transfer To:	
Lab Contract No:	
Unit Price:	

Date Shipped: 10/6/2004	Chain of Custody Record	Sample Signature: <i>D. S. B.</i>
Carrier Name: Hand Delivered	Relinquished By (Date / Time)	Received By (Date / Time)
Airbill:	<i>D. S. B. 10/6/04; 1435</i>	<i>Lat O'Neil 10/6/04 1435</i>
Shipped to: U.S. EPA Regional Laboratory 11 Technology Drive North Chelmsford MA 01863 (888) 372-7341	<i>2 Lat O'Neil 10/6/04 1007</i>	<i>Lat O'Neil 10/6/04 1007</i>
	3	
	4	

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	FOR LAB USE ONLY Sample Condition On Receipt
D16615	Ground Water	L/G	VOC (NERL) (21)	1 (HCL), 10 (HCL), 11 (HCL), 12 (HCL), 2 (HCL), 3 (HCL), 4 (HCL), 5 (HCL), 6 (HCL), 7 (HCL), 8 (HCL), 9 (HCL), 12 (HCL)	IP-1	S: 10/6/2004 9:15	
D16616	Ground Water	L/G	VOC (NERL) (21)	13 (HCL), 14 (HCL), 15 (HCL), 16 (HCL) (4)	IP-7	S: 10/6/2004 9:00	Samples to walk in
D16617	Ground Water	L/G	VOC (NERL) (21)	17 (HCL), 18 (HCL), 19 (HCL), 20 (HCL) (4)	IP-200	S: 10/6/2004 9:00	Sample Storage
D16618	Ground Water	L/G	VOC (NERL) (21)	21 (HCL), 22 (HCL), 23 (HCL), 24 (HCL) (4)	IP-12	S: 10/6/2004 9:02	190 A
D16619	Ground Water	L/G	VOC (NERL) (21)	25 (HCL), 26 (HCL), 27 (HCL), 28 (HCL) (4)	IP-63	S: 10/6/2004 8:45	10/6/04 5458
D16620	Ground Water	L/G	VOC (NERL) (21)	29 (HCL), 30 (HCL), 31 (HCL), 32 (HCL) (4)	MW-30D	S: 10/6/2004 14:05	
D16621	Ground Water	L/G	VOC (NERL) (21)	33 (HCL), 34 (HCL), 35 (HCL), 36 (HCL) (4)	MW-31D	S: 10/6/2004 13:35	
D16622	Ground Water	L/G	VOC (NERL) (21)	37 (HCL), 38 (HCL), 39 (HCL), 40 (HCL) (4)	MW-31R	S: 10/6/2004 12:30	
D16623	Ground Water	L/G	VOC (NERL) (21)	41 (HCL; Na2O3S2), 42 (HCL; Na2O3S2), 43 (HCL; Na2O3S2), 44 (HCL; Na2O3S2) (4)	MW-101A	S: 10/6/2004 9:50	OSC - Tgany

Shipment for Case Complete?	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s): <i>Lat O'Neil</i>	Chain of Custody Seal Number:
	D16615	Type/Designate: Composite = C, Grab = G	Cooler Temperature Upon Receipt:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High		Custody Seal Intact? —
VOC (NERL) = Volatile Organic Compounds			

TR Number: 1-430444211-100604-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.  
Send results to: OSC Janis Tsang EPA Region I Emergency Planning and Response Branch (617) 918-1231



WESTON START  
Generic Chain of Custody

Fisherville mill  
Gratten, MA

Reference Case

Client No:  
SDG No:

L

Date Shipped: 10/6/2004  
Carrier Name: Hand Delivered  
Airbill:  
Shipped to: U.S. EPA Regional  
Laboratory  
11 Technology Drive  
North Chelmsford MA  
01863  
(888) 372-7341

Chain of Custody Record

Relinquished By	(Date / Time)	Sampler Signature	Received By	(Date / Time)
RP-553	10/6/04; 1435	[Signature]	[Signature]	10/6/04 1435
2	[Signature]	[Signature]	[Signature]	10/6/04 10:07
3				
4				

SAMPLE No.

FOR LAB USE ONLY  
Sample Condition on Receipt

SAMPLE COLLECT  
DATE/TIME

STATION  
LOCATION

TAG No./  
PRESERVATIVE/ Bottles

ANALYSIS/  
TURNAROUND

MATRIX/  
SAMPLER

CONC/  
TYPE

9:50

S: 10/6/2004

IP-300

45 (HCL; Na2O3S2), 46 (HCL; Na2O3S2), 47 (HCL; Na2O3S2), 48 (HCL; Na2O3S2) (4)

VOC (NERL) (21)

L/G

D16624

Ground Water

6:45

S: 10/6/2004

TB-01

49 (HCL), 50 (HCL), 51 (HCL), 52 (HCL) (4)

VOC (NERL) (21)

L/G

D16625

Field QC

Shipment for Case Complete? Y

Sample(s) to be used for laboratory QC:

Additional Sampler Signature(s):

Cooler Temperature Upon Receipt:

Chain of Custody Seal Number:

Analysis Key:

Concentration: L = Low, M = Low/Medium, H = High

Type/Designate: Composite = C, Grab = G

Custody Seal Intact? —

Shipment Iced? —

VOC (NERL) = Volatile Organic Compounds

TR Number: 1-430444211-100604-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.  
Send results to: OSC Janis Tsang EPA Region I Emergency Planning and Response Branch (617) 918-1231

LABORATORY COPY



## Appendix E

### Analytical Data

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REGION 1  
OFFICE OF ENVIRONMENTAL MEASUREMENT & EVALUATION  
NORTH CHELMSFORD, MASSACHUSETTS 01863-2431

## MEMORANDUM

DATE: 10/8/2004

SUBJECT: Fisherville Mill, Grafton, MA - Volatile Organics Analysis of Aqueous Samples

FROM: Scott Clifford, Chemist *SC 10/12/04*TO: Janis Tsang, HBR *Mr F. Andrade 10/21/04*

THRU: Dr. William J. Andrade, Advanced Analytical Chemistry Expert

PROJECT NUMBER: 04100007

DATE OF ANALYSIS: 10/05/04 - 10/06/04

## ANALYTICAL PROCEDURE:

Aqueous samples were analyzed using Region I's Standard Operating Procedure for Head Space Screening for Volatile Organic Compounds in Aqueous and Soil Samples (EIA-FLDVOA2.SOP). Aqueous samples were collected in 40 ml vials and were analyzed using a Shimadzu GC 14A gas chromatograph (GC) equipped with a 30 meter, 0.53 mm DBPS-624 column, and electron capture detector, and a Photovac 10A10 GC equipped with a 4' 1/8" SE-30 column and photoionization detector. Concentrations of volatile organics were calculated using the external standard technique.

File: K:\CHEMISTRY\REPORTS\FIELD\04100007wfdvoa.xls

**Target Compounds and Approximate Reporting Limits**

<b>Fisherville Mill, Grafton, MA - Aqueous Volatile Organic Target Compounds &amp; Reporting Limits</b>	
<b>Compound</b>	<b>Reporting Limit (ug/l)</b>
Trichloroethylene (TCE)	0.10
Tetrachloroethylene (C <sub>2</sub> Cl <sub>4</sub> )	0.10
cis 1,2-Dichloroethylene (cis 12 DCEE)	1.0
1,1,1-Trichloroethane (111 TCA)	0.20

**Results:** The results in tables are Tentatively Identified Compounds and Approximate Concentrations

**ND ( ) =** Nothing detected above reporting limit. Reporting limit in parenthesis.

**N/A =** Not analyzed

**Note:** Results are in ug/l (ppb)

Fisherville Mill, Grafton, MA - Aqueous VOA Results ug/l (ppb)					
10/05/04 - 10/06/04					
cis					
Sample #	TCE	12DCEE	111 TCA	C <sub>2</sub> Cl <sub>4</sub>	Comments
SW-04A	7.5	20	ND(0.2)	0.26	
Blank Water	ND(0.10)	ND(1.0)	ND(0.20)	ND(0.10)	(slate)
SW-10	14	44	ND(0.20)	0.43	(slate)
SW-05	14	43	ND(0.20)	0.45	(slate)
IP-2	0.91	91	ND(0.20)	ND(0.10)	
IP-3	0.13	372	ND(0.20)	ND(0.10)	
IP-4	ND(0.10)	70	ND(0.20)	ND(0.10)	
IP-5	7	96	ND(0.20)	ND(0.10)	
IP-53	ND(0.2)	125	ND(0.20)	ND(0.10)	
IP-54	0.09	302	ND(0.20)	ND(0.10)	
IP-55	3.2	62	ND(0.20)	ND(0.10)	
IP-59	2.8	136	ND(0.20)	ND(0.10)	
IP-8	0.36	305	ND(0.20)	ND(0.10)	
IP-9	4.8	104	ND(0.20)	ND(0.10)	
IP-10	0.11	58	ND(0.20)	ND(0.10)	
IP-60	2.1	104	ND(0.20)	ND(0.10)	
IP-65	22	170	ND(0.20)	0.06	
IP-116	0.48	198	ND(0.20)	ND(0.10)	
IP-118	0.59	182	ND(0.20)	ND(0.10)	
IP-119	0.31	44	ND(0.20)	ND(0.10)	
IP-123	21	72	0.37	0.08	
IP-6	ND(0.10)	69	ND(0.2)	ND(0.10)	
IP-16	6.2	329	ND(0.2)	0.30	
IP-17	1.1	809	ND(0.3)	0.09	
IP-52	1.3	84	ND(0.2)	ND(0.10)	
IP-57	2.0	273	ND(0.2)	ND(0.10)	
IP-61	17	565	ND(0.2)	1.1	
IP-62	5.3	232	ND(0.2)	0.54	
IP-67	2.0	387	ND(0.2)	0.08	
IP-68	6.6	900	ND(0.5)	0.06	
IP-69	1.5	335	ND(0.5)	ND(0.10)	
IP-70	6.0	106	ND(0.2)	ND(0.10)	
IP-117	72	125	ND(5.8)	ND(2.9)	
IP-122	8.5	20	ND(0.2)	0.79	pressure in vial
MW-207	282	195	ND(5.8)	13	
MW-101-A	60,600	ND(460)	N/A	ND(1100)	
MW-101A-N	55,800	ND(2000)	N/A	ND(4500)	
IP-300	55,700	ND(2000)	N/A	ND(4500)	
IP-300-N	62,900	ND(2000)	N/A	ND(4500)	
IP-1	44	279	ND(0.2)	0.08	
IP-200	1520	959	ND(5.8)	2.7	
IP-7	1490	965	ND(6.0)	3.0	
IP-12	145	1150	ND(5.8)	ND(1.3)	

Page 2



United States Environmental Protection Agency  
Office of Environmental Measurement & Evaluation  
11 Technology Drive  
North Chelmsford, MA 01863-2431

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NOV 01 2004

Laboratory Report

October 21, 2004

Mrs Janis Tsang - HBR  
USEPA New England, Region 1  
One Congress Street  
Boston, MA 02114 - 2023

Project Number: 04100006

Project: Fisherville Mill - Grafton, MA

Analysis: VOAs in Water

Analyst: Joseph Montanaro

*10/20/04*

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, ELASOP-VOAGCMS7.

Samples were analyzed by GC/MS. Samples were introduced to the GC via a Tekmar pre-concentrator and an Archon autosampler. The analysis SOP is based on US EPA Method 8260B, SW-846, Rev 2.0, 1996. Method 624, 40CFR Part 136 Appendix A, July 1, 1992, and USEPA CLP SOW for Organic Analysis OLM04.2, 1999.

Date Samples Received by the Laboratory: 10/7/04

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8333.

Sincerely,

*William J. Andrade* 10/26/04  
Dr. William J. Andrade  
Advanced Analytical Chemistry Specialist

Qualifiers:

KL = Reporting limit

ND = Not Detected above Reporting limit

> NA = Not Applicable due to high sample dilutions or sample interferences

NC = Not calculated since analyte concentration is ND.

J = Estimated value

E = Estimated value exceeds the calibration range

L = Estimated value is below the calibration range

B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 5 times the concentration in the blank.

R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16615  
Date of Collection: 10/6/2004  
Date of Extraction: 10/8/04  
Date of Analysis: 10/8/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44572  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 5  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	
71-55-6	1,1,1-Trichloroethane	ND	5.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	5.0	
79-00-5	1,1,2-Trichloroethane	ND	5.0	
75-35-4	1,1-Dichloroethylene	ND	5.0	
563-58-6	1,1-Dichloropropene	ND	5.0	
75-34-3	1,1-dichloroethane	ND	5.0	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	
96-18-4	1,2,3-Trichloropropane	ND	5.0	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	5.0	
106-93-4	1,2-Dibromoethane	ND	5.0	
95-50-1	1,2-Dichlorobenzene	ND	5.0	
107-06-2	1,2-Dichloroethane	ND	5.0	
78-87-5	1,2-Dichloropropane	ND	5.0	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	
541-73-1	1,3-Dichlorobenzene	ND	5.0	
142-28-9	1,3-Dichloropropane	ND	5.0	
106-46-7	1,4-Dichlorobenzene	ND	5.0	
594-20-7	2,2-Dichloropropane	ND	5.0	
78-93-3	2-Butanone (MEK)	ND	5.0	
95-49-8	2-Chlorotoluene	ND	5.0	
591-78-6	2-Hexanone	ND	5.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
106-43-4	4-Chlorotoluene	ND	5.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	5.0	
107-13-1	Acrylonitrile	ND	5.0	
71-43-2	Benzene	ND	5.0	
108-86-1	Bromobenzene	ND	5.0	
74-97-5	Bromochloromethane	ND	5.0	
75-27-4	Bromodichloromethane	ND	5.0	
75-25-2	Bromoform	ND	5.0	
74-83-9	Bromomethane	ND	5.0	
75-15-0	Carbon Disulfide	ND	5.0	
56-23-5	Carbon tetrachloride	ND	5.0	
108-90-7	Chlorobenzene	ND	5.0	
75-00-3	Chloroethane	ND	5.0	
67-66-3	Chloroform	ND	5.0	



14-01-3	Chloroform	ND	5.0
124-48-1	Dibromochloromethane	ND	5.0
74-95-3	Dibromomethane	ND	5.0
75-71-8	Dichlorodifluoromethane	ND	5.0
60-29-7	Ethyl Ether	ND	5.0
100-41-4	Ethylbenzene	ND	5.0
87-68-3	Hexachlorobutadiene	ND	5.0
98-82-8	Isopropylbenzene	ND	5.0
108-38-3/106-42-	M/P Xylene	ND	10
1634-04-4	Methyl-t-Butyl Ether	ND	5.0
75-09-2	Methylene Chloride	ND	5.0
104-51-8	N-Butylbenzene	ND	5.0
103-65-1	N-Propylbenzene	ND	5.0
91-20-3	Naphthalene	ND	5.0
95-47-6	Ortho Xylene	ND	5.0
99-87-6	Para-Isopropyltoluene	ND	5.0
135-98-8	Sec-Butylbenzene	ND	5.0
100-42-5	Styrene	ND	5.0
98-06-6	Tert-Butylbenzene	ND	5.0
127-18-4	Tetrachloroethylene	ND	5.0
109-99-9	Tetrahydrofuran	ND	5.0
108-88-3	Toluene	ND	5.0
156-60-5	Trans-1,2-Dichloroethylene	ND	5.0
79-01-6	Trichloroethylene	40	5.0
75-69-4	Trichlorofluoromethane	ND	5.0
108-05-4	Vinyl Acetate	ND	5.0
75-01-4	Vinyl Chloride	14	5.0
10061-01-5	c-1,3-dichloropropene	ND	5.0
156-59-2	cis-1,2-Dichloroethylene	260	5.0
10061-02-6	t-1,3-Dichloropropene	ND	5.0

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	99	74 - 136
Toluene-D8	95	85 - 118
1,4-Bromofluorobenzene	91	79 - 111

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

Laboratory Blank for \$VOAMW

Client Sample ID: N/A

Date of Collection: N/A

Date of Extraction: 10/8/04

Date of Analysis: 10/8/04

Dry Weight Extracted: N/A

Wet Weight Extracted: N/A

Lab Sample ID: N/A

Matrix: Water

Volume Purged: 5.0 mL

Percent Solids: N/A

Extract Dilution: 1

pH: 6

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
78-93-3	2-Butanone (MEK)	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
71-43-2	Benzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
75-25-2	Bromoform	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
67-66-3	Chloroform	ND	1.0	

14-81-3	Chloromethane	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
74-95-3	Dibromomethane	ND	1.0
75-71-8	Dichlorodifluoromethane	ND	1.0
60-29-7	Ethyl Ether	ND	1.0
100-41-4	Ethylbenzene	ND	1.0
87-68-3	Hexachlorobutadiene	ND	1.0
98-82-8	Isopropylbenzene	ND	1.0
108-38-3/106-42-	M/P Xylene	ND	2.0
1634-04-4	Methyl-t-Butyl Ether	ND	1.0
75-09-2	Methylene Chloride	ND	1.0
104-51-8	N-Butylbenzene	ND	1.0
103-65-1	N-Propylbenzene	ND	1.0
91-20-3	Naphthalene	ND	1.0
95-47-6	Ortho Xylene	ND	1.0
99-87-6	Para-Isopropyltoluene	ND	1.0
135-98-8	Sec-Butylbenzene	ND	1.0
100-42-5	Styrene	ND	1.0
98-06-6	Tert-Butylbenzene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
109-99-9	Tetrahydrofuran	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane	ND	1.0
108-05-4	Vinyl Acetate	ND	1.0
75-01-4	Vinyl Chloride	ND	1.0
10061-01-5	c-1,3-dichloropropene	ND	1.0
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-02-6	t-1,3-Dichloropropene	ND	1.0

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	104	74 - 136
Toluene-D8	97	85 - 118
1,4-Bromofluorobenzene	88	79 - 111

Comments: Method blank applies to samples D16615, D16616, D16617, and D16618.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16616  
Date of Collection: 10/6/2004  
Date of Extraction: 10/8/04  
Date of Analysis: 10/8/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44573  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 50  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	50	
71-55-6	1,1,1-Trichloroethane	ND	50	
79-34-5	1,1,2,2-Tetrachloroethane	ND	50	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	50	
79-00-5	1,1,2-Trichloroethane	ND	50	
75-35-4	1,1-Dichloroethylene	ND	50	
563-58-6	1,1-Dichloropropene	ND	50	
75-34-3	1,1-dichloroethane	ND	50	
87-61-6	1,2,3-Trichlorobenzene	ND	50	
96-18-4	1,2,3-Trichloropropane	ND	50	
120-82-1	1,2,4-Trichlorobenzene	ND	50	
95-63-6	1,2,4-Trimethylbenzene	ND	50	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	50	
106-93-4	1,2-Dibromoethane	ND	50	
95-50-1	1,2-Dichlorobenzene	ND	50	
107-06-2	1,2-Dichloroethane	ND	50	
78-87-5	1,2-Dichloropropane	ND	50	
108-67-8	1,3,5-Trimethylbenzene	ND	50	
541-73-1	1,3-Dichlorobenzene	ND	50	
142-28-9	1,3-Dichloropropane	ND	50	
106-46-7	1,4-Dichlorobenzene	ND	50	
594-20-7	2,2-Dichloropropane	ND	50	
78-93-3	2-Butanone (MEK)	ND	50	
95-49-8	2-Chlorotoluene	ND	50	
591-78-6	2-Hexanone	ND	50	
67-64-1	2-Propanone (acetone)	ND	50	
106-43-4	4-Chlorotoluene	ND	50	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	50	
107-13-1	Acrylonitrile	ND	50	
71-43-2	Benzene	ND	50	
108-86-1	Bromobenzene	ND	50	
74-97-5	Bromochloromethane	ND	50	
75-27-4	Bromodichloromethane	ND	50	
75-25-2	Bromoform	ND	50	
74-83-9	Bromomethane	ND	50	
75-15-0	Carbon Disulfide	ND	50	
56-23-5	Carbon tetrachloride	ND	50	
108-90-7	Chlorobenzene	ND	50	
75-00-3	Chloroethane	ND	50	
67-66-3	Chloroform	ND	50	

74-87-3	Chloromethane	ND	50
124-48-1	Dibromochloromethane	ND	50
74-95-3	Dibromomethane	ND	50
75-71-8	Dichlorodifluoromethane	ND	50
60-29-7	Ethyl Ether	ND	50
100-41-4	Ethylbenzene	ND	50
87-68-3	Hexachlorobutadiene	ND	50
98-82-8	Isopropylbenzene	ND	50
108-38-3/106-42-	M/P Xylene	ND	100
1634-04-4	Methyl-t-Butyl Ether	ND	50
75-09-2	Methylene Chloride	ND	50
104-51-8	N-Butylbenzene	ND	50
103-65-1	N-Propylbenzene	ND	50
91-20-3	Naphthalene	ND	50
95-47-6	Ortho Xylene	ND	50
99-87-6	Para-Isopropyltoluene	ND	50
135-98-8	Sec-Butylbenzene	ND	50
100-42-5	Styrene	ND	50
98-06-6	Tert-Butylbenzene	ND	50
127-18-4	Tetrachloroethylene	ND	50
109-99-9	Tetrahydrofuran	ND	50
108-88-3	Toluene	ND	50
156-60-5	Trans-1,2-Dichloroethylene	ND	50
79-01-6	Trichloroethylene	1400	50
75-69-4	Trichlorofluoromethane	ND	50
108-05-4	Vinyl Acetate	ND	50
75-01-4	Vinyl Chloride	95	50
10061-01-5	c-1,3-dichloropropene	ND	50
156-59-2	cis-1,2-Dichloroethylene	960	50
10061-02-6	t-1,3-Dichloropropene	ND	50

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	97	74 - 136
Toluene-D8	94	85 - 118
1,4-Bromofluorobenzene	84	79 - 111

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16617  
Date of Collection: 10/6/2004  
Date of Extraction: 10/8/04  
Date of Analysis: 10/8/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44574  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 50  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	50	
71-55-6	1,1,1-Trichloroethane	ND	50	
79-34-5	1,1,2,2-Tetrachloroethane	ND	50	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	50	
79-00-5	1,1,2-Trichloroethane	ND	50	
75-35-4	1,1-Dichloroethylene	ND	50	
563-58-6	1,1-Dichloropropene	ND	50	
75-34-3	1,1-dichloroethane	ND	50	
87-61-6	1,2,3-Trichlorobenzene	ND	50	
96-18-4	1,2,3-Trichloropropane	ND	50	
120-82-1	1,2,4-Trichlorobenzene	ND	50	
95-63-6	1,2,4-Trimethylbenzene	ND	50	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	50	
106-93-4	1,2-Dibromoethane	ND	50	
95-50-1	1,2-Dichlorobenzene	ND	50	
107-06-2	1,2-Dichloroethane	ND	50	
78-87-5	1,2-Dichloropropane	ND	50	
108-67-8	1,3,5-Trimethylbenzene	ND	50	
541-73-1	1,3-Dichlorobenzene	ND	50	
142-28-9	1,3-Dichloropropane	ND	50	
106-46-7	1,4-Dichlorobenzene	ND	50	
594-20-7	2,2-Dichloropropane	ND	50	
78-93-3	2-Butanone (MEK)	ND	50	
95-49-8	2-Chlorotoluene	ND	50	
591-78-6	2-Hexanone	ND	50	
67-64-1	2-Propanone (acetone)	ND	50	
106-43-4	4-Chlorotoluene	ND	50	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	50	
107-13-1	Acrylonitrile	ND	50	
71-43-2	Benzene	ND	50	
108-86-1	Bromobenzene	ND	50	
74-97-5	Bromochloromethane	ND	50	
75-27-4	Bromodichloromethane	ND	50	
75-25-2	Bromoform	ND	50	
74-83-9	Bromomethane	ND	50	
75-15-0	Carbon Disulfide	ND	50	
56-23-5	Carbon tetrachloride	ND	50	
108-90-7	Chlorobenzene	ND	50	
75-00-3	Chloroethane	ND	50	
67-66-3	Chloroform	ND	50	

14-81-5	Chloromethane	ND	50
124-48-1	Dibromochloromethane	ND	50
74-95-3	Dibromomethane	ND	50
75-71-8	Dichlorodifluoromethane	ND	50
60-29-7	Ethyl Ether	ND	50
100-41-4	Ethylbenzene	ND	50
87-68-3	Hexachlorobutadiene	ND	50
98-82-8	Isopropylbenzene	ND	50
108-38-3/106-42-	M/P Xylene	ND	100
1634-04-4	Methyl-t-Butyl Ether	ND	50
75-09-2	Methylene Chloride	ND	50
104-51-8	N-Butylbenzene	ND	50
103-65-1	N-Propylbenzene	ND	50
91-20-3	Naphthalene	ND	50
95-47-6	Ortho Xylene	ND	50
99-87-6	Para-Isopropyltoluene	ND	50
135-98-8	Sec-Butylbenzene	ND	50
100-42-5	Styrene	ND	50
98-06-6	Tert-Butylbenzene	ND	50
127-18-4	Tetrachloroethylene	ND	50
109-99-9	Tetrahydrofuran	ND	50
108-88-3	Toluene	ND	50
156-60-5	Trans-1,2-Dichloroethylene	ND	50
79-01-6	Trichloroethylene	1400	50
75-69-4	Trichlorofluoromethane	ND	50
108-05-4	Vinyl Acetate	ND	50
75-01-4	Vinyl Chloride	110	50
10061-01-5	c-1,3-dichloropropene	ND	50
156-59-2	cis-1,2-Dichloroethylene	880	50
10061-02-6	t-1,3-Dichloropropene	ND	50

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	98	74 - 136
Toluene-D8	96	85 - 118
1,4-Bromofluorobenzene	88	79 - 111

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16618  
Date of Collection: 10/6/2004  
Date of Extraction: 10/8/04  
Date of Analysis: 10/8/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44575  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 25  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	25	
71-55-6	1,1,1-Trichloroethane	ND	25	
79-34-5	1,1,2,2-Tetrachloroethane	ND	25	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	25	
79-00-5	1,1,2-Trichloroethane	ND	25	
75-35-4	1,1-Dichloroethylene	ND	25	
563-58-6	1,1-Dichloropropene	ND	25	
75-34-3	1,1-dichloroethane	ND	25	
87-61-6	1,2,3-Trichlorobenzene	ND	25	
96-18-4	1,2,3-Trichloropropane	ND	25	
120-82-1	1,2,4-Trichlorobenzene	ND	25	
95-63-6	1,2,4-Trimethylbenzene	ND	25	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	25	
106-93-4	1,2-Dibromoethane	ND	25	
95-50-1	1,2-Dichlorobenzene	ND	25	
107-06-2	1,2-Dichloroethane	ND	25	
78-87-5	1,2-Dichloropropane	ND	25	
108-67-8	1,3,5-Trimethylbenzene	ND	25	
541-73-1	1,3-Dichlorobenzene	ND	25	
142-28-9	1,3-Dichloropropane	ND	25	
106-46-7	1,4-Dichlorobenzene	ND	25	
594-20-7	2,2-Dichloropropane	ND	25	
78-93-3	2-Butanone (MEK)	ND	25	
95-49-8	2-Chlorotoluene	ND	25	
591-78-6	2-Hexanone	ND	25	
67-64-1	2-Propanone (acetone)	ND	25	
106-43-4	4-Chlorotoluene	ND	25	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	25	
107-13-1	Acrylonitrile	ND	25	
71-43-2	Benzene	ND	25	
108-86-1	Bromobenzene	ND	25	
74-97-5	Bromochloromethane	ND	25	
75-27-4	Bromodichloromethane	ND	25	
75-25-2	Bromoform	ND	25	
74-83-9	Bromomethane	ND	25	
75-15-0	Carbon Disulfide	ND	25	
56-23-5	Carbon tetrachloride	ND	25	
108-90-7	Chlorobenzene	ND	25	
75-00-3	Chloroethane	ND	25	
67-66-3	Chloroform	ND	25	



74-87-3	Chloromethane	ND	25
124-48-1	Dibromochloromethane	ND	25
74-95-3	Dibromomethane	ND	25
75-71-8	Dichlorodifluoromethane	ND	25
60-29-7	Ethyl Ether	ND	25
100-41-4	Ethylbenzene	ND	25
87-68-3	Hexachlorobutadiene	ND	25
98-82-8	Isopropylbenzene	ND	25
108-38-3/106-42-	M/P Xylene	ND	50
1634-04-4	Methyl-t-Butyl Ether	ND	25
75-09-2	Methylene Chloride	ND	25
104-51-8	N-Butylbenzene	ND	25
103-65-1	N-Propylbenzene	ND	25
91-20-3	Naphthalene	ND	25
95-47-6	Ortho Xylene	ND	25
99-87-6	Para-Isopropyltoluene	ND	25
135-98-8	Sec-Butylbenzene	ND	25
100-42-5	Styrene	ND	25
98-06-6	Tert-Butylbenzene	ND	25
127-18-4	Tetrachloroethylene	ND	25
109-99-9	Tetrahydrofuran	ND	25
108-88-3	Toluene	ND	25
156-60-5	Trans-1,2-Dichloroethylene	ND	25
79-01-6	Trichloroethylene	150	25
75-69-4	Trichlorofluoromethane	ND	25
108-05-4	Vinyl Acetate	ND	25
75-01-4	Vinyl Chloride	62	25
10061-01-5	c-1,3-dichloropropene	ND	25
156-59-2	cis-1,2-Dichloroethylene	1200	25
10061-02-6	t-1,3-Dichloropropene	ND	25

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	93	74 - 136
Toluene-D8	96	85 - 118
1,4-Bromofluorobenzene	84	79 - 111

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16619  
Date of Collection: 10/6/2004  
Date of Extraction: 10/12/04  
Date of Analysis: 10/12/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44576  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 50  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	50	
71-55-6	1,1,1-Trichloroethane	ND	50	
79-34-5	1,1,2,2-Tetrachloroethane	ND	50	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	50	
79-00-5	1,1,2-Trichloroethane	ND	50	
75-35-4	1,1-Dichloroethylene	ND	50	
563-58-6	1,1-Dichloropropene	ND	50	
75-34-3	1,1-dichloroethane	ND	50	
87-61-6	1,2,3-Trichlorobenzene	ND	50	
96-18-4	1,2,3-Trichloropropane	ND	50	
120-82-1	1,2,4-Trichlorobenzene	ND	50	
95-63-6	1,2,4-Trimethylbenzene	ND	50	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	50	
106-93-4	1,2-Dibromoethane	ND	50	
95-50-1	1,2-Dichlorobenzene	ND	50	
107-06-2	1,2-Dichloroethane	ND	50	
78-87-5	1,2-Dichloropropane	ND	50	
108-67-8	1,3,5-Trimethylbenzene	ND	50	
541-73-1	1,3-Dichlorobenzene	ND	50	
142-28-9	1,3-Dichloropropane	ND	50	
106-46-7	1,4-Dichlorobenzene	ND	50	
594-20-7	2,2-Dichloropropane	ND	50	
78-93-3	2-Butanone (MEK)	ND	50	
95-49-8	2-Chlorotoluene	ND	50	
591-78-6	2-Hexanone	ND	50	
67-64-1	2-Propanone (acetone)	280	50	J
106-43-4	4-Chlorotoluene	ND	50	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	50	
107-13-1	Acrylonitrile	ND	50	
71-43-2	Benzene	ND	50	
108-86-1	Bromobenzene	ND	50	
74-97-5	Bromochloromethane	ND	50	
75-27-4	Bromodichloromethane	ND	50	
75-25-2	Bromoform	ND	50	
74-83-9	Bromomethane	ND	50	
75-15-0	Carbon Disulfide	ND	50	
56-23-5	Carbon tetrachloride	ND	50	
108-90-7	Chlorobenzene	ND	50	
75-00-3	Chloroethane	ND	50	
67-66-3	Chloroform	ND	50	

74-87-3	Chloromethane	ND	50
124-48-1	Dibromochloromethane	ND	50
74-95-3	Dibromomethane	ND	50
75-71-8	Dichlorodifluoromethane	ND	50
60-29-7	Ethyl Ether	ND	50
100-41-4	Ethylbenzene	ND	50
87-68-3	Hexachlorobutadiene	ND	50
98-82-8	Isopropylbenzene	ND	50
108-38-3/106-42-	M/P Xylene	ND	100
1634-04-4	Methyl-t-Butyl Ether	ND	50
75-09-2	Methylene Chloride	ND	50
104-51-8	N-Butylbenzene	ND	50
103-65-1	N-Propylbenzene	ND	50
91-20-3	Naphthalene	ND	50
95-47-6	Ortho Xylene	ND	50
99-87-6	Para-Isopropyltoluene	ND	50
135-98-8	Sec-Butylbenzene	ND	50
100-42-5	Styrene	ND	50
98-06-6	Tert-Butylbenzene	ND	50
127-18-4	Tetrachloroethylene	ND	50
109-99-9	Tetrahydrofuran	ND	50
108-88-3	Toluene	ND	50
156-60-5	Trans-1,2-Dichloroethylene	ND	50
79-01-6	Trichloroethylene	650	50
75-69-4	Trichlorofluoromethane	ND	50
108-05-4	Vinyl Acetate	ND	50
75-01-4	Vinyl Chloride	98	50
10061-01-5	c-1,3-dichloropropene	ND	50
156-59-2	cis-1,2-Dichloroethylene	1300	50
10061-02-6	t-1,3-Dichloropropene	ND	50

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	101	74 - 136
Toluene-D8	97	85 - 118
1,4-Bromofluorobenzene	90	79 - 111

Comments: Acetone did not meet the acceptable quality control specifications for continuous calibration and is qualified with a J.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

Laboratory Blank for \$VOAMW

Client Sample ID: N/A

Date of Collection: N/A

Date of Extraction: 10/12/04

Date of Analysis: 10/12/04

Dry Weight Extracted: N/A

Wet Weight Extracted: N/A

Lab Sample ID: N/A

Matrix: Water

Volume Purged: 5.0 mL

Percent Solids: N/A

Extract Dilution: 1

pH: 6

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
78-93-3	2-Butanone (MEK)	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
71-43-2	Benzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
75-25-2	Bromoform	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
67-66-3	Chloroform	ND	1.0	

74-87-3	Chloromethane	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
74-93-3	Dibromomethane	ND	1.0
75-71-8	Dichlorodifluoromethane	ND	1.0
60-29-7	Ethyl Ether	ND	1.0
100-41-4	Ethylbenzene	ND	1.0
87-68-3	Hexachlorobutadiene	ND	1.0
98-82-8	Isopropylbenzene	ND	1.0
108-38-3/106-42-	M/P Xylene	ND	2.0
1634-04-4	Methyl-t-Butyl Ether	ND	1.0
75-09-2	Methylene Chloride	ND	1.0
104-51-8	N-Butylbenzene	ND	1.0
103-65-1	N-Propylbenzene	ND	1.0
91-20-3	Naphthalene	ND	1.0
95-47-6	Ortho Xylene	ND	1.0
99-87-6	Para-Isopropyltoluene	ND	1.0
135-98-8	Sec-Butylbenzene	ND	1.0
100-42-5	Styrene	ND	1.0
98-06-6	Tert-Butylbenzene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
109-99-9	Tetrahydrofuran	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane	ND	1.0
108-05-4	Vinyl Acetate	ND	1.0
75-01-4	Vinyl Chloride	ND	1.0
10061-01-5	c-1,3-dichloropropene	ND	1.0
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-02-6	t-1,3-Dichloropropene	ND	1.0

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	108	74 - 136
Toluene-D8	95	85 - 118
1,4-Bromofluorobenzene	97	79 - 111

Comments: Method blank applies to samples D16619, D16620, D16621, D16622, D16623, D16624, and D16625.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16620  
Date of Collection: 10/6/2004  
Date of Extraction: 10/12/04  
Date of Analysis: 10/12/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44577  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 5  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	
71-55-6	1,1,1-Trichloroethane	ND	5.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	5.0	
79-00-5	1,1,2-Trichloroethane	ND	5.0	
75-35-4	1,1-Dichloroethylene	ND	5.0	
563-58-6	1,1-Dichloropropene	ND	5.0	
75-34-3	1,1-dichloroethane	ND	5.0	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	
96-18-4	1,2,3-Trichloropropane	ND	5.0	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	5.0	
106-93-4	1,2-Dibromoethane	ND	5.0	
95-50-1	1,2-Dichlorobenzene	ND	5.0	
107-06-2	1,2-Dichloroethane	ND	5.0	
78-87-5	1,2-Dichloropropane	ND	5.0	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	
541-73-1	1,3-Dichlorobenzene	ND	5.0	
142-28-9	1,3-Dichloropropane	ND	5.0	
106-46-7	1,4-Dichlorobenzene	ND	5.0	
594-20-7	2,2-Dichloropropane	ND	5.0	
78-93-3	2-Butanone (MEK)	ND	5.0	
95-49-8	2-Chlorotoluene	ND	5.0	
591-78-6	2-Hexanone	ND	5.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
106-43-4	4-Chlorotoluene	ND	5.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	5.0	
107-13-1	Acrylonitrile	ND	5.0	
71-43-2	Benzene	ND	5.0	
108-86-1	Bromobenzene	ND	5.0	
74-97-5	Bromochloromethane	ND	5.0	
75-27-4	Bromodichloromethane	ND	5.0	
75-25-2	Bromoform	ND	5.0	
74-83-9	Bromomethane	ND	5.0	
75-15-0	Carbon Disulfide	ND	5.0	
56-23-5	Carbon tetrachloride	ND	5.0	
108-90-7	Chlorobenzene	ND	5.0	
75-00-3	Chloroethane	ND	5.0	
67-66-3	Chloroform	ND	5.0	

74-87-3	Chloromethane	ND	5.0
124-48-1	Dibromochloromethane	ND	5.0
74-95-3	Dibromomethane	ND	5.0
75-71-8	Dichlorodifluoromethane	ND	5.0
60-29-7	Ethyl Ether	ND	5.0
100-41-4	Ethylbenzene	ND	5.0
87-68-3	Hexachlorobutadiene	ND	5.0
98-82-8	Isopropylbenzene	ND	5.0
108-38-3/106-42-	M/P Xylene	ND	10
1634-04-4	Methyl-t-Butyl Ether	ND	5.0
75-09-2	Methylene Chloride	ND	5.0
104-51-8	N-Butylbenzene	ND	5.0
103-65-1	N-Propylbenzene	ND	5.0
91-20-3	Naphthalene	ND	5.0
95-47-6	Ortho Xylene	ND	5.0
99-87-6	Para-Isopropyltoluene	ND	5.0
135-98-8	Sec-Butylbenzene	ND	5.0
100-42-5	Styrene	ND	5.0
98-06-6	Tert-Butylbenzene	ND	5.0
127-18-4	Tetrachloroethylene	47	5.0
109-99-9	Tetrahydrofuran	ND	5.0
108-88-3	Toluene	ND	5.0
156-60-5	Trans-1,2-Dichloroethylene	ND	5.0
79-01-6	Trichloroethylene	120	5.0
75-69-4	Trichlorofluoromethane	ND	5.0
108-05-4	Vinyl Acetate	ND	5.0
75-01-4	Vinyl Chloride	ND	5.0
10061-01-5	c-1,3-dichloropropene	ND	5.0
156-59-2	cis-1,2-Dichloroethylene	74	5.0
10061-02-6	t-1,3-Dichloropropene	ND	5.0

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	104	74 - 136
Toluene-D8	94	85 - 118
1,4-Bromofluorobenzene	88	79 - 111

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16621  
Date of Collection: 10/6/2004  
Date of Extraction: 10/12/04  
Date of Analysis: 10/12/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44578  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
78-93-3	2-Butanone (MEK)	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
71-43-2	Benzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
75-25-2	Bromoform	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
67-66-3	Chloroform	ND	1.0	



14-81-3	Chloromethane	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
74-95-3	Dibromomethane	ND	1.0
75-71-8	Dichlorodifluoromethane	ND	1.0
60-29-7	Ethyl Ether	ND	1.0
100-41-4	Ethylbenzene	ND	1.0
87-68-3	Hexachlorobutadiene	ND	1.0
98-82-8	Isopropylbenzene	ND	1.0
108-38-3/106-42-	M/P Xylene	ND	2.0
1634-04-4	Methyl-t-Butyl Ether	ND	1.0
75-09-2	Methylene Chloride	ND	1.0
104-51-8	N-Butylbenzene	ND	1.0
103-65-1	N-Propylbenzene	ND	1.0
91-20-3	Naphthalene	ND	1.0
95-47-6	Ortho Xylene	ND	1.0
99-87-6	Para-Isopropyltoluene	ND	1.0
135-98-8	Sec-Butylbenzene	ND	1.0
100-42-5	Styrene	ND	1.0
98-06-6	Tert-Butylbenzene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
109-99-9	Tetrahydrofuran	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0
79-01-6	Trichloroethylene	3.7	1.0
75-69-4	Trichlorofluoromethane	ND	1.0
108-05-4	Vinyl Acetate	ND	1.0
75-01-4	Vinyl Chloride	ND	1.0
10061-01-5	c-1,3-dichloropropene	ND	1.0
156-59-2	cis-1,2-Dichloroethylene	1.9	1.0
10061-02-6	t-1,3-Dichloropropene	ND	1.0

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	103	74 - 136
Toluene-D8	92	85 - 118
1,4-Bromofluorobenzene	90	79 - 111

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16622  
Date of Collection: 10/6/2004  
Date of Extraction: 10/12/04  
Date of Analysis: 10/12/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44579  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 10  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	10	
71-55-6	1,1,1-Trichloroethane	ND	10	
79-34-5	1,1,2,2-Tetrachloroethane	ND	10	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	10	
79-00-5	1,1,2-Trichloroethane	ND	10	
75-35-4	1,1-Dichloroethylene	ND	10	
563-58-6	1,1-Dichloropropene	ND	10	
75-34-3	1,1-dichloroethane	ND	10	
87-61-6	1,2,3-Trichlorobenzene	ND	10	
96-18-4	1,2,3-Trichloropropane	ND	10	
120-82-1	1,2,4-Trichlorobenzene	ND	10	
95-63-6	1,2,4-Trimethylbenzene	ND	10	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	10	
106-93-4	1,2-Dibromoethane	ND	10	
95-50-1	1,2-Dichlorobenzene	ND	10	
107-06-2	1,2-Dichloroethane	ND	10	
78-87-5	1,2-Dichloropropane	ND	10	
108-67-8	1,3,5-Trimethylbenzene	ND	10	
541-73-1	1,3-Dichlorobenzene	ND	10	
142-28-9	1,3-Dichloropropane	ND	10	
106-46-7	1,4-Dichlorobenzene	ND	10	
594-20-7	2,2-Dichloropropane	ND	10	
78-93-3	2-Butanone (MEK)	ND	10	
95-49-8	2-Chlorotoluene	ND	10	
591-78-6	2-Hexanone	ND	10	
67-64-1	2-Propanone (acetone)	ND	10	
106-43-4	4-Chlorotoluene	ND	10	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	10	
107-13-1	Acrylonitrile	ND	10	
71-43-2	Benzene	ND	10	
108-86-1	Bromobenzene	ND	10	
74-97-5	Bromochloromethane	ND	10	
75-27-4	Bromodichloromethane	ND	10	
75-25-2	Bromoform	ND	10	
74-83-9	Bromomethane	ND	10	
75-15-0	Carbon Disulfide	ND	10	
56-23-5	Carbon tetrachloride	ND	10	
108-90-7	Chlorobenzene	ND	10	
75-00-3	Chloroethane	ND	10	
67-66-3	Chloroform	ND	10	

74-87-3	Chloromethane	ND	10
124-48-1	Dibromochloromethane	ND	10
74-95-3	Dibromomethane	ND	10
75-71-8	Dichlorodifluoromethane	ND	10
60-29-7	Ethyl Ether	ND	10
100-41-4	Ethylbenzene	ND	10
87-68-3	Hexachlorobutadiene	ND	10
98-82-8	Isopropylbenzene	ND	10
108-38-3/106-42-	M/P Xylene	ND	20
1634-04-4	Methyl-t-Butyl Ether	ND	10
75-09-2	Methylene Chloride	ND	10
104-51-8	N-Butylbenzene	ND	10
103-65-1	N-Propylbenzene	ND	10
91-20-3	Naphthalene	ND	10
95-47-6	Ortho Xylene	ND	10
99-87-6	Para-Isopropyltoluene	ND	10
135-98-8	Sec-Butylbenzene	ND	10
100-42-5	Styrene	ND	10
98-06-6	Tert-Butylbenzene	ND	10
127-18-4	Tetrachloroethylene	ND	10
109-99-9	Tetrahydrofuran	ND	10
108-88-3	Toluene	ND	10
156-60-5	Trans-1,2-Dichloroethylene	ND	10
79-01-6	Trichloroethylene	660	10
75-69-4	Trichlorofluoromethane	ND	10
108-05-4	Vinyl Acetate	ND	10
75-01-4	Vinyl Chloride	ND	10
10061-01-5	c-1,3-dichloropropene	ND	10
156-59-2	cis-1,2-Dichloroethylene	11	10
10061-02-6	t-1,3-Dichloropropene	ND	10

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	105	74 - 136
Toluene-D8	92	85 - 118
1,4-Bromofluorobenzene	85	79 - 111

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16623  
Date of Collection: 10/6/2004  
Date of Extraction: 10/12/04  
Date of Analysis: 10/12/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44580  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 2000  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	2000	
71-55-6	1,1,1-Trichloroethane	ND	2000	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2000	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	2000	
79-00-5	1,1,2-Trichloroethane	ND	2000	
75-35-4	1,1-Dichloroethylene	ND	2000	
563-58-6	1,1-Dichloropropene	ND	2000	
75-34-3	1,1-dichloroethane	ND	2000	
87-61-6	1,2,3-Trichlorobenzene	ND	2000	
96-18-4	1,2,3-Trichloropropane	ND	2000	
120-82-1	1,2,4-Trichlorobenzene	ND	2000	
95-63-6	1,2,4-Trimethylbenzene	ND	2000	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	2000	
106-93-4	1,2-Dibromoethane	ND	2000	
95-50-1	1,2-Dichlorobenzene	ND	2000	
107-06-2	1,2-Dichloroethane	ND	2000	
78-87-5	1,2-Dichloropropane	ND	2000	
108-67-8	1,3,5-Trimethylbenzene	ND	2000	
541-73-1	1,3-Dichlorobenzene	ND	2000	
142-28-9	1,3-Dichloropropane	ND	2000	
106-46-7	1,4-Dichlorobenzene	ND	2000	
594-20-7	2,2-Dichloropropane	ND	2000	
78-93-3	2-Butanone (MEK)	ND	2000	
95-49-8	2-Chlorotoluene	ND	2000	
591-78-6	2-Hexanone	ND	2000	
67-64-1	2-Propanone (acetone)	ND	2000	
106-43-4	4-Chlorotoluene	ND	2000	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	2000	
107-13-1	Acrylonitrile	ND	2000	
71-43-2	Benzene	ND	2000	
108-86-1	Bromobenzene	ND	2000	
74-97-5	Bromochloromethane	ND	2000	
75-27-4	Bromodichloromethane	ND	2000	
75-25-2	Bromoform	ND	2000	
74-83-9	Bromomethane	ND	2000	
75-15-0	Carbon Disulfide	ND	2000	
56-23-5	Carbon tetrachloride	ND	2000	
108-90-7	Chlorobenzene	ND	2000	
75-00-3	Chloroethane	ND	2000	
67-66-3	Chloroform	ND	2000	

74-87-3	Chloromethane	ND	2000
124-48-1	Dibromochloromethane	ND	2000
74-95-3	Dibromomethane	ND	2000
75-71-8	Dichlorodifluoromethane	ND	2000
60-29-7	Ethyl Ether	ND	2000
100-41-4	Ethylbenzene	ND	2000
87-68-3	Hexachlorobutadiene	ND	2000
98-82-8	Isopropylbenzene	ND	2000
108-38-3/106-42-	M/P Xylene	ND	4000
1634-04-4	Methyl-t-Butyl Ether	ND	2000
75-09-2	Methylene Chloride	ND	2000
104-51-8	N-Butylbenzene	ND	2000
103-65-1	N-Propylbenzene	ND	2000
91-20-3	Naphthalene	ND	2000
95-47-6	Ortho Xylene	ND	2000
99-87-6	Para-Isopropyltoluene	ND	2000
135-98-8	Sec-Butylbenzene	ND	2000
100-42-5	Styrene	ND	2000
98-06-6	Tert-Butylbenzene	ND	2000
127-18-4	Tetrachloroethylene	ND	2000
109-99-9	Tetrahydrofuran	ND	2000
108-88-3	Toluene	ND	2000
156-60-5	Trans-1,2-Dichloroethylene	ND	2000
79-01-6	Trichloroethylene	80000	2000
75-69-4	Trichlorofluoromethane	ND	2000
108-05-4	Vinyl Acetate	ND	2000
75-01-4	Vinyl Chloride	ND	2000
10061-01-5	c-1,3-dichloropropene	ND	2000
156-59-2	cis-1,2-Dichloroethylene	ND	2000
10061-02-6	t-1,3-Dichloropropene	ND	2000

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	106	74 - 136
Toluene-D8	97	85 - 118
1,4-Bromofluorobenzene	87	79 - 111

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16624  
Date of Collection: 10/6/2004  
Date of Extraction: 10/12/04  
Date of Analysis: 10/12/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44581  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 2000  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	2000	
71-55-6	1,1,1-Trichloroethane	ND	2000	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2000	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	2000	
79-00-5	1,1,2-Trichloroethane	ND	2000	
75-35-4	1,1-Dichloroethylene	ND	2000	
563-58-6	1,1-Dichloropropene	ND	2000	
75-34-3	1,1-dichloroethane	ND	2000	
87-61-6	1,2,3-Trichlorobenzene	ND	2000	
96-18-4	1,2,3-Trichloropropane	ND	2000	
120-82-1	1,2,4-Trichlorobenzene	ND	2000	
95-63-6	1,2,4-Trimethylbenzene	ND	2000	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	2000	
106-93-4	1,2-Dibromoethane	ND	2000	
95-50-1	1,2-Dichlorobenzene	ND	2000	
107-06-2	1,2-Dichloroethane	ND	2000	
78-87-5	1,2-Dichloropropane	ND	2000	
108-67-8	1,3,5-Trimethylbenzene	ND	2000	
541-73-1	1,3-Dichlorobenzene	ND	2000	
142-28-9	1,3-Dichloropropane	ND	2000	
106-46-7	1,4-Dichlorobenzene	ND	2000	
594-20-7	2,2-Dichloropropane	ND	2000	
78-93-3	2-Butanone (MEK)	ND	2000	
95-49-8	2-Chlorotoluene	ND	2000	
591-78-6	2-Hexanone	ND	2000	
67-64-1	2-Propanone (acetone)	ND	2000	
106-43-4	4-Chlorotoluene	ND	2000	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	2000	
107-13-1	Acrylonitrile	ND	2000	
71-43-2	Benzene	ND	2000	
108-86-1	Bromobenzene	ND	2000	
74-97-5	Bromochloromethane	ND	2000	
75-27-4	Bromodichloromethane	ND	2000	
75-25-2	Bromoform	ND	2000	
74-83-9	Bromomethane	ND	2000	
75-15-0	Carbon Disulfide	ND	2000	
56-23-5	Carbon tetrachloride	ND	2000	
108-90-7	Chlorobenzene	ND	2000	
75-00-3	Chloroethane	ND	2000	
67-66-3	Chloroform	ND	2000	

74-87-5	Chloromethane	ND	2000
124-48-1	Dibromochloromethane	ND	2000
74-95-3	Dibromomethane	ND	2000
75-71-8	Dichlorodifluoromethane	ND	2000
60-29-7	Ethyl Ether	ND	2000
100-41-4	Ethylbenzene	ND	2000
87-68-3	Hexachlorobutadiene	ND	2000
98-82-8	Isopropylbenzene	ND	2000
108-38-3/106-42-	M/P Xylene	ND	4000
1634-04-4	Methyl-t-Butyl Ether	ND	2000
75-09-2	Methylene Chloride	ND	2000
104-51-8	N-Butylbenzene	ND	2000
103-65-1	N-Propylbenzene	ND	2000
91-20-3	Naphthalene	ND	2000
95-47-6	Ortho Xylene	ND	2000
99-87-6	Para-Isopropyltoluene	ND	2000
135-98-8	Sec-Butylbenzene	ND	2000
100-42-5	Styrene	ND	2000
98-06-6	Tert-Butylbenzene	ND	2000
127-18-4	Tetrachloroethylene	ND	2000
109-99-9	Tetrahydrofuran	ND	2000
108-88-3	Toluene	ND	2000
156-60-5	Trans-1,2-Dichloroethylene	ND	2000
79-01-6	Trichloroethylene	89000	2000
75-69-4	Trichlorofluoromethane	ND	2000
108-05-4	Vinyl Acetate	ND	2000
75-01-4	Vinyl Chloride	ND	2000
10061-01-5	c-1,3-dichloropropene	ND	2000
156-59-2	cis-1,2-Dichloroethylene	ND	2000
10061-02-6	t-1,3-Dichloropropene	ND	2000

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	103	74 - 136
Toluene-D8	99	85 - 118
1,4-Bromofluorobenzene	89	79 - 111

Comments:

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

Fisherville Mill - Grafton, MA

VOAs in Water

Client Sample ID: D16625  
Date of Collection: 10/6/2004  
Date of Extraction: 10/12/04  
Date of Analysis: 10/12/04  
Dry Weight Extracted: N/A  
Wet Weight Extracted: N/A

Lab Sample ID: AA44582  
Matrix: Water  
Volume Purged: 5 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: <2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
78-93-3	2-Butanone (MEK)	1.5	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	
67-64-1	2-Propanone (acetone)	12	1.0	J
106-43-4	4-Chlorotoluene	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
71-43-2	Benzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
75-25-2	Bromoform	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
67-66-3	Chloroform	ND	1.0	



74-87-3	Chloromethane	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
74-95-3	Dibromomethane	ND	1.0
75-71-8	Dichlorodifluoromethane	ND	1.0
60-29-7	Ethyl Ether	ND	1.0
100-41-4	Ethylbenzene	ND	1.0
87-68-3	Hexachlorobutadiene	ND	1.0
98-82-8	Isopropylbenzene	ND	1.0
108-38-3/106-42-	M/P Xylene	ND	2.0
1634-04-4	Methyl-t-Butyl Ether	ND	1.0
75-09-2	Methylene Chloride	ND	1.0
104-51-8	N-Butylbenzene	ND	1.0
103-65-1	N-Propylbenzene	ND	1.0
91-20-3	Naphthalene	ND	1.0
95-47-6	Ortho Xylene	ND	1.0
99-87-6	Para-Isopropyltoluene	ND	1.0
135-98-8	Sec-Butylbenzene	ND	1.0
100-42-5	Styrene	ND	1.0
98-06-6	Tert-Butylbenzene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
109-99-9	Tetrahydrofuran	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane	ND	1.0
108-05-4	Vinyl Acetate	ND	1.0
75-01-4	Vinyl Chloride	ND	1.0
10061-01-5	c-1,3-dichloropropene	ND	1.0
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-02-6	t-1,3-Dichloropropene	ND	1.0

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	105	74 - 136
Toluene-D8	98	85 - 118
1,4-Bromofluorobenzene	91	79 - 111

Comments: Acetone did not meet the acceptable quality control specifications for continuous calibration and is qualified with a J.

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

VOA MATRIX SPIKE (MS) / MATRIX SPIKE DUPLICATE (MSD) RECOVERY

Fisherville Mill - Grafton, MA

Sample ID: AA44576

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
1,1,1,2-Tetrachloroethane	1000	ND	940	94	70 - 130
1,1,1-Trichloroethane	1000	ND	1100	111	56 - 145
1,1,2,2-Tetrachloroethane	1000	ND	830	83	70 - 130
1,1,2-Trichloro-1,2,2-Trifluoro	1000	ND	980	98	70 - 130
1,1,2-Trichloroethane	1000	ND	900	90	70 - 130
1,1-Dichloroethylene	1000	ND	1200	116	81 - 139
1,1-Dichloropropene	1000	ND	1100	106	70 - 130
1,1-dichloroethane	1000	ND	1100	106	70 - 130
1,2,3-Trichlorobenzene	1000	ND	680	68	70 - 130
1,2,3-Trichloropropane	1000	ND	790	79	70 - 130
1,2,4-Trichlorobenzene	1000	ND	730	73	70 - 130
1,2,4-Trimethylbenzene	1000	ND	1100	107	70 - 130
1,2-Dibromo-3-Chloropropane	1000	ND	560	56	70 - 130
1,2-Dibromoethane	1000	ND	730	73	70 - 130
1,2-Dichlorobenzene	1000	ND	910	91	70 - 130
1,2-Dichloroethane	1000	ND	890	89	68 - 122
1,2-Dichloropropane	1000	ND	900	90	70 - 130
1,3,5-Trimethylbenzene	1000	ND	1100	108	70 - 130
1,3-Dichlorobenzene	1000	ND	920	92	70 - 130
1,3-Dichloropropane	1000	ND	850	85	70 - 130
1,4-Dichlorobenzene	1000	ND	970	97	72 - 118
2,2-Dichloropropane	1000	ND	870	87	70 - 130
2-Butanone (MEK)	1000	ND	820	82	70 - 130
2-Chlorotoluene	1000	ND	1100	108	70 - 130
2-Hexanone	1000	ND	640	64	70 - 130
2-Propanone (acetone)	1000	280	1400	109	70 - 130
4-Chlorotoluene	1000	ND	1100	107	70 - 130
4-Methyl-2-Pentanone(MIBK)	1000	ND	620	62	70 - 130
Acrylonitrile	1000	ND	770	77	70 - 130
Benzene	1000	ND	990	99	85 - 124
Bromobenzene	1000	ND	880	88	70 - 130
Bromochloromethane	1000	ND	980	98	70 - 130
Bromodichloromethane	1000	ND	900	90	64 - 130
Bromoform	1000	ND	620	62	54 - 112
Bromomethane	1000	ND	1200	121	70 - 130
Carbon Disulfide	1000	ND	960	96	70 - 130
Carbon tetrachloride	1000	ND	1100	110	73 - 130
Chlorobenzene	1000	ND	1000	100	70 - 130
Chloroethane	1000	ND	1200	116	70 - 130
Chloroform	1000	ND	1200	118	67 - 134
Chloromethane	1000	ND	960	96	70 - 130
Dibromochloromethane	1000	ND	740	74	58 - 123
Dibromomethane	1000	ND	920	92	70 - 130
Dichlorodifluoromethane	1000	ND	1000	104	70 - 130

Ethyl Ether	1000	ND	980	98	70 - 130
Ethylbenzene	1000	ND	1100	107	70 - 130
Hexachlorobutadiene	1000	ND	860	87	70 - 130
Isopropylbenzene	1000	ND	990	100	70 - 130
M/P Xylene	2000	ND	2100	107	70 - 130
Methyl-t-Butyl Ether	1000	ND	750	75	70 - 130
Methylene Chloride	1000	ND	1100	111	70 - 130
N-Butylbenzene	1000	ND	1100	106	70 - 130
N-Propylbenzene	1000	ND	1000	103	70 - 130
Naphthalene	1000	ND	630	63	70 - 130
Ortho Xylene	1000	ND	1000	103	70 - 130
Para-Isopropyltoluene	1000	ND	990	99	70 - 130
Sec-Butylbenzene	1000	ND	1100	107	70 - 130
Styrene	1000	ND	840	84	70 - 130
Tert-Butylbenzene	1000	ND	990	99	70 - 130
Tetrachloroethylene	1000	ND	940	94	70 - 130
Tetrahydrofuran	1000	ND	870	87	70 - 130
Toluene	1000	ND	1000	104	70 - 130
Trans-1,2-Dichloroethylene	1000	ND	1100	112	70 - 130
Trichloroethylene	1000	650	1700	109	67 - 129
Trichlorofluoromethane	1000	ND	1300	134	70 - 130
Vinyl Acetate	1000	ND	640	64	70 - 130
Vinyl Chloride	1000	98	1200	113	61 - 160
c-1,3-dichloropropene	1000	ND	730	73	70 - 130
cis-1,2-Dichloroethylene	1000	1300	2500	116	70 - 130
t-1,3-Dichloropropene	1000	ND	710	71	70 - 130

Comments:

PARAMETER	MSD SPIKE ADDED	MSD CONCENTRATION ug/L	MSD % REC	RPD %	QC LIMITS RPD
1,1,1,2-Tetrachloroethane	1000	880	88	7	40
1,1,1-Trichloroethane	1000	1100	108	3	16
1,1,2,2-Tetrachloroethane	1000	760	76	8	40
1,1,2-Trichloro-1,2,2-Trif	1000	970	97	2	40
1,1,2-Trichloroethane	1000	810	81	10	40
1,1-Dichloroethylene	1000	1200	115	1	35
1,1-Dichloropropene	1000	1000	102	4	40
1,1-dichloroethane	1000	1100	108	2	40
1,2,3-Trichlorobenzene	1000	670	67	2	40
1,2,3-Trichloropropane	1000	770	77	2	40
1,2,4-Trichlorobenzene	1000	730	73	1	40
1,2,4-Trimethylbenzene	1000	1100	107	0	40
1,2-Dibromo-3-Chloropro	1000	650	65	14	40
1,2-Dibromoethane	1000	760	76	4	40
1,2-Dichlorobenzene	1000	870	87	4	40
1,2-Dichloroethane	1000	880	88	2	23
1,2-Dichloropropane	1000	920	92	2	40
1,3,5-Trimethylbenzene	1000	1100	106	2	40
1,3-Dichlorobenzene	1000	950	95	3	40
1,3-Dichloropropane	1000	840	84	2	40
1,4-Dichlorobenzene	1000	940	94	3	21
2,2-Dichloropropane	1000	870	87	0	40
2-Butanone (MEK)	1000	710	71	14	40
2-Chlorotoluene	1000	1000	101	7	40
2-Hexanone	1000	610	61	4	40
2-Propanone (acetone)	1000	1200	90	19	40
4-Chlorotoluene	1000	1000	105	2	40
4-Methyl-2-Pentanone(M	1000	600	60	4	40
Acrylonitrile	1000	790	79	2	40
Benzene	1000	950	95	4	14
Bromobenzene	1000	880	88	0	40
Bromochloromethane	1000	1000	101	3	40
Bromodichloromethane	1000	870	87	4	21
Bromoform	1000	580	58	5	40
Bromomethane	1000	1200	124	2	40
Carbon Disulfide	1000	910	91	5	40
Carbon tetrachloride	1000	1100	109	1	19
Chlorobenzene	1000	1000	100	0	40
Chloroethane	1000	1200	120	3	40
Chloroform	1000	1100	114	3	16
Chloromethane	1000	1000	103	7	40
Dibromochloromethane	1000	750	75	2	36
Dibromomethane	1000	840	84	9	40
Dichlorodifluoromethane	1000	1000	101	3	40
Ethyl Ether	1000	910	91	8	40
Ethylbenzene	1000	1000	102	5	40
Hexachlorobutadiene	1000	830	83	5	40
Isopropylbenzene	1000	1000	100	1	40
M/P Xylene	2000	2100	104	3	40
Methyl-t-Butyl Ether	1000	730	73	3	40
Methylene Chloride	1000	1100	110	1	40
N-Butylbenzene	1000	1100	109	3	40
N-Propylbenzene	1000	1000	103	0	40

Naphthalene	1000	640	64	1	40
Ortho Xylene	1000	1000	101	2	40
Para-Isopropyltoluene	1000	1000	100	1	40
Sec-Butylbenzene	1000	1100	108	1	40
Styrene	1000	820	82	2	40
Tert-Butylbenzene	1000	1000	100	1	40
Tetrachloroethylene	1000	970	97	3	40
Tetrahydrofuran	1000	850	85	3	40
Toluene	1000	1100	106	2	40
Trans-1,2-Dichloroethyle	1000	1100	111	1	40
Trichloroethylene	1000	1700	109	0	22
Trichlorofluoromethane	1000	1300	132	2	40
Vinyl Acetate	1000	650	65	2	40
Vinyl Chloride	1000	1200	112	1	19
c-1,3-dichloropropene	1000	660	66	11	40
cis-1,2-Dichloroethylene	1000	2500	118	2	40
t-1,3-Dichloropropene	1000	630	63	11	40

Comments:

Samples in Batch: AA44572 AA44573 AA44574 AA44575 AA44576 AA44577 AA44578 AA44579 AA44580  
AA44581 AA44582

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

**Laboratory Duplicate Results**

Fisherville Mill - Grafton, MA

Sample ID: AA44576

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
1,1,1,2-Tetrachloroethane	ND	ND	ND	30
1,1,1-Trichloroethane	ND	ND	ND	30
1,1,2,2-Tetrachloroethane	ND	ND	ND	30
1,1,2-Trichloro-1,2,2-Trifluoroeth	ND	ND	ND	30
1,1,2-Trichloroethane	ND	ND	ND	30
1,1-Dichloroethylene	ND	ND	ND	30
1,1-Dichloropropene	ND	ND	ND	30
1,1-dichloroethane	ND	ND	ND	30
1,2,3-Trichlorobenzene	ND	ND	ND	30
1,2,3-Trichloropropane	ND	ND	ND	30
1,2,4-Trichlorobenzene	ND	ND	ND	30
1,2,4-Trimethylbenzene	ND	ND	ND	30
1,2-Dibromo-3-Chloropropane	ND	ND	ND	30
1,2-Dibromoethane	ND	ND	ND	30
1,2-Dichlorobenzene	ND	ND	ND	30
1,2-Dichloroethane	ND	ND	ND	30
1,2-Dichloropropane	ND	ND	ND	30
1,3,5-Trimethylbenzene	ND	ND	ND	30
1,3-Dichlorobenzene	ND	ND	ND	30
1,3-Dichloropropane	ND	ND	ND	30
1,4-Dichlorobenzene	ND	ND	ND	30
2,2-Dichloropropane	ND	ND	ND	30
2-Butanone (MEK)	ND	ND	ND	30
2-Chlorotoluene	ND	ND	ND	30
2-Hexanone	ND	ND	ND	30
2-Propanone (acetone)	280	130	73.2	30
4-Chlorotoluene	ND	ND	ND	30
4-Methyl-2-Pentanone(MIBK)	ND	ND	ND	30
Acrylonitrile	ND	ND	ND	30
Benzene	ND	ND	ND	30
Bromobenzene	ND	ND	ND	30
Bromochloromethane	ND	ND	ND	30
Bromodichloromethane	ND	ND	ND	30
Bromoform	ND	ND	ND	30
Bromomethane	ND	ND	ND	30
Carbon Disulfide	ND	ND	ND	30
Carbon tetrachloride	ND	ND	ND	30
Chlorobenzene	ND	ND	ND	30
Chloroethane	ND	ND	ND	30
Chloroform	ND	ND	ND	30
Chloromethane	ND	ND	ND	30
Dibromochloromethane	ND	ND	ND	30
Dibromomethane	ND	ND	ND	30
Dichlorodifluoromethane	ND	ND	ND	30
Ethyl Ether	ND	ND	ND	30
Ethylbenzene	ND	ND	ND	30
Hexachlorobutadiene	ND	ND	ND	30
Isopropylbenzene	ND	ND	ND	30
M/P Xylene	ND	ND	ND	30
Methyl-t-Butyl Ether	ND	ND	ND	30
Methylene Chloride	ND	ND	ND	30

n-Butylbenzene	ND	ND	ND	30
N-Propylbenzene	ND	ND	ND	30
Naphthalene	ND	ND	ND	30
Ortho Xylene	ND	ND	ND	30
Para-Isopropyltoluene	ND	ND	ND	30
Sec-Butylbenzene	ND	ND	ND	30
Styrene	ND	ND	ND	30
Tert-Butylbenzene	ND	ND	ND	30
Tetrachloroethylene	ND	ND	ND	30
Tetrahydrofuran	ND	ND	ND	30
Toluene	ND	ND	ND	30
Trans-1,2-Dichloroethylene	ND	ND	ND	30
Trichloroethylene	650	670	3.03	30
Trichlorofluoromethane	ND	ND	ND	30
Vinyl Acetate	ND	ND	ND	30
Vinyl Chloride	98	100	2.02	30
c-1,3-dichloropropene	ND	ND	ND	30
cis-1,2-Dichloroethylene	1300	1400	7.41	30
t-1,3-Dichloropropene	ND	ND	ND	30

US ENVIRONMENTAL PROTECTION AGENCY  
NEW ENGLAND LABORATORY

LABORATORY FORTIFIED BLANK (LFB) AND DUPLICATE (LFB Dup) RECOVERY

Fisherville Mill - Grafton, MA

COMPOUND	SPIKE ADDED ug/mL	LFB CONCENTRATION ug/mL	LFB RECOVERY %	QC LIMITS (% REC)
1,1,1,2-Tetrachloroethane	50	60	120	60 - 140
1,1,1-Trichloroethane	50	71	142	60 - 140
1,1,2,2-Tetrachloroethane	50	49	98	60 - 140
1,1,2-Trichloro-1,2,2-Trifluoroeth	50	54	108	60 - 140
1,1,2-Trichloroethane	50	49	98	60 - 140
1,1-Dichloroethylene	50	63	126	7 - 148
1,1-Dichloropropene	50	61	122	60 - 140
1,1-dichloroethane	50	63	126	60 - 140
1,2,3-Trichlorobenzene	50	44	88	60 - 140
1,2,3-Trichloropropane	50	43	86	60 - 140
1,2,4-Trichlorobenzene	50	46	92	60 - 140
1,2,4-Trimethylbenzene	50	65	130	60 - 140
1,2-Dibromo-3-Chloropropane	50	39	78	60 - 140
1,2-Dibromoethane	50	43	86	60 - 140
1,2-Dichlorobenzene	50	49	98	60 - 140
1,2-Dichloroethane	50	51	102	60 - 140
1,2-Dichloropropane	50	51	102	60 - 140
1,3,5-Trimethylbenzene	50	64	128	60 - 140
1,3-Dichlorobenzene	50	54	108	60 - 140
1,3-Dichloropropane	50	46	92	60 - 140
1,4-Dichlorobenzene	50	53	106	60 - 140
2,2-Dichloropropane	50	70	140	60 - 140
2-Butanone (MEK)	50	56	112	60 - 140
2-Chlorotoluene	50	57	114	60 - 140
2-Hexanone	50	44	88	60 - 140
2-Propanone (acetone)	50	110	220	60 - 140
4-Chlorotoluene	50	59	118	60 - 140
4-Methyl-2-Pentanone(MIBK)	50	40	80	60 - 140
Acrylonitrile	50	46	92	60 - 140
Benzene	50	61	122	39 - 119
Bromobenzene	50	50	100	60 - 140
Bromochloromethane	50	56	112	60 - 140
Bromodichloromethane	50	56	112	60 - 140
Bromoform	50	40	80	60 - 140
Bromomethane	50	63	126	60 - 140
Carbon Disulfide	50	63	126	60 - 140
Carbon tetrachloride	50	67	134	60 - 140
Chlorobenzene	50	58	116	48 - 131
Chloroethane	50	59	118	60 - 140
Chloroform	50	66	132	60 - 140
Chloromethane	50	52	104	60 - 140
Dibromochloromethane	50	51	102	60 - 140
Dibromomethane	50	47	94	60 - 140
Dichlorodifluoromethane	50	54	108	60 - 140
Ethyl Ether	50	54	108	60 - 140
Ethylbenzene	50	61	122	60 - 140
Hexachlorobutadiene	50	53	106	60 - 140
Isopropylbenzene	50	60	120	60 - 140
M/P Xylene	100	120	120	60 - 140
Methyl-t-Butyl Ether	50	45	90	60 - 140



Methylene Chloride	50	60	120	60 - 140
N-Butylbenzene	50	65	130	60 - 140
N-Propylbenzene	50	61	122	60 - 140
Naphthalene	50	43	86	60 - 140
Ortho Xylene	50	61	122	60 - 140
Para-Isopropyltoluene	50	61	122	60 - 140
Sec-Butylbenzene	50	64	128	60 - 140
Styrene	50	52	104	60 - 140
Tert-Butylbenzene	50	61	122	60 - 140
Tetrachloroethylene	50	53	106	60 - 140
Tetrahydrofuran	50	210	420	60 - 140
Toluene	50	60	120	43 - 136
Trans-1,2-Dichloroethylene	50	64	128	60 - 140
Trichloroethylene	50	61	122	37 - 130
Trichlorofluoromethane	50	72	144	60 - 140
Vinyl Acetate	50	46	92	60 - 140
Vinyl Chloride	50	62	124	60 - 140
c-1,3-dichloropropene	50	55	110	60 - 140
cis-1,2-Dichloroethylene	50	63	126	60 - 140
t-1,3-Dichloropropene	50	54	108	60 - 140

COMPOUND	LFB Dup CONCENTRATION ug/L	LFB Dup RECOVERY %	RPD %	QC LIMITS RPD
1,1,1,2-Tetrachloroethane	57	114	6	40
1,1,1-Trichloroethane	60	119	18	16
1,1,2,2-Tetrachloroethane	53	105	7	40
1,1,2-Trichloro-1,2,2-Trifluo	49	98	10	40
1,1,2-Trichloroethane	53	105	7	40
1,1-Dichloroethylene	58	116	8	35
1,1-Dichloropropene	57	113	8	40
1,1-dichloroethane	57	114	10	40
1,2,3-Trichlorobenzene	42	84	4	40
1,2,3-Trichloropropane	48	95	10	40
1,2,4-Trichlorobenzene	44	87	5	40
1,2,4-Trimethylbenzene	60	120	8	40
1,2-Dibromo-3-Chloropropa	38	77	2	40
1,2-Dibromoethane	47	94	9	40
1,2-Dichlorobenzene	51	101	3	40
1,2-Dichloroethane	52	104	2	23
1,2-Dichloropropane	51	102	0	40
1,3,5-Trimethylbenzene	59	118	8	40
1,3-Dichlorobenzene	53	106	2	40
1,3-Dichloropropane	49	98	7	40
1,4-Dichlorobenzene	52	104	2	21
2,2-Dichloropropane	41	82	53	40
2-Butanone (MEK)	53	106	6	40
2-Chlorotoluene	58	117	2	40
2-Hexanone	47	94	7	40
2-Propanone (acetone)	75	149	39	40
4-Chlorotoluene	59	117	1	40
4-Methyl-2-Pentanone(MIB	43	86	8	40
Acrylonitrile	47	93	2	40
Benzene	54	108	12	14
Bromobenzene	52	105	5	40
Bromochloromethane	56	112	0	40
Bromodichloromethane	53	106	6	21
Bromoform	39	79	2	40
Bromomethane	66	132	5	40
Carbon Disulfide	53	105	18	40
Carbon tetrachloride	59	119	12	19
Chlorobenzene	55	110	5	40
Chloroethane	58	116	2	40
Chloroform	61	122	8	16
Chloromethane	54	107	3	40
Dibromochloromethane	49	98	4	36
Dibromomethane	53	105	11	40
Dichlorodifluoromethane	49	97	11	40
Ethyl Ether	56	112	4	40
Ethylbenzene	57	113	8	40
Hexachlorobutadiene	47	94	12	40
Isopropylbenzene	54	109	10	40
M/P Xylene	110	115	4	40
Methyl-t-Butyl Ether	47	93	4	40
Methylene Chloride	58	116	3	40
N-Butylbenzene	59	118	10	40
N-Propylbenzene	57	114	7	40
Naphthalene	47	93	8	40
Ortho Xylene	58	116	5	40
Para-Isopropyltoluene	56	111	9	40
Sec-Butylbenzene	59	117	9	40
Styrene	50	101	3	40
Tert-Butylbenzene	56	111	9	40

Tetrachloroethylene	51	102	4	40
Tetrahydrofuran	55	109	118	40
Toluene	58	115	4	40
Trans-1,2-Dichloroethylene	58	116	10	40
Trichloroethylene	56	111	9	22
Trichlorofluoromethane	63	126	13	40
Vinyl Acetate	44	88	5	40
Vinyl Chloride	56	112	10	19
c-1,3-dichloropropene	46	92	18	40
cis-1,2-Dichloroethylene	59	118	7	40
t-1,3-Dichloropropene	47	93	15	40

Samples in Batch: AA44572 AA44573 AA44574 AA44575 AA44576 AA44577 AA44578  
AA44579 AA44580 AA44581 AA44582

Comments:

## Appendix F

### Summary Table of VOC Analytical Data















