

ALPHA ANALYTICAL LABORATORIES

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MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: ERM-New England Laboratory Job Number: L0505086  
Address: 399 Boylston Street  
6th Floor  
Boston, MA 02116 Date Received: 11-MAY-2005  
Attn: Jeremy Picard Date Reported: 17-MAY-2005  
Project Number: 29675 Delivery Method: Alpha  
Site: NORTH SOURCE AREA-WATERLOO

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The following questions pertain only to MCP Analytical Methods

An affirmative response to questions A,B,C & D is required for "Presumptive Certainty" status

- A. Were all samples received by the laboratory in a condition consistent with those described on their Chain-of-Custody documentation for the data set? YES
- B. Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines? YES
- C. Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? YES
- D. **VPH and EPH methods only:** Was the VPH or EPH method run without significant modifications, as specified in Section 11.3? NA

A response to questions E and F is required for "Presumptive Certainty" status

- E. Were all QC performance standards and recommendations for the specified method(s) achieved? NO
- F. Were results for all analyte-list compounds/elements for the specified method(s) reported? YES

Any answers of NO to the above questions are addressed in the case narrative.

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I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

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Authorized by: Scott McLean  
This document electronically signed

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0505086  
Date Reported: 17-MAY-2005

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ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0505086-01	WP-501-21.0-06	WAYLAND, MA

ALPHA ANALYTICAL LABORATORIES  
NARRATIVE REPORT

Laboratory Job Number: L0505086

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Volatile Organics

L0505086-01 has elevated limits of detection due to the 100x dilutions required by the elevated concentrations of target compounds in the sample.

In reference to question E:

The WG201846-5 LCSD has high recoveries for acetone and 2-butanone.

The WG201846-4/-5 LCS/LCSD % RPD for ether is above acceptable limits.

**ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS**

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

**Laboratory Sample Number:** L0505086-01  
 WP-501-21.0-06  
**Sample Matrix:** WATER  
**Condition of Sample:** Satisfactory  
**Number & Type of Containers:** 2-Vial

**Date Collected:** 10-MAY-2005 14:08  
**Date Received :** 11-MAY-2005  
**Date Reported :** 17-MAY-2005  
**Field Prep:** None

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B				60 8260B	0517 12:54		BT
Methylene chloride	ND	ug/l	500				
1,1-Dichloroethane	ND	ug/l	75.				
Chloroform	ND	ug/l	75.				
Carbon tetrachloride	ND	ug/l	50.				
1,2-Dichloropropane	ND	ug/l	180				
Dibromochloromethane	ND	ug/l	50.				
1,1,2-Trichloroethane	ND	ug/l	75.				
Tetrachloroethene	56.	ug/l	50.				
Chlorobenzene	ND	ug/l	50.				
Trichlorofluoromethane	ND	ug/l	250				
1,2-Dichloroethane	ND	ug/l	50.				
1,1,1-Trichloroethane	ND	ug/l	50.				
Bromodichloromethane	ND	ug/l	50.				
trans-1,3-Dichloropropene	ND	ug/l	50.				
cis-1,3-Dichloropropene	ND	ug/l	50.				
1,1-Dichloropropene	ND	ug/l	250				
Bromoform	ND	ug/l	200				
1,1,2,2-Tetrachloroethane	ND	ug/l	50.				
Benzene	ND	ug/l	50.				
Toluene	ND	ug/l	75.				
Ethylbenzene	ND	ug/l	50.				
Chloromethane	ND	ug/l	250				
Bromomethane	ND	ug/l	100				
Vinyl chloride	ND	ug/l	100				
Chloroethane	ND	ug/l	100				
1,1-Dichloroethene	ND	ug/l	50.				
trans-1,2-Dichloroethene	ND	ug/l	75.				
Trichloroethene	3400	ug/l	50.				
1,2-Dichlorobenzene	ND	ug/l	250				
1,3-Dichlorobenzene	ND	ug/l	250				
1,4-Dichlorobenzene	ND	ug/l	250				
Methyl tert butyl ether	ND	ug/l	100				
p/m-Xylene	ND	ug/l	100				
o-Xylene	ND	ug/l	100				
cis-1,2-Dichloroethene	93.	ug/l	50.				
Dibromomethane	ND	ug/l	500				
1,2,3-Trichloropropane	ND	ug/l	500				
Styrene	ND	ug/l	100				

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES**  
**CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0505086-01  
 WP-501-21.0-06

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				60 8260B	0517 12:54		BT
Dichlorodifluoromethane	ND	ug/l	500				
Acetone	ND	ug/l	500				
Carbon disulfide	ND	ug/l	500				
2-Butanone	ND	ug/l	500				
4-Methyl-2-pentanone	ND	ug/l	500				
2-Hexanone	ND	ug/l	500				
Bromochloromethane	ND	ug/l	250				
Tetrahydrofuran	ND	ug/l	1000				
2,2-Dichloropropane	ND	ug/l	250				
1,2-Dibromoethane	ND	ug/l	200				
1,3-Dichloropropane	ND	ug/l	250				
1,1,1,2-Tetrachloroethane	ND	ug/l	50.				
Bromobenzene	ND	ug/l	250				
n-Butylbenzene	ND	ug/l	50.				
sec-Butylbenzene	ND	ug/l	50.				
tert-Butylbenzene	ND	ug/l	250				
o-Chlorotoluene	ND	ug/l	250				
p-Chlorotoluene	ND	ug/l	250				
1,2-Dibromo-3-chloropropane	ND	ug/l	250				
Hexachlorobutadiene	ND	ug/l	100				
Isopropylbenzene	ND	ug/l	50.				
p-Isopropyltoluene	ND	ug/l	50.				
Naphthalene	ND	ug/l	250				
n-Propylbenzene	ND	ug/l	50.				
1,2,3-Trichlorobenzene	ND	ug/l	250				
1,2,4-Trichlorobenzene	ND	ug/l	250				
1,3,5-Trimethylbenzene	ND	ug/l	250				
1,2,4-Trimethylbenzene	ND	ug/l	250				
Ethyl ether	ND	ug/l	250				
Isopropyl Ether	ND	ug/l	200				
Ethyl-Tert-Butyl-Ether	ND	ug/l	200				
Tertiary-Amyl Methyl Ether	ND	ug/l	200				
1,4-Dioxane	ND	ug/l	25000				
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	123.	%		70-130			
Toluene-d8	103.	%		70-130			
4-Bromofluorobenzene	106.	%		70-130			
Dibromofluoromethane	111.	%		70-130			

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL LABORATORIES**  
**QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS**

Laboratory Job Number: L0505086

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Volatile Organics by MCP 8260B for sample(s) 01 (WG201846-4, WG201846-5)					
Methylene chloride	90	90	0	25	70-130
1,1-Dichloroethane	98	100	2	25	70-130
Chloroform	102	103	1	25	70-130
Carbon tetrachloride	99	103	4	25	70-130
1,2-Dichloropropane	95	97	2	25	70-130
Dibromochloromethane	96	100	4	25	70-130
1,1,2-Trichloroethane	101	105	4	25	70-130
Tetrachloroethene	102	99	3	25	70-130
Chlorobenzene	99	99	0	25	70-130
Trichlorofluoromethane	117	115	2	25	70-130
1,2-Dichloroethane	103	110	7	25	70-130
1,1,1-Trichloroethane	96	102	6	25	70-130
Bromodichloromethane	95	103	8	25	70-130
trans-1,3-Dichloropropene	94	101	7	25	70-130
cis-1,3-Dichloropropene	90	94	4	25	70-130
1,1-Dichloropropene	97	99	2	25	70-130
Bromoform	89	99	11	50	70-130
1,1,2,2-Tetrachloroethane	91	100	9	25	70-130
Benzene	96	97	1	25	70-130
Toluene	101	99	2	25	70-130
Ethylbenzene	104	103	1	25	70-130
Chloromethane	102	102	0	50	70-130
Bromomethane	108	109	1	50	70-130
Vinyl chloride	102	109	7	25	70-130
Chloroethane	102	99	3	25	70-130
1,1-Dichloroethene	98	93	5	25	70-130
trans-1,2-Dichloroethene	99	93	6	25	70-130
Trichloroethene	97	97	0	25	70-130
1,2-Dichlorobenzene	97	98	1	25	70-130
1,3-Dichlorobenzene	98	100	2	25	70-130
1,4-Dichlorobenzene	98	99	1	25	70-130
Methyl tert butyl ether	82	88	7	25	70-130
p/m-Xylene	104	104	0	25	70-130
o-Xylene	104	103	1	25	70-130
cis-1,2-Dichloroethene	98	100	2	25	70-130
Dibromomethane	100	101	1	25	70-130
1,2,3-Trichloropropane	92	99	7	25	70-130
Styrene	96	97	1	25	70-130
Dichlorodifluoromethane	125	125	0	50	70-130
Acetone	129	136	5	50	70-130
Carbon disulfide	96	96	0	25	70-130
2-Butanone	127	132	4	50	70-130
4-Methyl-2-pentanone	88	88	0	50	70-130
2-Hexanone	130	128	2	50	70-130
Bromochloromethane	90	95	5	25	70-130
Tetrahydrofuran	74	86	15	25	70-130
2,2-Dichloropropane	91	96	5	25	70-130
1,2-Dibromoethane	92	97	5	25	70-130

ALPHA ANALYTICAL LABORATORIES  
 QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0505086

Continued

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Volatile Organics by MCP 8260B for sample(s) 01 (WG201846-4, WG201846-5)					
1,3-Dichloropropane	97	101	4	25	70-130
1,1,1,2-Tetrachloroethane	96	100	4	25	70-130
Bromobenzene	99	99	0	25	70-130
n-Butylbenzene	98	96	2	25	70-130
sec-Butylbenzene	100	100	0	25	70-130
tert-Butylbenzene	98	99	1	25	70-130
o-Chlorotoluene	97	98	1	25	70-130
p-Chlorotoluene	97	98	1	25	70-130
1,2-Dibromo-3-chloropropane	89	97	9	50	70-130
Hexachlorobutadiene	100	97	3	25	70-130
Isopropylbenzene	98	97	1	25	70-130
p-Isopropyltoluene	95	95	0	25	70-130
Naphthalene	81	86	6	25	70-130
n-Propylbenzene	100	100	0	25	70-130
1,2,3-Trichlorobenzene	88	94	7	25	70-130
1,2,4-Trichlorobenzene	84	89	6	25	70-130
1,3,5-Trimethylbenzene	100	101	1	25	70-130
1,2,4-Trimethylbenzene	99	103	4	25	70-130
Ethyl ether	80	104	26	25	70-130
Isopropyl Ether	84	88	5	25	70-130
Ethyl-Tert-Butyl-Ether	75	82	9	25	70-130
Tertiary-Amyl Methyl Ether	75	83	10	25	70-130
1,4-Dioxane	76	80	5	50	70-130
Surrogate(s)					
1,2-Dichloroethane-d4	114	114	0		70-130
Toluene-d8	105	102	3		70-130
4-Bromofluorobenzene	96	100	4		70-130
Dibromofluoromethane	103	106	3		70-130

ALPHA ANALYTICAL LABORATORIES  
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0505086

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG201846-6)							
Volatile Organics by MCP 8260B				60 8260B	0517 09:54 BT		
Methylene chloride	ND	ug/l	5.0				
1,1-Dichloroethane	ND	ug/l	0.75				
Chloroform	ND	ug/l	0.75				
Carbon tetrachloride	ND	ug/l	0.50				
1,2-Dichloropropane	ND	ug/l	1.8				
Dibromochloromethane	ND	ug/l	0.50				
1,1,2-Trichloroethane	ND	ug/l	0.75				
Tetrachloroethene	ND	ug/l	0.50				
Chlorobenzene	ND	ug/l	0.50				
Trichlorofluoromethane	ND	ug/l	2.5				
1,2-Dichloroethane	ND	ug/l	0.50				
1,1,1-Trichloroethane	ND	ug/l	0.50				
Bromodichloromethane	ND	ug/l	0.50				
trans-1,3-Dichloropropene	ND	ug/l	0.50				
cis-1,3-Dichloropropene	ND	ug/l	0.50				
1,1-Dichloropropene	ND	ug/l	2.5				
Bromoform	ND	ug/l	2.0				
1,1,2,2-Tetrachloroethane	ND	ug/l	0.50				
Benzene	ND	ug/l	0.50				
Toluene	ND	ug/l	0.75				
Ethylbenzene	ND	ug/l	0.50				
Chloromethane	ND	ug/l	2.5				
Bromomethane	ND	ug/l	1.0				
Vinyl chloride	ND	ug/l	1.0				
Chloroethane	ND	ug/l	1.0				
1,1-Dichloroethene	ND	ug/l	0.50				
trans-1,2-Dichloroethene	ND	ug/l	0.75				
Trichloroethene	ND	ug/l	0.50				
1,2-Dichlorobenzene	ND	ug/l	2.5				
1,3-Dichlorobenzene	ND	ug/l	2.5				
1,4-Dichlorobenzene	ND	ug/l	2.5				
Methyl tert butyl ether	ND	ug/l	1.0				
p/m-Xylene	ND	ug/l	1.0				
o-Xylene	ND	ug/l	1.0				
cis-1,2-Dichloroethene	ND	ug/l	0.50				
Dibromomethane	ND	ug/l	5.0				
1,2,3-Trichloropropane	ND	ug/l	5.0				
Styrene	ND	ug/l	1.0				
Dichlorodifluoromethane	ND	ug/l	5.0				
Acetone	ND	ug/l	5.0				
Carbon disulfide	ND	ug/l	5.0				
2-Butanone	ND	ug/l	5.0				
4-Methyl-2-pentanone	ND	ug/l	5.0				
2-Hexanone	ND	ug/l	5.0				
Bromochloromethane	ND	ug/l	2.5				
Tetrahydrofuran	ND	ug/l	10.				



ALPHA ANALYTICAL LABORATORIES  
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0505086

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG201846-6)							
Volatile Organics by MCP 8260B continued				60 8260B	0517 09:54		BT
2,2-Dichloropropane	ND	ug/l	2.5				
1,2-Dibromoethane	ND	ug/l	2.0				
1,3-Dichloropropane	ND	ug/l	2.5				
1,1,1,2-Tetrachloroethane	ND	ug/l	0.50				
Bromobenzene	ND	ug/l	2.5				
n-Butylbenzene	ND	ug/l	0.50				
sec-Butylbenzene	ND	ug/l	0.50				
tert-Butylbenzene	ND	ug/l	2.5				
o-Chlorotoluene	ND	ug/l	2.5				
p-Chlorotoluene	ND	ug/l	2.5				
1,2-Dibromo-3-chloropropane	ND	ug/l	2.5				
Hexachlorobutadiene	ND	ug/l	1.0				
Isopropylbenzene	ND	ug/l	0.50				
p-Isopropyltoluene	ND	ug/l	0.50				
Naphthalene	ND	ug/l	2.5				
n-Propylbenzene	ND	ug/l	0.50				
1,2,3-Trichlorobenzene	ND	ug/l	2.5				
1,2,4-Trichlorobenzene	ND	ug/l	2.5				
1,3,5-Trimethylbenzene	ND	ug/l	2.5				
1,2,4-Trimethylbenzene	ND	ug/l	2.5				
Ethyl ether	ND	ug/l	2.5				
Isopropyl Ether	ND	ug/l	2.0				
Ethyl-Tert-Butyl-Ether	ND	ug/l	2.0				
Tertiary-Amyl Methyl Ether	ND	ug/l	2.0				
1,4-Dioxane	ND	ug/l	250				
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	125.	%		70-130			
Toluene-d8	104.	%		70-130			
4-Bromofluorobenzene	108.	%		70-130			
Dibromofluoromethane	111.	%		70-130			

**ALPHA ANALYTICAL LABORATORIES  
ADDENDUM I**

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**REFERENCES**

60. Quality Assurance and Quality Control Requirements and Performance Standards for SW-846 Methods. MADEP BWSC. WSC-CAM-IIA (Revision 4), WSC-CAM-V C (Revision 2), WSC-CAM-IIIA (Revision 5). May 2004.

**GLOSSARY OF TERMS AND SYMBOLS**

REF Reference number in which test method may be found.  
METHOD Method number by which analysis was performed.  
ID Initials of the analyst.  
ND Not detected in comparison to the reported detection limit.  
NI Not Ignitable.  
ug/cart Micrograms per Cartridge.

**LIMITATION OF LIABILITIES**

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

ALPHA ANALYTICAL LABORATORIES  
LOGIN SPECIFIC INFORMATION

Laboratory Job Number: L0505086

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Were project specific reporting limits specified? YES

**Cooler Information**

Cooler	Custody Seal
A	Absent

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**Container Information**

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0505086-01A	Vial HCl preserved	A	NA	1.9C	Y	Absent	MCP-8260-04
L0505086-01B	Vial HCl preserved	A	NA	1.9C	Y	Absent	MCP-8260-04

**Container Comments**

Container ID	Comments
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