

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: L0504023  
Address: 399 Boylston Street  
6th Floor  
Boston, MA 02116 Date Received: 14-APR-2005  
Attn: Jeremy Picard Date Reported: 20-APR-2005  
Project Number: 28047 Delivery Method: Alpha  
Site: RAYTHEON WAYLAND

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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? NO

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: James Todaro  
This document electronically signed

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0504023

Date Reported: 20-APR-2005

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ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0504023-01	MW-221D-20050413-01	WAYLAND, MA
L0504023-02	MW-217S-20050413-01	WAYLAND, MA
L0504023-03	MW-217D-20050413-01	WAYLAND, MA
L0504023-04	MW-219D-20050413-01	WAYLAND, MA

ALPHA ANALYTICAL LABORATORIES  
NARRATIVE REPORT

Laboratory Job Number: L0504023

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Report Submission

In reference to question F, the samples were analyzed only for the compounds specified on the chain of custody.

Volatile Organics

In reference to question E:

The WG199531-2 LCSD has low % recoveries for 1,1,2,2-tetrachloroethane, 4-methyl-2-pentanone and 1,2-dibromo-3-chloropropane.



**ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0504023-01  
MW-221D-20050413-01

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				60 8260B	0419 00:34		SE
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	106.	%		70-130			
Toluene-d8	97.0	%		70-130			
4-Bromofluorobenzene	106.	%		70-130			
Dibromofluoromethane	102.	%		70-130			

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



**ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0504023-02  
MW-217S-20050413-01

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				60 8260B	0419 01:10		SE
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	108.	%		70-130			
Toluene-d8	99.0	%		70-130			
4-Bromofluorobenzene	101.	%		70-130			
Dibromofluoromethane	102.	%		70-130			

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





**ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0504023-03  
MW-217D-20050413-01

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				60 8260B	0419 01:46		SE
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	113.	%		70-130			
Toluene-d8	100.	%		70-130			
4-Bromofluorobenzene	101.	%		70-130			
Dibromofluoromethane	106.	%		70-130			

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

**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:	L0504023-04	Date Collected:	13-APR-2005 16:55
	MW-219D-20050413-01	Date Received :	14-APR-2005
Sample Matrix:	WATER	Date Reported :	20-APR-2005
Condition of Sample:	Satisfactory	Field Prep:	None
Number & Type of Containers: 2-Vial			

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP    ANAL	ID
Volatile Organics by MCP 8260B				60 8260B	0419 02:21 SE	
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			
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			
Bromoform	ND	ug/l	2.0			
1,1,2,2-Tetrachloroethane	ND	ug/l	0.50			
Benzene	ND	ug/l	0.50			
Chloromethane	ND	ug/l	2.5			
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	4.1	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			
cis-1,2-Dichloroethene	ND	ug/l	0.50			
Dichlorodifluoromethane	ND	ug/l	5.0			
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			
o-Chlorotoluene	ND	ug/l	2.5			
p-Chlorotoluene	ND	ug/l	2.5			
Hexachlorobutadiene	ND	ug/l	1.0			
1,2,4-Trichlorobenzene	ND	ug/l	2.5			

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

**ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0504023-04  
MW-219D-20050413-01

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				60 8260B	0419 02:21		SE
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	105.	%		70-130			
Toluene-d8	97.0	%		70-130			
4-Bromofluorobenzene	101.	%		70-130			
Dibromofluoromethane	101.	%		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: L0504023

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Volatile Organics by MCP 8260B for sample(s) 01-04 (WG199531-1, WG199531-2)					
Methylene chloride	89	85	5	25	70-130
1,1-Dichloroethane	79	79	0	25	70-130
Chloroform	92	86	7	25	70-130
Carbon tetrachloride	105	94	11	25	70-130
1,2-Dichloropropane	88	82	7	25	70-130
Dibromochloromethane	78	74	5	25	70-130
1,1,2-Trichloroethane	77	73	5	25	70-130
Tetrachloroethene	94	86	9	25	70-130
Chlorobenzene	86	80	7	25	70-130
Trichlorofluoromethane	104	90	14	25	70-130
1,2-Dichloroethane	92	88	4	25	70-130
1,1,1-Trichloroethane	102	93	9	25	70-130
Bromodichloromethane	82	78	5	25	70-130
trans-1,3-Dichloropropene	77	73	5	25	70-130
cis-1,3-Dichloropropene	81	79	3	25	70-130
1,1-Dichloropropene	97	89	9	25	70-130
Bromoform	78	74	5	50	70-130
1,1,2,2-Tetrachloroethane	77	68	12	25	70-130
Benzene	94	86	9	25	70-130
Toluene	86	79	8	25	70-130
Ethylbenzene	88	80	10	25	70-130
Chloromethane	88	79	11	50	70-130
Bromomethane	78	88	12	50	70-130
Vinyl chloride	101	90	12	25	70-130
Chloroethane	87	83	5	25	70-130
1,1-Dichloroethene	96	87	10	25	70-130
trans-1,2-Dichloroethene	94	89	5	25	70-130
Trichloroethene	94	86	9	25	70-130
1,2-Dichlorobenzene	85	79	7	25	70-130
1,3-Dichlorobenzene	89	82	8	25	70-130
1,4-Dichlorobenzene	86	80	7	25	70-130
Methyl tert butyl ether	74	74	0	25	70-130
p/m-Xylene	86	80	7	25	70-130
o-Xylene	87	79	10	25	70-130
cis-1,2-Dichloroethene	90	86	5	25	70-130
Dibromomethane	91	83	9	25	70-130
1,2,3-Trichloropropane	80	72	11	25	70-130
Styrene	84	78	7	25	70-130
Dichlorodifluoromethane	80	73	9	50	70-130
Acetone	86	76	12	50	70-130
Carbon disulfide	89	83	7	25	70-130
2-Butanone	83	70	17	50	70-130
4-Methyl-2-pentanone	72	60	18	50	70-130
2-Hexanone	84	71	17	50	70-130
Bromochloromethane	98	90	9	25	70-130
Tetrahydrofuran	95	74	25	25	70-130
2,2-Dichloropropane	78	80	3	25	70-130
1,2-Dibromoethane	80	77	4	25	70-130

ALPHA ANALYTICAL LABORATORIES  
 QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0504023

Continued

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Volatile Organics by MCP 8260B for sample(s) 01-04 (WG199531-1, WG199531-2)					
1,3-Dichloropropane	77	73	5	25	70-130
1,1,1,2-Tetrachloroethane	84	77	9	25	70-130
Bromobenzene	93	82	13	25	70-130
n-Butylbenzene	88	81	8	25	70-130
sec-Butylbenzene	84	76	10	25	70-130
tert-Butylbenzene	87	79	10	25	70-130
o-Chlorotoluene	88	81	8	25	70-130
p-Chlorotoluene	84	78	7	25	70-130
1,2-Dibromo-3-chloropropane	74	67	10	50	70-130
Hexachlorobutadiene	90	80	12	25	70-130
Isopropylbenzene	86	79	8	25	70-130
p-Isopropyltoluene	86	80	7	25	70-130
Naphthalene	84	82	2	25	70-130
n-Propylbenzene	86	75	14	25	70-130
1,2,3-Trichlorobenzene	95	90	5	25	70-130
1,2,4-Trichlorobenzene	92	87	6	25	70-130
1,3,5-Trimethylbenzene	87	78	11	25	70-130
1,2,4-Trimethylbenzene	84	78	7	25	70-130
Ethyl ether	85	86	1	25	70-130
Isopropyl Ether	87	82	6	25	70-130
Ethyl-Tert-Butyl-Ether	85	80	6	25	70-130
Tertiary-Amyl Methyl Ether	82	78	5	25	70-130
1,4-Dioxane	90	90	0	50	70-130
Surrogate(s)					
1,2-Dichloroethane-d4	105	107	2		70-130
Toluene-d8	98	97	1		70-130
4-Bromofluorobenzene	101	104	3		70-130
Dibromofluoromethane	103	102	1		70-130

ALPHA ANALYTICAL LABORATORIES  
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0504023

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-04 (WG199531-3)							
Volatile Organics by MCP 8260B				60 8260B	0418 17:19 SE		
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	0.50				
o-Xylene	ND	ug/l	0.50				
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	0.50				
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: L0504023

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-04 (WG199531-3)							
Volatile Organics by MCP 8260B continued				60 8260B	0418 17:19 SE		
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	100.	%		70-130			
Toluene-d8	97.0	%		70-130			
4-Bromofluorobenzene	103.	%		70-130			
Dibromofluoromethane	96.0	%		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: L0504023

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Were project specific reporting limits specified? YES

**Cooler Information**

Cooler	Custody Seal
A	Absent
B	Absent

**Container Information**

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0504023-01A	Vial HCl preserved	B	N/A	0.3 C	Y	Absent	MCP-8260-04
L0504023-01B	Vial HCl preserved	B	N/A	0.3 C	Y	Absent	MCP-8260-04
L0504023-02A	Vial HCl preserved	B	N/A	0.3 C	Y	Absent	MCP-8260-04
L0504023-02B	Vial HCl preserved	B	N/A	0.3 C	Y	Absent	MCP-8260-04
L0504023-03A	Vial HCl preserved	B	N/A	0.3 C	Y	Absent	MCP-8260-04
L0504023-03B	Vial HCl preserved	B	N/A	0.3 C	Y	Absent	MCP-8260-04
L0504023-04A	Vial HCl preserved	B	N/A	0.3 C	Y	Absent	MCP-8260-04
L0504023-04B	Vial HCl preserved	B	N/A	0.3 C	Y	Absent	MCP-8260-04

**Container Comments**

Container ID	Comments
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