

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: L0408117  
Address: 399 Boylston Street  
6th Floor  
Boston, MA 02116 Date Received: 23-JUL-2004  
Attn: Jeremy Picard Date Reported: 30-JUL-2004  
Project Number: 13606.03 Delivery Method: Alpha  
Site: RAYTHEON

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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: Scott McLean  
This document electronically signed

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0408117  
Date Reported: 30-JUL-2004

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ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0408117-01	MW-205D	WAYLAND, MA
L0408117-02	MW-205M	WAYLAND, MA
L0408117-03	MW-205S	WAYLAND, MA
L0408117-04	MW-208S	WAYLAND, MA

ALPHA ANALYTICAL LABORATORIES  
NARRATIVE REPORT

Laboratory Job Number: L0408117

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MCP Related Narratives

Report Submission

In reference to question F, at the client's request, the samples were analyzed only for the compounds specified on the chain of custody.

Volatile Organics

L0408117-02 has elevated limits of detection due to the 5x dilutions required by the elevated concentrations of target compounds in the sample.

In reference to question E, the LCS/LCSD % recoveries for Hexachlorobutadiene are above the acceptance criteria for the method.

**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

<b>Laboratory Sample Number:</b> L0408117-01	<b>Date Collected:</b> 22-JUL-2004 10:40
MW-205D	<b>Date Received :</b> 23-JUL-2004
<b>Sample Matrix:</b> WATER	<b>Date Reported :</b> 30-JUL-2004
<b>Condition of Sample:</b> Satisfactory	<b>Field Prep:</b> None
<b>Number &amp; Type of Containers:</b> 2-Vial	

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP    ANAL	ID
Volatile Organics by MCP 8260B				60 8260B	0730 00:23 RY	
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	9.2	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	2.9	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: L0408117-01  
 MW-205D

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				60 8260B	0730 00:23		RY
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	113.	%		70-130			
Toluene-d8	100.	%		70-130			
4-Bromofluorobenzene	104.	%		70-130			
Dibromofluoromethane	107.	%		70-130			

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



ALPHA ANALYTICAL LABORATORIES  
 CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0408117-02  
 MW-205M

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				60 8260B	0730 00:59 RY		
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	112.	%		70-130			
Toluene-d8	99.0	%		70-130			
4-Bromofluorobenzene	102.	%		70-130			
Dibromofluoromethane	105.	%		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

<b>Laboratory Sample Number:</b> L0408117-03	<b>Date Collected:</b> 22-JUL-2004 13:00
MW-205S	<b>Date Received :</b> 23-JUL-2004
<b>Sample Matrix:</b> WATER	<b>Date Reported :</b> 30-JUL-2004
<b>Condition of Sample:</b> Satisfactory	<b>Field Prep:</b> None
<b>Number &amp; Type of Containers:</b> 2-Vial	

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B				60 8260B	0730 01:34		RY
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	1.9	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	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				
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: L0408117-03  
 MW-205S

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				60 8260B	0730 01:34		RY
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	114.	%		70-130			
Toluene-d8	99.0	%		70-130			
4-Bromofluorobenzene	105.	%		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

<b>Laboratory Sample Number:</b> L0408117-04	<b>Date Collected:</b> 22-JUL-2004 15:00
MW-208S	<b>Date Received :</b> 23-JUL-2004
<b>Sample Matrix:</b> WATER	<b>Date Reported :</b> 30-JUL-2004
<b>Condition of Sample:</b> Satisfactory	<b>Field Prep:</b> None
<b>Number &amp; Type of Containers:</b> 2-Vial	

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Volatile Organics by MCP 8260B				60 8260B	0730 02:10 RY	
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	6.2	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	6.6	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: L0408117-04  
 MW-208S

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				60 8260B	0730 02:10		RY
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	115.	%		70-130			
Toluene-d8	98.0	%		70-130			
4-Bromofluorobenzene	105.	%		70-130			
Dibromofluoromethane	107.	%		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: L0408117

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Volatile Organics by MCP 8260B for sample(s) 01-04 (WG176764-4, WG176764)					
Methylene chloride	93	87	7	25	70-130
1,1-Dichloroethane	92	92	0	25	70-130
Chloroform	93	93	0	25	70-130
Carbon tetrachloride	88	92	4	25	70-130
1,2-Dichloropropane	88	90	2	25	70-130
Dibromochloromethane	80	83	4	25	70-130
1,1,2-Trichloroethane	88	92	4	25	70-130
Tetrachloroethene	100	106	6	25	70-130
Chlorobenzene	90	94	4	25	70-130
1,2-Dichloroethane	96	93	3	25	70-130
1,1,1-Trichloroethane	94	94	0	25	70-130
Bromodichloromethane	91	92	1	25	70-130
trans-1,3-Dichloropropene	78	81	4	25	70-130
cis-1,3-Dichloropropene	87	87	0	25	70-130
Bromoform	81	89	9	50	70-130
1,1,2,2-Tetrachloroethane	87	90	3	25	70-130
Benzene	90	89	1	25	70-130
Chloromethane	104	107	3	50	70-130
Vinyl chloride	95	107	12	25	70-130
Chloroethane	97	110	13	25	70-130
1,1-Dichloroethene	86	86	0	25	70-130
trans-1,2-Dichloroethene	86	87	1	25	70-130
Trichloroethene	91	89	2	25	70-130
1,2-Dichlorobenzene	90	94	4	25	70-130
1,3-Dichlorobenzene	89	94	5	25	70-130
1,4-Dichlorobenzene	88	92	4	25	70-130
Methyl tert butyl ether	112	106	6	25	70-130
cis-1,2-Dichloroethene	91	90	1	25	70-130
Dichlorodifluoromethane	120	120	0	50	70-130
1,2-Dibromoethane	86	88	2	25	70-130
1,3-Dichloropropane	87	88	1	25	70-130
1,1,1,2-Tetrachloroethane	87	93	7	25	70-130
o-Chlorotoluene	94	98	4	25	70-130
p-Chlorotoluene	90	94	4	25	70-130
Hexachlorobutadiene	136	146	7	25	70-130
1,2,4-Trichlorobenzene	86	91	6	25	70-130
Surrogate(s)					
1,2-Dichloroethane-d4	106	99	7		70-130
Toluene-d8	100	99	1		70-130
4-Bromofluorobenzene	97	96	1		70-130
Dibromofluoromethane	104	102	2		70-130

ALPHA ANALYTICAL LABORATORIES  
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0408117

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Blank Analysis for sample(s) 01-04 (WG176764-6)						
Volatile Organics by MCP 8260B				60 8260B	0729 22:36	RY
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	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			
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			
Surrogate(s)	Recovery		QC Criteria			
1,2-Dichloroethane-d4	112.	%	70-130			
Toluene-d8	99.0	%	70-130			
4-Bromofluorobenzene	104.	%	70-130			
Dibromofluoromethane	106.	%	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.

Please note that all solid samples are reported on dry weight basis unless noted otherwise.

**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: L0408117

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Were project specific reporting limits specified? NO

**Cooler Information**

Cooler            Custody Seal

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A                Absent

**Container Information**

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0408117-01A	Vial HCl preserved	A	N/A	1.6C	Y	Absent	MCP-8260-04
L0408117-01B	Vial HCl preserved	A	N/A	1.6C	Y	Absent	MCP-8260-04
L0408117-02A	Vial HCl preserved	A	N/A	1.6C	Y	Absent	MCP-8260-04
L0408117-02B	Vial HCl preserved	A	N/A	1.6C	Y	Absent	MCP-8260-04
L0408117-03A	Vial HCl preserved	A	N/A	1.6C	Y	Absent	MCP-8260-04
L0408117-03B	Vial HCl preserved	A	N/A	1.6C	Y	Absent	MCP-8260-04
L0408117-04A	Vial HCl preserved	A	N/A	1.6C	Y	Absent	MCP-8260-04
L0408117-04B	Vial HCl preserved	A	N/A	1.6C	Y	Absent	MCP-8260-04

**Container Comments**

Container ID    Comments

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