

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alphalab.com

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: L0309846
Address: 399 Boylston Street
6th Floor
Boston, MA 02116 Date Received: 01-OCT-2003
Attn: J. Picard Date Reported: 09-OCT-2003
Project Number: 1922.07.02 Delivery Method: Alpha
Site: RAYTHEON

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.

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.

Authorized by: Scott McLean
This document electronically signed

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0309846
Date Reported: 09-OCT-2003

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0309846-01	MW-41	WAYLAND
L0309846-02	HA-101	WAYLAND

ALPHA ANALYTICAL LABORATORIES
NARRATIVE REPORT

Laboratory Job Number: L0309846

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

In reference to question E, the LCS % recovery for Bromomethane at 55% is below the acceptance criteria required for the method. This analyte is considered to be a difficult analyte, therefore no further action was taken.

In reference to question E, the LCS % recovery for Acetone at 133% is above acceptance criteria. The associated sample is ND for the above mentioned compound.

**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: L0309846-01	Date Collected: 01-OCT-2003 14:35
	Date Received : 01-OCT-2003
Sample Matrix: MW-41 WATER	Date Reported : 09-OCT-2003
Condition of Sample: Satisfactory	Field Prep: Field Filtered
Number & Type of Containers: 1-Plastic,2-Vial	

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Dissolved Metals						
Arsenic, Dissolved	ND	mg/l	0.010	54 6010B	1002 10:30 1003 18:06	MG
Volatile Organics by MCP 8260B				54 8260B	1005 12:33	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			
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			
Bromoform	ND	ug/l	2.0			
1,1,2,2-Tetrachloroethane	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			
cis-1,2-Dichloroethene	ND	ug/l	0.50			
Dichlorodifluoromethane	ND	ug/l	5.0			
1,2-Dibromoethane	ND	ug/l	2.5			
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	2.5			
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: L0309846-01
MW-41

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				54 8260B	1005 12:33		BT
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	95.0	%		70-130			
Toluene-d8	91.0	%		70-130			
4-Bromofluorobenzene	97.0	%		70-130			
Dibromofluoromethane	93.0	%		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: L0309846-02
 HA-101
Sample Matrix: WATER

Condition of Sample: Satisfactory

Number & Type of Containers: 1-Plastic

Date Collected: 01-OCT-2003 16:05
Date Received : 01-OCT-2003
Date Reported : 09-OCT-2003

Field Prep: Field Filtered

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	

Dissolved Metals							
Arsenic, Dissolved	0.088	mg/l	0.010	54 6010B	1002 10:30	1003 18:11	MG

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

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0309846

Parameter	% Recovery	QC Criteria
Dissolved Metals LCS for sample(s) 01-02 (WG152317)		
Arsenic, Dissolved	108	80-120
Volatile Organics by MCP 8260B LCS for sample(s) 01 (WG152436)		
Methylene chloride	82	70-130
1,1-Dichloroethane	96	70-130
Chloroform	95	70-130
Carbon tetrachloride	100	70-130
1,2-Dichloropropane	98	70-130
Dibromochloromethane	90	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	96	70-130
Chlorobenzene	96	70-130
Trichlorofluoromethane	102	70-130
1,2-Dichloroethane	99	70-130
1,1,1-Trichloroethane	101	70-130
Bromodichloromethane	95	70-130
trans-1,3-Dichloropropene	86	70-130
cis-1,3-Dichloropropene	91	70-130
1,1-Dichloropropene	96	70-130
Bromoform	90	70-130
1,1,2,2-Tetrachloroethane	100	70-130
Benzene	87	70-130
Toluene	95	70-130
Ethylbenzene	98	70-130
Chloromethane	85	70-130
Bromomethane	55	70-130
Vinyl chloride	92	70-130
Chloroethane	96	70-130
1,1-Dichloroethene	93	70-130
trans-1,2-Dichloroethene	93	70-130
Trichloroethene	98	70-130
1,2-Dichlorobenzene	93	70-130
1,3-Dichlorobenzene	93	70-130
1,4-Dichlorobenzene	95	70-130
Methyl tert butyl ether	98	70-130
p/m-Xylene	97	70-130
o-Xylene	97	70-130
cis-1,2-Dichloroethene	100	70-130
Dibromomethane	100	70-130
1,2,3-Trichloropropane	98	70-130
Styrene	99	70-130
Dichlorodifluoromethane	91	70-130
Acetone	133	70-130
Carbon disulfide	90	70-130
2-Butanone	110	70-130
4-Methyl-2-pentanone	95	70-130
2-Hexanone	91	70-130
Bromochloromethane	99	70-130

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0309846

Continued

Parameter	% Recovery	QC Criteria
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Volatile Organics by MCP 8260B LCS for sample(s) 01 (WG152436)

Tetrahydrofuran	94	70-130
2,2-Dichloropropane	101	70-130
1,2-Dibromoethane	99	70-130
1,3-Dichloropropane	98	70-130
1,1,1,2-Tetrachloroethane	98	70-130
Bromobenzene	95	70-130
n-Butylbenzene	89	70-130
sec-Butylbenzene	93	70-130
tert-Butylbenzene	94	70-130
o-Chlorotoluene	95	70-130
p-Chlorotoluene	93	70-130
1,2-Dibromo-3-chloropropane	95	70-130
Hexachlorobutadiene	93	70-130
Isopropylbenzene	91	70-130
p-Isopropyltoluene	93	70-130
Naphthalene	75	70-130
n-Propylbenzene	94	70-130
1,2,3-Trichlorobenzene	89	70-130
1,2,4-Trichlorobenzene	90	70-130
1,3,5-Trimethylbenzene	95	70-130
1,2,4-Trimethylbenzene	98	70-130
Ethyl ether	95	70-130
Isopropyl Ether	89	70-130
Ethyl-Tert-Butyl-Ether	90	70-130
Tertiary-Amyl Methyl Ether	93	70-130
1,4-Dioxane	112	70-130
Surrogate(s)		
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	98	70-130
Dibromofluoromethane	100	70-130

**ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS**

Laboratory Job Number: L0309846

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
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Blank Analysis for sample(s) 01-02 (WG152317-1)

Dissolved Metals

Arsenic, Dissolved	ND	mg/l	0.010	54 6010B	1002 10:30 1003 17:10	MG
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Blank Analysis for sample(s) 01 (WG152436-8)

Volatile Organics by MCP 8260B

				54 8260B	1005 11:47	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	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			

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0309846

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG152436-8)							
Volatile Organics by MCP 8260B continued				54 8260B		1005 11:47	BT
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.				
2,2-Dichloropropane	ND	ug/l	2.5				
1,2-Dibromoethane	ND	ug/l	2.5				
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	2.5				
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	94.0	%		70-130			
Toluene-d8	91.0	%		70-130			
4-Bromofluorobenzene	95.0	%		70-130			
Dibromofluoromethane	90.0	%		70-130			

**ALPHA ANALYTICAL LABORATORIES
ADDENDUM I**

REFERENCES

54. Compendium of Quality Assurance and Quality Control Requirements and Performance Standards for Selected Analytical Methods. MADEP BWSC. Final Methods. May 2003.

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: L0309846

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0309846-01A	Vial HCl preserved				Y	Absent	MCP-8260
L0309846-01B	Vial HCl preserved				Y	Absent	MCP-8260
L0309846-01C	Plastic 250ml HNO3 preserved	A	<2	1.3 C	Y	Absent	AS-SI
L0309846-02C	Plastic 250ml HNO3 preserved	A	<2	1.3 C	Y	Absent	AS-SI

Container Comments

Container ID Comments

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA Job #: **20309846**

Date Rec'd in Lab: **10/11**

ALPHA
 Eight Walkup Drive Westborough, MA 01581
 TEL: 508-898-9220 FAX: 508-898-9193

Project Information

Project Name: **Raytheon**

Project Location: **Wayland**

Project #: **1988-07-02**

Project Manager: **Jeremy Picard**

ALPHA Quote #:

Turn-Around Time

Report Information - Data Deliverables

FAX EMAIL

Add'l Deliverables **and copy**

Billing Information

Same as Client info

PO #:

Regulatory Requirements/Report Limits

State / Fed Program

Criteria

MCP PRESUMPTIVE CERTAINTY - THESE QUESTIONS MUST BE ANSWERED

- Yes No Are MCP Analytical Methods Required?
- Yes No Are Drinking Water Samples Submitted?
- Yes No Have you met minimum field QC requirements?

Standard RUSH (only confirmed if pre-approved)

Date Due: **10/8** Time:

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Samplers' Initials	ANALYSIS	SAMPLE HANDLING
9846-1	MW-41	10/1/03	1435	MW	VZ	8021C	Filtration <input type="checkbox"/> Done <input type="checkbox"/> Not needed <input type="checkbox"/> Lab to do <input type="checkbox"/> Preservation <input type="checkbox"/> Lab to do <input type="checkbox"/> (Please specify below)
2	HA-101	10/1/03	1605	MW	VZ		

TOTAL # BOTTLES

3

to be filtered w/ 0.45 micron filter

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT MCP?

Container Type **VP**

Preservative **BC**

Relinquished By:

Date/Time

Date/Time

John Z...
 10/1/03 1718
 10/1/03 1505

Steve W...
 10/1/03 1715
 10/1/02 1505

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.