

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: L0309850
Address: 399 Boylston Street
6th Floor
Boston, MA 02116 Date Received: 01-OCT-2003
Attn: J. Picard Date Reported: 08-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: Ellen M. Collins
This document electronically signed

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0309850

Date Reported: 08-OCT-2003

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0309850-01	MW-261S	WAYLAND

ALPHA ANALYTICAL LABORATORIES
NARRATIVE REPORT

Laboratory Job Number: L0309850

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 % recoveries for Bromomethane at 40%, and Naphthalene at 64% are below acceptance criteria.

In reference to question E, the LCS % recovery for Acetone at 147% is above acceptance criteria. The associated sample is ND for the above mentioned compound.

L0309850-01 has an elevated limit of detection due to the dilutions required by the elevated concentrations of target compounds in the sample.

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0309850-01
MW-261S

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				54 8260B	1003 21:53		BT
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	88.0	%		70-130			
Toluene-d8	86.0	%		70-130			
4-Bromofluorobenzene	92.0	%		70-130			
Dibromofluoromethane	85.0	%		70-130			

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

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0309850

Parameter	% Recovery	QC Criteria
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Volatile Organics by MCP 8260B LCS for sample(s) 01 (WG152263)		
Methylene chloride	82	70-130
1,1-Dichloroethane	97	70-130
Chloroform	93	70-130
Carbon tetrachloride	98	70-130
1,2-Dichloropropane	97	70-130
Dibromochloromethane	99	70-130
1,1,2-Trichloroethane	108	70-130
Tetrachloroethene	98	70-130
Chlorobenzene	102	70-130
Trichlorofluoromethane	102	70-130
1,2-Dichloroethane	96	70-130
1,1,1-Trichloroethane	98	70-130
Bromodichloromethane	96	70-130
trans-1,3-Dichloropropene	91	70-130
cis-1,3-Dichloropropene	91	70-130
1,1-Dichloropropene	94	70-130
Bromoform	105	70-130
1,1,2,2-Tetrachloroethane	120	70-130
Benzene	86	70-130
Toluene	97	70-130
Ethylbenzene	101	70-130
Chloromethane	90	70-130
Bromomethane	40	70-130
Vinyl chloride	98	70-130
Chloroethane	96	70-130
1,1-Dichloroethene	92	70-130
trans-1,2-Dichloroethene	93	70-130
Trichloroethene	96	70-130
1,2-Dichlorobenzene	104	70-130
1,3-Dichlorobenzene	101	70-130
1,4-Dichlorobenzene	102	70-130
Methyl tert butyl ether	102	70-130
p/m-Xylene	101	70-130
o-Xylene	102	70-130
cis-1,2-Dichloroethene	98	70-130
Dibromomethane	99	70-130
1,2,3-Trichloropropane	111	70-130
Styrene	106	70-130
Dichlorodifluoromethane	102	70-130
Acetone	147	70-130
Carbon disulfide	91	70-130
2-Butanone	128	70-130
4-Methyl-2-pentanone	102	70-130
2-Hexanone	111	70-130
Bromochloromethane	99	70-130
Tetrahydrofuran	98	70-130
2,2-Dichloropropane	96	70-130
1,2-Dibromoethane	105	70-130

ALPHA ANALYTICAL LABORATORIES
 QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0309850

Continued

Parameter	% Recovery	QC Criteria
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Volatile Organics by MCP 8260B LCS for sample(s) 01 (WG152263)

1,3-Dichloropropane	103	70-130
1,1,1,2-Tetrachloroethane	107	70-130
Bromobenzene	103	70-130
n-Butylbenzene	90	70-130
sec-Butylbenzene	99	70-130
tert-Butylbenzene	100	70-130
o-Chlorotoluene	102	70-130
p-Chlorotoluene	101	70-130
1,2-Dibromo-3-chloropropane	108	70-130
Hexachlorobutadiene	101	70-130
Isopropylbenzene	96	70-130
p-Isopropyltoluene	98	70-130
Naphthalene	64	70-130
n-Propylbenzene	99	70-130
1,2,3-Trichlorobenzene	91	70-130
1,2,4-Trichlorobenzene	92	70-130
1,3,5-Trimethylbenzene	101	70-130
1,2,4-Trimethylbenzene	103	70-130
Ethyl ether	99	70-130
Isopropyl Ether	91	70-130
Ethyl-Tert-Butyl-Ether	92	70-130
Tertiary-Amyl Methyl Ether	97	70-130
1,4-Dioxane	105	70-130
Surrogate(s)		
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	94	70-130
Dibromofluoromethane	92	70-130

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0309850

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG152263-8)							
Volatile Organics by MCP 8260B				54 8260B		1003 14:57 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				
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				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0309850

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG152263-8)							
Volatile Organics by MCP 8260B continued				54 8260B		1003 14:57	BT
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	96.0	%		70-130			
Toluene-d8	93.0	%		70-130			
4-Bromofluorobenzene	102.	%		70-130			
Dibromofluoromethane	87.0	%		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: L0309850

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
L0309850-01A	Vial HCl preserved	A	N/A	1.3 C	Y	Absent	MCP-8260
L0309850-01B	Vial HCl preserved	A	N/A	1.3 C	Y	Absent	MCP-8260

Container Comments

Container ID Comments

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA Job #: 20309852

Date Rec'd in Lab: 10/1

Project Information

Project Name: Raytheon

Project Location: Wayland

Project #: 1902 Dr. Dr

Project Manager: Jeremy Pilon

ALPHA Quote #: Turn-Around Time

Report Information - Data Deliverables

FAX EMAIL

ADEX Add'l Deliverables per client

Billing Information

Same as Client info

PO #:

Client Information

Client: ERH

Address: 394 Bayshore St

Phone: 617 267 8377

Fax: 617 267 6447

Email:

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?

Other Project Specific Requirements/Comments/Detection Limits:

These samples have been previously analyzed by Alpha

Standard RUSH (only confirmed if pre-approved)

Date Due: 10/8 Time:

ANALYSIS

8021C

2

SAMPLE HANDLING

Filtration

Done

Not needed

Lab to do

Preservation

Lab to do

(Please specify below)

Sample Specific Comments

2

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT MCP?

Relinquished By: [Signature]

Date/Time: 10/10/03 1630

Container Type: V

Preservative: B

Received By: [Signature]

Date/Time: 10/10/03 1745

Received By: [Signature]

Date/Time: 10/12/05

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.