

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: L0404464
Address: 399 Boylston Street
6th Floor
Boston, MA 02116 Date Received: 29-APR-2004
Attn: Jeremy Picard Date Reported: 06-MAY-2004
Project Number: 13606.03.02 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: L0404464
Date Reported: 06-MAY-2004

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0404464-01	MW-269MA	WAYLAND, MA
L0404464-02	MW-269S	WAYLAND, MA
L0404464-03	MW-269MB	WAYLAND, MA
L0404464-04	MW-269D	WAYLAND, MA

ALPHA ANALYTICAL LABORATORIES
NARRATIVE REPORT

Laboratory Job Number: L0404464

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

In reference to question E, the LCS % recoveries for Bromomethane and 1,4-Dioxane, both difficult analytes, are below the acceptance criteria for the method.

ALPHA ANALYTICAL LABORATORIES
 CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0404464-01
 MW-269MA

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				54 8260B	0505 19:56 RY		
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	100.	%		70-130			
Toluene-d8	100.	%		70-130			
4-Bromofluorobenzene	128.	%		70-130			
Dibromofluoromethane	99.0	%		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: L0404464-02	Date Collected: 29-APR-2004 11:33
MW-269S	Date Received : 29-APR-2004
Sample Matrix: WATER	Date Reported : 06-MAY-2004
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	0.005	54 6010B	0430 13:00 0503 14:53	MG
Volatile Organics by MCP 8260B				54 8260B	0505 20:33	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			
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	1.8	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	2.0			
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: L0404464-02
 MW-269S

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				54 8260B	0505 20:33		RY
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	99.0	%		70-130			
Toluene-d8	99.0	%		70-130			
4-Bromofluorobenzene	128.	%		70-130			
Dibromofluoromethane	98.0	%		70-130			

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

**ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS**

Laboratory Sample Number: L0404464-03
MW-269MB

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				54 8260B	0505 21:10		RY
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	99.0	%		70-130			
Toluene-d8	98.0	%		70-130			
4-Bromofluorobenzene	129.	%		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: L0404464-04
MW-269D

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				54 8260B	0505 21:47		RY
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	97.0	%		70-130			
Toluene-d8	98.0	%		70-130			
4-Bromofluorobenzene	126.	%		70-130			
Dibromofluoromethane	97.0	%		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: L0404464

Parameter	% Recovery	QC Criteria
Dissolved Metals LCS for sample(s) 01-04 (WG169476)		
Arsenic, Dissolved	108	80-120
Volatile Organics by MCP 8260B LCS for sample(s) 01-04 (WG169846)		
Methylene chloride	88	70-130
1,1-Dichloroethane	101	70-130
Chloroform	88	70-130
Carbon tetrachloride	95	70-130
1,2-Dichloropropane	94	70-130
Dibromochloromethane	75	70-130
1,1,2-Trichloroethane	78	70-130
Tetrachloroethene	83	70-130
Chlorobenzene	88	70-130
Trichlorofluoromethane	86	70-130
1,2-Dichloroethane	89	70-130
1,1,1-Trichloroethane	92	70-130
Bromodichloromethane	87	70-130
trans-1,3-Dichloropropene	73	70-130
cis-1,3-Dichloropropene	86	70-130
1,1-Dichloropropene	88	70-130
Bromoform	74	70-130
1,1,2,2-Tetrachloroethane	87	70-130
Benzene	94	70-130
Toluene	86	70-130
Ethylbenzene	89	70-130
Chloromethane	86	70-130
Bromomethane	51	70-130
Vinyl chloride	90	70-130
Chloroethane	92	70-130
1,1-Dichloroethene	85	70-130
trans-1,2-Dichloroethene	88	70-130
Trichloroethene	93	70-130
1,2-Dichlorobenzene	86	70-130
1,3-Dichlorobenzene	87	70-130
1,4-Dichlorobenzene	87	70-130
Methyl tert butyl ether	90	70-130
p/m-Xylene	92	70-130
o-Xylene	86	70-130
cis-1,2-Dichloroethene	94	70-130
Dibromomethane	90	70-130
1,2,3-Trichloropropane	88	70-130
Styrene	86	70-130
Dichlorodifluoromethane	86	70-130
Acetone	90	70-130
Carbon disulfide	84	70-130
2-Butanone	92	70-130
4-Methyl-2-pentanone	85	70-130
2-Hexanone	88	70-130
Bromochloromethane	91	70-130

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0404464

Continued

Parameter	% Recovery	QC Criteria
Volatile Organics by MCP 8260B LCS for sample(s) 01-04 (WG169846)		
Tetrahydrofuran	104	70-130
2,2-Dichloropropane	100	70-130
1,2-Dibromoethane	89	70-130
1,3-Dichloropropane	82	70-130
1,1,1,2-Tetrachloroethane	82	70-130
Bromobenzene	82	70-130
n-Butylbenzene	97	70-130
sec-Butylbenzene	99	70-130
tert-Butylbenzene	99	70-130
o-Chlorotoluene	93	70-130
p-Chlorotoluene	92	70-130
1,2-Dibromo-3-chloropropane	78	70-130
Hexachlorobutadiene	104	70-130
Isopropylbenzene	91	70-130
p-Isopropyltoluene	98	70-130
Naphthalene	89	70-130
n-Propylbenzene	98	70-130
1,2,3-Trichlorobenzene	93	70-130
1,2,4-Trichlorobenzene	99	70-130
1,3,5-Trimethylbenzene	98	70-130
1,2,4-Trimethylbenzene	97	70-130
Ethyl ether	86	70-130
Isopropyl Ether	106	70-130
Ethyl-Tert-Butyl-Ether	94	70-130
Tertiary-Amyl Methyl Ether	88	70-130
1,4-Dioxane	64	70-130
Surrogate(s)		
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	102	70-130
Dibromofluoromethane	99	70-130

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0404464

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-04 (WG169476-1)							
Dissolved Metals							
Arsenic, Dissolved	ND	mg/l	0.005	54 6010B	0430 13:00	0503 14:32	MG
Blank Analysis for sample(s) 01-04 (WG169846-4)							
Volatile Organics by MCP 8260B				54 8260B	0505 16:51		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				
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: L0404464

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-04 (WG169846-4)							
Volatile Organics by MCP 8260B continued				54 8260B		0505 16:51	RY
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	2.0				
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	97.0	%		70-130			
Toluene-d8	97.0	%		70-130			
4-Bromofluorobenzene	122.	%		70-130			
Dibromofluoromethane	98.0	%		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: L0404464

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
L0404464-01A	Vial HCl preserved	A	NA	1.8 C	Y	Absent	MCP-8260
L0404464-01B	Vial HCl preserved	A	NA	1.8 C	Y	Absent	MCP-8260
L0404464-01C	Plastic 250ml HNO3 preserved	A	<2	1.8 C	Y	Absent	AS-SI
L0404464-02A	Vial HCl preserved	A	NA	1.8 C	Y	Absent	MCP-8260
L0404464-02B	Vial HCl preserved	A	NA	1.8 C	Y	Absent	MCP-8260
L0404464-02C	Plastic 250ml HNO3 preserved	A	<2	1.8 C	Y	Absent	AS-SI
L0404464-03A	Vial HCl preserved	A	NA	1.8 C	Y	Absent	MCP-8260
L0404464-03B	Vial HCl preserved	A	NA	1.8 C	Y	Absent	MCP-8260
L0404464-03C	Plastic 250ml HNO3 preserved	A	<2	1.8 C	Y	Absent	AS-SI
L0404464-04A	Vial HCl preserved	A	NA	1.8 C	Y	Absent	MCP-8260
L0404464-04B	Vial HCl preserved	A	NA	1.8 C	Y	Absent	MCP-8260
L0404464-04C	Plastic 250ml HNO3 preserved	A	<2	1.8 C	Y	Absent	AS-SI

Container Comments

Container ID	Comments
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CHAIN OF CUSTODY

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

Client Information

Client: **ERM**

Address: **399 Boylston St. 61.6**

Boston, MA 02116

Phone: **617-646-7800**

Fax: **617-267-6447**

Email: **Theresa.Kennedy@erm.com**

Other Project Specific Requirements/Comments/Detection Limits:

Project Information

Project Name: **Raytheon**

Project Location: **Weyland MA**

Project #: **13606.03.02**

Project Manager: **J Picard**

ALPHA Quote #:

Turn-Around Time

Standard RUSH (only confirmed if pre-approved)

Date Due: **5/6/04** Time:

Report Information - Data Deliverables

FAX EMAIL
 CD/EX Add'l Deliverables

Regulatory Requirements/Report Limits

State/Fed Program Criteria

Date Rec'd in Lab: **4/29/04**

ALPHA Job #: **0404464**

Billing Information

Same as Client info PO #:

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?

SAMPLE HANDLING

Filtration Done
 Not needed
 Lab to do
 Preservation
 Lab to do
(Please specify below)

ANALYSIS
8021 B Chlorinated
DISS ARSENIC

Sample Specific Comments

*** DISS ARSENIC**
has been
field filtered
@ .45 micron

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	Container Type Preservative	Date/Time	Received By:	Date/Time	Sample Specific Comments
		Date	Time							
04464.1	MW-269 Ma	4/29/04	1045	GW	NA	V	4/29/04 1700	4/29/04 1700	3	
2	MW-269 S	4/29/04	1133	GW	NG	B	4/29/04 1700	4/29/04 1700	3	
3	MW-269 Mb	4/29/04	1545	GW	NG	C	4/29/04 1700	4/29/04 1700	3	
4	MW-269 D	4/29/04	1408	GW	NG	P	4/29/04 1700	4/29/04 1700	3	

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT MCP ?

Relinquished By:

Received By:

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.