

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: L0413674
Address: 399 Boylston Street
6th Floor
Boston, MA 02116 Date Received: 08-DEC-2004
Attn: Jeremy Picard Date Reported: 13-DEC-2004
Project Number: 13606 Delivery Method: Alpha
Site: FORMER RAYTHEON FACILITY

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: James Todaro
This document electronically signed

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0413674
Date Reported: 13-DEC-2004

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0413674-01	MW-118	WAYLAND, MA

ALPHA ANALYTICAL LABORATORIES
NARRATIVE REPORT

Laboratory Job Number: L0413674

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

L0413674-01 has elevated limits of detection due to the 4x dilutions required by the elevated concentrations of target compounds in the sample.

In reference to question E:

The WG189017-1,2 LCS,LCSD have low recoveries for dichlorodifluoromethane, a difficult analyte.

Metals

L0413674-01 was re-analyzed on a10x dilution in order to quantitate the sample within the range of the calibration. The result is reported as a greater than value for the compound that exceeded the calibration on the initial analysis. The re-analysis was performed only for the compound which exceeded the range of the calibration.

ALPHA ANALYTICAL LABORATORIES
 CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0413674-01
 MW-118

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by MCP 8260B continued				60 8260B	1209 19:09		TT
p-Chlorotoluene	ND	ug/l	10.				
Hexachlorobutadiene	ND	ug/l	4.0				
1,2,4-Trichlorobenzene	ND	ug/l	10.				
Surrogate(s)	Recovery			QC Criteria			
1,2-Dichloroethane-d4	97.0	%		70-130			
Toluene-d8	100.	%		70-130			
4-Bromofluorobenzene	100.	%		70-130			
Dibromofluoromethane	98.0	%		70-130			

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

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0413674

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Chloride for sample(s) 01 (L0413679-02, WG189152)					
Chloride	77.	75.	mg/l	3	7

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0413674

Parameter	% Recovery	QC Criteria
Chloride LCS for sample(s) 01 (WG189152)		
Chloride	93	84-110
Chloride SPIKE for sample(s) 01 (L0413679-03, WG189152)		
Chloride	85	58-140

ALPHA ANALYTICAL LABORATORIES
 QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0413674

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Dissolved Metals by MCP 6000/7000 series for sample(s) 01 (WG188967-2, WG188967)					
Sodium, Dissolved	110	110	0	20	75-125
Volatile Organics by MCP 8260B for sample(s) 01 (WG189017-1, WG189017)					
Methylene chloride	100	95	5	25	70-130
1,1-Dichloroethane	103	97	6	25	70-130
Chloroform	89	86	3	25	70-130
Carbon tetrachloride	107	102	5	25	70-130
1,2-Dichloropropane	105	101	4	25	70-130
Dibromochloromethane	100	96	4	25	70-130
1,1,2-Trichloroethane	103	102	1	25	70-130
Tetrachloroethene	110	102	8	25	70-130
Chlorobenzene	107	102	5	25	70-130
Trichlorofluoromethane	109	101	8	25	70-130
1,2-Dichloroethane	100	99	1	25	70-130
1,1,1-Trichloroethane	104	96	8	25	70-130
Bromodichloromethane	90	90	0	25	70-130
trans-1,3-Dichloropropene	105	103	2	25	70-130
cis-1,3-Dichloropropene	103	104	1	25	70-130
1,1-Dichloropropene	107	100	7	25	70-130
Bromoform	103	105	2	50	70-130
1,1,2,2-Tetrachloroethane	100	101	1	25	70-130
Benzene	106	100	6	25	70-130
Toluene	110	102	8	25	70-130
Ethylbenzene	112	105	6	25	70-130
Chloromethane	87	81	7	50	70-130
Bromomethane	108	105	3	50	70-130
Vinyl chloride	96	88	9	25	70-130
Chloroethane	95	90	5	25	70-130
1,1-Dichloroethene	105	98	7	25	70-130
trans-1,2-Dichloroethene	104	99	5	25	70-130
Trichloroethene	106	98	8	25	70-130
1,2-Dichlorobenzene	109	105	4	25	70-130
1,3-Dichlorobenzene	110	106	4	25	70-130
1,4-Dichlorobenzene	109	104	5	25	70-130
Methyl tert butyl ether	107	107	0	25	70-130
p/m-Xylene	117	108	8	25	70-130
o-Xylene	114	110	4	25	70-130
cis-1,2-Dichloroethene	106	101	5	25	70-130
Dibromomethane	101	103	2	25	70-130
1,2,3-Trichloropropane	100	104	4	25	70-130
Styrene	110	106	4	25	70-130
Dichlorodifluoromethane	67	62	8	50	70-130
Acetone	98	91	7	50	70-130
Carbon disulfide	94	88	7	25	70-130
2-Butanone	105	101	4	50	70-130
4-Methyl-2-pentanone	105	96	9	50	70-130
2-Hexanone	102	91	11	50	70-130
Bromochloromethane	109	108	1	25	70-130

ALPHA ANALYTICAL LABORATORIES
 QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0413674

Continued

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Volatile Organics by MCP 8260B for sample(s) 01 (WG189017-1, WG189017)					
Tetrahydrofuran	88	98	11	25	70-130
2,2-Dichloropropane	106	98	8	25	70-130
1,2-Dibromoethane	105	105	0	25	70-130
1,3-Dichloropropane	104	102	2	25	70-130
1,1,1,2-Tetrachloroethane	108	104	4	25	70-130
Bromobenzene	112	106	6	25	70-130
n-Butylbenzene	118	111	6	25	70-130
sec-Butylbenzene	122	116	5	25	70-130
tert-Butylbenzene	110	105	5	25	70-130
o-Chlorotoluene	114	106	7	25	70-130
p-Chlorotoluene	113	107	5	25	70-130
1,2-Dibromo-3-chloropropane	89	94	5	50	70-130
Hexachlorobutadiene	125	116	7	25	70-130
Isopropylbenzene	121	112	8	25	70-130
p-Isopropyltoluene	110	103	7	25	70-130
Naphthalene	112	122	9	25	70-130
n-Propylbenzene	117	109	7	25	70-130
1,2,3-Trichlorobenzene	108	121	11	25	70-130
1,2,4-Trichlorobenzene	112	115	3	25	70-130
1,3,5-Trimethylbenzene	119	113	5	25	70-130
1,2,4-Trimethylbenzene	119	111	7	25	70-130
Ethyl ether	93	95	2	25	70-130
Isopropyl Ether	98	97	1	25	70-130
Ethyl-Tert-Butyl-Ether	101	102	1	25	70-130
Tertiary-Amyl Methyl Ether	102	104	2	25	70-130
1,4-Dioxane	99	115	15	50	70-130
Surrogate (s)					
1,2-Dichloroethane-d4	111	96	14		70-130
Toluene-d8	114	103	10		70-130
4-Bromofluorobenzene	113	106	6		70-130
Dibromofluoromethane	111	99	11		70-130

ALPHA ANALYTICAL LABORATORIES
 QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0413674

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG189152-1)							
Chloride	ND	mg/l	1.0	1 9251		1211 14:54	ED
Blank Analysis for sample(s) 01 (WG188967-1)							
Dissolved Metals by MCP 6000/7000 series 60 6010B							
Sodium, Dissolved	ND	mg/l	2.0	60 6010B		1209 14:00 1210 15:25	RW
Blank Analysis for sample(s) 01 (WG189017-3)							
Volatile Organics by MCP 8260B 60 8260B 1209 10:34 TT							
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				

ALPHA ANALYTICAL LABORATORIES
 QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0413674

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG189017-3)							
Volatile Organics by MCP 8260B continued							
				60 8260B		1209 10:34	TT
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				
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	99.0	%		70-130			
Toluene-d8	101.	%		70-130			
4-Bromofluorobenzene	102.	%		70-130			
Dibromofluoromethane	102.	%		70-130			

**ALPHA ANALYTICAL LABORATORIES
ADDENDUM I**

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.
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.

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: L0413674

Were project specific reporting limits specified? NO

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0413674-01A	Vial HCl preserved	A	N/A	1.4	C	Y Absent	MCP-8260-04
L0413674-01B	Vial HCl preserved	A	N/A	1.4	C	Y Absent	MCP-8260-04
L0413674-01C	Plastic 250ml HNO3 preserved	A	<2	1.4	C	Y Absent	MCP-NA-6010S
L0413674-01D	Plastic 250ml unpreserved	A	=7	1.4	C	Y Absent	CL-9251

Container Comments

Container ID	Comments
--------------	----------
