

ESS Laboratory

Division of Thielsch Engineering, Inc.

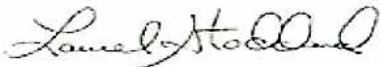
CERTIFICATE OF ANALYSIS

PROJECT NARRATIVE

David Heislein
MACTEC Engineering & Consulting, Inc.
107 Audubon Road
Wakefield, MA 01880

RE: Gorham
ESS Laboratory Work Order Number: 0605073

This signed Certificate of Analysis is our approved release of your analytical results. Beginning with this Project Narrative, the entire report has been paginated. The ESS Laboratory Certifications sheet is the final report page. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been mailed. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard/Kelly DeSousa
Laboratory Director/QA Manager

Date: May 17, 2006

Sample Receipt

2 Sludge samples were received on May 04, 2006 for the analyses specified on the enclosed Chain of Custody Record.

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration may be used instead of automated integration because it produces more accurate results.

ESS Laboratory certifies that the test results meet the requirements of NELAC, except where noted within this project narrative.

Metals Analysis

ESS Laboratory utilized the established linear dynamic range to determine acceptable analytical results. The batch Matrix Spike was outside of the recommended range for TCLP Lead. This analyte was below the lower control limit.

No other observations noted.

End of Project Narrative.

eo

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: MACTEC Engineering & Consulting, Inc.
Client Project ID: Gorham
Client Sample ID: Slag disposal SS-01AA
Date Sampled: 05/04/06 14:30
Percent Solids: N/A

ESS Laboratory Work Order: 0605073
ESS Laboratory Sample ID: 0605073-01
Sample Matrix: Sludge

TCLP Date: 5/4/06

1311/6000/7000 TCLP Metals

<u>Analyte</u>	<u>Results</u>	<u>Units</u>	<u>MRL</u>	<u>Limit</u>	<u>Method</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>
Arsenic	ND	mg/L	0.25	5	1311/6010B	5	JP	05/05/06	50	50
Barium	ND	mg/L	0.25	100	1311/6010B	5	JP	05/05/06	50	50
Cadmium	ND	mg/L	0.050	1	1311/6010B	5	JP	05/05/06	50	50
Chromium	ND	mg/L	0.10	5	1311/6010B	5	JP	05/05/06	50	50
Lead	266	mg/L	2.50	5	1311/6010B	50	SVD	05/06/06	50	50
Mercury	ND	mg/L	0.0005	0.2	1311/7470A	1	EEM	05/05/06	20	40
Selenium	ND	mg/L	0.50	1	1311/6010B	5	JP	05/05/06	50	50
Silver	ND	mg/L	0.050	5	1311/6010B	5	JP	05/05/06	50	50

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: MACTEC Engineering & Consulting, Inc.
Client Project ID: Gorham
Client Sample ID: Slag disposal SS-01BB
Date Sampled: 05/04/06 14:30
Percent Solids: N/A

ESS Laboratory Work Order: 0605073
ESS Laboratory Sample ID: 0605073-02
Sample Matrix: Sludge

TCLP Date: 5/4/06

1311/6000/7000 TCLP Metals

<u>Analyte</u>	<u>Results</u>	<u>Units</u>	<u>MRL</u>	<u>Limit</u>	<u>Method</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>
Arsenic	ND	mg/L	0.25	5	1311/6010B	5	JP	05/05/06	50	50
Barium	ND	mg/L	0.25	100	1311/6010B	5	JP	05/05/06	50	50
Cadmium	ND	mg/L	0.050	1	1311/6010B	5	JP	05/05/06	50	50
Chromium	ND	mg/L	0.10	5	1311/6010B	5	JP	05/05/06	50	50
Lead	8.09	mg/L	0.25	5	1311/6010B	5	JP	05/05/06	50	50
Mercury	ND	mg/L	0.0005	0.2	1311/7470A	1	EEM	05/05/06	20	40
Selenium	ND	mg/L	0.50	1	1311/6010B	5	JP	05/05/06	50	50
Silver	ND	mg/L	0.050	5	1311/6010B	5	JP	05/05/06	50	50

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: MACTEC Engineering & Consulting, Inc.
Client Project ID: Gorham

ESS Laboratory Work Order: 0605073

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

1311/6000/7000 TCLP Metals

Batch BE60512 - 3005A

Blank

Arsenic	ND	0.05	mg/L
Barium	ND	0.05	mg/L
Cadmium	ND	0.010	mg/L
Chromium	ND	0.02	mg/L
Lead	ND	0.05	mg/L
Selenium	ND	0.10	mg/L
Silver	ND	0.010	mg/L

LCS

Arsenic	0.53	0.05	mg/L	0.500	106	80-120
Barium	0.52	0.05	mg/L	0.500	104	80-120
Cadmium	0.273	0.010	mg/L	0.250	109	80-120
Chromium	0.52	0.02	mg/L	0.500	104	80-120
Lead	0.52	0.05	mg/L	0.500	104	80-120
Selenium	1.09	0.10	mg/L	1.00	109	80-120
Silver	0.264	0.010	mg/L	0.250	106	80-120

LCS Dup

Arsenic	0.52	0.05	mg/L	0.500	104	80-120	2	20
Barium	0.52	0.05	mg/L	0.500	104	80-120	0	20
Cadmium	0.273	0.010	mg/L	0.250	109	80-120	0	20
Chromium	0.52	0.02	mg/L	0.500	104	80-120	0	20
Lead	0.52	0.05	mg/L	0.500	104	80-120	0	20
Selenium	1.08	0.10	mg/L	1.00	108	80-120	0.9	20
Silver	0.260	0.010	mg/L	0.250	104	80-120	2	20

Duplicate Source: 0605073-02

Arsenic	ND	0.25	mg/L	ND				20
Barium	0.04	0.25	mg/L	0.04			0	20
Cadmium	ND	0.050	mg/L	ND				20
Chromium	0.008	0.10	mg/L	0.008			0	20
Lead	8.03	0.25	mg/L	8.09			0.7	20
Selenium	ND	0.50	mg/L	ND				20
Silver	ND	0.050	mg/L	ND				20

Matrix Spike Source: 0605073-02

Arsenic	0.52	0.25	mg/L	0.500	ND	104	75-125	
Barium	0.55	0.25	mg/L	0.500	0.04	102	75-125	
Cadmium	0.277	0.050	mg/L	0.250	ND	111	75-125	
Chromium	0.53	0.10	mg/L	0.500	0.008	104	75-125	
Lead	8.03	0.25	mg/L	0.500	8.09	NR	75-125	+
Selenium	1.08	0.50	mg/L	1.00	ND	108	75-125	
Silver	0.269	0.050	mg/L	0.250	ND	108	75-125	

Batch BE60514 - 245.1/7470A

Blank

Mercury	ND	0.0005	mg/L
---------	----	--------	------

LCS

Mercury	0.0057	0.0005	mg/L	0.00600	95	80-120
---------	--------	--------	------	---------	----	--------

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: MACTEC Engineering & Consulting, Inc.
 Client Project ID: Gorham

ESS Laboratory Work Order: 0605073

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
1311/6000/7000 TCLP Metals										

Batch BE60514 - 245.1/7470A

LCS Dup										
Mercury	0.0054	0.0005	mg/L	0.00600		90	80-120	5	20	
Duplicate Source: 0605073-02										
Mercury	ND	0.0005	mg/L		ND				20	
Matrix Spike Source: 0605073-02										
Mercury	0.0055	0.0005	mg/L	0.00600	ND	92	75-125			
Matrix Spike Dup Source: 0605073-02										
Mercury	0.0055	0.0005	mg/L	0.00600	ND	92	75-125	0	20	

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: MACTEC Engineering & Consulting, Inc.
Client Project ID: Gorham

ESS Laboratory Work Order: 0605073

Notes and Definitions

+	Outside QC Limits.
ND	Analyte NOT DETECTED above the detection limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
mg/kg	Results reported as wet weight
TCLP	Toxicity Characteristic Leachate Procedure
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
TIC	A forward library search of the NBS Mass Spectral Library was performed on this sample using the McLafferty Probability Base Matching (PBM) Algorithm. An estimated concentration of non-TCL compounds tentatively identified is quantified by the internal standard method. The nearest internal standard free of interferences was used to quantify. A response factor of one was assumed. This search was inclusive of the ten largest peaks greater than ten percent of the nearest internal standard.
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
¶	The state of RI does not grant certification for this method for non-potables.

ESS Laboratory

Division of Thielsch Engineering, Inc.

CERTIFICATE OF ANALYSIS

Client Name: MACTEC Engineering & Consulting, Inc.
Client Project ID: Gorham

ESS Laboratory Work Order: 0605073

ESS LABORATORY CERTIFICATIONS

U.S. Army Corps of Engineers
Soil and Water

Navy Installation Restoration QA Program
Soil and Water

Rhode Island: A-179

Connecticut: PH-0750

Maine: RI002

Massachusetts: M-RI002

New Hampshire (NELAP): 242405
Potable Water
Non Potable Water

New York (NELAP): 11313
Potable Water
Non Potable Water
Solid and Hazardous Waste

United States Department of Agriculture
Soil Permit: S-54210

New Jersey (NELAP): RI002
Potable Water
Non Potable Water
Soil and Hazardous Waste

Maryland: 301
Potable Water

Pennsylvania: 68-934, 68-1752

ESS Laboratory

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston, RI 02910-2211
 Tel. (401) 461-7181 Fax (401) 461-4486
 www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time: _____ Standard _____ Other 2 days
 If faster than 5 days, prior approval by laboratory is required # _____

Reporting Limits: _____

ESS LAB PROJECT ID: 0605073

State where samples were collected from:
 MA () RI () CT () NH () NJ () NY () ME () Other ()

Electronic Deliverable: Yes No

Format: Excel Access PDF Other

Is this project for any of the following:
 USACE Other RIDEM
 Navy

ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	Write Required Analysis											
SS-01AA5/4/06	14:30	X	SD	slag disposal	-	1	G	X													
SS-01BB5/4/06	14:30	X	SD	slag disposal	-	1	G	X													

Project Name (20 Char. or less): Garham
 Project # 3650050041
 Address 107 Audubon Rd.
 City Wakefield MA State 01880
 Telephone # 781-245-6606 Fax # 781-246-5060
 Email Address dheinstein@mactec.com

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: Solid S-Soil D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present Yes No DEA Internal Use Only

Seals Intact Yes No NA: Yes No NA: [Pickups] Technicians _____

Cooler Temp: 5.7

Preservation Code: 1- NP, 2- HCl, 3- H₂SO₄, 4- HNO₃, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9- _____

Sampled by: David Heislein

Comments: _____

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
<u>DEAL</u>	<u>5/4/06 2:50</u>	<u>[Signature]</u>	<u>5/4/06 3:50 PM</u>
<u>[Signature]</u>	<u>5/4/06 3:50 PM</u>	<u>[Signature]</u>	<u>5/4/06 1:515</u>