# ANALYTICAL REPORT

**Prepared for:**
**GEI Consultants, Inc.**
**1021 Main Street**
**Winchester, MA 01890**

| | |
|---|---|
| **Project:** | Canton Airport |
| **ETR:** | 0705094 |
| **Report Date:** | June 08, 2007 |

**Certifications and Accreditations**
**Massachusetts M-MA030**
**Connecticut PH-0141**
**New Hampshire 2206**
**Rhode Island LAO00289**
**New Jersey MA015**
**Maine MA0030**
**New York 11627**
**Louisiana 03090**
**Florida E87814**
**Pennsylvania 68-02089**
**Army Corps of Engineers**
**Department of the Navy**

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*320 Forbes Blvd, Mansfield, MA 02048, (508) 822-9300, Fax (508) 822-3288*

# CASE NARRATIVE
## Alpha Woods Hole Labs

**ETR: 0705094**
**Project: DCR Canton Airport**

All analyses were performed according to Alpha Woods Hole Labs quality assurance program and documented Standard Operating Procedures (SOPs). The analytical results contained in this report meet all applicable agency and/or NELAC standards, were performed within holding time, and with appropriate quality control measures, except where noted. Blank correction of results is not performed in the laboratory for any parameter. Soil/sediment samples are reported on a dry weight basis unless otherwise noted. Tissue and sediment samples are not certifiable under the NELAC accreditation.

The enclosed results of analyses are representative of the samples as received by the laboratory. Alpha Woods Hole Labs makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Alpha Woods Hole Labs. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved by: Gerard R. Johnson Title: Sr. Project Manager Date: 06-08-07

# Sample ID Cross Reference

Client: **GEI Consultants, Inc.**
Project: **Canton Airport**

Lab Code: **MA00030**
ETR: **0705094**

| Lab Sample ID | Client Sample ID |
|---|---|
| 0705094-01 | 002914-SDBKG4 |
| 0705094-02 | 002914-SDBKG5 |

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# AVS/SEM

ALPHA WOODS HOLE LABS

Client: **GEI Consultants, Inc.**
Project: **Canton Airport**
Case: N/A SDG: N/A
Client ID: **002914-SDBKG4**
Matrix: **Sediment**
Percent Solid: **44.9**

Lab Code: **MA00030**
ETR: **0705094**
Lab ID: **0705094-01**
Concentration Units: **µmol/g**
Date Collected: **05/10/07**
Date Received: **05/15/07**

| Parameter | Result | Qualifier | Reporting Limit | Dilution | Date Analyzed | Date Prepared | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|
| Cadmium | **0.0028** | | 0.00060 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| Copper | **0.017** | | 0.0053 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| Lead | **0.15** | | 0.00033 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| Nickel | **0.023** | | 0.012 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| SEM/AVS | **0.13** | | | 1 | 06/04/07 | 06/04/07 | AVS/SEM | LMR |
| Sulfide | **4.2** | | 0.21 | 1 | 06/04/07 | 06/04/07 | AVS/SEM | LMR |
| Zinc | **0.37** | | 0.021 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |

N/A - Not Applicable

06/06/07 10:55

# AVS/SEM

Client: **GEI Consultants, Inc.**
Project: **Canton Airport**
Case: N/A SDG: N/A
Client ID: **002914-SDBKG5**
Matrix: **Sediment**
Percent Solid: **26.9**

Lab Code: **MA00030**
ETR: **0705094**
Lab ID: **0705094-02**
Concentration Units: **µmol/g**
Date Collected: **05/10/07**
Date Received: **05/15/07**

| Parameter | Result | Qualifier | Reporting Limit | Dilution | Date Analyzed | Date Prepared | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|
| Cadmium | **0.0050** | | 0.0010 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| Copper | **0.039** | | 0.0092 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| Lead | **0.19** | | 0.00056 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| Nickel | **0.051** | | 0.020 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| SEM/AVS | **0.93** | | | 1 | 06/04/07 | 06/04/07 | AVS/SEM | LMR |
| Sulfide | **0.97** | | 0.36 | 1 | 06/04/07 | 06/04/07 | AVS/SEM | LMR |
| Zinc | **0.61** | | 0.036 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |

N/A - Not Applicable



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# Blank
# AVS/SEM

ALPHA WOODS HOLE LABS

Client: **GEI Consultants, Inc.**
Project: **Canton Airport**
Case: N/A SDG: N/A
Client ID: **Blank**
Matrix: **Sediment**
Percent Solid: **100.0**

Lab Code: **MA00030**
ETR: **0705094**
Lab ID: **MS060407B18B**
Concentration Units: **µmol/g**
Date Collected: **N/A**
Date Received: **N/A**

| Parameter | Result | Qualifier | Reporting Limit | Dilution | Date Analyzed | Date Prepared | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|
| Cadmium | 0.00089 | U | 0.00089 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| Copper | 0.0079 | U | 0.0079 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| Lead | 0.00048 | U | 0.00048 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| Nickel | 0.017 | U | 0.017 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |
| Sulfide | 0.31 | U | 0.31 | 1 | 06/05/07 | 06/04/07 | AVS/SEM | LMR |
| Zinc | 0.031 | U | 0.031 | 1 | 06/05/07 | 06/04/07 | 6020A | LCP |

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.


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# Laboratory Control Sample
# AVS/SEM

ALPHA WOODS HOLE LABS

Client: **GEI Consultants, Inc.**
Project: **Canton Airport**
Case: N/A SDG: N/A
Client ID: **Laboratory Control Sample**
Matrix: **Sediment**
Percent Solid: **100.0**

Lab Code: **MA00030**
ETR: **0705094**
Lab ID: **MS060407L05L**
Concentration Units: **µmol/g**
Date Collected: **N/A**
Date Received: **N/A**

| Parameter | Conc. | % Recovery | % Recovery Limits |
|---|---|---|---|
| Cadmium | 0.21 | 94 | 80-120 |
| Copper | 0.65 | 83 | 80-120 |
| Lead | 1.0 | 87 | 80-120 |
| Nickel | 0.77 | 90 | 80-120 |
| Sulfide | 7.9 | 106 | 85-115 |
| Zinc | 3.4 | 89 | 80-120 |

Sulfide percent recoveries and RPD values are calculated from the reported results.

N/A - Not Applicable

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded results.

06/07/07 12:10

# Chain-of-Custody Record

**Laboratory:** Alpha Woods Hole

**Laboratory Job #** (Lab use only) 916509-4

GEI Consultants
1021 Main Street
Winchester, MA 01890
PH: 781.721.4000
FX: 781.721.4073

**Project Information**

Project Name: Canton Airport

Project Location: Canton, MA

Project Number: 00291-4

Project Manager: Saskia Oosting

Send Report to: Ray Siegener

Send EDD to: labdata@geiconsultants.com



**MCP PRESUMPTIVE CERTAINTY REQUIRED** – **YES** NO

If Yes, Are MCP Analytical Methods Required? **YES** NO NA

If Yes, Are Drinking Water Samples Submitted? YES **NO** NA

If Yes, Have You Met Minimum Field QC Requirements? **YES** NO NA

**Sample Handling**

Samples Field Filtered: YES NO **NA**

Sampled Shipped With Ice: **YES** NO

| Lab Sample Number | GEI Sample ID | Collection Date | Collection Time | Matrix | No. of Bottles | Sampler(s) Initials | Preservative: None | SEM/AVS | | | | | | | Sample Specific Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -1 | 002914- SDBKG4 | 5/10/2007 | 1200 | SED | 1 | BA | | X | | | | | | | |
| -2 | 002914- SDBKG5 | 5/10/2007 | 1245 | SED | 1 | BA | | X | | | | | | | |

**MCP Level Needed:** GEI requires the most stringent Method 1 MCP standard be met for all analytes whenever possible.

| Relinquished by sampler: (signature) | Date: | Time: | Received by: (signature) |
|---|---|---|---|
| 1. Andrea Ian (for BA) | 5/11/07 | 1520 | 1. GEI refrigerator |
| Relinquished by: (signature) 2. GEI Refrig / Bree Carlson | 5/14/07 | 12:30 | 2. [illegible] |
| Relinquished by: (signature) 3. [illegible] | 5/14/07 | 12:30 | 3. [illegible] |
| Relinquished by: (signature) 4. [illegible] | 5/14/07 | 1630 | 4. T. Fraley |

T. Fraley 5/15 2:30 M. Woefel

**Turnaround Time (Business days):**

Normal _X_ Other ____

10-Day ____ 7-Day ____

5-Day ____ 3-Day ____

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

**Additional Requirements/Comments/Remarks:**

[redacted]

[redacted] (ABI)

5/11/2007

M:\DATA\ANALYSIS\00291-4, Canton Airport\COC

# Alpha Analytical Labs
## Sample Delivery Group Form

Laboratory Job No. _____ SDG Reviewer T. Flag

Client: GEI Date/Time: 5/14/07 1630

### Preliminary Review

1. *Samples Delivered via:*
   - [x] Alpha Courier
   - [ ] Client
   - [ ] Express Mail
   - [ ] Other_____

2. *Chain of Custody:*
   - [x] Present
   - [ ] Absent

3. *Custody Seal:*
   - [x] Absent
   - [ ] Present/Intact
   - [ ] Present/Broken

3. *All Containers Accounted for:*
   - [x] Yes
   - [ ] No

* Samples to be sent to Raynham – Logged & Billed out there –

4. *Samples received:*
   - [x] Intact
   - [ ] Extra: _____
   - [ ] Broken Sample IDs : _____
   - [ ] Leaking Sample IDs : _____

5. *Temperature Blank:*
   - [x] Present Temperature (in Celsius): [ ] 2 - 6 Celsius degrees [x] Other 1.9°C
   - [ ] Absent Is the ice (n blue ice) present? [x] Yes [ ] No * Cooler Temp: 4°C Temp Probee

### Secondary Review

1. Do the sample(s) labels and Chain of Custody agree?
   - [x] Yes [ ] No * _____
2. Are the samples in appropriate containers?
   - [x] Yes [ ] No * _____
3. Are the samples properly preserved? sediment samples
   - [x] Yes [ ] No * Initial pH=_____ Preserved In-House w/_____
4. Are the samples within holding times?
   - [x] Yes [ ] No * _____

* Contact client and attach the phone log

# Sample Receipt Checklist



| | | | |
|---|---|---|---|
| **Client:** Alpha | **Receipt Date:** 5-15-07 | | |
| **Project:** Caribou Airport | **Log-in Date:** 5/14/07 | | |
| **ETR #:** 07080984 | **Inspection by:** KJS | **Login by:** Kevin | |

**ALL SECTIONS BELOW MUST BE COMPLETED**

**Comments / Notes**

Were samples shipped? Yes, FedEx / UPS / Other:_____
(No) WHG Courier pick-up / Hand delivered

Is bill of lading retained? Yes, Tracking #:_____
No, Unavailable / (NA)

Number of coolers received for this project delivery: 1

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

**Note:** If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

**Cooler 1:**
Temperature(s) taken from: 6° IR Gun, 4° Temp. Blank, / NA

Were samples received on ice? (Yes) / No

Chain-of-Custody present? (Yes) / No
Complete? (Yes) / No

Custody seals present on Cooler? Yes / (No)
on Bottles? Yes / (No)
Intact? Yes / No / (NA)
*Note: Affix custody seals to back of this page.*

Were sample containers intact? (Yes) / No If No, list samples: →

Did VOA/VPH waters contain headspace (>5mm)? Yes / No / (NA) If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / (NA)
If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC?
Yes / No If No, list samples: →

*If chemical preservation is appropriate -*
Were samples field preserved? Yes / No / NA
☐ C=HCl ☐ M=MeOH ☐ S=$H_2SO4$
☐ H=NaOH ☐ N=$HNO_3$ ☐ Other:_____ ☐ U= Unknown

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA / VPH / Sulfide)
YES: <2 or >12 (CN) or NO NA
If No, why?:

Were samples received within hold time? Yes / No If No, list samples: →

Discrepancy between samples rec'd & COC ? Yes / No If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / NA

Project Manager Acknowledgement: Date:

Sample storage refrigerator #:_____

Sample storage freezer #:_____

Cooler 2:_____ Cooler 3:_____

Cooler 4:_____ Cooler 5:_____

Cooler 6:_____ Cooler 7:_____

More:_____

Chemical preservation OK for ALL samples?

Yes / No / N/A

If No, list samples below:

*Please use back for any additional notes!*

# Certificate/Approval Program Summary

Method numbers assume the most recent EPA revisions. For a complete listing of analytes for the referenced methods please contact your Alpha Woods Hole Lab Project Manager or the Quality Assurance Manager.

**Connecticut Department of Public Health** Certificate/Lab ID : PH-0141 - *Wastewater* (General Chemistry: EPA 120.1, 150.1, 160.1, 160.2, 180.1, 300.0, 310.1, 335.2, 365.2; Metals: 200.8, 245.1; Organics: 608, 624, 625, ETPH) *Solid Waste/Soil* (General Chemistry: 1010, 9010/9014, 9045, 9060; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270, ETPH).

**Florida Department of Health** Certificate/Lab ID : E87814 - Primary NELAP Accreditation Authority for Air & Emissions. Secondary NELAP Accreditation for Wastwater and Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 335.2, 365.2, SM2320B, SM2340B, SM2540G, SM4500NH3; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: 9010/9014, 9045, 9050, 9056, 9065, Reactivity 7.3; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

**Louisiana Department of Environmental Quality** Certificate/Lab ID : 03090 - Primary NELAP Accrediting Authority for Wastewater, Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1, 6020; Organics: 608, 624, 625, 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Solid and Hazardous Waste* (General Chemistry: 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060, Reactivity 7.3; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270).

**Maine Department of Human Services** Certificate/Lab ID : MA0030 - *Wastewater* (General Chemistry: EPA 120.1/ SM2510B, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: 608, 624)

**Massachusetts Department of Environmental Protection** Certificate/Lab ID: M-MA030 - *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: EPA 608, 624).

**New Hampshire Department of Environmental Services** Certificate/Lab ID: 2206 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, SM2540G; Metals: 200.8, 245.4; Organics: 608, 624, 625).

**New Jersey Department of Environmental Protection** Certificate/Lab ID : MA015 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1 6020; Organics: 608, 624, 625, 8081, 8082, 8260, 8270). *Solid & Hazardous Waste* (General Chemistry: EPA 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

**New York Department of Health** Certificate/Lab ID : 11627 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 365.2, 376.2; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: EPA 1010, 1311; : 245.1; 6020, 7041; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

**Rhode Island Department of Health** Certificate/Lab ID : LAO00289 - Chemistry: *Organic and Inorganic in Non-Poratable Water, Wastewater/Sewage and Soil* (Refer to LADEQ and MADEP certificates for method numbers.)

**Pennsylvania Department of Environmental Protection** Certificate/Lab ID : 68-02089 - Registered laboratory

**U.S. Army Corps of Engineers**

**Department of the Navy**