



DEPARTMENT OF THE AIR FORCE
102D FIGHTER WING (ACC)
MASSACHUSETTS AIR NATIONAL GUARD
OTIS AIR NATIONAL GUARD BASE MASSACHUSETTS

MAY - 2 2005

28 April 2005

102FW/EM
197 Granville Ave, Box 46
Otis ANG Base, MA 03542-1330

Certified Mail

United States Environmental Protection Agency
Water Technical Unit
P.O. Box 8127
Boston, MA 02114

Massachusetts Department of Environmental Protection
Division of Watershed Management
627 Main Street
Worcester, MA 01608

SUBJECT: Annual Report of Phase II General Permit Activities at Otis Air National Guard Base for Permit Year 02.

1. In accordance with the provisions of the National Pollutants Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) the annual reporting requirements are submitted herewith. To view the Otis ANGB Storm Water Management Plan please reference the Notice of Intent provided for the Phase II Permit Application on 19 June 2003, NPDES Permit #MAR05B902.

Owner/Operator Information:

Name: 102nd Fighter Wing
Address: 197 Granville Ave, Box 46
Otis ANG Base, MA 02542-1330
NPDES PERMIT #: ~~MAR05B902~~

2. The 102nd has maintained compliance with conditions set forth in the permit. The Self Audit Checklist is included as Attachment 1. Each measurable goal required in permit years one and two has been addressed and is current or in progress. Newly implemented BMPs for each of the six minimum control measures as identified by our permit are underway. The new BMPs for Permit Year 2 are included in Attachment 2. The progress toward achieving measurable goals including resulting data that has been collected or analyzed is identified below:

BMP 1A, Trash Management:

- A preventative maintenance instruction for cleaning/maintenance at control structure twice annually has been included in our Water Management Plan.
- Storm drainage area outfalls and structural BMP are scheduled for necessary maintenance or cleaning upon result of inspection. Drainage Area Dry Weather Visual Monitoring and Trash Management Inspections are conducted quarterly. Results of inspection are included as Attachment 3.
- As a preventative maintenance an additional instruction for cleaning catch basins has been included. A map identifying locations of catch basins has been obtained and accumulated debris has been scheduled for removal by an outside contractor in May of 2005.

- Employee walks are conducted on a regular basis to collect loose trash and debris on our airfield. The quantity of material collected on these walks is included as Attachment 4.

BMP 1B, Storm Water Education Materials

- A public outreach statement on stormwater pollution prevention and proper trash management is published annually in the spring issue of the Otis Notice and Seagull.
- A public outreach statement on stormwater pollution prevention will be included in the 2004 Water Quality Report.
- The EPA video *After The Storm* aired quarterly on our local television station.

BMP 1D, Education /Outreach for Commercial Activities

- A quarterly inspection checklist to verify that personnel keep dumpsters closed has been developed and will be implemented for Permit Year 3. The Dumpster Inspection is conducted along side our Hazardous Waste Satellite Accumulation Point Inspections. A copy of the checklist is enclosed at Attachment 4.

BMP 2B, Storm Drain Stenciling

- On June 19, 2004, eight Members of a local Boy Scout troop stenciled twenty-five storm drains on our four main roads within the Industrial Gate of the 102nd Fighter Wing. The boy scouts are scheduled to return this June to complete the few other roads with in the industrial gate.

BMP 3A, ID/Elimination

- Dry weather field screening was implemented during Permit Year 1 and continues to date on a quarterly basis. Results from the inspection are identified in Attachment 3.
- An ordinance for new construction connecting to the sanitary sewer was published in our Water Management Plan and distributed to all pertinent entities. The Lox facility was the only facility constructed in Permit Year 2. The facility did not require a connection to the sanitary sewer.
- Results for periodic camera inspections are included as Attachment 6. Additional inspections are expected in summer/fall of 2005.

BMP 4A, Good Housekeeping

- In Permit Year 2, four reportable spill occurred and 161 personnel were trained in spill response and storm water pollution prevention. Descriptions of the spills are listed in Attachment 7.

BMP 4B, Runoff Control

- An ordinance for contractors to implement runoff control measures was written into the Contract Boilerplate for construction activities. Documentation of BMP will begin with the Construction of the New Base Fire Crash/Rescue Station, which broke ground on 23 April 2005.

BMP 4C, Erosion Control

- An ordinance for contractors to implement erosion control measures was written into the Contract Boilerplate for construction activities. Documentation of BMP will begin with the Construction of the New Base Fire Crash/Rescue Station, which broke ground on 23 April 2005.

BMP 5A, Ordinance for Post-Construction Runoff

- The 102 FW has pursued goals of footprint consolidation and facility modernization for the past decade, and will continue to do so until every building is logically located and can support a modern, efficient and environmentally sound mission. Long-term reduction of the Base's footprint through facility consolidation and custodial vigilance is the ultimate goal. *Otis 2000* is the road map that will be used to see this goal to fruition. The reduction of impervious surface is tracked in acres and is included in Attachment 6.

BMP 5B, BMP Inspection/Maintenance

- An ordinance for contractors to conduct post-construction maintenance of permanent BMPs was written into the Contract Boilerplate for construction activities. Documentation of BMP will begin with the Construction of the New Base Fire Crash/Rescue Station, which broke ground on 23 April 2005.

BMP 6A, Illegal Dumping Control

- Articles to enhance employee awareness on the impacts of illegal dumping were published in the in the December 2004 issue of the Otis Notice and the Seagull.

BMP 6B, Roadway Maintenance

- Pollution Prevention Training to enhance employee awareness on sand/salt application is included in the Storm Water Pollution Prevention Training as addressed in BMP 4A.
- As discussed in the Annual Report submitted for Permit Year 1, the sand/salt spreaders cannot be calibrated. Deicing material is always applied in minimal quantities. The quantity of deicing material used is tracked in Attachment 6.

BMP 6C, Good Housekeeping

- For documentation of reportable spill and number of personnel trained please see BMP 4A, Good Housekeeping.

BMP 6D, Parking Lot/Street Cleaning

- A preventative maintenance instruction manual and schedule for extra cleaning during spring was included in our Water Management Plan.

BMP 6G, Storm Drain System Cleaning

- A regular cleaning program has been established and included in our Water Management Plan. Locations and results of cleaning will be included in the Annual Report for Permit Year 3.

3. Otis Air National Guard Base has made excellent advancement toward achieving measurable goals. All measurable goals designated for Permit Years 1 and 2 has been address, are current and in progress. Additionally, a few measurable goals for Permit Year three are also underway. The BMPs chosen for implementation have been appropriately selected. The one minor exception is our inability to accurately calibrate sand and salt spreaders on our roads and grounds equipment. However, the 102nd will accurately monitor the amount of sand spread in winter months.

4. Table 1 summarizes the Storm Water Management Plan Activities for 2005/2006 (Permit Year 3). Please refer to the Notice of Intent for the Phase II Permit Application on 19 June 2003, NPDES Permit #MAR05B902 for description of the Storm Water Management Plan Activities scheduled for the years to follow.

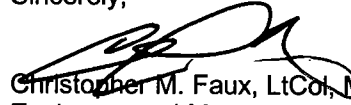
BMP ID #	ACTION	MEASURABLE GOAL	STATUS
1C P2 Programs	Create educational pamphlets/fliers, displays	Track number of articles/materials created and distributed	In Progress
1D Education/Outreach For Commercial Activities	Conduct quarterly inspections to verify that personnel keep dumpsters closed	Compile list of dates/locations and actions taken to ensure compliance	In Progress
3C ID Illicit Discharge Connections	Develop list of priority buildings for inspection/survey	Compile list of buildings inspected and results of inspections	In Progress
4C Erosion Control	Develop Ordinance for contractors to implement erosion control measures	Document BMPs installed, frequency of inspections, results, maintenance activities and analyze failure rate	In Progress
5B BMP Inspection/ Maintenance	Develop inspection program; develop ordinance for contractors to conduct post-construction maintenance of permanent BMPs	Conduct analysis of BMPs; track installed BMPs effectiveness and remediation of identified problems	In Progress
6G Storm Drain System Cleaning	Establish regular Cleaning Program	Compile list of areas cleaned, quantity of materials collected and dated scheduled/conducted	In Progress

Table1. Activities Planned for Permit Year 3

5. All storm water monitoring and analytical data obtain throughout Permit Year Two is included as Attachment 8.
6. All relevant issues have been adequately addressed in this Annual Comprehensive Compliance Evaluation.

If you have any questions or require additional information, please contact Elizabeth Mascia of the Environmental Management Office at 508/968-4327 or the undersigned at 508/968-4844

Sincerely,

A handwritten signature in black ink, appearing to read 'Chris Faux', written over a horizontal line.

Christopher M. Faux, LtCol, MAANG, BSC
Environmental Management Officer

Storm Water Phase II Program

Permit Year 2 Calendar Year 2004/2005

Date: 27 April 2005

Annual Self Audit	YES	NO	N/A
1. Is the 102nd Fighter Wing in compliance with 40 CFR 122?	X		
2. Does the 102FW maintain a current Storm Water Pollution Prevention Plan?	X		
3. Is the 102FW in compliance with the conditions set forth in the NPDES General Permit for MS4's. Permit Number MAR04023/MADEP?	X		
4. Has the 102FW had any incidents of non-compliance with the permit?		X	
5. Has the 102FW filed an eNOI for all construction projects which disturbed >1 acre?	X		
6. Has the 102FW addressed/implemented all new Minimum Control Measure for the current permit year?	X		
7. Has the 102FW addressed/implemented all new actions and measurable goals for Public Education Outreach in the current permit year?	X		
8. Has the 102FW addressed/implemented all new actions and measurable goals for Public Participation Involvement in the current permit year?	X		
9. Has the 102FW addressed/implemented all new actions and measurable goals for Illicit Discharge Detection/Elimination in the current permit year?	X		
10. Has the 102FW addressed/implemented all new actions and measurable goals for Construction Site Runoff Control in the current permit year?	X		
11. Has the 102FW addressed/implemented all new action and measurable goals for Post Construction Runoff Control in the current permit year?	X		
12. Has the 102FW addressed/implemented all new actions and measurable goals for Pollution Prevention/Good Housekeeping in the current permit year?	X		
13. Has the 102FW addressed/implemented all new actions and measurable goals in on schedule with the Storm Water Management Program Time Frames		X	
14. Has the 102FW addressed/implemented all reoccurring Minimum Control Measures in the current permit year?	X		
15. Does the Storm Water Pollution Prevention Team meet on an annual basis to discuss the progress of the Phase II Program?	X		
16. Has an annual report been submitted to the EPA and DEP for the previous permit year?	X		

Storm Water Management Control Measures for Permit Year 2

BMP ID #	ACTION	MEASURABLE GOAL	STATUS
1A Trash Management	Establish preventative maintenance instruction for cleaning/maintenance at control structure twice annually	Compile list of grates cleaned, quantity of material collected and dates preventative maintenance took place	Current & In Progress
	Conduct quarterly inspections to verify proper trash management practices are in use	Compile list of dates and areas inspected and actions taken to address non-compliance	Current & In Progress
2B Storm Drain Stenciling	Enlist volunteers from outside agencies (e.g. Boy Scouts) to stencil drains	Track number of volunteers and number of storm drains stenciled	Current & In Progress
3A ID/Elimination	Develop ordinance for new construction connecting to sanitary sewer	Publish/distribute ordinance; track number of buildings constructed	Current & In Progress
3C ID Illicit Connections	Develop ordinance for new construction	Publish/distribute ordinance; track number of buildings constructed	Current & In Progress
4B Runoff Control	Develop ordinance for contractors to implement runoff control measures	Document BMPs installed, frequency of inspections and results, maintenance activities and analyze BMP failure rate for future consideration; document/implement BMPs which help to preserve pervious areas	Current & In Progress
5A Ordinance for post- Construction Runoff	Develop pavement reduction plan	Track acreage reduction of impervious surface	Current & In Progress
6D Parking Lot/Street Cleaning	Establish preventative maintenance instruction for extra cleaning during spring snow melt; establish schedule	Document instruction manual and schedule	Current

Dry Weather Visual Monitoring of Drainage Areas Log and Trash Management Inspection

Date	Location	Results of Inspection	Additional Comments
30 March 2005	SD-1	Satisfactory	Picked up loose garbage
30 March 2005	SD-3	Satisfactory	Picked up loose garbage
30 March 2005	SD-4	Disruptive vegetative growth and old booms present – request for removal submitted.	Picked up loose garbage
5 October 2004	SD-1	Satisfactory	Picked up loose garbage
5 October 2005	SD-3	Disruptive vegetative growth present – request for removal submitted.	No loose garbage or waste material present.
5 Oct 2004	SD-4	Build up of leaves and debris clogging drainage area – request for removal submitted.	No loose garbage or waste material present.
19 April 2004	SD-1	Disruptive vegetative growth present – request for removal submitted.	No loose garbage or waste material present.
19 April 2004	SD-3	Disruptive vegetative growth present – request for removal submitted.	No loose garbage or waste material present.
19 April 2004	SD-4	Build up of leaves and debris clogging drainage area – request for removal submitted.	No loose garbage or waste material present.
2 Oct 2003	SD-1	Disruptive vegetative growth present – request for removal submitted.	No loose garbage or waste material present.
2 Oct 2003	SD-3	Disruptive vegetative growth present – request for removal submitted.	No loose garbage or waste material present.
2 Oct 2003	SD-4	Disruptive vegetative growth present – request for removal submitted.	No loose garbage or waste material present.
19 May 2003	SD-1	Drainage area clean and free of debris.	No loose garbage or waste material present.
19 May 2003	SD-3	Drainage area clean and free of debris.	No loose garbage or waste material present.
19 May 2003	SD-4	Build up of leaves and debris clogging drainage area – request for removal submitted.	No loose garbage or waste material present.

TRASH MANAGEMENT

BMP ID #1A PREVENTATIVE MAINTENANCE
FLIGHTLINE FOD WALKS

DATE	AMOUNT COLLECTED (in lbs)
4-Apr-04	72.2
16-Apr-04	16.2
30-Apr-04	40
4-Jun-04	32.6
23-Jun-04	32.6
07-Jul-04	16
12-Aug-04	9.8
25-Aug-04	17.6
01-Oct-04	10.8
27-Oct-04	13
22-Dec-04	5
19-Jan-05	38
09-Feb-05	38
16-Mar-05	50.8
23-Mar-05	57
30-Mar-05	57.2
31-Mar-05	63.4
last updated: 27 April 2005	

Hazardous Waste Satellite Accumulation Point Checklist

No.	Location of Inspection Bldg. # Name of S.A.P. Date Inspection Completed:	Yes	No	Comments
1	Verify that only one container for each specific waste is in use at any one time and that the maximum capacity of the container is 55 gallons. (310 CMR 30.340(4)(c))			
2	Verify that containers are transferred to the 90 day accumulation point within 3 days of becoming full. (310 CMR 30.340(4)(d))			
3	Verify that containers are stored on a surface that is free of cracks and gaps and is sufficiently impervious to contain leaks and spills until the material can be detected and removed. (N.B. Verify that a spill or leak of liquid cannot reach a floor drain.)(310 CMR 30.340(1)(f))			
4	Verify that the side of each container of hazardous waste is clearly and correctly labeled and marked with the following information: * The words "Hazardous Waste" * The names of the waste in the container (e.g. acetone, toluene) * The hazard(s) associated with the waste (e.g. ignitable, toxic, dangerous when wet.) (310 CMR 30.682)			
5	If a container holding hazardous waste is not in good condition (e.g. severe rusting, apparent structural defects) or if it begins to leak, that the owner transfers the hazardous waste to a container in good condition. (310 CMR 30.683)			
6	Verify that containers of hazardous waste are always kept closed except when wastes are being added or removed. (310 CMR 30.685(1))			
7	Verify that containers of hazardous waste are not opened, handled or stored or stacked in a manner, which may rupture the containers or cause them to leak. (310 CMR 30.685(2))			
8	Verify that at least weekly, the manager of the satellite accumulation point inspects the SAP (310 CMR 30.686) and the inspection records are readily available and maintained for at least 3 years or closure of the SAP which ever is longer. (310 CMR 30.515(1)(c))			
9	Verify that each satellite accumulation point is signed as follows: "HAZARDOUS WASTE SATELLITE ACCUMULATION POINT" (BMP)			
10	Verify that the names of the accumulation point manager and alternates are posted at the site. (BMP)			
11	Dumpster Checks * Is the cover closed? * Is trash laying around outside of dumpster? * Ensure waste in container is solid waste. (not hazardous, cardboard, etc.) * Ensure dumpster is not leaking. (40 CFR 122)			
12	Inspector's name			

Sanitary/Storm Lines Camera Inspection Tracking

DATE	LOCATION	RESULTS
19 Feb 04	Bldg #173, Liquid Fuels Facility	Line was restricted due to build up of ice. Issue was resolved
24 Feb 04	Housing on Upper Tinker Rd	Line contained tree roots in branch to house. Cleared drains and conducted a follow up inspection
18 Mar 04	Last Trailer on left behind Bldg 330	Line was restricted due to build up of ice. Issue was resolved
23 Mar 04	Trailers of West Trunk Road	Line was restricted due to build up of ice. Issue was resolved

Track Acreage Reduction of Impervious Surface

FACILITY/LOCATION	DATE	ACRE
Previous LOX Facility	2004	0.13
	Current as of 2003	8.12

Track Number of Buildings Constructed Beginning 2004

FACILITY	DATE	CONNECTION TO SANITARY SEWER (Y/N)
LOX Facility	2004	No

Track Number Quantity of Deicing Fluid Used

PERMIT YEAR 2	DEICING FLUID	TOTALS
Permit Year 1	Potassium Acetate/ Propylene glycol	10,900/40 gallons
Permit Year 2	Potassium Acetate	12,786
Permit Year 3		
Permit Year 4		
Permit Year 5		

Reportable Quantity Spill Log for Permit Year 2

Spill Time / Date: ~2030 hrs/ 1 May 2004
Quantity / Fluid: ~50 gallons / JP-8 Jet Fuel
Location: Echo "E" Row on Aircraft Ramp Cause of Incident: Internal Fuel System Failure. Cause under investigation. MEMA POC: Dispatcher Anderson at 2121hrs NRC POC: Petty Officer Layman at 2124 hrs. NRC Report Number: 720 469 DEP POC: Mr. Bob Murphy at 2130hrs. Informed us LSP required. DEP Tracking Number: RTN 4-18405 EPA POC: Mr. Randy Rice at 2151hrs. Action falls w/in purview of MA Response: Immediately, called MEMA, NRC, DEP, EPA Aircraft immediately defueled removing 1450 gal of possible 1500 gal Fuel contained using boom/socks. Absorbents collected pooled fuel. Used absorbents moved to Hazwaste Accumulation Area

Spill Time / Date: 1300 hrs/ 28 June 2004
Quantity / Fluid: ~15-20gallons / JP-8 Jet Fuel
Location: Parking Apron Spot Charlie 3 Cause of Incident: Centerline fuel valve failure during refuel MEMA POC: NRC POC: Ms. Johnson NRC Report Number: 726497 DEP POC: Mr. Mike Whiteside DEP Tracking Number: RTN 4-18514 Clean Harbor POC: Lisa McNeil and Jennifer Smith, LSP Response: Immediately, called DEP, NRC, Clean Harbors and Notified M. Jabbur at HQ Release contained and cleaned with absorbents Absorbents drummed and moved to Hazwaste Accumulation Area

Spill Time / Date: 1000 hrs/ 22 January 2005
Quantity / Fluid: 100 gallons / JP-8 Jet Fuel
Location: Engine Test Cell (Hush House) Cause of Incident: Venting from both wings MEMA POC: Dispatcher Anderson NRC POC: Ms. Johnson NRC Report Number: 747928 DEP POC: Mr. Harahan DEP Tracking Number: none required Response: Immediately, reported to NRC and MEMA who contacted DEP Release contained in system designed to catch spills. No further action required

Reportable Quantity Spill Log for Permit Year 2, continued

Spill Time / Date: 1310 hrs/ 22 March 2005
Quantity / Fluid: ~13 gallons / Hydraulic Fluid
Location: Parking Apron Spot D-8
Cause of Incident: internal failure of pressurized line in hydraulic mule
MEMA POC:
NRC POC: Ms. Jones
NRC Report Number: 753418
DEP POC: Mr. Mike Moran
DEP Tracking Number: RTN 4-18973
Clean Harbor POC: Mr. Dana Simpson and Jennifer Smith, LSP
Response:
Immediately, called DEP, NRC, Clean Harbors and Notified ANG/CEV Hqrs. Release contained and cleaned with absorbents Absorbents drummed and moved to Hazwaste Accumulation Area

GROUNDWATER ANALYTICAL

April 13, 2005

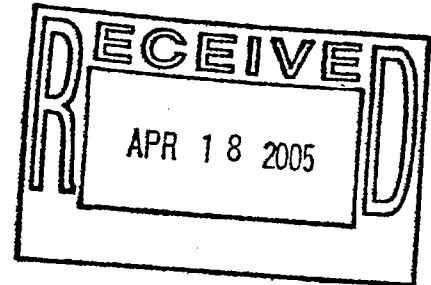
Groundwater Analytical, Inc.
P.O. Box 1200
228 Main Street
Buzzards Bay, MA 02532

Telephone (508) 759-4441
FAX (508) 759-4475
www.groundwateranalytical.com

Ms. Rose Ware
Otis 102nd Fighter Wing/Environmental Management
197 Granville Avenue
Box 46
Otis ANG Base, MA 02542

LABORATORY REPORT

Project: Work Item #4
Lab ID: 82298
Received: 03-29-05



Dear Rose:

Enclosed are the analytical results for the above referenced project. The project was processed for Standard turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC standards, except as may be specifically noted, or described in the project narrative. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,



Eric H. Jensen
Operations Manager

EHJ/kal
Enclosures

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ATTACHMENT 2)

GROUNDWATER ANALYTICAL

Sample Receipt Report (Continued)

Project: Work Item #4

Client: Otis 102nd Fighter Wing/Environmental Management

Lab ID: 82298

Delivery: Hand

Airbill: n/a

Lab Receipt: 03-29-05

Temperature: 3.6'C

Chain of Custody: Present

Custody Seal(s): n/a

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-10	GN050089		Aqueous	3/29/05 0:00	Lachat 10-107-06-1-B (SM 4500-NH3 B, G) Ammonia SM 5220 D Chemical Oxygen Demand Lachat 10-107-04-1-C (SM 4500-NO3 F) Nitrate plus Nitrite Lachat 10-115-01-1-C (EPA 365.4) Total Phosphorus Lachat 10-107-06-2-D (EPA 351.2) TKN				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C533862	500 mL Plastic	Proline	BX14559	H2SO4	R-4252D	11-11-04	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-11	GN050090		Aqueous	3/29/05 0:00	Lachat 10-107-06-1-B (SM 4500-NH3 B, G) Ammonia SM 5220 D Chemical Oxygen Demand Lachat 10-107-04-1-C (SM 4500-NO3 F) Nitrate plus Nitrite Lachat 10-115-01-1-C (EPA 365.4) Total Phosphorus Lachat 10-107-06-2-D (EPA 351.2) TKN				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C533812	500 mL Plastic	Proline	BX14559	H2SO4	R-4252D	11-11-04	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-12	GN050091		Aqueous	3/29/05 0:00	Lachat 10-107-06-1-B (SM 4500-NH3 B, G) Ammonia SM 5220 D Chemical Oxygen Demand Lachat 10-107-04-1-C (SM 4500-NO3 F) Nitrate plus Nitrite Lachat 10-115-01-1-C (EPA 365.4) Total Phosphorus Lachat 10-107-06-2-D (EPA 351.2) TKN				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C533833	500 mL Plastic	Proline	BX14559	H2SO4	R-4252D	11-11-04	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
82298-13	GN050089		Aqueous	3/29/05 0:00	SM 5210 B Biochemical Oxygen Demand SM 2540 D Total Suspended Solids SM 4500-H + B pH				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C587094	250 mL Plastic	Proline	BX15145	None	n/a	n/a	11-22-04		
C546127	1 L Plastic	Proline	BX15139	None	n/a	n/a	11-22-04		

Lab ID	Field ID		Matrix	Sampled	Method			Notes
82298-14	GN050090		Aqueous	3/29/05 0:00	SM 5210 B Biochemical Oxygen Demand SM 2540 D Total Suspended Solids SM 4500-H + B pH			
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship	
C587078	250 mL Plastic	Proline	BX15145	None	n/a	n/a	11-22-04	
C546163	1 L Plastic	Proline	BX15139	None	n/a	n/a	11-22-04	

Lab ID	Field ID		Matrix	Sampled	Method			Notes
82298-15	GN050091		Aqueous	3/29/05 0:00	SM 5210 B Biochemical Oxygen Demand SM 2540 D Total Suspended Solids SM 4500-H + B pH			
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship	
C587027	250 mL Plastic	Proline	BX15145	None	n/a	n/a	11-22-04	
C546126	1 L Plastic	Proline	BX15139	None	n/a	n/a	11-22-04	

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID: GN050089
Project: Work Item #4
Client: Otis 102nd Fighter Wing/Environmental Management

Laboratory ID: 82298-01
Sampled: 03-29-05 00:00
Received: 03-29-05 15:30
Analyzed: 04-12-05 16:28
Analyst: LMG

Matrix: Aqueous
Container: 40 mL VOA Vial
Preservation: HCl/Cool

QC Batch ID: VM7-1747-W
Instrument ID: MS-7 Agilent 6890
Sample Volume: 25 mL
Dilution Factor: 1

Page: 1 of 2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	0.5
74-87-3	Chloromethane	BRL		ug/L	0.5
75-01-4	Vinyl Chloride	BRL		ug/L	0.5
74-83-9	Bromomethane	BRL		ug/L	0.5
75-00-3	Chloroethane	BRL		ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL		ug/L	0.5
60-29-7	Diethyl Ether	BRL		ug/L	2
75-35-4	1,1-Dichloroethene	BRL		ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/L	5
67-64-1	Acetone	BRL		ug/L	10
75-15-0	Carbon Disulfide	BRL		ug/L	5
75-09-2	Methylene Chloride	BRL		ug/L	2.5
156-60-5	trans-1,2-Dichloroethene	BRL		ug/L	0.5
1634-04-4	Methyl tert-butyl Ether (MTBE)	BRL		ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL		ug/L	0.5
594-20-7	2,2-Dichloropropane	BRL		ug/L	0.5
156-59-2	cis-1,2-Dichloroethene	BRL		ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL		ug/L	5
74-97-5	Bromochloromethane	BRL		ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/L	5
67-66-3	Chloroform	BRL		ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL		ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL		ug/L	0.5
71-43-2	Benzene	BRL		ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL		ug/L	0.5
79-01-6	Trichloroethene	BRL		ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL		ug/L	0.5
74-95-3	Dibromomethane	BRL		ug/L	0.5
75-27-4	Bromodichloromethane	BRL		ug/L	0.5
123-91-1	1,4-Dioxane	BRL		ug/L	500
10061-01-5	cis-1,3-Dichloropropene	BRL		ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/L	5
108-88-3	Toluene	BRL		ug/L	0.5
10061-02-6	trans-1,3-Dichloropropene	BRL		ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	0.5
127-18-4	Tetrachloroethene	BRL		ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL		ug/L	0.5
591-78-6	2-Hexanone	BRL		ug/L	5
124-48-1	Dibromochloromethane	BRL		ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/L	0.5
108-90-7	Chlorobenzene	BRL		ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/L	0.5
100-41-4	Ethylbenzene	BRL		ug/L	0.5
108-38-3/106-42-3	meta-Xylene and para-Xylene	BRL		ug/L	0.5
95-47-6	ortho-Xylene	BRL		ug/L	0.5

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID: GN050090
Project: Work Item #4
Client: Otis 102nd Fighter Wing/Environmental Management
Laboratory ID: 82298-02
Sampled: 03-29-05 00:00
Received: 03-29-05 15:30
Analyzed: 04-12-05 17:04
Analyst: LMG

Matrix: Aqueous
Container: 40 mL VOA Vial
Preservation: HCl/Cool
QC Batch ID: VM7-1747-W
Instrument ID: MS-7 Agilent 6890
Sample Volume: 25 mL
Dilution Factor: 1

Page: 1 of 2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	0.5
74-87-3	Chloromethane	BRL		ug/L	0.5
75-01-4	Vinyl Chloride	BRL		ug/L	0.5
74-83-9	Bromomethane	BRL		ug/L	0.5
75-00-3	Chloroethane	BRL		ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL		ug/L	0.5
60-29-7	Diethyl Ether	BRL		ug/L	2
75-35-4	1,1-Dichloroethene	BRL		ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/L	5
67-64-1	Acetone	BRL		ug/L	10
75-15-0	Carbon Disulfide	BRL		ug/L	5
75-09-2	Methylene Chloride	BRL		ug/L	2.5
156-60-5	trans- 1,2-Dichloroethene	BRL		ug/L	0.5
1634-04-4	Methyl tert- butyl Ether (MTBE)	BRL		ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL		ug/L	0.5
594-20-7	2,2-Dichloropropane	BRL		ug/L	0.5
156-59-2	cis- 1,2-Dichloroethene	BRL		ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL		ug/L	5
74-97-5	Bromochloromethane	BRL		ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/L	5
67-66-3	Chloroform	BRL		ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL		ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL		ug/L	0.5
71-43-2	Benzene	BRL		ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL		ug/L	0.5
79-01-6	Trichloroethene	BRL		ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL		ug/L	0.5
74-95-3	Dibromomethane	BRL		ug/L	0.5
75-27-4	Bromodichloromethane	BRL		ug/L	0.5
123-91-1	1,4-Dioxane	BRL		ug/L	500
10061-01-5	cis- 1,3-Dichloropropene	BRL		ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/L	5
108-88-3	Toluene	BRL		ug/L	0.5
10061-02-6	trans- 1,3-Dichloropropene	BRL		ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	0.5
127-18-4	Tetrachloroethene	BRL		ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL		ug/L	0.5
591-78-6	2-Hexanone	BRL		ug/L	5
124-48-1	Dibromochloromethane	BRL		ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/L	0.5
108-90-7	Chlorobenzene	BRL		ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/L	0.5
100-41-4	Ethylbenzene	BRL		ug/L	0.5
108-38-3/106-42-3	meta- Xylene and para- Xylene	BRL		ug/L	0.5
95-47-6	ortho- Xylene	BRL		ug/L	0.5

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID: GN050091
Project: Work Item #4
Client: Otis 102nd Fighter Wing/Environmental Management

Matrix: Aqueous
Container: 40 mL VOA Vial
Preservation: HCl/Cool

Laboratory ID: 82298-03
Sampled: 03-29-05 00:00
Received: 03-29-05 15:30
Analyzed: 04-12-05 17:39
Analyst: LMG

QC Batch ID: VM7-1747-W
Instrument ID: MS-7 Agilent 6890
Sample Volume: 25 mL
Dilution Factor: 1

Page: 1 of 2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	0.5
74-87-3	Chloromethane	BRL		ug/L	0.5
75-01-4	Vinyl Chloride	BRL		ug/L	0.5
74-83-9	Bromomethane	BRL		ug/L	0.5
75-00-3	Chloroethane	BRL		ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL		ug/L	0.5
60-29-7	Diethyl Ether	BRL		ug/L	2
75-35-4	1,1-Dichloroethene	BRL		ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/L	5
67-64-1	Acetone	BRL		ug/L	10
75-15-0	Carbon Disulfide	BRL		ug/L	5
75-09-2	Methylene Chloride	BRL		ug/L	2.5
156-60-5	trans- 1,2-Dichloroethene	BRL		ug/L	0.5
1634-04-4	Methyl tert- butyl Ether (MTBE)	BRL		ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL		ug/L	0.5
594-20-7	2,2-Dichloropropane	BRL		ug/L	0.5
156-59-2	cis- 1,2-Dichloroethene	BRL		ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL		ug/L	5
74-97-5	Bromochloromethane	BRL		ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/L	5
67-66-3	Chloroform	BRL		ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL		ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL		ug/L	0.5
71-43-2	Benzene	BRL		ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL		ug/L	0.5
79-01-6	Trichloroethene	BRL		ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL		ug/L	0.5
74-95-3	Dibromomethane	BRL		ug/L	0.5
75-27-4	Bromodichloromethane	BRL		ug/L	0.5
123-91-1	1,4-Dioxane	BRL		ug/L	500
10061-01-5	cis- 1,3-Dichloropropene	BRL		ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/L	5
108-88-3	Toluene	BRL		ug/L	0.5
10061-02-6	trans- 1,3-Dichloropropene	BRL		ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	0.5
127-18-4	Tetrachloroethene	BRL		ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL		ug/L	0.5
591-78-6	2-Hexanone	BRL		ug/L	5
124-48-1	Dibromochloromethane	BRL		ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/L	0.5
108-90-7	Chlorobenzene	BRL		ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/L	0.5
100-41-4	Ethylbenzene	BRL		ug/L	0.5
108-38-3/106-42-3	meta- Xylene and para- Xylene	BRL		ug/L	0.5
95-47-6	ortho- Xylene	BRL		ug/L	0.5

GROUNDWATER ANALYTICAL

EPA Method 8015B (Modified) Diesel Range Organics by GC/FID

Field ID:	GN050089	Matrix:	Aqueous
Project:	Work Item #4	Container:	1 L Amber Glass
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	H2SO4/Cool
Laboratory ID:	82298-07	QC Batch ID:	HF-1584-F
Sampled:	03-29-05 00:00	Instrument ID:	GC-12 Agilent 6890
Received:	03-29-05 15:30	Sample Volume:	1000 mL
Extracted:	04-04-05 13:30	Final Volume:	1 mL
Analyzed:	04-11-05 19:26	Dilution Factor:	1
Analyst:	MM		

Analyte	Concentration	Notes	Units	Reporting Limit
Diesel Range Organics	0.4		mg/L	0.2

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	0.040	0.032	80 %	60 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Diesel range organics quantified in the range n-C 10 through n-C 28. Method modified to quantify results on the basis of a series of aromatic and aliphatic hydrocarbons, using 5-alpha-androstane as an internal standard.
Sample extraction performed by EPA 3510C.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8015B (Modified) Diesel Range Organics by GC/FID

Field ID:	GN050091	Matrix:	Aqueous
Project:	Work Item #4	Container:	1 L Amber Glass
Client:	Otis 102nd Fighter Wing/Environmental Management	Preservation:	H2SO4/Cool
Laboratory ID:	82298-09	QC Batch ID:	HF-1584-F
Sampled:	03-29-05 00:00	Instrument ID:	GC-12 Agilent 6890
Received:	03-29-05 15:30	Sample Volume:	950 mL
Extracted:	04-04-05 13:30	Final Volume:	1 mL
Analyzed:	04-11-05 20:59	Dilution Factor:	1
Analyst:	MM		

Analyte	Concentration	Notes	Units	Reporting Limit
Diesel Range Organics	0.4		mg/L	0.2

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho -Terphenyl	0.042	0.035	82 %	60 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Diesel range organics quantified in the range n-C 10 through n-C 28. Method modified to quantify results on the basis of a series of aromatic and aliphatic hydrocarbons, using 5-alpha-androstane as an internal standard.
Sample extraction performed by EPA 3510C.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Trace Metals

Field ID: GN050090
Project: Work Item #4
Client: Otis 102nd Fighter Wing/Environmental Management
Laboratory ID: 82298-17
Sampled: 03-29-05 00:00
Received: 03-29-05 15:30

Matrix: Aqueous
Container: 250 mL Plastic
Preservation: HNO3 / Cool
Preserved: 03-29-05 00:00

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B ¹	MB-1498-W	EPA 3010A	03-31-05 08:29	50 mL	ICP-2 PE 3300	MWR
EPA 7470A ²	MP-1655-W	EPA 7470A	04-04-05 10:00	25 mL	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total	BRL		mg/L	0.01	1	04-08-05 13:29	EPA 6010B ¹
7440-39-3	Barium, Total	BRL		mg/L	0.2	1	04-08-05 13:29	EPA 6010B ¹
7440-43-9	Cadmium, Total	BRL		mg/L	0.005	1	04-08-05 13:29	EPA 6010B ¹
7440-47-3	Chromium, Total	BRL		mg/L	0.01	1	04-08-05 13:28	EPA 6010B ¹
7440-50-8	Copper, Total	0.026		mg/L	0.025	1	04-08-05 13:28	EPA 6010B ¹
7439-92-1	Lead, Total	0.010		mg/L	0.005	1	04-08-05 13:29	EPA 6010B ¹
7439-96-5	Manganese, Total	0.13		mg/L	0.05	1	04-08-05 13:28	EPA 6010B ¹
7439-97-6	Mercury, Total	BRL		mg/L	0.0002	1	04-04-05 14:08	EPA 7470A ²
7440-02-0	Nickel, Total	BRL		mg/L	0.04	1	04-08-05 13:29	EPA 6010B ¹
7782-49-2	Selenium, Total	BRL		mg/L	0.05	1	04-08-05 13:29	EPA 6010B ¹
7440-22-4	Silver, Total	BRL		mg/L	0.007	1	04-08-05 13:28	EPA 6010B ¹
7440-66-6	Zinc, Total	0.3		mg/L	0.2	1	04-08-05 13:28	EPA 6010B ¹

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
DF Dilution Factor.

GROUNDWATER ANALYTICAL

Inorganic Chemistry

Field ID: GN050089

Project: Work Item #4

Client: Otis 102nd Fighter Wing/Environmental Management

Matrix: Aqueous

Received: 03-29-05 15:30

Lab ID: 82298-10

Sampled: 03-29-05 00:00

Container: 500 mL Plastic

Preservation: H2SO4/Cool

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Nitrate (as Nitrogen)	0.20	mg/L	0.02	1	5 mL	03-29-05 17:20	NI-2528-W	SM 4500-NO3 F	1	DDW
Nitrite (as Nitrogen)	BRL	mg/L	0.02	1	5 mL	03-29-05 17:20	NI-2528-W	SM 4500-NO3 F	1	DDW
Ammonia (as Nitrogen)	BRL	mg/L	0.2	1	50 mL	04-07-05 15:20	AM-1463-W	Lachat 10-107-06-1-B (SM 4500-NH3 B, C)	1	AVB
Chemical Oxygen Demand	32	mg/L	20	1	2.5 mL	04-05-05 10:00	COD-0524-W	SM 5220 D	2	MW
Nitrate plus Nitrite (as Nitrogen)	0.20	mg/L	0.02	1	5 mL	03-29-05 17:20	NI-2528-W	Lachat 10-107-04-1-C (SM 4500-NO3 F)	1	DDW
Nitrogen, Total Kjeldahl (TKN)	0.6	mg/L	0.5	1	20 mL	04-08-05 15:15	TKN-1592-W	Lachat 10-107-06-3-D (EPA 351.2)	1	AVB
Phosphorus, Total	BRL	mg/L	0.5	1	20 mL	04-08-05 15:15	TP-1592-W	Lachat 10-115-01-1-C (EPA 365.4)	1	AVB

Lab ID: 82298-13

Sampled: 03-29-05 00:00

Container: 1 L Plastic

Preservation: Cool

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Biochemical Oxygen Demand	BRL	mg/L	2	3	100 mL	03-30-05 11:28	BOD-2016-W	SM 5210 B	4	DB
Solids, Total Suspended	BRL	mg/L	10	1	100 mL	03-31-05 09:33	TSS-1064-W	SM 2540 D	5	DB
pH	6.3	pH	NA	1	50 mL	03-29-05 16:18	PH-1872-W	SM 4500-H+B	3	JW

Method Reference: Methods for Chemical Analysis of Water and Wastes, US EPA, EPA-600/4-790-020 (Revised 1983), and Methods for the Determination of Inorganic Substances in Environmental Samples, US EPA, EPA/600/R-93/100 (1993), and Standard Methods for the Examination of Water and Wastewater, APHA, Twentieth Edition (1998), and Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

RL Reporting Limit.

DF Dilution Factor.

1 Instrument ID: Lachat 8000 Autoanalyzer

2 Instrument ID: Milton Roy Spectronic 401

3 Instrument ID: Accumet AR50

4 Instrument ID: YSI 5100

5 Instrument ID: Mettler AT 200 Balance

GROUNDWATER ANALYTICAL

Inorganic Chemistry

Field ID: GN050091

Project: Work Item #4

Client: Otis 102nd Fighter Wing/Environmental Management

Matrix: Aqueous

Received: 03-29-05 15:30

Lab ID: 82298-12 Sampled: 03-29-05 00:00 Container: 500 mL Plastic Preservation: H2SO4/Cool

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Nitrate (as Nitrogen)	0.24	mg/L	0.02	1	5 mL	03-29-05 17:22	NI-2528-W	SM 4500-NO3 F	1	DDW
Nitrite (as Nitrogen)	BRL	mg/L	0.02	1	5 mL	03-29-05 17:22	NI-2528-W	SM 4500-NO3 F	1	DDW
Ammonia (as Nitrogen)	BRL	mg/L	0.2	1	50 mL	04-07-05 15:23	AM-1463-W	Lachat 10-107-06-1-B (SM 4500-NH3 B, C)	1	AVB
Chemical Oxygen Demand	27	mg/L	20	1	2.5 mL	04-05-05 10:00	COD-0524-W	SM 5220 D	2	MW
Nitrate plus Nitrite (as Nitrogen)	0.24	mg/L	0.02	1	5 mL	03-29-05 17:22	NI-2528-W	Lachat 10-107-06-1-C (SM 4500-NO3 F)	1	DDW
Nitrogen, Total Kjeldahl (TKN)	0.8	mg/L	0.5	1	20 mL	04-08-05 15:16	TKN-1592-W	Lachat 10-107-06-2-D (EPA 351.2)	1	AVB
Phosphorus, Total	BRL	mg/L	0.5	1	20 mL	04-08-05 15:16	TP-1592-W	Lachat 10-115-01-1-C (EPA 365.4)	1	AVB

Lab ID: 82298-15 Sampled: 03-29-05 00:00 Container: 1 L Plastic Preservation: Cool

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Biochemical Oxygen Demand	2	mg/L	2	3	100 mL	03-30-05 11:23	BOD-2016-W	SM 5210 B	4	DB
Solids, Total Suspended	12	mg/L	10	1	100 mL	03-31-05 09:33	TSS-1064-W	SM 2540 D	5	DB
pH	7.0	pH	NA	1	50 mL	03-29-05 16:28	PH-1872-W	SM 4500-H + B	3	JW

Method Reference: Methods for Chemical Analysis of Water and Wastes, US EPA, EPA-600/4-790-020 (Revised 1983), and Methods for the Determination of Inorganic Substances in Environmental Samples, US EPA, EPA/600/R-93/100 (1993), and Standard Methods for the Examination of Water and Wastewater, APHA, Twentieth Edition (1998), and Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

RL Reporting Limit.

DF Dilution Factor.

1 Instrument ID: Lachat 8000 Autoanalyzer

2 Instrument ID: Milton Roy Spectronic 401

3 Instrument ID: Accumet AR50

4 Instrument ID: YSI 5100

5 Instrument ID: Mettler AT 200 Balance

GROUNDWATER ANALYTICAL

Microbiology

Field ID: GN050089
Project: Work Item #4
Client: Otis 102nd Fighter Wing/Environmental Management
Laboratory ID: 82298-20
Sampled: 03-29-05 00:00
Received: 03-29-05 15:30

Matrix: Aqueous
Container: 120mL Sterile Plastic
Preservation: Cool

Analyte	Result	Units	DF	Volume	Analyzed	QC Batch	Method	Analyst
Coliform, Fecal	1,900	Colonies/100mL	1	5 mL	03-29-05 19:00	FC-1167-W	SM 9222 D	VT

Method Reference: Standard Methods for the Examination of Water and Wastewater, APHA, Twentieth Edition (1998), and Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: DF Dilution Factor.

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: L0503236-01

Date Collected: 29-MAR-2005 00:00

GN050089

Date Received : 31-MAR-2005

Sample Matrix: WATER

Date Reported : 11-APR-2005

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 3-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
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Glycol Organics by GC/FID

12 E202

0407 09:13 EL

Ethylene glycol

ND

mg/l

5.0

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: L0503236-03

GN050091

Sample Matrix:

WATER

Date Collected: 29-MAR-2005 00:00

Date Received : 31-MAR-2005

Date Reported : 11-APR-2005

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 3-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
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Glycol Organics by GC/FID

Ethylene glycol

ND

mg/l

5.0

12 B202

0407 10:10 RL

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

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ENVIRONMENTAL SAMPLING DATA										OEHL USE ONLY																			
(If -- this space for mechanical imprint)										SAMPLING SITE IDENTIFIER (AFR 19-7) 0305 NO 537																			
										BASE WHERE SAMPLE COLLECTED OTIS ANG BASE																			
										SAMPLING SITE DESCRIPTION SD-1																			
DATE COLLECTION BEGAN (YYMMDD) 05 10 31 218					TIME COLLECTION BEGAN (24 hour clock)					COLLECTION METHOD ☒ GRAB ☐ COMPOSITE HOURS																			
MAIL REPORTS TO (circle if changed)	ORIGINAL					102 FW/EM																							
	COPY 1					197 GRANVILLE AVE BOX 46																							
	COPY 2					OTIS ANG BASE MA 02542-1330																							
SAMPLE COLLECTED BY (Name, Grade, AFSC)										SIGNATURE										AUTOVON 508 968-4078									
REASON FOR SUBMISSION		ER		A-ACCIDENT/INCIDENT R-ROUTINE/PERIODIC					C-COMPLAINT N-NPDES					F-FOLLOWUP/CLEANUP O-OTHER (specify)															
BASE SAMPLE NUMBER: GN 05 0089										GEHL PID																			
ANALYSES REQUESTED (Check appropriate blocks)																													
GROUP A					Hardness 00900					Silica 00955					2, 4, 5-T 39740														
Ammonia 00610					Iron 01045					Specific Conductance 00095					2, 4, 5-TP-Silvex 39760														
Chemical Oxygen Demand 00340					Lead 01051					Sulfate 00945																			
Kjeldahl Nitrogen 00625					Magnesium 00927					Surfactants-MBAS 38260																			
Nitrate 00620					Manganese 01055					Turbidity 00076																			
Nitrite 00615					Mercury 71900																								
Oil & Grease 00560					Nickel 01067																								
Organic Carbon 00680					Potassium 00937																								
Orthophosphate 00671					Selenium 01147					GROUP H																			
Phosphorus, total 00665					Silver 01077					Aldrin 39330																			
					Sodium 00929					BHC Isomers 39340																			
GROUP D					Thallium 01059					a-BHC 39337																			
Cyanide, Total 00720					Zinc 01092					b-BHC 39338																			
Cyanide, Free 00722										d-BHC 34259																			
										Chlordane 39350					GROUP I														
GROUP E					GROUP G					DDT Isomers 39370					Sulfides 00745														
Phenols 32730					Acidity, Total 70508					p, p-DDD 39310																			
					Alkalinity, Total 00410					p, p-DDE 39320																			
GROUP F					Alkalinity, Bicarbonate 00425					p, p-DDT 39300																			
Antimony 01097					Bromide 71870					Dieldrin 39380					ON SITE ANALYSES														
Arsenic 01002					Carbon Dioxide 00405					Dursban 77969					PARAMETER VALUE														
Barium 01007					Chloride 00940					Endrin 39390					Flow 50050 mgd														
Beryllium 01012					Color 00080					Heptachlor 39410					Chlorine, Total 50060 mg/l														
Boron 01022					Fluoride 00951					Heptachlor Epoxide 39420					Dissolved Oxygen 00300 mg/l														
Cadmium 01027					Residue, Total 00500					Lindane 39782					pH 00400 units														
Calcium 00916					Residue, Filterable (TDS) 70500					Metoxychlor 39480					Temperature 00010 °C														
Chromium, Total 01034					Residue, Nonfilterable 00530					Permethrin (Cyamaton) KY4200000					Odor 00086														
Chromium VI 01032					Residue, Beryllate 50085					Toxaphene 39400					Icicide 71965														
Copper 01042					Residue, Volatile 00505					D, D-D 39730					Sulfite 00740														
REMARKS WORK ITEM 4A (SEE OVER)																													

ENVIRONMENTAL SAMPLING DATA										OEHL USE ONLY																			
(Use this space for mechanical imprint)										SAMPLING SITE IDENTIFIER (AFR 19-7)					0305 NO 524														
										BASE WHERE SAMPLE COLLECTED																			
										OTIS ANG BASE																			
										SAMPLING SITE DESCRIPTION																			
SD-3a																													
DATE COLLECTION BEGAN (YYMMDD)					TIME COLLECTION BEGAN (24 hour clock)					COLLECTION METHOD																			
0151031218										☒ GRAB ☐ COMPOSITE HOURS																			
MAIL REPORTS TO (circle if changed)	ORIGINAL					102FW/EM																							
	COPY 1					197GEARVILLE AVE BOX 46																							
	COPY 2					OTIS ANG BASE MA 02542-1330																							
SAMPLE COLLECTED BY (Name, Grade, AFSC)										SIGNATURE										AUTOVON									
																				508 968-4072									
REASON FOR SUBMISSION		ER		A-ACCIDENT/INCIDENT R-ROUTINE/PERIODIC					C-COMPLAINT N-NPDES					F-FOLLOWUP/CLEANUP O-OTHER (specify)															
BASE SAMPLE NUMBER		GN		05		0090		OEHL PID																					
ANALYSES REQUESTED (Check appropriate blocks)																													
GROUP A		Hardness		00900		Silica		00955		2, 4, 5-T		39740																	
Ammonia 00610		Iron 01045		Specific Conductance 00095		2, 4, 5-TP-Silvex		39760																					
Chemical Oxygen Demand 00340		Lead 01051		Sulfate 00945																									
Kjeldahl Nitrogen 00625		Magnesium 00927		Surfactants-MBAS 38260																									
Nitrate 00620		Manganese 01055		Turbidity 00076																									
Nitrite 00615		Mercury 71900																											
Oil & Grease 00560		Nickel 01067																											
Organic Carbon 00680		Potassium 00937																											
Orthophosphate 00671		Selenium 01147		GROUP H																									
Phosphorus, total 00665		Silver 01077		Aldrin 39330																									
		Sodium 00929		BHC Isomers 39340																									
GROUP D		Thallium 01059		a-BHC 39337																									
Cyanide, Total 00720		Zinc 01092		b-BHC 39338																									
Cyanide, Free 00722				d-BHC 34259																									
				Chlordane 39350		GROUP J																							
GROUP E		GROUP G		DDT Isomers 39370		Sulfides 00745																							
Phenols 32730		Acidity, Total 70508		p, p-DDD 39310																									
		Alkalinity, Total 00410		p, p-DDE 39320																									
GROUP F		Alkalinity, Bicarbonate 00425		p, p-DDT 39500																									
Antimony 01097		Bromide 71870		Dieldrin 39380		ON SITE ANALYSES																							
Arsenic 01002		Carbon Dioxide 00405		Dursban 77969		PARAMETER		VALUE																					
Barium 01007		Chloride 00940		Endrin 39390		Flow		50050		mg/L																			
Beryllium 01012		Color 00080		Heptachlor 39410		Chlorine, Total		50060		mg/L																			
Boron 01022		Fluoride 00951		Heptachlor Epoxide 39420		Dissolved Oxygen		00300		mg/L																			
Cadmium 01027		Residue, Total 00500		Lindane 39782		pH		00400		units																			
Calcium 00916		Residue, Filterable (TDS) 00300		Methoxychlor 39480		Temperature		00010		°C																			
Chromium, Total 01034		Residue, Nonfilterable 00550		Prometon (P-meton) XY4200000		Odor		00086		BT																			
Chromium VI 01032		Residue, Settleable 00085		Toxaphene 39400		Isolide		71565																					
Copper 01042		Residue, Volatile 00505		L-D 39730		Sulfite		00740																					
REMARKS WORK ITEM 4A (SEE OVER)																													

GROUNDWATER ANALYTICAL

Quality Control Report Laboratory Control Sample

Category: Inorganic Chemistry

Matrix: Aqueous

Analyte	Units	Spiked	Measured	Recovery	QC Limits	Analyzed	QC Batch	Method	Inst	Analyst
Solids, Total Suspended	mg/L	91	80	88 %	80 - 120 %	03-31-05 09:33	TSS-1064-W	SM 2540 D	5	DEB
Phosphorus, Total	mg/L	2.5	2.2	90 %	80 - 120 %	04-08-05 15:03	TP-1592-W	Lachat 10-115-01-1-C (EPA 365.4)	1	AVB
pH	pH	7.0	7.0	100 %	80 - 120 %	03-29-05 15:45	PH-1872-W	SM 4500-H + B	3	JBW
Total Kjeldahl Nitrogen (TKN)	mg/L	10	10	103 %	80 - 120 %	04-08-05 15:03	TKN-1592-W	Lachat 10-107-06-2-D (EPA 351.2)	1	AVB
Nitrite (as Nitrogen)	mg/L	0.50	0.56	112 %	80 - 120 %	03-29-05 17:15	NI-2528-W	Lachat 10-107-04-1-C (SM 4500-NO3 F)	1	DDW
Nitrate (as Nitrogen)	mg/L	0.50	0.50	99 %	80 - 120 %	03-29-05 17:15	NI-2528-W	Lachat 10-107-04-1-C (SM 4500-NO3 F)	1	DDW
Ammonia (as Nitrogen)	mg/L	5.0	4.9	97 %	80 - 120 %	04-07-05 15:20	AM-1463-W	Lachat 10-107-06-1-B (SM 4500-NH3 B, G)	1	AVB
Chemical Oxygen Demand	mg/L	200	200	100 %	80 - 120 %	04-05-05 10:00	COD-0524-W	SM 5220 D	2	MW
Biochemical Oxygen Demand	mg/L	200	180	92 %	85 - 115 %	03-30-05 09:18	BOD-2016-W	SM 5210 B	4	LD

Method Reference: Methods for Chemical Analysis of Water and Wastes, US EPA, EPA-600/4-790-020 (Revised 1983), and Methods for the Determination of Inorganic Substances in Environmental Samples, US EPA, EPA/600/R-93/100 (1993), and Standard Methods for the Examination of Water and Wastewater, APHA, Twentieth Edition (1998), and Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

- 1 Instrument ID: Lachat 8000 Autoanalyzer
- 2 Instrument ID: Milton Roy Spectronic 401
- 3 Instrument ID: Accumet AR50
- 4 Instrument ID: YSI 5100
- 5 Instrument ID: Mettler AT 200 Balance

GROUNDWATER ANALYTICAL

Quality Control Report Laboratory Control Samples

Category: Metals
Matrix: Aqueous
Units: mg/L

Sample Type	Method	QC Batch ID	Prep Method	Prepared	Analyzed	Instrument ID	Analyst
LCS	EPA 6010B	MB-1498-WL	EPA 3010A	03-31-05 08:29	04-08-05 12:15	ICP-2 PE 3300	MWR
LCS	EPA 7470A	MP-1655-WL	EPA 7470A	04-04-05 10:00	04-04-05 13:54	CVAA-1 PE FIMS	CRL
LCSD	EPA 6010B	MB-1498-WL	EPA 3010A	03-31-05 08:29	04-08-05 12:20	ICP-2 PE 3300	MWR
LCSD	EPA 7470A	MP-1655-WL	EPA 7470A	04-04-05 10:00	04-04-05 13:56	CVAA-1 PE FIMS	CRL

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits		Method
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	LCS	RPD	
7440-38-2	Arsenic	1.0	1.1	108%	1.0	1.1	110%	1 %	80-120 %	20 %	EPA 6010B
7440-39-3	Barium	5.0	5.1	101%	5.0	5.3	106%	2 %	80-120 %	20 %	EPA 6010B
7440-43-9	Cadmium	1.0	1.0	101%	1.0	1.0	101%	0 %	80-120 %	20 %	EPA 6010B
7440-47-3	Chromium	1.0	1.0	104%	1.0	1.1	106%	1 %	80-120 %	20 %	EPA 6010B
7440-50-8	Copper	1.0	0.97	97%	1.0	1.00	100%	2 %	80-120 %	20 %	EPA 6010B
7439-92-1	Lead	1.0	1.0	102%	1.0	1.0	103%	0 %	80-120 %	20 %	EPA 6010B
7439-96-5	Manganese	1.0	1.0	102%	1.0	1.0	103%	0 %	80-120 %	20 %	EPA 6010B
7439-97-6	Mercury	0.0010	0.0010	100%	0.0010	0.0010	101%	0 %	80-120 %	20 %	EPA 7470A
7440-02-0	Nickel	1.0	1.0	103%	1.0	1.1	106%	1 %	80-120 %	20 %	EPA 6010B
7782-49-2	Selenium	1.0	1.0	101%	1.0	1.0	102%	0 %	80-120 %	20 %	EPA 6010B
7440-22-4	Silver	1.0	1.0	102%	1.0	1.1	108%	3 %	80-120 %	20 %	EPA 6010B
7440-66-6	Zinc	1.0	1.0	103%	1.0	1.1	105%	1 %	80-120 %	20 %	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report Laboratory Control Sample

Category:	EPA 8015B Mod Diesel Range Organics	Instrument ID:	GC-12 Agilent 6890
QC Batch ID:	HF-1584-F	Extracted:	04-04-05 13:30
Matrix:	Aqueous	Analyzed:	04-07-05 09:03
Units:	mg/L	Analyst:	MM

Analyte	Spiked	Measured	Recovery	QC Limits
Fuel Oil No. 2	2.0	2.7	135 %	60 - 140 %

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	0.040	0.039	97 %	60 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Diesel range organics quantified in the range n-C 10 through n-C 28. Method modified to quantify results on the basis of a series of aromatic and aliphatic hydrocarbons, using 5-alpha-androstane as an internal standard.
Sample extraction performed by EPA 3510C.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report Laboratory Control Samples

Category: EPA Method 8260B
QC Batch ID: VM7-1747-WL
Matrix: Aqueous
Units: ug/L

LCS
Instrument ID: MS-7 Agilent 6890
Analyzed: 04-12-05 13:21
Analyst: LMG

LCSD
Instrument ID: MS-7 Agilent 6890
Analyzed: 04-12-05 13:56
Analyst: LMG

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CAS Number	Analyte	LCS			LCS Duplicate				QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	Spike	RPD
75-71-8	Dichlorodifluoromethane	10	7.6	76 %	10	7.3	73 %	4 %	70 - 130 %	25%
74-87-3	Chloromethane	10	9.5	95 %	10	11	106 %	11 %	70 - 130 %	25%
75-01-4	Vinyl Chloride	10	9.2	92 %	10	9.5	95 %	4 %	70 - 130 %	25%
74-83-9	Bromomethane	10	9.6	96 %	10	9.6	96 %	0 %	70 - 130 %	25%
75-00-3	Chloroethane	10	9.3	93 %	10	9.2	92 %	1 %	70 - 130 %	25%
75-69-4	Trichlorofluoromethane	10	10	103 %	10	9.7	97 %	7 %	70 - 130 %	25%
60-29-7	Diethyl Ether	20	18	91 %	20	18	92 %	1 %	70 - 130 %	25%
75-35-4	1,1-Dichloroethene	10	9	90 %	10	9	90 %	0 %	70 - 130 %	25%
76-13-1	1,1,2-Trichlorotrifluoroethane	20	22	109 %	20	20	100 %	9 %	70 - 130 %	25%
67-64-1	Acetone	20	18	90 %	20	17	85 %	5 %	70 - 130 %	25%
75-15-0	Carbon Disulfide	20	18	92 %	20	17	87 %	6 %	70 - 130 %	25%
75-09-2	Methylene Chloride	10	9.2	92 %	10	9.1	91 %	1 %	70 - 130 %	25%
156-60-5	trans- 1,2-Dichloroethene	10	8.6	86 %	10	8.7	87 %	1 %	70 - 130 %	25%
1634-04-4	Methyl tert- butyl Ether (MTBE)	10	9.3	93 %	10	9.2	92 %	1 %	70 - 130 %	25%
75-34-3	1,1-Dichloroethane	10	8.8	88 %	10	8.9	89 %	1 %	70 - 130 %	25%
594-20-7	2,2-Dichloropropane	10	10	100 %	10	9.7	97 %	3 %	70 - 130 %	25%
156-59-2	cis- 1,2-Dichloroethene	10	9	90 %	10	9.2	92 %	2 %	70 - 130 %	25%
78-93-3	2-Butanone (MEK)	20	19	97 %	20	19	96 %	2 %	70 - 130 %	25%
74-97-5	Bromochloromethane	10	9.4	94 %	10	9.7	97 %	3 %	70 - 130 %	25%
109-99-9	Tetrahydrofuran (THF)	20	18	90 %	20	19	94 %	4 %	70 - 130 %	25%
67-66-3	Chloroform	10	8.9	89 %	10	9	90 %	2 %	70 - 130 %	25%
71-55-6	1,1,1-Trichloroethane	10	9.2	92 %	10	9	90 %	2 %	70 - 130 %	25%
56-23-5	Carbon Tetrachloride	10	8.9	89 %	10	8.8	88 %	1 %	70 - 130 %	25%
563-58-6	1,1-Dichloropropene	10	8.9	89 %	10	9.1	91 %	2 %	70 - 130 %	25%
71-43-2	Benzene	10	8.6	86 %	10	8.9	89 %	3 %	70 - 130 %	25%
107-06-2	1,2-Dichloroethane	10	9	90 %	10	9.3	93 %	3 %	70 - 130 %	25%
79-01-6	Trichloroethene	10	8	80 %	10	8.4	84 %	6 %	70 - 130 %	25%
78-87-5	1,2-Dichloropropane	10	8.8	88 %	10	9.3	93 %	5 %	70 - 130 %	25%
74-95-3	Dibromomethane	10	9.2	92 %	10	9.4	94 %	3 %	70 - 130 %	25%
75-27-4	Bromodichloromethane	10	9	90 %	10	9.4	94 %	4 %	70 - 130 %	25%
123-91-1	1,4-Dioxane	200	220	109 %	200	240	122 %	11 %	70 - 130 %	25%
10061-01-5	cis- 1,3-Dichloropropene	10	9.3	93 %	10	9.5	95 %	3 %	70 - 130 %	25%
108-10-1	4-Methyl-2-Pentanone (MIBK)	20	17	87 %	20	18	89 %	2 %	70 - 130 %	25%
108-88-3	Toluene	10	8.5	85 %	10	8.9	89 %	4 %	70 - 130 %	25%
10061-02-6	trans- 1,3-Dichloropropene	10	8.7	87 %	10	8.9	89 %	2 %	70 - 130 %	25%
79-00-5	1,1,2-Trichloroethane	10	8.8	88 %	10	9.1	91 %	3 %	70 - 130 %	25%
127-18-4	Tetrachloroethene	10	8.5	85 %	10	8.7	87 %	3 %	70 - 130 %	25%
142-28-9	1,3-Dichloropropane	10	9.2	92 %	10	9.4	94 %	2 %	70 - 130 %	25%
591-78-6	2-Hexanone	20	16	81 %	20	17	84 %	3 %	70 - 130 %	25%
124-48-1	Dibromochloromethane	10	8.9	89 %	10	9	90 %	1 %	70 - 130 %	25%
106-93-4	1,2-Dibromoethane (EDB)	10	8.9	89 %	10	9.4	94 %	5 %	70 - 130 %	25%
108-90-7	Chlorobenzene	10	8.4	84 %	10	8.7	87 %	4 %	70 - 130 %	25%
630-20-6	1,1,1,2-Tetrachloroethane	10	9.3	93 %	10	9.1	91 %	2 %	70 - 130 %	25%
100-41-4	Ethylbenzene	10	8.7	87 %	10	8.8	88 %	2 %	70 - 130 %	25%
108-38-3/106-42-3	meta- Xylene and para- Xylene	20	17	85 %	20	18	88 %	3 %	70 - 130 %	25%
95-47-6	ortho- Xylene	10	8.9	89 %	10	9.1	91 %	2 %	70 - 130 %	25%
100-42-5	Styrene	10	9.1	91 %	10	9.4	94 %	3 %	70 - 130 %	25%
75-25-2	Bromoform	10	9.4	94 %	10	9.7	97 %	3 %	70 - 130 %	25%
98-82-8	Isopropylbenzene	10	8.3	83 %	10	8.4	84 %	2 %	70 - 130 %	25%

GROUNDWATER ANALYTICAL

Quality Control Report Method Blank

Category: EPA Method 8260B
QC Batch ID: VM7-1747-WB
Matrix: Aqueous

Instrument ID: MS-7 Agilent 6890
Analyzed: 04-12-05 14:39
Analyst: LMG

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CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	0.5
74-87-3	Chloromethane	BRL		ug/L	0.5
75-01-4	Vinyl Chloride	BRL		ug/L	0.5
74-83-9	Bromomethane	BRL		ug/L	0.5
75-00-3	Chloroethane	BRL		ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL		ug/L	0.5
60-29-7	Diethyl Ether	BRL		ug/L	2
75-35-4	1,1-Dichloroethene	BRL		ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/L	5
67-64-1	Acetone	BRL		ug/L	10
75-15-0	Carbon Disulfide	BRL		ug/L	5
75-09-2	Methylene Chloride	BRL		ug/L	2.5
156-60-5	trans- 1,2-Dichloroethene	BRL		ug/L	0.5
1634-04-4	Methyl tert- butyl Ether (MTBE)	BRL		ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL		ug/L	0.5
594-20-7	2,2-Dichloropropane	BRL		ug/L	0.5
156-59-2	cis- 1,2-Dichloroethene	BRL		ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL		ug/L	5
74-97-5	Bromochloromethane	BRL		ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/L	5
67-66-3	Chloroform	BRL		ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL		ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL		ug/L	0.5
71-43-2	Benzene	BRL		ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL		ug/L	0.5
79-01-6	Trichloroethene	BRL		ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL		ug/L	0.5
74-95-3	Dibromomethane	BRL		ug/L	0.5
75-27-4	Bromodichloromethane	BRL		ug/L	0.5
123-91-1	1,4-Dioxane	BRL		ug/L	500
10061-01-5	cis- 1,3-Dichloropropene	BRL		ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/L	5
108-88-3	Toluene	BRL		ug/L	0.5
10061-02-6	trans- 1,3-Dichloropropene	BRL		ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	0.5
127-18-4	Tetrachloroethene	BRL		ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL		ug/L	0.5
591-78-6	2-Hexanone	BRL		ug/L	5
124-48-1	Dibromochloromethane	BRL		ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/L	0.5
108-90-7	Chlorobenzene	BRL		ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/L	0.5
100-41-4	Ethylbenzene	BRL		ug/L	0.5
108-38-3/106-42-3	meta- Xylene and para- Xylene	BRL		ug/L	0.5
95-47-6	ortho- Xylene	BRL		ug/L	0.5
100-42-5	Styrene	BRL		ug/L	0.5
75-25-2	Bromoform	BRL		ug/L	0.5
98-82-8	Isopropylbenzene	BRL		ug/L	0.5

GROUNDWATER ANALYTICAL

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states.
Copies of our current certificates may be obtained from our website:

<http://www.groundwateranalytical.com/qualifications.htm>

CONNECTICUT, Department of Health Services, PH-0586

Categories: Potable Water, Wastewater, Solid Waste and Soil
http://www.dph.state.ct.us/BRS/Environmental_Lab/OutStateLabList.htm

FLORIDA, Department of Health, Bureau of Laboratories, E87643

Categories: SDWA, CWA, RCRA/CERCLA
<http://www.floridadep.org/labs/qa/dohforms.htm>

MAINE, Department of Human Services, MA103

Categories: Drinking Water and Wastewater
<http://www.state.me.us/dhs/eng/water/Compliance.htm>

MASSACHUSETTS, Department of Environmental Protection, M-MA-103

Categories: Potable Water and Non-Potable Water
<http://www.state.ma.us/dep/bspt/wes/files/certlabs.pdf>

NEW HAMPSHIRE, Department of Environmental Services, 202703

Categories: Drinking Water and Wastewater
<http://www.des.state.nh.us/asp/NHELAP/labsview.asp>

NEW YORK, Department of Health, 11754

Categories: Potable Water, Non-Potable Water and Solid Waste
<http://www.wadsworth.org/labcert/elap/comm.html>

PENNSYLVANIA, Department of Environmental Protection, 68-665

Environmental Laboratory Registration (Non-drinking water and Non-wastewater)
<http://www.dep.state.pa.us/Labs/Registered/>

RHODE ISLAND, Department of Health, 54

Categories: Surface Water, Air, Wastewater, Potable Water, Sewage
http://www.healthri.org/labs/labsCT_MA.htm

U.S. Department of Agriculture, Soil Permit, S-53921

Foreign soil import permit

VERMONT, Department of Environmental Conservation, Water Supply Division

Category: Drinking Water
<http://www.vermontdrinkingwater.org/wsops/labtable.PDF>

GROUNDWATER ANALYTICAL

September 15, 2004

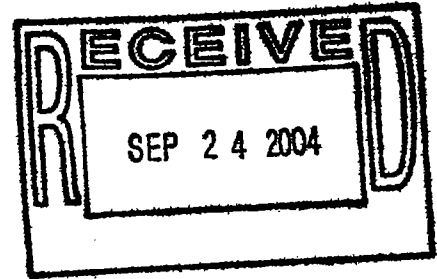
Groundwater Analytical, Inc.
P.O. Box 1200
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Buzzards Bay, MA 02532

Telephone (508) 759-4441
FAX (508) 759-4475
www.groundwateranalytical.com

Ms. Rose Ware
Otis 102nd Fighter Wing/Environmental Management
197 Granville Avenue
Box 46
Otis ANG Base, MA 02542

LABORATORY REPORT

Project: **Work Item 4A + 4B**
Lab ID: **76188**
Received: **08-31-04**



Dear Rose:

Enclosed are the analytical results for the above referenced project. The project was processed for Standard turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC standards, except as may be specifically noted, or described in the project narrative. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Eric H. Jensen
Operations Manager

EHJ/kal
Enclosures

Sample Receipt Report (Continued)

Project: **Work Item 4A + 4B**

Client: **Otis 102nd Fighter Wing/Environmental Management**

Lab ID: **76188**

Delivery: **Hand**

Airbill: **n/a**

Lab Receipt: **08-31-04**

Temperature: **6.7°C**

Chain of Custody: **Present**

Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-9	GN-040255 SD-4		Aqueous	8/31/04 10:30	EPA 8100 Mod Diesel Range Organics				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C304583	1 L Amber Glass	Proline	BX10259	H2SO4	R-3778A	11-10-03	11-25-03		
C304580	1 L Amber Glass	Proline	BX10259	H2SO4	R-3778A	11-10-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-10	GN-040255 SD-4		Aqueous	8/31/04 10:30	EPA 8151 Herbicides				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C348758	1 L Amber Glass	Proline	BX10201	None	n/a	n/a	12-01-03		
C348756	1 L Amber Glass	Proline	BX10201	None	n/a	n/a	12-01-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-11	GN-040254 SD-3		Aqueous	8/31/04 10:15	EPA 8151 Herbicides				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C348761	1 L Amber Glass	Proline	BX10201	None	n/a	n/a	12-01-03		
C348760	1 L Amber Glass	Proline	BX10201	None	n/a	n/a	12-01-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-12	GN-040253 SD-1		Aqueous	8/31/04 10:00	EPA 8151 Herbicides				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C348759	1 L Amber Glass	Proline	BX10201	None	n/a	n/a	12-01-03		
C348755	1 L Amber Glass	Proline	BX10201	None	n/a	n/a	12-01-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-13	GN-040253 SD-1		Aqueous	8/31/04 10:00	SM 5210 B Biochemical Oxygen Demand				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C397229	1 L Plastic	Proline	BX10356	None	n/a	n/a	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-14	GN-040254 SD-3		Aqueous	8/31/04 10:15	SM 5210 B Biochemical Oxygen Demand				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C397235	1 L Plastic	Proline	BX10356	None	n/a	n/a	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-15	GN-040255 SD-4		Aqueous	8/31/04 10:30	SM 5210 B Biochemical Oxygen Demand				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C397226	1 L Plastic	Proline	BX10356	None	n/a	n/a	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method			Notes
76188-16	GN-040255 SD-4		Aqueous	8/31/04 10:30	SM 2540 B Total Suspended Solids EPA 9040B pH			
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship	
C316177	250 mL Plastic	Greenwood	BX9456	None	n/a	n/a	11-25-03	

Lab ID	Field ID		Matrix	Sampled	Method			Notes
76188-17	GN-040254 SD-3		Aqueous	8/31/04 10:15	SM 2540 B Total Suspended Solids EPA 9040B pH			
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship	
C316107	250 ml Plastic	Greenwood	BX9456	None	n/a	n/a	11-25-03	

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Sample Receipt Report (Continued)

Project: **Work Item 4A + 4B**
 Client: **Otis 102nd Fighter Wing/Environmental Management**
 Lab ID: **76188**

Delivery: **Hand**
 Airbill: **n/a**
 Lab Receipt: **08-31-04**

Temperature: **6.7°C**
 Chain of Custody: **Present**
 Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
76188-26	GN-040254 SD-3		Aqueous	8/31/04 10:15	EPA 6010B Ba As Cd Cr Cu Pb Mn Ni Se Ag Zn Total EPA 7470A Hg Total				
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
C316560	250 mL Plastic	Greenwood	BX9458	HNO3	R-3760B	10-24-03	11-25-03		

Lab ID	Field ID		Matrix	Sampled	Method					Notes
76188-27	GN-040255 SD-4		Aqueous	8/31/04 10:30	EPA 6010B As Ba Cd Cr Cu Pb Mn Ni Se Ag Zn Total EPA 7470A Hg Total					
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship			
C316559	250 mL Plastic	Greenwood	BX9458	HNO3	R-3760B	10-24-03	11-25-03			

EPA Method 8260B (Continued) Volatile Organics by GC/MS

Field ID: GN-040253 SD-1
Project: Work Item 4A + 4B
Client: Otis 102nd Fighter Wing/Environmental Management
Laboratory ID: 76188-01
Sampled: 08-31-04 10:00
Received: 08-31-04 15:50
Analyzed: 09-12-04 01:39
Analyst: EMC

Matrix: Aqueous
Container: 40 mL VOA Vial
Preservation: HCl/Cool
QC Batch ID: VM4-2988-W
Instrument ID: MS-4 HP 6890
Sample Volume: 25 mL
Dilution Factor: 1

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CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/L	0.5
75-25-2	Bromoform	BRL		ug/L	0.5
98-82-8	Isopropylbenzene	BRL		ug/L	0.5
108-86-1	Bromobenzene	BRL		ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/L	0.5
96-18-4	1,2,3-Trichloropropane	BRL		ug/L	0.5
103-65-1	n-Propylbenzene	BRL		ug/L	0.5
95-49-8	2-Chlorotoluene	BRL		ug/L	0.5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/L	0.5
106-43-4	4-Chlorotoluene	BRL		ug/L	0.5
98-06-6	tert-Butylbenzene	BRL		ug/L	0.5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/L	0.5
135-98-8	sec-Butylbenzene	BRL		ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL		ug/L	0.5
99-87-6	4-Isopropyltoluene	BRL		ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL		ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL		ug/L	0.5
104-51-8	n-Butylbenzene	BRL		ug/L	0.5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/L	0.5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/L	0.5
87-68-3	Hexachlorobutadiene	BRL		ug/L	0.5
91-20-3	Naphthalene	BRL		ug/L	0.5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/L	0.5
75-65-0	tert-Butyl Alcohol (TBA)	BRL		ug/L	20
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/L	0.5
637-92-3	Ethyl tert-butyl Ether (ETBE)	BRL		ug/L	0.5
994-05-8	tert-Amyl Methyl Ether (TAME)	BRL		ug/L	0.5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	10	8.5	85 %	70 - 130 %
1,2-Dichloroethane-d ₄	10	9.0	90 %	70 - 130 %
Toluene-d ₈	10	8.7	87 %	70 - 130 %
4-Bromofluorobenzene	10	8.5	85 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

EPA Method 8260B (Continued) Volatile Organics by GC/MS

Field ID: GN-040254 SD-3
Project: Work Item 4A + 4B
Client: Otis 102nd Fighter Wing/Environmental Management

Laboratory ID: 76188-02
Sampled: 08-31-04 10:15
Received: 08-31-04 15:50
Analyzed: 09-12-04 02:19
Analyst: EMC

Matrix: Aqueous
Container: 40 mL VOA Vial
Preservation: HCl/Cool

QC Batch ID: VM4-2988-W
Instrument ID: MS-4 HP 6890
Sample Volume: 25 mL
Dilution Factor: 1

Page: 2 of 2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/L	0.5
75-25-2	Bromoform	BRL		ug/L	0.5
98-82-8	Isopropylbenzene	BRL		ug/L	0.5
108-86-1	Bromobenzene	BRL		ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/L	0.5
96-18-4	1,2,3-Trichloropropane	BRL		ug/L	0.5
103-65-1	n-Propylbenzene	BRL		ug/L	0.5
95-49-8	2-Chlorotoluene	BRL		ug/L	0.5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/L	0.5
106-43-4	4-Chlorotoluene	BRL		ug/L	0.5
98-06-6	tert-Butylbenzene	BRL		ug/L	0.5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/L	0.5
135-98-8	sec-Butylbenzene	BRL		ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL		ug/L	0.5
99-87-6	4-Isopropyltoluene	BRL		ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL		ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL		ug/L	0.5
104-51-8	n-Butylbenzene	BRL		ug/L	0.5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/L	0.5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/L	0.5
87-68-3	Hexachlorobutadiene	BRL		ug/L	0.5
91-20-3	Naphthalene	BRL		ug/L	0.5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/L	0.5
75-65-0	tert-Butyl Alcohol (TBA)	BRL		ug/L	20
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/L	0.5
637-92-3	Ethyl tert-butyl Ether (ETBE)	BRL		ug/L	0.5
994-05-8	tert-Amyl Methyl Ether (TAME)	BRL		ug/L	0.5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	10	8.6	86 %	70 - 130 %
1,2-Dichloroethane-d ₄	10	8.8	88 %	70 - 130 %
Toluene-d ₈	10	8.8	88 %	70 - 130 %
4-Bromofluorobenzene	10	8.8	88 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

EPA Method 8260B (Continued) Volatile Organics by GC/MS

Field ID: GN-040255 SD-4
Project: Work Item 4A + 4B
Client: Otis 102nd Fighter Wing/Environmental Management

Laboratory ID: 76188-03
Sampled: 08-31-04 10:30
Received: 08-31-04 15:50
Analyzed: 09-12-04 02:59
Analyst: EMC

Matrix: Aqueous
Container: 40 mL VOA Vial
Preservation: HCl/Cool

QC Batch ID: VM4-2988-W
Instrument ID: MS-4 HP 6890
Sample Volume: 25 mL
Dilution Factor: 1

Page: 2 of 2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
100-42-5	Styrene	BRL		ug/L	0.5
75-25-2	Bromoform	BRL		ug/L	0.5
98-82-8	Isopropylbenzene	BRL		ug/L	0.5
108-86-1	Bromobenzene	BRL		ug/L	0.5
79-34-5	1,1,2,2-Tetrachloroethane	BRL		ug/L	0.5
96-18-4	1,2,3-Trichloropropane	BRL		ug/L	0.5
103-65-1	n-Propylbenzene	BRL		ug/L	0.5
95-49-8	2-Chlorotoluene	BRL		ug/L	0.5
108-67-8	1,3,5-Trimethylbenzene	BRL		ug/L	0.5
106-43-4	4-Chlorotoluene	BRL		ug/L	0.5
98-06-6	tert-Butylbenzene	BRL		ug/L	0.5
95-63-6	1,2,4-Trimethylbenzene	BRL		ug/L	0.5
135-98-8	sec-Butylbenzene	BRL		ug/L	0.5
541-73-1	1,3-Dichlorobenzene	BRL		ug/L	0.5
99-87-6	4-Isopropyltoluene	BRL		ug/L	0.5
106-46-7	1,4-Dichlorobenzene	BRL		ug/L	0.5
95-50-1	1,2-Dichlorobenzene	BRL		ug/L	0.5
104-51-8	n-Butylbenzene	BRL		ug/L	0.5
96-12-8	1,2-Dibromo-3-chloropropane	BRL		ug/L	0.5
120-82-1	1,2,4-Trichlorobenzene	BRL		ug/L	0.5
87-68-3	Hexachlorobutadiene	BRL		ug/L	0.5
91-20-3	Naphthalene	BRL		ug/L	0.5
87-61-6	1,2,3-Trichlorobenzene	BRL		ug/L	0.5
75-65-0	tert-Butyl Alcohol (TBA)	BRL		ug/L	20
108-20-3	Di-isopropyl Ether (DIPE)	BRL		ug/L	0.5
637-92-3	Ethyl tert-butyl Ether (ETBE)	BRL		ug/L	0.5
994-05-8	tert-Amyl Methyl Ether (TAME)	BRL		ug/L	0.5

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
Dibromofluoromethane	10	8.5	85 %	70 - 130 %
1,2-Dichloroethane-d ₄	10	8.8	88 %	70 - 130 %
Toluene-d ₈	10	8.8	88 %	70 - 130 %
4-Bromofluorobenzene	10	8.6	86 %	70 - 130 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample preparation performed by EPA Method 5030B.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8015B (Modified) Diesel Range Organics by GC/FID

Field ID: GN-040254 SD-3
Project: Work Item 4A + 4B
Client: Otis 102nd Fighter Wing/Environmental Management

Matrix: Aqueous
Container: 1 L Amber Glass
Preservation: H2SO4/Cool

Laboratory ID: 76188-08
Sampled: 08-31-04 10:15
Received: 08-31-04 15:50
Extracted: 09-07-04 16:00
Analyzed: 09-15-04 11:15
Analyst: MM

QC Batch ID: HF-1510-F
Instrument ID: GC-12 Agilent 6890
Sample Volume: 900 mL
Final Volume: 1 mL
Dilution Factor: 1

Analyte	Concentration	Notes	Units	Reporting Limit
Diesel Range Organics	BRL		mg/L	0.2

QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	0.044	0.037	83 %	60 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Diesel range organics quantified in the range n-C 10 through n-C 28. Method modified to quantify results on the basis of a series of aromatic and aliphatic hydrocarbons, using 5-alpha-androstane as an internal standard.
Sample extraction performed by EPA 3510C.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

EPA Method 8151A Chlorinated Herbicides by GC/ECD

Field ID: GN-040253 SD-1
Project: Work Item 4A + 4B
Client: Otis 102nd Fighter Wing/Environmental Management

Laboratory ID: 76188-12
Sampled: 08-31-04 10:00
Received: 08-31-04 15:50
Extracted: 09-07-04 08:00
Analyzed: 09-13-04 17:49
Analyst: JJT

Matrix: Aqueous
Container: 1 L Amber Glass
Preservation: Cool

QC Batch ID: HB-0270-F
Instrument ID: GC-11 HP 6890
Sample Weight: 900 mL
Final Volume: 1 mL
Dilution Factor: 1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-99-0	Dalapon	BRL		ug/L	5.6
93-65-2	MCPP	BRL		ug/L	220
1918-00-9	Dicamba	BRL		ug/L	0.22
120-36-5	Dichloroprop	BRL		ug/L	2.2
94-74-6	MCPA	BRL		ug/L	220
94-75-7	2,4-D	BRL		ug/L	2.2
87-86-5	Pentachlorophenol	BRL		ug/L	0.44
93-72-1	2,4,5-TP (Silvex)	BRL		ug/L	0.22
93-76-5	2,4,5-T	BRL		ug/L	0.22
88-85-7	Dinoseb	BRL		ug/L	1.1
94-82-6	2,4-DB	BRL		ug/L	2.2

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
First Column	2,4-Dichlorophenylacetic acid	4.4	2.9	66 %	30 - 150 %
Second Column	2,4-Dichlorophenylacetic acid	4.4	3.5	79 %	30 - 150 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3510C.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

* Confirmatory column quantification.

1C Concentration reported from first column.

2C Concentration reported from second column.

GROUNDWATER ANALYTICAL

EPA Method 8151A Chlorinated Herbicides by GC/ECD

Field ID: GN-040255 SD-4
Project: Work Item 4A + 4B
Client: Otis 102nd Fighter Wing/Environmental Management

Laboratory ID: 76188-10
Sampled: 08-31-04 10:30
Received: 08-31-04 15:50
Extracted: 09-07-04 08:00
Analyzed: 09-13-04 16:41
Analyst: JJT

Matrix: Aqueous
Container: 1 L Amber Glass
Preservation: Cool

QC Batch ID: HB-0270-F
Instrument ID: GC-11 HP 6890
Sample Weight: 900 mL
Final Volume: 1 mL
Dilution Factor: 1

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-99-0	Dalapon	BRL		ug/L	5.6
93-65-2	MCPD	BRL		ug/L	220
1918-00-9	Dicamba	BRL		ug/L	0.22
120-36-5	Dichloroprop	BRL		ug/L	2.2
94-74-6	MCPA	BRL		ug/L	220
94-75-7	2,4-D	BRL		ug/L	2.2
87-86-5	Pentachlorophenol	BRL		ug/L	0.22
93-72-1	2,4,5-TP (Silvex)	BRL		ug/L	0.22
93-76-5	2,4,5-T	BRL		ug/L	0.22
88-85-7	Dinoseb	BRL		ug/L	1.1
94-82-6	2,4-DB	BRL		ug/L	2.2

QC Surrogate Compound		Spiked	Measured	Recovery	QC Limits
First Column	2,4-Dichlorophenylacetic acid	4.4	2.3	52 %	30 - 150 %
Second Column	2,4-Dichlorophenylacetic acid	4.4	4.2	94 %	30 - 150 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3510C.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

GROUNDWATER ANALYTICAL

Microbiology

Field ID: GN-040254 SD-3
Project: Work Item 4A + 4B
Client: Otis 102nd Fighter Wing/Environmental Management

Matrix: Aqueous
Container: 120 mL Sterile Plastic
Preservation: Cool

Laboratory ID: 76188-23
Sampled: 08-31-04 10:15
Received: 08-31-04 15:50

Analyte	Result	Units	DF	Volume	Analyzed	QC Batch	Method	Analyst
Coliform, Fecal	6,700	Colonies/100mL	1	5 mL	08-31-04 18:45	FC-1051-W	SM 9222 D	VT

Method Reference: Standard Methods for the Examination of Water and Wastewater, APHA, Twentieth Edition (1998), and Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: DF Dilution Factor.

GROUNDWATER ANALYTICAL

Inorganic Chemistry

Field ID: GN-040253 SD-1

Project: Work Item 4A + 4B

Client: Otis 102nd Fighter Wing/Environmental Management

Matrix: Aqueous

Received: 08-31-04 15:50

Lab ID: 76188-13

Sampled: 08-31-04 10:00

Container: 1 L Plastic

Preservation: Cool

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Biochemical Oxygen Demand	3	mg/L	2	3	100 mL	09-01-04 18:34	BOD-1794-W	SM 5210 B	4	DDW

Lab ID: 76188-18

Sampled: 08-31-04 10:00

Container: 250 mL Plastic

Preservation: Cool

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Solids, Total Suspended	10	mg/L	10	1	100 mL	09-07-04 10:08	TSS-0993-W	SM 2540 B	5	DB
pH	6.4	pH	NA	1	50 mL	08-31-04 20:54	PH-1743-W	EPA 9040B	3	DDW

Lab ID: 76188-19

Sampled: 08-31-04 10:00

Container: 500 mL Plastic

Preservation: H2SO4/Cool

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Nitrate (as Nitrogen)	0.09	mg/L	0.02	1	5 mL	08-31-04 21:06	NI-2290-W	SM 4500-NO3 F	1	LJD
Nitrite (as Nitrogen)	BRL	mg/L	0.02	1	5 mL	08-31-04 21:06	NI-2290-W	SM 4500-NO3 F	1	LJD
Ammonia (as Nitrogen)	0.6	mg/L	0.2	1	50 mL	09-03-04 21:38	AM-1376-W	Lachat 10-107-06-1-B (SM 4500-NH3 B, C)	1	LJD
Chemical Oxygen Demand	BRL	mg/L	20	1	2.5 mL	09-02-04 00:00	COD-0498-W	SM 5220 D	2	MW
Nitrate plus Nitrite (as Nitrogen)	0.09	mg/L	0.02	1	5 mL	08-31-04 21:06	NI-2290-W	SM 4500-NO3 F	1	N/A
Phosphorus, Total	BRL	mg/L	0.5	1	20 mL	09-08-04 15:29	TP-1423-W	Lachat 10-115-01-1-C (EPA 365.4)	1	JK

Method Reference: Methods for Chemical Analysis of Water and Wastes, US EPA, EPA-600/4-790-020 (Revised 1983), and Methods for the Determination of Inorganic Substances in Environmental Samples, US EPA, EPA/600/R-93/100 (1993), and Standard Methods for the Examination of Water and Wastewater, APHA, Twentieth Edition (1998), and Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

RL Reporting Limit.

DF Dilution Factor.

1 Instrument ID: Lachat 8000 Autoanalyzer

2 Instrument ID: Milton Roy Spectronic 401

3 Instrument ID: Accumet AR50

4 Instrument ID: YSI 5100

5 Instrument ID: Mettler AT 200 Balance

Inorganic Chemistry

Field ID: GN-040255 SD-4

Project: Work Item 4A + 4B

Client: Otis 102nd Fighter Wing/Environmental Management

Matrix: Aqueous

Received: 08-31-04 15:50

Lab ID: 76188-15

Sampled: 08-31-04 10:30

Container: 1 L Plastic

Preservation: Cool

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Biochemical Oxygen Demand	BRL	mg/L	2	3	100 mL	09-01-04 18:41	BOD-1794-W	SM 5210 B	4	DDW

Lab ID: 76188-16

Sampled: 08-31-04 10:30

Container: 250 mL Plastic

Preservation: Cool

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Solids, Total Suspended	10	mg/L	10	1	100 mL	09-07-04 10:08	TSS-0993-W	SM 2540 B	5	DB
pH	6.3	pH	NA	1	50 mL	08-31-04 21:07	PH-1743-W	EPA 9040B	3	DDW

Lab ID: 76188-21

Sampled: 08-31-04 10:30

Container: 500 mL Plastic

Preservation: H2SO4/Cool

Analyte	Result	Units	RL	DF	Volume	Analyzed	QC Batch	Method	Inst	Analyst
Nitrate (as Nitrogen)	0.08	mg/L	0.02	1	5 mL	08-31-04 21:08	NI-2290-W	SM 4500-NO3 F	1	LJD
Nitrite (as Nitrogen)	BRL	mg/L	0.02	1	5 mL	08-31-04 21:08	NI-2290-W	SM 4500-NO3 F	1	LJD
Ammonia (as Nitrogen)	0.2	mg/L	0.2	1	50 mL	09-03-04 21:40	AM-1376-W	Lachat 10-107-06-1-B (SM 4500-NH3 B, C)	1	LJD
Chemical Oxygen Demand	BRL	mg/L	20	1	2.5 mL	09-02-04 00:00	COD-0498-W	SM 5220 D	2	MW
Nitrate plus Nitrite (as Nitrogen)	0.08	mg/L	0.02	1	5 mL	08-31-04 21:08	NI-2290-W	SM 4500-NO3 F	1	N/A
Phosphorus, Total	BRL	mg/L	0.5	1	20 mL	09-08-04 15:33	TP-1423-W	Lachat 10-115-01-1-C (EPA 365.4)	1	JK

Method Reference: Methods for Chemical Analysis of Water and Wastes, US EPA, EPA-600/4-790-020 (Revised 1983), and Methods for the Determination of Inorganic Substances in Environmental Samples, US EPA, EPA/600/R-93/100 (1993), and Standard Methods for the Examination of Water and Wastewater, APHA, Twentieth Edition (1998), and Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

RL Reporting Limit.

DF Dilution Factor.

1 Instrument ID: Lachat 8000 Autoanalyzer

2 Instrument ID: Milton Roy Spectronic 401

3 Instrument ID: Accumet AR50

4 Instrument ID: YSI 5100

5 Instrument ID: Mettler AT 200 Balance

GROUNDWATER ANALYTICAL

Trace Metals

Field ID: GN-040254 SD-3
Project: Work Item 4A + 4B
Client: Otis 102nd Fighter Wing/Environmental Management

Matrix: Aqueous
Container: 250 mL Plastic
Preservation: HNO₃ / Cool
Preserved: 08-31-04 10:15

Laboratory ID: 76188-26
Sampled: 08-31-04 10:15
Received: 08-31-04 15:50

Analysis Method	QC Batch ID	Prep Method	Prepared	Sample Volume	Instrument ID	Analyst
EPA 6010B ¹	MB-1258-W	EPA 3010A	09-02-04 09:30	50 mL	ICP-2 PE 3300	MWR
EPA 7470A ²	MP-1561-W	EPA 7470A	09-03-04 10:30	25 mL	CVAA-1 PE FIMS	MWR

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7440-38-2	Arsenic, Total		BRL	mg/L	0.01	1	09-07-04 17:31	EPA 6010B ¹
7440-39-3	Barium, Total		BRL	mg/L	0.2	1	09-03-04 17:30	EPA 6010B ¹
7440-43-9	Cadmium, Total		BRL	mg/L	0.005	1	09-03-04 17:30	EPA 6010B ¹
7440-47-3	Chromium, Total		BRL	mg/L	0.01	1	09-03-04 17:30	EPA 6010B ¹
7440-50-8	Copper, Total		BRL	mg/L	0.025	1	09-03-04 17:30	EPA 6010B ¹
7439-92-1	Lead, Total		BRL	mg/L	0.005	1	09-09-04 11:49	EPA 6010B ¹
7439-96-5	Manganese, Total		BRL	mg/L	0.05	1	09-03-04 17:30	EPA 6010B ¹
7439-97-6	Mercury, Total		BRL	mg/L	0.0002	1	09-03-04 13:34	EPA 7470A ²
7440-02-0	Nickel, Total		BRL	mg/L	0.04	1	09-07-04 17:31	EPA 6010B ¹
7782-49-2	Selenium, Total		BRL	mg/L	0.05	1	09-03-04 17:30	EPA 6010B ¹
7440-22-4	Silver, Total		BRL	mg/L	0.007	1	09-03-04 17:30	EPA 6010B ¹
7440-66-6	Zinc, Total		BRL	mg/L	0.2	1	09-03-04 17:30	EPA 6010B ¹

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.
DF Dilution Factor.

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: Groundwater Analytical

Laboratory Job Number: L0409604

Address: P.O. Box 1200

Buzzards Bay, MA 02532

Date Received: 02-SEP-2004

Attn: Mr. Eric Jensen

Date Reported: 14-SEP-2004

Project Number:

Delivery Method: Client

Site: 76188 WORK ITEM 4A+4B

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0409604-01	GN-040255-SD-4	OTIS 102ND FIGHTER WING/ENVIRO
L0409604-02	GN-040254-SD-3	OTIS 102ND FIGHTER WING/ENVIRO
L0409604-03	GN-040253-SD-1	OTIS 102ND FIGHTER WING/ENVIRO

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
NARRATIVE REPORT

Laboratory Job Number: L0409604

Glycol

L0409604-01 through -03 have elevated limits of detection due to the 10x dilutions required by the elevated concentrations of non-target compounds in the sample.

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: L0409604-02
GN-040254-SD-3
Sample Matrix: WATER

Date Collected: 31-AUG-2004 10:15
Date Received : 02-SEP-2004
Date Reported : 14-SEP-2004

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 3-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP ANAL	ID
Glycol Organics by GC/FTD				12 E202	0909 21.55 RL	
Ethylene glycol	ND	mg/l	50.			

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

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

aboratory Job Number: L0409604

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Glycol Organics by GC/PID for sample(s) 01-03 (L0409604-01, WG180609)					
Ethylene glycol	ND	ND	mg/l	NC	

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

laboratory Job Number: L0409604

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-03 (WG180609-1)							
Glycol Organics by GC/FID				12 E202		0909 19:03	RL
Ethylene glycol	ND	mg/l	5.0				
Propylene glycol	ND	mg/l	5.0				

Project Name/Number:

[illegible]

228 MAIN ST. BUZZARDS BAY, MA 02532 • 508-759-4441

7918

6

Quality Control Report Laboratory Control Samples

Category: EPA Method 8260B
QC Batch ID: VM4-2988-WL
Matrix: Aqueous
Units: ug/L

LCS
Instrument ID: MS-4 HP 6890
Analyzed: 09-11-04 18:38
Analyst: EMC

LCSD
Instrument ID: MS-4 HP 6890
Analyzed: 09-11-04 19:28
Analyst: EMC

Page: 1 of 2

CAS Number	Analyte	LCS			LCS Duplicate			RPD	QC Limits	
		Spiked	Measured	Recovery	Spiked	Measured	Recovery		Spike	RPD
75-71-8	Dichlorodifluoromethane	10	10	101 %	10	12	117 %	15 %	70 - 130 %	25%
74-87-3	Chloromethane	10	9.1	91 %	10	9.8	98 %	7 %	70 - 130 %	25%
75-01-4	Vinyl Chloride	10	10	102 %	10	11	111 %	9 %	70 - 130 %	25%
74-83-9	Bromomethane	10	10	105 %	10	11	111 %	6 %	70 - 130 %	25%
75-00-3	Chloroethane	10	11	108 %	10	12	117 %	8 %	70 - 130 %	25%
75-69-4	Trichlorofluoromethane	10	12	117 %	10	13	128 %	9 %	70 - 130 %	25%
60-29-7	Diethyl Ether	20	22	110 %	20	22	112 %	3 %	70 - 130 %	25%
75-35-4	1,1-Dichloroethene	10	11	110 %	10	12	120 %	8 %	70 - 130 %	25%
76-13-1	1,1,2-Trichlorotrifluoroethane	20	23	113 %	20	25	125 %	10 %	70 - 130 %	25%
67-64-1	Acetone	20	18	91 %	20	18	90 %	1 %	70 - 130 %	25%
75-15-0	Carbon Disulfide	20	19	93 %	20	21	103 %	10 %	70 - 130 %	25%
75-09-2	Methylene Chloride	10	10	104 %	10	11	109 %	5 %	70 - 130 %	25%
156-60-5	trans- 1,2-Dichloroethene	10	10	101 %	10	11	111 %	9 %	70 - 130 %	25%
1634-04-4	Methyl tert- butyl Ether (MTBE)	10	11	113 %	10	12	116 %	3 %	70 - 130 %	25%
75-34-3	1,1-Dichloroethane	10	9.8	98 %	10	11	105 %	8 %	70 - 130 %	25%
594-20-7	2,2-Dichloropropane	10	11	111 %	10	12	116 %	4 %	70 - 130 %	25%
156-59-2	cis- 1,2-Dichloroethene	10	11	110 %	10	11	110 %	0 %	70 - 130 %	25%
78-93-3	2-Butanone (MEK)	20	23	117 %	20	21	106 %	9 %	70 - 130 %	25%
74-97-5	Bromochloromethane	10	12	117 %	10	11	113 %	4 %	70 - 130 %	25%
109-99-9	Tetrahydrofuran (THF)	20	20	100 %	20	21	107 %	7 %	70 - 130 %	25%
67-66-3	Chloroform	10	11	106 %	10	11	107 %	0 %	70 - 130 %	25%
71-55-6	1,1,1-Trichloroethane	10	10	104 %	10	11	110 %	6 %	70 - 130 %	25%
56-23-5	Carbon Tetrachloride	10	11	107 %	10	11	111 %	4 %	70 - 130 %	25%
563-58-6	1,1-Dichloropropene	10	11	106 %	10	11	113 %	6 %	70 - 130 %	25%
71-43-2	Benzene	10	10	102 %	10	11	109 %	6 %	70 - 130 %	25%
107-06-2	1,2-Dichloroethane	10	12	117 %	10	12	118 %	1 %	70 - 130 %	25%
79-01-6	Trichloroethene	10	10	105 %	10	11	110 %	5 %	70 - 130 %	25%
78-87-5	1,2-Dichloropropane	10	11	110 %	10	11	114 %	4 %	70 - 130 %	25%
74-95-3	Dibromomethane	10	12	119 %	10	12	119 %	0 %	70 - 130 %	25%
75-27-4	Bromodichloromethane	10	11	114 %	10	11	112 %	2 %	70 - 130 %	25%
123-91-1	1,4-Dioxane	200	150	75 %	200	140	72 %	4 %	70 - 130 %	25%
10061-01-5	cis- 1,3-Dichloropropene	10	11	110 %	10	11	109 %	0 %	70 - 130 %	25%
108-10-1	4-Methyl-2-Pentanone (MIBK)	20	20	102 %	20	20	100 %	2 %	70 - 130 %	25%
108-88-3	Toluene	10	11	110 %	10	12	115 %	4 %	70 - 130 %	25%
10061-02-6	trans- 1,3-Dichloropropene	10	11	106 %	10	11	105 %	1 %	70 - 130 %	25%
79-00-5	1,1,2-Trichloroethane	10	12	120 %	10	12	119 %	1 %	70 - 130 %	25%
127-18-4	Tetrachloroethene	10	11	115 %	10	12	119 %	3 %	70 - 130 %	25%
142-28-9	1,3-Dichloropropane	10	12	121 %	10	12	119 %	2 %	70 - 130 %	25%
591-78-6	2-Hexanone	20	20	102 %	20	20	101 %	1 %	70 - 130 %	25%
124-48-1	Dibromochloromethane	10	12	124 %	10	12	121 %	3 %	70 - 130 %	25%
106-93-4	1,2-Dibromoethane (EDB)	10	12	123 %	10	12	121 %	1 %	70 - 130 %	25%
108-90-7	Chlorobenzene	10	11	110 %	10	11	114 %	4 %	70 - 130 %	25%
630-20-6	1,1,1,2-Tetrachloroethane	10	11	111 %	10	11	114 %	2 %	70 - 130 %	25%
100-41-4	Ethylbenzene	10	11	112 %	10	12	117 %	5 %	70 - 130 %	25%
108-38-3/106-42-3	meta- Xylene and para- Xylene	20	23	113 %	20	23	117 %	4 %	70 - 130 %	25%
95-47-6	ortho- Xylene	10	11	110 %	10	11	114 %	4 %	70 - 130 %	25%
100-42-5	Styrene	10	12	117 %	10	12	120 %	2 %	70 - 130 %	25%
75-25-2	Bromoform	10	13	128 %	10	12	120 %	6 %	70 - 130 %	25%
98-82-8	Isopropylbenzene	10	11	109 %	10	12	115 %	5 %	70 - 130 %	25%

Quality Control Report Method Blank

Category: EPA Method 8260B
QC Batch ID: VM4-2988-WB
Matrix: Aqueous

Instrument ID: MS-4 HP 6890
Analyzed: 09-11-04 20:08
Analyst: EMC

Page: 1 of 2

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL		ug/L	0.5
74-87-3	Chloromethane	BRL		ug/L	0.5
75-01-4	Vinyl Chloride	BRL		ug/L	0.5
74-83-9	Bromomethane	BRL		ug/L	0.5
75-00-3	Chloroethane	BRL		ug/L	0.5
75-69-4	Trichlorofluoromethane	BRL		ug/L	0.5
60-29-7	Diethyl Ether	BRL		ug/L	2
75-35-4	1,1-Dichloroethene	BRL		ug/L	0.5
76-13-1	1,1,2-Trichlorotrifluoroethane	BRL		ug/L	5
67-64-1	Acetone	BRL		ug/L	10
75-15-0	Carbon Disulfide	BRL		ug/L	5
75-09-2	Methylene Chloride	BRL		ug/L	2.5
156-60-5	<i>trans</i> -1,2-Dichloroethene	BRL		ug/L	0.5
1634-04-4	Methyl <i>tert</i> -butyl Ether (MTBE)	BRL		ug/L	0.5
75-34-3	1,1-Dichloroethane	BRL		ug/L	0.5
594-20-7	2,2-Dichloropropane	BRL		ug/L	0.5
156-59-2	<i>cis</i> -1,2-Dichloroethene	BRL		ug/L	0.5
78-93-3	2-Butanone (MEK)	BRL		ug/L	5
74-97-5	Bromochloromethane	BRL		ug/L	0.5
109-99-9	Tetrahydrofuran (THF)	BRL		ug/L	5
67-66-3	Chloroform	BRL		ug/L	0.5
71-55-6	1,1,1-Trichloroethane	BRL		ug/L	0.5
56-23-5	Carbon Tetrachloride	BRL		ug/L	0.5
563-58-6	1,1-Dichloropropene	BRL		ug/L	0.5
71-43-2	Benzene	BRL		ug/L	0.5
107-06-2	1,2-Dichloroethane	BRL		ug/L	0.5
79-01-6	Trichloroethene	BRL		ug/L	0.5
78-87-5	1,2-Dichloropropane	BRL		ug/L	0.5
74-95-3	Dibromomethane	BRL		ug/L	0.5
75-27-4	Bromodichloromethane	BRL		ug/L	0.5
123-91-1	1,4-Dioxane	BRL		ug/L	500
10061-01-5	<i>cis</i> -1,3-Dichloropropene	BRL		ug/L	0.5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL		ug/L	5
108-88-3	Toluene	BRL		ug/L	0.5
10061-02-6	<i>trans</i> -1,3-Dichloropropene	BRL		ug/L	0.5
79-00-5	1,1,2-Trichloroethane	BRL		ug/L	0.5
127-18-4	Tetrachloroethene	BRL		ug/L	0.5
142-28-9	1,3-Dichloropropane	BRL		ug/L	0.5
591-78-6	2-Hexanone	BRL		ug/L	5
124-48-1	Dibromochloromethane	BRL		ug/L	0.5
106-93-4	1,2-Dibromoethane (EDB)	BRL		ug/L	0.5
108-90-7	Chlorobenzene	BRL		ug/L	0.5
630-20-6	1,1,1,2-Tetrachloroethane	BRL		ug/L	0.5
100-41-4	Ethylbenzene	BRL		ug/L	0.5
108-38-3/106-42-3	<i>meta</i> -Xylene and <i>para</i> -Xylene	BRL		ug/L	0.5
95-47-6	<i>ortho</i> -Xylene	BRL		ug/L	0.5
100-42-5	Styrene	BRL		ug/L	0.5
75-25-2	Bromoform	BRL		ug/L	0.5
98-82-8	Isopropylbenzene	BRL		ug/L	0.5

GROUNDWATER ANALYTICAL

Quality Control Report Laboratory Control Samples

Category: **Metals**
Matrix: **Aqueous**
Units: **mg/L**

Sample Type	Method	QC Batch ID	Prep Method	Prepared	Analyzed	Instrument ID	Analyst
LCS	EPA 6010B	MB-1258-WL	EPA 3010A	09-02-04 09:30	09-07-04 16:01	ICP-2 PE 3300	MWR
LCS	EPA 7470A	MP-1561-WL	EPA 7470A	09-03-04 10:30	09-03-04 13:20	CVAA-1 PE FIMS	MWR
LCSD	EPA 6010B	MB-1258-WL	EPA 3010A	09-02-04 09:30	09-07-04 16:05	ICP-2 PE 3300	MWR
LCSD	EPA 7470A	MP-1561-WL	EPA 7470A	09-03-04 10:30	09-03-04 13:22	CVAA-1 PE FIMS	MWR

CAS Number	Analyte	LCS			LCS Duplicate			RPD	QC Limits		Method
		Spiked	Measured	Recovery	Spiked	Measured	Recovery		LCS	RPD	
7440-38-2	Arsenic	1.0	1.1	113%	1.0	1.1	112%	0 %	80-120 %	20 %	EPA 6010B
7440-39-3	Barium	5.0	5.8	115%	5.0	5.6	113%	1 %	80-120 %	20 %	EPA 6010B
7440-43-9	Cadmium	1.0	1.1	110%	1.0	1.1	109%	0 %	80-120 %	20 %	EPA 6010B
7440-47-3	Chromium	1.0	1.1	113%	1.0	1.1	111%	1 %	80-120 %	20 %	EPA 6010B
7440-50-8	Copper	1.0	1.0	103%	1.0	1.0	99%	2 %	80-120 %	20 %	EPA 6010B
7439-92-1	Lead	1.0	1.1	110%	1.0	1.1	107%	1 %	80-120 %	20 %	EPA 6010B
7439-96-5	Manganese	1.0	1.1	112%	1.0	1.1	111%	0 %	80-120 %	20 %	EPA 6010B
7439-97-6	Mercury	0.0010	0.0010	101%	0.0010	0.0010	102%	0 %	80-120 %	20 %	EPA 7470A
7440-02-0	Nickel	1.0	1.1	110%	1.0	1.1	108%	1 %	80-120 %	20 %	EPA 6010B
7782-49-2	Selenium	1.0	1.1	112%	1.0	1.1	112%	0 %	80-120 %	20 %	EPA 6010B
7440-22-4	Silver	1.0	1.1	111%	1.0	1.1	107%	2 %	80-120 %	20 %	EPA 6010B
7440-66-6	Zinc	1.0	1.1	110%	1.0	1.1	107%	1 %	80-120 %	20 %	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

Quality Control Report Laboratory Control Samples

Category:	EPA 8151A	LCS	Instrument ID:	GC-11 HP 6890	LCS D	Instrument ID:	GC-11 HP 6890
QC Batch ID:	HB-0270-F	Extracted:	09-07-04 08:00	Extracted:	09-07-04 08:00		
Matrix:	Aqueous	Analyzed:	09-13-04 15:34	Analyzed:	09-13-04 16:07		
Units:	ug/L	Analyst:	JJT	Analyst:	JJT		

CAS Number	Analyte	LCS					LCS Duplicate								QC Limits	
		Spiked	Measured		Recovery		Spiked	Measured		Recovery		RPD				
			1st Col	2nd Col	1st Col	2nd Col		1st Col	2nd Col	1st Col	2nd Col	1st Col	2nd Col			
75-99-0	Dalapon	15	3.2	3.4	21% q	23% q	15	3.2	3.4	21% q	23% q	1 %	1 %	40 - 140%	30 %	
93-65-2	MCPP	600	460	530	77%	88%	600	530	540	89%	90%	14 %	3 %	40 - 140%	30 %	
1918-00-9	Dicamba	0.60	0.44	0.64	74%	106%	0.60	0.39	0.58	65%	97%	13 %	9 %	40 - 140%	30 %	
120-36-5	Dichloroprop	6.0	4.6	4.6	76%	77%	6.0	5.0	5.0	84%	83%	10 %	8 %	40 - 140%	30 %	
94-74-6	MCPA	600	370	660	61%	110%	600	350	660	58%	110%	4 %	0 %	40 - 140%	30 %	
94-75-7	2,4-D	6.0	2.5	2.5	42%	42%	6.0	2.4	2.6	40%	43%	4 %	3 %	40 - 140%	30 %	
87-86-5	Pentachlorophenol	0.60	0.55	0.57	92%	95%	0.60	0.60	0.61	101%	102%	9 %	7 %	40 - 140%	30 %	
93-72-1	2,4,5-TP (Silvex)	0.60	0.42	0.42	70%	69%	0.60	0.46	0.53	77%	88%	10 %	24 %	40 - 140%	30 %	
93-76-5	2,4,5-T	0.60	0.4	0.33	67%	56%	0.60	0.35	0.29	58%	49%	15 %	12 %	40 - 140%	30 %	
88-85-7	Dinoseb	3.0	1.1	0.95	36% q	32% q	3.0	0.74	0.73	25% q	24% q	38 % q	26 %	40 - 140%	30 %	
94-82-6	2,4-DB	6.0	2.6	2.4	43%	40%	6.0	3.0	2.8	50%	47%	17 %	17 %	40 - 140%	30 %	
QC Surrogate Compound		Surrogate Recovery												QC Limits		
2,4-Dichlorophenylacetic acid		4.0	3.4	4.6	85%	114%	4.0	3.6	4.8	90%	120%			30 - 150 %		

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Sample extraction performed by EPA Method 3510C.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.
q Recovery outside recommended limits.

Quality Control Report Laboratory Control Sample

Category: Inorganic Chemistry
Matrix: Aqueous

Analyte	Units	Spiked	Measured	Recovery	QC Limits	Analyzed	QC Batch	Method	Inst	Analyst
Solids, Total Suspended	mg/L	91	96	106 %	80 - 120 %	09-07-04 10:00	TSS-0993-W	SM 2540 D	5	DB
Phosphorus, Total	mg/L	2.5	2.6	103 %	80 - 120 %	09-08-04 14:00	TP-1423-W	Lachat 10-115-01-1-C (EPA 365.4)	1	JW
pH	pH	7.0	7.0	100 %	80 - 120 %	08-31-04 03:24	PH-1743-W	SM 4500-H + B	3	LD
Total Kjeldahl Nitrogen (TKN)	mg/L	5.0	4.9	98 %	80 - 120 %	09-08-04 14:00	TKN-1423-W	Lachat 10-107-06-2-D (EPA 351.2)	1	JW
Nitrite (as Nitrogen)	mg/L	0.50	0.51	102 %	80 - 120 %	08-31-04 20:50	NI-2290-W	Lachat 10-107-04-1-C (SM 4500-NO3 F)	1	LD
Nitrate (as Nitrogen)	mg/L	0.50	0.51	101 %	80 - 120 %	08-31-04 20:50	NI-2290-W	Lachat 10-107-04-1-C (SM 4500-NO3 F)	1	LD
Ammonia (as Nitrogen)	mg/L	5.0	4.1	82 %	80 - 120 %	09-03-04 16:00	AM-1376-W	Lachat 10-107-06-1-B (SM 4500-NH3 B, C)	1	LJD
Chemical Oxygen Demand	mg/L	200	200	102 %	80 - 120 %	09-02-04 12:00	COD-0498-W	SM 5220 D	2	MW
Biochemical Oxygen Demand	mg/L	200	180	89 %	80 - 120 %	09-01-04 00:00	BOD-1794-W	SM 5210 B	4	LD

Method Reference: Methods for Chemical Analysis of Water and Wastes, US EPA, EPA-600/4-790-020 (Revised 1983), and Methods for the Determination of Inorganic Substances in Environmental Samples, US EPA, EPA/600/R-93/100 (1993), and Standard Methods for the Examination of Water and Wastewater, APHA, Twentieth Edition (1998), and Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

- Instrument ID: Lachat 8000 Autoanalyzer
- Instrument ID: Milton Roy Spectronic 401
- Instrument ID: Accumet AR50
- Instrument ID: YSI 5100
- Instrument ID: Mettler AT 200 Balance

**Quality Control Report
Laboratory Control Sample**

Category: EPA 8015B Mod Diesel Range Organics
QC Batch ID: HF-1510-F
Matrix: Aqueous
Units: mg/L

Instrument ID: GC-12 Agilent 6890
Extracted: 09-07-04 16:00
Analyzed: 09-15-04 01:47
Analyst: MM

Analyte	Spiked	Measured	Recovery	QC Limits
Fuel Oil No. 2	2.0	1.7	85 %	60 - 140 %
QC Surrogate Compound	Spiked	Measured	Recovery	QC Limits
ortho-Terphenyl	0.040	0.038	95 %	60 - 140 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Diesel range organics quantified in the range n-C 10 through n-C 28. Method modified to quantify results on the basis of a series of aromatic and aliphatic hydrocarbons, using 5-alpha-androstane as an internal standard.
Sample extraction performed by EPA 3510C.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states. Copies of our current certificates may be obtained from our website:

<http://www.groundwateranalytical.com/qualifications.htm>

CONNECTICUT, Department of Health Services, PH-0586

Categories: Potable Water, Wastewater, Solid Waste and Soil
http://www.dph.state.ct.us/BRS/Environmental_Lab/OutStateLabList.htm

FLORIDA, Department of Health, Bureau of Laboratories, E87643

Categories: SDWA, CWA, RCRA/CERCLA
<http://www.floridadep.org/labs/qa/dohforms.htm>

MAINE, Department of Human Services, MA103

Categories: Drinking Water and Wastewater
<http://www.state.me.us/dhs/eng/water/Compliance.htm>

MASSACHUSETTS, Department of Environmental Protection, M-MA-103

Categories: Potable Water and Non-Potable Water
<http://www.state.ma.us/dep/bspt/wes/files/certlabs.pdf>

NEW HAMPSHIRE, Department of Environmental Services, 202703

Categories: Drinking Water and Wastewater
<http://www.des.state.nh.us/asp/NHELAP/labsview.asp>

NEW YORK, Department of Health, 11754

Categories: Potable Water, Non-Potable Water and Solid Waste
<http://www.wadsworth.org/labcert/elap/comm.html>

PENNSYLVANIA, Department of Environmental Protection, 68-665

Environmental Laboratory Registration (Non-drinking water and Non-wastewater)
<http://www.dep.state.pa.us/Labs/Registered/>

RHODE ISLAND, Department of Health, 54

Categories: Surface Water, Air, Wastewater, Potable Water, Sewage
http://www.healthri.org/labs/labsCT_MA.htm

U.S. Department of Agriculture, Soil Permit, S-53921

Foreign soil import permit

VERMONT, Department of Environmental Conservation, Water Supply Division

Category: Drinking Water
<http://www.vermontdrinkingwater.org/wsops/labtable.PDF>